

**TUGAS AKHIR**

**PERENCANAAN ULANG STRUKTUR  
GEDUNG FAKULTAS HUKUM  
UNIVERSITAS GADJAH MADA  
YOGYAKARTA**



*Disusun Oleh :*

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**JURUSAN TEKNIK SIPIL  
FAKULTAS TEKNIK SIPIL DAN PERENCANAAN  
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2003**

**LEMBAR PENGESAHAN  
TUGAS AKHIR**

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**Rizki Maulana**

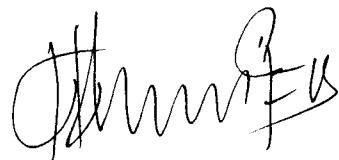
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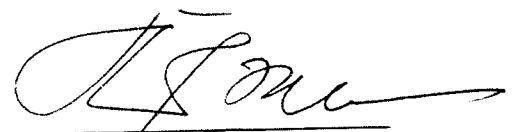
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**Tanggal : 30-12-2003**

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**Dosen Pembimbing II**



**Tanggal : 30-12-2003**



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w-one "si tukang insinyur"

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## DAFTAR ISI

|                           |      |
|---------------------------|------|
| <b>HALAMAN JUDUL</b>      | i    |
| <b>LEMBAR PENGESAHAN</b>  | ii   |
| <b>LEMBAR PERSEMBAHAN</b> | iii  |
| <b>KATA PENGANTAR</b>     | v    |
| <b>DAFTAR ISI</b>         | vii  |
| <b>DAFTAR TABEL</b>       | xii  |
| <b>DAFTAR GAMBAR</b>      | xiii |
| <b>DAFTAR LAMPIRAN</b>    | xv   |
| <b>DAFTAR NOTASI</b>      | xvi  |

## **BAB I PENDAHULUAN**

|                         |   |
|-------------------------|---|
| 1.1 Latar Belakang      | 1 |
| 1.2 Maksud dan Tujuan   | 2 |
| 1.3 Batasan Perencanaan | 2 |
| 1.4 Lokasi Proyek       | 4 |
| 1.5 Metode Perencanaan  | 5 |

## **BAB II TINJAUAN PUSTAKA**

|                                                       |    |
|-------------------------------------------------------|----|
| 2.1 Pendahuluan                                       | 8  |
| 2.2 Struktur Bawah ( <i>Sub Structure</i> )           | 8  |
| 2.2.1 Pondasi                                         | 9  |
| 2.2.2 <i>Sloof</i>                                    | 9  |
| 2.3 Struktur Atas Bangunan ( <i>Upper Structure</i> ) | 9  |
| 2.3.1 Atap                                            | 10 |

|                                    |    |
|------------------------------------|----|
| 2.3.2 Pelat                        | 10 |
| 1. Pelat satu arah                 | 10 |
| 2. Pelat dua arah                  | 11 |
| 2.3.3 Kolom                        | 11 |
| 2.3.4 Balok                        | 12 |
| 2.3.5 Portal                       | 12 |
| 1. Portal tak bergoyang            | 13 |
| 2. Portal bergoyang                | 13 |
| 2.3.6 Tangga                       | 13 |
| 2.4 Pembebanan                     | 14 |
| 2.4.1 Macam-macam Pembebanan       | 14 |
| 2.4.2 Kombinasi Pembebanan         | 15 |
| 2.4.3 Faktor Reduksi Kekuatan      | 16 |
| 2.5 Dasar Perencanaan              | 17 |
| <b>BAB III LANDASAN TEORI</b>      |    |
| 3.1 Perencanaan Atap               | 18 |
| 3.1.1 Perencanaan Gording          | 18 |
| 3.1.2 Perencanaan Sagrod           | 19 |
| 3.1.3 Perencanaan Tierod           | 20 |
| 3.1.4 Perencanaan Batang Tarik     | 20 |
| 3.1.5 Perencanaan Batang Desak     | 22 |
| 3.1.6 Perencanaan Sambungan        | 23 |
| 3.2 Perencanaan Beton Bertulang    | 24 |
| 3.2.1 Perencanaan Pelat Dua Arah   | 24 |
| 1. Menentukan tebal minimum pelat  | 24 |
| 2. Menentukan momen lentur terjadi | 25 |

|                                                                        |    |
|------------------------------------------------------------------------|----|
| 3. Menentukan tinggi manfaat ( $d$ ) arah $x$ dan $y$                  | 25 |
| 4. Menentukan luas tulangan ( $A_s$ ) arah $x$ dan $y$                 | 26 |
| 5. Kontrol kapasitas lentur pelat yang terjadi                         | 27 |
| 3.2.2 Perencanaan Balok                                                | 27 |
| 1. Perencanaan balok penampang persegi menahan lentur tulangan sebelah | 29 |
| 2 Perencanaan balok penampang persegi menahan lentur tulangan rangkap  | 30 |
| 3 Perencanaan geser balok                                              | 33 |
| 4 Perencanaan geser dan torsi balok                                    | 35 |
| 3.4.1 Perencanaan Kolom Tunggal                                        | 39 |
| 1 Perencanaan kolom pendek                                             | 39 |
| 2 Perencanaan kolom langsing                                           | 43 |
| 3.3 Perencanaan Beban Gempa                                            | 46 |
| 3.4 Perencanaan Struktur Portal Dengan Daktilitas Penuh                | 48 |
| 3.4.1 Perencanaan balok portal terhadap beban lentur                   | 48 |
| 3.4.2 Perencanaan balok portal terhadap beban geser                    | 50 |
| 3.4.3 Perencanaan kolom portal terhadap beban lentur dan aksial        | 52 |
| 3.4.4 Perencanaan kolom portal terhadap beban geser                    | 54 |
| 3.5 Perencanaan Panel Pertemuan Balok Kolom                            | 57 |
| 3.6 Perencanaan Pondasi                                                | 61 |
| 3.6.1 Perencanaan pondasi telapak                                      | 61 |
| 3.7 Perencanaan Tangga                                                 | 67 |
| 3.7.1 Perencanaan dimensi tangga                                       | 67 |
| 3.7.2 Perencanaan tulangan tangga                                      | 68 |

## **BAB IV PERENCANAAN**

|       |                                                                                |     |
|-------|--------------------------------------------------------------------------------|-----|
| 4.1   | Perencanaan Atap                                                               | 69  |
| 4.1.1 | Perencanaan gording pada kuda - kuda 1                                         | 69  |
| 4.1.2 | Perencanaan sagrod dan tierod                                                  | 74  |
| 4.1.3 | Pembebanan kuda - kuda                                                         | 75  |
| 4.1.4 | Perencanaan dimensi batang                                                     | 78  |
| 4.1.5 | Perencanaan pelat kuda - kuda                                                  | 81  |
| 4.1.6 | Perencanaan dukungan arah lateral                                              | 82  |
| 4.1.7 | Perencanaan sambungan                                                          | 83  |
| 4.2   | Perencanaan Pelat Lantai dan Pelat Talang                                      | 86  |
| 4.2.1 | Mutu bahan                                                                     | 86  |
| 4.2.2 | Pembebanan pelat lantai                                                        | 86  |
| 4.2.3 | Perencanaan pelat lantai                                                       | 87  |
| 4.2.4 | Pembebanan pelat talang                                                        | 94  |
| 4.2.5 | Perencanaan pelat talang                                                       | 95  |
| 4.3   | Pembebanan balok Induk dan Anak                                                | 103 |
| 4.4   | Perencanaan Beban Gempa                                                        | 117 |
| 4.4.1 | Berat bangunan total                                                           | 117 |
| 4.4.2 | Waktu getar bangunan                                                           | 122 |
| 4.4.3 | Koefisien gempa dasar (C)                                                      | 122 |
| 4.4.4 | Gaya geser horisontal total akibat gempa                                       | 123 |
| 4.4.5 | Distribusi gaya geser horisontal total akibat gempa ke sepanjang tinggi gedung | 123 |
| 4.5   | Perencanaan Tangga                                                             | 125 |
| 4.4.1 | Perencanaan tangga I                                                           | 125 |
| 4.4.1 | Perencanaan tangga II                                                          | 136 |



|                                    |                                                                        |     |
|------------------------------------|------------------------------------------------------------------------|-----|
| 4.6                                | Perencanaan Balok                                                      | 145 |
| 4.6.1                              | Perencanaan balok penampang persegi menahan<br>lentur tulangan sebelah | 145 |
| 4.6.2                              | Perencanaan tulangan torsi                                             | 152 |
| 4.7                                | Perencanaan Kolom                                                      | 154 |
| 4.8                                | Pertemuan Balok Kolom                                                  | 169 |
| 4.9                                | Perencanaan Pondasi                                                    | 168 |
| 4.9.1                              | Perencanaan dimensi pondasi telapak (P1)                               | 174 |
| 4.9.2                              | Perencanaan geser satu arah                                            | 176 |
| 4.9.3                              | Perencanaan geser dua arah                                             | 179 |
| 4.9.4                              | Kuat tumpuan pondasi                                                   | 181 |
| 4.9.2                              | Perencanaan tulangan lentur telapak pondasi                            | 182 |
| <b>BAB V PEMBAHASAN</b>            |                                                                        |     |
| 5.1                                | Tinjauan Umum                                                          | 185 |
| 5.2                                | Atap                                                                   | 186 |
| 5.3                                | Pelat                                                                  | 186 |
| 5.4                                | Tangga                                                                 | 186 |
| 5.5                                | Balok                                                                  | 187 |
| 5.6                                | Kolom                                                                  | 187 |
| 5.7                                | Pondasi                                                                | 187 |
| <b>BAB VI KESIMPULAN DAN SARAN</b> |                                                                        |     |
| 6.1                                | Kesimpulan                                                             | 190 |
| 6.2                                | Saran                                                                  | 191 |
| <b>DAFTAR PUSTAKA</b>              |                                                                        |     |
| <b>LAMPIRAN</b>                    |                                                                        |     |

## DAFTAR TABEL

|           |                                                           |     |
|-----------|-----------------------------------------------------------|-----|
| Tabel 4.1 | Panjang rangka batang kuda-kuda                           | 70  |
| Tabel 4.2 | Profil dan berat profil terpakai kuda-kuda KK 1           | 75  |
| Tabel 4.3 | Jumlah baut terpakai pada setengah bentang kuda-kuda KK 1 | 85  |
| Tabel 4.4 | Distribusi gaya geser dasar horisontal total akibat gempa | 123 |
| Tabel 5.1 | Rekapitulasi tulangan balok anak terpasang                | 188 |
| Tabel 5.2 | Rekapitulasi tulangan balok induk terpasang               | 188 |
| Tabel 5.3 | Rekapitulasi tulangan kolom terpasang                     | 189 |

## DAFTAR GAMBAR

|             |                                                                |     |
|-------------|----------------------------------------------------------------|-----|
| Gambar 1.1  | Denah lokasi                                                   | 4   |
| Gambar 1.2  | Flow chart perhitungan rangka atap                             | 6   |
| Gambar 1.2  | Flow chart analisis portal                                     | 7   |
| Gambar 3.1  | Diagram interaksi $M_n - P_n$                                  | 46  |
| Gambar 3.2  | Koefisien gempa dasar C (3)                                    | 47  |
| Gambar 3.3  | Balok portal dengan sendi plastis pada kedua ujungnya          | 51  |
| Gambar 3.4  | Pertemuan balok kolom dengan sendi plastis pada ujung-ujungnya | 53  |
| Gambar 3.5  | Kolom dengan $M_u$ berdasarkan kapasitas sendi plastis balok   | 55  |
| Gambar 3.6  | Panel pertemuan balok dan kolom portal                         | 57  |
| Gambar 3.7  | Daerah geser satu (1) arah pada penampang pondasi              | 63  |
| Gambar 3.8  | Gaya geser dua (2) arah pada penampang pondasi                 | 64  |
| Gambar 3.9  | Tulangan lentur pondasi                                        | 65  |
| Gambar 3.10 | Dimensi tangga                                                 | 68  |
| Gambar 4.1  | Rencana rangka kuda-kuda KK 1                                  | 69  |
| Gambar 4.2  | Rencana rangka batang                                          | 70  |
| Gambar 4.3  | Pembebanan gording                                             | 71  |
| Gambar 4.4  | Arah pembebanan gording                                        | 71  |
| Gambar 4.5  | Pembebanan kuda-kuda                                           | 75  |
| Gambar 4.6  | Penampang profil terpakai kuda-kuda KK 1                       | 82  |
| Gambar 4.7  | Denah perencanaan tangga I                                     | 125 |
| Gambar 4.8  | Detail potongan balok induk pada tumpuan                       | 147 |
| Gambar 4.9  | Detail potongan balok induk pada lapangan                      | 106 |

|             |                                                     |     |
|-------------|-----------------------------------------------------|-----|
| Gambar 4.10 | Diagram segitiga tegangan geser                     | 151 |
| Gambar 4.11 | Diagram balok persegi tulangan sebelah pda tumpuan  | 153 |
| Gambar 4.12 | Diagram balok persegi tulangan sebelah pda lapangan | 153 |
| Gambar 4.14 | Grafik Mn-Pn kolom                                  | 164 |
| Gambar 4.15 | Penampang kolom dengan tulangan                     | 166 |
| Gambar 4.16 | Join balok kolom dalam                              | 169 |
| Gambar 4.17 | Rencana pondasi                                     | 174 |
| Gambar 4.18 | Pondasi dengan geser satu arah                      | 177 |
| Gambar 4.19 | Pondasi dengan geser dua arah                       | 180 |

## DAFTAR LAMPIRAN

|              |                                             |         |
|--------------|---------------------------------------------|---------|
| LAMPIRAN I   | Input dan Output Analisis Struktur SAP 2000 |         |
|              | 1. Analisis kuda-kuda 1                     |         |
|              | 2. Analisis portal                          |         |
|              | 3. Analisis tangga                          |         |
| LAMPIRAN II  | Data Tanah Gedung Fakultas Hukum UGM        |         |
| LAMPIRAN III | Tabel Perhitungan Struktur                  |         |
|              | 1. Pelat                                    | 1 - 11  |
|              | 2. Balok                                    | 12 - 32 |
|              | 3. Kolom                                    | 33 - 65 |
|              | 4. Pondasi                                  | 66 - 67 |
| LAMPIRAN IV  | Gambar Struktur Gedung Fakultas Hukum UGM   | 1 - 87  |

## DAFTAR NOTASI

### 1. Perencanaan atap

|                |                                                                                         |
|----------------|-----------------------------------------------------------------------------------------|
| $a$            | : Jumlah sagrod dalam satu bentang                                                      |
| $A$            | : Luas profil baja                                                                      |
| $A_g$          | : Luasan bruto profil                                                                   |
| $A_{netto}$    | : Luasan bersih profil                                                                  |
| $A_{effektif}$ | : Luasan netto efektif                                                                  |
| $B$            | : Lebar pelat kuda-kuda                                                                 |
| $bf$           | : Lebar sayap                                                                           |
| $b$            | : Lebar sayap                                                                           |
| $C_1$          | : Gaya angin tekan                                                                      |
| $C_2$          | : Gaya angin hisap                                                                      |
| $C_c$          | : Perbandingan kelangsingan yang menjadi batas antara tekuk elastis dan tekuk inelastic |
| $D$            | : Diameter                                                                              |
| $E$            | : Modulus elastisitas baja                                                              |
| $F_a$          | : Tegangan ijin pada luas bruto dalam kondisi beban bekerja                             |
| $f_a$          | : Tegangan tarik yang terjadi                                                           |
| $f_{bx}$       | : Tegangan lentur arah x                                                                |
| $f_{by}$       | : Tegangan lentur arah y                                                                |
| $f'_c$         | : Kuat desak beton                                                                      |
| $F_s$          | : Faktor keamanan                                                                       |

|             |                                         |
|-------------|-----------------------------------------|
| $F_u$       | : Kuat tarik baja                       |
| $f_y$       | : Tegangan leleh baja                   |
| $I_x$       | : Inersia arah X                        |
| $I_y$       | : Inersia arah Y                        |
| $K$         | : Koefisien kelangsingan                |
| $l$         | : Panjang batang yang ditinjau          |
| $L$         | : Panjang pelat kuda-kuda               |
| $L_b$       | : Jarak antar gording                   |
| $M_{\perp}$ | : Momen tegak lurus sumbu batang        |
| $M_{//}$    | : Momen sejajar sumbu batang            |
| $n$         | : Jumlah baut                           |
| $P$         | : Gaya tekan yang bekerja               |
| $P_{//}$    | : Gaya tekan sejajar sumbu batang       |
| $q_{\perp}$ | : Beban merata tegak lurus sumbu batang |
| $q_{//}$    | : Beban merata sejajar sumbu batang     |
| $r$         | : Jari-jari inersia = $i$               |
| $S_s$       | : Jarak beban sagrod                    |
| $S_x$       | : Modulus elastis tampang arah sumbu x  |
| $S_y$       | : Modulus elastis tampang arah sumbu y  |
| $T$         | : Gaya tarik yang bekerja               |
| $t_w$       | : Tebal badan profil                    |
| $t_p$       | : Tebal pelat                           |

|                  |                                     |
|------------------|-------------------------------------|
| $W$              | : Berat profil                      |
| $A$              | : Sudut kemiringan atap             |
| $\delta_{\perp}$ | : Lendutan tegak lurus sumbu batang |
| $\delta_{//}$    | : Lendutan sejajar sumbu batang     |
| $\delta$         | : Resultante lendutan               |
| $\mu$            | : Faktor reduksi luas netto         |

## 2. Perencanaan pelat lantai

|           |                                                                 |
|-----------|-----------------------------------------------------------------|
| $A_s$     | : Luas tulangan                                                 |
| $a$       | : Tinggi blok tegangan persegi ekuivalen                        |
| $b$       | : Panjang memanjang pelat                                       |
| $cl_x$    | : Koefisien momen lapangan arah x                               |
| $ct_x$    | : Koefisien momen tumpuan arah x                                |
| $cl_y$    | : Koefisien momen lapangan arah y                               |
| $ct_y$    | : Koefisien momen tumpuan arah y                                |
| $d$       | : Jarak dari sisi tekan terluar ke pusat tulangan tarik         |
| $f'_c$    | : Kuat desak beton                                              |
| $f_y$     | : Tegangan leleh baja                                           |
| $h$       | : Tinggi pelat                                                  |
| $l_y$     | : Panjang plat arah panjang                                     |
| $l_x$     | : Panjang plat arah pendek                                      |
| $m$       | : Perbandingan isi dari tulangan memanjang dari bentuk tertutup |
| $M_{ulx}$ | : Momen ultimit arah lapangan x                                 |
| $M_{utx}$ | : Momen ultimit arah tumpuan x                                  |



|           |                                            |
|-----------|--------------------------------------------|
| $M_{uly}$ | : Momen ultimit arah lapangan y            |
| $M_{uty}$ | : Momen ultimit arah tumpuan y             |
| $M_u$     | : Momen ultimit                            |
| $M_n$     | : Momen nominal                            |
| $q_D$     | : Beban mati merata                        |
| $q_L$     | : Beban hidup merata                       |
| $q_U$     | : Beban merata rencana                     |
| $R_n$     | : Koefisien tahanan untuk perencanaan kuat |
| $\rho$    | : Rasio tulangan                           |
| $\rho_b$  | : Rasio tulangan pada keadaan seimbang     |
| $\Phi$    | : Koefisien reduksi kekuatan               |

### 3. Perencanaan balok

|        |                                                         |
|--------|---------------------------------------------------------|
| $A_s$  | : Luas tulangan tarik                                   |
| $A_s'$ | : Luas tulangan desak                                   |
| $b$    | : Lebar balok                                           |
| $d$    | : Jarak dari sisi tekan terluar ke pusat tulangan tarik |
| $d'$   | : Jarak dari sisi tekan terluar ke pusat tulangan desak |
| $E$    | : Modulus elastisitas beton                             |
| $f'_c$ | : Kuat desak beton                                      |
| $f_y$  | : Tegangan leleh baja                                   |
| $h$    | : Tinggi balok                                          |
| $I$    | : Momen inersia balok                                   |
| $L$    | : Panjang penampang                                     |

|           |                                                                 |
|-----------|-----------------------------------------------------------------|
| $m$       | : Perbandingan isi dari tulangan memanjang dari bentuk tertutup |
| $M_n$     | : Momen nominal balok                                           |
| $M_u$     | : Momen ultimit balok                                           |
| $P_D$     | : Beban mati terpusat                                           |
| $P_L$     | : Beban hidup terpusat                                          |
| $P_u$     | : Beban ultimit terpusat                                        |
| $R_n$     | : Koefisien tahanan untuk perencanaan kuat                      |
| $V_u$     | : Gaya geser rencana                                            |
| $V_c$     | : Kuat geser beton                                              |
| $V_s$     | : Tegangan geser nominal yang disebabkan oleh tulangan          |
| $\beta_1$ | : Konstanta yang berdasarkan mutu beton                         |
| $\rho$    | : Rasio tulangan tarik                                          |
| $\rho'$   | : Rasio tulangan tekan                                          |
| $\Phi$    | : Faktor reduksi kekuatan                                       |

#### 4. Perencanaan kolom

|          |                                          |
|----------|------------------------------------------|
| $a$      | : Tinggi blok tegangan persegi ekuivalen |
| $A_s$    | : Luas tulangan tarik                    |
| $A_s'$   | : Luas tulangan desak                    |
| $A_{st}$ | : Luas tulangan total                    |
| $A_g$    | : Luas bruto penampang                   |
| $b$      | : Lebar penampang kolom                  |
| $C_c$    | : Gaya tekan pada beton                  |
| $C_s$    | : Gaya pada tulangan tekan               |

|          |                                                                 |
|----------|-----------------------------------------------------------------|
| $C_m$    | : Faktor untuk perbesaran momen                                 |
| $d$      | : Jarak dari sisi tekan terluar ke pusat tulangan tarik         |
| $d'$     | : Jarak dari sisi tekan terluar ke pusat tulangan desak         |
| $e$      | : Eksentrisitas aktual                                          |
| $eb$     | : Eksentrisitas pada keadaan seimbang                           |
| $E_c$    | : Modulus elastisitas beton                                     |
| $E_g$    | : Modulus elastisitas balok                                     |
| $E_s$    | : Modulus elastisitas baja tulangan                             |
| $f'_c$   | : Kuat desak beton                                              |
| $f_s$    | : Tegangan tulangan tarik                                       |
| $f'_s$   | : Tegangan tulangan tekan                                       |
| $f_y$    | : Tegangan leleh baja                                           |
| $h$      | : Tinggi penampang kolom                                        |
| $h_n$    | : Panjang bersih kolom                                          |
| $I_c$    | : Momen inersia kolom                                           |
| $I_{cr}$ | : Momen inersia balok                                           |
| $I_g$    | : Momen inersia dari penampang bruto balok                      |
| $k$      | : Faktor panjang efektif                                        |
| $L$      | : Panjang balok                                                 |
| $l_n$    | : Panjang bersih balok                                          |
| $m$      | : Perbandingan isi dari tulangan memanjang dari bentuk tertutup |
| $M_b$    | : Momen akibat beban tetap                                      |
| $M_{lb}$ | : Momen faktor terbesar pada ujung komponen akibat beban tetap  |

|            |                                                                                 |
|------------|---------------------------------------------------------------------------------|
| $M_{2b}$   | : Momen faktor terbesar pada ujung komponen akibat beban sementara              |
| $M_D$      | : Momen akibat beban mati                                                       |
| $M_E$      | : Momen akibat beban gempa                                                      |
| $M_L$      | : Momen akibat beban hidup                                                      |
| $M_n$      | : Momen nominal                                                                 |
| $M_{nx}$   | : Momen nominal yang bekerja pada sumbu x                                       |
| $M_{ny}$   | : Momen nominal yang bekerja pada sumbu y                                       |
| $M_s$      | : Momen akibat beban sementara                                                  |
| $M_u$      | : Momen ultimit kolom                                                           |
| $M_{u,kx}$ | : Momen ultimit kolom arah x                                                    |
| $M_{u,ky}$ | : Momen ultimit kolom arah y                                                    |
| $P_c$      | : Beban tekuk euler                                                             |
| $P_D$      | : Gaya tekan akibat beban mati                                                  |
| $P_E$      | : Gaya tekan akibat beban gempa                                                 |
| $P_L$      | : Gaya tekan akibat beban hidup                                                 |
| $P_n$      | : Gaya tekan nominal                                                            |
| $P_{u,k}$  | : Gaya tekan ultimit kolom                                                      |
| $r$        | : Jari-jari girasi penampang                                                    |
| $T_s$      | : Gaya pada tulangan tarik                                                      |
| $\delta_b$ | : Faktor pembesaran momen untuk rangka yang ditahan terhadap goyangan kesamping |

|            |                                                                                                                        |
|------------|------------------------------------------------------------------------------------------------------------------------|
| $\delta_s$ | : Faktor pembesaran momen untuk rangka yang tidak ditahan terhadap goyangan kesamping                                  |
| $\rho$     | : Rasio tulangan                                                                                                       |
| $\beta_1$  | : Faktor tinggi blok tekanan ekivalen                                                                                  |
| $\beta_d$  | : Nilai perbandingan momen beban mati rencana terhadap momen total rencana yang besarnya kurang atau sama dengan satu. |
| $\psi$     | : Faktor kekangan ujung                                                                                                |
| $\phi$     | : Faktor reduksi kekuatan                                                                                              |
| $\sum P_c$ | : Penjumlahan beban tekuk euler pada kolom satu tingkat/lantai                                                         |
| $\sum P_u$ | : Penjumlahan beban tekuk ultimit pada kolom satu tingkat/lantai                                                       |

## 5. Perencanaan gempa

|           |                                                         |
|-----------|---------------------------------------------------------|
| $A_g$     | : Luas bruto penampang                                  |
| $A_{jh}$  | : Luas tulangan total efektif tulangan geser horizontal |
| $A_{jv}$  | : Luas tulangan geser join vertikal                     |
| $A_{sc}$  | : Luas tulangan longitudinal tarik                      |
| $A_{sc}'$ | : Luas tulangan longitudinal tekan                      |
| $b_j$     | : Lebar efektif join                                    |
| $C$       | : Koefisien gempa dasar                                 |
| $C_{ki}$  | : Gaya tekan tulangan arah kiri                         |
| $F_x$     | : Beban horisontal tiap lantai pada arah x              |
| $f_y$     | : Tegangan leleh baja                                   |
| $f'_c$    | : Kuat desak beton                                      |
| $F_y$     | : Beban horisontal tiap lantai pada arah y              |

|             |                                                               |
|-------------|---------------------------------------------------------------|
| $h_x$       | : Tinggi gedung arah x                                        |
| $h_y$       | : Tinggi gedung arah y                                        |
| $h_k$       | : Tinggi kolom bruto                                          |
| $h'_k$      | : Tinggi kolom netto                                          |
| $h_c$       | : Tinggi total penampang kolom dalam arah geser yang ditinjau |
| $h_w$       | : Tinggi bangunan                                             |
| $I$         | : Faktor keutamaan struktur                                   |
| $K$         | : Faktor jenis struktur                                       |
| $L_b$       | : Panjang balok                                               |
| $L_{ki}$    | : Panjang balok bruto sebelah kiri kolom yang ditinjau        |
| $L_{ki}'$   | : Panjang balok netto sebelah kiri kolom yang ditinjau        |
| $L_{ka}$    | : Panjang balok bruto sebelah kanan balok yang ditinjau       |
| $L_{ka}'$   | : Panjang balok netto sebelah kanan balok yang ditinjau       |
| $L_n$       | : Bentang bersih balok                                        |
| $L_w$       | : Lebar bangunan                                              |
| $M_{D,b}$   | : Momen lentur balok portal akibat beban mati tak berfaktor   |
| $M_{D,k}$   | : Momen lentur kolom portal akibat beban mati tak berfaktor   |
| $M_{E,b}$   | : Momen lentur balok portal akibat beban gempa tak berfaktor  |
| $M_{E,k}$   | : Momen lentur kolom portal akibat beban gempa tak berfaktor  |
| $M_{L,b}$   | : Momen lentur balok portal akibat beban hidup tak berfaktor  |
| $M_{L,k}$   | : Momen lentur kolom portal akibat beban hidup tak berfaktor  |
| $M_{kap,b}$ | : Momen kapasitas balok                                       |
| $M_{nak,b}$ | : Kuat momen lentur nominal aktual balok                      |

|            |                                                                                          |
|------------|------------------------------------------------------------------------------------------|
| $M_{kap}$  | : Momen kapasitas di sendi plastis pada satu ujung atau bidang muka kolom.               |
| $M_{kap'}$ | : Momen kapasitas untuk ujung lainnya                                                    |
| $M_{u,b}$  | : Momen ultimit balok                                                                    |
| $M_{u,k}$  | : Momen ultimit kolom                                                                    |
| $n$        | : Jumlah lantai tingkat di atas kolom yang ditinjau                                      |
| $N_{E,k}$  | : Gaya akibat beban gempa pada pusat kolom                                               |
| $N_{g,k}$  | : Gaya aksial akibat beban gravitasi terfaktor pada pusat joint                          |
| $N_{u,k}$  | : Gaya aksial ultimit kolom                                                              |
| $P_{cs}$   | : Gaya permanen gaya prategang yang terletak di sepertiga bagian tengah tinggi kolom     |
| $q$        | : Beban terbagi merata                                                                   |
| $R_v$      | : Faktor reduksi berdasarkan banyak tingkat                                              |
| $T$        | : Gaya tarik yang terjadi                                                                |
| $V_b$      | : Gaya gempa dasar                                                                       |
| $V_{bx}$   | : Gaya gempa dasar arah x                                                                |
| $V_{by}$   | : Gaya gempa dasar arah y                                                                |
| $V_{ch}$   | : Gaya geser strat beton diagonal yang melewati daerah tekan ujung joint arah horisontal |
| $V_{cv}$   | : Gaya geser strat beton diagonal yang melewati daerah tekan ujung joint arah vertikal   |
| $V_D$      | : Gaya geser balok akibat beban mati                                                     |
| $V_{D,k}$  | : Gaya geser kolom akibat beban mati                                                     |

|            |                                                                                   |
|------------|-----------------------------------------------------------------------------------|
| $V_E$      | : Gaya geser balok akibat beban gempa                                             |
| $V_{E,K}$  | : Gaya geser kolom akibat beban gempa                                             |
| $V_g$      | : Gaya geser balok akibat berat sendiri dan beban gravitasi                       |
| $V_{jh}$   | : Gaya geser horisontal                                                           |
| $V_L$      | : Gaya geser balok akibat beban hidup                                             |
| $V_{L,K}$  | : Gaya geser kolom akibat beban hidup                                             |
| $V_{kol}$  | : Gaya geser kolom                                                                |
| $V_{sh}$   | : Gaya geser pada daerah tarik join dengan mekanisme panel rangka arah horisontal |
| $V_{sv}$   | : Gaya geser pada daerah tarik join dengan mekanisme panel rangka arah vertikal   |
| $V_{u,b}$  | : Gaya geser ultimit balok                                                        |
| $V_{u,k}$  | : Gaya geser ultimit kolom                                                        |
| $W_t$      | : Berat total keseluruhan gedung                                                  |
| $W_y$      | : Berat tiap lantai pada arah y                                                   |
| $W_x$      | : Berat tiap lantai pada arah x                                                   |
| $Z_{ka}$   | : Lengan momen kanan                                                              |
| $Z_{ki}$   | : Lengan momen kiri                                                               |
| $\rho$     | : Rasio tulangan tarik                                                            |
| $\rho'$    | : Rasio tulangan desak                                                            |
| $\rho_b$   | : Rasio tulangan pada keadaan seimbang                                            |
| $\omega_d$ | : Koefisien pembesaran dinamis                                                    |
| $\alpha_k$ | : Faktor distribusi momen dari kolom yang ditinjau                                |



## 6. Perencanaan pondasi

|        |                                                                 |
|--------|-----------------------------------------------------------------|
| $a$    | : Tinggi blok tekan                                             |
| $b_k$  | : Lebar penampang kolom                                         |
| $b_o$  | : Keliling penampang kritis pada pelat dan pondasi              |
| $B_x$  | : Panjang pondasi telapak                                       |
| $B_y$  | : Lebar pondasi telapak                                         |
| $d$    | : Jarak dari sisi tekan terluar ke pusat tulangan tarik         |
| $e_x$  | : Eksentrisitas gaya terhadap sumbu x                           |
| $e_y$  | : Eksentrisitas gaya terhadap sumbu y                           |
| $f'_c$ | : Kuat desak beton                                              |
| $f_y$  | : Tegangan leleh baja                                           |
| $h$    | : Tebal pondasi                                                 |
| $h_k$  | : Panjang penampang kolom                                       |
| $M_x$  | : Momen terhadap sumbu x                                        |
| $M_y$  | : Momen terhadap sumbu y                                        |
| $M_u$  | : Momen ultimit                                                 |
| $M_n$  | : Momen nominal                                                 |
| $m_1$  | : Jarak geser dari tepi pondasi terhadap sumbu x                |
| $m$    | : Perbandingan isi dari tulangan memanjang dari bentuk tertutup |
| $n_1$  | : Jarak geser dari tepi pondasi terhadap sumbu y                |
| $P$    | : Gaya tekan yang bekerja                                       |
| $P_b$  | : Selimut beton                                                 |
| $P_n$  | : Gaya tekan nominal                                            |

|                      |                                                               |
|----------------------|---------------------------------------------------------------|
| $q_{\text{terjadi}}$ | : Tegangan kontak yang terjadi di dasar pondasi               |
| $R_n$                | : Koefisien tahanan untuk perencanaan kuat                    |
| $V_c$                | : Kuat beton menahan geser                                    |
| $x$                  | : Panjang bidang geser kritis                                 |
| $y$                  | : Lebar bidang geser kritis                                   |
| $\rho$               | : Rasio tulangan                                              |
| $\rho_b$             | : Rasio tulangan dalam keadaan seimbang                       |
| $\beta_1$            | : Rasio antara sisi panjang terhadap sisi pendek pondasi      |
| $\beta_c$            | : Rasio sisi panjang terhadap sisi pendek dari beban terpusat |

## ABSTRAKSI

Perencanaan merupakan langkah awal dari suatu pembangunan fisik yang merupakan gabungan antara unsur seni dan ilmu pengetahuan yang membutuhkan keahlian dalam mengolahnya. Untuk menjadi seorang sarjana teknik sipil yang berkualitas maka harus mampu menerapkan kemampuan teoritisnya di lapangan. Oleh karena itu penyusun mengambil tugas akhir tentang Perencanaan Ulang Struktur Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta agar dapat merencanakan suatu bangunan sebagai bekal mempersiapkan diri dalam dunia konstruksi yang sebenarnya.

Perencanaan ulang ini merupakan perhitungan struktur bangunan dari atas sampai bawah yang meliputi perencanaan : rangka atap kuda-kuda baja, pelat lantai dan talang, balok dan kolom, pondasi telapak beton bertulang serta perencanaan tangga.

Untuk rangka atap digunakan mutu baja BJ 37 dengan  $f_y = 240$  MPa dan  $F_u = 370$  MPa, sedangkan untuk sambungan dipakai mutu baut  $A_{325}$  non full draat dengan  $f_y = 205$  MPa dan  $F_u = 825$  MPa. Perencanaan struktur menggunakan mutu beton dengan  $f'_c = 25$  Mpa, dan baja tulangan polos untuk  $\phi \leq 12$  mm dengan  $f_y = 240$  Mpa, serta baja tulangan ulir untuk  $\phi > 12$  mm dengan  $f_y = 400$  Mpa.

Desain struktur rangka atap baja menggunakan metode ASD (*Allowable Stress Design*) dari AISC, dan untuk struktur rangka beton bertulang digunakan metode perencanaan kekuatan batas (*ultimate strength design method*) berdasarkan SK SNI T-15-1991-03. Sedangkan analisis portal menggunakan program SAP 2000 secara 3 dimensi, dengan memperhitungkan beban gempa yang terjadi di wilayah Yogyakarta (wilayah gempa 3).

Secara garis besar, dari hasil perhitungan struktur pada Perencanaan Ulang Struktur Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta ini diperoleh :

- a. Rangka atap kuda-kuda baja  
Untuk kuda-kuda dipakai profil 2L 60x60x6 dan gording menggunakan profil *Light Lip Channel* 100x50x20x2,3.
- b. Pelat  
Pada pelat lantai dipakai tulangan pokok  $\phi 10$  mm dan tulangan bagi  $\phi 8$  mm, sedangkan pelat talang digunakan tulangan pokok dan bagi  $\phi 8$  mm.
- c. Tangga  
Menggunakan tulangan pokok  $\phi 13$  mm dan tulangan bagi  $\phi 8$  mm.
- d. Balok  
Tulangan pokok balok induk dipakai  $\phi 22$  mm, balok anak dan *sloof* menggunakan  $\phi 16$  mm, sedangkan tulangan geser digunakan  $\phi 10$  mm.
- e. Kolom  
Tulangan pokok yang digunakan  $\phi 22$  mm dan tulangan geser  $\phi 10$  mm.
- f. Pondasi  
Menggunakan tulangan pokok  $\phi 22$  mm dengan tulangan bagi  $\phi 12$  mm.

# BAB I

## PENDAHULUAN

### 1.1 Latar Belakang

Perkembangan ilmu pengetahuan dan teknologi merupakan salah satu hasil kreatifitas manusia yang diiringi dengan kemajuan dalam dunia pendidikan. Perguruan tinggi sebagai pusat penelitian dan pengembangan ilmu pengetahuan merupakan salah satu tempat untuk mencetak manusia-manusia yang tanggap terhadap tuntutan pembangunan dan kemajuan jaman dengan cara membekali mahasiswanya dengan ilmu pengetahuan. Dengan bekal ilmu pengetahuan tersebut diharapkan setelah terjun di dalam masyarakat kelak dapat mengembangkan ilmu pengetahuan yang dimilikinya demi kemajuan bangsa dan negara tanpa harus meninggalkan identitas dan kepribadian bangsa.

Oleh karena itu, untuk mewujudkan sumber daya manusia yang siap pakai diperlukan sarana dan prasarana yang memadai dengan berbagai fasilitas penunjang untuk menuju proses kegiatan belajar mengajar seperti yang diharapkan. Diantaranya berupa Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta.

Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada yang berlokasi di Bulaksumur Yogyakarta dengan menempati areal seluas  $\pm 3000 \text{ m}^2$ , merupakan proyek jangka panjang dari Rencana Induk ( *Master Plan* ) Fakultas Hukum Universitas Gadjah Mada Yogyakarta. Sehingga diharapkan dapat tercipta

suatu kampus yang memenuhi kebutuhan , persyaratan serta tujuan akhir dari Universitas Gadjah Mada Yogyakarta.

## **1.2 Maksud dan Tujuan**

Perencanaan ulang ( *redesign* ) Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta ini dimaksudkan untuk mendapatkan alternatif lain desain yang efektif dan efisien dengan tingkat keamanan sesuai dengan yang diisyaratkan.

Sedangkan tujuan perencanaan ulang ini adalah untuk menerapkan atau mengaplikasikan ilmu dalam bidang teknik sipil yang diperoleh dari bangku kuliah, sehingga dapat dijadikan bekal dalam menghadapi dunia kerja di bidang konstruksi.

## **1.3 Batasan Perencanaan**

Sebagai batasan ruang lingkup dalam perencanaan ulang ( *redesign* ) Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta pada penyusunan Tugas Akhir ini, adalah sebagai berikut :

1. Obyek perencanaan ulang adalah Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta, yang meliputi :
  - a. Perencanaan atap
  - b. Perencanaan pelat lantai
  - c. Perencanaan balok dan kolom
  - d. Perencanaan tangga
  - e. Perencanaan pondasi

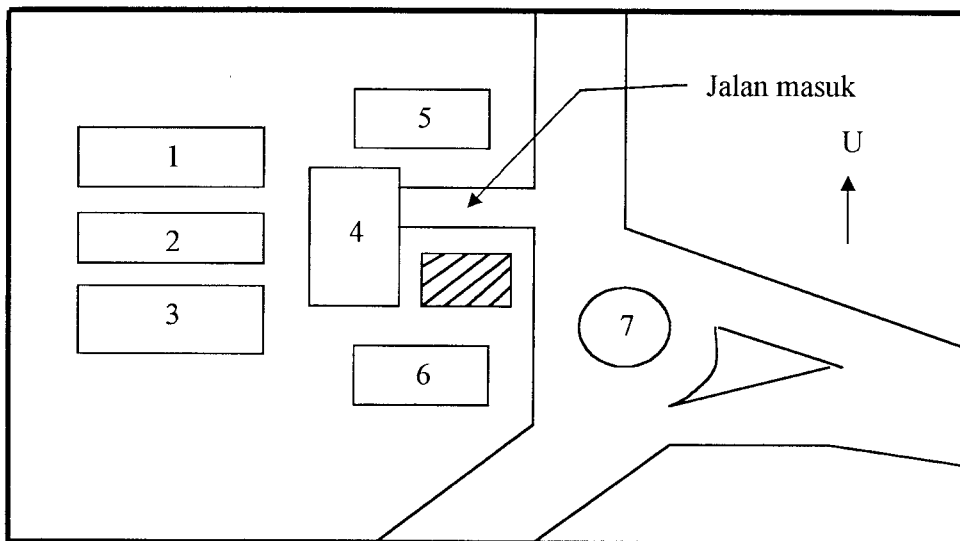
2. Perencanaan ulang ini meliputi perhitungan struktur bangunan dari atas sampai bawah, tetapi tidak termasuk Rencana Anggaran Biaya (RAB).
3. Perencanaan atap menggunakan mutu baja profil BJ 37 dengan tegangan leleh ( $f_y$ ) = 240 Mpa dan tegangan putus ( $F_u$ ) = 370 Mpa. Dan dipakai mutu baut non fullrat dari AISC A325N, dengan tegangan leleh ( $f_y$ ) = 205 Mpa dan tegangan putus ( $F_u$ ) = 825 Mpa.
4. Perencanaan struktur menggunakan mutu beton dengan kuat desak rencana ( $f'_c$ ) = 25 Mpa. Dan digunakan baja tulangan polos (BJTP) untuk diameter  $\leq 12$  mm dengan tegangan leleh ( $f_y$ ) = 240 Mpa, sedangkan baja tulangan ulir (BJTD) untuk diameter  $> 12$  mm dengan tegangan leleh ( $f_y$ ) = 400 Mpa.
5. Perencanaan pondasi diperhitungkan berdasarkan data karakteristik tanah yang ada dengan menggunakan jenis pondasi telapak beton bertulang.
6. Analisa mekanika struktur dengan menggunakan program SAP 2000.
7. Perencanaan konstruksi baja berdasarkan metode *Allowable Stress Design* (ASD) dari AISC.
8. Analisa output portal menggunakan aplikasi *Microsoft Excel*.
9. Secara keseluruhan struktur beton direncanakan menggunakan tingkat daktilitas penuh dengan nilai  $K = 1$ .

### 1.4 Lokasi Proyek

Proyek Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada terletak di Bulaksumur Yogyakarta.

Secara geografis Proyek Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada ini dibatasi (lihat gambar 1.1) :

1. Sebelah Utara : Gedung Magister Hukum UGM
2. Sebelah Selatan : Gedung Fakultas Filsafat UGM
3. Sebelah Barat : Gedung Fakultas Ilmu Sosial dan Politik UGM
4. Sebelah Timur : Areal Parkir



**Gambar 1.1** Denah Lokasi

Keterangan:

- 1 . Gedung Fakultas Pertanian UGM
- 2 . Gedung Fakultas Ilmu Sosial dan Politik UGM
- 3 . Gedung Fakultas Ilmu Sosial dan Politik UGM
- 4 . Lokasi Proyek

- 5 . Gedung Magister Hukum UGM
- 6 . Gedung Fakultas Filsafat UGM
- 7 . Bundaran Bulaksumur UGM

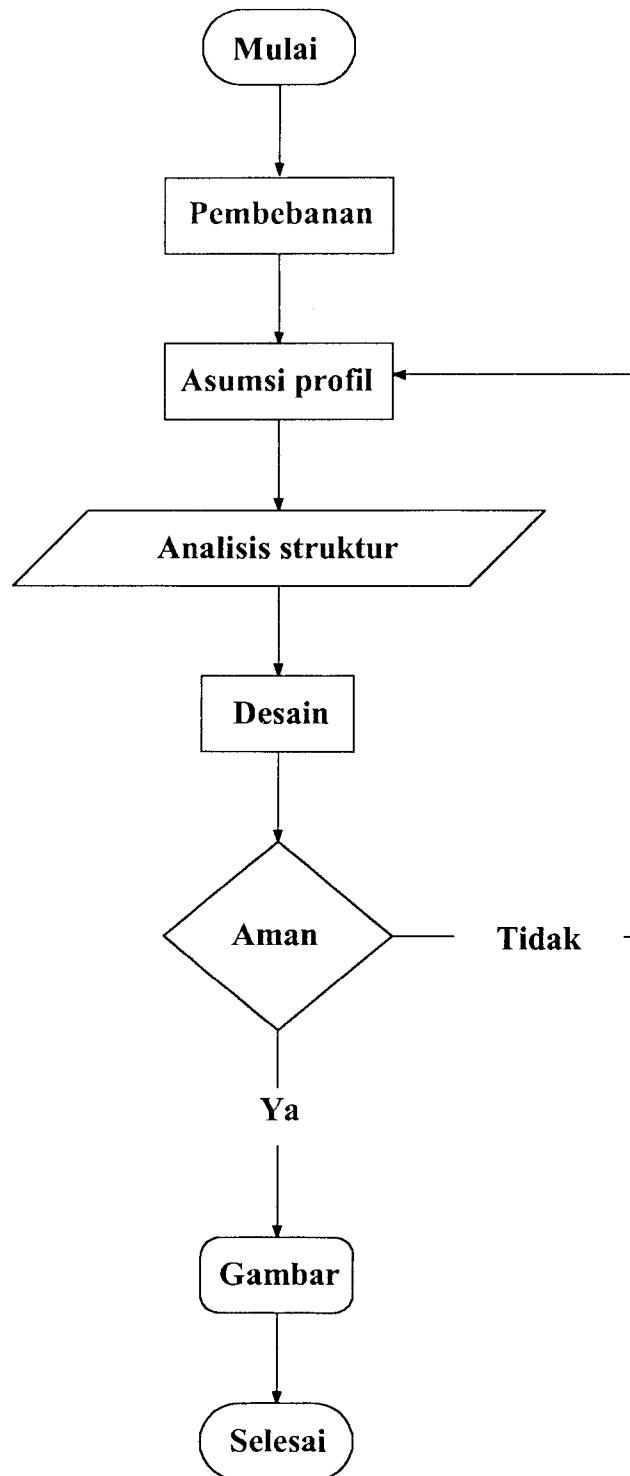
Daerah arsiran = areal parkir

### **1.5 Metode Perencanaan**

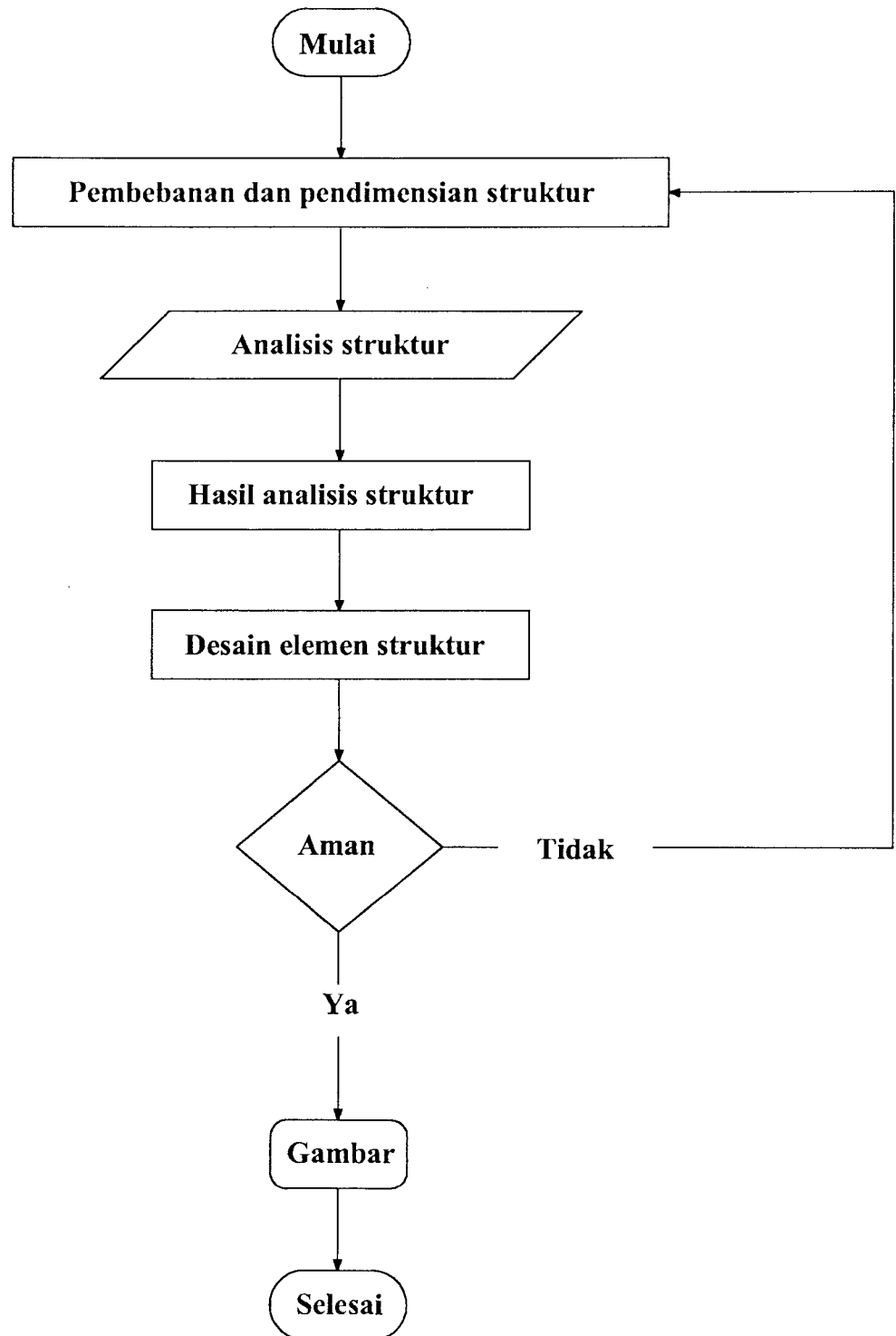
Dalam perencanaan ulang Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta ini dibagi menjadi beberapa langkah :

1. Mengumpulkan data yang berupa denah situasi, denah ruang dan data tanah,
2. Mengumpulkan dan membaca literatur sebagai dasar perencanaan,
3. Merencanakan spesifikasi struktur yang akan direncanakan,
4. Menganalisa spesifikasi struktur yang akan direncanakan, dan
5. Penggambaran struktur maupun detailnya.





**Gambar 1.2** Flow chart perhitungan rangka atap



**Gambar 1.3** Flow chart analisis portal

## **BAB II**

### **TINJAUAN PUSTAKA**

#### **2.1 Pendahuluan**

Perencanaan merupakan langkah awal dari suatu pembangunan fisik berupa penuangan ide atau keinginan dari pemilik yang dijadikan suatu pedoman oleh perencana agar didapatkan suatu hasil yang sesuai dengan yang diinginkan.

Proses perencanaan tersebut merupakan gabungan antara unsur seni dan sains yang membutuhkan keahlian dalam mengolahnya. Proses ini dibedakan dalam dua bagian, *pertama*, desain umum yang merupakan peninjauan umum secara garis besar keputusan – keputusan desain. Tipe struktur dipilih dari berbagai alternatif yang mungkin. Tata letak struktur, geometri atau bentuk bangunan, jarak antar kolom, tinggi lantai, dan material bangunan telah ditetapkan dengan pasti dalam tahap ini. Tahap *kedua*, desain terinci yang antara lain meninjau tentang penentuan besar penampang lintang balok, kolom, tebal pelat, dan elemen struktur lainnya.

*(L. Wahyudi dan Syahril, 1997)*

#### **2.2 Struktur Bawah**

Yang dimaksud dengan struktur bawah (*sub structure*) adalah bagian bangunan yang berada di bawah permukaan tanah. Yang berfungsi untuk meneruskan beban yang berada di atas permukaan tanah ke dalam tanah. Pada

perencanaan ulang Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta ini meliputi pondasi dan *sloof*.

### **2.2.1 Pondasi**

Pondasi umumnya berlaku sebagai komponen struktur pendukung bangunan yang terbawah, dan telapak pondasi berfungsi sebagai elemen terakhir yang meneruskan beban ke tanah, sehingga telapak pondasi harus memenuhi persyaratan untuk mampu dengan aman menyebarkan beban – beban yang diteruskannya sedemikian rupa sehingga kapasitas atau daya dukung tanah tidak terlampaui. (*Istimawan, 1994*)

### **2.2.2 Sloof**

*Sloof* merupakan suatu bagian dari konstruksi yang memiliki fungsi untuk membuat beban yang bekerja pada *sloof* tersebut menjadi beban terbagi merata sepanjang *sloof*. Dengan menjadi beban terbagi merata maka beban yang dipikul tiap satuan luas akan menjadi lebih kecil dibandingkan dengan beban yang bekerja merupakan beban titik/terpusat. Selain itu *sloof* juga berfungsi untuk membuat kekakuan lateral pada konstruksi sehingga stabilitas struktur menjadi lebih baik. Kekakuan ini juga berfungsi untuk menjaga konstruksi dari guling/puntir, pergeseran maupun penurunan.

### **2.3 Struktur Atas**

Struktur atas (*upper- structure*) adalah struktur bangunan yang berada di atas permukaan tanah. Struktur ini memberikan bentuk yang permanen pada suatu bangunan. Selain itu juga ada bangunan non struktural yaitu partisi yang berupa pasangan bata.

Pada perencanaan ulang Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta ini meliputi : atap, pelat, kolom, balok, portal dan tangga.

### **2.3.1 Atap**

Atap adalah elemen struktur yang berfungsi melindungi bangunan beserta apa yang ada didalamnya dari pengaruh panas dan hujan. Bentuk atap tergantung dari beberapa faktor misalnya ; iklim, arsitektur, utilitas bangunan, dan sebagainya. Atap harus disesuaikan dengan rangka bangunan atau bentuk denah agar dapat menambah indah dan anggun serta menambah nilai dari harga bangunan.

### **2.3.2 Pelat**

Pelat merupakan panel – panel beton bertulang yang mungkin tulangnya dua arah atau satu arah saja, tergantung sistem strukturnya. Kontinuitas penulangan pelat diteruskan ke dalam balok – balok dan diteruskan ke dalam kolom. Dengan demikian, sistem pelat secara keseluruhan menjadi satu kesatuan membentuk rangka struktur bangunan kaku statis tak tentu yang sangat kompleks, sehingga mengakibatkan timbulnya momen, gaya geser, dan lendutan.  
(Istimawan, 1994)

Berdasarkan perbandingan antara bentang panjang dan bentang pendek, pelat dibedakan menjadi dua, yaitu : pelat satu arah dan pelat dua arah.

#### **1. Pelat satu arah**

Pelat satu arah adalah pelat yang didukung pada dua tepi yang berhadapan saja, sehingga lendutan yang timbul hanya satu arah saja

yaitu pada arah yang tegak lurus terhadap arah dukungan tepi. Atau dengan kata lain pelat satu arah adalah pelat yang mempunyai perbandingan antara sisi panjang terhadap sisi pendek yang saling tegak lurus lebih besar dari dua, dengan lendutan utama pada sisi yang lebih pendek. (*Istimawan, 1994*)

## **2. Pelat dua arah**

Pelat dua arah adalah pelat yang didukung sepanjang keempat sisinya dengan lendutan yang akan timbul pada dua arah yang saling tegak lurus, atau perbandingan antara sisi panjang dan sisi pendek yang saling tegak lurus kurang dari dua. (*Istimawan, 1994*)

### **2.3.3 Kolom**

Menurut SK SNI-T15-1991-03, definisi kolom adalah komponen struktur bangunan yang tugas utamanya menyangga beban aksial desak vertikal dengan bagian tinggi yang tidak ditopang paling tidak tiga kali dimensi lateral terkecil.

Kolom adalah batang tekan vertikal dari rangka (*frame*) struktur yang memikul beban dari balok induk, maupun balok anak. Kolom meneruskan beban dari elevasi atas ke elevasi yang lebih rendah hingga akhirnya sampai ke tanah melalui pondasi. (*Sudarmoko, 1996*)

Kolom merupakan elemen vertikal yang memikul sistem lantai struktural. Elemen ini merupakan elemen yang mengalami tekan dan pada umumnya disertai dengan momen lentur. (*Edward G. Nawy, 1985*)

Keruntuhan pada suatu kolom merupakan lokasi kritis yang dapat menyebabkan runtuhnya (*collapse*) lantai yang bersangkutan dan juga runtuh total

(*total collapse*) seluruh struktur. Oleh karena itu yang perlu diperhatikan adalah tinggi kolom perencanaan, beban rencana yang digunakan serta mutu beton dan baja yang digunakan.

#### **2.3.4 Balok**

Balok adalah bagian struktur yang berfungsi sebagai pendukung beban vertikal maupun horisontal. Beban vertikal berupa beban mati dan beban hidup yang diterima pelat lantai, berat sendiri balok dan berat dinding penyekat di atasnya. Sedangkan beban horisontal berupa beban angin dan beban gempa.

Balok merupakan bagian struktural bangunan yang penting, bertujuan untuk memikul beban transversal yang dapat berupa beban lentur, geser maupun torsi. Oleh karena itu perencanaan balok yang efisien, ekonomis, cepat dan aman sangat penting. (*Sudarmoko, 1996*)

Balok adalah batang struktural yang hanya menerima beban – beban tegak saja dan dapat dianalisa dengan lengkap apabila diagram geser dan diagram momennya telah didapatkan. (*Istimawan, 1994*)

Dari beberapa definisi diatas, balok juga dapat dibagi menjadi balok induk dan balok anak. Yang dinamakan balok induk adalah balok yang menumpu pada kolom, sedangkan balok anak adalah balok yang menumpu pada balok induk.

#### **2.3.5 Portal**

Portal adalah suatu rangka struktur pada bangunan yang harus mampu menahan beban – beban yang bekerja, baik beban mati, beban hidup, maupun beban sementara. Portal merupakan suatu sistem struktur kerangka yang terdiri

dari rakitan elemen struktur yang berupa beton bertulang, elemen balok, kolom, atau dinding geser. Terdapat dua jenis portal, yaitu portal tak bergoyang (*braced frame*) dan portal bergoyang .

### **1. Portal tak bergoyang ( *braced frame* )**

Portal tak bergoyang didefinisikan sebagai portal dimana tekuk goyangan dicegah oleh elemen – elemen topangan struktur tersebut dan bukan oleh portal itu sendiri. ( *Salmon & Jhonson, 1996* )

Portal tak bergoyang mempunyai sifat :

- a. Portal tersebut simetris dan bekerja beban simetris.
- b. Portal yang mempunyai kaitan dengan konstruksi lain yang tidak dapat bergoyang.

### **2. Portal bergoyang**

Suatu portal dikatakan bergoyang, jika :

- a. Beban yang tidak simetris yang bekerja pada portal yang simetris atau tidak simetris.
- b. Beban simetris yang bekerja pada portal yang tidak simetris.

### **2.3.6 Tangga**

Tangga adalah jalur bergigi (mempunyai trap–trap) yang menghubungkan satu lantai dengan lantai di atasnya, sehingga berfungsi sebagai jalan untuk naik dan turun antar tingkat. ( *Benny Puspantoro, 1987* )



## 2.4 Pembebanan

### 2.4.1 Macam – macam pembebanan

Perencanaan suatu struktur untuk keadaan – keadaan stabil, kekuatan batas dan kemampuan layan harus memperhitungkan pengaruh – pengaruh dari aksi – aksi sebagai akibat dari beban – beban berikut ini menurut Pedoman Perencanaan Pembebanan Untuk Rumah dan Gedung :

#### 1. Beban mati (DL)

Beban mati adalah berat dari semua bagian dari suatu gedung yang bersifat tetap, termasuk segala unsur tambahan tetap yang merupakan bagian tak terpisahkan dari gedung itu.

#### 2. Beban Hidup (LL)

Beban hidup adalah semua beban yang terjadi akibat penghunian atau penggunaan suatu gedung, termasuk beban – beban yang berasal dari barang – barang yang berpindah – pindah.

#### 3. Beban Angin (WL)

Beban angin adalah semua beban yang bekerja pada gedung yang disebabkan oleh selisih dari tekanan udara, yang nilainya dikalikan dengan koefisien angin ( $c$ ). Untuk perencanaan dalam Tugas Akhir ini menggunakan atap segitiga majemuk dengan kriteria sebagai berikut :

– Untuk bidang – bidang atap dipihak angin ( $c_1$ ),

$$\alpha < 65^\circ \quad (0,2 \alpha - 0,4) \quad \dots\dots\dots(2.1)$$

- Untuk semua bidang atap dibelakang angin ( $c_2$ ),

$$\text{untuk semua } \alpha = -0,4 \quad \dots\dots\dots(2.2)$$

dengan  $c_1$  adalah koefisien angin tiup,  $c_2$  adalah koefisien angin hisap dan  $\alpha$  adalah sudut kemiringan atap.

#### 4. Beban Gempa (EL)

Beban gempa adalah semua beban statik ekuivalen yang bekerja pada gedung yang menirukan pengaruh dari gerakan tanah akibat gempa.

#### 5. Pengaruh-pengaruh khusus

Adalah semua pengaruh terhadap bangunan atau unsur bangunan yang diakibatkan oleh selisih suhu, pemasangan, penurunan pondasi, susut, beban berulang dan pengaruh khusus lainnya.

#### 2.4.2 Kombinasi pembebanan

Pada perencanaan ulang pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta dipakai beberapa kombinasi pembebanan dengan memperhitungkan kuat perlu (U) dari struktur tersebut (SNI T-15-1991-03) :

1. Untuk kondisi beban mati (D) dan beban hidup (L)

$$U = 1,2 D + 1,6 L \quad \dots\dots\dots(2.3)$$

2. Bila beban angin (W) turut diperhitungkan, maka pengaruh kombinasi beban mati (D), beban hidup (L) dan beban angin (W) berikut ini harus dipilih untuk menentukan nilai kuat perlu (U) terbesar.

$$U = 0,75 ( 1,2 D + 1,6 L + 1,6 W ) \quad \dots\dots\dots(2.4)$$

Dengan beban hidup (L) yang kosong, turut pula diperhitungkan untuk mengantisipasi kondisi bahaya sehingga :

$$U = 0,9 D + 1,3 W \quad \dots\dots\dots(2.5)$$

3. Bila ketahanan struktur terhadap beban gempa (E) turut diperhitungkan, maka :

$$U = 1,05 ( D + L_R \pm E ) \quad \dots\dots\dots(2.6)$$

atau

$$U = 0,9 ( D \pm E ) \quad \dots\dots\dots(2.7)$$

Dengan U adalah kuat perlu,  $L_R$  adalah beban hidup tereduksi,

D adalah beban mati, E adalah beban gempa.

#### 2.4.3 Faktor reduksi kekuatan ( $\Phi$ )

Ketidakpastian kekuatan bahan terhadap pembebanan dianggap sebagai faktor reduksi kekuatan ( $\Phi$ ). Menurut SKSNI T-15-1991-03, faktor reduksi ( $\Phi$ ) ditentukan sebagai berikut

| Gaya yang bekerja                              | Nilai ( $\Phi$ ) |
|------------------------------------------------|------------------|
| 1. Lentur tanpa beban aksial                   | 0,8              |
| 2. Aksial tarik dan aksial tarik dengan lentur | 0,8              |
| 3. Aksial tekan, dan aksial dengan lentur :    |                  |
| dengan tulangan spiral                         | 0,7              |
| dengan tulangan sengkang ikat                  | 0,65             |
| 4. Geser dan torsi                             | 0,6              |
| 5. Tumpuan pada beton                          | 0,7              |

## 2.5 Dasar – Dasar Perencanaan

Peraturan – peraturan / standarisasi yang digunakan dalam Pada perencanaan ulang Pembangunan Gedung Fakultas Hukum Universitas Gadjah Mada Yogyakarta adalah :

1. Peraturan Perencanaan Tahan Gempa Indonesia Untuk Gedung (PPTGIUG), 1983.
2. Peraturan Pembebanan Indonesia Untuk Gedung (PBIUG), 1983.
3. Standar Tata Cara Perhitungan Struktur Beton untuk Bangunan Gedung (SK SNI T-15-1991-03).
4. Peraturan Beton Bertulang Indonesia (PBBI), 1971 NI-2.
5. Metode Perencanaan Baja AISC – ASD.
6. Pedoman Perencanaan Untuk Struktur Beton Bertulang Biasa Dan Struktur Beton Bertulang Untuk Gedung, 1983.

## BAB III

### LANDASAN TEORI

#### 3.1 Perencanaan Atap

Perencanaan atap baja menggunakan metode perencanaan tegangan kerja (*working stress design*) dari AISC, yang meliputi :

##### 3.1.1 Perencanaan gording

Dalam perencanaan gording harus memenuhi syarat-syarat antara lain :

##### 1. Tegangan

$$\frac{f_{bx}}{0,66 f_y} + \frac{f_{by}}{0,75 f_y} \leq 1,0 \quad \dots\dots\dots(3.1)$$

$$f_{bx} = \frac{M_{\perp} \cdot \max}{S_x} \quad \dots\dots\dots(3.2)$$

$$f_{by} = \frac{M_{\parallel} \cdot \max}{S_y} \quad \dots\dots\dots(3.3)$$

Dimana :  $f_{bx}$  = tegangan lentur arah sumbu x (ksi)

$f_{by}$  = tegangan lentur arah sumbu y (ksi)

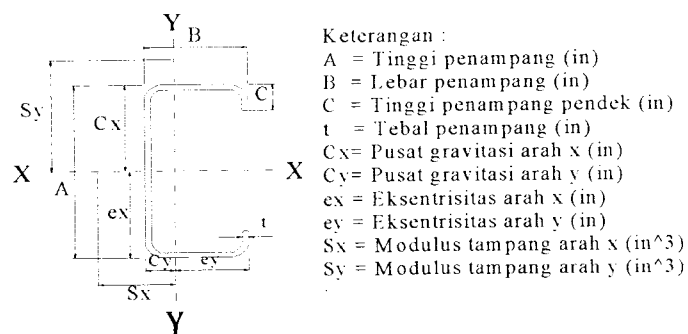
$f_y$  = tegangan leleh baja (ksi)

$S_x$  = modulus elastis tampang arah sumbu x ( $\text{in}^3$ )

$S_y$  = modulus elastis tampang arah sumbu y ( $\text{in}^3$ )

$M_{\perp}$  = momen tegak lurus arah sumbu batang (k.in)

$M_{\parallel}$  = momen sejajar sumbu batang (k.in)



**Gambar 3.1** Propertis penampang gording

## 2. Lendutan

$$\delta_{\perp} = \frac{5}{384} \frac{q_{\perp} \cdot L^4}{EI_x} \leq \frac{L}{360} \quad \dots\dots\dots (3.4)$$

$$\delta_{//} = \frac{5}{384} \frac{q_{//} \cdot L^4}{EI_y} \leq \frac{L}{360} \quad \dots\dots\dots (3.5)$$

$$\delta_{\text{resultan}} = \sqrt{\delta_{\perp}^2 + \delta_{//}^2} \leq \frac{L}{360} \quad \dots\dots\dots (3.6)$$

Dimana :  $\delta$  = resultan lendutan (mm)

$\delta_{\perp}$  = lendutan tegak lurus sumbu batang (mm)

$\delta_{//}$  = lendutan sejajar sumbu batang (mm)

E = modulus elastis baja ( 29000 ksi )

$I_x$  = Inersia arah sumbu x (mm<sup>4</sup>)

$I_y$  = Inersia arah sumbu y (mm<sup>4</sup>)

### 3.1.2 Perencanaan sagrod

Dalam perencanaan sagrod dipakai :

$$P = 0,33 \cdot F_u \cdot A_{\text{sagrod}} \quad \dots\dots\dots (3.7)$$

Beban yang digunakan adalah beban arah sejajar sumbu (P//) :

$$P_{//} = P \cdot \sin \alpha \cdot S_s \quad \dots\dots\dots (3.8)$$

Sehingga luas tampang sagrod :

$$A_{\text{sagrod}} = \frac{P}{0,33 \cdot F_u} = \frac{1}{4} \cdot \pi \cdot D^2_{\text{sagrod}} \quad \dots\dots\dots (3.9)$$

$$D_{\text{sagrod}} = \sqrt{\frac{(4 \cdot P)}{(0,33 \cdot F_u \cdot \pi)}} \quad \dots\dots\dots (3.10)$$

$$D_{\text{pakai}} = D_{\text{sagrod}} + 3 \text{ mm} \quad \dots\dots\dots (3.11)$$

Dimana :  $P$  = gaya yang bekerja (kips)

$P//$  = gaya sejajar sumbu batang (kips)

$F_u$  = kuat tarik baja (ksi)

$S_s$  = jarak beban sagrod (in)

$D$  = diameter sagrod (in)

$A$  = luas penampang sagrod ( $\text{in}^2$ )

### 3.1.3 Perencanaan tierod

$$\text{Gaya batang } T = P// \cdot \cos \alpha \quad \dots\dots\dots(3.12)$$

$$T = 0,33 \cdot F_u \cdot A_{\text{tierod}} \quad \dots\dots\dots(3.13)$$

Sehingga :

$$A_{\text{tierod}} = \frac{T}{0,33 F_u} = \frac{1}{4} \cdot \pi \cdot D^2_{\text{tierod}} \quad \dots\dots\dots(3.14)$$

$$D_{\text{tierod}} = \sqrt{\frac{(4 \cdot T)}{(0,33 \cdot F_u \cdot \pi)}} \quad \dots\dots\dots(3.15)$$

$$D_{\text{pakai}} = D_{\text{tierod}} + 3 \text{ mm} \quad \dots\dots\dots(3.16)$$

Dimana :  $T$  = tegangan yang bekerja (kips)

$F_u$  = kuat tarik baja (ksi)

$D$  = diameter tierod (in)

$A$  = luas penampang tierod ( $\text{in}^2$ )

### 3.1.4 Perencanaan batang tarik

Langkah-langkah perencanaan batang tarik :

1. Menentukan angka kelangsingan ( $\lambda = L/r$ )

Angka kelangsingan maksimum yang dapat diterima untuk

batang tarik :

Untuk elemen/batang utama..... $\lambda = L/r \leq 240$

Untuk elemen/batang sekunder/bracing..... $\lambda = L/r \leq 300$

Sehingga untuk elemen/batang utama, diperoleh :

$$r_{\min} = \frac{L}{240} \dots\dots\dots(3.17)$$

2. Menentukan luas bruto ( $A_g$ ), luas netto ( $A_n$ ) dan luas efektif ( $A_{eff}$ ) :

$$A_{g1} = \frac{T}{0,6.f_y} \dots\dots\dots(3.18)$$

$$A_{g2} = \frac{T}{0,5.F_u.\mu} + \left( \frac{1''}{8} + \phi_{baut} \right) .tp.n \dots\dots\dots(3.19)$$

Dipakai profil yang luasannya ( $A$ ) lebih besar dari nilai  $A_g$  terpakai :

$$A_{netto} = A_{bruto} - \left( \frac{1''}{8} + \phi_{baut} \right) .tp.n \dots\dots\dots(3.20)$$

$$A_{effektif} = \mu . A_{netto} \dots\dots\dots(3.21)$$

Dimana :  $L$  = panjang batang (in)

$T$  = gaya tarik (kips)

$r$  = jari-jari inersia terkecil profil (in)

$A_{netto}$  = luas bersih penampang ( $in^2$ )

$A_g$  = luas kotor penampang ( $in^2$ )

$n$  = jumlah baut

$\phi$  = diameter baut (in)

$tp$  = tebal pelat (in)

$\mu$  = faktor reduksi luas netto, dengan kriteria :

a. lebar sayap  $\geq \frac{2}{3}x$  kedalaman, sambungan pada sayap –

sayap minimal 3 ikatan pergaris dalam garis tekanan

$$\mu = 0,90$$



- b. minimum 3 ikatan perbaris tekanan yang tidak sama dengan kriteria diatas  $\mu = 0,85$
  - c. 2 ikatan pergaris tekanan  $\mu = 0,75$
3. Kontrol tegangan tarik yang terjadi
- a. Tampang tanpa lubang :  $f_a = \frac{T}{A_{profil}} \leq 0,6.f_y$  .....(3.22)
  - b. Tampang ada lubang :  $f_a = \frac{T}{A_{effektif}} \leq 0,5.F_u$  .....(3.23)
- Dimana :  $f_a$  = Tegangan tarik yang terjadi (ksi)

### 3.1.5 Perencanaan batang desak

Langkah-langkah perencanaan batang desak :

#### 1. Menentukan profil

Pada prinsipnya sama dengan proses penentuan profil batang tarik.

#### 2. Kontrol terhadap tekuk dan kelangsingan

Setelah profil baja didapat, dilakukan terlebih dahulu dengan mengontrol tekuk setempat (*local buckling*) :

$$\frac{bf}{tw} \leq \frac{76}{\sqrt{f_y}} \quad (f_y \text{ dalam ksi}) \quad \dots\dots\dots(3.24)$$

dan kontrol kelangsingan :

$$\frac{KL}{r} \leq C_c - \sqrt{\frac{2\pi^2 E}{f_y}} = \frac{756}{\sqrt{f_y}} \quad (f_y \text{ dalam ksi}) \quad \dots\dots\dots(3.25)$$

$$\leq C_c = \frac{6440}{\sqrt{f_y}} \quad (f_y \text{ dalam kg/cm}^2)$$

$$\leq C_c = \frac{1987}{\sqrt{f_y}} \quad (f_y \text{ dalam MPa})$$

$$F_s = \frac{5}{3} + \frac{3.(KL/r)}{8.C_c} - \frac{1.(KL/r)^2}{8.C_c^2} \quad \dots\dots\dots(3.26)$$

$$F_a = \frac{f_y}{F_s} \left( 1 - 0,5 \left( \frac{Kl}{Cc} \right)^2 \right) \dots\dots\dots(3.27)$$

Tetapi jika  $\frac{Kl}{r} > Cc$ , maka :

$$F_a = \frac{12}{23} \cdot \frac{\pi^2 E}{(Kl/r)^2} \dots\dots\dots(3.28)$$

dimana :  $F_a$  = tegangan ijin pada luas bruto dalam kondisi beban kerja (ksi)

$Kl/r$  = angka kelangsingan elemen desak

$F_s$  = faktor keamanan

### 3. Kontrol beban

$$T = F_a \cdot A_{total} > P \dots\dots\dots(3.29)$$

dimana :  $T$  = beban ijin

$P$  = beban yang terjadi

### 3.1.6 Perencanaan sambungan

#### 1. Menghitung kekuatan 1 baut

$$P_{tumpu} = t_p \cdot D_{baut} \cdot 1,2 \cdot F_{upelat} \cdot N \dots\dots\dots(3.30)$$

$$P_{geser} = A_{baut} \cdot F_v \cdot 2N = \frac{1}{4} \pi \cdot D^2 \cdot F_v \cdot 2N \dots\dots\dots(3.31)$$

dengan  $F_v = 0,22 \cdot F_{ubaut}$ , untuk baut non fulldrat

$F_v = 0,17 \cdot F_{ubaut}$ , untuk baut fulldrat

#### 2. Menghitung jumlah baut

$$N = \frac{P_{terjadi}}{P_{baut}} \dots\dots\dots(3.32)$$

### 3.2 Perencanaan Beton Bertulang

#### 3.2.1 Perencanaan pelat dua arah

##### 1. Menentukan tebal minimum pelat (h)

Pada SK SNI T-15-1991-03 pasal 3.2.5 butir 3.3 memberikan pendekatan empiris mengenai batasan defleksi dilakukan dengan tebal pelat minimum sebagai berikut :

$$h \geq \frac{Ln \left( 0,8 + \frac{f_y}{1500} \right)}{36 + 5\beta \left[ \alpha_m - 0,12 \left( 1 + \frac{1}{\beta} \right) \right]} \quad (\text{mm}) \quad \dots\dots\dots(3.33)$$

tetapi tidak boleh kurang dari :

$$h \geq \frac{Ln \left( 0,8 + \frac{f_y}{1500} \right)}{36 + 9\beta} \quad (\text{mm}) \quad \dots\dots\dots(3.34)$$

dan tidak perlu lebih dari :

$$h \leq \frac{Ln \left( 0,8 + \frac{f_y}{1500} \right)}{36} \quad (\text{mm}) \quad \dots\dots\dots(3.35)$$

Dalam segala hal tebal minimum pelat tidak boleh kurang dari harga berikut :

- Untuk  $\alpha_m < 2,0$  digunakan nilai h minimal 120 mm.
- Untuk  $\alpha_m \geq 2,0$  digunakan nilai h minimal 90 mm.

dimana :

$Ln$  = bentang terkecil pada pelat dihitung dari as kolom (mm)

$\alpha_m$  = rasio kekakuan balok terhadap pelat

$\beta$  = rasio panjang terhadap lebar bentang pelat

## 2. Menentukan momen lentur terjadi

Perencanaan dan analisis dengan menggunakan *metode koefisien momen*. Besar momen lentur dalam arah bentang panjang :

$$M_{tx} = -0,001 \cdot q_u \cdot L_x^2 \cdot c_{tx} \quad \dots\dots\dots(3.36)$$

$$M_{lx} = 0,001 \cdot q_u \cdot L_x^2 \cdot c_{lx} \quad \dots\dots\dots(3.37)$$

$$M_{ty} = -0,001 \cdot q_u \cdot L_x^2 \cdot c_{ty} \quad \dots\dots\dots(3.38)$$

$$M_{ly} = 0,001 \cdot q_u \cdot L_x^2 \cdot c_{ly} \quad \dots\dots\dots(3.39)$$

dimana :

$q_u$  = beban merata (KN/m<sup>2</sup>)

$M_{tx}$  = momen tumpuan arah sumbu x (KNm)

$M_{lx}$  = momen lapangan arah sumbu x (KNm)

$M_{ty}$  = momen tumpuan arah sumbu y (KNm)

$M_{ly}$  = momen lapangan arah sumbu y (KNm)

$C_{tx}$  = koefisien momen tumpuan arah x

$C_{lx}$  = koefisien momen lapangan arah x

$C_{ty}$  = koefisien momen tumpuan arah y

$C_{ly}$  = koefisien momen lapangan arah y

$L_x$  = panjang pelat arah sumbu x / bentang pendek (m)

$L_y$  = panjang pelat arah sumbu y / bentang panjang (m)

Nilai koefisien momen (c) diambil dari tabel 13.3.1 dan 13.3.2 PBT 1971

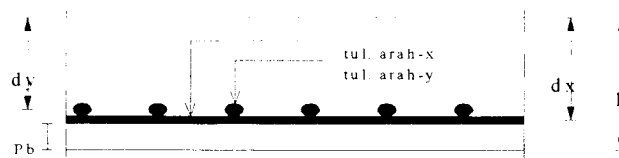
## 3. Menentukan tinggi manfaat (d) arah x dan y

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) \quad \dots\dots\dots(3.40)$$

$$\rho_{maks} = 0,75 \cdot \rho_b \quad \dots\dots\dots(3.41)$$

$$\rho_{\min} = \frac{1,4}{f_y} \dots\dots\dots(3.42)$$

Pada pelat dua arah, tulangan momen positif untuk kedua arah dipasang saling tegak lurus. Karena momen positif arah bentang pendek (x) lebih besar dari bentang panjang (y), maka tulangan bentang pendek diletakkan pada lapis bawah agar memberikan d (tinggi manfaat) yang besar.



**Gambar 3.2** Tulangan pelat dua-arah

$$dx = h - Pb - \frac{1}{2} \cdot \phi_{tul.x} \dots\dots\dots(3.43)$$

$$dy = h - Pb - \phi_{tul.x} - \frac{1}{2} \cdot \phi_{tul.y} \dots\dots\dots(3.44)$$

dy untuk tulangan tumpuan arah y (ty) sama dengan dx

#### 4. Menentukan luas tulangan (As) arah x dan y

$$R_n = \frac{Mu}{\phi \cdot b \cdot d^2} \dots\dots\dots(3.45)$$

$$m = \frac{f_y}{0,85 \cdot f'_c} \dots\dots\dots(3.46)$$

$$\rho_{ada} = \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right] \dots\dots\dots(3.47)$$

a) Jika  $\rho_{ada} > \rho_{maks}$  ; maka tebal minimum (h) harus diperbesar

b) Jika  $\rho_{\min} < \rho_{ada} < \rho_{maks}$  ; dipakai nilai :  $\rho_{pakai} = \rho_{ada}$

c) Jika  $\rho_{ada} < \rho_{maks} < \rho_{\min} : \cdot 1,33$ .  $\rho_{ada} > \rho_{\min}$  ; dipakai :  $\rho_{pakai} = \rho_{\min}$

$\cdot 1,33$ .  $\rho_{ada} < \rho_{\min}$  ; dipakai :  $\rho_{pakai} = 1,33 \cdot \rho_{ada}$

Setelah didapatkan nilai  $\rho_{pakai}$ , maka :

$$A_{sperlu} = \rho_{pakai} \cdot b \cdot d \geq A_{stul \text{ bagi/susut}} = 0,002 \cdot b \cdot h \dots\dots\dots(3.48)$$

Nilai lebar pelat (b), diambil tiap 1 meter (1000 mm).

$$\text{Jarak antar tulangan : } s \leq \frac{A_l \cdot b}{A_{s_{pakai}}} \dots\dots\dots(3.49)$$

$$s \leq 2 \cdot h \dots\dots\dots(3.50)$$

$$s \leq 250 \text{ mm} \dots\dots\dots(3.51)$$

Diambil nilai jarak antar tulangan (s) yang terkecil, sehingga didapatkan nilai  $A_{s_{ada}}$  :

$$A_{s_{ada}} = \frac{A_l \cdot b}{s} \dots\dots\dots(3.52)$$

### 5. Kontrol kapasitas lentur pelat yang terjadi

$$a = \frac{A_{s_{ada}} \cdot f_y}{0,85 \cdot f'_c \cdot b} \dots\dots\dots(3.53)$$

$$M_n = A_{s_{ada}} \cdot f_y \cdot \left(d - \frac{a}{2}\right) \geq \frac{M_u}{\phi} \dots\dots\dots(3.54)$$

Bila  $\rho_{perlu} = 1,33 \cdot \rho_{ada}$ , maka :

$$M_n = A_{s_{ada}} \cdot f_y \cdot \left(d - \frac{a}{2}\right) \geq 1,33 \frac{M_u}{\phi} \dots\dots\dots(3.55)$$

### 3.2.2 Perencanaan balok

Langkah-langkah perencanaan elemen balok adalah sebagai berikut :

#### 1. Menentukan mutu beton dan baja tulangan

Faktor blok tegangan beton ( $\beta_1$ ), sama dengan : (SK SNI T-15-1991-03 pasal 3.3.2 butir 7.3)

$$f'_c \leq 30 \text{ MPa} \rightarrow \beta_1 = 0,85$$

$$f'_c > 30 \text{ MPa} \rightarrow \beta_1 = 0,85 - 0,008 \cdot (f'_c - 30) \geq 0,65 \dots\dots\dots(3.56)$$

## 2. Menentukan nilai rasio tulangan ( $\rho$ )

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) \dots\dots\dots(3.57)$$

$$\rho_{maks} = 0,75 \cdot \rho_b \dots\dots\dots(3.58)$$

$$\rho_{min} = \frac{1,4}{f_y}$$

$$\text{Dalam perencanaan dipakai nilai } \rho : \rho_{rencana} = 0,5 \cdot \rho_{maks} > \rho_{min} \dots\dots(3.59)$$

dimana :

$\rho_b$  = rasio tulangan terhadap luas beton efektif dalam keadaan seimbang

$\rho_{maks}$  = rasio tulangan maksimum

$\rho_{min}$  = rasio tulangan minimum

$\rho_{rencana}$  = rasio tulangan yang dipakai dalam perencanaan

## 3. Menentukan tinggi efektif ( $d$ ) dan lebar ( $b$ ) penampang beton

$$m = \frac{f_y}{0,85 \cdot f'_c} \dots\dots\dots(3.60)$$

$$R_n = \rho \cdot f_y \cdot (1 - 1/2 \cdot \rho \cdot m) \dots\dots\dots(3.61)$$

$$b \cdot d^2 = \frac{M_u / \phi}{R_n} \dots\dots\dots(3.62)$$

Tentukan  $b$ , didapat  $d_{perlu}$

*Jika nilai  $d_{diketahui} \geq d_{perlu}$ , maka digunakan tulangan sebelah*

*Jika nilai  $d_{diketahui} < d_{perlu}$ , maka digunakan tulangan rangkap*

$$d_{diketahui} = h_{diketahui} - P_b - \phi_{senggang} - 1/2 \cdot \phi_{tulangan \text{ rencana}}$$

dimana :

$m$  = perbandingan isi dari tulangan memanjang dari bentuk yang tertutup

$R_n$  = koefisien tahanan untuk perencanaan kuat (MPa)

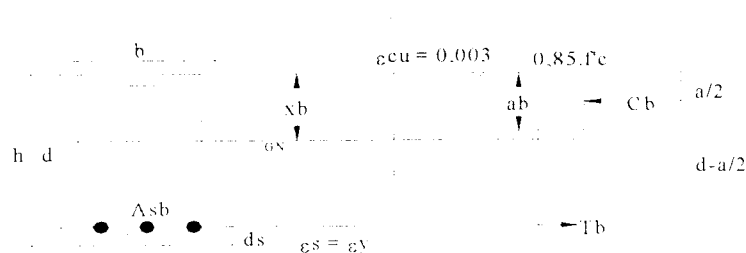
$d$  = tinggi efektif penampang, diukur dari serat atas ke pusat tulangan tarik (mm)

$M_u$  = momen lentur ultimit akibat beban luar (Nmm)

$\phi$  = faktor reduksi kekuatan, diambil nilai 0,80 (lentur tanpa aksial)

$h$  = tinggi total penampang beton (mm)

**a) Perencanaan balok penampang persegi menahan lentur tulangan sebelah**



**Gambar 3.3** Tampang, regangan dan tegangan balok persegi

Balok lentur tulangan sebelah direncanakan, jika nilai  $d_{diketahui} \geq d_{perlu}$ . Langkah-langkah perencanaannya sebagai berikut :

- **Menentukan  $\rho_{baru}$  dan  $R_{n_{baru}}$**

$$R_{n_{baru}} = \frac{M_u}{b \cdot d_{diketahui}^2 \cdot \phi} \dots \dots \dots (3.63)$$

$$\rho_{baru} = \frac{R_{n_{ada}}}{R_n} \cdot \rho > \rho_{min} \dots \dots \dots (3.64)$$

- **Menentukan luas tulangan ( $A_s$ )**

$$A_s = \rho_{baru} \cdot b \cdot d_{diketahui} \dots \dots \dots (3.65)$$

$$n = \frac{A_s}{A_{l\phi}} ; n \text{ bilangan bulat \& } n \geq 2 \text{ batang} \dots \dots \dots (3.66)$$



$$A_{s_{ada}} = n \cdot A_{10} > A_s \quad \dots\dots\dots(3.67)$$

dimana :

$A_s$  = luas tulangan tarik longitudinal ( $\text{mm}^2$ )

$n$  = jumlah tulangan yang dipakai (buah)

$A_{s_{ada}}$  = luas tulangan tarik longitudinal yang ada ( $\text{mm}^2$ )

$A_{10}$  = luas tampang satu buah tulangan ( $\text{mm}^2$ )

$\rho_{baru}$  = rasio tulangan berdasarkan perhitungan luas penampang beton

$Rn_{baru}$  = koefisien tahanan untuk perencanaan kuat (MPa)

- **Kontrol kapasitas lentur yang terjadi**

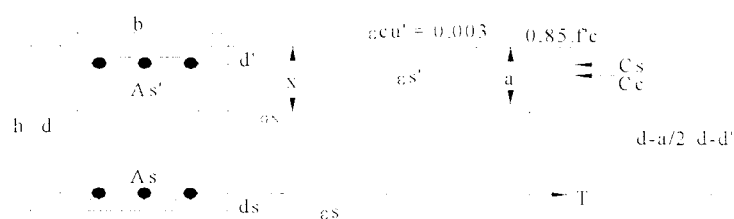
$$a = \frac{A_{s_{ada}} \cdot f_y}{0,85 \cdot f'_c \cdot b} \quad \dots\dots\dots(3.68)$$

$$M_n = A_{s_{ada}} \cdot f_y \cdot \left( d_{diketahui} - \frac{a}{2} \right) > \frac{Mu}{\phi} \quad \dots\dots\dots(3.69)$$

dimana :  $a$  = tinggi blok tegangan persegi ekuivalen (mm)

$M_n$  = kapasitas lentur nominal yang terjadi (Nmm)

**b) Perencanaan balok penampang persegi menahan lentur tulangan rangkap**



**Gambar 3.4** Tampang, regangan dan tegangan balok persegi

Balok lentur tulangan rangkap direncanakan, jika nilai  $d_{diketahui} < d_{perlu}$ . Langkah-langkah perencanaannya sebagai berikut :

- **Menentukan  $A_{s1}$  dan  $M_{n1}$**

$$A_{s1} = \rho_1 \cdot b \cdot d_{diketahui} \quad \dots\dots\dots(3.70)$$

diambil  $\rho_1 = \rho_{awal} = 0,5\rho_{maks}$

$$a = \frac{A_{s1} \cdot f_y}{0,85 \cdot f'c \cdot b} \dots\dots\dots(3.71)$$

$$Mn_1 = A_{s1} \cdot f_y \cdot \left( d_{diketahui} - \frac{a}{2} \right) < \frac{Mu}{\phi} \dots\dots\dots(3.72)$$

• **Menentukan  $Mn_2$**

$$\frac{Mu}{\phi} \leq Mn = Mn_1 + Mn_2 \rightarrow Mn_2 = \frac{Mu}{\phi} - Mn_1 \dots\dots\dots(3.73)$$

dimana :

$Mn_1$  = kuat momen pasangan kopel gaya beton tekan dan tulangan baja tarik (Nmm)

$Mn_2$  = kuat momen pasangan kopel tulangan baja tekan dan baja tarik tambahan (Nmm)

• **Menentukan  $As' = As_2$  dan  $As$**

Tegangan baja desak ;

$$fs' = 600 \cdot \left\{ 1 - \frac{0,85 \cdot f'c \cdot \beta_1}{(\rho - \rho') \cdot f_y} \frac{d'}{d_{diketahui}} \right\} \dots\dots\dots(3.74)$$

*Jika  $fs' \geq fy$ , maka baja desak sudah leleh, sehingga dipakai :*

$$fs' = fy$$

*Jika  $fs' < fy$ , maka baja desak belum leleh, sehingga dipakai :*

$$fs' = fs'$$

$$As' = \frac{Mn_2}{fs' \cdot (d_{diketahui} - d')} \dots\dots\dots(3.75)$$

$$n' \geq \frac{As'}{A_{1\phi}} ; n \text{ bilangan bulat}$$

$$n \geq 2 \text{ batang}$$

$$A_s = A_{s1} + A_{s'}, A_{s'} = A_{s2} \dots\dots\dots(3.76)$$

$$n \geq \frac{A_s}{A_{1\phi}} ; n \text{ bilangan bulat}$$

$$n \geq 2 \text{ batang}$$

dimana :

$\rho_1$  = rasio tulangan yang dipakai dalam perencanaan

$A_{s1}$  = luas penampang tulangan baja tarik ( $\text{mm}^2$ )

$A_{s2}$  = luas penampang tulangan baja tarik tambahan ( $\text{mm}^2$ )

$A_{s'}$  = luas penampang tulangan baja tekan ( $\text{mm}^2$ )

$n'$  = jumlah tulangan desak yang dipakai (buah)

$n$  = jumlah tulangan tarik yang dipakai (buah)

- **Kontrol kapasitas lentur yang terjadi**

$$\rho = \frac{A_s}{b.d_{diketahui}} \dots\dots\dots(3.77)$$

$$\rho' = \frac{A_{s'}}{b.d_{diketahui}} \dots\dots\dots(3.78)$$

Tegangan baja desak

$$f_{s'} = 600 \cdot \left\{ 1 - \frac{0,85 \cdot f'_c \cdot \beta_1}{(\rho - \rho') \cdot f_y} \frac{d'}{d_{diketahui}} \right\} \leq f_y \dots\dots\dots(3.79)$$

$$a = \frac{A_s \cdot f_y - A_{s'} \cdot f_{s'}}{0,85 \cdot f'_c \cdot b} \dots\dots\dots(3.80)$$

$$M_n = M_{n1} + M_{n2}$$

$$= (A_s \cdot f_y - A_{s'} \cdot f_{s'}) \left( d_{dik} - \frac{a}{2} \right) + (A_{s'} \cdot f_{s'}) (d_{dik} - d') \dots\dots(3.81)$$

### c) Perencanaan geser balok

Langkah-langkah perencanaan tulangan geser pada balok, sebagai berikut :

- **Menentukan tegangan geser beton ( $V_c$ )**

Tegangan geser beton biasa dinyatakan dalam fungsi dari  $\sqrt{f'_c}$  dan kapasitas beton dalam menerima geser menurut SK SNI T-15-1991-03 adalah sebesar :

$$V_c = \left( \frac{1}{6} \sqrt{f'_c} \right) b.d \quad (\text{Newton}) \quad \dots\dots\dots(3.82)$$

Sedangkan kekuatan minimal tulangan geser vertikal menahan geser, dinyatakan dalam :

$$V_{s_{\min}} = 1/3.b.d \quad (\text{Newton}) \quad \dots\dots\dots(3.83)$$

- **Menentukan jarak sengkang**

Berdasarkan kriteria jarak sengkang pada SK SNI T-15-1991-03, adalah sebagai berikut :

$$\text{➤ Bila } V_u \leq 0,5 \text{ } \emptyset V_c \quad \dots\dots\dots(3.84)$$

Geser tidak diperhitungkan

$$\text{➤ Bila } 0,5.V_c < \frac{V_u}{\phi} \leq V_c \quad \dots\dots\dots(3.85)$$

Perlu tulangan geser kecuali untuk struktur sebagai berikut :

struktur pelat (lantai, atap, pondasi), balok  $h \leq 25 \text{ cm}$ , atau

$h \leq 2,5 h_f$ .

Tulangan geser dengan jarak :

$$s \leq \frac{A_v \cdot f_y \cdot d}{V_{s_{\min}}} \dots\dots\dots(3.86)$$

$$\leq d/2 \dots\dots\dots(3.87)$$

$$\leq 600 \text{ mm}$$

➤ Bila  $V_c < \frac{V_u}{\phi} \leq (V_c + V_{s_{\min}}) \dots\dots\dots(3.88)$

Maka perlu tulangan geser, dengan jarak sengkang :

$$s \leq \frac{A_v \cdot f_y \cdot d}{V_{s_{\min}}}$$

$$\leq d/2$$

$$\leq 600 \text{ mm}$$

➤ Bila  $(V_c + V_{s_{\min}}) < \frac{V_u}{\phi} \leq 3 \cdot V_c \dots\dots\dots(3.89)$

Maka perlu tulangan geser, dengan jarak sengkang :

$$s \leq \frac{A_v \cdot f_y \cdot d}{\left( \frac{V_u}{\phi} - V_c \right)} \dots\dots\dots(3.90)$$

$$\leq d/2$$

$$\leq 600 \text{ mm}$$

➤ Bila  $3 \cdot V_c < \frac{V_u}{\phi} \leq 5 \cdot V_c \dots\dots\dots(3.91)$

Maka perlu tulangan geser, dengan jarak sengkang :

$$s \leq \frac{A_v \cdot f_y \cdot d}{\left( \frac{V_u}{\phi} - V_c \right)}$$

$$\leq d/4 \quad \dots\dots\dots(3.92)$$

$$\leq 600 \text{ mm}$$

$$\triangleright \text{ Bila } \frac{Vu}{\phi} > 5.Vc \quad \dots\dots\dots(3.93)$$

Maka ukuran balok diperbesar

dimana :

$V_{s_{min}}$  = kuat geser nominal tulangan geser minimal (N)

$V_c$  = tegangan ijin geser beton (MPa)

$V_u$  = gaya geser berfaktor akibat beban luar (N)

$\phi$  = faktor reduksi kekuatan, diambil nilai 0,60

$A_v$  = luas penampang tulangan geser ( $\text{mm}^2$ )

#### d) Perencanaan geser dan torsi balok

Langkah-langkah perencanaan geser dan torsi balok adalah sebagai berikut :

- **Identifikasi jenis torsi**

$\triangleright$  Untuk struktur statis tertentu : torsi keseimbangan

Pengaruh torsi diperhitungkan apabila momen torsi terfaktor :

$$T_u \geq \phi \left( \frac{1}{20} \cdot \sqrt{f'_c} \cdot \Sigma x^2 \cdot y \right) \quad \dots\dots\dots(3.94)$$

$\triangleright$  Untuk struktur statis tak tentu : torsi kompabilitas

Pengaruh torsi diperhitungkan apabila momen torsi terfaktor :

$$T_u \geq \phi \left( \frac{1}{9} \cdot \sqrt{f'_c} \cdot \Sigma x^2 \cdot y \right) \quad \dots\dots\dots(3.95)$$

- **Menentukan kuat momen torsi nominal ( $T_n$ )**

Kontrol kuat momen torsi yang terjadi :

$$T_u \geq \phi \cdot T_n$$

$$T_n = T_c + T_s \quad \dots\dots\dots(3.96)$$

➤ Bila puntir murni :

$$T_c = \left( \frac{1}{15} \cdot \sqrt{f'c} \cdot \Sigma x^2 \cdot y \right) \quad \dots\dots\dots(3.97)$$

➤ Bila puntir murni + geser :

$$T_c = \frac{\left( \frac{1}{15} \cdot \sqrt{f'c} \cdot \Sigma x^2 \cdot y \right)}{\sqrt{1 + \left( \frac{0,4 \cdot V_u}{C_t \cdot T_u} \right)^2}} \quad \dots\dots\dots(3.98)$$

$$C_t = \frac{bw \cdot d}{\Sigma x^2 \cdot y} \quad \dots\dots\dots(3.99)$$

$$V_c = \frac{\frac{1}{6} \cdot \sqrt{f'c} \cdot bw \cdot d}{\sqrt{1 + \left( 2,5 \cdot C_t \cdot T_u / V_u \right)^2}} \quad \dots\dots\dots(3.100)$$

➤ Bila puntir murni + geser + gaya aksial :

$$T_c = \frac{\left( \frac{1}{15} \cdot \sqrt{f'c} \cdot \Sigma x^2 \cdot y \right)}{\sqrt{1 + \left( \frac{0,4 \cdot V_u}{C_t \cdot T_u} \right)^2}} \cdot \left( 1 + 0,3 \cdot \frac{N_u}{A_g} \right) \quad \dots\dots\dots(3.101)$$

$$V_c = \frac{\frac{1}{6} \cdot \sqrt{f'c} \cdot bw \cdot d}{\sqrt{1 + \left( 2,5 \cdot C_t \cdot T_u / V_u \right)^2}} \cdot \left( 1 + 0,3 \cdot \frac{N_u}{A_g} \right) \quad \dots\dots\dots(3.102)$$

- Jika  $Tu/\phi \leq Tc \rightarrow$  torsi diabaikan
- Jika  $Tu/\phi > Tc \rightarrow$  perlu tulangan torsi

Untuk torsi keseimbangan :

$$T_s = Tu/\phi - T_c \dots\dots\dots(3.103)$$

Untuk torsi kompabilitas :

$$T_s = \left( \frac{1}{9} \cdot \sqrt{f'_c} \cdot \Sigma x^2 \cdot y \cdot \frac{1}{3} \right) - T_c \dots\dots\dots(3.104)$$

- Jika  $Tu/\phi > 4 \cdot T_c \rightarrow$  tampang diperbesar

dimana :

$T_n$  = kekuatan nominal tampang torsi (Nmm)

$T_u$  = kekuatan torsi terfaktor akibat beban geser (Nmm)

$T_s$  = kekuatan baja nominal menahan torsi (Nmm)

$T_c$  = kekuatan beton nominal menahan torsi (Nmm)

$N_u$  = gaya aksial terfaktor, (+) untuk tekan, (-) untuk tarik(N)

$A_g$  = luas tampang beton (mm<sup>2</sup>)

- **Menghitung perbandingan luas tulangan torsi dan jarak sengkang**

$$\frac{A_t}{s} = \frac{T_s}{\alpha_t \cdot x_1 \cdot y_1 \cdot f_y} \dots\dots\dots(3.105)$$

$$\alpha_t = \frac{1}{3} \left( 2 + \frac{y_1}{x_1} \right) \leq 1,5 \dots\dots\dots(3.106)$$



- **Menentukan tulangan geser + torsi**

Bila  $V_c < V_u/\phi$ , maka diperlukan tulangan geser.

$$V_s = V_u/\phi - V_c \quad \dots\dots\dots(3.107)$$

Perbandingan antara luas tulangan geser dan jarak :

$$\frac{A_v}{s} = \frac{V_s}{f_y.d} \quad \dots\dots\dots(3.108)$$

Luas total sengkang (tulangan torsi + geser)

$$\frac{A_{vt}}{s} = \frac{2.A_t}{s} + \frac{A_v}{s} \geq \frac{b.w.s}{3.f_y} \quad \dots\dots\dots(3.109)$$

- **Menentukan tulangan torsi memanjang**

$$A_{l1} = 2.A_t \left( \frac{x_1 + y_1}{s} \right); \text{ atau } \dots\dots\dots(3.110)$$

$$A_{l1} = \left[ \frac{2,8.x.s}{f_y} \left( \frac{T_u}{T_u + V_u/3.C_t} \right) - 2.2t \right] \left( \frac{x_1 + y_1}{s} \right) \quad \dots\dots\dots(3.111)$$

Nilai  $A_{l1}$  diambil yang terbesar, tetapi nilai  $A_{l1}$  tidak lebih dari :

$$A_{l2} = \left[ \frac{2,8.x.s}{f_y} \left( \frac{T_u}{T_u + V_u/3.C_t} \right) - \frac{b.w.s}{3.f_y} \right] \left( \frac{x_1 + y_1}{s} \right) \quad \dots\dots\dots(3.112)$$

dimana :

$A_v$  = luas sengkang menahan geser ( $\text{mm}^2$ )

$A_t$  = luas sengkang menahan torsi ( $\text{mm}^2$ )

$A_l$  = luas tulangan memanjang tambahan pada torsi ( $\text{mm}^2$ )

- **Kriteria tulangan geser dan torsi**

$$\text{➤ Jarak tulangan sengkang : } s \leq \frac{x_1 + y_1}{4} \quad (3.113)$$

$$\leq 300 \text{ mm.}$$

- Tulangan memanjang disebar merata ke semua sisi dengan jarak tulangan memanjang  $\leq 300 \text{ mm}$ .
- $\phi$  tulangan memanjang  $\geq 12 \text{ mm}$
- $f_y$  tulangan torsi  $\leq 400 \text{ MPa}$
- Tulangan torsi harus ada paling tidak sejauh  $(b+d)$  dari titik ujung teoritis torsi yang diperlukan.

### 3.2.3 Perencanaan kolom tunggal

#### 1. Perencanaan kolom pendek

Perencanaan kolom pendek diawali dengan penentuan dimensi kolom, secara lengkap. Langkah-langkah perencanaan kolom pendek sebagai berikut :

a) Menentukan propertis penampang kolom ( $b$ ,  $h$ ,  $f'_c$ ,  $f_y$ ,  $d'$ ,  $d$ ).

b) Menghitung kapasitas kolom pendek

$$P_n = 0,85 \cdot f'_c \cdot (A_g - A_{st}) + A_{st} \cdot f_y \quad \dots\dots\dots(3.114)$$

- Untuk sengkang biasa :

$$\phi \cdot P_n = 0,8 \cdot P_n = 0,8 \cdot (0,85 \cdot f'_c \cdot (A_g - A_{st}) + A_{st} \cdot f_y) \quad \dots\dots\dots(3.115)$$

Karena  $P_u \leq \phi \cdot P_n$ , maka untuk kolom diperoleh  $A_{g\text{perlu}}$  :

$$A_{g\text{perlu}} = \frac{P_u}{0,8 \cdot (0,85 \cdot f'_c \cdot (1 - \rho_g) + f_y \cdot \rho_g)} \quad \dots\dots\dots(3.116)$$

- Untuk sengkang spiral :

$$\phi.P_n = 0,85.P_n = 0,8.(0,85.f'_c.(A_g - A_{st}) + A_{st}.f_y) \dots\dots\dots(3.117)$$

Karena  $P_u \leq \phi.P_n$ , maka untuk kolom diperoleh  $A_{g\text{perlu}}$  :

$$A_{g\text{perlu}} = \frac{P_u}{0,85.(0,85.f'_c.(1 - \rho_g) + f_y.\rho_g)} \dots\dots\dots(3.118)$$

Sehingga setelah nilai  $A_{g\text{perlu}}$  diperoleh, panjang dan lebar sisi kolom persegi atau diameter kolom bulat dapat ditentukan

$$A_g = b.h = \frac{1}{4}.\pi.D^2 \dots\dots\dots(3.119)$$

$$A_{st} = n\%.A_g = A_s + A_{s'} \dots\dots\dots(3.120)$$

$$A_{s'} = A_s = \frac{A_{st}}{2} \dots\dots\dots(3.121)$$

dimana :  $P_u$  = gaya aksial terfaktor (N)

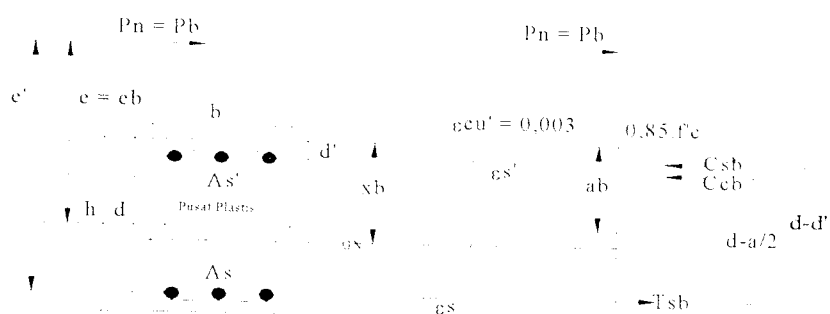
$P_n$  = kuat desak aksial pada eksentrisitas tertentu (N)

$A_{st}$  = luas tulangan total pada kolom ( $\text{mm}^2$ )

$A_{s'}$  = luas tulangan tekan pada kolom ( $\text{mm}^2$ )

$A_s$  = luas tulangan tarik pada kolom ( $\text{mm}^2$ )

c) Kapasitas kolom dengan beban eksentrisitas



**Gambar 3.5** Tampang, regangan dan tegangan kolom persegi

$$x_b = \frac{600}{600 + f_y}.d \rightarrow d = h - d' \dots\dots\dots(3.125)$$

$$f_s' = \frac{Xb - d'}{Xb} \cdot 600 \quad \dots\dots\dots(3.126)$$

$$f_s' \geq f_y \rightarrow f_s' = f_y$$

$$f_s' < f_y \rightarrow f_s' = f_s'$$

Gaya tekan beton pada kondisi seimbang ditentukan dari :

$$C_{cb} = 0,85 \cdot f'_c \cdot b \cdot Xb \cdot \beta \quad \dots\dots\dots(3.127)$$

Gaya tekan baja pada kondisi seimbang ditentukan dari :

$$C_{sb} = A_s' \cdot (f_s' - 0,85 \cdot f'_c) \quad \dots\dots\dots(3.128)$$

Gaya tarik baja pada kondisi seimbang ditentukan dari :

$$T_{sb} = A_s \cdot f_y \quad \dots\dots\dots(3.129)$$

$$P_{nb} = C_{cb} + C_{sb} - T_{sb} \quad \dots\dots\dots(3.130)$$

$$M_{nb} = C_{cb} \cdot \left( \frac{h}{2} - \left( \frac{\beta \cdot Xb}{2} \right) \right) + C_{sb} \cdot \left( \frac{h}{2} - d' \right) + T_{sb} \cdot \left( d - \frac{h}{2} \right) \quad \dots\dots\dots(3.131)$$

$$e_b = \frac{M_{nb}}{P_{nb}} \quad \dots\dots\dots(3.132)$$

$$e = \frac{Mu}{Nu} \cdot \frac{\phi}{\phi} \quad \dots\dots\dots(3.133)$$

$e > e_b \rightarrow$  kolom mengalami patah tarik.

$e < e_b \rightarrow$  kolom mengalami patah desak.

Kontrol Tegangan :

- Patah tarik

$$P_n = 0,85 \cdot f'_c \cdot b \cdot d \cdot \left[ \left( -\rho \right) + 1 - \frac{e'}{d} + \sqrt{\left( 1 - \frac{e'}{d} \right)^2 + 2 \cdot \rho \cdot \left[ (m-1) \left( 1 - \frac{d'}{d} \right) \right] + \frac{e'}{d}} \right] \quad \dots\dots\dots(3.134)$$

$$e' = e + \left(d - \frac{h}{2}\right) \dots\dots\dots(3.135)$$

$$e = \frac{Mu}{Pu} \dots\dots\dots(3.136)$$

$$\rho = \frac{As}{bd} \dots\dots\dots(3.137)$$

- Patah desak

$$P_n = \frac{As' f_y}{\frac{e}{(d - d')} + 0,5} + \frac{b h f'_c}{3 h e + 1,18 d^2} \dots\dots\dots(3.138)$$

$$e = \frac{Mu}{Pu} \dots\dots\dots(3.139)$$

dimana :

$M_{nb}$  = kapasitas lentur kolom dalam keadaan seimbang  
(Nmm)

$P_{nb}$  = kuat desak aksial kolom dalam keadaan seimbang  
(N)

$e_b$  = eksentrisitas gaya pada kolom dalam keadaan seimbang (mm)

$f_s'$  = tegangan leleh baja tulangan yang terjadi (MPa)

$X_b$  = jarak serat terluar beton ketitik ditinjau keadaan seimbang (mm)

$x$  = jarak serat terluar beton ketitik ditinjau (mm)

$A_s$  = luasan tulangan baja tarik (mm<sup>2</sup>)

## 2. Perencanaan kolom langsing

Tahap-tahap perencanaan kolom langsing adalah sebagai berikut :

**a) Menentukan tingkat kelangsingan kolom**

$$\text{Kelangsingan} = \frac{k \cdot l}{r} \rightarrow r = \sqrt{\frac{I}{A}} \dots\dots\dots(3.140)$$

- Untuk kolom tampang persegi dengan lebar b dan tinggi h :

$$r = \sqrt{\frac{I_x}{A}} = \sqrt{\frac{(b \cdot h^3)/12}{b \cdot h}} = 0,288 \cdot h = 0,3 \cdot h$$

- Untuk kolom bulat dengan diameter D :

$$r = \sqrt{\frac{(\pi \cdot D^4)/64}{(\pi \cdot D^2)/4}} = 0,25 \cdot h$$

dimana :

k = faktor panjang efektif

lu = panjang bersih kolom (m)

r = jari - jari girasi (m)

I = inersia tampang (m<sup>4</sup>)

A = luas tampang (m<sup>2</sup>)

Nilai k ditentukan dengan memperhatikan kondisi kolom :

- Untuk kolom lepas

Kedua ujung sendi, tidak tergerak lateral; k = 1,0

Kedua ujung sendi; k = 0,5

Satu ujung jepit, ujung yang lain bebas k = 2,0

Kedua ujung jepit, ada gerak lateral k = 1,0

- Faktor panjang efektif merupakan fungsi dari faktor kekakuan ujung  $\psi_A$  dan  $\psi_B$  untuk masing-masing titik ujung

atas dan bawah yang didefinisikan sebagai :

$$\psi = \frac{\sum \left( \frac{E_c I_c}{L_c} \right)}{\sum \left( \frac{E_g I_g}{L_g} \right)} \dots \dots \dots (3.141)$$

dimana

$E_c$  = Modulus elastis pada kolom (MPa)

$E_g$  = Modulus elastis pada balok (MPa)

$I_c$  = Inersia kolom ( $m^4$ )

$I_g$  = Inersia balok ( $m^4$ )

$L_c$  = Panjang kolom (m)

$L_g$  = Panjang balok (m)

Kemudian nilai  $\psi$  diplotkan ke dalam grafik *nomogram* atau grafik *alignment*.

Batasan-batasan kolom disebut langsing, adalah :

$$\frac{k \cdot l}{r} < 34 - 12 \cdot \frac{M_{1b}}{M_{2b}}, \text{ untuk rangka dengan pengaku lateral (tak bergoyang)}$$

$$< 22, \text{ untuk rangka / portal bergoyang}$$

$M_{1b}$  dan  $M_{2b}$  adalah momen-momen ujung terfaktor pada kolom yang posisinya berlawanan ( $M_{1b} \leq M_{2b}$ ). Sedangkan  $l$  merupakan panjang bersih kolom,  $k$  adalah faktor panjang efektif dan  $r$  adalah jari-jari girasi kolom.

#### b) Pembesaran momen

$$M_c = \delta_b \cdot M_{u1} + \delta_s \cdot M_{u2} \dots \dots \dots (3.142)$$

$$\delta_b = \frac{C_m}{1 - \left( \frac{P_u}{\phi P_c} \right)} \geq 1 \quad \dots\dots\dots(3.143)$$

$$\delta_s = \frac{C_m}{1 - \left( \frac{\Sigma P_u}{\phi \Sigma P_c} \right)} \geq 1 \quad \dots\dots\dots(3.144)$$

$$P_c = \frac{\mu^2 EI}{(kL)^2} \text{ (rumus Euler)} \quad \dots\dots\dots(3.145)$$

Dalam peraturan SK-SNI T-15-1991-03 pasal 3.3.11 ayat 5.2, memberikan ketentuan untuk memperhitungkan EI sebagai berikut:

$$EI_1 = \frac{1}{5} \frac{(E_c I_g) + E_s I_{se}}{1 + \beta_d} \quad \dots\dots\dots(3.146)$$

$$EI_2 = \frac{0,4 E_c I_g}{1 + \beta_d} \quad \dots\dots\dots(3.147)$$

dimana :

$\delta_b$  = Pembesaran momen dengan pengaku pada pembebanan tetap

$\delta_s$  = Pembesaran momen tanpa pengaku pada pembebanan sementara

$M_{u1}$  = Momen terfaktor terbesar pada ujung komponen tekan akibat pembebanan tetap (KNm)

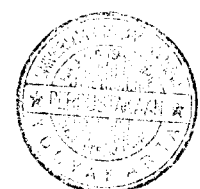
$M_{u2}$  = Momen terfaktor terbesar disepanjang komponen tekan akibat pembebanan sementara (KNm)

$P_u$  = Beban aksial kolom akibat gaya luar (KN)

$\phi$  = 0,6 = Faktor reduksi

$P_c$  = Beban tekuk (KN)

$E_s$  = Modulus elastis baja tulangan =  $2.10^5$  MPa





$$\beta.d = \frac{\text{momen.akibat.beban.mati.rencana}}{\text{momen.akibat.beban.total}}$$

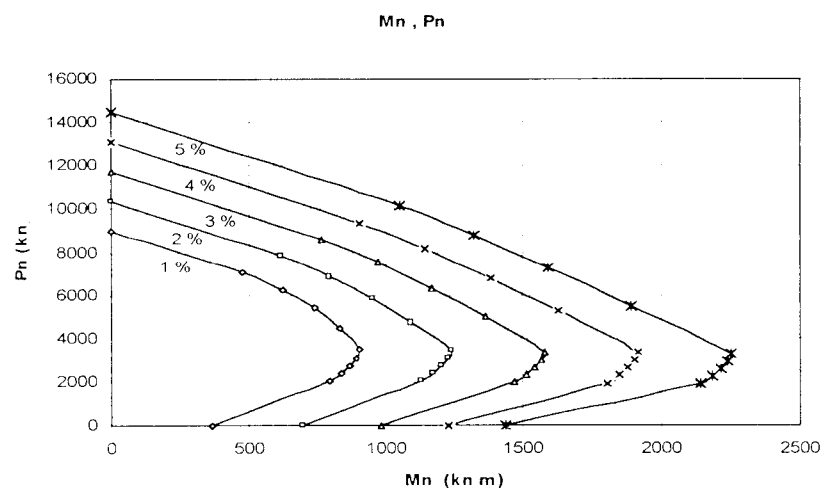
$\Sigma P_u$  dan  $\Sigma P_c$  = Penjumlahan gaya tekan dari semua kolom dalam satu tingkat (KN)

### c) Momen rencana

$$P_n = \frac{P_u}{\phi} \dots\dots\dots(3.148)$$

$$M_n = \frac{M_u}{\phi} \dots\dots\dots(3.149)$$

Dari nilai tersebut dimasukkan ke dalam diagram tegangan regangan kolom untuk mendapatkan luas tulangan rencana.



**Gambar 3.6** Diagram Mn-Pn

### 3.3 Perencanaan Beban Gempa

Perencanaan struktur portal dengan daktilitas penuh. Pembebanan gempa menurut Pedoman Ketahanan Gempa untuk Rumah dan Gedung (PPKGURDG, 1987) dinyatakan dalam :

$$V = C.I.K.W_t \dots\dots\dots(3.150)$$

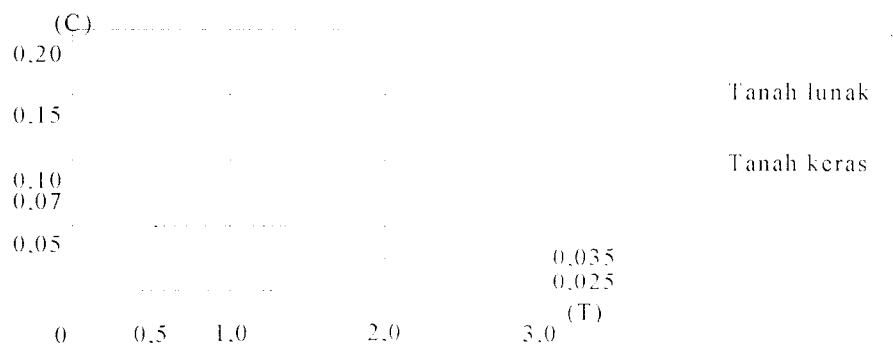
Gaya geser yang harus dibagi pada masing-masing lantai tingkat dapat dihitung dengan rumus :

$$F_i = \frac{W_i H_i}{\sum W_j H_j} V \quad \dots\dots\dots(3.151)$$

dimana :

- V = gaya geser dasar horizontal total akibat gempa (Ton)
- C = koefisien gempa dasar
- I = faktor keutamaan struktur
- K = faktor jenis struktur
- $W_i$  = berat kombinasi beban mati dan beban hidup yang direduksi(Ton)
- H = tinggi bangunan (m)
- $F_i$  = gaya geser tiap tingkat (Ton)

Koefisien gempa dasar untuk wilayah gempa 3 ditentukan dengan menggunakan waktu getar alami struktur seperti pada gambar berikut ini :



**Gambar 3.7** Koefisien gempa dasar C (3)

Waktu getar alami struktur (T) untuk portal beton ditentukan dengan persamaan,  $T = 0,06.H^{3/4}$  .....(3.152)

dimana : H adalah tinggi struktur (m)

### 3.4 Perencanaan Struktur Rangka Dengan Daktilitas Penuh

#### 3.4.1 Perencanaan balok portal terhadap beban lentur

Kuat lentur perlu balok portal ( $M_{u,b}$ ) harus ditentukan berdasarkan kombinasi pembebanan tanpa atau dengan beban gempa sebagai berikut ini :

$$M_{u,b} = 1,2.M_{D,b} + 1,6.M_{L,bR} \dots\dots\dots(3.153)$$

$$M_{u,b} = 1,05.(M_{D,b} + M_{L,bR} + M_{E,b}) \dots\dots\dots(3.154)$$

$$M_{u,b} = 0,9.M_{D,b} + M_{E,b} \dots\dots\dots(3.155)$$

dimana :

$M_{D,b}$  = momen lentur balok portal akibat beban mati tak berfaktor

$M_{L,b}$  = momen lentur balok portal akibat beban hidup tak berfaktor dengan memperhitungkan reduksinya sehubungan dengan peluang terjadinya pada lantai tingkat yang ditinjau, sesuai dengan *Tata Cara Pembebanan untuk Rumah dan Gedung 1987*

$M_{E,b}$  = momen lentur balok portal akibat beban gempa tak berfaktor

Dalam perencanaan kapasitas balok portal, momen tumpuan negatif akibat kombinasi beban gravitasi dan beban gempa balok boleh didistribusikan dengan menambah atau mengurangi dengan prosentase yang tidak melebihi :

$$q = 30 \cdot \left\{ 1 - \frac{4}{3} \frac{\rho - \rho'}{\rho_b} \right\} \% ; \quad \rho - \rho' < 0,5\rho_b \dots\dots\dots(3.156)$$

dimana :  $\rho$  = rasio tulangan tarik

$\rho'$  = rasio tulangan tekan

$\rho_b$  = rasio tulangan tarik dalam keadaan seimbang (*balance*)

Perencanaan kuat lentur nominal balok harus dihitung dengan persamaan,

$$\phi M_{nak,b} \geq M_{ub} \quad \dots\dots\dots(3.157)$$

dimana :

$M_{nak,b}$  = kuat lentur nominal balok berdasarkan tulangan terpasang

Khusus untuk portal dengan daktilitas penuh perlu dihitung kapasitas lentur sendi plastis balok yang besarnya ditentukan sebagai berikut :

$$M_{kap,b} = \phi_0 \cdot M_{nak,b} \quad \dots\dots\dots(3.158)$$

$$M'_{kap,b} = \phi_0 \cdot M'_{nak,b} \quad \dots\dots\dots(3.159)$$

dimana :

$M_{kap,b}$  = kapasitas lentur aktual balok pada pusat pertemuan balok kolom dengan memperhitungkan luas tulangan tarik terpasang (KNm)

$M'_{kap,b}$  = kapasitas lentur aktual balok pada pusat pertemuan balok kolom dengan memperhitungkan luas tulangan tekan terpasang (KNm)

$M_{nak,b}$  = kuat lentur nominal balok berdasarkan tulangan tarik terpasang (KNm)

$M'_{nak,b}$  = kuat lentur nominal balok berdasarkan luas tulangan tekan (KNm)

$\phi_0$  = faktor penambahan kekuatan sebesar 1,25 untuk  $f_y < 400$  MPa dan 1,4 untuk  $f_y > 400$  MPa

### 3.4.2 Perencanaan balok portal terhadap beban geser

Perencanaan kuat geser balok harus memenuhi ketentuan berikut ini :

$$\phi \cdot V_n \geq V_{u,b} \quad \dots\dots\dots(3.160)$$

dimana :

$\phi \cdot V_n$  = kapasitas geser rencana balok.

Dengan konsep desain kapasitas, kuat geser balok portal dihitung dalam kondisi terjadi sendi-sendi plastis pada kedua ujung balok portal tersebut dengan ketentuan berikut,

$$V_{u,b} = 0,7 \cdot \frac{M_{kap} + M'_{kap}}{l_n} + 1,05 \cdot (V_D + V_L) \quad \dots\dots\dots(3.161)$$

tetapi tidak perlu lebih besar dari :

$$V_{u,b}^* = 1,07 \cdot \left( V_{D,b} + V_{L,b} + \frac{4}{k} \cdot V_{E,b} \right) \quad \dots\dots\dots(3.162)$$

Gaya geser maksimum dihitung dengan ketentuan berikut,

$$V_{u,max} = V_s = \frac{V_{u,b}}{\phi} \quad \dots\dots\dots(3.163)$$

Gaya geser pada penampang kritis, sejauh  $d$  dari garis tengah kolom dihitung dengan ketentuan berikut,

$$V_u = \frac{l_n - d}{l_n} \cdot V_{u,max} \quad \dots\dots\dots(3.164)$$

dimana :

$V_u$  = kuat geser terfaktor pada penampang yang ditinjau (KN)

$M_{kap}$  = momen kapasitas balok berdasarkan tulangan yang sebenarnya terpasang pada salah satu ujung balok atau bidang muka kolom (KNm)

$M'_{kap}$  = momen kapasitas balok berdasarkan tulangan yang sebenarnya terpasang pada ujung balok atau bidang muka kolom yang lain (KNm)

$V_{D,b}$  = gaya geser balok akibat beban mati (KN)

$V_{L,b}$  = gaya geser balok akibat beban hidup (KN)

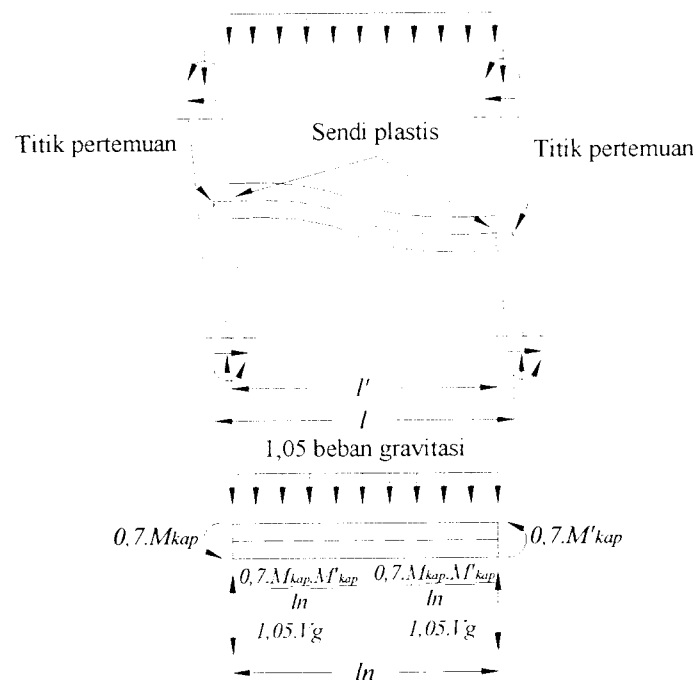
$V_{E,b}$  = gaya geser balok akibat beban gempa (KN)

$l_n$  = bentang bersih balok (m)

$K$  = faktor jenis struktur ( $K \geq 1$ )

$d$  = tinggi efektif penampang (m)

Selanjutnya untuk kriteria perencanaan tulangan geser sesuai dengan yang disyaratkan SK SNI T-15-1991-03 yakni pada persamaan 3.84 s/d 3.93 di atas.



**Gambar 3.8** Balok portal dengan sendi plastis pada kedua ujungnya

### 3.4.3 Perencanaan kolom portal terhadap beban lentur dan aksial

Kuat lentur kolom portal dengan daktilitas penuh yang ditentukan pada bidang muka balok  $M_{u,k}$  harus dihitung berdasarkan terjadinya kapasitas lentur sendi plastis pada kedua ujung balok yang bertemu dengan kolom tersebut, yaitu :

$$\Sigma M_{u,k} = \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \Sigma M_{kap,b} \dots\dots\dots (3.165)$$

$$\text{atau : } M_{u,k} = \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \left[ \frac{l}{\ln} (\Sigma M_{kap,bx} + 0,3 \cdot \Sigma M_{kap,by})_{l_{ii}} \right] \dots\dots (3.166)$$

$$M_{u,k} = \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \left[ \frac{l}{\ln} (\Sigma M_{kap,bx} + 0,3 \cdot \Sigma M_{kap,by})_{l_{ii-1}} \right] \dots (3.167)$$

$$M_{u,k} = \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \left[ \frac{l}{\ln} (0,3 \cdot \Sigma M_{kap,bx} + \Sigma M_{kap,by})_{l_{ii}} \right] \dots\dots (3.168)$$

$$M_{u,k} = \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \left[ \frac{l}{\ln} (0,3 \cdot \Sigma M_{kap,bx} + \Sigma M_{kap,by})_{l_{ii-1}} \right] \dots (3.169)$$

$$\alpha_k = \frac{M_{maks_{atas}}}{M_{maks_{atas}} + M_{maks_{bawah}}} \dots\dots\dots (3.170)$$

tetapi dalam segala hal tidak perlu lebih besar dari :

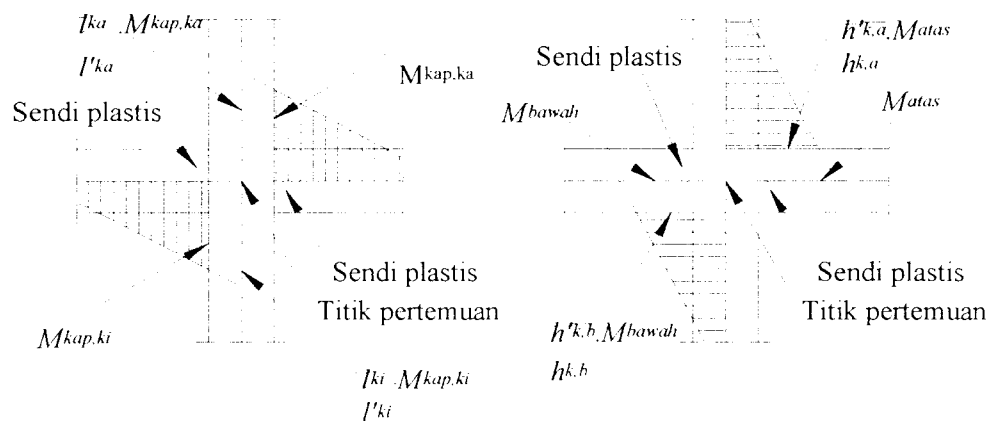
$$M_{u,k} = 1,05 \cdot \left( M_{D,k} + M_{L,k} + \frac{4}{K} M_{E,k} \right) \dots\dots\dots (3.171)$$

dimana :

$M_{kap,ki}$  = momen kapasitas lentur balok di sebelah kiri bidang muka kolom (KNm)

$M_{kap,ka}$  = momen kapasitas lentur balok di sebelah kanan bidang muka kolom (KNm)

- $\omega_d$  = faktor pembesar dinamis yang memperhitungkan pengaruh terjadinya sendi plastis pada struktur secara keseluruhan ( $\omega_d=1,3$ )
- $\alpha_k$  = faktor distribusi momen kolom portal sesuai dengan kekakuan relatif kolom atas dan kolom bawah
- $k$  = kekakuan relatif kolom
- $M_{D,k}$  = momen kolom akibat beban mati (KNm)
- $M_{L,k}$  = momen kolom akibat beban hidup (KNm)
- $M_{E,k}$  = momen kolom akibat beban gempa (KNm)
- $K$  = faktor jenis struktur ( $K \geq 1,0$ )



**Gambar 3.9** Pertemuan balok kolom dengan sendi plastis pada ujung-ujungnya

Sedangkan beban aksial rencana,  $N_{u,k}$  yang bekerja pada kolom portal dengan daktilitas penuh, dihitung dengan :

$$N_{u,k} = 0,7.R_f \cdot \left( \frac{M_{kap,ki}}{l_{ki}} + \frac{M_{kap,ka}}{l_{ka}} \right) + 1,05.N_{g,k} \dots\dots\dots(3.172)$$



tetapi dalam segala hal tidak perlu lebih besar dari :

$$N_{u,k} = 1,05 \cdot \left( N_{g,k} + \frac{4}{K} \cdot N_{E,k} \right) \dots\dots\dots(3.173)$$

dimana :

$R_V$  = faktor reduksi yang ditentukan sebesar :

$$1,0 \quad \text{untuk } 1 < n < 4$$

$$1,1 - 0,025 \cdot n \quad \text{untuk } 4 < n < 20$$

$$0,6 \quad \text{untuk } n > 20$$

$n$  = jumlah lantai diatas kolom yang ditinjau

$l_{ki}$  = bentang balok sebelah kiri as kolom dari as ke as kolom (m)

$l_{ka}$  = bentang balok sebelah kanan as kolom dari as ke as kolom (m)

$N_{g,k}$  = gaya aksial kolom akibat beban gravitasi (KN)

$N_{E,k}$  = gaya aksial kolom akibat beban gempa (KN)

#### 3.4.4 Perencanaan kolom portal terhadap beban geser

Kuat geser kolom portal dengan daktilitas penuh berdasarkan terjadinya sendi-sendi plastis pada ujung-ujung balok yang bertemu pada kolom tersebut, yang dihitung dengan cara sebagai berikut :

$$V_{u,k} = \frac{M_{u,k_{atas}} + M_{u,k_{bawah}}}{h_k'} \dots\dots\dots(3.174)$$

dan dalam segala hal tidak perlu lebih besar dari :

$$V_{u,k} = 1,05 \cdot \left( M_{D,k} + M_{L,k} + \frac{4}{K} \cdot V_{E,k} \right) \dots\dots\dots(3.175)$$

Kapasitas lentur sendi plastis kolom dapat dihitung :

$$M_{kap,k \text{ bawah}} = \phi_0 \cdot M_{nak,k \text{ bawah}} \dots\dots\dots(3.176)$$

dimana :

$M_{u,k \text{ atas}}$  = momen rencana kolom ujung atas dihitung pada muka balok (KNm)

$M_{u,k \text{ bawah}}$  = momen rencana kolom ujung bawah dihitung pada muka balok (KNm)

$h'_k$  = tinggi bersih kolom (m)

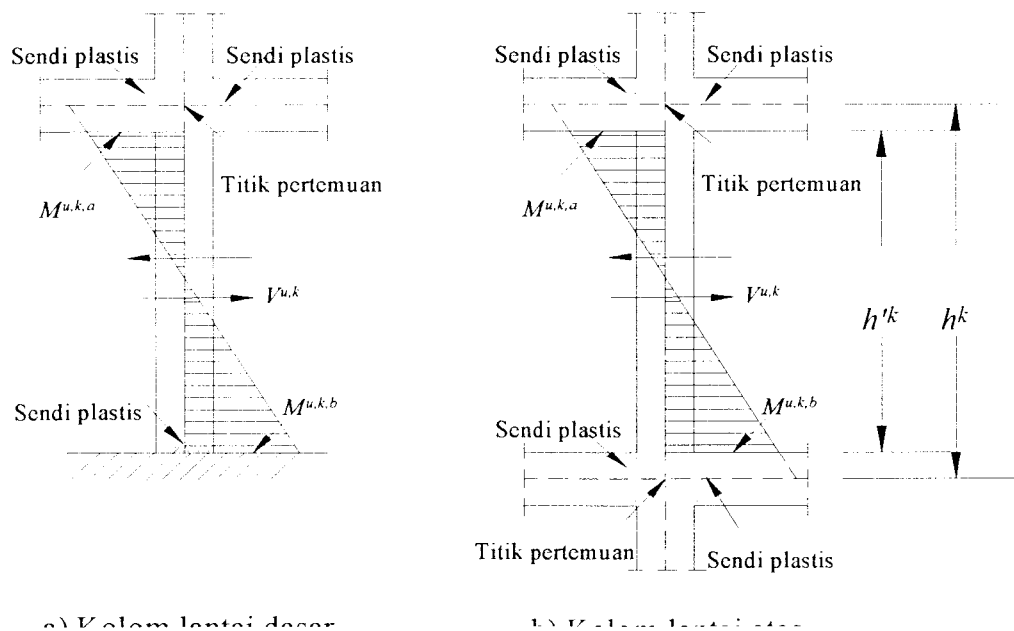
$V_{D,k}$  = gaya geser kolom akibat beban mati (KN)

$V_{L,k}$  = gaya geser kolom akibat beban hidup (KN)

$V_{E,k}$  = gaya geser kolom akibat beban gempa (KN)

$M_{kap,k \text{ bawah}}$  = kapasitas lentur ujung dasar kolom lantai dasar (KNm)

$M_{nak,k \text{ bawah}}$  = kuat lentur nominal aktual ujung dasar kolom lantai dasar (KNm)



**Gambar 3.10** Kolom dengan  $M_{u,k}$  berdasarkan kapasitas sendi plastis balok

Kuat geser yang disumbangkan beton untuk struktur yang dibebani tekan aksial diberikan dengan ketentuan :

$$V_c = \left(1 + \frac{P_{u,k}}{14.A_g}\right) \cdot \frac{1}{6} \cdot \sqrt{f'_c} \cdot b \cdot d \quad \dots\dots\dots(3.177)$$

Untuk daerah sendi plastis sejauh Z dari atas atau bawah balok, jarak tulangan S :

$$S \leq \frac{A_v \cdot f_y \cdot d}{V_u / \phi} \quad \dots\dots\dots(3.178)$$

$$\leq \frac{1}{4} \cdot \text{dimensi tampang kolom terkecil} \quad \dots\dots\dots(3.179)$$

$$\leq 8 \cdot \emptyset \text{ tulangan memanjang kolom} \dots\dots\dots(3.180)$$

$$\leq 100 \text{ mm} \quad \dots\dots\dots(3.181)$$

$$Z = h \rightarrow \text{untuk } N_{u,k} < 0,3 \cdot A_g \cdot f'_c \quad \dots\dots\dots(3.182)$$

$$Z = 1,5 \cdot h \rightarrow \text{untuk } N_{u,k} > 0,3 \cdot A_g \cdot f'_c \quad \dots\dots\dots(3.183)$$

$$= \frac{1}{6} \cdot h' \cdot k \quad \dots\dots\dots(3.184)$$

$$= 450 \text{ mm} \quad \dots\dots\dots(3.185)$$

Bukan daerah sendi :

$$S \leq \frac{A_v \cdot f_y \cdot d}{\left(\frac{V_u}{\phi}\right) - V_c} \quad \dots\dots\dots(3.186)$$

$$\leq \frac{1}{4} \cdot \text{dimensi tampang kolom terkecil}$$

$$\leq 8 \cdot \emptyset \text{ tulangan memanjang kolom}$$

$$\leq 100 \text{ mm}$$

dimana :

$V_c$  = tegangan ijin geser beton (MPa)

$N_u$  = gaya aksial kolom (N)

$A_g$  = luas penampang kolom ( $\text{mm}^2$ )

$S$  = jarak sengkang (mm)

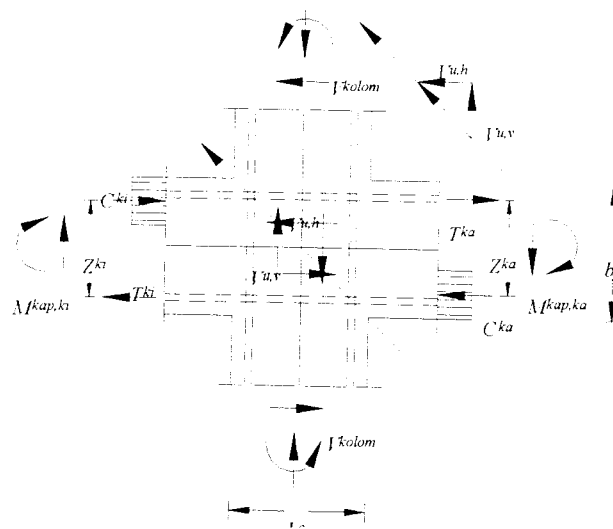
$V_u$  = gaya geser berfaktor akibat beban luar (N)

$\phi$  = faktor reduksi kekuatan, diambil nilai 0,60

$A_v$  = luas penampang tulangan geser ( $\text{mm}^2$ )

### 3.5 Perencanaan panel pertemuan balok kolom

Panel pertemuan balok kolom portal diproporsikan untuk dapat memenuhi persyaratan kuat geser horizontal perlu ( $V_{j,h}$ ) dan kuat geser vertikal ( $V_{j,v}$ ) yang berkaitan dengan terjadinya momen kapasitas pada sendi plastis pada kedua ujung balok yang bertemu pada kolom itu. Gaya-gaya yang membentuk keseimbangan pada join rangka adalah seperti pada gambar dibawah ini :



**Gambar 3.11** Panel pertemuan balok dan kolom portal

Gaya-gaya yang membentuk keseimbangan pada join rangka ditentukan dengan ketentuan sebagai berikut :

Gaya geser horizontal kolom pada join ( $V_{kol}$ ) ditentukan dari :

$$V_{kol,x} = \frac{0,7 \cdot \left( \sum \frac{l_v}{l_n} \cdot M_{kap,b_x} + 0,3 \cdot \sum \frac{l_v}{l_n} \cdot M_{kap,b_y} \right)}{\frac{1}{2} \cdot (h_{k,a} + k_{k,b})} \dots\dots\dots(3.187)$$

$$V_{kol,y} = \frac{0,7 \cdot \left( 0,3 \cdot \sum \frac{l_x}{l_n} \cdot M_{kap,b_x} + \sum \frac{l_y}{l_n} \cdot M_{kap,b_y} \right)}{\frac{1}{2} \cdot (h_{k,a} + k_{k,b})} \dots\dots\dots(3.188)$$

$$V_{jh} = C_{ki} + T_{ka} - V_{kol} \dots\dots\dots(3.189)$$

$$C_{ki} = T_{ki} = 0,7 \cdot \frac{M_{kap,b_{ki}}}{Z_{ki}} \dots\dots\dots(3.190)$$

$$T_{ka} = C_{ka} = 0,7 \cdot \frac{M_{kap,b_{ka}}}{Z_{ka}} \dots\dots\dots(3.191)$$

dimana :

$l_{ki}$  = panjang bentang balok sebelah kiri join (m)

$l'_{ki}$  = panjang bentang netto balok sebelah kiri join (m)

$l_{ka}$  = panjang bentang balok sebelah kanan join (m)

$l'_{ka}$  = panjang bentang netto balok sebelah kanan join (m)

$h_{ka}$  = tinggi kolom atas (m)

$h_{kb}$  = tinggi kolom bawah (m)

$V_{jh}$  = tegangan geser horizontal nominal dalam join (KN)

$C_{ki}$  = gaya desak beton dalam inti join (KN)

$T_{ki}$  = gaya tarik baja dalam inti join (KN)

$Z$  = kopel momen antara gaya desak beton dan gaya tarik baja dalam inti beton di sebelah kiri dan kanan join (m)

Kontrol tegangan geser horizontal minimum dalam join adalah :

$$V_{jh \text{ aktual}} = \frac{V_{jh}}{b_j \cdot h_c} < 1,15 \cdot \sqrt{f'c} \text{ (MPa)} \quad \dots\dots\dots(3.192)$$

dimana :

$b_j$  = tinggi balok (m)

$h_c$  = tinggi potongan penampang kolom dalam arah geser yang ditinjau (m)

Gaya geser horizontal  $V_{jh}$  ditahan oleh dua mekanisme kuat geser inti join, yaitu :

1. Strat beton diagonal yang melewati daerah tekan ujung join yang memikul gaya geser  $V_{ch}$ .
2. Mekanisme panel rangka yang terdiri dari sengkang horizontal dan strat beton diagonal daerah tarik join yang memikul gaya geser  $V_{sh}$ .

sehingga :  $V_{sh} + V_{ch} = V_{jh}$

Besarnya  $V_{ch}$  yang dipikul oleh strat beton harus sama dengan nol, kecuali bila :

1. Tegangan tekan rata-rata minimal pada penampang bruto kolom beton diatas join, termasuk tegangan prategang, apabila ada, melebihi nilai  $0,1 \cdot f'c$ , maka :

$$V_{ch} = \frac{2}{3} \cdot \left\{ \sqrt{\frac{N_{u,k}}{A_g}} - 0,1 \cdot f'c \right\} \cdot b_j \cdot h_c \quad \dots\dots\dots(3.193)$$

2. Balok diberi gaya prategang yang melewati join, maka :

$$V_{ch} = 0,7.P_{cs} \dots\dots\dots(3.194)$$

dimana :

$P_{cs}$  = gaya permanen dalam baja prategang yang terletak di sepertiga bagian tengah tinggi kolom.

3. Seluruh balok pada join dirancang sehingga penampang kritis sendi plastis terletak pada jarak yang lebih kecil dari tinggi penampang balok diukur dari muka kolom, maka :

$$V_{ch} = 0,5 \cdot \left[ \frac{A'_s}{A_s} \right] V_{jh} \left[ 1 + \frac{N_{u,k}}{0,4 \cdot A_g \cdot f'_c} \right] \dots\dots\dots(3.195)$$

dimana rasio  $\frac{A'_s}{A_s} \leq 1$

Bila tegangan rata-rata minimum pada penampang bruto kolom di atas join kurang dari  $0,1 \cdot f'_c$  ( $\rho_c < 0,1 \cdot f'_c$ ), maka :

$$V_{sh} = V_{jh} - \frac{2}{3} \sqrt{\left( \frac{N_{u,k}}{A_g} \right)} - (0,1 \cdot f'_c) \cdot b_j \cdot h_c \dots\dots\dots(3.196)$$

Pada join rangka dengan melakukan relokasi sendi plastis

$$V_{sh} = V_{jh} - 0,5 \cdot \frac{A'_s}{A_s} \cdot V_{jh} \cdot \left[ 1 + \frac{N_{u,k}}{0,4 \cdot A_g \cdot f'_c} \right] \dots\dots\dots(3.197)$$

Luas total efektif tulangan geser horizontal yang melewati bidang kritis diagonal dengan yang diletakkan di daerah tekan join efektif ( $b_j$ ) tidak boleh kurang dari :

$$A_{jh} = \frac{V_{sh}}{f_y} \dots\dots\dots(3.198)$$

Geser join vertikal  $V_{jv}$  dapat dihitung dari :

$$V_{jv} = V_{jh} \cdot \frac{b_j}{h_c} \dots\dots\dots(3.199)$$

Tulangan geser vertikal di dapat dari :

$$V_{sv} = V_{jv} - V_{cv} \dots\dots\dots(3.200)$$

menjadi :

$$V_{cv} = A_{sc}' \cdot \frac{V_{jh}}{A_{sc}} \cdot \left( 0,6 + \frac{N_{u,k}}{A_g \cdot f'c} \right) \dots\dots\dots(3.201)$$

dimana :

$A_{sc}'$  = luas tulangan longitudinal tekan

$A_{sc}$  = luas tulangan longitudinal tarik

Luas tulangan join vertikal ditentukan dari :

$$A_{jv} = \frac{V_{sv}}{f_y} \dots\dots\dots(3.202)$$

### 3.6 Perencanaan Pondasi

#### 3.6.1 Perencanaan pondasi telapak

Langkah – langkah dalam perencanaan pondasi telapak adalah :

1. Diketahui beban kerja,  $f_c'$ ,  $f_y$ ,  $\sigma$  tanah dan tebal pelat pondasi dapat diasumsikan.
2. Menentukan daya dukung tanah netto

$$q = h_1 \cdot \gamma_1 + h_2 \cdot \gamma_2 \dots\dots\dots(3.203)$$

$$\sigma_{\text{netto}} = \sigma_{\text{tanah}} - q \dots\dots\dots(3.204)$$



### 3. Menentukan dimensi pondasi telapak

Dimensi pondasi bujursangkar terdapat momen yang bekerja pada arah x dan y, sehingga :

$$A_{\text{perlu}} = \frac{P}{\sigma_{\text{netto tanah}} - \left( \frac{My}{1/6 \cdot Bx^2 \cdot By} \right) - \left( \frac{Mx}{1/6 \cdot By^2 \cdot Bx} \right)} \quad \dots\dots(3.205)$$

$$B_p = \sqrt{A_{\text{perlu}}} \quad \dots\dots\dots(3.206)$$

### 4. Perencanaan terhadap kuat geser

#### a. Perhitungan geser beton untuk satu arah

$$d = h_p - P_b - \frac{1}{2} \cdot \emptyset_{\text{tul. pokok}} \quad \dots\dots\dots(3.207)$$

$$n_1 = \frac{L_p - tk - 2 \cdot d}{2} \quad \dots\dots\dots(3.208)$$

#### Arah X

$$q_{ux} = \frac{P_u}{A_{ada}} \pm \frac{M_{ux}}{1/6 \cdot B^2 \cdot N} \quad \dots\dots\dots(3.209)$$

$$V_u = q_{ux \text{ terjadi}} \cdot n_1 \cdot L \quad \dots\dots\dots(3.210)$$

Kekuatan beton menahan geser :

$$V_{c_x} = \frac{1}{6} \cdot \sqrt{f'_c} \cdot L \cdot d \geq \frac{V_{u_x}}{\phi} \quad \dots\dots\dots(3.211)$$

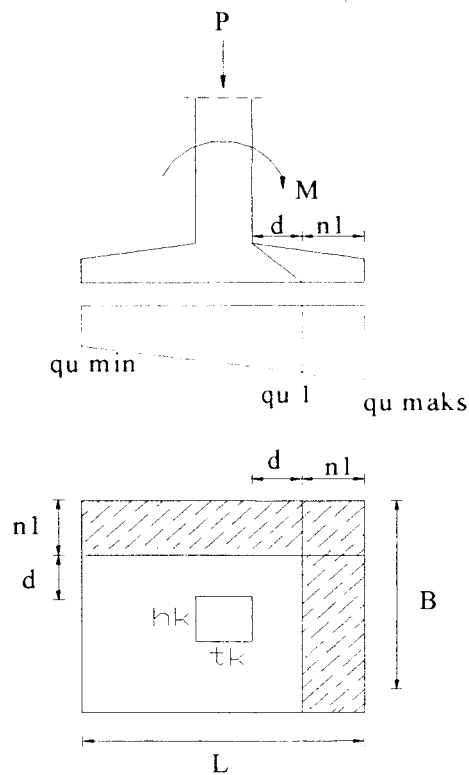
#### Arah Y

$$q_{uy} = \frac{P_u}{A_{ada}} \pm \frac{M_{uy}}{1/6 \cdot B^2 \cdot N} \quad \dots\dots\dots(3.212)$$

$$V_u = q_{uy \text{ terjadi}} \cdot n_1 \cdot L \quad \dots\dots\dots(3.213)$$

Kekuatan beton menahan geser :

$$V_{c_y} = \frac{1}{6} \cdot \sqrt{f'_c} \cdot P \cdot d \geq \frac{V_{u_y}}{\phi} \quad \dots\dots\dots(3.214)$$



**Gambar 3.12** Daerah geser satu (1) arah pada penampang pondasi

b. Perhitungan geser beton untuk dua arah

$$x = h_k + d \quad \dots\dots\dots(3.215)$$

$$y = b_k + d \quad \dots\dots\dots(3.216)$$

$$q_u = \frac{P_u}{A_{ada}} \pm \frac{M_y}{1/6.Bx^2.B_y} \pm \frac{M_x}{1/6.By^2.B_x} \quad \dots\dots\dots(3.217)$$

$$V_u = q_{uT} \cdot ((P_p \cdot L_p) - (x, y)) \quad \dots\dots\dots(3.218)$$

Kekuatan beton menahan gaya geser ( $V_c$ ), diambil nilai terkecil antara :

$$V_c = 4 \cdot \sqrt{f'_c} \cdot b_o \cdot L \quad \dots\dots\dots(3.219)$$

$$\text{atau : } V_c = \left(1 + \frac{2}{\beta_c}\right) \cdot (2 \cdot \sqrt{f'_c}) \cdot b_o \cdot D \quad \dots\dots\dots(3.220)$$

$$b_o = 2.(x+y) = 2.((h_k+d)+(b_k+d)) \dots\dots\dots(3.221)$$

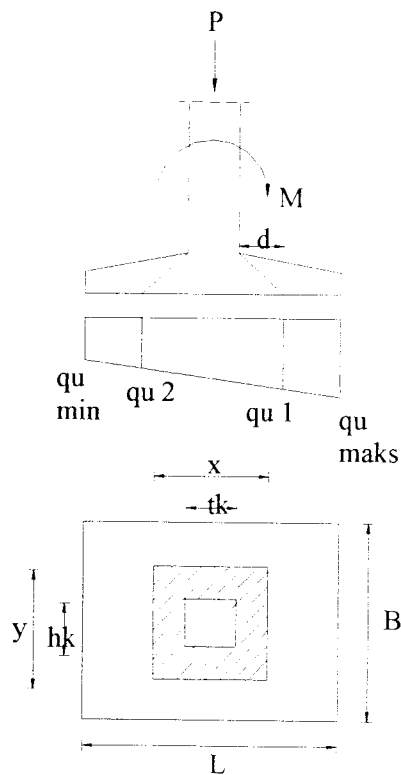
$$\beta_c = \frac{\text{sisipanjangtapak}}{\text{sisipendektapak}} \geq 1,0 \dots\dots\dots(3.222)$$

dimana :  $b_o$  = keliling penampang kritis ( $\text{mm}^2$ )

$\beta_c$  = rasio sisi panjang dengan sisi pendek

Kontrol gaya geser terjadi :

- Bila  $V_{c,x,y} \geq V_{u,x,y/O}$ , maka tegangan geser aman
- Bila  $V_{c,x,y} < V_{u,x,y/O}$ , maka tabal pelat perlu diperbesar



**Gambar 3.13** Gaya geser dua (2) arah pada penampang pondasi

##### 5. Perencanaan tulangan lentur pondasi

Diambil nilai lebar (b) pondasi tiap 1 meter = 1000 mm

- Tulangan arah x :  $l_1 = \frac{1}{2} \cdot (P - h_k) \dots \dots \dots (3.223)$

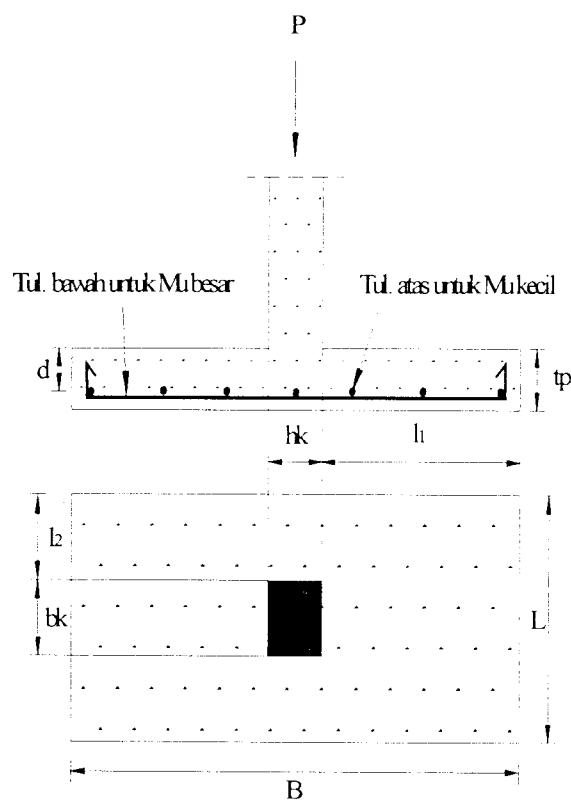
$$Mu_1 = \frac{1}{2} \cdot q_u \cdot l_1^2 \dots \dots \dots (3.224)$$

- Tulangan arah y :  $l_2 = \frac{1}{2} \cdot (P - b_k) \dots \dots \dots (3.225)$

$$Mu_2 = \frac{1}{2} \cdot q_u \cdot l_2^2 \dots \dots \dots (3.226)$$

Diambil nilai  $Mu_1$  atau  $Mu_2$  yang terbesar. Untuk  $Mu$  yang besar letak tulangan di bawah sedangkan  $Mu$  yang kecil letak tulangnya di atas.

Untuk pondasi diambil nilai penutup beton ( $P_b$ )  $\geq 70$  mm.



**Gambar 3.14** Tulangan lentur pondasi

$$d = h + P_b - \frac{1}{2} \cdot \phi_{\text{tul. bawah}} \rightarrow \text{untuk tulangan bawah}$$

$$d = h + P_b - \phi_{\text{tul. bawah}} - \frac{1}{2} \cdot \phi_{\text{tul. atas}} \rightarrow \text{untuk tulangan atas}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} \dots \dots \dots (3.227)$$

$$Rn_{ada} = \frac{Mu/\phi}{b.d^2_{ada}} \dots\dots\dots(3.228)$$

$$\rho = \frac{1}{m} \left( 1 - \sqrt{\frac{2.Rn.m}{fy}} \right) \dots\dots\dots(3.229)$$

$$\rho_{min} = \frac{1,4}{fy} \dots\dots\dots(3.230)$$

Persyaratan :

1. bila  $\rho > \rho_{min}$  digunakan :  $\rightarrow \rho_{perlu} = \rho$
2. bila  $\rho < \rho_{min}$ ,  $1,33.\rho < \rho_{min}$  digunakan :  $\rightarrow \rho_{perlu} = 1,33.\rho$
3. bila  $\rho < \rho_{min}$ ,  $1,33.\rho > \rho_{min}$  digunakan :  $\rightarrow \rho_{perlu} = \rho_{min}$

$$\text{Luas tulangan perlu : } A_{s_{perlu}} = \rho_{perlu} \cdot b \cdot d \dots\dots\dots(3.231)$$

$$\text{Luas tulangan susut : } A_{s_{tul.susut}} = 0,002 \cdot b \cdot h \dots\dots\dots(3.232)$$

Dipilih diameter ( $\emptyset$ ) tulangan, didapatkan  $A_{\emptyset 1}$ , jarak antar tulangan :

$$s \leq \frac{A_{\emptyset 1} \cdot 1000}{A_{s_{perlu}}} \dots\dots\dots(3.233)$$

Sedangkan nilai  $A_{s_{ada}}$  dapat dihitung :

$$A_{s_{ada}} = \frac{A_{\emptyset 1} \cdot 1000}{s} \dots\dots\dots(3.234)$$

Kontrol kapasitas lentur yang terjadi :

$$a = \frac{As.fy}{0,85.f'c.b} \dots\dots\dots(3.235)$$

$$Mn = As.fy \left( d - \frac{a}{2} \right) \geq \frac{Mu}{\phi} \dots\dots\dots(3.236)$$

### 3.7 Perencanaan Tangga

#### 3.7.1 Perencanaan dimensi tangga

Langkah - langkah perencanaan tangga adalah sebagai berikut :

1. Menentukan lebar, jumlah *optrede* dan *antrede*

- Tinggi bersih antar lantai ( $h$ ) dalam meter dapat diketahui
- Lebar bordes ( $L_b$ ) dalam meter dapat ditentukan, diambil  $\geq 1,20$  m
- Sandaran tangga dapat ditentukan tebal dan tingginya
- Tinggi *optrede* ideal  $\leq 20$  cm (15 – 18 cm), misal diambil nilai perkiraan awal tinggi *optrede* ( $h_o$ ) = 18 cm, maka jumlah *optrede* :

$$\text{Jumlah } optrede = \frac{h}{h_o} \text{ (dibulatkan keatas)} \dots\dots\dots(3.237)$$

$$\text{Maka tinggi } optrede \text{ sebenarnya : } h'o = \frac{h}{\text{jumlah } optrede} \dots\dots(3.238)$$

- Lebar *antrede* ideal  $\geq 30$  cm, untuk menentukan jumlah *antrede* :

$$\text{Jumlah } antrede = \text{jumlah } optrede - 2 \dots\dots\dots(3.239)$$

- Panjang bentang tangga ( $P_t$ ) dapat dihitung dengan cara :

$$P_t = (L_a \times \text{jumlah } antrede / 2) + L_b \dots\dots\dots(3.240)$$

2. Menentukan tebal pelat tangga ( $h_1$ ) dan lebar tangga ( $L_t$ )

Untuk panjang bentang tangga  $\pm 4,50$  m.

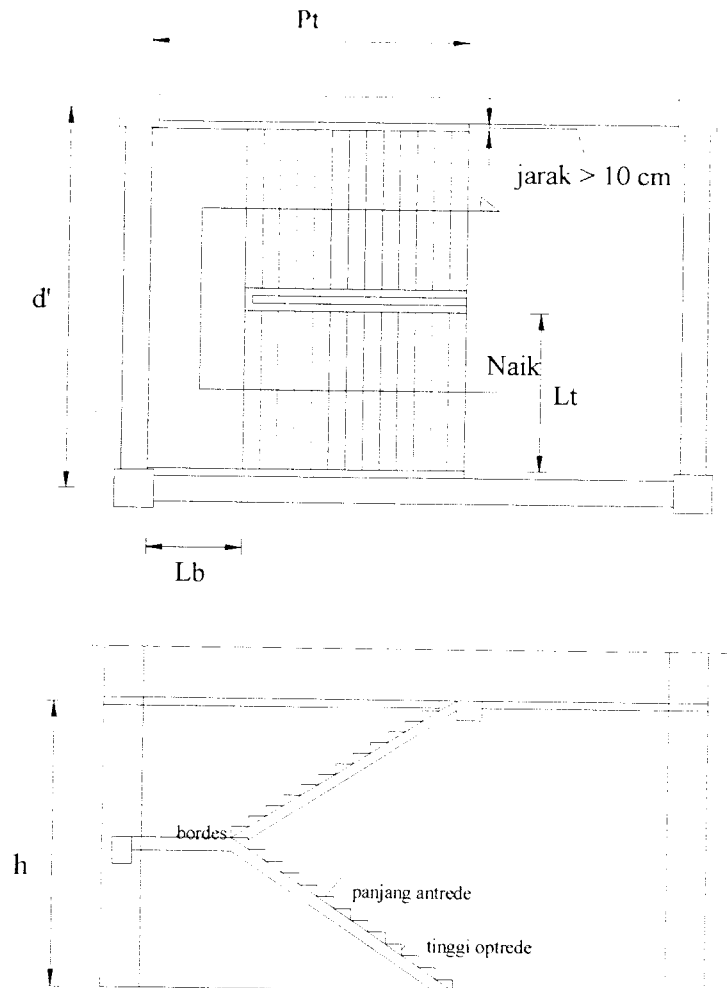
- Diambil nilai tebal pelat tangga ( $h_1$ ) : 15 cm
- Sudut kemiringan ideal tangga antara  $30^\circ$  -  $35^\circ$ , besarnya sudut tangga dapat dihitung dengan cara :

$$\text{arc tg } \alpha = \frac{\text{tinggi } optrede}{\text{panjang } antrede} \dots\dots\dots(3.241)$$

Sehingga besar sudut ( $\alpha$ ) dapat diketahui.

- Jarak antar as – as kolom ( $d$ ) dalam meter dapat diketahui, sehingga jarak bersih antar kolom ( $d'$ ) :

$$d' = d - 2 \cdot \left(\frac{1}{2} \cdot \text{lebar balok induk}\right) \dots\dots\dots(3.242)$$



**Gambar 3.15** Dimensi tangga

### 3.7.2 Perencanaan tulangan tangga

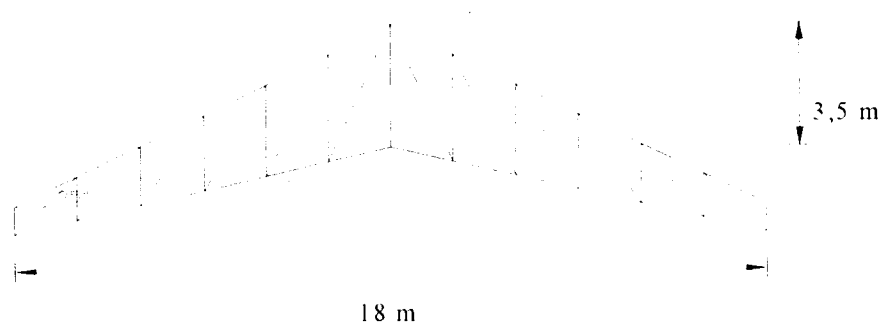
Perencanaan tulangan tangga sama dengan perhitungan pada pelat lantai.

## **BAB IV**

### **PERENCANAAN**

#### **4.1 Perencanaan Atap**

Pada perencanaan ulang Gedung Fakultas Hukum Universitas Gadjah Mada (UGM) Yogyakarta ini digunakan rangka atap (kuda-kuda) yang direncanakan dengan menggunakan profil baja.



**Gambar 4.1** Rencana rangka kuda-kuda 1

##### **4.1.1 Perencanaan gording pada kuda-kuda 1**

Data-data pada perencanaan gording meliputi :

1. Jarak antar kuda-kuda = 3,0 m
2. Jarak antar gording = 1,730 m
3. Dipakai baja

$$\text{Mutu baja profil (fy)} = 2400 \text{ kg/cm}^2$$

$$\text{Kuat tarik (Fu)} = 3700 \text{ kg/cm}^2$$



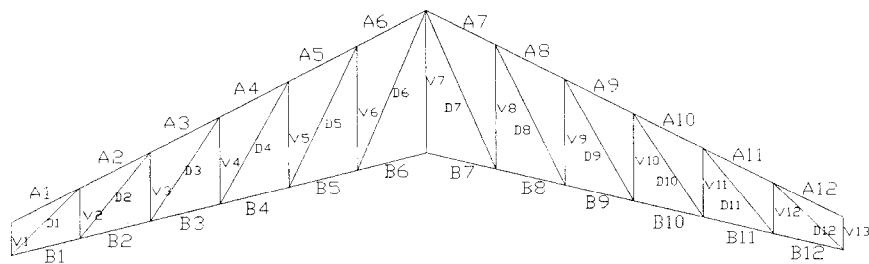
4. Mutu baut non full drat dari AISC A325x

$$F_u = 8250 \text{ kg/cm}^2 \text{ dan } f_y = 2050 \text{ kg/cm}^2$$

5. Direncanakan terhadap bangunan di darat

6. Panjang batang

Berikut ini contoh perencanaan kuda-kuda 1 dengan bentang 18 m.



**Gambar 4.2** .Rencana rangka batang

**Tabel 4.1.** Panjang rangka batang kuda-kuda

| Batang   | Panjang (m) | Batang   | Panjang (m) |
|----------|-------------|----------|-------------|
| A1 – A12 | 1,730       | V1 = V13 | 0,800       |
| B1 – B12 | 1,555       | V2 = V12 | 1,250       |
| D1 = D12 | 2,237       | V3 = V11 | 1,700       |
| D2 = D12 | 2,589       | V4 = V10 | 2,150       |
| D3 = D10 | 2,967       | V5 = V9  | 2,600       |
| D4 = D9  | 3,363       | V6 = V8  | 3,050       |
| D5 = D8  | 3,771       | V7       | 3,500       |
| D6 = D7  | 4,188       |          |             |

7. Pembebanan gording

Dipakai profil 100 x 50 x 20 x 2,3 (Light Lip Channel)

$$A = 5,172 \text{ cm}^2$$

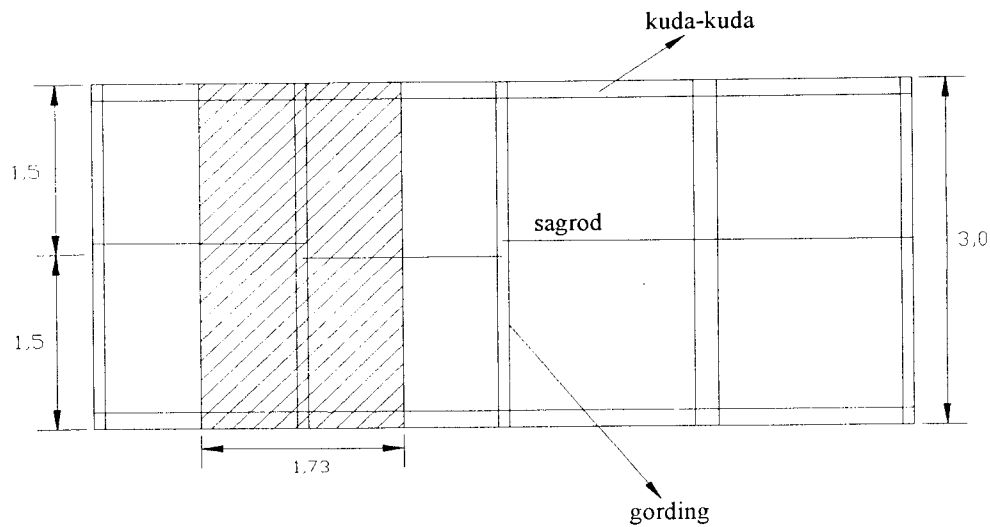
$$w = 4,06 \text{ kg/m}$$

$$I_x = 80,7 \text{ cm}^4$$

$$S_x = 16,1 \text{ cm}^3$$

$$I_y = 19 \text{ cm}^4$$

$$S_y = 6,06 \text{ cm}^3$$



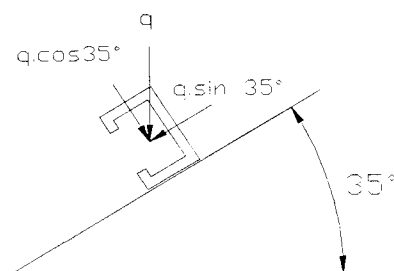
**Gambar 4.3.** Pembebanan gording

a. Beban tetap

$$\text{Beban penutup atap ( genteng )} = 50 \times 1,730 = 86,500 \text{ kg/m}$$

$$\text{Beban gording (diambil dari profil)} = \underline{4,060 \text{ kg/m}} +$$

$$q = 90,560 \text{ kg/m}$$



**Gambar 4.4.** Arah pembebanan gording

$$q_{\perp} = q \cos \alpha = 90,560. \cos 35^{\circ} = 74,182 \text{ kg/m}$$

$$q_{//} = q \sin \alpha = 90,560. \sin 35^{\circ} = 51,943 \text{ kg/m}$$

## b. Beban hidup

Beban hidup yang dipakai adalah beban pekerja (orang)

$$P = 100 \text{ kg}$$

$$\text{Maka } P_{\perp} = 100 \cdot \cos 35^{\circ} = 81,915 \text{ kg}$$

$$P_{//} = 100 \cdot \sin 35^{\circ} = 57,358 \text{ kg}$$

## c. Beban angin

Pada daerah daratan  $w$  (dalam PPIUG 1983) =  $25 \text{ kg/m}^2$

1) Angin tekan (wt)  $\alpha < 65^{\circ}$ , diketahui sudut  $\alpha = 35^{\circ}$

$$C_1 = 0,02 \alpha - 0,4 = 0,02 \cdot 35 - 0,4 = 0,3$$

$$wt = C_1 \cdot w \cdot \text{jarak gording} = 0,3 \cdot 25 \cdot 1,730 = 12,975 \text{ kg/m}$$

2) Angin hisap (wh),  $C_2 = -0,4$

$$wh = C_2 \cdot w \cdot \text{jarak gording} = -0,4 \cdot 25 \cdot 1,730 = -17,300 \text{ kg/m}$$

## 8. Perhitungan momen

## a. Akibat beban tetap

$$\begin{aligned} q_{\perp} = M_{\text{maks}} &= 1/8 \cdot q_{\perp} \cdot b^2 + 1/4 \cdot P_{\perp} \cdot b \\ &= 1/8 \cdot 74,182 \cdot 3^2 + 1/4 \cdot 81,915 \cdot 3 \\ &= 144,891 \text{ kgm} = 14489,1 \text{ kgcm} \end{aligned}$$

$$\begin{aligned} q_{//} = M_{\text{maks}} &= 1/32 \cdot q_{//} \cdot b^2 + 1/4 \cdot P_{//} \cdot b \\ &= 1/32 \cdot 51,943 \cdot 3^2 + 1/4 \cdot 57,358 \cdot 3 \\ &= 36,118 \text{ kgm} = 3611,8 \text{ kgcm} \end{aligned}$$

## b. Akibat beban angin

$$\begin{aligned} M_{\text{maks}} &= 1/8 \cdot w \cdot b^2 = 1/8 \cdot 12,975 \cdot 3^2 = 14,597 \text{ kgm} \\ &= 1459,7 \text{ kgcm} \end{aligned}$$

## 9. Dimensi gording

### a. Kontrol tegangan

$$f_{bx} = \frac{M_{\perp} \cdot \max}{S_x} = \frac{(14489,1 + 1459,7)}{16,1} = 990,609 \text{ kg/cm}^2$$

$$f_{by} = \frac{M_{\parallel} \cdot \max}{S_y} = \frac{3611,8}{6,06} = 596,007 \text{ kg/cm}^2$$

$$\frac{f_{bx}}{0,66 f_y} + \frac{f_{by}}{0,75 f_y} \leq 1,0$$

$$\frac{990,609}{0,66 \cdot 2400} + \frac{596,007}{0,75 \cdot 2400} = 0,956 \leq 1,0 \Rightarrow \text{Ok!}$$

### b. Kontrol lendutan

$$\delta_{\perp} = \frac{5}{384} \frac{q_{\perp} \cdot L^4}{EI_x} + \frac{1}{48} \frac{P_{\perp} \cdot L^3}{EI_x} \leq \frac{L}{360}$$

$$= \frac{5}{384} \cdot \frac{0,74584 \cdot 300^4}{2,1 \cdot 10^6 \cdot 80,7} + \frac{1}{48} \cdot \frac{0,81915 \cdot 300^3}{2,1 \cdot 10^6 \cdot 80,7}$$

$$= 0,467 \text{ cm} \leq \frac{300}{360} = 0,833 \text{ cm} \Rightarrow \text{Ok!}$$

$$\delta_{\parallel} = \frac{5}{384} \frac{q_{\parallel} \cdot (L/(a+1))^4}{EI_y} + \frac{1}{48} \frac{P_{\parallel} \cdot (L/(a+1))^3}{EI_y} \leq \frac{L}{360}$$

$$= \frac{5}{384} \cdot \frac{0,51943 \cdot (300/1+1))^4}{2,1 \cdot 10^6 \cdot 19} + \frac{1}{48} \cdot \frac{0,57358 \cdot (300/1+1))^3}{2,1 \cdot 10^6 \cdot 19}$$

$$= 0,087 \text{ cm} \leq \frac{300}{360} = 0,833 \text{ cm} \Rightarrow \text{Ok!}$$

$$\delta = \sqrt{\delta_{\perp}^2 + \delta_{\parallel}^2} = \sqrt{0,467^2 + 0,087^2}$$

$$= 0,475 \text{ cm} \leq \frac{L}{360} = 0,833 \text{ cm} \Rightarrow \text{Ok!}$$

Jadi profil Light Lip Channel 100 x 50 x 20 x 2,3 dapat digunakan.

#### 4.1.2 Perencanaan sagrod dan tierod

##### 1. Beban sagrod

$$\begin{aligned}\text{berat penutup atap} \times \left( \frac{1}{2} L / \cos \alpha \right) &= 50 \cdot \left( \frac{1}{2} \cdot 18 / \cos 35^\circ \right) \\ &= 549,349 \text{ kg/m}\end{aligned}$$

$$\begin{aligned}\text{jumlah gording satu sisi miring} \times \text{berat gording} &= 7 \cdot 4,06 \\ &= 28,420 \text{ kg/m}\end{aligned}$$

$$P = 549,349 + 28,420 = 577,769 \text{ kg/m}$$

$$\begin{aligned}P// &= P \cdot \sin \alpha \cdot S_s + \text{beban hidup} = 577,769 \cdot \sin 35^\circ \cdot 1,5 + 100 \\ &= 597,092 \text{ kg}\end{aligned}$$

##### 2. Dimensi sagrod

$$\begin{aligned}A_{\text{sagrod}} &= \frac{P}{0,33 \cdot F_u} = \frac{1}{4} \cdot \pi \cdot D^2_{\text{sagrod}} \\ &= \frac{597,092}{0,33 \cdot 3700} = \frac{1}{4} \cdot \pi \cdot D^2\end{aligned}$$

$$D_{\text{sagrod}} = \sqrt{\frac{(597,092 \cdot 4)}{(0,33 \cdot 3700 \cdot \pi)}} = 0,789 \text{ cm} \approx 8 \text{ mm}$$

$$D_{\text{sagrod}} = 8 + 3 = 11 \text{ mm}, \text{ pakai } \varnothing 12 \text{ mm}$$

##### 3. Dimensi tierod

$$\text{Beban tierod; } T = P// \cdot \cos 35^\circ = 597,092 \cdot \cos 35^\circ = 489,109 \text{ kg}$$

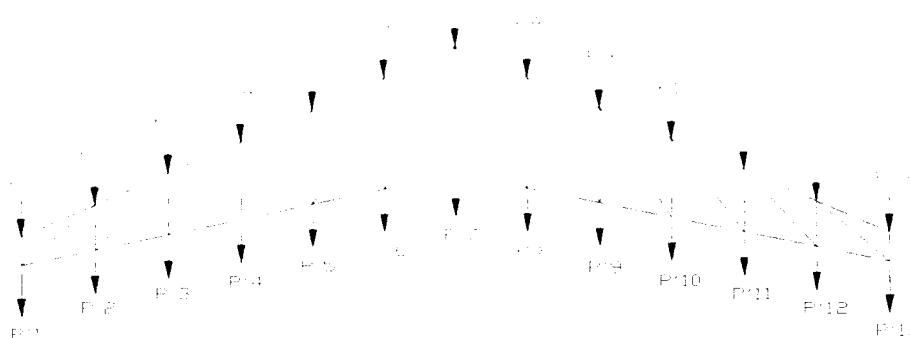
$$A_{\text{tierod}} = \frac{T}{0,33 F_u} = \frac{1}{4} \cdot \pi \cdot D^2_{\text{tierod}}$$

$$D_{\text{tierod}} = \sqrt{\frac{(489,109 \cdot 4)}{(0,33 \cdot 3700 \cdot \pi)}} = 0,714 \text{ cm} \approx 8 \text{ mm}$$

$$D_{\text{tierod}} = 8 + 3 = 11 \text{ mm}, \text{ pakai } \varnothing 12 \text{ mm}$$

### 4.1.3 Pembebanan kuda-kuda

Pembebanan kuda kuda meliputi :



**Gambar 4.5.** Pembebanan kuda – kuda

#### 1. Beban tetap

berat gording  $= 4,06 \text{ kg/m}$

berat eternit + penggantung  $= 18 \text{ kg/m}^2$

berat penutup atap ( genteng )  $= 50 \text{ kg/m}^2$

**Tabel 4.2** Profil terpakai dan berat profil terpakai kuda-kuda 1 :

| Batang          | Profil<br>(mm) | Berat Profil<br>(kg/m)  | Panjang<br>(m) | Berat<br>(kg) |
|-----------------|----------------|-------------------------|----------------|---------------|
| Batang Atas     | 2L 60x60x6     | $2 \times 5,42 = 10,84$ | 20,760         | 225,038       |
| Batang Bawah    | 2L 60x60x6     | $2 \times 5,42 = 10,84$ | 18,660         | 202,274       |
| Batang Vertikal | 2L 60x60x6     | $2 \times 5,42 = 10,84$ | 26,600         | 288,994       |
| Batang Diagonal | 2L 60x60x6     | $2 \times 5,42 = 10,84$ | 38,230         | 414,413       |
| Wtotal          |                |                         |                | = 1130,719    |

Berat kuda-kuda yang digunakan :

Berat total kuda-kuda  $= 1130,719 \text{ kg}$

Berat baut dan plat sambung  $= (20 \% \times \text{berat total kuda-kuda})$

$= 226,144 \text{ kg}$

Jumlah ( $\Sigma$ )  $= \text{Berat total kuda-kuda} + 20 \% \cdot \text{Berat total kuda-kuda}$

$= 1130,719 + 226,144 = 1356,863 \text{ kg}$

Panjang rangka kuda-kuda,  $L = 18 \text{ m}$

$$\frac{\Sigma}{L} = \frac{1356,863}{18} = 75,381 \text{ kg/m}$$

Beban masing-masing joint :

a.  $P_1 = P_{13}$

$$\text{Berat gording} = 4,06 \times 3,0 = 12,180 \text{ kg}$$

$$\begin{aligned} \text{Berat penutup atap} &= 50 \times 3,0 \times \frac{1}{2} \times 1,730 = \underline{129,750 \text{ kg}} + \\ &= 141,930 \text{ kg} \end{aligned}$$

b.  $P_2 = P_3 = P_4 = P_5 = P_6 = P_8 = P_9 = P_{10} = P_{11} = P_{12}$

$$\text{Berat gording} = 4,06 \times 3,0 = 12,180 \text{ kg}$$

$$\begin{aligned} \text{Berat penutup atap} &= 50 \times 3,0 \times 1,730 = \underline{259,500 \text{ kg}} + \\ &= 271,680 \text{ kg} \end{aligned}$$

c.  $P_7$

$$\text{Berat gording} = 2 \times 4,06 \times 3,0 = 24,360 \text{ kg}$$

$$\begin{aligned} \text{Berat penutup atap} &= 50 \times 3,0 \times 1,730 = \underline{259,500 \text{ kg}} + \\ &= 283,860 \text{ kg} \end{aligned}$$

d.  $P'_1 = P'_{13}$

$$\text{Berat eternit + plafond} = 18 \times 3,0 \times \frac{1}{2} \times 1,555 = 41,985 \text{ kg}$$

$$\begin{aligned} \text{Berat profil kuda-kuda} &= 75,381 \times \frac{1}{2} \times 1,555 = \underline{58,609 \text{ kg}} + \\ &= 100,594 \text{ kg} \end{aligned}$$

e.  $P'_2 = P'_3 = P'_4 = P'_5 = P'_6 = P'_7 = P'_8 = P'_9 = P'_{10} = P'_{11} = P'_{12}$

$$\text{Berat eternit + plafond} = 18 \times 3,0 \times 1,555 = 83,970 \text{ kg}$$

$$\begin{aligned} \text{Berat profil kuda-kuda} &= 75,381 \times 1,555 = \underline{117,218 \text{ kg}} + \\ &= 201,188 \text{ kg} \end{aligned}$$

## 2. Beban hidup

Beban hidup dipakai  $P = 100 \text{ kg}$  (beban pekerja/beban orang)

## 3. Beban angin

Muatan angin di darat ( PPUIUG 1983 ) untuk  $\alpha < 65^\circ = 25 \text{ kg/m}^2$

### a. Koefisien angin :

Angin tekan ( wt )

$$C1 = 0,02 \cdot \alpha - 0,4 = 0,02 \cdot 35 - 0,4 = 0,3$$

Angin hisap ( wh )

$$C2 = -0,4$$

### b. Beban yang bekerja

$$wt = C1 \times w = 0,3 \times 25 = 7,5 \text{ kg/m}^2$$

$$wh = C2 \times w = -0,4 \times 25 = -10 \text{ kg/m}^2$$

Angin kiri :

$$wt_1 = 7,5 \times \frac{1}{2} \times 1,730 \times 3,0 = 19,463 \text{ kg}$$

$$wt_2 = wt_3 = wt_4 = wt_5 = wt_6 = 7,5 \times 1,730 \times 3,0 = 38,925 \text{ kg}$$

$$wt_7 = 7,5 \times \frac{1}{2} \times 1,730 \times 3,0 = 19,463 \text{ kg}$$

$$wh_1 = -10 \times \frac{1}{2} \times 1,730 \times 3,0 = -25,950 \text{ kg}$$

$$wh_2 = wh_3 = wh_4 = wh_5 = wh_6 = -10 \times 1,730 \times 3,0 = -51,900 \text{ kg}$$

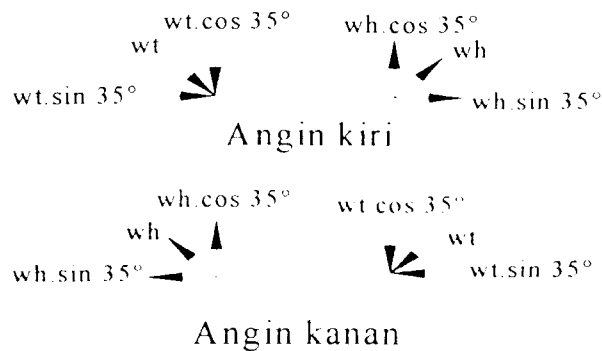
$$wh_7 = -10 \times \frac{1}{2} \times 1,730 \times 3,0 = -25,950 \text{ kg}$$

Angin kanan :

Besar angin kanan sama dengan besar angin kiri.



Keterangan :



#### 4.1.4 Perencanaan dimensi batang

Contoh perhitungan dimensi batang kuda – kuda 1:

##### 1. Batang tarik

Gaya tarik maksimal ( P ) = 1811,616 kg (batang D6)

Panjang batang ( L ) = 4,188 m = 418,8 cm

$f_y = 2400 \text{ kg/cm}^2$  ,  $F_u = 3700 \text{ kg/cm}^2$

$E = 2,1 \times 10^6 \text{ kg/cm}^2$

$K = 1$  (sendi-sendu)

##### a. Syarat batang tarik

$$\frac{L}{r} \leq 240 \text{ s/d } 300 \quad r_{\min} = \frac{KL}{240} = \frac{418,8}{240} = 1,745 \text{ cm}$$

##### b. Luas tampang perlu :

$$A_{g1} = \frac{T}{0,6 f_y} = \frac{1811,616}{0,6 \cdot 2400} = 1,258 \text{ cm}^2$$

$$\begin{aligned} A_{g2} &= \frac{T}{0,5 F_u \mu} + \left( \frac{l''}{8} + \phi_{baut} \right) \cdot t_p \cdot n \\ &= \frac{1811,616}{0,5 \cdot 3700 \cdot 0,75} + \left( \frac{l''}{8} + \frac{l''}{2} \right) \cdot 1,2 = 4,481 \text{ cm}^2 \end{aligned}$$

dicoba profil 2L 60x60x6 :

$$A = 6,91 \text{ cm}^2 \quad r = 1,82 \text{ cm} \quad W = 5,42 \text{ kg/m}$$

$$A_{\text{bruto}} = 2 \times 6,91 = 13,82 \text{ cm}^2$$

$$A_{\text{lubang}} = \left( \frac{l''}{8} + \phi_{\text{baut}} \right) \cdot t_p \cdot n = \left( \frac{l''}{8} + \frac{l''}{2} \right) \cdot 1 \cdot 2 = 3,175 \text{ cm}^2$$

$$\begin{aligned} A_{\text{netto}} &= A_{\text{bruto}} - A_{\text{lubang}} = 13,82 - 3,175 \\ &= 10,645 \text{ cm}^2 \end{aligned}$$

$$A_{\text{effektif}} = 0,75 \cdot A_{\text{netto}} = 0,75 \cdot 10,645 = 7,984 \text{ cm}^2$$

c. Kontrol tegangan :

$$\frac{T}{A_{\text{profil}}} \leq 0,6 \cdot f_y \rightarrow \frac{1811,616}{13,82} \leq 0,6 \cdot 2400$$

$$131,087 \text{ kg/cm}^2 \leq 1440 \text{ kg/cm}^2 \dots\dots\dots \text{Ok!}$$

$$\frac{T}{A_{\text{effektif}}} \leq 0,5 \cdot F_u \rightarrow \frac{1811,616}{7,984} \leq 0,5 \cdot 3700$$

$$226,906 \text{ kg/cm}^2 \leq 1850 \text{ kg/cm}^2 \dots\dots\dots \text{Ok!}$$

Jadi profil 2L 60x60x6 dapat digunakan.

## 2. Batang tekan

Gaya tekan maksimal ( P ) = - 3907,326 kg (batang A4)

Panjang batang ( L ) = 1,730 m = 173 cm

$f_y = 2400 \text{ kg/cm}^2$ ,  $F_u = 3700 \text{ kg/cm}^2$

$E = 2,1 \times 10^6 \text{ kg/cm}^2$

$K = 1$  (sendi-sendiri)

a. Syarat batang tekan

$$\frac{L}{r} \leq 200 \quad r_{\text{min}} = \frac{KL}{200} = \frac{173}{200} = 0,865 \text{ cm}$$

dicoba profil 2L 60x60X6

$$A = 6,91 \text{ cm}^2 \quad A_{\text{total}} = 13,82 \text{ cm}^2 \quad W = 5,42 \text{ kg/m}$$

$$r = 1,82 \text{ cm} \geq r_{\min} = 0,865 \text{ cm} \rightarrow \text{dipakai } r = 1,82 \text{ cm}$$

$$I_x = I_y = 22,8 \text{ cm}^4 \quad i_x = i_y = 1,82 \text{ cm} \quad e = 1,69$$

$$x = e + (0,5 \cdot t_p) = 1,69 + (0,5 \cdot 1) = 2,19 \text{ cm}$$

$$I_{x \text{ gab}} = 2 \cdot I_x = 2 \cdot 22,8 = 45,6 \text{ cm}^4$$

$$I_{y \text{ gab}} = I_{x \text{ gab}} + 2A \cdot x^2 = 45,6 + 2 \cdot 6,91 \cdot 2,19^2 = 111,882 \text{ cm}^4$$

$$i_{x \text{ gab}} = \sqrt{\frac{I_{x \text{ gab}}}{2A}} = \sqrt{\frac{45,6}{2 \cdot 6,91}} = 1,816 \text{ cm}$$

$$i_{y \text{ gab}} = \sqrt{\frac{I_{y \text{ gab}}}{2A}} = \sqrt{\frac{111,882}{2 \cdot 6,91}} = 2,845 \text{ cm}$$

dipakai  $r = 1,816 \text{ cm}$

b. Syarat :

$$\frac{KL}{r} \leq C_c = \frac{6440}{\sqrt{f_y}}$$

$$\frac{KL}{r} = \frac{1.173}{1,816} = 95,240 \leq C_c = \frac{6440}{\sqrt{2400}} = 131,456$$

maka digunakan rumus :

$$F_s = \frac{5}{3} + \frac{3 \cdot (KL/r)}{8 \cdot C_c} - \frac{1 \cdot (KL/r)^3}{8 \cdot C_c^3} = \frac{5}{3} + \frac{3 \cdot (95,240)}{8 \cdot 131,456} - \frac{1 \cdot (95,240)^3}{8 \cdot 131,456^3}$$

$$= 1,891$$

$$F_a = \frac{f_y}{F_s} \left( 1 - 0,5 \left( \frac{KL/r}{C_c} \right)^2 \right) = \frac{2400}{1,891} \left( 1 - 0,5 \left( \frac{95,240}{131,456} \right)^2 \right)$$

$$= 936,168 \text{ kg/cm}^2$$

c. Kontrol Kapasitas

$$P - Fa.A_{total} > P_{terjadi}$$

$$- 936,168. 13,82 > 3907,326$$

$$12937,838 \text{ kg} > 3634,906 \text{ kg} \dots\dots\dots \text{Ok!}$$

Jadi profil 21. 60x60x6 dapat digunakan.

#### 4.1.5 Perencanaan pelat kuda-kuda

$P = 3579,266 \text{ kg}$  (diambil dari reaksi maksimum yang terjadi)

$$f_c' = 25 \text{ Mpa}$$

$$= 250 \text{ kg/cm}^2$$

$$A_{perlu} = \frac{P}{0,33.f_c'} = \frac{3579,266}{0,33.250} = 43,385 \text{ cm}^2$$

$$\text{Diambil ukuran pelat} = 15 \times 20 = 300 \text{ cm}^2 > A_{perlu}$$

$$Q = \frac{P}{B \times L} = \frac{3579,266}{15 \times 20} = 11,931 \text{ cm}^2$$

$$x = \frac{20 - (6 + 1 + 6)}{2} = 3,5 \text{ cm}$$

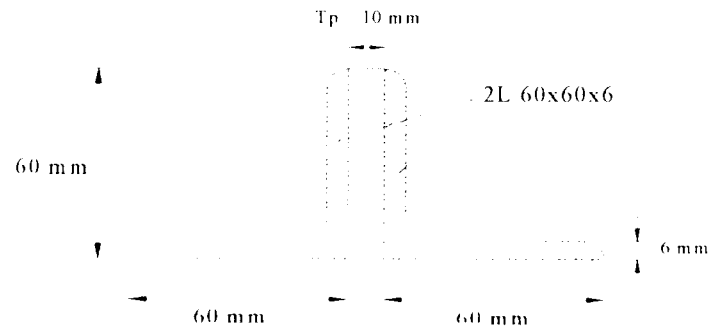
$$M = \frac{1}{2} q \cdot x^2 = \frac{1}{2} 11,931.3,5^2 = 73,077 \text{ kg.cm}$$

Syarat :

$$0,6.f_y = \frac{M}{\frac{1}{6} \cdot l \cdot t_p^2} \quad t_p = \sqrt{\frac{M}{0,6.1/6.f_y}} = \sqrt{\frac{73,077}{0,6.1/6.2400}} = 0,552 \text{ cm}$$

digunakan pelat dengan tebal ( $t_p$ ) = 1 cm

Dimensi pelat yang digunakan 15 x 20 x 1 cm.



**Gambar 4.6.** Penampang profil terpakai kuda-kuda 1

#### 4.1.6 Perencanaan dukungan arah lateral

Diketahui :

$L_b$  = jarak antar gording = 1,730 m

$L_c$  = jarak antar kuda-kuda = 3 m

$$L = \sqrt{L_b^2 + L_c^2} = \sqrt{1,730^2 + 3^2} \\ = 3,463 \text{ m}$$

Syarat :  $\frac{L}{r} \leq 300$  sehingga :

$$r_{\min} \geq \frac{L}{300} = \frac{346,3}{300} = 1,154 \text{ cm}$$

Keterangan :

1.  $L \leq 3 \text{ m} \rightarrow$  dipakai baja tulangan  $\varnothing 12 \text{ mm}$
2.  $L \geq 5 \text{ m} \rightarrow$  dipakai baja tulangan  $\varnothing 19 \text{ mm}$
3.  $3 \text{ m} < L = 3,463 \text{ m} \leq 5 \text{ m} \rightarrow$  dipakai baja tulangan  $\varnothing 16 \text{ mm}$

Sehingga digunakan baja tulangan  $\varnothing 16 \text{ mm}$

#### 4.1.7 Perencanaan sambungan

Perhitungan sambungan dilakukan pada setengah bentang pada tiap joint, diambil tebal pelat sambungan ( $t_p$ ) = 1 cm,  $f_y = 2400 \text{ kg/cm}^2$ ,  $F_u = 3700 \text{ kg/cm}^2$ . Mutu baut non full drat dari AISC A325,  $f_y = 2050 \text{ kg/cm}^2$  dan  $F_u = 8250 \text{ kg/cm}^2$ . Tegangan tumpu yang terjadi pada pelat :

$$F_a \text{ tumpu} = 1,2 \cdot F_u \text{ pelat} = 1,2 \cdot 3700 = 4440 \text{ kg/cm}^2$$

Diameter baut yang dipakai  $\frac{1}{2}$ " = 1,27 cm

Sehingga didapat kekuatan 1 baut untuk menahan gaya adalah :

$$\begin{aligned} P \text{ tumpu} &= t_p \cdot \phi \text{ baut} \cdot F_a \text{ tumpu} = 1 \cdot 1,27 \cdot 4440 \\ &= 5638,800 \text{ kg} \end{aligned}$$

$$\begin{aligned} P \text{ geser} &= \frac{1}{4} \cdot \pi \cdot D^2 \cdot 0,22 \cdot F_u \text{ baut} \cdot 2 = \frac{1}{4} \cdot 3,14 \cdot (1,27)^2 \cdot 0,22 \cdot 8250 \cdot 2 \\ &= 4598,370 \text{ kg} \end{aligned}$$

dipakai P yang kecil = 4598,370 kg maka,  $\text{Jumlah baut} = \frac{P}{4598,370} \text{ buah}$

Jarak penggunaan baut  $\frac{1}{2}$ " :

- Jarak baut ke tepi minimal  $1,2 \cdot D$

$$\text{diambil } 2D = 2 \cdot 1,27 = 2,540 \text{ cm} \sim \text{pakai } 3 \text{ cm}$$

- Jarak antar baut  $2D$  s/d  $7D$

$$\text{diambil } 4D = 4 \cdot 1,27 = 5,080 \text{ cm} \sim \text{pakai } 5 \text{ cm}$$

Hitungan jumlah baut dilakukan untuk setengah bentang karena bentang simetris.

##### 1. Joint 2

- a. Batang (1) = - 201,018 kg

$$n = \frac{201,018}{4598,370} = 0,044 \sim \text{dipakai baut } 2 \text{ buah}$$

b. Batang (7) = 42,449 kg

$$n = \frac{42,449}{4598,370} = 0,009 \sim \text{dipakai baut 2 buah}$$

A-1

Bag 1

## 2. Joint 1

a. Batang (1) = - 201,018 kg

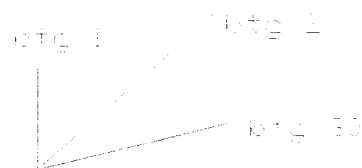
$$n = \frac{201,018}{4598,370} = 0,044 \sim \text{dipakai baut 2 buah}$$

b. Batang (2) = - 3852,759 kg

$$n = \frac{3852,759}{4598,370} = 0,838 \sim \text{dipakai baut 2 buah}$$

c. Batang (30) = - 1460,913 kg

$$n = \frac{1460,913}{4598,370} = 0,318 \sim \text{dipakai baut 2 buah}$$



B-1

Untuk sambungan pada joint berikutnya, dengan perhitungan yang sama didapat jumlah baut yang sama pula yaitu 2 buah, karena gaya-gaya batang yang terjadi kurang dari kekuatan 1 baut untuk menahan gaya.

**Tabel 4.3.** Jumlah baut terpakai pada setengah bentang kuda-kuda 1

| Join | Batang | Gaya batang (kg) | Jumlah baut |
|------|--------|------------------|-------------|
| 2    | 1      | - 201,018        | 2           |
|      | 7      | 42,449           | 2           |
| 7    | 7      | 42,449           | 2           |
|      | 2      | - 3852,759       | 2           |
|      | 42     | 1061,657         | 2           |
|      | 8      | - 3023,377       | 2           |
| 8    | 8      | - 3023,377       | 2           |
|      | 5      | - 1273,680       | 2           |
|      | 66     | 290,064          | 2           |
|      | 9      | - 3872,258       | 2           |
| 9    | 9      | - 3872,258       | 2           |
|      | 6      | - 69,286         | 2           |
|      | 46     | - 441,732        | 2           |
|      | 10     | - 3907,326       | 2           |
| 10   | 10     | - 3907,326       | 2           |
|      | 31     | 881,949          | 2           |
|      | 48     | - 887,904        | 2           |
|      | 11     | - 3449,484       | 2           |
| 11   | 11     | - 3449,484       | 2           |
|      | 32     | 1398,961         | 2           |
|      | 50     | - 1278,585       | 2           |
|      | 12     | - 2797,704       | 2           |
| 3    | 12     | - 2797,704       | 2           |
|      | 33     | 1811,616         | 2           |
|      | 52     | - 958,591        | 2           |
|      | 34     | 1811,616         | 2           |
|      | 13     | - 2797,704       | 2           |

| Join | Batang | Gaya batang (kg) | Jumlah baut |
|------|--------|------------------|-------------|
| 1    | 1      | - 201,018        | 2           |
|      | 2      | - 3852,759       | 2           |
|      | 30     | - 1460,913       | 2           |
| 26   | 30     | - 1460,913       | 2           |
|      | 42     | 1061,657         | 2           |
|      | 5      | - 1273,680       | 2           |
|      | 29     | - 681,112        | 2           |
|      | 29     | - 681,112        | 2           |
| 25   | 66     | 290,064          | 2           |
|      | 6      | - 69,286         | 2           |
|      | 28     | - 646,127        | 2           |
|      | 28     | - 646,127        | 2           |
| 24   | 46     | - 441,732        | 2           |
|      | 31     | 881,949          | 2           |
|      | 27     | - 1057,331       | 2           |
|      | 27     | - 1057,331       | 2           |
| 23   | 48     | - 887,904        | 2           |
|      | 32     | 1398,961         | 2           |
|      | 26     | - 1639,128       | 2           |
|      | 26     | - 1639,128       | 2           |
| 22   | 50     | - 1278,585       | 2           |
|      | 33     | 1811,616         | 2           |
|      | 25     | - 2314,637       | 2           |
|      | 25     | - 2314,637       | 2           |
| 6    | 52     | 958,591          | 2           |
|      | 24     | - 2314,637       | 2           |



## 4.2 Perencanaan Pelat Lantai dan Pelat Talang

### 4.2.1 Mutu bahan

1. Kuat tekan beton yang disyaratkan,  $f'_c = 25$  Mpa.

2. Modulus elastisitas beton

$$E_c = 4700 \cdot \sqrt{f'_c} = 4700 \cdot \sqrt{25} = 23500 \text{ Mpa.}$$

$$= 2,396 \cdot 10^7 \text{ KN/m}^2.$$

3. Baja tulangan dengan  $f_y$  :

a. Baja tulangan  $\emptyset \leq 12$  mm digunakan tulangan polos dengan tegangan leleh ( $f_y$ ) = 240 Mpa.

b. Baja tulangan  $\emptyset \geq 12$  mm digunakan tulangan ulir (*deform*) dengan  $f_y = 400$  Mpa.

### 4.2.2 Pembebanan pelat lantai

1. Beban mati pelat lantai ( $q_D$ ).

|                       |   |                  |   |                         |
|-----------------------|---|------------------|---|-------------------------|
| a. berat pelat        | = | $0,12 \times 24$ | = | $2,88 \text{ KN/m}^2$ . |
| b. berat pasir (5 cm) | = | $0,05 \times 16$ | = | $0,80 \text{ KN/m}^2$ . |
| c. berat spesi (3 cm) | = | $0,03 \times 22$ | = | $0,66 \text{ KN/m}^2$ . |
| d. berat keramik      | = | $0,01 \times 20$ | = | $0,20 \text{ KN/m}^2$ . |
|                       |   |                  |   | <hr/>                   |
| qD total              | = |                  |   | $4,54 \text{ KN/m}^2$ . |

2. Beban hidup pelat lantai ( $q_L$ ).

Gedung ini berfungsi sebagai ruang kuliah dan kantor, sehingga beban hidup ( $q_L$ ) diambil sebesar  $250 \text{ Kg/cm}^2$  atau  $2,5 \text{ KN/m}^2$ . (PPIUG, 1983 tabel 3.1 halaman 17).

3. Kombinasi pembebanan (SK SNI T-15-1991-03, pasal 3.2.2).

$$q_U = 1,2.q_D + 1,6.q_L = 1,2.4,54 + 1,6.2,5 = 9,448 \text{ KNm.}$$

4. Tinggi manfaat pelat.

a. Pakai tulangan pokok  $\varnothing 10 \text{ mm}$ .

b. Penutup beton ( $P_b$ ) = 20 mm.

c. Tinggi Manfaat tulangan pelat :

$$\begin{aligned} 1) \text{ Arah lapangan x : } d_x &= h - P_b - \frac{1}{2}.\varnothing_{\text{tul.x}} \\ &= 120 - 20 - \frac{1}{2}.10 = 95 \text{ mm.} \end{aligned}$$

$$\begin{aligned} 2) \text{ Arah lapangan y : } d_y &= h - P_b - \varnothing_{\text{tul.y}} - \frac{1}{2}.\varnothing_{\text{tul.y}} \\ &= 120 - 20 - 10 - \frac{1}{2}.10 = 85 \text{ mm.} \end{aligned}$$

3) Arah tumpuan x dan y = 95 mm.

#### 4.2.3 Perencanaan pelat lantai

1. Perencanaan pelat lantai tipe I (ukuran 4,5m x 3,0 m).

a. Menentukan tebal pelat minimum ( $h$ ).

Pada SK SNI T-15-1991-03 pasal 3.2.5 butir 3.3 memberikan pendekatan empiris mengenai batasan defleksi dilakukan dengan tebal pelat minimum sebagai berikut :

$$\beta = \frac{4,5}{3,0} = 1,5$$

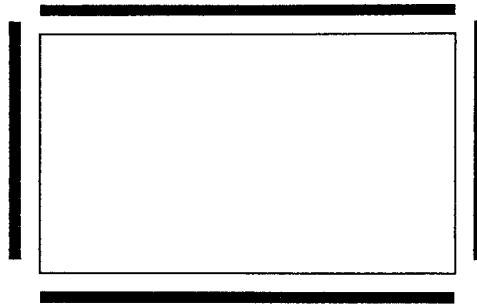
Perkiraan tebal pelat ( $h$ ) :

$$\begin{aligned} h_{\min} &= \frac{Ln.(0,8 + f_y/1500)}{36 + 9.\beta} \\ &= \frac{3000.(0,8 + 240/1500)}{36 + 9.1,5} = 58,1818 \text{ mm.} \end{aligned}$$

$h \geq h_{\min}$ , digunakan  $h = 12 \text{ cm} = 120 \text{ mm}$ .

b. Distribusi Momen.

Pelat dianggap terjepit elastis pada keempat sisinya.



Dihitung sebagai pelat

$L_x = 3,0 \text{ m}$  dua (2) arah.

$$\frac{L_y}{L_x} = \frac{4,5}{3,0} = 1,5 \text{ m.}$$

$$L_y = 4,5 \text{ m}$$

Dari tabel 13.3.1 dan 13.3.2 PBBI 1971 didapat faktor :

|                    |     |
|--------------------|-----|
| $L_y / L_x$        | 1,5 |
| $M_{lx} = -M_{tx}$ | 56  |
| $M_{ly}$           | 37  |
| $-M_{ty}$          | 37  |

$$M_u = 0,001 \cdot q_U \cdot L_x^2 \cdot x$$

$$M_{lx} = -M_{tx} = 0,001 \cdot 9,448 \cdot 3^2 \cdot 56 = 4,7618 \text{ KNm.}$$

$$M_{ly} = -M_{ty} = 0,001 \cdot 9,448 \cdot 3^2 \cdot 37 = 3,1462 \text{ KNm.}$$

c. Perencanaan tulangan arah  $M_{lx}$  dan  $M_{tx}$ .

$$M_u = 4,7618 \text{ KNm.}$$

$$M_n = \frac{M_u}{\Phi}$$

$$= \frac{4,7618}{0,8} = 5,9523 \text{ KNm.}$$

$$h = 120 \text{ mm.}$$

$$d = h - P_b - \frac{1}{2} \cdot \phi_{\text{tul}} \cdot x = 120 - 20 - \frac{1}{2} \cdot 10 = 95 \text{ mm.}$$

$$\begin{aligned} \rho_b &= \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) \\ &= \frac{0,85 \cdot 25}{240} \cdot 0,85 \cdot \left( \frac{600}{600 + 240} \right) = 0,054. \end{aligned}$$

$$\rho_{\text{max}} = 0,75 \cdot \rho_b = 0,75 \cdot 0,054 = 0,0405.$$

$$\rho_{\text{min}} = \frac{1,4}{f_y} = \frac{1,4}{240} = 0,0058.$$

- Menentukan luas tulangan ( $A_s$ ).

$$R_n = \frac{Mu/\phi}{b \cdot d^2} = \frac{5,9523 \cdot 10^6}{1000 \cdot 95^2} = 0,6595 \text{ Mpa.}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{240}{0,85 \cdot 25} = 11,2941.$$

$$\begin{aligned} \rho_{\text{ada}} &= \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right] \\ &= \frac{1}{11,2941} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 11,2941 \cdot 0,6595}{240}} \right] \end{aligned}$$

$$= 0,0028 \leq \rho_{\text{min}} = 0,0058.$$

$$\leq \rho_{\text{max}} = 0,0405$$

$$1,33 \cdot \rho_{\text{ada}} = 1,33 \cdot 0,0028 = 0,0037.$$

$$\rho_{\text{ada}} < \rho_{\text{min}}.$$

$$\left. \begin{array}{l} \rho_{\text{ada}} < \rho_{\text{min}} \\ 1,33 \cdot \rho_{\text{ada}} < \rho_{\text{min}} \end{array} \right\} \rho_{\text{pakai}} = 1,33 \cdot \rho_{\text{ada}} = 0,0037.$$

$$1,33 \cdot \rho_{\text{ada}} < \rho_{\text{min}}.$$

$$A_s \text{ pakai} = \rho_{\text{pakai}} \cdot b \cdot d = 0,0037 \cdot 1000 \cdot 95 = 351,50 \text{ mm}^2.$$

$$\begin{aligned}\text{Pakai tulangan P.10} \rightarrow A1.\phi &= \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 10^2 \\ &= 78,54 \text{ mm}^2.\end{aligned}$$

$$\begin{aligned}\text{Jarak tulangan (S)} &= \frac{A1.\phi.1000}{A_{spakai}} = \frac{78,54.1000}{351,5} \\ &= 223,4424 \text{ mm} < 2.h = 2 \cdot 120 = 240 \text{ mm} \\ &< 250 \text{ mm}.\end{aligned}$$

Jadi pakai jarak (S) = 220 mm  $\rightarrow$  **P 10 - 220 mm.**

$$A_s \text{ ada} = \frac{78,54.1000}{220} = 357 \text{ mm}^2.$$

▪ Kontrol Mn

$$a = \frac{A_{sada}.f_y}{0,85.f'_c.b} = \frac{357.240}{0,85.25.1000} = 4,032 \text{ mm}.$$

$$M_n = A_s \text{ ada} \cdot f_y \cdot (d - a/2).$$

$$= 357 \cdot 240 \cdot (95 - 4,032/2).$$

$$= 7,9669 \text{ KNm} > 1,33 \cdot \frac{M_u}{\phi} = 1,33 \cdot 5,9523 = 7,9166 \text{ KNm}.$$

d. Perencanaan tulangan arah Mly.

$$M_u = 3,1462 \text{ KNm}.$$

$$M_n = \frac{M_u}{\Phi} = \frac{3,1462}{0,8} = 3,9328 \text{ KNm}.$$

$$h = 120 \text{ mm}.$$

$$d = h - P_b - \frac{1}{2}.\phi_{tul.y} - \phi_{tul.x} = 120 - 20 - \frac{1}{2} \cdot 10 - 10 = 85 \text{ mm}.$$

$$\rho_b = \frac{0,85.f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) = \frac{0,85.25}{240} \cdot 0,85 \cdot \left( \frac{600}{600 + 240} \right)$$

$$= 0,054.$$

$$\rho_{\max} = 0,75 \cdot \rho_b = 0,75 \cdot 0,043 = 0,0405.$$

$$\rho_{\min} = \frac{1,4}{f_y} = \frac{1,4}{240} = 0,0058.$$

▪ Menentukan luas tulangan ( $A_s$ ).

$$R_n = \frac{Mu/\phi}{b \cdot d^2} = \frac{3,9328 \cdot 10^6}{1000 \cdot 85^2} = 0,5443 \text{ Mpa.}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{240}{0,85 \cdot 25} = 11,2941.$$

$$\rho_{\text{ada}} = \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right]$$

$$= \frac{1}{11,2941} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 11,2941 \cdot 0,5443}{240}} \right]$$

$$= 0,0023 \leq \rho_{\min} = 0,0058.$$

$$\leq \rho_{\max} = 0,0405$$

$$1,33 \cdot \rho_{\text{ada}} = 1,33 \cdot 0,0023 = 0,0031.$$

$$\rho_{\text{ada}} < \rho_{\min} \quad \left. \vphantom{\rho_{\text{ada}}} \right\} \rho_{\text{pakai}} = 1,33 \cdot \rho_{\text{ada}} = 0,0031.$$

$$1,33 \cdot \rho_{\text{ada}} < \rho_{\min}.$$

$$A_s \text{ pakai} = \rho_{\text{pakai}} \cdot b \cdot d = 0,0031 \cdot 1000 \cdot 85 = 263,5 \text{ mm}^2.$$

$$\text{Pakai tulangan P.10} \rightarrow A1 \cdot \phi = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 10^2$$

$$= 78,54 \text{ mm}^2.$$

$$\text{Jarak tulangan (S)} = \frac{A1 \cdot \phi \cdot 1000}{A_{\text{pakai}}} = \frac{78,54 \cdot 1000}{263,5}$$

$$= 298,0645 \text{ mm} > 2 \cdot h = 2 \cdot 120 = 240 \text{ mm}$$

$$> 250 \text{ mm.}$$

Jadi pakai jarak (S) = 240 mm → **P 10 - 240 mm.**

$$A_s \text{ ada} = \frac{78,54.1000}{240} = 327,25 \text{ mm}^2.$$

▪ Kontrol Mn

$$a = \frac{A_s \text{ ada} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{327,250.240}{0,85.25.1000} = 3,696 \text{ mm}.$$

$$M_n = A_s \text{ ada} \cdot f_y \cdot (d - a/2).$$

$$= 327,25 \cdot 240 \cdot (85 - 3,696/2).$$

$$= 6,5308 \text{ KNm} > 1,33 \cdot \frac{M_u}{\phi} = 1,33.3,9328 = 5,2306 \text{ KNm}$$

e. Perencanaan tulangan arah Mty.

$$M_u = 3,1462 \text{ KNm}.$$

$$M_n = \frac{M_u}{\Phi} = \frac{3,1462}{0,8} = 3,9328 \text{ KNm}.$$

$$h = 120 \text{ mm}.$$

$$d = h - P_b - \frac{1}{2} \cdot \emptyset \text{ tul. } y = 120 - 20 - \frac{1}{2} \cdot 10 = 95 \text{ mm}.$$

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right)$$

$$= \frac{0,85.25}{240} \cdot 0,85 \cdot \left( \frac{600}{600 + 240} \right) = 0,054.$$

$$\rho_{\max} = 0,75 \cdot \rho_b = 0,75 \cdot 0,043 = 0,0405.$$

$$\rho_{\min} = \frac{1,4}{f_y} = \frac{1,4}{240} = 0,0058.$$

- Menentukan luas tulangan (As).

$$R_n = \frac{Mu/\phi}{b \cdot d^2} = \frac{3,9328 \cdot 10^6}{1000 \cdot 95^2} = 0,4358 \text{ Mpa.}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{240}{0,85 \cdot 25} = 11,2941.$$

$$\begin{aligned} \rho_{\text{ada}} &= \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right] \\ &= \frac{1}{11,2941} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 11,2941 \cdot 0,4358}{240}} \right] \\ &= 0,0018 \leq \rho_{\text{min}} = 0,0058. \end{aligned}$$

$$\leq \rho_{\text{max}} = 0,0405$$

$$1,33 \cdot \rho_{\text{ada}} = 1,33 \cdot 0,0018 = 0,0024.$$

$$\rho_{\text{ada}} < \rho_{\text{min.}}$$

$$\left. \vphantom{\rho_{\text{ada}} < \rho_{\text{min.}}} \right\} \rho_{\text{pakai}} = 1,33 \cdot \rho_{\text{ada}} = 0,0024.$$

$$1,33 \cdot \rho_{\text{ada}} < \rho_{\text{min.}}$$

$$A_s \text{ pakai} = \rho_{\text{pakai}} \cdot b \cdot d = 0,0024 \cdot 1000 \cdot 95 = 228 \text{ mm}^2.$$

$$\begin{aligned} \text{Pakai tulangan P.10} \rightarrow A1 \cdot \phi &= \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 10^2 \\ &= 78,54 \text{ mm}^2. \end{aligned}$$

$$\begin{aligned} \text{Jarak tulangan (S)} &= \frac{A1 \cdot \phi \cdot 1000}{A_{\text{spakai}}} = \frac{78,54 \cdot 1000}{228} \\ &= 344,4737 \text{ mm} > 2 \cdot h = 2 \cdot 120 = 240 \text{ mm} \\ &> 250 \text{ mm.} \end{aligned}$$

$$\text{Jadi pakai jarak (S)} = 240 \text{ mm} \rightarrow \mathbf{P\ 10 - 240\ mm.}$$

$$A_s \text{ ada} = \frac{78,54 \cdot 1000}{240} = 327,25 \text{ mm}^2.$$



▪ Kontrol Mn

$$a = \frac{As_{ada} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{327,250 \cdot 240}{0,85 \cdot 25 \cdot 1000} = 3,696 \text{ mm.}$$

$$Mn = As_{ada} \cdot f_y \cdot (d - a/2).$$

$$= 327,25 \cdot 240 \cdot (95 - 3,696/2).$$

$$= 7,3162 \text{ KNm} > 1,33 \cdot \frac{Mu}{\phi} = 1,33 \cdot 3,9328 = 5,2306 \text{ KNm.}$$

f. Perencanaan tulangan bagi pelat lantai.

$$As_{bagi} = 0,002 \cdot b \cdot h$$

$$= 0,002 \cdot 1000 \cdot 120 = 240 \text{ mm}^2.$$

$$\text{Dipakai P 8} \rightarrow A1 \cdot \phi = 50,27 \text{ mm}^2.$$

$$\text{Jarak tulangan} = \frac{A1 \cdot \phi \cdot 1000}{As_{bagi}} = \frac{50,27 \cdot 1000}{240} = 209,4583 \text{ mm.}$$

Jadi dipakai tulangan bagi : **P 8 – 200 mm.**

$$As = \frac{50,27 \cdot 1000}{200} = 251,35 \text{ mm}^2 > 240 \text{ mm}^2.$$

#### 4.2.4 Pembebanan pelat talang

1. Beban mati pelat talang (qD).

$$\text{a. berat pelat} = 0,10 \times 24 = 2,40 \text{ KN/m}^2.$$

$$\text{b. lapisan kedap air (2 cm)} = 0,02 \times 22 = \underline{0,44 \text{ KN/m}^2}.$$

$$qD \text{ total} = 2,84 \text{ KN/m}^2.$$

2. Beban hidup pelat talang (qL).

Pada pelat talang beban hidup berupa pekerja atau air hujan (qL)

sebesar  $100 \text{ kg/cm}^2$  atau  $1 \text{ KN/m}^2$  (PPIUG, 1983 tabel 3.1, halaman

17).

3. Kombinasi pembebanan (SK SNI T-15-1991-03, pasal 3.2.2).

$$q_U = 1,2 \cdot q_D + 1,6 \cdot q_L = 1,2 \cdot 2,84 + 1,6 \cdot 1,0 = 5,008 \text{ KNm.}$$

4. Tinggi manfaat pelat.

a. pakai tulangan pokok  $\varnothing$  8 mm.

b. penutup beton ( $P_b$ ) = 20 mm.

c. Tinggi Manfaat tulangan pelat :

$$1) \text{ Arah lapangan x : } dx = h - P_b - \frac{1}{2} \cdot \varnothing_{tul.x}$$

$$= 100 - 20 - \frac{1}{2} \cdot 8 = 76 \text{ mm.}$$

$$2) \text{ Arah lapangan y : } dy = h - P_b - \varnothing_{tul.y} - \frac{1}{2} \cdot \varnothing_{tul.y}$$

$$= 100 - 20 - 8 - \frac{1}{2} \cdot 8 = 68 \text{ mm.}$$

$$3) \text{ Arah tumpuan x dan y } = 76 \text{ mm.}$$

#### 4.2.5 Perencanaan pelat talang

1. Perencanaan pelat talang tipe I (ukuran 3,0m x 1,8m).

a. Menentukan tebal pelat minimum ( $h$ ).

Pada SK SNI T-15-1991-03 pasal 3.2.5 butir 3.3 memberikan pendekatan empiris mengenai batasan defleksi dilakukan dengan tebal pelat minimum sebagai berikut :

$$\beta = \frac{3,0}{1,8} = 1,667$$

Perkiraan tebal pelat ( $h$ ) :

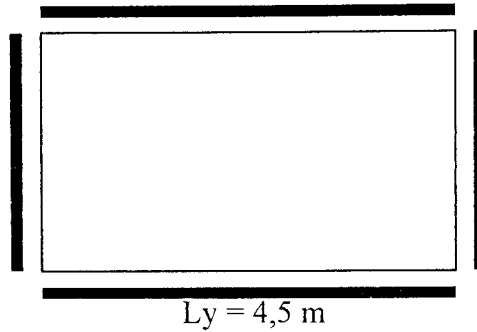
$$h_{\min} = \frac{Ln.(0,8 + f_y/1500)}{36 + 9.\beta}$$

$$= \frac{1800.(0,8 + 240/1500)}{36 + 9.1,6667} = 33,882 \text{ mm.}$$

$h \geq h_{\min}$ , digunakan  $h = 10 \text{ cm} = 100 \text{ mm}$ .

b. Distribusi momen.

Pelat dianggap terjepit elastis pada keempat sisinya.



Dihitung sebagai pelat

$L_x = 3,0 \text{ m}$  dua (2) arah.

$$\frac{L_y}{L_x} = \frac{3,0}{1,8} = 1,6667 \text{ m.}$$

Dari tabel 13.3.1 dan 13.3.2 PBBI 1971 didapat faktor :

| $L_y / L_x$        | 1,6 | 1.6667 | 1.7 |
|--------------------|-----|--------|-----|
| $M_{lx} = -M_{tx}$ | 58  | 58,667 | 59  |
| $M_{ly}$           | 36  | 36     | 36  |
| $-M_{ty}$          | 36  | 36     | 36  |

$$M_u = 0,001 \cdot q_u \cdot L_x^2 \cdot x$$

$$M_{lx} = -M_{tx} = 0,001 \cdot 5,008 \cdot 1,8^2 \cdot 58,6667 = 0,9519 \text{ KNm.}$$

$$M_{ly} = -M_{ty} = 0,001 \cdot 5,008 \cdot 1,8^2 \cdot 36 = 0,5841 \text{ KNm.}$$

c. Perencanaan tulangan arah  $M_{lx}$  dan  $M_{tx}$ .

$$M_u = 0,9519 \text{ KNm.}$$

$$M_n = \frac{M_u}{\Phi}$$

$$= \frac{0,9519}{0,8} = 1,1899 \text{ KNm.}$$

$$h = 100 \text{ mm.}$$

$$d = h - p_b - \frac{1}{2} \cdot \phi_{tul.x} = 100 - 20 - \frac{1}{2} \cdot 8 = 76 \text{ mm.}$$

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25}{240} \cdot 0,85 \cdot \left( \frac{600}{600 + 240} \right)$$

$$= 0,054.$$

$$\rho_{\max} = 0,75 \cdot \rho_b = 0,75 \cdot 0,043 = 0,0405.$$

$$\rho_{\min} = \frac{1,4}{f_y} = \frac{1,4}{240} = 0,0058.$$

▪ Menentukan luas tulangan (As).

$$R_n = \frac{Mu/\phi}{b \cdot d^2} = \frac{1,1899 \cdot 10^6}{1000 \cdot 76^2} = 0,206 \text{ Mpa.}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{240}{0,85 \cdot 25} = 11,2941.$$

$$\rho_{\text{ada}} = \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right].$$

$$= \frac{1}{11,2941} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 11,2941 \cdot 0,206}{240}} \right]$$

$$= 0,0009 \leq \rho_{\min} = 0,0058.$$

$$\leq \rho_{\max} = 0,0323$$

$$1,33 \cdot \rho_{\text{ada}} = 1,33 \cdot 0,0009 = 0,0012.$$

$$\rho_{\text{ada}} < \rho_{\min}.$$

$$\left. \vphantom{\rho_{\text{ada}}} \right\} \rho_{\text{pakai}} = 1,33 \cdot \rho_{\text{ada}} = 0,0012.$$

$$1,33 \cdot \rho_{\text{ada}} < \rho_{\min}.$$

$$A_s \text{ pakai} = \rho_{\text{pakai}} \cdot b \cdot d = 0,0012 \cdot 1000 \cdot 76 = 91,2 \text{ mm}^2.$$

$$\text{Pakai tulangan P.8} \rightarrow A1.\emptyset = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 8^2$$

$$= 50,27 \text{ mm}^2.$$

$$\begin{aligned}\text{Jarak tulangan (S)} &= \frac{A1 \cdot \phi \cdot 1000}{A_{spakai}} = \frac{50,27 \cdot 1000}{91,2} \\ &= 551,2061 \text{ mm} > 2 \cdot h = 2 \cdot 100 = 200 \text{ mm} \\ &> 250\end{aligned}$$

Jadi pakai jarak (S) = 200 mm → **P 8 - 200 mm.**

$$A_s \text{ ada} = \frac{50,27 \cdot 1000}{200} = 251,35 \text{ mm}^2.$$

▪ Kontrol Mn

$$a = \frac{A_s \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{251,350 \cdot 240}{0,85 \cdot 25 \cdot 1000} = 2,8388 \text{ mm.}$$

$$M_n = A_s \text{ ada} \cdot f_y \cdot (d - a/2).$$

$$= 251,35 \cdot 240 \cdot (76 - 2,8388/2).$$

$$= 4,499 \text{ KNm} > 1,33 \cdot \frac{M_u}{\phi} = 1,33 \cdot 1,1899 = 1,5826 \text{ KNm.}$$

d. Perencanaan tulangan arah Mly.

$$M_u = 0,5841 \text{ KNm.}$$

$$M_n = \frac{M_u}{\Phi} = \frac{0,5841}{0,8} = 0,7301 \text{ KNm.}$$

$$h = 100 \text{ mm.}$$

$$d = h - P_b - \frac{1}{2} \cdot \phi_{tul.y} - \phi_{tul.x} = 100 - 20 - \frac{1}{2} \cdot 8 - 8 = 68 \text{ mm.}$$

$$\begin{aligned}\rho_b &= \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) \\ &= \frac{0,85 \cdot 20}{240} \cdot 0,85 \cdot \left( \frac{600}{600 + 240} \right) = 0,054.\end{aligned}$$

$$\rho_{\max} = 0,75 \cdot \rho_b = 0,75 \cdot 0,043 = 0,0405.$$

$$\rho_{\min} = \frac{1,4}{f_y} = \frac{1,4}{240} = 0,0058.$$

▪ Menentukan luas tulangan (As).

$$R_n = \frac{Mu/\phi}{b \cdot d^2} = \frac{0,7301 \cdot 10^6}{1000 \cdot 68^2} = 0,1579 \text{ Mpa.}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{240}{0,85 \cdot 25} = 11,2941.$$

$$\rho_{\text{ada}} = \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right].$$

$$= \frac{1}{11,2941} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 11,2941 \cdot 0,1579}{240}} \right]$$

$$= 0,0007 \leq \rho_{\min} = 0,0058.$$

$$\leq \rho_{\max} = 0,0323$$

$$1,33 \cdot \rho_{\text{ada}} = 1,33 \cdot 0,0007 = 0,0009.$$

$$\rho_{\text{ada}} < \rho_{\min} \quad \left. \vphantom{\rho_{\text{ada}}} \right\} \rho_{\text{pakai}} = 1,33 \cdot \rho_{\text{ada}} = 0,009.$$

$$1,33 \cdot \rho_{\text{ada}} < \rho_{\min}.$$

$$A_s \text{ pakai} = \rho_{\text{pakai}} \cdot b \cdot d = 0,0009 \cdot 1000 \cdot 68 = 61,2 \text{ mm}^2.$$

$$\begin{aligned} \text{Pakai tulangan P.8} \rightarrow A1 \cdot \emptyset &= \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 8^2 \\ &= 50,27 \text{ mm}^2. \end{aligned}$$

$$\text{Jarak tulangan}(S) = \frac{A1 \cdot \phi \cdot 1000}{A_{\text{pakai}}} = \frac{50,27 \cdot 1000}{91,2}$$

$$= 821,4052 \text{ mm} > 2 \cdot h = 2 \cdot 100 = 200 \text{ mm}$$

$$> 250 \text{ mm.}$$

Jadi pakai jarak (S) = 200 mm  $\rightarrow$  **P 8 - 200 mm.**

$$A_s \text{ ada} = \frac{50,27 \cdot 1000}{200} = 251,35 \text{ mm}^2.$$

▪ Kontrol Mn

$$a = \frac{A_s \text{ ada} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{251,35 \cdot 240}{0,85 \cdot 25 \cdot 1000} = 2,8388 \text{ mm}.$$

$$M_n = A_s \text{ ada} \cdot f_y \cdot (d - a/2).$$

$$= 251,35 \cdot 240 \cdot (68 - 2,8388/2).$$

$$= 4,0164 \text{ KNm} > 1,33 \cdot \frac{M_u}{\phi} = 1,33 \cdot 0,7301 = 0,971 \text{ KNm}$$

e. Perencanaan tulangan arah Mty.

$$M_u = 0,5841 \text{ KNm}.$$

$$M_n = \frac{M_u}{\Phi} = \frac{0,5841}{0,8} = 0,7301 \text{ KNm}.$$

$$h = 100 \text{ mm}.$$

$$d = h - P_b - \frac{1}{2} \cdot \phi_{\text{tul.y}} = 100 - 20 - \frac{1}{2} \cdot 8 = 76 \text{ mm}.$$

$$\begin{aligned} \rho_b &= \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) \\ &= \frac{0,85 \cdot 25}{240} \cdot 0,85 \cdot \left( \frac{600}{600 + 240} \right) = 0,054. \end{aligned}$$

$$\rho_{\text{max}} = 0,75 \cdot \rho_b = 0,75 \cdot 0,043 = 0,0405.$$

$$\rho_{\text{min}} = \frac{1,4}{f_y} = \frac{1,4}{240} = 0,0058.$$

▪ Menentukan luas tulangan (As).

$$R_n = \frac{M_u / \phi}{b \cdot d^2} = \frac{0,7301 \cdot 10^6}{1000 \cdot 76^2} = 0,1264 \text{ Mpa}.$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{240}{0,85 \cdot 25} = 11,2941.$$

$$\rho_{ada} = \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right].$$

$$= \frac{1}{11,2941} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 11,2941 \cdot 0,1264}{240}} \right]$$

$$= 0,0005 \leq \rho_{min} = 0,0058.$$

$$\leq \rho_{max} = 0,0323$$

$$1,33 \cdot \rho_{ada} = 1,33 \cdot 0,0005 = 0,0007.$$

$$\rho_{ada} < \rho_{min}.$$

$$\left. \begin{array}{l} \rho_{ada} < \rho_{min} \\ 1,33 \cdot \rho_{ada} < \rho_{min} \end{array} \right\} \rho_{pakai} = 1,33 \cdot \rho_{ada} = 0,0007.$$

$$A_s \text{ pakai} = \rho_{pakai} \cdot b \cdot d = 0,0007 \cdot 1000 \cdot 76 = 53,2 \text{ mm}^2.$$

$$\begin{aligned} \text{Pakai tulangan P.8} \rightarrow A1.\phi &= \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 8^2 \\ &= 50,27 \text{ mm}^2. \end{aligned}$$

$$\text{Jarak tulangan (S)} = \frac{A1.\phi \cdot 1000}{A_{spakai}} = \frac{50,27 \cdot 1000}{53,2}$$

$$= 944,9248 \text{ mm} > 2 \cdot h = 2 \cdot 100 = 200 \text{ mm}$$

$$> 250 \text{ mm}.$$

$$\text{Jadi pakai jarak (S)} = 200 \text{ mm} \rightarrow \mathbf{P\ 8 - 200\ mm}.$$

$$A_s \text{ ada} = \frac{50,27 \cdot 1000}{200} = 251,35 \text{ mm}^2.$$

#### ▪ Kontrol Mn

$$a = \frac{A_{sada} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{251,35 \cdot 240}{0,85 \cdot 25 \cdot 1000} = 2,8388 \text{ mm}.$$



### 4.3. Pembebanan Balok Induk dan Anak

#### 1. Beban pada balok lantai.

##### a. Beban mati (qD) :

$$1) \text{ berat pelat lantai} = 0,12 \times 24 = 2,88 \text{ KN/m}^2.$$

$$2) \text{ berat pasir (5cm)} = 0,05 \times 16 = 0,80 \text{ KN/m}^2.$$

$$3) \text{ berat spesi (3cm)} = 0,03 \times 22 = 0,66 \text{ KN/m}^2.$$

$$4) \text{ berat keramik} = 0,01 \times 20 = 0,20 \text{ KN/m}^2.$$

$$\text{qD total} = 4,54 \text{ KN/m}^2.$$

$$= 454 \text{ Kg/m}^2$$

##### b. Beban dinding / partisi (pasangan ½ bata).

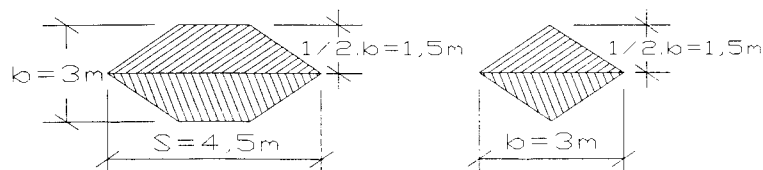
$$Q_{\text{din}} = B_{\text{j bata}} \times \text{Tinggi tembok}$$

$$= 2,5 \cdot (4,2 - 0,6) = 9 \text{ KN/m} = 900 \text{ Kg/m}.$$

##### c. Beban hidup (qL) = 250 Kg/m<sup>2</sup>.

##### d. Tipe beban pada balok lantai.

##### 1) Tipe I

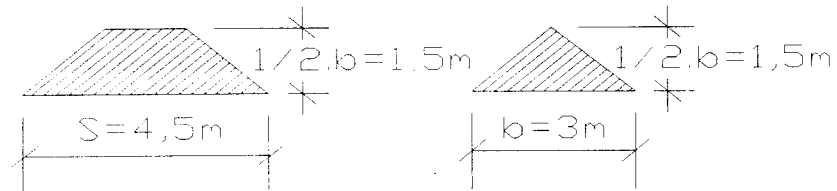


Beban mati (qD) :

$$q_1(D) = qD \cdot \frac{1}{2} \cdot b \cdot 2 = 454 \cdot \frac{1}{2} \cdot 3 \cdot 2 = 1362 \text{ Kg/m}.$$

Beban hidup (qL) :

$$q_1(L) = qL \cdot \frac{1}{2} \cdot b \cdot 2 = 250 \cdot \frac{1}{2} \cdot 3 \cdot 2 = 750 \text{ Kg/m}.$$

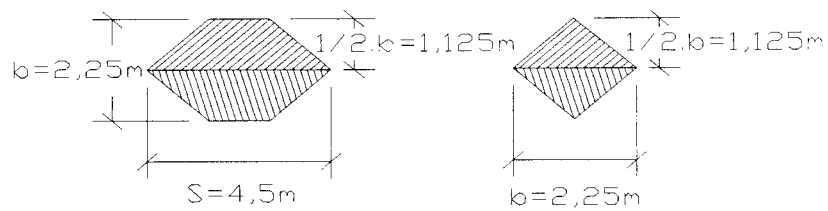
2) Tipe II.

Beban mati ( $q_D$ ) :

$$q_2(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 3 = 681 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_2(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 3 = 375 \text{ Kg/m.}$$

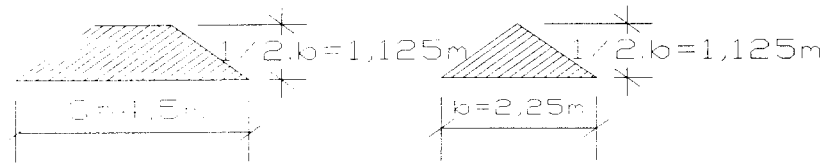
3) Tipe III.

Beban mati ( $q_D$ ) :

$$q_3(D) = q_D \cdot \frac{1}{2} \cdot b \cdot 2 = 454 \cdot \frac{1}{2} \cdot 2.25 \cdot 2 = 1021,5 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_3(L) = q_L \cdot \frac{1}{2} \cdot b \cdot 2 = 250 \cdot \frac{1}{2} \cdot 2.25 \cdot 2 = 562,5 \text{ Kg/m.}$$

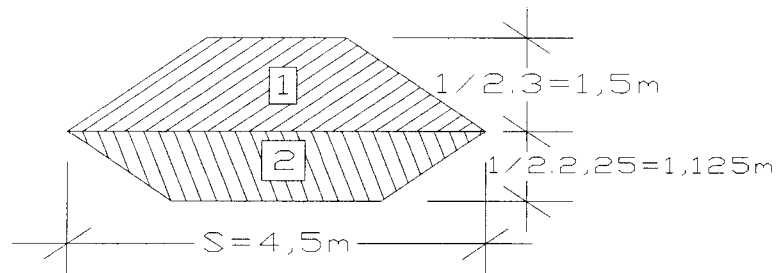
4) Tipe IV.

Beban mati ( $q_D$ ) :

$$q_4(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 2,25 = 510,75 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_4(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 2,25 = 281,25 \text{ Kg/m.}$$

5) Tipe V.

Beban mati ( $q_D$ ) :

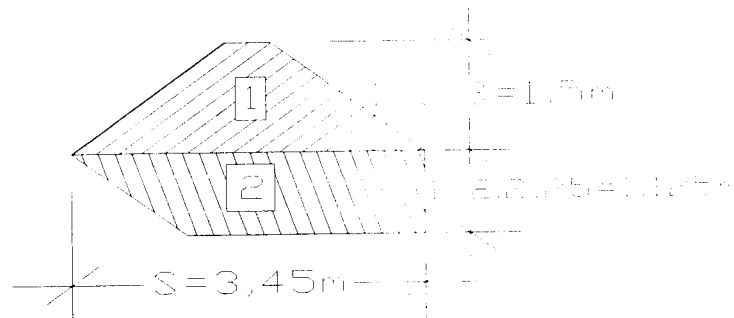
$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 3 = 681 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 2,25 = 510,75 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 3 = 375 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 2,25 = 281,25 \text{ Kg/m.}$$

6) Tipe VI.

Beban mati ( $q_D$ ) :

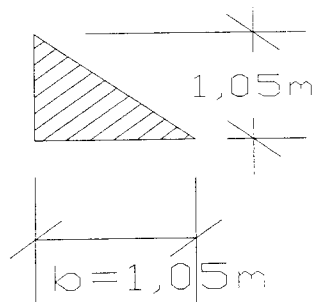
$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 3 = 681 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 2,25 = 510,75 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 3 = 375 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 2,25 = 281,25 \text{ Kg/m.}$$

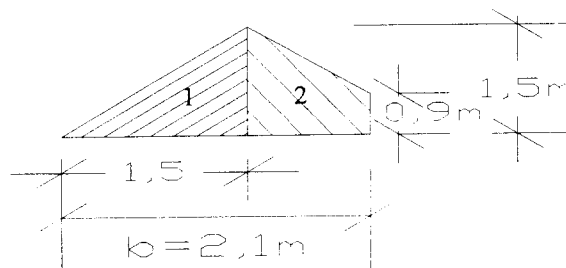
7) Tipe VII.

Beban mati ( $q_D$ ) :

$$q_4(D) = q_D \cdot b = 454 \cdot 1,05 = 476,7 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_4(L) = q_L \cdot b = 250 \cdot 1,05 = 262,5 \text{ Kg/m.}$$

8) Tipe VIII.

Beban mati ( $q_D$ ) :

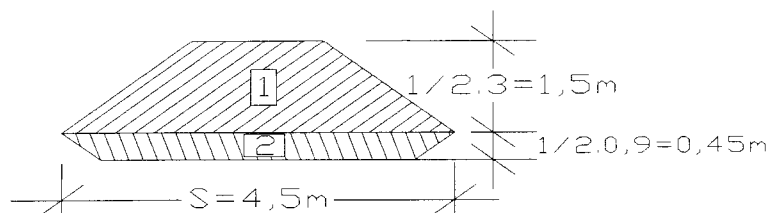
$$q_5(D1) = q_D \cdot 1,5 = 454 \cdot 1,5 = 681 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot 0,9 = 454 \cdot 0,9 = 408,6 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot 1,5 = 250 \cdot 1,5 = 375 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot 0,9 = 250 \cdot 0,9 = 225 \text{ Kg/m.}$$

9) Tipe IX.

Beban mati ( $q_D$ ) :

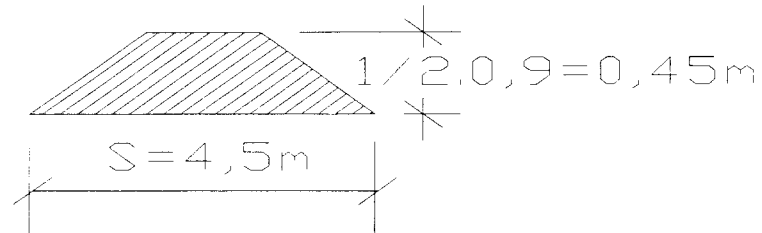
$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 3 = 681 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 0,9 = 204,3 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 3 = 375 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 0,9 = 112,5 \text{ Kg/m.}$$

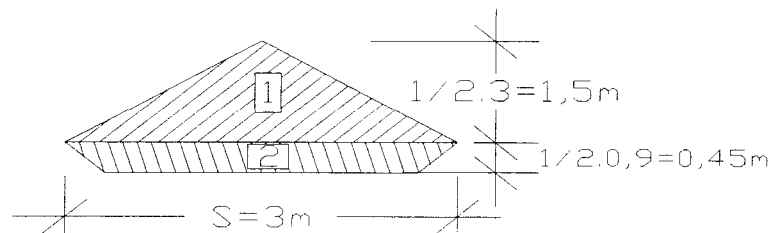
10) Tipe X.

Beban mati ( $q_D$ ) :

$$q_2(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 0,9 = 204,3 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_2(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 0,9 = 112,5 \text{ Kg/m.}$$

11) Tipe XI.

Beban mati ( $q_D$ ) :

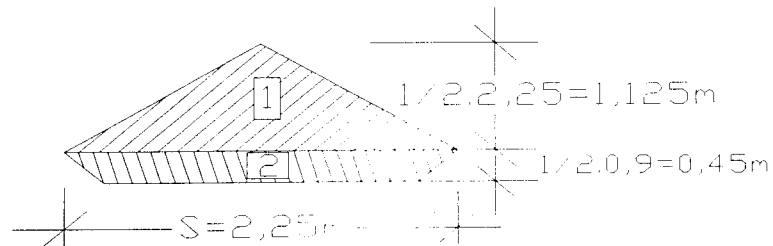
$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 3 = 681 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 0,9 = 204,3 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 3 = 375 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 0,9 = 112,5 \text{ Kg/m.}$$

12) Tipe XII.

Beban mati ( $q_D$ ) :

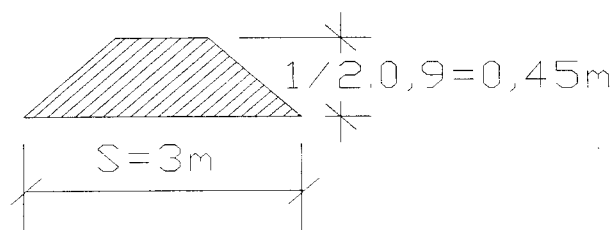
$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 2,25 = 510,75 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 0,9 = 204,3 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 2,25 = 281,25 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 0,9 = 112,5 \text{ Kg/m.}$$

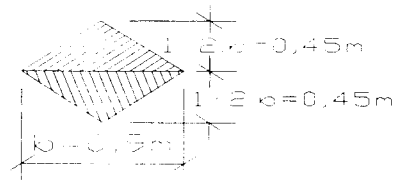
13) Tipe XIII.

Beban mati ( $q_D$ ) :

$$q_2(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 0,9 = 204,3 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_2(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 0,9 = 112,5 \text{ Kg/m.}$$

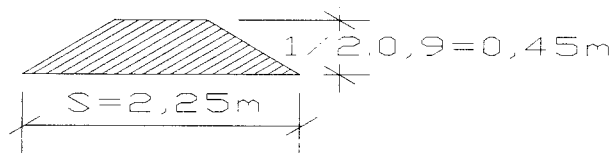
14) Tipe XIV.

Beban mati ( $q_D$ ) :

$$q_1(D) = q_D \cdot \frac{1}{2} \cdot b \cdot 2 = 454 \cdot \frac{1}{2} \cdot 0,9 \cdot 2 = 408,6 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_1(L) = q_L \cdot \frac{1}{2} \cdot b \cdot 2 = 250 \cdot \frac{1}{2} \cdot 0,9 \cdot 2 = 225 \text{ Kg/m.}$$

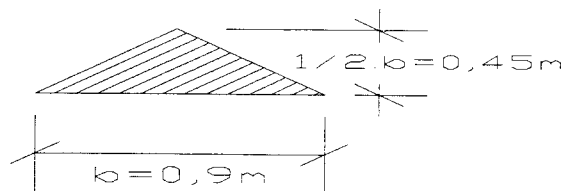
15) Tipe XV.

Beban mati ( $q_D$ ) :

$$q_2(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 0,9 = 204,3 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_2(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 0,9 = 112,5 \text{ Kg/m.}$$

16) Tipe XVI.

Beban mati ( $q_D$ ) :

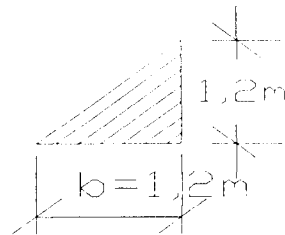
$$q_4(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 0,9 = 204,3 \text{ Kg/m.}$$



Beban hidup ( $q_L$ ) :

$$q_4(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 0,9 = 112,5 \text{ Kg/m.}$$

17) Tipe XVII.



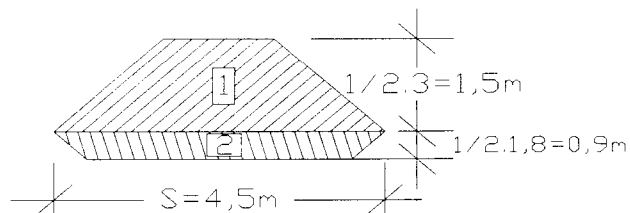
Beban mati ( $q_D$ ) :

$$q_4(D) = q_D \cdot b = 454 \cdot 1,2 = 544,8 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_4(L) = q_L \cdot b = 250 \cdot 1,2 = 300 \text{ Kg/m.}$$

18) Tipe XVIII.



Beban mati ( $q_D$ ) :

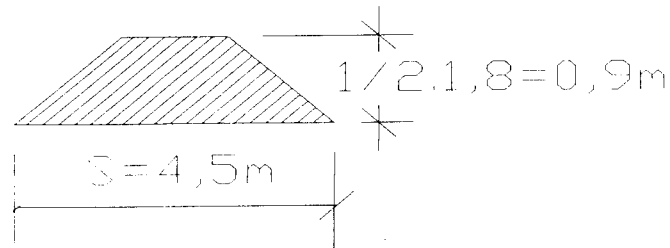
$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 3 = 681 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 1,8 = 408,6 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 3 = 375 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 1,8 = 225 \text{ Kg/m.}$$

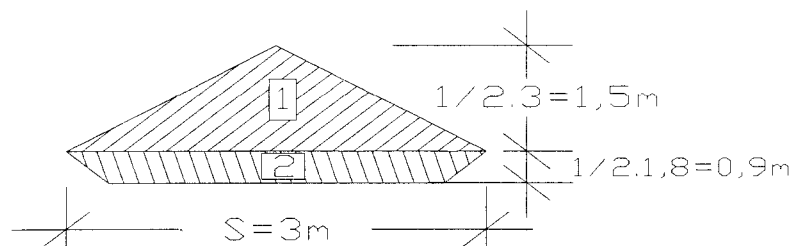
19) Tipe XIX.

Beban mati ( $q_D$ ) :

$$q_2(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 1,8 = 408,6 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_2(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 1,8 = 225 \text{ Kg/m.}$$

20) Tipe XX.

Beban mati ( $q_D$ ) :

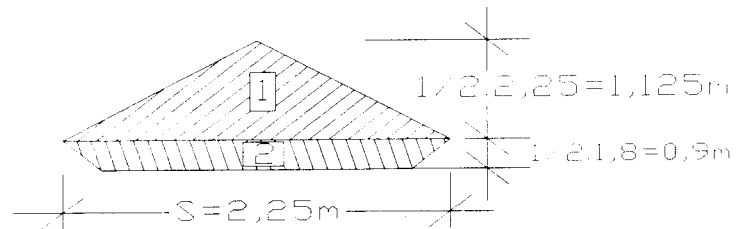
$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 3 = 681 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 1,8 = 408,6 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 3 = 375 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 1,8 = 225 \text{ Kg/m.}$$

21) Tipe XXI.

Beban mati ( $q_D$ ) :

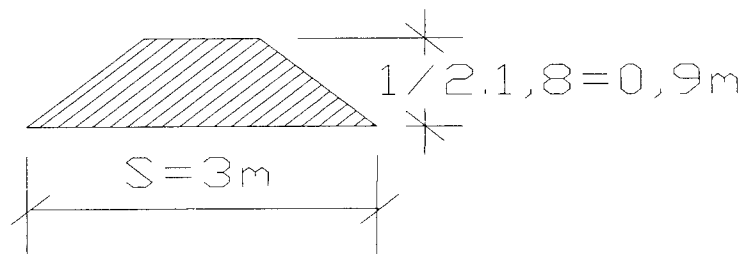
$$q_5 (D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 2,25 = 510,75 \text{ Kg/m.}$$

$$q_5 (D2) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 1,8 = 408,6 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5 (L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 2,25 = 281,25 \text{ Kg/m.}$$

$$q_5 (L2) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 1,8 = 225 \text{ Kg/m.}$$

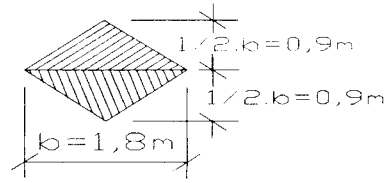
22) Tipe XXII.

Beban mati ( $q_D$ ) :

$$q_2 (D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 1,8 = 408,6 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_2 (L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 1,8 = 225 \text{ Kg/m.}$$

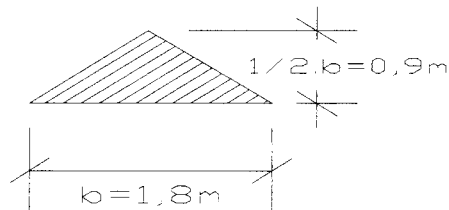
23) Tipe XXIII.

Beban mati ( $q_D$ ) :

$$q_1(D) = q_D \cdot \frac{1}{2} \cdot b \cdot 2 = 454 \cdot \frac{1}{2} \cdot 1,8 \cdot 2 = 817,25 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_1(L) = q_L \cdot \frac{1}{2} \cdot b \cdot 2 = 250 \cdot \frac{1}{2} \cdot 1,8 \cdot 2 = 450 \text{ Kg/m.}$$

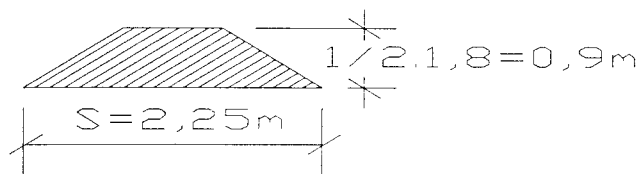
24) Tipe XXIV.

Beban mati ( $q_D$ ) :

$$q_4(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 1,8 = 408,6 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_4(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 1,8 = 225 \text{ Kg/m.}$$

25) Tipe XXV.

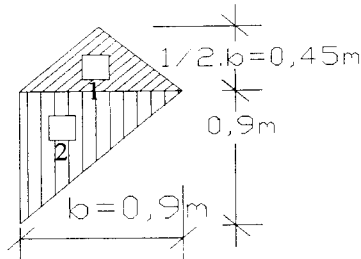
Beban mati ( $q_D$ ) :

$$q_2(D) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 1,8 = 408,6 \text{ Kg/m.}$$

Beban hidup ( $q_L$ ) :

$$q_2(L) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 1,8 = 225 \text{ Kg/m.}$$

26) Tipe XXVI.



Beban mati ( $q_D$ ) :

$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 0,9 = 204,3 \text{ Kg/m.}$$

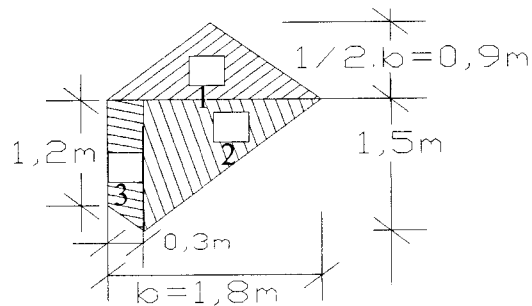
$$q_5(D2) = q_D \cdot b = 454 \cdot 0,9 = 408,6 \text{ Kg/m}$$

Beban hidup ( $q_L$ ) :

$$q_5(L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 0,9 = 112,5 \text{ Kg/m.}$$

$$q_5(L2) = q_L \cdot b = 250 \cdot 0,9 = 225 \text{ Kg/m.}$$

27) Tipe XXVII.



Beban mati ( $q_D$ ) :

$$q_5(D1) = q_D \cdot \frac{1}{2} \cdot b = 454 \cdot \frac{1}{2} \cdot 1,8 = 408,6 \text{ Kg/m.}$$

$$q_5(D2) = q_D \cdot 1,5 = 454 \cdot 1,5 = 681 \text{ Kg/m}$$

$$q_5(D3) = q_D \cdot 1,2 = 454 \cdot 1,2 = 544,8 \text{ Kg/m.}$$

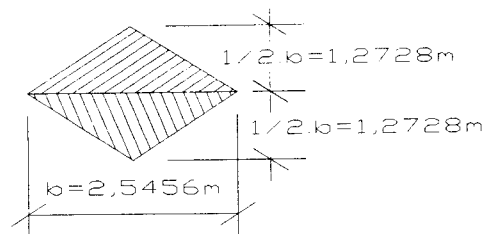
Beban hidup ( $q_L$ ) :

$$q_5 (L1) = q_L \cdot \frac{1}{2} \cdot b = 250 \cdot \frac{1}{2} \cdot 1,8 = 225 \text{ Kg/m.}$$

$$q_5 (L2) = q_L \cdot 1,5 = 250 \cdot 1,5 = 375 \text{ Kg/m.}$$

$$q_5 (L3) = q_L \cdot 1,2 = 250 \cdot 1,2 = 300 \text{ Kg/m.}$$

28) Tipe XXVIII.



Beban mati ( $q_D$ ) :

$$q_1 (D) = q_D \cdot \frac{1}{2} \cdot b \cdot 2 = 454 \cdot \frac{1}{2} \cdot 2,5456 \cdot 2 = 1155,7024$$

Kg/m.

Beban hidup ( $q_L$ ) :

$$q_1 (L) = q_L \cdot \frac{1}{2} \cdot b \cdot 2 = 250 \cdot \frac{1}{2} \cdot 2,5456 \cdot 2 = 636,4 \text{ Kg/m.}$$

#### 4.4 Perencanaan Beban Gempa

##### 4.4.1 Berat bangunan total

###### 1. Berat balok ring dan pelat talang

- Luas plafond : 918 m<sup>2</sup>
- Luas pelat talang : 268,56 m<sup>2</sup>
- Luas atap : 1058,76 m<sup>2</sup>
- Tebal pelat : 0,1 m
- b balok 1 : 0,4 m
- h balok 1 : 0,6 m
- b balok 2 : 0,2 m
- h balok 2 : 0,4 m
- b kolom : 0,6 m
- h kolom : 0,6 m
- Panjang balok induk : 190,8 m
- Panjang balok anak : 208,79 m
- Panjang balok konsol : 88,8 m
- Panjang dinding bawah : 285,7m
- Tinggi ½ kolom bawah : 2,1 m
- Jumlah kolom bawah (0,6x0,6 m) : 24 buah
- Bj beton : 2400 kg/m<sup>3</sup>
- Bj dinding ½ bata : 250 kg/m<sup>2</sup>
- Bj plofond : 18 kg/m<sup>2</sup>

➤ **Beban mati**

|                |                                                     |                               |
|----------------|-----------------------------------------------------|-------------------------------|
| – Genteng      | $= 50 \times 1058,76$                               | $= 52938 \text{ kg}$          |
| – Kuda-kuda    |                                                     | $= 17476,3 \text{ kg}$        |
| – Gording      | $= 752,64 \times 4,06$                              | $= 3055,72 \text{ kg}$        |
| – Balok induk  | $= 190,8 \times 2400 \times 0,4 \times 0,6$         | $= 109900,8 \text{ kg}$       |
| – Balok anak   | $= 208,78 \times 2400 \times 0,2 \times 0,4$        | $= 40086,2 \text{ kg}$        |
| – Balok konsol | $= 88,8 \times 2400 \times 0,15 \times 0,3$         | $= 9590,4 \text{ kg}$         |
| – Kolom        | $= 24 \times 2,1 \times 0,6 \times 0,6 \times 2400$ | $= 43545,6 \text{ kg}$        |
| – Dinding      | $= 285,7 \times 2,1 \times 250$                     | $= 149992,5 \text{ kg}$       |
| – Plafond      | $= 918 \times 18$                                   | $= 16524 \text{ kg}$          |
| – Pelat talang | $= 268,56 \times 0,1 \times 2400$                   | $= 64454,4 \text{ kg}$        |
|                |                                                     | <hr/>                         |
|                |                                                     | $W_m = 507563,923 \text{ kg}$ |

➤ **Beban hidup**

- $q_h$  atap  $= 100 \text{ kg/m}^2$
- Koefisien reduksi  $= 0,3$

$$W_h = 0,3 \times 100 \times 1058,76 = 31762,8 \text{ kg}$$

➤ **Beban total (W1)**

$$\begin{aligned} W_1 &= W_m + W_h = 31762,8 + 507563,923 \\ &= 539326,723 \text{ kg} \end{aligned}$$

**2. Berat lantai 3**

- Luas pelat  $: 1024,2 \text{ m}^2$
- Tebal pelat  $: 0,12 \text{ m}$
- b balok 1  $: 0,4 \text{ m}$



- h balok 1 : 0,6 m
- b balok 2 : 0,2 m
- h balok 2 : 0,4 m
- b kolom : 0,6 m
- h kolom : 0,6 m
- Panjang balok induk : 377,4 m
- Panjang balok anak : 273,45 m
- Panjang dinding atas : 285,7 m
- Panjang dinding bawah : 356,6 m
- Tinggi  $\frac{1}{2}$  kolom atas : 2,1 m
- Tinggi  $\frac{1}{2}$  kolom bawah : 2,1 m
- Jumlah kolom atas (0,6x0,6 m) : 32 buah
- Jumlah kolom bawah (0,6x0,6 m) : 32 buah
- Bj beton : 2400 kg/m<sup>3</sup>
- Bj dinding  $\frac{1}{2}$  bata : 250 kg/m<sup>2</sup>
- Bj keramik : 20 kg/m<sup>2</sup>
- Bj spesi : 22 kg/m<sup>2</sup>
- Tebal spesi : 0,03 m

➤ **Beban mati**

- Pelat =  $1024,2 \times 0,12 \times 2400 = 294969,6$  kg
- Balok induk =  $377,4 \times 2400 \times 0,48 \times 0,4 = 173905,9$  kg
- Balok anak =  $273,45 \times 2400 \times 0,28 \times 0,2 = 36751,68$  kg
- Kolom atas =  $32 \times 2,1 \times 0,6 \times 0,6 \times 2400 = 58060,8$  kg

➤ **Beban hidup**

– gh lantai =  $250 \text{ kg/m}^2$

$$W_h = 0,3 \times 250 \times 1024,2 = 76815 \text{ kg}$$

3. Berat rantai 2

- Luas pelat  $= 956,7 \text{ m}^2$

- Luas pelat : 956,7 m<sup>2</sup>
- Tebal pelat : 0,12 m
- b balok 1 : 0,4 m
- h balok 1 : 0,6 m
- b balok 2 : 0,2 m
- h balok 2 : 0,4 m
- b kolom : 0,6 m
- h kolom : 0,6 m
- Panjang balok induk : 361,2 m

- Panjang balok anak : 264,45 m
- Panjang dinding atas : 356,6 m
- Panjang dinding bawah : 343,1 m
- Tinggi  $\frac{1}{2}$  kolom atas : 2,1 m
- Tinggi  $\frac{1}{2}$  kolom bawah : 2,1 m
- Jumlah kolom atas (0,6x0,6 m) : 32 buah
- Jumlah kolom bawah (0,6x0,6 m) : 32 buah
- Bj beton : 2400 kg/m<sup>3</sup>
- Bj dinding  $\frac{1}{2}$  bata : 250 kg/m<sup>2</sup>
- Bj keramik : 20 kg/m<sup>2</sup>
- Bj spesi : 22 kg/m<sup>2</sup>
- Tebal spesi : 0,03 m

➤ **Beban mati**

- Pelat =  $956,7 \times 0,12 \times 2400$  = 275529,6 kg
- Balok induk =  $361,2 \times 2400 \times 0,48 \times 0,4$  = 166440,96kg
- Balok anak =  $264,45 \times 2400 \times 0,28 \times 0,2$  = 35542,08 kg
- Kolom atas =  $32 \times 2,1 \times 0,6 \times 0,6 \times 2400$  = 58060,8 kg
- Kolom bawah =  $32 \times 2,1 \times 0,6 \times 0,6 \times 2400$  = 58060,8 kg
- Dinding bawah =  $343,1 \times 2,1 \times 250$  = 180127,5 kg
- Dinding atas =  $356,6 \times 2,1 \times 250$  = 187215 kg
- Spesi =  $956,7 \times 22 \times 0,03$  = 631,422 kg
- Keramik =  $956,7 \times 20$  = 19134 kg

$$\begin{array}{r} \text{-----} + \\ W_m = 980742,162 \text{ kg} \end{array}$$

➤ **Beban hidup**

$$- q_h \text{ lantai} = 250 \text{ kg/m}^2$$

$$- \text{Koefisien reduksi} = 0,3$$

$$W_h = 0,3 \times 250 \times 956,7 = 71752,5 \text{ kg}$$

➤ **Beban total (W3)**

$$\begin{aligned} W_3 &= W_m + W_h = 980742,162 + 71752,5 \\ &= 1052494,662 \text{ kg} \end{aligned}$$

**4. Berat total seluruhnya (Wt)**

$$\begin{aligned} W_t &= W_1 + W_2 + W_3 \\ &= 513916,483 + 1056931,272 + 1052494,662 \\ &= 2623342,417 \text{ kg} \end{aligned}$$

**4.4.2 Waktu getar bangunan (T)**

Dengan rumus Empiris :

$$T_x = T_y = 0,06.H^{3/4}$$

$$H = 2,1 + 4,2 + 4,2 + 4,2 = 14,7 \text{ m}$$

$$T_x = T_y = 0,06.H^{3/4}$$

$$= 0,06.14,7^{3/4}$$

$$= 0,45 \text{ detik}$$

**4.4.3 Koefisien gempa dasar (C)**

Untuk  $T_x = T_y = 0,45$  detik zone 3 dan jenis tanah keras, diperoleh  $C = 0,05$

Faktor keutamaan  $I = 1$

Faktor jenis struktur  $K = 1$

➤ **Beban hidup**

$$- q_h \text{ lantai} = 250 \text{ kg/m}^2$$

$$- \text{Koefisien reduksi} = 0,3$$

$$W_h = 0,3 \times 250 \times 956,7 = 71752,5 \text{ kg}$$

➤ **Beban total (W3)**

$$\begin{aligned} W_3 &= W_m + W_h = 980742,162 + 71752,5 \\ &= 1052494,662 \text{ kg} \end{aligned}$$

**4. Berat total seluruhnya (Wt)**

$$\begin{aligned} W_t &= W_1 + W_2 + W_3 \\ &= 539326,723 + 1056931,272 + 1052494,662 \\ &= 2623342,417 \text{ kg} \end{aligned}$$

**4.4.2 Waktu getar bangunan (T)**

Dengan rumus Empiris :

$$T_x = T_y = 0,06.H^{3/4}$$

$$H = 2,1 + 4,2 + 4,2 + 4,2 = 14,7 \text{ m}$$

$$T_x = T_y = 0,06.H^{3/4}$$

$$= 0,06.14,7^{3/4}$$

$$= 0,45 \text{ detik}$$

**4.4.3 Koefisien gempa dasar (C)**

Untuk  $T_x = T_y = 0,45$  detik zone 3 dan jenis tanah keras, diperoleh  $C = 0,05$

Faktor keutamaan  $I = 1$

Faktor jenis struktur  $K = 1$

#### 4.4.4 Gaya geser horizontal total akibat gempa

$$\begin{aligned}
 V_x = V_y &= C.I.K.Wt \\
 &= 0,05.1.1.2623115,497 \\
 &= 131155,775 \text{ kg} = 131,156 \text{ ton}
 \end{aligned}$$

#### 4.4.5 Distribusi gaya geser horizontal total akibat gempa ke sepanjang tinggi gedung

##### 1. Arah x

$$H/A = 14,7/51 = 0.288 < 3$$

$$F_{i,x} = \frac{W_i.H_i}{\sum W_i.H_i} . V_x$$

##### 2. Arah y

$$H/A = 14,7/18 = 0,817 < 3$$

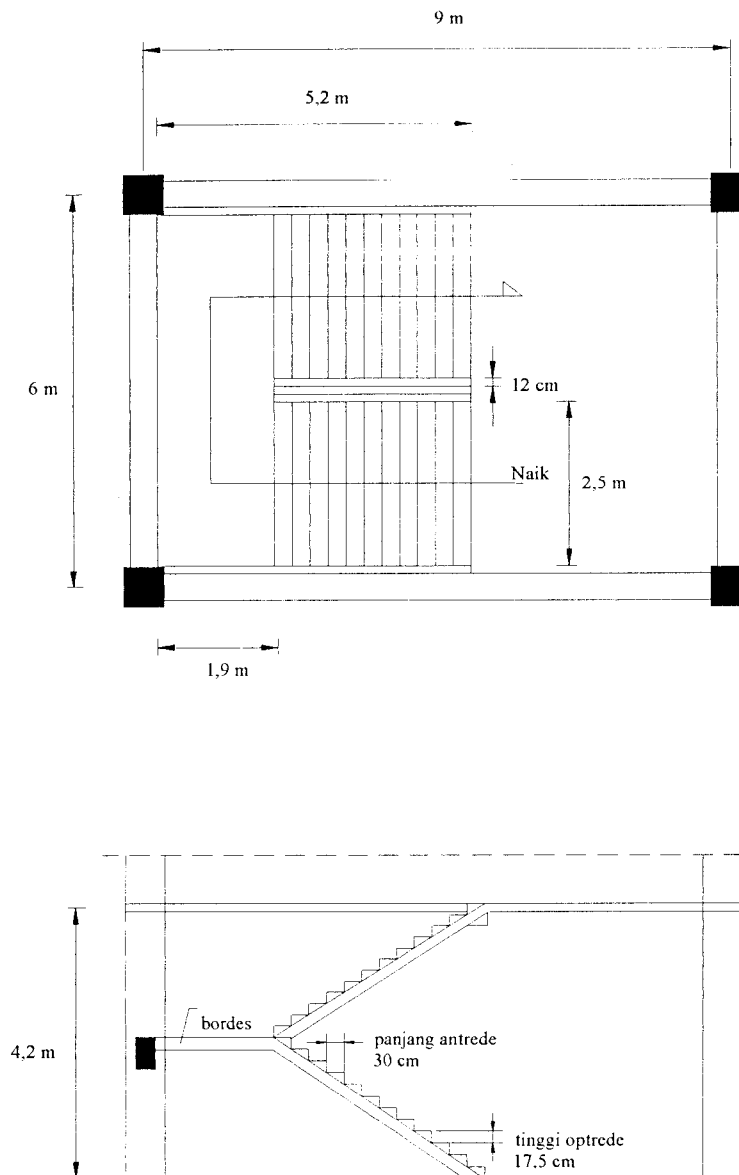
$$F_{i,y} = \frac{W_i.H_i}{\sum W_i.H_i} . V_y$$

**Tabel 4.4.** Distribusi gaya geser dasar horizontal total akibat gempa

| Tingkat | hi<br>(m) | Wi<br>(t) | Wi.hi<br>(tm) | Fix,y<br>total (t) | Untuk tiap portal |             |
|---------|-----------|-----------|---------------|--------------------|-------------------|-------------|
|         |           |           |               |                    | 1/5.Fix(t)        | 1/10.Fiy(t) |
| Atap    | 14,7      | 539,327   | 7554,58       | 39,189             | 7,835             | 3,918       |
| 3       | 10,5      | 1056,931  | 11097,776     | 57,57              | 11,515            | 5,758       |
| 2       | 6,3       | 1052,495  | 6630,719      | 34,4               | 6,88              | 3,44        |
| 1 (GF)  | 2,1       | -         | -             | -                  | -                 | -           |
|         |           |           | 25283,075     | 131,156            | 26,23             | 13,116      |

## 4.5 Perencanaan Tangga

### 4.5.1 Perencanaan tangga I



**Gambar 4.7 . Denah perencanaan tangga I**

### 1. Data perencanaan tangga I :

a. Tinggi antar lantai = 4,2 m = 420 cm

b. Lebar bordes = 1,9 m = 190 cm

c. Lebar tangga = 2,5 m = 250 cm

d. Beban sandaran tangga

Tinggi sandaran = 1m

Tebal sandaran = 0,12m

e. Tinggi optrede rencana diambil 18 m

Jumlah optrede =  $420/18 = 23,333$  dipakai 24 buah

Tinggi optrede pakai =  $420/24 = 17,5$  cm

Jumlah antrede =  $24 - 2 = 22$  buah

Diambil panjang antrede 30 cm

f. Sudut kemiringan tangga =  $17,5/30 = \arctan \alpha \rightarrow \alpha = 31^\circ$

g. Dimensi tangga

Panjang tangga = (panjang antrede . jml antrede/2) + lebar bordes

$$= (30 \cdot 22/2) + 190$$

$$= 520 \text{ cm}$$

Lebar bersih tangga = 250 cm

h. Tebal pelat diambil 15 cm

### 2. Pembebanan

a. Pembebanan bordes

Beban mati (untuk sepanjang 1 m) :



$$\begin{aligned}
- \text{berat sendiri pelat} &= 0,15 \cdot 1 \cdot 24 &= 3,60 \text{ KN/m} \\
- \text{berat spesi} &= 0,03 \cdot 1 \cdot 24 &= 0,72 \text{ KN/m} \\
- \text{berat keramik} &= 0,01 \cdot 1 \cdot 20 &= 0,20 \text{ KN/m} \\
- \text{berat sandaran} &= (0,12 \cdot 24 \cdot 1 \cdot 1)/3 &= \underline{0,96 \text{ KN/m} +} \\
&&Q_D = 5,48 \text{ KN/m}
\end{aligned}$$

Beban hidup (untuk sepanjang 1 m)

$$Q_L = 300 \cdot 1 = 3 \text{ KN/m}$$

**b. Pembebanan tangga**

Beban mati (untuk sepanjang 1 m) :

$$\begin{aligned}
- \text{berat sendiri tangga} &= \left\{ \frac{0,15}{\cos 31^\circ} + \frac{0,175}{2} \right\} \cdot 1 \cdot 24 = 6,298 \text{ KN/m} \\
- \text{berat spesi} &= 0,03 \cdot 1 \cdot 24 &= 0,720 \text{ KN/m} \\
- \text{berat keramik} &= 0,01 \cdot 1 \cdot 20 &= 0,200 \text{ KN/m} \\
- \text{berat sandaran} &= (0,12 \cdot 24 \cdot 1 \cdot 1 \cdot 2)/2,5 &= \underline{2,304 \text{ KN/m} +} \\
&&Q_D = 9,522 \text{ KN/m}
\end{aligned}$$

Beban hidup (untuk sepanjang 1 m)

$$Q_L = 300 \cdot 1 = 3 \text{ KN/m}$$

**3. Perhitungan penulangan tangga**

Tinggi pelat = 15 cm = 150 mm.

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25}{400} \cdot 0,85 \cdot \left( \frac{600}{600 + 400} \right) = 0,027$$

$$\rho_{\text{maks}} = 0,75 \cdot \rho_b = 0,75 \cdot 0,027 = 0,02$$

$$\rho_{\text{min}} = \frac{1,4}{f_y} = \frac{1,4}{400} = 0,0035$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$

$$d = h - P_b - \frac{1}{2} \cdot \phi_{tul} = 150 - 20 - \frac{1}{2} \cdot 13 = 123,5 \text{ mm (digunakan tulangan } \phi 13 \text{ mm)}.$$

a. Perencanaan pelat bordes

Data dari SAP 2000 seperti tercantum dalam lampiran, didapat momen max. = 20,59 KNm

$$M_n = \frac{Mu}{\phi} = \frac{20,59}{0,8} = 25,738 \text{ KNm}$$

$$R_n = \frac{Mu / \phi}{b \cdot d^2} = \frac{25,738 \cdot 10^6}{1000 \cdot 123,5^2} = 1,687 \text{ mm}^2$$

$$\rho_{\text{perlu}} = \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right] = \frac{1}{18,824} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 18,824 \cdot 1,687}{400}} \right]$$

$$= 0,004$$

$$\rho_{\text{perlu}} = 0,004 > \rho_{\text{min}} = 0,0035$$

$$\text{sehingga } \rho \text{ pakai} = \rho_{\text{perlu}} = 0,004$$

$$A_s \text{ perlu} = \rho \text{ pakai} \cdot b \cdot d = 0,004 \cdot 1000 \cdot 123,5 = 543,362 \text{ mm}^2$$

$$\text{Pakai tulangan P13} \rightarrow A1 \cdot \phi = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 13^2 = 132,73 \text{ mm}^2$$

$$\text{Jarak tulangan (x)} \leq \frac{A1 \cdot \phi \cdot 1000}{A_s \text{ perlu}} = \frac{132,73 \cdot 1000}{543,362} = 244,276 \text{ mm}$$

$$\leq 2 \cdot h = 2 \cdot 150 = 300 \text{ mm}$$

$$\leq 250 \text{ mm}$$

Jadi pakai jarak (x) = 130 mm → **D13 - 240 mm.**

$$A_s \text{ ada} = \frac{132,73 \cdot 1000}{240} = 553,042 \text{ mm}^2 > A_s \text{ perlu} = 543,362 \text{ mm}^2$$

Kontrol Mn :

$$a = \frac{Asada \cdot fy}{0,85 \cdot f'c \cdot b} = \frac{553,042 \cdot 400}{0,85 \cdot 25 \cdot 1000} = 10,410 \text{ mm.}$$

$$\begin{aligned} Mn &= Asada \cdot fy \cdot (d - a/2) = 553,042 \cdot 400 \cdot (123,5 - 10,410/2) \\ &= 26168841,360 \text{ Nmm} \\ &= 26,169 \text{ KNm} > \frac{Mu}{\phi} = 25,738 \text{ KNm} \dots\dots\dots \text{Ok !} \end{aligned}$$

b. Perencanaan pelat tangga

Data dari SAP 2000 seperti tercantum dalam lampiran, didapat momen max. = 21,41 KNm

$$Mn = \frac{Mu}{\phi} = \frac{21,41}{0,8} = 26,763 \text{ KNm}$$

$$Rn = \frac{Mu / \phi}{b \cdot d^2} = \frac{26,763 \cdot 10^6}{1000 \cdot 123,5^2} = 1,755 \text{ mm}^2$$

$$\begin{aligned} \rho_{\text{perlu}} &= \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot Rn}{fy}} \right] = \frac{1}{18,824} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 18,824 \cdot 1,755}{400}} \right] \\ &= 0,005 \end{aligned}$$

$$\rho_{\text{perlu}} = 0,005 > \rho_{\text{min}} = 0,0035$$

$$\text{sehingga } \rho \text{ pakai} = \rho_{\text{perlu}} = 0,005$$

$$As_{\text{perlu}} = \rho \text{ pakai} \cdot b \cdot d = 0,005 \cdot 1000 \cdot 123,5 = 565,630 \text{ mm}^2$$

$$\text{Pakai tulangan P13} \rightarrow A1 \cdot \emptyset = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 13^2 = 132,73 \text{ mm}^2$$

$$\text{Jarak tulangan (x)} \leq \frac{A1 \cdot \phi \cdot 1000}{As_{\text{perlu}}} = \frac{132,73 \cdot 1000}{565,630} = 234,659 \text{ mm}$$

$$\leq 2 \cdot h = 2 \cdot 150 = 300 \text{ mm}$$

$$\leq 250 \text{ mm}$$

Jadi pakai jarak (x) = 100 mm → **D13 - 230 mm.**

$$As_{ada} = \frac{132,73 \cdot 1000}{230} = 577,087 \text{ mm}^2 > As_{perlu} = 565,630 \text{ mm}^2$$

Kontrol Mn :

$$a = \frac{As_{ada} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{577,087 \cdot 400}{0,85 \cdot 25 \cdot 1000} = 10,863 \text{ mm.}$$

$$Mn = As_{ada} \cdot f_y \cdot (d - a/2) = 577,087 \cdot 400 \cdot (123,5 - 10,863/2).$$

$$= 27254318,58 \text{ Nmm}$$

$$= 27,254 \text{ KNm} > \frac{Mu}{\phi} = 26,763 \text{ KNm} \dots\dots\dots \text{Ok !}$$

c. Perencanaan tulangan bagi

$$As_{bagi} = 0,002 \cdot b \cdot h = 0,002 \cdot 1000 \cdot 150 = 300 \text{ mm}^2$$

$$\text{Pakai tulangan P 8} \rightarrow A1 \cdot \phi = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 8^2 = 50,265 \text{ mm}^2$$

$$\begin{aligned} \text{Jarak antar tulangan (x)} &= \frac{A1 \cdot \phi \cdot 1000}{As_{bagi}} = \frac{50,265 \cdot 1000}{300} \\ &= 167,55 \text{ mm}^2 \end{aligned}$$

Dipakai tulangan → **P 8 - 160 mm.**

#### 4. Perencanaan balok bordes

Ukuran balok 40/60

Ø tulangan pokok = 22 mm

Ø tulangan sengkang = 10 mm

Tinggi efektif balok (  $d_{diketahui}$  ) =  $h_{diketahui} - P_b - \phi_{sengkang} - \frac{1}{2} \phi_{tul.pokok}$

$$d = 600 - 40 - 10 - \frac{1}{2} 22 = 539 \text{ mm}$$

Pembebanan :

$$\text{- beban akibat tangga} = 54,125 \text{ KN/m}$$

$$\text{- berat sendiri} = 1,2 \cdot 0,40 \cdot 0,60 \cdot 24 = \underline{6,912 \text{ KN/m}} +$$

$$q_u = 61,037 \text{ KN/m}$$

Momen tumpuan :

$$M_u = -\frac{1}{16} q_u L^2 = -\frac{1}{16} \cdot 61,037 \cdot 5,6^2 = -119,633 \text{ KNm}$$

Momen lapangan :

$$M_u = \frac{1}{11} q_u L^2 = \frac{1}{11} \cdot 61,037 \cdot 5,6^2 = 174,011 \text{ KNm}$$

a. Perencanaan tulangan lentur balok bordes

$$\text{Untuk } f'_c \leq 30 \text{ MPa} \rightarrow \beta_1 = 0,85$$

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25}{400} \cdot 0,85 \left( \frac{600}{600 + 400} \right)$$

$$= 0,027$$

$$\rho_{\text{maks}} = 0,75 \cdot \rho_b = 0,75 \cdot 0,027 = 0,020$$

$$\rho_{\text{min}} = \frac{1,4}{f_y} = \frac{1,4}{400} = 0,0035$$

$$\rho_{\text{pakai}} = 0,5 \cdot \rho_{\text{maks}} = 0,5 \cdot 0,020 = 0,010$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$

$$R_n = \rho \cdot f_y (1 - \frac{1}{2} \rho m)$$

$$= 0,010 \cdot 400 (1 - \frac{1}{2} \cdot 0,010 \cdot 18,824) = 3,624 \text{ MPa}$$

- Tulangan tumpuan

$$M_u = 119,633 \text{ KNm}$$

$$\frac{M_u}{\phi} = \frac{119,633}{0,8} = 149,541 \text{ KNm}$$

$$b.d^2 = \frac{\frac{M_u}{\phi}}{R_n}$$

$$d_{\text{perlu}} = \sqrt{\frac{\frac{M_u}{\phi}}{R_n.b}} = \sqrt{\frac{149,541.10^6}{3,624.400}} = 321,186 \text{ mm} < d = 539 \text{ mm},$$

maka dipakai tulangan sebelah.

$$R_{n_{\text{ada}}} = \frac{\frac{M_u}{\phi}}{b.d_{\text{ada}}^2} = \frac{149,541.10^6}{400.539^2} = 1,287 \text{ MPa}$$

$$\rho_{\text{ada}} = \frac{R_{n_{\text{ada}}}}{R_n} \cdot \rho = \frac{1,287}{3,624} \cdot 0,010 = 0,0035 = \rho_{\text{min}} = 0,0035$$

sehingga dipakai  $\rho_{\text{ada}} = 0,0035$

$$A_s = \rho_{\text{ada}} \cdot b \cdot d_{\text{ada}} = 0,0035 \cdot 400 \cdot 539 = 754,600 \text{ mm}^2$$

Dipakai diameter tulangan D22, maka :  $A_{10} = 380,286 \text{ mm}^2$

$$n = \frac{A_s}{A_1 \phi} = \frac{754,600}{380,286} = 1,98$$

Dipakai tulangan memanjang **2D22**, maka :

$$A_{s_{\text{ada}}} = 2 \cdot 380,286 = 760,572 \text{ mm}^2 > A_s = 754,600 \text{ mm}^2$$

Kontrol kapasitas lentur yang terjadi :

$$a = \frac{A_{s_{\text{ada}}} f_y}{0,85 \cdot f'_c \cdot b} = \frac{760,572 \cdot 400}{0,85 \cdot 25 \cdot 400} = 35,792 \text{ mm}$$

$$\begin{aligned}
 M_n &= A_s \text{ ada} \cdot f_y \cdot (d - a/2) = 760,572 \cdot 400 \cdot (539 - 35,792/2) \\
 &= 158534844,6 \text{ Nmm} \\
 &= 158,535 \text{ KNm} > \frac{M_u}{\phi} = 149,541 \text{ KNm} \dots\dots\dots \text{Ok !}
 \end{aligned}$$

- Tulangan lapangan

$$M_u = 174,011 \text{ KNm}$$

$$\frac{M_u}{\phi} = \frac{174,011}{0,8} = 217,514 \text{ KNm}$$

$$b \cdot d^2 = \frac{M_u / \phi}{R_n}$$

$$d_{\text{perlu}} = \sqrt{\frac{M_u / \phi}{R_n \cdot b}} = \sqrt{\frac{217,514 \cdot 10^6}{3,624 \cdot 400}} = 387,364 \text{ mm} < d = 539 \text{ mm},$$

maka dipakai tulangan sebelah.

$$R_{n_{\text{ada}}} = \frac{M_u / \phi}{b \cdot d_{\text{ada}}^2} = \frac{174,011 \cdot 10^6}{400 \cdot 539^2} = 1,497 \text{ MPa}$$

$$\rho_{\text{ada}} = \frac{R_{n_{\text{ada}}}}{R_n} \cdot \rho = \frac{1,497}{3,624} \cdot 0,010 = 0,004 > \rho_{\text{min}} = 0,0035$$

sehingga  $\rho_{\text{pakai}} = \rho_{\text{ada}} = 0,004$

$$A_s = \rho_{\text{ada}} \cdot b \cdot d_{\text{ada}} = 0,004 \cdot 400 \cdot 539 = 862,400 \text{ mm}^2$$

Dipakai diameter tulangan D22, maka :  $A_{10} = 380,286 \text{ mm}^2$

$$n = \frac{A_s}{A_1 \phi} = \frac{862,400}{380,286} = 2,268$$

Dipakai tulangan memanjang **3D22**, maka :

$$A_{s_{\text{ada}}} = 3 \cdot 380,286 = 1140,858 \text{ mm}^2 > A_s = 862,400 \text{ mm}^2$$

Kontrol kapasitas lentur yang terjadi :

$$a = \frac{A_{sada} f_y}{0,85 \cdot f'_c \cdot b} = \frac{1140,858 \cdot 400}{0,85 \cdot 25 \cdot 400} = 53,687 \text{ mm}$$

$$\begin{aligned} M_n &= A_{sada} \cdot f_y \cdot (d - a/2) = 1140,858 \cdot 400 \cdot (539 - 53,687/2) \\ &= 233719136,1 \text{ Nmm} \\ &= 233,719 \text{ KNm} > \frac{M_u}{\phi} = 217,514 \text{ KNm} \dots\dots\dots \text{Ok !} \end{aligned}$$

b. Perencanaan tulangan geser balok bordes

Gaya geser dukungan :

$$V_u \text{ dukungan} = \frac{1}{2} \cdot q \cdot U.L = \frac{1}{2} \cdot 61,037 \cdot 5,6 = 170,904 \text{ KN}$$

$$\text{maka } \frac{V_u}{\phi} = \frac{170,904}{0,6} = 284,839 \text{ KN}$$

Tegangan geser beton ( $V_c$ ) :

$$V_c = \left( \frac{1}{6} \sqrt{f'_c} \right) \cdot b \cdot d = \left( \frac{1}{6} \sqrt{25} \right) \cdot 400 \cdot 600 = 200000 \text{ N} = 200 \text{ KN}$$

$$\frac{V_u}{\phi} = 284,839 \text{ KN} > V_c = 200 \text{ KN}, \text{ maka perlu tulangan geser.}$$

$$V_s = \frac{V_u}{\phi} - V_c = 284,839 - 200 = 84,839 \text{ KN}$$

Dipakai sengkang P10, maka  $A_v = 2 \cdot \frac{1}{4} \cdot \pi \cdot 10^2 = 157 \text{ mm}^2$

$$\text{Jarak sengkang } s \leq \frac{A_v \cdot f_y \cdot d}{V_s} = \frac{157 \cdot 240 \cdot 539}{84839} = 239,389 \text{ mm}$$

$$\leq \frac{d}{2} = \frac{539}{2} = 269,5 \text{ mm}$$

$$\leq 600 \text{ mm}$$

Jadi dipakai sengkang **P10 – 230 mm.**



## 5. Perhitungan pondasi tangga

### a. Data :

- $\sigma$  tanah = 150 KN/m<sup>2</sup>
- $\gamma$  batu = 22 KN/m<sup>3</sup>
- $\gamma$  tanah = 18 KN/m<sup>3</sup>
- balok diatas pondasi 25/50 cm

Tinjauan untuk lebar tangga = 2,5 m

Tinggi pondasi tangga = 1m

### b. Pembebanan

$$\text{Akibat beban tangga} = 98,669 \text{ KN}$$

$$\text{Berat balok diatas pondasi} = 0,25 \cdot 0,5 \cdot 2,5 \cdot 24 = \underline{7,500 \text{ KN}}$$

$$P = 106,169 \text{ KN}$$

Tegangan ijin tanah pakai :

$$\sigma = \sigma \text{ tanah} - \text{berat pondasi}$$

$$= 150 - 1 \cdot 22 = 128 \text{ KN/m}^2$$

Diketahui pada kondisi kritis  $\rightarrow \sigma = P/A$

$$A = P/\sigma = 106,169/128 = 0,829 \text{ m}^2$$

$$B = A/L = 0,829/2,5 = 0,332 \text{ m} \rightarrow \text{diambil lebar (B)} = 0,4 \text{ m}$$

Kontrol tegangan tanah :

$$\sigma = P/A = 106,169 / (0,4 \cdot 2,5)$$

$$= 106,169 \text{ KN/m}^2 < \sigma \text{ tanah} = 128 \text{ KN/m}^2 \dots\dots\dots \text{Ok !}$$

#### 4.5.2 Perencanaan tangga II

##### 1. Data perencanaan tangga II :

a Tinggi antar lantai = 4,2 m = 420 cm

b Lebar bordes = 1,2 m = 120 cm

c. Lebar tangga = 1,2 m = 120 cm

d. Beban sandaran tangga :

Tinggi sandaran = 1m

Tebal sandaran = 0,12m

e. Tinggi optrede rencana diambil 18 m

Jumlah optrede =  $420/18 = 23,333$  dipakai 24 buah

Tinggi optrede pakai =  $420/24 = 17,5$  cm

Jumlah antrede =  $24 - 2 = 22$  buah

Diambil panjang antrede 30 cm

f. Sudut kemiringan tangga =  $17,5/30 = \arctan \alpha \rightarrow \alpha = 31^\circ$

g. Dimensi tangga

$$\begin{aligned} \text{Panjang tangga} &= (\text{panjang antrede} \cdot \text{jml antrede}/2) + \text{lebar bordes} \\ &= (30 \cdot 22/2) + 120 = 450 \text{ cm} \end{aligned}$$

Lebar bersih tangga = 120 cm

h. Tebal pelat diambil 15 cm

##### 2. Pembebanan

a Pembebanan bordes

Beban mati (untuk sepanjang 1 m) :

$$\begin{aligned}
 - \text{berat sendiri pelat} &= 0,15 \cdot 1 \cdot 24 &= 3,60 \text{ KN/m} \\
 - \text{berat spesi} &= 0,03 \cdot 1 \cdot 24 &= 0,72 \text{ KN/m} \\
 - \text{berat keramik} &= 0,01 \cdot 1 \cdot 20 &= 0,20 \text{ KN/m} \\
 - \text{berat sandaran} &= (0,12 \cdot 24 \cdot 1 \cdot 1)/1,5 = \underline{1,92 \text{ KN/m} +} \\
 &&Q_D = 6,44 \text{ KN/m}
 \end{aligned}$$

Beban hidup (untuk sepanjang 1 m)

$$Q_L = 300 \cdot 1 = 3 \text{ KN/m}$$

#### b Pembebanan tangga

Beban mati (untuk sepanjang 1 m) :

$$\begin{aligned}
 - \text{berat sendiri tangga} &= \left\{ \frac{0,15}{\cos 31} + \frac{0,175}{2} \right\} \cdot 1,24 = 6,30 \text{ KN/m} \\
 - \text{berat spesi} &= 0,03 \cdot 1 \cdot 24 &= 0,72 \text{ KN/m} \\
 - \text{berat keramik} &= 0,01 \cdot 1 \cdot 20 &= 0,20 \text{ KN/m} \\
 - \text{berat sandaran} &= (0,12 \cdot 24 \cdot 1 \cdot 2)/1,2 = \underline{4,80 \text{ KN/m} +} \\
 &&Q_D = 12,02 \text{ KN/m}
 \end{aligned}$$

Beban hidup (untuk sepanjang 1 m)

$$Q_L = 300 \cdot 1 = 3 \text{ KN/m}$$

### 3. Perhitungan penulangan tangga

Tinggi pelat tangga = 15 cm = 150 mm.

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25}{400} \cdot 0,85 \cdot \left( \frac{600}{600 + 400} \right) = 0,027$$

$$\rho_{\text{maks}} = 0,75 \cdot \rho_b = 0,75 \cdot 0,027 = 0,02$$

$$\rho_{\text{min}} = \frac{1,4}{f_y} = \frac{1,4}{400} = 0,0035$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$

$$d = h - P_b - \frac{1}{2} \cdot \emptyset_{tul} = 150 - 20 - \frac{1}{2} \cdot 13 = 123,5 \text{ mm.}$$

a. Perencanaan pelat bordes dan pelat tangga (momennya sama)

Data dari SAP 2000 seperti tercantum dalam lampiran, didapat

momen max. = 24,19 KNm

$$M_n = \frac{Mu}{\phi} = \frac{24,19}{0,8} = 30,238 \text{ KNm}$$

$$R_n = \frac{Mu / \phi}{b \cdot d^2} = \frac{30,238 \cdot 10^6}{1000 \cdot 123,5^2} = 1,982 \text{ mm}^2$$

$$\rho_{\text{perlu}} = \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right] = \frac{1}{18,824} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 18,824 \cdot 1,982}{400}} \right]$$

$$= 0,005$$

$$\rho_{\text{perlu}} = 0,005 > \rho_{\text{min}} = 0,0035$$

$$\text{sehingga } \rho \text{ pakai} = \rho_{\text{perlu}} = 0,005$$

$$A_s \text{ perlu} = \rho \text{ pakai} \cdot b \cdot d = 0,005 \cdot 1000 \cdot 123,5 = 643,501 \text{ mm}^2$$

$$\text{Pakai tulangan P13} \rightarrow A1 \cdot \emptyset = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 13^2 = 132,73 \text{ mm}^2$$

$$\text{Jarak tulangan (x)} \leq \frac{A1 \cdot \phi \cdot 1000}{A_{s \text{ perlu}}} = \frac{132,73 \cdot 1000}{643,501} = 206,262 \text{ mm}$$

$$\leq 2 \cdot h = 2 \cdot 150 = 300 \text{ mm}$$

$$\leq 250 \text{ mm}$$

Jadi pakai jarak (x) = 130 mm → **D13 - 200 mm.**

$$A_s \text{ ada} = \frac{132,73 \cdot 1000}{200} = 663,650 \text{ mm}^2 > A_s \text{ perlu} = 643,501 \text{ mm}^2$$

Kontrol Mn :

$$a = \frac{As_{ada} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{663,650 \cdot 400}{0,85 \cdot 25 \cdot 1000} = 12,492 \text{ mm.}$$

$$\begin{aligned} Mn &= As_{ada} \cdot f_y \cdot (d - a/2) = 663,650 \cdot 400 \cdot (123,5 - 12,492/2) \\ &= 31126246,84 \text{ Nmm} \\ &= 31,126 \text{ KNm} > \frac{Mu}{\phi} = 30,238 \text{ KNm} \dots\dots\dots \text{Ok !} \end{aligned}$$

b. Perencanaan tulangan bagi

$$As_{bagi} = 0,002 \cdot b \cdot h = 0,002 \cdot 1000 \cdot 150 = 300 \text{ mm}^2$$

$$\text{Pakai tulangan P 8} \rightarrow A1 \cdot \emptyset = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 8^2 = 50,265 \text{ mm}^2$$

$$\begin{aligned} \text{Jarak antar tulangan (x)} &= \frac{A1 \cdot \phi \cdot 1000}{As_{bagi}} = \frac{50,265 \cdot 1000}{300} \\ &= 167,55 \text{ mm}^2 \end{aligned}$$

Dipakai tulangan  $\rightarrow$  **P 8 - 160 mm.**

#### 4. Perencanaan balok bordes

Ukuran balok 20/40

$\emptyset$  tulangan pokok = 16mm

$\emptyset$  tulangan sengkang = 10 mm

Tinggi efektif balok (  $d_{diketahui}$  ) =  $h_{diketahui} - P_b - \emptyset_{sengkang} - \frac{1}{2} \emptyset_{tul.pokok}$

$$d = 400 - 40 - 10 - \frac{1}{2} \cdot 16 = 342 \text{ mm}$$

Pembebanan :

- beban akibat tangga = 73,475 KN/m

- berat sendiri =  $1,2 \cdot 0,20 \cdot 0,40 \cdot 24 = \underline{2,304 \text{ KN/m}}$  +

$$q_u = 75,779 \text{ KN/m}$$

Momen tumpuan :

$$M_u = -\frac{1}{16} q_u L^2 = -\frac{1}{16} \cdot 75,779 \cdot 2,7^2 = -34,527 \text{ KNm}$$

Momen lapangan :

$$M_u = \frac{1}{11} q_u L^2 = \frac{1}{11} \cdot 75,779 \cdot 2,7^2 = 50,221 \text{ KNm}$$

b. Perencanaan tulangan lentur balok bordes

$$\text{Untuk } f'_c \leq 30 \text{ MPa} \rightarrow \beta_1 = 0,85$$

$$\begin{aligned} \rho_b &= \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25}{400} \cdot 0,85 \left( \frac{600}{600 + 400} \right) \\ &= 0,027 \end{aligned}$$

$$\rho_{\text{maks}} = 0,75 \cdot \rho_b = 0,75 \cdot 0,027 = 0,020$$

$$\rho_{\text{min}} = \frac{1,4}{f_y} = \frac{1,4}{400} = 0,0035$$

$$\rho_{\text{pakai}} = 0,5 \cdot \rho_{\text{maks}} = 0,5 \cdot 0,020 = 0,010$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$

$$R_n = \rho \cdot f_y (1 - \frac{1}{2} \rho m)$$

$$= 0,010 \cdot 400 (1 - \frac{1}{2} \cdot 0,010 \cdot 18,824) = 3,624 \text{ MPa}$$

• Tulangan tumpuan

$$M_u = 34,527 \text{ KNm}$$

$$\frac{M_u}{\phi} = \frac{34,527}{0,8} = 43,159 \text{ KNm}$$

$$b \cdot d^2 = \frac{\frac{M_u}{\phi}}{R_n}$$

$$d_{\text{perlu}} = \sqrt{\frac{Mu/\phi}{Rn \cdot b}} = \sqrt{\frac{43,159 \cdot 10^6}{3,624 \cdot 200}} = 244,021 \text{ mm} < d = 342 \text{ mm},$$

maka dipakai tulangan sebelah.

$$Rn_{\text{ada}} = \frac{Mu}{b \cdot d_{\text{ada}}^2} = \frac{43,159 \cdot 10^6}{200 \cdot 342^2} = 1,845 \text{ MPa}$$

$$\rho_{\text{ada}} = \frac{Rn_{\text{ada}}}{Rn} \cdot \rho = \frac{1,845}{3,624} \cdot 0,010 = 0,005 > \rho_{\text{min}} = 0,0035$$

$$\text{sehingga } \rho_{\text{pakai}} = \rho_{\text{ada}} = 0,005$$

$$A_s = \rho_{\text{ada}} \cdot b \cdot d_{\text{ada}} = 0,005 \cdot 200 \cdot 342 = 348,223 \text{ mm}^2$$

$$\text{Dipakai diameter tulangan D16, maka : } A_{1\phi} = 201,062 \text{ mm}^2$$

$$n = \frac{A_s}{A_{1\phi}} = \frac{348,223}{201,062} = 1,732$$

Dipakai tulangan memanjang **2D16**, maka :

$$A_{s\text{ada}} = 2 \cdot 201,062 = 402,124 \text{ mm}^2 > A_s = 348,223 \text{ mm}^2$$

Kontrol kapasitas lentur yang terjadi :

$$a = \frac{A_{s\text{ada}} f_y}{0,85 \cdot f'_c \cdot b} = \frac{402,124 \cdot 400}{0,85 \cdot 25 \cdot 200} = 37,847 \text{ mm}$$

$$M_n = A_{s\text{ada}} \cdot f_y \cdot (d - a/2) = 402,124 \cdot 400 \cdot (342 - 37,847/2).$$

$$= 51966725,79 \text{ Nmm}$$

$$= 51,967 \text{ KNm} > \frac{Mu}{\phi} = 43,159 \text{ KNm} \dots\dots\dots \text{Ok !}$$

- Tulangan lapangan

$$M_u = 50,221 \text{ KNm}$$

$$M_u / \phi = \frac{50,221}{0,8} = 62,776 \text{ KNm}$$

$$b.d^2 = \frac{M_u / \phi}{R_n}$$

$$d_{\text{perlu}} = \sqrt{\frac{M_u / \phi}{R_n \cdot b}} = \sqrt{\frac{62,776 \cdot 10^6}{3,624 \cdot 200}} = 294,298 \text{ mm} < d = 342 \text{ mm},$$

maka dipakai tulangan sebelah.

$$R_{n_{\text{ada}}} = \frac{M_u / \phi}{b.d_{\text{ada}}^2} = \frac{62,776 \cdot 10^6}{200 \cdot 342^2} = 2,684 \text{ MPa}$$

$$\rho_{\text{ada}} = \frac{R_{n_{\text{ada}}}}{R_n} \cdot \rho = \frac{2,684}{3,624} \cdot 0,010 = 0,007 > \rho_{\text{min}} = 0,0035$$

sehingga dipakai  $\rho_{\text{ada}} = 0,007$

$$A_s = \rho_{\text{ada}} \cdot b \cdot d_{\text{ada}} = 0,007 \cdot 200 \cdot 342 = 506,5 \text{ mm}^2$$

Dipakai diameter tulangan D16, maka :  $A_{10} = 201,062 \text{ mm}^2$

$$n = \frac{A_s}{A_{10}} = \frac{506,5}{201,062} = 2,519$$

Dipakai tulangan memanjang **3D16**, maka :

$$A_{s_{\text{ada}}} = 3 \cdot 201,062 = 603,186 \text{ mm}^2 > A_s = 506,5 \text{ mm}^2$$

Kontrol kapasitas lentur yang terjadi :

$$a = \frac{A_{s_{\text{ada}}} f_y}{0,85 \cdot f'_c \cdot b} = \frac{603,186 \cdot 400}{0,85 \cdot 25 \cdot 200} = 56,770 \text{ mm}$$



$$\begin{aligned}
 M_n &= A_s \cdot f_y \cdot (d - a/2) = 603,186 \cdot 400 \cdot (342 - 56,770/2) \\
 &= 75667270,96 \text{ Nmm} \\
 &= 75,667 \text{ KNm} > \frac{Mu}{\phi} = 62,776 \text{ KNm} \dots\dots\dots \text{Ok !}
 \end{aligned}$$

b. Perencanaan tulangan geser balok bordes

Gaya geser dukungan :

$$V_u \text{ dukungan} = \frac{1}{2} \cdot q \cdot U.L = \frac{1}{2} \cdot 75,779 \cdot 2,7 = 102,302 \text{ KN}$$

$$\text{maka } \frac{Vu}{\phi} = \frac{102,302}{0,6} = 170,503 \text{ KN}$$

Tegangan geser beton ( $V_c$ ) :

$$V_c = \left( \frac{1}{6} \sqrt{f_c'} \right) \cdot b \cdot d = \left( \frac{1}{6} \sqrt{25} \right) \cdot 200 \cdot 400 \cdot 10^{-3} = 66,667 \text{ KN}$$

$$\frac{Vu}{\phi} = 170,503 \text{ KN} > V_c = 66,667 \text{ KN}, \text{ maka perlu tulangan geser.}$$

$$V_s = \frac{Vu}{\phi} - V_c = 170,503 - 66,667 = 103,836 \text{ KN}$$

$$\text{Dipakai sengkang P10, maka } A_v = 2 \cdot \frac{1}{4} \cdot \pi \cdot 10^2 = 157 \text{ mm}^2$$

$$\text{Jarak sengkang } s \leq \frac{A_v \cdot f_y \cdot d}{V_s} = \frac{157 \cdot 240 \cdot 342}{103836} = 124,105 \text{ mm}$$

$$\leq \frac{d}{2} = \frac{342}{2} = 171 \text{ mm}$$

$$\leq 600 \text{ mm}$$

Jadi dipakai sengkang **P10 – 120 mm**.

## 5. Perhitungan pondasi tangga

a. Data :

$$\sigma \text{ tanah} = 150 \text{ KN/m}^2$$

$$\gamma \text{ batu} = 22 \text{ KN/m}^3$$

$$\gamma \text{ tanah} = 18 \text{ KN/m}^3$$

balok diatas pondasi 25/50 cm

Tinjauan untuk lebar tangga = 1,2 m

Tinggi pondasi tangga = 1m

b. Pembebanan

$$\text{Akibat beban tangga} = 119,033 \text{ KN}$$

$$\text{Berat balok diatas pondasi} = 0,25 \cdot 0,5 \cdot 1,2 \cdot 24 = \underline{3,600 \text{ KN}}$$

$$P = 122,633 \text{ KN}$$

Tegangan ijin tanah pakai :

$$\sigma = \sigma \text{ tanah} - \text{berat pondasi}$$

$$= 150 - 1 \cdot 22 = 128 \text{ KN/m}^2$$

Diketahui pada kondisi kritis  $\rightarrow \sigma = P/A$

$$A = P/\sigma = 122,633 / 128 = 0,958 \text{ m}^2$$

$$B = A/L = 0,958/1,2 = 0,798 \text{ m} \rightarrow \text{diambil lebar (B)} = 0,8 \text{ m}$$

Kontrol tegangan tanah :

$$\sigma = P/A = 122,633/(0,8 \cdot 1,2)$$

$$= 127,743 \text{ KN/m}^2 < \sigma \text{ tanah} = 128 \text{ KN/m}^2 \dots\dots\dots \text{Ok !}$$

## 4.6 Perencanaan Balok

### 4.6.1 Perencanaan balok penampang persegi menahan lentur tulangan sebelah

1. Data perencanaan balok :

$$f'_c = 25 \text{ Mpa}$$

$$f_y = 400 \text{ Mpa}$$

$$\text{penutup beton (Pb)} = 40 \text{ mm}$$

$$\text{diameter tulangan pokok} = 22 \text{ mm}$$

$$\text{diameter tulangan sengkang} = 10 \text{ mm}$$

$$\text{lebar balok (b)} = 400 \text{ mm}$$

$$\text{tinggi balok (h)} = 600 \text{ mm}$$

$$\phi = 0,8$$

$$\beta = 0,85$$

$$d' = 40 + 10 + (22/2) = 61 \text{ mm}$$

$$d = 600 - 61 = 539 \text{ mm}$$

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25}{400} \cdot 0,85 \cdot \left( \frac{600}{600 + 400} \right) = 0,027$$

$$\rho_{maks} = 0,75 \cdot \rho_b = 0,75 \cdot 0,027 = 0,020$$

$$\rho_{min} = \frac{1,4}{f_y} = \frac{1,4}{400} = 0,004$$

$$\rho_{rencana} = 0,5 \cdot \rho_{maks} = 0,5 \cdot 0,020 = 0,010 > \rho_{min}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$

$$R_n = \rho \cdot f_y \cdot (1 - \frac{1}{2} \cdot \rho \cdot m) = 0,010 \cdot 400 \cdot (1 - \frac{1}{2} \cdot 0,010 \cdot 18,824) = 3,624 \text{ MPa}$$

$$M_n = A_s \cdot f_y \cdot (d - a/2).$$

$$= 251,35 \cdot 240 \cdot (76 - 2,8388/2).$$

$$= 4,499 \text{ KNm} > 1,33 \cdot \frac{M_u}{\phi} = 1,33 \cdot 0,7301 = 0,971 \text{ KN}$$

f. Perencanaan tulangan bagi pelat talang.

$$A_s \text{ bagi} = 0,002 \cdot b \cdot h$$

$$= 0,002 \cdot 1000 \cdot 100 = 200 \text{ mm}^2.$$

$$\text{Dipakai P 8} \rightarrow A1.\phi = 50,27 \text{ mm}^2.$$

$$\text{Jarak tulangan} = \frac{A1.\phi.1000}{A_{spakai}} = \frac{50,27.1000}{200} = 251,35 \text{ mm}.$$

Jadi dipakai tulangan bagi : **P 8 – 200 mm.**

$$A_s = \frac{50,27.1000}{200} = 251,35 \text{ mm}^2 > 200 \text{ mm}^2.$$

## 2. Perencanaan dimensi balok portal B1a Induk (9 m) lantai 2

### a. Perencanaan tulangan tumpuan

Data dari SAP 2000 seperti tercantum pada lampiran, di dapat momen maksimum tumpuan ( $M$ ) = 297,071 KNm.

$$\frac{Mu}{\phi} = \frac{297,071}{0,8} = 371,339 \text{ KNm}$$

$$b.d^2 = \frac{Mu/\phi}{Rn} \rightarrow d_{\text{perlu}} = \sqrt{\frac{Mu/\phi}{Rn.b}} = \sqrt{\frac{371,339.10^6}{3,624.400}} = 502,575 \text{ mm}$$

$$d_{\text{diketahui}} = 540 \text{ mm} \rightarrow d_{\text{diketahui}} > d_{\text{perlu}} \text{ (tul sebelah)}$$

*Jika nilai  $d_{\text{diketahui}} \geq d_{\text{perlu}}$ , maka digunakan tulangan sebelah*

*Jika nilai  $d_{\text{diketahui}} < d_{\text{perlu}}$ , maka digunakan tulangan rangkap*

$$Rn_{\text{baru}} = \frac{Mu/\phi}{b.d_{\text{diketahui}}^2} = \frac{371,339.10^6}{400.540^2} = 3,184 \text{ MPa}$$

$$\rho_{\text{baru}} = \frac{Rn_{\text{baru}}}{Rn} . \rho = \frac{3,184}{3,624} . 0,010 = 0,009 \geq \rho_{\text{min}} = 0,004$$

$$As = \rho_{\text{baru}} . b . d_{\text{diketahui}} = 0,009 . 400 . 540 = 1900,938 \text{ mm}^2$$

Dipakai Ø tulangan tarik  $\rightarrow$  22 mm

$$A_{1\phi} = 380,286 \text{ mm}^2$$

$$n = \frac{As}{A_{1\phi}} = \frac{1900,938}{380,286} = 4,999 \approx 5$$

$$As_{\text{ada}} = n . A_{1\phi} = 5 . 380,286 = 1901,429 \text{ mm}^2 > As = 1900,938 \text{ mm}^2$$

Periksa penempatan tulangan :

$$J_{bd} = \frac{b - 2.(Pb + \phi_{\text{senggang}}) - (n.\phi_{\text{pokok}})}{n - 1}$$

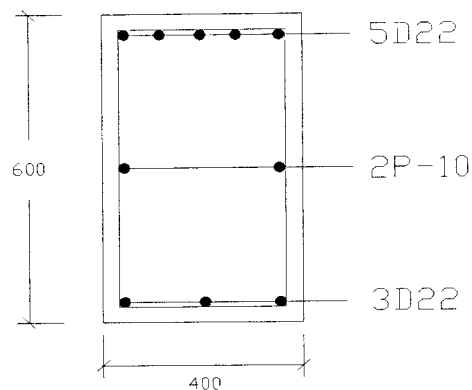
$$= \frac{400 - 2 \cdot (40 + 10) - (5 \cdot 22)}{5 - 1} = 47,5 \text{ mm} > D 22 = 22 \text{ mm}$$

#### Kontrol momen

$$a = \frac{A s_{ada} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{1901,429 \cdot 400}{0,85 \cdot 25 \cdot 400} = 89,479$$

$$M_n = A s_{ada} \cdot f_y \cdot \left( d_{diketahui} - \frac{a}{2} \right) = 1901,429 \cdot 400 \cdot \left( 540 - \frac{89,479}{2} \right)$$

$$= 379,681 \text{ KNm} > \frac{M_u}{\phi} = 371,339 \text{ KNm}$$



**Gambar 4.8** Detail potongan balok induk pada tumpuan

#### b. Perencanaan tulangan lapangan

Data dari SAP 2000 seperti tercantum pada lampiran, di dapat momen maksimum lapangan ( $M^+$ ) = 251,961 KNm.

$$\frac{M_u}{\phi} = \frac{251,961}{0,8} = 314,951 \text{ KNm}$$

$$b \cdot d^2 = \frac{M_u / \phi}{R_n} \rightarrow d_{\text{perlu}} = \sqrt{\frac{M_u / \phi}{R_n \cdot b}} = \sqrt{\frac{314,951 \cdot 10^6}{3,624 \cdot 400}} = 462,847 \text{ mm}$$

$$d_{\text{diketahui}} = 540 \text{ mm} \rightarrow d_{\text{diketahui}} > d_{\text{perlu}} \text{ (tul sebelah)}$$

*Jika nilai  $d_{diketahui} \geq d_{perlu}$ , maka digunakan tulangan sebelah*

*Jika nilai  $d_{diketahui} < d_{perlu}$ , maka digunakan tulangan rangkap*

$$Rn_{baru} = \frac{Mu / \phi}{b \cdot d_{diketahui}^2} = \frac{314,951 \cdot 10^6}{400 \cdot 540^2} = 2,700 \text{ MPa}$$

$$\rho_{baru} = \frac{Rn_{baru}}{Rn} \cdot \rho = \frac{2,700}{3,624} \cdot 0,010 = 0,007 \geq \rho_{min} = 0,004$$

$$As = \rho_{baru} \cdot b \cdot d_{diketahui} = 0,007 \cdot 400 \cdot 540 = 1612,282 \text{ mm}^2$$

Dipakai Ø tulangan tarik  $\rightarrow 22 \text{ mm}$

$$A_{1\phi} = 380,286 \text{ mm}^2$$

$$n = \frac{As}{A_{1\phi}} = \frac{1612,282}{380,286} = 4,240 \approx 5$$

$$As_{ada} = n \cdot A_{1\phi} = 5 \cdot 380,286 = 1901,429 \text{ mm}^2 > As = 1612,282 \text{ mm}^2$$

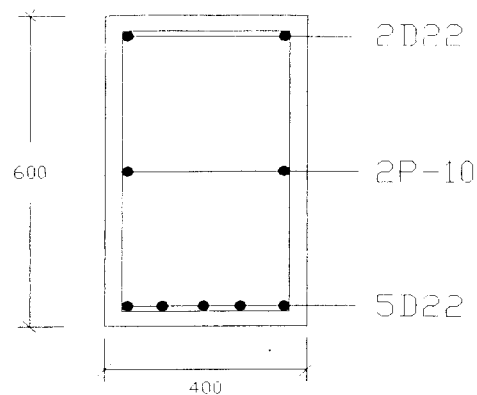
Periksa penempatan tulangan :

$$\begin{aligned} Jbd &= \frac{b - 2 \cdot (Pb + \phi_{senggang}) - (n \cdot \phi_{pokok})}{n - 1} = \frac{400 - 2 \cdot (40 + 10) - (5 \cdot 22)}{5 - 1} \\ &= 47,5 \text{ mm} > D_{22} = 22 \text{ mm} \end{aligned}$$

Kontrol momen

$$a = \frac{As_{ada} \cdot fy}{0,85 \cdot f'c \cdot b} = \frac{1901,429 \cdot 400}{0,85 \cdot 25 \cdot 400} = 89,479$$

$$\begin{aligned} Mn &= As_{ada} \cdot fy \cdot \left( d_{diketahui} - \frac{a}{2} \right) = 1901,429 \cdot 400 \cdot \left( 540 - \frac{89,479}{2} \right) \\ &= 379,681 \text{ KNm} > \frac{Mu}{\phi} = 314,951 \text{ KNm} \end{aligned}$$



**Gambar 4.9** Detail potongan balok induk pada lapangan

c. Perencanaan gaya geser

Data dari SAP 2000 seperti tercantum pada lampiran, di dapat gaya geser maksimum sebagai berikut :

$$V_D = 107,97 \text{ KN}$$

$$V_L = 23,123 \text{ KN}$$

$$V_E = 13.807 \text{ KN}$$

$$\begin{aligned} V_u &= 0,7 \cdot \frac{M_{kap} + M'_{kap}}{l_n} + 1,05 \cdot V_g \quad ; \quad V_g = V_D + V_L \\ &= 0,7 \cdot \phi \cdot \frac{M_{nak} + M'_{nak}}{l_n} + 1,05 \cdot (V_D + V_L) \quad ; \quad \phi = 1,25 \\ &= 0,7 \cdot 1,25 \cdot \frac{376,681 + 234,175}{8,6} + 1,05 \cdot (107,97 + 23,125) \\ &= 199,801 \text{ KN} \\ V_u' &= 1,05 \cdot \left( V_{D,b} + V_{L,b} + \frac{4}{k} \cdot V_{E,b} \right) \\ &= 1,05 \cdot \left( 107,97 + 23,123 + \frac{4}{1} \cdot 13,807 \right) \\ &= 201,325 \text{ KN} \end{aligned}$$



$V_{u,b}$  pakai adalah nilai terkecil antara  $V_{u,b}$  dan  $V_{u,b}'$ , sehingga di dapat  $V_{u,b}$  pakai = 199,801 KN.

Daerah sendi plastis (sepanjang  $2.h$ ) :

$V_c = 0$  (beton dianggap tidak menerima geser)

$$V_s = \frac{V_{u,b \text{ pakai}}}{\phi} = \frac{199,801}{0,6} = 333,002 \text{ KN}$$

$$V_c = \left( \frac{1}{6} \sqrt{f'_c} \right) b.d = \left( \frac{1}{6} \sqrt{25} \right) 400.540 = 180 \text{ KN}$$

$$V_{s_{\min}} = 1/3.b.d = 1/3.400.540 = 72 \text{ KN}$$

$$(V_c + V_{s_{\min}}) < V_s \leq 3.V_c \rightarrow 252 \text{ KN} < 333,002 \text{ KN} \leq 540 \text{ KN}$$

Tersedia tulangan sengkang P-10  $\rightarrow f_y = 240 \text{ MPa}$ .

$$A_v = \frac{1}{4} \pi D^2 = \frac{1}{4} \pi 10^2 2 = 157,080 \text{ mm}^2$$

$$S \leq \frac{A_v f_y d}{\left( \frac{V_u}{\phi} - V_c \right)} = \frac{157,080.240.540}{(333,002 - 0).1000} = 61,134 \text{ mm}$$

$$\leq d/2 = 540/2 = 270 \text{ mm}$$

$$\leq 600 \text{ mm}$$

S pakai  $\rightarrow$  P10-60.

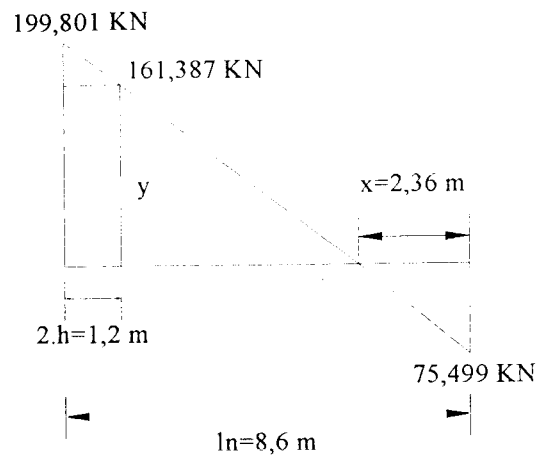
Daerah luar sendi plastis :

$$V_{u,b}'' = 0,7 \cdot \frac{M_{kap} + M'_{kap}}{l_n} - 1,05.V_g \quad ; V_g = V_D + V_L$$

$$= 0,7 \cdot \phi \cdot \frac{M_{nak} + M'_{nak}}{l_n} - 1,05.(V_D + V_L) \quad ; \phi = 1,25$$

$$= 0,7.1,25 \cdot \frac{376,681 + 234,175}{8,6} - 1,05.(107,97 + 23,125)$$

$$= -75,499 \text{ KN}$$



**Gambar 4.10** Diagram segitiga tegangan geser

$$199,801.x = (8,6-x).75,499$$

$$199,801.x = 649,291 - (75,499.x)$$

$$273,3.x = 649,291$$

$$x = 2,36 \text{ m}$$

$$\frac{199,801}{(8,6 - 2,36)} = \frac{y}{(8,6 - 1,2 - 2,36)}$$

$$\frac{199,801}{6,240} = \frac{y}{5,040}$$

$$6,240.y = 1006,997$$

$$y = 161,387 \text{ KN}$$

$$V_{u,b \text{ pakai}} = 161,387 \text{ KN}$$

$$V_s = \frac{V_{u,b \text{ pakai}}}{\phi} = \frac{161,387}{0,6} = 268,978 \text{ KN}$$

$$V_c = \left( \frac{1}{6} \sqrt{f'c} \right) . b.d = \left( \frac{1}{6} \sqrt{25} \right) . 400.540 = 180 \text{ KN}$$

$$V_{s_{\min}} = 1/3 . b.d = 1/3 . 400.540 = 72 \text{ KN}$$

$$(V_c + V_{s_{\min}}) < V_s \leq 3 \cdot V_c \rightarrow 252 \text{ KN} < 268,978 \text{ KN} \leq 540 \text{ KN}$$

Tersedia tulangan sengkang P-10  $\rightarrow f_y = 240 \text{ MPa}$ .

$$A_v = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 10^2 \cdot 2 = 157,080 \text{ mm}^2.$$

$$S \leq \frac{A_v \cdot f_y \cdot d}{\left( \frac{V_u}{\phi} - V_c \right)} = \frac{157,080 \cdot 240 \cdot 540}{(268,978 - 180) \cdot 1000} = 228,885 \text{ mm}$$

$$\leq d/2 = 540/2 = 270 \text{ mm}$$

$$\leq 600 \text{ mm}$$

S pakai  $\rightarrow$  P10-225.

#### 4.6.2 Perencanaan tulangan torsi

Perencanaan dimensi balok portal B1a Induk (9 m) lantai 2

$$T_u = 11,783 \text{ KNm}$$

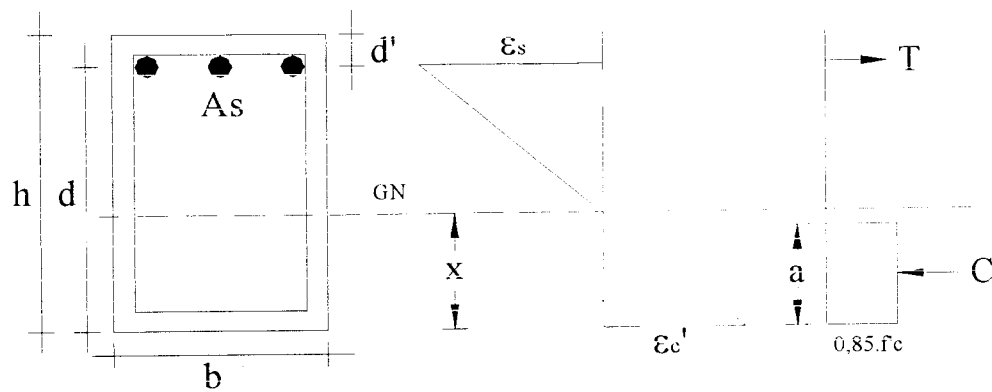
$$\Sigma x^2 \cdot y = 400^2 \cdot 600 = 96 \cdot 10^6 \text{ mm}^2.$$

$$\phi \cdot \left( \frac{1}{20} \cdot \sqrt{f'_c} \cdot \Sigma x^2 \cdot y \right) = 0,6 \cdot \left( \frac{1}{20} \cdot \sqrt{25} \cdot 96 \cdot 10^6 \right) = 14,4 \cdot 10^6 \text{ Nmm} = 14,4 \text{ KNm}$$

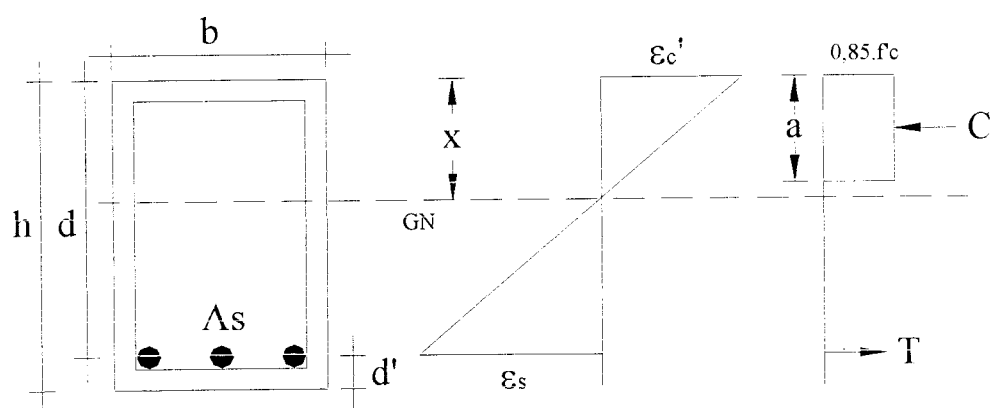
Kontrol :

$$T_u = 11,783 \text{ KNm} < \phi \cdot \left( \frac{1}{20} \cdot \sqrt{f'_c} \cdot \Sigma x^2 \cdot y \right) = 14,4 \text{ KNm}$$

$\rightarrow$  Tulangan torsi diabaikan.



**Gambar 4.11** Balok persegi tulangan sebelah pada tumpuan



**Gambar 4.12** Balok persegi tulangan sebelah pada lapangan

#### 4.7 Perencanaan Kolom

##### 1. Data

a. Ukuran kolom :

$$b = 600 \text{ mm}$$

$$h = 600 \text{ mm}$$

b. Ukuran balok :

$$b = 400 \text{ mm}$$

$$h = 600 \text{ mm}$$

c.  $f'_c = 25 \text{ MPa}$

d.  $F_y \text{ ulir} = 400 \text{ MPa}$

e.  $F_y \text{ polos} = 240 \text{ MPa}$

f.  $E_c = E_g = 4700 \cdot \sqrt{f'_c} = 4700 \cdot \sqrt{25} = 23500 \text{ MPa} = 23500000 \text{ KN/m}^2$

g.  $I_c (\text{Inersia kolom}) = 1/12 \cdot b_k \cdot h_k^3 = 1/12 \cdot 0,6 \cdot 0,6^3 = 0,011 \text{ m}^4$

h.  $I_g (\text{Inersia balok}) = 1/12 \cdot b_b \cdot h_b^3 = 1/12 \cdot 0,4 \cdot 0,6^3 = 0,007 \text{ m}^4$

i. Tinggi kolom = 4,2 m

j. Tinggi (h) pondasi = 2,1 m

k.  $C_m = 1$

l.  $\emptyset = 0,6$

m.  $\emptyset_o = 1,25$

n.  $d' = 61 \text{ mm}$

o.  $d = h - d' = 600 - 61 = 539 \text{ mm}$

## 2. Perencanaan kolom portal As 3 bentang C pada lantai 2

### a. Perhitungan arah X

$$Lb_1 \text{ (panjang balok)} = 6 \text{ m}$$

$$Lb_1' \text{ (bentang bersih balok)} = 6 - 0,6 = 5,4 \text{ m}$$

$$Lb_2 \text{ (panjang balok)} = 6 \text{ m}$$

$$Lb_2' \text{ (bentang bersih balok)} = 6 - 0,6 = 5,4 \text{ m}$$

- Data momen diperoleh dari SAP 2000 seperti tercantum pada lampiran :

$$MDa = 2,780 \text{ KNm}$$

$$MDb = 3,902 \text{ KNm}$$

$$MLa = 0,752 \text{ KNm}$$

$$MLb = 1,182 \text{ KNm}$$

$$MEa = 0,085 \text{ KNm}$$

$$MEb = 0,115 \text{ KNm}$$

$$Mua = 4,541 \text{ KNm}$$

$$Mub = 6,573 \text{ KNm}$$

- Data gaya aksial diperoleh dari SAP 2000 seperti tercantum pada lampiran :

$$PDa = 490,028 \text{ KNm}$$

$$PDb = 525,651 \text{ KNm}$$

$$PLa = 137,201 \text{ KNm}$$

$$PLb = 137,201 \text{ KNm}$$

$$PEa = 7,387 \text{ KNm}$$

$$PEb = 7,387 \text{ KNm}$$

$$Pua = 807,556 \text{ KNm}$$

$$Pub = 850,303 \text{ KNm}$$

- Data gaya geser diperoleh dari SAP 2000 seperti tercantum pada lampiran :

$$VDa = 6,657 \text{ KNm}$$

$$VDb = 6,657 \text{ KNm}$$

$$VLb = 0,896 \text{ KNm}$$

$$VLb = 0,896 \text{ KNm}$$

$$VEa = 56,781 \text{ KNm}$$

$$VEb = 56,781 \text{ KNm}$$

- Perhitungan momen rencana (Mc)

$$e = M_u / P_u = 4,541 / 807,556 = 0,006 \text{ m}$$

$$e_{\min} = (1,5 + 0,03 \cdot h) \text{ cm} = (1,5 + 0,03 \cdot 60) \text{ cm} = 3,3 \text{ cm} = 0,033 \text{ m}$$

$$= 0,033 \text{ m} > 0,006 \text{ m}, \text{ maka dipakai } e = 0,033 \text{ m}$$

$$\psi_A = \frac{\Sigma \left( \frac{E_c I_c}{L_c} \right)}{\Sigma \left( \frac{E_g I_g}{L_g} \right)} = \frac{\Sigma \left( \frac{23500000 \cdot 0,011}{4,2} \right) + \left( \frac{23500000 \cdot 0,011}{4,2} \right)}{\Sigma \left( \frac{23500000 \cdot 0,007}{5,4} \right) + \left( \frac{23500000 \cdot 0,007}{5,4} \right)}$$

$$= 2,021$$

$$\psi_B = \frac{\Sigma \left( \frac{E_c I_c}{L_c} \right)}{\Sigma \left( \frac{E_g I_g}{L_g} \right)} = \frac{\Sigma \left( \frac{23500000 \cdot 0,011}{4,2} \right) + \left( \frac{23500000 \cdot 0,011}{4,2} \right)}{\Sigma \left( \frac{23500000 \cdot 0,007}{5,4} \right) + \left( \frac{23500000 \cdot 0,007}{5,4} \right)}$$

$$= 2,021$$

Lihat nomogram unbranched frames, didapat  $k = 1,6$

$$\frac{k \cdot l}{r} = \frac{1,6 \cdot (4,2 - 0,6)}{(0,3 \cdot 0,6)} = 32 > 22 \text{ dan } \leq 100, \text{ maka termasuk kolom}$$

panjang, sehingga dipakai konsep pembesaran momen.

$$EI_1 = \frac{\frac{1}{5} \cdot (E_c I_g) + E_s I_{se}}{1 + \beta \cdot d}$$

$$= \frac{\frac{1}{5} \cdot (23500000 \cdot 0,007) + (2 \cdot 10^8 \cdot 0,6 \cdot 0,6 \cdot 0,025 \cdot 0,249^2)}{\left( 1 + \frac{588,034}{807,556} \right)}$$

$$= 83615,744 \text{ KNm}^2.$$

$$EI_2 = \frac{0,4 \cdot E_c I_g}{1 + \beta \cdot d} = \frac{0,4 \cdot 23500000 \cdot 0,007}{\left( 1 + \frac{588,034}{807,556} \right)} = 38075,069 \text{ KNm}^2.$$

dipakai  $EI = 83615,744 \text{ KNm}^2$ .

$$P_c = \frac{\mu^2 \cdot EI}{(k \cdot l)^2} = \frac{\mu^2 \cdot 83615,744}{(1,6 \cdot 3,6)^2} = 24873,840 \text{ KN}.$$

$$\begin{aligned} \delta_b &= \frac{Cm}{1 - \left( \frac{P_u}{\phi \cdot P_c} \right)} \geq 1 \\ &= \frac{1}{1 - \left( \frac{807,556}{0,6 \cdot 24873,840} \right)} \geq 1 \\ &= 1,057 \geq 1 \end{aligned}$$

$$\begin{aligned} \sum P_u &= 818,63 + 807,556 + 717,506 + 683,115 + 683,115 \\ &\quad + 717,506 + 807,556 + 818,63 \\ &= 6053,614 \text{ KN} \end{aligned}$$

$$\begin{aligned} \sum P_c &= 24852,371 + 24893,873 + 28165,672 + 27927,915 \\ &\quad + 27927,915 + 28165,672 + 24893,873 + 24852,371 \\ &= 211679,662 \text{ KN} \end{aligned}$$

$$\begin{aligned} \delta_s &= \frac{Cm}{1 - \left( \frac{\sum P_u}{\phi \cdot \sum P_c} \right)} \geq 1 \\ &= \frac{1}{1 - \left( \frac{6053,614}{0,6 \cdot 211679,662} \right)} = 1,050 \geq 1 \end{aligned}$$

$$M_{u1} = 1,2 \cdot M_D + 1,6 \cdot M_L = 1,2 \cdot 2,780 + 1,6 \cdot 0,752 = 4,539 \text{ KNm}.$$

$$M_{u2} = M_E = 0,085 \text{ KNm}$$

$$\begin{aligned} M_{cx} &= \delta_b \cdot M_{u1} + \delta_s \cdot M_{u2} \\ &= 1,057 \cdot 4,539 + 1,050 \cdot 0,085 = 4,887 \text{ KNm} \end{aligned}$$



b. Perhitungan arah Y

$$Lb_1 \text{ (panjang balok)} = 9 \text{ m}$$

$$Lb_1' \text{ (bentang bersih balok)} = 9 - 0,6 = 8,4 \text{ m}$$

$$Lb_2 \text{ (panjang balok)} = 9 \text{ m}$$

$$Lb_2' \text{ (bentang bersih balok)} = 9 - 0,6 = 8,4 \text{ m}$$

- Data momen diperoleh dari SAP 2000 seperti tercantum pada lampiran :

$$MDa = 12,199 \text{ KNm}$$

$$MDb = 15,763 \text{ KNm}$$

$$MLa = 1,649 \text{ KNm}$$

$$MLb = 2,112 \text{ KNm}$$

$$MEa = 99,031 \text{ KNm}$$

$$MEb = 139,451 \text{ KNm}$$

$$Mua = 117,830 \text{ KNm}$$

$$Mub = 164,306 \text{ KNm}$$

- Data gaya aksial diperoleh dari SAP 2000 seperti tercantum pada lampiran :

$$PDa = 490,028 \text{ KNm}$$

$$PDb = 525,651 \text{ KNm}$$

$$PLa = 137,201 \text{ KNm}$$

$$PLb = 137,201 \text{ KNm}$$

$$PEa = 7,387 \text{ KNm}$$

$$PEb = 7,387 \text{ KNm}$$

$$Pua = 807,556 \text{ KNm}$$

$$Pub = 850,303 \text{ KNm}$$

- Data gaya geser diperoleh dari SAP 2000 seperti tercantum pada lampiran :

$$VDa = 1,591 \text{ KNm}$$

$$VDb = 1,591 \text{ KNm}$$

$$VLa = 0,460 \text{ KNm}$$

$$VLb = 0,460 \text{ KNm}$$

$$VEa = 0,048 \text{ KNm}$$

$$VEb = 0,048 \text{ KNm}$$

- Perhitungan momen rencana ( $M_c$ )

$$e = M_u / P_u = 117,830 / 807,556 = 0,146 \text{ m}$$

$$e_{\min} = (1,5 + 0,03 \cdot h) \text{ cm} = (1,5 + 0,03 \cdot 60) \text{ cm} = 3,3 \text{ cm} = 0,033 \text{ m}$$

$$= 0,033 \text{ m} < 0,146 \text{ m}, \text{ maka dipakai } e = 0,146 \text{ m}$$

$$\begin{aligned} \Psi_A &= \frac{\sum \left( \frac{E_c I_c}{L_c} \right)}{\sum \left( \frac{E_g I_g}{L_g} \right)} = \frac{\sum \left( \frac{23500000 \cdot 0,011}{4,2} \right) + \left( \frac{23500000 \cdot 0,011}{4,2} \right)}{\sum \left( \frac{23500000 \cdot 0,007}{8,4} \right) + \left( \frac{23500000 \cdot 0,007}{8,4} \right)} \\ &= 3,143 \end{aligned}$$

$$\begin{aligned} \Psi_B &= \frac{\sum \left( \frac{E_c I_c}{L_c} \right)}{\sum \left( \frac{E_g I_g}{L_g} \right)} = \frac{\sum \left( \frac{23500000 \cdot 0,011}{4,2} \right) + \left( \frac{23500000 \cdot 0,011}{4,2} \right)}{\sum \left( \frac{23500000 \cdot 0,007}{8,4} \right) + \left( \frac{23500000 \cdot 0,007}{8,4} \right)} \\ &= 3,143 \end{aligned}$$

Lihat nomogram unbranched frames, didapat  $k = 1,85$

$$\frac{k \cdot l}{r} = \frac{1,85 \cdot (4,2 - 0,6)}{(0,3 \cdot 0,6)} = 37 > 22 \text{ dan } \leq 100, \text{ maka termasuk kolom}$$

panjang, sehingga dipakai konsep pembesaran momen.

$$\begin{aligned} EI_1 &= \frac{\frac{1}{5} \cdot (E_c I_g) + E_s I_{se}}{1 + \beta \cdot d} \\ &= \frac{\frac{1}{5} \cdot (23500000 \cdot 0,007) + (2 \cdot 10^8 \cdot 0,6 \cdot 0,6 \cdot 0,025 \cdot 0,249^2)}{\left( 1 + \frac{588,034}{807,556} \right)} \\ &= 83615,744 \text{ KNm}^2. \end{aligned}$$

$$EI_2 = \frac{0,4 \cdot E_c I_g}{1 + \beta \cdot d} = \frac{0,4 \cdot 23500000 \cdot 0,007}{\left( 1 + \frac{588,034}{807,556} \right)} = 38075,069 \text{ KNm}^2.$$

dipakai  $EI = 83615,744 \text{ KNm}^2$ .

$$P_c = \frac{\mu^2 \cdot EI}{(k.l)^2} = \frac{\mu^2 \cdot 83615,744}{(1,85 \cdot 3,6)^2} = 18605,414 \text{ KN.}$$

$$\begin{aligned} \delta_b &= \frac{C_m}{1 - \left( \frac{P_u}{\phi \cdot P_c} \right)} \geq 1 \\ &= \frac{1}{1 - \left( \frac{807,556}{0,6 \cdot 18605,414} \right)} \geq 1 \\ &= 1,078 \geq 1 \end{aligned}$$

$$\begin{aligned} \sum P_u &= 807,556 + 923,285 + 919,579 \\ &= 2650,420 \text{ KN} \end{aligned}$$

$$\begin{aligned} \sum P_c &= 18620,399 + 10425,896 + 10429,107 \\ &= 39475,402 \text{ KN} \end{aligned}$$

$$\begin{aligned} \delta_s &= \frac{C_m}{1 - \left( \frac{\sum P_u}{\phi \cdot \sum P_c} \right)} \geq 1 \\ &= \frac{1}{1 - \left( \frac{2650,420}{0,6 \cdot 39475,402} \right)} \geq 1 \\ &= 1,126 \geq 1 \end{aligned}$$

$$M_{u1} = 1,2 \cdot M_D + 1,6 \cdot M_L = 1,2 \cdot 12,199 + 1,6 \cdot 1,649 = 17,277 \text{ KNm.}$$

$$M_{u2} = M_E = 99,031 \text{ KNm}$$

$$\begin{aligned} M_{cy} &= \delta_b \cdot M_{u1} + \delta_s \cdot M_{u2} \\ &= 1,078 \cdot 17,277 + 1,126 \cdot 99,031 = 130,134 \text{ KNm} \end{aligned}$$

### 3. Analisis gaya aksial dan momen akibat balok

Data momen diperoleh dari SAP 2000 seperti tercantum pada lampiran :

$$MDa = 12,199 \text{ KNm}$$

$$MDb = 15,763 \text{ KNm}$$

$$MLa = 1,649 \text{ KNm}$$

$$MLb = 2,112 \text{ KNm}$$

$$MEa = 99,031 \text{ KNm}$$

$$MEb = 139,451 \text{ KNm}$$

$$Mua = 117,830 \text{ KNm}$$

$$Mub = 164,306 \text{ KNm}$$

Data gaya aksial diperoleh dari SAP 2000 seperti tercantum pada lampiran:

$$PDa = 490,028 \text{ KNm}$$

$$PDb = 525,651 \text{ KNm}$$

$$PLa = 137,201 \text{ KNm}$$

$$PLb = 137,201 \text{ KNm}$$

$$PEa = 7,387 \text{ KNm}$$

$$PEb = 7,387 \text{ KNm}$$

$$Pua = 807,556 \text{ KNm}$$

$$Pub = 850,303 \text{ KNm}$$

$$hk = 4,2 \text{ m}$$

$$hk' = 4,2 - h \text{ balok}$$

$$= 4,2 - 0,6 = 3,6 \text{ m}$$

$$Rv = 1 \text{ (jumlah lantai di atasnya; } n = 1 \text{)}$$

$$\phi_o = 1,25$$

$$M_{nak,bx_{kiri}} = 443,851 \text{ KNm}$$

$$M_{nak,bx_{kanan}} = 234,175 \text{ KNm}$$

$$M_{nak,by_{kiri}} = 587,798 \text{ KNm}$$

$$M_{nak,by_{kanan}} = 306,789 \text{ KNm}$$

$$N_{uk_{lx}} = 0,7 \cdot Rv \cdot \phi_o \cdot \left( \frac{M_{nak,bx_{kiri}}}{l_{bx_{kiri}}} + \frac{M_{nak,bx_{kanan}}}{l_{bx_{kanan}}} \right) + 1,05 \cdot N_{g,k}$$

$$N_g = PD + PL$$

$$\begin{aligned} N_{uk_{1x}} &= 0,7 \cdot 1,1,25 \cdot \left( \frac{443,851}{6} + \frac{234,175}{6} \right) + 1,05 \cdot (490,028 + 137,201) \\ &= 757,469 \text{ KN} \end{aligned}$$

$$N_{uk_{1y}} = 0,7 \cdot R_v \cdot \phi \cdot \left( \frac{M_{nak, by_{kiri}}}{l_{by_{kiri}}} + \frac{M_{nak, by_{kanan}}}{l_{by_{kanan}}} \right) + 1,05 \cdot N_{g,k}$$

$$N_{g,k} = PD + PL$$

$$\begin{aligned} N_{uk_{1y}} &= 0,7 \cdot 1,1,25 \cdot \left( \frac{587,798}{9} + \frac{306,789}{9} \right) + 1,05 \cdot (490,028 + 137,201) \\ &= 745,564 \text{ KN} \end{aligned}$$

$$\begin{aligned} N_{uk_{2x}} = N_{uk_{2y}} &= 1,05 \cdot (P_D + P_L + \left( \frac{4}{k} \right) P_E) \\ &= 1,05 \cdot (490,028 + 137,201 + \left( \frac{4}{1} \right) 7,387) \\ &= 689,616 \text{ KN} \end{aligned}$$

dipakai Nuk minimum , yaitu  $N_{uk_{2x}} = N_{uk_{2y}} = 689,616 \text{ KN}$

$$M_{maks_{atas}} = 117,830 \text{ KNm}$$

$$M_{maks_{bawah}} = 164,306 \text{ KNm}$$

$$\alpha_{k,atas} = \frac{M_{maks_{atas}}}{M_{maks_{atas}} + M_{maks_{bawah}}} = \frac{117,830}{117,830 + 164,306} = 0,418$$

$$\omega_d = 1,3$$

$$\begin{aligned} M_{uk_1} &= \left( \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \phi \cdot \left( \frac{l_{bx_{ki}}}{\ln, bx_{ki}} \cdot M_{nak, bx_{ki}} + \frac{l_{bx_{ka}}}{\ln, b_{ka}} \cdot M_{nak, bx_{ka}} \right) \right) + \\ &\quad \left( \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \phi \cdot 0,3 \cdot \left( \frac{l_{by_{ki}}}{\ln, by_{ki}} \cdot M_{nak, by_{ki}} + \frac{l_{by_{ka}}}{\ln, by_{ka}} \cdot M_{nak, by_{ka}} \right) \right) \end{aligned}$$

$$\begin{aligned}
& \left( \frac{4,2}{3,6} \cdot 0,7 \cdot 1,3 \cdot 0,418 \cdot 1,25 \cdot \left( \frac{6}{5,4} \cdot 443,851 + \frac{6}{5,4} \cdot 234,175 \right) \right) + \\
& = \left( \frac{4,2}{3,6} \cdot 0,7 \cdot 1,3 \cdot 0,418 \cdot 1,25 \cdot 0,3 \cdot \left( \frac{9}{8,4} \cdot 587,798 + \frac{9}{8,4} \cdot 306,789 \right) \right) \\
& = 577,413 \text{ KNm}
\end{aligned}$$

$$\begin{aligned}
\text{Muk}_2 &= \left( \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \phi \cdot 0,3 \cdot \left( \frac{lbx_{ki}}{\ln, bx_{ki}} \cdot Mn_{ak, bx_{ki}} + \frac{lby_{ka}}{\ln, b_{ka}} \cdot Mn_{ak, bx_{ka}} \right) \right) + \\
& \left( \frac{hk}{hk'} \cdot 0,7 \cdot \omega_d \cdot \alpha_k \cdot \phi \cdot \left( \frac{lby_{ki}}{\ln, by_{ki}} \cdot Mn_{ak, by_{ki}} + \frac{lby_{ka}}{\ln, by_{ka}} \cdot Mn_{ak, b_{ka}} \right) \right) \\
& = \left( \frac{4,2}{3,6} \cdot 0,7 \cdot 1,3 \cdot 0,418 \cdot 1,25 \cdot 0,3 \cdot \left( \frac{6}{5,4} \cdot 443,851 + \frac{6}{5,4} \cdot 234,175 \right) \right) + \\
& \left( \frac{4,2}{3,6} \cdot 0,7 \cdot 1,3 \cdot 0,418 \cdot 1,25 \cdot \left( \frac{9}{8,4} \cdot 587,798 + \frac{9}{8,4} \cdot 306,789 \right) \right) \\
& = 657,064 \text{ KNm}
\end{aligned}$$

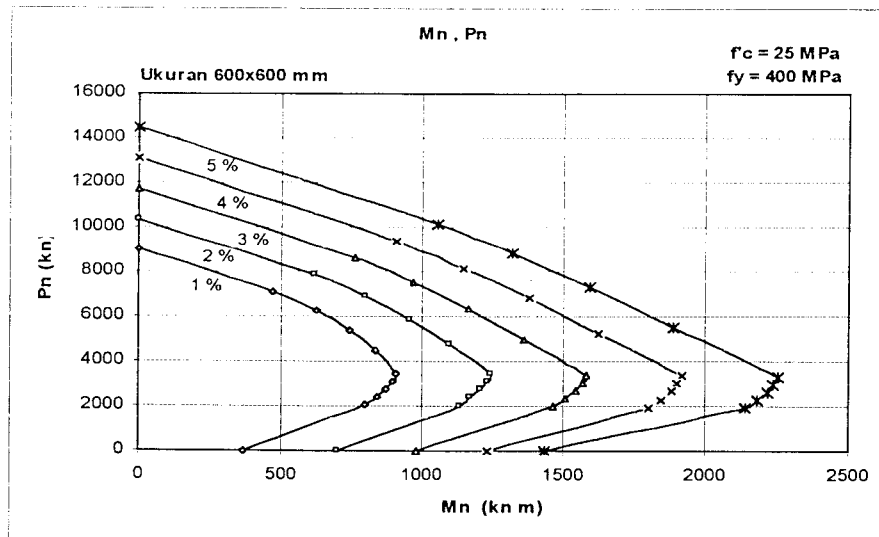
$$\begin{aligned}
\text{Muk}_3 &= 1,05 \cdot \left( M_{DK} + M_{LK} + \left( \frac{4}{k} \right) M_{EK} \right) \\
& = 1,05 \cdot \left( 12,199 + 1,649 + \left( \frac{4}{1} \right) 99,031 \right) \\
& = 430,471 \text{ KNm}
\end{aligned}$$

Dipakai Muk minimum, yaitu  $\text{Muk}_3 = 430,471 \text{ KNm}$ .

Bandingkan  $M_{cx} = 4,887 \text{ KNm}$ ;  $M_{cy} = 130,134 \text{ KNm}$  dan Muk pakai =  $430,471 \text{ KNm}$ , sehingga dipakai yang terbesar, yaitu Muk terpakai =  $430,471 \text{ KNm}$ .

$$M_n = \frac{Mu}{\phi} = \frac{430,471}{0,6} = 717,452 \text{ KNm}$$

$$P_n = \frac{Nu}{\phi} = \frac{689,616}{0,6} = 1149,360 \text{ KN}$$



**Gambar 4.14** Grafik Mn-Pn kolom

Dari grafik Mn – Pn, didapat luas tulangan total ( $A_{st}$ ) :

$$A_{st} < 1,2 \% \cdot b \cdot h = 1,2\% \cdot 600 \cdot 600 = 4320 \text{ mm}^2 \rightarrow \text{diambil } A_{st} = 1,2\% \cdot b \cdot h$$

$$A_{s \text{ perlu}} = A_{st} / 2$$

$$= 4320 / 2 = 2160 \text{ mm}^2$$

dipakai 6D22  $\rightarrow A_{s \text{ ada}} = 2280,798 \text{ mm}^2 > A_{s \text{ perlu}} \dots\dots\dots \text{OK !}$

$$A_s = A_{s'} = 2280,798 \text{ mm}^2$$

Cek eksentrisitas balance ( $e_b$ ) :

$$X_b = \frac{600 \cdot d}{600 + f_y} = \frac{600 \cdot 540}{600 + 400} = 324 \text{ mm}$$

$$f_{s'} = \frac{X_b - d'}{X_b} \cdot 600 = \frac{324 - 60}{324} \cdot 600 = 488,889 \text{ MPa} > f_y = 400 \text{ MPa}$$

dipakai  $f_{s'} = f_y = 400 \text{ MPa}$

$$C_c = 0,85 \cdot f'_c \cdot b \cdot \beta \cdot X_b = (0,85 \cdot 25 \cdot 600 \cdot 0,85 \cdot 324) \cdot 10^{-3} = 3511,350 \text{ KN}$$

$$C_s = A_{s'} \cdot (f_{s'} - 0,85 \cdot f'_c) = 2280,798 \cdot (400 - 0,85 \cdot 25) \cdot 10^{-3} = 863,852 \text{ KN}$$

$$T_s = A_s \cdot f_y = (2280,798.400) \cdot 10^{-3} = 912,319 \text{ KN}$$

$$P_{nb} = C_c + C_s - T_s$$

$$= 3511,35 + 863,852 - 912,319 = 3462,883 \text{ KN}$$

$$M_{nb} = C_c \cdot \left( \frac{h}{2} - \left( \frac{\beta \cdot X_b}{2} \right) \right) + C_s \cdot \left( \frac{h}{2} - d' \right) + T_s \cdot \left( d - \frac{h}{2} \right)$$

$$= (3511,35 \cdot \left( \frac{600}{2} - \left( \frac{0,85 \cdot 324}{2} \right) \right) + 863,852 \cdot \left( \frac{600}{2} - 60 \right) +$$

$$912,319 \cdot \left( 540 - \frac{600}{2} \right) \cdot 10^{-3}$$

$$= 996,173 \text{ KNm}$$

$$e_b = \frac{M_{nb}}{P_{nb}} = \frac{996,173}{3462,883} = 0,288 \text{ m}$$

$$e = \frac{M_u / \phi}{N_u / \phi} = \frac{717,452}{1149,360} = 0,624 \text{ m}$$

karena  $e > e_b \rightarrow$  kolom mengalami patah tarik.

Kontrol tegangan pada daerah tarik :

$$P_n = 0,85 \cdot f'_{c,b,d} \cdot \left[ \left( -\rho \right) + 1 - \frac{e'}{d} + \sqrt{\left( \left( 1 - \frac{e'}{d} \right)^2 + 2 \cdot \rho \cdot \left( m - 1 \right) \left( 1 - \frac{d'}{d} \right) \right) + \frac{e'}{d}} \right]$$

$$e = \frac{M_u / \phi}{N_u / \phi} = \frac{717,452}{1149,360} = 0,624 \text{ m} = 624 \text{ mm}$$

$$e' = e + \left( d - \frac{h}{2} \right) = 624 + \left( 540 - \frac{600}{2} \right) = 864 \text{ mm}$$

$$\rho = \frac{A_s}{b \cdot d} = \frac{2280,798}{600 \cdot 540} = 0,007$$



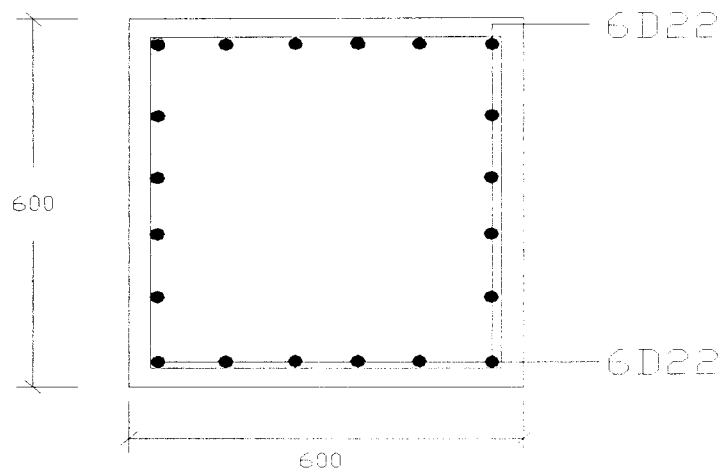
$$P_n = 0,85 \cdot 25 \cdot 600 \cdot 540 \cdot \left[ (-0,007) + 1 - \frac{864}{540} + \sqrt{\left(1 - \frac{864}{540}\right)^2 + \left(2,0 \cdot 0,007 \cdot (18,824 - 1) \left(1 - \frac{60}{540}\right)\right) + \left(\frac{864}{540}\right)} \right]$$

$$= 5990,605 \text{ KN} > P_n = \frac{Nu}{\phi} = \frac{689,616}{0,6} = 1149,360 \text{ KN} \dots \text{OK!}$$

$$M_n = P_n \cdot e$$

$$= 5990,605 \cdot 0,624$$

$$= 3738,138 \text{ KNm} > \frac{Mu}{\phi} = \frac{430,471}{0,6} = 717,452 \text{ KNm} \dots \text{OK!}$$



**Gambar 4.15** Penampang kolom dengan tulangan

#### 4. Perencanaan tulangan geser kolom

- Data gaya geser diperoleh dari SAP 2000 seperti tercantum pada lampiran :

$$V_{Da} = 6,657 \text{ KNm}$$

$$V_{Db} = 6,657 \text{ KNm}$$

$$V_{La} = 0,896 \text{ KNm}$$

$$V_{Lb} = 0,896 \text{ KNm}$$

$$V_{Ea} = 56,781 \text{ KNm}$$

$$V_{Eb} = 56,781 \text{ KNm}$$

- Perhitungan tulangan geser kolom

$$Mu,k_{atas} = 430,471 \text{ KNm}$$

$$Mu,k_{bawah} = 576,910 \text{ KNm}$$

$$hk' = 3,6 \text{ m}$$

$$\begin{aligned} V_{uk1} &= \frac{Mu,k_{atas} + Mu,k_{bawah}}{hk'} \\ &= \frac{430,471 + 576,910}{3,6} = 279,828 \text{ KN} \end{aligned}$$

$$\begin{aligned} V_{uk2} &= 1,05 \cdot \left( V_{Dk} + V_{Lk} + \frac{4}{k} \cdot V_{Ek} \right) \\ &= 1,05 \cdot \left( 6,657 + 0,896 + \frac{4}{1} \cdot 56,781 \right) = 246,411 \text{ KN} \end{aligned}$$

$V_u$  pakai adalah nilai terkecil antara  $V_{uk1}$  dan  $V_{uk2}$ , sehingga didapat

$$V_{uk \text{ pakai}} = 246,411 \text{ KN}$$

$$V_s = \frac{V_{uk \text{ pakai}}}{\phi} = \frac{246,411}{0,6} = 410,685 \text{ KN}$$

#### **Daerah sendi plastis**

Kekutan beton dalam menahan gaya geser dianggap 0 ( $V_c=0$ ).

$$\text{Dipakai tulangan geser P-10 mm, } A_v = 3 \cdot 1/4 \cdot \pi \cdot 10^2 = 235,620 \text{ mm}^2$$

$$\text{Jarak (s)} < \frac{A_v \cdot f_y \cdot d}{V_s} = \frac{235,620 \cdot 240 \cdot 540}{410,685 \cdot 10^3} = 74,355 \text{ mm}$$

$$< \frac{d}{4} = \frac{540}{4} = 135 \text{ mm}$$

$$< 8 \cdot \phi_{tul.pokok} = 8 \cdot 22 = 176 \text{ mm}$$

$$< 100 \text{ mm}$$

Digunakan sengkang **3P10-70 mm**.

**Daerah diluar sendi plastis**

$$V_c = \left(1 + \frac{P_{u,k}}{14.A_g}\right) \cdot \frac{1}{6} \cdot \sqrt{f'_c} \cdot b \cdot d \rightarrow P_{u,k} = 807,556 \text{ KN}$$

$$= \left(1 + \frac{807,556 \cdot 10^3}{14 \cdot 600 \cdot 600}\right) \cdot \frac{1}{6} \cdot \sqrt{25} \cdot 600 \cdot 540 = 313,262 \text{ KN}$$

$$= 313,262 \text{ KN} < \frac{V_{uk_{pakai}}}{\phi} = 410,685 \text{ KN}, \text{ maka perlu tulangan geser}$$

$$V_s = \frac{V_{uk_{pakai}}}{\phi} - V_c = 410,685 - 313,262 = 97,423 \text{ KN}$$

Dipakai tulangan geser P-10 mm, maka :

$$A_v = 2 \cdot 1/4 \cdot \pi \cdot 10^2 = 157,080 \text{ mm}^2$$

$$\text{Jarak (s)} < \frac{A_v \cdot f_y \cdot d}{V_s} = \frac{157,08 \cdot 240 \cdot 540}{97,423 \cdot 10^3} = 208,961 \text{ mm}$$

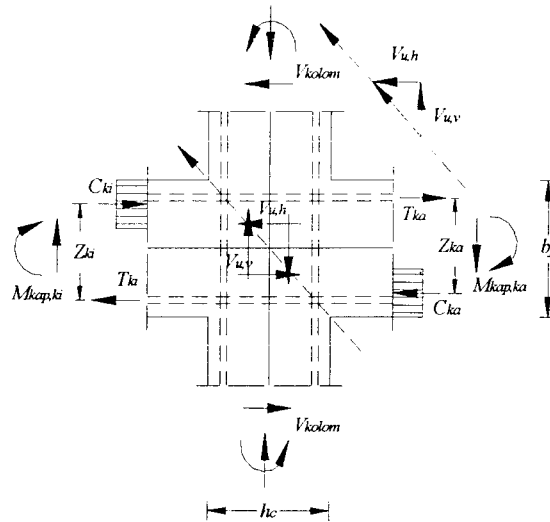
$$< d/4 = 540/4 = 135 \text{ mm}$$

$$< 8 \cdot \phi_{tul.pokok} = 8 \cdot 22 = 176 \text{ mm}$$

$$< 100 \text{ mm}$$

Digunakan sengkang **P10-100 mm**.

#### 4.8 Pertemuan Balok Kolom



**Gambar 4.16** Join balok-kolom dalam

a. Perhitungan gaya-gaya dalam

1. Arah X

$$b_j = b_c = 600 \text{ mm}$$

$$= b_b + 0,5 \cdot h_c = 400 + 0,5 \cdot 600 = 700 \text{ mm}$$

$$b_j \text{ pakai} = 600 \text{ mm}$$

$$h_c = 600 \text{ mm}$$

$$M_{nak,bx_{ki}} = 234,175 \text{ KNm}$$

$$M_{nak,bx_{ka}} = 443,851 \text{ KNm}$$

$$M_{nak,by_{ki}} = 306,789 \text{ KNm}$$

$$M_{nak,by_{ka}} = 587,798 \text{ KNm}$$

$$M_{kap,bx_{ki}} = 1,25 \cdot M_{nak,bx_{ki}} = 1,25 \cdot 234,175 = 292,719 \text{ KNm}$$

$$M_{kap,bx_{ka}} = 1,25 \cdot M_{nak,bx_{ka}} = 1,25 \cdot 443,851 = 554,814 \text{ KNm}$$

$$M_{kap,by_{ki}} = 1,25 \cdot M_{nak,by_{ki}} = 1,25 \cdot 306,789 = 383,486 \text{ KNm}$$

$$M_{kap,by_{ka}} = 1,25 \cdot M_{nak,by_{ka}} = 1,25 \cdot 587,798 = 734,748 \text{ KNm}$$

$$V_{kol,x} = \frac{0,7 \cdot \left( \sum l_x \cdot M_{kap,bx} + 0,3 \cdot \sum l_y \cdot M_{kap,by} \right)}{\frac{1}{2} \cdot (h_{k,a} + h_{k,b})}$$

$$V_{kol,x} = \left( 0,7 \cdot \left[ \left( \frac{6}{5,4} \cdot 292,719 + \frac{6}{5,4} \cdot 554,814 \right) \right] + 0,3 \cdot \left[ \left( \frac{9}{8,4} \cdot 383,486 + \frac{9}{8,4} \cdot 734,748 \right) \right] \right) \cdot \frac{1}{2} \cdot (4,2 + 0)$$

$$= 433,712 \text{ KN}$$

$$z_{ki} = z_{ka} = 0,9 \cdot d = 0,9 \cdot 540 = 486 \text{ mm} = 0,486 \text{ m}$$

$$C_{ki,x} = T_{ki,x} = 0,7 \cdot M_{kap,bx_{ki}} / z_{ki}$$

$$= 0,7 \cdot 292,719 / 0,486 = 421,612 \text{ KN}$$

$$C_{ka,x} = T_{ka,x} = 0,7 \cdot M_{kap,bx_{ka}} / z_{ka}$$

$$= 0,7 \cdot 554,814 / 0,486 = 799,115 \text{ KN}$$

$$V_{jh,x} = C_{ki,x} + T_{ka,x} - V_{kol,x} = 421,612 + 799,115 - 433,712 = 787,015 \text{ KN}$$

Kontrol tegangan geser horizontal :

$$v_{jh,x} = \frac{V_{jh,x}}{b_j \cdot h_c} \leq 1,5 \cdot \sqrt{f'c}$$

$$v_{jh,x} = \frac{787,015}{0,6 \cdot 0,6} = 2186,153 \text{ KN/m}^2$$

$$v_{jh,x} = 2,186 \text{ N/mm}^2 \leq 1,5 \cdot \sqrt{25} = 7,5 \text{ N/mm}^2 \dots\dots\dots \text{OK!}$$

$$Nu_k = 807,556 \text{ KN}$$

$$\frac{Nu_k}{Ag} = \frac{807,556}{0,6 \cdot 0,6} = 2243,211 \text{ KN/m}^2$$

$$= 2,243 \text{ N/mm}^2 < 0,1 \cdot f'c = 2,5 \text{ MPa}$$

$$V_{ch,x} = 0$$

$$V_{sh,x} = V_{jh,x} - V_{ch,x} = 787,015 - 0 = 787,015 \text{ KN}$$

## 2. Arah Y

$$b_j = b_c = 600 \text{ mm}$$

$$= b_b + 0,5 \cdot h_c = 400 + 0,5 \cdot 600 = 700 \text{ mm}$$

$$b_j \text{ pakai} = 600 \text{ mm}$$

$$h_c = 600 \text{ mm}$$

$$M_{nak,bx_{ki}} = 234,175 \text{ KNm}$$

$$M_{nak,bx_{ka}} = 443,851 \text{ KNm}$$

$$M_{nak,by_{ki}} = 306,789 \text{ KNm}$$

$$M_{nak,by_{ka}} = 587,798 \text{ KNm}$$

$$M_{kap,bx_{ki}} = 1,25 \cdot M_{nak,bx_{ki}} = 1,25 \cdot 234,175 = 292,719 \text{ KNm}$$

$$M_{kap,bx_{ka}} = 1,25 \cdot M_{nak,bx_{ka}} = 1,25 \cdot 443,851 = 554,814 \text{ KNm}$$

$$M_{kap,by_{ki}} = 1,25 \cdot M_{nak,by_{ki}} = 1,25 \cdot 306,789 = 383,486 \text{ KNm}$$

$$M_{kap,by_{ka}} = 1,25 \cdot M_{nak,by_{ka}} = 1,25 \cdot 587,798 = 734,748 \text{ KNm}$$

$$V_{kol,y} = \frac{0,7 \cdot \left( 0,3 \cdot \frac{I_x}{I_n} \cdot M_{kap,b_x} + \frac{I_y}{I_n} \cdot M_{kap,b_y} \right)}{\frac{1}{2} \cdot (h_{k,a} + h_{k,b})}$$

$$V_{kol,y} = \left( 0,7 \cdot \left[ 0,3 \cdot \left( \frac{6}{5,4} \cdot 292,719 + \frac{6}{5,4} \cdot 554,814 \right) \right] + \left[ \left( \frac{9}{8,4} \cdot 383,486 + \frac{9}{8,4} \cdot 734,748 \right) \right] \right) \cdot \frac{1}{2} \cdot (4,2 + 0)$$

$$= 569,628 \text{ KN}$$

$$z_{ki} = z_{ka} = 0,9.d = 0,9.540 = 486 \text{ mm} = 0,486 \text{ m}$$

$$\begin{aligned} C_{ki,y} &= T_{ki,y} = 0,7. M_{kap,by_{ki}} / z_{ki} \\ &= 0,7.383,486 / 0,486 = 552,346 \text{ KN} \end{aligned}$$

$$\begin{aligned} C_{ka,y} &= T_{ka,y} = 0,7. M_{kap,by_{ka}} / z_{ka} \\ &= 0,7.734,748 / 0,486 = 1058,279 \text{ KN} \end{aligned}$$

$$\begin{aligned} V_{jh,y} &= C_{ki,y} + T_{ka,y} - V_{kol,y} \\ &= 552,346 + 1058,279 - 569,628 = 1040,997 \text{ KN} \end{aligned}$$

Kontrol tegangan geser horizontal :

$$v_{jh,y} = \frac{V_{jh,y}}{b_j.h.c} \leq 1,5. \sqrt{f'c}$$

$$v_{jh,y} = \frac{1040,997}{0,6.0,6} = 2891,658 \text{ KN/m}^2$$

$$v_{jh,y} = 2,892 \text{ N/mm}^2 < 1,5. \sqrt{25} = 7,5 \text{ N/mm}^2 \dots\dots\dots \text{OK !}$$

$$N_{u,k} = 807,556 \text{ KN}$$

$$\frac{N_{u,k}}{A_g} = \frac{807,556}{0,6.0,6} = 2243,211 \text{ KN/m}^2$$

$$= 2,243 \text{ N/mm}^2 < 0,1.f'c = 2,5 \text{ MPa}$$

$$V_{ch,y} = 0$$

$$\begin{aligned} V_{sh,y} &= V_{jh,y} - V_{ch,y} \\ &= 1040,997 - 0 = 1040,997 \text{ KN} \end{aligned}$$

b. Penulangan geser horizontal

$$V_{sh,maks} = V_{sh,y} = 1040,997 \text{ KN}$$

$$A_{jh} = \frac{V_{sh,maks}}{f_v} = \frac{1040997}{240} = 4337,488 \text{ mm}^2$$

Digunakan sengkang rangkap Ø 10 mm, dengan  $A_v = 314,159 \text{ mm}^2$

$$\text{Jumlah lapis sengkang} = \frac{4337,488}{314,159} = 13,807 = 14 \text{ lapis.}$$

c. Penulangan geser vertikal

$$V_{cv} = \frac{A_{sc'}}{A_{sc}} \cdot V_{jh, mak} \cdot \left( 0,6 + \frac{P_{u, k}}{A_g \cdot f'_c} \right)$$

$$= 1.1040,997 \cdot 10^3 \cdot \left( 0,6 + \frac{807,556 \cdot 10^3}{600 \cdot 600 \cdot 25} \right)$$

$$= 718005,242 \text{ N} = 718,005 \text{ KN}$$

$$V_{jv} = \frac{b_j}{h_c} \cdot v_{jh, mak} = \frac{0,6}{0,6} \cdot 1040,997 = 1040,997 \text{ KN}$$

$$V_{sv} = V_{jv} - V_{cv} = 1040,997 - 718,005 = 322,992 \text{ KN}$$

$$A_{jv} = \frac{V_{sv}}{f_y} = \frac{322992}{240} = 1345,800 \text{ mm}^2$$

Digunakan sengkang rangkap Ø 10 mm, dengan  $A_v = 314,159 \text{ mm}^2$

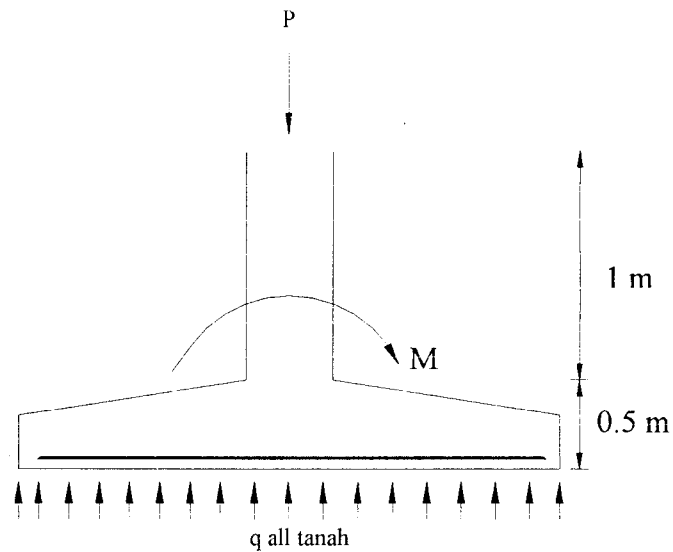
$$\text{Jumlah lapis sengkang} = \frac{1345,8}{314,159} = 4,284 = 5 \text{ lapis.}$$



## 4.9 Perencanaan Pondasi

### 4.9.1 Perencanaan dimensi pondasi (P1)

#### 1. Tinjauan terhadap beban tetap



**Gambar 4.17** Rencana pondasi

Data – data :

$$\sigma_{\text{tanah}} = 150 \text{ KN/m}^2$$

$$P = 1571,922 \text{ KN/m}^3$$

$$f'_c = 25 \text{ Mpa}$$

$$M_x = 4,748 \text{ KNm}$$

$$f_y = 400 \text{ Mpa}$$

$$M_y = 7,183 \text{ KNm}$$

$$\gamma_{\text{tanah}} = 18 \text{ KN/m}^3$$

$$\text{Asumsi tebal pondasi ( h )} = 500 \text{ mm}$$

$$\gamma_{\text{beton}} = 24 \text{ KN/m}^3$$

$$\text{Dimensi kolom} = 600/600 \text{ mm}$$

Direncanakan memakai pondasi telapak

$$\sigma_{\text{netto tanah}} = \sigma_{\text{tanah}} - \sum ( h \cdot \gamma_{\text{beton}} ) - \sum ( h \cdot \gamma_{\text{tanah}} )$$

$$= 150 - ( 0,5 \cdot 24 ) - ( 1 \cdot 18 )$$

$$= 120 \text{ KN/m}^2$$

Dimensi pelat pondasi ( terdapat momen yang bekerja pada arah x dan y ) :

$$\sigma_{\text{netto tanah}} = \frac{P}{A_{\text{perlu}}} + \frac{My}{1/6.Bx^2.By} + \frac{Mx}{1/6.By^2.Bx}$$

dicoba dengan nilai B = 3,7 m

$$\begin{aligned} A_{\text{perlu}} &= \frac{P}{\sigma_{\text{netto tanah}} - \left( \frac{My}{1/6.Bx^2.By} \right) - \left( \frac{Mx}{1/6.By^2.Bx} \right)} \\ &= \frac{1571,922}{120 - \left( \frac{4,748}{1/6.3,7^2.3,7} \right) - \left( \frac{7,183}{1/6.3,7^2.3,7} \right)} = 13,255 \text{ m}^2 \end{aligned}$$

Digunakan penampang bujursangkar dengan :

$$B = N = \sqrt{13,255} = 3,641 \text{ m} \rightarrow B_{\text{ada}} = N_{\text{ada}} = 3,7 \text{ m}$$

Luas penampang pelat pondasi :

$$A_{\text{ada}} = B_{\text{ada}} \times N_{\text{ada}} = 3,7 \times 3,7 = 13,69 \text{ m}^2 > A_{\text{perlu}} = 13,255 \text{ m}^2 \dots\dots\dots \text{Ok!}$$

Tegangan kontak yang terjadi di dasar pondasi :

$$\begin{aligned} \sigma_{\text{netto tanah}} &= \frac{P}{A_{\text{ada}}} + \frac{My}{1/6.N^2.B} + \frac{Mx}{1/6.B^2.N} \\ &= \frac{1571,922}{13,69} + \frac{7,183}{1/6.3,7^2.3,7} + \frac{4,748}{1/6.3,7^2.3,7} \\ &= 116,236 \text{ KN/m}^2 < \sigma_{\text{netto tanah}} = 120 \text{ KN/m}^2 \dots\dots\dots \text{Aman !} \end{aligned}$$

Perencanaan tebal pondasi telapak ( syarat kuat geser ) :

$$\text{Tebal selimut beton (Pb)} = 70 \text{ mm}$$

$$\text{Ø tulangan pokok} = 22 \text{ mm}$$

$$d = hp - Pb - \frac{1}{2} \cdot \text{Ø}_{\text{tul. pokok}} = 500 - 70 - \frac{1}{2} \cdot 22 = 419 \text{ mm}$$

## 2. Tinjauan terhadap beban sementara

Eksentrisitas yang terjadi :

$$e_x = \frac{M_x}{P} = \frac{4,748}{1571,922} = 0,003 \text{ m}$$

$$e_y = \frac{M_y}{P} = \frac{7,183}{1571,922} = 0,005 \text{ m}$$

Kontrol tegangan yang terjadi :

$$\begin{aligned} \sigma &= \frac{P}{(B.(N - 2.e_x)) + (N.(B - 2.e_y))} \\ &= \frac{1571,922}{(3,7.(3,7 - 2.0,003)) + (3,7.(3,7 - 2.0,005))} \\ &= 57,529 \text{ KN/m}^2 < 1,5 \cdot \sigma_{\text{netto}} = 1,5 \cdot 120 = 180 \text{ KN/m}^2 \dots\dots\dots \text{Aman !} \end{aligned}$$

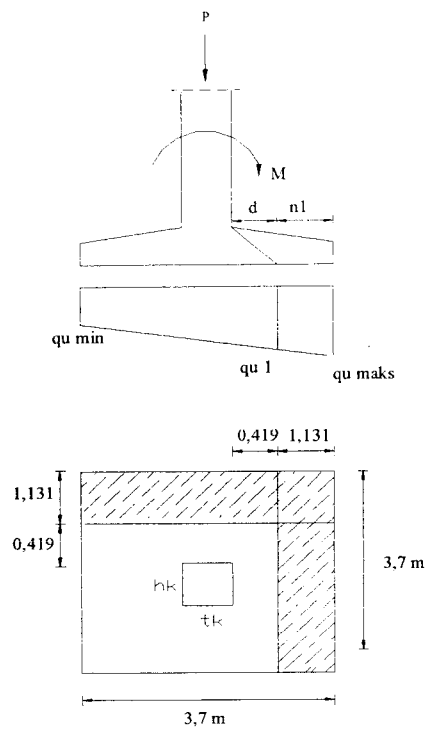
### 4.9.2 Perencanaan geser satu arah

Ditinjau dari arah momen terbesar :

$$P_u = 1996,976 \text{ KN}$$

$$M_{ux} = 157,143 \text{ KNm}$$

$$M_{uy} = 22,296 \text{ KNm}$$



**Gambar 4.18** Pondasi dengan geser satu arah

$$n_1 = \frac{Lp - tk - 2.d}{2} = \frac{3,7 - 0,6 - 2 \cdot 0,419}{2} = 1,131 \text{ m}$$

#### Arah X

- Tegangan kontak yang terjadi :

$$q_{ux} = \frac{Pu}{A_{ada}} \pm \frac{M_{ux}}{1/6 \cdot B^2 \cdot N} = \frac{1996,976}{13,69} \pm \frac{157,143}{1/6 \cdot 3,7^2 \cdot 3,7}$$

$$q_{ux_{max}} = 164,485 \text{ KN/m}^2$$

$$q_{ux_{min}} = 127,257 \text{ KN/m}^2$$

$$\begin{aligned} q_{u_m} &= \frac{(Lp - n_1)q_{ux_{max}} + n_1 \cdot q_{ux_{min}}}{Lp} \\ &= \frac{(3,7 - 1,131)164,485 + 1,131 \cdot 127,257}{3,7} = 153,105 \text{ KN/m}^2 \end{aligned}$$

$$q_{ux\text{terjadi}} = \frac{1}{2} \cdot (q_{ux\text{max}} + q_{u_m}) = \frac{1}{2} \cdot (164,485 + 153,105) \\ = 158,795 \text{ KN/m}^2$$

- Gaya geser akibat beban luar yang bekerja pada penampang kritis pondasi

$$V_u = q_{ux\text{terjadi}} \cdot n_1 \cdot L = 158,795 \cdot 1,131 \cdot 3,7 = 664,510 \text{ KN}$$

$$V_u / \phi = 664,510 / 0,6 = 1107,518 \text{ KN}$$

- Kekuatan beton menahan geser

$$V_c = \frac{1}{6} \cdot \sqrt{f'_c} \cdot L \cdot d = \frac{1}{6} \cdot \sqrt{25} \cdot 3,7 \cdot 0,419 \cdot 1000 \\ = 1291,917 \text{ KN} \geq V_u / \phi = 1107,518 \text{ KN} \dots\dots\dots \text{Aman !}$$

#### Arah Y

- Tegangan kontak yang terjadi :

$$q_{uy} = \frac{P_u}{A_{ada}} \pm \frac{M_{uy}}{1/6 \cdot B^2 \cdot N} = \frac{1996,976}{13,69} \pm \frac{22,296}{1/6 \cdot 3,7^2 \cdot 3,7}$$

$$q_{uy\text{max}} = 148,512 \text{ KN/m}^2$$

$$q_{uy\text{min}} = 143,230 \text{ KN/m}^2$$

$$q_{u_m} = \frac{(L_p - n_1) \cdot q_{uy\text{max}} + n_1 \cdot q_{uy\text{min}}}{L_p} \\ = \frac{(3,7 - 1,131) \cdot 148,512 + 1,131 \cdot 143,230}{3,7} = 146,898 \text{ KN/m}^2$$

$$q_{u\text{terjadi}} = \frac{1}{2} \cdot (q_{uy\text{max}} + q_{u_m}) = \frac{1}{2} \cdot (148,512 + 146,898) \\ = 147,705 \text{ KN/m}^2$$

- Gaya geser akibat beban luar yang bekerja pada penampang kritis pondasi

$$V_u = q_{uy\text{terjadi}} \cdot n_1 \cdot L = 147,705 \cdot 1,131 \cdot 3,7 = 618,101 \text{ KN}$$

$$V_u / \phi = 618,101 / 0,6 = 1030,168 \text{ KN}$$

- Kekuatan beton menahan geser

$$V_c = \frac{1}{6} \cdot \sqrt{f'_c} \cdot L \cdot d = \frac{1}{6} \cdot \sqrt{25} \cdot 3,7 \cdot 0,419 \cdot 1000$$

$$= 1291,917 \text{ KN} \geq V_u / \phi = 1030,168 \text{ KN} \dots\dots\dots \text{Aman !}$$

#### 4.9.3 Perencanaan geser dua arah

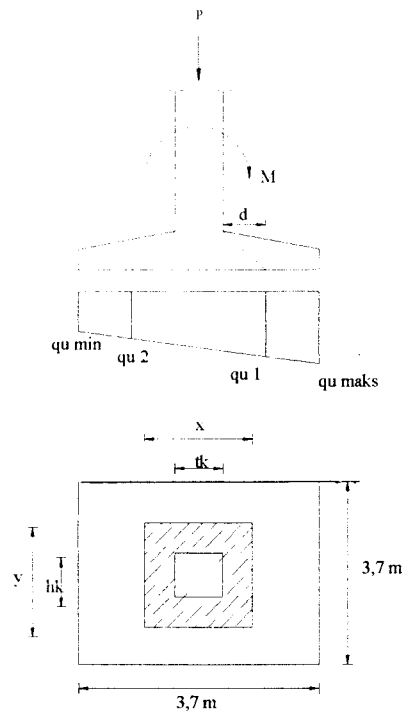
Ditinjau pada arah momen terbesar :

$$x = h_k + d = 600 + 419$$

$$= 1019 \text{ mm} = 1,019 \text{ m}$$

$$y = t_k + d = 600 + 419$$

$$= 1019 \text{ mm} = 1,019 \text{ m}$$



**Gambar 4.19** Pondasi dengan geser dua arah

- Tegangan kontak yang terjadi :

$$\begin{aligned}
 q_u &= \frac{Pu}{A_{ada}} \pm \frac{My}{1/6 \cdot Bx^2 \cdot By} \pm \frac{Mx}{1/6 \cdot By^2 \cdot Bx} \\
 &= \frac{1996,976}{13,69} \pm \frac{22,296}{1/6 \cdot 3,7^2 \cdot 3,7} \pm \frac{157,143}{1/6 \cdot 1,8^2 \cdot 1,8}
 \end{aligned}$$

$$q_{u_{\max}} = 167,126 \text{ KN/m}^2$$

$$q_{u_{\min}} = 124,616 \text{ KN/m}^2$$

$$q_{u_T} = 1/2 \cdot (q_{u_{\max}} + q_{u_{\min}}) = 1/2 \cdot (167,126 + 124,616) = 145,871 \text{ KN/m}^2$$

- Gaya geser akibat beban luar yang bekerja pada penampang kritis pondasi

$$\begin{aligned}
 V_u &= q_{u_T} \cdot ((P_p \cdot L_p) - (x, y)) \\
 &= 145,871 \cdot ((3,7 \cdot 3,7) - (1,019 \cdot 1,019)) = 1845,509 \text{ KN}
 \end{aligned}$$

$$V_u / \phi = 1845,509 / 0,6 = 3075,848 \text{ KN}$$

- Kekuatan beton menahan geser

$$\beta_c = \frac{\text{sisipanjangtapak}}{\text{sisipendektapak}} = \frac{Pp}{Lp} = \frac{3,7}{3,7} \geq 1,0$$

$$\begin{aligned} b_o &= 2.(x+y) = 2.((h_k+d)+(b_k+d)) \\ &= 2.(1019 + 1019) = 4076 \text{ mm} \end{aligned}$$

$$\begin{aligned} V_{c1} &= \left(1 + \frac{2}{\beta_c}\right) (2 \cdot \sqrt{f'c}) b_o d \\ &= \left(1 + \frac{2}{1}\right) (2 \cdot \sqrt{25}) 4076 \cdot 419 \cdot 10^{-3} = 51235,230 \text{ KN} \end{aligned}$$

$$\begin{aligned} V_{c2} &= 4 \cdot \sqrt{f'c} \cdot b_o d \\ &= 4 \cdot \sqrt{25} \cdot 4076 \cdot 419 \cdot 10^{-3} = 34156,880 \text{ KN} \end{aligned}$$

- Kontrol gaya geser

Digunakan nilai terkecil dari  $V_{c1}$  dan  $V_{c2}$ , yaitu  $V_c = 34156,880 \text{ KN}$

$$V_c = 34156,880 \text{ KN} \geq \frac{V_u}{\phi} = 3075,848 \text{ KN} \dots\dots\dots \text{Aman !}$$

#### 4.9.4 Kuat tumpuan pondasi

- Kuat tumpuan pondasi

$$\text{Luas pelat pondasi } (A_2) = B \cdot N = 3,7 \cdot 3,7 = 13,69 \text{ m}^2$$

$$\text{Luas penampang kolom } (A_1) = h_k \cdot t_k = 0,6 \cdot 0,6 = 0,36 \text{ m}^2$$

$$\sqrt{\frac{A_2}{A_1}} = \sqrt{\frac{13,69}{0,36}} = 6,167 > 2 \text{ (jika lebih besar dari 2, dipakai nilai 2)}$$

$$\begin{aligned} \Phi \cdot P_n &= \Phi \cdot (0,85 \cdot f'c \cdot A_1 \cdot \sqrt{\frac{A_2}{A_1}}) \\ &= 0,7 \cdot (0,85 \cdot 25 \cdot 360000 \cdot 2) \cdot 10^{-3} = 10710 \text{ KN} \end{aligned}$$



- Kuat tumpuan kolom

$$\Phi \cdot P_n = \Phi \cdot (0,85 \cdot f'_c \cdot A_1)$$

$$= 0,7 \cdot (0,85 \cdot 25 \cdot 360000) \cdot 10^{-3} = 5355 \text{ KN}$$

- Kontrol kuat tumpuan

$$\Phi \cdot P_{n_{\text{pondasi}}} = 10710 \text{ KN} > \Phi \cdot P_{n_{\text{kolom}}} = 5355 \text{ KN} \dots \dots \text{Aman !!}$$

#### 4.9.5 Perencanaan tulangan lentur telapak pondasi

- Momen yang terjadi :

$$l = \frac{L_p - t_k}{2} = \frac{3,7 - 0,6}{2} = 1,55 \text{ m}$$

$$q_{u_{\text{maks}}} = 167,126 \text{ KN/m}^2$$

$$\begin{aligned} M_u &= 0,5 \cdot q_{u_{\text{maks}}} \cdot l^2 = 0,5 \cdot 167,126 \cdot 1,55^2 \\ &= 200,760 \text{ KNm} \end{aligned}$$

$$\frac{M_u}{\phi} = \frac{200,760}{0,8} = 250,950 \text{ KNm}$$

- Digunakan tulangan  $\emptyset 22 \text{ mm}$ , maka :

$$A_1 \cdot \emptyset = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 22^2 = 380,286 \text{ mm}^2$$

Dipakai tebal pelat pondasi (h) = 500 mm, selimut beton (Pb) = 70 mm

$$d = h - P_b - \frac{1}{2} \cdot \emptyset_{\text{tul}} = 500 - 70 - \frac{1}{2} \cdot 22 = 419 \text{ mm}$$

$$m = \frac{f_y}{0,85 \cdot f'_c} = \frac{400}{0,85 \cdot 25} = 18,824$$

Koefisien ketahanan (Rn), diambil nilai b tiap 1000 mm :

$$R_n = \frac{M_u / \phi}{b \cdot d^2} = \frac{250,950 \cdot 10^6}{1000 \cdot 419^2} = 1,429 \text{ mm}^2$$

- Rasio tulangan :

$$\rho_{\min} = \frac{1,4}{f_y} = \frac{1,4}{400} = 0,0035$$

$$\rho_b = \frac{0,85 \cdot f'_c}{f_y} \cdot \beta_1 \cdot \left( \frac{600}{600 + f_y} \right) = \frac{0,85 \cdot 25}{400} \cdot 0,85 \cdot \left( \frac{600}{600 + 400} \right) = 0,027$$

$$\rho_{\max} = 0,75 \cdot \rho_b = 0,75 \cdot 0,027 = 0,020$$

$$\rho_{\text{perlu}} = \frac{1}{m} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot m \cdot R_n}{f_y}} \right] = \frac{1}{18,824} \cdot \left[ 1 - \sqrt{1 - \frac{2 \cdot 18,824 \cdot 1,429}{400}} \right]$$

$$= 0,004 < \rho_{\max} = 0,02$$

$$> \rho_{\min} = 0,0035$$

$$\rho_{\text{terpakai}} = \rho_{\text{perlu}} = 0,004$$

$$A_{S_{\text{perlu}}} = \rho_{\text{terpakai}} \cdot b \cdot d = 0,004 \cdot 1000 \cdot 419 = 1676 \text{ mm}^2$$

- Jarak antar tulangan

$$s \leq \frac{A_1 \cdot \phi \cdot 1000}{A_{S_{\text{perlu}}}} = \frac{380,286 \cdot 1000}{1676} = 226,901 \text{ mm}$$

$$s \leq 2 \cdot h = 2 \cdot 500 = 1000 \text{ mm}$$

$$s \leq 250 \text{ mm}$$

→ **Dipakai tulangan : D22 – 220 mm**

$$A_{S_{\text{ada}}} = \frac{380,286 \cdot 1000}{220} = 1728,571 \text{ mm}^2 > A_{S_{\text{perlu}}} = 1676 \text{ mm}^2$$

- Kontrol kapasitas lentur pelat pondasi

$$a = \frac{A_{S_{\text{ada}}} \cdot f_y}{0,85 \cdot f'_c \cdot b} = \frac{1728,571 \cdot 400}{0,85 \cdot 25 \cdot 1000} = 32,538 \text{ mm.}$$

$$M_n = A_{s_{ada}} \cdot f_y \cdot (d - a/2) = 1728,571.400 \cdot (419 - 32,538/2) \cdot 10^{-6}$$

$$= 278,460 \text{ KNm} > \frac{M_u}{\phi} = 250,950 \text{ KNm} \dots\dots\dots \text{Ok !}$$

- Perencanaan tulangan bagi

$$A_{s_{susut}} = 0,002 \cdot b \cdot h = 0,002 \cdot 1000 \cdot 500 = 1000 \text{ mm}^2$$

$$\text{Pakai tulangan P 12} \rightarrow A_1 \cdot \emptyset = \frac{1}{4} \cdot \pi \cdot D^2 = \frac{1}{4} \cdot \pi \cdot 12^2 = 113,143 \text{ mm}^2$$

$$\text{Jarak antar tulangan (x)} = \frac{A_1 \cdot \phi \cdot 1000}{A_{sbagi}} = \frac{113,143 \cdot 1000}{1000}$$

$$= 113,143 \text{ mm}^2$$

→ **Dipakai tulangan : P 12 – 110 mm**

## **BAB V**

### **PEMBAHASAN**

#### **5.1 Tinjauan Umum**

Dalam suatu perencanaan, banyak alternatif yang bisa ditempuh untuk menghasilkan struktur yang memenuhi syarat dari segi keamanan, kenyamanan dan ekonomis. Biasanya perencana mengambil suatu anggapan atau asumsi dari perilaku struktur yang ditinjau untuk menentukan rumus-rumus yang akan digunakan agar memudahkan dalam perhitungan dan juga kemudahan dalam pelaksanaan di lapangan. Dan kadang-kadang perencana juga menganggap elemen – elemen tertentu pada struktur portal memiliki persamaan gaya, sehingga hasil perhitungannya sama untuk beberapa elemen tersebut. Penentuan asumsi itu tentunya berdasarkan pengalaman dari perencana tetapi dengan memperhatikan pedoman dan peraturan perencanaan yang ada.

Pada Tugas Akhir perencanaan ulang struktur bangunan Fakultas Hukum Universitas Gadjah Mada ini, untuk mutu beton dipakai  $f'c = 25$  Mpa baik untuk pelat, balok, kolom maupun pondasi. Sedangkan untuk baja tulangan dengan diameter kurang atau sama dengan 12 mm dipakai mutu baja  $f_y = 240$  MPa dan untuk diameter lebih besar dari 12 mm dipakai mutu baja  $f_y = 400$  MPa.

Program SAP 2000 digunakan untuk analisa portal, kuda-kuda dan tangga guna mencari momen – momen yang terjadi pada struktur. Kemudian momen-

momen hasil analisa tersebut dikalikan dengan factor – faktor dan momen terfaktor ini yang digunakan sebagai perhitungan perencanaan struktur.

## 5.2 Atap

Pada perencanaan atap digunakan rangka baja sebagai kuda – kuda, yang terdiri dari dua macam tipe kuda – kuda. Perhitungan rencana atap pada Tugas Akhir ini berdasarkan pada metode tegangan kerja (*working stress design method*) dari AISC. Sedangkan profil yang digunakan untuk kuda-kuda yaitu 2L 60 x 60 x 6, diameter baut  $\frac{1}{2}$  inchi dan tebal pelat sambung 1 cm.

## 5.3 Pelat

Pelat pada bangunan ini terdiri dari pelat lantai dan pelat talang. Perencanaan pelat mengacu pada PBI 1971 tabel 13.3.2 yaitu tipe pelat dihitung berdasarkan perbandingan panjang sisi – sisinya dan dukungan pada pelat, sehingga didapatkan tipe pelat dua arah dengan ditumpu keempat sisinya.

Tebal pelat lantai digunakan 120 mm dan pelat talang 100 mm. Penentuan tebal pelat lantai dan pelat atap didasarkan pada panjang bentang sesuai dengan rumus SK-SNI T-15-1991-03. Pada pelat lantai digunakan tulangan pokok diameter 10 mm dan tulangan bagi diameter 8 mm, sedangkan pada pelat talang digunakan tulangan pokok dan susut diameter 8 mm.

## 5.4 Tangga

Pada bangunan ini terdapat dua macam tipe tangga. Untuk perencanaan tangga ini terdiri dari perencanaan pelat tangga, pelat bordes, balok bordes dan pondasi tangga. Perencanaan tangga menggunakan tulangan pokok diameter 13 mm dan tulangan bagi diameter 8 mm.

### 5.5 Balok

Balok merupakan struktur portal sehingga direncanakan berdasarkan analisis portal. Pada perencanaan struktur ini didapat penulangan yang menggunakan tulangan sebelah dan tulangan rangkap. Apabila tinggi efektif balok yang direncanakan lebih besar dari tinggi efektif balok yang diperlukan, maka balok tersebut menggunakan tulangan sebelah. Dan apabila tinggi efektif balok yang direncanakan lebih kecil dari tinggi efektif balok yang diperlukan, maka balok tersebut menggunakan tulangan rangkap. Tulangan pokok yang digunakan berdiameter 22 mm untuk ukuran balok 400/600, sedangkan untuk ukuran balok 200/400 dan sloof (250/500) menggunakan diameter 16 mm, dan untuk tulangan geser digunakan diameter 10 mm.

### 5.6 Kolom

Kolom juga merupakan struktur portal yang direncanakan berdasarkan dari analisa portal. Penentuan lebar kolom disesuaikan dengan lebar balok agar mempermudah dalam penulangan di lapangan. Lebar kolom direncanakan lebih besar dari lebar balok untuk memberikan kekakuan yang baik. Tulangan pokok yang digunakan adalah diameter 22 mm dengan tulangan geser diameter 10 mm.

### 5.7 Pondasi

Pondasi direncanakan dengan pondasi telapak (*foot plate*). Dipilih pondasi ini dikarenakan kemudahan dalam pengerjaan di lapangan sehingga dapat menghemat waktu pekerjaan dan juga kondisi tanah yang memungkinkan dipakainya jenis pondasi ini. Tulangan pokok yang digunakan diameter 22 mm dengan tulangan bagi diameter 12 mm.

Tabel 5.1 Rekapitulasi Tulangan Balok Anak Terpasang

| Balok Anak      | Lantai | Dimensi | Tul. Tumpuan |       | Tul. Lapangan |       | Tul. Geser    |              |
|-----------------|--------|---------|--------------|-------|---------------|-------|---------------|--------------|
|                 |        |         | Atas         | Bawah | Atas          | Bawah | Dalam Plastis | Luar Plastis |
| R 1 ( 9 m )     | Atap   | 200/400 | 2D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |
| R 2 ( 6 m )     | Atap   | 200/400 | 2D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |
| R 3 ( 4,5 m )   | Atap   | 200/400 | 2D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |
| R 4 ( 3 m )     | Atap   | 200/400 | 3D16         | 2D16  | 2D16          | 2D16  | P10-65        | P10-180      |
| R 5 ( 2,6 m )   | Atap   | 200/400 | 2D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |
| R 6 ( 1,8 m )   | Atap   | 200/400 | 2D16         | 2D16  | 2D16          | 2D16  | P10-65        | P10-180      |
| B 1 a ( 9 m )   | 2      | 200/400 | 3D16         | 2D16  | 2D16          | 2D16  | P10-100       | P10-180      |
|                 | 3      | 200/400 | 4D16         | 2D16  | 2D16          | 2D16  | P10-90        | P10-180      |
| B 1 b ( 9 m )   | 2      | 200/400 | 7D16         | 4D16  | 2D16          | 4D16  | P10-65        | P10-165      |
|                 | 3      | 200/400 | 6D16         | 3D16  | 2D16          | 3D16  | P10-70        | P10-180      |
| B 2 a ( 6 m )   | 2      | 200/400 | 3D16         | 2D16  | 2D16          | 2D16  | P10-95        | P10-180      |
|                 | 3      | 200/400 | 3D16         | 2D16  | 2D16          | 2D16  | P10-95        | P10-180      |
| B 2 b ( 6 m )   | 2      | 200/400 | 5D16         | 3D16  | 2D16          | 3D16  | P10-60        | P10-160      |
|                 | 3      | 200/400 | 5D16         | 3D16  | 2D16          | 3D16  | P10-60        | P10-165      |
| B 3 a ( 4,5 m ) | 2      | 200/400 | 2D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |
|                 | 3      | 200/400 | 2D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |
| B 3 b ( 4,5 m ) | 2      | 200/400 | 3D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |
|                 | 3      | 200/400 | 3D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |
| B 4 ( 3 m )     | 2      | 200/400 | 5D16         | 3D16  | 2D16          | 3D16  | P10-180       | P10-180      |
|                 | 3      | 200/400 | 5D16         | 3D16  | 2D16          | 3D16  | P10-100       | P10-180      |
| B 5 ( 0,9 m )   | 2      | 200/400 | 3D16         | 2D16  | 2D16          | 2D16  | P10-70        | P10-180      |
| B 5 ( 1,8 m )   | 3      | 200/400 | 4D16         | 2D16  | 2D16          | 2D16  | P10-180       | P10-180      |

Tabel 5.2 Rekapitulasi Tulangan Balok Induk Terpasang

| Balok Induk     | Lantai | Dimensi | Tul. Tumpuan |       | Tul. Lapangan |       | Tul. Geser    |              |
|-----------------|--------|---------|--------------|-------|---------------|-------|---------------|--------------|
|                 |        |         | Atas         | Bawah | Atas          | Bawah | Dalam Plastis | Luar Plastis |
| R 1 ( 9 m )     | Atap   | 400/600 | 3D22         | 2D22  | 2D22          | 2D22  | P10-270       | P10-270      |
| R 2 ( 6 m )     | Atap   | 400/600 | 3D22         | 2D22  | 2D22          | 2D22  | P10-270       | P10-270      |
| R 3 ( 4,5 m )   | Atap   | 400/600 | 2D22         | 2D22  | 2D22          | 2D22  | P10-270       | P10-270      |
| R 4 ( 3 m )     | Atap   | 400/600 | 4D22         | 3D22  | 2D22          | 3D22  | P10-210       | P10-270      |
| R 5 ( 1,8 m )   | Atap   | 400/600 | 3D22         | 2D22  | 2D22          | 2D22  | P10-205       | P10-270      |
| B 1 a ( 9 m )   | 2      | 400/600 | 5D22         | 3D22  | 3D22          | 5D22  | P10-60        | P10-225      |
|                 | 3      | 400/600 | 7D22         | 4D22  | 3D22          | 6D22  | P10-60        | P10-230      |
| B 1 b ( 9 m )   | 2      | 400/600 | 8D22         | 4D22  | 3D22          | 5D22  | 3P10-60       | P10-95       |
|                 | 3      | 400/600 | 8D22         | 4D22  | 3D22          | 6D22  | 3P10-65       | P10-100      |
| B 2 a ( 6 m )   | 2      | 400/600 | 3D22         | 2D22  | 2D22          | 3D22  | P10-270       | P10-270      |
|                 | 3      | 400/600 | 3D22         | 2D22  | 2D22          | 3D22  | P10-270       | P10-270      |
| B 2 b ( 6 m )   | 2      | 400/600 | 6D22         | 3D22  | 2D22          | 3D22  | P10-70        | P10-270      |
|                 | 3      | 400/600 | 6D22         | 3D22  | 2D22          | 4D22  | P10-70        | P10-270      |
| B 3 a ( 4,5 m ) | 2      | 400/600 | 4D22         | 2D22  | 2D22          | 2D22  | P10-70        | P10-270      |
|                 | 3      | 400/600 | 3D22         | 2D22  | 2D22          | 2D22  | P10-75        | P10-270      |
| B 3 b ( 4,5 m ) | 2      | 400/600 | 3D22         | 2D22  | 2D22          | 2D22  | P10-65        | P10-270      |
|                 | 3      | 400/600 | 3D22         | 2D22  | 2D22          | 2D22  | P10-65        | P10-270      |
| B 4 ( 3 m )     | 2      | 400/600 | 8D22         | 4D22  | 3D22          | 4D22  | P10-70        | P10-270      |
|                 | 3      | 400/600 | 8D22         | 4D22  | 3D22          | 4D22  | P10-70        | P10-270      |
| B 5 ( 0,9 m )   | 2      | 400/600 | 2D22         | 2D22  | 2D22          | 2D22  | P10-270       | P10-270      |
| B 5 ( 1,8 m )   | 3      | 400/600 | 4D22         | 2D22  | 2D22          | 2D22  | P10-270       | P10-270      |

Tabel 5.3 Rekapitulasi Tulangan Kolom Terpasang

| Kolom       | Lantai | Dimensi | Tulangan |        | Tul. Geser    |              |
|-------------|--------|---------|----------|--------|---------------|--------------|
|             |        |         | Arah x   | Arah y | Dalam Plastis | Luar Plastis |
| K1A=K10A    | 1      | 600/600 | 5D22     | 5D22   | P10-100       | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-90        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-100       | P10-100      |
| K1B=K10B    | 1      | 600/600 | 7D22     | 7D22   | P10-65        | P10-100      |
|             | 2      | 600/600 | 7D22     | 7D22   | 3P10-75       | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-85        | P10-100      |
| K1D=K10D    | 1      | 600/600 | 6D22     | 6D22   | P10-65        | P10-100      |
|             | 2      | 600/600 | 6D22     | 6D22   | 3P10-75       | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-85        | P10-100      |
| K1E=K10E    | 1      | 600/600 | 5D22     | 5D22   | P10-100       | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-90        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-100       | P10-100      |
| K2A=K9A     | 1      | 600/600 | 5D22     | 5D22   | P10-75        | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-70        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-95        | P10-100      |
| K2C=K9C     | 1      | 600/600 | 5D22     | 5D22   | P10-70        | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | 3P10-80       | P10-100      |
| K2E=K9E     | 1      | 600/600 | 7D22     | 7D22   | P10-75        | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-70        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-95        | P10-100      |
| K3A=K8A     | 1      | 600/600 | 5D22     | 5D22   | P10-70        | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-70        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-95        | P10-100      |
| K3C=K8C     | 1      | 600/600 | 6D22     | 6D22   | P10-70        | P10-100      |
|             | 2      | 600/600 | 6D22     | 6D22   | 3P10-70       | P10-100      |
| K3E=K8E     | 1      | 600/600 | 5D22     | 5D22   | P10-70        | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-70        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-85        | P10-100      |
| K4A=K7A     | 1      | 600/600 | 7D22     | 7D22   | P10-65        | P10-100      |
|             | 2      | 600/600 | 6D22     | 6D22   | P10-65        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-85        | P10-100      |
| K4C=K7C     | 1      | 600/600 | 7D22     | 7D22   | P10-65        | P10-100      |
|             | 2      | 600/600 | 7D22     | 7D22   | P10-60        | P10-100      |
| K4E=K7E     | 1      | 600/600 | 7D22     | 7D22   | P10-70        | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-70        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-75        | P10-100      |
| K5A=K6A     | 1      | 600/600 | 5D22     | 5D22   | P10-90        | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-100       | P10-100      |
| K5A'=K6A'   | 1      | 600/600 | 5D22     | 5D22   | P10-100       | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-100       | P10-100      |
| K5A''=K6A'' | 3      | 600/600 | 5D22     | 5D22   | P10-95        | P10-100      |
| K5C=K6C     | 1      | 600/600 | 7D22     | 7D22   | P10-65        | P10-100      |
|             | 2      | 600/600 | 7D22     | 7D22   | P10-60        | P10-100      |
| K5E=K6E     | 1      | 600/600 | 5D22     | 5D22   | P10-85        | P10-100      |
|             | 2      | 600/600 | 5D22     | 5D22   | P10-80        | P10-100      |
|             | 3      | 600/600 | 5D22     | 5D22   | P10-75        | P10-100      |



## BAB VI

### KESIMPULAN DAN SARAN

#### 6.1 Kesimpulan

Berdasarkan hasil perhitungan dan pembahasan Tugas Akhir perencanaan ulang struktur bangunan Fakultas Hukum Universitas Gadjah Mada Yogyakarta pada bab-bab sebelumnya, maka dapat diambil kesimpulan sebagai berikut :

1. Gedung yang didesain ulang berupa gedung Fakultas Hukum Universitas Gadjah Mada yang terletak di Bulaksumur Yogyakarta, yang terdiri dari 3 lantai (tingkat) tanpa *basement*.
2. Analisis portal menggunakan program SAP 2000 secara 3D, terhadap berat sendiri, beban kerja dan beban gempa. Beban gempa yang bekerja adalah yang terjadi di wilayah Yogyakarta (wilayah gempa 3).
3. Dalam perencanaan ulang ini menggunakan metode kekuatan batas (*ultimate strength design method*) yaitu beban kerja dinaikkan dengan memberikan faktor beban sehingga diperoleh suatu beban yang dipakai untuk perencanaan.
4. Perencanaan konstruksi meliputi :
  - a. Perencanaan atap menggunakan metode tegangan kerja (*working stress design method*).
  - b. Perencanaan pelat menggunakan metode koefisien momen dengan menganggap tumpuan tepi jepit elastis sehingga didapat koefisien momen dari tabel 13.3.2 PBI 1971.

- c. Perencanaan portal menggunakan daktilitas penuh dengan nilai  $K = 1$  meliputi balok dan kolom, yang direncanakan berdasarkan SK SNI T-15-1991-03.

## 6.2 Saran

Kesempurnaan dalam perencanaan suatu struktur bangunan memang tidak mudah untuk dicapai. Namun hal itu harus diusahakan semaksimal mungkin agar perencanaan dapat selesai dengan baik dan sesuai dengan aturan dan persyaratan yang berlaku. Oleh karena itu, harus selalu ada usaha untuk menekan dan mengantisipasi segala hambatan yang terjadi diluar perencanaan.

Dengan mempertimbangkan hal – hal tersebut di atas, maka dapat diberikan beberapa saran antara lain :

1. Perlu adanya perhitungan sampai tahap akhir yaitu Rencana Anggaran Biaya (RAB), sehingga penghematan dari segi biaya dapat diketahui dengan jelas.
2. Perlu adanya perhitungan perencanaan ulang untuk Tugas Akhir ini dengan peningkatan spesifikasi bahan yang lain sehingga diketahui sejauh mana efisiensi bahan yang digunakan.
3. Untuk perbandingan pada analisis struktur, perlu adanya perhitungan menggunakan program baru seperti ETABS untuk mengecek desain yang direncanakan sehingga didapatkan perbandingan perencanaan.

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**KARTU PESERTA TUGAS AKHIR**

| NO. | N A M A       | NO. MHS. | BID.STUDI    |
|-----|---------------|----------|--------------|
| 1   | Rizki Maulana | 99511053 | Teknik Sipil |
| 2   | Wawan Wibowo  | 99511397 | Teknik Sipil |

**JUDUL TUGAS AKHIR :**

.....Redesain struktur bangunan hukum UGM.....  
 .....  
 .....

**PERIODE III : MARET - AGUSTUS**  
**TAHUN : 2002 / 2003**

| No. | Kegiatan                   | Bulan Ke : |      |      |      |      |      |
|-----|----------------------------|------------|------|------|------|------|------|
|     |                            | Mar.       | Apr. | Mei. | Jun. | Jul. | Aug. |
| 1.  | Pendaftaran                |            |      |      |      |      |      |
| 2.  | Penentuan Dosen Pembimbing |            |      |      |      |      |      |
| 3.  | Pembuatan Proposal         |            |      |      |      |      |      |
| 4.  | Seminar Proposal           |            |      |      |      |      |      |
| 5.  | Konsultasi Penyusunan TA.  |            |      |      |      |      |      |
| 6.  | Sidang-Sidang              |            |      |      |      |      |      |
| 7.  | Pendadaran.                |            |      |      |      |      |      |

DOSEN PEMBIMBING I  
 DOSEN PEMBIMBING II

Ir. Tri Fajar Budiono, MT.

Ir. Helmy Akbar Bale, MT.



Yogyakarta, 25 April 2003

a.n. Dekan,

Ir. H. Munadhir, MS

(.....)

Seminar

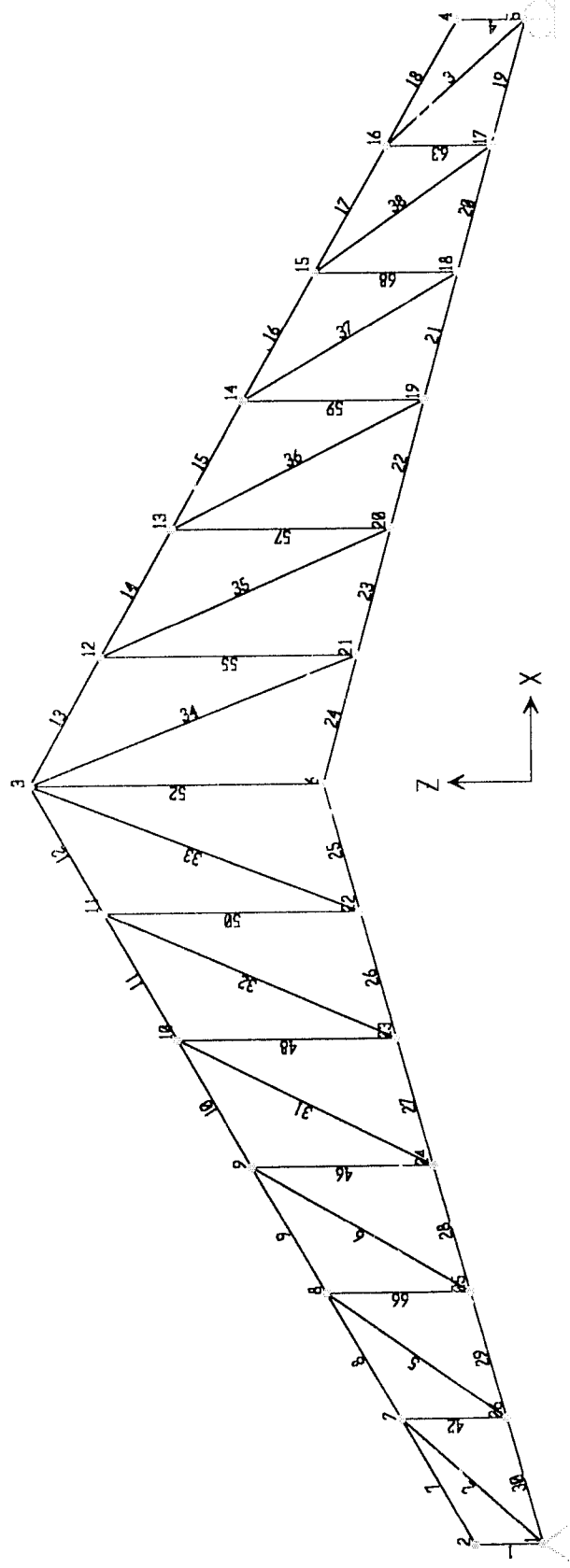
Sidang

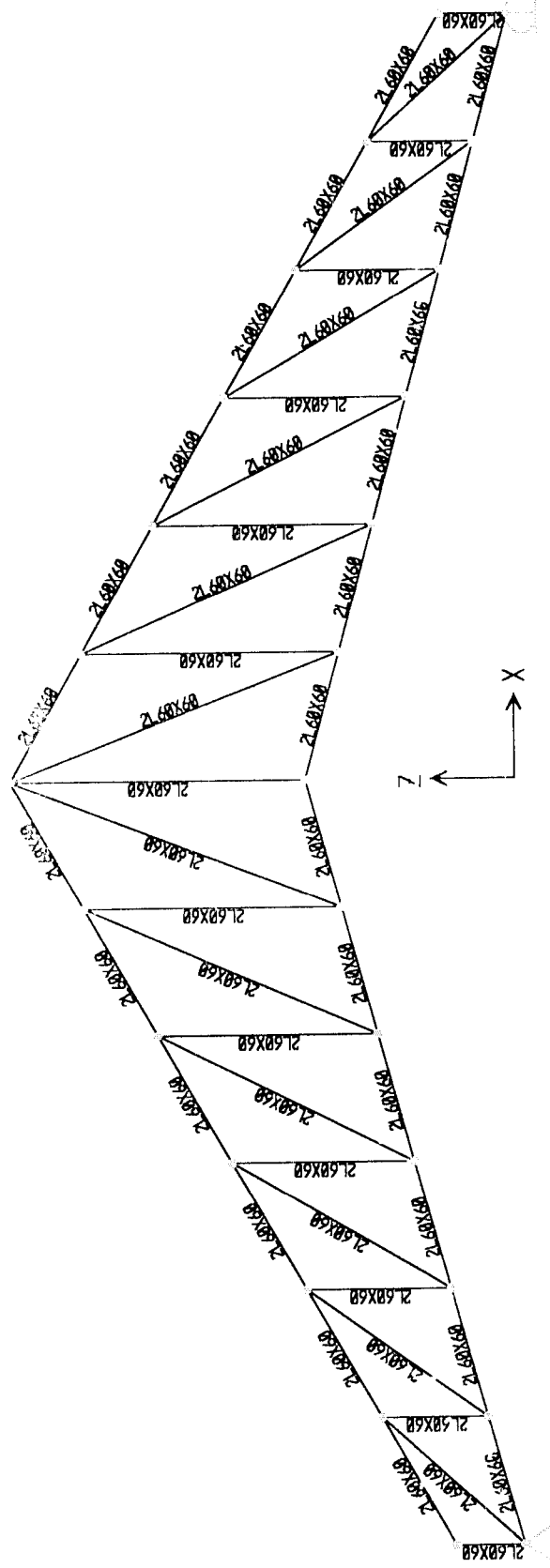
Pendadaran

.....15 OKTOBER 2003.....  
 .....29 OKTOBER 2003.....  
 .....12 DESEMBER 2003.....

# LAMPIRAN

## I







UII DJOGJA

# STATIC LOAD CASES

| STATIC CASE | CASE TYPE | SELF WT FACTOR |
|-------------|-----------|----------------|
| DL          | DEAD      | 0.0000         |
| LL          | LIVE      | 0.0000         |
| WLKA        | WIND      | 0.0000         |
| WLKI        | WIND      | 0.0000         |

UII DJOGJA

# JOINT DATA

| JOINT | RELEASE | RESTRAINT | RESTRAINT | RESTRAINT | RESTRAINT | RESTRAINT | RESTRAINT |
|-------|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1     | 1       | 1         | 1         | 1         | 1         | 1         | 1         |
| 2     | 2       | 2         | 2         | 2         | 2         | 2         | 2         |
| 3     | 3       | 3         | 3         | 3         | 3         | 3         | 3         |
| 4     | 4       | 4         | 4         | 4         | 4         | 4         | 4         |
| 5     | 5       | 5         | 5         | 5         | 5         | 5         | 5         |
| 6     | 6       | 6         | 6         | 6         | 6         | 6         | 6         |
| 7     | 7       | 7         | 7         | 7         | 7         | 7         | 7         |
| 8     | 8       | 8         | 8         | 8         | 8         | 8         | 8         |
| 9     | 9       | 9         | 9         | 9         | 9         | 9         | 9         |
| 10    | 10      | 10        | 10        | 10        | 10        | 10        | 10        |
| 11    | 11      | 11        | 11        | 11        | 11        | 11        | 11        |
| 12    | 12      | 12        | 12        | 12        | 12        | 12        | 12        |
| 13    | 13      | 13        | 13        | 13        | 13        | 13        | 13        |
| 14    | 14      | 14        | 14        | 14        | 14        | 14        | 14        |
| 15    | 15      | 15        | 15        | 15        | 15        | 15        | 15        |
| 16    | 16      | 16        | 16        | 16        | 16        | 16        | 16        |
| 17    | 17      | 17        | 17        | 17        | 17        | 17        | 17        |
| 18    | 18      | 18        | 18        | 18        | 18        | 18        | 18        |
| 19    | 19      | 19        | 19        | 19        | 19        | 19        | 19        |
| 20    | 20      | 20        | 20        | 20        | 20        | 20        | 20        |
| 21    | 21      | 21        | 21        | 21        | 21        | 21        | 21        |
| 22    | 22      | 22        | 22        | 22        | 22        | 22        | 22        |
| 23    | 23      | 23        | 23        | 23        | 23        | 23        | 23        |
| 24    | 24      | 24        | 24        | 24        | 24        | 24        | 24        |

UII DJOGJA

# FRAME ELEMENT DATA

| FRAME | TYPE | SECTION  | AREA  | RELEASES | SPACING | Y1    | Y2    | FACTOR | LENGTH |
|-------|------|----------|-------|----------|---------|-------|-------|--------|--------|
| 1     | 1    | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 2     | 1    | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 3     | 2    | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 4     | 4    | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 5     | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 6     | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 7     | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 8     | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 9     | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 10    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 11    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 12    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 13    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 14    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 15    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 16    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 17    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 18    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 19    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 20    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 21    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 22    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 23    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |
| 24    | 18   | 11000000 | 0.000 | 000000   | 1       | 0.000 | 0.000 | 1.000  | 0.000  |



|         |           |       |       |           |           |           |
|---------|-----------|-------|-------|-----------|-----------|-----------|
| 2L50X50 | 9.500E-04 | 0.000 | 0.000 | 0.000     | 5.000E-04 | 5.000E-04 |
| 2L60X60 | 1.368E-03 | 0.000 | 0.000 | 1.141E-06 | 7.200E-04 | 7.200E-04 |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 8  
10/8/03 0:28:03

UII DJOGJA

# FRAME SECTION PROPERTY DATA

| SECTION LABEL | SECTION MODULI |           | PLASTIC MODULI |           | RADI OF GYRATION |           |
|---------------|----------------|-----------|----------------|-----------|------------------|-----------|
|               | S33            | S22       | Z33            | Z22       | R33              | R22       |
| FSEC1         | 1.250E-02      | 7.500E-03 | 1.875E-02      | 1.125E-02 | 0.144            | 8.660E-02 |
| 2L70X70       | 1.731E-05      | 2.714E-05 | 3.120E-05      | 4.670E-05 | 2.155E-02        | 3.306E-02 |
| 2L50X50       | 6.310E-06      | 1.055E-05 | 1.137E-05      | 1.838E-05 | 1.539E-02        | 2.472E-02 |
| 2L60X60       | 1.090E-05      | 1.756E-05 | 1.965E-05      | 3.038E-05 | 1.847E-02        | 2.889E-02 |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 9  
10/8/03 0:28:04

UII DJOGJA

# FRAME SECTION PROPERTY DATA

| SECTION LABEL | TOTAL WEIGHT | TOTAL MASS |
|---------------|--------------|------------|
| FSEC1         | 0.000        | 0.000      |
| 2L70X70       | 0.000        | 0.000      |
| 2L50X50       | 0.000        | 0.000      |
| 2L60X60       | 1116.982     | 113.809    |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 10  
10/8/03 0:28:04

UII DJOGJA

# SHELL SECTION PROPERTY DATA

| SECTION LABEL | MAT LABEL | SHELL TYPE | MEMBRANE THICK | BENDING THICK | MATERIAL ANGLE |
|---------------|-----------|------------|----------------|---------------|----------------|
| SSEC1         | CONC      | 4          | 1.000E-02      | 1.000E-02     | 0.000          |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 11  
10/8/03 0:28:04

UII DJOGJA

# SHELL SECTION PROPERTY DATA

| SECTION LABEL | TOTAL WEIGHT | TOTAL MASS |
|---------------|--------------|------------|
| SSEC1         | 0.000        | 0.000      |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 12  
10/8/03 0:28:04

UII DJOGJA

# GROUP MASS DATA

| GROUP | M-X   | M-Y   | M-Z   |
|-------|-------|-------|-------|
| ALL   | 1.138 | 1.138 | 1.138 |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 13  
10/8/03 0:28:04

UII DJOGJA

# JOINT FORCES Load Case DL

| JOINT | GLOBAL-X | GLOBAL-Y | GLOBAL-Z | GLOBAL-MX | GLOBAL-MY | GLOBAL-MZ |
|-------|----------|----------|----------|-----------|-----------|-----------|
| 1     | 0.000    | 0.000    | -141.930 | 0.000     | 0.000     | 0.000     |

|    |       |       |          |       |       |       |
|----|-------|-------|----------|-------|-------|-------|
| 1  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 2  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 3  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 4  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 5  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 6  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 7  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 8  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 9  | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 10 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 11 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 12 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 13 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 14 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 15 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 16 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 17 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 18 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 19 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 20 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 21 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 22 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 23 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 24 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 25 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |
| 26 | 0.000 | 0.000 | -111.633 | 0.000 | 0.000 | 0.000 |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 14  
10/8/03 0:28:04

UII DJOGJA

#### JOINT FORCES Load Case LL

| JOINT | GLOBAL-X | GLOBAL-Y | GLOBAL-Z | GLOBAL-XX | GLOBAL-YY | GLOBAL-XY |
|-------|----------|----------|----------|-----------|-----------|-----------|
| 9     | 0.000    | 0.000    | -160.000 | 0.000     | 0.000     | 0.000     |
| 14    | 0.000    | 0.000    | -160.000 | 0.000     | 0.000     | 0.000     |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 15  
10/8/03 0:28:04

UII DJOGJA

#### JOINT FORCES Load Case WLKA

| JOINT | GLOBAL-X | GLOBAL-Y | GLOBAL-Z | GLOBAL-XX | GLOBAL-YY | GLOBAL-XY |
|-------|----------|----------|----------|-----------|-----------|-----------|
| 1     | -14.000  | 0.000    | 11.000   | 0.000     | 0.000     | 0.000     |
| 2     | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 3     | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 4     | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 5     | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 6     | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 7     | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 8     | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 9     | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 10    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 11    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 12    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 13    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 14    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 15    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 16    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 17    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 18    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 19    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 20    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 21    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 22    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 23    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 24    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 25    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |
| 26    | -29.000  | 0.000    | 41.000   | 0.000     | 0.000     | 0.000     |

SAP2000 v7.42 File: KK BAJA Kgf-m Units PAGE 16  
10/8/03 0:28:04

UII DJOGJA

#### JOINT FORCES Load Case WLKI

| JOINT | GLOBAL-X | GLOBAL-Y | GLOBAL-Z | GLOBAL-XX | GLOBAL-YY | GLOBAL-XY |
|-------|----------|----------|----------|-----------|-----------|-----------|
| 9     | 16.161   | 0.000    | -16.161  | 0.000     | 0.000     | 0.000     |
| 14    | 16.161   | 0.000    | -16.161  | 0.000     | 0.000     | 0.000     |
| 1     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 2     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 3     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 4     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 5     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 6     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 7     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 8     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 9     | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 10    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 11    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 12    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 13    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 14    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 15    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 16    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 17    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 18    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 19    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 20    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 21    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 22    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 23    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 24    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 25    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |
| 26    | 11.161   | 0.000    | -11.161  | 0.000     | 0.000     | 0.000     |



















|    |       |         |            |            |      |      |      |            |
|----|-------|---------|------------|------------|------|------|------|------------|
| 12 | C10B4 | 0.00    | -3000.107  | -7.50      | 0.00 | 0.00 | 0.00 | -5.40      |
|    |       | 1.0E-01 | -3000.107  | -7.50      | 0.00 | 0.00 | 0.00 | -1.07      |
|    |       | 1.75    | -3000.107  | -7.50      | 0.00 | 0.00 | 0.00 | -7.60      |
| 13 | C10B5 | 0.00    | -3.34177   | -0.37      | 0.00 | 0.00 | 0.00 | -1.40      |
|    |       | 1.0E-01 | -3.34177   | -0.37      | 0.00 | 0.00 | 0.00 | -1.16      |
|    |       | 1.75    | -3.34177   | -0.37      | 0.00 | 0.00 | 0.00 | -0.97      |
| 17 | C11   | 0.00    | -11.1      | -0.403E-01 | 0.00 | 0.00 | 0.00 | -2.10E-01  |
|    |       | 1.0E-01 | -11.1      | -0.403E-01 | 0.00 | 0.00 | 0.00 | -0.113E-01 |
|    |       | 1.75    | -11.1      | -0.403E-01 | 0.00 | 0.00 | 0.00 | -0.460E-01 |
| 19 | C13B5 | 0.00    | -10.00     | -8.939E-01 | 0.00 | 0.00 | 0.00 | -1.70E-01  |
|    |       | 1.0E-01 | -10.00     | -8.939E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -10.00     | -8.939E-01 | 0.00 | 0.00 | 0.00 | -0.013E-01 |
| 18 | C10B1 | 0.00    | 108.107    | 0.040E-01  | 0.00 | 0.00 | 0.00 | 0.310E-01  |
|    |       | 1.0E-01 | 108.107    | 0.040E-01  | 0.00 | 0.00 | 0.00 | -1.101E-01 |
|    |       | 1.75    | 108.107    | 0.040E-01  | 0.00 | 0.00 | 0.00 | -0.100E-01 |
| 12 | C10B4 | 0.00    | -2797.70   | -10.60     | 0.00 | 0.00 | 0.00 | -10.60     |
|    |       | 1.0E-01 | -2797.70   | -10.60     | 0.00 | 0.00 | 0.00 | -1.47      |
|    |       | 1.75    | -2797.70   | -10.60     | 0.00 | 0.00 | 0.00 | -7.07      |
| 13 | C10B5 | 0.00    | -1918.00   | -7.14      | 0.00 | 0.00 | 0.00 | -0.17      |
|    |       | 1.0E-01 | -1918.00   | -7.14      | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -1918.00   | -7.14      | 0.00 | 0.00 | 0.00 | -0.10      |
| 14 | C10B5 | 0.00    | -1107.10   | -7.97      | 0.00 | 0.00 | 0.00 | -1.00      |
|    |       | 1.0E-01 | -1107.10   | -7.97      | 0.00 | 0.00 | 0.00 | -1.10      |
|    |       | 1.75    | -1107.10   | -7.97      | 0.00 | 0.00 | 0.00 | -0.95      |
| 13 | C10B4 | 0.00    | -2000.507  | -7.50      | 0.00 | 0.00 | 0.00 | -0.60      |
|    |       | 1.0E-01 | -2000.507  | -7.50      | 0.00 | 0.00 | 0.00 | -1.07      |
|    |       | 1.75    | -2000.507  | -7.50      | 0.00 | 0.00 | 0.00 | -1.07      |
| 14 | C11   | 0.00    | -2730.10   | -2.85      | 0.00 | 0.00 | 0.00 | -1.07      |
|    |       | 1.0E-01 | -2730.10   | -2.85      | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -2730.10   | -2.85      | 0.00 | 0.00 | 0.00 | -0.07      |
| 14 | C11   | 0.00    | -1000.07   | -1.077E-01 | 0.00 | 0.00 | 0.00 | -1.10E-01  |
|    |       | 1.0E-01 | -1000.07   | -1.077E-01 | 0.00 | 0.00 | 0.00 | -0.11E-01  |
|    |       | 1.75    | -1000.07   | -1.077E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
| 14 | C13B5 | 0.00    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.110E-01 |
|    |       | 1.0E-01 | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
| 16 | C10B7 | 0.00    | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -1.000E-01 |
|    |       | 1.0E-01 | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -1.000E-01 |
|    |       | 1.75    | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -1.000E-01 |
| 14 | C10B1 | 0.00    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -1.60      |
|    |       | 1.0E-01 | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -1.01      |
|    |       | 1.75    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.07      |
| 14 | C10B4 | 0.00    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -1.00      |
|    |       | 1.0E-01 | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.400E-01 |
|    |       | 1.75    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.70      |
| 13 | C10B5 | 0.00    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -1.17      |
|    |       | 1.0E-01 | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.00      |
| 20 | C13B5 | 0.00    | -1.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.10      |
|    |       | 1.0E-01 | -1.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -1.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.01      |
| 14 | C11   | 0.00    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -1.01      |
|    |       | 1.0E-01 | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.10      |
| 15 | C11   | 0.00    | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -1.000E-01 |
|    |       | 1.0E-01 | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -0.400E-01 |
| 11 | C10B5 | 0.00    | -100.10    | -1.000E-01 | 0.00 | 0.00 | 0.00 | -1.627E-01 |
|    |       | 1.0E-01 | -100.10    | -1.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -100.10    | -1.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
| 11 | C10B5 | 0.00    | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -1.000E-01 |
|    |       | 1.0E-01 | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -1.000E-01 |
|    |       | 1.75    | -1.000E-01 | -1.000E-01 | 0.00 | 0.00 | 0.00 | -1.000E-01 |
| 11 | C10B1 | 0.00    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.0E-01 | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |
|    |       | 1.75    | -0.000E-01 | -0.000E-01 | 0.00 | 0.00 | 0.00 | -0.000E-01 |













|  |  |          |           |           |      |      |      |            |
|--|--|----------|-----------|-----------|------|------|------|------------|
|  |  | 0.00     | -0.00     | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.47       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.23       |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.167E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -1.143E+00 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.001E+00 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.164E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -1.017E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -1.637E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.396E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -1.001E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -1.143E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -1.905E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.90       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.48       |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.07       |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.30       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.00       |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -7.453E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.36       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.15       |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.975E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.40       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.90       |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.975E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.29       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.333E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.66      |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.373E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.773E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.373E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.315E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.343E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.315E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 4.000E+01  |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -1.543E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.315E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 9.14       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.374E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -10.97     |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 0.35       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.002E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.55      |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 6.79       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.364E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.05      |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 6.64       |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.641E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.11      |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.356E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.637E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.15       |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -2.441E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -4.304E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.045E+01  |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 9.058E+01  |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -5.847E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -2.078E+01 |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -7.303E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -6.983E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.611E+01  |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -3.009E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.000E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 1.05       |
|  |  | 0.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -1.801E+01 |
|  |  | 0.00E+00 | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | -0.974E+01 |
|  |  | 1.00     | -0.00E+00 | -0.00E+00 | 0.00 | 0.00 | 0.00 | 9.770E+01  |







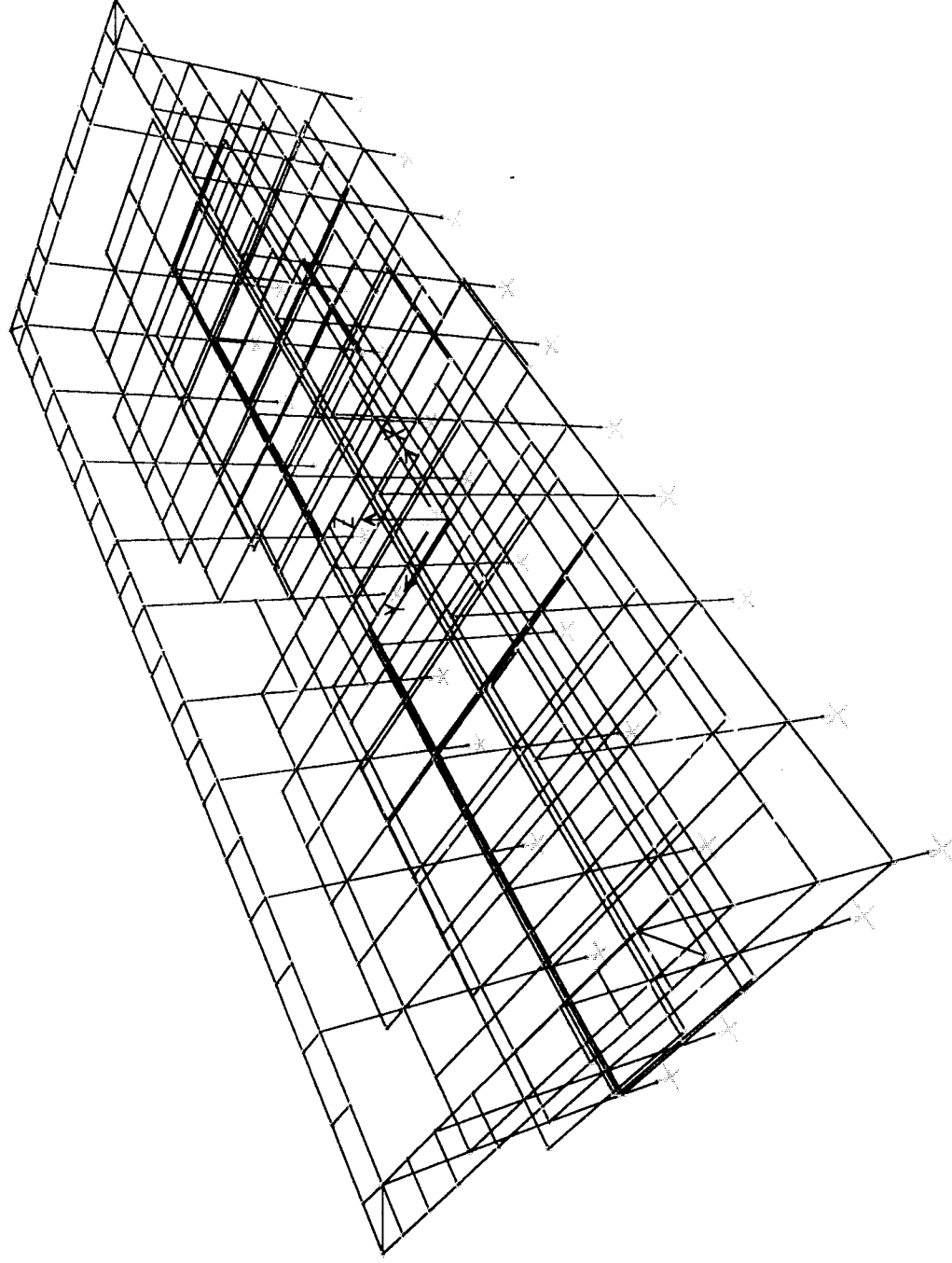


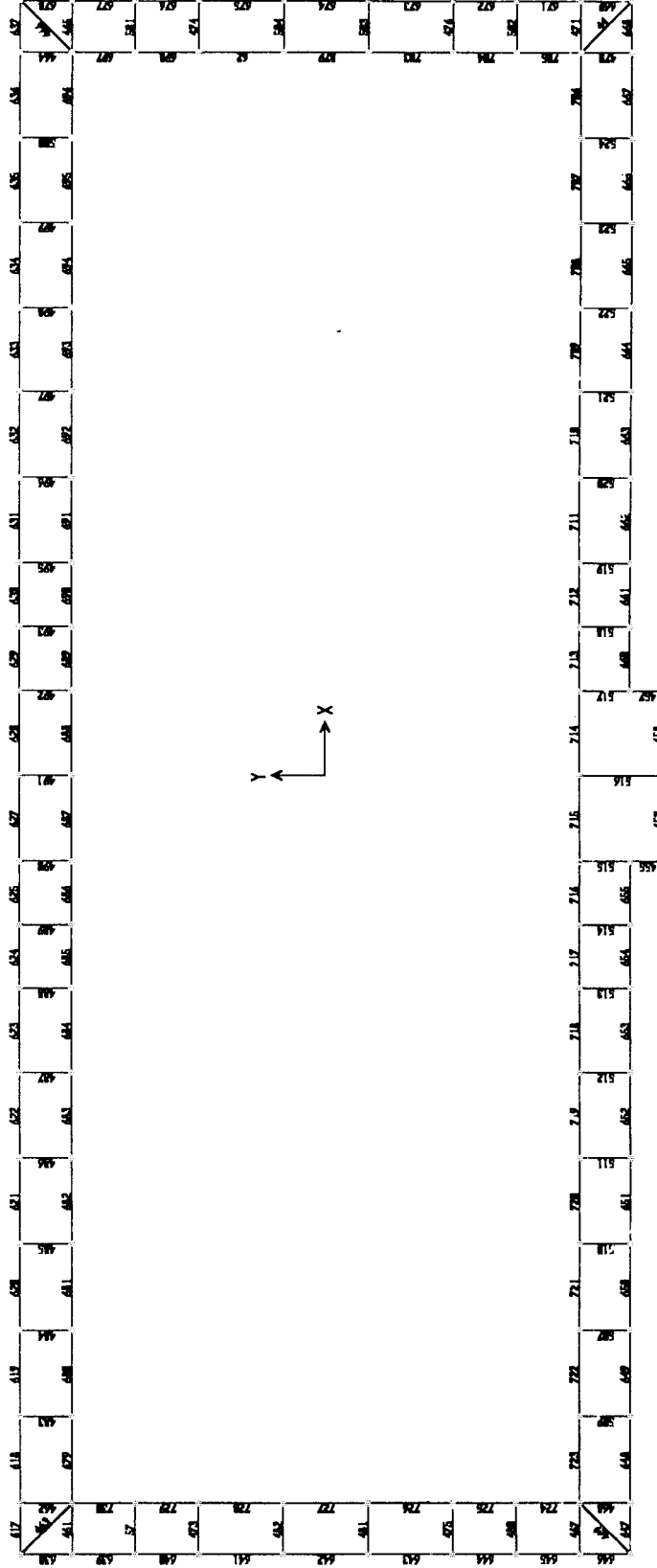


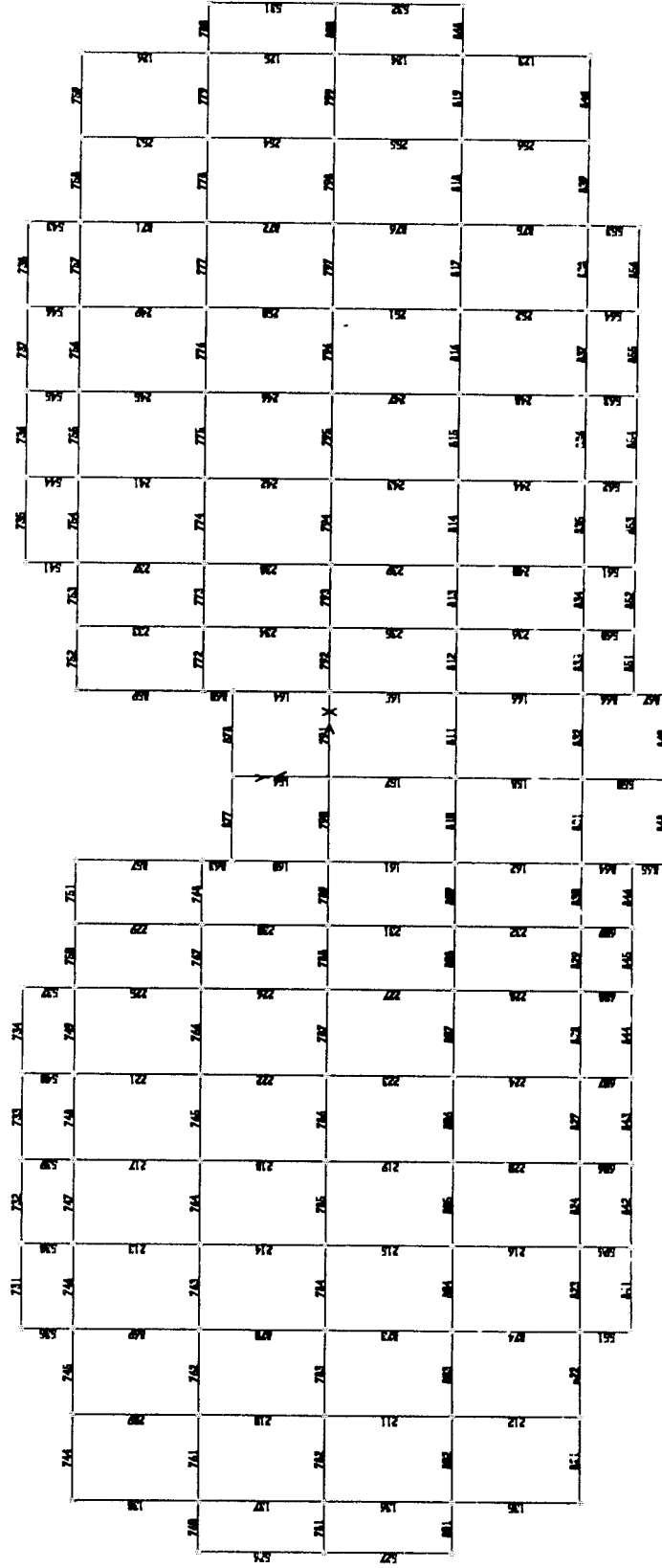


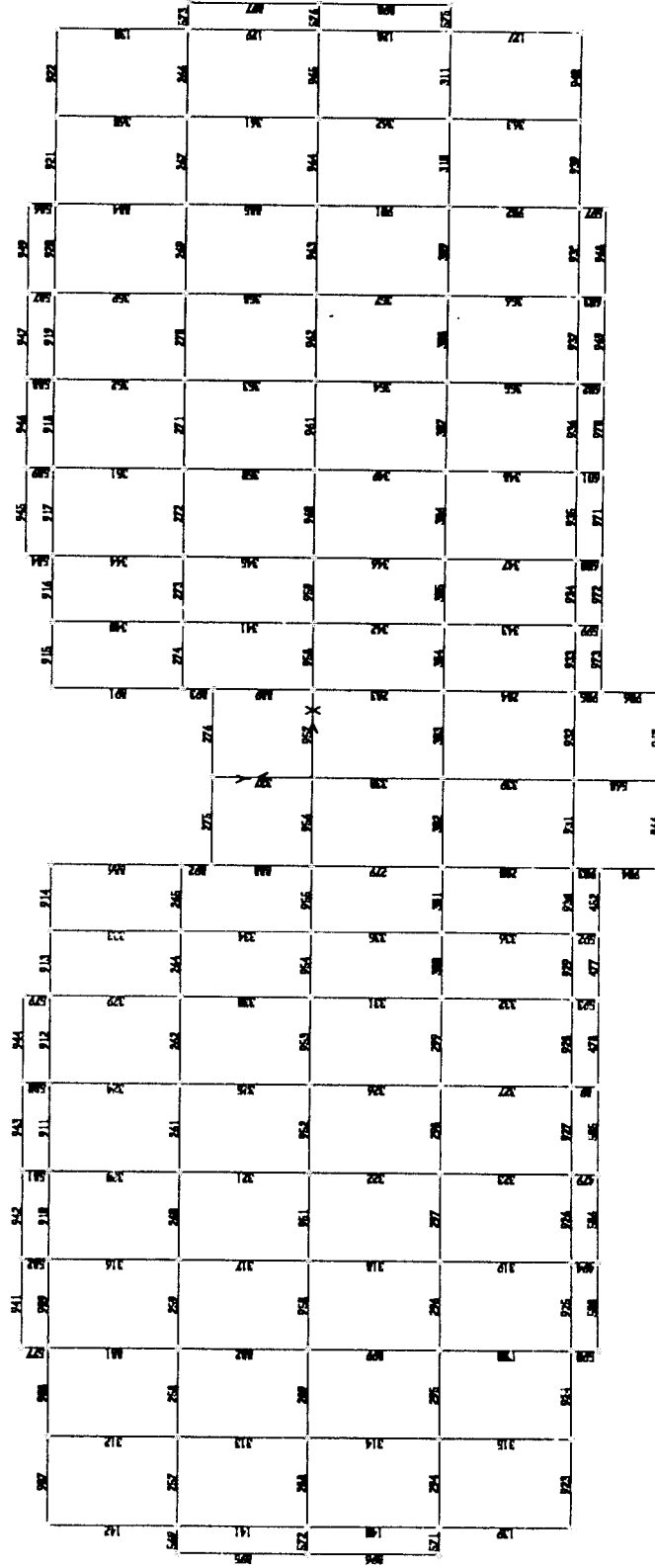


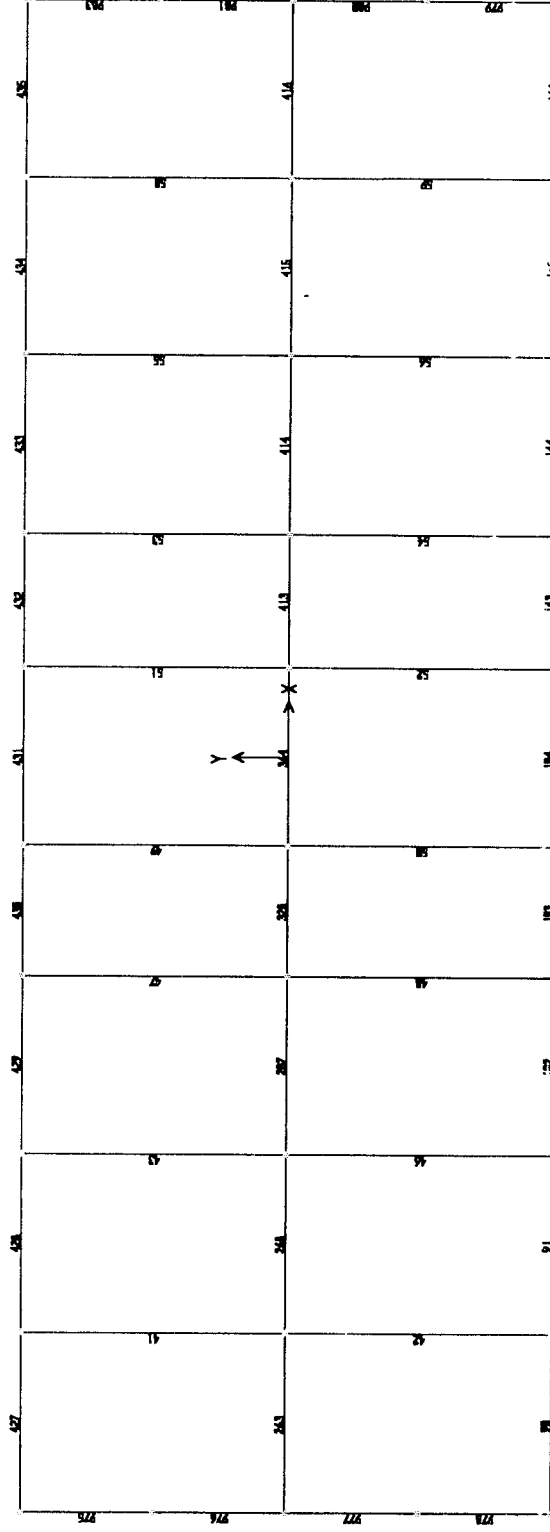
|    |    |         |        |            |      |      |      |            |
|----|----|---------|--------|------------|------|------|------|------------|
| 50 | 50 | 0.00    | 134.10 | -1.65      | 0.00 | 0.00 | 0.00 | -1.00E-01  |
|    |    | 1.70    | 134.10 | -1.65      | 0.00 | 0.00 | 0.00 | 1.10       |
|    |    |         |        |            |      |      |      |            |
| 50 | 50 | 0.00    | 100.00 | -1.58      | 0.00 | 0.00 | 0.00 | -1.10      |
|    |    | 0.5E-01 | 100.00 | -1.58      | 0.00 | 0.00 | 0.00 | -1.13E-01  |
|    |    | 1.70    | 100.00 | -1.58      | 0.00 | 0.00 | 0.00 | 1.10       |
| 50 | 50 | 0.00    | 30.63  | 8.118E-02  | 0.00 | 0.00 | 0.00 | 1.00E-01   |
|    |    | 0.5E-01 | 30.63  | 8.118E-02  | 0.00 | 0.00 | 0.00 | -1.00E-01  |
|    |    | 1.70    | 30.63  | 8.118E-02  | 0.00 | 0.00 | 0.00 | -9.913E-01 |
| 50 | 50 | 0.00    | 60.63  | 1.816E-01  | 0.00 | 0.00 | 0.00 | 1.00E-01   |
|    |    | 0.5E-01 | 60.63  | 1.816E-01  | 0.00 | 0.00 | 0.00 | -1.00E-01  |
|    |    | 1.70    | 60.63  | 1.816E-01  | 0.00 | 0.00 | 0.00 | -1.001E-01 |
| 50 | 50 | 0.00    | -53.66 | -1.960E-01 | 0.00 | 0.00 | 0.00 | -1.00E-01  |
|    |    | 0.5E-01 | -53.66 | -1.960E-01 | 0.00 | 0.00 | 0.00 | -6.936E-01 |
|    |    | 1.70    | -53.66 | -1.960E-01 | 0.00 | 0.00 | 0.00 | 1.100E-01  |
| 60 | 60 | 0.00    | 190.00 | -1.77      | 0.00 | 0.00 | 0.00 | -1.60      |
|    |    | 0.5E-01 | 190.00 | -1.77      | 0.00 | 0.00 | 0.00 | -1.705E-01 |
|    |    | 1.70    | 190.00 | -1.77      | 0.00 | 0.00 | 0.00 | 1.30       |
| 60 | 60 | 0.00    | 190.00 | -1.31      | 0.00 | 0.00 | 0.00 | -1.24      |
|    |    | 0.5E-01 | 190.00 | -1.31      | 0.00 | 0.00 | 0.00 | -1.049E-01 |
|    |    | 1.70    | 190.00 | -1.31      | 0.00 | 0.00 | 0.00 | 9.911E-01  |
| 60 | 60 | 0.00    | 171.46 | -1.54      | 0.00 | 0.00 | 0.00 | -1.11      |
|    |    | 0.5E-01 | 171.46 | -1.54      | 0.00 | 0.00 | 0.00 | -1.030E-01 |
|    |    | 1.70    | 171.46 | -1.54      | 0.00 | 0.00 | 0.00 | 1.10       |
| 60 | 60 | 0.00    | 226.15 | -1.22      | 0.00 | 0.00 | 0.00 | -1.10      |
|    |    | 0.5E-01 | 226.15 | -1.22      | 0.00 | 0.00 | 0.00 | -1.005E-01 |
|    |    | 1.70    | 226.15 | -1.22      | 0.00 | 0.00 | 0.00 | 3.100E-01  |
| 60 | 60 | 0.00    | 200.00 | 1.58       | 0.00 | 0.00 | 0.00 | 1.40       |
|    |    | 0.5E-01 | 200.00 | 1.58       | 0.00 | 0.00 | 0.00 | 1.435E-01  |
|    |    | 1.70    | 200.00 | 1.58       | 0.00 | 0.00 | 0.00 | -1.20      |
| 60 | 60 | 0.00    | 20.63  | -1.118E-01 | 0.00 | 0.00 | 0.00 | -6.00E-01  |
|    |    | 0.5E-01 | 20.63  | -1.118E-01 | 0.00 | 0.00 | 0.00 | -1.00E-01  |
|    |    | 1.70    | 20.63  | -1.118E-01 | 0.00 | 0.00 | 0.00 | -1.00E-01  |
| 60 | 60 | 0.00    | -53.66 | -1.960E-01 | 0.00 | 0.00 | 0.00 | -1.00E-01  |
|    |    | 0.5E-01 | -53.66 | -1.960E-01 | 0.00 | 0.00 | 0.00 | -6.936E-01 |
|    |    | 1.70    | -53.66 | -1.960E-01 | 0.00 | 0.00 | 0.00 | -1.00E-01  |
| 60 | 60 | 0.00    | 60.63  | 1.816E-01  | 0.00 | 0.00 | 0.00 | -2.498E-01 |
|    |    | 0.5E-01 | 60.63  | 1.816E-01  | 0.00 | 0.00 | 0.00 | -1.000E-01 |
|    |    | 1.70    | 60.63  | 1.816E-01  | 0.00 | 0.00 | 0.00 | 2.100E-01  |
| 60 | 60 | 0.00    | 190.00 | 1.31       | 0.00 | 0.00 | 0.00 | 1.60       |
|    |    | 0.5E-01 | 190.00 | 1.31       | 0.00 | 0.00 | 0.00 | 1.765E-01  |
|    |    | 1.70    | 190.00 | 1.31       | 0.00 | 0.00 | 0.00 | -1.30      |
| 60 | 60 | 0.00    | 190.00 | 1.31       | 0.00 | 0.00 | 0.00 | 1.24       |
|    |    | 0.5E-01 | 190.00 | 1.31       | 0.00 | 0.00 | 0.00 | 1.049E-01  |
|    |    | 1.70    | 190.00 | 1.31       | 0.00 | 0.00 | 0.00 | -9.911E-01 |
| 60 | 60 | 0.00    | 171.46 | 1.54       | 0.00 | 0.00 | 0.00 | 1.11       |
|    |    | 0.5E-01 | 171.46 | 1.54       | 0.00 | 0.00 | 0.00 | 1.030E-01  |
|    |    | 1.70    | 171.46 | 1.54       | 0.00 | 0.00 | 0.00 | -1.10      |
| 60 | 60 | 0.00    | 226.15 | 1.22       | 0.00 | 0.00 | 0.00 | 1.10       |
|    |    | 0.5E-01 | 226.15 | 1.22       | 0.00 | 0.00 | 0.00 | 1.005E-01  |
|    |    | 1.70    | 226.15 | 1.22       | 0.00 | 0.00 | 0.00 | -3.100E-01 |

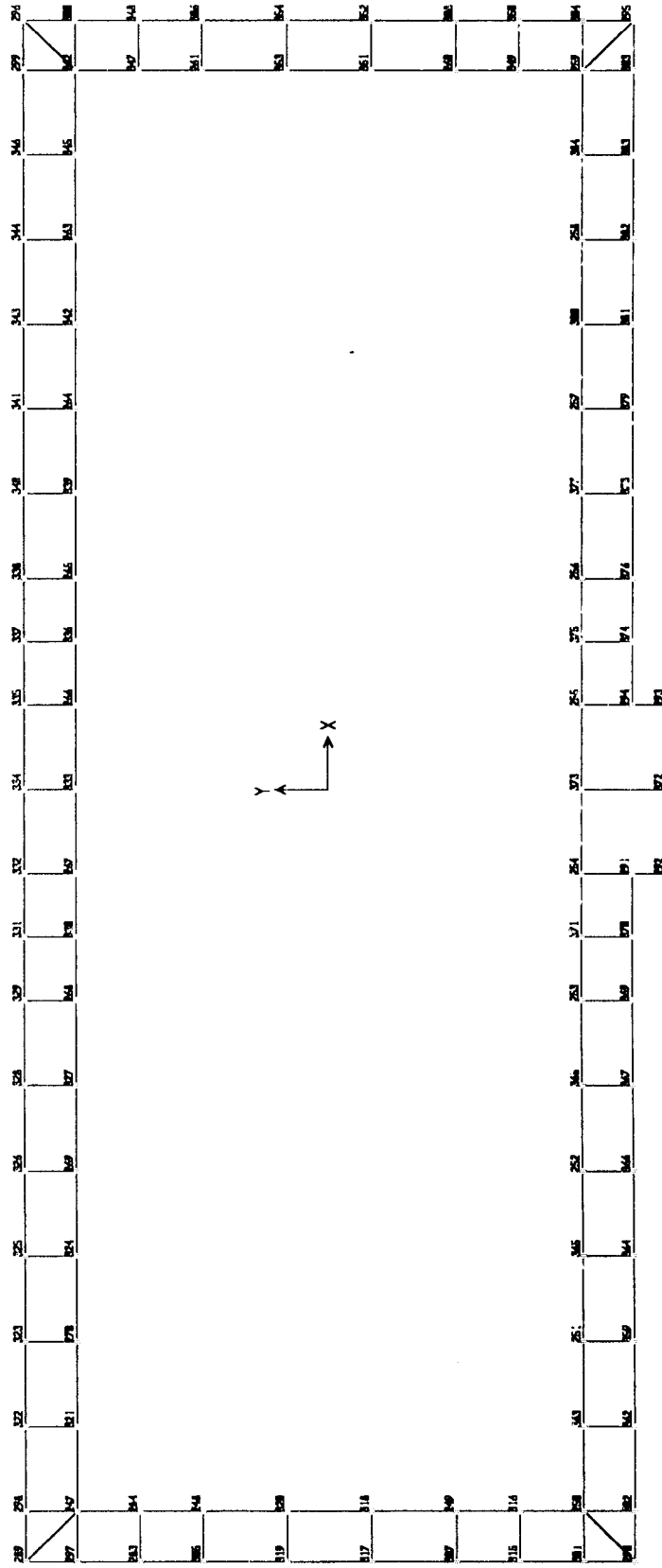




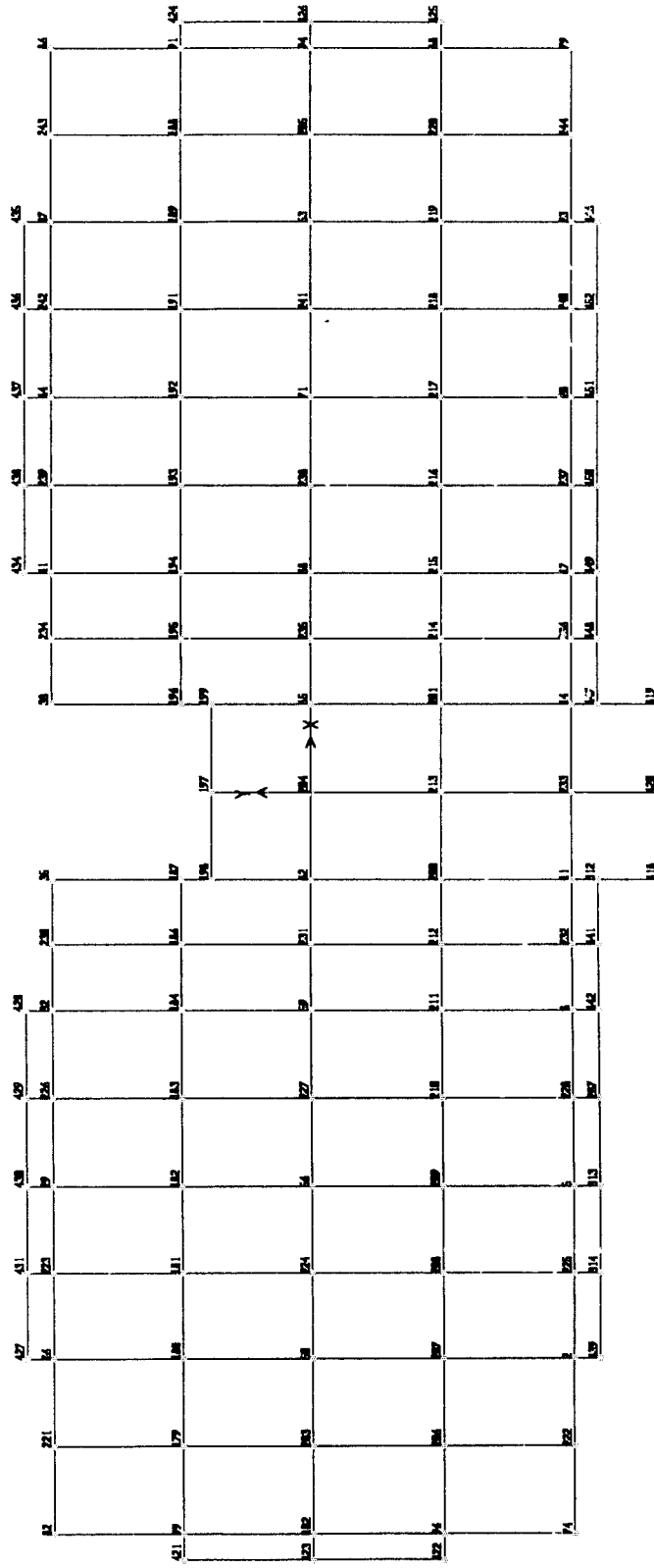


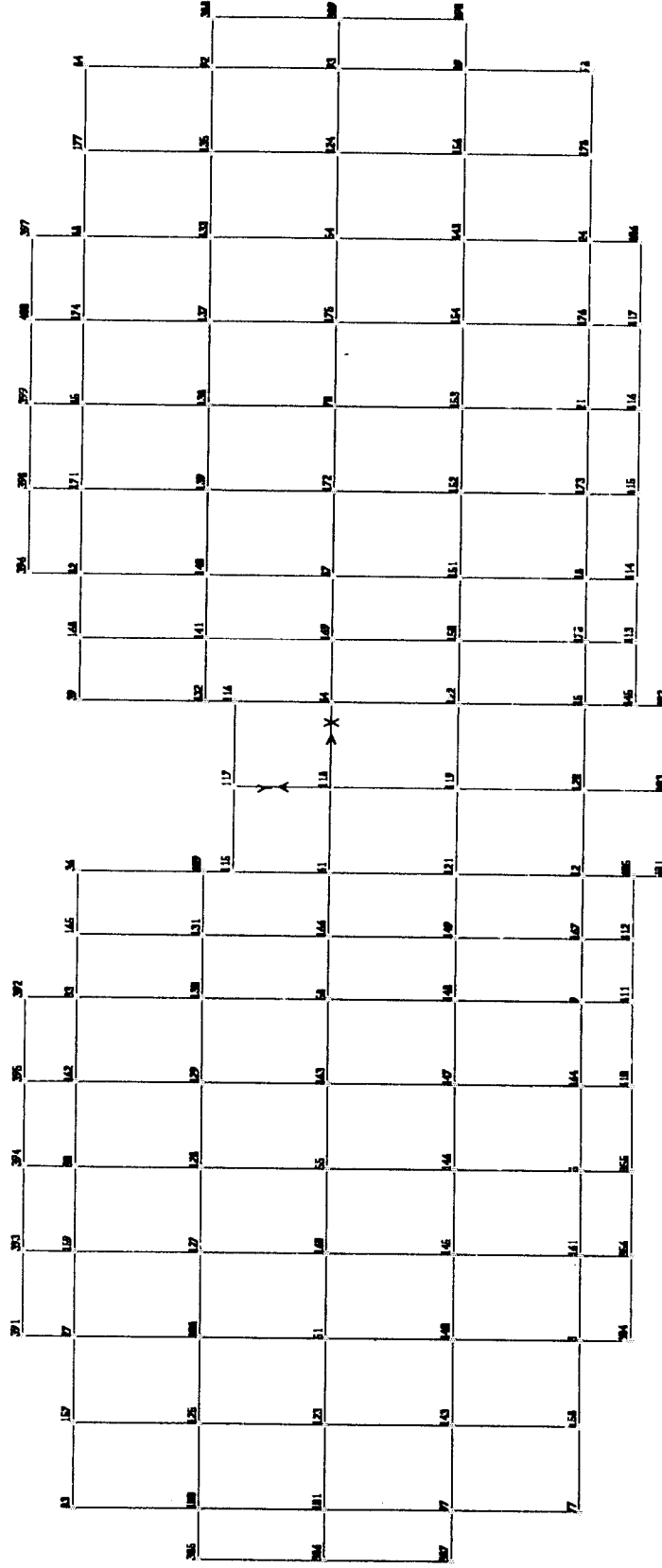


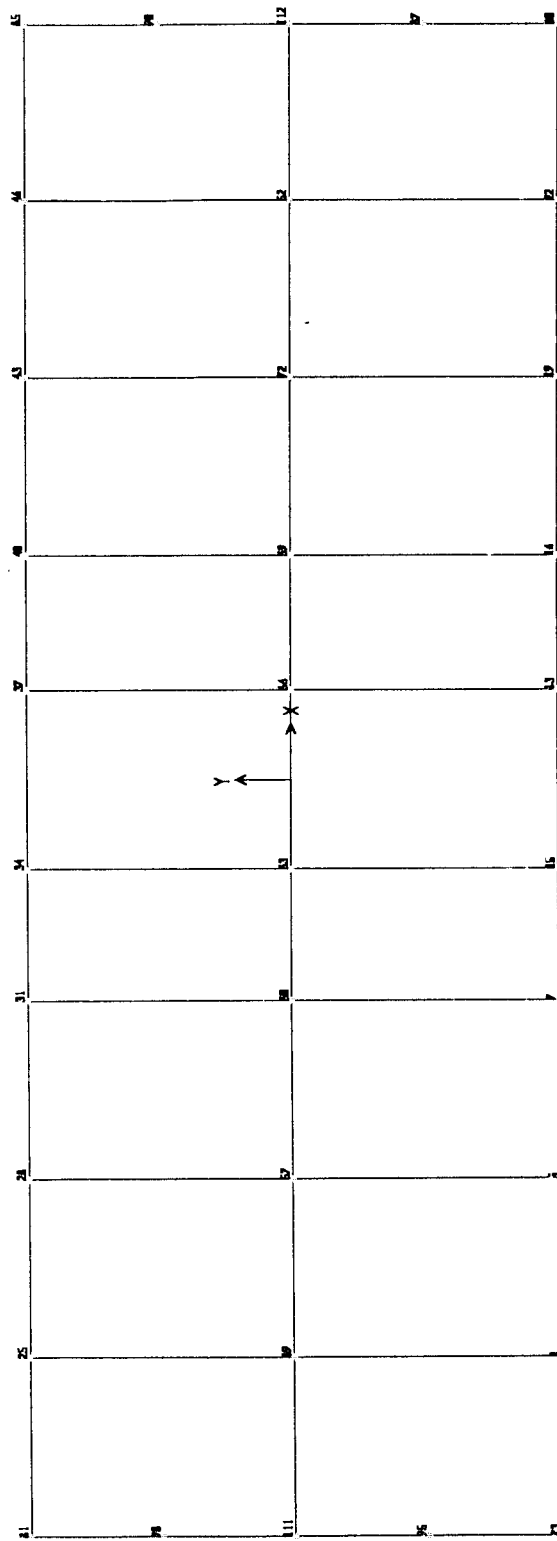


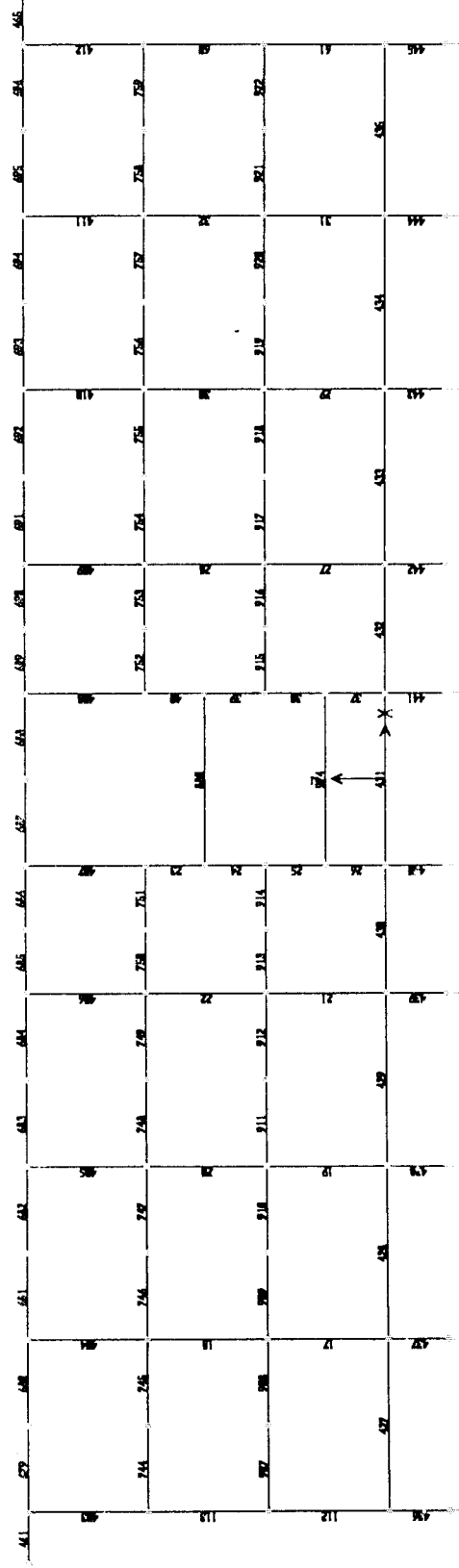


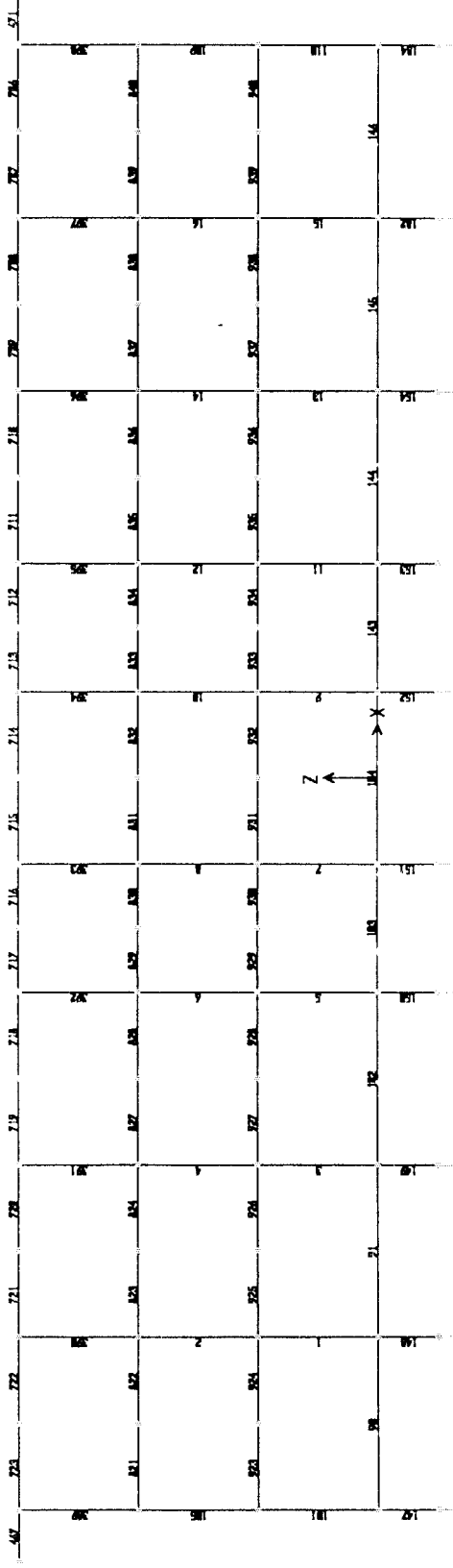


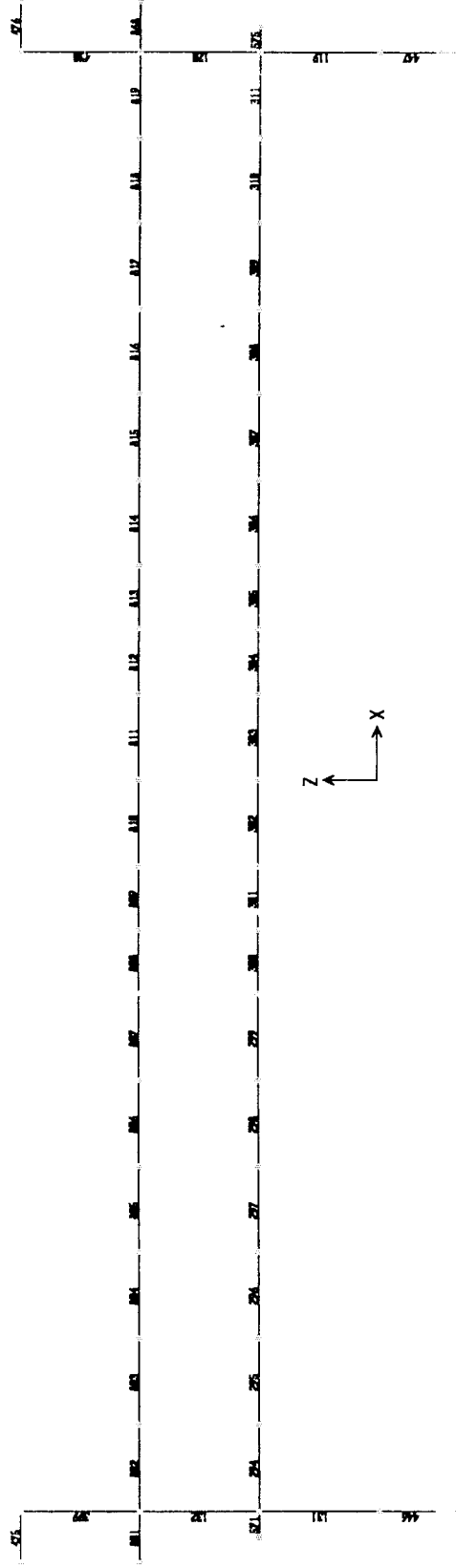


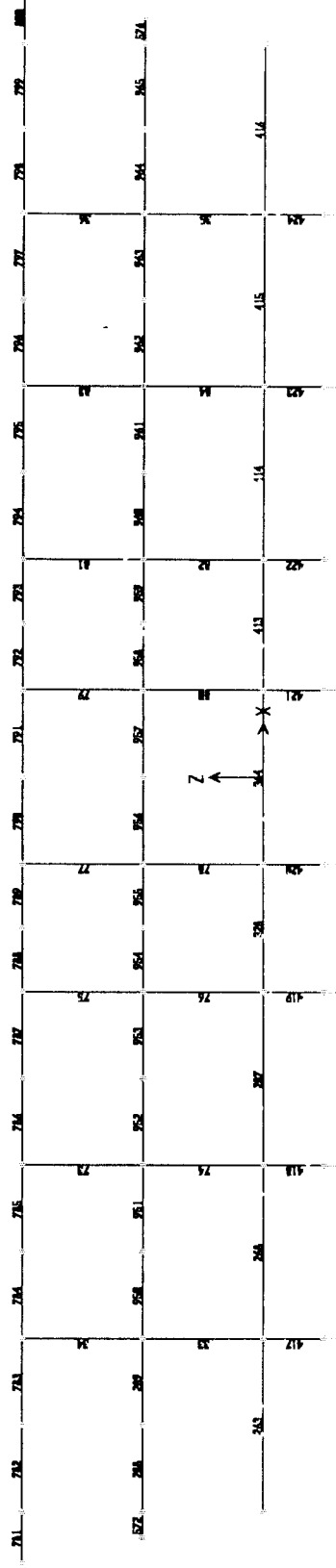


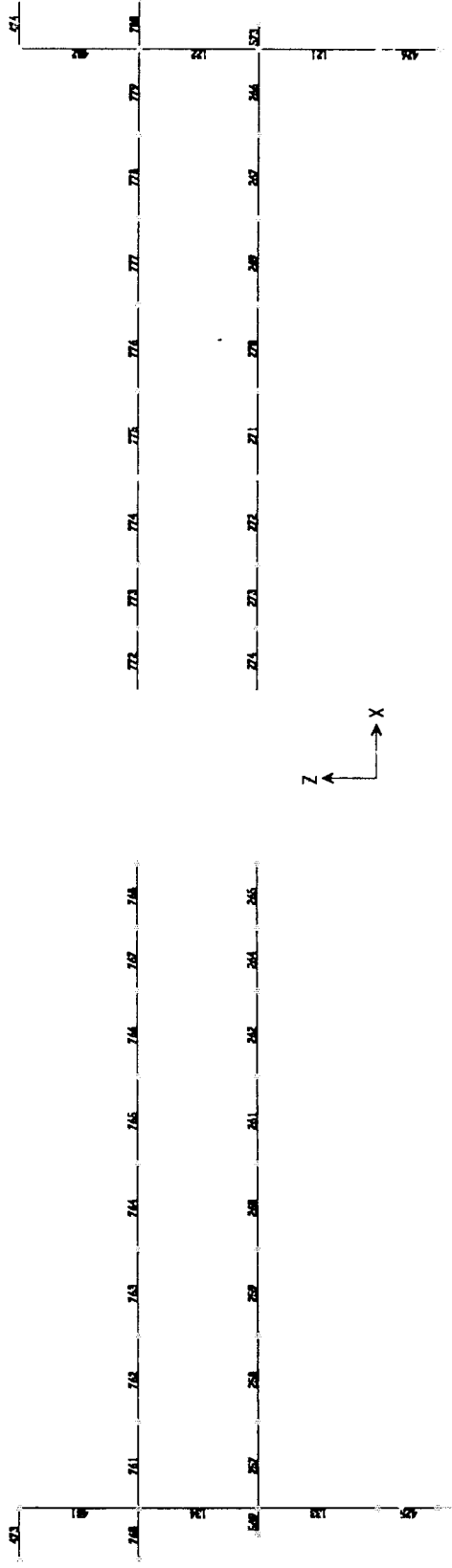














SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 1  
10/8/03 1:34:10

YOGYAKARTA

# STATIC LOAD CASES

| STATIC CASE | CASE TYPE | SELF WT FACTOR |
|-------------|-----------|----------------|
| DL          | DEAD      | 1.0000         |
| LL          | LIVE      | 0.0000         |
| ELKA        | QUAKE     | 0.0000         |
| ELKI        | QUAKE     | 0.0000         |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 2  
10/8/03 1:34:10

YOGYAKARTA

# JOINT DATA

| JOINT | GLOBAL-X  | GLOBAL-Y | GLOBAL-Z | RESTRAINT | ANGLE-A | ANGLE-B | ANGLE-C |
|-------|-----------|----------|----------|-----------|---------|---------|---------|
| 1     | -19.50000 | -9.00000 | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 2     | -19.50000 | -9.00000 | 1.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 3     | -19.50000 | -9.00000 | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 4     | -13.50000 | -9.00000 | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 5     | -13.50000 | -9.00000 | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 6     | -13.50000 | -9.00000 | 7.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 7     | -7.50000  | -9.00000 | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 8     | -7.50000  | -9.00000 | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 9     | -7.50000  | -9.00000 | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 10    | -3.00000  | -9.00000 | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 11    | -3.00000  | -9.00000 | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 12    | -3.00000  | -9.00000 | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 13    | 3.00000   | -9.00000 | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 14    | 3.00000   | -9.00000 | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 15    | 3.00000   | -9.00000 | 7.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 16    | 7.50000   | -9.00000 | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 17    | 7.50000   | -9.00000 | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 18    | 7.50000   | -9.00000 | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 19    | 13.50000  | -9.00000 | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 20    | 13.50000  | -9.00000 | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 21    | 13.50000  | -9.00000 | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 22    | 19.50000  | -9.00000 | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 23    | 19.50000  | -9.00000 | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 24    | 19.50000  | -9.00000 | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 25    | -19.50000 | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 26    | -19.50000 | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 27    | -19.50000 | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 28    | -13.50000 | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 29    | -13.50000 | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 30    | -13.50000 | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 31    | -7.50000  | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 32    | -7.50000  | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 33    | -7.50000  | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 34    | -3.00000  | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 35    | -3.00000  | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 36    | -3.00000  | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 37    | 3.00000   | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 38    | 3.00000   | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 39    | 3.00000   | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 40    | 7.50000   | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 41    | 7.50000   | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 42    | 7.50000   | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 43    | 13.50000  | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 44    | 13.50000  | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 45    | 13.50000  | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 46    | 19.50000  | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 47    | 19.50000  | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 48    | 19.50000  | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 49    | -19.50000 | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 50    | -19.50000 | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 51    | -19.50000 | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 52    | -13.50000 | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 53    | -13.50000 | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 54    | -13.50000 | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 55    | -7.50000  | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 56    | -7.50000  | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 57    | -7.50000  | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 58    | -3.00000  | 9.00000  | 0.00000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 59    | -3.00000  | 9.00000  | 4.20000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |
| 60    | -3.00000  | 9.00000  | 8.40000  | 0 0 0 0 0 | 0.000   | 0.000   | 0.000   |





























|    |     |    |          |       |         |   |       |       |       |       |
|----|-----|----|----------|-------|---------|---|-------|-------|-------|-------|
| 1  | 101 | 1  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 2  | 102 | 2  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 3  | 103 | 3  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 4  | 104 | 4  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 5  | 105 | 5  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 6  | 106 | 6  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 7  | 107 | 7  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 8  | 108 | 8  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 9  | 109 | 9  | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 10 | 110 | 10 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 11 | 111 | 11 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 12 | 112 | 12 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 13 | 113 | 13 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 14 | 114 | 14 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 15 | 115 | 15 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 16 | 116 | 16 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 17 | 117 | 17 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 18 | 118 | 18 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 19 | 119 | 19 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 20 | 120 | 20 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 21 | 121 | 21 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 22 | 122 | 22 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 23 | 123 | 23 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 24 | 124 | 24 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 25 | 125 | 25 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 26 | 126 | 26 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 27 | 127 | 27 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 28 | 128 | 28 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 29 | 129 | 29 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 30 | 130 | 30 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 31 | 131 | 31 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 32 | 132 | 32 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 33 | 133 | 33 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 34 | 134 | 34 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 35 | 135 | 35 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 36 | 136 | 36 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 37 | 137 | 37 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 38 | 138 | 38 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 39 | 139 | 39 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |
| 40 | 140 | 40 | 0.000000 | 0.000 | 0.00000 | 4 | 0.000 | 0.000 | 1.000 | 2.250 |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 4  
10/8/03 1:34:10

YOGYAKARTA

#### M A T E R I A L P R O P E R T Y D A T A

| MAT LABEL | MODULUS OF ELASTICITY | POISSON'S RATIO | THERMAL COEFF | WEIGHT PER UNIT VOL | MASS PER UNIT VOL |
|-----------|-----------------------|-----------------|---------------|---------------------|-------------------|
| STEEL     | 199947977             | 0.300           | 1.170E-05     | 76.819              | 7.827             |
| CONC      | 23500000.0            | 0.200           | 9.900E-06     | 23.560              | 2.401             |
| OTHER     | 24821128.4            | 0.200           | 9.900E-06     | 23.562              | 2.401             |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 5  
10/8/03 1:34:10

YOGYAKARTA

#### M A T E R I A L D E S I G N D A T A

| MAT LABEL | DESIGN CODE | STEEL FY   | CONCRETE FC | REBAR FY   | CONCRETE FCS | REBAR FYS  |
|-----------|-------------|------------|-------------|------------|--------------|------------|
| STEEL     | S           | 248211.289 |             |            |              |            |
| CONC      | C           |            | 25000.000   | 400000.000 | 25000.000    | 230000.000 |
| OTHER     | N           |            |             |            |              |            |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 6  
10/8/03 1:34:10

YOGYAKARTA

#### F R A M E S E C T I O N P R O P E R T Y D A T A

| SECTION LABEL | MAT LABEL | SECTION TYPE | DEPTH | FLANGE WIDTH | FLANGE THICK | WEB THICK | FLANGE WIDTH TOP | FLANGE THICK TOP | FLANGE WIDTH BOTTOM | FLANGE THICK BOTTOM |
|---------------|-----------|--------------|-------|--------------|--------------|-----------|------------------|------------------|---------------------|---------------------|
| R600X600      | CONC      |              | 0.600 | 0.600        | 0.000        | 0.000     | 0.000            | 0.000            | 0.000               | 0.000               |
| R600X600      | CONC      |              | 0.600 | 0.600        | 0.000        | 0.000     | 0.000            | 0.000            | 0.000               | 0.000               |
| R600X600      | CONC      |              | 0.600 | 0.600        | 0.000        | 0.000     | 0.000            | 0.000            | 0.000               | 0.000               |
| R600X600      | CONC      |              | 0.600 | 0.600        | 0.000        | 0.000     | 0.000            | 0.000            | 0.000               | 0.000               |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 7  
10/8/03 1:34:10

YOGYAKARTA

#### F R A M E S E C T I O N P R O P E R T Y D A T A

| SECTION LABEL | AREA | TORSIONAL INERTIA | MOMENTS OF INERTIA I33 | MOMENTS OF INERTIA I22 | SHEAR AREAS A2 | SHEAR AREAS A3 |
|---------------|------|-------------------|------------------------|------------------------|----------------|----------------|
|---------------|------|-------------------|------------------------|------------------------|----------------|----------------|

|          |           |           |           |           |           |           |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| K600X600 | 0.300     | 1.825E-02 | 1.080E-02 | 1.080E-02 | 0.300     | 0.300     |
| B400X600 | 0.240     | 7.512E-03 | 7.200E-03 | 3.200E-03 | 0.200     | 0.200     |
| B200X400 | 3.000E-02 | 7.324E-04 | 1.067E-03 | 2.667E-04 | 6.667E-03 | 6.667E-02 |
| S250X500 | 0.125     | 1.788E-03 | 2.604E-03 | 6.510E-04 | 0.104     | 0.104     |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 8  
10/8/03 1:34:10

YOGYAKARTA

# FRAME SECTION PROPERTY DATA

| SECTION LABEL | SECTION MODULII S33 | SECTION MODULII S22 | PLASTIC MODULII Y33 | PLASTIC MODULII Z22 | RADII OF GYRATION R33 | RADII OF GYRATION R22 |
|---------------|---------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|
| K600X600      | 3.600E-02           | 3.600E-02           | 5.400E-02           | 5.400E-02           | 0.173                 | 0.173                 |
| B400X600      | 2.400E-02           | 1.600E-02           | 3.600E-02           | 2.400E-02           | 0.173                 | 0.115                 |
| B200X400      | 5.333E-03           | 2.667E-03           | 8.000E-03           | 4.000E-03           | 0.115                 | 5.774E-02             |
| S250X500      | 1.042E-02           | 5.208E-03           | 1.563E-02           | 7.813E-03           | 0.144                 | 7.217E-02             |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 9  
10/8/03 1:34:10

YOGYAKARTA

# FRAME SECTION PROPERTY DATA

| SECTION LABEL | TOTAL WEIGHT | TOTAL MASS |
|---------------|--------------|------------|
| K600X600      | 3704.763     | 377.552    |
| B400X600      | 5458.758     | 556.302    |
| B200X400      | 1648.224     | 167.971    |
| S250X500      | 980.685      | 99.942     |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 10  
10/8/03 1:34:10

YOGYAKARTA

# SHELL SECTION PROPERTY DATA

| SECTION LABEL | MAT LABEL | SHELL TYPE | MEMBRANE THICK | BENDING THICK | MATERIAL ANGLE |
|---------------|-----------|------------|----------------|---------------|----------------|
| SSEC1         | CONC      | 4          | 1.000          | 1.000         | 0.000          |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 11  
10/8/03 1:34:10

YOGYAKARTA

# SHELL SECTION PROPERTY DATA

| SECTION LABEL | TOTAL WEIGHT | TOTAL MASS |
|---------------|--------------|------------|
| SSEC1         | 0.000        | 0.000      |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 12  
10/8/03 1:34:10

YOGYAKARTA

# JOINT FORCES Load Case DL

| JOINT | GLOBAL-XX | GLOBAL-YY | GLOBAL-XZ | GLOBAL-XX | GLOBAL-YY | GLOBAL-XZ |
|-------|-----------|-----------|-----------|-----------|-----------|-----------|
| 100   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |
| 200   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |
| 300   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |
| 400   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |
| 500   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |
| 600   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |
| 700   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |
| 800   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |
| 900   | 0.000     | 0.000     | -0.1001   | 0.000     | 0.000     | 0.000     |







SAP2000 v7.42 File: PORTAL 3D KH-m Units PAGE 16  
10/8/03 1:34:11

| FRAME | SPAN | DISTRIBUTED LOADS | Load Case | EL |
|-------|------|-------------------|-----------|----|
| 1     | 10   | 1.0               | 1         | 1  |
| 2     | 10   | 1.0               | 1         | 2  |
| 3     | 10   | 1.0               | 1         | 3  |
| 4     | 10   | 1.0               | 1         | 4  |
| 5     | 10   | 1.0               | 1         | 5  |
| 6     | 10   | 1.0               | 1         | 6  |
| 7     | 10   | 1.0               | 1         | 7  |
| 8     | 10   | 1.0               | 1         | 8  |
| 9     | 10   | 1.0               | 1         | 9  |
| 10    | 10   | 1.0               | 1         | 10 |
| 11    | 10   | 1.0               | 1         | 11 |
| 12    | 10   | 1.0               | 1         | 12 |
| 13    | 10   | 1.0               | 1         | 13 |
| 14    | 10   | 1.0               | 1         | 14 |
| 15    | 10   | 1.0               | 1         | 15 |
| 16    | 10   | 1.0               | 1         | 16 |
| 17    | 10   | 1.0               | 1         | 17 |
| 18    | 10   | 1.0               | 1         | 18 |
| 19    | 10   | 1.0               | 1         | 19 |
| 20    | 10   | 1.0               | 1         | 20 |
| 21    | 10   | 1.0               | 1         | 21 |
| 22    | 10   | 1.0               | 1         | 22 |
| 23    | 10   | 1.0               | 1         | 23 |
| 24    | 10   | 1.0               | 1         | 24 |
| 25    | 10   | 1.0               | 1         | 25 |
| 26    | 10   | 1.0               | 1         | 26 |
| 27    | 10   | 1.0               | 1         | 27 |
| 28    | 10   | 1.0               | 1         | 28 |
| 29    | 10   | 1.0               | 1         | 29 |
| 30    | 10   | 1.0               | 1         | 30 |
| 31    | 10   | 1.0               | 1         | 31 |
| 32    | 10   | 1.0               | 1         | 32 |
| 33    | 10   | 1.0               | 1         | 33 |
| 34    | 10   | 1.0               | 1         | 34 |
| 35    | 10   | 1.0               | 1         | 35 |
| 36    | 10   | 1.0               | 1         | 36 |
| 37    | 10   | 1.0               | 1         | 37 |
| 38    | 10   | 1.0               | 1         | 38 |
| 39    | 10   | 1.0               | 1         | 39 |
| 40    | 10   | 1.0               | 1         | 40 |
| 41    | 10   | 1.0               | 1         | 41 |
| 42    | 10   | 1.0               | 1         | 42 |
| 43    | 10   | 1.0               | 1         | 43 |
| 44    | 10   | 1.0               | 1         | 44 |
| 45    | 10   | 1.0               | 1         | 45 |
| 46    | 10   | 1.0               | 1         | 46 |
| 47    | 10   | 1.0               | 1         | 47 |
| 48    | 10   | 1.0               | 1         | 48 |
| 49    | 10   | 1.0               | 1         | 49 |
| 50    | 10   | 1.0               | 1         | 50 |
| 51    | 10   | 1.0               | 1         | 51 |
| 52    | 10   | 1.0               | 1         | 52 |
| 53    | 10   | 1.0               | 1         | 53 |
| 54    | 10   | 1.0               | 1         | 54 |
| 55    | 10   | 1.0               | 1         | 55 |
| 56    | 10   | 1.0               | 1         | 56 |
| 57    | 10   | 1.0               | 1         | 57 |
| 58    | 10   | 1.0               | 1         | 58 |
| 59    | 10   | 1.0               | 1         | 59 |
| 60    | 10   | 1.0               | 1         | 60 |
| 61    | 10   | 1.0               | 1         | 61 |
| 62    | 10   | 1.0               | 1         | 62 |
| 63    | 10   | 1.0               | 1         | 63 |
| 64    | 10   | 1.0               | 1         | 64 |
| 65    | 10   | 1.0               | 1         | 65 |
| 66    | 10   | 1.0               | 1         | 66 |
| 67    | 10   | 1.0               | 1         | 67 |
| 68    | 10   | 1.0               | 1         | 68 |
| 69    | 10   | 1.0               | 1         | 69 |
| 70    | 10   | 1.0               | 1         | 70 |
| 71    | 10   | 1.0               | 1         | 71 |
| 72    | 10   | 1.0               | 1         | 72 |
| 73    | 10   | 1.0               | 1         | 73 |
| 74    | 10   | 1.0               | 1         | 74 |
| 75    | 10   | 1.0               | 1         | 75 |
| 76    | 10   | 1.0               | 1         | 76 |
| 77    | 10   | 1.0               | 1         | 77 |
| 78    | 10   | 1.0               | 1         | 78 |
| 79    | 10   | 1.0               | 1         | 79 |
| 80    | 10   | 1.0               | 1         | 80 |
| 81    | 10   | 1.0               | 1         | 81 |
| 82    | 10   | 1.0               | 1         | 82 |
| 83    | 10   | 1.0               | 1         | 83 |
| 84    | 10   | 1.0               | 1         | 84 |
| 85    | 10   | 1.0               | 1         | 85 |
| 86    | 10   | 1.0               | 1         | 86 |
| 87    |      |                   |           |    |







































|     |       |           |        |         |        |         |
|-----|-------|-----------|--------|---------|--------|---------|
| 901 | FORCE | GLOBAL=1  | 0.0000 | -1.0000 | 1.0000 | 0.0000  |
| 902 | FORCE | GLOBAL=2  | 0.0000 | -0.0000 | 0.1000 | -1.0000 |
| 903 | FORCE | GLOBAL=3  | 0.0000 | -1.0000 | 1.0000 | 0.0000  |
| 904 | FORCE | GLOBAL=4  | 0.0000 | -0.0000 | 0.1000 | -1.0000 |
| 905 | FORCE | GLOBAL=5  | 0.0000 | -0.0000 | 1.0000 | 0.0000  |
| 906 | FORCE | GLOBAL=6  | 0.0000 | -0.0000 | 0.1000 | -1.0000 |
| 907 | FORCE | GLOBAL=7  | 0.0000 | -1.0000 | 1.0000 | 0.0000  |
| 908 | FORCE | GLOBAL=8  | 0.0000 | -0.0000 | 0.1000 | -1.0000 |
| 909 | FORCE | GLOBAL=9  | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 910 | FORCE | GLOBAL=10 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 911 | FORCE | GLOBAL=11 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 912 | FORCE | GLOBAL=12 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 913 | FORCE | GLOBAL=13 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 914 | FORCE | GLOBAL=14 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 915 | FORCE | GLOBAL=15 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 916 | FORCE | GLOBAL=16 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 917 | FORCE | GLOBAL=17 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 918 | FORCE | GLOBAL=18 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 919 | FORCE | GLOBAL=19 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 920 | FORCE | GLOBAL=20 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 921 | FORCE | GLOBAL=21 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 922 | FORCE | GLOBAL=22 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 923 | FORCE | GLOBAL=23 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 924 | FORCE | GLOBAL=24 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 925 | FORCE | GLOBAL=25 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 926 | FORCE | GLOBAL=26 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 927 | FORCE | GLOBAL=27 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 928 | FORCE | GLOBAL=28 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 929 | FORCE | GLOBAL=29 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 930 | FORCE | GLOBAL=30 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 931 | FORCE | GLOBAL=31 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 932 | FORCE | GLOBAL=32 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 933 | FORCE | GLOBAL=33 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 934 | FORCE | GLOBAL=34 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 935 | FORCE | GLOBAL=35 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 936 | FORCE | GLOBAL=36 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 937 | FORCE | GLOBAL=37 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 938 | FORCE | GLOBAL=38 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 939 | FORCE | GLOBAL=39 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 940 | FORCE | GLOBAL=40 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 941 | FORCE | GLOBAL=41 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 942 | FORCE | GLOBAL=42 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 943 | FORCE | GLOBAL=43 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 944 | FORCE | GLOBAL=44 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 945 | FORCE | GLOBAL=45 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 946 | FORCE | GLOBAL=46 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 947 | FORCE | GLOBAL=47 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 948 | FORCE | GLOBAL=48 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 949 | FORCE | GLOBAL=49 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 950 | FORCE | GLOBAL=50 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 951 | FORCE | GLOBAL=51 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 952 | FORCE | GLOBAL=52 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 953 | FORCE | GLOBAL=53 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 954 | FORCE | GLOBAL=54 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 955 | FORCE | GLOBAL=55 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 956 | FORCE | GLOBAL=56 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 957 | FORCE | GLOBAL=57 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 958 | FORCE | GLOBAL=58 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |
| 959 | FORCE | GLOBAL=59 | 0.0000 | -1.0000 | 0.0000 | -1.0000 |
| 960 | FORCE | GLOBAL=60 | 0.0000 | -0.0000 | 0.0000 | -1.0000 |











YOGYAKARTA

| FRAME | TYPE  | DIRECTION | DISTANCE | VALUE    |
|-------|-------|-----------|----------|----------|
| 670   | FORCE | GLOBAL-Z  | 0.3333   | -31.3010 |
| 710   | FORCE | GLOBAL-Z  | 0.3333   | -31.3010 |
| 670   | FORCE | GLOBAL-Y  | 0.6667   | -31.3010 |
| 710   | FORCE | GLOBAL-Y  | 0.6667   | -31.3010 |
| 670   | FORCE | GLOBAL-X  | 0.3333   | -31.3010 |
| 680   | FORCE | GLOBAL-Z  | 0.3333   | -31.3010 |
| 710   | FORCE | GLOBAL-Z  | 0.3333   | -31.3010 |
| 710   | FORCE | GLOBAL-X  | 0.3333   | -31.3010 |
| 700   | FORCE | GLOBAL-Z  | 0.3333   | -0.3395  |
| 720   | FORCE | GLOBAL-Y  | 0.3333   | -0.3395  |
| 710   | FORCE | GLOBAL-X  | 0.3333   | -0.3395  |
| 670   | FORCE | GLOBAL-Z  | 0.3333   | -0.3395  |
| 670   | FORCE | GLOBAL-X  | 0.3333   | -0.3395  |
| 720   | FORCE | GLOBAL-Z  | 0.3333   | -0.3395  |
| 700   | FORCE | GLOBAL-X  | 0.3333   | -0.3395  |
| 720   | FORCE | GLOBAL-Y  | 0.6667   | -0.3395  |

YOGYAKARTA

[illegible]

[illegible]























[illegible]



|     |       |            |        |         |        |         |
|-----|-------|------------|--------|---------|--------|---------|
| 70  | FORCE | GLOBAL-1   | 0.3333 | -7.3550 | 0.6667 | -7.3550 |
| 71  | FORCE | GLOBAL-2   | 0.6667 | -7.3550 | 1.0000 | 0.0000  |
| 72  | FORCE | GLOBAL-3   | 0.0000 | 0.0000  | 0.3333 | -7.3550 |
| 73  | FORCE | GLOBAL-4   | 0.3333 | -7.3550 | 0.6667 | -7.3550 |
| 74  | FORCE | GLOBAL-5   | 0.6667 | -7.3550 | 1.0000 | 0.0000  |
| 75  | FORCE | GLOBAL-6   | 0.0000 | 0.0000  | 0.3333 | -7.3550 |
| 76  | FORCE | GLOBAL-7   | 0.3333 | -7.3550 | 0.6667 | -7.3550 |
| 77  | FORCE | GLOBAL-8   | 0.6667 | -7.3550 | 1.0000 | 0.0000  |
| 78  | FORCE | GLOBAL-9   | 0.0000 | 0.0000  | 0.3333 | -7.3550 |
| 79  | FORCE | GLOBAL-10  | 0.3333 | -7.3550 | 0.6667 | -7.3550 |
| 80  | FORCE | GLOBAL-11  | 0.6667 | -7.3550 | 1.0000 | 0.0000  |
| 81  | FORCE | GLOBAL-12  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 82  | FORCE | GLOBAL-13  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 83  | FORCE | GLOBAL-14  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 84  | FORCE | GLOBAL-15  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 85  | FORCE | GLOBAL-16  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 86  | FORCE | GLOBAL-17  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 87  | FORCE | GLOBAL-18  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 88  | FORCE | GLOBAL-19  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 89  | FORCE | GLOBAL-20  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 90  | FORCE | GLOBAL-21  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 91  | FORCE | GLOBAL-22  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 92  | FORCE | GLOBAL-23  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 93  | FORCE | GLOBAL-24  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 94  | FORCE | GLOBAL-25  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 95  | FORCE | GLOBAL-26  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 96  | FORCE | GLOBAL-27  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 97  | FORCE | GLOBAL-28  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 98  | FORCE | GLOBAL-29  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 99  | FORCE | GLOBAL-30  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 100 | FORCE | GLOBAL-31  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 101 | FORCE | GLOBAL-32  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 102 | FORCE | GLOBAL-33  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 103 | FORCE | GLOBAL-34  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 104 | FORCE | GLOBAL-35  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 105 | FORCE | GLOBAL-36  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 106 | FORCE | GLOBAL-37  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 107 | FORCE | GLOBAL-38  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 108 | FORCE | GLOBAL-39  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 109 | FORCE | GLOBAL-40  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 110 | FORCE | GLOBAL-41  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 111 | FORCE | GLOBAL-42  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 112 | FORCE | GLOBAL-43  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 113 | FORCE | GLOBAL-44  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 114 | FORCE | GLOBAL-45  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 115 | FORCE | GLOBAL-46  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 116 | FORCE | GLOBAL-47  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 117 | FORCE | GLOBAL-48  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 118 | FORCE | GLOBAL-49  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 119 | FORCE | GLOBAL-50  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 120 | FORCE | GLOBAL-51  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 121 | FORCE | GLOBAL-52  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 122 | FORCE | GLOBAL-53  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 123 | FORCE | GLOBAL-54  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 124 | FORCE | GLOBAL-55  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 125 | FORCE | GLOBAL-56  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 126 | FORCE | GLOBAL-57  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 127 | FORCE | GLOBAL-58  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 128 | FORCE | GLOBAL-59  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 129 | FORCE | GLOBAL-60  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 130 | FORCE | GLOBAL-61  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 131 | FORCE | GLOBAL-62  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 132 | FORCE | GLOBAL-63  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 133 | FORCE | GLOBAL-64  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 134 | FORCE | GLOBAL-65  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 135 | FORCE | GLOBAL-66  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 136 | FORCE | GLOBAL-67  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 137 | FORCE | GLOBAL-68  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 138 | FORCE | GLOBAL-69  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 139 | FORCE | GLOBAL-70  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 140 | FORCE | GLOBAL-71  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 141 | FORCE | GLOBAL-72  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 142 | FORCE | GLOBAL-73  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 143 | FORCE | GLOBAL-74  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 144 | FORCE | GLOBAL-75  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 145 | FORCE | GLOBAL-76  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 146 | FORCE | GLOBAL-77  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 147 | FORCE | GLOBAL-78  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 148 | FORCE | GLOBAL-79  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 149 | FORCE | GLOBAL-80  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 150 | FORCE | GLOBAL-81  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 151 | FORCE | GLOBAL-82  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 152 | FORCE | GLOBAL-83  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 153 | FORCE | GLOBAL-84  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 154 | FORCE | GLOBAL-85  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 155 | FORCE | GLOBAL-86  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 156 | FORCE | GLOBAL-87  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 157 | FORCE | GLOBAL-88  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 158 | FORCE | GLOBAL-89  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 159 | FORCE | GLOBAL-90  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 160 | FORCE | GLOBAL-91  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 161 | FORCE | GLOBAL-92  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 162 | FORCE | GLOBAL-93  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 163 | FORCE | GLOBAL-94  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 164 | FORCE | GLOBAL-95  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 165 | FORCE | GLOBAL-96  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 166 | FORCE | GLOBAL-97  | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 167 | FORCE | GLOBAL-98  | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 168 | FORCE | GLOBAL-99  | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 169 | FORCE | GLOBAL-100 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 170 | FORCE | GLOBAL-101 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 171 | FORCE | GLOBAL-102 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 172 | FORCE | GLOBAL-103 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 173 | FORCE | GLOBAL-104 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 174 | FORCE | GLOBAL-105 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 175 | FORCE | GLOBAL-106 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 176 | FORCE | GLOBAL-107 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 177 | FORCE | GLOBAL-108 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 178 | FORCE | GLOBAL-109 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 179 | FORCE | GLOBAL-110 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 180 | FORCE | GLOBAL-111 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 181 | FORCE | GLOBAL-112 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 182 | FORCE | GLOBAL-113 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 183 | FORCE | GLOBAL-114 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 184 | FORCE | GLOBAL-115 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 185 | FORCE | GLOBAL-116 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 186 | FORCE | GLOBAL-117 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 187 | FORCE | GLOBAL-118 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 188 | FORCE | GLOBAL-119 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 189 | FORCE | GLOBAL-120 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 190 | FORCE | GLOBAL-121 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 191 | FORCE | GLOBAL-122 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 192 | FORCE | GLOBAL-123 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 193 | FORCE | GLOBAL-124 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 194 | FORCE | GLOBAL-125 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 195 | FORCE | GLOBAL-126 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 196 | FORCE | GLOBAL-127 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 197 | FORCE | GLOBAL-128 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 198 | FORCE | GLOBAL-129 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 199 | FORCE | GLOBAL-130 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 200 | FORCE | GLOBAL-131 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 201 | FORCE | GLOBAL-132 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 202 | FORCE | GLOBAL-133 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 203 | FORCE | GLOBAL-134 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 204 | FORCE | GLOBAL-135 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 205 | FORCE | GLOBAL-136 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 206 | FORCE | GLOBAL-137 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 207 | FORCE | GLOBAL-138 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 208 | FORCE | GLOBAL-139 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 209 | FORCE | GLOBAL-140 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 210 | FORCE | GLOBAL-141 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 211 | FORCE | GLOBAL-142 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 212 | FORCE | GLOBAL-143 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 213 | FORCE | GLOBAL-144 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 214 | FORCE | GLOBAL-145 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 215 | FORCE | GLOBAL-146 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 216 | FORCE | GLOBAL-147 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 217 | FORCE | GLOBAL-148 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 218 | FORCE | GLOBAL-149 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 219 | FORCE | GLOBAL-150 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 220 | FORCE | GLOBAL-151 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 221 | FORCE | GLOBAL-152 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 222 | FORCE | GLOBAL-153 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 223 | FORCE | GLOBAL-154 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 224 | FORCE | GLOBAL-155 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 225 | FORCE | GLOBAL-156 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 226 | FORCE | GLOBAL-157 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 227 | FORCE | GLOBAL-158 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 228 | FORCE | GLOBAL-159 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 229 | FORCE | GLOBAL-160 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 230 | FORCE | GLOBAL-161 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 231 | FORCE | GLOBAL-162 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 232 | FORCE | GLOBAL-163 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 233 | FORCE | GLOBAL-164 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 234 | FORCE | GLOBAL-165 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 235 | FORCE | GLOBAL-166 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 236 | FORCE | GLOBAL-167 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 237 | FORCE | GLOBAL-168 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 238 | FORCE | GLOBAL-169 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 239 | FORCE | GLOBAL-170 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 240 | FORCE | GLOBAL-171 | 0.0000 | 0.0000  | 0.3333 | -3.6775 |
| 241 | FORCE | GLOBAL-172 | 0.3333 | -3.6775 | 0.6667 | -3.6775 |
| 242 | FORCE | GLOBAL-173 | 0.6667 | -3.6775 | 1.0000 | 0.0000  |
| 243 | FORCE | GLOBAL-174 | 0.0000 | 0.0000  | 0.3333 | -3.6    |



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SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 1  
10/11/03 1:49:56

## YOGYAKARTA

## LOAD COMBINATION MULTIPLIERS

| COMBO | TYPE | CASE | FACTOR | TYPE           | TITLE |
|-------|------|------|--------|----------------|-------|
| COMB1 | ADD  | DL   | 1.2000 | STATIC (DEAD)  | COMB1 |
|       |      | LL   | 1.6000 | STATIC (LIVE)  |       |
| COMB2 | ADD  | DL   | 0.9000 | STATIC (DEAD)  | COMB2 |
|       |      | ELKA | 1.0000 | STATIC (QUAKE) |       |
| COMB3 | ADD  | DL   | 0.9000 | STATIC (DEAD)  | COMB3 |
|       |      | ELKI | 1.0000 | STATIC (QUAKE) |       |
| COMB4 | ADD  | DL   | 1.0500 | STATIC (DEAD)  | COMB4 |
|       |      | LL   | 0.6300 | STATIC (LIVE)  |       |
|       |      | ELKA | 1.0500 | STATIC (QUAKE) |       |
| COMB5 | ADD  | DL   | 1.0500 | STATIC (DEAD)  | COMB5 |
|       |      | LL   | 0.6300 | STATIC (LIVE)  |       |
|       |      | ELKI | 1.0500 | STATIC (QUAKE) |       |

SAP2000 v7.42 File: PORTAL 3D KN-m Units PAGE 2  
10/11/03 1:49:56

## YOGYAKARTA

## JOINT DISPLACEMENTS

| JOINT | LOAD  | U1         | U2         | U3         | R1         | R2         | R3         |
|-------|-------|------------|------------|------------|------------|------------|------------|
| 1     | DL    | -1.431E-06 | -8.418E-06 | -2.644E-04 | -1.502E-05 | -1.433E-05 | -8.445E-06 |
| 1     | LL    | -1.102E-06 | -6.405E-06 | -4.810E-05 | -3.632E-06 | -3.501E-06 | -6.400E-06 |
| 1     | ELKA  | 0.000E+00  | 0.000E+00  | 1.160E-05  | -6.847E-04 | 0.000E+00  | 1.600E-05  |
| 1     | ELKI  | 0.000E+00  | -1.416E-04 | -1.851E-05 | 0.000E+00  | 0.000E+00  | -1.479E-04 |
| 1     | COMB1 | -2.533E-06 | -1.420E-04 | -2.846E-04 | 0.000E-05  | -2.609E-05 | -2.750E-04 |
| 1     | COMB2 | -1.415E-06 | -8.417E-04 | -2.663E-04 | -6.932E-04 | -1.347E-05 | -1.139E-05 |
| 1     | COMB3 | -1.415E-06 | -8.417E-04 | -2.663E-04 | 0.000E-04  | -1.347E-05 | -1.139E-05 |
| 1     | COMB4 | -1.415E-06 | -8.417E-04 | -2.663E-04 | -6.113E-04 | -1.300E-05 | -1.100E-05 |
| 1     | COMB5 | -1.415E-06 | -8.417E-04 | -2.663E-04 | -6.105E-04 | -1.347E-05 | -1.139E-05 |
| 2     | DL    | -1.431E-06 | -8.418E-06 | -2.644E-04 | -1.502E-05 | -1.433E-05 | -8.445E-06 |
| 2     | LL    | -1.102E-06 | -6.405E-06 | -4.810E-05 | -1.359E-04 | 1.951E-05  | 0.000E+00  |
| 2     | ELKA  | 0.000E+00  | 1.690E-05  | 3.131E-05  | -7.207E-04 | 1.990E-04  | 8.630E-05  |
| 2     | ELKI  | -1.403E-06 | -1.403E-04 | -1.864E-05 | 7.819E-04  | -1.377E-05 | -9.099E-04 |
| 2     | COMB1 | -1.403E-06 | -1.403E-04 | -1.864E-05 | -8.572E-04 | 9.821E-04  | -1.870E-05 |
| 2     | COMB2 | -1.403E-06 | -1.403E-04 | -1.864E-04 | -1.096E-04 | 0.194E-05  | 4.960E-05  |
| 2     | COMB3 | -1.403E-06 | -1.403E-04 | -1.864E-04 | 0.000E-04  | 0.194E-05  | 4.960E-05  |
| 2     | COMB4 | -1.403E-06 | -1.403E-04 | -1.864E-04 | -1.233E-04 | 7.262E-05  | 4.127E-05  |
| 2     | COMB5 | -1.403E-06 | -1.403E-04 | -1.864E-04 | 0.000E-04  | 7.262E-05  | 4.127E-05  |
| 3     | DL    | -1.431E-06 | -8.418E-06 | -2.644E-04 | -1.502E-05 | -1.433E-05 | -8.445E-06 |
| 3     | LL    | -1.102E-06 | -6.405E-06 | -4.810E-05 | -1.359E-04 | 1.951E-05  | -7.972E-05 |
| 3     | ELKA  | -8.113E-06 | -1.197E-03 | 4.173E-05  | -1.232E-04 | 3.827E-05  | -7.269E-05 |
| 3     | ELKI  | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 1.169E-06  | 1.377E-04  |
| 3     | COMB1 | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 0.000E+00  | -1.023E-04 |
| 3     | COMB2 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -3.862E-04 | 1.662E-04  | -1.952E-04 |
| 3     | COMB3 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.049E-03 | 4.592E-05  | 7.408E-05  |
| 3     | COMB4 | -1.112E-06 | -1.090E-03 | -1.486E-03 | 5.876E-04  | 4.767E-05  | -1.660E-04 |
| 3     | COMB5 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.185E-03 | 7.036E-05  | 6.236E-05  |
| 4     | DL    | -1.431E-06 | -8.418E-06 | -2.644E-04 | -1.502E-05 | -1.433E-05 | -8.445E-06 |
| 4     | LL    | -1.102E-06 | -6.405E-06 | -4.810E-05 | -1.359E-04 | 1.951E-05  | -7.972E-05 |
| 4     | ELKA  | -8.113E-06 | -1.197E-03 | 4.173E-05  | -1.232E-04 | 3.827E-05  | -7.269E-05 |
| 4     | ELKI  | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 1.169E-06  | 1.377E-04  |
| 4     | COMB1 | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 0.000E+00  | -1.023E-04 |
| 4     | COMB2 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -3.862E-04 | 1.662E-04  | -1.952E-04 |
| 4     | COMB3 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.049E-03 | 4.592E-05  | 7.408E-05  |
| 4     | COMB4 | -1.112E-06 | -1.090E-03 | -1.486E-03 | 5.876E-04  | 4.767E-05  | -1.660E-04 |
| 4     | COMB5 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.185E-03 | 7.036E-05  | 6.236E-05  |
| 5     | DL    | -1.431E-06 | -8.418E-06 | -2.644E-04 | -1.502E-05 | -1.433E-05 | -8.445E-06 |
| 5     | LL    | -1.102E-06 | -6.405E-06 | -4.810E-05 | -1.359E-04 | 1.951E-05  | -7.972E-05 |
| 5     | ELKA  | -8.113E-06 | -1.197E-03 | 4.173E-05  | -1.232E-04 | 3.827E-05  | -7.269E-05 |
| 5     | ELKI  | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 1.169E-06  | 1.377E-04  |
| 5     | COMB1 | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 0.000E+00  | -1.023E-04 |
| 5     | COMB2 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -3.862E-04 | 1.662E-04  | -1.952E-04 |
| 5     | COMB3 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.049E-03 | 4.592E-05  | 7.408E-05  |
| 5     | COMB4 | -1.112E-06 | -1.090E-03 | -1.486E-03 | 5.876E-04  | 4.767E-05  | -1.660E-04 |
| 5     | COMB5 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.185E-03 | 7.036E-05  | 6.236E-05  |
| 6     | DL    | -1.431E-06 | -8.418E-06 | -2.644E-04 | -1.502E-05 | -1.433E-05 | -8.445E-06 |
| 6     | LL    | -1.102E-06 | -6.405E-06 | -4.810E-05 | -1.359E-04 | 1.951E-05  | -7.972E-05 |
| 6     | ELKA  | -8.113E-06 | -1.197E-03 | 4.173E-05  | -1.232E-04 | 3.827E-05  | -7.269E-05 |
| 6     | ELKI  | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 1.169E-06  | 1.377E-04  |
| 6     | COMB1 | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 0.000E+00  | -1.023E-04 |
| 6     | COMB2 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -3.862E-04 | 1.662E-04  | -1.952E-04 |
| 6     | COMB3 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.049E-03 | 4.592E-05  | 7.408E-05  |
| 6     | COMB4 | -1.112E-06 | -1.090E-03 | -1.486E-03 | 5.876E-04  | 4.767E-05  | -1.660E-04 |
| 6     | COMB5 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.185E-03 | 7.036E-05  | 6.236E-05  |
| 7     | DL    | -1.431E-06 | -8.418E-06 | -2.644E-04 | -1.502E-05 | -1.433E-05 | -8.445E-06 |
| 7     | LL    | -1.102E-06 | -6.405E-06 | -4.810E-05 | -1.359E-04 | 1.951E-05  | -7.972E-05 |
| 7     | ELKA  | -8.113E-06 | -1.197E-03 | 4.173E-05  | -1.232E-04 | 3.827E-05  | -7.269E-05 |
| 7     | ELKI  | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 1.169E-06  | 1.377E-04  |
| 7     | COMB1 | -1.112E-06 | -1.090E-03 | -3.534E-05 | 5.307E-04  | 0.000E+00  | -1.023E-04 |
| 7     | COMB2 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -3.862E-04 | 1.662E-04  | -1.952E-04 |
| 7     | COMB3 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.049E-03 | 4.592E-05  | 7.408E-05  |
| 7     | COMB4 | -1.112E-06 | -1.090E-03 | -1.486E-03 | 5.876E-04  | 4.767E-05  | -1.660E-04 |
| 7     | COMB5 | -1.112E-06 | -1.090E-03 | -1.486E-03 | -1.185E-03 | 7.036E-05  | 6.236E-05  |

|    |       |            |            |            |            |            |            |
|----|-------|------------|------------|------------|------------|------------|------------|
| 10 | DL    | -3.175E-05 | -1.33E-04  | -1.090E-03 | 1.350E-04  | 9.355E-06  | -7.497E-05 |
| 10 | LL    | 1.911E-04  | -1.824E-05 | -1.076E-04 | -3.899E-05 | 0.0000     | -1.121E-05 |
| 10 | ELKA  | -1.177E-05 | -2.14E-05  | 1.308E-05  | -1.143E-05 | -6.237E-06 | 1.965E-04  |
| 10 | ELK1  | 8.097E-05  | -5.819E-05 | -8.541E-05 | 6.233E-04  | 1.453E-06  | -9.302E-05 |
| 10 | COMB1 | 1.077E-05  | -5.819E-05 | -1.643E-03 | 1.962E-05  | 1.276E-05  | -1.119E-04 |
| 10 | COMB2 | 2.114E-05  | 1.390E-03  | -3.374E-04 | -1.027E-03 | 2.199E-05  | 3.723E-05  |
| 10 | COMB3 | 1.113E-05  | -1.835E-03 | -1.616E-03 | 7.447E-04  | 1.923E-05  | -1.573E-04 |
| 10 | COMB4 | 8.215E-05  | -1.31E-03  | -1.331E-03 | -1.130E-03 | 3.749E-06  | 1.332E-05  |
| 10 | COMB5 | 1.215E-05  | -9.910E-05 | -1.813E-03 | 7.396E-04  | 1.505E-05  | -1.809E-04 |
| 11 | DL    | -1.175E-05 | -1.580E-05 | -2.575E-04 | 0.0000     | -1.433E-05 | 1.822E-06  |
| 11 | LL    | -1.175E-05 | -1.580E-05 | -1.136E-05 | 3.673E-06  | 1.773E-05  | 0.0000     |
| 11 | ELKA  | 1.07000    | -1.320E-04 | 1.314E-05  | -7.953E-04 | 0.0000     | 0.0000     |
| 11 | ELK1  | 0.0000     | -1.535E-04 | -1.144E-05 | 7.708E-04  | 0.0000     | 3.732E-06  |
| 11 | COMB1 | -1.175E-05 | -1.580E-05 | -3.778E-04 | 9.373E-05  | -1.496E-05 | 1.794E-06  |
| 11 | COMB2 | -2.170E-05 | 1.960E-04  | -1.166E-04 | -7.935E-04 | -1.162E-05 | 1.015E-05  |
| 11 | COMB3 | -3.166E-05 | -1.030E-03 | -1.453E-04 | 7.796E-04  | -1.309E-05 | -7.048E-06 |
| 11 | COMB4 | -5.143E-05 | -1.110E-04 | -1.337E-04 | -8.091E-04 | -1.333E-05 | 1.116E-05  |
| 11 | COMB5 | -6.177E-05 | -1.110E-05 | -1.095E-04 | 9.371E-04  | -1.841E-05 | -6.895E-06 |
| 12 | DL    | -1.144E-06 | -1.137E-04 | -7.611E-04 | -2.666E-04 | -5.562E-05 | -7.179E-06 |
| 12 | LL    | -1.144E-06 | -1.137E-04 | -1.137E-04 | -1.137E-04 | -1.137E-04 | 0.0000     |
| 12 | ELKA  | 1.959E-06  | 9.430E-03  | 3.599E-05  | -9.486E-04 | 0.0000     | 3.059E-05  |
| 12 | ELK1  | -1.144E-06 | -1.137E-05 | -3.093E-05 | 3.121E-04  | 0.0000     | -2.926E-05 |
| 12 | COMB1 | -1.144E-06 | -1.137E-04 | -1.048E-03 | -5.717E-04 | -9.519E-05 | -8.113E-06 |
| 12 | COMB2 | -7.129E-06 | 9.276E-05  | -1.959E-04 | -1.036E-05 | -8.005E-05 | 2.412E-05  |
| 12 | COMB3 | -8.249E-06 | -8.876E-03 | -9.670E-04 | 7.003E-04  | -8.004E-05 | -5.877E-05 |
| 12 | COMB4 | -8.441E-06 | 9.263E-03  | -7.895E-04 | -1.247E-03 | -6.959E-05 | 3.466E-05  |
| 12 | COMB5 | -1.144E-06 | -8.194E-03 | -8.509E-04 | 6.301E-04  | -6.953E-05 | -8.812E-05 |
| 13 | DL    | 1.297E-05  | -1.113E-03 | -9.793E-04 | 3.371E-04  | -5.103E-05 | -7.397E-05 |
| 13 | LL    | 1.297E-05  | -1.113E-04 | -1.113E-04 | -3.371E-04 | -1.113E-04 | -1.113E-04 |
| 13 | ELKA  | -1.297E-05 | 9.574E-03  | 4.769E-05  | -1.263E-05 | -1.263E-05 | 9.574E-05  |
| 13 | ELK1  | 0.0000     | -9.643E-03 | -3.137E-05 | 6.423E-04  | 0.0000     | -1.115E-05 |
| 13 | COMB1 | 3.491E-05  | -1.644E-03 | -1.465E-03 | 3.428E-04  | -9.672E-05 | -1.966E-04 |
| 13 | COMB2 | 1.469E-05  | 8.743E-03  | -8.337E-04 | -9.556E-04 | -4.791E-05 | -6.333E-06 |
| 13 | COMB3 | 1.477E-05  | -9.0197    | -6.206E-04 | 9.859E-04  | -1.497E-05 | -1.207E-04 |
| 13 | COMB4 | 1.466E-05  | 9.978E-03  | -1.093E-03 | -9.965E-04 | -6.728E-05 | -2.145E-05 |
| 13 | COMB5 | 1.426E-05  | -9.0115    | -1.193E-03 | 1.046E-03  | -6.412E-05 | -1.416E-04 |
| 14 | DL    | -5.147E-06 | 3.394E-05  | -2.993E-04 | -1.013E-04 | 1.697E-04  | 3.266E-06  |
| 14 | LL    | -2.911E-06 | -1.595E-05 | -8.189E-05 | 2.169E-05  | -6.352E-06 | 0.0000     |
| 14 | ELKA  | 0.0000     | 9.893E-04  | 1.351E-05  | -8.062E-04 | 0.0000     | 4.391E-06  |
| 14 | ELK1  | 0.0000     | -9.694E-04 | -1.176E-05 | 7.943E-04  | 0.0000     | -3.980E-06 |
| 14 | COMB1 | -1.134E-05 | 1.617E-05  | -4.314E-04 | -8.562E-05 | -8.397E-06 | 1.770E-06  |
| 14 | COMB2 | -4.769E-06 | 1.619E-03  | -3.478E-04 | -8.974E-04 | 4.570E-05  | 7.414E-06  |
| 14 | COMB3 | -8.116E-06 | -9.396E-04 | -2.730E-04 | 6.931E-04  | 3.911E-06  | 0.0000     |
| 14 | COMB4 | -7.135E-06 | 1.663E-03  | -3.233E-04 | -9.393E-04 | 9.0690     | 8.429E-06  |
| 14 | COMB5 | -7.895E-06 | -9.932E-04 | -3.498E-04 | 7.305E-04  | 0.0000     | 0.0000     |
| 15 | DL    | -1.476E-06 | -3.182E-04 | -9.011E-04 | 1.680E-05  | 1.035E-04  | 0.0000     |
| 15 | LL    | -2.468E-06 | -3.447E-05 | -1.557E-04 | -7.665E-05 | 3.869E-05  | 0.0000     |
| 15 | ELKA  | 1.07000    | 8.850E-03  | 3.234E-05  | -3.621E-04 | 0.0000     | 1.558E-05  |
| 15 | ELK1  | -1.476E-06 | -3.182E-03 | -3.183E-05 | 9.617E-04  | 0.0000     | -1.411E-05 |
| 15 | COMB1 | -1.476E-06 | -3.182E-04 | -1.310E-03 | -3.093E-05 | 1.161E-04  | 0.0000     |
| 15 | COMB2 | -3.921E-06 | 5.263E-03  | -6.839E-04 | -7.950E-04 | 9.272E-05  | 1.572E-05  |
| 15 | COMB3 | -6.369E-06 | -5.839E-03 | -7.528E-04 | 1.031E-03  | 3.159E-05  | -1.397E-05 |
| 15 | COMB4 | -8.316E-06 | 8.471E-03  | -9.004E-04 | -8.728E-04 | 1.326E-04  | 1.655E-05  |
| 15 | COMB5 | -6.367E-06 | -8.186E-03 | -9.277E-04 | 1.043E-03  | 1.335E-04  | -1.463E-05 |
| 16 | DL    | 6.741E-06  | -1.948E-03 | -1.110E-03 | 6.169E-04  | 7.651E-05  | -4.923E-05 |
| 16 | LL    | 1.795E-06  | -1.865E-04 | -2.173E-04 | 6.447E-06  | 3.837E-05  | -6.857E-06 |
| 16 | ELKA  | 1.111E-06  | 0.0100     | 1.913E-05  | -1.307E-05 | -1.260E-06 | 1.197E-06  |
| 16 | ELK1  | 1.795E-06  | -1.948E-03 | -1.774E-05 | 7.964E-04  | 0.0000     | -1.648E-05 |
| 16 | COMB1 | 1.795E-06  | -1.948E-03 | -1.679E-03 | 7.495E-04  | 1.373E-04  | -6.885E-05 |
| 16 | COMB2 | 6.741E-06  | 7.657E-05  | -9.436E-04 | -7.527E-04 | 6.769E-05  | -1.445E-05 |
| 16 | COMB3 | 4.001E-06  | -9.0112    | -1.030E-03 | 1.261E-03  | 6.966E-05  | -6.981E-05 |
| 16 | COMB4 | 9.779E-06  | 8.832E-03  | -1.250E-03 | -7.216E-04 | 9.730E-05  | -1.090E-05 |
| 16 | COMB5 | 6.741E-06  | -9.0101    | -1.314E-03 | 1.393E-03  | 9.996E-05  | -8.268E-05 |
| 17 | DL    | 1.569E-06  | 3.306E-05  | -2.993E-04 | -1.913E-04 | -4.697E-06 | -3.360E-06 |
| 17 | LL    | 1.569E-06  | -1.724E-05 | -8.189E-05 | 2.169E-05  | 6.893E-06  | 0.0000     |
| 17 | ELKA  | 0.0000     | 9.893E-04  | 1.351E-05  | -8.062E-04 | 0.0000     | 4.391E-06  |
| 17 | ELK1  | 0.0000     | -9.694E-04 | -1.176E-05 | 7.943E-04  | 0.0000     | -3.980E-06 |
| 17 | COMB1 | 1.134E-05  | 1.417E-05  | -4.314E-04 | -8.688E-05 | 5.390E-06  | -4.770E-06 |
| 17 | COMB2 | 3.769E-06  | 1.019E-03  | -2.478E-04 | -8.974E-04 | -4.570E-06 | -7.415E-06 |
| 17 | COMB3 | 6.115E-06  | -9.396E-04 | -3.730E-04 | 6.931E-04  | -3.913E-06 | 0.0000     |
| 17 | COMB4 | 7.423E-06  | 1.663E-03  | -3.233E-04 | -9.393E-04 | 0.0000     | -8.429E-06 |
| 17 | COMB5 | 7.944E-06  | -9.932E-04 | -3.498E-04 | 7.303E-04  | 0.0000     | 0.0000     |
| 18 | DL    | 1.669E-06  | -3.182E-04 | -9.011E-04 | 7.678E-05  | -1.035E-04 | 0.0000     |
| 18 | LL    | 1.669E-06  | -3.447E-05 | -1.557E-04 | -7.665E-05 | 3.869E-05  | 0.0000     |
| 18 | ELKA  | -1.033E-06 | 8.850E-03  | 3.704E-05  | -8.621E-04 | 0.0000     | 1.559E-05  |
| 18 | ELK1  | 1.795E-06  | -3.182E-03 | -3.183E-05 | 9.617E-04  | 0.0000     | 1.411E-05  |
| 18 | COMB1 | 1.795E-06  | -3.182E-03 | -1.310E-03 | -3.093E-05 | 1.161E-04  | 0.0000     |
| 18 | COMB2 | 3.769E-06  | 5.263E-03  | -6.840E-04 | -7.930E-04 | 9.272E-05  | -1.572E-05 |
| 18 | COMB3 | 6.369E-06  | -5.839E-03 | -7.528E-04 | 1.031E-03  | 3.159E-05  | -1.397E-05 |
| 18 | COMB4 | 8.316E-06  | 8.471E-03  | -9.004E-04 | -8.728E-04 | 1.326E-04  | 1.655E-05  |
| 18 | COMB5 | 6.367E-06  | -8.186E-03 | -9.277E-04 | 1.043E-03  | 1.335E-04  | -1.463E-05 |







|     |     |        |             |             |            |            |            |
|-----|-----|--------|-------------|-------------|------------|------------|------------|
| 32  | ELI | 0.0000 | -1.138E-03  | -5.535E-04  | 1.212E-01  | -5.609E-05 | -4.695E-05 |
| 33  | ELI | 0.0000 | -1.138E-03  | -7.951E-04  | -5.512E-03 | -9.403E-05 | 3.386E-05  |
| 34  | ELI | 0.0000 | -1.138E-03  | -7.951E-04  | 1.212E-01  | -9.173E-05 | -4.928E-05 |
| 35  | ELI | 0.0000 | -1.138E-03  | -9.110E-04  | 3.075E-04  | -8.907E-05 | -8.268E-05 |
| 36  | ELI | 0.0000 | -1.138E-04  | -1.616E-04  | 1.266E-04  | -3.143E-05 | -1.644E-05 |
| 37  | ELI | 0.0000 | -1.138E-05  | -3.703E-05  | -6.347E-04 | 1.000E-06  | 1.307E-05  |
| 38  | ELI | 0.0000 | -1.138E-06  | -1.138E-06  | 1.267E-05  | -3.302E-06 | -7.733E-05 |
| 39  | ELI | 0.0000 | -1.138E-07  | -1.138E-07  | 5.711E-04  | -3.703E-04 | -6.347E-04 |
| 40  | ELI | 0.0000 | -1.138E-08  | -1.138E-08  | -4.077E-04 | 1.844E-03  | -3.369E-05 |
| 41  | ELI | 0.0000 | -1.138E-09  | -1.138E-09  | -3.161E-04 | -1.114E-04 | 2.999E-05  |
| 42  | ELI | 0.0000 | -1.138E-10  | -1.138E-10  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 43  | ELI | 0.0000 | -1.138E-11  | -1.138E-11  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 44  | ELI | 0.0000 | -1.138E-12  | -1.138E-12  | -1.377E-05 | 0.0000     | 0.0000     |
| 45  | ELI | 0.0000 | -1.138E-13  | -1.138E-13  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 46  | ELI | 0.0000 | -1.138E-14  | -1.138E-14  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 47  | ELI | 0.0000 | -1.138E-15  | -1.138E-15  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 48  | ELI | 0.0000 | -1.138E-16  | -1.138E-16  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 49  | ELI | 0.0000 | -1.138E-17  | -1.138E-17  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 50  | ELI | 0.0000 | -1.138E-18  | -1.138E-18  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 51  | ELI | 0.0000 | -1.138E-19  | -1.138E-19  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 52  | ELI | 0.0000 | -1.138E-20  | -1.138E-20  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 53  | ELI | 0.0000 | -1.138E-21  | -1.138E-21  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 54  | ELI | 0.0000 | -1.138E-22  | -1.138E-22  | -1.377E-05 | 0.0000     | 0.0000     |
| 55  | ELI | 0.0000 | -1.138E-23  | -1.138E-23  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 56  | ELI | 0.0000 | -1.138E-24  | -1.138E-24  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 57  | ELI | 0.0000 | -1.138E-25  | -1.138E-25  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 58  | ELI | 0.0000 | -1.138E-26  | -1.138E-26  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 59  | ELI | 0.0000 | -1.138E-27  | -1.138E-27  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 60  | ELI | 0.0000 | -1.138E-28  | -1.138E-28  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 61  | ELI | 0.0000 | -1.138E-29  | -1.138E-29  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 62  | ELI | 0.0000 | -1.138E-30  | -1.138E-30  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 63  | ELI | 0.0000 | -1.138E-31  | -1.138E-31  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 64  | ELI | 0.0000 | -1.138E-32  | -1.138E-32  | -1.377E-05 | 0.0000     | 0.0000     |
| 65  | ELI | 0.0000 | -1.138E-33  | -1.138E-33  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 66  | ELI | 0.0000 | -1.138E-34  | -1.138E-34  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 67  | ELI | 0.0000 | -1.138E-35  | -1.138E-35  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 68  | ELI | 0.0000 | -1.138E-36  | -1.138E-36  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 69  | ELI | 0.0000 | -1.138E-37  | -1.138E-37  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 70  | ELI | 0.0000 | -1.138E-38  | -1.138E-38  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 71  | ELI | 0.0000 | -1.138E-39  | -1.138E-39  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 72  | ELI | 0.0000 | -1.138E-40  | -1.138E-40  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 73  | ELI | 0.0000 | -1.138E-41  | -1.138E-41  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 74  | ELI | 0.0000 | -1.138E-42  | -1.138E-42  | -1.377E-05 | 0.0000     | 0.0000     |
| 75  | ELI | 0.0000 | -1.138E-43  | -1.138E-43  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 76  | ELI | 0.0000 | -1.138E-44  | -1.138E-44  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 77  | ELI | 0.0000 | -1.138E-45  | -1.138E-45  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 78  | ELI | 0.0000 | -1.138E-46  | -1.138E-46  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 79  | ELI | 0.0000 | -1.138E-47  | -1.138E-47  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 80  | ELI | 0.0000 | -1.138E-48  | -1.138E-48  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 81  | ELI | 0.0000 | -1.138E-49  | -1.138E-49  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 82  | ELI | 0.0000 | -1.138E-50  | -1.138E-50  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 83  | ELI | 0.0000 | -1.138E-51  | -1.138E-51  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 84  | ELI | 0.0000 | -1.138E-52  | -1.138E-52  | -1.377E-05 | 0.0000     | 0.0000     |
| 85  | ELI | 0.0000 | -1.138E-53  | -1.138E-53  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 86  | ELI | 0.0000 | -1.138E-54  | -1.138E-54  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 87  | ELI | 0.0000 | -1.138E-55  | -1.138E-55  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 88  | ELI | 0.0000 | -1.138E-56  | -1.138E-56  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 89  | ELI | 0.0000 | -1.138E-57  | -1.138E-57  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 90  | ELI | 0.0000 | -1.138E-58  | -1.138E-58  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 91  | ELI | 0.0000 | -1.138E-59  | -1.138E-59  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 92  | ELI | 0.0000 | -1.138E-60  | -1.138E-60  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 93  | ELI | 0.0000 | -1.138E-61  | -1.138E-61  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 94  | ELI | 0.0000 | -1.138E-62  | -1.138E-62  | -1.377E-05 | 0.0000     | 0.0000     |
| 95  | ELI | 0.0000 | -1.138E-63  | -1.138E-63  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 96  | ELI | 0.0000 | -1.138E-64  | -1.138E-64  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 97  | ELI | 0.0000 | -1.138E-65  | -1.138E-65  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 98  | ELI | 0.0000 | -1.138E-66  | -1.138E-66  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 99  | ELI | 0.0000 | -1.138E-67  | -1.138E-67  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 100 | ELI | 0.0000 | -1.138E-68  | -1.138E-68  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 101 | ELI | 0.0000 | -1.138E-69  | -1.138E-69  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 102 | ELI | 0.0000 | -1.138E-70  | -1.138E-70  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 103 | ELI | 0.0000 | -1.138E-71  | -1.138E-71  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 104 | ELI | 0.0000 | -1.138E-72  | -1.138E-72  | -1.377E-05 | 0.0000     | 0.0000     |
| 105 | ELI | 0.0000 | -1.138E-73  | -1.138E-73  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 106 | ELI | 0.0000 | -1.138E-74  | -1.138E-74  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 107 | ELI | 0.0000 | -1.138E-75  | -1.138E-75  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 108 | ELI | 0.0000 | -1.138E-76  | -1.138E-76  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 109 | ELI | 0.0000 | -1.138E-77  | -1.138E-77  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 110 | ELI | 0.0000 | -1.138E-78  | -1.138E-78  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 111 | ELI | 0.0000 | -1.138E-79  | -1.138E-79  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 112 | ELI | 0.0000 | -1.138E-80  | -1.138E-80  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 113 | ELI | 0.0000 | -1.138E-81  | -1.138E-81  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 114 | ELI | 0.0000 | -1.138E-82  | -1.138E-82  | -1.377E-05 | 0.0000     | 0.0000     |
| 115 | ELI | 0.0000 | -1.138E-83  | -1.138E-83  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 116 | ELI | 0.0000 | -1.138E-84  | -1.138E-84  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 117 | ELI | 0.0000 | -1.138E-85  | -1.138E-85  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 118 | ELI | 0.0000 | -1.138E-86  | -1.138E-86  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 119 | ELI | 0.0000 | -1.138E-87  | -1.138E-87  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 120 | ELI | 0.0000 | -1.138E-88  | -1.138E-88  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 121 | ELI | 0.0000 | -1.138E-89  | -1.138E-89  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 122 | ELI | 0.0000 | -1.138E-90  | -1.138E-90  | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 123 | ELI | 0.0000 | -1.138E-91  | -1.138E-91  | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 124 | ELI | 0.0000 | -1.138E-92  | -1.138E-92  | -1.377E-05 | 0.0000     | 0.0000     |
| 125 | ELI | 0.0000 | -1.138E-93  | -1.138E-93  | -7.123E-04 | 0.0000     | 1.947E-06  |
| 126 | ELI | 0.0000 | -1.138E-94  | -1.138E-94  | -1.037E-04 | 0.0000     | -3.771E-06 |
| 127 | ELI | 0.0000 | -1.138E-95  | -1.138E-95  | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 128 | ELI | 0.0000 | -1.138E-96  | -1.138E-96  | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 129 | ELI | 0.0000 | -1.138E-97  | -1.138E-97  | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 130 | ELI | 0.0000 | -1.138E-98  | -1.138E-98  | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 131 | ELI | 0.0000 | -1.138E-99  | -1.138E-99  | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 132 | ELI | 0.0000 | -1.138E-100 | -1.138E-100 | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 133 | ELI | 0.0000 | -1.138E-101 | -1.138E-101 | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 134 | ELI | 0.0000 | -1.138E-102 | -1.138E-102 | -1.377E-05 | 0.0000     | 0.0000     |
| 135 | ELI | 0.0000 | -1.138E-103 | -1.138E-103 | -7.123E-04 | 0.0000     | 1.947E-06  |
| 136 | ELI | 0.0000 | -1.138E-104 | -1.138E-104 | -1.037E-04 | 0.0000     | -3.771E-06 |
| 137 | ELI | 0.0000 | -1.138E-105 | -1.138E-105 | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 138 | ELI | 0.0000 | -1.138E-106 | -1.138E-106 | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 139 | ELI | 0.0000 | -1.138E-107 | -1.138E-107 | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 140 | ELI | 0.0000 | -1.138E-108 | -1.138E-108 | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 141 | ELI | 0.0000 | -1.138E-109 | -1.138E-109 | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 142 | ELI | 0.0000 | -1.138E-110 | -1.138E-110 | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 143 | ELI | 0.0000 | -1.138E-111 | -1.138E-111 | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 144 | ELI | 0.0000 | -1.138E-112 | -1.138E-112 | -1.377E-05 | 0.0000     | 0.0000     |
| 145 | ELI | 0.0000 | -1.138E-113 | -1.138E-113 | -7.123E-04 | 0.0000     | 1.947E-06  |
| 146 | ELI | 0.0000 | -1.138E-114 | -1.138E-114 | -1.037E-04 | 0.0000     | -3.771E-06 |
| 147 | ELI | 0.0000 | -1.138E-115 | -1.138E-115 | 3.554E-07  | 1.733E-05  | 1.433E-06  |
| 148 | ELI | 0.0000 | -1.138E-116 | -1.138E-116 | -7.123E-04 | 1.844E-03  | 2.169E-06  |
| 149 | ELI | 0.0000 | -1.138E-117 | -1.138E-117 | 8.678E-04  | 1.890E-05  | -2.618E-06 |
| 150 | ELI | 0.0000 | -1.138E-118 | -1.138E-118 | -1.170E-04 | 1.844E-03  | 3.369E-06  |
| 151 | ELI | 0.0000 | -1.138E-119 | -1.138E-119 | 1.661E-05  | 1.661E-05  | -1.653E-06 |
| 152 | ELI | 0.0000 | -1.138E-120 | -1.138E-120 | 1.733E-03  | -1.170E-04 | -1.376E-04 |
| 153 | ELI | 0.0000 | -1.138E-121 | -1.138E-121 | 7.124E-05  | 1.769E-05  | 1.131E-05  |
| 154 | ELI | 0.0000 | -1.138E-122 | -1.138E-122 | -1.377E-05 | 0.0000     | 0.0000     |
| 155 | ELI | 0.0000 | -1.138E-123 | -1.138E-123 | -          |            |            |

|    |    |            |            |            |            |            |            |
|----|----|------------|------------|------------|------------|------------|------------|
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -1.761E-04 | 6.829E-05  | -3.284E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.313E-03  | 0.000E-00  | 4.605E-03  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -3.511E-04 | 3.405E-05  | -3.366E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.526E-03  | 9.175E-05  | 4.928E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.073E-04  | 8.107E-05  | 5.169E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.266E-04  | 3.144E-05  | 1.645E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -3.566E-05 | -1.356E-06 | -7.357E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 4.771E-05  | 1.267E-05  | 7.736E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 5.715E-04  | 1.572E-04  | 6.586E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -4.977E-04 | 7.031E-05  | -2.615E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.111E-05  | 1.109E-05  | 1.103E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -1.101E-04 | 1.114E-04  | -1.086E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.730E-03  | 1.130E-04  | 1.376E-04  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 7.509E-03  | 3.309E-06  | 5.311E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -3.154E-01 | 1.561E-06  | 0.000E-00  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -7.209E-04 | 1.133E-06  | -1.545E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 2.441E-04  | -1.188E-06 | 1.818E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 5.103E-06  | 5.093E-06  | 7.491E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.906E-03 | 3.279E-06  | -1.067E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.417E-04  | 0.000E-00  | 3.093E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -3.185E-04 | 4.671E-06  | -1.021E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.530E-03  | 1.108E-06  | 2.297E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 4.665E-04  | -1.647E-06 | 1.898E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.611E-04  | -1.381E-06 | 2.724E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -8.834E-05 | 0.000E-00  | -1.291E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.295E-05  | 7.969E-05  | 0.000E-00  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -1.168E-03 | 4.181E-06  | 5.529E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -1.181E-04 | -4.183E-06 | 2.714E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -4.633E-04 | -1.391E-05 | -3.583E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.217E-03  | -1.036E-06 | 7.238E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -3.348E-04 | -3.504E-06 | -3.391E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.439E-03  | -3.170E-06 | 7.971E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.054E-04  | -4.146E-06 | 4.186E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.211E-04  | 0.000E-00  | 1.027E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.130E-05 | -3.120E-06 | -1.626E-04 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.151E-03  | 8.768E-06  | 1.234E-04  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.217E-04  | -6.505E-06 | 5.187E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -5.221E-04 | -6.377E-06 | -6.495E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.246E-03  | 4.310E-06  | 1.691E-04  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -4.676E-03 | -9.540E-06 | -6.316E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.336E-05  | 3.130E-06  | 1.731E-04  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 6.346E-05  | 1.296E-05  | 4.507E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -3.059E-06 | 5.070E-06  | 0.000E-00  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -1.941E-05 | 1.211E-06  | -1.574E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 6.340E-01  | -1.342E-06 | 1.716E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.730E-03  | 3.568E-05  | 6.475E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.128E-04 | 1.108E-05  | -1.189E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 7.419E-04  | 1.028E-05  | 2.122E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.569E-04 | 1.809E-05  | -1.138E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 7.664E-04  | 1.835E-05  | 2.317E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 4.259E-04  | -5.576E-05 | 1.773E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.459E-04  | -1.458E-05 | 4.362E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -7.314E-04 | 3.518E-06  | -6.459E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.193E-05  | 7.266E-04  | 5.900E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 7.399E-04  | -9.648E-05 | 2.826E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.722E-04 | -3.981E-04 | -4.687E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.109E-04  | -5.348E-05 | 3.863E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.602E-04 | -2.830E-04 | -5.496E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.300E-03  | -9.671E-05 | -3.595E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.300E-03  | -9.671E-05 | -3.595E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 2.558E-04  | -4.986E-05 | 1.227E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.350E-04  | -2.561E-05 | -3.205E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -5.300E-04 | -1.288E-06 | -1.152E-04 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 8.983E-04  | 5.054E-06  | 1.521E-04  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 5.230E-04  | -1.608E-04 | 9.596E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -3.906E-04 | -4.616E-05 | -1.042E-04 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.139E-03  | -3.932E-05 | 1.632E-04  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -2.037E-04 | -6.394E-05 | -1.101E-04 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 1.297E-03  | -6.318E-05 | 1.796E-04  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 2.279E-05  | -5.189E-05 | -3.189E-06 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 2.735E-06  | 4.021E-06  | 0.000E-00  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.517E-04 | 0.000E-00  | 1.054E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 6.519E-04  | 0.000E-00  | -1.042E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.173E-05  | -5.584E-05 | -4.563E-06 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.312E-04 | -4.668E-05 | 7.671E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 6.734E-04  | -4.673E-05 | -1.529E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.586E-04 | -5.193E-05 | 7.508E-06  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 7.103E-04  | -5.199E-05 | -1.459E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.491E-05  | -6.131E-05 | -1.113E-05 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 3.563E-06  | -1.323E-05 | -1.126E-06 |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | -6.501E-04 | -1.178E-06 | 3.673E-05  |
| 41 | FL | -1.000E-06 | -1.000E-03 | -1.000E-04 | 6.505E-04  | -1.293E-06 | -3.630E-05 |



|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 52  | ELK1  | 0.0000     | -1.169E-03 | -1.021E-06 | 8.076E-04  | 0.0000     | -1.193E-05 |
| 53  | ELK2  | 1.1294E-05 | -8.352E-04 | -1.138E-03 | 1.617E-04  | -1.423E-04 | -1.080E-06 |
| 54  | COMB1 | 5.126E-03  | 1.074E-03  | -6.839E-04 | -7.024E-04 | -7.110E-05 | 1.062E-05  |
| 55  | COMB2 | 1.1006E-06 | -8.819E-05 | -6.041E-04 | 9.120E-04  | -7.111E-05 | -2.424E-05 |
| 56  | COMB3 | 0.1302E-06 | 8.256E-03  | -9.085E-04 | -7.176E-04 | -1.016E-04 | 1.175E-05  |
| 57  | COMB4 | 0.139E-06  | -0.113E-02 | -9.087E-04 | 9.707E-04  | -1.016E-04 | -1.535E-05 |
| 58  | EL    | 1.1006E-06 | -8.819E-05 | -6.037E-04 | 4.437E-05  | -3.632E-06 | 1.339E-06  |
| 59  | EL    | 1.1006E-06 | -1.129E-04 | -6.876E-05 | 3.637E-06  | 0.0000     | 0.0000     |
| 60  | ELK1  | 0.0000     | 0.0000E-03 | -1.646E-06 | -7.511E-04 | 0.0000     | 0.0000     |
| 61  | ELK2  | 0.0000     | -1.040E-04 | -1.687E-06 | 1.003E-04  | 0.0000     | -1.104E-04 |
| 62  | COMB1 | 0.0000     | -8.033E-05 | -4.345E-04 | 5.906E-05  | -1.456E-06 | 1.176E-06  |
| 63  | COMB2 | 1.1236E-06 | 0.195E-04  | -2.570E-04 | -7.114E-04 | -7.423E-06 | 1.536E-06  |
| 64  | COMB3 | 1.1006E-06 | -1.009E-03 | -1.570E-04 | 7.907E-04  | -7.437E-06 | -4.199E-06 |
| 65  | COMB4 | 1.087E-06  | 0.176E-04  | -3.366E-04 | -7.401E-04 | -8.014E-06 | 8.117E-06  |
| 66  | EL    | 1.087E-06  | -1.009E-03 | -3.367E-04 | 1.311E-04  | -8.014E-06 | -1.140E-06 |
| 67  | EL    | 0.0000     | -1.153E-03 | -9.541E-04 | 1.646E-04  | 1.176E-04  | -1.178E-05 |
| 68  | ELK1  | 0.0000     | -1.040E-04 | -1.108E-04 | 6.713E-05  | 3.334E-05  | 0.0000     |
| 69  | ELK2  | 0.0000     | 0.000E-03  | -1.041E-05 | -4.616E-04 | 1.134E-06  | 1.134E-05  |
| 70  | COMB1 | 0.0000     | -9.902E-03 | -7.705E-06 | 4.624E-04  | -1.757E-06 | -9.007E-06 |
| 71  | COMB2 | 0.0000     | -1.133E-03 | -1.438E-03 | 3.049E-03  | 1.244E-04  | -1.133E-05 |
| 72  | COMB3 | 0.0000     | 8.911E-03  | -8.691E-04 | -3.135E-04 | 1.080E-04  | -2.839E-06 |
| 73  | COMB4 | 0.0000     | -0.0111    | -1.664E-04 | 6.195E-04  | 1.941E-04  | -1.003E-05 |
| 74  | EL    | 0.0000     | 0.000E-03  | -1.146E-03 | -3.696E-03 | 1.167E-04  | -4.784E-06 |
| 75  | EL    | 0.0000     | -0.0111    | -1.143E-03 | 7.006E-04  | 1.426E-04  | -1.620E-05 |
| 76  | EL    | 0.0000     | -3.920E-04 | -7.326E-04 | 1.863E-04  | 0.001E-05  | 1.379E-06  |
| 77  | ELK1  | 0.0000     | -1.702E-05 | -1.584E-04 | 4.911E-05  | 1.401E-05  | 0.0000     |
| 78  | ELK2  | 0.0000     | 5.161E-03  | -6.803E-06 | -1.273E-04 | 1.074E-06  | 6.064E-05  |
| 79  | COMB1 | 0.0000     | -5.560E-03 | -4.098E-06 | 9.275E-04  | -1.501E-06 | -6.922E-06 |
| 80  | COMB2 | 0.0000     | -4.659E-04 | -1.133E-03 | 3.022E-04  | 1.050E-04  | 3.773E-06  |
| 81  | COMB3 | 0.0000     | 5.247E-03  | -6.653E-04 | -6.606E-04 | 8.733E-05  | 9.588E-06  |
| 82  | COMB4 | 0.0000     | -5.877E-03 | -6.633E-04 | 9.952E-04  | 9.445E-05  | -4.331E-06 |
| 83  | EL    | 0.0000     | 1.456E-03  | -5.753E-04 | -6.431E-04 | 7.870E-05  | 1.047E-05  |
| 84  | EL    | 0.0000     | -6.402E-03 | -7.722E-04 | 1.095E-03  | 1.568E-05  | -4.118E-06 |
| 85  | EL    | 0.0000     | 1.178E-05  | -1.765E-04 | 6.763E-06  | 1.188E-05  | 1.491E-06  |
| 86  | ELK1  | 0.0000     | 1.646E-06  | -8.276E-05 | -6.901E-04 | -3.108E-06 | 0.0000     |
| 87  | ELK2  | 0.0000     | 0.000E-04  | -2.026E-06 | -7.634E-04 | 0.0000     | 1.889E-06  |
| 88  | COMB1 | 0.0000     | -2.773E-04 | -1.951E-06 | 3.653E-06  | 0.0000     | -1.285E-06 |
| 89  | COMB2 | 0.0000     | 3.817E-05  | -4.163E-04 | -1.514E-06 | 9.111E-06  | 3.563E-06  |
| 90  | COMB3 | 0.0000     | 1.396E-04  | -2.602E-04 | -7.577E-04 | 1.243E-06  | 4.311E-06  |
| 91  | COMB4 | 0.0000     | -9.597E-04 | -1.902E-04 | 7.693E-04  | 1.091E-05  | 0.0000     |
| 92  | COMB5 | 0.0000     | 1.955E-03  | -3.257E-04 | -7.987E-04 | 1.018E-05  | 4.883E-06  |
| 93  | EL    | 0.0000     | -1.902E-03 | -3.350E-04 | 0.947E-04  | 1.664E-05  | 0.0000     |
| 94  | EL    | 0.0000     | -1.552E-03 | -9.540E-04 | 1.645E-04  | -1.176E-04 | 1.578E-05  |
| 95  | ELK1  | 0.0000     | -1.688E-04 | -2.108E-04 | 6.708E-05  | -3.533E-05 | 0.0000     |
| 96  | ELK2  | 0.0000     | 0.000E-03  | -1.042E-05 | -4.616E-04 | -2.143E-06 | -1.137E-05 |
| 97  | COMB1 | 0.0000     | -9.902E-03 | -7.705E-06 | 4.624E-04  | -1.757E-06 | -9.007E-06 |
| 98  | COMB2 | 0.0000     | -1.133E-03 | -1.438E-03 | 3.049E-04  | 1.244E-04  | 1.244E-05  |
| 99  | COMB3 | 0.0000     | 8.911E-03  | -8.691E-04 | -3.136E-04 | -1.080E-04 | 2.829E-06  |
| 100 | COMB4 | 0.0000     | -0.0111    | -1.664E-04 | 6.195E-04  | 1.941E-04  | 2.303E-05  |
| 101 | COMB5 | 0.0000     | -0.0111    | -1.143E-03 | -3.696E-04 | -1.167E-04 | 4.781E-06  |
| 102 | EL    | 0.0000     | -3.920E-04 | -7.325E-04 | 1.867E-04  | -6.320E-05 | -2.879E-06 |
| 103 | EL    | 0.0000     | -1.702E-05 | -1.584E-04 | 4.934E-05  | -1.903E-05 | 0.0000     |
| 104 | ELK1  | 0.0000     | 5.164E-03  | -6.802E-06 | -8.283E-04 | -1.374E-06 | -6.968E-06 |
| 105 | ELK2  | 0.0000     | -5.560E-03 | -4.098E-06 | 8.275E-04  | 1.501E-06  | 6.922E-06  |
| 106 | COMB1 | 0.0000     | -4.659E-04 | -1.133E-03 | 3.030E-04  | -1.051E-04 | -3.791E-06 |
| 107 | COMB2 | 0.0000     | 5.247E-03  | -6.653E-04 | -6.603E-04 | -5.736E-05 | -9.559E-06 |
| 108 | COMB3 | 0.0000     | -5.877E-03 | -6.632E-04 | 9.958E-04  | -5.448E-05 | 4.330E-06  |
| 109 | COMB4 | 0.0000     | 1.456E-03  | -5.752E-04 | -6.426E-04 | -7.874E-05 | -1.047E-05 |
| 110 | COMB5 | 0.0000     | -6.402E-03 | -7.731E-04 | 1.096E-03  | -7.572E-05 | 4.116E-06  |
| 111 | EL    | 0.0000     | 1.153E-05  | -1.765E-04 | 6.694E-06  | -1.187E-05 | -2.591E-06 |
| 112 | EL    | 0.0000     | 1.670E-06  | -8.277E-05 | -6.059E-06 | 3.111E-06  | 0.0000     |
| 113 | ELK1  | 0.0000     | 0.000E-04  | -2.026E-06 | -7.638E-04 | 0.0000     | -1.889E-06 |
| 114 | ELK2  | 0.0000     | -9.793E-04 | -1.351E-06 | 7.632E-04  | 0.0000     | 1.858E-06  |
| 115 | COMB1 | 0.0000     | 3.826E-05  | -4.162E-04 | -1.662E-06 | -9.111E-06 | -3.563E-06 |
| 116 | COMB2 | 0.0000     | 9.996E-04  | -2.509E-04 | -7.578E-04 | -1.043E-05 | -4.221E-06 |
| 117 | COMB3 | 0.0000     | -9.597E-04 | -2.502E-04 | 7.693E-04  | -1.090E-05 | 0.0000     |
| 118 | COMB4 | 0.0000     | 1.955E-03  | -3.257E-04 | -7.988E-04 | -1.017E-05 | -4.883E-06 |
| 119 | COMB5 | 0.0000     | -1.902E-03 | -3.350E-04 | 0.946E-04  | -1.007E-05 | 0.0000     |
| 120 | EL    | 1.159E-06  | -1.138E-03 | -9.824E-04 | 6.633E-05  | 1.385E-04  | 4.810E-05  |
| 121 | EL    | 1.159E-06  | -1.138E-03 | -9.824E-04 | 6.633E-05  | 1.385E-04  | 4.810E-05  |
| 122 | ELK1  | 0.0000     | 0.000E-03  | -8.843E-06 | -4.492E-04 | 0.0000     | -4.507E-05 |
| 123 | ELK2  | 1.159E-06  | -1.138E-03 | -9.824E-04 | 6.633E-05  | 1.385E-04  | 4.810E-05  |
| 124 | COMB1 | 1.159E-06  | -1.138E-03 | -9.824E-04 | 6.633E-05  | 1.385E-04  | 4.810E-05  |
| 125 | COMB2 | 1.159E-06  | -1.138E-03 | -9.824E-04 | 6.633E-05  | 1.385E-04  | 4.810E-05  |
| 126 | COMB3 | 1.159E-06  | -1.138E-03 | -9.824E-04 | 6.633E-05  | 1.385E-04  | 4.810E-05  |
| 127 | COMB4 | 1.159E-06  | -1.138E-03 | -9.824E-04 | 6.633E-05  | 1.385E-04  | 4.810E-05  |
| 128 | COMB5 | 1.159E-06  | -1.138E-03 | -9.824E-04 | 6.633E-05  | 1.385E-04  | 4.810E-05  |
| 129 | EL    | -6.502E-06 | -4.323E-04 | -7.545E-04 | 1.161E-04  | 7.898E-05  | 2.501E-06  |
| 130 | EL    | -5.147E-06 | -4.151E-05 | -1.764E-04 | 1.401E-05  | 2.968E-05  | 0.0000     |



|    |     |            |            |            |            |            |            |
|----|-----|------------|------------|------------|------------|------------|------------|
| 66 | 11  | 1.077E-05  | -1.077E-05 | -3.743E-04 | 6.945E-05  | -1.011E-04 | 8.551E-06  |
| 66 | 11A | 1.104E-05  | -1.044E-05 | -5.333E-05 | 1.735E-05  | -1.865E-05 | 1.292E-06  |
| 66 | 11B | 1.107E-05  | -1.037E-05 | -1.846E-05 | -6.097E-04 | 9.0000     | -4.187E-05 |
| 66 | 11C | 4.511E-05  | -4.544E-05 | 8.089E-05  | 6.175E-04  | 0.0000     | 3.938E-05  |
| 66 | 11D | 5.122E-05  | -9.500E-05 | -5.369E-04 | 1.111E-04  | -1.912E-04 | 1.729E-05  |
| 66 | 11E | 4.122E-05  | -4.122E-05 | -3.171E-04 | -5.472E-04 | -1.035E-04 | -3.417E-05 |
| 66 | 11F | 1.111E-05  | -1.111E-05 | -1.177E-04 | 6.809E-04  | -1.096E-04 | 4.693E-05  |
| 66 | 11G | 1.111E-05  | -1.111E-05 | -1.111E-04 | -1.563E-04 | -1.417E-04 | -5.101E-05 |
| 66 | 11H | 1.111E-05  | -4.642E-05 | -3.432E-04 | 1.322E-04  | -1.458E-04 | 5.299E-05  |
| 67 | 11  | 1.101E-05  | -1.054E-05 | -1.293E-04 | -6.159E-05 | 1.151E-05  | 1.376E-06  |
| 67 | 11A | 1.106E-05  | -1.119E-05 | -1.107E-05 | 1.251E-05  | 1.144E-05  | 1.169E-06  |
| 67 | 11B | 1.106E-05  | -1.054E-05 | -1.107E-05 | -5.799E-04 | 1.072E-06  | -4.752E-06 |
| 67 | 11C | 1.106E-05  | -1.054E-05 | 1.066E-05  | 6.537E-04  | -4.459E-06 | 1.746E-06  |
| 67 | 11D | 1.106E-05  | -1.101E-05 | -5.513E-04 | -5.333E-05 | 1.292E-04  | 1.893E-06  |
| 67 | 11E | 1.106E-05  | -1.101E-05 | -1.074E-04 | -4.502E-04 | -5.813E-05 | -2.713E-05 |
| 67 | 11F | 1.106E-05  | -1.054E-05 | -1.074E-04 | 1.334E-04  | -1.054E-05 | 1.335E-06  |
| 67 | 11G | 1.106E-05  | -1.054E-05 | -1.107E-05 | -6.159E-05 | 1.151E-05  | -1.399E-06 |
| 67 | 11H | 1.106E-05  | -1.054E-05 | -1.107E-05 | 1.251E-05  | 1.144E-05  | 6.173E-06  |
| 68 | 11  | 4.100E-05  | -1.105E-04 | -1.593E-04 | -3.599E-04 | -1.775E-04 | 7.480E-06  |
| 68 | 11A | 4.100E-05  | -1.105E-04 | -1.104E-04 | -6.679E-05 | -1.067E-04 | 1.770E-06  |
| 68 | 11B | 4.100E-05  | -1.105E-04 | -1.104E-04 | -1.104E-04 | -1.067E-04 | -1.997E-05 |
| 68 | 11C | 4.100E-05  | -1.105E-04 | 1.593E-04  | 1.982E-04  | 1.026E-06  | 1.197E-05  |
| 68 | 11D | 4.100E-05  | -1.105E-04 | -1.104E-04 | -1.104E-04 | -1.067E-04 | 1.341E-05  |
| 68 | 11E | 4.100E-05  | -1.105E-04 | -1.104E-04 | -1.104E-04 | -1.067E-04 | -1.133E-05 |
| 68 | 11F | 4.100E-05  | -1.105E-04 | -1.104E-04 | -1.104E-04 | -1.067E-04 | 1.931E-05  |
| 68 | 11G | 4.100E-05  | -1.105E-04 | -1.104E-04 | -1.104E-04 | -1.067E-04 | -1.042E-05 |
| 68 | 11H | 4.100E-05  | -1.105E-04 | -1.104E-04 | -1.104E-04 | -1.067E-04 | 1.175E-05  |
| 69 | 11  | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 69 | 11A | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 69 | 11B | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 69 | 11C | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 69 | 11D | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 69 | 11E | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 69 | 11F | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 69 | 11G | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 69 | 11H | -1.100E-05 | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11  | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11A | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11B | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11C | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11D | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11E | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11F | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11G | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 70 | 11H | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11  | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11A | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11B | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11C | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11D | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11E | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11F | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11G | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 71 | 11H | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11  | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11A | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11B | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11C | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11D | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11E | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11F | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11G | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 72 | 11H | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11  | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11A | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11B | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11C | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11D | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11E | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11F | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11G | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 73 | 11H | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11  | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11A | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11B | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11C | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11D | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11E | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11F | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11G | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 74 | 11H | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11  | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11A | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11B | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11C | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11D | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11E | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11F | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11G | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |
| 75 | 11H | 1.100E-05  | -1.100E-05 | -1.100E-04 | -1.100E-04 | -1.100E-04 | -1.100E-05 |













|       |       |            |            |            |            |            |            |
|-------|-------|------------|------------|------------|------------|------------|------------|
| 142   | GLB31 | -1.153E-04 | -3.153E-03 | -5.751E-03 | -3.345E-04 | 1.573E-05  | -3.703E-05 |
| 142   | GLB32 | 1.539E-04  | 7.443E-03  | -3.386E-03 | -1.641E-04 | 9.391E-04  | 1.719E-04  |
| 143   | GLB33 | 1.137E-04  | -7.106E-03 | -2.916E-03 | -1.914E-04 | 8.124E-04  | -2.409E-04 |
| 143   | GLB34 | 1.460E-04  | 7.732E-03  | -1.474E-03 | -0.239E-04 | 1.255E-03  | 1.735E-04  |
| 143   | GLB35 | 3.043E-04  | -9.239E-03 | -4.086E-03 | -1.525E-04 | 1.132E-03  | -2.599E-04 |
| <hr/> |       |            |            |            |            |            |            |
| 144   | GL    | 1.713E-04  | -1.109E-04 | -2.551E-03 | 1.471E-05  | -1.170E-04 | -1.675E-05 |
| 144   | GL    | 6.191E-05  | -6.863E-05 | -1.760E-03 | 9.419E-05  | -2.619E-05 | -6.753E-06 |
| 144   | GLKA  | 3.751E-05  | -1.13E-05  | -1.35E-04  | 1.870E-04  | 1.009E-05  | 1.092E-04  |
| 144   | GLKI  | 2.861E-05  | -1.459E-05 | 2.266E-04  | -1.627E-04 | -6.431E-06 | -1.064E-04 |
| 144   | GLK2  | 3.175E-04  | -1.877E-04 | -9.01E-05  | 7.163E-04  | -1.778E-04 | -6.838E-05 |
| 145   | GLB31 | 1.170E-04  | -3.169E-03 | -2.513E-03 | -2.743E-04 | -9.349E-05 | 6.714E-05  |
| 145   | GLB32 | 1.669E-04  | -9.064E-03 | -6.549E-03 | -1.499E-04 | -1.309E-04 | -1.484E-04 |
| 145   | GLB33 | 1.754E-04  | -1.354E-03 | -9.01E-04  | 9.343E-04  | -1.399E-04 | 6.196E-05  |
| 145   | GLB35 | 1.990E-04  | -9.613E-03 | -9.407E-03 | -1.192E-04 | -1.778E-04 | -1.644E-04 |
| <hr/> |       |            |            |            |            |            |            |
| 146   | GL    | 1.111E-04  | -9.154E-04 | -9.111E-03 | -3.998E-05 | -1.430E-04 | 1.273E-05  |
| 146   | GL    | 1.759E-05  | -7.138E-05 | -1.651E-03 | 1.851E-05  | -2.379E-05 | 4.194E-06  |
| 146   | GLKA  | -1.961E-05 | -9.129E-03 | -3.079E-04 | 3.671E-04  | 1.153E-05  | -2.193E-05 |
| 146   | GLKI  | 1.114E-06  | -9.051E-03 | 2.200E-04  | -2.451E-04 | -3.455E-06 | 1.793E-05  |
| 146   | GLK2  | 1.161E-04  | -9.510E-04 | -3.783E-05 | -3.601E-05 | -6.517E-05 | 3.404E-05  |
| 146   | GLK3  | -1.15E-05  | -9.11E-03  | -9.413E-03 | 3.319E-04  | -2.125E-05 | -1.429E-06 |
| 146   | GLK4  | 1.191E-04  | -9.678E-03 | -1.323E-03 | -0.903E-04 | -1.324E-05 | 3.643E-05  |
| 146   | GLK5  | 1.170E-04  | -1.513E-03 | -7.369E-03 | 3.819E-04  | -3.993E-05 | 3.835E-06  |
| 146   | GLK6  | 1.110E-04  | -9.610E-03 | -6.190E-03 | -2.917E-04 | -1.182E-05 | 4.538E-05  |
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| 147   | GL    | 1.193E-04  | -9.157E-04 | -7.939E-03 | -4.691E-05 | -6.899E-05 | -6.370E-05 |
| 147   | GL    | 4.167E-05  | -1.167E-04 | -1.655E-03 | 3.979E-05  | -1.943E-05 | -7.129E-06 |
| 147   | GLKA  | -1.978E-05 | -9.149E-03 | -1.691E-04 | 2.915E-04  | 1.159E-05  | 7.621E-05  |
| 147   | GLKI  | -1.954E-06 | -9.425E-03 | 2.659E-04  | -1.877E-04 | -6.561E-06 | -7.572E-05 |
| 147   | GLK2  | 1.937E-04  | -1.349E-03 | -0.0127    | 6.865E-06  | -1.615E-04 | -1.736E-05 |
| 147   | GLK3  | 2.470E-05  | 9.571E-03  | -7.205E-03 | 2.523E-04  | -3.520E-05 | 1.898E-05  |
| 147   | GLK4  | 1.954E-04  | -9.01E-03  | -6.971E-03 | -2.349E-04 | -1.365E-05 | -1.311E-04 |
| 147   | GLK5  | 1.767E-04  | -3.427E-03 | -9.385E-03 | 3.347E-04  | -5.939E-05 | 1.639E-06  |
| 147   | GLK6  | 1.470E-04  | -9.011E-03 | -8.732E-03 | -2.165E-04 | -1.197E-05 | -1.485E-04 |
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| 148   | GL    | 2.669E-05  | -1.235E-03 | -4.447E-03 | -9.684E-05 | -3.836E-04 | 1.959E-05  |
| 148   | GL    | 1.974E-05  | -1.297E-04 | -1.398E-03 | -1.107E-04 | -1.699E-04 | 3.392E-06  |
| 148   | GLKA  | -1.177E-05 | -9.465E-03 | -1.618E-04 | 3.999E-04  | 6.897E-06  | -1.119E-05 |
| 148   | GLKI  | 1.992E-06  | -9.679E-03 | 2.255E-04  | -2.669E-04 | -1.399E-06 | 1.956E-05  |
| 148   | GLK2  | 1.735E-04  | -1.677E-03 | -2.974E-03 | -1.189E-04 | -1.322E-04 | 1.773E-05  |
| 148   | GLK3  | 1.171E-05  | -1.669E-03 | -4.994E-03 | 3.158E-04  | -3.533E-04 | 1.111E-06  |
| 148   | GLK4  | 1.961E-05  | -9.01E-03  | -3.709E-03 | -3.535E-05 | -2.665E-06 | 1.703E-05  |
| 148   | GLK5  | 1.177E-05  | 5.866E-03  | -6.498E-05 | 3.186E-04  | -1.926E-04 | 6.541E-06  |
| 148   | GLK6  | 1.946E-04  | -9.011E-03 | -5.386E-03 | -3.317E-04 | -1.111E-04 | 3.047E-05  |
| <hr/> |       |            |            |            |            |            |            |
| 149   | GL    | 1.29E-05   | -1.115E-03 | -1.650E-03 | -9.951E-05 | -1.296E-05 | -8.163E-05 |
| 149   | GL    | 1.990E-05  | -1.512E-04 | -1.879E-03 | 1.876E-04  | 3.158E-06  | -6.999E-06 |
| 149   | GLKA  | -1.176E-05 | -9.679E-03 | -9.373E-04 | 3.356E-04  | 3.671E-06  | 1.121E-05  |
| 149   | GLKI  | 1.973E-06  | -9.123E-03 | 2.769E-04  | -1.111E-04 | -1.917E-06 | -1.908E-05 |
| 149   | GLK2  | 1.73E-05   | -1.296E-03 | -6.153E-03 | -5.477E-05 | -2.910E-05 | -1.357E-06 |
| 149   | GLK3  | 2.663E-05  | 1.669E-03  | -3.130E-03 | 2.733E-04  | -2.704E-05 | -1.334E-05 |
| 149   | GLK4  | 1.154E-05  | -9.011E-03 | -3.933E-03 | -2.746E-04 | -3.361E-05 | -9.554E-05 |
| 149   | GLK5  | 1.97E-05   | 7.78E-03   | -6.472E-03 | 1.915E-04  | -1.168E-05 | -2.427E-05 |
| 149   | GLK6  | 1.946E-05  | -9.011E-03 | -5.615E-03 | -2.842E-04 | -3.319E-05 | -1.106E-04 |
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| 150   | GL    | 1.98E-05   | -1.115E-03 | -1.650E-03 | -9.951E-05 | -1.296E-05 | -8.163E-05 |
| 150   | GL    | 1.990E-05  | -1.512E-04 | -1.879E-03 | 1.876E-04  | 3.158E-06  | -6.999E-06 |
| 150   | GLKA  | -1.176E-05 | -9.679E-03 | -9.373E-04 | 3.356E-04  | 3.671E-06  | 1.121E-05  |
| 150   | GLKI  | 1.973E-06  | -9.123E-03 | 2.769E-04  | -1.111E-04 | -1.917E-06 | -1.908E-05 |
| 150   | GLK2  | 1.73E-05   | -1.296E-03 | -6.153E-03 | -5.477E-05 | -2.910E-05 | -1.357E-06 |
| 150   | GLK3  | 2.663E-05  | 1.669E-03  | -3.130E-03 | 2.733E-04  | -2.704E-05 | -1.335E-05 |
| 150   | GLK4  | 1.154E-05  | -9.011E-03 | -3.933E-03 | -2.746E-04 | -3.361E-05 | -9.554E-05 |
| 150   | GLK5  | 1.97E-05   | 7.78E-03   | -6.472E-03 | 1.915E-04  | -1.168E-05 | -2.427E-05 |
| 150   | GLK6  | 1.946E-05  | -9.011E-03 | -5.615E-03 | -2.842E-04 | -3.319E-05 | -1.106E-04 |
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| 151   | GL    | -1.970E-05 | -1.115E-03 | -1.650E-03 | -9.951E-05 | -1.296E-05 | -8.163E-05 |
| 151   | GL    | -1.974E-05 | -1.512E-04 | -1.879E-03 | -1.196E-05 | 1.699E-04  | -3.391E-06 |
| 151   | GLKA  | 1.167E-05  | -9.165E-03 | -3.612E-04 | 4.099E-05  | -6.471E-04 | 1.149E-05  |
| 151   | GLKI  | -1.999E-05 | -9.179E-03 | 1.989E-04  | -9.669E-04 | 1.209E-06  | -1.930E-05 |
| 151   | GLK2  | -1.939E-04 | -1.677E-03 | -2.974E-03 | -1.189E-04 | 7.322E-04  | -2.773E-05 |
| 151   | GLK3  | -9.129E-05 | -1.669E-03 | -4.994E-03 | 3.159E-04  | 3.364E-04  | -4.240E-06 |
| 151   | GLK4  | -1.172E-05 | -9.01E-03  | -3.750E-03 | -2.532E-04 | 3.465E-04  | -2.763E-05 |
| 151   | GLK5  | -1.17E-05  | 7.86E-03   | -6.498E-05 | 3.186E-04  | 5.920E-04  | -6.540E-06 |
| 151   | GLK6  | -1.176E-05 | -9.011E-03 | -5.386E-03 | -3.317E-04 | 5.111E-04  | -3.247E-05 |
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| 152   | GL    | -1.970E-05 | -1.115E-03 | -1.650E-03 | -9.951E-05 | -1.296E-05 | -8.163E-05 |
| 152   | GL    | -1.974E-05 | -1.512E-04 | -1.879E-03 | -1.196E-05 | 1.699E-04  | -3.391E-06 |
| 152   | GLKA  | 1.167E-05  | -9.165E-03 | -3.612E-04 | 4.099E-05  | -6.471E-04 | 1.149E-05  |
| 152   | GLKI  | -1.999E-05 | -9.179E-03 | 1.989E-04  | -9.669E-04 | 1.209E-06  | -1.930E-05 |
| 152   | GLK2  | -1.939E-04 | -1.677E-03 | -2.974E-03 | -1.189E-04 | 7.322E-04  | -2.773E-05 |
| 152   | GLK3  | -9.129E-05 | -1.669E-03 | -4.994E-03 | 3.159E-04  | 3.364E-04  | -4.240E-06 |
| 152   | GLK4  | -1.172E-05 | -9.01E-03  | -3.750E-03 | -2.532E-04 | 3.465E-04  | -2.763E-05 |
| 152   | GLK5  | -1.17E-05  | 7.86E-03   | -6.498E-05 | 3.186E-04  | 5.920E-04  | -6.540E-06 |
| 152   | GLK6  | -1.176E-05 | -9.011E-03 | -5.386E-03 | -3.317E-04 | 5.107E-05  | 1.488E-04  |
| <hr/> |       |            |            |            |            |            |            |
| 153   | GL    | -1.411E-04 | -8.361E-04 | -5.114E-03 | -3.963E-05 | 4.420E-05  | -2.278E-05 |
| 153   | GL    | -1.548E-05 | -8.234E-05 | -1.654E-03 | 1.051E-05  | 7.589E-06  | -4.194E-06 |
| 153   | GLKA  | 2.261E-05  | -1.131E-03 | -3.979E-04 | 3.671E-04  | -1.183E-05 | 2.193E-05  |







|     |        |        |            |            |            |            |            |
|-----|--------|--------|------------|------------|------------|------------|------------|
| 171 | EL     | 0.0000 | -1.133E-04 | -9.334E-04 | 0.0000     | 0.0000     | -1.387E-06 |
| 171 | ELKA   | 0.0000 | -1.133E-04 | -1.643E-03 | -1.969E-04 | 0.0000     | -1.163E-04 |
| 171 | ELKI   | 0.0000 | -1.133E-04 | -1.638E-03 | 1.969E-04  | 0.0000     | 1.163E-04  |
| 171 | COMB1  | 0.0000 | -1.133E-04 | -2.670E-03 | 0.0000     | -7.091E-06 | 1.248E-04  |
| 171 | COMB2  | 0.0000 | -1.133E-04 | -1.909E-03 | -1.899E-04 | -4.718E-06 | -2.765E-05 |
| 171 | COMB3  | 0.0000 | -1.133E-04 | -1.909E-03 | 1.899E-04  | -4.718E-06 | 1.915E-04  |
| 171 | COMB4  | 0.0000 | -1.133E-04 | -1.909E-03 | -1.899E-04 | -4.718E-06 | -1.915E-04 |
| 171 | COMB5  | 0.0000 | -1.133E-04 | -1.909E-03 | 1.899E-04  | -4.718E-06 | 1.915E-04  |
|     |        |        |            |            |            |            |            |
| 172 | EL     | 0.0000 | -1.133E-04 | -1.191E-03 | -6.443E-05 | 1.475E-05  | 0.000E-05  |
| 172 | ELKA   | 0.0000 | -1.133E-04 | -4.567E-04 | -2.943E-04 | 1.253E-05  | 0.186E-06  |
| 172 | ELKI   | 0.0000 | -1.133E-04 | -4.567E-04 | 2.943E-04  | 0.0000     | -1.971E-04 |
| 172 | COMB1  | 0.0000 | -1.133E-04 | -1.632E-03 | 0.433E-04  | 0.0000     | 1.995E-04  |
| 172 | COMB2  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.609E-04 | 1.133E-05  | 1.237E-04  |
| 172 | COMB3  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.609E-04  | 1.133E-05  | -2.606E-04 |
| 172 | COMB4  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.609E-04 | 1.133E-05  | 1.237E-04  |
| 172 | COMB5  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.609E-04  | 1.133E-05  | -2.606E-04 |
|     |        |        |            |            |            |            |            |
| 173 | EL     | 0.0000 | -1.133E-04 | -1.191E-03 | 1.543E-04  | -1.133E-05 | -1.362E-05 |
| 173 | ELKA   | 0.0000 | -1.133E-04 | -1.632E-03 | 1.543E-04  | -1.133E-05 | 0.381E-06  |
| 173 | ELKI   | 0.0000 | -1.133E-04 | -1.632E-03 | -1.543E-04 | 0.0000     | -1.776E-04 |
| 173 | COMB1  | 0.0000 | -1.133E-04 | -1.632E-03 | 0.722E-04  | -2.589E-06 | 1.723E-04  |
| 173 | COMB2  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.677E-04  | -1.294E-05 | 0.886E-05  |
| 173 | COMB3  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.677E-04 | 1.294E-05  | -1.150E-04 |
| 173 | COMB4  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.677E-04  | -1.294E-05 | 2.349E-04  |
| 173 | COMB5  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.677E-04 | 1.294E-05  | -1.074E-04 |
| 173 | COMB6  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.677E-04  | -1.294E-05 | 1.600E-04  |
|     |        |        |            |            |            |            |            |
| 174 | EL     | 0.0000 | -1.133E-04 | -1.191E-03 | 0.399E-06  | -1.239E-05 | 7.290E-05  |
| 174 | ELKA   | 0.0000 | -1.133E-04 | -1.632E-03 | 0.399E-06  | -1.239E-05 | 0.409E-06  |
| 174 | ELKI   | 0.0000 | -1.133E-04 | -1.632E-03 | -0.399E-06 | 0.0000     | -1.935E-04 |
| 174 | COMB1  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.755E-04  | 0.0000     | 1.937E-04  |
| 174 | COMB2  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.143E-04  | -1.083E-05 | 1.909E-04  |
| 174 | COMB3  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.143E-04 | 1.083E-05  | -1.237E-04 |
| 174 | COMB4  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.870E-04  | -1.131E-05 | 2.593E-04  |
| 174 | COMB5  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.870E-04 | 1.131E-05  | -1.214E-04 |
| 174 | COMB6  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.977E-04  | -1.556E-05 | 2.852E-04  |
|     |        |        |            |            |            |            |            |
| 175 | EL     | 0.0000 | -1.133E-04 | -1.191E-03 | 0.399E-06  | -1.239E-05 | 7.290E-05  |
| 175 | ELKA   | 0.0000 | -1.133E-04 | -1.632E-03 | 0.399E-06  | -1.239E-05 | 0.409E-06  |
| 175 | ELKI   | 0.0000 | -1.133E-04 | -1.632E-03 | -0.399E-06 | 0.0000     | -1.935E-04 |
| 175 | COMB1  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.755E-04  | 0.0000     | 1.937E-04  |
| 175 | COMB2  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.143E-04  | -1.083E-05 | 1.909E-04  |
| 175 | COMB3  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.143E-04 | 1.083E-05  | -1.237E-04 |
| 175 | COMB4  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.870E-04  | -1.131E-05 | 2.593E-04  |
| 175 | COMB5  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.870E-04 | 1.131E-05  | -1.214E-04 |
| 175 | COMB6  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.977E-04  | -1.556E-05 | 2.852E-04  |
|     |        |        |            |            |            |            |            |
| 176 | EL     | 0.0000 | -1.133E-04 | -1.191E-03 | -2.945E-04 | -7.141E-06 | 6.392E-05  |
| 176 | ELKA   | 0.0000 | -1.133E-04 | -4.603E-04 | -3.339E-04 | -1.356E-05 | 0.144E-06  |
| 176 | ELKI   | 0.0000 | -1.133E-04 | -4.603E-04 | 3.339E-04  | 0.0000     | -1.753E-04 |
| 176 | COMB1  | 0.0000 | -1.133E-04 | -1.632E-03 | 4.751E-04  | 0.0000     | 1.794E-04  |
| 176 | COMB2  | 0.0000 | -1.133E-04 | -1.632E-03 | -8.759E-04 | -1.139E-05 | 0.641E-05  |
| 176 | COMB3  | 0.0000 | -1.133E-04 | -1.632E-03 | 1.125E-03  | -7.381E-06 | -1.174E-04 |
| 176 | COMB4  | 0.0000 | -1.133E-04 | -1.632E-03 | 2.236E-04  | -8.269E-06 | 1.369E-04  |
| 176 | COMB5  | 0.0000 | -1.133E-04 | -1.632E-03 | -1.424E-03 | 9.503E-06  | -1.127E-04 |
| 176 | COMB6  | 0.0000 | -1.133E-04 | -1.632E-03 | 6.971E-06  | -1.440E-05 | 2.893E-04  |
|     |        |        |            |            |            |            |            |
| 177 | EL     | 0.0000 | -1.133E-04 | -1.407E-03 | 5.992E-04  | -6.764E-05 | 4.975E-05  |
| 177 | ELKA   | 0.0000 | -1.133E-04 | -3.599E-04 | 2.745E-04  | -1.944E-05 | 1.321E-05  |
| 177 | ELKI   | 0.0000 | -1.133E-04 | -3.599E-04 | -2.745E-04 | 1.754E-05  | -1.901E-04 |
| 177 | COMB1  | 0.0000 | -1.133E-04 | -3.599E-04 | 4.937E-04  | -1.896E-05 | 1.825E-04  |
| 177 | COMB2  | 0.0000 | -1.133E-04 | -3.599E-04 | 1.156E-03  | -9.738E-05 | 7.923E-05  |
| 177 | COMB3  | 0.0000 | -1.133E-04 | -3.599E-04 | 1.932E-04  | -4.534E-05 | -1.353E-04 |
| 177 | COMB4  | 0.0000 | -1.133E-04 | -3.599E-04 | 1.935E-03  | -7.294E-05 | 2.073E-04  |
| 177 | COMB5  | 0.0000 | -1.133E-04 | -3.599E-04 | -1.751E-03 | 5.919E-05  | -1.292E-04 |
| 177 | COMB6  | 0.0000 | -1.133E-04 | -3.599E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
|     |        |        |            |            |            |            |            |
| 178 | EL     | 0.0000 | -1.133E-04 | -1.431E-03 | -5.561E-04 | -6.627E-05 | 0.335E-06  |
| 178 | ELKA   | 0.0000 | -1.133E-04 | -1.603E-04 | -1.567E-04 | -1.319E-05 | -4.544E-06 |
| 178 | ELKI   | 0.0000 | -1.133E-04 | -1.603E-04 | 1.567E-04  | 0.0000     | -1.868E-04 |
| 178 | COMB1  | 0.0000 | -1.133E-04 | -1.603E-04 | -1.939E-04 | -1.756E-05 | -1.868E-04 |
| 178 | COMB2  | 0.0000 | -1.133E-04 | -1.603E-04 | 4.937E-04  | -1.896E-05 | 1.825E-04  |
| 178 | COMB3  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.156E-03  | -9.738E-05 | 7.923E-05  |
| 178 | COMB4  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.932E-04  | -4.534E-05 | -1.353E-04 |
| 178 | COMB5  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.935E-03  | -7.294E-05 | 2.073E-04  |
| 178 | COMB6  | 0.0000 | -1.133E-04 | -1.603E-04 | -1.751E-03 | 5.919E-05  | -1.292E-04 |
| 178 | COMB7  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
|     |        |        |            |            |            |            |            |
| 179 | EL     | 0.0000 | -1.133E-04 | -1.431E-03 | -5.561E-04 | -6.627E-05 | 0.335E-06  |
| 179 | ELKA   | 0.0000 | -1.133E-04 | -1.603E-04 | -1.567E-04 | -1.319E-05 | -4.544E-06 |
| 179 | ELKI   | 0.0000 | -1.133E-04 | -1.603E-04 | 1.567E-04  | 0.0000     | -1.868E-04 |
| 179 | COMB1  | 0.0000 | -1.133E-04 | -1.603E-04 | -1.939E-04 | -1.756E-05 | -1.868E-04 |
| 179 | COMB2  | 0.0000 | -1.133E-04 | -1.603E-04 | 4.937E-04  | -1.896E-05 | 1.825E-04  |
| 179 | COMB3  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.156E-03  | -9.738E-05 | 7.923E-05  |
| 179 | COMB4  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.932E-04  | -4.534E-05 | -1.353E-04 |
| 179 | COMB5  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.935E-03  | -7.294E-05 | 2.073E-04  |
| 179 | COMB6  | 0.0000 | -1.133E-04 | -1.603E-04 | -1.751E-03 | 5.919E-05  | -1.292E-04 |
| 179 | COMB7  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB8  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB9  | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB10 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB11 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB12 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB13 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB14 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB15 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB16 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB17 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB18 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB19 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB20 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB21 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB22 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB23 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB24 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB25 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB26 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB27 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB28 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB29 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB30 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB31 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB32 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB33 | 0.0000 | -1.133E-04 | -1.603E-04 | 1.830E-03  | -9.751E-05 | 2.515E-04  |
| 179 | COMB34 | 0.0    |            |            |            |            |            |

|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 131 | EL    | -1.170E-05 | -1.199E-04 | -1.743E-03 | -1.620E-04 | -9.554E-05 | -1.942E-05 |
| 131 | EL    | -9.164E-05 | -1.130E-03 | -1.709E-03 | -1.853E-03 | -1.776E-05 | -1.937E-06 |
| 131 | ELKA  | -1.121E-04 | -1.710E-03 | -1.791E-04 | -1.652E-04 | -3.769E-06 | 5.123E-05  |
| 131 | ELKI  | -1.184E-05 | -1.910E-04 | -1.800E-04 | -3.491E-04 | -8.943E-06 | -5.053E-05 |
| 131 | COMB1 | -5.199E-05 | -1.341E-04 | -0.0137    | -3.163E-04 | -1.131E-04 | -2.648E-05 |
| 131 | COMB2 | -1.114E-05 | -1.130E-03 | -1.770E-03 | -1.136E-04 | -3.372E-05 | 3.390E-05  |
| 131 | COMB3 | -8.799E-05 | -1.140E-03 | -1.969E-03 | -1.966E-04 | -9.193E-05 | -6.891E-05 |
| 131 | COMB4 | -1.179E-05 | -1.841E-03 | -1.913E-03 | -1.966E-05 | -1.871E-04 | 3.239E-05  |
| 131 | COMB5 | -6.131E-07 | -1.141E-03 | -9.173E-03 | -4.801E-04 | -1.709E-04 | -7.470E-05 |
|     |       |            |            |            |            |            |            |
| 132 | EL    | -1.169E-05 | -1.176E-04 | -1.713E-03 | -1.199E-03 | -1.401E-05 | 6.598E-06  |
| 132 | EL    | -1.190E-05 | -1.693E-04 | -1.663E-03 | -1.166E-03 | -1.166E-05 | 1.753E-06  |
| 132 | ELKA  | -1.161E-05 | -1.141E-03 | -1.136E-04 | -3.874E-04 | 0.0000     | -1.051E-05 |
| 132 | ELKI  | -1.199E-05 | -1.147E-03 | -1.693E-03 | -1.671E-04 | -1.199E-06 | 1.049E-05  |
| 132 | COMB1 | -1.111E-05 | -1.131E-04 | -1.166E-03 | -1.911E-04 | -1.166E-05 | 1.061E-05  |
| 132 | COMB2 | -1.119E-05 | -1.138E-04 | -4.728E-03 | -1.890E-04 | -1.182E-05 | -4.650E-06 |
| 132 | COMB3 | -1.119E-05 | -1.143E-03 | -4.728E-03 | -1.750E-04 | -1.141E-05 | 1.635E-05  |
| 132 | COMB4 | -1.166E-05 | -1.138E-03 | -6.197E-03 | -1.613E-04 | -1.143E-05 | -1.695E-06 |
| 132 | COMB5 | -1.167E-05 | -1.137E-03 | -6.194E-03 | -1.291E-04 | -1.177E-05 | 1.392E-05  |
|     |       |            |            |            |            |            |            |
| 133 | EL    | -1.161E-05 | -1.199E-04 | -1.743E-03 | -1.647E-04 | -1.490E-05 | -1.140E-05 |
| 133 | EL    | -1.179E-05 | -1.167E-03 | -1.713E-03 | -1.377E-03 | -9.999E-06 | 0.0000     |
| 133 | ELKA  | -1.166E-05 | -1.709E-03 | -1.776E-04 | -1.941E-04 | -1.138E-06 | 3.232E-05  |
| 133 | ELKI  | -1.189E-05 | -1.909E-03 | -1.811E-03 | -1.737E-04 | 0.0000     | -1.967E-05 |
| 133 | COMB1 | -1.118E-05 | -1.138E-04 | -0.0135    | -3.163E-04 | -1.131E-04 | -1.450E-05 |
| 133 | COMB2 | -1.170E-05 | -1.199E-03 | -1.959E-03 | -1.461E-04 | -1.199E-05 | 1.196E-05  |
| 133 | COMB3 | -1.171E-05 | -1.195E-03 | -1.841E-03 | -1.116E-04 | -1.143E-05 | -4.832E-05 |
| 133 | COMB4 | -1.188E-05 | -1.143E-03 | -1.361E-03 | -1.966E-05 | -1.193E-05 | 7.889E-05  |
| 133 | COMB5 | -4.104E-05 | -1.006E-03 | -9.653E-03 | -5.063E-04 | -1.117E-05 | -5.290E-05 |
|     |       |            |            |            |            |            |            |
| 134 | EL    | -1.179E-05 | -1.199E-04 | -1.769E-03 | -1.377E-04 | -1.419E-04 | 3.739E-06  |
| 134 | EL    | -1.194E-05 | -1.176E-03 | -1.700E-03 | -1.995E-03 | -1.768E-04 | 0.0000     |
| 134 | ELKA  | -1.170E-05 | -1.759E-03 | -1.802E-04 | -1.149E-04 | -1.149E-06 | -1.233E-06 |
| 134 | ELKI  | -1.188E-05 | -1.753E-03 | -4.287E-03 | -1.839E-04 | -1.111E-06 | 1.111E-06  |
| 134 | COMB1 | -1.122E-05 | -1.138E-04 | -1.309E-03 | -1.107E-04 | -1.107E-04 | 1.736E-06  |
| 134 | COMB2 | -1.171E-05 | -1.073E-03 | -4.343E-03 | -1.913E-04 | -1.090E-04 | -3.950E-05 |
| 134 | COMB3 | -1.176E-05 | -1.840E-03 | -4.534E-03 | -1.105E-04 | -1.145E-04 | 1.046E-05  |
| 134 | COMB4 | -1.176E-05 | -1.054E-03 | -5.933E-03 | -1.728E-04 | -1.713E-04 | -1.186E-06 |
| 134 | COMB5 | -1.145E-05 | -1.199E-03 | -6.198E-03 | -1.714E-04 | -1.776E-04 | 1.188E-05  |
|     |       |            |            |            |            |            |            |
| 135 | EL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 135 | EL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 135 | ELKA  | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 135 | ELKI  | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 135 | COMB1 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 135 | COMB2 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 135 | COMB3 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 135 | COMB4 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 135 | COMB5 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
|     |       |            |            |            |            |            |            |
| 136 | EL    | -1.179E-05 | -1.199E-04 | -1.753E-03 | -1.377E-04 | -1.391E-04 | 1.087E-05  |
| 136 | EL    | -1.199E-05 | -1.199E-03 | -1.815E-03 | -1.669E-03 | -1.190E-04 | 0.0000     |
| 136 | ELKA  | -1.199E-05 | -1.849E-03 | -1.843E-04 | -1.199E-04 | -1.199E-06 | 1.031E-05  |
| 136 | ELKI  | -1.199E-05 | -1.849E-03 | -1.843E-04 | -1.199E-04 | -1.199E-06 | -1.057E-05 |
| 136 | COMB1 | -1.149E-05 | -1.199E-04 | -1.792E-03 | -1.399E-04 | -1.496E-04 | 1.134E-05  |
| 136 | COMB2 | -1.199E-05 | -1.169E-03 | -4.855E-03 | -1.136E-04 | -1.117E-04 | 3.910E-05  |
| 136 | COMB3 | -1.199E-05 | -1.164E-03 | -4.757E-03 | -1.123E-04 | -1.123E-04 | -1.078E-05 |
| 136 | COMB4 | -1.199E-05 | -1.166E-03 | -6.796E-03 | -1.333E-04 | -1.136E-04 | 3.236E-05  |
| 136 | COMB5 | -1.199E-05 | -1.161E-03 | -6.499E-03 | -1.743E-04 | -1.116E-04 | -1.007E-05 |
|     |       |            |            |            |            |            |            |
| 137 | EL    | -1.199E-05 | -1.199E-04 | -1.195E-03 | -1.391E-03 | -1.491E-04 | 1.809E-06  |
| 137 | EL    | -1.199E-05 | -1.199E-03 | -1.675E-03 | -1.531E-03 | -1.161E-04 | 1.430E-06  |
| 137 | ELKA  | -1.199E-05 | -1.199E-03 | -1.799E-04 | -1.199E-04 | -1.199E-06 | -1.199E-06 |
| 137 | ELKI  | -1.199E-05 | -1.199E-03 | -1.799E-03 | -1.199E-04 | -1.199E-06 | 1.199E-06  |
| 137 | COMB1 | -1.199E-05 | -1.199E-03 | -1.422E-03 | -1.222E-03 | -1.199E-04 | 1.566E-05  |
| 137 | COMB2 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.566E-05  |
| 137 | COMB3 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.566E-05  |
| 137 | COMB4 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.566E-05  |
| 137 | COMB5 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.566E-05  |
|     |       |            |            |            |            |            |            |
| 138 | EL    | -1.199E-05 | -1.199E-04 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 0.015E-05  |
| 138 | EL    | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 2.421E-06  |
| 138 | ELKA  | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 138 | ELKI  | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.199E-05  |
| 138 | COMB1 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.199E-05  |
| 138 | COMB2 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.199E-05  |
| 138 | COMB3 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.199E-05  |
| 138 | COMB4 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.199E-05  |
| 138 | COMB5 | -1.199E-05 | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | 1.199E-05  |
|     |       |            |            |            |            |            |            |
| 139 | EL    | 1.199E-05  | -1.199E-04 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 139 | EL    | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 139 | ELKA  | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 139 | ELKI  | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 139 | COMB1 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 139 | COMB2 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 139 | COMB3 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 139 | COMB4 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 139 | COMB5 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
|     |       |            |            |            |            |            |            |
| 140 | EL    | 1.199E-05  | -1.199E-04 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 140 | EL    | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 140 | ELKA  | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 140 | ELKI  | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 140 | COMB1 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 140 | COMB2 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 140 | COMB3 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 140 | COMB4 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 140 | COMB5 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
|     |       |            |            |            |            |            |            |
| 141 | EL    | 1.199E-05  | -1.199E-04 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 141 | EL    | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 141 | ELKA  | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 141 | ELKI  | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 141 | COMB1 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 141 | COMB2 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 141 | COMB3 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 141 | COMB4 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 141 | COMB5 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
|     |       |            |            |            |            |            |            |
| 142 | EL    | 1.199E-05  | -1.199E-04 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 142 | EL    | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 142 | ELKA  | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 142 | ELKI  | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 142 | COMB1 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 142 | COMB2 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 142 | COMB3 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 142 | COMB4 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |
| 142 | COMB5 | 1.199E-05  | -1.199E-03 | -1.199E-03 | -1.199E-03 | -1.199E-04 | -1.199E-05 |

|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 181 | EL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 181 | EL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 181 | ELKA  | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 181 | ELKI  | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 181 | COMB1 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 181 | COMB2 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 181 | COMB3 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 181 | COMB4 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 181 | COMB5 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
|     |       |            |            |            |            |            |            |
| 191 | EL    | -1.018E-05 | -2.563E-04 | -7.743E-03 | -1.629E-01 | 9.754E-08  | 1.941E-05  |
| 191 | EL    | -5.441E-05 | -2.750E-05 | -2.755E-03 | -7.553E-01 | 1.775E-07  | 1.967E-06  |
| 191 | ELKA  | -2.427E-06 | -4.216E-03 | 1.781E-04  | 2.650E-04  | -3.766E-08 | -2.123E-05 |
| 191 | ELKI  | 1.184E-05  | -4.918E-03 | -1.002E-04 | -2.491E-04 | 9.243E-06  | 5.953E-05  |
| 191 | COMB1 | -1.637E-05 | -3.411E-04 | -6.913E-03 | -3.163E-01 | 1.431E-04  | 2.643E-08  |
| 191 | COMB2 | 1.463E-05  | -4.690E-03 | -6.790E-03 | 1.186E-04  | 6.271E-05  | -3.380E-05 |
| 191 | COMB3 | -3.705E-05 | -5.143E-03 | -7.069E-03 | -3.956E-04 | 9.393E-05  | 6.801E-06  |
| 191 | COMB4 | 4.138E-05  | -4.981E-03 | -9.681E-03 | 5.926E-05  | 1.081E-04  | -3.220E-05 |
| 191 | COMB5 | -6.165E-05 | -5.444E-03 | -9.973E-03 | -4.691E-04 | 1.709E-04  | 7.470E-06  |
|     |       |            |            |            |            |            |            |
| 191 | EL    | 2.399E-05  | -3.376E-04 | -5.413E-03 | -1.199E-04 | 2.099E-05  | -6.503E-06 |
| 191 | EL    | 2.660E-07  | -3.693E-05 | -1.663E-03 | -3.295E-01 | 3.393E-06  | -1.743E-06 |
| 191 | ELKA  | -1.621E-06 | -5.141E-03 | 1.436E-04  | 3.870E-04  | 0.0000     | 1.051E-05  |
| 191 | ELKI  | 1.673E-05  | -5.141E-03 | -5.033E-05 | -3.651E-04 | 1.709E-06  | -1.049E-05 |
| 191 | COMB1 | 7.113E-05  | -4.531E-04 | -9.156E-03 | -1.951E-04 | 3.364E-05  | -1.082E-05 |
| 191 | COMB2 | 1.702E-05  | -4.837E-03 | -4.723E-03 | 1.200E-04  | 1.709E-05  | 7.662E-06  |
| 191 | COMB3 | 3.233E-05  | -5.446E-03 | -4.922E-03 | -4.130E-04 | 2.309E-05  | -1.035E-05 |
| 191 | COMB4 | 5.435E-05  | -5.025E-03 | -6.580E-03 | 2.612E-04  | 2.740E-05  | 3.094E-06  |
| 191 | COMB5 | 1.478E-05  | -5.772E-03 | -6.784E-03 | -5.097E-04 | 2.275E-05  | -1.936E-05 |
|     |       |            |            |            |            |            |            |
| 193 | EL    | 2.948E-05  | -3.892E-04 | -7.485E-03 | -1.647E-04 | 1.490E-05  | 1.110E-05  |
| 193 | EL    | 1.437E-07  | -3.863E-05 | -2.712E-03 | -7.377E-05 | 1.000E-06  | 0.0000     |
| 193 | ELKA  | -7.670E-06 | -5.309E-03 | 1.776E-04  | 2.944E-04  | 1.703E-06  | -5.921E-06 |
| 193 | ELKI  | 3.630E-06  | -5.303E-03 | -8.114E-05 | -2.752E-04 | 0.0000     | 2.187E-05  |
| 193 | COMB1 | 6.760E-06  | -4.283E-04 | -0.0133    | -3.157E-04 | 3.227E-05  | 1.450E-05  |
| 193 | COMB2 | 1.679E-05  | -4.959E-03 | -6.550E-03 | 1.461E-04  | 1.455E-05  | -2.896E-05 |
| 193 | COMB3 | 7.001E-05  | -4.688E-03 | -6.818E-03 | -4.115E-04 | 1.472E-05  | -4.893E-05 |
| 193 | COMB4 | 2.044E-05  | -5.113E-03 | -9.382E-03 | 9.966E-05  | 1.243E-05  | -1.889E-05 |
| 193 | COMB5 | 1.703E-05  | -5.106E-03 | -1.653E-03 | -5.963E-04 | 2.017E-05  | 5.096E-05  |
|     |       |            |            |            |            |            |            |
| 194 | EL    | 1.708E-05  | -4.304E-04 | -4.990E-03 | -1.377E-01 | 3.461E-04  | -3.721E-06 |
| 194 | EL    | 1.984E-05  | -2.460E-05 | -1.450E-03 | -1.995E-05 | 1.765E-04  | 0.0000     |
| 194 | ELKA  | -6.706E-06 | -1.459E-03 | 1.482E-04  | 4.149E-04  | -3.249E-06 | 7.238E-06  |
| 194 | ELKI  | 0.586E-06  | -5.453E-03 | -4.287E-05 | -3.969E-04 | 3.382E-06  | -7.113E-06 |
| 194 | COMB1 | 5.221E-06  | -4.718E-04 | -3.308E-03 | -2.127E-04 | 6.973E-04  | -5.738E-06 |
| 194 | COMB2 | 0.667E-06  | -5.972E-03 | -4.343E-03 | 2.915E-04  | 3.093E-04  | 3.949E-06  |
| 194 | COMB3 | 2.596E-06  | -4.740E-03 | -4.534E-03 | -5.125E-04 | 3.145E-04  | -1.046E-05 |
| 194 | COMB4 | 2.339E-05  | -5.359E-03 | -5.997E-03 | 2.726E-04  | 4.723E-04  | 3.255E-06  |
| 194 | COMB5 | 3.945E-05  | -6.199E-03 | -6.198E-03 | -5.714E-04 | 4.781E-04  | -1.189E-05 |
|     |       |            |            |            |            |            |            |
| 196 | EL    | 1.183E-05  | -5.790E-04 | -1.339E-03 | -2.070E-04 | 1.401E-04  | -1.088E-05 |
| 196 | EL    | 1.082E-05  | -5.126E-05 | -1.513E-03 | -5.669E-05 | 1.335E-04  | 0.0000     |
| 196 | ELKA  | -4.002E-06 | -7.719E-03 | 1.543E-04  | 3.289E-04  | -3.426E-06 | -2.031E-05 |
| 196 | ELKI  | 7.169E-06  | -4.117E-03 | -4.908E-05 | -3.069E-04 | 4.197E-06  | 2.057E-05  |
| 196 | COMB1 | 1.184E-05  | -4.295E-04 | -5.699E-03 | -3.391E-04 | 3.190E-04  | -1.334E-05 |
| 196 | COMB2 | 7.502E-06  | -5.168E-03 | -4.553E-03 | 1.136E-04  | 1.227E-04  | 3.010E-05  |
| 196 | COMB3 | 2.997E-05  | -5.864E-03 | -4.755E-03 | -4.923E-04 | 1.303E-04  | 1.078E-05  |
| 196 | COMB4 | 2.017E-05  | -4.365E-03 | -6.283E-03 | 9.330E-05  | 2.151E-04  | -3.286E-05 |
| 196 | COMB5 | 2.402E-05  | -4.215E-03 | -6.496E-03 | -5.744E-04 | 2.231E-04  | 1.007E-05  |
|     |       |            |            |            |            |            |            |
| 196 | EL    | 1.172E-05  | -5.713E-04 | -4.191E-03 | -5.270E-05 | 1.183E-04  | -9.910E-06 |
| 196 | EL    | 1.170E-05  | -5.126E-05 | -1.454E-03 | -5.315E-05 | 1.365E-04  | -9.431E-06 |
| 196 | ELKA  | -1.163E-06 | -7.669E-03 | 1.293E-04  | 4.264E-04  | -9.937E-06 | 3.346E-06  |
| 196 | ELKI  | 6.715E-06  | -4.718E-03 | -3.970E-05 | -3.391E-04 | 2.657E-06  | -5.346E-06 |
| 196 | COMB1 | 3.741E-06  | -1.623E-04 | -6.414E-03 | -5.314E-03 | 3.961E-04  | -2.566E-05 |
| 196 | COMB2 | 6.712E-06  | -5.342E-03 | -3.643E-03 | 3.790E-04  | 1.249E-04  | -4.582E-06 |
| 196 | COMB3 | 1.003E-05  | -4.871E-03 | -3.793E-03 | -4.466E-04 | 1.430E-04  | -1.327E-05 |
| 196 | COMB4 | 1.897E-05  | -5.451E-03 | -4.810E-03 | 3.964E-04  | 2.324E-04  | -1.168E-05 |
| 196 | COMB5 | 7.107E-05  | -4.215E-03 | -4.268E-03 | -4.704E-04 | 2.514E-04  | -2.081E-05 |
|     |       |            |            |            |            |            |            |
| 197 | EL    | 0.0000     | -2.369E-04 | -4.267E-03 | -7.671E-04 | 0.0000     | 0.0000     |
| 197 | EL    | 0.0000     | -2.373E-03 | -8.466E-04 | -1.209E-04 | 0.0000     | 0.0000     |
| 197 | ELKA  | 0.0000     | -3.666E-03 | -3.283E-04 | 2.732E-04  | 0.0000     | 0.0000     |
| 197 | ELKI  | 0.0000     | -5.862E-03 | 4.013E-01  | -2.388E-04 | 0.0000     | 0.0000     |
| 197 | COMB1 | 0.0000     | -4.422E-04 | -6.406E-03 | -1.114E-03 | -1.456E-06 | 0.0000     |
| 197 | COMB2 | 0.0000     | -5.263E-03 | -4.115E-03 | -4.172E-04 | 0.0000     | 0.0000     |
| 197 | COMB3 | 0.0000     | -5.365E-03 | -3.395E-03 | -9.292E-04 | 0.0000     | 0.0000     |
| 197 | COMB4 | 0.0000     | -5.175E-03 | -5.297E-03 | -5.948E-04 | 0.0000     | 0.0000     |
| 197 | COMB5 | 0.0000     | -6.209E-03 | -4.531E-03 | -1.132E-03 | 0.0000     | 0.0000     |
|     |       |            |            |            |            |            |            |
| 198 | EL    | -1.002E-06 | -3.534E-04 | -3.767E-03 | -7.253E-04 | 1.430E-04  | 8.366E-06  |
| 198 | EL    | -3.251E-06 | -3.616E-05 | -7.261E-04 | -1.437E-04 | -3.868E-06 | 7.503E-06  |
| 198 | ELKA  | 0.0000     | -5.661E-03 | -3.113E-04 | 3.646E-04  | 9.110E-06  | -2.844E-06 |
| 198 | ELKI  | 0.0000     | -5.784E-03 | 3.661E-04  | -3.304E-04 | -7.338E-06 | 3.186E-06  |
| 198 | COMB1 | -3.294E-06 | -4.643E-04 | -5.785E-03 | -1.100E-03 | 1.638E-04  | 3.204E-05  |
| 198 | COMB2 | 0.0000     | -5.243E-03 | -3.702E-03 | -2.981E-04 | 1.368E-04  | 4.680E-06  |
| 198 | COMB3 | -1.209E-06 | -4.707E-03 | -3.694E-03 | -9.832E-04 | 1.214E-04  | 1.071E-05  |
| 198 | COMB4 | -1.511E-06 | -5.452E-03 | -4.780E-03 | -4.692E-04 | 1.556E-04  | 1.052E-05  |

|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 199 | EL    | 0.0000     | -3.834E-04 | -3.763E-03 | -7.246E-04 | -1.437E-04 | -8.261E-06 |
| 199 | EL    | 1.148E-06  | -2.517E-03 | -7.081E-04 | -1.435E-04 | -1.273E-06 | -7.503E-06 |
| 199 | ELISA | 0.0000     | -8.561E-03 | -3.113E-04 | -3.646E-04 | -8.110E-06 | -3.044E-06 |
| 199 | ELIK1 | 0.0000     | -8.554E-03 | -3.861E-04 | -3.364E-04 | -7.836E-06 | -3.186E-06 |
| 199 | ELIK2 | 3.134E-04  | -1.013E-03 | -1.277E-03 | -1.009E-03 | -1.073E-04 | -1.104E-04 |
| 199 | CMR01 | 0.0000     | -1.133E-03 | -3.609E-03 | -3.877E-04 | -1.276E-04 | -1.691E-06 |
| 199 | CMR02 | 1.281E-06  | -6.170E-03 | -3.001E-03 | -2.803E-04 | -1.112E-04 | -1.071E-06 |
| 199 | CMR03 | 1.007E-06  | -5.463E-03 | -4.775E-03 | -4.669E-04 | -1.100E-04 | -1.011E-07 |
| 199 | CMR04 | 1.123E-06  | -6.110E-03 | -4.043E-03 | -1.193E-03 | -1.400E-04 | -1.688E-05 |
| 200 | EL    | -3.009E-06 | -3.850E-04 | -4.709E-03 | -8.126E-05 | 3.444E-04  | 0.0000     |
| 200 | EL    | -6.004E-06 | -3.075E-05 | -1.450E-03 | 6.576E-06  | 1.257E-04  | 0.0000     |
| 200 | ELISA | -1.130E-06 | -1.153E-03 | -1.033E-05 | 3.077E-04  | 1.009E-06  | -3.186E-06 |
| 200 | ELIK1 | -1.090E-06 | -6.566E-03 | -1.493E-04 | -4.229E-04 | -1.609E-06 | 2.695E-06  |
| 200 | ELIK2 | -1.150E-04 | -1.610E-04 | -7.267E-03 | -5.169E-07 | 6.344E-04  | 0.0000     |
| 200 | CMR01 | -1.151E-06 | -1.105E-03 | -4.276E-03 | 3.616E-04  | 3.114E-04  | -2.956E-06 |
| 200 | CMR02 | -3.101E-06 | -1.100E-03 | -4.003E-03 | -4.701E-04 | 3.083E-04  | -3.084E-06 |
| 200 | CMR03 | -1.005E-06 | -3.463E-03 | -5.609E-03 | 3.675E-04  | -4.739E-04 | -3.733E-06 |
| 200 | CMR04 | -6.106E-06 | -6.105E-03 | -5.700E-03 | -4.943E-06 | 4.706E-04  | 3.189E-06  |
| 201 | EL    | -1.101E-06 | -3.363E-04 | -1.702E-03 | -8.133E-06 | -3.411E-04 | 0.0000     |
| 201 | EL    | 3.000E-06  | -3.005E-05 | -1.450E-03 | 6.531E-06  | -1.257E-04 | 0.0000     |
| 201 | ELISA | 1.130E-06  | -1.137E-03 | -1.033E-05 | 3.077E-04  | 1.009E-06  | -3.186E-06 |
| 201 | ELIK1 | -1.090E-06 | -6.566E-03 | -1.493E-04 | -4.229E-04 | -1.609E-06 | 2.695E-06  |
| 201 | ELIK2 | -1.150E-04 | -1.610E-04 | -7.267E-03 | -5.169E-07 | 6.344E-04  | 0.0000     |
| 201 | CMR01 | -1.151E-06 | -1.105E-03 | -4.276E-03 | 3.616E-04  | 3.114E-04  | -2.956E-06 |
| 201 | CMR02 | -3.101E-06 | -1.100E-03 | -4.003E-03 | -4.701E-04 | 3.083E-04  | -3.083E-06 |
| 201 | CMR03 | -1.005E-06 | -3.463E-03 | -5.609E-03 | 3.675E-04  | -4.739E-04 | -3.733E-06 |
| 201 | CMR04 | -6.106E-06 | -6.105E-03 | -5.701E-03 | -4.949E-04 | -4.706E-04 | -3.188E-06 |
| 202 | EL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 202 | EL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 202 | ELISA | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 202 | ELIK1 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 202 | CMR01 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 202 | CMR02 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 202 | CMR03 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 202 | CMR04 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 202 | CMR05 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 203 | EL    | -1.101E-06 | -1.100E-04 | -3.363E-03 | 6.533E-06  | -1.257E-04 | -1.457E-05 |
| 203 | EL    | -1.101E-06 | -1.100E-04 | -3.363E-03 | 6.533E-06  | -1.257E-04 | -1.457E-05 |
| 203 | ELISA | -1.130E-06 | -1.137E-03 | -1.033E-05 | -3.077E-04 | 0.0000     | -3.186E-06 |
| 203 | ELIK1 | -1.090E-06 | -6.566E-03 | -1.493E-04 | -4.229E-04 | -1.609E-06 | 2.695E-06  |
| 203 | ELIK2 | -1.150E-04 | -1.610E-04 | -7.267E-03 | -5.169E-07 | 6.344E-04  | 0.0000     |
| 203 | CMR01 | -1.151E-06 | -1.105E-03 | -4.276E-03 | 3.616E-04  | 3.114E-04  | -2.956E-06 |
| 203 | CMR02 | -3.101E-06 | -1.100E-03 | -4.003E-03 | -4.701E-04 | 3.083E-04  | -3.083E-06 |
| 203 | CMR03 | -1.005E-06 | -3.463E-03 | -5.609E-03 | 3.675E-04  | -4.739E-04 | -3.733E-06 |
| 203 | CMR04 | -6.106E-06 | -6.105E-03 | -5.700E-03 | -4.949E-04 | -4.706E-04 | -3.188E-06 |
| 204 | EL    | 0.0000     | -3.364E-04 | -1.503E-03 | 4.149E-04  | 0.0000     | 0.0000     |
| 204 | EL    | 0.0000     | -3.364E-04 | -1.503E-03 | 4.149E-04  | 0.0000     | 0.0000     |
| 204 | ELISA | 0.0000     | -1.136E-03 | -1.034E-05 | -3.077E-04 | 0.0000     | 0.0000     |
| 204 | ELIK1 | 0.0000     | -1.165E-02 | -3.667E-06 | 5.100E-04  | 0.0000     | 0.0000     |
| 204 | CMR01 | 0.0000     | -4.435E-04 | -1.922E-03 | 6.541E-04  | 0.0000     | 0.0000     |
| 204 | CMR02 | 0.0000     | -1.164E-03 | -1.939E-03 | -1.460E-04 | 0.0000     | 0.0000     |
| 204 | CMR03 | 0.0000     | -1.166E-03 | -1.461E-03 | 3.266E-04  | 0.0000     | 0.0000     |
| 204 | CMR04 | 0.0000     | -1.476E-03 | -1.700E-03 | 1.900E-03  | 0.0000     | 0.0000     |
| 204 | CMR05 | 0.0000     | -1.110E-03 | -1.183E-03 | 1.106E-03  | 0.0000     | 0.0000     |
| 205 | EL    | -8.003E-06 | -1.103E-04 | -3.365E-03 | 6.666E-06  | 3.362E-04  | 1.457E-05  |
| 205 | EL    | -8.003E-06 | -1.103E-04 | -3.365E-03 | 6.666E-06  | 3.362E-04  | 1.457E-05  |
| 205 | ELISA | 1.130E-06  | -1.137E-03 | -1.033E-05 | -3.077E-04 | 0.0000     | -3.186E-06 |
| 205 | ELIK1 | 1.094E-06  | -6.496E-03 | -1.494E-04 | -4.079E-06 | 0.0000     | 7.383E-05  |
| 205 | CMR01 | -1.150E-06 | -1.105E-03 | -4.277E-03 | 3.616E-04  | 3.114E-04  | -2.956E-06 |
| 205 | CMR02 | -3.104E-06 | -1.107E-03 | -4.005E-03 | -4.703E-04 | 3.083E-04  | -3.083E-06 |
| 205 | CMR03 | -1.004E-06 | -3.461E-03 | -5.608E-03 | 3.674E-04  | -4.738E-04 | -3.733E-06 |
| 205 | CMR04 | -6.107E-06 | -6.105E-03 | -5.700E-03 | -4.949E-04 | -4.706E-04 | -3.188E-06 |
| 206 | EL    | -1.100E-06 | -1.103E-04 | -3.364E-03 | -1.753E-04 | 3.501E-04  | -1.253E-05 |
| 206 | EL    | -1.100E-06 | -1.103E-04 | -3.364E-03 | -1.753E-04 | 3.501E-04  | -1.253E-05 |
| 206 | ELISA | -1.130E-06 | -1.136E-03 | -1.033E-05 | -3.077E-04 | 0.0000     | -3.186E-06 |
| 206 | ELIK1 | -1.079E-06 | -6.494E-03 | -1.494E-04 | -4.079E-06 | 0.0000     | 7.383E-05  |
| 206 | CMR01 | -1.150E-06 | -1.105E-03 | -4.277E-03 | 3.616E-04  | 3.114E-04  | -2.956E-06 |
| 206 | CMR02 | -3.104E-06 | -1.107E-03 | -4.005E-03 | -4.703E-04 | 3.083E-04  | -3.083E-06 |
| 206 | CMR03 | -1.004E-06 | -3.461E-03 | -5.608E-03 | 3.674E-04  | -4.738E-04 | -3.733E-06 |
| 206 | CMR04 | -6.107E-06 | -6.105E-03 | -5.700E-03 | -4.949E-04 | -4.706E-04 | -3.188E-06 |
| 207 | EL    | -1.100E-06 | -1.103E-04 | -3.365E-03 | 4.191E-04  | 3.044E-04  | -3.305E-06 |
| 207 | EL    | -1.100E-06 | -1.103E-04 | -3.365E-03 | 4.191E-04  | 3.044E-04  | -3.305E-06 |
| 207 | ELISA | -1.130E-06 | -1.136E-03 | -1.033E-05 | -3.077E-04 | 0.0000     | -3.186E-06 |
| 207 | ELIK1 | -1.079E-06 | -6.495E-03 | -1.499E-04 | -3.146E-04 | -2.394E-06 | -1.490E-05 |
| 207 | CMR01 | -1.150E-06 | -1.105E-03 | -4.277E-03 | 3.616E-04  | 3.114E-04  | -2.956E-06 |
| 207 | CMR02 | -3.104E-06 | -1.107E-03 | -4.005E-03 | -4.703E-04 | 3.083E-04  | -3.083E-06 |
| 207 | CMR03 | -1.004E-06 | -3.461E-03 | -5.608E-03 | 3.674E-04  | -4.738E-04 | -3.733E-06 |
| 207 | CMR04 | -6.107E-06 | -6.105E-03 | -5.700E-03 | -4.949E-04 | -4.706E-04 | -3.188E-06 |

|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 208 | LL    | -6.110E-05 | -7.710E-05 | -6.710E-05 | 3.670E-04  | -6.230E-04 | -6.730E-05 |
| 208 | ELKA  | -4.411E-05 | -5.130E-05 | -6.454E-05 | -2.771E-04 | 6.130E-04  | -2.402E-05 |
| 208 | ELK1  | -6.409E-05 | -7.114E-04 | -7.742E-05 | 1.313E-04  | -9.333E-05 | -1.798E-05 |
| 208 | COMB1 | -2.011E-05 | -2.126E-05 | -2.760E-05 | 7.166E-05  | -1.730E-05 | -1.895E-06 |
| 208 | COMB2 | -1.035E-05 | 1.013E-05  | -1.009E-04 | 1.491E-04  | -1.373E-06 | 5.011E-05  |
| 208 | COMB3 | -1.035E-05 | -1.417E-05 | 1.795E-04  | -3.654E-04 | 3.199E-06  | -5.050E-05 |
| 208 | COMB4 | -2.030E-05 | -1.016E-04 | -7.010E-05 | 2.720E-04  | -1.259E-04 | -3.461E-05 |
| 208 | COMB5 | -2.030E-05 | -1.031E-05 | -7.069E-05 | 3.671E-04  | -2.787E-05 | -3.392E-05 |
| 208 | COMB6 | -2.030E-05 | -1.143E-05 | -6.769E-05 | -1.475E-04 | -6.389E-05 | -6.669E-05 |
| 208 | COMB7 | -2.030E-05 | -1.379E-05 | -9.974E-05 | 4.444E-04  | -1.182E-04 | -3.754E-05 |
| 208 | COMB8 | -2.030E-05 | -1.111E-05 | -9.030E-05 | -1.077E-05 | -1.056E-04 | -7.319E-05 |
| 209 | LL    | -1.191E-05 | -3.309E-04 | -5.430E-05 | 5.980E-04  | -1.467E-05 | -1.974E-06 |
| 209 | ELKA  | -1.030E-05 | -1.017E-05 | -1.031E-05 | 3.439E-05  | -1.039E-06 | -1.776E-06 |
| 209 | ELK1  | -6.936E-06 | -1.111E-05 | -5.147E-05 | 3.653E-04  | -1.803E-06 | -1.060E-05 |
| 209 | COMB1 | -1.030E-05 | -1.143E-05 | 1.733E-04  | -3.689E-04 | 0.0000     | 1.044E-05  |
| 209 | COMB2 | -6.006E-06 | -1.058E-04 | -1.166E-05 | 1.114E-04  | -3.607E-06 | 0.0000     |
| 209 | COMB3 | -1.030E-05 | -1.044E-05 | -1.039E-05 | 4.191E-04  | -1.001E-05 | -3.016E-06 |
| 209 | COMB4 | -1.030E-05 | -1.449E-05 | -4.774E-05 | -3.347E-04 | -1.007E-05 | 1.222E-05  |
| 209 | COMB5 | -4.172E-05 | -5.017E-05 | -6.793E-05 | 4.670E-04  | -3.034E-05 | -9.801E-06 |
| 209 | COMB6 | -1.030E-05 | -6.779E-05 | -8.083E-05 | -3.369E-04 | -1.001E-05 | 1.079E-05  |
| 210 | LL    | -1.341E-05 | -3.876E-04 | -7.475E-05 | 1.044E-04  | -2.313E-05 | -1.217E-05 |
| 210 | ELKA  | -1.030E-05 | -1.207E-05 | -2.704E-05 | 6.733E-05  | -1.167E-06 | 0.0000     |
| 210 | ELK1  | -1.030E-05 | -1.030E-05 | -1.177E-05 | 3.733E-04  | 0.0000     | 3.341E-05  |
| 210 | COMB1 | -3.034E-06 | -5.369E-05 | 1.773E-04  | -2.945E-04 | -1.489E-06 | -2.795E-05 |
| 210 | COMB2 | -1.030E-05 | -1.344E-04 | -0.0133    | 2.319E-04  | -4.645E-05 | -1.531E-05 |
| 210 | COMB3 | -1.776E-05 | -1.961E-05 | -6.809E-05 | 3.665E-04  | -2.166E-05 | -2.746E-05 |
| 210 | COMB4 | -2.030E-05 | -6.657E-05 | -6.551E-05 | -1.014E-04 | -1.031E-05 | -1.890E-05 |
| 210 | COMB5 | -3.167E-05 | -5.142E-05 | -9.638E-05 | 4.391E-04  | -3.153E-05 | -2.703E-05 |
| 210 | COMB6 | -2.125E-05 | -6.607E-05 | -9.367E-05 | -1.587E-04 | -3.307E-05 | -5.029E-05 |
| 211 | LL    | -9.938E-06 | -4.039E-04 | -4.934E-05 | 1.839E-04  | -3.724E-04 | 0.0000     |
| 211 | ELKA  | -1.030E-05 | -4.699E-05 | -1.448E-05 | 1.966E-05  | -1.663E-04 | 0.0000     |
| 211 | ELK1  | -3.457E-06 | 5.457E-05  | -4.420E-05 | 3.693E-04  | -2.059E-06 | -5.980E-06 |
| 211 | COMB1 | -3.710E-06 | -5.456E-05 | 1.492E-04  | -4.147E-04 | 0.0000     | 5.667E-06  |
| 211 | COMB2 | -5.027E-05 | -5.039E-04 | -8.133E-05 | 6.562E-04  | -2.143E-04 | 0.0000     |
| 211 | COMB3 | -1.051E-05 | 5.075E-05  | -4.385E-05 | 4.147E-04  | -3.321E-04 | -5.347E-06 |
| 211 | COMB4 | -6.030E-06 | -6.137E-05 | -1.091E-05 | -1.030E-04 | -2.052E-04 | -1.439E-06 |
| 211 | COMB5 | -2.049E-05 | -1.250E-05 | -6.149E-05 | 4.509E-04  | -4.799E-04 | -6.067E-06 |
| 211 | COMB6 | -1.454E-05 | -6.093E-05 | -5.937E-05 | -3.935E-04 | -4.966E-04 | 6.372E-06  |
| 212 | LL    | -6.817E-06 | -3.647E-04 | -5.132E-05 | 4.549E-05  | -6.406E-05 | 1.434E-05  |
| 212 | ELKA  | -5.852E-06 | -3.646E-05 | -1.625E-05 | 1.039E-05  | -1.873E-06 | -2.689E-06 |
| 212 | ELK1  | -2.888E-06 | 5.516E-05  | -5.654E-05 | 3.117E-04  | -1.093E-06 | 1.933E-05  |
| 212 | COMB1 | -2.641E-06 | -5.512E-05 | 1.628E-04  | -3.356E-04 | 0.0000     | -1.964E-05 |
| 212 | COMB2 | -2.146E-05 | -1.009E-04 | -9.757E-05 | 1.199E-04  | -1.089E-05 | -1.156E-05 |
| 212 | COMB3 | -2.784E-06 | 5.170E-05  | -4.676E-05 | 3.537E-04  | -5.877E-05 | 3.265E-05  |
| 212 | COMB4 | -3.384E-06 | -5.859E-05 | -4.456E-05 | -2.946E-04 | -5.754E-05 | -6.825E-06 |
| 212 | COMB5 | -1.383E-05 | 5.365E-05  | -6.471E-05 | 4.004E-04  | -6.949E-05 | 3.745E-05  |
| 212 | COMB6 | -1.607E-05 | -6.215E-05 | -6.241E-05 | -2.743E-04 | -6.820E-05 | -3.389E-06 |
| 213 | LL    | 0.0000     | -3.341E-04 | -7.230E-05 | -9.016E-05 | 0.0000     | 0.0000     |
| 213 | ELKA  | 0.0000     | -1.099E-05 | -1.711E-05 | 2.399E-06  | 0.0000     | 0.0000     |
| 213 | ELK1  | 0.0000     | 5.567E-05  | -7.581E-05 | 2.959E-04  | 0.0000     | 0.0000     |
| 213 | COMB1 | 0.0000     | -5.864E-05 | 1.821E-04  | -3.189E-04 | 0.0000     | 0.0000     |
| 213 | COMB2 | 0.0000     | -4.427E-04 | -0.0131    | -9.315E-05 | 0.0000     | 0.0000     |
| 213 | COMB3 | 0.0000     | 5.266E-05  | -8.583E-05 | 2.147E-04  | 0.0000     | 0.0000     |
| 213 | COMB4 | 0.0000     | -5.864E-05 | -8.325E-05 | -4.001E-04 | 0.0000     | 0.0000     |
| 213 | COMB5 | 0.0000     | 5.478E-05  | -9.398E-05 | 2.219E-04  | 0.0000     | 0.0000     |
| 213 | COMB6 | 0.0000     | -6.039E-05 | -1.127E-05 | -4.236E-04 | 0.0000     | 0.0000     |
| 214 | LL    | -6.071E-06 | -3.847E-04 | -5.139E-05 | 4.511E-05  | -6.409E-05 | -1.423E-05 |
| 214 | ELKA  | -1.030E-05 | -1.017E-05 | -1.031E-05 | 3.439E-05  | -1.039E-06 | -1.870E-06 |
| 214 | ELK1  | -1.030E-05 | -1.111E-05 | -5.147E-05 | 3.117E-04  | -1.093E-06 | -1.933E-05 |
| 214 | COMB1 | -1.030E-05 | -1.141E-05 | 1.733E-04  | -3.689E-04 | 0.0000     | 1.044E-05  |
| 214 | COMB2 | -6.006E-06 | -1.059E-04 | -1.166E-05 | 1.199E-04  | -3.607E-06 | 0.0000     |
| 214 | COMB3 | -1.030E-05 | -1.044E-05 | -1.039E-05 | 4.191E-04  | -1.001E-05 | -3.016E-06 |
| 214 | COMB4 | -1.030E-05 | -1.449E-05 | -4.774E-05 | -3.347E-04 | -1.007E-05 | 1.222E-05  |
| 214 | COMB5 | -4.172E-05 | -5.017E-05 | -6.793E-05 | 4.694E-04  | -3.034E-05 | -9.801E-06 |
| 214 | COMB6 | -1.030E-05 | -6.779E-05 | -8.083E-05 | -3.369E-04 | -1.001E-05 | 1.079E-05  |
| 215 | LL    | -9.938E-06 | -4.039E-04 | -4.934E-05 | 1.839E-04  | -3.724E-04 | 0.0000     |
| 215 | ELKA  | -1.030E-05 | -4.706E-05 | -1.448E-05 | 1.966E-05  | -1.663E-04 | 0.0000     |
| 215 | ELK1  | -3.457E-06 | 1.457E-05  | -4.420E-05 | 3.692E-04  | 2.059E-06  | 5.980E-06  |
| 215 | COMB1 | -3.710E-06 | -5.156E-05 | 1.492E-04  | -4.147E-04 | 0.0000     | -5.867E-06 |
| 215 | COMB2 | -5.027E-05 | -5.039E-04 | -8.133E-05 | 6.550E-05  | 7.147E-04  | 0.0000     |
| 215 | COMB3 | -1.051E-05 | 1.075E-05  | -4.485E-05 | 4.147E-04  | 3.301E-04  | 5.348E-06  |
| 215 | COMB4 | -6.030E-06 | -6.137E-05 | -1.091E-05 | -1.030E-04 | -2.052E-04 | -1.439E-06 |
| 215 | COMB5 | -2.049E-05 | -1.255E-05 | -6.140E-05 | 4.508E-04  | 4.990E-04  | 6.068E-06  |
| 215 | COMB6 | -1.454E-05 | -6.093E-05 | -5.937E-05 | -3.933E-04 | 4.959E-04  | -6.371E-06 |
| 216 | LL    | 1.410E-05  | -3.70E-04  | -7.475E-05 | 1.034E-04  | 2.314E-05  | 1.217E-05  |
| 216 | ELKA  | 1.030E-05  | -1.207E-05 | -2.704E-05 | 6.732E-05  | 1.167E-06  | 0.0000     |
| 216 | ELK1  | 1.030E-05  | -1.030E-05 | -1.177E-05 | 2.734E-04  | 0.0000     | -3.841E-05 |
| 216 | COMB1 | -3.034E-06 | -5.369E-05 | 1.773E-04  | -2.945E-04 | 1.480E-06  | 3.795E-05  |
| 216 | COMB2 | -1.030E-05 | -1.324E-04 | -0.0133    | 2.319E-04  | 4.643E-05  | 1.531E-05  |
| 216 | COMB3 | 1.775E-05  | -1.961E-05 | -6.809E-05 | 3.665E-04  | -2.165E-05 | -2.746E-05 |

|       |       |            |            |            |            |            |            |
|-------|-------|------------|------------|------------|------------|------------|------------|
| 216   | EL    | 1.451E-04  | -5.457E-05 | -6.551E-03 | -2.014E-04 | 1.230E-05  | -4.499E-05 |
| 216   | ELNA  | 4.166E-05  | -6.147E-03 | -9.639E-03 | -4.381E-04 | 2.351E-05  | -3.728E-05 |
| 216   | ELKI  | 1.135E-05  | -6.607E-03 | -9.367E-03 | -1.497E-04 | 1.830E-05  | -5.250E-05 |
| <hr/> |       |            |            |            |            |            |            |
| 217   | EL    | 1.330E-05  | -3.309E-04 | -5.420E-03 | 5.985E-05  | 2.467E-05  | -1.973E-06 |
| 217   | EL    | 1.396E-05  | -4.548E-05 | -1.664E-03 | 1.488E-05  | 1.939E-06  | 1.176E-06  |
| 217   | ELNA  | 1.194E-05  | -1.113E-03 | -5.113E-03 | 3.403E-04  | 1.395E-05  | 1.660E-05  |
| 217   | ELKI  | -6.298E-06 | -5.112E-03 | 1.438E-04  | -3.499E-04 | 0.0000     | -1.944E-05 |
| 217   | COMB1 | 1.705E-05  | -4.169E-04 | -3.168E-03 | 1.116E-04  | 3.606E-05  | 0.0000     |
| 217   | COMB2 | 1.305E-05  | 1.044E-03  | -4.959E-03 | 1.191E-04  | 1.406E-05  | -8.877E-06 |
| 217   | COMB3 | 1.235E-05  | -9.140E-03 | -4.734E-03 | -3.347E-04 | 1.397E-05  | -1.332E-05 |
| 217   | COMB4 | 4.111E-05  | 1.907E-03  | -6.793E-03 | 4.620E-04  | 1.634E-05  | 9.807E-06  |
| 217   | COMB5 | 3.417E-05  | -5.775E-03 | -6.588E-03 | -3.369E-04 | 1.030E-05  | -1.329E-05 |
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| 218   | EL    | 1.150E-05  | -1.514E-04 | -7.713E-03 | 1.313E-04  | 9.439E-05  | 1.299E-05  |
| 218   | EL    | 3.911E-05  | -3.170E-05 | -2.769E-03 | 7.166E-05  | 1.739E-05  | 1.694E-06  |
| 218   | ELNA  | 1.779E-05  | 1.917E-03  | -1.606E-04 | 1.451E-04  | 1.977E-05  | -5.011E-05 |
| 218   | ELKI  | -1.627E-06 | -3.417E-03 | 1.749E-04  | -2.654E-04 | -3.169E-05 | 5.050E-05  |
| 218   | COMB1 | 1.693E-05  | -3.117E-04 | -9.9137    | 1.308E-04  | 1.339E-04  | 2.461E-05  |
| 218   | COMB2 | 1.667E-05  | 1.691E-03  | -7.669E-03 | 3.671E-04  | 9.287E-05  | -3.393E-05 |
| 218   | COMB3 | 1.497E-05  | -5.147E-03 | -6.789E-03 | -1.473E-04 | 9.989E-05  | 6.669E-05  |
| 218   | COMB4 | 1.189E-05  | 1.873E-03  | -9.974E-03 | 4.447E-04  | 1.132E-04  | -3.354E-05 |
| 218   | COMB5 | 3.450E-05  | -5.447E-03 | -9.680E-03 | -9.377E-05 | 1.950E-04  | 7.319E-05  |
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| 219   | EL    | 1.911E-05  | -1.197E-04 | -3.350E-03 | 4.131E-05  | -3.944E-04 | 0.966E-06  |
| 219   | EL    | 3.644E-05  | -1.261E-05 | -1.677E-03 | 1.199E-05  | -1.944E-04 | 3.230E-04  |
| 219   | ELNA  | 6.174E-06  | 4.697E-03  | -9.339E-05 | 3.904E-04  | 2.966E-06  | -1.803E-05 |
| 219   | ELKI  | -1.911E-06 | -4.687E-03 | 1.499E-04  | -3.148E-04 | 7.334E-06  | 1.400E-05  |
| 219   | COMB1 | 9.323E-05  | -3.629E-04 | -8.944E-03 | 7.427E-05  | -8.747E-04 | 1.353E-05  |
| 219   | COMB2 | 5.457E-05  | 1.530E-03  | -1.909E-05 | 3.333E-04  | -1.144E-04 | -9.868E-06 |
| 219   | COMB3 | 1.270E-05  | -4.848E-03 | -4.663E-03 | -2.771E-04 | -1.466E-04 | 1.001E-05  |
| 219   | COMB4 | 6.110E-05  | 1.719E-03  | -6.710E-03 | 3.499E-04  | -6.359E-05 | -6.739E-06 |
| 219   | COMB5 | 4.416E-05  | -5.128E-03 | -6.454E-03 | -2.771E-04 | -6.250E-04 | 1.492E-05  |
| <hr/> |       |            |            |            |            |            |            |
| 220   | EL    | 5.109E-05  | -1.324E-04 | -3.454E-03 | -1.753E-04 | -3.501E-04 | 1.293E-05  |
| 220   | EL    | 3.136E-05  | -1.780E-05 | -1.941E-03 | -3.393E-05 | 1.377E-04  | 1.139E-06  |
| 220   | ELNA  | 1.114E-06  | 4.496E-03  | -9.937E-05 | 1.943E-05  | -3.969E-05 | -2.649E-05 |
| 220   | ELKI  | -1.179E-06 | -4.494E-03 | 1.774E-04  | -1.641E-04 | 1.557E-05  | 8.182E-05  |
| 220   | COMB1 | 3.949E-05  | -1.274E-04 | -8.311E-02 | -3.649E-03 | -1.699E-05 | 1.176E-05  |
| 220   | COMB2 | 3.439E-05  | 1.377E-03  | -3.394E-03 | -1.471E-04 | -3.432E-04 | -6.495E-05 |
| 220   | COMB3 | 1.470E-05  | -1.613E-03 | -2.399E-03 | -1.767E-04 | -4.818E-04 | -3.317E-05 |
| 220   | COMB4 | 6.799E-05  | 1.571E-03  | -4.363E-03 | -1.340E-04 | -1.157E-03 | -1.593E-05 |
| 220   | COMB5 | 6.753E-05  | -4.669E-03 | -4.168E-03 | -2.235E-04 | -1.169E-03 | 1.001E-04  |
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| 221   | EL    | -1.453E-05 | -1.231E-04 | -1.180E-03 | 6.927E-04  | 1.138E-05  | -1.308E-05 |
| 221   | EL    | -1.039E-05 | -1.236E-05 | -1.222E-04 | 2.770E-04  | 7.462E-06  | 2.917E-05  |
| 221   | ELNA  | -1.472E-05 | 1.457E-03  | -7.465E-05 | -3.054E-04 | -1.155E-05 | 6.955E-05  |
| 221   | ELKI  | 1.199E-05  | -1.409E-03 | 7.990E-05  | 3.931E-04  | 1.103E-05  | -6.064E-05 |
| 221   | COMB1 | -3.139E-05 | -1.675E-04 | -1.773E-03 | 1.263E-03  | 6.369E-05  | -1.247E-05 |
| 221   | COMB2 | -1.166E-05 | 1.375E-03  | -1.129E-05 | 1.116E-04  | 1.949E-05  | 8.773E-05  |
| 221   | COMB3 | -1.799E-05 | -1.611E-03 | -9.637E-04 | 1.093E-05  | 5.538E-05  | -7.341E-05 |
| 221   | COMB4 | -1.168E-05 | 1.571E-04  | -1.468E-03 | 3.677E-04  | 1.371E-05  | 6.097E-05  |
| 221   | COMB5 | -1.376E-05 | -4.863E-03 | -1.296E-03 | 1.399E-03  | 6.419E-05  | -7.614E-05 |
| <hr/> |       |            |            |            |            |            |            |
| 222   | EL    | -1.196E-05 | -1.399E-04 | -1.174E-03 | -6.199E-04 | 1.543E-05  | -1.124E-05 |
| 222   | EL    | -1.036E-05 | -1.993E-05 | -2.234E-04 | -2.710E-04 | 7.902E-06  | -5.026E-06 |
| 222   | ELNA  | -3.410E-06 | 1.477E-03  | 1.604E-05  | -4.937E-04 | 1.175E-05  | 6.220E-05  |
| 222   | ELKI  | -1.394E-06 | -1.197E-03 | -7.799E-05 | 5.056E-04  | -1.113E-05 | -7.027E-05 |
| 222   | COMB1 | 1.168E-05  | -1.113E-04 | -1.798E-03 | -1.710E-03 | 6.128E-05  | -1.237E-05 |
| 222   | COMB2 | -1.028E-05 | 1.277E-03  | -9.128E-04 | -1.070E-03 | 1.277E-05  | 3.145E-05  |
| 222   | COMB3 | -1.036E-05 | -4.612E-03 | -1.143E-03 | -8.196E-05 | 2.884E-05  | -8.102E-05 |
| 222   | COMB4 | -3.411E-05 | 1.799E-03  | -1.399E-03 | -1.363E-03 | 6.513E-05  | 4.960E-05  |
| 222   | COMB5 | -3.518E-05 | -4.870E-03 | -1.481E-03 | -3.264E-04 | 4.004E-05  | -8.943E-05 |
| <hr/> |       |            |            |            |            |            |            |
| 223   | EL    | -1.113E-05 | -1.499E-04 | -1.541E-03 | 9.979E-04  | 0.0000     | -3.386E-05 |
| 223   | EL    | -7.071E-06 | -1.640E-05 | -3.309E-04 | 4.466E-04  | 0.0000     | -3.237E-06 |
| 223   | ELNA  | -1.199E-06 | 1.519E-03  | -1.446E-05 | -6.679E-04 | 1.110E-05  | 8.094E-05  |
| 223   | ELKI  | 1.994E-06  | -3.915E-03 | 5.746E-05  | 6.673E-04  | -1.407E-06 | -7.590E-05 |
| 223   | COMB1 | -1.543E-05 | -3.494E-04 | -2.326E-03 | 1.792E-03  | 1.774E-06  | -4.582E-05 |
| 223   | COMB2 | -1.093E-05 | 1.109E-03  | -1.441E-03 | 1.492E-04  | 1.431E-06  | 5.056E-05  |
| 223   | COMB3 | 6.0000     | -3.143E-03 | -1.399E-03 | 1.415E-03  | -1.986E-06 | -1.064E-04 |
| 223   | COMB4 | -1.548E-05 | 1.532E-03  | -1.992E-03 | 5.229E-04  | 2.175E-06  | 4.697E-05  |
| 223   | COMB5 | -6.424E-06 | -5.442E-03 | -1.785E-03 | 1.862E-03  | 0.0000     | -1.173E-04 |
| <hr/> |       |            |            |            |            |            |            |
| 224   | EL    | 6.927E-06  | -1.508E-04 | -1.897E-03 | 2.642E-03  | 7.907E-06  | -3.155E-05 |
| 224   | EL    | 1.874E-06  | -1.328E-05 | -1.392E-04 | 3.544E-06  | 2.561E-06  | -3.360E-06 |
| 224   | ELNA  | -1.599E-06 | 1.976E-03  | -1.673E-05 | -4.013E-04 | 0.0000     | 1.751E-05  |
| 224   | ELKI  | -1.849E-06 | -3.418E-03 | -1.646E-06 | 4.098E-04  | 0.0000     | -8.738E-05 |
| 224   | COMB1 | 1.193E-05  | -1.173E-04 | -3.127E-03 | 3.977E-05  | 1.349E-05  | -4.326E-05 |
| 224   | COMB2 | 1.399E-05  | 1.491E-03  | -1.700E-03 | -3.839E-04 | 3.946E-06  | 5.912E-05  |
| 224   | COMB3 | 1.193E-05  | -1.143E-03 | -1.700E-03 | 4.343E-04  | 7.399E-06  | -1.158E-04 |
| 224   | COMB4 | 1.838E-05  | 1.860E-03  | -3.322E-03 | -3.969E-04 | 1.064E-05  | 5.604E-05  |
| 224   | COMB5 | 6.144E-05  | -1.148E-03 | -2.312E-03 | 4.613E-04  | 1.071E-05  | -1.170E-04 |
| <hr/> |       |            |            |            |            |            |            |
| 225   | EL    | -1.396E-05 | -1.578E-04 | -1.548E-03 | -3.259E-04 | 1.115E-06  | -2.294E-05 |
| 225   | EL    | -9.139E-06 | -3.513E-05 | -3.612E-04 | -4.381E-04 | 0.0000     | -2.690E-06 |
| 225   | ELNA  | 1.447E-06  | 1.917E-03  | 5.735E-05  | -6.675E-04 | 0.0000     | 7.714E-05  |
| 225   | ELKI  | 0.0000     | -1.16E-03  | -5.444E-05 | 6.694E-04  | 0.0000     | -9.120E-05 |
| 225   | COMB1 | -5.169E-05 | -1.551E-04 | -2.436E-03 | -1.692E-03 | 2.656E-06  | -3.184E-05 |



|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 232 | ELKA  | -1.171E-04 | -1.192E-04 | -1.147E-05 | 1.675E-03  | 4.872E-05  | -3.244E-05 |
| 233 | ELKA  | -1.174E-04 | -1.197E-04 | -1.415E-04 | 1.117E-04  | 1.311E-05  | -1.557E-05 |
| 234 | COMB3 | -4.182E-04 | -1.164E-03 | -6.166E-04 | 1.573E-02  | 1.433E-05  | -3.226E-06 |
| 234 | COMB4 | 1.048E-04  | 1.365E-03  | -9.436E-04 | 4.151E-04  | 3.379E-05  | -4.944E-05 |
| 234 | COMB5 | -4.175E-04 | -6.216E-03 | -8.547E-04 | 1.950E-03  | 3.503E-05  | -7.113E-06 |
|     |       |            |            |            |            |            |            |
| 235 | EL    | -1.177E-04 | -1.195E-04 | -1.359E-03 | 1.691E-04  | 3.893E-06  | -3.171E-05 |
| 235 | EL    | -1.178E-04 | -1.146E-05 | -2.503E-04 | 2.794E-05  | 3.763E-06  | -4.573E-06 |
| 235 | ELKA  | 0.0000     | 1.113E-03  | -3.963E-06 | -5.341E-04 | 0.0000     | -2.133E-05 |
| 235 | ELKI  | 0.0000     | -1.158E-03 | -4.709E-06 | 1.367E-04  | 0.0000     | 2.431E-05  |
| 235 | COMB1 | -1.133E-04 | -1.119E-04 | -1.648E-03 | 1.648E-04  | 1.034E-05  | -3.665E-05 |
| 235 | COMB2 | -2.150E-04 | -5.168E-03 | -9.394E-04 | -4.490E-04 | 3.519E-06  | -4.657E-05 |
| 235 | COMB3 | -1.146E-04 | -5.663E-03 | -9.401E-04 | 6.288E-04  | 3.597E-06  | -2.966E-06 |
| 235 | COMB4 | -1.166E-04 | -1.354E-03 | -1.254E-03 | -4.432E-04 | 6.188E-07  | -5.115E-05 |
| 235 | COMB5 | -4.170E-04 | -6.219E-03 | -1.254E-03 | 6.684E-04  | 6.179E-06  | -3.161E-06 |
|     |       |            |            |            |            |            |            |
| 236 | EL    | -1.178E-04 | -1.147E-04 | -1.353E-04 | -3.962E-04 | -2.261E-05 | -2.197E-05 |
| 236 | EL    | -1.179E-04 | -1.139E-05 | -1.873E-04 | -1.537E-04 | -1.143E-06 | -5.145E-06 |
| 236 | ELKA  | -1.181E-04 | -1.144E-05 | 1.435E-05  | -1.192E-04 | 0.0000     | -2.130E-05 |
| 236 | ELKI  | 1.141E-04  | -1.113E-03 | -1.034E-05 | 6.072E-04  | 0.0000     | 2.203E-05  |
| 236 | COMB1 | -1.141E-04 | -1.156E-04 | -1.400E-03 | -8.822E-04 | -4.137E-05 | -4.300E-05 |
| 236 | COMB2 | 1.155E-04  | -1.171E-03 | -1.767E-04 | -1.677E-05 | -1.610E-05 | -4.739E-05 |
| 236 | COMB3 | 1.151E-04  | -1.854E-03 | -8.813E-04 | 4.196E-04  | -1.177E-05 | -4.044E-06 |
| 236 | COMB4 | -1.154E-04 | -1.368E-03 | -1.927E-03 | -1.333E-03 | -2.436E-05 | -5.603E-05 |
| 236 | COMB5 | 1.179E-04  | -1.143E-03 | -1.137E-03 | 3.717E-04  | -2.692E-05 | -1.653E-05 |
|     |       |            |            |            |            |            |            |
| 237 | EL    | 1.178E-04  | -1.166E-04 | -1.529E-03 | -7.743E-04 | 1.021E-06  | 1.446E-05  |
| 237 | EL    | 1.179E-04  | -4.136E-05 | -3.627E-04 | -1.192E-04 | 1.117E-06  | 0.0000     |
| 237 | ELKA  | -1.177E-04 | -1.150E-03 | 6.172E-05  | -6.551E-04 | 0.0000     | -5.365E-05 |
| 237 | ELKI  | 0.0000     | -5.368E-03 | -6.357E-05 | 1.334E-04  | 0.0000     | 5.454E-05  |
| 237 | COMB1 | 1.132E-04  | -1.137E-04 | -1.415E-03 | -1.614E-03 | 5.173E-06  | 1.690E-05  |
| 237 | COMB2 | -1.145E-04 | -1.961E-03 | -1.310E-03 | -1.252E-03 | 6.189E-06  | -4.063E-05 |
| 237 | COMB3 | 1.191E-04  | -1.656E-03 | -1.439E-03 | 3.658E-04  | 4.129E-06  | 6.786E-05  |
| 237 | COMB4 | 1.137E-04  | -1.141E-03 | -1.765E-03 | -1.771E-03 | 7.669E-06  | -1.136E-05 |
| 237 | COMB5 | 1.169E-04  | -6.007E-03 | -1.900E-03 | -3.133E-04 | 6.573E-06  | 3.234E-05  |
|     |       |            |            |            |            |            |            |
| 238 | EL    | -1.180E-04 | -1.188E-04 | -1.233E-02 | 5.414E-01  | 0.0000     | 1.793E-01  |
| 238 | EL    | -1.180E-04 | -4.041E-05 | -5.544E-04 | 5.989E-04  | 0.0000     | 0.0000     |
| 238 | ELKA  | 0.0000     | 1.130E-03  | -1.346E-06 | -1.539E-04 | 0.0000     | -7.896E-05 |
| 238 | ELKI  | 1.143E-04  | -1.150E-03 | -3.391E-06 | 1.580E-04  | 0.0000     | 5.931E-05  |
| 238 | COMB1 | -1.182E-04 | -1.112E-04 | -1.307E-02 | 7.153E-02  | 1.445E-04  | -1.255E-05 |
| 238 | COMB2 | -1.172E-04 | -4.969E-03 | -1.743E-03 | -4.093E-04 | 0.0000     | -4.777E-05 |
| 238 | COMB3 | -1.184E-04 | -1.658E-03 | -1.713E-02 | 5.267E-04  | 0.0000     | 7.443E-05  |
| 238 | COMB4 | -1.141E-04 | -5.142E-03 | -2.383E-03 | -4.206E-04 | 0.0000     | -4.264E-05 |
| 238 | COMB5 | -1.169E-04 | -1.098E-03 | -2.183E-03 | 5.415E-04  | 0.0000     | 8.942E-05  |
|     |       |            |            |            |            |            |            |
| 239 | EL    | 1.180E-04  | -1.182E-04 | -1.519E-03 | 5.117E-04  | 1.171E-04  | 1.301E-05  |
| 239 | EL    | 1.180E-04  | -1.182E-05 | -3.593E-04 | 1.411E-04  | 3.689E-06  | 0.0000     |
| 239 | ELKA  | 1.182E-04  | -1.189E-03 | -6.112E-05 | -7.330E-04 | -1.243E-06 | -8.399E-05 |
| 239 | ELKI  | -1.177E-04 | -1.187E-03 | 6.452E-05  | 6.534E-04  | 1.256E-06  | 5.150E-05  |
| 239 | COMB1 | 1.182E-04  | -1.189E-04 | -2.398E-03 | 1.890E-05  | 1.293E-04  | 1.935E-05  |
| 239 | COMB2 | 1.185E-04  | -4.964E-03 | -1.429E-03 | 8.983E-05  | 1.695E-06  | -4.044E-05 |
| 239 | COMB3 | -1.180E-04 | -6.656E-03 | -1.395E-03 | 1.474E-04  | 1.219E-05  | 6.564E-05  |
| 239 | COMB4 | 1.184E-04  | -1.142E-03 | -1.887E-03 | 4.689E-04  | 1.361E-05  | -4.837E-05 |
| 239 | COMB5 | -1.180E-04 | -1.605E-03 | -1.754E-03 | 1.924E-03  | 1.601E-05  | 7.039E-05  |
|     |       |            |            |            |            |            |            |
| 240 | EL    | 1.180E-04  | -1.181E-04 | -1.548E-03 | -3.379E-04 | -1.115E-06 | 1.294E-05  |
| 240 | EL    | 1.180E-04  | -1.181E-05 | -3.613E-04 | -1.341E-04 | 0.0000     | 1.881E-06  |
| 240 | ELKA  | -1.181E-04 | -1.177E-03 | 1.735E-05  | -6.075E-04 | 0.0000     | -4.114E-05 |
| 240 | ELKI  | 0.0000     | -4.916E-03 | -5.444E-05 | 6.694E-04  | 0.0000     | 8.120E-05  |
| 240 | COMB1 | 1.180E-04  | -1.181E-04 | -1.436E-03 | -1.692E-03 | -2.650E-06 | 3.184E-05  |
| 240 | COMB2 | 1.182E-04  | -4.691E-03 | -1.336E-03 | -1.551E-03 | 0.0000     | -5.649E-05 |
| 240 | COMB3 | 1.177E-04  | -5.113E-03 | -1.448E-03 | -7.492E-05 | -1.601E-04 | 1.619E-04  |
| 240 | COMB4 | 1.182E-04  | -1.177E-03 | -1.773E-03 | -1.701E-03 | 0.0000     | -5.021E-05 |
| 240 | COMB5 | 1.183E-04  | -1.147E-03 | -1.919E-03 | -4.414E-04 | -2.315E-06 | 1.110E-04  |
|     |       |            |            |            |            |            |            |
| 241 | EL    | -1.184E-04 | -1.189E-04 | -1.697E-03 | 1.242E-01  | -7.966E-06 | 5.155E-06  |
| 241 | EL    | -1.184E-04 | -1.189E-05 | -1.697E-04 | 3.644E-06  | -1.591E-06 | -1.699E-06 |
| 241 | ELKA  | 1.182E-04  | -1.181E-03 | -1.672E-06 | -4.095E-04 | 0.0000     | -2.751E-05 |
| 241 | ELKI  | 1.183E-04  | -4.918E-03 | -1.646E-06 | 4.098E-04  | 0.0000     | 8.733E-05  |
| 241 | COMB1 | -1.181E-04 | -3.179E-04 | -3.177E-03 | 5.972E-05  | -1.349E-05 | -4.326E-05 |
| 241 | COMB2 | -1.188E-04 | -4.691E-03 | -1.709E-03 | -3.250E-04 | -7.845E-06 | -5.912E-05 |
| 241 | COMB3 | -1.188E-04 | -1.143E-03 | -1.790E-03 | 1.343E-04  | -7.364E-06 | 1.158E-04  |
| 241 | COMB4 | -1.181E-04 | -4.882E-03 | -1.322E-03 | -3.969E-04 | -1.664E-05 | -5.661E-05 |
| 241 | COMB5 | -1.189E-04 | -1.449E-03 | -2.322E-03 | 4.613E-04  | -1.971E-05 | 1.379E-04  |
|     |       |            |            |            |            |            |            |
| 242 | EL    | 1.178E-05  | -2.198E-04 | -1.541E-03 | 8.979E-04  | 0.0000     | 3.387E-05  |
| 242 | EL    | 7.969E-06  | -2.540E-05 | -3.605E-04 | 4.466E-04  | 0.0000     | 3.037E-06  |
| 242 | ELKA  | 1.179E-04  | -4.915E-03 | -1.446E-05 | -6.679E-04 | -1.110E-06 | -8.954E-05 |
| 242 | ELKI  | -1.994E-04 | -4.918E-03 | 5.746E-05  | 6.073E-04  | 1.407E-06  | 7.599E-05  |
| 242 | COMB1 | 1.181E-05  | -5.481E-04 | -1.126E-03 | 1.792E-03  | -1.773E-06 | 1.180E-05  |
| 242 | COMB2 | 1.181E-05  | -1.196E-03 | -1.441E-03 | 1.490E-04  | -1.151E-06 | -1.096E-05 |
| 242 | COMB3 | 1.187E-05  | -1.143E-03 | -1.330E-03 | 1.411E-03  | 1.667E-06  | 1.963E-04  |
| 242 | COMB4 | 1.187E-05  | -4.680E-03 | -1.982E-03 | 8.329E-04  | -2.175E-06 | -4.697E-05 |
| 242 | COMB5 | 6.420E-06  | -5.442E-03 | -1.785E-03 | 1.862E-03  | 0.0000     | 1.173E-04  |
|     |       |            |            |            |            |            |            |
| 243 | EL    | 1.182E-05  | -1.231E-04 | -1.190E-03 | 6.829E-04  | -4.536E-05 | 1.398E-05  |
| 243 | EL    | 1.182E-05  | -1.236E-05 | -2.229E-04 | 2.779E-04  | -7.992E-06 | -2.017E-06 |
| 243 | ELKA  | 1.182E-04  | -1.179E-03 | -7.693E-05 | -6.631E-04 | 1.155E-05  | -6.956E-05 |



|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 243 | ELK1  | -1.195E-05 | -4.500E-03 | 7.980E-05  | 4.837E-04  | -1.101E-05 | 6.064E-05  |
| 243 | ELK2  | -1.213E-05 | -1.675E-04 | -1.773E-03 | 1.762E-03  | -6.709E-05 | 1.247E-05  |
| 243 | ELK3  | -1.756E-05 | 1.370E-03  | -1.139E-03 | 1.110E-04  | -1.949E-05 | -5.778E-05 |
| 243 | COMB3 | 4.990E-06  | -4.611E-03 | -9.832E-04 | 1.098E-03  | -5.185E-05 | 7.241E-05  |
| 243 | COMB4 | 3.736E-05  | 4.577E-03  | -1.460E-03 | 3.627E-04  | -4.071E-05 | -6.057E-05 |
| 243 | COMB5 | 1.375E-05  | -1.167E-03 | -1.096E-03 | 1.399E-03  | -0.412E-05 | 7.614E-05  |
| 244 | DL    | 0.000E-05  | -1.338E-04 | -1.184E-03 | -6.509E-04 | -4.555E-05 | 1.194E-05  |
| 244 | LL    | 1.168E-05  | -1.307E-05 | -1.354E-04 | -1.736E-04 | -7.302E-06 | 1.017E-06  |
| 244 | ELK4  | -1.154E-05 | 3.537E-03  | 3.094E-03  | -4.357E-04 | -1.175E-05 | -8.230E-05 |
| 244 | ELK1  | 1.105E-05  | -1.470E-03 | -7.739E-05 | 5.639E-04  | 1.313E-05  | 7.027E-05  |
| 244 | COMB1 | 1.059E-05  | -1.219E-04 | -1.778E-03 | -1.318E-03 | -6.773E-05 | 3.238E-05  |
| 244 | COMB2 | 1.761E-05  | 4.577E-03  | -9.855E-04 | -1.070E-03 | -8.273E-05 | -5.145E-05 |
| 244 | COMB3 | 3.135E-05  | -1.115E-03 | -1.113E-03 | -8.196E-05 | -2.484E-05 | 6.192E-05  |
| 244 | COMB4 | 1.114E-05  | 1.170E-03  | -1.200E-03 | -1.363E-03 | -0.513E-05 | -4.960E-05 |
| 244 | COMB5 | 1.113E-05  | -1.170E-03 | -1.200E-03 | -3.176E-04 | -1.204E-05 | 3.349E-05  |
| 245 | DL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 245 | LL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 245 | ELK4  | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 245 | ELK1  | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 245 | COMB1 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 245 | COMB2 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 245 | COMB3 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 245 | COMB4 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 245 | COMB5 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | DL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | LL    | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | ELK4  | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | ELK1  | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | COMB1 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | COMB2 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | COMB3 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | COMB4 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 246 | COMB5 | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     | 0.0000     |
| 247 | DL    | -1.280E-03 | -1.944E-04 | -6.543E-04 | -2.162E-04 | -1.668E-04 | -5.346E-05 |
| 247 | LL    | -1.280E-03 | -1.944E-05 | -1.043E-04 | -6.992E-05 | -4.961E-05 | -7.764E-06 |
| 247 | ELK4  | 1.564E-05  | 1.703E-03  | -1.098E-04 | -2.254E-04 | 0.9900     | 1.922E-04  |
| 247 | ELK1  | -8.187E-05 | -8.139E-03 | 1.149E-04  | 2.829E-04  | -2.525E-05 | -2.972E-04 |
| 247 | COMB1 | -8.187E-05 | -8.139E-04 | -9.519E-04 | -3.570E-04 | -2.795E-04 | -7.657E-05 |
| 247 | COMB2 | 1.019E-04  | 1.33E-03   | -6.936E-04 | -4.208E-04 | -1.509E-04 | 5.452E-05  |
| 247 | COMB3 | -1.607E-04 | -9.014E-03 | -4.740E-04 | 8.832E-05  | -1.754E-04 | -3.453E-04 |
| 247 | COMB4 | 0.0000     | 8.923E-03  | -8.679E-04 | -5.031E-04 | -2.071E-04 | 4.674E-05  |
| 247 | COMB5 | -1.120E-04 | -8.501E-03 | -6.321E-04 | 3.165E-05  | -2.329E-04 | -3.731E-04 |
| 248 | DL    | -1.262E-03 | -7.996E-01 | -9.872E-04 | 1.976E-04  | -9.921E-04 | -1.272E-04 |
| 248 | LL    | -1.244E-04 | -1.355E-05 | -1.868E-04 | 5.294E-05  | -1.327E-04 | -1.827E-05 |
| 248 | ELK4  | 1.108E-05  | 1.712E-03  | 7.324E-05  | -1.648E-04 | 1.943E-05  | 3.811E-05  |
| 248 | ELK1  | -4.094E-04 | -8.783E-02 | -8.417E-05 | 1.600E-04  | -1.068E-04 | -5.855E-05 |
| 248 | COMB1 | -1.794E-03 | -2.969E-04 | -1.488E-03 | 3.219E-04  | -1.455E-03 | -1.919E-04 |
| 248 | COMB2 | -2.065E-03 | 8.524E-03  | -8.112E-04 | 1.311E-05  | -7.925E-04 | -8.637E-05 |
| 248 | COMB3 | -1.646E-03 | -3.975E-02 | -7.726E-04 | 3.386E-04  | -3.187E-04 | -1.730E-04 |
| 248 | COMB4 | -1.361E-03 | 8.910E-03  | -1.073E-03 | 6.787E-05  | -1.073E-03 | -1.156E-04 |
| 248 | COMB5 | -7.866E-03 | -8.459E-03 | -1.243E-03 | 4.097E-04  | -1.206E-03 | -2.066E-04 |
| 249 | DL    | -1.150E-03 | -1.538E-04 | -9.832E-04 | -1.926E-04 | -8.698E-04 | 9.331E-05  |
| 249 | LL    | -1.643E-04 | -1.676E-05 | -1.863E-04 | -5.235E-05 | -2.270E-04 | 1.382E-05  |
| 249 | ELK4  | -3.928E-04 | 1.712E-03  | -8.395E-05 | -1.666E-04 | -1.067E-04 | 6.141E-05  |
| 249 | ELK1  | 6.514E-05  | -8.724E-03 | 7.736E-05  | 1.653E-04  | 1.744E-05  | -2.796E-05 |
| 249 | COMB1 | -1.643E-03 | -2.174E-04 | -1.478E-03 | -3.149E-04 | -1.407E-03 | 1.341E-04  |
| 249 | COMB2 | -1.145E-02 | 8.626E-03  | -9.689E-04 | -3.340E-04 | -8.395E-04 | 1.454E-04  |
| 249 | COMB3 | -1.180E-01 | -1.254E-02 | -3.070E-04 | -1.925E-05 | -7.654E-04 | 5.602E-05  |
| 249 | COMB4 | -1.724E-03 | 9.033E-03  | -1.238E-03 | -4.039E-04 | -1.168E-03 | 1.712E-04  |
| 249 | COMB5 | -1.343E-03 | -8.337E-03 | -1.068E-03 | -6.165E-05 | -1.938E-03 | 7.732E-05  |
| 250 | DL    | -1.806E-06 | -1.914E-04 | -6.589E-04 | 2.339E-04  | -1.598E-04 | -4.468E-05 |
| 250 | LL    | 0.0000     | -2.934E-05 | -1.946E-04 | 6.324E-05  | -4.846E-05 | -5.213E-06 |
| 250 | ELK4  | -1.335E-05 | 1.136E-03  | 1.154E-04  | -2.828E-04 | -1.374E-05 | 3.029E-04  |
| 250 | ELK1  | 1.019E-05  | -8.720E-03 | -1.104E-04 | 2.262E-04  | -8.300E-06 | -1.941E-04 |
| 250 | COMB1 | -1.694E-05 | -2.512E-04 | -9.593E-04 | 3.819E-04  | -2.623E-04 | -6.195E-05 |
| 250 | COMB2 | -8.210E-05 | 1.667E-03  | -1.777E-04 | -7.230E-05 | -1.600E-04 | 3.626E-04  |
| 250 | COMB3 | 4.446E-04  | -8.883E-03 | -7.034E-04 | 4.368E-04  | -1.191E-04 | -1.443E-04 |
| 250 | COMB4 | -6.435E-05 | 9.068E-03  | -6.367E-04 | -1.152E-05 | -7.180E-04 | 2.678E-04  |
| 250 | COMB5 | 1.324E-04  | -8.680E-03 | -8.738E-04 | 5.230E-04  | -2.439E-04 | -1.885E-04 |
| 251 | DL    | 1.130E-05  | -1.377E-03 | -1.194E-03 | 1.096E-03  | 1.117E-04  | -0.447E-04 |
| 251 | LL    | 1.017E-05  | -1.306E-04 | -1.994E-04 | 2.371E-04  | 9.498E-06  | -3.310E-05 |
| 251 | ELK4  | -6.808E-05 | 0.0141     | 4.158E-05  | -1.597E-03 | -1.724E-05 | 4.866E-04  |
| 251 | ELK1  | 1.917E-05  | -0.0101    | -3.546E-05 | 4.688E-04  | 1.130E-05  | -1.753E-04 |
| 251 | COMB1 | 3.947E-05  | -3.913E-03 | -1.638E-03 | 1.695E-05  | 1.459E-04  | -3.466E-04 |
| 251 | COMB2 | -4.527E-05 | 0.0121     | -9.519E-04 | -6.103E-04 | 8.328E-05  | 2.664E-04  |
| 251 | COMB3 | 4.199E-05  | -0.0121    | -1.629E-03 | 1.453E-03  | 1.017E-04  | -3.955E-04 |
| 251 | COMB4 | -4.131E-05 | 9.0124     | -1.235E-03 | -3.763E-04 | 1.050E-04  | 2.332E-04  |
| 251 | COMB5 | 5.031E-05  | -0.0131    | -1.316E-03 | 1.791E-03  | 1.243E-04  | -4.613E-04 |
| 252 | DL    | 2.930E-05  | -4.273E-03 | -1.193E-03 | 1.583E-03  | -4.275E-05 | -2.369E-04 |
| 252 | LL    | 6.624E-06  | -5.456E-04 | -2.240E-04 | 3.176E-04  | 0.0000     | -3.848E-05 |



[illegible]





|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 291 | EL    | -1.223E-04 | -1.981E-03 | -0.813E-02 | 3.410E-03  | -3.800E-04 | -2.551E-05 |
| 291 | EL    | -8.279E-05 | -1.264E-03 | -1.478E-03 | 7.684E-04  | -1.199E-04 | -4.361E-06 |
| 291 | ELKA  | 1.496E-04  | 0.0193     | 4.741E-03  | -2.605E-03 | -1.157E-05 | -1.965E-05 |
| 291 | ELK1  | -0.498E-05 | -0.0127    | -1.254E-03 | 6.742E-04  | -5.396E-06 | -1.050E-05 |
| 291 | COMB1 | -1.493E-04 | -0.0123    | -0.0105    | 5.322E-03  | -6.479E-04 | -3.750E-05 |
| 291 | COMB2 | -1.493E-04 | 0.0121     | -1.299E-03 | 4.639E-04  | -3.274E-04 | -3.167E-06 |
| 291 | COMB3 | -1.493E-04 | -0.0199    | -1.386E-03 | 3.743E-03  | -3.474E-04 | -3.546E-05 |
| 291 | COMB4 | -1.493E-04 | 0.0111     | -3.106E-03 | 1.329E-03  | -4.793E-04 | -8.683E-06 |
| 291 | COMB5 | -1.493E-04 | -0.0226    | -9.401E-03 | 4.775E-03  | -4.802E-04 | -4.956E-06 |
| 292 | EL    | -1.913E-05 | -7.985E-03 | -0.0119    | 3.832E-03  | -6.465E-04 | -1.627E-04 |
| 292 | EL    | -1.125E-06 | -1.264E-03 | -2.429E-03 | 7.991E-04  | -2.142E-04 | -3.871E-05 |
| 292 | ELKA  | 1.496E-04  | 0.0193     | 4.741E-03  | -2.605E-03 | -1.157E-05 | -1.960E-04 |
| 292 | ELK1  | -1.496E-05 | -0.0127    | -1.254E-03 | 6.742E-04  | -4.666E-06 | -7.918E-05 |
| 292 | COMB1 | -1.496E-05 | -0.0116    | -0.0171    | 5.505E-03  | -1.119E-03 | -3.404E-04 |
| 292 | COMB2 | -1.496E-05 | 0.0121     | -1.043E-03 | 5.645E-04  | -5.093E-04 | -1.757E-05 |
| 292 | COMB3 | -1.496E-05 | -0.0199    | -0.0120    | 3.844E-03  | -5.865E-04 | -2.256E-04 |
| 292 | COMB4 | -1.496E-05 | 0.0111     | -4.831E-03 | 1.466E-03  | -8.906E-04 | -1.641E-05 |
| 292 | COMB5 | -1.496E-05 | -0.0226    | -0.0153    | 4.910E-03  | -6.187E-04 | -2.718E-04 |
| 293 | EL    | -1.913E-05 | -7.985E-03 | -0.0119    | 3.832E-03  | -6.465E-04 | -1.627E-04 |
| 293 | EL    | -1.125E-06 | -1.264E-03 | -2.429E-03 | 7.991E-04  | -2.142E-04 | -3.871E-05 |
| 293 | ELKA  | 1.496E-04  | 0.0193     | 4.741E-03  | -2.605E-03 | -1.157E-05 | -1.960E-04 |
| 293 | ELK1  | -1.496E-05 | -0.0127    | -1.254E-03 | 6.742E-04  | -4.666E-06 | -7.918E-05 |
| 293 | COMB1 | -1.496E-05 | -0.0116    | -0.0171    | 5.505E-03  | -1.119E-03 | -3.404E-04 |
| 293 | COMB2 | -1.496E-05 | 0.0121     | -1.043E-03 | 5.645E-04  | -5.093E-04 | -1.757E-05 |
| 293 | COMB3 | -1.496E-05 | -0.0199    | -0.0120    | 3.844E-03  | -5.865E-04 | -2.256E-04 |
| 293 | COMB4 | -1.496E-05 | 0.0111     | -4.831E-03 | 1.466E-03  | -8.906E-04 | -1.642E-05 |
| 293 | COMB5 | -1.496E-05 | -0.0226    | -0.0153    | 4.910E-03  | -6.187E-04 | -2.718E-04 |
| 294 | EL    | -1.982E-04 | -7.985E-03 | -6.813E-02 | 3.410E-03  | -3.800E-04 | -2.551E-05 |
| 294 | EL    | -8.279E-05 | -1.264E-03 | -1.478E-03 | 7.684E-04  | -1.199E-04 | -4.361E-06 |
| 294 | ELKA  | 1.496E-04  | 0.0193     | 4.741E-03  | -2.605E-03 | -1.457E-01 | -1.985E-05 |
| 294 | ELK1  | -0.498E-05 | -0.0127    | -1.254E-03 | 6.742E-04  | -5.396E-06 | -1.050E-05 |
| 294 | COMB1 | -2.763E-04 | -0.0116    | -0.0105    | 5.322E-03  | -6.479E-04 | -3.750E-05 |
| 294 | COMB2 | -1.494E-05 | 0.0121     | -1.399E-03 | 4.639E-04  | -3.274E-04 | -3.166E-06 |
| 294 | COMB3 | -1.493E-04 | -0.0199    | -1.386E-03 | 3.743E-03  | -3.474E-04 | -3.546E-05 |
| 294 | COMB4 | -1.493E-04 | 0.0111     | -3.106E-03 | 1.329E-03  | -4.793E-04 | -8.683E-06 |
| 294 | COMB5 | -1.496E-04 | -0.0226    | -9.401E-03 | 4.775E-03  | -4.802E-04 | -4.956E-06 |
| 295 | EL    | -1.493E-04 | -0.785E-05 | -2.929E-03 | 4.465E-04  | -3.601E-04 | -7.736E-06 |
| 295 | EL    | -1.493E-04 | -1.261E-06 | -4.694E-04 | 1.694E-04  | -3.948E-05 | -1.100E-05 |
| 295 | ELKA  | -4.493E-04 | 4.741E-03  | 4.937E-04  | -1.419E-03 | -7.137E-05 | -1.395E-04 |
| 295 | ELK1  | -1.493E-04 | -1.493E-03 | -4.833E-01 | 1.679E-04  | -1.643E-01 | -1.643E-04 |
| 295 | COMB1 | -1.493E-04 | -1.493E-03 | -1.493E-03 | 1.679E-04  | -1.643E-01 | -1.643E-04 |
| 295 | COMB2 | -1.493E-04 | 1.493E-03  | -1.493E-03 | 1.679E-04  | -1.643E-01 | -1.679E-04 |
| 295 | COMB3 | -1.493E-04 | -1.493E-03 | -1.493E-03 | 1.679E-04  | -1.643E-01 | -1.679E-04 |
| 295 | COMB4 | -1.493E-04 | 1.493E-03  | -1.493E-03 | 1.679E-04  | -1.643E-01 | -1.679E-04 |
| 295 | COMB5 | -1.493E-04 | -1.493E-03 | -1.493E-03 | 1.679E-04  | -1.643E-01 | -1.679E-04 |
| 296 | EL    | -0.498E-05 | -1.083E-04 | -1.074E-03 | -4.318E-04 | 3.738E-04  | -1.175E-05 |
| 296 | EL    | -0.498E-05 | -1.348E-05 | -4.678E-04 | -1.074E-04 | 9.125E-05  | -6.417E-07 |
| 296 | ELKA  | 1.496E-04  | 0.0193     | -1.739E-04 | -1.456E-04 | -2.673E-05 | -9.664E-01 |
| 296 | ELK1  | -0.498E-05 | -0.443E-03 | 4.820E-04  | 1.421E-04  | -7.468E-05 | -3.384E-04 |
| 296 | COMB1 | -0.498E-05 | -1.014E-04 | -3.165E-03 | -6.996E-04 | -0.011E-04 | -6.877E-05 |
| 296 | COMB2 | -0.498E-05 | 0.443E-03  | -1.387E-03 | -8.980E-04 | -3.136E-04 | -6.206E-05 |
| 296 | COMB3 | -0.498E-05 | -0.443E-03 | -1.381E-03 | -1.465E-04 | -1.131E-04 | -3.660E-04 |
| 296 | COMB4 | -0.498E-05 | 0.443E-03  | -0.997E-02 | -7.377E-04 | 4.260E-04  | -5.747E-05 |
| 296 | COMB5 | -0.498E-05 | -0.996E-03 | -1.903E-03 | -2.668E-04 | 5.232E-04  | -3.671E-04 |
| 297 | EL    | -1.493E-04 | -1.093E-04 | -1.191E-03 | -4.168E-04 | -1.065E-04 | -6.464E-05 |
| 297 | EL    | -0.498E-05 | -1.083E-04 | -0.991E-04 | -1.619E-05 | -1.493E-04 | -8.749E-06 |
| 297 | ELKA  | 1.496E-04  | 0.0193     | -1.739E-04 | -1.456E-04 | -2.673E-05 | -9.664E-05 |
| 297 | ELK1  | -0.498E-05 | -1.493E-03 | 4.820E-05  | 0.167E-04  | -0.022E-05 | -1.769E-04 |
| 297 | COMB1 | -0.498E-05 | -1.165E-04 | -0.149E-03 | -1.404E-04 | -5.423E-04 | -9.156E-05 |
| 297 | COMB2 | -0.498E-05 | 0.443E-03  | -1.387E-03 | -1.465E-04 | -4.439E-04 | -3.017E-05 |
| 297 | COMB3 | -0.498E-05 | -0.443E-03 | -1.387E-03 | -1.465E-04 | -4.439E-04 | -3.017E-05 |
| 297 | COMB4 | -0.498E-05 | 0.443E-03  | -1.387E-03 | -1.465E-04 | -4.439E-04 | -3.017E-05 |
| 297 | COMB5 | -0.498E-05 | -0.996E-03 | -1.901E-03 | -1.935E-04 | -6.066E-04 | -0.591E-04 |
| 298 | EL    | -1.493E-04 | -1.493E-04 | -1.917E-03 | -0.744E-04 | -1.173E-05 | -1.699E-05 |
| 298 | EL    | -1.493E-04 | -1.493E-05 | -3.243E-04 | -1.526E-04 | 0.699E-04  | -1.759E-06 |
| 298 | ELKA  | 1.496E-04  | 0.0193     | -1.739E-04 | -1.456E-04 | -2.673E-05 | -1.995E-04 |
| 298 | ELK1  | -0.498E-05 | -1.493E-03 | 0.687E-04  | 3.211E-04  | -1.404E-04 | -2.674E-04 |
| 298 | COMB1 | -0.498E-05 | -1.493E-04 | -2.355E-03 | -9.324E-04 | -1.117E-05 | -2.210E-05 |
| 298 | COMB2 | -0.498E-05 | 0.443E-03  | -1.385E-03 | -3.455E-04 | -3.115E-05 | -3.895E-05 |
| 298 | COMB3 | -0.498E-05 | -0.443E-03 | -0.966E-04 | -1.959E-04 | -7.239E-04 | -0.819E-04 |
| 298 | COMB4 | -0.498E-05 | 0.443E-03  | -1.315E-03 | -9.323E-04 | -2.117E-05 | -2.701E-05 |
| 298 | COMB5 | -0.498E-05 | -0.996E-03 | -1.918E-03 | -3.617E-04 | -1.347E-04 | -2.988E-04 |
| 299 | EL    | -2.465E-05 | -1.949E-04 | -1.517E-03 | -0.744E-04 | -1.173E-05 | -1.699E-05 |
| 299 | EL    | -2.465E-05 | -1.949E-05 | -3.243E-04 | -1.526E-04 | 0.699E-04  | -1.759E-06 |
| 299 | ELKA  | 1.496E-04  | 0.0193     | -1.739E-04 | -1.456E-04 | -2.673E-05 | -1.995E-04 |
| 299 | ELK1  | -0.498E-05 | -1.493E-03 | 0.687E-04  | 3.211E-04  | -1.404E-04 | -2.674E-04 |
| 299 | COMB1 | -0.498E-05 | -1.493E-04 | -2.355E-03 | -9.324E-04 | -1.117E-05 | -2.210E-05 |
| 299 | COMB2 | -0.498E-05 | 0.443E-03  | -1.385E-03 | -3.455E-04 | -3.115E-05 | -3.895E-05 |
| 299 | COMB3 | -0.498E-05 | -0.443E-03 | -0.966E-04 | -1.959E-04 | -7.239E-04 | -0.819E-04 |
| 299 | COMB4 | -0.498E-05 | 0.443E-03  | -1.315E-03 | -9.323E-04 | -2.117E-05 | -2.701E-05 |
| 299 | COMB5 | -0.498E-05 | -0.996E-03 | -1.906E-03 | -1.999E-04 | -1.399E-04 | -3.819E-04 |











|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 337 | ELK1  | -1.111E-04 | -0.0107    | -4.572E-03 | -1.510E-03 | 3.191E-05  | 1.173E-04  |
| 338 | ELK2  | -1.016E-04 | 1.013E-04  | -8.939E-03 | -2.155E-03 | 1.353E-04  | 1.594E-05  |
| 339 | ELK3  | 1.169E-05  | 0.0136     | -4.143E-03 | -1.569E-03 | 1.457E-04  | -8.197E-05 |
| 340 | COMB1 | -0.923E-04 | -0.0105    | 1.631E-03  | 1.190E-03  | 1.913E-04  | 1.312E-04  |
| 341 | COMB2 | 0.0170E-03 | 0.0133     | -8.153E-03 | -1.307E-03 | 1.003E-04  | -1.769E-05 |
| 342 | COMB3 | -1.163E-04 | -0.0104    | -0.921E-03 | 1.093E-03  | 1.412E-04  | 1.113E-04  |
| 343 | DL    | 1.957E-04  | 1.173E-04  | -1.603E-03 | -1.129E-03 | 1.132E-05  | 1.197E-04  |
| 344 | LL    | 1.133E-04  | 1.163E-04  | -1.135E-04 | -5.126E-04 | 1.669E-06  | 1.769E-06  |
| 345 | ELKA  | -1.173E-05 | 0.0139     | -8.076E-03 | -6.093E-03 | 1.116E-06  | -1.143E-04 |
| 346 | ELK1  | 1.166E-04  | -0.0101    | 1.166E-03  | 1.353E-03  | -3.023E-05 | 1.163E-04  |
| 347 | COMB1 | 1.166E-04  | 1.095E-03  | -3.496E-03 | -1.977E-03 | 2.453E-05  | 1.149E-04  |
| 348 | COMB2 | -0.146E-04 | 0.0137     | -1.509E-03 | -1.773E-03 | 1.185E-05  | 7.137E-06  |
| 349 | COMB3 | 0.0141E-03 | -0.0134    | -1.410E-03 | 1.113E-03  | 1.963E-05  | 4.174E-04  |
| 350 | COMB4 | -1.163E-04 | 0.0131     | -1.926E-03 | -0.993E-03 | 1.131E-04  | 3.523E-05  |
| 351 | COMB5 | -1.163E-04 | -0.0131    | -1.926E-03 | -0.993E-03 | 1.131E-04  | 3.523E-05  |
| 352 | DL    | -3.143E-03 | 1.039E-04  | -4.835E-03 | -1.553E-03 | 4.151E-05  | 1.043E-04  |
| 353 | LL    | 0.6000     | 1.160E-04  | -9.959E-04 | -4.043E-04 | 0.374E-06  | 3.350E-06  |
| 354 | ELKA  | 1.096E-04  | 0.0130     | -1.134E-03 | -6.085E-04 | -3.149E-05 | -1.110E-04 |
| 355 | ELK1  | -2.365E-04 | -0.0101    | 4.349E-03  | 2.389E-03  | 9.009E-05  | 2.160E-04  |
| 356 | COMB1 | -2.365E-04 | 1.883E-03  | -8.796E-03 | -1.599E-03 | 6.682E-05  | 1.306E-04  |
| 357 | COMB2 | 1.169E-05  | 0.0137     | -8.036E-03 | -2.995E-03 | 1.857E-05  | -2.794E-05 |
| 358 | COMB3 | -1.666E-04 | -0.0174    | 4.479E-04  | 3.911E-04  | 1.392E-04  | 3.999E-04  |
| 359 | COMB4 | 7.644E-05  | 0.0134     | -6.370E-03 | -2.523E-03 | 2.636E-05  | -1.533E-05 |
| 360 | COMB5 | -0.629E-04 | -0.0131    | -6.124E-04 | 6.236E-04  | 1.466E-04  | 3.365E-04  |
| 361 | DL    | -0.919E-05 | 1.179E-03  | -3.673E-03 | -1.441E-03 | 3.399E-05  | 2.179E-05  |
| 362 | LL    | 0.6000     | 1.351E-04  | -2.997E-04 | -3.466E-04 | -1.380E-06 | 0.0000     |
| 363 | ELKA  | 1.363E-04  | 0.0115     | -1.663E-03 | -1.766E-04 | -1.790E-05 | -8.184E-05 |
| 364 | ELK1  | -2.467E-04 | -0.0172    | 4.969E-03  | 2.233E-03  | 8.307E-05  | 1.974E-04  |
| 365 | COMB1 | -2.467E-04 | 1.600E-03  | -5.687E-03 | -2.333E-03 | 1.359E-05  | 1.681E-05  |
| 366 | COMB2 | 1.078E-04  | 0.0136     | -4.369E-03 | -1.964E-03 | 1.635E-05  | -6.175E-05 |
| 367 | COMB3 | -3.133E-04 | -0.0162    | 1.637E-04  | 8.955E-04  | 1.173E-04  | 2.172E-04  |
| 368 | COMB4 | 1.109E-04  | 0.0134     | -5.477E-03 | -2.373E-03 | 2.023E-05  | -6.148E-05 |
| 369 | COMB5 | -8.401E-04 | -0.0168    | -8.664E-05 | 8.795E-04  | 1.263E-04  | 1.394E-04  |
| 370 | DL    | 1.071E-05  | 1.074E-03  | -1.929E-03 | -1.295E-03 | -1.095E-05 | -7.144E-05 |
| 371 | LL    | 0.6000     | 1.114E-04  | -2.946E-04 | -3.987E-04 | -6.977E-06 | -1.153E-05 |
| 372 | ELKA  | -1.875E-05 | 0.0109     | -3.459E-05 | -8.311E-04 | 0.929E-06  | -2.564E-04 |
| 373 | ELK1  | 0.417E-05  | -0.0153    | 5.087E-05  | 1.931E-03  | -5.111E-06 | 5.543E-04  |
| 374 | COMB1 | 1.314E-05  | 1.467E-03  | -2.787E-03 | -1.940E-03 | -2.323E-05 | -1.642E-04 |
| 375 | COMB2 | -2.011E-05 | 0.0119     | -1.771E-03 | -1.605E-03 | -7.018E-06 | -3.137E-04 |
| 376 | COMB3 | 9.434E-05  | -0.0148    | -1.686E-03 | 8.468E-04  | -1.486E-05 | 4.900E-04  |
| 377 | COMB4 | -1.987E-05 | 0.0126     | -2.348E-03 | -2.067E-03 | -1.282E-05 | -3.452E-04 |
| 378 | COMB5 | 1.603E-04  | -0.0154    | -2.159E-03 | 5.637E-04  | -0.195E-05 | 4.997E-04  |
| 379 | DL    | -0.160E-05 | 1.073E-03  | -4.401E-03 | -1.423E-03 | -7.396E-05 | -0.489E-05 |
| 380 | LL    | 0.6000     | 1.113E-04  | -9.719E-04 | -3.855E-04 | -1.788E-05 | -5.393E-06 |
| 381 | ELKA  | 1.507E-04  | 0.0108     | -9.748E-04 | -5.234E-04 | -3.399E-05 | -1.764E-04 |
| 382 | ELK1  | -5.459E-04 | -0.0153    | 3.542E-03  | 1.940E-03  | 2.166E-04  | 4.036E-04  |
| 383 | COMB1 | -5.459E-04 | 1.466E-03  | -6.959E-03 | -3.325E-03 | -1.172E-04 | -3.928E-03 |
| 384 | COMB2 | 3.312E-04  | 0.0110     | -4.954E-03 | -1.603E-03 | -9.965E-05 | -1.988E-04 |
| 385 | COMB3 | -8.684E-04 | -0.0149    | -4.369E-04 | 6.597E-04  | 1.450E-04  | 3.812E-04  |
| 386 | COMB4 | 1.359E-04  | 0.0136     | -6.278E-03 | -2.286E-03 | -1.236E-04 | -2.151E-04 |
| 387 | COMB5 | -3.488E-04 | -0.0154    | -1.535E-03 | 3.064E-04  | 1.333E-04  | 3.932E-04  |
| 388 | DL    | -1.666E-05 | 0.508E-04  | -3.199E-03 | -1.260E-03 | -2.013E-04 | 2.344E-05  |
| 389 | LL    | 0.6000     | 1.596E-05  | -6.677E-04 | -3.044E-04 | -3.173E-05 | 0.0000     |
| 390 | ELKA  | 1.669E-04  | 0.0101     | -3.743E-04 | -4.646E-03 | -0.969E-05 | -9.693E-05 |
| 391 | ELK1  | -8.966E-04 | -0.0141    | 2.999E-03  | 1.586E-03  | 1.308E-04  | 2.379E-04  |
| 392 | COMB1 | -8.966E-04 | 1.119E-03  | -4.947E-03 | -1.999E-03 | -2.923E-04 | -1.673E-05 |
| 393 | COMB2 | 1.403E-04  | 0.0109     | -3.783E-03 | -1.599E-03 | -2.193E-04 | -7.884E-05 |
| 394 | COMB3 | -1.919E-04 | -0.0134    | 2.134E-03  | 1.469E-04  | 0.6969     | 1.890E-04  |
| 395 | COMB4 | 1.041E-04  | 0.0116     | -4.713E-03 | -0.093E-03 | -2.619E-04 | -7.654E-05 |
| 396 | COMB5 | -4.107E-04 | -0.0139    | -7.499E-04 | 1.442E-04  | -4.146E-05 | 2.750E-04  |
| 397 | DL    | 1.243E-05  | 1.189E-04  | -1.969E-03 | -0.107E-04 | -1.146E-04 | -0.299E-04 |
| 398 | LL    | 1.120E-04  | 1.496E-05  | -1.747E-04 | -2.170E-04 | -3.972E-05 | -0.274E-05 |
| 399 | ELKA  | -1.130E-05 | 0.008E-03  | -6.895E-05 | -3.473E-04 | 1.102E-05  | -0.694E-04 |
| 400 | ELK1  | 7.104E-05  | -0.0114    | 7.975E-05  | 9.384E-04  | -0.405E-05 | 1.049E-03  |
| 401 | COMB1 | 1.297E-05  | 3.899E-04  | -1.563E-03 | -1.320E-03 | -1.987E-04 | -3.123E-04 |
| 402 | COMB2 | -1.621E-05 | 3.583E-03  | -1.031E-03 | -1.977E-03 | -9.413E-05 | -4.763E-04 |
| 403 | COMB3 | 1.931E-04  | -0.0111    | -9.827E-04 | 2.088E-04  | -1.362E-04 | 6.420E-04  |
| 404 | COMB4 | -1.484E-05 | 0.0101     | -1.305E-03 | -1.352E-03 | -1.313E-04 | -5.386E-04 |
| 405 | COMB5 | 1.105E-04  | -0.0117    | -1.149E-03 | -2.653E-06 | -1.754E-04 | 8.456E-04  |
| 406 | DL    | -0.251E-05 | 1.391E-04  | -2.945E-03 | -1.092E-03 | -3.499E-04 | -0.180E-05 |
| 407 | LL    | -1.024E-05 | 1.113E-05  | -6.992E-04 | -2.956E-04 | -7.775E-05 | -8.173E-06 |
| 408 | ELKA  | 1.641E-04  | 0.008E-03  | -6.934E-04 | -3.469E-04 | -6.931E-05 | -1.786E-04 |
| 409 | ELK1  | -3.997E-04 | -0.0114    | 1.761E-03  | 9.346E-04  | 4.445E-04  | 6.931E-04  |
| 410 | COMB1 | -3.997E-04 | 0.009E-04  | -4.636E-03 | -1.783E-03 | -5.443E-04 | -1.113E-04 |
| 411 | COMB2 | 1.435E-04  | 0.003E-03  | -3.744E-03 | -1.330E-03 | -3.942E-04 | -2.503E-04 |
| 412 | COMB3 | -4.134E-04 | -0.0111    | -8.888E-04 | -4.890E-05 | 1.296E-04  | 8.295E-04  |
| 413 | COMB4 | 1.475E-04  | 0.0101     | -4.254E-03 | -1.697E-03 | -4.892E-04 | -2.786E-03 |
| 414 | COMB5 | -1.563E-04 | -0.0117    | -1.777E-03 | -3.502E-04 | 5.034E-05  | 5.422E-04  |
| 415 | DL    | 6.050E-04  | -0.939E-04 | -6.841E-04 | 1.121E-04  | 6.682E-04  | 3.429E-04  |
| 416 | LL    | -0.029E-05 | -0.939E-05 | -1.627E-04 | 2.349E-05  | 1.793E-04  | 4.717E-05  |









|     |       |            |            |            |            |            |            |
|-----|-------|------------|------------|------------|------------|------------|------------|
| 386 | ELBA  | -1.170E-03 | -1.530E-03 | -9.930E-03 | -1.730E-04 | -1.401E-05 | -3.37E-05  |
| 387 | EL    | 1.380E-04  | -1.430E-04 | -1.545E-03 | -1.417E-03 | -1.590E-04 | 5.168E-06  |
| 387 | EL    | 9.406E-05  | -1.700E-05 | -1.183E-04 | -2.508E-04 | 1.390E-05  | 3.140E-06  |
| 387 | ELBA  | -4.187E-05 | 7.060E-03  | -9.354E-05 | -2.479E-04 | -6.196E-06 | 4.260E-05  |
| 387 | ELK1  | 1.119E-05  | -7.066E-03 | 5.802E-05  | 2.466E-04  | -1.804E-05 | -1.620E-05 |
| 387 | COMB1 | 1.303E-04  | -7.332E-04 | -2.043E-03 | -2.101E-03 | -5.654E-04 | -7.619E-06 |
| 387 | COMB2 | 1.009E-04  | 6.931E-03  | -1.484E-03 | -1.535E-03 | -4.473E-04 | 1.730E-05  |
| 387 | COMB3 | 7.361E-04  | -1.158E-03 | -1.330E-03 | -1.029E-03 | -1.197E-04 | -1.150E-05 |
| 387 | COMB4 | 7.675E-04  | 7.130E-03  | -1.779E-03 | -1.907E-03 | -3.134E-04 | 3.131E-05  |
| 387 | COMB5 | -1.119E-04 | -7.066E-03 | -1.636E-03 | -1.387E-03 | -3.171E-04 | -1.602E-05 |
| 388 | EL    | -1.441E-04 | -1.396E-04 | -1.561E-03 | 1.420E-03  | 4.367E-04  | 1.764E-05  |
| 388 | EL    | -1.133E-04 | -1.679E-05 | -1.186E-04 | 2.520E-04  | -1.390E-05 | 4.659E-06  |
| 388 | ELBA  | -1.131E-05 | 7.061E-03  | 1.058E-05  | -2.461E-04 | 2.666E-06  | -1.731E-05 |
| 388 | ELK1  | 6.111E-05  | -7.060E-03 | -9.598E-05 | 2.480E-04  | 7.723E-06  | 4.119E-05  |
| 388 | COMB1 | -1.171E-04 | -1.536E-04 | -2.064E-03 | 2.115E-03  | 5.767E-04  | 1.362E-05  |
| 388 | COMB2 | -1.134E-04 | 6.931E-03  | -1.347E-03 | 1.037E-03  | 4.667E-04  | -1.234E-06 |
| 388 | COMB3 | -1.171E-04 | -1.134E-03 | -1.301E-03 | 1.521E-03  | 4.847E-04  | 5.756E-05  |
| 388 | COMB4 | -1.134E-04 | 7.130E-03  | -1.653E-03 | 1.398E-03  | 5.140E-04  | 2.480E-06  |
| 388 | COMB5 | -1.134E-04 | -7.130E-03 | -1.815E-03 | 1.917E-03  | 5.120E-04  | 6.429E-05  |
| 389 | EL    | 1.390E-04  | -1.414E-04 | -1.557E-03 | -1.337E-06 | 1.362E-03  | 5.611E-06  |
| 389 | EL    | -1.179E-06 | -1.665E-05 | -1.498E-03 | 0.0000     | 7.282E-05  | 9.0609     |
| 389 | ELBA  | 2.576E-06  | 7.059E-03  | -1.507E-05 | 1.601E-04  | 4.380E-06  | -2.673E-05 |
| 389 | ELK1  | 1.390E-06  | -7.067E-03 | -1.570E-05 | -1.604E-04 | 4.666E-06  | 2.594E-05  |
| 389 | COMB1 | 1.170E-04  | -1.593E-04 | -2.011E-03 | -6.011E-03 | -5.696E-06 | 1.751E-03  |
| 389 | COMB2 | 1.170E-04  | 6.931E-03  | -7.782E-03 | 1.562E-04  | 1.234E-03  | -2.174E-05 |
| 389 | COMB3 | 1.134E-05  | -7.135E-03 | -7.253E-03 | -1.643E-04 | 1.231E-03  | 3.099E-05  |
| 389 | COMB4 | 1.134E-05  | 7.135E-03  | -9.359E-03 | 1.634E-04  | 1.331E-03  | -1.161E-05 |
| 389 | COMB5 | 1.134E-05  | -7.135E-03 | -9.930E-03 | -1.732E-04 | 1.481E-03  | 3.325E-05  |
| 390 | EL    | -1.568E-04 | -1.431E-04 | -1.545E-03 | -1.417E-03 | 1.896E-04  | -5.163E-06 |
| 390 | EL    | -3.467E-05 | -1.709E-05 | -1.183E-04 | -2.508E-04 | -1.209E-05 | -2.149E-06 |
| 390 | ELBA  | 4.137E-05  | 7.060E-03  | -9.354E-05 | -2.479E-04 | 6.438E-06  | -4.269E-05 |
| 390 | ELK1  | -1.119E-05 | -7.066E-03 | 5.802E-05  | 2.466E-04  | 1.804E-05  | 1.620E-05  |
| 390 | COMB1 | -4.393E-04 | -1.993E-04 | -2.043E-03 | -2.102E-03 | 5.694E-04  | -9.540E-06 |
| 390 | COMB2 | -1.139E-04 | 6.931E-03  | -1.484E-03 | -1.535E-03 | -4.472E-04 | -1.732E-05 |
| 390 | COMB3 | -1.161E-04 | -1.135E-03 | -1.332E-03 | -1.029E-03 | 4.507E-04  | 1.155E-05  |
| 390 | COMB4 | -1.135E-04 | 7.135E-03  | -1.798E-03 | -1.907E-03 | -3.134E-04 | -3.131E-05 |
| 390 | COMB5 | -1.135E-04 | -7.135E-03 | -1.636E-03 | -1.387E-03 | -3.171E-04 | 1.602E-05  |
| 391 | EL    | 1.123E-04  | -4.199E-04 | -1.661E-03 | -1.398E-04 | 5.463E-04  | -4.417E-05 |
| 391 | EL    | 1.380E-05  | -1.705E-05 | -1.600E-05 | 1.601E-04  | 7.318E-05  | 0.0000     |
| 391 | ELBA  | -1.131E-05 | 7.061E-03  | -9.354E-05 | -2.461E-04 | 2.666E-06  | -1.731E-05 |
| 391 | ELK1  | 1.341E-04  | -1.391E-03 | 1.697E-03  | 1.929E-04  | -5.654E-06 | -1.155E-04 |
| 391 | COMB1 | 1.138E-04  | -1.631E-04 | -1.311E-03 | -1.320E-03 | 7.723E-06  | -1.234E-05 |
| 391 | COMB2 | -1.131E-04 | 7.075E-03  | -1.911E-03 | -6.504E-04 | 1.893E-04  | 7.097E-05  |
| 391 | COMB3 | 2.361E-04  | -8.571E-03 | 2.017E-04  | 7.130E-04  | 1.136E-03  | -1.551E-04 |
| 391 | COMB4 | -1.391E-04 | 7.131E-03  | -8.138E-03 | -6.136E-04 | 6.775E-04  | 7.012E-05  |
| 391 | COMB5 | 8.733E-04  | -8.933E-03 | 6.339E-04  | -1.962E-04 | 4.133E-04  | -1.531E-05 |
| 392 | EL    | 1.193E-04  | -1.198E-03 | -8.941E-04 | -9.094E-05 | -9.116E-04 | -5.976E-05 |
| 392 | EL    | 1.361E-05  | -1.634E-04 | 1.953E-05  | 9.169E-05  | -7.801E-05 | -6.758E-06 |
| 392 | ELBA  | -1.131E-04 | 9.653E-03  | -1.387E-03 | -6.373E-04 | 1.366E-05  | 1.148E-04  |
| 392 | ELK1  | 1.171E-04  | -9.821E-03 | 2.319E-03  | 1.358E-03  | -4.017E-04 | -1.355E-04 |
| 392 | COMB1 | 1.049E-04  | -1.907E-03 | -1.030E-03 | 3.671E-05  | -8.396E-04 | -8.252E-05 |
| 392 | COMB2 | -1.137E-04 | 6.494E-03  | -1.063E-03 | -1.063E-03 | -1.136E-04 | -1.136E-05 |
| 392 | COMB3 | 7.135E-04  | -8.611E-03 | 1.819E-03  | 1.174E-03  | -9.131E-04 | -1.391E-04 |
| 392 | COMB4 | 7.135E-04  | 8.611E-03  | -2.341E-03 | -7.479E-04 | -6.157E-04 | 5.379E-05  |
| 392 | COMB5 | 8.611E-04  | -9.011E-03 | 1.513E-03  | 1.291E-03  | -2.131E-04 | -2.097E-04 |
| 393 | EL    | 1.131E-04  | -5.311E-04 | -5.310E-03 | -9.573E-03 | 5.999E-05  | -4.395E-05 |
| 393 | EL    | 1.395E-05  | -7.021E-05 | -1.796E-04 | 8.729E-05  | 9.499E-06  | -3.804E-06 |
| 393 | ELBA  | -2.953E-04 | 3.597E-03  | -1.003E-03 | -5.502E-04 | 3.319E-05  | 1.376E-04  |
| 393 | ELK1  | 1.399E-04  | -9.645E-03 | 1.775E-03  | 9.867E-04  | -8.948E-05 | -1.503E-04 |
| 393 | COMB1 | 1.131E-04  | -7.468E-04 | -5.681E-03 | -9.311E-04 | 9.546E-05  | -6.375E-05 |
| 393 | COMB2 | -1.010E-04 | 9.119E-03  | -2.189E-03 | -1.355E-03 | 1.009E-04  | 9.439E-05  |
| 393 | COMB3 | 2.351E-04  | -9.123E-03 | -7.806E-04 | 1.837E-04  | -3.188E-05 | -1.946E-04 |
| 393 | COMB4 | -6.732E-05 | 8.404E-03  | -4.143E-03 | -1.462E-03 | 1.091E-04  | 5.165E-05  |
| 393 | COMB5 | 9.728E-04  | -9.679E-03 | -1.225E-03 | 1.562E-04  | -2.892E-05 | -2.111E-04 |
| 394 | EL    | 1.170E-04  | -4.714E-04 | -1.550E-03 | -6.157E-04 | 0.0000     | -1.941E-05 |
| 394 | EL    | 1.560E-05  | -1.708E-05 | -4.641E-05 | 4.677E-05  | 1.133E-06  | -3.935E-05 |
| 394 | ELBA  | -1.012E-04 | 9.627E-03  | -1.242E-03 | -2.106E-04 | 1.134E-05  | 1.121E-04  |
| 394 | ELK1  | 2.164E-04  | -9.307E-03 | 2.085E-03  | 1.127E-03  | -3.451E-05 | -1.238E-04 |
| 394 | COMB1 | 1.678E-04  | -1.111E-03 | -1.362E-03 | -6.657E-04 | 2.499E-06  | -6.541E-05 |
| 394 | COMB2 | -1.131E-04 | 7.059E-03  | -1.371E-03 | -1.167E-03 | 1.136E-05  | 6.126E-05  |
| 394 | COMB3 | 1.123E-04  | -9.930E-03 | 1.129E-04  | 1.654E-04  | -3.360E-05 | -1.150E-04 |
| 394 | COMB4 | -1.103E-04 | -1.535E-03 | -3.197E-03 | -1.301E-03 | 1.493E-05  | 6.036E-05  |
| 394 | COMB5 | 3.489E-04  | -9.011E-03 | 1.609E-04  | 6.634E-04  | -5.453E-05 | -1.655E-04 |
| 395 | EL    | 1.130E-04  | -5.309E-04 | -1.399E-03 | -9.719E-03 | -9.104E-05 | -4.171E-05 |
| 395 | EL    | 1.371E-05  | -1.382E-04 | -1.171E-04 | -8.120E-05 | -7.916E-06 | -1.195E-05 |
| 395 | ELBA  | -1.131E-04 | 9.418E-03  | -1.129E-03 | -8.766E-05 | 7.933E-05  | 1.097E-04  |
| 395 | ELK1  | 1.131E-04  | -9.185E-03 | 1.161E-03  | 1.165E-03  | -3.604E-05 | -1.655E-04 |
| 395 | COMB1 | 1.131E-04  | -1.371E-03 | -1.644E-03 | -9.149E-04 | -1.251E-04 | -9.075E-05 |
| 395 | COMB2 | -2.907E-05 | 9.823E-03  | -3.689E-03 | -1.411E-03 | -6.391E-05 | 3.996E-05  |
| 395 | COMB3 | 8.116E-04  | -9.011E-03 | -1.127E-04 | 3.514E-04  | -1.189E-04 | -1.132E-04 |



|     |       |            |             |            |            |            |            |
|-----|-------|------------|-------------|------------|------------|------------|------------|
| 395 | ELISA | -1.433E-04 | -1.769E-03  | -4.243E-03 | -1.522E-03 | -1.190E-05 | 3.116E-05  |
| 396 | ELKT  | -8.662E-04 | -0.0111     | -0.246E-04 | 8.666E-04  | -1.595E-04 | -1.143E-04 |
| 396 | IL    | -1.159E-04 | -1.388E-03  | -8.842E-04 | -9.004E-04 | 1.918E-04  | 5.976E-05  |
| 396 | IL    | -1.159E-05 | -1.654E-04  | 1.956E-05  | 9.163E-07  | 7.401E-05  | 6.759E-06  |
| 396 | ELISA | 1.159E-04  | 9.659E-03   | -1.238E-03 | -8.173E-04 | -1.866E-05 | -1.150E-04 |
| 396 | ELKT  | -0.773E-04 | -0.0231E-03 | 7.343E-03  | 1.354E-03  | 1.048E-04  | 1.355E-04  |
| 396 | ELISA | -1.159E-04 | -1.388E-03  | -8.842E-04 | -9.004E-04 | 1.918E-04  | 5.976E-05  |
| 396 | ELISA | -1.159E-05 | -1.654E-04  | 1.956E-05  | 9.163E-07  | 7.401E-05  | 6.759E-06  |
| 396 | ELISA | -1.159E-04 | -1.654E-04  | -0.0110    | 1.517E-03  | 1.174E-03  | 5.431E-04  |
| 396 | ELISA | -1.159E-04 | -1.654E-03  | -1.341E-03 | -0.179E-04 | 6.477E-04  | -1.378E-04 |
| 396 | ELISA | -0.0111    | -0.0111     | 1.517E-03  | 1.174E-03  | 5.431E-04  | -1.378E-04 |
| 397 | IL    | -1.159E-04 | -4.119E-04  | -1.065E-03 | -1.390E-04 | -9.469E-03 | 4.417E-05  |
| 397 | IL    | -1.159E-05 | -1.654E-03  | 1.956E-05  | 1.091E-07  | -1.815E-05 | 9.090E-06  |
| 397 | ELISA | -1.159E-04 | 8.649E-03   | -9.878E-04 | -0.224E-04 | -1.943E-04 | -1.106E-04 |
| 397 | ELKT  | -1.159E-04 | -1.159E-03  | 1.659E-03  | 8.975E-04  | 9.675E-04  | 1.173E-04  |
| 397 | ELISA | -1.159E-04 | -6.664E-04  | -1.159E-03 | -0.460E-06 | -1.734E-04 | 5.315E-05  |
| 397 | ELISA | 1.159E-04  | 8.649E-03   | -9.878E-04 | -0.224E-04 | -1.943E-04 | -1.106E-04 |
| 397 | COMB3 | -1.159E-04 | -1.654E-03  | 7.017E-04  | 7.725E-04  | -4.926E-04 | 1.431E-04  |
| 397 | COMB4 | -1.159E-05 | 7.971E-03   | -2.139E-03 | -6.376E-04 | -6.173E-04 | -7.012E-05 |
| 397 | COMB5 | -1.159E-04 | -1.654E-03  | 8.373E-04  | 0.856E-04  | -0.103E-04 | 1.971E-04  |
| 398 | IL    | -1.159E-04 | -0.999E-04  | -2.890E-03 | -8.719E-04 | 9.065E-05  | 6.859E-05  |
| 398 | IL    | -1.159E-05 | -1.654E-04  | -1.777E-04 | 5.313E-05  | 7.349E-05  | 8.296E-06  |
| 398 | ELISA | 1.159E-04  | 8.649E-03   | -1.159E-03 | -6.266E-04 | -1.933E-05 | -1.417E-04 |
| 398 | ELKT  | -1.159E-04 | -9.863E-02  | 1.101E-03  | 1.166E-03  | 3.696E-05  | 1.675E-04  |
| 398 | COMB1 | -1.649E-04 | -1.381E-03  | -3.644E-03 | -9.149E-04 | 1.252E-04  | 9.673E-05  |
| 398 | COMB2 | 0.997E-03  | 6.638E-03   | -3.659E-03 | -1.411E-03 | 6.352E-05  | -3.999E-05 |
| 398 | COMB3 | -1.159E-04 | -0.0104     | -4.187E-04 | 3.814E-04  | 1.189E-04  | 1.692E-04  |
| 398 | COMB4 | 7.433E-05  | 9.769E-03   | -4.243E-03 | -1.522E-03 | 5.137E-05  | -3.146E-05 |
| 398 | COMB5 | -1.649E-04 | -9.0111     | -3.455E-04 | 3.606E-04  | 1.395E-04  | 1.382E-04  |
| 399 | IL    | -1.176E-04 | -1.734E-04  | -1.850E-03 | -6.195E-04 | 0.0000     | 5.049E-05  |
| 399 | IL    | -1.176E-05 | -1.159E-04  | -8.844E-05 | 4.556E-05  | -1.131E-06 | 3.086E-06  |
| 399 | ELISA | 1.176E-04  | 8.637E-03   | -1.142E-03 | -6.106E-04 | -1.434E-05 | -1.131E-04 |
| 399 | ELKT  | -1.176E-04 | -9.707E-03  | 2.085E-03  | 1.127E-03  | 3.111E-05  | 1.339E-04  |
| 399 | ELISA | -1.176E-04 | -1.159E-03  | -3.662E-03 | -8.667E-04 | -2.432E-06 | 8.542E-05  |
| 399 | COMB1 | 9.400E-05  | 8.333E-03   | -2.907E-03 | -1.169E-04 | -1.439E-05 | -6.676E-05 |
| 399 | COMB2 | -0.222E-04 | -0.292E-03  | 1.156E-04  | 0.694E-04  | 3.859E-05  | 1.692E-04  |
| 399 | COMB3 | 7.077E-05  | 8.595E-03   | -3.197E-03 | -1.161E-03 | -1.636E-05 | -0.066E-05 |
| 399 | COMB4 | -3.697E-04 | -9.0106     | 1.966E-04  | 5.654E-04  | 2.151E-05  | 1.849E-04  |
| 400 | IL    | -1.159E-04 | -8.512E-04  | -2.846E-03 | -8.923E-04 | -8.999E-05 | 4.101E-05  |
| 400 | IL    | -1.159E-05 | -1.654E-03  | -1.706E-04 | 5.431E-05  | -0.899E-05 | 3.804E-06  |
| 400 | ELISA | 1.159E-04  | 8.637E-03   | -1.603E-03 | -8.522E-04 | -3.313E-05 | -1.376E-04 |
| 400 | ELKT  | -1.159E-04 | -9.645E-03  | 1.771E-03  | 9.867E-04  | 8.948E-04  | 1.507E-04  |
| 400 | ELISA | -1.159E-04 | -1.159E-03  | -3.651E-03 | -9.311E-04 | -8.146E-05 | 6.546E-05  |
| 400 | COMB1 | 1.011E-04  | 8.113E-04   | -3.559E-03 | -1.355E-03 | -8.709E-04 | -9.437E-05 |
| 400 | COMB2 | -8.551E-04 | -0.103E-03  | -7.806E-04 | 1.877E-04  | 5.638E-04  | 1.940E-04  |
| 400 | COMB3 | 8.551E-03  | 8.474E-03   | -3.143E-03 | -1.461E-03 | -1.031E-03 | -9.164E-05 |
| 400 | COMB4 | -8.551E-04 | -9.672E-03  | -1.333E-03 | 1.542E-04  | 0.872E-05  | 2.111E-04  |
| 401 | IL    | -0.679E-03 | -1.549E-03  | -5.415E-03 | 1.728E-03  | 7.869E-04  | 3.809E-04  |
| 401 | IL    | 0.0000     | -1.549E-04  | -8.593E-04 | 1.486E-04  | 1.962E-04  | 3.314E-04  |
| 401 | ELISA | 1.062E-03  | 0.0100      | 3.939E-03  | -1.299E-03 | 0.0000     | -8.764E-05 |
| 401 | ELKT  | -9.111E-04 | -1.556E-03  | -2.135E-03 | 6.959E-04  | 0.0000     | 1.519E-05  |
| 401 | COMB1 | -1.053E-03 | -2.698E-03  | -7.579E-03 | 2.311E-03  | 1.167E-03  | 5.125E-05  |
| 401 | COMB2 | 3.179E-04  | 0.877E-03   | -9.449E-04 | 2.658E-04  | 7.638E-04  | -3.317E-03 |
| 401 | COMB3 | -1.666E-03 | -0.0112     | -7.009E-03 | 2.251E-03  | 7.011E-04  | 7.965E-04  |
| 401 | COMB4 | 2.567E-04  | 8.832E-03   | -1.907E-03 | 5.541E-04  | 9.194E-04  | -1.822E-05 |
| 401 | COMB5 | -1.913E-03 | -0.0121     | -8.274E-03 | 2.638E-03  | 5.176E-04  | 8.974E-03  |
| 402 | IL    | 0.0000     | -1.549E-03  | -8.415E-03 | 1.728E-03  | -1.199E-04 | -3.829E-05 |
| 402 | IL    | 0.0000     | -1.549E-04  | -8.593E-04 | 1.486E-04  | -1.562E-04 | -3.315E-06 |
| 402 | ELISA | -1.062E-03 | 0.0100      | 3.939E-03  | -1.299E-03 | 0.0000     | -8.764E-05 |
| 402 | ELKT  | -1.119E-04 | -1.159E-03  | -3.133E-03 | 6.959E-04  | 0.0000     | -8.113E-05 |
| 402 | COMB1 | 1.053E-03  | -2.698E-03  | -7.579E-03 | 2.311E-03  | -1.167E-03 | -5.125E-05 |
| 402 | COMB2 | -3.179E-04 | 0.877E-03   | -9.449E-04 | 2.658E-04  | 7.638E-04  | -3.317E-03 |
| 402 | COMB3 | -1.666E-03 | -0.0112     | -7.009E-03 | 2.251E-03  | 7.011E-04  | 7.965E-05  |
| 402 | COMB4 | 2.567E-04  | 8.832E-03   | -1.907E-03 | 5.541E-04  | 9.194E-04  | -1.822E-05 |
| 402 | COMB5 | -1.913E-03 | -0.0121     | -8.274E-03 | 2.638E-03  | 5.176E-04  | 8.974E-05  |
| 403 | IL    | 0.0000     | -1.549E-03  | -8.415E-03 | 1.728E-03  | -1.199E-04 | -3.829E-05 |
| 403 | IL    | 0.0000     | -1.549E-04  | -8.593E-04 | 1.486E-04  | -1.562E-04 | -3.315E-06 |
| 403 | ELISA | 1.062E-03  | 0.0100      | 3.939E-03  | -1.299E-03 | 0.0000     | -8.764E-05 |
| 403 | ELKT  | -1.119E-04 | -1.159E-03  | -3.133E-03 | 6.959E-04  | 0.0000     | -8.113E-05 |
| 403 | COMB1 | 1.053E-03  | -2.698E-03  | -7.579E-03 | 2.311E-03  | -1.167E-03 | -5.125E-05 |
| 403 | COMB2 | -3.179E-04 | 0.877E-03   | -9.449E-04 | 2.658E-04  | 7.638E-04  | -3.317E-03 |
| 403 | COMB3 | -1.666E-03 | -0.0112     | -7.009E-03 | 2.251E-03  | 7.011E-04  | 7.965E-05  |
| 403 | COMB4 | 2.567E-04  | 8.832E-03   | -1.907E-03 | 5.541E-04  | 9.194E-04  | -1.822E-05 |
| 403 | COMB5 | -1.913E-03 | -0.0121     | -8.274E-03 | 2.638E-03  | 5.176E-04  | 8.974E-05  |
| 404 | IL    | 0.0000     | -1.549E-03  | -8.415E-03 | 1.728E-03  | -1.199E-04 | -3.829E-05 |
| 404 | IL    | 0.0000     | -1.549E-04  | -8.593E-04 | 1.486E-04  | -1.562E-04 | -3.315E-06 |
| 404 | ELISA | 1.062E-03  | 0.0100      | 3.939E-03  | -1.299E-03 | 0.0000     | -8.764E-05 |
| 404 | ELKT  | -1.119E-04 | -1.159E-03  | -3.133E-03 | 6.959E-04  | 0.0000     | -8.113E-05 |
| 404 | COMB1 | 1.053E-03  | -2.698E-03  | -7.579E-03 | 2.311E-03  | -1.167E-03 | -5.125E-05 |
| 404 | COMB2 | -3.179E-04 | 0.877E-03   | -9.449E-04 | 2.658E-04  | 7.638E-04  | -3.317E-03 |
| 404 | COMB3 | -1.666E-03 | -0.0112     | -7.009E-03 | 2.251E-03  | 7.011E-04  | 7.965E-05  |
| 404 | COMB4 | 2.567E-04  | 8.832E-03   | -1.907E-03 | 5.541E-04  | 9.194E-04  | -1.822E-05 |
| 404 | COMB5 | -1.913E-03 | -0.0121     | -8.274E-03 | 2.638E-03  | 5.176E-04  | 8.974E-05  |



|       |       |            |            |            |            |            |            |
|-------|-------|------------|------------|------------|------------|------------|------------|
| 414   | CLM01 | -5.609E-05 | -8.143E-05 | -3.617E-05 | -5.576E-05 | 1.311E-04  | -1.717E-05 |
| 414   | CLM02 | -1.570E-04 | -0.0000    | -3.166E-04 | -1.595E-05 | 1.050E-04  | 7.641E-06  |
| 414   | CLM03 | -1.570E-04 | -5.576E-05 | -1.776E-04 | -3.554E-04 | 1.679E-04  | -1.776E-06 |
| 414   | CLM04 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| <hr/> |       |            |            |            |            |            |            |
| 415   | CL    | -8.143E-05 | -8.143E-04 | -3.617E-05 | 1.311E-03  | -8.860E-05 | 7.584E-05  |
| 415   | CLL   | 1.570E-04  | -1.570E-04 | -3.166E-04 | -1.576E-05 | -1.570E-05 | 2.709E-06  |
| 415   | CLM01 | -1.570E-04 | -5.576E-05 | -1.776E-04 | -3.554E-04 | 1.679E-04  | -1.776E-06 |
| 415   | CLM02 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| 415   | CLM03 | 3.617E-05  | -1.469E-03 | -4.626E-03 | 1.469E-05  | -3.691E-05 | 1.667E-04  |
| 415   | CLM04 | -3.617E-05 | -1.469E-03 | -1.024E-05 | -2.514E-05 | -1.379E-05 | -1.001E-05 |
| 415   | CLM05 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| 415   | CLM06 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| 415   | CLM07 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| 415   | CLM08 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| <hr/> |       |            |            |            |            |            |            |
| 416   | CL    | -6.166E-05 | -6.166E-04 | -3.617E-05 | 1.311E-03  | -3.177E-05 | 3.166E-05  |
| 416   | CLL   | 6.166E-04  | -6.166E-04 | -3.617E-04 | -1.576E-05 | -1.576E-05 | 1.999E-06  |
| 416   | CLM01 | -1.570E-04 | -5.576E-05 | -1.776E-04 | -3.554E-04 | 1.679E-04  | -1.776E-06 |
| 416   | CLM02 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| 416   | CLM03 | 9.597E-05  | -3.617E-04 | -3.990E-05 | 1.003E-05  | -5.150E-06 | 7.499E-05  |
| 416   | CLM04 | -6.167E-05 | -1.469E-03 | -1.469E-05 | -3.530E-04 | -3.617E-05 | -1.377E-05 |
| 416   | CLM05 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| 416   | CLM06 | -8.860E-05 | -1.469E-03 | -3.990E-05 | -3.990E-04 | -1.981E-05 | -9.760E-06 |
| 416   | CLM07 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| <hr/> |       |            |            |            |            |            |            |
| 417   | CL    | 3.617E-05  | -6.166E-04 | -3.617E-03 | 1.051E-03  | -1.978E-04 | 6.714E-05  |
| 417   | CLL   | 6.166E-06  | -6.609E-05 | -2.091E-04 | -6.576E-05 | -1.115E-05 | 9.456E-06  |
| 417   | CLM01 | -1.570E-04 | -5.576E-05 | -1.776E-04 | -3.554E-04 | 1.679E-04  | -1.776E-06 |
| 417   | CLM02 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| 417   | CLM03 | 1.469E-05  | -6.166E-04 | -4.626E-05 | 1.156E-05  | -1.526E-05 | 9.566E-05  |
| 417   | CLM04 | -9.597E-05 | -1.469E-03 | -1.469E-05 | -3.867E-05 | -7.139E-06 | -7.360E-06 |
| 417   | CLM05 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| 417   | CLM06 | -6.167E-05 | -1.469E-03 | -1.469E-05 | -3.867E-05 | -7.139E-06 | -7.360E-06 |
| 417   | CLM07 | 1.469E-04  | -0.0010    | -3.990E-05 | 1.750E-03  | 1.320E-04  | 0.609E-04  |
| <hr/> |       |            |            |            |            |            |            |
| 418   | CL    | 0.0000     | -3.166E-04 | -3.166E-03 | 1.081E-03  | 0.660E-04  | 4.169E-06  |
| 418   | CLL   | 0.0000     | -3.417E-05 | -2.022E-04 | 5.153E-05  | 1.694E-04  | 1.553E-06  |
| 418   | CLM01 | 1.469E-06  | -5.566E-03 | -1.527E-03 | -9.566E-04 | -9.923E-06 | -1.444E-06 |
| 418   | CLM02 | -1.570E-04 | -5.566E-03 | -2.989E-03 | 9.466E-05  | -9.574E-06 | 1.871E-06  |
| 418   | CLM03 | 0.0000     | -4.371E-04 | -4.189E-03 | 1.389E-03  | 1.461E-03  | 7.937E-06  |
| 418   | CLM04 | 1.810E-06  | -5.263E-05 | -3.816E-04 | 1.331E-04  | 8.761E-04  | -1.997E-05 |
| 418   | CLM05 | -1.570E-06 | -5.839E-03 | -5.737E-03 | 1.935E-05  | 8.596E-04  | 1.741E-06  |
| 418   | CLM06 | 1.469E-06  | 5.471E-03  | -7.815E-04 | 2.743E-04  | 1.143E-03  | -9.672E-06 |
| 418   | CLM07 | -0.256E-06 | -6.166E-05 | -6.542E-03 | 2.168E-03  | 1.153E-03  | 1.596E-06  |
| <hr/> |       |            |            |            |            |            |            |
| 419   | CL    | 0.0000     | -3.166E-04 | -3.166E-03 | 1.081E-03  | 0.660E-04  | 4.169E-06  |
| 419   | CLL   | 0.0000     | -3.417E-05 | -2.022E-04 | 5.153E-05  | 1.694E-04  | 1.553E-06  |
| 419   | CLM01 | -1.570E-04 | -5.566E-03 | -2.989E-03 | 9.466E-05  | -9.574E-06 | 1.871E-06  |
| 419   | CLM02 | 1.469E-06  | -5.566E-03 | -1.527E-03 | -9.566E-04 | -9.923E-06 | -1.444E-06 |
| 419   | CLM03 | 0.0000     | -4.371E-04 | -4.189E-03 | 1.389E-03  | 1.461E-03  | 7.937E-06  |
| 419   | CLM04 | -1.570E-06 | -5.263E-05 | -3.816E-04 | 1.331E-04  | 8.761E-04  | -1.997E-05 |
| 419   | CLM05 | 2.070E-06  | -5.839E-03 | -5.737E-03 | 1.935E-05  | 8.596E-04  | 1.741E-06  |
| 419   | CLM06 | -1.496E-06 | 5.471E-03  | -7.815E-04 | 2.743E-04  | 1.143E-03  | 9.670E-06  |
| 419   | CLM07 | 1.298E-06  | -6.166E-05 | -6.542E-03 | 2.168E-03  | 1.153E-03  | 1.596E-06  |
| <hr/> |       |            |            |            |            |            |            |
| 420   | CL    | 0.0000     | -3.166E-04 | -3.166E-03 | 1.081E-03  | 0.660E-04  | 4.169E-06  |
| 420   | CLL   | 0.0000     | -3.417E-05 | -2.022E-04 | 5.153E-05  | 1.694E-04  | 1.553E-06  |
| 420   | CLM01 | 1.469E-06  | -5.566E-03 | -1.527E-03 | -9.566E-04 | -9.923E-06 | -1.444E-06 |
| 420   | CLM02 | 0.0000     | -4.371E-04 | -4.189E-03 | 1.389E-03  | 1.461E-03  | 7.937E-06  |
| 420   | CLM03 | -1.570E-06 | -5.263E-05 | -3.816E-04 | 1.331E-04  | 8.761E-04  | -1.997E-05 |
| 420   | CLM04 | 2.070E-06  | -5.839E-03 | -5.737E-03 | 1.935E-05  | 8.596E-04  | 1.741E-06  |
| 420   | CLM05 | -1.496E-06 | 5.471E-03  | -7.815E-04 | 2.743E-04  | 1.143E-03  | 9.670E-06  |
| 420   | CLM06 | 1.298E-06  | -6.166E-05 | -6.542E-03 | 2.168E-03  | 1.153E-03  | 1.596E-06  |
| <hr/> |       |            |            |            |            |            |            |
| 421   | CL    | -3.617E-05 | -6.166E-05 | -4.950E-04 | 7.726E-04  | 1.720E-04  | 1.300E-05  |
| 421   | CLL   | -1.467E-06 | -9.816E-06 | -3.240E-05 | 1.256E-04  | 9.789E-05  | 5.887E-06  |
| 421   | CLM01 | 1.469E-05  | -1.776E-03 | -4.500E-05 | -4.041E-04 | -1.165E-05 | 3.146E-06  |
| 421   | CLM02 | -1.570E-05 | -4.326E-03 | -5.409E-05 | 4.075E-04  | 9.545E-06  | -2.394E-05 |
| 421   | CLM03 | -1.570E-04 | -1.122E-04 | -6.478E-04 | 1.128E-03  | 5.760E-04  | 2.501E-05  |
| 421   | CLM04 | -3.617E-04 | -4.626E-03 | -4.626E-04 | 2.915E-04  | 1.339E-04  | 1.484E-05  |
| 421   | CLM05 | -1.570E-05 | -1.570E-05 | -1.570E-04 | 1.193E-04  | 1.612E-04  | -1.221E-05 |
| 421   | CLM06 | -1.570E-05 | -4.413E-03 | -1.937E-04 | 4.662E-04  | 2.909E-04  | 3.666E-05  |
| 421   | CLM07 | -7.910E-05 | -4.618E-03 | -5.979E-04 | 1.318E-03  | 2.491E-04  | -7.776E-05 |
| <hr/> |       |            |            |            |            |            |            |
| 422   | CL    | -5.576E-05 | -9.816E-05 | -1.469E-04 | -7.582E-04 | 1.697E-04  | -1.029E-05 |
| 422   | CLL   | -4.166E-06 | -1.162E-05 | -3.468E-05 | -1.236E-04 | 9.613E-05  | -8.369E-06 |
| 422   | CLM01 | -5.576E-05 | -1.570E-03 | -9.223E-05 | -4.072E-04 | 7.595E-06  | -3.413E-05 |
| 422   | CLM02 | 9.596E-06  | -4.299E-03 | 4.629E-05  | 4.041E-04  | -1.151E-05 | -2.853E-06 |
| 422   | CLM03 | -1.570E-04 | -1.122E-04 | -6.478E-04 | 1.128E-03  | 5.760E-04  | 2.501E-05  |
| 422   | CLM04 | -3.617E-04 | -4.626E-03 | -4.626E-04 | 2.915E-04  | 1.339E-04  | 1.484E-05  |
| 422   | CLM05 | -1.570E-05 | -1.570E-05 | -1.570E-04 | 1.193E-04  | 1.612E-04  | -1.221E-05 |
| 422   | CLM06 | -1.570E-05 | -4.413E-03 | -1.937E-04 | 4.662E-04  | 2.909E-04  | 3.666E-05  |
| 422   | CLM07 | -7.910E-05 | -4.618E-03 | -5.979E-04 | 1.318E-03  | 2.491E-04  | -7.776E-05 |
| <hr/> |       |            |            |            |            |            |            |
| 423   | CL    | 5.576E-06  | -9.164E-05 | -5.410E-03 | -4.422E-06 | -3.637E-04 | -3.626E-06 |
| 423   | CLL   | 2.571E-06  | -1.162E-05 | -2.669E-04 | 0.0000     | 7.544E-05  | 0.0000     |
| 423   | CLM01 | -1.570E-06 | -4.299E-03 | -6.630E-06 | 2.231E-04  | 0.0000     | 1.352E-05  |
| 423   | CLM02 | -0.152E-06 | -4.393E-03 | -7.996E-06 | -2.225E-04 | -1.179E-06 | -1.352E-05 |

|     |        |             |             |            |            |            |            |
|-----|--------|-------------|-------------|------------|------------|------------|------------|
| 417 | 0.1804 | -1.0779E-05 | -1.1779E-04 | -1.916E-03 | -6.706E-06 | -8.194E-04 | -3.522E-06 |
| 418 | 0.1807 | -5.413E-06  | -1.177E-04  | -1.870E-03 | -1.183E-04 | -8.410E-04 | -1.116E-06 |
| 419 | 0.1808 | -4.790E-06  | -4.109E-04  | -1.150E-03 | -3.769E-04 | -8.410E-04 | -1.116E-06 |
| 420 | 0.1809 | -6.169E-06  | -4.411E-03  | -2.260E-03 | 2.283E-04  | -8.385E-04 | -1.120E-05 |
| 421 | 0.1810 | -5.425E-06  | -4.621E-03  | -6.260E-03 | -2.386E-04 | -8.385E-04 | -1.685E-05 |
|     |        |             |             |            |            |            |            |
| 422 | 0.1811 | -1.177E-05  | -1.677E-04  | -1.903E-04 | 7.773E-04  | -1.738E-04 | -1.509E-05 |
| 423 | 0.1812 | -4.129E-05  | -8.509E-06  | -3.343E-05 | 1.233E-04  | -9.789E-05 | -8.897E-06 |
| 424 | 0.1813 | -1.100E-04  | -4.299E-05  | -3.565E-05 | -1.041E-04 | 1.165E-05  | -3.146E-06 |
| 425 | 0.1814 | 1.189E-05   | -4.506E-05  | -8.407E-04 | 4.075E-04  | -5.645E-06 | -1.594E-05 |
| 426 | 0.1815 | 1.123E-04   | -1.430E-04  | -6.576E-04 | 1.177E-05  | -8.549E-06 | -1.561E-04 |
| 427 | 0.1816 | 3.075E-05   | -6.228E-03  | -3.806E-04 | 2.913E-04  | -1.439E-04 | -1.484E-05 |
| 428 | 0.1817 | -4.529E-05  | -4.333E-03  | -4.998E-04 | 1.103E-03  | -1.612E-04 | -1.324E-05 |
| 429 | 0.1818 | -5.159E-05  | -1.413E-03  | -4.937E-04 | 4.662E-04  | -1.109E-04 | -2.066E-05 |
| 430 | 0.1819 | -3.979E-05  | -4.618E-03  | -8.979E-04 | 1.318E-03  | -2.491E-04 | -7.778E-06 |
|     |        |             |             |            |            |            |            |
| 431 | 0.1820 | -1.201E-05  | -9.629E-06  | -4.953E-04 | -7.550E-05 | -1.697E-04 | -1.829E-05 |
| 432 | 0.1821 | -4.123E-05  | -1.176E-05  | -3.163E-05 | -1.256E-04 | -9.623E-06 | -6.769E-06 |
| 433 | 0.1822 | -1.089E-06  | 1.209E-03   | -5.220E-05 | -4.092E-04 | -1.709E-05 | -2.412E-05 |
| 434 | 0.1823 | -8.643E-06  | -4.299E-03  | 4.177E-05  | 4.043E-04  | 1.181E-05  | 2.883E-06  |
| 435 | 0.1824 | 1.090E-04   | -1.357E-04  | -8.498E-04 | -1.304E-03 | -3.576E-04 | -8.214E-05 |
| 436 | 0.1825 | -5.114E-05  | -3.233E-03  | -4.909E-04 | -1.057E-03 | -1.663E-04 | -1.608E-06 |
| 437 | 0.1826 | 2.091E-05   | -4.386E-03  | -1.093E-04 | -3.793E-03 | -1.113E-04 | 1.930E-05  |
| 438 | 0.1827 | -6.170E-05  | -1.479E-03  | -5.967E-04 | -1.260E-03 | -2.469E-04 | -1.107E-06 |
| 439 | 0.1828 | -4.703E-05  | -4.623E-03  | -4.943E-04 | -4.463E-04 | -2.168E-04 | -1.621E-05 |
|     |        |             |             |            |            |            |            |
| 440 | 0.1829 | -8.170E-05  | -9.179E-04  | -8.410E-03 | -1.123E-06 | 3.667E-04  | 1.673E-06  |
| 441 | 0.1830 | -1.125E-06  | -1.116E-05  | -3.090E-04 | 0.0000     | -2.364E-05 | 0.0000     |
| 442 | 0.1831 | 1.189E-05   | -1.799E-03  | -6.629E-06 | 2.121E-04  | 0.0000     | -1.395E-05 |
| 443 | 0.1832 | 1.189E-05   | -4.369E-05  | -7.090E-06 | -1.259E-03 | 1.179E-06  | 1.528E-05  |
| 444 | 0.1833 | -1.201E-05  | -1.176E-04  | -7.916E-03 | -6.663E-06 | 3.194E-04  | 1.507E-06  |
| 445 | 0.1834 | -8.502E-06  | 4.217E-05   | -4.877E-03 | 2.182E-04  | 3.219E-04  | -1.114E-05 |
| 446 | 0.1835 | -1.170E-06  | -8.365E-03  | -4.876E-03 | -2.265E-04 | 3.213E-04  | 1.561E-05  |
| 447 | 0.1836 | -6.170E-06  | -4.411E-03  | -6.260E-03 | 2.283E-04  | 3.385E-04  | -1.150E-05 |
| 448 | 0.1837 | -6.435E-06  | -4.621E-03  | -6.260E-03 | -2.386E-04 | 3.385E-04  | 1.685E-05  |
|     |        |             |             |            |            |            |            |
| 449 | 0.1838 | -5.410E-06  | -1.533E-04  | -3.955E-04 | 3.613E-04  | 3.209E-04  | -2.504E-05 |
| 450 | 0.1839 | -5.546E-06  | -3.083E-06  | -1.340E-06 | 1.425E-04  | 3.243E-05  | -6.260E-06 |
| 451 | 0.1840 | -1.090E-06  | 1.090E-03   | -7.299E-04 | -8.729E-04 | -1.101E-05 | -9.895E-05 |
| 452 | 0.1841 | -6.229E-05  | -7.696E-03  | 6.839E-04  | 7.299E-04  | 1.206E-05  | -5.695E-05 |
| 453 | 0.1842 | 0.0000      | -1.799E-04  | -3.605E-04 | 6.407E-04  | 3.916E-04  | -1.096E-05 |
| 454 | 0.1843 | -1.123E-05  | -4.211E-03  | -1.977E-03 | -4.553E-04 | 1.356E-04  | 3.365E-05  |
| 455 | 0.1844 | 6.170E-05   | -6.235E-03  | 3.366E-04  | 1.070E-02  | 2.109E-04  | -3.949E-05 |
| 456 | 0.1845 | -8.170E-05  | -4.799E-03  | -1.123E-03 | -3.473E-03 | 2.234E-04  | 2.913E-05  |
| 457 | 0.1846 | -1.170E-05  | -1.095E-03  | -3.141E-04 | 1.220E-03  | 3.388E-04  | -2.066E-05 |
|     |        |             |             |            |            |            |            |
| 458 | 0.1847 | -1.170E-05  | -1.170E-04  | -1.111E-04 | 1.451E-04  | -2.173E-04 | -1.697E-06 |
| 459 | 0.1848 | -1.201E-05  | -1.769E-03  | 1.233E-05  | 1.423E-04  | -1.715E-05 | -1.407E-06 |
| 460 | 0.1849 | -6.170E-05  | -1.170E-03  | -4.770E-04 | -9.383E-04 | 1.585E-05  | -9.011E-06 |
| 461 | 0.1850 | -1.201E-05  | -1.416E-03  | 7.943E-04  | -4.414E-04 | -1.435E-05 | -5.147E-05 |
| 462 | 0.1851 | -1.201E-05  | -7.277E-04  | -2.607E-04 | 7.313E-04  | -3.981E-04 | -3.361E-05 |
| 463 | 0.1852 | -4.223E-06  | 1.090E-03   | -1.095E-03 | -8.313E-04 | -2.051E-04 | -4.773E-05 |
| 464 | 0.1853 | -5.220E-06  | -1.357E-04  | 5.782E-04  | 1.242E-02  | -2.348E-04 | -8.934E-05 |
| 465 | 0.1854 | -8.170E-05  | -1.479E-03  | -1.163E-03 | -4.169E-04 | -2.584E-04 | -4.466E-05 |
| 466 | 0.1855 | -5.703E-05  | -6.235E-03  | 5.906E-04  | 1.453E-05  | -2.896E-04 | -6.221E-05 |
|     |        |             |             |            |            |            |            |
| 467 | 0.1856 | -1.769E-05  | -3.177E-04  | -1.016E-03 | 4.487E-04  | 3.025E-04  | -1.339E-05 |
| 468 | 0.1857 | -1.201E-05  | -1.769E-03  | -1.111E-05 | 3.878E-04  | 1.0900     | 0.0000     |
| 469 | 0.1858 | -1.201E-05  | -1.769E-03  | -1.111E-05 | -7.133E-04 | -9.669E-06 | -1.277E-05 |
| 470 | 0.1859 | -5.441E-06  | -1.307E-03  | 6.804E-04  | 7.009E-04  | -7.161E-06 | -5.120E-05 |
| 471 | 0.1860 | 5.220E-06   | -5.220E-04  | -1.237E-03 | 1.111E-03  | 4.412E-06  | -1.751E-05 |
| 472 | 0.1861 | -1.201E-05  | -1.769E-03  | -1.095E-03 | -3.794E-04 | 1.449E-05  | 3.376E-05  |
| 473 | 0.1862 | -6.170E-05  | -5.685E-03  | -3.311E-04 | 1.105E-03  | -3.729E-06 | -6.305E-05 |
| 474 | 0.1863 | -1.170E-05  | -1.163E-03  | -1.862E-03 | -1.258E-04 | 1.341E-05  | 3.866E-05  |
| 475 | 0.1864 | -6.235E-06  | -6.095E-03  | -3.595E-04 | 1.432E-03  | -3.620E-06 | -6.839E-05 |
|     |        |             |             |            |            |            |            |
| 476 | 0.1865 | -3.170E-06  | -1.373E-04  | -1.370E-04 | 3.496E-04  | 0.0000     | -1.726E-05 |
| 477 | 0.1866 | -1.201E-05  | -1.769E-03  | -1.111E-05 | 1.587E-04  | 1.679E-06  | -3.320E-05 |
| 478 | 0.1867 | -1.201E-05  | -1.769E-03  | -1.111E-05 | -8.740E-04 | 4.198E-06  | -5.417E-05 |
| 479 | 0.1868 | -1.170E-05  | -1.170E-03  | 7.454E-04  | 7.898E-04  | -2.800E-06 | -3.512E-05 |
| 480 | 0.1869 | -4.223E-06  | -1.357E-04  | -8.613E-04 | 6.626E-04  | 1.108E-04  | -2.419E-05 |
| 481 | 0.1870 | -1.170E-05  | -1.170E-03  | -1.230E-03 | -5.681E-04 | 3.746E-06  | 3.976E-05  |
| 482 | 0.1871 | -1.170E-05  | -1.170E-03  | -3.848E-04 | 1.096E-03  | -3.203E-06 | -7.059E-05 |
| 483 | 0.1872 | -1.170E-05  | -1.170E-03  | -1.230E-03 | -4.607E-04 | 4.854E-06  | 3.743E-05  |
| 484 | 0.1873 | -1.201E-05  | -1.769E-03  | -1.230E-03 | 1.297E-03  | -2.794E-06 | -7.733E-05 |
|     |        |             |             |            |            |            |            |
| 485 | 0.1874 | -1.095E-06  | -1.498E-04  | -1.056E-03 | 4.269E-04  | -1.127E-05 | -2.313E-05 |
| 486 | 0.1875 | -3.473E-06  | -2.588E-05  | -1.154E-05 | 3.582E-04  | -2.995E-06 | -3.662E-05 |
| 487 | 0.1876 | -1.170E-05  | -1.170E-03  | -6.382E-04 | -7.143E-04 | 2.101E-05  | 6.095E-05  |
| 488 | 0.1877 | 6.804E-04   | -1.989E-02  | 6.296E-04  | 6.508E-04  | -1.865E-05 | -6.161E-05 |
| 489 | 0.1878 | 2.277E-03   | -3.194E-04  | -1.236E-03 | 1.034E-03  | -4.232E-05 | -3.261E-05 |
| 490 | 0.1879 | -8.223E-06  | -4.605E-03  | -1.653E-03 | -3.388E-04 | -7.140E-06 | 4.903E-05  |
| 491 | 0.1880 | -8.223E-06  | -4.605E-03  | -3.267E-04 | 1.034E-03  | -4.379E-05 | -8.342E-05 |
| 492 | 0.1881 | -8.623E-06  | -1.862E-03  | -1.893E-03 | -7.696E-06 | -1.267E-05 | 3.736E-05  |
| 493 | 0.1882 | -1.091E-05  | -1.442E-03  | -4.546E-04 | 1.356E-03  | -6.116E-05 | -9.129E-05 |
|     |        |             |             |            |            |            |            |
| 494 | 0.1883 | -1.170E-05  | -1.170E-03  | -1.230E-03 | -3.419E-04 | 1.296E-04  | 1.063E-05  |
| 495 | 0.1884 | -1.201E-05  | -1.769E-03  | -2.743E-04 | 9.744E-06  | 1.396E-04  | 1.296E-05  |
| 496 | 0.1885 | 0.0000      | 3.170E-03   | 3.563E-04  | 2.753E-04  | -4.715E-06 | 1.113E-06  |

|     |      |            |            |            |            |            |            |
|-----|------|------------|------------|------------|------------|------------|------------|
| 423 | ELKA | -1.143E-05 | -9.177E-03 | -9.159E-04 | -4.171E-04 | 4.477E-05  | -2.133E-05 |
| 424 | ELKA | -1.143E-05 | -9.143E-03 | -6.667E-03 | -2.592E-05 | 3.725E-04  | 9.705E-05  |
| 425 | ELKA | -1.143E-05 | -9.143E-03 | -3.701E-03 | 3.442E-04  | 1.150E-04  | 4.766E-05  |
| 426 | ELKA | -1.143E-05 | -9.011E-03 | -4.870E-03 | -4.482E-04 | 1.212E-04  | 2.975E-05  |
| 427 | ELKA | -1.143E-05 | -9.011E-03 | -4.899E-03 | 2.589E-04  | 2.166E-04  | 6.967E-05  |
| 428 | ELKA | -1.143E-05 | -9.011E-03 | -4.135E-03 | -4.681E-04 | 2.262E-04  | 4.146E-05  |
| 429 | EL   | -1.143E-05 | -8.120E-03 | -3.352E-03 | -2.797E-05 | -1.247E-04 | 2.154E-05  |
| 430 | EL   | -1.143E-05 | -8.120E-03 | -1.618E-03 | -1.133E-05 | -1.721E-04 | 5.327E-06  |
| 431 | ELKA | -1.143E-05 | -8.120E-03 | 3.736E-04  | 1.932E-04  | 1.413E-05  | -3.766E-05 |
| 432 | ELKA | -1.143E-05 | -8.120E-03 | -1.440E-04 | -2.753E-04 | -8.571E-05 | 4.114E-05  |
| 433 | ELKA | -1.143E-05 | -8.120E-03 | -9.009E-03 | -5.336E-05 | -9.049E-04 | 3.421E-05  |
| 434 | ELKA | -1.143E-05 | -8.120E-03 | -1.641E-03 | 1.680E-04  | -4.581E-04 | -1.821E-05 |
| 435 | ELKA | -1.143E-05 | -8.120E-03 | -1.361E-03 | -2.003E-04 | -5.530E-04 | 6.153E-05  |
| 436 | ELKA | -1.143E-05 | -8.120E-03 | -1.144E-03 | 1.657E-04  | -6.455E-04 | -1.357E-05 |
| 437 | ELKA | -1.143E-05 | -8.120E-03 | -1.399E-03 | -3.262E-04 | -7.493E-04 | 2.915E-05  |
| 438 | EL   | -1.143E-05 | -8.120E-03 | -1.434E-04 | 4.527E-04  | 2.452E-04  | 8.637E-06  |
| 439 | EL   | -1.143E-05 | -8.120E-03 | 1.750E-05  | 1.489E-04  | 2.746E-04  | -1.437E-05 |
| 440 | ELKA | -1.143E-05 | -8.120E-03 | -8.720E-04 | -9.387E-04 | -1.555E-05 | -5.084E-05 |
| 441 | ELKA | -1.143E-05 | -8.120E-03 | 7.943E-04  | 3.414E-04  | 1.415E-05  | 5.147E-05  |
| 442 | ELKA | -1.143E-05 | -8.120E-03 | -2.619E-04 | 7.912E-04  | 3.381E-04  | 3.082E-06  |
| 443 | ELKA | -1.143E-05 | -8.120E-03 | -1.095E-03 | -5.313E-04 | -2.651E-04 | -4.273E-05 |
| 444 | ELKA | -1.143E-05 | -8.120E-03 | 5.782E-04  | 1.249E-03  | 2.348E-04  | 5.924E-05  |
| 445 | ELKA | -1.143E-05 | -8.120E-03 | -1.164E-03 | -4.166E-04 | 2.584E-04  | -4.486E-05 |
| 446 | ELKA | -1.143E-05 | -8.120E-03 | 5.906E-04  | 1.453E-03  | 2.896E-04  | 6.221E-05  |
| 447 | EL   | -1.143E-05 | -8.120E-03 | -3.855E-04 | 3.613E-04  | -2.709E-04 | 2.504E-05  |
| 448 | EL   | -1.143E-05 | -8.120E-03 | 1.340E-06  | 1.435E-04  | -2.742E-05 | 6.266E-06  |
| 449 | ELKA | -1.143E-05 | -8.120E-03 | -1.399E-04 | -7.790E-04 | 1.191E-05  | -5.558E-05 |
| 450 | ELKA | -1.143E-05 | -8.120E-03 | 6.839E-04  | 7.239E-04  | -1.206E-05 | 5.695E-05  |
| 451 | ELKA | -1.143E-05 | -8.120E-03 | -4.605E-04 | 6.615E-04  | -3.010E-04 | 4.006E-05  |
| 452 | ELKA | -1.143E-05 | -8.120E-03 | -1.077E-03 | -4.539E-04 | -1.870E-04 | -3.305E-05 |
| 453 | ELKA | -1.143E-05 | -8.120E-03 | 3.369E-04  | 1.049E-03  | -2.109E-04 | 7.949E-05  |
| 454 | ELKA | -1.143E-05 | -8.120E-03 | -1.170E-03 | -3.489E-04 | -2.337E-04 | -2.813E-05 |
| 455 | ELKA | -1.143E-05 | -8.120E-03 | 3.141E-04  | 1.220E-03  | -2.589E-04 | 9.903E-05  |
| 456 | EL   | -1.143E-05 | -8.120E-03 | -1.056E-03 | 4.260E-04  | 3.127E-05  | 2.313E-05  |
| 457 | EL   | -1.143E-05 | -8.120E-03 | -1.153E-05 | 3.522E-04  | 2.996E-06  | 3.662E-06  |
| 458 | ELKA | -1.143E-05 | -8.120E-03 | -6.829E-04 | -7.142E-04 | -2.101E-05 | -6.925E-05 |
| 459 | ELKA | -1.143E-05 | -8.120E-03 | 6.296E-04  | 6.468E-04  | 1.565E-05  | 6.161E-05  |
| 460 | ELKA | -1.143E-05 | -8.120E-03 | -1.233E-03 | 1.094E-03  | 4.252E-05  | 3.361E-05  |
| 461 | ELKA | -1.143E-05 | -8.120E-03 | -1.633E-05 | -3.398E-04 | 7.140E-06  | -4.903E-05 |
| 462 | ELKA | -1.143E-05 | -8.120E-03 | -3.207E-04 | 1.034E-03  | 4.330E-05  | 8.242E-05  |
| 463 | ELKA | -1.143E-05 | -8.120E-03 | -1.833E-03 | -7.696E-05 | 1.267E-05  | -3.736E-05 |
| 464 | ELKA | -1.143E-05 | -8.120E-03 | -4.518E-04 | 1.356E-03  | 5.116E-05  | 9.128E-05  |
| 465 | EL   | -1.143E-05 | -8.120E-03 | -4.578E-04 | 3.406E-04  | 9.0000     | 1.716E-05  |
| 466 | EL   | -1.143E-05 | -8.120E-03 | -7.491E-06 | 1.587E-04  | -1.971E-04 | 2.320E-06  |
| 467 | ELKA | -1.143E-05 | -8.120E-03 | -8.175E-04 | -8.746E-04 | -4.198E-06 | -5.417E-05 |
| 468 | ELKA | -1.143E-05 | -8.120E-03 | 7.484E-04  | 7.898E-04  | 2.800E-05  | 5.812E-05  |
| 469 | ELKA | -1.143E-05 | -8.120E-03 | -5.613E-04 | 6.626E-04  | -1.114E-06 | 2.419E-05  |
| 470 | ELKA | -1.143E-05 | -8.120E-03 | -1.230E-03 | -5.681E-04 | -3.748E-06 | -3.876E-05 |
| 471 | ELKA | -1.143E-05 | -8.120E-03 | 3.334E-04  | 1.096E-03  | 3.250E-06  | 7.059E-05  |
| 472 | ELKA | -1.143E-05 | -8.120E-03 | -1.344E-03 | -4.607E-04 | -4.558E-06 | -3.743E-05 |
| 473 | ELKA | -1.143E-05 | -8.120E-03 | 2.973E-04  | 1.287E-03  | 2.790E-06  | 7.733E-05  |
| 474 | EL   | -1.143E-05 | -8.120E-03 | -1.016E-03 | 4.487E-04  | -3.933E-06 | 1.339E-05  |
| 475 | EL   | -1.143E-05 | -8.120E-03 | -1.119E-05 | 3.578E-04  | 0.0000     | 0.0000     |
| 476 | ELKA | -1.143E-05 | -8.120E-03 | -7.510E-04 | -7.832E-04 | -8.956E-06 | -5.075E-05 |
| 477 | ELKA | -1.143E-05 | -8.120E-03 | 6.804E-04  | 7.008E-04  | 7.261E-06  | 5.120E-05  |
| 478 | ELKA | -1.143E-05 | -8.120E-03 | -1.237E-03 | 1.111E-03  | -4.429E-06 | 1.751E-05  |
| 479 | ELKA | -1.143E-05 | -8.120E-03 | -1.666E-03 | -3.794E-04 | -1.250E-05 | -3.870E-05 |
| 480 | ELKA | -1.143E-05 | -8.120E-03 | -2.341E-04 | 1.105E-03  | 3.721E-06  | 8.325E-05  |
| 481 | ELKA | -1.143E-05 | -8.120E-03 | -1.863E-03 | -1.259E-04 | -1.342E-05 | -3.866E-05 |
| 482 | ELKA | -1.143E-05 | -8.120E-03 | -3.396E-04 | 1.432E-03  | 3.609E-06  | 6.839E-05  |
| 483 | EL   | -1.143E-05 | -8.120E-03 | -4.419E-04 | -3.819E-04 | 2.217E-04  | -9.556E-06 |
| 484 | EL   | -1.143E-05 | -8.120E-03 | -5.553E-06 | -1.352E-04 | 2.251E-05  | 2.950E-06  |
| 485 | ELKA | -1.143E-05 | -8.120E-03 | -6.839E-04 | -7.237E-04 | 1.105E-05  | 5.194E-05  |
| 486 | ELKA | -1.143E-05 | -8.120E-03 | -7.304E-04 | 7.795E-04  | -1.079E-05 | -5.044E-05 |
| 487 | ELKA | -1.143E-05 | -8.120E-03 | -5.392E-04 | -5.795E-04 | 3.021E-04  | -6.749E-06 |
| 488 | ELKA | -1.143E-05 | -8.120E-03 | 2.860E-04  | -9.954E-04 | 2.106E-04  | 4.334E-05  |
| 489 | ELKA | -1.143E-05 | -8.120E-03 | -1.128E-03 | 5.079E-04  | 1.888E-04  | -5.904E-05 |
| 490 | ELKA | -1.143E-05 | -8.120E-03 | 2.505E-04  | -1.162E-03 | 2.586E-04  | 4.636E-05  |
| 491 | ELKA | -1.143E-05 | -8.120E-03 | -1.334E-03 | 4.164E-04  | 3.357E-04  | -6.114E-05 |
| 492 | EL   | -1.143E-05 | -8.120E-03 | -5.288E-03 | 0.0000     | 5.101E-04  | 8.999E-06  |
| 493 | EL   | -1.143E-05 | -8.120E-03 | -1.697E-03 | 8.605E-06  | 1.763E-04  | 3.731E-06  |
| 494 | ELKA | -1.143E-05 | -8.120E-03 | -6.443E-04 | 2.749E-04  | 1.420E-05  | 4.279E-05  |
| 495 | ELKA | -1.143E-05 | -8.120E-03 | 1.751E-03  | -1.233E-04 | -1.417E-05 | -3.777E-05 |
| 496 | ELKA | -1.143E-05 | -8.120E-03 | -8.917E-03 | 1.259E-05  | 8.847E-04  | 1.677E-05  |
| 497 | ELKA | -1.143E-05 | -8.120E-03 | -5.392E-03 | 2.740E-04  | 8.445E-04  | 5.085E-05  |
| 498 | ELKA | -1.143E-05 | -8.120E-03 | -4.584E-03 | -1.941E-04 | 4.449E-04  | -2.977E-05 |
| 499 | ELKA | -1.143E-05 | -8.120E-03 | -7.135E-03 | 2.930E-04  | 7.326E-04  | 5.669E-05  |
| 500 | ELKA | -1.143E-05 | -8.120E-03 | -6.380E-03 | -1.985E-04 | 6.230E-04  | -2.797E-05 |
| 501 | EL   | -1.143E-05 | -8.120E-03 | -8.239E-04 | -4.724E-06 | 1.479E-04  | 6.373E-06  |
| 502 | EL   | -1.143E-05 | -8.120E-03 | 6.0000     | -1.782E-04 | 1.959E-05  | 1.468E-06  |

|     |        |            |             |            |            |            |            |
|-----|--------|------------|-------------|------------|------------|------------|------------|
| 411 | 0.1358 | -1.255E-03 | -1.144E-03  | -1.396E-04 | -7.795E-04 | -3.355E-06 | 2.404E-05  |
| 412 | 0.1411 | -1.213E-03 | -1.111E-03  | -1.175E-04 | -8.719E-04 | 3.947E-06  | -2.338E-05 |
| 413 | 0.1503 | -1.277E-03 | -1.138E-03  | -1.195E-04 | -1.907E-04 | 2.088E-04  | 9.996E-06  |
| 414 | 0.1493 | -1.147E-03 | -1.171E-03  | -1.959E-06 | -7.838E-04 | 1.297E-04  | 2.977E-05  |
| 415 | 0.1513 | -1.090E-03 | -1.197E-03  | -1.559E-03 | -8.677E-04 | 1.370E-04  | -1.764E-05 |
| 416 | 0.1616 | -1.188E-03 | -1.166E-03  | -1.988E-05 | -9.357E-04 | 1.641E-04  | 3.286E-05  |
| 417 | 0.1598 | -1.149E-03 | -1.112E-03  | -1.724E-03 | 7.983E-04  | 1.718E-04  | -1.693E-05 |
|     |        |            |             |            |            |            |            |
| 418 | 0.17   | -1.177E-03 | -1.119E-03  | -1.545E-04 | -1.517E-04 | -8.927E-05 | -5.837E-06 |
| 419 | 0.1711 | -1.119E-03 | -1.159E-03  | -1.796E-05 | -1.349E-04 | -1.886E-05 | 0.0000     |
| 420 | 0.1705 | -1.111E-03 | -1.149E-03  | -1.814E-04 | -3.374E-04 | 0.0000     | 3.119E-05  |
| 421 | 0.1811 | -1.278E-03 | -1.145E-03  | -8.729E-04 | 9.332E-04  | 0.0000     | -3.018E-05 |
| 422 | 0.1803 | -1.183E-03 | -1.163E-03  | -6.939E-04 | -3.834E-04 | -1.368E-04 | -7.554E-06 |
| 423 | 0.1817 | -1.119E-03 | -1.176E-03  | -1.936E-04 | -9.741E-04 | -3.039E-05 | -2.594E-05 |
| 424 | 0.1909 | -1.191E-03 | -1.169E-03  | -1.772E-03 | 7.958E-04  | -7.955E-05 | -3.544E-05 |
| 425 | 0.1923 | -1.191E-03 | -1.159E-03  | -1.877E-04 | -1.113E-03 | -1.769E-04 | 2.641E-05  |
| 426 | 0.1916 | -1.196E-03 | -1.194E-03  | -1.110E-03 | 7.411E-04  | -1.946E-04 | -3.804E-05 |
|     |        |            |             |            |            |            |            |
| 427 | 0.2    | -1.177E-03 | -1.169E-03  | -1.528E-03 | 0.0000     | -5.101E-04 | -8.997E-06 |
| 428 | 0.21   | -1.189E-03 | -1.161E-03  | -1.607E-03 | 8.604E-06  | -1.703E-04 | -3.730E-06 |
| 429 | 0.2103 | -1.190E-03 | -1.187E-03  | -1.541E-04 | 2.749E-04  | -3.541E-05 | -4.275E-05 |
| 430 | 0.2111 | -1.166E-03 | -1.166E-03  | -1.754E-04 | -1.932E-04 | 1.417E-05  | 3.787E-05  |
| 431 | 0.2104 | -1.177E-03 | -1.1939E-03 | -1.917E-03 | 1.252E-05  | -8.247E-04 | -1.676E-05 |
| 432 | 0.2102 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 433 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 434 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 435 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 436 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
|     |        |            |             |            |            |            |            |
| 437 | 0.2    | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 438 | 0.21   | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 439 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 440 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 441 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 442 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 443 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 444 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 445 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
|     |        |            |             |            |            |            |            |
| 446 | 0.2    | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 447 | 0.21   | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 448 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 449 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 450 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 451 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 452 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 453 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 454 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 455 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
|     |        |            |             |            |            |            |            |
| 456 | 0.2    | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 457 | 0.21   | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 458 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 459 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 460 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 461 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 462 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 463 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 464 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 465 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
|     |        |            |             |            |            |            |            |
| 466 | 0.2    | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 467 | 0.21   | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 468 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 469 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 470 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 471 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 472 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 473 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 474 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 475 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
|     |        |            |             |            |            |            |            |
| 476 | 0.2    | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 477 | 0.21   | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 478 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 479 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 480 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 481 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
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| 483 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 484 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 485 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
|     |        |            |             |            |            |            |            |
| 486 | 0.2    | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 487 | 0.21   | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 488 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 489 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 490 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 491 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 492 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 493 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 494 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 495 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
|     |        |            |             |            |            |            |            |
| 496 | 0.2    | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 497 | 0.21   | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 498 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 499 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |
| 500 | 0.2103 | -1.187E-03 | -1.187E-03  | -1.369E-03 | 2.749E-04  | -5.445E-04 | -5.085E-05 |



## MOMEN BALOK

| BTG | STA  | MD      | ML     | ME KA   | ME KI   | 1,2.MD+<br>1,6.ML | 0,9.MD+<br>MEKA | 0,9.MD+<br>MEKI | 1,05(MD+<br>0,6.ML+MEKA) | 1,05(MD+<br>0,6.ML+MEKI) |
|-----|------|---------|--------|---------|---------|-------------------|-----------------|-----------------|--------------------------|--------------------------|
| 41  | 0    | -77.685 | -0.910 | -26.802 | 27.195  | -94.678           | -96.719         | -42.722         | -110.285                 | -53.588                  |
| 41  | 2.25 | 10.954  | -0.568 | -13.463 | 13.709  | 12.236            | -3.604          | 23.568          | -2.992                   | 25.539                   |
| 41  | 4.5  | 40.004  | -0.227 | -0.124  | 0.224   | 47.642            | 35.879          | 36.227          | 41.731                   | 42.096                   |
| 41  | 6.75 | 9.462   | 0.115  | 13.215  | -13.262 | 11.539            | 21.731          | -4.746          | 23.884                   | -3.918                   |
| 41  | 9    | -80.670 | 0.457  | 26.555  | -26.748 | -96.073           | -46.048         | -99.351         | -56.534                  | -112.501                 |
| 42  | 0    | -78.797 | 0.682  | -26.737 | 26.564  | -93.465           | -97.654         | -44.353         | -110.381                 | -54.414                  |
| 42  | 2.25 | 10.390  | 0.226  | -13.257 | 13.220  | 12.830            | -3.906          | 22.571          | -2.868                   | 24.933                   |
| 42  | 4.5  | 39.986  | -0.229 | 0.223   | -0.124  | 47.617            | 36.211          | 35.864          | 42.076                   | 41.711                   |
| 42  | 6.75 | 9.991   | -0.684 | 13.703  | -13.468 | 10.895            | 22.696          | -4.476          | 24.449                   | -4.081                   |
| 42  | 9    | -79.594 | -1.139 | 27.184  | -26.812 | -97.335           | -44.451         | -98.447         | -55.748                  | -112.444                 |
| 43  | 0    | -76.680 | -0.874 | -29.150 | 29.647  | -93.415           | -98.162         | -39.365         | -111.673                 | -49.935                  |
| 43  | 2.25 | 11.468  | -0.560 | -14.638 | 14.952  | 12.865            | -4.317          | 25.273          | -3.682                   | 27.387                   |
| 43  | 4.5  | 40.025  | -0.246 | -0.126  | 0.256   | 47.636            | 35.896          | 36.278          | 41.739                   | 42.140                   |
| 43  | 6.75 | 8.991   | 0.068  | 14.386  | -14.440 | 10.899            | 22.478          | -6.347          | 24.589                   | -5.678                   |
| 43  | 9    | -81.633 | 0.382  | 28.898  | -29.135 | -97.348           | -44.572         | -102.605        | -55.131                  | -116.066                 |
| 44  | 0    | -14.020 | -4.558 | -0.933  | 0.426   | -24.117           | -13.551         | -12.192         | -18.572                  | -17.146                  |
| 44  | 0.64 | -5.516  | -1.319 | -0.791  | 0.356   | -8.730            | -5.755          | -4.609          | -7.453                   | -6.250                   |
| 44  | 1.27 | -0.071  | 0.657  | -0.649  | 0.286   | 0.966             | -0.713          | 0.222           | -0.342                   | 0.639                    |
| 44  | 1.91 | 0.786   | 0.526  | -0.507  | 0.215   | 1.786             | 0.200           | 0.923           | 0.624                    | 1.383                    |
| 44  | 2.55 | -1.415  | -0.868 | -0.366  | 0.145   | -3.087            | -1.639          | -1.128          | -2.417                   | -1.880                   |
| 45  | 0    | -43.997 | -0.802 | -0.082  | 0.077   | -54.080           | -39.679         | -39.520         | -46.788                  | -46.621                  |
| 45  | 1.5  | 4.874   | -0.802 | -0.082  | 0.077   | 4.566             | 4.305           | 4.464           | 4.527                    | 4.694                    |
| 45  | 3    | 21.165  | -0.802 | -0.082  | 0.077   | 24.115            | 18.967          | 19.126          | 21.632                   | 21.799                   |
| 45  | 4.5  | 4.875   | -0.802 | -0.082  | 0.077   | 4.566             | 4.305           | 4.464           | 4.527                    | 4.694                    |
| 45  | 6    | -43.997 | -0.802 | -0.082  | 0.077   | -54.079           | -39.679         | -39.520         | -46.788                  | -46.621                  |
| 46  | 0    | -78.139 | 0.767  | -29.134 | 28.898  | -92.540           | -99.459         | -41.427         | -112.153                 | -51.220                  |
| 46  | 2.25 | 10.718  | 0.258  | -14.439 | 14.386  | 13.274            | -4.793          | 24.033          | -3.744                   | 26.522                   |
| 46  | 4.5  | 39.985  | -0.251 | 0.256   | -0.126  | 47.580            | 36.242          | 35.861          | 42.094                   | 41.694                   |
| 46  | 6.75 | 9.661   | -0.760 | 14.950  | -14.638 | 10.377            | 23.645          | -5.942          | 25.363                   | -5.704                   |
| 46  | 9    | -80.253 | -1.269 | 29.615  | -29.150 | -98.335           | -42.583         | -101.377        | -53.938                  | -115.672                 |
| 47  | 0    | -76.682 | -0.807 | -30.879 | 31.398  | -93.309           | -99.893         | -37.615         | -113.447                 | -48.056                  |
| 47  | 2.25 | 11.465  | -0.512 | -15.507 | 15.838  | 12.939            | -5.189          | 26.156          | -4.567                   | 28.245                   |
| 47  | 4.5  | 40.021  | -0.217 | -0.135  | 0.277   | 47.678            | 35.883          | 36.296          | 41.743                   | 42.177                   |
| 47  | 6.75 | 8.986   | 0.078  | 15.236  | -15.283 | 10.908            | 23.324          | -7.195          | 25.483                   | -6.563                   |
| 47  | 9    | -81.639 | 0.373  | 30.608  | -30.843 | -97.371           | -42.867         | -104.319        | -53.348                  | -117.872                 |
| 48  | 0    | -78.141 | 0.660  | -30.867 | 30.587  | -92.714           | -101.195        | -39.740         | -114.043                 | -49.516                  |
| 48  | 2.25 | 10.740  | 0.218  | -15.295 | 15.226  | 13.237            | -5.629          | 24.891          | -4.645                   | 27.401                   |
| 48  | 4.5  | 40.031  | -0.224 | 0.278   | -0.136  | 47.678            | 36.306          | 35.891          | 42.183                   | 41.748                   |
| 48  | 6.75 | 9.731   | -0.666 | 15.851  | -15.498 | 10.611            | 24.608          | -6.740          | 26.441                   | -6.475                   |
| 48  | 9    | -80.160 | -1.118 | 31.423  | -30.860 | -97.964           | -40.721         | -103.003        | -51.871                  | -117.268                 |
| 49  | 0    | -77.801 | -0.737 | -31.358 | 31.893  | -94.540           | -101.379        | -38.128         | -115.081                 | -48.667                  |
| 49  | 2.25 | 10.978  | -0.412 | -15.744 | 16.084  | 12.515            | -5.864          | 25.964          | -5.264                   | 28.156                   |
| 49  | 4.5  | 40.165  | -0.086 | -0.129  | 0.275   | 48.060            | 36.019          | 36.424          | 41.983                   | 42.409                   |
| 49  | 6.75 | 9.763   | 0.239  | 15.485  | -15.533 | 12.097            | 24.271          | -6.747          | 26.661                   | -5.909                   |
| 49  | 9    | -80.231 | 0.564  | 31.099  | -31.342 | -95.374           | -41.108         | -103.550        | -51.233                  | -116.796                 |
| 50  | 0    | -80.693 | 0.132  | -31.387 | 31.100  | -96.620           | -104.010        | -41.524         | -117.600                 | -51.990                  |
| 50  | 2.25 | 9.680   | -0.028 | -15.549 | 15.478  | 11.571            | -6.837          | 24.190          | -6.180                   | 26.398                   |
| 50  | 4.5  | 40.462  | -0.188 | 0.289   | -0.143  | 48.253            | 36.704          | 36.273          | 42.670                   | 42.216                   |
| 50  | 6.75 | 11.654  | -0.349 | 16.126  | -15.764 | 13.426            | 26.615          | -5.276          | 28.949                   | -4.536                   |
| 50  | 9    | -76.745 | -0.509 | 31.964  | -31.386 | -92.909           | -37.107         | -100.457        | -47.341                  | -113.859                 |
| 51  | 0    | -77.800 | -0.737 | -31.358 | 31.893  | -94.539           | -101.378        | -38.127         | -115.080                 | -48.667                  |
| 51  | 2.25 | 10.978  | -0.411 | -15.744 | 16.084  | 12.516            | -5.863          | 25.965          | -5.263                   | 28.157                   |
| 51  | 4.5  | 40.166  | -0.086 | -0.129  | 0.275   | 48.062            | 36.020          | 36.425          | 41.985                   | 42.410                   |
| 51  | 6.75 | 9.764   | 0.240  | 15.485  | -15.533 | 12.099            | 24.272          | -6.746          | 26.662                   | -5.907                   |
| 51  | 9    | -80.230 | 0.565  | 31.099  | -31.342 | -95.372           | -41.107         | -103.549        | -51.231                  | -116.795                 |
| 52  | 0    | -80.695 | 0.131  | -31.387 | 31.100  | -96.624           | -104.012        | -41.526         | -117.603                 | -51.992                  |
| 52  | 2.25 | 9.679   | -0.029 | -15.549 | 15.478  | 11.568            | -6.838          | 24.189          | -6.182                   | 26.397                   |
| 52  | 4.5  | 40.462  | -0.189 | 0.289   | -0.143  | 48.252            | 36.704          | 36.272          | 42.669                   | 42.216                   |
| 52  | 6.75 | 11.654  | -0.349 | 16.126  | -15.764 | 13.427            | 26.615          | -5.276          | 28.950                   | -4.536                   |
| 52  | 9    | -76.744 | -0.509 | 31.964  | -31.386 | -92.907           | -37.106         | -100.456        | -47.340                  | -113.857                 |
| 53  | 0    | -76.681 | -0.807 | -30.879 | 31.398  | -93.308           | -99.892         | -37.615         | -113.447                 | -48.055                  |
| 53  | 2.25 | 11.465  | -0.512 | -15.507 | 15.838  | 12.939            | -5.189          | 26.157          | -4.567                   | 28.346                   |



|     |      |         |         |         |         |          |          |          |          |          |
|-----|------|---------|---------|---------|---------|----------|----------|----------|----------|----------|
| 53  | 4.5  | 40.021  | -0.217  | -0.135  | 0.277   | 47.678   | 35.884   | 36.296   | 41.743   | 42.177   |
| 53  | 6.75 | 8.986   | 0.078   | 15.236  | -15.283 | 10.908   | 23.324   | -7.195   | 25.483   | -6.562   |
| 53  | 9    | -81.639 | 0.373   | 30.608  | -30.843 | -97.371  | -42.867  | -104.319 | -53.348  | -117.872 |
| 54  | 0    | -78.142 | 0.660   | -30.867 | 30.587  | -92.714  | -101.195 | -39.740  | -114.044 | -49.516  |
| 54  | 2.25 | 10.740  | 0.218   | -15.295 | 15.226  | 13.237   | -5.629   | 24.891   | -4.645   | 27.401   |
| 54  | 4.5  | 40.031  | -0.224  | 0.278   | -0.136  | 47.678   | 36.305   | 35.891   | 42.183   | 41.748   |
| 54  | 6.75 | 9.731   | -0.666  | 15.851  | -15.498 | 10.611   | 24.608   | -6.740   | 26.441   | -6.475   |
| 54  | 9    | -80.160 | -1.108  | 31.423  | -30.860 | -97.964  | -40.721  | -103.003 | -51.871  | -117.268 |
| 55  | 0    | -76.680 | -0.874  | -29.150 | 29.647  | -93.415  | -98.162  | -39.365  | -111.672 | -49.935  |
| 55  | 2.25 | 11.468  | -0.560  | -14.638 | 14.952  | 12.865   | -4.317   | 25.273   | -3.682   | 27.387   |
| 55  | 4.5  | 40.025  | -0.246  | -0.126  | 0.256   | 47.636   | 35.896   | 36.278   | 41.739   | 42.140   |
| 55  | 6.75 | 8.991   | 0.068   | 14.386  | -14.440 | 10.898   | 22.478   | -6.347   | 24.589   | -5.678   |
| 55  | 9    | -81.633 | 0.382   | 28.898  | -29.135 | -97.348  | -44.572  | -102.605 | -55.131  | -116.066 |
| 56  | 0    | -78.139 | 0.767   | -29.134 | 28.898  | -92.540  | -99.459  | -41.427  | -112.153 | -51.220  |
| 56  | 2.25 | 10.718  | 0.258   | -14.439 | 14.386  | 13.274   | -4.793   | 24.033   | -3.744   | 26.522   |
| 56  | 4.5  | 39.985  | -0.251  | 0.256   | -0.126  | 47.580   | 36.242   | 35.861   | 42.094   | 41.694   |
| 56  | 6.75 | 9.661   | -0.760  | 14.950  | -14.638 | 10.377   | 23.645   | -5.942   | 25.363   | -5.704   |
| 56  | 9    | -80.253 | -1.269  | 29.645  | -29.150 | -98.335  | -42.583  | -101.377 | -53.938  | -115.673 |
| 57  | 0    | -0.154  | -0.072  | -0.064  | 0.023   | -0.299   | -0.203   | -0.116   | -0.274   | -0.183   |
| 57  | 0.45 | -0.242  | 0.151   | -0.004  | -0.002  | -0.049   | -0.222   | -0.220   | -0.163   | -0.161   |
| 57  | 0.9  | -1.522  | -0.074  | 0.056   | -0.028  | -1.945   | -1.314   | -1.398   | -1.587   | -1.674   |
| 57  | 1.35 | -4.537  | -1.043  | 0.116   | -0.053  | -7.114   | -3.968   | -4.137   | -5.300   | -5.477   |
| 57  | 1.8  | -8.745  | -2.460  | 0.176   | -0.079  | -14.430  | -7.695   | -7.949   | -10.548  | -10.814  |
| 58  | 0    | -77.685 | -0.910  | -26.802 | 27.195  | -94.678  | -96.719  | -42.722  | -110.285 | -53.588  |
| 58  | 2.25 | 10.954  | -0.568  | -13.463 | 13.709  | 12.236   | -3.604   | 23.568   | -2.992   | 25.539   |
| 58  | 4.5  | 40.004  | -0.227  | -0.124  | 0.224   | 47.642   | 35.879   | 36.227   | 41.731   | 42.096   |
| 58  | 6.75 | 9.462   | 0.115   | 13.215  | -13.262 | 11.539   | 21.731   | -4.746   | 23.884   | -3.918   |
| 58  | 9    | -80.670 | 0.457   | 26.555  | -26.748 | -96.074  | -46.048  | -99.351  | -56.534  | -112.501 |
| 59  | 0    | -78.797 | 0.682   | -26.737 | 26.564  | -93.465  | -97.654  | -44.353  | -110.381 | -54.414  |
| 59  | 2.25 | 10.390  | 0.226   | -13.257 | 13.220  | 12.830   | -3.906   | 22.571   | -2.868   | 24.933   |
| 59  | 4.5  | 39.986  | -0.229  | 0.223   | -0.124  | 47.617   | 36.211   | 35.864   | 42.076   | 41.711   |
| 59  | 6.75 | 9.991   | -0.684  | 13.703  | -13.468 | 10.895   | 22.696   | -4.476   | 24.449   | -4.081   |
| 59  | 9    | -79.594 | -1.139  | 27.184  | -26.812 | -97.335  | -44.451  | -98.447  | -55.748  | -112.444 |
| 62  | 0    | -83.854 | -19.652 | -20.392 | 20.218  | -132.069 | -95.861  | -55.251  | -121.840 | -79.199  |
| 62  | 0.75 | -44.670 | -10.548 | -16.938 | 16.776  | -70.480  | -57.140  | -23.427  | -71.333  | -35.933  |
| 62  | 1.5  | -10.383 | -2.389  | -13.483 | 13.334  | -16.282  | -22.828  | 3.989    | -26.565  | 1.593    |
| 62  | 2.25 | 18.400  | 4.528   | -10.029 | 9.892   | 29.326   | 6.531    | 26.452   | 11.642   | 32.559   |
| 62  | 3    | 42.285  | 10.500  | -6.575  | 6.449   | 67.541   | 31.482   | 44.506   | 44.111   | 57.786   |
| 63  | 0    | -44.654 | -1.010  | -0.055  | 0.041   | -55.201  | -40.244  | -40.147  | -47.581  | -47.480  |
| 63  | 1.5  | 4.216   | -1.010  | -0.055  | 0.041   | 3.443    | 3.740    | 3.836    | 3.733    | 3.834    |
| 63  | 3    | 20.506  | -1.010  | -0.055  | 0.041   | 22.991   | 18.401   | 18.497   | 20.838   | 20.939   |
| 63  | 4.5  | 4.215   | -1.011  | -0.055  | 0.041   | 3.441    | 3.739    | 3.835    | 3.732    | 3.833    |
| 63  | 6    | -44.656 | -1.011  | -0.055  | 0.041   | -55.205  | -40.246  | -40.149  | -47.584  | -47.483  |
| 89  | 0    | -0.595  | -0.990  | 0.526   | -0.566  | -2.299   | -0.010   | -1.101   | -0.697   | -1.843   |
| 89  | 0.23 | -6.584  | -1.660  | 0.940   | -1.014  | -10.556  | -4.986   | -6.940   | -6.972   | -9.024   |
| 89  | 0.45 | -12.770 | -2.385  | 1.354   | -1.463  | -19.140  | -10.139  | -12.956  | -13.489  | -16.447  |
| 89  | 0.68 | -19.220 | -3.203  | 1.768   | -1.912  | -28.189  | -15.530  | -19.210  | -20.342  | -24.206  |
| 89  | 0.9  | -25.867 | -4.078  | 2.182   | -2.360  | -37.564  | -21.098  | -25.640  | -27.438  | -32.207  |
| 90  | 0    | -35.834 | -0.713  | -0.129  | 0.144   | -44.142  | -32.380  | -32.106  | -38.211  | -37.924  |
| 90  | 1.5  | 4.353   | -0.375  | -0.060  | 0.068   | 4.624    | 3.857    | 3.286    | 4.271    | 4.406    |
| 90  | 3    | 18.055  | -0.036  | 0.009   | -0.008  | 21.608   | 16.258   | 16.241   | 18.944   | 18.926   |
| 90  | 4.5  | 5.272   | 0.302   | 0.078   | -0.085  | 6.811    | 4.823    | 4.660    | 5.808    | 5.638    |
| 90  | 6    | -33.995 | 0.641   | 0.147   | -0.161  | -39.769  | -30.449  | -30.756  | -35.137  | -35.460  |
| 91  | 0    | -36.163 | -0.339  | 0.030   | -0.020  | -43.938  | -32.517  | -32.567  | -38.153  | -38.205  |
| 91  | 1.5  | 3.934   | -0.187  | 0.015   | -0.009  | 4.422    | 3.556    | 3.532    | 4.029    | 4.004    |
| 91  | 3    | 17.547  | -0.035  | 0.000   | 0.001   | 21.001   | 15.792   | 15.793   | 18.402   | 18.404   |
| 91  | 4.5  | 4.675   | 0.117   | -0.015  | 0.012   | 5.797    | 4.192    | 4.219    | 4.966    | 4.995    |
| 91  | 6    | -34.682 | 0.269   | -0.031  | 0.022   | -41.188  | -31.245  | -31.192  | -36.279  | -36.223  |
| 102 | 0    | -35.468 | 0.028   | 0.035   | -0.028  | -42.517  | -31.887  | -31.950  | -37.188  | -37.254  |
| 102 | 1.5  | 4.391   | -0.008  | 0.018   | -0.015  | 5.257    | 3.970    | 3.937    | 4.625    | 4.590    |
| 102 | 3    | 17.766  | -0.045  | 0.002   | -0.002  | 21.248   | 15.991   | 15.988   | 18.628   | 18.624   |
| 102 | 4.5  | 4.656   | -0.081  | -0.015  | 0.011   | 5.458    | 4.176    | 4.202    | 4.823    | 4.850    |
| 102 | 6    | -34.938 | -0.117  | -0.031  | 0.024   | -42.113  | -31.475  | -31.420  | -36.792  | -36.733  |
| 103 | 0    | -21.075 | -0.214  | 0.030   | -0.024  | -25.632  | -18.938  | -18.992  | -22.232  | -22.289  |
| 103 | 1.13 | 1.748   | -0.044  | 0.015   | -0.011  | 2.026    | 1.587    | 1.562    | 1.822    | 1.795    |
| 103 | 2.25 | 9.673   | 0.125   | -0.001  | 0.002   | 11.807   | 8.705    | 8.707    | 10.234   | 10.237   |
| 103 | 3.38 | 2.701   | 0.294   | -0.016  | 0.014   | 3.711    | 2.414    | 2.445    | 3.004    | 3.036    |

|     |      |          |         |          |          |          |          |          |          |          |
|-----|------|----------|---------|----------|----------|----------|----------|----------|----------|----------|
| 103 | 4.5  | -19.169  | 0.463   | -0.032   | 0.027    | -22.262  | -17.284  | -17.225  | -19.869  | -19.808  |
| 104 | 0    | -35.217  | -0.141  | 0.007    | -0.006   | -42.486  | -31.688  | -31.702  | -37.059  | -37.073  |
| 104 | 1.5  | 4.510    | -0.141  | 0.007    | -0.006   | 5.187    | 4.066    | 4.053    | 4.654    | 4.640    |
| 104 | 3    | 17.752   | -0.141  | 0.007    | -0.006   | 21.078   | 15.984   | 15.971   | 18.559   | 18.545   |
| 104 | 4.5  | 4.510    | -0.141  | 0.007    | -0.006   | 5.187    | 4.066    | 4.053    | 4.654    | 4.640    |
| 104 | 6    | -35.217  | -0.141  | 0.007    | -0.006   | -42.485  | -31.688  | -31.702  | -37.059  | -37.073  |
| 123 | 0    | -14.894  | -0.650  | 75.953   | -75.705  | -18.913  | 62.549   | -89.110  | 63.702   | -95.539  |
| 123 | 1.13 | 8.957    | 1.905   | 39.154   | -39.020  | 13.797   | 47.215   | -30.959  | 51.716   | -30.366  |
| 123 | 2.25 | 8.455    | 1.143   | 2.354    | -2.336   | 11.974   | 9.963    | 5.273    | 12.069   | 7.145    |
| 123 | 3.38 | -18.749  | -4.231  | -34.445  | 34.349   | -29.268  | -51.319  | 17.476   | -58.519  | 13.715   |
| 123 | 4.5  | -70.304  | -12.923 | -71.244  | 71.034   | -105.042 | -134.519 | 7.760    | -156.768 | -7.375   |
| 124 | 0    | -235.262 | -51.491 | 42.261   | -42.278  | -364.700 | -169.475 | -254.014 | -235.091 | -323.856 |
| 124 | 1.13 | -95.990  | -19.147 | 31.038   | -30.998  | -145.823 | -55.354  | -117.389 | -80.263  | -145.400 |
| 124 | 2.25 | 25.568   | 7.384   | 19.814   | -19.718  | 42.497   | 42.826   | 3.293    | 52.304   | 10.795   |
| 124 | 3.38 | 126.525  | 26.512  | 8.591    | -8.438   | 194.249  | 122.464  | 105.434  | 158.575  | 140.694  |
| 124 | 4.5  | 209.769  | 39.826  | -2.632   | 2.842    | 315.445  | 186.160  | 191.634  | 242.585  | 248.332  |
| 125 | 0    | 209.637  | 39.808  | 2.832    | -2.625   | 315.256  | 191.505  | 186.048  | 248.171  | 242.441  |
| 125 | 1.13 | 126.856  | 26.551  | -8.425   | 8.610    | 194.708  | 105.745  | 122.780  | 141.079  | 158.966  |
| 125 | 2.25 | 26.362   | 7.481   | -19.683  | 19.845   | 43.603   | 4.043    | 43.570   | 11.726   | 53.229   |
| 125 | 3.38 | -94.734  | -18.993 | -30.940  | 31.080   | -144.070 | -116.201 | -54.181  | -143.923 | -78.803  |
| 125 | 4.5  | -233.542 | -51.280 | -42.198  | 42.314   | -362.299 | -252.386 | -167.874 | -321.833 | -233.096 |
| 126 | 0    | -73.163  | -13.276 | 70.913   | -71.360  | -109.037 | 5.067    | -137.206 | -10.726  | -160.112 |
| 126 | 1.13 | -20.117  | -4.400  | 34.293   | -34.503  | -31.181  | 16.187   | -52.608  | 12.112   | -60.123  |
| 126 | 2.25 | 8.575    | 1.158   | -2.328   | 2.354    | 12.142   | 5.389    | 10.072   | 7.288    | 12.205   |
| 126 | 3.38 | 10.566   | 2.104   | -38.949  | 39.211   | 16.046   | -29.439  | 48.721   | -28.476  | 53.592   |
| 126 | 4.5  | -11.795  | -0.268  | -75.570  | 76.068   | -14.583  | -86.185  | 65.453   | -91.902  | 67.318   |
| 127 | 0    | -22.658  | -2.331  | 116.955  | -116.075 | -30.920  | 96.563   | -136.467 | 97.544   | -147.138 |
| 127 | 1.13 | 5.482    | 1.127   | 60.842   | -60.333  | 8.381    | 65.776   | -55.399  | 70.350   | -56.884  |
| 127 | 2.25 | 9.269    | 1.266   | 4.729    | -4.591   | 13.149   | 13.070   | 3.751    | 15.495   | 5.709    |
| 127 | 3.38 | -13.645  | -3.205  | -51.385  | 51.151   | -21.502  | -63.665  | 38.870   | -70.301  | 37.361   |
| 127 | 4.5  | -60.912  | -10.995 | -107.498 | 106.893  | -90.686  | -162.319 | 52.071   | -183.758 | 41.353   |
| 128 | 0    | -195.078 | -39.361 | 57.950   | -57.918  | -297.071 | -117.620 | -233.487 | -168.781 | -290.443 |
| 128 | 1.13 | -79.075  | -14.383 | 42.451   | -42.385  | -117.903 | -28.716  | -113.552 | -47.516  | -136.594 |
| 128 | 2.25 | 21.277   | 5.917   | 26.952   | -26.852  | 35.000   | 46.102   | -7.703   | 54.369   | -2.126   |
| 128 | 3.38 | 103.564  | 20.210  | 11.453   | -11.320  | 156.613  | 104.660  | 81.887   | 133.500  | 109.588  |
| 128 | 4.5  | 170.199  | 29.826  | -4.046   | 4.213    | 251.961  | 149.133  | 157.392  | 193.251  | 201.923  |
| 129 | 0    | 169.919  | 29.789  | 4.202    | -4.040   | 251.565  | 157.129  | 148.887  | 201.594  | 192.940  |
| 129 | 1.13 | 103.986  | 20.260  | -11.311  | 11.470   | 157.200  | 82.276   | 105.057  | 110.072  | 133.993  |
| 129 | 2.25 | 22.402   | 6.054   | -26.825  | 26.980   | 36.570   | -6.663   | 47.142   | -0.829   | 55.666   |
| 129 | 3.38 | -77.247  | -14.159 | -42.339  | 42.489   | -115.351 | -111.861 | -27.033  | -134.485 | -45.416  |
| 129 | 4.5  | -192.547 | -39.050 | -57.852  | 57.999   | -293.537 | -231.145 | -115.293 | -287.521 | -165.877 |
| 130 | 0    | -65.520  | -11.562 | 106.799  | -107.611 | -97.124  | 47.831   | -166.579 | 36.059   | -189.072 |
| 130 | 1.13 | -15.839  | -3.475  | 51.106   | -51.439  | -24.567  | 36.851   | -65.694  | 34.841   | -72.832  |
| 130 | 2.25 | 9.489    | 1.293   | -4.587   | 4.733    | 13.456   | 3.953    | 13.273   | 5.962    | 15.748   |
| 130 | 3.38 | 8.117    | 1.451   | -60.280  | 60.904   | 12.061   | -52.975  | 68.209   | -53.858  | 73.386   |
| 130 | 4.5  | -17.609  | -1.710  | -115.973 | 117.076  | -23.866  | -131.821 | 101.228  | -141.339 | 103.363  |
| 135 | 0    | -14.894  | -0.650  | 75.953   | -75.705  | -18.913  | 62.549   | -89.110  | 63.702   | -95.539  |
| 135 | 1.13 | 8.957    | 1.905   | 39.154   | -39.020  | 13.797   | 47.215   | -30.959  | 51.716   | -30.366  |
| 135 | 2.25 | 8.455    | 1.143   | 2.354    | -2.336   | 11.974   | 9.963    | 5.273    | 12.069   | 7.145    |
| 135 | 3.38 | -18.749  | -4.231  | -34.445  | 34.349   | -29.268  | -51.319  | 17.476   | -58.519  | 13.715   |
| 135 | 4.5  | -70.305  | -12.923 | -71.244  | 71.034   | -105.043 | -134.519 | 7.760    | -156.768 | -7.376   |
| 136 | 0    | -235.262 | -51.491 | 42.261   | -42.278  | -364.700 | -169.475 | -254.014 | -235.091 | -323.856 |
| 136 | 1.13 | -95.990  | -19.147 | 31.038   | -30.998  | -145.823 | -55.354  | -117.389 | -80.263  | -145.400 |
| 136 | 2.25 | 25.568   | 7.384   | 19.814   | -19.718  | 42.497   | 42.826   | 3.293    | 52.304   | 10.795   |
| 136 | 3.38 | 126.525  | 26.512  | 8.591    | -8.438   | 194.249  | 122.464  | 105.434  | 158.575  | 140.694  |
| 136 | 4.5  | 209.769  | 39.826  | -2.632   | 2.842    | 315.445  | 186.160  | 191.634  | 242.585  | 248.332  |
| 137 | 0    | 209.637  | 39.808  | 2.832    | -2.625   | 315.256  | 191.505  | 186.048  | 248.171  | 242.441  |
| 137 | 1.13 | 126.856  | 26.551  | -8.425   | 8.610    | 194.708  | 105.745  | 122.780  | 141.079  | 158.966  |
| 137 | 2.25 | 26.362   | 7.481   | -19.683  | 19.845   | 43.603   | 4.043    | 43.570   | 11.726   | 53.229   |
| 137 | 3.38 | -94.734  | -18.993 | -30.940  | 31.080   | -144.070 | -116.201 | -54.181  | -143.924 | -78.803  |
| 137 | 4.5  | -233.543 | -51.280 | -42.198  | 42.314   | -362.299 | -252.386 | -167.874 | -321.833 | -233.096 |
| 138 | 0    | -73.162  | -13.276 | 70.913   | -71.360  | -109.037 | 5.067    | -137.206 | -10.726  | -160.112 |
| 138 | 1.13 | -20.117  | -4.400  | 34.293   | -34.503  | -31.181  | 16.187   | -52.608  | 12.112   | -60.123  |
| 138 | 2.25 | 8.575    | 1.158   | -2.328   | 2.354    | 12.142   | 5.389    | 10.072   | 7.288    | 12.205   |
| 138 | 3.38 | 10.566   | 2.104   | -38.949  | 39.211   | 16.046   | -29.439  | 48.721   | -28.476  | 53.592   |
| 138 | 4.5  | -11.795  | -0.268  | -75.570  | 76.068   | -14.583  | -86.185  | 65.453   | -91.902  | 67.318   |
| 139 | 0    | -22.658  | -2.331  | 116.955  | -116.075 | -30.919  | 96.563   | -136.467 | 97.544   | -147.138 |

|     |      |          |         |          |          |          |          |          |          |          |
|-----|------|----------|---------|----------|----------|----------|----------|----------|----------|----------|
| 139 | 1.13 | 5.482    | 1.127   | 60.842   | -60.333  | 8.381    | 65.776   | -55.399  | 70.350   | -56.884  |
| 139 | 2.25 | 9.269    | 1.266   | 4.729    | -4.591   | 13.149   | 13.070   | 3.751    | 15.495   | 5.709    |
| 139 | 3.38 | -13.645  | -3.205  | -51.385  | 51.151   | -21.503  | -63.666  | 38.870   | -70.301  | 37.361   |
| 139 | 4.5  | -60.912  | -10.995 | -107.498 | 106.893  | -90.687  | -162.319 | 52.071   | -183.758 | 41.352   |
| 140 | 0    | -195.078 | -39.361 | 57.950   | -57.918  | -297.071 | -117.620 | -233.487 | -168.781 | -290.443 |
| 140 | 1.13 | -79.075  | -14.383 | 42.451   | -42.385  | -117.903 | -28.716  | -113.552 | -47.516  | -136.594 |
| 140 | 2.25 | 21.278   | 5.917   | 26.952   | -26.852  | 35.001   | 46.102   | -7.703   | 54.369   | -2.126   |
| 140 | 3.38 | 103.564  | 20.210  | 11.453   | -11.320  | 156.613  | 104.660  | 81.887   | 133.500  | 109.588  |
| 140 | 4.5  | 170.200  | 29.826  | -4.046   | 4.213    | 251.961  | 149.133  | 157.392  | 193.251  | 201.923  |
| 141 | 0    | 169.919  | 29.789  | 4.202    | -4.040   | 251.565  | 157.129  | 148.887  | 201.594  | 192.940  |
| 141 | 1.13 | 103.986  | 20.260  | -11.311  | 11.470   | 157.200  | 82.276   | 105.057  | 110.072  | 133.993  |
| 141 | 2.25 | 22.402   | 6.054   | -26.825  | 26.980   | 36.570   | -6.663   | 47.142   | -0.829   | 55.665   |
| 141 | 3.38 | -77.247  | -14.159 | -42.339  | 42.489   | -115.351 | -111.861 | -27.033  | -134.485 | -45.416  |
| 141 | 4.5  | -192.547 | -39.050 | -57.852  | 57.999   | -293.537 | -231.145 | -115.293 | -287.521 | -165.877 |
| 142 | 0    | -65.520  | -11.562 | 106.799  | -107.611 | -97.124  | 47.831   | -166.579 | 36.059   | -189.072 |
| 142 | 1.13 | -15.839  | -3.475  | 51.106   | -51.439  | -24.567  | 36.851   | -65.694  | 34.841   | -72.832  |
| 142 | 2.25 | 9.489    | 1.293   | -4.587   | 4.733    | 13.456   | 3.953    | 13.273   | 5.962    | 15.748   |
| 142 | 3.38 | 8.117    | 1.451   | -60.280  | 60.904   | 12.061   | -52.975  | 68.209   | -53.858  | 73.386   |
| 142 | 4.5  | -17.609  | -1.710  | -115.973 | 117.076  | -23.867  | -131.821 | 101.228  | -141.339 | 103.363  |
| 143 | 0    | -19.169  | 0.463   | -0.032   | 0.027    | -22.262  | -17.284  | -17.225  | -19.869  | -19.808  |
| 143 | 1.13 | 2.701    | 0.294   | -0.016   | 0.014    | 3.711    | 2.414    | 2.445    | 3.004    | 3.036    |
| 143 | 2.25 | 9.673    | 0.125   | -0.001   | 0.002    | 11.807   | 8.705    | 8.707    | 10.234   | 10.237   |
| 143 | 3.38 | 1.748    | -0.044  | 0.015    | -0.011   | 2.026    | 1.587    | 1.562    | 1.822    | 1.795    |
| 143 | 4.5  | -21.075  | -0.214  | 0.030    | -0.024   | -25.632  | -18.938  | -18.992  | -22.232  | -22.289  |
| 144 | 0    | -34.938  | -0.117  | -0.031   | 0.024    | -42.113  | -31.475  | -31.420  | -36.792  | -36.734  |
| 144 | 1.5  | 4.656    | -0.081  | -0.015   | 0.011    | 5.458    | 4.176    | 4.202    | 4.823    | 4.850    |
| 144 | 3    | 17.766   | -0.045  | 0.002    | -0.002   | 21.248   | 15.991   | 15.988   | 18.628   | 18.624   |
| 144 | 4.5  | 4.391    | -0.008  | 0.018    | -0.015   | 5.257    | 3.970    | 3.937    | 4.625    | 4.590    |
| 144 | 6    | -35.468  | 0.028   | 0.035    | -0.028   | -42.517  | -31.887  | -31.950  | -37.188  | -37.254  |
| 145 | 0    | -34.682  | 0.269   | -0.031   | 0.022    | -41.188  | -31.245  | -31.192  | -36.279  | -36.223  |
| 145 | 1.5  | 4.675    | 0.117   | -0.015   | 0.012    | 5.797    | 4.192    | 4.219    | 4.966    | 4.995    |
| 145 | 3    | 17.547   | -0.035  | 0.000    | 0.001    | 21.001   | 15.792   | 15.793   | 18.402   | 18.404   |
| 145 | 4.5  | 3.934    | -0.187  | 0.015    | -0.009   | 4.422    | 3.556    | 3.532    | 4.029    | 4.004    |
| 145 | 6    | -36.163  | -0.339  | 0.030    | -0.020   | -43.938  | -32.517  | -32.567  | -38.153  | -38.205  |
| 146 | 0    | -33.995  | 0.641   | 0.147    | -0.161   | -39.769  | -30.449  | -30.756  | -35.137  | -35.460  |
| 146 | 1.5  | 5.272    | 0.302   | 0.078    | -0.085   | 6.811    | 4.823    | 4.660    | 5.808    | 5.658    |
| 146 | 3    | 18.055   | -0.036  | 0.009    | -0.008   | 21.608   | 16.258   | 16.241   | 18.944   | 18.926   |
| 146 | 4.5  | 4.353    | -0.375  | -0.060   | 0.068    | 4.624    | 3.857    | 3.986    | 4.271    | 4.406    |
| 146 | 6    | -35.834  | -0.713  | -0.129   | 0.144    | -44.142  | -32.380  | -32.106  | -38.211  | -37.924  |
| 156 | 0    | 1.661    | -1.318  | 2.763    | -2.620   | -0.115   | 4.257    | -1.125   | 3.814    | -1.837   |
| 156 | 0.86 | 3.566    | 1.231   | 2.922    | -3.549   | 6.248    | 6.131    | -0.339   | 7.588    | 0.793    |
| 156 | 1.73 | -1.627   | 0.642   | 3.081    | -4.478   | -0.925   | 1.617    | -5.942   | 1.932    | -6.005   |
| 156 | 2.59 | -17.389  | -4.994  | 3.241    | -5.407   | -28.858  | -12.410  | -21.057  | -18.002  | -27.082  |
| 156 | 3.45 | -40.250  | -13.768 | 3.400    | -6.336   | -70.328  | -32.825  | -42.561  | -47.366  | -57.588  |
| 157 | 0    | -50.450  | -21.303 | -8.159   | 5.040    | -94.625  | -53.564  | -40.365  | -74.960  | -61.101  |
| 157 | 1.13 | -10.402  | -3.805  | -5.602   | 3.719    | -18.570  | -14.964  | -5.643   | -19.202  | -9.414   |
| 157 | 2.25 | 15.208   | 7.056   | -3.046   | 2.398    | 29.540   | 10.642   | 16.085   | 17.216   | 22.932   |
| 157 | 3.38 | 21.685   | 8.695   | -0.489   | 1.077    | 39.934   | 19.027   | 20.594   | 27.734   | 29.378   |
| 157 | 4.5  | 13.724   | 3.697   | 2.067    | -0.244   | 22.384   | 14.419   | 12.108   | 18.910   | 16.483   |
| 158 | 0    | 13.903   | 3.688   | 2.513    | -0.601   | 22.585   | 15.026   | 11.912   | 19.561   | 16.291   |
| 158 | 1.13 | 18.464   | 8.455   | 5.245    | -2.493   | 35.685   | 21.862   | 14.124   | 30.221   | 22.096   |
| 158 | 2.25 | 8.587    | 6.585   | 7.976    | -4.386   | 20.841   | 15.704   | 3.342    | 21.540   | 8.560    |
| 158 | 3.38 | -20.424  | -4.507  | 10.708   | -6.279   | -31.720  | -7.674   | -24.660  | -13.041  | -30.877  |
| 158 | 4.5  | -63.872  | -22.236 | 13.439   | -8.172   | -112.224 | -44.045  | -65.656  | -66.963  | -89.654  |
| 160 | 0    | 97.367   | 21.662  | 9.741    | -6.790   | 151.500  | 97.371   | 80.840   | 126.111  | 108.753  |
| 160 | 0.86 | 42.133   | 9.052   | 22.431   | -25.506  | 65.043   | 60.351   | 12.414   | 73.495   | 23.161   |
| 160 | 1.73 | -30.447  | -7.178  | 35.121   | -44.222  | -48.022  | 7.718    | -71.625  | 0.385    | -82.925  |
| 160 | 2.59 | -122.096 | -27.576 | 47.811   | -62.938  | -191.278 | -62.075  | -172.825 | -95.624  | -211.911 |
| 160 | 3.45 | -230.062 | -51.828 | 60.502   | -81.654  | -358.999 | -146.554 | -288.709 | -210.690 | -359.953 |
| 161 | 0    | -189.697 | -58.744 | -82.168  | 60.829   | -321.628 | -252.895 | -109.898 | -322.467 | -172.320 |
| 161 | 1.13 | -63.137  | -22.128 | -57.546  | 44.272   | -111.169 | -114.369 | -12.552  | -140.657 | -33.749  |
| 161 | 2.25 | 33.788   | 8.262   | -32.923  | 27.714   | 53.764   | -2.514   | 58.123   | 6.113    | 69.782   |
| 161 | 3.38 | 97.673   | 30.549  | -8.301   | 11.156   | 166.086  | 79.605   | 99.062   | 113.086  | 133.516  |
| 161 | 4.5  | 131.923  | 46.609  | 16.321   | -5.402   | 232.882  | 135.051  | 113.328  | 185.020  | 162.211  |
| 162 | 0    | 132.122  | 46.725  | 15.852   | -5.021   | 233.307  | 134.763  | 113.889  | 184.810  | 162.893  |
| 162 | 1.13 | 77.027   | 28.614  | 40.284   | -20.962  | 138.215  | 109.608  | 48.363   | 141.203  | 76.895   |
| 162 | 2.25 | -7.704   | 4.275   | 64.715   | -36.902  | -2.404   | 57.782   | -43.835  | 62.555   | -44.142  |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 162 | 3.38 | -125.474 | -28.166 | 89.146  | -52.842 | -195.635 | -23.781  | -165.769 | -55.889  | -204.977 |
| 162 | 4.5  | -272.881 | -66.834 | 113.578 | -68.782 | -434.391 | -132.015 | -314.375 | -209.373 | -400.851 |
| 164 | 0    | 97.370   | 21.664  | 9.741   | -6.790  | 151.506  | 97.374   | 80.843   | 126.114  | 108.757  |
| 164 | 0.86 | 42.136   | 9.054   | 22.431  | -25.506 | 65.050   | 60.354   | 12.417   | 73.500   | 23.166   |
| 164 | 1.73 | -30.444  | -7.176  | 35.121  | -44.222 | -48.014  | 7.722    | -71.621  | 0.390    | -82.920  |
| 164 | 2.59 | -122.092 | -27.974 | 47.811  | -62.938 | -191.269 | -62.072  | -172.821 | -95.619  | -211.905 |
| 164 | 3.45 | -230.057 | -51.826 | 60.502  | -81.654 | -358.989 | -146.550 | -238.705 | -210.683 | -359.947 |
| 165 | 0    | -189.705 | -58.749 | -82.168 | 60.829  | -321.645 | -252.903 | -109.905 | -322.479 | -172.332 |
| 165 | 1.13 | -63.143  | -22.131 | -57.546 | 44.272  | -111.182 | -114.374 | -12.557  | -140.666 | -33.758  |
| 165 | 2.25 | 33.784   | 8.259   | -32.923 | 27.714  | 53.755   | -2.518   | 58.119   | 6.106    | 69.775   |
| 165 | 3.38 | 97.670   | 30.548  | -8.301  | 11.156  | 166.080  | 79.602   | 99.059   | 113.082  | 133.512  |
| 165 | 4.5  | 131.921  | 46.609  | 16.321  | -5.402  | 232.880  | 135.050  | 113.327  | 185.018  | 162.209  |
| 166 | 0    | 132.121  | 46.725  | 15.852  | -5.021  | 233.305  | 134.761  | 113.888  | 184.809  | 162.891  |
| 166 | 1.13 | 77.027   | 28.614  | 40.284  | -20.962 | 138.214  | 109.608  | 48.363   | 141.203  | 76.895   |
| 166 | 2.25 | -7.703   | 4.275   | 64.715  | -36.902 | -2.403   | 57.782   | -43.835  | 62.556   | -44.142  |
| 166 | 3.38 | -125.473 | -28.165 | 89.146  | -52.842 | -195.632 | -23.779  | -165.768 | -55.887  | -204.975 |
| 166 | 4.5  | -272.878 | -66.833 | 113.578 | -68.782 | -434.386 | -132.013 | -314.373 | -209.370 | -400.848 |
| 209 | 0    | -20.471  | -9.471  | -6.119  | 8.009   | -39.719  | -24.544  | -10.416  | -33.887  | -19.053  |
| 209 | 1.13 | 4.083    | 2.097   | -4.010  | 5.469   | 8.256    | -0.335   | 9.144    | 1.398    | 11.351   |
| 209 | 2.25 | 14.200   | 7.029   | -1.901  | 2.929   | 28.287   | 10.879   | 15.709   | 17.342   | 22.414   |
| 209 | 3.38 | 5.184    | 2.738   | 0.208   | 0.389   | 10.601   | 4.873    | 5.035    | 7.386    | 7.577    |
| 209 | 4.5  | -18.271  | -8.189  | 2.317   | -2.150  | -35.028  | -14.127  | -18.594  | -21.911  | -26.601  |
| 210 | 0    | -20.774  | -8.862  | -1.270  | 1.334   | -39.108  | -19.967  | -17.362  | -28.729  | -25.994  |
| 210 | 1.13 | 3.418    | 1.883   | -0.581  | 0.510   | 7.114    | 2.495    | 3.586    | 4.165    | 5.310    |
| 210 | 2.25 | 13.171   | 5.991   | 0.109   | -0.315  | 25.391   | 11.963   | 11.539   | 17.719   | 17.274   |
| 210 | 3.38 | 3.791    | 0.877   | 0.799   | -1.139  | 5.952    | 4.211    | 2.273    | 5.372    | 3.337    |
| 210 | 4.5  | -20.026  | -10.874 | 1.489   | -1.964  | -41.431  | -16.535  | -19.988  | -26.316  | -29.941  |
| 211 | 0    | -19.860  | -10.849 | -1.968  | 1.491   | -41.190  | -19.842  | -16.383  | -29.754  | -26.122  |
| 211 | 1.13 | 3.918    | 0.894   | -1.141  | 0.799   | 6.132    | 2.384    | 4.325    | 3.478    | 5.516    |
| 211 | 2.25 | 13.257   | 6.001   | -0.315  | 0.108   | 25.510   | 11.617   | 12.040   | 17.370   | 17.814   |
| 211 | 3.38 | 3.463    | 1.885   | 0.512   | -0.583  | 7.172    | 3.629    | 2.534    | 5.361    | 4.212    |
| 211 | 4.5  | -20.768  | -8.868  | 1.338   | -1.275  | -39.110  | -17.353  | -19.966  | -25.988  | -28.732  |
| 212 | 0    | -18.174  | -8.184  | -2.143  | 2.321   | -34.903  | -18.500  | -14.035  | -26.489  | -21.801  |
| 212 | 1.13 | 5.086    | 2.721   | 0.391   | 0.210   | 10.457   | 4.968    | 4.787    | 7.465    | 7.275    |
| 212 | 2.25 | 13.908   | 6.990   | 2.925   | -1.902  | 27.873   | 15.442   | 10.615   | 22.078   | 17.010   |
| 212 | 3.38 | 3.597    | 2.036   | 5.459   | -4.013  | 7.573    | 8.696    | -0.776   | 10.791   | 0.845    |
| 212 | 4.5  | -21.153  | -9.555  | 7.993   | -6.125  | -40.670  | -11.045  | -25.162  | -19.837  | -34.661  |
| 213 | 0    | -54.964  | -19.852 | -6.723  | 10.550  | -97.720  | -56.191  | -38.918  | -77.278  | -59.142  |
| 213 | 1.13 | -12.885  | -2.585  | -5.150  | 8.407   | -19.599  | -16.746  | -3.190   | -20.566  | -6.331   |
| 213 | 2.25 | 14.756   | 8.044   | -3.577  | 6.264   | 30.578   | 9.704    | 19.544   | 16.806   | 27.139   |
| 213 | 3.38 | 23.263   | 9.452   | -2.003  | 4.122   | 43.039   | 18.934   | 25.058   | 28.277   | 34.709   |
| 213 | 4.5  | 17.333   | 4.222   | -0.430  | 1.979   | 27.555   | 15.170   | 17.579   | 20.408   | 22.938   |
| 214 | 0    | 17.488   | 4.428   | -0.158  | 1.648   | 28.070   | 15.581   | 17.387   | 20.986   | 22.883   |
| 214 | 1.13 | 21.774   | 8.238   | 0.873   | -0.379  | 39.310   | 20.470   | 19.218   | 28.970   | 27.655   |
| 214 | 2.25 | 11.623   | 5.111   | 1.904   | -2.406  | 22.605   | 12.365   | 8.055    | 17.612   | 13.087   |
| 214 | 3.38 | -17.661  | -6.639  | 2.935   | -4.433  | -31.815  | -12.960  | -20.328  | -19.645  | -27.381  |
| 214 | 4.5  | -61.384  | -25.325 | 3.966   | -6.460  | -114.180 | -51.280  | -61.705  | -76.243  | -87.190  |
| 215 | 0    | -60.524  | -25.216 | -6.447  | 3.961   | -112.975 | -60.919  | -50.510  | -86.206  | -75.277  |
| 215 | 1.13 | -17.076  | -6.565  | -4.425  | 2.932   | -30.996  | -19.794  | -12.436  | -26.712  | -18.987  |
| 215 | 2.25 | 11.934   | 5.449   | -2.403  | 1.903   | 23.039   | 8.337    | 12.644   | 13.440   | 17.962   |
| 215 | 3.38 | 21.811   | 8.241   | -0.381  | 0.874   | 39.358   | 19.248   | 20.504   | 27.693   | 29.011   |
| 215 | 4.5  | 17.250   | 4.396   | 1.641   | -0.154  | 27.733   | 17.166   | 15.370   | 22.604   | 20.719   |
| 216 | 0    | 17.036   | 4.182   | 1.971   | -0.426  | 27.134   | 17.303   | 14.906   | 22.591   | 20.075   |
| 216 | 1.13 | 22.611   | 9.363   | 4.110   | -1.999  | 42.114   | 24.460   | 18.350   | 33.956   | 27.541   |
| 216 | 2.25 | 13.748   | 7.908   | 6.250   | -3.572  | 29.150   | 18.623   | 8.801    | 25.980   | 15.666   |
| 216 | 3.38 | -14.248  | -2.770  | 8.390   | -5.145  | -21.530  | -4.434   | -17.969  | -7.896   | -22.108  |
| 216 | 4.5  | -56.682  | -20.085 | 10.529  | -6.718  | -100.154 | -40.484  | -57.732  | -61.114  | -79.224  |
| 217 | 0    | -231.480 | -64.162 | -61.056 | 100.427 | -380.435 | -269.388 | -107.906 | -347.585 | -178.028 |
| 217 | 1.13 | -86.593  | -23.211 | -46.868 | 78.769  | -141.049 | -124.801 | 0.836    | -154.757 | -22.838  |
| 217 | 2.25 | 27.916   | 11.102  | -32.680 | 57.111  | 51.263   | -7.556   | 82.236   | 1.992    | 96.273   |
| 217 | 3.38 | 107.350  | 36.194  | -18.492 | 35.454  | 186.729  | 78.122   | 132.068  | 116.102  | 172.745  |
| 217 | 4.5  | 156.404  | 54.648  | -4.304  | 13.796  | 275.122  | 136.460  | 154.560  | 194.133  | 213.139  |
| 218 | 0    | 156.305  | 54.479  | -4.652  | 14.246  | 274.733  | 136.023  | 154.921  | 193.558  | 213.401  |
| 218 | 1.13 | 103.350  | 32.971  | 10.172  | -7.680  | 176.774  | 103.187  | 85.335   | 139.970  | 121.225  |
| 218 | 2.25 | 20.016   | 4.826   | 24.995  | -29.607 | 31.741   | 43.009   | -11.593  | 50.302   | -7.030   |
| 218 | 3.38 | -98.393  | -32.541 | 39.818  | -51.533 | -170.138 | -48.735  | -140.087 | -82.004  | -177.924 |
| 218 | 4.5  | -247.181 | -76.545 | 54.642  | -73.460 | -419.090 | -167.821 | -295.923 | -250.390 | -384.897 |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 219 | 0    | -232.747 | -74.619 | -73.340 | 54.614  | -398.687 | -282.812 | -154.859 | -368.401 | -234.050 |
| 219 | 1.13 | -88.458  | -31.238 | -51.457 | 39.803  | -156.131 | -131.069 | -39.809  | -166.591 | -70.768  |
| 219 | 2.25 | 25.452   | 5.505   | -29.574 | 24.993  | 39.351   | -6.667   | 47.899   | -0.860   | 56.435   |
| 219 | 3.38 | 104.287  | 33.026  | -7.691  | 10.182  | 177.987  | 86.168   | 104.041  | 122.233  | 141.000  |
| 219 | 4.5  | 152.744  | 53.911  | 14.192  | -4.628  | 269.550  | 151.661  | 132.841  | 209.246  | 189.485  |
| 220 | 0    | 152.877  | 54.084  | 13.743  | -4.281  | 269.987  | 151.333  | 133.308  | 209.025  | 190.099  |
| 220 | 1.13 | 99.683   | 35.104  | 35.359  | -18.456 | 175.786  | 125.073  | 71.259   | 163.909  | 107.404  |
| 220 | 2.25 | 16.109   | 9.487   | 56.974  | -32.630 | 34.511   | 71.472   | -18.132  | 82.714   | -11.370  |
| 220 | 3.38 | -102.539 | -25.352 | 78.589  | -46.804 | -163.610 | -13.696  | -139.089 | -41.119  | -172.782 |
| 220 | 4.5  | -251.566 | -66.828 | 100.205 | -60.979 | -408.804 | -126.205 | -287.388 | -201.031 | -370.274 |
| 221 | 0    | -53.158  | -19.619 | -7.592  | 12.463  | -95.179  | -55.434  | -35.379  | -76.147  | -55.089  |
| 221 | 1.13 | -12.028  | -2.511  | -5.822  | 9.921   | -18.451  | -16.647  | -0.904   | -20.324  | -3.794   |
| 221 | 2.25 | 14.664   | 7.961   | -4.051  | 7.379   | 30.333   | 9.147    | 20.577   | 16.159   | 28.160   |
| 221 | 3.38 | 22.222   | 9.209   | -2.280  | 4.837   | 41.402   | 17.720   | 24.837   | 26.741   | 34.214   |
| 221 | 4.5  | 15.343   | 3.822   | -0.509  | 2.296   | 24.526   | 13.299   | 16.104   | 17.982   | 20.928   |
| 222 | 0    | 15.296   | 3.971   | -0.160  | 1.866   | 24.709   | 13.606   | 15.632   | 18.394   | 20.522   |
| 222 | 1.13 | 20.725   | 8.033   | 0.975   | -0.434  | 37.723   | 19.628   | 18.219   | 27.846   | 26.367   |
| 222 | 2.25 | 11.717   | 5.458   | 2.110   | -2.733  | 22.792   | 12.655   | 7.812    | 17.956   | 12.871   |
| 222 | 3.38 | -16.425  | -6.340  | 3.245   | -5.033  | -29.854  | -11.538  | -19.816  | -17.833  | -26.525  |
| 222 | 4.5  | -59.005  | -24.774 | 4.380   | -7.333  | -110.444 | -48.724  | -60.437  | -72.964  | -85.262  |
| 223 | 0    | -56.913  | -24.445 | -7.313  | 4.367   | -107.407 | -58.534  | -46.854  | -82.837  | -70.573  |
| 223 | 1.13 | -15.072  | -6.141  | -5.022  | 3.238   | -27.911  | -18.587  | -10.326  | -24.967  | -16.294  |
| 223 | 2.25 | 12.332   | 5.526   | -2.732  | 2.109   | 23.641   | 8.367    | 13.208   | 13.562   | 18.544   |
| 223 | 3.38 | 20.603   | 7.971   | -0.442  | 0.979   | 37.476   | 18.101   | 19.522   | 26.191   | 27.683   |
| 223 | 4.5  | 14.436   | 3.778   | 1.849   | -0.150  | 23.368   | 14.841   | 12.842   | 19.479   | 17.380   |
| 224 | 0    | 14.335   | 3.613   | 2.276   | -0.498  | 22.983   | 15.178   | 12.403   | 19.718   | 16.805   |
| 224 | 1.13 | 20.448   | 8.927   | 4.823   | -2.273  | 38.820   | 23.226   | 16.130   | 32.158   | 24.707   |
| 224 | 2.25 | 12.123   | 7.604   | 7.369   | -4.047  | 26.713   | 18.279   | 6.863    | 25.256   | 13.269   |
| 224 | 3.38 | -15.336  | -2.942  | 9.915   | -5.822  | -23.110  | -3.887   | -19.624  | -7.545   | -24.069  |
| 224 | 4.5  | -57.232  | -20.124 | 12.461  | -7.596  | -100.876 | -39.047  | -59.105  | -59.687  | -80.748  |
| 225 | 0    | -199.215 | -55.119 | -66.701 | 110.221 | -327.249 | -245.995 | -69.073  | -313.937 | -128.169 |
| 225 | 1.13 | -66.760  | -19.105 | -51.227 | 86.479  | -110.679 | -111.310 | 26.395   | -135.922 | 8.669    |
| 225 | 2.25 | 36.061   | 10.682  | -35.753 | 62.737  | 60.364   | -3.298   | 95.192   | 7.053    | 110.467  |
| 225 | 3.38 | 105.841  | 32.367  | -20.278 | 38.995  | 178.796  | 74.978   | 134.252  | 110.232  | 172.469  |
| 225 | 4.5  | 145.985  | 47.825  | -4.804  | 15.253  | 251.702  | 126.583  | 146.640  | 178.370  | 199.430  |
| 226 | 0    | 145.743  | 47.651  | -5.198  | 15.743  | 251.132  | 125.970  | 146.912  | 177.592  | 199.580  |
| 226 | 1.13 | 95.721   | 28.938  | 10.855  | -8.125  | 161.166  | 97.004   | 78.024   | 130.135  | 110.207  |
| 226 | 2.25 | 16.064   | 3.997   | 26.908  | -31.993 | 25.673   | 41.365   | -17.535  | 47.639   | -14.207  |
| 226 | 3.38 | -96.633  | -29.045 | 42.960  | -55.861 | -162.431 | -44.009  | -142.831 | -74.654  | -178.417 |
| 226 | 4.5  | -238.965 | -68.315 | 59.013  | -79.729 | -396.061 | -156.055 | -294.798 | -231.988 | -377.667 |
| 227 | 0    | -203.538 | -63.483 | -79.733 | 59.017  | -345.818 | -262.917 | -124.167 | -337.428 | -191.741 |
| 227 | 1.13 | -73.119  | -25.876 | -55.849 | 42.954  | -129.143 | -121.656 | -22.852  | -151.718 | -47.974  |
| 227 | 2.25 | 27.665   | 5.504   | -31.966 | 26.892  | 42.005   | -7.067   | 51.790   | -1.048   | 60.752   |
| 227 | 3.38 | 95.409   | 28.782  | -8.083  | 10.829  | 160.542  | 77.785   | 96.697   | 109.825  | 129.683  |
| 227 | 4.5  | 133.517  | 45.832  | 15.801  | -5.233  | 233.552  | 135.966  | 114.932  | 185.658  | 163.572  |
| 228 | 0    | 133.720  | 45.992  | 15.342  | -4.859  | 234.052  | 135.690  | 115.488  | 185.490  | 164.279  |
| 228 | 1.13 | 84.284   | 29.378  | 38.953  | -20.262 | 148.146  | 114.809  | 55.594   | 147.907  | 85.731   |
| 228 | 2.25 | 5.212    | 6.537   | 62.564  | -35.664 | 16.714   | 67.256   | -30.973  | 75.284   | -27.857  |
| 228 | 3.38 | -106.899 | -24.407 | 86.176  | -51.067 | -167.330 | -10.034  | -147.276 | -37.136  | -181.241 |
| 228 | 4.5  | -248.646 | -61.578 | 109.787 | -66.469 | -396.899 | -113.995 | -290.251 | -184.596 | -369.665 |
| 229 | 0    | -32.464  | -12.320 | -8.098  | 13.227  | -58.669  | -37.315  | -15.991  | -50.352  | -27.961  |
| 229 | 1.13 | -1.920   | -0.032  | -6.218  | 10.558  | -2.356   | -7.946   | 8.830    | -8.565   | 9.049    |
| 229 | 2.25 | 15.673   | 6.438   | -4.338  | 7.889   | 29.108   | 9.767    | 21.995   | 15.957   | 28.796   |
| 229 | 3.38 | 18.202   | 5.927   | -2.458  | 5.220   | 31.325   | 13.923   | 21.602   | 20.264   | 28.327   |
| 229 | 4.5  | 7.780    | -0.402  | -0.578  | 2.551   | 8.692    | 6.424    | 9.553    | 7.308    | 10.594   |
| 230 | 0    | 8.559    | -0.103  | -0.162  | 2.033   | 10.106   | 7.542    | 9.737    | 8.752    | 11.057   |
| 230 | 1.13 | 15.011   | 4.883   | 1.179   | -0.585  | 25.826   | 14.689   | 12.925   | 20.076   | 18.223   |
| 230 | 2.25 | 8.512    | 4.051   | 2.520   | -3.204  | 16.697   | 10.181   | 4.457    | 14.136   | 8.126    |
| 230 | 3.38 | -13.050  | -3.762  | 3.861   | -5.823  | -21.680  | -7.884   | -17.569  | -12.019  | -22.187  |
| 230 | 4.5  | -47.564  | -17.394 | 5.202   | -8.442  | -84.906  | -37.605  | -51.250  | -55.438  | -69.764  |
| 231 | 0    | -43.170  | -16.838 | -8.429  | 5.203   | -78.745  | -47.282  | -33.651  | -64.787  | -50.474  |
| 231 | 1.13 | -9.889   | -3.226  | -5.841  | 3.878   | -17.028  | -14.741  | -5.023   | -18.548  | -8.344   |
| 231 | 2.25 | 10.441   | 4.569   | -3.252  | 2.553   | 19.839   | 6.145    | 11.950   | 10.427   | 16.522   |
| 231 | 3.38 | 15.708   | 5.381   | -0.664  | 1.228   | 27.460   | 13.473   | 15.365   | 19.186   | 21.173   |
| 231 | 4.5  | 8.024    | 0.376   | 1.924   | -0.097  | 10.230   | 9.145    | 7.125    | 10.682   | 8.560    |
| 232 | 0    | 7.651    | 0.201   | 2.374   | -0.474  | 9.503    | 9.260    | 6.412    | 10.653   | 7.663    |
| 232 | 1.13 | 14.334   | 5.715   | 5.285   | -2.502  | 26.344   | 18.186   | 10.398   | 24.200   | 16.023   |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 232 | 2.25 | 8.065    | 5.410   | 8.196   | -4.531  | 18.334   | 15.455   | 2.728    | 20.483   | 7.119    |
| 232 | 3.38 | -13.267  | -1.876  | 11.108  | -6.560  | -18.922  | -0.832   | -18.500  | -3.449   | -22.000  |
| 232 | 4.5  | -47.549  | -14.980 | 14.019  | -8.589  | -81.028  | -28.776  | -51.383  | -44.645  | -68.382  |
| 233 | 0    | -32.464  | -12.320 | -8.098  | 13.227  | -58.669  | -37.315  | -15.990  | -50.351  | -27.960  |
| 233 | 1.13 | -1.920   | -0.032  | -6.218  | 10.558  | -2.355   | -7.946   | 8.830    | -8.565   | 9.050    |
| 233 | 2.25 | 15.673   | 6.438   | -4.338  | 7.889   | 29.109   | 9.767    | 21.995   | 15.958   | 28.796   |
| 233 | 3.38 | 18.202   | 5.927   | -2.458  | 5.220   | 31.325   | 13.924   | 21.602   | 20.265   | 28.327   |
| 233 | 4.5  | 7.780    | -0.402  | -0.578  | 2.551   | 8.693    | 6.424    | 9.554    | 7.309    | 10.595   |
| 234 | 0    | 8.559    | -0.103  | -0.162  | 2.033   | 10.107   | 7.542    | 9.737    | 8.753    | 11.058   |
| 234 | 1.13 | 15.011   | 4.883   | 1.179   | -0.585  | 25.827   | 14.690   | 12.925   | 20.077   | 18.224   |
| 234 | 2.25 | 8.513    | 4.051   | 2.520   | -3.204  | 16.697   | 10.181   | 4.457    | 14.137   | 8.126    |
| 234 | 3.38 | -13.050  | -3.762  | 3.861   | -5.823  | -21.680  | -7.884   | -17.568  | -12.019  | -22.187  |
| 234 | 4.5  | -47.564  | -17.393 | 5.202   | -8.442  | -84.906  | -37.605  | -51.249  | -55.438  | -69.764  |
| 235 | 0    | -43.171  | -16.838 | -8.429  | 5.203   | -78.746  | -47.283  | -33.651  | -64.788  | -50.475  |
| 235 | 1.13 | -9.890   | -3.226  | -5.841  | 3.878   | -17.029  | -14.741  | -5.023   | -18.549  | -8.345   |
| 235 | 2.25 | 10.441   | 4.569   | -3.252  | 2.553   | 19.839   | 6.144    | 11.950   | 10.426   | 16.522   |
| 235 | 3.38 | 15.707   | 5.381   | -0.664  | 1.228   | 27.459   | 13.473   | 15.365   | 19.186   | 21.173   |
| 235 | 4.5  | 8.023    | 0.376   | 1.924   | -0.097  | 10.230   | 9.145    | 7.124    | 10.682   | 8.560    |
| 236 | 0    | 7.651    | 0.201   | 2.374   | -0.474  | 9.503    | 9.260    | 6.412    | 10.653   | 7.663    |
| 236 | 1.13 | 14.333   | 5.714   | 5.285   | -2.502  | 26.343   | 18.185   | 10.398   | 24.200   | 16.023   |
| 236 | 2.25 | 8.065    | 5.410   | 8.196   | -4.531  | 18.334   | 15.455   | 2.728    | 20.483   | 7.119    |
| 236 | 3.38 | -13.266  | -1.876  | 11.108  | -6.560  | -18.922  | -0.832   | -18.500  | -3.449   | -22.000  |
| 236 | 4.5  | -47.549  | -14.980 | 14.019  | -8.589  | -81.027  | -28.775  | -51.383  | -44.644  | -68.382  |
| 237 | 0    | -199.214 | -55.119 | -66.701 | 110.221 | -327.247 | -245.994 | -69.072  | -313.936 | -128.168 |
| 237 | 1.13 | -66.759  | -19.104 | -51.227 | 86.479  | -110.678 | -111.310 | 26.396   | -135.921 | 8.671    |
| 237 | 2.25 | 36.061   | 10.683  | -35.753 | 62.737  | 60.366   | -3.297   | 95.192   | 7.054    | 110.469  |
| 237 | 3.38 | 105.842  | 32.368  | -20.278 | 38.995  | 178.798  | 74.979   | 134.253  | 110.233  | 172.470  |
| 237 | 4.5  | 145.986  | 47.825  | -4.804  | 15.253  | 251.704  | 126.584  | 146.641  | 178.371  | 199.431  |
| 238 | 0    | 145.744  | 47.651  | -5.198  | 15.743  | 251.134  | 125.971  | 146.912  | 177.593  | 199.581  |
| 238 | 1.13 | 95.722   | 28.938  | 10.855  | -8.125  | 161.167  | 97.004   | 78.025   | 130.136  | 110.208  |
| 238 | 2.25 | 16.065   | 3.998   | 26.908  | -31.993 | 25.674   | 41.366   | -17.535  | 47.639   | -14.206  |
| 238 | 3.38 | -96.632  | -29.045 | 42.960  | -55.861 | -162.431 | -44.009  | -142.830 | -74.654  | -178.416 |
| 238 | 4.5  | -238.965 | -68.315 | 59.013  | -79.729 | -396.061 | -156.055 | -294.798 | -231.988 | -377.667 |
| 239 | 0    | -203.539 | -63.483 | -79.733 | 59.017  | -345.819 | -262.917 | -124.168 | -337.429 | -191.742 |
| 239 | 1.13 | -73.119  | -25.876 | -55.849 | 42.954  | -129.145 | -121.657 | -22.853  | -151.719 | -47.975  |
| 239 | 2.25 | 27.664   | 5.504   | -31.966 | 26.892  | 42.003   | -7.068   | 51.790   | -1.049   | 60.751   |
| 239 | 3.38 | 95.408   | 28.782  | -8.083  | 10.829  | 160.540  | 77.785   | 96.697   | 109.824  | 129.682  |
| 239 | 4.5  | 133.516  | 45.832  | 15.801  | -5.233  | 233.551  | 135.965  | 114.931  | 185.657  | 163.571  |
| 240 | 0    | 133.719  | 45.992  | 15.342  | -4.859  | 234.050  | 135.689  | 115.488  | 185.489  | 164.278  |
| 240 | 1.13 | 84.283   | 29.378  | 38.953  | -20.262 | 148.145  | 114.808  | 55.593   | 147.907  | 85.731   |
| 240 | 2.25 | 5.212    | 6.537   | 62.564  | -35.664 | 16.713   | 67.255   | -30.974  | 75.283   | -27.857  |
| 240 | 3.38 | -106.899 | -24.407 | 86.176  | -51.067 | -167.330 | -10.034  | -147.276 | -37.136  | -181.241 |
| 240 | 4.5  | -248.646 | -61.577 | 109.787 | -66.469 | -396.899 | -113.994 | -290.251 | -184.596 | -369.665 |
| 241 | 0    | -53.157  | -19.619 | -7.592  | 12.463  | -95.179  | -55.434  | -35.379  | -76.147  | -55.089  |
| 241 | 1.13 | -12.028  | -2.511  | -5.822  | 9.921   | -18.451  | -16.647  | -0.904   | -20.324  | -3.794   |
| 241 | 2.25 | 14.664   | 7.961   | -4.051  | 7.379   | 30.334   | 9.147    | 20.577   | 16.159   | 28.160   |
| 241 | 3.38 | 22.222   | 9.209   | -2.280  | 4.837   | 41.402   | 17.720   | 24.837   | 26.741   | 34.214   |
| 241 | 4.5  | 15.343   | 3.822   | -0.509  | 2.296   | 24.526   | 13.299   | 16.104   | 17.982   | 20.928   |
| 242 | 0    | 15.296   | 3.971   | -0.160  | 1.866   | 24.709   | 13.606   | 15.632   | 18.394   | 20.522   |
| 242 | 1.13 | 20.725   | 8.033   | 0.975   | -0.434  | 37.723   | 19.628   | 18.219   | 27.846   | 26.367   |
| 242 | 2.25 | 11.717   | 5.458   | 2.110   | -2.733  | 22.793   | 12.655   | 7.812    | 17.956   | 12.871   |
| 242 | 3.38 | -16.425  | -6.340  | 3.245   | -5.033  | -29.854  | -11.538  | -19.816  | -17.833  | -26.525  |
| 242 | 4.5  | -59.005  | -24.774 | 4.380   | -7.333  | -110.444 | -48.724  | -60.437  | -72.964  | -85.262  |
| 243 | 0    | -56.913  | -24.445 | -7.313  | 4.367   | -107.407 | -58.534  | -46.855  | -82.837  | -70.573  |
| 243 | 1.13 | -15.072  | -6.141  | -5.022  | 3.238   | -27.911  | -18.587  | -10.326  | -24.967  | -16.294  |
| 243 | 2.25 | 12.332   | 5.526   | -2.732  | 2.109   | 23.640   | 8.367    | 13.208   | 13.562   | 18.644   |
| 243 | 3.38 | 20.603   | 7.971   | -0.442  | 0.979   | 37.476   | 18.101   | 19.522   | 26.191   | 27.683   |
| 243 | 4.5  | 14.435   | 3.778   | 1.849   | -0.150  | 23.368   | 14.840   | 12.842   | 19.479   | 17.380   |
| 244 | 0    | 14.335   | 3.613   | 2.276   | -0.498  | 22.983   | 15.178   | 12.403   | 19.718   | 16.805   |
| 244 | 1.13 | 20.448   | 8.927   | 4.823   | -2.273  | 38.820   | 23.225   | 16.130   | 32.158   | 24.707   |
| 244 | 2.25 | 12.123   | 7.604   | 7.369   | -4.047  | 26.713   | 18.279   | 6.863    | 25.256   | 13.269   |
| 244 | 3.38 | -15.336  | -2.942  | 9.915   | -5.822  | -23.110  | -3.887   | -19.624  | -7.545   | -24.069  |
| 244 | 4.5  | -57.232  | -20.124 | 12.461  | -7.596  | -100.877 | -39.048  | -59.105  | -59.687  | -80.748  |
| 245 | 0    | -231.480 | -64.161 | -61.056 | 100.427 | -380.434 | -269.388 | -107.905 | -347.584 | -178.028 |
| 245 | 1.13 | -86.592  | -23.211 | -46.868 | 78.769  | -141.049 | -124.801 | 0.836    | -154.756 | -22.338  |
| 245 | 2.25 | 27.916   | 11.103  | -32.680 | 57.111  | 51.263   | -7.556   | 82.236   | 1.992    | 96.273   |
| 245 | 3.38 | 107.350  | 36.194  | -18.492 | 35.454  | 186.730  | 78.123   | 132.068  | 116.103  | 172.746  |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 245 | 4.5  | 156.404  | 54.648  | -4.304  | 13.796  | 275.122  | 136.460  | 154.560  | 194.133  | 213.139  |
| 246 | 0    | 156.305  | 54.479  | -4.652  | 14.246  | 274.733  | 136.023  | 154.921  | 193.558  | 213.401  |
| 246 | 1.13 | 103.350  | 32.971  | 10.172  | -7.680  | 176.774  | 103.187  | 85.335   | 139.970  | 121.225  |
| 246 | 2.25 | 20.016   | 4.826   | 24.995  | -29.607 | 31.741   | 43.009   | -11.593  | 50.302   | -7.030   |
| 246 | 3.38 | -98.393  | -32.541 | 39.818  | -51.533 | -170.138 | -48.735  | -140.087 | -82.004  | -177.924 |
| 246 | 4.5  | -247.181 | -76.545 | 54.642  | -73.460 | -419.090 | -167.821 | -295.923 | -250.390 | -384.897 |
| 247 | 0    | -232.747 | -74.619 | -73.340 | 54.614  | -398.686 | -282.812 | -154.859 | -368.401 | -234.050 |
| 247 | 1.13 | -88.458  | -31.238 | -51.457 | 39.803  | -156.131 | -131.069 | -39.809  | -166.591 | -70.768  |
| 247 | 2.25 | 25.452   | 5.505   | -29.574 | 24.993  | 39.351   | -6.667   | 47.900   | -0.860   | 56.435   |
| 247 | 3.38 | 104.287  | 33.026  | -7.691  | 10.182  | 177.987  | 86.168   | 104.041  | 122.233  | 141.000  |
| 247 | 4.5  | 152.744  | 53.911  | 14.192  | -4.628  | 269.549  | 151.661  | 132.841  | 209.246  | 189.485  |
| 248 | 0    | 152.877  | 54.084  | 13.743  | -4.281  | 269.987  | 151.333  | 133.308  | 209.024  | 190.099  |
| 248 | 1.13 | 99.683   | 35.104  | 35.359  | -18.456 | 175.786  | 125.073  | 71.259   | 163.909  | 107.404  |
| 248 | 2.25 | 16.109   | 9.487   | 56.974  | -32.630 | 34.511   | 71.472   | -18.132  | 82.714   | -11.370  |
| 248 | 3.38 | -102.539 | -25.352 | 78.589  | -46.804 | -163.610 | -13.696  | -139.090 | -41.119  | -172.782 |
| 248 | 4.5  | -251.567 | -66.828 | 100.205 | -60.979 | -408.804 | -126.205 | -287.389 | -201.031 | -370.274 |
| 249 | 0    | -54.964  | -19.852 | -6.723  | 10.550  | -97.720  | -56.190  | -38.918  | -77.278  | -59.142  |
| 249 | 1.13 | -12.885  | -2.585  | -5.150  | 8.407   | -19.599  | -16.746  | -3.190   | -20.566  | -6.331   |
| 249 | 2.25 | 14.756   | 8.044   | -3.577  | 6.264   | 30.578   | 9.704    | 19.544   | 16.806   | 27.139   |
| 249 | 3.38 | 23.263   | 9.452   | -2.003  | 4.122   | 43.039   | 18.934   | 25.058   | 28.277   | 34.709   |
| 249 | 4.5  | 17.333   | 4.222   | -0.430  | 1.979   | 27.555   | 15.170   | 17.579   | 20.408   | 22.938   |
| 250 | 0    | 17.488   | 4.428   | -0.158  | 1.648   | 28.070   | 15.581   | 17.387   | 20.986   | 22.883   |
| 250 | 1.13 | 21.774   | 8.238   | 0.873   | -0.379  | 39.310   | 20.470   | 19.218   | 28.970   | 27.655   |
| 250 | 2.25 | 11.623   | 5.411   | 1.904   | -2.406  | 22.605   | 12.365   | 8.055    | 17.612   | 13.087   |
| 250 | 3.38 | -17.661  | -6.639  | 2.935   | -4.433  | -31.815  | -12.960  | -20.328  | -19.645  | -27.381  |
| 250 | 4.5  | -61.384  | -25.325 | 3.966   | -6.460  | -114.180 | -51.280  | -61.705  | -76.243  | -87.190  |
| 251 | 0    | -60.524  | -25.216 | -6.447  | 3.961   | -112.975 | -60.919  | -50.510  | -86.206  | -75.277  |
| 251 | 1.13 | -17.076  | -6.565  | -4.425  | 2.932   | -30.996  | -19.794  | -12.436  | -26.712  | -18.987  |
| 251 | 2.25 | 11.934   | 5.449   | -2.403  | 1.903   | 23.039   | 8.337    | 12.644   | 13.440   | 17.962   |
| 251 | 3.38 | 21.811   | 8.241   | -0.381  | 0.874   | 39.358   | 19.248   | 20.504   | 27.693   | 29.011   |
| 251 | 4.5  | 17.250   | 4.396   | 1.641   | -0.154  | 27.733   | 17.166   | 15.370   | 22.604   | 20.719   |
| 252 | 0    | 17.036   | 4.182   | 1.971   | -0.426  | 27.134   | 17.303   | 14.906   | 22.591   | 20.075   |
| 252 | 1.13 | 22.611   | 9.363   | 4.110   | -1.999  | 42.114   | 24.460   | 18.350   | 33.956   | 27.541   |
| 252 | 2.25 | 13.748   | 7.908   | 6.250   | -3.572  | 29.150   | 18.623   | 8.801    | 25.980   | 15.666   |
| 252 | 3.38 | -14.248  | -2.770  | 8.390   | -5.145  | -21.530  | -4.434   | -17.969  | -7.896   | -22.108  |
| 252 | 4.5  | -56.682  | -20.085 | 10.529  | -6.718  | -100.154 | -40.484  | -57.732  | -61.114  | -79.224  |
| 253 | 0    | -20.471  | -9.471  | -6.119  | 8.009   | -39.719  | -24.544  | -10.416  | -33.887  | -19.053  |
| 253 | 1.13 | 4.083    | 2.097   | -4.010  | 5.469   | 8.256    | -0.335   | 9.144    | 1.398    | 11.351   |
| 253 | 2.25 | 14.200   | 7.029   | -1.901  | 2.929   | 28.287   | 10.879   | 15.709   | 17.342   | 22.414   |
| 253 | 3.38 | 5.184    | 2.738   | 0.208   | 0.389   | 10.601   | 4.873    | 5.055    | 7.386    | 7.577    |
| 253 | 4.5  | -18.271  | -8.189  | 2.317   | -2.150  | -35.028  | -14.127  | -18.594  | -21.911  | -26.601  |
| 254 | 0    | -20.774  | -8.862  | -1.270  | 1.334   | -39.108  | -19.967  | -17.362  | -28.729  | -25.994  |
| 254 | 1.13 | 3.418    | 1.883   | -0.581  | 0.510   | 7.114    | 2.495    | 3.586    | 4.165    | 5.310    |
| 254 | 2.25 | 13.171   | 5.991   | 0.109   | -0.315  | 25.391   | 11.963   | 11.539   | 17.719   | 17.274   |
| 254 | 3.38 | 3.791    | 0.877   | 0.799   | -1.139  | 5.952    | 4.211    | 2.273    | 5.372    | 3.337    |
| 254 | 4.5  | -20.026  | -10.874 | 1.489   | -1.964  | -41.431  | -16.535  | -19.988  | -26.316  | -29.941  |
| 255 | 0    | -19.860  | -10.849 | -1.968  | 1.491   | -41.190  | -19.842  | -16.383  | -29.754  | -26.122  |
| 255 | 1.13 | 3.918    | 0.894   | -1.141  | 0.799   | 6.132    | 2.384    | 4.325    | 3.478    | 5.516    |
| 255 | 2.25 | 13.257   | 6.001   | -0.315  | 0.108   | 25.510   | 11.617   | 12.040   | 17.370   | 17.814   |
| 255 | 3.38 | 3.463    | 1.885   | 0.512   | -0.583  | 7.172    | 3.629    | 2.534    | 5.361    | 4.212    |
| 255 | 4.5  | -20.768  | -8.868  | 1.338   | -1.275  | -39.110  | -17.353  | -19.966  | -25.988  | -28.732  |
| 256 | 0    | -18.174  | -8.184  | -2.143  | 2.321   | -34.903  | -18.500  | -14.035  | -26.489  | -21.801  |
| 256 | 1.13 | 5.086    | 2.721   | 0.391   | 0.210   | 10.457   | 4.968    | 4.787    | 7.465    | 7.275    |
| 256 | 2.25 | 13.908   | 6.990   | 2.925   | -1.902  | 27.873   | 15.442   | 10.615   | 22.078   | 17.010   |
| 256 | 3.38 | 3.597    | 2.036   | 5.459   | -4.013  | 7.573    | 8.696    | -0.776   | 10.791   | 0.845    |
| 256 | 4.5  | -21.153  | -9.555  | 7.993   | -6.125  | -40.670  | -11.045  | -25.162  | -19.837  | -34.661  |
| 257 | 0    | -144.714 | -46.622 | 2.740   | -2.257  | -248.251 | -127.502 | -132.499 | -178.444 | -183.691 |
| 257 | 0.75 | -84.825  | -26.295 | 1.684   | -1.297  | -143.862 | -74.658  | -77.639  | -103.864 | -106.994 |
| 257 | 1.50 | -31.874  | -8.037  | 0.628   | -0.337  | -51.108  | -28.058  | -29.023  | -37.871  | -38.885  |
| 257 | 2.25 | 11.636   | 6.773   | -0.427  | 0.623   | 24.800   | 10.045   | 11.096   | 16.036   | 17.139   |
| 257 | 3    | 48.209   | 19.515  | -1.483  | 1.583   | 89.074   | 41.905   | 44.971   | 61.356   | 64.576   |
| 258 | 0    | 43.762   | 18.295  | -1.440  | 1.574   | 81.786   | 37.946   | 40.960   | 55.964   | 59.129   |
| 258 | 0.75 | 40.883   | 14.592  | -1.057  | 1.073   | 72.407   | 35.738   | 37.868   | 51.011   | 53.247   |
| 258 | 1.5  | 31.066   | 8.821   | -0.673  | 0.572   | 51.393   | 27.287   | 28.532   | 37.470   | 38.778   |
| 258 | 2.25 | 11.809   | -0.399  | -0.289  | 0.071   | 13.533   | 10.339   | 10.699   | 11.844   | 12.223   |
| 258 | 3    | -14.387  | -11.686 | 0.095   | -0.430  | -35.962  | -12.853  | -13.378  | -22.369  | -22.919  |
| 259 | 0    | -30.943  | -17.087 | 0.263   | -0.330  | -64.471  | -27.586  | -28.179  | -42.979  | -43.602  |



|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 259 | 0.75 | -8.330   | -5.700  | 0.087  | -0.136 | -19.116  | -7.410   | -7.633   | -12.246  | -12.481  |
| 259 | 1.5  | 9.466    | 3.619   | -0.089 | 0.058  | 17.150   | 8.430    | 8.577    | 12.126   | 12.280   |
| 259 | 2.25 | 19.940   | 9.490   | -0.265 | 0.251  | 39.113   | 17.682   | 18.198   | 26.638   | 27.180   |
| 259 | 3    | 25.599   | 13.293  | -0.441 | 0.445  | 51.987   | 22.598   | 23.484   | 34.790   | 35.721   |
| 260 | 0    | 25.916   | 13.355  | -0.448 | 0.473  | 52.467   | 22.877   | 23.797   | 35.155   | 36.122   |
| 260 | 0.75 | 17.299   | 8.685   | -0.209 | 0.205  | 34.655   | 15.360   | 15.775   | 23.416   | 23.851   |
| 260 | 1.5  | 3.866    | 1.947   | 0.029  | -0.062 | 7.754    | 3.508    | 3.417    | 5.316    | 5.220    |
| 260 | 2.25 | -16.889  | -8.239  | 0.267  | -0.330 | -33.450  | -14.933  | -15.530  | -22.644  | -23.270  |
| 260 | 3    | -42.461  | -20.494 | 0.506  | -0.597 | -83.743  | -37.709  | -38.812  | -56.964  | -58.122  |
| 261 | 0    | -41.627  | -20.359 | 0.510  | -0.542 | -82.527  | -36.954  | -38.006  | -55.999  | -57.104  |
| 261 | 0.75 | -16.212  | -8.087  | 0.261  | -0.274 | -32.392  | -14.330  | -14.864  | -21.843  | -22.404  |
| 261 | 1.5  | 4.387    | 2.117   | 0.011  | -0.006 | 8.652    | 3.960    | 3.943    | 5.952    | 5.935    |
| 261 | 2.25 | 17.665   | 8.874   | -0.238 | 0.262  | 35.396   | 15.660   | 16.161   | 23.888   | 24.414   |
| 261 | 3    | 26.126   | 13.561  | -0.488 | 0.531  | 53.049   | 23.025   | 24.044   | 35.463   | 36.533   |
| 262 | 0    | 26.153   | 13.584  | -0.481 | 0.531  | 53.119   | 23.057   | 24.069   | 35.514   | 36.577   |
| 262 | 0.75 | 19.099   | 9.560   | -0.256 | 0.276  | 38.215   | 16.933   | 17.465   | 25.807   | 26.366   |
| 262 | 1.5  | 7.228    | 3.467   | -0.032 | 0.021  | 14.220   | 6.474    | 6.526    | 9.740    | 9.795    |
| 262 | 2.25 | -11.964  | -6.074  | 0.193  | -0.235 | -24.076  | -10.575  | -11.002  | -16.186  | -16.636  |
| 262 | 3    | -35.973  | -17.684 | 0.418  | -0.490 | -71.461  | -31.958  | -32.866  | -48.474  | -49.427  |
| 263 | 0    | 1.467    | -0.335  | 0.010  | 0.007  | 1.224    | 1.330    | 1.328    | 1.339    | 1.337    |
| 263 | 1.5  | 21.622   | -0.183  | 0.003  | 0.002  | 25.654   | 19.462   | 19.461   | 22.591   | 22.590   |
| 263 | 3    | 15.292   | -0.030  | -0.004 | -0.004 | 18.302   | 13.758   | 13.759   | 16.033   | 16.033   |
| 263 | 4.5  | -17.523  | 0.123   | -0.011 | -0.009 | -20.831  | -15.782  | -15.780  | -18.333  | -18.332  |
| 263 | 6    | -76.823  | 0.276   | -0.017 | -0.015 | -91.746  | -69.158  | -69.156  | -80.509  | -80.506  |
| 264 | 0    | -27.179  | -12.780 | 0.325  | -0.366 | -53.063  | -24.136  | -24.827  | -36.248  | -36.974  |
| 264 | 0.56 | -12.659  | -5.870  | 0.156  | -0.178 | -24.584  | -11.237  | -11.571  | -16.826  | -17.177  |
| 264 | 1.13 | -0.320   | 0.167   | -0.013 | 0.010  | -0.118   | -0.302   | -0.278   | -0.245   | -0.221   |
| 264 | 1.69 | 8.780    | 4.750   | -0.182 | 0.198  | 18.136   | 7.720    | 8.101    | 12.020   | 12.420   |
| 264 | 2.25 | 15.700   | 8.460   | -0.352 | 0.387  | 32.376   | 13.779   | 14.517   | 21.446   | 22.221   |
| 265 | 0    | 16.095   | 8.797   | -0.361 | 0.399  | 33.389   | 14.124   | 14.885   | 22.062   | 22.861   |
| 265 | 0.56 | 10.185   | 5.400   | -0.212 | 0.227  | 20.863   | 8.955    | 9.393    | 13.874   | 14.335   |
| 265 | 1.13 | 2.094    | 1.131   | -0.063 | 0.054  | 4.323    | 1.822    | 1.939    | 2.846    | 2.968    |
| 265 | 1.69 | -9.234   | -4.593  | 0.087  | -0.118 | -13.430  | -8.224   | -8.429   | -12.498  | -12.714  |
| 265 | 2.25 | -22.744  | -11.189 | 0.236  | -0.291 | -45.196  | -20.233  | -20.760  | -30.682  | -31.236  |
| 266 | 0    | -144.714 | -46.622 | 2.740  | -2.257 | -248.251 | -127.502 | -132.499 | -178.444 | -183.690 |
| 266 | 0.75 | -84.825  | -26.295 | 1.684  | -1.297 | -143.862 | -74.658  | -77.639  | -103.864 | -106.994 |
| 266 | 1.5  | -31.874  | -8.037  | 0.628  | -0.337 | -51.108  | -28.058  | -29.023  | -37.871  | -38.884  |
| 266 | 2.25 | 11.636   | 6.773   | -0.427 | 0.623  | 24.800   | 10.045   | 11.096   | 16.036   | 17.139   |
| 266 | 3    | 48.209   | 19.515  | -1.483 | 1.583  | 89.074   | 41.905   | 44.971   | 61.356   | 64.576   |
| 267 | 0    | 43.762   | 18.295  | -1.440 | 1.574  | 81.786   | 37.946   | 40.960   | 55.964   | 59.129   |
| 267 | 0.75 | 40.883   | 14.592  | -1.057 | 1.073  | 72.407   | 35.738   | 37.868   | 51.011   | 53.247   |
| 267 | 1.5  | 31.067   | 8.821   | -0.673 | 0.572  | 51.393   | 27.287   | 28.532   | 37.470   | 38.778   |
| 267 | 2.25 | 11.809   | -0.399  | -0.289 | 0.071  | 13.533   | 10.339   | 10.699   | 11.844   | 12.223   |
| 267 | 3    | -14.387  | -11.686 | 0.095  | -0.430 | -35.962  | -12.853  | -13.378  | -22.369  | -22.919  |
| 268 | 0    | -37.283  | 0.178   | -0.007 | -0.010 | -44.455  | -33.562  | -33.565  | -39.042  | -39.046  |
| 268 | 1.5  | 3.159    | 0.106   | -0.003 | -0.005 | 3.961    | 2.840    | 2.839    | 3.381    | 3.379    |
| 268 | 3    | 17.116   | 0.034   | 0.001  | 0.001  | 20.595   | 15.406   | 15.406   | 17.995   | 17.995   |
| 268 | 4.5  | 4.589    | -0.037  | 0.006  | 0.007  | 5.447    | 4.136    | 4.137    | 4.801    | 4.802    |
| 268 | 6    | -34.423  | -0.109  | 0.010  | 0.012  | -41.482  | -30.971  | -30.969  | -36.203  | -36.200  |
| 269 | 0    | -30.943  | -17.087 | 0.263  | -0.330 | -64.471  | -27.586  | -28.179  | -42.979  | -43.602  |
| 269 | 0.75 | -8.330   | -5.700  | 0.087  | -0.136 | -19.116  | -7.410   | -7.633   | -12.246  | -12.481  |
| 269 | 1.5  | 9.466    | 3.619   | -0.089 | 0.058  | 17.150   | 8.430    | 8.577    | 12.126   | 12.280   |
| 269 | 2.25 | 19.940   | 9.490   | -0.265 | 0.251  | 39.113   | 17.682   | 18.198   | 26.638   | 27.180   |
| 269 | 3    | 25.598   | 13.293  | -0.441 | 0.445  | 51.987   | 22.598   | 23.484   | 34.790   | 35.720   |
| 270 | 0    | 25.916   | 13.355  | -0.448 | 0.473  | 52.467   | 22.877   | 23.797   | 35.155   | 36.122   |
| 270 | 0.75 | 17.299   | 8.685   | -0.209 | 0.205  | 34.655   | 15.360   | 15.775   | 23.416   | 23.851   |
| 270 | 1.5  | 3.866    | 1.947   | 0.029  | -0.062 | 7.753    | 3.508    | 3.417    | 5.316    | 5.220    |
| 270 | 2.25 | -16.889  | -8.239  | 0.267  | -0.330 | -33.450  | -14.933  | -15.530  | -22.644  | -23.271  |
| 270 | 3    | -42.461  | -20.494 | 0.506  | -0.597 | -83.744  | -37.709  | -38.812  | -56.964  | -58.122  |
| 271 | 0    | -41.628  | -20.360 | 0.510  | -0.542 | -82.529  | -36.955  | -38.007  | -56.000  | -57.105  |
| 271 | 0.75 | -16.212  | -8.087  | 0.261  | -0.274 | -32.393  | -14.330  | -14.864  | -21.844  | -22.405  |
| 271 | 1.5  | 4.387    | 2.117   | 0.011  | -0.006 | 8.653    | 3.960    | 3.943    | 5.952    | 5.935    |
| 271 | 2.25 | 17.665   | 8.874   | -0.238 | 0.262  | 35.397   | 15.661   | 16.161   | 23.889   | 24.415   |
| 271 | 3    | 26.127   | 13.562  | -0.488 | 0.531  | 53.051   | 23.026   | 24.045   | 35.465   | 36.534   |
| 272 | 0    | 26.154   | 13.585  | -0.481 | 0.531  | 53.121   | 23.058   | 24.070   | 35.515   | 36.579   |
| 272 | 0.75 | 19.101   | 9.561   | -0.256 | 0.276  | 38.219   | 16.935   | 17.467   | 25.810   | 26.369   |
| 272 | 1.5  | 7.231    | 3.468   | -0.032 | 0.021  | 14.226   | 6.476    | 6.529    | 9.744    | 9.799    |



|     |      |          |         |         |          |          |          |          |          |          |
|-----|------|----------|---------|---------|----------|----------|----------|----------|----------|----------|
| 272 | 2.25 | -11.960  | -6.072  | 0.193   | -0.235   | -24.067  | -10.571  | -10.999  | -16.181  | -16.630  |
| 272 | 3    | -35.968  | -17.681 | 0.418   | -0.490   | -71.451  | -31.953  | -32.861  | -48.467  | -49.420  |
| 273 | 0    | -27.163  | -12.772 | 0.325   | -0.366   | -53.030  | -24.121  | -24.813  | -36.226  | -36.952  |
| 273 | 0.56 | -12.647  | -5.864  | 0.156   | -0.178   | -24.559  | -11.226  | -11.560  | -16.810  | -17.161  |
| 273 | 1.13 | -0.313   | 0.171   | -0.013  | 0.010    | -0.101   | -0.294   | -0.271   | -0.234   | -0.210   |
| 273 | 1.69 | 8.784    | 4.752   | -0.182  | 0.198    | 18.144   | 7.724    | 8.104    | 12.026   | 12.425   |
| 273 | 2.25 | 15.700   | 8.460   | -0.352  | 0.387    | 32.375   | 13.778   | 14.517   | 21.445   | 22.221   |
| 274 | 0    | 16.098   | 8.799   | -0.361  | 0.399    | 33.396   | 14.127   | 14.888   | 22.067   | 22.865   |
| 274 | 0.56 | 10.179   | 5.397   | -0.212  | 0.227    | 20.850   | 8.949    | 9.388    | 13.866   | 14.326   |
| 274 | 1.13 | 2.079    | 1.122   | -0.063  | 0.054    | 4.290    | 1.808    | 1.925    | 2.824    | 2.947    |
| 274 | 1.69 | -9.259   | -4.607  | 0.087   | -0.118   | -18.482  | -8.246   | -8.452   | -12.533  | -12.749  |
| 274 | 2.25 | -22.778  | -11.208 | 0.236   | -0.291   | -45.267  | -20.264  | -20.791  | -30.730  | -31.284  |
| 275 | 0    | 23.661   | 4.734   | 0.993   | -0.832   | 35.968   | 22.288   | 20.463   | 28.870   | 26.953   |
| 275 | 0.75 | 20.412   | 3.275   | 0.725   | -0.623   | 29.735   | 19.097   | 17.748   | 24.258   | 22.842   |
| 275 | 1.5  | 12.105   | 0.781   | 0.457   | -0.414   | 15.776   | 11.352   | 10.480   | 13.683   | 12.768   |
| 275 | 2.25 | -2.514   | -3.436  | 0.189   | -0.205   | -8.514   | -2.073   | -2.467   | -4.605   | -5.019   |
| 275 | 3    | -22.191  | -8.687  | -0.079  | 0.004    | -40.529  | -20.051  | -19.968  | -28.857  | -28.770  |
| 276 | 0    | 23.662   | 4.735   | 0.993   | -0.832   | 35.971   | 22.290   | 20.464   | 28.872   | 26.955   |
| 276 | 0.75 | 20.399   | 3.268   | 0.725   | -0.623   | 29.707   | 19.084   | 17.736   | 24.239   | 22.823   |
| 276 | 1.5  | 12.076   | 0.766   | 0.457   | -0.414   | 15.717   | 11.326   | 10.455   | 13.643   | 12.728   |
| 276 | 2.25 | -2.557   | -3.459  | 0.189   | -0.205   | -8.604   | -2.112   | -2.506   | -4.666   | -5.079   |
| 276 | 3    | -22.249  | -8.719  | -0.079  | 0.004    | -40.650  | -20.103  | -20.020  | -28.938  | -28.851  |
| 279 | 0    | -207.320 | -63.211 | -93.939 | 97.673   | -349.922 | -280.527 | -88.915  | -356.145 | -154.952 |
| 279 | 1.13 | -73.612  | -25.128 | -70.018 | 72.364   | -128.538 | -136.269 | 6.113    | -166.642 | -17.141  |
| 279 | 2.25 | 30.462   | 6.728   | -46.097 | 47.054   | 47.319   | -18.682  | 74.470   | -12.179  | 85.630   |
| 279 | 3.38 | 101.495  | 30.482  | -22.177 | 21.745   | 170.565  | 69.169   | 113.090  | 102.488  | 148.606  |
| 279 | 4.5  | 142.893  | 48.009  | 1.744   | -3.565   | 248.285  | 130.348  | 125.039  | 182.114  | 176.540  |
| 280 | 0    | 143.108  | 48.123  | 1.226   | -3.032   | 248.726  | 130.024  | 125.766  | 181.869  | 177.397  |
| 280 | 1.13 | 94.729   | 31.304  | 24.297  | -27.566  | 163.761  | 109.553  | 57.690   | 144.699  | 90.242   |
| 280 | 2.25 | 16.714   | 8.257   | 47.368  | -52.100  | 33.269   | 62.410   | -37.057  | 72.488   | -31.953  |
| 280 | 3.38 | -94.340  | -22.891 | 70.438  | -76.635  | -149.834 | -14.468  | -161.541 | -39.519  | -193.945 |
| 280 | 4.5  | -235.031 | -60.266 | 93.509  | -101.169 | -378.463 | -118.019 | -312.696 | -186.566 | -390.977 |
| 283 | 0    | -207.293 | -63.196 | -93.939 | 97.673   | -349.864 | -280.502 | -88.890  | -356.106 | -154.914 |
| 283 | 1.13 | -73.590  | -25.115 | -70.018 | 72.364   | -128.492 | -136.249 | 6.133    | -166.611 | -17.110  |
| 283 | 2.25 | 30.478   | 6.737   | -46.097 | 47.054   | 47.353   | -18.667  | 74.485   | -12.156  | 85.653   |
| 283 | 3.38 | 101.506  | 30.488  | -22.177 | 21.745   | 170.588  | 69.179   | 113.100  | 102.503  | 148.621  |
| 283 | 4.5  | 142.898  | 48.011  | 1.744   | -3.565   | 248.296  | 130.352  | 125.044  | 182.121  | 176.547  |
| 284 | 0    | 143.114  | 48.126  | 1.226   | -3.032   | 248.738  | 130.029  | 125.770  | 181.876  | 177.405  |
| 284 | 1.13 | 94.731   | 31.305  | 24.297  | -27.566  | 163.764  | 109.555  | 57.691   | 144.701  | 90.245   |
| 284 | 2.25 | 16.712   | 8.256   | 47.368  | -52.100  | 33.265   | 62.409   | -37.059  | 72.485   | -31.956  |
| 284 | 3.38 | -94.346  | -22.894 | 70.438  | -76.635  | -149.846 | -14.474  | -161.546 | -39.527  | -193.953 |
| 284 | 4.5  | -235.040 | -60.272 | 93.509  | -101.169 | -378.483 | -118.028 | -312.705 | -186.579 | -390.991 |
| 287 | 0    | -35.181  | 0.232   | -0.006  | -0.008   | -41.846  | -31.669  | -31.671  | -36.800  | -36.803  |
| 287 | 1.5  | 4.530    | 0.091   | -0.003  | -0.004   | 5.581    | 4.073    | 4.072    | 4.810    | 4.809    |
| 287 | 3    | 17.755   | -0.050  | 0.000   | 0.000    | 21.226   | 15.979   | 15.979   | 18.611   | 18.611   |
| 287 | 4.5  | 4.496    | -0.191  | 0.002   | 0.004    | 5.090    | 4.049    | 4.050    | 4.603    | 4.604    |
| 287 | 6    | -35.247  | -0.532  | 0.005   | 0.008    | -42.829  | -31.717  | -31.715  | -37.214  | -37.211  |
| 288 | 0    | -18.844  | 0.042   | -0.044  | -0.069   | -22.546  | -17.004  | -17.029  | -19.806  | -19.832  |
| 288 | 0.75 | 19.661   | 9.857   | -0.037  | -0.058   | 39.365   | 17.659   | 17.638   | 26.816   | 26.794   |
| 288 | 1.5  | 46.265   | 17.604  | -0.029  | -0.046   | 83.684   | 41.610   | 41.593   | 59.638   | 59.621   |
| 288 | 2.25 | 58.463   | 21.903  | -0.021  | -0.034   | 105.200  | 52.595   | 52.582   | 75.162   | 75.149   |
| 288 | 3    | 58.758   | 24.134  | -0.014  | -0.023   | 109.124  | 52.869   | 52.860   | 76.886   | 76.877   |
| 289 | 0    | 64.770   | 25.682  | -0.030  | -0.040   | 118.815  | 58.263   | 58.254   | 84.156   | 84.147   |
| 289 | 0.75 | 18.286   | 9.694   | 0.008   | 0.008    | 37.453   | 16.465   | 16.465   | 25.315   | 25.315   |
| 289 | 1.5  | -40.101  | -8.362  | 0.046   | 0.055    | -61.501  | -36.045  | -36.036  | -47.326  | -47.317  |
| 289 | 2.25 | -112.894 | -29.866 | 0.085   | 0.102    | -183.258 | -101.520 | -101.502 | -137.265 | -137.247 |
| 289 | 3    | -197.588 | -53.439 | 0.123   | 0.149    | -322.608 | -177.706 | -177.680 | -241.005 | -240.977 |
| 294 | 0    | -144.912 | -46.764 | -2.092  | 2.760    | -248.717 | -132.513 | -127.661 | -183.815 | -178.721 |
| 294 | 0.75 | -85.018  | -26.418 | -1.158  | 1.700    | -144.291 | -77.675  | -74.817  | -107.129 | -104.128 |
| 294 | 1.5  | -32.062  | -8.141  | -0.225  | 0.640    | -51.499  | -29.080  | -28.216  | -39.029  | -38.121  |
| 294 | 2.25 | 11.454   | 6.689   | 0.709   | -0.420   | 24.446   | 11.017   | 9.888    | 16.985   | 15.799   |
| 294 | 3    | 48.032   | 19.450  | 1.642   | -1.480   | 88.758   | 44.871   | 41.748   | 64.411   | 61.133   |
| 295 | 0    | 43.584   | 18.229  | 1.635   | -1.438   | 81.468   | 40.860   | 37.787   | 58.964   | 55.737   |
| 295 | 0.75 | 40.769   | 14.548  | 1.117   | -1.059   | 72.201   | 37.810   | 35.634   | 53.147   | 50.862   |
| 295 | 1.5  | 31.018   | 8.799   | 0.600   | -0.679   | 51.299   | 28.516   | 27.237   | 38.742   | 37.399   |
| 295 | 2.25 | 11.825   | -0.398  | 0.082   | -0.299   | 13.552   | 10.724   | 10.343   | 12.251   | 11.851   |
| 295 | 3    | -14.306  | -11.664 | -0.435  | 0.080    | -35.830  | -13.311  | -12.795  | -22.827  | -22.285  |

|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 296 | 0    | -30.907 | -17.083 | -0.338 | 0.267  | -64.421 | -28.154 | -27.550 | -43.570 | -42.934 |
| 296 | 0.75 | -8.316  | -5.697  | -0.143 | 0.090  | -19.095 | -7.627  | -7.395  | -12.471 | -12.227 |
| 296 | 1.5  | 9.458   | 3.620   | 0.053  | -0.087 | 17.141  | 8.564   | 8.425   | 12.266  | 12.119  |
| 296 | 2.25 | 19.910  | 9.490   | 0.248  | -0.264 | 39.076  | 18.167  | 17.655  | 27.145  | 26.607  |
| 296 | 3    | 25.546  | 13.291  | 0.443  | -0.441 | 51.920  | 23.435  | 22.550  | 35.662  | 34.733  |
| 297 | 0    | 25.858  | 13.351  | 0.472  | -0.449 | 52.391  | 23.744  | 22.823  | 36.057  | 35.091  |
| 297 | 0.75 | 17.282  | 8.689   | 0.206  | -0.212 | 34.641  | 15.760  | 15.342  | 23.837  | 23.398  |
| 297 | 1.5  | 3.890   | 1.958   | -0.059 | 0.025  | 7.800   | 3.442   | 3.526   | 5.256   | 5.344   |
| 297 | 2.25 | -16.824 | -8.221  | -0.324 | 0.262  | -33.342 | -15.466 | -14.830 | -23.185 | -22.570 |
| 297 | 3    | -42.355 | -20.468 | -0.590 | 0.499  | -83.574 | -38.709 | -37.620 | -57.986 | -56.844 |
| 298 | 0    | -41.507 | -20.301 | -0.545 | 0.513  | -82.290 | -37.902 | -36.844 | -56.945 | -55.834 |
| 298 | 0.75 | -16.120 | -8.050  | -0.277 | 0.263  | -32.224 | -14.785 | -14.245 | -22.288 | -21.721 |
| 298 | 1.5  | 4.451   | 2.132   | -0.008 | 0.013  | 8.753   | 3.997   | 4.019   | 6.008   | 6.031   |
| 298 | 2.25 | 17.700  | 8.867   | 0.261  | -0.236 | 35.427  | 16.191  | 15.694  | 24.445  | 23.923  |
| 298 | 3    | 26.133  | 13.533  | 0.529  | -0.486 | 53.012  | 24.049  | 23.033  | 36.521  | 35.455  |
| 299 | 0    | 26.197  | 13.568  | 0.531  | -0.480 | 53.144  | 24.108  | 23.096  | 36.611  | 35.550  |
| 299 | 0.75 | 19.202  | 9.499   | 0.271  | -0.250 | 38.240  | 17.552  | 17.031  | 26.430  | 25.883  |
| 299 | 1.5  | 7.390   | 3.361   | 0.010  | -0.020 | 14.245  | 6.661   | 6.631   | 9.888   | 9.856   |
| 299 | 2.25 | -11.743 | -6.225  | -0.250 | 0.211  | -24.050 | -10.818 | -10.358 | -16.514 | -16.030 |
| 299 | 3    | -35.692 | -17.878 | -0.510 | 0.441  | -71.436 | -32.633 | -31.682 | -49.276 | -48.277 |
| 300 | 0    | -25.684 | -13.216 | -0.443 | 0.411  | -51.966 | -23.559 | -22.704 | -35.760 | -34.863 |
| 300 | 0.56 | -12.483 | -6.653  | -0.227 | 0.210  | -25.624 | -11.462 | -11.025 | -17.537 | -17.078 |
| 300 | 1.13 | -1.464  | -0.962  | -0.011 | 0.008  | -3.295  | -1.328  | -1.309  | -2.154  | -2.134  |
| 300 | 1.69 | 6.318   | 3.275   | 0.206  | -0.193 | 12.821  | 5.891   | 5.493   | 8.913   | 8.494   |
| 300 | 2.25 | 11.918  | 6.638   | 0.422  | -0.394 | 24.923  | 11.148  | 10.332  | 17.139  | 16.282  |
| 301 | 0    | 12.152  | 6.645   | 0.425  | -0.394 | 25.214  | 11.362  | 10.543  | 17.392  | 16.532  |
| 301 | 0.56 | 5.883   | 3.207   | 0.198  | -0.187 | 12.190  | 5.493   | 5.107   | 8.405   | 8.000   |
| 301 | 1.13 | -2.568  | -1.104  | -0.029 | 0.019  | -4.848  | -2.340  | -2.292  | -3.422  | -3.371  |
| 301 | 1.69 | -14.257 | -6.869  | -0.256 | 0.226  | -28.098 | -13.087 | -12.605 | -19.565 | -19.059 |
| 301 | 2.25 | -28.126 | -13.506 | -0.483 | 0.433  | -55.362 | -25.797 | -24.881 | -38.549 | -37.587 |
| 302 | 0    | -36.678 | -18.308 | -0.516 | 0.469  | -73.306 | -33.526 | -32.541 | -50.587 | -49.553 |
| 302 | 0.75 | -12.260 | -6.352  | -0.252 | 0.228  | -24.875 | -11.286 | -10.807 | -17.139 | -16.636 |
| 302 | 1.5  | 7.340   | 3.537   | 0.013  | -0.013 | 14.467  | 6.619   | 6.593   | 9.948   | 9.921   |
| 302 | 2.25 | 19.619  | 9.977   | 0.277  | -0.255 | 39.506  | 17.934  | 17.403  | 27.176  | 26.619  |
| 302 | 3    | 27.082  | 14.349  | 0.541  | -0.496 | 55.456  | 24.915  | 23.878  | 38.044  | 36.955  |
| 303 | 0    | 27.082  | 14.349  | 0.541  | -0.496 | 55.456  | 24.914  | 23.878  | 38.043  | 36.955  |
| 303 | 0.75 | 19.620  | 9.977   | 0.277  | -0.255 | 39.507  | 17.935  | 17.403  | 27.177  | 26.619  |
| 303 | 1.5  | 7.341   | 3.537   | 0.013  | -0.013 | 14.469  | 6.620   | 6.594   | 9.950   | 9.923   |
| 303 | 2.25 | -12.258 | -6.350  | -0.252 | 0.228  | -24.871 | -11.284 | -10.805 | -17.136 | -16.633 |
| 303 | 3    | -36.675 | -18.307 | -0.516 | 0.469  | -73.300 | -33.523 | -32.539 | -50.583 | -49.549 |
| 304 | 0    | -28.125 | -13.505 | -0.483 | 0.433  | -55.358 | -25.795 | -24.879 | -38.546 | -37.585 |
| 304 | 0.56 | -14.255 | -6.868  | -0.256 | 0.226  | -28.095 | -13.086 | -12.604 | -19.563 | -19.057 |
| 304 | 1.13 | -2.567  | -1.103  | -0.029 | 0.019  | -4.845  | -2.339  | -2.291  | -3.421  | -3.370  |
| 304 | 1.69 | 5.883   | 3.207   | 0.198  | -0.187 | 12.192  | 5.493   | 5.108   | 8.406   | 8.001   |
| 304 | 2.25 | 12.153  | 6.645   | 0.425  | -0.394 | 25.215  | 11.363  | 10.543  | 17.393  | 16.533  |
| 305 | 0    | 11.919  | 6.639   | 0.422  | -0.394 | 24.925  | 11.149  | 10.333  | 17.140  | 16.283  |
| 305 | 0.56 | 6.318   | 3.275   | 0.206  | -0.193 | 12.821  | 5.892   | 5.493   | 8.913   | 8.494   |
| 305 | 1.13 | -1.464  | -0.962  | -0.011 | 0.008  | -3.297  | -1.329  | -1.310  | -2.155  | -2.135  |
| 305 | 1.69 | -12.484 | -6.653  | -0.227 | 0.210  | -25.626 | -11.463 | -11.026 | -17.538 | -17.080 |
| 305 | 2.25 | -25.685 | -13.217 | -0.443 | 0.411  | -51.970 | -23.560 | -22.706 | -35.762 | -34.865 |
| 306 | 0    | -35.692 | -17.879 | -0.510 | 0.441  | -71.437 | -32.633 | -31.682 | -49.276 | -48.278 |
| 306 | 0.75 | -11.743 | -6.225  | -0.250 | 0.211  | -24.051 | -10.819 | -10.358 | -16.514 | -16.030 |
| 306 | 1.5  | 7.390   | 3.361   | 0.010  | -0.020 | 14.245  | 6.661   | 6.631   | 9.887   | 9.856   |
| 306 | 2.25 | 19.202  | 9.498   | 0.271  | -0.250 | 38.239  | 17.552  | 17.031  | 26.430  | 25.883  |
| 306 | 3    | 26.196  | 13.568  | 0.531  | -0.480 | 53.144  | 24.108  | 23.096  | 36.611  | 35.549  |
| 307 | 0    | 26.133  | 13.533  | 0.529  | -0.486 | 53.012  | 24.049  | 23.033  | 36.521  | 35.455  |
| 307 | 0.75 | 17.700  | 8.867   | 0.261  | -0.236 | 35.427  | 16.191  | 15.694  | 24.445  | 23.923  |
| 307 | 1.5  | 4.451   | 2.132   | -0.008 | 0.013  | 8.752   | 3.997   | 4.019   | 6.008   | 6.031   |
| 307 | 2.25 | -16.120 | -8.050  | -0.277 | 0.263  | -32.224 | -14.785 | -14.245 | -22.288 | -21.721 |
| 307 | 3    | -41.507 | -20.301 | -0.545 | 0.513  | -82.290 | -37.902 | -36.844 | -56.945 | -55.834 |
| 308 | 0    | -42.355 | -20.468 | -0.590 | 0.499  | -83.574 | -38.709 | -37.621 | -57.986 | -56.844 |
| 308 | 0.75 | -16.824 | -8.221  | -0.324 | 0.262  | -33.342 | -15.466 | -14.880 | -23.185 | -22.570 |
| 308 | 1.5  | 3.890   | 1.958   | -0.059 | 0.025  | 7.800   | 3.442   | 3.526   | 5.255   | 5.344   |
| 308 | 2.25 | 17.282  | 8.689   | 0.206  | -0.212 | 34.641  | 15.760  | 15.342  | 23.837  | 23.398  |
| 308 | 3    | 25.858  | 13.351  | 0.472  | -0.449 | 52.391  | 23.744  | 22.823  | 36.057  | 35.091  |
| 309 | 0    | 25.546  | 13.291  | 0.443  | -0.441 | 51.920  | 23.435  | 22.550  | 35.662  | 34.733  |
| 309 | 0.75 | 19.910  | 9.490   | 0.248  | -0.264 | 39.076  | 18.167  | 17.655  | 27.145  | 26.607  |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 309 | 1.5  | 9.458    | 3.620   | 0.053   | -0.087  | 17.141   | 8.564    | 8.425    | 12.266   | 12.119   |
| 309 | 2.25 | -8.316   | -5.697  | -0.143  | 0.090   | -19.095  | -7.627   | -7.395   | -12.471  | -12.227  |
| 309 | 3    | -30.907  | -17.083 | -0.338  | 0.267   | -64.421  | -28.154  | -27.550  | -43.570  | -42.934  |
| 310 | 0    | -14.306  | -11.664 | -0.435  | 0.080   | -35.830  | -13.311  | -12.795  | -22.827  | -22.285  |
| 310 | 0.75 | 11.825   | -0.398  | 0.082   | -0.299  | 13.552   | 10.724   | 10.343   | 12.251   | 11.851   |
| 310 | 1.5  | 31.018   | 8.799   | 0.600   | -0.679  | 51.299   | 28.516   | 27.237   | 38.742   | 37.399   |
| 310 | 2.25 | 40.769   | 14.548  | 1.117   | -1.059  | 72.201   | 37.810   | 35.634   | 53.147   | 50.862   |
| 310 | 3    | 43.584   | 18.229  | 1.635   | -1.438  | 81.468   | 40.860   | 37.787   | 58.964   | 55.738   |
| 311 | 0    | 48.032   | 19.450  | 1.642   | -1.480  | 88.758   | 44.871   | 41.749   | 64.411   | 61.133   |
| 311 | 0.75 | 11.454   | 6.689   | 0.709   | -0.420  | 24.446   | 11.017   | 9.888    | 16.985   | 15.799   |
| 311 | 1.5  | -32.062  | -8.141  | -0.225  | 0.640   | -51.499  | -29.080  | -28.215  | -39.029  | -38.121  |
| 311 | 2.25 | -85.018  | -26.418 | -1.158  | 1.700   | -144.291 | -77.675  | -74.817  | -107.129 | -104.128 |
| 311 | 3    | -144.912 | -46.764 | -2.092  | 2.760   | -248.717 | -132.513 | -127.661 | -183.815 | -178.721 |
| 312 | 0    | -21.333  | -9.651  | -9.421  | 9.227   | -41.041  | -28.621  | -9.972   | -38.371  | -18.791  |
| 312 | 1.13 | 3.996    | 2.046   | -6.164  | 5.990   | 8.069    | -2.568   | 9.586    | -0.988   | 11.774   |
| 312 | 2.25 | 14.886   | 7.107   | -2.907  | 2.753   | 29.234   | 10.491   | 16.151   | 17.055   | 22.998   |
| 312 | 3.38 | 6.644    | 2.944   | 0.350   | -0.484  | 12.683   | 6.329    | 5.495    | 9.198    | 8.322    |
| 312 | 4.5  | -16.037  | -7.855  | 3.607   | -3.721  | -31.812  | -10.826  | -18.154  | -18.000  | -25.694  |
| 313 | 0    | -19.107  | -8.451  | -1.542  | 1.482   | -36.450  | -18.738  | -15.714  | -27.005  | -23.830  |
| 313 | 1.13 | 4.130    | 2.055   | -0.445  | 0.436   | 8.244    | 3.273    | 4.153    | 5.165    | 6.089    |
| 313 | 2.25 | 12.930   | 5.924   | 0.653   | -0.610  | 24.995   | 12.290   | 11.026   | 17.994   | 16.668   |
| 313 | 3.38 | 2.595    | 0.571   | 1.751   | -1.656  | 4.029    | 4.087    | 0.679    | 4.923    | 1.346    |
| 313 | 4.5  | -22.177  | -11.418 | 2.848   | -2.702  | -44.881  | -17.111  | -22.661  | -27.488  | -33.316  |
| 314 | 0    | -21.905  | -11.379 | -2.713  | 2.853   | -44.493  | -22.428  | 16.862   | -33.018  | -27.174  |
| 314 | 1.13 | 2.786    | 0.597   | -1.661  | 1.754   | 4.298    | 0.846    | 4.261    | 1.557    | 5.142    |
| 314 | 2.25 | 13.039   | 5.937   | -0.610  | 0.654   | 25.145   | 11.125   | 12.389   | 16.791   | 18.118   |
| 314 | 3.38 | 4.158    | 2.054   | 0.442   | -0.445  | 8.276    | 4.185    | 3.297    | 6.124    | 5.193    |
| 314 | 4.5  | -19.160  | -8.466  | 1.494   | -1.545  | -36.537  | -15.750  | -18.789  | -23.883  | -27.073  |
| 315 | 0    | -15.908  | -7.847  | -3.703  | 3.609   | -31.645  | -18.020  | -10.708  | -25.535  | -17.858  |
| 315 | 1.13 | 6.602    | 2.935   | -0.474  | 0.350   | 12.618   | 5.468    | 6.292    | 8.283    | 9.148    |
| 315 | 2.25 | 14.675   | 7.080   | 2.754   | -2.909  | 28.937   | 15.961   | 10.298   | 22.760   | 16.814   |
| 315 | 3.38 | 3.614    | 2.002   | 5.982   | -6.168  | 7.540    | 9.234    | -2.916   | 11.337   | -1.421   |
| 315 | 4.5  | -21.885  | -9.712  | 9.210   | -9.427  | -41.801  | -10.487  | -29.124  | -19.427  | -38.997  |
| 316 | 0    | -48.662  | -18.559 | -10.088 | 9.480   | -88.088  | -53.884  | -34.316  | -73.380  | -52.834  |
| 316 | 1.13 | -8.145   | -1.634  | -7.643  | 7.125   | -12.388  | -14.973  | -0.206   | -17.607  | -2.100   |
| 316 | 2.25 | 17.934   | 8.654   | -5.197  | 4.770   | 35.368   | 10.943   | 20.911   | 18.826   | 29.292   |
| 316 | 3.38 | 24.880   | 9.720   | -2.752  | 2.416   | 45.408   | 19.640   | 24.908   | 29.358   | 34.784   |
| 316 | 4.5  | 17.388   | 4.149   | -0.307  | 0.061   | 27.504   | 15.342   | 15.710   | 20.549   | 20.935   |
| 317 | 0    | 17.717   | 4.390   | 0.105   | -0.339  | 28.285   | 16.050   | 15.606   | 21.479   | 21.013   |
| 317 | 1.13 | 21.557   | 8.166   | 1.929   | -2.002  | 38.935   | 21.330   | 17.400   | 29.805   | 25.678   |
| 317 | 2.25 | 10.960   | 5.306   | 3.753   | -3.664  | 21.641   | 13.617   | 6.199    | 18.791   | 11.003   |
| 317 | 3.38 | -18.771  | -6.777  | 5.577   | -5.327  | -33.369  | -11.317  | -22.221  | -18.124  | -29.573  |
| 317 | 4.5  | -62.940  | -25.497 | 7.401   | -6.989  | -116.324 | -49.245  | -63.636  | -74.379  | -89.489  |
| 318 | 0    | -62.033  | -25.388 | -6.989  | 7.407   | -115.061 | -62.819  | -48.423  | -88.468  | -73.352  |
| 318 | 1.13 | -18.071  | -6.692  | -5.326  | 5.581   | -32.393  | -21.590  | -10.683  | -28.783  | -17.331  |
| 318 | 2.25 | 11.453   | 5.367   | -3.663  | 3.755   | 22.330   | 6.645    | 14.063   | 11.560   | 19.349   |
| 318 | 3.38 | 21.844   | 8.203   | -2.000  | 1.929   | 39.338   | 17.659   | 21.589   | 26.004   | 30.130   |
| 318 | 4.5  | 17.797   | 4.403   | -0.337  | 0.104   | 28.401   | 15.680   | 16.121   | 21.106   | 21.569   |
| 319 | 0    | 17.413   | 4.156   | 0.063   | -0.308  | 27.545   | 15.735   | 15.364   | 20.968   | 20.578   |
| 319 | 1.13 | 24.603   | 9.689   | 2.417   | -2.755  | 45.027   | 24.560   | 19.389   | 34.476   | 29.046   |
| 319 | 2.25 | 17.356   | 8.586   | 4.771   | -5.201  | 34.565   | 20.392   | 10.419   | 28.643   | 18.172   |
| 319 | 3.38 | -9.024   | -1.740  | 7.125   | -7.648  | -13.613  | -0.997   | -15.770  | -3.090   | -18.602  |
| 319 | 4.5  | -49.843  | -18.703 | 9.479   | -10.094 | -89.735  | -35.379  | -54.953  | -54.164  | -74.717  |
| 320 | 0    | -204.673 | -61.214 | -92.633 | 86.030  | -343.550 | -276.839 | -98.176  | -350.736 | -163.141 |
| 320 | 1.13 | -64.789  | -20.783 | -70.198 | 64.862  | -111.000 | -128.508 | 6.552    | -154.830 | -13.017  |
| 320 | 2.25 | 44.715   | 13.011  | -47.762 | 43.695  | 74.476   | -7.518   | 83.939   | 4.998    | 101.027  |
| 320 | 3.38 | 119.146  | 37.582  | -25.327 | 22.527  | 203.106  | 81.904   | 129.758  | 122.186  | 172.433  |
| 320 | 4.5  | 163.197  | 55.517  | -2.892  | 1.360   | 284.663  | 143.985  | 148.237  | 203.296  | 207.760  |
| 321 | 0    | 162.987  | 55.313  | -3.408  | 1.857   | 284.085  | 143.280  | 148.545  | 202.405  | 207.933  |
| 321 | 1.13 | 104.536  | 33.096  | 19.759  | -20.114 | 178.396  | 113.841  | 73.968   | 151.360  | 109.494  |
| 321 | 2.25 | 15.706   | 4.242   | 42.926  | -42.085 | 25.634   | 57.061   | -27.949  | 64.236   | -25.025  |
| 321 | 3.38 | -108.199 | -33.835 | 66.093  | -64.055 | -183.975 | -31.286  | -161.435 | -65.527  | -202.183 |
| 321 | 4.5  | -262.483 | -78.548 | 89.261  | -86.026 | -440.656 | -146.974 | -322.261 | -231.369 | -415.420 |
| 322 | 0    | -248.189 | -76.793 | -86.014 | 89.301  | -420.696 | -309.384 | -134.069 | -399.292 | -215.212 |
| 322 | 1.13 | -97.484  | -32.524 | -64.044 | 66.123  | -169.018 | -151.779 | -21.612  | -190.094 | -53.419  |
| 322 | 2.25 | 22.843   | 5.109   | -42.074 | 42.944  | 35.586   | -21.516  | 63.503   | -16.974  | 72.295   |
| 322 | 3.38 | 108.095  | 33.519  | -20.105 | 19.766  | 183.345  | 77.180   | 117.051  | 113.507  | 155.371  |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 322 | 4.5  | 162.967  | 55.293  | 1.865   | -3.412  | 284.030  | 148.535  | 143.258  | 207.908  | 202.367  |
| 323 | 0    | 163.242  | 55.506  | 1.368   | -2.896  | 284.701  | 148.286  | 144.022  | 207.809  | 203.333  |
| 323 | 1.13 | 115.716  | 37.171  | 22.536  | -25.344 | 198.334  | 126.681  | 78.801   | 168.583  | 118.309  |
| 323 | 2.25 | 37.812   | 12.200  | 43.705  | -47.792 | 64.894   | 77.736   | -13.762  | 93.278   | -2.794   |
| 323 | 3.38 | -75.168  | -21.994 | 64.874  | -70.241 | -125.392 | -2.777   | -137.891 | -24.665  | -166.535 |
| 323 | 4.5  | -218.526 | -62.825 | 86.042  | -92.689 | -362.752 | -110.631 | -289.362 | -178.688 | -366.356 |
| 324 | 0    | -46.673  | -18.245 | -11.127 | 10.316  | -85.200  | -53.132  | -31.689  | -72.184  | -49.669  |
| 324 | 1.13 | -7.107   | -1.487  | -8.422  | 7.739   | -10.908  | -14.818  | 1.343    | -17.242  | -0.273   |
| 324 | 2.25 | 18.021   | 8.634   | -5.717  | 5.162   | 35.440   | 10.502   | 21.381   | 18.359   | 29.782   |
| 324 | 3.38 | 24.016   | 9.533   | -3.012  | 2.584   | 44.072   | 18.602   | 24.199   | 28.059   | 33.936   |
| 324 | 4.5  | 15.572   | 3.796   | -0.308  | 0.007   | 24.760   | 13.708   | 14.022   | 18.419   | 18.750   |
| 325 | 0    | 15.745   | 4.000   | 0.204   | -0.489  | 25.294   | 14.375   | 13.681   | 19.267   | 18.539   |
| 325 | 1.13 | 20.494   | 7.969   | 2.197   | -2.281  | 37.344   | 20.642   | 16.164   | 28.847   | 24.145   |
| 325 | 2.25 | 10.806   | 5.302   | 4.191   | -4.073  | 21.450   | 13.916   | 5.652    | 19.087   | 10.410   |
| 325 | 3.38 | -18.016  | -6.588  | 6.184   | -5.865  | -32.160  | -10.030  | -22.079  | -16.574  | -29.225  |
| 325 | 4.5  | -61.275  | -25.115 | 8.178   | -7.657  | -113.714 | -46.970  | -62.805  | -71.575  | -88.201  |
| 326 | 0    | -59.492  | -24.871 | -7.656  | 8.175   | -111.184 | -61.198  | -45.368  | -86.174  | -69.551  |
| 326 | 1.13 | -16.652  | -6.415  | -5.865  | 6.183   | -30.246  | -20.852  | -8.803   | -27.684  | -15.033  |
| 326 | 2.25 | 11.751   | 5.404   | -4.074  | 4.192   | 22.748   | 6.501    | 14.767   | 11.465   | 20.144   |
| 326 | 3.38 | 21.020   | 8.001   | -2.283  | 2.200   | 38.025   | 16.634   | 21.118   | 24.714   | 29.421   |
| 326 | 4.5  | 15.851   | 3.961   | -0.493  | 0.209   | 25.359   | 13.773   | 14.474   | 18.622   | 19.358   |
| 327 | 0    | 15.567   | 3.746   | 0.004   | -0.302  | 24.674   | 14.014   | 13.708   | 18.709   | 18.388   |
| 327 | 1.13 | 23.460   | 9.447   | 2.588   | -3.014  | 43.267   | 23.701   | 18.099   | 33.301   | 27.419   |
| 327 | 2.25 | 16.914   | 8.512   | 5.172   | -5.726  | 33.916   | 20.395   | 9.497    | 28.553   | 17.110   |
| 327 | 3.38 | -8.765   | -1.646  | 7.756   | -8.438  | -13.151  | -0.132   | -16.326  | -2.096   | -19.099  |
| 327 | 4.5  | -48.881  | -18.441 | 10.340  | -11.149 | -88.163  | -33.653  | -55.142  | -52.086  | -74.650  |
| 328 | 0    | -19.888  | 0.317   | -0.016  | 0.007   | -23.359  | -17.916  | -17.893  | -20.700  | -20.676  |
| 328 | 1.13 | 2.331    | 0.218   | -0.007  | 0.001   | 3.146    | 2.091    | 2.099    | 2.578    | 2.586    |
| 328 | 2.25 | 9.653    | 0.119   | 0.003   | -0.004  | 11.774   | 8.690    | 8.683    | 10.214   | 10.206   |
| 328 | 3.38 | 2.077    | 0.021   | 0.012   | -0.010  | 2.525    | 1.881    | 1.860    | 2.207    | 2.184    |
| 328 | 4.5  | -20.397  | -0.078  | 0.022   | -0.015  | -24.601  | -18.335  | -18.372  | -21.443  | -21.482  |
| 329 | 0    | -182.295 | -53.274 | -99.176 | 91.615  | -303.993 | -263.242 | -72.450  | -329.107 | -128.776 |
| 329 | 1.13 | -53.229  | -17.586 | -75.116 | 69.011  | -92.012  | -123.023 | 21.104   | -145.842 | 5.492    |
| 329 | 2.25 | 46.200   | 11.876  | -51.056 | 46.407  | 74.441   | -9.476   | 87.987   | 2.383    | 104.719  |
| 329 | 3.38 | 112.590  | 33.235  | -26.996 | 23.802  | 188.284  | 74.335   | 125.134  | 110.812  | 164.150  |
| 329 | 4.5  | 149.345  | 48.367  | -2.936  | 1.198   | 256.600  | 131.474  | 135.608  | 184.200  | 188.541  |
| 330 | 0    | 149.057  | 48.177  | -3.495  | 1.739   | 255.952  | 130.656  | 135.891  | 183.191  | 188.688  |
| 330 | 1.13 | 95.347   | 28.940  | 21.240  | -21.625 | 160.720  | 107.052  | 64.187   | 140.648  | 95.640   |
| 330 | 2.25 | 12.001   | 3.475   | 45.976  | -44.988 | 19.961   | 56.777   | -34.188  | 63.065   | -32.447  |
| 330 | 3.38 | -104.385 | -30.091 | 70.711  | -68.352 | -173.408 | -23.235  | -162.299 | -54.315  | -200.331 |
| 330 | 4.5  | -250.407 | -69.885 | 95.447  | -91.716 | -412.304 | -129.919 | -317.082 | -206.735 | -403.256 |
| 331 | 0    | -221.676 | -66.467 | -91.812 | 95.467  | -372.358 | -291.321 | -104.042 | -371.037 | -174.394 |
| 331 | 1.13 | -83.607  | -27.663 | -68.411 | 70.713  | -144.588 | -143.657 | -4.533   | -177.046 | -30.966  |
| 331 | 2.25 | 24.827   | 4.914   | -45.009 | 45.959  | 37.655   | -22.664  | 68.303   | -18.095  | 77.421   |
| 331 | 3.38 | 100.221  | 29.389  | -21.607 | 21.205  | 167.288  | 68.592   | 111.403  | 101.060  | 146.012  |
| 331 | 4.5  | 145.979  | 47.637  | 1.795   | -3.550  | 251.394  | 133.176  | 127.832  | 185.174  | 179.563  |
| 332 | 0    | 146.213  | 47.817  | 1.271   | -3.010  | 251.962  | 132.863  | 128.582  | 184.983  | 180.488  |
| 332 | 1.13 | 104.235  | 32.321  | 23.850  | -27.016 | 176.795  | 117.661  | 66.795   | 154.851  | 101.442  |
| 332 | 2.25 | 32.621   | 10.598  | 46.429  | -51.022 | 56.101   | 75.787   | -21.664  | 89.679   | -12.545  |
| 332 | 3.38 | -72.033  | -19.227 | 69.008  | -75.028 | -117.204 | 4.178    | -139.858 | -15.290  | -166.528 |
| 332 | 4.5  | -206.323 | -55.280 | 91.587  | -99.034 | -336.035 | -94.104  | -284.725 | -155.300 | -355.451 |
| 333 | 0    | -31.239  | -12.170 | -11.989 | 11.097  | -56.959  | -40.105  | -17.019  | -53.057  | -28.817  |
| 333 | 1.13 | -0.938   | 0.097   | -9.068  | 8.316   | -0.970   | -9.912   | 7.472    | -10.445  | 7.808    |
| 333 | 2.25 | 16.413   | 6.545   | -6.148  | 5.535   | 30.169   | 8.624    | 20.307   | 14.903   | 27.170   |
| 333 | 3.38 | 18.700   | 6.013   | -3.227  | 2.755   | 32.061   | 13.604   | 19.585   | 20.035   | 26.316   |
| 333 | 4.5  | 8.037    | -0.338  | -0.306  | -0.026  | 9.103    | 6.927    | 7.207    | 7.905    | 8.198    |
| 334 | 0    | 8.751    | -0.051  | 0.273   | -0.587  | 10.420   | 8.149    | 7.289    | 9.443    | 8.540    |
| 334 | 1.13 | 14.886   | 4.902   | 2.557   | -2.646  | 25.707   | 15.954   | 10.751   | 21.403   | 15.940   |
| 334 | 2.25 | 8.070    | 4.038   | 4.840   | -4.706  | 16.145   | 12.103   | 2.557    | 16.100   | 6.676    |
| 334 | 3.38 | -13.811  | -3.807  | 7.124   | -6.765  | -22.664  | -5.306   | -19.194  | -9.419   | -24.003  |
| 334 | 4.5  | -48.642  | -17.471 | 9.408   | -8.824  | -86.323  | -34.370  | -52.602  | -52.202  | -71.345  |
| 335 | 0    | -45.282  | -17.223 | -8.836  | 9.407   | -81.896  | -49.590  | -31.347  | -67.674  | -48.520  |
| 335 | 1.13 | -11.125  | -3.483  | -6.788  | 7.138   | -18.923  | -16.800  | -2.874   | -21.003  | -6.380   |
| 335 | 2.25 | 10.081   | 4.439   | -4.739  | 4.870   | 19.200   | 4.334    | 13.943   | 8.406    | 18.495   |
| 335 | 3.38 | 16.223   | 5.380   | -2.691  | 2.602   | 28.076   | 11.910   | 17.203   | 17.598   | 23.156   |
| 335 | 4.5  | 9.415    | 0.503   | -0.642  | 0.334   | 12.102   | 7.831    | 8.807    | 9.528    | 10.553   |
| 336 | 0    | 9.052    | 0.330   | -0.121  | -0.200  | 11.390   | 8.025    | 7.946    | 9.585    | 9.502    |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 336 | 1.13 | 17.123   | 6.147   | 2.813   | -3.285  | 30.382   | 18.224   | 12.126   | 24.805   | 18.402   |
| 336 | 2.25 | 12.243   | 6.146   | 5.748   | -6.369  | 24.525   | 16.767   | 4.649    | 22.763   | 10.039   |
| 336 | 3.38 | -7.701   | -0.836  | 8.683   | -9.454  | -10.579  | 1.752    | -16.384  | 0.505    | -18.539  |
| 336 | 4.5  | -40.595  | -13.636 | 11.618  | -12.538 | -70.533  | -24.918  | -49.074  | -39.017  | -64.381  |
| 337 | 0    | 2.064    | -1.110  | 4.482   | -4.495  | 0.700    | 6.340    | -2.637   | 6.174    | -3.252   |
| 337 | 0.86 | 3.522    | 1.334   | 5.099   | -4.976  | 6.361    | 8.269    | -1.806   | 9.893    | -0.686   |
| 337 | 1.73 | -2.118   | 0.642   | 5.715   | -5.456  | -1.514   | 3.809    | -7.363   | 4.181    | -7.549   |
| 337 | 2.59 | -18.328  | -5.098  | 6.332   | -5.937  | -30.150  | -10.163  | -22.432  | -15.808  | -28.689  |
| 337 | 3.45 | -41.636  | -13.975 | 6.948   | -6.417  | -72.323  | -30.524  | -43.889  | -45.226  | -59.260  |
| 338 | 0    | -52.835  | -21.868 | -8.496  | 9.046   | -98.391  | -56.048  | -38.505  | -78.175  | -59.755  |
| 338 | 1.13 | -11.780  | -4.183  | -6.502  | 6.838   | -20.829  | -17.104  | -3.764   | -21.831  | -7.824   |
| 338 | 2.25 | 14.838   | 6.865   | -4.508  | 4.630   | 28.789   | 8.847    | 17.984   | 15.172   | 24.766   |
| 338 | 3.38 | 22.323   | 8.690   | -2.513  | 2.421   | 40.691   | 17.577   | 22.512   | 26.275   | 31.456   |
| 338 | 4.5  | 15.370   | 3.879   | -0.519  | 0.213   | 24.649   | 13.314   | 14.045   | 18.037   | 18.805   |
| 339 | 0    | 15.555   | 3.865   | -0.032  | -0.289  | 24.851   | 13.968   | 13.711   | 18.735   | 18.464   |
| 339 | 1.13 | 20.908   | 8.807   | 2.755   | -3.221  | 39.181   | 21.573   | 15.597   | 30.395   | 24.120   |
| 339 | 2.25 | 11.824   | 7.112   | 5.542   | -6.153  | 25.568   | 16.184   | 4.489    | 22.715   | 10.435   |
| 339 | 3.38 | -16.394  | -3.805  | 8.329   | -9.085  | -25.761  | -6.425   | -23.840  | -10.865  | -29.150  |
| 339 | 4.5  | -59.050  | -21.359 | 11.116  | -12.017 | -105.035 | -42.029  | -65.162  | -63.787  | -88.076  |
| 340 | 0    | -31.230  | -12.165 | -11.989 | 11.097  | -56.941  | -40.097  | -17.011  | -53.045  | -28.804  |
| 340 | 1.13 | -0.934   | 0.099   | -9.068  | 8.316   | -0.963   | -9.909   | 7.476    | -10.440  | 7.814    |
| 340 | 2.25 | 16.412   | 6.545   | -6.148  | 5.535   | 30.166   | 8.623    | 20.306   | 14.901   | 27.168   |
| 340 | 3.38 | 18.694   | 6.009   | -3.227  | 2.755   | 32.047   | 13.598   | 19.579   | 20.026   | 26.307   |
| 340 | 4.5  | 8.025    | -0.344  | -0.306  | -0.026  | 9.079    | 6.917    | 7.196    | 7.888    | 8.182    |
| 341 | 0    | 8.739    | -0.058  | 0.273   | -0.587  | 10.393   | 8.138    | 7.278    | 9.426    | 8.523    |
| 341 | 1.13 | 14.879   | 4.898   | 2.557   | -2.646  | 25.692   | 15.947   | 10.745   | 21.393   | 15.930   |
| 341 | 2.25 | 8.068    | 4.037   | 4.840   | -4.706  | 16.141   | 12.101   | 2.555    | 16.097   | 6.074    |
| 341 | 3.38 | -13.807  | -3.805  | 7.124   | -6.765  | -22.657  | -5.302   | -19.191  | -9.414   | -23.998  |
| 341 | 4.5  | -48.632  | -17.466 | 9.408   | -8.824  | -36.304  | -34.362  | -52.593  | -52.189  | -71.333  |
| 342 | 0    | -45.278  | -17.222 | -8.836  | 9.407   | -81.888  | -49.586  | -31.344  | -67.670  | -48.515  |
| 342 | 1.13 | -11.122  | -3.482  | -6.788  | 7.138   | -18.917  | -16.798  | -2.872   | -20.999  | -6.377   |
| 342 | 2.25 | 10.083   | 4.440   | -4.739  | 4.870   | 19.204   | 4.335    | 13.945   | 8.408    | 18.498   |
| 342 | 3.38 | 16.224   | 5.381   | -2.691  | 2.602   | 28.078   | 11.911   | 17.204   | 17.600   | 23.157   |
| 342 | 4.5  | 9.415    | 0.503   | -0.642  | 0.334   | 12.103   | 7.831    | 8.807    | 9.528    | 10.553   |
| 343 | 0    | 9.052    | 0.330   | -0.121  | -0.200  | 11.391   | 8.025    | 7.947    | 9.585    | 9.502    |
| 343 | 1.13 | 17.123   | 6.147   | 2.813   | -3.285  | 30.383   | 18.224   | 12.126   | 24.806   | 18.403   |
| 343 | 2.25 | 12.243   | 6.146   | 5.748   | -6.369  | 24.525   | 16.767   | 4.649    | 22.762   | 10.039   |
| 343 | 3.38 | -7.701   | -0.836  | 8.683   | -9.454  | -10.580  | 1.752    | -16.385  | 0.504    | -18.540  |
| 343 | 4.5  | -40.596  | -13.637 | 11.618  | -12.538 | -70.534  | -24.919  | -49.075  | -39.018  | -64.382  |
| 344 | 0    | -182.287 | -53.270 | -99.176 | 91.615  | -303.976 | -263.234 | -72.443  | -329.096 | -128.765 |
| 344 | 1.13 | -53.226  | -17.584 | -75.116 | 69.011  | -92.005  | -123.020 | 21.107   | -145.837 | 5.496    |
| 344 | 2.25 | 46.199   | 11.875  | -51.056 | 46.407  | 74.439   | -9.477   | 87.986   | 2.381    | 104.717  |
| 344 | 3.38 | 112.584  | 33.232  | -26.996 | 23.802  | 188.271  | 74.330   | 125.128  | 110.803  | 164.142  |
| 344 | 4.5  | 149.334  | 48.361  | -2.936  | 1.198   | 256.578  | 131.464  | 135.599  | 184.185  | 188.526  |
| 345 | 0    | 149.046  | 48.171  | -3.495  | 1.739   | 255.929  | 130.646  | 135.881  | 183.176  | 188.672  |
| 345 | 1.13 | 95.340   | 28.936  | 21.240  | -21.625 | 160.707  | 107.047  | 64.182   | 140.640  | 95.632   |
| 345 | 2.25 | 11.999   | 3.474   | 45.976  | -44.988 | 19.958   | 56.775   | -34.189  | 63.063   | -32.450  |
| 345 | 3.38 | -104.382 | -30.089 | 70.711  | -68.352 | -173.402 | -23.232  | -162.296 | -54.310  | -200.327 |
| 345 | 4.5  | -250.399 | -69.881 | 95.447  | -91.716 | -412.288 | -129.912 | -317.074 | -206.724 | -403.245 |
| 346 | 0    | -221.675 | -66.466 | -91.812 | 95.467  | -372.355 | -291.320 | -104.040 | -371.035 | -174.392 |
| 346 | 1.13 | -83.605  | -27.662 | -68.411 | 70.713  | -144.585 | -143.655 | -4.532   | -177.044 | -30.964  |
| 346 | 2.25 | 24.829   | 4.915   | -45.009 | 45.959  | 37.659   | -22.663  | 68.305   | -18.092  | 77.424   |
| 346 | 3.38 | 100.223  | 29.390  | -21.607 | 21.205  | 167.292  | 68.594   | 111.405  | 101.063  | 146.015  |
| 346 | 4.5  | 145.982  | 47.638  | 1.795   | -3.550  | 251.399  | 133.178  | 127.834  | 185.177  | 179.565  |
| 347 | 0    | 146.215  | 47.818  | 1.271   | -3.010  | 251.966  | 132.865  | 128.584  | 184.986  | 180.491  |
| 347 | 1.13 | 104.236  | 32.321  | 23.850  | -27.016 | 176.797  | 117.662  | 66.796   | 154.852  | 101.443  |
| 347 | 2.25 | 32.620   | 10.598  | 46.429  | -51.022 | 56.101   | 75.787   | -21.664  | 89.678   | -12.645  |
| 347 | 3.38 | -72.035  | -19.228 | 69.008  | -75.028 | -117.206 | 4.177    | -139.859 | -15.292  | -166.530 |
| 347 | 4.5  | -206.325 | -55.281 | 91.587  | -99.034 | -336.040 | -94.106  | -284.727 | -155.303 | -355.454 |
| 348 | 0    | -48.881  | -18.441 | 10.340  | -11.149 | -88.163  | -33.653  | -55.142  | -52.086  | -74.650  |
| 348 | 1.13 | -8.765   | -1.646  | 7.756   | -8.438  | -13.151  | -0.132   | -16.326  | -2.096   | -19.099  |
| 348 | 2.25 | 16.914   | 8.512   | 5.172   | -5.726  | 33.916   | 20.395   | 9.497    | 28.553   | 17.110   |
| 348 | 3.38 | 23.460   | 9.447   | 2.588   | -3.014  | 43.267   | 23.701   | 18.099   | 33.301   | 27.419   |
| 348 | 4.5  | 15.567   | 3.746   | 0.004   | -0.302  | 24.674   | 14.014   | 13.708   | 18.709   | 18.388   |
| 349 | 0    | 15.851   | 3.961   | -0.493  | 0.209   | 25.359   | 13.773   | 14.474   | 18.622   | 19.358   |
| 349 | 1.13 | 21.020   | 8.001   | -2.283  | 2.200   | 38.025   | 16.634   | 21.118   | 24.714   | 29.421   |
| 349 | 2.25 | 11.751   | 5.404   | -4.074  | 4.192   | 22.748   | 6.501    | 14.767   | 11.465   | 20.144   |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 349 | 3.38 | -16.652  | -6.415  | -5.865  | 6.183   | -30.246  | -20.851  | -8.803   | -27.684  | -15.033  |
| 349 | 4.5  | -59.492  | -24.871 | -7.656  | 8.175   | -111.183 | -61.198  | -45.368  | -86.173  | -69.551  |
| 350 | 0    | -61.276  | -25.115 | 8.178   | -7.657  | -113.716 | -46.971  | -62.806  | -71.576  | -88.202  |
| 350 | 1.13 | -18.016  | -6.588  | 6.184   | -5.865  | -32.161  | -10.030  | -22.080  | -16.574  | -29.226  |
| 350 | 2.25 | 10.806   | 5.302   | 4.191   | -4.073  | 21.450   | 13.916   | 5.652    | 19.087   | 10.410   |
| 350 | 3.38 | 20.495   | 7.970   | 2.197   | -2.281  | 37.345   | 20.643   | 16.164   | 28.848   | 24.145   |
| 350 | 4.5  | 15.746   | 4.001   | 0.204   | -0.489  | 25.296   | 14.375   | 13.682   | 19.268   | 18.540   |
| 351 | 0    | 15.573   | 3.796   | -0.308  | 0.007   | 24.762   | 13.708   | 14.023   | 18.420   | 18.751   |
| 351 | 1.13 | 24.016   | 9.534   | -3.012  | 2.584   | 44.073   | 18.602   | 24.199   | 28.060   | 33.937   |
| 351 | 2.25 | 18.021   | 8.634   | -5.717  | 5.162   | 35.440   | 10.502   | 21.381   | 18.359   | 29.781   |
| 351 | 3.38 | -7.107   | -1.487  | -8.422  | 7.739   | -10.909  | -14.818  | 1.342    | -17.243  | -0.274   |
| 351 | 4.5  | -46.673  | -18.246 | -11.127 | 10.316  | -85.201  | -53.133  | -31.590  | -72.185  | -49.670  |
| 352 | 0    | -204.674 | -61.214 | -92.633 | 86.030  | -343.551 | -276.839 | -98.177  | -350.737 | -163.141 |
| 352 | 1.13 | -64.790  | -20.783 | -70.198 | 64.862  | -111.001 | -128.508 | 6.551    | -154.830 | -13.017  |
| 352 | 2.25 | 44.716   | 13.011  | -47.762 | 43.695  | 74.476   | -7.518   | 83.939   | 4.998    | 101.028  |
| 352 | 3.38 | 119.146  | 37.583  | -25.327 | 22.527  | 203.107  | 81.905   | 129.759  | 122.187  | 172.434  |
| 352 | 4.5  | 163.197  | 55.517  | -2.892  | 1.360   | 284.665  | 143.986  | 148.238  | 203.297  | 207.761  |
| 353 | 0    | 162.987  | 55.314  | -3.408  | 1.857   | 284.087  | 143.280  | 148.546  | 202.406  | 207.935  |
| 353 | 1.13 | 104.536  | 33.096  | 19.759  | -20.114 | 178.397  | 113.841  | 73.969   | 151.360  | 109.494  |
| 353 | 2.25 | 15.706   | 4.242   | 42.926  | -42.085 | 25.634   | 57.061   | -27.950  | 64.236   | -25.026  |
| 353 | 3.38 | -108.200 | -33.835 | 66.093  | -64.055 | -183.976 | -31.286  | -161.435 | -65.528  | -202.184 |
| 353 | 4.5  | -262.484 | -78.549 | 89.261  | -86.026 | -440.658 | -146.975 | -322.262 | -231.370 | -415.421 |
| 354 | 0    | -248.189 | -76.793 | -86.014 | 89.301  | -420.696 | -309.384 | -134.069 | -399.292 | -215.212 |
| 354 | 1.13 | -97.483  | -32.524 | -64.044 | 66.123  | -169.018 | -151.779 | -21.612  | -190.094 | -53.419  |
| 354 | 2.25 | 22.843   | 5.109   | -42.074 | 42.944  | 35.586   | -21.516  | 63.503   | -16.974  | 72.295   |
| 354 | 3.38 | 108.095  | 33.519  | -20.105 | 19.766  | 183.345  | 77.180   | 117.051  | 113.507  | 155.371  |
| 354 | 4.5  | 162.967  | 55.293  | 1.865   | -3.412  | 284.030  | 148.535  | 143.258  | 207.908  | 202.367  |
| 355 | 0    | 163.242  | 55.506  | 1.368   | -2.896  | 284.700  | 148.286  | 144.022  | 207.809  | 203.333  |
| 355 | 1.13 | 115.716  | 37.171  | 22.536  | -25.344 | 198.334  | 126.681  | 78.801   | 168.583  | 118.309  |
| 355 | 2.25 | 37.812   | 12.200  | 43.705  | -47.792 | 64.894   | 77.735   | -13.762  | 93.278   | -2.794   |
| 355 | 3.38 | -75.168  | -21.994 | 64.874  | -70.241 | -125.392 | -2.777   | -137.892 | -24.665  | -166.535 |
| 355 | 4.5  | -218.526 | -62.825 | 86.042  | -92.689 | -362.752 | -110.631 | -289.362 | -178.688 | -366.356 |
| 356 | 0    | -49.843  | -18.703 | 9.479   | -10.094 | -89.735  | -35.379  | -54.953  | -54.164  | -74.717  |
| 356 | 1.13 | -9.024   | -1.770  | 7.125   | -7.648  | -13.613  | -0.997   | -15.770  | -3.090   | -18.602  |
| 356 | 2.25 | 17.356   | 8.586   | 4.771   | -5.201  | 34.565   | 20.392   | 10.419   | 28.643   | 18.172   |
| 356 | 3.38 | 24.603   | 9.689   | 2.417   | -2.755  | 45.027   | 24.560   | 19.389   | 34.476   | 29.046   |
| 356 | 4.5  | 17.413   | 4.156   | 0.063   | -0.308  | 27.545   | 15.735   | 15.364   | 20.968   | 20.578   |
| 357 | 0    | 17.797   | 4.403   | -0.337  | 0.104   | 28.401   | 15.680   | 16.121   | 21.106   | 21.569   |
| 357 | 1.13 | 21.844   | 8.203   | -2.000  | 1.929   | 39.338   | 17.659   | 21.589   | 26.004   | 30.130   |
| 357 | 2.25 | 11.453   | 5.367   | -3.663  | 3.755   | 22.330   | 6.645    | 14.063   | 11.560   | 19.349   |
| 357 | 3.38 | -18.071  | -6.692  | -5.326  | 5.581   | -32.393  | -21.590  | -10.683  | -28.783  | -17.331  |
| 357 | 4.5  | -62.033  | -25.388 | -6.989  | 7.407   | -115.061 | -62.819  | -48.423  | -88.468  | -73.352  |
| 358 | 0    | -62.940  | -25.497 | 7.401   | -6.989  | -116.324 | -49.245  | -63.636  | -74.379  | -89.489  |
| 358 | 1.13 | -18.771  | -6.777  | 5.577   | -5.327  | -33.369  | -11.317  | -22.221  | -18.124  | -29.573  |
| 358 | 2.25 | 10.960   | 5.306   | 3.753   | -3.664  | 21.641   | 13.617   | 6.199    | 18.791   | 11.003   |
| 358 | 3.38 | 21.557   | 8.166   | 1.929   | -2.002  | 38.935   | 21.330   | 17.400   | 29.805   | 25.678   |
| 358 | 4.5  | 17.717   | 4.390   | 0.105   | -0.339  | 28.285   | 16.050   | 15.606   | 21.479   | 21.013   |
| 359 | 0    | 17.387   | 4.149   | -0.307  | 0.061   | 27.504   | 15.342   | 15.710   | 20.549   | 20.935   |
| 359 | 1.13 | 24.880   | 9.720   | -2.752  | 2.416   | 45.408   | 19.640   | 24.808   | 29.358   | 34.784   |
| 359 | 2.25 | 17.934   | 8.654   | -5.197  | 4.770   | 35.368   | 10.943   | 20.911   | 18.826   | 29.292   |
| 359 | 3.38 | -8.145   | -1.634  | -7.643  | 7.125   | -12.388  | -14.973  | -0.206   | -17.607  | -2.100   |
| 359 | 4.5  | -48.662  | -18.559 | -10.088 | 9.480   | -88.088  | -53.884  | -34.316  | -73.380  | -52.833  |
| 360 | 0    | -21.333  | -9.651  | -9.421  | 9.227   | -41.041  | -28.621  | -9.972   | -38.371  | -18.791  |
| 360 | 1.13 | 3.996    | 2.046   | -6.164  | 5.990   | 8.069    | -2.568   | 9.586    | -0.988   | 11.774   |
| 360 | 2.25 | 14.886   | 7.107   | -2.907  | 2.753   | 29.234   | 10.491   | 16.151   | 17.055   | 22.998   |
| 360 | 3.38 | 6.644    | 2.944   | 0.350   | -0.484  | 12.683   | 6.329    | 5.495    | 9.198    | 8.322    |
| 360 | 4.5  | -16.037  | -7.855  | 3.607   | -3.721  | -31.812  | -10.826  | -18.154  | -18.000  | -25.694  |
| 361 | 0    | -19.107  | -8.451  | -1.542  | 1.482   | -36.450  | -18.738  | -15.714  | -27.005  | -23.830  |
| 361 | 1.13 | 4.130    | 2.055   | -0.445  | 0.436   | 8.244    | 3.273    | 4.153    | 5.165    | 6.089    |
| 361 | 2.25 | 12.930   | 5.924   | 0.653   | -0.610  | 24.995   | 12.290   | 11.026   | 17.994   | 16.668   |
| 361 | 3.38 | 2.595    | 0.571   | 1.751   | -1.656  | 4.029    | 4.087    | 0.679    | 4.923    | 1.346    |
| 361 | 4.5  | -22.177  | -11.418 | 2.848   | -2.702  | -44.881  | -17.111  | -22.661  | -27.488  | -33.316  |
| 362 | 0    | -21.905  | -11.379 | -2.713  | 2.853   | -44.493  | -22.428  | -16.862  | -33.018  | -27.174  |
| 362 | 1.13 | 2.786    | 0.597   | -1.661  | 1.754   | 4.298    | 0.846    | 4.261    | 1.557    | 5.142    |
| 362 | 2.25 | 13.039   | 5.937   | -0.610  | 0.654   | 25.145   | 11.125   | 12.389   | 16.791   | 18.118   |
| 362 | 3.38 | 4.158    | 2.054   | 0.442   | -0.445  | 8.276    | 4.185    | 3.297    | 6.124    | 5.193    |
| 362 | 4.5  | -19.160  | -8.466  | 1.494   | -1.545  | -36.537  | -15.750  | -18.789  | -23.883  | -27.073  |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 363 | 0    | -15.908 | -7.847 | -3.703 | 3.609  | -31.645 | -18.020 | -10.708 | -25.535 | -17.858 |
| 363 | 1.13 | 6.602   | 2.935  | -0.474 | 0.350  | 12.618  | 5.468   | 6.292   | 8.283   | 9.148   |
| 363 | 2.25 | 14.675  | 7.080  | 2.754  | -2.909 | 28.937  | 15.961  | 10.298  | 22.760  | 16.814  |
| 363 | 3.38 | 3.614   | 2.002  | 5.982  | -6.168 | 7.540   | 9.234   | -2.916  | 11.337  | -1.421  |
| 363 | 4.5  | -21.885 | -9.712 | 9.210  | -9.427 | -41.801 | -10.487 | -29.124 | -19.427 | -38.997 |
| 364 | 0    | -35.070 | -0.065 | -0.005 | 0.004  | -42.189 | -31.569 | -31.559 | -36.870 | -36.860 |
| 364 | 1.5  | 4.657   | -0.065 | -0.005 | 0.004  | 5.483   | 4.186   | 4.195   | 4.843   | 4.853   |
| 364 | 3    | 17.899  | -0.065 | -0.005 | 0.004  | 21.374  | 16.104  | 16.113  | 18.747  | 18.757  |
| 364 | 4.5  | 4.656   | -0.066 | -0.005 | 0.004  | 5.482   | 4.185   | 4.195   | 4.842   | 4.852   |
| 364 | 6    | -35.071 | -0.066 | -0.005 | 0.004  | -42.190 | -31.569 | -31.560 | -36.872 | -36.861 |
| 413 | 0    | -20.397 | -0.078 | 0.022  | -0.015 | -24.602 | -18.335 | -18.372 | -21.443 | -21.482 |
| 413 | 1.13 | 2.077   | 0.021  | 0.012  | -0.010 | 2.525   | 1.881   | 1.860   | 2.206   | 2.184   |
| 413 | 2.25 | 9.653   | 0.119  | 0.003  | -0.004 | 11.775  | 8.690   | 8.684   | 10.214  | 10.206  |
| 413 | 3.38 | 2.331   | 0.218  | -0.007 | 0.001  | 3.147   | 2.092   | 2.100   | 2.578   | 2.587   |
| 413 | 4.5  | -19.888 | 0.317  | -0.016 | 0.007  | -23.358 | -17.915 | -17.892 | -20.699 | -20.675 |
| 414 | 0    | -35.247 | -0.332 | 0.005  | 0.008  | -42.829 | -31.717 | -31.715 | -37.214 | -37.211 |
| 414 | 1.5  | 4.496   | -0.191 | 0.002  | 0.004  | 5.089   | 4.049   | 4.050   | 4.603   | 4.604   |
| 414 | 3    | 17.755  | -0.050 | 0.000  | 0.000  | 21.226  | 15.979  | 15.979  | 18.611  | 18.611  |
| 414 | 4.5  | 4.530   | 0.091  | -0.003 | -0.004 | 5.581   | 4.073   | 4.072   | 4.810   | 4.809   |
| 414 | 6    | -35.181 | 0.232  | -0.006 | -0.008 | -41.846 | -31.669 | -31.671 | -36.800 | -36.803 |
| 415 | 0    | -34.423 | -0.109 | 0.010  | 0.012  | -41.482 | -30.971 | -30.969 | -36.203 | -36.200 |
| 415 | 1.5  | 4.589   | -0.037 | 0.006  | 0.007  | 5.447   | 4.136   | 4.137   | 4.801   | 4.802   |
| 415 | 3    | 17.116  | 0.034  | 0.001  | 0.001  | 20.595  | 15.406  | 15.406  | 17.995  | 17.995  |
| 415 | 4.5  | 3.159   | 0.106  | -0.003 | -0.005 | 3.961   | 2.840   | 2.839   | 3.381   | 3.379   |
| 415 | 6    | -37.283 | 0.178  | -0.007 | -0.010 | -44.455 | -33.562 | -33.565 | -39.042 | -39.046 |
| 416 | 0    | -76.823 | 0.276  | -0.017 | -0.015 | -91.746 | -69.158 | -69.156 | -80.509 | -80.506 |
| 416 | 1.5  | -17.523 | 0.123  | -0.011 | -0.009 | -20.831 | -15.782 | -15.780 | -18.333 | -18.332 |
| 416 | 3    | 15.292  | -0.030 | -0.004 | -0.004 | 18.302  | 13.758  | 13.759  | 16.033  | 16.033  |
| 416 | 4.5  | 21.622  | -0.183 | 0.003  | 0.002  | 25.654  | 19.462  | 19.461  | 22.591  | 22.590  |
| 416 | 6    | 1.467   | -0.335 | 0.010  | 0.007  | 1.224   | 1.330   | 1.328   | 1.339   | 1.337   |
| 427 | 0    | -35.754 | -0.690 | 0.084  | -0.068 | -44.009 | -32.095 | -32.247 | -37.888 | -38.048 |
| 427 | 1.5  | 4.393   | -0.363 | 0.038  | -0.029 | 4.690   | 3.991   | 3.924   | 4.423   | 4.353   |
| 427 | 3    | 18.055  | -0.037 | -0.009 | 0.009  | 21.607  | 16.241  | 16.259  | 18.925  | 18.944  |
| 427 | 4.5  | 5.232   | 0.290  | -0.055 | 0.048  | 6.743   | 4.654   | 4.757   | 5.619   | 5.727   |
| 427 | 6    | -34.075 | 0.617  | -0.102 | 0.086  | -39.903 | -30.769 | -30.581 | -35.497 | -35.299 |
| 428 | 0    | -36.078 | -0.311 | -0.074 | 0.085  | -43.791 | -32.544 | -32.386 | -38.155 | -37.989 |
| 428 | 1.5  | 3.977   | -0.173 | -0.037 | 0.043  | 4.495   | 3.543   | 3.623   | 4.028   | 4.112   |
| 428 | 3    | 17.548  | -0.036 | 0.000  | 0.001  | 21.000  | 15.793  | 15.795  | 18.402  | 18.404  |
| 428 | 4.5  | 4.634   | 0.102  | 0.036  | -0.040 | 5.723   | 4.207   | 4.130   | 4.968   | 4.887   |
| 428 | 6    | -34.765 | 0.239  | 0.073  | -0.082 | -41.335 | -31.215 | -31.370 | -36.276 | -36.438 |
| 429 | 0    | -35.223 | 0.107  | -0.069 | 0.077  | -42.097 | -31.770 | -31.624 | -36.990 | -36.837 |
| 429 | 1.5  | 4.507   | 0.030  | -0.037 | 0.041  | 5.457   | 4.019   | 4.097   | 4.712   | 4.794   |
| 429 | 3    | 17.752  | -0.046 | -0.005 | 0.005  | 21.228  | 15.971  | 15.982  | 18.605  | 18.616  |
| 429 | 4.5  | 4.513   | -0.123 | 0.027  | -0.031 | 5.219   | 4.088   | 4.031   | 4.689   | 4.629   |
| 429 | 6    | -35.212 | -0.199 | 0.059  | -0.067 | -42.573 | -31.632 | -31.757 | -37.036 | -37.168 |
| 430 | 0    | -19.228 | 0.496  | -0.034 | 0.041  | -22.281 | -17.340 | -17.264 | -19.913 | -19.834 |
| 430 | 1.13 | 2.601   | 0.268  | -0.022 | 0.026  | 3.549   | 2.319   | 2.367   | 2.876   | 2.926   |
| 430 | 2.25 | 9.532   | 0.039  | -0.009 | 0.011  | 11.501  | 8.570   | 8.589   | 10.024  | 10.045  |
| 430 | 3.38 | 1.566   | -0.189 | 0.003  | -0.005 | 1.576   | 1.412   | 1.405   | 1.528   | 1.520   |
| 430 | 4.5  | -21.298 | -0.417 | 0.016  | -0.020 | -26.226 | -19.153 | -19.188 | -22.609 | -22.647 |
| 431 | 0    | -34.952 | 0.002  | 0.001  | 0.000  | -41.939 | -31.456 | -31.457 | -36.698 | -36.699 |
| 431 | 1.5  | 4.775   | 0.002  | 0.001  | 0.000  | 5.733   | 4.298   | 4.297   | 5.016   | 5.014   |
| 431 | 3    | 18.017  | 0.002  | 0.001  | 0.000  | 21.624  | 16.216  | 16.215  | 18.920  | 18.919  |
| 431 | 4.5  | 4.775   | 0.002  | 0.001  | 0.000  | 5.733   | 4.298   | 4.297   | 5.015   | 5.014   |
| 431 | 6    | -34.952 | 0.002  | 0.001  | 0.000  | -41.940 | -31.456 | -31.458 | -36.698 | -36.699 |
| 432 | 0    | -21.298 | -0.417 | 0.016  | -0.020 | -26.226 | -19.153 | -19.188 | -22.610 | -22.647 |
| 432 | 1.13 | 1.566   | -0.189 | 0.003  | -0.005 | 1.576   | 1.412   | 1.405   | 1.528   | 1.520   |
| 432 | 2.25 | 9.532   | 0.039  | -0.009 | 0.011  | 11.501  | 8.570   | 8.590   | 10.024  | 10.045  |
| 432 | 3.38 | 2.601   | 0.268  | -0.022 | 0.026  | 3.549   | 2.319   | 2.367   | 2.877   | 2.927   |
| 432 | 4.5  | -19.228 | 0.496  | -0.034 | 0.041  | -22.280 | -17.339 | -17.264 | -19.913 | -19.834 |
| 433 | 0    | -35.212 | -0.199 | 0.059  | -0.067 | -42.573 | -31.632 | -31.757 | -37.036 | -37.168 |
| 433 | 1.5  | 4.513   | -0.123 | 0.027  | -0.031 | 5.219   | 4.088   | 4.031   | 4.689   | 4.629   |
| 433 | 3    | 17.752  | -0.046 | -0.005 | 0.005  | 21.228  | 15.971  | 15.982  | 18.605  | 18.616  |
| 433 | 4.5  | 4.507   | 0.030  | -0.037 | 0.041  | 5.457   | 4.019   | 4.097   | 4.712   | 4.794   |
| 433 | 6    | -35.223 | 0.107  | -0.069 | 0.077  | -42.097 | -31.770 | -31.624 | -36.990 | -36.836 |
| 434 | 0    | -34.765 | 0.239  | 0.073  | -0.082 | -41.335 | -31.215 | -31.370 | -36.276 | -36.438 |
| 434 | 1.5  | 4.634   | 0.102  | 0.036  | -0.040 | 5.723   | 4.207   | 4.130   | 4.968   | 4.887   |



|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 434 | 3    | 17.548  | -0.036  | 0.000  | 0.001  | 21.000   | 15.793  | 15.795  | 18.402  | 18.404  |
| 434 | 4.5  | 3.977   | -0.173  | -0.037 | 0.043  | 4.495    | 3.543   | 3.623   | 4.028   | 4.112   |
| 434 | 6    | -36.078 | -0.311  | -0.074 | 0.085  | -43.791  | -32.544 | -32.586 | -38.155 | -37.989 |
| 435 | 0    | -34.075 | 0.616   | -0.102 | 0.086  | -39.903  | -30.769 | -30.581 | -35.497 | -35.299 |
| 435 | 1.5  | 5.232   | 0.290   | -0.055 | 0.048  | 6.743    | 4.654   | 4.757   | 5.619   | 5.727   |
| 435 | 3    | 18.055  | -0.037  | -0.009 | 0.009  | 21.607   | 16.241  | 16.259  | 18.925  | 18.944  |
| 435 | 4.5  | 4.393   | -0.363  | 0.038  | -0.029 | 4.690    | 3.991   | 3.924   | 4.423   | 4.353   |
| 435 | 6    | -35.754 | -0.690  | 0.084  | -0.068 | -44.009  | -32.095 | -32.247 | -37.888 | -38.048 |
| 452 | 0    | -10.429 | -0.704  | -1.492 | 1.620  | -13.642  | -10.878 | -7.766  | -12.961 | -9.693  |
| 452 | 0.56 | -2.704  | -0.413  | -0.722 | 0.786  | -3.906   | -3.156  | -1.648  | -3.858  | -2.274  |
| 452 | 1.13 | 1.066   | -0.434  | 0.047  | -0.049 | 0.585    | 1.007   | 0.911   | 0.896   | 0.795   |
| 452 | 1.69 | 0.814   | -0.804  | 0.817  | -0.883 | -0.310   | 1.549   | -0.151  | 1.206   | -0.579  |
| 452 | 2.25 | -3.394  | -1.486  | 1.586  | -1.717 | -6.450   | -1.468  | -4.772  | -2.834  | -6.303  |
| 455 | 0    | -33.078 | -8.864  | 0.001  | 0.000  | -53.876  | -29.769 | -29.770 | -40.315 | -40.316 |
| 455 | 0.3  | -23.735 | -6.460  | 0.004  | -0.001 | -38.818  | -21.358 | -21.363 | -28.988 | -28.993 |
| 455 | 0.6  | -15.263 | -4.254  | 0.007  | -0.003 | -25.121  | -13.729 | -13.739 | -18.698 | -18.708 |
| 455 | 0.9  | -7.539  | -2.180  | 0.010  | -0.004 | -12.536  | -6.775  | -6.789  | -9.279  | -9.294  |
| 455 | 1.2  | -0.445  | -0.173  | 0.014  | -0.005 | -0.811   | -0.387  | -0.406  | -0.562  | -0.582  |
| 457 | 0    | -0.445  | -0.173  | 0.014  | -0.005 | -0.811   | -0.387  | -0.406  | -0.562  | -0.582  |
| 457 | 0.3  | -7.539  | -2.180  | 0.010  | -0.004 | -12.536  | -6.775  | -6.789  | -9.279  | -9.294  |
| 457 | 0.6  | -15.263 | -4.254  | 0.007  | -0.003 | -25.121  | -13.729 | -13.739 | -18.698 | -18.708 |
| 457 | 0.9  | -23.735 | -6.460  | 0.004  | -0.001 | -38.818  | -21.358 | -21.363 | -28.988 | -28.993 |
| 457 | 1.2  | -33.078 | -8.864  | 0.001  | 0.000  | -53.876  | -29.769 | -29.770 | -40.315 | -40.316 |
| 461 | 0    | -67.126 | -16.344 | -2.228 | 0.938  | -106.701 | -62.641 | -59.475 | -83.118 | -79.794 |
| 461 | 0.45 | -47.300 | -11.470 | -1.617 | 0.611  | -75.111  | -44.187 | -41.959 | -58.589 | -56.249 |
| 461 | 0.9  | -29.430 | -7.043  | -1.006 | 0.284  | -46.585  | -27.493 | -26.203 | -36.395 | -35.040 |
| 461 | 1.35 | -14.058 | -3.361  | -0.395 | -0.043 | -22.246  | -13.047 | -12.695 | -17.293 | -16.923 |
| 461 | 1.8  | -0.642  | -0.125  | 0.216  | -0.370 | -0.971   | -0.362  | -0.948  | -0.527  | -1.141  |
| 462 | 0    | -72.420 | -18.445 | -0.464 | 6.021  | -116.416 | -65.643 | -59.157 | -88.149 | -81.340 |
| 462 | 0.45 | -51.277 | -13.056 | -0.396 | 4.803  | -82.422  | -46.546 | -41.346 | -62.483 | -57.023 |
| 462 | 0.9  | -32.091 | -8.114  | -0.328 | 3.586  | -51.491  | -29.210 | -25.296 | -39.152 | -35.042 |
| 462 | 1.35 | -15.402 | -3.916  | -0.260 | 2.368  | -24.748  | -14.122 | -11.494 | -18.913 | -16.153 |
| 462 | 1.8  | -0.669  | -0.166  | -0.192 | 1.151  | -1.068   | -0.795  | 0.548   | -1.009  | 0.401   |
| 463 | 0    | -14.097 | -4.568  | 0.420  | -0.929 | -24.225  | -12.268 | -13.616 | -17.239 | -18.655 |
| 463 | 0.64 | -5.582  | -1.327  | 0.351  | -0.788 | -8.821   | -4.673  | -5.812  | -6.328  | -7.524  |
| 463 | 1.27 | -0.125  | 0.650   | 0.282  | -0.648 | 0.891    | 0.170   | -0.760  | 0.575   | -0.401  |
| 463 | 1.91 | 0.744   | 0.521   | 0.213  | -0.507 | 1.727    | 0.883   | 0.163   | 1.334   | 0.577   |
| 463 | 2.55 | -1.445  | -0.872  | 0.145  | -0.367 | -3.129   | -1.156  | -1.667  | -1.915  | -2.452  |
| 464 | 0    | -72.420 | -18.445 | -0.464 | 6.021  | -116.416 | -65.643 | -59.157 | -88.149 | -81.339 |
| 464 | 0.45 | -51.277 | -13.056 | -0.396 | 4.803  | -82.422  | -46.546 | -41.346 | -62.483 | -57.023 |
| 464 | 0.9  | -32.091 | -8.114  | -0.328 | 3.586  | -51.491  | -29.210 | -25.296 | -39.152 | -35.042 |
| 464 | 1.35 | -15.402 | -3.916  | -0.260 | 2.368  | -24.748  | -14.122 | -11.494 | -18.913 | -16.153 |
| 464 | 1.8  | -0.669  | -0.166  | -0.192 | 1.151  | -1.068   | -0.795  | 0.548   | -1.009  | 0.401   |
| 465 | 0    | -67.126 | -16.344 | -2.228 | 0.938  | -106.701 | -62.641 | -59.475 | -83.118 | -79.794 |
| 465 | 0.45 | -47.300 | -11.470 | -1.617 | 0.611  | -75.111  | -44.187 | -41.959 | -58.589 | -56.249 |
| 465 | 0.9  | -29.430 | -7.043  | -1.006 | 0.284  | -46.585  | -27.493 | -26.203 | -36.395 | -35.040 |
| 465 | 1.35 | -14.058 | -3.361  | -0.395 | -0.043 | -22.246  | -13.047 | -12.695 | -17.293 | -16.923 |
| 465 | 1.8  | -0.642  | -0.125  | 0.216  | -0.370 | -0.971   | -0.362  | -0.948  | -0.527  | -1.141  |
| 466 | 0    | -14.097 | -4.568  | 0.420  | -0.929 | -24.225  | -12.268 | -13.616 | -17.239 | -18.655 |
| 466 | 0.64 | -5.582  | -1.327  | 0.351  | -0.788 | -8.821   | -4.673  | -5.812  | -6.328  | -7.524  |
| 466 | 1.27 | -0.125  | 0.650   | 0.282  | -0.648 | 0.891    | 0.170   | -0.760  | 0.575   | -0.401  |
| 466 | 1.91 | 0.744   | 0.521   | 0.213  | -0.507 | 1.727    | 0.883   | 0.163   | 1.334   | 0.577   |
| 466 | 2.55 | -1.445  | -0.872  | 0.145  | -0.367 | -3.129   | -1.156  | -1.667  | -1.915  | -2.452  |
| 467 | 0    | -66.857 | -16.295 | 0.854  | -2.200 | -106.300 | -59.318 | -62.371 | -79.569 | -82.775 |
| 467 | 0.45 | -47.086 | -11.431 | 0.546  | -1.595 | -74.793  | -41.831 | -43.972 | -56.069 | -58.317 |
| 467 | 0.9  | -29.272 | -7.015  | 0.238  | -0.990 | -46.349  | -26.106 | -27.335 | -34.904 | -36.194 |
| 467 | 1.35 | -13.955 | -3.343  | -0.069 | -0.385 | -22.094  | -12.629 | -12.944 | -16.831 | -17.163 |
| 467 | 1.8  | -0.594  | -0.118  | -0.377 | 0.220  | -0.901   | -0.912  | -0.315  | -1.094  | -0.468  |
| 468 | 0    | -73.251 | -18.559 | 6.075  | -0.501 | -117.596 | -59.851 | -66.427 | -82.227 | -89.132 |
| 468 | 0.45 | -51.940 | -13.147 | 4.842  | -0.422 | -83.363  | -41.904 | -47.168 | -57.735 | -63.263 |
| 468 | 0.9  | -32.585 | -8.182  | 3.609  | -0.344 | -52.193  | -25.718 | -29.670 | -35.580 | -39.730 |
| 468 | 1.35 | -15.728 | -3.961  | 2.375  | -0.265 | -25.212  | -11.780 | -14.420 | -16.516 | -19.289 |
| 468 | 1.8  | -0.827  | -0.188  | 1.142  | -0.187 | -1.293   | 0.398   | -0.931  | 0.212   | -1.183  |
| 469 | 0    | -14.020 | -4.558  | -0.933 | 0.426  | -24.117  | -13.551 | -12.192 | -18.572 | -17.146 |
| 469 | 0.64 | -5.516  | -1.319  | -0.791 | 0.356  | -8.730   | -5.755  | -4.609  | -7.453  | -6.250  |
| 469 | 1.27 | -0.071  | 0.657   | -0.649 | 0.286  | 0.966    | -0.713  | 0.222   | -0.342  | 0.639   |
| 469 | 1.91 | 0.786   | 0.526   | -0.507 | 0.215  | 1.786    | 0.200   | 0.923   | 0.624   | 1.383   |



|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 469 | 2.55 | -1.415  | -0.868  | -0.366 | 0.145  | -3.087   | -1.639  | -1.128  | -2.417  | -1.880  |
| 470 | 0    | -73.251 | -18.559 | 6.075  | -0.501 | -117.596 | -59.851 | -66.427 | -82.227 | -89.132 |
| 470 | 0.45 | -51.940 | -13.147 | 4.842  | -0.422 | -83.363  | -41.904 | -47.168 | -57.735 | -63.263 |
| 470 | 0.9  | -32.585 | -8.182  | 3.609  | -0.344 | -52.193  | -25.718 | -29.070 | -35.580 | -39.730 |
| 470 | 1.35 | -15.728 | -3.961  | 2.375  | -0.265 | -25.212  | -11.780 | -14.420 | -16.516 | -19.289 |
| 470 | 1.8  | -0.827  | -0.188  | 1.142  | -0.187 | -1.293   | 0.398   | -0.931  | 0.212   | -1.183  |
| 471 | 0    | -66.857 | -16.295 | 0.854  | -2.200 | -106.300 | -59.318 | -62.371 | -79.569 | -82.775 |
| 471 | 0.45 | -47.086 | -11.431 | 0.546  | -1.595 | -74.793  | -41.832 | -43.972 | -56.069 | -58.317 |
| 471 | 0.9  | -29.272 | -7.015  | 0.238  | -0.990 | -46.349  | -26.106 | -27.335 | -34.904 | -36.194 |
| 471 | 1.35 | -13.955 | -3.343  | -0.069 | -0.385 | -22.094  | -12.629 | -12.944 | -16.831 | -17.163 |
| 471 | 1.8  | -0.594  | -0.118  | -0.377 | 0.220  | -0.901   | -0.912  | -0.315  | -1.094  | -0.468  |
| 473 | 0    | -72.280 | -18.672 | 0.898  | -0.685 | -116.611 | -64.154 | -65.737 | -86.715 | -88.376 |
| 473 | 0.45 | -51.183 | -13.251 | 0.630  | -0.448 | -82.622  | -45.435 | -46.513 | -61.429 | -62.561 |
| 473 | 0.9  | -32.044 | -8.277  | 0.363  | -0.210 | -51.695  | -28.477 | -29.049 | -38.479 | -39.081 |
| 473 | 1.35 | -15.401 | -4.048  | 0.095  | 0.027  | -24.957  | -13.766 | -13.834 | -18.621 | -18.693 |
| 473 | 1.8  | -0.715  | -0.265  | -0.172 | 0.265  | -1.282   | -0.816  | -0.379  | -1.099  | -0.640  |
| 474 | 0    | -72.280 | -18.672 | 0.898  | -0.685 | -116.611 | -64.154 | -65.737 | -86.715 | -88.376 |
| 474 | 0.45 | -51.183 | -13.251 | 0.630  | -0.448 | -82.622  | -45.435 | -46.513 | -61.429 | -62.561 |
| 474 | 0.9  | -32.044 | -8.277  | 0.363  | -0.210 | -51.695  | -28.477 | -29.049 | -38.479 | -39.081 |
| 474 | 1.35 | -15.401 | -4.048  | 0.095  | 0.027  | -24.957  | -13.766 | -13.834 | -18.621 | -18.693 |
| 474 | 1.8  | -0.715  | -0.265  | -0.172 | 0.265  | -1.282   | -0.816  | -0.379  | -1.099  | -0.640  |
| 475 | 0    | -72.614 | -18.736 | -0.616 | 0.886  | -117.115 | -65.969 | -64.467 | -88.695 | -87.118 |
| 475 | 0.45 | -51.453 | -13.303 | -0.394 | 0.621  | -83.027  | -46.701 | -45.687 | -62.819 | -61.754 |
| 475 | 0.9  | -32.248 | -8.316  | -0.171 | 0.356  | -52.003  | -29.195 | -28.667 | -39.279 | -38.726 |
| 475 | 1.35 | -15.541 | -4.073  | 0.051  | 0.091  | -25.166  | -13.936 | -13.896 | -18.831 | -18.789 |
| 475 | 1.8  | -0.790  | -0.218  | 0.273  | -0.174 | -1.393   | -0.438  | -0.885  | -0.718  | -1.188  |
| 476 | 0    | -72.614 | -18.736 | -0.616 | 0.886  | -117.115 | -65.969 | -64.467 | -88.695 | -87.118 |
| 476 | 0.45 | -51.453 | -13.303 | -0.394 | 0.621  | -83.027  | -46.701 | -45.687 | -62.819 | -61.754 |
| 476 | 0.9  | -32.248 | -8.316  | -0.171 | 0.356  | -52.003  | -29.195 | -28.667 | -39.279 | -38.726 |
| 476 | 1.35 | -15.541 | -4.073  | 0.051  | 0.091  | -25.166  | -13.936 | -13.896 | -18.831 | -18.789 |
| 476 | 1.8  | -0.790  | -0.278  | 0.273  | -0.174 | -1.393   | -0.438  | -0.885  | -0.718  | -1.188  |
| 477 | 0    | -2.398  | -1.364  | 1.562  | -1.688 | -5.059   | -0.596  | -3.846  | -1.737  | -5.149  |
| 477 | 0.56 | 0.795   | -0.624  | 0.797  | -0.861 | -0.044   | 1.512   | -0.146  | 1.278   | -0.463  |
| 477 | 1.13 | 0.033   | -0.196  | 0.031  | -0.035 | -0.274   | 0.061   | -0.005  | -0.056  | -0.126  |
| 477 | 1.69 | -4.752  | -0.117  | -0.734 | 0.791  | -5.890   | -5.011  | -3.486  | -5.834  | -4.233  |
| 477 | 2.25 | -13.493 | -0.350  | -1.500 | 1.618  | -16.751  | -13.643 | -10.526 | -15.962 | -12.689 |
| 478 | 0    | -16.243 | -0.413  | -1.545 | 1.685  | -20.153  | -16.164 | -12.934 | -18.938 | -15.546 |
| 478 | 0.75 | -1.768  | 0.380   | -0.809 | 0.884  | -1.514   | -2.400  | -0.707  | -2.466  | -0.688  |
| 478 | 1.5  | 5.623   | 0.590   | -0.072 | 0.084  | 7.691    | 4.989   | 5.114   | 6.200   | 6.364   |
| 478 | 2.25 | 5.863   | 0.179   | 0.664  | -0.717 | 7.322    | 5.940   | 4.559   | 6.966   | 5.515   |
| 478 | 3    | -0.982  | -0.815  | 1.400  | -1.518 | -2.483   | 0.516   | -2.402  | -0.074  | -3.139  |
| 479 | 0    | -49.995 | -2.024  | -2.146 | 2.349  | -63.232  | -47.141 | -42.646 | -56.022 | -51.303 |
| 479 | 0.23 | -36.077 | -1.175  | -1.744 | 1.911  | -45.173  | -34.214 | -30.559 | -40.453 | -36.615 |
| 479 | 0.45 | -22.994 | -0.383  | -1.342 | 1.473  | -28.206  | -22.037 | -19.222 | -25.795 | -22.839 |
| 479 | 0.68 | -10.814 | 0.317   | -0.941 | 1.035  | -12.469  | -10.673 | -8.697  | -12.142 | -10.068 |
| 479 | 0.9  | 0.533   | 0.961   | -0.539 | 0.597  | 2.176    | -0.060  | 1.076   | 0.599   | 1.791   |
| 480 | 0    | -0.157  | -0.072  | 0.023  | -0.064 | -0.303   | -0.118  | -0.205  | -0.186  | -0.277  |
| 480 | 0.45 | -0.242  | 0.150   | -0.003 | -0.004 | -0.050   | -0.221  | -0.222  | -0.162  | -0.164  |
| 480 | 0.9  | -1.521  | -0.074  | -0.028 | 0.055  | -1.943   | -1.397  | -1.313  | -1.672  | -1.585  |
| 480 | 1.35 | -4.534  | -1.043  | -0.053 | 0.115  | -7.109   | -4.133  | -3.965  | -5.473  | -5.296  |
| 480 | 1.8  | -8.740  | -2.458  | -0.078 | 0.175  | -14.421  | -7.944  | -7.691  | -10.807 | -10.542 |
| 481 | 0    | 2.020   | 0.615   | -0.109 | 0.121  | 3.408    | 1.709   | 1.939   | 2.394   | 2.635   |
| 481 | 0.45 | -1.028  | -0.109  | 0.010  | -0.012 | -1.409   | -0.916  | -0.937  | -1.139  | -1.161  |
| 481 | 0.9  | -5.270  | -1.281  | 0.128  | -0.144 | -8.373   | -4.615  | -4.887  | -6.206  | -6.492  |
| 481 | 1.35 | -11.246 | -3.197  | 0.247  | -0.277 | -18.610  | -9.874  | -10.398 | -13.563 | -14.112 |
| 481 | 1.8  | -18.414 | -5.560  | 0.365  | -0.409 | -30.993  | -16.208 | -16.982 | -22.454 | -23.267 |
| 482 | 0    | 2.039   | 0.619   | 0.120  | -0.111 | 3.437    | 1.955   | 1.724   | 2.657   | 2.414   |
| 482 | 0.45 | -1.027  | -0.109  | -0.012 | 0.010  | -1.408   | -0.936  | -0.915  | -1.160  | -1.137  |
| 482 | 0.9  | -5.287  | -1.284  | -0.144 | 0.131  | -8.399   | -4.902  | -4.627  | -6.511  | -6.223  |
| 482 | 1.35 | -11.280 | -3.204  | -0.276 | 0.252  | -18.662  | -10.428 | -9.901  | -14.152 | -13.598 |
| 482 | 1.8  | -18.467 | -5.570  | -0.408 | 0.372  | -31.072  | -17.028 | -16.248 | -23.328 | -22.508 |
| 483 | 0    | -12.395 | -3.999  | 0.002  | -0.204 | -21.272  | -11.154 | -11.359 | -15.532 | -15.748 |
| 483 | 0.45 | -7.027  | -2.099  | 0.002  | -0.133 | -11.792  | -6.323  | -6.457  | -8.699  | -8.840  |
| 483 | 0.9  | -2.852  | -0.647  | 0.001  | -0.062 | -4.458   | -2.566  | -2.629  | -3.401  | -3.468  |
| 483 | 1.35 | -0.412  | 0.061   | 0.001  | 0.009  | -0.396   | -0.369  | -0.362  | -0.392  | -0.385  |
| 483 | 1.8  | 0.836   | 0.322   | 0.001  | 0.079  | 1.519    | 0.753   | 0.832   | 1.082   | 1.164   |
| 484 | 0    | -73.519 | -19.049 | 0.638  | -3.484 | -118.702 | -65.530 | -69.651 | -88.527 | -92.855 |

|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 484 | 0.45 | -51.931 | -13.511 | 0.514  | -2.784 | -83.935  | -46.224 | -49.522 | -62.500 | -65.963 |
| 484 | 0.9  | -32.300 | -8.420  | 0.390  | -2.083 | -52.231  | -28.680 | -31.153 | -38.809 | -41.407 |
| 484 | 1.35 | -15.166 | -4.073  | 0.266  | -1.383 | -24.715  | -13.383 | -15.032 | -18.210 | -19.942 |
| 484 | 1.8  | 0.012   | -0.173  | 0.143  | -0.683 | -0.262   | 0.153   | -0.672  | 0.053   | -0.813  |
| 485 | 0    | -10.054 | -3.917  | -0.059 | 0.425  | -18.333  | -9.108  | -8.624  | -13.087 | -12.579 |
| 485 | 0.45 | -5.418  | -2.047  | -0.039 | 0.278  | -9.777   | -4.915  | 4.598   | -7.019  | -6.687  |
| 485 | 0.9  | -1.975  | -0.624  | -0.018 | 0.131  | -3.368   | -1.795  | -1.646  | -2.485  | -2.329  |
| 485 | 1.35 | -0.266  | 0.055   | 0.003  | -0.016 | -0.231   | -0.236  | -0.255  | -0.241  | -0.261  |
| 485 | 1.8  | 0.250   | 0.287   | 0.023  | -0.163 | 0.759    | 0.249   | 0.062   | 0.468   | 0.272   |
| 486 | 0    | -77.468 | -19.906 | 0.098  | -1.540 | -124.811 | -69.623 | -71.261 | -93.779 | -95.499 |
| 486 | 0.45 | -54.903 | -14.168 | 0.080  | -1.237 | -88.552  | -49.333 | -50.650 | -66.490 | -67.873 |
| 486 | 0.9  | -34.295 | -8.877  | 0.061  | -0.934 | -55.356  | -30.804 | -31.799 | -41.537 | -42.583 |
| 486 | 1.35 | -16.184 | -4.330  | 0.043  | -0.631 | -26.349  | -14.523 | -15.196 | -19.676 | -20.384 |
| 486 | 1.8  | -0.029  | -0.231  | 0.024  | -0.328 | -0.404   | -0.002  | -0.354  | -0.151  | -0.520  |
| 487 | 0    | -11.531 | -3.992  | -0.023 | 0.197  | -20.225  | -10.401 | -10.180 | -14.646 | -14.415 |
| 487 | 0.45 | -6.430  | -2.094  | -0.015 | 0.129  | -11.067  | -5.802  | -5.658  | -8.087  | -7.935  |
| 487 | 0.9  | -2.522  | -0.643  | -0.007 | 0.062  | -4.056   | -2.277  | -2.208  | -3.061  | -2.989  |
| 487 | 1.35 | -0.349  | 0.063   | 0.001  | -0.006 | -0.317   | -0.313  | -0.320  | -0.325  | -0.333  |
| 487 | 1.8  | 0.632   | 0.323   | 0.009  | -0.074 | 1.275    | 0.577   | 0.495   | 0.876   | 0.789   |
| 488 | 0    | -69.302 | -17.291 | 0.157  | -0.608 | -110.828 | -62.215 | -62.980 | -83.495 | -84.299 |
| 488 | 0.45 | -48.855 | -12.191 | 0.128  | -0.495 | -78.131  | -43.842 | -44.464 | -58.844 | -59.497 |
| 488 | 0.9  | -30.364 | -7.538  | 0.098  | -0.381 | -48.498  | -27.230 | -27.709 | -36.528 | -37.032 |
| 488 | 1.35 | -14.371 | -3.629  | 0.069  | -0.268 | -23.053  | -12.865 | -13.202 | -17.304 | -17.657 |
| 488 | 1.8  | -0.335  | -0.168  | 0.040  | -0.154 | -0.670   | -0.262  | -0.455  | -0.415  | -0.619  |
| 489 | 0    | -8.351  | -2.524  | -0.022 | 0.086  | -14.059  | -7.538  | -7.430  | -10.381 | -10.268 |
| 489 | 0.45 | -4.268  | -1.087  | -0.014 | 0.054  | -6.861   | -3.855  | -3.787  | -5.180  | -5.109  |
| 489 | 0.9  | -1.378  | -0.097  | -0.006 | 0.022  | -1.809   | -1.245  | -1.218  | -1.514  | -1.484  |
| 489 | 1.35 | -0.222  | 0.148   | 0.003  | -0.009 | -0.029   | -0.197  | -0.209  | -0.137  | -0.149  |
| 489 | 1.8  | -0.259  | -0.054  | 0.011  | -0.041 | -0.397   | -0.222  | -0.274  | -0.294  | -0.349  |
| 490 | 0    | -70.921 | -17.772 | 0.135  | -0.480 | -113.540 | -63.694 | -64.309 | -85.522 | -86.167 |
| 490 | 0.45 | -50.038 | -12.544 | 0.108  | -0.382 | -80.115  | -44.926 | -45.416 | -60.329 | -60.843 |
| 490 | 0.9  | -31.112 | -7.762  | 0.081  | -0.284 | -49.754  | -27.919 | -28.284 | -37.472 | -37.855 |
| 490 | 1.35 | -14.683 | -3.726  | 0.054  | -0.186 | -23.581  | -13.160 | -13.400 | -17.707 | -17.959 |
| 490 | 1.8  | -0.210  | -0.136  | 0.028  | -0.087 | -0.470   | -0.161  | -0.277  | -0.277  | -0.398  |
| 491 | 0    | -11.517 | -4.001  | -0.018 | 0.070  | -20.222  | -10.383 | -10.295 | -14.632 | -14.539 |
| 491 | 0.45 | -6.407  | -2.096  | -0.011 | 0.046  | -11.042  | -5.778  | -5.721  | -8.060  | -8.000  |
| 491 | 0.9  | -2.490  | -0.637  | -0.005 | 0.021  | -4.008   | -2.246  | -2.220  | -3.021  | -2.994  |
| 491 | 1.35 | -0.308  | 0.077   | 0.001  | -0.004 | -0.246   | -0.276  | -0.281  | -0.273  | -0.279  |
| 491 | 1.8  | 0.681   | 0.345   | 0.008  | -0.028 | 1.369    | 0.621   | 0.585   | 0.940   | 0.903   |
| 492 | 0    | -70.921 | -17.772 | 0.135  | -0.480 | -113.540 | -63.694 | -64.309 | -85.522 | -86.167 |
| 492 | 0.45 | -50.038 | -12.544 | 0.108  | -0.382 | -80.116  | -44.926 | -45.416 | -60.329 | -60.343 |
| 492 | 0.9  | -31.112 | -7.763  | 0.081  | -0.284 | -49.754  | -27.919 | -28.284 | -37.472 | -37.855 |
| 492 | 1.35 | -14.683 | -3.726  | 0.054  | -0.186 | -23.581  | -13.160 | -13.400 | -17.707 | -17.959 |
| 492 | 1.8  | -0.210  | -0.136  | 0.028  | -0.087 | -0.470   | -0.161  | -0.277  | -0.277  | -0.398  |
| 493 | 0    | -8.351  | -2.524  | -0.022 | 0.086  | -14.059  | -7.538  | -7.430  | -10.381 | -10.268 |
| 493 | 0.45 | -4.268  | -1.087  | -0.014 | 0.054  | -6.861   | -3.855  | -3.787  | -5.180  | -5.109  |
| 493 | 0.9  | -1.378  | -0.097  | -0.006 | 0.022  | -1.809   | -1.245  | -1.217  | -1.514  | -1.484  |
| 493 | 1.35 | -0.222  | 0.148   | 0.003  | -0.009 | -0.029   | -0.197  | -0.209  | -0.137  | -0.149  |
| 493 | 1.8  | -0.259  | -0.054  | 0.011  | -0.041 | -0.397   | -0.222  | -0.274  | -0.294  | -0.349  |
| 494 | 0    | -26.749 | -4.143  | 1.917  | -2.046 | -38.729  | -22.158 | -26.121 | -28.685 | -32.846 |
| 494 | 0.23 | -19.839 | -3.255  | 1.564  | -1.669 | -29.016  | -16.291 | -19.524 | -21.240 | -24.635 |
| 494 | 0.45 | -13.126 | -2.423  | 1.212  | -1.292 | -19.628  | -10.602 | -13.105 | -14.036 | -16.665 |
| 494 | 0.68 | -6.677  | -1.684  | 0.859  | -0.915 | -10.707  | -5.150  | -6.924  | -7.170  | -9.033  |
| 494 | 0.9  | -0.425  | -1.001  | 0.506  | -0.538 | -2.111   | 0.124   | -0.921  | -0.545  | -1.642  |
| 495 | 0    | -69.302 | -17.291 | 0.157  | -0.608 | -110.828 | -62.215 | -62.980 | -83.495 | -84.299 |
| 495 | 0.45 | -48.855 | -12.191 | 0.128  | -0.495 | -78.132  | -43.842 | -44.464 | -58.844 | -59.497 |
| 495 | 0.9  | -30.365 | -7.538  | 0.098  | -0.381 | -48.498  | -27.230 | -27.709 | -36.528 | -37.032 |
| 495 | 1.35 | -14.371 | -3.629  | 0.069  | -0.268 | -23.053  | -12.865 | -13.202 | -17.304 | -17.657 |
| 495 | 1.8  | -0.335  | -0.168  | 0.040  | -0.154 | -0.670   | -0.262  | -0.455  | -0.415  | -0.619  |
| 496 | 0    | -11.531 | -3.992  | -0.023 | 0.197  | -20.225  | -10.400 | -10.180 | -14.646 | -14.415 |
| 496 | 0.45 | -6.430  | -2.094  | -0.015 | 0.129  | -11.067  | -5.802  | -5.658  | -8.087  | -7.935  |
| 496 | 0.9  | -2.522  | -0.643  | -0.007 | 0.062  | -4.056   | -2.277  | -2.208  | -3.061  | -2.989  |
| 496 | 1.35 | -0.349  | 0.063   | 0.001  | -0.006 | -0.317   | -0.313  | -0.320  | -0.325  | -0.333  |
| 496 | 1.8  | 0.632   | 0.323   | 0.009  | -0.074 | 1.275    | 0.577   | 0.495   | 0.876   | 0.789   |
| 497 | 0    | -77.468 | -19.906 | 0.098  | -1.540 | -124.811 | -69.623 | -71.261 | -93.779 | -95.499 |
| 497 | 0.45 | -54.903 | -14.168 | 0.080  | -1.237 | -88.552  | -49.333 | -50.650 | -66.490 | -67.873 |
| 497 | 0.9  | -34.295 | -8.877  | 0.061  | -0.934 | -55.356  | -30.804 | -31.799 | -41.537 | -42.583 |

|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 497 | 1.35 | -16.184 | -4.330  | 0.043  | -0.631 | -26.349  | -14.523 | -15.196 | -19.676 | -20.384 |
| 497 | 1.8  | -0.029  | -0.231  | 0.024  | -0.328 | -0.404   | -0.002  | -0.354  | -0.151  | -0.520  |
| 498 | 0    | -10.054 | -3.917  | -0.059 | 0.425  | -18.333  | -9.108  | -8.624  | -13.087 | -12.579 |
| 498 | 0.45 | -5.418  | -2.047  | -0.039 | 0.278  | -9.777   | -4.915  | -4.598  | -7.019  | -6.687  |
| 498 | 0.9  | -1.975  | -0.624  | -0.018 | 0.131  | -3.368   | -1.795  | -1.646  | -2.485  | -2.329  |
| 498 | 1.35 | -0.266  | 0.055   | 0.003  | -0.016 | -0.231   | -0.236  | -0.255  | -0.241  | -0.261  |
| 498 | 1.8  | 0.250   | 0.287   | 0.023  | -0.163 | 0.759    | 0.249   | 0.062   | 0.468   | 0.272   |
| 499 | 0    | -73.519 | -19.049 | 0.638  | -3.484 | -118.702 | -65.530 | -69.651 | -88.527 | -92.855 |
| 499 | 0.45 | -51.931 | -13.511 | 0.514  | -2.784 | -83.935  | -46.224 | -49.522 | -62.500 | -65.963 |
| 499 | 0.9  | -32.300 | -8.420  | 0.390  | -2.083 | -52.231  | -28.680 | -31.153 | -38.809 | -41.407 |
| 499 | 1.35 | -15.166 | -4.073  | 0.266  | -1.383 | -24.715  | -13.383 | -15.032 | -18.210 | -19.942 |
| 499 | 1.8  | 0.012   | -0.173  | 0.143  | -0.683 | -0.262   | 0.153   | -0.672  | 0.053   | -0.813  |
| 500 | 0    | -12.395 | -3.999  | 0.002  | -0.204 | -21.272  | -11.154 | -11.359 | -15.532 | -15.748 |
| 500 | 0.45 | -7.027  | -2.099  | 0.002  | -0.133 | -11.792  | -6.323  | -6.457  | -8.699  | -8.840  |
| 500 | 0.9  | -2.852  | -0.647  | 0.001  | -0.062 | -4.458   | -2.566  | -2.629  | -3.401  | -3.468  |
| 500 | 1.35 | -0.412  | 0.061   | 0.001  | 0.009  | -0.396   | -0.369  | -0.362  | -0.392  | -0.385  |
| 500 | 1.8  | 0.836   | 0.322   | 0.001  | 0.079  | 1.519    | 0.753   | 0.832   | 1.082   | 1.164   |
| 501 | 0    | -8.745  | -2.460  | 0.176  | -0.079 | -14.430  | -7.695  | -7.949  | -10.548 | -10.814 |
| 501 | 0.45 | -4.537  | -1.043  | 0.116  | -0.053 | -7.114   | -3.968  | -4.137  | -5.300  | -5.477  |
| 501 | 0.9  | -1.522  | -0.074  | 0.056  | -0.028 | -1.945   | -1.314  | -1.398  | -1.587  | -1.674  |
| 501 | 1.35 | -0.242  | 0.151   | -0.004 | -0.002 | -0.049   | -0.222  | -0.220  | -0.163  | -0.161  |
| 501 | 1.8  | -0.154  | -0.072  | -0.064 | 0.023  | -0.299   | -0.203  | -0.116  | -0.274  | -0.183  |
| 502 | 0    | -8.740  | -2.458  | -0.078 | 0.175  | -14.421  | -7.944  | -7.691  | -10.807 | -10.542 |
| 502 | 0.45 | -4.534  | -1.043  | -0.053 | 0.115  | -7.109   | -4.133  | -3.965  | -5.473  | -5.296  |
| 502 | 0.9  | -1.521  | -0.074  | -0.028 | 0.055  | -1.943   | -1.397  | -1.313  | -1.672  | -1.585  |
| 502 | 1.35 | -0.242  | 0.150   | -0.003 | -0.004 | -0.050   | -0.221  | -0.222  | -0.162  | -0.164  |
| 502 | 1.8  | -0.157  | -0.072  | 0.023  | -0.064 | -0.303   | -0.118  | -0.205  | -0.186  | -0.277  |
| 503 | 0    | -18.414 | -5.560  | 0.365  | -0.409 | -30.993  | -16.208 | -16.982 | -22.454 | -23.267 |
| 503 | 0.45 | -11.246 | -3.197  | 0.247  | -0.277 | -18.610  | -9.874  | -10.398 | -13.563 | -14.112 |
| 503 | 0.9  | -5.270  | -1.281  | 0.128  | -0.144 | -8.373   | -4.615  | -4.887  | -6.206  | -6.492  |
| 503 | 1.35 | -1.028  | -0.109  | 0.010  | -0.012 | -1.409   | -0.916  | -0.937  | -1.139  | -1.161  |
| 503 | 1.8  | 2.020   | 0.615   | -0.109 | 0.121  | 3.408    | 1.709   | 1.939   | 2.394   | 2.635   |
| 504 | 0    | -18.467 | -5.570  | -0.408 | 0.372  | -31.072  | -17.028 | -16.248 | -23.328 | -22.508 |
| 504 | 0.45 | -11.280 | -3.204  | -0.276 | 0.252  | -18.662  | -10.428 | -9.901  | -14.152 | -13.598 |
| 504 | 0.9  | -5.287  | -1.284  | -0.144 | 0.131  | -8.399   | -4.902  | -4.627  | -6.511  | -6.223  |
| 504 | 1.35 | -1.027  | -0.109  | -0.012 | 0.010  | -1.408   | -0.936  | -0.915  | -1.160  | -1.137  |
| 504 | 1.8  | 2.039   | 0.619   | 0.120  | -0.111 | 3.437    | 1.955   | 1.724   | 2.657   | 2.114   |
| 505 | 0    | -0.825  | -0.782  | 1.333  | -1.436 | -2.242   | 0.590   | -2.179  | 0.040   | -2.867  |
| 505 | 0.75 | 5.466   | 0.101   | 0.689  | -0.742 | 6.722    | 5.609   | 4.178   | 6.527   | 5.025   |
| 505 | 1.5  | 4.674   | 0.402   | 0.045  | -0.047 | 6.251    | 4.252   | 4.139   | 5.208   | 5.111   |
| 505 | 2.25 | -3.271  | 0.081   | -0.599 | 0.648  | -3.794   | -3.542  | -2.296  | -4.012  | -2.703  |
| 505 | 3    | -18.299 | -0.822  | -1.243 | 1.343  | -23.274  | -17.712 | -15.127 | -21.037 | -18.322 |
| 506 | 0    | -18.145 | -0.812  | -1.486 | 1.659  | -23.074  | -17.817 | -14.672 | -21.124 | -17.822 |
| 506 | 0.75 | -3.242  | 0.077   | -0.791 | 0.894  | -3.768   | -3.709  | -2.024  | -4.186  | -2.418  |
| 506 | 1.5  | 4.577   | 0.382   | -0.096 | 0.128  | 6.103    | 4.024   | 4.247   | 4.946   | 5.181   |
| 506 | 2.25 | 5.244   | 0.066   | 0.600  | -0.637 | 6.399    | 5.319   | 4.083   | 6.178   | 4.879   |
| 506 | 3    | -1.173  | -0.832  | 1.295  | -1.403 | -2.739   | 0.239   | -2.458  | -0.396  | -3.228  |
| 507 | 0    | -73.949 | -19.123 | -3.491 | 0.649  | -119.336 | -70.045 | -65.906 | -93.360 | -89.013 |
| 507 | 0.45 | -52.277 | -13.770 | -2.789 | 0.522  | -84.445  | -49.838 | -46.527 | -66.368 | -62.892 |
| 507 | 0.9  | -32.561 | -8.464  | -2.086 | 0.396  | -52.616  | -31.391 | -28.909 | -41.712 | -39.106 |
| 507 | 1.35 | -15.342 | -4.103  | -1.384 | 0.269  | -24.975  | -15.192 | -13.539 | -20.147 | -18.412 |
| 507 | 1.8  | -0.080  | -0.189  | -0.681 | 0.143  | -0.398   | -0.754  | 0.070   | -0.918  | -0.053  |
| 508 | 0    | -1.335  | -0.853  | 1.180  | -1.244 | -2.966   | -0.021  | -2.445  | -0.700  | -3.245  |
| 508 | 0.75 | 6.263   | 0.172   | 0.700  | -0.753 | 7.791    | 6.336   | 4.884   | 7.419   | 5.894   |
| 508 | 1.5  | 6.776   | 0.614   | 0.220  | -0.262 | 9.113    | 6.318   | 5.837   | 7.732   | 7.226   |
| 508 | 2.25 | 0.137   | 0.435   | -0.261 | 0.229  | 0.860    | -0.137  | 0.353   | 0.144   | 0.659   |
| 508 | 3    | -13.586 | -0.327  | -0.741 | 0.720  | -16.827  | -12.968 | -11.507 | -15.249 | -13.715 |
| 509 | 0    | 0.795   | 0.316   | 0.081  | 0.000  | 1.460    | 0.797   | 0.716   | 1.119   | 1.035   |
| 509 | 0.45 | -0.416  | 0.060   | 0.009  | 0.001  | -0.402   | -0.366  | -0.373  | -0.389  | -0.397  |
| 509 | 0.9  | -2.820  | -0.642  | -0.064 | 0.002  | -4.411   | -2.602  | -2.536  | -3.432  | -3.363  |
| 509 | 1.35 | -6.958  | -2.089  | -0.136 | 0.003  | -11.693  | -6.398  | -6.259  | -8.765  | -8.619  |
| 509 | 1.8  | -12.290 | -3.983  | -0.208 | 0.004  | -21.121  | -11.269 | -11.057 | -15.632 | -15.409 |
| 510 | 0    | 0.205   | 0.279   | -0.163 | 0.023  | 0.692    | 0.022   | 0.208   | 0.220   | 0.415   |
| 510 | 0.45 | -0.269  | 0.055   | -0.016 | 0.003  | -0.235   | -0.258  | -0.239  | -0.264  | -0.245  |
| 510 | 0.9  | -1.935  | -0.616  | 0.131  | -0.018 | -3.308   | -1.611  | -1.760  | -2.283  | -2.439  |
| 510 | 1.35 | -5.336  | -2.032  | 0.277  | -0.039 | -9.654   | -4.525  | -4.841  | -6.592  | -6.923  |
| 510 | 1.8  | -9.930  | -3.894  | 0.424  | -0.059 | -18.147  | -8.513  | -8.996  | -12.434 | -12.942 |

|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 511 | 0    | -0.226   | -0.268  | -0.323 | 0.021  | -0.700   | -0.526   | -0.182   | -0.745   | -0.384   |
| 511 | 0.45 | -16.541  | -4.393  | -0.625 | 0.039  | -26.878  | -15.512  | -14.848  | -20.792  | -20.095  |
| 511 | 0.9  | -34.813  | -8.965  | -0.928 | 0.056  | -56.119  | -32.259  | -31.275  | -43.175  | -42.142  |
| 511 | 1.35 | -55.582  | -14.281 | -1.230 | 0.074  | -89.548  | -51.254  | -49.950  | -68.650  | -67.280  |
| 511 | 1.8  | -78.308  | -20.044 | -1.533 | 0.092  | -126.040 | -72.010  | -70.385  | -96.460  | -94.754  |
| 512 | 0    | 0.466    | 0.276   | -0.068 | 0.006  | 1.000    | 0.351    | 0.425    | 0.591    | 0.669    |
| 512 | 0.45 | -0.366   | 0.059   | -0.005 | 0.000  | -0.345   | -0.335   | -0.329   | -0.353   | -0.347   |
| 512 | 0.9  | -2.392   | -0.604  | 0.058  | -0.005 | -3.836   | -2.094   | -2.158   | -2.831   | -2.897   |
| 512 | 1.35 | -6.151   | -2.012  | 0.121  | -0.011 | -10.600  | -5.415   | -5.547   | -7.599   | -7.738   |
| 512 | 1.8  | -11.104  | -3.867  | 0.184  | -0.017 | -19.511  | -9.809   | -10.010  | -13.902  | -14.112  |
| 513 | 0    | -0.934   | -0.352  | -0.126 | 0.025  | -1.685   | -0.967   | -0.815   | -1.335   | -1.176   |
| 513 | 0.45 | -15.970  | -4.109  | -0.193 | 0.031  | -25.737  | -14.565  | -14.342  | -19.559  | -19.324  |
| 513 | 0.9  | -32.961  | -8.312  | -0.259 | 0.037  | -52.853  | -29.925  | -29.629  | -40.118  | -39.808  |
| 513 | 1.35 | -52.451  | -13.260 | -0.326 | 0.042  | -84.157  | -47.532  | -47.164  | -63.769  | -63.383  |
| 513 | 1.8  | -73.897  | -18.655 | -0.392 | 0.048  | -118.523 | -66.899  | -66.459  | -89.756  | -89.294  |
| 514 | 0    | -0.850   | -0.252  | -0.041 | 0.011  | -1.423   | -0.806   | -0.754   | -1.094   | -1.040   |
| 514 | 0.45 | -1.353   | -0.148  | -0.010 | 0.003  | -1.861   | -1.228   | -1.215   | -1.524   | -1.511   |
| 514 | 0.9  | -3.049   | -0.491  | 0.022  | -0.006 | -4.445   | -2.723   | -2.750   | -3.489   | -3.517   |
| 514 | 1.35 | -6.480   | -1.579  | 0.053  | -0.014 | -10.303  | -5.779   | -5.846   | -7.743   | -7.814   |
| 514 | 1.8  | -11.103  | -3.114  | 0.084  | -0.022 | -18.306  | -9.909   | -10.015  | -13.532  | -13.644  |
| 515 | 0    | -31.025  | -8.304  | -0.136 | 0.049  | -50.517  | -28.059  | -27.874  | -37.951  | -37.757  |
| 515 | 0.45 | -52.304  | -13.596 | -0.274 | 0.099  | -84.519  | -47.347  | -46.974  | -63.772  | -63.381  |
| 515 | 0.9  | -76.311  | -19.759 | -0.411 | 0.150  | -123.188 | -69.090  | -68.530  | -93.006  | -92.417  |
| 515 | 1.35 | -102.950 | -26.742 | -0.548 | 0.201  | -166.327 | -93.203  | -92.454  | -125.520 | -124.734 |
| 515 | 1.8  | -131.545 | -34.171 | -0.686 | 0.251  | -212.528 | -119.076 | -118.139 | -160.370 | -159.387 |
| 516 | 0    | 0.890    | 0.346   | -0.027 | 0.010  | 1.622    | 0.774    | 0.811    | 1.124    | 1.163    |
| 516 | 0.75 | 2.602    | 1.708   | -0.011 | 0.004  | 5.856    | 2.331    | 2.346    | 3.797    | 3.813    |
| 516 | 1.5  | -0.503   | 1.002   | 0.005  | -0.002 | 1.000    | -0.447   | -0.454   | 0.109    | 0.102    |
| 516 | 2.25 | -10.929  | -3.152  | 0.022  | -0.007 | -18.158  | -9.814   | -9.843   | -13.438  | -13.469  |
| 516 | 3    | -26.172  | -9.375  | 0.038  | -0.013 | -46.405  | -23.516  | -23.568  | -33.346  | -33.400  |
| 517 | 0    | -31.025  | -8.304  | -0.136 | 0.049  | -50.517  | -28.059  | -27.874  | -37.951  | -37.757  |
| 517 | 0.45 | -52.304  | -13.596 | -0.274 | 0.099  | -84.519  | -47.347  | -46.974  | -63.772  | -63.381  |
| 517 | 0.9  | -76.311  | -19.760 | -0.411 | 0.150  | -123.188 | -69.090  | -68.530  | -93.006  | -92.417  |
| 517 | 1.35 | -102.950 | -26.742 | -0.548 | 0.201  | -166.327 | -93.203  | -92.454  | -125.520 | -124.734 |
| 517 | 1.8  | -131.545 | -34.171 | -0.686 | 0.251  | -212.529 | -119.076 | -118.140 | -160.370 | -159.387 |
| 518 | 0    | -0.850   | -0.252  | -0.041 | 0.011  | -1.423   | -0.806   | -0.754   | -1.094   | -1.040   |
| 518 | 0.45 | -1.353   | -0.148  | -0.010 | 0.003  | -1.861   | -1.228   | -1.215   | -1.524   | -1.511   |
| 518 | 0.9  | -3.049   | -0.491  | 0.022  | -0.006 | -4.445   | -2.723   | -2.750   | -3.489   | -3.517   |
| 518 | 1.35 | -6.480   | -1.579  | 0.053  | -0.014 | -10.303  | -5.779   | -5.846   | -7.743   | -7.814   |
| 518 | 1.8  | -11.103  | -3.114  | 0.084  | -0.022 | -18.306  | -9.909   | -10.015  | -13.532  | -13.644  |
| 519 | 0    | -73.897  | -18.655 | -0.392 | 0.048  | -118.523 | -66.899  | -66.459  | -89.756  | -89.294  |
| 519 | 0.45 | -52.451  | -13.260 | -0.326 | 0.042  | -84.157  | -47.532  | -47.164  | -63.769  | -63.383  |
| 519 | 0.9  | -32.961  | -8.312  | -0.259 | 0.037  | -52.853  | -29.925  | -29.629  | -40.118  | -39.808  |
| 519 | 1.35 | -15.970  | -4.109  | -0.193 | 0.031  | -25.737  | -14.565  | -14.342  | -19.559  | -19.324  |
| 519 | 1.8  | -0.934   | -0.352  | -0.126 | 0.025  | -1.685   | -0.967   | -0.815   | -1.335   | -1.176   |
| 520 | 0    | -11.104  | -3.867  | 0.184  | -0.017 | -19.511  | -9.809   | -10.010  | -13.902  | -14.112  |
| 520 | 0.45 | -6.151   | -2.012  | 0.121  | -0.011 | -10.600  | -5.415   | -5.547   | -7.599   | -7.738   |
| 520 | 0.9  | -2.392   | -0.604  | 0.058  | -0.005 | -3.836   | -2.094   | -2.158   | -2.831   | -2.897   |
| 520 | 1.35 | -0.366   | 0.059   | -0.005 | 0.000  | -0.345   | -0.335   | -0.329   | -0.353   | -0.347   |
| 520 | 1.8  | 0.466    | 0.276   | -0.068 | 0.006  | 1.000    | 0.351    | 0.425    | 0.591    | 0.669    |
| 521 | 0    | -78.308  | -20.044 | -1.533 | 0.092  | -126.040 | -72.010  | -70.385  | -96.460  | -94.754  |
| 521 | 0.45 | -55.582  | -14.281 | -1.230 | 0.074  | -89.548  | -51.254  | -49.950  | -68.650  | -67.280  |
| 521 | 0.9  | -34.813  | -8.965  | -0.928 | 0.056  | -56.119  | -32.259  | -31.275  | -43.175  | -42.142  |
| 521 | 1.35 | -16.541  | -4.393  | -0.625 | 0.039  | -26.878  | -15.512  | -14.848  | -20.792  | -20.095  |
| 521 | 1.8  | -0.226   | -0.268  | -0.323 | 0.021  | -0.700   | -0.526   | -0.182   | -0.745   | -0.384   |
| 522 | 0    | -9.930   | -3.894  | 0.424  | -0.059 | -18.147  | -8.513   | -8.996   | -12.434  | -12.942  |
| 522 | 0.45 | -5.336   | -2.032  | 0.277  | -0.039 | -9.654   | -4.525   | -4.841   | -6.592   | -6.923   |
| 522 | 0.9  | -1.935   | -0.616  | 0.131  | -0.018 | -3.308   | -1.611   | -1.760   | -2.283   | -2.439   |
| 522 | 1.35 | -0.269   | 0.055   | -0.016 | 0.003  | -0.235   | -0.258   | -0.239   | -0.264   | -0.245   |
| 522 | 1.8  | 0.205    | 0.279   | -0.163 | 0.023  | 0.692    | 0.022    | 0.208    | 0.220    | 0.415    |
| 523 | 0    | -73.949  | -19.123 | -3.491 | 0.649  | -119.336 | -70.045  | -65.906  | -93.360  | -89.013  |
| 523 | 0.45 | -52.277  | -13.570 | -2.789 | 0.522  | -84.445  | -49.838  | -46.527  | -66.368  | -62.892  |
| 523 | 0.9  | -32.561  | -8.464  | -2.086 | 0.396  | -52.616  | -31.391  | -28.909  | -41.712  | -39.106  |
| 523 | 1.35 | -15.342  | -4.103  | -1.384 | 0.269  | -24.975  | -15.192  | -13.539  | -20.147  | -18.412  |
| 523 | 1.8  | -0.080   | -0.189  | -0.681 | 0.143  | -0.398   | -0.754   | 0.070    | -0.918   | -0.053   |
| 524 | 0    | 0.795    | 0.316   | 0.081  | 0.000  | 1.460    | 0.797    | 0.716    | 1.119    | 1.035    |
| 524 | 0.45 | -0.416   | 0.060   | 0.009  | 0.001  | -0.402   | -0.366   | -0.373   | -0.389   | -0.397   |

|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 524 | 0.9  | -2.820   | -0.642  | -0.064 | 0.002  | -4.411   | -2.602   | -2.536   | -3.432   | -3.363   |
| 524 | 1.35 | -6.958   | -2.089  | -0.136 | 0.003  | -11.693  | -6.398   | -6.259   | -8.765   | -8.619   |
| 524 | 1.8  | -12.290  | -3.983  | -0.208 | 0.004  | -21.121  | -11.269  | -11.057  | -15.632  | -15.409  |
| 526 | 0    | -44.242  | -7.300  | -4.204 | 4.290  | -64.770  | -44.022  | -35.528  | -55.467  | -46.549  |
| 526 | 1.13 | -2.912   | -0.784  | -3.233 | 3.283  | -4.748   | -5.854   | 0.662    | -6.946   | -0.105   |
| 526 | 2.25 | 20.331   | 3.238   | -2.263 | 2.275  | 29.578   | 16.035   | 20.574   | 21.012   | 25.777   |
| 526 | 3.38 | 24.947   | 4.467   | -1.292 | 1.268  | 37.084   | 21.161   | 23.721   | 27.652   | 30.341   |
| 526 | 4.5  | 11.477   | 3.202   | -0.321 | 0.261  | 18.895   | 10.008   | 10.591   | 13.731   | 14.342   |
| 527 | 0    | 11.506   | 3.200   | 0.268  | -0.324 | 18.928   | 10.623   | 10.031   | 14.379   | 13.757   |
| 527 | 1.13 | 24.914   | 4.461   | 1.270  | -1.296 | 29.446   | 20.484   | 15.945   | 30.304   | 27.610   |
| 527 | 2.25 | 20.236   | 3.227   | 2.272  | -2.267 | -4.963   | 0.512    | -6.002   | 25.666   | 20.900   |
| 527 | 3.38 | -3.070   | -0.800  | 3.275  | -3.239 | -65.067  | -35.739  | -44.226  | -0.289   | -7.128   |
| 527 | 4.5  | -44.462  | -7.321  | 4.277  | -4.211 | -64.770  | -44.022  | -35.528  | -55.467  | -55.718  |
| 531 | 0    | -44.242  | -7.300  | -4.204 | 4.290  | -64.770  | -44.022  | 0.662    | -6.946   | -0.105   |
| 531 | 1.13 | -2.912   | -0.784  | -3.233 | 3.283  | 29.578   | 16.035   | 20.574   | 21.012   | 25.777   |
| 531 | 2.25 | 20.331   | 3.238   | -2.263 | 2.275  | 29.578   | 16.035   | 20.574   | 21.012   | 25.777   |
| 531 | 3.38 | 24.947   | 4.467   | -1.292 | 1.268  | 37.084   | 21.161   | 23.721   | 27.652   | 30.341   |
| 531 | 4.5  | 11.477   | 3.202   | -0.321 | 0.261  | 18.895   | 10.008   | 10.591   | 13.731   | 14.342   |
| 532 | 0    | 11.506   | 3.200   | 0.268  | -0.324 | 18.928   | 10.623   | 10.031   | 14.379   | 13.757   |
| 532 | 1.13 | 24.914   | 4.461   | 1.270  | -1.296 | 29.446   | 20.484   | 15.945   | 30.304   | 27.610   |
| 532 | 2.25 | 20.236   | 3.227   | 2.272  | -2.267 | -4.963   | 0.512    | -6.002   | 25.666   | 20.900   |
| 532 | 3.38 | -3.070   | -0.800  | 3.275  | -3.239 | -65.067  | -35.739  | -44.226  | -0.289   | -7.128   |
| 532 | 4.5  | -44.462  | -7.321  | 4.277  | -4.211 | -64.770  | -44.022  | -35.528  | -55.467  | -55.718  |
| 533 | 0    | -44.242  | -7.300  | -4.204 | 4.290  | -64.770  | -44.022  | 0.662    | -6.946   | -0.105   |
| 533 | 1.13 | -2.912   | -0.784  | -3.233 | 3.283  | 29.578   | 16.035   | 20.574   | 21.012   | 25.777   |
| 533 | 2.25 | 20.331   | 3.238   | -2.263 | 2.275  | 29.578   | 16.035   | 20.574   | 21.012   | 25.777   |
| 533 | 3.38 | 24.947   | 4.467   | -1.292 | 1.268  | 37.084   | 21.161   | 23.721   | 27.652   | 30.341   |
| 533 | 4.5  | 11.477   | 3.202   | -0.321 | 0.261  | 18.895   | 10.008   | 10.591   | 13.731   | 14.342   |
| 535 | 0    | -81.563  | -7.288  | 0.513  | -0.219 | -75.878  | -50.462  | -51.051  | -38.163  | -18.261  |
| 535 | 0.45 | -56.480  | -5.064  | 0.370  | -0.075 | -46.584  | -31.034  | -31.337  | -18.244  | -1.686   |
| 535 | 0.9  | -34.735  | -3.063  | 0.228  | 0.069  | -22.216  | -14.854  | -14.870  | -1.970   | -2.199   |
| 535 | 1.35 | -16.599  | -1.435  | 0.085  | 0.213  | -2.210   | -1.678   | -1.408   | -1.850   | -19.217  |
| 535 | 1.8  | -1.801   | -0.030  | -0.057 | 0.213  | -2.279   | -1.561   | -1.894   | -18.088  | -39.881  |
| 537 | 0    | -1.869   | -0.023  | 0.121  | -0.212 | -22.408  | -14.693  | -15.768  | -37.972  | -64.568  |
| 537 | 0.45 | -16.769  | -1.429  | 0.399  | -0.676 | -46.901  | -30.829  | -32.646  | -61.879  | -92.900  |
| 537 | 0.9  | -35.007  | -3.058  | 0.677  | -1.140 | -76.319  | -50.212  | -52.772  | -89.433  | -47.393  |
| 537 | 1.35 | -56.853  | -5.059  | 0.956  | -1.605 | -110.100 | -72.599  | -75.902  | -52.649  | -32.200  |
| 537 | 1.8  | -82.037  | -7.284  | 1.234  | -2.069 | -65.620  | -40.551  | -35.546  | -36.195  | -18.540  |
| 538 | 0    | -42.905  | -8.834  | -1.936 | 3.069  | -44.721  | -28.027  | -24.223  | -21.275  | -7.171   |
| 538 | 0.45 | -29.505  | -5.822  | -1.473 | 2.332  | -25.969  | -16.578  | -13.973  | -8.645   | 2.665    |
| 538 | 0.9  | -17.299  | -3.257  | -1.009 | 1.595  | -10.489  | -6.689   | -5.285   | 2.450    | -167.083 |
| 538 | 1.35 | -6.826   | -1.436  | -0.546 | 0.859  | -2.845   | 2.125    | 2.330    | -160.036 | -118.982 |
| 538 | 1.8  | -2.453   | -0.062  | -0.083 | 0.122  | -199.402 | -128.573 | -135.284 | -113.607 | -75.093  |
| 539 | 0    | -145.522 | -15.485 | 2.397  | -4.314 | -141.485 | -91.389  | -96.508  | -71.389  | -36.172  |
| 539 | 0.45 | -103.569 | -10.751 | 1.823  | -3.296 | -88.775  | -57.575  | -61.102  | -34.140  | -1.463   |
| 539 | 0.9  | -65.360  | -6.464  | 1.249  | -2.278 | -42.399  | -27.617  | -29.552  | -1.103   | -46.142  |
| 539 | 1.35 | -31.436  | -2.922  | 0.675  | -1.260 | -42.399  | -27.617  | -29.552  | -1.103   | -46.142  |
| 539 | 1.8  | -1.256   | 0.173   | 0.101  | -0.241 | -1.230   | -1.029   | -1.371   | -52.321  | -31.256  |
| 540 | 0    | -42.360  | -8.770  | -1.677 | 3.677  | -44.146  | -27.859  | -13.417  | -21.100  | -6.843   |
| 540 | 0.45 | -29.092  | -5.772  | -1.145 | 2.788  | -25.575  | -16.460  | -5.000   | -8.546   | 2.684    |
| 540 | 0.9  | -17.017  | -3.222  | -0.614 | 1.898  | -10.277  | -6.622   | 2.343    | 2.473    | -92.900  |
| 540 | 1.35 | -6.675   | -1.416  | -0.083 | 1.008  | -2.875   | 2.143    | 2.343    | -89.433  | -64.568  |
| 540 | 1.8  | 2.473    | -0.057  | -0.083 | 0.118  | -110.100 | -72.600  | -75.902  | -61.880  | -39.381  |
| 541 | 0    | -82.037  | -7.284  | 1.234  | -2.069 | -76.319  | -50.212  | -52.772  | -37.972  | -19.217  |
| 541 | 0.45 | -56.853  | -5.059  | 0.956  | -1.605 | -46.901  | -30.829  | -32.646  | -18.088  | -2.199   |
| 541 | 0.9  | -35.007  | -3.058  | 0.677  | -1.140 | -76.319  | -50.212  | -52.772  | -18.088  | -2.199   |
| 541 | 1.35 | -16.769  | -1.429  | 0.399  | -0.676 | -22.409  | -14.693  | -15.768  | -1.850   | -1.686   |
| 541 | 1.8  | -1.869   | -0.023  | 0.121  | -0.212 | -22.409  | -14.693  | -15.768  | -1.850   | -1.686   |
| 543 | 0    | -1.801   | -0.030  | -0.057 | 0.213  | -2.279   | -1.561   | -1.894   | -18.088  | -39.881  |
| 543 | 0.45 | -16.599  | -1.435  | 0.085  | 0.213  | -2.279   | -1.561   | -1.894   | -18.088  | -39.881  |
| 543 | 0.9  | -34.735  | -3.063  | 0.228  | 0.069  | -22.216  | -14.854  | -14.870  | -1.970   | -2.199   |
| 543 | 1.35 | -56.480  | -5.064  | 0.370  | -0.075 | -46.584  | -31.034  | -31.337  | -18.244  | -1.686   |
| 543 | 1.8  | -81.563  | -7.288  | 0.513  | -0.219 | -75.878  | -50.462  | -51.051  | -38.163  | -18.261  |
| 544 | 0    | -42.360  | -8.770  | -1.677 | 3.677  | -44.146  | -27.859  | -13.417  | -21.100  | -6.843   |
| 544 | 0.45 | -29.092  | -5.772  | -1.145 | 2.788  | -25.575  | -16.460  | -5.000   | -8.546   | 2.684    |
| 544 | 0.9  | -17.017  | -3.222  | -0.614 | 1.898  | -10.276  | -6.622   | 2.343    | 2.473    | -92.900  |
| 544 | 1.35 | -6.675   | -1.416  | -0.083 | 1.008  | -2.875   | 2.143    | 2.343    | -89.433  | -64.568  |
| 544 | 1.8  | 2.473    | -0.057  | -0.083 | 0.118  | -110.100 | -72.600  | -75.902  | -61.880  | -39.381  |
| 545 | 0    | -145.522 | -15.485 | 2.397  | -4.314 | -141.485 | -91.389  | -96.508  | -71.389  | -36.172  |
| 545 | 0.45 | -103.569 | -10.751 | 1.823  | -3.296 | -88.775  | -57.575  | -61.102  | -34.140  | -1.463   |
| 545 | 0.9  | -65.360  | -6.464  | 1.249  | -2.278 | -42.399  | -27.617  | -29.552  | -1.103   | -46.142  |
| 545 | 1.35 | -31.436  | -2.922  | 0.675  | -1.260 | -42.399  | -27.617  | -29.552  | -1.103   | -46.142  |
| 545 | 1.8  | -1.256   | 0.173   | 0.101  | -0.241 | -1.230   | -1.029   | -1.371   | -52.321  | -31.256  |

|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 545 | 1.8  | -1.256   | 0.173   | 0.101  | -0.241 | -1.230   | -1.029   | -1.371   | -1.103   | -1.463   |
| 546 | 0    | -42.905  | -8.834  | -1.936 | 3.069  | -65.620  | -40.551  | -35.546  | -52.649  | -47.393  |
| 546 | 0.45 | -29.505  | -5.822  | -1.473 | 2.332  | -44.721  | -28.027  | -24.223  | -36.195  | -32.200  |
| 546 | 0.9  | -17.299  | -3.257  | -1.009 | 1.595  | -25.969  | -16.578  | -13.973  | -21.275  | -18.540  |
| 546 | 1.35 | -6.826   | -1.436  | -0.546 | 0.859  | -10.489  | -6.689   | -5.285   | -8.645   | -7.171   |
| 546 | 1.8  | 2.453    | -0.062  | -0.083 | 0.122  | 2.845    | 2.125    | 2.330    | 2.450    | 2.665    |
| 550 | 0    | 3.771    | 0.375   | -0.189 | 0.112  | 5.125    | 3.205    | 3.505    | 3.997    | 4.313    |
| 550 | 0.75 | -2.239   | 0.618   | 0.814  | -0.495 | -1.699   | -1.201   | -2.510   | -1.107   | -2.482   |
| 550 | 1.5  | -13.066  | -1.208  | 1.817  | -1.102 | -17.612  | -9.942   | -12.861  | -12.572  | -15.637  |
| 550 | 2.25 | -31.213  | -6.482  | 2.820  | -1.709 | -47.827  | -25.272  | -29.801  | -33.897  | -38.652  |
| 550 | 3    | -54.177  | -13.824 | 3.823  | -2.316 | -87.132  | -44.937  | -51.076  | -61.582  | -68.027  |
| 551 | 0    | -81.878  | -7.332  | -0.346 | 0.505  | -109.985 | -74.036  | -73.185  | -90.955  | -90.061  |
| 551 | 0.45 | -56.752  | -5.102  | -0.207 | 0.365  | -76.265  | -51.284  | -50.712  | -63.021  | -62.421  |
| 551 | 0.9  | -34.964  | -3.095  | -0.068 | 0.225  | -46.909  | -31.535  | -31.243  | -38.733  | -38.426  |
| 551 | 1.35 | -16.784  | -1.461  | 0.072  | 0.085  | -22.479  | -15.034  | -15.021  | -18.468  | -18.455  |
| 551 | 1.8  | -1.942   | -0.050  | 0.211  | -0.055 | -2.412   | -1.537   | -1.804   | -1.850   | -2.130   |
| 553 | 0    | -81.878  | -7.332  | -0.346 | 0.505  | -109.985 | -74.036  | -73.185  | -90.955  | -90.061  |
| 553 | 0.45 | -56.752  | -5.102  | -0.207 | 0.365  | -76.263  | -51.284  | -50.712  | -63.021  | -62.421  |
| 553 | 0.9  | -34.964  | -3.095  | -0.068 | 0.225  | -46.909  | -31.535  | -31.243  | -38.733  | -38.426  |
| 553 | 1.35 | -16.784  | -1.461  | 0.072  | 0.085  | -22.479  | -15.034  | -15.021  | -18.468  | -18.455  |
| 553 | 1.8  | -1.942   | -0.050  | 0.211  | -0.055 | -2.412   | -1.537   | -1.804   | -1.850   | -2.130   |
| 560 | 0    | -31.872  | -6.683  | 4.175  | -2.547 | -48.940  | -24.510  | -31.232  | -33.292  | -40.350  |
| 560 | 0.45 | -21.900  | -4.237  | 3.107  | -1.896 | -33.059  | -16.602  | -21.606  | -22.401  | -27.655  |
| 560 | 0.9  | -13.120  | -2.238  | 2.039  | -1.246 | -19.324  | -9.769   | -13.054  | -13.045  | -16.494  |
| 560 | 1.35 | -6.075   | -0.983  | 0.971  | -0.595 | -8.862   | -4.496   | -6.062   | -5.978   | -7.622   |
| 560 | 1.8  | -0.222   | -0.175  | -0.097 | 0.056  | -0.547   | -0.297   | -0.145   | -0.446   | -0.285   |
| 561 | 0    | -130.570 | -13.165 | -4.068 | 2.467  | -177.748 | -121.581 | -115.046 | -149.664 | -142.802 |
| 561 | 0.45 | -92.427  | -9.047  | -3.064 | 1.857  | -125.388 | -86.248  | -81.327  | -105.965 | -100.798 |
| 561 | 0.9  | -58.029  | -5.375  | -2.060 | 1.248  | -78.234  | -54.286  | -50.978  | -66.479  | -63.006  |
| 561 | 1.35 | -27.915  | -2.447  | -1.056 | 0.638  | -37.414  | -26.179  | -21.485  | -31.961  | -30.183  |
| 561 | 1.8  | -1.545   | 0.033   | -0.052 | 0.029  | -1.801   | -1.442   | -1.362   | -1.656   | -1.571   |
| 562 | 0    | -42.496  | -8.824  | 3.767  | -2.264 | -65.114  | -34.480  | -40.510  | -46.225  | -52.557  |
| 562 | 0.45 | -29.396  | -5.834  | 2.845  | -1.712 | -44.611  | -23.612  | -28.169  | -31.555  | -36.340  |
| 562 | 0.9  | -17.490  | -3.291  | 1.922  | -1.161 | -26.254  | -13.818  | -16.902  | -18.419  | -21.657  |
| 562 | 1.35 | -7.317   | -1.493  | 1.000  | -0.610 | -11.170  | -5.585   | -7.195   | -7.573   | -9.264   |
| 562 | 1.8  | 1.662    | -0.141  | 0.078  | -0.058 | 1.768    | 1.574    | 1.437    | 1.738    | 1.595    |
| 563 | 0    | -144.820 | -15.404 | -4.247 | 2.359  | -198.431 | -134.586 | -127.979 | -166.226 | -159.289 |
| 563 | 0.45 | -103.090 | -10.698 | -3.244 | 1.794  | -140.825 | -96.026  | -90.988  | -118.391 | -113.101 |
| 563 | 0.9  | -65.104  | -6.439  | -2.241 | 1.228  | -88.427  | -60.835  | -57.366  | -74.769  | -71.126  |
| 563 | 1.35 | -31.403  | -2.924  | -1.238 | 0.663  | -42.362  | -29.500  | -27.600  | -36.115  | -34.120  |
| 563 | 1.8  | -1.445   | 0.144   | -0.235 | 0.097  | -1.505   | -1.535   | -1.204   | -1.673   | -1.325   |
| 564 | 0    | -43.316  | -8.888  | 3.057  | -1.932 | -66.199  | -35.927  | -40.916  | -47.871  | -53.109  |
| 564 | 0.45 | -29.825  | -5.864  | 2.324  | -1.470 | -45.173  | -24.519  | -28.312  | -32.571  | -36.554  |
| 564 | 0.9  | -17.528  | -3.287  | 1.590  | -1.008 | -26.293  | -14.185  | -16.783  | -18.805  | -21.533  |
| 564 | 1.35 | -6.965   | -1.455  | 0.857  | -0.546 | -10.685  | -5.411   | -6.814   | -7.329   | -8.802   |
| 564 | 1.8  | 2.405    | -0.069  | 0.124  | -0.084 | 2.776    | 2.289    | 2.081    | 2.612    | 2.394    |
| 568 | 0    | -52.636  | -13.554 | 3.126  | -3.382 | -84.849  | -44.246  | -50.754  | -60.524  | -67.357  |
| 568 | 0.75 | -29.981  | -6.270  | 2.312  | -2.501 | -46.008  | -24.671  | -29.483  | -33.002  | -38.055  |
| 568 | 1.5  | -12.142  | -1.054  | 1.497  | -1.619 | -16.258  | -9.431   | -12.548  | -11.842  | -15.114  |
| 568 | 2.25 | -1.625   | 0.714   | 0.683  | -0.738 | -0.809   | -0.780   | -2.201   | -0.540   | -2.032   |
| 568 | 3    | 4.075    | 0.413   | -0.131 | 0.143  | 5.551    | 3.536    | 3.810    | 4.401    | 4.689    |
| 569 | 0    | -41.725  | -3.994  | -1.322 | 1.335  | -56.460  | -38.875  | -36.218  | -47.716  | -44.926  |
| 569 | 0.23 | -30.316  | -2.953  | -0.987 | 0.998  | -41.104  | -28.272  | -26.286  | -34.729  | -32.644  |
| 569 | 0.45 | -19.691  | -1.940  | -0.653 | 0.662  | -26.734  | -18.375  | -17.060  | -22.583  | -21.203  |
| 569 | 0.68 | -9.884   | -0.974  | -0.318 | 0.326  | -13.419  | -9.213   | -8.570   | -11.325  | -10.650  |
| 569 | 0.9  | -0.860   | -0.036  | 0.017  | -0.011 | -1.089   | -0.757   | -0.785   | -0.907   | -0.937   |
| 571 | 0    | -0.855   | -0.033  | -0.014 | 0.016  | -1.079   | -0.783   | -0.753   | -0.933   | -0.901   |
| 571 | 0.23 | -9.893   | -0.973  | 0.322  | -0.319 | -13.427  | -8.581   | -9.222   | -10.662  | -11.335  |
| 571 | 0.45 | -19.714  | -1.940  | 0.657  | -0.654 | -26.761  | -17.085  | -18.397  | -21.232  | -22.609  |
| 571 | 0.68 | -30.353  | -2.954  | 0.993  | -0.990 | -41.150  | -26.325  | -28.307  | -32.689  | -34.771  |
| 571 | 0.9  | -41.776  | -3.996  | 1.328  | -1.325 | -56.524  | -36.270  | -38.923  | -44.988  | -47.773  |
| 572 | 0    | -37.078  | -0.947  | -0.006 | -0.010 | -46.009  | -33.376  | -33.380  | -39.535  | -39.539  |
| 572 | 0.23 | -26.094  | -0.591  | -0.005 | -0.009 | -32.258  | -23.490  | -23.494  | -27.777  | -27.780  |
| 572 | 0.45 | -15.945  | -0.290  | -0.005 | -0.008 | -19.598  | -14.355  | -14.358  | -16.930  | -16.933  |
| 572 | 0.68 | -6.698   | -0.083  | -0.004 | -0.007 | -8.170   | -6.032   | -6.035   | -7.089   | -7.092   |
| 572 | 0.9  | 1.715    | 0.069   | -0.004 | -0.006 | 2.168    | 1.540    | 1.538    | 1.840    | 1.838    |
| 573 | 0    | -41.725  | -3.994  | -1.322 | 1.335  | -56.460  | -38.875  | -36.218  | -47.716  | -44.926  |



|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 573 | 0.23 | -30.316 | -2.953 | -0.987 | 0.998  | -41.104 | -28.272 | -26.286 | -34.729 | -32.644 |
| 573 | 0.45 | -19.691 | -1.940 | -0.653 | 0.662  | -26.734 | -18.375 | -17.060 | -22.583 | -21.203 |
| 573 | 0.68 | -9.884  | -0.974 | -0.318 | 0.326  | -13.419 | -9.213  | -8.570  | -11.325 | -10.650 |
| 573 | 0.9  | -0.860  | -0.036 | 0.017  | -0.011 | -1.089  | -0.757  | -0.785  | -0.907  | -0.937  |
| 575 | 0    | -0.855  | -0.033 | -0.014 | 0.016  | -1.079  | -0.783  | -0.753  | -0.933  | -0.901  |
| 575 | 0.23 | -9.893  | -0.973 | 0.322  | -0.319 | -13.427 | -8.581  | -9.222  | -10.662 | -11.335 |
| 575 | 0.45 | -19.714 | -1.940 | 0.657  | -0.654 | -26.761 | -17.085 | -18.397 | -21.232 | -22.609 |
| 575 | 0.68 | -30.353 | -2.954 | 0.993  | -0.990 | -41.150 | -26.325 | -28.307 | -32.689 | -34.771 |
| 575 | 0.9  | -41.776 | -3.996 | 1.328  | -1.325 | -56.524 | -36.270 | -38.923 | -44.988 | -47.773 |
| 576 | 0    | -37.078 | -0.977 | -0.006 | -0.010 | -46.009 | -33.376 | -33.380 | -39.535 | -39.539 |
| 576 | 0.23 | -26.094 | -0.591 | -0.005 | -0.009 | -32.258 | -23.490 | -23.494 | -27.777 | -27.780 |
| 576 | 0.45 | -15.945 | -0.290 | -0.005 | -0.008 | -19.598 | -14.355 | -14.358 | -16.930 | -16.933 |
| 576 | 0.68 | -6.698  | -0.083 | -0.004 | -0.007 | -8.170  | -6.032  | -6.035  | -7.089  | -7.092  |
| 576 | 0.9  | 1.715   | 0.069  | -0.004 | -0.006 | 2.168   | 1.540   | 1.538   | 1.840   | 1.838   |
| 577 | 0    | -26.555 | -0.818 | 0.736  | -0.744 | -33.175 | -23.163 | -24.643 | -27.625 | -29.179 |
| 577 | 0.23 | -18.685 | -0.434 | 0.591  | -0.601 | -23.116 | -16.225 | -17.417 | -19.272 | -20.523 |
| 577 | 0.45 | -11.599 | -0.077 | 0.445  | -0.459 | -14.041 | -9.993  | -10.898 | -11.759 | -12.709 |
| 577 | 0.68 | -5.330  | 0.233  | 0.300  | -0.317 | -6.023  | -4.497  | -5.114  | -5.134  | -5.782  |
| 577 | 0.9  | 0.155   | 0.516  | 0.155  | -0.174 | 1.011   | 0.294   | -0.035  | 0.650   | 0.304   |
| 579 | 0    | -0.010  | 0.500  | 0.372  | -0.336 | 0.788   | 0.363   | -0.345  | 0.695   | -0.048  |
| 579 | 0.23 | -5.557  | 0.209  | 0.585  | -0.531 | -6.334  | -4.416  | -5.532  | -5.089  | -6.260  |
| 579 | 0.45 | -11.887 | -0.110 | 0.797  | -0.726 | -14.440 | -9.901  | -11.425 | -11.714 | -13.313 |
| 579 | 0.68 | -19.036 | -0.475 | 1.010  | -0.921 | -23.603 | -16.122 | -18.053 | -19.226 | -21.254 |
| 579 | 0.9  | -26.968 | -0.868 | 1.223  | -1.116 | -33.750 | -23.048 | -25.387 | -27.579 | -30.035 |
| 580 | 0    | -26.134 | -4.054 | -2.264 | 2.092  | -37.847 | -25.785 | -21.429 | -32.372 | -27.798 |
| 580 | 0.23 | -19.334 | -3.182 | -1.845 | 1.706  | -28.291 | -19.246 | -15.694 | -24.243 | -20.513 |
| 580 | 0.45 | -12.730 | -2.366 | -1.427 | 1.320  | -19.061 | -12.884 | -10.137 | -16.355 | -13.471 |
| 580 | 0.68 | -6.391  | -1.643 | -1.009 | 0.935  | -10.298 | -6.761  | -4.817  | -8.805  | -6.764  |
| 580 | 0.9  | -0.249  | -0.976 | -0.590 | 0.549  | -1.859  | -0.814  | 0.325   | -1.496  | -0.300  |
| 581 | 0    | -50.258 | -2.059 | 2.349  | -2.149 | -63.605 | -42.883 | -47.381 | -51.602 | -56.324 |
| 581 | 0.23 | -36.292 | -1.204 | 1.912  | -1.748 | -45.477 | -30.751 | -34.411 | -36.858 | -40.700 |
| 581 | 0.45 | -23.161 | -0.404 | 1.475  | -1.347 | -28.440 | -19.370 | -22.192 | -23.025 | -25.988 |
| 581 | 0.68 | -10.932 | 0.302  | 1.039  | -0.946 | -12.635 | -8.800  | -10.785 | -10.198 | -12.281 |
| 581 | 0.9  | 0.463   | 0.953  | 0.602  | -0.545 | 2.080   | 1.018   | -0.128  | 1.718   | 0.514   |
| 582 | 0.00 | -26.520 | -4.116 | -2.044 | 1.916  | -38.409 | -25.912 | -21.952 | -32.585 | -28.427 |
| 582 | 0.23 | -19.651 | -3.233 | -1.668 | 1.564  | -28.753 | -19.353 | -16.122 | -24.421 | -21.028 |
| 582 | 0.45 | -12.978 | -2.405 | -1.291 | 1.211  | -19.422 | -12.971 | -10.469 | -16.498 | -13.870 |
| 582 | 0.68 | -6.570  | -1.671 | -0.915 | 0.859  | -10.558 | -6.828  | -5.054  | -8.912  | -7.050  |
| 582 | 0.9  | -0.359  | -0.993 | -0.538 | 0.506  | -2.019  | -0.861  | 0.183   | -1.567  | -0.471  |
| 584 | 0    | -26.968 | -0.868 | 1.223  | -1.116 | -33.750 | -23.048 | -25.387 | -27.579 | -30.035 |
| 584 | 0.23 | -19.035 | -0.475 | 1.010  | -0.921 | -23.602 | -16.122 | -18.053 | -19.226 | -21.254 |
| 584 | 0.45 | -11.887 | -0.110 | 0.797  | -0.726 | -14.440 | -9.901  | -11.425 | -11.713 | -13.313 |
| 584 | 0.68 | -5.556  | 0.209  | 0.585  | -0.531 | -6.333  | -4.416  | -5.532  | -5.089  | -6.260  |
| 584 | 0.9  | -0.010  | 0.500  | 0.372  | -0.336 | 0.788   | 0.363   | -0.345  | 0.695   | -0.048  |
| 586 | 0    | 0.155   | 0.516  | 0.155  | -0.174 | 1.011   | 0.294   | -0.035  | 0.650   | 0.304   |
| 586 | 0.23 | -5.330  | 0.233  | 0.300  | -0.317 | -6.023  | -4.497  | -5.114  | -5.134  | -5.782  |
| 586 | 0.45 | -11.599 | -0.077 | 0.445  | -0.459 | -14.041 | -9.993  | -10.898 | -11.759 | -12.709 |
| 586 | 0.68 | -18.685 | -0.434 | 0.591  | -0.601 | -23.116 | -16.225 | -17.417 | -19.272 | -20.523 |
| 586 | 0.9  | -26.555 | -0.818 | 0.736  | -0.744 | -33.175 | -23.163 | -24.643 | -27.625 | -29.179 |
| 587 | 0    | -26.520 | -4.116 | -2.044 | 1.916  | -38.409 | -25.912 | -21.952 | -32.585 | -28.427 |
| 587 | 0.23 | -19.651 | -3.233 | -1.668 | 1.564  | -28.753 | -19.353 | -16.122 | -24.421 | -21.028 |
| 587 | 0.45 | -12.978 | -2.405 | -1.291 | 1.211  | -19.422 | -12.971 | -10.469 | -16.498 | -13.870 |
| 587 | 0.68 | -6.570  | -1.671 | -0.915 | 0.859  | -10.558 | -6.828  | -5.054  | -8.912  | -7.050  |
| 587 | 0.9  | -0.359  | -0.993 | -0.538 | 0.506  | -2.019  | -0.861  | 0.183   | -1.567  | -0.471  |
| 588 | 0    | -50.258 | -2.059 | 2.349  | -2.149 | -63.605 | -42.883 | -47.381 | -51.602 | -56.325 |
| 588 | 0.23 | -36.292 | -1.204 | 1.912  | -1.748 | -45.477 | -30.751 | -34.411 | -36.858 | -40.701 |
| 588 | 0.45 | -23.161 | -0.404 | 1.475  | -1.347 | -28.440 | -19.370 | -22.192 | -23.025 | -25.988 |
| 588 | 0.68 | -10.932 | 0.302  | 1.039  | -0.946 | -12.635 | -8.800  | -10.785 | -10.198 | -12.281 |
| 588 | 0.9  | 0.463   | 0.953  | 0.602  | -0.545 | 2.080   | 1.018   | -0.128  | 1.718   | 0.514   |
| 589 | 0    | -26.135 | -4.054 | -2.264 | 2.092  | -37.847 | -25.785 | -21.429 | -32.372 | -27.798 |
| 589 | 0.23 | -19.334 | -3.182 | -1.845 | 1.706  | -28.292 | -19.246 | -15.694 | -24.243 | -20.514 |
| 589 | 0.45 | -12.730 | -2.366 | -1.427 | 1.320  | -19.061 | -12.884 | -10.137 | -16.356 | -13.471 |
| 589 | 0.68 | -6.391  | -1.643 | -1.009 | 0.935  | -10.298 | -6.761  | -4.817  | -8.805  | -6.764  |
| 589 | 0.9  | -0.249  | -0.976 | -0.590 | 0.549  | -1.859  | -0.814  | 0.325   | -1.496  | -0.300  |
| 590 | 0    | -26.592 | -0.820 | -0.750 | 0.744  | -33.223 | -24.683 | -23.189 | -29.226 | -27.657 |
| 590 | 0.23 | -18.724 | -0.436 | -0.606 | 0.597  | -23.166 | -17.457 | -16.254 | -20.571 | -19.308 |
| 590 | 0.45 | -11.639 | -0.080 | -0.462 | 0.449  | -14.094 | -10.937 | -10.025 | -12.756 | -11.799 |

|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 590 | 0.68 | -5.372   | 0.230   | -0.318 | 0.302  | -6.078   | -5.152   | -4.532   | -5.829   | -5.178   |
| 590 | 0.9  | 0.112    | 0.511   | -0.174 | 0.155  | 0.953    | -0.073   | 0.256    | 0.257    | 0.602    |
| 592 | 0    | -1.590   | -0.719  | 0.424  | -0.456 | -3.059   | -1.007   | -1.888   | -1.678   | -2.602   |
| 592 | 0.23 | -6.076   | -1.355  | 1.038  | -1.121 | -9.459   | -4.430   | -6.589   | -6.143   | -8.410   |
| 592 | 0.45 | -10.758  | -2.047  | 1.652  | -1.785 | -16.184  | -8.030   | -11.467  | -10.851  | -14.460  |
| 592 | 0.68 | -15.705  | -2.831  | 2.266  | -2.449 | -23.376  | -11.868  | -16.584  | -15.894  | -20.845  |
| 592 | 0.9  | -20.848  | -3.672  | 2.880  | -3.114 | -30.893  | -15.883  | -21.877  | -21.180  | -27.473  |
| 593 | 0    | -0.096   | 0.690   | -0.504 | 0.548  | 0.989    | -0.590   | 0.461    | -0.195   | 0.909    |
| 593 | 0.23 | -10.040  | 0.272   | -1.031 | 1.118  | -11.612  | -10.067  | -7.918   | -11.453  | -9.196   |
| 593 | 0.45 | -20.819  | -0.201  | -1.558 | 1.689  | -25.304  | -20.295  | -17.048  | -23.622  | -20.213  |
| 593 | 0.68 | -32.499  | -0.768  | -2.085 | 2.260  | -40.228  | -31.334  | -26.989  | -36.797  | -32.235  |
| 593 | 0.9  | -45.014  | -1.390  | -2.612 | 2.831  | -56.242  | -43.125  | -37.682  | -50.884  | -45.169  |
| 596 | 0    | -43.316  | -8.888  | 3.057  | -1.932 | -66.199  | -35.927  | -40.916  | -47.871  | -53.109  |
| 596 | 0.45 | -29.825  | -5.864  | 2.324  | -1.470 | -45.173  | -24.519  | -28.312  | -32.571  | -36.554  |
| 596 | 0.9  | -17.528  | -3.287  | 1.590  | -1.008 | -26.293  | -14.185  | -16.783  | -18.805  | -21.533  |
| 596 | 1.35 | -6.965   | -1.455  | 0.857  | -0.546 | -10.685  | -5.411   | -6.814   | -7.329   | -8.802   |
| 596 | 1.8  | 2.405    | -0.069  | 0.124  | -0.084 | 2.776    | 2.289    | 2.081    | 2.612    | 2.394    |
| 597 | 0    | -26.592  | -0.820  | -0.750 | 0.744  | -33.223  | -24.683  | -23.189  | -29.226  | -27.657  |
| 597 | 0.23 | -18.724  | -0.436  | -0.606 | 0.597  | -23.166  | -17.457  | -16.254  | -20.571  | -19.308  |
| 597 | 0.45 | -11.639  | -0.080  | -0.462 | 0.449  | -14.094  | -10.937  | -10.025  | -12.756  | -11.799  |
| 597 | 0.68 | -5.372   | 0.230   | -0.318 | 0.302  | -6.078   | -5.152   | -4.532   | -5.829   | -5.178   |
| 597 | 0.9  | 0.112    | 0.511   | -0.174 | 0.155  | 0.953    | -0.073   | 0.256    | 0.257    | 0.602    |
| 599 | 0    | -1.590   | -0.719  | 0.424  | -0.456 | -3.060   | -1.007   | -1.888   | -1.678   | -2.602   |
| 599 | 0.23 | -6.076   | -1.355  | 1.038  | -1.121 | -9.459   | -4.430   | -6.589   | -6.143   | -8.410   |
| 599 | 0.45 | -10.758  | -2.047  | 1.652  | -1.785 | -16.184  | -8.030   | -11.467  | -10.851  | -14.460  |
| 599 | 0.68 | -15.705  | -2.831  | 2.266  | -2.449 | -23.376  | -11.868  | -16.584  | -15.894  | -20.846  |
| 599 | 0.9  | -20.848  | -3.672  | 2.880  | -3.114 | -30.893  | -15.883  | -21.877  | -21.180  | -27.473  |
| 600 | 0    | -0.096   | 0.690   | -0.504 | 0.548  | 0.989    | -0.590   | 0.461    | -0.195   | 0.909    |
| 600 | 0.23 | -10.040  | 0.272   | -1.031 | 1.118  | -11.612  | -10.067  | -7.918   | -11.453  | -9.196   |
| 600 | 0.45 | -20.819  | -0.201  | -1.558 | 1.689  | -25.304  | -20.295  | -17.047  | -23.622  | -20.212  |
| 600 | 0.68 | -32.499  | -0.768  | -2.085 | 2.260  | -40.227  | -31.334  | -26.989  | -36.797  | -32.235  |
| 600 | 0.9  | -45.014  | -1.390  | -2.612 | 2.831  | -56.241  | -43.125  | -37.682  | -50.884  | -45.168  |
| 601 | 0    | -0.595   | -0.990  | 0.526  | -0.566 | -2.299   | -0.010   | -1.101   | -0.697   | -1.843   |
| 601 | 0.23 | -6.584   | -1.660  | 0.940  | -1.014 | -10.556  | -4.986   | -6.940   | -6.972   | -9.024   |
| 601 | 0.45 | -12.770  | -2.385  | 1.354  | -1.463 | -19.140  | -10.139  | -12.956  | -13.489  | -16.447  |
| 601 | 0.68 | -19.220  | -3.203  | 1.768  | -1.912 | -28.189  | -15.530  | -19.210  | -20.342  | -24.206  |
| 601 | 0.9  | -25.867  | -4.078  | 2.182  | -2.360 | -37.564  | -21.098  | -25.641  | -27.438  | -32.267  |
| 602 | 0    | 0.533    | 0.961   | -0.539 | 0.597  | 2.176    | -0.060   | 1.076    | 0.599    | 1.791    |
| 602 | 0.23 | -10.814  | 0.317   | -0.941 | 1.035  | -12.469  | -10.673  | -8.697   | -12.142  | -10.068  |
| 602 | 0.45 | -22.994  | -0.383  | -1.342 | 1.473  | -28.206  | -22.037  | -19.222  | -25.795  | -22.839  |
| 602 | 0.68 | -36.077  | -1.175  | -1.744 | 1.911  | -45.173  | -34.214  | -30.559  | -40.453  | -36.615  |
| 602 | 0.9  | -49.995  | -2.024  | -2.146 | 2.349  | -63.232  | -47.141  | -42.646  | -56.022  | -51.303  |
| 603 | 0    | -0.425   | -1.001  | 0.506  | -0.538 | -2.111   | 0.124    | -0.921   | -0.545   | -1.642   |
| 603 | 0.23 | -6.677   | -1.684  | 0.859  | -0.915 | -10.707  | -5.150   | -6.924   | -7.170   | -9.033   |
| 603 | 0.45 | -13.126  | -2.423  | 1.212  | -1.292 | -19.628  | -10.602  | -13.105  | -14.036  | -16.665  |
| 603 | 0.68 | -19.839  | -3.255  | 1.564  | -1.669 | -29.016  | -16.291  | -19.524  | -21.240  | -24.635  |
| 603 | 0.9  | -26.749  | -4.143  | 1.917  | -2.046 | -38.729  | -22.158  | -26.121  | -28.685  | -32.846  |
| 606 | 0    | -144.820 | -15.404 | -4.247 | 2.359  | -198.431 | -134.586 | -127.979 | -166.226 | -159.289 |
| 606 | 0.45 | -103.090 | -10.698 | -3.244 | 1.794  | -140.825 | -96.026  | -90.988  | -118.391 | -113.101 |
| 606 | 0.9  | -65.104  | -6.439  | -2.241 | 1.228  | -88.427  | -60.835  | -57.366  | -74.769  | -71.126  |
| 606 | 1.35 | -31.403  | -2.924  | -1.238 | 0.663  | -42.362  | -29.500  | -27.600  | -36.115  | -34.120  |
| 606 | 1.8  | -1.445   | 0.144   | -0.235 | 0.097  | -1.505   | -1.535   | -1.204   | -1.673   | -1.325   |
| 607 | 0    | -42.496  | -8.824  | 3.767  | -2.264 | -65.114  | -34.480  | -40.510  | -46.225  | -52.557  |
| 607 | 0.45 | -29.396  | -5.834  | 2.845  | -1.712 | -44.611  | -23.612  | -28.169  | -31.555  | -36.340  |
| 607 | 0.9  | -17.490  | -3.291  | 1.922  | -1.161 | -26.254  | -13.818  | -16.902  | -18.419  | -21.657  |
| 607 | 1.35 | -7.317   | -1.493  | 1.000  | -0.610 | -11.170  | -5.585   | -7.195   | -7.573   | -9.264   |
| 607 | 1.8  | 1.662    | -0.141  | 0.078  | -0.058 | 1.768    | 1.574    | 1.437    | 1.738    | 1.595    |
| 608 | 0    | -130.570 | -13.165 | -4.068 | 2.467  | -177.748 | -121.581 | -115.046 | -149.664 | -142.802 |
| 608 | 0.45 | -92.427  | -9.047  | -3.064 | 1.857  | -125.387 | -86.248  | -81.327  | -105.965 | -100.798 |
| 608 | 0.9  | -58.029  | -5.375  | -2.060 | 1.248  | -78.234  | -54.286  | -50.978  | -66.479  | -63.006  |
| 608 | 1.35 | -27.915  | -2.447  | -1.056 | 0.638  | -37.414  | -26.179  | -24.485  | -31.961  | -30.182  |
| 608 | 1.8  | -1.545   | 0.033   | -0.052 | 0.029  | -1.801   | -1.442   | -1.362   | -1.656   | -1.571   |
| 609 | 0    | -31.872  | -6.683  | 4.175  | -2.547 | -48.940  | -24.510  | -31.232  | -33.292  | -40.350  |
| 609 | 0.45 | -21.900  | -4.237  | 3.107  | -1.896 | -33.059  | -16.602  | -21.606  | -22.401  | -27.655  |
| 609 | 0.9  | -13.120  | -2.238  | 2.039  | -1.246 | -19.324  | -9.769   | -13.054  | -13.045  | -16.494  |
| 609 | 1.35 | -6.075   | -0.983  | 0.971  | -0.595 | -8.862   | -4.496   | -6.062   | -5.978   | -7.622   |
| 609 | 1.8  | -0.223   | -0.175  | -0.097 | 0.056  | -0.547   | -0.297   | -0.145   | -0.446   | -0.285   |



|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 617 | 0    | 0.510   | 0.458  | -0.234 | 0.495  | 1.345   | 0.225   | 0.954   | 0.578   | 1.344   |
| 617 | 0.45 | -1.692  | -0.188 | -0.143 | 0.686  | -2.330  | -1.666  | -0.837  | -2.045  | -1.174  |
| 617 | 0.9  | -4.681  | -1.057 | -0.052 | 0.877  | -7.308  | -4.265  | -3.336  | -5.636  | -4.660  |
| 617 | 1.35 | -8.728  | -2.298 | 0.038  | 1.067  | -14.150 | -7.817  | -6.788  | -10.572 | -9.491  |
| 617 | 1.8  | -13.562 | -3.762 | 0.129  | 1.258  | -22.295 | -12.077 | -10.948 | -16.475 | -15.290 |
| 618 | 0    | -20.858 | -5.818 | -0.903 | 5.964  | -34.337 | -19.675 | -12.808 | -26.514 | -19.303 |
| 618 | 0.75 | -9.388  | -2.366 | -0.638 | 4.252  | -15.052 | -9.088  | -4.197  | -12.019 | -6.884  |
| 618 | 1.5  | -0.697  | 0.139  | -0.374 | 2.541  | -0.615  | -1.001  | 1.913   | -1.037  | 2.023   |
| 618 | 2.25 | 4.684   | 1.406  | -0.109 | 0.829  | 7.870   | 4.107   | 5.045   | 5.690   | 6.675   |
| 618 | 3    | 7.288   | 1.726  | 0.156  | -0.882 | 11.508  | 6.715   | 5.677   | 8.904   | 7.814   |
| 619 | 0    | 6.391   | 1.539  | -0.192 | 0.984  | 10.131  | 5.559   | 6.736   | 7.478   | 8.713   |
| 619 | 0.75 | 6.269   | 1.826  | 0.072  | -0.609 | 10.445  | 5.714   | 5.033   | 7.809   | 7.094   |
| 619 | 1.5  | 3.370   | 1.167  | 0.336  | -2.203 | 5.912   | 3.369   | 0.830   | 4.627   | 1.961   |
| 619 | 2.25 | -2.839  | -0.730 | 0.600  | -3.797 | -4.574  | -1.954  | -6.351  | -2.810  | -7.427  |
| 619 | 3    | -11.825 | -3.573 | 0.865  | -5.390 | -19.908 | -9.778  | -16.033 | -13.760 | -20.328 |
| 620 | 0    | -15.768 | -4.530 | -0.149 | 1.110  | -26.170 | -14.340 | -13.081 | -19.567 | -18.245 |
| 620 | 0.75 | -4.899  | -1.343 | -0.091 | 0.683  | -8.026  | -4.500  | -3.726  | -6.085  | -5.272  |
| 620 | 1.5  | 3.192   | 0.899  | -0.033 | 0.257  | 5.269   | 2.840   | 3.130   | 3.883   | 4.188   |
| 620 | 2.25 | 7.974   | 1.902  | 0.024  | -0.170 | 12.613  | 7.201   | 7.007   | 9.597   | 9.393   |
| 620 | 3    | 9.978   | 1.960  | 0.082  | -0.597 | 15.109  | 9.062   | 8.384   | 11.798  | 11.085  |
| 621 | 0    | 9.723   | 1.916  | -0.058 | 0.269  | 14.734  | 8.693   | 9.020   | 11.356  | 11.700  |
| 621 | 0.75 | 7.783   | 1.891  | 0.035  | -0.402 | 12.366  | 7.039   | 6.603   | 9.400   | 8.941   |
| 621 | 1.5  | 3.064   | 0.920  | 0.127  | -1.074 | 5.149   | 2.885   | 1.684   | 3.930   | 2.670   |
| 621 | 2.25 | -4.963  | -1.290 | 0.219  | -1.745 | -8.019  | -4.248  | -6.212  | -5.794  | -7.856  |
| 621 | 3    | -15.769 | -4.445 | 0.311  | -2.416 | -26.036 | -13.881 | -16.609 | -19.031 | -21.895 |
| 622 | 0    | -16.396 | -4.606 | -0.178 | 0.391  | -27.044 | -14.934 | -14.365 | -20.304 | -19.707 |
| 622 | 0.75 | -5.718  | -1.398 | -0.117 | 0.225  | -9.098  | -5.263  | -4.521  | -7.007  | -6.648  |
| 622 | 1.5  | 2.182   | 0.864  | -0.055 | 0.059  | 4.001   | 1.909   | 2.022   | 2.778   | 2.897   |
| 622 | 2.25 | 6.773   | 1.888  | 0.006  | -0.108 | 11.148  | 6.102   | 5.938   | 8.307   | 8.188   |
| 622 | 3    | 8.585   | 1.966  | 0.068  | -0.274 | 13.447  | 7.794   | 7.453   | 10.324  | 9.965   |
| 623 | 0    | 8.702   | 1.968  | -0.034 | 0.097  | 13.592  | 7.797   | 7.929   | 10.341  | 10.479  |
| 623 | 0.75 | 7.344   | 2.010  | 0.041  | -0.182 | 12.029  | 6.650   | 6.428   | 9.020   | 8.787   |
| 623 | 1.5  | 3.208   | 1.106  | 0.115  | -0.461 | 5.619   | 3.003   | 2.426   | 4.186   | 3.581   |
| 623 | 2.25 | -4.237  | -1.037 | 0.190  | -0.740 | -6.743  | -3.623  | -4.553  | -4.902  | -5.879  |
| 623 | 3    | -14.460 | -4.126 | 0.265  | -1.019 | -23.953 | -12.749 | -14.033 | -17.504 | -18.852 |
| 624 | 0    | -10.847 | -2.909 | -0.028 | 0.109  | -17.671 | -9.790  | -9.654  | -13.251 | -13.108 |
| 624 | 0.56 | -4.847  | -1.194 | -0.008 | 0.041  | -7.726  | -4.370  | -4.321  | -5.850  | -5.798  |
| 624 | 1.13 | -0.227  | 0.090  | 0.011  | -0.026 | -0.128  | -0.193  | -0.230  | -0.170  | -0.209  |
| 624 | 1.69 | 2.586   | 0.707  | 0.030  | -0.094 | 4.235   | 2.358   | 2.234   | 3.193   | 3.063   |
| 624 | 2.25 | 4.019   | 0.892  | 0.050  | -0.161 | 6.250   | 3.667   | 3.456   | 4.834   | 4.613   |
| 625 | 0    | 4.075   | 0.879  | 0.007  | -0.024 | 6.296   | 3.675   | 3.644   | 4.840   | 4.807   |
| 625 | 0.56 | 2.263   | 0.573  | 0.037  | -0.131 | 3.633   | 2.073   | 1.905   | 2.776   | 2.599   |
| 625 | 1.13 | -0.930  | -0.164 | 0.066  | -0.239 | -1.378  | -0.771  | -1.076  | -1.010  | -1.330  |
| 625 | 1.69 | -5.930  | -1.568 | 0.096  | -0.346 | -9.624  | -5.241  | -5.683  | -7.114  | -7.577  |
| 625 | 2.25 | -12.310 | -3.403 | 0.125  | -0.453 | -20.217 | -10.954 | -11.532 | -14.938 | -15.545 |
| 627 | 0    | -14.862 | -4.284 | 0.042  | -0.134 | -24.690 | -13.334 | -13.510 | -18.260 | -18.445 |
| 627 | 0.75 | -4.419  | -1.142 | 0.037  | -0.114 | -7.131  | -3.940  | -4.091  | -5.321  | -5.479  |
| 627 | 1.5  | 3.246   | 1.054  | 0.032  | -0.093 | 5.581   | 2.953   | 2.828   | 4.105   | 3.974   |
| 627 | 2.25 | 7.602   | 2.012  | 0.026  | -0.072 | 12.340  | 6.868   | 6.769   | 9.277   | 9.173   |
| 627 | 3    | 9.179   | 2.023  | 0.021  | -0.052 | 14.252  | 8.282   | 8.209   | 10.935  | 10.858  |
| 628 | 0    | 9.179   | 2.023  | 0.021  | -0.052 | 14.252  | 8.282   | 8.209   | 10.935  | 10.858  |
| 628 | 0.75 | 7.601   | 2.012  | 0.026  | -0.072 | 12.340  | 6.868   | 6.769   | 9.277   | 9.173   |
| 628 | 1.5  | 3.246   | 1.054  | 0.032  | -0.093 | 5.581   | 2.953   | 2.828   | 4.105   | 3.974   |
| 628 | 2.25 | -4.419  | -1.142 | 0.037  | -0.114 | -7.131  | -3.940  | -4.091  | -5.321  | -5.479  |
| 628 | 3    | -14.862 | -4.284 | 0.042  | -0.134 | -24.690 | -13.334 | -13.510 | -18.261 | -18.446 |
| 629 | 0    | -12.310 | -3.403 | 0.125  | -0.453 | -20.217 | -10.954 | -11.532 | -14.938 | -15.545 |
| 629 | 0.56 | -5.930  | -1.568 | 0.096  | -0.346 | -9.624  | -5.241  | -5.683  | -7.114  | -7.577  |
| 629 | 1.13 | -0.930  | -0.164 | 0.066  | -0.239 | -1.378  | -0.771  | -1.076  | -1.010  | -1.330  |
| 629 | 1.69 | 2.263   | 0.573  | 0.037  | -0.131 | 3.633   | 2.073   | 1.905   | 2.776   | 2.599   |
| 629 | 2.25 | 4.075   | 0.879  | 0.007  | -0.024 | 6.296   | 3.675   | 3.644   | 4.840   | 4.807   |
| 630 | 0    | 4.019   | 0.892  | 0.050  | -0.161 | 6.250   | 3.667   | 3.456   | 4.834   | 4.613   |
| 630 | 0.56 | 2.586   | 0.707  | 0.030  | -0.094 | 4.235   | 2.358   | 2.234   | 3.193   | 3.063   |
| 630 | 1.13 | -0.227  | 0.090  | 0.011  | -0.026 | -0.128  | -0.193  | -0.230  | -0.170  | -0.209  |
| 630 | 1.69 | -4.847  | -1.194 | -0.008 | 0.041  | -7.726  | -4.370  | -4.321  | -5.850  | -5.798  |
| 630 | 2.25 | -10.847 | -2.909 | -0.028 | 0.109  | -17.671 | -9.790  | -9.654  | -13.251 | -13.108 |
| 631 | 0    | -14.460 | -4.126 | 0.265  | -1.019 | -23.953 | -12.749 | -14.033 | -17.504 | -18.852 |
| 631 | 0.75 | -4.237  | -1.037 | 0.190  | -0.740 | -6.743  | -3.623  | -4.553  | -4.902  | -5.879  |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 631 | 1.5  | 3.208   | 1.106  | 0.115  | -0.461 | 5.619   | 3.003   | 2.426   | 4.186   | 3.581   |
| 631 | 2.25 | 7.344   | 2.010  | 0.041  | -0.182 | 12.029  | 6.650   | 6.428   | 9.020   | 8.787   |
| 631 | 3    | 8.702   | 1.968  | -0.034 | 0.097  | 13.592  | 7.797   | 7.929   | 10.341  | 10.479  |
| 632 | 0    | 8.585   | 1.966  | 0.068  | -0.274 | 13.447  | 7.794   | 7.453   | 10.324  | 9.965   |
| 632 | 0.75 | 6.773   | 1.888  | 0.006  | -0.108 | 11.148  | 6.102   | 5.988   | 8.307   | 8.188   |
| 632 | 1.5  | 2.182   | 0.864  | -0.055 | 0.059  | 4.001   | 1.909   | 2.022   | 2.778   | 2.897   |
| 632 | 2.25 | -5.718  | -1.398 | -0.117 | 0.225  | -9.098  | -5.263  | -4.921  | -7.007  | -6.648  |
| 632 | 3    | -16.396 | -4.606 | -0.178 | 0.391  | -27.044 | -14.934 | -14.365 | -20.304 | -19.707 |
| 633 | 0    | -15.769 | -4.445 | 0.311  | -2.416 | -26.036 | -13.881 | -16.609 | -19.031 | -21.895 |
| 633 | 0.75 | -4.963  | -1.290 | 0.219  | -1.745 | -8.019  | -4.248  | -6.212  | -5.794  | -7.856  |
| 633 | 1.5  | 3.064   | 0.920  | 0.127  | -1.074 | 5.149   | 2.885   | 1.684   | 3.930   | 2.670   |
| 633 | 2.25 | 7.783   | 1.891  | 0.035  | -0.402 | 12.366  | 7.039   | 6.603   | 9.400   | 8.941   |
| 633 | 3    | 9.723   | 1.916  | -0.058 | 0.269  | 14.734  | 8.693   | 9.020   | 11.356  | 11.700  |
| 634 | 0    | 9.978   | 1.960  | 0.082  | -0.597 | 15.109  | 9.062   | 8.384   | 11.798  | 11.085  |
| 634 | 0.75 | 7.974   | 1.902  | 0.024  | -0.170 | 12.613  | 7.201   | 7.007   | 9.597   | 9.393   |
| 634 | 1.5  | 3.192   | 0.899  | -0.033 | 0.257  | 5.269   | 2.840   | 3.130   | 3.883   | 4.188   |
| 634 | 2.25 | -4.899  | -1.343 | -0.091 | 0.683  | -8.026  | -4.500  | -3.726  | -6.085  | -5.272  |
| 634 | 3    | -15.768 | -4.530 | -0.149 | 1.110  | -26.170 | -14.340 | -13.081 | -19.567 | -18.245 |
| 635 | 0    | -11.825 | -3.573 | 0.865  | -5.390 | -19.908 | -9.778  | -16.033 | -13.760 | -20.328 |
| 635 | 0.75 | -2.839  | -0.730 | 0.600  | -3.797 | -4.574  | -1.954  | -6.351  | -2.810  | -7.427  |
| 635 | 1.5  | 3.370   | 1.167  | 0.336  | -2.203 | 5.912   | 3.369   | 0.830   | 4.627   | 1.961   |
| 635 | 2.25 | 6.269   | 1.826  | 0.072  | -0.609 | 10.445  | 5.714   | 5.033   | 7.809   | 7.094   |
| 635 | 3    | 6.391   | 1.539  | -0.192 | 0.984  | 10.131  | 5.559   | 6.736   | 7.478   | 8.713   |
| 636 | 0    | 7.288   | 1.726  | 0.156  | -0.882 | 11.508  | 6.715   | 5.677   | 8.904   | 7.814   |
| 636 | 0.75 | 4.684   | 1.406  | -0.109 | 0.829  | 7.870   | 4.107   | 5.045   | 5.690   | 6.675   |
| 636 | 1.5  | -0.697  | 0.139  | -0.374 | 2.541  | -0.615  | -1.001  | 1.913   | -1.037  | 2.023   |
| 636 | 2.25 | -9.388  | -2.366 | -0.638 | 4.252  | -15.052 | -9.088  | -4.197  | -12.019 | -6.884  |
| 636 | 3    | -20.858 | -5.818 | -0.903 | 5.964  | -34.337 | -19.675 | -12.808 | -26.514 | -19.303 |
| 637 | 0    | -13.562 | -3.762 | 0.129  | 1.258  | -22.295 | -12.077 | -10.948 | -16.475 | -15.290 |
| 637 | 0.45 | -8.728  | -2.298 | 0.038  | 1.067  | -14.150 | -7.817  | -6.788  | -10.572 | -9.491  |
| 637 | 0.9  | -4.681  | -1.057 | -0.052 | 0.877  | -7.308  | -4.265  | -3.336  | -5.636  | -4.660  |
| 637 | 1.35 | -1.692  | -0.188 | -0.143 | 0.686  | -2.330  | -1.666  | -0.837  | -2.045  | -1.174  |
| 637 | 1.8  | 0.510   | 0.458  | -0.234 | 0.495  | 1.345   | 0.225   | 0.954   | 0.578   | 1.344   |
| 638 | 0    | 0.469   | 0.446  | -0.189 | 0.558  | 1.276   | 0.233   | 0.979   | 0.575   | 1.358   |
| 638 | 0.45 | -1.480  | -0.117 | -0.328 | 0.466  | -1.963  | -1.660  | -0.865  | -1.972  | -1.138  |
| 638 | 0.9  | -4.215  | -0.903 | -0.467 | 0.375  | -6.504  | -4.261  | -3.419  | -5.486  | -4.601  |
| 638 | 1.35 | -8.009  | -2.062 | -0.607 | 0.284  | -12.910 | -7.815  | -6.924  | -10.345 | -9.410  |
| 638 | 1.8  | -12.590 | -3.444 | -0.746 | 0.193  | -20.618 | -12.077 | -11.138 | -16.172 | -15.187 |
| 639 | 0    | -18.089 | -4.851 | -2.895 | 2.960  | -29.468 | -19.174 | -13.320 | -25.089 | -18.941 |
| 639 | 0.56 | -10.614 | -2.747 | -2.305 | 2.437  | -17.131 | -11.858 | -7.115  | -15.295 | -10.316 |
| 639 | 1.13 | -4.519  | -1.074 | -1.716 | 1.915  | -7.141  | -5.783  | -2.153  | -7.223  | -3.411  |
| 639 | 1.69 | -0.232  | -0.068 | -1.126 | 1.392  | -0.387  | -1.335  | 1.183   | -1.469  | 1.175   |
| 639 | 2.25 | 2.675   | 0.506  | -0.537 | 0.869  | 4.020   | 1.871   | 3.277   | 2.564   | 4.041   |
| 640 | 0    | 1.425   | 0.196  | -0.367 | 0.573  | 2.024   | 0.915   | 1.856   | 1.234   | 2.222   |
| 640 | 0.56 | 1.243   | 0.254  | 0.147  | 0.082  | 1.898   | 1.266   | 1.201   | 1.620   | 1.551   |
| 640 | 1.13 | -0.319  | -0.119 | 0.662  | -0.409 | -0.574  | 0.374   | -0.697  | 0.284   | -0.840  |
| 640 | 1.69 | -3.689  | -1.160 | 1.176  | -0.900 | -6.283  | -2.144  | -4.220  | -3.369  | -5.549  |
| 640 | 2.25 | -8.439  | -2.632 | 1.691  | -1.391 | -14.338 | -5.905  | -8.986  | -8.744  | -11.980 |
| 641 | 0    | -23.097 | -6.741 | -1.847 | 1.906  | -38.502 | -22.635 | -18.881 | -30.438 | -26.498 |
| 641 | 0.75 | -10.125 | -2.793 | -1.607 | 1.647  | -16.618 | -10.719 | -7.465  | -14.077 | -10.661 |
| 641 | 1.5  | 0.070   | 0.209  | -1.366 | 1.388  | 0.418   | -1.304  | 1.451   | -1.230  | 1.662   |
| 641 | 2.25 | 6.955   | 1.973  | -1.126 | 1.129  | 11.502  | 5.133   | 7.388   | 7.363   | 9.731   |
| 641 | 3    | 11.062  | 2.790  | -0.886 | 0.870  | 17.739  | 9.070   | 10.825  | 12.443  | 14.286  |
| 642 | 0    | 9.637   | 2.341  | -0.930 | 0.911  | 15.310  | 7.744   | 9.585   | 10.618  | 12.551  |
| 642 | 0.75 | 14.051  | 3.903  | -0.469 | 0.451  | 23.105  | 12.177  | 13.096  | 16.720  | 17.685  |
| 642 | 1.5  | 15.686  | 4.519  | -0.008 | -0.010 | 26.053  | 14.109  | 14.107  | 19.308  | 19.306  |
| 642 | 2.25 | 14.012  | 3.897  | 0.453  | -0.471 | 23.049  | 13.063  | 12.140  | 17.642  | 16.673  |
| 642 | 3    | 9.560   | 2.328  | 0.913  | -0.931 | 15.197  | 9.517   | 7.672   | 12.463  | 10.527  |
| 643 | 0    | 11.041  | 2.788  | 0.870  | -0.890 | 17.710  | 10.806  | 9.047   | 14.263  | 12.415  |
| 643 | 0.75 | 6.865   | 1.959  | 1.133  | -1.129 | 11.372  | 7.312   | 5.049   | 9.632   | 7.256   |
| 643 | 1.5  | -0.089  | 0.183  | 1.397  | -1.369 | 0.186   | 1.317   | -1.449  | 1.488   | -1.416  |
| 643 | 2.25 | -10.352 | -2.831 | 1.660  | -1.609 | -16.952 | -7.657  | -10.926 | -10.910 | -14.342 |
| 643 | 3    | -23.393 | -6.791 | 1.923  | -1.849 | -38.937 | -19.131 | -22.903 | -26.822 | -30.782 |
| 644 | 0    | -8.606  | -2.666 | -1.335 | 1.679  | -14.593 | -9.080  | -6.066  | -12.117 | -8.953  |
| 644 | 0.56 | -3.826  | -1.187 | -0.859 | 1.168  | -6.491  | -4.303  | -2.276  | -5.668  | -3.539  |
| 644 | 1.13 | -0.427  | -0.140 | -0.384 | 0.657  | -0.736  | -0.768  | 0.273   | -0.939  | 0.153   |
| 644 | 1.69 | 1.165   | 0.241  | 0.091  | 0.146  | 1.784   | 1.140   | 1.194   | 1.471   | 1.528   |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 644 | 2.25 | 1.377   | 0.190  | 0.567  | -0.366 | 1.957   | 1.806   | 0.874   | 2.161   | 1.182   |
| 645 | 0    | 2.573   | 0.491  | 0.875  | -0.540 | 3.873   | 3.190   | 1.776   | 3.930   | 2.444   |
| 645 | 0.56 | -0.307  | -0.077 | 1.381  | -1.126 | -0.491  | 1.105   | -1.402  | 1.080   | -1.553  |
| 645 | 1.13 | -4.567  | -1.076 | 1.888  | -1.711 | -7.203  | -2.222  | -5.822  | -3.491  | -7.271  |
| 645 | 1.69 | -10.635 | -2.742 | 2.395  | -2.297 | -17.149 | -7.176  | -11.868 | -10.379 | -15.306 |
| 645 | 2.25 | -18.083 | -4.840 | 2.902  | -2.883 | -29.443 | -13.372 | -19.157 | -18.989 | -25.063 |
| 646 | 0    | -12.507 | -3.430 | 0.167  | -0.736 | -20.497 | -11.089 | -11.992 | -15.118 | -16.066 |
| 646 | 0.45 | -7.960  | -2.053 | 0.265  | -0.599 | -12.837 | -6.899  | -7.763  | -9.373  | -10.281 |
| 646 | 0.9  | -4.200  | -0.900 | 0.363  | -0.463 | -6.479  | -3.417  | -4.243  | -4.596  | -5.463  |
| 646 | 1.35 | -1.498  | -0.119 | 0.460  | -0.327 | -1.987  | -0.888  | -1.675  | -1.164  | -1.991  |
| 646 | 1.8  | 0.417   | 0.439  | 0.558  | -0.191 | 1.203   | 0.933   | 0.184   | 1.301   | 0.514   |
| 647 | 0    | 0.474   | 0.454  | 0.493  | -0.235 | 1.295   | 0.920   | 0.192   | 1.301   | 0.537   |
| 647 | 0.45 | -1.770  | -0.198 | 0.691  | -0.148 | -2.440  | -0.902  | -1.741  | -1.257  | -2.138  |
| 647 | 0.9  | -4.801  | -1.073 | 0.889  | -0.061 | -7.478  | -3.432  | -4.382  | -4.783  | -5.781  |
| 647 | 1.35 | -8.890  | -2.320 | 1.087  | 0.025  | -14.380 | -6.914  | -7.976  | -9.654  | -10.770 |
| 647 | 1.8  | -13.766 | -3.791 | 1.286  | 0.112  | -22.585 | -11.104 | -12.278 | -15.493 | -16.726 |
| 648 | 0    | -21.607 | -5.919 | 6.034  | -0.956 | -35.398 | -13.412 | -20.402 | -20.080 | -27.419 |
| 648 | 0.75 | -9.927  | -2.439 | 4.309  | -0.680 | -15.815 | -4.626  | -9.615  | -7.436  | -12.675 |
| 648 | 1.5  | -1.026  | 0.095  | 2.583  | -0.405 | -1.080  | 1.660   | -1.329  | 1.695   | -1.443  |
| 648 | 2.25 | 4.566   | 1.390  | 0.858  | -0.130 | 7.703   | 4.967   | 3.979   | 6.571   | 5.534   |
| 648 | 3    | 7.380   | 1.739  | -0.867 | 0.146  | 11.639  | 5.774   | 6.787   | 7.934   | 8.997   |
| 649 | 0    | 6.234   | 1.518  | 0.988  | -0.196 | 9.909   | 6.599   | 5.414   | 8.539   | 7.295   |
| 649 | 0.75 | 6.262   | 1.824  | -0.617 | 0.077  | 10.433  | 5.019   | 5.713   | 7.077   | 7.806   |
| 649 | 1.5  | 3.512   | 1.184  | -2.222 | 0.351  | 6.110   | 0.940   | 3.512   | 2.102   | 4.803   |
| 649 | 2.25 | -2.546  | -0.694 | -3.827 | 0.624  | -4.165  | -6.118  | -1.667  | -7.129  | -2.455  |
| 649 | 3    | -11.383 | -3.518 | -5.432 | 0.898  | -19.288 | -15.677 | -9.347  | -19.872 | -13.226 |
| 650 | 0    | -16.787 | -4.684 | 1.146  | -0.172 | -27.639 | -13.962 | -15.280 | -19.374 | -20.758 |
| 650 | 0.75 | -5.627  | -1.453 | 0.712  | -0.109 | -9.077  | -4.353  | -5.173  | -6.076  | -6.938  |
| 650 | 1.5  | 2.754   | 0.832  | 0.277  | -0.047 | 4.637   | 2.756   | 2.432   | 3.708   | 3.268   |
| 650 | 2.25 | 7.827   | 1.879  | -0.157 | 0.016  | 12.398  | 6.887   | 7.060   | 9.237   | 9.419   |
| 650 | 3    | 10.121  | 1.980  | -0.592 | 0.079  | 15.313  | 8.517   | 9.187   | 11.253  | 11.957  |
| 651 | 0    | 9.477   | 1.878  | 0.266  | -0.055 | 14.378  | 8.795   | 8.475   | 11.413  | 11.077  |
| 651 | 0.75 | 7.756   | 1.884  | -0.413 | 0.042  | 12.322  | 6.567   | 7.023   | 8.897   | 9.375   |
| 651 | 1.5  | 3.257   | 0.943  | -1.092 | 0.140  | 5.418   | 1.839   | 3.071   | 2.868   | 4.161   |
| 651 | 2.25 | -4.551  | -1.236 | -1.771 | 0.237  | -7.438  | -5.867  | -3.859  | -7.417  | -5.308  |
| 651 | 3    | -15.137 | -4.361 | -2.450 | 0.334  | -25.142 | -16.073 | -13.290 | -21.214 | -18.291 |
| 652 | 0    | -18.266 | -4.919 | 0.439  | -0.211 | -29.791 | -16.001 | -16.651 | -21.818 | -22.500 |
| 652 | 0.75 | -7.101  | -1.639 | 0.264  | -0.144 | -11.143 | -6.126  | -6.534  | -8.211  | -3.639  |
| 652 | 1.5  | 1.287   | 0.696  | 0.090  | -0.076 | 2.658   | 1.248   | 1.082   | 1.884   | 1.710   |
| 652 | 2.25 | 6.365   | 1.793  | -0.085 | -0.009 | 10.506  | 5.643   | 5.720   | 7.723   | 7.803   |
| 652 | 3    | 8.665   | 1.943  | -0.260 | 0.059  | 13.507  | 7.539   | 7.857   | 10.049  | 10.384  |
| 653 | 0    | 8.091   | 1.829  | 0.110  | -0.042 | 12.636  | 7.392   | 7.240   | 9.763   | 9.604   |
| 653 | 0.75 | 6.974   | 1.871  | -0.170 | 0.035  | 11.363  | 6.107   | 6.311   | 8.323   | 8.538   |
| 653 | 1.5  | 3.079   | 0.967  | -0.450 | 0.112  | 5.242   | 2.322   | 2.883   | 3.370   | 3.959   |
| 653 | 2.25 | -4.125  | -1.175 | -0.729 | 0.188  | -6.831  | -4.442  | -3.524  | -5.838  | -4.874  |
| 653 | 3    | -14.108 | -4.263 | -1.009 | 0.265  | -23.751 | -13.706 | -12.432 | -18.559 | -17.221 |
| 654 | 0    | -16.768 | -4.535 | 0.328  | -0.145 | -27.378 | -14.763 | -15.236 | -20.119 | -20.616 |
| 654 | 0.56 | -9.339  | -2.451 | 0.201  | -0.094 | -15.128 | -8.203  | -8.499  | -11.138 | -11.449 |
| 654 | 1.13 | -3.289  | -0.798 | 0.075  | -0.044 | -5.225  | -2.886  | -3.004  | -3.879  | -4.003  |
| 654 | 1.69 | 0.952   | 0.187  | -0.052 | 0.007  | 1.443   | 0.805   | 0.864   | 1.064   | 1.125   |
| 654 | 2.25 | 3.814   | 0.741  | -0.179 | 0.058  | 5.763   | 3.254   | 3.490   | 4.284   | 4.532   |
| 655 | 0    | 2.354   | 0.345  | 0.000  | -0.006 | 3.376   | 2.118   | 2.113   | 2.689   | 2.683   |
| 655 | 0.56 | 2.645   | 0.531  | -0.166 | 0.055  | 4.024   | 2.215   | 2.436   | 2.938   | 3.170   |
| 655 | 1.13 | 1.557   | 0.285  | -0.331 | 0.117  | 2.325   | 1.070   | 1.518   | 1.467   | 1.937   |
| 655 | 1.69 | -1.339  | -0.627 | -0.497 | 0.178  | -2.610  | -1.702  | -1.027  | -2.322  | -1.614  |
| 655 | 2.25 | -5.615  | -1.971 | -0.662 | 0.239  | -9.891  | -5.716  | -4.815  | -7.833  | -6.887  |
| 657 | 0    | -16.338 | -5.778 | -0.122 | 0.045  | -28.851 | -14.826 | -14.660 | -20.923 | -20.748 |
| 657 | 0.75 | -2.706  | -0.960 | -0.113 | 0.042  | -4.783  | -2.549  | -2.394  | -3.565  | -3.402  |
| 657 | 1.5  | 7.987   | 2.824  | -0.105 | 0.039  | 14.103  | 7.083   | 7.227   | 10.055  | 10.207  |
| 657 | 2.25 | 14.490  | 4.884  | -0.097 | 0.036  | 25.203  | 12.944  | 13.077  | 18.190  | 18.329  |
| 657 | 3    | 18.054  | 5.910  | -0.089 | 0.033  | 31.121  | 16.160  | 16.282  | 22.587  | 22.715  |
| 658 | 0    | 18.054  | 5.910  | -0.089 | 0.033  | 31.121  | 16.160  | 16.282  | 22.587  | 22.715  |
| 658 | 0.75 | 14.490  | 4.884  | -0.097 | 0.036  | 25.203  | 12.944  | 13.077  | 18.190  | 18.329  |
| 658 | 1.5  | 7.987   | 2.824  | -0.105 | 0.039  | 14.103  | 7.083   | 7.227   | 10.055  | 10.207  |
| 658 | 2.25 | -2.706  | -0.960 | -0.113 | 0.042  | -4.783  | -2.549  | -2.394  | -3.565  | -3.402  |
| 658 | 3    | -16.338 | -5.778 | -0.122 | 0.045  | -28.851 | -14.826 | -14.660 | -20.923 | -20.748 |
| 660 | 0    | -5.615  | -1.971 | -0.662 | 0.239  | -9.892  | -5.716  | -4.815  | -7.833  | -6.887  |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 660 | 0.56 | -1.339  | -0.627 | -0.497 | 0.178  | -2.610  | -1.702  | -1.027  | -2.322  | -1.614  |
| 660 | 1.13 | 1.557   | 0.285  | -0.331 | 0.117  | 2.325   | 1.070   | 1.518   | 1.467   | 1.937   |
| 660 | 1.69 | 2.645   | 0.531  | -0.166 | 0.055  | 4.024   | 2.215   | 2.436   | 2.938   | 3.170   |
| 660 | 2.25 | 2.354   | 0.345  | 0.000  | -0.006 | 3.376   | 2.118   | 2.113   | 2.689   | 2.683   |
| 661 | 0    | 3.814   | 0.741  | -0.179 | 0.058  | 5.763   | 3.254   | 3.490   | 4.284   | 4.532   |
| 661 | 0.56 | 0.952   | 0.187  | -0.052 | 0.007  | 1.443   | 0.805   | 0.864   | 1.064   | 1.125   |
| 661 | 1.13 | -3.289  | -0.798 | 0.075  | -0.044 | -5.225  | -2.886  | -3.004  | -3.879  | -4.003  |
| 661 | 1.69 | -9.339  | -2.451 | 0.201  | -0.094 | -15.128 | -8.203  | -8.499  | -11.138 | -11.449 |
| 661 | 2.25 | -16.768 | -4.535 | 0.328  | -0.145 | -27.378 | -14.763 | -15.236 | -20.119 | -20.616 |
| 662 | 0    | -14.108 | -4.263 | -1.009 | 0.265  | -23.751 | -13.706 | -12.432 | -18.559 | -17.221 |
| 662 | 0.75 | -4.125  | -1.175 | -0.729 | 0.188  | -6.831  | -4.442  | -3.524  | -5.838  | -4.874  |
| 662 | 1.5  | 3.079   | 0.967  | -0.450 | 0.112  | 5.242   | 2.322   | 2.883   | 3.370   | 3.959   |
| 662 | 2.25 | 6.974   | 1.871  | -0.170 | 0.035  | 11.363  | 6.107   | 6.311   | 8.323   | 8.538   |
| 662 | 3    | 8.091   | 1.829  | 0.110  | -0.042 | 12.636  | 7.392   | 7.240   | 9.763   | 9.604   |
| 663 | 0    | 8.665   | 1.943  | -0.260 | 0.059  | 13.507  | 7.539   | 7.857   | 10.049  | 10.384  |
| 663 | 0.75 | 6.365   | 1.793  | -0.085 | -0.009 | 10.506  | 5.643   | 5.720   | 7.723   | 7.803   |
| 663 | 1.5  | 1.287   | 0.696  | 0.090  | -0.076 | 2.658   | 1.248   | 1.082   | 1.884   | 1.710   |
| 663 | 2.25 | -7.101  | -1.639 | 0.264  | -0.144 | -11.143 | -6.126  | -6.534  | -8.211  | -8.639  |
| 663 | 3    | -18.266 | -4.919 | 0.439  | -0.211 | -29.791 | -16.001 | -16.651 | -21.818 | -22.501 |
| 664 | 0    | -15.137 | -4.361 | -2.450 | 0.334  | -25.142 | -16.073 | -13.290 | -21.214 | -18.291 |
| 664 | 0.75 | -4.551  | -1.236 | -1.771 | 0.237  | -7.438  | -5.867  | -3.859  | -7.417  | -5.308  |
| 664 | 1.5  | 3.257   | 0.943  | -1.092 | 0.140  | 5.418   | 1.839   | 3.071   | 2.868   | 4.161   |
| 664 | 2.25 | 7.756   | 1.884  | -0.413 | 0.042  | 12.322  | 6.567   | 7.023   | 8.897   | 9.375   |
| 664 | 3    | 9.477   | 1.878  | 0.266  | -0.055 | 14.378  | 8.795   | 8.475   | 11.413  | 11.077  |
| 665 | 0    | 10.121  | 1.980  | -0.592 | 0.079  | 15.313  | 8.517   | 9.187   | 11.253  | 11.957  |
| 665 | 0.75 | 7.827   | 1.879  | -0.157 | 0.016  | 12.398  | 6.887   | 7.060   | 9.237   | 9.419   |
| 665 | 1.5  | 2.754   | 0.832  | 0.277  | -0.047 | 4.637   | 2.756   | 2.432   | 3.708   | 3.368   |
| 665 | 2.25 | -5.627  | -1.453 | 0.712  | -0.109 | -9.077  | -4.353  | -5.173  | -6.076  | -6.938  |
| 665 | 3    | -16.787 | -4.684 | 1.146  | -0.172 | -27.639 | -13.962 | -15.280 | -19.374 | -20.758 |
| 666 | 0    | -11.383 | -3.518 | -5.432 | 0.898  | -19.288 | -15.677 | -9.347  | -19.872 | -13.226 |
| 666 | 0.75 | -2.546  | -0.694 | -3.827 | 0.624  | -4.165  | -6.118  | -1.667  | -7.129  | -2.455  |
| 666 | 1.5  | 3.512   | 1.184  | -2.222 | 0.351  | 6.110   | 0.940   | 3.512   | 2.102   | 4.803   |
| 666 | 2.25 | 6.262   | 1.824  | -0.617 | 0.077  | 10.433  | 5.019   | 5.713   | 7.077   | 7.806   |
| 666 | 3    | 6.234   | 1.518  | 0.988  | -0.196 | 9.909   | 6.599   | 5.414   | 8.539   | 7.295   |
| 667 | 0    | 7.380   | 1.739  | -0.867 | 0.146  | 11.639  | 5.774   | 6.787   | 7.934   | 8.997   |
| 667 | 0.75 | 4.566   | 1.390  | 0.858  | -0.130 | 7.703   | 4.967   | 3.979   | 6.571   | 5.534   |
| 667 | 1.5  | -1.026  | 0.095  | 2.583  | -0.405 | -1.080  | 1.660   | -1.329  | 1.695   | -1.443  |
| 667 | 2.25 | -9.927  | -2.439 | 4.309  | -0.680 | -15.815 | -4.626  | -9.615  | -7.436  | -12.675 |
| 667 | 3    | -21.607 | -5.919 | 6.034  | -0.956 | -35.398 | -13.412 | -20.402 | -20.080 | -27.419 |
| 668 | 0    | -13.766 | -3.791 | 1.286  | 0.112  | -22.585 | -11.104 | -12.278 | -15.493 | -16.726 |
| 668 | 0.45 | -8.890  | -2.320 | 1.087  | 0.025  | -14.380 | -6.914  | -7.976  | -9.654  | -10.770 |
| 668 | 0.9  | -4.801  | -1.073 | 0.889  | -0.061 | -7.478  | -3.432  | -4.382  | -4.783  | -5.781  |
| 668 | 1.35 | -1.770  | -0.198 | 0.691  | -0.148 | -2.440  | -0.902  | -1.741  | -1.257  | -2.138  |
| 668 | 1.8  | 0.474   | 0.454  | 0.493  | -0.235 | 1.295   | 0.920   | 0.192   | 1.301   | 0.537   |
| 669 | 0    | 0.417   | 0.439  | 0.558  | -0.191 | 1.203   | 0.933   | 0.184   | 1.301   | 0.514   |
| 669 | 0.45 | -1.498  | -0.119 | 0.460  | -0.327 | -1.987  | -0.888  | -1.675  | -1.164  | -1.991  |
| 669 | 0.9  | -4.200  | -0.900 | 0.363  | -0.463 | -6.479  | -3.417  | -4.243  | -4.596  | -5.463  |
| 669 | 1.35 | -7.960  | -2.053 | 0.265  | -0.599 | -12.837 | -6.899  | -7.763  | -9.373  | -10.281 |
| 669 | 1.8  | -12.507 | -3.430 | 0.167  | -0.736 | -20.497 | -11.089 | -11.992 | -15.118 | -16.066 |
| 671 | 0    | -18.083 | -4.840 | 2.902  | -2.883 | -29.443 | -13.372 | -19.157 | -18.989 | -25.063 |
| 671 | 0.56 | -10.635 | -2.742 | 2.395  | -2.297 | -17.150 | -7.176  | -11.869 | -10.379 | -15.306 |
| 671 | 1.13 | -4.567  | -1.076 | 1.888  | -1.711 | -7.203  | -2.222  | -5.822  | -3.491  | -7.271  |
| 671 | 1.69 | -0.307  | -0.077 | 1.381  | -1.126 | -0.491  | 1.105   | -1.402  | 1.080   | -1.553  |
| 671 | 2.25 | 2.573   | 0.491  | 0.875  | -0.540 | 3.873   | 3.190   | 1.776   | 3.930   | 2.444   |
| 672 | 0    | 1.377   | 0.190  | 0.567  | -0.366 | 1.957   | 1.806   | 0.874   | 2.161   | 1.182   |
| 672 | 0.56 | 1.165   | 0.241  | 0.091  | 0.146  | 1.784   | 1.140   | 1.194   | 1.471   | 1.528   |
| 672 | 1.13 | -0.427  | -0.140 | -0.384 | 0.657  | -0.736  | -0.768  | 0.273   | -0.939  | 0.153   |
| 672 | 1.69 | -3.826  | -1.187 | -0.859 | 1.168  | -6.491  | -4.303  | -2.276  | -5.668  | -3.539  |
| 672 | 2.25 | -8.606  | -2.666 | -1.335 | 1.679  | -14.593 | -9.080  | -6.066  | -12.117 | -8.953  |
| 673 | 0    | -23.393 | -6.791 | 1.923  | -1.849 | -38.937 | -19.131 | -22.903 | -26.822 | -30.782 |
| 673 | 0.75 | -10.352 | -2.831 | 1.660  | -1.609 | -16.952 | -7.657  | -10.926 | -10.910 | -14.342 |
| 673 | 1.5  | -0.089  | 0.183  | 1.397  | -1.369 | 0.186   | 1.317   | -1.449  | 1.488   | -1.416  |
| 673 | 2.25 | 6.865   | 1.959  | 1.133  | -1.129 | 11.372  | 7.312   | 5.049   | 9.632   | 7.256   |
| 673 | 3    | 11.041  | 2.788  | 0.870  | -0.890 | 17.710  | 10.806  | 9.047   | 14.263  | 12.415  |
| 674 | 0    | 9.560   | 2.328  | 0.913  | -0.931 | 15.197  | 9.517   | 7.672   | 12.463  | 10.527  |
| 674 | 0.75 | 14.012  | 3.897  | 0.453  | -0.471 | 23.049  | 13.063  | 12.140  | 17.642  | 16.673  |
| 674 | 1.5  | 15.686  | 4.519  | -0.008 | -0.010 | 26.053  | 14.109  | 14.107  | 19.308  | 19.306  |

|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 674 | 2.25 | 14.051  | 3.903   | -0.469 | 0.451  | 23.105   | 12.177  | 13.096  | 16.720  | 17.685  |
| 674 | 3    | 9.637   | 2.341   | -0.930 | 0.911  | 15.310   | 7.744   | 9.585   | 10.618  | 12.551  |
| 675 | 0    | 11.062  | 2.790   | -0.886 | 0.870  | 17.739   | 9.070   | 10.825  | 12.443  | 14.286  |
| 675 | 0.75 | 6.955   | 1.973   | -1.126 | 1.129  | 11.502   | 5.133   | 7.388   | 7.363   | 9.731   |
| 675 | 1.5  | 0.070   | 0.209   | -1.366 | 1.388  | 0.418    | -1.304  | 1.451   | -1.230  | 1.662   |
| 675 | 2.25 | -10.125 | -2.793  | -1.607 | 1.647  | -16.618  | -10.719 | -7.465  | -14.077 | -10.661 |
| 675 | 3    | -23.097 | -6.741  | -1.847 | 1.906  | -38.502  | -22.635 | -18.881 | -30.438 | -26.497 |
| 676 | 0    | -8.439  | -2.632  | 1.691  | -1.391 | -14.338  | -5.905  | -8.986  | -8.744  | -11.980 |
| 676 | 0.56 | -3.689  | -1.160  | 1.176  | -0.900 | -6.283   | -2.144  | -4.220  | -3.369  | -5.549  |
| 676 | 1.13 | -0.319  | -0.119  | 0.662  | -0.409 | -0.574   | 0.374   | -0.697  | 0.284   | -0.840  |
| 676 | 1.69 | 1.243   | 0.254   | 0.147  | 0.082  | 1.898    | 1.266   | 1.201   | 1.620   | 1.551   |
| 676 | 2.25 | 1.425   | 0.196   | -0.367 | 0.573  | 2.024    | 0.915   | 1.856   | 1.234   | 2.222   |
| 677 | 0    | 2.675   | 0.506   | -0.537 | 0.869  | 4.020    | 1.871   | 3.277   | 2.564   | 4.041   |
| 677 | 0.56 | -0.232  | -0.068  | -1.126 | 1.392  | -0.387   | -1.335  | 1.183   | -1.469  | 1.175   |
| 677 | 1.13 | -4.519  | -1.074  | -1.716 | 1.915  | -7.141   | -5.783  | -2.153  | -7.223  | -3.411  |
| 677 | 1.69 | -10.614 | -2.747  | -2.305 | 2.437  | -17.131  | -11.858 | -7.115  | -15.295 | -10.316 |
| 677 | 2.25 | -18.089 | -4.851  | -2.895 | 2.960  | -29.468  | -19.174 | -13.320 | -25.089 | -18.941 |
| 678 | 0    | -12.590 | -3.444  | -0.746 | 0.193  | -20.618  | -12.077 | -11.138 | -16.172 | -15.187 |
| 678 | 0.45 | -8.009  | -2.062  | -0.607 | 0.284  | -12.910  | -7.815  | -6.924  | -10.345 | -9.410  |
| 678 | 0.9  | -4.215  | -0.903  | -0.467 | 0.375  | -6.504   | -4.261  | -3.419  | -5.486  | -4.601  |
| 678 | 1.35 | -1.480  | -0.117  | -0.328 | 0.466  | -1.963   | -1.660  | -0.865  | -1.972  | -1.138  |
| 678 | 1.8  | 0.469   | 0.446   | -0.189 | 0.558  | 1.276    | 0.233   | 0.979   | 0.575   | 1.358   |
| 679 | 0    | -71.602 | -15.931 | 2.273  | -6.514 | -111.412 | -62.168 | -70.956 | -82.832 | -92.059 |
| 679 | 0.75 | -39.798 | -9.367  | 1.627  | -4.647 | -62.744  | -34.192 | -40.465 | -45.981 | -52.569 |
| 679 | 1.5  | -12.893 | -3.748  | 0.980  | -2.780 | -21.468  | -10.624 | -14.384 | -14.870 | -18.818 |
| 679 | 2.25 | 8.583   | 0.632   | 0.333  | -0.913 | 11.311   | 8.058   | 6.811   | 9.760   | 8.451   |
| 679 | 3    | 25.160  | 4.066   | -0.314 | 0.954  | 36.698   | 22.330  | 23.598  | 28.650  | 29.981  |
| 680 | 0    | 26.058  | 4.254   | 0.034  | -0.913 | 38.075   | 23.486  | 22.539  | 30.076  | 29.082  |
| 680 | 0.75 | 17.807  | 3.623   | -0.612 | 0.836  | 27.166   | 15.414  | 16.863  | 20.338  | 21.858  |
| 680 | 1.5  | 4.658   | 2.047   | -1.258 | 2.585  | 8.864    | 2.934   | 6.778   | 4.859   | 8.895   |
| 680 | 2.25 | -13.921 | -0.768  | -1.905 | 4.335  | -17.934  | -14.433 | -8.194  | -17.100 | -10.549 |
| 680 | 3    | -37.398 | -4.529  | -2.551 | 6.084  | -52.124  | -36.209 | -27.574 | -44.799 | -35.733 |
| 681 | 0    | -67.916 | -9.598  | 0.794  | -3.093 | -96.857  | -60.331 | -64.217 | -76.526 | -80.606 |
| 681 | 0.75 | -27.065 | -3.897  | 0.575  | -2.325 | -38.714  | -23.784 | -26.683 | -30.270 | -33.315 |
| 681 | 1.5  | 8.887   | 0.858   | 0.356  | -1.557 | 12.037   | 8.354   | 6.441   | 10.245  | 8.237   |
| 681 | 2.25 | 39.410  | 4.374   | 0.137  | -0.789 | 54.291   | 35.606  | 34.680  | 44.280  | 43.308  |
| 681 | 3    | 65.034  | 6.945   | -0.082 | -0.021 | 89.153   | 58.448  | 58.509  | 72.575  | 72.639  |
| 682 | 0    | 65.288  | 6.988   | 0.058  | -0.887 | 89.527   | 58.818  | 57.872  | 73.016  | 72.024  |
| 682 | 0.75 | 38.654  | 4.627   | -0.195 | 0.125  | 53.789   | 34.594  | 34.914  | 43.297  | 43.634  |
| 682 | 1.5  | 7.122   | 1.320   | -0.449 | 1.138  | 10.658   | 5.961   | 7.548   | 7.838   | 9.505   |
| 682 | 2.25 | -29.840 | -3.226  | -0.702 | 2.151  | -40.969  | -27.558 | -24.705 | -34.102 | -31.106 |
| 682 | 3    | -71.701 | -8.717  | -0.955 | 3.164  | -99.989  | -65.486 | -61.367 | -81.781 | -77.456 |
| 683 | 0    | -63.533 | -8.928  | 0.769  | -1.835 | -90.524  | -56.411 | -59.015 | -71.527 | -74.261 |
| 683 | 0.75 | -28.623 | -3.455  | 0.584  | -1.408 | -39.877  | -25.177 | -27.169 | -31.619 | -33.710 |
| 683 | 1.5  | 1.387   | 1.071   | 0.399  | -0.981 | 3.379    | 1.648   | 0.268   | 2.550   | 1.102   |
| 683 | 2.25 | 25.969  | 4.359   | 0.214  | -0.554 | 38.137   | 23.586  | 22.818  | 30.238  | 29.432  |
| 683 | 3    | 45.651  | 6.701   | 0.029  | -0.127 | 65.503   | 41.115  | 40.959  | 52.186  | 52.022  |
| 684 | 0    | 45.535  | 6.698   | 0.131  | -0.498 | 65.359   | 41.113  | 40.483  | 52.169  | 51.509  |
| 684 | 0.75 | 28.965  | 4.485   | -0.067 | 0.042  | 41.934   | 26.002  | 26.111  | 33.169  | 33.283  |
| 684 | 1.5  | 7.497   | 1.325   | -0.265 | 0.582  | 11.117   | 6.483   | 7.329   | 8.429   | 9.318   |
| 684 | 2.25 | -19.401 | -3.073  | -0.463 | 1.122  | -28.197  | -17.923 | -16.338 | -22.792 | -21.128 |
| 684 | 3    | -51.197 | -8.416  | -0.661 | 1.662  | -74.903  | -46.738 | -44.415 | -59.753 | -57.314 |
| 685 | 0    | -28.507 | -2.769  | 0.618  | -1.250 | -38.638  | -25.038 | -26.906 | -31.027 | -32.989 |
| 685 | 0.56 | -13.805 | -0.783  | 0.478  | -0.967 | -17.819  | -11.947 | -13.392 | -14.487 | -16.005 |
| 685 | 1.13 | -1.677  | 0.771   | 0.337  | -0.685 | -0.779   | -1.172  | -2.194  | -0.921  | -1.994  |
| 685 | 1.69 | 7.451   | 1.658   | 0.197  | -0.403 | 11.595   | 6.903   | 6.303   | 9.075   | 8.446   |
| 685 | 2.25 | 14.007  | 2.114   | 0.056  | -0.121 | 20.191   | 12.662  | 12.486  | 16.098  | 15.913  |
| 686 | 0    | 13.950  | 2.128   | 0.099  | -0.257 | 20.145   | 12.654  | 12.298  | 16.092  | 15.718  |
| 686 | 0.56 | 12.941  | 0.549   | -0.052 | 0.065  | 16.408   | 11.595  | 11.711  | 13.879  | 14.002  |
| 686 | 1.13 | -2.342  | -1.923  | -0.203 | 0.386  | -5.887   | -2.310  | -1.721  | -3.883  | -3.265  |
| 686 | 1.69 | -26.475 | -5.292  | -0.353 | 0.708  | -40.238  | -24.181 | -23.119 | -31.504 | -30.389 |
| 686 | 2.25 | -53.181 | -9.093  | -0.504 | 1.030  | -78.367  | -48.367 | -46.832 | -62.098 | -60.487 |
| 687 | 0    | -65.959 | -8.948  | 0.089  | -0.147 | -93.468  | -59.275 | -59.510 | -74.801 | -75.048 |
| 687 | 0.75 | -20.899 | -3.072  | 0.094  | -0.167 | -29.994  | -18.715 | -18.976 | -23.780 | -24.055 |
| 687 | 1.5  | 19.263  | 1.858   | 0.099  | -0.188 | 26.088   | 17.436  | 17.149  | 21.501  | 21.200  |
| 687 | 2.25 | 30.595  | 4.626   | 0.104  | -0.208 | 44.116   | 27.640  | 27.327  | 35.149  | 34.820  |
| 687 | 3    | 37.028  | 6.449   | 0.110  | -0.229 | 54.751   | 33.435  | 33.096  | 43.057  | 42.701  |

|     |      |         |         |         |         |          |         |         |          |          |
|-----|------|---------|---------|---------|---------|----------|---------|---------|----------|----------|
| 688 | 0    | 37.028  | 6.449   | 0.110   | -0.229  | 54.751   | 33.435  | 33.096  | 43.057   | 42.701   |
| 688 | 0.75 | 30.594  | 4.626   | 0.104   | -0.208  | 44.115   | 27.639  | 27.327  | 35.148   | 34.820   |
| 688 | 1.5  | 19.262  | 1.857   | 0.099   | -0.188  | 26.087   | 17.435  | 17.148  | 21.500   | 21.199   |
| 688 | 2.25 | -20.900 | -3.073  | 0.094   | -0.167  | -29.996  | -18.716 | -18.977 | -23.782  | -24.056  |
| 688 | 3    | -65.961 | -8.949  | 0.089   | -0.147  | -93.171  | -59.276 | -59.511 | -74.803  | -75.050  |
| 689 | 0    | -53.182 | -9.094  | -0.504  | 1.030   | -78.369  | -48.368 | -46.834 | -62.100  | -60.489  |
| 689 | 0.56 | -26.476 | -5.293  | -0.353  | 0.708   | -40.240  | -24.182 | -23.120 | -31.505  | -30.390  |
| 689 | 1.13 | -2.343  | -1.923  | -0.203  | 0.386   | -5.889   | -2.311  | -1.722  | -3.884   | -3.266   |
| 689 | 1.69 | 12.940  | 0.549   | -0.052  | 0.065   | 16.407   | 11.594  | 11.711  | 13.879   | 14.001   |
| 689 | 2.25 | 13.950  | 2.128   | 0.099   | -0.257  | 20.144   | 12.654  | 12.298  | 16.092   | 15.718   |
| 690 | 0    | 14.007  | 2.114   | 0.056   | -0.121  | 20.190   | 12.662  | 12.486  | 16.098   | 15.912   |
| 690 | 0.56 | 7.452   | 1.658   | 0.197   | -0.403  | 11.595   | 6.903   | 6.304   | 9.075    | 8.446    |
| 690 | 1.13 | -1.677  | 0.771   | 0.337   | -0.685  | -0.778   | -1.172  | -2.194  | -0.921   | -1.994   |
| 690 | 1.69 | -13.805 | -0.783  | 0.478   | -0.967  | -17.818  | -11.947 | -13.392 | -14.487  | -16.004  |
| 690 | 2.25 | -28.506 | -2.768  | 0.618   | -1.250  | -38.636  | -25.037 | -26.905 | -31.026  | -32.987  |
| 691 | 0    | -51.197 | -8.416  | -0.661  | 1.662   | -74.902  | -46.738 | -44.415 | -59.752  | -57.313  |
| 691 | 0.75 | -19.400 | -3.072  | -0.463  | 1.122   | -28.196  | -17.923 | -16.338 | -22.792  | -21.128  |
| 691 | 1.5  | 7.497   | 1.325   | -0.265  | 0.582   | 11.117   | 6.483   | 7.330   | 8.429    | 9.318    |
| 691 | 2.25 | 28.965  | 4.485   | -0.067  | 0.042   | 41.934   | 26.002  | 26.111  | 33.169   | 33.283   |
| 691 | 3    | 45.535  | 6.698   | 0.131   | -0.498  | 65.359   | 41.113  | 40.483  | 52.169   | 51.509   |
| 692 | 0    | 45.651  | 6.701   | 0.029   | -0.127  | 65.504   | 41.116  | 40.960  | 52.186   | 52.023   |
| 692 | 0.75 | 25.969  | 4.359   | 0.214   | -0.554  | 38.137   | 23.586  | 22.818  | 30.238   | 29.432   |
| 692 | 1.5  | 1.387   | 1.071   | 0.399   | -0.981  | 3.379    | 1.648   | 0.268   | 2.550    | 1.102    |
| 692 | 2.25 | -28.623 | -3.455  | 0.584   | -1.408  | -39.877  | -25.177 | -27.169 | -31.619  | -33.710  |
| 692 | 3    | -63.533 | -8.928  | 0.769   | -1.835  | -90.524  | -56.411 | -59.015 | -71.527  | -74.261  |
| 693 | 0    | -71.701 | -8.717  | -0.955  | 3.164   | -99.989  | -65.486 | -61.367 | -81.781  | -77.456  |
| 693 | 0.75 | -29.840 | -3.226  | -0.702  | 2.151   | -40.969  | -27.558 | -24.705 | -34.102  | -31.106  |
| 693 | 1.5  | 7.122   | 1.320   | -0.449  | 1.138   | 10.658   | 5.961   | 7.548   | 7.838    | 9.505    |
| 693 | 2.25 | 38.654  | 4.627   | -0.195  | 0.125   | 53.789   | 34.594  | 34.914  | 43.297   | 43.634   |
| 693 | 3    | 65.288  | 6.988   | 0.058   | -0.887  | 89.527   | 58.818  | 57.872  | 73.016   | 72.024   |
| 694 | 0    | 65.034  | 6.945   | -0.082  | -0.021  | 89.153   | 58.448  | 58.509  | 72.575   | 72.639   |
| 694 | 0.75 | 39.410  | 4.374   | 0.137   | -0.789  | 54.291   | 35.606  | 34.680  | 44.280   | 43.308   |
| 694 | 1.5  | 8.887   | 0.858   | 0.356   | -1.557  | 12.037   | 8.354   | 6.441   | 10.245   | 8.237    |
| 694 | 2.25 | -27.065 | -3.897  | 0.575   | -2.325  | -38.714  | -23.784 | -26.683 | -30.270  | -33.315  |
| 694 | 3    | -67.916 | -9.598  | 0.794   | -3.093  | -96.857  | -60.331 | -64.217 | -76.526  | -80.606  |
| 695 | 0    | -37.398 | -4.529  | -2.551  | 6.084   | -52.123  | -36.209 | -27.574 | -44.799  | -35.733  |
| 695 | 0.75 | -13.921 | -0.768  | -1.905  | 4.335   | -17.933  | -14.433 | -8.194  | -17.100  | -10.549  |
| 695 | 1.5  | 4.658   | 2.047   | -1.258  | 2.585   | 8.865    | 2.934   | 6.778   | 4.859    | 8.895    |
| 695 | 2.25 | 17.807  | 3.623   | -0.612  | 0.836   | 27.166   | 15.414  | 16.863  | 20.338   | 21.858   |
| 695 | 3    | 26.058  | 4.254   | 0.034   | -0.913  | 38.075   | 23.486  | 22.539  | 30.076   | 29.082   |
| 696 | 0    | 25.160  | 4.066   | -0.314  | 0.954   | 36.698   | 22.330  | 23.598  | 28.650   | 29.981   |
| 696 | 0.75 | 8.583   | 0.632   | 0.333   | -0.913  | 11.311   | 8.058   | 6.811   | 9.760    | 8.451    |
| 696 | 1.5  | -12.893 | -3.748  | 0.980   | -2.780  | -21.468  | -10.624 | -14.384 | -14.870  | -18.818  |
| 696 | 2.25 | -39.798 | -9.367  | 1.627   | -4.647  | -62.744  | -34.192 | -40.466 | -45.981  | -52.569  |
| 696 | 3    | -71.602 | -15.931 | 2.273   | -6.514  | -111.412 | -62.168 | -70.956 | -82.832  | -92.059  |
| 697 | 0    | -52.791 | -13.246 | -35.192 | 42.743  | -84.542  | -82.703 | -4.768  | -100.726 | -18.895  |
| 697 | 0.56 | -36.490 | -9.566  | -26.961 | 33.177  | -59.093  | -59.802 | 0.336   | -72.650  | -9.505   |
| 697 | 1.13 | -22.762 | -6.318  | -18.731 | 23.610  | -37.423  | -39.217 | 3.125   | -47.548  | -3.039   |
| 697 | 1.69 | -12.034 | -3.736  | -10.501 | 14.044  | -20.419  | -21.331 | 3.214   | -26.015  | -0.243   |
| 697 | 2.25 | -3.878  | -1.587  | -2.270  | 4.477   | -7.193   | -5.761  | 0.987   | -7.456   | -0.371   |
| 698 | 0    | -2.629  | -1.277  | -2.440  | 4.774   | -5.197   | -4.805  | 2.408   | -6.126   | 1.448    |
| 698 | 0.56 | -2.194  | -1.136  | 5.865   | -4.824  | -4.450   | 3.891   | -6.799  | 3.139    | -8.085   |
| 698 | 1.13 | -4.460  | -1.431  | 14.171  | -14.422 | -7.642   | 10.157  | -18.437 | 9.294    | -20.728  |
| 698 | 1.69 | -9.790  | -2.396  | 22.476  | -24.021 | -15.581  | 13.665  | -32.831 | 11.811   | -37.010  |
| 698 | 2.25 | -17.692 | -3.792  | 30.781  | -33.619 | -27.298  | 14.858  | -49.542 | 11.354   | -56.266  |
| 703 | 0    | 42.003  | 10.462  | 6.448   | -6.596  | 67.143   | 44.251  | 31.207  | 57.465   | 43.769   |
| 703 | 0.75 | 18.036  | 4.483   | 9.879   | -10.058 | 28.816   | 26.111  | 6.174   | 32.135   | 11.201   |
| 703 | 1.5  | -10.831 | -2.442  | 13.311  | -13.519 | -16.904  | 3.563   | -23.267 | 1.065    | -27.106  |
| 703 | 2.25 | -45.200 | -10.608 | 16.742  | -16.980 | -71.213  | -23.938 | -57.660 | -36.564  | -71.973  |
| 703 | 3    | -84.467 | -19.721 | 20.173  | -20.442 | -132.914 | -55.848 | -96.463 | -79.933  | -122.579 |
| 704 | 0    | -16.132 | -3.590  | -33.575 | 30.886  | -25.103  | -48.094 | 16.367  | -54.454  | 13.229   |
| 704 | 0.56 | -8.746  | -2.262  | -23.986 | 22.551  | -14.114  | -31.857 | 14.680  | -35.793  | 13.071   |
| 704 | 1.13 | -3.933  | -1.365  | -14.397 | 14.217  | -6.904   | -17.936 | 10.677  | -20.106  | 9.938    |
| 704 | 1.69 | -2.183  | -1.138  | -4.808  | 5.883   | -4.440   | -6.773  | 3.918   | -8.057   | 3.167    |
| 704 | 2.25 | -3.134  | -1.347  | 4.781   | -2.452  | -5.915   | 1.961   | -5.272  | 0.881    | -6.714   |
| 705 | 0    | -4.330  | -1.648  | 4.473   | -2.277  | -7.832   | 0.576   | -6.175  | -0.888   | -7.976   |
| 705 | 0.56 | -12.999 | -3.865  | 14.031  | -10.537 | -21.782  | 2.332   | -22.236 | -1.351   | -27.148  |

|     |      |         |         |        |         |          |         |         |         |          |
|-----|------|---------|---------|--------|---------|----------|---------|---------|---------|----------|
| 705 | 1.13 | -24.241 | -6.513  | 23.588 | -18.797 | -39.511  | 1.771   | -40.614 | -4.789  | -49.293  |
| 705 | 1.69 | -38.483 | -9.829  | 33.146 | -27.057 | -61.906  | -1.489  | -61.691 | -11.796 | -75.009  |
| 705 | 2.25 | -55.298 | -13.576 | 42.703 | -35.317 | -88.079  | -7.065  | -85.085 | -21.777 | -103.698 |
| 706 | 0    | -70.329 | -15.732 | -5.569 | 1.610   | -109.565 | -68.865 | -61.686 | -89.604 | -82.066  |
| 706 | 0.75 | -38.889 | -9.223  | -3.925 | 1.119   | -61.423  | -38.925 | -33.881 | -50.765 | -45.469  |
| 706 | 1.5  | -12.347 | -3.659  | -2.282 | 0.628   | -20.672  | -13.394 | -10.485 | -17.666 | -14.611  |
| 706 | 2.25 | 8.765   | 0.665   | -0.638 | 0.137   | 11.582   | 7.250   | 8.025   | 8.952   | 9.766    |
| 706 | 3    | 24.978  | 4.044   | 1.006  | -0.354  | 36.444   | 23.486  | 22.126  | 29.831  | 28.403   |
| 707 | 0    | 26.124  | 4.266   | -0.850 | -0.012  | 38.174   | 22.662  | 23.499  | 29.225  | 30.105   |
| 707 | 0.75 | 17.570  | 3.589   | 0.674  | -0.501  | 26.827   | 16.487  | 15.312  | 21.417  | 20.183   |
| 707 | 1.5  | 4.118   | 1.967   | 2.197  | -0.991  | 8.088    | 5.903   | 2.715   | 7.870   | 4.523    |
| 707 | 2.25 | -14.764 | -0.894  | 3.721  | -1.480  | -19.148  | -9.567  | -14.767 | -12.159 | -17.620  |
| 707 | 3    | -38.545 | -4.701  | 5.244  | -1.969  | -53.776  | -29.446 | -36.659 | -37.927 | -45.501  |
| 708 | 0    | -66.469 | -9.372  | -2.347 | 0.277   | -94.757  | -62.169 | -59.545 | -78.161 | -75.406  |
| 708 | 0.75 | -26.073 | -3.742  | -1.766 | 0.187   | -37.275  | -25.231 | -23.278 | -31.588 | -29.538  |
| 708 | 1.5  | 9.424   | 0.941   | -1.184 | 0.098   | 12.815   | 7.298   | 8.580   | 9.245   | 10.591   |
| 708 | 2.25 | 39.492  | 4.385   | -0.603 | 0.008   | 54.408   | 34.940  | 35.551  | 43.597  | 44.239   |
| 708 | 3    | 64.661  | 6.885   | -0.021 | -0.081  | 88.610   | 58.174  | 58.114  | 72.210  | 72.147   |
| 709 | 0    | 65.305  | 6.987   | -0.878 | 0.052   | 89.544   | 57.896  | 58.827  | 72.049  | 73.027   |
| 709 | 0.75 | 38.287  | 4.567   | -0.052 | -0.071  | 53.251   | 34.406  | 34.387  | 43.023  | 43.003   |
| 709 | 1.5  | 6.370   | 1.201   | 0.774  | -0.195  | 9.565    | 6.507   | 5.537   | 8.258   | 7.240    |
| 709 | 2.25 | -30.976 | -3.403  | 1.600  | -0.319  | -42.617  | -26.279 | -28.198 | -32.989 | -35.005  |
| 709 | 3    | -73.221 | -8.954  | 2.426  | -0.443  | -102.191 | -63.473 | -66.343 | -79.976 | -82.989  |
| 710 | 0    | -61.529 | -8.573  | -1.223 | 0.345   | -87.551  | -56.599 | -55.031 | -71.290 | -69.644  |
| 710 | 0.75 | -27.482 | -3.293  | -0.933 | 0.255   | -38.247  | -25.667 | -24.479 | -31.911 | -30.663  |
| 710 | 1.5  | 1.665   | 1.041   | -0.643 | 0.166   | 3.665    | 0.855   | 1.664   | 1.729   | 2.578    |
| 710 | 2.25 | 25.383  | 4.137   | -0.354 | 0.076   | 37.080   | 22.491  | 22.921  | 28.888  | 29.339   |
| 710 | 3    | 44.203  | 6.287   | -0.064 | -0.014  | 63.103   | 39.719  | 39.769  | 50.307  | 50.359   |
| 711 | 0    | 44.777  | 6.401   | -0.434 | 0.087   | 63.974   | 39.865  | 40.386  | 50.593  | 51.140   |
| 711 | 0.75 | 27.591  | 4.068   | -0.039 | -0.012  | 39.618   | 24.793  | 24.820  | 31.493  | 31.521   |
| 711 | 1.5  | 5.507   | 0.788   | 0.356  | -0.111  | 7.870    | 5.312   | 4.845   | 6.653   | 6.162    |
| 711 | 2.25 | -22.007 | -3.729  | 0.751  | -0.210  | -32.375  | -19.056 | -20.016 | -24.669 | -25.678  |
| 711 | 3    | -54.419 | -9.193  | 1.145  | -0.309  | -80.012  | -47.832 | -49.287 | -61.729 | -63.257  |
| 712 | 0    | -35.395 | -5.567  | -0.731 | 0.267   | -51.381  | -32.587 | -31.589 | -41.440 | -40.392  |
| 712 | 0.56 | -19.042 | -2.939  | -0.569 | 0.206   | -27.552  | -17.707 | -16.932 | -22.443 | -21.629  |
| 712 | 1.13 | -5.262  | -0.742  | -0.407 | 0.146   | -7.502   | -5.143  | -4.590  | -6.420  | -5.839   |
| 712 | 1.69 | 5.518   | 0.788   | -0.245 | 0.086   | 7.883    | 4.722   | 5.052   | 6.034   | 6.381    |
| 712 | 2.25 | 13.725  | 1.886   | -0.082 | 0.026   | 19.488   | 12.270  | 12.378  | 15.513  | 15.627   |
| 713 | 0    | 15.185  | 2.283   | -0.261 | 0.089   | 21.875   | 13.406  | 13.756  | 17.109  | 17.476   |
| 713 | 0.56 | 15.152  | 1.224   | -0.060 | 0.018   | 20.141   | 13.577  | 13.656  | 16.618  | 16.700   |
| 713 | 1.13 | 0.846   | -0.728  | 0.142  | -0.052  | -0.150   | 0.903   | 0.709   | 0.578   | 0.375    |
| 713 | 1.69 | -22.311 | -3.577  | 0.343  | -0.123  | -32.497  | -19.737 | -20.203 | -25.320 | -25.809  |
| 713 | 2.25 | -48.040 | -6.859  | 0.544  | -0.194  | -68.622  | -42.692 | -43.430 | -54.192 | -54.967  |
| 714 | 0    | -72.474 | -12.302 | -0.059 | 0.031   | -106.653 | -65.286 | -65.196 | -83.911 | -83.816  |
| 714 | 0.75 | -22.542 | -4.131  | -0.068 | 0.034   | -33.660  | -20.355 | -20.254 | -26.342 | -26.236  |
| 714 | 1.5  | 22.332  | 3.007   | -0.076 | 0.036   | 31.608   | 20.023  | 20.135  | 25.263  | 25.380   |
| 714 | 2.25 | 37.493  | 7.497   | -0.084 | 0.039   | 56.987   | 33.660  | 33.783  | 44.003  | 44.132   |
| 714 | 3    | 47.596  | 10.953  | -0.092 | 0.042   | 74.640   | 42.744  | 42.879  | 56.779  | 56.921   |
| 715 | 0    | 47.596  | 10.953  | -0.092 | 0.042   | 74.640   | 42.744  | 42.879  | 56.779  | 56.921   |
| 715 | 0.75 | 37.493  | 7.497   | -0.084 | 0.039   | 56.987   | 33.660  | 33.783  | 44.003  | 44.132   |
| 715 | 1.5  | 22.332  | 3.007   | -0.076 | 0.036   | 31.608   | 20.023  | 20.135  | 25.263  | 25.380   |
| 715 | 2.25 | -22.542 | -4.131  | -0.068 | 0.034   | -33.660  | -20.355 | -20.254 | -26.343 | -26.236  |
| 715 | 3    | -72.474 | -12.302 | -0.059 | 0.031   | -106.653 | -65.286 | -65.196 | -83.911 | -83.816  |
| 716 | 0    | -48.040 | -6.859  | 0.544  | -0.194  | -68.622  | -42.692 | -43.430 | -54.192 | -54.967  |
| 716 | 0.56 | -22.311 | -3.577  | 0.343  | -0.123  | -32.497  | -19.737 | -20.203 | -25.320 | -25.809  |
| 716 | 1.13 | 0.846   | -0.728  | 0.142  | -0.052  | -0.150   | 0.903   | 0.709   | 0.578   | 0.375    |
| 716 | 1.69 | 15.152  | 1.224   | -0.060 | 0.018   | 20.141   | 13.577  | 13.656  | 16.618  | 16.700   |
| 716 | 2.25 | 15.185  | 2.283   | -0.261 | 0.089   | 21.875   | 13.406  | 13.756  | 17.109  | 17.476   |
| 717 | 0    | 13.725  | 1.886   | -0.082 | 0.026   | 19.488   | 12.270  | 12.378  | 15.513  | 15.627   |
| 717 | 0.56 | 5.518   | 0.788   | -0.245 | 0.086   | 7.882    | 4.722   | 5.052   | 6.034   | 6.381    |
| 717 | 1.13 | -5.262  | -0.742  | -0.407 | 0.146   | -7.502   | -5.143  | -4.590  | -6.420  | -5.839   |
| 717 | 1.69 | -19.042 | -2.939  | -0.569 | 0.206   | -27.552  | -17.707 | -16.932 | -22.443 | -21.629  |
| 717 | 2.25 | -35.395 | -5.567  | -0.731 | 0.267   | -51.381  | -32.587 | -31.589 | -41.440 | -40.392  |
| 718 | 0    | -54.419 | -9.193  | 1.145  | -0.309  | -80.012  | -47.832 | -49.287 | -61.729 | -63.257  |
| 718 | 0.75 | -22.007 | -3.729  | 0.751  | -0.210  | -32.375  | -19.056 | -20.016 | -24.669 | -25.678  |
| 718 | 1.5  | 5.507   | 0.788   | 0.356  | -0.111  | 7.870    | 5.312   | 4.845   | 6.653   | 6.162    |
| 718 | 2.25 | 27.591  | 4.068   | -0.039 | -0.012  | 39.618   | 24.793  | 24.820  | 31.493  | 31.521   |



|     |      |         |         |         |         |          |         |         |          |          |
|-----|------|---------|---------|---------|---------|----------|---------|---------|----------|----------|
| 718 | 3    | 44.777  | 6.401   | -0.434  | 0.087   | 63.974   | 39.865  | 40.386  | 50.593   | 51.140   |
| 719 | 0    | 44.203  | 6.287   | -0.064  | -0.014  | 63.103   | 39.719  | 39.769  | 50.307   | 50.359   |
| 719 | 0.75 | 25.383  | 4.137   | -0.354  | 0.076   | 37.080   | 22.491  | 22.921  | 28.888   | 29.339   |
| 719 | 1.5  | 1.665   | 1.041   | -0.643  | 0.166   | 3.665    | 0.855   | 1.664   | 1.729    | 2.578    |
| 719 | 2.25 | -27.482 | -3.293  | -0.933  | 0.255   | -38.247  | -25.667 | -24.479 | -31.911  | -30.663  |
| 719 | 3    | -61.529 | -8.573  | -1.223  | 0.345   | -87.551  | -56.599 | -55.031 | -71.290  | -69.644  |
| 720 | 0    | -73.221 | -8.954  | 2.426   | -0.443  | -102.191 | -63.473 | -66.343 | -79.976  | -82.989  |
| 720 | 0.75 | -30.976 | -3.403  | 1.600   | -0.319  | -42.617  | -26.279 | -28.198 | -32.989  | -35.005  |
| 720 | 1.5  | 6.370   | 1.201   | 0.774   | -0.195  | 9.565    | 6.507   | 5.537   | 8.258    | 7.240    |
| 720 | 2.25 | 38.287  | 4.567   | -0.052  | -0.071  | 53.251   | 34.406  | 34.387  | 43.023   | 43.003   |
| 720 | 3    | 65.305  | 6.987   | -0.878  | 0.052   | 89.544   | 57.896  | 58.827  | 72.049   | 73.027   |
| 721 | 0    | 64.661  | 6.885   | -0.021  | -0.081  | 88.610   | 58.174  | 58.114  | 72.210   | 72.147   |
| 721 | 0.75 | 39.492  | 4.386   | -0.603  | 0.008   | 54.408   | 34.940  | 35.551  | 43.597   | 44.239   |
| 721 | 1.5  | 9.424   | 0.941   | -1.184  | 0.098   | 12.815   | 7.298   | 8.580   | 9.245    | 10.591   |
| 721 | 2.25 | -26.073 | -3.742  | -1.766  | 0.187   | -37.275  | -25.231 | -23.278 | -31.588  | -29.538  |
| 721 | 3    | -66.469 | -9.372  | -2.347  | 0.277   | -94.757  | -62.169 | -59.545 | -78.161  | -75.406  |
| 722 | 0    | -38.545 | -4.701  | 5.244   | -1.969  | -53.776  | -29.446 | -36.659 | -37.927  | -45.501  |
| 722 | 0.75 | -14.764 | -0.894  | 3.721   | -1.480  | -19.148  | -9.567  | -14.767 | -12.159  | -17.620  |
| 722 | 1.5  | 4.118   | 1.967   | 2.197   | -0.991  | 8.088    | 5.903   | 2.715   | 7.870    | 4.523    |
| 722 | 2.25 | 17.570  | 3.589   | 0.674   | -0.501  | 26.827   | 16.487  | 15.312  | 21.417   | 20.183   |
| 722 | 3    | 26.124  | 4.266   | -0.850  | -0.012  | 38.174   | 22.662  | 23.499  | 29.225   | 30.105   |
| 723 | 0    | 24.978  | 4.044   | 1.006   | -0.354  | 36.444   | 23.486  | 22.126  | 29.831   | 28.403   |
| 723 | 0.75 | 8.765   | 0.665   | -0.638  | 0.137   | 11.582   | 7.250   | 8.025   | 8.952    | 9.766    |
| 723 | 1.5  | -12.347 | -3.659  | -2.282  | 0.628   | -20.672  | -13.394 | -10.485 | -17.666  | -14.611  |
| 723 | 2.25 | -38.889 | -9.223  | -3.925  | 1.119   | -61.423  | -38.925 | -33.881 | -50.765  | -45.469  |
| 723 | 3    | -70.329 | -15.732 | -5.569  | 1.610   | -109.565 | -68.865 | -61.686 | -89.604  | -82.066  |
| 724 | 0    | -55.298 | -13.576 | 42.703  | -35.317 | -88.079  | -7.065  | -85.085 | -21.777  | -103.698 |
| 724 | 0.56 | -38.483 | -9.829  | 33.146  | -27.057 | -61.906  | -1.489  | -61.691 | -11.796  | -75.009  |
| 724 | 1.13 | -24.241 | -6.513  | 23.588  | -18.797 | -39.511  | 1.771   | -40.614 | -4.789   | -49.293  |
| 724 | 1.69 | -12.999 | -3.865  | 14.031  | -10.537 | -21.782  | 2.332   | -22.236 | -1.351   | -27.148  |
| 724 | 2.25 | -4.330  | -1.648  | 4.473   | -2.277  | -7.832   | 0.576   | -6.175  | -0.888   | -7.976   |
| 725 | 0    | -3.134  | -1.347  | 4.781   | -2.452  | -5.915   | 1.961   | -5.272  | 0.881    | -6.714   |
| 725 | 0.56 | -2.183  | -1.138  | -4.808  | 5.883   | -4.440   | -6.773  | 3.918   | -8.057   | 3.167    |
| 725 | 1.13 | -3.933  | -1.365  | -14.397 | 14.217  | -6.904   | -17.936 | 10.677  | -20.106  | 9.938    |
| 725 | 1.69 | -8.746  | -2.262  | -23.986 | 22.551  | -14.114  | -31.857 | 14.680  | -35.793  | 13.071   |
| 725 | 2.25 | -16.132 | -3.590  | -33.575 | 30.886  | -25.103  | -48.094 | 16.367  | -54.454  | 13.229   |
| 726 | 0    | -84.467 | -19.721 | 20.173  | -20.442 | -132.914 | -55.848 | -96.463 | -79.933  | -122.579 |
| 726 | 0.75 | -45.200 | -10.608 | 16.742  | -16.980 | -71.213  | -23.938 | -57.660 | -36.564  | -71.973  |
| 726 | 1.5  | -10.831 | -2.442  | 13.311  | -13.519 | -16.904  | 3.563   | -23.267 | 1.066    | -27.106  |
| 726 | 2.25 | 18.036  | 4.483   | 9.879   | -10.058 | 28.816   | 26.111  | 6.174   | 32.135   | 11.201   |
| 726 | 3    | 42.003  | 10.462  | 6.448   | -6.596  | 67.143   | 44.251  | 31.207  | 57.465   | 43.769   |
| 727 | 0    | 43.484  | 10.922  | 6.405   | -6.554  | 69.657   | 45.541  | 32.582  | 59.265   | 45.657   |
| 727 | 0.75 | 51.154  | 12.494  | 3.171   | -3.314  | 81.376   | 49.209  | 42.725  | 64.912   | 58.104   |
| 727 | 1.5  | 53.925  | 13.120  | -0.063  | -0.073  | 85.703   | 48.469  | 48.459  | 64.821   | 64.810   |
| 727 | 2.25 | 51.267  | 12.508  | -3.297  | 3.167   | 81.533   | 42.843  | 49.307  | 58.248   | 65.036   |
| 727 | 3    | 43.709  | 10.950  | -6.531  | 6.408   | 69.971   | 32.808  | 45.747  | 45.936   | 59.522   |
| 728 | 0    | 42.285  | 10.500  | -6.575  | 6.449   | 67.541   | 31.482  | 44.506  | 44.110   | 57.786   |
| 728 | 0.75 | 18.400  | 4.528   | -10.029 | 9.892   | 29.326   | 6.531   | 26.452  | 11.642   | 32.559   |
| 728 | 1.5  | -10.383 | -2.389  | -13.483 | 13.334  | -16.282  | -22.828 | 3.989   | -26.565  | 1.593    |
| 728 | 2.25 | -44.670 | -10.548 | -16.938 | 16.776  | -70.480  | -57.140 | -23.427 | -71.333  | -35.933  |
| 728 | 3    | -83.854 | -19.652 | -20.392 | 20.218  | -132.069 | -95.861 | -55.251 | -121.840 | -79.199  |
| 729 | 0    | -17.692 | -3.792  | 30.781  | -33.619 | -27.298  | 14.858  | -49.542 | 11.354   | -56.266  |
| 729 | 0.56 | -9.790  | -2.396  | 22.476  | -24.021 | -15.581  | 13.665  | -32.831 | 11.811   | -37.010  |
| 729 | 1.13 | -4.460  | -1.431  | 14.171  | -14.422 | -7.642   | 10.157  | -18.437 | 9.294    | -20.728  |
| 729 | 1.69 | -2.194  | -1.136  | 5.865   | -4.824  | -4.450   | 3.891   | -6.799  | 3.139    | -8.085   |
| 729 | 2.25 | -2.629  | -1.277  | -2.440  | 4.774   | -5.197   | -4.805  | 2.408   | -6.126   | 1.448    |
| 730 | 0    | -3.878  | -1.587  | -2.270  | 4.477   | -7.193   | -5.761  | 0.987   | -7.456   | -0.371   |
| 730 | 0.56 | -12.034 | -3.736  | -10.501 | 14.044  | -20.419  | -21.331 | 3.214   | -26.015  | -0.243   |
| 730 | 1.13 | -22.762 | -6.318  | -18.731 | 23.610  | -37.423  | -39.217 | 3.125   | -47.548  | -3.089   |
| 730 | 1.69 | -36.490 | -9.566  | -26.961 | 33.177  | -59.093  | -59.802 | 0.336   | -72.650  | -9.505   |
| 730 | 2.25 | -52.791 | -13.246 | -35.192 | 42.743  | -84.543  | -82.703 | -4.768  | -100.727 | -18.895  |
| 731 | 0    | -20.314 | -1.944  | 0.173   | 0.187   | -27.487  | -18.109 | -18.095 | -22.373  | -22.358  |
| 731 | 0.75 | -1.532  | 0.163   | -0.064  | 0.427   | -1.578   | -1.443  | -0.951  | -1.574   | -1.057   |
| 731 | 1.5  | 9.507   | 1.323   | -0.302  | 0.667   | 13.526   | 8.255   | 9.224   | 10.500   | 11.517   |
| 731 | 2.25 | 12.273  | 1.246   | -0.539  | 0.907   | 16.720   | 10.506  | 11.953  | 13.105   | 14.624   |
| 731 | 3    | 7.295   | 0.222   | -0.777  | 1.148   | 9.110    | 5.789   | 7.714   | 6.984    | 9.005    |
| 732 | 0    | 7.089   | 0.196   | -0.912  | 1.513   | 8.821    | 5.468   | 7.893   | 6.609    | 9.155    |



|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 732 | 0.75 | 10.383  | 0.993   | -0.377 | 0.525  | 14.048   | 8.967   | 9.869   | 11.131   | 12.079   |
| 732 | 1.5  | 5.934   | 0.844   | 0.157  | -0.463 | 8.471    | 5.498   | 4.878   | 6.928    | 6.276    |
| 732 | 2.25 | -6.789  | -0.543  | 0.692  | -1.450 | -9.016   | -5.418  | -7.560  | -6.744   | -8.994   |
| 732 | 3    | -27.255 | -2.876  | 1.227  | -2.438 | -37.308  | -23.302 | -26.957 | -29.141  | -32.989  |
| 733 | 0    | -27.076 | -2.908  | 0.802  | -1.402 | -37.144  | -23.566 | -25.771 | -29.420  | -31.734  |
| 733 | 0.75 | -6.561  | -0.552  | 0.380  | -0.693 | -8.756   | -5.524  | -6.598  | -6.837   | -7.964   |
| 733 | 1.5  | 6.212   | 0.859   | -0.042 | 0.016  | 8.828    | 5.549   | 5.607   | 7.020    | 7.080    |
| 733 | 2.25 | 10.711  | 1.031   | -0.463 | 0.726  | 14.502   | 9.176   | 10.365  | 11.409   | 12.657   |
| 733 | 3    | 7.466   | 0.257   | -0.885 | 1.435  | 9.370    | 5.835   | 8.155   | 7.072    | 9.508    |
| 734 | 0    | 7.741   | 0.270   | -0.964 | 1.584  | 9.721    | 6.003   | 8.551   | 7.286    | 9.962    |
| 734 | 0.75 | 12.549  | 1.292   | -0.500 | 0.811  | 17.126   | 10.794  | 12.105  | 13.465   | 14.842   |
| 734 | 1.5  | 9.614   | 1.368   | -0.036 | 0.037  | 13.726   | 8.616   | 8.690   | 10.919   | 10.995   |
| 734 | 2.25 | -1.594  | 0.206   | 0.427  | -0.737 | -1.584   | -1.008  | -2.172  | -1.096   | -2.318   |
| 734 | 3    | -20.546 | -1.903  | 0.891  | -1.511 | -27.700  | -17.600 | -20.002 | -21.836  | -24.358  |
| 735 | 0    | -20.546 | -1.903  | 0.891  | -1.511 | -27.700  | -17.600 | -20.002 | -21.836  | -24.358  |
| 735 | 0.75 | -1.595  | 0.206   | 0.427  | -0.737 | -1.584   | -1.008  | -2.172  | -1.096   | -2.318   |
| 735 | 1.5  | 9.614   | 1.368   | -0.036 | 0.037  | 13.726   | 8.616   | 8.689   | 10.919   | 10.995   |
| 735 | 2.25 | 12.549  | 1.292   | -0.500 | 0.811  | 17.126   | 10.794  | 12.105  | 13.465   | 14.842   |
| 735 | 3    | 7.741   | 0.270   | -0.964 | 1.584  | 9.721    | 6.003   | 8.551   | 7.286    | 9.962    |
| 736 | 0    | 7.466   | 0.257   | -0.885 | 1.435  | 9.370    | 5.835   | 8.155   | 7.072    | 9.508    |
| 736 | 0.75 | 10.711  | 1.031   | -0.463 | 0.726  | 14.502   | 9.176   | 10.365  | 11.409   | 12.657   |
| 736 | 1.5  | 6.212   | 0.859   | -0.042 | 0.016  | 8.828    | 5.549   | 5.607   | 7.020    | 7.081    |
| 736 | 2.25 | -6.561  | -0.552  | 0.380  | -0.693 | -8.755   | -5.524  | -6.597  | -6.837   | -7.964   |
| 736 | 3    | -27.076 | -2.908  | 0.802  | -1.402 | -37.144  | -23.566 | -25.770 | -29.420  | -31.734  |
| 737 | 0    | -27.255 | -2.876  | 1.227  | -2.438 | -37.308  | -23.302 | -26.967 | -29.141  | -32.989  |
| 737 | 0.75 | -6.789  | -0.543  | 0.692  | -1.450 | -9.016   | -5.418  | -7.560  | -6.744   | -8.993   |
| 737 | 1.5  | 5.934   | 0.844   | 0.157  | -0.463 | 8.471    | 5.498   | 4.878   | 6.928    | 6.277    |
| 737 | 2.25 | 10.383  | 0.993   | -0.377 | 0.525  | 14.048   | 8.967   | 9.869   | 11.131   | 12.079   |
| 737 | 3    | 7.089   | 0.196   | -0.912 | 1.513  | 8.821    | 5.468   | 7.893   | 6.609    | 9.155    |
| 738 | 0    | 7.295   | 0.222   | -0.777 | 1.148  | 9.110    | 5.789   | 7.714   | 6.984    | 9.005    |
| 738 | 0.75 | 12.273  | 1.246   | -0.539 | 0.907  | 16.720   | 10.506  | 11.953  | 13.105   | 14.624   |
| 738 | 1.5  | 9.507   | 1.323   | -0.302 | 0.667  | 13.526   | 8.255   | 9.224   | 10.500   | 11.517   |
| 738 | 2.25 | -1.532  | 0.163   | -0.064 | 0.427  | -1.578   | -1.443  | -0.951  | -1.574   | -1.057   |
| 738 | 3    | -20.314 | -1.944  | 0.173  | 0.187  | -27.487  | -18.109 | -18.095 | -22.373  | -22.358  |
| 744 | 0    | -65.644 | -11.748 | 0.971  | -1.234 | -97.570  | -58.109 | -60.314 | -75.308  | -77.623  |
| 744 | 0.75 | -21.882 | -4.190  | 1.102  | -1.388 | -32.962  | -18.592 | -21.082 | -24.459  | -27.073  |
| 744 | 1.5  | 11.856  | 2.335   | 1.233  | -1.541 | 17.963   | 11.903  | 9.129   | 15.214   | 12.301   |
| 744 | 2.25 | 34.318  | 7.135   | 1.364  | -1.695 | 52.598   | 32.250  | 29.192  | 41.961   | 38.750   |
| 744 | 3    | 46.757  | 10.901  | 1.495  | -1.849 | 73.551   | 43.576  | 40.233  | 57.532   | 54.022   |
| 745 | 0    | 48.147  | 11.347  | 1.488  | -1.725 | 75.931   | 44.820  | 41.608  | 59.265   | 55.892   |
| 745 | 0.75 | 33.241  | 6.280   | 0.213  | -0.185 | 49.937   | 30.130  | 29.732  | 39.083   | 38.665   |
| 745 | 1.5  | 8.311   | 0.179   | -1.062 | 1.355  | 10.260   | 6.418   | 8.835   | 7.725    | 10.262   |
| 745 | 2.25 | -27.894 | -7.646  | -2.337 | 2.894  | -45.706  | -27.441 | -22.210 | -36.559  | -31.066  |
| 745 | 3    | -74.122 | -16.505 | -3.612 | 4.434  | -115.355 | -70.322 | -62.276 | -92.019  | -83.571  |
| 746 | 0    | -86.160 | -26.223 | -1.438 | 1.594  | -145.349 | -78.982 | -75.949 | -108.498 | -105.314 |
| 746 | 0.75 | -35.805 | -10.547 | -0.658 | 0.596  | -59.841  | -32.882 | -31.629 | -44.930  | -43.614  |
| 746 | 1.5  | 7.773   | 3.149   | 0.123  | -0.403 | 14.367   | 7.119   | 6.593   | 10.275   | 9.723    |
| 746 | 2.25 | 42.791  | 13.883  | 0.903  | -1.401 | 73.563   | 39.415  | 37.111  | 54.626   | 52.206   |
| 746 | 3    | 71.032  | 22.637  | 1.684  | -2.400 | 121.458  | 65.613  | 61.529  | 90.613   | 86.325   |
| 747 | 0    | 71.026  | 22.623  | 1.810  | -2.703 | 121.428  | 65.733  | 61.220  | 90.730   | 85.991   |
| 747 | 0.75 | 41.701  | 13.256  | 0.769  | -1.045 | 71.252   | 38.300  | 36.486  | 52.945   | 51.040   |
| 747 | 1.5  | 5.600   | 1.909   | -0.272 | 0.612  | 9.774    | 4.769   | 5.652   | 6.798    | 7.726    |
| 747 | 2.25 | -39.061 | -12.401 | -1.312 | 2.270  | -66.714  | -36.467 | -32.885 | -50.204  | -46.443  |
| 747 | 3    | -90.499 | -28.690 | -2.353 | 3.928  | -154.504 | -83.802 | -77.521 | -115.570 | -108.975 |
| 748 | 0    | -88.323 | -28.401 | -1.606 | 2.111  | -151.429 | -81.096 | -77.379 | -112.317 | -108.415 |
| 748 | 0.75 | -37.268 | -12.166 | -0.682 | 0.767  | -64.188  | -34.223 | -32.774 | -47.512  | -45.991  |
| 748 | 1.5  | 7.009   | 2.088   | 0.242  | -0.577 | 11.752   | 6.550   | 5.731   | 8.929    | 8.069    |
| 748 | 2.25 | 42.726  | 13.381  | 1.166  | -1.920 | 72.680   | 39.620  | 36.533  | 54.517   | 51.276   |
| 748 | 3    | 71.666  | 22.693  | 2.090  | -3.264 | 122.308  | 66.590  | 61.236  | 91.741   | 86.119   |
| 749 | 0    | 71.458  | 22.676  | 2.158  | -3.387 | 122.031  | 66.470  | 60.925  | 91.583   | 85.761   |
| 749 | 0.75 | 43.684  | 13.998  | 1.016  | -1.553 | 74.818   | 40.332  | 37.763  | 55.755   | 53.057   |
| 749 | 1.5  | 9.134   | 3.340   | -0.126 | 0.281  | 16.304   | 8.095   | 8.502   | 11.563   | 11.990   |
| 749 | 2.25 | -33.976 | -10.281 | -1.267 | 2.114  | -57.221  | -31.846 | -28.464 | -43.483  | -39.932  |
| 749 | 3    | -83.863 | -25.882 | -2.409 | 3.948  | -142.047 | -77.886 | -71.529 | -106.892 | -100.216 |
| 750 | 0    | -51.161 | -11.317 | -0.750 | 0.897  | -79.500  | -46.795 | -45.148 | -61.636  | -59.907  |
| 750 | 0.56 | -22.920 | -5.858  | -0.301 | 0.298  | -36.877  | -20.928 | -20.330 | -28.072  | -27.444  |
| 750 | 1.13 | -0.052  | -0.836  | 0.148  | -0.301 | -1.400   | 0.101   | -0.348  | -0.426   | -0.897   |

|     |      |          |         |        |         |          |          |          |          |          |
|-----|------|----------|---------|--------|---------|----------|----------|----------|----------|----------|
| 750 | 1.69 | 16.913   | 3.459   | 0.597  | -0.899  | 25.830   | 15.819   | 14.322   | 20.565   | 18.993   |
| 750 | 2.25 | 28.504   | 7.318   | 1.046  | -1.498  | 45.913   | 26.700   | 24.155   | 35.638   | 32.966   |
| 751 | 0    | 28.400   | 7.152   | 1.046  | -1.491  | 45.524   | 26.606   | 24.069   | 35.424   | 32.761   |
| 751 | 0.56 | 18.220   | 4.140   | 0.555  | -0.755  | 28.488   | 16.954   | 15.643   | 22.322   | 20.947   |
| 751 | 1.13 | 2.667    | 0.691   | 0.064  | -0.019  | 4.306    | 2.464    | 2.381    | 3.303    | 3.215    |
| 751 | 1.69 | -18.789  | -3.485  | -0.427 | 0.716   | -28.123  | -17.337  | -16.194  | -22.372  | -21.172  |
| 751 | 2.25 | -45.619  | -8.098  | -0.918 | 1.452   | -67.699  | -41.975  | -39.605  | -53.965  | -51.477  |
| 752 | 0    | -45.621  | -8.098  | -0.918 | 1.452   | -67.702  | -41.976  | -39.606  | -53.967  | -51.479  |
| 752 | 0.56 | -18.790  | -3.486  | -0.427 | 0.716   | -28.125  | -17.338  | -16.195  | -22.374  | -21.173  |
| 752 | 1.13 | 2.666    | 0.691   | 0.064  | -0.019  | 4.305    | 2.464    | 2.380    | 3.302    | 3.214    |
| 752 | 1.69 | 18.220   | 4.140   | 0.555  | -0.755  | 28.488   | 16.953   | 15.643   | 22.322   | 20.947   |
| 752 | 2.25 | 28.400   | 7.152   | 1.046  | -1.491  | 45.524   | 26.606   | 24.069   | 35.425   | 32.761   |
| 753 | 0    | 28.504   | 7.318   | 1.046  | -1.498  | 45.913   | 26.700   | 24.155   | 35.638   | 32.966   |
| 753 | 0.56 | 16.913   | 3.459   | 0.597  | -0.899  | 25.831   | 15.819   | 14.322   | 20.565   | 18.994   |
| 753 | 1.13 | -0.052   | -0.836  | 0.148  | -0.301  | -1.399   | 0.102    | -0.347   | -0.425   | -0.896   |
| 753 | 1.69 | -22.919  | -5.858  | -0.301 | 0.298   | -36.875  | -20.927  | -20.329  | -28.071  | -27.442  |
| 753 | 2.25 | -51.160  | -11.316 | -0.750 | 0.897   | -79.498  | -46.793  | -45.147  | -61.634  | -59.906  |
| 754 | 0    | -83.863  | -25.882 | -2.409 | 3.948   | -142.048 | -77.886  | -71.529  | -106.892 | -100.217 |
| 754 | 0.75 | -33.976  | -10.281 | -1.267 | 2.114   | -57.221  | -31.846  | -28.464  | -43.483  | -39.932  |
| 754 | 1.5  | 9.134    | 3.339   | -0.126 | 0.281   | 16.304   | 8.095    | 8.501    | 11.563   | 11.989   |
| 754 | 2.25 | 43.684   | 13.998  | 1.016  | -1.553  | 74.818   | 40.332   | 37.763   | 55.755   | 53.057   |
| 754 | 3    | 71.458   | 22.676  | 2.158  | -3.387  | 122.031  | 66.470   | 60.925   | 91.583   | 85.760   |
| 755 | 0    | 71.666   | 22.693  | 2.090  | -3.264  | 122.308  | 66.590   | 61.235   | 91.741   | 86.118   |
| 755 | 0.75 | 42.726   | 13.381  | 1.166  | -1.920  | 72.680   | 39.620   | 36.533   | 54.517   | 51.276   |
| 755 | 1.5  | 7.009    | 2.088   | 0.242  | -0.577  | 11.752   | 6.550    | 5.731    | 8.929    | 8.070    |
| 755 | 2.25 | -37.268  | -12.166 | -0.682 | 0.767   | -64.188  | -34.223  | -32.774  | -47.512  | -45.991  |
| 755 | 3    | -88.322  | -28.401 | -1.606 | 2.111   | -151.429 | -81.096  | -77.379  | -112.317 | -108.415 |
| 756 | 0    | -90.499  | -28.690 | -2.353 | 3.928   | -154.504 | -83.802  | -77.521  | -115.570 | -108.975 |
| 756 | 0.75 | -39.061  | -12.401 | -1.312 | 2.270   | -66.714  | -36.467  | -32.885  | -50.204  | -46.443  |
| 756 | 1.5  | 5.600    | 1.909   | -0.272 | 0.612   | 9.775    | 4.769    | 5.652    | 6.798    | 7.726    |
| 756 | 2.25 | 41.701   | 13.256  | 0.769  | -1.045  | 71.252   | 38.300   | 36.486   | 52.946   | 51.040   |
| 756 | 3    | 71.026   | 22.623  | 1.810  | -2.703  | 121.428  | 65.733   | 61.220   | 90.730   | 85.991   |
| 757 | 0    | 71.032   | 22.637  | 1.684  | -2.400  | 121.458  | 65.613   | 61.529   | 90.613   | 86.325   |
| 757 | 0.75 | 42.791   | 13.883  | 0.903  | -1.401  | 73.563   | 39.415   | 37.111   | 54.626   | 52.206   |
| 757 | 1.5  | 7.773    | 3.149   | 0.123  | -0.403  | 14.367   | 7.119    | 6.593    | 10.275   | 9.723    |
| 757 | 2.25 | -35.805  | -10.547 | -0.658 | 0.596   | -59.841  | -32.882  | -31.629  | -44.930  | -43.614  |
| 757 | 3    | -86.160  | -26.223 | -1.438 | 1.594   | -145.349 | -78.982  | -75.950  | -108.498 | -105.315 |
| 758 | 0    | -74.122  | -16.505 | -3.612 | 4.434   | -115.355 | -70.322  | -62.276  | -92.019  | -83.571  |
| 758 | 0.75 | -27.894  | -7.646  | -2.337 | 2.894   | -45.706  | -27.441  | -22.210  | -36.559  | -31.066  |
| 758 | 1.5  | 8.311    | 0.179   | -1.062 | 1.355   | 10.260   | 6.418    | 8.835    | 7.725    | 10.262   |
| 758 | 2.25 | 33.241   | 6.280   | 0.213  | -0.185  | 49.937   | 30.130   | 29.732   | 39.083   | 38.665   |
| 758 | 3    | 48.147   | 11.347  | 1.488  | -1.725  | 75.931   | 44.820   | 41.608   | 59.265   | 55.892   |
| 759 | 0    | 46.757   | 10.901  | 1.495  | -1.849  | 73.551   | 43.576   | 40.233   | 57.532   | 54.022   |
| 759 | 0.75 | 34.318   | 7.135   | 1.364  | -1.695  | 52.598   | 32.250   | 29.192   | 41.961   | 38.750   |
| 759 | 1.5  | 11.856   | 2.335   | 1.233  | -1.541  | 17.963   | 11.903   | 9.129    | 15.214   | 12.301   |
| 759 | 2.25 | -21.882  | -4.190  | 1.102  | -1.388  | -32.962  | -18.592  | 21.082   | -24.459  | -27.073  |
| 759 | 3    | -65.644  | -11.748 | 0.971  | -1.234  | -97.570  | -58.109  | -60.314  | -75.308  | -77.623  |
| 760 | 0    | -1.380   | -0.135  | 0.008  | 0.005   | -1.872   | -1.233   | -1.237   | -1.525   | -1.529   |
| 760 | 0.45 | -22.576  | -3.010  | -0.380 | 0.408   | -31.907  | -20.698  | -19.910  | -26.000  | -25.173  |
| 760 | 0.9  | -47.110  | -6.108  | -0.768 | 0.811   | -66.305  | -43.167  | -41.588  | -54.120  | -52.462  |
| 760 | 1.35 | -75.252  | -9.579  | -1.156 | 1.213   | -105.628 | -68.883  | -66.514  | -86.263  | -83.775  |
| 760 | 1.8  | -106.733 | -13.272 | -1.545 | 1.616   | -149.315 | -97.604  | -94.443  | -122.053 | -118.734 |
| 761 | 0    | -165.346 | -49.500 | 2.866  | -11.164 | -277.615 | -145.946 | -159.975 | -201.789 | -216.520 |
| 761 | 0.75 | -101.924 | -28.619 | 1.997  | -8.772  | -168.099 | -89.734  | -100.503 | -122.953 | -134.260 |
| 761 | 1.5  | -45.438  | -9.807  | 1.129  | -6.379  | -70.218  | -39.766  | -47.274  | -52.704  | -60.587  |
| 761 | 2.25 | 1.606    | 5.557   | 0.260  | -3.987  | 10.818   | 1.705    | -2.542   | 5.460    | 1.000    |
| 761 | 3    | 41.712   | 18.852  | -0.608 | -1.595  | 80.219   | 36.933   | 35.946   | 55.036   | 54.000   |
| 762 | 0    | 37.200   | 17.577  | -0.568 | -1.874  | 72.763   | 32.912   | 31.606   | 49.537   | 48.166   |
| 762 | 0.75 | 36.703   | 14.183  | -0.491 | -0.625  | 66.736   | 32.542   | 32.407   | 46.958   | 46.817   |
| 762 | 1.5  | 29.268   | 8.721   | -0.413 | 0.623   | 49.075   | 25.928   | 26.964   | 35.792   | 36.880   |
| 762 | 2.25 | 12.391   | -0.189  | -0.335 | 1.872   | 14.568   | 10.817   | 13.024   | 12.540   | 14.858   |
| 762 | 3    | -11.422  | -11.167 | -0.257 | 3.121   | -31.574  | -10.537  | -7.159   | -19.299  | -15.752  |
| 763 | 0    | -29.352  | -16.730 | 0.294  | 0.301   | -61.990  | -26.123  | -26.116  | -41.050  | -41.043  |
| 763 | 0.75 | -7.320   | -5.482  | 0.116  | 0.339   | -17.555  | -6.471   | -6.249   | -11.017  | -10.783  |
| 763 | 1.5  | 9.896    | 3.698   | -0.062 | 0.377   | 17.791   | 8.845    | 9.283    | 12.656   | 13.116   |
| 763 | 2.25 | 19.791   | 9.429   | -0.240 | 0.414   | 38.836   | 17.572   | 18.226   | 26.469   | 27.155   |
| 763 | 3    | 24.868   | 13.093  | -0.417 | 0.452   | 50.790   | 21.964   | 22.833   | 33.922   | 34.834   |

|     |      |          |         |        |         |          |          |          |          |          |
|-----|------|----------|---------|--------|---------|----------|----------|----------|----------|----------|
| 764 | 0    | 25.301   | 13.174  | -0.397 | 0.326   | 51.440   | 22.374   | 23.096   | 34.449   | 35.208   |
| 764 | 0.75 | 16.847   | 8.570   | -0.214 | 0.286   | 33.930   | 14.949   | 15.449   | 22.865   | 23.390   |
| 764 | 1.5  | 3.577    | 1.898   | -0.030 | 0.246   | 7.329    | 3.189    | 3.466    | 4.920    | 5.211    |
| 764 | 2.25 | -17.014  | -8.222  | 0.154  | 0.207   | -33.573  | -15.159  | -15.106  | -22.884  | -22.828  |
| 764 | 3    | -42.422  | -20.411 | 0.337  | 0.167   | -83.564  | -37.843  | -38.013  | -57.048  | -57.227  |
| 765 | 0    | -41.534  | -20.257 | 0.510  | -0.339  | -82.252  | -36.870  | -37.720  | -55.837  | -56.729  |
| 765 | 0.75 | -16.283  | -8.045  | 0.270  | -0.199  | -32.412  | -14.385  | -14.854  | -21.882  | -22.375  |
| 765 | 1.5  | 4.151    | 2.099   | 0.030  | -0.060  | 8.339    | 3.766    | 3.676    | 5.712    | 5.618    |
| 765 | 2.25 | 17.263   | 8.795   | -0.210 | 0.080   | 34.787   | 15.327   | 15.617   | 23.446   | 23.751   |
| 765 | 3    | 25.560   | 13.422  | -0.450 | 0.220   | 52.146   | 22.553   | 23.223   | 34.820   | 35.524   |
| 766 | 0    | 25.473   | 13.435  | -0.429 | 0.164   | 52.065   | 22.497   | 23.090   | 34.761   | 35.384   |
| 766 | 0.75 | 18.844   | 9.522   | -0.245 | 0.143   | 37.847   | 16.714   | 17.102   | 25.527   | 25.934   |
| 766 | 1.5  | 7.397    | 3.540   | -0.062 | 0.121   | 14.540   | 6.596    | 6.778    | 9.932    | 10.124   |
| 766 | 2.25 | -11.371  | -5.890  | 0.122  | 0.099   | -23.069  | -10.112  | -10.135  | -15.522  | -15.546  |
| 766 | 3    | -34.955  | -17.388 | 0.305  | 0.077   | -69.767  | -31.154  | -31.382  | -47.337  | -47.576  |
| 767 | 0    | -27.787  | -12.752 | 0.314  | -0.108  | -53.748  | -24.695  | -25.116  | -36.881  | -37.323  |
| 767 | 0.56 | -13.098  | -5.858  | 0.162  | -0.061  | -25.091  | -11.626  | -11.849  | -17.274  | -17.508  |
| 767 | 1.13 | -0.590   | 0.163   | 0.010  | -0.014  | -0.447   | -0.521   | -0.546   | -0.506   | -0.532   |
| 767 | 1.69 | 8.680    | 4.730   | -0.141 | 0.032   | 17.983   | 7.670    | 7.844    | 11.945   | 12.127   |
| 767 | 2.25 | 15.768   | 8.424   | -0.293 | 0.079   | 32.401   | 13.898   | 14.271   | 21.556   | 21.947   |
| 768 | 0    | 16.027   | 8.771   | -0.292 | 0.063   | 33.267   | 14.132   | 14.488   | 22.048   | 22.421   |
| 768 | 0.56 | 10.248   | 5.353   | -0.174 | 0.085   | 20.864   | 9.049    | 9.309    | 13.951   | 14.223   |
| 768 | 1.13 | 2.289    | 1.063   | -0.056 | 0.107   | 4.447    | 2.003    | 2.167    | 3.014    | 3.185    |
| 768 | 1.69 | -8.909   | -4.682  | 0.062  | 0.129   | -18.182  | -7.956   | -7.889   | -12.239  | -12.169  |
| 768 | 2.25 | -22.287  | -11.300 | 0.179  | 0.151   | -44.825  | -19.879  | -19.908  | -30.332  | -30.363  |
| 772 | 0    | -22.287  | -11.300 | 0.179  | 0.151   | -44.823  | -19.879  | -19.907  | -30.331  | -30.362  |
| 772 | 0.56 | -8.908   | -4.682  | 0.062  | 0.129   | -18.181  | -7.956   | -7.889   | -12.239  | -12.168  |
| 772 | 1.13 | 2.289    | 1.063   | -0.056 | 0.107   | 4.448    | 2.004    | 2.167    | 3.014    | 3.186    |
| 772 | 1.69 | 10.249   | 5.354   | -0.174 | 0.085   | 20.864   | 9.050    | 9.309    | 13.951   | 14.223   |
| 772 | 2.25 | 16.027   | 8.771   | -0.292 | 0.063   | 33.267   | 14.132   | 14.488   | 22.048   | 22.421   |
| 773 | 0    | 15.769   | 8.424   | -0.293 | 0.079   | 32.401   | 13.899   | 14.271   | 21.556   | 21.947   |
| 773 | 0.56 | 8.680    | 4.730   | -0.141 | 0.032   | 17.983   | 7.670    | 7.844    | 11.945   | 12.127   |
| 773 | 1.13 | -0.590   | 0.163   | 0.010  | -0.014  | -0.448   | -0.521   | -0.546   | -0.507   | -0.532   |
| 773 | 1.69 | -13.098  | -5.858  | 0.162  | -0.061  | -25.091  | -11.627  | -11.850  | -17.274  | -17.508  |
| 773 | 2.25 | -27.787  | -12.752 | 0.314  | -0.108  | -53.748  | -24.695  | -25.116  | -36.881  | -37.324  |
| 774 | 0    | -34.955  | -17.388 | 0.305  | 0.077   | -69.767  | -31.154  | -31.382  | -47.337  | -47.576  |
| 774 | 0.75 | -11.371  | -5.890  | 0.122  | 0.099   | -23.069  | -10.112  | -10.135  | -15.522  | -15.546  |
| 774 | 1.5  | 7.397    | 3.540   | -0.062 | 0.121   | 14.540   | 6.596    | 6.778    | 9.932    | 10.124   |
| 774 | 2.25 | 18.844   | 9.522   | -0.245 | 0.143   | 37.847   | 16.714   | 17.102   | 25.527   | 25.934   |
| 774 | 3    | 25.473   | 13.435  | -0.429 | 0.164   | 52.065   | 22.497   | 23.090   | 34.761   | 35.384   |
| 775 | 0    | 25.560   | 13.422  | -0.450 | 0.220   | 52.146   | 22.553   | 23.223   | 34.820   | 35.524   |
| 775 | 0.75 | 17.263   | 8.794   | -0.210 | 0.080   | 34.787   | 15.327   | 15.617   | 23.446   | 23.751   |
| 775 | 1.5  | 4.151    | 2.099   | 0.030  | -0.060  | 8.339    | 3.765    | 3.676    | 5.712    | 5.618    |
| 775 | 2.25 | -16.283  | -8.045  | 0.270  | -0.199  | -32.412  | -14.385  | -14.854  | -21.882  | -22.375  |
| 775 | 3    | -41.534  | -20.257 | 0.510  | -0.339  | -82.252  | -36.870  | -37.720  | -55.837  | -56.729  |
| 776 | 0    | -42.422  | -20.411 | 0.337  | 0.167   | -83.564  | -37.843  | -38.013  | -57.048  | -57.227  |
| 776 | 0.75 | -17.014  | -8.222  | 0.154  | 0.207   | -33.573  | -15.159  | -15.106  | -22.884  | -22.828  |
| 776 | 1.5  | 3.577    | 1.898   | -0.030 | 0.246   | 7.329    | 3.189    | 3.466    | 4.920    | 5.211    |
| 776 | 2.25 | 16.847   | 8.570   | -0.214 | 0.286   | 33.930   | 14.949   | 15.449   | 22.865   | 23.390   |
| 776 | 3    | 25.301   | 13.174  | -0.397 | 0.326   | 51.440   | 22.374   | 23.096   | 34.449   | 35.208   |
| 777 | 0    | 24.868   | 13.093  | -0.417 | 0.452   | 50.790   | 21.964   | 22.833   | 33.922   | 34.834   |
| 777 | 0.75 | 19.791   | 9.429   | -0.240 | 0.414   | 38.836   | 17.572   | 18.226   | 26.469   | 27.155   |
| 777 | 1.5  | 9.896    | 3.698   | -0.062 | 0.377   | 17.791   | 8.845    | 9.283    | 12.656   | 13.116   |
| 777 | 2.25 | -7.320   | -5.482  | 0.116  | 0.339   | -17.555  | -6.471   | -6.249   | -11.017  | -10.783  |
| 777 | 3    | -29.352  | -16.730 | 0.294  | 0.301   | -61.990  | -26.123  | -26.116  | -41.050  | -41.043  |
| 778 | 0    | -11.422  | -11.167 | -0.257 | 3.121   | -31.574  | -10.537  | -7.159   | -19.299  | -15.752  |
| 778 | 0.75 | 12.391   | -0.189  | -0.335 | 1.872   | 14.568   | 10.817   | 13.024   | 12.540   | 14.858   |
| 778 | 1.5  | 29.268   | 8.721   | -0.413 | 0.623   | 49.075   | 25.928   | 26.964   | 35.792   | 36.880   |
| 778 | 2.25 | 36.703   | 14.183  | -0.491 | -0.625  | 66.736   | 32.542   | 32.407   | 46.958   | 46.817   |
| 778 | 3    | 37.200   | 17.577  | -0.568 | -1.874  | 72.763   | 32.912   | 31.606   | 49.537   | 48.166   |
| 779 | 0    | 41.712   | 18.852  | -0.608 | -1.595  | 80.219   | 36.933   | 35.946   | 55.036   | 54.000   |
| 779 | 0.75 | 1.606    | 5.557   | 0.260  | -3.987  | 10.818   | 1.705    | -2.542   | 5.460    | 1.000    |
| 779 | 1.5  | -45.438  | -9.807  | 1.129  | -6.379  | -70.218  | -39.766  | -47.274  | -52.704  | -60.587  |
| 779 | 2.25 | -101.924 | -28.619 | 1.997  | -8.772  | -168.099 | -89.734  | -100.503 | -122.953 | -134.260 |
| 779 | 3    | -165.346 | -49.500 | 2.866  | -11.164 | -277.615 | -145.946 | -159.975 | -201.789 | -216.520 |
| 780 | 0    | -106.733 | -13.272 | -1.545 | 1.616   | -149.315 | -97.604  | -94.443  | -122.053 | -118.734 |
| 780 | 0.45 | -75.252  | -9.579  | -1.156 | 1.213   | -105.628 | -68.883  | -66.514  | -86.263  | -83.775  |

|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 780 | 0.9  | -47.110  | -6.108  | -0.768 | 0.811  | -66.305  | -43.167  | -41.588  | -54.120  | -52.462  |
| 780 | 1.35 | -22.576  | -3.010  | -0.380 | 0.408  | -31.907  | -20.698  | -19.910  | -26.000  | -25.173  |
| 780 | 1.8  | -1.380   | -0.135  | 0.008  | 0.005  | -1.872   | -1.233   | -1.237   | -1.525   | -1.529   |
| 781 | 0    | 2.771    | 0.270   | -0.012 | -0.013 | 3.758    | 2.482    | 2.480    | 3.067    | 3.066    |
| 781 | 0.45 | -15.843  | -1.276  | -0.024 | -0.028 | -21.053  | -14.283  | -14.286  | -17.465  | -17.468  |
| 781 | 0.9  | -38.200  | -3.270  | -0.037 | -0.042 | -51.071  | -34.417  | -34.422  | -42.209  | -42.214  |
| 781 | 1.35 | -64.842  | -6.008  | -0.050 | -0.056 | -87.423  | -58.407  | -58.414  | -71.921  | -71.928  |
| 781 | 1.8  | -95.227  | -9.193  | -0.062 | -0.070 | -128.982 | -85.767  | -85.775  | -105.846 | -105.854 |
| 782 | 0    | -63.840  | -5.509  | -0.203 | -0.230 | -85.421  | -57.659  | -57.685  | -70.716  | -70.743  |
| 782 | 0.75 | -18.744  | 4.883   | -0.202 | -0.223 | -14.680  | -17.071  | -17.093  | -16.816  | -16.839  |
| 782 | 1.5  | 14.450   | 13.206  | -0.200 | -0.217 | 38.470   | 12.805   | 12.788   | 23.283   | 23.265   |
| 782 | 2.25 | 33.238   | 18.082  | -0.198 | -0.211 | 68.816   | 29.716   | 29.704   | 46.084   | 46.070   |
| 782 | 3    | 40.124   | 20.889  | -0.196 | -0.204 | 81.571   | 35.916   | 35.908   | 55.084   | 55.076   |
| 783 | 0    | 46.349   | 22.546  | -0.076 | -0.083 | 91.692   | 41.638   | 41.631   | 62.791   | 62.783   |
| 783 | 0.75 | 7.700    | 7.449   | -0.165 | -0.165 | 21.158   | 6.765    | 6.765    | 12.604   | 12.604   |
| 783 | 1.5  | -42.851  | -9.717  | -0.254 | -0.248 | -66.968  | -38.820  | -38.814  | -51.382  | -51.375  |
| 783 | 2.25 | -107.808 | -30.330 | -0.344 | -0.330 | -177.898 | -97.371  | -97.357  | -132.667 | -132.653 |
| 783 | 3    | -184.667 | -53.012 | -0.433 | -0.413 | -306.419 | -166.633 | -166.613 | -227.752 | -227.731 |
| 784 | 0    | -136.816 | -40.337 | -0.282 | -0.303 | -228.719 | -123.416 | -123.437 | -169.365 | -169.388 |
| 784 | 0.75 | -60.957  | -18.814 | -0.026 | -0.040 | -103.251 | -54.887  | -54.901  | -75.885  | -75.900  |
| 784 | 1.5  | 3.001    | 0.640   | 0.231  | 0.223  | 4.625    | 2.931    | 2.924    | 3.796    | 3.788    |
| 784 | 2.25 | 52.552   | 16.646  | 0.487  | 0.486  | 89.697   | 47.784   | 47.783   | 66.179   | 66.177   |
| 784 | 3    | 90.201   | 30.585  | 0.744  | 0.749  | 157.177  | 81.925   | 81.930   | 114.761  | 114.766  |
| 785 | 0    | 89.727   | 30.495  | 0.797  | 0.803  | 156.465  | 81.551   | 81.558   | 114.262  | 114.269  |
| 785 | 0.75 | 55.458   | 17.301  | 0.393  | 0.401  | 94.231   | 50.305   | 50.313   | 69.543   | 69.552   |
| 785 | 1.5  | 9.287    | 2.038   | -0.011 | -0.001 | 14.405   | 8.347    | 8.357    | 11.023   | 11.034   |
| 785 | 2.25 | -51.290  | -16.673 | -0.415 | -0.403 | -88.225  | -46.577  | -46.565  | -64.795  | -64.782  |
| 785 | 3    | -123.769 | -37.452 | -0.820 | -0.806 | -208.446 | -112.212 | -112.198 | -154.413 | -154.398 |
| 786 | 0    | -129.058 | -38.932 | -0.774 | -0.798 | -217.160 | -116.926 | -116.950 | -160.850 | -160.875 |
| 786 | 0.75 | -53.833  | -17.307 | -0.387 | -0.404 | -92.291  | -48.837  | -48.853  | -67.835  | -67.852  |
| 786 | 1.5  | 9.490    | 2.249   | 0.000  | -0.010 | 14.987   | 8.540    | 8.531    | 11.381   | 11.371   |
| 786 | 2.25 | 58.407   | 18.358  | 0.386  | 0.384  | 99.460   | 52.952   | 52.950   | 73.298   | 73.296   |
| 786 | 3    | 95.421   | 32.397  | 0.773  | 0.778  | 166.342  | 86.653   | 86.657   | 121.415  | 121.420  |
| 787 | 0    | 95.340   | 32.354  | 0.790  | 0.796  | 166.174  | 86.596   | 86.602   | 121.319  | 121.325  |
| 787 | 0.75 | 62.268   | 19.661  | 0.407  | 0.410  | 106.180  | 56.448   | 56.451   | 78.195   | 78.199   |
| 787 | 1.5  | 17.296   | 4.899   | 0.024  | 0.024  | 28.594   | 15.590   | 15.590   | 21.272   | 21.272   |
| 787 | 2.25 | -42.084  | -13.310 | -0.360 | -0.363 | -71.796  | -38.235  | -38.238  | -52.951  | -52.954  |
| 787 | 3    | -113.364 | -33.588 | -0.743 | -0.749 | -189.778 | -102.771 | -102.777 | -140.973 | -140.979 |
| 788 | 0    | -81.194  | -23.444 | -0.577 | -0.729 | -134.943 | -73.652  | -73.803  | -100.629 | -100.788 |
| 788 | 0.56 | -40.220  | -12.534 | -0.301 | -0.370 | -68.319  | -36.499  | -36.568  | -50.444  | -50.516  |
| 788 | 1.13 | -5.413   | -2.497  | -0.024 | -0.012 | -10.491  | -4.896   | -4.883   | -7.282   | -7.269   |
| 788 | 1.69 | 22.171   | 6.086   | 0.252  | 0.347  | 36.343   | 20.206   | 20.301   | 27.379   | 27.478   |
| 788 | 2.25 | 43.589   | 13.796  | 0.529  | 0.705  | 74.380   | 39.759   | 39.935   | 55.015   | 55.200   |
| 789 | 0    | 43.389   | 13.633  | 0.542  | 0.709  | 73.879   | 39.592   | 39.759   | 54.716   | 54.891   |
| 789 | 0.56 | 22.493   | 6.267   | 0.194  | 0.420  | 37.019   | 20.438   | 20.664   | 27.770   | 28.007   |
| 789 | 1.13 | -4.569   | -1.972  | -0.153 | 0.132  | -8.638   | -4.264   | -3.980   | -6.200   | -5.901   |
| 789 | 1.69 | -38.854  | -11.665 | -0.500 | -0.157 | -65.289  | -35.468  | -35.125  | -48.670  | -48.310  |
| 789 | 2.25 | -79.305  | -22.231 | -0.847 | -0.445 | -130.736 | -72.222  | -71.820  | -98.165  | -97.744  |
| 790 | 0    | -108.313 | -30.367 | -1.445 | -0.026 | -178.563 | -98.927  | -97.508  | -134.377 | -132.888 |
| 790 | 0.75 | -40.296  | -12.175 | -0.662 | -0.063 | -67.835  | -36.929  | -36.329  | -50.676  | -50.047  |
| 790 | 1.5  | 15.819   | 3.949   | 0.121  | -0.099 | 25.302   | 14.358   | 14.138   | 19.225   | 18.994   |
| 790 | 2.25 | 57.529   | 16.625  | 0.904  | -0.136 | 95.634   | 52.680   | 51.640   | 71.828   | 70.737   |
| 790 | 3    | 87.336   | 27.232  | 1.687  | -0.172 | 148.375  | 80.289   | 78.431   | 110.631  | 108.679  |
| 791 | 0    | 87.336   | 27.232  | 1.687  | -0.172 | 148.375  | 80.289   | 78.431   | 110.631  | 108.679  |
| 791 | 0.75 | 57.528   | 16.624  | 0.904  | -0.136 | 95.632   | 52.679   | 51.639   | 71.826   | 70.735   |
| 791 | 1.5  | 15.817   | 3.948   | 0.121  | -0.099 | 25.297   | 14.356   | 14.136   | 19.222   | 18.991   |
| 791 | 2.25 | -40.300  | -12.177 | -0.662 | -0.063 | -67.842  | -36.932  | -36.333  | -50.681  | -50.052  |
| 791 | 3    | -108.318 | -30.369 | -1.445 | -0.026 | -178.573 | -98.932  | -97.513  | -134.384 | -132.895 |
| 792 | 0    | -79.308  | -22.233 | -0.847 | -0.445 | -130.742 | -72.224  | -71.823  | -98.169  | -97.748  |
| 792 | 0.56 | -38.856  | -11.666 | -0.500 | -0.157 | -65.293  | -35.470  | -35.127  | -48.673  | -48.313  |
| 792 | 1.13 | -4.570   | -1.973  | -0.153 | 0.132  | -8.640   | -4.266   | -3.981   | -6.202   | -5.903   |
| 792 | 1.69 | 22.493   | 6.266   | 0.194  | 0.420  | 37.018   | 20.438   | 20.664   | 27.769   | 28.006   |
| 792 | 2.25 | 43.389   | 13.633  | 0.542  | 0.709  | 73.879   | 39.592   | 39.759   | 54.716   | 54.891   |
| 793 | 0    | 43.589   | 13.796  | 0.529  | 0.705  | 74.380   | 39.759   | 39.935   | 55.015   | 55.200   |
| 793 | 0.56 | 22.172   | 6.086   | 0.252  | 0.347  | 36.344   | 20.207   | 20.301   | 27.380   | 27.479   |
| 793 | 1.13 | -5.412   | -2.496  | -0.024 | -0.012 | -10.488  | -4.895   | -4.882   | -7.280   | -7.267   |
| 793 | 1.69 | -40.218  | -12.533 | -0.301 | -0.370 | -68.314  | -36.497  | -36.566  | -50.441  | -50.513  |

|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 793 | 2.25 | -81.191  | -23.413 | -0.577  | -0.729 | -134.937 | -73.649  | -73.800  | -100.626 | -100.784 |
| 794 | 0    | -113.364 | -33.588 | -0.743  | -0.749 | -189.778 | -102.771 | -102.777 | -140.973 | -140.979 |
| 794 | 0.75 | -42.084  | -13.310 | -0.360  | -0.363 | -71.796  | -38.235  | -38.238  | -52.951  | -52.954  |
| 794 | 1.5  | 17.296   | 4.899   | 0.024   | 0.024  | 28.594   | 15.590   | 15.590   | 21.272   | 21.272   |
| 794 | 2.25 | 62.268   | 19.661  | 0.407   | 0.410  | 106.180  | 56.449   | 56.451   | 78.196   | 78.199   |
| 794 | 3    | 95.340   | 32.354  | 0.790   | 0.796  | 166.174  | 86.596   | 86.602   | 121.319  | 121.325  |
| 795 | 0    | 95.422   | 32.398  | 0.773   | 0.778  | 166.342  | 86.653   | 86.657   | 121.415  | 121.420  |
| 795 | 0.75 | 58.407   | 18.358  | 0.386   | 0.384  | 99.460   | 52.952   | 52.950   | 73.298   | 73.296   |
| 795 | 1.5  | 9.490    | 2.249   | 0.000   | -0.010 | 14.987   | 8.540    | 8.531    | 11.381   | 11.371   |
| 795 | 2.25 | -53.833  | -17.307 | -0.387  | -0.404 | -92.290  | -48.837  | -48.853  | -67.834  | -67.852  |
| 795 | 3    | -129.058 | -38.931 | -0.774  | -0.798 | -217.159 | -116.926 | -116.950 | -160.850 | -160.875 |
| 796 | 0    | -123.769 | -37.452 | -0.820  | -0.806 | -208.446 | -112.212 | -112.198 | -154.413 | -154.398 |
| 796 | 0.75 | -51.290  | -16.673 | -0.415  | -0.403 | -88.225  | -46.577  | -46.565  | -64.795  | -64.782  |
| 796 | 1.5  | 9.287    | 2.038   | -0.011  | -0.001 | 14.405   | 8.347    | 8.357    | 11.023   | 11.034   |
| 796 | 2.25 | 55.458   | 17.301  | 0.393   | 0.401  | 94.231   | 50.305   | 50.313   | 69.543   | 69.552   |
| 796 | 3    | 89.727   | 30.495  | 0.797   | 0.803  | 156.465  | 81.551   | 81.558   | 114.262  | 114.269  |
| 797 | 0    | 90.201   | 30.585  | 0.744   | 0.749  | 157.177  | 81.925   | 81.930   | 114.761  | 114.766  |
| 797 | 0.75 | 52.552   | 16.647  | 0.487   | 0.486  | 89.697   | 47.784   | 47.783   | 66.179   | 66.177   |
| 797 | 1.5  | 3.001    | 0.640   | 0.231   | 0.223  | 4.625    | 2.931    | 2.921    | 3.796    | 3.788    |
| 797 | 2.25 | -60.957  | -18.814 | -0.026  | -0.040 | -103.251 | -54.887  | -54.901  | -75.884  | -75.900  |
| 797 | 3    | -136.816 | -40.337 | -0.282  | -0.303 | -228.718 | -123.416 | -123.437 | -169.365 | -169.387 |
| 798 | 0    | -184.667 | -53.012 | -0.433  | -0.413 | -306.419 | -166.633 | -166.613 | -227.753 | -227.731 |
| 798 | 0.75 | -107.808 | -30.330 | -0.344  | -0.330 | -177.898 | -97.371  | -97.357  | -132.667 | -132.653 |
| 798 | 1.5  | -42.851  | -9.717  | -0.254  | -0.248 | -66.968  | -38.820  | -38.814  | -51.382  | -51.375  |
| 798 | 2.25 | 7.700    | 7.449   | -0.165  | -0.165 | 21.158   | 6.765    | 6.765    | 12.604   | 12.604   |
| 798 | 3    | 46.349   | 22.546  | -0.076  | -0.083 | 91.692   | 41.638   | 41.631   | 62.791   | 62.783   |
| 799 | 0    | 40.124   | 20.889  | -0.196  | -0.204 | 81.571   | 35.916   | 35.908   | 55.084   | 55.076   |
| 799 | 0.75 | 33.238   | 18.082  | -0.198  | -0.211 | 68.816   | 29.716   | 29.704   | 46.084   | 46.070   |
| 799 | 1.5  | 14.450   | 13.206  | -0.200  | -0.217 | 38.470   | 12.805   | 12.788   | 23.283   | 23.265   |
| 799 | 2.25 | -18.744  | 4.883   | -0.202  | -0.223 | -14.680  | -17.071  | -17.093  | -16.816  | -16.839  |
| 799 | 3    | -63.840  | -5.509  | -0.203  | -0.230 | -85.421  | -57.659  | -57.685  | -70.716  | -70.743  |
| 800 | 0    | -95.227  | -9.193  | -0.062  | -0.070 | -128.982 | -85.767  | -85.775  | -105.846 | -105.854 |
| 800 | 0.45 | -64.842  | -6.008  | -0.050  | -0.056 | -87.423  | -58.407  | -58.414  | -71.921  | -71.928  |
| 800 | 0.9  | -38.200  | -3.270  | -0.037  | -0.042 | -51.071  | -34.417  | -34.422  | -42.209  | -42.214  |
| 800 | 1.35 | -15.843  | -1.276  | -0.024  | -0.028 | -21.053  | -14.283  | -14.286  | -17.465  | -17.468  |
| 800 | 1.8  | 2.771    | 0.270   | -0.012  | -0.013 | 3.758    | 2.482    | 2.480    | 3.067    | 3.066    |
| 801 | 0    | -1.391   | -0.135  | 0.003   | 0.009  | -1.885   | -1.248   | -1.243   | -1.542   | -1.537   |
| 801 | 0.45 | -22.612  | -3.012  | 0.404   | -0.380 | -31.953  | -19.946  | -20.731  | -25.215  | -26.039  |
| 801 | 0.9  | -47.171  | -6.112  | 0.805   | -0.769 | -66.384  | -41.648  | -43.222  | -52.534  | -54.187  |
| 801 | 1.35 | -75.338  | -9.584  | 1.206   | -1.157 | -105.740 | -66.598  | -68.962  | -83.876  | -86.358  |
| 801 | 1.8  | -106.843 | -13.280 | 1.607   | -1.546 | -149.460 | -94.552  | -97.705  | -118.864 | -122.175 |
| 802 | 0    | -163.511 | -49.345 | -11.012 | 2.821  | -275.165 | -158.173 | -144.339 | -214.337 | -199.812 |
| 802 | 0.75 | -100.421 | -28.494 | -8.648  | 1.961  | -166.096 | -99.027  | -88.418  | -132.474 | -121.335 |
| 802 | 1.5  | -44.268  | -9.712  | -6.284  | 1.100  | -68.661  | -46.125  | -38.741  | -59.198  | -51.445  |
| 802 | 2.25 | 2.444    | 5.622   | -3.920  | 0.240  | 11.928   | -1.720   | 2.440    | 1.992    | 6.360    |
| 802 | 3    | 42.218   | 18.887  | -1.555  | -0.620 | 80.882   | 36.441   | 37.376   | 54.595   | 55.577   |
| 803 | 0    | 37.746   | 17.617  | -1.835  | -0.579 | 73.482   | 32.136   | 33.392   | 48.805   | 50.124   |
| 803 | 0.75 | 37.019   | 14.203  | -0.609  | -0.493 | 67.148   | 32.708   | 32.824   | 47.178   | 47.300   |
| 803 | 1.5  | 29.355   | 8.720   | 0.617   | -0.406 | 49.178   | 27.036   | 26.013   | 36.964   | 35.890   |
| 803 | 2.25 | 12.249   | -0.210  | 1.843   | -0.320 | 14.363   | 12.867   | 10.705   | 14.664   | 12.394   |
| 803 | 3    | -11.794  | -11.209 | 3.069   | -0.233 | -32.086  | -7.546   | -10.847  | -16.223  | -19.690  |
| 804 | 0    | -29.188  | -16.704 | 0.307   | 0.289  | -61.752  | -25.962  | -25.980  | -40.848  | -40.868  |
| 804 | 0.75 | -7.208   | -5.462  | 0.343   | 0.112  | -17.389  | -6.144   | -6.375   | -10.649  | -10.892  |
| 804 | 1.5  | 9.956    | 3.711   | 0.379   | -0.064 | 17.884   | 9.339    | 8.896    | 13.189   | 12.723   |
| 804 | 2.25 | 19.798   | 9.436   | 0.415   | -0.241 | 38.855   | 18.233   | 17.577   | 27.168   | 26.479   |
| 804 | 3    | 24.823   | 13.093  | 0.450   | -0.418 | 50.737   | 22.791   | 21.923   | 34.786   | 33.874   |
| 805 | 0    | 25.324   | 13.185  | 0.324   | -0.397 | 51.484   | 23.115   | 22.394   | 35.236   | 34.479   |
| 805 | 0.75 | 16.871   | 8.583   | 0.281   | -0.211 | 33.979   | 15.466   | 14.973   | 23.418   | 22.901   |
| 805 | 1.5  | 3.603    | 1.913   | 0.238   | -0.025 | 7.384    | 3.481    | 3.217    | 5.238    | 4.962    |
| 805 | 2.25 | -16.987  | -8.205  | 0.196   | 0.161  | -33.512  | -15.093  | -15.128  | -22.800  | -22.837  |
| 805 | 3    | -42.394  | -20.391 | 0.153   | 0.347  | -83.499  | -38.002  | -37.807  | -57.200  | -56.996  |
| 806 | 0    | -40.622  | -20.061 | -0.324  | 0.502  | -80.845  | -36.884  | -36.058  | -55.632  | -54.765  |
| 806 | 0.75 | -15.609  | -7.913  | -0.189  | 0.264  | -31.391  | -14.237  | -13.784  | -21.573  | -21.097  |
| 806 | 1.5  | 4.587    | 2.168   | -0.053  | 0.026  | 8.972    | 4.075    | 4.154    | 6.126    | 6.209    |
| 806 | 2.25 | 17.462   | 8.800   | 0.082   | -0.212 | 35.034   | 15.798   | 15.504   | 23.966   | 23.656   |
| 806 | 3    | 25.520   | 13.364  | 0.218   | -0.450 | 52.007   | 23.186   | 22.518   | 35.444   | 34.743   |
| 807 | 0    | 25.690   | 13.423  | 0.162   | -0.429 | 52.305   | 23.283   | 22.692   | 35.601   | 34.981   |

|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 807 | 0.75 | 18.841   | 9.409   | 0.127   | -0.237 | 37.663   | 17.084   | 16.720   | 25.844   | 25.462   |
| 807 | 1.5  | 7.176    | 3.326   | 0.092   | -0.045 | 13.932   | 6.550    | 6.414    | 9.726    | 9.583    |
| 807 | 2.25 | -11.811  | -6.205  | 0.057   | 0.147  | -24.101  | -10.573  | -10.482  | -16.250  | -16.156  |
| 807 | 3    | -35.614  | -17.804 | 0.022   | 0.339  | -71.223  | -32.031  | -31.713  | -48.588  | -48.255  |
| 808 | 0    | -26.171  | -13.358 | -0.239  | 0.392  | -52.777  | -23.793  | -23.162  | -36.145  | -35.483  |
| 808 | 0.56 | -12.957  | -6.792  | -0.129  | 0.205  | -26.416  | -11.790  | -11.456  | -18.020  | -17.668  |
| 808 | 1.13 | -1.924   | -1.100  | -0.019  | 0.019  | -4.069   | -1.751   | -1.712   | -2.734   | -2.693   |
| 808 | 1.69 | 5.871    | 3.139   | 0.090   | -0.167 | 12.066   | 5.374    | 5.117    | 8.236    | 7.966    |
| 808 | 2.25 | 11.484   | 6.504   | 0.200   | -0.353 | 24.188   | 10.536   | 9.983    | 16.366   | 15.786   |
| 809 | 0    | 11.641   | 6.489   | 0.173   | -0.343 | 24.352   | 10.650   | 10.134   | 16.493   | 15.951   |
| 809 | 0.56 | 5.641    | 3.141   | 0.121   | -0.177 | 11.795   | 5.198    | 4.899    | 8.029    | 7.715    |
| 809 | 1.13 | -2.540   | -1.080  | 0.070   | -0.012 | -4.776   | -2.217   | -2.298   | -3.275   | -3.360   |
| 809 | 1.69 | -13.959  | -6.755  | 0.018   | 0.154  | -27.560  | -12.545  | -12.409  | -18.894  | -18.751  |
| 809 | 2.25 | -27.559  | -13.303 | -0.034  | 0.320  | -54.357  | -24.837  | -24.483  | -37.354  | -36.982  |
| 810 | 0    | -36.580  | -18.259 | -0.097  | 0.365  | -73.110  | -33.019  | -32.557  | -50.014  | -49.528  |
| 810 | 0.75 | -12.091  | -6.299  | -0.039  | 0.175  | -24.587  | -10.921  | -10.708  | -16.705  | -16.481  |
| 810 | 1.5  | 7.580    | 3.593   | 0.020   | -0.016 | 14.845   | 6.842    | 6.806    | 10.244   | 10.206   |
| 810 | 2.25 | 19.931   | 10.037  | 0.078   | -0.207 | 39.976   | 18.016   | 17.731   | 27.333   | 27.034   |
| 810 | 3    | 27.465   | 14.412  | 0.136   | -0.397 | 56.017   | 24.855   | 24.321   | 38.061   | 37.501   |
| 811 | 0    | 27.465   | 14.412  | 0.136   | -0.397 | 56.017   | 24.855   | 24.321   | 38.061   | 37.501   |
| 811 | 0.75 | 19.931   | 10.037  | 0.078   | -0.207 | 39.976   | 18.016   | 17.731   | 27.332   | 27.034   |
| 811 | 1.5  | 7.580    | 3.593   | 0.020   | -0.016 | 14.844   | 6.842    | 6.806    | 10.243   | 10.206   |
| 811 | 2.25 | -12.092  | -6.299  | -0.039  | 0.175  | -24.589  | -10.921  | -10.708  | -16.706  | -16.482  |
| 811 | 3    | -36.581  | -18.259 | -0.097  | 0.365  | -73.112  | -33.020  | -32.558  | -50.015  | -49.530  |
| 812 | 0    | -27.560  | -13.304 | -0.034  | 0.320  | -54.358  | -24.838  | -24.484  | -37.355  | -36.984  |
| 812 | 0.56 | -13.960  | -6.756  | 0.018   | 0.154  | -27.561  | -12.546  | -12.410  | -18.895  | -18.752  |
| 812 | 1.13 | -2.541   | -1.080  | 0.070   | -0.012 | -4.777   | -2.217   | -2.298   | -3.275   | -3.361   |
| 812 | 1.69 | 5.641    | 3.141   | 0.121   | -0.177 | 11.794   | 5.198    | 4.899    | 8.029    | 7.715    |
| 812 | 2.25 | 11.641   | 6.489   | 0.173   | -0.343 | 24.352   | 10.650   | 10.133   | 16.493   | 15.951   |
| 813 | 0    | 11.484   | 6.504   | 0.200   | -0.353 | 24.187   | 10.536   | 9.983    | 16.366   | 15.786   |
| 813 | 0.56 | 5.871    | 3.139   | 0.090   | -0.167 | 12.067   | 5.374    | 5.117    | 8.236    | 7.966    |
| 813 | 1.13 | -1.924   | -1.100  | -0.019  | 0.019  | -4.068   | -1.751   | -1.712   | -2.733   | -2.693   |
| 813 | 1.69 | -12.957  | -6.792  | -0.129  | 0.205  | -26.415  | -11.790  | -11.455  | -18.019  | -17.668  |
| 813 | 2.25 | -26.170  | -13.357 | -0.239  | 0.392  | -52.776  | -23.792  | -23.162  | -36.145  | -35.483  |
| 814 | 0    | -35.614  | -17.804 | 0.022   | 0.339  | -71.223  | -32.030  | -31.713  | -48.588  | -48.255  |
| 814 | 0.75 | -11.811  | -6.205  | 0.057   | 0.147  | -24.100  | -10.573  | -10.482  | -16.250  | -16.156  |
| 814 | 1.5  | 7.176    | 3.326   | 0.092   | -0.045 | 13.932   | 6.550    | 6.414    | 9.727    | 9.583    |
| 814 | 2.25 | 18.841   | 9.409   | 0.127   | -0.237 | 37.663   | 17.084   | 16.720   | 25.844   | 25.462   |
| 814 | 3    | 25.690   | 13.423  | 0.162   | -0.429 | 52.305   | 23.283   | 22.692   | 35.601   | 34.981   |
| 815 | 0    | 25.520   | 13.364  | 0.218   | -0.450 | 52.007   | 23.186   | 22.518   | 35.444   | 34.743   |
| 815 | 0.75 | 17.462   | 8.800   | 0.082   | -0.212 | 35.035   | 15.798   | 15.504   | 23.966   | 23.656   |
| 815 | 1.5  | 4.587    | 2.168   | -0.053  | 0.026  | 8.973    | 4.075    | 4.154    | 6.126    | 6.209    |
| 815 | 2.25 | -15.609  | -7.913  | -0.189  | 0.264  | -31.391  | -14.237  | -13.784  | -21.573  | -21.097  |
| 815 | 3    | -40.622  | -20.061 | -0.324  | 0.502  | -80.845  | -36.884  | -36.058  | -55.632  | -54.765  |
| 816 | 0    | -42.394  | -20.391 | 0.153   | 0.347  | -83.499  | -38.002  | -37.807  | -57.200  | -56.996  |
| 816 | 0.75 | -16.987  | -8.205  | 0.196   | 0.161  | -33.512  | -15.093  | -15.128  | -22.800  | -22.837  |
| 816 | 1.5  | 3.603    | 1.913   | 0.238   | -0.025 | 7.384    | 3.481    | 3.217    | 5.238    | 4.962    |
| 816 | 2.25 | 16.871   | 8.583   | 0.281   | -0.211 | 33.979   | 15.466   | 14.973   | 23.418   | 22.901   |
| 816 | 3    | 25.324   | 13.185  | 0.324   | -0.397 | 51.484   | 23.115   | 22.394   | 35.236   | 34.479   |
| 817 | 0    | 24.823   | 13.093  | 0.450   | -0.418 | 50.737   | 22.791   | 21.923   | 34.786   | 33.874   |
| 817 | 0.75 | 19.798   | 9.436   | 0.415   | -0.241 | 38.855   | 18.233   | 17.577   | 27.168   | 26.479   |
| 817 | 1.5  | 9.956    | 3.711   | 0.379   | -0.064 | 17.884   | 9.339    | 8.896    | 13.189   | 12.723   |
| 817 | 2.25 | -7.208   | -5.462  | 0.343   | 0.112  | -17.389  | -6.144   | -6.375   | -10.649  | -10.892  |
| 817 | 3    | -29.188  | -16.704 | 0.307   | 0.289  | -61.752  | -25.962  | -25.980  | -40.848  | -40.868  |
| 818 | 0    | -11.794  | -11.209 | 3.069   | -0.233 | -32.086  | -7.546   | -10.847  | -16.223  | -19.690  |
| 818 | 0.75 | 12.249   | -0.210  | 1.843   | -0.320 | 14.363   | 12.867   | 10.705   | 14.664   | 12.394   |
| 818 | 1.5  | 29.355   | 8.720   | 0.617   | -0.406 | 49.178   | 27.036   | 26.013   | 36.964   | 35.890   |
| 818 | 2.25 | 37.019   | 14.203  | -0.609  | -0.493 | 67.148   | 32.708   | 32.824   | 47.178   | 47.300   |
| 818 | 3    | 37.746   | 17.617  | -1.835  | -0.579 | 73.482   | 32.136   | 33.392   | 48.805   | 50.124   |
| 819 | 0    | 42.218   | 18.887  | -1.555  | -0.620 | 80.882   | 36.441   | 37.376   | 54.595   | 55.577   |
| 819 | 0.75 | 2.444    | 5.622   | -3.920  | 0.240  | 11.928   | -1.720   | 2.440    | 1.992    | 6.360    |
| 819 | 1.5  | -44.268  | -9.712  | -6.284  | 1.100  | -68.661  | -46.125  | -38.741  | -59.198  | -51.445  |
| 819 | 2.25 | -100.421 | -28.494 | -8.648  | 1.961  | -166.096 | -99.027  | -88.418  | -132.474 | -121.335 |
| 819 | 3    | -163.511 | -49.345 | -11.012 | 2.821  | -275.165 | -158.173 | -144.339 | -214.337 | -199.812 |
| 821 | 0    | -65.362  | -11.687 | -0.670  | 0.647  | -97.134  | -59.496  | -58.179  | -76.697  | -75.314  |
| 821 | 0.75 | -21.648  | -4.142  | -0.957  | 0.856  | -32.605  | -20.440  | -18.627  | -26.345  | -24.441  |
| 821 | 1.5  | 12.043   | 2.369   | -1.244  | 1.065  | 18.242   | 9.595    | 11.904   | 12.831   | 15.256   |



|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 821 | 2.25 | 34.459  | 7.156   | -1.531 | 1.274  | 52.800   | 29.482  | 32.286  | 39.082   | 42.027   |
| 821 | 3    | 46.850  | 10.909  | -1.818 | 1.483  | 73.675   | 40.347  | 43.648  | 54.157   | 57.622   |
| 822 | 0    | 48.221  | 11.352  | -1.692 | 1.475  | 76.029   | 41.707  | 44.874  | 56.007   | 59.333   |
| 822 | 0.75 | 33.138  | 6.257   | -0.290 | 0.277  | 49.778   | 29.535  | 30.101  | 38.433   | 39.028   |
| 822 | 1.5  | 8.032   | 0.128   | 1.112  | -0.922 | 9.844    | 8.341   | 6.307   | 9.683    | 7.546    |
| 822 | 2.25 | -28.350 | -7.725  | 2.515  | -2.121 | -46.379  | -23.000 | -27.636 | -31.993  | -36.861  |
| 822 | 3    | -74.755 | -16.612 | 3.917  | -3.320 | -116.285 | -63.362 | -70.599 | -84.845  | -92.444  |
| 823 | 0    | -85.927 | -26.166 | 2.041  | -1.705 | -144.977 | -75.293 | -79.039 | -104.564 | -108.498 |
| 823 | 0.75 | -35.559 | -10.493 | 0.935  | -0.860 | -59.460  | -31.068 | -32.864 | -42.966  | -44.851  |
| 823 | 1.5  | 8.031   | 3.199   | -0.171 | -0.015 | 14.756   | 7.058   | 7.213   | 10.269   | 10.432   |
| 823 | 2.25 | 43.062  | 13.930  | -1.276 | 0.830  | 73.961   | 37.479  | 39.585  | 52.650   | 54.862   |
| 823 | 3    | 71.315  | 22.679  | -2.382 | 1.675  | 121.866  | 61.802  | 65.859  | 86.668   | 90.928   |
| 824 | 0    | 71.470  | 22.688  | -2.680 | 1.798  | 122.066  | 61.643  | 66.121  | 86.523   | 91.225   |
| 824 | 0.75 | 41.770  | 13.266  | -1.137 | 0.825  | 71.350   | 36.456  | 38.418  | 51.022   | 53.082   |
| 824 | 1.5  | 5.294   | 1.863   | 0.406  | -0.149 | 9.334    | 5.170   | 4.615   | 7.158    | 6.576    |
| 824 | 2.25 | -39.743 | -12.501 | 1.949  | -1.122 | -67.694  | -33.820 | -36.891 | -47.560  | -50.785  |
| 824 | 3    | -91.557 | -28.846 | 3.492  | -2.096 | -156.022 | -78.910 | -84.497 | -110.642 | -116.509 |
| 827 | 0    | -87.619 | -28.186 | 2.519  | -1.848 | -150.241 | -76.338 | -80.705 | -107.113 | -111.697 |
| 827 | 0.75 | -36.974 | -12.090 | 1.065  | -0.858 | -63.713  | -32.211 | -34.135 | -45.321  | -47.340  |
| 827 | 1.5  | 6.894   | 2.025   | -0.388 | 0.132  | 11.513   | 5.817   | 6.336   | 8.107    | 8.653    |
| 827 | 2.25 | 42.202  | 13.178  | -1.841 | 1.121  | 71.728   | 36.141  | 39.103  | 50.681   | 53.792   |
| 827 | 3    | 70.733  | 22.351  | -3.295 | 2.111  | 120.642  | 60.365  | 65.771  | 84.892   | 90.568   |
| 828 | 0    | 70.955  | 22.391  | -3.419 | 2.180  | 120.971  | 60.440  | 66.039  | 85.019   | 90.897   |
| 828 | 0.75 | 42.542  | 13.536  | -1.638 | 1.067  | 72.709   | 36.650  | 39.355  | 51.477   | 54.318   |
| 828 | 1.5  | 7.353   | 2.702   | 0.143  | -0.045 | 13.146   | 6.761   | 6.573   | 9.573    | 9.375    |
| 828 | 2.25 | -36.396 | -11.095 | 1.924  | -1.157 | -61.428  | -30.833 | -33.914 | -43.186  | -46.421  |
| 828 | 3    | -86.923 | -26.873 | 3.705  | -2.269 | -147.303 | -74.525 | -80.500 | -104.308 | -110.582 |
| 829 | 0    | -58.123 | -17.510 | 2.467  | -1.688 | -97.764  | -49.844 | -53.999 | -69.471  | -73.833  |
| 829 | 0.56 | -29.332 | -8.951  | 1.154  | -0.812 | -49.520  | -25.245 | -27.211 | -35.226  | -37.291  |
| 829 | 1.13 | -3.907  | -1.260  | -0.158 | 0.064  | -6.704   | -3.674  | -3.452  | -5.062   | -4.829   |
| 829 | 1.69 | 17.198  | 5.037   | -1.471 | 0.940  | 28.697   | 14.008  | 16.418  | 19.687   | 22.218   |
| 829 | 2.25 | 34.938  | 10.466  | -2.783 | 1.816  | 58.671   | 28.661  | 33.260  | 40.356   | 45.185   |
| 830 | 0    | 35.609  | 10.586  | -2.854 | 1.857  | 59.669   | 29.195  | 33.906  | 41.063   | 46.009   |
| 830 | 0.56 | 19.364  | 5.439   | -1.375 | 0.906  | 31.939   | 16.052  | 18.333  | 22.315   | 24.710   |
| 830 | 1.13 | -0.247  | -0.576  | 0.103  | -0.046 | -1.217   | -0.119  | -0.268  | -0.514   | -0.670   |
| 830 | 1.69 | -24.178 | -7.984  | 1.581  | -0.998 | -41.789  | -20.179 | -22.758 | -28.757  | -31.465  |
| 830 | 2.25 | -51.475 | -16.261 | 3.059  | -1.949 | -87.787  | -43.268 | -48.277 | -61.081  | -66.340  |
| 831 | 0    | -89.219 | -30.404 | 2.753  | -1.829 | -155.709 | -77.545 | -82.126 | -109.944 | -114.755 |
| 831 | 0.75 | -36.042 | -12.333 | 1.341  | -0.894 | -62.984  | -31.097 | -33.332 | -44.206  | -46.553  |
| 831 | 1.5  | 10.198  | 3.669   | -0.071 | 0.040  | 18.108   | 9.107   | 9.218   | 12.945   | 13.061   |
| 831 | 2.25 | 46.996  | 16.223  | -1.483 | 0.974  | 82.353   | 40.814  | 43.271  | 58.010   | 60.590   |
| 831 | 3    | 76.858  | 26.709  | -2.895 | 1.909  | 134.964  | 66.277  | 71.081  | 94.488   | 99.532   |
| 832 | 0    | 76.858  | 26.709  | -2.895 | 1.909  | 134.964  | 66.277  | 71.081  | 94.488   | 99.532   |
| 832 | 0.75 | 46.996  | 16.223  | -1.483 | 0.974  | 82.353   | 40.814  | 43.271  | 58.010   | 60.590   |
| 832 | 1.5  | 10.198  | 3.669   | -0.071 | 0.040  | 18.108   | 9.107   | 9.218   | 12.945   | 13.061   |
| 832 | 2.25 | -36.042 | -12.333 | 1.341  | -0.894 | -62.984  | -31.097 | -33.332 | -44.206  | -46.553  |
| 832 | 3    | -89.219 | -30.404 | 2.753  | -1.829 | -155.709 | -77.545 | -82.126 | -109.944 | -114.755 |
| 833 | 0    | -51.475 | -16.261 | 3.059  | -1.949 | -87.787  | -43.268 | -48.276 | -61.081  | -66.340  |
| 833 | 0.56 | -24.178 | -7.984  | 1.581  | -0.998 | -41.788  | -20.179 | -22.758 | -28.757  | -31.465  |
| 833 | 1.13 | -0.247  | -0.576  | 0.103  | -0.046 | -1.217   | -0.119  | -0.268  | -0.514   | -0.670   |
| 833 | 1.69 | 19.364  | 5.439   | -1.375 | 0.906  | 31.939   | 16.052  | 18.333  | 22.315   | 24.710   |
| 833 | 2.25 | 35.609  | 10.586  | -2.854 | 1.857  | 59.668   | 29.195  | 33.906  | 41.063   | 46.009   |
| 834 | 0    | 34.938  | 10.466  | -2.783 | 1.816  | 58.671   | 28.661  | 33.260  | 40.356   | 45.185   |
| 834 | 0.56 | 17.198  | 5.037   | -1.471 | 0.940  | 28.697   | 14.008  | 16.418  | 19.687   | 22.218   |
| 834 | 1.13 | -3.907  | -1.260  | -0.158 | 0.064  | -6.704   | -3.674  | -3.452  | -5.062   | -4.829   |
| 834 | 1.69 | -29.332 | -8.951  | 1.154  | -0.812 | -49.520  | -25.245 | -27.211 | -35.226  | -37.291  |
| 834 | 2.25 | -58.123 | -17.510 | 2.467  | -1.688 | -97.764  | -49.844 | -53.999 | -69.471  | -73.833  |
| 835 | 0    | -86.923 | -26.873 | 3.705  | -2.269 | -147.303 | -74.525 | -80.500 | -104.308 | -110.581 |
| 835 | 0.75 | -36.396 | -11.095 | 1.924  | -1.157 | -61.428  | -30.833 | -33.914 | -43.186  | -46.421  |
| 835 | 1.5  | 7.353   | 2.702   | 0.143  | -0.045 | 13.146   | 6.761   | 6.573   | 9.573    | 9.375    |
| 835 | 2.25 | 42.542  | 13.536  | -1.638 | 1.067  | 72.709   | 36.650  | 39.355  | 51.477   | 54.318   |
| 835 | 3    | 70.955  | 22.391  | -3.419 | 2.180  | 120.971  | 60.440  | 66.039  | 85.019   | 90.897   |
| 836 | 0    | 70.733  | 22.351  | -3.295 | 2.111  | 120.642  | 60.366  | 65.771  | 84.892   | 90.568   |
| 836 | 0.75 | 42.202  | 13.178  | -1.841 | 1.121  | 71.728   | 36.141  | 39.103  | 50.681   | 53.792   |
| 836 | 1.5  | 6.894   | 2.025   | -0.388 | 0.132  | 11.513   | 5.817   | 6.336   | 8.107    | 8.653    |
| 836 | 2.25 | -36.974 | -12.090 | 1.065  | -0.858 | -63.713  | -32.211 | -34.135 | -45.321  | -47.340  |
| 836 | 3    | -87.619 | -28.186 | 2.519  | -1.848 | -150.241 | -76.338 | -80.705 | -107.113 | -111.697 |

|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 837 | 0    | -91.557 | -28.846 | 3.492  | -2.096 | -156.022 | -78.910 | -84.497 | -110.642 | -116.509 |
| 837 | 0.75 | -39.743 | -12.501 | 1.949  | -1.122 | -67.694  | -33.820 | -36.891 | -47.560  | -50.785  |
| 837 | 1.5  | 5.294   | 1.863   | 0.406  | -0.149 | 9.334    | 5.170   | 4.615   | 7.158    | 6.576    |
| 837 | 2.25 | -41.770 | 13.266  | -1.137 | 0.825  | 71.350   | 36.456  | 38.418  | 51.022   | 53.082   |
| 837 | 3    | 71.470  | 22.688  | -2.680 | 1.798  | 122.066  | 61.643  | 66.121  | 86.523   | 91.225   |
| 838 | 0    | 71.315  | 22.679  | -2.382 | 1.675  | 121.866  | 61.802  | 65.859  | 86.668   | 90.928   |
| 838 | 0.75 | 43.062  | 13.930  | -1.276 | 0.830  | 73.961   | 37.479  | 39.585  | 52.650   | 54.862   |
| 838 | 1.5  | 8.031   | 3.199   | -0.171 | -0.015 | 14.756   | 7.058   | 7.213   | 10.269   | 10.432   |
| 838 | 2.25 | -35.559 | -10.493 | 0.935  | -0.860 | -59.460  | -31.068 | -32.864 | -42.966  | -44.851  |
| 838 | 3    | -85.927 | -26.166 | 2.041  | -1.705 | -144.977 | -75.293 | -79.039 | -104.564 | -108.498 |
| 839 | 0    | -74.755 | -16.612 | 3.917  | -3.320 | -116.285 | -63.363 | -70.599 | -84.845  | -92.444  |
| 839 | 0.75 | -28.350 | -7.725  | 2.515  | -2.121 | -46.379  | -23.000 | -27.636 | -31.993  | -36.861  |
| 839 | 1.5  | 8.032   | 0.128   | 1.112  | -0.922 | 9.844    | 8.341   | 6.307   | 9.683    | 7.546    |
| 839 | 2.25 | 33.138  | 6.277   | -0.290 | 0.277  | 49.778   | 29.535  | 30.101  | 38.433   | 39.028   |
| 839 | 3    | 48.221  | 11.352  | -1.692 | 1.475  | 76.029   | 41.707  | 44.874  | 56.007   | 59.333   |
| 840 | 0    | 46.850  | 10.909  | -1.818 | 1.483  | 73.675   | 40.347  | 43.648  | 54.157   | 57.622   |
| 840 | 0.75 | 34.459  | 7.156   | -1.531 | 1.274  | 52.800   | 29.482  | 32.286  | 39.082   | 42.027   |
| 840 | 1.5  | 12.043  | 2.369   | -1.244 | 1.065  | 18.242   | 9.595   | 11.904  | 12.831   | 15.256   |
| 840 | 2.25 | -21.648 | -4.142  | -0.957 | 0.856  | -32.605  | -20.440 | -18.627 | -26.345  | -24.441  |
| 840 | 3    | -65.362 | -11.687 | -0.670 | 0.647  | -97.134  | -59.496 | -58.179 | -76.697  | -75.314  |
| 841 | 0    | -20.741 | -2.003  | 0.221  | 0.154  | -28.094  | -18.446 | -18.513 | -22.807  | -22.878  |
| 841 | 0.75 | -1.887  | 0.114   | 0.454  | -0.079 | -2.081   | -1.244  | -1.778  | -1.433   | -1.993   |
| 841 | 1.5  | 9.225   | 1.285   | 0.686  | -0.313 | 13.126   | 8.988   | 7.989   | 11.216   | 10.167   |
| 841 | 2.25 | 12.062  | 1.218   | 0.919  | -0.546 | 16.423   | 11.775  | 10.310  | 14.397   | 12.859   |
| 841 | 3    | 7.157   | 0.204   | 1.151  | -0.780 | 8.915    | 7.593   | 5.662   | 8.852    | 6.825    |
| 842 | 0    | 6.756   | 0.151   | 1.512  | -0.913 | 8.349    | 7.593   | 5.168   | 8.777    | 6.231    |
| 842 | 0.75 | 10.274  | 0.977   | 0.522  | -0.376 | 13.892   | 9.768   | 8.870   | 11.951   | 11.008   |
| 842 | 1.5  | 6.048   | 0.858   | -0.468 | 0.160  | 8.631    | 4.975   | 5.604   | 6.400    | 7.060    |
| 842 | 2.25 | -6.451  | -0.500  | -1.458 | 0.697  | -8.541   | -7.264  | -5.109  | -8.619   | -6.356   |
| 842 | 3    | -26.693 | -2.803  | -2.448 | 1.234  | -36.517  | -26.472 | -22.790 | -32.364  | -28.498  |
| 843 | 0    | -27.729 | -3.016  | -1.331 | 0.761  | -38.100  | -26.287 | -24.195 | -32.413  | -30.216  |
| 843 | 0.75 | -7.361  | -0.676  | -0.649 | 0.355  | -9.915   | -7.274  | -6.270  | -8.837   | -7.782   |
| 843 | 1.5  | 5.263   | 0.719   | 0.033  | -0.051 | 7.465    | 4.770   | 4.686   | 6.014    | 5.926    |
| 843 | 2.25 | 9.614   | 0.874   | 0.715  | -0.457 | 12.936   | 9.368   | 8.196   | 11.396   | 10.166   |
| 843 | 3    | 6.222   | 0.084   | 1.397  | -0.863 | 7.601    | 6.997   | 4.737   | 8.053    | 5.681    |
| 844 | 0    | 5.934   | 0.018   | 1.549  | -0.942 | 7.149    | 6.889   | 4.398   | 7.868    | 5.253    |
| 844 | 0.75 | 10.313  | 1.012   | 0.694  | -0.429 | 13.994   | 9.976   | 8.852   | 12.195   | 11.015   |
| 844 | 1.5  | 6.949   | 1.059   | -0.161 | 0.084  | 10.034   | 6.093   | 6.338   | 7.795    | 8.052    |
| 844 | 2.25 | -4.689  | -0.132  | -1.015 | 0.597  | -5.837   | -5.235  | -3.623  | -6.072   | -4.379   |
| 844 | 3    | -24.069 | -2.269  | -1.870 | 1.110  | -32.512  | -23.532 | -20.552 | -28.665  | -25.536  |
| 845 | 0    | -21.038 | -2.235  | -1.200 | 0.736  | -28.822  | -20.134 | -18.198 | -24.758  | -22.725  |
| 845 | 0.56 | -8.933  | -1.032  | -0.586 | 0.359  | -12.371  | -8.626  | -7.681  | -10.645  | -9.653   |
| 845 | 1.13 | -1.001  | -0.261  | 0.028  | -0.018 | -1.619   | -0.873  | -0.919  | -1.186   | -1.235   |
| 845 | 1.69 | 2.331   | -0.157  | 0.642  | -0.395 | 2.547    | 2.740   | 1.703   | 3.023    | 1.934    |
| 845 | 2.25 | 1.490   | -0.484  | 1.256  | -0.772 | 1.014    | 2.597   | 0.569   | 2.579    | 0.449    |
| 846 | 0    | 0.707   | -0.608  | 1.340  | -0.819 | -0.124   | 1.977   | -0.182  | 1.767    | -0.500   |
| 846 | 0.56 | 3.121   | -0.164  | 0.619  | -0.383 | 3.484    | 3.428   | 2.426   | 3.824    | 2.772    |
| 846 | 1.13 | 1.362   | -0.151  | -0.102 | 0.053  | 1.393    | 1.124   | 1.280   | 1.228    | 1.391    |
| 846 | 1.69 | -4.996  | -0.806  | -0.823 | 0.490  | -7.285   | -5.320  | -4.007  | -6.618   | -5.240   |
| 846 | 2.25 | -15.528 | -1.892  | -1.544 | 0.926  | -21.660  | -15.520 | -13.050 | -19.118  | -16.524  |
| 848 | 0    | -31.397 | -5.143  | -0.995 | 0.601  | -45.906  | -29.253 | -27.657 | -37.252  | -35.577  |
| 848 | 0.75 | -5.537  | -0.885  | -0.494 | 0.297  | -8.060   | -5.477  | -4.686  | -6.890   | -6.059   |
| 848 | 1.5  | 12.420  | 2.340   | 0.008  | -0.006 | 18.647   | 11.186  | 11.172  | 14.523   | 14.508   |
| 848 | 2.25 | 21.222  | 3.840   | 0.509  | -0.310 | 31.610   | 19.609  | 18.790  | 25.237   | 24.377   |
| 848 | 3    | 22.121  | 4.306   | 1.010  | -0.613 | 33.434   | 20.919  | 19.295  | 27.000   | 25.296   |
| 849 | 0    | 22.121  | 4.306   | 1.010  | -0.613 | 33.434   | 20.919  | 19.295  | 27.000   | 25.296   |
| 849 | 0.75 | 21.222  | 3.840   | 0.509  | -0.310 | 31.610   | 19.609  | 18.790  | 25.237   | 24.377   |
| 849 | 1.5  | 12.420  | 2.340   | 0.008  | -0.006 | 18.647   | 11.186  | 11.172  | 14.523   | 14.509   |
| 849 | 2.25 | -5.537  | -0.885  | -0.494 | 0.297  | -8.060   | -5.477  | -4.686  | -6.889   | -6.059   |
| 849 | 3    | -31.397 | -5.143  | -0.995 | 0.601  | -45.905  | -29.253 | -27.657 | -37.252  | -35.576  |
| 851 | 0    | -15.528 | -1.892  | -1.544 | 0.926  | -21.660  | -15.519 | -13.049 | -19.118  | -16.524  |
| 851 | 0.56 | -4.996  | -0.806  | -0.823 | 0.490  | -7.285   | -5.320  | -4.007  | -6.618   | -5.240   |
| 851 | 1.13 | 1.362   | -0.151  | -0.102 | 0.053  | 1.393    | 1.124   | 1.280   | 1.228    | 1.391    |
| 851 | 1.69 | 3.121   | -0.164  | 0.619  | -0.383 | 3.484    | 3.428   | 2.427   | 3.824    | 2.773    |
| 851 | 2.25 | 0.707   | -0.608  | 1.340  | -0.819 | -0.123   | 1.977   | -0.182  | 1.767    | -0.500   |
| 852 | 0    | 1.490   | -0.484  | 1.256  | -0.772 | 1.014    | 2.597   | 0.569   | 2.579    | 0.449    |
| 852 | 0.56 | 2.331   | -0.157  | 0.642  | -0.395 | 2.547    | 2.740   | 1.703   | 3.023    | 1.934    |



|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 852 | 1.13 | -1.001   | -0.261  | 0.028   | -0.018  | -1.619   | -0.873   | -0.919   | -1.186   | -1.235   |
| 852 | 1.69 | -8.933   | -1.032  | -0.586  | 0.359   | -12.371  | -8.626   | -7.681   | -10.645  | -9.653   |
| 852 | 2.25 | -21.038  | -2.235  | -1.200  | 0.736   | -28.822  | -20.134  | -18.198  | -24.758  | -22.725  |
| 853 | 0    | -24.069  | -2.269  | -1.870  | 1.110   | -32.512  | -23.532  | -20.552  | -28.665  | -25.536  |
| 853 | 0.75 | -4.689   | -0.132  | -1.015  | 0.597   | -5.837   | -5.235   | -3.623   | -6.072   | -4.379   |
| 853 | 1.5  | 6.949    | 1.059   | -0.161  | 0.084   | 10.034   | 6.093    | 6.338    | 7.795    | 8.052    |
| 853 | 2.25 | 10.313   | 1.012   | 0.694   | -0.429  | 13.994   | 9.976    | 8.852    | 12.195   | 11.015   |
| 853 | 3    | 5.934    | 0.018   | 1.549   | -0.942  | 7.149    | 6.889    | 4.398    | 7.868    | 5.253    |
| 854 | 0    | 6.222    | 0.084   | 1.397   | -0.863  | 7.601    | 6.997    | 4.737    | 8.053    | 5.681    |
| 854 | 0.75 | 9.614    | 0.874   | 0.715   | -0.457  | 12.936   | 9.368    | 8.196    | 11.396   | 10.166   |
| 854 | 1.5  | 5.263    | 0.719   | 0.033   | -0.051  | 7.465    | 4.770    | 4.686    | 6.014    | 5.926    |
| 854 | 2.25 | -7.361   | -0.676  | -0.649  | 0.355   | -9.915   | -7.274   | -6.270   | -8.837   | -7.782   |
| 854 | 3    | -27.729  | -3.016  | -1.331  | 0.761   | -38.100  | -26.287  | -24.195  | -32.413  | -30.217  |
| 855 | 0    | -26.693  | -2.803  | -2.448  | 1.234   | -36.517  | -26.472  | -22.790  | -32.364  | -28.498  |
| 855 | 0.75 | -6.451   | -0.500  | -1.458  | 0.697   | -8.541   | -7.264   | -5.109   | -8.619   | -6.556   |
| 855 | 1.5  | 6.048    | 0.858   | -0.468  | 0.160   | 8.631    | 4.975    | 5.604    | 6.400    | 7.060    |
| 855 | 2.25 | 10.274   | 0.977   | 0.522   | -0.376  | 13.892   | 9.768    | 8.870    | 11.951   | 11.008   |
| 855 | 3    | 6.756    | 0.151   | 1.512   | -0.913  | 8.349    | 7.593    | 5.168    | 8.777    | 6.231    |
| 856 | 0    | 7.157    | 0.204   | 1.151   | -0.780  | 8.915    | 7.593    | 5.652    | 8.852    | 6.825    |
| 856 | 0.75 | 12.062   | 1.218   | 0.919   | -0.546  | 16.423   | 11.775   | 10.310   | 14.397   | 12.859   |
| 856 | 1.5  | 9.225    | 1.285   | 0.686   | -0.313  | 13.126   | 8.988    | 7.989    | 11.216   | 10.167   |
| 856 | 2.25 | -1.887   | 0.114   | 0.454   | -0.079  | -2.081   | -1.244   | -1.778   | -1.433   | -1.993   |
| 856 | 3    | -20.741  | -2.003  | 0.221   | 0.154   | -28.094  | -18.446  | -18.513  | -22.807  | -22.378  |
| 857 | 0    | -143.076 | -29.025 | -69.884 | 115.212 | -218.132 | -198.653 | -13.557  | -241.894 | -47.544  |
| 857 | 1.13 | -42.321  | -10.537 | -53.463 | 90.151  | -67.645  | -91.552  | 52.052   | -107.212 | 43.583   |
| 857 | 2.25 | 34.825   | 5.042   | -37.043 | 65.089  | 49.857   | -5.700   | 96.432   | 0.848    | 108.087  |
| 857 | 3.38 | 87.306   | 17.130  | -20.622 | 40.028  | 132.175  | 57.953   | 118.603  | 80.810   | 144.492  |
| 857 | 4.5  | 116.176  | 26.309  | -4.201  | 14.966  | 181.507  | 100.357  | 119.525  | 134.149  | 154.275  |
| 859 | 0    | -143.073 | -29.024 | -69.884 | 115.212 | -218.125 | -198.650 | -13.554  | -241.890 | -47.539  |
| 859 | 1.13 | -42.318  | -10.536 | -53.463 | 90.151  | -67.638  | -91.549  | 52.064   | -107.208 | 43.587   |
| 859 | 2.25 | 34.828   | 5.043   | -37.043 | 65.089  | 49.863   | -5.697   | 96.434   | 0.852    | 108.090  |
| 859 | 3.38 | 87.308   | 17.131  | -20.622 | 40.028  | 132.180  | 57.955   | 118.605  | 80.813   | 144.495  |
| 859 | 4.5  | 116.179  | 26.311  | -4.201  | 14.966  | 181.511  | 100.359  | 119.527  | 134.152  | 154.278  |
| 860 | 0    | 115.718  | 26.112  | -4.424  | 15.250  | 180.641  | 99.723   | 119.396  | 133.310  | 153.967  |
| 860 | 0.26 | 113.051  | 24.954  | -0.537  | 9.412   | 175.587  | 101.209  | 111.158  | 133.860  | 144.307  |
| 860 | 0.53 | 109.300  | 23.748  | 3.349   | 3.575   | 169.157  | 101.719  | 101.945  | 133.243  | 133.480  |
| 860 | 0.79 | 104.378  | 22.448  | 7.236   | -2.263  | 161.171  | 101.176  | 91.678   | 131.337  | 121.364  |
| 860 | 1.05 | 98.200   | 21.005  | 11.122  | -8.100  | 151.448  | 99.502   | 80.280   | 128.021  | 107.838  |
| 863 | 0    | 115.716  | 26.111  | -4.424  | 15.250  | 180.636  | 99.721   | 119.394  | 133.306  | 153.964  |
| 863 | 0.26 | 113.049  | 24.953  | -0.537  | 9.412   | 175.583  | 101.207  | 111.156  | 133.857  | 144.304  |
| 863 | 0.53 | 109.298  | 23.747  | 3.349   | 3.575   | 169.153  | 101.717  | 101.943  | 133.240  | 133.477  |
| 863 | 0.79 | 104.376  | 22.447  | 7.236   | -2.263  | 161.166  | 101.174  | 91.676   | 131.334  | 121.360  |
| 863 | 1.05 | 98.198   | 21.003  | 11.122  | -8.100  | 151.443  | 99.500   | 80.278   | 128.018  | 107.835  |
| 864 | 0    | -244.760 | -31.422 | -4.249  | 2.569   | -343.987 | -224.533 | -217.715 | -281.255 | -274.096 |
| 864 | 0.45 | -192.108 | -24.535 | -3.371  | 2.038   | -269.785 | -176.268 | -170.858 | -220.710 | -215.029 |
| 864 | 0.9  | -143.390 | -18.094 | -2.494  | 1.508   | -201.018 | -131.544 | -127.543 | -164.577 | -160.376 |
| 864 | 1.35 | -99.282  | -12.473 | -1.616  | 0.977   | -139.096 | -90.970  | -88.377  | -113.801 | -111.079 |
| 864 | 1.8  | -59.881  | -7.724  | -0.738  | 0.446   | -84.215  | -54.631  | -53.447  | -68.516  | -67.273  |
| 865 | 0    | -60.969  | -7.983  | -0.708  | 0.430   | -85.936  | -55.580  | -54.443  | -69.790  | -68.596  |
| 865 | 0.3  | -43.695  | -5.803  | -0.507  | 0.308   | -61.718  | -39.833  | -39.018  | -50.068  | -49.212  |
| 865 | 0.6  | -28.170  | -3.821  | -0.307  | 0.187   | -39.917  | -25.660  | -25.166  | -32.308  | -31.790  |
| 865 | 0.9  | -14.274  | -1.971  | -0.106  | 0.065   | -20.282  | -12.953  | -12.781  | -16.341  | -16.160  |
| 865 | 1.2  | -1.885   | -0.188  | 0.094   | -0.056  | -2.563   | -1.602   | -1.753   | -1.999   | -2.157   |
| 866 | 0    | -244.760 | -31.421 | -4.249  | 2.569   | -343.986 | -224.533 | -217.715 | -281.255 | -274.096 |
| 866 | 0.45 | -192.107 | -24.534 | -3.371  | 2.038   | -269.784 | -176.268 | -170.858 | -220.709 | -215.029 |
| 866 | 0.9  | -143.389 | -18.094 | -2.494  | 1.508   | -201.018 | -131.544 | -127.543 | -164.576 | -160.375 |
| 866 | 1.35 | -99.282  | -12.473 | -1.616  | 0.977   | -139.096 | -90.970  | -88.377  | -113.801 | -111.079 |
| 866 | 1.8  | -59.881  | -7.724  | -0.738  | 0.446   | -84.215  | -54.631  | -53.447  | -68.516  | -67.273  |
| 867 | 0    | -60.969  | -7.983  | -0.708  | 0.430   | -85.935  | -55.580  | -54.442  | -69.790  | -68.596  |
| 867 | 0.3  | -43.695  | -5.802  | -0.507  | 0.308   | -61.718  | -39.833  | -39.017  | -50.068  | -49.212  |
| 867 | 0.6  | -28.170  | -3.821  | -0.307  | 0.187   | -39.917  | -25.660  | -25.166  | -32.308  | -31.789  |
| 867 | 0.9  | -14.274  | -1.971  | -0.106  | 0.065   | -20.282  | -12.952  | -12.781  | -16.341  | -16.160  |
| 867 | 1.2  | -1.885   | -0.188  | 0.094   | -0.056  | -2.562   | -1.602   | -1.753   | -1.999   | -2.156   |
| 868 | 0    | -106.843 | -13.280 | 1.607   | -1.546  | -149.460 | -94.552  | -97.705  | -118.864 | -122.175 |
| 868 | 0.45 | -75.338  | -9.584  | 1.206   | -1.157  | -105.740 | -66.598  | -68.962  | -83.876  | -86.358  |
| 868 | 0.9  | -47.171  | -6.112  | 0.805   | -0.769  | -66.384  | -41.648  | -43.222  | -52.534  | -54.187  |
| 868 | 1.35 | -22.612  | -3.012  | 0.404   | -0.380  | -31.953  | -19.946  | -20.731  | -25.215  | -26.039  |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 868 | 1.8  | -1.391   | -0.135  | 0.093   | 0.009   | -1.885   | -1.248   | -1.243   | -1.542   | -1.537   |
| 869 | 0    | -215.317 | -60.089 | -53.391 | 83.038  | -354.522 | -247.176 | -110.747 | -319.999 | -176.748 |
| 869 | 1.13 | -75.808  | -21.082 | -40.307 | 63.582  | -124.700 | -108.534 | -4.645   | -135.202 | -26.118  |
| 869 | 2.25 | 33.322   | 11.288  | -27.223 | 44.127  | 58.048   | 2.767    | 74.116   | 13.516   | 88.433   |
| 869 | 3.38 | 107.377  | 34.436  | -14.138 | 24.671  | 183.950  | 82.501   | 121.310  | 119.595  | 160.345  |
| 869 | 4.50 | 151.053  | 50.947  | -1.054  | 5.215   | 262.778  | 134.893  | 141.163  | 189.595  | 196.178  |
| 870 | 0    | 156.772  | 52.223  | -5.982  | 11.230  | 271.683  | 135.113  | 152.325  | 191.230  | 209.303  |
| 870 | 1.13 | 104.068  | 32.032  | 7.486   | -6.409  | 176.133  | 101.147  | 87.252   | 137.312  | 122.722  |
| 870 | 2.25 | 20.984   | 5.205   | 20.954  | -24.048 | 33.509   | 39.839   | -5.162   | 47.314   | 0.062    |
| 870 | 3.38 | -97.175  | -30.844 | 34.422  | -41.687 | -165.960 | -53.036  | -129.144 | -85.322  | -165.236 |
| 870 | 4.5  | -245.712 | -73.530 | 47.890  | -59.326 | -412.503 | -173.252 | -280.467 | -254.038 | -366.614 |
| 871 | 0    | -215.316 | -60.089 | -53.391 | 83.038  | -354.521 | -247.176 | -110.747 | -319.999 | -176.748 |
| 871 | 1.13 | -75.808  | -21.082 | -40.307 | 63.582  | -124.700 | -108.534 | -4.645   | -135.202 | -26.118  |
| 871 | 2.25 | 33.322   | 11.288  | -27.223 | 44.127  | 58.048   | 2.767    | 74.116   | 13.516   | 88.433   |
| 871 | 3.38 | 107.377  | 34.436  | -14.138 | 24.671  | 183.950  | 82.501   | 121.310  | 119.595  | 160.345  |
| 871 | 4.5  | 151.053  | 50.947  | -1.054  | 5.215   | 262.778  | 134.893  | 141.163  | 189.595  | 196.178  |
| 872 | 0    | 156.772  | 52.223  | -5.982  | 11.230  | 271.683  | 135.113  | 152.325  | 191.230  | 209.303  |
| 872 | 1.13 | 104.068  | 32.032  | 7.486   | -6.409  | 176.133  | 101.147  | 87.252   | 137.312  | 122.722  |
| 872 | 2.25 | 20.984   | 5.205   | 20.954  | -24.048 | 33.509   | 39.839   | -5.162   | 47.314   | 0.062    |
| 872 | 3.38 | -97.175  | -30.844 | 34.422  | -41.687 | -165.960 | -53.036  | -129.144 | -85.323  | -165.237 |
| 872 | 4.5  | -245.713 | -73.530 | 47.890  | -59.326 | -412.503 | -173.252 | -280.467 | -254.038 | -366.614 |
| 873 | 0    | -239.900 | -72.771 | -59.279 | 47.911  | -404.313 | -275.189 | -167.999 | -359.984 | -247.434 |
| 873 | 1.13 | -93.107  | -30.318 | -41.652 | 34.436  | -160.237 | -125.449 | -49.360  | -160.598 | -80.705  |
| 873 | 2.25 | 23.307   | 5.498   | -24.025 | 20.962  | 36.765   | -3.049   | 41.938   | 2.710    | 49.946   |
| 873 | 3.38 | 104.646  | 32.091  | -6.398  | 7.487   | 176.922  | 87.783   | 101.668  | 123.378  | 137.957  |
| 873 | 4.5  | 155.606  | 52.048  | 11.229  | -5.988  | 270.004  | 151.275  | 134.058  | 207.967  | 189.890  |
| 874 | 0    | 150.344  | 50.831  | 5.223   | -1.057  | 261.743  | 140.533  | 134.253  | 195.369  | 188.775  |
| 874 | 1.13 | 104.658  | 34.065  | 24.635  | -14.137 | 180.094  | 118.828  | 80.056   | 157.220  | 116.509  |
| 874 | 2.25 | 28.593   | 10.663  | 44.048  | -27.217 | 51.373   | 69.782   | -1.483   | 82.991   | 8.163    |
| 874 | 3.38 | -82.546  | -21.962 | 63.460  | -40.297 | -134.194 | -10.831  | -114.588 | -33.876  | -142.821 |
| 874 | 4.5  | -224.065 | -61.223 | 82.873  | -53.377 | -366.835 | -118.786 | -255.035 | -186.823 | -329.884 |
| 875 | 0    | -224.065 | -61.223 | 82.873  | -53.377 | -366.836 | -118.786 | -255.035 | -186.823 | -329.884 |
| 875 | 1.13 | -82.546  | -21.962 | 63.460  | -40.297 | -134.195 | -10.831  | -114.588 | -33.876  | -142.821 |
| 875 | 2.25 | 28.593   | 10.663  | 44.048  | -27.217 | 51.373   | 69.782   | -1.483   | 82.991   | 8.163    |
| 875 | 3.38 | 104.658  | 34.065  | 24.635  | -14.137 | 180.094  | 118.828  | 80.056   | 157.220  | 116.509  |
| 875 | 4.5  | 150.344  | 50.831  | 5.223   | -1.057  | 261.743  | 140.533  | 134.253  | 195.369  | 188.775  |
| 876 | 0    | 155.606  | 52.048  | 11.229  | -5.988  | 270.004  | 151.275  | 134.058  | 207.967  | 189.890  |
| 876 | 1.13 | 104.646  | 32.091  | -6.398  | 7.487   | 176.922  | 87.783   | 101.668  | 123.378  | 137.957  |
| 876 | 2.25 | 23.307   | 5.498   | -24.025 | 20.962  | 36.765   | -3.049   | 41.938   | 2.710    | 49.946   |
| 876 | 3.38 | -93.107  | -30.318 | -41.652 | 34.436  | -160.237 | -125.449 | -49.360  | -160.597 | -80.704  |
| 876 | 4.5  | -239.900 | -72.770 | -59.279 | 47.911  | -404.313 | -275.189 | -167.999 | -359.984 | -247.434 |
| 877 | 0    | -21.494  | -8.630  | 0.058   | 0.365   | -39.601  | -19.287  | -18.979  | -27.945  | -27.622  |
| 877 | 0.75 | -1.615   | -3.329  | 0.127   | -0.038  | -7.264   | -1.326   | -1.492   | -3.659   | -3.833   |
| 877 | 1.50 | 13.206   | 0.937   | 0.196   | -0.442  | 17.347   | 12.082   | 11.443   | 14.663   | 13.993   |
| 877 | 2.25 | 21.716   | 3.480   | 0.266   | -0.846  | 31.627   | 19.810   | 18.698   | 25.273   | 24.106   |
| 877 | 3    | 25.167   | 4.988   | 0.335   | -1.250  | 38.181   | 22.985   | 21.400   | 29.919   | 28.255   |
| 878 | 0    | 25.166   | 4.988   | 0.335   | -1.250  | 38.181   | 22.985   | 21.400   | 29.919   | 28.255   |
| 878 | 0.75 | 21.716   | 3.480   | 0.266   | -0.846  | 31.628   | 19.810   | 18.698   | 25.273   | 24.106   |
| 878 | 1.5  | 13.207   | 0.938   | 0.196   | -0.442  | 17.348   | 12.082   | 11.444   | 14.664   | 13.993   |
| 878 | 2.25 | -1.614   | -3.329  | 0.127   | -0.038  | -7.262   | -1.325   | -1.491   | -3.658   | -3.832   |
| 878 | 3    | -21.493  | -8.629  | 0.058   | 0.365   | -39.598  | -19.286  | -18.978  | -27.943  | -27.620  |
| 879 | 0    | 43.709   | 10.950  | -6.531  | 6.408   | 69.971   | 32.808   | 45.747   | 45.936   | 59.522   |
| 879 | 0.75 | 51.267   | 12.508  | -3.297  | 3.167   | 81.533   | 42.843   | 49.307   | 58.248   | 65.036   |
| 879 | 1.5  | 53.925   | 13.120  | -0.063  | -0.073  | 85.703   | 48.469   | 48.459   | 64.821   | 64.810   |
| 879 | 2.25 | 51.154   | 12.494  | 3.171   | -3.314  | 81.376   | 49.209   | 42.725   | 64.912   | 58.104   |
| 879 | 3    | 43.484   | 10.922  | 6.405   | -6.554  | 69.657   | 45.541   | 32.582   | 59.265   | 45.657   |
| 880 | 0    | -5.526   | 0.061   | 0.003   | -0.005  | -6.533   | -4.970   | -4.978   | -5.761   | -5.769   |
| 880 | 1.5  | 0.835    | 0.061   | 0.003   | -0.005  | 1.100    | 0.755    | 0.747    | 0.918    | 0.910    |
| 880 | 3    | 2.956    | 0.061   | 0.003   | -0.005  | 3.645    | 2.663    | 2.655    | 3.145    | 3.137    |
| 880 | 4.5  | 0.835    | 0.061   | 0.003   | -0.005  | 1.100    | 0.754    | 0.747    | 0.918    | 0.910    |
| 880 | 6    | -5.526   | 0.061   | 0.003   | -0.005  | -6.534   | -4.971   | -4.979   | -5.761   | -5.769   |
| 881 | 0    | -206.995 | -59.925 | -82.803 | 78.361  | -344.274 | -269.098 | -107.935 | -342.040 | -172.818 |
| 881 | 1.13 | -67.698  | -20.740 | -62.006 | 58.482  | -114.422 | -122.934 | -2.446   | -149.256 | -22.743  |
| 881 | 2.25 | 41.219   | 11.808  | -41.210 | 38.604  | 68.356   | -4.112   | 75.702   | 7.449    | 91.254   |
| 881 | 3.38 | 115.062  | 35.133  | -20.413 | 18.726  | 194.288  | 83.143   | 122.282  | 121.516  | 162.612  |
| 881 | 4.5  | 158.526  | 51.822  | 0.384   | -1.152  | 273.146  | 143.057  | 141.522  | 199.503  | 197.891  |
| 882 | 0    | 164.109  | 52.934  | -6.997  | 6.081   | 281.626  | 140.702  | 153.779  | 198.317  | 212.048  |

|     |      |          |         |          |         |          |          |          |          |          |
|-----|------|----------|---------|----------|---------|----------|----------|----------|----------|----------|
| 882 | 1.13 | 106.750  | 32.249  | 14.639   | -14.840 | 179.698  | 110.714  | 81.235   | 147.775  | 116.822  |
| 882 | 2.25 | 19.011   | 4.927   | 36.275   | -35.760 | 30.696   | 53.385   | -18.650  | 61.154   | -14.483  |
| 882 | 3.38 | -103.803 | -31.618 | 57.911   | -56.680 | -175.152 | -35.512  | -150.103 | -68.106  | -188.426 |
| 882 | 4.5  | -256.995 | -74.799 | 79.547   | -77.600 | -428.073 | -151.749 | -308.896 | -233.445 | -398.449 |
| 884 | 0    | -206.994 | -59.925 | -82.803  | 78.361  | -344.273 | -269.098 | -107.934 | -342.040 | -172.818 |
| 884 | 1.13 | -67.698  | -20.740 | -62.006  | 58.482  | -114.422 | -122.934 | -2.446   | -149.256 | -22.743  |
| 884 | 2.25 | 41.219   | 11.808  | -41.210  | 38.604  | 68.356   | -4.112   | 75.702   | 7.449    | 91.254   |
| 884 | 3.38 | 115.062  | 35.133  | -20.413  | 18.726  | 194.288  | 83.143   | 122.282  | 121.516  | 162.612  |
| 884 | 4.5  | 158.526  | 51.822  | 0.384    | -1.152  | 273.146  | 143.057  | 141.521  | 199.503  | 197.891  |
| 885 | 0    | 164.109  | 52.934  | -6.997   | 6.081   | 281.626  | 140.702  | 153.779  | 198.317  | 212.048  |
| 885 | 1.13 | 106.750  | 32.249  | 14.639   | -14.840 | 179.698  | 110.714  | 81.235   | 147.775  | 116.822  |
| 885 | 2.25 | 19.011   | 4.927   | 36.275   | -35.760 | 30.696   | 53.384   | -18.650  | 61.154   | -14.483  |
| 885 | 3.38 | -103.803 | -31.618 | 57.911   | -56.680 | -175.152 | -35.512  | -150.103 | -68.106  | -188.426 |
| 885 | 4.5  | -256.996 | -74.799 | 79.547   | -77.600 | -428.073 | -151.749 | -308.896 | -233.445 | -398.449 |
| 886 | 0    | -139.471 | -28.389 | -103.365 | 95.460  | -212.787 | -228.889 | -30.064  | -272.863 | -64.097  |
| 886 | 1.13 | -39.505  | -9.930  | -77.958  | 71.580  | -63.293  | -113.512 | 36.025   | -129.592 | 27.423   |
| 886 | 2.25 | 36.852   | 5.621   | -52.551  | 47.700  | 53.215   | -19.384  | 86.867   | -12.943  | 92.320   |
| 886 | 3.38 | 88.542   | 17.680  | -27.144  | 23.820  | 134.539  | 52.544   | 103.508  | 75.607   | 129.119  |
| 886 | 4.5  | 116.624  | 26.830  | -1.737   | -0.060  | 182.877  | 103.225  | 104.902  | 137.535  | 139.295  |
| 888 | 0    | 96.604   | 22.093  | 19.707   | -20.125 | 151.273  | 106.650  | 66.818   | 136.045  | 94.221   |
| 888 | 0.86 | 40.795   | 9.550   | 39.107   | -38.458 | 64.234   | 75.822   | -1.742   | 89.913   | 8.471    |
| 888 | 1.73 | -32.359  | -6.613  | 58.506   | -56.790 | -49.412  | 29.383   | -85.913  | 23.288   | -97.773  |
| 888 | 2.59 | -124.582 | -27.344 | 77.906   | -75.122 | -193.250 | -34.218  | -187.246 | -66.237  | -226.916 |
| 888 | 3.45 | -233.122 | -51.129 | 97.305   | -93.454 | -361.553 | -112.504 | -303.264 | -174.818 | -375.116 |
| 889 | 0    | -232.938 | -51.028 | 97.305   | -93.454 | -361.170 | -112.339 | -303.098 | -174.562 | -374.859 |
| 889 | 0.86 | -124.489 | -27.293 | 77.906   | -75.122 | -193.056 | -34.134  | -187.162 | -66.107  | -226.786 |
| 889 | 1.73 | -32.357  | -6.612  | 58.506   | -56.790 | -49.407  | 29.385   | -85.911  | 23.291   | -97.769  |
| 889 | 2.59 | 40.707   | 9.501   | 39.107   | -38.458 | 64.051   | 75.743   | -1.821   | 89.790   | 8.348    |
| 889 | 3.45 | 96.430   | 21.997  | 19.707   | -20.125 | 150.911  | 106.494  | 66.661   | 135.801  | 93.977   |
| 891 | 0    | 116.525  | 26.776  | -1.737   | -0.060  | 182.671  | 103.136  | 104.813  | 137.396  | 139.157  |
| 891 | 1.13 | 88.495   | 17.654  | -27.144  | 23.820  | 134.441  | 52.502   | 103.466  | 75.542   | 129.054  |
| 891 | 2.25 | 36.857   | 5.623   | -52.551  | 47.700  | 53.226   | -19.380  | 80.871   | -12.936  | 92.328   |
| 891 | 3.38 | -39.448  | -9.898  | -77.958  | 71.580  | -63.174  | -113.461 | 36.077   | -129.512 | 27.503   |
| 891 | 4.5  | -139.362 | -28.328 | -103.365 | 95.460  | -212.559 | -228.790 | -29.965  | -272.710 | -63.944  |
| 892 | 0    | 116.131  | 26.629  | -2.044   | 0.237   | 181.963  | 102.473  | 104.755  | 136.567  | 138.962  |
| 892 | 0.26 | 113.218  | 25.474  | 3.954    | -5.416  | 176.620  | 105.850  | 96.481   | 139.079  | 129.242  |
| 892 | 0.53 | 109.222  | 24.272  | 9.952    | -11.068 | 169.901  | 108.251  | 87.231   | 140.423  | 118.352  |
| 892 | 0.79 | 104.055  | 22.975  | 15.950   | -16.720 | 161.625  | 109.599  | 76.929   | 140.479  | 106.175  |
| 892 | 1.05 | 97.631   | 21.535  | 21.948   | -22.373 | 151.612  | 109.816  | 65.495   | 139.125  | 92.588   |
| 893 | 0    | 116.033  | 26.575  | -2.044   | 0.237   | 181.760  | 102.385  | 104.667  | 136.430  | 138.826  |
| 893 | 0.26 | 113.104  | 25.411  | 3.954    | -5.416  | 176.383  | 105.747  | 96.378   | 138.920  | 129.082  |
| 893 | 0.53 | 109.091  | 24.200  | 9.952    | -11.068 | 169.628  | 108.133  | 87.114   | 140.241  | 118.170  |
| 893 | 0.79 | 103.907  | 22.893  | 15.950   | -16.720 | 161.318  | 109.466  | 76.796   | 140.273  | 105.969  |
| 893 | 1.05 | 97.467   | 21.444  | 21.948   | -22.373 | 151.271  | 109.668  | 65.347   | 138.896  | 92.359   |
| 895 | 0    | -40.198  | -5.432  | -6.836   | 6.873   | -56.930  | -43.015  | -29.305  | -52.809  | -38.414  |
| 895 | 1.13 | -4.561   | -1.220  | -5.162   | 5.191   | -7.426   | -9.267   | 1.086    | -10.978  | -0.107   |
| 895 | 2.25 | 15.053   | 1.633   | -3.488   | 3.509   | 20.675   | 10.059   | 17.057   | 13.171   | 20.518   |
| 895 | 3.38 | 18.575   | 3.089   | -1.814   | 1.827   | 27.232   | 14.903   | 18.544   | 19.545   | 23.368   |
| 895 | 4.5  | 6.073    | 3.187   | -0.140   | 0.145   | 12.386   | 5.326    | 5.611    | 8.237    | 8.536    |
| 896 | 0    | 6.066    | 3.181   | 0.151    | -0.139  | 12.369   | 5.611    | 5.321    | 8.532    | 8.228    |
| 896 | 1.13 | 18.498   | 3.078   | 1.828    | -1.816  | 27.122   | 18.477   | 14.833   | 23.282   | 19.456   |
| 896 | 2.25 | 14.906   | 1.615   | 3.506    | -3.492  | 20.472   | 16.921   | 9.924    | 20.350   | 13.002   |
| 896 | 3.38 | -4.777   | -1.244  | 5.183    | -5.169  | -7.722   | 0.883    | -9.468   | -0.358   | -11.227  |
| 896 | 4.5  | -40.484  | -5.462  | 6.860    | -6.846  | -57.320  | -29.576  | -43.281  | -38.746  | -53.137  |
| 897 | 0    | -40.198  | -5.432  | -6.836   | 6.873   | -56.930  | -43.015  | -29.305  | -52.809  | -38.414  |
| 897 | 1.13 | -4.561   | -1.220  | -5.162   | 5.191   | -7.426   | -9.267   | 1.086    | -10.978  | -0.107   |
| 897 | 2.25 | 15.053   | 1.633   | -3.488   | 3.509   | 20.675   | 10.059   | 17.057   | 13.171   | 20.518   |
| 897 | 3.38 | 18.575   | 3.089   | -1.814   | 1.827   | 27.232   | 14.903   | 18.544   | 19.545   | 23.368   |
| 897 | 4.5  | 6.073    | 3.187   | -0.140   | 0.145   | 12.386   | 5.326    | 5.611    | 8.237    | 8.536    |
| 898 | 0    | 6.066    | 3.181   | 0.151    | -0.139  | 12.369   | 5.611    | 5.321    | 8.532    | 8.228    |
| 898 | 1.13 | 18.498   | 3.078   | 1.828    | -1.816  | 27.122   | 18.477   | 14.833   | 23.282   | 19.456   |
| 898 | 2.25 | 14.906   | 1.615   | 3.506    | -3.492  | 20.472   | 16.921   | 9.924    | 20.350   | 13.002   |
| 898 | 3.38 | -4.777   | -1.244  | 5.183    | -5.169  | -7.722   | 0.883    | -9.468   | -0.358   | -11.227  |
| 898 | 4.5  | -40.484  | -5.462  | 6.860    | -6.846  | -57.320  | -29.576  | -43.281  | -38.747  | -53.137  |
| 899 | 0    | -250.297 | -73.952 | -77.597  | 79.595  | -418.679 | -302.864 | -145.672 | -390.878 | -225.827 |
| 899 | 1.13 | -98.877  | -30.999 | -56.669  | 57.947  | -168.250 | -145.658 | -31.042  | -182.853 | -62.506  |
| 899 | 2.25 | 22.164   | 5.318   | -35.742  | 36.298  | 35.105   | -15.794  | 56.246   | -10.906  | 64.736   |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 899 | 3.38 | 108.130  | 32.411  | -14.814 | 14.650  | 181.615  | 82.503   | 111.967  | 118.401  | 149.339  |
| 899 | 4.5  | 163.718  | 52.868  | 6.114   | -6.998  | 281.051  | 153.460  | 140.347  | 211.630  | 197.862  |
| 900 | 0    | 158.605  | 51.815  | -1.115  | 0.388   | 273.229  | 141.629  | 143.133  | 198.008  | 199.586  |
| 900 | 1.13 | 113.499  | 34.933  | 18.743  | -20.425 | 192.091  | 120.892  | 81.724   | 160.862  | 119.735  |
| 900 | 2.25 | 38.014   | 11.414  | 38.602  | -41.238 | 63.879   | 72.814   | -7.026   | 87.637   | 3.805    |
| 900 | 3.38 | -72.546  | -21.327 | 58.460  | -62.052 | -121.178 | -6.832   | -127.343 | -28.226  | -154.764 |
| 900 | 4.5  | -213.485 | -60.704 | 78.318  | -82.865 | -353.309 | -113.818 | -275.001 | -180.169 | -349.411 |
| 901 | 0    | -250.297 | -73.952 | -77.597 | 79.595  | -418.679 | -302.864 | -145.672 | -390.878 | -225.826 |
| 901 | 1.13 | -98.877  | -30.999 | -56.669 | 57.947  | -168.250 | -145.658 | -31.042  | -182.853 | -62.506  |
| 901 | 2.25 | 22.164   | 5.318   | -35.742 | 36.298  | 35.105   | -15.794  | 56.246   | -10.906  | 64.736   |
| 901 | 3.38 | 108.130  | 32.411  | -14.814 | 14.650  | 181.615  | 82.503   | 111.967  | 118.402  | 149.339  |
| 901 | 4.5  | 163.718  | 52.868  | 6.114   | -6.998  | 281.051  | 153.460  | 140.347  | 211.630  | 197.862  |
| 902 | 0    | 158.605  | 51.815  | -1.115  | 0.388   | 273.229  | 141.629  | 143.133  | 198.008  | 199.586  |
| 902 | 1.13 | 113.499  | 34.933  | 18.743  | -20.425 | 192.091  | 120.892  | 81.724   | 160.862  | 119.735  |
| 902 | 2.25 | 38.014   | 11.414  | 38.602  | -41.238 | 63.879   | 72.814   | -7.026   | 87.637   | 3.805    |
| 902 | 3.38 | -72.546  | -21.327 | 58.460  | -62.052 | -121.178 | -6.832   | -127.343 | -28.226  | -154.764 |
| 902 | 4.5  | -213.485 | -60.705 | 78.318  | -82.865 | -353.309 | -113.818 | -275.002 | -180.169 | -349.411 |
| 903 | 0    | -217.453 | -26.577 | -3.034  | 3.287   | -303.466 | -198.742 | -192.426 | -248.254 | -241.617 |
| 903 | 0.23 | -192.370 | -23.750 | -2.604  | 2.821   | -268.844 | -175.737 | -170.312 | -219.686 | -213.989 |
| 903 | 0.45 | -168.170 | -20.979 | -2.174  | 2.355   | -235.371 | -153.527 | -148.998 | -192.078 | -187.323 |
| 903 | 0.68 | -144.937 | -18.311 | -1.744  | 1.889   | -203.221 | -132.187 | -128.554 | -165.551 | -161.736 |
| 903 | 0.9  | -122.687 | -15.754 | -1.314  | 1.423   | -172.430 | -111.732 | -108.995 | -140.126 | -137.252 |
| 904 | 0    | -124.749 | -16.302 | -1.074  | 1.162   | -175.782 | -113.349 | -111.112 | -142.385 | -140.036 |
| 904 | 0.53 | -85.680  | -11.168 | -0.789  | 0.854   | -120.685 | -77.901  | -76.258  | -97.829  | -96.103  |
| 904 | 1.05 | -52.475  | -6.923  | -0.504  | 0.545   | -74.047  | -47.732  | -46.682  | -59.990  | -58.888  |
| 904 | 1.58 | -24.809  | -3.388  | -0.219  | 0.237   | -35.190  | -22.547  | -22.091  | -28.413  | -27.934  |
| 904 | 2.1  | -2.037   | -0.206  | 0.066   | -0.071  | -2.775   | -1.768   | -1.905   | -2.200   | -2.344   |
| 905 | 0    | -217.453 | -26.577 | -3.034  | 3.287   | -303.466 | -198.742 | -192.421 | -248.255 | -241.618 |
| 905 | 0.23 | -192.370 | -23.750 | -2.604  | 2.821   | -268.845 | -175.738 | -170.312 | -219.686 | -213.989 |
| 905 | 0.45 | -168.170 | -20.979 | -2.174  | 2.355   | -235.371 | -153.527 | -148.998 | -192.079 | -187.323 |
| 905 | 0.68 | -144.937 | -18.311 | -1.744  | 1.889   | -203.221 | -132.187 | -128.554 | -165.551 | -161.736 |
| 905 | 0.9  | -122.687 | -15.754 | -1.314  | 1.423   | -172.431 | -111.733 | -108.995 | -140.126 | -137.252 |
| 906 | 0    | -124.749 | -16.302 | -1.074  | 1.162   | -175.782 | -113.349 | -111.112 | -142.385 | -140.037 |
| 906 | 0.53 | -85.680  | -11.168 | -0.789  | 0.854   | -120.685 | -77.901  | -76.258  | -97.829  | -96.103  |
| 906 | 1.05 | -52.475  | -6.923  | -0.504  | 0.545   | -74.047  | -47.732  | -46.682  | -59.990  | -58.888  |
| 906 | 1.58 | -24.809  | -3.388  | -0.219  | 0.237   | -35.190  | -22.547  | -22.091  | -28.413  | -27.934  |
| 906 | 2.1  | -2.037   | -0.206  | 0.066   | -0.071  | -2.775   | -1.768   | -1.905   | -2.200   | -2.344   |
| 907 | 0    | -65.752  | -12.158 | -1.035  | 1.052   | -98.355  | -60.212  | -58.125  | -77.786  | -75.594  |
| 907 | 0.75 | -22.074  | -4.460  | -0.212  | 0.231   | -33.624  | -20.079  | -19.636  | -26.210  | -25.745  |
| 907 | 1.5  | 11.581   | 2.205   | 0.611   | -0.591  | 17.425   | 11.034   | 9.832    | 14.190   | 12.929   |
| 907 | 2.25 | 33.960   | 7.145   | 1.434   | -1.412  | 52.184   | 31.998   | 29.152   | 41.665   | 38.677   |
| 907 | 3    | 46.316   | 11.051  | 2.256   | -2.233  | 73.260   | 43.940   | 39.451   | 57.963   | 53.248   |
| 908 | 0    | 47.757   | 11.497  | 2.244   | -2.238  | 75.703   | 45.225   | 40.743   | 59.744   | 55.038   |
| 908 | 0.75 | 32.251   | 6.484   | 0.895   | -0.901  | 49.077   | 29.922   | 28.125   | 38.889   | 37.003   |
| 908 | 1.5  | 6.723    | 0.438   | -0.453  | 0.436   | 8.767    | 5.597    | 6.486    | 6.859    | 7.792    |
| 908 | 2.25 | -30.082  | -7.333  | -1.801  | 1.772   | -47.831  | -28.875  | -25.301  | -38.097  | -34.345  |
| 908 | 3    | -76.910  | -16.138 | -3.150  | 3.109   | -118.112 | -72.369  | -66.110  | -94.229  | -87.658  |
| 909 | 0    | -80.686  | -22.320 | -3.224  | 3.134   | -132.535 | -75.841  | -69.483  | -102.167 | -95.491  |
| 909 | 0.75 | -33.349  | -9.131  | -1.740  | 1.700   | -54.629  | -31.754  | -28.314  | -42.596  | -38.984  |
| 909 | 1.5  | 7.870    | 2.440   | -0.255  | 0.265   | 13.348   | 6.828    | 7.348    | 9.532    | 10.079   |
| 909 | 2.25 | 41.650   | 11.667  | 1.229   | -1.170  | 68.648   | 38.715   | 36.316   | 52.374   | 49.855   |
| 909 | 3    | 69.313   | 19.276  | 2.714   | -2.604  | 114.018  | 65.095   | 59.777   | 87.772   | 82.188   |
| 910 | 0    | 68.908   | 19.216  | 2.875   | -2.730  | 113.435  | 64.892   | 59.287   | 87.478   | 81.593   |
| 910 | 0.75 | 39.849   | 11.124  | 1.474   | -1.420  | 65.618   | 37.338   | 34.444   | 50.398   | 47.359   |
| 910 | 1.5  | 4.672    | 1.415   | 0.073   | -0.110  | 7.870    | 4.278    | 4.095    | 5.874    | 5.682    |
| 910 | 2.25 | -37.943  | -10.639 | -1.327  | 1.200   | -62.554  | -35.476  | -32.949  | -47.936  | -45.283  |
| 910 | 3    | -86.676  | -24.311 | -2.728  | 2.510   | -142.908 | -80.736  | -75.499  | -109.190 | -103.690 |
| 911 | 0    | -84.875  | -23.827 | -3.326  | 3.197   | -139.974 | -79.713  | -73.190  | -107.622 | -100.773 |
| 911 | 0.75 | -36.617  | -10.256 | -1.695  | 1.649   | -60.351  | -34.650  | -31.306  | -46.689  | -43.177  |
| 911 | 1.5  | 5.523    | 1.697   | -0.064  | 0.101   | 9.343    | 4.907    | 5.072    | 6.801    | 6.974    |
| 911 | 2.25 | 40.225   | 11.306  | 1.567   | -1.447  | 66.359   | 37.770   | 34.756   | 51.004   | 47.840   |
| 911 | 3    | 68.809   | 19.297  | 3.198   | -2.995  | 113.446  | 65.126   | 58.933   | 87.764   | 81.261   |
| 912 | 0    | 68.933   | 19.310  | 3.257   | -3.042  | 113.616  | 65.296   | 58.997   | 87.964   | 81.350   |
| 912 | 0.75 | 41.659   | 11.749  | 1.690   | -1.586  | 68.789   | 39.183   | 35.907   | 52.918   | 49.478   |
| 912 | 1.5  | 8.267    | 2.570   | 0.123   | -0.130  | 14.032   | 7.563    | 7.311    | 10.428   | 10.163   |
| 912 | 2.25 | -32.562  | -8.954  | -1.444  | 1.326   | -53.401  | -30.751  | -27.980  | -41.348  | -38.439  |
| 912 | 3    | -79.511  | -22.095 | -3.011  | 2.782   | -130.765 | -74.571  | -68.777  | -100.568 | -94.485  |

|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 913 | 0    | -50.643 | -10.795 | -1.729 | 1.647  | -78.044  | -47.307 | -43.931 | -61.791  | -58.246  |
| 913 | 0.56 | -22.525 | -5.425  | -0.929 | 0.886  | -35.711  | -21.202 | -19.387 | -28.045  | -26.140  |
| 913 | 1.13 | 0.218   | -0.492  | -0.129 | 0.124  | -0.526   | 0.067   | 0.320   | -0.217   | 0.049    |
| 913 | 1.69 | 17.059  | 3.714   | 0.670  | -0.638 | 26.414   | 16.023  | 14.715  | 20.956   | 19.582   |
| 913 | 2.25 | 28.526  | 7.484   | 1.470  | -1.399 | 46.206   | 27.143  | 24.274  | 36.211   | 33.198   |
| 914 | 0    | 28.346  | 7.321   | 1.475  | -1.405 | 45.729   | 26.986  | 24.107  | 35.924   | 32.901   |
| 914 | 0.56 | 18.163  | 4.231   | 0.814  | -0.776 | 28.565   | 17.161  | 15.571  | 22.591   | 20.922   |
| 914 | 1.13 | 2.607   | 0.703   | 0.153  | -0.147 | 4.254    | 2.499   | 2.198   | 3.341    | 3.025    |
| 914 | 1.69 | -18.852 | -3.551  | -0.508 | 0.481  | -28.304  | -17.475 | -16.486 | -22.565  | -21.527  |
| 914 | 2.25 | -45.686 | -8.241  | -1.168 | 1.110  | -68.009  | -42.286 | -40.007 | -54.389  | -51.997  |
| 915 | 0    | -45.685 | -8.241  | -1.168 | 1.110  | -68.008  | -42.285 | -40.007 | -54.388  | -51.996  |
| 915 | 0.56 | -18.853 | -3.551  | -0.508 | 0.481  | -28.306  | -17.475 | -16.487 | -22.566  | -21.528  |
| 915 | 1.13 | 2.605   | 0.702   | 0.153  | -0.147 | 4.250    | 2.497   | 2.197   | 3.338    | 3.023    |
| 915 | 1.69 | 18.160  | 4.229   | 0.814  | -0.776 | 28.558   | 17.158  | 15.568  | 22.587   | 20.917   |
| 915 | 2.25 | 28.342  | 7.319   | 1.475  | -1.405 | 45.720   | 26.982  | 24.103  | 35.918   | 32.894   |
| 916 | 0    | 28.523  | 7.483   | 1.470  | -1.399 | 46.200   | 27.141  | 24.271  | 36.207   | 33.194   |
| 916 | 0.56 | 17.057  | 3.714   | 0.670  | -0.638 | 26.410   | 16.022  | 14.714  | 20.954   | 19.580   |
| 916 | 1.13 | 0.218   | -0.492  | -0.129 | 0.124  | -0.526   | 0.067   | 0.320   | -0.217   | 0.049    |
| 916 | 1.69 | -22.524 | -5.425  | -0.929 | 0.886  | -35.709  | -21.201 | -19.386 | -28.043  | -26.138  |
| 916 | 2.25 | -50.640 | -10.794 | -1.729 | 1.647  | -78.039  | -47.305 | -43.929 | -61.788  | -58.243  |
| 917 | 0    | -79.510 | -22.095 | -3.011 | 2.782  | -130.763 | -74.570 | -68.776 | -100.567 | -94.483  |
| 917 | 0.75 | -32.562 | -8.953  | -1.444 | 1.326  | -53.399  | -30.750 | -27.979 | -41.347  | -38.438  |
| 917 | 1.5  | 8.268   | 2.570   | 0.123  | -0.130 | 14.034   | 7.564   | 7.311   | 10.430   | 10.164   |
| 917 | 2.25 | 41.660  | 11.749  | 1.690  | -1.586 | 68.791   | 39.184  | 35.908  | 52.919   | 49.480   |
| 917 | 3    | 68.934  | 19.311  | 3.257  | -3.042 | 113.618  | 65.297  | 58.998  | 87.965   | 81.352   |
| 918 | 0    | 68.810  | 19.297  | 3.198  | -2.995 | 113.447  | 65.126  | 58.934  | 87.765   | 81.262   |
| 918 | 0.75 | 40.226  | 11.306  | 1.567  | -1.447 | 66.360   | 37.770  | 34.756  | 51.005   | 47.840   |
| 918 | 1.5  | 5.523   | 1.697   | -0.064 | 0.101  | 9.343    | 4.907   | 5.072   | 6.801    | 6.975    |
| 918 | 2.25 | -36.617 | -10.257 | -1.695 | 1.649  | -60.351  | -34.650 | -31.306 | -46.689  | -43.178  |
| 918 | 3    | -84.876 | -23.828 | -3.326 | 3.197  | -139.975 | -79.714 | -73.191 | -107.623 | -100.774 |
| 919 | 0    | -86.676 | -24.311 | -2.728 | 2.510  | -142.908 | -80.736 | -75.499 | -109.190 | -103.690 |
| 919 | 0.75 | -37.943 | -10.639 | -1.327 | 1.200  | -62.554  | -35.476 | -32.949 | -47.936  | -45.283  |
| 919 | 1.5  | 4.672   | 1.415   | 0.073  | -0.110 | 7.870    | 4.278   | 4.095   | 5.874    | 5.681    |
| 919 | 2.25 | 39.849  | 11.124  | 1.474  | -1.420 | 65.618   | 37.338  | 34.444  | 50.398   | 47.359   |
| 919 | 3    | 68.908  | 19.216  | 2.875  | -2.730 | 113.435  | 64.892  | 59.287  | 87.478   | 81.593   |
| 920 | 0    | 69.313  | 19.276  | 2.714  | -2.604 | 114.017  | 65.095  | 59.777  | 87.772   | 82.188   |
| 920 | 0.75 | 41.650  | 11.667  | 1.229  | -1.170 | 68.648   | 38.715  | 36.316  | 52.374   | 49.855   |
| 920 | 1.5  | 7.870   | 2.440   | -0.255 | 0.265  | 13.348   | 6.828   | 7.348   | 9.532    | 10.079   |
| 920 | 2.25 | -33.349 | -9.131  | -1.740 | 1.700  | -54.629  | -31.754 | -28.314 | -42.596  | -38.984  |
| 920 | 3    | -80.685 | -22.320 | -3.224 | 3.134  | -132.535 | -75.841 | -69.483 | -102.167 | -95.491  |
| 921 | 0    | -76.910 | -16.138 | -3.150 | 3.109  | -118.112 | -72.369 | -66.110 | -94.229  | -87.658  |
| 921 | 0.75 | -30.082 | -7.333  | -1.801 | 1.772  | -47.831  | -28.875 | -25.301 | -38.097  | -34.345  |
| 921 | 1.5  | 6.723   | 0.438   | -0.453 | 0.436  | 8.767    | 5.597   | 6.486   | 6.859    | 7.792    |
| 921 | 2.25 | 32.251  | 6.484   | 0.895  | -0.901 | 49.077   | 29.922  | 28.125  | 38.889   | 37.003   |
| 921 | 3    | 47.757  | 11.497  | 2.244  | -2.238 | 75.703   | 45.225  | 40.743  | 59.744   | 55.038   |
| 922 | 0    | 46.316  | 11.051  | 2.256  | -2.233 | 73.260   | 43.940  | 39.451  | 57.963   | 53.248   |
| 922 | 0.75 | 33.960  | 7.145   | 1.434  | -1.412 | 52.184   | 31.998  | 29.152  | 41.665   | 38.677   |
| 922 | 1.5  | 11.581  | 2.205   | 0.611  | -0.591 | 17.425   | 11.034  | 9.832   | 14.190   | 12.929   |
| 922 | 2.25 | -22.074 | -4.460  | -0.212 | 0.231  | -33.624  | -20.079 | -19.635 | -26.210  | -25.745  |
| 922 | 3    | -65.752 | -12.158 | -1.035 | 1.052  | -98.355  | -60.212 | -58.124 | -77.786  | -75.594  |
| 923 | 0    | -65.956 | -12.174 | 0.787  | -0.759 | -98.626  | -58.574 | -60.120 | -76.098  | -77.721  |
| 923 | 0.75 | -22.202 | -4.470  | 0.031  | -0.002 | -33.794  | -19.951 | -19.984 | -26.095  | -26.130  |
| 923 | 1.5  | 11.528  | 2.201   | -0.725 | 0.755  | 17.355   | 9.651   | 11.131  | 12.730   | 14.284   |
| 923 | 2.25 | 33.983  | 7.147   | -1.480 | 1.512  | 52.216   | 29.104  | 32.097  | 38.631   | 41.773   |
| 923 | 3    | 46.414  | 11.060  | -2.236 | 2.269  | 73.393   | 39.537  | 44.042  | 53.355   | 58.086   |
| 924 | 0    | 47.856  | 11.506  | -2.242 | 2.258  | 75.836   | 40.828  | 45.328  | 55.143   | 59.868   |
| 924 | 0.75 | 32.313  | 6.488   | -0.846 | 0.842  | 49.156   | 28.236  | 29.924  | 37.128   | 38.901   |
| 924 | 1.5  | 6.746   | 0.436   | 0.551  | -0.573 | 8.793    | 6.622   | 5.499   | 7.937    | 6.757    |
| 924 | 2.25 | -30.096 | -7.339  | 1.947  | -1.988 | -47.858  | -25.139 | -29.075 | -34.180  | -38.313  |
| 924 | 3    | -76.962 | -16.150 | 3.343  | -3.404 | -118.193 | -65.922 | -72.670 | -87.474  | -94.558  |
| 925 | 0    | -81.099 | -22.345 | 2.919  | -3.003 | -133.071 | -70.070 | -75.992 | -96.166  | -102.385 |
| 925 | 0.75 | -33.584 | -9.142  | 1.539  | -1.574 | -54.929  | -28.687 | -31.800 | -39.407  | -42.676  |
| 925 | 1.5  | 7.812   | 2.443   | 0.159  | -0.145 | 13.283   | 7.190   | 6.886   | 9.908    | 9.589    |
| 925 | 2.25 | 41.770  | 11.684  | -1.221 | 1.284  | 68.818   | 36.372  | 38.877  | 49.937   | 52.568   |
| 925 | 3    | 69.610  | 19.307  | -2.601 | 2.713  | 114.423  | 60.048  | 65.362  | 82.522   | 88.103   |
| 926 | 0    | 69.298  | 19.257  | -2.729 | 2.876  | 113.969  | 59.639  | 65.244  | 82.029   | 87.915   |
| 926 | 0.75 | 40.079  | 11.138  | -1.364 | 1.418  | 65.915   | 34.707  | 37.189  | 47.667   | 50.589   |

|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 926 | 1.5  | 4.743   | 1.400   | 0.000  | -0.041 | 7.932    | 4.268   | 4.228   | 5.862    | 5.819    |
| 926 | 2.25 | -38.032 | -10.681 | 1.365  | -1.499 | -62.729  | -32.864 | -35.728 | -45.230  | -48.237  |
| 926 | 3    | -86.925 | -24.380 | 2.729  | -2.957 | -143.319 | -75.503 | -81.190 | -103.765 | -109.736 |
| 927 | 0    | -84.925 | -23.901 | 3.083  | -3.209 | -140.151 | -73.350 | -79.641 | -100.992 | -107.598 |
| 927 | 0.75 | -36.829 | -10.339 | 1.539  | -1.581 | -60.737  | -31.607 | -34.727 | -43.568  | -46.844  |
| 927 | 1.5  | 5.150   | 1.605   | -0.005 | 0.047  | 8.748    | 4.630   | 4.681   | 6.413    | 6.467    |
| 927 | 2.25 | 39.690  | 11.205  | -1.549 | 1.674  | 65.555   | 34.172  | 37.395  | 47.107   | 50.491   |
| 927 | 3    | 68.112  | 19.187  | -3.093 | 3.302  | 112.433  | 58.208  | 64.603  | 80.358   | 87.072   |
| 928 | 0    | 68.242  | 19.202  | -3.160 | 3.381  | 112.614  | 58.257  | 64.799  | 80.433   | 87.301   |
| 928 | 0.75 | 40.951  | 11.600  | -1.601 | 1.705  | 67.701   | 35.255  | 38.561  | 48.625   | 52.097   |
| 928 | 1.5  | 7.542   | 2.379   | -0.042 | 0.029  | 12.858   | 6.746   | 6.817   | 9.374    | 9.449    |
| 928 | 2.25 | -33.305 | -9.185  | 1.517  | -1.647 | -54.662  | -28.457 | -31.621 | -39.164  | -42.486  |
| 928 | 3    | -80.270 | -22.368 | 3.076  | -3.322 | -132.112 | -69.167 | -75.565 | -95.145  | -101.864 |
| 929 | 0    | -53.351 | -14.271 | 3.020  | -3.210 | -86.855  | -44.995 | -51.226 | -61.838  | -68.380  |
| 929 | 0.56 | -26.850 | -7.260  | 1.522  | -1.615 | -43.835  | -22.643 | -25.780 | -31.168  | -34.462  |
| 929 | 1.13 | -3.497  | -0.996  | 0.023  | -0.020 | -5.790   | -3.124  | -3.168  | -4.275   | -4.321   |
| 929 | 1.69 | 16.112  | 4.191   | -1.476 | 1.574  | 26.041   | 13.025  | 16.076  | 18.009   | 21.212   |
| 929 | 2.25 | 32.574  | 8.630   | -2.974 | 3.169  | 52.897   | 26.342  | 32.486  | 36.517   | 42.967   |
| 930 | 0    | 33.432  | 8.742   | -3.000 | 3.199  | 54.106   | 27.089  | 33.288  | 37.461   | 43.970   |
| 930 | 0.56 | 16.458  | 3.785   | -1.496 | 1.590  | 25.806   | 13.316  | 16.403  | 18.095   | 21.336   |
| 930 | 1.13 | -3.664  | -1.920  | 0.007  | -0.018 | -7.469   | -3.290  | -3.315  | -5.049   | -5.075   |
| 930 | 1.69 | -27.530 | -8.701  | 1.511  | -1.626 | -46.958  | -23.265 | -26.402 | -32.801  | -36.095  |
| 930 | 2.25 | -54.543 | -16.231 | 3.015  | -3.234 | -91.421  | -46.074 | -52.323 | -64.330  | -70.891  |
| 931 | 0    | -86.867 | -29.647 | 2.650  | -2.809 | -151.676 | -75.531 | -80.989 | -107.106 | -112.838 |
| 931 | 0.75 | -34.109 | -11.664 | 1.314  | -1.391 | -59.593  | -29.384 | -32.089 | -41.783  | -44.623  |
| 931 | 1.5  | 11.712  | 4.251   | -0.022 | 0.027  | 20.856   | 10.519  | 10.568  | 14.952   | 15.004   |
| 931 | 2.25 | 48.092  | 16.718  | -1.359 | 1.445  | 84.458   | 41.924  | 44.727  | 59.602   | 62.546   |
| 931 | 3    | 77.534  | 27.116  | -2.695 | 2.863  | 136.427  | 67.086  | 72.644  | 95.665   | 101.500  |
| 932 | 0    | 77.534  | 27.116  | -2.695 | 2.863  | 136.427  | 67.086  | 72.644  | 95.665   | 101.500  |
| 932 | 0.75 | 48.092  | 16.718  | -1.359 | 1.445  | 84.459   | 41.924  | 44.728  | 59.602   | 62.546   |
| 932 | 1.5  | 11.712  | 4.251   | -0.022 | 0.027  | 20.856   | 10.519  | 10.568  | 14.952   | 15.004   |
| 932 | 2.25 | -34.109 | -11.664 | 1.314  | -1.391 | -59.593  | -29.384 | -32.089 | -41.783  | -44.623  |
| 932 | 3    | -86.867 | -29.647 | 2.650  | -2.809 | -151.676 | -75.531 | -80.989 | -107.106 | -112.838 |
| 933 | 0    | -54.543 | -16.231 | 3.015  | -3.234 | -91.422  | -46.074 | -52.323 | -64.330  | -70.892  |
| 933 | 0.56 | -27.530 | -8.701  | 1.511  | -1.626 | -46.958  | -23.265 | -26.403 | -32.801  | -36.095  |
| 933 | 1.13 | -3.664  | -1.920  | 0.007  | -0.018 | -7.468   | -3.290  | -3.315  | -5.049   | -5.075   |
| 933 | 1.69 | 16.458  | 3.785   | -1.496 | 1.590  | 25.807   | 13.316  | 16.403  | 18.095   | 21.336   |
| 933 | 2.25 | 33.433  | 8.743   | -3.000 | 3.199  | 54.107   | 27.089  | 33.288  | 37.462   | 43.970   |
| 934 | 0    | 32.574  | 8.630   | -2.974 | 3.169  | 52.898   | 26.342  | 32.486  | 36.517   | 42.968   |
| 934 | 0.56 | 16.113  | 4.191   | -1.476 | 1.574  | 26.041   | 13.026  | 16.076  | 18.009   | 21.212   |
| 934 | 1.13 | -3.497  | -0.996  | 0.023  | -0.020 | -5.790   | -3.124  | -3.167  | -4.275   | -4.321   |
| 934 | 1.69 | -26.850 | -7.260  | 1.522  | -1.615 | -43.835  | -22.643 | -25.780 | -31.168  | -34.462  |
| 934 | 2.25 | -53.351 | -14.271 | 3.020  | -3.210 | -86.855  | -44.995 | -51.226 | -61.838  | -68.380  |
| 935 | 0    | -80.270 | -22.368 | 3.076  | -3.322 | -132.113 | -69.167 | -75.565 | -95.145  | -101.864 |
| 935 | 0.75 | -33.305 | -9.185  | 1.517  | -1.647 | -54.662  | -28.457 | -31.621 | -39.164  | -42.486  |
| 935 | 1.5  | 7.542   | 2.379   | -0.042 | 0.029  | 12.858   | 6.746   | 6.817   | 9.374    | 9.449    |
| 935 | 2.25 | 40.951  | 11.600  | -1.601 | 1.705  | 67.701   | 35.255  | 38.561  | 48.625   | 52.097   |
| 935 | 3    | 68.242  | 19.202  | -3.160 | 3.381  | 112.614  | 58.257  | 64.799  | 80.433   | 87.301   |
| 936 | 0    | 68.112  | 19.187  | -3.093 | 3.302  | 112.433  | 58.208  | 64.603  | 80.358   | 87.072   |
| 936 | 0.75 | 39.690  | 11.205  | -1.549 | 1.674  | 65.555   | 34.172  | 37.395  | 47.107   | 50.491   |
| 936 | 1.5  | 5.150   | 1.605   | -0.005 | 0.047  | 8.748    | 4.630   | 4.681   | 6.413    | 6.467    |
| 936 | 2.25 | -36.829 | -10.339 | 1.539  | -1.581 | -60.737  | -31.607 | -34.727 | -43.568  | -46.844  |
| 936 | 3    | -84.925 | -23.901 | 3.083  | -3.209 | -140.151 | -73.350 | -79.641 | -100.992 | -107.598 |
| 937 | 0    | -86.925 | -24.381 | 2.729  | -2.957 | -143.319 | -75.503 | -81.190 | -103.766 | -109.736 |
| 937 | 0.75 | -38.032 | -10.681 | 1.365  | -1.499 | -62.729  | -32.864 | -35.728 | -45.230  | -48.237  |
| 937 | 1.5  | 4.743   | 1.400   | 0.000  | -0.041 | 7.932    | 4.268   | 4.228   | 5.862    | 5.819    |
| 937 | 2.25 | 40.079  | 11.138  | -1.364 | 1.418  | 65.915   | 34.707  | 37.489  | 47.667   | 50.589   |
| 937 | 3    | 69.298  | 19.257  | -2.729 | 2.876  | 113.969  | 59.639  | 65.244  | 82.029   | 87.915   |
| 938 | 0    | 69.610  | 19.307  | -2.601 | 2.713  | 114.423  | 60.048  | 65.362  | 82.522   | 88.103   |
| 938 | 0.75 | 41.770  | 11.684  | -1.221 | 1.284  | 68.818   | 36.372  | 38.877  | 49.937   | 52.568   |
| 938 | 1.5  | 7.812   | 2.443   | 0.159  | -0.145 | 13.283   | 7.190   | 6.886   | 9.908    | 9.589    |
| 938 | 2.25 | -33.584 | -9.142  | 1.539  | -1.574 | -54.929  | -28.687 | -31.800 | -39.407  | -42.676  |
| 938 | 3    | -81.098 | -22.345 | 2.919  | -3.003 | -133.071 | -70.070 | -75.992 | -96.166  | -102.385 |
| 939 | 0    | -76.962 | -16.150 | 3.343  | -3.404 | -118.194 | -65.922 | -72.670 | -87.474  | -94.558  |
| 939 | 0.75 | -30.096 | -7.340  | 1.947  | -1.988 | -47.859  | -25.139 | -29.075 | -34.180  | -38.313  |
| 939 | 1.5  | 6.746   | 0.436   | 0.551  | -0.573 | 8.793    | 6.622   | 5.499   | 7.937    | 6.757    |
| 939 | 2.25 | 32.313  | 6.488   | -0.846 | 0.842  | 49.156   | 28.236  | 29.924  | 37.128   | 38.901   |

|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 939 | 3    | 47.856   | 11.506  | -2.242 | 2.258  | 75.836   | 40.828   | 45.328   | 55.143   | 59.868   |
| 940 | 0    | 46.414   | 11.060  | -2.236 | 2.269  | 73.393   | 39.537   | 44.042   | 53.355   | 58.086   |
| 940 | 0.75 | 33.983   | 7.147   | -1.480 | 1.512  | 52.216   | 29.104   | 32.097   | 38.631   | 41.773   |
| 940 | 1.5  | 11.528   | 2.201   | -0.725 | 0.755  | 17.356   | 9.651    | 11.131   | 12.730   | 14.284   |
| 940 | 2.25 | -22.202  | -4.469  | 0.031  | -0.002 | -33.794  | -19.951  | -19.984  | -26.095  | -26.130  |
| 940 | 3    | -65.956  | -12.174 | 0.787  | -0.759 | -98.626  | -58.574  | -60.120  | -76.097  | -77.721  |
| 941 | 0    | -13.500  | -0.322  | 0.694  | -0.717 | -16.715  | -11.455  | -12.867  | -13.649  | -15.131  |
| 941 | 0.75 | 0.227    | 0.442   | 0.210  | -0.243 | 0.980    | 0.415    | -0.038   | 0.738    | 0.262    |
| 941 | 1.5  | 6.870    | 0.623   | -0.274 | 0.232  | 9.241    | 5.909    | 6.415    | 7.318    | 7.849    |
| 941 | 2.25 | 6.361    | 0.184   | -0.759 | 0.706  | 7.927    | 4.967    | 6.431    | 5.999    | 7.536    |
| 941 | 3    | -1.232   | -0.839  | -1.243 | 1.180  | -2.821   | -2.352   | 0.072    | -3.127   | -0.583   |
| 942 | 0    | -0.980   | -0.809  | -1.401 | 1.294  | -2.469   | -2.282   | 0.412    | -3.009   | -0.180   |
| 942 | 0.75 | 5.305    | 0.076   | -0.630 | 0.593  | 6.487    | 4.144    | 5.368    | 4.956    | 6.241    |
| 942 | 1.5  | 4.506    | 0.377   | 0.140  | -0.107 | 6.010    | 4.196    | 3.948    | 5.116    | 4.856    |
| 942 | 2.25 | -3.445   | 0.057   | 0.911  | -0.808 | -4.043   | -2.190   | -3.909   | -2.625   | -4.430   |
| 942 | 3    | -18.481  | -0.845  | 1.682  | -1.508 | -23.529  | -14.951  | -18.141  | -18.172  | -21.521  |
| 943 | 0    | -18.305  | -0.820  | 1.331  | -1.235 | -23.278  | -15.144  | -17.710  | -18.340  | -21.034  |
| 943 | 0.75 | -3.248   | 0.092   | 0.646  | -0.599 | -3.749   | -2.277   | -3.522   | -2.674   | -3.981   |
| 943 | 1.5  | 4.726    | 0.421   | -0.040 | 0.037  | 6.345    | 4.213    | 4.290    | 5.186    | 5.267    |
| 943 | 2.25 | 5.547    | 0.130   | -0.725 | 0.673  | 6.865    | 4.268    | 5.666    | 5.145    | 6.614    |
| 943 | 3    | -0.715   | -0.745  | -1.410 | 1.310  | -2.050   | -2.054   | 0.666    | -2.701   | 0.155    |
| 944 | 0    | -0.843   | -0.768  | -1.474 | 1.358  | -2.241   | -2.232   | 0.599    | -2.916   | 0.056    |
| 944 | 0.75 | 6.543    | 0.227   | -0.764 | 0.708  | 8.214    | 5.124    | 6.596    | 6.210    | 7.756    |
| 944 | 1.5  | 6.844    | 0.639   | -0.055 | 0.058  | 9.235    | 6.105    | 6.217    | 7.531    | 7.649    |
| 944 | 2.25 | -0.006   | 0.430   | 0.654  | -0.593 | 0.680    | 0.649    | -0.598   | 0.951    | -0.358   |
| 944 | 3    | -13.941  | -0.362  | 1.363  | -1.243 | -17.308  | -11.183  | -13.789  | -13.434  | -16.170  |
| 945 | 0    | -13.940  | -0.362  | 1.363  | -1.243 | -17.308  | -11.183  | -13.789  | -13.434  | -16.170  |
| 945 | 0.75 | -0.006   | 0.430   | 0.654  | -0.593 | 0.681    | 0.649    | -0.598   | 0.952    | -0.357   |
| 945 | 1.5  | 6.844    | 0.639   | -0.055 | 0.058  | 9.235    | 6.105    | 6.217    | 7.531    | 7.649    |
| 945 | 2.25 | 6.543    | 0.227   | -0.764 | 0.708  | 8.214    | 5.124    | 6.596    | 6.210    | 7.756    |
| 945 | 3    | -0.843   | -0.768  | -1.474 | 1.358  | -2.241   | -2.232   | 0.599    | -2.916   | 0.056    |
| 946 | 0    | -0.715   | -0.745  | -1.410 | 1.310  | -2.050   | -2.054   | 0.666    | -2.701   | 0.155    |
| 946 | 0.75 | 5.547    | 0.130   | -0.725 | 0.673  | 6.865    | 4.268    | 5.666    | 5.145    | 6.614    |
| 946 | 1.5  | 4.726    | 0.421   | -0.040 | 0.037  | 6.345    | 4.213    | 4.290    | 5.186    | 5.267    |
| 946 | 2.25 | -3.248   | 0.092   | 0.646  | -0.599 | -3.750   | -2.277   | -3.522   | -2.674   | -3.981   |
| 946 | 3    | -18.305  | -0.820  | 1.331  | -1.235 | -23.279  | -15.144  | -17.710  | -18.340  | -21.034  |
| 947 | 0    | -18.481  | -0.845  | 1.682  | -1.508 | -23.530  | -14.951  | -18.141  | -18.172  | -21.521  |
| 947 | 0.75 | -3.446   | 0.057   | 0.911  | -0.808 | -4.043   | -2.190   | -3.909   | -2.625   | -4.430   |
| 947 | 1.5  | 4.506    | 0.377   | 0.140  | -0.107 | 6.010    | 4.196    | 3.948    | 5.116    | 4.856    |
| 947 | 2.25 | 5.305    | 0.076   | -0.630 | 0.593  | 6.487    | 4.144    | 5.368    | 4.956    | 6.241    |
| 947 | 3    | -0.980   | -0.809  | -1.401 | 1.294  | -2.469   | -2.282   | 0.412    | -3.009   | -0.180   |
| 949 | 0    | -1.232   | -0.839  | -1.243 | 1.180  | -2.821   | -2.352   | 0.072    | -3.127   | -0.583   |
| 949 | 0.75 | 6.361    | 0.184   | -0.759 | 0.706  | 7.927    | 4.967    | 6.431    | 5.999    | 7.536    |
| 949 | 1.5  | 6.870    | 0.623   | -0.274 | 0.232  | 9.241    | 5.909    | 6.415    | 7.318    | 7.849    |
| 949 | 2.25 | 0.227    | 0.442   | 0.210  | -0.243 | 0.980    | 0.415    | -0.038   | 0.738    | 0.262    |
| 949 | 3    | -13.500  | -0.322  | 0.694  | -0.717 | -16.715  | -11.455  | -12.867  | -13.649  | -15.131  |
| 950 | 0    | -134.179 | -39.635 | -0.082 | -0.101 | -224.431 | -120.844 | -120.862 | -165.945 | -165.964 |
| 950 | 0.75 | -58.526  | -18.193 | -0.095 | -0.109 | -99.339  | -52.768  | -52.782  | -73.013  | -73.028  |
| 950 | 1.5  | 5.226    | 1.181   | -0.108 | -0.118 | 8.162    | 4.596    | 4.586    | 6.119    | 6.108    |
| 950 | 2.25 | 54.572   | 17.108  | -0.120 | -0.126 | 92.859   | 48.994   | 48.988   | 67.952   | 67.946   |
| 950 | 3    | 92.016   | 30.966  | -0.133 | -0.135 | 159.964  | 82.681   | 82.679   | 115.985  | 115.983  |
| 951 | 0    | 91.689   | 30.902  | -0.144 | -0.147 | 159.470  | 82.376   | 82.374   | 115.591  | 115.588  |
| 951 | 0.75 | 56.574   | 17.575  | -0.049 | -0.046 | 96.009   | 50.868   | 50.871   | 70.423   | 70.427   |
| 951 | 1.5  | 9.558    | 2.179   | 0.045  | 0.054  | 14.956   | 8.647    | 8.656    | 11.456   | 11.465   |
| 951 | 2.25 | -51.865  | -16.664 | 0.140  | 0.154  | -88.900  | -46.539  | -46.525  | -64.810  | -64.795  |
| 951 | 3    | -125.190 | -37.575 | 0.235  | 0.254  | -210.349 | -112.436 | -112.417 | -154.876 | -154.855 |
| 952 | 0    | -128.642 | -38.690 | 0.114  | 0.099  | -216.275 | -115.663 | -115.678 | -159.329 | -159.345 |
| 952 | 0.75 | -53.730  | -17.250 | 0.052  | 0.041  | -92.076  | -48.304  | -48.316  | -67.229  | -67.241  |
| 952 | 1.5  | 9.281    | 2.122   | -0.010 | -0.018 | 14.531   | 8.343    | 8.335    | 11.071   | 11.063   |
| 952 | 2.25 | 57.885   | 18.046  | -0.072 | -0.076 | 98.335   | 52.025   | 52.020   | 72.072   | 72.068   |
| 952 | 3    | 94.587   | 31.901  | -0.134 | -0.135 | 164.546  | 84.995   | 84.994   | 119.274  | 119.273  |
| 953 | 0    | 94.528   | 31.869  | -0.138 | -0.139 | 164.424  | 84.937   | 84.936   | 119.187  | 119.186  |
| 953 | 0.75 | 60.025   | 18.829  | -0.065 | -0.064 | 102.156  | 53.958   | 53.959   | 74.820   | 74.822   |
| 953 | 1.5  | 13.621   | 3.719   | 0.008  | 0.011  | 22.296   | 12.267   | 12.270   | 16.654   | 16.657   |
| 953 | 2.25 | -47.189  | -14.838 | 0.081  | 0.085  | -80.367  | -42.390  | -42.385  | -58.812  | -58.807  |
| 953 | 3    | -119.901 | -35.463 | 0.154  | 0.160  | -200.623 | -107.758 | -107.751 | -148.077 | -148.070 |
| 954 | 0    | -77.345  | -21.961 | 0.155  | 0.041  | -127.952 | -69.456  | -69.569  | -94.885  | -95.005  |



|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 954 | 0.56 | -36.090  | -11.082 | 0.073  | 0.019  | -61.039  | -32.408  | -32.461  | -44.799  | -44.856  |
| 954 | 1.13 | -1.001   | -1.075  | -0.009 | -0.003 | -2.921   | -0.910   | -0.903   | -1.737   | -1.731   |
| 954 | 1.69 | 26.865   | 7.477   | -0.091 | -0.024 | 44.201   | 24.088   | 24.154   | 32.824   | 32.893   |
| 954 | 2.25 | 48.564   | 15.157  | -0.172 | -0.046 | 82.528   | 43.536   | 43.662   | 60.360   | 60.493   |
| 955 | 0    | 48.253   | 14.986  | -0.169 | -0.053 | 81.881   | 43.259   | 43.375   | 59.930   | 60.052   |
| 955 | 0.56 | 27.043   | 7.509   | -0.133 | 0.030  | 44.466   | 24.206   | 24.369   | 32.986   | 33.157   |
| 955 | 1.13 | -0.334   | -0.840  | -0.097 | 0.113  | -1.745   | -0.398   | -0.188   | -0.982   | -0.762   |
| 955 | 1.69 | -34.934  | -10.644 | -0.061 | 0.195  | -58.951  | -31.501  | -31.245  | -43.450  | -43.181  |
| 955 | 2.25 | -75.700  | -21.321 | -0.025 | 0.278  | -124.953 | -68.155  | -67.852  | -92.944  | -92.625  |
| 956 | 0    | -112.502 | -31.390 | -0.716 | 0.970  | -185.226 | -101.968 | -100.282 | -138.654 | -136.884 |
| 956 | 0.75 | -43.953  | -13.090 | -0.319 | 0.443  | -73.688  | -39.877  | -39.115  | -54.733  | -53.933  |
| 956 | 1.5  | 12.694   | 3.141   | 0.077  | -0.085 | 20.259   | 11.502   | 11.340   | 15.389   | 15.219   |
| 956 | 2.25 | 54.935   | 15.925  | 0.474  | -0.612 | 91.402   | 49.915   | 48.829   | 68.212   | 67.072   |
| 956 | 3    | 85.274   | 26.640  | 0.871  | -1.139 | 144.953  | 77.617   | 75.507   | 107.235  | 105.125  |
| 957 | 0    | 85.272   | 26.640  | 0.871  | -1.139 | 144.950  | 77.616   | 75.606   | 107.233  | 105.123  |
| 957 | 0.75 | 54.934   | 15.925  | 0.474  | -0.612 | 91.401   | 49.915   | 43.829   | 68.211   | 67.071   |
| 957 | 1.5  | 12.694   | 3.141   | 0.077  | -0.085 | 20.259   | 11.502   | 11.340   | 15.389   | 15.219   |
| 957 | 2.25 | -43.952  | -13.090 | -0.319 | 0.443  | -73.686  | -39.876  | -39.114  | -54.731  | -53.932  |
| 957 | 3    | -112.500 | -31.389 | -0.716 | 0.970  | -185.223 | -101.966 | -100.280 | -138.652 | -136.882 |
| 958 | 0    | -75.703  | -21.323 | -0.025 | 0.278  | -124.961 | -68.158  | -67.855  | -92.949  | -92.630  |
| 958 | 0.56 | -34.938  | -10.647 | -0.061 | 0.195  | -58.960  | -31.505  | -31.249  | -43.456  | -43.187  |
| 958 | 1.13 | -0.339   | -0.843  | -0.097 | 0.113  | -1.755   | -0.402   | -0.192   | -0.988   | -0.768   |
| 958 | 1.69 | 27.038   | 7.506   | -0.133 | 0.030  | 44.455   | 24.201   | 24.364   | 32.979   | 33.150   |
| 958 | 2.25 | 48.247   | 14.983  | -0.169 | -0.053 | 81.869   | 43.254   | 43.370   | 59.922   | 60.044   |
| 959 | 0    | 48.560   | 15.154  | -0.172 | -0.046 | 82.519   | 43.532   | 43.658   | 60.354   | 60.487   |
| 959 | 0.56 | 26.863   | 7.476   | -0.091 | -0.024 | 44.198   | 24.086   | 24.153   | 32.821   | 32.891   |
| 959 | 1.13 | -1.000   | -1.075  | -0.009 | -0.003 | -2.920   | -0.909   | -0.903   | -1.736   | -1.730   |
| 959 | 1.69 | -36.086  | -11.080 | 0.073  | 0.019  | -61.032  | -32.405  | -32.458  | -44.794  | -44.851  |
| 959 | 2.25 | -77.339  | -21.958 | 0.155  | 0.041  | -127.940 | -69.450  | -69.564  | -94.877  | -94.996  |
| 960 | 0    | -119.900 | -35.462 | 0.154  | 0.160  | -200.620 | -107.756 | -107.750 | -148.075 | -148.069 |
| 960 | 0.75 | -47.188  | -14.837 | 0.081  | 0.085  | -80.365  | -42.388  | -42.384  | -58.810  | -58.805  |
| 960 | 1.5  | 13.622   | 3.720   | 0.008  | 0.011  | 22.299   | 12.268   | 12.271   | 16.655   | 16.658   |
| 960 | 2.25 | 60.026   | 18.829  | -0.065 | -0.064 | 102.158  | 53.959   | 53.960   | 74.822   | 74.823   |
| 960 | 3    | 94.529   | 31.870  | -0.138 | -0.139 | 164.426  | 84.938   | 84.937   | 119.188  | 119.188  |
| 961 | 0    | 94.588   | 31.901  | -0.134 | -0.135 | 164.548  | 84.995   | 84.995   | 119.275  | 119.274  |
| 961 | 0.75 | 57.885   | 18.046  | -0.072 | -0.076 | 98.336   | 52.025   | 52.021   | 72.073   | 72.069   |
| 961 | 1.5  | 9.281    | 2.122   | -0.010 | -0.018 | 14.532   | 8.343    | 8.335    | 11.071   | 11.063   |
| 961 | 2.25 | -53.730  | -17.250 | 0.052  | 0.041  | -92.076  | -48.305  | -48.316  | -67.229  | -67.241  |
| 961 | 3    | -128.643 | -38.691 | 0.114  | 0.099  | -216.276 | -115.664 | -115.679 | -159.330 | -159.345 |
| 962 | 0    | -125.191 | -37.576 | 0.235  | 0.254  | -210.350 | -112.437 | -112.417 | -154.876 | -154.856 |
| 962 | 0.75 | -51.866  | -16.664 | 0.140  | 0.154  | -88.901  | -46.539  | -46.525  | -64.810  | -64.796  |
| 962 | 1.5  | 9.557    | 2.179   | 0.045  | 0.054  | 14.956   | 8.647    | 8.655    | 11.456   | 11.465   |
| 962 | 2.25 | 56.574   | 17.575  | -0.049 | -0.046 | 96.009   | 50.867   | 50.870   | 70.423   | 70.426   |
| 962 | 3    | 91.689   | 30.902  | -0.144 | -0.147 | 159.470  | 82.376   | 82.374   | 115.591  | 115.588  |
| 963 | 0    | 92.016   | 30.966  | -0.133 | -0.135 | 159.964  | 82.681   | 82.679   | 115.985  | 115.983  |
| 963 | 0.75 | 54.572   | 17.108  | -0.120 | -0.126 | 92.859   | 48.994   | 48.988   | 67.952   | 67.946   |
| 963 | 1.5  | 5.226    | 1.181   | -0.108 | -0.118 | 8.162    | 4.596    | 4.586    | 6.119    | 6.108    |
| 963 | 2.25 | -58.525  | -18.193 | -0.095 | -0.109 | -99.339  | -52.768  | -52.782  | -73.013  | -73.028  |
| 963 | 3    | -134.179 | -39.635 | -0.082 | -0.101 | -224.431 | -120.843 | -120.862 | -165.944 | -165.964 |
| 964 | 0    | -197.588 | -53.439 | 0.123  | 0.149  | -322.608 | -177.706 | -177.680 | -241.005 | -240.977 |
| 964 | 0.75 | -112.894 | -29.866 | 0.085  | 0.102  | -183.259 | -101.520 | -101.502 | -137.265 | -137.247 |
| 964 | 1.5  | -40.101  | -8.362  | 0.046  | 0.055  | -61.501  | -36.045  | -36.036  | -47.326  | -47.317  |
| 964 | 2.25 | 18.285   | 9.694   | 0.008  | 0.008  | 37.453   | 16.465   | 16.465   | 25.315   | 25.315   |
| 964 | 3    | 64.770   | 25.682  | -0.030 | -0.040 | 118.815  | 58.263   | 58.254   | 84.156   | 84.147   |
| 965 | 0    | 58.758   | 24.134  | -0.014 | -0.023 | 109.124  | 52.869   | 52.860   | 76.886   | 76.876   |
| 965 | 0.75 | 58.463   | 21.903  | -0.021 | -0.034 | 105.200  | 52.595   | 52.582   | 75.162   | 75.149   |
| 965 | 1.5  | 46.265   | 17.604  | -0.029 | -0.046 | 83.684   | 41.610   | 41.593   | 59.638   | 59.621   |
| 965 | 2.25 | 19.661   | 9.857   | -0.037 | -0.058 | 39.365   | 17.659   | 17.638   | 26.816   | 26.794   |
| 965 | 3    | -18.844  | 0.042   | -0.044 | -0.069 | -22.546  | -17.004  | -17.029  | -19.806  | -19.832  |
| 966 | 0    | -30.162  | -4.926  | -0.740 | 0.801  | -44.077  | -27.886  | -26.345  | -35.551  | -33.933  |
| 966 | 0.75 | -4.147   | -0.639  | -0.333 | 0.361  | -5.999   | -4.065   | -3.372   | -5.106   | -4.379   |
| 966 | 1.5  | 13.964   | 2.614   | 0.075  | -0.080 | 20.940   | 12.643   | 12.488   | 16.388   | 16.226   |
| 966 | 2.25 | 22.921   | 4.144   | 0.482  | -0.521 | 34.135   | 21.111   | 20.108   | 27.183   | 26.131   |
| 966 | 3    | 23.974   | 4.639   | 0.889  | -0.961 | 36.191   | 22.466   | 20.616   | 29.029   | 27.086   |
| 967 | 0    | 23.974   | 4.639   | 0.889  | -0.961 | 36.191   | 22.466   | 20.616   | 29.029   | 27.086   |
| 967 | 0.75 | 22.921   | 4.144   | 0.482  | -0.521 | 34.135   | 21.111   | 20.108   | 27.183   | 26.131   |
| 967 | 1.5  | 13.964   | 2.614   | 0.075  | -0.080 | 20.940   | 12.642   | 12.488   | 16.388   | 16.226   |



|     |      |          |        |         |         |          |          |          |          |          |
|-----|------|----------|--------|---------|---------|----------|----------|----------|----------|----------|
| 967 | 2.25 | -4.147   | -0.639 | -0.333  | 0.361   | -5.999   | -4.065   | -3.372   | -5.107   | -4.379   |
| 967 | 3    | -30.162  | -4.927 | -0.740  | 0.801   | -44.077  | -27.886  | -26.345  | -35.551  | -33.933  |
| 968 | 0    | -13.586  | -0.327 | -0.741  | 0.720   | -16.827  | -12.968  | -11.507  | -15.249  | -13.715  |
| 968 | 0.75 | 0.137    | 0.435  | -0.261  | 0.229   | 0.860    | -0.137   | 0.353    | 0.144    | 0.659    |
| 968 | 1.5  | 6.776    | 0.614  | 0.220   | -0.262  | 9.113    | 6.318    | 5.837    | 7.732    | 7.226    |
| 968 | 2.25 | 6.263    | 0.172  | 0.700   | -0.753  | 7.791    | 6.336    | 4.884    | 7.419    | 5.894    |
| 968 | 3    | -1.335   | -0.853 | 1.180   | -1.244  | -2.966   | -0.021   | -2.445   | -0.700   | -3.245   |
| 969 | 0    | -1.173   | -0.832 | 1.295   | -1.403  | -2.739   | 0.239    | -2.458   | -0.396   | -3.228   |
| 969 | 0.75 | 5.244    | 0.066  | 0.600   | -0.637  | 6.399    | 5.319    | 4.083    | 6.178    | 4.879    |
| 969 | 1.5  | 4.577    | 0.382  | -0.096  | 0.128   | 6.103    | 4.024    | 4.247    | 4.946    | 5.181    |
| 969 | 2.25 | -3.242   | 0.077  | -0.791  | 0.894   | -3.768   | -3.709   | -2.024   | -4.186   | -2.418   |
| 969 | 3    | -18.145  | -0.812 | -1.486  | 1.659   | -23.074  | -17.817  | -14.672  | -21.124  | -17.822  |
| 970 | 0    | -18.299  | -0.822 | -1.243  | 1.343   | -23.274  | -17.712  | -15.127  | -21.037  | -18.322  |
| 970 | 0.75 | -3.271   | 0.081  | -0.599  | 0.648   | -3.794   | -3.542   | -2.296   | -4.012   | -2.703   |
| 970 | 1.5  | 4.674    | 0.402  | 0.045   | -0.047  | 6.251    | 4.252    | 4.159    | 5.208    | 5.111    |
| 970 | 2.25 | 5.466    | 0.101  | 0.689   | -0.742  | 6.722    | 5.609    | 4.178    | 6.527    | 5.025    |
| 970 | 3    | -0.825   | -0.782 | 1.333   | -1.436  | -2.242   | 0.590    | -2.179   | 0.040    | -2.868   |
| 971 | 0    | -0.982   | -0.815 | 1.400   | -1.518  | -2.483   | 0.516    | -2.402   | -0.074   | -3.139   |
| 971 | 0.75 | 5.863    | 0.179  | 0.664   | -0.717  | 7.322    | 5.940    | 4.559    | 6.966    | 5.515    |
| 971 | 1.5  | 5.623    | 0.590  | -0.072  | 0.084   | 7.691    | 4.989    | 5.144    | 6.200    | 6.364    |
| 971 | 2.25 | -1.768   | 0.380  | -0.809  | 0.884   | -1.514   | -2.400   | -0.707   | -2.466   | -0.688   |
| 971 | 3    | -16.243  | -0.413 | -1.545  | 1.685   | -20.153  | -16.164  | -12.934  | -18.938  | -15.546  |
| 972 | 0    | -13.492  | -0.350 | -1.500  | 1.618   | -16.751  | -13.643  | -10.525  | -15.962  | -12.689  |
| 972 | 0.56 | -4.752   | -0.117 | -0.734  | 0.791   | -5.890   | -5.011   | -3.486   | -5.834   | -4.232   |
| 972 | 1.13 | 0.033    | -0.196 | 0.031   | -0.035  | -0.274   | 0.061    | -0.005   | -0.056   | -0.126   |
| 972 | 1.69 | 0.795    | -0.624 | 0.797   | -0.861  | -0.044   | 1.512    | -0.146   | 1.278    | -0.463   |
| 972 | 2.25 | -2.398   | -1.364 | 1.562   | -1.688  | -5.060   | -0.596   | -3.846   | -1.737   | -5.149   |
| 973 | 0    | -3.394   | -1.486 | 1.586   | -1.717  | -6.450   | -1.468   | -4.772   | -2.834   | -6.303   |
| 973 | 0.56 | 0.814    | -0.804 | 0.817   | -0.883  | -0.310   | 1.549    | -0.151   | 1.205    | -0.579   |
| 973 | 1.13 | 1.066    | -0.434 | 0.047   | -0.049  | 0.585    | 1.007    | 0.911    | 0.896    | 0.795    |
| 973 | 1.69 | -2.704   | -0.413 | -0.722  | 0.786   | -3.906   | -3.156   | -1.648   | -3.858   | -2.274   |
| 973 | 2.25 | -10.429  | -0.704 | -1.492  | 1.620   | -13.642  | -10.878  | -7.766   | -12.961  | -9.693   |
| 974 | 0    | -5.613   | 0.022  | -0.003  | 0.004   | -6.700   | -5.055   | -5.048   | -5.883   | -5.875   |
| 974 | 1.5  | 0.748    | 0.022  | -0.003  | 0.004   | 0.933    | 0.670    | 0.678    | 0.796    | 0.804    |
| 974 | 3    | 2.869    | 0.022  | -0.003  | 0.004   | 3.477    | 2.578    | 2.586    | 3.022    | 3.030    |
| 974 | 4.5  | 0.748    | 0.022  | -0.003  | 0.004   | 0.933    | 0.670    | 0.677    | 0.796    | 0.804    |
| 974 | 6    | -5.613   | 0.022  | -0.003  | 0.004   | -6.701   | -5.055   | -5.048   | -5.883   | -5.376   |
| 975 | 0    | -17.884  | -0.807 | -46.558 | 46.932  | -22.751  | -62.653  | 30.836   | -68.171  | 29.992   |
| 975 | 1.13 | 3.069    | -0.361 | -23.378 | 23.586  | 3.106    | -20.616  | 26.349   | -21.551  | 27.761   |
| 975 | 2.25 | 9.124    | 0.085  | -0.198  | 0.241   | 11.085   | 8.014    | 8.453    | 9.426    | 9.887    |
| 975 | 3.38 | 0.282    | 0.531  | 22.982  | -23.104 | 1.188    | 23.235   | -22.850  | 24.761   | -23.629  |
| 975 | 4.5  | -23.458  | 0.977  | 46.161  | -46.449 | -26.587  | 25.049   | -67.562  | 24.454   | -72.788  |
| 976 | 0    | -102.942 | -0.196 | -24.829 | 24.893  | -123.845 | -117.476 | -67.755  | -134.283 | -82.075  |
| 976 | 1.13 | -38.424  | -0.157 | -18.282 | 18.336  | -46.360  | -52.863  | -16.245  | -59.640  | -21.190  |
| 976 | 2.25 | 11.197   | -0.118 | -11.735 | 11.780  | 13.248   | -1.658   | 21.857   | -0.639   | 24.052   |
| 976 | 3.38 | 45.920   | -0.078 | -5.188  | 5.224   | 54.979   | 36.140   | 46.552   | 42.719   | 53.651   |
| 976 | 4.5  | 65.745   | -0.039 | 1.358   | -1.333  | 78.832   | 60.529   | 57.838   | 70.434   | 67.609   |
| 977 | 0    | 65.828   | -0.029 | -1.333  | 1.360   | 78.948   | 57.913   | 60.606   | 67.702   | 70.530   |
| 977 | 1.13 | 45.709   | -0.104 | 5.219   | -5.192  | 54.683   | 46.356   | 35.945   | 53.408   | 42.476   |
| 977 | 2.25 | 10.691   | -0.180 | 11.771  | -11.745 | 12.542   | 21.392   | -2.123   | 23.471   | -1.220   |
| 977 | 3.38 | -39.224  | -0.255 | 18.322  | -18.297 | -47.477  | -16.980  | -53.599  | -22.108  | -60.558  |
| 977 | 4.5  | -104.037 | -0.330 | 24.874  | -24.849 | -125.373 | -68.759  | -118.483 | -83.329  | -135.539 |
| 978 | 0    | -21.444  | 1.224  | -46.412 | 46.197  | -23.774  | -65.711  | 26.898   | -70.477  | 26.762   |
| 978 | 1.13 | 1.285    | 0.654  | -23.085 | 22.999  | 2.588    | -21.929  | 24.156   | -22.479  | 25.910   |
| 978 | 2.25 | 9.115    | 0.084  | 0.241   | -0.198  | 11.073   | 8.445    | 8.006    | 9.877    | 9.416    |
| 978 | 3.38 | 2.048    | -0.486 | 23.567  | -23.396 | 1.681    | 25.411   | -21.552  | 26.591   | -22.721  |
| 978 | 4.5  | -19.916  | -1.056 | 46.894  | -46.593 | -25.588  | 28.969   | -64.518  | 27.662   | -70.500  |
| 979 | 0    | -19.916  | -1.056 | 46.894  | -46.593 | -25.589  | 28.969   | -64.518  | 27.662   | -70.500  |
| 979 | 1.13 | 2.048    | -0.486 | 23.567  | -23.396 | 1.681    | 25.411   | -21.552  | 26.591   | -22.721  |
| 979 | 2.25 | 9.115    | 0.084  | 0.241   | -0.198  | 11.073   | 8.445    | 8.006    | 9.877    | 9.416    |
| 979 | 3.38 | 1.285    | 0.654  | -23.085 | 22.999  | 2.588    | -21.929  | 24.156   | -22.479  | 25.910   |
| 979 | 4.5  | -21.444  | 1.224  | -46.412 | 46.197  | -23.774  | -65.711  | 26.898   | -70.477  | 26.762   |
| 980 | 0    | -104.037 | -0.330 | 24.874  | -24.849 | -125.373 | -68.759  | -118.483 | -83.329  | -135.539 |
| 980 | 1.13 | -39.224  | -0.255 | 18.322  | -18.297 | -47.477  | -16.980  | -53.599  | -22.108  | -60.558  |
| 980 | 2.25 | 10.691   | -0.180 | 11.771  | -11.745 | 12.542   | 21.392   | -2.123   | 23.471   | -1.220   |
| 980 | 3.38 | 45.709   | -0.104 | 5.219   | -5.192  | 54.683   | 46.356   | 35.945   | 53.408   | 42.476   |
| 980 | 4.5  | 65.828   | -0.029 | -1.333  | 1.360   | 78.948   | 57.913   | 60.606   | 67.702   | 70.530   |

|     |      |          |        |         |         |          |          |         |          |         |
|-----|------|----------|--------|---------|---------|----------|----------|---------|----------|---------|
| 981 | 0    | 65.745   | -0.039 | 1.358   | -1.333  | 78.832   | 60.529   | 57.838  | 70.434   | 67.609  |
| 981 | 1.13 | 45.920   | -0.078 | -5.188  | 5.224   | 54.979   | 36.140   | 46.552  | 42.719   | 53.651  |
| 981 | 2.25 | 11.197   | -0.118 | -11.735 | 11.780  | 13.248   | -1.658   | 21.857  | -0.639   | 24.052  |
| 981 | 3.38 | -38.424  | -0.157 | -18.282 | 18.336  | -46.360  | -52.863  | -16.245 | -59.640  | -21.190 |
| 981 | 4.5  | -102.942 | -0.196 | -24.829 | 24.893  | -123.844 | -117.476 | -67.755 | -134.283 | -82.075 |
| 983 | 0    | -23.458  | 0.977  | 46.161  | -46.449 | -26.587  | 25.049   | -67.562 | 24.454   | -72.788 |
| 983 | 1.13 | 0.282    | 0.531  | 22.982  | -23.104 | 1.188    | 23.235   | -22.850 | 24.761   | -23.629 |
| 983 | 2.25 | 9.124    | 0.085  | -0.198  | 0.241   | 11.085   | 8.014    | 8.453   | 9.426    | 9.887   |
| 983 | 3.38 | 3.069    | -0.361 | -23.378 | 23.586  | 3.106    | -20.615  | 26.349  | -21.551  | 27.761  |
| 983 | 4.5  | -17.883  | -0.807 | -46.558 | 46.932  | -22.751  | -62.653  | 30.836  | -68.171  | 29.992  |

## GESER BALOK

| BTG | STA  | VD      | VL     | VE KA  | VE KI | 1,2.VD+<br>1,6.VL | 0,9.VD+<br>VE KA | 0,9.VD+<br>VE KI | 1,05(VD+<br>0,6.VL+VE KA) | 1,05(VD+<br>0,6.VL+VE KI) |
|-----|------|---------|--------|--------|-------|-------------------|------------------|------------------|---------------------------|---------------------------|
| 41  | 0    | -52.638 | -0.152 | -5.929 | 5.994 | -63.408           | -53.303          | -41.380          | -61.590                   | -49.072                   |
| 41  | 2.25 | -26.153 | -0.152 | -5.929 | 5.994 | -31.627           | -29.466          | -17.544          | -33.781                   | -21.263                   |
| 41  | 4.5  | 0.332   | -0.152 | -5.929 | 5.994 | 0.155             | -5.630           | 6.292            | -5.972                    | 6.546                     |
| 41  | 6.75 | 26.816  | -0.152 | -5.929 | 5.994 | 31.937            | 18.206           | 30.128           | 21.837                    | 34.355                    |
| 41  | 9    | 53.301  | -0.152 | -5.929 | 5.994 | 63.718            | 42.042           | 53.965           | 49.646                    | 62.164                    |
| 42  | 0    | -52.881 | 0.202  | -5.991 | 5.931 | -63.133           | -53.584          | -41.662          | -61.688                   | -49.170                   |
| 42  | 2.25 | -26.396 | 0.202  | -5.991 | 5.931 | -31.352           | -29.748          | -17.826          | -33.879                   | -21.361                   |
| 42  | 4.5  | 0.089   | 0.202  | -5.991 | 5.931 | 0.430             | -5.912           | 6.010            | -6.070                    | 6.448                     |
| 42  | 6.75 | 26.573  | 0.202  | -5.991 | 5.931 | 32.212            | 17.925           | 29.847           | 21.739                    | 34.257                    |
| 42  | 9    | 53.058  | 0.202  | -5.991 | 5.931 | 63.993            | 41.761           | 53.683           | 49.548                    | 62.066                    |
| 43  | 0    | -52.419 | -0.140 | -6.450 | 6.531 | -63.126           | -53.627          | -40.646          | -61.900                   | -48.270                   |
| 43  | 2.25 | -25.934 | -0.140 | -6.450 | 6.531 | -31.345           | -29.791          | -16.810          | -34.091                   | -20.461                   |
| 43  | 4.5  | 0.550   | -0.140 | -6.450 | 6.531 | 0.437             | -5.955           | 7.027            | -6.282                    | 7.348                     |
| 43  | 6.75 | 27.035  | -0.140 | -6.450 | 6.531 | 32.219            | 17.882           | 30.863           | 21.527                    | 35.157                    |
| 43  | 9    | 53.520  | -0.140 | -6.450 | 6.531 | 64.000            | 41.718           | 54.699           | 49.335                    | 62.966                    |
| 44  | 0    | -14.563 | -5.421 | -0.223 | 0.110 | -26.150           | -13.330          | -12.997          | -18.941                   | -18.591                   |
| 44  | 0.64 | -11.561 | -4.428 | -0.223 | 0.110 | -20.958           | -10.627          | -10.294          | -15.162                   | -14.813                   |
| 44  | 1.27 | -4.952  | -1.450 | -0.223 | 0.110 | -8.262            | -4.679           | -4.346           | -6.346                    | -5.997                    |
| 44  | 1.91 | 1.657   | 1.529  | -0.223 | 0.110 | 4.435             | 1.269            | 1.602            | 2.470                     | 2.819                     |
| 44  | 2.55 | 4.660   | 2.522  | -0.223 | 0.110 | 9.627             | 3.971            | 4.304            | 6.248                     | 6.597                     |
| 45  | 0    | -43.441 | 0.000  | 0.000  | 0.000 | -52.129           | -39.097          | -39.097          | -45.613                   | -45.613                   |
| 45  | 1.5  | -21.721 | 0.000  | 0.000  | 0.000 | -26.065           | -19.549          | -19.549          | -22.807                   | -22.807                   |
| 45  | 3    | 0.000   | 0.000  | 0.000  | 0.000 | 0.000             | 0.000            | 0.000            | 0.000                     | 0.000                     |
| 45  | 4.5  | 21.721  | 0.000  | 0.000  | 0.000 | 26.065            | 19.548           | 19.548           | 22.807                    | 22.807                    |
| 45  | 6    | 43.441  | 0.000  | 0.000  | 0.000 | 52.129            | 39.097           | 39.097           | 45.613                    | 45.613                    |
| 46  | 0    | -52.735 | 0.226  | -6.531 | 6.450 | -62.919           | -53.992          | -41.011          | -62.086                   | -48.457                   |
| 46  | 2.25 | -26.250 | 0.226  | -6.531 | 6.450 | -31.138           | -30.156          | -17.175          | -34.277                   | -20.648                   |
| 46  | 4.5  | 0.235   | 0.226  | -6.531 | 6.450 | 0.644             | -6.320           | 6.661            | -6.468                    | 7.161                     |
| 46  | 6.75 | 26.720  | 0.226  | -6.531 | 6.450 | 32.426            | 17.517           | 30.497           | 21.341                    | 34.970                    |
| 46  | 9    | 53.204  | 0.226  | -6.531 | 6.450 | 64.207            | 41.353           | 54.334           | 49.150                    | 62.779                    |
| 47  | 0    | -52.419 | -0.131 | -6.832 | 6.916 | -63.112           | -54.009          | -40.261          | -62.296                   | -47.861                   |
| 47  | 2.25 | -25.934 | -0.131 | -6.832 | 6.916 | -31.330           | -30.172          | -16.425          | -34.487                   | -20.052                   |
| 47  | 4.5  | 0.551   | -0.131 | -6.832 | 6.916 | 0.451             | -6.336           | 7.411            | -6.678                    | 7.757                     |
| 47  | 6.75 | 27.036  | -0.131 | -6.832 | 6.916 | 32.233            | 17.500           | 31.248           | 21.131                    | 35.566                    |
| 47  | 9    | 53.520  | -0.131 | -6.832 | 6.916 | 64.015            | 41.336           | 55.084           | 48.940                    | 63.375                    |
| 48  | 0    | -52.745 | 0.196  | -6.921 | 6.827 | -62.980           | -54.392          | -40.643          | -62.526                   | -48.090                   |
| 48  | 2.25 | -26.260 | 0.196  | -6.921 | 6.827 | -31.198           | -30.556          | -16.807          | -34.717                   | -20.281                   |
| 48  | 4.5  | 0.224   | 0.196  | -6.921 | 6.827 | 0.583             | -6.719           | 7.029            | -6.908                    | 7.528                     |
| 48  | 6.75 | 26.709  | 0.196  | -6.921 | 6.827 | 32.365            | 17.117           | 30.866           | 20.901                    | 35.337                    |
| 48  | 9    | 53.194  | 0.196  | -6.921 | 6.827 | 64.147            | 40.953           | 54.702           | 48.710                    | 63.146                    |
| 49  | 0    | -52.699 | -0.145 | -6.940 | 7.026 | -63.471           | -54.369          | -40.403          | -62.712                   | -48.048                   |
| 49  | 2.25 | -26.215 | -0.145 | -6.940 | 7.026 | -31.689           | -30.533          | -16.567          | -34.903                   | -20.239                   |
| 49  | 4.5  | 0.270   | -0.145 | -6.940 | 7.026 | 0.093             | -6.697           | 7.269            | -7.094                    | 7.570                     |
| 49  | 6.75 | 26.755  | -0.145 | -6.940 | 7.026 | 31.874            | 17.140           | 31.105           | 20.715                    | 35.379                    |
| 49  | 9    | 53.239  | -0.145 | -6.940 | 7.026 | 63.656            | 40.976           | 54.942           | 48.524                    | 63.188                    |
| 50  | 0    | -53.408 | 0.071  | -7.039 | 6.943 | -63.976           | -55.106          | -41.124          | -63.424                   | -48.744                   |
| 50  | 2.25 | -26.923 | 0.071  | -7.039 | 6.943 | -32.194           | -31.270          | -17.288          | -35.615                   | -20.935                   |
| 50  | 4.5  | -0.439  | 0.071  | -7.039 | 6.943 | -0.412            | -7.434           | 6.548            | -7.807                    | 6.874                     |
| 50  | 6.75 | 26.046  | 0.071  | -7.039 | 6.943 | 31.369            | 16.403           | 30.384           | 20.002                    | 34.683                    |
| 50  | 9    | 52.531  | 0.071  | -7.039 | 6.943 | 63.151            | 40.239           | 54.221           | 47.811                    | 62.492                    |
| 51  | 0    | -52.699 | -0.145 | -6.940 | 7.026 | -63.471           | -54.369          | -40.403          | -62.712                   | -48.048                   |
| 51  | 2.25 | -26.215 | -0.145 | -6.940 | 7.026 | -31.689           | -30.533          | -16.567          | -34.903                   | -20.239                   |
| 51  | 4.5  | 0.270   | -0.145 | -6.940 | 7.026 | 0.093             | -6.697           | 7.269            | -7.094                    | 7.570                     |
| 51  | 6.75 | 26.755  | -0.145 | -6.940 | 7.026 | 31.874            | 17.139           | 31.105           | 20.715                    | 35.379                    |
| 51  | 9    | 53.239  | -0.145 | -6.940 | 7.026 | 63.656            | 40.976           | 54.942           | 48.524                    | 63.188                    |
| 52  | 0    | -53.408 | 0.071  | -7.039 | 6.943 | -63.976           | -55.107          | -41.125          | -63.425                   | -48.744                   |
| 52  | 2.25 | -26.924 | 0.071  | -7.039 | 6.943 | -32.195           | -31.270          | -17.288          | -35.616                   | -20.935                   |
| 52  | 4.5  | -0.439  | 0.071  | -7.039 | 6.943 | -0.413            | -7.434           | 6.548            | -7.807                    | 6.874                     |
| 52  | 6.75 | 26.046  | 0.071  | -7.039 | 6.943 | 31.369            | 16.402           | 30.384           | 20.002                    | 34.683                    |
| 52  | 9    | 52.530  | 0.071  | -7.039 | 6.943 | 63.150            | 40.238           | 54.220           | 47.811                    | 62.492                    |
| 53  | 0    | -52.419 | -0.131 | -6.832 | 6.916 | -63.112           | -54.009          | -40.261          | -62.296                   | -47.861                   |
| 53  | 2.25 | -25.934 | -0.131 | -6.832 | 6.916 | -31.330           | -30.172          | -16.425          | -34.487                   | -20.052                   |

|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 53  | 4.5  | 0.551   | -0.131  | -6.832 | 6.916  | 0.451   | -6.336  | 7.412   | -6.678  | 7.757   |
| 53  | 6.75 | 27.036  | -0.131  | -6.832 | 6.916  | 32.233  | 17.500  | 31.248  | 21.131  | 35.566  |
| 53  | 9    | 53.520  | -0.131  | -6.832 | 6.916  | 64.015  | 41.336  | 55.084  | 48.940  | 63.375  |
| 54  | 0    | -52.745 | 0.196   | -6.921 | 6.827  | -62.980 | -54.392 | -40.643 | -62.526 | -48.090 |
| 54  | 2.25 | -26.260 | 0.196   | -6.921 | 6.827  | -31.198 | -30.556 | -15.807 | -34.717 | -20.281 |
| 54  | 4.5  | 0.224   | 0.196   | -6.921 | 6.827  | 0.583   | -6.719  | 7.029   | -6.908  | 7.528   |
| 54  | 6.75 | 26.709  | 0.196   | -6.921 | 6.827  | 32.365  | 17.117  | 30.865  | 20.901  | 35.337  |
| 54  | 9    | 53.194  | 0.196   | -6.921 | 6.827  | 64.147  | 40.953  | 54.702  | 48.710  | 63.146  |
| 55  | 0    | -52.419 | -0.140  | -6.450 | 6.531  | -63.126 | -53.627 | -40.646 | -61.900 | -48.270 |
| 55  | 2.25 | -25.934 | -0.140  | -6.450 | 6.531  | -31.345 | -29.791 | -16.810 | -34.091 | -20.461 |
| 55  | 4.5  | 0.550   | -0.140  | -6.450 | 6.531  | 0.437   | -5.954  | 7.027   | -6.282  | 7.348   |
| 55  | 6.75 | 27.035  | -0.140  | -6.450 | 6.531  | 32.219  | 17.882  | 30.863  | 21.527  | 35.157  |
| 55  | 9    | 53.520  | -0.140  | -6.450 | 6.531  | 64.000  | 41.718  | 54.699  | 49.336  | 62.966  |
| 56  | 0    | -52.735 | 0.226   | -6.531 | 6.450  | -62.919 | -53.992 | -41.011 | -62.086 | -48.457 |
| 56  | 2.25 | -26.250 | 0.226   | -6.531 | 6.450  | -31.138 | -30.156 | -17.175 | -34.277 | -20.648 |
| 56  | 4.5  | 0.235   | 0.226   | -6.531 | 6.450  | 0.644   | -6.320  | 6.661   | -6.468  | 7.161   |
| 56  | 6.75 | 26.720  | 0.226   | -6.531 | 6.450  | 32.426  | 17.517  | 30.497  | 21.341  | 34.970  |
| 56  | 9    | 53.204  | 0.226   | -6.531 | 6.450  | 64.207  | 41.353  | 54.334  | 49.150  | 62.779  |
| 57  | 0    | -0.530  | -0.659  | -0.133 | 0.056  | -1.691  | -0.610  | -0.421  | -1.112  | -0.912  |
| 57  | 0.45 | 1.220   | -0.163  | -0.133 | 0.056  | 1.204   | 0.965   | 1.154   | 1.038   | 1.238   |
| 57  | 0.9  | 4.773   | 1.327   | -0.133 | 0.056  | 7.850   | 4.162   | 4.352   | 5.707   | 5.907   |
| 57  | 1.35 | 8.326   | 2.816   | -0.133 | 0.056  | 14.497  | 7.360   | 7.550   | 10.376  | 10.576  |
| 57  | 1.8  | 10.076  | 3.313   | -0.133 | 0.056  | 17.391  | 8.935   | 9.125   | 12.526  | 12.726  |
| 58  | 0    | -52.638 | -0.152  | -5.929 | 5.994  | -63.408 | -53.303 | -41.380 | -61.590 | -49.072 |
| 58  | 2.25 | -26.153 | -0.152  | -5.929 | 5.994  | -31.627 | -29.466 | -17.544 | -33.781 | -21.263 |
| 58  | 4.5  | 0.332   | -0.152  | -5.929 | 5.994  | 0.155   | -5.630  | 6.292   | -5.972  | 6.546   |
| 58  | 6.75 | 26.816  | -0.152  | -5.929 | 5.994  | 31.937  | 18.206  | 30.128  | 21.837  | 34.355  |
| 58  | 9    | 53.301  | -0.152  | -5.929 | 5.994  | 63.718  | 42.042  | 53.965  | 49.646  | 62.164  |
| 59  | 0    | -52.881 | 0.202   | -5.991 | 5.931  | -63.133 | -53.584 | -41.662 | -61.688 | -49.170 |
| 59  | 2.25 | -26.396 | 0.202   | -5.991 | 5.931  | -31.352 | -29.748 | -17.826 | -33.879 | -21.361 |
| 59  | 4.5  | 0.089   | 0.202   | -5.991 | 5.931  | 0.430   | -5.912  | 6.010   | -6.070  | 6.448   |
| 59  | 6.75 | 26.573  | 0.202   | -5.991 | 5.931  | 32.212  | 17.925  | 29.847  | 21.739  | 34.257  |
| 59  | 9    | 53.058  | 0.202   | -5.991 | 5.931  | 63.993  | 41.761  | 53.683  | 49.548  | 62.066  |
| 62  | 0    | -54.784 | -12.369 | -4.606 | 4.589  | -85.532 | -53.912 | -44.716 | -70.152 | -60.497 |
| 62  | 0.75 | -49.291 | -11.680 | -4.606 | 4.589  | -77.837 | -48.968 | -39.773 | -63.950 | -54.295 |
| 62  | 1.5  | -42.095 | -10.053 | -4.606 | 4.589  | -66.599 | -42.492 | -33.296 | -55.369 | -45.714 |
| 62  | 2.25 | -34.802 | -8.421  | -4.606 | 4.589  | -55.236 | -35.927 | -26.732 | -46.683 | -37.028 |
| 62  | 3    | -29.309 | -7.732  | -4.606 | 4.589  | -47.541 | -30.984 | -21.788 | -40.481 | -30.826 |
| 63  | 0    | -43.441 | 0.000   | 0.000  | 0.000  | -52.129 | -39.097 | -39.097 | -45.613 | -45.613 |
| 63  | 1.5  | -21.720 | 0.000   | 0.000  | 0.000  | -26.064 | -19.548 | -19.548 | -22.806 | -22.806 |
| 63  | 3    | 0.000   | 0.000   | 0.000  | 0.000  | 0.001   | 0.000   | 0.000   | 0.001   | 0.001   |
| 63  | 4.5  | 21.721  | 0.000   | 0.000  | 0.000  | 26.065  | 19.549  | 19.549  | 22.807  | 22.807  |
| 63  | 6    | 43.442  | 0.000   | 0.000  | 0.000  | 52.130  | 39.097  | 39.097  | 45.614  | 45.614  |
| 89  | 0    | 26.330  | 2.934   | -1.840 | 1.994  | 36.290  | 21.856  | 25.691  | 27.562  | 31.588  |
| 89  | 0.23 | 26.979  | 3.058   | -1.840 | 1.994  | 37.268  | 22.441  | 26.275  | 28.322  | 32.349  |
| 89  | 0.45 | 28.079  | 3.430   | -1.840 | 1.994  | 39.184  | 23.431  | 27.266  | 29.712  | 33.738  |
| 89  | 0.68 | 29.180  | 3.803   | -1.840 | 1.994  | 41.100  | 24.421  | 28.256  | 31.102  | 35.128  |
| 89  | 0.9  | 29.829  | 3.927   | -1.840 | 1.994  | 42.078  | 25.006  | 28.840  | 31.862  | 35.888  |
| 90  | 0    | -35.619 | -0.226  | -0.046 | 0.051  | -43.105 | -32.103 | -32.007 | -37.591 | -37.489 |
| 90  | 1.5  | -17.963 | -0.226  | -0.046 | 0.051  | -21.917 | -16.213 | -16.116 | -19.052 | -18.950 |
| 90  | 3    | -0.306  | -0.226  | -0.046 | 0.051  | -0.729  | -0.322  | -0.225  | -0.512  | -0.411  |
| 90  | 4.5  | 17.350  | -0.226  | -0.046 | 0.051  | 20.459  | 15.569  | 15.666  | 18.027  | 18.129  |
| 90  | 6    | 35.006  | -0.226  | -0.046 | 0.051  | 41.647  | 31.460  | 31.557  | 36.566  | 36.668  |
| 91  | 0    | -35.560 | -0.101  | 0.010  | -0.007 | -42.834 | -31.994 | -32.011 | -37.391 | -37.409 |
| 91  | 1.5  | -17.903 | -0.101  | 0.010  | -0.007 | -21.646 | -16.103 | -16.120 | -18.852 | -18.870 |
| 91  | 3    | -0.247  | -0.101  | 0.010  | -0.007 | -0.458  | -0.212  | -0.229  | -0.312  | -0.330  |
| 91  | 4.5  | 17.410  | -0.101  | 0.010  | -0.007 | 20.729  | 15.679  | 15.662  | 18.227  | 18.209  |
| 91  | 6    | 35.066  | -0.101  | 0.010  | -0.007 | 41.917  | 31.570  | 31.553  | 36.766  | 36.748  |
| 102 | 0    | -35.401 | 0.024   | 0.011  | -0.009 | -42.443 | -31.850 | -31.870 | -37.145 | -37.165 |
| 102 | 1.5  | -17.745 | 0.024   | 0.011  | -0.009 | -21.255 | -15.959 | -15.979 | -18.605 | -18.626 |
| 102 | 3    | -0.088  | 0.024   | 0.011  | -0.009 | -0.067  | -0.069  | -0.088  | -0.066  | -0.087  |
| 102 | 4.5  | 17.568  | 0.024   | 0.011  | -0.009 | 21.121  | 15.822  | 15.803  | 18.473  | 18.453  |
| 102 | 6    | 35.225  | 0.024   | 0.011  | -0.009 | 42.308  | 31.713  | 31.693  | 37.013  | 36.992  |
| 103 | 0    | -26.908 | -0.150  | 0.014  | -0.011 | -32.531 | -24.204 | -24.229 | -28.334 | -28.360 |
| 103 | 1.13 | -13.666 | -0.150  | 0.014  | -0.011 | -16.640 | -12.286 | -12.311 | -14.430 | -14.456 |
| 103 | 2.25 | -0.424  | -0.150  | 0.014  | -0.011 | -0.749  | -0.368  | -0.393  | -0.525  | -0.551  |
| 103 | 3.38 | 12.819  | -0.150  | 0.014  | -0.011 | 15.142  | 11.551  | 11.526  | 13.379  | 13.353  |

|     |      |          |         |        |         |          |          |          |          |          |
|-----|------|----------|---------|--------|---------|----------|----------|----------|----------|----------|
| 103 | 4.5  | 26.061   | -0.150  | 0.014  | -0.011  | 31.033   | 23.469   | 23.444   | 27.284   | 27.258   |
| 104 | 0    | -35.313  | 0.000   | 0.000  | 0.000   | -42.376  | -31.782  | -31.782  | -37.079  | -37.079  |
| 104 | 1.5  | -17.656  | 0.000   | 0.000  | 0.000   | -21.188  | -15.891  | -15.891  | -18.539  | -18.539  |
| 104 | 3    | 0.000    | 0.000   | 0.000  | 0.000   | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    |
| 104 | 4.5  | 17.656   | 0.000   | 0.000  | 0.000   | 21.188   | 15.891   | 15.891   | 18.539   | 18.539   |
| 104 | 6    | 35.313   | 0.000   | 0.000  | 0.000   | 42.376   | 31.782   | 31.782   | 37.079   | 37.079   |
| 123 | 0    | -30.285  | -2.789  | 32.711 | -32.609 | -40.804  | 5.454    | -59.865  | 0.790    | -67.795  |
| 123 | 1.13 | -11.177  | -1.238  | 32.711 | -32.609 | -15.392  | 22.651   | -42.668  | 21.831   | -46.755  |
| 123 | 2.25 | 12.314   | 2.727   | 32.711 | -32.609 | 19.140   | 43.793   | -21.527  | 48.993   | -19.592  |
| 123 | 3.38 | 35.804   | 6.692   | 32.711 | -32.609 | 53.672   | 64.934   | -0.385   | 76.156   | 7.571    |
| 123 | 4.5  | 54.912   | 8.243   | 32.711 | -32.609 | 79.084   | 82.131   | 16.812   | 97.197   | 28.612   |
| 124 | 0    | -128.848 | -29.781 | 9.976  | -10.027 | -202.267 | -105.987 | -125.990 | -143.578 | -164.580 |
| 124 | 1.13 | -116.965 | -26.740 | 9.976  | -10.027 | -183.142 | -95.292  | -115.295 | -129.184 | -150.187 |
| 124 | 2.25 | -98.896  | -20.293 | 9.976  | -10.027 | -151.143 | -79.030  | -99.033  | -106.150 | -127.153 |
| 124 | 3.38 | -80.826  | -13.846 | 9.976  | -10.027 | -119.145 | -62.768  | -82.771  | -83.116  | -104.119 |
| 124 | 4.5  | -68.943  | -10.805 | 9.976  | -10.027 | -100.020 | -52.073  | -72.076  | -68.723  | -89.725  |
| 125 | 0    | 68.532   | 10.754  | 10.007 | -9.987  | 99.444   | 71.685   | 51.692   | 89.240   | 68.247   |
| 125 | 1.13 | 80.415   | 13.795  | 10.007 | -9.987  | 118.570  | 82.380   | 62.387   | 103.633  | 82.641   |
| 125 | 2.25 | 98.484   | 20.242  | 10.007 | -9.987  | 150.568  | 98.642   | 78.649   | 126.668  | 105.675  |
| 125 | 3.38 | 116.553  | 26.689  | 10.007 | -9.987  | 182.566  | 114.905  | 94.911   | 149.702  | 128.709  |
| 125 | 4.5  | 128.437  | 29.730  | 10.007 | -9.987  | 201.692  | 125.600  | 105.606  | 164.095  | 143.102  |
| 126 | 0    | -56.236  | -8.407  | 32.552 | -32.762 | -80.934  | -18.060  | -83.374  | -30.164  | -98.744  |
| 126 | 1.13 | -37.128  | -6.856  | 32.552 | -32.762 | -55.522  | -0.863   | -66.177  | -9.124   | -77.703  |
| 126 | 2.25 | -13.637  | -2.891  | 32.552 | -32.762 | -20.990  | 20.278   | -45.035  | 18.039   | -50.540  |
| 126 | 3.38 | 9.853    | 1.074   | 32.552 | -32.762 | 13.542   | 41.420   | -23.894  | 45.202   | -23.377  |
| 126 | 4.5  | 28.961   | 2.626   | 32.552 | -32.762 | 38.954   | 58.617   | -6.697   | 66.243   | -2.337   |
| 127 | 0    | -34.097  | -3.591  | 49.879 | -49.548 | -46.663  | 19.191   | -80.236  | 14.308   | -90.090  |
| 127 | 1.13 | -14.990  | -2.040  | 49.879 | -49.548 | -21.251  | 36.388   | -63.039  | 35.349   | -69.050  |
| 127 | 2.25 | 8.501    | 1.925   | 49.879 | -49.548 | 13.281   | 57.529   | -41.897  | 62.511   | -41.887  |
| 127 | 3.38 | 31.992   | 5.890   | 49.879 | -49.548 | 47.814   | 78.671   | -20.756  | 89.674   | -14.724  |
| 127 | 4.5  | 51.099   | 7.441   | 49.879 | -49.548 | 73.226   | 95.868   | -3.559   | 110.715  | 6.317    |
| 128 | 0    | -107.970 | -23.125 | 13.777 | -13.807 | -166.564 | -83.396  | -110.979 | -113.471 | -142.434 |
| 128 | 1.13 | -96.988  | -20.581 | 13.777 | -13.807 | -149.315 | -73.512  | -101.096 | -100.337 | -129.300 |
| 128 | 2.25 | -81.173  | -15.375 | 13.777 | -13.807 | -122.007 | -59.278  | -86.862  | -80.452  | -109.415 |
| 128 | 3.38 | -65.357  | -10.169 | 13.777 | -13.807 | -94.699  | -45.045  | -72.628  | -60.566  | -89.529  |
| 128 | 4.5  | -54.376  | -7.625  | 13.777 | -13.807 | -77.450  | -35.161  | -62.745  | -47.432  | -76.395  |
| 129 | 0    | 53.751   | 7.547   | 13.790 | -13.786 | 76.577   | 62.166   | 34.589   | 75.673   | 46.718   |
| 129 | 1.13 | 64.733   | 10.092  | 13.790 | -13.786 | 93.826   | 72.049   | 44.473   | 88.807   | 59.851   |
| 129 | 2.25 | 80.548   | 15.298  | 13.790 | -13.786 | 121.134  | 86.283   | 58.707   | 108.692  | 79.737   |
| 129 | 3.38 | 96.363   | 20.504  | 13.790 | -13.786 | 148.442  | 100.517  | 72.940   | 128.578  | 99.623   |
| 129 | 4.5  | 107.345  | 23.048  | 13.790 | -13.786 | 165.691  | 110.400  | 82.824   | 141.712  | 112.757  |
| 130 | 0    | -53.245  | -7.706  | 49.505 | -49.930 | -76.223  | 1.584    | -97.851  | -8.782   | -113.189 |
| 130 | 1.13 | -34.138  | -6.154  | 49.505 | -49.930 | -50.812  | 18.781   | -80.654  | 12.259   | -92.148  |
| 130 | 2.25 | -10.647  | -2.189  | 49.505 | -49.930 | -16.279  | 39.923   | -59.513  | 39.422   | -64.986  |
| 130 | 3.38 | 12.843   | 1.775   | 49.505 | -49.930 | 18.253   | 61.064   | -38.371  | 66.584   | -37.823  |
| 130 | 4.5  | 31.951   | 3.327   | 49.505 | -49.930 | 43.665   | 78.261   | -21.174  | 87.625   | -16.782  |
| 135 | 0    | -30.285  | -2.789  | 32.711 | -32.609 | -40.804  | 5.454    | -59.865  | 0.790    | -67.795  |
| 135 | 1.13 | -11.177  | -1.238  | 32.711 | -32.609 | -15.392  | 22.651   | -42.668  | 21.831   | -46.755  |
| 135 | 2.25 | 12.314   | 2.727   | 32.711 | -32.609 | 19.140   | 43.793   | -21.527  | 48.993   | -19.592  |
| 135 | 3.38 | 35.804   | 6.692   | 32.711 | -32.609 | 53.672   | 64.934   | -0.385   | 76.156   | 7.571    |
| 135 | 4.5  | 54.912   | 8.244   | 32.711 | -32.609 | 79.084   | 82.131   | 16.812   | 97.197   | 28.612   |
| 136 | 0    | -128.848 | -29.781 | 9.976  | -10.027 | -202.267 | -105.987 | -125.990 | -143.578 | -164.580 |
| 136 | 1.13 | -116.965 | -26.740 | 9.976  | -10.027 | -183.142 | -95.292  | -115.295 | -129.184 | -150.187 |
| 136 | 2.25 | -98.896  | -20.293 | 9.976  | -10.027 | -151.143 | -79.030  | -99.033  | -106.150 | -127.153 |
| 136 | 3.38 | -80.826  | -13.846 | 9.976  | -10.027 | -119.145 | -62.768  | -82.771  | -83.116  | -104.119 |
| 136 | 4.5  | -68.943  | -10.805 | 9.976  | -10.027 | -100.020 | -52.073  | -72.076  | -68.723  | -89.725  |
| 137 | 0    | 68.532   | 10.754  | 10.007 | -9.987  | 99.444   | 71.685   | 51.692   | 89.240   | 68.247   |
| 137 | 1.13 | 80.415   | 13.795  | 10.007 | -9.987  | 118.570  | 82.380   | 62.387   | 103.633  | 82.641   |
| 137 | 2.25 | 98.484   | 20.242  | 10.007 | -9.987  | 150.568  | 98.642   | 78.649   | 126.668  | 105.675  |
| 137 | 3.38 | 116.553  | 26.689  | 10.007 | -9.987  | 182.566  | 114.905  | 94.911   | 149.702  | 128.709  |
| 137 | 4.5  | 128.437  | 29.730  | 10.007 | -9.987  | 201.692  | 125.600  | 105.606  | 164.095  | 143.102  |
| 138 | 0    | -56.236  | -8.407  | 32.552 | -32.762 | -80.934  | -18.060  | -83.374  | -30.164  | -98.744  |
| 138 | 1.13 | -37.128  | -6.856  | 32.552 | -32.762 | -55.522  | -0.863   | -66.177  | -9.124   | -77.703  |
| 138 | 2.25 | -13.637  | -2.891  | 32.552 | -32.762 | -20.990  | 20.278   | -45.035  | 18.039   | -50.540  |
| 138 | 3.38 | 9.853    | 1.074   | 32.552 | -32.762 | 13.542   | 41.420   | -23.894  | 45.202   | -23.377  |
| 138 | 4.5  | 28.961   | 2.626   | 32.552 | -32.762 | 38.954   | 58.617   | -6.697   | 66.243   | -2.337   |
| 139 | 0    | -34.097  | -3.591  | 49.879 | -49.548 | -46.662  | 19.191   | -80.236  | 14.308   | -90.090  |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 139 | 1.13 | -14.989  | -2.040  | 49.879  | -49.548 | -21.251  | 36.388   | -63.039  | 35.349   | -69.050  |
| 139 | 2.25 | 8.501    | 1.925   | 49.879  | -49.548 | 13.282   | 57.529   | -41.897  | 62.511   | -41.887  |
| 139 | 3.38 | 31.992   | 5.890   | 49.879  | -49.548 | 47.814   | 78.671   | -20.756  | 89.674   | -14.724  |
| 139 | 4.5  | 51.099   | 7.441   | 49.879  | -49.548 | 73.226   | 95.868   | -3.559   | 110.715  | 6.317    |
| 140 | 0    | -107.970 | -23.125 | 13.777  | -13.807 | -166.564 | -83.396  | -110.979 | -113.471 | -142.434 |
| 140 | 1.13 | -96.988  | -20.581 | 13.777  | -13.807 | -149.315 | -73.512  | -101.096 | -100.337 | -129.300 |
| 140 | 2.25 | -81.173  | -15.375 | 13.777  | -13.807 | -122.007 | -59.278  | -86.862  | -80.452  | -109.415 |
| 140 | 3.38 | -65.357  | -10.169 | 13.777  | -13.807 | -94.699  | -45.045  | -72.628  | -60.566  | -89.529  |
| 140 | 4.5  | -54.376  | -7.625  | 13.777  | -13.807 | -77.450  | -35.161  | -62.745  | -47.432  | -76.395  |
| 141 | 0    | 53.751   | 7.547   | 13.790  | -13.786 | 76.577   | 62.166   | 34.589   | 75.673   | 46.718   |
| 141 | 1.13 | 64.733   | 10.092  | 13.790  | -13.786 | 93.826   | 72.049   | 44.473   | 88.807   | 59.851   |
| 141 | 2.25 | 80.548   | 15.298  | 13.790  | -13.786 | 121.134  | 86.283   | 58.707   | 108.692  | 79.737   |
| 141 | 3.38 | 96.363   | 20.504  | 13.790  | -13.786 | 148.442  | 100.517  | 72.940   | 128.578  | 99.623   |
| 141 | 4.5  | 107.345  | 23.048  | 13.790  | -13.786 | 165.691  | 110.400  | 82.824   | 141.712  | 112.757  |
| 142 | 0    | -53.245  | -7.706  | 49.505  | -49.930 | -76.223  | 1.584    | -97.851  | -8.782   | -113.189 |
| 142 | 1.13 | -34.138  | -6.154  | 49.505  | -49.930 | -50.812  | 18.781   | -80.654  | 12.259   | -92.148  |
| 142 | 2.25 | -10.647  | -2.189  | 49.505  | -49.930 | -16.279  | 39.923   | -59.513  | 39.422   | -64.935  |
| 142 | 3.38 | 12.844   | 1.775   | 49.505  | -49.930 | 18.253   | 61.064   | -38.371  | 66.584   | -37.823  |
| 142 | 4.5  | 31.951   | 3.327   | 49.505  | -49.930 | 43.665   | 78.261   | -21.174  | 87.625   | -16.782  |
| 143 | 0    | -26.061  | 0.150   | -0.014  | 0.011   | -31.033  | -23.469  | -23.444  | -27.284  | -27.258  |
| 143 | 1.13 | -12.819  | 0.150   | -0.014  | 0.011   | -15.142  | -11.551  | -11.526  | -13.379  | -13.353  |
| 143 | 2.25 | 0.424    | 0.150   | -0.014  | 0.011   | 0.749    | 0.368    | 0.393    | 0.525    | 0.551    |
| 143 | 3.38 | 13.666   | 0.150   | -0.014  | 0.011   | 16.640   | 12.286   | 12.311   | 14.430   | 14.456   |
| 143 | 4.5  | 26.908   | 0.150   | -0.014  | 0.011   | 32.531   | 24.204   | 24.229   | 28.334   | 28.360   |
| 144 | 0    | -35.225  | -0.024  | -0.011  | 0.009   | -42.308  | -31.713  | -51.693  | -37.013  | -36.992  |
| 144 | 1.5  | -17.568  | -0.024  | -0.011  | 0.009   | -21.121  | -15.822  | -15.803  | -18.473  | -18.453  |
| 144 | 3    | 0.088    | -0.024  | -0.011  | 0.009   | 0.067    | 0.069    | 0.088    | 0.066    | 0.087    |
| 144 | 4.5  | 17.745   | -0.024  | -0.011  | 0.009   | 21.255   | 15.959   | 15.975   | 18.605   | 18.626   |
| 144 | 6    | 35.401   | -0.024  | -0.011  | 0.009   | 42.443   | 31.850   | 31.870   | 37.145   | 37.165   |
| 145 | 0    | -35.066  | 0.101   | -0.010  | 0.007   | -41.917  | -31.570  | -31.553  | -36.766  | -36.748  |
| 145 | 1.5  | -17.410  | 0.101   | -0.010  | 0.007   | -20.729  | -15.679  | -15.662  | -18.227  | -18.209  |
| 145 | 3    | 0.247    | 0.101   | -0.010  | 0.007   | 0.458    | 0.212    | 0.229    | 0.312    | 0.330    |
| 145 | 4.5  | 17.903   | 0.101   | -0.010  | 0.007   | 21.646   | 16.103   | 16.120   | 18.852   | 18.870   |
| 145 | 6    | 35.560   | 0.101   | -0.010  | 0.007   | 42.834   | 31.994   | 32.011   | 37.391   | 37.409   |
| 146 | 0    | -35.007  | 0.226   | 0.046   | -0.051  | -41.647  | -31.460  | -31.557  | -36.566  | -36.668  |
| 146 | 1.5  | -17.350  | 0.226   | 0.046   | -0.051  | -20.459  | -15.569  | -15.666  | -18.027  | -18.129  |
| 146 | 3    | 0.306    | 0.226   | 0.046   | -0.051  | 0.729    | 0.322    | 0.225    | 0.512    | 0.411    |
| 146 | 4.5  | 17.963   | 0.226   | 0.046   | -0.051  | 21.917   | 16.213   | 16.116   | 19.052   | 18.950   |
| 146 | 6    | 35.619   | 0.226   | 0.046   | -0.051  | 43.104   | 32.103   | 32.007   | 37.591   | 37.489   |
| 156 | 0    | -4.126   | -3.562  | -0.185  | 1.077   | -10.651  | -3.898   | -2.636   | -6.771   | -5.446   |
| 156 | 0.86 | 0.812    | -1.739  | -0.185  | 1.077   | -1.808   | 0.546    | 1.807    | -0.437   | 0.888    |
| 156 | 1.73 | 12.148   | 3.609   | -0.185  | 1.077   | 20.352   | 10.748   | 12.010   | 14.835   | 16.160   |
| 156 | 2.59 | 23.484   | 8.956   | -0.185  | 1.077   | 42.511   | 20.951   | 22.213   | 30.107   | 31.432   |
| 156 | 3.45 | 28.422   | 10.780  | -0.185  | 1.077   | 51.354   | 25.395   | 26.657   | 36.440   | 37.765   |
| 157 | 0    | -38.537  | -16.588 | -2.272  | 1.174   | -72.785  | -36.956  | -33.509  | -53.300  | -49.681  |
| 157 | 1.13 | -30.781  | -13.485 | -2.272  | 1.174   | -58.514  | -29.976  | -26.529  | -43.202  | -39.583  |
| 157 | 2.25 | -14.261  | -5.556  | -2.272  | 1.174   | -26.002  | -15.107  | -11.661  | -20.860  | -17.241  |
| 157 | 3.38 | 2.260    | 2.374   | -2.272  | 1.174   | 6.510    | -0.239   | 3.208    | 1.482    | 5.101    |
| 157 | 4.5  | 10.015   | 5.477   | -2.272  | 1.174   | 20.781   | 6.741    | 10.188   | 11.580   | 15.199   |
| 158 | 0    | -6.992   | -5.271  | -2.428  | 1.682   | -16.825  | -8.721   | -4.611   | -13.213  | -8.897   |
| 158 | 1.13 | 0.763    | -2.169  | -2.428  | 1.682   | -2.554   | -1.742   | 2.369    | -3.115   | 1.201    |
| 158 | 2.25 | 17.283   | 5.761   | -2.428  | 1.682   | 29.958   | 13.127   | 17.237   | 19.227   | 23.543   |
| 158 | 3.38 | 33.804   | 13.691  | -2.428  | 1.682   | 62.470   | 27.995   | 32.106   | 41.570   | 45.886   |
| 158 | 4.5  | 41.559   | 16.793  | -2.428  | 1.682   | 76.740   | 34.975   | 39.086   | 51.668   | 55.984   |
| 160 | 0    | 55.083   | 13.127  | -14.713 | 21.700  | 87.103   | 34.861   | 71.274   | 50.658   | 88.892   |
| 160 | 0.86 | 73.548   | 16.418  | -14.713 | 21.700  | 114.526  | 51.480   | 87.893   | 72.120   | 110.354  |
| 160 | 1.73 | 95.213   | 21.470  | -14.713 | 21.700  | 148.608  | 70.979   | 107.392  | 98.051   | 136.285  |
| 160 | 2.59 | 116.725  | 26.438  | -14.713 | 21.700  | 182.371  | 90.339   | 126.752  | 123.768  | 162.001  |
| 160 | 3.45 | 132.526  | 28.262  | -14.713 | 21.700  | 204.250  | 104.560  | 140.973  | 141.508  | 179.742  |
| 161 | 0    | -122.522 | -33.583 | -21.886 | 14.718  | -200.758 | -132.156 | -95.551  | -172.786 | -134.351 |
| 161 | 1.13 | -100.596 | -30.480 | -21.886 | 14.718  | -169.483 | -112.423 | -75.819  | -147.809 | -109.374 |
| 161 | 2.25 | -71.471  | -23.412 | -21.886 | 14.718  | -123.224 | -86.210  | -49.606  | -112.775 | -74.340  |
| 161 | 3.38 | -42.346  | -16.344 | -21.886 | 14.718  | -76.966  | -59.998  | -23.393  | -77.741  | -39.306  |
| 161 | 4.5  | -20.420  | -13.241 | -21.886 | 14.718  | -45.691  | -40.265  | -3.660   | -52.764  | -14.330  |
| 162 | 0    | 38.950   | 15.065  | -21.717 | 14.169  | 70.844   | 13.338   | 49.224   | 27.586   | 65.266   |
| 162 | 1.13 | 60.875   | 18.168  | -21.717 | 14.169  | 102.119  | 33.071   | 68.957   | 52.562   | 90.242   |
| 162 | 2.25 | 90.001   | 25.235  | -21.717 | 14.169  | 148.377  | 59.284   | 95.170   | 87.596   | 125.277  |

|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 162 | 3.38 | 119.126  | 32.303  | -21.717 | 14.169 | 194.636  | 85.497   | 121.382  | 122.631  | 160.311  |
| 162 | 4.5  | 141.051  | 35.406  | -21.717 | 14.169 | 225.911  | 105.229  | 141.115  | 147.607  | 185.287  |
| 164 | 0    | 55.083   | 13.127  | -14.713 | 21.700 | 87.102   | 34.861   | 71.274   | 50.657   | 88.891   |
| 164 | 0.86 | 73.548   | 16.417  | -14.713 | 21.700 | 114.525  | 51.480   | 87.893   | 72.119   | 110.353  |
| 164 | 1.73 | 95.213   | 21.470  | -14.713 | 21.700 | 148.607  | 70.978   | 107.391  | 98.050   | 136.284  |
| 164 | 2.59 | 116.724  | 26.438  | -14.713 | 21.700 | 182.370  | 90.338   | 126.751  | 123.767  | 162.001  |
| 164 | 3.45 | 132.525  | 28.262  | -14.713 | 21.700 | 204.249  | 104.560  | 140.972  | 141.508  | 179.741  |
| 165 | 0    | -122.523 | -33.583 | -21.886 | 14.718 | -200.761 | -132.157 | -95.553  | -172.788 | -134.353 |
| 165 | 1.13 | -100.598 | -30.480 | -21.886 | 14.718 | -169.486 | -112.425 | -75.820  | -147.811 | -109.377 |
| 165 | 2.25 | -71.473  | -23.413 | -21.886 | 14.718 | -123.228 | -86.212  | -49.607  | -112.777 | -74.342  |
| 165 | 3.38 | -42.347  | -16.345 | -21.886 | 14.718 | -76.969  | -59.999  | -22.394  | -77.743  | -39.308  |
| 165 | 4.5  | -20.422  | -13.242 | -21.886 | 14.718 | -45.694  | -40.266  | -3.662   | -52.766  | -14.332  |
| 166 | 0    | 38.949   | 15.064  | -21.717 | 14.169 | 70.842   | 13.338   | 49.223   | 27.585   | 65.265   |
| 166 | 1.13 | 60.874   | 18.167  | -21.717 | 14.169 | 102.117  | 33.070   | 68.956   | 52.561   | 90.241   |
| 166 | 2.25 | 90.000   | 25.235  | -21.717 | 14.169 | 148.376  | 59.283   | 95.169   | 87.595   | 123.275  |
| 166 | 3.38 | 119.125  | 32.303  | -21.717 | 14.169 | 194.634  | 85.496   | 121.382  | 122.630  | 160.310  |
| 166 | 4.5  | 141.050  | 35.405  | -21.717 | 14.169 | 225.909  | 105.229  | 141.115  | 147.606  | 185.286  |
| 209 | 0    | -24.765  | -11.317 | -1.875  | 2.258  | -47.825  | -24.163  | -20.031  | -35.101  | -30.763  |
| 209 | 1.13 | -17.010  | -8.214  | -1.875  | 2.258  | -33.555  | -17.183  | -13.051  | -25.004  | -20.665  |
| 209 | 2.25 | -0.489   | -0.285  | -1.875  | 2.258  | -1.043   | -2.315   | 1.817    | -2.661   | 1.677    |
| 209 | 3.38 | 16.032   | 7.645   | -1.875  | 2.258  | 31.469   | 12.554   | 16.686   | 19.681   | 24.020   |
| 209 | 4.5  | 23.787   | 10.748  | -1.875  | 2.258  | 45.740   | 19.533   | 23.666   | 29.779   | 34.118   |
| 210 | 0    | -24.442  | -10.585 | -0.613  | 0.733  | -46.267  | -22.611  | -21.265  | -32.976  | -31.563  |
| 210 | 1.13 | -16.687  | -7.482  | -0.613  | 0.733  | -31.996  | -15.631  | -14.285  | -22.879  | -21.465  |
| 210 | 2.25 | -0.166   | 0.447   | -0.613  | 0.733  | 0.516    | -0.763   | 0.584    | -0.536   | 0.877    |
| 210 | 3.38 | 16.354   | 8.377   | -0.613  | 0.733  | 33.028   | 14.106   | 15.452   | 21.806   | 23.219   |
| 210 | 4.5  | 24.110   | 11.480  | -0.613  | 0.733  | 47.299   | 21.086   | 22.432   | 31.904   | 33.317   |
| 211 | 0    | -24.074  | -11.473 | -0.735  | 0.615  | -47.245  | -22.401  | -21.052  | -33.277  | -31.860  |
| 211 | 1.13 | -16.319  | -8.370  | -0.735  | 0.615  | -32.974  | -15.422  | -14.072  | -23.179  | -21.762  |
| 211 | 2.25 | 0.202    | -0.440  | -0.735  | 0.615  | -0.462   | -0.553   | 0.796    | -0.837   | 0.580    |
| 211 | 3.38 | 16.722   | 7.489   | -0.735  | 0.615  | 32.050   | 14.315   | 15.665   | 21.505   | 22.922   |
| 211 | 4.5  | 24.478   | 10.592  | -0.735  | 0.615  | 46.321   | 21.295   | 22.644   | 31.603   | 33.020   |
| 212 | 0    | -23.614  | -10.728 | -2.252  | 1.877  | -45.501  | -23.505  | -19.376  | -33.918  | -29.582  |
| 212 | 1.13 | -15.859  | -7.625  | -2.252  | 1.877  | -31.230  | -16.525  | -12.396  | -23.820  | -19.485  |
| 212 | 2.25 | 0.662    | 0.305   | -2.252  | 1.877  | 1.282    | -1.657   | 2.473    | -1.478   | 2.858    |
| 212 | 3.38 | 17.182   | 8.234   | -2.252  | 1.877  | 33.794   | 13.212   | 17.341   | 20.864   | 25.200   |
| 212 | 4.5  | 24.938   | 11.337  | -2.252  | 1.877  | 48.064   | 20.192   | 24.321   | 30.962   | 35.298   |
| 213 | 0    | -40.342  | -16.382 | -1.398  | 1.905  | -74.622  | -37.706  | -34.403  | -54.148  | -50.680  |
| 213 | 1.13 | -32.587  | -13.279 | -1.398  | 1.905  | -60.351  | -30.726  | -27.423  | -44.050  | -40.582  |
| 213 | 2.25 | -16.066  | -5.350  | -1.398  | 1.905  | -27.839  | -15.858  | -12.555  | -21.708  | -18.240  |
| 213 | 3.38 | 0.455    | 2.580   | -1.398  | 1.905  | 4.673    | -0.989   | 2.314    | 0.634    | 4.102    |
| 213 | 4.5  | 8.210    | 5.683   | -1.398  | 1.905  | 18.944   | 5.990    | 9.293    | 10.732   | 14.200   |
| 214 | 0    | -6.749   | -4.421  | -0.916  | 1.802  | -15.172  | -6.990   | -4.272   | -10.834  | -7.979   |
| 214 | 1.13 | 1.006    | -1.318  | -0.916  | 1.802  | -0.901   | -0.011   | 2.708    | -0.736   | 2.118    |
| 214 | 2.25 | 17.527   | 6.612   | -0.916  | 1.802  | 31.611   | 14.858   | 17.576   | 21.607   | 24.461   |
| 214 | 3.38 | 34.048   | 14.541  | -0.916  | 1.802  | 64.123   | 29.726   | 32.445   | 43.949   | 46.803   |
| 214 | 4.5  | 41.803   | 17.644  | -0.916  | 1.802  | 78.394   | 36.706   | 39.424   | 54.047   | 56.901   |
| 215 | 0    | -41.559  | -17.613 | -1.797  | 0.915  | -78.051  | -39.200  | -36.488  | -56.620  | -53.773  |
| 215 | 1.13 | -33.804  | -14.510 | -1.797  | 0.915  | -63.780  | -32.221  | -29.509  | -46.522  | -43.675  |
| 215 | 2.25 | -17.283  | -6.580  | -1.797  | 0.915  | -31.268  | -17.352  | -14.640  | -24.180  | -21.333  |
| 215 | 3.38 | -0.763   | 1.349   | -1.797  | 0.915  | 1.244    | -2.484   | 0.228    | -1.838   | 1.010    |
| 215 | 4.5  | 6.993    | 4.452   | -1.797  | 0.915  | 15.515   | 4.496    | 7.208    | 8.260    | 11.107   |
| 216 | 0    | -7.894   | -5.640  | -1.902  | 1.398  | -18.497  | -9.007   | -5.706   | -13.839  | -10.374  |
| 216 | 1.13 | -0.139   | -2.537  | -1.902  | 1.398  | -4.226   | -2.027   | 1.273    | -3.741   | -0.276   |
| 216 | 2.25 | 16.382   | 5.393   | -1.902  | 1.398  | 28.286   | 12.842   | 16.142   | 18.601   | 22.066   |
| 216 | 3.38 | 32.902   | 13.322  | -1.902  | 1.398  | 60.798   | 27.710   | 31.010   | 40.943   | 44.409   |
| 216 | 4.5  | 40.657   | 16.425  | -1.902  | 1.398  | 75.069   | 34.690   | 37.990   | 51.041   | 54.506   |
| 217 | 0    | -138.812 | -37.435 | -12.611 | 19.251 | -226.470 | -137.543 | -105.680 | -182.579 | -149.123 |
| 217 | 1.13 | -116.887 | -34.332 | -12.611 | 19.251 | -195.195 | -117.810 | -85.947  | -157.603 | -124.147 |
| 217 | 2.25 | -86.197  | -26.402 | -12.611 | 19.251 | -145.679 | -90.188  | -58.326  | -120.382 | -86.926  |
| 217 | 3.38 | -55.506  | -18.473 | -12.611 | 19.251 | -96.163  | -62.567  | -30.704  | -83.161  | -49.705  |
| 217 | 4.5  | -33.581  | -15.370 | -12.611 | 19.251 | -64.888  | -42.834  | -10.971  | -58.185  | -24.729  |
| 218 | 0    | 37.048   | 18.084  | -13.176 | 19.490 | 73.392   | 20.167   | 52.833   | 36.458   | 70.758   |
| 218 | 1.13 | 58.973   | 21.187  | -13.176 | 19.490 | 104.667  | 39.899   | 72.566   | 61.434   | 95.734   |
| 218 | 2.25 | 89.664   | 29.117  | -13.176 | 19.490 | 154.183  | 67.521   | 100.188  | 98.655   | 132.955  |
| 218 | 3.38 | 120.354  | 37.046  | -13.176 | 19.490 | 203.699  | 95.142   | 127.809  | 135.876  | 170.176  |
| 218 | 4.5  | 142.279  | 40.149  | -13.176 | 19.490 | 234.974  | 114.875  | 147.542  | 160.852  | 195.152  |

|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 219 | 0    | -138.281 | -39.595 | -19.451 | 13.165 | -229.288 | -143.904 | -111.288 | -190.563 | -155.316 |
| 219 | 1.13 | -116.355 | -36.492 | -19.451 | 13.165 | -198.013 | -124.171 | -91.555  | -165.587 | -131.340 |
| 219 | 2.25 | -85.665  | -28.562 | -19.451 | 13.165 | -148.497 | -96.550  | -63.933  | -128.366 | -94.119  |
| 219 | 3.38 | -54.974  | -20.632 | -19.451 | 13.165 | -98.981  | -68.928  | -36.312  | -91.145  | -56.898  |
| 219 | 4.5  | -33.049  | -17.530 | -19.451 | 13.165 | -67.706  | -49.195  | -16.579  | -66.169  | -31.922  |
| 220 | 0    | 37.261   | 15.837  | -19.214 | 12.599 | 70.051   | 14.321   | 46.134   | 28.926   | 62.330   |
| 220 | 1.13 | 59.186   | 18.940  | -19.214 | 12.599 | 101.326  | 34.054   | 65.867   | 53.903   | 87.306   |
| 220 | 2.25 | 89.876   | 26.869  | -19.214 | 12.599 | 150.842  | 61.675   | 93.488   | 91.123   | 124.527  |
| 220 | 3.38 | 120.567  | 34.799  | -19.214 | 12.599 | 200.358  | 89.297   | 121.110  | 128.344  | 161.748  |
| 220 | 4.5  | 142.492  | 37.902  | -19.214 | 12.599 | 231.633  | 109.029  | 140.842  | 153.321  | 186.724  |
| 221 | 0    | -39.498  | -16.241 | -1.574  | 2.259  | -73.384  | -37.122  | -33.289  | -53.358  | -49.333  |
| 221 | 1.13 | -31.743  | -13.139 | -1.574  | 2.259  | -59.113  | -30.142  | -26.309  | -43.260  | -39.235  |
| 221 | 2.25 | -15.222  | -5.209  | -1.574  | 2.259  | -26.601  | -15.274  | -11.441  | -20.918  | -16.893  |
| 221 | 3.38 | 1.298    | 2.721   | -1.574  | 2.259  | 5.911    | -0.406   | 3.428    | 1.425    | 5.450    |
| 221 | 4.5  | 9.054    | 5.824   | -1.574  | 2.259  | 20.182   | 6.574    | 10.408   | 11.522   | 15.547   |
| 222 | 0    | -7.764   | -4.645  | -1.009  | 2.044  | -16.749  | -7.997   | -4.944   | -12.138  | -8.933   |
| 222 | 1.13 | -0.009   | -1.542  | -1.009  | 2.044  | -2.478   | -1.017   | 2.036    | -2.041   | 1.165    |
| 222 | 2.25 | 16.511   | 6.388   | -1.009  | 2.044  | 30.034   | 13.851   | 16.904   | 20.302   | 23.508   |
| 222 | 3.38 | 33.032   | 14.317  | -1.009  | 2.044  | 62.546   | 28.720   | 31.773   | 42.644   | 45.850   |
| 222 | 4.5  | 40.787   | 17.420  | -1.009  | 2.044  | 76.817   | 35.699   | 38.753   | 52.742   | 55.948   |
| 223 | 0    | -40.131  | -17.304 | -2.036  | 1.004  | -75.844  | -38.154  | -35.114  | -55.177  | -51.985  |
| 223 | 1.13 | -32.376  | -14.201 | -2.036  | 1.004  | -61.573  | -31.174  | -28.134  | -45.079  | -41.887  |
| 223 | 2.25 | -15.855  | -6.272  | -2.036  | 1.004  | -29.061  | -16.306  | -13.266  | -22.737  | -19.545  |
| 223 | 3.38 | 0.665    | 1.658   | -2.036  | 1.004  | 3.451    | -1.437   | 1.603    | -0.395   | 2.797    |
| 223 | 4.5  | 8.421    | 4.761   | -2.036  | 1.004  | 17.722   | 5.543    | 8.582    | 9.703    | 12.895   |
| 224 | 0    | -8.372   | -5.758  | -2.263  | 1.577  | -19.259  | -9.798   | -5.958   | -14.794  | -10.762  |
| 224 | 1.13 | -0.617   | -2.655  | -2.263  | 1.577  | -4.988   | -2.818   | 1.022    | -4.697   | -0.664   |
| 224 | 2.25 | 15.904   | 5.275   | -2.263  | 1.577  | 27.524   | 12.050   | 15.891   | 17.646   | 21.678   |
| 224 | 3.38 | 32.424   | 13.204  | -2.263  | 1.577  | 60.036   | 26.919   | 30.759   | 39.988   | 44.020   |
| 224 | 4.5  | 40.180   | 16.307  | -2.263  | 1.577  | 74.307   | 33.898   | 37.739   | 50.086   | 54.118   |
| 225 | 0    | -127.762 | -33.047 | -13.755 | 21.104 | -206.189 | -128.741 | -93.882  | -169.412 | -132.810 |
| 225 | 1.13 | -105.837 | -29.944 | -13.755 | 21.104 | -174.915 | -109.008 | -74.149  | -144.436 | -107.834 |
| 225 | 2.25 | -76.711  | -22.876 | -13.755 | 21.104 | -128.656 | -82.795  | -47.936  | -109.402 | -72.800  |
| 225 | 3.38 | -47.586  | -15.809 | -13.755 | 21.104 | -82.397  | -56.582  | -21.723  | -74.367  | -37.766  |
| 225 | 4.5  | -25.661  | -12.706 | -13.755 | 21.104 | -51.122  | -36.849  | -1.991   | -49.391  | -12.739  |
| 226 | 0    | 34.440   | 15.599  | -14.269 | 21.216 | 66.287   | 16.727   | 52.212   | 31.007   | 68.267   |
| 226 | 1.13 | 56.365   | 18.702  | -14.269 | 21.216 | 97.562   | 36.460   | 71.945   | 55.983   | 93.213   |
| 226 | 2.25 | 85.491   | 25.770  | -14.269 | 21.216 | 143.821  | 62.672   | 98.158   | 91.018   | 128.277  |
| 226 | 3.38 | 114.616  | 32.838  | -14.269 | 21.216 | 190.080  | 88.885   | 124.371  | 126.052  | 163.311  |
| 226 | 4.5  | 136.541  | 35.941  | -14.269 | 21.216 | 221.355  | 108.618  | 144.103  | 151.028  | 188.288  |
| 227 | 0    | -125.952 | -34.463 | -21.230 | 14.278 | -206.283 | -134.586 | -99.079  | -176.252 | -138.969 |
| 227 | 1.13 | -104.027 | -31.360 | -21.230 | 14.278 | -175.008 | -114.853 | -79.346  | -151.276 | -113.993 |
| 227 | 2.25 | -74.901  | -24.292 | -21.230 | 14.278 | -128.749 | -88.641  | -53.133  | -116.241 | -78.958  |
| 227 | 3.38 | -45.776  | -17.225 | -21.230 | 14.278 | -82.490  | -62.428  | -26.920  | -81.207  | -43.924  |
| 227 | 4.5  | -23.851  | -14.122 | -21.230 | 14.278 | -51.215  | -42.695  | -7.188   | -56.231  | -18.948  |
| 228 | 0    | 33.920   | 13.734  | -20.988 | 13.691 | 62.678   | 9.540    | 44.219   | 22.231   | 58.644   |
| 228 | 1.13 | 55.845   | 16.837  | -20.988 | 13.691 | 93.953   | 29.273   | 63.951   | 47.207   | 83.620   |
| 228 | 2.25 | 84.970   | 23.904  | -20.988 | 13.691 | 140.211  | 55.485   | 90.164   | 82.241   | 118.654  |
| 228 | 3.38 | 114.096  | 30.972  | -20.988 | 13.691 | 186.470  | 81.698   | 116.377  | 117.276  | 153.688  |
| 228 | 4.5  | 136.021  | 34.075  | -20.988 | 13.691 | 217.745  | 101.431  | 136.110  | 142.252  | 178.665  |
| 229 | 0    | -30.088  | -11.957 | -1.671  | 2.372  | -55.237  | -28.751  | -24.707  | -40.880  | -36.635  |
| 229 | 1.13 | -22.333  | -8.854  | -1.671  | 2.372  | -40.966  | -21.771  | -17.727  | -30.783  | -26.537  |
| 229 | 2.25 | -8.943   | -2.648  | -1.671  | 2.372  | -14.969  | -9.720   | -5.676   | -12.813  | -8.568   |
| 229 | 3.38 | 4.447    | 3.557   | -1.671  | 2.372  | 11.028   | 2.331    | 6.375    | 5.156    | 9.401    |
| 229 | 4.5  | 12.202   | 6.660   | -1.671  | 2.372  | 25.299   | 9.311    | 13.354   | 15.254   | 19.499   |
| 230 | 0    | -8.674   | -5.466  | -1.192  | 2.328  | -19.154  | -8.998   | -5.478   | -13.803  | -10.107  |
| 230 | 1.13 | -0.918   | -2.363  | -1.192  | 2.328  | -4.883   | -2.018   | 1.501    | -3.705   | -0.009   |
| 230 | 2.25 | 12.472   | 3.842   | -1.192  | 2.328  | 21.114   | 10.033   | 13.552   | 14.265   | 17.960   |
| 230 | 3.38 | 25.862   | 10.048  | -1.192  | 2.328  | 47.111   | 22.084   | 25.604   | 32.234   | 35.930   |
| 230 | 4.5  | 33.617   | 13.151  | -1.192  | 2.328  | 61.382   | 29.063   | 32.583   | 42.332   | 46.027   |
| 231 | 0    | -32.522  | -13.134 | -2.301  | 1.178  | -60.041  | -31.570  | -28.092  | -44.838  | -41.186  |
| 231 | 1.13 | -24.767  | -10.031 | -2.301  | 1.178  | -45.770  | -24.591  | -21.112  | -34.740  | -31.088  |
| 231 | 2.25 | -11.376  | -3.825  | -2.301  | 1.178  | -19.772  | -12.539  | -9.061   | -16.771  | -13.119  |
| 231 | 3.38 | 2.014    | 2.380   | -2.301  | 1.178  | 6.225    | -0.488   | 2.990    | 1.198    | 4.850    |
| 231 | 4.5  | 9.769    | 5.483   | -2.301  | 1.178  | 20.496   | 6.491    | 9.970    | 11.296   | 14.948   |
| 232 | 0    | -8.879   | -5.935  | -2.588  | 1.803  | -20.150  | -10.578  | -6.187   | -15.779  | -11.168  |
| 232 | 1.13 | -1.123   | -2.832  | -2.588  | 1.803  | -5.879   | -3.599   | 0.792    | -5.681   | -1.070   |



|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 232 | 2.25 | 12.267   | 3.374   | -2.588  | 1.803  | 20.118   | 8.452    | 12.843   | 12.288   | 16.899   |
| 232 | 3.38 | 25.657   | 9.579   | -2.588  | 1.803  | 46.115   | 20.503   | 24.894   | 30.258   | 34.868   |
| 232 | 4.5  | 33.412   | 12.682  | -2.588  | 1.803  | 60.386   | 27.483   | 31.874   | 40.355   | 44.966   |
| 233 | 0    | -30.088  | -11.957 | -1.671  | 2.372  | -55.237  | -28.751  | -24.707  | -40.880  | -36.635  |
| 233 | 1.13 | -22.333  | -8.854  | -1.671  | 2.372  | -40.967  | -21.771  | -17.728  | -30.783  | -26.537  |
| 233 | 2.25 | -8.943   | -2.648  | -1.671  | 2.372  | -14.969  | -9.720   | -5.676   | -12.813  | -8.568   |
| 233 | 3.38 | 4.447    | 3.557   | -1.671  | 2.372  | 11.028   | 2.331    | 6.375    | 5.156    | 9.401    |
| 233 | 4.5  | 12.202   | 6.660   | -1.671  | 2.372  | 25.299   | 9.311    | 13.354   | 15.254   | 19.499   |
| 234 | 0    | -8.674   | -5.466  | -1.192  | 2.328  | -19.154  | -8.998   | -5.478   | -13.802  | -10.107  |
| 234 | 1.13 | -0.918   | -2.363  | -1.192  | 2.328  | -4.883   | -2.018   | 1.501    | -3.705   | -0.009   |
| 234 | 2.25 | 12.472   | 3.842   | -1.192  | 2.328  | 21.114   | 10.033   | 13.553   | 14.265   | 17.960   |
| 234 | 3.38 | 25.862   | 10.048  | -1.192  | 2.328  | 47.111   | 22.084   | 25.604   | 32.234   | 35.930   |
| 234 | 4.5  | 33.617   | 13.151  | -1.192  | 2.328  | 61.382   | 29.064   | 32.583   | 42.332   | 46.027   |
| 235 | 0    | -32.522  | -13.134 | -2.301  | 1.178  | -60.041  | -31.570  | -28.092  | -44.838  | -41.186  |
| 235 | 1.13 | -24.767  | -10.031 | -2.301  | 1.178  | -45.770  | -24.591  | -21.112  | -34.740  | -31.088  |
| 235 | 2.25 | -11.376  | -3.825  | -2.301  | 1.178  | -19.772  | -12.540  | -9.061   | -16.771  | -13.119  |
| 235 | 3.38 | 2.014    | 2.380   | -2.301  | 1.178  | 6.225    | -0.488   | 2.990    | 1.198    | 4.850    |
| 235 | 4.5  | 9.769    | 5.483   | -2.301  | 1.178  | 20.496   | 6.491    | 9.970    | 11.296   | 14.948   |
| 236 | 0    | -8.879   | -5.935  | -2.588  | 1.803  | -20.150  | -10.579  | -6.188   | -15.779  | -11.168  |
| 236 | 1.13 | -1.123   | -2.832  | -2.588  | 1.803  | -5.880   | -3.599   | 0.792    | -5.681   | -1.070   |
| 236 | 2.25 | 12.267   | 3.374   | -2.588  | 1.803  | 20.118   | 8.452    | 12.843   | 12.288   | 16.899   |
| 236 | 3.38 | 25.657   | 9.579   | -2.588  | 1.803  | 46.115   | 20.503   | 24.894   | 30.257   | 34.868   |
| 236 | 4.5  | 33.412   | 12.682  | -2.588  | 1.803  | 60.386   | 27.483   | 31.874   | 40.355   | 44.966   |
| 237 | 0    | -127.762 | -33.047 | -13.755 | 21.104 | -206.190 | -128.741 | -93.882  | -169.412 | -132.810 |
| 237 | 1.13 | -105.837 | -29.944 | -13.755 | 21.104 | -174.915 | -109.008 | -74.149  | -144.436 | -107.834 |
| 237 | 2.25 | -76.711  | -22.876 | -13.755 | 21.104 | -128.656 | -82.795  | -47.936  | -109.402 | -72.800  |
| 237 | 3.38 | -47.586  | -15.809 | -13.755 | 21.104 | -82.397  | -56.582  | -21.723  | -74.367  | -37.766  |
| 237 | 4.5  | -25.661  | -12.706 | -13.755 | 21.104 | -51.122  | -36.849  | -1.991   | -49.391  | -12.789  |
| 238 | 0    | 34.440   | 15.600  | -14.269 | 21.216 | 66.288   | 16.727   | 52.212   | 31.007   | 68.267   |
| 238 | 1.13 | 56.366   | 18.702  | -14.269 | 21.216 | 97.563   | 36.460   | 71.945   | 55.984   | 93.243   |
| 238 | 2.25 | 85.491   | 25.770  | -14.269 | 21.216 | 143.821  | 62.673   | 98.158   | 91.018   | 128.277  |
| 238 | 3.38 | 114.616  | 32.838  | -14.269 | 21.216 | 190.080  | 88.885   | 124.371  | 126.052  | 163.312  |
| 238 | 4.5  | 136.542  | 35.941  | -14.269 | 21.216 | 221.355  | 108.618  | 144.103  | 151.029  | 188.288  |
| 239 | 0    | -125.952 | -34.463 | -21.230 | 14.278 | -206.282 | -134.586 | -99.079  | -176.252 | -138.969 |
| 239 | 1.13 | -104.026 | -31.360 | -21.230 | 14.278 | -175.008 | -114.853 | -79.346  | -151.276 | -113.993 |
| 239 | 2.25 | -74.901  | -24.292 | -21.230 | 14.278 | -128.749 | -88.641  | -53.133  | -116.241 | -78.958  |
| 239 | 3.38 | -45.776  | -17.224 | -21.230 | 14.278 | -82.490  | -62.428  | -26.920  | -81.207  | -43.924  |
| 239 | 4.5  | -23.850  | -14.122 | -21.230 | 14.278 | -51.215  | -42.695  | -7.188   | -56.231  | -18.948  |
| 240 | 0    | 33.919   | 13.734  | -20.988 | 13.691 | 62.677   | 9.540    | 44.218   | 22.230   | 58.643   |
| 240 | 1.13 | 55.845   | 16.837  | -20.988 | 13.691 | 93.952   | 29.272   | 63.951   | 47.207   | 83.620   |
| 240 | 2.25 | 84.970   | 23.904  | -20.988 | 13.691 | 140.211  | 55.485   | 90.164   | 82.241   | 118.654  |
| 240 | 3.38 | 114.095  | 30.972  | -20.988 | 13.691 | 186.470  | 81.698   | 116.377  | 117.275  | 153.688  |
| 240 | 4.5  | 136.021  | 34.075  | -20.988 | 13.691 | 217.745  | 101.431  | 136.110  | 142.252  | 178.664  |
| 241 | 0    | -39.498  | -16.241 | -1.574  | 2.259  | -73.384  | -37.122  | -33.289  | -53.358  | -49.333  |
| 241 | 1.13 | -31.743  | -13.139 | -1.574  | 2.259  | -59.113  | -30.142  | -26.309  | -43.260  | -39.235  |
| 241 | 2.25 | -15.222  | -5.209  | -1.574  | 2.259  | -26.601  | -15.274  | -11.441  | -20.918  | -16.893  |
| 241 | 3.38 | 1.298    | 2.721   | -1.574  | 2.259  | 5.911    | -0.405   | 3.428    | 1.425    | 5.450    |
| 241 | 4.5  | 9.054    | 5.824   | -1.574  | 2.259  | 20.182   | 6.574    | 10.408   | 11.522   | 15.547   |
| 242 | 0    | -7.764   | -4.645  | -1.009  | 2.044  | -16.749  | -7.997   | -4.944   | -12.138  | -8.933   |
| 242 | 1.13 | -0.009   | -1.542  | -1.009  | 2.044  | -2.478   | -1.017   | 2.036    | -2.041   | 1.165    |
| 242 | 2.25 | 16.511   | 6.388   | -1.009  | 2.044  | 30.034   | 13.851   | 16.904   | 20.302   | 23.508   |
| 242 | 3.38 | 33.032   | 14.317  | -1.009  | 2.044  | 62.546   | 28.720   | 31.773   | 42.644   | 45.850   |
| 242 | 4.5  | 40.787   | 17.420  | -1.009  | 2.044  | 76.817   | 35.699   | 38.753   | 52.742   | 55.948   |
| 243 | 0    | -40.131  | -17.304 | -2.036  | 1.004  | -75.844  | -38.154  | -35.114  | -55.177  | -51.985  |
| 243 | 1.13 | -32.376  | -14.201 | -2.036  | 1.004  | -61.573  | -31.174  | -28.134  | -45.079  | -41.867  |
| 243 | 2.25 | -15.855  | -6.272  | -2.036  | 1.004  | -29.061  | -16.306  | -13.266  | -22.737  | -19.545  |
| 243 | 3.38 | 0.665    | 1.658   | -2.036  | 1.004  | 3.451    | -1.437   | 1.603    | -0.395   | 2.797    |
| 243 | 4.5  | 8.421    | 4.761   | -2.036  | 1.004  | 17.722   | 5.543    | 8.582    | 9.703    | 12.895   |
| 244 | 0    | -8.372   | -5.758  | -2.263  | 1.577  | -19.259  | -9.798   | -5.958   | -14.794  | -10.762  |
| 244 | 1.13 | -0.617   | -2.655  | -2.263  | 1.577  | -4.988   | -2.818   | 1.022    | -4.697   | -0.664   |
| 244 | 2.25 | 15.904   | 5.275   | -2.263  | 1.577  | 27.524   | 12.050   | 15.891   | 17.646   | 21.678   |
| 244 | 3.38 | 32.424   | 13.204  | -2.263  | 1.577  | 60.036   | 26.919   | 30.759   | 39.988   | 44.021   |
| 244 | 4.5  | 40.180   | 16.307  | -2.263  | 1.577  | 74.307   | 33.898   | 37.739   | 50.086   | 54.118   |
| 245 | 0    | -138.812 | -37.435 | -12.611 | 19.251 | -226.470 | -137.543 | -105.680 | -182.579 | -149.123 |
| 245 | 1.13 | -116.887 | -34.332 | -12.611 | 19.251 | -195.195 | -117.810 | -85.947  | -157.602 | -124.147 |
| 245 | 2.25 | -86.196  | -26.402 | -12.611 | 19.251 | -145.679 | -90.188  | -58.326  | -120.382 | -86.926  |
| 245 | 3.38 | -55.506  | -18.473 | -12.611 | 19.251 | -96.163  | -62.567  | -30.704  | -83.161  | -49.705  |

|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 245 | 4.5  | -33.581  | -15.370 | -12.611 | 19.251 | -64.888  | -42.834  | -10.971  | -58.185  | -24.729  |
| 246 | 0    | 37.048   | 18.084  | -13.176 | 19.490 | 73.392   | 20.167   | 52.833   | 36.458   | 70.758   |
| 246 | 1.13 | 58.973   | 21.187  | -13.176 | 19.490 | 104.667  | 39.899   | 72.566   | 61.434   | 95.734   |
| 246 | 2.25 | 89.664   | 29.117  | -13.176 | 19.490 | 154.183  | 67.521   | 100.188  | 98.655   | 132.255  |
| 246 | 3.38 | 120.354  | 37.046  | -13.176 | 19.490 | 203.699  | 95.142   | 127.809  | 135.876  | 170.176  |
| 246 | 4.5  | 142.280  | 40.149  | -13.176 | 19.490 | 234.974  | 114.875  | 147.542  | 160.852  | 195.152  |
| 247 | 0    | -138.281 | -39.595 | -19.451 | 13.165 | -229.288 | -143.904 | -111.288 | -190.563 | -156.316 |
| 247 | 1.13 | -116.355 | -36.492 | -19.451 | 13.165 | -198.013 | -124.171 | -91.555  | -165.587 | -131.340 |
| 247 | 2.25 | -85.665  | -28.562 | -19.451 | 13.165 | -148.497 | -96.550  | -63.933  | -128.366 | -94.119  |
| 247 | 3.38 | -54.974  | -20.632 | -19.451 | 13.165 | -98.981  | -68.928  | -36.312  | -91.145  | -56.898  |
| 247 | 4.5  | -33.049  | -17.530 | -19.451 | 13.165 | -67.706  | -49.195  | -16.579  | -66.169  | -31.922  |
| 248 | 0    | 37.261   | 15.837  | -19.214 | 12.599 | 70.051   | 14.321   | 46.134   | 28.926   | 62.330   |
| 248 | 1.13 | 59.186   | 18.940  | -19.214 | 12.599 | 101.326  | 34.054   | 65.867   | 53.903   | 87.306   |
| 248 | 2.25 | 89.876   | 26.869  | -19.214 | 12.599 | 150.843  | 61.675   | 93.488   | 91.124   | 124.527  |
| 248 | 3.38 | 120.567  | 34.799  | -19.214 | 12.599 | 200.359  | 89.297   | 121.110  | 128.344  | 161.748  |
| 248 | 4.5  | 142.492  | 37.902  | -19.214 | 12.599 | 231.633  | 109.029  | 140.842  | 153.321  | 186.724  |
| 249 | 0    | -40.342  | -16.382 | -1.398  | 1.905  | -74.622  | -37.706  | -34.403  | -54.148  | -50.680  |
| 249 | 1.13 | -32.587  | -13.279 | -1.398  | 1.905  | -60.351  | -30.726  | -27.423  | -44.050  | -40.582  |
| 249 | 2.25 | -16.066  | -5.350  | -1.398  | 1.905  | -27.839  | -15.858  | -12.555  | -21.708  | -18.240  |
| 249 | 3.38 | 0.455    | 2.580   | -1.398  | 1.905  | 4.673    | -0.989   | 2.314    | 0.634    | 4.102    |
| 249 | 4.5  | 8.210    | 5.683   | -1.398  | 1.905  | 18.944   | 5.990    | 9.293    | 10.732   | 14.200   |
| 250 | 0    | -6.749   | -4.421  | -0.916  | 1.802  | -15.172  | -6.990   | -4.272   | -10.834  | -7.979   |
| 250 | 1.13 | 1.006    | -1.318  | -0.916  | 1.802  | -0.901   | -0.011   | 2.708    | -0.736   | 2.118    |
| 250 | 2.25 | 17.527   | 6.612   | -0.916  | 1.802  | 31.611   | 14.858   | 17.576   | 21.607   | 24.461   |
| 250 | 3.38 | 34.048   | 14.541  | -0.916  | 1.802  | 64.123   | 29.726   | 32.445   | 43.949   | 46.803   |
| 250 | 4.5  | 41.803   | 17.644  | -0.916  | 1.802  | 78.394   | 36.706   | 39.424   | 54.047   | 56.901   |
| 251 | 0    | -41.559  | -17.613 | -1.797  | 0.915  | -78.051  | -39.200  | -36.488  | -56.620  | -53.773  |
| 251 | 1.13 | -33.804  | -14.510 | -1.797  | 0.915  | -63.780  | -32.221  | -29.509  | -46.522  | -43.675  |
| 251 | 2.25 | -17.283  | -6.580  | -1.797  | 0.915  | -31.268  | -17.352  | -14.649  | -24.180  | -21.333  |
| 251 | 3.38 | -0.763   | 1.349   | -1.797  | 0.915  | 1.244    | -2.484   | 0.228    | -1.838   | 1.010    |
| 251 | 4.5  | 6.993    | 4.452   | -1.797  | 0.915  | 15.515   | 4.496    | 7.208    | 8.260    | 11.107   |
| 252 | 0    | -7.894   | -5.640  | -1.902  | 1.398  | -18.497  | -9.007   | -5.706   | -13.839  | -10.374  |
| 252 | 1.13 | -0.139   | -2.537  | -1.902  | 1.398  | -4.226   | -2.027   | 1.273    | -3.741   | -0.276   |
| 252 | 2.25 | 16.382   | 5.393   | -1.902  | 1.398  | 28.286   | 12.842   | 16.142   | 18.601   | 22.066   |
| 252 | 3.38 | 32.902   | 13.322  | -1.902  | 1.398  | 60.798   | 27.710   | 31.010   | 40.943   | 44.409   |
| 252 | 4.5  | 40.657   | 16.425  | -1.902  | 1.398  | 75.069   | 34.690   | 37.990   | 51.041   | 54.506   |
| 253 | 0    | -24.765  | -11.317 | -1.875  | 2.258  | -47.825  | -24.163  | -20.031  | -35.101  | -30.763  |
| 253 | 1.13 | -17.010  | -8.214  | -1.875  | 2.258  | -33.555  | -17.183  | -13.051  | -25.004  | -20.665  |
| 253 | 2.25 | -0.489   | -0.285  | -1.875  | 2.258  | -1.043   | -2.315   | 1.817    | -2.661   | 1.677    |
| 253 | 3.38 | 16.032   | 7.645   | -1.875  | 2.258  | 31.469   | 12.554   | 16.686   | 19.681   | 24.020   |
| 253 | 4.5  | 23.787   | 10.748  | -1.875  | 2.258  | 45.740   | 19.533   | 23.666   | 29.779   | 34.118   |
| 254 | 0    | -24.442  | -10.585 | -0.613  | 0.733  | -46.267  | -22.611  | -21.265  | -32.976  | -31.563  |
| 254 | 1.13 | -16.687  | -7.482  | -0.613  | 0.733  | -31.996  | -15.631  | -14.285  | -22.879  | -21.465  |
| 254 | 2.25 | -0.166   | 0.447   | -0.613  | 0.733  | 0.516    | -0.763   | 0.584    | -0.536   | 0.877    |
| 254 | 3.38 | 16.354   | 8.377   | -0.613  | 0.733  | 33.028   | 14.106   | 15.452   | 21.806   | 23.219   |
| 254 | 4.5  | 24.110   | 11.480  | -0.613  | 0.733  | 47.299   | 21.086   | 22.432   | 31.904   | 33.317   |
| 255 | 0    | -24.074  | -11.473 | -0.735  | 0.615  | -47.245  | -22.401  | -21.052  | -33.277  | -31.860  |
| 255 | 1.13 | -16.319  | -8.370  | -0.735  | 0.615  | -32.974  | -15.422  | -14.072  | -23.179  | -21.762  |
| 255 | 2.25 | 0.202    | -0.440  | -0.735  | 0.615  | -0.462   | -0.553   | 0.796    | -0.837   | 0.580    |
| 255 | 3.38 | 16.722   | 7.489   | -0.735  | 0.615  | 32.050   | 14.315   | 15.565   | 21.505   | 22.922   |
| 255 | 4.5  | 24.478   | 10.592  | -0.735  | 0.615  | 46.321   | 21.295   | 22.644   | 31.603   | 33.020   |
| 256 | 0    | -23.614  | -10.728 | -2.252  | 1.877  | -45.501  | -23.505  | -19.376  | -33.918  | -29.582  |
| 256 | 1.13 | -15.859  | -7.625  | -2.252  | 1.877  | -31.230  | -16.525  | -12.396  | -23.820  | -19.485  |
| 256 | 2.25 | 0.662    | 0.305   | -2.252  | 1.877  | 1.282    | -1.657   | 2.473    | -1.478   | 2.858    |
| 256 | 3.38 | 17.182   | 8.234   | -2.252  | 1.877  | 33.794   | 13.212   | 17.341   | 20.864   | 25.200   |
| 256 | 4.5  | 24.938   | 11.337  | -2.252  | 1.877  | 48.064   | 20.192   | 24.321   | 30.962   | 35.298   |
| 257 | 0    | -82.807  | -27.562 | 1.408   | -1.280 | -143.467 | -73.118  | -75.806  | -102.833 | -105.655 |
| 257 | 0.75 | -76.062  | -26.183 | 1.408   | -1.280 | -133.166 | -67.048  | -69.735  | -94.882  | -97.703  |
| 257 | 1.50 | -64.308  | -22.045 | 1.408   | -1.280 | -112.442 | -56.469  | -59.157  | -79.933  | -82.755  |
| 257 | 2.25 | -52.554  | -17.908 | 1.408   | -1.280 | -91.718  | -45.891  | -48.378  | -64.985  | -67.807  |
| 257 | 3    | -45.809  | -16.529 | 1.408   | -1.280 | -81.417  | -39.820  | -42.508  | -57.034  | -59.856  |
| 258 | 0    | 0.884    | 4.477   | -0.512  | 0.668  | 8.224    | 0.284    | 1.463    | 3.212    | 4.450    |
| 258 | 0.75 | 7.629    | 5.856   | -0.512  | 0.668  | 18.525   | 6.354    | 7.534    | 11.163   | 12.401   |
| 258 | 1.5  | 19.383   | 9.994   | -0.512  | 0.668  | 39.249   | 16.933   | 18.113   | 26.111   | 27.349   |
| 258 | 2.25 | 31.137   | 14.131  | -0.512  | 0.668  | 59.974   | 27.512   | 28.691   | 41.059   | 42.297   |
| 258 | 3    | 37.882   | 15.510  | -0.512  | 0.668  | 70.274   | 33.582   | 34.762   | 49.010   | 50.249   |
| 259 | 0    | -31.692  | -15.643 | 0.234   | -0.258 | -63.059  | -28.288  | -28.781  | -42.885  | -43.403  |

|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 259 | 0.75 | -27.774 | -14.264 | 0.234  | -0.258 | -56.151  | -24.762 | -25.255 | -37.903  | -38.420  |
| 259 | 1.5  | -18.847 | -10.127 | 0.234  | -0.258 | -38.819  | -16.728 | -17.221 | -25.923  | -26.441  |
| 259 | 2.25 | -9.920  | -5.990  | 0.234  | -0.258 | -21.488  | -8.694  | -9.187  | -13.944  | -14.461  |
| 259 | 3    | -6.002  | -4.610  | 0.234  | -0.258 | -14.580  | -5.168  | -5.661  | -8.961   | -9.479   |
| 260 | 0    | 9.948   | 5.767   | -0.318 | 0.357  | 21.164   | 8.635   | 9.309   | 13.744   | 14.452   |
| 260 | 0.75 | 13.866  | 7.146   | -0.318 | 0.357  | 28.072   | 12.161  | 12.836  | 18.727   | 19.435   |
| 260 | 1.5  | 22.792  | 11.283  | -0.318 | 0.357  | 45.403   | 20.195  | 20.870  | 30.706   | 31.415   |
| 260 | 2.25 | 31.719  | 15.420  | -0.318 | 0.357  | 62.735   | 28.229  | 28.904  | 42.686   | 43.394   |
| 260 | 3    | 35.637  | 16.799  | -0.318 | 0.357  | 69.643   | 31.755  | 32.430  | 47.669   | 48.377   |
| 261 | 0    | -35.429 | -16.823 | 0.333  | -0.357 | -69.432  | -31.553 | -32.244 | -47.450  | -48.174  |
| 261 | 0.75 | -31.511 | -15.444 | 0.333  | -0.357 | -62.524  | -28.027 | -28.717 | -42.467  | -43.192  |
| 261 | 1.5  | -22.584 | -11.307 | 0.333  | -0.357 | -45.192  | -19.993 | -20.683 | -30.487  | -31.212  |
| 261 | 2.25 | -13.658 | -7.170  | 0.333  | -0.357 | -27.860  | -11.959 | -12.649 | -18.508  | -19.233  |
| 261 | 3    | -9.740  | -5.791  | 0.333  | -0.357 | -20.952  | -8.433  | -9.123  | -13.525  | -14.250  |
| 262 | 0    | 7.864   | 4.906   | -0.300 | 0.341  | 17.287   | 6.778   | 7.418   | 11.034   | 11.706   |
| 262 | 0.75 | 11.782  | 6.285   | -0.300 | 0.341  | 24.195   | 10.304  | 10.944  | 16.016   | 16.689   |
| 262 | 1.5  | 20.709  | 10.423  | -0.300 | 0.341  | 41.527   | 18.338  | 18.978  | 27.996   | 28.668   |
| 262 | 2.25 | 29.636  | 14.560  | -0.300 | 0.341  | 58.858   | 26.372  | 27.012  | 39.975   | 40.648   |
| 262 | 3    | 33.554  | 16.939  | -0.300 | 0.341  | 65.766   | 29.898  | 30.539  | 44.958   | 45.630   |
| 263 | 0    | -22.265 | -0.102  | 0.004  | 0.004  | -26.881  | -20.034 | -20.034 | -23.437  | -23.438  |
| 263 | 1.5  | -4.608  | -0.102  | 0.004  | 0.004  | -5.693   | -4.143  | -4.144  | -4.898   | -4.899   |
| 263 | 3    | 13.048  | -0.102  | 0.004  | 0.004  | 15.495   | 11.748  | 11.747  | 13.641   | 13.640   |
| 263 | 4.5  | 30.705  | -0.102  | 0.004  | 0.004  | 36.683   | 27.639  | 27.638  | 32.181   | 32.180   |
| 263 | 6    | 48.361  | -0.102  | 0.004  | 0.004  | 57.871   | 43.530  | 43.529  | 50.720   | 50.719   |
| 264 | 0    | -26.813 | -12.543 | 0.301  | -0.335 | -52.244  | -23.830 | -24.466 | -35.739  | -36.407  |
| 264 | 0.56 | -24.344 | -11.767 | 0.301  | -0.335 | -48.040  | -21.608 | -22.244 | -32.658  | -33.326  |
| 264 | 1.13 | -19.057 | -9.440  | 0.301  | -0.335 | -37.973  | -16.851 | -17.486 | -25.642  | -26.309  |
| 264 | 1.69 | -13.771 | -7.113  | 0.301  | -0.335 | -27.906  | -12.093 | -12.728 | -18.625  | -19.292  |
| 264 | 2.25 | -11.302 | -6.337  | 0.301  | -0.335 | -23.702  | -9.871  | -10.506 | -15.544  | -16.211  |
| 265 | 0    | 9.507   | 5.780   | -0.266 | 0.307  | 20.656   | 8.290   | 8.863   | 13.344   | 13.945   |
| 265 | 0.56 | 11.976  | 6.556   | -0.266 | 0.307  | 24.860   | 10.512  | 11.085  | 16.425   | 17.026   |
| 265 | 1.13 | 17.262  | 8.883   | -0.266 | 0.307  | 34.927   | 15.270  | 15.842  | 23.442   | 24.043   |
| 265 | 1.69 | 22.548  | 11.210  | -0.266 | 0.307  | 44.994   | 20.028  | 20.600  | 30.459   | 31.060   |
| 265 | 2.25 | 25.017  | 11.986  | -0.266 | 0.307  | 49.198   | 22.250  | 22.822  | 33.540   | 34.141   |
| 266 | 0    | -82.807 | -27.562 | 1.408  | -1.280 | -143.467 | -73.118 | -75.806 | -102.833 | -105.655 |
| 266 | 0.75 | -76.062 | -26.183 | 1.408  | -1.280 | -133.166 | -67.048 | -69.735 | -94.882  | -97.703  |
| 266 | 1.5  | -64.308 | -22.045 | 1.408  | -1.280 | -112.442 | -56.469 | -59.157 | -79.933  | -82.755  |
| 266 | 2.25 | -52.554 | -17.908 | 1.408  | -1.280 | -91.718  | -45.891 | -48.578 | -64.985  | -67.807  |
| 266 | 3    | -45.808 | -16.529 | 1.408  | -1.280 | -81.417  | -39.820 | -42.508 | -57.034  | -59.856  |
| 267 | 0    | 0.884   | 4.477   | -0.512 | 0.668  | 8.224    | 0.284   | 1.463   | 3.212    | 4.450    |
| 267 | 0.75 | 7.629   | 5.856   | -0.512 | 0.668  | 18.525   | 6.354   | 7.531   | 11.163   | 12.401   |
| 267 | 1.5  | 19.383  | 9.994   | -0.512 | 0.668  | 39.249   | 16.933  | 18.113  | 26.111   | 27.349   |
| 267 | 2.25 | 31.137  | 14.131  | -0.512 | 0.668  | 59.974   | 27.512  | 28.691  | 41.059   | 42.297   |
| 267 | 3    | 37.882  | 15.510  | -0.512 | 0.668  | 70.274   | 33.582  | 34.762  | 49.010   | 50.249   |
| 268 | 0    | -35.789 | 0.048   | -0.003 | -0.004 | -42.871  | -32.213 | -32.214 | -37.552  | -37.553  |
| 268 | 1.5  | -18.133 | 0.048   | -0.003 | -0.004 | -21.683  | -16.323 | -16.324 | -19.013  | -19.014  |
| 268 | 3    | -0.477  | 0.048   | -0.003 | -0.004 | -0.495   | -0.432  | -0.433  | -0.473   | -0.474   |
| 268 | 4.5  | 17.180  | 0.048   | -0.003 | -0.004 | 20.692   | 15.459  | 15.458  | 18.066   | 18.065   |
| 268 | 6    | 34.836  | 0.048   | -0.003 | -0.004 | 41.880   | 31.350  | 31.349  | 36.605   | 36.604   |
| 269 | 0    | -31.692 | -15.643 | 0.234  | -0.258 | -63.059  | -28.288 | -28.781 | -42.885  | -43.403  |
| 269 | 0.75 | -27.774 | -14.264 | 0.234  | -0.258 | -56.151  | -24.762 | -25.255 | -37.903  | -38.420  |
| 269 | 1.5  | -18.847 | -10.127 | 0.234  | -0.258 | -38.819  | -16.728 | -17.221 | -25.923  | -26.441  |
| 269 | 2.25 | -9.920  | -5.989  | 0.234  | -0.258 | -21.488  | -8.694  | -9.187  | -13.944  | -14.461  |
| 269 | 3    | -6.002  | -4.610  | 0.234  | -0.258 | -14.580  | -5.168  | -5.661  | -8.961   | -9.479   |
| 270 | 0    | 9.948   | 5.767   | -0.318 | 0.357  | 21.164   | 8.635   | 9.310   | 13.744   | 14.453   |
| 270 | 0.75 | 13.866  | 7.146   | -0.318 | 0.357  | 28.072   | 12.161  | 12.836  | 18.727   | 19.435   |
| 270 | 1.5  | 22.792  | 11.283  | -0.318 | 0.357  | 45.404   | 20.195  | 20.870  | 30.706   | 31.415   |
| 270 | 2.25 | 31.719  | 15.420  | -0.318 | 0.357  | 62.735   | 28.229  | 28.904  | 42.686   | 43.394   |
| 270 | 3    | 35.637  | 16.799  | -0.318 | 0.357  | 69.643   | 31.755  | 32.430  | 47.669   | 48.377   |
| 271 | 0    | -35.430 | -16.823 | 0.333  | -0.357 | -69.433  | -31.554 | -32.244 | -47.450  | -48.175  |
| 271 | 0.75 | -31.512 | -15.444 | 0.333  | -0.357 | -62.525  | -28.028 | -28.718 | -42.468  | -43.192  |
| 271 | 1.5  | -22.585 | -11.307 | 0.333  | -0.357 | -45.193  | -19.994 | -20.684 | -30.488  | -31.213  |
| 271 | 2.25 | -13.658 | -7.170  | 0.333  | -0.357 | -27.862  | -11.960 | -12.650 | -18.509  | -19.233  |
| 271 | 3    | -9.740  | -5.791  | 0.333  | -0.357 | -20.954  | -8.434  | -9.124  | -13.526  | -14.251  |
| 272 | 0    | 7.863   | 4.906   | -0.300 | 0.341  | 17.284   | 6.777   | 7.417   | 11.032   | 11.704   |
| 272 | 0.75 | 11.781  | 6.285   | -0.300 | 0.341  | 24.193   | 10.303  | 10.943  | 16.015   | 16.687   |
| 272 | 1.5  | 20.708  | 10.422  | -0.300 | 0.341  | 41.524   | 18.337  | 18.977  | 27.994   | 28.666   |

|     |      |          |         |         |        |          |          |         |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|---------|----------|----------|
| 272 | 2.25 | 29.634   | 14.559  | -0.300  | 0.341  | 58.856   | 26.371   | 27.011  | 39.974   | 40.646   |
| 272 | 3    | 33.552   | 15.938  | -0.300  | 0.341  | 65.764   | 29.897   | 30.537  | 44.956   | 45.628   |
| 273 | 0    | -26.805  | -12.539 | 0.301   | -0.335 | -52.229  | -23.824  | -21.459 | -35.729  | -36.397  |
| 273 | 0.56 | -24.336  | -11.763 | 0.301   | -0.335 | -48.025  | -21.602  | -22.237 | -32.648  | -33.316  |
| 273 | 1.13 | -19.050  | -9.436  | 0.301   | -0.335 | -37.958  | -16.844  | -17.480 | -25.632  | -26.299  |
| 273 | 1.69 | -13.764  | -7.109  | 0.301   | -0.335 | -27.891  | -12.087  | -12.722 | -18.615  | -19.282  |
| 273 | 2.25 | -11.295  | -6.333  | 0.301   | -0.335 | -23.687  | -9.865   | -10.509 | -15.534  | -16.201  |
| 274 | 0    | 9.523    | 5.789   | -0.266  | 0.307  | 20.690   | 8.305    | 8.878   | 13.368   | 13.968   |
| 274 | 0.56 | 11.992   | 6.565   | -0.266  | 0.307  | 24.894   | 10.527   | 11.100  | 16.449   | 17.049   |
| 274 | 1.13 | 17.278   | 8.892   | -0.266  | 0.307  | 34.961   | 15.285   | 15.857  | 23.465   | 24.066   |
| 274 | 1.69 | 22.565   | 11.219  | -0.266  | 0.307  | 45.028   | 20.043   | 20.615  | 30.482   | 31.083   |
| 274 | 2.25 | 25.034   | 11.995  | -0.266  | 0.307  | 49.232   | 22.265   | 22.837  | 33.563   | 34.164   |
| 275 | 0    | 1.794    | 1.716   | 0.357   | -0.279 | 4.898    | 1.972    | 1.336   | 3.540    | 2.672    |
| 275 | 0.75 | 7.287    | 2.405   | 0.357   | -0.279 | 12.593   | 6.916    | 6.280   | 9.542    | 8.874    |
| 275 | 1.5  | 15.284   | 4.474   | 0.357   | -0.279 | 25.499   | 14.113   | 13.477  | 19.242   | 18.574   |
| 275 | 2.25 | 23.282   | 6.542   | 0.357   | -0.279 | 38.406   | 21.311   | 20.675  | 28.943   | 28.275   |
| 275 | 3    | 28.775   | 7.232   | 0.357   | -0.279 | 46.100   | 26.254   | 25.618  | 35.145   | 34.477   |
| 276 | 0    | 1.814    | 1.727   | 0.357   | -0.279 | 4.939    | 1.990    | 1.354   | 3.367    | 2.700    |
| 276 | 0.75 | 7.307    | 2.416   | 0.357   | -0.279 | 12.634   | 6.933    | 6.297   | 9.569    | 8.902    |
| 276 | 1.5  | 15.304   | 4.485   | 0.357   | -0.279 | 25.540   | 14.131   | 13.495  | 19.270   | 18.602   |
| 276 | 2.25 | 23.301   | 6.553   | 0.357   | -0.279 | 38.447   | 21.329   | 20.693  | 28.970   | 28.302   |
| 276 | 3    | 28.794   | 7.243   | 0.357   | -0.279 | 46.142   | 26.272   | 25.636  | 35.172   | 34.504   |
| 279 | 0    | -128.876 | -34.886 | -21.263 | 22.497 | -210.469 | -137.251 | -93.491 | -179.624 | -133.676 |
| 279 | 1.13 | -106.951 | -31.783 | -21.263 | 22.497 | -179.194 | -117.518 | -73.758 | -154.647 | -108.699 |
| 279 | 2.25 | -77.825  | -24.715 | -21.263 | 22.497 | -132.935 | -91.306  | -47.545 | -119.613 | -73.665  |
| 279 | 3.38 | -48.700  | -17.648 | -21.263 | 22.497 | -86.676  | -65.093  | -21.333 | -84.579  | -38.631  |
| 279 | 4.5  | -26.775  | -14.545 | -21.263 | 22.497 | -55.401  | -45.360  | -1.600  | -59.603  | -13.654  |
| 280 | 0    | 32.980   | 13.916  | -20.507 | 21.808 | 61.812   | 9.175    | 51.490  | 21.864   | 66.295   |
| 280 | 1.13 | 54.906   | 17.019  | -20.507 | 21.808 | 93.117   | 28.908   | 71.223  | 46.840   | 91.271   |
| 280 | 2.25 | 84.031   | 24.086  | -20.507 | 21.808 | 139.375  | 55.121   | 97.436  | 81.874   | 126.205  |
| 280 | 3.38 | 113.156  | 31.154  | -20.507 | 21.808 | 185.634  | 81.333   | 123.649 | 116.909  | 161.340  |
| 280 | 4.5  | 135.082  | 34.257  | -20.507 | 21.808 | 216.909  | 101.066  | 143.382 | 141.885  | 186.316  |
| 283 | 0    | -128.871 | -34.883 | -21.263 | 22.497 | -210.458 | -137.247 | -93.486 | -179.617 | -133.669 |
| 283 | 1.13 | -106.946 | -31.780 | -21.263 | 22.497 | -179.183 | -117.514 | -73.754 | -154.640 | -108.692 |
| 283 | 2.25 | -77.820  | -24.713 | -21.263 | 22.497 | -132.924 | -91.301  | -47.541 | -119.606 | -73.658  |
| 283 | 3.38 | -48.695  | -17.645 | -21.263 | 22.497 | -86.666  | -65.088  | -21.328 | -84.572  | -38.624  |
| 283 | 4.5  | -26.770  | -14.542 | -21.263 | 22.497 | -55.391  | -45.355  | -1.595  | -59.596  | -13.647  |
| 284 | 0    | 32.984   | 13.918  | -20.507 | 21.808 | 61.849   | 9.178    | 51.493  | 21.868   | 66.300   |
| 284 | 1.13 | 54.909   | 17.021  | -20.507 | 21.808 | 93.124   | 28.911   | 71.226  | 46.845   | 91.276   |
| 284 | 2.25 | 84.034   | 24.088  | -20.507 | 21.808 | 139.382  | 55.124   | 97.439  | 81.879   | 126.310  |
| 284 | 3.38 | 113.160  | 31.156  | -20.507 | 21.808 | 185.641  | 81.336   | 123.652 | 116.913  | 161.344  |
| 284 | 4.5  | 135.085  | 34.259  | -20.507 | 21.808 | 216.916  | 101.069  | 143.385 | 141.890  | 186.321  |
| 287 | 0    | -35.302  | 0.094   | -0.002  | -0.003 | -42.212  | -31.774  | -31.774 | -37.010  | -37.011  |
| 287 | 1.5  | -17.645  | 0.094   | -0.002  | -0.003 | -21.024  | -15.883  | -15.884 | -18.470  | -18.471  |
| 287 | 3    | 0.011    | 0.094   | -0.002  | -0.003 | 0.164    | 0.008    | 0.007   | 0.069    | 0.068    |
| 287 | 4.5  | 17.668   | 0.094   | -0.002  | -0.003 | 21.352   | 15.899   | 15.898  | 18.608   | 18.607   |
| 287 | 6    | 35.324   | 0.094   | -0.002  | -0.003 | 42.539   | 31.790   | 31.789  | 37.147   | 37.147   |
| 288 | 0    | -57.606  | -13.547 | -0.010  | -0.015 | -90.801  | -51.855  | -51.860 | -69.031  | -69.036  |
| 288 | 0.75 | -44.241  | -12.168 | -0.010  | -0.015 | -72.557  | -39.827  | -39.832 | -54.129  | -54.135  |
| 288 | 1.5  | -25.867  | -8.031  | -0.010  | -0.015 | -43.890  | -23.291  | -23.296 | -32.231  | -32.236  |
| 288 | 2.25 | -7.494   | -5.893  | -0.010  | -0.015 | -15.222  | -6.755   | -6.760  | -10.332  | -10.338  |
| 288 | 3    | 5.871    | -2.514  | -0.010  | -0.015 | 3.022    | 5.273    | 5.268   | 4.569    | 4.564    |
| 289 | 0    | 55.715   | 20.857  | -0.051  | -0.063 | 100.229  | 50.092   | 50.086  | 71.587   | 71.574   |
| 289 | 0.75 | 69.079   | 22.236  | -0.051  | -0.063 | 118.473  | 62.120   | 62.108  | 86.488   | 86.476   |
| 289 | 1.5  | 87.453   | 26.374  | -0.051  | -0.063 | 147.141  | 78.656   | 78.644  | 108.387  | 108.375  |
| 289 | 2.25 | 105.826  | 30.511  | -0.051  | -0.063 | 175.809  | 95.192   | 95.180  | 130.286  | 130.273  |
| 289 | 3    | 119.191  | 31.890  | -0.051  | -0.063 | 194.053  | 107.221  | 107.209 | 145.187  | 145.175  |
| 294 | 0    | -82.814  | -27.587 | -1.245  | 1.413  | -143.516 | -75.777  | -73.119 | -105.641 | -102.851 |
| 294 | 0.75 | -76.069  | -26.208 | -1.245  | 1.413  | -133.216 | -69.706  | -67.048 | -97.690  | -94.899  |
| 294 | 1.5  | -64.315  | -22.071 | -1.245  | 1.413  | -112.492 | -59.128  | -56.470 | -82.742  | -79.951  |
| 294 | 2.25 | -52.561  | -17.934 | -1.245  | 1.413  | -91.767  | -48.549  | -45.891 | -67.794  | -65.003  |
| 294 | 3    | -45.816  | -16.555 | -1.245  | 1.413  | -81.467  | -42.479  | -39.821 | -59.843  | -57.052  |
| 295 | 0    | 0.798    | 4.448   | 0.690   | -0.506 | 8.074    | 1.408    | 0.212   | 4.364    | 3.108    |
| 295 | 0.75 | 7.543    | 5.827   | 0.690   | -0.506 | 18.375   | 7.478    | 6.282   | 12.316   | 11.060   |
| 295 | 1.5  | 19.297   | 9.965   | 0.690   | -0.506 | 39.099   | 18.057   | 16.861  | 27.264   | 26.008   |
| 295 | 2.25 | 31.051   | 14.102  | 0.690   | -0.506 | 59.823   | 28.636   | 27.439  | 42.212   | 40.956   |
| 295 | 3    | 37.796   | 15.481  | 0.690   | -0.506 | 70.124   | 34.706   | 33.510  | 50.163   | 48.907   |

|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 296 | 0    | -31.662 | -15.641 | -0.260 | 0.236  | -63.020 | -28.757 | -28.260 | -43.373 | -42.851 |
| 296 | 0.75 | -27.744 | -14.262 | -0.260 | 0.236  | -56.112 | -25.231 | -24.734 | -38.390 | -37.869 |
| 296 | 1.5  | -18.818 | -10.125 | -0.260 | 0.236  | -38.781 | -17.196 | -16.700 | -26.411 | -25.889 |
| 296 | 2.25 | -9.891  | -5.987  | -0.260 | 0.236  | -21.449 | -9.162  | -8.666  | -14.431 | -13.910 |
| 296 | 3    | -5.973  | -4.608  | -0.260 | 0.236  | -14.541 | -5.636  | -5.140  | -9.448  | -8.927  |
| 297 | 0    | 9.893   | 5.757   | 0.354  | -0.316 | 21.082  | 9.257   | 8.588   | 14.386  | 13.683  |
| 297 | 0.75 | 13.811  | 7.136   | 0.354  | -0.316 | 27.990  | 12.784  | 12.114  | 19.368  | 18.665  |
| 297 | 1.5  | 22.738  | 11.273  | 0.354  | -0.316 | 45.322  | 20.818  | 20.148  | 31.348  | 30.645  |
| 297 | 2.25 | 31.664  | 15.410  | 0.354  | -0.316 | 62.653  | 28.852  | 28.182  | 43.327  | 42.624  |
| 297 | 3    | 35.582  | 16.789  | 0.354  | -0.316 | 69.562  | 32.378  | 31.708  | 48.310  | 47.607  |
| 298 | 0    | -35.391 | -16.794 | -0.358 | 0.333  | -69.340 | -32.211 | -31.519 | -48.117 | -47.392 |
| 298 | 0.75 | -31.473 | -15.415 | -0.358 | 0.333  | -62.432 | -28.684 | -27.993 | -43.135 | -42.409 |
| 298 | 1.5  | -22.547 | -11.278 | -0.358 | 0.333  | -45.101 | -20.650 | -19.959 | -31.155 | -30.429 |
| 298 | 2.25 | -13.620 | -7.141  | -0.358 | 0.333  | -27.769 | -12.616 | -11.925 | -19.176 | -18.450 |
| 298 | 3    | -9.702  | -5.762  | -0.358 | 0.333  | -20.861 | -9.090  | -8.399  | -14.193 | -13.467 |
| 299 | 0    | 7.785   | 4.966   | 0.347  | -0.307 | 17.287  | 7.353   | 6.699   | 11.667  | 10.980  |
| 299 | 0.75 | 11.703  | 6.345   | 0.347  | -0.307 | 24.195  | 10.880  | 10.225  | 16.650  | 15.963  |
| 299 | 1.5  | 20.630  | 10.482  | 0.347  | -0.307 | 41.527  | 18.914  | 18.259  | 28.629  | 27.942  |
| 299 | 2.25 | 29.556  | 14.619  | 0.347  | -0.307 | 58.858  | 26.948  | 26.294  | 40.609  | 39.922  |
| 299 | 3    | 33.474  | 15.998  | 0.347  | -0.307 | 65.766  | 30.474  | 29.820  | 45.591  | 44.904  |
| 300 | 0    | -24.467 | -11.927 | -0.385 | 0.358  | -48.444 | -22.405 | -21.663 | -33.608 | -32.829 |
| 300 | 0.56 | -21.998 | -11.151 | -0.385 | 0.358  | -44.240 | -20.183 | -19.441 | -30.527 | -29.748 |
| 300 | 1.13 | -16.712 | -8.824  | -0.385 | 0.358  | -34.173 | -15.425 | -14.683 | -23.511 | -22.731 |
| 300 | 1.69 | -11.426 | -6.497  | -0.385 | 0.358  | -24.106 | -10.668 | -9.925  | -16.494 | -15.714 |
| 300 | 2.25 | -8.957  | -5.721  | -0.385 | 0.358  | -19.902 | -8.446  | -7.703  | -13.413 | -12.633 |
| 301 | 0    | 10.146  | 5.853   | 0.403  | -0.368 | 21.541  | 9.535   | 8.764   | 14.765  | 13.955  |
| 301 | 0.56 | 12.615  | 6.629   | 0.403  | -0.368 | 25.745  | 11.757  | 10.986  | 17.846  | 17.036  |
| 301 | 1.13 | 17.902  | 8.956   | 0.403  | -0.368 | 35.812  | 16.515  | 15.744  | 24.863  | 24.053  |
| 301 | 1.69 | 23.188  | 11.283  | 0.403  | -0.368 | 45.879  | 21.273  | 20.502  | 31.879  | 31.070  |
| 301 | 2.25 | 25.657  | 12.059  | 0.403  | -0.368 | 50.083  | 23.495  | 22.724  | 34.961  | 34.151  |
| 302 | 0    | -34.098 | -16.402 | -0.352 | 0.322  | -67.160 | -31.040 | -30.367 | -46.506 | -45.798 |
| 302 | 0.75 | -30.180 | -15.023 | -0.352 | 0.322  | -60.252 | -27.514 | -26.840 | -41.523 | -40.816 |
| 302 | 1.5  | -21.253 | -10.886 | -0.352 | 0.322  | -42.921 | -19.480 | -18.805 | -29.544 | -28.836 |
| 302 | 2.25 | -12.326 | -6.748  | -0.352 | 0.322  | -25.589 | -11.446 | -10.772 | -17.564 | -16.857 |
| 302 | 3    | -8.408  | -5.369  | -0.352 | 0.322  | -18.681 | -7.920  | -7.246  | -12.581 | -11.874 |
| 303 | 0    | 8.407   | 5.369   | 0.352  | -0.322 | 18.679  | 7.919   | 7.245   | 12.580  | 11.873  |
| 303 | 0.75 | 12.325  | 6.748   | 0.352  | -0.322 | 25.587  | 11.445  | 10.771  | 17.563  | 16.855  |
| 303 | 1.5  | 21.252  | 10.885  | 0.352  | -0.322 | 42.919  | 19.479  | 18.805  | 29.542  | 28.835  |
| 303 | 2.25 | 30.179  | 15.022  | 0.352  | -0.322 | 60.250  | 27.513  | 26.839  | 41.522  | 40.814  |
| 303 | 3    | 34.097  | 16.401  | 0.352  | -0.322 | 67.158  | 31.039  | 30.366  | 46.504  | 45.797  |
| 304 | 0    | -25.656 | -12.059 | -0.403 | 0.368  | -50.081 | -23.494 | -22.723 | -34.960 | -34.150 |
| 304 | 0.56 | -23.187 | -11.283 | -0.403 | 0.368  | -45.877 | -21.272 | -20.501 | -31.879 | -31.069 |
| 304 | 1.13 | -17.901 | -8.956  | -0.403 | 0.368  | -35.810 | -16.514 | -15.743 | -24.862 | -24.052 |
| 304 | 1.69 | -12.615 | -6.628  | -0.403 | 0.368  | -25.743 | -11.757 | -10.986 | -17.845 | -17.035 |
| 304 | 2.25 | -10.146 | -5.853  | -0.403 | 0.368  | -21.539 | -9.535  | -8.764  | -14.764 | -13.951 |
| 305 | 0    | 8.958   | 5.722   | 0.385  | -0.358 | 19.904  | 8.447   | 7.704   | 13.414  | 12.635  |
| 305 | 0.56 | 11.427  | 6.498   | 0.385  | -0.358 | 24.108  | 10.669  | 9.926   | 16.495  | 15.716  |
| 305 | 1.13 | 16.713  | 8.825   | 0.385  | -0.358 | 34.175  | 15.426  | 14.684  | 23.512  | 22.733  |
| 305 | 1.69 | 21.999  | 11.152  | 0.385  | -0.358 | 44.242  | 20.184  | 19.442  | 30.529  | 29.749  |
| 305 | 2.25 | 24.468  | 11.928  | 0.385  | -0.358 | 48.446  | 22.406  | 21.664  | 33.610  | 32.830  |
| 306 | 0    | -33.474 | -15.998 | -0.347 | 0.307  | -65.766 | -30.474 | -29.820 | -45.591 | -44.904 |
| 306 | 0.75 | -29.556 | -14.619 | -0.347 | 0.307  | -58.858 | -26.948 | -26.294 | -40.609 | -39.922 |
| 306 | 1.5  | -20.630 | -10.482 | -0.347 | 0.307  | -41.527 | -18.914 | -18.260 | -28.629 | -27.942 |
| 306 | 2.25 | -11.703 | -6.345  | -0.347 | 0.307  | -24.195 | -10.880 | -10.225 | -16.650 | -15.963 |
| 306 | 3    | -7.785  | -4.966  | -0.347 | 0.307  | -17.287 | -7.353  | -6.699  | -11.667 | -10.980 |
| 307 | 0    | 9.702   | 5.762   | 0.358  | -0.333 | 20.861  | 9.090   | 8.399   | 14.193  | 13.467  |
| 307 | 0.75 | 13.620  | 7.141   | 0.358  | -0.333 | 27.769  | 12.616  | 11.925  | 19.176  | 18.450  |
| 307 | 1.5  | 22.547  | 11.278  | 0.358  | -0.333 | 45.101  | 20.650  | 19.959  | 31.155  | 30.429  |
| 307 | 2.25 | 31.473  | 15.415  | 0.358  | -0.333 | 62.432  | 28.684  | 27.993  | 43.135  | 42.409  |
| 307 | 3    | 35.391  | 16.794  | 0.358  | -0.333 | 69.340  | 32.211  | 31.519  | 48.117  | 47.392  |
| 308 | 0    | -35.582 | -16.789 | -0.354 | 0.316  | -69.562 | -32.378 | -31.708 | -48.310 | -47.607 |
| 308 | 0.75 | -31.664 | -15.410 | -0.354 | 0.316  | -62.653 | -28.852 | -28.182 | -43.327 | -42.624 |
| 308 | 1.5  | -22.738 | -11.273 | -0.354 | 0.316  | -45.322 | -20.818 | -20.148 | -31.348 | -30.645 |
| 308 | 2.25 | -13.811 | -7.136  | -0.354 | 0.316  | -27.990 | -12.784 | -12.114 | -19.368 | -18.665 |
| 308 | 3    | -9.893  | -5.757  | -0.354 | 0.316  | -21.082 | -9.257  | -8.588  | -14.386 | -13.683 |
| 309 | 0    | 5.973   | 4.608   | 0.260  | -0.236 | 14.541  | 5.636   | 5.140   | 9.448   | 8.927   |
| 309 | 0.75 | 9.891   | 5.987   | 0.260  | -0.236 | 21.449  | 9.162   | 8.666   | 14.431  | 13.910  |

|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 309 | 1.5  | 18.818   | 10.125  | 0.260   | -0.236 | 38.780   | 17.196   | 16.700   | 26.411   | 25.889   |
| 309 | 2.25 | 27.744   | 14.262  | 0.260   | -0.236 | 56.112   | 25.231   | 24.734   | 38.390   | 37.869   |
| 309 | 3    | 31.662   | 15.641  | 0.260   | -0.236 | 63.020   | 28.757   | 28.260   | 43.373   | 42.851   |
| 310 | 0    | -37.796  | -15.481 | -0.690  | 0.506  | -70.124  | -34.706  | -33.510  | -50.163  | -48.907  |
| 310 | 0.75 | -31.051  | -14.102 | -0.690  | 0.506  | -59.823  | -28.636  | -27.439  | -42.212  | -40.956  |
| 310 | 1.5  | -19.297  | -9.965  | -0.690  | 0.506  | -39.099  | -18.057  | -16.861  | -27.264  | -26.008  |
| 310 | 2.25 | -7.543   | -5.827  | -0.690  | 0.506  | -18.375  | -7.478   | -6.282   | -12.316  | -11.060  |
| 310 | 3    | -0.798   | -4.448  | -0.690  | 0.506  | -8.074   | -1.408   | -0.212   | -4.364   | -3.108   |
| 311 | 0    | 45.816   | 16.555  | 1.245   | -1.413 | 81.467   | 42.479   | 39.821   | 59.843   | 57.052   |
| 311 | 0.75 | 52.561   | 17.934  | 1.245   | -1.413 | 91.767   | 48.549   | 45.891   | 67.794   | 65.003   |
| 311 | 1.5  | 64.315   | 22.071  | 1.245   | -1.413 | 112.491  | 59.128   | 56.470   | 82.742   | 79.951   |
| 311 | 2.25 | 76.069   | 26.208  | 1.245   | -1.413 | 133.216  | 69.706   | 67.048   | 97.690   | 94.892   |
| 311 | 3    | 82.814   | 27.587  | 1.245   | -1.413 | 143.516  | 75.777   | 73.119   | 105.641  | 102.851  |
| 312 | 0    | -25.453  | -11.432 | -2.895  | 2.878  | -48.834  | -25.802  | -20.030  | -36.967  | -30.906  |
| 312 | 1.13 | -17.698  | -8.329  | -2.895  | 2.878  | -34.563  | -18.823  | -13.050  | -26.869  | -20.808  |
| 312 | 2.25 | -1.177   | -0.399  | -2.895  | 2.878  | -2.051   | -3.954   | 1.818    | -4.527   | 1.534    |
| 312 | 3.38 | 15.344   | 7.531   | -2.895  | 2.878  | 30.461   | 10.914   | 16.687   | 17.815   | 23.876   |
| 312 | 4.5  | 23.099   | 10.633  | -2.895  | 2.878  | 44.732   | 17.894   | 23.666   | 27.913   | 33.974   |
| 313 | 0    | -23.594  | -10.373 | -0.976  | 0.930  | -44.909  | -22.210  | -20.304  | 32.333   | -30.332  |
| 313 | 1.13 | -15.838  | -7.270  | -0.976  | 0.930  | -30.638  | -15.230  | -13.325  | -22.235  | -20.234  |
| 313 | 2.25 | 0.682    | 0.659   | -0.976  | 0.930  | 1.874    | -0.362   | 1.544    | 0.107    | 2.108    |
| 313 | 3.38 | 17.203   | 8.589   | -0.976  | 0.930  | 34.386   | 14.507   | 16.412   | 22.449   | 24.450   |
| 313 | 4.5  | 24.958   | 11.692  | -0.976  | 0.930  | 48.657   | 21.487   | 23.392   | 32.547   | 34.548   |
| 314 | 0    | -24.886  | -11.680 | -0.935  | 0.977  | -48.551  | -23.332  | -21.420  | -34.470  | -32.462  |
| 314 | 1.13 | -17.131  | -8.577  | -0.935  | 0.977  | -34.280  | -16.352  | -14.440  | -24.372  | -22.365  |
| 314 | 2.25 | -0.610   | -0.647  | -0.935  | 0.977  | -1.768   | -1.484   | 0.428    | -2.030   | -0.022   |
| 314 | 3.38 | 15.910   | 7.282   | -0.935  | 0.977  | 30.744   | 13.385   | 15.297   | 20.312   | 22.320   |
| 314 | 4.5  | 23.666   | 10.385  | -0.935  | 0.977  | 45.015   | 20.364   | 22.276   | 30.410   | 32.418   |
| 315 | 0    | -22.947  | -10.618 | -2.869  | 2.897  | -44.526  | -23.522  | -17.756  | -33.797  | -27.742  |
| 315 | 1.13 | -15.192  | -7.515  | -2.869  | 2.897  | -30.255  | -16.543  | -10.776  | -23.699  | -17.645  |
| 315 | 2.25 | 1.328    | 0.414   | -2.869  | 2.897  | 2.257    | -1.674   | 4.092    | -1.357   | 4.698    |
| 315 | 3.38 | 17.849   | 8.344   | -2.869  | 2.897  | 34.769   | 13.194   | 18.961   | 20.985   | 27.040   |
| 315 | 4.5  | 25.604   | 11.447  | -2.869  | 2.897  | 49.040   | 20.174   | 25.941   | 31.083   | 37.138   |
| 316 | 0    | -38.953  | -16.079 | -2.174  | 2.093  | -72.470  | -37.232  | -32.965  | -53.313  | -48.833  |
| 316 | 1.13 | -31.198  | -12.976 | -2.174  | 2.093  | -58.199  | -30.252  | -25.985  | -43.215  | -38.735  |
| 316 | 2.25 | -14.678  | -5.046  | -2.174  | 2.093  | -25.687  | -15.384  | -11.117  | -20.873  | -16.393  |
| 316 | 3.38 | 1.843    | 2.883   | -2.174  | 2.093  | 6.825    | -0.515   | 3.752    | 1.469    | 5.949    |
| 316 | 4.5  | 9.598    | 5.986   | -2.174  | 2.093  | 21.096   | 6.465    | 10.731   | 11.567   | 16.047   |
| 317 | 0    | -6.352   | -4.391  | -1.621  | 1.478  | -14.648  | -7.338   | -4.239   | -11.138  | -7.884   |
| 317 | 1.13 | 1.403    | -1.288  | -1.621  | 1.478  | -0.377   | -0.358   | 2.741    | -1.040   | 2.214    |
| 317 | 2.25 | 17.924   | 6.642   | -1.621  | 1.478  | 32.135   | 14.510   | 17.609   | 21.302   | 24.556   |
| 317 | 3.38 | 34.444   | 14.571  | -1.621  | 1.478  | 64.647   | 29.379   | 32.478   | 43.644   | 46.898   |
| 317 | 4.5  | 42.200   | 17.674  | -1.621  | 1.478  | 78.918   | 36.358   | 39.453   | 53.742   | 56.996   |
| 318 | 0    | -42.016  | -17.653 | -1.478  | 1.623  | -78.663  | -39.292  | -36.191  | -56.790  | -53.534  |
| 318 | 1.13 | -34.261  | -14.550 | -1.478  | 1.623  | -64.392  | -32.313  | -29.212  | -46.692  | -43.436  |
| 318 | 2.25 | -17.740  | -6.620  | -1.478  | 1.623  | -31.880  | -17.444  | -14.343  | -24.350  | -21.094  |
| 318 | 3.38 | -1.219   | 1.309   | -1.478  | 1.623  | 0.632    | -2.576   | 0.525    | -2.008   | 1.249    |
| 318 | 4.5  | 6.536    | 4.412   | -1.478  | 1.623  | 14.903   | 4.404    | 7.505    | 8.090    | 11.346   |
| 319 | 0    | -9.330   | -5.953  | -2.092  | 2.175  | -20.721  | -10.490  | -6.222   | -15.744  | -11.263  |
| 319 | 1.13 | -1.575   | -2.850  | -2.092  | 2.175  | -6.450   | -3.510   | 0.757    | -5.646   | -1.166   |
| 319 | 2.25 | 14.946   | 5.080   | -2.092  | 2.175  | 26.062   | 11.359   | 15.626   | 16.696   | 21.177   |
| 319 | 3.38 | 31.466   | 13.009  | -2.092  | 2.175  | 58.574   | 26.227   | 30.494   | 39.038   | 43.519   |
| 319 | 4.5  | 39.221   | 16.112  | -2.092  | 2.175  | 72.845   | 33.207   | 37.474   | 49.136   | 53.617   |
| 320 | 0    | -134.365 | -36.973 | -19.943 | 18.816 | -220.394 | -140.871 | -102.113 | -185.315 | -144.619 |
| 320 | 1.13 | -112.439 | -33.870 | -19.943 | 18.816 | -189.119 | -121.138 | -82.380  | -160.339 | -119.643 |
| 320 | 2.25 | -81.749  | -25.940 | -19.943 | 18.816 | -139.603 | -93.516  | -54.758  | -123.118 | -82.422  |
| 320 | 3.38 | -51.058  | -18.011 | -19.943 | 18.816 | -90.087  | -65.895  | -27.137  | -85.898  | -45.202  |
| 320 | 4.5  | -29.133  | -14.908 | -19.943 | 18.816 | -58.812  | -46.162  | -7.404   | -60.921  | -20.225  |
| 321 | 0    | 41.933   | 18.715  | -20.593 | 19.530 | 80.263   | 17.147   | 57.269   | 34.197   | 76.326   |
| 321 | 1.13 | 63.858   | 21.817  | -20.593 | 19.530 | 111.538  | 36.879   | 77.002   | 59.173   | 101.302  |
| 321 | 2.25 | 94.549   | 29.747  | -20.593 | 19.530 | 161.054  | 64.501   | 104.624  | 96.394   | 138.523  |
| 321 | 3.38 | 125.239  | 37.677  | -20.593 | 19.530 | 210.570  | 92.122   | 132.245  | 133.615  | 175.744  |
| 321 | 4.5  | 147.165  | 40.779  | -20.593 | 19.530 | 241.845  | 111.855  | 151.978  | 158.591  | 200.720  |
| 322 | 0    | -143.984 | -40.385 | -19.529 | 20.603 | -237.397 | -149.114 | -108.983 | -197.131 | -154.993 |
| 322 | 1.13 | -122.059 | -37.282 | -19.529 | 20.603 | -206.122 | -129.381 | -89.250  | -172.154 | -130.016 |
| 322 | 2.25 | -91.368  | -29.353 | -19.529 | 20.603 | -156.606 | -101.760 | -61.628  | -134.934 | -92.795  |
| 322 | 3.38 | -60.678  | -21.423 | -19.529 | 20.603 | -107.090 | -74.138  | -34.007  | -97.713  | -55.575  |

|     |      |          |         |         |        |          |          |         |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|---------|----------|----------|
| 322 | 4.5  | -38.752  | -18.320 | -19.529 | 20.603 | -75.815  | -54.406  | -14.274 | -72.736  | -30.598  |
| 323 | 0    | 32.221   | 15.263  | -18.817 | 19.954 | 63.087   | 10.183   | 48.953  | 23.691   | 64.400   |
| 323 | 1.13 | 54.147   | 18.366  | -18.817 | 19.954 | 94.362   | 29.916   | 68.686  | 48.667   | 89.377   |
| 323 | 2.25 | 84.837   | 26.296  | -18.817 | 19.954 | 143.878  | 57.537   | 96.308  | 85.888   | 126.597  |
| 323 | 3.38 | 115.528  | 34.225  | -18.817 | 19.954 | 193.394  | 85.159   | 123.929 | 123.109  | 163.818  |
| 323 | 4.5  | 137.453  | 37.328  | -18.817 | 19.954 | 224.669  | 104.891  | 143.662 | 148.085  | 188.795  |
| 324 | 0    | -38.108  | -15.931 | -2.404  | 2.291  | -71.218  | -36.701  | -32.006 | -52.574  | -47.644  |
| 324 | 1.13 | -30.353  | -12.828 | -2.404  | 2.291  | -56.947  | -29.722  | -25.027 | -42.476  | -37.546  |
| 324 | 2.25 | -13.832  | -4.898  | -2.404  | 2.291  | -24.435  | -14.853  | -10.158 | -20.134  | -15.204  |
| 324 | 3.38 | 2.688    | 3.032   | -2.404  | 2.291  | 8.077    | 0.015    | 4.710   | 2.208    | 7.138    |
| 324 | 4.5  | 10.444   | 6.134   | -2.404  | 2.291  | 22.347   | 6.995    | 11.690  | 12.306   | 17.236   |
| 325 | 0    | -7.160   | -4.562  | -1.772  | 1.593  | -15.892  | -8.216   | -4.851  | -12.253  | -8.720   |
| 325 | 1.13 | 0.595    | -1.460  | -1.772  | 1.593  | -1.621   | -1.236   | 2.128   | -2.155   | 1.378    |
| 325 | 2.25 | 17.116   | 6.470   | -1.772  | 1.593  | 30.891   | 13.632   | 16.997  | 20.187   | 23.720   |
| 325 | 3.38 | 33.636   | 14.400  | -1.772  | 1.593  | 63.403   | 28.501   | 31.865  | 42.529   | 46.062   |
| 325 | 4.5  | 41.391   | 17.502  | -1.772  | 1.593  | 77.674   | 35.480   | 38.845  | 52.627   | 56.160   |
| 326 | 0    | -41.019  | -17.440 | -1.592  | 1.770  | -77.126  | -38.509  | -35.146 | -55.728  | -52.198  |
| 326 | 1.13 | -33.263  | -14.337 | -1.592  | 1.770  | -62.855  | -31.529  | -28.167 | -45.630  | -42.100  |
| 326 | 2.25 | -16.743  | -6.407  | -1.592  | 1.770  | -30.343  | -16.660  | -13.298 | -23.288  | -19.758  |
| 326 | 3.38 | -0.222   | 1.522   | -1.592  | 1.770  | 2.169    | -1.792   | 1.570   | -0.946   | 2.585    |
| 326 | 4.5  | 7.533    | 4.625   | -1.592  | 1.770  | 16.440   | 5.188    | 8.550   | 9.152    | 12.682   |
| 327 | 0    | -9.954   | -6.102  | -2.297  | 2.410  | -21.708  | -11.256  | -6.548  | -16.708  | -11.765  |
| 327 | 1.13 | -2.199   | -2.999  | -2.297  | 2.410  | -7.437   | -4.276   | 0.432   | -6.610   | -1.667   |
| 327 | 2.25 | 14.322   | 4.930   | -2.297  | 2.410  | 25.075   | 10.593   | 15.300  | 15.732   | 20.675   |
| 327 | 3.38 | 30.842   | 12.860  | -2.297  | 2.410  | 57.587   | 25.461   | 30.169  | 38.074   | 43.017   |
| 327 | 4.5  | 38.598   | 15.963  | -2.297  | 2.410  | 71.858   | 32.441   | 37.148  | 48.172   | 53.115   |
| 328 | 0    | -26.372  | 0.088   | -0.008  | 0.005  | -31.506  | -23.743  | -23.730 | -27.644  | -27.630  |
| 328 | 1.13 | -13.129  | 0.088   | -0.008  | 0.005  | -15.615  | -11.825  | -11.812 | -13.739  | -13.725  |
| 328 | 2.25 | 0.113    | 0.088   | -0.008  | 0.005  | 0.276    | 0.093    | 0.107   | 0.165    | 0.179    |
| 328 | 3.38 | 13.355   | 0.088   | -0.008  | 0.005  | 16.167   | 12.011   | 12.025  | 14.070   | 14.083   |
| 328 | 4.5  | 26.598   | 0.088   | -0.008  | 0.005  | 32.058   | 23.930   | 23.943  | 27.974   | 27.988   |
| 329 | 0    | -124.748 | -32.758 | -21.387 | 20.093 | -202.110 | -133.660 | -92.181 | -174.079 | -130.526 |
| 329 | 1.13 | -102.823 | -29.655 | -21.387 | 20.093 | -170.835 | -113.927 | -72.448 | -149.103 | -105.549 |
| 329 | 2.25 | -73.698  | -22.587 | -21.387 | 20.093 | -124.576 | -87.715  | -46.235 | -114.068 | -70.515  |
| 329 | 3.38 | -44.572  | -15.519 | -21.387 | 20.093 | -78.318  | -61.502  | -20.022 | -79.034  | -35.481  |
| 329 | 4.5  | -22.647  | -12.416 | -21.387 | 20.093 | -47.043  | -41.769  | -0.290  | -54.058  | -10.504  |
| 330 | 0    | 37.719   | 16.065  | -21.987 | 20.768 | 70.968   | 11.960   | 54.715  | 26.640   | 71.532   |
| 330 | 1.13 | 59.644   | 19.168  | -21.987 | 20.768 | 102.243  | 31.693   | 74.448  | 51.616   | 96.509   |
| 330 | 2.25 | 88.770   | 26.236  | -21.987 | 20.768 | 148.501  | 57.906   | 100.661 | 86.650   | 131.543  |
| 330 | 3.38 | 117.895  | 33.304  | -21.987 | 20.768 | 194.760  | 84.118   | 126.873 | 121.685  | 166.577  |
| 330 | 4.5  | 139.820  | 36.407  | -21.987 | 20.768 | 226.035  | 103.851  | 146.606 | 146.661  | 191.554  |
| 331 | 0    | -132.752 | -35.527 | -20.802 | 22.004 | -216.145 | -140.278 | -97.473 | -183.613 | -138.668 |
| 331 | 1.13 | -110.827 | -32.424 | -20.802 | 22.004 | -184.870 | -120.546 | -77.740 | -158.637 | -113.691 |
| 331 | 2.25 | -81.701  | -25.356 | -20.802 | 22.004 | -138.612 | -94.333  | -51.527 | -123.603 | -78.657  |
| 331 | 3.38 | -52.576  | -18.289 | -20.802 | 22.004 | -92.353  | -68.120  | -25.315 | -88.568  | -43.623  |
| 331 | 4.5  | -30.651  | -15.186 | -20.802 | 22.004 | -61.078  | -48.387  | -5.582  | -63.592  | -18.646  |
| 332 | 0    | 27.291   | 12.740  | -20.070 | 21.339 | 53.132   | 4.492    | 45.900  | 15.608   | 59.087   |
| 332 | 1.13 | 49.216   | 15.843  | -20.070 | 21.339 | 84.407   | 24.224   | 65.633  | 40.584   | 84.063   |
| 332 | 2.25 | 78.341   | 22.910  | -20.070 | 21.339 | 130.666  | 50.437   | 91.846  | 75.618   | 119.098  |
| 332 | 3.38 | 107.467  | 29.978  | -20.070 | 21.339 | 176.925  | 76.650   | 118.059 | 110.653  | 154.132  |
| 332 | 4.5  | 129.392  | 33.081  | -20.070 | 21.339 | 208.200  | 96.383   | 137.792 | 135.629  | 179.108  |
| 333 | 0    | -29.873  | -11.938 | -2.596  | 2.472  | -54.949  | -29.482  | -24.414 | -41.614  | -36.293  |
| 333 | 1.13 | -22.118  | -8.835  | -2.596  | 2.472  | -40.678  | -22.503  | -17.435 | -31.516  | -26.195  |
| 333 | 2.25 | -8.728   | -2.629  | -2.596  | 2.472  | -14.680  | -10.452  | -5.383  | -13.547  | -8.226   |
| 333 | 3.38 | 4.662    | 3.576   | -2.596  | 2.472  | 11.317   | 1.600    | 6.668   | 4.422    | 9.744    |
| 333 | 4.5  | 12.417   | 6.679   | -2.596  | 2.472  | 25.588   | 8.579    | 13.647  | 14.520   | 19.842   |
| 334 | 0    | -8.391   | -5.438  | -2.030  | 1.830  | -18.770  | -9.582   | -5.722  | -14.368  | -10.315  |
| 334 | 1.13 | -0.636   | -2.335  | -2.030  | 1.830  | -4.499   | -2.602   | 1.258   | -4.270   | -0.217   |
| 334 | 2.25 | 12.754   | 3.871   | -2.030  | 1.830  | 21.498   | 9.449    | 13.309  | 13.699   | 17.752   |
| 334 | 3.38 | 26.144   | 10.077  | -2.030  | 1.830  | 47.496   | 21.500   | 25.360  | 31.668   | 35.722   |
| 334 | 4.5  | 33.899   | 13.180  | -2.030  | 1.830  | 61.767   | 28.479   | 32.340  | 41.766   | 45.819   |
| 335 | 0    | -33.300  | -13.248 | -1.821  | 2.016  | -61.157  | -31.791  | -27.954 | -45.223  | -41.194  |
| 335 | 1.13 | -25.545  | -10.145 | -1.821  | 2.016  | -46.886  | -24.811  | -20.974 | -35.125  | -31.096  |
| 335 | 2.25 | -12.155  | -3.939  | -1.821  | 2.016  | -20.888  | -12.760  | -8.923  | -17.156  | -13.127  |
| 335 | 3.38 | 1.235    | 2.267   | -1.821  | 2.016  | 5.109    | -0.709   | 3.128   | 0.813    | 4.842    |
| 335 | 4.5  | 8.991    | 5.369   | -1.821  | 2.016  | 19.380   | 6.271    | 10.108  | 10.911   | 14.940   |
| 336 | 0    | -10.113  | -6.205  | -2.609  | 2.742  | -22.063  | -11.710  | -6.360  | -17.267  | -11.649  |



|     |      |          |         |         |        |          |          |         |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|---------|----------|----------|
| 336 | 1.13 | -2.357   | -3.102  | -2.609  | 2.742  | -7.792   | -4.730   | 0.620   | -7.169   | -1.551   |
| 336 | 2.25 | 11.033   | 3.104   | -2.609  | 2.742  | 18.205   | 7.321    | 12.671  | 10.800   | 16.418   |
| 336 | 3.38 | 24.423   | 9.309   | -2.609  | 2.742  | 44.202   | 19.372   | 24.722  | 28.770   | 34.388   |
| 336 | 4.5  | 32.178   | 12.412  | -2.609  | 2.742  | 58.473   | 26.351   | 31.702  | 38.867   | 44.485   |
| 337 | 0    | -3.607   | -3.442  | -0.715  | 0.557  | -9.837   | -3.961   | -2.689  | -6.707   | -5.371   |
| 337 | 0.86 | 1.330    | -1.618  | -0.715  | 0.557  | -0.993   | 0.482    | 1.754   | -0.373   | 0.962    |
| 337 | 1.73 | 12.667   | 3.729   | -0.715  | 0.557  | 21.166   | 10.685   | 11.957  | 14.899   | 16.234   |
| 337 | 2.59 | 24.003   | 9.076   | -0.715  | 0.557  | 43.325   | 20.888   | 22.160  | 30.171   | 31.506   |
| 337 | 3.45 | 28.941   | 10.900  | -0.715  | 0.557  | 52.169   | 25.332   | 26.604  | 36.504   | 37.840   |
| 338 | 0    | -39.432  | -16.754 | -1.773  | 1.963  | -74.125  | -37.262  | -33.526 | -53.821  | -49.898  |
| 338 | 1.13 | -31.677  | -13.651 | -1.773  | 1.963  | -59.854  | -30.282  | -26.546 | -43.723  | -39.800  |
| 338 | 2.25 | -15.157  | -5.721  | -1.773  | 1.963  | -27.342  | -15.414  | -11.678 | -21.380  | -17.458  |
| 338 | 3.38 | 1.364    | 2.208   | -1.773  | 1.963  | 5.170    | -0.545   | 3.191   | 0.962    | 4.884    |
| 338 | 4.5  | 9.119    | 5.311   | -1.773  | 1.963  | 19.441   | 6.434    | 10.170  | 11.060   | 14.982   |
| 339 | 0    | -7.697   | -5.427  | -2.477  | 2.606  | -17.920  | -9.404   | -4.321  | -14.102  | -8.764   |
| 339 | 1.13 | 0.058    | -2.324  | -2.477  | 2.606  | -3.649   | -2.425   | 2.659   | -4.004   | 1.333    |
| 339 | 2.25 | 16.579   | 5.605   | -2.477  | 2.606  | 28.863   | 12.444   | 17.527  | 18.338   | 23.676   |
| 339 | 3.38 | 33.100   | 13.535  | -2.477  | 2.606  | 61.375   | 27.312   | 32.396  | 40.680   | 46.018   |
| 339 | 4.5  | 40.855   | 16.638  | -2.477  | 2.606  | 75.646   | 34.292   | 39.375  | 50.778   | 56.116   |
| 340 | 0    | -29.869  | -11.935 | -2.596  | 2.472  | -54.939  | -29.478  | -24.410 | -41.608  | -36.286  |
| 340 | 1.13 | -22.113  | -8.833  | -2.596  | 2.472  | -40.668  | -22.498  | -17.430 | -31.510  | -26.188  |
| 340 | 2.25 | -8.723   | -2.627  | -2.596  | 2.472  | -14.671  | -10.447  | -5.379  | -13.541  | -8.219   |
| 340 | 3.38 | 4.667    | 3.579   | -2.596  | 2.472  | 11.326   | 1.604    | 6.672   | 4.429    | 9.750    |
| 340 | 4.5  | 12.422   | 6.682   | -2.596  | 2.472  | 25.597   | 8.583    | 13.651  | 14.526   | 19.848   |
| 341 | 0    | -8.396   | -5.440  | -2.030  | 1.830  | -18.780  | -9.586   | -5.726  | -14.375  | -10.321  |
| 341 | 1.13 | -0.641   | -2.338  | -2.030  | 1.830  | -4.509   | -2.607   | 1.254   | -4.277   | -0.224   |
| 341 | 2.25 | 12.749   | 3.868   | -2.030  | 1.830  | 21.488   | 9.444    | 13.305  | 13.692   | 17.746   |
| 341 | 3.38 | 26.139   | 10.074  | -2.030  | 1.830  | 47.486   | 21.495   | 25.356  | 31.661   | 35.715   |
| 341 | 4.5  | 33.894   | 13.177  | -2.030  | 1.830  | 61.756   | 28.475   | 32.335  | 41.759   | 45.813   |
| 342 | 0    | -33.299  | -13.247 | -1.821  | 2.016  | -61.155  | -31.790  | -27.953 | -45.222  | -41.193  |
| 342 | 1.13 | -25.544  | -10.145 | -1.821  | 2.016  | -46.884  | -24.811  | -20.974 | -35.124  | -31.095  |
| 342 | 2.25 | -12.154  | -3.939  | -1.821  | 2.016  | -20.887  | -12.759  | -8.922  | -17.155  | -13.126  |
| 342 | 3.38 | 1.236    | 2.267   | -1.821  | 2.016  | 5.110    | -0.708   | 3.129   | 0.814    | 4.843    |
| 342 | 4.5  | 8.991    | 5.370   | -1.821  | 2.016  | 19.381   | 6.271    | 10.108  | 10.912   | 14.941   |
| 343 | 0    | -10.112  | -6.205  | -2.609  | 2.742  | -22.063  | -11.710  | -6.359  | -17.266  | -11.648  |
| 343 | 1.13 | -2.357   | -3.102  | -2.609  | 2.742  | -7.792   | -4.730   | 0.620   | -7.168   | -1.550   |
| 343 | 2.25 | 11.033   | 3.104   | -2.609  | 2.742  | 18.206   | 7.321    | 12.671  | 10.801   | 16.419   |
| 343 | 3.38 | 24.423   | 9.310   | -2.609  | 2.742  | 44.203   | 19.372   | 24.722  | 28.770   | 34.388   |
| 343 | 4.5  | 32.178   | 12.412  | -2.609  | 2.742  | 58.474   | 26.352   | 31.702  | 38.868   | 44.486   |
| 344 | 0    | -124.744 | -32.755 | -21.387 | 20.093 | -202.101 | -133.656 | -92.177 | -174.073 | -130.520 |
| 344 | 1.13 | -102.819 | -29.652 | -21.387 | 20.093 | -170.826 | -113.924 | -72.444 | -149.097 | -105.543 |
| 344 | 2.25 | -73.693  | -22.585 | -21.387 | 20.093 | -124.567 | -87.711  | -46.231 | -114.062 | -70.509  |
| 344 | 3.38 | -44.568  | -15.517 | -21.387 | 20.093 | -78.309  | -61.498  | -20.019 | -79.028  | -35.475  |
| 344 | 4.5  | -22.643  | -12.414 | -21.387 | 20.093 | -47.034  | -41.765  | -0.286  | -54.052  | -10.498  |
| 345 | 0    | 37.715   | 16.063  | -21.987 | 20.768 | 70.959   | 11.956   | 54.711  | 26.634   | 71.527   |
| 345 | 1.13 | 59.640   | 19.166  | -21.987 | 20.768 | 102.234  | 31.689   | 74.444  | 51.610   | 96.503   |
| 345 | 2.25 | 88.765   | 26.234  | -21.987 | 20.768 | 148.493  | 57.902   | 100.657 | 86.644   | 131.537  |
| 345 | 3.38 | 117.891  | 33.301  | -21.987 | 20.768 | 194.751  | 84.115   | 126.870 | 121.679  | 165.571  |
| 345 | 4.5  | 139.816  | 36.404  | -21.987 | 20.768 | 226.026  | 103.847  | 146.602 | 146.655  | 191.548  |
| 346 | 0    | -132.752 | -35.527 | -20.802 | 22.004 | -216.146 | -140.278 | -97.473 | -183.613 | -138.668 |
| 346 | 1.13 | -110.827 | -32.424 | -20.802 | 22.004 | -184.871 | -120.546 | -77.740 | -158.637 | -113.691 |
| 346 | 2.25 | -81.701  | -25.356 | -20.802 | 22.004 | -138.612 | -94.333  | -51.528 | -123.603 | -78.657  |
| 346 | 3.38 | -52.576  | -18.289 | -20.802 | 22.004 | -92.353  | -68.120  | -25.315 | -88.568  | -43.623  |
| 346 | 4.5  | -30.651  | -15.186 | -20.802 | 22.004 | -61.078  | -48.387  | -5.582  | -63.592  | -18.647  |
| 347 | 0    | 27.292   | 12.740  | -20.070 | 21.339 | 53.134   | 4.492    | 45.901  | 15.609   | 59.088   |
| 347 | 1.13 | 49.217   | 15.843  | -20.070 | 21.339 | 84.409   | 24.225   | 65.634  | 40.585   | 84.065   |
| 347 | 2.25 | 78.342   | 22.911  | -20.070 | 21.339 | 130.668  | 50.438   | 91.847  | 75.620   | 119.099  |
| 347 | 3.38 | 107.468  | 29.978  | -20.070 | 21.339 | 176.927  | 76.651   | 118.060 | 110.654  | 154.133  |
| 347 | 4.5  | 129.393  | 33.081  | -20.070 | 21.339 | 208.202  | 96.384   | 137.792 | 135.630  | 179.110  |
| 348 | 0    | -38.598  | -15.963 | 2.297   | -2.410 | -71.858  | -32.441  | -37.148 | -48.172  | -53.115  |
| 348 | 1.13 | -30.842  | -12.860 | 2.297   | -2.410 | -57.587  | -25.461  | -30.169 | -38.074  | -43.017  |
| 348 | 2.25 | -14.322  | -4.930  | 2.297   | -2.410 | -25.075  | -10.593  | -15.300 | -15.732  | -20.675  |
| 348 | 3.38 | 2.199    | 2.999   | 2.297   | -2.410 | 7.437    | 4.276    | -0.432  | 6.610    | 1.667    |
| 348 | 4.5  | 9.954    | 6.102   | 2.297   | -2.410 | 21.708   | 11.256   | 6.548   | 16.708   | 11.765   |
| 349 | 0    | -7.533   | -4.625  | 1.592   | -1.770 | -16.440  | -5.188   | -8.550  | -9.152   | -12.682  |
| 349 | 1.13 | 0.222    | -1.523  | 1.592   | -1.770 | -2.169   | 1.792    | -1.570  | 0.946    | -2.585   |
| 349 | 2.25 | 16.743   | 6.407   | 1.592   | -1.770 | 30.343   | 16.660   | 13.298  | 23.288   | 19.758   |



|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 349 | 3.38 | 33.263   | 14.337  | 1.592   | -1.770 | 62.855   | 31.529   | 28.167   | 45.630   | 42.100   |
| 349 | 4.5  | 41.019   | 17.440  | 1.592   | -1.770 | 77.126   | 38.509   | 35.146   | 55.728   | 52.198   |
| 350 | 0    | -41.392  | -17.503 | 1.772   | -1.593 | -77.674  | -35.481  | -38.845  | -52.628  | -56.161  |
| 350 | 1.13 | -33.637  | -14.400 | 1.772   | -1.593 | -63.404  | -28.501  | -31.866  | -42.530  | -46.063  |
| 350 | 2.25 | -17.116  | -6.470  | 1.772   | -1.593 | -30.892  | -13.632  | -16.997  | -20.187  | -23.721  |
| 350 | 3.38 | -0.595   | 1.459   | 1.772   | -1.593 | 1.620    | 1.236    | -2.129   | 2.155    | -1.378   |
| 350 | 4.5  | 7.160    | 4.562   | 1.772   | -1.593 | 15.891   | 8.216    | 4.851    | 12.253   | 8.720    |
| 351 | 0    | -10.443  | -6.134  | 2.404   | -2.291 | -22.347  | -6.995   | -11.690  | -12.306  | -17.235  |
| 351 | 1.13 | -2.688   | -3.031  | 2.404   | -2.291 | -8.076   | -0.015   | -4.710   | -2.208   | -7.138   |
| 351 | 2.25 | 13.833   | 4.898   | 2.404   | -2.291 | 24.436   | 14.854   | 10.158   | 20.135   | 15.295   |
| 351 | 3.38 | 30.353   | 12.828  | 2.404   | -2.291 | 56.948   | 29.722   | 25.027   | 42.477   | 37.547   |
| 351 | 4.5  | 38.108   | 15.931  | 2.404   | -2.291 | 71.219   | 36.702   | 32.007   | 52.575   | 47.645   |
| 352 | 0    | -134.365 | -36.973 | -19.943 | 18.816 | -220.395 | -140.871 | -102.113 | -185.316 | -144.620 |
| 352 | 1.13 | -112.440 | -33.870 | -19.943 | 18.816 | -189.120 | -121.138 | -82.380  | -160.339 | -119.644 |
| 352 | 2.25 | -81.749  | -25.940 | -19.943 | 18.816 | -139.604 | -93.517  | -54.759  | -123.119 | -82.423  |
| 352 | 3.38 | -51.059  | -18.011 | -19.943 | 18.816 | -90.088  | -65.895  | -27.137  | -85.898  | -45.202  |
| 352 | 4.5  | -29.133  | -14.908 | -19.943 | 18.816 | -58.813  | -46.162  | -7.404   | -60.922  | -20.226  |
| 353 | 0    | 41.933   | 18.715  | -20.593 | 19.530 | 80.264   | 17.147   | 57.270   | 34.198   | 76.326   |
| 353 | 1.13 | 63.859   | 21.818  | -20.593 | 19.530 | 111.539  | 36.880   | 77.002   | 59.174   | 101.303  |
| 353 | 2.25 | 94.549   | 29.747  | -20.593 | 19.530 | 161.055  | 64.501   | 104.624  | 96.395   | 138.524  |
| 353 | 3.38 | 125.240  | 37.677  | -20.593 | 19.530 | 210.571  | 92.123   | 132.245  | 133.615  | 175.744  |
| 353 | 4.5  | 147.165  | 40.780  | -20.593 | 19.530 | 241.846  | 111.855  | 151.978  | 158.592  | 200.721  |
| 354 | 0    | -143.984 | -40.385 | -19.529 | 20.603 | -237.397 | -149.114 | -108.983 | -197.131 | -154.992 |
| 354 | 1.13 | -122.059 | -37.282 | -19.529 | 20.603 | -206.122 | -129.381 | -89.250  | -172.154 | -130.016 |
| 354 | 2.25 | -91.368  | -29.352 | -19.529 | 20.603 | -156.606 | -101.760 | -61.628  | -134.934 | -92.795  |
| 354 | 3.38 | -60.677  | -21.423 | -19.529 | 20.603 | -107.090 | -74.138  | -34.007  | -97.713  | -55.575  |
| 354 | 4.5  | -38.752  | -18.320 | -19.529 | 20.603 | -75.815  | -54.405  | -14.274  | -72.736  | -30.598  |
| 355 | 0    | 32.222   | 15.263  | -18.817 | 19.954 | 63.087   | 10.183   | 48.953   | 23.691   | 64.400   |
| 355 | 1.13 | 54.147   | 18.366  | -18.817 | 19.954 | 94.362   | 29.916   | 68.686   | 48.668   | 89.377   |
| 355 | 2.25 | 84.837   | 26.296  | -18.817 | 19.954 | 143.878  | 57.537   | 96.308   | 85.888   | 126.597  |
| 355 | 3.38 | 115.528  | 34.225  | -18.817 | 19.954 | 193.394  | 85.159   | 123.929  | 123.109  | 163.818  |
| 355 | 4.5  | 137.453  | 37.328  | -18.817 | 19.954 | 224.669  | 104.891  | 143.662  | 148.085  | 188.795  |
| 356 | 0    | -39.221  | -16.112 | 2.092   | -2.175 | -72.845  | -33.207  | -37.474  | -49.136  | -53.617  |
| 356 | 1.13 | -31.466  | -13.009 | 2.092   | -2.175 | -58.574  | -26.227  | -30.494  | -39.038  | -43.519  |
| 356 | 2.25 | -14.946  | -5.080  | 2.092   | -2.175 | -26.062  | -11.359  | -15.626  | -16.696  | -21.177  |
| 356 | 3.38 | 1.575    | 2.850   | 2.092   | -2.175 | 6.450    | 3.510    | -0.757   | 5.646    | 1.166    |
| 356 | 4.5  | 9.330    | 5.953   | 2.092   | -2.175 | 20.721   | 10.490   | 6.222    | 15.744   | 11.263   |
| 357 | 0    | -6.536   | -4.412  | 1.478   | -1.623 | -14.903  | -4.404   | -7.505   | -8.090   | -11.346  |
| 357 | 1.13 | 1.219    | -1.309  | 1.478   | -1.623 | -0.632   | 2.576    | -0.525   | 2.008    | -1.249   |
| 357 | 2.25 | 17.740   | 6.620   | 1.478   | -1.623 | 31.880   | 17.444   | 14.343   | 24.350   | 21.094   |
| 357 | 3.38 | 34.260   | 14.550  | 1.478   | -1.623 | 64.392   | 32.313   | 29.212   | 46.692   | 43.436   |
| 357 | 4.5  | 42.016   | 17.653  | 1.478   | -1.623 | 78.663   | 39.292   | 36.191   | 56.790   | 53.534   |
| 358 | 0    | -42.200  | -17.674 | 1.621   | -1.478 | -78.918  | -36.358  | -39.457  | -53.742  | -56.996  |
| 358 | 1.13 | -34.444  | -14.571 | 1.621   | -1.478 | -64.647  | -29.379  | -32.478  | -43.644  | -46.898  |
| 358 | 2.25 | -17.924  | -6.642  | 1.621   | -1.478 | -32.135  | -14.510  | -17.609  | -21.302  | -24.556  |
| 358 | 3.38 | -1.403   | 1.288   | 1.621   | -1.478 | 0.377    | 0.358    | -2.741   | 1.040    | -2.214   |
| 358 | 4.5  | 6.352    | 4.391   | 1.621   | -1.478 | 14.648   | 7.338    | 4.239    | 11.138   | 7.884    |
| 359 | 0    | -9.598   | -5.986  | 2.174   | -2.093 | -21.096  | -6.465   | -10.731  | -11.567  | -16.047  |
| 359 | 1.13 | -1.843   | -2.883  | 2.174   | -2.093 | -6.825   | 0.515    | -3.752   | -1.469   | -5.949   |
| 359 | 2.25 | 14.678   | 5.046   | 2.174   | -2.093 | 25.687   | 15.384   | 11.117   | 20.873   | 16.393   |
| 359 | 3.38 | 31.198   | 12.976  | 2.174   | -2.093 | 58.199   | 30.252   | 25.985   | 43.215   | 38.735   |
| 359 | 4.5  | 38.953   | 16.079  | 2.174   | -2.093 | 72.470   | 37.232   | 32.965   | 53.313   | 48.833   |
| 360 | 0    | -25.453  | -11.432 | -2.895  | 2.878  | -48.834  | -25.802  | -20.030  | -36.967  | -30.906  |
| 360 | 1.13 | -17.698  | -8.329  | -2.895  | 2.878  | -34.563  | -18.823  | -13.050  | -26.869  | -20.808  |
| 360 | 2.25 | -1.177   | -0.399  | -2.895  | 2.878  | -2.051   | -3.954   | 1.818    | -4.527   | 1.534    |
| 360 | 3.38 | 15.344   | 7.531   | -2.895  | 2.878  | 30.461   | 10.914   | 16.687   | 17.815   | 23.876   |
| 360 | 4.5  | 23.099   | 10.633  | -2.895  | 2.878  | 44.732   | 17.894   | 23.666   | 27.913   | 33.974   |
| 361 | 0    | -23.594  | -10.373 | -0.976  | 0.930  | -44.909  | -22.210  | -20.304  | -32.333  | -30.332  |
| 361 | 1.13 | -15.838  | -7.270  | -0.976  | 0.930  | -30.638  | -15.230  | -13.325  | -22.235  | -20.234  |
| 361 | 2.25 | 0.682    | 0.659   | -0.976  | 0.930  | 1.874    | -0.362   | 1.544    | 0.107    | 2.108    |
| 361 | 3.38 | 17.203   | 8.589   | -0.976  | 0.930  | 34.386   | 14.507   | 16.412   | 22.450   | 24.450   |
| 361 | 4.5  | 24.958   | 11.692  | -0.976  | 0.930  | 48.657   | 21.487   | 23.392   | 32.547   | 34.548   |
| 362 | 0    | -24.886  | -11.680 | -0.935  | 0.977  | -48.551  | -23.332  | -21.420  | -34.470  | -32.462  |
| 362 | 1.13 | -17.131  | -8.577  | -0.935  | 0.977  | -34.280  | -16.352  | -14.440  | -24.372  | -22.365  |
| 362 | 2.25 | -0.610   | -0.647  | -0.935  | 0.977  | -1.768   | -1.484   | 0.428    | -2.030   | -0.022   |
| 362 | 3.38 | 15.910   | 7.282   | -0.935  | 0.977  | 30.744   | 13.385   | 15.297   | 20.312   | 22.320   |
| 362 | 4.5  | 23.666   | 10.385  | -0.935  | 0.977  | 45.015   | 20.364   | 22.276   | 30.410   | 32.418   |

|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 363 | 0    | -22.947 | -10.618 | -2.869 | 2.897  | -44.526 | -23.522 | -17.756 | -33.797 | -27.742 |
| 363 | 1.13 | -15.192 | -7.515  | -2.869 | 2.897  | -30.255 | -16.543 | -10.776 | -23.699 | -17.645 |
| 363 | 2.25 | 1.328   | 0.414   | -2.869 | 2.897  | 2.257   | -1.674  | 4.092   | -1.357  | 4.698   |
| 363 | 3.38 | 17.849  | 8.344   | -2.869 | 2.897  | 34.769  | 13.194  | 18.961  | 20.985  | 27.040  |
| 363 | 4.5  | 25.604  | 11.447  | -2.869 | 2.897  | 49.040  | 20.174  | 25.941  | 31.083  | 37.138  |
| 364 | 0    | -35.313 | 0.000   | 0.000  | 0.000  | -42.375 | -31.782 | -31.782 | -37.078 | -37.078 |
| 364 | 1.5  | -17.656 | 0.000   | 0.000  | 0.000  | -21.187 | -15.891 | -15.891 | -18.539 | -18.539 |
| 364 | 3    | 0.000   | 0.000   | 0.000  | 0.000  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| 364 | 4.5  | 17.657  | 0.000   | 0.000  | 0.000  | 21.188  | 15.891  | 15.891  | 18.539  | 18.539  |
| 364 | 6    | 35.313  | 0.000   | 0.000  | 0.000  | 42.376  | 31.782  | 31.782  | 37.079  | 37.079  |
| 413 | 0    | -26.598 | -0.088  | 0.008  | -0.005 | -32.058 | -23.930 | -23.943 | -27.974 | -27.988 |
| 413 | 1.13 | -13.355 | -0.088  | 0.008  | -0.005 | -16.167 | -12.012 | -12.025 | -14.070 | -14.084 |
| 413 | 2.25 | -0.113  | -0.088  | 0.008  | -0.005 | -0.276  | -0.093  | -0.107  | -0.165  | -0.179  |
| 413 | 3.38 | 13.129  | -0.088  | 0.008  | -0.005 | 15.614  | 11.825  | 11.811  | 13.739  | 13.725  |
| 413 | 4.5  | 26.372  | -0.088  | 0.008  | -0.005 | 31.505  | 23.743  | 23.730  | 27.644  | 27.630  |
| 414 | 0    | -35.324 | -0.094  | 0.002  | 0.003  | -42.539 | -31.790 | -31.789 | -37.148 | -37.147 |
| 414 | 1.5  | -17.668 | -0.094  | 0.002  | 0.003  | -21.352 | -15.899 | -15.898 | -18.608 | -18.607 |
| 414 | 3    | -0.011  | -0.094  | 0.002  | 0.003  | -0.164  | -0.008  | -0.007  | -0.069  | -0.068  |
| 414 | 4.5  | 17.645  | -0.094  | 0.002  | 0.003  | 21.024  | 15.883  | 15.884  | 18.470  | 18.471  |
| 414 | 6    | 35.302  | -0.094  | 0.002  | 0.003  | 42.212  | 31.774  | 31.774  | 37.010  | 37.010  |
| 415 | 0    | -34.836 | -0.048  | 0.003  | 0.004  | -41.880 | -31.350 | -31.349 | -36.605 | -36.604 |
| 415 | 1.5  | -17.180 | -0.048  | 0.003  | 0.004  | -20.692 | -15.459 | -15.458 | -18.066 | -18.065 |
| 415 | 3    | 0.477   | -0.048  | 0.003  | 0.004  | 0.495   | 0.432   | 0.433   | 0.473   | 0.474   |
| 415 | 4.5  | 18.133  | -0.048  | 0.003  | 0.004  | 21.683  | 16.323  | 16.321  | 19.013  | 19.014  |
| 415 | 6    | 35.789  | -0.048  | 0.003  | 0.004  | 42.871  | 32.213  | 32.214  | 37.552  | 37.553  |
| 416 | 0    | -48.361 | 0.102   | -0.004 | -0.004 | -57.871 | -43.530 | -43.529 | -50.720 | -50.719 |
| 416 | 1.5  | -30.705 | 0.102   | -0.004 | -0.004 | -36.683 | -27.639 | -27.638 | -32.181 | -32.180 |
| 416 | 3    | -13.048 | 0.102   | -0.004 | -0.004 | -15.495 | -11.748 | -11.747 | -13.641 | -13.640 |
| 416 | 4.5  | 4.608   | 0.102   | -0.004 | -0.004 | 5.693   | 4.143   | 4.144   | 4.898   | 4.899   |
| 416 | 6    | 22.265  | 0.102   | -0.004 | -0.004 | 26.880  | 20.034  | 20.034  | 23.437  | 23.438  |
| 427 | 0    | -35.593 | -0.218  | 0.031  | -0.026 | -43.060 | -32.003 | -32.059 | -37.477 | -37.537 |
| 427 | 1.5  | -17.936 | -0.218  | 0.031  | -0.026 | -21.872 | -16.112 | -16.168 | -18.938 | -18.997 |
| 427 | 3    | -0.280  | -0.218  | 0.031  | -0.026 | -0.684  | -0.221  | -0.278  | -0.399  | -0.458  |
| 427 | 4.5  | 17.377  | -0.218  | 0.031  | -0.026 | 20.504  | 15.670  | 15.613  | 18.141  | 18.081  |
| 427 | 6    | 35.033  | -0.218  | 0.031  | -0.026 | 41.691  | 31.561  | 31.504  | 36.680  | 36.621  |
| 428 | 0    | -35.532 | -0.092  | -0.024 | 0.028  | -42.785 | -32.003 | -31.951 | -37.392 | -37.337 |
| 428 | 1.5  | -17.875 | -0.092  | -0.024 | 0.028  | -21.597 | -16.112 | -16.060 | -18.853 | -18.798 |
| 428 | 3    | -0.219  | -0.092  | -0.024 | 0.028  | -0.409  | -0.221  | -0.169  | -0.313  | -0.258  |
| 428 | 4.5  | 17.438  | -0.092  | -0.024 | 0.028  | 20.778  | 15.669  | 15.722  | 18.226  | 18.281  |
| 428 | 6    | 35.094  | -0.092  | -0.024 | 0.028  | 41.966  | 31.560  | 31.612  | 36.765  | 36.820  |
| 429 | 0    | -35.315 | 0.051   | -0.021 | 0.024  | -42.296 | -31.805 | -31.760 | -37.071 | -37.023 |
| 429 | 1.5  | -17.658 | 0.051   | -0.021 | 0.024  | -21.109 | -15.914 | -15.869 | -18.532 | -18.484 |
| 429 | 3    | -0.002  | 0.051   | -0.021 | 0.024  | 0.079   | -0.023  | 0.022   | 0.008   | 0.055   |
| 429 | 4.5  | 17.655  | 0.051   | -0.021 | 0.024  | 21.267  | 15.868  | 15.913  | 18.547  | 18.594  |
| 429 | 6    | 35.311  | 0.051   | -0.021 | 0.024  | 42.455  | 31.759  | 31.804  | 37.086  | 37.134  |
| 430 | 0    | -26.025 | 0.203   | -0.011 | 0.014  | -30.905 | -23.433 | -23.409 | -27.210 | -27.184 |
| 430 | 1.13 | -12.782 | 0.203   | -0.011 | 0.014  | -15.014 | -11.515 | -11.491 | -13.305 | -13.279 |
| 430 | 2.25 | 0.460   | 0.203   | -0.011 | 0.014  | 0.877   | 0.403   | 0.428   | 0.599   | 0.625   |
| 430 | 3.38 | 13.702  | 0.203   | -0.011 | 0.014  | 16.768  | 12.321  | 12.346  | 14.504  | 14.530  |
| 430 | 4.5  | 26.945  | 0.203   | -0.011 | 0.014  | 32.658  | 24.239  | 24.264  | 28.408  | 28.434  |
| 431 | 0    | -35.313 | 0.000   | 0.000  | 0.000  | -42.375 | -31.782 | -31.782 | -37.079 | -37.079 |
| 431 | 1.5  | -17.656 | 0.000   | 0.000  | 0.000  | -21.188 | -15.891 | -15.891 | -18.539 | -18.539 |
| 431 | 3    | 0.000   | 0.000   | 0.000  | 0.000  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| 431 | 4.5  | 17.657  | 0.000   | 0.000  | 0.000  | 21.188  | 15.891  | 15.891  | 18.539  | 18.539  |
| 431 | 6    | 35.313  | 0.000   | 0.000  | 0.000  | 42.376  | 31.782  | 31.782  | 37.079  | 37.079  |
| 432 | 0    | -26.945 | -0.203  | 0.011  | -0.014 | -32.659 | -24.239 | -24.264 | -28.408 | -28.434 |
| 432 | 1.13 | -13.702 | -0.203  | 0.011  | -0.014 | -16.768 | -12.321 | -12.346 | -14.504 | -14.530 |
| 432 | 2.25 | -0.460  | -0.203  | 0.011  | -0.014 | -0.877  | -0.403  | -0.428  | -0.599  | -0.625  |
| 432 | 3.38 | 12.782  | -0.203  | 0.011  | -0.014 | 15.014  | 11.515  | 11.491  | 13.305  | 13.279  |
| 432 | 4.5  | 26.025  | -0.203  | 0.011  | -0.014 | 30.905  | 23.433  | 23.409  | 27.210  | 27.184  |
| 433 | 0    | -35.311 | -0.051  | 0.021  | -0.024 | -42.455 | -31.759 | -31.804 | -37.086 | -37.134 |
| 433 | 1.5  | -17.655 | -0.051  | 0.021  | -0.024 | -21.267 | -15.868 | -15.913 | -18.547 | -18.595 |
| 433 | 3    | 0.002   | -0.051  | 0.021  | -0.024 | -0.079  | 0.023   | -0.022  | -0.008  | -0.055  |
| 433 | 4.5  | 17.658  | -0.051  | 0.021  | -0.024 | 21.108  | 15.914  | 15.869  | 18.532  | 18.484  |
| 433 | 6    | 35.315  | -0.051  | 0.021  | -0.024 | 42.296  | 31.805  | 31.760  | 37.071  | 37.023  |
| 434 | 0    | -35.094 | 0.092   | 0.024  | -0.028 | -41.966 | -31.560 | -31.612 | -36.765 | -36.820 |
| 434 | 1.5  | -17.438 | 0.092   | 0.024  | -0.028 | -20.778 | -15.669 | -15.722 | -18.226 | -18.281 |

|     |      |         |         |        |        |         |         |         |  |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|--|---------|---------|
|     |      |         |         |        |        |         |         |         |  | 0.313   | 0.258   |
| 434 | 3    | 0.219   | 0.092   | 0.024  | -0.028 | 0.409   | 0.221   | 0.169   |  | 18.853  | 18.798  |
| 434 | 4.5  | 17.875  | 0.092   | 0.024  | -0.028 | 21.597  | 16.112  | 16.060  |  | 37.392  | 37.337  |
| 434 | 6    | 35.532  | 0.092   | 0.024  | -0.028 | 42.785  | 32.003  | 31.951  |  | -36.680 | -36.621 |
| 435 | 0    | -35.033 | 0.218   | -0.031 | 0.026  | -41.691 | -31.561 | -31.504 |  | -18.141 | -18.081 |
| 435 | 1.5  | -17.377 | 0.218   | -0.031 | 0.026  | -20.504 | -15.670 | -15.613 |  | 0.398   | 0.458   |
| 435 | 3    | 0.280   | 0.218   | -0.031 | 0.026  | 0.684   | 0.221   | 0.278   |  | 18.938  | 18.977  |
| 435 | 4.5  | 17.936  | 0.218   | -0.031 | 0.026  | 21.872  | 16.112  | 16.168  |  | 37.477  | 37.537  |
| 435 | 6    | 35.593  | 0.218   | -0.031 | 0.026  | 43.060  | 32.003  | 32.059  |  | -19.672 | -16.678 |
| 452 | 0    | -16.979 | -0.646  | -1.368 | 1.483  | -21.408 | -16.650 | -13.798 |  | -12.401 | -9.407  |
| 452 | 0.56 | -10.278 | -0.273  | -1.368 | 1.483  | -12.771 | -10.619 | -7.767  |  | -4.501  | -1.597  |
| 452 | 1.13 | -3.127  | 0.347   | -1.368 | 1.483  | -3.196  | -4.182  | -1.331  |  | 3.400   | 6.394   |
| 452 | 1.69 | -4.025  | 0.968   | -1.368 | 1.483  | 6.379   | 2.254   | 5.106   |  | 10.670  | 13.664  |
| 452 | 2.25 | 10.726  | 1.340   | -1.368 | 1.483  | 15.016  | 8.285   | 11.137  |  | -39.675 | -39.660 |
| 455 | 0    | -32.723 | -8.419  | -0.011 | 0.004  | -52.739 | -29.462 | -29.447 |  | -35.935 | -35.919 |
| 455 | 0.3  | -29.625 | -7.647  | -0.011 | 0.004  | -47.785 | -26.673 | -26.658 |  | -32.754 | -32.739 |
| 455 | 0.6  | -26.926 | -7.096  | -0.011 | 0.004  | -43.665 | -24.245 | -24.230 |  | -30.134 | -30.118 |
| 455 | 0.9  | -24.629 | -6.765  | -0.011 | 0.004  | -40.378 | -22.177 | -22.162 |  | -28.073 | -28.057 |
| 455 | 1.2  | -22.732 | -6.654  | -0.011 | 0.004  | -37.926 | -20.470 | -20.455 |  | 28.073  | 28.057  |
| 457 | 0    | 22.732  | 6.654   | 0.011  | -0.004 | 37.926  | 20.470  | 20.455  |  | 30.134  | 30.118  |
| 457 | 0.3  | 24.629  | 6.765   | 0.011  | -0.004 | 40.378  | 22.177  | 22.162  |  | 32.754  | 32.739  |
| 457 | 0.6  | 26.926  | 7.096   | 0.011  | -0.004 | 43.665  | 24.245  | 24.230  |  | 35.935  | 35.919  |
| 457 | 0.9  | 29.625  | 7.647   | 0.011  | -0.004 | 47.785  | 26.673  | 26.658  |  | 39.675  | 39.660  |
| 457 | 1.2  | 32.723  | 8.419   | 0.011  | -0.004 | 52.739  | 29.462  | 29.447  |  | -56.266 | -54.077 |
| 461 | 0    | -45.631 | -10.996 | -1.358 | 0.726  | -72.351 | -42.426 | -40.341 |  | -52.334 | -50.146 |
| 461 | 0.45 | -42.185 | -10.500 | -1.358 | 0.726  | -67.421 | -39.324 | -37.240 |  | -45.884 | -43.696 |
| 461 | 0.9  | -36.935 | -9.010  | -1.358 | 0.726  | -58.739 | -34.600 | -32.515 |  | -39.434 | -37.246 |
| 461 | 1.35 | -31.686 | -7.521  | -1.358 | 0.726  | -50.057 | -29.875 | -27.791 |  | -35.503 | -33.315 |
| 461 | 1.8  | -28.240 | -7.024  | -1.358 | 0.726  | -45.127 | -26.774 | -24.690 |  | -58.792 | -55.793 |
| 462 | 0    | -48.557 | -12.141 | -0.151 | 2.706  | -77.694 | -43.853 | -40.996 |  | -54.861 | -51.861 |
| 462 | 0.45 | -45.111 | -11.644 | -0.151 | 2.706  | -72.764 | -40.751 | -37.894 |  | -48.411 | -45.411 |
| 462 | 0.9  | -39.862 | -10.155 | -0.151 | 2.706  | -64.082 | -36.027 | -33.170 |  | -41.961 | -38.961 |
| 462 | 1.35 | -34.612 | -8.666  | -0.151 | 2.706  | -55.400 | -31.302 | -28.445 |  | -38.030 | -35.030 |
| 462 | 1.8  | -31.166 | -8.169  | -0.151 | 2.706  | -50.470 | -28.201 | -25.344 |  | -18.614 | -18.960 |
| 463 | 0    | -14.582 | -5.424  | 0.108  | -0.221 | -26.176 | -13.016 | -13.344 |  | -14.836 | -15.181 |
| 463 | 0.64 | -11.579 | -4.431  | 0.108  | -0.221 | -20.984 | -10.313 | -10.642 |  | -6.020  | -6.365  |
| 463 | 1.27 | -4.970  | -1.452  | 0.108  | -0.221 | -8.287  | -4.365  | -4.694  |  | 2.796   | 2.451   |
| 463 | 1.91 | 1.639   | 1.527   | 0.108  | -0.221 | 4.409   | 1.583   | 1.254   |  | 6.574   | 6.229   |
| 463 | 2.55 | 4.641   | 2.520   | 0.108  | -0.221 | 9.601   | 4.285   | 3.956   |  | -58.792 | -55.793 |
| 464 | 0    | -48.557 | -12.141 | -0.151 | 2.706  | -77.694 | -43.853 | -40.996 |  | -54.861 | -51.861 |
| 464 | 0.45 | -45.111 | -11.644 | -0.151 | 2.706  | -72.764 | -40.751 | -37.894 |  | -48.411 | -45.411 |
| 464 | 0.9  | -39.862 | -10.155 | -0.151 | 2.706  | -64.082 | -36.027 | -33.170 |  | -41.961 | -38.961 |
| 464 | 1.35 | -34.612 | -8.666  | -0.151 | 2.706  | -55.400 | -31.302 | -28.445 |  | -38.030 | -35.030 |
| 464 | 1.8  | -31.166 | -8.169  | -0.151 | 2.706  | -50.470 | -28.201 | -25.344 |  | -56.266 | -54.077 |
| 465 | 0    | -45.631 | -10.996 | -1.358 | 0.726  | -72.351 | -42.426 | -40.341 |  | -52.334 | -50.146 |
| 465 | 0.45 | -42.185 | -10.500 | -1.358 | 0.726  | -67.421 | -39.324 | -37.240 |  | -45.884 | -43.696 |
| 465 | 0.9  | -36.935 | -9.010  | -1.358 | 0.726  | -58.739 | -34.600 | -32.515 |  | -39.434 | -37.246 |
| 465 | 1.35 | -31.686 | -7.521  | -1.358 | 0.726  | -50.057 | -29.875 | -27.791 |  | -35.503 | -33.315 |
| 465 | 1.8  | -28.240 | -7.024  | -1.358 | 0.726  | -45.127 | -26.774 | -24.690 |  | -18.614 | -18.960 |
| 466 | 0    | -14.582 | -5.424  | 0.108  | -0.221 | -26.176 | -13.016 | -13.344 |  | -14.836 | -15.181 |
| 466 | 0.64 | -11.579 | -4.431  | 0.108  | -0.221 | -20.984 | -10.313 | -10.642 |  | -6.020  | -6.365  |
| 466 | 1.27 | -4.970  | -1.452  | 0.108  | -0.221 | -8.287  | -4.365  | -4.694  |  | 2.796   | 2.451   |
| 466 | 1.91 | 1.639   | 1.527   | 0.108  | -0.221 | 4.409   | 1.583   | 1.254   |  | 6.574   | 6.229   |
| 466 | 2.55 | 4.641   | 2.520   | 0.108  | -0.221 | 9.601   | 4.285   | 3.956   |  | -53.979 | -56.108 |
| 467 | 0    | -45.508 | -10.973 | 0.684  | -1.344 | -72.167 | -40.274 | -42.301 |  | -50.048 | -52.177 |
| 467 | 0.45 | -42.062 | -10.477 | 0.684  | -1.344 | -67.237 | -37.172 | -39.200 |  | -43.597 | -45.726 |
| 467 | 0.9  | -36.813 | -8.987  | 0.684  | -1.344 | -58.555 | -32.448 | -34.475 |  | -37.147 | -39.276 |
| 467 | 1.35 | -31.563 | -7.498  | 0.684  | -1.344 | -49.873 | -27.723 | -29.751 |  | -33.216 | -35.345 |
| 467 | 1.8  | -28.117 | -7.001  | 0.684  | -1.344 | -44.943 | -24.622 | -26.649 |  | -56.181 | -59.242 |
| 468 | 0    | -48.931 | -12.192 | 2.741  | -0.175 | -78.225 | -41.297 | -44.212 |  | -52.250 | -55.311 |
| 468 | 0.45 | -45.485 | -11.696 | 2.741  | -0.175 | -73.295 | -38.196 | -41.111 |  | -45.800 | -48.860 |
| 468 | 0.9  | -40.235 | -10.206 | 2.741  | -0.175 | -64.613 | -33.471 | -36.386 |  | -39.349 | -42.410 |
| 468 | 1.35 | -34.986 | -8.717  | 2.741  | -0.175 | -55.930 | -28.747 | -31.662 |  | -35.418 | -38.479 |
| 468 | 1.8  | -31.540 | -8.221  | 2.741  | -0.175 | -51.001 | -25.645 | -28.560 |  | -18.941 | -18.591 |
| 469 | 0    | -14.563 | -5.421  | -0.223 | 0.110  | -26.150 | -13.330 | -12.997 |  | -15.162 | -14.813 |
| 469 | 0.64 | -11.561 | -4.428  | -0.223 | 0.110  | -20.958 | -10.627 | -10.294 |  | -6.346  | -5.997  |
| 469 | 1.27 | -4.952  | -1.450  | -0.223 | 0.110  | -8.262  | -4.679  | -4.346  |  | 2.470   | 2.819   |
| 469 | 1.91 | 1.657   | 1.529   | -0.223 | 0.110  | 4.435   | 1.269   | 1.602   |  |         |         |

|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 469 | 2.55 | 4.660   | 2.522   | -0.223 | 0.110  | 9.627   | 3.971   | 4.304   | 6.248   | 6.597   |
| 470 | 0    | -48.931 | -12.192 | 2.741  | -0.175 | -78.225 | -41.297 | -14.212 | -56.181 | -59.242 |
| 470 | 0.45 | -45.485 | -11.696 | 2.741  | -0.175 | -73.295 | -38.196 | -41.111 | -52.250 | -55.311 |
| 470 | 0.9  | -40.235 | -10.206 | 2.741  | -0.175 | -64.613 | -33.471 | -36.386 | -45.800 | -48.860 |
| 470 | 1.35 | -34.986 | -8.717  | 2.741  | -0.175 | -55.930 | -28.747 | -31.662 | -39.349 | -42.410 |
| 470 | 1.8  | -31.540 | -8.221  | 2.741  | -0.175 | -51.001 | -25.645 | -28.560 | -35.418 | -38.479 |
| 471 | 0    | -45.508 | -10.973 | 0.684  | -1.344 | -72.167 | -40.274 | -42.301 | -53.979 | -56.108 |
| 471 | 0.45 | -42.062 | -10.477 | 0.684  | -1.344 | -67.237 | -37.172 | -39.209 | -50.048 | -52.177 |
| 471 | 0.9  | -36.813 | -8.987  | 0.684  | -1.344 | -58.555 | -32.448 | -34.475 | -43.597 | -45.726 |
| 471 | 1.35 | -31.563 | -7.498  | 0.684  | -1.344 | -49.873 | -27.723 | -29.751 | -37.147 | -39.276 |
| 471 | 1.8  | -28.117 | -7.001  | 0.684  | -1.344 | -44.943 | -24.622 | -26.649 | -33.216 | -35.345 |
| 473 | 0    | -48.454 | -12.212 | 0.594  | -0.527 | -77.683 | -43.014 | -44.136 | -57.946 | -59.123 |
| 473 | 0.45 | -45.007 | -11.715 | 0.594  | -0.527 | -72.754 | -39.912 | -41.034 | -54.014 | -55.192 |
| 473 | 0.9  | -39.758 | -10.226 | 0.594  | -0.527 | -64.071 | -35.188 | -36.310 | -47.564 | -48.742 |
| 473 | 1.35 | -34.509 | -8.737  | 0.594  | -0.527 | -55.389 | -30.464 | -31.585 | -41.114 | -42.292 |
| 473 | 1.8  | -31.063 | -8.240  | 0.594  | -0.527 | -50.459 | -27.362 | -28.484 | -37.183 | -38.361 |
| 474 | 0    | -48.454 | -12.212 | 0.594  | -0.527 | -77.683 | -43.014 | -44.136 | -57.946 | -59.123 |
| 474 | 0.45 | -45.007 | -11.715 | 0.594  | -0.527 | -72.754 | -39.912 | -41.034 | -54.014 | -55.192 |
| 474 | 0.9  | -39.758 | -10.226 | 0.594  | -0.527 | -64.071 | -35.188 | -36.310 | -47.564 | -48.742 |
| 474 | 1.35 | -34.509 | -8.737  | 0.594  | -0.527 | -55.389 | -30.464 | -31.585 | -41.114 | -42.292 |
| 474 | 1.8  | -31.063 | -8.240  | 0.594  | -0.527 | -50.459 | -27.362 | -28.484 | -37.183 | -38.361 |
| 475 | 0    | -48.598 | -12.241 | -0.494 | 0.589  | -77.902 | -44.232 | -43.149 | -59.258 | -58.121 |
| 475 | 0.45 | -45.152 | -11.744 | -0.494 | 0.589  | -72.972 | -41.130 | -40.047 | -55.327 | -54.189 |
| 475 | 0.9  | -39.902 | -10.255 | -0.494 | 0.589  | -64.290 | -36.406 | -35.323 | -48.876 | -47.739 |
| 475 | 1.35 | -34.653 | -8.765  | -0.494 | 0.589  | -55.608 | -31.682 | -30.599 | -42.426 | -41.289 |
| 475 | 1.8  | -31.207 | -8.269  | -0.494 | 0.589  | -50.678 | -28.580 | -27.497 | -38.495 | -37.358 |
| 476 | 0    | -48.598 | -12.241 | -0.494 | 0.589  | -77.902 | -44.232 | -43.149 | -59.258 | -58.121 |
| 476 | 0.45 | -45.152 | -11.744 | -0.494 | 0.589  | -72.972 | -41.130 | -40.047 | -55.327 | -54.189 |
| 476 | 0.9  | -39.902 | -10.255 | -0.494 | 0.589  | -64.290 | -36.406 | -35.323 | -48.876 | -47.739 |
| 476 | 1.35 | -34.653 | -8.765  | -0.494 | 0.589  | -55.608 | -31.682 | -30.599 | -42.426 | -41.289 |
| 476 | 1.8  | -31.207 | -8.269  | -0.494 | 0.589  | -50.678 | -28.580 | -27.497 | -38.495 | -37.358 |
| 477 | 0    | -8.922  | -1.444  | 1.361  | -1.469 | -13.016 | -6.669  | -9.499  | -8.848  | -11.820 |
| 477 | 0.56 | -2.221  | -1.071  | 1.361  | -1.469 | -4.379  | -0.638  | -3.468  | -1.578  | -4.549  |
| 477 | 1.13 | 4.931   | -0.451  | 1.361  | -1.469 | 5.196   | 5.799   | 2.969   | 6.322   | 3.351   |
| 477 | 1.69 | 12.083  | 0.170   | 1.361  | -1.469 | 14.771  | 12.235  | 9.405   | 14.223  | 11.251  |
| 477 | 2.25 | 18.784  | 0.542   | 1.361  | -1.469 | 23.408  | 18.266  | 15.436  | 21.493  | 18.522  |
| 478 | 0    | -23.708 | -1.273  | -0.982 | 1.068  | -30.486 | -22.319 | -20.269 | -26.726 | -24.574 |
| 478 | 0.75 | -14.623 | -0.694  | -0.982 | 1.068  | -18.657 | -14.142 | -12.092 | -16.822 | -14.669 |
| 478 | 1.5  | -5.087  | 0.134   | -0.982 | 1.068  | -5.890  | -5.560  | -3.510  | -6.288  | -4.136  |
| 478 | 2.25 | 4.449   | 0.961   | -0.982 | 1.068  | 6.876   | 3.022   | 5.072   | 4.246   | 6.398   |
| 478 | 3    | 13.534  | 1.540   | -0.982 | 1.068  | 18.705  | 11.198  | 13.248  | 14.150  | 16.302  |
| 479 | 0    | -63.559 | -3.813  | -1.785 | 1.947  | -82.371 | -58.989 | -55.256 | -71.014 | -67.095 |
| 479 | 0.23 | -60.076 | -3.688  | -1.785 | 1.947  | -77.992 | -55.853 | -52.121 | -67.278 | -63.359 |
| 479 | 0.45 | -56.141 | -3.316  | -1.785 | 1.947  | -72.675 | -52.313 | -48.580 | -62.912 | -58.993 |
| 479 | 0.68 | -52.207 | -2.944  | -1.785 | 1.947  | -67.358 | -48.772 | -45.040 | -58.547 | -54.628 |
| 479 | 0.9  | -48.724 | -2.820  | -1.785 | 1.947  | -62.980 | -45.637 | -41.904 | -54.811 | -50.892 |
| 480 | 0    | -0.535  | -0.660  | 0.056  | -0.133 | -1.698  | -0.425  | -0.614  | -0.919  | -1.117  |
| 480 | 0.45 | 1.215   | -0.164  | 0.056  | -0.133 | 1.196   | 1.150   | 0.961   | 1.232   | 1.034   |
| 480 | 0.9  | 4.768   | 1.326   | 0.056  | -0.133 | 7.843   | 4.347   | 4.159   | 5.901   | 5.703   |
| 480 | 1.35 | 8.321   | 2.815   | 0.056  | -0.133 | 14.490  | 7.545   | 7.357   | 10.570  | 10.372  |
| 480 | 1.8  | 10.071  | 3.311   | 0.056  | -0.133 | 17.384  | 9.120   | 8.931   | 12.720  | 12.522  |
| 481 | 0    | 6.049   | 1.445   | -0.263 | 0.294  | 9.571   | 5.181   | 5.739   | 6.986   | 7.571   |
| 481 | 0.45 | 7.799   | 1.941   | -0.263 | 0.294  | 12.465  | 6.756   | 7.314   | 9.136   | 9.721   |
| 481 | 0.9  | 11.352  | 3.431   | -0.263 | 0.294  | 19.112  | 9.954   | 10.512  | 13.805  | 14.390  |
| 481 | 1.35 | 14.905  | 4.920   | -0.263 | 0.294  | 25.758  | 13.152  | 13.709  | 18.474  | 19.059  |
| 481 | 1.8  | 16.655  | 5.416   | -0.263 | 0.294  | 28.652  | 14.726  | 15.284  | 20.624  | 21.209  |
| 482 | 0    | 6.089   | 1.452   | 0.294  | -0.269 | 9.631   | 5.774   | 5.211   | 7.617   | 7.026   |
| 482 | 0.45 | 7.839   | 1.949   | 0.294  | -0.269 | 12.525  | 7.349   | 6.786   | 9.767   | 9.176   |
| 482 | 0.9  | 11.392  | 3.438   | 0.294  | -0.269 | 19.172  | 10.547  | 9.984   | 14.436  | 13.846  |
| 482 | 1.35 | 14.945  | 4.928   | 0.294  | -0.269 | 25.818  | 13.744  | 13.182  | 19.105  | 18.515  |
| 482 | 1.8  | 16.695  | 5.424   | 0.294  | -0.269 | 28.712  | 15.319  | 14.757  | 21.255  | 20.665  |
| 483 | 0    | -12.653 | -4.386  | 0.001  | -0.157 | -22.202 | -11.387 | -11.545 | -16.049 | -16.214 |
| 483 | 0.45 | -10.904 | -3.890  | 0.001  | -0.157 | -19.308 | -9.813  | -9.970  | -13.899 | -14.064 |
| 483 | 0.9  | -7.350  | -2.401  | 0.001  | -0.157 | -12.662 | -6.615  | -6.773  | -9.230  | -9.395  |
| 483 | 1.35 | -3.797  | -0.911  | 0.001  | -0.157 | -6.015  | -3.417  | -3.575  | -4.561  | -4.726  |
| 483 | 1.8  | -2.048  | -0.415  | 0.001  | -0.157 | -3.121  | -1.842  | -2.000  | -2.411  | -2.576  |
| 484 | 0    | -49.546 | -12.473 | 0.275  | -1.556 | -79.412 | -44.316 | -46.148 | -59.592 | -61.515 |

|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 484 | 0.45 | -46.100 | -11.976 | 0.275  | -1.556 | -74.482 | -41.215 | -43.046 | -55.661 | -57.584 |
| 484 | 0.9  | -40.851 | -10.487 | 0.275  | -1.556 | -65.800 | -36.490 | -38.322 | -49.211 | -51.134 |
| 484 | 1.35 | -35.601 | -8.997  | 0.275  | -1.556 | -57.118 | -31.766 | -33.597 | -42.761 | -44.684 |
| 484 | 1.8  | -32.155 | -8.501  | 0.275  | -1.556 | -52.188 | -28.665 | -30.496 | -38.830 | -40.753 |
| 485 | 0    | -11.028 | -4.321  | -0.046 | 0.326  | -20.148 | -9.971  | -9.598  | -14.350 | -13.959 |
| 485 | 0.45 | -9.278  | -3.825  | -0.046 | 0.326  | -17.253 | -8.396  | -8.024  | -12.200 | -11.809 |
| 485 | 0.9  | -5.725  | -2.336  | -0.046 | 0.326  | -10.607 | -5.198  | -4.826  | -7.531  | -7.140  |
| 485 | 1.35 | -2.172  | -0.846  | -0.046 | 0.326  | -3.960  | -2.001  | -1.628  | -2.862  | -2.471  |
| 485 | 1.8  | -0.422  | -0.350  | -0.046 | 0.326  | -1.066  | -0.426  | -0.053  | -0.712  | -0.321  |
| 486 | 0    | -51.717 | -12.917 | 0.041  | -0.674 | -82.726 | -46.504 | -47.219 | -62.397 | -63.147 |
| 486 | 0.45 | -48.271 | -12.420 | 0.041  | -0.674 | -77.797 | -43.403 | -44.117 | -58.466 | -59.216 |
| 486 | 0.9  | -43.021 | -10.931 | 0.041  | -0.674 | -69.115 | -38.678 | -39.393 | -52.016 | -52.766 |
| 486 | 1.35 | -37.772 | -9.441  | 0.041  | -0.674 | -60.432 | -33.954 | -34.668 | -45.565 | -46.315 |
| 486 | 1.8  | -34.326 | -8.945  | 0.041  | -0.674 | -55.503 | -30.852 | -31.567 | -41.634 | -42.385 |
| 487 | 0    | -12.060 | -4.383  | -0.018 | 0.151  | -21.485 | -10.871 | -10.703 | -15.443 | -15.266 |
| 487 | 0.45 | -10.310 | -3.887  | -0.018 | 0.151  | -18.591 | -9.296  | -9.128  | -13.293 | -13.116 |
| 487 | 0.9  | -6.757  | -2.398  | -0.018 | 0.151  | -11.944 | -6.099  | -5.931  | -8.624  | -8.447  |
| 487 | 1.35 | -3.204  | -0.908  | -0.018 | 0.151  | -5.298  | -2.901  | -2.733  | -3.955  | -3.778  |
| 487 | 1.8  | -1.454  | -0.412  | -0.018 | 0.151  | -2.404  | -1.326  | -1.158  | -1.805  | -1.628  |
| 488 | 0    | -47.011 | -11.499 | 0.065  | -0.252 | -74.811 | -42.244 | -42.562 | -56.537 | -56.870 |
| 488 | 0.45 | -43.564 | -11.002 | 0.065  | -0.252 | -69.881 | -39.143 | -39.460 | -52.606 | -52.939 |
| 488 | 0.9  | -38.315 | -9.513  | 0.065  | -0.252 | -61.199 | -34.418 | -34.736 | -46.156 | -46.489 |
| 488 | 1.35 | -33.066 | -8.024  | 0.065  | -0.252 | -52.517 | -29.694 | -30.011 | -39.705 | -40.039 |
| 488 | 1.8  | -29.620 | -7.527  | 0.065  | -0.252 | -47.587 | -26.592 | -26.910 | -35.774 | -36.107 |
| 489 | 0    | -9.799  | -3.358  | -0.018 | 0.071  | -17.131 | -8.837  | -8.748  | -12.423 | -12.330 |
| 489 | 0.45 | -8.049  | -2.861  | -0.018 | 0.071  | -14.237 | -7.262  | -7.173  | -10.273 | -10.180 |
| 489 | 0.9  | -4.496  | -1.372  | -0.018 | 0.071  | -7.590  | -4.064  | -3.976  | -5.604  | -5.511  |
| 489 | 1.35 | -0.943  | 0.117   | -0.018 | 0.071  | -0.944  | -0.867  | -0.778  | -0.935  | -0.842  |
| 489 | 1.8  | 0.807   | 0.614   | -0.018 | 0.071  | 1.950   | 0.708   | 0.797   | 1.215   | 1.308   |
| 490 | 0    | -47.979 | -11.783 | 0.059  | -0.218 | -76.429 | -43.122 | -43.399 | -57.739 | -58.031 |
| 490 | 0.45 | -44.533 | -11.287 | 0.059  | -0.218 | -71.499 | -40.020 | -40.298 | -53.808 | -54.099 |
| 490 | 0.9  | -39.284 | -9.798  | 0.059  | -0.218 | -62.817 | -35.296 | -35.573 | -47.358 | -47.649 |
| 490 | 1.35 | -34.034 | -8.308  | 0.059  | -0.218 | -54.134 | -30.571 | -30.849 | -40.908 | -41.199 |
| 490 | 1.8  | -30.588 | -7.812  | 0.059  | -0.218 | -49.205 | -27.470 | -27.747 | -36.977 | -37.268 |
| 491 | 0    | -12.079 | -4.400  | -0.014 | 0.055  | -21.536 | -10.886 | -10.817 | -15.470 | -15.398 |
| 491 | 0.45 | -10.330 | -3.904  | -0.014 | 0.055  | -18.642 | -9.311  | -9.242  | -13.320 | -13.248 |
| 491 | 0.9  | -6.777  | -2.414  | -0.014 | 0.055  | -11.995 | -6.113  | -6.044  | -8.651  | -8.579  |
| 491 | 1.35 | -3.224  | -0.925  | -0.014 | 0.055  | -5.348  | -2.915  | -2.846  | -3.982  | -3.910  |
| 491 | 1.8  | -1.474  | -0.429  | -0.014 | 0.055  | -2.454  | -1.340  | -1.271  | -1.832  | -1.760  |
| 492 | 0    | -47.979 | -11.783 | 0.059  | -0.218 | -76.429 | -43.122 | -43.399 | -57.739 | -58.031 |
| 492 | 0.45 | -44.533 | -11.287 | 0.059  | -0.218 | -71.499 | -40.020 | -40.298 | -53.808 | -54.100 |
| 492 | 0.9  | -39.284 | -9.798  | 0.059  | -0.218 | -62.817 | -35.296 | -35.573 | -47.358 | -47.649 |
| 492 | 1.35 | -34.034 | -8.308  | 0.059  | -0.218 | -54.135 | -30.572 | -30.849 | -40.908 | -41.199 |
| 492 | 1.8  | -30.588 | -7.812  | 0.059  | -0.218 | -49.205 | -27.470 | -27.748 | -36.977 | -37.268 |
| 493 | 0    | -9.799  | -3.358  | -0.018 | 0.071  | -17.131 | -8.837  | -8.748  | -12.423 | -12.330 |
| 493 | 0.45 | -8.049  | -2.861  | -0.018 | 0.071  | -14.237 | -7.262  | -7.173  | -10.273 | -10.180 |
| 493 | 0.9  | -4.496  | -1.372  | -0.018 | 0.071  | -7.590  | -4.064  | -3.976  | -5.604  | -5.511  |
| 493 | 1.35 | -0.943  | 0.117   | -0.018 | 0.071  | -0.944  | -0.867  | -0.778  | -0.935  | -0.842  |
| 493 | 1.8  | 0.807   | 0.614   | -0.018 | 0.071  | 1.950   | 0.708   | 0.797   | 1.215   | 1.308   |
| 494 | 0    | -30.999 | -3.988  | 1.567  | -1.675 | -43.581 | -26.332 | -29.575 | -33.416 | -36.821 |
| 494 | 0.23 | -30.350 | -3.864  | 1.567  | -1.675 | -42.603 | -25.748 | -28.990 | -32.656 | -36.061 |
| 494 | 0.45 | -29.250 | -3.492  | 1.567  | -1.675 | -40.686 | -24.758 | -28.000 | -31.266 | -34.671 |
| 494 | 0.68 | -28.149 | -3.119  | 1.567  | -1.675 | -38.770 | -23.767 | -27.010 | -29.877 | -33.281 |
| 494 | 0.9  | -27.500 | -2.995  | 1.567  | -1.675 | -37.792 | -23.183 | -26.425 | -29.116 | -32.521 |
| 495 | 0    | -47.011 | -11.499 | 0.065  | -0.252 | -74.811 | -42.244 | -42.562 | -56.537 | -56.870 |
| 495 | 0.45 | -43.564 | -11.002 | 0.065  | -0.252 | -69.881 | -39.143 | -39.460 | -52.606 | -52.939 |
| 495 | 0.9  | -38.315 | -9.513  | 0.065  | -0.252 | -61.199 | -34.418 | -34.736 | -46.156 | -46.489 |
| 495 | 1.35 | -33.066 | -8.024  | 0.065  | -0.252 | -52.517 | -29.694 | -30.011 | -39.705 | -40.039 |
| 495 | 1.8  | -29.620 | -7.527  | 0.065  | -0.252 | -47.587 | -26.592 | -26.910 | -35.774 | -36.107 |
| 496 | 0    | -12.060 | -4.383  | -0.018 | 0.151  | -21.485 | -10.871 | -10.703 | -15.443 | -15.266 |
| 496 | 0.45 | -10.310 | -3.887  | -0.018 | 0.151  | -18.591 | -9.296  | -9.128  | -13.293 | -13.116 |
| 496 | 0.9  | -6.757  | -2.398  | -0.018 | 0.151  | -11.944 | -6.099  | -5.931  | -8.624  | -8.447  |
| 496 | 1.35 | -3.204  | -0.908  | -0.018 | 0.151  | -5.298  | -2.901  | -2.733  | -3.955  | -3.778  |
| 496 | 1.8  | -1.454  | -0.412  | -0.018 | 0.151  | -2.404  | -1.326  | -1.158  | -1.805  | -1.628  |
| 497 | 0    | -51.717 | -12.917 | 0.041  | -0.674 | -82.726 | -46.504 | -47.219 | -62.397 | -63.147 |
| 497 | 0.45 | -48.271 | -12.420 | 0.041  | -0.674 | -77.797 | -43.403 | -44.117 | -58.466 | -59.216 |
| 497 | 0.9  | -43.021 | -10.931 | 0.041  | -0.674 | -69.115 | -38.678 | -39.393 | -52.016 | -52.766 |

|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 497 | 1.35 | -37.772 | -9.441  | 0.041  | -0.674 | -60.432 | -33.954 | -34.668 | -45.565 | -46.316 |
| 497 | 1.8  | -34.326 | -8.945  | 0.041  | -0.674 | -55.503 | -30.852 | -31.567 | -41.634 | -42.385 |
| 498 | 0    | -11.028 | -4.321  | -0.046 | 0.326  | -20.148 | -9.971  | -9.598  | -14.350 | -13.959 |
| 498 | 0.45 | -9.278  | -3.825  | -0.046 | 0.326  | -17.253 | -8.396  | -8.024  | -12.200 | -11.809 |
| 498 | 0.9  | -5.725  | -2.336  | -0.046 | 0.326  | -10.607 | -5.198  | -4.826  | -7.531  | -7.140  |
| 498 | 1.35 | -2.172  | -0.846  | -0.046 | 0.326  | -3.960  | -2.001  | -1.628  | -2.862  | -2.471  |
| 498 | 1.8  | -0.422  | -0.350  | -0.046 | 0.326  | -1.066  | -0.426  | -0.053  | -0.712  | -0.321  |
| 499 | 0    | -49.546 | -12.473 | 0.275  | -1.556 | -79.412 | -44.316 | -46.148 | -59.592 | -61.515 |
| 499 | 0.45 | -46.100 | -11.976 | 0.275  | -1.556 | -74.482 | -41.215 | -43.046 | -55.661 | -57.584 |
| 499 | 0.9  | -40.851 | -10.487 | 0.275  | -1.556 | -65.800 | -36.490 | -38.322 | -49.211 | -51.134 |
| 499 | 1.35 | -35.601 | -8.997  | 0.275  | -1.556 | -57.118 | -31.766 | -33.597 | -42.761 | -44.684 |
| 499 | 1.8  | -32.155 | -8.501  | 0.275  | -1.556 | -52.188 | -28.665 | -30.496 | -38.830 | -40.753 |
| 500 | 0    | -12.653 | -4.386  | 0.001  | -0.157 | -22.202 | -11.387 | -11.545 | -16.049 | -16.214 |
| 500 | 0.45 | -10.904 | -3.890  | 0.001  | -0.157 | -19.308 | -9.813  | -9.970  | -13.899 | -14.064 |
| 500 | 0.9  | -7.350  | -2.401  | 0.001  | -0.157 | -12.662 | -6.615  | -6.773  | -9.230  | -9.395  |
| 500 | 1.35 | -3.797  | -0.911  | 0.001  | -0.157 | -6.015  | -3.417  | -3.575  | -4.561  | -4.726  |
| 500 | 1.8  | -2.048  | -0.415  | 0.001  | -0.157 | -3.121  | -1.842  | -2.000  | -2.411  | -2.576  |
| 501 | 0    | -10.076 | -3.313  | 0.133  | -0.056 | -17.391 | -8.935  | -9.125  | -12.526 | -12.726 |
| 501 | 0.45 | -8.326  | -2.816  | 0.133  | -0.056 | -14.497 | -7.360  | -7.550  | -10.376 | -10.576 |
| 501 | 0.9  | -4.773  | -1.327  | 0.133  | -0.056 | -7.850  | -4.162  | -4.352  | -5.707  | -5.907  |
| 501 | 1.35 | -1.220  | 0.163   | 0.133  | -0.056 | -1.204  | -0.965  | -1.154  | -1.038  | -1.238  |
| 501 | 1.8  | 0.530   | 0.659   | 0.133  | -0.056 | 1.691   | 0.610   | 0.421   | 1.112   | 0.912   |
| 502 | 0    | -10.071 | -3.311  | -0.056 | 0.133  | -17.384 | -9.120  | -8.931  | -12.720 | -12.522 |
| 502 | 0.45 | -8.321  | -2.815  | -0.056 | 0.133  | -14.490 | -7.545  | -7.357  | -10.570 | -10.372 |
| 502 | 0.9  | -4.768  | -1.326  | -0.056 | 0.133  | -7.843  | -4.347  | -4.159  | -5.901  | -5.703  |
| 502 | 1.35 | -1.215  | 0.164   | -0.056 | 0.133  | -1.196  | -1.150  | -0.961  | -1.232  | -1.034  |
| 502 | 1.8  | 0.535   | 0.660   | -0.056 | 0.133  | 1.698   | 0.425   | 0.614   | 0.919   | 1.117   |
| 503 | 0    | -16.655 | -5.416  | 0.263  | -0.294 | -28.652 | -14.726 | -15.284 | -20.624 | -21.209 |
| 503 | 0.45 | -14.905 | -4.920  | 0.263  | -0.294 | -25.758 | -13.152 | -13.709 | -18.474 | -19.059 |
| 503 | 0.9  | -11.352 | -3.431  | 0.263  | -0.294 | -19.112 | -9.954  | -10.512 | -13.805 | -14.390 |
| 503 | 1.35 | -7.799  | -1.941  | 0.263  | -0.294 | -12.465 | -6.756  | -7.314  | -9.136  | -9.721  |
| 503 | 1.8  | -6.049  | -1.445  | 0.263  | -0.294 | -9.571  | -5.181  | -5.729  | -6.986  | -7.571  |
| 504 | 0    | -16.695 | -5.424  | -0.294 | 0.269  | -28.712 | -15.319 | -14.757 | -21.255 | -20.665 |
| 504 | 0.45 | -14.945 | -4.928  | -0.294 | 0.269  | -25.818 | -13.744 | -13.182 | -19.105 | -18.515 |
| 504 | 0.9  | -11.392 | -3.438  | -0.294 | 0.269  | -19.172 | -10.547 | -9.984  | -14.436 | -13.846 |
| 504 | 1.35 | -7.839  | -1.949  | -0.294 | 0.269  | -12.525 | -7.349  | -6.786  | -9.767  | -9.176  |
| 504 | 1.8  | -6.089  | -1.452  | -0.294 | 0.269  | -9.631  | -5.774  | -5.211  | -7.617  | -7.026  |
| 505 | 0    | -12.796 | -1.393  | 0.858  | -0.926 | -17.585 | -10.658 | -12.443 | -13.412 | -15.286 |
| 505 | 0.75 | -3.711  | -0.814  | 0.858  | -0.926 | -5.756  | -2.481  | -4.265  | -3.508  | -5.382  |
| 505 | 1.5  | 5.825   | 0.013   | 0.858  | -0.926 | 7.011   | 6.101   | 4.316   | 7.026   | 5.152   |
| 505 | 2.25 | 15.360  | 0.841   | 0.858  | -0.926 | 19.777  | 14.683  | 12.898  | 17.559  | 15.685  |
| 505 | 3    | 24.445  | 1.420   | 0.858  | -0.926 | 31.606  | 22.859  | 21.075  | 27.464  | 25.590  |
| 506 | 0    | -24.278 | -1.400  | -0.927 | 1.020  | -31.374 | -22.777 | -20.830 | -27.347 | -25.302 |
| 506 | 0.75 | -15.193 | -0.821  | -0.927 | 1.020  | -19.545 | -14.601 | -12.653 | -17.443 | -15.398 |
| 506 | 1.5  | -5.658  | 0.007   | -0.927 | 1.020  | -6.778  | -6.019  | -4.071  | -6.909  | -4.865  |
| 506 | 2.25 | 3.878   | 0.834   | -0.927 | 1.020  | 5.989   | 2.563   | 4.511   | 3.624   | 5.669   |
| 506 | 3    | 12.963  | 1.413   | -0.927 | 1.020  | 17.817  | 10.740  | 12.687  | 13.528  | 15.573  |
| 507 | 0    | -49.734 | -12.505 | -1.561 | 0.281  | -79.689 | -46.321 | -44.479 | -61.738 | -59.804 |
| 507 | 0.45 | -46.288 | -12.009 | -1.561 | 0.281  | -74.759 | -43.220 | -41.378 | -57.806 | -55.872 |
| 507 | 0.9  | -41.038 | -10.519 | -1.561 | 0.281  | -66.077 | -38.495 | -36.653 | -51.356 | -49.422 |
| 507 | 1.35 | -35.789 | -9.030  | -1.561 | 0.281  | -57.395 | -33.771 | -31.929 | -44.906 | -42.972 |
| 507 | 1.8  | -32.343 | -8.533  | -1.561 | 0.281  | -52.465 | -30.669 | -28.827 | -40.975 | -39.041 |
| 508 | 0    | -14.537 | -1.582  | 0.640  | -0.655 | -19.975 | -12.443 | -13.738 | -15.588 | -16.948 |
| 508 | 0.75 | -5.452  | -1.003  | 0.640  | -0.655 | -8.147  | -4.267  | -5.561  | -5.684  | -7.044  |
| 508 | 1.5  | 4.084   | -0.175  | 0.640  | -0.655 | 4.620   | 4.316   | 3.021   | 4.850   | 3.490   |
| 508 | 2.25 | 13.619  | 0.652   | 0.640  | -0.655 | 17.387  | 12.898  | 11.603  | 15.384  | 14.024  |
| 508 | 3    | 22.704  | 1.231   | 0.640  | -0.655 | 29.216  | 21.074  | 19.779  | 25.288  | 23.928  |
| 509 | 0    | 1.967   | 0.403   | 0.160  | -0.002 | 3.004   | 1.931   | 1.768   | 2.487   | 2.316   |
| 509 | 0.45 | 3.717   | 0.899   | 0.160  | -0.002 | 5.899   | 3.505   | 3.343   | 4.637   | 4.466   |
| 509 | 0.9  | 7.270   | 2.388   | 0.160  | -0.002 | 12.545  | 6.703   | 6.540   | 9.306   | 9.135   |
| 509 | 1.35 | 10.823  | 3.878   | 0.160  | -0.002 | 19.192  | 9.901   | 9.738   | 13.975  | 13.804  |
| 509 | 1.8  | 12.573  | 4.374   | 0.160  | -0.002 | 22.086  | 11.476  | 11.313  | 16.125  | 15.955  |
| 510 | 0    | 0.328   | 0.333   | -0.326 | 0.046  | 0.925   | -0.031  | 0.341   | 0.211   | 0.602   |
| 510 | 0.45 | 2.077   | 0.829   | -0.326 | 0.046  | 3.819   | 1.544   | 1.916   | 2.361   | 2.752   |
| 510 | 0.9  | 5.630   | 2.318   | -0.326 | 0.046  | 10.466  | 4.741   | 5.113   | 7.030   | 7.421   |
| 510 | 1.35 | 9.183   | 3.808   | -0.326 | 0.046  | 17.113  | 7.939   | 8.311   | 11.699  | 12.090  |
| 510 | 1.8  | 10.933  | 4.304   | -0.326 | 0.046  | 20.007  | 9.514   | 9.886   | 13.849  | 14.240  |

|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 511 | 0    | 34.683  | 9.001   | 0.672  | -0.040 | 56.021  | 31.887  | 31.175  | 42.794  | 42.046  |
| 511 | 0.45 | 38.129  | 9.497   | 0.672  | -0.040 | 60.951  | 34.989  | 34.277  | 46.725  | 45.978  |
| 511 | 0.9  | 43.379  | 10.987  | 0.672  | -0.040 | 69.633  | 39.713  | 39.001  | 53.175  | 52.428  |
| 511 | 1.35 | 48.628  | 12.476  | 0.672  | -0.040 | 78.315  | 44.438  | 43.726  | 59.625  | 58.878  |
| 511 | 1.8  | 52.074  | 12.972  | 0.672  | -0.040 | 83.245  | 47.539  | 46.827  | 63.557  | 62.809  |
| 512 | 0    | 1.125   | 0.315   | -0.140 | 0.013  | 1.854   | 0.872   | 1.025   | 1.233   | 1.392   |
| 512 | 0.45 | 2.874   | 0.812   | -0.140 | 0.013  | 4.748   | 2.447   | 2.599   | 3.383   | 3.543   |
| 512 | 0.9  | 6.427   | 2.301   | -0.140 | 0.013  | 11.395  | 5.645   | 5.797   | 8.052   | 8.212   |
| 512 | 1.35 | 9.980   | 3.791   | -0.140 | 0.013  | 18.042  | 8.842   | 8.995   | 12.721  | 12.881  |
| 512 | 1.8  | 11.730  | 4.287   | -0.140 | 0.013  | 20.936  | 10.417  | 10.570  | 14.871  | 15.031  |
| 513 | 0    | 31.839  | 8.182   | 0.148  | -0.012 | 51.298  | 28.803  | 28.643  | 38.741  | 38.573  |
| 513 | 0.45 | 35.285  | 8.679   | 0.148  | -0.012 | 56.228  | 31.905  | 31.744  | 42.672  | 42.504  |
| 513 | 0.9  | 40.535  | 10.168  | 0.148  | -0.012 | 64.910  | 36.629  | 36.469  | 49.123  | 48.954  |
| 513 | 1.35 | 45.784  | 11.657  | 0.148  | -0.012 | 73.593  | 41.354  | 41.193  | 55.573  | 55.404  |
| 513 | 1.8  | 49.230  | 12.154  | 0.148  | -0.012 | 78.522  | 44.455  | 44.295  | 59.504  | 59.336  |
| 514 | 0    | 0.393   | -0.396  | -0.069 | 0.019  | -0.161  | 0.285   | 0.373   | 0.091   | 0.183   |
| 514 | 0.45 | 2.143   | 0.101   | -0.069 | 0.019  | 2.733   | 1.860   | 1.947   | 2.241   | 2.333   |
| 514 | 0.9  | 5.696   | 1.590   | -0.069 | 0.019  | 9.380   | 5.057   | 5.145   | 6.910   | 7.002   |
| 514 | 1.35 | 9.249   | 3.080   | -0.069 | 0.019  | 16.026  | 8.255   | 8.343   | 11.579  | 11.671  |
| 514 | 1.8  | 10.999  | 3.576   | -0.069 | 0.019  | 18.921  | 9.830   | 9.918   | 13.729  | 13.821  |
| 515 | 0    | 44.522  | 10.938  | 0.305  | -0.113 | 70.928  | 40.375  | 39.958  | 53.960  | 53.521  |
| 515 | 0.45 | 50.272  | 12.703  | 0.305  | -0.113 | 80.652  | 45.550  | 45.133  | 61.110  | 60.671  |
| 515 | 0.9  | 56.423  | 14.689  | 0.305  | -0.113 | 91.211  | 51.086  | 50.668  | 68.819  | 68.380  |
| 515 | 1.35 | 61.672  | 16.179  | 0.305  | -0.113 | 99.893  | 55.810  | 55.393  | 75.269  | 74.830  |
| 515 | 1.8  | 65.118  | 16.675  | 0.305  | -0.113 | 104.822 | 58.912  | 58.494  | 79.200  | 78.761  |
| 516 | 0    | -3.824  | -2.276  | -0.022 | 0.008  | -8.231  | -3.463  | -3.434  | -5.472  | -5.441  |
| 516 | 0.75 | 0.094   | -0.897  | -0.022 | 0.008  | -1.323  | 0.063   | 0.092   | -0.489  | -0.458  |
| 516 | 1.5  | 9.021   | 3.240   | -0.022 | 0.008  | 16.009  | 8.097   | 8.126   | 11.490  | 11.521  |
| 516 | 2.25 | 17.947  | 7.377   | -0.022 | 0.008  | 33.341  | 16.131  | 16.160  | 23.470  | 23.501  |
| 516 | 3    | 21.865  | 8.756   | -0.022 | 0.008  | 40.249  | 19.657  | 19.686  | 28.452  | 28.483  |
| 517 | 0    | 44.522  | 10.938  | 0.305  | -0.113 | 70.928  | 40.375  | 39.958  | 53.960  | 53.521  |
| 517 | 0.45 | 50.272  | 12.703  | 0.305  | -0.113 | 80.652  | 45.550  | 45.133  | 61.110  | 60.671  |
| 517 | 0.9  | 56.423  | 14.689  | 0.305  | -0.113 | 91.211  | 51.086  | 50.668  | 68.819  | 68.380  |
| 517 | 1.35 | 61.672  | 16.179  | 0.305  | -0.113 | 99.893  | 55.810  | 55.393  | 75.269  | 74.830  |
| 517 | 1.8  | 65.118  | 16.675  | 0.305  | -0.113 | 104.822 | 58.912  | 58.494  | 79.200  | 78.762  |
| 518 | 0    | 0.393   | -0.396  | -0.069 | 0.019  | -0.161  | 0.285   | 0.373   | 0.091   | 0.183   |
| 518 | 0.45 | 2.143   | 0.101   | -0.069 | 0.019  | 2.733   | 1.860   | 1.947   | 2.241   | 2.333   |
| 518 | 0.9  | 5.696   | 1.590   | -0.069 | 0.019  | 9.380   | 5.057   | 5.145   | 6.910   | 7.002   |
| 518 | 1.35 | 9.249   | 3.080   | -0.069 | 0.019  | 16.026  | 8.255   | 8.343   | 11.579  | 11.671  |
| 518 | 1.8  | 10.999  | 3.576   | -0.069 | 0.019  | 18.921  | 9.830   | 9.918   | 13.729  | 13.821  |
| 519 | 0    | -49.230 | -12.154 | -0.148 | 0.012  | -78.522 | -44.455 | -44.295 | -59.504 | -59.336 |
| 519 | 0.45 | -45.784 | -11.657 | -0.148 | 0.012  | -73.593 | -41.354 | -41.193 | -55.573 | -55.404 |
| 519 | 0.9  | -40.535 | -10.168 | -0.148 | 0.012  | -64.910 | -36.629 | -36.469 | -49.122 | -48.954 |
| 519 | 1.35 | -35.285 | -8.679  | -0.148 | 0.012  | -56.228 | -31.905 | -31.744 | -42.672 | -42.504 |
| 519 | 1.8  | -31.839 | -8.182  | -0.148 | 0.012  | -51.298 | -28.803 | -28.643 | -38.741 | -38.573 |
| 520 | 0    | -11.730 | -4.287  | 0.140  | -0.013 | -20.936 | -10.417 | -10.570 | -14.871 | -15.031 |
| 520 | 0.45 | -9.980  | -3.791  | 0.140  | -0.013 | -18.042 | -8.842  | -8.995  | -12.721 | -12.881 |
| 520 | 0.9  | -6.427  | -2.301  | 0.140  | -0.013 | -11.395 | -5.645  | -5.797  | -8.052  | -8.212  |
| 520 | 1.35 | -2.874  | -0.812  | 0.140  | -0.013 | -4.748  | -2.447  | -2.599  | -3.383  | -3.543  |
| 520 | 1.8  | -1.125  | -0.315  | 0.140  | -0.013 | -1.854  | -0.872  | -1.025  | -1.233  | -1.393  |
| 521 | 0    | -52.074 | -12.972 | -0.672 | 0.040  | -83.245 | -47.539 | -46.827 | -63.557 | -62.809 |
| 521 | 0.45 | -48.628 | -12.476 | -0.672 | 0.040  | -78.315 | -44.438 | -43.726 | -59.625 | -58.878 |
| 521 | 0.9  | -43.379 | -10.987 | -0.672 | 0.040  | -69.633 | -39.713 | -39.001 | -53.175 | -52.428 |
| 521 | 1.35 | -38.129 | -9.497  | -0.672 | 0.040  | -60.951 | -34.989 | -34.277 | -46.725 | -45.978 |
| 521 | 1.8  | -34.683 | -9.001  | -0.672 | 0.040  | -56.021 | -31.887 | -31.175 | -42.794 | -42.046 |
| 522 | 0    | -10.933 | -4.304  | 0.326  | -0.046 | -20.007 | -9.514  | -9.886  | -13.849 | -14.240 |
| 522 | 0.45 | -9.183  | -3.808  | 0.326  | -0.046 | -17.113 | -7.939  | -8.311  | -11.699 | -12.090 |
| 522 | 0.9  | -5.630  | -2.318  | 0.326  | -0.046 | -10.466 | -4.741  | -5.113  | -7.030  | -7.421  |
| 522 | 1.35 | -2.077  | -0.829  | 0.326  | -0.046 | -3.819  | -1.544  | -1.916  | -2.361  | -2.752  |
| 522 | 1.8  | -0.328  | -0.333  | 0.326  | -0.046 | -0.925  | 0.031   | -0.341  | -0.211  | -0.602  |
| 523 | 0    | -49.734 | -12.505 | -1.561 | 0.281  | -79.689 | -46.321 | -44.479 | -61.738 | -59.804 |
| 523 | 0.45 | -46.288 | -12.009 | -1.561 | 0.281  | -74.759 | -43.220 | -41.378 | -57.806 | -55.872 |
| 523 | 0.9  | -41.038 | -10.519 | -1.561 | 0.281  | -66.077 | -38.495 | -36.653 | -51.356 | -49.422 |
| 523 | 1.35 | -35.789 | -9.030  | -1.561 | 0.281  | -57.395 | -33.771 | -31.929 | -44.906 | -42.972 |
| 523 | 1.8  | -32.343 | -8.533  | -1.561 | 0.281  | -52.465 | -30.669 | -28.827 | -40.975 | -39.041 |
| 524 | 0    | 1.967   | 0.403   | 0.160  | -0.002 | 3.004   | 1.931   | 1.768   | 2.487   | 2.316   |
| 524 | 0.45 | 3.717   | 0.899   | 0.160  | -0.002 | 5.899   | 3.505   | 3.343   | 4.637   | 4.466   |



|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 524 | 0.9  | 7.270   | 2.388   | 0.160  | -0.002 | 12.545   | 6.703   | 6.540   | 9.306    | 9.135    |
| 524 | 1.35 | 10.823  | 3.878   | 0.160  | -0.002 | 19.192   | 9.901   | 9.738   | 13.975   | 13.804   |
| 524 | 1.8  | 12.573  | 4.374   | 0.160  | -0.002 | 22.086   | 11.476  | 11.313  | 16.125   | 15.955   |
| 526 | 0    | -43.694 | -6.305  | -0.863 | 0.895  | -62.521  | -40.187 | -38.429 | -50.757  | -48.911  |
| 526 | 1.13 | -28.939 | -4.816  | -0.863 | 0.895  | -42.433  | -26.908 | -25.150 | -34.327  | -32.481  |
| 526 | 2.25 | -12.382 | -2.334  | -0.863 | 0.895  | -18.592  | -12.007 | -10.249 | -15.377  | -13.531  |
| 526 | 3.38 | 4.176   | 0.149   | -0.863 | 0.895  | 5.248    | 2.895   | 4.653   | 3.572    | 5.418    |
| 526 | 4.5  | 18.930  | 1.638   | -0.863 | 0.895  | 25.337   | 16.174  | 17.932  | 20.002   | 21.848   |
| 527 | 0    | -18.875 | -1.634  | -0.891 | 0.864  | -25.263  | -17.878 | -16.123 | -21.783  | -19.941  |
| 527 | 1.13 | -4.120  | -0.144  | -0.891 | 0.864  | -5.175   | -4.599  | -2.845  | -5.353   | -3.510   |
| 527 | 2.25 | 12.437  | 2.338   | -0.891 | 0.864  | 18.665   | 10.303  | 12.057  | 13.597   | 15.439   |
| 527 | 3.38 | 28.995  | 4.820   | -0.891 | 0.864  | 42.506   | 25.204  | 26.959  | 32.546   | 34.388   |
| 527 | 4.5  | 43.749  | 6.310   | -0.891 | 0.864  | 62.594   | 38.483  | 40.238  | 48.976   | 50.819   |
| 531 | 0    | -43.694 | -6.305  | -0.863 | 0.895  | -62.521  | -40.187 | -38.429 | -50.757  | -48.911  |
| 531 | 1.13 | -28.939 | -4.816  | -0.863 | 0.895  | -42.433  | -26.908 | -25.150 | -34.327  | -32.481  |
| 531 | 2.25 | -12.382 | -2.334  | -0.863 | 0.895  | -18.592  | -12.007 | -10.249 | -15.377  | -13.531  |
| 531 | 3.38 | 4.176   | 0.149   | -0.863 | 0.895  | 5.248    | 2.895   | 4.653   | 3.572    | 5.418    |
| 531 | 4.5  | 18.930  | 1.638   | -0.863 | 0.895  | 25.337   | 16.174  | 17.932  | 20.002   | 21.848   |
| 532 | 0    | -18.875 | -1.634  | -0.891 | 0.864  | -25.263  | -17.878 | -16.123 | -21.783  | -19.941  |
| 532 | 1.13 | -4.120  | -0.144  | -0.891 | 0.864  | -5.175   | -4.599  | -2.845  | -5.353   | -3.510   |
| 532 | 2.25 | 12.437  | 2.338   | -0.891 | 0.864  | 18.665   | 10.303  | 12.057  | 13.597   | 15.439   |
| 532 | 3.38 | 28.995  | 4.820   | -0.891 | 0.864  | 42.506   | 25.204  | 26.959  | 32.546   | 34.388   |
| 532 | 4.5  | 43.749  | 6.310   | -0.891 | 0.864  | 62.594   | 38.483  | 40.238  | 48.976   | 50.819   |
| 535 | 0    | -59.147 | -5.025  | 0.317  | -0.320 | -79.017  | -52.916 | -53.553 | -64.938  | -65.607  |
| 535 | 0.45 | -52.181 | -4.776  | 0.317  | -0.320 | -70.259  | -46.646 | -47.283 | -57.466  | -58.135  |
| 535 | 0.9  | -44.312 | -4.032  | 0.317  | -0.320 | -59.625  | -39.564 | -40.201 | -48.735  | -49.404  |
| 535 | 1.35 | -36.443 | -3.287  | 0.317  | -0.320 | -48.992  | -32.483 | -33.119 | -40.004  | -40.673  |
| 535 | 1.8  | -29.476 | -3.039  | 0.317  | -0.320 | -40.234  | -26.212 | -26.849 | -32.532  | -33.201  |
| 537 | 0    | 29.702  | 3.041   | -0.618 | 1.032  | 40.509   | 26.114  | 27.764  | 32.454   | 34.187   |
| 537 | 0.45 | 36.669  | 3.289   | -0.618 | 1.032  | 49.266   | 32.384  | 34.034  | 39.926   | 41.658   |
| 537 | 0.9  | 44.538  | 4.034   | -0.618 | 1.032  | 59.900   | 39.466  | 41.116  | 48.657   | 50.389   |
| 537 | 1.35 | 52.406  | 4.779   | -0.618 | 1.032  | 70.534   | 46.547  | 48.197  | 57.388   | 59.121   |
| 537 | 1.8  | 59.373  | 5.027   | -0.618 | 1.032  | 79.291   | 52.818  | 54.468  | 64.860   | 66.592   |
| 538 | 0    | -30.502 | -6.859  | -1.030 | 1.637  | -47.577  | -28.481 | -25.815 | -37.429  | -34.629  |
| 538 | 0.45 | -28.752 | -6.363  | -1.030 | 1.637  | -44.683  | -26.907 | -24.240 | -35.279  | -32.479  |
| 538 | 0.9  | -25.199 | -4.873  | -1.030 | 1.637  | -38.036  | -23.709 | -21.042 | -30.610  | -27.810  |
| 538 | 1.35 | -21.646 | -3.384  | -1.030 | 1.637  | -31.389  | -20.511 | -17.844 | -25.941  | -23.141  |
| 538 | 1.8  | -19.896 | -2.887  | -1.030 | 1.637  | -28.495  | -18.936 | -16.269 | -23.791  | -20.991  |
| 539 | 0    | -96.787 | -10.684 | 1.276  | -2.263 | -133.239 | -85.833 | -89.371 | -107.018 | -110.733 |
| 539 | 0.45 | -89.369 | -10.188 | 1.276  | -2.263 | -123.544 | -79.157 | -82.695 | -98.917  | -102.632 |
| 539 | 0.9  | -80.148 | -8.699  | 1.276  | -2.263 | -110.095 | -70.858 | -74.396 | -88.296  | -92.011  |
| 539 | 1.35 | -70.927 | -7.209  | 1.276  | -2.263 | -96.647  | -62.559 | -66.097 | -77.676  | -81.391  |
| 539 | 1.8  | -63.509 | -6.713  | 1.276  | -2.263 | -86.951  | -55.883 | -59.421 | -69.574  | -73.289  |
| 540 | 0    | -30.210 | -6.826  | -1.181 | 1.977  | -47.173  | -28.369 | -25.211 | -37.260  | -33.944  |
| 540 | 0.45 | -28.460 | -6.330  | -1.181 | 1.977  | -44.279  | -26.795 | -23.637 | -35.110  | -31.794  |
| 540 | 0.9  | -24.907 | -4.840  | -1.181 | 1.977  | -37.633  | -23.597 | -20.439 | -30.441  | -27.125  |
| 540 | 1.35 | -21.354 | -3.351  | -1.181 | 1.977  | -30.986  | -20.399 | -17.241 | -25.772  | -22.456  |
| 540 | 1.8  | -19.604 | -2.854  | -1.181 | 1.977  | -28.092  | -18.824 | -15.666 | -23.622  | -20.306  |
| 541 | 0    | -59.373 | -5.027  | 0.618  | -1.032 | -79.291  | -52.818 | -54.468 | -64.860  | -66.592  |
| 541 | 0.45 | -52.406 | -4.779  | 0.618  | -1.032 | -70.534  | -46.547 | -48.197 | -57.388  | -59.121  |
| 541 | 0.9  | -44.538 | -4.034  | 0.618  | -1.032 | -59.900  | -39.466 | -41.116 | -48.657  | -50.390  |
| 541 | 1.35 | -36.669 | -3.290  | 0.618  | -1.032 | -49.266  | -32.384 | -34.034 | -39.926  | -41.658  |
| 541 | 1.8  | -29.702 | -3.041  | 0.618  | -1.032 | -40.509  | -26.114 | -27.764 | -32.454  | -34.187  |
| 543 | 0    | 29.476  | 3.039   | -0.317 | 0.320  | 40.234   | 26.212  | 26.849  | 32.532   | 33.201   |
| 543 | 0.45 | 36.443  | 3.287   | -0.317 | 0.320  | 48.992   | 32.483  | 33.119  | 40.004   | 40.673   |
| 543 | 0.9  | 44.312  | 4.032   | -0.317 | 0.320  | 59.625   | 39.564  | 40.201  | 48.735   | 49.404   |
| 543 | 1.35 | 52.181  | 4.776   | -0.317 | 0.320  | 70.259   | 46.646  | 47.283  | 57.466   | 58.135   |
| 543 | 1.8  | 59.147  | 5.025   | -0.317 | 0.320  | 79.017   | 52.916  | 53.553  | 64.938   | 65.607   |
| 544 | 0    | -30.210 | -6.826  | -1.181 | 1.977  | -47.173  | -28.369 | -25.211 | -37.260  | -33.944  |
| 544 | 0.45 | -28.460 | -6.330  | -1.181 | 1.977  | -44.279  | -26.795 | -23.637 | -35.110  | -31.794  |
| 544 | 0.9  | -24.907 | -4.840  | -1.181 | 1.977  | -37.633  | -23.597 | -20.439 | -30.441  | -27.125  |
| 544 | 1.35 | -21.354 | -3.351  | -1.181 | 1.977  | -30.986  | -20.399 | -17.241 | -25.772  | -22.456  |
| 544 | 1.8  | -19.604 | -2.854  | -1.181 | 1.977  | -28.092  | -18.824 | -15.666 | -23.622  | -20.306  |
| 545 | 0    | -96.787 | -10.684 | 1.276  | -2.263 | -133.239 | -85.833 | -89.371 | -107.018 | -110.733 |
| 545 | 0.45 | -89.369 | -10.188 | 1.276  | -2.263 | -123.543 | -79.156 | -82.695 | -98.916  | -102.632 |
| 545 | 0.9  | -80.148 | -8.699  | 1.276  | -2.263 | -110.095 | -70.858 | -74.396 | -88.296  | -92.011  |
| 545 | 1.35 | -70.927 | -7.209  | 1.276  | -2.263 | -96.647  | -62.559 | -66.097 | -77.676  | -81.391  |



|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 545 | 1.8  | -63.509 | -6.713  | 1.276  | -2.263 | -86.951  | -55.883 | -59.421 | -69.574  | -73.289  |
| 546 | 0    | -30.502 | -6.859  | -1.030 | 1.637  | -47.577  | -28.481 | -25.815 | -37.429  | -34.629  |
| 546 | 0.45 | -28.752 | -6.363  | -1.030 | 1.637  | -44.683  | -26.907 | -24.240 | -35.279  | -32.479  |
| 546 | 0.9  | -25.199 | -4.873  | -1.030 | 1.637  | -38.036  | -23.709 | -21.042 | -30.610  | -27.810  |
| 546 | 1.35 | -21.646 | -3.384  | -1.030 | 1.637  | -31.389  | -20.511 | -17.844 | -25.941  | -23.141  |
| 546 | 1.8  | -19.896 | -2.887  | -1.030 | 1.637  | -28.495  | -18.936 | -16.269 | -23.791  | -20.991  |
| 550 | 0    | 6.471   | -0.783  | -1.337 | 0.809  | 6.513    | 4.487   | 6.633   | 4.898    | 7.151    |
| 550 | 0.75 | 10.389  | 0.596   | -1.337 | 0.809  | 13.421   | 8.013   | 10.160  | 9.880    | 12.134   |
| 550 | 1.5  | 19.316  | 4.733   | -1.337 | 0.809  | 30.752   | 16.047  | 18.194  | 21.860   | 24.113   |
| 550 | 2.25 | 28.243  | 8.870   | -1.337 | 0.809  | 48.084   | 24.081  | 26.228  | 33.839   | 36.093   |
| 550 | 3    | 32.161  | 10.249  | -1.337 | 0.809  | 54.992   | 27.608  | 29.754  | 38.822   | 41.076   |
| 551 | 0    | -59.244 | -5.038  | -0.310 | 0.311  | -79.154  | -53.629 | -53.008 | -65.706  | -65.054  |
| 551 | 0.45 | -52.277 | -4.790  | -0.310 | 0.311  | -70.397  | -47.359 | -46.738 | -58.234  | -57.582  |
| 551 | 0.9  | -44.409 | -4.045  | -0.310 | 0.311  | -59.763  | -40.277 | -39.657 | -49.503  | -48.851  |
| 551 | 1.35 | -36.540 | -3.301  | -0.310 | 0.311  | -49.129  | -33.196 | -32.575 | -40.772  | -40.120  |
| 551 | 1.8  | -29.573 | -3.052  | -0.310 | 0.311  | -40.372  | -26.926 | -26.305 | -33.300  | -32.648  |
| 553 | 0    | -59.244 | -5.038  | -0.310 | 0.311  | -79.154  | -53.629 | -53.008 | -65.706  | -65.054  |
| 553 | 0.45 | -52.277 | -4.790  | -0.310 | 0.311  | -70.397  | -47.359 | -46.738 | -58.234  | -57.582  |
| 553 | 0.9  | -44.409 | -4.045  | -0.310 | 0.311  | -59.763  | -40.277 | -39.657 | -49.503  | -48.851  |
| 553 | 1.35 | -36.540 | -3.301  | -0.310 | 0.311  | -49.129  | -33.196 | -32.575 | -40.772  | -40.120  |
| 553 | 1.8  | -29.573 | -3.052  | -0.310 | 0.311  | -40.372  | -26.926 | -26.305 | -33.300  | -32.648  |
| 560 | 0    | -22.886 | -5.602  | 2.374  | -1.446 | -36.426  | -18.224 | -22.043 | -25.067  | -29.077  |
| 560 | 0.45 | -21.136 | -5.105  | 2.374  | -1.446 | -33.532  | -16.649 | -20.468 | -22.917  | -26.927  |
| 560 | 0.9  | -17.583 | -3.616  | 2.374  | -1.446 | -26.885  | -13.451 | -17.271 | -18.248  | -22.258  |
| 560 | 1.35 | -14.030 | -2.126  | 2.374  | -1.446 | -20.238  | -10.254 | -14.073 | -13.579  | -17.589  |
| 560 | 1.8  | -12.280 | -1.630  | 2.374  | -1.446 | -17.344  | -8.679  | -12.498 | -11.429  | -15.439  |
| 561 | 0    | -88.319 | -9.318  | -2.231 | 1.354  | -120.892 | -81.719 | -78.133 | -100.949 | -97.184  |
| 561 | 0.45 | -80.901 | -8.822  | -2.231 | 1.354  | -111.197 | -75.043 | -71.457 | -92.847  | -89.082  |
| 561 | 0.9  | -71.680 | -7.333  | -2.231 | 1.354  | -97.748  | -66.744 | -63.158 | -82.227  | -78.462  |
| 561 | 1.35 | -62.459 | -5.843  | -2.231 | 1.354  | -84.300  | -58.445 | -54.859 | -71.606  | -67.811  |
| 561 | 1.8  | -55.041 | -5.347  | -2.231 | 1.354  | -74.604  | -51.769 | -48.183 | -63.505  | -59.740  |
| 562 | 0    | -29.835 | -6.810  | 2.049  | -1.225 | -46.697  | -24.802 | -28.077 | -33.465  | -36.903  |
| 562 | 0.45 | -28.085 | -6.313  | 2.049  | -1.225 | -43.803  | -23.227 | -26.502 | -31.315  | -34.753  |
| 562 | 0.9  | -24.532 | -4.824  | 2.049  | -1.225 | -37.157  | -20.030 | -23.304 | -26.646  | -30.084  |
| 562 | 1.35 | -20.979 | -3.334  | 2.049  | -1.225 | -30.510  | -16.832 | -20.106 | -21.977  | -25.415  |
| 562 | 1.8  | -19.229 | -2.838  | 2.049  | -1.225 | -27.616  | -15.257 | -18.531 | -19.827  | -23.265  |
| 563 | 0    | -96.292 | -10.623 | -2.229 | 1.257  | -132.548 | -88.892 | -85.406 | -110.140 | -106.480 |
| 563 | 0.45 | -88.874 | -10.127 | -2.229 | 1.257  | -122.852 | -82.216 | -78.730 | -102.038 | -98.378  |
| 563 | 0.9  | -79.653 | -8.638  | -2.229 | 1.257  | -109.404 | -73.917 | -70.431 | -91.418  | -87.758  |
| 563 | 1.35 | -70.432 | -7.148  | -2.229 | 1.257  | -95.955  | -65.618 | -62.132 | -80.797  | -77.137  |
| 563 | 1.8  | -63.014 | -6.652  | -2.229 | 1.257  | -86.259  | -58.942 | -55.456 | -72.696  | -69.036  |
| 564 | 0    | -30.703 | -6.885  | 1.630  | -1.027 | -47.860  | -26.003 | -28.660 | -34.865  | -37.654  |
| 564 | 0.45 | -28.954 | -6.388  | 1.630  | -1.027 | -44.966  | -24.429 | -27.085 | -32.715  | -35.504  |
| 564 | 0.9  | -25.401 | -4.899  | 1.630  | -1.027 | -38.319  | -21.231 | -23.887 | -28.046  | -30.835  |
| 564 | 1.35 | -21.848 | -3.410  | 1.630  | -1.027 | -31.673  | -18.033 | -20.689 | -23.377  | -26.156  |
| 564 | 1.8  | -20.098 | -2.913  | 1.630  | -1.027 | -28.779  | -16.458 | -19.115 | -21.227  | -24.016  |
| 568 | 0    | -31.748 | -10.172 | 1.086  | -1.175 | -54.373  | -27.488 | -29.748 | -38.604  | -40.977  |
| 568 | 0.75 | -27.830 | -8.793  | 1.086  | -1.175 | -47.465  | -23.961 | -26.222 | -33.621  | -35.995  |
| 568 | 1.5  | -18.904 | -4.656  | 1.086  | -1.175 | -30.133  | -15.927 | -18.188 | -21.642  | -24.015  |
| 568 | 2.25 | -9.977  | -0.518  | 1.086  | -1.175 | -12.801  | -7.893  | -10.154 | -9.662   | -12.036  |
| 568 | 3    | -6.059  | 0.861   | 1.086  | -1.175 | -5.893   | -4.367  | -6.628  | -4.679   | -7.053   |
| 569 | 0    | -52.373 | -4.646  | -1.488 | 1.495  | -70.281  | -48.624 | -45.640 | -59.481  | -56.348  |
| 569 | 0.23 | -49.002 | -4.584  | -1.488 | 1.495  | -66.136  | -45.590 | -42.607 | -55.902  | -52.770  |
| 569 | 0.45 | -45.406 | -4.398  | -1.488 | 1.495  | -61.523  | -42.353 | -39.370 | -52.009  | -48.877  |
| 569 | 0.68 | -41.810 | -4.211  | -1.488 | 1.495  | -56.910  | -39.117 | -36.134 | -48.116  | -44.983  |
| 569 | 0.9  | -38.439 | -4.149  | -1.488 | 1.495  | -52.766  | -36.083 | -33.100 | -44.537  | -41.405  |
| 571 | 0    | 38.501  | 4.155   | -1.491 | 1.490  | 52.849   | 33.160  | 36.141  | 41.478   | 44.608   |
| 571 | 0.23 | 41.872  | 4.217   | -1.491 | 1.490  | 56.993   | 36.194  | 39.175  | 45.056   | 48.187   |
| 571 | 0.45 | 45.468  | 4.403   | -1.491 | 1.490  | 61.606   | 39.430  | 42.411  | 48.950   | 52.080   |
| 571 | 0.68 | 49.064  | 4.589   | -1.491 | 1.490  | 66.219   | 42.667  | 45.648  | 52.843   | 55.973   |
| 571 | 0.9  | 52.435  | 4.651   | -1.491 | 1.490  | 70.364   | 45.701  | 48.682  | 56.421   | 59.552   |
| 572 | 0    | -50.521 | -1.625  | -0.003 | -0.005 | -63.226  | -45.472 | -45.474 | -54.074  | -54.076  |
| 572 | 0.23 | -47.038 | -1.501  | -0.003 | -0.005 | -58.847  | -42.337 | -42.339 | -50.338  | -50.340  |
| 572 | 0.45 | -43.103 | -1.129  | -0.003 | -0.005 | -53.530  | -38.796 | -38.798 | -45.973  | -45.975  |
| 572 | 0.68 | -39.169 | -0.756  | -0.003 | -0.005 | -48.213  | -35.255 | -35.257 | -41.607  | -41.609  |
| 572 | 0.9  | -35.686 | -0.632  | -0.003 | -0.005 | -43.834  | -32.120 | -32.122 | -37.871  | -37.873  |
| 573 | 0    | -52.373 | -4.646  | -1.488 | 1.495  | -70.281  | -48.624 | -45.640 | -59.481  | -56.348  |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 573 | 0.23 | -49.002 | -4.584 | -1.488 | 1.495  | -66.136 | -45.590 | -42.607 | -55.902 | -52.770 |
| 573 | 0.45 | -45.406 | -4.398 | -1.488 | 1.495  | -61.523 | -42.353 | -39.370 | -52.009 | -48.877 |
| 573 | 0.68 | -41.810 | -4.211 | -1.488 | 1.495  | -56.910 | -39.117 | -36.134 | -48.116 | -44.983 |
| 573 | 0.9  | -38.439 | -4.149 | -1.488 | 1.495  | -52.766 | -36.083 | -33.100 | -44.537 | -41.405 |
| 575 | 0    | 38.501  | 4.155  | -1.491 | 1.490  | 52.849  | 33.160  | 36.141  | 41.478  | 44.608  |
| 575 | 0.23 | 41.872  | 4.217  | -1.491 | 1.490  | 56.993  | 36.194  | 39.175  | 45.056  | 48.187  |
| 575 | 0.45 | 45.468  | 4.403  | -1.491 | 1.490  | 61.606  | 39.430  | 42.411  | 48.950  | 52.080  |
| 575 | 0.68 | 49.064  | 4.589  | -1.491 | 1.490  | 66.219  | 42.667  | 45.648  | 52.843  | 55.973  |
| 575 | 0.9  | 52.435  | 4.651  | -1.491 | 1.490  | 70.364  | 45.701  | 48.682  | 56.421  | 59.552  |
| 576 | 0    | -50.521 | -1.625 | -0.003 | -0.005 | -63.226 | -45.472 | -45.174 | -54.074 | -54.076 |
| 576 | 0.23 | -47.038 | -1.501 | -0.003 | -0.005 | -58.847 | -42.337 | -42.339 | -50.338 | -50.340 |
| 576 | 0.45 | -43.103 | -1.129 | -0.003 | -0.005 | -53.530 | -38.796 | -38.798 | -45.973 | -45.975 |
| 576 | 0.68 | -39.169 | -0.756 | -0.003 | -0.005 | -48.213 | -35.255 | -35.257 | -41.607 | -41.609 |
| 576 | 0.9  | -35.686 | -0.632 | -0.003 | -0.005 | -43.834 | -32.120 | -32.122 | -37.871 | -37.873 |
| 577 | 0    | -36.644 | -1.731 | 0.646  | -0.632 | -46.742 | -32.334 | -33.612 | -38.888 | -40.231 |
| 577 | 0.23 | -33.273 | -1.669 | 0.646  | -0.632 | -42.598 | -29.300 | -30.578 | -35.310 | -36.652 |
| 577 | 0.45 | -29.677 | -1.483 | 0.646  | -0.632 | -37.984 | -26.063 | -27.342 | -31.417 | -32.759 |
| 577 | 0.68 | -26.081 | -1.296 | 0.646  | -0.632 | -33.371 | -22.827 | -24.105 | -27.523 | -28.866 |
| 577 | 0.9  | -22.710 | -1.234 | 0.646  | -0.632 | -29.227 | -19.793 | -21.071 | -23.945 | -25.287 |
| 579 | 0    | 22.986  | 1.271  | -0.946 | 0.867  | 29.618  | 19.742  | 21.554  | 23.944  | 25.847  |
| 579 | 0.23 | 26.357  | 1.333  | -0.946 | 0.867  | 33.762  | 22.776  | 24.588  | 27.522  | 29.425  |
| 579 | 0.45 | 29.953  | 1.520  | -0.946 | 0.867  | 38.375  | 26.012  | 27.825  | 31.416  | 33.318  |
| 579 | 0.68 | 33.550  | 1.706  | -0.946 | 0.867  | 42.989  | 29.249  | 31.061  | 35.309  | 37.212  |
| 579 | 0.9  | 36.920  | 1.768  | -0.946 | 0.867  | 47.133  | 32.283  | 34.095  | 38.887  | 40.790  |
| 580 | 0    | -30.512 | -3.916 | -1.859 | 1.715  | -42.880 | -29.320 | -25.745 | -36.457 | -32.704 |
| 580 | 0.23 | -29.862 | -3.792 | -1.859 | 1.715  | -41.902 | -28.735 | -25.161 | -35.697 | -31.944 |
| 580 | 0.45 | -28.762 | -3.420 | -1.859 | 1.715  | -39.986 | -27.745 | -24.171 | -34.307 | -30.554 |
| 580 | 0.68 | -27.662 | -3.048 | -1.859 | 1.715  | -38.070 | -26.755 | -23.180 | -32.917 | -29.164 |
| 580 | 0.9  | -27.012 | -2.924 | -1.859 | 1.715  | -37.092 | -26.170 | -22.596 | -32.157 | -28.404 |
| 581 | 0    | -63.774 | -3.843 | 1.941  | -1.782 | -82.678 | -55.455 | -59.179 | -67.346 | -71.255 |
| 581 | 0.23 | -60.290 | -3.719 | 1.941  | -1.782 | -78.299 | -52.320 | -56.044 | -63.610 | -67.520 |
| 581 | 0.45 | -56.356 | -3.347 | 1.941  | -1.782 | -72.983 | -48.779 | -52.503 | -59.244 | -63.154 |
| 581 | 0.68 | -52.422 | -2.975 | 1.941  | -1.782 | -67.666 | -45.238 | -48.962 | -54.879 | -58.788 |
| 581 | 0.9  | -48.938 | -2.851 | 1.941  | -1.782 | -63.287 | -42.103 | -45.827 | -51.143 | -55.053 |
| 582 | 0.00 | -30.818 | -3.966 | -1.673 | 1.566  | -43.327 | -29.409 | -26.169 | -36.614 | -33.213 |
| 582 | 0.23 | -30.168 | -3.842 | -1.673 | 1.566  | -42.349 | -28.825 | -25.585 | -35.854 | -32.452 |
| 582 | 0.45 | -29.068 | -3.470 | -1.673 | 1.566  | -40.433 | -27.834 | -24.595 | -34.464 | -31.063 |
| 582 | 0.68 | -27.968 | -3.098 | -1.673 | 1.566  | -38.517 | -26.844 | -23.604 | -33.074 | -29.673 |
| 582 | 0.9  | -27.318 | -2.973 | -1.673 | 1.566  | -37.539 | -26.260 | -23.020 | -32.314 | -28.913 |
| 584 | 0    | -36.920 | -1.768 | 0.946  | -0.867 | -47.133 | -32.283 | -34.095 | -38.887 | -40.790 |
| 584 | 0.23 | -33.549 | -1.706 | 0.946  | -0.867 | -42.988 | -29.249 | -31.061 | -35.309 | -37.212 |
| 584 | 0.45 | -29.953 | -1.520 | 0.946  | -0.867 | -38.375 | -26.012 | -27.825 | -31.415 | -33.318 |
| 584 | 0.68 | -26.357 | -1.333 | 0.946  | -0.867 | -33.762 | -22.776 | -24.588 | -27.522 | -29.425 |
| 584 | 0.9  | -22.986 | -1.271 | 0.946  | -0.867 | -29.618 | -19.742 | -21.554 | -23.944 | -25.847 |
| 586 | 0    | 22.710  | 1.234  | -0.646 | 0.632  | 29.227  | 19.793  | 21.071  | 23.945  | 25.287  |
| 586 | 0.23 | 26.081  | 1.296  | -0.646 | 0.632  | 33.371  | 22.827  | 24.105  | 27.523  | 28.866  |
| 586 | 0.45 | 29.677  | 1.483  | -0.646 | 0.632  | 37.984  | 26.063  | 27.342  | 31.417  | 32.759  |
| 586 | 0.68 | 33.273  | 1.669  | -0.646 | 0.632  | 42.598  | 29.300  | 30.578  | 35.310  | 36.652  |
| 586 | 0.9  | 36.644  | 1.731  | -0.646 | 0.632  | 46.742  | 32.334  | 33.612  | 38.888  | 40.231  |
| 587 | 0    | -30.818 | -3.966 | -1.673 | 1.566  | -43.327 | -29.409 | -26.169 | -36.614 | -33.213 |
| 587 | 0.23 | -30.168 | -3.842 | -1.673 | 1.566  | -42.349 | -28.825 | -25.585 | -35.854 | -32.452 |
| 587 | 0.45 | -29.068 | -3.470 | -1.673 | 1.566  | -40.433 | -27.834 | -24.595 | -34.464 | -31.063 |
| 587 | 0.68 | -27.968 | -3.097 | -1.673 | 1.566  | -38.517 | -26.844 | -23.604 | -33.074 | -29.673 |
| 587 | 0.9  | -27.318 | -2.973 | -1.673 | 1.566  | -37.539 | -26.260 | -23.020 | -32.314 | -28.913 |
| 588 | 0    | -63.774 | -3.843 | 1.941  | -1.782 | -82.678 | -55.455 | -59.179 | -67.346 | -71.255 |
| 588 | 0.23 | -60.290 | -3.719 | 1.941  | -1.782 | -78.300 | -52.320 | -56.044 | -63.610 | -67.520 |
| 588 | 0.45 | -56.356 | -3.347 | 1.941  | -1.782 | -72.983 | -48.779 | -52.503 | -59.244 | -63.154 |
| 588 | 0.68 | -52.422 | -2.975 | 1.941  | -1.782 | -67.666 | -45.239 | -48.962 | -54.879 | -58.788 |
| 588 | 0.9  | -48.938 | -2.851 | 1.941  | -1.782 | -63.287 | -42.103 | -45.827 | -51.143 | -55.053 |
| 589 | 0    | -30.512 | -3.917 | -1.859 | 1.715  | -42.880 | -29.320 | -25.746 | -36.457 | -32.704 |
| 589 | 0.23 | -29.862 | -3.792 | -1.859 | 1.715  | -41.902 | -28.735 | -25.161 | -35.697 | -31.944 |
| 589 | 0.45 | -28.762 | -3.420 | -1.859 | 1.715  | -39.986 | -27.745 | -24.171 | -34.307 | -30.554 |
| 589 | 0.68 | -27.662 | -3.048 | -1.859 | 1.715  | -38.070 | -26.755 | -23.181 | -32.917 | -29.164 |
| 589 | 0.9  | -27.012 | -2.924 | -1.859 | 1.715  | -37.092 | -26.170 | -22.596 | -32.157 | -28.404 |
| 590 | 0    | -36.638 | -1.728 | -0.640 | 0.655  | -46.731 | -33.615 | -32.320 | -40.231 | -38.871 |
| 590 | 0.23 | -33.268 | -1.666 | -0.640 | 0.655  | -42.586 | -30.581 | -29.286 | -36.653 | -35.293 |
| 590 | 0.45 | -29.671 | -1.480 | -0.640 | 0.655  | -37.973 | -27.344 | -26.050 | -32.759 | -31.400 |

|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 590 | 0.68 | -26.075 | -1.294  | -0.640 | 0.655  | -33.360  | -24.108 | -22.813 | -28.866  | -27.506  |
| 590 | 0.9  | -22.704 | -1.231  | -0.640 | 0.655  | -29.216  | -21.074 | -19.779 | -25.288  | -23.928  |
| 592 | 0    | 19.648  | 2.784   | -2.729 | 2.952  | 28.032   | 14.954  | 20.635  | 19.519   | 25.484   |
| 592 | 0.23 | 20.297  | 2.908   | -2.729 | 2.952  | 29.010   | 15.539  | 21.220  | 20.279   | 26.244   |
| 592 | 0.45 | 21.398  | 3.280   | -2.729 | 2.952  | 30.926   | 16.529  | 22.210  | 21.669   | 27.634   |
| 592 | 0.68 | 22.498  | 3.653   | -2.729 | 2.952  | 32.842   | 17.519  | 23.200  | 23.059   | 29.024   |
| 592 | 0.9  | 23.147  | 3.777   | -2.729 | 2.952  | 33.820   | 18.104  | 23.785  | 23.819   | 29.784   |
| 593 | 0    | 42.492  | 1.815   | 2.343  | -2.537 | 53.894   | 40.585  | 35.705  | 48.219   | 43.096   |
| 593 | 0.23 | 45.975  | 1.939   | 2.343  | -2.537 | 58.273   | 43.720  | 38.840  | 51.955   | 46.831   |
| 593 | 0.45 | 49.909  | 2.312   | 2.343  | -2.537 | 63.590   | 47.261  | 42.381  | 56.321   | 51.197   |
| 593 | 0.68 | 53.844  | 2.684   | 2.343  | -2.537 | 68.906   | 50.802  | 45.922  | 60.686   | 55.563   |
| 593 | 0.9  | 57.327  | 2.808   | 2.343  | -2.537 | 73.285   | 53.937  | 49.057  | 64.422   | 59.298   |
| 596 | 0    | -30.703 | -6.885  | 1.630  | -1.027 | -47.860  | -26.003 | -28.660 | -34.865  | -37.654  |
| 596 | 0.45 | -28.954 | -6.388  | 1.630  | -1.027 | -44.966  | -24.429 | -27.085 | -32.715  | -35.504  |
| 596 | 0.9  | -25.401 | -4.899  | 1.630  | -1.027 | -38.319  | -21.231 | -23.887 | -28.046  | -30.835  |
| 596 | 1.35 | -21.848 | -3.410  | 1.630  | -1.027 | -31.673  | -18.033 | -20.689 | -23.377  | -26.166  |
| 596 | 1.8  | -20.098 | -2.913  | 1.630  | -1.027 | -28.779  | -16.458 | -19.115 | -21.227  | -24.016  |
| 597 | 0    | -36.638 | -1.728  | -0.640 | 0.655  | -46.731  | -33.615 | -32.320 | -40.231  | -38.871  |
| 597 | 0.23 | -33.268 | -1.666  | -0.640 | 0.655  | -42.586  | -30.581 | -29.286 | -36.653  | -35.293  |
| 597 | 0.45 | -29.671 | -1.480  | -0.640 | 0.655  | -37.973  | -27.344 | -26.050 | -32.759  | -31.400  |
| 597 | 0.68 | -26.075 | -1.294  | -0.640 | 0.655  | -33.360  | -24.108 | -22.813 | -28.866  | -27.506  |
| 597 | 0.9  | -22.704 | -1.231  | -0.640 | 0.655  | -29.216  | -21.074 | -19.779 | -25.288  | -23.928  |
| 599 | 0    | 19.648  | 2.784   | -2.729 | 2.952  | 28.032   | 14.954  | 20.636  | 19.519   | 25.484   |
| 599 | 0.23 | 20.297  | 2.908   | -2.729 | 2.952  | 29.010   | 15.539  | 21.220  | 20.279   | 26.244   |
| 599 | 0.45 | 21.398  | 3.280   | -2.729 | 2.952  | 30.926   | 16.529  | 22.210  | 21.669   | 27.634   |
| 599 | 0.68 | 22.498  | 3.653   | -2.729 | 2.952  | 32.842   | 17.519  | 23.201  | 23.059   | 29.024   |
| 599 | 0.9  | 23.147  | 3.777   | -2.729 | 2.952  | 33.820   | 18.104  | 23.785  | 23.819   | 29.784   |
| 600 | 0    | 42.491  | 1.815   | 2.343  | -2.537 | 53.894   | 40.585  | 35.705  | 48.219   | 43.095   |
| 600 | 0.23 | 45.975  | 1.939   | 2.343  | -2.537 | 58.272   | 43.720  | 38.840  | 51.955   | 46.831   |
| 600 | 0.45 | 49.909  | 2.311   | 2.343  | -2.537 | 63.589   | 47.261  | 42.381  | 56.320   | 51.197   |
| 600 | 0.68 | 53.843  | 2.684   | 2.343  | -2.537 | 68.906   | 50.802  | 45.922  | 60.686   | 55.562   |
| 600 | 0.9  | 57.327  | 2.808   | 2.343  | -2.537 | 73.285   | 53.937  | 49.057  | 64.422   | 59.298   |
| 601 | 0    | 26.330  | 2.934   | -1.840 | 1.994  | 36.290   | 21.856  | 25.691  | 27.562   | 31.588   |
| 601 | 0.23 | 26.979  | 3.058   | -1.840 | 1.994  | 37.268   | 22.441  | 26.275  | 28.322   | 32.349   |
| 601 | 0.45 | 28.079  | 3.430   | -1.840 | 1.994  | 39.184   | 23.431  | 27.266  | 29.712   | 33.738   |
| 601 | 0.68 | 29.180  | 3.803   | -1.840 | 1.994  | 41.100   | 24.421  | 28.256  | 31.102   | 35.128   |
| 601 | 0.9  | 29.829  | 3.927   | -1.840 | 1.994  | 42.078   | 25.006  | 28.840  | 31.862   | 35.888   |
| 602 | 0    | 48.724  | 2.820   | 1.785  | -1.947 | 62.980   | 45.637  | 41.904  | 54.811   | 50.892   |
| 602 | 0.23 | 52.207  | 2.944   | 1.785  | -1.947 | 67.358   | 48.772  | 45.040  | 58.547   | 54.628   |
| 602 | 0.45 | 56.141  | 3.316   | 1.785  | -1.947 | 72.675   | 52.313  | 48.580  | 62.912   | 58.993   |
| 602 | 0.68 | 60.076  | 3.688   | 1.785  | -1.947 | 77.992   | 55.853  | 52.121  | 67.278   | 63.359   |
| 602 | 0.9  | 63.559  | 3.813   | 1.785  | -1.947 | 82.371   | 58.989  | 55.256  | 71.014   | 67.095   |
| 603 | 0    | 27.500  | 2.995   | -1.567 | 1.675  | 37.792   | 23.183  | 26.425  | 29.117   | 32.521   |
| 603 | 0.23 | 28.149  | 3.119   | -1.567 | 1.675  | 38.770   | 23.767  | 27.010  | 29.877   | 33.231   |
| 603 | 0.45 | 29.250  | 3.492   | -1.567 | 1.675  | 40.687   | 24.758  | 28.000  | 31.266   | 34.671   |
| 603 | 0.68 | 30.350  | 3.864   | -1.567 | 1.675  | 42.603   | 25.748  | 28.990  | 32.656   | 36.061   |
| 603 | 0.9  | 30.999  | 3.988   | -1.567 | 1.675  | 43.581   | 26.332  | 29.575  | 33.416   | 36.821   |
| 606 | 0    | -96.292 | -10.623 | -2.229 | 1.257  | -132.548 | -88.892 | -85.406 | -110.140 | -106.480 |
| 606 | 0.45 | -88.874 | -10.127 | -2.229 | 1.257  | -122.852 | -82.216 | -78.730 | -102.038 | -98.378  |
| 606 | 0.9  | -79.653 | -8.638  | -2.229 | 1.257  | -109.404 | -73.917 | -70.431 | -91.418  | -87.758  |
| 606 | 1.35 | -70.432 | -7.148  | -2.229 | 1.257  | -95.955  | -65.618 | -62.132 | -80.797  | -77.137  |
| 606 | 1.8  | -63.014 | -6.652  | -2.229 | 1.257  | -86.259  | -58.942 | -55.456 | -72.696  | -69.036  |
| 607 | 0    | -29.835 | -6.810  | 2.049  | -1.225 | -46.697  | -24.802 | -28.077 | -33.465  | -36.903  |
| 607 | 0.45 | -28.085 | -6.313  | 2.049  | -1.225 | -43.803  | -23.227 | -26.502 | -31.315  | -34.753  |
| 607 | 0.9  | -24.532 | -4.824  | 2.049  | -1.225 | -37.157  | -20.030 | -23.304 | -26.646  | -30.084  |
| 607 | 1.35 | -20.979 | -3.334  | 2.049  | -1.225 | -30.510  | -16.832 | -20.106 | -21.977  | -25.415  |
| 607 | 1.8  | -19.229 | -2.838  | 2.049  | -1.225 | -27.616  | -15.257 | -18.531 | -19.827  | -23.265  |
| 608 | 0    | -88.319 | -9.318  | -2.231 | 1.354  | -120.892 | -81.719 | -78.133 | -100.949 | -97.183  |
| 608 | 0.45 | -80.901 | -8.822  | -2.231 | 1.354  | -111.197 | -75.043 | -71.457 | -92.847  | -89.082  |
| 608 | 0.9  | -71.680 | -7.332  | -2.231 | 1.354  | -97.748  | -66.744 | -63.158 | -82.227  | -78.462  |
| 608 | 1.35 | -62.459 | -5.843  | -2.231 | 1.354  | -84.300  | -58.445 | -54.859 | -71.606  | -67.841  |
| 608 | 1.8  | -55.041 | -5.347  | -2.231 | 1.354  | -74.604  | -51.769 | -48.183 | -63.505  | -59.740  |
| 609 | 0    | -22.886 | -5.602  | 2.374  | -1.446 | -36.426  | -18.224 | -22.043 | -25.067  | -29.077  |
| 609 | 0.45 | -21.136 | -5.105  | 2.374  | -1.446 | -33.532  | -16.649 | -20.468 | -22.917  | -26.927  |
| 609 | 0.9  | -17.583 | -3.616  | 2.374  | -1.446 | -26.885  | -13.451 | -17.271 | -18.248  | -22.258  |
| 609 | 1.35 | -14.030 | -2.126  | 2.374  | -1.446 | -20.238  | -10.254 | -14.073 | -13.579  | -17.589  |
| 609 | 1.8  | -12.280 | -1.630  | 2.374  | -1.446 | -17.344  | -8.679  | -12.498 | -11.429  | -15.439  |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 617 | 0    | 4.318   | 1.352  | -0.202 | -0.424 | 7.345   | 3.685   | 3.463   | 5.174   | 4.941   |
| 617 | 0.45 | 5.617   | 1.600  | -0.202 | -0.424 | 9.301   | 4.854   | 4.632   | 6.694   | 6.461   |
| 617 | 0.9  | 7.818   | 2.345  | -0.202 | -0.424 | 13.133  | 6.834   | 6.613   | 9.474   | 9.241   |
| 617 | 1.35 | 10.018  | 3.089  | -0.202 | -0.424 | 16.965  | 8.815   | 8.593   | 12.254  | 12.021  |
| 617 | 1.8  | 11.317  | 3.338  | -0.202 | -0.424 | 18.921  | 9.984   | 9.762   | 13.774  | 13.541  |
| 618 | 0    | -16.416 | -4.832 | -0.353 | 2.282  | -27.430 | -15.128 | -12.493 | -20.652 | -17.885 |
| 618 | 0.75 | -13.751 | -4.142 | -0.353 | 2.282  | -23.128 | -12.728 | -10.093 | -17.418 | -14.651 |
| 618 | 1.5  | -9.382  | -2.515 | -0.353 | 2.282  | -15.282 | -8.797  | -6.162  | -11.806 | -9.039  |
| 618 | 2.25 | -5.013  | -0.887 | -0.353 | 2.282  | -7.436  | -4.865  | -2.230  | -6.193  | -3.427  |
| 618 | 3    | -2.347  | -0.198 | -0.353 | 2.282  | -3.133  | -2.465  | 0.170   | -2.960  | -0.193  |
| 619 | 0    | -0.963  | -0.613 | -0.352 | 2.125  | -2.135  | -1.219  | 1.259   | -1.767  | 0.834   |
| 619 | 0.75 | 1.703   | 0.077  | -0.352 | 2.125  | 2.167   | 1.180   | 3.658   | 1.467   | 4.068   |
| 619 | 1.5  | 6.072   | 1.704  | -0.352 | 2.125  | 10.013  | 5.112   | 7.590   | 7.079   | 9.680   |
| 619 | 2.25 | 10.441  | 3.331  | -0.352 | 2.125  | 17.859  | 9.044   | 11.522  | 12.692  | 15.293  |
| 619 | 3    | 13.106  | 4.021  | -0.352 | 2.125  | 22.161  | 11.443  | 13.921  | 15.925  | 18.526  |
| 620 | 0    | -15.617 | -4.480 | -0.077 | 0.569  | -25.908 | -14.132 | -13.436 | -19.301 | -18.623 |
| 620 | 0.75 | -12.951 | -3.791 | -0.077 | 0.569  | -21.606 | -11.733 | -11.087 | -16.067 | -15.389 |
| 620 | 1.5  | -8.582  | -2.163 | -0.077 | 0.569  | -13.760 | -7.801  | -7.155  | -10.455 | -9.777  |
| 620 | 2.25 | -4.213  | -0.536 | -0.077 | 0.569  | -5.913  | -3.869  | -3.223  | -4.842  | -4.164  |
| 620 | 3    | -1.547  | 0.154  | -0.077 | 0.569  | -1.611  | -1.470  | -0.824  | -1.609  | -0.931  |
| 621 | 0    | 1.463   | -0.196 | -0.123 | 0.895  | 1.442   | 1.194   | 2.212   | 1.283   | 2.353   |
| 621 | 0.75 | 4.129   | 0.493  | -0.123 | 0.895  | 5.744   | 3.593   | 4.611   | 4.517   | 5.586   |
| 621 | 1.5  | 8.497   | 2.121  | -0.123 | 0.895  | 13.590  | 7.525   | 8.543   | 10.129  | 11.198  |
| 621 | 2.25 | 12.866  | 3.748  | -0.123 | 0.895  | 21.436  | 11.457  | 12.475  | 15.742  | 16.811  |
| 621 | 3    | 15.532  | 4.437  | -0.123 | 0.895  | 25.738  | 13.856  | 14.874  | 18.975  | 20.044  |
| 622 | 0    | -15.361 | -4.507 | -0.082 | 0.222  | -25.646 | -13.907 | -13.604 | -19.055 | -18.736 |
| 622 | 0.75 | -12.696 | -3.818 | -0.082 | 0.222  | -21.343 | -11.508 | -11.204 | -15.822 | -15.503 |
| 622 | 1.5  | -8.327  | -2.191 | -0.082 | 0.222  | -13.497 | -7.576  | -7.273  | -10.209 | -9.891  |
| 622 | 2.25 | -3.958  | -0.563 | -0.082 | 0.222  | -5.651  | -3.644  | -3.341  | -4.597  | -4.278  |
| 622 | 3    | -1.292  | 0.126  | -0.082 | 0.222  | -1.349  | -1.245  | -0.941  | -1.364  | -1.045  |
| 623 | 0    | 0.686   | -0.285 | -0.100 | 0.372  | 0.366   | 0.518   | 0.990   | 0.436   | 0.931   |
| 623 | 0.75 | 3.352   | 0.404  | -0.100 | 0.372  | 4.669   | 2.917   | 3.389   | 3.669   | 4.165   |
| 623 | 1.5  | 7.721   | 2.031  | -0.100 | 0.372  | 12.515  | 6.849   | 7.321   | 9.282   | 9.777   |
| 623 | 2.25 | 12.089  | 3.659  | -0.100 | 0.372  | 20.361  | 10.781  | 11.253  | 14.894  | 15.389  |
| 623 | 3    | 14.755  | 4.348  | -0.100 | 0.372  | 24.663  | 13.180  | 13.652  | 18.128  | 18.623  |
| 624 | 0    | -11.432 | -3.179 | -0.034 | 0.120  | -18.805 | -10.323 | -10.169 | -14.043 | -13.881 |
| 624 | 0.56 | -9.668  | -2.791 | -0.034 | 0.120  | -16.067 | -8.735  | -8.581  | -11.946 | -11.783 |
| 624 | 1.13 | -6.607  | -1.690 | -0.034 | 0.120  | -10.632 | -5.981  | -5.826  | -8.038  | -7.876  |
| 624 | 1.69 | -3.547  | -0.588 | -0.034 | 0.120  | -5.197  | -3.226  | -3.072  | -4.130  | -3.968  |
| 624 | 2.25 | -1.782  | -0.200 | -0.034 | 0.120  | -2.459  | -1.638  | -1.484  | -2.033  | -1.871  |
| 625 | 0    | 2.457   | 0.414  | -0.052 | 0.191  | 3.611   | 2.159   | 2.402   | 2.786   | 3.041   |
| 625 | 0.56 | 4.222   | 0.801  | -0.052 | 0.191  | 6.349   | 3.747   | 3.990   | 4.883   | 5.138   |
| 625 | 1.13 | 7.282   | 1.903  | -0.052 | 0.191  | 11.784  | 6.502   | 6.745   | 8.790   | 9.046   |
| 625 | 1.69 | 10.343  | 3.005  | -0.052 | 0.191  | 17.219  | 9.256   | 9.499   | 12.698  | 12.953  |
| 625 | 2.25 | 12.108  | 3.392  | -0.052 | 0.191  | 19.957  | 10.844  | 11.087  | 14.795  | 15.050  |
| 627 | 0    | -15.048 | -4.419 | 0.007  | -0.027 | -25.129 | -13.536 | -13.571 | -18.578 | -18.614 |
| 627 | 0.75 | -12.383 | -3.730 | 0.007  | -0.027 | -20.827 | -11.137 | -11.172 | -15.344 | -15.380 |
| 627 | 1.5  | -8.014  | -2.103 | 0.007  | -0.027 | -12.981 | -7.205  | -7.240  | -9.732  | -9.768  |
| 627 | 2.25 | -3.645  | -0.475 | 0.007  | -0.027 | -5.134  | -3.274  | -3.308  | -4.119  | -4.156  |
| 627 | 3    | -0.979  | 0.214  | 0.007  | -0.027 | -0.832  | -0.874  | -0.909  | -0.886  | -0.922  |
| 628 | 0    | 0.979   | -0.214 | -0.007 | 0.027  | 0.832   | 0.874   | 0.909   | 0.886   | 0.922   |
| 628 | 0.75 | 3.645   | 0.475  | -0.007 | 0.027  | 5.135   | 3.274   | 3.308   | 4.119   | 4.156   |
| 628 | 1.5  | 8.014   | 2.103  | -0.007 | 0.027  | 12.981  | 7.205   | 7.240   | 9.732   | 9.768   |
| 628 | 2.25 | 12.383  | 3.730  | -0.007 | 0.027  | 20.827  | 11.137  | 11.172  | 15.344  | 15.380  |
| 628 | 3    | 15.048  | 4.419  | -0.007 | 0.027  | 25.129  | 13.537  | 13.571  | 18.578  | 18.614  |
| 629 | 0    | -12.108 | -3.392 | 0.052  | -0.191 | -19.957 | -10.844 | -11.087 | -14.795 | -15.050 |
| 629 | 0.56 | -10.343 | -3.005 | 0.052  | -0.191 | -17.219 | -9.256  | -9.499  | -12.698 | -12.953 |
| 629 | 1.13 | -7.283  | -1.903 | 0.052  | -0.191 | -11.784 | -6.502  | -6.745  | -8.790  | -9.046  |
| 629 | 1.69 | -4.222  | -0.801 | 0.052  | -0.191 | -6.349  | -3.747  | -3.990  | -4.883  | -5.138  |
| 629 | 2.25 | -2.457  | -0.414 | 0.052  | -0.191 | -3.611  | -2.159  | -2.402  | -2.786  | -3.041  |
| 630 | 0    | 1.782   | 0.200  | 0.034  | -0.120 | 2.459   | 1.638   | 1.484   | 2.033   | 1.871   |
| 630 | 0.56 | 3.546   | 0.588  | 0.034  | -0.120 | 5.197   | 3.226   | 3.072   | 4.130   | 3.968   |
| 630 | 1.13 | 6.607   | 1.690  | 0.034  | -0.120 | 10.632  | 5.981   | 5.826   | 8.038   | 7.876   |
| 630 | 1.69 | 9.668   | 2.791  | 0.034  | -0.120 | 16.067  | 8.735   | 8.581   | 11.946  | 11.783  |
| 630 | 2.25 | 11.432  | 3.179  | 0.034  | -0.120 | 18.805  | 10.323  | 10.169  | 14.043  | 13.881  |
| 631 | 0    | -14.755 | -4.348 | 0.100  | -0.372 | -24.663 | -13.180 | -13.652 | -18.128 | -18.623 |
| 631 | 0.75 | -12.089 | -3.659 | 0.100  | -0.372 | -20.361 | -10.781 | -11.253 | -14.894 | -15.390 |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 631 | 1.5  | -7.721  | -2.031 | 0.100  | -0.372 | -12.515 | -6.849  | -7.321  | -9.282  | -9.777  |
| 631 | 2.25 | -3.352  | -0.404 | 0.100  | -0.372 | -4.669  | -2.917  | -3.389  | -3.669  | -4.165  |
| 631 | 3    | -0.686  | 0.285  | 0.100  | -0.372 | -0.366  | -0.518  | -0.990  | -0.436  | -0.931  |
| 632 | 0    | 1.292   | -0.126 | 0.082  | -0.222 | 1.349   | 1.245   | 0.941   | 1.364   | 1.045   |
| 632 | 0.75 | 3.958   | 0.563  | 0.082  | -0.222 | 5.651   | 3.644   | 3.341   | 4.597   | 4.278   |
| 632 | 1.5  | 8.327   | 2.191  | 0.082  | -0.222 | 13.497  | 7.576   | 7.273   | 10.209  | 9.891   |
| 632 | 2.25 | 12.696  | 3.818  | 0.082  | -0.222 | 21.343  | 11.508  | 11.204  | 15.822  | 15.505  |
| 632 | 3    | 15.361  | 4.507  | 0.082  | -0.222 | 25.646  | 13.907  | 13.604  | 19.055  | 18.736  |
| 633 | 0    | -15.532 | -4.437 | 0.123  | -0.895 | -25.738 | -13.856 | -14.874 | -18.975 | -20.044 |
| 633 | 0.75 | -12.866 | -3.748 | 0.123  | -0.895 | -21.436 | -11.457 | -12.475 | -15.742 | -16.811 |
| 633 | 1.5  | -8.497  | -2.121 | 0.123  | -0.895 | -13.590 | -7.525  | -8.543  | -10.129 | -11.198 |
| 633 | 2.25 | -4.129  | -0.493 | 0.123  | -0.895 | -5.744  | -3.593  | -4.611  | -4.517  | -5.586  |
| 633 | 3    | -1.463  | 0.196  | 0.123  | -0.895 | -1.442  | -1.194  | -2.212  | -1.283  | -2.353  |
| 634 | 0    | 1.547   | -0.154 | 0.077  | -0.569 | 1.611   | 1.470   | 0.824   | 1.609   | 0.931   |
| 634 | 0.75 | 4.213   | 0.536  | 0.077  | -0.569 | 5.913   | 3.869   | 3.223   | 4.842   | 4.164   |
| 634 | 1.5  | 8.582   | 2.163  | 0.077  | -0.569 | 13.760  | 7.801   | 7.155   | 10.455  | 9.777   |
| 634 | 2.25 | 12.951  | 3.791  | 0.077  | -0.569 | 21.606  | 11.733  | 11.087  | 16.067  | 15.389  |
| 634 | 3    | 15.617  | 4.480  | 0.077  | -0.569 | 25.908  | 14.132  | 13.486  | 19.301  | 18.623  |
| 635 | 0    | -13.106 | -4.021 | 0.352  | -2.125 | -22.161 | -11.443 | -13.921 | -15.925 | -18.526 |
| 635 | 0.75 | -10.441 | -3.331 | 0.352  | -2.125 | -17.859 | -9.044  | -11.522 | -12.692 | -15.293 |
| 635 | 1.5  | -6.072  | -1.704 | 0.352  | -2.125 | -10.013 | -5.112  | -7.590  | -7.079  | -9.680  |
| 635 | 2.25 | -1.703  | -0.077 | 0.352  | -2.125 | -2.167  | -1.180  | -3.658  | -1.467  | -4.068  |
| 635 | 3    | 0.963   | 0.613  | 0.352  | -2.125 | 2.135   | 1.219   | -1.259  | 1.767   | -0.834  |
| 636 | 0    | 2.347   | 0.198  | 0.353  | -2.282 | 3.133   | 2.465   | -0.170  | 2.960   | 0.193   |
| 636 | 0.75 | 5.013   | 0.887  | 0.353  | -2.282 | 7.436   | 4.865   | 2.230   | 6.193   | 3.427   |
| 636 | 1.5  | 9.382   | 2.515  | 0.353  | -2.282 | 15.282  | 8.797   | 6.162   | 11.806  | 9.039   |
| 636 | 2.25 | 13.751  | 4.142  | 0.353  | -2.282 | 23.128  | 12.728  | 10.093  | 17.418  | 14.651  |
| 636 | 3    | 16.416  | 4.832  | 0.353  | -2.282 | 27.430  | 15.128  | 12.493  | 20.652  | 17.885  |
| 637 | 0    | -11.317 | -5.338 | 0.202  | 0.424  | -18.921 | -9.984  | -9.762  | -13.774 | -13.541 |
| 637 | 0.45 | -10.018 | -3.089 | 0.202  | 0.424  | -16.965 | -8.815  | -8.593  | -12.254 | -12.021 |
| 637 | 0.9  | -7.818  | -2.345 | 0.202  | 0.424  | -13.133 | -6.834  | -6.613  | -9.474  | -9.241  |
| 637 | 1.35 | -5.617  | -1.600 | 0.202  | 0.424  | -9.301  | -4.854  | -4.632  | -6.694  | -6.461  |
| 637 | 1.8  | -4.318  | -1.352 | 0.202  | 0.424  | -7.345  | -3.685  | -3.463  | -5.174  | -4.941  |
| 638 | 0    | 3.755   | 1.168  | 0.310  | 0.203  | 6.375   | 3.689   | 3.583   | 5.004   | 4.892   |
| 638 | 0.45 | 5.054   | 1.416  | 0.310  | 0.203  | 8.331   | 4.859   | 4.752   | 6.524   | 6.412   |
| 638 | 0.9  | 7.255   | 2.161  | 0.310  | 0.203  | 12.163  | 6.839   | 6.732   | 9.304   | 9.192   |
| 638 | 1.35 | 9.455   | 2.906  | 0.310  | 0.203  | 15.995  | 8.819   | 8.713   | 12.084  | 11.972  |
| 638 | 1.8  | 10.754  | 3.154  | 0.310  | 0.203  | 17.951  | 9.989   | 9.882   | 13.604  | 13.492  |
| 639 | 0    | -14.053 | -3.870 | -1.048 | 0.929  | -23.057 | -13.696 | -11.719 | -18.295 | -16.219 |
| 639 | 0.56 | -12.289 | -3.483 | -1.048 | 0.929  | -20.319 | -12.108 | -10.131 | -16.198 | -14.122 |
| 639 | 1.13 | -9.228  | -2.381 | -1.048 | 0.929  | -14.884 | -9.353  | -7.376  | -12.290 | -10.214 |
| 639 | 1.69 | -6.168  | -1.280 | -1.048 | 0.929  | -9.449  | -6.599  | -4.622  | -8.383  | -6.307  |
| 639 | 2.25 | -4.403  | -0.892 | -1.048 | 0.929  | -6.710  | -5.011  | -3.034  | -6.286  | -4.209  |
| 640 | 0    | -0.441  | -0.233 | -0.915 | 0.873  | -0.901  | -1.312  | 0.476   | -1.570  | 0.307   |
| 640 | 0.56 | 1.324   | 0.155  | -0.915 | 0.873  | 1.837   | 0.277   | 2.064   | 0.527   | 2.404   |
| 640 | 1.13 | 4.384   | 1.257  | -0.915 | 0.873  | 7.272   | 3.031   | 4.819   | 4.435   | 6.312   |
| 640 | 1.69 | 7.445   | 2.358  | -0.915 | 0.873  | 12.707  | 5.786   | 7.573   | 8.342   | 10.219  |
| 640 | 2.25 | 9.209   | 2.746  | -0.915 | 0.873  | 15.445  | 7.374   | 9.161   | 10.439  | 12.316  |
| 641 | 0    | -18.421 | -5.494 | -0.320 | 0.345  | -30.895 | -16.899 | -16.233 | -23.140 | -22.440 |
| 641 | 0.75 | -15.755 | -4.804 | -0.320 | 0.345  | -26.593 | -14.500 | -13.834 | -19.906 | -19.207 |
| 641 | 1.5  | -11.386 | -3.177 | -0.320 | 0.345  | -18.747 | -10.568 | -9.902  | -14.294 | -13.595 |
| 641 | 2.25 | -7.018  | -1.550 | -0.320 | 0.345  | -10.901 | -6.636  | -5.970  | -8.681  | -7.982  |
| 641 | 3    | -4.352  | -0.860 | -0.320 | 0.345  | -6.599  | -4.237  | -3.571  | -5.448  | -4.749  |
| 642 | 0    | -7.009  | -2.313 | -0.614 | 0.614  | -12.111 | -6.922  | -5.694  | -9.461  | -8.171  |
| 642 | 0.75 | -4.343  | -1.623 | -0.614 | 0.614  | -7.809  | -4.523  | -3.294  | -6.228  | -4.938  |
| 642 | 1.5  | 0.026   | 0.004  | -0.614 | 0.614  | 0.038   | -0.591  | 0.638   | -0.615  | 0.675   |
| 642 | 2.25 | 4.395   | 1.631  | -0.614 | 0.614  | 7.884   | 3.341   | 4.569   | 4.997   | 6.287   |
| 642 | 3    | 7.060   | 2.321  | -0.614 | 0.614  | 12.186  | 5.740   | 6.969   | 8.231   | 9.521   |
| 643 | 0    | 4.443   | 0.876  | -0.351 | 0.320  | 6.734   | 3.648   | 4.319   | 4.849   | 5.553   |
| 643 | 0.75 | 7.109   | 1.566  | -0.351 | 0.320  | 11.036  | 6.047   | 6.718   | 8.082   | 8.787   |
| 643 | 1.5  | 11.478  | 3.193  | -0.351 | 0.320  | 18.882  | 9.979   | 10.650  | 13.695  | 14.399  |
| 643 | 2.25 | 15.847  | 4.820  | -0.351 | 0.320  | 26.729  | 13.911  | 14.582  | 19.307  | 20.012  |
| 643 | 3    | 18.512  | 5.510  | -0.351 | 0.320  | 31.031  | 16.310  | 16.981  | 22.541  | 23.245  |
| 644 | 0    | -9.262  | -2.759 | -0.845 | 0.909  | -15.529 | -9.181  | -7.427  | -12.351 | -10.509 |
| 644 | 0.56 | -7.497  | -2.371 | -0.845 | 0.909  | -12.791 | -7.593  | -5.839  | -10.253 | -8.412  |
| 644 | 1.13 | -4.437  | -1.270 | -0.845 | 0.909  | -7.355  | -4.838  | -3.084  | -6.346  | -4.504  |
| 644 | 1.69 | -1.376  | -0.168 | -0.845 | 0.909  | -1.920  | -2.084  | -0.330  | -2.438  | -0.597  |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 644 | 2.25 | 0.388   | 0.220  | -0.845 | 0.909  | 0.818   | -0.496  | 1.258   | -0.341  | 1.500   |
| 645 | 0    | 4.355   | 0.880  | -0.901 | 1.041  | 6.634   | 3.019   | 4.961   | 4.181   | 6.221   |
| 645 | 0.56 | 6.120   | 1.268  | -0.901 | 1.041  | 9.372   | 4.607   | 6.549   | 6.278   | 8.318   |
| 645 | 1.13 | 9.180   | 2.369  | -0.901 | 1.041  | 14.808  | 7.361   | 9.304   | 10.186  | 12.226  |
| 645 | 1.69 | 12.241  | 3.471  | -0.901 | 1.041  | 20.243  | 10.116  | 12.058  | 14.094  | 16.133  |
| 645 | 2.25 | 14.005  | 3.859  | -0.901 | 1.041  | 22.981  | 11.704  | 13.646  | 16.191  | 18.230  |
| 646 | 0    | -10.679 | -3.143 | -0.217 | -0.303 | -17.843 | -9.829  | -9.914  | -13.421 | -13.511 |
| 646 | 0.45 | -9.380  | -2.894 | -0.217 | -0.303 | -15.887 | -8.660  | -8.745  | -11.901 | -11.991 |
| 646 | 0.9  | -7.180  | -2.150 | -0.217 | -0.303 | -12.055 | -6.679  | -6.765  | -9.121  | -9.211  |
| 646 | 1.35 | -4.979  | -1.405 | -0.217 | -0.303 | -8.223  | -4.699  | -4.784  | -6.342  | -6.431  |
| 646 | 1.8  | -3.680  | -1.157 | -0.217 | -0.303 | -6.267  | -3.530  | -3.615  | -4.821  | -4.911  |
| 647 | 0    | 4.412   | 1.365  | -0.440 | -0.193 | 7.479   | 3.531   | 3.778   | 5.030   | 5.290   |
| 647 | 0.45 | 5.711   | 1.614  | -0.440 | -0.193 | 9.435   | 4.700   | 4.947   | 6.551   | 6.811   |
| 647 | 0.9  | 7.911   | 2.358  | -0.440 | -0.193 | 13.267  | 6.680   | 6.928   | 9.330   | 9.590   |
| 647 | 1.35 | 10.112  | 3.103  | -0.440 | -0.193 | 17.099  | 8.661   | 8.908   | 12.110  | 12.370  |
| 647 | 1.8  | 11.411  | 3.351  | -0.440 | -0.193 | 19.055  | 9.830   | 10.077  | 13.630  | 13.890  |
| 648 | 0    | -16.697 | -4.869 | 2.300  | -0.367 | -27.827 | -12.727 | -15.394 | -18.184 | -20.985 |
| 648 | 0.75 | -14.031 | -4.180 | 2.300  | -0.367 | -23.525 | -10.327 | -12.995 | -14.950 | -17.751 |
| 648 | 1.5  | -9.662  | -2.553 | 2.300  | -0.367 | -15.679 | -6.396  | -9.063  | -9.338  | -12.139 |
| 648 | 2.25 | -5.293  | -0.925 | 2.300  | -0.367 | -7.833  | -2.464  | -5.131  | -3.726  | -6.527  |
| 648 | 3    | -2.628  | -0.236 | 2.300  | -0.367 | -3.530  | -0.064  | -2.732  | -0.492  | -3.293  |
| 649 | 0    | -1.162  | -0.638 | 2.140  | -0.365 | -2.416  | 1.094   | -1.411  | 0.625   | -2.005  |
| 649 | 0.75 | 1.504   | 0.051  | 2.140  | -0.365 | 1.886   | 3.493   | 0.988   | 3.858   | 1.228   |
| 649 | 1.5  | 5.872   | 1.678  | 2.140  | -0.365 | 9.732   | 7.425   | 4.920   | 9.470   | 6.840   |
| 649 | 2.25 | 10.241  | 3.306  | 2.140  | -0.365 | 17.578  | 11.357  | 8.852   | 15.083  | 12.453  |
| 649 | 3    | 12.907  | 3.995  | 2.140  | -0.365 | 21.881  | 13.756  | 11.251  | 18.316  | 15.686  |
| 650 | 0    | -16.004 | -4.538 | 0.579  | -0.084 | -26.466 | -13.824 | -14.487 | -19.055 | -19.751 |
| 650 | 0.75 | -13.338 | -3.849 | 0.579  | -0.084 | -22.163 | -11.425 | -12.088 | -15.821 | -16.517 |
| 650 | 1.5  | -8.969  | -2.221 | 0.579  | -0.084 | -14.317 | -7.493  | -8.156  | -10.209 | -10.905 |
| 650 | 2.25 | -4.600  | -0.594 | 0.579  | -0.084 | -6.471  | -3.561  | -4.224  | -4.597  | -5.292  |
| 650 | 3    | -1.935  | 0.095  | 0.579  | -0.084 | -2.169  | -1.162  | -1.825  | -1.363  | -2.059  |
| 651 | 0    | 1.170   | -0.237 | 0.905  | -0.130 | 1.025   | 1.958   | 0.924   | 2.030   | 0.943   |
| 651 | 0.75 | 3.836   | 0.452  | 0.905  | -0.130 | 5.327   | 4.358   | 3.323   | 5.263   | 4.177   |
| 651 | 1.5  | 8.205   | 2.080  | 0.905  | -0.130 | 13.173  | 8.290   | 7.255   | 10.876  | 9.789   |
| 651 | 2.25 | 12.573  | 3.707  | 0.905  | -0.130 | 21.019  | 12.221  | 11.187  | 16.488  | 15.402  |
| 651 | 3    | 15.239  | 4.397  | 0.905  | -0.130 | 25.322  | 14.621  | 13.586  | 19.722  | 18.635  |
| 652 | 0    | -16.012 | -4.604 | 0.233  | -0.090 | -26.581 | -14.178 | -14.501 | -19.468 | -19.807 |
| 652 | 0.75 | -13.346 | -3.915 | 0.233  | -0.090 | -22.279 | -11.778 | -12.101 | -16.235 | -16.574 |
| 652 | 1.5  | -8.977  | -2.287 | 0.233  | -0.090 | -14.432 | -7.846  | -8.169  | -10.622 | -10.962 |
| 652 | 2.25 | -4.608  | -0.660 | 0.233  | -0.090 | -6.586  | -3.915  | -4.238  | -5.010  | -5.349  |
| 652 | 3    | -1.943  | 0.029  | 0.233  | -0.090 | -2.284  | -1.515  | -1.838  | -1.777  | -2.116  |
| 653 | 0    | 0.365   | -0.286 | 0.373  | -0.102 | -0.020  | 0.702   | 0.226   | 0.595   | 0.096   |
| 653 | 0.75 | 3.031   | 0.403  | 0.373  | -0.102 | 4.283   | 3.101   | 2.625   | 3.828   | 3.329   |
| 653 | 1.5  | 7.400   | 2.031  | 0.373  | -0.102 | 12.129  | 7.033   | 6.557   | 9.441   | 8.941   |
| 653 | 2.25 | 11.768  | 3.658  | 0.373  | -0.102 | 19.975  | 10.965  | 10.489  | 15.053  | 14.554  |
| 653 | 3    | 14.434  | 4.348  | 0.373  | -0.102 | 24.277  | 13.364  | 12.888  | 18.287  | 17.787  |
| 654 | 0    | -13.973 | -3.834 | 0.225  | -0.090 | -22.902 | -12.350 | -12.666 | -16.851 | -17.182 |
| 654 | 0.56 | -12.208 | -3.447 | 0.225  | -0.090 | -20.164 | -10.762 | -11.077 | -14.754 | -15.085 |
| 654 | 1.13 | -9.148  | -2.345 | 0.225  | -0.090 | -14.729 | -8.008  | -8.323  | -10.846 | -11.177 |
| 654 | 1.69 | -6.087  | -1.244 | 0.225  | -0.090 | -9.294  | -5.253  | -5.568  | -6.938  | -7.269  |
| 654 | 2.25 | -4.322  | -0.856 | 0.225  | -0.090 | -6.556  | -3.665  | -3.980  | -4.841  | -5.172  |
| 655 | 0    | -1.284  | -0.460 | 0.294  | -0.109 | -2.276  | -0.861  | -1.264  | -1.328  | -1.752  |
| 655 | 0.56 | 0.481   | -0.072 | 0.294  | -0.109 | 0.462   | 0.727   | 0.324   | 0.769   | 0.345   |
| 655 | 1.13 | 3.542   | 1.029  | 0.294  | -0.109 | 5.897   | 3.482   | 3.079   | 4.676   | 4.253   |
| 655 | 1.69 | 6.602   | 2.131  | 0.294  | -0.109 | 11.332  | 6.236   | 5.833   | 8.584   | 8.161   |
| 655 | 2.25 | 8.367   | 2.519  | 0.294  | -0.109 | 14.070  | 7.824   | 7.421   | 10.681  | 10.258  |
| 657 | 0    | -19.300 | -6.654 | -0.011 | 0.004  | -33.807 | -17.381 | -17.366 | -24.469 | -24.453 |
| 657 | 0.75 | -16.634 | -5.965 | -0.011 | 0.004  | -29.505 | -14.982 | -14.967 | -21.235 | -21.220 |
| 657 | 1.5  | -11.464 | -3.896 | -0.011 | 0.004  | -19.991 | -10.329 | -10.314 | -14.503 | -14.488 |
| 657 | 2.25 | -6.294  | -1.828 | -0.011 | 0.004  | -10.477 | -5.675  | -5.661  | -7.772  | -7.756  |
| 657 | 3    | -3.628  | -1.138 | -0.011 | 0.004  | -6.175  | -3.276  | -3.262  | -4.538  | -4.523  |
| 658 | 0    | 3.628   | 1.138  | 0.011  | -0.004 | 6.175   | 3.276   | 3.262   | 4.538   | 4.523   |
| 658 | 0.75 | 6.294   | 1.828  | 0.011  | -0.004 | 10.477  | 5.676   | 5.661   | 7.772   | 7.756   |
| 658 | 1.5  | 11.464  | 3.896  | 0.011  | -0.004 | 19.991  | 10.329  | 10.314  | 14.503  | 14.488  |
| 658 | 2.25 | 16.634  | 5.965  | 0.011  | -0.004 | 29.505  | 14.982  | 14.967  | 21.235  | 21.220  |
| 658 | 3    | 19.300  | 6.654  | 0.011  | -0.004 | 33.807  | 17.381  | 17.366  | 24.469  | 24.453  |
| 660 | 0    | -8.367  | -2.519 | -0.294 | 0.109  | -14.070 | -7.824  | -7.421  | -10.681 | -10.258 |

|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 660 | 0.56 | -6.602  | -2.131 | -0.294 | 0.109  | -11.332 | -6.236  | -5.833  | -8.584  | -8.161  |
| 660 | 1.13 | -3.542  | -1.029 | -0.294 | 0.109  | -5.897  | -3.482  | -3.079  | -4.676  | -4.253  |
| 660 | 1.69 | -0.481  | 0.072  | -0.294 | 0.109  | -0.462  | -0.727  | -0.324  | -0.769  | -0.345  |
| 660 | 2.25 | 1.283   | 0.460  | -0.294 | 0.109  | 2.276   | 0.861   | 1.264   | 1.328   | 1.752   |
| 661 | 0    | 4.322   | 0.856  | -0.225 | 0.090  | 6.556   | 3.665   | 3.980   | 4.841   | 5.172   |
| 661 | 0.56 | 6.087   | 1.244  | -0.225 | 0.090  | 9.294   | 5.253   | 5.568   | 6.938   | 7.269   |
| 661 | 1.13 | 9.148   | 2.345  | -0.225 | 0.090  | 14.729  | 8.008   | 8.323   | 10.846  | 11.177  |
| 661 | 1.69 | 12.208  | 3.447  | -0.225 | 0.090  | 20.164  | 10.762  | 11.077  | 14.754  | 15.084  |
| 661 | 2.25 | 13.973  | 3.834  | -0.225 | 0.090  | 22.902  | 12.350  | 12.666  | 16.851  | 17.182  |
| 662 | 0    | -14.434 | -4.348 | -0.373 | 0.102  | -24.277 | -13.364 | -12.888 | -18.287 | -17.787 |
| 662 | 0.75 | -11.768 | -3.658 | -0.373 | 0.102  | -19.975 | -10.965 | -10.489 | -15.053 | -14.554 |
| 662 | 1.5  | -7.400  | -2.031 | -0.373 | 0.102  | -12.129 | -7.033  | -6.557  | -9.441  | -8.941  |
| 662 | 2.25 | -3.031  | -0.403 | -0.373 | 0.102  | -4.283  | -3.101  | -2.625  | -3.828  | -3.329  |
| 662 | 3    | -0.365  | 0.286  | -0.373 | 0.102  | 0.020   | -0.702  | -0.226  | -0.595  | -0.096  |
| 663 | 0    | 1.943   | -0.029 | -0.233 | 0.090  | 2.284   | 1.515   | 1.838   | 1.777   | 2.116   |
| 663 | 0.75 | 4.608   | 0.660  | -0.233 | 0.090  | 6.586   | 3.915   | 4.238   | 5.010   | 5.349   |
| 663 | 1.5  | 8.977   | 2.287  | -0.233 | 0.090  | 14.432  | 7.846   | 8.169   | 10.622  | 10.962  |
| 663 | 2.25 | 13.346  | 3.915  | -0.233 | 0.090  | 22.279  | 11.778  | 12.101  | 16.235  | 16.574  |
| 663 | 3    | 16.012  | 4.604  | -0.233 | 0.090  | 26.581  | 14.178  | 14.501  | 19.468  | 19.807  |
| 664 | 0    | -15.239 | -4.397 | -0.905 | 0.130  | -25.322 | -14.621 | -13.586 | -19.722 | -18.635 |
| 664 | 0.75 | -12.573 | -3.707 | -0.905 | 0.130  | -21.019 | -12.221 | -11.187 | -16.488 | -15.402 |
| 664 | 1.5  | -8.205  | -2.080 | -0.905 | 0.130  | -13.173 | -8.290  | -7.255  | -10.876 | -9.789  |
| 664 | 2.25 | -3.836  | -0.452 | -0.905 | 0.130  | -5.327  | -4.358  | -3.323  | -5.263  | -4.177  |
| 664 | 3    | -1.170  | 0.237  | -0.905 | 0.130  | -1.025  | -1.958  | -0.924  | -2.030  | -0.943  |
| 665 | 0    | 1.935   | -0.095 | -0.579 | 0.084  | 2.169   | 1.162   | 1.825   | 1.363   | 2.059   |
| 665 | 0.75 | 4.600   | 0.594  | -0.579 | 0.084  | 6.471   | 3.561   | 4.224   | 4.597   | 5.292   |
| 665 | 1.5  | 8.969   | 2.221  | -0.579 | 0.084  | 14.317  | 7.493   | 8.156   | 10.209  | 10.905  |
| 665 | 2.25 | 13.338  | 3.849  | -0.579 | 0.084  | 22.163  | 11.425  | 12.088  | 15.821  | 16.517  |
| 665 | 3    | 16.004  | 4.538  | -0.579 | 0.084  | 26.466  | 13.824  | 14.487  | 19.055  | 19.751  |
| 666 | 0    | -12.907 | -3.995 | -2.140 | 0.365  | -21.881 | -13.756 | -11.251 | -18.316 | -15.686 |
| 666 | 0.75 | -10.241 | -3.306 | -2.140 | 0.365  | -17.578 | -11.357 | -8.852  | -15.083 | -12.453 |
| 666 | 1.5  | -5.872  | -1.678 | -2.140 | 0.365  | -9.732  | -7.425  | -4.920  | -9.470  | -6.840  |
| 666 | 2.25 | -1.504  | -0.051 | -2.140 | 0.365  | -1.886  | -3.493  | -0.988  | -3.858  | -1.228  |
| 666 | 3    | 1.162   | 0.638  | -2.140 | 0.365  | 2.416   | -1.094  | 1.411   | -0.625  | 2.005   |
| 667 | 0    | 2.628   | 0.236  | -2.300 | 0.367  | 3.530   | 0.064   | 2.732   | 0.492   | 3.293   |
| 667 | 0.75 | 5.293   | 0.925  | -2.300 | 0.367  | 7.833   | 2.464   | 5.131   | 3.726   | 6.527   |
| 667 | 1.5  | 9.662   | 2.553  | -2.300 | 0.367  | 15.679  | 6.396   | 9.063   | 9.338   | 12.139  |
| 667 | 2.25 | 14.031  | 4.180  | -2.300 | 0.367  | 23.525  | 10.327  | 12.995  | 14.950  | 17.751  |
| 667 | 3    | 16.697  | 4.869  | -2.300 | 0.367  | 27.827  | 12.727  | 15.394  | 18.184  | 20.985  |
| 668 | 0    | -11.411 | -3.351 | 0.440  | 0.193  | -19.055 | -9.830  | -10.077 | -13.630 | -13.890 |
| 668 | 0.45 | -10.112 | -3.103 | 0.440  | 0.193  | -17.099 | -8.661  | -8.908  | -12.110 | -12.370 |
| 668 | 0.9  | -7.911  | -2.358 | 0.440  | 0.193  | -13.267 | -6.680  | -6.928  | -9.330  | -9.590  |
| 668 | 1.35 | -5.711  | -1.614 | 0.440  | 0.193  | -9.435  | -4.700  | -4.947  | -6.551  | -6.811  |
| 668 | 1.8  | -4.412  | -1.365 | 0.440  | 0.193  | -7.479  | -3.531  | -3.778  | -5.030  | -5.290  |
| 669 | 0    | 3.680   | 1.157  | 0.217  | 0.303  | 6.267   | 3.530   | 3.615   | 4.821   | 4.911   |
| 669 | 0.45 | 4.979   | 1.405  | 0.217  | 0.303  | 8.223   | 4.699   | 4.784   | 6.342   | 6.431   |
| 669 | 0.9  | 7.180   | 2.150  | 0.217  | 0.303  | 12.055  | 6.679   | 6.765   | 9.121   | 9.211   |
| 669 | 1.35 | 9.380   | 2.894  | 0.217  | 0.303  | 15.887  | 8.660   | 8.745   | 11.901  | 11.991  |
| 669 | 1.8  | 10.679  | 3.143  | 0.217  | 0.303  | 17.843  | 9.829   | 9.914   | 13.421  | 13.511  |
| 671 | 0    | -14.005 | -3.859 | 0.901  | -1.041 | -22.981 | -11.704 | -13.646 | -16.191 | -18.230 |
| 671 | 0.56 | -12.241 | -3.471 | 0.901  | -1.041 | -20.243 | -10.116 | -12.058 | -14.094 | -16.133 |
| 671 | 1.13 | -9.180  | -2.369 | 0.901  | -1.041 | -14.808 | -7.361  | -9.304  | -10.186 | -12.226 |
| 671 | 1.69 | -6.120  | -1.268 | 0.901  | -1.041 | -9.372  | -4.607  | -6.549  | -6.278  | -8.318  |
| 671 | 2.25 | -4.355  | -0.880 | 0.901  | -1.041 | -6.634  | -3.019  | -4.961  | -4.181  | -6.221  |
| 672 | 0    | -0.388  | -0.220 | 0.845  | -0.909 | -0.818  | 0.496   | -1.258  | 0.341   | -1.500  |
| 672 | 0.56 | 1.376   | 0.168  | 0.845  | -0.909 | 1.920   | 2.084   | 0.330   | 2.438   | 0.597   |
| 672 | 1.13 | 4.437   | 1.270  | 0.845  | -0.909 | 7.355   | 4.838   | 3.084   | 6.346   | 4.504   |
| 672 | 1.69 | 7.497   | 2.371  | 0.845  | -0.909 | 12.791  | 7.593   | 5.839   | 10.253  | 8.412   |
| 672 | 2.25 | 9.262   | 2.759  | 0.845  | -0.909 | 15.529  | 9.181   | 7.427   | 12.351  | 10.509  |
| 673 | 0    | -18.512 | -5.510 | 0.351  | -0.320 | -31.031 | -16.310 | -16.981 | -22.541 | -23.245 |
| 673 | 0.75 | -15.847 | -4.820 | 0.351  | -0.320 | -26.729 | -13.911 | -14.582 | -19.307 | -20.012 |
| 673 | 1.5  | -11.478 | -3.193 | 0.351  | -0.320 | -18.882 | -9.979  | -10.650 | -13.695 | -14.399 |
| 673 | 2.25 | -7.109  | -1.566 | 0.351  | -0.320 | -11.036 | -6.047  | -6.718  | -8.082  | -8.787  |
| 673 | 3    | -4.443  | -0.876 | 0.351  | -0.320 | -6.734  | -3.648  | -4.319  | -4.849  | -5.553  |
| 674 | 0    | -7.060  | -2.321 | 0.614  | -0.614 | -12.186 | -5.740  | -6.969  | -8.231  | -9.521  |
| 674 | 0.75 | -4.395  | -1.631 | 0.614  | -0.614 | -7.884  | -3.341  | -4.569  | -4.997  | -6.287  |
| 674 | 1.5  | -0.026  | -0.004 | 0.614  | -0.614 | -0.038  | 0.591   | -0.638  | 0.615   | -0.675  |



|     |      |         |        |        |        |         |         |         |         |         |
|-----|------|---------|--------|--------|--------|---------|---------|---------|---------|---------|
| 674 | 2.25 | 4.343   | 1.623  | 0.614  | -0.614 | 7.809   | 4.523   | 3.294   | 6.228   | 4.938   |
| 674 | 3    | 7.009   | 2.313  | 0.614  | -0.614 | 12.111  | 6.922   | 5.694   | 9.461   | 8.171   |
| 675 | 0    | 4.352   | 0.860  | 0.320  | -0.345 | 6.599   | 4.237   | 3.571   | 5.448   | 4.749   |
| 675 | 0.75 | 7.018   | 1.550  | 0.320  | -0.345 | 10.901  | 6.636   | 5.970   | 8.681   | 7.982   |
| 675 | 1.5  | 11.386  | 3.177  | 0.320  | -0.345 | 18.747  | 10.568  | 9.902   | 14.294  | 13.595  |
| 675 | 2.25 | 15.755  | 4.804  | 0.320  | -0.345 | 26.593  | 14.500  | 13.834  | 19.906  | 19.207  |
| 675 | 3    | 18.421  | 5.494  | 0.320  | -0.345 | 30.895  | 16.899  | 16.233  | 23.140  | 22.440  |
| 676 | 0    | -9.209  | -2.746 | 0.915  | -0.873 | -15.445 | -7.374  | -9.161  | -10.439 | -12.316 |
| 676 | 0.56 | -7.445  | -2.358 | 0.915  | -0.873 | -12.707 | -5.786  | -7.573  | -8.342  | -10.219 |
| 676 | 1.13 | -4.384  | -1.257 | 0.915  | -0.873 | -7.272  | -3.031  | -4.819  | -4.435  | -6.312  |
| 676 | 1.69 | -1.324  | -0.155 | 0.915  | -0.873 | -1.837  | -0.277  | -2.064  | -0.527  | -2.404  |
| 676 | 2.25 | 0.441   | 0.233  | 0.915  | -0.873 | 0.901   | 1.312   | -0.476  | 1.570   | -0.307  |
| 677 | 0    | 4.403   | 0.892  | 1.048  | -0.929 | 6.710   | 5.011   | 3.034   | 6.286   | 4.209   |
| 677 | 0.56 | 6.168   | 1.280  | 1.048  | -0.929 | 9.449   | 6.599   | 4.622   | 8.383   | 6.507   |
| 677 | 1.13 | 9.228   | 2.381  | 1.048  | -0.929 | 14.884  | 9.353   | 7.376   | 12.290  | 10.214  |
| 677 | 1.69 | 12.289  | 3.483  | 1.048  | -0.929 | 20.319  | 12.108  | 10.131  | 16.198  | 14.122  |
| 677 | 2.25 | 14.053  | 3.870  | 1.048  | -0.929 | 23.057  | 13.696  | 11.719  | 18.295  | 16.219  |
| 678 | 0    | -10.754 | -3.154 | -0.310 | -0.203 | -17.951 | -9.989  | -9.882  | -13.604 | -13.492 |
| 678 | 0.45 | -9.455  | -2.906 | -0.310 | -0.203 | -15.995 | -8.819  | -8.713  | -12.084 | -11.972 |
| 678 | 0.9  | -7.255  | -2.161 | -0.310 | -0.203 | -12.163 | -6.839  | -6.732  | -9.304  | -9.192  |
| 678 | 1.35 | -5.054  | -1.416 | -0.310 | -0.203 | -8.331  | -4.859  | -4.752  | -6.524  | -6.412  |
| 678 | 1.8  | -3.755  | -1.168 | -0.310 | -0.203 | -6.375  | -3.689  | -3.583  | -5.004  | -4.892  |
| 679 | 0    | -44.943 | -8.983 | 0.862  | -2.489 | -68.304 | -39.586 | -42.938 | -51.944 | -55.463 |
| 679 | 0.75 | -39.450 | -8.293 | 0.862  | -2.489 | -60.609 | -34.643 | -37.994 | -45.742 | -49.261 |
| 679 | 1.5  | -32.254 | -6.666 | 0.862  | -2.489 | -49.370 | -28.166 | -31.518 | -37.161 | -40.680 |
| 679 | 2.25 | -25.058 | -5.039 | 0.862  | -2.489 | -38.131 | -21.690 | -25.042 | -28.580 | -32.099 |
| 679 | 3    | -19.565 | -4.349 | 0.862  | -2.489 | -30.436 | -16.746 | -20.098 | -22.378 | -25.897 |
| 680 | 0    | 8.463   | 0.611  | 0.862  | -2.332 | 11.133  | 8.478   | 5.284   | 10.176  | 6.822   |
| 680 | 0.75 | 13.956  | 1.300  | 0.862  | -2.332 | 18.827  | 13.422  | 10.228  | 16.378  | 13.024  |
| 680 | 1.5  | 21.152  | 2.927  | 0.862  | -2.332 | 30.066  | 19.898  | 16.704  | 24.959  | 21.605  |
| 680 | 2.25 | 28.348  | 4.555  | 0.862  | -2.332 | 41.305  | 26.375  | 23.181  | 33.540  | 30.186  |
| 680 | 3    | 33.841  | 5.244  | 0.862  | -2.332 | 49.000  | 31.318  | 28.124  | 39.742  | 36.388  |
| 681 | 0    | -57.006 | -7.831 | 0.292  | -1.024 | -80.937 | -51.013 | -52.329 | -64.483 | -65.865 |
| 681 | 0.75 | -51.513 | -7.142 | 0.292  | -1.024 | -73.242 | -46.070 | -47.385 | -58.281 | -59.663 |
| 681 | 1.5  | -44.317 | -5.514 | 0.292  | -1.024 | -62.003 | -39.593 | -40.909 | -49.700 | -51.082 |
| 681 | 2.25 | -37.121 | -3.887 | 0.292  | -1.024 | -50.764 | -33.117 | -34.432 | -41.119 | -42.501 |
| 681 | 3    | -31.628 | -3.198 | 0.292  | -1.024 | -43.069 | -28.173 | -29.489 | -34.917 | -36.299 |
| 682 | 0    | 32.974  | 2.918  | 0.338  | -1.350 | 44.238  | 30.015  | 28.327  | 36.816  | 35.044  |
| 682 | 0.75 | 38.467  | 3.608  | 0.338  | -1.350 | 51.933  | 34.958  | 33.270  | 43.018  | 41.246  |
| 682 | 1.5  | 45.663  | 5.235  | 0.338  | -1.350 | 63.172  | 41.435  | 39.747  | 51.599  | 49.827  |
| 682 | 2.25 | 52.859  | 6.862  | 0.338  | -1.350 | 74.411  | 47.911  | 46.223  | 60.180  | 58.408  |
| 682 | 3    | 58.352  | 7.552  | 0.338  | -1.350 | 82.106  | 52.855  | 51.167  | 66.382  | 64.610  |
| 683 | 0    | -49.084 | -7.526 | 0.246  | -0.569 | -70.943 | -43.929 | -44.745 | -56.021 | -56.877 |
| 683 | 0.75 | -43.591 | -6.837 | 0.246  | -0.569 | -63.248 | -38.985 | -39.801 | -49.819 | -50.675 |
| 683 | 1.5  | -36.395 | -5.210 | 0.246  | -0.569 | -52.009 | -32.509 | -33.325 | -41.238 | -42.094 |
| 683 | 2.25 | -29.199 | -3.582 | 0.246  | -0.569 | -40.770 | -26.032 | -26.848 | -32.657 | -33.514 |
| 683 | 3    | -23.706 | -2.893 | 0.246  | -0.569 | -33.075 | -21.089 | -21.905 | -26.455 | -27.311 |
| 684 | 0    | 19.555  | 2.721  | 0.264  | -0.720 | 27.820  | 17.863  | 16.879  | 22.524  | 21.491  |
| 684 | 0.75 | 25.048  | 3.411  | 0.264  | -0.720 | 35.515  | 22.807  | 21.823  | 28.726  | 27.693  |
| 684 | 1.5  | 32.244  | 5.038  | 0.264  | -0.720 | 46.754  | 29.283  | 28.299  | 37.307  | 36.274  |
| 684 | 2.25 | 39.440  | 6.666  | 0.264  | -0.720 | 57.993  | 35.760  | 34.776  | 45.888  | 44.855  |
| 684 | 3    | 44.933  | 7.355  | 0.264  | -0.720 | 65.687  | 40.704  | 39.720  | 52.090  | 51.057  |
| 685 | 0    | -27.961 | -3.659 | 0.250  | -0.502 | -39.408 | -24.915 | -25.667 | -31.402 | -32.191 |
| 685 | 0.56 | -24.076 | -3.272 | 0.250  | -0.502 | -34.126 | -21.419 | -22.170 | -27.079 | -27.868 |
| 685 | 1.13 | -18.895 | -2.170 | 0.250  | -0.502 | -26.146 | -16.756 | -17.507 | -20.945 | -21.734 |
| 685 | 1.69 | -13.714 | -1.069 | 0.250  | -0.502 | -18.167 | -12.093 | -12.845 | -14.811 | -15.600 |
| 685 | 2.25 | -9.829  | -0.681 | 0.250  | -0.502 | -12.884 | -8.596  | -9.348  | -10.487 | -11.276 |
| 686 | 0    | -0.030  | 2.677  | 0.268  | -0.572 | 4.247   | 0.240   | -0.600  | 1.936   | 1.054   |
| 686 | 0.56 | 3.855   | 3.065  | 0.268  | -0.572 | 9.530   | 3.737   | 2.897   | 6.259   | 5.377   |
| 686 | 1.13 | 40.237  | 5.397  | 0.268  | -0.572 | 56.920  | 36.481  | 35.640  | 45.930  | 45.048  |
| 686 | 1.69 | 45.418  | 6.499  | 0.268  | -0.572 | 64.899  | 41.144  | 40.303  | 52.064  | 51.182  |
| 686 | 2.25 | 49.302  | 6.887  | 0.268  | -0.572 | 70.182  | 44.640  | 43.800  | 56.387  | 55.505  |
| 687 | 0    | -62.618 | -8.064 | -0.007 | 0.027  | -88.045 | -56.364 | -56.329 | -70.837 | -70.801 |
| 687 | 0.75 | -57.125 | -7.375 | -0.007 | 0.027  | -80.350 | -51.420 | -51.385 | -64.635 | -64.599 |
| 687 | 1.5  | -49.929 | -5.748 | -0.007 | 0.027  | -69.112 | -44.944 | -44.909 | -56.054 | -56.018 |
| 687 | 2.25 | -11.532 | -2.890 | -0.007 | 0.027  | -18.462 | -10.386 | -10.352 | -13.937 | -13.901 |
| 687 | 3    | -6.040  | -2.200 | -0.007 | 0.027  | -10.767 | -5.443  | -5.408  | -7.735  | -7.699  |



|     |      |         |        |         |        |         |         |         |         |         |
|-----|------|---------|--------|---------|--------|---------|---------|---------|---------|---------|
| 688 | 0    | 6.040   | 2.200  | 0.007   | -0.027 | 10.768  | 5.443   | 5.409   | 7.735   | 7.699   |
| 688 | 0.75 | 11.533  | 2.890  | 0.007   | -0.027 | 18.463  | 10.387  | 10.352  | 13.938  | 13.901  |
| 688 | 1.5  | 18.729  | 4.517  | 0.007   | -0.027 | 29.702  | 16.863  | 16.829  | 22.518  | 22.482  |
| 688 | 2.25 | 57.126  | 7.375  | 0.007   | -0.027 | 80.351  | 51.420  | 51.386  | 64.636  | 64.600  |
| 688 | 3    | 62.619  | 8.065  | 0.007   | -0.027 | 88.046  | 56.364  | 56.330  | 70.838  | 70.802  |
| 689 | 0    | -49.303 | -6.887 | -0.268  | 0.572  | -70.183 | -44.640 | -43.800 | -56.388 | -55.506 |
| 689 | 0.56 | -45.418 | -6.499 | -0.268  | 0.572  | -64.900 | -41.144 | -40.304 | -52.065 | -51.182 |
| 689 | 1.13 | -40.237 | -5.398 | -0.268  | 0.572  | -56.921 | -36.481 | -35.641 | -45.931 | -45.048 |
| 689 | 1.69 | -3.855  | -3.065 | -0.268  | 0.572  | -9.531  | -3.737  | -2.897  | -6.260  | -5.378  |
| 689 | 2.25 | 0.030   | -2.678 | -0.268  | 0.572  | -4.248  | -0.241  | 0.599   | -1.937  | -1.054  |
| 690 | 0    | 9.829   | 0.680  | -0.250  | 0.502  | 12.883  | 8.596   | 9.348   | 10.486  | 11.276  |
| 690 | 0.56 | 13.714  | 1.068  | -0.250  | 0.502  | 18.166  | 12.092  | 12.844  | 14.810  | 15.599  |
| 690 | 1.13 | 18.895  | 2.170  | -0.250  | 0.502  | 26.145  | 16.755  | 17.507  | 20.944  | 21.733  |
| 690 | 1.69 | 24.076  | 3.271  | -0.250  | 0.502  | 34.125  | 21.418  | 22.170  | 27.078  | 27.867  |
| 690 | 2.25 | 27.960  | 3.659  | -0.250  | 0.502  | 39.407  | 24.915  | 25.666  | 31.402  | 32.191  |
| 691 | 0    | -14.933 | -7.355 | -0.264  | 0.720  | -65.687 | -40.703 | -39.719 | -52.090 | -51.057 |
| 691 | 0.75 | -39.440 | -6.666 | -0.264  | 0.720  | -57.993 | -35.760 | -34.776 | -45.888 | -44.855 |
| 691 | 1.5  | -32.244 | -5.038 | -0.264  | 0.720  | -46.754 | -29.283 | -28.299 | -37.307 | -36.274 |
| 691 | 2.25 | -25.048 | -3.411 | -0.264  | 0.720  | -35.515 | -22.807 | -21.823 | -28.726 | -27.693 |
| 691 | 3    | -19.555 | -2.721 | -0.264  | 0.720  | -27.820 | -17.863 | -16.879 | -22.524 | -21.491 |
| 692 | 0    | 23.706  | 2.893  | -0.246  | 0.569  | 33.076  | 21.089  | 21.905  | 26.455  | 27.312  |
| 692 | 0.75 | 29.199  | 3.582  | -0.246  | 0.569  | 40.770  | 26.033  | 26.848  | 32.657  | 33.514  |
| 692 | 1.5  | 36.395  | 5.210  | -0.246  | 0.569  | 52.009  | 32.509  | 33.325  | 41.238  | 42.095  |
| 692 | 2.25 | 43.591  | 6.837  | -0.246  | 0.569  | 63.248  | 38.985  | 39.801  | 49.819  | 50.675  |
| 692 | 3    | 49.084  | 7.527  | -0.246  | 0.569  | 70.943  | 43.929  | 44.745  | 56.021  | 56.878  |
| 693 | 0    | -58.352 | -7.552 | -0.338  | 1.350  | -82.106 | -52.855 | -51.167 | -66.382 | -64.610 |
| 693 | 0.75 | -52.859 | -6.862 | -0.338  | 1.350  | -74.411 | -47.911 | -46.223 | -60.180 | -58.408 |
| 693 | 1.5  | -45.663 | -5.235 | -0.338  | 1.350  | -63.172 | -41.435 | -39.747 | -51.599 | -49.827 |
| 693 | 2.25 | -38.467 | -3.608 | -0.338  | 1.350  | -51.933 | -34.958 | -33.270 | -43.018 | -41.246 |
| 693 | 3    | -32.974 | -2.918 | -0.338  | 1.350  | -44.238 | -30.015 | -28.327 | -36.816 | -35.044 |
| 694 | 0    | 31.628  | 3.198  | -0.292  | 1.024  | 43.070  | 28.173  | 29.489  | 34.917  | 36.299  |
| 694 | 0.75 | 37.121  | 3.887  | -0.292  | 1.024  | 50.764  | 33.117  | 34.432  | 41.119  | 42.501  |
| 694 | 1.5  | 44.317  | 5.514  | -0.292  | 1.024  | 62.003  | 39.593  | 40.909  | 49.700  | 51.082  |
| 694 | 2.25 | 51.513  | 7.142  | -0.292  | 1.024  | 73.242  | 46.070  | 47.385  | 58.281  | 59.663  |
| 694 | 3    | 57.006  | 7.831  | -0.292  | 1.024  | 80.937  | 51.013  | 52.329  | 64.483  | 65.865  |
| 695 | 0    | -33.841 | -5.244 | -0.862  | 2.332  | -49.000 | -31.318 | -28.124 | -39.742 | -36.388 |
| 695 | 0.75 | -28.348 | -4.555 | -0.862  | 2.332  | -41.305 | -26.375 | -23.181 | -33.540 | -30.186 |
| 695 | 1.5  | -21.152 | -2.927 | -0.862  | 2.332  | -30.066 | -19.898 | -16.704 | -24.959 | -21.605 |
| 695 | 2.25 | -13.956 | -1.300 | -0.862  | 2.332  | -18.827 | -13.422 | -10.228 | -16.378 | -13.024 |
| 695 | 3    | -8.463  | -0.611 | -0.862  | 2.332  | -11.132 | -8.478  | -5.284  | -10.176 | -6.822  |
| 696 | 0    | 19.565  | 4.349  | -0.862  | 2.489  | 30.436  | 16.746  | 20.098  | 22.378  | 25.897  |
| 696 | 0.75 | 25.058  | 5.039  | -0.862  | 2.489  | 38.131  | 21.690  | 25.042  | 28.580  | 32.099  |
| 696 | 1.5  | 32.254  | 6.666  | -0.862  | 2.489  | 49.370  | 28.166  | 31.518  | 37.161  | 40.680  |
| 696 | 2.25 | 39.450  | 8.293  | -0.862  | 2.489  | 60.609  | 34.643  | 37.994  | 45.742  | 49.261  |
| 696 | 3    | 44.943  | 8.983  | -0.862  | 2.489  | 68.304  | 39.586  | 42.938  | 51.944  | 55.463  |
| 697 | 0    | -30.805 | -6.671 | -14.632 | 17.007 | -47.640 | -42.356 | -10.717 | -51.911 | -18.690 |
| 697 | 0.56 | -26.920 | -6.283 | -14.632 | 17.007 | -42.357 | -38.859 | -7.221  | -47.588 | -14.367 |
| 697 | 1.13 | -21.739 | -5.182 | -14.632 | 17.007 | -34.378 | -34.197 | -2.558  | -41.454 | -8.233  |
| 697 | 1.69 | -16.558 | -4.080 | -14.632 | 17.007 | -26.398 | -29.534 | 2.105   | -35.320 | -2.099  |
| 697 | 2.25 | -12.673 | -3.692 | -14.632 | 17.007 | -21.115 | -26.037 | 5.601   | -30.996 | 2.225   |
| 698 | 0    | -2.597  | -0.380 | -14.765 | 17.063 | -3.724  | -17.102 | 14.726  | -18.470 | 14.950  |
| 698 | 0.56 | 1.288   | 0.008  | -14.765 | 17.063 | 1.558   | -13.606 | 18.222  | -14.146 | 19.274  |
| 698 | 1.13 | 6.808   | 1.122  | -14.765 | 17.063 | 9.965   | -8.638  | 23.191  | -7.648  | 25.772  |
| 698 | 1.69 | 11.989  | 2.224  | -14.765 | 17.063 | 17.945  | -3.975  | 27.854  | -1.514  | 31.906  |
| 698 | 2.25 | 15.874  | 2.612  | -14.765 | 17.063 | 23.227  | -0.478  | 31.350  | 2.810   | 36.230  |
| 703 | 0    | 29.419  | 7.742  | -4.575  | 4.615  | 47.691  | 21.902  | 31.092  | 30.964  | 40.614  |
| 703 | 0.75 | 34.912  | 8.432  | -4.575  | 4.615  | 55.385  | 26.846  | 36.036  | 37.166  | 46.816  |
| 703 | 1.5  | 42.108  | 10.059 | -4.575  | 4.615  | 66.624  | 33.322  | 42.512  | 45.747  | 55.397  |
| 703 | 2.25 | 49.402  | 11.690 | -4.575  | 4.615  | 77.987  | 39.887  | 49.077  | 54.433  | 64.083  |
| 703 | 3    | 54.895  | 12.380 | -4.575  | 4.615  | 85.681  | 44.830  | 54.021  | 60.635  | 70.285  |
| 704 | 0    | -14.956 | -2.491 | -17.047 | 14.817 | -21.933 | -30.507 | 1.356   | -35.172 | -1.715  |
| 704 | 0.56 | -11.071 | -2.103 | -17.047 | 14.817 | -16.650 | -27.011 | 4.853   | -30.849 | 2.608   |
| 704 | 1.13 | -5.890  | -1.001 | -17.047 | 14.817 | -8.670  | -22.348 | 9.516   | -24.715 | 8.742   |
| 704 | 1.69 | -0.370  | 0.113  | -17.047 | 14.817 | -0.263  | -17.380 | 14.484  | -18.216 | 15.241  |
| 704 | 2.25 | 3.515   | 0.501  | -17.047 | 14.817 | 5.019   | -13.883 | 17.981  | -13.893 | 19.564  |
| 705 | 0    | 13.586  | 3.812  | -16.991 | 14.684 | 22.403  | -4.763  | 26.912  | -1.173  | 32.086  |
| 705 | 0.56 | 17.471  | 4.200  | -16.991 | 14.684 | 27.686  | -1.267  | 39.408  | 3.150   | 36.409  |

|     |      |         |         |        |         |         |         |         |         |         |
|-----|------|---------|---------|--------|---------|---------|---------|---------|---------|---------|
| 718 | 3    | -20.376 | -2.881  | 0.526  | -0.132  | -29.062 | -17.812 | -18.471 | -22.658 | -23.349 |
| 719 | 0    | 22.555  | 2.637   | 0.386  | -0.120  | 31.284  | 20.686  | 20.180  | 25.749  | 25.218  |
| 719 | 0.75 | 28.048  | 3.326   | 0.386  | -0.120  | 38.979  | 25.629  | 25.123  | 31.951  | 31.420  |
| 719 | 1.5  | 35.244  | 4.953   | 0.386  | -0.120  | 50.218  | 32.106  | 31.600  | 40.532  | 40.001  |
| 719 | 2.25 | 42.440  | 6.581   | 0.386  | -0.120  | 61.457  | 38.582  | 38.076  | 49.113  | 48.582  |
| 719 | 3    | 47.933  | 7.270   | 0.386  | -0.120  | 69.152  | 43.526  | 43.020  | 55.315  | 54.784  |
| 720 | 0    | -58.864 | -7.630  | 1.102  | -0.165  | -82.846 | -51.876 | -53.143 | -65.458 | -66.788 |
| 720 | 0.75 | -53.371 | -6.941  | 1.102  | -0.165  | -75.151 | -46.933 | -48.199 | -59.256 | -60.586 |
| 720 | 1.5  | -46.175 | -5.313  | 1.102  | -0.165  | -63.912 | -40.456 | -41.723 | -50.675 | -52.005 |
| 720 | 2.25 | -38.979 | -3.686  | 1.102  | -0.165  | -52.673 | -33.980 | -35.247 | -42.094 | -43.424 |
| 720 | 3    | -33.486 | -2.997  | 1.102  | -0.165  | -44.978 | -29.036 | -30.303 | -35.892 | -37.222 |
| 721 | 0    | 31.021  | 3.102   | 0.775  | -0.119  | 42.189  | 28.694  | 27.800  | 35.341  | 34.401  |
| 721 | 0.75 | 36.514  | 3.792   | 0.775  | -0.119  | 49.884  | 33.638  | 32.743  | 41.543  | 40.603  |
| 721 | 1.5  | 43.710  | 5.419   | 0.775  | -0.119  | 61.122  | 40.114  | 39.220  | 50.124  | 49.184  |
| 721 | 2.25 | 50.906  | 7.046   | 0.775  | -0.119  | 72.361  | 46.591  | 45.696  | 58.705  | 57.765  |
| 721 | 3    | 56.399  | 7.736   | 0.775  | -0.119  | 80.056  | 51.534  | 50.640  | 64.907  | 63.967  |
| 722 | 0    | -34.245 | -5.306  | 2.031  | -0.652  | -49.584 | -28.789 | -31.473 | -37.167 | -39.985 |
| 722 | 0.75 | -28.752 | -4.616  | 2.031  | -0.652  | -41.889 | -23.846 | -26.529 | -30.965 | -33.783 |
| 722 | 1.5  | -21.556 | -2.989  | 2.031  | -0.652  | -30.650 | -17.369 | -20.053 | -22.384 | -25.202 |
| 722 | 2.25 | -14.360 | -1.362  | 2.031  | -0.652  | -19.411 | -10.893 | -13.576 | -13.803 | -16.621 |
| 722 | 3    | -8.867  | -0.672  | 2.031  | -0.652  | -11.716 | -5.949  | -8.653  | -7.601  | -10.419 |
| 723 | 0    | 19.080  | 4.275   | 2.192  | -0.655  | 29.736  | 19.364  | 16.517  | 25.029  | 22.040  |
| 723 | 0.75 | 24.573  | 4.965   | 2.192  | -0.655  | 37.431  | 24.307  | 21.461  | 31.231  | 28.242  |
| 723 | 1.5  | 31.769  | 6.592   | 2.192  | -0.655  | 48.670  | 30.784  | 27.937  | 39.812  | 36.823  |
| 723 | 2.25 | 38.965  | 8.219   | 2.192  | -0.655  | 59.909  | 37.260  | 34.414  | 48.393  | 45.404  |
| 723 | 3    | 44.458  | 8.909   | 2.192  | -0.655  | 67.603  | 42.204  | 39.357  | 54.595  | 51.606  |
| 724 | 0    | -31.718 | -6.791  | 16.991 | -14.684 | -48.927 | -11.555 | -43.231 | -19.742 | -53.001 |
| 724 | 0.56 | -27.833 | -6.403  | 16.991 | -14.684 | -43.645 | -8.059  | -39.734 | -15.418 | -48.677 |
| 724 | 1.13 | -22.652 | -5.302  | 16.991 | -14.684 | -35.665 | -3.396  | -35.071 | -9.284  | -42.543 |
| 724 | 1.69 | -17.471 | -4.200  | 16.991 | -14.684 | -27.686 | 1.267   | -30.408 | -3.150  | -36.409 |
| 724 | 2.25 | -13.586 | -3.812  | 16.991 | -14.684 | -22.403 | 4.763   | -26.912 | 1.173   | -32.086 |
| 725 | 0    | -3.515  | -0.501  | 17.047 | -14.817 | -5.019  | 13.883  | -17.980 | 13.893  | -19.564 |
| 725 | 0.56 | 0.370   | -0.113  | 17.047 | -14.817 | 0.263   | 17.380  | -14.484 | 18.216  | -15.240 |
| 725 | 1.13 | 5.890   | 1.001   | 17.047 | -14.817 | 8.670   | 22.348  | -9.516  | 24.715  | -8.742  |
| 725 | 1.69 | 11.071  | 2.103   | 17.047 | -14.817 | 16.650  | 27.011  | -4.853  | 30.849  | -2.608  |
| 725 | 2.25 | 14.956  | 2.491   | 17.047 | -14.817 | 21.933  | 30.507  | -1.356  | 35.172  | 1.715   |
| 726 | 0    | -54.895 | -12.380 | 4.575  | -4.615  | -85.681 | -44.830 | -54.021 | -60.635 | -70.285 |
| 726 | 0.75 | -49.402 | -11.690 | 4.575  | -4.615  | -77.987 | -39.887 | -49.077 | -54.433 | -64.083 |
| 726 | 1.5  | -42.206 | -10.063 | 4.575  | -4.615  | -66.748 | -33.410 | -42.600 | -45.852 | -55.502 |
| 726 | 2.25 | -34.912 | -8.432  | 4.575  | -4.615  | -55.385 | -26.846 | -36.036 | -37.166 | -46.816 |
| 726 | 3    | -29.419 | -7.742  | 4.575  | -4.615  | -47.691 | -21.902 | -31.092 | -30.964 | -40.614 |
| 727 | 0    | -12.764 | -2.326  | 4.312  | -4.321  | -19.038 | -7.176  | -15.808 | -10.340 | -19.404 |
| 727 | 0.75 | -7.271  | -1.636  | 4.312  | -4.321  | -11.343 | -2.232  | -10.865 | -4.138  | -13.202 |
| 727 | 1.5  | -0.075  | -0.009  | 4.312  | -4.321  | -0.105  | 4.244   | -4.388  | 4.443   | -4.621  |
| 727 | 2.25 | 7.121   | 1.618   | 4.312  | -4.321  | 11.134  | 10.721  | 2.088   | 13.024  | 3.960   |
| 727 | 3    | 12.614  | 2.308   | 4.312  | -4.321  | 18.829  | 15.664  | 7.032   | 19.226  | 10.162  |
| 728 | 0    | 29.309  | 7.732   | 4.606  | -4.589  | 47.541  | 30.984  | 21.788  | 40.481  | 30.826  |
| 728 | 0.75 | 34.802  | 8.421   | 4.606  | -4.589  | 55.236  | 35.927  | 26.732  | 46.683  | 37.028  |
| 728 | 1.5  | 41.998  | 10.049  | 4.606  | -4.589  | 66.475  | 42.404  | 33.208  | 55.264  | 45.609  |
| 728 | 2.25 | 49.291  | 11.680  | 4.606  | -4.589  | 77.837  | 48.968  | 39.773  | 63.950  | 54.295  |
| 728 | 3    | 54.784  | 12.369  | 4.606  | -4.589  | 85.532  | 53.912  | 44.716  | 70.152  | 60.497  |
| 729 | 0    | -15.874 | -2.612  | 14.765 | -17.063 | -23.227 | 0.478   | -31.350 | -2.810  | -36.230 |
| 729 | 0.56 | -11.989 | -2.224  | 14.765 | -17.063 | -17.945 | 3.975   | -27.854 | 1.514   | -31.906 |
| 729 | 1.13 | -6.808  | -1.122  | 14.765 | -17.063 | -9.965  | 8.638   | -23.191 | 7.648   | -25.772 |
| 729 | 1.69 | -1.288  | -0.008  | 14.765 | -17.063 | -1.558  | 13.606  | -18.222 | 14.146  | -19.274 |
| 729 | 2.25 | 2.597   | 0.380   | 14.765 | -17.063 | 3.725   | 17.102  | -14.726 | 18.470  | -14.950 |
| 730 | 0    | 12.673  | 3.692   | 14.632 | -17.007 | 21.116  | 26.037  | -5.601  | 30.996  | -2.225  |
| 730 | 0.56 | 16.558  | 4.080   | 14.632 | -17.007 | 26.398  | 29.534  | -2.105  | 35.320  | 2.099   |
| 730 | 1.13 | 21.739  | 5.182   | 14.632 | -17.007 | 34.378  | 34.197  | 2.558   | 41.454  | 8.233   |
| 730 | 1.69 | 26.920  | 6.283   | 14.632 | -17.007 | 42.357  | 38.859  | 7.221   | 47.588  | 14.367  |
| 730 | 2.25 | 30.805  | 6.671   | 14.632 | -17.007 | 47.640  | 42.356  | 10.717  | 51.911  | 18.691  |
| 731 | 0    | -29.476 | -3.039  | 0.317  | -0.320  | -40.234 | -26.212 | -26.849 | -32.532 | -33.201 |
| 731 | 0.75 | -20.191 | -2.349  | 0.317  | -0.320  | -27.988 | -17.856 | -18.492 | -22.349 | -23.017 |
| 731 | 1.5  | -9.203  | -0.722  | 0.317  | -0.320  | -12.199 | -7.966  | -8.603  | -9.786  | -10.454 |
| 731 | 2.25 | 1.785   | 0.905   | 0.317  | -0.320  | 3.591   | 1.923   | 1.286   | 2.777   | 2.109   |
| 731 | 3    | 11.071  | 1.595   | 0.317  | -0.320  | 15.836  | 10.280  | 9.643   | 12.961  | 12.292  |
| 732 | 0    | -8.826  | -1.293  | -0.713 | 1.317   | -12.659 | -8.656  | -6.626  | -10.830 | -8.699  |

|     |      |         |         |        |        |          |         |         |          |          |
|-----|------|---------|---------|--------|--------|----------|---------|---------|----------|----------|
| 750 | 1.69 | -25.148 | -7.119  | -0.798 | 1.064  | -41.568  | -23.432 | -21.569 | -31.729  | -29.773  |
| 750 | 2.25 | -16.299 | -6.731  | -0.798 | 1.064  | -30.328  | -15.467 | -13.604 | -22.192  | -20.236  |
| 751 | 0    | 13.790  | 5.226   | 0.873  | -1.308 | 24.910   | 13.284  | 11.103  | 18.688   | 16.398   |
| 751 | 0.56 | 22.639  | 5.614   | 0.873  | -1.308 | 36.150   | 21.248  | 19.067  | 28.225   | 25.935   |
| 751 | 1.13 | 32.898  | 6.778   | 0.873  | -1.308 | 50.321   | 30.481  | 28.300  | 39.729   | 37.439   |
| 751 | 1.69 | 43.156  | 7.941   | 0.873  | -1.308 | 64.493   | 39.713  | 37.532  | 51.233   | 48.943   |
| 751 | 2.25 | 52.005  | 8.329   | 0.873  | -1.308 | 75.733   | 47.678  | 45.497  | 60.770   | 58.480   |
| 752 | 0    | -52.006 | -8.330  | -0.873 | 1.308  | -75.734  | -47.678 | -45.497 | -60.770  | -58.481  |
| 752 | 0.56 | -43.156 | -7.942  | -0.873 | 1.308  | -64.494  | -39.714 | -37.533 | -51.234  | -48.944  |
| 752 | 1.13 | -32.898 | -6.778  | -0.873 | 1.308  | -50.323  | -30.481 | -28.300 | -39.730  | -37.440  |
| 752 | 1.69 | -22.640 | -5.614  | -0.873 | 1.308  | -36.151  | -21.249 | -19.068 | -28.225  | -25.936  |
| 752 | 2.25 | -13.790 | -5.227  | -0.873 | 1.308  | -24.911  | -13.284 | -11.103 | -18.689  | -16.399  |
| 753 | 0    | 16.298  | 6.731   | 0.798  | -1.064 | 30.327   | 15.467  | 13.604  | 22.191   | 20.236   |
| 753 | 0.56 | 25.148  | 7.118   | 0.798  | -1.064 | 41.567   | 23.431  | 21.569  | 31.728   | 29.772   |
| 753 | 1.13 | 35.406  | 8.282   | 0.798  | -1.064 | 55.738   | 32.664  | 30.861  | 43.232   | 41.276   |
| 753 | 1.69 | 45.664  | 9.446   | 0.798  | -1.064 | 69.910   | 41.896  | 40.033  | 54.736   | 52.781   |
| 753 | 2.25 | 54.514  | 9.833   | 0.798  | -1.064 | 81.150   | 49.861  | 47.998  | 64.273   | 62.317   |
| 754 | 0    | -69.471 | -21.261 | -1.523 | 2.445  | -117.383 | -64.047 | -60.079 | -87.938  | -83.772  |
| 754 | 0.75 | -62.726 | -19.882 | -1.523 | 2.445  | -107.083 | -57.976 | -54.009 | -79.987  | -75.821  |
| 754 | 1.5  | -51.774 | -16.186 | -1.523 | 2.445  | -88.026  | -48.119 | -44.151 | -66.158  | -61.992  |
| 754 | 2.25 | -40.821 | -12.490 | -1.523 | 2.445  | -68.970  | -38.262 | -34.294 | -52.330  | -48.164  |
| 754 | 3    | -34.076 | -11.111 | -1.523 | 2.445  | -58.669  | -32.191 | -28.223 | -44.379  | -40.213  |
| 755 | 0    | 35.632  | 11.956  | 1.232  | -1.792 | 61.888   | 33.301  | 30.277  | 46.239   | 43.065   |
| 755 | 0.75 | 42.377  | 13.335  | 1.232  | -1.792 | 72.189   | 39.371  | 36.348  | 54.191   | 51.016   |
| 755 | 1.5  | 53.330  | 17.031  | 1.232  | -1.792 | 91.245   | 49.229  | 46.205  | 68.019   | 64.844   |
| 755 | 2.25 | 64.282  | 20.727  | 1.232  | -1.792 | 110.302  | 59.086  | 56.062  | 81.848   | 78.673   |
| 755 | 3    | 71.027  | 22.106  | 1.232  | -1.792 | 120.603  | 65.156  | 62.133  | 89.799   | 86.624   |
| 756 | 0    | -71.539 | -22.180 | -1.388 | 2.210  | -121.334 | -65.773 | -62.175 | -90.546  | -86.768  |
| 756 | 0.75 | -64.794 | -20.800 | -1.388 | 2.210  | -111.034 | -59.702 | -56.104 | -82.595  | -78.817  |
| 756 | 1.5  | -53.842 | -17.105 | -1.388 | 2.210  | -91.977  | -49.845 | -46.247 | -68.767  | -64.989  |
| 756 | 2.25 | -42.889 | -13.409 | -1.388 | 2.210  | -72.921  | -39.988 | -36.390 | -54.938  | -51.160  |
| 756 | 3    | -36.144 | -12.030 | -1.388 | 2.210  | -62.620  | -33.917 | -30.319 | -46.987  | -43.209  |
| 757 | 0    | 34.700  | 11.212  | 1.041  | -1.331 | 59.579   | 32.270  | 29.898  | 44.591   | 42.100   |
| 757 | 0.75 | 41.445  | 12.591  | 1.041  | -1.331 | 69.879   | 38.341  | 35.969  | 52.542   | 50.051   |
| 757 | 1.5  | 52.397  | 16.287  | 1.041  | -1.331 | 88.936   | 48.198  | 45.826  | 66.370   | 63.880   |
| 757 | 2.25 | 63.350  | 19.983  | 1.041  | -1.331 | 107.992  | 58.055  | 55.684  | 80.199   | 77.709   |
| 757 | 3    | 70.095  | 21.362  | 1.041  | -1.331 | 118.293  | 64.126  | 61.754  | 88.150   | 85.660   |
| 758 | 0    | -67.486 | -12.042 | -1.700 | 2.053  | -100.250 | -62.437 | -58.684 | -80.232  | -76.291  |
| 758 | 0.75 | -55.373 | -11.352 | -1.700 | 2.053  | -84.612  | -51.536 | -47.783 | -67.079  | -63.139  |
| 758 | 1.5  | -40.756 | -9.284  | -1.700 | 2.053  | -63.762  | -38.381 | -34.628 | -50.428  | -46.488  |
| 758 | 2.25 | -26.140 | -7.215  | -1.700 | 2.053  | -42.912  | -25.226 | -21.473 | -33.777  | -29.837  |
| 758 | 3    | -14.027 | -6.526  | -1.700 | 2.053  | -27.274  | -14.324 | -10.572 | -20.625  | -16.684  |
| 759 | 0    | 10.738  | 4.792   | 0.175  | -0.205 | 20.552   | 9.839   | 9.459   | 14.477   | 14.078   |
| 759 | 0.75 | 22.850  | 5.481   | 0.175  | -0.205 | 36.190   | 20.740  | 20.260  | 27.629   | 27.231   |
| 759 | 1.5  | 37.467  | 7.550   | 0.175  | -0.205 | 57.040   | 33.895  | 33.516  | 44.280   | 43.882   |
| 759 | 2.25 | 52.084  | 9.618   | 0.175  | -0.205 | 77.890   | 47.050  | 46.671  | 60.931   | 60.533   |
| 759 | 3    | 64.196  | 10.308  | 0.175  | -0.205 | 93.528   | 57.951  | 57.572  | 74.084   | 73.685   |
| 760 | 0    | 43.694  | 6.305   | 0.863  | -0.895 | 62.521   | 40.187  | 38.429  | 50.757   | 48.911   |
| 760 | 0.45 | 50.661  | 6.554   | 0.863  | -0.895 | 71.279   | 46.458  | 44.700  | 58.229   | 56.383   |
| 760 | 0.9  | 58.529  | 7.298   | 0.863  | -0.895 | 81.913   | 53.539  | 51.781  | 66.960   | 65.114   |
| 760 | 1.35 | 66.398  | 8.043   | 0.863  | -0.895 | 92.546   | 60.621  | 58.863  | 75.691   | 73.845   |
| 760 | 1.8  | 73.365  | 8.291   | 0.863  | -0.895 | 101.304  | 66.891  | 65.133  | 83.163   | 81.317   |
| 761 | 0    | -87.518 | -28.300 | 1.158  | -3.189 | -150.303 | -77.609 | -81.956 | -108.508 | -113.073 |
| 761 | 0.75 | -80.773 | -26.921 | 1.158  | -3.189 | -140.002 | -71.538 | -75.885 | -100.557 | -105.121 |
| 761 | 1.5  | -69.019 | -22.784 | 1.158  | -3.189 | -119.278 | -60.959 | -65.307 | -85.608  | -90.173  |
| 761 | 2.25 | -57.265 | -18.647 | 1.158  | -3.189 | -98.554  | -50.381 | -54.728 | -70.660  | -75.225  |
| 761 | 3    | -50.520 | -17.268 | 1.158  | -3.189 | -88.253  | -44.310 | -48.658 | -62.709  | -67.274  |
| 762 | 0    | -2.292  | 4.065   | -0.104 | -1.665 | 3.754    | -2.166  | -3.727  | 0.046    | -1.593   |
| 762 | 0.75 | 4.453   | 5.444   | -0.104 | -1.665 | 14.055   | 3.904   | 2.343   | 7.997    | 6.358    |
| 762 | 1.5  | 16.207  | 9.581   | -0.104 | -1.665 | 34.779   | 14.483  | 12.922  | 22.945   | 21.306   |
| 762 | 2.25 | 27.961  | 13.719  | -0.104 | -1.665 | 55.503   | 25.062  | 23.500  | 37.893   | 36.254   |
| 762 | 3    | 34.707  | 15.098  | -0.104 | -1.665 | 65.804   | 31.132  | 29.571  | 45.845   | 44.205   |
| 763 | 0    | -30.918 | -15.457 | 0.237  | -0.050 | -61.833  | -27.589 | -27.876 | -41.953  | -42.255  |
| 763 | 0.75 | -27.000 | -14.078 | 0.237  | -0.050 | -54.925  | -24.063 | -24.350 | -36.970  | -37.272  |
| 763 | 1.5  | -18.074 | -9.941  | 0.237  | -0.050 | -37.593  | -16.029 | -16.316 | -24.991  | -25.292  |
| 763 | 2.25 | -9.147  | -5.804  | 0.237  | -0.050 | -20.262  | -7.995  | -8.282  | -13.011  | -13.313  |
| 763 | 3    | -5.229  | -4.425  | 0.237  | -0.050 | -13.354  | -4.469  | -4.756  | -8.029   | -8.330   |

|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 764 | 0    | 9.730   | 5.679   | -0.245 | 0.053  | 20.762   | 8.512   | 8.810   | 13.537  | 13.849  |
| 764 | 0.75 | 13.648  | 7.058   | -0.245 | 0.053  | 27.670   | 12.038  | 12.336  | 18.520  | 18.832  |
| 764 | 1.5  | 22.574  | 11.195  | -0.245 | 0.053  | 45.002   | 20.072  | 20.370  | 30.499  | 30.811  |
| 764 | 2.25 | 31.501  | 15.332  | -0.245 | 0.053  | 62.333   | 28.106  | 28.404  | 42.479  | 42.791  |
| 764 | 3    | 35.419  | 16.711  | -0.245 | 0.053  | 69.241   | 31.633  | 31.930  | 47.461  | 47.774  |
| 765 | 0    | -35.209 | -16.742 | 0.320  | -0.186 | -69.039  | -31.368 | -31.875 | -47.181 | -47.713 |
| 765 | 0.75 | -31.291 | -15.363 | 0.320  | -0.186 | -62.131  | -27.842 | -28.348 | -42.199 | -42.730 |
| 765 | 1.5  | -22.365 | -11.226 | 0.320  | -0.186 | -44.799  | -19.808 | -20.314 | -30.219 | -30.751 |
| 765 | 2.25 | -13.438 | -7.089  | 0.320  | -0.186 | -27.468  | -11.774 | -12.280 | -18.240 | -18.771 |
| 765 | 3    | -9.520  | -5.710  | 0.320  | -0.186 | -20.560  | -8.248  | -8.754  | -13.257 | -13.789 |
| 766 | 0    | 7.298   | 4.758   | -0.245 | 0.029  | 16.371   | 6.324   | 6.597   | 10.404  | 10.691  |
| 766 | 0.75 | 11.216  | 6.137   | -0.245 | 0.029  | 23.279   | 9.850   | 10.124  | 15.387  | 15.674  |
| 766 | 1.5  | 20.143  | 10.275  | -0.245 | 0.029  | 40.611   | 17.884  | 18.158  | 27.366  | 27.653  |
| 766 | 2.25 | 29.070  | 14.412  | -0.245 | 0.029  | 57.942   | 25.918  | 26.192  | 39.345  | 39.633  |
| 766 | 3    | 32.988  | 15.791  | -0.245 | 0.029  | 64.850   | 29.444  | 29.718  | 44.328  | 44.616  |
| 767 | 0    | -27.113 | -12.515 | 0.270  | -0.083 | -52.559  | -24.132 | -24.485 | -36.070 | -36.440 |
| 767 | 0.56 | -24.644 | -11.739 | 0.270  | -0.083 | -48.355  | -21.910 | -22.263 | -32.989 | -33.359 |
| 767 | 1.13 | -19.358 | -9.412  | 0.270  | -0.083 | -38.288  | -17.152 | -17.505 | -25.972 | -26.342 |
| 767 | 1.69 | -14.072 | -7.084  | 0.270  | -0.083 | -28.221  | -12.395 | -12.747 | -18.955 | -19.326 |
| 767 | 2.25 | -11.603 | -6.309  | 0.270  | -0.083 | -24.017  | -10.173 | -10.525 | -15.874 | -16.245 |
| 768 | 0    | 9.273   | 5.818   | -0.210 | -0.039 | 20.436   | 8.136   | 8.307   | 13.182  | 13.361  |
| 768 | 0.56 | 11.742  | 6.593   | -0.210 | -0.039 | 24.640   | 10.358  | 10.529  | 16.263  | 16.443  |
| 768 | 1.13 | 17.029  | 8.921   | -0.210 | -0.039 | 34.707   | 15.116  | 15.287  | 23.280  | 23.459  |
| 768 | 1.69 | 22.315  | 11.248  | -0.210 | -0.039 | 44.774   | 19.874  | 20.045  | 30.297  | 30.476  |
| 768 | 2.25 | 24.784  | 12.024  | -0.210 | -0.039 | 48.978   | 22.096  | 22.267  | 33.378  | 33.557  |
| 772 | 0    | -24.783 | -12.023 | 0.210  | 0.039  | -48.978  | -22.096 | -22.266 | -33.377 | -33.557 |
| 772 | 0.56 | -22.315 | -11.248 | 0.210  | 0.039  | -44.774  | -19.874 | -20.044 | -30.296 | -30.476 |
| 772 | 1.13 | -17.028 | -8.920  | 0.210  | 0.039  | -34.707  | -15.116 | -15.287 | -23.280 | -23.459 |
| 772 | 1.69 | -11.742 | -6.593  | 0.210  | 0.039  | -24.640  | -10.358 | -10.529 | -16.263 | -16.442 |
| 772 | 2.25 | -9.273  | -5.818  | 0.210  | 0.039  | -20.436  | -8.136  | -8.307  | -13.182 | -13.361 |
| 773 | 0    | 11.603  | 6.309   | -0.270 | 0.083  | 24.018   | 10.173  | 10.526  | 15.874  | 16.245  |
| 773 | 0.56 | 14.072  | 7.085   | -0.270 | 0.083  | 28.221   | 12.395  | 12.748  | 18.956  | 19.326  |
| 773 | 1.13 | 19.358  | 9.412   | -0.270 | 0.083  | 38.289   | 17.153  | 17.505  | 25.972  | 26.343  |
| 773 | 1.69 | 24.644  | 11.739  | -0.270 | 0.083  | 48.356   | 21.910  | 22.263  | 32.989  | 33.359  |
| 773 | 2.25 | 27.113  | 12.515  | -0.270 | 0.083  | 52.559   | 24.132  | 24.485  | 36.070  | 36.440  |
| 774 | 0    | -32.988 | -15.791 | 0.245  | -0.029 | -64.850  | -29.444 | -29.718 | -44.328 | -44.616 |
| 774 | 0.75 | -29.070 | -14.412 | 0.245  | -0.029 | -57.942  | -25.918 | -26.192 | -39.345 | -39.633 |
| 774 | 1.5  | -20.143 | -10.275 | 0.245  | -0.029 | -40.611  | -17.884 | -18.158 | -27.366 | -27.653 |
| 774 | 2.25 | -11.216 | -6.137  | 0.245  | -0.029 | -23.279  | -9.850  | -10.124 | -15.386 | -15.674 |
| 774 | 3    | -7.298  | -4.758  | 0.245  | -0.029 | -16.371  | -6.324  | -6.597  | -10.404 | -10.691 |
| 775 | 0    | 9.520   | 5.710   | -0.320 | 0.186  | 20.560   | 8.248   | 8.754   | 13.257  | 13.789  |
| 775 | 0.75 | 13.438  | 7.089   | -0.320 | 0.186  | 27.468   | 11.774  | 12.280  | 18.240  | 18.771  |
| 775 | 1.5  | 22.365  | 11.226  | -0.320 | 0.186  | 44.799   | 19.808  | 20.314  | 30.219  | 30.751  |
| 775 | 2.25 | 31.291  | 15.363  | -0.320 | 0.186  | 62.131   | 27.842  | 28.348  | 42.199  | 42.730  |
| 775 | 3    | 35.209  | 16.742  | -0.320 | 0.186  | 69.039   | 31.368  | 31.875  | 47.181  | 47.713  |
| 776 | 0    | -35.419 | -16.711 | 0.245  | -0.053 | -69.241  | -31.633 | -31.930 | -47.461 | -47.774 |
| 776 | 0.75 | -31.501 | -15.332 | 0.245  | -0.053 | -62.333  | -28.106 | -28.404 | -42.479 | -42.791 |
| 776 | 1.5  | -22.574 | -11.195 | 0.245  | -0.053 | -45.002  | -20.072 | -20.370 | -30.499 | -30.811 |
| 776 | 2.25 | -13.648 | -7.058  | 0.245  | -0.053 | -27.670  | -12.038 | -12.336 | -18.520 | -18.832 |
| 776 | 3    | -9.730  | -5.679  | 0.245  | -0.053 | -20.762  | -8.512  | -8.810  | -13.537 | -13.849 |
| 777 | 0    | 5.229   | 4.425   | -0.237 | 0.050  | 13.354   | 4.469   | 4.756   | 8.029   | 8.330   |
| 777 | 0.75 | 9.147   | 5.804   | -0.237 | 0.050  | 20.262   | 7.995   | 8.282   | 13.011  | 13.313  |
| 777 | 1.5  | 18.074  | 9.941   | -0.237 | 0.050  | 37.593   | 16.029  | 16.316  | 24.991  | 25.292  |
| 777 | 2.25 | 27.000  | 14.078  | -0.237 | 0.050  | 54.925   | 24.063  | 24.350  | 36.970  | 37.272  |
| 777 | 3    | 30.918  | 15.457  | -0.237 | 0.050  | 61.833   | 27.589  | 27.876  | 41.953  | 42.255  |
| 778 | 0    | -34.707 | -15.098 | 0.104  | 1.665  | -65.804  | -31.132 | -29.571 | -45.845 | -44.205 |
| 778 | 0.75 | -27.961 | -13.719 | 0.104  | 1.665  | -55.503  | -25.062 | -23.500 | -37.893 | -36.254 |
| 778 | 1.5  | -16.207 | -9.581  | 0.104  | 1.665  | -34.779  | -14.483 | -12.922 | -22.945 | -21.306 |
| 778 | 2.25 | -4.453  | -5.444  | 0.104  | 1.665  | -14.055  | -3.904  | -2.343  | -7.997  | -6.358  |
| 778 | 3    | 2.292   | -4.065  | 0.104  | 1.665  | -3.754   | 2.166   | 3.727   | -0.046  | 1.593   |
| 779 | 0    | 50.520  | 17.268  | -1.158 | 3.189  | 88.253   | 44.310  | 48.658  | 62.709  | 67.274  |
| 779 | 0.75 | 57.265  | 18.647  | -1.158 | 3.189  | 98.554   | 50.381  | 54.728  | 70.660  | 75.225  |
| 779 | 1.5  | 69.019  | 22.784  | -1.158 | 3.189  | 119.278  | 60.959  | 65.307  | 85.608  | 90.173  |
| 779 | 2.25 | 80.773  | 26.921  | -1.158 | 3.189  | 140.002  | 71.538  | 75.885  | 100.557 | 105.121 |
| 779 | 3    | 87.518  | 28.300  | -1.158 | 3.189  | 150.303  | 77.609  | 81.956  | 108.508 | 113.073 |
| 780 | 0    | -73.365 | -8.291  | -0.863 | 0.895  | -101.304 | -66.891 | -65.133 | -83.163 | -81.317 |
| 780 | 0.45 | -66.398 | -8.043  | -0.863 | 0.895  | -92.546  | -60.621 | -58.863 | -75.691 | -73.845 |

|     |      |          |         |        |        |          |         |         |          |          |
|-----|------|----------|---------|--------|--------|----------|---------|---------|----------|----------|
| 780 | 0.9  | -58.529  | -7.298  | -0.863 | 0.895  | -81.913  | -53.539 | -51.781 | -66.960  | -65.114  |
| 780 | 1.35 | -50.661  | -6.554  | -0.863 | 0.895  | -71.279  | -46.458 | -44.700 | -58.229  | -56.383  |
| 780 | 1.8  | -43.694  | -6.305  | -0.863 | 0.895  | -62.521  | -40.187 | -38.429 | -50.757  | -48.911  |
| 781 | 0    | 37.804   | 3.272   | 0.028  | 0.032  | 50.600   | 34.052  | 34.056  | 41.785   | 41.789   |
| 781 | 0.45 | 45.222   | 3.768   | 0.028  | 0.032  | 60.296   | 40.728  | 40.732  | 49.887   | 49.890   |
| 781 | 0.9  | 54.443   | 5.258   | 0.028  | 0.032  | 73.744   | 49.027  | 49.031  | 60.507   | 60.511   |
| 781 | 1.35 | 63.664   | 6.747   | 0.028  | 0.032  | 87.192   | 57.326  | 57.429  | 71.128   | 71.131   |
| 781 | 1.8  | 71.082   | 7.243   | 0.028  | 0.032  | 96.888   | 64.002  | 64.006  | 79.229   | 79.233   |
| 782 | 0    | -66.393  | -14.315 | -0.002 | -0.009 | -102.576 | -59.756 | -59.762 | -78.734  | -78.740  |
| 782 | 0.75 | -53.028  | -12.936 | -0.002 | -0.009 | -84.332  | -47.728 | -47.734 | -63.832  | -63.838  |
| 782 | 1.5  | -34.655  | -8.799  | -0.002 | -0.009 | -55.664  | -31.192 | -31.198 | -41.933  | -41.940  |
| 782 | 2.25 | -16.281  | -4.662  | -0.002 | -0.009 | -26.997  | -14.655 | -14.662 | -20.035  | -20.041  |
| 782 | 3    | -2.917   | -3.283  | -0.002 | -0.009 | -8.752   | -2.627  | -2.633  | -5.133   | -5.140   |
| 783 | 0    | 45.267   | 19.670  | 0.119  | 0.110  | 85.792   | 40.860  | 40.850  | 60.047   | 60.038   |
| 783 | 0.75 | 58.632   | 21.049  | 0.119  | 0.110  | 104.036  | 52.888  | 52.878  | 74.949   | 74.939   |
| 783 | 1.5  | 77.005   | 25.186  | 0.119  | 0.110  | 132.704  | 69.424  | 69.415  | 96.848   | 96.838   |
| 783 | 2.25 | 95.379   | 29.323  | 0.119  | 0.110  | 161.371  | 85.960  | 85.951  | 118.746  | 118.736  |
| 783 | 3    | 108.743  | 30.702  | 0.119  | 0.110  | 179.615  | 97.988  | 97.979  | 133.648  | 133.638  |
| 784 | 0    | -107.410 | -29.157 | -0.342 | -0.351 | -175.543 | -97.011 | -97.020 | -131.509 | -131.518 |
| 784 | 0.75 | -94.046  | -27.778 | -0.342 | -0.351 | -157.299 | -84.983 | -84.992 | -116.607 | -116.616 |
| 784 | 1.5  | -75.672  | -23.641 | -0.342 | -0.351 | -128.632 | -68.447 | -68.456 | -94.709  | -94.718  |
| 784 | 2.25 | -57.299  | -19.503 | -0.342 | -0.351 | -99.964  | -51.911 | -51.920 | -72.810  | -72.819  |
| 784 | 3    | -43.934  | -18.124 | -0.342 | -0.351 | -81.720  | -39.883 | -39.892 | -57.908  | -57.918  |
| 785 | 0    | 39.427   | 17.133  | 0.539  | 0.536  | 74.725   | 36.023  | 36.021  | 52.758   | 52.756   |
| 785 | 0.75 | 52.792   | 18.512  | 0.539  | 0.536  | 92.969   | 48.052  | 48.049  | 67.660   | 67.657   |
| 785 | 1.5  | 71.165   | 22.649  | 0.539  | 0.536  | 121.637  | 64.588  | 64.585  | 89.558   | 89.556   |
| 785 | 2.25 | 89.539   | 26.786  | 0.539  | 0.536  | 150.305  | 81.124  | 81.121  | 111.457  | 111.454  |
| 785 | 3    | 102.904  | 28.165  | 0.539  | 0.536  | 168.549  | 93.152  | 93.150  | 126.359  | 126.356  |
| 786 | 0    | -106.564 | -29.293 | -0.516 | -0.525 | -174.745 | -96.424 | -96.433 | -130.889 | -130.899 |
| 786 | 0.75 | -93.200  | -27.914 | -0.516 | -0.525 | -156.501 | -84.396 | -84.405 | -115.987 | -115.997 |
| 786 | 1.5  | -74.826  | -23.776 | -0.516 | -0.525 | -127.834 | -67.859 | -67.869 | -94.088  | -94.098  |
| 786 | 2.25 | -56.453  | -19.639 | -0.516 | -0.525 | -99.166  | -51.323 | -51.333 | -72.190  | -72.200  |
| 786 | 3    | -43.088  | -18.260 | -0.516 | -0.525 | -80.922  | -39.295 | -39.305 | -57.288  | -57.298  |
| 787 | 0    | 37.830   | 16.464  | 0.511  | 0.515  | 71.739   | 34.558  | 34.562  | 50.630   | 50.635   |
| 787 | 0.75 | 51.195   | 17.843  | 0.511  | 0.515  | 89.983   | 46.586  | 46.590  | 65.532   | 65.536   |
| 787 | 1.5  | 69.568   | 21.981  | 0.511  | 0.515  | 118.651  | 63.122  | 63.126  | 87.431   | 87.435   |
| 787 | 2.25 | 87.941   | 26.118  | 0.511  | 0.515  | 147.318  | 79.658  | 79.662  | 109.329  | 109.333  |
| 787 | 3    | 101.306  | 27.497  | 0.511  | 0.515  | 165.562  | 91.686  | 91.690  | 124.231  | 124.235  |
| 788 | 0    | -77.384  | -19.654 | -0.492 | -0.637 | -124.307 | -70.137 | -70.283 | -94.151  | -94.304  |
| 788 | 0.56 | -67.830  | -18.878 | -0.492 | -0.637 | -111.601 | -61.539 | -61.684 | -83.631  | -83.784  |
| 788 | 1.13 | -55.459  | -16.551 | -0.492 | -0.637 | -93.032  | -50.405 | -50.550 | -69.175  | -69.328  |
| 788 | 1.69 | -43.087  | -14.224 | -0.492 | -0.637 | -74.463  | -39.270 | -39.416 | -54.719  | -54.872  |
| 788 | 2.25 | -33.533  | -13.448 | -0.492 | -0.637 | -61.757  | -30.672 | -30.817 | -44.199  | -44.352  |
| 789 | 0    | 32.605   | 12.837  | 0.617  | 0.513  | 59.665   | 29.962  | 29.858  | 42.971   | 42.861   |
| 789 | 0.56 | 42.159   | 13.612  | 0.617  | 0.513  | 72.371   | 38.561  | 38.456  | 53.491   | 53.382   |
| 789 | 1.13 | 54.531   | 15.940  | 0.617  | 0.513  | 90.940   | 49.695  | 49.591  | 67.947   | 67.838   |
| 789 | 1.69 | 66.902   | 18.267  | 0.617  | 0.513  | 109.509  | 60.829  | 60.725  | 82.403   | 82.294   |
| 789 | 2.25 | 76.456   | 19.042  | 0.617  | 0.513  | 122.215  | 69.427  | 69.323  | 92.923   | 92.814   |
| 790 | 0    | -96.955  | -24.716 | -1.044 | 0.049  | -155.891 | -88.303 | -87.211 | -118.470 | -117.322 |
| 790 | 0.75 | -83.590  | -23.337 | -1.044 | 0.049  | -137.647 | -76.275 | -75.182 | -103.568 | -102.421 |
| 790 | 1.5  | -65.217  | -19.200 | -1.044 | 0.049  | -108.979 | -59.739 | -58.646 | -81.669  | -80.522  |
| 790 | 2.25 | -46.843  | -15.063 | -1.044 | 0.049  | -80.312  | -43.203 | -42.110 | -59.771  | -58.624  |
| 790 | 3    | -33.479  | -13.683 | -1.044 | 0.049  | -62.068  | -31.175 | -30.082 | -44.869  | -43.722  |
| 791 | 0    | 33.480   | 13.684  | 1.044  | -0.049 | 62.071   | 31.176  | 30.084  | 44.871   | 43.724   |
| 791 | 0.75 | 46.845   | 15.063  | 1.044  | -0.049 | 80.315   | 43.204  | 42.112  | 59.773   | 58.626   |
| 791 | 1.5  | 65.218   | 19.201  | 1.044  | -0.049 | 108.983  | 59.740  | 58.648  | 81.672   | 80.525   |
| 791 | 2.25 | 83.592   | 23.338  | 1.044  | -0.049 | 137.651  | 76.276  | 75.184  | 103.570  | 102.423  |
| 791 | 3    | 96.956   | 24.717  | 1.044  | -0.049 | 155.895  | 88.305  | 87.212  | 118.472  | 117.325  |
| 792 | 0    | -76.457  | -19.043 | -0.617 | -0.513 | -122.218 | -69.429 | -69.324 | -92.925  | -92.816  |
| 792 | 0.56 | -66.903  | -18.267 | -0.617 | -0.513 | -109.512 | -60.830 | -60.726 | -82.405  | -82.296  |
| 792 | 1.13 | -54.532  | -15.940 | -0.617 | -0.513 | -90.943  | -49.696 | -49.592 | -67.949  | -67.840  |
| 792 | 1.69 | -42.161  | -13.613 | -0.617 | -0.513 | -72.374  | -38.562 | -38.458 | -53.493  | -53.384  |
| 792 | 2.25 | -32.607  | -12.837 | -0.617 | -0.513 | -59.668  | -29.963 | -29.859 | -42.973  | -42.863  |
| 793 | 0    | 33.532   | 13.448  | 0.492  | 0.637  | 61.755   | 30.671  | 30.816  | 44.197   | 44.350   |
| 793 | 0.56 | 43.086   | 14.223  | 0.492  | 0.637  | 74.461   | 39.269  | 39.415  | 54.717   | 54.870   |
| 793 | 1.13 | 55.458   | 16.551  | 0.492  | 0.637  | 93.030   | 50.403  | 50.549  | 69.173   | 69.326   |
| 793 | 1.69 | 67.829   | 18.878  | 0.492  | 0.637  | 111.599  | 61.538  | 61.683  | 83.630   | 83.782   |

|     |      |          |         |        |        |          |         |         |          |          |
|-----|------|----------|---------|--------|--------|----------|---------|---------|----------|----------|
| 793 | 2.25 | 77.383   | 19.653  | 0.492  | 0.637  | 124.305  | 70.136  | 70.282  | 94.150   | 94.303   |
| 794 | 0    | -101.306 | -27.497 | -0.511 | -0.515 | -165.562 | -91.686 | -91.690 | -124.231 | -124.235 |
| 794 | 0.75 | -87.941  | -26.118 | -0.511 | -0.515 | -147.318 | -79.658 | -79.662 | -109.329 | -109.333 |
| 794 | 1.5  | -69.568  | -21.981 | -0.511 | -0.515 | -118.651 | -63.122 | -63.126 | -87.431  | -87.435  |
| 794 | 2.25 | -51.195  | -17.843 | -0.511 | -0.515 | -89.983  | -46.586 | -46.590 | -65.532  | -65.536  |
| 794 | 3    | -37.830  | -16.464 | -0.511 | -0.515 | -71.739  | -34.558 | -34.562 | -50.631  | -50.635  |
| 795 | 0    | 43.088   | 18.260  | 0.516  | 0.525  | 80.922   | 39.295  | 39.305  | 57.288   | 57.298   |
| 795 | 0.75 | 56.453   | 19.639  | 0.516  | 0.525  | 99.166   | 51.323  | 51.333  | 72.190   | 72.200   |
| 795 | 1.5  | 74.826   | 23.776  | 0.516  | 0.525  | 127.834  | 67.859  | 67.869  | 94.088   | 94.098   |
| 795 | 2.25 | 93.200   | 27.914  | 0.516  | 0.525  | 156.501  | 84.396  | 84.405  | 115.987  | 115.997  |
| 795 | 3    | 106.564  | 29.293  | 0.516  | 0.525  | 174.745  | 96.424  | 96.433  | 130.889  | 130.899  |
| 796 | 0    | -102.904 | -28.165 | -0.539 | -0.536 | -168.549 | -93.152 | -93.150 | -126.359 | -126.356 |
| 796 | 0.75 | -89.539  | -26.786 | -0.539 | -0.536 | -150.305 | -81.124 | -81.121 | -111.457 | -111.454 |
| 796 | 1.5  | -71.165  | -22.649 | -0.539 | -0.536 | -121.637 | -64.588 | -64.585 | -89.558  | -89.556  |
| 796 | 2.25 | -52.792  | -18.512 | -0.539 | -0.536 | -92.969  | -48.052 | -48.049 | -67.660  | -67.657  |
| 796 | 3    | -39.427  | -17.133 | -0.539 | -0.536 | -74.725  | -36.023 | -36.021 | -52.758  | -52.756  |
| 797 | 0    | 43.934   | 18.124  | 0.342  | 0.351  | 81.720   | 39.883  | 39.892  | 57.908   | 57.918   |
| 797 | 0.75 | 57.299   | 19.503  | 0.342  | 0.351  | 99.964   | 51.911  | 51.920  | 72.810   | 72.819   |
| 797 | 1.5  | 75.672   | 23.641  | 0.342  | 0.351  | 128.632  | 68.447  | 68.456  | 94.709   | 94.718   |
| 797 | 2.25 | 94.046   | 27.778  | 0.342  | 0.351  | 157.299  | 84.983  | 84.992  | 116.607  | 116.616  |
| 797 | 3    | 107.410  | 29.157  | 0.342  | 0.351  | 175.543  | 97.011  | 97.020  | 131.509  | 131.518  |
| 798 | 0    | -108.743 | -30.702 | -0.119 | -0.110 | -179.615 | -97.988 | -97.979 | -133.648 | -133.638 |
| 798 | 0.75 | -95.379  | -29.323 | -0.119 | -0.110 | -161.371 | -85.960 | -85.951 | -118.746 | -118.736 |
| 798 | 1.5  | -77.005  | -25.186 | -0.119 | -0.110 | -132.704 | -69.424 | -69.415 | -96.848  | -96.838  |
| 798 | 2.25 | -58.632  | -21.049 | -0.119 | -0.110 | -104.036 | -52.888 | -52.878 | -74.949  | -74.939  |
| 798 | 3    | -45.267  | -19.670 | -0.119 | -0.110 | -85.792  | -40.860 | -40.850 | -60.047  | -60.038  |
| 799 | 0    | 2.917    | 3.283   | 0.002  | 0.009  | 8.752    | 2.627   | 2.633   | 5.133    | 5.140    |
| 799 | 0.75 | 16.281   | 4.662   | 0.002  | 0.009  | 26.997   | 14.655  | 14.662  | 20.035   | 20.041   |
| 799 | 1.5  | 34.655   | 8.799   | 0.002  | 0.009  | 55.664   | 31.192  | 31.198  | 41.933   | 41.940   |
| 799 | 2.25 | 53.028   | 12.936  | 0.002  | 0.009  | 84.332   | 47.728  | 47.734  | 63.832   | 63.838   |
| 799 | 3    | 66.393   | 14.315  | 0.002  | 0.009  | 102.576  | 59.756  | 59.762  | 78.733   | 78.740   |
| 800 | 0    | -71.082  | -7.243  | -0.028 | -0.032 | -96.888  | -64.002 | -64.006 | -79.229  | -79.233  |
| 800 | 0.45 | -63.664  | -6.747  | -0.028 | -0.032 | -87.192  | -57.326 | -57.329 | -71.128  | -71.131  |
| 800 | 0.9  | -54.443  | -5.258  | -0.028 | -0.032 | -73.744  | -49.027 | -49.031 | -60.507  | -60.511  |
| 800 | 1.35 | -45.222  | -3.768  | -0.028 | -0.032 | -60.296  | -40.728 | -40.732 | -49.887  | -49.890  |
| 800 | 1.8  | -37.804  | -3.272  | -0.028 | -0.032 | -50.600  | -34.052 | -34.056 | -41.785  | -41.789  |
| 801 | 0    | 43.749   | 6.310   | -0.891 | 0.864  | 62.594   | 38.483  | 40.278  | 48.976   | 50.819   |
| 801 | 0.45 | 50.716   | 6.558   | -0.891 | 0.864  | 71.352   | 44.754  | 46.508  | 56.448   | 58.290   |
| 801 | 0.9  | 58.585   | 7.303   | -0.891 | 0.864  | 81.986   | 51.835  | 53.590  | 65.179   | 67.021   |
| 801 | 1.35 | 66.453   | 8.047   | -0.891 | 0.864  | 92.619   | 58.917  | 60.672  | 73.910   | 75.752   |
| 801 | 1.8  | 73.420   | 8.296   | -0.891 | 0.864  | 101.377  | 65.187  | 66.942  | 81.382   | 83.224   |
| 802 | 0    | -87.076  | -28.260 | -3.152 | 1.147  | -149.707 | -81.520 | -77.221 | -112.543 | -108.029 |
| 802 | 0.75 | -80.330  | -26.881 | -3.152 | 1.147  | -139.407 | -75.450 | -71.150 | -104.592 | -100.078 |
| 802 | 1.5  | -68.577  | -22.744 | -3.152 | 1.147  | -118.682 | -64.871 | -60.572 | -89.644  | -85.130  |
| 802 | 2.25 | -56.823  | -18.607 | -3.152 | 1.147  | -97.958  | -54.293 | -49.993 | -74.696  | -70.182  |
| 802 | 3    | -50.077  | -17.228 | -3.152 | 1.147  | -87.657  | -48.222 | -43.923 | -66.745  | -62.231  |
| 803 | 0    | -1.986   | 4.092   | -1.635 | -0.115 | 4.165    | -3.422  | -1.903  | -1.223   | 0.372    |
| 803 | 0.75 | 4.759    | 5.471   | -1.635 | -0.115 | 14.465   | 2.649   | 4.168   | 6.728    | 8.323    |
| 803 | 1.5  | 16.513   | 9.609   | -1.635 | -0.115 | 35.190   | 13.227  | 14.746  | 21.676   | 23.271   |
| 803 | 2.25 | 28.267   | 13.746  | -1.635 | -0.115 | 55.914   | 23.806  | 25.325  | 36.624   | 38.219   |
| 803 | 3    | 35.012   | 15.125  | -1.635 | -0.115 | 66.214   | 29.876  | 31.396  | 44.575   | 46.170   |
| 804 | 0    | -30.848  | -15.449 | -0.048 | 0.235  | -61.736  | -27.811 | -27.528 | -42.173  | -41.876  |
| 804 | 0.75 | -26.930  | -14.070 | -0.048 | 0.235  | -54.828  | -24.285 | -24.002 | -37.191  | -36.893  |
| 804 | 1.5  | -18.004  | -9.932  | -0.048 | 0.235  | -37.496  | -16.251 | -15.968 | -25.211  | -24.914  |
| 804 | 2.25 | -9.077   | -5.795  | -0.048 | 0.235  | -20.165  | -8.217  | -7.934  | -13.232  | -12.934  |
| 804 | 3    | -5.159   | -4.416  | -0.048 | 0.235  | -13.257  | -4.691  | -4.408  | -8.249   | -7.952   |
| 805 | 0    | 9.728    | 5.676   | 0.057  | -0.248 | 20.755   | 8.812   | 8.507   | 13.850   | 13.529   |
| 805 | 0.75 | 13.646   | 7.055   | 0.057  | -0.248 | 27.663   | 12.338  | 12.033  | 18.833   | 18.512   |
| 805 | 1.5  | 22.573   | 11.192  | 0.057  | -0.248 | 44.994   | 20.372  | 20.067  | 30.812   | 30.492   |
| 805 | 2.25 | 31.499   | 15.329  | 0.057  | -0.248 | 62.326   | 28.406  | 28.101  | 42.791   | 42.471   |
| 805 | 3    | 35.417   | 16.708  | 0.057  | -0.248 | 69.234   | 31.933  | 31.627  | 47.774   | 47.454   |
| 806 | 0    | -34.892  | -16.658 | -0.181 | 0.317  | -68.523  | -31.584 | -31.085 | -47.321  | -46.798  |
| 806 | 0.75 | -30.974  | -15.279 | -0.181 | 0.317  | -61.615  | -28.057 | -27.559 | -42.338  | -41.815  |
| 806 | 1.5  | -22.047  | -11.142 | -0.181 | 0.317  | -44.284  | -20.023 | -19.525 | -30.359  | -29.836  |
| 806 | 2.25 | -13.121  | -7.005  | -0.181 | 0.317  | -26.952  | -11.989 | -11.491 | -18.379  | -17.856  |
| 806 | 3    | -9.203   | -5.626  | -0.181 | 0.317  | -20.044  | -8.463  | -7.965  | -13.397  | -12.874  |
| 807 | 0    | 7.590    | 4.893   | 0.047  | -0.256 | 16.936   | 6.878   | 6.575   | 11.101   | 10.783   |



|     |      |         |         |        |        |         |         |         |         |         |
|-----|------|---------|---------|--------|--------|---------|---------|---------|---------|---------|
| 807 | 0.75 | 11.508  | 6.272   | 0.047  | -0.256 | 23.844  | 10.404  | 10.101  | 16.084  | 15.766  |
| 807 | 1.5  | 20.435  | 10.409  | 0.047  | -0.256 | 41.176  | 18.438  | 18.135  | 28.063  | 27.745  |
| 807 | 2.25 | 29.361  | 14.546  | 0.047  | -0.256 | 58.507  | 26.472  | 26.169  | 40.043  | 39.725  |
| 807 | 3    | 33.279  | 15.925  | 0.047  | -0.256 | 65.416  | 29.998  | 29.695  | 45.025  | 44.707  |
| 808 | 0    | -24.491 | -11.930 | -0.195 | 0.331  | -48.477 | -22.237 | -21.711 | -33.436 | -32.884 |
| 808 | 0.56 | -22.022 | -11.155 | -0.195 | 0.331  | -44.274 | -20.015 | -19.489 | -30.355 | -29.803 |
| 808 | 1.13 | -16.736 | -8.827  | -0.195 | 0.331  | -34.206 | -15.257 | -14.731 | -23.339 | -22.786 |
| 808 | 1.69 | -11.449 | -6.500  | -0.195 | 0.331  | -24.139 | -10.499 | -9.973  | -16.322 | -15.769 |
| 808 | 2.25 | -8.980  | -5.724  | -0.195 | 0.331  | -19.936 | -8.277  | -7.751  | -13.241 | -12.688 |
| 809 | 0    | 9.667   | 5.694   | 0.092  | -0.295 | 20.711  | 8.792   | 8.406   | 13.834  | 13.428  |
| 809 | 0.56 | 12.136  | 6.470   | 0.092  | -0.295 | 24.914  | 11.014  | 10.628  | 16.915  | 16.509  |
| 809 | 1.13 | 17.422  | 8.797   | 0.092  | -0.295 | 34.982  | 15.772  | 15.385  | 23.932  | 23.526  |
| 809 | 1.69 | 22.709  | 11.124  | 0.092  | -0.295 | 45.049  | 20.530  | 20.143  | 30.949  | 30.543  |
| 809 | 2.25 | 25.178  | 11.900  | 0.092  | -0.295 | 49.252  | 22.752  | 22.365  | 34.030  | 33.624  |
| 810 | 0    | -34.193 | -16.407 | -0.078 | 0.254  | -67.282 | -30.851 | -30.519 | -46.320 | -45.972 |
| 810 | 0.75 | -30.275 | -15.028 | -0.078 | 0.254  | -60.374 | -27.325 | -26.993 | -41.338 | -40.989 |
| 810 | 1.5  | -21.348 | -10.890 | -0.078 | 0.254  | -43.042 | -19.291 | -18.959 | -29.358 | -29.010 |
| 810 | 2.25 | -12.421 | -6.753  | -0.078 | 0.254  | -25.711 | -11.257 | -10.925 | -17.379 | -17.030 |
| 810 | 3    | -8.503  | -5.374  | -0.078 | 0.254  | -18.803 | -7.731  | -7.399  | -12.396 | -12.048 |
| 811 | 0    | 8.504   | 5.374   | 0.078  | -0.254 | 18.804  | 7.731   | 7.399   | 12.397  | 12.048  |
| 811 | 0.75 | 12.422  | 6.753   | 0.078  | -0.254 | 25.712  | 11.257  | 10.926  | 17.379  | 17.031  |
| 811 | 1.5  | 21.349  | 10.891  | 0.078  | -0.254 | 43.043  | 19.291  | 18.960  | 29.359  | 29.010  |
| 811 | 2.25 | 30.275  | 15.028  | 0.078  | -0.254 | 60.375  | 27.326  | 26.994  | 41.338  | 40.990  |
| 811 | 3    | 34.193  | 16.407  | 0.078  | -0.254 | 67.283  | 30.852  | 30.520  | 46.321  | 45.972  |
| 812 | 0    | -25.178 | -11.900 | -0.092 | 0.295  | -49.253 | -22.752 | -22.365 | -34.030 | -33.624 |
| 812 | 0.56 | -22.709 | -11.124 | -0.092 | 0.295  | -45.049 | -20.530 | -20.143 | -30.949 | -30.543 |
| 812 | 1.13 | -17.423 | -8.797  | -0.092 | 0.295  | -34.982 | -15.772 | -15.386 | -23.932 | -23.526 |
| 812 | 1.69 | -12.136 | -6.470  | -0.092 | 0.295  | -24.915 | -11.015 | -10.628 | -16.916 | -16.510 |
| 812 | 2.25 | -9.667  | -5.694  | -0.092 | 0.295  | -20.711 | -8.793  | -8.406  | -13.835 | -13.428 |
| 813 | 0    | 8.980   | 5.724   | 0.195  | -0.331 | 19.935  | 8.277   | 7.751   | 13.240  | 12.688  |
| 813 | 0.56 | 11.449  | 6.500   | 0.195  | -0.331 | 24.139  | 10.499  | 9.973   | 16.321  | 15.769  |
| 813 | 1.13 | 16.735  | 8.827   | 0.195  | -0.331 | 34.206  | 15.257  | 14.731  | 23.338  | 22.786  |
| 813 | 1.69 | 22.022  | 11.154  | 0.195  | -0.331 | 44.273  | 20.015  | 19.489  | 30.355  | 29.803  |
| 813 | 2.25 | 24.491  | 11.930  | 0.195  | -0.331 | 48.477  | 22.237  | 21.711  | 33.436  | 32.884  |
| 814 | 0    | -33.279 | -15.925 | -0.047 | 0.256  | -65.416 | -29.998 | -29.695 | -45.025 | -44.707 |
| 814 | 0.75 | -29.361 | -14.546 | -0.047 | 0.256  | -58.507 | -26.472 | -26.169 | -40.043 | -39.725 |
| 814 | 1.5  | -20.435 | -10.409 | -0.047 | 0.256  | -41.176 | -18.438 | -18.135 | -28.063 | -27.745 |
| 814 | 2.25 | -11.508 | -6.272  | -0.047 | 0.256  | -23.844 | -10.404 | -10.101 | -16.084 | -15.766 |
| 814 | 3    | -7.590  | -4.893  | -0.047 | 0.256  | -16.936 | -8.277  | -7.751  | -13.240 | -12.688 |
| 815 | 0    | 9.203   | 5.626   | 0.181  | -0.317 | 20.044  | 8.463   | 7.965   | 13.397  | 12.874  |
| 815 | 0.75 | 13.121  | 7.005   | 0.181  | -0.317 | 26.952  | 11.989  | 11.491  | 18.379  | 17.856  |
| 815 | 1.5  | 22.047  | 11.142  | 0.181  | -0.317 | 44.284  | 20.023  | 19.525  | 30.359  | 29.836  |
| 815 | 2.25 | 30.974  | 15.279  | 0.181  | -0.317 | 61.615  | 28.057  | 27.559  | 42.338  | 41.815  |
| 816 | 0    | -35.417 | -16.708 | -0.057 | 0.248  | -69.234 | -31.933 | -31.627 | -47.774 | -47.454 |
| 816 | 0.75 | -31.499 | -15.329 | -0.057 | 0.248  | -62.326 | -28.406 | -28.101 | -42.791 | -42.471 |
| 816 | 1.5  | -22.573 | -11.192 | -0.057 | 0.248  | -44.994 | -20.372 | -20.067 | -30.812 | -30.492 |
| 816 | 2.25 | -13.646 | -7.055  | -0.057 | 0.248  | -27.663 | -12.338 | -12.033 | -18.833 | -18.512 |
| 816 | 3    | -9.728  | -5.676  | -0.057 | 0.248  | -20.755 | -8.812  | -8.507  | -13.850 | -13.529 |
| 817 | 0    | 5.159   | 4.416   | 0.048  | -0.235 | 13.257  | 4.691   | 4.408   | 8.249   | 7.952   |
| 817 | 0.75 | 9.077   | 5.795   | 0.048  | -0.235 | 20.165  | 8.217   | 7.934   | 13.232  | 12.934  |
| 817 | 1.5  | 18.004  | 9.932   | 0.048  | -0.235 | 37.496  | 16.251  | 15.968  | 25.211  | 24.914  |
| 817 | 2.25 | 26.930  | 14.070  | 0.048  | -0.235 | 54.828  | 24.285  | 24.002  | 37.191  | 36.893  |
| 817 | 3    | 30.848  | 15.449  | 0.048  | -0.235 | 61.736  | 27.811  | 27.528  | 42.173  | 41.876  |
| 818 | 0    | -35.012 | -15.125 | 1.635  | 0.115  | -66.214 | -29.876 | -29.396 | -44.575 | -44.170 |
| 818 | 0.75 | -28.267 | -13.746 | 1.635  | 0.115  | -55.914 | -23.806 | -23.325 | -36.624 | -36.219 |
| 818 | 1.5  | -16.513 | -9.609  | 1.635  | 0.115  | -35.190 | -13.227 | -12.746 | -21.676 | -21.271 |
| 818 | 2.25 | -4.759  | -5.471  | 1.635  | 0.115  | -14.465 | -2.649  | -2.168  | -6.728  | -6.323  |
| 818 | 3    | 1.986   | -4.092  | 1.635  | 0.115  | -4.165  | 3.422   | 1.903   | 1.223   | 0.723   |
| 819 | 0    | 50.077  | 17.228  | 3.152  | -1.147 | 87.657  | 48.222  | 45.923  | 66.745  | 62.231  |
| 819 | 0.75 | 56.823  | 18.607  | 3.152  | -1.147 | 97.958  | 54.293  | 49.993  | 74.696  | 70.182  |
| 819 | 1.5  | 68.577  | 22.744  | 3.152  | -1.147 | 118.682 | 64.871  | 60.572  | 89.644  | 85.130  |
| 819 | 2.25 | 80.330  | 26.881  | 3.152  | -1.147 | 139.406 | 75.450  | 71.150  | 104.592 | 100.078 |
| 819 | 3    | 87.076  | 28.260  | 3.152  | -1.147 | 149.707 | 81.520  | 77.221  | 112.543 | 108.029 |
| 821 | 0    | -64.134 | -10.290 | 0.383  | -0.279 | -93.425 | -57.338 | -57.999 | -73.421 | -74.116 |
| 821 | 0.75 | -52.021 | -9.601  | 0.383  | -0.279 | -77.786 | -46.436 | -47.098 | -60.269 | -60.963 |
| 821 | 1.5  | -37.404 | -7.532  | 0.383  | -0.279 | -56.936 | -33.281 | -33.942 | -43.618 | -44.312 |

|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 837 | 0    | -72.040 | -22.253 | 2.057  | -1.298 | -122.053 | -62.779 | -66.134 | -87.501 | -91.024 |
| 837 | 0.75 | -65.295 | -20.874 | 2.057  | -1.298 | -111.752 | -56.708 | -60.063 | -79.550 | -83.073 |
| 837 | 1.5  | -54.342 | -17.178 | 2.057  | -1.298 | -92.696  | -46.851 | -50.206 | -65.722 | -69.245 |
| 837 | 2.25 | -43.390 | -13.482 | 2.057  | -1.298 | -73.640  | -36.994 | -40.349 | -51.893 | -55.416 |
| 837 | 3    | -36.645 | -12.103 | 2.057  | -1.298 | -63.339  | -30.923 | -34.278 | -43.942 | -47.465 |
| 838 | 0    | 34.716  | 11.207  | -1.474 | 1.127  | 59.590   | 29.770  | 32.371  | 41.964  | 44.696  |
| 838 | 0.75 | 41.461  | 12.586  | -1.474 | 1.127  | 69.891   | 35.841  | 38.442  | 49.916  | 52.647  |
| 838 | 1.5  | 52.414  | 16.282  | -1.474 | 1.127  | 88.948   | 45.698  | 48.299  | 63.744  | 66.475  |
| 838 | 2.25 | 63.366  | 19.978  | -1.474 | 1.127  | 108.004  | 55.555  | 58.157  | 77.573  | 80.304  |
| 838 | 3    | 70.112  | 21.357  | -1.474 | 1.127  | 118.305  | 61.626  | 64.227  | 85.524  | 88.255  |
| 839 | 0    | -67.721 | -12.079 | 1.870  | -1.598 | -100.593 | -59.079 | -62.548 | -76.754 | -80.396 |
| 839 | 0.75 | -55.609 | -11.390 | 1.870  | -1.598 | -84.954  | -48.178 | -51.646 | -63.602 | -67.243 |
| 839 | 1.5  | -40.992 | -9.321  | 1.870  | -1.598 | -64.105  | -35.023 | -38.491 | -46.951 | -50.592 |
| 839 | 2.25 | -26.375 | -7.253  | 1.870  | -1.598 | -43.255  | -21.868 | -25.336 | -30.300 | -33.941 |
| 839 | 3    | -14.263 | -6.563  | 1.870  | -1.598 | -27.616  | -10.967 | -14.435 | -17.147 | -20.789 |
| 840 | 0    | 10.675  | 4.774   | -0.383 | 0.279  | 20.448   | 9.225   | 9.886   | 13.815  | 14.509  |
| 840 | 0.75 | 22.787  | 5.463   | -0.383 | 0.279  | 36.086   | 20.126  | 20.787  | 26.967  | 27.661  |
| 840 | 1.5  | 37.404  | 7.532   | -0.383 | 0.279  | 56.936   | 33.281  | 33.942  | 43.618  | 44.312  |
| 840 | 2.25 | 52.021  | 9.601   | -0.383 | 0.279  | 77.786   | 46.436  | 47.098  | 60.269  | 60.963  |
| 840 | 3    | 64.134  | 10.290  | -0.383 | 0.279  | 93.425   | 57.338  | 57.999  | 73.421  | 74.116  |
| 841 | 0    | -29.573 | -3.052  | -0.310 | 0.311  | -40.372  | -26.926 | -26.305 | -33.300 | -32.648 |
| 841 | 0.75 | -20.288 | -2.363  | -0.310 | 0.311  | -28.126  | -18.569 | -17.948 | -23.116 | -22.464 |
| 841 | 1.5  | -9.300  | -0.736  | -0.310 | 0.311  | -12.336  | -8.679  | -8.058  | -10.553 | -9.901  |
| 841 | 2.25 | 1.689   | 0.892   | -0.310 | 0.311  | 3.453    | 1.210   | 1.831   | 2.010   | 2.662   |
| 841 | 3    | 10.974  | 1.581   | -0.310 | 0.311  | 15.699   | 9.567   | 10.188  | 12.194  | 12.846  |
| 842 | 0    | -9.124  | -1.332  | 1.320  | -0.715 | -13.080  | -6.891  | -8.927  | -9.033  | -11.170 |
| 842 | 0.75 | 0.162   | -0.643  | 1.320  | -0.715 | -0.834   | 1.465   | -0.570  | 1.151   | -0.986  |
| 842 | 1.5  | 11.150  | 0.985   | 1.320  | -0.715 | 14.955   | 11.355  | 9.312   | 13.714  | 11.576  |
| 842 | 2.25 | 22.138  | 2.612   | 1.320  | -0.715 | 30.745   | 21.244  | 19.209  | 26.276  | 24.139  |
| 842 | 3    | 31.423  | 3.302   | 1.320  | -0.715 | 42.990   | 29.601  | 27.566  | 36.460  | 34.323  |
| 843 | 0    | -31.591 | -3.350  | -0.909 | 0.541  | -43.269  | -29.341 | -27.890 | -36.236 | -34.713 |
| 843 | 0.75 | -22.305 | -2.661  | -0.909 | 0.541  | -31.023  | -20.984 | -19.534 | -26.052 | -24.529 |
| 843 | 1.5  | -11.317 | -1.033  | -0.909 | 0.541  | -15.234  | -11.095 | -9.644  | -13.489 | -11.966 |
| 843 | 2.25 | -0.329  | 0.594   | -0.909 | 0.541  | 0.556    | -1.205  | 9.245   | -0.926  | 0.597   |
| 843 | 3    | 8.957   | 1.283   | -0.909 | 0.541  | 12.801   | 7.152   | 8.602   | 9.258   | 10.781  |
| 844 | 0    | -10.273 | -1.555  | 1.140  | -0.684 | -14.815  | -8.106  | -9.929  | -10.569 | -12.484 |
| 844 | 0.75 | -0.987  | -0.865  | 1.140  | -0.684 | -2.569   | 0.251   | -1.573  | -0.385  | -2.300  |
| 844 | 1.5  | 10.001  | 0.762   | 1.140  | -0.684 | 13.221   | 10.141  | 8.317   | 12.178  | 10.263  |
| 844 | 2.25 | 20.989  | 2.390   | 1.140  | -0.684 | 29.010   | 20.030  | 18.206  | 24.741  | 22.826  |
| 844 | 3    | 30.274  | 3.079   | 1.140  | -0.684 | 41.256   | 28.387  | 26.563  | 34.925  | 33.010  |
| 845 | 0    | -24.767 | -2.268  | -1.092 | 0.670  | -33.349  | -23.382 | -21.620 | -28.580 | -26.730 |
| 845 | 0.56 | -18.038 | -1.880  | -1.092 | 0.670  | -24.653  | -17.326 | -15.564 | -21.270 | -19.420 |
| 845 | 1.13 | -10.013 | -0.778  | -1.092 | 0.670  | -13.260  | -10.103 | -8.341  | -12.150 | -10.300 |
| 845 | 1.69 | -1.988  | 0.323   | -1.092 | 0.670  | -1.868   | -2.880  | -1.118  | -3.029  | -1.179  |
| 845 | 2.25 | 4.742   | 0.711   | -1.092 | 0.670  | 6.828    | 3.176   | 4.938   | 4.281   | 6.131   |
| 846 | 0    | -7.539  | -0.919  | 1.282  | -0.775 | -10.516  | -5.503  | -7.560  | -7.148  | -9.308  |
| 846 | 0.56 | -0.810  | -0.531  | 1.282  | -0.775 | -1.821   | 0.553   | -1.504  | 0.162   | -1.998  |
| 846 | 1.13 | 7.216   | 0.571   | 1.282  | -0.775 | 9.572    | 7.776   | 5.719   | 9.282   | 7.122   |
| 846 | 1.69 | 15.241  | 1.672   | 1.282  | -0.775 | 20.965   | 14.999  | 12.941  | 18.402  | 16.242  |
| 846 | 2.25 | 21.970  | 2.060   | 1.282  | -0.775 | 29.660   | 21.055  | 18.998  | 25.712  | 23.552  |
| 848 | 0    | -38.914 | -5.908  | -0.669 | 0.405  | -56.150  | -35.691 | -34.618 | -45.284 | -44.157 |
| 848 | 0.75 | -29.629 | -5.218  | -0.669 | 0.405  | -43.904  | -27.335 | -26.261 | -35.100 | -33.973 |
| 848 | 1.5  | -17.839 | -3.150  | -0.669 | 0.405  | -26.447  | -16.724 | -15.651 | -21.418 | -20.291 |
| 848 | 2.25 | -6.050  | -1.081  | -0.669 | 0.405  | -8.989   | -6.113  | -5.040  | -7.735  | -6.608  |
| 848 | 3    | 3.236   | -0.392  | -0.669 | 0.405  | 3.256    | 2.244   | 3.317   | 2.449   | 3.576   |
| 849 | 0    | -3.236  | 0.392   | 0.669  | -0.405 | -3.256   | -2.244  | -3.317  | -2.449  | -3.576  |
| 849 | 0.75 | 6.050   | 1.081   | 0.669  | -0.405 | 8.989    | 6.113   | 5.040   | 7.735   | 6.608   |
| 849 | 1.5  | 17.839  | 3.150   | 0.669  | -0.405 | 26.447   | 16.724  | 15.651  | 21.417  | 20.291  |
| 849 | 2.25 | 29.629  | 5.218   | 0.669  | -0.405 | 43.904   | 27.335  | 26.261  | 35.100  | 33.973  |
| 849 | 3    | 38.914  | 5.908   | 0.669  | -0.405 | 56.149   | 35.691  | 34.618  | 45.284  | 44.157  |
| 851 | 0    | -21.970 | -2.060  | -1.282 | 0.775  | -29.660  | -21.055 | -18.998 | -25.712 | -23.552 |
| 851 | 0.56 | -15.241 | -1.672  | -1.282 | 0.775  | -20.965  | -14.999 | -12.941 | -18.402 | -16.242 |
| 851 | 1.13 | -7.216  | -0.571  | -1.282 | 0.775  | -9.572   | -7.776  | -5.719  | -9.282  | -7.122  |
| 851 | 1.69 | 0.810   | 0.531   | -1.282 | 0.775  | 1.821    | -0.553  | 1.504   | -0.162  | 1.998   |
| 851 | 2.25 | 7.539   | 0.919   | -1.282 | 0.775  | 10.516   | 5.503   | 7.560   | 7.148   | 9.308   |
| 852 | 0    | -4.742  | -0.711  | 1.092  | -0.670 | -6.828   | -3.176  | -4.938  | -4.281  | -6.131  |
| 852 | 0.56 | 1.988   | -0.323  | 1.092  | -0.670 | 1.868    | 2.880   | 1.118   | 3.029   | 1.179   |



|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 852 | 1.13 | 10.013   | 0.778   | 1.092   | -0.670 | 13.260   | 10.103   | 8.341    | 12.150   | 10.300   |
| 852 | 1.69 | 18.038   | 1.880   | 1.092   | -0.670 | 24.653   | 17.326   | 15.564   | 21.270   | 19.420   |
| 852 | 2.25 | 24.767   | 2.268   | 1.092   | -0.670 | 33.349   | 23.382   | 21.620   | 28.580   | 26.730   |
| 853 | 0    | -30.274  | -3.079  | -1.140  | 0.684  | -41.256  | -28.387  | -26.563  | -34.925  | -33.010  |
| 853 | 0.75 | -20.989  | -2.390  | -1.140  | 0.684  | -29.010  | -20.030  | -18.206  | -24.741  | -22.826  |
| 853 | 1.5  | -10.001  | -0.762  | -1.140  | 0.684  | -13.221  | -10.141  | -8.317   | -12.178  | -10.263  |
| 853 | 2.25 | 0.987    | 0.865   | -1.140  | 0.684  | 2.569    | -0.251   | 1.573    | 0.385    | 2.300    |
| 853 | 3    | 10.273   | 1.555   | -1.140  | 0.684  | 14.815   | 8.106    | 9.929    | 10.569   | 12.484   |
| 854 | 0    | -8.957   | -1.283  | 0.909   | -0.541 | -12.801  | -7.152   | -8.602   | -9.258   | -10.781  |
| 854 | 0.75 | 0.329    | -0.594  | 0.909   | -0.541 | -0.556   | 1.205    | -0.245   | 0.926    | -0.597   |
| 854 | 1.5  | 11.317   | 1.033   | 0.909   | -0.541 | 15.234   | 11.095   | 9.644    | 13.489   | 11.966   |
| 854 | 2.25 | 22.305   | 2.661   | 0.909   | -0.541 | 31.023   | 20.984   | 19.534   | 26.052   | 24.529   |
| 854 | 3    | 31.591   | 3.350   | 0.909   | -0.541 | 43.269   | 29.341   | 27.890   | 36.236   | 34.713   |
| 855 | 0    | -31.423  | -3.302  | -1.320  | 0.715  | -42.990  | -29.601  | -27.566  | -36.460  | -34.323  |
| 855 | 0.75 | -22.138  | -2.612  | -1.320  | 0.715  | -30.745  | -21.244  | -19.209  | -26.276  | -24.139  |
| 855 | 1.5  | -11.150  | -0.985  | -1.320  | 0.715  | -14.955  | -11.355  | -9.319   | -13.714  | -11.576  |
| 855 | 2.25 | -0.162   | 0.643   | -1.320  | 0.715  | 0.834    | -1.465   | 0.570    | -1.151   | 0.986    |
| 855 | 3    | 9.124    | 1.332   | -1.320  | 0.715  | 13.080   | 6.891    | 8.927    | 9.033    | 11.170   |
| 856 | 0    | -10.974  | -1.581  | 0.310   | -0.311 | -15.699  | -9.567   | -10.188  | -12.194  | -12.846  |
| 856 | 0.75 | -1.689   | -0.892  | 0.310   | -0.311 | -3.453   | -1.210   | -1.831   | -2.010   | -2.662   |
| 856 | 1.5  | 9.300    | 0.736   | 0.310   | -0.311 | 12.336   | 8.679    | 8.058    | 10.553   | 9.901    |
| 856 | 2.25 | 20.288   | 2.363   | 0.310   | -0.311 | 28.126   | 18.569   | 17.948   | 23.116   | 22.464   |
| 856 | 3    | 29.573   | 3.052   | 0.310   | -0.311 | 40.372   | 26.926   | 26.305   | 33.300   | 32.648   |
| 857 | 0    | -98.645  | -16.951 | -14.596 | 22.277 | -145.495 | -103.377 | -66.504  | -129.582 | -90.866  |
| 857 | 1.13 | -79.537  | -15.400 | -14.596 | 22.277 | -120.084 | -86.179  | -49.306  | -108.542 | -69.825  |
| 857 | 2.25 | -57.612  | -12.297 | -14.596 | 22.277 | -88.809  | -66.447  | -29.574  | -83.565  | -44.849  |
| 857 | 3.38 | -35.686  | -9.194  | -14.596 | 22.277 | -57.534  | -46.714  | -9.841   | -58.589  | -19.872  |
| 857 | 4.5  | -16.579  | -7.642  | -14.596 | 22.277 | -32.122  | -29.517  | 7.356    | -37.548  | 1.168    |
| 859 | 0    | -98.645  | -16.951 | -14.596 | 22.277 | -145.495 | -103.376 | -66.503  | -129.582 | -90.865  |
| 859 | 1.13 | -79.537  | -15.399 | -14.596 | 22.277 | -120.083 | -86.179  | -49.306  | -108.541 | -69.825  |
| 859 | 2.25 | -57.612  | -12.296 | -14.596 | 22.277 | -88.808  | -66.446  | -29.574  | -83.565  | -44.848  |
| 859 | 3.38 | -35.686  | -9.194  | -14.596 | 22.277 | -57.533  | -46.714  | -9.841   | -58.588  | -19.872  |
| 859 | 4.5  | -16.578  | -7.642  | -14.596 | 22.277 | -32.122  | -29.517  | 7.356    | -37.548  | 1.169    |
| 860 | 0    | 8.205    | 4.381   | -14.806 | 22.238 | 16.856   | -7.421   | 29.623   | -4.170   | 34.725   |
| 860 | 0.26 | 12.171   | 4.472   | -14.806 | 22.238 | 21.759   | -3.852   | 33.192   | 0.050    | 38.946   |
| 860 | 0.53 | 16.465   | 4.743   | -14.806 | 22.238 | 27.347   | 0.013    | 37.056   | 4.730    | 43.626   |
| 860 | 0.79 | 21.088   | 5.196   | -14.806 | 22.238 | 33.618   | 4.173    | 41.217   | 9.869    | 48.765   |
| 860 | 1.05 | 26.039   | 5.829   | -14.806 | 22.238 | 40.574   | 8.630    | 45.673   | 15.467   | 54.363   |
| 863 | 0    | 8.205    | 4.381   | -14.806 | 22.238 | 16.856   | -7.421   | 29.623   | -4.170   | 34.726   |
| 863 | 0.26 | 12.171   | 4.472   | -14.806 | 22.238 | 21.760   | -3.852   | 33.192   | 0.050    | 38.946   |
| 863 | 0.53 | 16.465   | 4.743   | -14.806 | 22.238 | 27.347   | 0.013    | 37.056   | 4.730    | 43.626   |
| 863 | 0.79 | 21.088   | 5.196   | -14.806 | 22.238 | 33.618   | 4.173    | 41.217   | 9.869    | 48.765   |
| 863 | 1.05 | 26.039   | 5.829   | -14.806 | 22.238 | 40.574   | 8.630    | 45.673   | 15.468   | 54.364   |
| 864 | 0    | -120.776 | -15.470 | -1.951  | 1.180  | -169.684 | -110.649 | -107.519 | -138.609 | -135.322 |
| 864 | 0.45 | -112.935 | -14.974 | -1.951  | 1.180  | -159.479 | -103.592 | -100.461 | -130.063 | -126.776 |
| 864 | 0.9  | -103.290 | -13.484 | -1.951  | 1.180  | -145.522 | -94.911  | -91.781  | -118.997 | -115.710 |
| 864 | 1.35 | -92.743  | -11.498 | -1.951  | 1.180  | -129.689 | -85.419  | -82.289  | -106.672 | -103.385 |
| 864 | 1.8  | -82.597  | -9.733  | -1.951  | 1.180  | -114.690 | -76.288  | -73.158  | -94.907  | -91.620  |
| 865 | 0    | -60.627  | -7.673  | -0.669  | 0.405  | -85.029  | -55.233  | -54.160  | -69.194  | -68.068  |
| 865 | 0.3  | -54.598  | -6.901  | -0.669  | 0.405  | -76.559  | -49.807  | -48.733  | -62.377  | -61.250  |
| 865 | 0.6  | -48.969  | -6.349  | -0.669  | 0.405  | -68.922  | -44.741  | -43.668  | -56.120  | -54.993  |
| 865 | 0.9  | -43.741  | -6.018  | -0.669  | 0.405  | -62.119  | -40.036  | -38.963  | -50.422  | -49.295  |
| 865 | 1.2  | -38.914  | -5.908  | -0.669  | 0.405  | -56.150  | -35.691  | -34.618  | -45.284  | -44.157  |
| 866 | 0    | -120.776 | -15.470 | -1.951  | 1.180  | -169.684 | -110.649 | -107.519 | -138.609 | -135.322 |
| 866 | 0.45 | -112.934 | -14.974 | -1.951  | 1.180  | -159.479 | -103.592 | -100.461 | -130.063 | -126.776 |
| 866 | 0.9  | -103.290 | -13.484 | -1.951  | 1.180  | -145.522 | -94.911  | -91.781  | -118.997 | -115.710 |
| 866 | 1.35 | -92.743  | -11.498 | -1.951  | 1.180  | -129.689 | -85.419  | -82.289  | -106.672 | -103.385 |
| 866 | 1.8  | -82.597  | -9.733  | -1.951  | 1.180  | -114.689 | -76.288  | -73.157  | -94.907  | -91.620  |
| 867 | 0    | -60.627  | -7.673  | -0.669  | 0.405  | -85.029  | -55.233  | -54.160  | -69.194  | -68.068  |
| 867 | 0.3  | -54.598  | -6.901  | -0.669  | 0.405  | -76.558  | -49.807  | -48.733  | -62.377  | -61.250  |
| 867 | 0.6  | -48.969  | -6.349  | -0.669  | 0.405  | -68.922  | -44.741  | -43.668  | -56.120  | -54.993  |
| 867 | 0.9  | -43.741  | -6.018  | -0.669  | 0.405  | -62.119  | -40.036  | -38.963  | -50.422  | -49.295  |
| 867 | 1.2  | -38.914  | -5.908  | -0.669  | 0.405  | -56.149  | -35.691  | -34.618  | -45.284  | -44.157  |
| 868 | 0    | -73.420  | -8.296  | 0.891   | -0.864 | -101.377 | -65.187  | -66.942  | -81.382  | -83.224  |
| 868 | 0.45 | -66.453  | -8.047  | 0.891   | -0.864 | -92.619  | -58.917  | -60.572  | -73.910  | -75.752  |
| 868 | 0.9  | -58.585  | -7.303  | 0.891   | -0.864 | -81.986  | -51.835  | -53.590  | -65.179  | -67.021  |
| 868 | 1.35 | -50.716  | -6.558  | 0.891   | -0.864 | -71.352  | -44.754  | -46.508  | -56.448  | -58.290  |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 868 | 1.8  | -43.749  | -6.310  | 0.891   | -0.864  | -62.594  | -38.483  | -40.238  | -48.976  | -50.819  |
| 869 | 0    | -134.031 | -35.707 | -11.630 | 17.294  | -217.969 | -132.259 | -103.334 | -175.440 | -145.070 |
| 869 | 1.13 | -112.106 | -32.604 | -11.630 | 17.294  | -186.694 | -112.526 | -83.601  | -150.464 | -120.093 |
| 869 | 2.25 | -81.415  | -24.675 | -11.630 | 17.294  | -137.178 | -84.904  | -55.980  | -113.243 | -82.873  |
| 869 | 3.38 | -50.725  | -16.745 | -11.630 | 17.294  | -87.662  | -57.283  | -28.358  | -76.022  | -45.652  |
| 869 | 4.50 | -28.800  | -13.642 | -11.630 | 17.294  | -56.387  | -37.550  | -8.626   | -51.046  | -20.675  |
| 870 | 0    | 36.825   | 16.913  | -11.971 | 15.679  | 71.250   | 21.171   | 48.822   | 36.751   | 65.784   |
| 870 | 1.13 | 58.750   | 20.015  | -11.971 | 15.679  | 102.525  | 40.904   | 68.555   | 61.728   | 90.761   |
| 870 | 2.25 | 89.441   | 27.945  | -11.971 | 15.679  | 152.041  | 68.526   | 96.176   | 98.949   | 127.982  |
| 870 | 3.38 | 120.132  | 35.875  | -11.971 | 15.679  | 201.557  | 96.147   | 123.798  | 136.169  | 165.202  |
| 870 | 4.5  | 142.057  | 38.978  | -11.971 | 15.679  | 232.832  | 115.880  | 143.530  | 161.146  | 190.179  |
| 871 | 0    | -134.031 | -35.707 | -11.630 | 17.294  | -217.969 | -132.259 | -103.334 | -175.440 | -145.070 |
| 871 | 1.13 | -112.106 | -32.604 | -11.630 | 17.294  | -186.694 | -112.526 | -83.601  | -150.464 | -120.093 |
| 871 | 2.25 | -81.415  | -24.675 | -11.630 | 17.294  | -137.178 | -84.904  | -55.980  | -113.243 | -82.872  |
| 871 | 3.38 | -50.725  | -16.745 | -11.630 | 17.294  | -87.662  | -57.283  | -28.358  | -76.022  | -45.652  |
| 871 | 4.5  | -28.800  | -13.642 | -11.630 | 17.294  | -56.387  | -37.550  | -8.626   | -51.046  | -20.675  |
| 872 | 0    | 36.825   | 16.913  | -11.971 | 15.679  | 71.250   | 21.171   | 48.822   | 36.751   | 65.784   |
| 872 | 1.13 | 58.750   | 20.015  | -11.971 | 15.679  | 102.525  | 40.904   | 68.555   | 61.728   | 90.761   |
| 872 | 2.25 | 89.441   | 27.945  | -11.971 | 15.679  | 152.041  | 68.526   | 96.176   | 98.949   | 127.982  |
| 872 | 3.38 | 120.132  | 35.875  | -11.971 | 15.679  | 201.557  | 96.147   | 123.798  | 136.169  | 165.202  |
| 872 | 4.5  | 142.057  | 38.978  | -11.971 | 15.679  | 232.832  | 115.880  | 143.530  | 161.146  | 190.179  |
| 873 | 0    | -140.506 | -38.770 | -15.668 | 11.978  | -230.639 | -142.124 | -114.478 | -188.408 | -159.380 |
| 873 | 1.13 | -118.581 | -35.667 | -15.668 | 11.978  | -199.364 | -122.391 | -94.745  | -163.432 | -134.404 |
| 873 | 2.25 | -87.890  | -27.737 | -15.668 | 11.978  | -149.848 | -94.770  | -67.124  | -126.211 | -97.183  |
| 873 | 3.38 | -57.200  | -19.808 | -15.668 | 11.978  | -100.332 | -67.148  | -39.502  | -88.991  | -59.962  |
| 873 | 4.5  | -35.274  | -16.705 | -15.668 | 11.978  | -69.057  | -47.415  | -19.769  | -64.014  | -34.986  |
| 874 | 0    | 30.586   | 13.868  | -17.255 | 11.627  | 58.893   | 10.272   | 39.154   | 22.734   | 53.061   |
| 874 | 1.13 | 52.511   | 16.971  | -17.255 | 11.627  | 90.168   | 30.005   | 58.887   | 47.711   | 78.037   |
| 874 | 2.25 | 83.202   | 24.901  | -17.255 | 11.627  | 139.684  | 57.626   | 86.508   | 84.931   | 115.258  |
| 874 | 3.38 | 113.893  | 32.831  | -17.255 | 11.627  | 189.200  | 85.248   | 114.130  | 122.152  | 152.478  |
| 874 | 4.5  | 135.818  | 35.933  | -17.255 | 11.627  | 220.475  | 104.981  | 133.863  | 147.129  | 177.455  |
| 875 | 0    | -135.818 | -35.933 | 17.255  | -11.627 | -220.475 | -104.981 | -133.863 | -147.129 | -177.455 |
| 875 | 1.13 | -113.893 | -32.831 | 17.255  | -11.627 | -189.200 | -85.248  | -114.130 | -122.152 | -152.479 |
| 875 | 2.25 | -83.202  | -24.901 | 17.255  | -11.627 | -139.684 | -57.626  | -86.508  | -84.932  | -115.258 |
| 875 | 3.38 | -52.511  | -16.971 | 17.255  | -11.627 | -90.168  | -30.005  | -58.887  | -47.711  | -78.037  |
| 875 | 4.5  | -30.586  | -13.868 | 17.255  | -11.627 | -58.893  | -10.272  | -39.154  | -22.734  | -53.061  |
| 876 | 0    | 35.274   | 16.705  | 15.668  | -11.978 | 69.057   | 47.415   | 19.769   | 64.014   | 34.986   |
| 876 | 1.13 | 57.200   | 19.808  | 15.668  | -11.978 | 100.332  | 67.148   | 39.502   | 88.991   | 59.962   |
| 876 | 2.25 | 87.890   | 27.737  | 15.668  | -11.978 | 149.848  | 94.770   | 67.124   | 126.211  | 97.183   |
| 876 | 3.38 | 118.581  | 35.667  | 15.668  | -11.978 | 199.364  | 122.391  | 94.745   | 163.432  | 134.404  |
| 876 | 4.5  | 140.506  | 38.770  | 15.668  | -11.978 | 230.639  | 142.124  | 114.478  | 188.408  | 159.380  |
| 877 | 0    | -29.044  | -7.298  | -0.092  | 0.538   | -46.529  | -26.232  | -25.601  | -35.191  | -34.528  |
| 877 | 0.75 | -23.551  | -6.608  | -0.092  | 0.538   | -38.834  | -21.288  | -20.657  | -28.989  | -28.326  |
| 877 | 1.50 | -15.554  | -4.539  | -0.092  | 0.538   | -25.927  | -14.091  | -13.460  | -19.288  | -18.626  |
| 877 | 2.25 | -7.556   | -2.471  | -0.092  | 0.538   | -13.021  | -6.893   | -6.262   | -9.588   | -8.925   |
| 877 | 3    | -2.063   | -1.781  | -0.092  | 0.538   | -5.326   | -1.949   | -1.318   | -3.386   | -2.723   |
| 878 | 0    | 2.063    | 1.781   | 0.092   | -0.538  | 5.325    | 1.949    | 1.318    | 3.385    | 2.723    |
| 878 | 0.75 | 7.556    | 2.471   | 0.092   | -0.538  | 13.020   | 6.893    | 6.262    | 9.587    | 8.925    |
| 878 | 1.5  | 15.553   | 4.539   | 0.092   | -0.538  | 25.926   | 14.090   | 13.459   | 19.287   | 18.625   |
| 878 | 2.25 | 23.551   | 6.608   | 0.092   | -0.538  | 38.833   | 21.288   | 20.657   | 28.988   | 28.326   |
| 878 | 3    | 29.043   | 7.297   | 0.092   | -0.538  | 46.528   | 26.231   | 25.601   | 35.190   | 34.528   |
| 879 | 0    | -12.614  | -2.308  | -4.312  | 4.321   | -18.829  | -15.664  | -7.032   | -19.226  | -10.162  |
| 879 | 0.75 | -7.121   | -1.618  | -4.312  | 4.321   | -11.134  | -10.721  | -2.088   | -13.024  | -3.960   |
| 879 | 1.5  | 0.075    | 0.009   | -4.312  | 4.321   | 0.105    | -4.244   | 4.388    | -4.443   | 4.621    |
| 879 | 2.25 | 7.271    | 1.636   | -4.312  | 4.321   | 11.343   | 2.232    | 10.865   | 4.138    | 13.202   |
| 879 | 3    | 12.764   | 2.326   | -4.312  | 4.321   | 19.038   | 7.176    | 15.808   | 10.340   | 19.404   |
| 880 | 0    | -5.654   | 0.000   | 0.000   | 0.000   | -6.785   | -5.089   | -5.089   | -5.937   | -5.937   |
| 880 | 1.5  | -2.827   | 0.000   | 0.000   | 0.000   | -3.393   | -2.544   | -2.544   | -2.968   | -2.968   |
| 880 | 3    | 0.000    | 0.000   | 0.000   | 0.000   | 0.000    | 0.000    | 0.000    | 0.000    | 0.000    |
| 880 | 4.5  | 2.827    | 0.000   | 0.000   | 0.000   | 3.393    | 2.545    | 2.545    | 2.969    | 2.969    |
| 880 | 6    | 5.654    | 0.000   | 0.000   | 0.000   | 6.785    | 5.089    | 5.089    | 5.937    | 5.937    |
| 881 | 0    | -133.843 | -35.865 | -18.486 | 17.669  | -217.995 | -138.944 | -102.789 | -182.540 | -144.577 |
| 881 | 1.13 | -111.917 | -32.762 | -18.486 | 17.669  | -186.721 | -119.211 | -83.056  | -157.564 | -119.601 |
| 881 | 2.25 | -81.227  | -24.833 | -18.486 | 17.669  | -137.204 | -91.590  | -55.435  | -120.343 | -82.380  |
| 881 | 3.38 | -50.536  | -16.903 | -18.486 | 17.669  | -87.688  | -63.968  | -27.813  | -83.122  | -45.159  |
| 881 | 4.5  | -28.611  | -13.800 | -18.486 | 17.669  | -56.413  | -44.236  | -8.080   | -58.146  | -20.183  |
| 882 | 0    | 40.963   | 17.353  | -19.232 | 18.596  | 76.920   | 17.635   | 55.462   | 33.750   | 73.469   |

|     |      |          |         |         |         |          |          |          |          |          |
|-----|------|----------|---------|---------|---------|----------|----------|----------|----------|----------|
| 882 | 1.13 | 62.888   | 20.456  | -19.232 | 18.596  | 108.195  | 37.368   | 75.195   | 58.726   | 98.445   |
| 882 | 2.25 | 93.579   | 28.385  | -19.232 | 18.596  | 157.711  | 64.989   | 102.817  | 95.947   | 135.666  |
| 882 | 3.38 | 124.269  | 36.315  | -19.232 | 18.596  | 207.227  | 92.611   | 130.438  | 133.168  | 172.887  |
| 882 | 4.5  | 146.195  | 39.418  | -19.232 | 18.596  | 238.502  | 112.343  | 150.171  | 158.144  | 197.863  |
| 884 | 0    | -133.843 | -35.865 | -18.486 | 17.669  | -217.995 | -138.944 | -102.739 | -182.540 | -144.577 |
| 884 | 1.13 | -111.917 | -32.762 | -18.486 | 17.669  | -186.720 | -119.211 | -83.056  | -157.564 | -119.601 |
| 884 | 2.25 | -81.227  | -24.833 | -18.486 | 17.669  | -137.204 | -91.590  | -55.435  | -120.343 | -82.380  |
| 884 | 3.38 | -50.536  | -16.903 | -18.486 | 17.669  | -87.688  | -63.968  | -27.813  | -83.122  | -45.159  |
| 884 | 4.5  | -28.611  | -13.800 | -18.486 | 17.669  | -56.413  | -44.236  | -8.080   | -58.146  | -20.183  |
| 885 | 0    | 40.963   | 17.353  | -19.232 | 18.596  | 76.920   | 17.635   | 55.462   | 33.750   | 73.469   |
| 885 | 1.13 | 62.888   | 20.456  | -19.232 | 18.596  | 108.195  | 37.368   | 75.195   | 58.726   | 98.445   |
| 885 | 2.25 | 93.579   | 28.385  | -19.232 | 18.596  | 157.711  | 64.989   | 102.817  | 95.947   | 135.666  |
| 885 | 3.38 | 124.269  | 36.315  | -19.232 | 18.596  | 207.227  | 92.611   | 130.438  | 133.168  | 172.887  |
| 885 | 4.5  | 146.195  | 39.418  | -19.232 | 18.596  | 238.502  | 112.343  | 150.171  | 158.144  | 197.863  |
| 886 | 0    | -97.943  | -16.925 | -22.584 | 21.227  | -144.612 | -110.733 | -66.922  | -137.216 | -91.215  |
| 886 | 1.13 | -78.835  | -15.374 | -22.584 | 21.227  | -119.200 | -93.536  | -49.725  | -116.176 | -70.175  |
| 886 | 2.25 | -56.910  | -12.271 | -22.584 | 21.227  | -87.925  | -73.803  | -29.992  | -91.199  | -45.198  |
| 886 | 3.38 | -34.985  | -9.168  | -22.584 | 21.227  | -56.650  | -54.070  | -10.260  | -66.223  | -20.222  |
| 886 | 4.5  | -15.877  | -7.617  | -22.584 | 21.227  | -31.239  | -36.873  | 6.937    | -45.182  | 0.819    |
| 888 | 0    | 55.749   | 13.049  | -22.492 | 21.255  | 87.777   | 27.682   | 71.429   | 43.140   | 89.074   |
| 888 | 0.86 | 74.214   | 16.340  | -22.492 | 21.255  | 115.201  | 44.300   | 88.047   | 64.602   | 110.536  |
| 888 | 1.73 | 95.879   | 21.392  | -22.492 | 21.255  | 149.282  | 63.799   | 107.545  | 90.533   | 136.467  |
| 888 | 2.59 | 117.390  | 26.360  | -22.492 | 21.255  | 183.045  | 83.159   | 126.906  | 116.250  | 162.184  |
| 888 | 3.45 | 133.192  | 28.184  | -22.492 | 21.255  | 204.925  | 97.380   | 141.127  | 133.990  | 179.925  |
| 889 | 0    | -133.087 | -28.126 | 22.492  | -21.255 | -204.706 | -97.286  | -141.033 | -133.843 | -179.778 |
| 889 | 0.86 | -117.285 | -26.302 | 22.492  | -21.255 | -182.826 | -83.064  | -126.811 | -116.103 | -162.037 |
| 889 | 1.73 | -95.774  | -21.334 | 22.492  | -21.255 | -149.064 | -63.704  | -107.451 | -90.386  | -136.321 |
| 889 | 2.59 | -74.109  | -16.282 | 22.492  | -21.255 | -114.982 | -44.206  | -87.953  | -64.455  | -110.390 |
| 889 | 3.45 | -55.832  | -13.095 | 22.492  | -21.255 | -87.949  | -27.756  | -71.503  | -43.256  | -89.190  |
| 891 | 0    | 15.831   | 7.591   | 22.584  | -21.227 | 31.142   | 36.832   | -6.979   | 45.118   | -0.884   |
| 891 | 1.13 | 34.938   | 9.143   | 22.584  | -21.227 | 56.554   | 54.029   | 10.218   | 66.158   | 20.157   |
| 891 | 2.25 | 56.864   | 12.245  | 22.584  | -21.227 | 87.829   | 73.761   | 29.951   | 91.135   | 45.133   |
| 891 | 3.38 | 78.789   | 15.348  | 22.584  | -21.227 | 119.104  | 93.494   | 49.683   | 116.111  | 70.110   |
| 891 | 4.5  | 97.897   | 16.900  | 22.584  | -21.227 | 144.516  | 110.691  | 66.880   | 137.152  | 91.150   |
| 892 | 0    | 9.140    | 4.369   | -22.850 | 21.533  | 17.959   | -14.623  | 29.759   | -11.642  | 34.960   |
| 892 | 0.26 | 13.106   | 4.460   | -22.850 | 21.533  | 22.862   | -11.055  | 33.328   | -7.422   | 39.180   |
| 892 | 0.53 | 17.400   | 4.731   | -22.850 | 21.533  | 28.450   | -7.190   | 57.193   | -2.742   | 43.860   |
| 892 | 0.79 | 22.023   | 5.184   | -22.850 | 21.533  | 34.721   | -3.029   | 41.354   | 2.397    | 48.999   |
| 892 | 1.05 | 26.974   | 5.817   | -22.850 | 21.533  | 41.676   | 1.427    | 45.810   | 7.996    | 54.598   |
| 893 | 0    | 9.203    | 4.404   | -22.850 | 21.533  | 18.090   | -14.567  | 29.816   | -11.555  | 35.048   |
| 893 | 0.26 | 13.169   | 4.494   | -22.850 | 21.533  | 22.993   | -10.998  | 33.385   | -7.334   | 39.268   |
| 893 | 0.53 | 17.463   | 4.766   | -22.850 | 21.533  | 28.581   | -7.133   | 37.250   | -2.654   | 43.948   |
| 893 | 0.79 | 22.086   | 5.218   | -22.850 | 21.533  | 34.852   | -2.973   | 41.410   | 2.485    | 49.087   |
| 893 | 1.05 | 27.037   | 5.852   | -22.850 | 21.533  | 41.807   | 1.484    | 45.867   | 8.083    | 54.686   |
| 895 | 0    | -38.439  | -4.149  | -1.488  | 1.495   | -52.766  | -36.083  | -33.100  | -44.537  | -41.405  |
| 895 | 1.13 | -24.586  | -3.156  | -1.488  | 1.495   | -34.554  | -23.616  | -20.632  | -29.366  | -26.234  |
| 895 | 2.25 | -10.283  | -1.915  | -1.488  | 1.495   | -15.403  | -10.742  | -7.759   | -13.566  | -10.433  |
| 895 | 3.38 | 4.021    | -0.674  | -1.488  | 1.495   | 3.747    | 2.131    | 5.114    | 2.235    | 5.367    |
| 895 | 4.5  | 17.874   | 0.319   | -1.488  | 1.495   | 21.959   | 14.598   | 17.582   | 17.406   | 20.538   |
| 896 | 0    | -17.812  | -0.313  | -1.491  | 1.490   | -21.876  | -17.521  | -14.540  | -20.465  | -17.335  |
| 896 | 1.13 | -3.959   | 0.679   | -1.491  | 1.490   | -3.664   | -5.054   | -2.073   | -5.294   | -2.164   |
| 896 | 2.25 | 10.344   | 1.921   | -1.491  | 1.490   | 15.486   | 7.819    | 10.800   | 10.506   | 13.637   |
| 896 | 3.38 | 24.648   | 3.162   | -1.491  | 1.490   | 34.636   | 20.693   | 23.674   | 26.307   | 29.437   |
| 896 | 4.5  | 38.501   | 4.155   | -1.491  | 1.490   | 52.849   | 33.160   | 36.141   | 41.478   | 44.608   |
| 897 | 0    | -38.439  | -4.149  | -1.488  | 1.495   | -52.766  | -36.083  | -33.100  | -44.537  | -41.405  |
| 897 | 1.13 | -24.586  | -3.156  | -1.488  | 1.495   | -34.554  | -23.616  | -20.632  | -29.366  | -26.234  |
| 897 | 2.25 | -10.282  | -1.915  | -1.488  | 1.495   | -15.403  | -10.742  | -7.759   | -13.566  | -10.433  |
| 897 | 3.38 | 4.021    | -0.674  | -1.488  | 1.495   | 3.747    | 2.131    | 5.114    | 2.235    | 5.367    |
| 897 | 4.5  | 17.874   | 0.319   | -1.488  | 1.495   | 21.959   | 14.598   | 17.582   | 17.406   | 20.538   |
| 898 | 0    | -17.812  | -0.313  | -1.491  | 1.490   | -21.876  | -17.521  | -14.540  | -20.465  | -17.335  |
| 898 | 1.13 | -3.959   | 0.679   | -1.491  | 1.490   | -3.664   | -5.054   | -2.073   | -5.294   | -2.164   |
| 898 | 2.25 | 10.344   | 1.921   | -1.491  | 1.490   | 15.486   | 7.819    | 10.800   | 10.506   | 13.637   |
| 898 | 3.38 | 24.648   | 3.162   | -1.491  | 1.490   | 34.636   | 20.693   | 23.674   | 26.307   | 29.437   |
| 898 | 4.5  | 38.501   | 4.155   | -1.491  | 1.490   | 52.849   | 33.160   | 36.141   | 41.478   | 44.608   |
| 899 | 0    | -144.619 | -39.215 | -18.602 | 19.243  | -236.287 | -148.760 | -110.914 | -196.088 | -156.350 |
| 899 | 1.13 | -122.694 | -36.112 | -18.602 | 19.243  | -205.012 | -129.027 | -91.181  | -171.111 | -131.374 |
| 899 | 2.25 | -92.003  | -28.182 | -18.602 | 19.243  | -155.496 | -101.405 | -63.560  | -133.891 | -94.153  |

|     |      |          |         |         |        |          |          |          |          |          |
|-----|------|----------|---------|---------|--------|----------|----------|----------|----------|----------|
| 899 | 3.38 | -61.313  | -20.253 | -18.602 | 19.243 | -105.979 | -73.784  | -35.938  | -96.670  | -56.932  |
| 899 | 4.5  | -39.387  | -17.150 | -18.602 | 19.243 | -74.704  | -54.051  | -16.206  | -71.694  | -31.956  |
| 900 | 0    | 30.071   | 13.972  | -17.652 | 18.501 | 58.440   | 9.412    | 45.564   | 21.842   | 59.802   |
| 900 | 1.13 | 51.996   | 17.075  | -17.652 | 18.501 | 89.715   | 29.145   | 65.297   | 46.818   | 84.779   |
| 900 | 2.25 | 82.687   | 25.004  | -17.652 | 18.501 | 139.231  | 56.766   | 92.919   | 84.039   | 121.999  |
| 900 | 3.38 | 113.377  | 32.934  | -17.652 | 18.501 | 188.747  | 84.388   | 120.540  | 121.260  | 159.220  |
| 900 | 4.5  | 135.303  | 36.037  | -17.652 | 18.501 | 220.022  | 104.120  | 140.273  | 146.236  | 184.197  |
| 901 | 0    | -144.619 | -39.215 | -18.602 | 19.243 | -236.286 | -148.760 | -110.914 | -196.088 | -156.350 |
| 901 | 1.13 | -122.694 | -36.112 | -18.602 | 19.243 | -205.012 | -129.027 | -91.181  | -171.111 | -131.374 |
| 901 | 2.25 | -92.003  | -28.182 | -18.602 | 19.243 | -155.495 | -101.405 | -63.560  | -133.891 | -94.153  |
| 901 | 3.38 | -61.313  | -20.253 | -18.602 | 19.243 | -105.979 | -73.784  | -35.938  | -96.670  | -56.932  |
| 901 | 4.5  | -39.387  | -17.150 | -18.602 | 19.243 | -74.704  | -54.051  | -16.206  | -71.694  | -31.956  |
| 902 | 0    | 30.071   | 13.972  | -17.652 | 18.501 | 58.440   | 9.412    | 45.564   | 21.842   | 59.802   |
| 902 | 1.13 | 51.996   | 17.075  | -17.652 | 18.501 | 89.715   | 29.145   | 65.297   | 46.819   | 84.779   |
| 902 | 2.25 | 82.687   | 25.004  | -17.652 | 18.501 | 139.231  | 56.766   | 92.919   | 84.039   | 122.000  |
| 902 | 3.38 | 113.377  | 32.934  | -17.652 | 18.501 | 188.747  | 84.388   | 120.540  | 121.260  | 159.220  |
| 902 | 4.5  | 135.303  | 36.037  | -17.652 | 18.501 | 220.022  | 104.120  | 140.273  | 146.236  | 184.197  |
| 903 | 0    | -113.287 | -12.605 | -1.911  | 2.071  | -156.113 | -103.870 | -99.888  | -128.899 | -124.718 |
| 903 | 0.23 | -109.592 | -12.481 | -1.911  | 2.071  | -151.479 | -100.544 | -96.562  | -124.941 | -120.760 |
| 903 | 0.45 | -105.445 | -12.108 | -1.911  | 2.071  | -145.908 | -96.812  | -92.830  | -120.353 | -116.172 |
| 903 | 0.68 | -101.074 | -11.612 | -1.911  | 2.071  | -139.868 | -92.877  | -88.896  | -115.450 | -111.269 |
| 903 | 0.9  | -96.702  | -11.115 | -1.911  | 2.071  | -133.827 | -88.943  | -84.961  | -110.547 | -106.366 |
| 904 | 0    | -79.723  | -10.470 | -0.543  | 0.587  | -112.419 | -72.293  | -71.163  | -90.875  | -89.688  |
| 904 | 0.53 | -68.908  | -8.974  | -0.543  | 0.587  | -97.048  | -62.560  | -61.430  | -78.577  | -77.390  |
| 904 | 1.05 | -57.769  | -7.298  | -0.543  | 0.587  | -80.999  | -52.535  | -51.404  | -65.825  | -64.638  |
| 904 | 1.58 | -47.831  | -6.284  | -0.543  | 0.587  | -67.452  | -43.591  | -42.460  | -54.752  | -53.565  |
| 904 | 2.1  | -39.120  | -5.947  | -0.543  | 0.587  | -56.459  | -35.751  | -34.621  | -45.393  | -44.206  |
| 905 | 0    | -113.287 | -12.605 | -1.911  | 2.071  | -156.113 | -103.870 | -99.888  | -128.899 | -124.718 |
| 905 | 0.23 | -109.592 | -12.481 | -1.911  | 2.071  | -151.479 | -100.544 | -96.562  | -124.941 | -120.760 |
| 905 | 0.45 | -105.446 | -12.108 | -1.911  | 2.071  | -145.908 | -96.812  | -92.830  | -120.353 | -116.172 |
| 905 | 0.68 | -101.074 | -11.612 | -1.911  | 2.071  | -139.868 | -92.877  | -88.896  | -115.450 | -111.269 |
| 905 | 0.9  | -96.702  | -11.115 | -1.911  | 2.071  | -133.827 | -88.943  | -84.961  | -110.547 | -106.366 |
| 906 | 0    | -79.723  | -10.470 | -0.543  | 0.587  | -112.419 | -72.293  | -71.163  | -90.875  | -89.688  |
| 906 | 0.53 | -68.908  | -8.974  | -0.543  | 0.587  | -97.048  | -62.560  | -61.430  | -78.577  | -77.390  |
| 906 | 1.05 | -57.769  | -7.298  | -0.543  | 0.587  | -80.999  | -52.535  | -51.404  | -65.825  | -64.638  |
| 906 | 1.58 | -47.831  | -6.284  | -0.543  | 0.587  | -67.452  | -43.591  | -42.460  | -54.752  | -53.565  |
| 906 | 2.1  | -39.120  | -5.947  | -0.543  | 0.587  | -56.459  | -35.751  | -34.621  | -45.393  | -44.206  |
| 907 | 0    | -64.085  | -10.495 | -1.097  | 1.095  | -93.693  | -58.774  | -56.581  | -75.053  | -72.751  |
| 907 | 0.75 | -51.973  | -9.805  | -1.097  | 1.095  | -78.055  | -47.873  | -45.680  | -61.901  | -59.598  |
| 907 | 1.5  | -37.356  | -7.736  | -1.097  | 1.095  | -57.205  | -34.717  | -32.525  | -45.250  | -42.948  |
| 907 | 2.25 | -22.739  | -5.668  | -1.097  | 1.095  | -36.355  | -21.562  | -19.370  | -28.599  | -26.297  |
| 907 | 3    | -10.626  | -4.978  | -1.097  | 1.095  | -20.717  | -10.661  | -8.469   | -15.446  | -13.144  |
| 908 | 0    | 14.826   | 6.453   | 1.798   | -1.782 | 28.117   | 15.141   | 11.561   | 21.521   | 17.762   |
| 908 | 0.75 | 26.939   | 7.143   | 1.798   | -1.782 | 43.755   | 26.043   | 22.463   | 34.673   | 30.914   |
| 908 | 1.5  | 41.556   | 9.211   | 1.798   | -1.782 | 64.605   | 39.198   | 35.618   | 51.324   | 47.565   |
| 908 | 2.25 | 56.172   | 11.280  | 1.798   | -1.782 | 85.455   | 52.353   | 48.773   | 67.975   | 64.216   |
| 908 | 3    | 68.285   | 11.970  | 1.798   | -1.782 | 101.093  | 63.254   | 59.674   | 81.128   | 77.369   |
| 909 | 0    | -66.044  | -18.030 | -1.979  | 1.913  | -108.102 | -61.419  | -57.527  | -82.784  | -78.697  |
| 909 | 0.75 | -59.499  | -16.762 | -1.979  | 1.913  | -98.218  | -55.529  | -51.637  | -75.113  | -71.026  |
| 909 | 1.5  | -49.999  | -13.866 | -1.979  | 1.913  | -82.184  | -46.979  | -43.087  | -63.313  | -59.226  |
| 909 | 2.25 | -40.499  | -10.970 | -1.979  | 1.913  | -66.151  | -38.429  | -34.537  | -51.514  | -47.427  |
| 909 | 3    | -33.955  | -9.701  | -1.979  | 1.913  | -56.267  | -32.539  | -28.646  | -43.842  | -39.755  |
| 910 | 0    | 35.816   | 10.344  | 1.867   | -1.747 | 59.530   | 34.102   | 30.488   | 46.085   | 42.290   |
| 910 | 0.75 | 42.361   | 11.613  | 1.867   | -1.747 | 69.414   | 39.993   | 36.379   | 53.756   | 49.962   |
| 910 | 1.5  | 51.861   | 14.509  | 1.867   | -1.747 | 85.448   | 48.543   | 44.929   | 65.556   | 61.761   |
| 910 | 2.25 | 61.361   | 17.405  | 1.867   | -1.747 | 101.481  | 57.093   | 53.479   | 77.355   | 73.561   |
| 910 | 3    | 67.906   | 18.674  | 1.867   | -1.747 | 111.365  | 62.983   | 59.369   | 85.027   | 81.232   |
| 911 | 0    | -67.273  | -18.539 | -2.174  | 2.064  | -110.391 | -62.720  | -58.481  | -84.599  | -80.149  |
| 911 | 0.75 | -60.728  | -17.271 | -2.174  | 2.064  | -100.507 | -56.830  | -52.591  | -76.928  | -72.478  |
| 911 | 1.5  | -51.228  | -14.375 | -2.174  | 2.064  | -84.473  | -48.280  | -44.041  | -65.129  | -60.678  |
| 911 | 2.25 | -41.728  | -11.479 | -2.174  | 2.064  | -68.439  | -39.730  | -35.491  | -53.329  | -48.879  |
| 911 | 3    | -35.183  | -10.210 | -2.174  | 2.064  | -58.556  | -33.839  | -29.601  | -45.658  | -41.207  |
| 912 | 0    | 33.436   | 9.637   | 2.089   | -1.942 | 55.543   | 32.182   | 28.151   | 43.373   | 39.141   |
| 912 | 0.75 | 39.981   | 10.906  | 2.089   | -1.942 | 65.427   | 38.072   | 34.041   | 51.045   | 46.812   |
| 912 | 1.5  | 49.481   | 13.802  | 2.089   | -1.942 | 81.460   | 46.622   | 42.591   | 62.844   | 58.612   |
| 912 | 2.25 | 58.981   | 16.698  | 2.089   | -1.942 | 97.494   | 55.172   | 51.141   | 74.644   | 70.411   |
| 912 | 3    | 65.526   | 17.967  | 2.089   | -1.942 | 107.378  | 61.063   | 57.032   | 82.315   | 78.083   |

|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 913 | 0    | -54.294 | -9.676  | -1.422 | 1.354  | -80.634  | -50.286 | -47.510 | -64.597 | -61.682 |
| 913 | 0.56 | -45.444 | -9.288  | -1.422 | 1.354  | -69.394  | -42.322 | -39.546 | -55.061 | -52.146 |
| 913 | 1.13 | -35.186 | -8.124  | -1.422 | 1.354  | -55.222  | -33.089 | -30.313 | -43.556 | -40.642 |
| 913 | 1.69 | -24.928 | -6.961  | -1.422 | 1.354  | -41.050  | -23.857 | -21.081 | -32.052 | -29.138 |
| 913 | 2.25 | -16.078 | -6.573  | -1.422 | 1.354  | -29.810  | -15.892 | -13.116 | -22.516 | -19.601 |
| 914 | 0    | 13.795  | 5.365   | 1.175  | -1.118 | 25.139   | 13.590  | 11.298  | 19.098  | 16.691  |
| 914 | 0.56 | 22.645  | 5.753   | 1.175  | -1.118 | 36.379   | 21.555  | 19.263  | 28.635  | 26.228  |
| 914 | 1.13 | 32.903  | 6.917   | 1.175  | -1.118 | 50.550   | 30.787  | 28.495  | 40.139  | 37.732  |
| 914 | 1.69 | 43.161  | 8.080   | 1.175  | -1.118 | 64.722   | 40.020  | 37.727  | 51.643  | 49.236  |
| 914 | 2.25 | 52.011  | 8.468   | 1.175  | -1.118 | 75.962   | 47.984  | 45.692  | 61.180  | 58.773  |
| 915 | 0    | -52.009 | -8.467  | -1.175 | 1.118  | -75.957  | -47.982 | -45.690 | -61.177 | -58.770 |
| 915 | 0.56 | -43.159 | -8.079  | -1.175 | 1.118  | -64.717  | -40.018 | -37.725 | -51.640 | -49.233 |
| 915 | 1.13 | -32.901 | -6.915  | -1.175 | 1.118  | -50.546  | -30.785 | -28.493 | -40.136 | -37.729 |
| 915 | 1.69 | -22.642 | -5.752  | -1.175 | 1.118  | -36.374  | -21.553 | -19.260 | -28.632 | -26.225 |
| 915 | 2.25 | -13.793 | -5.364  | -1.175 | 1.118  | -25.134  | -13.588 | -11.296 | -19.095 | -16.688 |
| 916 | 0    | 16.076  | 5.71    | 1.422  | -1.354 | 29.805   | 15.890  | 13.114  | 22.512  | 19.598  |
| 916 | 0.56 | 24.925  | 6.959   | 1.422  | -1.354 | 41.045   | 23.855  | 21.079  | 32.049  | 29.134  |
| 916 | 1.13 | 35.184  | 8.123   | 1.422  | -1.354 | 55.217   | 33.087  | 30.311  | 43.553  | 40.639  |
| 916 | 1.69 | 45.442  | 9.286   | 1.422  | -1.354 | 69.389   | 42.319  | 39.544  | 55.057  | 52.143  |
| 916 | 2.25 | 54.292  | 9.674   | 1.422  | -1.354 | 80.629   | 50.284  | 47.508  | 64.594  | 61.679  |
| 917 | 0    | -65.526 | -17.967 | -2.089 | 1.942  | -107.378 | -61.063 | -57.032 | -82.315 | -78.082 |
| 917 | 0.75 | -58.981 | -16.698 | -2.089 | 1.942  | -97.494  | -55.172 | -51.141 | -74.643 | -70.411 |
| 917 | 1.5  | -49.481 | -13.802 | -2.089 | 1.942  | -81.460  | -46.622 | -42.591 | -62.844 | -58.612 |
| 917 | 2.25 | -39.981 | -10.906 | -2.089 | 1.942  | -65.427  | -38.072 | -34.041 | -51.045 | -46.812 |
| 917 | 3    | -33.436 | -9.637  | -2.089 | 1.942  | -55.543  | -32.182 | -28.151 | -43.373 | -39.141 |
| 918 | 0    | 35.184  | 10.210  | 2.174  | -2.064 | 58.557   | 33.840  | 29.601  | 45.658  | 41.208  |
| 918 | 0.75 | 41.729  | 11.479  | 2.174  | -2.064 | 68.441   | 39.730  | 35.491  | 53.330  | 48.879  |
| 918 | 1.5  | 51.229  | 14.375  | 2.174  | -2.064 | 84.474   | 48.280  | 44.041  | 65.129  | 60.679  |
| 918 | 2.25 | 60.729  | 17.271  | 2.174  | -2.064 | 100.508  | 56.830  | 52.591  | 76.929  | 72.478  |
| 918 | 3    | 67.273  | 18.540  | 2.174  | -2.064 | 110.392  | 62.720  | 58.482  | 84.600  | 80.150  |
| 919 | 0    | -67.906 | -18.674 | -1.867 | 1.747  | -111.365 | -62.983 | -59.369 | -85.027 | -81.232 |
| 919 | 0.75 | -61.361 | -17.405 | -1.867 | 1.747  | -101.482 | -57.093 | -53.479 | -77.355 | -73.561 |
| 919 | 1.5  | -51.861 | -14.509 | -1.867 | 1.747  | -85.448  | -48.543 | -44.929 | -65.556 | -61.761 |
| 919 | 2.25 | -42.361 | -11.613 | -1.867 | 1.747  | -69.414  | -39.993 | -36.379 | -53.756 | -49.962 |
| 919 | 3    | -35.817 | -10.344 | -1.867 | 1.747  | -59.531  | -34.102 | -30.488 | -46.085 | -42.290 |
| 920 | 0    | 33.955  | 9.701   | 1.979  | -1.913 | 56.267   | 32.538  | 28.646  | 43.842  | 39.755  |
| 920 | 0.75 | 40.499  | 10.970  | 1.979  | -1.913 | 66.151   | 38.429  | 34.537  | 51.514  | 47.427  |
| 920 | 1.5  | 49.999  | 13.866  | 1.979  | -1.913 | 82.184   | 46.979  | 43.087  | 63.313  | 59.226  |
| 920 | 2.25 | 59.499  | 16.762  | 1.979  | -1.913 | 98.218   | 55.529  | 51.637  | 75.112  | 71.026  |
| 920 | 3    | 66.044  | 18.030  | 1.979  | -1.913 | 108.102  | 61.419  | 57.527  | 82.784  | 78.697  |
| 921 | 0    | -68.285 | -11.970 | -1.798 | 1.782  | -101.093 | -63.254 | -59.674 | -81.128 | -77.369 |
| 921 | 0.75 | -56.172 | -11.280 | -1.798 | 1.782  | -85.455  | -52.353 | -48.773 | -67.975 | -64.216 |
| 921 | 1.5  | -41.556 | -9.211  | -1.798 | 1.782  | -64.605  | -39.198 | -35.618 | -51.324 | -47.565 |
| 921 | 2.25 | -26.939 | -7.143  | -1.798 | 1.782  | -43.755  | -26.043 | -22.463 | -34.673 | -30.914 |
| 921 | 3    | -14.826 | -6.453  | -1.798 | 1.782  | -28.117  | -15.141 | -11.561 | -21.521 | -17.762 |
| 922 | 0    | 10.626  | 4.978   | 1.097  | -1.095 | 20.717   | 10.661  | 8.469   | 15.446  | 13.144  |
| 922 | 0.75 | 22.739  | 5.668   | 1.097  | -1.095 | 36.355   | 21.562  | 19.370  | 28.599  | 26.297  |
| 922 | 1.5  | 37.356  | 7.736   | 1.097  | -1.095 | 57.205   | 34.717  | 32.525  | 45.250  | 42.948  |
| 922 | 2.25 | 51.973  | 9.805   | 1.097  | -1.095 | 78.055   | 47.873  | 45.680  | 61.900  | 59.598  |
| 922 | 3    | 64.085  | 10.495  | 1.097  | -1.095 | 93.693   | 58.774  | 56.581  | 75.053  | 72.751  |
| 923 | 0    | -64.186 | -10.503 | 1.008  | -1.010 | -93.828  | -56.760 | -58.777 | -72.954 | -75.072 |
| 923 | 0.75 | -52.074 | -9.813  | 1.008  | -1.010 | -78.190  | -45.859 | -47.876 | -59.802 | -61.920 |
| 923 | 1.5  | -37.457 | -7.745  | 1.008  | -1.010 | -57.340  | -32.703 | -34.721 | -43.151 | -45.269 |
| 923 | 2.25 | -22.840 | -5.676  | 1.008  | -1.010 | -36.490  | -19.548 | -21.566 | -26.500 | -28.618 |
| 923 | 3    | -10.727 | -4.987  | 1.008  | -1.010 | -20.851  | -8.647  | -10.664 | -13.347 | -15.465 |
| 924 | 0    | 14.877  | 6.460   | -1.862 | 1.887  | 28.188   | 11.527  | 15.276  | 17.736  | 21.672  |
| 924 | 0.75 | 26.989  | 7.150   | -1.862 | 1.887  | 43.827   | 22.428  | 26.177  | 30.888  | 34.825  |
| 924 | 1.5  | 41.606  | 9.218   | -1.862 | 1.887  | 64.677   | 35.584  | 39.333  | 47.539  | 51.476  |
| 924 | 2.25 | 56.223  | 11.287  | -1.862 | 1.887  | 85.527   | 48.739  | 52.488  | 64.190  | 68.126  |
| 924 | 3    | 68.335  | 11.977  | -1.862 | 1.887  | 101.165  | 59.640  | 63.389  | 77.342  | 81.279  |
| 925 | 0    | -66.281 | -18.049 | 1.840  | -1.906 | -108.415 | -57.813 | -61.558 | -79.034 | -82.967 |
| 925 | 0.75 | -59.736 | -16.780 | 1.840  | -1.906 | -98.531  | -51.922 | -55.668 | -71.362 | -75.295 |
| 925 | 1.5  | -50.236 | -13.884 | 1.840  | -1.906 | -82.498  | -43.372 | -47.118 | -59.563 | -63.496 |
| 925 | 2.25 | -40.736 | -10.988 | 1.840  | -1.906 | -66.464  | -34.822 | -38.568 | -47.763 | -51.696 |
| 925 | 3    | -34.191 | -9.719  | 1.840  | -1.906 | -56.580  | -28.932 | -32.678 | -40.092 | -44.025 |
| 926 | 0    | 36.030  | 10.381  | -1.819 | 1.944  | 59.845   | 30.607  | 34.371  | 42.461  | 46.413  |
| 926 | 0.75 | 42.574  | 11.650  | -1.819 | 1.944  | 69.729   | 36.497  | 40.261  | 50.132  | 54.084  |

|     |      |         |         |        |        |          |         |         |         |         |
|-----|------|---------|---------|--------|--------|----------|---------|---------|---------|---------|
| 926 | 1.5  | 52.074  | 14.546  | -1.819 | 1.944  | 85.763   | 45.047  | 48.811  | 61.932  | 65.884  |
| 926 | 2.25 | 61.574  | 17.442  | -1.819 | 1.944  | 101.796  | 53.597  | 57.361  | 73.731  | 77.683  |
| 926 | 3    | 68.119  | 18.711  | -1.819 | 1.944  | 111.680  | 59.488  | 63.252  | 81.402  | 85.354  |
| 927 | 0    | -67.057 | -18.527 | 2.059  | -2.170 | -110.112 | -58.293 | -62.522 | -79.921 | -84.361 |
| 927 | 0.75 | -60.512 | -17.259 | 2.059  | -2.170 | -100.229 | -52.403 | -56.631 | -72.249 | -76.690 |
| 927 | 1.5  | -51.012 | -14.363 | 2.059  | -2.170 | -84.195  | -43.853 | -48.081 | -60.450 | -64.890 |
| 927 | 2.25 | -41.512 | -11.466 | 2.059  | -2.170 | -68.161  | -35.303 | -39.531 | -48.650 | -53.091 |
| 927 | 3    | -34.968 | -10.198 | 2.059  | -2.170 | -58.277  | -29.412 | -33.641 | -40.979 | -45.419 |
| 928 | 0    | 33.459  | 9.692   | -2.079 | 2.234  | 55.658   | 28.034  | 32.348  | 39.055  | 43.584  |
| 928 | 0.75 | 40.004  | 10.961  | -2.079 | 2.234  | 65.542   | 33.925  | 38.238  | 46.727  | 51.256  |
| 928 | 1.5  | 49.504  | 13.857  | -2.079 | 2.234  | 81.575   | 42.475  | 46.788  | 58.526  | 63.055  |
| 928 | 2.25 | 59.004  | 16.753  | -2.079 | 2.234  | 97.609   | 51.025  | 55.338  | 70.326  | 74.854  |
| 928 | 3    | 65.549  | 18.021  | -2.079 | 2.234  | 107.493  | 56.915  | 61.228  | 77.997  | 82.526  |
| 929 | 0    | -49.171 | -12.723 | 2.664  | -2.835 | -79.361  | -41.589 | -47.089 | -56.847 | -62.621 |
| 929 | 0.56 | -44.609 | -11.963 | 2.664  | -2.835 | -72.671  | -37.484 | -42.984 | -51.579 | -57.353 |
| 929 | 1.13 | -38.189 | -10.178 | 2.664  | -2.835 | -62.112  | -31.706 | -37.205 | -43.713 | -49.488 |
| 929 | 1.69 | -31.768 | -8.394  | 2.664  | -2.835 | -51.553  | -25.927 | -31.426 | -35.847 | -41.622 |
| 929 | 2.25 | -27.207 | -7.634  | 2.664  | -2.835 | -44.863  | -21.822 | -27.321 | -30.579 | -36.354 |
| 930 | 0    | 28.118  | 8.555   | -2.673 | 2.859  | 47.430   | 22.633  | 28.165  | 32.107  | 37.916  |
| 930 | 0.56 | 32.679  | 9.315   | -2.673 | 2.859  | 54.120   | 26.738  | 32.270  | 37.375  | 45.184  |
| 930 | 1.13 | 39.100  | 11.099  | -2.673 | 2.859  | 64.679   | 32.517  | 38.049  | 45.241  | 51.050  |
| 930 | 1.69 | 45.521  | 12.884  | -2.673 | 2.859  | 75.238   | 38.295  | 43.828  | 53.106  | 58.915  |
| 930 | 2.25 | 50.082  | 13.644  | -2.673 | 2.859  | 81.928   | 42.400  | 47.933  | 58.374  | 64.183  |
| 931 | 0    | -73.300 | -24.437 | 1.782  | -1.890 | -127.059 | -64.188 | -67.860 | -90.490 | -94.345 |
| 931 | 0.75 | -66.554 | -23.058 | 1.782  | -1.890 | -116.759 | -58.117 | -61.790 | -82.538 | -86.394 |
| 931 | 1.5  | -54.801 | -18.921 | 1.782  | -1.890 | -96.034  | -47.539 | -51.211 | -67.590 | -71.446 |
| 931 | 2.25 | -43.047 | -14.784 | 1.782  | -1.890 | -75.310  | -36.960 | -40.632 | -52.642 | -56.498 |
| 931 | 3    | -36.301 | -13.405 | 1.782  | -1.890 | -65.009  | -30.890 | -34.562 | -44.691 | -48.547 |
| 932 | 0    | 36.302  | 13.405  | -1.782 | 1.890  | 65.010   | 30.890  | 34.562  | 44.691  | 48.547  |
| 932 | 0.75 | 43.047  | 14.784  | -1.782 | 1.890  | 75.310   | 36.960  | 40.632  | 52.642  | 56.498  |
| 932 | 1.5  | 54.801  | 18.921  | -1.782 | 1.890  | 96.034   | 47.539  | 51.211  | 67.590  | 71.446  |
| 932 | 2.25 | 66.555  | 23.058  | -1.782 | 1.890  | 116.759  | 58.118  | 61.790  | 82.538  | 86.394  |
| 932 | 3    | 73.300  | 24.437  | -1.782 | 1.890  | 127.059  | 64.188  | 67.860  | 90.490  | 94.345  |
| 933 | 0    | -50.082 | -13.644 | 2.673  | -2.859 | -81.929  | -42.401 | -47.933 | -58.375 | -64.184 |
| 933 | 0.56 | -45.521 | -12.884 | 2.673  | -2.859 | -75.239  | -38.295 | -43.828 | -53.107 | -58.916 |
| 933 | 1.13 | -39.100 | -11.100 | 2.673  | -2.859 | -64.680  | -32.517 | -38.049 | -45.241 | -51.050 |
| 933 | 1.69 | -32.680 | -9.315  | 2.673  | -2.859 | -54.120  | -26.738 | -32.271 | -37.375 | -43.184 |
| 933 | 2.25 | -28.119 | -8.555  | 2.673  | -2.859 | -47.431  | -22.633 | -28.166 | -32.107 | -37.916 |
| 934 | 0    | 27.207  | 7.634   | -2.664 | 2.835  | 44.863   | 21.822  | 27.322  | 30.580  | 36.354  |
| 934 | 0.56 | 31.768  | 8.394   | -2.664 | 2.835  | 51.553   | 25.927  | 31.427  | 35.848  | 41.622  |
| 934 | 1.13 | 38.189  | 10.179  | -2.664 | 2.835  | 62.112   | 31.706  | 37.205  | 43.713  | 49.488  |
| 934 | 1.69 | 44.610  | 11.963  | -2.664 | 2.835  | 72.672   | 37.484  | 42.984  | 51.579  | 57.353  |
| 934 | 2.25 | 49.171  | 12.723  | -2.664 | 2.835  | 79.361   | 41.589  | 47.089  | 56.847  | 62.622  |
| 935 | 0    | -65.549 | -18.021 | 2.079  | -2.234 | -107.493 | -56.915 | -61.228 | -77.997 | -82.526 |
| 935 | 0.75 | -59.004 | -16.753 | 2.079  | -2.234 | -97.609  | -51.025 | -55.338 | -70.326 | -74.855 |
| 935 | 1.5  | -49.504 | -13.857 | 2.079  | -2.234 | -81.576  | -42.475 | -46.788 | -58.526 | -63.055 |
| 935 | 2.25 | -40.004 | -10.961 | 2.079  | -2.234 | -65.542  | -33.925 | -38.238 | -46.727 | -51.256 |
| 935 | 3    | -33.459 | -9.692  | 2.079  | -2.234 | -55.658  | -28.034 | -32.348 | -39.055 | -43.584 |
| 936 | 0    | 34.968  | 10.198  | -2.059 | 2.170  | 58.277   | 29.412  | 33.641  | 40.979  | 45.419  |
| 936 | 0.75 | 41.512  | 11.466  | -2.059 | 2.170  | 68.161   | 35.303  | 39.531  | 48.650  | 53.091  |
| 936 | 1.5  | 51.012  | 14.362  | -2.059 | 2.170  | 84.195   | 43.853  | 48.081  | 60.450  | 64.890  |
| 936 | 2.25 | 60.512  | 17.259  | -2.059 | 2.170  | 100.229  | 52.403  | 56.631  | 72.249  | 76.690  |
| 936 | 3    | 67.057  | 18.527  | -2.059 | 2.170  | 110.112  | 58.293  | 62.522  | 79.921  | 84.361  |
| 937 | 0    | -68.119 | -18.711 | 1.819  | -1.944 | -111.680 | -59.488 | -63.252 | -81.402 | -85.354 |
| 937 | 0.75 | -61.574 | -17.442 | 1.819  | -1.944 | -101.796 | -53.597 | -57.361 | -73.731 | -77.683 |
| 937 | 1.5  | -52.074 | -14.546 | 1.819  | -1.944 | -85.763  | -45.047 | -48.811 | -61.932 | -65.884 |
| 937 | 2.25 | -42.574 | -11.650 | 1.819  | -1.944 | -69.729  | -36.497 | -40.261 | -50.132 | -54.084 |
| 937 | 3    | -36.030 | -10.381 | 1.819  | -1.944 | -59.845  | -30.607 | -34.371 | -42.461 | -46.413 |
| 938 | 0    | 34.191  | 9.719   | -1.840 | 1.906  | 56.580   | 28.932  | 32.678  | 40.092  | 44.025  |
| 938 | 0.75 | 40.736  | 10.988  | -1.840 | 1.906  | 66.464   | 34.822  | 38.568  | 47.763  | 51.696  |
| 938 | 1.5  | 50.236  | 13.884  | -1.840 | 1.906  | 82.498   | 43.372  | 47.118  | 59.563  | 63.496  |
| 938 | 2.25 | 59.736  | 16.780  | -1.840 | 1.906  | 98.531   | 51.922  | 55.668  | 71.362  | 75.295  |
| 938 | 3    | 66.281  | 18.049  | -1.840 | 1.906  | 108.415  | 57.813  | 61.558  | 79.034  | 82.967  |
| 939 | 0    | -68.335 | -11.977 | 1.862  | -1.887 | -101.165 | -59.640 | -63.389 | -77.342 | -81.279 |
| 939 | 0.75 | -56.223 | -11.287 | 1.862  | -1.887 | -85.527  | -48.739 | -52.488 | -64.190 | -68.126 |
| 939 | 1.5  | -41.606 | -9.218  | 1.862  | -1.887 | -64.677  | -35.584 | -39.333 | -47.539 | -51.476 |
| 939 | 2.25 | -26.989 | -7.150  | 1.862  | -1.887 | -43.827  | -22.428 | -26.178 | -30.888 | -34.825 |

|     |      |          |         |        |        |          |         |         |          |          |
|-----|------|----------|---------|--------|--------|----------|---------|---------|----------|----------|
| 939 | 3    | -14.877  | -6.460  | 1.862  | -1.887 | -28.188  | -11.527 | -15.276 | -17.736  | -21.672  |
| 940 | 0    | 10.727   | 4.987   | -1.008 | 1.010  | 20.851   | 8.647   | 10.664  | 13.347   | 15.465   |
| 940 | 0.75 | 22.840   | 5.676   | -1.008 | 1.010  | 36.490   | 19.548  | 21.566  | 26.500   | 28.618   |
| 940 | 1.5  | 37.457   | 7.745   | -1.008 | 1.010  | 57.340   | 32.703  | 34.721  | 43.151   | 45.269   |
| 940 | 2.25 | 52.074   | 9.813   | -1.008 | 1.010  | 78.190   | 45.859  | 47.876  | 59.802   | 61.920   |
| 940 | 3    | 64.186   | 10.503  | -1.008 | 1.010  | 93.828   | 56.760  | 58.777  | 72.954   | 75.072   |
| 941 | 0    | -22.710  | -1.234  | 0.646  | -0.632 | -29.227  | -19.793 | -21.071 | -23.945  | -25.287  |
| 941 | 0.75 | -13.625  | -0.655  | 0.646  | -0.632 | -17.398  | -11.617 | -12.895 | -14.041  | -15.383  |
| 941 | 1.5  | -4.089   | 0.172   | 0.646  | -0.632 | -4.631   | -3.035  | -4.313  | -3.507   | -4.849   |
| 941 | 2.25 | 5.446    | 1.000   | 0.646  | -0.632 | 8.135    | 5.547   | 4.269   | 7.027    | 5.684    |
| 941 | 3    | 14.531   | 1.579   | 0.646  | -0.632 | 19.964   | 13.724  | 12.446  | 16.931   | 15.589   |
| 942 | 0    | -12.787  | -1.394  | -1.027 | 0.934  | -17.575  | -12.536 | -10.574 | -15.384  | -13.324  |
| 942 | 0.75 | -3.702   | -0.815  | -1.027 | 0.934  | -5.747   | -4.359  | -2.398  | -5.479   | -3.420   |
| 942 | 1.5  | 5.834    | 0.012   | -1.027 | 0.934  | 7.020    | 4.223   | 6.184   | 5.054    | 7.114    |
| 942 | 2.25 | 15.369   | 0.840   | -1.027 | 0.934  | 19.787   | 12.805  | 14.767  | 15.588   | 17.648   |
| 942 | 3    | 24.454   | 1.419   | -1.027 | 0.934  | 31.615   | 20.982  | 22.943  | 25.492   | 27.552   |
| 943 | 0    | -24.484  | -1.432  | 0.914  | -0.848 | -31.671  | -21.122 | -22.884 | -25.651  | -27.501  |
| 943 | 0.75 | -15.399  | -0.852  | 0.914  | -0.848 | -19.843  | -12.945 | -14.707 | -15.747  | -17.597  |
| 943 | 1.5  | -5.863   | -0.025  | 0.914  | -0.848 | -7.076   | -4.363  | -6.125  | -5.213   | -7.063   |
| 943 | 2.25 | 3.672    | 0.802   | 0.914  | -0.848 | 5.691    | 4.219   | 2.457   | 5.321    | 3.471    |
| 943 | 3    | 12.757   | 1.382   | 0.914  | -0.848 | 17.519   | 12.395  | 10.633  | 15.225   | 13.375   |
| 944 | 0    | -14.255  | -1.542  | -0.946 | 0.867  | -19.573  | -13.775 | -11.963 | -16.932  | -15.029  |
| 944 | 0.75 | -5.170   | -0.963  | -0.946 | 0.867  | -7.744   | -5.599  | -3.786  | -7.028   | -5.125   |
| 944 | 1.5  | 4.366    | -0.135  | -0.946 | 0.867  | 5.023    | 2.984   | 4.796   | 3.506    | 5.409    |
| 944 | 2.25 | 13.902   | 0.692   | -0.946 | 0.867  | 17.789   | 11.566  | 13.378  | 14.040   | 15.943   |
| 944 | 3    | 22.986   | 1.271   | -0.946 | 0.867  | 29.618   | 19.742  | 21.554  | 23.944   | 25.847   |
| 945 | 0    | -22.986  | -1.271  | 0.946  | -0.867 | -29.618  | -19.742 | -21.554 | -23.944  | -25.847  |
| 945 | 0.75 | -13.901  | -0.692  | 0.946  | -0.867 | -17.789  | -11.566 | -13.378 | -14.040  | -15.943  |
| 945 | 1.5  | -4.366   | 0.135   | 0.946  | -0.867 | -5.022   | -2.983  | -4.796  | -3.506   | -5.409   |
| 945 | 2.25 | 5.170    | 0.963   | 0.946  | -0.867 | 7.744    | 5.599   | 3.786   | 7.028    | 5.125    |
| 945 | 3    | 14.255   | 1.542   | 0.946  | -0.867 | 19.573   | 13.775  | 11.963  | 16.932   | 15.029   |
| 946 | 0    | -12.757  | -1.382  | -0.914 | 0.848  | -17.519  | -12.395 | -10.633 | -15.225  | -13.375  |
| 946 | 0.75 | -3.672   | -0.802  | -0.914 | 0.848  | -5.691   | -4.219  | -2.457  | -5.321   | -3.471   |
| 946 | 1.5  | 5.863    | 0.025   | -0.914 | 0.848  | 7.076    | 4.363   | 6.125   | 5.213    | 7.063    |
| 946 | 2.25 | 15.399   | 0.852   | -0.914 | 0.848  | 19.843   | 12.945  | 14.708  | 15.747   | 17.597   |
| 946 | 3    | 24.484   | 1.432   | -0.914 | 0.848  | 31.672   | 21.122  | 22.884  | 25.651   | 27.501   |
| 947 | 0    | -24.454  | -1.419  | 1.027  | -0.934 | -31.615  | -20.982 | -22.943 | -25.492  | -27.552  |
| 947 | 0.75 | -15.369  | -0.840  | 1.027  | -0.934 | -19.787  | -12.805 | -14.767 | -15.588  | -17.648  |
| 947 | 1.5  | -5.834   | -0.012  | 1.027  | -0.934 | -7.020   | -4.223  | -6.184  | -5.054   | -7.114   |
| 947 | 2.25 | 3.702    | 0.815   | 1.027  | -0.934 | 5.747    | 4.359   | 2.398   | 5.479    | 3.420    |
| 947 | 3    | 12.787   | 1.394   | 1.027  | -0.934 | 17.575   | 12.536  | 10.574  | 15.384   | 13.324   |
| 949 | 0    | -14.531  | -1.579  | -0.646 | 0.632  | -19.964  | -13.724 | -12.446 | -16.931  | -15.589  |
| 949 | 0.75 | -5.446   | -1.000  | -0.646 | 0.632  | -8.135   | -5.547  | -4.269  | -7.027   | -5.684   |
| 949 | 1.5  | 4.089    | -0.172  | -0.646 | 0.632  | 4.631    | 3.035   | 4.313   | 3.507    | 4.849    |
| 949 | 2.25 | 13.625   | 0.655   | -0.646 | 0.632  | 17.398   | 11.617  | 12.895  | 14.041   | 15.383   |
| 949 | 3    | 22.710   | 1.234   | -0.646 | 0.632  | 29.227   | 19.793  | 21.071  | 23.945   | 25.287   |
| 950 | 0    | -107.136 | -29.050 | 0.017  | 0.011  | -175.043 | -96.406 | -96.411 | -130.777 | -130.783 |
| 950 | 0.75 | -93.772  | -27.671 | 0.017  | 0.011  | -156.799 | -84.378 | -84.383 | -115.875 | -115.881 |
| 950 | 1.5  | -75.398  | -23.534 | 0.017  | 0.011  | -128.132 | -67.842 | -67.847 | -93.977  | -93.982  |
| 950 | 2.25 | -57.025  | -19.396 | 0.017  | 0.011  | -99.464  | -51.305 | -51.311 | -72.078  | -72.084  |
| 950 | 3    | -43.660  | -18.017 | 0.017  | 0.011  | -81.220  | -39.277 | -39.283 | -57.176  | -57.182  |
| 951 | 0    | 40.555   | 17.309  | -0.126 | -0.134 | 76.361   | 36.373  | 36.365  | 53.355   | 53.348   |
| 951 | 0.75 | 53.920   | 18.689  | -0.126 | -0.134 | 94.605   | 48.402  | 48.394  | 68.257   | 68.249   |
| 951 | 1.5  | 72.293   | 22.826  | -0.126 | -0.134 | 123.273  | 64.938  | 64.930  | 90.155   | 90.148   |
| 951 | 2.25 | 90.667   | 26.963  | -0.126 | -0.134 | 151.941  | 81.474  | 81.466  | 112.054  | 112.046  |
| 951 | 3    | 104.031  | 28.342  | -0.126 | -0.134 | 170.185  | 93.502  | 93.495  | 126.956  | 126.948  |
| 952 | 0    | -106.148 | -29.047 | 0.083  | 0.078  | -173.852 | -95.450 | -95.455 | -129.668 | -129.673 |
| 952 | 0.75 | -92.783  | -27.668 | 0.083  | 0.078  | -155.608 | -83.422 | -83.427 | -114.766 | -114.771 |
| 952 | 1.5  | -74.410  | -23.530 | 0.083  | 0.078  | -126.940 | -66.886 | -66.891 | -92.867  | -92.873  |
| 952 | 2.25 | -56.036  | -19.393 | 0.083  | 0.078  | -98.273  | -50.350 | -50.355 | -70.969  | -70.974  |
| 952 | 3    | -42.672  | -18.014 | 0.083  | 0.078  | -80.029  | -38.322 | -38.327 | -56.067  | -56.072  |
| 953 | 0    | 39.738   | 16.928  | -0.097 | -0.100 | 74.771   | 35.667  | 35.665  | 52.288   | 52.285   |
| 953 | 0.75 | 53.103   | 18.307  | -0.097 | -0.100 | 93.015   | 47.695  | 47.693  | 67.189   | 67.187   |
| 953 | 1.5  | 71.476   | 22.444  | -0.097 | -0.100 | 121.682  | 64.231  | 64.229  | 89.088   | 89.086   |
| 953 | 2.25 | 89.850   | 26.581  | -0.097 | -0.100 | 150.350  | 80.768  | 80.765  | 110.986  | 110.984  |
| 953 | 3    | 103.215  | 27.960  | -0.097 | -0.100 | 168.594  | 92.796  | 92.794  | 125.888  | 125.886  |
| 954 | 0    | -77.885  | -19.600 | 0.145  | 0.039  | -124.822 | -69.951 | -70.058 | -93.974  | -94.086  |



|     |      |          |         |        |        |          |          |          |          |          |
|-----|------|----------|---------|--------|--------|----------|----------|----------|----------|----------|
| 954 | 0.56 | -68.331  | -18.824 | 0.145  | 0.039  | -112.116 | -61.353  | -61.459  | -83.454  | -83.566  |
| 954 | 1.13 | -55.960  | -16.497 | 0.145  | 0.039  | -93.547  | -50.218  | -50.325  | -68.998  | -69.110  |
| 954 | 1.69 | -43.588  | -14.170 | 0.145  | 0.039  | -74.978  | -39.084  | -39.191  | -54.542  | -54.654  |
| 954 | 2.25 | -34.034  | -13.394 | 0.145  | 0.039  | -62.272  | -30.486  | -30.592  | -44.022  | -44.134  |
| 955 | 0    | 33.165   | 13.033  | -0.064 | -0.147 | 60.652   | 29.785   | 29.702   | 42.967   | 42.880   |
| 955 | 0.56 | 42.719   | 13.809  | -0.064 | -0.147 | 73.357   | 38.383   | 38.300   | 53.488   | 53.400   |
| 955 | 1.13 | 55.090   | 16.136  | -0.064 | -0.147 | 91.927   | 49.517   | 49.434   | 67.944   | 67.856   |
| 955 | 1.69 | 67.462   | 18.464  | -0.064 | -0.147 | 110.496  | 60.652   | 60.569   | 82.400   | 82.312   |
| 955 | 2.25 | 77.016   | 19.239  | -0.064 | -0.147 | 123.202  | 69.250   | 69.167   | 92.920   | 92.833   |
| 956 | 0    | -97.663  | -24.860 | -0.529 | 0.703  | -156.971 | -88.426  | -87.194  | -118.763 | -117.470 |
| 956 | 0.75 | -84.298  | -23.481 | -0.529 | 0.703  | -138.727 | -76.398  | -75.166  | -103.862 | -102.568 |
| 956 | 1.5  | -65.925  | -19.343 | -0.529 | 0.703  | -110.060 | -59.862  | -58.630  | -81.963  | -80.670  |
| 956 | 2.25 | -47.552  | -15.206 | -0.529 | 0.703  | -81.392  | -43.326  | -42.094  | -60.065  | -58.771  |
| 956 | 3    | -34.187  | -13.827 | -0.529 | 0.703  | -63.148  | -31.297  | -30.065  | -45.163  | -43.869  |
| 957 | 0    | 34.186   | 13.827  | 0.529  | -0.703 | 63.146   | 31.296   | 30.065   | 45.162   | 43.868   |
| 957 | 0.75 | 47.551   | 15.206  | 0.529  | -0.703 | 81.390   | 43.325   | 42.093   | 60.063   | 58.770   |
| 957 | 1.5  | 65.924   | 19.343  | 0.529  | -0.703 | 110.058  | 59.861   | 58.629   | 81.962   | 80.668   |
| 957 | 2.25 | 84.298   | 23.480  | 0.529  | -0.703 | 138.725  | 76.397   | 75.165   | 103.860  | 102.567  |
| 957 | 3    | 97.662   | 24.859  | 0.529  | -0.703 | 156.969  | 88.425   | 87.193   | 118.762  | 117.469  |
| 958 | 0    | -77.015  | -19.239 | 0.064  | 0.147  | -123.199 | -69.249  | -69.166  | -92.919  | -92.831  |
| 958 | 0.56 | -67.461  | -18.463 | 0.064  | 0.147  | -110.494 | -60.651  | -60.568  | -82.398  | -82.311  |
| 958 | 1.13 | -55.089  | -16.136 | 0.064  | 0.147  | -91.924  | -49.517  | -49.433  | -67.942  | -67.855  |
| 958 | 1.69 | -42.718  | -13.809 | 0.064  | 0.147  | -73.355  | -38.382  | -38.299  | -53.486  | -53.399  |
| 958 | 2.25 | -33.164  | -13.033 | 0.064  | 0.147  | -60.650  | -29.784  | -29.701  | -42.966  | -42.879  |
| 959 | 0    | 34.030   | 13.392  | -0.145 | -0.039 | 62.262   | 30.482   | 30.588   | 44.015   | 44.127   |
| 959 | 0.56 | 43.584   | 14.167  | -0.145 | -0.039 | 74.968   | 39.080   | 39.187   | 54.536   | 54.648   |
| 959 | 1.13 | 55.955   | 16.494  | -0.145 | -0.039 | 93.537   | 50.214   | 50.321   | 68.992   | 69.104   |
| 959 | 1.69 | 68.326   | 18.822  | -0.145 | -0.039 | 112.106  | 61.348   | 61.455   | 83.448   | 83.560   |
| 959 | 2.25 | 77.880   | 19.597  | -0.145 | -0.039 | 124.812  | 69.947   | 70.054   | 93.968   | 94.080   |
| 960 | 0    | -103.214 | -27.960 | 0.097  | 0.100  | -168.594 | -92.796  | -92.793  | -125.888 | -125.886 |
| 960 | 0.75 | -89.850  | -26.581 | 0.097  | 0.100  | -150.350 | -80.767  | -80.765  | -110.986 | -110.984 |
| 960 | 1.5  | -71.476  | -22.444 | 0.097  | 0.100  | -121.682 | -64.231  | -64.229  | -89.088  | -89.085  |
| 960 | 2.25 | -53.103  | -18.307 | 0.097  | 0.100  | -93.014  | -47.695  | -47.693  | -67.189  | -67.187  |
| 960 | 3    | -39.738  | -16.928 | 0.097  | 0.100  | -74.770  | -35.667  | -35.665  | -52.287  | -52.285  |
| 961 | 0    | 42.672   | 18.014  | -0.083 | -0.078 | 80.030   | 38.322   | 38.327   | 56.068   | 56.073   |
| 961 | 0.75 | 56.037   | 19.394  | -0.083 | -0.078 | 98.274   | 50.350   | 50.355   | 70.970   | 70.975   |
| 961 | 1.5  | 74.410   | 23.531  | -0.083 | -0.078 | 126.941  | 66.886   | 66.891   | 92.868   | 92.873   |
| 961 | 2.25 | 92.784   | 27.668  | -0.083 | -0.078 | 155.609  | 83.422   | 83.427   | 114.767  | 114.772  |
| 961 | 3    | 106.148  | 29.047  | -0.083 | -0.078 | 173.853  | 95.451   | 95.456   | 129.668  | 129.674  |
| 962 | 0    | -104.031 | -28.342 | 0.126  | 0.134  | -170.185 | -93.502  | -93.495  | -126.956 | -126.948 |
| 962 | 0.75 | -90.667  | -26.963 | 0.126  | 0.134  | -151.941 | -81.474  | -81.466  | -112.054 | -112.046 |
| 962 | 1.5  | -72.293  | -22.826 | 0.126  | 0.134  | -123.273 | -64.938  | -64.930  | -90.156  | -90.148  |
| 962 | 2.25 | -53.920  | -18.689 | 0.126  | 0.134  | -94.606  | -48.402  | -48.394  | -68.257  | -68.249  |
| 962 | 3    | -40.555  | -17.310 | 0.126  | 0.134  | -76.362  | -36.373  | -36.366  | -53.355  | -53.348  |
| 963 | 0    | 43.660   | 18.017  | -0.017 | -0.011 | 81.220   | 39.277   | 39.283   | 57.176   | 57.182   |
| 963 | 0.75 | 57.025   | 19.396  | -0.017 | -0.011 | 99.464   | 51.305   | 51.311   | 72.078   | 72.084   |
| 963 | 1.5  | 75.398   | 23.534  | -0.017 | -0.011 | 128.132  | 67.841   | 67.847   | 93.976   | 93.982   |
| 963 | 2.25 | 93.772   | 27.671  | -0.017 | -0.011 | 156.799  | 84.378   | 84.383   | 115.875  | 115.881  |
| 963 | 3    | 107.136  | 29.050  | -0.017 | -0.011 | 175.043  | 96.406   | 96.411   | 130.777  | 130.782  |
| 964 | 0    | -119.191 | -31.890 | 0.051  | 0.063  | -194.053 | -107.221 | -107.209 | -145.187 | -145.175 |
| 964 | 0.75 | -105.826 | -30.511 | 0.051  | 0.063  | -175.809 | -95.192  | -95.180  | -130.286 | -130.273 |
| 964 | 1.5  | -87.453  | -26.374 | 0.051  | 0.063  | -147.141 | -78.656  | -78.644  | -108.387 | -108.375 |
| 964 | 2.25 | -69.079  | -22.236 | 0.051  | 0.063  | -118.474 | -62.120  | -62.108  | -86.489  | -86.476  |
| 964 | 3    | -55.715  | -20.857 | 0.051  | 0.063  | -100.229 | -50.092  | -50.080  | -71.587  | -71.574  |
| 965 | 0    | -5.871   | 2.514   | 0.010  | 0.015  | -3.022   | -5.273   | -5.268   | -4.569   | -4.564   |
| 965 | 0.75 | 7.494    | 3.893   | 0.010  | 0.015  | 15.222   | 6.755    | 6.760    | 10.332   | 10.338   |
| 965 | 1.5  | 25.867   | 8.031   | 0.010  | 0.015  | 43.890   | 23.291   | 23.296   | 32.231   | 32.236   |
| 965 | 2.25 | 44.241   | 12.168  | 0.010  | 0.015  | 72.557   | 39.827   | 39.832   | 54.129   | 54.135   |
| 965 | 3    | 57.605   | 13.547  | 0.010  | 0.015  | 90.801   | 51.855   | 51.860   | 69.031   | 69.036   |
| 966 | 0    | -39.120  | -5.947  | -0.543 | 0.587  | -56.459  | -35.751  | -34.621  | -45.393  | -44.206  |
| 966 | 0.75 | -29.835  | -5.257  | -0.543 | 0.587  | -44.213  | -27.395  | -26.264  | -35.209  | -34.022  |
| 966 | 1.5  | -18.045  | -3.188  | -0.543 | 0.587  | -26.756  | -16.784  | -15.653  | -21.527  | -20.340  |
| 966 | 2.25 | -6.256   | -1.120  | -0.543 | 0.587  | -9.299   | -6.173   | -5.043   | -7.844   | -6.657   |
| 966 | 3    | 3.029    | -0.430  | -0.543 | 0.587  | 2.947    | 2.184    | 3.314    | 2.340    | 3.527    |
| 967 | 0    | -3.029   | 0.430   | 0.543  | -0.587 | -2.947   | -2.184   | -3.314   | -2.340   | -3.527   |
| 967 | 0.75 | 6.256    | 1.120   | 0.543  | -0.587 | 9.299    | 6.173    | 5.043    | 7.844    | 6.657    |
| 967 | 1.5  | 18.046   | 3.189   | 0.543  | -0.587 | 26.756   | 16.784   | 15.654   | 21.527   | 20.340   |



|     |      |         |        |         |         |         |         |         |         |         |
|-----|------|---------|--------|---------|---------|---------|---------|---------|---------|---------|
| 967 | 2.25 | 29.835  | 5.257  | 0.543   | -0.587  | 44.214  | 27.395  | 26.264  | 35.209  | 34.022  |
| 967 | 3    | 39.120  | 5.947  | 0.543   | -0.587  | 56.459  | 35.751  | 34.621  | 45.393  | 44.206  |
| 968 | 0    | -22.704 | -1.231 | -0.640  | 0.655   | -29.216 | -21.074 | -19.779 | -25.288 | -23.928 |
| 968 | 0.75 | -13.619 | -0.652 | -0.640  | 0.655   | -17.387 | -12.898 | -11.603 | -15.384 | -14.024 |
| 968 | 1.5  | -4.084  | 0.175  | -0.640  | 0.655   | -4.620  | -4.316  | -3.021  | -4.850  | -3.490  |
| 968 | 2.25 | 5.452   | 1.003  | -0.640  | 0.655   | 8.147   | 4.267   | 5.561   | 5.684   | 7.044   |
| 968 | 3    | 14.537  | 1.582  | -0.640  | 0.655   | 19.975  | 12.443  | 13.738  | 15.588  | 16.948  |
| 969 | 0    | -12.963 | -1.413 | 0.927   | -1.020  | -17.817 | -10.740 | -12.687 | -13.528 | -15.573 |
| 969 | 0.75 | -3.878  | -0.834 | 0.927   | -1.020  | -5.989  | -2.563  | -4.511  | -3.624  | -5.669  |
| 969 | 1.5  | 5.658   | -0.007 | 0.927   | -1.020  | 6.778   | 6.019   | 4.071   | 6.909   | 4.865   |
| 969 | 2.25 | 15.193  | 0.821  | 0.927   | -1.020  | 19.545  | 14.601  | 12.653  | 17.443  | 15.398  |
| 969 | 3    | 24.278  | 1.400  | 0.927   | -1.020  | 31.374  | 22.777  | 20.830  | 27.347  | 25.302  |
| 970 | 0    | -24.445 | -1.420 | -0.858  | 0.926   | -31.606 | -22.859 | -21.075 | -27.463 | -25.589 |
| 970 | 0.75 | -15.360 | -0.841 | -0.858  | 0.926   | -19.777 | -14.683 | -12.898 | -17.559 | -15.685 |
| 970 | 1.5  | -5.825  | -0.013 | -0.858  | 0.926   | -7.011  | -6.101  | -4.316  | -7.026  | -5.152  |
| 970 | 2.25 | 3.711   | 0.814  | -0.858  | 0.926   | 5.756   | 2.481   | 4.266   | 3.508   | 5.382   |
| 970 | 3    | 12.796  | 1.393  | -0.858  | 0.926   | 17.585  | 10.658  | 12.443  | 13.412  | 15.286  |
| 971 | 0    | -13.534 | -1.540 | 0.982   | -1.068  | -18.705 | -11.199 | -13.248 | -14.150 | -16.302 |
| 971 | 0.75 | -4.449  | -0.961 | 0.982   | -1.068  | -6.876  | -3.022  | -5.072  | -4.246  | -6.398  |
| 971 | 1.5  | 5.087   | -0.134 | 0.982   | -1.068  | 5.890   | 5.560   | 3.510   | 6.288   | 4.136   |
| 971 | 2.25 | 14.623  | 0.694  | 0.982   | -1.068  | 18.657  | 14.142  | 12.092  | 16.822  | 14.669  |
| 971 | 3    | 23.708  | 1.273  | 0.982   | -1.068  | 30.486  | 22.319  | 20.269  | 26.726  | 24.574  |
| 972 | 0    | -18.784 | -0.542 | -1.361  | 1.469   | -23.408 | -18.266 | -15.456 | -21.493 | -18.522 |
| 972 | 0.56 | -12.083 | -0.170 | -1.361  | 1.469   | -14.771 | -12.235 | -9.405  | -14.223 | -11.251 |
| 972 | 1.13 | -4.931  | 0.451  | -1.361  | 1.469   | -5.196  | -5.799  | -2.969  | -6.322  | -3.351  |
| 972 | 1.69 | 2.221   | 1.071  | -1.361  | 1.469   | 4.379   | 0.638   | 3.468   | 1.578   | 4.549   |
| 972 | 2.25 | 8.922   | 1.444  | -1.361  | 1.469   | 13.016  | 6.669   | 9.499   | 8.849   | 11.820  |
| 973 | 0    | -10.726 | -1.340 | 1.368   | -1.483  | -15.016 | -8.285  | -11.137 | -10.670 | -13.664 |
| 973 | 0.56 | -4.025  | -0.968 | 1.368   | -1.483  | -6.379  | -2.254  | -5.106  | -3.400  | -6.394  |
| 973 | 1.13 | 3.127   | -0.347 | 1.368   | -1.483  | 3.196   | 4.182   | 1.331   | 4.501   | 1.507   |
| 973 | 1.69 | 10.278  | 0.273  | 1.368   | -1.483  | 12.771  | 10.619  | 7.767   | 12.401  | 9.407   |
| 973 | 2.25 | 16.979  | 0.646  | 1.368   | -1.483  | 21.408  | 16.650  | 13.798  | 19.672  | 16.678  |
| 974 | 0    | -5.654  | 0.000  | 0.000   | 0.000   | -6.785  | -5.089  | -5.089  | -5.937  | -5.937  |
| 974 | 1.5  | -2.827  | 0.000  | 0.000   | 0.000   | -3.393  | -2.544  | -2.544  | -2.969  | -2.969  |
| 974 | 3    | 0.000   | 0.000  | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   |
| 974 | 4.5  | 2.827   | 0.000  | 0.000   | 0.000   | 3.393   | 2.545   | 2.545   | 2.969   | 2.969   |
| 974 | 6    | 5.654   | 0.000  | 0.000   | 0.000   | 6.785   | 5.089   | 5.089   | 5.937   | 5.937   |
| 975 | 0    | -25.246 | -0.396 | -20.604 | 20.751  | -30.929 | -43.326 | -1.970  | -48.392 | -4.969  |
| 975 | 1.13 | -12.004 | -0.396 | -20.604 | 20.751  | -15.038 | -31.407 | 9.948   | -34.488 | 8.935   |
| 975 | 2.25 | 1.239   | -0.396 | -20.604 | 20.751  | 0.852   | -19.489 | 21.806  | -20.583 | 22.840  |
| 975 | 3.38 | 14.481  | -0.396 | -20.604 | 20.751  | 16.743  | -7.571  | 33.784  | -6.679  | 36.744  |
| 975 | 4.5  | 27.724  | -0.396 | -20.604 | 20.751  | 32.634  | 4.347   | 45.703  | 7.226   | 50.649  |
| 976 | 0    | -63.971 | -0.035 | -5.819  | 5.828   | -76.821 | -63.393 | -51.746 | -73.302 | -61.072 |
| 976 | 1.13 | -50.728 | -0.035 | -5.819  | 5.828   | -60.930 | -51.475 | -39.828 | -59.397 | -47.168 |
| 976 | 2.25 | -37.486 | -0.035 | -5.819  | 5.828   | -45.039 | -39.557 | -27.910 | -45.493 | -33.263 |
| 976 | 3.38 | -24.244 | -0.035 | -5.819  | 5.828   | -29.148 | -27.639 | -15.991 | -31.588 | -19.359 |
| 976 | 4.5  | -11.001 | -0.035 | -5.819  | 5.828   | -13.258 | -15.721 | -4.073  | -17.684 | -5.454  |
| 977 | 0    | 11.263  | 0.067  | -5.824  | 5.824   | 13.623  | 4.313   | 15.961  | 5.754   | 17.984  |
| 977 | 1.13 | 24.506  | 0.067  | -5.824  | 5.824   | 29.514  | 16.231  | 27.879  | 19.658  | 31.888  |
| 977 | 2.25 | 37.748  | 0.067  | -5.824  | 5.824   | 45.405  | 28.149  | 39.797  | 33.562  | 45.793  |
| 977 | 3.38 | 50.990  | 0.067  | -5.824  | 5.824   | 61.295  | 40.067  | 51.716  | 47.467  | 59.697  |
| 977 | 4.5  | 64.233  | 0.067  | -5.824  | 5.824   | 77.186  | 51.986  | 63.634  | 61.371  | 73.602  |
| 978 | 0    | -26.824 | 0.507  | -20.735 | 20.620  | -31.379 | -44.876 | -3.522  | -49.618 | -6.195  |
| 978 | 1.13 | -13.582 | 0.507  | -20.735 | 20.620  | -15.488 | -32.958 | 8.396   | -35.713 | 7.709   |
| 978 | 2.25 | -0.339  | 0.507  | -20.735 | 20.620  | 0.403   | -21.040 | 20.315  | -21.809 | 21.614  |
| 978 | 3.38 | 12.903  | 0.507  | -20.735 | 20.620  | 16.294  | -9.122  | 32.233  | -7.904  | 35.518  |
| 978 | 4.5  | 26.145  | 0.507  | -20.735 | 20.620  | 32.185  | 2.796   | 44.151  | 6.000   | 49.423  |
| 979 | 0    | -26.145 | -0.507 | 20.735  | -20.620 | -32.185 | -2.796  | -44.151 | -6.000  | -49.423 |
| 979 | 1.13 | -12.903 | -0.507 | 20.735  | -20.620 | -16.294 | 9.122   | -32.233 | 7.904   | -35.518 |
| 979 | 2.25 | 0.339   | -0.507 | 20.735  | -20.620 | -0.403  | 21.040  | -20.315 | 21.809  | -21.614 |
| 979 | 3.38 | 13.582  | -0.507 | 20.735  | -20.620 | 15.488  | 32.958  | -8.396  | 35.713  | -7.709  |
| 979 | 4.5  | 26.824  | -0.507 | 20.735  | -20.620 | 31.378  | 44.876  | 3.522   | 49.618  | 6.195   |
| 980 | 0    | -64.233 | -0.067 | 5.824   | -5.824  | -77.186 | -51.986 | -63.634 | -61.371 | -73.602 |
| 980 | 1.13 | -50.990 | -0.067 | 5.824   | -5.824  | -61.295 | -40.067 | -51.716 | -47.467 | -59.697 |
| 980 | 2.25 | -37.748 | -0.067 | 5.824   | -5.824  | -45.405 | -28.149 | -39.797 | -33.562 | -45.793 |
| 980 | 3.38 | -24.506 | -0.067 | 5.824   | -5.824  | -29.514 | -16.231 | -27.879 | -19.658 | -31.888 |
| 980 | 4.5  | -11.263 | -0.067 | 5.824   | -5.824  | -13.623 | -4.313  | -15.961 | -5.754  | -17.984 |

|     |      |         |       |        |         |         |        |         |        |         |
|-----|------|---------|-------|--------|---------|---------|--------|---------|--------|---------|
| 981 | 0    | 11.001  | 0.035 | 5.819  | -5.828  | 13.258  | 15.721 | 4.073   | 17.684 | 5.454   |
| 981 | 1.13 | 24.244  | 0.035 | 5.819  | -5.828  | 29.148  | 27.639 | 15.991  | 31.588 | 19.359  |
| 981 | 2.25 | 37.486  | 0.035 | 5.819  | -5.828  | 45.039  | 39.557 | 27.910  | 45.493 | 33.263  |
| 981 | 3.38 | 50.728  | 0.035 | 5.819  | -5.828  | 60.930  | 51.475 | 39.828  | 59.397 | 47.168  |
| 981 | 4.5  | 63.971  | 0.035 | 5.819  | -5.828  | 76.821  | 63.393 | 51.746  | 73.302 | 61.072  |
| 983 | 0    | -27.724 | 0.396 | 20.604 | -20.751 | -32.634 | -4.347 | -45.703 | -7.226 | -50.619 |
| 983 | 1.13 | -14.481 | 0.396 | 20.604 | -20.751 | -16.743 | 7.571  | -33.784 | 6.679  | -36.744 |
| 983 | 2.25 | -1.239  | 0.396 | 20.604 | -20.751 | -0.852  | 19.489 | -21.866 | 20.583 | -22.840 |
| 983 | 3.38 | 12.003  | 0.396 | 20.604 | -20.751 | 15.038  | 31.407 | -9.943  | 34.488 | -8.936  |
| 983 | 4.5  | 25.246  | 0.396 | 20.604 | -20.751 | 30.929  | 43.326 | 1.970   | 48.392 | 4.969   |

## MOMEN KOLOM

| BTG | STA | DL       | LL      | EL KA   | EL KI   | 1,2.MD+<br>1,6.ML | 0,9.MD+<br>MEKA | 0,9.MD+<br>MEKI | 1,05(MD+<br>0,6.ML+MEKA) | 1,05(MD+<br>0,6.ML+MEKI) |
|-----|-----|----------|---------|---------|---------|-------------------|-----------------|-----------------|--------------------------|--------------------------|
| 1   | 0   | -53.828  | -7.041  | 74.941  | -72.048 | -75.859           | 26.496          | -120.494        | 17.733                   | -136.606                 |
| 1   | 2.1 | 21.231   | 10.402  | 2.521   | -6.756  | 42.121            | 21.629          | 12.352          | 31.493                   | 21.752                   |
| 1   | 4.2 | 96.290   | 27.845  | -69.900 | 58.536  | 160.101           | 16.762          | 145.197         | 45.253                   | 180.110                  |
| 2   | 0   | -108.834 | -42.817 | 18.025  | -34.676 | -199.109          | -79.925         | -132.627        | -122.324                 | -177.660                 |
| 2   | 2.1 | -12.548  | -0.822  | 10.298  | 15.184  | -16.373           | -0.996          | 3.891           | -2.881                   | 2.250                    |
| 2   | 4.2 | 83.738   | 41.174  | 2.570   | 65.044  | 166.363           | 77.934          | 140.408         | 116.563                  | 182.160                  |
| 3   | 0   | -55.961  | -7.825  | 82.620  | -78.968 | -79.674           | 32.255          | -129.333        | 23.062                   | -146.606                 |
| 3   | 2.1 | 21.011   | 11.381  | 3.029   | -9.370  | 43.422            | 21.939          | 9.539           | 32.412                   | 19.393                   |
| 3   | 4.2 | 97.982   | 30.587  | -76.562 | 60.228  | 166.518           | 11.622          | 148.412         | 41.761                   | 185.391                  |
| 4   | 0   | -92.948  | -44.284 | 19.762  | -43.742 | -182.392          | -63.891         | -127.395        | -104.744                 | -171.424                 |
| 4   | 2.1 | -28.904  | -3.491  | 21.212  | 15.727  | -40.270           | -4.801          | -10.286         | -10.275                  | -16.035                  |
| 4   | 4.2 | 35.141   | 37.302  | 22.662  | 75.196  | 101.852           | 54.289          | 106.823         | 84.193                   | 139.354                  |
| 5   | 0   | -56.524  | -7.055  | 87.810  | -83.801 | -79.116           | 36.938          | -134.673        | 28.406                   | -151.786                 |
| 5   | 2.1 | 16.094   | 9.813   | 3.226   | -10.357 | 35.013            | 17.710          | 4.127           | 26.467                   | 12.206                   |
| 5   | 4.2 | 88.711   | 26.681  | -81.359 | 63.087  | 149.143           | -1.519          | 142.927         | 24.529                   | 176.197                  |
| 6   | 0   | -89.306  | -38.825 | 21.613  | -48.293 | -169.287          | -58.762         | -128.668        | -95.537                  | -168.938                 |
| 6   | 2.1 | -36.482  | -5.272  | 25.221  | 15.696  | -52.213           | -7.613          | -17.137         | -15.145                  | -25.146                  |
| 6   | 4.2 | 16.342   | 28.281  | 28.829  | 79.685  | 64.861            | 43.537          | 94.393          | 65.247                   | 118.646                  |
| 7   | 0   | -43.603  | -4.981  | 89.542  | -85.432 | -60.292           | 50.300          | -124.674        | 45.098                   | -138.624                 |
| 7   | 2.1 | -10.763  | 5.944   | 3.374   | -10.723 | -3.405            | -6.312          | -20.410         | -4.013                   | -18.816                  |
| 7   | 4.2 | 22.077   | 16.869  | -82.794 | 63.985  | 53.482            | -62.925         | 83.854          | -53.125                  | 100.992                  |
| 8   | 0   | -14.195  | -26.509 | 22.382  | -49.819 | -59.449           | 9.606           | -62.594         | -8.105                   | -83.916                  |
| 8   | 2.1 | -32.584  | -5.023  | 26.894  | 15.405  | -47.137           | -2.431          | -13.921         | -9.138                   | -21.203                  |
| 8   | 4.2 | -50.973  | 16.463  | 31.407  | 80.628  | -34.826           | -14.468         | 34.753          | -10.172                  | 41.510                   |
| 9   | 0   | -43.607  | -4.983  | 89.542  | -85.432 | -60.301           | 50.296          | -124.678        | 45.093                   | -138.630                 |
| 9   | 2.1 | -10.762  | 5.944   | 3.374   | -10.723 | -3.404            | -6.312          | -20.409         | -4.013                   | -18.815                  |
| 9   | 4.2 | 22.082   | 16.872  | -82.794 | 63.985  | 53.493            | -62.920         | 83.359          | -53.118                  | 101.000                  |
| 10  | 0   | -14.200  | -26.512 | 22.382  | -49.819 | -59.458           | 9.602           | -62.598         | -8.111                   | -83.921                  |
| 10  | 2.1 | -32.586  | -5.024  | 26.894  | 15.405  | -47.141           | -2.433          | -13.922         | -9.141                   | -21.205                  |
| 10  | 4.2 | -50.972  | 16.464  | 31.407  | 80.628  | -34.824           | -14.468         | 34.754          | -10.171                  | 41.511                   |
| 11  | 0   | -56.525  | -7.055  | 87.810  | -83.801 | -79.118           | 36.938          | -134.673        | 28.405                   | -151.787                 |
| 11  | 2.1 | 16.094   | 9.814   | 3.226   | -10.357 | 35.014            | 17.710          | 4.127           | 26.468                   | 12.206                   |
| 11  | 4.2 | 88.713   | 26.682  | -81.359 | 63.087  | 149.146           | -1.518          | 142.928         | 24.531                   | 176.199                  |
| 12  | 0   | -89.307  | -38.826 | 21.613  | -48.293 | -169.290          | -58.763         | -128.669        | -95.539                  | -168.940                 |
| 12  | 2.1 | -36.482  | -5.272  | 25.221  | 15.696  | -52.215           | -7.613          | -17.138         | -15.146                  | -25.147                  |
| 12  | 4.2 | 16.342   | 28.281  | 28.829  | 79.685  | 64.860            | 43.536          | 94.393          | 65.246                   | 118.645                  |
| 13  | 0   | -55.961  | -7.825  | 82.620  | -78.968 | -79.674           | 32.255          | -129.334        | 23.062                   | -146.606                 |
| 13  | 2.1 | 21.011   | 11.381  | 3.029   | -9.370  | 43.422            | 21.939          | 9.539           | 32.412                   | 19.393                   |
| 13  | 4.2 | 97.982   | 30.587  | -76.562 | 60.228  | 166.519           | 11.622          | 148.412         | 41.762                   | 185.391                  |
| 14  | 0   | -92.948  | -44.284 | 19.762  | -43.742 | -182.392          | -63.891         | -127.396        | -104.744                 | -171.424                 |
| 14  | 2.1 | -28.904  | -3.491  | 21.212  | 15.727  | -40.270           | -4.801          | -10.286         | -10.275                  | -16.035                  |
| 14  | 4.2 | 35.141   | 37.302  | 22.662  | 75.196  | 101.852           | 54.289          | 106.823         | 84.193                   | 139.354                  |
| 15  | 0   | -53.828  | -7.041  | 74.941  | -72.048 | -75.859           | 26.495          | -120.494        | 17.732                   | -136.606                 |
| 15  | 2.1 | 21.231   | 10.402  | 2.521   | -6.756  | 42.121            | 21.629          | 12.352          | 31.493                   | 21.752                   |
| 15  | 4.2 | 96.290   | 27.845  | -69.900 | 58.536  | 160.101           | 16.762          | 145.197         | 45.253                   | 180.110                  |
| 16  | 0   | -108.834 | -42.817 | 18.025  | -34.676 | -199.109          | -79.926         | -132.627        | -122.324                 | -177.660                 |
| 16  | 2.1 | -12.548  | -0.822  | 10.298  | 15.184  | -16.373           | -0.996          | 3.891           | -2.881                   | 2.250                    |
| 16  | 4.2 | 83.738   | 41.174  | 2.570   | 65.044  | 166.363           | 77.934          | 140.408         | 116.563                  | 182.160                  |
| 17  | 0   | 48.439   | 6.387   | 72.020  | -74.978 | 68.347            | 115.615         | -21.383         | 130.506                  | -23.842                  |
| 17  | 2.1 | -21.899  | -10.491 | 6.738   | -2.502  | -43.063           | -12.971         | -22.211         | -22.528                  | -32.230                  |
| 17  | 4.2 | -92.236  | -27.368 | -58.544 | 69.974  | -154.473          | -141.557        | -13.039         | -175.562                 | -40.617                  |
| 18  | 0   | 106.075  | 42.467  | 34.592  | -17.992 | 195.237           | 130.060         | 77.476          | 174.455                  | 119.242                  |
| 18  | 2.1 | 10.277   | 0.483   | -15.141 | -10.400 | 13.105            | -5.892          | -1.151          | -4.803                   | 0.175                    |
| 18  | 4.2 | -85.522  | -41.501 | -64.874 | -2.808  | -169.028          | -141.844        | -79.778         | -184.062                 | -118.892                 |
| 19  | 0   | 45.266   | 6.608   | 78.970  | -82.640 | 64.893            | 119.710         | -41.900         | 134.612                  | -35.079                  |
| 19  | 2.1 | -23.014  | -11.644 | 9.333   | -3.008  | -46.246           | -11.379         | -23.720         | -21.700                  | -34.658                  |
| 19  | 4.2 | -91.294  | -29.896 | -60.304 | 76.624  | -157.385          | -142.468        | -5.540          | -178.012                 | -34.237                  |
| 20  | 0   | 84.594   | 43.212  | 43.628  | -19.721 | 170.652           | 119.763         | 56.414          | 161.857                  | 95.340                   |
| 20  | 2.1 | 21.855   | 2.360   | -15.624 | -21.406 | 30.001            | 4.045           | -1.737          | 8.028                    | 1.958                    |
| 20  | 4.2 | -40.885  | -38.492 | -74.877 | -23.090 | -110.650          | -111.673        | -59.887         | -145.800                 | -91.424                  |
| 21  | 0   | 43.852   | 5.774   | 83.842  | -87.740 | 61.861            | 123.308         | -48.274         | 137.716                  | -42.445                  |
| 21  | 2.1 | -26.058  | -10.745 | 10.375  | -3.243  | -48.463           | -13.078         | -26.696         | -23.237                  | -37.536                  |

|    |      |         |         |          |          |          |          |          |          |          |
|----|------|---------|---------|----------|----------|----------|----------|----------|----------|----------|
| 21 | 4.2  | -95.968 | -27.265 | -63.092  | 81.254   | -158.786 | -149.464 | -5.118   | -184.191 | -32.627  |
| 22 | 0    | 84.205  | 37.591  | 48.014   | -21.335  | 161.191  | 123.798  | 54.449   | 162.512  | 89.695   |
| 22 | 2.1  | 12.772  | 1.386   | -15.622  | -25.473  | 17.544   | -4.128   | -13.979  | -2.120   | -12.463  |
| 22 | 4.2  | -58.662 | -34.819 | -79.258  | -29.611  | -126.104 | -132.054 | -82.407  | -166.752 | -114.622 |
| 23 | 0    | 60.278  | 17.100  | 79.070   | 33.455   | 99.693   | 133.320  | 87.706   | 157.088  | 109.193  |
| 23 | 1.05 | 29.046  | 8.182   | 47.431   | 30.158   | 47.946   | 73.572   | 56.300   | 85.456   | 67.319   |
| 23 | 2.1  | -2.186  | -0.736  | 15.792   | 26.861   | -3.800   | 13.825   | 24.894   | 13.823   | 25.446   |
| 24 | 0    | -2.186  | -0.736  | 15.792   | 26.861   | -3.800   | 13.825   | 24.894   | 13.823   | 25.446   |
| 24 | 1.05 | -33.418 | -9.654  | -15.847  | 23.564   | -55.547  | -45.922  | -6.511   | -57.809  | -16.427  |
| 24 | 2.1  | -64.649 | -18.571 | -47.486  | 20.268   | -107.293 | -105.670 | -37.917  | -129.442 | -58.301  |
| 25 | 0    | 90.844  | 16.775  | 62.336   | -81.137  | 135.853  | 144.096  | 0.624    | 171.407  | 20.761   |
| 25 | 1.05 | 58.195  | 11.855  | 25.475   | -38.581  | 88.801   | 77.850   | 13.794   | 95.322   | 28.063   |
| 25 | 2.1  | 25.545  | 6.935   | -11.385  | 3.975    | 41.750   | 11.605   | 26.965   | 19.237   | 35.365   |
| 26 | 0    | 25.545  | 6.935   | -11.385  | 3.975    | 41.750   | 11.605   | 26.965   | 19.237   | 35.365   |
| 26 | 1.05 | -7.105  | 2.016   | -48.245  | 46.531   | -5.301   | -54.640  | 40.136   | -56.848  | 42.667   |
| 26 | 2.1  | -39.755 | -2.904  | -85.105  | 89.087   | -52.353  | -120.885 | 53.307   | -132.933 | 49.968   |
| 27 | 0    | 43.850  | 5.773   | 83.842   | -87.740  | 61.856   | 123.307  | -48.276  | 137.713  | -42.448  |
| 27 | 2.1  | -26.056 | -10.744 | 10.375   | -3.243   | -48.457  | -13.075  | -26.693  | -23.233  | -37.532  |
| 27 | 4.2  | -95.961 | -27.261 | -63.092  | 81.254   | -158.770 | -149.457 | -5.111   | -184.180 | -32.617  |
| 28 | 0    | 84.197  | 37.587  | 48.014   | -21.335  | 161.176  | 123.791  | 54.442   | 162.501  | 89.685   |
| 28 | 2.1  | 12.768  | 1.384   | -15.622  | -25.473  | 17.536   | -4.131   | -13.982  | -2.125   | -12.468  |
| 28 | 4.2  | -58.661 | -34.819 | -79.258  | -29.611  | -126.103 | -132.054 | -82.406  | -166.751 | -114.622 |
| 29 | 0    | 45.266  | 6.608   | 78.970   | -82.640  | 64.893   | 119.710  | -41.900  | 134.612  | -35.079  |
| 29 | 2.1  | -23.014 | -11.644 | 9.333    | -3.008   | -46.246  | -11.379  | -23.720  | -21.700  | -34.658  |
| 29 | 4.2  | -91.294 | -29.896 | -60.304  | 76.624   | -157.386 | -142.468 | -5.540   | -178.012 | -34.237  |
| 30 | 0    | 84.594  | 43.212  | 43.628   | -19.721  | 170.652  | 119.763  | 56.414   | 161.857  | 95.340   |
| 30 | 2.1  | 21.854  | 2.360   | -15.624  | -21.406  | 30.001   | 4.045    | -1.737   | 8.028    | 1.958    |
| 30 | 4.2  | -40.886 | -38.493 | -74.877  | -23.090  | -110.651 | -111.674 | -59.887  | -145.801 | -91.425  |
| 31 | 0    | 48.439  | 6.387   | 72.020   | -74.978  | 68.346   | 115.615  | -31.383  | 130.506  | -23.842  |
| 31 | 2.1  | -21.899 | -10.491 | 6.738    | -2.502   | -43.063  | -12.971  | -22.211  | -22.528  | -32.230  |
| 31 | 4.2  | -92.236 | -27.368 | -58.544  | 69.974   | -154.473 | -141.557 | -13.039  | -175.562 | -40.617  |
| 32 | 0    | 106.075 | 42.467  | 34.592   | -17.992  | 195.237  | 130.060  | 77.476   | 174.455  | 119.242  |
| 32 | 2.1  | 10.276  | 0.483   | -15.141  | -10.400  | 13.105   | -5.892   | -1.151   | -4.803   | 0.175    |
| 32 | 4.2  | -85.522 | -41.501 | -64.874  | -2.808   | -169.028 | -141.844 | -79.778  | -184.062 | -118.893 |
| 33 | 0    | -3.169  | -0.382  | 90.943   | -90.974  | -4.414   | 88.091   | -93.826  | 91.922   | -99.091  |
| 33 | 2.1  | -0.370  | -0.052  | -0.093   | 0.082    | -0.526   | -0.426   | -0.251   | -0.518   | -0.335   |
| 33 | 4.2  | 2.429   | 0.279   | -91.129  | 91.138   | 3.361    | -88.943  | 93.324   | -92.959  | 98.421   |
| 34 | 0    | -4.827  | -0.639  | 85.457   | -85.509  | -6.815   | 81.112   | -89.854  | 84.259   | -95.256  |
| 34 | 2.1  | 0.755   | 0.096   | -17.285  | 17.298   | 1.059    | -16.606  | 17.977   | -17.296  | 19.016   |
| 34 | 4.2  | 6.337   | 0.831   | -120.027 | 120.105  | 8.934    | -114.324 | 125.809  | -118.851 | 133.288  |
| 35 | 0    | -3.169  | -0.382  | 90.943   | -90.974  | -4.414   | 88.091   | -93.826  | 91.922   | -99.091  |
| 35 | 2.1  | -0.370  | -0.052  | -0.093   | 0.082    | -0.526   | -0.426   | -0.251   | -0.518   | -0.335   |
| 35 | 4.2  | 2.429   | 0.279   | -91.129  | 91.138   | 3.361    | -88.943  | 93.324   | -92.959  | 98.421   |
| 36 | 0    | -4.828  | -0.639  | 85.457   | -85.509  | -6.816   | 81.112   | -89.854  | 84.258   | -95.256  |
| 36 | 2.1  | 0.755   | 0.096   | -17.285  | 17.298   | 1.059    | -16.606  | 17.977   | -17.296  | 19.016   |
| 36 | 4.2  | 6.337   | 0.831   | -120.027 | 120.105  | 8.934    | -114.324 | 125.809  | -118.851 | 133.288  |
| 37 | 0    | 39.741  | 2.896   | 85.105   | -89.087  | 52.322   | 120.872  | -53.320  | 132.913  | -49.989  |
| 37 | 1.05 | 7.107   | -2.015  | 48.245   | -46.531  | 5.305    | 54.642   | -40.134  | 56.851   | -42.664  |
| 37 | 2.1  | -25.526 | -6.925  | 11.385   | -3.975   | -41.712  | -11.589  | -26.949  | -19.211  | -35.339  |
| 38 | 0    | -25.526 | -6.925  | 11.385   | -3.975   | -41.712  | -11.589  | -26.949  | -19.211  | -35.339  |
| 38 | 1.05 | -58.159 | -11.836 | -25.475  | 38.581   | -88.728  | -77.819  | -13.763  | -95.273  | -28.014  |
| 38 | 2.1  | -90.793 | -16.746 | -62.336  | 81.137   | -135.745 | -144.049 | -0.577   | -171.335 | -20.689  |
| 39 | 0    | 64.597  | 18.542  | 47.486   | -20.268  | 107.184  | 105.623  | 37.870   | 129.368  | 58.228   |
| 39 | 1.05 | 33.382  | 9.634   | 15.847   | -23.564  | 55.472   | 45.890   | 6.479    | 57.759   | 16.377   |
| 39 | 2.1  | 2.166   | 0.725   | -15.792  | -26.861  | 3.760    | -13.843  | -24.912  | -13.850  | -25.473  |
| 40 | 0    | 2.166   | 0.725   | -15.792  | -26.861  | 3.759    | -13.843  | -24.912  | -13.851  | -25.473  |
| 40 | 1.05 | -29.049 | -8.184  | -47.431  | -30.158  | -47.953  | -73.575  | -56.303  | -85.460  | -67.324  |
| 40 | 2.1  | -60.265 | -17.092 | -79.070  | -33.455  | -99.665  | -133.308 | -87.694  | -157.070 | -109.174 |
| 60 | 0    | 23.373  | 6.455   | 65.392   | -66.133  | 38.376   | 86.428   | -45.097  | 97.270   | -40.832  |
| 60 | 2.1  | 2.318   | 0.630   | 12.012   | -12.196  | 3.789    | 14.098   | -10.110  | 15.444   | -9.976   |
| 60 | 4.2  | -18.738 | -5.194  | -41.367  | 41.741   | -30.797  | -58.231  | 24.877   | -66.383  | 20.881   |
| 61 | 0    | 13.907  | 2.881   | 77.212   | -78.615  | 21.298   | 89.728   | -66.099  | 97.490   | -66.129  |
| 61 | 2.1  | 2.505   | 1.235   | -0.174   | 0.264    | 4.983    | 2.081    | 2.519    | 3.226    | 3.687    |
| 61 | 4.2  | -8.896  | -0.411  | -77.560  | 79.144   | -11.332  | -85.567  | 71.138   | -91.038  | 73.502   |
| 73 | 0    | -15.763 | -2.112  | 139.349  | -139.451 | -22.296  | 125.162  | -153.638 | 128.434  | -164.306 |
| 73 | 2.1  | -1.782  | -0.232  | 20.203   | -20.210  | -2.509   | 18.599   | -21.814  | 19.196   | -23.238  |
| 73 | 4.2  | 12.199  | 1.649   | -98.943  | 99.031   | 17.277   | -87.964  | 110.010  | -90.043  | 117.830  |

|     |     |          |         |          |          |          |          |          |          |          |
|-----|-----|----------|---------|----------|----------|----------|----------|----------|----------|----------|
| 74  | 0   | -3.254   | -0.262  | 92.051   | -92.024  | -4.324   | 89.122   | -94.953  | 93.072   | -100.207 |
| 74  | 2.1 | 1.365    | 0.200   | -2.680   | 2.696    | 1.958    | -1.452   | 3.925    | -1.255   | 4.390    |
| 74  | 4.2 | 5.985    | 0.661   | -97.412  | 97.416   | 8.240    | -92.025  | 102.803  | -95.582  | 108.988  |
| 75  | 0   | -37.443  | -4.382  | 151.570  | -151.564 | -51.943  | 117.871  | -185.263 | 117.072  | -201.218 |
| 75  | 2.1 | -3.006   | -0.307  | 21.673   | -21.657  | -4.098   | 18.967   | -24.363  | 19.407   | -26.090  |
| 75  | 4.2 | 31.431   | 3.768   | -108.224 | 108.249  | 43.746   | -79.936  | 136.537  | -78.259  | 149.038  |
| 76  | 0   | 0.649    | 0.604   | 96.403   | -96.294  | 1.746    | 96.987   | -95.710  | 102.286  | -100.047 |
| 76  | 2.1 | 4.334    | 0.626   | -3.414   | 3.429    | 6.202    | 0.487    | 7.330    | 1.361    | 8.546    |
| 76  | 4.2 | 8.019    | 0.647   | -103.231 | 103.153  | 10.658   | -96.014  | 110.370  | -99.565  | 117.139  |
| 77  | 0   | -39.068  | 9.454   | 155.467  | -155.210 | -31.755  | 120.306  | -190.371 | 128.175  | -198.036 |
| 77  | 2.1 | -1.313   | 1.087   | 22.158   | -22.061  | 0.163    | 20.976   | -23.243  | 22.572   | -23.859  |
| 77  | 4.2 | 36.441   | -7.280  | -111.150 | 111.087  | 32.081   | -78.354  | 143.884  | -83.031  | 150.318  |
| 78  | 0   | 13.416   | 8.053   | 97.272   | -97.213  | 28.984   | 109.347  | -85.138  | 121.296  | -82.913  |
| 78  | 2.1 | 10.849   | 3.333   | -3.899   | 3.885    | 18.353   | 5.866    | 13.649   | 9.398    | 17.571   |
| 78  | 4.2 | 8.283    | -1.386  | -105.070 | 104.982  | 7.722    | -97.615  | 112.436  | -102.500 | 118.055  |
| 79  | 0   | -39.051  | 9.463   | 155.467  | -155.210 | -31.721  | 120.321  | -190.356 | 128.198  | -198.013 |
| 79  | 2.1 | -1.341   | 1.072   | 22.158   | -22.061  | 0.106    | 20.951   | -23.268  | 22.533   | -23.897  |
| 79  | 4.2 | 36.369   | -7.319  | -111.150 | 111.087  | 31.932   | -78.418  | 143.820  | -83.131  | 150.218  |
| 80  | 0   | 13.489   | 8.093   | 97.272   | -97.213  | 29.136   | 109.412  | -85.073  | 121.398  | -82.811  |
| 80  | 2.1 | 10.876   | 3.348   | -3.899   | 3.885    | 18.407   | 5.889    | 13.673   | 9.435    | 17.607   |
| 80  | 4.2 | 8.262    | -1.397  | -105.070 | 104.982  | 7.679    | -97.634  | 112.418  | -102.528 | 118.026  |
| 81  | 0   | -37.443  | -4.382  | 151.570  | -151.564 | -51.943  | 117.871  | -185.263 | 117.072  | -201.218 |
| 81  | 2.1 | -3.009   | -0.309  | 21.673   | -21.657  | -4.105   | 18.964   | -24.366  | 19.402   | -26.095  |
| 81  | 4.2 | 31.424   | 3.765   | -108.224 | 108.249  | 43.733   | -79.942  | 136.531  | -78.267  | 149.029  |
| 82  | 0   | 0.657    | 0.609   | 96.403   | -96.294  | 1.762    | 96.994   | -95.703  | 102.296  | -100.036 |
| 82  | 2.1 | 4.337    | 0.627   | -3.414   | 3.429    | 6.208    | 0.489    | 7.333    | 1.364    | 8.550    |
| 82  | 4.2 | 8.017    | 0.646   | -103.231 | 103.153  | 10.654   | -96.015  | 110.369  | -99.567  | 117.136  |
| 83  | 0   | -15.764  | -2.113  | 139.349  | -139.451 | -22.297  | 125.162  | -153.638 | 128.434  | -164.306 |
| 83  | 2.1 | -1.782   | -0.232  | 20.203   | -20.210  | -2.509   | 18.599   | -21.814  | 19.196   | -23.238  |
| 83  | 4.2 | 12.199   | 1.649   | -98.943  | 99.031   | 17.278   | -87.964  | 110.010  | -90.042  | 117.831  |
| 84  | 0   | -3.255   | -0.262  | 92.051   | -92.024  | -4.325   | 89.122   | -94.953  | 93.071   | -100.208 |
| 84  | 2.1 | 1.365    | 0.200   | -2.680   | 2.696    | 1.958    | -1.452   | 3.925    | -1.255   | 4.390    |
| 84  | 4.2 | 5.986    | 0.661   | -97.412  | 97.416   | 8.241    | -92.025  | 102.803  | -95.581  | 108.989  |
| 101 | 0   | -12.255  | -0.822  | 79.079   | -77.623  | -16.021  | 68.049   | -88.653  | 69.647   | -94.890  |
| 101 | 2.1 | 2.490    | 1.233   | 0.258    | -0.180   | 4.961    | 2.499    | 2.061    | 3.662    | 3.202    |
| 101 | 4.2 | 17.235   | 3.288   | -78.563  | 77.262   | 25.943   | -63.051  | 92.774   | -62.323  | 101.294  |
| 105 | 0   | -20.337  | -5.391  | 41.657   | -41.422  | -33.030  | 23.354   | -59.725  | 18.990   | -68.243  |
| 105 | 2.1 | 2.893    | 0.701   | -12.191  | 11.998   | 4.593    | -9.587   | 14.602   | -9.321   | 16.077   |
| 105 | 4.2 | 26.123   | 6.793   | -66.039  | 65.417   | 42.217   | -42.528  | 88.928   | -37.632  | 100.397  |
| 109 | 0   | -26.123  | -6.793  | 66.039   | -65.417  | -42.217  | 42.528   | -88.928  | 37.632   | -100.397 |
| 109 | 2.1 | -2.893   | -0.701  | 12.191   | -11.998  | -4.593   | 9.587    | -14.602  | 9.321    | -16.077  |
| 109 | 4.2 | 20.337   | 5.391   | -41.657  | 41.422   | 33.030   | -23.354  | 59.725   | -18.990  | 68.243   |
| 110 | 0   | -17.235  | -3.288  | 78.563   | -77.262  | -25.943  | 63.051   | -92.774  | 62.323   | -101.294 |
| 110 | 2.1 | -2.490   | -1.233  | -0.258   | 0.180    | -4.961   | -2.499   | -2.061   | -3.662   | -3.202   |
| 110 | 4.2 | 12.255   | 0.822   | -79.079  | 77.623   | 16.022   | -68.049  | 88.653   | -69.647  | 94.890   |
| 112 | 0   | 8.896    | 0.411   | 77.560   | -79.144  | 11.332   | 85.567   | -71.138  | 91.038   | -73.502  |
| 112 | 2.1 | -2.505   | -1.235  | 0.174    | -0.264   | -4.983   | -2.081   | -2.519   | -3.226   | -3.687   |
| 112 | 4.2 | -13.907  | -2.882  | -77.212  | 78.615   | -21.299  | -89.728  | 66.099   | -97.490  | 66.129   |
| 113 | 0   | 18.738   | 5.195   | 41.367   | -41.741  | 30.797   | 58.231   | -24.877  | 66.383   | -20.880  |
| 113 | 2.1 | -2.318   | -0.630  | -12.012  | 12.196   | -3.789   | -14.098  | 10.110   | -15.444  | 9.976    |
| 113 | 4.2 | -23.373  | -6.455  | -65.392  | 66.133   | -38.376  | -86.428  | 45.097   | -97.270  | 40.832   |
| 119 | 0   | -49.966  | -4.025  | 95.415   | -94.792  | -66.399  | 50.445   | -139.762 | 45.185   | -154.532 |
| 119 | 2.1 | 11.988   | 4.188   | -6.271   | 6.317    | 21.086   | 4.518    | 17.106   | 8.641    | 21.859   |
| 119 | 4.2 | 73.942   | 12.402  | -107.956 | 107.427  | 108.572  | -41.409  | 173.975  | -27.902  | 198.250  |
| 120 | 0   | -46.233  | -22.406 | -2.291   | 2.192    | -91.329  | -43.901  | -39.418  | -65.066  | -60.359  |
| 120 | 2.1 | -14.514  | -1.650  | -1.157   | 0.373    | -20.056  | -14.219  | -12.689  | -17.494  | -15.887  |
| 120 | 4.2 | 17.206   | 19.106  | -0.024   | -1.447   | 51.217   | 15.462   | 14.039   | 30.078   | 28.584   |
| 121 | 0   | 45.804   | 3.515   | 94.716   | -95.493  | 60.589   | 135.939  | -54.270  | 149.760  | -49.959  |
| 121 | 2.1 | -11.689  | -4.152  | -6.318   | 6.270    | -20.669  | -16.838  | -4.250   | -21.523  | -8.305   |
| 121 | 4.2 | -69.181  | -11.819 | -107.351 | 108.034  | -101.928 | -169.614 | 45.771   | -192.805 | 33.349   |
| 122 | 0   | 95.304   | 20.448  | 76.548   | -76.762  | 147.082  | 162.321  | 9.011    | 193.327  | 32.351   |
| 122 | 2.1 | -3.787   | -0.849  | -8.382   | 8.374    | -5.902   | -11.790  | 4.966    | -13.312  | 4.282    |
| 122 | 4.2 | -102.877 | -22.146 | -93.312  | 93.510   | -158.886 | -185.901 | 0.921    | -219.951 | -23.787  |
| 131 | 0   | -49.966  | -4.025  | 95.415   | -94.792  | -66.399  | 50.445   | -139.762 | 45.185   | -154.532 |
| 131 | 2.1 | 11.988   | 4.188   | -6.271   | 6.317    | 21.086   | 4.518    | 17.106   | 8.641    | 21.859   |
| 131 | 4.2 | 73.941   | 12.402  | -107.956 | 107.427  | 108.572  | -41.409  | 173.975  | -27.902  | 198.250  |
| 132 | 0   | -98.634  | -20.856 | 76.654   | -76.650  | -151.730 | -12.116  | -165.421 | -36.218  | -197.188 |

|     |      |          |         |          |          |          |          |          |          |          |
|-----|------|----------|---------|----------|----------|----------|----------|----------|----------|----------|
| 32  | 2.1  | 4.201    | 0.900   | -8.375   | 8.373    | 6.481    | -4.593   | 12.154   | -3.815   | 13.770   |
| 32  | 4.2  | 107.037  | 22.655  | -93.404  | 93.396   | 164.692  | 2.929    | 189.729  | 28.587   | 224.727  |
| 33  | 0    | 45.804   | 3.515   | 94.716   | -95.493  | 60.589   | 135.939  | -54.270  | 149.760  | -49.959  |
| 33  | 2.1  | -11.689  | -4.152  | -6.318   | 6.270    | -20.669  | -16.838  | -4.250   | -21.523  | -8.305   |
| 33  | 4.2  | -69.181  | -11.819 | -107.351 | 108.034  | -101.928 | -169.614 | 45.771   | -192.805 | 33.349   |
| 34  | 0    | 95.304   | 20.449  | 76.548   | -76.762  | 147.082  | 162.321  | 9.011    | 193.327  | 32.351   |
| 34  | 2.1  | -3.787   | -0.849  | -8.382   | 8.374    | -5.902   | -11.790  | 4.966    | -13.312  | 4.282    |
| 34  | 4.2  | -102.878 | -22.146 | -93.312  | 93.510   | -158.886 | -185.902 | 0.920    | -219.951 | -23.788  |
| 47  | 0    | -7.345   | -1.677  | 115.679  | -115.585 | -11.498  | 109.069  | -122.195 | 112.694  | -130.133 |
| 47  | 1.05 | 0.178    | -0.766  | 74.037   | -73.399  | -1.011   | 74.197   | -73.239  | 77.443   | -77.364  |
| 47  | 2.1  | 7.701    | 0.146   | 32.395   | -31.213  | 9.475    | 39.326   | -24.282  | 42.193   | -24.595  |
| 148 | 0    | -21.972  | -2.964  | 117.721  | -116.759 | -31.109  | 97.946   | -136.534 | 98.669   | -147.535 |
| 148 | 1.05 | 1.848    | -4.397  | 82.725   | -80.990  | -4.817   | 84.388   | -79.327  | 86.032   | -85.869  |
| 148 | 2.1  | 25.668   | -5.829  | 47.730   | -45.221  | 21.475   | 70.831   | -22.120  | 73.395   | -24.204  |
| 149 | 0    | -25.421  | -3.525  | 127.648  | -126.185 | -36.146  | 104.769  | -149.064 | 105.118  | -161.407 |
| 149 | 1.05 | -0.529   | -5.025  | 90.287   | -87.980  | -8.676   | 89.810   | -88.456  | 91.079   | -96.101  |
| 149 | 2.1  | 24.363   | -6.526  | 52.925   | -49.775  | 18.794   | 74.851   | -27.849  | 77.041   | -30.794  |
| 150 | 0    | -23.950  | -2.936  | 135.192  | -133.454 | -33.437  | 113.637  | -155.009 | 114.955  | -167.123 |
| 150 | 1.05 | 0.033    | -4.420  | 95.750   | -93.161  | -7.032   | 95.780   | -93.132  | 97.788   | -100.569 |
| 150 | 2.1  | 24.015   | -5.904  | 56.309   | -52.868  | 19.373   | 77.923   | -31.255  | 80.622   | -34.015  |
| 151 | 0    | -8.260   | -0.714  | 137.355  | -135.575 | -11.054  | 129.921  | -143.009 | 135.101  | -151.476 |
| 151 | 1.05 | 12.245   | -2.621  | 97.440   | -94.784  | 10.499   | 108.460  | -83.764  | 113.517  | -88.318  |
| 151 | 2.1  | 32.749   | -4.529  | 57.524   | -53.993  | 32.053   | 86.998   | -24.519  | 91.933   | -25.160  |
| 152 | 0    | -8.255   | -0.711  | 137.355  | -135.575 | -11.043  | 129.926  | -143.004 | 135.108  | -151.468 |
| 152 | 1.05 | 12.245   | -2.621  | 97.440   | -94.784  | 10.500   | 108.460  | -83.764  | 113.517  | -88.318  |
| 152 | 2.1  | 32.744   | -4.532  | 57.524   | -53.993  | 32.042   | 86.994   | -24.524  | 91.926   | -25.167  |
| 153 | 0    | -23.950  | -2.936  | 135.192  | -133.454 | -33.437  | 113.637  | -155.009 | 114.955  | -167.123 |
| 153 | 1.05 | 0.032    | -4.420  | 95.750   | -93.161  | -7.033   | 95.780   | -93.132  | 97.788   | -100.570 |
| 153 | 2.1  | 24.015   | -5.904  | 56.309   | -52.868  | 19.371   | 77.923   | -31.255  | 80.621   | -34.016  |
| 154 | 0    | -25.421  | -3.525  | 127.648  | -126.185 | -36.146  | 104.769  | -149.064 | 105.117  | -161.408 |
| 154 | 1.05 | -0.529   | -5.026  | 90.287   | -87.980  | -8.676   | 89.810   | -88.456  | 91.079   | -96.101  |
| 154 | 2.1  | 24.363   | -6.526  | 52.925   | -49.775  | 18.794   | 74.851   | -27.849  | 77.041   | -30.794  |
| 182 | 0    | -21.973  | -2.964  | 117.721  | -116.759 | -31.110  | 97.946   | -136.534 | 98.668   | -147.535 |
| 182 | 1.05 | 1.848    | -4.397  | 82.725   | -80.990  | -4.818   | 84.388   | -79.327  | 86.032   | -85.869  |
| 182 | 2.1  | 25.668   | -5.829  | 47.730   | -45.221  | 21.475   | 70.831   | -22.120  | 73.395   | -24.204  |
| 184 | 0    | -7.345   | -1.678  | 115.679  | -115.585 | -11.498  | 109.068  | -122.195 | 112.694  | -130.133 |
| 184 | 1.05 | 0.178    | -0.766  | 74.037   | -73.399  | -1.011   | 74.197   | -73.239  | 77.443   | -77.364  |
| 184 | 2.1  | 7.701    | 0.146   | 32.395   | -31.213  | 9.475    | 39.326   | -24.282  | 42.193   | -24.595  |
| 389 | 0    | 39.027   | 10.927  | 23.998   | -34.314  | 64.316   | 59.123   | 0.810    | 73.061   | 11.833   |
| 389 | 2.1  | 19.607   | 5.372   | 7.995    | -11.211  | 32.123   | 25.641   | 6.435    | 32.366   | 12.200   |
| 389 | 4.2  | 0.186    | -0.182  | -8.007   | 11.893   | -0.069   | -7.840   | 12.060   | -8.328   | 12.568   |
| 390 | 0    | 80.453   | 21.917  | 11.687   | -2.345   | 131.611  | 84.095   | 70.063   | 110.555  | 95.822   |
| 390 | 2.1  | 75.859   | 21.711  | -42.326  | -3.862   | 125.768  | 25.947   | 64.412   | 48.887   | 89.275   |
| 390 | 4.2  | 71.266   | 21.504  | -96.340  | -5.379   | 119.925  | -32.201  | 58.760   | -12.781  | 82.729   |
| 391 | 0    | 88.235   | 23.983  | 5.659    | -0.375   | 144.255  | 85.071   | 79.037   | 113.698  | 107.363  |
| 391 | 2.1  | 87.509   | 24.571  | -65.608  | -3.388   | 144.324  | 13.150   | 75.370   | 38.476   | 103.806  |
| 391 | 4.2  | 86.783   | 25.159  | -136.875 | -6.402   | 144.393  | -58.771  | 71.702   | -36.747  | 100.250  |
| 392 | 0    | 88.750   | 23.547  | 1.998    | -0.354   | 144.174  | 81.873   | 79.521   | 110.119  | 107.650  |
| 392 | 2.1  | 101.805  | 26.679  | -75.320  | -2.540   | 164.852  | 16.304   | 89.084   | 44.616   | 121.035  |
| 392 | 4.2  | 114.860  | 29.811  | -152.638 | -4.727   | 185.529  | -49.264  | 98.647   | -20.886  | 134.421  |
| 393 | 0    | 141.055  | 37.968  | 2.263    | -0.812   | 230.015  | 129.212  | 126.137  | 174.404  | 171.175  |
| 393 | 2.1  | 118.696  | 33.004  | -78.711  | -1.871   | 195.241  | 28.115   | 104.955  | 62.777   | 143.459  |
| 393 | 4.2  | 96.337   | 28.039  | -159.685 | -2.930   | 160.468  | -72.982  | 83.773   | -48.850  | 115.742  |
| 394 | 0    | 141.055  | 37.969  | 2.263    | -0.812   | 230.015  | 129.213  | 126.138  | 174.404  | 171.175  |
| 394 | 2.1  | 118.695  | 33.003  | -78.711  | -1.871   | 195.239  | 28.114   | 104.954  | 62.775   | 143.457  |
| 394 | 4.2  | 96.335   | 28.038  | -159.685 | -2.930   | 160.463  | -72.984  | 83.771   | -48.854  | 115.739  |
| 395 | 0    | 88.750   | 23.546  | 1.998    | -0.354   | 144.174  | 81.872   | 79.521   | 110.119  | 107.650  |
| 395 | 2.1  | 101.805  | 26.679  | -75.320  | -2.540   | 164.851  | 16.304   | 89.084   | 44.616   | 121.035  |
| 395 | 4.2  | 114.860  | 29.811  | -152.638 | -4.727   | 185.529  | -49.264  | 98.647   | -20.887  | 134.421  |
| 396 | 0    | 88.235   | 23.983  | 5.659    | -0.375   | 144.255  | 85.071   | 79.037   | 113.698  | 107.363  |
| 396 | 2.1  | 87.509   | 24.571  | -65.608  | -3.388   | 144.324  | 13.150   | 75.370   | 38.476   | 103.806  |
| 396 | 4.2  | 86.783   | 25.159  | -136.875 | -6.402   | 144.393  | -58.770  | 71.703   | -36.747  | 100.250  |
| 397 | 0    | 80.453   | 21.917  | 11.687   | -2.345   | 131.611  | 84.095   | 70.063   | 110.555  | 95.822   |
| 397 | 2.1  | 75.859   | 21.711  | -42.326  | -3.862   | 125.768  | 25.947   | 64.412   | 48.887   | 89.275   |
| 397 | 4.2  | 71.266   | 21.504  | -96.340  | -5.379   | 119.925  | -32.201  | 58.760   | -12.781  | 82.729   |
| 398 | 0    | 39.027   | 10.927  | 23.998   | -34.314  | 64.316   | 59.123   | 0.810    | 73.060   | 11.833   |
| 398 | 2.1  | 19.607   | 5.372   | 7.995    | -11.211  | 32.123   | 25.641   | 6.435    | 32.366   | 12.200   |

|     |      |         |         |         |          |          |          |          |          |          |
|-----|------|---------|---------|---------|----------|----------|----------|----------|----------|----------|
| 398 | 4.2  | 0.186   | -0.182  | -8.007  | 11.893   | -0.069   | -7.840   | 12.060   | -8.328   | 12.568   |
| 399 | 0    | -83.123 | -20.255 | 57.006  | -54.855  | -132.155 | -17.805  | -129.666 | -40.183  | -157.638 |
| 399 | 2.1  | 8.265   | 1.168   | 11.598  | -11.138  | 11.787   | 19.036   | -3.699   | 21.592   | -2.280   |
| 399 | 4.2  | 99.652  | 22.591  | -33.810 | 32.580   | 155.729  | 55.877   | 122.268  | 83.367   | 153.077  |
| 400 | 0    | -84.074 | -22.657 | 1.921   | -0.562   | -137.140 | -73.746  | -76.229  | -100.535 | -103.142 |
| 400 | 2.1  | -54.813 | -18.515 | -5.538  | 1.166    | -95.399  | -54.870  | -48.165  | -75.033  | -67.993  |
| 400 | 4.2  | -25.551 | -14.373 | -12.997 | 2.894    | -53.658  | -35.993  | -20.102  | -49.531  | -32.845  |
| 401 | 0    | 80.820  | 19.969  | 54.711  | -57.134  | 128.935  | 127.449  | 15.604   | 154.888  | 37.451   |
| 401 | 2.1  | -8.811  | -1.237  | 11.133  | -11.618  | -12.552  | 3.204    | -19.548  | 1.659    | -22.229  |
| 401 | 4.2  | -98.442 | -22.443 | -32.444 | 33.899   | -154.039 | -121.042 | -54.699  | -151.570 | -81.910  |
| 402 | 0    | 80.820  | 19.969  | 54.711  | -57.134  | 128.935  | 127.449  | 15.604   | 154.888  | 37.451   |
| 402 | 2.1  | -8.811  | -1.237  | 11.133  | -11.618  | -12.552  | 3.204    | -19.548  | 1.659    | -22.229  |
| 402 | 4.2  | -98.442 | -22.443 | -32.444 | 33.899   | -154.039 | -121.042 | -54.699  | -151.569 | -81.910  |
| 403 | 0    | -38.691 | -10.857 | 34.189  | -24.058  | -63.800  | -0.633   | -58.880  | -11.567  | -72.726  |
| 403 | 2.1  | -19.581 | -5.360  | 11.211  | -8.018   | -32.074  | -6.413   | -25.641  | -12.166  | -32.356  |
| 403 | 4.2  | -0.472  | 0.136   | -11.768 | 8.021    | -0.347   | -12.192  | 7.597    | -12.765  | 8.013    |
| 404 | 0    | -78.817 | -21.637 | 2.332   | -11.697  | -129.199 | -68.602  | -82.632  | -93.940  | -108.670 |
| 404 | 2.1  | -69.827 | -20.854 | 3.760   | 42.538   | -117.159 | -59.084  | -20.306  | -82.508  | -41.792  |
| 404 | 4.2  | -60.837 | -20.072 | 5.188   | 96.772   | -105.119 | -49.565  | 42.019   | -71.077  | 25.087   |
| 405 | 0    | -84.811 | -23.333 | 0.425   | -5.729   | -139.106 | -75.905  | -82.059  | -103.306 | -109.767 |
| 405 | 2.1  | -72.818 | -22.332 | 3.182   | 65.958   | -123.114 | -62.354  | 0.421    | -87.187  | -21.273  |
| 405 | 4.2  | -60.826 | -21.332 | 5.940   | 137.645  | -107.122 | -48.803  | 82.902   | -71.069  | 67.222   |
| 406 | 0    | -80.122 | -20.673 | 0.651   | -2.581   | -129.224 | -71.459  | -74.691  | -96.469  | -99.863  |
| 406 | 2.1  | -80.124 | -22.261 | 2.453   | 75.486   | -131.765 | -69.658  | 3.375    | -95.578  | -18.893  |
| 406 | 4.2  | -80.125 | -23.848 | 4.255   | 153.554  | -134.307 | -67.858  | 81.441   | -94.688  | 62.076   |
| 407 | 0    | -80.972 | -20.980 | 0.489   | -1.638   | -130.734 | -72.386  | -74.513  | -97.724  | -99.958  |
| 407 | 2.1  | -88.773 | -19.882 | 2.605   | 77.207   | -138.339 | -77.290  | -2.689   | -103.002 | -24.670  |
| 407 | 4.2  | -96.574 | -18.784 | 4.721   | 156.052  | -145.944 | -82.195  | 69.136   | -108.279 | 50.618   |
| 408 | 0    | -80.972 | -20.980 | 0.489   | -1.638   | -130.734 | -72.386  | -74.514  | -97.724  | -99.958  |
| 408 | 2.1  | -88.777 | -19.884 | 2.605   | 77.207   | -138.347 | -77.294  | -2.692   | -103.007 | -24.675  |
| 408 | 4.2  | -96.581 | -18.789 | 4.721   | 156.052  | -145.959 | -82.202  | 69.129   | -108.290 | 50.608   |
| 409 | 0    | -80.122 | -20.673 | 0.651   | -2.581   | -129.224 | -71.459  | -74.692  | -96.469  | -99.863  |
| 409 | 2.1  | -80.124 | -22.261 | 2.453   | 75.486   | -131.765 | -69.658  | 3.375    | -95.578  | -18.894  |
| 409 | 4.2  | -80.125 | -23.848 | 4.255   | 153.554  | -134.307 | -67.858  | 81.441   | -94.688  | 62.076   |
| 410 | 0    | -84.811 | -23.333 | 0.425   | -5.729   | -139.106 | -75.905  | -82.059  | -103.305 | -109.767 |
| 410 | 2.1  | -72.818 | -22.332 | 3.182   | 65.958   | -123.113 | -62.354  | 0.422    | -87.187  | -21.272  |
| 410 | 4.2  | -60.825 | -21.331 | 5.940   | 137.645  | -107.120 | -48.802  | 82.903   | -71.068  | 67.223   |
| 411 | 0    | -78.817 | -21.637 | 2.332   | -11.697  | -129.199 | -68.602  | -82.632  | -93.939  | -108.670 |
| 411 | 2.1  | -69.827 | -20.854 | 3.760   | 42.538   | -117.159 | -59.084  | -20.306  | -82.508  | -41.792  |
| 411 | 4.2  | -60.837 | -20.072 | 5.188   | 96.772   | -105.119 | -49.565  | 42.019   | -71.076  | 25.087   |
| 412 | 0    | -38.691 | -10.857 | 34.189  | -24.058  | -63.800  | -0.633   | -58.880  | -11.567  | -72.726  |
| 412 | 2.1  | -19.581 | -5.360  | 11.211  | -8.018   | -32.074  | -6.413   | -25.641  | -12.166  | -32.356  |
| 412 | 4.2  | -0.472  | 0.136   | -11.768 | 8.021    | -0.347   | -12.192  | 7.597    | -12.765  | 8.013    |
| 417 | 0    | -4.240  | -0.508  | 122.390 | -122.439 | -5.901   | 118.574  | -126.255 | 123.737  | -133.333 |
| 417 | 1.05 | -2.755  | -0.331  | 78.759  | -78.788  | -3.834   | 76.280   | -81.267  | 79.597   | -85.828  |
| 417 | 2.1  | -1.269  | -0.153  | 35.128  | -35.137  | -1.768   | 33.986   | -36.279  | 35.456   | -38.323  |
| 418 | 0    | -7.788  | -0.853  | 132.153 | -132.155 | -10.710  | 125.143  | -139.164 | 130.046  | -147.477 |
| 418 | 1.05 | -5.114  | -0.560  | 85.743  | -85.745  | -7.034   | 81.140   | -90.348  | 84.307   | -95.756  |
| 418 | 2.1  | -2.441  | -0.268  | 39.334  | -39.336  | -3.358   | 37.137   | -41.532  | 38.569   | -44.034  |
| 419 | 0    | -6.354  | -0.554  | 139.937 | -139.834 | -8.512   | 134.218  | -145.553 | 139.913  | -153.847 |
| 419 | 1.05 | -5.362  | -0.440  | 90.809  | -90.742  | -7.138   | 85.984   | -95.568  | 89.443   | -101.186 |
| 419 | 2.1  | -4.370  | -0.325  | 41.681  | -41.650  | -5.763   | 37.749   | -45.583  | 38.973   | -48.525  |
| 420 | 0    | 7.256   | 0.539   | 142.081 | -141.991 | 9.570    | 148.612  | -135.460 | 157.143  | -141.132 |
| 420 | 1.05 | -0.817  | 0.728   | 92.308  | -92.241  | 0.184    | 91.573   | -92.977  | 96.524   | -97.253  |
| 420 | 2.1  | -8.891  | 0.917   | 42.535  | -42.492  | -9.202   | 34.534   | -50.494  | 35.904   | -53.374  |
| 421 | 0    | 7.256   | 0.539   | 142.081 | -141.991 | 9.569    | 148.612  | -135.460 | 157.143  | -141.132 |
| 421 | 1.05 | -0.809  | 0.732   | 92.308  | -92.241  | 0.201    | 91.580   | -92.969  | 96.535   | -97.241  |
| 421 | 2.1  | -8.874  | 0.926   | 42.535  | -42.492  | -9.168   | 34.549   | -50.479  | 35.928   | -53.351  |
| 422 | 0    | -6.355  | -0.555  | 139.937 | -139.834 | -8.514   | 134.218  | -145.553 | 139.912  | -153.848 |
| 422 | 1.05 | -5.361  | -0.439  | 90.809  | -90.742  | -7.136   | 85.984   | -95.567  | 89.444   | -101.185 |
| 422 | 2.1  | -4.367  | -0.324  | 41.681  | -41.650  | -5.759   | 37.751   | -45.581  | 38.976   | -48.522  |
| 423 | 0    | -7.788  | -0.853  | 132.153 | -132.155 | -10.711  | 125.143  | -139.164 | 130.045  | -147.478 |
| 423 | 1.05 | -5.115  | -0.561  | 85.743  | -85.745  | -7.034   | 81.140   | -90.348  | 84.307   | -95.756  |
| 423 | 2.1  | -2.441  | -0.268  | 39.334  | -39.336  | -3.358   | 37.137   | -41.532  | 38.569   | -44.034  |
| 424 | 0    | -4.240  | -0.508  | 122.390 | -122.439 | -5.901   | 118.574  | -126.255 | 123.737  | -133.333 |
| 424 | 1.05 | -2.755  | -0.331  | 78.759  | -78.788  | -3.835   | 76.280   | -81.267  | 79.597   | -85.828  |
| 424 | 2.1  | -1.269  | -0.153  | 35.128  | -35.137  | -1.768   | 33.986   | -36.279  | 35.456   | -38.323  |

|     |      |         |        |         |          |         |         |          |         |          |
|-----|------|---------|--------|---------|----------|---------|---------|----------|---------|----------|
| 425 | 0    | 12.564  | -0.083 | 119.435 | -119.753 | 14.944  | 130.743 | -108.445 | 138.547 | -112.601 |
| 425 | 1.05 | -10.558 | 1.130  | 71.580  | -71.952  | -10.862 | 62.078  | -81.454  | 64.785  | -85.924  |
| 425 | 2.1  | -33.680 | 2.342  | 23.725  | -24.151  | -36.668 | -6.586  | -54.463  | -8.977  | -59.247  |
| 426 | 0    | 12.563  | -0.083 | 119.435 | -119.753 | 14.944  | 130.743 | -108.446 | 138.547 | -112.601 |
| 426 | 1.05 | -10.558 | 1.130  | 71.580  | -71.952  | -10.862 | 62.078  | -81.454  | 64.785  | -85.924  |
| 426 | 2.1  | -33.680 | 2.342  | 23.725  | -24.151  | -36.668 | -6.586  | -54.463  | -8.977  | -59.247  |
| 436 | 0    | 2.325   | 1.063  | 115.494 | -115.768 | 4.492   | 117.587 | -113.675 | 124.380 | -118.444 |
| 436 | 1.05 | -3.383  | 0.374  | 73.340  | -74.095  | -3.462  | 70.296  | -77.139  | 73.691  | -81.116  |
| 436 | 2.1  | -9.091  | -0.316 | 31.187  | -32.422  | -11.415 | 23.005  | -40.604  | 23.001  | -43.787  |
| 437 | 0    | 13.869  | 1.993  | 116.716 | -117.770 | 19.832  | 129.198 | -105.287 | 138.370 | -107.840 |
| 437 | 1.05 | -7.670  | 3.697  | 80.960  | -82.763  | -3.289  | 74.057  | -89.666  | 79.283  | -92.625  |
| 437 | 2.1  | -29.209 | 5.400  | 45.203  | -47.756  | -26.410 | 18.916  | -74.044  | 20.197  | -77.411  |
| 438 | 0    | 10.544  | 1.901  | 126.188 | -127.655 | 15.694  | 135.678 | -118.165 | 144.766 | -121.768 |
| 438 | 1.05 | -10.404 | 3.811  | 87.982  | -90.298  | -6.386  | 78.619  | -99.661  | 83.859  | -103.335 |
| 438 | 2.1  | -31.352 | 5.722  | 49.777  | -52.940  | -28.467 | 21.560  | -81.157  | 22.951  | -84.902  |
| 439 | 0    | 11.591  | 1.901  | 133.552 | -135.087 | 16.951  | 143.984 | -124.655 | 153.598 | -128.474 |
| 439 | 1.05 | -10.586 | 3.420  | 93.217  | -95.673  | -7.230  | 83.690  | -105.200 | 88.917  | -109.417 |
| 439 | 2.1  | -32.762 | 4.939  | 52.881  | -56.259  | -31.411 | 23.396  | -85.745  | 24.237  | -90.360  |
| 440 | 0    | 20.890  | 2.319  | 135.517 | -137.124 | 28.779  | 154.318 | -118.323 | 165.688 | -120.585 |
| 440 | 1.05 | -8.610  | 2.262  | 94.609  | -97.135  | -6.713  | 86.861  | -104.884 | 91.725  | -109.607 |
| 440 | 2.1  | -38.109 | 2.204  | 53.702  | -57.147  | -42.204 | 19.404  | -91.445  | 17.761  | -98.630  |
| 441 | 0    | 20.891  | 2.320  | 135.517 | -137.124 | 28.782  | 154.319 | -118.322 | 165.690 | -120.583 |
| 441 | 1.05 | -8.616  | 2.258  | 94.609  | -97.135  | -6.725  | 86.855  | -104.890 | 91.716  | -109.616 |
| 441 | 2.1  | -38.123 | 2.197  | 53.702  | -57.147  | -42.233 | 19.392  | -91.457  | 17.742  | -98.649  |
| 442 | 0    | 11.590  | 1.901  | 133.552 | -135.087 | 16.949  | 143.984 | -124.656 | 153.597 | -128.474 |
| 442 | 1.05 | -10.587 | 3.419  | 93.217  | -95.673  | -7.233  | 83.689  | -105.201 | 88.916  | -109.419 |
| 442 | 2.1  | -32.764 | 4.938  | 52.881  | -56.259  | -31.415 | 23.394  | -85.747  | 24.234  | -90.363  |
| 443 | 0    | 10.544  | 1.901  | 126.188 | -127.655 | 15.694  | 135.678 | -118.165 | 144.766 | -121.769 |
| 443 | 1.05 | -10.404 | 3.811  | 87.982  | -90.298  | -6.387  | 78.619  | -99.661  | 83.858  | -103.336 |
| 443 | 2.1  | -31.352 | 5.722  | 49.777  | -52.940  | -28.467 | 21.560  | -81.157  | 22.951  | -84.902  |
| 444 | 0    | 13.869  | 1.993  | 116.716 | -117.770 | 19.832  | 129.198 | -105.287 | 138.370 | -107.840 |
| 444 | 1.05 | -7.670  | 3.696  | 80.960  | -82.763  | -3.289  | 74.057  | -89.666  | 79.283  | -92.625  |
| 444 | 2.1  | -29.209 | 5.400  | 45.203  | -47.756  | -26.410 | 18.916  | -74.044  | 20.197  | -77.411  |
| 445 | 0    | 2.325   | 1.063  | 115.494 | -115.768 | 4.491   | 117.587 | -113.675 | 124.380 | -118.445 |
| 445 | 1.05 | -3.383  | 0.374  | 73.340  | -74.095  | -3.462  | 70.296  | -77.139  | 73.691  | -81.116  |
| 445 | 2.1  | -9.091  | -0.316 | 31.187  | -32.422  | -11.415 | 23.005  | -40.604  | 23.001  | -43.787  |
| 446 | 0    | -17.762 | -0.554 | 119.661 | -119.529 | -22.200 | 103.675 | -135.514 | 106.645 | -144.504 |
| 446 | 1.05 | 7.433   | -1.512 | 71.895  | -71.637  | 6.500   | 78.584  | -64.948  | 82.341  | -68.368  |
| 446 | 2.1  | 32.628  | -2.471 | 24.129  | -23.746  | 35.199  | 53.494  | 5.618    | 58.037  | 7.769    |
| 447 | 0    | -22.286 | -9.606 | -0.672  | 1.010    | -42.114 | -20.730 | -19.048  | -30.158 | -28.392  |
| 447 | 1.05 | -11.422 | -5.008 | -0.371  | 0.543    | -21.720 | -10.651 | -9.737   | -15.539 | -14.579  |
| 447 | 2.1  | -0.558  | -0.410 | -0.070  | 0.075    | -1.326  | -0.573  | -0.427   | -0.919  | -0.766   |



## GESER KOLOM

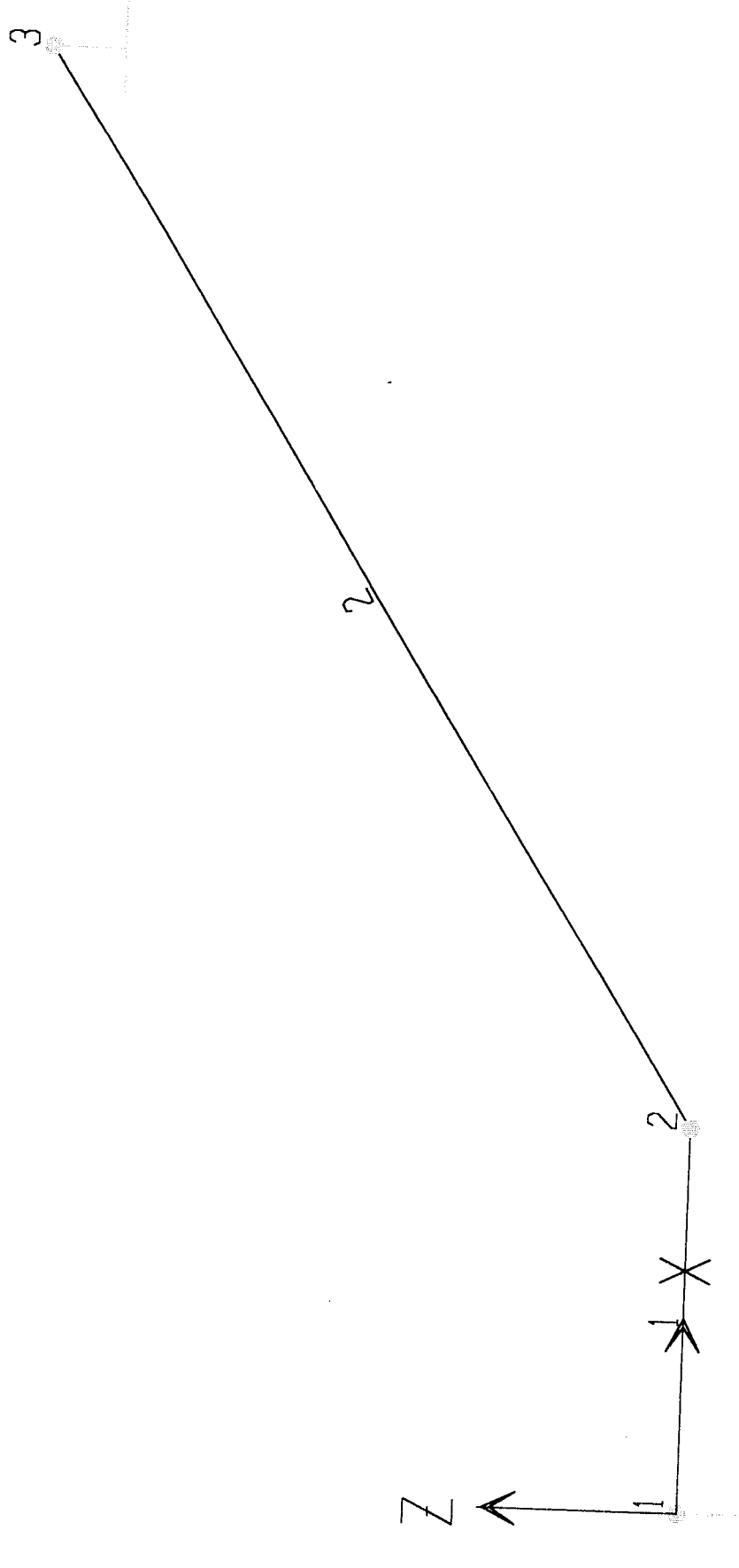
| BTG | STA | VD      | VL      | VE KA  | VE KI   | 1,2.VD+<br>1,6.VL | 0,9.VD+<br>VE KA | 0,9.VD+<br>VE KI | 1,05(VD+<br>0,6.VL+VE KA) | 1,05(VD+<br>0,6.VL+VE KI) |
|-----|-----|---------|---------|--------|---------|-------------------|------------------|------------------|---------------------------|---------------------------|
| 1   | 0   | -35.742 | -8.306  | 34.486 | -31.091 | -56.181           | 2.318            | -63.260          | -6.552                    | -75.409                   |
| 1   | 2.1 | -35.742 | -8.306  | 34.486 | -31.091 | -56.181           | 2.318            | -63.260          | -6.552                    | -75.409                   |
| 1   | 4.2 | -35.742 | -8.306  | 34.486 | -31.091 | -56.181           | 2.318            | -63.260          | -6.552                    | -75.409                   |
| 2   | 0   | -45.851 | -19.998 | 3.680  | -23.743 | -87.017           | -37.586          | -65.008          | -56.878                   | -85.672                   |
| 2   | 2.1 | -45.851 | -19.998 | 3.680  | -23.743 | -87.017           | -37.586          | -65.008          | -56.878                   | -85.672                   |
| 2   | 4.2 | -45.851 | -19.998 | 3.680  | -23.743 | -87.017           | -37.586          | -65.008          | -56.878                   | -85.672                   |
| 3   | 0   | -36.653 | -9.146  | 37.901 | -33.142 | -58.617           | 4.913            | -66.130          | -4.452                    | -79.047                   |
| 3   | 2.1 | -36.653 | -9.146  | 37.901 | -33.142 | -58.617           | 4.913            | -66.130          | -4.452                    | -79.047                   |
| 3   | 4.2 | -36.653 | -9.146  | 37.901 | -33.142 | -58.617           | 4.913            | -66.130          | -4.452                    | -79.047                   |
| 4   | 0   | -30.497 | -19.425 | -0.690 | -28.319 | -67.677           | -28.138          | -55.766          | -44.985                   | -73.995                   |
| 4   | 2.1 | -30.497 | -19.425 | -0.690 | -28.319 | -67.677           | -28.138          | -55.766          | -44.985                   | -73.995                   |
| 4   | 4.2 | -30.497 | -19.425 | -0.690 | -28.319 | -67.677           | -28.138          | -55.766          | -44.985                   | -73.995                   |
| 5   | 0   | -34.580 | -8.032  | 40.278 | -34.973 | -54.348           | 9.157            | -66.095          | 0.923                     | -78.091                   |
| 5   | 2.1 | -34.580 | -8.032  | 40.278 | -34.973 | -54.348           | 9.157            | -66.095          | 0.923                     | -78.091                   |
| 5   | 4.2 | -34.580 | -8.032  | 40.278 | -34.973 | -54.348           | 9.157            | -66.095          | 0.923                     | -78.091                   |
| 6   | 0   | -25.154 | -15.978 | -1.718 | -30.471 | -55.749           | -24.357          | -53.110          | -38.282                   | -68.472                   |
| 6   | 2.1 | -25.154 | -15.978 | -1.718 | -30.471 | -55.749           | -24.357          | -53.110          | -38.282                   | -68.472                   |
| 6   | 4.2 | -25.154 | -15.978 | -1.718 | -30.471 | -55.749           | -24.357          | -53.110          | -38.282                   | -68.472                   |
| 7   | 0   | -15.638 | -5.202  | 41.032 | -35.575 | -27.089           | 26.958           | -49.650          | 23.387                    | -57.052                   |
| 7   | 2.1 | -15.638 | -5.202  | 41.032 | -35.575 | -27.089           | 26.958           | -49.650          | 23.387                    | -57.052                   |
| 7   | 4.2 | -15.638 | -5.202  | 41.032 | -35.575 | -27.089           | 26.958           | -49.650          | 23.387                    | -57.052                   |
| 8   | 0   | 8.756   | -10.232 | -2.149 | -31.059 | -5.863            | 5.732            | -23.178          | 0.492                     | -29.863                   |
| 8   | 2.1 | 8.756   | -10.232 | -2.149 | -31.059 | -5.863            | 5.732            | -23.178          | 0.492                     | -29.863                   |
| 8   | 4.2 | 8.756   | -10.232 | -2.149 | -31.059 | -5.863            | 5.732            | -23.178          | 0.492                     | -29.863                   |
| 9   | 0   | -15.640 | -5.203  | 41.032 | -35.575 | -27.094           | 26.956           | -49.652          | 23.384                    | -57.055                   |
| 9   | 2.1 | -15.640 | -5.203  | 41.032 | -35.575 | -27.094           | 26.956           | -49.652          | 23.384                    | -57.055                   |
| 9   | 4.2 | -15.640 | -5.203  | 41.032 | -35.575 | -27.094           | 26.956           | -49.652          | 23.384                    | -57.055                   |
| 10  | 0   | 8.755   | -10.232 | -2.149 | -31.059 | -5.865            | 5.731            | -23.179          | 0.490                     | -29.865                   |
| 10  | 2.1 | 8.755   | -10.232 | -2.149 | -31.059 | -5.865            | 5.731            | -23.179          | 0.490                     | -29.865                   |
| 10  | 4.2 | 8.755   | -10.232 | -2.149 | -31.059 | -5.865            | 5.731            | -23.179          | 0.490                     | -29.865                   |
| 11  | 0   | -34.580 | -8.033  | 40.278 | -34.973 | -54.349           | 9.156            | -66.095          | 0.922                     | -78.092                   |
| 11  | 2.1 | -34.580 | -8.033  | 40.278 | -34.973 | -54.349           | 9.156            | -66.095          | 0.922                     | -78.092                   |
| 11  | 4.2 | -34.580 | -8.033  | 40.278 | -34.973 | -54.349           | 9.156            | -66.095          | 0.922                     | -78.092                   |
| 12  | 0   | -25.154 | -15.978 | -1.718 | -30.471 | -55.750           | -24.357          | -53.110          | -38.282                   | -68.473                   |
| 12  | 2.1 | -25.154 | -15.978 | -1.718 | -30.471 | -55.750           | -24.357          | -53.110          | -38.282                   | -68.473                   |
| 12  | 4.2 | -25.154 | -15.978 | -1.718 | -30.471 | -55.750           | -24.357          | -53.110          | -38.282                   | -68.473                   |
| 13  | 0   | -36.653 | -9.146  | 37.901 | -33.142 | -58.617           | 4.913            | -66.130          | -4.452                    | -79.047                   |
| 13  | 2.1 | -36.653 | -9.146  | 37.901 | -33.142 | -58.617           | 4.913            | -66.130          | -4.452                    | -79.047                   |
| 13  | 4.2 | -36.653 | -9.146  | 37.901 | -33.142 | -58.617           | 4.913            | -66.130          | -4.452                    | -79.047                   |
| 14  | 0   | -30.497 | -19.425 | -0.690 | -28.319 | -67.677           | -28.138          | -55.766          | -44.985                   | -73.995                   |
| 14  | 2.1 | -30.497 | -19.425 | -0.690 | -28.319 | -67.677           | -28.138          | -55.766          | -44.985                   | -73.995                   |
| 14  | 4.2 | -30.497 | -19.425 | -0.690 | -28.319 | -67.677           | -28.138          | -55.766          | -44.985                   | -73.995                   |
| 15  | 0   | -35.743 | -8.306  | 34.486 | -31.091 | -56.181           | 2.318            | -63.260          | -6.552                    | -75.409                   |
| 15  | 2.1 | -35.743 | -8.306  | 34.486 | -31.091 | -56.181           | 2.318            | -63.260          | -6.552                    | -75.409                   |
| 15  | 4.2 | -35.743 | -8.306  | 34.486 | -31.091 | -56.181           | 2.318            | -63.260          | -6.552                    | -75.409                   |
| 16  | 0   | -45.851 | -19.998 | 3.680  | -23.743 | -87.017           | -37.586          | -65.008          | -56.878                   | -85.672                   |
| 16  | 2.1 | -45.851 | -19.998 | 3.680  | -23.743 | -87.017           | -37.586          | -65.008          | -56.878                   | -85.672                   |
| 16  | 4.2 | -45.851 | -19.998 | 3.680  | -23.743 | -87.017           | -37.586          | -65.008          | -56.878                   | -85.672                   |
| 17  | 0   | 33.494  | 8.037   | 31.087 | -34.513 | 53.052            | 61.232           | -4.368           | 72.873                    | 3.994                     |
| 17  | 2.1 | 33.494  | 8.037   | 31.087 | -34.513 | 53.052            | 61.232           | -4.368           | 72.873                    | 3.994                     |
| 17  | 4.2 | 33.494  | 8.037   | 31.087 | -34.513 | 53.052            | 61.232           | -4.368           | 72.873                    | 3.994                     |
| 18  | 0   | 45.618  | 19.992  | 23.683 | -3.615  | 86.730            | 64.739           | 37.441           | 85.361                    | 56.699                    |
| 18  | 2.1 | 45.618  | 19.992  | 23.683 | -3.615  | 86.730            | 64.739           | 37.441           | 85.361                    | 56.699                    |
| 18  | 4.2 | 45.618  | 19.992  | 23.683 | -3.615  | 86.730            | 64.739           | 37.441           | 85.361                    | 56.699                    |
| 19  | 0   | 32.514  | 8.691   | 33.160 | -37.920 | 52.924            | 62.423           | -8.657           | 74.434                    | -0.200                    |
| 19  | 2.1 | 32.514  | 8.691   | 33.160 | -37.920 | 52.924            | 62.423           | -8.657           | 74.434                    | -0.200                    |
| 19  | 4.2 | 32.514  | 8.691   | 33.160 | -37.920 | 52.924            | 62.423           | -8.657           | 74.434                    | -0.200                    |
| 20  | 0   | 29.876  | 19.453  | 28.215 | 0.802   | 66.976            | 55.104           | 27.691           | 73.252                    | 44.468                    |
| 20  | 2.1 | 29.876  | 19.453  | 28.215 | 0.802   | 66.976            | 55.104           | 27.691           | 73.252                    | 44.468                    |
| 20  | 4.2 | 29.876  | 19.453  | 28.215 | 0.802   | 66.976            | 55.104           | 27.691           | 73.252                    | 44.468                    |
| 21  | 0   | 33.290  | 7.866   | 34.984 | -40.237 | 52.535            | 64.946           | -10.275          | 76.644                    | -2.338                    |
| 21  | 2.1 | 33.290  | 7.866   | 34.984 | -40.237 | 52.535            | 64.946           | -10.275          | 76.644                    | -2.338                    |

|    |      |        |        |        |         |        |        |         |        |         |
|----|------|--------|--------|--------|---------|--------|--------|---------|--------|---------|
| 21 | 4.2  | 33.290 | 7.866  | 34.984 | -40.237 | 52.535 | 64.946 | -10.275 | 76.644 | -2.338  |
| 22 | 0    | 34.016 | 17.240 | 30.303 | 1.970   | 68.404 | 60.917 | 32.585  | 78.396 | 48.647  |
| 22 | 2.1  | 34.016 | 17.240 | 30.303 | 1.970   | 68.404 | 60.917 | 32.585  | 78.396 | 48.647  |
| 22 | 4.2  | 34.016 | 17.240 | 30.303 | 1.970   | 68.404 | 60.917 | 32.585  | 78.396 | 48.647  |
| 23 | 0    | 29.745 | 8.493  | 30.132 | 3.140   | 49.282 | 56.902 | 29.910  | 68.221 | 39.879  |
| 23 | 1.05 | 29.745 | 8.493  | 30.132 | 3.140   | 49.282 | 56.902 | 29.910  | 68.221 | 39.879  |
| 23 | 2.1  | 29.745 | 8.493  | 30.132 | 3.140   | 49.282 | 56.902 | 29.910  | 68.221 | 39.879  |
| 24 | 0    | 29.745 | 8.493  | 30.132 | 3.140   | 49.283 | 56.902 | 29.910  | 68.221 | 39.879  |
| 24 | 1.05 | 29.745 | 8.493  | 30.132 | 3.140   | 49.283 | 56.902 | 29.910  | 68.221 | 39.879  |
| 24 | 2.1  | 29.745 | 8.493  | 30.132 | 3.140   | 49.283 | 56.902 | 29.910  | 68.221 | 39.879  |
| 25 | 0    | 31.095 | 4.685  | 35.105 | -40.529 | 44.811 | 63.091 | -12.544 | 72.462 | -6.954  |
| 25 | 1.05 | 31.095 | 4.685  | 35.105 | -40.529 | 44.811 | 63.091 | -12.544 | 72.462 | -6.954  |
| 25 | 2.1  | 31.095 | 4.685  | 35.105 | -40.529 | 44.811 | 63.091 | -12.544 | 72.462 | -6.954  |
| 26 | 0    | 31.095 | 4.685  | 35.105 | -40.529 | 44.811 | 63.091 | -12.544 | 72.462 | -6.954  |
| 26 | 1.05 | 31.095 | 4.685  | 35.105 | -40.529 | 44.811 | 63.091 | -12.544 | 72.462 | -6.954  |
| 26 | 2.1  | 31.095 | 4.685  | 35.105 | -40.529 | 44.811 | 63.091 | -12.544 | 72.462 | -6.954  |
| 27 | 0    | 33.288 | 7.865  | 34.984 | -40.237 | 52.530 | 64.944 | -10.277 | 76.641 | -2.341  |
| 27 | 2.1  | 33.288 | 7.865  | 34.984 | -40.237 | 52.530 | 64.944 | -10.277 | 76.641 | -2.341  |
| 27 | 4.2  | 33.288 | 7.865  | 34.984 | -40.237 | 52.530 | 64.944 | -10.277 | 76.641 | -2.341  |
| 28 | 0    | 34.014 | 17.239 | 30.303 | 1.970   | 68.400 | 60.915 | 32.583  | 78.393 | 48.644  |
| 28 | 2.1  | 34.014 | 17.239 | 30.303 | 1.970   | 68.400 | 60.915 | 32.583  | 78.393 | 48.644  |
| 28 | 4.2  | 34.014 | 17.239 | 30.303 | 1.970   | 68.400 | 60.915 | 32.583  | 78.393 | 48.644  |
| 29 | 0    | 32.514 | 8.691  | 33.160 | -37.920 | 52.924 | 62.423 | -8.657  | 74.434 | -0.200  |
| 29 | 2.1  | 32.514 | 8.691  | 33.160 | -37.920 | 52.924 | 62.423 | -8.657  | 74.434 | -0.200  |
| 29 | 4.2  | 32.514 | 8.691  | 33.160 | -37.920 | 52.924 | 62.423 | -8.657  | 74.434 | -0.200  |
| 30 | 0    | 29.876 | 19.453 | 28.215 | 0.802   | 66.977 | 55.104 | 27.691  | 73.252 | 44.468  |
| 30 | 2.1  | 29.876 | 19.453 | 28.215 | 0.802   | 66.977 | 55.104 | 27.691  | 73.252 | 44.468  |
| 30 | 4.2  | 29.876 | 19.453 | 28.215 | 0.802   | 66.977 | 55.104 | 27.691  | 73.252 | 44.468  |
| 31 | 0    | 33.494 | 8.037  | 31.087 | -34.513 | 53.052 | 61.231 | -4.368  | 72.873 | 3.994   |
| 31 | 2.1  | 33.494 | 8.037  | 31.087 | -34.513 | 53.052 | 61.231 | -4.368  | 72.873 | 3.994   |
| 31 | 4.2  | 33.494 | 8.037  | 31.087 | -34.513 | 53.052 | 61.231 | -4.368  | 72.873 | 3.994   |
| 32 | 0    | 45.618 | 19.992 | 23.683 | -3.615  | 86.730 | 64.739 | 37.441  | 85.361 | 56.699  |
| 32 | 2.1  | 45.618 | 19.992 | 23.683 | -3.615  | 86.730 | 64.739 | 37.441  | 85.361 | 56.699  |
| 32 | 4.2  | 45.618 | 19.992 | 23.683 | -3.615  | 86.730 | 64.739 | 37.441  | 85.361 | 56.699  |
| 33 | 0    | -1.333 | -0.157 | 43.350 | -43.360 | -1.851 | 42.151 | -44.559 | 44.019 | -47.027 |
| 33 | 2.1  | -1.333 | -0.157 | 43.350 | -43.360 | -1.851 | 42.151 | -44.559 | 44.019 | -47.027 |
| 33 | 4.2  | -1.333 | -0.157 | 43.350 | -43.360 | -1.851 | 42.151 | -44.559 | 44.019 | -47.027 |
| 34 | 0    | -2.658 | -0.350 | 48.925 | -48.956 | -3.750 | 46.532 | -51.348 | 48.359 | -54.415 |
| 34 | 2.1  | -2.658 | -0.350 | 48.925 | -48.956 | -3.750 | 46.532 | -51.348 | 48.359 | -54.415 |
| 34 | 4.2  | -2.658 | -0.350 | 48.925 | -48.956 | -3.750 | 46.532 | -51.348 | 48.359 | -54.415 |
| 35 | 0    | -1.333 | -0.158 | 43.350 | -43.360 | -1.851 | 42.151 | -44.560 | 44.019 | -47.027 |
| 35 | 2.1  | -1.333 | -0.158 | 43.350 | -43.360 | -1.851 | 42.151 | -44.560 | 44.019 | -47.027 |
| 35 | 4.2  | -1.333 | -0.158 | 43.350 | -43.360 | -1.851 | 42.151 | -44.560 | 44.019 | -47.027 |
| 36 | 0    | -2.658 | -0.350 | 48.925 | -48.956 | -3.750 | 46.532 | -51.348 | 48.359 | -54.415 |
| 36 | 2.1  | -2.658 | -0.350 | 48.925 | -48.956 | -3.750 | 46.532 | -51.348 | 48.359 | -54.415 |
| 36 | 4.2  | -2.658 | -0.350 | 48.925 | -48.956 | -3.750 | 46.532 | -51.348 | 48.359 | -54.415 |
| 37 | 0    | 31.079 | 4.677  | 35.105 | -40.529 | 44.778 | 63.076 | -12.558 | 72.440 | -6.976  |
| 37 | 1.05 | 31.079 | 4.677  | 35.105 | -40.529 | 44.778 | 63.076 | -12.558 | 72.440 | -6.976  |
| 37 | 2.1  | 31.079 | 4.677  | 35.105 | -40.529 | 44.778 | 63.076 | -12.558 | 72.440 | -6.976  |
| 38 | 0    | 31.079 | 4.677  | 35.105 | -40.529 | 44.778 | 63.076 | -12.558 | 72.440 | -6.976  |
| 38 | 1.05 | 31.079 | 4.677  | 35.105 | -40.529 | 44.778 | 63.076 | -12.558 | 72.440 | -6.976  |
| 38 | 2.1  | 31.079 | 4.677  | 35.105 | -40.529 | 44.778 | 63.076 | -12.558 | 72.440 | -6.976  |
| 39 | 0    | 29.729 | 8.484  | 30.132 | 3.140   | 49.250 | 56.888 | 29.896  | 68.199 | 39.858  |
| 39 | 1.05 | 29.729 | 8.484  | 30.132 | 3.140   | 49.250 | 56.888 | 29.896  | 68.199 | 39.858  |
| 39 | 2.1  | 29.729 | 8.484  | 30.132 | 3.140   | 49.250 | 56.888 | 29.896  | 68.199 | 39.858  |
| 40 | 0    | 29.729 | 8.484  | 30.132 | 3.140   | 49.250 | 56.888 | 29.896  | 68.200 | 39.858  |
| 40 | 1.05 | 29.729 | 8.484  | 30.132 | 3.140   | 49.250 | 56.888 | 29.896  | 68.200 | 39.858  |
| 40 | 2.1  | 29.729 | 8.484  | 30.132 | 3.140   | 49.250 | 56.888 | 29.896  | 68.200 | 39.858  |
| 60 | 0    | 10.027 | 2.774  | 25.419 | -25.684 | 16.470 | 34.443 | -16.661 | 38.965 | -14.693 |
| 60 | 2.1  | 10.027 | 2.774  | 25.419 | -25.684 | 16.470 | 34.443 | -16.661 | 38.965 | -14.693 |
| 60 | 4.2  | 10.027 | 2.774  | 25.419 | -25.684 | 16.470 | 34.443 | -16.661 | 38.965 | -14.693 |
| 61 | 0    | 5.429  | 0.784  | 36.851 | -37.562 | 7.769  | 41.737 | -32.675 | 44.888 | -33.245 |
| 61 | 2.1  | 5.429  | 0.784  | 36.851 | -37.562 | 7.769  | 41.737 | -32.675 | 44.888 | -33.245 |
| 61 | 4.2  | 5.429  | 0.784  | 36.851 | -37.562 | 7.769  | 41.737 | -32.675 | 44.888 | -33.245 |
| 73 | 0    | -6.657 | -0.896 | 56.736 | -56.781 | -9.422 | 50.744 | -62.773 | 52.018 | -67.175 |
| 73 | 2.1  | -6.657 | -0.896 | 56.736 | -56.781 | -9.422 | 50.744 | -62.773 | 52.018 | -67.175 |
| 73 | 4.2  | -6.657 | -0.896 | 56.736 | -56.781 | -9.422 | 50.744 | -62.773 | 52.018 | -67.175 |

|     |     |         |         |        |         |         |         |         |         |          |
|-----|-----|---------|---------|--------|---------|---------|---------|---------|---------|----------|
| 74  | 0   | -2.200  | -0.220  | 45.110 | -45.105 | -2.992  | 43.130  | -47.085 | 44.917  | -49.808  |
| 74  | 2.1 | -2.200  | -0.220  | 45.110 | -45.105 | -2.992  | 43.130  | -47.085 | 44.917  | -49.808  |
| 74  | 4.2 | -2.200  | -0.220  | 45.110 | -45.105 | -2.992  | 43.130  | -47.085 | 44.917  | -49.808  |
| 75  | 0   | -16.399 | -1.940  | 61.856 | -61.860 | -22.783 | 47.097  | -76.619 | 46.507  | -83.394  |
| 75  | 2.1 | -16.399 | -1.940  | 61.856 | -61.860 | -22.783 | 47.097  | -76.619 | 46.507  | -83.394  |
| 75  | 4.2 | -16.399 | -1.940  | 61.856 | -61.860 | -22.783 | 47.097  | -76.619 | 46.507  | -83.394  |
| 76  | 0   | -1.755  | -0.010  | 47.532 | -47.487 | -2.122  | 45.953  | -49.067 | 48.060  | -51.711  |
| 76  | 2.1 | -1.755  | -0.010  | 47.532 | -47.487 | -2.122  | 45.953  | -49.067 | 48.060  | -51.711  |
| 76  | 4.2 | -1.755  | -0.010  | 47.532 | -47.487 | -2.122  | 45.953  | -49.067 | 48.060  | -51.711  |
| 77  | 0   | -17.978 | 3.984   | 63.480 | -63.404 | -15.199 | 47.300  | -79.585 | 50.287  | -82.941  |
| 77  | 2.1 | -17.978 | 3.984   | 63.480 | -63.404 | -15.199 | 47.300  | -79.585 | 50.287  | -82.941  |
| 77  | 4.2 | -17.978 | 3.984   | 63.480 | -63.404 | -15.199 | 47.300  | -79.585 | 50.287  | -82.941  |
| 78  | 0   | 1.222   | 2.247   | 48.177 | -48.142 | 5.062   | 49.277  | -47.042 | 53.285  | -47.850  |
| 78  | 2.1 | 1.222   | 2.247   | 48.177 | -48.142 | 5.062   | 49.277  | -47.042 | 53.285  | -47.850  |
| 78  | 4.2 | 1.222   | 2.247   | 48.177 | -48.142 | 5.062   | 49.277  | -47.042 | 53.285  | -47.850  |
| 79  | 0   | -17.957 | 3.996   | 63.480 | -63.404 | -15.156 | 47.319  | -79.566 | 50.316  | -82.912  |
| 79  | 2.1 | -17.957 | 3.996   | 63.480 | -63.404 | -15.156 | 47.319  | -79.566 | 50.316  | -82.912  |
| 79  | 4.2 | -17.957 | 3.996   | 63.480 | -63.404 | -15.156 | 47.319  | -79.566 | 50.316  | -82.912  |
| 80  | 0   | 1.244   | 2.260   | 48.177 | -48.142 | 5.109   | 49.297  | -47.022 | 53.316  | -47.818  |
| 80  | 2.1 | 1.244   | 2.260   | 48.177 | -48.142 | 5.109   | 49.297  | -47.022 | 53.316  | -47.818  |
| 80  | 4.2 | 1.244   | 2.260   | 48.177 | -48.142 | 5.109   | 49.297  | -47.022 | 53.316  | -47.818  |
| 81  | 0   | -16.397 | -1.940  | 61.856 | -61.860 | -22.780 | 47.098  | -76.618 | 46.509  | -83.392  |
| 81  | 2.1 | -16.397 | -1.940  | 61.856 | -61.860 | -22.780 | 47.098  | -76.618 | 46.509  | -83.392  |
| 81  | 4.2 | -16.397 | -1.940  | 61.856 | -61.860 | -22.780 | 47.098  | -76.618 | 46.509  | -83.392  |
| 82  | 0   | -1.753  | -0.009  | 47.532 | -47.487 | -2.117  | 45.955  | -49.065 | 48.063  | -51.708  |
| 82  | 2.1 | -1.753  | -0.009  | 47.532 | -47.487 | -2.117  | 45.955  | -49.065 | 48.063  | -51.708  |
| 82  | 4.2 | -1.753  | -0.009  | 47.532 | -47.487 | -2.117  | 45.955  | -49.065 | 48.063  | -51.708  |
| 83  | 0   | -6.658  | -0.896  | 56.736 | -56.781 | -9.423  | 50.744  | -62.773 | 52.018  | -67.176  |
| 83  | 2.1 | -6.658  | -0.896  | 56.736 | -56.781 | -9.423  | 50.744  | -62.773 | 52.018  | -67.176  |
| 83  | 4.2 | -6.658  | -0.896  | 56.736 | -56.781 | -9.423  | 50.744  | -62.773 | 52.018  | -67.176  |
| 84  | 0   | -2.200  | -0.220  | 45.110 | -45.105 | -2.992  | 43.130  | -47.085 | 44.917  | -49.809  |
| 84  | 2.1 | -2.200  | -0.220  | 45.110 | -45.105 | -2.992  | 43.130  | -47.085 | 44.917  | -49.809  |
| 84  | 4.2 | -2.200  | -0.220  | 45.110 | -45.105 | -2.992  | 43.130  | -47.085 | 44.917  | -49.809  |
| 101 | 0   | -7.022  | -0.979  | 37.534 | -36.878 | -9.992  | 31.214  | -43.197 | 31.421  | -46.710  |
| 101 | 2.1 | -7.022  | -0.979  | 37.534 | -36.878 | -9.992  | 31.214  | -43.197 | 31.421  | -46.710  |
| 101 | 4.2 | -7.022  | -0.979  | 37.534 | -36.878 | -9.992  | 31.214  | -43.197 | 31.421  | -46.710  |
| 105 | 0   | -11.062 | -2.901  | 25.642 | -25.438 | -17.916 | 15.686  | -35.393 | 13.481  | -40.152  |
| 105 | 2.1 | -11.062 | -2.901  | 25.642 | -25.438 | -17.916 | 15.686  | -35.393 | 13.481  | -40.152  |
| 105 | 4.2 | -11.062 | -2.901  | 25.642 | -25.438 | -17.916 | 15.686  | -35.393 | 13.481  | -40.152  |
| 109 | 0   | -11.062 | -2.901  | 25.642 | -25.438 | -17.916 | 15.686  | -35.393 | 13.481  | -40.152  |
| 109 | 2.1 | -11.062 | -2.901  | 25.642 | -25.438 | -17.916 | 15.686  | -35.393 | 13.481  | -40.152  |
| 109 | 4.2 | -11.062 | -2.901  | 25.642 | -25.438 | -17.916 | 15.686  | -35.393 | 13.481  | -40.152  |
| 110 | 0   | -7.022  | -0.979  | 37.534 | -36.878 | -9.992  | 31.214  | -43.197 | 31.421  | -46.711  |
| 110 | 2.1 | -7.022  | -0.979  | 37.534 | -36.878 | -9.992  | 31.214  | -43.197 | 31.421  | -46.711  |
| 110 | 4.2 | -7.022  | -0.979  | 37.534 | -36.878 | -9.992  | 31.214  | -43.197 | 31.421  | -46.711  |
| 112 | 0   | 5.429   | 0.784   | 36.851 | -37.562 | 7.769   | 41.737  | -32.675 | 44.888  | -33.245  |
| 112 | 2.1 | 5.429   | 0.784   | 36.851 | -37.562 | 7.769   | 41.737  | -32.675 | 44.888  | -33.245  |
| 112 | 4.2 | 5.429   | 0.784   | 36.851 | -37.562 | 7.769   | 41.737  | -32.675 | 44.888  | -33.245  |
| 113 | 0   | 10.027  | 2.774   | 25.419 | -25.684 | 16.470  | 34.443  | -16.660 | 38.965  | -14.693  |
| 113 | 2.1 | 10.027  | 2.774   | 25.419 | -25.684 | 16.470  | 34.443  | -16.660 | 38.965  | -14.693  |
| 113 | 4.2 | 10.027  | 2.774   | 25.419 | -25.684 | 16.470  | 34.443  | -16.660 | 38.965  | -14.693  |
| 119 | 0   | -29.502 | -3.911  | 48.422 | -48.148 | -41.660 | 21.870  | -74.699 | 17.402  | -83.996  |
| 119 | 2.1 | -29.502 | -3.911  | 48.422 | -48.148 | -41.660 | 21.870  | -74.699 | 17.402  | -83.996  |
| 119 | 4.2 | -29.502 | -3.911  | 48.422 | -48.148 | -41.660 | 21.870  | -74.699 | 17.402  | -83.996  |
| 120 | 0   | -15.105 | -9.884  | -0.540 | 0.866   | -33.940 | -14.134 | -12.728 | -22.653 | -21.177  |
| 120 | 2.1 | -15.105 | -9.884  | -0.540 | 0.866   | -33.940 | -14.134 | -12.728 | -22.653 | -21.177  |
| 120 | 4.2 | -15.105 | -9.884  | -0.540 | 0.866   | -33.940 | -14.134 | -12.728 | -22.653 | -21.177  |
| 121 | 0   | 27.377  | 3.651   | 48.111 | -48.459 | 38.694  | 72.751  | -23.819 | 81.563  | -19.835  |
| 121 | 2.1 | 27.377  | 3.651   | 48.111 | -48.459 | 38.694  | 72.751  | -23.819 | 81.563  | -19.835  |
| 121 | 4.2 | 27.377  | 3.651   | 48.111 | -48.459 | 38.694  | 72.751  | -23.819 | 81.563  | -19.835  |
| 122 | 0   | 47.186  | 10.142  | 40.443 | -40.541 | 72.850  | 82.910  | 1.926   | 98.399  | 13.366   |
| 122 | 2.1 | 47.186  | 10.142  | 40.443 | -40.541 | 72.850  | 82.910  | 1.926   | 98.399  | 13.366   |
| 122 | 4.2 | 47.186  | 10.142  | 40.443 | -40.541 | 72.850  | 82.910  | 1.926   | 98.399  | 13.366   |
| 131 | 0   | -29.502 | -3.911  | 48.422 | -48.148 | -41.660 | 21.870  | -74.699 | 17.402  | -83.996  |
| 131 | 2.1 | -29.502 | -3.911  | 48.422 | -48.148 | -41.660 | 21.870  | -74.699 | 17.402  | -83.996  |
| 131 | 4.2 | -29.502 | -3.911  | 48.422 | -48.148 | -41.660 | 21.870  | -74.699 | 17.402  | -83.996  |
| 132 | 0   | -48.969 | -10.360 | 40.490 | -40.487 | -75.339 | -3.582  | -84.559 | -15.430 | -100.456 |

|     |      |         |         |        |         |         |        |         |         |          |
|-----|------|---------|---------|--------|---------|---------|--------|---------|---------|----------|
| 132 | 2.1  | -48.969 | -10.360 | 40.490 | -40.487 | -75.339 | -3.582 | -84.559 | -15.430 | -100.456 |
| 132 | 4.2  | -48.969 | -10.360 | 40.490 | -40.487 | -75.339 | -3.582 | -84.559 | -15.430 | -100.456 |
| 133 | 0    | 27.377  | 3.651   | 48.111 | -48.459 | 38.695  | 72.751 | -23.819 | 81.563  | -19.835  |
| 133 | 2.1  | 27.377  | 3.651   | 48.111 | -48.459 | 38.695  | 72.751 | -23.819 | 81.563  | -19.835  |
| 133 | 4.2  | 27.377  | 3.651   | 48.111 | -48.459 | 38.695  | 72.751 | -23.819 | 81.563  | -19.835  |
| 134 | 0    | 47.186  | 10.142  | 40.443 | -40.541 | 72.850  | 82.910 | 1.926   | 98.399  | 13.366   |
| 134 | 2.1  | 47.186  | 10.142  | 40.443 | -40.541 | 72.850  | 82.910 | 1.926   | 98.399  | 13.366   |
| 134 | 4.2  | 47.186  | 10.142  | 40.443 | -40.541 | 72.850  | 82.910 | 1.926   | 98.399  | 13.366   |
| 147 | 0    | -7.165  | -0.868  | 39.659 | -40.177 | -9.987  | 33.211 | -46.625 | 33.572  | -50.256  |
| 147 | 1.05 | -7.165  | -0.868  | 39.659 | -40.177 | -9.987  | 33.211 | -46.625 | 33.572  | -50.256  |
| 147 | 2.1  | -7.165  | -0.868  | 39.659 | -40.177 | -9.987  | 33.211 | -46.625 | 33.572  | -50.256  |
| 148 | 0    | -22.686 | 1.364   | 33.329 | -34.065 | -25.040 | 12.912 | -54.483 | 12.035  | -58.729  |
| 148 | 1.05 | -22.686 | 1.364   | 33.329 | -34.065 | -25.040 | 12.912 | -54.483 | 12.035  | -58.729  |
| 148 | 2.1  | -22.686 | 1.364   | 33.329 | -34.065 | -25.040 | 12.912 | -54.483 | 12.035  | -58.729  |
| 149 | 0    | -23.707 | 1.429   | 35.582 | -36.386 | -26.162 | 14.247 | -57.722 | 13.370  | -62.197  |
| 149 | 1.05 | -23.707 | 1.429   | 35.582 | -36.386 | -26.162 | 14.247 | -57.722 | 13.370  | -62.197  |
| 149 | 2.1  | -23.707 | 1.429   | 35.582 | -36.386 | -26.162 | 14.247 | -57.722 | 13.370  | -62.197  |
| 150 | 0    | -22.840 | 1.413   | 37.563 | -38.374 | -25.147 | 17.007 | -58.930 | 16.349  | -63.385  |
| 150 | 1.05 | -22.840 | 1.413   | 37.563 | -38.374 | -25.147 | 17.007 | -58.930 | 16.349  | -63.385  |
| 150 | 2.1  | -22.840 | 1.413   | 37.563 | -38.374 | -25.147 | 17.007 | -58.930 | 16.349  | -63.385  |
| 151 | 0    | -19.528 | 1.817   | 38.015 | -38.848 | -20.527 | 20.440 | -56.424 | 20.556  | -60.151  |
| 151 | 1.05 | -19.528 | 1.817   | 38.015 | -38.848 | -20.527 | 20.440 | -56.424 | 20.556  | -60.151  |
| 151 | 2.1  | -19.528 | 1.817   | 38.015 | -38.848 | -20.527 | 20.440 | -56.424 | 20.556  | -60.151  |
| 152 | 0    | -19.523 | 1.820   | 38.015 | -38.848 | -20.516 | 20.444 | -56.419 | 20.563  | -60.144  |
| 152 | 1.05 | -19.523 | 1.820   | 38.015 | -38.848 | -20.516 | 20.444 | -56.419 | 20.563  | -60.144  |
| 152 | 2.1  | -19.523 | 1.820   | 38.015 | -38.848 | -20.516 | 20.444 | -56.419 | 20.563  | -60.144  |
| 153 | 0    | -22.840 | 1.413   | 37.563 | -38.374 | -25.147 | 17.007 | -58.930 | 16.349  | -63.384  |
| 153 | 1.05 | -22.840 | 1.413   | 37.563 | -38.374 | -25.147 | 17.007 | -58.930 | 16.349  | -63.384  |
| 153 | 2.1  | -22.840 | 1.413   | 37.563 | -38.374 | -25.147 | 17.007 | -58.930 | 16.349  | -63.384  |
| 154 | 0    | -23.707 | 1.429   | 35.582 | -36.386 | -26.162 | 14.247 | -57.722 | 13.370  | -62.197  |
| 154 | 1.05 | -23.707 | 1.429   | 35.582 | -36.386 | -26.162 | 14.247 | -57.722 | 13.370  | -62.197  |
| 154 | 2.1  | -23.707 | 1.429   | 35.582 | -36.386 | -26.162 | 14.247 | -57.722 | 13.370  | -62.197  |
| 182 | 0    | -22.686 | 1.364   | 33.329 | -34.065 | -25.040 | 12.912 | -54.483 | 12.035  | -58.729  |
| 182 | 1.05 | -22.686 | 1.364   | 33.329 | -34.065 | -25.040 | 12.912 | -54.483 | 12.035  | -58.729  |
| 182 | 2.1  | -22.686 | 1.364   | 33.329 | -34.065 | -25.040 | 12.912 | -54.483 | 12.035  | -58.729  |
| 184 | 0    | -7.165  | -0.868  | 39.659 | -40.177 | -9.987  | 33.211 | -46.625 | 33.572  | -50.256  |
| 184 | 1.05 | -7.165  | -0.868  | 39.659 | -40.177 | -9.987  | 33.211 | -46.625 | 33.572  | -50.256  |
| 184 | 2.1  | -7.165  | -0.868  | 39.659 | -40.177 | -9.987  | 33.211 | -46.625 | 33.572  | -50.256  |
| 389 | 0    | 9.248   | 2.645   | 7.620  | -11.002 | 15.330  | 15.944 | -2.679  | 19.378  | -0.175   |
| 389 | 2.1  | 9.248   | 2.645   | 7.620  | -11.002 | 15.330  | 15.944 | -2.679  | 19.378  | -0.175   |
| 389 | 4.2  | 9.248   | 2.645   | 7.620  | -11.002 | 15.330  | 15.944 | -2.679  | 19.378  | -0.175   |
| 390 | 0    | 2.187   | 0.098   | 25.721 | 0.722   | 2.782   | 27.689 | 2.691   | 29.366  | 3.117    |
| 390 | 2.1  | 2.187   | 0.098   | 25.721 | 0.722   | 2.782   | 27.689 | 2.691   | 29.366  | 3.117    |
| 390 | 4.2  | 2.187   | 0.098   | 25.721 | 0.722   | 2.782   | 27.689 | 2.691   | 29.366  | 3.117    |
| 391 | 0    | 0.346   | -0.280  | 33.937 | 1.435   | -0.033  | 34.248 | 1.746   | 35.820  | 1.694    |
| 391 | 2.1  | 0.346   | -0.280  | 33.937 | 1.435   | -0.033  | 34.248 | 1.746   | 35.820  | 1.694    |
| 391 | 4.2  | 0.346   | -0.280  | 33.937 | 1.435   | -0.033  | 34.248 | 1.746   | 35.820  | 1.694    |
| 392 | 0    | -6.217  | -1.492  | 36.818 | 1.041   | -9.846  | 31.223 | -4.554  | 31.192  | -6.374   |
| 392 | 2.1  | -6.217  | -1.492  | 36.818 | 1.041   | -9.846  | 31.223 | -4.554  | 31.192  | -6.374   |
| 392 | 4.2  | -6.217  | -1.492  | 36.818 | 1.041   | -9.846  | 31.223 | -4.554  | 31.192  | -6.374   |
| 393 | 0    | 10.647  | 2.364   | 38.559 | 0.504   | 16.559  | 48.141 | 10.087  | 53.156  | 13.193   |
| 393 | 2.1  | 10.647  | 2.364   | 38.559 | 0.504   | 16.559  | 48.141 | 10.087  | 53.156  | 13.198   |
| 393 | 4.2  | 10.647  | 2.364   | 38.559 | 0.504   | 16.559  | 48.141 | 10.087  | 53.156  | 13.198   |
| 394 | 0    | 10.648  | 2.364   | 38.559 | 0.504   | 16.560  | 48.142 | 10.087  | 53.157  | 13.199   |
| 394 | 2.1  | 10.648  | 2.364   | 38.559 | 0.504   | 16.560  | 48.142 | 10.087  | 53.157  | 13.199   |
| 394 | 4.2  | 10.648  | 2.364   | 38.559 | 0.504   | 16.560  | 48.142 | 10.087  | 53.157  | 13.199   |
| 395 | 0    | -6.217  | -1.492  | 36.818 | 1.041   | -9.846  | 31.223 | -4.554  | 31.192  | -6.374   |
| 395 | 2.1  | -6.217  | -1.492  | 36.818 | 1.041   | -9.846  | 31.223 | -4.554  | 31.192  | -6.374   |
| 395 | 4.2  | -6.217  | -1.492  | 36.818 | 1.041   | -9.846  | 31.223 | -4.554  | 31.192  | -6.374   |
| 396 | 0    | 0.346   | -0.280  | 33.937 | 1.435   | -0.033  | 34.248 | 1.746   | 35.820  | 1.693    |
| 396 | 2.1  | 0.346   | -0.280  | 33.937 | 1.435   | -0.033  | 34.248 | 1.746   | 35.820  | 1.693    |
| 396 | 4.2  | 0.346   | -0.280  | 33.937 | 1.435   | -0.033  | 34.248 | 1.746   | 35.820  | 1.693    |
| 397 | 0    | 2.187   | 0.098   | 25.721 | 0.722   | 2.782   | 27.689 | 2.691   | 29.366  | 3.117    |
| 397 | 2.1  | 2.187   | 0.098   | 25.721 | 0.722   | 2.782   | 27.689 | 2.691   | 29.366  | 3.117    |
| 397 | 4.2  | 2.187   | 0.098   | 25.721 | 0.722   | 2.782   | 27.689 | 2.691   | 29.366  | 3.117    |
| 398 | 0    | 9.248   | 2.645   | 7.620  | -11.002 | 15.330  | 15.944 | -2.679  | 19.378  | -0.175   |
| 398 | 2.1  | 9.248   | 2.645   | 7.620  | -11.002 | 15.330  | 15.944 | -2.679  | 19.378  | -0.175   |

|     |      |         |        |        |         |         |        |         |         |         |
|-----|------|---------|--------|--------|---------|---------|--------|---------|---------|---------|
| 425 | 0    | 22.021  | -1.155 | 45.576 | -45.525 | 24.577  | 65.395 | -25.706 | 70.249  | -25.406 |
| 425 | 1.05 | 22.021  | -1.155 | 45.576 | -45.525 | 24.577  | 65.395 | -25.706 | 70.249  | -25.406 |
| 425 | 2.1  | 22.021  | -1.155 | 45.576 | -45.525 | 24.577  | 65.395 | -25.706 | 70.249  | -25.406 |
| 426 | 0    | 22.021  | -1.155 | 45.576 | -45.525 | 24.577  | 65.395 | -25.706 | 70.249  | -25.407 |
| 426 | 1.05 | 22.021  | -1.155 | 45.576 | -45.525 | 24.577  | 65.395 | -25.706 | 70.249  | -25.407 |
| 426 | 2.1  | 22.021  | -1.155 | 45.576 | -45.525 | 24.577  | 65.395 | -25.706 | 70.249  | -25.407 |
| 436 | 0    | 5.436   | 0.657  | 40.146 | -39.689 | 7.574   | 45.039 | -34.796 | 48.276  | -35.551 |
| 436 | 1.05 | 5.436   | 0.657  | 40.146 | -39.689 | 7.574   | 45.039 | -34.796 | 48.276  | -35.551 |
| 436 | 2.1  | 5.436   | 0.657  | 40.146 | -39.689 | 7.574   | 45.039 | -34.796 | 48.276  | -35.551 |
| 437 | 0    | 20.513  | -1.622 | 34.054 | -33.340 | 22.020  | 52.516 | -14.878 | 56.273  | -14.490 |
| 437 | 1.05 | 20.513  | -1.622 | 34.054 | -33.340 | 22.020  | 52.516 | -14.878 | 56.273  | -14.490 |
| 437 | 2.1  | 20.513  | -1.622 | 34.054 | -33.340 | 22.020  | 52.516 | -14.878 | 56.273  | -14.490 |
| 438 | 0    | 19.951  | -1.820 | 36.386 | -35.578 | 21.029  | 54.342 | -17.623 | 58.007  | -17.555 |
| 438 | 1.05 | 19.951  | -1.820 | 36.386 | -35.578 | 21.029  | 54.342 | -17.623 | 58.007  | -17.555 |
| 438 | 2.1  | 19.951  | -1.820 | 36.386 | -35.578 | 21.029  | 54.342 | -17.623 | 58.007  | -17.555 |
| 439 | 0    | 21.120  | -1.447 | 38.415 | -37.537 | 23.029  | 57.423 | -18.529 | 61.600  | -18.149 |
| 439 | 1.05 | 21.120  | -1.447 | 38.415 | -37.537 | 23.029  | 57.423 | -18.529 | 61.600  | -18.149 |
| 439 | 2.1  | 21.120  | -1.447 | 38.415 | -37.537 | 23.029  | 57.423 | -18.529 | 61.600  | -18.149 |
| 440 | 0    | 28.095  | 0.055  | 38.959 | -38.084 | 33.801  | 64.245 | -12.799 | 70.441  | -10.455 |
| 440 | 1.05 | 28.095  | 0.055  | 38.959 | -38.084 | 33.801  | 64.245 | -12.799 | 70.441  | -10.455 |
| 440 | 2.1  | 28.095  | 0.055  | 38.959 | -38.084 | 33.801  | 64.245 | -12.799 | 70.441  | -10.455 |
| 441 | 0    | 28.102  | 0.059  | 38.959 | -38.084 | 33.816  | 64.251 | -12.793 | 70.451  | -10.445 |
| 441 | 1.05 | 28.102  | 0.059  | 38.959 | -38.084 | 33.816  | 64.251 | -12.793 | 70.451  | -10.445 |
| 441 | 2.1  | 28.102  | 0.059  | 38.959 | -38.084 | 33.816  | 64.251 | -12.793 | 70.451  | -10.445 |
| 442 | 0    | 21.121  | -1.447 | 38.415 | -37.537 | 23.031  | 57.424 | -18.528 | 61.601  | -18.148 |
| 442 | 1.05 | 21.121  | -1.447 | 38.415 | -37.537 | 23.031  | 57.424 | -18.528 | 61.601  | -18.148 |
| 442 | 2.1  | 21.121  | -1.447 | 38.415 | -37.537 | 23.031  | 57.424 | -18.528 | 61.601  | -18.148 |
| 443 | 0    | 19.951  | -1.820 | 36.386 | -35.578 | 21.029  | 54.342 | -17.623 | 58.007  | -17.555 |
| 443 | 1.05 | 19.951  | -1.820 | 36.386 | -35.578 | 21.029  | 54.342 | -17.623 | 58.007  | -17.555 |
| 443 | 2.1  | 19.951  | -1.820 | 36.386 | -35.578 | 21.029  | 54.342 | -17.623 | 58.007  | -17.555 |
| 444 | 0    | 20.513  | -1.622 | 34.054 | -33.340 | 22.020  | 52.516 | -14.878 | 56.273  | -14.490 |
| 444 | 1.05 | 20.513  | -1.622 | 34.054 | -33.340 | 22.020  | 52.516 | -14.878 | 56.273  | -14.490 |
| 444 | 2.1  | 20.513  | -1.622 | 34.054 | -33.340 | 22.020  | 52.516 | -14.878 | 56.273  | -14.490 |
| 445 | 0    | 5.436   | 0.657  | 40.146 | -39.689 | 7.574   | 45.039 | -34.796 | 48.276  | -35.551 |
| 445 | 1.05 | 5.436   | 0.657  | 40.146 | -39.689 | 7.574   | 45.039 | -34.796 | 48.276  | -35.551 |
| 445 | 2.1  | 5.436   | 0.657  | 40.146 | -39.689 | 7.574   | 45.039 | -34.796 | 48.276  | -35.551 |
| 446 | 0    | -23.995 | 0.913  | 45.491 | -45.611 | -27.333 | 23.896 | -67.206 | 23.147  | -72.511 |
| 446 | 1.05 | -23.995 | 0.913  | 45.491 | -45.611 | -27.333 | 23.896 | -67.206 | 23.147  | -72.511 |
| 446 | 2.1  | -23.995 | 0.913  | 45.491 | -45.611 | -27.333 | 23.896 | -67.206 | 23.147  | -72.511 |
| 447 | 0    | -10.347 | -4.379 | -0.287 | 0.445   | -19.423 | -9.599 | -8.867  | -13.924 | -13.155 |
| 447 | 1.05 | -10.347 | -4.379 | -0.287 | 0.445   | -19.423 | -9.599 | -8.867  | -13.924 | -13.155 |
| 447 | 2.1  | -10.347 | -4.379 | -0.287 | 0.445   | -19.423 | -9.599 | -8.867  | -13.924 | -13.155 |



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# LOAD COMBINATION MULTIPLIERS

| COMBO | TYPE | CASE | FACTOR | TYPE          | TITLE |
|-------|------|------|--------|---------------|-------|
| COMB1 | ADD  | DL   | 1.2000 | STATIC (DEAD) | COMB1 |
|       |      | LL   | 1.6000 | STATIC (LIVE) |       |

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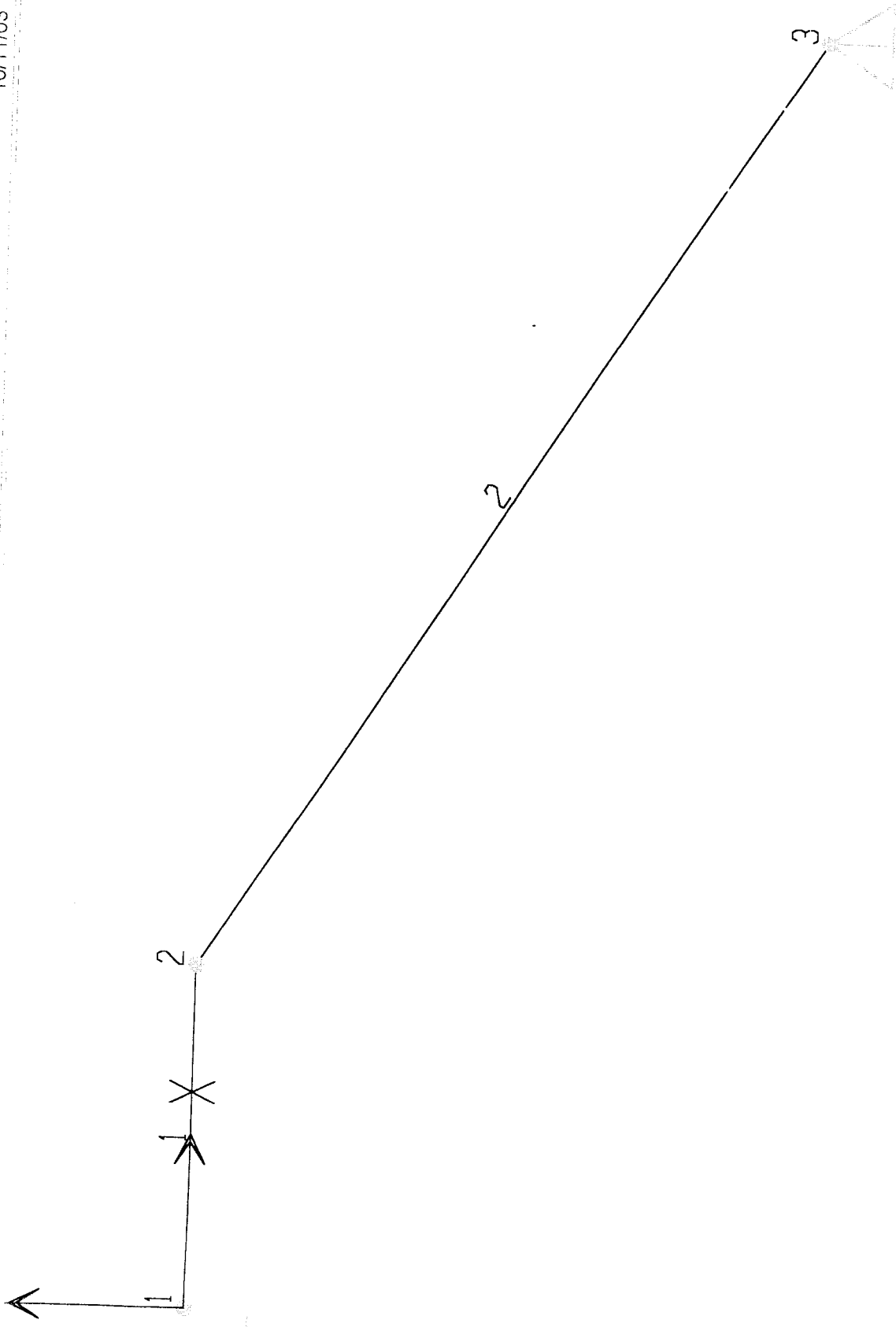
# JOINT REACTIONS

| JOINT | LOAD  | F1       | F2     | F3         | M1     | M2      | M3     |
|-------|-------|----------|--------|------------|--------|---------|--------|
| 1     | DL    | -53.0885 | 0.0000 | -4.3120    | 0.0000 | 0.6484  | 0.0000 |
| 1     | LL    | -14.2037 | 0.0000 | -8.080E-03 | 0.0000 | -0.1276 | 0.0000 |
| 1     | COMB1 | -86.4322 | 0.0000 | -5.1873    | 0.0000 | 0.5739  | 0.0000 |
| 3     | DL    | 53.0885  | 0.0000 | 59.0565    | 0.0000 | 14.9860 | 0.0000 |
| 3     | LL    | 14.2037  | 0.0000 | 15.3426    | 0.0000 | 3.7382  | 0.0000 |
| 3     | COMB1 | 86.4322  | 0.0000 | 95.4160    | 0.0000 | 23.9644 | 0.0000 |

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# FRAME ELEMENT FORCES

| FRAME | LOAD  | LOC     | P      | V2        | V3   | T    | M2   | M3         |
|-------|-------|---------|--------|-----------|------|------|------|------------|
| 1     | DL    | 0.00    | 53.09  | 4.31      | 0.00 | 0.00 | 0.00 | 6.484E-01  |
|       |       | 3.0E-01 | 53.09  | 6.24      | 0.00 | 0.00 | 0.00 | -9.349E-01 |
|       |       | 6.0E-01 | 53.09  | 8.18      | 0.00 | 0.00 | 0.00 | -3.10      |
|       |       | 9.0E-01 | 53.09  | 10.11     | 0.00 | 0.00 | 0.00 | -5.84      |
|       |       | 1.20    | 53.09  | 12.04     | 0.00 | 0.00 | 0.00 | -9.16      |
| 1     | LL    | 0.00    | 14.20  | 8.080E-03 | 0.00 | 0.00 | 0.00 | -1.276E-01 |
|       |       | 3.0E-01 | 14.20  | 9.081E-01 | 0.00 | 0.00 | 0.00 | -2.651E-01 |
|       |       | 6.0E-01 | 14.20  | 1.81      | 0.00 | 0.00 | 0.00 | -6.725E-01 |
|       |       | 9.0E-01 | 14.20  | 2.71      | 0.00 | 0.00 | 0.00 | -1.35      |
|       |       | 1.20    | 14.20  | 3.61      | 0.00 | 0.00 | 0.00 | -2.30      |
| 1     | COMB1 | 0.00    | 86.43  | 5.19      | 0.00 | 0.00 | 0.00 | 5.739E-01  |
|       |       | 3.0E-01 | 86.43  | 8.95      | 0.00 | 0.00 | 0.00 | -1.55      |
|       |       | 6.0E-01 | 86.43  | 12.70     | 0.00 | 0.00 | 0.00 | -4.79      |
|       |       | 9.0E-01 | 86.43  | 16.46     | 0.00 | 0.00 | 0.00 | -9.17      |
|       |       | 1.20    | 86.43  | 20.22     | 0.00 | 0.00 | 0.00 | -14.67     |
| 2     | DL    | 0.00    | 51.25  | -18.34    | 0.00 | 0.00 | 0.00 | -9.16      |
|       |       | 1.96    | 63.87  | 1.49      | 0.00 | 0.00 | 0.00 | 7.32       |
|       |       | 3.91    | 76.49  | 21.32     | 0.00 | 0.00 | 0.00 | -14.99     |
| 2     | LL    | 0.00    | 13.92  | -4.58     | 0.00 | 0.00 | 0.00 | -2.30      |
|       |       | 1.96    | 17.07  | 3.684E-01 | 0.00 | 0.00 | 0.00 | 1.82       |
|       |       | 3.91    | 20.22  | 5.32      | 0.00 | 0.00 | 0.00 | -3.74      |
| 2     | COMB1 | 0.00    | 83.78  | -29.34    | 0.00 | 0.00 | 0.00 | -14.67     |
|       |       | 1.96    | 103.96 | 2.38      | 0.00 | 0.00 | 0.00 | 11.70      |
|       |       | 3.91    | 124.15 | 34.10     | 0.00 | 0.00 | 0.00 | -23.96     |





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# LOAD COMBINATION MULTIPLIERS

| COMBO | TYPE | CASE | FACTOR | TYPE         | TITLE |
|-------|------|------|--------|--------------|-------|
| COMB1 | ADD  | DL   | 1.2000 | STATIC(DEAD) | COMB1 |
|       |      | LL   | 1.6000 | STATIC(LIVE) |       |

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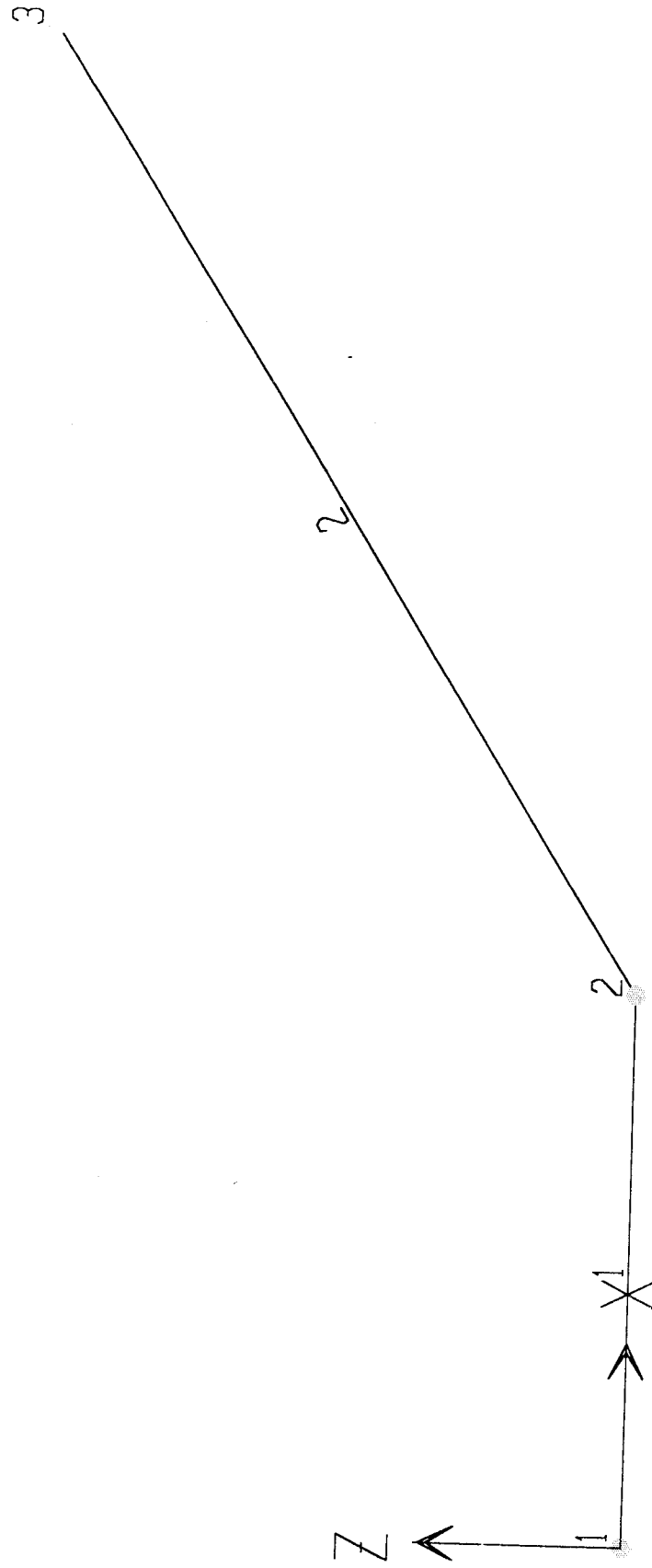
# JOINT REACTIONS

| JOINT | LOAD  | F1        | F2     | F3       | M1     | M2     | M3     |
|-------|-------|-----------|--------|----------|--------|--------|--------|
| 1     | DL    | 73.4754   | 0.0000 | -10.9399 | 0.0000 | 2.6475 | 0.0000 |
| 1     | LL    | 19.2892   | 0.0000 | -1.6614  | 0.0000 | 0.3710 | 0.0000 |
| 1     | COMB1 | 119.0332  | 0.0000 | -15.7861 | 0.0000 | 3.7707 | 0.0000 |
| 3     | DL    | -73.4754  | 0.0000 | 65.6844  | 0.0000 | 0.0000 | 0.0000 |
| 3     | LL    | -19.2892  | 0.0000 | 16.9960  | 0.0000 | 0.0000 | 0.0000 |
| 3     | COMB1 | -119.0332 | 0.0000 | 106.0148 | 0.0000 | 0.0000 | 0.0000 |

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# FRAME ELEMENT FORCES

| FRAME | LOAD  | LOC     | P       | V2         | V3   | T    | M2   | M3         |
|-------|-------|---------|---------|------------|------|------|------|------------|
| 1     | DL    | 0.00    | -73.48  | 10.94      | 0.00 | 0.00 | 0.00 | 2.65       |
|       |       | 3.0E-01 | -73.48  | 12.87      | 0.00 | 0.00 | 0.00 | -9.242E-01 |
|       |       | 6.0E-01 | -73.48  | 14.80      | 0.00 | 0.00 | 0.00 | -5.08      |
|       |       | 9.0E-01 | -73.48  | 16.74      | 0.00 | 0.00 | 0.00 | -9.81      |
|       |       | 1.20    | -73.48  | 18.67      | 0.00 | 0.00 | 0.00 | -15.12     |
| 1     | LL    | 0.00    | -19.29  | 1.66       | 0.00 | 0.00 | 0.00 | 3.710E-01  |
|       |       | 3.0E-01 | -19.29  | 2.56       | 0.00 | 0.00 | 0.00 | -2.624E-01 |
|       |       | 6.0E-01 | -19.29  | 3.46       | 0.00 | 0.00 | 0.00 | -1.17      |
|       |       | 9.0E-01 | -19.29  | 4.36       | 0.00 | 0.00 | 0.00 | -2.34      |
|       |       | 1.20    | -19.29  | 5.26       | 0.00 | 0.00 | 0.00 | -3.78      |
| 1     | COMB1 | 0.00    | -119.03 | 15.79      | 0.00 | 0.00 | 0.00 | 3.77       |
|       |       | 3.0E-01 | -119.03 | 19.54      | 0.00 | 0.00 | 0.00 | -1.53      |
|       |       | 6.0E-01 | -119.03 | 23.30      | 0.00 | 0.00 | 0.00 | -7.96      |
|       |       | 9.0E-01 | -119.03 | 27.06      | 0.00 | 0.00 | 0.00 | -15.51     |
|       |       | 1.20    | -119.03 | 30.82      | 0.00 | 0.00 | 0.00 | -24.19     |
| 2     | DL    | 0.00    | -72.01  | -23.70     | 0.00 | 0.00 | 0.00 | -15.12     |
|       |       | 1.96    | -84.63  | -3.86      | 0.00 | 0.00 | 0.00 | 11.84      |
|       |       | 3.91    | -97.25  | 15.97      | 0.00 | 0.00 | 0.00 | 0.00       |
| 2     | LL    | 0.00    | -19.10  | -5.92      | 0.00 | 0.00 | 0.00 | -3.78      |
|       |       | 1.96    | -22.25  | -9.671E-01 | 0.00 | 0.00 | 0.00 | 2.95       |
|       |       | 3.91    | -25.40  | 3.98       | 0.00 | 0.00 | 0.00 | 0.00       |
| 2     | COMB1 | 0.00    | -116.97 | -37.90     | 0.00 | 0.00 | 0.00 | -24.19     |
|       |       | 1.96    | -137.16 | -6.19      | 0.00 | 0.00 | 0.00 | 18.92      |
|       |       | 3.91    | -157.34 | 25.53      | 0.00 | 0.00 | 0.00 | 0.00       |



UII DJOGJA

# LOAD COMBINATION MULTIPLIERS

| COMBO | TYPE | CASE | FACTOR | TYPE         | TITLE |
|-------|------|------|--------|--------------|-------|
| COMB1 | ADD  | DL   | 1.2000 | STATIC(DEAD) | COMB1 |
|       |      | LL   | 1.6000 | STATIC(LIVE) |       |

UII DJOGJA

# JOINT REACTIONS

| JOINT | LOAD  | F1       | F2     | F3      | M1     | M2      | M3     |
|-------|-------|----------|--------|---------|--------|---------|--------|
| 1     | DL    | -41.0225 | 0.0000 | 1.4257  | 0.0000 | 0.1480  | 0.0000 |
| 1     | LL    | -16.2888 | 0.0000 | 1.6552  | 0.0000 | -0.3310 | 0.0000 |
| 1     | COMB1 | -75.2991 | 0.0000 | 4.3590  | 0.0000 | -0.4320 | 0.0000 |
| 3     | DL    | 41.0225  | 0.0000 | 46.2319 | 0.0000 | 11.9974 | 0.0000 |
| 3     | LL    | 16.2888  | 0.0000 | 17.7352 | 0.0000 | 4.3818  | 0.0000 |
| 3     | COMB1 | 75.2991  | 0.0000 | 83.8545 | 0.0000 | 21.4077 | 0.0000 |

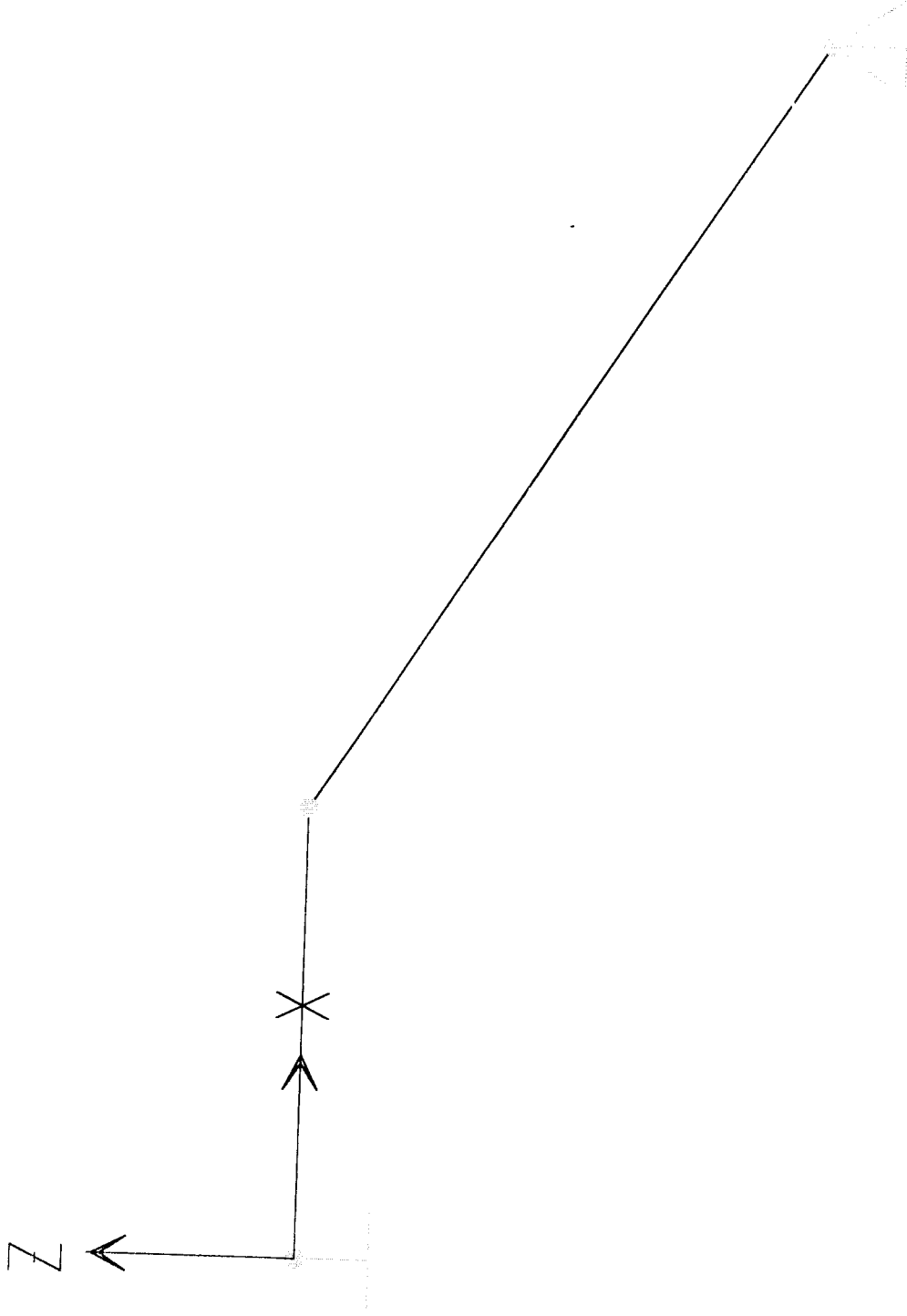
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# FRAME ELEMENT FORCES

| FRAME | LOAD  | LOC     | P      | V2         | V3   | T    | M2   | M3         |
|-------|-------|---------|--------|------------|------|------|------|------------|
| 1     | DL    | 0.00    | 41.02  | -1.43      | 0.00 | 0.00 | 0.00 | 1.480E-01  |
|       |       | 4.8E-01 | 41.02  | 1.18       | 0.00 | 0.00 | 0.00 | 2.070E-01  |
|       |       | 9.5E-01 | 41.02  | 3.73       | 0.00 | 0.00 | 0.00 | -9.705E-01 |
|       |       | 1.43    | 41.02  | 6.38       | 0.00 | 0.00 | 0.00 | -3.38      |
|       |       | 1.90    | 41.02  | 8.99       | 0.00 | 0.00 | 0.00 | -7.03      |
| 1     | LL    | 0.00    | 16.29  | -1.66      | 0.00 | 0.00 | 0.00 | -3.810E-01 |
|       |       | 4.8E-01 | 16.29  | -2.302E-01 | 0.00 | 0.00 | 0.00 | 6.678E-02  |
|       |       | 9.5E-01 | 16.29  | 1.19       | 0.00 | 0.00 | 0.00 | -1.623E-01 |
|       |       | 1.43    | 16.29  | 2.62       | 0.00 | 0.00 | 0.00 | -1.07      |
|       |       | 1.90    | 16.29  | 4.04       | 0.00 | 0.00 | 0.00 | -2.65      |
| 1     | COMB1 | 0.00    | 75.29  | -4.36      | 0.00 | 0.00 | 0.00 | -4.320E-01 |
|       |       | 4.8E-01 | 75.29  | 1.04       | 0.00 | 0.00 | 0.00 | 3.552E-01  |
|       |       | 9.5E-01 | 75.29  | 6.45       | 0.00 | 0.00 | 0.00 | -1.42      |
|       |       | 1.43    | 75.29  | 11.85      | 0.00 | 0.00 | 0.00 | -5.77      |
|       |       | 1.90    | 75.29  | 17.26      | 0.00 | 0.00 | 0.00 | -12.68     |
| 2     | DL    | 0.00    | 39.43  | -14.44     | 0.00 | 0.00 | 0.00 | -7.03      |
|       |       | 1.96    | 49.43  | 1.27       | 0.00 | 0.00 | 0.00 | 5.85       |
|       |       | 3.91    | 59.43  | 16.98      | 0.00 | 0.00 | 0.00 | -12.00     |
| 2     | LL    | 0.00    | 15.91  | -5.33      | 0.00 | 0.00 | 0.00 | -2.65      |
|       |       | 1.96    | 19.59  | 4.424E-01  | 0.00 | 0.00 | 0.00 | 2.13       |
|       |       | 3.91    | 23.26  | 6.22       | 0.00 | 0.00 | 0.00 | -4.38      |
| 2     | COMB1 | 0.00    | 72.78  | -25.86     | 0.00 | 0.00 | 0.00 | -12.68     |
|       |       | 1.96    | 90.66  | 2.23       | 0.00 | 0.00 | 0.00 | 10.43      |
|       |       | 3.91    | 108.54 | 30.32      | 0.00 | 0.00 | 0.00 | -21.41     |

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# LOAD COMBINATION MULTIPLIERS

| COMBO | TYPE | CASE | FACTOR | TYPE         | TITLE |
|-------|------|------|--------|--------------|-------|
| COMB1 | ADD  | DL   | 1.2000 | STATIC(DEAD) | COMB1 |
|       |      | LL   | 1.6000 | STATIC(DEAD) |       |

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# JOINT REACTIONS

| JOINT | LOAD  | F1       | F2     | F3      | M1     | M2     | M3     |
|-------|-------|----------|--------|---------|--------|--------|--------|
| 1     | DL    | 54.1251  | 0.0000 | -1.9338 | 0.0000 | 2.0991 | 0.0000 |
| 1     | LL    | 21.0742  | 0.0000 | 0.4282  | 0.0000 | 0.3316 | 0.0000 |
| 1     | COMB1 | 98.6688  | 0.0000 | -1.6354 | 0.0000 | 3.0496 | 0.0000 |
| 3     | DL    | -54.1251 | 0.0000 | 49.5913 | 0.0000 | 0.0000 | 0.0000 |
| 3     | LL    | -21.0742 | 0.0000 | 18.9621 | 0.0000 | 0.0000 | 0.0000 |
| 3     | COMB1 | -98.6688 | 0.0000 | 89.8490 | 0.0000 | 0.0000 | 0.0000 |

UII DJOGJA

# FRAME ELEMENT FORCES

| FRAME | LOAD  | LOC     | P       | V2         | V3   | T    | M2   | M3         |
|-------|-------|---------|---------|------------|------|------|------|------------|
| 1     | DL    | 0.00    | -54.13  | 1.93       | 0.00 | 0.00 | 0.00 | 2.10       |
|       |       | 4.8E-01 | -54.13  | 4.54       | 0.00 | 0.00 | 0.00 | 5.624E-01  |
|       |       | 9.5E-01 | -54.13  | 7.14       | 0.00 | 0.00 | 0.00 | -2.21      |
|       |       | 1.43    | -54.13  | 9.74       | 0.00 | 0.00 | 0.00 | -6.22      |
|       |       | 1.90    | -54.13  | 12.35      | 0.00 | 0.00 | 0.00 | -11.47     |
| 1     | LL    | 0.00    | -21.07  | -4.282E-01 | 0.00 | 0.00 | 0.00 | 3.216E-01  |
|       |       | 4.8E-01 | -21.07  | 9.968E-01  | 0.00 | 0.00 | 0.00 | 1.966E-01  |
|       |       | 9.5E-01 | -21.07  | 2.42       | 0.00 | 0.00 | 0.00 | -6.153E-01 |
|       |       | 1.43    | -21.07  | 3.85       | 0.00 | 0.00 | 0.00 | -2.10      |
|       |       | 1.90    | -21.07  | 5.27       | 0.00 | 0.00 | 0.00 | -4.27      |
| 1     | COMB1 | 0.00    | -98.67  | 1.64       | 0.00 | 0.00 | 0.00 | 3.05       |
|       |       | 4.8E-01 | -98.67  | 7.04       | 0.00 | 0.00 | 0.00 | 9.894E-01  |
|       |       | 9.5E-01 | -98.67  | 12.44      | 0.00 | 0.00 | 0.00 | -3.64      |
|       |       | 1.43    | -98.67  | 17.85      | 0.00 | 0.00 | 0.00 | -10.83     |
|       |       | 1.90    | -98.67  | 23.25      | 0.00 | 0.00 | 0.00 | -20.59     |
| 2     | DL    | 0.00    | -52.29  | -18.64     | 0.00 | 0.00 | 0.00 | -11.47     |
|       |       | 1.96    | -62.29  | -2.93      | 0.00 | 0.00 | 0.00 | 9.63       |
|       |       | 3.91    | -72.29  | 12.78      | 0.00 | 0.00 | 0.00 | 0.00       |
| 2     | LL    | 0.00    | -20.61  | -6.87      | 0.00 | 0.00 | 0.00 | -4.27      |
|       |       | 1.96    | -24.28  | -1.09      | 0.00 | 0.00 | 0.00 | 3.51       |
|       |       | 3.91    | -27.96  | 4.68       | 0.00 | 0.00 | 0.00 | 0.00       |
| 2     | COMB1 | 0.00    | -95.73  | -33.36     | 0.00 | 0.00 | 0.00 | -20.59     |
|       |       | 1.96    | -113.60 | -5.26      | 0.00 | 0.00 | 0.00 | 17.18      |
|       |       | 3.91    | -131.48 | 22.83      | 0.00 | 0.00 | 0.00 | 0.00       |

LAMPIRAN

III

LAPORAN  
PENYELIDIKAN TANAH

UNTUK  
RENCANA GEDUNG FAKULTAS HUKUM  
UNIVERSITAS GADJAH MADA

BANGUNAN 3 LANTAI SELUAS 3000 M<sup>2</sup>

LOKASI :  
FAKULTAS HUKUM UGM  
BULAKSUMUR YOGYAKARTA

Dilaksanakan oleh

Laboratorium Mekanika Tanah  
PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta,  
Telp.(0274)584032 Fax.(0274)589683

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YOGYAKARTA  
2002

# LAPORAN PENYELIDIKAN TANAH

## UNTUK PERENCANAAN GEDUNG FAKULTAS HUKUM UGM BANGUNAN 3 LANTAI SELUAS 3000 M<sup>2</sup> LOKASI : FAKULTAS HUKUM UGM BULAKSUMUR YOGYAKARTA

### I. PENDAHULUAN

#### A. Umum

Serangkaian penyelidikan tanah telah dilaksanakan oleh Laboratorium Mekanika Tanah, PT Mumpuni di lokasi rencana pembangunan gedung Fakultas Hukum UGM, Bulaksumur, Yogyakarta.

Penyelidikan tanah yang dilakukan bertujuan untuk mengetahui keadaan, jenis, sifat, dan parameter-parameter teknis tanah dasar bangunan. Data yang didapatkan akan digunakan untuk analisis penentuan kedalaman dan daya dukung fondasi serta perkiraan penurunan yang mungkin terjadi.

Pekerjaan penyelidikan tanah yang terdiri atas pekerjaan lapangan laboratorium dilaksanakan dalam bulan Februari 2002. Lokasi yang diselidiki terletak di dalam kompleks Fakultas Hukum UGM, Bulaksumur Yogyakarta.

#### B. Lingkup Pekerjaan

Pekerjaan penyelidikan tanah yang telah dilaksanakan meliputi :

- 1) 11 (sebelas) titik pengujian sondir berkapasitas 2,5 ton. Pengujian dilakukan sampai kedalaman lapisan tanah dengan nilai perlawanan konis mencapai 200 kg/cm<sup>2</sup>.
- 2) 3 (tiga) titik pemboran dengan alat bor tangan sampai kedalaman sekitar 2,5 meter.
- 3) Pengujian laboratorium atas sampel tanah yang diambil untuk menentukan parameter kuat geser tanah yang meliputi berat jenis, berat volume, sudut gesek dalam, dan kohesi tanah.



## II. HASIL PENYELIDIKAN DAN ANALISIS

### A. Kondisi Lapisan Tanah

Sebagaimana umumnya daerah Sleman, Yogyakarta, kondisi tanah di lokasi Fakultas Hukum UGM yang diselidiki ini berupa endapan vulkanik, dengan kondisi yang agak bervariasi, baik jenis tanah, ketebalan, maupun kepadatannya. Secara umum deposit di lahan ini tersusun atas lapisan-lapisan pasir tipis yang berganti-ganti kondisi lapisan dan variasi campurannya. Hampir seluruh deposit berupa pasir, dari ukuran halus sampai kasar dan sebagian kecil lapisan mengandung kerikil dan fraksi halus yang non-plastis sebagai pengikat.

Lapisan bagian atas cukup bervariasi, dari yang relatif lepas sampai agak padat. Lapisan bagian atas yang kurang padat ini mempunyai ketebalan 0,70 m sampai 1,00 m dengan nilai perlawanan konis mencapai 11 kg/cm<sup>2</sup>. Lapisan di bawahnya pada kedalaman 1,50 m sampai 1,80 m kondisinya lebih baik dengan nilai perlawanan konis sekitar 140 kg/cm<sup>2</sup> sampai 200 kg/cm<sup>2</sup>.

Hasil uji laboratorium menunjukkan bahwa tanah setempat mempunyai parameter kuat geser yang berupa kohesi yang sangat rendah dan sudut gesek dalam sekitar 30°.

### B. Fondasi

Mengingat tanah cukup keras tidak terlalu dalam, yaitu sekitar 1,80 m sampai 2,00 m, maka fondasi footplat dapat digunakan untuk bangunan yang lahannya diselidiki ini. Dasar fondasi diletakkan pada kedalaman -2,00 m di bawah muka tanah setempat. Kapasitas daya dukung tanah dasar yang diijinkan ( $q_a$ ) untuk bangunan 3 lantai dapat diambil sebesar :

$$q_a = 6,0 - 7,0 \text{ kg/cm}^2$$

Jika pada saat penggalian ternyata pada elevasi tersebut belum mencapai tanah keras, maka disarankan untuk meneruskan sedikit sampai lapisan tanah keras.

### III. PENUTUP

Dalam pelaksanaan pekerjaan nanti, apabila dijumpai hal-hal yang menyimpang, meragukan, atau tak terduga, maka perlu diadakan penyesuaian dengan keadaan tersebut. Keputusan hendaknya diambil oleh pihak-pihak yang menguasai permasalahan.

Yogyakarta, Februari 2002

Laboratorium Mekanika Tanah

PT MUMPUNI

Direktur,

Ir. Syaukat Ali, M.Si.

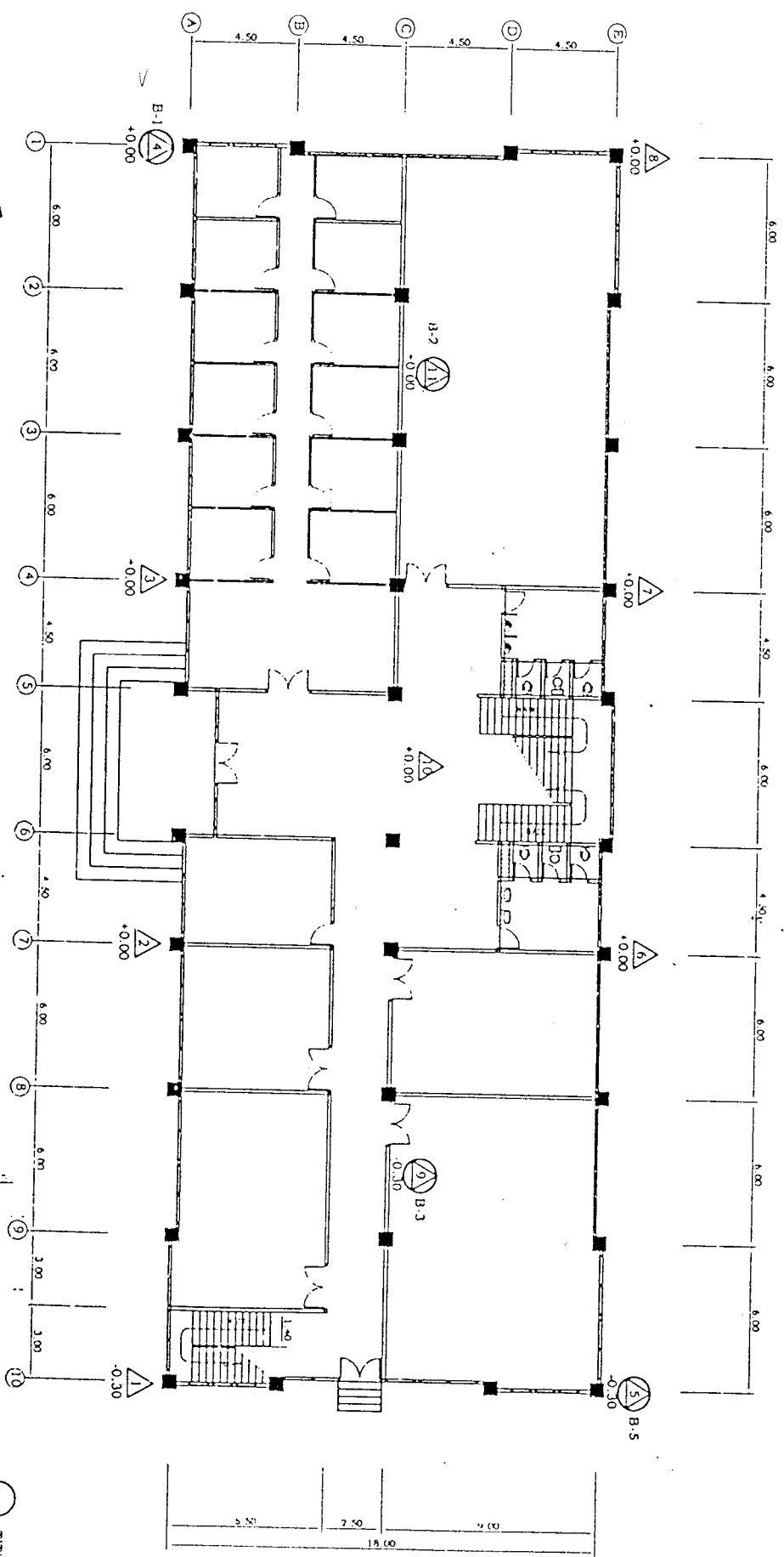
UTARA

DENAH TITIK PENYELIDIKAN TANAH

RENCANA GEDUNG FAKULTAS HUKUM UGM 3 LANTAI

○ TITIK BOR

△ TITIK SONDIR

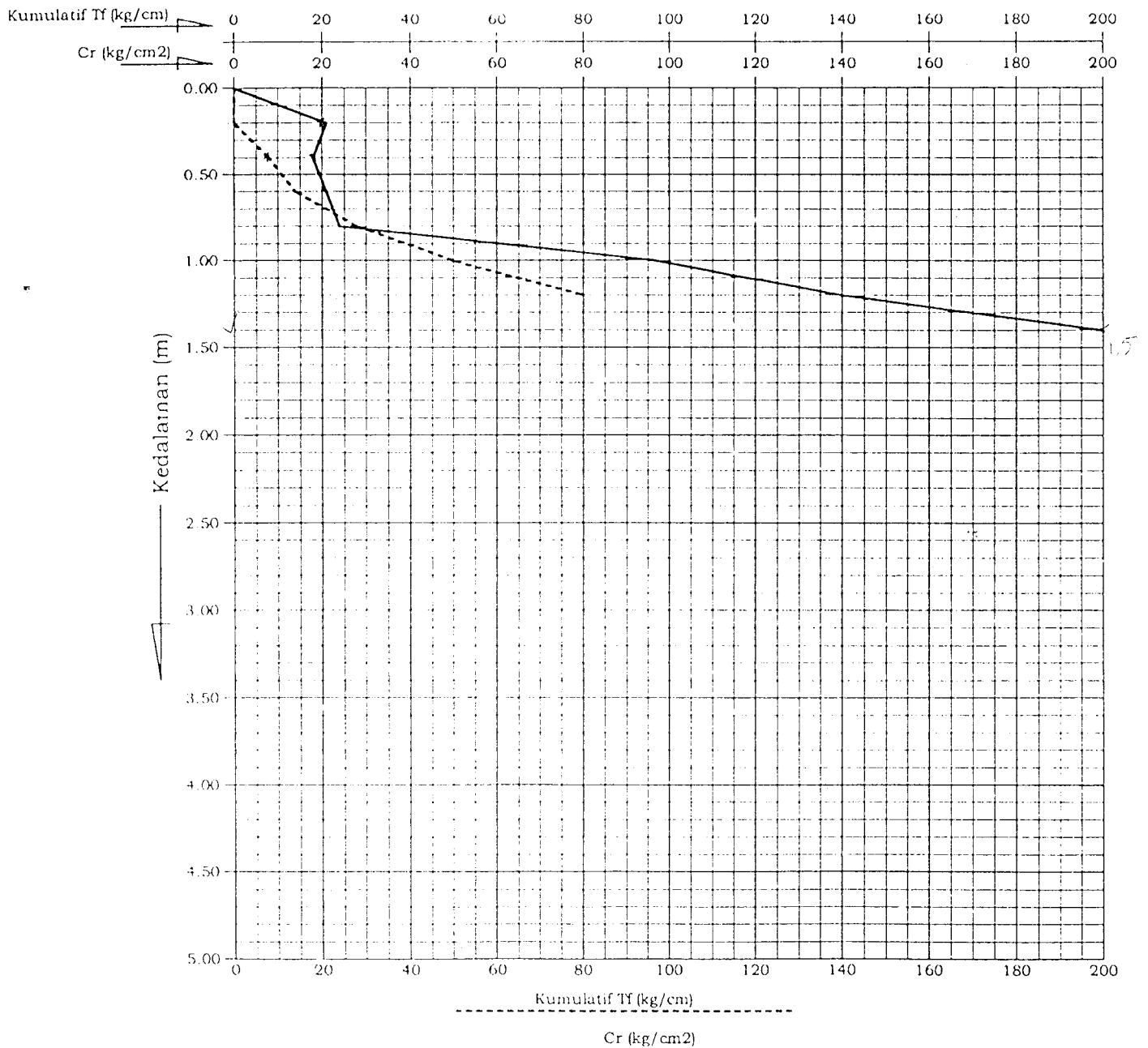


## HASIL PENGUJIAN LABORATORIUM

| NO. TTK<br>BOR | KEDALAMAN<br>(m) | BERAT/VOLUME<br>(kg/dm <sup>3</sup> ) | $\sigma$<br>(kg/cm <sup>2</sup> ) | $\phi$<br>(°) | c<br>(kg/cm <sup>2</sup> ) |
|----------------|------------------|---------------------------------------|-----------------------------------|---------------|----------------------------|
| B-1            | -0,70            | 1,66                                  | 0,543                             | 29,915        | 0,131                      |
|                | -0,90            | 1,78                                  | 1,958                             | 31,183        | 0,513                      |
| B-2            | -0,70            | 1,64                                  | 0,435                             | 31,117        | 0,115                      |
|                | -1,30            | 1,79                                  | 1,867                             | 32,142        | 0,449                      |
| B-3            | -0,70            | 1,65                                  | 0,765                             | 29,292        | 0,234                      |
|                | -1,10            | 1,81                                  | 2,355                             | 31,692        | 0,619                      |
| B-4            | -0,70            | 1,63                                  | 0,338                             | 29,817        | 0,102                      |
|                | -1,30            | 1,79                                  | 2,513                             | 31,183        | 0,635                      |

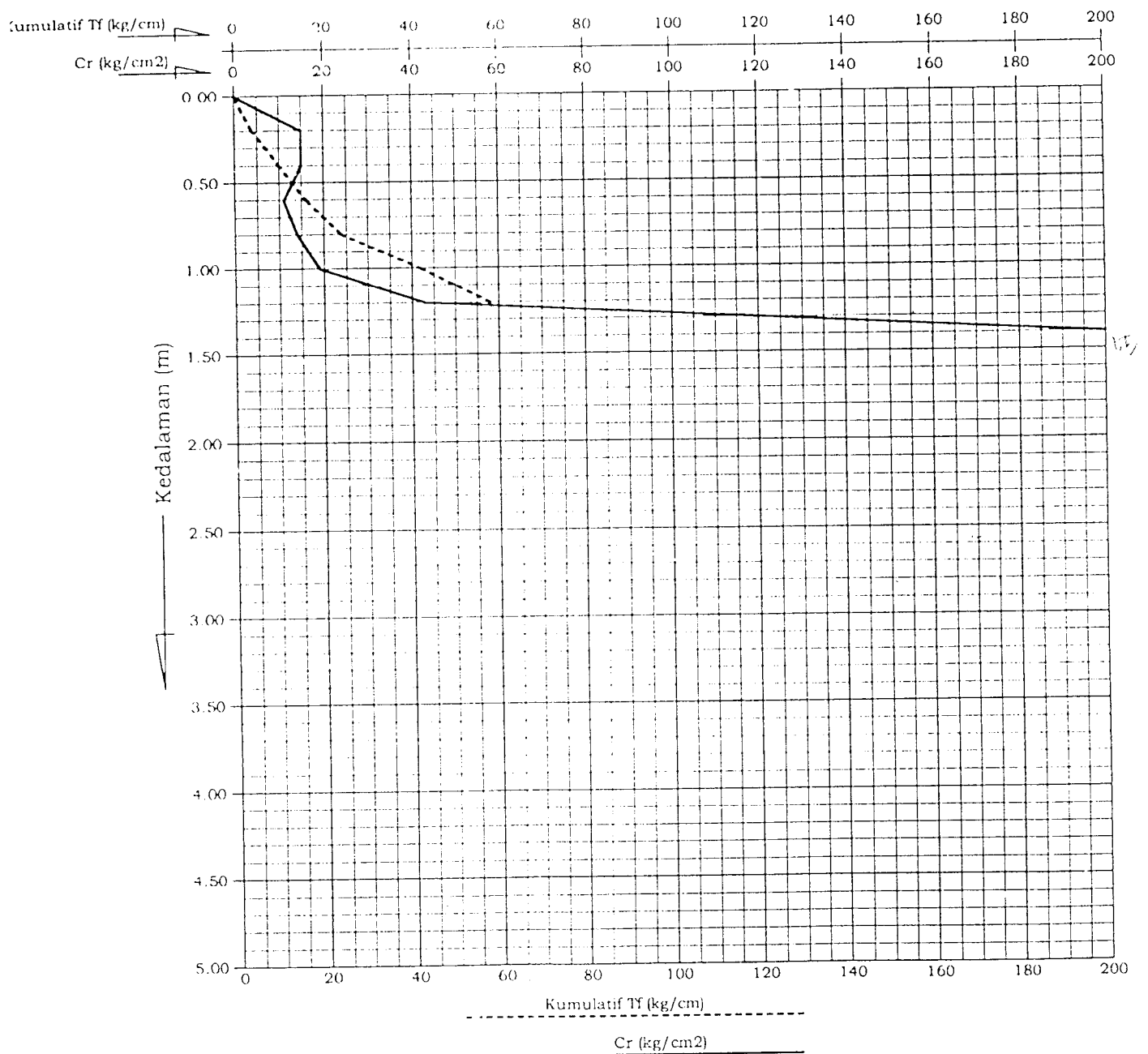
## GRAFIK HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| PROYEK    | Gedung Fakultas Hukum UGm 3 Lantai | Nomor titik    | 6     |
| LOKASI    | Bulaksumur Yogyakarta              | Muka tanah     | +0.00 |
| HARI/TGL. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |



## GRAFIK HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| PROYEK    | Gedung Fakultas Hukum UGm 3 Lantai | Nomor titik    | 7     |
| LOKASI    | Bulaksumur Yogyakarta              | Muka tanah     | +0.00 |
| HARI/TGL. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |



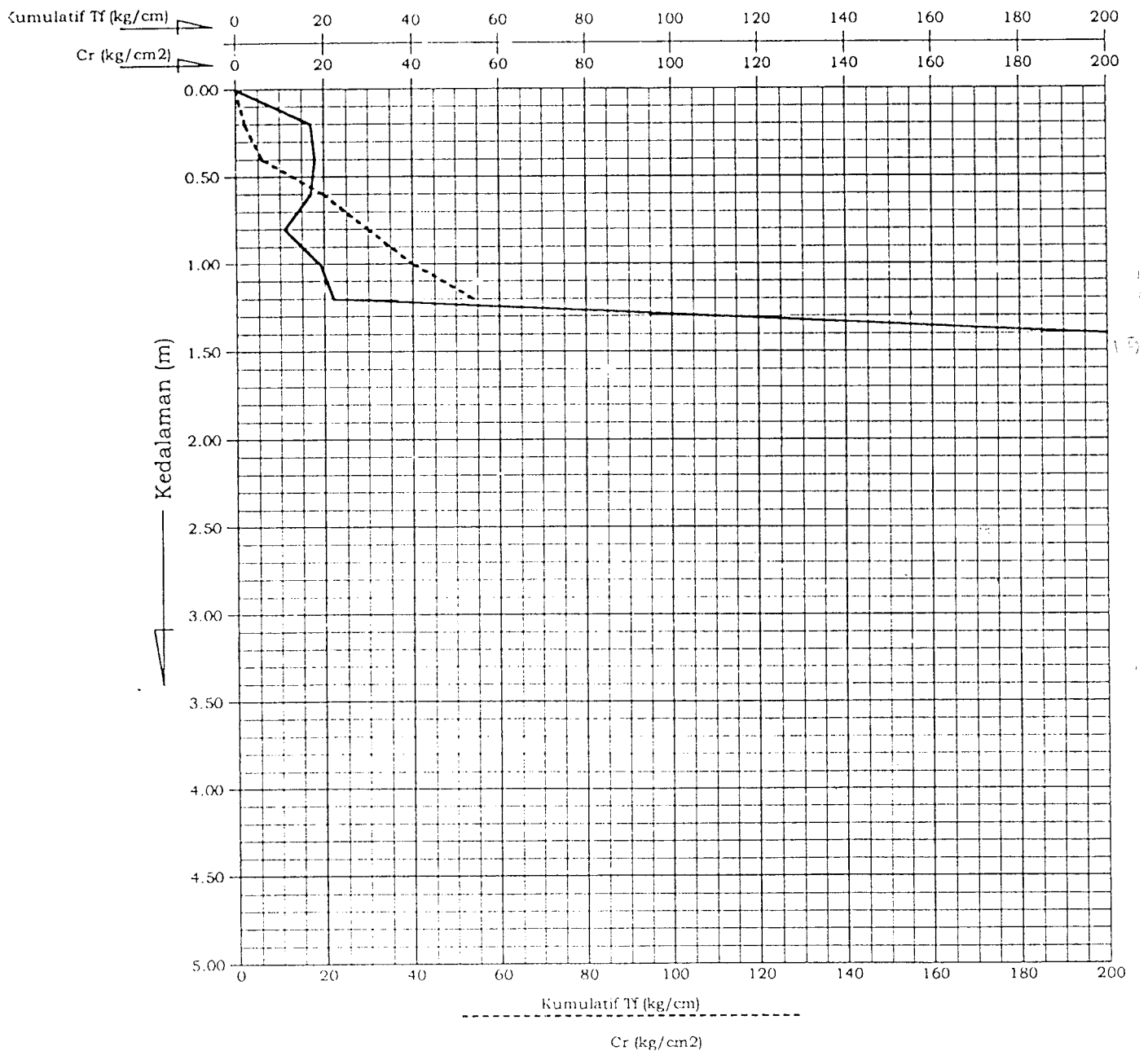
Laboratorium Mekanika Tanah

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

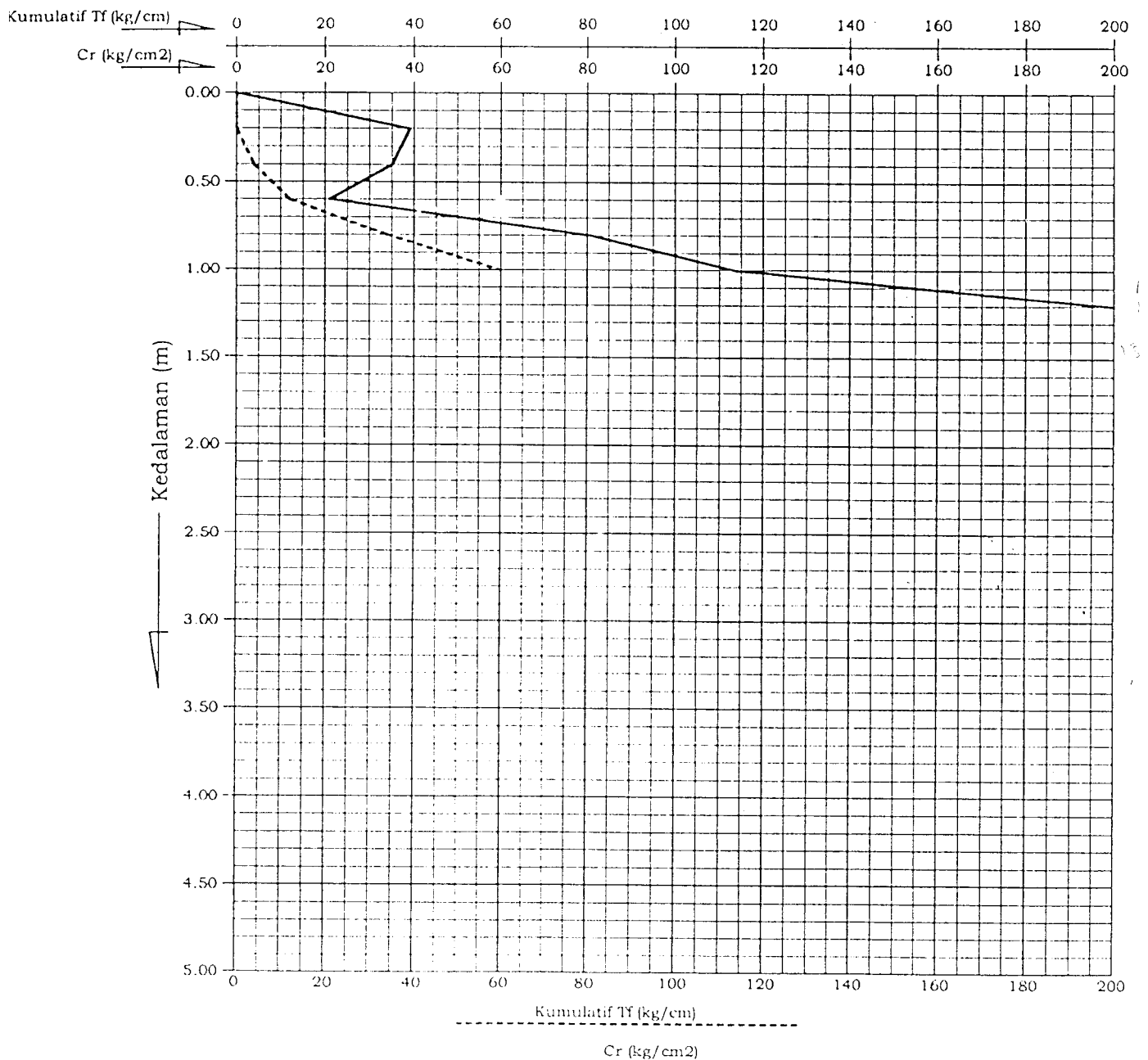
## GRAFIK HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| PROYEK    | Gedung Fakultas Hukum UGm 3 Lantai | Nomor titik    | 8     |
| LOKASI    | Bulaksumur Yogyakarta              | Muka tanah     | +0.00 |
| HARI/TGL. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |



## GRAFIK HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| PROYEK    | Gedung Fakultas Hukum UGm 3 Lantai | Nomor titik    | 9     |
| LOKASI    | Bulaksumur Yogyakarta              | Muka tanah     | +0.00 |
| HARI/TGL. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |





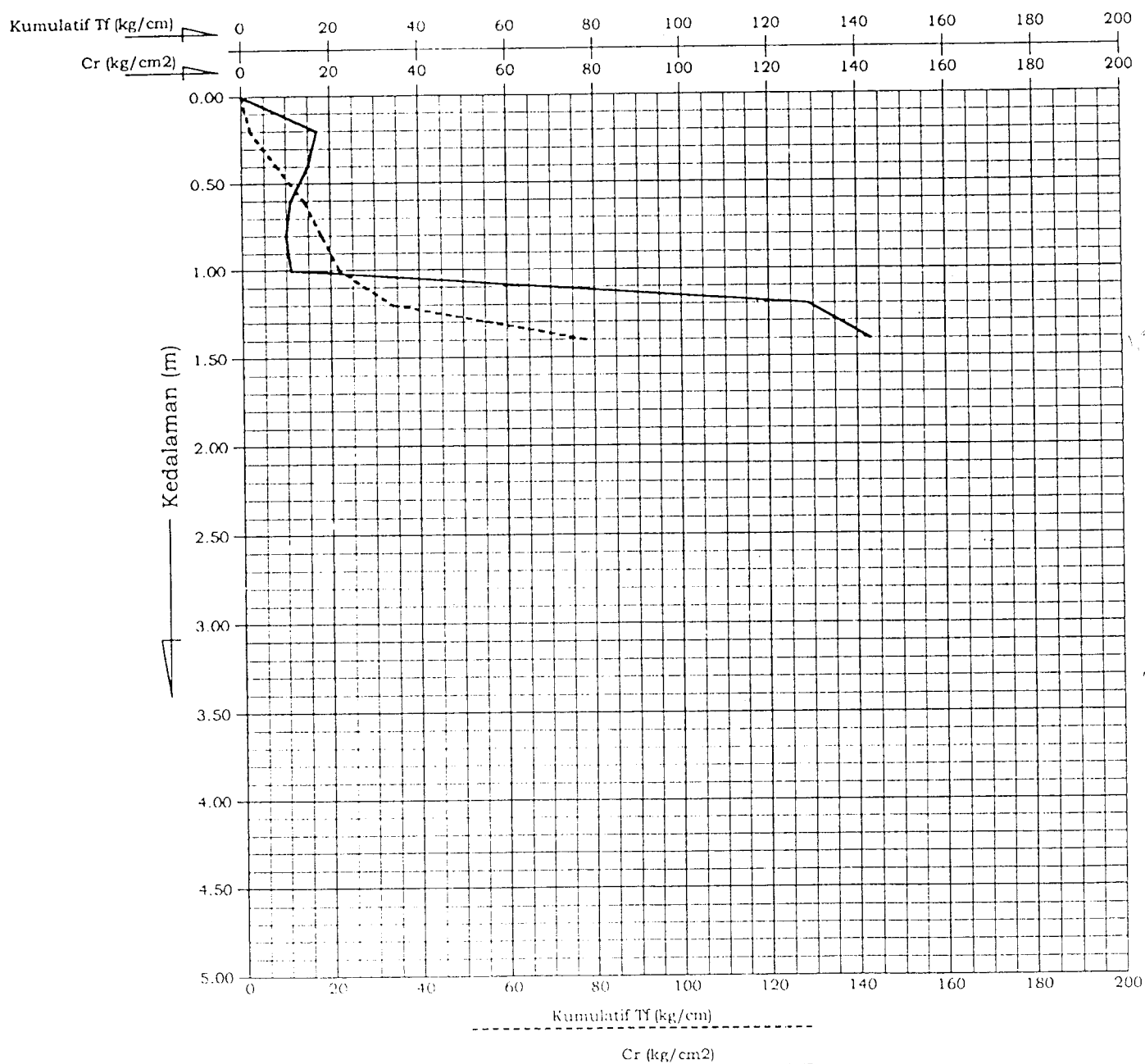
Laboratorium Mekanika Tanah

PT MUMPUNI

Jln. Flamboyan CT.X/47 Karangasem Yogyakarta, Telp.(0274)584032 Fax.(0274)589683

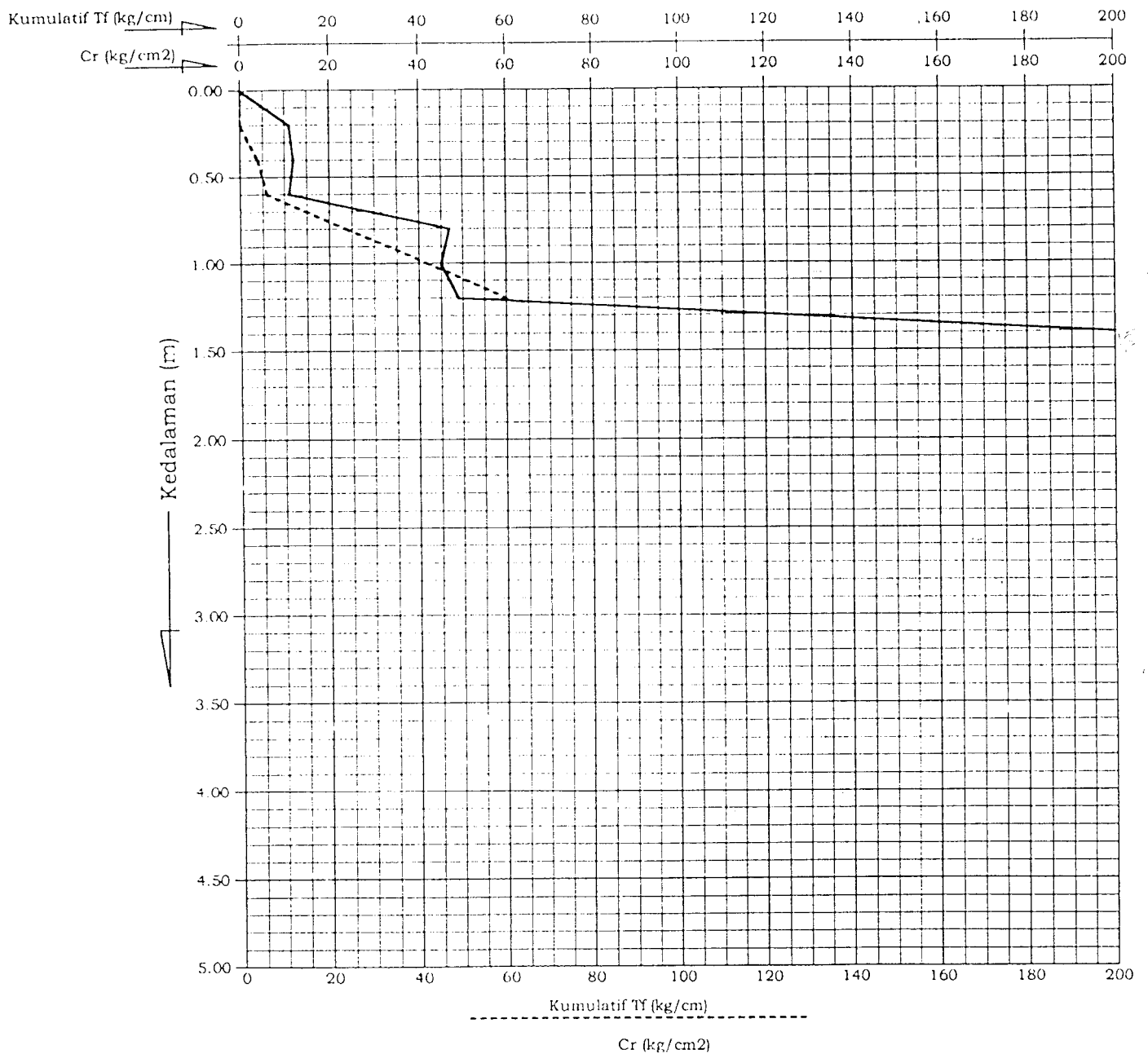
## GRAFIK HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| PROYEK    | Gedung Fakultas Hukum UGm 3 Lantai | Nomor titik    | 10    |
| LOKASI    | Bulaksumur Yogyakarta              | Muka tanah     | +0.00 |
| HARI/TGL. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |



## GRAFIK HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| PROYEK    | Gedung Fakultas Hukum UGm 3 Lantai | Nomor titik    | 11    |
| LOKASI    | Bulaksumur Yogyakarta              | Muka tanah     | +0.00 |
| HARI/TGL. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |



## TABEL HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| Proyek    | Gedung Fakultas Hukum UGM 3 Lantai | Nomor titik    | 5     |
| Lokasi    | Bulaksumur, Yogyakarta             | Muka tanah     | 0.00  |
| Hari/Tgl. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |

| Kedalaman<br>(m) | Cr<br>(kg/cm <sup>2</sup> ) | Cr + Lf<br>(kg/cm <sup>2</sup> ) | Lf<br>(kg/cm <sup>2</sup> ) | Tf<br>(kg/cm) | Kumulatif Tf<br>(kg/cm) |
|------------------|-----------------------------|----------------------------------|-----------------------------|---------------|-------------------------|
| (1)              | (2)                         | (3)                              | (4) = (3-2)x10/100          | (5) = (4)x20  | (6)                     |
| 0.00             | 0                           | 0                                | 0.00                        | 0.00          | 0.00                    |
| 0.20             | 11                          | 11                               | 0.00                        | 0.00          | 0.00                    |
| 0.40             | 12                          | 14                               | 0.20                        | 4.00          | 4.00                    |
| 0.60             | 14                          | 18                               | 0.40                        | 8.00          | 12.00                   |
| 0.80             | 31                          | 39                               | 0.80                        | 16.00         | 28.00                   |
| 1.00             | 29                          | 35                               | 0.60                        | 12.00         | 40.00                   |
| 1.20             | 89                          | 97                               | 0.80                        | 16.00         | 56.00                   |
| 1.40             | 135                         | 147                              | 1.20                        | 24.00         | 80.00                   |
| 1.60             | 200                         |                                  |                             |               |                         |
| 1.80             |                             |                                  |                             |               |                         |
| 2.00             |                             |                                  |                             |               |                         |
| 2.20             |                             |                                  |                             |               |                         |
| 2.40             |                             |                                  |                             |               |                         |
| 2.60             |                             |                                  |                             |               |                         |
| 2.80             |                             |                                  |                             |               |                         |
| 3.00             |                             |                                  |                             |               |                         |
| 3.20             |                             |                                  |                             |               |                         |
| 3.40             |                             |                                  |                             |               |                         |
| 3.60             |                             |                                  |                             |               |                         |
| 3.80             |                             |                                  |                             |               |                         |
| 4.00             |                             |                                  |                             |               |                         |
| 4.20             |                             |                                  |                             |               |                         |
| 4.40             |                             |                                  |                             |               |                         |
| 4.60             |                             |                                  |                             |               |                         |
| 4.80             |                             |                                  |                             |               |                         |
| 5.00             |                             |                                  |                             |               |                         |
| 5.20             |                             |                                  |                             |               |                         |
| 5.40             |                             |                                  |                             |               |                         |
| 5.60             |                             |                                  |                             |               |                         |
| 5.80             |                             |                                  |                             |               |                         |
| 6.00             |                             |                                  |                             |               |                         |

TABEL HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| Proyek    | Gedung Fakultas Hukum UGM 3 Lantai | Nomor titik    | 6     |
| Lokasi    | Bulaksumur, Yogyakarta             | Muka tanah     | 0.00  |
| Hari/Tgl. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |

| Kedalaman<br>(m) | Cr<br>(kg/cm <sup>2</sup> ) | Cr + Lf<br>(kg/cm <sup>2</sup> ) | Lf<br>(kg/cm <sup>2</sup> ) | Tf<br>(kg/cm) | Kumulatif Tf<br>(kg/cm) |
|------------------|-----------------------------|----------------------------------|-----------------------------|---------------|-------------------------|
| (1)              | (2)                         | (3)                              | (4) = (3-2)x10/100          | (5) = (4)x20  | (6)                     |
| 0.00             | 0                           | 0                                | 0.00                        | 0.00          | 0.00                    |
| 0.20             | 21                          | 21 ✓                             | 0.00                        | 0.00          | 0.00                    |
| 0.40             | 18 ✓                        | 22                               | 0.40                        | 8.00          | 8.00                    |
| 0.60             | 21                          | 24                               | 0.30                        | 6.00          | 14.00                   |
| 0.80             | 24                          | 31                               | 0.70                        | 14.00         | 28.00                   |
| 1.00             | 97                          | 108                              | 1.10                        | 22.00         | 50.00                   |
| 1.20             | 140                         | 155                              | 1.50                        | 30.00         | 80.00                   |
| 1.40             | 200                         |                                  |                             |               |                         |
| 1.60             |                             |                                  |                             |               |                         |
| 1.80             |                             |                                  |                             |               |                         |
| 2.00             |                             |                                  |                             |               |                         |
| 2.20             |                             |                                  |                             |               |                         |
| 2.40             |                             |                                  |                             |               |                         |
| 2.60             |                             |                                  |                             |               |                         |
| 2.80             |                             |                                  |                             |               |                         |
| 3.00             |                             |                                  |                             |               |                         |
| 3.20             |                             |                                  |                             |               |                         |
| 3.40             |                             |                                  |                             |               |                         |
| 3.60             |                             |                                  |                             |               |                         |
| 3.80             |                             |                                  |                             |               |                         |
| 4.00             |                             |                                  |                             |               |                         |
| 4.20             |                             |                                  |                             |               |                         |
| 4.40             |                             |                                  |                             |               |                         |
| 4.60             |                             |                                  |                             |               |                         |
| 4.80             |                             |                                  |                             |               |                         |
| 5.00             |                             |                                  |                             |               |                         |
| 5.20             |                             |                                  |                             |               |                         |
| 5.40             |                             |                                  |                             |               |                         |
| 5.60             |                             |                                  |                             |               |                         |
| 5.80             |                             |                                  |                             |               |                         |
| 6.00             |                             |                                  |                             |               |                         |

TABEL HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| Proyek    | Gedung Fakultas Hukum UGM 3 Lantai | Nomor titik    | 7     |
| Lokasi    | Bulaksumur, Yogyakarta             | Muka tanah     | 0.00  |
| Hari/Tgl. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |

| Kedalaman<br>(m) | Cr<br>(kg/cm <sup>2</sup> ) | Cr + Lf<br>(kg/cm <sup>2</sup> ) | Lf<br>(kg/cm <sup>2</sup> ) | Tf<br>(kg/cm) | Kumulatif Tf<br>(kg/cm) |
|------------------|-----------------------------|----------------------------------|-----------------------------|---------------|-------------------------|
| (1)              | (2)                         | (3)                              | (4) = (3-2)x10/100          | (5) = (4)x20  | (6)                     |
| 0.00             | 0                           | 0                                | 0.00                        | 0.00          | 0.00                    |
| 0.20             | 15                          | 17                               | 0.20                        | 4.00          | 4.00                    |
| 0.40             | 15                          | 18                               | 0.30                        | 6.00          | 10.00                   |
| 0.60             | 11                          | 14                               | 0.30                        | 6.00          | 16.00                   |
| 0.80             | 14                          | 18                               | 0.40                        | 8.00          | 24.00                   |
| 1.00             | 19                          | 28                               | 0.90                        | 18.00         | 42.00                   |
| 1.20             | 43                          | 51                               | 0.80                        | 16.00         | 58.00                   |
| 1.40             | 200                         |                                  |                             |               |                         |
| 1.60             |                             |                                  |                             |               |                         |
| 1.80             |                             |                                  |                             |               |                         |
| 2.00             |                             |                                  |                             |               |                         |
| 2.20             |                             |                                  |                             |               |                         |
| 2.40             |                             |                                  |                             |               |                         |
| 2.60             |                             |                                  |                             |               |                         |
| 2.80             |                             |                                  |                             |               |                         |
| 3.00             |                             |                                  |                             |               |                         |
| 3.20             |                             |                                  |                             |               |                         |
| 3.40             |                             |                                  |                             |               |                         |
| 3.60             |                             |                                  |                             |               |                         |
| 3.80             |                             |                                  |                             |               |                         |
| 4.00             |                             |                                  |                             |               |                         |
| 4.20             |                             |                                  |                             |               |                         |
| 4.40             |                             |                                  |                             |               |                         |
| 4.60             |                             |                                  |                             |               |                         |
| 4.80             |                             |                                  |                             |               |                         |
| 5.00             |                             |                                  |                             |               |                         |
| 5.20             |                             |                                  |                             |               |                         |
| 5.40             |                             |                                  |                             |               |                         |
| 5.60             |                             |                                  |                             |               |                         |
| 5.80             |                             |                                  |                             |               |                         |
| 6.00             |                             |                                  |                             |               |                         |

TABEL HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| Proyek    | Gedung Fakultas Hukum UGM 3 Lantai | Nomor titik    | 8     |
| Lokasi    | Bulaksumur, Yogyakarta             | Muka tanah     | 0.00  |
| Hari/Tgl. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |

| Kedalaman<br>(m) | Cr<br>(kg/cm <sup>2</sup> ) | Cr + Lf<br>(kg/cm <sup>2</sup> ) | Lf<br>(kg/cm <sup>2</sup> ) | Tf<br>(kg/cm) | Kumulatif Tf<br>(kg/cm) |
|------------------|-----------------------------|----------------------------------|-----------------------------|---------------|-------------------------|
| (1)              | (2)                         | (3)                              | (4) = (3-2)x10/100          | (5) = (4)x20  | (6)                     |
| 0.00             | 0                           | 0                                | 0.00                        | 0.00          | 0.00                    |
| 0.20             | 17                          | 18                               | 0.10                        | 2.00          | 2.00                    |
| 0.40             | 18                          | 20                               | 0.20                        | 4.00          | 6.00                    |
| 0.60             | 17                          | 24                               | 0.70                        | 14.00         | 20.00                   |
| 0.80             | 11                          | 16                               | 0.50                        | 10.00         | 30.00                   |
| 1.00             | 19                          | 24                               | 0.50                        | 10.00         | 40.00                   |
| 1.20             | 22                          | 29                               | 0.70                        | 14.00         | 54.00                   |
| 1.40             | 200                         |                                  |                             |               |                         |
| 1.60             |                             |                                  |                             |               |                         |
| 1.80             |                             |                                  |                             |               |                         |
| 2.00             |                             |                                  |                             |               |                         |
| 2.20             |                             |                                  |                             |               |                         |
| 2.40             |                             |                                  |                             |               |                         |
| 2.60             |                             |                                  |                             |               |                         |
| 2.80             |                             |                                  |                             |               |                         |
| 3.00             |                             |                                  |                             |               |                         |
| 3.20             |                             |                                  |                             |               |                         |
| 3.40             |                             |                                  |                             |               |                         |
| 3.60             |                             |                                  |                             |               |                         |
| 3.80             |                             |                                  |                             |               |                         |
| 4.00             |                             |                                  |                             |               |                         |
| 4.20             |                             |                                  |                             |               |                         |
| 4.40             |                             |                                  |                             |               |                         |
| 4.60             |                             |                                  |                             |               |                         |
| 4.80             |                             |                                  |                             |               |                         |
| 5.00             |                             |                                  |                             |               |                         |
| 5.20             |                             |                                  |                             |               |                         |
| 5.40             |                             |                                  |                             |               |                         |
| 5.60             |                             |                                  |                             |               |                         |
| 5.80             |                             |                                  |                             |               |                         |
| 6.00             |                             |                                  |                             |               |                         |

## TABEL HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| Proyek    | Gedung Fakultas Hukum UGM 3 Lantai | Nomor titik    | 9     |
| Lokasi    | Bulaksumur, Yogyakarta             | Muka tanah     | 0.00  |
| Hari/Tgl. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |

| Kedalaman<br>(m) | Cr<br>(kg/cm <sup>2</sup> ) | Cr + Lf<br>(kg/cm <sup>2</sup> ) | Lf<br>(kg/cm <sup>2</sup> ) | Tf<br>(kg/cm) | Kumulatif Tf<br>(kg/cm) |
|------------------|-----------------------------|----------------------------------|-----------------------------|---------------|-------------------------|
| (1)              | (2)                         | (3)                              | (4) = (3-2)×10/100          | (5) = (4)×20  | (6)                     |
| 0.00             | 0                           | 0                                | 0.00                        | 0.00          | 0.00                    |
| 0.20             | 39                          | 39                               | 0.00                        | 0.00          | 0.00                    |
| 0.40             | 35                          | 37                               | 0.20                        | 4.00          | 4.00                    |
| 0.60             | 21                          | 25                               | 0.40                        | 8.00          | 12.00                   |
| 0.80             | 81                          | 92                               | 1.10                        | 22.00         | 34.00                   |
| 1.00             | 114                         | 127                              | 1.30                        | 26.00         | 60.00                   |
| 1.20             | 200                         |                                  |                             |               |                         |
| 1.40             |                             |                                  |                             |               |                         |
| 1.60             |                             |                                  |                             |               |                         |
| 1.80             |                             |                                  |                             |               |                         |
| 2.00             |                             |                                  |                             |               |                         |
| 2.20             |                             |                                  |                             |               |                         |
| 2.40             |                             |                                  |                             |               |                         |
| 2.60             |                             |                                  |                             |               |                         |
| 2.80             |                             |                                  |                             |               |                         |
| 3.00             |                             |                                  |                             |               |                         |
| 3.20             |                             |                                  |                             |               |                         |
| 3.40             |                             |                                  |                             |               |                         |
| 3.60             |                             |                                  |                             |               |                         |
| 3.80             |                             |                                  |                             |               |                         |
| 4.00             |                             |                                  |                             |               |                         |
| 4.20             |                             |                                  |                             |               |                         |
| 4.40             |                             |                                  |                             |               |                         |
| 4.60             |                             |                                  |                             |               |                         |
| 4.80             |                             |                                  |                             |               |                         |
| 5.00             |                             |                                  |                             |               |                         |
| 5.20             |                             |                                  |                             |               |                         |
| 5.40             |                             |                                  |                             |               |                         |
| 5.60             |                             |                                  |                             |               |                         |
| 5.80             |                             |                                  |                             |               |                         |
| 6.00             |                             |                                  |                             |               |                         |

TABEL HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| Proyek    | Gedung Fakultas Hukum UGM 3 Lantai | Nomor titik    | 10    |
| Lokasi    | Bulaksumur, Yogyakarta             | Muka tanah     | 0.00  |
| Hari/Tgl. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |

| Kedalaman<br>(m) | Cr<br>(kg/cm <sup>2</sup> ) | Cr + Lf<br>(kg/cm <sup>2</sup> ) | Lf<br>(kg/cm <sup>2</sup> ) | Tf<br>(kg/cm) | Kumulatif Tf<br>(kg/cm) |
|------------------|-----------------------------|----------------------------------|-----------------------------|---------------|-------------------------|
| (1)              | (2)                         | (3)                              | (4) = (3-2)x10/100          | (5) = (4)x20  | (6)                     |
| 0.00             | 0                           | 0                                | 0.00                        | 0.00          | 0.00                    |
| 0.20             | 17                          | 18                               | 0.10                        | 2.00          | 2.00                    |
| 0.40             | 15                          | 18                               | 0.30                        | 6.00          | 8.00                    |
| 0.60             | 11                          | 14                               | 0.30                        | 6.00          | 14.00                   |
| 0.80             | 10                          | 12                               | 0.20                        | 4.00          | 18.00                   |
| 1.00             | 11                          | 13                               | 0.20                        | 4.00          | 22.00                   |
| 1.20             | 129                         | 135                              | 0.60                        | 12.00         | 34.00                   |
| 1.40             | 143                         | 165                              | 2.20                        | 44.00         | 78.00                   |
| 1.60             | 200                         |                                  |                             |               |                         |
| 1.80             |                             |                                  |                             |               |                         |
| 2.00             |                             |                                  |                             |               |                         |
| 2.20             |                             |                                  |                             |               |                         |
| 2.40             |                             |                                  |                             |               |                         |
| 2.60             |                             |                                  |                             |               |                         |
| 2.80             |                             |                                  |                             |               |                         |
| 3.00             |                             |                                  |                             |               |                         |
| 3.20             |                             |                                  |                             |               |                         |
| 3.40             |                             |                                  |                             |               |                         |
| 3.60             |                             |                                  |                             |               |                         |
| 3.80             |                             |                                  |                             |               |                         |
| 4.00             |                             |                                  |                             |               |                         |
| 4.20             |                             |                                  |                             |               |                         |
| 4.40             |                             |                                  |                             |               |                         |
| 4.60             |                             |                                  |                             |               |                         |
| 4.80             |                             |                                  |                             |               |                         |
| 5.00             |                             |                                  |                             |               |                         |
| 5.20             |                             |                                  |                             |               |                         |
| 5.40             |                             |                                  |                             |               |                         |
| 5.60             |                             |                                  |                             |               |                         |
| 5.80             |                             |                                  |                             |               |                         |
| 6.00             |                             |                                  |                             |               |                         |



## TABEL HASIL PENYONDIRAN

|           |                                    |                |       |
|-----------|------------------------------------|----------------|-------|
| Proyek    | Gedung Fakultas Hukum UGM 3 Lantai | Nomor titik    | 11    |
| Lokasi    | Bulaksumur, Yogyakarta             | Muka tanah     | 0.00  |
| Hari/Tgl. | Selasa, 19 Februari 2002           | Muka air tanah | -8.00 |

| Kedalaman<br>(m) | Cr<br>(kg/cm <sup>2</sup> ) | Cr + Lf<br>(kg/cm <sup>2</sup> ) | Lf<br>(kg/cm <sup>2</sup> ) | Tf<br>(kg/cm) | Kumulatif Tf<br>(kg/cm) |
|------------------|-----------------------------|----------------------------------|-----------------------------|---------------|-------------------------|
| (1)              | (2)                         | (3)                              | (4) = (3-2)x10/100          | (5) = (4)x20  | (6)                     |
| 0.00             | 0                           | 0                                | 0.00                        | 0.00          | 0.00                    |
| 0.20             | 11                          | 11                               | 0.00                        | 0.00          | 0.00                    |
| 0.40             | 12                          | 14                               | 0.20                        | 4.00          | 4.00                    |
| 0.60             | 11                          | 12                               | 0.10                        | 2.00          | 6.00                    |
| 0.80             | 47                          | 56                               | 0.90                        | 18.00         | 24.00                   |
| 1.00             | 45                          | 54                               | 0.90                        | 18.00         | 42.00                   |
| 1.20             | 49                          | 58                               | 0.90                        | 18.00         | 60.00                   |
| 1.40             | 200                         |                                  |                             |               |                         |
| 1.60             |                             |                                  |                             |               |                         |
| 1.80             |                             |                                  |                             |               |                         |
| 2.00             |                             |                                  |                             |               |                         |
| 2.20             |                             |                                  |                             |               |                         |
| 2.40             |                             |                                  |                             |               |                         |
| 2.60             |                             |                                  |                             |               |                         |
| 2.80             |                             |                                  |                             |               |                         |
| 3.00             |                             |                                  |                             |               |                         |
| 3.20             |                             |                                  |                             |               |                         |
| 3.40             |                             |                                  |                             |               |                         |
| 3.60             |                             |                                  |                             |               |                         |
| 3.80             |                             |                                  |                             |               |                         |
| 4.00             |                             |                                  |                             |               |                         |
| 4.20             |                             |                                  |                             |               |                         |
| 4.40             |                             |                                  |                             |               |                         |
| 4.60             |                             |                                  |                             |               |                         |
| 4.80             |                             |                                  |                             |               |                         |
| 5.00             |                             |                                  |                             |               |                         |
| 5.20             |                             |                                  |                             |               |                         |
| 5.40             |                             |                                  |                             |               |                         |
| 5.60             |                             |                                  |                             |               |                         |
| 5.80             |                             |                                  |                             |               |                         |
| 6.00             |                             |                                  |                             |               |                         |

LAMPIRAN

III

### Perencanaan dimensi batang kuda-kuda KK-1

| Batang Tarik                      | Batang Atas   | Batang Bawah  | Batang Vertikal | Batang Diagonal |
|-----------------------------------|---------------|---------------|-----------------|-----------------|
| Gaya Tarik Maks. (kg)             | 42.449        | 1639.128      | 1061.657        | 1811.616        |
| Panjang Batang (cm)               | 173           | 155.5         | 125             | 418.8           |
| $f_y$ (kg/cm <sup>2</sup> )       | 2400          | 2400          | 2400            | 2400            |
| $F_u$ (kg/cm <sup>2</sup> )       | 3700          | 3700          | 3700            | 3700            |
| K (sendi-sendi)                   | 1             | 1             | 1               | 1               |
| $r_{min}$ (cm)                    | 0.721         | 0.648         | 0.521           | 1.745           |
| A lubang (cm <sup>2</sup> )       | 3.175         | 3.175         | 3.175           | 3.175           |
| $A_{g1}$ (cm <sup>2</sup> )       | 0.029         | 1.138         | 0.737           | 1.258           |
| $A_{g2}$ (cm <sup>2</sup> )       | 3.206         | 4.356         | 3.940           | 4.481           |
| Dicoba profil 2L60x60x6           |               |               |                 |                 |
| A (cm <sup>2</sup> )              | 6.91          | 6.91          | 6.91            | 6.91            |
| $r$ (cm)                          | 1.82          | 1.82          | 1.82            | 1.82            |
| A bruto (cm <sup>2</sup> )        | 13.820        | 13.820        | 13.820          | 13.820          |
| A netto (cm <sup>2</sup> )        | 10.645        | 10.645        | 10.645          | 10.645          |
| A efektif (cm <sup>2</sup> )      | 7.984         | 7.984         | 7.984           | 7.984           |
| Kontrol tegangan                  |               |               |                 |                 |
| T/A profil (kg/cm <sup>2</sup> )  | 3.072         | 118.605       | 76.820          | 131.087         |
| 0,6 $f_y$ (kg/cm <sup>2</sup> )   | 1440          | 1440          | 1440            | 1440            |
| T/A profil $\leq$ 0,6 $f_y$       | <b>Aman !</b> | <b>Aman !</b> | <b>Aman !</b>   | <b>Aman !</b>   |
| T/A efektif (kg/cm <sup>2</sup> ) | 5.317         | 205.308       | 132.977         | 226.913         |
| 0,5 $F_u$ (kg/cm <sup>2</sup> )   | 1850          | 1850          | 1850            | 1850            |
| T/A efektif $\leq$ 0,5 $F_u$      | <b>Aman !</b> | <b>Aman !</b> | <b>Aman !</b>   | <b>Aman !</b>   |

| Batang Tekan                      | Batang Atas   | Batang Bawah  | Batang Vertikal | Batang Diagonal |
|-----------------------------------|---------------|---------------|-----------------|-----------------|
| Gaya Tekan Maks. (kg)             | 3907.326      | 2314.637      | 958.591         | 3852.759        |
| Panjang Batang (cm)               | 173           | 155.5         | 350             | 223.7           |
| $f_y$ (kg/cm <sup>2</sup> )       | 2400          | 2400          | 2400            | 2400            |
| $F_u$ (kg/cm <sup>2</sup> )       | 3700          | 3700          | 3700            | 3700            |
| E (kg/cm <sup>2</sup> )           | 2100000       | 2100000       | 2100000         | 2100000         |
| K (sendi-sendi)                   | 1             | 1             | 1               | 1               |
| $r_{min}$ (cm)                    | 0.865         | 0.778         | 1.750           | 1.119           |
| Dicoba profil 2L60x60x6           |               |               |                 |                 |
| A (cm <sup>2</sup> )              | 6.91          | 6.91          | 6.91            | 6.91            |
| $r$ (cm)                          | 1.82          | 1.82          | 1.82            | 1.82            |
| $I_x = I_y$ (cm <sup>4</sup> )    | 22.8          | 22.8          | 22.8            | 22.8            |
| $i_x = i_y$ (cm)                  | 1.82          | 1.82          | 1.82            | 1.82            |
| $e$ (cm)                          | 1.69          | 1.69          | 1.69            | 1.69            |
| $x$ (cm)                          | 2.19          | 2.19          | 2.19            | 2.19            |
| $I_x$ gabungan (cm <sup>4</sup> ) | 45.6          | 45.6          | 45.6            | 45.6            |
| $I_y$ gabungan (cm <sup>4</sup> ) | 111.882       | 111.882       | 111.882         | 111.882         |
| $i_x$ gabungan (cm)               | 1.816         | 1.816         | 1.816           | 1.816           |
| $i_y$ gabungan (cm)               | 2.845         | 2.845         | 2.845           | 2.845           |
| Dipakai $r$ (cm)                  | 1.816         | 1.816         | 1.816           | 1.816           |
| Syarat :                          |               |               |                 |                 |
| $KL/r$                            | 95.240        | 85.606        | 192.681         | 123.151         |
| $C_c$                             | 131.456       | 131.456       | 131.456         | 131.456         |
| $KL/r < C_c$                      | <b>Ok !</b>   | <b>Ok !</b>   | <b>Ok !</b>     | <b>Ok !</b>     |
| $F_s$                             | 1.891         | 1.876         | 1.823           | 1.915           |
| $F_a$ (kg/cm <sup>2</sup> )       | 936.168       | 1007.866      | 100.397         | 703.235         |
| Kontrol kapasitas                 |               |               |                 |                 |
| $P$ (kg)                          | 12937.838     | 13928.702     | 1387.487        | 9718.704        |
| $P > P_{terjadi}$                 | <b>Aman !</b> | <b>Aman !</b> | <b>Aman !</b>   | <b>Aman !</b>   |

## PERENCANAAN PELAT LANTAI TIPE II

(ukuran 4,5m x 2,25 m)

|                             | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                    | 2,9655          | 2,9655          | 1,6741          | 1,6741          |
| Mu / Ø (KNm)                | 3,7069          | 3,7069          | 2,0926          | 2,0926          |
| h (mm)                      | 120             | 120             | 120             | 120             |
| d (mm)                      | 95              | 95              | 85              | 95              |
| $\rho_b$                    | 0,054           | 0,054           | 0,054           | 0,054           |
| $\rho_{max}$                | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| $\rho_{min}$                | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| Rn (Mpa)                    | 0,4107          | 0,4107          | 0,2896          | 0,2319          |
| m                           | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| $\rho_{perlu}$              | 0,0017          | 0,0017          | 0,0012          | 0,0010          |
| 1,33 . $\rho_{perlu}$       | 0,0023          | 0,0023          | 0,0016          | 0,0013          |
| $\rho_{pakai}$              | 0,0023          | 0,0023          | 0,0016          | 0,0013          |
| As pakai (mm <sup>2</sup> ) | 218,3655        | 218,2655        | 137,3736        | 122,7431        |
| Pakai Tul. Ø (mm)           | 10              | 10              | 10              | 10              |
| A1 . Ø (mm <sup>2</sup> )   | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)             | 358,774         | 358,774         | 570,728         | 638,9828        |
| Pakai Jarak (mm)            | 240             | 240             | 240             | 240             |
| As ada (mm <sup>2</sup> )   | 327,25          | 327,25          | 327,25          | 327,25          |
| a (mm)                      | 3,696           | 3,696           | 3,696           | 3,696           |
| Mn (KNm)                    | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)          | 4,9301          | 4,9301          | 2,7832          | 2,7832          |
| Kontrol                     | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                  | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )  |                 | 240             |                 | 240             |
| Pakai Tul. (mm)             |                 | 8               |                 | 8               |
| A1 . Ø (mm <sup>2</sup> )   |                 | 50,27           |                 | 50,27           |
| x (mm)                      |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                |                 | 200             |                 | 200             |
| Pakai Tul. Bagi             |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |

### PERENCANAAN PELAT LANTAI TIPE III

(ukuran 3,45m x 3,00 m)

|                             | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                    | 3,7414          | 3,7414          | 3,1887          | 3,1887          |
| Mu / Ø (KNm)                | 4,6768          | 4,6768          | 3,9859          | 3,9859          |
| h (mm)                      | 120             | 120             | 120             | 120             |
| d (mm)                      | 95              | 95              | 85              | 95              |
| Pb                          | 0,054           | 0,054           | 0,054           | 0,054           |
| $\rho$ max                  | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| $\rho$ min                  | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| Rn (Mpa)                    | 0,5182          | 0,5182          | 0,5517          | 0,4416          |
| m                           | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| $\rho$ perlu                | 0,0022          | 0,0022          | 0,0023          | 0,0019          |
| 1,33 . $\rho$ perlu         | 0,0029          | 0,0029          | 0,0031          | 0,0025          |
| $\rho$ pakai                | 0,0029          | 0,0029          | 0,0031          | 0,0025          |
| As pakai (mm <sup>2</sup> ) | 277,1002        | 277,1002        | 264,2226        | 235,6107        |
| Pakai Tul. Ø (mm)           | 10              | 10              | 10              | 10              |
| A1 . Ø (mm <sup>2</sup> )   | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)             | 283,4348        | 283,4348        | 297,2487        | 333,3457        |
| Pakai Jarak (mm)            | 240             | 240             | 240             | 240             |
| As ada (mm <sup>2</sup> )   | 327,25          | 327,25          | 327,25          | 327,25          |
| a (mm)                      | 3,696           | 3,696           | 3,696           | 3,696           |
| Mn (KNm)                    | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)          | 6,2201          | 6,2201          | 5,3012          | 5,3012          |
| Kontrol                     | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                  | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )  |                 | 240             |                 | 240             |
| Pakai Tul. (mm)             |                 | 8               |                 | 8               |
| A1 . Ø (mm <sup>2</sup> )   |                 | 50,27           |                 | 50,27           |
| x (mm)                      |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                |                 | 200             |                 | 200             |
| Pakai Tul. Bagi             |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |

# PERENCANAAN PELAT LANTAI TIPE IV

(ukuran 3,00m x 3,00 m)

|                             | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                    | 3,0612          | 3,0612          | 3,0612          | 3,0612          |
| Mu / Ø (KNm)                | 3,8265          | 3,8265          | 3,8265          | 3,8265          |
| h (mm)                      | 120             | 120             | 120             | 120             |
| d (mm)                      | 95              | 95              | 85              | 95              |
| $\rho_b$                    | 0,054           | 0,054           | 0,054           | 0,054           |
| $\rho_{max}$                | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| $\rho_{min}$                | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| Rn (Mpa)                    | 0,424           | 0,424           | 0,5296          | 0,424           |
| m                           | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| $\rho_{perlu}$              | 0,0018          | 0,0018          | 0,0021          | 0,0018          |
| 1,33 . $\rho_{perlu}$       | 0,0024          | 0,0024          | 0,003           | 0,0024          |
| $\rho_{pakai}$              | 0,0024          | 0,0024          | 0,003           | 0,0024          |
| As pakai (mm <sup>2</sup> ) | 226,0677        | 226,0677        | 253,4848        | 226,0677        |
| Pakai Tul. Ø (mm)           | 10              | 10              | 10              | 10              |
| A1 . Ø (mm <sup>2</sup> )   | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)             | 347,4173        | 347,4173        | 309,8403        | 347,4173        |
| Pakai Jarak (mm)            | <b>240</b>      | <b>240</b>      | <b>240</b>      | <b>240</b>      |
| As ada (mm <sup>2</sup> )   | 327,2492        | 327,2492        | 327,2492        | 327,2492        |
| a (mm)                      | 3,696           | 3,696           | 3,696           | 3,696           |
| Mn (KNm)                    | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)          | 5,0892          | 5,0892          | 5,0892          | 5,0892          |
| Kontrol                     | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                  | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )  |                 | 240             |                 | 240             |
| Pakai Tul. (mm)             |                 | 8               |                 | 8               |
| A1 . Ø (mm <sup>2</sup> )   |                 | 50,27           |                 | 50,27           |
| x (mm)                      |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                |                 | 200             |                 | 200             |
| Pakai Tul. Bagi             |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |

# PERENCANAAN PELAT LANTAI TIPE V

(ukuran 4,50m x 0,90 m)

|                             | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                    | 0,4821          | 0,4821          | 0,0995          | 0,2908          |
| Mu / Ø (KNm)                | 0,6026          | 0,6026          | 0,1244          | 0,3635          |
| h (mm)                      | 120             | 120             | 120             | 120             |
| d (mm)                      | 95              | 95              | 85              | 95              |
| $\rho_b$                    | 0,054           | 0,054           | 0,054           | 0,054           |
| $\rho_{max}$                | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| $\rho_{min}$                | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| Rn (Mpa)                    | 0,0668          | 0,0668          | 0,0172          | 0,0403          |
| m                           | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| $\rho_{perlu}$              | 0,0003          | 0,0003          | 0,0001          | 0,0002          |
| 1,33 . $\rho_{perlu}$       | 0,0004          | 0,0004          | 0,0001          | 0,0002          |
| $\rho_{pakai}$              | 0,0004          | 0,0004          | 0,0001          | 0,0002          |
| As pakai (mm <sup>2</sup> ) | 35,2224         | 35,2224         | 8,1129          | 21,2293         |
| Pakai Tul. Ø (mm)           | 10              | 10              | 10              | 10              |
| A1 . Ø (mm <sup>2</sup> )   | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)             | 2229,8236       | 2229,8236       | 9680,8894       | 3699,5873       |
| Pakai Jarak (mm)            | <b>240</b>      | <b>240</b>      | <b>240</b>      | <b>240</b>      |
| As ada (mm <sup>2</sup> )   | 327,2492        | 327,2492        | 327,2492        | 327,2492        |
| a (mm)                      | 3,696           | 3,696           | 3,696           | 3,696           |
| Mn (KNm)                    | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)          | 0,8015          | 0,8015          | 0,1654          | 0,4835          |
| Kontrol                     | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                  | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )  |                 | 240             |                 | 240             |
| Pakai Tul. (mm)             |                 | 8               |                 | 8               |
| A1 . Ø (mm <sup>2</sup> )   |                 | 50,27           |                 | 50,27           |
| x (mm)                      |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                |                 | 200             |                 | 200             |
| Pakai Tul. Bagi             |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |

# PERENCANAAN PELAT LANTAI TIPE VI

(ukuran 3,00m x 0,90 m)

|                             | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                    | 0,4821          | 0,4821          | 0,0995          | 0,2908          |
| Mu / Ø (KNm)                | 0,6026          | 0,6026          | 0,1244          | 0,3635          |
| h (mm)                      | 120             | 120             | 120             | 120             |
| d (mm)                      | 95              | 95              | 85              | 95              |
| $\rho_b$                    | 0,054           | 0,054           | 0,054           | 0,054           |
| $\rho_{max}$                | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| $\rho_{min}$                | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| Rn (Mpa)                    | 0,0668          | 0,0668          | 0,0172          | 0,0403          |
| m                           | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| $\rho_{perlu}$              | 0,0003          | 0,0003          | 0,0001          | 0,0002          |
| 1,33 . $\rho_{perlu}$       | 0,0004          | 0,0004          | 0,0001          | 0,0002          |
| $\rho_{pakai}$              | 0,0004          | 0,0004          | 0,0001          | 0,0002          |
| As pakai (mm <sup>2</sup> ) | 35,2224         | 35,2224         | 8,1129          | 21,2293         |
| Pakai Tul. Ø (mm)           | 10              | 10              | 10              | 10              |
| A1 . Ø (mm <sup>2</sup> )   | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)             | 2229,8236       | 2229,8236       | 9680,8894       | 3699,5873       |
| Pakai Jarak (mm)            | <b>240</b>      | <b>240</b>      | <b>240</b>      | <b>240</b>      |
| As ada (mm <sup>2</sup> )   | 327,2492        | 327,2492        | 327,2492        | 327,2492        |
| a (mm)                      | 3,696           | 3,696           | 3,696           | 3,696           |
| Mn (KNm)                    | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)          | 0,8015          | 0,8015          | 0,1654          | 0,4835          |
| Kontrol                     | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                  | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )  |                 | 240             |                 | 240             |
| Pakai Tul. (mm)             |                 | 8               |                 | 8               |
| A1 . Ø (mm <sup>2</sup> )   |                 | 50,27           |                 | 50,27           |
| x (mm)                      |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                |                 | 200             |                 | 200             |
| Pakai Tul. Bagi             |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |



# PERENCANAAN PELAT LANTAI TIPE VII

(ukuran 2,25m x 0,90 m)

|                             | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                    | 0,4821          | 0,4821          | 0,2602          | 0,2602          |
| Mu / Ø (KNm)                | 0,6026          | 0,6026          | 0,3253          | 0,3253          |
| h (mm)                      | 120             | 120             | 120             | 120             |
| d (mm)                      | 95              | 95              | 85              | 95              |
| $\rho_b$                    | 0,054           | 0,054           | 0,054           | 0,054           |
| $\rho_{max}$                | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| $\rho_{min}$                | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| Rn (Mpa)                    | 0,0668          | 0,0668          | 0,045           | 0,036           |
| m                           | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| $\rho_{perlu}$              | 0,0003          | 0,0003          | 0,0002          | 0,0002          |
| 1,33 . $\rho_{perlu}$       | 0,0004          | 0,0004          | 0,0002          | 0,0002          |
| $\rho_{pakai}$              | 0,0004          | 0,0004          | 0,0002          | 0,0002          |
| As pakai (mm <sup>2</sup> ) | 35,2224         | 35,2224         | 21,2332         | 18,9931         |
| Pakai Tul. Ø (mm)           | 10              | 10              | 10              | 10              |
| A1 . Ø (mm <sup>2</sup> )   | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)             | 2229,8236       | 2229,8236       | 3698,92         | 4135,1828       |
| Pakai Jarak (mm)            | <b>240</b>      | <b>240</b>      | <b>240</b>      | <b>240</b>      |
| As ada (mm <sup>2</sup> )   | 327,2492        | 327,2492        | 327,2492        | 327,2492        |
| a (mm)                      | 3,696           | 3,696           | 3,696           | 3,696           |
| Mn (KNm)                    | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)          | 0,8015          | 0,8015          | 0,4326          | 0,4326          |
| Kontrol                     | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                  | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )  |                 | 240             |                 | 240             |
| Pakai Tul. (mm)             |                 | 8               |                 | 8               |
| A1 . Ø (mm <sup>2</sup> )   |                 | 50,27           |                 | 50,27           |
| x (mm)                      |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                |                 | 200             |                 | 200             |
| Pakai Tul. Bagi             |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |

### PERENCANAAN PELAT LANTAI TIPE VIII

(ukuran 4,50m x 1,80 m)

|                                       | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|---------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                              | 1,9285          | 1,9285          | 1,0408          | 1,0408          |
| Mu / Ø (KNm)                          | 2,4106          | 2,4106          | 1,301           | 1,301           |
| h (mm)                                | 120             | 120             | 120             | 120             |
| d (mm)                                | 95              | 95              | 85              | 95              |
| ρ <sub>b</sub>                        | 0,054           | 0,054           | 0,054           | 0,054           |
| ρ <sub>max</sub>                      | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| ρ <sub>min</sub>                      | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| R <sub>n</sub> (Mpa)                  | 0,2671          | 0,2671          | 0,1801          | 0,1442          |
| m                                     | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| ρ <sub>perlu</sub>                    | 0,0011          | 0,0011          | 0,0008          | 0,0006          |
| 1,33 . ρ <sub>perlu</sub>             | 0,0015          | 0,0015          | 0,0010          | 0,0008          |
| ρ <sub>pakai</sub>                    | 0,0015          | 0,0015          | 0,0010          | 0,0008          |
| As pakai (mm <sup>2</sup> )           | 141,7422        | 141,7422        | 85,2741         | 76,2162         |
| Pakai Tul. Ø (mm)                     | 10              | 10              | 10              | 10              |
| A <sub>l</sub> . Ø (mm <sup>2</sup> ) | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)                       | 554,1032        | 554,1032        | 921,0274        | 1030,4872       |
| Pakai Jarak (mm)                      | <b>240</b>      | <b>240</b>      | <b>240</b>      | <b>240</b>      |
| As ada (mm <sup>2</sup> )             | 327,2492        | 327,2492        | 327,2492        | 327,2492        |
| a (mm)                                | 3,696           | 3,696           | 3,696           | 3,696           |
| M <sub>n</sub> (KNm)                  | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)                    | 3,2061          | 3,2061          | 1,7303          | 1,7303          |
| Kontrol                               | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                            | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )            |                 | 240             |                 | 240             |
| Pakai Tul. (mm)                       |                 | 8               |                 | 8               |
| A <sub>l</sub> . Ø (mm <sup>2</sup> ) |                 | 50,27           |                 | 50,27           |
| x (mm)                                |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                          |                 | 200             |                 | 200             |
| Pakai Tul. Bagi                       |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |

# PERENCANAAN PELAT LANTAI TIPE IX

(ukuran 3,00m x 1,80 m)

|                             | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                    | 1,796           | 1,796           | 1,102           | 1,102           |
| Mu / Ø (KNm)                | 2,245           | 2,245           | 1,3775          | 1,3775          |
| h (mm)                      | 120             | 120             | 120             | 120             |
| d (mm)                      | 95              | 95              | 85              | 95              |
| pb                          | 0,054           | 0,054           | 0,054           | 0,054           |
| ρ max                       | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| ρ min                       | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| Rn (Mpa)                    | 0,2488          | 0,2488          | 0,1907          | 0,1526          |
| m                           | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| ρ perlu                     | 0,0010          | 0,0010          | 0,0008          | 0,0006          |
| 1,33 . ρ perlu              | 0,0014          | 0,0014          | 0,0011          | 0,0008          |
| ρ pakai                     | 0,0014          | 0,0014          | 0,0011          | 0,0008          |
| As pakai (mm <sup>2</sup> ) | 131,9307        | 131,9307        | 90,3169         | 80,7182         |
| Pakai Tul. Ø (mm)           | 10              | 10              | 10              | 10              |
| A1 . Ø (mm <sup>2</sup> )   | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)             | 595,311         | 595,311         | 869,6024        | 973,0129        |
| Pakai Jarak (mm)            | <b>240</b>      | <b>240</b>      | <b>240</b>      | <b>240</b>      |
| As ada (mm <sup>2</sup> )   | 327,2492        | 327,2492        | 327,2492        | 327,2492        |
| a (mm)                      | 3,696           | 3,696           | 3,696           | 3,696           |
| Mn (KNm)                    | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)          | 2,9859          | 2,9859          | 1,8321          | 1,8321          |
| Kontrol                     | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                  | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )  |                 | 240             |                 | 240             |
| Pakai Tul. (mm)             |                 | 8               |                 | 8               |
| A1 . Ø (mm <sup>2</sup> )   |                 | 50,27           |                 | 50,27           |
| x (mm)                      |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                |                 | 200             |                 | 200             |
| Pakai Tul. Bagi             |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |

# PERENCANAAN PELAT LANTAI TIPE X

(ukuran 2,25m x 1,80 m)

|                             | <b>Mlx</b>      | <b>Mtx</b>      | <b>Mly</b>      | <b>Mty</b>      |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
| Mu (KNm)                    | 1,4694          | 1,4694          | 1,1632          | 1,1632          |
| Mu / Ø (KNm)                | 1,8368          | 1,8368          | 1,454           | 1,454           |
| h (mm)                      | 120             | 120             | 120             | 120             |
| d (mm)                      | 95              | 95              | 85              | 95              |
| $\rho_b$                    | 0,054           | 0,054           | 0,054           | 0,054           |
| $\rho_{max}$                | 0,0405          | 0,0405          | 0,0405          | 0,0405          |
| $\rho_{min}$                | 0,0058          | 0,0058          | 0,0058          | 0,0058          |
| Rn (Mpa)                    | 0,2035          | 0,2035          | 0,2012          | 0,1611          |
| m                           | 11,2941         | 11,2941         | 11,2941         | 11,2941         |
| $\rho_{perlu}$              | 0,0009          | 0,0009          | 0,0008          | 0,0007          |
| 1,33 . $\rho_{perlu}$       | 0,0011          | 0,0011          | 0,0011          | 0,0009          |
| $\rho_{pakai}$              | 0,0011          | 0,0011          | 0,0011          | 0,0009          |
| As pakai (mm <sup>2</sup> ) | 107,7929        | 107,7929        | 95,3629         | 85,2224         |
| Pakai Tul. Ø (mm)           | 10              | 10              | 10              | 10              |
| A1 . Ø (mm <sup>2</sup> )   | 78,54           | 78,54           | 78,54           | 78,54           |
| Jarak Tul. (mm)             | 728,6178        | 728,6178        | 823,5885        | 921,5863        |
| Pakai Jarak (mm)            | <b>240</b>      | <b>240</b>      | <b>240</b>      | <b>240</b>      |
| As ada (mm <sup>2</sup> )   | 327,2492        | 327,2492        | 327,2492        | 327,2492        |
| a (mm)                      | 3,696           | 3,696           | 3,696           | 3,696           |
| Mn (KNm)                    | 7,3162          | 7,3162          | 6,5308          | 7,3162          |
| 1,33. Mu / Ø (KNm)          | 2,4429          | 2,4429          | 1,9338          | 1,9338          |
| Kontrol                     | AMAN            | AMAN            | AMAN            | AMAN            |
| Pakai Tul.                  | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> | <b>P 10-240</b> |
| As Bagi (mm <sup>2</sup> )  |                 | 240             |                 | 240             |
| Pakai Tul. (mm)             |                 | 8               |                 | 8               |
| A1 . Ø (mm <sup>2</sup> )   |                 | 50,27           |                 | 50,27           |
| x (mm)                      |                 | 209,458         |                 | 209,458         |
| x pakai (mm)                |                 | 200             |                 | 200             |
| Pakai Tul. Bagi             |                 | <b>P 8-200</b>  |                 | <b>P 8-200</b>  |

## PERENCANAAN PELAT TALANG TIPE II

(ukuran 2,25m x 1,8 m)

|                             | <b>Mlx</b>     | <b>Mtx</b>     | <b>Mly</b>     | <b>Mty</b>     |
|-----------------------------|----------------|----------------|----------------|----------------|
| Mu (KNm)                    | 0,7788         | 0,7788         | 0,6166         | 0,6166         |
| Mu / Ø (KNm)                | 0,9735         | 0,9735         | 0,7708         | 0,7708         |
| h (mm)                      | 100            | 100            | 100            | 100            |
| d (mm)                      | 76             | 76             | 68             | 76             |
| $\rho_b$                    | 0,054          | 0,054          | 0,054          | 0,054          |
| $\rho_{max}$                | 0,0405         | 0,0405         | 0,0405         | 0,0405         |
| $\rho_{min}$                | 0,0058         | 0,0058         | 0,0058         | 0,0058         |
| Rn (Mpa)                    | 0,1685         | 0,1685         | 0,1667         | 0,1334         |
| m                           | 11,2941        | 11,2941        | 11,2941        | 11,2941        |
| $\rho_{perlu}$              | 0,0007         | 0,0007         | 0,0007         | 0,0007         |
| 1,33 . $\rho_{perlu}$       | 0,0009         | 0,0009         | 0,0009         | 0,0009         |
| $\rho_{pakai}$              | 0,0009         | 0,0009         | 0,0009         | 0,0009         |
| As pakai (mm <sup>2</sup> ) | 71,3398        | 71,3398        | 63,1233        | 56,4228        |
| Pakai Tul. Ø (mm)           | 8              | 8              | 8              | 8              |
| A1 . Ø (mm <sup>2</sup> )   | 50,27          | 50,27          | 50,27          | 50,27          |
| Jarak Tul. (mm)             | 704,5926       | 704,5926       | 796,3058       | 890,8712       |
| Pakai Jarak (mm)            | <b>200</b>     | <b>200</b>     | <b>200</b>     | <b>200</b>     |
| As ada (mm <sup>2</sup> )   | 251,35         | 251,35         | 251,35         | 251,35         |
| a (mm)                      | 2,8388         | 2,8388         | 2,8388         | 2,8388         |
| Mn (KNm)                    | 4,499          | 4,499          | 4,0164         | 4,499          |
| 1,33. Mu / Ø (KNm)          | 1,2948         | 1,2948         | 1,0251         | 1,0251         |
| Kontrol                     | AMAN           | AMAN           | AMAN           | AMAN           |
| Pakai Tul.                  | <b>P 8-200</b> | <b>P 8-200</b> | <b>P 8-200</b> | <b>P 8-200</b> |
| As Bagi (mm <sup>2</sup> )  |                | 200            |                | 200            |
| Pakai Tul. (mm)             |                | 8              |                | 8              |
| A1 . Ø (mm <sup>2</sup> )   |                | 50,27          |                | 50,27          |
| x (mm)                      |                | 251,35         |                | 251,35         |
| x pakai (mm)                |                | 200            |                | 200            |
| Pakai Tul. Bagi             |                | <b>P 8-200</b> |                | <b>P 8-200</b> |

### PERENCANAAN PELAT TALANG TIPE III

(ukuran 3,00m x 3,00 m)

|                             | <b>Mlx</b>     | <b>Mtx</b>     | <b>Mly</b>     | <b>Mty</b>     |
|-----------------------------|----------------|----------------|----------------|----------------|
| Mu (KNm)                    | 1,6226         | 1,6226         | 1,6226         | 1,6226         |
| Mu / Ø (KNm)                | 2,0283         | 2,0283         | 2,0283         | 2,0283         |
| h (mm)                      | 100            | 100            | 100            | 100            |
| d (mm)                      | 76             | 76             | 68             | 76             |
| $\rho_b$                    | 0,054          | 0,054          | 0,054          | 0,054          |
| $\rho_{max}$                | 0,0405         | 0,0405         | 0,0405         | 0,0405         |
| $\rho_{min}$                | 0,0058         | 0,0058         | 0,0058         | 0,0058         |
| Rn (Mpa)                    | 0,3512         | 0,3512         | 0,4386         | 0,3512         |
| m                           | 11,2941        | 11,2941        | 11,2941        | 11,2941        |
| $\rho_{perlu}$              | 0,0015         | 0,0015         | 0,0019         | 0,0015         |
| 1,33 . $\rho_{perlu}$       | 0,0020         | 0,0020         | 0,0025         | 0,0020         |
| $\rho_{pakai}$              | 0,0020         | 0,0020         | 0,0025         | 0,0020         |
| As pakai (mm <sup>2</sup> ) | 149,4531       | 149,4531       | 167,4817       | 149,4531       |
| Pakai Tul. Ø (mm)           | 8              | 8              | 8              | 8              |
| A1 . Ø (mm <sup>2</sup> )   | 50,27          | 50,27          | 50,27          | 50,27          |
| Jarak Tul. (mm)             | 336,3296       | 336,3296       | 300,1252       | 336,3296       |
| Pakai Jarak (mm)            | <b>200</b>     | <b>200</b>     | <b>200</b>     | <b>200</b>     |
| As ada (mm <sup>2</sup> )   | 251,35         | 251,35         | 251,35         | 251,35         |
| a (mm)                      | 2,8388         | 2,8388         | 2,8388         | 2,8388         |
| Mn (KNm)                    | 4,499          | 4,499          | 4,0164         | 4,499          |
| 1,33. Mu / Ø (KNm)          | 2,6976         | 2,6976         | 2,6976         | 2,6976         |
| Kontrol                     | AMAN           | AMAN           | AMAN           | AMAN           |
| Pakai Tul.                  | <b>P 8-200</b> | <b>P 8-200</b> | <b>P 8-200</b> | <b>P 8-200</b> |
| As Bagi (mm <sup>2</sup> )  |                | 200            |                | 200            |
| Pakai Tul. (mm)             |                | 8              |                | 8              |
| A1 . Ø (mm <sup>2</sup> )   |                | 50,27          |                | 50,27          |
| x (mm)                      |                | 251,35         |                | 251,35         |
| x pakai (mm)                |                | 200            |                | 200            |
| Pakai Tul. Bagi             |                | <b>P 8-200</b> |                | <b>P 8-200</b> |

### PERENCANAAN TULANGAN BALOK RING

| Balok                      | R 1 Induk ( 9 m) |          | R 2 Induk ( 6 m) |          | R 3 Induk ( 4,5 m) |          | R 4 Induk ( 3 m ) |          |
|----------------------------|------------------|----------|------------------|----------|--------------------|----------|-------------------|----------|
|                            | Tumpuan          | Lapangan | Tumpuan          | Lapangan | Tumpuan            | Lapangan | Tumpuan           | Lapangan |
| f'c (Mpa)                  | 25               | 25       | 25               | 25       | 25                 | 25       | 25                | 25       |
| f'y (Mpa)                  | 400              | 400      | 400              | 400      | 400                | 400      | 400               | 400      |
| $\Phi$                     | 0.8              | 0.8      | 0.8              | 0.8      | 0.8                | 0.8      | 0.8               | 0.8      |
| $\beta$                    | 0.85             | 0.85     | 0.85             | 0.85     | 0.85               | 0.85     | 0.85              | 0.85     |
| d' (mm)                    | 60               | 60       | 60               | 60       | 60                 | 60       | 60                | 60       |
| $\rho_b$                   | 0.027            | 0.027    | 0.027            | 0.027    | 0.027              | 0.027    | 0.027             | 0.027    |
| $\rho$ maks                | 0.020            | 0.020    | 0.020            | 0.020    | 0.020              | 0.020    | 0.020             | 0.020    |
| $\rho$ min                 | 0.004            | 0.004    | 0.004            | 0.004    | 0.004              | 0.004    | 0.004             | 0.004    |
| $\rho$ rencana             | 0.010            | 0.010    | 0.010            | 0.010    | 0.010              | 0.010    | 0.010             | 0.010    |
| m                          | 18.824           | 18.824   | 18.824           | 18.824   | 18.824             | 18.824   | 18.824            | 18.824   |
| Rn (Mpa)                   | 3.675            | 3.675    | 3.675            | 3.675    | 3.675              | 3.675    | 3.675             | 3.675    |
| Mu (KNm)                   | 132.914          | 85.703   | 111.412          | 89.527   | 106.653            | 20.191   | 212.529           | 166.327  |
| Mn (KNm)                   | 166.143          | 107.129  | 139.265          | 111.909  | 133.316            | 25.239   | 265.661           | 207.909  |
| O (mm)                     | 22               | 22       | 22               | 22       | 22                 | 22       | 22                | 22       |
| A 1O (mm <sup>2</sup> )    | 380.286          | 380.286  | 380.286          | 380.286  | 380.286            | 380.286  | 380.286           | 380.286  |
| b (mm)                     | 400              | 400      | 400              | 400      | 400                | 400      | 400               | 400      |
| h (mm)                     | 600              | 600      | 600              | 600      | 600                | 600      | 600               | 600      |
| d ada (mm)                 | 540              | 540      | 540              | 540      | 540                | 540      | 540               | 540      |
| d perlu (mm)               | 336.168          | 269.941  | 307.777          | 275.897  | 301.132            | 131.024  | 425.089           | 376.055  |
|                            | SEBELAH          | SEBELAH  | SEBELAH          | SEBELAH  | SEBELAH            | SEBELAH  | SEBELAH           | SEBELAH  |
| <b>Kontrol Momen</b>       |                  |          |                  |          |                    |          |                   |          |
| Rn baru (Mpa)              | 1.424            | 0.918    | 1.194            | 0.959    | 1.143              | 0.216    | 2.278             | 1.782    |
| $\rho$ baru                | 0.004            | 0.003    | 0.003            | 0.003    | 0.003              | 0.001    | 0.006             | 0.005    |
| As (mm <sup>2</sup> )      | 850.511          | 548.408  | 712.918          | 572.877  | 682.466            | 129.201  | 1359.959          | 1064.316 |
| n                          | 3                | 2        | 3                | 2        | 2                  | 2        | 4                 | 3        |
| As ada (mm <sup>2</sup> )  | 1140.857         | 760.571  | 1140.857         | 760.571  | 760.571            | 760.571  | 1521.143          | 1140.857 |
| a                          | 53.687           | 35.792   | 53.687           | 35.792   | 35.792             | 35.792   | 71.583            | 53.687   |
| Mn (KNm)                   | 234.175          | 158.839  | 234.175          | 158.839  | 158.839            | 158.839  | 306.789           | 234.175  |
|                            | AMAN             | AMAN     | AMAN             | AMAN     | AMAN               | AMAN     | AMAN              | AMAN     |
| <b>Kontrol Momen</b>       |                  |          |                  |          |                    |          |                   |          |
| $\rho$ 1                   | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| As 1                       | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| a                          | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| Mn 1 (KNm)                 | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| Mn 2 (KNm)                 | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| fs '                       | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| As'=As2                    | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| n                          | 0                | 0        | 0                | 0        | 0                  | 0        | 0                 | 0        |
| As' ada (mm <sup>2</sup> ) | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| As                         | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| n                          | 0                | 0        | 0                | 0        | 0                  | 0        | 0                 | 0        |
| As ada (mm <sup>2</sup> )  | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| $\rho$                     | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| $\rho'$                    | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| $\rho$ 1                   | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| fs '                       | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| a                          | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
| Mn (KNm)                   | 0.000            | 0.000    | 0.000            | 0.000    | 0.000              | 0.000    | 0.000             | 0.000    |
|                            | -                | -        | -                | -        | -                  | -        | -                 | -        |

### PERENCANAAN TULANGAN BALOK RING

| Balok                                   | R 5 Induk ( 1,8 m ) |          | R 1 Anak ( 9 m) |          | R 2 Anak ( 6 m) |          | R 3 Anak ( 4,5 m) |          |
|-----------------------------------------|---------------------|----------|-----------------|----------|-----------------|----------|-------------------|----------|
|                                         | Tumpuan             | Lapangan | Tumpuan         | Lapangan | Tumpuan         | Lapangan | Tumpuan           | Lapangan |
| f <sub>c</sub> (Mpa)                    | 25                  | 25       | 25              | 25       | 25              | 25       | 25                | 25       |
| f <sub>y</sub> (Mpa)                    | 400                 | 400      | 400             | 400      | 400             | 400      | 400               | 400      |
| Φ                                       | 0.8                 | 0.8      | 0.8             | 0.8      | 0.8             | 0.8      | 0.8               | 0.8      |
| β                                       | 0.85                | 0.85     | 0.85            | 0.85     | 0.85            | 0.85     | 0.85              | 0.85     |
| d' (mm)                                 | 60                  | 60       | 40              | 40       | 40              | 40       | 40                | 40       |
| ρ <sub>b</sub>                          | 0.027               | 0.027    | 0.027           | 0.027    | 0.027           | 0.027    | 0.027             | 0.027    |
| ρ maks                                  | 0.020               | 0.020    | 0.020           | 0.020    | 0.020           | 0.020    | 0.020             | 0.020    |
| ρ min                                   | 0.004               | 0.004    | 0.004           | 0.004    | 0.004           | 0.004    | 0.004             | 0.004    |
| ρ rencana                               | 0.010               | 0.010    | 0.010           | 0.010    | 0.010           | 0.010    | 0.010             | 0.010    |
| m                                       | 18.824              | 18.824   | 18.824          | 18.824   | 18.824          | 18.824   | 18.824            | 18.824   |
| R <sub>n</sub> (Mpa)                    | 3.675               | 3.675    | 3.675           | 3.675    | 3.675           | 3.675    | 3.675             | 3.675    |
| Mu (KNm)                                | 126.040             | 56.119   | 38.937          | 26.053   | 35.398          | 15.313   | 29.468            | 6.296    |
| Mn (KNm)                                | 157.550             | 70.148   | 48.671          | 32.566   | 44.248          | 19.141   | 36.835            | 7.870    |
| Ø (mm)                                  | 22                  | 22       | 16              | 16       | 16              | 16       | 16                | 16       |
| A <sub>IO</sub> (mm <sup>2</sup> )      | 380.286             | 380.286  | 201.143         | 201.143  | 201.143         | 201.143  | 201.143           | 201.143  |
| b (mm)                                  | 400                 | 400      | 200             | 200      | 200             | 200      | 200               | 200      |
| h (mm)                                  | 600                 | 600      | 400             | 400      | 400             | 400      | 400               | 400      |
| d <sub>ada</sub> (mm)                   | 540                 | 540      | 360             | 360      | 360             | 360      | 360               | 360      |
| d <sub>perlu</sub> (mm)                 | 327.359             | 218.436  | 257.316         | 210.482  | 245.344         | 161.367  | 223.852           | 103.471  |
|                                         | SEBELAH             | SEBELAH  | SEBELAH         | SEBELAH  | SEBELAH         | SEBELAH  | SEBELAH           | SEBELAH  |
| <b>Kontrol Momen</b>                    |                     |          |                 |          |                 |          |                   |          |
| R <sub>n</sub> baru (Mpa)               | 1.351               | 0.601    | 1.878           | 1.256    | 1.707           | 0.738    | 1.421             | 0.304    |
| ρ baru                                  | 0.004               | 0.002    | 0.005           | 0.003    | 0.005           | 0.002    | 0.004             | 0.001    |
| A <sub>s</sub> (mm <sup>2</sup> )       | 806.520             | 359.100  | 373.733         | 250.067  | 339.764         | 146.980  | 282.846           | 60.432   |
| n                                       | 3                   | 2        | 2               | 2        | 2               | 2        | 2                 | 2        |
| A <sub>s</sub> ada (mm <sup>2</sup> )   | 1140.857            | 760.571  | 402.286         | 402.286  | 402.286         | 402.286  | 402.286           | 402.286  |
| a                                       | 53.687              | 35.792   | 37.862          | 37.862   | 37.862          | 37.862   | 37.862            | 37.862   |
| Mn (KNm)                                | 234.175             | 158.839  | 54.883          | 54.883   | 54.883          | 54.883   | 54.883            | 54.883   |
|                                         | AMAN                | AMAN     | AMAN            | AMAN     | AMAN            | AMAN     | AMAN              | AMAN     |
| <b>Kontrol Momen</b>                    |                     |          |                 |          |                 |          |                   |          |
| ρ <sub>1</sub>                          | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| A <sub>s</sub> 1                        | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| a                                       | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| Mn 1 (KNm)                              | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| Mn 2 (KNm)                              | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| f <sub>s</sub> '                        | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| A <sub>s</sub> '=A <sub>s</sub> 2       | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| n                                       | 0                   | 0        | 0               | 0        | 0               | 0        | 0                 | 0        |
| A <sub>s</sub> ' ada (mm <sup>2</sup> ) | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| A <sub>s</sub>                          | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| n                                       | 0                   | 0        | 0               | 0        | 0               | 0        | 0                 | 0        |
| A <sub>s</sub> ada (mm <sup>2</sup> )   | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| ρ                                       | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| ρ'                                      | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| ρ <sub>1</sub>                          | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| f <sub>s</sub> '                        | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| a                                       | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
| Mn (KNm)                                | 0.000               | 0.000    | 0.000           | 0.000    | 0.000           | 0.000    | 0.000             | 0.000    |
|                                         | -                   | -        | -               | -        | -               | -        | -                 | -        |



## PERENCANAAN TULANGAN BALOK RING

| Balok                              | R 4 Anak ( 3 m ) |          | R 5 Anak ( 2,6 m ) |          | R 6 Anak ( 1,8 m ) |          |
|------------------------------------|------------------|----------|--------------------|----------|--------------------|----------|
|                                    | Tumpuan          | Lapangan | Tumpuan            | Lapangan | Tumpuan            | Lapangan |
| f'c (Mpa)                          | 25               | 25       | 25                 | 25       | 25                 | 25       |
| fy (Mpa)                           | 400              | 400      | 400                | 400      | 400                | 400      |
| $\Phi$                             | 0.8              | 0.8      | 0.8                | 0.8      | 0.8                | 0.8      |
| $\beta$                            | 0.85             | 0.85     | 0.85               | 0.85     | 0.85               | 0.85     |
| d' (mm)                            | 40               | 40       | 40                 | 40       | 40                 | 40       |
| $\rho_b$                           | 0.027            | 0.027    | 0.027              | 0.027    | 0.027              | 0.027    |
| $\rho$ maks                        | 0.020            | 0.020    | 0.020              | 0.020    | 0.020              | 0.020    |
| $\rho$ min                         | 0.004            | 0.004    | 0.004              | 0.004    | 0.004              | 0.004    |
| $\rho$ rencana                     | 0.010            | 0.010    | 0.010              | 0.010    | 0.010              | 0.010    |
| m                                  | 18.824           | 18.824   | 18.824             | 18.824   | 18.824             | 18.824   |
| Rn (Mpa)                           | 3.675            | 3.675    | 3.675              | 3.675    | 3.675              | 3.675    |
| Mu (KNm)                           | 46.405           | 1.000    | 24.225             | 0.966    | 31.072             | 1.809    |
| Mn (KNm)                           | 58.006           | 1.250    | 30.281             | 1.208    | 38.840             | 2.261    |
| $\emptyset$ (mm)                   | 16               | 16       | 16                 | 16       | 16                 | 16       |
| A 1 $\emptyset$ (mm <sup>2</sup> ) | 201.143          | 201.143  | 201.143            | 201.143  | 201.143            | 201.143  |
| b (mm)                             | 200              | 200      | 200                | 200      | 200                | 200      |
| h (mm)                             | 400              | 400      | 400                | 400      | 400                | 400      |
| d ada (mm)                         | 360              | 360      | 360                | 360      | 360                | 360      |
| d perlu (mm)                       | 280.910          | 41.237   | 202.963            | 40.530   | 229.864            | 55.463   |
|                                    | SEBELAH          | SEBELAH  | SEBELAH            | SEBELAH  | SEBELAH            | SEBELAH  |
| <b>Kontrol Momen</b>               |                  |          |                    |          |                    |          |
| Rn baru (Mpa)                      | 2.238            | 0.048    | 1.168              | 0.047    | 1.498              | 0.087    |
| $\rho$ baru                        | 0.006            | 0.000    | 0.003              | 0.000    | 0.004              | 0.000    |
| As (mm <sup>2</sup> )              | 445.414          | 9.598    | 232.521            | 9.272    | 298.242            | 17.364   |
| n                                  | 3                | 2        | 2                  | 2        | 2                  | 2        |
| As ada (mm <sup>2</sup> )          | 603.429          | 402.286  | 402.286            | 402.286  | 402.286            | 402.286  |
| a                                  | 56.793           | 37.862   | 37.862             | 37.862   | 37.862             | 37.862   |
| Mn (KNm)                           | 80.040           | 54.883   | 54.883             | 54.883   | 54.883             | 54.883   |
|                                    | AMAN             | AMAN     | AMAN               | AMAN     | AMAN               | AMAN     |
| <b>Kontrol Momen</b>               |                  |          |                    |          |                    |          |
| $\rho$ 1                           | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| As 1                               | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| a                                  | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| Mn 1 (KNm)                         | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| Mn 2 (KNm)                         | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| fs '                               | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| As'=As2                            | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| n                                  | 0                | 0        | 0                  | 0        | 0                  | 0        |
| As' ada (mm <sup>2</sup> )         | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| As                                 | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| n                                  | 0                | 0        | 0                  | 0        | 0                  | 0        |
| As ada (mm <sup>2</sup> )          | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| $\rho$                             | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| $\rho'$                            | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| $\rho$ 1                           | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| fs '                               | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| a                                  | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| Mn (KNm)                           | 0.000            | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
|                                    | -                | -        | -                  | -        | -                  | -        |

### PERENCANAAN TULANGAN BALOK INDUK LANTAI 3

| Balok                              | B 1 a Induk ( 9 m ) |          | B 1 b Induk ( 9 m ) |          | B 2 a Induk ( 6 m ) |          | B 2 b Induk ( 6 m ) |          |
|------------------------------------|---------------------|----------|---------------------|----------|---------------------|----------|---------------------|----------|
|                                    | Tumpuan             | Lapangan | Tumpuan             | Lapangan | Tumpuan             | Lapangan | Tumpuan             | Lapangan |
| $f_c$ (Mpa)                        | 25                  | 25       | 25                  | 25       | 25                  | 25       | 25                  | 25       |
| $f_y$ (Mpa)                        | 400                 | 400      | 400                 | 400      | 400                 | 400      | 400                 | 400      |
| $\Phi$                             | 0.8                 | 0.8      | 0.8                 | 0.8      | 0.8                 | 0.8      | 0.8                 | 0.8      |
| $\beta$                            | 0.85                | 0.85     | 0.85                | 0.85     | 0.85                | 0.85     | 0.85                | 0.85     |
| $d'$ (mm)                          | 60                  | 60       | 60                  | 60       | 60                  | 60       | 60                  | 60       |
| $\rho_b$                           | 0.032               | 0.032    | 0.032               | 0.032    | 0.032               | 0.032    | 0.032               | 0.032    |
| $\rho$ maks                        | 0.024               | 0.024    | 0.024               | 0.024    | 0.024               | 0.024    | 0.024               | 0.024    |
| $\rho$ min                         | 0.004               | 0.004    | 0.004               | 0.004    | 0.004               | 0.004    | 0.004               | 0.004    |
| $\rho$ rencana                     | 0.018               | 0.018    | 0.018               | 0.018    | 0.018               | 0.018    | 0.018               | 0.018    |
| $m$                                | 18.824              | 18.824   | 18.824              | 18.824   | 18.824              | 18.824   | 18.824              | 18.824   |
| $R_n$ (Mpa)                        | 5.962               | 5.962    | 5.962               | 5.962    | 5.962               | 5.962    | 5.962               | 5.962    |
| $M_u$ (KNm)                        | 364.700             | 314.445  | 434.391             | 275.122  | 156.022             | 134.964  | 306.419             | 166.342  |
| $M_n$ (KNm)                        | 455.875             | 393.056  | 542.989             | 343.903  | 195.028             | 168.705  | 383.024             | 207.928  |
| $\emptyset$ (mm)                   | 22                  | 22       | 22                  | 22       | 22                  | 22       | 22                  | 22       |
| $A_1 \emptyset$ (mm <sup>2</sup> ) | 380.286             | 380.286  | 380.286             | 380.286  | 380.286             | 380.286  | 380.286             | 380.286  |
| $b$ (mm)                           | 400                 | 400      | 400                 | 400      | 400                 | 400      | 400                 | 400      |
| $h$ (mm)                           | 600                 | 600      | 600                 | 600      | 600                 | 600      | 600                 | 600      |
| $d$ ada (mm)                       | 540                 | 540      | 540                 | 540      | 540                 | 540      | 540                 | 540      |
| $d$ perlu (mm)                     | 437.231             | 405.990  | 477.181             | 379.757  | 285.980             | 265.982  | 400.775             | 295.287  |
|                                    | SEBELAH             | SEBELAH  | SEBELAH             | SEBELAH  | SEBELAH             | SEBELAH  | SEBELAH             | SEBELAH  |
| <b>Kontrol Momen</b>               |                     |          |                     |          |                     |          |                     |          |
| $R_n$ baru (Mpa)                   | 3.908               | 3.370    | 4.655               | 2.948    | 1.672               | 1.446    | 3.284               | 1.783    |
| $\rho$ baru                        | 0.012               | 0.010    | 0.014               | 0.009    | 0.005               | 0.004    | 0.010               | 0.005    |
| $A_s$ (mm <sup>2</sup> )           | 2538.986            | 2189.119 | 3024.165            | 1915.358 | 1086.202            | 939.599  | 2133.243            | 1158.048 |
| $n$                                | 7                   | 6        | 8                   | 6        | 3                   | 3        | 6                   | 4        |
| $A_s$ ada (mm <sup>2</sup> )       | 2662.000            | 2281.714 | 3042.286            | 2281.714 | 1140.857            | 1140.857 | 2281.714            | 1521.143 |
| $a$                                | 125.271             | 107.375  | 143.166             | 107.375  | 53.687              | 53.687   | 107.375             | 71.583   |
| $M_n$ (KNm)                        | 508.298             | 443.851  | 570.023             | 443.851  | 234.175             | 234.175  | 443.851             | 306.789  |
|                                    | AMAN                | AMAN     | AMAN                | AMAN     | AMAN                | AMAN     | AMAN                | AMAN     |
| <b>Kontrol Momen</b>               |                     |          |                     |          |                     |          |                     |          |
| $\rho_1$                           | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $A_s 1$                            | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $a$                                | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $M_n 1$ (KNm)                      | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $M_n 2$ (KNm)                      | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $f_s'$                             | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $A_s' = A_s 2$                     | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $n$                                | 0                   | 0        | 0                   | 0        | 0                   | 0        | 0                   | 0        |
| $A_s'$ ada (mm <sup>2</sup> )      | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $A_s$                              | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $n$                                | 0                   | 0        | 0                   | 0        | 0                   | 0        | 0                   | 0        |
| $A_s$ ada (mm <sup>2</sup> )       | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $\rho$                             | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $\rho'$                            | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $\rho_1$                           | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $f_s'$                             | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $a$                                | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
| $M_n$ (KNm)                        | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    | 0.000               | 0.000    |
|                                    | -                   | -        | -                   | -        | -                   | -        | -                   | -        |

### PERENCANAAN TULANGAN BALOK INDUK LANTAI 3

| Balok                               | B 3 a Induk ( 4,5 m ) |          | B 3 b Induk ( 4,5 m ) |          | B 4 Induk ( 3 m ) |          | B 5 Induk ( 1,8 m ) |          |
|-------------------------------------|-----------------------|----------|-----------------------|----------|-------------------|----------|---------------------|----------|
|                                     | Tumpuan               | Lapangan | Tumpuan               | Lapangan | Tumpuan           | Lapangan | Tumpuan             | Lapangan |
| $f_c$ (Mpa)                         | 25                    | 25       | 25                    | 25       | 25                | 25       | 25                  | 25       |
| $f_y$ (Mpa)                         | 400                   | 400      | 400                   | 400      | 400               | 400      | 400                 | 400      |
| $\Phi$                              | 0.8                   | 0.8      | 0.8                   | 0.8      | 0.8               | 0.8      | 0.8                 | 0.8      |
| $\beta$                             | 0.85                  | 0.85     | 0.85                  | 0.85     | 0.85              | 0.85     | 0.85                | 0.85     |
| $d'$ (mm)                           | 60                    | 60       | 60                    | 60       | 60                | 60       | 60                  | 60       |
| $\rho_b$                            | 0.032                 | 0.032    | 0.032                 | 0.032    | 0.032             | 0.032    | 0.032               | 0.032    |
| $\rho$ maks                         | 0.024                 | 0.024    | 0.024                 | 0.024    | 0.024             | 0.024    | 0.024               | 0.024    |
| $\rho$ min                          | 0.004                 | 0.004    | 0.004                 | 0.004    | 0.004             | 0.004    | 0.004               | 0.004    |
| $\rho$ rencana                      | 0.018                 | 0.018    | 0.018                 | 0.018    | 0.018             | 0.018    | 0.018               | 0.018    |
| $m$                                 | 18.824                | 18.824   | 18.824                | 18.824   | 18.824            | 18.824   | 18.824              | 18.824   |
| $R_n$ (Mpa)                         | 5.962                 | 5.962    | 5.962                 | 5.962    | 5.962             | 5.962    | 5.962               | 5.962    |
| $M_u$ (KNm)                         | 109.037               | 59.669   | 134.943               | 74.380   | 343.987           | 139.096  | 199.402             | 51.071   |
| $M_n$ (KNm)                         | 136.296               | 74.586   | 168.679               | 92.975   | 429.984           | 173.870  | 249.253             | 63.839   |
| $\emptyset$ (mm)                    | 22                    | 22       | 22                    | 22       | 22                | 22       | 22                  | 22       |
| $A_{1\emptyset}$ (mm <sup>2</sup> ) | 380.286               | 380.286  | 380.286               | 380.286  | 380.286           | 380.286  | 380.286             | 380.286  |
| $b$ (mm)                            | 400                   | 400      | 400                   | 400      | 400               | 400      | 400                 | 400      |
| $h$ (mm)                            | 600                   | 600      | 600                   | 600      | 600               | 600      | 600                 | 600      |
| $d$ ada (mm)                        | 540                   | 540      | 540                   | 540      | 540               | 540      | 540                 | 540      |
| $d$ perlu (mm)                      | 239.073               | 176.855  | 265.961               | 197.456  | 424.633           | 270.023  | 323.301             | 163.618  |
|                                     | SEBELAH               | SEBELAH  | SEBELAH               | SEBELAH  | SEBELAH           | SEBELAH  | SEBELAH             | SEBELAH  |
| <b>Kontrol Momen</b>                |                       |          |                       |          |                   |          |                     |          |
| $R_n$ baru (Mpa)                    | 1.169                 | 0.639    | 1.446                 | 0.797    | 3.686             | 1.491    | 2.137               | 0.547    |
| $\rho$ baru                         | 0.004                 | 0.002    | 0.004                 | 0.002    | 0.011             | 0.004    | 0.006               | 0.002    |
| $A_s$ (mm <sup>2</sup> )            | 759.099               | 415.407  | 939.453               | 517.822  | 2394.786          | 968.365  | 1388.207            | 355.549  |
| $n$                                 | 3                     | 2        | 3                     | 2        | 8                 | 4        | 4                   | 2        |
| $A_s$ ada (mm <sup>2</sup> )        | 1140.857              | 760.571  | 1140.857              | 760.571  | 3042.286          | 1521.143 | 1521.143            | 760.571  |
| $a$                                 | 53.687                | 35.792   | 53.687                | 35.792   | 143.166           | 71.583   | 71.583              | 35.792   |
| $M_n$ (KNm)                         | 234.175               | 158.839  | 234.175               | 158.839  | 570.023           | 306.789  | 306.789             | 158.839  |
|                                     | AMAN                  | AMAN     | AMAN                  | AMAN     | AMAN              | AMAN     | AMAN                | AMAN     |
| <b>Kontrol Momen</b>                |                       |          |                       |          |                   |          |                     |          |
| $\rho_1$                            | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $A_s 1$                             | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $a$                                 | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $M_n 1$ (KNm)                       | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $M_n 2$ (KNm)                       | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $f_s'$                              | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $A_s' = A_s 2$                      | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $n$                                 | 0                     | 0        | 0                     | 0        | 0                 | 0        | 0                   | 0        |
| $A_s'$ ada (mm <sup>2</sup> )       | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $A_s$                               | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $n$                                 | 0                     | 0        | 0                     | 0        | 0                 | 0        | 0                   | 0        |
| $A_s$ ada (mm <sup>2</sup> )        | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $\rho$                              | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $\rho'$                             | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $\rho_1$                            | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $f_s'$                              | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $a$                                 | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
| $M_n$ (KNm)                         | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000             | 0.000    | 0.000               | 0.000    |
|                                     | -                     | -        | -                     | -        | -                 | -        | -                   | -        |

### PERENCANAAN TULANGAN BALOK ANAK LANTAI 3

| Balok                                   | B 1 a Anak ( 9 m ) |          | B 1 b Anak ( 9 m ) |          | B 2 a Anak ( 6 m ) |          | B 2 b Anak ( 6 m ) |          |
|-----------------------------------------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|
|                                         | Tumpuan            | Lapangan | Tumpuan            | Lapangan | Tumpuan            | Lapangan | Tumpuan            | Lapangan |
| f'c (Mpa)                               | 25                 | 25       | 25                 | 25       | 25                 | 25       | 25                 | 25       |
| f <sub>y</sub> (Mpa)                    | 400                | 400      | 400                | 400      | 400                | 400      | 400                | 400      |
| Φ                                       | 0.8                | 0.8      | 0.8                | 0.8      | 0.8                | 0.8      | 0.8                | 0.8      |
| β                                       | 0.85               | 0.85     | 0.85               | 0.85     | 0.85               | 0.85     | 0.85               | 0.85     |
| d' (mm)                                 | 40                 | 40       | 40                 | 40       | 40                 | 40       | 40                 | 40       |
| ρ <sub>b</sub>                          | 0.032              | 0.032    | 0.032              | 0.032    | 0.032              | 0.032    | 0.032              | 0.032    |
| ρ maks                                  | 0.024              | 0.024    | 0.024              | 0.024    | 0.024              | 0.024    | 0.024              | 0.024    |
| ρ min                                   | 0.004              | 0.004    | 0.004              | 0.004    | 0.004              | 0.004    | 0.004              | 0.004    |
| ρ rencana                               | 0.018              | 0.018    | 0.018              | 0.018    | 0.018              | 0.018    | 0.018              | 0.018    |
| m                                       | 18.824             | 18.824   | 18.824             | 18.824   | 18.824             | 18.824   | 18.824             | 18.824   |
| R <sub>n</sub> (Mpa)                    | 5.962              | 5.962    | 5.962              | 5.962    | 5.962              | 5.962    | 5.962              | 5.962    |
| M <sub>u</sub> (KNm)                    | 65.057             | 18.928   | 114.180            | 28.070   | 45.906             | 33.434   | 83.564             | 56.017   |
| M <sub>n</sub> (KNm)                    | 81.321             | 23.660   | 142.725            | 35.088   | 57.383             | 41.793   | 104.455            | 70.021   |
| O (mm)                                  | 16                 | 16       | 16                 | 16       | 16                 | 16       | 16                 | 16       |
| A <sub>1O</sub> (mm <sup>2</sup> )      | 201.143            | 201.143  | 201.143            | 201.143  | 201.143            | 201.143  | 201.143            | 201.143  |
| b (mm)                                  | 200                | 200      | 200                | 200      | 200                | 200      | 200                | 200      |
| h (mm)                                  | 400                | 400      | 400                | 400      | 400                | 400      | 400                | 400      |
| d ada (mm)                              | 360                | 360      | 360                | 360      | 360                | 360      | 360                | 360      |
| d perlu (mm)                            | 261.159            | 140.867  | 345.981            | 171.545  | 219.378            | 187.220  | 295.983            | 242.336  |
|                                         | SEBELAH            | SEBELAH  | SEBELAH            | SEBELAH  | SEBELAH            | SEBELAH  | SEBELAH            | SEBELAH  |
| <b>Kontrol Momen</b>                    |                    |          |                    |          |                    |          |                    |          |
| R <sub>n</sub> baru (Mpa)               | 3.137              | 0.913    | 5.506              | 1.354    | 2.214              | 1.612    | 4.030              | 2.701    |
| ρ baru                                  | 0.009              | 0.003    | 0.017              | 0.004    | 0.007              | 0.005    | 0.012              | 0.008    |
| A <sub>s</sub> (mm <sup>2</sup> )       | 679.376            | 197.661  | 1192.356           | 293.129  | 479.386            | 349.144  | 872.640            | 584.973  |
| n                                       | 4                  | 2        | 6                  | 3        | 3                  | 2        | 5                  | 3        |
| A <sub>s</sub> ada (mm <sup>2</sup> )   | 804.571            | 402.286  | 1206.857           | 603.429  | 603.429            | 402.286  | 1005.714           | 603.429  |
| a                                       | 75.724             | 37.862   | 113.587            | 56.793   | 56.793             | 37.862   | 94.655             | 56.793   |
| M <sub>n</sub> (KNm)                    | 103.673            | 54.883   | 146.371            | 80.040   | 80.040             | 54.883   | 125.784            | 80.040   |
|                                         | AMAN               | AMAN     | AMAN               | AMAN     | AMAN               | AMAN     | AMAN               | AMAN     |
| <b>Kontrol Momen</b>                    |                    |          |                    |          |                    |          |                    |          |
| ρ <sub>1</sub>                          | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| A <sub>s</sub> 1                        | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| a                                       | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| M <sub>n</sub> 1 (KNm)                  | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| M <sub>n</sub> 2 (KNm)                  | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| f <sub>s</sub> '                        | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| A <sub>s</sub> '=A <sub>s</sub> 2       | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| n                                       | 0                  | 0        | 0                  | 0        | 0                  | 0        | 0                  | 0        |
| A <sub>s</sub> ' ada (mm <sup>2</sup> ) | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| A <sub>s</sub>                          | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| n                                       | 0                  | 0        | 0                  | 0        | 0                  | 0        | 0                  | 0        |
| A <sub>s</sub> ada (mm <sup>2</sup> )   | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| ρ                                       | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| ρ'                                      | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| ρ <sub>1</sub>                          | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| f <sub>s</sub> '                        | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| a                                       | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
| M <sub>n</sub> (KNm)                    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    | 0.000              | 0.000    |
|                                         | -                  | -        | -                  | -        | -                  | -        | -                  | -        |

## PERENCANAAN TULANGAN BALOK LANTAI 2

| Balok                         | B 1 a Induk ( 9 m ) |          | B 1 b Induk ( 9 m ) |          | B 2 a Induk ( 6 m ) |          | B 2 b Induk ( 6 m ) |          |
|-------------------------------|---------------------|----------|---------------------|----------|---------------------|----------|---------------------|----------|
|                               | Tumpuan             | Lapangan | Tumpuan             | Lapangan | Tumpuan             | Lapangan | Tumpuan             | Lapangan |
| $f_c$ (Mpa)                   | 25                  | 25       | 25                  | 25       | 25                  | 25       | 25                  | 25       |
| $f_y$ (Mpa)                   | 400                 | 400      | 400                 | 400      | 400                 | 400      | 400                 | 400      |
| $\phi$                        | 0,8                 | 0,8      | 0,8                 | 0,8      | 0,8                 | 0,8      | 0,8                 | 0,8      |
| $\beta$                       | 0,85                | 0,85     | 0,85                | 0,85     | 0,85                | 0,85     | 0,85                | 0,85     |
| $d'$ (mm)                     | 60                  | 60       | 90                  | 60       | 60                  | 60       | 60                  | 60       |
| $\rho_b$                      | 0,027               | 0,027    | 0,027               | 0,027    | 0,027               | 0,027    | 0,027               | 0,027    |
| $\rho_{maks}$                 | 0,020               | 0,020    | 0,020               | 0,020    | 0,020               | 0,020    | 0,020               | 0,020    |
| $\rho_{min}$                  | 0,004               | 0,004    | 0,004               | 0,004    | 0,004               | 0,004    | 0,004               | 0,004    |
| $\rho_{rencana}$              | 0,010               | 0,010    | 0,010               | 0,010    | 0,010               | 0,010    | 0,010               | 0,010    |
| $m$                           | 18,824              | 18,824   | 18,824              | 18,824   | 18,824              | 18,824   | 18,824              | 18,824   |
| $R_n$ (Mpa)                   | 3,675               | 3,675    | 3,675               | 3,675    | 3,675               | 3,675    | 3,675               | 3,675    |
| $M_u$ (KNm)                   | 297,071             | 251,961  | 440,659             | 284,701  | 143,319             | 114,123  | 322,608             | 164,548  |
| $M_n$ (KNm)                   | 371,339             | 314,951  | 550,823             | 355,876  | 179,149             | 143,029  | 403,260             | 205,685  |
| $O$ (mm)                      | 22                  | 22       | 22                  | 22       | 22                  | 22       | 22                  | 22       |
| $A_{LO}$ (mm <sup>2</sup> )   | 380,286             | 380,286  | 380,286             | 380,286  | 380,286             | 380,286  | 380,286             | 380,286  |
| $b$ (mm)                      | 400                 | 400      | 400                 | 400      | 400                 | 400      | 400                 | 400      |
| $h$ (mm)                      | 600                 | 600      | 600                 | 600      | 600                 | 600      | 600                 | 600      |
| $d$ ada (mm)                  | 540                 | 540      | 510                 | 540      | 540                 | 540      | 540                 | 540      |
| $d$ perlu (mm)                | 502,575             | 462,847  | 612,099             | 492,060  | 549,078             | 311,909  | 523,731             | 374,039  |
|                               | SEBELAH             | SEBELAH  | RANGKAP             | SEBELAH  | SEBELAH             | SEBELAH  | SEBELAH             | SEBELAH  |
| <b>Kontrol Momen</b>          |                     |          |                     |          |                     |          |                     |          |
| $R_n$ baru (Mpa)              | 3,184               | 2,700    | 0,000               | 3,051    | 1,536               | 1,226    | 3,457               | 1,763    |
| $\rho$ baru                   | 0,009               | 0,007    | 0,000               | 0,008    | 0,004               | 0,003    | 0,010               | 0,005    |
| $A_s$ (mm <sup>2</sup> )      | 1900,938            | 1612,282 | 0,000               | 1821,783 | 917,089             | 732,185  | 2064,548            | 1052,332 |
| $n$                           | 5                   | 5        | 0                   | 5        | 3                   | 3        | 5                   | 3        |
| $A_s$ ada (mm <sup>2</sup> )  | 1901,429            | 1901,429 | 0,000               | 1901,429 | 1140,857            | 1140,857 | 2281,714            | 1140,857 |
| $a$                           | 89,479              | 89,479   | 0,000               | 89,479   | 53,687              | 53,687   | 107,375             | 53,637   |
| $M_n$ (KNm)                   | 376,681             | 376,681  | 0,000               | 376,681  | 234,175             | 234,175  | 443,851             | 234,175  |
|                               | AMAN                | AMAN     | -                   | AMAN     | AMAN                | AMAN     | AMAN                | AMAN     |
| <b>Kontrol Momen</b>          |                     |          |                     |          |                     |          |                     |          |
| $\rho_1$                      | 0,000               | 0,000    | 0,010               | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $A_s_1$                       | 0,000               | 0,000    | 2072,672            | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $a$                           | 0,000               | 0,000    | 97,538              | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $M_n_1$ (KNm)                 | 0,000               | 0,000    | 382,392             | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $M_n_2$ (KNm)                 | 0,000               | 0,000    | 168,430             | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $f_s'$                        | 0,000               | 0,000    | 129,412             | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $A_s'=A_s2$                   | 0,000               | 0,000    | 3098,822            | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $n$                           | 0                   | 0        | 4                   | 0        | 0                   | 0        | 0                   | 0        |
| $A_s'$ ada (mm <sup>2</sup> ) | 0,000               | 0,000    | 1521,143            | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $A_s$                         | 0,000               | 0,000    | 5171,494            | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $n$                           | 0                   | 0        | 8                   | 0        | 0                   | 0        | 0                   | 0        |
| $A_s$ ada (mm <sup>2</sup> )  | 0,000               | 0,000    | 3042,286            | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $\rho$                        | 0,000               | 0,000    | 0,015               | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $\rho'$                       | 0,000               | 0,000    | 0,007               | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $\rho_1$                      | 0,000               | 0,000    | 0,007               | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $f_s'$                        | 0,000               | 0,000    | -41,212             | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $a$                           | 0,000               | 0,000    | 150,542             | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
| $M_n$ (KNm)                   | 0,000               | 0,000    | 529,952             | 0,000    | 0,000               | 0,000    | 0,000               | 0,000    |
|                               | -                   | -        | AMAN                | -        | -                   | -        | -                   | -        |

## PERENCANAAN TULANGAN BALOK LANTAI 2

| Balok                         | B 3 a Induk ( 4,5 m ) |          | B 3 b Induk ( 4,5 m ) |          | B 4 Induk ( 0,9 m ) |          | B 1 a Anak ( 9 m ) |          |
|-------------------------------|-----------------------|----------|-----------------------|----------|---------------------|----------|--------------------|----------|
|                               | Tumpuan               | Lapangan | Tumpuan               | Lapangan | Tumpuan             | Lapangan | Tumpuan            | Lapangan |
| $f_c$ (Mpa)                   | 25                    | 25       | 25                    | 25       | 25                  | 25       | 25                 | 25       |
| $f_y$ (Mpa)                   | 400                   | 400      | 400                   | 400      | 400                 | 400      | 400                | 400      |
| $\Phi$                        | 0.8                   | 0.8      | 0.8                   | 0.8      | 0.8                 | 0.8      | 0.8                | 0.8      |
| $\beta$                       | 0.85                  | 0.85     | 0.85                  | 0.85     | 0.85                | 0.85     | 0.85               | 0.85     |
| $d'$ (mm)                     | 60                    | 60       | 60                    | 60       | 60                  | 60       | 40                 | 40       |
| $\rho_b$                      | 0.027                 | 0.027    | 0.027                 | 0.027    | 0.027               | 0.027    | 0.027              | 0.027    |
| $\rho$ maks                   | 0.020                 | 0.020    | 0.020                 | 0.020    | 0.020               | 0.020    | 0.020              | 0.020    |
| $\rho$ min                    | 0.004                 | 0.004    | 0.004                 | 0.004    | 0.004               | 0.004    | 0.004              | 0.004    |
| $\rho$ rencana                | 0.010                 | 0.010    | 0.010                 | 0.010    | 0.010               | 0.010    | 0.010              | 0.010    |
| $m$                           | 18.824                | 18.824   | 18.824                | 18.824   | 18.824              | 18.824   | 18.824             | 18.824   |
| $R_n$ (Mpa)                   | 3.675                 | 3.675    | 3.675                 | 3.675    | 3.675               | 3.675    | 3.675              | 3.675    |
| $M_u$ (KNm)                   | 189.072               | 54.106   | 127.952               | 82.528   | 63.605              | 14.041   | 57.320             | 12.386   |
| $M_n$ (KNm)                   | 236.340               | 67.633   | 159.940               | 103.160  | 79.506              | 17.551   | 71.650             | 15.483   |
| $\emptyset$ (mm)              | 22                    | 22       | 22                    | 22       | 22                  | 22       | 16                 | 16       |
| $A_{10}$ (mm <sup>2</sup> )   | 380.286               | 380.286  | 380.286               | 380.286  | 380.286             | 380.286  | 201.143            | 201.143  |
| $b$ (mm)                      | 400                   | 400      | 400                   | 400      | 400                 | 400      | 200                | 200      |
| $h$ (mm)                      | 600                   | 600      | 600                   | 600      | 600                 | 600      | 400                | 400      |
| $d$ ada (mm)                  | 540                   | 540      | 540                   | 540      | 540                 | 540      | 360                | 360      |
| $d$ perlu (mm)                | 400.944               | 214.483  | 329.833               | 264.893  | 232.550             | 109.262  | 312.204            | 145.128  |
|                               | SEBELAH               | SEBELAH  | SEBELAH               | SEBELAH  | SEBELAH             | SEBELAH  | SEBELAH            | SEBELAH  |
| <b>Kontrol Momen</b>          |                       |          |                       |          |                     |          |                    |          |
| $R_n$ baru (Mpa)              | 2.026                 | 0.580    | 1.371                 | 0.884    | 0.682               | 0.150    | 2.764              | 0.597    |
| $\rho$ baru                   | 0.006                 | 0.002    | 0.004                 | 0.002    | 0.002               | 0.000    | 0.008              | 0.002    |
| $A_s$ (mm <sup>2</sup> )      | 1209.859              | 346.221  | 818.757               | 528.091  | 407.004             | 89.847   | 550.180            | 118.886  |
| $n$                           | 4                     | 2        | 3                     | 2        | 2                   | 2        | 3                  | 2        |
| $A_s$ ada (mm <sup>2</sup> )  | 1521.143              | 760.571  | 1140.857              | 760.571  | 760.571             | 760.571  | 603.429            | 402.286  |
| $a$                           | 71.583                | 35.792   | 53.687                | 35.792   | 35.792              | 35.792   | 56.793             | 37.862   |
| $M_n$ (KNm)                   | 306.789               | 158.839  | 234.175               | 158.839  | 158.839             | 158.839  | 80.040             | 54.883   |
|                               | AMAN                  | AMAN     | AMAN                  | AMAN     | AMAN                | AMAN     | AMAN               | AMAN     |
| <b>Kontrol Momen</b>          |                       |          |                       |          |                     |          |                    |          |
| $\rho_1$                      | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $A_s 1$                       | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $a$                           | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $M_n 1$ (KNm)                 | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $M_n 2$ (KNm)                 | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $f_s'$                        | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $A_s' = A_s 2$                | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $n$                           | 0                     | 0        | 0                     | 0        | 0                   | 0        | 0                  | 0        |
| $A_s'$ ada (mm <sup>2</sup> ) | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $A_s$                         | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $n$                           | 0                     | 0        | 0                     | 0        | 0                   | 0        | 0                  | 0        |
| $A_s$ ada (mm <sup>2</sup> )  | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $\rho$                        | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $\rho'$                       | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $\rho 1$                      | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $f_s'$                        | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $a$                           | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
| $M_n$ (KNm)                   | 0.000                 | 0.000    | 0.000                 | 0.000    | 0.000               | 0.000    | 0.000              | 0.000    |
|                               | -                     | -        | -                     | -        | -                   | -        | -                  | -        |

## PERENCANAAN TULANGAN BALOK LANTAI 2

| Balok                         | B 1 b Anak ( 9 m ) |          | B 2 a Anak ( 6 m ) |          | B 2 b Anak ( 6 m ) |          | B 3 a Anak ( 4,5 m ) |          |
|-------------------------------|--------------------|----------|--------------------|----------|--------------------|----------|----------------------|----------|
|                               | Tumpuan            | Lapangan | Tumpuan            | Lapangan | Tumpuan            | Lapangan | Tumpuan              | Lapangan |
| $f_c$ (Mpa)                   | 25                 | 25       | 25                 | 25       | 25                 | 25       | 25                   | 25       |
| $f_y$ (Mpa)                   | 400                | 400      | 400                | 400      | 400                | 400      | 400                  | 400      |
| $\Phi$                        | 0,8                | 0,8      | 0,8                | 0,8      | 0,8                | 0,8      | 0,8                  | 0,8      |
| $\beta$                       | 0,85               | 0,85     | 0,85               | 0,85     | 0,85               | 0,85     | 0,85                 | 0,85     |
| $d'$ (mm)                     | 60                 | 40       | 40                 | 40       | 60                 | 40       | 40                   | 40       |
| $\rho_{\text{db}}$            | 0,027              | 0,027    | 0,027              | 0,027    | 0,027              | 0,027    | 0,027                | 0,027    |
| $\rho$ maks                   | 0,020              | 0,020    | 0,020              | 0,020    | 0,020              | 0,020    | 0,020                | 0,020    |
| $\rho$ min                    | 0,004              | 0,004    | 0,004              | 0,004    | 0,004              | 0,004    | 0,004                | 0,004    |
| $\rho$ rencana                | 0,010              | 0,010    | 0,010              | 0,010    | 0,010              | 0,010    | 0,010                | 0,010    |
| $m$                           | 18,824             | 18,824   | 18,824             | 18,824   | 18,824             | 18,824   | 18,824               | 18,824   |
| $R_n$ (Mpa)                   | 3,675              | 3,675    | 3,675              | 3,675    | 3,675              | 3,675    | 3,675                | 3,675    |
| $M_u$ (KNm)                   | 116,324            | 28,401   | 44,077             | 36,191   | 83,744             | 55,456   | 16,751               | 5,059    |
| $M_n$ (KNm)                   | 145,405            | 35,501   | 55,096             | 45,239   | 104,680            | 69,520   | 20,939               | 6,324    |
| $O$ (mm)                      | 16                 | 16       | 16                 | 16       | 16                 | 16       | 16                   | 16       |
| $A_{10}$ (mm <sup>2</sup> )   | 201,143            | 201,143  | 201,143            | 201,143  | 201,143            | 201,143  | 201,143              | 201,143  |
| $b$ (mm)                      | 200                | 200      | 200                | 200      | 200                | 200      | 200                  | 200      |
| $h$ (mm)                      | 400                | 400      | 400                | 400      | 400                | 400      | 400                  | 400      |
| $d$ ada (mm)                  | 340                | 360      | 360                | 360      | 340                | 360      | 360                  | 360      |
| $d$ perlu (mm)                | 444,754            | 219,762  | 273,774            | 248,077  | 377,366            | 307,086  | 168,774              | 92,751   |
|                               | RANGKAP            | SEBELAH  | SEBELAH            | SEBELAH  | RANGKAP            | SEBELAH  | SEBELAH              | SEBELAH  |
| <b>Kontrol Momen</b>          |                    |          |                    |          |                    |          |                      |          |
| $R_n$ baru (Mpa)              | 0,000              | 1,370    | 2,126              | 1,745    | 0,000              | 2,674    | 0,808                | 0,244    |
| $\rho$ baru                   | 0,000              | 0,004    | 0,006              | 0,005    | 0,000              | 0,007    | 0,002                | 0,001    |
| $A_s$ (mm <sup>2</sup> )      | 0,000              | 272,604  | 423,069            | 347,376  | 0,000              | 532,289  | 160,783              | 48,558   |
| $n$                           | 0                  | 4        | 3                  | 2        | 0                  | 3        | 2                    | 2        |
| $A_s$ ada (mm <sup>2</sup> )  | 0,000              | 804,571  | 603,429            | 402,286  | 0,000              | 603,429  | 402,286              | 402,286  |
| $a$                           | 0,000              | 75,724   | 56,793             | 37,862   | 0,000              | 56,793   | 37,862               | 37,362   |
| $M_n$ (KNm)                   | 0,000              | 103,673  | 80,040             | 54,883   | 0,000              | 80,040   | 54,883               | 54,883   |
|                               | -                  | AMAN     | AMAN               | AMAN     | -                  | AMAN     | AMAN                 | AMAN     |
| <b>Kontrol Momen</b>          |                    |          |                    |          |                    |          |                      |          |
| $\rho_1$                      | 0,010              | 0,000    | 0,000              | 0,000    | 0,010              | 0,000    | 0,000                | 0,000    |
| $A_s 1$                       | 690,891            | 0,000    | 0,000              | 0,000    | 690,891            | 0,000    | 0,000                | 0,000    |
| $a$                           | 65,025             | 0,000    | 0,000              | 0,000    | 65,025             | 0,000    | 0,000                | 0,000    |
| $M_n 1$ (KNm)                 | 84,976             | 0,000    | 0,000              | 0,000    | 84,976             | 0,000    | 0,000                | 0,000    |
| $M_n 2$ (KNm)                 | 60,429             | 0,000    | 0,000              | 0,000    | 19,704             | 0,000    | 0,000                | 0,000    |
| $f_s'$                        | 129,412            | 0,000    | 0,000              | 0,000    | 129,412            | 0,000    | 0,000                | 0,000    |
| $A_s' = A_s 2$                | 1667,681           | 0,000    | 0,000              | 0,000    | 543,777            | 0,000    | 0,000                | 0,000    |
| $n$                           | 4                  | 0        | 0                  | 0        | 3                  | 0        | 0                    | 0        |
| $A_s'$ ada (mm <sup>2</sup> ) | 804,571            | 0,000    | 0,000              | 0,000    | 603,429            | 0,000    | 0,000                | 0,000    |
| $A_s$                         | 2358,572           | 0,000    | 0,000              | 0,000    | 1234,667           | 0,000    | 0,000                | 0,000    |
| $n$                           | 4                  | 0        | 0                  | 0        | 5                  | 0        | 0                    | 0        |
| $A_s$ ada (mm <sup>2</sup> )  | 1408,000           | 0,000    | 0,000              | 0,000    | 1095,714           | 0,000    | 0,000                | 0,000    |
| $\rho$                        | 0,021              | 0,000    | 0,000              | 0,000    | 0,015              | 0,000    | 0,000                | 0,000    |
| $\rho'$                       | 0,012              | 0,000    | 0,000              | 0,000    | 0,009              | 0,000    | 0,000                | 0,000    |
| $\rho_1$                      | 0,009              | 0,000    | 0,000              | 0,000    | 0,006              | 0,000    | 0,000                | 0,000    |
| $f_s'$                        | 61,204             | 0,000    | 0,000              | 0,000    | -208,194           | 0,000    | 0,000                | 0,000    |
| $a$                           | 120,931            | 0,000    | 0,000              | 0,000    | 124,216            | 0,000    | 0,000                | 0,000    |
| $M_n$ (KNm)                   | 157,457            | 0,000    | 0,000              | 0,000    | 111,527            | 0,000    | 0,000                | 0,000    |
|                               | AMAN               | -        | -                  | -        | AMAN               | -        | -                    | -        |

## PERENCANAAN TULANGAN BALOK LANTAI 2

| Balok                         | B 3 b Anak ( 4,5 m ) |          | B 4 Anak ( 3 m ) |          | B 5 Anak ( 0,9 m ) |          |
|-------------------------------|----------------------|----------|------------------|----------|--------------------|----------|
|                               | Tumpuan              | Lapangan | Tumpuan          | Lapangan | Tumpuan            | Lapangan |
| $f_c$ (Mpa)                   | 25                   | 25       | 25               | 25       | 25                 | 25       |
| $f_y$ (Mpa)                   | 400                  | 400      | 400              | 400      | 400                | 400      |
| $\Phi$                        | 0,8                  | 0,8      | 0,8              | 0,8      | 0,8                | 0,8      |
| $\beta$                       | 0,85                 | 0,85     | 0,85             | 0,85     | 0,85               | 0,85     |
| $d'$ (mm)                     | 40                   | 40       | 60               | 40       | 40                 | 40       |
| $\rho_b$                      | 0,027                | 0,027    | 0,027            | 0,027    | 0,027              | 0,027    |
| $\rho_{maks}$                 | 0,020                | 0,020    | 0,020            | 0,020    | 0,020              | 0,020    |
| $\rho_{min}$                  | 0,004                | 0,004    | 0,004            | 0,004    | 0,004              | 0,004    |
| $\rho_{rencana}$              | 0,010                | 0,010    | 0,010            | 0,010    | 0,010              | 0,010    |
| $m$                           | 18,824               | 18,824   | 18,824           | 18,824   | 18,824             | 18,824   |
| $R_n$ (Mpa)                   | 3,675                | 3,675    | 3,675            | 3,675    | 3,675              | 3,675    |
| $M_u$ (KNm)                   | 55,362               | 33,396   | 84,849           | 9,431    | 46,009             | 5,054    |
| $M_n$ (KNm)                   | 69,203               | 41,745   | 106,061          | 11,789   | 57,511             | 6,318    |
| $O$ (mm)                      | 16                   | 16       | 16               | 16       | 16                 | 16       |
| $A_{IO}$ (mm <sup>2</sup> )   | 201,143              | 201,143  | 201,143          | 201,143  | 201,143            | 201,143  |
| $b$ (mm)                      | 200                  | 200      | 200              | 200      | 200                | 200      |
| $h$ (mm)                      | 400                  | 400      | 400              | 400      | 400                | 400      |
| $d_{ada}$ (mm)                | 360                  | 360      | 340              | 360      | 360                | 360      |
| $d_{perlu}$ (mm)              | 306,825              | 238,305  | 379,847          | 126,638  | 279,709            | 92,705   |
|                               | SEBELAH              | SEBELAH  | RANGKAP          | SEBELAH  | SEBELAH            | SEBELAH  |
| <b>Kontrol Momen</b>          |                      |          |                  |          |                    |          |
| $R_n$ baru (Mpa)              | 2,670                | 1,611    | 0,000            | 0,455    | 2,219              | 0,244    |
| $\rho$ baru                   | 0,007                | 0,004    | 0,000            | 0,001    | 0,006              | 0,001    |
| $A_s$ (mm <sup>2</sup> )      | 531,387              | 320,548  | 0,000            | 90,523   | 441,613            | 48,519   |
| $n$                           | 3                    | 2        | 0                | 3        | 3                  | 2        |
| $A_s$ ada (mm <sup>2</sup> )  | 603,429              | 402,286  | 0,000            | 603,429  | 603,429            | 402,286  |
| $a$                           | 56,793               | 37,852   | 0,000            | 56,793   | 56,793             | 37,862   |
| $M_n$ (KNm)                   | 80,040               | 54,883   | 0,000            | 80,040   | 80,040             | 54,883   |
|                               | AMAN                 | AMAN     | -                | AMAN     | AMAN               | AMAN     |
| <b>Kontrol Momen</b>          |                      |          |                  |          |                    |          |
| $\rho_1$                      | 0,000                | 0,000    | 0,010            | 0,000    | 0,000              | 0,000    |
| $A_s1$                        | 0,000                | 0,000    | 690,891          | 0,000    | 0,000              | 0,000    |
| $a$                           | 0,000                | 0,000    | 65,025           | 0,000    | 0,000              | 0,000    |
| $M_n1$ (KNm)                  | 0,000                | 0,000    | 84,976           | 0,000    | 0,000              | 0,000    |
| $M_n2$ (KNm)                  | 0,000                | 0,000    | 21,085           | 0,000    | 0,000              | 0,000    |
| $f_s'$                        | 0,000                | 0,000    | 129,412          | 0,000    | 0,000              | 0,000    |
| $A_s'=A_s2$                   | 0,000                | 0,000    | 581,896          | 0,000    | 0,000              | 0,000    |
| $n$                           | 0                    | 0        | 3                | 0        | 0                  | 0        |
| $A_s'$ ada (mm <sup>2</sup> ) | 0,000                | 0,000    | 603,429          | 0,000    | 0,000              | 0,000    |
| $A_s$                         | 0,000                | 0,000    | 1272,786         | 0,000    | 0,000              | 0,000    |
| $n$                           | 0                    | 0        | 5                | 0        | 0                  | 0        |
| $A_s$ ada (mm <sup>2</sup> )  | 0,000                | 0,000    | 1005,714         | 0,000    | 0,000              | 0,000    |
| $\rho$                        | 0,000                | 0,000    | 0,015            | 0,000    | 0,000              | 0,000    |
| $\rho'$                       | 0,000                | 0,000    | 0,009            | 0,000    | 0,000              | 0,000    |
| $\rho_1$                      | 0,000                | 0,000    | 0,006            | 0,000    | 0,000              | 0,000    |
| $f_s'$                        | 0,000                | 0,000    | -208,194         | 0,000    | 0,000              | 0,000    |
| $a$                           | 0,000                | 0,000    | 124,216          | 0,000    | 0,000              | 0,000    |
| $M_n$ (KNm)                   | 0,000                | 0,000    | 111,527          | 0,000    | 0,000              | 0,000    |
|                               | -                    | -        | AMAN             | -        | -                  | -        |



## PERENCANAAN TULANGAN BALOK SLOOF

| Balok                                   | S 1 ( 9 m ) |          | S 2 ( 6 m ) |          | S 3 ( 4,5 m ) |          |
|-----------------------------------------|-------------|----------|-------------|----------|---------------|----------|
|                                         | Tumpuan     | Lapangan | Tumpuan     | Lapangan | Tumpuan       | Lapangan |
| f'c (Mpa)                               | 25          | 25       | 25          | 25       | 25            | 25       |
| f <sub>y</sub> (Mpa)                    | 400         | 400      | 400         | 400      | 400           | 400      |
| Φ                                       | 0.8         | 0.8      | 0.8         | 0.8      | 0.8           | 0.8      |
| β                                       | 0.85        | 0.85     | 0.85        | 0.85     | 0.85          | 0.85     |
| d' (mm)                                 | 40          | 40       | 40          | 40       | 40            | 40       |
| ρ <sub>b</sub>                          | 0.032       | 0.032    | 0.032       | 0.032    | 0.032         | 0.032    |
| ρ maks                                  | 0.024       | 0.024    | 0.024       | 0.024    | 0.024         | 0.024    |
| ρ min                                   | 0.004       | 0.004    | 0.004       | 0.004    | 0.004         | 0.004    |
| ρ rencana                               | 0.018       | 0.018    | 0.018       | 0.018    | 0.018         | 0.018    |
| m                                       | 18.824      | 18.824   | 18.824      | 18.824   | 18.824        | 18.824   |
| R <sub>n</sub> (Mpa)                    | 5.962       | 5.962    | 5.962       | 5.962    | 5.962         | 5.962    |
| M <sub>u</sub> (KNm)                    | 135.539     | 78.948   | 91.746      | 20.595   | 72.788        | 11.085   |
| M <sub>n</sub> (KNm)                    | 169.424     | 98.685   | 114.683     | 25.744   | 90.985        | 13.856   |
| Ø (mm)                                  | 16          | 16       | 16          | 16       | 16            | 16       |
| A <sub>IO</sub> (mm <sup>2</sup> )      | 201.143     | 201.143  | 201.143     | 201.143  | 201.143       | 201.143  |
| b (mm)                                  | 250         | 250      | 250         | 250      | 250           | 250      |
| h (mm)                                  | 500         | 500      | 500         | 500      | 500           | 500      |
| d <sub>ada</sub> (mm)                   | 460         | 460      | 460         | 460      | 460           | 460      |
| d <sub>perlu</sub> (mm)                 | 337.159     | 257.320  | 277.394     | 131.427  | 247.077       | 96.421   |
|                                         | SEBELAH     | SEBELAH  | SEBELAH     | SEBELAH  | SEBELAH       | SEBELAH  |
| <b>Kontrol Momen</b>                    |             |          |             |          |               |          |
| R <sub>n</sub> baru (Mpa)               | 3.203       | 1.866    | 2.168       | 0.487    | 1.720         | 0.262    |
| ρ baru                                  | 0.010       | 0.006    | 0.007       | 0.001    | 0.005         | 0.001    |
| A <sub>s</sub> (mm <sup>2</sup> )       | 1107.707    | 645.211  | 749.804     | 168.315  | 594.868       | 90.593   |
| n                                       | 5           | 3        | 4           | 2        | 3             | 2        |
| A <sub>s</sub> ada (mm <sup>2</sup> )   | 1005.714    | 603.429  | 804.571     | 402.286  | 603.429       | 402.286  |
| a                                       | 75.724      | 45.435   | 60.579      | 30.290   | 45.435        | 30.290   |
| M <sub>n</sub> (KNm)                    | 169.820     | 105.548  | 138.293     | 71.584   | 105.548       | 71.584   |
|                                         | AMAN        | AMAN     | AMAN        | AMAN     | AMAN          | AMAN     |
| <b>Kontrol Momen</b>                    |             |          |             |          |               |          |
| ρ <sub>1</sub>                          | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| A <sub>s</sub> 1                        | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| a                                       | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| M <sub>n</sub> 1 (KNm)                  | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| M <sub>n</sub> 2 (KNm)                  | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| f <sub>s</sub> '                        | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| A <sub>s</sub> '=A <sub>s</sub> 2       | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| n                                       | 0           | 0        | 0           | 0        | 0             | 0        |
| A <sub>s</sub> ' ada (mm <sup>2</sup> ) | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| A <sub>s</sub>                          | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| n                                       | 0           | 0        | 0           | 0        | 0             | 0        |
| A <sub>s</sub> ada (mm <sup>2</sup> )   | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| ρ                                       | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| ρ'                                      | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| ρ <sub>1</sub>                          | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| f <sub>s</sub> '                        | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| a                                       | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
| M <sub>n</sub> (KNm)                    | 0.000       | 0.000    | 0.000       | 0.000    | 0.000         | 0.000    |
|                                         | -           | -        | -           | -        | -             | -        |

| LANTAI | BALOK       | JENIS TUL. | LUAS TUL. SAP 2000 (-) (mm <sup>2</sup> ) | LUAS TUL. SAP 2000 (+) (mm <sup>2</sup> ) | Ø TUL. (mm) | LUAS TUL. (mm <sup>2</sup> ) | JUMLAH TUL. (-) | JUMLAH TUL. (+) | TUL. PAKAI (-) | TUL. PAKAI (+) |
|--------|-------------|------------|-------------------------------------------|-------------------------------------------|-------------|------------------------------|-----------------|-----------------|----------------|----------------|
| ATAP   | R 1 Induk   | Tump       | 772.213                                   | 502.428                                   | 22          | 380.133                      | 2.031           | 1.322           | 3              | 2              |
|        | ( 9 m )     | Lap        | 130.692                                   | 651.024                                   | 22          | 380.133                      | 0.344           | 1.713           | 2              | 2              |
| ATAP   | R 2 Induk   | Tump       | 772.213                                   | 420.039                                   | 22          | 380.133                      | 2.031           | 1.105           | 3              | 2              |
|        | ( 6 m )     | Lap        | 0                                         | 680.728                                   | 22          | 380.133                      | 0.000           | 1.791           | 2              | 2              |
| ATAP   | R 3 Induk   | Tump       | 669.473                                   | 331.13                                    | 22          | 380.133                      | 1.761           | 0.871           | 2              | 2              |
|        | ( 4,5 m )   | Lap        | 58.383                                    | 150.947                                   | 22          | 380.133                      | 0.154           | 0.397           | 2              | 2              |
| ATAP   | R 4 Induk   | Tump       | 1251.828                                  | 772.213                                   | 22          | 380.133                      | 3.293           | 2.031           | 4              | 3              |
|        | ( 3 m )     | Lap        | 641.841                                   | 400.38                                    | 22          | 380.133                      | 1.688           | 1.053           | 2              | 3              |
| ATAP   | R 5 Induk   | Tump       | 772.213                                   | 476.039                                   | 22          | 380.133                      | 2.031           | 1.252           | 3              | 2              |
|        | ( 1,8 m )   | Lap        | 423.194                                   | 236.207                                   | 22          | 380.133                      | 1.113           | 0.621           | 2              | 2              |
| ATAP   | R 1 Anak    | Tump       | 334.022                                   | 217.88                                    | 16          | 201.062                      | 1.661           | 1.084           | 2              | 2              |
|        | ( 9 m )     | Lap        | 42.132                                    | 262.001                                   | 16          | 201.062                      | 0.210           | 1.303           | 2              | 2              |
| ATAP   | R 2 Anak    | Tump       | 302.428                                   | 197.698                                   | 16          | 201.062                      | 1.504           | 0.983           | 2              | 2              |
|        | ( 6 m )     | Lap        | 0                                         | 170.606                                   | 16          | 201.062                      | 0.000           | 0.849           | 2              | 2              |
| ATAP   | R 3 Anak    | Tump       | 262.001                                   | 164.057                                   | 16          | 201.062                      | 1.303           | 0.816           | 2              | 2              |
|        | ( 4,5 m )   | Lap        | 0                                         | 69.488                                    | 16          | 201.062                      | 0.000           | 0.346           | 2              | 2              |
| ATAP   | R 4 Anak    | Tump       | 401.595                                   | 260.729                                   | 16          | 201.062                      | 1.997           | 1.297           | 3              | 2              |
|        | ( 3 m )     | Lap        | 128.747                                   | 128.747                                   | 16          | 201.062                      | 0.640           | 0.640           | 2              | 2              |
| ATAP   | R 5 Anak    | Tump       | 262.001                                   | 134.495                                   | 16          | 201.062                      | 1.303           | 0.669           | 2              | 2              |
|        | ( 2,6 m )   | Lap        | 66.522                                    | 66.522                                    | 16          | 201.062                      | 0.331           | 0.331           | 2              | 2              |
| ATAP   | R 6 Anak    | Tump       | 264.169                                   | 173.136                                   | 16          | 201.062                      | 1.314           | 0.861           | 2              | 2              |
|        | ( 1,8 m )   | Lap        | 92.891                                    | 85.86                                     | 16          | 201.062                      | 0.462           | 0.427           | 2              | 2              |
| LT 3   | B 1 a Induk | Tump       | 2247.37                                   | 1065.258                                  | 22          | 380.133                      | 5.912           | 2.802           | 7              | 4              |
|        | ( 9 m )     | Lap        | 0                                         | 1914.261                                  | 22          | 380.133                      | 0.000           | 5.036           | 3              | 6              |
| LT 3   | B 1 b Induk | Tump       | 2739.353                                  | 1280.973                                  | 22          | 380.133                      | 7.206           | 3.370           | 8              | 4              |
|        | ( 9 m )     | Lap        | 0                                         | 1382.21                                   | 22          | 380.133                      | 0.000           | 3.636           | 3              | 6              |
| LT 3   | B 2 a Induk | Tump       | 905.079                                   | 591.464                                   | 22          | 380.133                      | 2.381           | 1.556           | 3              | 2              |
|        | ( 6 m )     | Lap        | 0                                         | 772.213                                   | 22          | 380.133                      | 0.000           | 2.031           | 2              | 3              |
| LT 3   | B 2 b Induk | Tump       | 1854.418                                  | 888.104                                   | 22          | 380.133                      | 4.878           | 2.336           | 6              | 3              |
|        | ( 6 m )     | Lap        | 0                                         | 967.584                                   | 22          | 380.133                      | 0.000           | 2.545           | 2              | 4              |
| LT 3   | B 3 a Induk | Tump       | 929.809                                   | 607.277                                   | 22          | 380.133                      | 2.446           | 1.598           | 3              | 2              |
|        | ( 4,5 m )   | Lap        | 0                                         | 450.354                                   | 22          | 380.133                      | 0.000           | 1.185           | 2              | 2              |
| LT 3   | B 3 b Induk | Tump       | 778.495                                   | 510.224                                   | 22          | 380.133                      | 2.048           | 1.342           | 3              | 2              |
|        | ( 4,5 m )   | Lap        | 0                                         | 563.425                                   | 22          | 380.133                      | 0.000           | 1.482           | 2              | 2              |
| LT 3   | B 4 Induk   | Tump       | 1736.189                                  | 910.108                                   | 22          | 380.133                      | 4.567           | 2.394           | 8              | 4              |
|        | ( 3 m )     | Lap        | 899.778                                   | 551.027                                   | 22          | 380.133                      | 2.367           | 1.450           | 3              | 4              |
| LT 3   | B 5 Induk   | Tump       | 1170.275                                  | 760.024                                   | 22          | 380.133                      | 3.079           | 1.999           | 4              | 2              |
|        | ( 1,8 m )   | Lap        | 501.863                                   | 280.492                                   | 22          | 380.133                      | 1.320           | 0.738           | 2              | 2              |
| LT 3   | B 1a Anak   | Tump       | 576.208                                   | 277.051                                   | 16          | 201.062                      | 2.866           | 1.378           | 4              | 2              |
|        | ( 9 m )     | Lap        | 0                                         | 211.702                                   | 16          | 201.062                      | 0.000           | 1.053           | 2              | 2              |
| LT 3   | B 1 b Anak  | Tump       | 1084.681                                  | 500.514                                   | 16          | 201.062                      | 5.395           | 2.489           | 6              | 3              |
|        | ( 9 m )     | Lap        | 0                                         | 262.001                                   | 16          | 201.062                      | 0.000           | 1.303           | 2              | 3              |
| LT 3   | B 2 a Anak  | Tump       | 397.037                                   | 257.852                                   | 16          | 201.062                      | 1.975           | 1.282           | 3              | 2              |
|        | ( 6 m )     | Lap        | 0                                         | 285.013                                   | 16          | 201.062                      | 0.000           | 1.418           | 2              | 2              |
| LT 3   | B 2 b Anak  | Tump       | 758.444                                   | 359.619                                   | 16          | 201.062                      | 3.772           | 1.789           | 5              | 3              |
|        | ( 6 m )     | Lap        | 0                                         | 490.46                                    | 16          | 201.062                      | 0.000           | 2.439           | 2              | 3              |
| LT 3   | B 3 a Anak  | Tump       | 262.001                                   | 160.404                                   | 16          | 201.062                      | 1.303           | 0.798           | 2              | 2              |
|        | ( 4,5 m )   | Lap        | 0                                         | 28.557                                    | 16          | 201.062                      | 0.000           | 0.142           | 2              | 2              |
| LT 3   | B 3 b Anak  | Tump       | 474.963                                   | 262.001                                   | 16          | 201.062                      | 2.362           | 1.303           | 3              | 2              |
|        | ( 4,5 m )   | Lap        | 0                                         | 283.529                                   | 16          | 201.062                      | 0.000           | 1.410           | 2              | 2              |
| LT 3   | B 4 Anak    | Tump       | 794.766                                   | 375.757                                   | 16          | 201.062                      | 3.953           | 1.869           | 5              | 3              |
|        | ( 3 m )     | Lap        | 244.395                                   | 244.395                                   | 16          | 201.062                      | 1.216           | 1.216           | 2              | 3              |
| LT 3   | B 5 Anak    | Tump       | 587.085                                   | 282.052                                   | 16          | 201.062                      | 2.920           | 1.403           | 4              | 2              |
|        | ( 1,8 m )   | Lap        | 216.231                                   | 135.870                                   | 16          | 201.062                      | 1.075           | 0.676           | 2              | 2              |

| LANTAI | BALOK       | JENIS<br>TUL. | LUAS TUL.<br>SAP 2000<br>(-) (mm <sup>2</sup> ) | LUAS TUL.<br>SAP 2000<br>(+) (mm <sup>2</sup> ) | Ø TUL.<br>(mm) | LUAS<br>TUL.<br>(mm <sup>2</sup> ) | JUMLAH<br>TUL. (-) | JUMLAH<br>TUL. (+) | TUL.<br>PAKAI<br>(-) | TUL.<br>PAKAI<br>(+) |
|--------|-------------|---------------|-------------------------------------------------|-------------------------------------------------|----------------|------------------------------------|--------------------|--------------------|----------------------|----------------------|
| LT 2   | B 1 a Induk | Tump          | 1792.813                                        | 859.954                                         | 22             | 380.133                            | 4.716              | 2.262              | 5                    | 3                    |
|        | ( 9 m )     | Lap           | 0                                               | 1500.65                                         | 22             | 380.133                            | 0.000              | 3.948              | 3                    | 5                    |
| LT 2   | B 1 b Induk | Tump          | 2784.899                                        | 1300.588                                        | 22             | 380.133                            | 7.326              | 3.421              | 8                    | 4                    |
|        | ( 9 m )     | Lap           | 0                                               | 1711.859                                        | 22             | 380.133                            | 0.000              | 4.503              | 3                    | 5                    |
| LT 2   | B 2 a Induk | Tump          | 828.621                                         | 542.454                                         | 22             | 380.133                            | 2.180              | 1.427              | 3                    | 2                    |
|        | ( 6 m )     | Lap           | 0                                               | 772.213                                         | 22             | 380.133                            | 0.000              | 2.031              | 2                    | 3                    |
| LT 2   | B 2 b Induk | Tump          | 1962.01                                         | 937.025                                         | 22             | 380.133                            | 5.161              | 2.465              | 6                    | 3                    |
|        | ( 6 m )     | Lap           | 0                                               | 956.694                                         | 22             | 380.133                            | 0.000              | 2.517              | 2                    | 3                    |
| LT 2   | B 3 a Induk | Tump          | 1106.534                                        | 632.313                                         | 22             | 380.133                            | 2.911              | 1.663              | 4                    | 2                    |
|        | ( 4,5 m )   | Lap           | 355.683                                         | 407.819                                         | 22             | 380.133                            | 0.936              | 1.073              | 2                    | 2                    |
| LT 2   | B 3 b Induk | Tump          | 772.213                                         | 483.375                                         | 22             | 380.133                            | 2.031              | 1.272              | 3                    | 2                    |
|        | ( 4,5 m )   | Lap           | 0                                               | 626.411                                         | 22             | 380.133                            | 0.000              | 1.648              | 2                    | 2                    |
| LT 2   | B 4 Induk   | Tump          | 480.524                                         | 238.415                                         | 22             | 380.133                            | 1.264              | 0.627              | 2                    | 2                    |
|        | ( 0,9 m )   | Lap           | 213.039                                         | 118.756                                         | 22             | 380.133                            | 0.560              | 0.312              | 2                    | 2                    |
| LT 2   | B 1 a Anak  | Tump          | 502.671                                         | 262.001                                         | 16             | 201.062                            | 2.500              | 1.303              | 3                    | 2                    |
|        | ( 9 m )     | Lap           | 0                                               | 137.569                                         | 16             | 201.062                            | 0.000              | 0.684              | 2                    | 2                    |
| LT 2   | B 1 b Anak  | Tump          | 1108.883                                        | 510.589                                         | 16             | 201.062                            | 5.515              | 2.539              | 7                    | 4                    |
|        | ( 9 m )     | Lap           | 0                                               | 262.001                                         | 16             | 201.062                            | 0.000              | 1.303              | 2                    | 4                    |
| LT 2   | B 2 a Anak  | Tump          | 380.398                                         | 247.334                                         | 16             | 201.062                            | 1.892              | 1.230              | 3                    | 2                    |
|        | ( 6 m )     | Lap           | 32.624                                          | 309.489                                         | 16             | 201.062                            | 0.162              | 1.539              | 2                    | 2                    |
| LT 2   | B 2 b Anak  | Tump          | 760.259                                         | 360.428                                         | 16             | 201.062                            | 3.781              | 1.793              | 5                    | 3                    |
|        | ( 6 m )     | Lap           | 0                                               | 485.21                                          | 16             | 201.062                            | 0.000              | 2.413              | 2                    | 3                    |
| LT 2   | B 3 a Anak  | Tump          | 186.918                                         | 92.633                                          | 16             | 201.062                            | 0.930              | 0.461              | 2                    | 2                    |
|        | ( 4,5 m )   | Lap           | 71.199                                          | 35.481                                          | 16             | 201.062                            | 0.354              | 0.176              | 2                    | 2                    |
| LT 2   | B 3 b Anak  | Tump          | 484.327                                         | 262.001                                         | 16             | 201.062                            | 2.409              | 1.303              | 3                    | 2                    |
|        | ( 4,5 m )   | Lap           | 0                                               | 284.67                                          | 16             | 201.062                            | 0.000              | 1.416              | 2                    | 2                    |
| LT 2   | B 4 Anak    | Tump          | 771.473                                         | 237.843                                         | 16             | 201.062                            | 3.837              | 1.183              | 5                    | 3                    |
|        | ( 3 m )     | Lap           | 365.42                                          | 365.42                                          | 16             | 201.062                            | 1.817              | 1.817              | 2                    | 3                    |
| LT 2   | B 5 Anak    | Tump          | 346.104                                         | 214.864                                         | 16             | 201.062                            | 1.721              | 1.069              | 3                    | 2                    |
|        | ( 0,9 m )   | Lap           | 217.151                                         | 106.338                                         | 16             | 201.062                            | 1.080              | 0.529              | 2                    | 2                    |
| SLOOF  | S 1         | Tump          | 953.760                                         | 457.633                                         | 16             | 201.062                            | 4.744              | 2.276              | 5                    | 3                    |
|        | ( 9 m )     | Lap           | 216.148                                         | 413.685                                         | 16             | 201.062                            | 1.075              | 2.058              | 2                    | 3                    |
| SLOOF  | S 2         | Tump          | 628.264                                         | 407.996                                         | 16             | 201.062                            | 3.125              | 1.962              | 4                    | 2                    |
|        | ( 6 m )     | Lap           | 201.490                                         | 201.490                                         | 16             | 201.062                            | 1.002              | 1.002              | 2                    | 2                    |
| SLOOF  | S 3         | Tump          | 492.936                                         | 298.478                                         | 16             | 201.062                            | 2.452              | 1.485              | 3                    | 2                    |
|        | ( 4,5 m )   | Lap           | 143.819                                         | 143.819                                         | 16             | 201.062                            | 0.715              | 0.715              | 2                    | 2                    |

# PERENCANAAN TULANGAN GESER BALOK INDUK RING

| Balok                                   | R 1 Induk ( 9 m) | R 2 Induk ( 6 m) | R 3 Induk ( 4,5 m) | R 4 Induk ( 3 m) | R 5 Induk ( 1,8 m) |
|-----------------------------------------|------------------|------------------|--------------------|------------------|--------------------|
| Tumpuan (di dalam daerah sendi plastis) |                  |                  |                    |                  |                    |
| $\Phi$                                  | 1.25             | 1.25             | 1.25               | 1.25             | 1.25               |
| $I_n$ (m)                               | 8.6              | 5.6              | 4.1                | 2.7              | 1.5                |
| M <sub>tu</sub> (KNm)                   | 234.175          | 234.175          | 158.839            | 306.789          | 234.175            |
| M <sub>tu</sub> (KNm)                   | 158.839          | 158.839          | 158.839            | 234.175          | 158.839            |
| V <sub>D</sub> (KN)                     | 54.895           | 62.619           | 49.302             | 65.118           | 52.074             |
| V <sub>L</sub> (KN)                     | 12.380           | 8.983            | 6.671              | 16.675           | 12.972             |
| V <sub>R</sub> (KN)                     | 4.615            | 15.689           | 17.063             | 18.213           | 22.851             |
| V <sub>u</sub> (KN)                     | 110.626          | 136.591          | 126.569            | 261.195          | 297.556            |
| V <sub>u</sub> (KN)                     | 201.325          | 143.763          | 132.921            | 165.470          | 167.402            |
| V <sub>u</sub> pakai (KN)               | 110.626          | 136.591          | 126.569            | 165.470          | 167.402            |
| $\Phi$                                  | 0.6              | 0.6              | 0.6                | 0.6              | 0.6                |
| $I_e$ (M <sup>4</sup> a)                | 25               | 25               | 25                 | 25               | 25                 |
| $I_y$ (M <sup>4</sup> a)                | 240              | 240              | 240                | 240              | 240                |
| b (mm)                                  | 400              | 400              | 400                | 400              | 400                |
| h (mm)                                  | 600              | 600              | 600                | 600              | 600                |
| d (mm)                                  | 540              | 540              | 540                | 540              | 540                |
| V <sub>c</sub> (KN)                     | 180              | 180              | 180                | 180              | 180                |
| V <sub>s</sub> min (KN)                 | 72               | 72               | 72                 | 72               | 72                 |
| V <sub>u</sub> / $\Phi$ (KN)            | 184.376          | 227.651          | 210.948            | 275.783          | 279.003            |
| O (mm)                                  | 10               | 10               | 10                 | 10               | 10                 |
| Kaki                                    | 2                | 2                | 2                  | 2                | 2                  |
| $\Delta v$ (mm2)                        | 157.143          | 157.143          | 157.143            | 157.143          | 157.143            |
| S 1 (mm)                                | 282.857          | 282.857          | 282.857            | 212.624          | 205.708            |
| S 2 (mm)                                | 270              | 270              | 270                | 270              | 270                |
| S 3 (mm)                                | 600              | 600              | 600                | 600              | 600                |
| S pakai (mm)                            | P10-270          | P10-270          | P10-270            | P10-210          | P10-205            |
| Lapangan (di luar daerah sendi plastis) |                  |                  |                    |                  |                    |
| V <sub>u</sub> (KN)                     | -30.652          | -13.774          | 9.025              | 89.430           | 160.960            |
| 2.h (m)                                 | 1.20             | 1.20             | 1.20               | 1.20             | 1.20               |
| $\alpha$ (m)                            | 1.866            | 0.513            | 0                  | 0                | 0                  |
| v (KN)                                  | 90.913           | 104.370          | 83.140             | 42.245           | 1.288              |
| V <sub>u</sub> pakai (KN)               | 90.913           | 104.370          | 83.140             | 42.245           | 1.288              |
| V <sub>c</sub> (KN)                     | 180              | 180              | 180                | 180              | 180                |
| V <sub>s</sub> min (KN)                 | 72               | 72               | 72                 | 72               | 72                 |
| V <sub>u</sub> / $\Phi$ (KN)            | 151.521          | 173.949          | 138.567            | 70.408           | 2.147              |
| O (mm)                                  | 10               | 10               | 10                 | 10               | 10                 |
| Kaki                                    | 2                | 2                | 2                  | 2                | 2                  |
| $\Delta v$ (mm2)                        | 157.143          | 157.143          | 157.143            | 157.143          | 157.143            |
| S 1 (mm)                                | 282.857          | 282.857          | 282.857            | 282.857          | 282.857            |
| S 2 (mm)                                | 270              | 270              | 270                | 270              | 270                |
| S 3 (mm)                                | 600              | 600              | 600                | 600              | 600                |
| S pakai (mm)                            | P10-270          | P10-270          | P10-270            | P10-270          | P10-270            |

# PERENCANAAN TULANGAN GESER BALOK ANAK RING

| Balok                                   | R 1 Anak ( 9 m) | R 2 Anak ( 6 m) | R 3 Anak ( 4,5 m) | R 4 Anak ( 3 m) | R 5 Anak ( 2,6 m) | R 6 Anak ( 1,8 m) |
|-----------------------------------------|-----------------|-----------------|-------------------|-----------------|-------------------|-------------------|
| Tumpuan (di dalam daerah sendi plastis) |                 |                 |                   |                 |                   |                   |
| $\phi$                                  | 1,25            | 1,25            | 1,25              | 1,25            | 1,25              | 1,25              |
| $I_n$ (m)                               | 8,6             | 5,6             | 4,1               | 2,7             | 2,3               | 1,5               |
| $M_{nak}$ (KNm)                         | 54.883          | 54.883          | 54.883            | 80.04           | 54.883            | 54.883            |
| $M_{tak}$ (KNm)                         | 54.883          | 54.883          | 54.883            | 54.883          | 54.883            | 54.883            |
| $V_{D}$ (KN)                            | 18.512          | 19,3            | 14.005            | 21.865          | 14.582            | 16.695            |
| $V_L$ (KN)                              | 5.510           | 6.654           | 3.859             | 8.756           | 5.424             | 5.424             |
| $V_E$ (KN)                              | 1.003           | 4.132           | 1.785             | 0.022           | 0.319             | 12.514            |
| $V_u$ (KN)                              | 36.391          | 44.403          | 42.183            | 75.877          | 62.765            | 87.255            |
| $V_u'$ (KN)                             | 29.996          | 45.456          | 26.734            | 201.325         | 22.772            | 77.227            |
| $V_u$ pakai (KN)                        | 29.996          | 44.403          | 26.734            | 75.877          | 22.772            | 77.227            |
| $\phi$                                  | 0,6             | 0,6             | 0,6               | 0,6             | 0,6               | 0,6               |
| $f_c$ (MPa)                             | 25              | 25              | 25                | 25              | 25                | 25                |
| $f_y$ (MPa)                             | 240             | 240             | 240               | 240             | 240               | 240               |
| $b$ (mm)                                | 200             | 200             | 200               | 200             | 200               | 200               |
| $h$ (mm)                                | 400             | 400             | 400               | 400             | 400               | 400               |
| $d$ (mm)                                | 360             | 360             | 360               | 360             | 360               | 360               |
| $V_e$ (KN)                              | 60              | 60              | 60                | 60              | 60                | 60                |
| $V_s$ min (KN)                          | 24              | 24              | 24                | 24              | 24                | 24                |
| $V_u / \phi$ (KN)                       | 49.993          | 74.004          | 44.590            | 126.462         | 37.953            | 128.712           |
| $O$ (mm)                                | 8               | 8               | 8                 | 8               | 8                 | 8                 |
| Kaki                                    | 2               | 2               | 2                 | 2               | 2                 | 2                 |
| $\Delta v$ (mm2)                        | 100.571         | 100.571         | 100.571           | 100.571         | 100.571           | 100.571           |
| $S_1$ (mm)                              | 362.056         | 362.056         | 362.056           | 68.711          | 362.056           | 67.51             |
| $S_2$ (mm)                              | 180             | 180             | 180               | 180             | 180               | 180               |
| $S_3$ (mm)                              | 600             | 600             | 600               | 600             | 600               | 600               |
| $S$ pakai (mm)                          | P10-180         | P10-180         | P10-180           | P10-65          | P10-180           | P10-65            |
| Lapangan (di luar daerah sendi plastis) |                 |                 |                   |                 |                   |                   |
| $V_u''$ (KN)                            | -14.055         | -10.101         | 4.668             | 11.573          | 20.753            | 40.805            |
| $2 \cdot h$ (m)                         | 0.80            | 0.80            | 0.80              | 0.80            | 0.80              | 0.80              |
| $x$ (m)                                 | 2.744           | 1.038           | 0                 | 0               | 0                 | 0                 |
| $y$ (KN)                                | 25.898          | 36.616          | 17.776            | 45.251          | 1.317             | 16.997            |
| $V_u$ pakai (KN)                        | 25.898          | 36.616          | 17.776            | 45.251          | 1.317             | 16.997            |
| $V_e$ (KN)                              | 60              | 60              | 60                | 60              | 60                | 60                |
| $V_s$ min (KN)                          | 24              | 24              | 24                | 24              | 24                | 24                |
| $V_u / \phi$ (KN)                       | 43.164          | 61.027          | 29.627            | 75.418          | 2.195             | 28.328            |
| $O$ (mm)                                | 8               | 8               | 8                 | 8               | 8                 | 8                 |
| Kaki                                    | 2               | 2               | 2                 | 2               | 3                 | 2                 |
| $\Delta v$ (mm2)                        | 100.571         | 100.571         | 100.571           | 100.571         | 150.857           | 100.571           |
| $S_1$ (mm)                              | 362.056         | 362.056         | 362.056           | 362.056         | 362.056           | 362.056           |
| $S_2$ (mm)                              | 180             | 180             | 180               | 180             | 180               | 180               |
| $S_3$ (mm)                              | 600             | 600             | 600               | 600             | 600               | 600               |
| $S$ pakai (mm)                          | P10-180         | P10-180         | P10-180           | P10-180         | P10-180           | P10-180           |



### PERENCANAAN TULANGAN GESER BALOK ANAK LANTAI 3

| Balok                                   | B 1 a Anak ( 9 m) | B 1 b Anak ( 9 m) | B 2 a Anak ( 6 m) | B 2 b Anak ( 6 m) | B 3 a Anak ( 4,5 m) | B 3 b Anak ( 4,5 m) | B 4 Anak ( 3 m) | B 5 Anak ( 1,8 m) |
|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|---------------------|---------------------|-----------------|-------------------|
| Tumpuan (di dalam daerah sendi plastis) |                   |                   |                   |                   |                     |                     |                 |                   |
| $\Phi$                                  | 1.25              | 1.25              | 1.25              | 1.25              | 1.25                | 1.25                | 1.25            | 1.25              |
| $I_n$ (m)                               | 8.6               | 8.6               | 5.6               | 5.6               | 4.1                 | 4.1                 | 2.7             | 1.5               |
| $M_{nak}$ (KNm)                         | 103.673           | 146.371           | 80.04             | 125.784           | 54.883              | 80.04               | 125.784         | 103.673           |
| $M_{nak}$ (KNm)                         | 54.883            | 80.04             | 54.883            | 54.883            | 54.883              | 54.883              | 54.883          | 54.883            |
| $V_D$ (KN)                              | 43.749            | 41.803            | 39.914            | 35.417            | 24.767              | 24.783              | 32.161          | 30.703            |
| $V_L$ (KN)                              | 6.310             | 17.644            | 5.908             | 16.742            | 2.268               | 12.515              | 10.249          | 6.885             |
| $V_E$ (KN)                              | 0.895             | 2.428             | 1.317             | 1.040             | 1.282               | 0.847               | 1.337           | 2.374             |
| $V_u$ (KN)                              | 68.694            | 85.455            | 69.195            | 82.996            | 51.812              | 67.957              | 103.080         | 131.958           |
| $V_u'$ (KN)                             | 57.394            | 74.000            | 54.666            | 201.325           | 34.414              | 43.534              | 51.101          | 50.380            |
| $V_u$ pakai (KN)                        | 57.394            | 74.000            | 54.666            | 82.996            | 34.414              | 43.534              | 51.101          | 50.380            |
| $\Phi$                                  | 0.6               | 0.6               | 0.6               | 0.6               | 0.6                 | 0.6                 | 0.6             | 0.6               |
| $f'_c$ (MPa)                            | 25                | 25                | 25                | 25                | 25                  | 25                  | 25              | 25                |
| $f_y$ (MPa)                             | 240               | 240               | 240               | 240               | 240                 | 240                 | 240             | 240               |
| $b$ (mm)                                | 200               | 200               | 200               | 200               | 200                 | 200                 | 200             | 200               |
| $h$ (mm)                                | 400               | 400               | 400               | 400               | 400                 | 400                 | 400             | 400               |
| $d$ (mm)                                | 360               | 360               | 360               | 360               | 360                 | 360                 | 360             | 360               |
| $V_c$ (KN)                              | 60                | 60                | 60                | 60                | 60                  | 60                  | 60              | 60                |
| $V_s$ min (KN)                          | 24                | 24                | 24                | 24                | 24                  | 24                  | 24              | 24                |
| $V_u / \Phi$ (KN)                       | 95.657            | 123.333           | 91.110            | 138.327           | 57.557              | 72.557              | 85.168          | 83.967            |
| $\phi$ (mm)                             | 8                 | 8                 | 8                 | 8                 | 8                   | 8                   | 8               | 8                 |
| Kaki                                    | 2                 | 2                 | 2                 | 2                 | 2                   | 2                   | 2               | 2                 |
| $A_v$ (mm <sup>2</sup> )                | 100.571           | 100.571           | 100.571           | 100.571           | 100.571             | 100.571             | 100.571         | 100.571           |
| $S_1$ (mm)                              | 90.838            | 70.454            | 95.371            | 62.817            | 362.056             | 362.056             | 102.026         | 362.056           |
| $S_2$ (mm)                              | 180               | 180               | 180               | 180               | 180                 | 180                 | 180             | 180               |
| $S_3$ (mm)                              | 600               | 600               | 600               | 600               | 600                 | 600                 | 600             | 600               |
| $S$ pakai (mm)                          | $P10-90$          | $P10-70$          | $P10-95$          | $P10-60$          | $P10-180$           | $P10-180$           | $P10-100$       | $P10-180$         |
| Lapangan (di luar daerah sendi plastis) |                   |                   |                   |                   |                     |                     |                 |                   |
| $V_u''$ (KN)                            | -36.430           | -39.383           | -27.031           | -26.538           | -4.961              | -10.368             | 14.019          | 53.024            |
| $2 \cdot h$ (m)                         | 0.80              | 0.80              | 0.80              | 0.80              | 0.80                | 0.80                | 0.80            | 0.80              |
| $x$ (m)                                 | 3.339             | 2.987             | 1.853             | 1.357             | 0.517               | 0.789               | 0               | 0                 |
| $y$ (KN)                                | 48.666            | 63.453            | 42.995            | 67.348            | 26.731              | 33.016              | 26.095          | 1.234             |
| $V_u$ pakai (KN)                        | 48.666            | 63.453            | 42.995            | 67.348            | 26.731              | 33.016              | 26.095          | 1.234             |
| $V_c$ (KN)                              | 60                | 60                | 60                | 60                | 60                  | 60                  | 60              | 60                |
| $V_s$ min (KN)                          | 24                | 24                | 24                | 24                | 24                  | 24                  | 24              | 24                |
| $V_u / \Phi$ (KN)                       | 81.110            | 105.755           | 71.658            | 112.247           | 44.552              | 55.027              | 43.491          | 2.056             |
| $\phi$ (mm)                             | 8                 | 8                 | 8                 | 8                 | 8                   | 8                   | 8               | 8                 |
| Kaki                                    | 2                 | 2                 | 2                 | 2                 | 2                   | 2                   | 2               | 2                 |
| $A_v$ (mm <sup>2</sup> )                | 100.571           | 100.571           | 100.571           | 100.571           | 100.571             | 100.571             | 100.571         | 100.571           |
| $S_1$ (mm)                              | 362.056           | 189.91            | 362.056           | 166.313           | 362.056             | 362.056             | 362.056         | 362.056           |
| $S_2$ (mm)                              | 180               | 180               | 180               | 180               | 180                 | 180                 | 180             | 180               |
| $S_3$ (mm)                              | 600               | 600               | 600               | 600               | 600                 | 600                 | 600             | 600               |
| $S$ pakai (mm)                          | $P10-180$         | $P10-180$         | $P10-180$         | $P10-165$         | $P10-180$           | $P10-180$           | $P10-180$       | $P10-180$         |

## PERENCANAAN TULANGAN GESER BALOK INDUK LANTAI 2

| Balok                                   | B 1 a Induk ( 9 m) | B 1 b Induk ( 9 m) | B 2 a Induk ( 6 m) | B 2 b Induk ( 6 m) | B 3 a Induk ( 4,5 m) | B 3 b Induk ( 4,5 m) | B 4 Induk ( 0,9 m) |
|-----------------------------------------|--------------------|--------------------|--------------------|--------------------|----------------------|----------------------|--------------------|
| Tumpuan (di dalam daerah sendi plastis) |                    |                    |                    |                    |                      |                      |                    |
| $\phi$                                  | 1.25               | 1.25               | 5.6                | 1.25               | 1.25                 | 1.25                 | 1.25               |
| ln (m)                                  | 8.6                | 8.6                | 5.6                | 5.6                | 4.1                  | 4.1                  | 0.6                |
| Mnak (KNm)                              | 376.681            | 587.798            | 80.04              | 443.851            | 306.789              | 234.175              | 158.839            |
| Mnak (KNm)                              | 234.175            | 306.789            | 54.883             | 234.175            | 158.839              | 158.839              | 158.839            |
| VD (KN)                                 | 107.97             | 147.165            | 68.335             | 119.191            | 54.292               | 77.885               | 63.774             |
| VL (KN)                                 | 23.125             | 40.780             | 18.711             | 31.890             | 13.644               | 19.600               | 4.651              |
| VE (KN)                                 | 13.807             | 22.584             | 2.234              | 1.841              | 49.930               | 0.831                | 2.537              |
| Vu (KN)                                 | 199.801            | 288.361            | 112.480            | 264.577            | 170.705              | 186.234              | 535.127            |
| Vu' (KN)                                | 201.325            | 297.761            | 102.701            | 169.536            | 286.392              | 201.325              | 84.073             |
| Vu pakai (KN)                           | 199.801            | 288.361            | 102.701            | 169.536            | 170.705              | 186.234              | 84.073             |
| $\phi$                                  | 0.6                | 0.6                | 0.6                | 0.6                | 0.6                  | 0.6                  | 0.6                |
| f'c (MPa)                               | 25                 | 25                 | 25                 | 25                 | 25                   | 25                   | 25                 |
| f'y (MPa)                               | 240                | 240                | 240                | 240                | 240                  | 240                  | 240                |
| b (mm)                                  | 400                | 400                | 400                | 400                | 400                  | 400                  | 400                |
| h (mm)                                  | 600                | 600                | 600                | 600                | 600                  | 600                  | 600                |
| d (mm)                                  | 540                | 540                | 540                | 540                | 540                  | 540                  | 540                |
| Vc (KN)                                 | 180                | 180                | 180                | 180                | 180                  | 180                  | 180                |
| Vs min (KN)                             | 72                 | 72                 | 72                 | 72                 | 72                   | 72                   | 72                 |
| Vu / $\phi$ (KN)                        | 333.001            | 480.602            | 171.168            | 282.560            | 310.390              | 140.122              |                    |
| O (mm)                                  | 10                 | 10                 | 10                 | 10                 | 10                   | 10                   | 10                 |
| Kaki                                    | 2                  | 3                  | 2                  | 2                  | 2                    | 2                    | 2                  |
| As (mm <sup>2</sup> )                   | 157.143            | 235.714            | 157.143            | 157.143            | 157.143              | 157.143              | 157.143            |
| S 1 (mm)                                | 61.158             | 63.563             | 282.857            | 72.076             | 71.582               | 65.613               | 282.857            |
| S 2 (mm)                                | 270                | 270                | 270                | 270                | 270                  | 270                  | 270                |
| S 3 (mm)                                | 600                | 600                | 600                | 600                | 600                  | 600                  | 600                |
| S pakai (mm)                            | P10-60             | P10-60             | P10-270            | P10-70             | P10-70               | P10-65               | P10-270            |
| Lapangan (di luar daerah sendi plastis) |                    |                    |                    |                    |                      |                      |                    |
| Vu" (KN)                                | -75.499            | -106.323           | -70.317            | -52.693            | 28.039               | -18.484              | 391.434            |
| 2 h (m)                                 | 1.20               | 1.20               | 1.20               | 1.20               | 1.20                 | 1.20                 | 1.20               |
| x (m)                                   | 2.358              | 2.317              | 2.276              | 1.328              | 0                    | 0.370                | 0                  |
| y (KN)                                  | 161.387            | 233.289            | 65.626             | 121.915            | 100.910              | 126.317              | 307.361            |
| Vu pakai (KN)                           | 161.387            | 233.289            | 65.626             | 121.915            | 100.910              | 126.317              | 307.361            |
| Ve (KN)                                 | 180                | 180                | 180                | 180                | 180                  | 180                  | 180                |
| Vs min (KN)                             | 72                 | 72                 | 72                 | 72                 | 72                   | 72                   | 72                 |
| Vu / $\phi$ (KN)                        | 268.978            | 388.815            | 109.376            | 203.192            | 168.183              | 210.528              | 512.269            |
| O (mm)                                  | 10                 | 10                 | 10                 | 10                 | 10                   | 10                   | 10                 |
| Kaki                                    | 2                  | 2                  | 2                  | 2                  | 2                    | 2                    | 2                  |
| As (mm <sup>2</sup> )                   | 157.143            | 157.143            | 157.143            | 157.143            | 157.143              | 157.143              | 157.143            |
| S 1 (mm)                                | 228.885            | 97.530             | 282.857            | 282.857            | 282.857              | 282.857              | 282.857            |
| S 2 (mm)                                | 270                | 270                | 270                | 270                | 270                  | 270                  | 270                |
| S 3 (mm)                                | 600                | 600                | 600                | 600                | 600                  | 600                  | 600                |
| S pakai (mm)                            | P10-225            | P10-95             | P10-270            | P10-270            | P10-270              | P10-270              | P10-270            |



## PERENCANAAN TULANGAN GESER BALOK ANAK LANTAI 2

| Balok                                   | B 1 a Anak ( 9 m) | B 1 b Anak ( 9 m) | B 2 a Anak ( 6 m) | B 2 b Anak ( 6 m) | Tumpuan (di dalam daerah sendi plastis) |         | B 3 a Anak ( 4,5 m) | B 3 b Anak ( 4,5 m) | B 4 Anak ( 3 m) | B 5 Anak ( 0,9 m) |
|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------------------|---------|---------------------|---------------------|-----------------|-------------------|
| $\phi$                                  | 1.25              | 1.25              | 1.25              | 1.25              | 1.25                                    | 1.25    | 1.25                | 1.25                | 1.25            | 1.25              |
| In (m)                                  | 8.6               | 8.6               | 5.6               | 5.6               | 5.6                                     | 4.1     | 4.1                 | 2.7                 | 0.6             | 0.6               |
| Mnak (KNm)                              | 80.04             | 179.21            | 80.04             | 129.974           | 129.974                                 | 54.883  | 80.04               | 129.974             | 80.04           | 80.04             |
| Mnak (KNm)                              | 54.883            | 80.04             | 54.883            | 54.883            | 54.883                                  | 54.883  | 54.883              | 54.883              | 54.883          | 54.883            |
| Vl (KN)                                 | 38.501            | 43.2              | 39.12             | 35.637            | 18.784                                  | 26.813  | 31.748              | 31.748              | 50.521          | 50.521            |
| Vl (KN)                                 | 4.155             | 17.674            | 5.947             | 16.823            | 1.646                                   | 12.543  | 10.172              | 10.172              | 3.988           | 3.988             |
| Ve (KN)                                 | 1.495             | 2.897             | 1.068             | 0.454             | 1.483                                   | 0.403   | 1.175               | 1.175               | 2.952           | 2.952             |
| Vu (KN)                                 | 58.516            | 90.295            | 68.402            | 83.967            | 44.877                                  | 70.118  | 103.923             | 103.923             | 253.997         | 253.997           |
| Vu (KN)                                 | 52.041            | 77.534            | 52.793            | 201.325           | 28.207                                  | 43.836  | 49.883              | 49.883              | 70.959          | 70.959            |
| Vu pakai (KN)                           | 52.041            | 77.534            | 52.793            | 83.967            | 28.207                                  | 43.836  | 49.883              | 49.883              | 70.959          | 70.959            |
| $\phi$                                  | 0.6               | 0.6               | 0.6               | 0.6               | 0.6                                     | 0.6     | 0.6                 | 0.6                 | 0.6             | 0.6               |
| fc (MPa)                                | 25                | 25                | 25                | 25                | 25                                      | 25      | 25                  | 25                  | 25              | 25                |
| fs (MPa)                                | 240               | 240               | 240               | 240               | 240                                     | 240     | 240                 | 240                 | 240             | 240               |
| b (mm)                                  | 200               | 200               | 200               | 200               | 200                                     | 200     | 200                 | 200                 | 200             | 200               |
| h (mm)                                  | 400               | 400               | 400               | 400               | 400                                     | 400     | 400                 | 400                 | 400             | 400               |
| d (mm)                                  | 360               | 360               | 360               | 360               | 360                                     | 360     | 360                 | 360                 | 360             | 360               |
| Ve (KN)                                 | 60                | 60                | 60                | 60                | 60                                      | 60      | 60                  | 60                  | 60              | 60                |
| Vs min (KN)                             | 24                | 24                | 24                | 24                | 24                                      | 24      | 24                  | 24                  | 24              | 24                |
| Vu / $\phi$ (KN)                        | 86.735            | 129.223           | 87.988            | 139.945           | 47.012                                  | 73.060  | 83.138              | 83.138              | 118.265         | 118.265           |
| O (mm)                                  | 8                 | 8                 | 8                 | 8                 | 8                                       | 8       | 8                   | 8                   | 8               | 8                 |
| Kaki                                    | 2                 | 2                 | 2                 | 2                 | 2                                       | 2       | 2                   | 2                   | 2               | 2                 |
| $\Delta v$ (mm2)                        | 100.571           | 100.571           | 100.571           | 100.571           | 100.571                                 | 100.571 | 100.571             | 100.571             | 100.571         | 100.571           |
| S 1 (mm)                                | 100.183           | 67.243            | 98.756            | 62.091            | 362.056                                 | 362.056 | 362.056             | 362.056             | 73.473          | 73.473            |
| S 2 (mm)                                | 180               | 180               | 180               | 180               | 180                                     | 180     | 180                 | 180                 | 180             | 180               |
| S 3 (mm)                                | 600               | 600               | 600               | 600               | 600                                     | 600     | 600                 | 600                 | 600             | 600               |
| S pakai (mm)                            | P10-100           | P10-65            | P10-95            | P10-60            | P10-180                                 | P10-180 | P10-180             | P10-180             | P10-70          | P10-70            |
| Lapangan (di luar daerah sendi plastis) |                   |                   |                   |                   |                                         |         |                     |                     |                 |                   |
| Vu' (KN)                                | -31.061           | -37.541           | -26.239           | -26.199           | 1.974                                   | -12.529 | 15.891              | 139.528             | 139.528         | 139.528           |
| 2.h (m)                                 | 0.80              | 0.80              | 0.80              | 0.80              | 0.80                                    | 0.80    | 0.80                | 0.80                | 0.80            | 0.80              |
| x (m)                                   | 3.214             | 2.806             | 1.859             | 1.332             | 0                                       | 0.911   | 0                   | 0                   | 0               | 0                 |
| v (KN)                                  | 44.311            | 66.829            | 41.503            | 68.229            | 21.114                                  | 32.838  | 23.920              | 22.856              | 22.856          | 22.856            |
| Vu pakai (KN)                           | 44.311            | 66.829            | 41.503            | 68.229            | 21.114                                  | 32.838  | 23.920              | 22.856              | 22.856          | 22.856            |
| Ve (KN)                                 | 60                | 60                | 60                | 60                | 60                                      | 60      | 60                  | 60                  | 60              | 60                |
| Vs min (KN)                             | 24                | 24                | 24                | 24                | 24                                      | 24      | 24                  | 24                  | 24              | 24                |
| Vu / $\phi$ (KN)                        | 73.851            | 111.382           | 69.171            | 113.715           | 35.190                                  | 54.730  | 39.867              | 38.094              | 38.094          | 38.094            |
| O (mm)                                  | 8                 | 8                 | 8                 | 8                 | 8                                       | 8       | 8                   | 8                   | 8               | 8                 |
| Kaki                                    | 2                 | 2                 | 2                 | 2                 | 2                                       | 2       | 2                   | 2                   | 2               | 2                 |
| $\Delta v$ (mm2)                        | 100.571           | 100.571           | 100.571           | 100.571           | 100.571                                 | 100.571 | 100.571             | 100.571             | 100.571         | 100.571           |
| S 1 (mm)                                | 362.056           | 169.112           | 362.056           | 161.767           | 362.056                                 | 362.056 | 362.056             | 362.056             | 362.056         | 362.056           |
| S 2 (mm)                                | 180               | 180               | 180               | 180               | 180                                     | 180     | 180                 | 180                 | 180             | 180               |
| S 3 (mm)                                | 600               | 600               | 600               | 600               | 600                                     | 600     | 600                 | 600                 | 600             | 600               |
| S pakai (mm)                            | P10-180           | P10-165           | P10-180           | P10-160           | P10-180                                 | P10-180 | P10-180             | P10-180             | P10-180         | P10-180           |

# PERENCANAAN TULANGAN GESER BALOK SLOOF

| Balok                                   | S 1 (9 m) | S 2 (6 m) | S 3 (4,5 m) |
|-----------------------------------------|-----------|-----------|-------------|
| Tumpuan (di dalam daerah sendi plastis) |           |           |             |
| $\phi$                                  | 1,25      | 1,25      | 1,25        |
| ln (m)                                  | 8,75      | 5,75      | 4,25        |
| Muak (KNm)                              | 190,318   | 131,234   | 131,234     |
| Muak (KNm)                              | 131,234   | 131,234   | 131,234     |
| VD (KN)                                 | 64,233    | 48,361    | 27,724      |
| VL (KN)                                 | 0,226     | 0,226     | 0,396       |
| VE (KN)                                 | 7,039     | 0,051     | 20,751      |
| Vu (KN)                                 | 99,837    | 90,957    | 83,564      |
| Vu (KN)                                 | 99,098    | 52,206    | 118,903     |
| Vu pakai (KN)                           | 99,098    | 52,206    | 83,564      |
| $\phi$                                  | 0,6       | 0,6       | 0,6         |
| $f_c$ (MPa)                             | 25        | 25        | 25          |
| $f_y$ (MPa)                             | 240       | 240       | 240         |
| b (mm)                                  | 250       | 250       | 250         |
| h (mm)                                  | 500       | 500       | 500         |
| d (mm)                                  | 460       | 460       | 460         |
| $V_e$ (KN)                              | 96        | 96        | 96          |
| $V_s$ min (KN)                          | 38        | 38        | 38          |
| $V_u / \phi$ (KN)                       | 165,163   | 87,010    | 139,273     |
| $\phi$ (mm)                             | 10        | 10        | 10          |
| Kaki                                    | 2         | 2         | 2           |
| $A_v$ (mm <sup>2</sup> )                | 157,143   | 157,143   | 157,143     |
| S 1 (mm)                                | 105,039   | 456,542   | 124,565     |
| S 2 (mm)                                | 230       | 230       | 180         |
| S 3 (mm)                                | 600       | 600       | 600         |
| S pakai (mm)                            | P10-105   | P10-230   | P10-120     |
| Lapangan (di luar daerah sendi plastis) |           |           |             |
| $V_u''$ (KN)                            | -35,527   | -11,076   | 24,512      |
| 2h (m)                                  | 1,00      | 1,00      | 1,00        |
| x (m)                                   | 2,309     | 1,006     | 0           |
| y (KN)                                  | 83,712    | 41,201    | 45,158      |
| Vu pakai (KN)                           | 83,712    | 41,201    | 45,158      |
| $V_e$ (KN)                              | 96        | 96        | 96          |
| $V_s$ min (KN)                          | 38        | 38        | 38          |
| $V_u / \phi$ (KN)                       | 139,521   | 68,668    | 75,263      |
| $\phi$ (mm)                             | 10        | 10        | 10          |
| Kaki                                    | 2         | 2         | 2           |
| $A_v$ (mm <sup>2</sup> )                | 157,143   | 157,143   | 157,143     |
| S 1 (mm)                                | 398,626   | 456,542   | 456,542     |
| S 2 (mm)                                | 230       | 230       | 230         |
| S 3 (mm)                                | 600       | 600       | 600         |
| S pakai (mm)                            | P10-230   | P10-230   | P10-230     |

# PERENCANAAN KOLOM

1.a. Perhitungan momen rencana (Mc) arah x

| Btg      | Ujung Kolom | 1/1 | KL Tengah |   | KL Tepi |      | k.l/r | Perbesaran Momen | PD (KN)  | PL (KN) | PE (KN) | Pu (KN)  | EI <sub>1</sub> (KNm <sup>2</sup> ) | EI <sub>2</sub> (KNm <sup>2</sup> ) | EI Pakai (KNm <sup>2</sup> ) | Pc (KN)   | δb    |
|----------|-------------|-----|-----------|---|---------|------|-------|------------------|----------|---------|---------|----------|-------------------------------------|-------------------------------------|------------------------------|-----------|-------|
|          |             |     | ψ         | K | ψ       | K    |       |                  |          |         |         |          |                                     |                                     |                              |           |       |
| K1A=K10A | Atas        | 1   |           |   | 4.041   | 1.8  | 36    | OK               | 458.270  | 71.480  | 101.721 | 664.293  | 79056.301                           | 35998.892                           | 79056.301                    | 18596.695 | 1.063 |
|          | Bawah       |     |           |   | 2.02    | 1.8  | 36    | OK               | 493.893  | 71.480  | 101.721 | 707.040  | 78608.650                           | 35795.050                           | 78608.650                    | 18491.392 | 1.068 |
|          | Atas        | 2   |           |   | 4.041   | 2.1  | 42    | OK               | 326.611  | 57.659  | 50.696  | 484.187  | 79858.813                           | 36364.321                           | 79858.813                    | 13801.571 | 1.062 |
|          | Bawah       |     |           |   | 4.041   | 2.1  | 42    | OK               | 362.234  | 57.659  | 50.696  | 526.935  | 79182.382                           | 36036.303                           | 79182.382                    | 13684.668 | 1.069 |
|          | Atas        | 3   |           |   | 2.02    | 1.8  | 36    | OK               | 197.831  | 44.726  | 17.729  | 308.958  | 81714.254                           | 37209.211                           | 81714.254                    | 19221.934 | 1.028 |
| K2A=K9A  | Bawah       |     |           |   | 4.041   | 1.8  | 36    | OK               | 233.453  | 44.726  | 17.729  | 351.705  | 80433.788                           | 36626.141                           | 80433.788                    | 18920.726 | 1.032 |
|          | Atas        | 1   |           |   | 2.02    | 1.45 | 29    | OK               | 892.961  | 169.071 | 40.842  | 1342.066 | 80348.616                           | 36587.357                           | 80348.616                    | 29126.391 | 1.083 |
|          | Bawah       |     |           |   | 1.01    | 1.45 | 29    | OK               | 928.584  | 169.071 | 40.842  | 1384.813 | 80071.588                           | 36461.210                           | 80071.588                    | 29025.968 | 1.086 |
|          | Atas        | 2   |           |   | 2.02    | 1.6  | 32    | OK               | 552.522  | 101.475 | 20.110  | 825.387  | 80132.202                           | 36488.811                           | 80132.202                    | 23856.756 | 1.061 |
|          | Bawah       |     |           |   | 2.02    | 1.6  | 32    | OK               | 588.145  | 101.475 | 20.110  | 868.134  | 79704.089                           | 36293.867                           | 79704.089                    | 23729.299 | 1.065 |
| K3A=8A   | Atas        | 3   |           |   | 1.01    | 1.45 | 29    | OK               | 186.140  | 27.339  | 0.295   | 267.111  | 78694.544                           | 35834.163                           | 78694.544                    | 28526.790 | 1.016 |
|          | Bawah       |     |           |   | 2.02    | 1.45 | 29    | OK               | 221.763  | 27.339  | 0.295   | 309.859  | 77738.075                           | 35398.627                           | 77738.075                    | 28180.069 | 1.019 |
|          | Atas        | 1   |           |   | 2.02    | 1.45 | 29    | OK               | 973.082  | 199.660 | 41.942  | 1487.154 | 80944.764                           | 36858.817                           | 80944.764                    | 29342.495 | 1.092 |
|          | Bawah       |     |           |   | 1.01    | 1.45 | 29    | OK               | 1008.705 | 199.660 | 41.942  | 1529.902 | 80673.547                           | 36735.317                           | 80673.547                    | 29244.179 | 1.096 |
|          | Atas        | 2   |           |   | 2.02    | 1.6  | 32    | OK               | 604.142  | 121.631 | 21.098  | 919.579  | 80800.753                           | 36793.241                           | 80800.753                    | 24055.796 | 1.068 |
| K4A=7A   | Bawah       |     |           |   | 2.02    | 1.6  | 32    | OK               | 639.765  | 121.631 | 21.098  | 962.327  | 80378.243                           | 36600.848                           | 80378.243                    | 23930.007 | 1.072 |
|          | Atas        | 3   |           |   | 1.01    | 1.45 | 29    | OK               | 190.354  | 29.226  | 0.107   | 275.186  | 78959.541                           | 35954.831                           | 78959.541                    | 28622.851 | 1.016 |
|          | Bawah       |     |           |   | 2.02    | 1.45 | 29    | OK               | 225.976  | 29.226  | 0.107   | 317.933  | 77985.937                           | 35511.493                           | 77985.937                    | 28269.919 | 1.019 |
|          | Atas        | 1   |           |   | 1.695   | 1.4  | 28    | OK               | 814.960  | 155.080 | 46.069  | 1226.081 | 80384.872                           | 36603.867                           | 80384.872                    | 31258.097 | 1.070 |
|          | Bawah       |     |           |   | 0.847   | 1.4  | 28    | OK               | 850.583  | 155.080 | 46.069  | 1268.828 | 80081.131                           | 36465.555                           | 80081.131                    | 31139.985 | 1.073 |
| K5A=K6A  | Atas        | 2   |           |   | 1.695   | 1.5  | 30    | OK               | 497.849  | 92.913  | 23.548  | 746.079  | 80245.593                           | 36540.445                           | 80245.593                    | 27182.097 | 1.048 |
|          | Bawah       |     |           |   | 1.695   | 1.5  | 30    | OK               | 533.472  | 92.913  | 23.548  | 788.827  | 79767.285                           | 36322.644                           | 79767.285                    | 27020.076 | 1.051 |
|          | Atas        | 3   |           |   | 0.847   | 1.4  | 28    | OK               | 151.105  | 23.744  | 0.051   | 219.317  | 79102.002                           | 36019.702                           | 79102.002                    | 30759.246 | 1.012 |
|          | Bawah       |     |           |   | 1.695   | 1.4  | 28    | OK               | 186.728  | 23.744  | 0.051   | 262.064  | 77897.130                           | 35471.054                           | 77897.130                    | 30290.725 | 1.015 |
|          | Atas        | 1   |           |   | 3.389   | 2.3  | 46    | OK               | 624.286  | 77.408  | 46.311  | 872.996  | 77767.361                           | 35411.963                           | 77767.361                    | 11204.332 | 1.149 |
| K5A=K6A' | Bawah       |     |           |   | 8.082   | 2.3  | 46    | OK               | 642.097  | 77.408  | 46.311  | 894.370  | 77625.727                           | 35347.469                           | 77625.727                    | 11183.926 | 1.154 |
|          | Atas        | 2   |           |   | 2.542   | 2.18 | 43.6  | OK               | 389.614  | 52.015  | 23.967  | 550.760  | 78155.819                           | 35588.850                           | 78155.819                    | 12534.084 | 1.079 |
|          | Bawah       |     |           |   | 8.082   | 2.18 | 43.6  | OK               | 407.425  | 52.015  | 23.967  | 572.134  | 77917.926                           | 35480.523                           | 77917.926                    | 12495.933 | 1.083 |
|          | Atas        | 1   |           |   | 8.082   | 1.95 | 39    | OK               | 647.752  | 77.408  | 46.311  | 901.155  | 77582.264                           | 35327.677                           | 77582.264                    | 15550.255 | 1.107 |
|          | Bawah       |     |           |   | 1.695   | 1.95 | 39    | OK               | 665.563  | 77.408  | 46.311  | 922.528  | 77449.858                           | 35267.385                           | 77449.858                    | 15523.716 | 1.110 |
|          | Atas        | 2   |           |   | 8.082   | 2.18 | 43.6  | OK               | 413.080  | 52.015  | 23.967  | 578.919  | 77846.356                           | 35447.934                           | 77846.356                    | 12484.455 | 1.084 |
|          | Bawah       |     |           |   | 2.542   | 2.18 | 43.6  | OK               | 430.891  | 52.015  | 23.967  | 600.292  | 77632.292                           | 35350.458                           | 77632.292                    | 12450.125 | 1.087 |

|           |       |   |       |      |       |      |    |    |          |         |         |          |           |           |           |           |       |
|-----------|-------|---|-------|------|-------|------|----|----|----------|---------|---------|----------|-----------|-----------|-----------|-----------|-------|
| K5A:=K6A* | Atlas | 3 |       |      | 0.847 | 1.5  | 30 | OK | 159.900  | 26.735  | 0.382   | 234.656  | 79496.640 | 36199.403 | 79496.640 | 26928.399 | 1.015 |
|           | Bawah |   |       |      | 2.542 | 1.5  | 30 | OK | 195.523  | 26.735  | 0.382   | 277.403  | 78286.802 | 35648.494 | 78286.802 | 26518.583 | 1.018 |
|           | Atlas | 1 | 2.02  | 1.45 |       |      | 29 | OK | 1051.480 | 277.179 | 3.461   | 1705.262 | 83050.311 | 37817.594 | 83050.311 | 30105.756 | 1.104 |
| K2C:=K9C  | Bawah |   | 1.01  | 1.45 |       |      | 29 | OK | 1087.103 | 277.179 | 3.461   | 1748.009 | 82747.829 | 37679.857 | 82747.829 | 29996.106 | 1.108 |
|           | Atlas | 2 | 2.02  | 1.6  |       |      | 32 | OK | 498.717  | 137.606 | 4.162   | 818.630  | 83476.362 | 38011.600 | 83476.362 | 24852.371 | 1.058 |
|           | Bawah |   | 2.02  | 1.6  |       |      | 32 | OK | 534.339  | 137.606 | 4.162   | 861.377  | 82837.651 | 37720.758 | 82837.651 | 24662.215 | 1.062 |
| K3C:=K8C  | Atlas | 1 | 2.02  | 1.45 |       |      | 29 | OK | 1026.978 | 275.755 | 6.102   | 1673.581 | 83220.662 | 37895.165 | 83220.662 | 30167.509 | 1.102 |
|           | Bawah |   | 1.01  | 1.45 |       |      | 29 | OK | 1062.601 | 275.755 | 6.102   | 1716.328 | 82907.136 | 37752.399 | 82907.136 | 30053.855 | 1.105 |
|           | Atlas | 2 | 2.02  | 1.6  |       |      | 32 | OK | 490.028  | 137.201 | 7.387   | 807.556  | 83615.762 | 38075.077 | 83615.762 | 24893.873 | 1.057 |
| K4C:=K7C  | Bawah |   | 2.02  | 1.6  |       |      | 32 | OK | 525.651  | 137.201 | 7.387   | 850.303  | 82959.732 | 37776.348 | 82959.732 | 24698.561 | 1.061 |
|           | Atlas | 1 | 1.695 | 1.4  |       |      | 28 | OK | 930.477  | 237.048 | 6.716   | 1495.849 | 82740.416 | 37676.481 | 82740.416 | 32174.063 | 1.084 |
|           | Bawah |   | 0.847 | 1.4  |       |      | 28 | OK | 966.100  | 237.048 | 6.716   | 1538.597 | 82408.030 | 37525.127 | 82408.030 | 32044.813 | 1.087 |
| K5C:=K6C  | Atlas | 2 | 1.695 | 1.5  |       |      | 30 | OK | 441.183  | 117.554 | 8.090   | 717.506  | 83149.254 | 37862.649 | 83149.254 | 28165.672 | 1.044 |
|           | Bawah |   | 1.695 | 1.5  |       |      | 30 | OK | 476.806  | 117.554 | 8.090   | 760.254  | 82449.958 | 37544.219 | 82449.958 | 27928.795 | 1.048 |
|           | Atlas | 1 | 1.695 | 1.4  |       |      | 28 | OK | 900.827  | 212.772 | 8.070   | 1421.428 | 82080.095 | 37375.799 | 82080.095 | 31917.294 | 1.080 |
| K11:=K10I | Bawah |   | 0.847 | 1.4  |       |      | 28 | OK | 936.450  | 212.772 | 8.070   | 1464.175 | 81755.368 | 37227.932 | 81755.368 | 31791.022 | 1.083 |
|           | Atlas | 2 | 1.695 | 1.5  |       |      | 30 | OK | 428.458  | 105.603 | 8.834   | 683.115  | 82447.361 | 37543.036 | 82447.361 | 27927.915 | 1.042 |
|           | Bawah |   | 1.695 | 1.5  |       |      | 30 | OK | 464.081  | 105.603 | 8.834   | 725.862  | 81767.773 | 37233.581 | 81767.773 | 27697.714 | 1.046 |
| K2I:=K9I  | Atlas | 1 |       |      | 4.041 | 1.8  | 36 | OK | 462.439  | 71.971  | 101.980 | 670.079  | 79042.642 | 35992.672 | 79042.642 | 18593.482 | 1.064 |
|           | Bawah |   |       |      | 2.02  | 1.8  | 36 | OK | 498.061  | 71.971  | 101.980 | 712.827  | 78599.565 | 35790.913 | 78599.565 | 18489.255 | 1.069 |
|           | Atlas | 2 |       |      | 4.041 | 2.1  | 42 | OK | 328.532  | 57.877  | 51.094  | 486.842  | 79844.598 | 36357.848 | 79844.598 | 13799.115 | 1.062 |
| K3I:=K8I  | Bawah |   |       |      | 4.041 | 2.1  | 42 | OK | 364.155  | 57.877  | 51.094  | 529.589  | 79172.922 | 36051.996 | 79172.922 | 13683.033 | 1.069 |
|           | Atlas | 3 |       |      | 2.02  | 1.8  | 36 | OK | 198.491  | 44.798  | 18.001  | 309.866  | 81700.101 | 37202.766 | 81700.101 | 19218.605 | 1.028 |
|           | Bawah |   |       |      | 4.041 | 1.8  | 36 | OK | 234.114  | 44.798  | 18.001  | 352.613  | 80424.974 | 36622.127 | 80424.974 | 18918.652 | 1.032 |
| K2I:=K9I  | Atlas | 1 |       |      | 2.02  | 1.45 | 29 | OK | 896.823  | 169.536 | 40.699  | 1347.445 | 80337.349 | 36582.226 | 80337.349 | 29122.307 | 1.084 |
|           | Bawah |   |       |      | 1.01  | 1.45 | 29 | OK | 932.446  | 169.536 | 40.699  | 1390.192 | 80061.810 | 36436.758 | 80061.810 | 29022.424 | 1.087 |
|           | Atlas | 2 |       |      | 2.02  | 1.6  | 32 | OK | 554.643  | 101.746 | 19.985  | 828.365  | 80124.030 | 36485.090 | 80124.030 | 23854.323 | 1.061 |
| K3I:=K8I  | Bawah |   |       |      | 2.02  | 1.6  | 32 | OK | 590.266  | 101.746 | 19.985  | 871.112  | 79697.856 | 36291.029 | 79697.856 | 23727.444 | 1.065 |
|           | Atlas | 3 |       |      | 1.01  | 1.45 | 29 | OK | 186.126  | 27.338  | 0.305   | 267.091  | 78694.691 | 35834.229 | 78694.691 | 28526.843 | 1.016 |
|           | Bawah |   |       |      | 2.02  | 1.45 | 29 | OK | 221.748  | 27.338  | 0.305   | 309.839  | 77738.154 | 35398.663 | 77738.154 | 28180.098 | 1.019 |
| K3I:=K8I  | Atlas | 1 |       |      | 2.02  | 1.45 | 29 | OK | 978.812  | 200.182 | 41.931  | 1494.865 | 80919.868 | 36847.481 | 80919.868 | 29333.470 | 1.093 |
|           | Bawah |   |       |      | 1.01  | 1.45 | 29 | OK | 1014.435 | 200.182 | 41.931  | 1537.612 | 80650.826 | 36724.970 | 80650.826 | 29235.942 | 1.096 |
|           | Atlas | 2 |       |      | 2.02  | 1.6  | 32 | OK | 607.001  | 121.803 | 21.022  | 923.285  | 80775.870 | 36781.910 | 80775.870 | 24048.387 | 1.068 |
| K3I:=K8I  | Bawah |   |       |      | 2.02  | 1.6  | 32 | OK | 642.624  | 121.803 | 21.022  | 966.033  | 80356.320 | 36590.865 | 80356.320 | 23923.480 | 1.072 |
|           | Atlas | 3 |       |      | 1.01  | 1.45 | 29 | OK | 190.072  | 29.104  | 0.043   | 274.653  | 78943.103 | 35947.346 | 78943.103 | 28616.892 | 1.016 |
|           | Bawah |   |       |      | 2.02  | 1.45 | 29 | OK | 225.695  | 29.104  | 0.043   | 317.400  | 77970.432 | 35504.433 | 77970.432 | 28264.299 | 1.019 |

|           |       |   |  |  |       |     |    |    |          |         |        |          |           |           |           |           |       |
|-----------|-------|---|--|--|-------|-----|----|----|----------|---------|--------|----------|-----------|-----------|-----------|-----------|-------|
| K41:=K71: | Atas  | 1 |  |  | 1.695 | 1.4 | 28 | OK | 877.674  | 172.698 | 46.025 | 1329.526 | 80629.594 | 36715.302 | 80629.594 | 31353.258 | 1.076 |
|           | Bawah |   |  |  | 0.847 | 1.4 | 28 | OK | 913.296  | 172.698 | 46.025 | 1372.273 | 80339.362 | 36583.143 | 80339.362 | 31240.400 | 1.079 |
|           | Atas  | 2 |  |  | 1.695 | 1.5 | 30 | OK | 540.613  | 106.065 | 23.554 | 818.440  | 80607.981 | 36705.461 | 80607.981 | 27304.851 | 1.053 |
|           | Bawah |   |  |  | 1.695 | 1.5 | 30 | OK | 576.235  | 106.065 | 23.554 | 861.187  | 80147.818 | 36495.922 | 80147.818 | 27148.977 | 1.056 |
|           | Atas  | 3 |  |  | 0.847 | 1.4 | 28 | OK | 157.083  | 25.701  | 0.013  | 229.622  | 79356.814 | 36135.732 | 79356.814 | 30858.331 | 1.013 |
|           | Bawah |   |  |  | 1.695 | 1.4 | 28 | OK | 192.705  | 25.701  | 0.013  | 272.369  | 78150.492 | 35586.424 | 78150.492 | 30389.246 | 1.015 |
|           | Atas  | 1 |  |  | 1.695 | 1.4 | 28 | OK | 1011.068 | 209.108 | 47.391 | 1547.855 | 81005.711 | 36886.570 | 81005.711 | 31499.514 | 1.089 |
|           | Bawah |   |  |  | 0.847 | 1.4 | 28 | OK | 1046.691 | 209.108 | 47.391 | 1590.603 | 80742.780 | 36766.842 | 80742.780 | 31397.271 | 1.092 |
|           | Atas  | 2 |  |  | 1.695 | 1.5 | 30 | OK | 603.695  | 124.165 | 24.340 | 923.099  | 80963.134 | 36867.182 | 80963.134 | 27425.154 | 1.059 |
|           | Bawah |   |  |  | 1.695 | 1.5 | 30 | OK | 639.318  | 124.165 | 24.340 | 965.846  | 80533.335 | 36671.470 | 80533.335 | 27279.565 | 1.063 |
| K51:=K61: | Atas  | 3 |  |  | 0.847 | 1.4 | 28 | OK | 181.800  | 33.763  | 0.063  | 272.180  | 80210.755 | 36524.581 | 80210.755 | 31190.391 | 1.015 |
|           | Bawah |   |  |  | 1.695 | 1.4 | 28 | OK | 217.422  | 33.763  | 0.063  | 314.927  | 79028.940 | 35986.432 | 79028.940 | 30730.835 | 1.017 |

## 1.b. Perhitungan momen rencana (Mc) arah y

| Btg      | Ujung Kolom | Ia | KL Tengah |      | KL Tepi |      | k.l/r | Perbesaran Momen | PD (KN)  | PL (KN) | PE (KN) | Pu (KN)  | EI <sub>1</sub> (KNm <sup>2</sup> ) | EI <sub>2</sub> (KNm <sup>2</sup> ) | EI Pakai (KNm <sup>2</sup> ) | Pc (KN)   | δh    |
|----------|-------------|----|-----------|------|---------|------|-------|------------------|----------|---------|---------|----------|-------------------------------------|-------------------------------------|------------------------------|-----------|-------|
|          |             |    | ψ         | K    | ψ       | K    |       |                  |          |         |         |          |                                     |                                     |                              |           |       |
| K1A=K10A | Atas        | 1  |           |      | 2.918   | 1.65 | 33    | OK               | 458.270  | 71.480  | 101.721 | 664.293  | 79056.301                           | 35998.892                           | 79056.301                    | 22131.604 | 1.053 |
|          | Bawah       |    |           |      | 1.459   | 1.65 | 33    | OK               | 493.893  | 71.480  | 101.721 | 707.040  | 78608.650                           | 35795.050                           | 78608.650                    | 22006.285 | 1.057 |
|          | Atas        | 2  |           |      | 2.918   | 1.8  | 36    | OK               | 326.611  | 57.659  | 50.696  | 484.187  | 79838.813                           | 36364.321                           | 79838.813                    | 18785.472 | 1.045 |
|          | Bawah       |    |           |      | 2.918   | 1.8  | 36    | OK               | 362.234  | 57.659  | 50.696  | 526.935  | 79182.382                           | 36056.303                           | 79182.382                    | 18626.353 | 1.049 |
|          | Atas        | 3  |           |      | 1.459   | 1.65 | 33    | OK               | 197.831  | 44.726  | 17.729  | 308.958  | 81714.254                           | 37209.211                           | 81714.254                    | 22875.690 | 1.023 |
|          | Bawah       |    |           |      | 2.918   | 1.65 | 33    | OK               | 233.453  | 44.726  | 17.729  | 331.705  | 80433.788                           | 36626.141                           | 80433.788                    | 22517.228 | 1.027 |
| K1B=K10B | Atas        | 1  |           |      | 1.993   | 1.9  | 38    | OK               | 831.683  | 164.882 | 73.999  | 1261.831 | 80685.369                           | 36740.700                           | 80685.369                    | 17034.597 | 1.141 |
|          | Bawah       |    |           |      | 0.997   | 1.9  | 38    | OK               | 867.305  | 164.882 | 73.999  | 1304.578 | 80377.902                           | 36600.693                           | 80377.902                    | 16969.684 | 1.147 |
|          | Atas        | 2  |           |      | 1.993   | 1.6  | 32    | OK               | 500.290  | 101.921 | 38.071  | 763.422  | 80890.346                           | 36834.038                           | 80890.346                    | 24082.469 | 1.056 |
|          | Bawah       |    |           |      | 1.993   | 1.6  | 32    | OK               | 535.913  | 101.921 | 38.071  | 806.169  | 80380.687                           | 36601.961                           | 80380.687                    | 23930.735 | 1.059 |
|          | Atas        | 3  |           |      | 0.997   | 1.9  | 38    | OK               | 119.112  | 27.193  | 13.001  | 186.443  | 81794.763                           | 37245.871                           | 81794.763                    | 17268.817 | 1.018 |
|          | Bawah       |    |           |      | 1.993   | 1.9  | 38    | OK               | 154.735  | 27.193  | 13.001  | 229.190  | 79828.002                           | 36350.291                           | 79828.002                    | 16853.587 | 1.023 |
| K1D=K10D | Atas        | 1  |           |      | 1.993   | 1.9  | 38    | OK               | 828.267  | 164.496 | 73.817  | 1257.115 | 80698.576                           | 36746.714                           | 80698.576                    | 17037.385 | 1.140 |
|          | Bawah       |    |           |      | 0.997   | 1.9  | 38    | OK               | 863.890  | 164.496 | 73.817  | 1299.862 | 80389.466                           | 36605.958                           | 80389.466                    | 16972.125 | 1.146 |
|          | Atas        | 2  |           |      | 1.993   | 1.6  | 32    | OK               | 498.327  | 101.691 | 37.962  | 760.698  | 80903.086                           | 36839.839                           | 80903.086                    | 24086.262 | 1.056 |
|          | Bawah       |    |           |      | 1.993   | 1.6  | 32    | OK               | 533.950  | 101.691 | 37.962  | 803.445  | 80390.887                           | 36606.605                           | 80390.887                    | 23933.771 | 1.059 |
|          | Atas        | 3  |           |      | 0.997   | 1.9  | 38    | OK               | 118.448  | 27.111  | 12.966  | 185.516  | 81816.133                           | 37255.602                           | 81816.133                    | 17273.328 | 1.018 |
|          | Bawah       |    |           |      | 1.993   | 1.9  | 38    | OK               | 154.071  | 27.111  | 12.966  | 228.263  | 79836.731                           | 36354.266                           | 79836.731                    | 16855.430 | 1.023 |
| K1E=K10E | Atas        | 1  |           |      | 2.918   | 1.65 | 33    | OK               | 462.439  | 71.971  | 101.980 | 670.079  | 79042.642                           | 35992.672                           | 79042.642                    | 22127.780 | 1.053 |
|          | Bawah       |    |           |      | 1.459   | 1.65 | 33    | OK               | 498.061  | 71.971  | 101.980 | 712.827  | 78599.565                           | 35790.913                           | 78599.565                    | 22003.742 | 1.057 |
|          | Atas        | 2  |           |      | 2.918   | 1.8  | 36    | OK               | 328.532  | 57.877  | 51.094  | 486.842  | 79844.598                           | 36357.848                           | 79844.598                    | 18782.128 | 1.045 |
|          | Bawah       |    |           |      | 2.918   | 1.8  | 36    | OK               | 364.155  | 57.877  | 51.094  | 529.589  | 79172.922                           | 36051.996                           | 79172.922                    | 18624.128 | 1.050 |
|          | Atas        | 3  |           |      | 1.459   | 1.65 | 33    | OK               | 198.491  | 44.798  | 18.001  | 309.866  | 81700.101                           | 37202.766                           | 81700.101                    | 22871.728 | 1.023 |
|          | Bawah       |    |           |      | 2.918   | 1.65 | 33    | OK               | 234.114  | 44.798  | 18.001  | 352.613  | 80424.974                           | 36622.127                           | 80424.974                    | 22514.760 | 1.027 |
| K2A=K9A  | Atas        | 1  |           |      | 6.286   | 1.95 | 39    | OK               | 892.961  | 169.071 | 40.842  | 1342.066 | 80348.616                           | 36587.357                           | 80348.616                    | 16104.730 | 1.161 |
|          | Bawah       |    |           |      | 3.143   | 1.95 | 39    | OK               | 928.584  | 169.071 | 40.842  | 1384.813 | 80071.588                           | 36461.210                           | 80071.588                    | 16049.204 | 1.168 |
|          | Atas        | 2  |           |      | 6.286   | 2.43 | 48.6  | OK               | 552.522  | 101.475 | 20.110  | 825.387  | 80132.202                           | 36488.811                           | 80132.202                    | 10342.816 | 1.153 |
|          | Bawah       |    |           |      | 6.286   | 2.43 | 48.6  | OK               | 588.145  | 101.475 | 20.110  | 868.134  | 79704.089                           | 36293.867                           | 79704.089                    | 10287.559 | 1.164 |
|          | Atas        | 3  |           |      | 3.143   | 1.95 | 39    | OK               | 186.140  | 27.339  | 0.295   | 267.111  | 78694.544                           | 35834.163                           | 78694.544                    | 15773.195 | 1.029 |
|          | Bawah       |    |           |      | 6.286   | 1.95 | 39    | OK               | 221.763  | 27.339  | 0.295   | 309.859  | 77738.075                           | 35308.627                           | 77738.075                    | 15581.485 | 1.034 |
| K2C=K9C  | Atas        | 1  | 3.143     | 1.65 |         |      | 33    | OK               | 1051.480 | 277.179 | 3.461   | 1705.262 | 83050.311                           | 37817.594                           | 83050.311                    | 23249.716 | 1.139 |
|          | Bawah       |    | 1.571     | 1.65 |         |      | 33    | OK               | 1087.103 | 277.179 | 3.461   | 1748.009 | 82747.829                           | 37679.857                           | 82747.829                    | 23165.037 | 1.144 |
|          | Atas        | 2  | 3.143     | 1.85 |         |      | 37    | OK               | 498.717  | 137.606 | 4.162   | 818.630  | 83476.362                           | 38011.600                           | 83476.362                    | 18589.356 | 1.079 |
|          | Bawah       |    | 3.143     | 1.85 |         |      | 37    | OK               | 534.339  | 137.606 | 4.162   | 861.377  | 82837.651                           | 37720.758                           | 82837.651                    | 18447.121 | 1.084 |

|           |       |   |       |      |  |       |      |      |    |          |         |        |          |           |           |           |           |       |
|-----------|-------|---|-------|------|--|-------|------|------|----|----------|---------|--------|----------|-----------|-----------|-----------|-----------|-------|
| K2I:=K9I: | Atlas | 1 |       |      |  | 6.286 | 1.95 | 39   | OK | 186.126  | 27.338  | 0.305  | 267.091  | 78694.691 | 35834.229 | 78694.691 | 15773.225 | 1.029 |
|           | Bawah |   |       |      |  | 3.143 | 1.95 | 39   | OK | 221.748  | 27.338  | 0.305  | 309.839  | 77738.154 | 35398.663 | 77738.154 | 15581.501 | 1.034 |
|           | Atlas | 2 |       |      |  | 6.286 | 2.43 | 48.6 | OK | 554.643  | 101.746 | 19.985 | 828.365  | 80124.030 | 36485.090 | 80124.030 | 10341.761 | 1.154 |
|           | Bawah |   |       |      |  | 6.286 | 2.43 | 48.6 | OK | 590.266  | 101.746 | 19.985 | 871.112  | 79697.856 | 36291.029 | 79697.856 | 10286.754 | 1.164 |
|           | Atlas | 3 |       |      |  | 3.143 | 1.95 | 39   | OK | 186.126  | 27.338  | 0.305  | 267.091  | 78694.691 | 35834.229 | 78694.691 | 15773.225 | 1.029 |
|           | Bawah |   |       |      |  | 6.286 | 1.95 | 39   | OK | 221.748  | 27.338  | 0.305  | 309.839  | 77738.154 | 35398.663 | 77738.154 | 15581.501 | 1.034 |
|           | Atlas | 1 |       |      |  | 6.286 | 1.95 | 39   | OK | 973.082  | 199.660 | 41.942 | 1487.154 | 80944.764 | 36838.817 | 80944.764 | 16224.220 | 1.180 |
|           | Bawah |   |       |      |  | 3.143 | 1.95 | 39   | OK | 1008.705 | 199.660 | 41.942 | 1529.902 | 80673.547 | 36735.317 | 80673.547 | 16169.858 | 1.187 |
|           | Atlas | 2 |       |      |  | 6.286 | 2.43 | 48.6 | OK | 604.142  | 121.631 | 21.098 | 919.579  | 80800.753 | 36793.241 | 80800.753 | 10429.107 | 1.172 |
|           | Bawah |   |       |      |  | 6.286 | 2.43 | 48.6 | OK | 639.765  | 121.631 | 21.098 | 962.327  | 80378.243 | 36600.848 | 80378.243 | 10374.573 | 1.183 |
|           | Atlas | 3 |       |      |  | 3.143 | 1.95 | 39   | OK | 190.354  | 29.226  | 0.107  | 275.186  | 78959.541 | 35954.831 | 78959.541 | 15826.310 | 1.030 |
|           | Bawah |   |       |      |  | 6.286 | 1.95 | 39   | OK | 225.976  | 29.226  | 0.107  | 317.933  | 77985.937 | 35511.493 | 77985.937 | 15631.165 | 1.035 |
| K3C:=K8C: | Atlas | 1 | 3.143 | 1.65 |  |       |      | 33   | OK | 1026.978 | 275.755 | 6.102  | 1673.581 | 83220.662 | 37895.165 | 83220.662 | 23297.406 | 1.136 |
|           | Bawah |   | 1.571 | 1.65 |  |       |      | 33   | OK | 1062.601 | 275.755 | 6.102  | 1716.328 | 82907.136 | 37752.399 | 82907.136 | 23209.635 | 1.141 |
|           | Atlas | 2 | 3.143 | 1.85 |  |       |      | 37   | OK | 490.028  | 137.201 | 7.387  | 807.556  | 83615.762 | 38075.077 | 83615.762 | 18620.399 | 1.078 |
|           | Bawah |   | 3.143 | 1.85 |  |       |      | 37   | OK | 525.651  | 137.201 | 7.387  | 850.303  | 82959.732 | 37776.348 | 82959.732 | 18474.307 | 1.083 |
|           | Atlas | 1 |       |      |  | 6.286 | 1.95 | 39   | OK | 978.812  | 200.182 | 41.931 | 1494.865 | 80919.868 | 36847.481 | 80919.868 | 16219.230 | 1.181 |
|           | Bawah |   |       |      |  | 3.143 | 1.95 | 39   | OK | 1014.435 | 200.182 | 41.931 | 1537.612 | 80650.826 | 36724.970 | 80650.826 | 16165.304 | 1.188 |
|           | Atlas | 2 |       |      |  | 6.286 | 2.43 | 48.6 | OK | 607.001  | 121.803 | 21.022 | 923.285  | 80775.870 | 36781.910 | 80775.870 | 10425.896 | 1.173 |
|           | Bawah |   |       |      |  | 6.286 | 2.43 | 48.6 | OK | 642.624  | 121.803 | 21.022 | 966.033  | 80356.320 | 36590.865 | 80356.320 | 10371.744 | 1.184 |
|           | Atlas | 3 |       |      |  | 3.143 | 1.95 | 39   | OK | 190.072  | 29.104  | 0.043  | 274.653  | 78943.103 | 35947.346 | 78943.103 | 15823.015 | 1.030 |
|           | Bawah |   |       |      |  | 6.286 | 1.95 | 39   | OK | 225.695  | 29.104  | 0.043  | 317.400  | 77970.432 | 35504.433 | 77970.432 | 15628.057 | 1.035 |
|           | Atlas | 1 |       |      |  | 6.286 | 1.95 | 39   | OK | 814.960  | 155.080 | 46.069 | 1226.081 | 80384.872 | 36603.867 | 80384.872 | 16111.997 | 1.145 |
|           | Bawah |   |       |      |  | 3.143 | 1.95 | 39   | OK | 850.583  | 155.080 | 46.069 | 1268.828 | 80081.131 | 36465.555 | 80081.131 | 16051.117 | 1.152 |
| K4A:=K7A: | Atlas | 2 |       |      |  | 6.286 | 2.43 | 48.6 | OK | 497.849  | 92.913  | 23.548 | 746.079  | 80245.593 | 36540.445 | 80245.593 | 10357.452 | 1.136 |
|           | Bawah |   |       |      |  | 6.286 | 2.43 | 48.6 | OK | 533.472  | 92.913  | 23.548 | 788.827  | 79767.285 | 36322.644 | 79767.285 | 10295.716 | 1.146 |
|           | Atlas | 3 |       |      |  | 3.143 | 1.95 | 39   | OK | 151.105  | 23.744  | 0.051  | 219.317  | 79102.002 | 36019.702 | 79102.002 | 15854.864 | 1.024 |
|           | Bawah |   |       |      |  | 6.286 | 1.95 | 39   | OK | 186.728  | 23.744  | 0.051  | 262.064  | 77897.130 | 35471.054 | 77897.130 | 15613.365 | 1.029 |
|           | Atlas | 1 | 3.143 | 1.65 |  |       |      | 33   | OK | 930.477  | 237.048 | 6.716  | 1495.849 | 82740.416 | 37676.481 | 82740.416 | 23162.962 | 1.121 |
|           | Bawah |   |       |      |  |       |      | 33   | OK | 966.100  | 237.048 | 6.716  | 1538.597 | 82408.030 | 37525.127 | 82408.030 | 23069.911 | 1.125 |
|           | Atlas | 2 |       |      |  |       |      | 37   | OK | 441.183  | 117.554 | 8.090  | 717.506  | 83149.254 | 37862.649 | 83149.254 | 18516.512 | 1.069 |
|           | Bawah |   |       |      |  |       |      | 37   | OK | 476.806  | 117.554 | 8.090  | 760.254  | 82449.958 | 37544.219 | 82449.958 | 18360.786 | 1.074 |
|           | Atlas | 1 |       |      |  | 6.286 | 1.95 | 39   | OK | 157.083  | 25.701  | 0.013  | 229.622  | 79356.814 | 36135.732 | 79356.814 | 15905.938 | 1.025 |
|           | Bawah |   |       |      |  | 3.143 | 1.95 | 39   | OK | 192.705  | 25.701  | 0.013  | 272.369  | 78150.492 | 35586.424 | 78150.492 | 15664.148 | 1.030 |
|           | Atlas | 2 |       |      |  | 6.286 | 2.43 | 48.6 | OK | 540.613  | 106.065 | 23.554 | 818.440  | 80607.981 | 36705.461 | 80607.981 | 10404.226 | 1.151 |
|           | Bawah |   |       |      |  | 6.286 | 2.43 | 48.6 | OK | 576.235  | 106.065 | 23.554 | 861.187  | 80147.818 | 36495.922 | 80147.818 | 10344.832 | 1.161 |
|           | Atlas | 3 |       |      |  | 3.143 | 1.95 | 39   | OK | 157.083  | 25.701  | 0.013  | 229.622  | 79356.814 | 36135.732 | 79356.814 | 15905.938 | 1.025 |
|           | Bawah |   |       |      |  | 6.286 | 1.95 | 39   | OK | 192.705  | 25.701  | 0.013  | 272.369  | 78150.492 | 35586.424 | 78150.492 | 15664.148 | 1.030 |
| K4I:=K7I: | Atlas | 1 |       |      |  |       |      | 39   | OK | 157.083  | 25.701  | 0.013  | 229.622  | 79356.814 | 36135.732 | 79356.814 | 15905.938 | 1.025 |
|           | Bawah |   |       |      |  | 3.143 | 1.95 | 39   | OK | 192.705  | 25.701  | 0.013  | 272.369  | 78150.492 | 35586.424 | 78150.492 | 15664.148 | 1.030 |
|           | Atlas | 2 |       |      |  | 6.286 | 2.43 | 48.6 | OK | 540.613  | 106.065 | 23.554 | 818.440  | 80607.981 | 36705.461 | 80607.981 | 10404.226 | 1.151 |
|           | Bawah |   |       |      |  | 6.286 | 2.43 | 48.6 | OK | 576.235  | 106.065 | 23.554 | 861.187  | 80147.818 | 36495.922 | 80147.818 | 10344.832 | 1.161 |
|           | Atlas | 3 |       |      |  | 3.143 | 1.95 | 39   | OK | 157.083  | 25.701  | 0.013  | 229.622  | 79356.814 | 36135.732 | 79356.814 | 15905.938 | 1.025 |
|           | Bawah |   |       |      |  | 6.286 | 1.95 | 39   | OK | 192.705  | 25.701  | 0.013  | 272.369  | 78150.492 | 35586.424 | 78150.492 | 15664.148 | 1.030 |

|             |       |   |       |      |            |      |      |    |          |         |        |          |           |           |           |           |       |
|-------------|-------|---|-------|------|------------|------|------|----|----------|---------|--------|----------|-----------|-----------|-----------|-----------|-------|
| K5A=K6A     | Atlas | 1 |       |      | 12.571     | 4.5  | 90   | OK | 624.286  | 77.408  | 46.311 | 872.996  | 77767.361 | 35411.963 | 77767.361 | 2926.959  | 1.988 |
|             | Bawah |   |       |      | 123095.238 | 4.5  | 90   | OK | 642.097  | 77.408  | 46.311 | 894.370  | 77625.727 | 35347.469 | 77625.727 | 2921.628  | 2.042 |
|             | Atlas | 2 |       |      | 9.429      | 4.3  | 86   | OK | 389.614  | 52.015  | 23.967 | 550.760  | 78155.819 | 35388.850 | 78155.819 | 3221.578  | 1.398 |
|             | Bawah |   |       |      | 246190.476 | 4.3  | 86   | OK | 407.425  | 52.015  | 23.967 | 572.134  | 77917.926 | 35480.523 | 77917.926 | 3211.772  | 1.422 |
| K5A'=K6A'   | Atlas | 1 |       |      | 123095.238 | 3.5  | 70   | OK | 647.752  | 77.408  | 46.311 | 901.155  | 77582.264 | 35327.677 | 77582.264 | 4826.926  | 1.452 |
|             | Bawah |   |       |      | 6.286      | 3.5  | 70   | OK | 665.563  | 77.408  | 46.311 | 922.528  | 77449.858 | 35267.385 | 77449.858 | 4818.688  | 1.469 |
|             | Atlas | 2 |       |      | 246190.476 | 4.3  | 86   | OK | 413.080  | 52.015  | 23.967 | 578.919  | 77846.356 | 35447.934 | 77846.356 | 3208.822  | 1.430 |
|             | Bawah |   |       |      | 9.429      | 4.3  | 86   | OK | 430.891  | 52.015  | 23.967 | 600.292  | 77632.292 | 35350.458 | 77632.292 | 3199.999  | 1.455 |
| K5A''=K6A'' | Atlas | 3 |       |      | 3.143      | 2.9  | 58   | OK | 159.900  | 26.735  | 0.382  | 234.656  | 79496.640 | 36199.403 | 79496.640 | 7204.387  | 1.057 |
|             | Bawah |   |       |      | 184642.857 | 2.9  | 58   | OK | 195.523  | 26.735  | 0.382  | 277.403  | 78286.802 | 35648.494 | 78286.802 | 7094.746  | 1.070 |
|             | Atlas | 1 | 3.143 | 1.65 |            |      | 33   | OK | 900.827  | 212.772 | 8.070  | 1421.428 | 82080.095 | 37375.799 | 82080.095 | 22978.107 | 1.115 |
|             | Bawah |   | 1.571 | 1.65 |            |      | 33   | OK | 936.450  | 212.772 | 8.070  | 1464.175 | 81755.368 | 37227.932 | 81755.368 | 22887.200 | 1.119 |
| K5C=K6C     | Atlas | 2 | 3.143 | 1.85 |            |      | 37   | OK | 428.458  | 105.603 | 8.834  | 683.115  | 82447.361 | 37543.036 | 82447.361 | 18360.207 | 1.066 |
|             | Bawah |   | 3.143 | 1.85 |            |      | 37   | OK | 464.081  | 105.603 | 8.834  | 725.862  | 81767.773 | 37233.581 | 81767.773 | 18208.870 | 1.071 |
|             | Atlas | 1 |       |      | 6.286      | 1.95 | 39   | OK | 1011.068 | 209.108 | 47.391 | 1547.855 | 81005.711 | 36886.570 | 81005.711 | 16236.436 | 1.189 |
|             | Bawah |   |       |      | 3.143      | 1.95 | 39   | OK | 1046.691 | 209.108 | 47.391 | 1590.603 | 80742.780 | 36766.842 | 80742.780 | 16183.735 | 1.196 |
| K5I=K6I     | Atlas | 2 |       |      | 6.286      | 2.43 | 48.6 | OK | 603.695  | 124.165 | 24.340 | 923.099  | 80963.134 | 36867.182 | 80963.134 | 10450.066 | 1.173 |
|             | Bawah |   |       |      | 6.286      | 2.43 | 48.6 | OK | 639.318  | 124.165 | 24.340 | 965.846  | 80533.335 | 36671.470 | 80533.335 | 10394.591 | 1.183 |
|             | Atlas | 3 |       |      | 3.143      | 1.95 | 39   | OK | 181.800  | 33.763  | 0.063  | 272.180  | 80210.755 | 36524.581 | 80210.755 | 16077.098 | 1.029 |
|             | Bawah |   |       |      | 6.286      | 1.95 | 39   | OK | 217.422  | 33.763  | 0.063  | 314.927  | 79028.940 | 35986.432 | 79028.940 | 15840.220 | 1.034 |



## 2.a. Perhitungan momen lentur dan aksial kolom arah x

| Bag       | Ujung Kolom | I <sub>4</sub> | $\Sigma P_u$<br>(kN) | $\Sigma P_c$<br>(kN) | $\delta_s$ | MD<br>(kNm) | ML<br>(kNm) | ME<br>(kNm) | M <sub>ex</sub><br>(kNm) | R <sub>v</sub> | M <sub>nak, bN<sub>Ki</sub></sub><br>(kNm) | M <sub>nak, bN<sub>Ka</sub></sub><br>(kNm) | L <sub>bN<sub>Ki</sub></sub><br>(m) | L <sub>bN<sub>Ka</sub></sub><br>(m) | N <sub>uK<sub>1x</sub></sub><br>(kN) | N <sub>uK<sub>2x</sub></sub> =N <sub>uK<sub>2y</sub></sub><br>(kN) | N <sub>uK<sub>pakai</sub></sub><br>(kN) |
|-----------|-------------|----------------|----------------------|----------------------|------------|-------------|-------------|-------------|--------------------------|----------------|--------------------------------------------|--------------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------------------------------------|-----------------------------------------|
| K1A=K10A  | Atas        | 1              | 12987.489            | 270156.529           | 1.087      | 19.948      | 1.280       | 0.254       | 27.906                   | 1              | 0                                          | 234.175                                    | 0                                   | 6                                   | 590.389                              | 983.466                                                            | 590.389                                 |
|           | Bawah       |                | 13414.962            | 269218.332           | 1.091      | 31.433      | 5.790       | 0.465       | 50.689                   | 1              | 0                                          | 131.234                                    | 0                                   | 6                                   | 612.780                              | 1020.870                                                           | 612.780                                 |
|           | Atas        | 2              | 8209.823             | 227829.518           | 1.064      | 36.922      | 7.671       | 0.561       | 60.692                   | 1              | 0                                          | 234.175                                    | 0                                   | 6                                   | 437.634                              | 616.405                                                            | 437.634                                 |
|           | Bawah       |                | 8637.295             | 226620.215           | 1.068      | 40.203      | 8.257       | 1.638       | 67.418                   | 1              | 0                                          | 234.175                                    | 0                                   | 6                                   | 475.038                              | 653.809                                                            | 475.038                                 |
|           | Atas        | 3              | 2610.454             | 268118.439           | 1.016      | 14.575      | 5.803       | 2.753       | 30.310                   | 1              | 158.839                                    | 234.172                                    | 1.80                                | 6                                   | 366.048                              | 329.146                                                            | 329.146                                 |
|           | Bawah       |                | 3037.927             | 264360.045           | 1.020      | 23.501      | 4.242       | 2.741       | 38.902                   | 1              | 0                                          | 234.175                                    | 0                                   | 6                                   | 326.238                              | 366.550                                                            | 326.238                                 |
| K2A=K9A   | Atas        | 1              | 12987.489            | 270156.529           | 1.087      | 3.274       | 1.021       | 0.071       | 6.102                    | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 1172.448                             | 1286.670                                                           | 1172.448                                |
|           | Bawah       |                | 13414.962            | 269218.332           | 1.091      | 11.580      | 3.869       | 0.222       | 22.062                   | 1              | 131.234                                    | 131.234                                    | 6                                   | 6                                   | 1190.813                             | 1324.074                                                           | 1190.813                                |
|           | Atas        | 2              | 8209.823             | 227829.518           | 1.064      | 12.295      | 5.939       | 0.563       | 26.340                   | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 744.012                              | 771.159                                                            | 744.012                                 |
|           | Bawah       |                | 8637.295             | 226620.215           | 1.068      | 13.009      | 5.078       | 0.464       | 25.772                   | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 781.415                              | 808.563                                                            | 781.415                                 |
|           | Atas        | 3              | 2610.454             | 268118.439           | 1.016      | 34.461      | 6.026       | 2.676       | 54.524                   | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 281.468                              | 225.391                                                            | 225.391                                 |
|           | Bawah       |                | 3037.927             | 264360.045           | 1.020      | 27.818      | 8.117       | 4.699       | 52.026                   | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 318.872                              | 262.795                                                            | 262.795                                 |
| K3A=8A    | Atas        | 1              | 12987.489            | 270156.529           | 1.087      | 0.210       | 0.036       | 0.272       | 0.634                    | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 1288.694                             | 1407.535                                                           | 1288.694                                |
|           | Bawah       |                | 13414.962            | 269218.332           | 1.091      | 0.270       | 0.320       | 0.394       | 1.345                    | 1              | 131.234                                    | 131.234                                    | 6                                   | 6                                   | 1307.060                             | 1444.939                                                           | 1307.060                                |
|           | Atas        | 2              | 8209.823             | 227829.518           | 1.064      | 2.266       | 1.027       | 1.761       | 6.533                    | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 819.376                              | 850.673                                                            | 819.376                                 |
|           | Bawah       |                | 8637.295             | 226620.215           | 1.068      | 2.665       | 0.903       | 0.636       | 5.656                    | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 856.780                              | 888.077                                                            | 856.780                                 |
|           | Atas        | 3              | 2610.454             | 268118.439           | 1.016      | 7.542       | 0.371       | 2.191       | 12.028                   | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 287.873                              | 231.008                                                            | 231.008                                 |
|           | Bawah       |                | 3037.927             | 264360.045           | 1.020      | 0.487       | 0.722       | 2.868       | 4.698                    | 1              | 158.839                                    | 234.175                                    | 6                                   | 6                                   | 325.277                              | 268.412                                                            | 268.412                                 |
| K4A=7A    | Atas        | 1              | 12987.489            | 270156.529           | 1.087      | 10.903      | 1.691       | 0.189       | 17.098                   | 1              | 158.839                                    | 306.789                                    | 6                                   | 4.50                                | 1101.360                             | 1212.033                                                           | 1101.360                                |
|           | Bawah       |                | 13414.962            | 269218.332           | 1.091      | 18.506      | 4.832       | 0.153       | 32.285                   | 1              | 131.234                                    | 131.234                                    | 6                                   | 4.50                                | 1100.602                             | 1249.437                                                           | 1100.602                                |
|           | Atas        | 2              | 8209.823             | 227829.518           | 1.064      | 30.483      | 10.356      | 0.579       | 56.313                   | 1              | 158.839                                    | 234.175                                    | 6                                   | 4.50                                | 688.998                              | 719.200                                                            | 688.998                                 |
|           | Bawah       |                | 8637.295             | 226620.215           | 1.068      | 28.735      | 9.337       | 0.040       | 51.991                   | 1              | 158.839                                    | 306.789                                    | 6                                   | 4.50                                | 740.521                              | 756.604                                                            | 740.521                                 |
|           | Atas        | 3              | 2610.454             | 268118.439           | 1.016      | 26.303      | 6.864       | 1.784       | 44.871                   | 1              | 158.839                                    | 234.175                                    | 6                                   | 4.50                                | 252.290                              | 183.806                                                            | 183.806                                 |
|           | Bawah       |                | 3037.927             | 264360.045           | 1.020      | 26.753      | 8.576       | 2.240       | 48.781                   | 1              | 158.839                                    | 234.175                                    | 6                                   | 4.50                                | 289.694                              | 221.210                                                            | 221.210                                 |
| K5A=K6A   | Atas        | 1              | 12987.489            | 270156.529           | 1.087      | 1.316       | 4.335       | 0.100       | 9.896                    | 1              | 306.789                                    | 158.839                                    | 4.50                                | 6                                   | 819.596                              | 931.285                                                            | 819.596                                 |
|           | Bawah       |                | 13414.962            | 269218.332           | 1.091      | 2.263       | 0.264       | 0.185       | 3.822                    | 1              | 0                                          | 234.175                                    | 0                                   | 6                                   | 789.631                              | 949.987                                                            | 789.631                                 |
|           | Atas        | 2              | 8209.823             | 227829.518           | 1.064      | 2.075       | 0.170       | 0.383       | 3.388                    | 1              | 306.789                                    | 158.839                                    | 4.50                                | 6                                   | 546.527                              | 564.370                                                            | 546.527                                 |
|           | Bawah       |                | 8637.295             | 226620.215           | 1.068      | 6.846       | 6.267       | 0.069       | 19.823                   | 1              | 0                                          | 234.175                                    | 0                                   | 6                                   | 516.562                              | 583.072                                                            | 516.562                                 |
|           | Atas        | 3              | 2610.454             | 268118.439           | 1.016      | 3.350       | 0.242       | 0.181       | 5.074                    | 1              | 0                                          | 234.175                                    | 0                                   | 6                                   | 795.568                              | 955.924                                                            | 795.568                                 |
|           | Bawah       |                | 3037.927             | 264360.045           | 1.020      | 6.430       | 0.370       | 0.055       | 9.281                    | 1              | 131.234                                    | 131.234                                    | 4.50                                | 6                                   | 824.776                              | 974.626                                                            | 824.776                                 |
| K5A'=K6A' | Atas        | 2              | 8209.823             | 227829.518           | 1.064      | 2.649       | 5.097       | 0.836       | 13.172                   | 1              | 0                                          | 234.175                                    | 0                                   | 6                                   | 522.499                              | 589.009                                                            | 522.499                                 |
|           | Bawah       |                | 8637.295             | 226620.215           | 1.068      | 3.451       | 0.109       | 0.386       | 5.104                    | 1              | 306.789                                    | 158.839                                    | 4.50                                | 6                                   | 589.868                              | 607.711                                                            | 589.868                                 |
|           | Atas        | 3              | 2610.454             | 268118.439           | 1.016      | 15.330      | 0.736       | 0.858       | 20.734                   | 1              | 234.175                                    | 158.839                                    | 4.50                                | 6                                   | 264.665                              | 197.570                                                            | 197.570                                 |
|           | Bawah       |                | 3037.927             | 264360.045           | 1.020      | 4.113       | 2.744       | 1.349       | 10.867                   | 1              | 306.789                                    | 158.839                                    | 4.50                                | 6                                   | 316.188                              | 234.974                                                            | 234.974                                 |

|          |       |   |           |            |       |        |        |       |        |   |         |         |      |      |          |          |          |
|----------|-------|---|-----------|------------|-------|--------|--------|-------|--------|---|---------|---------|------|------|----------|----------|----------|
| K2C=K9C  | Atlas | 1 | 12592.240 | 248729.243 | 1.092 | 21.375 | 2.545  | 0.162 | 32.998 | 1 | 234.175 | 443.851 | 6    | 6    | 1493.970 | 1409.627 | 1409.627 |
|          | Bawah |   | 12934.218 | 247771.593 | 1.095 | 20.115 | 0.461  | 0.017 | 27.569 | 1 | 131.234 | 131.234 | 6    | 6    | 1470.772 | 1447.031 | 1447.031 |
|          | Atlas | 2 | 6053.614  | 211679.662 | 1.050 | 27.754 | 6.365  | 0.929 | 46.991 | 1 | 234.175 | 443.851 | 6    | 6    | 767.018  | 685.621  | 685.621  |
|          | Bawah |   | 6395.592  | 209974.572 | 1.053 | 23.527 | 5.330  | 0.287 | 39.335 | 1 | 234.175 | 443.851 | 6    | 6    | 804.422  | 723.025  | 723.025  |
| K3C=K8C  | Atlas | 1 | 12592.240 | 248729.243 | 1.092 | 0.201  | 0.241  | 0.057 | 0.753  | 1 | 234.175 | 443.851 | 6    | 6    | 1466.748 | 1393.498 | 1393.498 |
|          | Bawah |   | 12934.218 | 247771.593 | 1.095 | 0.168  | 0.227  | 0.053 | 0.682  | 1 | 131.234 | 131.234 | 6    | 6    | 1443.550 | 1430.902 | 1430.902 |
|          | Atlas | 2 | 6053.614  | 211379.662 | 1.050 | 2.780  | 0.752  | 0.085 | 4.890  | 1 | 234.175 | 443.851 | 6    | 6    | 757.470  | 689.616  | 689.616  |
|          | Bawah |   | 6395.592  | 209974.572 | 1.053 | 3.902  | 1.182  | 0.084 | 7.061  | 1 | 234.175 | 443.851 | 6    | 6    | 794.873  | 727.020  | 727.020  |
| K4C=K7C  | Atlas | 1 | 12592.240 | 248729.243 | 1.092 | 11.075 | 1.961  | 0.033 | 17.844 | 1 | 443.851 | 158.839 | 6    | 4.50 | 1321.515 | 1254.109 | 1254.109 |
|          | Bawah |   | 12934.218 | 247771.593 | 1.095 | 19.575 | 6.220  | 0.039 | 36.392 | 1 | 131.234 | 131.234 | 6    | 4.50 | 1307.961 | 1291.513 | 1291.513 |
|          | Atlas | 2 | 6053.614  | 211379.662 | 1.050 | 32.157 | 11.913 | 0.042 | 60.250 | 1 | 443.851 | 158.839 | 6    | 4.50 | 682.288  | 620.654  | 620.654  |
|          | Bawah |   | 6395.592  | 209974.572 | 1.053 | 39.357 | 14.287 | 0.037 | 73.456 | 1 | 443.851 | 158.839 | 6    | 4.50 | 719.692  | 658.058  | 658.058  |
| K5C=K6C  | Atlas | 1 | 12592.240 | 248729.243 | 1.092 | 9.600  | 1.341  | 0.102 | 14.872 | 1 | 158.839 | 443.851 | 4.50 | 6    | 1264.893 | 1203.172 | 1203.172 |
|          | Bawah |   | 12934.218 | 247771.593 | 1.095 | 15.678 | 4.027  | 0.299 | 27.683 | 1 | 131.234 | 131.234 | 4.50 | 6    | 1251.339 | 1240.576 | 1240.576 |
|          | Atlas | 2 | 6053.614  | 211379.662 | 1.050 | 27.461 | 8.095  | 0.538 | 48.421 | 1 | 158.839 | 443.851 | 4.50 | 6    | 656.378  | 597.867  | 597.867  |
|          | Bawah |   | 6395.592  | 209974.572 | 1.053 | 34.158 | 9.826  | 0.630 | 59.964 | 1 | 158.839 | 443.851 | 4.50 | 6    | 693.782  | 635.271  | 635.271  |
| K11=K101 | Atlas | 1 | 12779.541 | 279804.061 | 1.082 | 31.530 | 5.808  | 0.370 | 50.540 | 1 | 0       | 234.175 | 0    | 6    | 595.280  | 989.446  | 595.280  |
|          | Bawah |   | 13207.013 | 278770.585 | 1.086 | 19.974 | 1.259  | 0.085 | 27.859 | 1 | 0       | 131.234 | 0    | 6    | 617.672  | 1026.850 | 617.672  |
|          | Atlas | 2 | 7960.062  | 232863.659 | 1.060 | 40.604 | 8.281  | 0.744 | 66.636 | 1 | 0       | 234.175 | 0    | 6    | 439.880  | 620.324  | 439.880  |
|          | Bawah |   | 8387.535  | 231524.997 | 1.064 | 36.994 | 7.643  | 0.332 | 60.881 | 1 | 0       | 234.175 | 0    | 6    | 477.284  | 657.728  | 477.284  |
| K2E=K9E  | Atlas | 3 | 2706.823  | 276822.123 | 1.017 | 14.559 | 5.799  | 1.978 | 29.499 | 1 | 158.839 | 234.175 | 1.80 | 6    | 366.817  | 331.057  | 331.057  |
|          | Bawah |   | 3134.296  | 272966.261 | 1.020 | 22.912 | 4.150  | 1.242 | 36.495 | 1 | 0       | 234.175 | 0    | 6    | 327.008  | 368.461  | 327.008  |
|          | Atlas | 1 | 12779.541 | 279804.061 | 1.082 | 11.721 | 3.886  | 0.393 | 22.402 | 1 | 158.839 | 234.175 | 6    | 6    | 1176.991 | 1290.611 | 1176.991 |
|          | Bawah |   | 13207.013 | 278770.585 | 1.086 | 3.283  | 0.984  | 0.186 | 6.193  | 1 | 131.234 | 131.234 | 6    | 6    | 1195.357 | 1328.014 | 1195.357 |
| K3E=K8E  | Atlas | 2 | 7960.062  | 232863.659 | 1.060 | 13.090 | 6.025  | 0.629 | 27.572 | 1 | 158.839 | 234.175 | 6    | 6    | 746.523  | 773.145  | 746.523  |
|          | Bawah |   | 8387.535  | 231524.997 | 1.064 | 13.339 | -5.087 | 0.816 | 9.248  | 1 | 158.839 | 234.175 | 6    | 6    | 783.927  | 810.549  | 783.927  |
|          | Atlas | 3 | 2706.823  | 276822.123 | 1.017 | 33.327 | 5.837  | 1.176 | 51.310 | 1 | 158.839 | 234.175 | 6    | 6    | 281.451  | 225.417  | 225.417  |
|          | Bawah |   | 3134.296  | 272966.261 | 1.020 | 26.287 | 7.887  | 2.836 | 47.879 | 1 | 158.839 | 234.175 | 6    | 6    | 318.855  | 262.821  | 262.821  |
| K3E=K8E  | Atlas | 1 | 12779.541 | 279804.061 | 1.082 | 0.242  | 0.344  | 0.274 | 1.215  | 1 | 158.839 | 234.175 | 6    | 6    | 1295.258 | 1414.055 | 1295.258 |
|          | Bawah |   | 13207.013 | 278770.585 | 1.086 | 0.330  | 0.104  | 0.074 | 0.696  | 1 | 131.234 | 131.234 | 6    | 6    | 1313.624 | 1451.460 | 1313.624 |
|          | Atlas | 2 | 7960.062  | 232863.659 | 1.060 | 1.515  | 0.988  | 1.051 | 4.747  | 1 | 158.839 | 234.175 | 6    | 6    | 822.558  | 853.538  | 822.558  |
|          | Bawah |   | 8387.535  | 231524.997 | 1.064 | 2.510  | 0.906  | 0.385 | 5.194  | 1 | 158.839 | 234.175 | 6    | 6    | 859.962  | 890.941  | 859.962  |
| K3E=K8E  | Atlas | 3 | 2706.823  | 276822.123 | 1.017 | 8.563  | 0.178  | 0.760 | 11.505 | 1 | 158.839 | 234.175 | 6    | 6    | 287.449  | 230.315  | 230.315  |
|          | Bawah |   | 3134.296  | 272966.261 | 1.020 | 2.262  | 0.402  | 1.199 | 4.644  | 1 | 158.839 | 234.175 | 6    | 6    | 324.853  | 267.719  | 267.719  |

|         |       |   |           |            |       |        |        |       |        |   |         |         |      |      |          |          |          |
|---------|-------|---|-----------|------------|-------|--------|--------|-------|--------|---|---------|---------|------|------|----------|----------|----------|
| K4)≡K7) | Atlas | 1 | 12779.541 | 279804.061 | 1.082 | 14.215 | 3.702  | 0.092 | 24.828 | 1 | 158.839 | 306.789 | 6    | 4.50 | 1185.708 | 1296.195 | 1185.708 |
|         | Bawah |   | 13207.013 | 278770.585 | 1.086 | 9.225  | 1.278  | 0.059 | 14.215 | 1 | 131.234 | 131.234 | 6    | 4.50 | 1184.951 | 1333.599 | 1184.951 |
|         | Atlas | 2 | 7960.062  | 232863.659 | 1.060 | 20.093 | 6.966  | 0.174 | 37.296 | 1 | 158.839 | 234.175 | 6    | 4.50 | 747.710  | 777.940  | 747.710  |
|         | Bawah |   | 8387.535  | 231524.997 | 1.064 | 20.650 | 6.886  | 0.080 | 37.881 | 1 | 158.839 | 306.789 | 6    | 4.50 | 799.233  | 815.344  | 799.233  |
|         | Atlas | 3 | 2706.823  | 276822.123 | 1.017 | 16.364 | 3.355  | 0.540 | 25.867 | 1 | 158.839 | 234.175 | 6    | 4.50 | 260.621  | 191.977  | 191.977  |
|         | Bawah |   | 3134.296  | 272966.261 | 1.020 | 17.174 | 4.906  | 0.887 | 29.794 | 1 | 158.839 | 234.175 | 6    | 4.50 | 298.025  | 229.381  | 229.381  |
|         | Atlas | 1 | 12779.541 | 279804.061 | 1.082 | 24.495 | 8.162  | 0.204 | 46.462 | 1 | 306.789 | 158.839 | 4.50 | 6    | 1364.002 | 1480.228 | 1364.002 |
|         | Bawah |   | 13207.013 | 278770.585 | 1.086 | 12.559 | 2.653  | 0.115 | 21.222 | 1 | 131.234 | 131.234 | 4.50 | 6    | 1363.245 | 1517.632 | 1363.245 |
| K5)≡K6) | Atlas | 2 | 7960.062  | 232863.659 | 1.060 | 28.255 | 10.469 | 0.257 | 53.940 | 1 | 158.839 | 234.175 | 4.50 | 6    | 829.290  | 866.482  | 829.290  |
|         | Bawah |   | 8387.535  | 231524.997 | 1.064 | 31.500 | 11.716 | 0.156 | 60.258 | 1 | 158.839 | 234.175 | 4.50 | 6    | 866.694  | 903.886  | 866.694  |
|         | Atlas | 3 | 2706.823  | 276822.123 | 1.017 | 35.157 | 9.251  | 0.063 | 57.895 | 1 | 158.839 | 234.175 | 4.50 | 6    | 291.376  | 226.607  | 226.607  |
|         | Bawah |   | 3134.296  | 272966.261 | 1.020 | 30.204 | 9.443  | 0.073 | 52.320 | 1 | 158.839 | 234.175 | 4.50 | 6    | 328.780  | 264.011  | 264.011  |

2.b. Perhitungan momen lentur dan aksial kolom arah y

| Beg      | Ujung Kolom | Lt | $\Sigma P_u$<br>(kN) | $\Sigma P_e$<br>(kN) | $\delta_s$ | MD<br>(kNm) | ML<br>(kNm) | ME<br>(kNm) | Mey<br>(kNm) | Rv | Mnak,by <sub>ka</sub><br>(kNm) | Mnak,by <sub>ka</sub><br>(kNm) | Lby <sub>ka</sub><br>(m) | Lby <sub>ki</sub><br>(m) | Nuk <sub>ly</sub><br>(kN) | Nuk <sub>xx</sub> =Nuk <sub>yy</sub><br>(kN) | Nuk pakai<br>(kN) |
|----------|-------------|----|----------------------|----------------------|------------|-------------|-------------|-------------|--------------|----|--------------------------------|--------------------------------|--------------------------|--------------------------|---------------------------|----------------------------------------------|-------------------|
| K1A=K10A | Atas        | 1  | 3853.318             | 78331.366            | 1.089      | 13.907      | 2.882       | 78.615      | 108.057      | 1  | 0                              | 306.789                        | 0                        | 4.50                     | 615.891                   | 983.466                                      | 615.891           |
|          | Bawah       |    | 4024.307             | 77951.835            | 1.094      | 8.896       | 0.411       | 79.144      | 98.568       | 1  | 0                              | 131.234                        | 0                        | 4.50                     | 619.159                   | 1020.870                                     | 619.159           |
|          | Atas        | 2  | 2495.149             | 85736.332            | 1.051      | 23.373      | 6.455       | 66.133      | 109.603      | 1  | 0                              | 234.175                        | 0                        | 4.50                     | 449.018                   | 616.405                                      | 449.018           |
|          | Bawah       |    | 2666.138             | 85114.987            | 1.055      | 18.738      | 5.195       | 41.741      | 76.361       | 1  | 0                              | 306.789                        | 0                        | 4.50                     | 500.541                   | 653.809                                      | 500.541           |
|          | Atas        | 3  | 990.782              | 80289.564            | 1.021      | 38.691      | 10.857      | 34.189      | 100.176      | 1  | 234.172                        | 158.839                        | 1.80                     | 4.50                     | 399.403                   | 329.146                                      | 329.146           |
|          | Bawah       |    | 1161.771             | 78741.003            | 1.025      | 0.472       | 0.136       | 11.768      | 12.869       | 1  | 0                              | 234.175                        | 0                        | 4.50                     | 337.622                   | 366.550                                      | 337.622           |
| K1B=K10B | Atas        | 1  | 3853.318             | 78331.366            | 1.089      | 69.181      | 11.819      | 108.034     | 233.966      | 1  | 158.839                        | 376.681                        | 4.50                     | 9                        | 1113.900                  | 1357.190                                     | 1113.900          |
|          | Bawah       |    | 4024.307             | 77951.835            | 1.094      | 45.804      | 3.515       | 95.493      | 173.976      | 1  | 131.234                        | 131.234                        | 4.50                     | 9                        | 1122.073                  | 1394.594                                     | 1122.073          |
|          | Atas        | 2  | 2495.149             | 85736.332            | 1.051      | 102.878     | 22.146      | 93.510      | 266.026      | 1  | 158.839                        | 508.298                        | 4.50                     | 9                        | 712.625                   | 792.219                                      | 712.625           |
|          | Bawah       |    | 2666.138             | 85114.987            | 1.055      | 95.304      | 20.449      | 76.762      | 236.822      | 1  | 158.839                        | 376.681                        | 4.50                     | 9                        | 737.233                   | 829.623                                      | 737.233           |
|          | Atas        | 3  | 990.782              | 80289.564            | 1.021      | 80.820      | 19.969      | 54.711      | 187.158      | 1  | 158.839                        | 234.175                        | 4.50                     | 9                        | 207.272                   | 208.226                                      | 207.272           |
|          | Bawah       |    | 1161.771             | 78741.003            | 1.025      | 98.442      | 22.443      | 33.899      | 192.365      | 1  | 158.839                        | 508.298                        | 4.50                     | 9                        | 271.327                   | 245.630                                      | 245.630           |
| K1D=K10D | Atas        | 1  | 3853.318             | 78331.366            | 1.089      | 73.941      | 12.402      | 107.956     | 241.394      | 1  | 376.681                        | 158.839                        | 9                        | 4.50                     | 1109.909                  | 1352.434                                     | 1109.909          |
|          | Bawah       |    | 4024.307             | 77951.835            | 1.094      | 49.966      | 4.025       | 94.792      | 179.832      | 1  | 131.234                        | 131.234                        | 9                        | 4.50                     | 1118.082                  | 1389.838                                     | 1118.082          |
|          | Atas        | 2  | 2495.149             | 85736.332            | 1.051      | 107.037     | 22.655      | 93.404      | 272.008      | 1  | 508.298                        | 158.839                        | 9                        | 4.50                     | 710.322                   | 789.459                                      | 710.322           |
|          | Bawah       |    | 2666.138             | 85114.987            | 1.055      | 98.634      | 20.856      | 76.654      | 241.599      | 1  | 376.681                        | 158.839                        | 9                        | 4.50                     | 734.930                   | 826.863                                      | 734.930           |
|          | Atas        | 3  | 990.782              | 80289.564            | 1.021      | 83.123      | 20.255      | 57.006      | 192.767      | 1  | 234.175                        | 158.839                        | 9                        | 4.50                     | 206.490                   | 207.295                                      | 206.490           |
|          | Bawah       |    | 1161.771             | 78741.003            | 1.025      | 99.652      | 22.591      | 33.810      | 193.988      | 1  | 508.298                        | 158.839                        | 9                        | 4.50                     | 270.545                   | 244.699                                      | 244.699           |
| K1E=K10E | Atas        | 1  | 3853.318             | 78331.366            | 1.089      | 17.235      | 3.288       | 78.563      | 112.901      | 1  | 306.789                        | 0                              | 4.50                     | 0                        | 620.783                   | 989.446                                      | 620.783           |
|          | Bawah       |    | 4024.307             | 77951.835            | 1.094      | 12.255      | 0.822       | 79.079      | 103.459      | 1  | 131.234                        | 0                              | 4.50                     | 0                        | 624.051                   | 1026.850                                     | 624.051           |
|          | Atas        | 2  | 2495.149             | 85736.332            | 1.051      | 26.123      | 6.793       | 66.039      | 113.528      | 1  | 234.175                        | 0                              | 4.50                     | 0                        | 451.264                   | 620.324                                      | 451.264           |
|          | Bawah       |    | 2666.138             | 85114.987            | 1.055      | 20.337      | 5.391       | 41.657      | 78.625       | 1  | 306.789                        | 0                              | 4.50                     | 0                        | 502.787                   | 657.728                                      | 502.787           |
|          | Atas        | 3  | 990.782              | 80289.564            | 1.021      | 39.027      | 10.927      | 34.314      | 100.837      | 1  | 158.839                        | 234.175                        | 4.50                     | 1.80                     | 400.174                   | 331.057                                      | 331.057           |
|          | Bawah       |    | 1161.771             | 78741.003            | 1.025      | 0.186       | 0.182       | 11.893      | 12.721       | 1  | 234.175                        | 0                              | 4.50                     | 0                        | 338.391                   | 368.461                                      | 338.391           |
| K2A=K9A  | Atas        | 1  | 4656.485             | 55127.671            | 1.164      | 92.236      | 27.368      | 69.974      | 260.827      | 1  | 158.839                        | 587.798                        | 0.90                     | 9                        | 1326.707                  | 1286.670                                     | 1286.670          |
|          | Bawah       |    | 3442.661             | 54795.742            | 1.117      | 48.439      | 6.387       | 74.978      | 163.574      | 1  | 0                              | 190.318                        | 0                        | 9                        | 1171.040                  | 1324.074                                     | 1171.040          |
|          | Atas        | 2  | 2472.382             | 39273.933            | 1.117      | 85.522      | 41.501      | 64.874      | 267.437      | 1  | 158.839                        | 587.798                        | 1.80                     | 9                        | 821.057                   | 771.159                                      | 771.159           |
|          | Bawah       |    | 2600.624             | 39021.434            | 1.125      | 106.075     | 42.467      | 34.592      | 266.105      | 1  | 158.839                        | 587.798                        | 0.90                     | 9                        | 935.675                   | 808.563                                      | 808.563           |
|          | Atas        | 3  | 534.203              | 31546.420            | 1.029      | 78.817      | 21.637      | 11.697      | 144.988      | 1  | 234.175                        | 0                              | 1.80                     | 0                        | 337.989                   | 225.391                                      | 225.391           |
|          | Bawah       |    | 619.697              | 31162.985            | 1.034      | 60.837      | 20.072      | 96.772      | 208.812      | 1  | 158.839                        | 587.798                        | 1.80                     | 9                        | 395.918                   | 262.795                                      | 262.795           |
| K2C=K9C  | Atas        | 1  | 4656.485             | 55127.671            | 1.164      | 2.429       | 0.279       | 91.138      | 109.900      | 1  | 306.789                        | 587.798                        | 9                        | 9                        | 1482.065                  | 1409.627                                     | 1409.627          |
|          | Bawah       |    | 3442.661             | 54795.742            | 1.117      | 3.169       | 0.382       | 90.974      | 106.663      | 1  | 131.234                        | 190.318                        | 9                        | 9                        | 1463.758                  | 1447.031                                     | 1447.031          |
|          | Atas        | 2  | 2472.382             | 39273.933            | 1.117      | 6.337       | 0.831       | 120.105     | 143.825      | 1  | 306.789                        | 587.798                        | 9                        | 9                        | 755.113                   | 685.621                                      | 685.621           |
|          | Bawah       |    | 2600.624             | 39021.434            | 1.125      | 4.827       | 0.639       | 85.509      | 103.585      | 1  | 306.789                        | 587.798                        | 9                        | 9                        | 792.517                   | 723.025                                      | 723.025           |

|          |       |   |          |           |       |         |        |         |         |   |         |         |      |      |          |          |          |
|----------|-------|---|----------|-----------|-------|---------|--------|---------|---------|---|---------|---------|------|------|----------|----------|----------|
| K2I:=K9I | Atlas | 1 | 4656.485 | 55127.671 | 1.164 | 96.290  | 27.845 | 69.900  | 246.103 | 1 | 587.798 | 158.839 | 9    | 0.90 | 435.710  | 225.417  | 225.417  |
|          | Bawah |   | 3442.661 | 54795.742 | 1.117 | 53.828  | 7.041  | 74.941  | 162.165 | 1 | 190.318 | 0       | 9    | 0    | 280.044  | 262.821  | 262.821  |
|          | Atlas | 2 | 2472.382 | 39273.933 | 1.117 | 83.738  | 41.174 | 65.044  | 264.663 | 1 | 587.798 | 158.839 | 9    | 1.80 | 823.569  | 773.145  | 773.145  |
|          | Bawah |   | 2600.624 | 39021.434 | 1.125 | 108.834 | 42.817 | 34.676  | 270.837 | 1 | 587.798 | 158.839 | 9    | 0.90 | 938.186  | 810.549  | 810.549  |
|          | Atlas | 3 | 534.203  | 31546.420 | 1.029 | 80.453  | 21.917 | 11.687  | 147.460 | 1 | 0       | 234.175 | 0    | 1.80 | 337.972  | 225.417  | 225.417  |
|          | Bawah |   | 619.697  | 31162.985 | 1.034 | 71.266  | 21.504 | 96.340  | 223.678 | 1 | 587.798 | 158.839 | 9    | 1.80 | 395.901  | 262.821  | 262.821  |
|          | Atlas | 1 | 4874.917 | 55740.855 | 1.171 | 91.294  | 29.896 | 76.624  | 275.464 | 1 | 158.839 | 587.798 | 0.90 | 9    | 1442.953 | 1407.535 | 1407.535 |
|          | Bawah |   | 4783.842 | 55544.797 | 1.168 | 45.266  | 6.608  | 82.640  | 173.533 | 1 | 0       | 190.318 | 0    | 9    | 1287.286 | 1287.286 | 1287.286 |
|          | Atlas | 2 | 2650.420 | 39475.402 | 1.126 | 40.885  | 38.492 | 74.877  | 214.023 | 1 | 158.839 | 587.798 | 1.80 | 9    | 896.422  | 850.673  | 850.673  |
|          | Bawah |   | 2778.662 | 39220.624 | 1.134 | 84.594  | 43.212 | 43.628  | 251.328 | 1 | 158.839 | 587.798 | 0.90 | 9    | 1011.039 | 888.077  | 888.077  |
| K3A:=K8A | Atlas | 3 | 549.838  | 31649.326 | 1.030 | 84.811  | 23.333 | 5.729   | 149.158 | 1 | 234.175 | 0       | 1.80 | 0    | 344.393  | 231.008  | 231.008  |
|          | Bawah |   | 635.333  | 31259.223 | 1.035 | 60.826  | 21.332 | 137.645 | 253.352 | 1 | 158.839 | 587.798 | 1.80 | 9    | 402.323  | 268.412  | 268.412  |
|          | Atlas | 1 | 4874.917 | 55740.855 | 1.171 | 5.985   | 0.661  | 97.416  | 123.400 | 1 | 306.789 | 587.798 | 9    | 9    | 1454.843 | 1393.498 | 1393.498 |
|          | Bawah |   | 4783.842 | 55544.797 | 1.168 | 3.254   | 0.262  | 92.051  | 112.411 | 1 | 131.234 | 190.318 | 9    | 9    | 1436.535 | 1430.902 | 1430.902 |
|          | Atlas | 2 | 2650.420 | 39475.402 | 1.126 | 12.199  | 1.649  | 99.031  | 130.132 | 1 | 306.789 | 587.798 | 9    | 9    | 745.565  | 689.616  | 689.616  |
|          | Bawah |   | 2778.662 | 39220.624 | 1.134 | 15.763  | 2.112  | 139.451 | 182.270 | 1 | 306.789 | 587.798 | 9    | 9    | 782.968  | 727.020  | 727.020  |
|          | Atlas | 1 | 4874.917 | 55740.855 | 1.171 | 97.982  | 30.587 | 76.562  | 286.365 | 1 | 587.798 | 158.839 | 9    | 0.90 | 1449.517 | 1414.055 | 1414.055 |
|          | Bawah |   | 4783.842 | 55544.797 | 1.168 | 55.961  | 7.825  | 82.620  | 191.152 | 1 | 190.318 | 0       | 9    | 0    | 1293.851 | 1451.460 | 1293.851 |
|          | Atlas | 2 | 2650.420 | 39475.402 | 1.126 | 35.141  | 37.302 | 75.196  | 204.159 | 1 | 587.798 | 158.839 | 9    | 1.80 | 899.604  | 853.538  | 853.538  |
|          | Bawah |   | 2778.662 | 39220.624 | 1.134 | 92.948  | 44.284 | 43.742  | 265.507 | 1 | 587.798 | 158.839 | 9    | 0.90 | 1014.221 | 890.941  | 890.941  |
| K3I:=K8I | Atlas | 3 | 549.838  | 31649.326 | 1.030 | 88.235  | 23.983 | 5.659   | 154.380 | 1 | 0       | 234.175 | 0    | 1.80 | 343.970  | 230.315  | 231.315  |
|          | Bawah |   | 635.333  | 31259.223 | 1.035 | 86.783  | 25.159 | 136.875 | 291.126 | 1 | 587.798 | 158.839 | 9    | 1.80 | 401.899  | 267.719  | 267.719  |
|          | Atlas | 1 | 4625.133 | 55180.897 | 1.162 | 95.968  | 27.265 | 81.254  | 276.297 | 1 | 158.839 | 587.798 | 0.90 | 9    | 1230.116 | 1212.033 | 1212.033 |
|          | Bawah |   | 3079.794 | 54785.176 | 1.103 | 43.852  | 5.774  | 87.740  | 168.058 | 1 | 0       | 190.318 | 0    | 9    | 1074.449 | 1249.437 | 1074.449 |
|          | Atlas | 2 | 2282.025 | 39278.190 | 1.107 | 58.662  | 34.819 | 79.258  | 231.065 | 1 | 158.839 | 587.798 | 1.80 | 9    | 754.660  | 719.200  | 719.200  |
|          | Bawah |   | 2410.267 | 39001.334 | 1.115 | 84.205  | 37.591 | 48.014  | 238.314 | 1 | 158.839 | 587.798 | 0.90 | 9    | 869.278  | 756.604  | 756.604  |
|          | Atlas | 3 | 448.939  | 31760.802 | 1.024 | 80.122  | 20.673 | 2.581   | 134.917 | 1 | 234.175 | 0       | 1.80 | 0    | 297.427  | 183.806  | 183.806  |
|          | Bawah |   | 534.433  | 31277.513 | 1.029 | 80.125  | 23.848 | 153.554 | 296.227 | 1 | 158.839 | 587.798 | 1.80 | 9    | 355.356  | 221.210  | 221.210  |
|          | Atlas | 1 | 4625.133 | 55180.897 | 1.162 | 8.019   | 0.647  | 103.231 | 131.937 | 1 | 306.789 | 587.798 | 9    | 9    | 1312.875 | 1254.109 | 1254.109 |
|          | Bawah |   | 3079.794 | 54785.176 | 1.103 | 0.649   | 0.604  | 96.403  | 108.334 | 1 | 131.234 | 190.318 | 9    | 9    | 1294.567 | 1291.513 | 1291.513 |
| K4C:=K7C | Atlas | 2 | 2282.025 | 39278.190 | 1.107 | 31.431  | 3.768  | 108.249 | 166.621 | 1 | 306.789 | 587.798 | 9    | 9    | 673.648  | 620.654  | 620.654  |
|          | Bawah |   | 2410.267 | 39001.334 | 1.115 | 37.443  | 4.382  | 151.570 | 224.767 | 1 | 306.789 | 587.798 | 9    | 9    | 711.052  | 658.058  | 658.058  |
|          | Atlas | 1 | 4625.133 | 55180.897 | 1.162 | 88.711  | 26.681 | 81.359  | 247.390 | 1 | 587.798 | 158.839 | 9    | 0.90 | 403.497  | 191.977  | 191.977  |
|          | Bawah |   | 3079.794 | 54785.176 | 1.103 | 56.524  | 7.055  | 87.810  | 178.365 | 1 | 190.318 | 0       | 9    | 0    | 247.830  | 229.381  | 229.381  |
|          | Atlas | 2 | 2282.025 | 39278.190 | 1.107 | 16.342  | 28.281 | 79.685  | 162.876 | 1 | 587.798 | 158.839 | 9    | 1.80 | 813.372  | 777.940  | 777.940  |
|          | Bawah |   | 2410.267 | 39001.334 | 1.115 | 89.306  | 38.825 | 48.293  | 250.397 | 1 | 587.798 | 158.839 | 9    | 0.90 | 927.990  | 815.344  | 815.344  |
|          | Atlas | 3 | 448.939  | 31760.802 | 1.024 | 88.750  | 23.547 | 1.998   | 149.774 | 1 | 0       | 234.175 | 0    | 1.80 | 305.758  | 191.977  | 191.977  |
|          | Bawah |   | 534.433  | 31277.513 | 1.029 | 114.860 | 29.811 | 152.638 | 348.179 | 1 | 587.798 | 158.839 | 9    | 1.80 | 363.688  | 229.381  | 229.381  |
|          | Atlas | 1 | 4625.133 | 55180.897 | 1.162 | 95.968  | 27.265 | 81.254  | 276.297 | 1 | 158.839 | 587.798 | 0.90 | 9    | 1230.116 | 1212.033 | 1212.033 |
|          | Bawah |   | 3079.794 | 54785.176 | 1.103 | 43.852  | 5.774  | 87.740  | 168.058 | 1 | 0       | 190.318 | 0    | 9    | 1074.449 | 1249.437 | 1074.449 |
| K4I:=K7I | Atlas | 2 | 2282.025 | 39278.190 | 1.107 | 58.662  | 34.819 | 79.258  | 231.065 | 1 | 158.839 | 587.798 | 1.80 | 9    | 754.660  | 719.200  | 719.200  |
|          | Bawah |   | 2410.267 | 39001.334 | 1.115 | 84.205  | 37.591 | 48.014  | 238.314 | 1 | 158.839 | 587.798 | 0.90 | 9    | 869.278  | 756.604  | 756.604  |
|          | Atlas | 3 | 448.939  | 31760.802 | 1.024 | 80.122  | 20.673 | 2.581   | 134.917 | 1 | 234.175 | 0       | 1.80 | 0    | 297.427  | 183.806  | 183.806  |
|          | Bawah |   | 534.433  | 31277.513 | 1.029 | 80.125  | 23.848 | 153.554 | 296.227 | 1 | 158.839 | 587.798 | 1.80 | 9    | 355.356  | 221.210  | 221.210  |
|          | Atlas | 1 | 4625.133 | 55180.897 | 1.162 | 8.019   | 0.647  | 103.231 | 131.937 | 1 | 306.789 | 587.798 | 9    | 9    | 1312.875 | 1254.109 | 1254.109 |
|          | Bawah |   | 3079.794 | 54785.176 | 1.103 | 0.649   | 0.604  | 96.403  | 108.334 | 1 | 131.234 | 190.318 | 9    | 9    | 1294.567 | 1291.513 | 1291.513 |
|          | Atlas | 2 | 2282.025 | 39278.190 | 1.107 | 31.431  | 3.768  | 108.249 | 166.621 | 1 | 306.789 | 587.798 | 9    | 9    | 673.648  | 620.654  | 620.654  |
|          | Bawah |   | 2410.267 | 39001.334 | 1.115 | 37.443  | 4.382  | 151.570 | 224.767 | 1 | 306.789 | 587.798 | 9    | 9    | 711.052  | 658.058  | 658.058  |
|          | Atlas | 1 | 4625.133 | 55180.897 | 1.162 | 88.711  | 26.681 | 81.359  | 247.390 | 1 | 587.798 | 158.839 | 9    | 0.90 | 403.497  | 191.977  | 191.977  |
|          | Bawah |   | 3079.794 | 54785.176 | 1.103 | 56.524  | 7.055  | 87.810  | 178.365 | 1 | 190.318 | 0       | 9    | 0    | 247.830  | 229.381  | 229.381  |

|         |       |   |          |           |       |         |        |         |         |   |         |         |      |      |          |          |          |
|---------|-------|---|----------|-----------|-------|---------|--------|---------|---------|---|---------|---------|------|------|----------|----------|----------|
| K5A=K6A | Atlas | 1 | 4743.434 | 46968.427 | 1.202 | 25.545  | 6.935  | 11.385  | 96.707  | 1 | 234.175 | 587.798 | 0    | 9    | 793.926  | 931.285  | 793.926  |
|         | Bawah |   | 4871.676 | 46811.251 | 1.210 | 90.844  | 16.775 | 81.137  | 375.527 | 1 | 0       | 0       | 0    | 0    | 0.000    | 949.987  | 0.000    |
|         | Atlas | 2 | 2735.892 | 35240.674 | 1.149 | 2.186   | 0.736  | 26.861  | 36.168  | 1 | 234.175 | 587.798 | 0    | 9    | 520.857  | 564.370  | 520.857  |
|         | Bawah |   | 2864.134 | 35015.232 | 1.158 | 60.278  | 17.100 | 79.070  | 233.340 | 1 | 0       | 0       | 0    | 0    | 0.000    | 583.072  | 0.000    |
| K5A=K6A | Atlas | 1 | 4743.434 | 46968.427 | 1.202 | 39.755  | 2.904  | 89.087  | 183.117 | 1 | 0       | 0       | 0    | 0    | 0.000    | 955.924  | 0.000    |
|         | Bawah |   | 4871.676 | 46811.251 | 1.210 | 25.545  | 6.935  | 11.385  | 75.088  | 1 | 0       | 190.318 | 0    | 9    | 798.623  | 974.626  | 798.623  |
|         | Atlas | 2 | 2735.892 | 35240.674 | 1.149 | 64.649  | 18.571 | 47.486  | 207.971 | 1 | 0       | 0       | 0    | 0    | 0.000    | 589.009  | 0.000    |
|         | Bawah |   | 2864.134 | 35015.232 | 1.158 | 2.186   | 0.736  | 26.861  | 36.630  | 1 | 234.175 | 587.798 | 0    | 9    | 564.198  | 607.711  | 564.198  |
| K5A=K6A | Atlas | 3 | 506.836  | 23281.485 | 1.038 | 80.972  | 20.980 | 1.638   | 139.938 | 1 | 234.175 | 0       | 0    | 9    | 0.000    | 197.570  | 0.000    |
|         | Bawah |   | 592.330  | 22934.966 | 1.045 | 96.574  | 18.784 | 156.052 | 319.189 | 1 | 234.175 | 587.798 | 1.80 | 0    | 347.205  | 234.974  | 234.974  |
|         | Atlas | 1 | 4743.434 | 46968.427 | 1.202 | 8.283   | 1.386  | 105.070 | 139.889 | 1 | 306.789 | 587.798 | 9    | 9    | 1256.253 | 1203.172 | 1203.172 |
|         | Bawah |   | 4871.676 | 46811.251 | 1.210 | 13.416  | 8.053  | 97.272  | 150.127 | 1 | 131.234 | 190.318 | 9    | 9    | 1237.945 | 1240.576 | 1237.945 |
| K5C=K6C | Atlas | 2 | 2735.892 | 35240.674 | 1.149 | 36.441  | 7.280  | 111.150 | 186.707 | 1 | 306.789 | 587.798 | 9    | 9    | 647.738  | 597.867  | 597.867  |
|         | Bawah |   | 2864.134 | 35015.232 | 1.158 | 39.068  | 9.454  | 155.467 | 246.427 | 1 | 306.789 | 587.798 | 9    | 9    | 685.142  | 635.271  | 635.271  |
|         | Atlas | 1 | 4743.434 | 46968.427 | 1.202 | 22.077  | 16.869 | 82.794  | 163.135 | 1 | 587.798 | 0       | 9    | 0.90 | 1338.332 | 1480.228 | 1338.332 |
|         | Bawah |   | 4871.676 | 46811.251 | 1.210 | 43.603  | 4.981  | 89.542  | 180.436 | 1 | 190.318 | 0       | 9    | 0    | 1337.092 | 1517.632 | 1337.092 |
| K5I=K6I | Atlas | 2 | 2735.892 | 35240.674 | 1.149 | 50.973  | 16.463 | 80.628  | 195.227 | 1 | 587.798 | 0       | 9    | 1.80 | 821.401  | 866.482  | 821.401  |
|         | Bawah |   | 2864.134 | 35015.232 | 1.158 | 14.195  | 26.509 | 49.819  | 128.025 | 1 | 587.798 | 0       | 9    | 0.90 | 858.805  | 903.886  | 858.805  |
|         | Atlas | 3 | 506.836  | 23281.485 | 1.038 | 141.055 | 37.968 | 2.263   | 239.042 | 1 | 0       | 234.175 | 0    | 1.80 | 340.175  | 226.607  | 226.607  |
|         | Bawah |   | 592.330  | 22934.966 | 1.045 | 96.337  | 28.039 | 159.685 | 332.835 | 1 | 587.798 | 0       | 9    | 1.80 | 320.891  | 264.011  | 264.011  |

### 3. Perencanaan tulangan kolom

| Bag      | Ujung Kolom | l <sub>t</sub> | Mnaks (KNm) | αk    | ω <sub>d</sub> | MD (KNm) | ML (KNm) | ME (KNm) | Mnak,bx <sub>ki</sub> (KNm) | Mnak,bx <sub>ka</sub> (KNm) | Mnak,by <sub>ki</sub> (KNm) | Mnak,by <sub>ka</sub> (KNm) | Lbmx <sub>ki</sub> (m) | Lbmx <sub>ka</sub> (m) | Lbny <sub>ki</sub> (m) | Lbny <sub>ka</sub> (m) | Mcx (KNm) | Mcy (KNm) | Muk1 (KNm) | Muk2 (KNm) | Muk3 (KNm) |
|----------|-------------|----------------|-------------|-------|----------------|----------|----------|----------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------|------------------------|------------------------|------------------------|-----------|-----------|------------|------------|------------|
| K1A=K10A | Atas        | 1              | 97.490      | 0.517 | 1              | 13.907   | 2.882    | 78.615   | 0                           | 234.175                     | 0                           | 306.789                     | 0                      | 5.40                   | 0                      | 3.90                   | 27.906    | 108.057   | 193.412    | 228.071    | 347.812    |
|          | Bawah       |                | 91.038      | 0.483 | 1              | 8.896    | 0.411    | 79.144   | 0                           | 131.234                     | 0                           | 131.234                     | 0                      | 5.40                   | 0                      | 3.90                   | 50.689    | 98.568    | 94.273     | 96.208     | 342.177    |
|          | Atas        | 2              | 97.270      | 0.594 | 1.3            | 23.373   | 6.455    | 66.133   | 0                           | 234.175                     | 0                           | 234.175                     | 0                      | 5.40                   | 0                      | 3.90                   | 60.692    | 109.603   | 269.174    | 274.699    | 309.080    |
|          | Bawah       |                | 66.383      | 0.406 | 1.3            | 18.738   | 5.195    | 41.741   | 0                           | 234.175                     | 0                           | 234.175                     | 0                      | 5.40                   | 0                      | 3.90                   | 67.418    | 76.361    | 197.231    | 232.573    | 200.441    |
|          | Atas        | 3              | 72.726      | 0.851 | 1              | 38.691   | 10.857   | 34.189   | 158.839                     | 234.172                     | 234.172                     | 158.839                     | 1.50                   | 5.40                   | 1.50                   | 3.90                   | 30.310    | 100.176   | 552.221    | 569.577    | 195.618    |
|          | Bawah       |                | 12.765      | 0.149 | 1              | 0.472    | 0.136    | 11.768   | 0                           | 234.175                     | 0                           | 234.175                     | 0                      | 5.40                   | 0                      | 3.90                   | 38.902    | 12.869    | 52.016     | 53.084     | 50.062     |
| K1B=K10B | Atas        | 1              | 192.805     | 0.563 | 1              | 69.181   | 11.819   | 108.034  | 158.839                     | 443.851                     | 158.839                     | 376.681                     | 1.50                   | 5.50                   | 3.90                   | 8.40                   | 236.822   | 236.822   | 612.109    | 515.165    | 443.941    |
|          | Bawah       |                | 149.760     | 0.437 | 1              | 45.804   | 3.515    | 95.493   | 0                           | 0                           | 131.234                     | 131.234                     | 0                      | 0                      | 3.90                   | 8.40                   | 173.976   | 173.976   | 39.098     | 130.328    | 452.857    |
|          | Atas        | 2              | 219.951     | 0.532 | 1.3            | 102.878  | 22.146   | 93.510   | 158.839                     | 443.851                     | 158.839                     | 508.298                     | 1.50                   | 5.50                   | 3.90                   | 8.40                   | 266.026   | 266.026   | 658.974    | 665.517    | 524.017    |
|          | Bawah       |                | 193.327     | 0.468 | 1.3            | 95.304   | 20.449   | 76.762   | 158.839                     | 443.851                     | 158.839                     | 376.681                     | 0.60                   | 5.50                   | 3.90                   | 8.40                   | 236.822   | 236.822   | 612.109    | 515.165    | 443.941    |
|          | Atas        | 3              | 154.888     | 0.501 | 1              | 80.820   | 19.969   | 54.711   | 234.175                     | 0                           | 158.839                     | 234.175                     | 1.50                   | 0                      | 3.90                   | 8.40                   | 187.158   | 187.158   | 234.464    | 272.560    | 335.615    |
|          | Bawah       |                | 154.039     | 0.499 | 1              | 98.442   | 22.443   | 33.899   | 158.839                     | 443.851                     | 158.839                     | 508.298                     | 1.50                   | 5.50                   | 3.90                   | 8.40                   | 192.365   | 192.365   | 474.915    | 479.630    | 269.303    |
| K1D=K10D | Atas        | 1              | 198.250     | 0.562 | 1              | 73.941   | 12.402   | 107.956  | 158.839                     | 443.851                     | 376.681                     | 158.839                     | 0.60                   | 5.50                   | 8.40                   | 3.90                   | 241.394   | 241.394   | 565.642    | 476.058    | 544.076    |
|          | Bawah       |                | 154.532     | 0.438 | 1              | 49.966   | 4.025    | 94.792   | 0                           | 0                           | 131.234                     | 131.234                     | 0                      | 0                      | 8.40                   | 3.90                   | 179.832   | 179.832   | 39.176     | 130.586    | 454.819    |
|          | Atas        | 2              | 224.727     | 0.533 | 1.3            | 107.037  | 22.655   | 93.404   | 158.839                     | 443.851                     | 508.298                     | 158.839                     | 1.50                   | 5.50                   | 8.40                   | 3.90                   | 272.008   | 272.008   | 659.501    | 666.049    | 528.473    |
|          | Bawah       |                | 197.188     | 0.467 | 1.3            | 98.634   | 20.856   | 76.654   | 158.839                     | 443.851                     | 376.681                     | 158.839                     | 0.60                   | 5.50                   | 8.40                   | 3.90                   | 241.599   | 241.599   | 611.552    | 514.697    | 447.413    |
|          | Atas        | 3              | 157.638     | 0.503 | 1              | 83.123   | 20.255   | 57.006   | 234.175                     | 0                           | 234.175                     | 158.839                     | 1.50                   | 0                      | 8.40                   | 3.90                   | 192.767   | 192.767   | 235.245    | 273.468    | 347.972    |
|          | Bawah       |                | 155.729     | 0.497 | 1              | 99.652   | 22.591   | 33.810   | 158.839                     | 443.851                     | 508.298                     | 158.839                     | 1.50                   | 5.50                   | 8.40                   | 3.90                   | 193.988   | 193.988   | 473.323    | 478.023    | 270.360    |
| K1E=K10E | Atas        | 1              | 101.294     | 0.516 | 1              | 17.235   | 3.288    | 78.563   | 0                           | 234.175                     | 306.789                     | 0                           | 0                      | 5.40                   | 3.90                   | 0                      | 50.540    | 112.901   | 193.116    | 227.722    | 351.514    |
|          | Bawah       |                | 94.890      | 0.484 | 1              | 12.255   | 0.822    | 79.079   | 0                           | 131.234                     | 131.234                     | 0                           | 0                      | 5.40                   | 3.90                   | 0                      | 27.859    | 103.459   | 94.427     | 96.366     | 345.862    |
|          | Atas        | 2              | 100.397     | 0.595 | 1.3            | 26.123   | 6.793    | 66.039   | 0                           | 234.175                     | 234.175                     | 0                           | 0                      | 5.40                   | 3.90                   | 0                      | 66.636    | 113.528   | 269.611    | 275.145    | 311.924    |
|          | Bawah       |                | 68.243      | 0.405 | 1.3            | 20.337   | 5.391    | 41.657   | 0                           | 234.175                     | 306.789                     | 0                           | 0                      | 5.40                   | 3.90                   | 0                      | 60.881    | 78.625    | 196.762    | 232.020    | 201.973    |
|          | Atas        | 3              | 73.061      | 0.853 | 1              | 39.027   | 10.927   | 34.314   | 158.839                     | 234.172                     | 158.839                     | 234.175                     | 1.50                   | 5.40                   | 3.90                   | 1.50                   | 29.499    | 100.837   | 553.874    | 571.284    | 196.572    |
|          | Bawah       |                | 12.568      | 0.147 | 1              | 0.186    | 0.182    | 11.893   | 0                           | 234.175                     | 234.175                     | 0                           | 0                      | 5.40                   | 3.90                   | 0                      | 36.495    | 12.721    | 51.130     | 52.179     | 50.337     |
| K2A=K9A  | Atas        | 1              | 175.562     | 0.574 | 1              | 92.236   | 27.368   | 69.974   | 158.839                     | 234.175                     | 158.839                     | 587.798                     | 5.40                   | 5.40                   | 0.60                   | 8.40                   | 6.102     | 260.827   | 422.138    | 631.500    | 419.476    |
|          | Bawah       |                | 130.506     | 0.426 | 1              | 48.439   | 6.387    | 74.978   | 131.234                     | 131.234                     | 0                           | 190.318                     | 5.40                   | 5.40                   | 0                      | 8.40                   | 22.062    | 163.574   | 153.569    | 126.841    | 372.477    |
|          | Atas        | 2              | 184.062     | 0.485 | 1.3            | 85.522   | 41.501   | 64.874   | 158.839                     | 234.175                     | 158.839                     | 587.798                     | 5.40                   | 5.40                   | 1.50                   | 8.40                   | 26.340    | 267.437   | 443.854    | 633.149    | 405.846    |
|          | Bawah       |                | 195.237     | 0.515 | 1.3            | 106.075  | 42.467   | 34.592   | 158.839                     | 234.175                     | 158.839                     | 587.798                     | 5.40                   | 5.40                   | 0.90                   | 8.40                   | 25.772    | 266.105   | 481.605    | 700.524    | 301.258    |
|          | Atas        | 3              | 129.199     | 0.551 | 1              | 78.817   | 21.637   | 11.697   | 158.839                     | 234.175                     | 234.175                     | 0                           | 5.40                   | 5.40                   | 1.50                   | 0                      | 54.524    | 144.988   | 301.155    | 258.272    | 154.634    |
|          | Bawah       |                | 105.119     | 0.449 | 1              | 60.837   | 20.072   | 96.772   | 158.839                     | 234.175                     | 158.839                     | 587.798                     | 5.40                   | 5.40                   | 1.50                   | 8.40                   | 52.026    | 208.812   | 317.062    | 450.253    | 491.398    |
| K2C=K9C  | Atas        | 1              | 98.421      | 0.498 | 1              | 2.429    | 0.279    | 91.138   | 234.175                     | 443.851                     | 306.789                     | 587.798                     | 5.40                   | 5.40                   | 8.40                   | 8.40                   | 32.998    | 109.900   | 529.496    | 602.537    | 385.624    |
|          | Bawah       |                | 99.091      | 0.502 | 1              | 3.169    | 0.382    | 90.974   | 131.234                     | 131.234                     | 131.234                     | 190.318                     | 5.40                   | 5.40                   | 8.40                   | 8.40                   | 27.569    | 106.663   | 202.291    | 221.252    | 385.819    |
|          | Atas        | 2              | 133.288     | 0.583 | 1.3            | 6.337    | 0.831    | 120.105  | 234.175                     | 443.851                     | 306.789                     | 587.798                     | 5.40                   | 5.40                   | 8.40                   | 8.40                   | 46.991    | 143.825   | 805.621    | 916.751    | 511.968    |
|          | Bawah       |                | 95.256      | 0.417 | 1.3            | 4.827    | 0.639    | 85.509   | 234.175                     | 443.851                     | 306.789                     | 587.798                     | 5.40                   | 5.40                   | 8.40                   | 8.40                   | 39.335    | 103.585   | 575.751    | 655.172    | 364.879    |

|           |       |   |         |       |     |         |        |         |         |         |         |         |      |      |      |      |        |         |         |         |         |
|-----------|-------|---|---------|-------|-----|---------|--------|---------|---------|---------|---------|---------|------|------|------|------|--------|---------|---------|---------|---------|
| K2I:=K9I: | Atas  | 1 | 180.110 | 0.569 | 1   | 96.290  | 27.845 | 69.900  | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 0.60 | 22.402 | 246.103 | 418.514 | 626.080 | 423.920 |
|           | Bawah |   | 136.606 | 0.431 | 1   | 53.828  | 7.041  | 74.941  | 131.234 | 131.234 | 190.318 | 0       | 5.40 | 5.40 | 8.40 | 0    | 6.193  | 162.165 | 155.342 | 128.306 | 378.664 |
|           | Atas  | 2 | 182.160 | 0.478 | 1.3 | 83.738  | 41.174 | 65.044  | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 1.50 | 27.572 | 264.663 | 438.969 | 623.370 | 404.342 |
| K3A:=K8A  | Bawah |   | 199.109 | 0.522 | 1.3 | 108.834 | 42.817 | 34.676  | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 0.60 | 9.248  | 270.837 | 499.625 | 747.417 | 304.872 |
|           | Atas  | 3 | 131.611 | 0.523 | 1   | 80.453  | 21.917 | 11.687  | 158.839 | 234.175 | 0       | 234.175 | 5.40 | 5.40 | 0    | 1.50 | 51.310 | 147.460 | 285.779 | 245.086 | 156.575 |
|           | Bawah |   | 119.925 | 0.477 | 1   | 71.266  | 21.504 | 96.340  | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 9    | 1.50 | 47.879 | 223.678 | 336.550 | 477.146 | 502.036 |
| K3C:=K8C  | Atas  | 1 | 178.012 | 0.569 | 1   | 91.294  | 29.896 | 76.624  | 158.839 | 234.175 | 158.839 | 587.798 | 5.40 | 5.40 | 0.60 | 8.40 | 0.634  | 275.464 | 419.053 | 626.886 | 449.072 |
|           | Bawah |   | 134.612 | 0.431 | 1   | 45.266  | 6.608  | 82.640  | 131.234 | 131.234 | 0       | 190.318 | 5.40 | 5.40 | 0    | 8.40 | 1.345  | 173.533 | 155.078 | 128.088 | 401.556 |
|           | Atas  | 2 | 145.800 | 0.461 | 1.3 | 40.885  | 38.492 | 74.877  | 158.839 | 234.175 | 158.839 | 587.798 | 5.40 | 5.40 | 1.50 | 8.40 | 6.533  | 214.023 | 423.313 | 601.138 | 397.829 |
| K3I:=K8I: | Bawah |   | 170.652 | 0.539 | 1.3 | 84.594  | 43.212 | 43.628  | 158.839 | 234.175 | 158.839 | 587.798 | 5.40 | 5.40 | 0.60 | 8.40 | 5.656  | 251.328 | 515.927 | 771.805 | 317.434 |
|           | Atas  | 3 | 139.106 | 0.565 | 1   | 84.811  | 23.333 | 5.729   | 158.839 | 234.175 | 234.175 | 0       | 5.40 | 5.40 | 1.50 | 0    | 12.028 | 149.158 | 308.565 | 264.627 | 137.615 |
|           | Bawah |   | 107.122 | 0.435 | 1   | 60.826  | 21.332 | 137.645 | 158.839 | 234.175 | 158.839 | 587.798 | 5.40 | 5.40 | 1.50 | 8.40 | 4.698  | 253.352 | 307.474 | 436.638 | 664.376 |
| K4A:=K7A  | Atas  | 1 | 100.207 | 0.479 | 1   | 5.985   | 0.661  | 97.416  | 234.175 | 443.851 | 306.789 | 587.798 | 5.40 | 5.40 | 8.40 | 8.40 | 0.753  | 123.400 | 508.996 | 579.209 | 416.127 |
|           | Bawah |   | 108.988 | 0.521 | 1   | 3.254   | 0.262  | 92.051  | 131.234 | 131.234 | 131.234 | 190.318 | 5.40 | 5.40 | 8.40 | 8.40 | 0.682  | 112.411 | 210.070 | 229.760 | 390.307 |
|           | Atas  | 2 | 164.306 | 0.582 | 1.3 | 12.199  | 1.649  | 99.031  | 234.175 | 443.851 | 306.789 | 587.798 | 5.40 | 5.40 | 8.40 | 8.40 | 4.890  | 130.132 | 804.462 | 915.432 | 430.470 |
| K4C:=K7C  | Bawah |   | 117.830 | 0.418 | 1.3 | 15.763  | 2.112  | 139.451 | 234.175 | 443.851 | 306.789 | 587.798 | 5.40 | 5.40 | 8.40 | 8.40 | 7.061  | 182.270 | 576.910 | 656.491 | 604.463 |
|           | Atas  | 1 | 185.391 | 0.558 | 1   | 97.982  | 30.587 | 76.562  | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 0.60 | 1.215  | 286.365 | 410.958 | 614.775 | 456.558 |
|           | Bawah |   | 146.606 | 0.442 | 1   | 55.961  | 7.825  | 82.620  | 131.234 | 131.234 | 190.318 | 0       | 5.40 | 5.40 | 8.40 | 0    | 0.696  | 191.152 | 159.040 | 131.360 | 413.982 |
| K4I:=K7I: | Atas  | 2 | 139.354 | 0.433 | 1.3 | 35.141  | 37.302 | 75.196  | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 1.50 | 4.747  | 204.159 | 397.940 | 565.106 | 391.890 |
|           | Bawah |   | 182.392 | 0.567 | 1.3 | 92.948  | 44.284 | 43.742  | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 0.60 | 5.194  | 265.507 | 542.348 | 811.329 | 327.810 |
|           | Atas  | 3 | 144.255 | 0.500 | 1   | 88.235  | 23.983 | 5.659   | 158.839 | 234.175 | 0       | 234.175 | 5.40 | 5.40 | 0    | 1.50 | 11.505 | 154.380 | 272.961 | 234.093 | 141.597 |
| K4C:=K7C  | Bawah |   | 144.393 | 0.500 | 1   | 86.783  | 25.159 | 136.875 | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 1.50 | 4.644  | 291.126 | 353.545 | 502.062 | 692.413 |
|           | Atas  | 1 | 184.191 | 0.572 | 1   | 95.968  | 27.265 | 81.254  | 158.839 | 306.789 | 158.839 | 587.798 | 5.40 | 5.40 | 0.60 | 8.40 | 17.098 | 276.297 | 475.880 | 646.376 | 470.660 |
|           | Bawah |   | 137.716 | 0.428 | 1   | 43.852  | 5.774  | 87.740  | 131.234 | 131.234 | 0       | 190.318 | 5.40 | 5.40 | 0    | 8.40 | 32.285 | 168.058 | 156.528 | 127.997 | 420.616 |
| K4I:=K7I: | Atas  | 2 | 166.752 | 0.506 | 1.3 | 58.662  | 34.819 | 79.258  | 158.839 | 234.175 | 158.839 | 587.798 | 5.40 | 5.40 | 3.90 | 3.90 | 56.313 | 231.065 | 472.031 | 662.788 | 431.039 |
|           | Bawah |   | 162.512 | 0.494 | 1.3 | 84.205  | 37.591 | 48.014  | 158.839 | 306.789 | 158.839 | 587.798 | 5.40 | 5.40 | 3.90 | 0.60 | 51.991 | 238.314 | 533.635 | 724.822 | 329.543 |
|           | Atas  | 3 | 129.224 | 0.490 | 1   | 80.122  | 20.673 | 2.581   | 158.839 | 234.175 | 234.175 | 0       | 5.40 | 5.40 | 3.90 | 1.50 | 44.871 | 134.917 | 272.833 | 231.190 | 116.677 |
| K4C:=K7C  | Bawah |   | 134.307 | 0.510 | 1   | 80.125  | 23.848 | 153.554 | 158.839 | 234.175 | 158.839 | 587.798 | 5.40 | 5.40 | 3.90 | 1.50 | 48.781 | 296.227 | 365.400 | 513.065 | 754.099 |
|           | Atas  | 1 | 102.286 | 0.466 | 1   | 8.019   | 0.647  | 103.231 | 443.851 | 158.839 | 306.789 | 587.798 | 5.40 | 5.40 | 8.40 | 8.40 | 17.844 | 131.937 | 458.730 | 552.681 | 442.670 |
|           | Bawah |   | 117.139 | 0.534 | 1   | 0.649   | 0.604  | 96.403  | 131.234 | 131.234 | 131.234 | 190.318 | 5.40 | 5.40 | 8.40 | 8.40 | 36.392 | 108.334 | 218.311 | 236.348 | 406.210 |
| K4I:=K7I: | Atas  | 2 | 201.218 | 0.574 | 1.3 | 31.431  | 3.768  | 108.249 | 443.851 | 158.839 | 306.789 | 587.798 | 5.40 | 5.40 | 8.40 | 8.40 | 60.250 | 166.621 | 734.940 | 885.459 | 491.605 |
|           | Bawah |   | 149.038 | 0.426 | 1.3 | 37.443  | 4.382  | 151.570 | 443.851 | 158.839 | 306.789 | 587.798 | 5.40 | 5.40 | 8.40 | 8.40 | 73.456 | 224.767 | 544.354 | 655.840 | 680.508 |
|           | Atas  | 1 | 176.197 | 0.537 | 1   | 88.711  | 26.681 | 81.359  | 158.839 | 306.789 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 0.60 | 24.828 | 247.390 | 446.794 | 606.868 | 462.870 |
| K4I:=K7I: | Bawah |   | 151.786 | 0.463 | 1   | 56.524  | 7.055  | 87.810  | 131.234 | 131.234 | 190.318 | 0       | 5.40 | 5.40 | 8.40 | 0    | 14.215 | 178.365 | 169.324 | 138.461 | 435.560 |
|           | Atas  | 2 | 118.646 | 0.412 | 1.3 | 16.342  | 28.281 | 79.685  | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 1.50 | 37.296 | 162.876 | 384.065 | 539.273 | 381.531 |
|           | Bawah |   | 169.287 | 0.588 | 1.3 | 89.306  | 38.825 | 48.293  | 158.839 | 306.789 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 0.60 | 37.881 | 250.397 | 635.676 | 863.422 | 337.366 |
| K4I:=K7I: | Atas  | 3 | 144.174 | 0.437 | 1   | 88.750  | 23.547 | 1.998   | 158.839 | 234.175 | 0       | 234.175 | 5.40 | 5.40 | 0    | 1.50 | 25.867 | 149.774 | 243.304 | 206.168 | 126.302 |
|           | Bawah |   | 185.529 | 0.563 | 1   | 114.860 | 29.811 | 152.638 | 158.839 | 234.175 | 587.798 | 158.839 | 5.40 | 5.40 | 8.40 | 1.50 | 29.794 | 348.179 | 403.450 | 566.492 | 792.985 |



|             |       |   |         |       |     |         |        |         |         |         |         |         |      |      |      |      |        |         |         |         |         |
|-------------|-------|---|---------|-------|-----|---------|--------|---------|---------|---------|---------|---------|------|------|------|------|--------|---------|---------|---------|---------|
| K5A=K6A     | Atas  | 1 | 171.407 | 0.804 | 1   | 25.545  | 6.935  | 11.385  | 306.789 | 158.839 | 234.175 | 587.798 | 3.90 | 5.40 | 0    | 8.40 | 9.896  | 96.707  | 590.555 | 647.620 | 81.920  |
|             | Bawah |   | 41.750  | 0.196 | 1   | 90.844  | 16.775 | 81.137  | 0       | 234.175 | 0       | 0       | 0    | 5.40 | 0    | 0    | 3.822  | 375.527 | 52.025  | 15.607  | 453.773 |
|             | Atas  | 2 | 157.088 | 0.861 | 1.3 | 2.186   | 0.736  | 26.861  | 306.789 | 158.839 | 234.175 | 587.798 | 3.90 | 5.40 | 0    | 8.40 | 3.388  | 36.168  | 821.626 | 901.019 | 115.886 |
|             | Bawah |   | 25.446  | 0.139 | 1.3 | 60.278  | 17.100 | 79.070  | 0       | 234.175 | 0       | 0       | 0    | 5.40 | 0    | 0    | 19.823 | 233.340 | 48.136  | 14.441  | 413.340 |
| K5A'=K6A'   | Atas  | 1 | 41.750  | 0.239 | 1   | 39.755  | 2.904  | 89.087  | 0       | 234.175 | 0       | 0       | 0    | 5.40 | 0    | 0    | 5.074  | 183.117 | 63.483  | 19.045  | 418.956 |
|             | Bawah |   | 132.933 | 0.761 | 1   | 25.545  | 6.935  | 11.385  | 131.234 | 131.234 | 0       | 190.318 | 3.90 | 5.40 | 0    | 8.40 | 9.281  | 75.088  | 278.433 | 227.682 | 81.920  |
|             | Atas  | 2 | 25.446  | 0.164 | 1.3 | 64.649  | 18.571 | 47.486  | 0       | 234.175 | 0       | 0       | 0    | 5.40 | 0    | 0    | 13.172 | 207.971 | 56.728  | 17.018  | 286.821 |
|             | Bawah |   | 129.442 | 0.836 | 1.3 | 2.186   | 0.736  | 26.861  | 306.789 | 158.839 | 234.175 | 587.798 | 3.90 | 5.40 | 0    | 8.40 | 5.104  | 36.630  | 797.870 | 874.967 | 115.886 |
| K5A''=K6A'' | Atas  | 3 | 130.734 | 0.473 | 1   | 80.972  | 20.980 | 1.638   | 234.175 | 158.839 | 234.175 | 0       | 3.90 | 5.40 | 0    | 8.40 | 20.734 | 139.938 | 215.464 | 64.639  | 113.931 |
|             | Bawah |   | 145.944 | 0.527 | 1   | 96.574  | 18.784 | 156.052 | 306.789 | 158.839 | 234.175 | 587.798 | 3.90 | 5.40 | 1.50 | 0    | 10.867 | 319.189 | 338.609 | 262.231 | 776.545 |
|             | Atas  | 1 | 121.296 | 0.507 | 1   | 8.283   | 1.386  | 105.070 | 158.839 | 443.851 | 306.789 | 587.798 | 3.90 | 5.40 | 8.40 | 8.40 | 14.872 | 139.889 | 498.699 | 600.835 | 451.445 |
|             | Bawah |   | 118.055 | 0.493 | 1   | 13.416  | 8.053  | 97.272  | 131.234 | 131.234 | 131.234 | 190.318 | 3.90 | 5.40 | 8.40 | 8.40 | 27.683 | 150.127 | 201.702 | 218.366 | 431.085 |
| K5I:=K6I    | Atas  | 2 | 198.036 | 0.568 | 1.3 | 36.441  | 7.280  | 111.150 | 158.839 | 443.851 | 306.789 | 587.798 | 3.90 | 5.40 | 8.40 | 8.40 | 48.421 | 186.707 | 727.266 | 876.213 | 512.738 |
|             | Bawah |   | 150.318 | 0.432 | 1.3 | 39.068  | 9.454  | 155.467 | 158.839 | 443.851 | 306.789 | 587.798 | 3.90 | 5.40 | 8.40 | 8.40 | 59.964 | 246.427 | 552.029 | 665.087 | 703.908 |
|             | Atas  | 1 | 100.992 | 0.421 | 1   | 22.077  | 16.869 | 82.794  | 306.789 | 158.839 | 587.798 | 0       | 3.90 | 5.40 | 8.40 | 0.60 | 46.462 | 163.135 | 309.531 | 339.440 | 388.627 |
|             | Bawah |   | 138.624 | 0.579 | 1   | 43.603  | 4.981  | 89.542  | 131.234 | 131.234 | 190.318 | 0       | 3.90 | 5.40 | 8.40 | 0    | 21.222 | 180.436 | 211.671 | 173.089 | 427.090 |
|             | Atas  | 2 | 41.510  | 0.331 | 1.3 | 50.973  | 16.463 | 80.628  | 158.839 | 234.175 | 587.798 | 0       | 3.90 | 5.40 | 8.40 | 1.50 | 53.940 | 195.227 | 277.756 | 335.037 | 409.446 |
|             | Bawah |   | 83.916  | 0.669 | 1.3 | 14.195  | 26.509 | 49.819  | 158.839 | 234.175 | 587.798 | 0       | 3.90 | 5.40 | 8.40 | 0.60 | 60.258 | 128.025 | 561.498 | 677.295 | 251.978 |
|             | Atas  | 3 | 230.015 | 0.589 | 1   | 141.055 | 37.968 | 2.263   | 158.839 | 234.175 | 0       | 234.175 | 3.90 | 5.40 | 0    | 1.50 | 57.895 | 239.042 | 325.812 | 277.142 | 197.480 |
|             | Bawah |   | 160.468 | 0.411 | 1   | 96.337  | 28.039 | 159.685 | 158.839 | 234.175 | 587.798 | 0       | 3.90 | 5.40 | 8.40 | 1.50 | 52.320 | 332.835 | 265.299 | 320.011 | 801.272 |

### 3. Perencanaan tulangan kolom lanjutan

| Biq      | Ujung Kolom | Lt | Muk pakai (KNm) | Muk terpakai (KNm) | Nuk <sub>lx</sub> (KN) | Nuk <sub>ly</sub> (KN) | Nuk <sub>2x</sub> =Nuk <sub>2y</sub> (KN) | Nuk pakai (KN) | Mn (KNm) | Pn (KN)  | %   | Ast (mm <sup>2</sup> ) | As'=As perlu (mm <sup>2</sup> ) | n tul. | n tul. terpakai | As=As ada (mm <sup>2</sup> ) |
|----------|-------------|----|-----------------|--------------------|------------------------|------------------------|-------------------------------------------|----------------|----------|----------|-----|------------------------|---------------------------------|--------|-----------------|------------------------------|
| K1A=K10A | Atas        | 1  | 193.412         | 193.412            | 590.389                | 615.891                | 983.466                                   | 590.389        | 322.353  | 983.981  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 94.273          | 98.568             | 612.780                | 619.159                | 1020.870                                  | 612.780        | 164.280  | 1021.300 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Atas        | 2  | 269.174         | 269.174            | 437.634                | 449.018                | 616.405                                   | 437.634        | 448.623  | 729.390  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 197.231         | 197.231            | 475.038                | 500.541                | 653.809                                   | 475.038        | 328.718  | 791.730  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Atas        | 3  | 195.618         | 195.618            | 366.048                | 399.403                | 329.146                                   | 329.146        | 326.030  | 548.577  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 50.062          | 50.062             | 326.238                | 337.622                | 366.550                                   | 326.238        | 83.437   | 543.731  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
| K1B=K10B | Atas        | 1  | 476.791         | 476.791            | 1113.900               | 1113.900               | 1357.190                                  | 1113.900       | 794.652  | 1856.500 | 1.2 | 4320                   | 2160                            | 5.682  | 6               | 2280.8                       |
|          | Bawah       |    | 39.098          | 173.976            | 1122.073               | 1122.073               | 1394.594                                  | 1122.073       | 289.960  | 1870.122 | 1.1 | 3960                   | 1980                            | 5.209  | 6               | 2280.8                       |
|          | Atas        | 2  | 524.017         | 524.017            | 712.625                | 712.625                | 792.219                                   | 712.625        | 873.362  | 1187.708 | 1.3 | 4680                   | 2340                            | 6.156  | 7               | 2660.9                       |
|          | Bawah       |    | 443.941         | 443.941            | 737.233                | 737.233                | 829.623                                   | 737.233        | 739.902  | 1228.721 | 1.2 | 4320                   | 2160                            | 5.682  | 6               | 2280.8                       |
|          | Atas        | 3  | 234.464         | 234.464            | 207.272                | 207.272                | 208.226                                   | 207.272        | 390.773  | 345.454  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 269.303         | 269.303            | 271.327                | 271.327                | 245.630                                   | 245.630        | 448.838  | 409.383  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
| K1D=K10D | Atas        | 1  | 476.058         | 476.058            | 1109.909               | 1109.909               | 1352.434                                  | 1109.909       | 793.430  | 1849.848 | 1.1 | 3960                   | 1980                            | 5.209  | 6               | 2280.8                       |
|          | Bawah       |    | 39.176          | 179.832            | 1118.082               | 1118.082               | 1389.838                                  | 1118.082       | 299.720  | 1863.470 | 1.1 | 3960                   | 1980                            | 5.209  | 6               | 2280.8                       |
|          | Atas        | 2  | 528.473         | 528.473            | 710.322                | 710.322                | 789.459                                   | 710.322        | 880.788  | 1183.870 | 1.2 | 4320                   | 2160                            | 5.682  | 6               | 2280.8                       |
|          | Bawah       |    | 447.413         | 447.413            | 734.930                | 734.930                | 826.863                                   | 734.930        | 745.688  | 1224.883 | 1.2 | 4320                   | 2160                            | 5.682  | 6               | 2280.8                       |
|          | Atas        | 3  | 235.245         | 235.245            | 206.490                | 206.490                | 207.295                                   | 206.490        | 392.075  | 344.150  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 270.360         | 270.360            | 270.545                | 270.545                | 244.699                                   | 244.699        | 450.600  | 407.832  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
| K1E=K10E | Atas        | 1  | 193.116         | 193.116            | 595.280                | 620.783                | 989.446                                   | 595.280        | 321.860  | 992.134  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 94.427          | 103.459            | 617.672                | 624.051                | 1026.850                                  | 617.672        | 172.432  | 1029.453 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Atas        | 2  | 269.611         | 269.611            | 439.880                | 451.264                | 620.324                                   | 439.880        | 449.352  | 733.134  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 196.762         | 196.762            | 477.284                | 502.787                | 657.728                                   | 477.284        | 327.937  | 795.474  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Atas        | 3  | 196.572         | 196.572            | 366.817                | 400.174                | 331.057                                   | 331.057        | 327.620  | 551.762  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 50.337          | 50.337             | 327.008                | 338.391                | 368.461                                   | 327.008        | 83.895   | 545.013  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
| K2A=K9A  | Atas        | 1  | 419.476         | 419.476            | 1172.448               | 1326.707               | 1286.670                                  | 1172.448       | 699.127  | 1954.079 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 126.841         | 163.574            | 1190.813               | 1171.040               | 1324.074                                  | 1171.040       | 272.623  | 1951.733 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Atas        | 2  | 405.846         | 405.846            | 744.012                | 821.057                | 771.159                                   | 744.012        | 676.410  | 1240.019 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 301.258         | 301.258            | 781.415                | 935.675                | 808.563                                   | 781.415        | 502.097  | 1302.359 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Atas        | 3  | 154.603         | 154.603            | 281.468                | 337.989                | 225.391                                   | 225.391        | 257.672  | 375.652  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 317.062         | 317.062            | 318.872                | 395.918                | 262.795                                   | 262.795        | 528.437  | 437.992  | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
| K2C=K9C  | Atas        | 1  | 385.624         | 385.624            | 1493.970               | 1482.065               | 1409.627                                  | 1409.627       | 642.707  | 2349.378 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 202.291         | 202.291            | 1470.772               | 1463.758               | 1447.031                                  | 1447.031       | 337.152  | 2411.718 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Atas        | 2  | 511.968         | 511.968            | 767.018                | 755.113                | 685.621                                   | 685.621        | 853.280  | 1142.702 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |
|          | Bawah       |    | 364.879         | 364.879            | 804.422                | 792.517                | 723.025                                   | 723.025        | 608.132  | 1205.042 | 1.0 | 3600                   | 1800                            | 4.735  | 5               | 1900.7                       |

|          |       |   |         |         |          |          |          |          |         |          |     |      |      |       |   |        |
|----------|-------|---|---------|---------|----------|----------|----------|----------|---------|----------|-----|------|------|-------|---|--------|
| K2I)=K9E | Atlas | 1 | 418.514 | 418.514 | 1176.991 | 435.710  | 225.417  | 225.417  | 697.523 | 375.695  | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|          | Bawah |   | 128.306 | 162.165 | 1195.357 | 280.044  | 262.821  | 262.821  | 270.275 | 438.035  | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Atlas | 2 | 404.342 | 404.342 | 746.523  | 823.569  | 773.145  | 746.523  | 673.903 | 1244.205 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 304.872 | 304.872 | 783.927  | 938.186  | 810.549  | 783.927  | 508.120 | 1306.545 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 3 | 156.575 | 156.575 | 281.451  | 337.972  | 225.417  | 225.417  | 260.958 | 375.695  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 336.550 | 336.550 | 318.855  | 395.901  | 262.821  | 262.821  | 560.917 | 438.035  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 1 | 419.053 | 419.053 | 1288.694 | 1442.953 | 1407.535 | 1288.694 | 698.422 | 2147.823 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 128.088 | 173.533 | 1307.060 | 1287.286 | 1444.939 | 1287.286 | 289.222 | 2145.477 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 2 | 397.829 | 397.829 | 819.376  | 896.422  | 850.673  | 819.376  | 663.048 | 1365.626 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 307.434 | 307.434 | 856.780  | 1011.039 | 888.077  | 856.780  | 512.390 | 1427.966 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
| K3A)=K8A | Atlas | 3 | 137.615 | 149.158 | 287.873  | 344.393  | 231.008  | 231.008  | 248.597 | 385.013  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 307.474 | 307.474 | 325.277  | 402.323  | 268.412  | 268.412  | 512.457 | 447.353  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 1 | 416.127 | 416.127 | 1466.748 | 1454.843 | 1393.498 | 1393.498 | 693.545 | 2322.497 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 210.070 | 210.070 | 1443.550 | 1436.535 | 1430.902 | 1430.902 | 350.117 | 2384.837 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 2 | 430.470 | 430.470 | 757.470  | 745.565  | 689.616  | 689.616  | 717.450 | 1149.360 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Bawah |   | 576.910 | 576.910 | 794.873  | 782.968  | 727.020  | 727.020  | 961.517 | 1211.700 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Atlas | 1 | 410.958 | 410.958 | 1295.258 | 1449.517 | 1414.055 | 1295.258 | 684.930 | 2158.763 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 131.360 | 191.152 | 1313.624 | 1293.851 | 1451.460 | 1293.851 | 318.587 | 2156.418 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 2 | 391.890 | 391.890 | 822.558  | 899.604  | 853.538  | 822.558  | 653.150 | 1370.931 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 327.810 | 327.810 | 859.962  | 1014.221 | 890.941  | 859.962  | 546.350 | 1433.270 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
| K3C)=K8C | Atlas | 3 | 141.597 | 154.380 | 287.449  | 343.970  | 230.315  | 230.315  | 257.300 | 383.858  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 353.545 | 353.545 | 324.853  | 401.899  | 267.719  | 267.719  | 589.242 | 446.198  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 1 | 470.660 | 470.660 | 1101.360 | 1230.116 | 1212.033 | 1101.360 | 784.433 | 1835.600 | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|          | Bawah |   | 127.997 | 168.058 | 1100.602 | 1074.449 | 1249.437 | 1074.449 | 280.097 | 1790.748 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Atlas | 2 | 431.039 | 431.039 | 688.998  | 754.660  | 719.200  | 688.998  | 718.398 | 1148.330 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Bawah |   | 329.543 | 329.543 | 740.521  | 869.278  | 756.604  | 740.521  | 549.238 | 1234.202 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 3 | 116.677 | 134.917 | 252.290  | 297.427  | 183.806  | 183.806  | 224.862 | 306.343  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 365.400 | 365.400 | 289.694  | 355.356  | 221.210  | 221.210  | 609.000 | 368.683  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 1 | 442.670 | 442.670 | 1321.515 | 1312.875 | 1254.109 | 1254.109 | 737.783 | 2090.182 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 218.311 | 218.311 | 1307.961 | 1294.567 | 1291.513 | 1291.513 | 363.852 | 2152.522 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
| K4A)=K7A | Atlas | 2 | 491.605 | 491.605 | 682.288  | 673.648  | 620.654  | 620.654  | 819.342 | 1034.423 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Bawah |   | 544.354 | 544.354 | 719.692  | 711.052  | 658.058  | 658.058  | 907.257 | 1096.763 | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|          | Atlas | 1 | 446.794 | 446.794 | 1185.708 | 403.497  | 191.977  | 191.977  | 744.657 | 319.962  | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|          | Bawah |   | 138.461 | 178.365 | 1184.951 | 247.830  | 229.381  | 229.381  | 297.275 | 382.302  | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Atlas | 2 | 381.531 | 381.531 | 747.710  | 813.372  | 777.940  | 747.710  | 635.885 | 1246.183 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 337.366 | 337.366 | 799.233  | 927.990  | 815.344  | 799.233  | 562.277 | 1332.055 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 3 | 126.302 | 149.774 | 260.621  | 305.758  | 191.977  | 191.977  | 249.623 | 319.962  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 403.450 | 403.450 | 298.025  | 363.688  | 229.381  | 229.381  | 672.417 | 382.302  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 1 | 442.670 | 442.670 | 1321.515 | 1312.875 | 1254.109 | 1254.109 | 737.783 | 2090.182 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 218.311 | 218.311 | 1307.961 | 1294.567 | 1291.513 | 1291.513 | 363.852 | 2152.522 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
| K4C)=K7C | Atlas | 2 | 491.605 | 491.605 | 682.288  | 673.648  | 620.654  | 620.654  | 819.342 | 1034.423 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Bawah |   | 544.354 | 544.354 | 719.692  | 711.052  | 658.058  | 658.058  | 907.257 | 1096.763 | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|          | Atlas | 1 | 446.794 | 446.794 | 1185.708 | 403.497  | 191.977  | 191.977  | 744.657 | 319.962  | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|          | Bawah |   | 138.461 | 178.365 | 1184.951 | 247.830  | 229.381  | 229.381  | 297.275 | 382.302  | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Atlas | 2 | 381.531 | 381.531 | 747.710  | 813.372  | 777.940  | 747.710  | 635.885 | 1246.183 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 337.366 | 337.366 | 799.233  | 927.990  | 815.344  | 799.233  | 562.277 | 1332.055 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 3 | 126.302 | 149.774 | 260.621  | 305.758  | 191.977  | 191.977  | 249.623 | 319.962  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 403.450 | 403.450 | 298.025  | 363.688  | 229.381  | 229.381  | 672.417 | 382.302  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 1 | 442.670 | 442.670 | 1321.515 | 1312.875 | 1254.109 | 1254.109 | 737.783 | 2090.182 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 218.311 | 218.311 | 1307.961 | 1294.567 | 1291.513 | 1291.513 | 363.852 | 2152.522 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
| K4I)=K7I | Atlas | 2 | 491.605 | 491.605 | 682.288  | 673.648  | 620.654  | 620.654  | 819.342 | 1034.423 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Bawah |   | 544.354 | 544.354 | 719.692  | 711.052  | 658.058  | 658.058  | 907.257 | 1096.763 | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|          | Atlas | 1 | 446.794 | 446.794 | 1185.708 | 403.497  | 191.977  | 191.977  | 744.657 | 319.962  | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|          | Bawah |   | 138.461 | 178.365 | 1184.951 | 247.830  | 229.381  | 229.381  | 297.275 | 382.302  | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|          | Atlas | 2 | 381.531 | 381.531 | 747.710  | 813.372  | 777.940  | 747.710  | 635.885 | 1246.183 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 337.366 | 337.366 | 799.233  | 927.990  | 815.344  | 799.233  | 562.277 | 1332.055 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 3 | 126.302 | 149.774 | 260.621  | 305.758  | 191.977  | 191.977  | 249.623 | 319.962  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 403.450 | 403.450 | 298.025  | 363.688  | 229.381  | 229.381  | 672.417 | 382.302  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Atlas | 1 | 442.670 | 442.670 | 1321.515 | 1312.875 | 1254.109 | 1254.109 | 737.783 | 2090.182 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|          | Bawah |   | 218.311 | 218.311 | 1307.961 | 1294.567 | 1291.513 | 1291.513 | 363.852 | 2152.522 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |

|           |       |   |         |         |          |          |          |          |         |          |     |      |      |       |   |        |
|-----------|-------|---|---------|---------|----------|----------|----------|----------|---------|----------|-----|------|------|-------|---|--------|
| K5A=K6A   | Atlas | 1 | 81.920  | 96.707  | 819.596  | 793.926  | 931.285  | 793.926  | 161.178 | 1323.210 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Bawah |   | 15.607  | 375.527 | 789.631  | 0.000    | 949.987  | 789.631  | 625.878 | 1316.052 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Atlas | 2 | 115.886 | 115.886 | 546.527  | 520.857  | 564.370  | 520.857  | 193.143 | 868.095  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Bawah |   | 14.441  | 233.340 | 516.562  | 0.000    | 583.072  | 516.562  | 388.900 | 866.937  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
| K5A=K6A'  | Atlas | 1 | 19.045  | 183.117 | 795.568  | 0.000    | 955.924  | 795.568  | 305.195 | 1325.947 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Bawah |   | 81.920  | 81.920  | 824.776  | 798.623  | 974.626  | 798.623  | 136.533 | 1331.038 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Atlas | 2 | 17.018  | 207.971 | 522.499  | 0.000    | 589.009  | 522.499  | 346.618 | 870.832  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Bawah |   | 115.886 | 115.886 | 589.868  | 564.198  | 607.711  | 564.198  | 193.143 | 940.330  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
| K5A=K6A'' | Atlas | 3 | 64.639  | 139.938 | 264.665  | 0.000    | 197.570  | 197.570  | 233.230 | 329.283  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Bawah |   | 262.231 | 319.189 | 316.188  | 347.205  | 234.974  | 234.974  | 531.982 | 391.623  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Atlas | 1 | 451.445 | 451.445 | 1264.893 | 1256.253 | 1203.172 | 1203.172 | 752.408 | 2005.287 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
|           | Bawah |   | 201.702 | 201.702 | 1251.339 | 1237.945 | 1240.576 | 1237.945 | 336.170 | 2063.242 | 1.2 | 4320 | 2160 | 5.682 | 6 | 2280.8 |
| K5C=K6C   | Atlas | 2 | 512.738 | 512.738 | 656.378  | 647.738  | 597.867  | 597.867  | 854.563 | 996.445  | 1.4 | 5040 | 2520 | 6.629 | 7 | 2660.9 |
|           | Bawah |   | 552.029 | 552.029 | 693.782  | 685.142  | 635.271  | 635.271  | 920.048 | 1058.785 | 1.3 | 4680 | 2340 | 6.156 | 7 | 2660.9 |
|           | Atlas | 1 | 309.531 | 309.531 | 1364.002 | 1338.332 | 1480.228 | 1338.332 | 515.885 | 2230.553 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Bawah |   | 173.089 | 180.436 | 1363.245 | 1337.092 | 1517.632 | 1337.092 | 300.727 | 2228.487 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
| K5I=K6I   | Atlas | 2 | 277.756 | 277.756 | 829.290  | 821.401  | 866.482  | 821.401  | 462.927 | 1369.002 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Bawah |   | 251.978 | 251.978 | 866.694  | 858.805  | 903.886  | 858.805  | 419.963 | 1431.342 | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Atlas | 3 | 197.480 | 239.042 | 291.376  | 340.175  | 226.607  | 226.607  | 398.403 | 377.678  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |
|           | Bawah |   | 265.299 | 332.835 | 328.780  | 320.891  | 264.011  | 264.011  | 554.725 | 440.018  | 1.0 | 3600 | 1800 | 4.735 | 5 | 1900.7 |

#### 4. Perhitungan keruntuhan kolom

| Bag      | Ujung Kolom | LA | Pakai Tul. | Jbd (mm) | Xb (mm) | fs' (Mpa) | fs' pakai (Mpa) | Cc (KN)  | Cs (KN)  | Ts (KN)  | Pnb (KN) | Mnb (KNm) | eb (m) | e (m) | Keruntuhan Kolom | Patah Desak Pn (KN) | Patah Tarik Pn (KN) | Kontrol Pn>Nu / Ø |
|----------|-------------|----|------------|----------|---------|-----------|-----------------|----------|----------|----------|----------|-----------|--------|-------|------------------|---------------------|---------------------|-------------------|
| K1A=K10A | Atas        | 1  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.328 | Patah Tarik      | -                   | 7273.287            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.161 | Patah Desak      | 9974.470            | -                   | AMAN              |
|          | Atas        | 2  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.615 | Patah Tarik      | -                   | 5942.979            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.415 | Patah Tarik      | -                   | 6766.405            | AMAN              |
|          | Atas        | 3  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.594 | Patah Tarik      | -                   | 6011.769            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.153 | Patah Desak      | 10428.791           | -                   | AMAN              |
| K1B=K10B | Atas        | 1  | 6          | 73.60    | 324     | 488.889   | 400             | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173   | 0.288  | 0.428 | Patah Tarik      | -                   | 6797.343            | AMAN              |
|          | Bawah       |    | 6          | 73.60    | 324     | 488.889   | 400             | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173   | 0.288  | 0.155 | Patah Desak      | 10511.963           | -                   | AMAN              |
|          | Atas        | 2  | 7          | 57.67    | 324     | 488.889   | 400             | 3511.350 | 1007.828 | 1064.372 | 3454.805 | 1067.220  | 0.309  | 0.735 | Patah Tarik      | -                   | 5740.302            | AMAN              |
|          | Bawah       |    | 6          | 73.60    | 324     | 488.889   | 400             | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173   | 0.288  | 0.602 | Patah Tarik      | -                   | 6056.077            | AMAN              |
|          | Atas        | 3  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 1.131 | Patah Tarik      | -                   | 4901.894            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 1.096 | Patah Tarik      | -                   | 4945.926            | AMAN              |
| K1D=K10D | Atas        | 1  | 6          | 73.60    | 324     | 488.889   | 400             | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173   | 0.288  | 0.429 | Patah Tarik      | -                   | 6792.850            | AMAN              |
|          | Bawah       |    | 6          | 73.60    | 324     | 488.889   | 400             | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173   | 0.288  | 0.161 | Patah Desak      | 10157.379           | -                   | AMAN              |
|          | Atas        | 2  | 6          | 73.60    | 324     | 488.889   | 400             | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173   | 0.288  | 0.744 | Patah Tarik      | -                   | 5648.359            | AMAN              |
|          | Bawah       |    | 6          | 73.60    | 324     | 488.889   | 400             | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173   | 0.288  | 0.609 | Patah Tarik      | -                   | 6043.644            | AMAN              |
|          | Atas        | 3  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 1.139 | Patah Tarik      | -                   | 4892.027            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 1.105 | Patah Tarik      | -                   | 4934.961            | AMAN              |
| K1E=K10E | Atas        | 1  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.324 | Patah Tarik      | -                   | 7293.904            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.167 | Patah Desak      | 9600.062            | -                   | AMAN              |
|          | Atas        | 2  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.613 | Patah Tarik      | -                   | 5949.952            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.412 | Patah Tarik      | -                   | 6781.680            | AMAN              |
|          | Atas        | 3  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.594 | Patah Tarik      | -                   | 6013.634            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.154 | Patah Desak      | 10398.043           | -                   | AMAN              |
| K2A=K9A  | Atas        | 1  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.358 | Patah Tarik      | -                   | 7086.094            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.140 | Patah Desak      | 11399.034           | -                   | AMAN              |
|          | Atas        | 2  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.545 | Patah Tarik      | -                   | 6187.065            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.386 | Patah Tarik      | -                   | 6925.901            | AMAN              |
|          | Atas        | 3  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.686 | Patah Tarik      | -                   | 5730.361            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 1.206 | Patah Tarik      | -                   | 4814.383            | AMAN              |
| K2C=K9C  | Atas        | 1  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.274 | Patah Tarik      | -                   | 7645.644            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.140 | Patah Desak      | 11390.187           | -                   | AMAN              |
|          | Atas        | 2  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.747 | Patah Tarik      | -                   | 5571.891            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.505 | Patah Tarik      | -                   | 6349.622            | AMAN              |
|          | Atas        | 3  | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.505 | Patah Tarik      | -                   | 6349.622            | AMAN              |
|          | Bawah       |    | 5          | 97.50    | 324     | 488.889   | 400             | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126   | 0.267  | 0.505 | Patah Tarik      | -                   | 6349.622            | AMAN              |

|          |       |   |   |       |     |         |     |          |          |          |          |          |       |       |             |           |          |      |
|----------|-------|---|---|-------|-----|---------|-----|----------|----------|----------|----------|----------|-------|-------|-------------|-----------|----------|------|
| K2I:=K9I | Atas  | 1 | 7 | 57.67 | 324 | 488.889 | 400 | 3511.350 | 1007.828 | 1064.372 | 3454.805 | 1067.220 | 0.309 | 1.857 | Patah Tarik | -         | 4392.323 | AMAN |
|          | Bawah |   | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 0.617 | Patah Tarik | -         | 6016.159 | AMAN |
|          | Atas  | 2 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.542 | Patah Tarik | -         | 6201.739 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.389 | Patah Tarik | -         | 6907.159 | AMAN |
|          | Atas  | 3 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.695 | Patah Tarik | -         | 5706.511 | AMAN |
| K3A:=K8A | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 1.281 | Patah Tarik | -         | 4737.410 | AMAN |
|          | Atas  | 1 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.325 | Patah Tarik | -         | 7288.946 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.135 | Patah Desak | 11789.190 | -        | AMAN |
|          | Atas  | 2 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.486 | Patah Tarik | -         | 6431.348 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.359 | Patah Tarik | -         | 7079.847 | AMAN |
| K3C:=K8C | Atas  | 3 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.646 | Patah Tarik | -         | 5847.080 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 1.146 | Patah Tarik | -         | 4884.442 | AMAN |
|          | Atas  | 1 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.299 | Patah Tarik | -         | 7466.775 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.147 | Patah Desak | 10874.623 | -        | AMAN |
|          | Atas  | 2 | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 0.624 | Patah Tarik | -         | 5992.529 | AMAN |
| K3I:=K8I | Bawah |   | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 0.794 | Patah Tarik | -         | 5529.009 | AMAN |
|          | Atas  | 1 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.317 | Patah Tarik | -         | 7340.611 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.148 | Patah Desak | 10809.893 | -        | AMAN |
|          | Atas  | 2 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.476 | Patah Tarik | -         | 6471.550 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.381 | Patah Tarik | -         | 6950.219 | AMAN |
| K4A:=K7A | Atas  | 3 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.670 | Patah Tarik | -         | 5774.499 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 1.321 | Patah Tarik | -         | 4699.038 | AMAN |
|          | Atas  | 1 | 7 | 57.67 | 324 | 488.889 | 400 | 3511.350 | 1007.828 | 1064.372 | 3454.805 | 1067.220 | 0.309 | 0.427 | Patah Tarik | -         | 6896.178 | AMAN |
|          | Bawah |   | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 0.156 | Patah Desak | 10426.114 | -        | AMAN |
|          | Atas  | 2 | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 0.626 | Patah Tarik | -         | 5988.023 | AMAN |
| K4C:=K7C | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.445 | Patah Tarik | -         | 6617.318 | AMAN |
|          | Atas  | 3 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.734 | Patah Tarik | -         | 5603.376 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 1.652 | Patah Tarik | -         | 4448.357 | AMAN |
|          | Atas  | 1 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.353 | Patah Tarik | -         | 7114.952 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.169 | Patah Desak | 9517.562  | -        | AMAN |
| K4I:=K7I | Atas  | 2 | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 0.792 | Patah Tarik | -         | 5532.342 | AMAN |
|          | Bawah |   | 7 | 57.67 | 324 | 488.889 | 400 | 3511.350 | 1007.828 | 1064.372 | 3454.805 | 1067.220 | 0.309 | 0.827 | Patah Tarik | -         | 5518.018 | AMAN |
|          | Atas  | 1 | 7 | 57.67 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 2.327 | Patah Tarik | -         | 4192.313 | AMAN |
|          | Bawah |   | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.778 | Patah Tarik | -         | 5566.128 | AMAN |
|          | Atas  | 2 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.510 | Patah Tarik | -         | 6326.351 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.422 | Patah Tarik | -         | 6730.827 | AMAN |
|          | Atas  | 3 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.780 | Patah Tarik | -         | 5492.776 | AMAN |
|          | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 1.759 | Patah Tarik | -         | 4386.432 | AMAN |

|            |       |   |   |       |     |         |     |          |          |          |          |          |       |       |             |           |          |      |
|------------|-------|---|---|-------|-----|---------|-----|----------|----------|----------|----------|----------|-------|-------|-------------|-----------|----------|------|
| K5A=K6A    | Atas  | 1 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.122 | Patah Desak | 12978.156 | -        | AMAN |
|            | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.476 | Patah Tarik | -         | 6475.376 | AMAN |
|            | Atas  | 2 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.222 | Patah Desak | 7342.103  | -        | AMAN |
|            | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.452 | Patah Tarik | -         | 6585.282 | AMAN |
| K5A=K6A'   | Atas  | 1 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.230 | Patah Desak | 7110.553  | -        | AMAN |
|            | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.103 | Patah Desak | 15278.927 | -        | AMAN |
|            | Atas  | 2 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.398 | Patah Tarik | -         | 6857.248 | AMAN |
|            | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.205 | Patah Desak | 7917.665  | -        | AMAN |
| K5A'=K6A'' | Atas  | 3 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.708 | Patah Tarik | -         | 5669.714 | AMAN |
|            | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 1.358 | Patah Tarik | -         | 4664.709 | AMAN |
|            | Atas  | 1 | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 0.375 | Patah Tarik | -         | 7085.708 | AMAN |
|            | Bawah |   | 6 | 73.60 | 324 | 488.889 | 400 | 3511.350 | 863.852  | 912.319  | 3462.883 | 996.173  | 0.288 | 0.163 | Patah Desak | 10035.246 | -        | AMAN |
| K5C=K6C    | Atas  | 2 | 7 | 57.67 | 324 | 488.889 | 400 | 3511.350 | 1007.828 | 1064.372 | 3454.805 | 1067.220 | 0.309 | 0.858 | Patah Tarik | -         | 5452.699 | AMAN |
|            | Bawah |   | 7 | 57.67 | 324 | 488.889 | 400 | 3511.350 | 1007.828 | 1064.372 | 3454.805 | 1067.220 | 0.309 | 0.869 | Patah Tarik | -         | 5429.237 | AMAN |
|            | Atas  | 1 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.231 | Patah Desak | 7078.328  | -        | AMAN |
|            | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.135 | Patah Desak | 11777.501 | -        | AMAN |
| K5E=K6E    | Atas  | 2 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.338 | Patah Tarik | -         | 7206.254 | AMAN |
|            | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 0.293 | Patah Tarik | -         | 7503.095 | AMAN |
|            | Atas  | 3 | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 1.055 | Patah Tarik | -         | 5001.730 | AMAN |
|            | Bawah |   | 5 | 97.50 | 324 | 488.889 | 400 | 3511.350 | 719.877  | 760.266  | 3470.961 | 925.126  | 0.267 | 1.261 | Patah Tarik | -         | 4757.240 | AMAN |

### 5. Perencanaan gaya geser kolom

| Btg      | Ujung Kolom | Lt | VD (kN) | VL (kN) | VE (kN) | Muk terpakai (kNm) | Vuk1 (kN) | Vuk2 (kN) | Vuk pakai (kN) |
|----------|-------------|----|---------|---------|---------|--------------------|-----------|-----------|----------------|
| K1A=K10A | Atas        | 1  | 12.234  | 1.683   | 37.562  | 193.412            | 81.106    | 172.372   | 81.106         |
|          | Bawah       |    | 12.234  | 1.683   | 37.562  | 98.568             | 81.106    | 172.372   | 81.106         |
|          | Atas        | 2  | 18.363  | 3.792   | 25.684  | 269.174            | 129.557   | 131.138   | 129.557        |
|          | Bawah       |    | 18.363  | 3.792   | 25.684  | 197.231            | 129.557   | 131.138   | 129.557        |
|          | Atas        | 3  | 9.100   | 2.617   | 10.942  | 195.618            | 68.244    | 58.259    | 58.259         |
|          | Bawah       |    | 9.100   | 2.617   | 10.942  | 50.062             | 68.244    | 58.259    | 58.259         |
| K1B=K10B | Atas        | 1  | 27.377  | 4.697   | 48.459  | 476.791            | 180.769   | 237.205   | 180.769        |
|          | Bawah       |    | 27.377  | 4.697   | 48.459  | 173.976            | 180.769   | 237.205   | 180.769        |
|          | Atas        | 2  | 47.186  | 10.142  | 40.541  | 524.017            | 268.877   | 230.466   | 230.466        |
|          | Bawah       |    | 47.186  | 10.142  | 40.541  | 443.941            | 268.877   | 230.466   | 230.466        |
|          | Atas        | 3  | 42.682  | 10.098  | 21.674  | 234.464            | 139.935   | 146.451   | 139.935        |
|          | Bawah       |    | 42.682  | 10.098  | 21.674  | 269.303            | 139.935   | 146.451   | 139.935        |
| K1D=K10D | Atas        | 1  | 29.502  | 4.597   | 48.422  | 476.058            | 182.192   | 239.174   | 182.192        |
|          | Bawah       |    | 29.502  | 4.597   | 48.422  | 179.832            | 182.192   | 239.174   | 182.192        |
|          | Atas        | 2  | 48.969  | 10.360  | 40.490  | 528.473            | 271.079   | 232.354   | 232.354        |
|          | Bawah       |    | 48.969  | 10.360  | 40.490  | 447.413            | 271.079   | 232.354   | 232.354        |
|          | Atas        | 3  | 43.518  | 10.201  | 21.623  | 235.245            | 140.446   | 147.222   | 140.446        |
|          | Bawah       |    | 43.518  | 10.201  | 21.623  | 270.360            | 140.446   | 147.222   | 140.446        |
| K1E=K10E | Atas        | 1  | 12.263  | 1.682   | 37.534  | 193.116            | 82.382    | 172.284   | 82.382         |
|          | Bawah       |    | 12.263  | 1.682   | 37.534  | 103.459            | 82.382    | 172.284   | 82.382         |
|          | Atas        | 2  | 18.476  | 3.792   | 25.642  | 269.611            | 129.548   | 131.076   | 129.548        |
|          | Bawah       |    | 18.476  | 3.792   | 25.642  | 196.762            | 129.548   | 131.076   | 129.548        |
|          | Atas        | 3  | 9.248   | 2.645   | 11.002  | 196.572            | 68.586    | 58.695    | 58.695         |
|          | Bawah       |    | 9.248   | 2.645   | 11.002  | 50.337             | 68.586    | 58.695    | 58.695         |
| K2A=K9A  | Atas        | 1  | 33.494  | 8.037   | 34.513  | 419.476            | 161.958   | 188.560   | 161.958        |
|          | Bawah       |    | 33.494  | 8.037   | 34.513  | 163.574            | 161.958   | 188.560   | 161.958        |
|          | Atas        | 2  | 45.618  | 19.992  | 23.683  | 405.846            | 196.418   | 168.358   | 168.358        |
|          | Bawah       |    | 45.618  | 19.992  | 23.683  | 301.258            | 196.418   | 168.358   | 168.358        |
|          | Atas        | 3  | 14.828  | 3.368   | 25.826  | 154.603            | 131.018   | 127.575   | 127.575        |
|          | Bawah       |    | 14.828  | 3.368   | 25.826  | 317.062            | 131.018   | 127.575   | 127.575        |
| K2C=K9C  | Atas        | 1  | 9.879   | 0.716   | 43.360  | 385.624            | 163.310   | 193.236   | 163.310        |
|          | Bawah       |    | 9.879   | 0.716   | 43.360  | 202.291            | 163.310   | 193.236   | 163.310        |
|          | Atas        | 2  | 12.210  | 2.785   | 48.956  | 511.968            | 243.569   | 221.359   | 221.359        |
|          | Bawah       |    | 12.210  | 2.785   | 48.956  | 364.879            | 243.569   | 221.359   | 221.359        |



|         |       |   |        |        |        |         |         |         |         |
|---------|-------|---|--------|--------|--------|---------|---------|---------|---------|
| K2E=K9E | Atas  | 1 | 35.742 | 8.306  | 34.486 | 418.514 | 161.300 | 191.092 | 161.300 |
|         | Bawah |   | 35.742 | 8.306  | 34.486 | 162.165 | 161.300 | 191.092 | 161.300 |
|         | Atas  | 2 | 45.851 | 19.998 | 23.743 | 404.342 | 197.004 | 168.860 | 168.860 |
|         | Bawah |   | 45.851 | 19.998 | 23.743 | 304.872 | 197.004 | 168.860 | 168.860 |
|         | Atas  | 3 | 14.194 | 3.268  | 25.721 | 156.575 | 136.979 | 126.362 | 126.362 |
|         | Bawah |   | 14.194 | 3.268  | 25.721 | 336.550 | 136.979 | 126.362 | 126.362 |
| K3A=K8A | Atas  | 1 | 32.514 | 8.691  | 37.920 | 419.053 | 164.607 | 202.530 | 164.607 |
|         | Bawah |   | 32.514 | 8.691  | 37.920 | 173.533 | 164.607 | 202.530 | 164.607 |
|         | Atas  | 2 | 29.876 | 19.453 | 28.215 | 397.829 | 195.906 | 170.301 | 170.301 |
|         | Bawah |   | 29.876 | 19.453 | 28.215 | 307.434 | 195.906 | 170.301 | 170.301 |
|         | Atas  | 3 | 5.711  | 0.476  | 34.137 | 149.158 | 126.842 | 149.871 | 126.842 |
|         | Bawah |   | 5.711  | 0.476  | 34.137 | 307.474 | 126.842 | 149.871 | 126.842 |
| K3C=K8C | Atas  | 1 | 2.200  | 0.220  | 45.110 | 416.127 | 173.944 | 192.004 | 173.944 |
|         | Bawah |   | 2.200  | 0.220  | 45.110 | 210.070 | 173.944 | 192.004 | 173.944 |
|         | Atas  | 2 | 6.657  | 0.896  | 56.781 | 430.470 | 279.828 | 246.413 | 246.413 |
|         | Bawah |   | 6.657  | 0.896  | 56.781 | 576.910 | 279.828 | 246.413 | 246.413 |
|         | Atas  | 1 | 36.653 | 9.146  | 37.901 | 410.958 | 167.253 | 207.271 | 167.253 |
|         | Bawah |   | 36.653 | 9.146  | 37.901 | 191.152 | 167.253 | 207.271 | 167.253 |
| K3E=K8E | Atas  | 2 | 30.497 | 19.425 | 28.319 | 391.890 | 199.917 | 171.357 | 171.357 |
|         | Bawah |   | 30.497 | 19.425 | 28.319 | 327.810 | 199.917 | 171.357 | 171.357 |
|         | Atas  | 3 | 2.578  | 0.280  | 33.937 | 154.380 | 141.090 | 145.534 | 141.090 |
|         | Bawah |   | 2.578  | 0.280  | 33.937 | 353.545 | 141.090 | 145.534 | 141.090 |
|         | Atas  | 1 | 33.290 | 7.866  | 40.237 | 470.660 | 177.422 | 212.208 | 177.422 |
|         | Bawah |   | 33.290 | 7.866  | 40.237 | 168.058 | 177.422 | 212.208 | 177.422 |
| K4A=K7A | Atas  | 2 | 34.016 | 17.240 | 30.303 | 431.039 | 211.273 | 181.091 | 181.091 |
|         | Bawah |   | 34.016 | 17.240 | 30.303 | 329.543 | 211.273 | 181.091 | 181.091 |
|         | Atas  | 3 | 12.632 | 3.676  | 37.175 | 134.917 | 138.977 | 173.259 | 138.977 |
|         | Bawah |   | 12.632 | 3.676  | 37.175 | 365.400 | 138.977 | 173.259 | 138.977 |
|         | Atas  | 1 | 7.298  | 1.948  | 47.487 | 442.670 | 183.606 | 209.155 | 183.606 |
|         | Bawah |   | 7.298  | 1.948  | 47.487 | 218.311 | 183.606 | 209.155 | 183.606 |
| K4C=K7C | Atas  | 2 | 17.027 | 6.238  | 61.860 | 491.605 | 287.766 | 284.241 | 284.241 |
|         | Bawah |   | 17.027 | 6.238  | 61.860 | 544.354 | 287.766 | 284.241 | 284.241 |
|         | Atas  | 1 | 34.580 | 8.032  | 40.278 | 446.794 | 173.655 | 213.912 | 173.655 |
|         | Bawah |   | 34.580 | 8.032  | 40.278 | 178.365 | 173.655 | 213.912 | 173.655 |
|         | Atas  | 2 | 25.154 | 15.978 | 30.471 | 381.531 | 199.694 | 171.166 | 171.166 |
|         | Bawah |   | 25.154 | 15.978 | 30.471 | 337.366 | 199.694 | 171.166 | 171.166 |
| K4E=K7E | Atas  | 3 | 7.985  | 1.967  | 36.818 | 149.774 | 153.673 | 165.086 | 153.673 |
|         | Bawah |   | 7.985  | 1.967  | 36.818 | 403.450 | 153.673 | 165.086 | 153.673 |

|             |       |   |        |        |        |         |         |         |         |
|-------------|-------|---|--------|--------|--------|---------|---------|---------|---------|
| K5A=K6A     | Atas  | 1 | 31.095 | 4.685  | 40.529 | 96.707  | 131.176 | 207.793 | 131.176 |
|             | Bawah |   | 31.095 | 4.685  | 40.529 | 375.527 | 131.176 | 207.793 | 131.176 |
|             | Atas  | 2 | 29.745 | 8.493  | 30.132 | 115.886 | 97.007  | 166.705 | 97.007  |
|             | Bawah |   | 29.745 | 8.493  | 30.132 | 233.340 | 97.007  | 166.705 | 97.007  |
| K5A=K6A'    | Atas  | 1 | 31.095 | 4.685  | 40.529 | 183.117 | 73.621  | 207.793 | 73.621  |
|             | Bawah |   | 31.095 | 4.685  | 40.529 | 81.920  | 73.621  | 207.793 | 73.621  |
|             | Atas  | 2 | 29.745 | 8.493  | 30.132 | 207.971 | 89.960  | 166.705 | 89.960  |
|             | Bawah |   | 29.745 | 8.493  | 30.132 | 115.886 | 89.960  | 166.705 | 89.960  |
| K5A''=K6A'' | Atas  | 3 | 4.629  | 0.523  | 37.545 | 139.938 | 127.535 | 163.100 | 127.535 |
|             | Bawah |   | 4.629  | 0.523  | 37.545 | 319.189 | 127.535 | 163.100 | 127.535 |
|             | Atas  | 1 | 6.018  | 2.247  | 48.177 | 451.445 | 181.430 | 211.021 | 181.430 |
|             | Bawah |   | 6.018  | 2.247  | 48.177 | 201.702 | 181.430 | 211.021 | 181.430 |
| K5C=K6C     | Atas  | 2 | 17.978 | 3.984  | 63.480 | 512.738 | 295.769 | 289.677 | 289.677 |
|             | Bawah |   | 17.978 | 3.984  | 63.480 | 552.029 | 295.769 | 289.677 | 289.677 |
|             | Atas  | 1 | 15.638 | 5.202  | 41.032 | 309.531 | 136.102 | 194.218 | 136.102 |
|             | Bawah |   | 15.638 | 5.202  | 41.032 | 180.436 | 136.102 | 194.218 | 136.102 |
| K5E=K6E     | Atas  | 2 | 14.227 | 10.232 | 31.059 | 277.756 | 147.148 | 156.129 | 147.148 |
|             | Bawah |   | 14.227 | 10.232 | 31.059 | 251.978 | 147.148 | 156.129 | 147.148 |
|             | Atas  | 3 | 15.562 | 4.451  | 38.559 | 239.042 | 158.855 | 182.962 | 158.855 |
|             | Bawah |   | 15.562 | 4.451  | 38.559 | 332.835 | 158.855 | 182.962 | 158.855 |



|           |       |   |          |         |   |     |         |   |        |     |     |     |    |        |         |     |         |   |          |     |     |     |         |
|-----------|-------|---|----------|---------|---|-----|---------|---|--------|-----|-----|-----|----|--------|---------|-----|---------|---|----------|-----|-----|-----|---------|
| K2I:=K9I; | Atlas | 1 | 267.091  | 161.300 | 0 | 108 | 268.833 | 2 | 75.726 | 150 | 176 | 100 | 75 | P10-75 | 284.308 | 108 | -15.476 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 309.839  | 161.300 | 0 | 108 | 268.833 | 2 | 75.726 | 150 | 176 | 100 | 75 | P10-75 | 286.598 | 108 | -17.766 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 2 | 828.365  | 168.860 | 0 | 108 | 281.433 | 2 | 72.335 | 150 | 176 | 100 | 70 | P10-70 | 314.377 | 108 | -32.943 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 871.112  | 168.860 | 0 | 108 | 281.433 | 2 | 72.335 | 150 | 176 | 100 | 70 | P10-70 | 316.667 | 108 | -35.233 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 3 | 267.091  | 126.362 | 0 | 108 | 210.603 | 2 | 96.663 | 150 | 176 | 100 | 95 | P10-95 | 284.308 | 108 | -73.705 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 309.839  | 126.362 | 0 | 108 | 210.603 | 2 | 96.663 | 150 | 176 | 100 | 95 | P10-95 | 286.598 | 108 | -75.995 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 1 | 1487.154 | 164.607 | 0 | 108 | 274.345 | 2 | 74.204 | 150 | 176 | 100 | 70 | P10-70 | 349.669 | 108 | -75.324 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 1529.902 | 164.607 | 0 | 108 | 274.345 | 2 | 74.204 | 150 | 176 | 100 | 70 | P10-70 | 351.959 | 108 | -77.614 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 2 | 919.579  | 170.301 | 0 | 108 | 283.835 | 2 | 71.723 | 150 | 176 | 100 | 70 | P10-70 | 319.263 | 108 | -35.428 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 962.327  | 170.301 | 0 | 108 | 283.835 | 2 | 71.723 | 150 | 176 | 100 | 70 | P10-70 | 321.553 | 108 | -37.718 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
| K3A:=K8A  | Atlas | 3 | 275.186  | 126.842 | 0 | 108 | 211.404 | 2 | 96.297 | 150 | 176 | 100 | 95 | P10-95 | 284.742 | 108 | -73.338 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 317.933  | 126.842 | 0 | 108 | 211.404 | 2 | 96.297 | 150 | 176 | 100 | 95 | P10-95 | 287.032 | 108 | -75.628 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 1 | 1673.581 | 173.944 | 0 | 108 | 289.906 | 2 | 70.221 | 150 | 176 | 100 | 70 | P10-70 | 359.656 | 108 | -69.750 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 1716.328 | 173.944 | 0 | 108 | 289.906 | 2 | 70.221 | 150 | 176 | 100 | 70 | P10-70 | 361.946 | 108 | -72.040 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 2 | 807.556  | 246.413 | 0 | 108 | 410.688 | 3 | 74.354 | 150 | 176 | 100 | 70 | P10-70 | 313.262 | 108 | 97.426  | 2 | 208.953  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 850.303  | 246.413 | 0 | 108 | 410.688 | 3 | 74.354 | 150 | 176 | 100 | 70 | P10-70 | 315.552 | 108 | 95.136  | 2 | 213.983  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 1 | 1494.865 | 167.253 | 0 | 108 | 278.755 | 2 | 73.030 | 150 | 176 | 100 | 70 | P10-70 | 350.082 | 108 | -71.327 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 1537.612 | 167.253 | 0 | 108 | 278.755 | 2 | 73.030 | 150 | 176 | 100 | 70 | P10-70 | 352.372 | 108 | -73.617 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 2 | 923.285  | 171.357 | 0 | 108 | 285.595 | 2 | 71.281 | 150 | 176 | 100 | 70 | P10-70 | 319.462 | 108 | -33.867 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 966.033  | 171.357 | 0 | 108 | 285.595 | 2 | 71.281 | 150 | 176 | 100 | 70 | P10-70 | 321.752 | 108 | -36.157 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
| K3I:=K8I; | Atlas | 3 | 274.653  | 141.090 | 0 | 108 | 235.150 | 2 | 86.573 | 150 | 176 | 100 | 85 | P10-85 | 284.714 | 108 | -49.563 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 317.400  | 141.090 | 0 | 108 | 235.150 | 2 | 86.573 | 150 | 176 | 100 | 85 | P10-85 | 287.004 | 108 | -51.853 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 1 | 1226.081 | 177.422 | 0 | 108 | 295.703 | 2 | 68.845 | 150 | 176 | 100 | 65 | P10-65 | 335.683 | 108 | -39.980 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 1268.828 | 177.422 | 0 | 108 | 295.703 | 2 | 68.845 | 150 | 176 | 100 | 65 | P10-65 | 337.973 | 108 | -42.270 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 2 | 746.079  | 181.091 | 0 | 108 | 301.818 | 2 | 67.450 | 150 | 176 | 100 | 65 | P10-65 | 309.969 | 108 | -8.150  | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 788.827  | 181.091 | 0 | 108 | 301.818 | 2 | 67.450 | 150 | 176 | 100 | 65 | P10-65 | 312.259 | 108 | -10.440 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 3 | 219.317  | 138.977 | 0 | 108 | 231.628 | 2 | 87.889 | 150 | 176 | 100 | 85 | P10-85 | 281.749 | 108 | -50.121 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 262.064  | 138.977 | 0 | 108 | 231.628 | 2 | 87.889 | 150 | 176 | 100 | 85 | P10-85 | 284.039 | 108 | -52.411 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 1 | 1495.849 | 183.606 | 0 | 108 | 306.010 | 2 | 66.526 | 150 | 176 | 100 | 65 | P10-65 | 350.135 | 108 | -44.125 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 1538.597 | 183.606 | 0 | 108 | 306.010 | 2 | 66.526 | 150 | 176 | 100 | 65 | P10-65 | 352.425 | 108 | -46.415 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
| K4A:=K7A  | Atlas | 2 | 717.506  | 284.241 | 0 | 108 | 473.735 | 3 | 64.459 | 150 | 176 | 100 | 60 | P10-60 | 308.438 | 108 | 165.297 | 2 | 123.157  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 760.254  | 284.241 | 0 | 108 | 473.735 | 3 | 64.459 | 150 | 176 | 100 | 60 | P10-60 | 310.728 | 108 | 163.007 | 2 | 124.888  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 1 | 229.622  | 173.655 | 0 | 108 | 289.425 | 2 | 70.338 | 150 | 176 | 100 | 70 | P10-70 | 282.301 | 108 | 7.124   | 2 | 2857.479 | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 272.369  | 173.655 | 0 | 108 | 289.425 | 2 | 70.338 | 150 | 176 | 100 | 70 | P10-70 | 284.591 | 108 | 4.834   | 2 | 4211.088 | 150 | 176 | 100 | P10-100 |
|           | Atlas | 2 | 818.440  | 171.166 | 0 | 108 | 285.277 | 2 | 71.361 | 150 | 176 | 100 | 70 | P10-70 | 313.845 | 108 | -28.568 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 861.187  | 171.166 | 0 | 108 | 285.277 | 2 | 71.361 | 150 | 176 | 100 | 70 | P10-70 | 316.135 | 108 | -30.858 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 3 | 229.622  | 153.673 | 0 | 108 | 256.122 | 2 | 79.484 | 150 | 176 | 100 | 75 | P10-75 | 282.301 | 108 | -26.179 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 272.369  | 153.673 | 0 | 108 | 256.122 | 2 | 79.484 | 150 | 176 | 100 | 75 | P10-75 | 284.591 | 108 | -28.469 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
| K4I:=K7I; | Atlas | 1 | 267.091  | 161.300 | 0 | 108 | 268.833 | 2 | 75.726 | 150 | 176 | 100 | 75 | P10-75 | 284.308 | 108 | -15.476 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 309.839  | 161.300 | 0 | 108 | 268.833 | 2 | 75.726 | 150 | 176 | 100 | 75 | P10-75 | 286.598 | 108 | -17.766 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 2 | 828.365  | 168.860 | 0 | 108 | 281.433 | 2 | 72.335 | 150 | 176 | 100 | 70 | P10-70 | 314.377 | 108 | -32.943 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 871.112  | 168.860 | 0 | 108 | 281.433 | 2 | 72.335 | 150 | 176 | 100 | 70 | P10-70 | 316.667 | 108 | -35.233 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 3 | 267.091  | 126.362 | 0 | 108 | 210.603 | 2 | 96.663 | 150 | 176 | 100 | 95 | P10-95 | 284.308 | 108 | -73.705 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 309.839  | 126.362 | 0 | 108 | 210.603 | 2 | 96.663 | 150 | 176 | 100 | 95 | P10-95 | 286.598 | 108 | -75.995 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 1 | 1487.154 | 164.607 | 0 | 108 | 274.345 | 2 | 74.204 | 150 | 176 | 100 | 70 | P10-70 | 349.669 | 108 | -75.324 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 1529.902 | 164.607 | 0 | 108 | 274.345 | 2 | 74.204 | 150 | 176 | 100 | 70 | P10-70 | 351.959 | 108 | -77.614 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Atlas | 2 | 919.579  | 170.301 | 0 | 108 | 283.835 | 2 | 71.723 | 150 | 176 | 100 | 70 | P10-70 | 319.263 | 108 | -35.428 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |
|           | Bawah |   | 962.327  | 170.301 | 0 | 108 | 283.835 | 2 | 71.723 | 150 | 176 | 100 | 70 | P10-70 | 321.553 | 108 | -37.718 | 2 | 188.496  | 150 | 176 | 100 | P10-100 |

|             |       |   |          |         |   |     |         |   |         |     |     |     |     |         |         |     |          |   |         |     |     |     |     |         |
|-------------|-------|---|----------|---------|---|-----|---------|---|---------|-----|-----|-----|-----|---------|---------|-----|----------|---|---------|-----|-----|-----|-----|---------|
| K5A=K6A     | Atlas | 1 | 872.996  | 131.176 | 0 | 108 | 218.627 | 2 | 93.116  | 150 | 176 | 100 | 90  | P10-90  | 316.768 | 108 | -98.141  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 894.370  | 131.176 | 0 | 108 | 218.627 | 2 | 93.116  | 150 | 176 | 100 | 90  | P10-90  | 317.913 | 108 | -99.286  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Atlas | 2 | 550.760  | 97.007  | 0 | 108 | 161.679 | 2 | 125.914 | 150 | 176 | 100 | 100 | P10-100 | 299.505 | 108 | -137.826 | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 572.134  | 97.007  | 0 | 108 | 161.679 | 2 | 125.914 | 150 | 176 | 100 | 100 | P10-100 | 300.650 | 108 | -138.971 | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
| K5A=K6A'    | Atlas | 1 | 901.155  | 73.621  | 0 | 108 | 122.702 | 2 | 165.910 | 150 | 176 | 100 | 100 | P10-100 | 318.276 | 108 | -195.574 | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 922.528  | 73.621  | 0 | 108 | 122.702 | 2 | 165.910 | 150 | 176 | 100 | 100 | P10-100 | 319.421 | 108 | -196.719 | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Atlas | 2 | 578.919  | 89.960  | 0 | 108 | 149.934 | 2 | 135.777 | 150 | 176 | 100 | 100 | P10-100 | 301.014 | 108 | -151.080 | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 600.292  | 89.960  | 0 | 108 | 149.934 | 2 | 135.777 | 150 | 176 | 100 | 100 | P10-100 | 302.159 | 108 | -152.225 | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
| K5A''=K6A'' | Atlas | 3 | 234.656  | 127.535 | 0 | 108 | 212.559 | 2 | 95.774  | 150 | 176 | 100 | 95  | P10-95  | 282.571 | 108 | -70.012  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 277.403  | 127.535 | 0 | 108 | 212.559 | 2 | 95.774  | 150 | 176 | 100 | 95  | P10-95  | 284.861 | 108 | -72.302  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Atlas | 1 | 1421.428 | 181.430 | 0 | 108 | 302.383 | 2 | 67.324  | 150 | 176 | 100 | 65  | P10-65  | 346.148 | 108 | -43.765  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 1464.175 | 181.430 | 0 | 108 | 302.383 | 2 | 67.324  | 150 | 176 | 100 | 65  | P10-65  | 348.438 | 108 | -46.055  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
| K5C=K6C     | Atlas | 2 | 683.115  | 289.677 | 0 | 108 | 482.795 | 3 | 63.249  | 150 | 176 | 100 | 60  | P10-60  | 306.595 | 108 | 176.200  | 2 | 115.537 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 725.862  | 289.677 | 0 | 108 | 482.795 | 3 | 63.249  | 150 | 176 | 100 | 60  | P10-60  | 308.885 | 108 | 173.910  | 2 | 117.058 | 150 | 176 | 100 | 100 | P10-100 |
|             | Atlas | 1 | 1547.855 | 136.102 | 0 | 108 | 226.837 | 2 | 89.746  | 150 | 176 | 100 | 85  | P10-85  | 352.921 | 108 | -126.084 | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 1590.603 | 136.102 | 0 | 108 | 226.837 | 2 | 89.746  | 150 | 176 | 100 | 85  | P10-85  | 355.211 | 108 | -128.374 | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Atlas | 2 | 923.099  | 147.148 | 0 | 108 | 245.247 | 2 | 83.008  | 150 | 176 | 100 | 80  | P10-80  | 319.452 | 108 | -74.205  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 965.846  | 147.148 | 0 | 108 | 245.247 | 2 | 83.008  | 150 | 176 | 100 | 80  | P10-80  | 321.742 | 108 | -76.495  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Atlas | 3 | 272.180  | 158.855 | 0 | 108 | 264.758 | 2 | 76.891  | 150 | 176 | 100 | 75  | P10-75  | 284.581 | 108 | -19.823  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |
|             | Bawah |   | 314.927  | 158.855 | 0 | 108 | 264.758 | 2 | 76.891  | 150 | 176 | 100 | 75  | P10-75  | 286.871 | 108 | -22.113  | 2 | 188.496 | 150 | 176 | 100 | 100 | P10-100 |

## 7. Perhitungan gaya-gaya dalam

| 7. Perhitungan gaya-gaya dalam |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
|--------------------------------|---|-------|-----|--------|----|---------------|-----|-------------|---------|--------------|---------|--------------|----------|------------|-----|--------|-----|---------|---------|---------------|----------|-------------|----------|--------------|----|--------------|----|------------|--|
| L1                             |   | h (m) |     | Arah x |    |               |     |             |         |              |         |              |          | Arah y     |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
|                                |   |       |     | Lx (m) |    | Mmak.bs (KNm) |     | Vkol,x (KN) |         | Cki=Tki (KN) |         | Cka=Tka (KN) |          | Vjh,x (KN) |     | Ly (m) |     | Lny (m) |         | Mmak.bs (KNm) |          | Vkol,y (KN) |          | Cki=Tki (KN) |    | Cka=Tka (KN) |    | Vjh,y (KN) |  |
|                                |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| A                              | B | Ki    | Ka  | Ki     | Ka | Ki            | Ka  | Ki          | Ka      | Ki           | Ka      | Ki           | Ka       | Ki         | Ka  | Ki     | Ka  | Ki      | Ka      | Ki            | Ka       | Ki          | Ka       | Ki           | Ka | Ki           | Ka |            |  |
| K1A=K10A                       |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J1A=J10A)                   |   | 4.2   | 4.2 | 0      | 6  | 0             | 5.4 | 0           | 234.175 | 76.331       | 0       | 421.611      | 345.280  | 0          | 4.5 | 0      | 3.9 | 0       | 306.789 | 90.010        | 0        | 552.346     | 462.337  |              |    |              |    |            |  |
| 3 (J1A=J10A)                   |   | 4.2   | 4.2 | 0      | 6  | 0             | 5.4 | 0           | 234.175 | 71.095       | 0       | 421.611      | 350.517  | 0          | 4.5 | 0      | 3.9 | 0       | 234.175 | 72.554        | 0        | 421.611     | 349.057  |              |    |              |    |            |  |
| ATAP (J1A=J10A)                |   | 0     | 4.2 | 1.8    | 6  | 1.4           | 5.4 | 158.839     | 234.172 | 254.050      | 285.976 | 421.606      | 453.532  | 1.8        | 4.5 | 1.4    | 3.9 | 234.172 | 158.839 | 259.866       | 421.606  | 285.976     | 447.716  |              |    |              |    |            |  |
| K1B=K10B                       |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J1B=J10B)                   |   | 4.2   | 4.2 | 0.9    | 6  | 0.5           | 5.4 | 158.839     | 443.851 | 198.987      | 285.976 | 799.114      | 886.103  | 4.5        | 9   | 3.9    | 8.4 | 158.839 | 376.681 | 170.955       | 285.976  | 678.181     | 793.201  |              |    |              |    |            |  |
| 3 (J1B=J10B)                   |   | 4.2   | 4.2 | 1.8    | 6  | 1.2           | 5.4 | 158.839     | 443.851 | 197.873      | 285.976 | 799.114      | 887.217  | 4.5        | 9   | 3.9    | 8.4 | 158.839 | 508.298 | 197.356       | 285.976  | 915.146     | 1003.765 |              |    |              |    |            |  |
| ATAP (J1B=J10B)                |   | 0     | 4.2 | 1.8    | 6  | 1.2           | 5.4 | 234.175     | 0       | 200.632      | 421.611 | 0            | 220.980  | 4.5        | 9   | 3.9    | 8.4 | 158.839 | 234.175 | 224.815       | 285.976  | 421.611     | 482.772  |              |    |              |    |            |  |
| K1D=K10D                       |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J1D=J10D)                   |   | 4.2   | 4.2 | 0.9    | 6  | 0.5           | 5.4 | 158.839     | 443.851 | 198.987      | 285.976 | 799.114      | 886.103  | 9          | 4.5 | 8.4    | 3.9 | 376.681 | 158.839 | 170.955       | 678.181  | 285.976     | 793.201  |              |    |              |    |            |  |
| 3 (J1D=J10D)                   |   | 4.2   | 4.2 | 1.8    | 6  | 1.2           | 5.4 | 158.839     | 443.851 | 197.873      | 285.976 | 799.114      | 887.217  | 9          | 4.5 | 8.4    | 3.9 | 508.298 | 158.839 | 197.356       | 915.146  | 285.976     | 1003.765 |              |    |              |    |            |  |
| ATAP (J1D=J10D)                |   | 0     | 4.2 | 1.8    | 6  | 1.2           | 5.4 | 234.175     | 0       | 200.632      | 421.611 | 0            | 220.980  | 9          | 4.5 | 8.4    | 3.9 | 234.175 | 158.839 | 224.815       | 285.976  | 421.611     | 482.772  |              |    |              |    |            |  |
| K1E=K10E                       |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J1E=J10E)                   |   | 4.2   | 4.2 | 0      | 6  | 0             | 5.4 | 0           | 234.175 | 76.331       | 0       | 421.611      | 345.280  | 4.5        | 0   | 3.9    | 0   | 306.789 | 0       | 90.010        | 552.346  | 0           | 462.337  |              |    |              |    |            |  |
| 3 (J1E=J10E)                   |   | 4.2   | 4.2 | 0      | 6  | 0             | 5.4 | 0           | 234.175 | 71.095       | 0       | 421.611      | 350.517  | 4.5        | 0   | 3.9    | 0   | 234.175 | 0       | 72.554        | 421.611  | 0           | 349.057  |              |    |              |    |            |  |
| ATAP (J1E=J10E)                |   | 0     | 4.2 | 1.8    | 6  | 1.4           | 5.4 | 158.839     | 234.172 | 254.050      | 285.976 | 421.606      | 453.532  | 4.5        | 1.8 | 3.9    | 1.4 | 158.839 | 234.175 | 259.867       | 285.976  | 421.611     | 447.720  |              |    |              |    |            |  |
| K2A=K9A                        |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J2A=J9A)                    |   | 4.2   | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 148.206      | 285.976 | 421.611      | 559.381  | 0.9        | 9   | 0.5    | 8.4 | 158.839 | 587.798 | 218.062       | 285.976  | 1058.278    | 1126.192 |              |    |              |    |            |  |
| 3 (J2A=J9A)                    |   | 4.2   | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 143.101      | 285.976 | 421.611      | 564.486  | 1.8        | 9   | 1.4    | 8.4 | 158.839 | 587.798 | 201.044       | 285.976  | 1058.278    | 1143.210 |              |    |              |    |            |  |
| ATAP (J2A=J9A)                 |   | 0     | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 219.586      | 285.976 | 421.611      | 488.001  | 1.8        | 0   | 1.4    | 0   | 234.175 | 0       | 180.036       | 421.611  | 0           | 241.575  |              |    |              |    |            |  |
| K2C=K9C                        |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J2C=J9C)                    |   | 4.2   | 4.2 | 6      | 6  | 5.4           | 5.4 | 234.175     | 443.851 | 216.856      | 421.611 | 799.114      | 1003.870 | 9          | 9   | 8.4    | 8.4 | 306.789 | 587.798 | 246.770       | 552.346  | 1058.278    | 1363.855 |              |    |              |    |            |  |
| 3 (J2C=J9C)                    |   | 0     | 4.2 | 6      | 6  | 5.4           | 5.4 | 234.175     | 443.851 | 433.712      | 421.611 | 799.114      | 787.014  | 9          | 9   | 8.4    | 8.4 | 306.789 | 587.798 | 493.539       | 552.346  | 1058.278    | 1117.085 |              |    |              |    |            |  |
| K2E=K9E                        |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J2E=J9E)                    |   | 4.2   | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 148.206      | 285.976 | 421.611      | 559.381  | 9          | 0.9 | 8.4    | 0.5 | 587.798 | 158.839 | 218.062       | 1058.278 | 285.976     | 1126.192 |              |    |              |    |            |  |
| 3 (J2E=J9E)                    |   | 4.2   | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 143.101      | 285.976 | 421.611      | 564.486  | 9          | 1.8 | 8.4    | 1.4 | 587.798 | 158.839 | 201.044       | 1058.278 | 285.976     | 1143.210 |              |    |              |    |            |  |
| ATAP (J2E=J9E)                 |   | 0     | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 219.586      | 285.976 | 421.611      | 488.001  | 0          | 1.8 | 0      | 1.4 | 0       | 234.175 | 180.036       | 0        | 421.611     | 241.575  | 0.000        |    |              |    |            |  |
| K3A=K8A                        |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J3A=J8A)                    |   | 4.2   | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 148.206      | 285.976 | 421.611      | 559.381  | 0.9        | 9   | 0.5    | 8.4 | 158.839 | 587.798 | 218.062       | 285.976  | 1058.278    | 1126.192 |              |    |              |    |            |  |
| 3 (J3A=J8A)                    |   | 4.2   | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 143.101      | 285.976 | 421.611      | 564.486  | 1.8        | 9   | 1.4    | 8.4 | 158.839 | 587.798 | 201.044       | 285.976  | 1058.278    | 1143.210 |              |    |              |    |            |  |
| ATAP (J3A=J8A)                 |   | 0     | 4.2 | 6      | 6  | 5.4           | 5.4 | 158.839     | 234.175 | 219.586      | 285.976 | 421.611      | 488.001  | 1.8        | 0   | 1.4    | 0   | 234.175 | 0       | 180.036       | 421.611  | 0           | 241.575  |              |    |              |    |            |  |
| K3C=K8C                        |   |       |     |        |    |               |     |             |         |              |         |              |          |            |     |        |     |         |         |               |          |             |          |              |    |              |    |            |  |
| 2 (J3C=J8C)                    |   | 4.2   | 4.2 | 6      | 6  | 5.4           | 5.4 | 234.175     | 443.851 | 216.856      | 421.611 | 799.114      | 1003.870 | 9          | 9   | 8.4    | 8.4 | 306.789 | 587.798 | 246.770       | 552.346  | 1058.278    | 1363.855 |              |    |              |    |            |  |
| 3 (J3C=J8C)                    |   | 0     | 4.2 | 6      | 6  | 5.4           | 5.4 | 234.175     | 443.851 | 433.712      | 421.611 | 799.114      | 787.014  | 9          | 9   | 8.4    | 8.4 | 306.789 | 587.798 | 493.539       | 552.346  | 1058.278    | 1117.085 |              |    |              |    |            |  |



## 7. Perhitungan gaya-gaya dalam lanjutan

| I.t             | Nu,k<br>(KN) | Arah x                                                           |                                                           |                    | Arah y                                                           |                                                           |                    |         |          |
|-----------------|--------------|------------------------------------------------------------------|-----------------------------------------------------------|--------------------|------------------------------------------------------------------|-----------------------------------------------------------|--------------------|---------|----------|
|                 |              | $V_{jh,x} \leq 1,5 \cdot \sqrt{f_c}=7,5$<br>(N/mm <sup>2</sup> ) | $N_{u,k}/A_g < 0,1 \cdot f_c=2,5$<br>(N/mm <sup>2</sup> ) | $V_{sh,x}$<br>(KN) | $V_{jh,y} \leq 1,5 \cdot \sqrt{f_c}=7,5$<br>(N/mm <sup>2</sup> ) | $N_{u,k}/A_g < 0,1 \cdot f_c=2,5$<br>(N/mm <sup>2</sup> ) | $V_{sh,y}$<br>(KN) |         |          |
|                 |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| <b>K1A=K10A</b> |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J1A=J10A)    | 664.293      | 0.959                                                            | 1.845                                                     | 0                  | 345.280                                                          | 1.284                                                     | 1.845              | 0       | 462.337  |
| 3 (J1A=J10A)    | 484.187      | 0.974                                                            | 1.345                                                     | 0                  | 350.517                                                          | 0.970                                                     | 1.345              | 0       | 349.057  |
| ATAP (J1A=J10A) | 308.958      | 1.260                                                            | 0.858                                                     | 0                  | 453.532                                                          | 1.244                                                     | 0.858              | 0       | 447.716  |
| <b>K1B=K10B</b> |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J1B=J10B)    | 1261.831     | 2.461                                                            | 3.505                                                     | 240.610            | 645.494                                                          | 2.203                                                     | 3.505              | 240.610 | 552.591  |
| 3 (J1B=J10B)    | 763.422      | 2.464                                                            | 2.121                                                     | 0                  | 887.217                                                          | 2.788                                                     | 2.121              | 0       | 1003.765 |
| ATAP (J1B=J10B) | 186.443      | 0.614                                                            | 0.518                                                     | 0                  | 220.980                                                          | 1.341                                                     | 0.518              | 0       | 482.772  |
| <b>K1D=K10D</b> |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J1D=J10D)    | 1257.115     | 2.461                                                            | 3.492                                                     | 239.036            | 647.067                                                          | 2.203                                                     | 3.492              | 239.036 | 554.165  |
| 3 (J1D=J10D)    | 760.698      | 2.464                                                            | 2.113                                                     | 0                  | 887.217                                                          | 2.788                                                     | 2.113              | 0       | 1003.765 |
| ATAP (J1D=J10D) | 185.516      | 0.614                                                            | 0.515                                                     | 0                  | 220.980                                                          | 1.341                                                     | 0.515              | 0       | 482.772  |
| <b>K1E=K10E</b> |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J1E=J10E)    | 670.079      | 0.959                                                            | 1.861                                                     | 0                  | 345.280                                                          | 1.284                                                     | 1.861              | 0       | 462.337  |
| 3 (J1E=J10E)    | 486.842      | 0.974                                                            | 1.352                                                     | 0                  | 350.517                                                          | 0.970                                                     | 1.352              | 0       | 349.057  |
| ATAP (J1E=J10E) | 309.866      | 1.260                                                            | 0.861                                                     | 0                  | 453.532                                                          | 1.244                                                     | 0.861              | 0       | 447.720  |
| <b>K2A=K9A</b>  |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J2A=J9A)     | 1342.066     | 1.554                                                            | 3.728                                                     | 265.952            | 293.428                                                          | 3.128                                                     | 3.728              | 265.952 | 860.240  |
| 3 (J2A=J9A)     | 825.387      | 1.568                                                            | 2.293                                                     | 0                  | 564.486                                                          | 3.176                                                     | 2.293              | 0       | 1143.210 |
| ATAP (J2A=J9A)  | 267.111      | 1.356                                                            | 0.742                                                     | 0                  | 488.001                                                          | 0.671                                                     | 0.742              | 0       | 241.575  |
| <b>K2C=K9C</b>  |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J2C=J9C)     | 1705.262     | 2.789                                                            | 4.737                                                     | 358.946            | 644.924                                                          | 3.788                                                     | 4.737              | 358.946 | 1004.909 |
| 3 (J2C=J9C)     | 818.630      | 2.186                                                            | 2.274                                                     | 0                  | 787.014                                                          | 3.103                                                     | 2.274              | 0       | 1117.085 |
| <b>K2E=K9E</b>  |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J2E=J9E)     | 267.091      | 1.554                                                            | 0.742                                                     | 0                  | 559.381                                                          | 3.128                                                     | 0.742              | 0       | 1126.192 |
| 3 (J2E=J9E)     | 828.365      | 1.568                                                            | 2.301                                                     | 0                  | 564.486                                                          | 3.176                                                     | 2.301              | 0       | 1143.210 |
| ATAP (J2E=J9E)  | 267.091      | 1.356                                                            | 0.742                                                     | 0                  | 488.001                                                          | 0.671                                                     | 0.742              | 0       | 241.575  |
| <b>K3A=K8A</b>  |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J3A=J8A)     | 1487.154     | 1.554                                                            | 4.131                                                     | 306.504            | 252.877                                                          | 3.128                                                     | 4.131              | 306.504 | 819.688  |
| 3 (J3A=J8A)     | 919.579      | 1.568                                                            | 2.554                                                     | 55.970             | 508.516                                                          | 3.176                                                     | 2.554              | 55.970  | 1087.240 |
| ATAP (J3A=J8A)  | 275.186      | 1.356                                                            | 0.764                                                     | 0                  | 488.001                                                          | 0.671                                                     | 0.764              | 0       | 241.575  |
| <b>K3C=K8C</b>  |              |                                                                  |                                                           |                    |                                                                  |                                                           |                    |         |          |
| 2 (J3C=J8C)     | 1673.581     | 2.789                                                            | 4.649                                                     | 351.814            | 652.056                                                          | 3.788                                                     | 4.649              | 351.814 | 1012.041 |
| 3 (J3C=J8C)     | 807.556      | 2.186                                                            | 2.243                                                     | 0                  | 787.014                                                          | 3.103                                                     | 2.243              | 0       | 1117.085 |



|                    |          |       |       |         |         |        |       |         |          |  |
|--------------------|----------|-------|-------|---------|---------|--------|-------|---------|----------|--|
| <b>K3E=K8E</b>     |          |       |       |         |         |        |       |         |          |  |
| 2 (J3E=I8E)        | 1494.865 | 1.554 | 4.152 | 308.510 | 250.871 | 3.128  | 4.152 | 308.510 | 817.682  |  |
| 3 (J3E=I8E)        | 923.285  | 1.568 | 2.565 | 61.038  | 503.448 | 3.176  | 2.565 | 61.038  | 1082.172 |  |
| ΔTAP (J3E=I8E)     | 274.653  | 1.356 | 0.763 | 0       | 488.001 | 0.671  | 0.763 | 0       | 241.575  |  |
| <b>K4A=K7A</b>     |          |       |       |         |         |        |       |         |          |  |
| 2 (J4A=I7A)        | 1226.081 | 1.863 | 3.406 | 228.414 | 442.162 | 3.112  | 3.406 | 228.414 | 891.916  |  |
| 3 (J4A=I7A)        | 746.079  | 1.562 | 2.072 | 0       | 562.401 | 3.174  | 2.072 | 0       | 1142.585 |  |
| ΔTAP (J4A=I7A)     | 219.317  | 1.344 | 0.609 | 0       | 483.831 | 0.668  | 0.609 | 0       | 240.324  |  |
| <b>K4C=K7C</b>     |          |       |       |         |         |        |       |         |          |  |
| 2 (J4C=I7C)        | 1495.849 | 2.456 | 4.155 | 308.765 | 575.494 | 3.802  | 4.155 | 308.765 | 1059.897 |  |
| 3 (J4C=I7C)        | 717.506  | 1.898 | 1.993 | 0       | 683.428 | 3.130  | 1.993 | 0       | 1126.700 |  |
| <b>K4E=K7E</b>     |          |       |       |         |         |        |       |         |          |  |
| 2 (J4E=I7E)        | 229.622  | 1.863 | 0.638 | 0       | 670.576 | 3.112  | 0.638 | 0       | 1120.330 |  |
| 3 (J4E=I7E)        | 818.440  | 1.562 | 2.273 | 0       | 562.401 | 3.174  | 2.273 | 0       | 1142.585 |  |
| ΔTAP (J4E=I7E)     | 229.622  | 1.344 | 0.638 | 0       | 483.831 | 0.668  | 0.638 | 0       | 240.324  |  |
| <b>K5A=K6A</b>     |          |       |       |         |         |        |       |         |          |  |
| 2 (J5A=I6A)        | 872.996  | 1.496 | 2.425 | 0       | 538.568 | 3.198  | 2.425 | 0       | 1151.170 |  |
| 3 (J5A=I6A)        | 550.760  | 1.774 | 1.530 | 0       | 638.486 | 3.502  | 1.530 | 0       | 1260.744 |  |
| <b>K5A'=K6A'</b>   |          |       |       |         |         |        |       |         |          |  |
| 2 (J5A'=I6A')      | 901.155  | 0.870 | 2.503 | 13.593  | 299.604 | -0.090 | 2.503 | 13.593  | -46.117  |  |
| 3 (J5A'=I6A')      | 578.919  | 0.870 | 1.608 | 0       | 313.197 | -0.090 | 1.608 | 0       | -32.524  |  |
| <b>K5A''=K6A''</b> |          |       |       |         |         |        |       |         |          |  |
| ΔTAP (J5A''=I6A'') | 234.656  | 1.327 | 0.652 | 0       | 477.558 | 0.609  | 0.652 | 0       | 219.416  |  |
| <b>K5C=K6C</b>     |          |       |       |         |         |        |       |         |          |  |
| 2 (J5C=I6C)        | 1421.428 | 2.456 | 3.948 | 288.840 | 595.419 | 3.802  | 3.948 | 288.840 | 1079.823 |  |
| 3 (J5C=I6C)        | 683.115  | 1.898 | 1.898 | 0       | 683.428 | 3.130  | 1.898 | 0       | 1126.700 |  |
| <b>K5E=K6E</b>     |          |       |       |         |         |        |       |         |          |  |
| 2 (J5E=I6E)        | 1547.855 | 1.912 | 4.300 | 321.958 | 366.487 | 2.483  | 4.300 | 321.958 | 571.961  |  |
| 3 (J5E=I6E)        | 923.099  | 1.600 | 2.564 | 60.794  | 515.042 | 2.498  | 2.564 | 60.794  | 838.563  |  |
| ΔTAP (J5E=I6E)     | 272.180  | 1.358 | 0.756 | 0       | 489.032 | 0.704  | 0.756 | 0       | 253.593  |  |

## 8. Penulangan geser horizontal dan vertikal

| I.t             | V <sub>sh,x</sub><br>(KN) | V <sub>sh,y</sub><br>(KN) | V <sub>sh,maks</sub><br>(KN) | Penulangan geser horizontal           |                                              |                       |                       | Penulangan geser horizontal |                          |                          |                                       |                                              |                       |                       |  |  |  |
|-----------------|---------------------------|---------------------------|------------------------------|---------------------------------------|----------------------------------------------|-----------------------|-----------------------|-----------------------------|--------------------------|--------------------------|---------------------------------------|----------------------------------------------|-----------------------|-----------------------|--|--|--|
|                 |                           |                           |                              | A <sub>jh</sub><br>(mm <sup>2</sup> ) | A <sub>v</sub><br>O 10 mm (mm <sup>2</sup> ) | Jml lapis<br>senggang | Jml lapis<br>senggang | V <sub>o,v</sub><br>(KN)    | V <sub>j,v</sub><br>(KN) | V <sub>s,v</sub><br>(KN) | A <sub>jv</sub><br>(mm <sup>2</sup> ) | A <sub>v</sub><br>O 10 mm (mm <sup>2</sup> ) | Jml lapis<br>senggang | Jml lapis<br>senggang |  |  |  |
|                 |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
|                 |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| <b>K1A=K10A</b> |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J1A=J10A)    | 345.280                   | 462.337                   | 462.337                      | 1926.404                              | 314.159                                      | 6.132                 | 7P10                  | 311.527                     | 462.337                  | 150.810                  | 628.373                               | 314.159                                      | 2.000                 | 2P10                  |  |  |  |
| 3 (J1A=J10A)    | 350.517                   | 349.057                   | 350.517                      | 1460.488                              | 314.159                                      | 4.649                 | 5P10                  | 229.167                     | 350.517                  | 121.349                  | 505.622                               | 314.159                                      | 1.609                 | 2P10                  |  |  |  |
| ATAP (J1A=J10A) | 453.532                   | 447.716                   | 453.532                      | 1889.717                              | 314.159                                      | 6.015                 | 7P10                  | 287.688                     | 453.532                  | 165.844                  | 691.015                               | 314.159                                      | 2.200                 | 3P10                  |  |  |  |
| <b>K1B=K10B</b> |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J1B=J10B)    | 645.494                   | 552.591                   | 645.494                      | 2689.558                              | 314.159                                      | 8.561                 | 9P10                  | 655.897                     | 886.103                  | 230.207                  | 959.194                               | 314.159                                      | 3.053                 | 4P10                  |  |  |  |
| 3 (J1B=J10B)    | 887.217                   | 1003.765                  | 1003.765                     | 4182.355                              | 314.159                                      | 13.313                | 14P10                 | 687.403                     | 1003.765                 | 316.362                  | 1318.175                              | 314.159                                      | 4.196                 | 5P10                  |  |  |  |
| ATAP (J1B=J10B) | 220.980                   | 482.772                   | 482.772                      | 2011.549                              | 314.159                                      | 6.403                 | 7P10                  | 299.664                     | 220.980                  | -78.684                  | -327.851                              | 314.159                                      | -1.044                | 2P10                  |  |  |  |
| <b>K1D=K10D</b> |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J1D=J10D)    | 647.067                   | 554.165                   | 647.067                      | 2696.113                              | 314.159                                      | 8.582                 | 9P10                  | 655.432                     | 886.103                  | 230.671                  | 961.129                               | 314.159                                      | 3.059                 | 4P10                  |  |  |  |
| 3 (J1D=J10D)    | 887.217                   | 1003.765                  | 1003.765                     | 4182.355                              | 314.159                                      | 13.313                | 14P10                 | 687.099                     | 1003.765                 | 316.666                  | 1319.441                              | 314.159                                      | 4.200                 | 5P10                  |  |  |  |
| ATAP (J1D=J10D) | 220.980                   | 482.772                   | 482.772                      | 2011.549                              | 314.159                                      | 6.403                 | 7P10                  | 299.614                     | 220.980                  | -78.635                  | -327.644                              | 314.159                                      | -1.043                | 2P10                  |  |  |  |
| <b>K1E=K10E</b> |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J1E=J10E)    | 345.280                   | 462.337                   | 462.337                      | 1926.404                              | 314.159                                      | 6.132                 | 7P10                  | 311.825                     | 462.337                  | 150.512                  | 627.135                               | 314.159                                      | 1.996                 | 2P10                  |  |  |  |
| 3 (J1E=J10E)    | 350.517                   | 349.057                   | 350.057                      | 1458.571                              | 314.159                                      | 4.643                 | 5P10                  | 229.271                     | 350.517                  | 121.246                  | 505.191                               | 314.159                                      | 1.608                 | 2P10                  |  |  |  |
| ATAP (J1E=J10E) | 453.532                   | 447.720                   | 453.532                      | 1889.717                              | 314.159                                      | 6.015                 | 7P10                  | 287.734                     | 453.532                  | 165.798                  | 690.824                               | 314.159                                      | 2.199                 | 3P10                  |  |  |  |
| <b>K2A=K9A</b>  |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J2A=J9A)     | 293.428                   | 860.240                   | 860.240                      | 3584.331                              | 314.159                                      | 11.409                | 12P10                 | 843.651                     | 1126.192                 | 282.541                  | 1177.253                              | 314.159                                      | 3.747                 | 4P10                  |  |  |  |
| 3 (J2A=J9A)     | 564.486                   | 1143.210                  | 1143.210                     | 4763.376                              | 314.159                                      | 15.162                | 16P10                 | 790.769                     | 1143.210                 | 352.441                  | 1468.503                              | 314.159                                      | 4.674                 | 5P10                  |  |  |  |
| ATAP (J2A=J9A)  | 488.001                   | 241.575                   | 488.001                      | 2033.338                              | 314.159                                      | 6.472                 | 7P10                  | 307.284                     | 488.001                  | 180.717                  | 752.987                               | 314.159                                      | 2.397                 | 3P10                  |  |  |  |
| <b>K2C=K9C</b>  |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J2C=J9C)     | 644.924                   | 1004.909                  | 1004.909                     | 4187.123                              | 314.159                                      | 13.328                | 14P10                 | 1076.727                    | 1363.855                 | 287.128                  | 1196.365                              | 314.159                                      | 3.808                 | 4P10                  |  |  |  |
| 3 (J2C=J9C)     | 787.014                   | 1117.085                  | 1117.085                     | 4654.522                              | 314.159                                      | 14.816                | 15P10                 | 771.860                     | 1117.085                 | 345.225                  | 1438.439                              | 314.159                                      | 4.579                 | 5P10                  |  |  |  |
| <b>K2E=K9E</b>  |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J2E=J9E)     | 559.381                   | 1126.192                  | 1126.192                     | 4692.465                              | 314.159                                      | 14.937                | 15P10                 | 709.137                     | 1126.192                 | 417.055                  | 1737.729                              | 314.159                                      | 5.531                 | 6P10                  |  |  |  |
| 3 (J2E=J9E)     | 564.486                   | 1143.210                  | 1143.210                     | 4763.376                              | 314.159                                      | 15.162                | 16P10                 | 791.148                     | 1143.210                 | 352.062                  | 1466.926                              | 314.159                                      | 4.669                 | 5P10                  |  |  |  |
| ATAP (J2E=J9E)  | 488.001                   | 241.575                   | 488.001                      | 2033.338                              | 314.159                                      | 6.472                 | 7P10                  | 307.283                     | 488.001                  | 180.718                  | 752.992                               | 314.159                                      | 2.397                 | 3P10                  |  |  |  |
| <b>K3A=K8A</b>  |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J3A=J8A)     | 252.877                   | 819.688                   | 819.688                      | 3415.366                              | 314.159                                      | 10.871                | 11P10                 | 861.806                     | 1126.192                 | 264.386                  | 1101.606                              | 314.159                                      | 3.507                 | 4P10                  |  |  |  |
| 3 (J3A=J8A)     | 508.516                   | 1087.240                  | 1087.240                     | 4530.166                              | 314.159                                      | 14.420                | 15P10                 | 802.734                     | 1143.210                 | 340.476                  | 1418.650                              | 314.159                                      | 4.516                 | 5P10                  |  |  |  |
| ATAP (J3A=J8A)  | 488.001                   | 241.575                   | 48.575                       | 202.396                               | 314.159                                      | 0.644                 | 1P10                  | 307.722                     | 488.001                  | 180.279                  | 751.163                               | 314.159                                      | 2.391                 | 3P10                  |  |  |  |
| <b>K3C=K8C</b>  |                           |                           |                              |                                       |                                              |                       |                       |                             |                          |                          |                                       |                                              |                       |                       |  |  |  |
| 2 (J3C=J8C)     | 652.056                   | 1012.041                  | 1012.041                     | 4216.838                              | 314.159                                      | 13.423                | 14P10                 | 1071.927                    | 1363.855                 | 291.928                  | 1216.369                              | 314.159                                      | 3.872                 | 4P10                  |  |  |  |
| 3 (J3C=J8C)     | 787.014                   | 1117.085                  | 1117.085                     | 4654.522                              | 314.159                                      | 14.816                | 15P10                 | 770.485                     | 1117.085                 | 346.600                  | 1444.166                              | 314.159                                      | 4.597                 | 5P10                  |  |  |  |

|                    |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
|--------------------|---------|----------|----------|----------|---------|--------|-------|----------|----------|---------|----------|---------|-------|------|
| K3E=K9E            |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| 2 (J3I)=18I)       | 250.871 | 817.682  | 817.682  | 3407.007 | 314.159 | 10.845 | 11P10 | 862.771  | 1126.192 | 263.421 | 1097.586 | 314.159 | 3.494 | 4P10 |
| 3 (J3I)=18I)       | 503.448 | 1082.172 | 1082.172 | 4509.050 | 314.159 | 14.353 | 15P10 | 803.205  | 1143.210 | 340.005 | 1416.689 | 314.159 | 4.509 | 5P10 |
| ATAP (J3I)=18I)    | 488.001 | 241.575  | 488.001  | 2033.338 | 314.159 | 6.472  | 7P10  | 307.693  | 488.001  | 180.308 | 751.283  | 314.159 | 2.391 | 3P10 |
| K4A=K7A            |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| 2 (J4A)=17A)       | 442.162 | 891.916  | 891.916  | 3716.315 | 314.159 | 11.829 | 12P10 | 824.822  | 1120.330 | 295.508 | 1231.283 | 314.159 | 3.919 | 4P10 |
| 3 (J4A)=17A)       | 562.401 | 1142.585 | 1142.585 | 4760.770 | 314.159 | 15.154 | 16P10 | 780.268  | 1142.585 | 362.316 | 1509.651 | 314.159 | 4.805 | 5P10 |
| ATAP (J4A)=17A)    | 483.831 | 240.324  | 483.831  | 2015.963 | 314.159 | 6.417  | 7P10  | 302.089  | 483.831  | 181.742 | 757.259  | 314.159 | 2.410 | 3P10 |
| K4C=K7C            |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| 2 (J4C)=17C)       | 575.494 | 1059.897 | 1059.897 | 4416.239 | 314.159 | 14.057 | 15P10 | 1048.677 | 1368.662 | 319.986 | 1333.274 | 314.159 | 4.244 | 5P10 |
| 3 (J4C)=17C)       | 683.428 | 1126.700 | 1126.700 | 4694.584 | 314.159 | 14.943 | 15P10 | 765.844  | 1126.700 | 360.856 | 1503.568 | 314.159 | 4.786 | 5P10 |
| K4E=K7E            |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| 2 (J4I)=17I)       | 670.576 | 1120.330 | 1120.330 | 4668.040 | 314.159 | 14.859 | 15P10 | 700.781  | 1120.330 | 419.548 | 1748.118 | 314.159 | 5.564 | 6P10 |
| 3 (J4I)=17I)       | 562.401 | 1142.585 | 1142.585 | 4760.770 | 314.159 | 15.154 | 16P10 | 789.455  | 1142.585 | 353.130 | 1471.374 | 314.159 | 4.684 | 5P10 |
| ATAP (J4I)=17I)    | 483.831 | 240.324  | 483.831  | 2015.963 | 314.159 | 6.417  | 7P10  | 302.643  | 483.831  | 181.188 | 754.951  | 314.159 | 2.403 | 3P10 |
| K5A=K6A            |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| 2 (J5A)=16A)       | 538.568 | 1151.170 | 1151.170 | 4796.544 | 314.159 | 15.268 | 16P10 | 802.365  | 1151.170 | 348.805 | 1453.355 | 314.159 | 4.626 | 5P10 |
| 3 (J5A)=16A)       | 638.486 | 1260.744 | 1260.744 | 5253.098 | 314.159 | 16.721 | 17P10 | 833.598  | 1260.744 | 427.146 | 1779.773 | 314.159 | 5.665 | 6P10 |
| K5A'=K6A'          |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| 2 (J5A')=16A')     | 299.604 | -46.117  | 299.604  | 1248.350 | 314.159 | 3.974  | 4P10  | 219.278  | 313.197  | 93.919  | 391.329  | 314.159 | 1.246 | 2P10 |
| 3 (J5A')=16A')     | 313.197 | -32.524  | 313.197  | 1304.988 | 314.159 | 4.154  | 5P10  | 208.064  | 313.197  | 105.133 | 438.053  | 314.159 | 1.394 | 2P10 |
| K5A''=K6A''        |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| ATAP (J5A')=16A'') | 477.558 | 219.416  | 477.558  | 1989.825 | 314.159 | 6.334  | 7P10  | 298.986  | 477.558  | 178.572 | 744.050  | 314.159 | 2.368 | 3P10 |
| K5C=K6C            |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| 2 (J5C)=16C)       | 595.419 | 1079.823 | 1079.823 | 4499.261 | 314.159 | 14.322 | 15P10 | 1037.359 | 1368.662 | 331.303 | 1380.430 | 314.159 | 4.394 | 5P10 |
| 3 (J5C)=16C)       | 683.428 | 1126.700 | 1126.700 | 4694.584 | 314.159 | 14.943 | 15P10 | 761.538  | 1126.700 | 365.162 | 1521.507 | 314.159 | 4.843 | 5P10 |
| K5E=K6E            |         |          |          |          |         |        |       |          |          |         |          |         |       |      |
| 2 (J5I)=16I)       | 366.487 | 571.961  | 571.961  | 2383.171 | 314.159 | 7.586  | 8P10  | 690.091  | 893.919  | 203.828 | 849.283  | 314.159 | 2.703 | 3P10 |
| 3 (J5I)=16I)       | 515.042 | 838.563  | 838.563  | 3494.012 | 314.159 | 11.122 | 12P10 | 631.858  | 899.356  | 267.499 | 1114.578 | 314.159 | 3.548 | 4P10 |
| ATAP (J5I)=16I)    | 489.032 | 253.593  | 489.032  | 2037.633 | 314.159 | 6.486  | 7P10  | 308.209  | 489.032  | 180.824 | 753.431  | 314.159 | 2.398 | 3P10 |

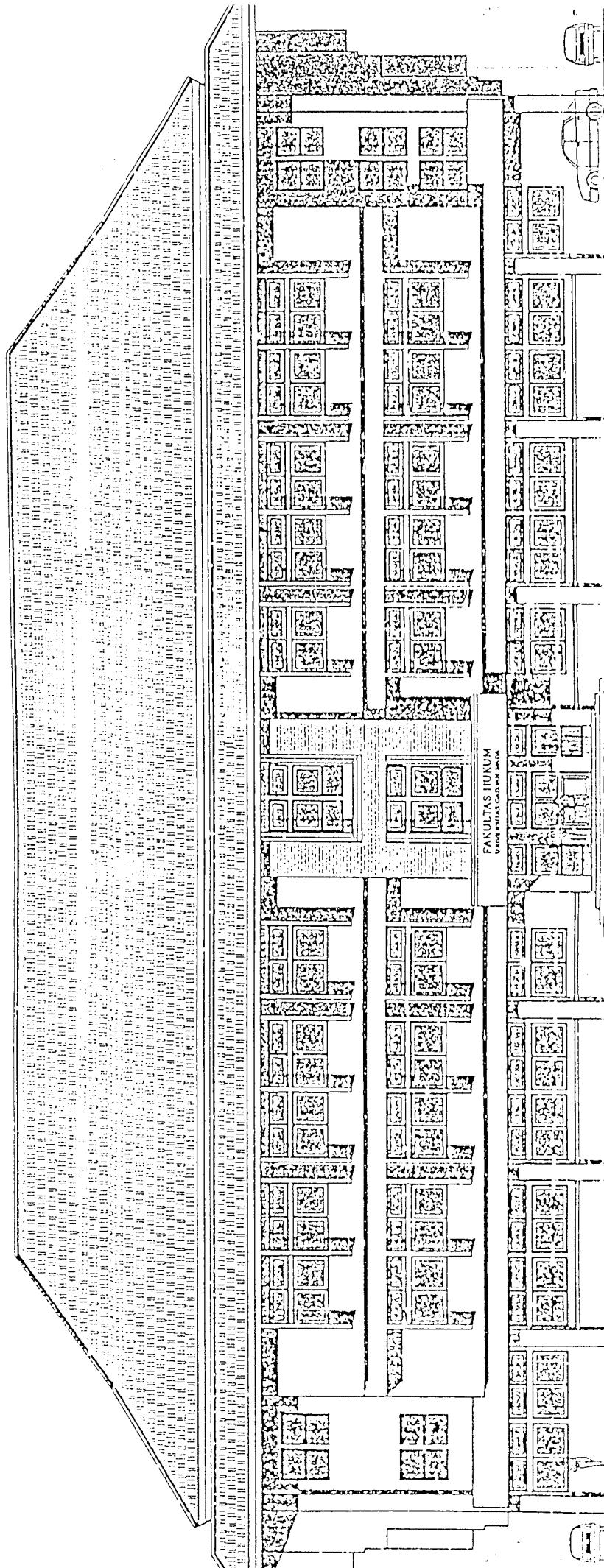
### PERENCANAAN PONDASI TELAPAK

| <b>Tipe Pondasi</b>                                        | <b>P1</b>     | <b>P2</b>     | <b>P3</b>     |
|------------------------------------------------------------|---------------|---------------|---------------|
| $\sigma_{\text{tanah}}$ (KN/m <sup>2</sup> )               | 150           | 150           | 150           |
| f <sub>c</sub> (Mpa)                                       | 25            | 25            | 25            |
| f <sub>y</sub> (Mpa)                                       | 400           | 400           | 400           |
| $\gamma_{b_{\text{tanah}}}$ (KN/m <sup>3</sup> )           | 18            | 18            | 18            |
| $\gamma_{\text{beton}}$ (KN/m <sup>3</sup> )               | 24            | 24            | 24            |
| h <sub>t.urug</sub> (m)                                    | 1             | 1             | 1             |
| h <sub>pelat</sub> (m)                                     | 0.5           | 0.5           | 0.5           |
| b <sub>kolom</sub> (mm)                                    | 600           | 600           | 600           |
| h <sub>kolom</sub> (mm)                                    | 600           | 600           | 600           |
| P <sub>b</sub> (mm)                                        | 70            | 70            | 70            |
| $\phi_{\text{tul.pokok}}$ (mm)                             | 22            | 22            | 22            |
| P (KN)                                                     | 1571.922      | 1387.436      | 650.340       |
| M <sub>x</sub> (KNm)                                       | 4.748         | 8.974         | 9.022         |
| M <sub>y</sub> (KNm)                                       | 7.183         | 1.991         | 10.934        |
| <b>Pondasi Telapak :</b>                                   |               |               |               |
| $\sigma_{\text{netto tanah}}$ (KN/m <sup>2</sup> )         | 120           | 120           | 120           |
| Coba B (m)                                                 | 3.7           | 3.5           | 2.5           |
| A <sub>perlu</sub> (m <sup>2</sup> )                       | 13.255        | 11.712        | 5.789         |
| B <sub>perlu</sub> (mm)                                    | 3.641         | 3.422         | 2.406         |
| B <sub>ada</sub> (m)                                       | 3.7           | 3.5           | 2.5           |
| A <sub>ada</sub> (m <sup>2</sup> )                         | 13.69         | 12.25         | 6.25          |
| Kontrol : A <sub>ada</sub> > A <sub>perlu</sub>            | <b>Ok!</b>    | <b>Ok!</b>    | <b>Ok!</b>    |
| $\sigma_{\text{kontak}}$ (KN/m <sup>2</sup> )              | 116.236       | 114.795       | 111.718       |
| Kontrol : $\sigma_{\text{kontak}} < \sigma_{\text{netto}}$ | <b>Aman !</b> | <b>Aman !</b> | <b>Aman !</b> |
| <i>Tinjauan B. Sementara :</i>                             |               |               |               |
| e <sub>x</sub> (m)                                         | 0.003         | 0.006         | 0.014         |
| e <sub>y</sub> (m)                                         | 0.005         | 0.001         | 0.017         |
| $\sigma$ (KN/m <sup>2</sup> )                              | 57.529        | 56.758        | 52.674        |
| 1,5 . $\sigma_{\text{netto}}$ (KN/m <sup>2</sup> )         | 180           | 180           | 180           |
| Kontrol : $\sigma < 1,5 . \sigma_{\text{netto}}$           | <b>Aman !</b> | <b>Aman !</b> | <b>Aman !</b> |
| <b>Perhit. Geser 1 Arah :</b>                              |               |               |               |
| P <sub>u</sub> (KN)                                        | 1996.976      | 1748.536      | 809.490       |
| M <sub>ux</sub> (KNm)                                      | 157.143       | 167.123       | 130.133       |
| M <sub>uy</sub> (KNm)                                      | 22.296        | 144.504       | 13.727        |
| d (mm)                                                     | 419           | 419           | 419           |
| n <sub>l</sub> (m)                                         | 1.131         | 1.031         | 0.531         |
| <i>Arah x :</i>                                            |               |               |               |
| q <sub>ux<sub>max</sub></sub> (KN/m <sup>2</sup> )         | 164.485       | 166.125       | 179.489       |
| q <sub>ux<sub>min</sub></sub> (KN/m <sup>2</sup> )         | 127.257       | 119.350       | 79.547        |
| q <sub>u<sub>m</sub></sub> (KN/m <sup>2</sup> )            | 153.105       | 152.347       | 158.262       |
| q <sub>ux<sub>terjadi</sub></sub> (KN/m <sup>2</sup> )     | 158.795       | 159.236       | 168.876       |
| V <sub>u</sub> (KN)                                        | 664.511       | 574.602       | 224.182       |
| V <sub>u</sub> /Φ (KN)                                     | 1107.518      | 957.671       | 373.637       |
| V <sub>c</sub> (KN)                                        | 1291.917      | 1222.083      | 872.917       |
| Kontrol : V <sub>c</sub> ≥ V <sub>u</sub> /Φ               | <b>Aman !</b> | <b>Aman !</b> | <b>Aman !</b> |

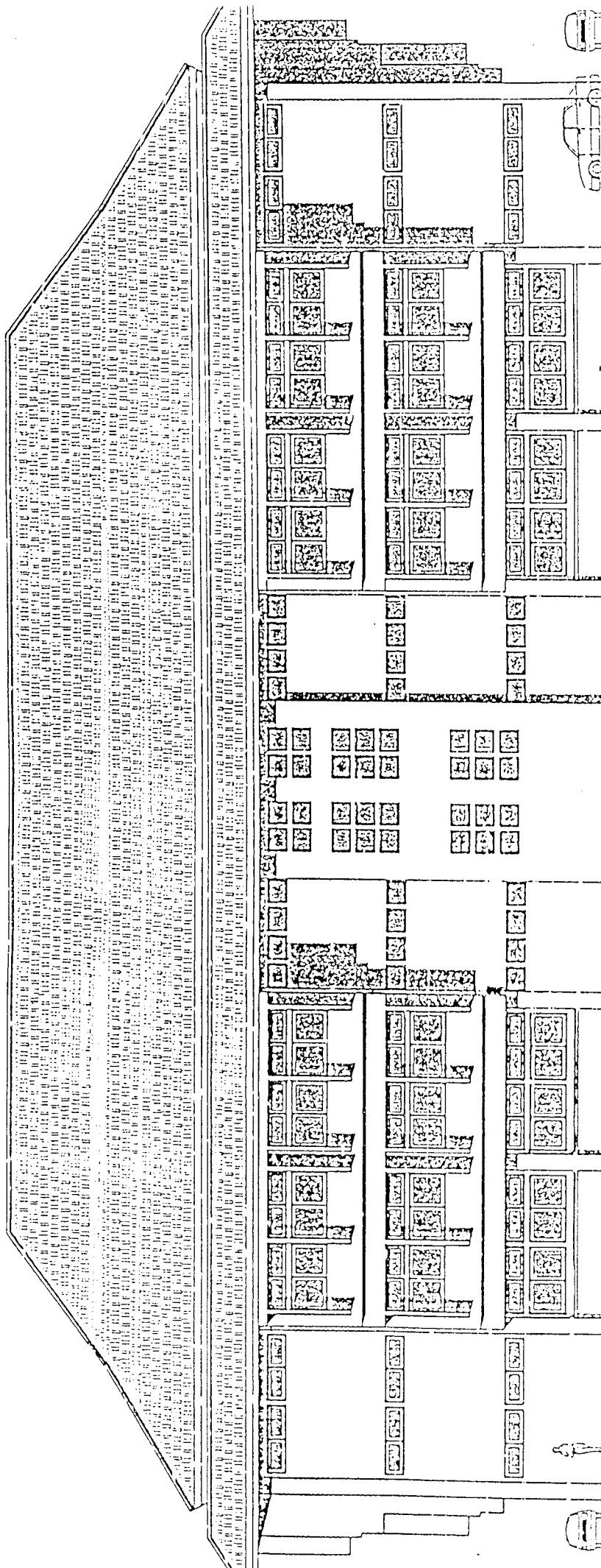
|                                                                   |                |                |                |
|-------------------------------------------------------------------|----------------|----------------|----------------|
| <i>Arah y :</i>                                                   |                |                |                |
| $qu_{y_{max}}$ (KN/m <sup>2</sup> )                               | 148.512        | 162.960        | 134.790        |
| $qu_{y_{min}}$ (KN/m <sup>2</sup> )                               | 143.230        | 122.515        | 124.247        |
| $qu_m$ (KN/m <sup>2</sup> )                                       | 146.898        | 151.046        | 132.550        |
| $qu_{y_{terjadi}}$ (KN/m <sup>2</sup> )                           | 147.705        | 157.003        | 133.670        |
| $V_u$ (KN)                                                        | 618.101        | 566.545        | 177.447        |
| $V_u/\Phi$ (KN)                                                   | 1030.168       | 944.242        | 295.745        |
| $V_c$ (KN)                                                        | 1291.917       | 1222.083       | 872.917        |
| Kontrol : $V_c \geq V_u/\Phi$                                     | <b>Aman !</b>  | <b>Aman !</b>  | <b>Aman !</b>  |
| <b>Perhit. Geser 2 Arah :</b>                                     |                |                |                |
| $x = y$ (mm)                                                      | 1019           | 1019           | 1019           |
| $qu_{max}$ (KN/m <sup>2</sup> )                                   | 167.126        | 186.347        | 184.761        |
| $qu_{min}$ (KN/m <sup>2</sup> )                                   | 124.616        | 99.128         | 74.276         |
| $qu_T$ (KN/m <sup>2</sup> )                                       | 145.871        | 142.738        | 129.518        |
| $V_u$ (KN)                                                        | 1845.509       | 1600.323       | 675.003        |
| $V_u/\Phi$ (KN)                                                   | 3075.848       | 2667.205       | 1125.005       |
| $\beta_c$                                                         | 1              | 1              | 1              |
| $b_o$ (mm)                                                        | 4076           | 4076           | 4076           |
| $V_{c1}$ (KN)                                                     | 51235.320      | 51235.320      | 51235.320      |
| $V_{c2}$ (KN)                                                     | 34156.880      | 34156.880      | 34156.880      |
| $V_{c_{pakai}}$ (KN)                                              | 34156.880      | 34157.880      | 34158.880      |
| Kontrol : $V_{cpakai} \geq V_u/\Phi$                              | <b>Aman !</b>  | <b>Aman !</b>  | <b>Aman !</b>  |
| <b>Kuat Tumpuan Pondasi :</b>                                     |                |                |                |
| <i>Kuat Tump. Pondasi :</i>                                       |                |                |                |
| $\Phi \cdot P_n$                                                  | 10710          | 10710          | 10710          |
| <i>Kuat Tump. Kolom :</i>                                         |                |                |                |
| $\Phi \cdot P_n$                                                  | 5355           | 5355           | 5355           |
| Kontrol : $\Phi \cdot P_{n_{pondasi}} > \Phi \cdot P_{n_{kolom}}$ | <b>Aman !</b>  | <b>Aman !</b>  | <b>Aman !</b>  |
| <b>Perhit. Tul. Lentur Pondasi :</b>                              |                |                |                |
| $l$ (m)                                                           | 1.550          | 1.450          | 0.950          |
| $qu_{max}$ (KN/m <sup>2</sup> )                                   | 167.126        | 186.347        | 184.761        |
| $M_u$ (KNm)                                                       | 200.760        | 195.898        | 83.373         |
| $M_u/\Phi$ (KNm)                                                  | 250.950        | 244.872        | 104.217        |
| $m$                                                               | 18.824         | 18.824         | 18.824         |
| $R_n$ (mm <sup>2</sup> )                                          | 1.429          | 1.395          | 0.594          |
| $\rho_{min}$                                                      | 0.004          | 0.004          | 0.004          |
| $\rho_b$                                                          | 0.027          | 0.027          | 0.027          |
| $\rho_{max}$                                                      | 0.020          | 0.020          | 0.020          |
| $\rho_{perlu}$                                                    | 0.004          | 0.004          | 0.002          |
| $\rho_{pakai}$                                                    | 0.004          | 0.004          | 0.003          |
| $A_{s_{perlu}}$ (mm <sup>2</sup> )                                | 1676           | 1676           | 1257           |
| Øtulangan pokok (mm)                                              | 22             | 22             | 22             |
| $A1 \cdot \bar{O}$ (mm <sup>2</sup> )                             | 380.286        | 380.286        | 380.286        |
| $s$ (mm)                                                          | 226.901        | 226.901        | 302.534        |
| $s_{pakai}$ (mm)                                                  | 220            | 220            | 250            |
| Dipakai tulangan                                                  | <b>D22-220</b> | <b>D22-220</b> | <b>D22-250</b> |
| $A_{s_{ada}}$ (mm <sup>2</sup> )                                  | 1728.571       | 1728.571       | 1521.143       |
| $a$ (mm)                                                          | 32.538         | 32.538         | 28.633         |
| $M_n$ (KNm)                                                       | 278.460        | 278.460        | 246.232        |
| Kontrol : $M_n > M_u/\Phi$                                        | <b>Aman !</b>  | <b>Aman !</b>  | <b>Aman !</b>  |
| <i>Tulangan Susut :</i>                                           |                |                |                |
| $A_{s_{susut}}$ (mm <sup>2</sup> )                                | 1000           | 1000           | 1000           |
| Øtul. susut (mm)                                                  | 12             | 12             | 12             |
| $s$ (mm)                                                          | 113.143        | 113.143        | 113.143        |
| Dipakai tulangan                                                  | <b>P12-110</b> | <b>P12-110</b> | <b>P12-110</b> |

LAMPIRAN

IV

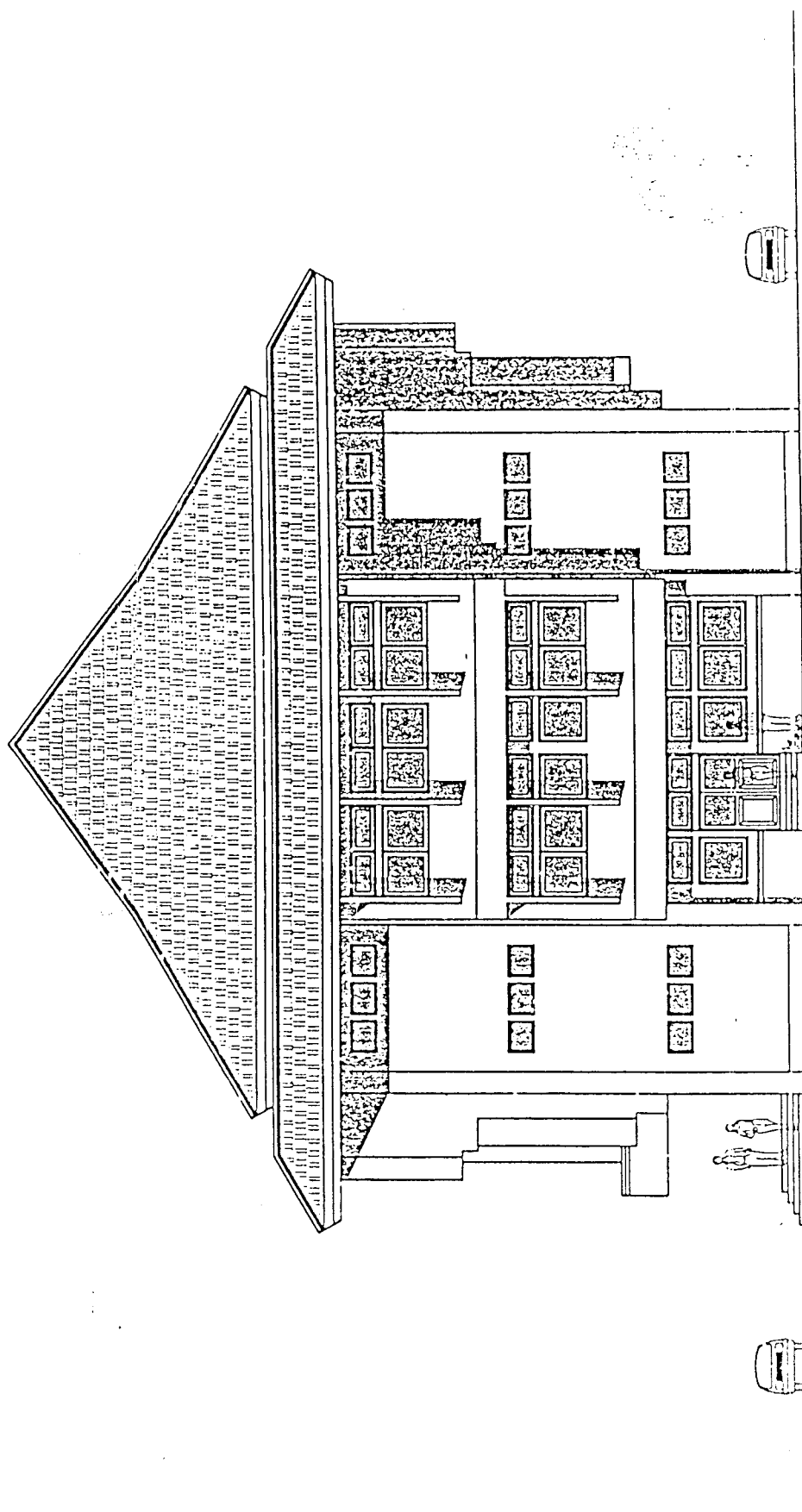


TAMPAK DEPAN

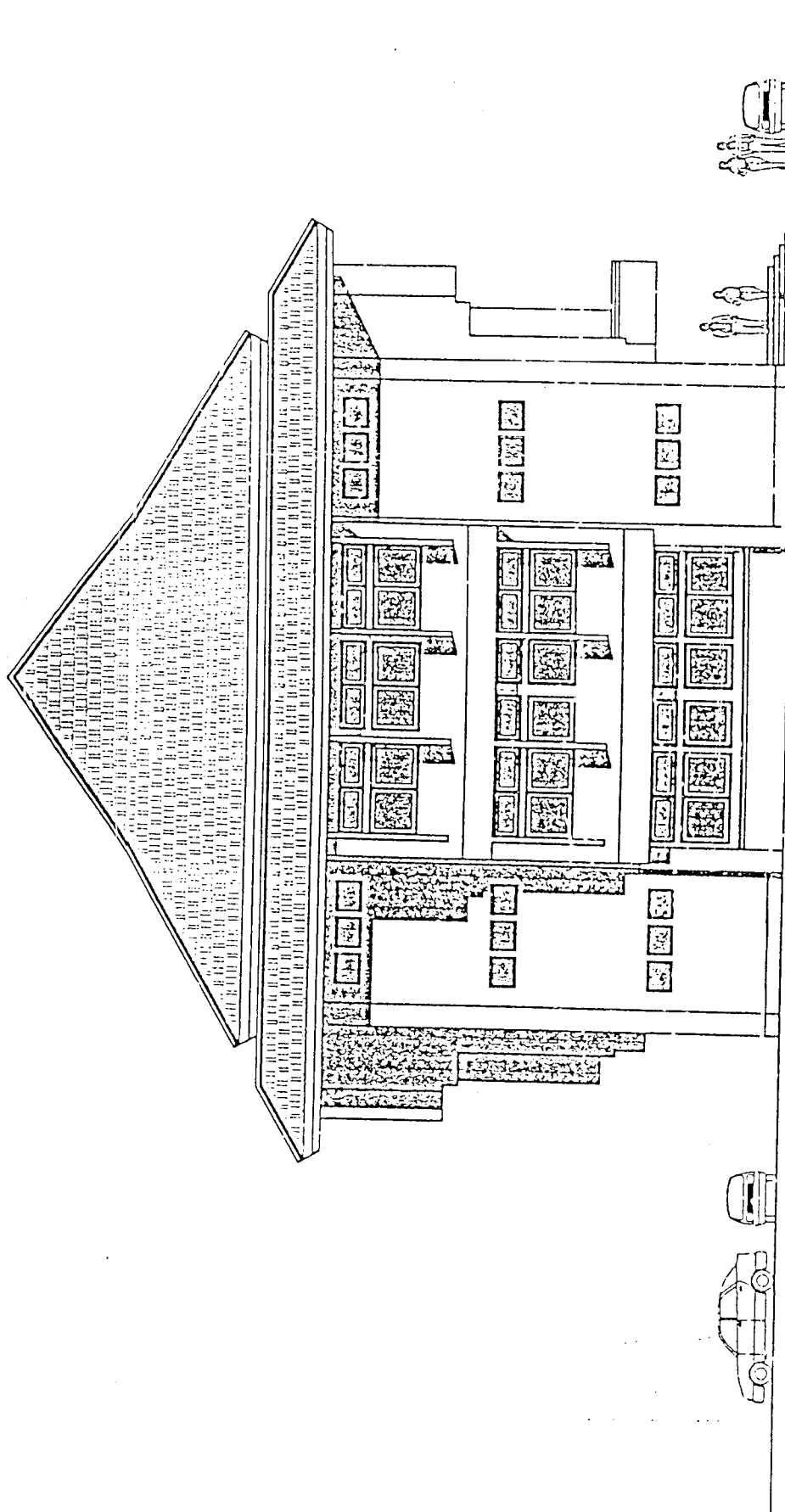


TAMPAK BELAKANG

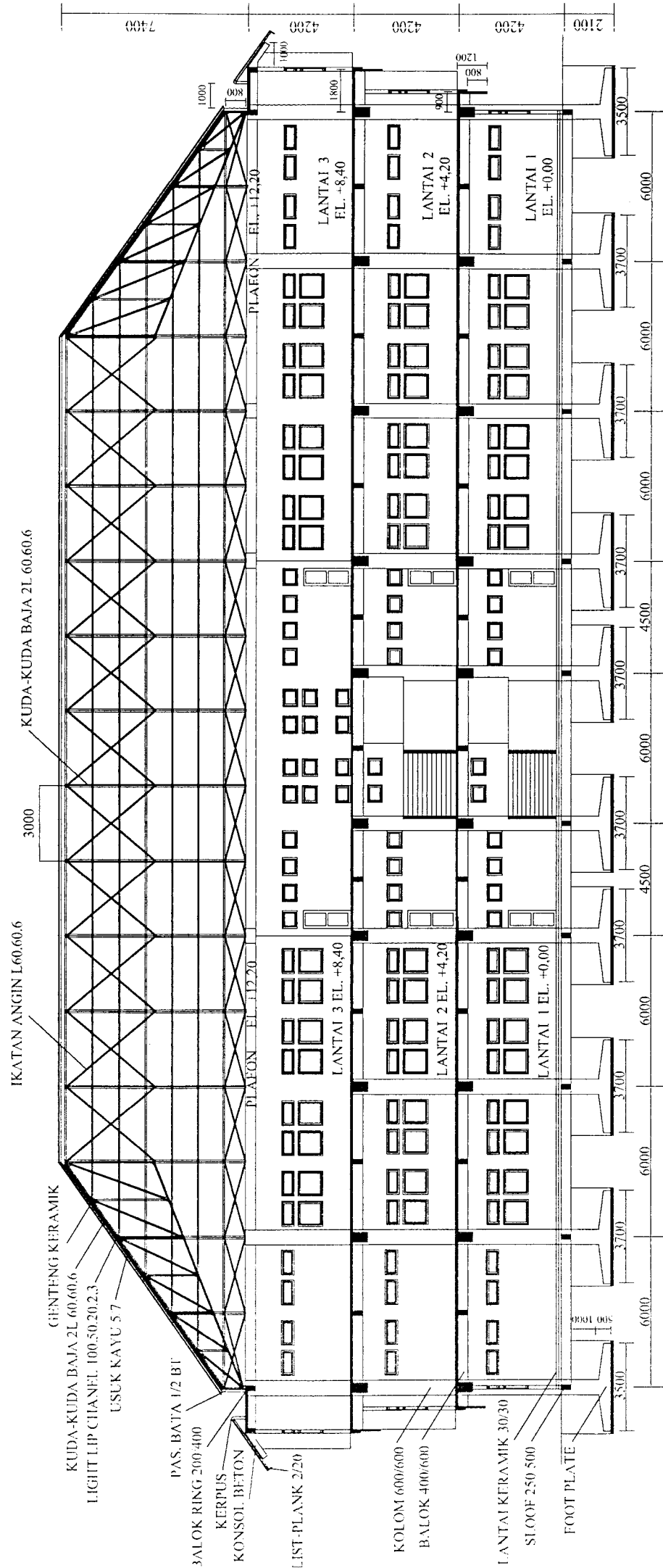


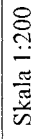


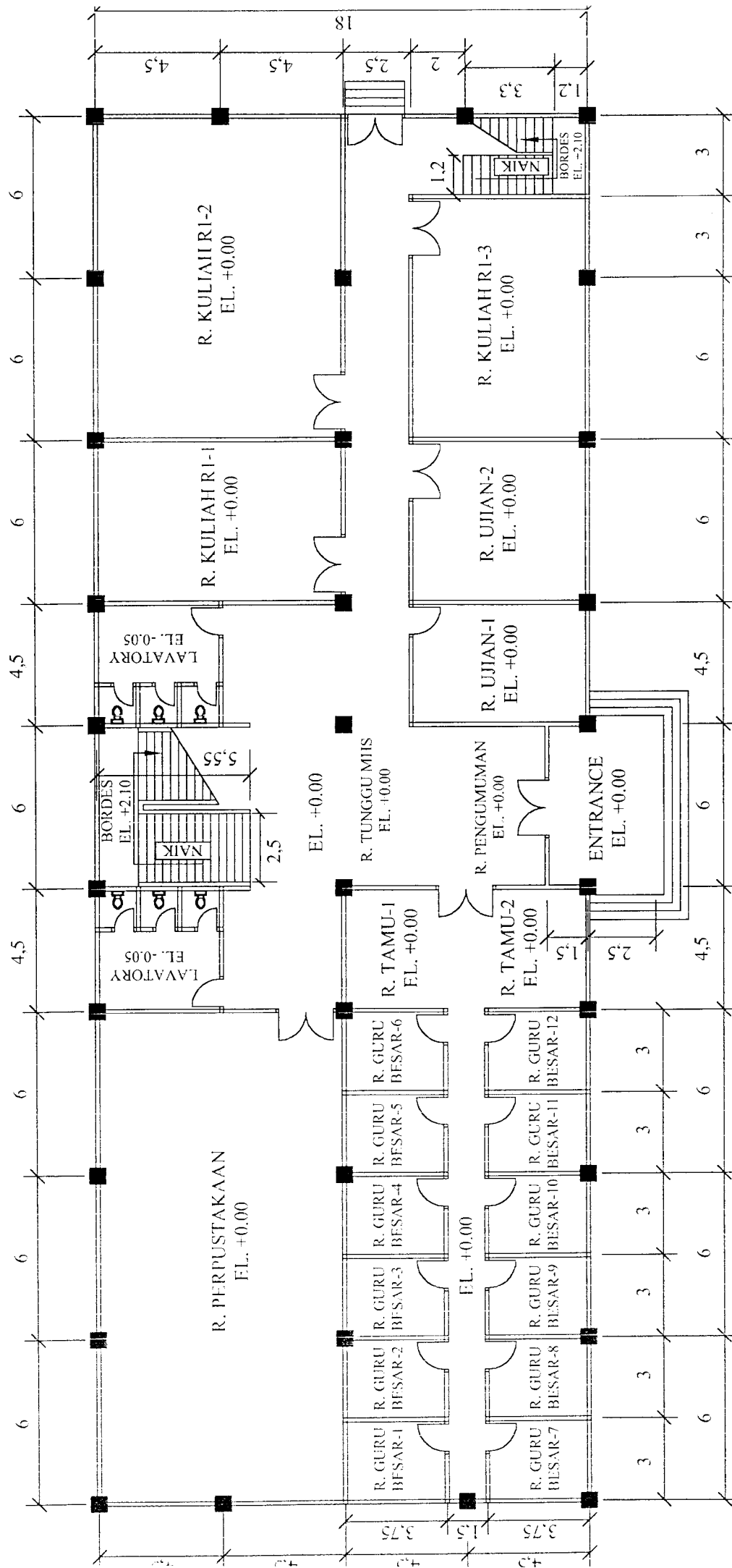
TAMPAK SAMPING KIRI



TAMPAK SAMPING KANAN

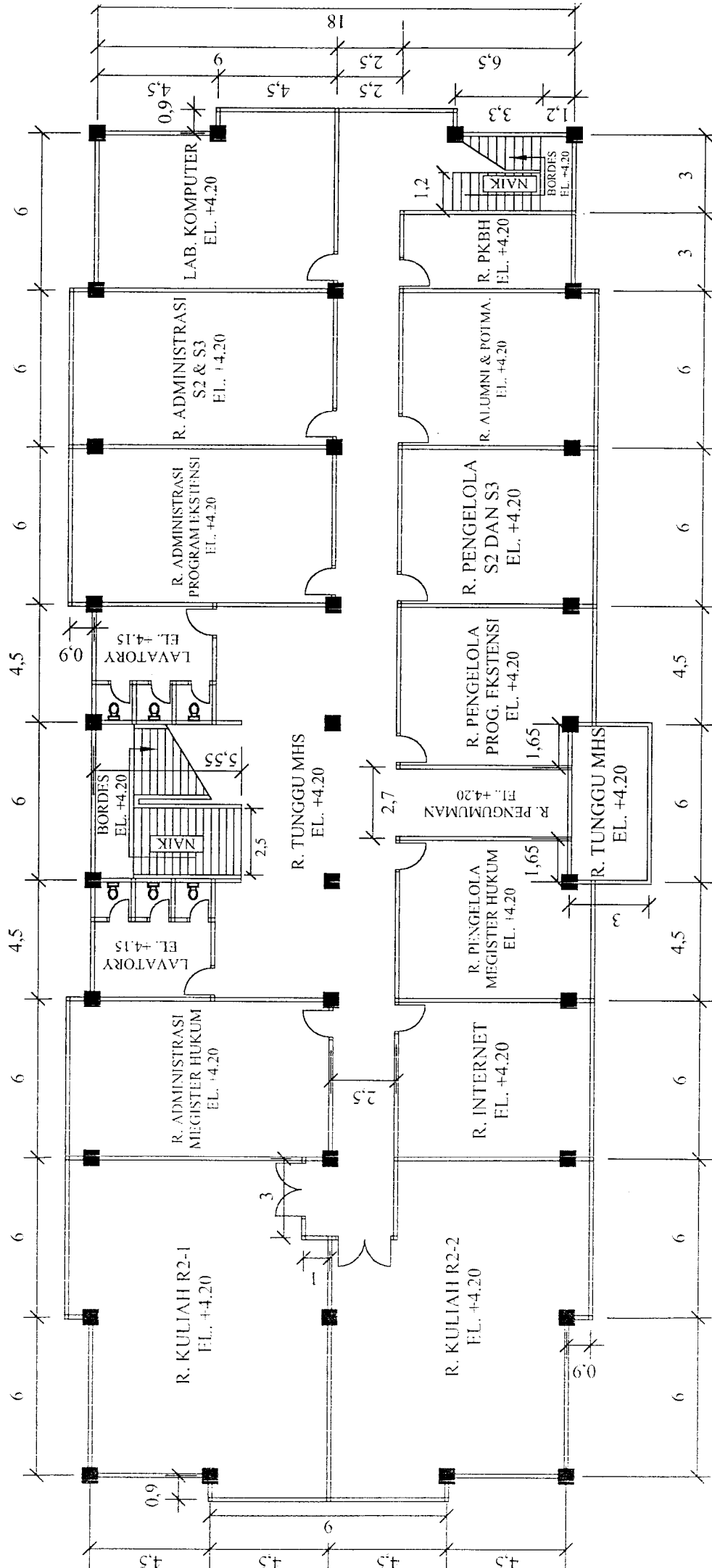






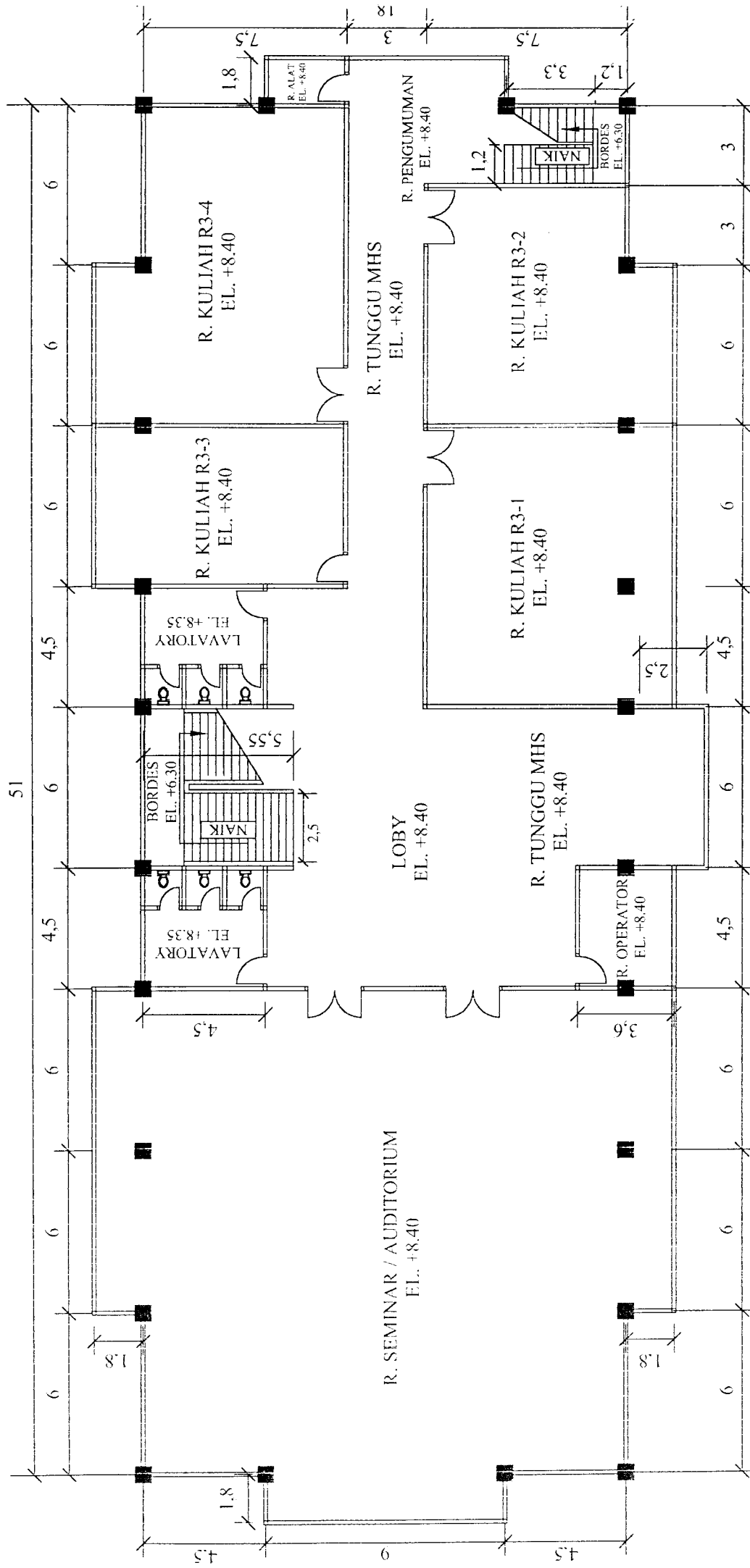
# DENAH LANTAI 1

Skala 1:200



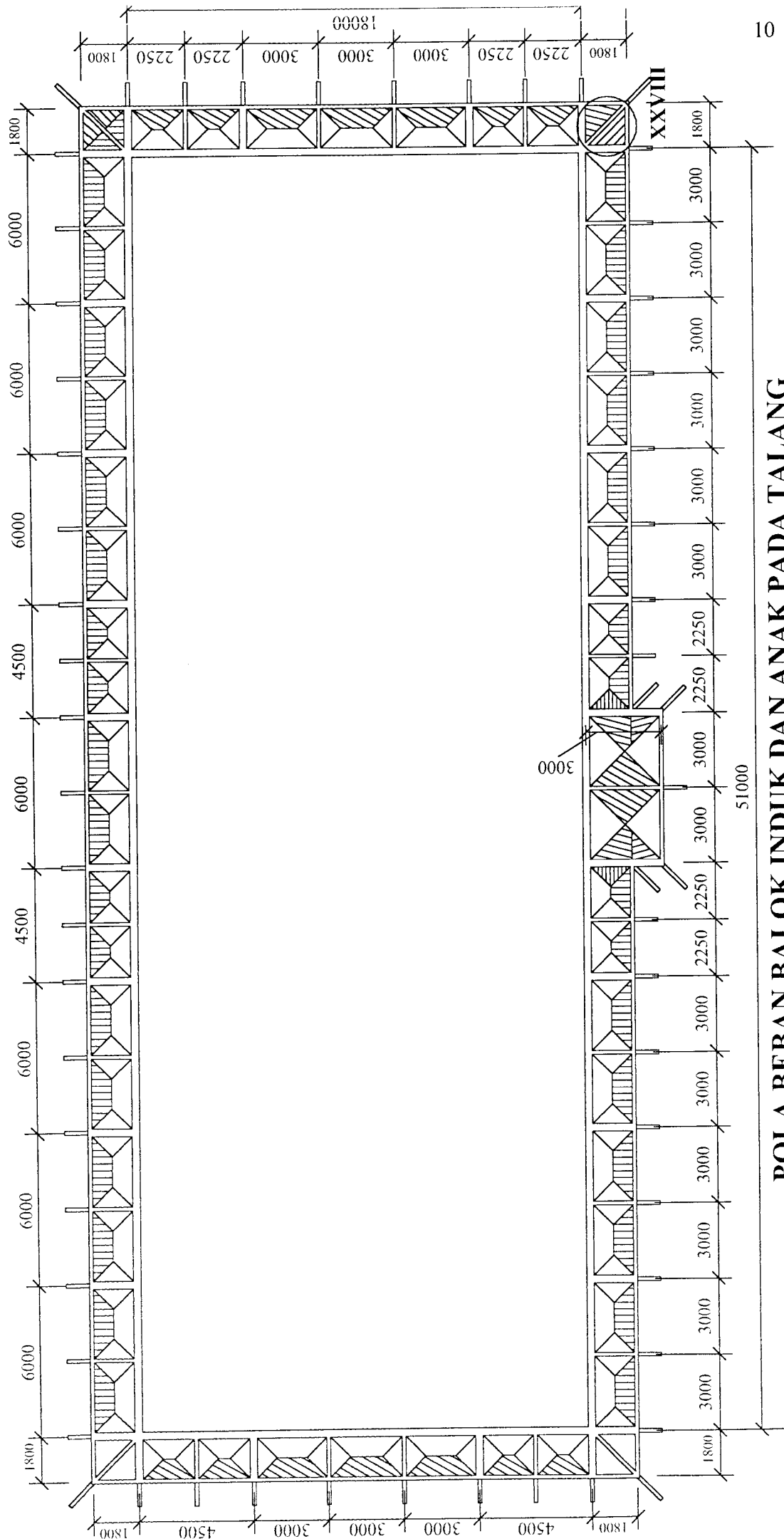
## DENAH LANTAI 2

Skala 1:200



### DENAH LANTAI 3

Skala 1:200



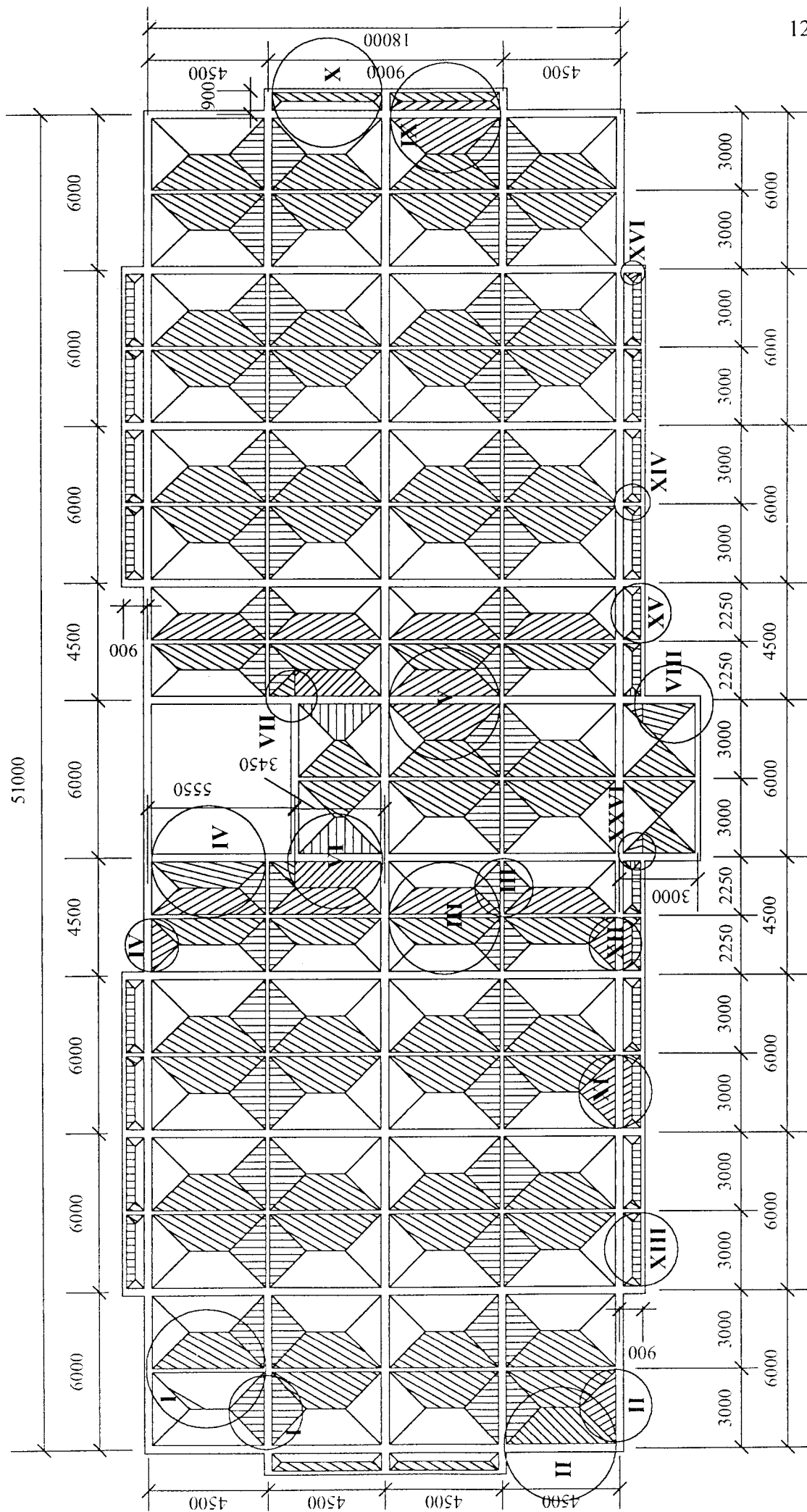
10

# **POLA BEBAN BALOK INDUK DAN ANAK PADA TALANG**

Skala 1:200

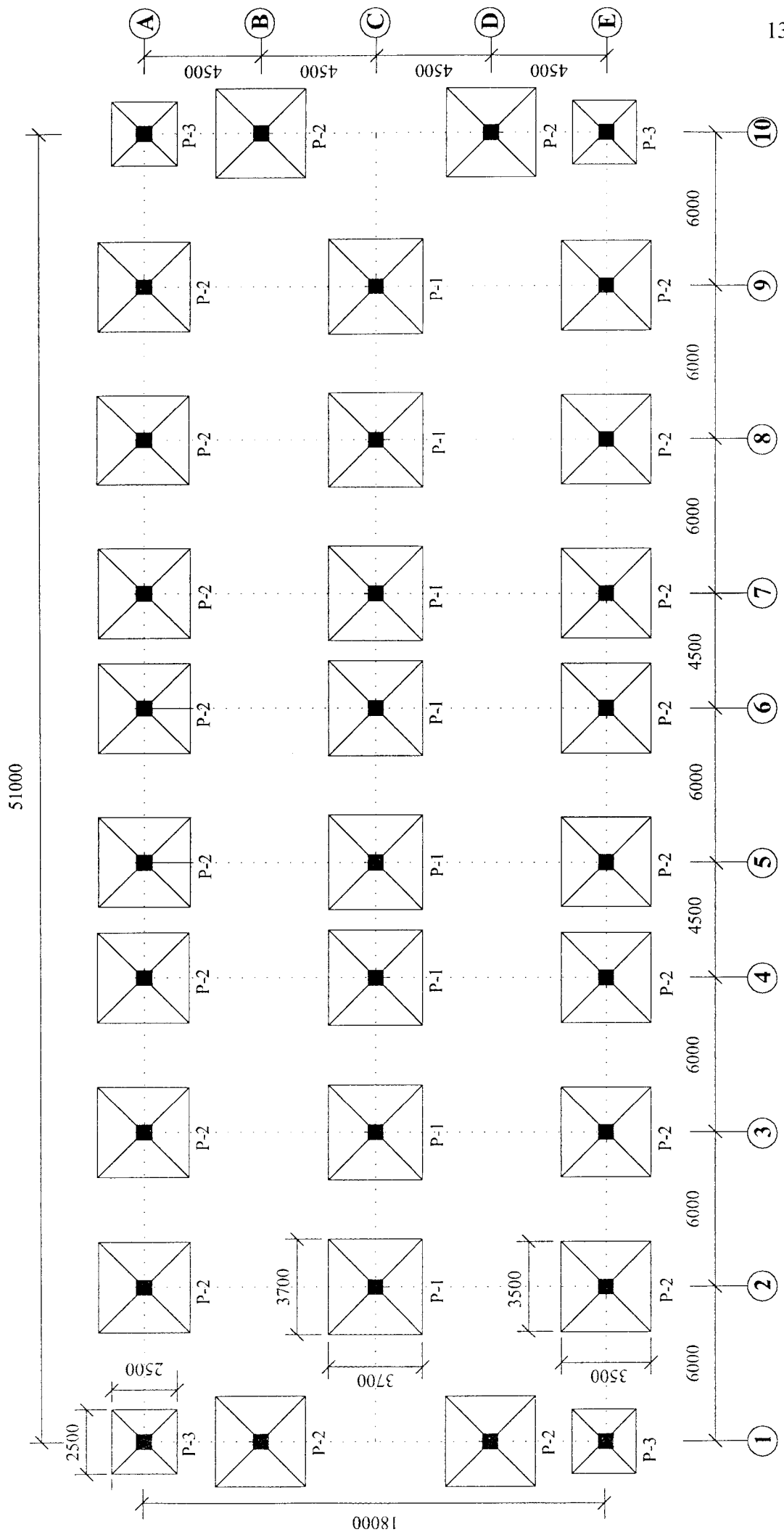


## Skala 1:200



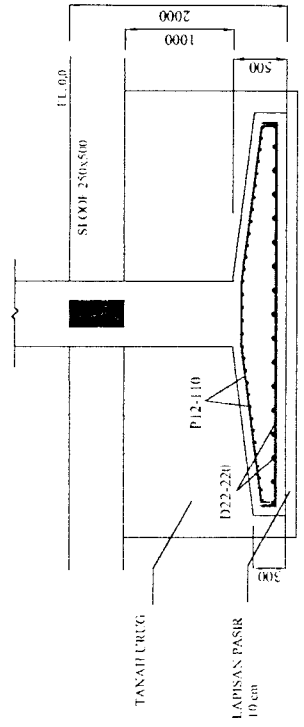
# POLA BEBAN BALOK INDUK DAN ANAK LANTAI-2

Skala 1:200

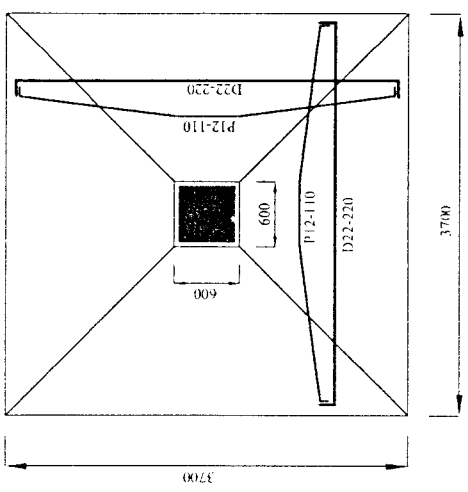
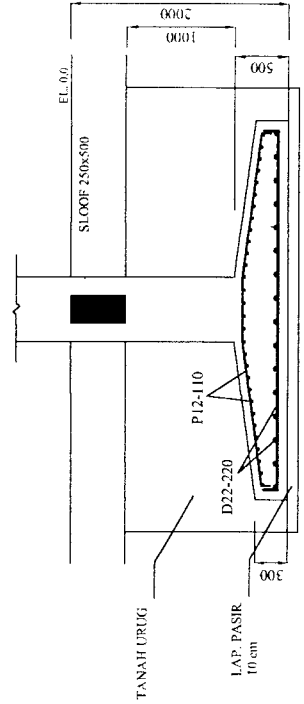


# DENAH PONDASI

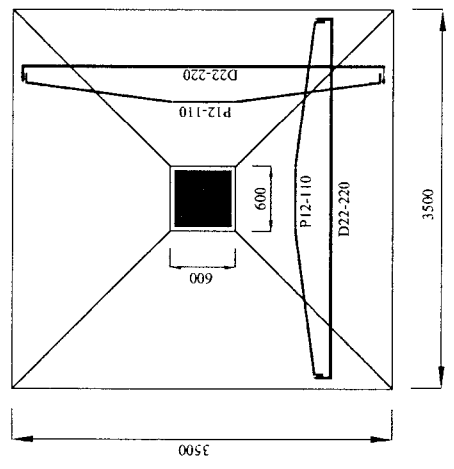
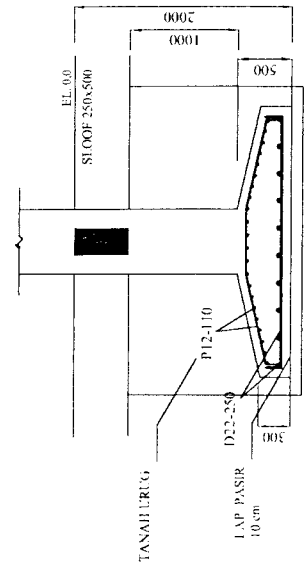
Skala 1 : 200



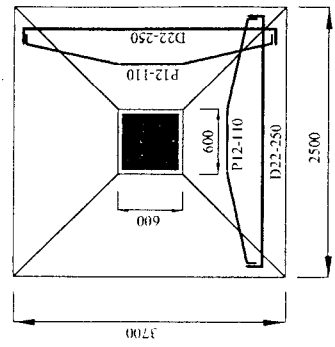
DENAH PONDASI P1 3700x3700



DENAH PONDASI P2 3500x3500

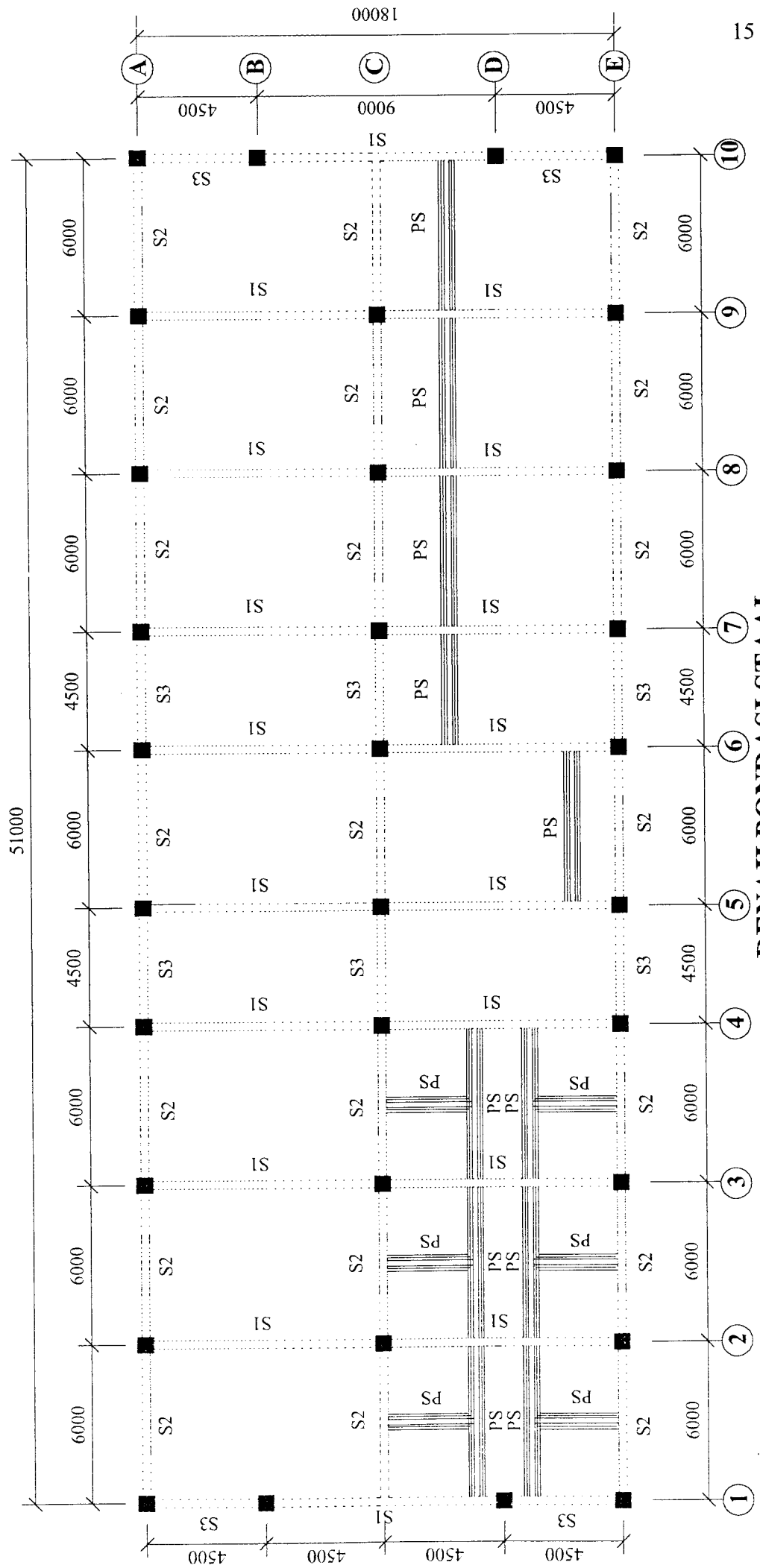


DENAH PONDASI P3 2500x2500



# PENULANGAN PONDASI

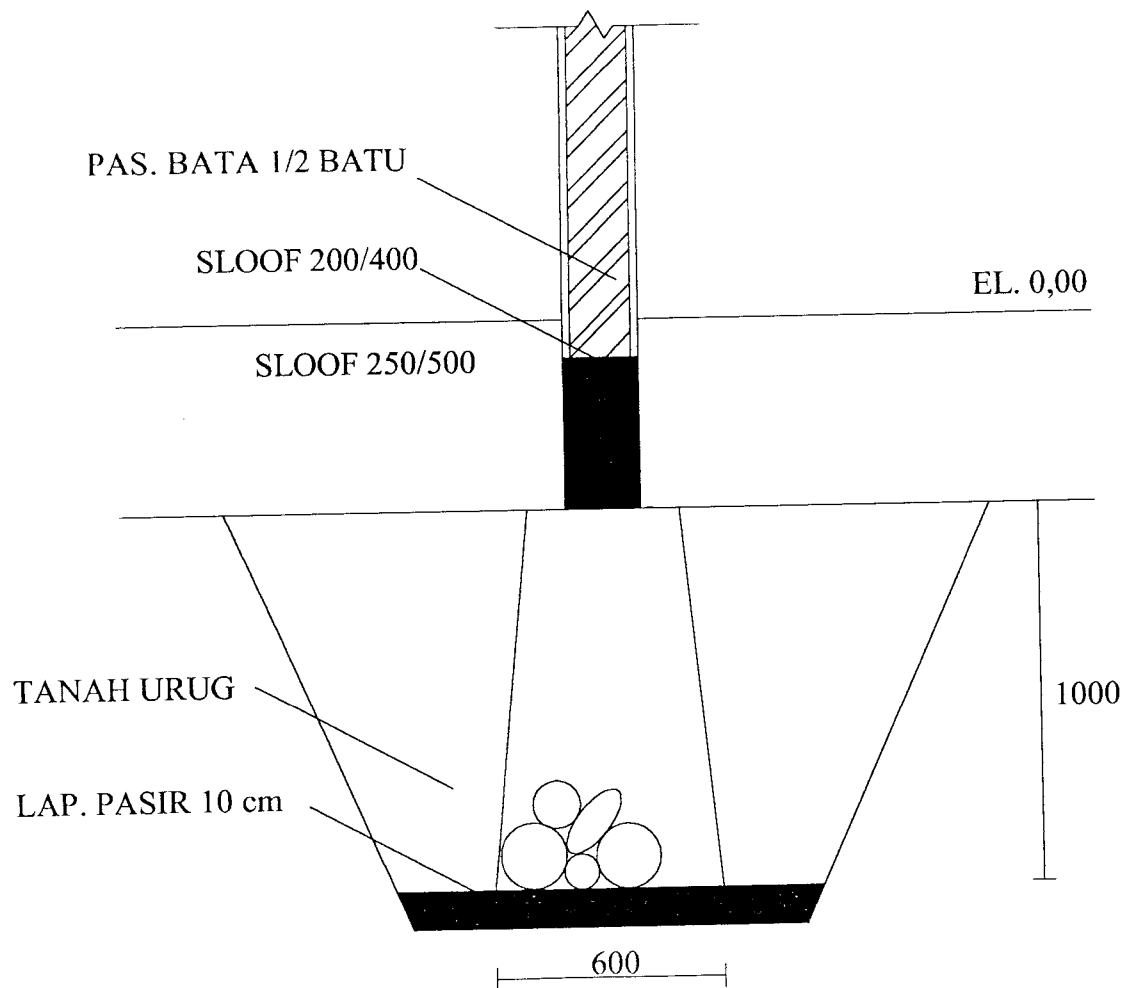
Skala 1:70



15

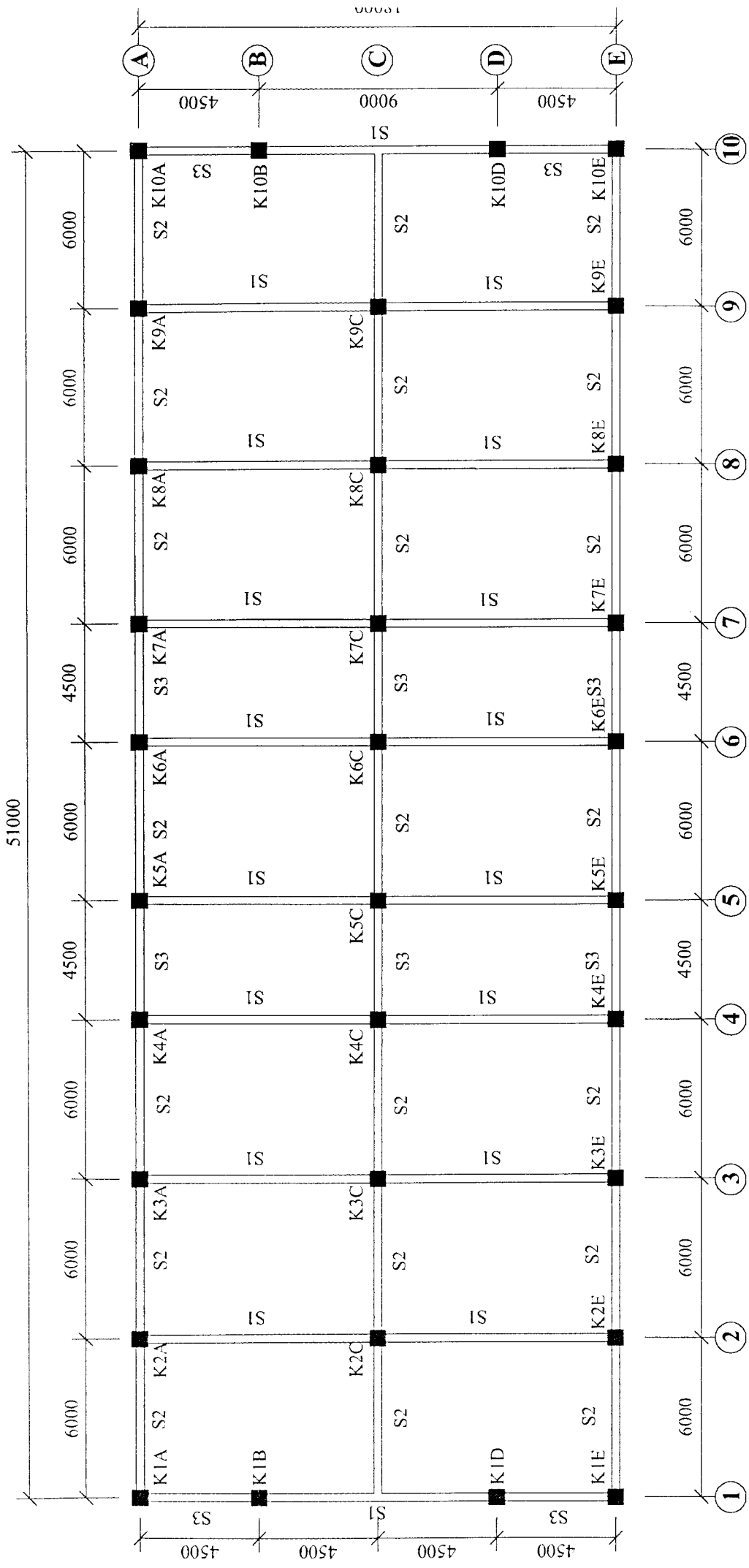
# DENAH PONDASI STAAL

Skala 1:200

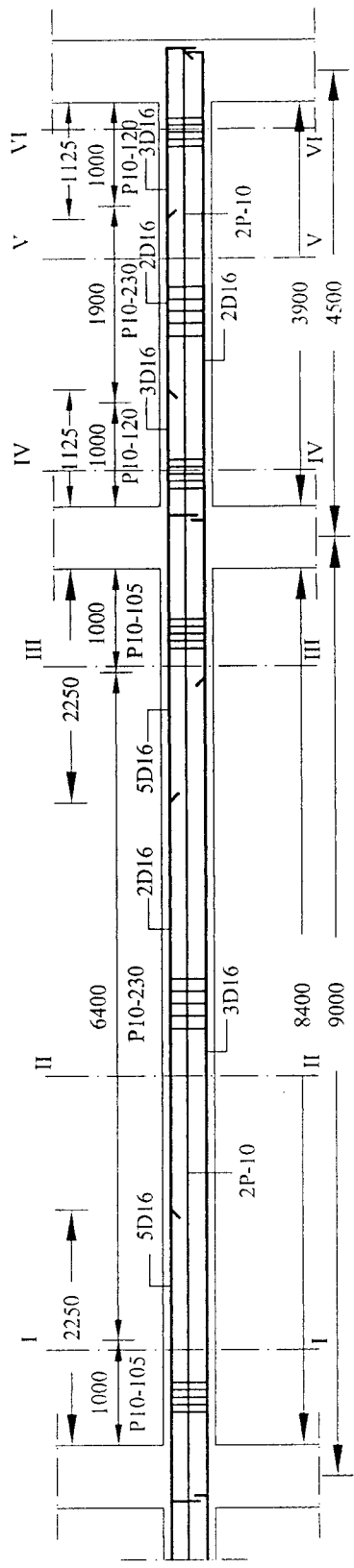


## DETAIL PONDASI STAAL

Skala 1 : 20

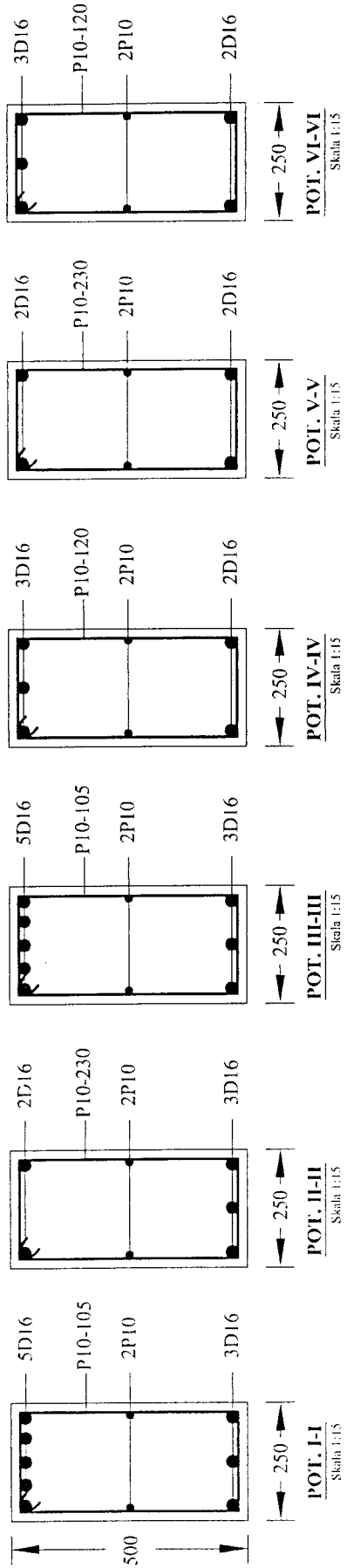


**DENAH BALOK SLOOF DAN KOLOM LANTAI-1**  
 Skala 1:200

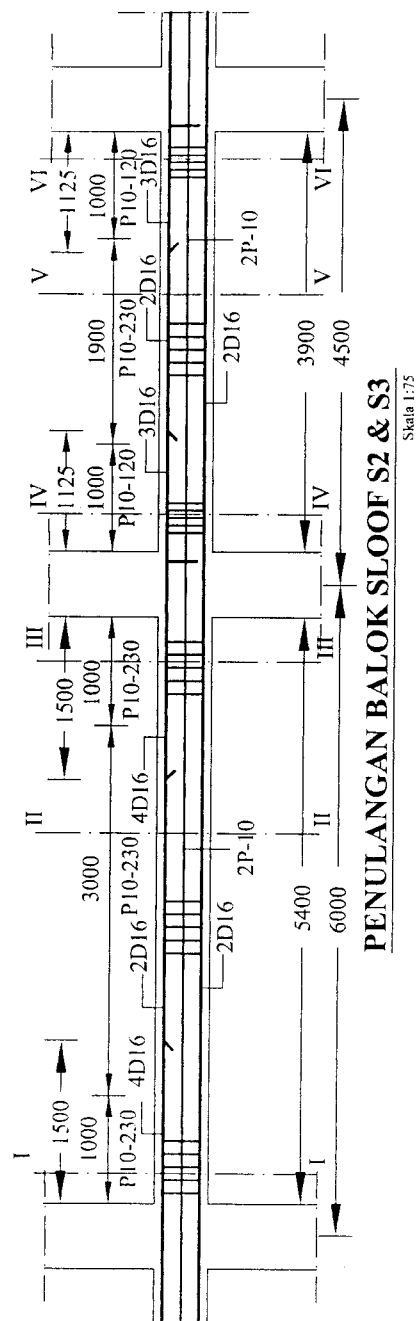
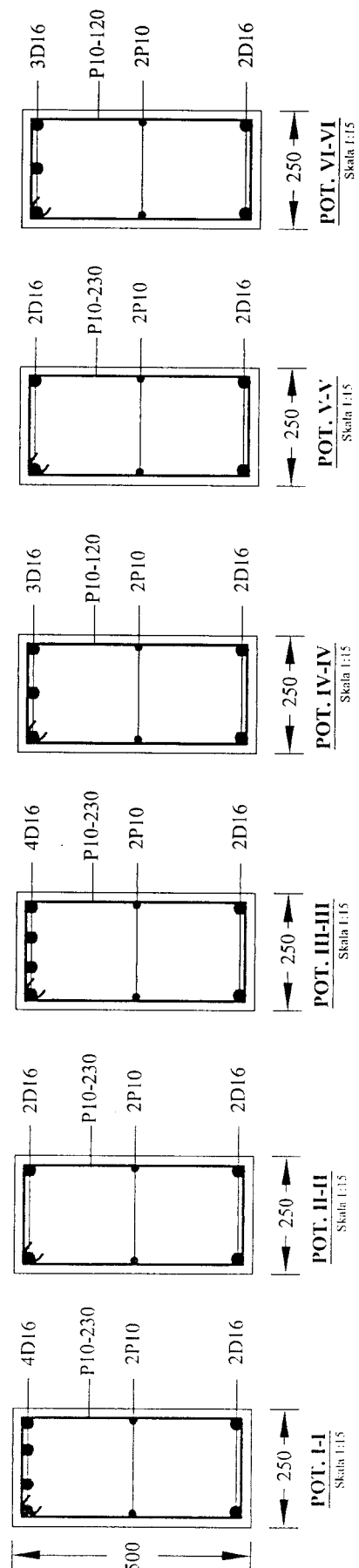


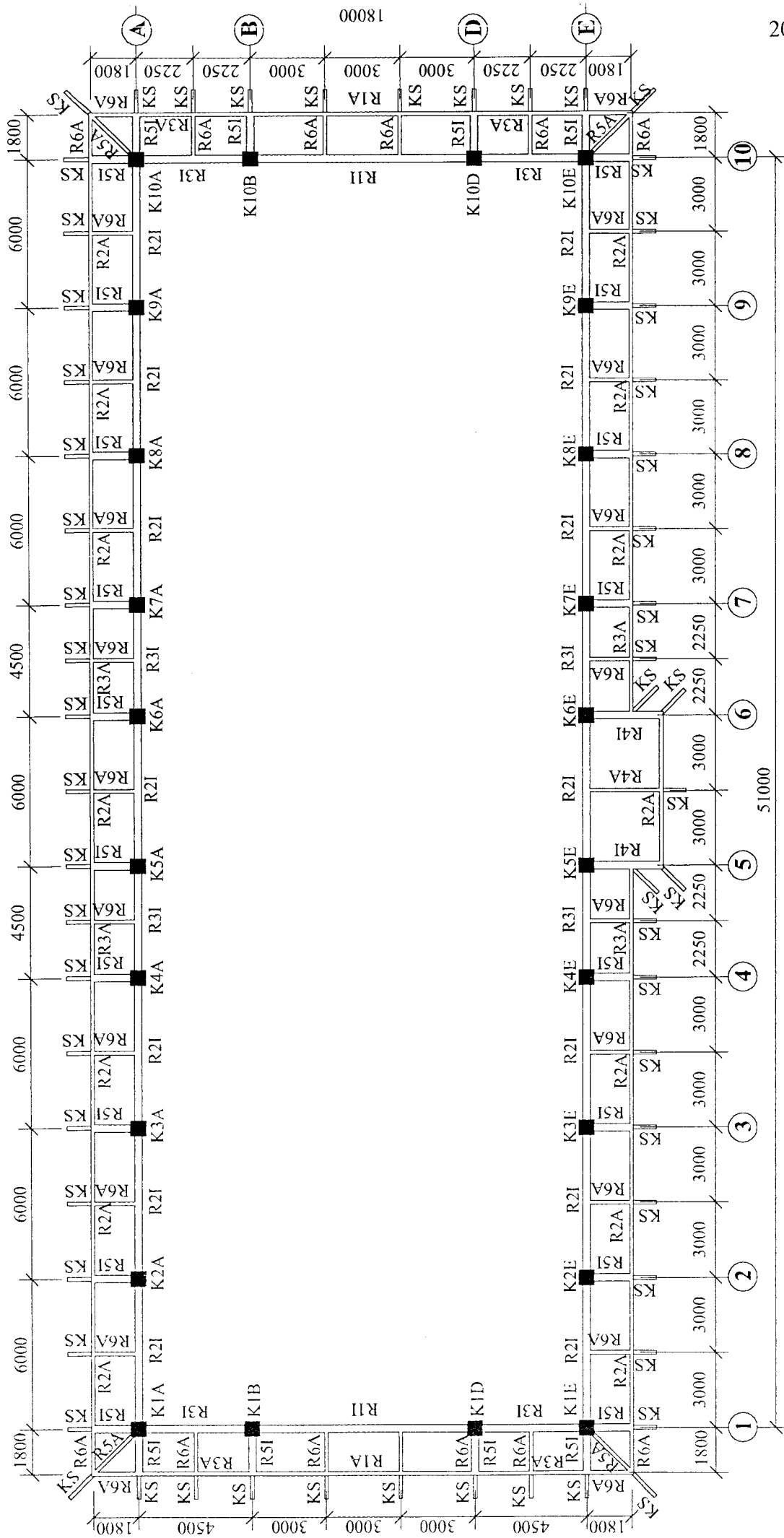
**PENULANGAN BALOK SLOOF S1 & S3**

Skala 1:75



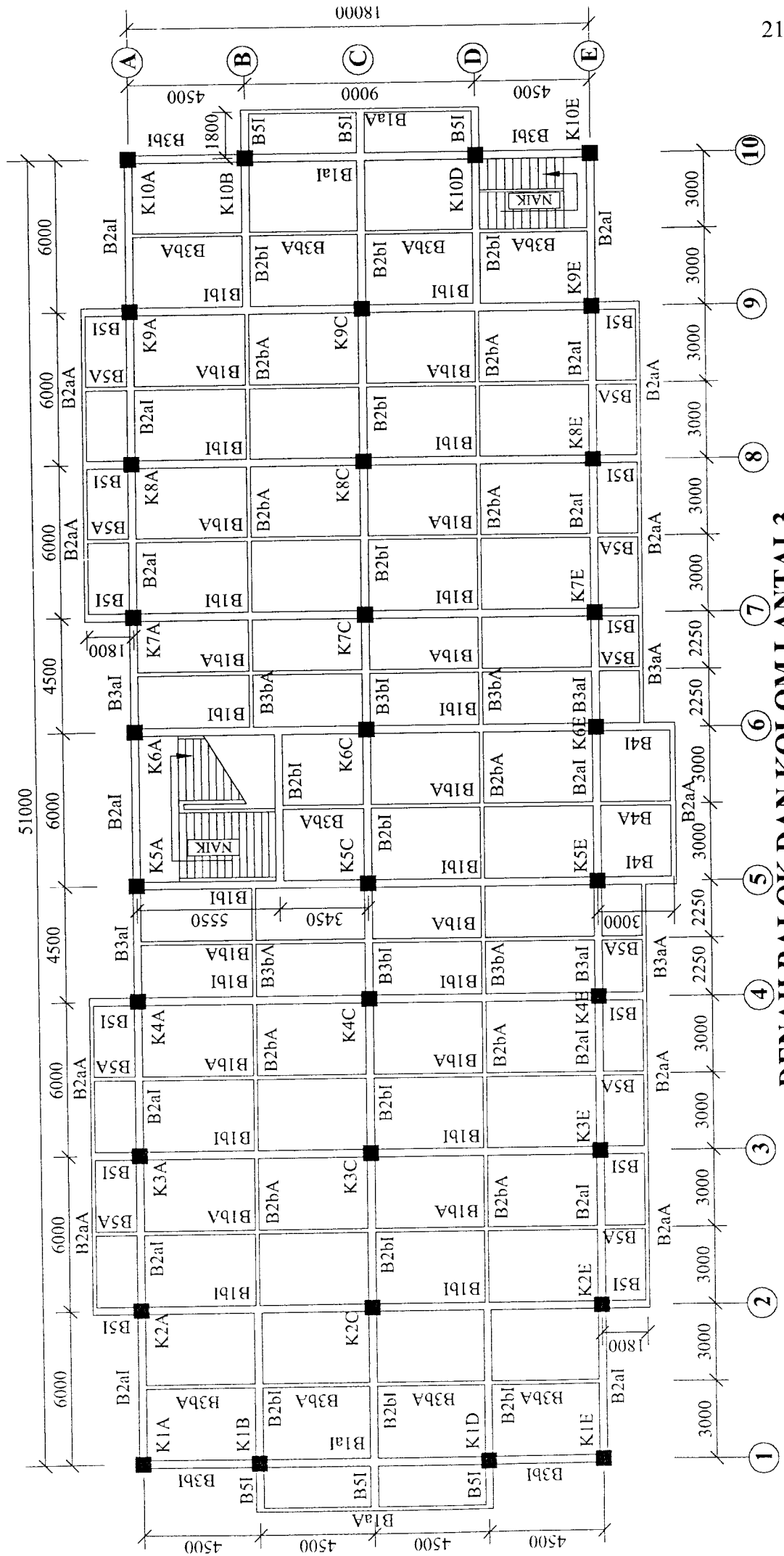






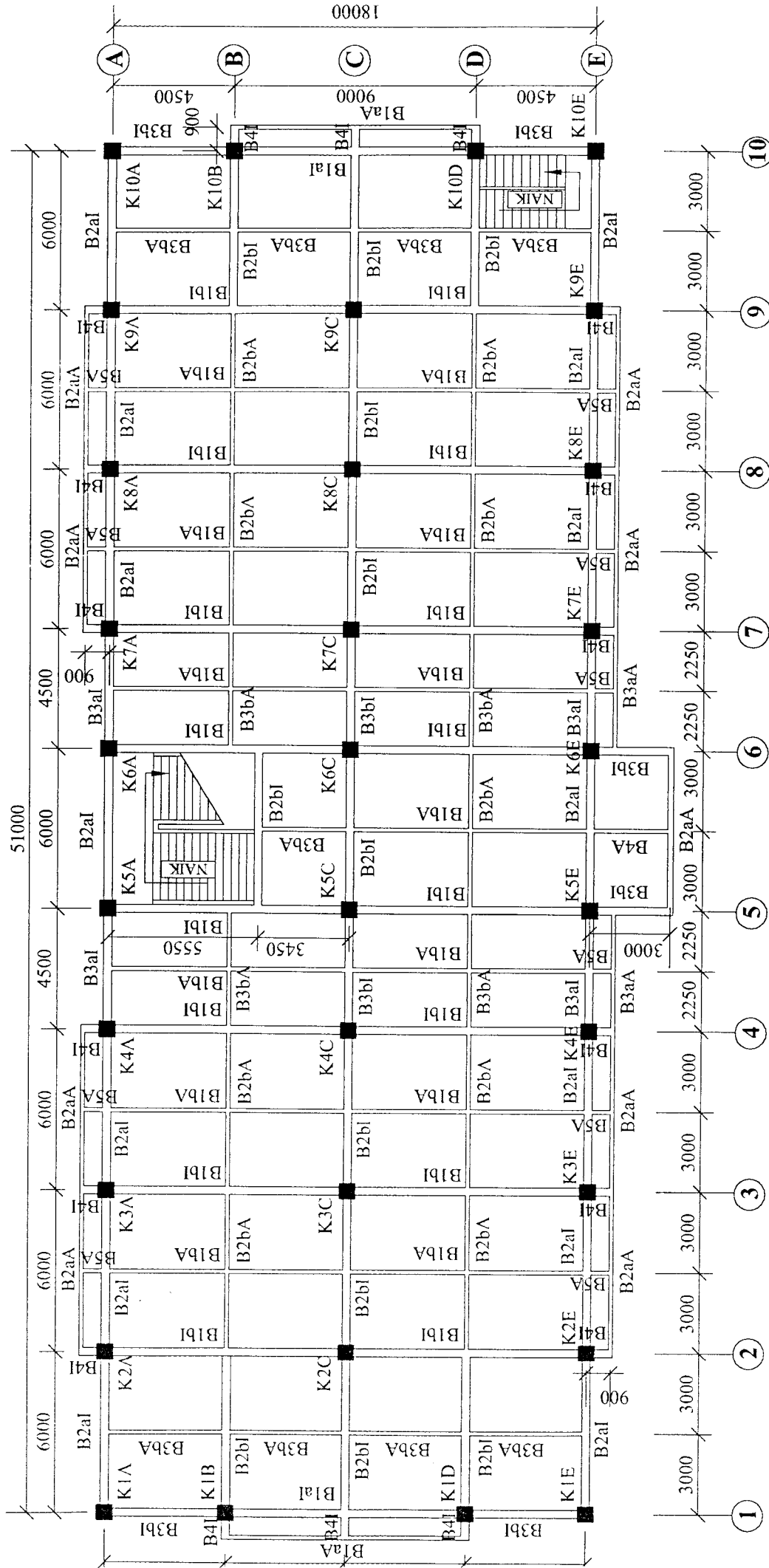
# DENAH BALOK DAN KOLOM PELAT ATAP

Skala 1:200



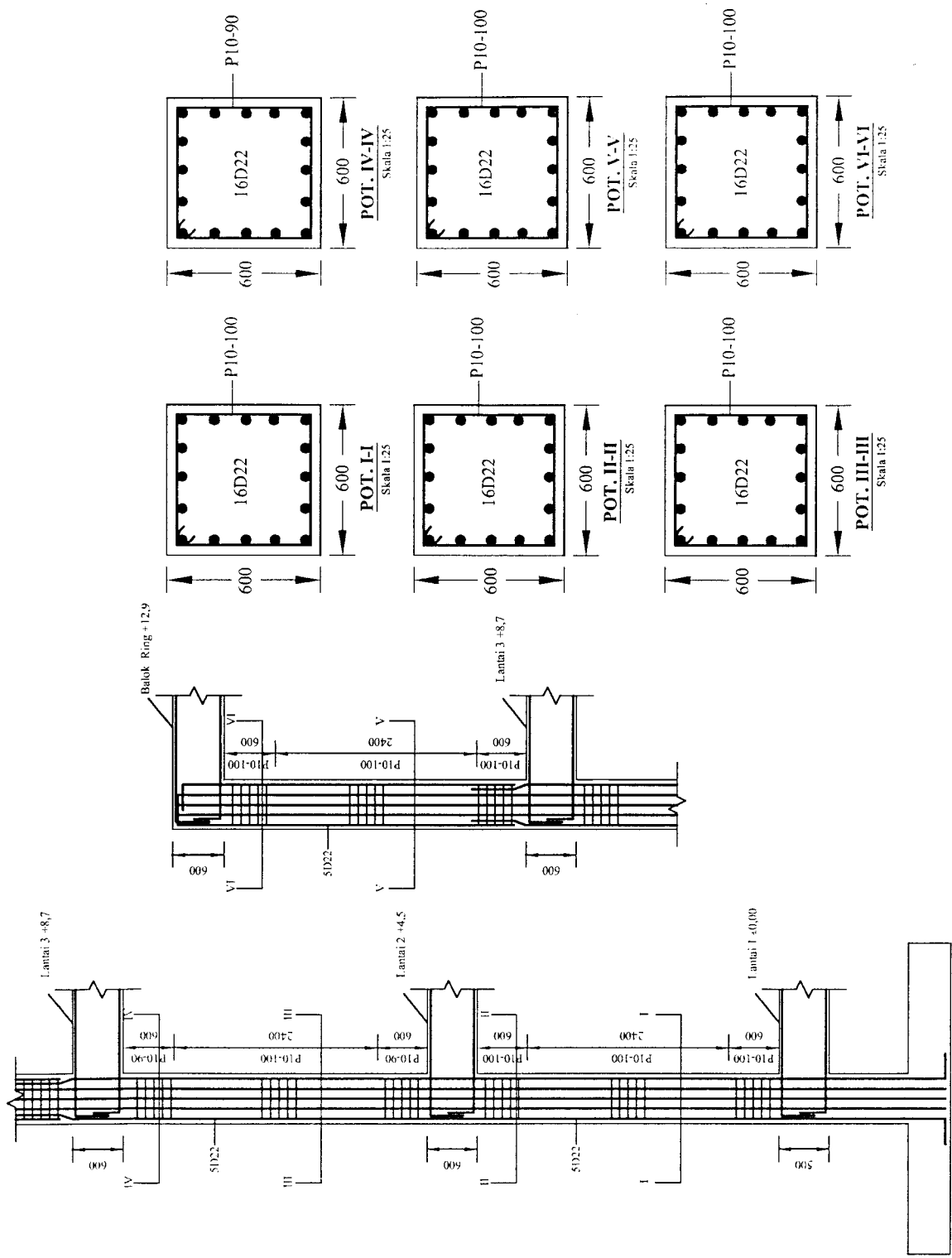
**DENAH BALOK DAN KOLOM LANTAI-3**

Skala 1:200

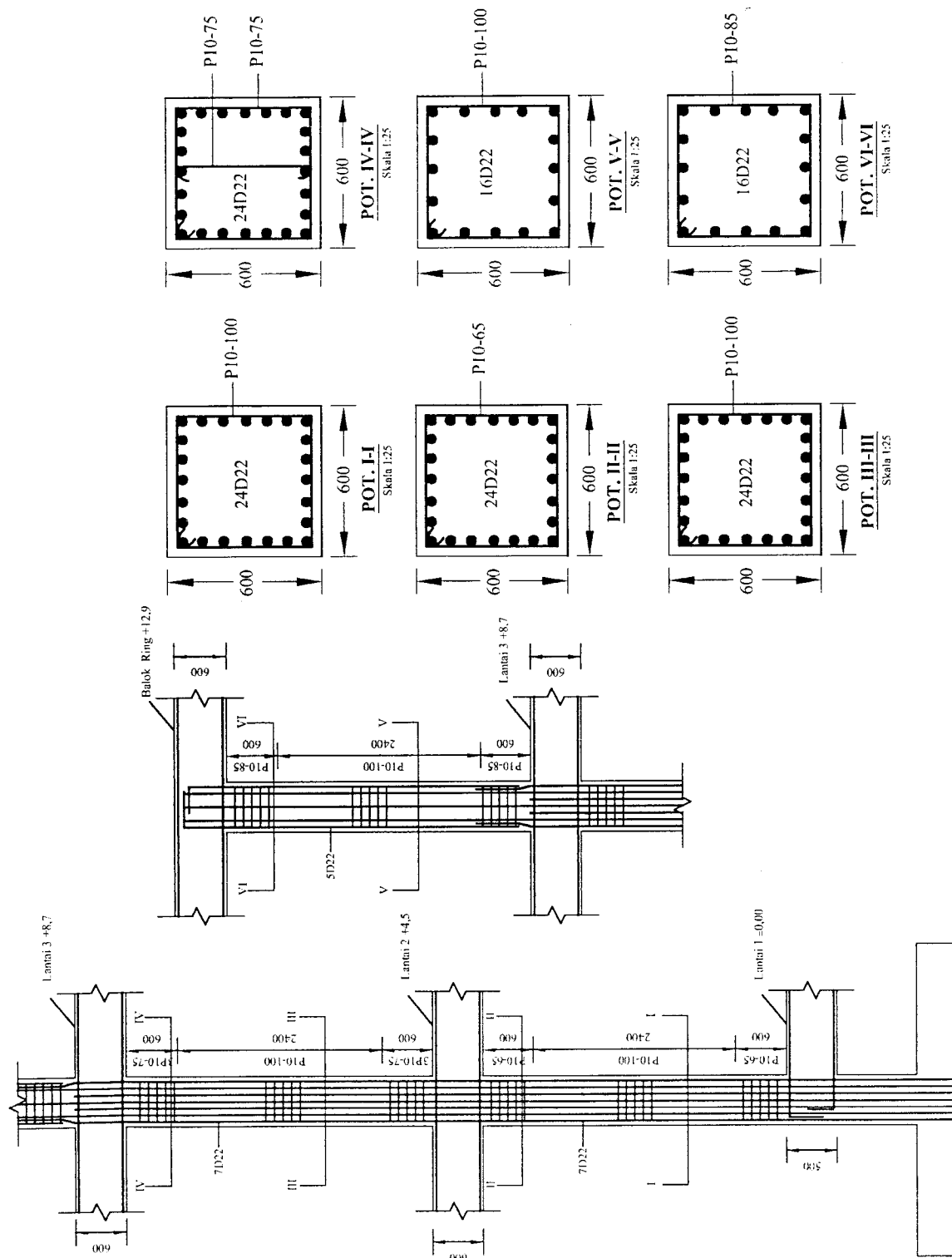


**DENAH BALOK DAN KOLOM LANTAI-2**

Skala 1:200

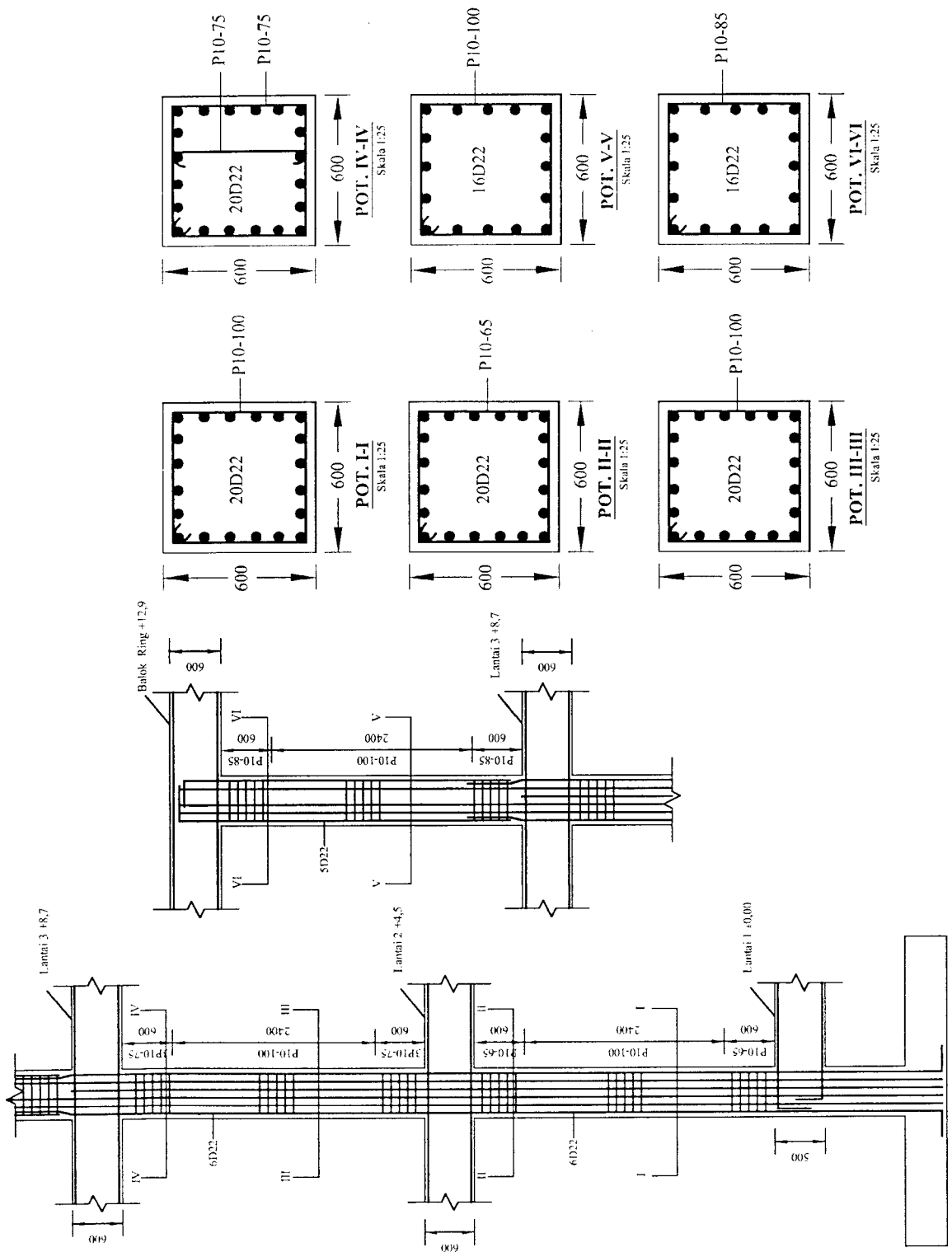


**PENULANGAN KOLOM KIA=K10A**  
Skala 1:75

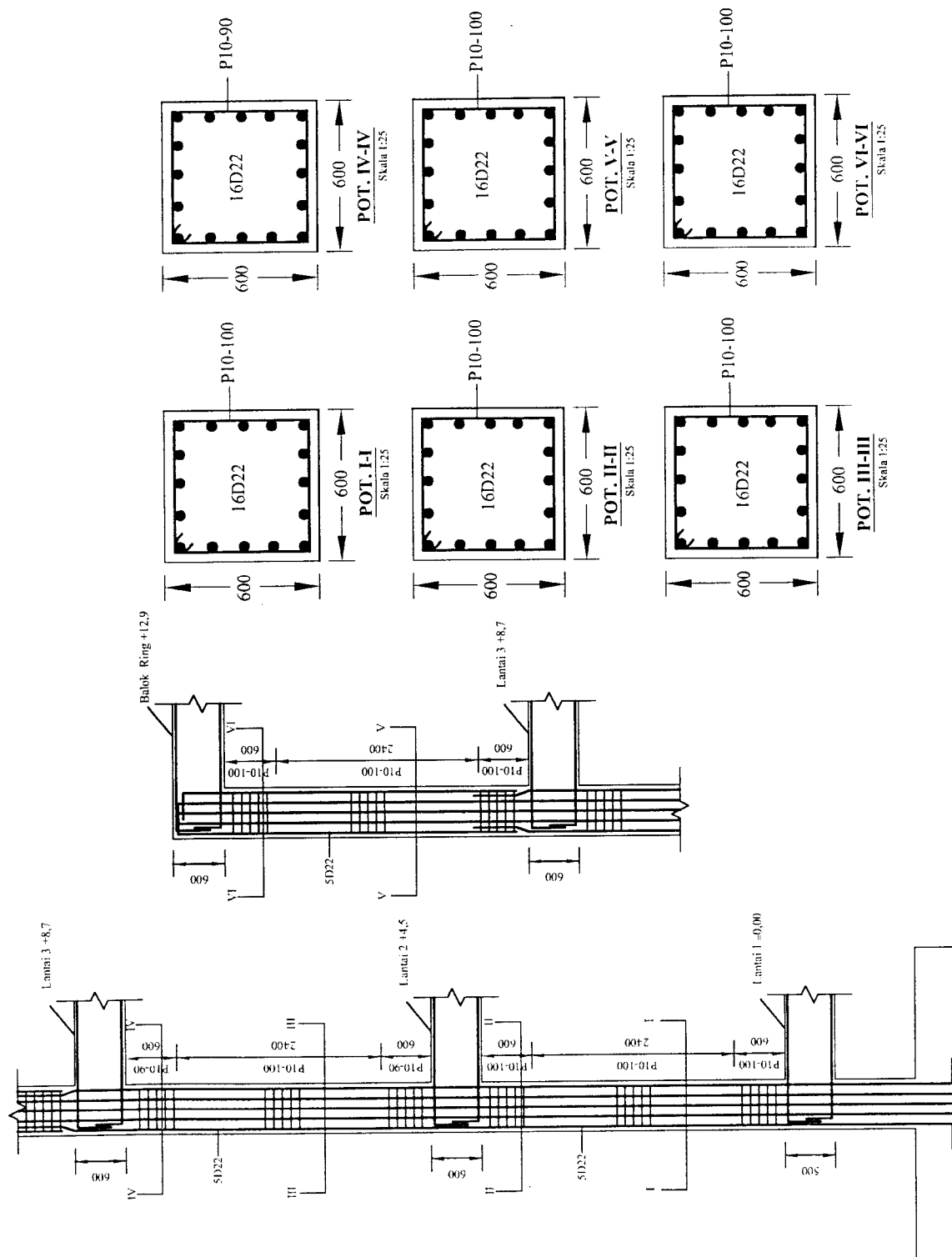


**PENULANGAN KOLOM KIB=K10B**

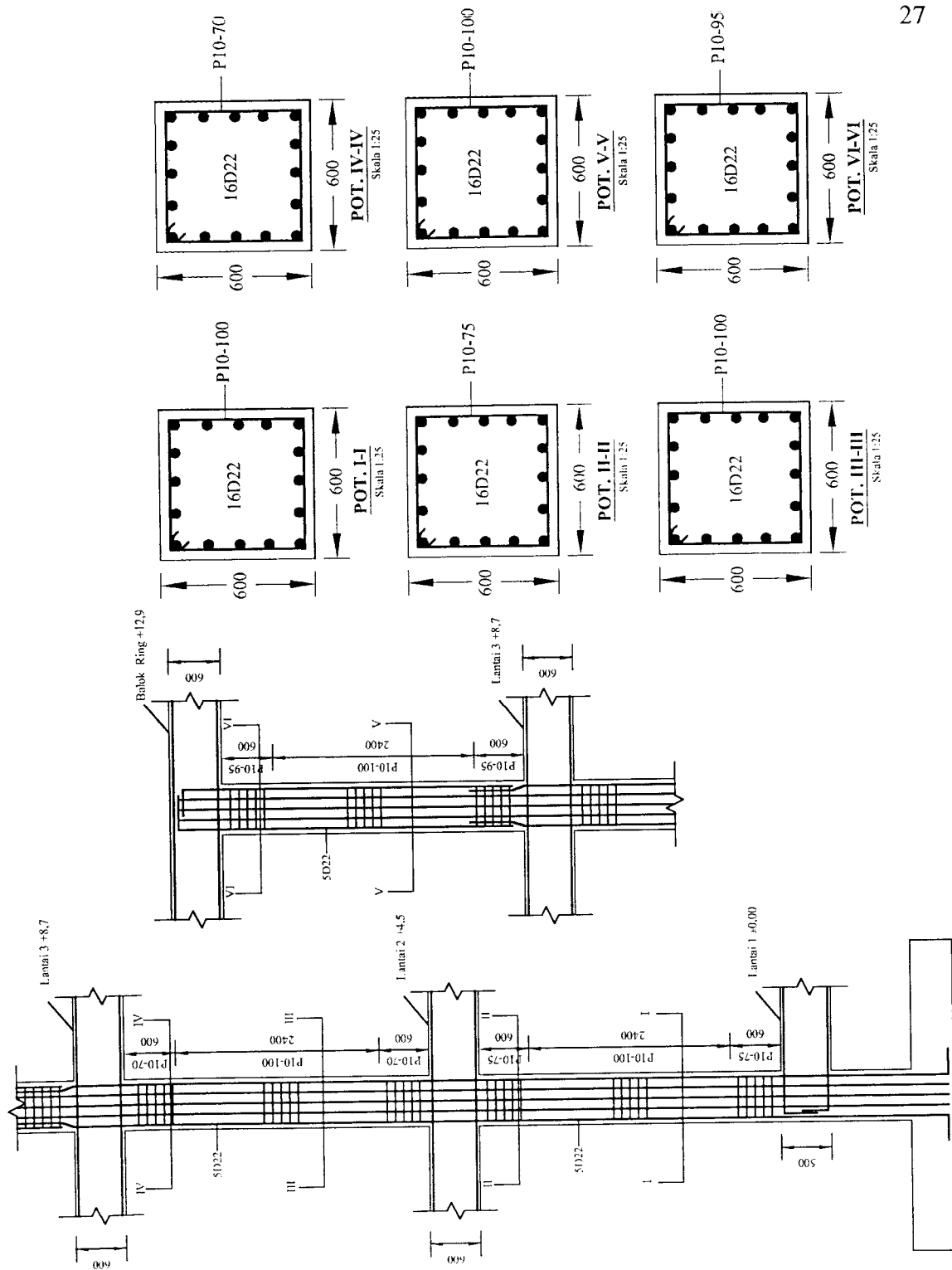
Skala 1:75



**PENULANGAN KOLOM K10D**  
Skala 1:75

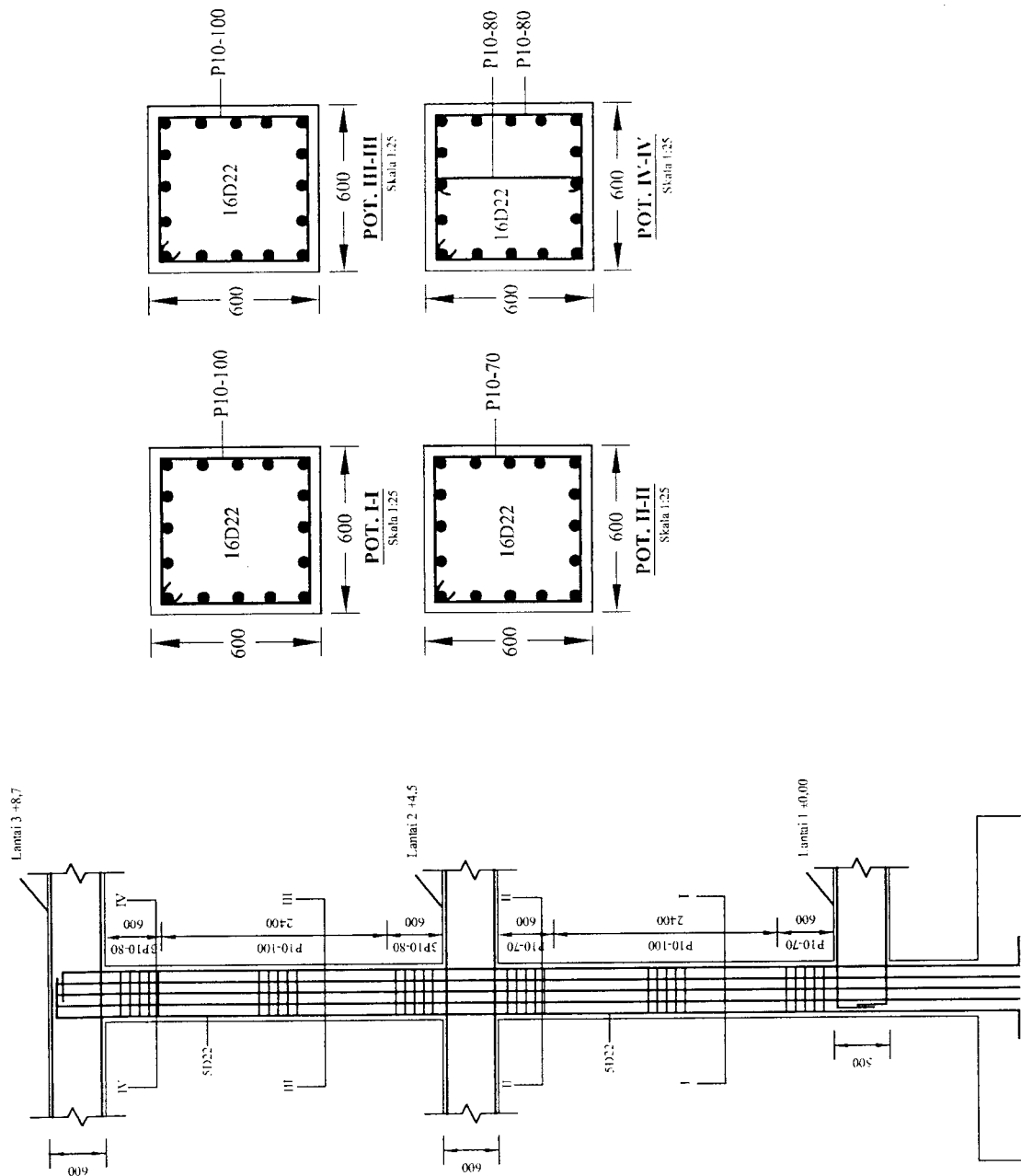




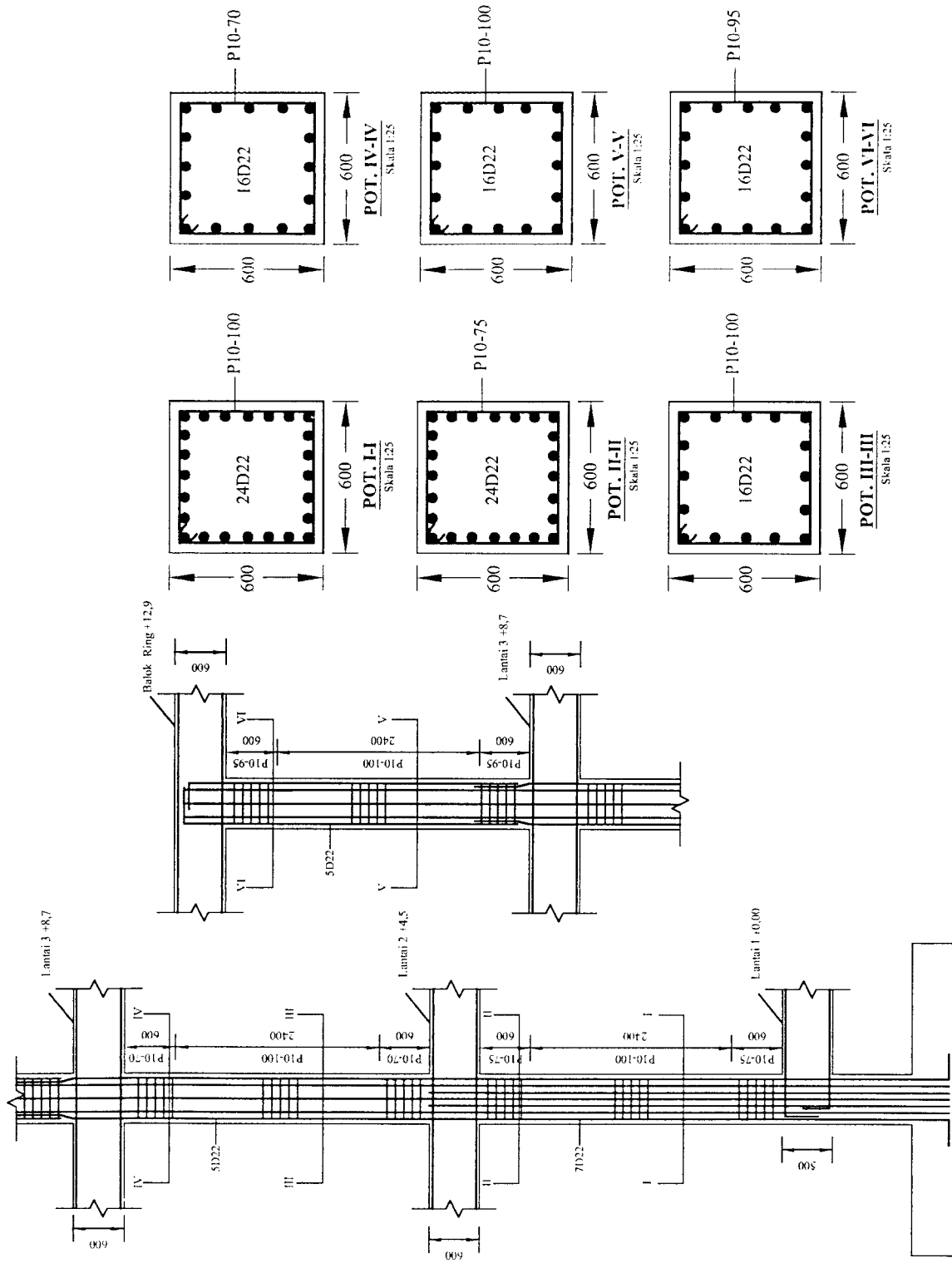


**PENULANGAN KOLOM K2A=K9A**

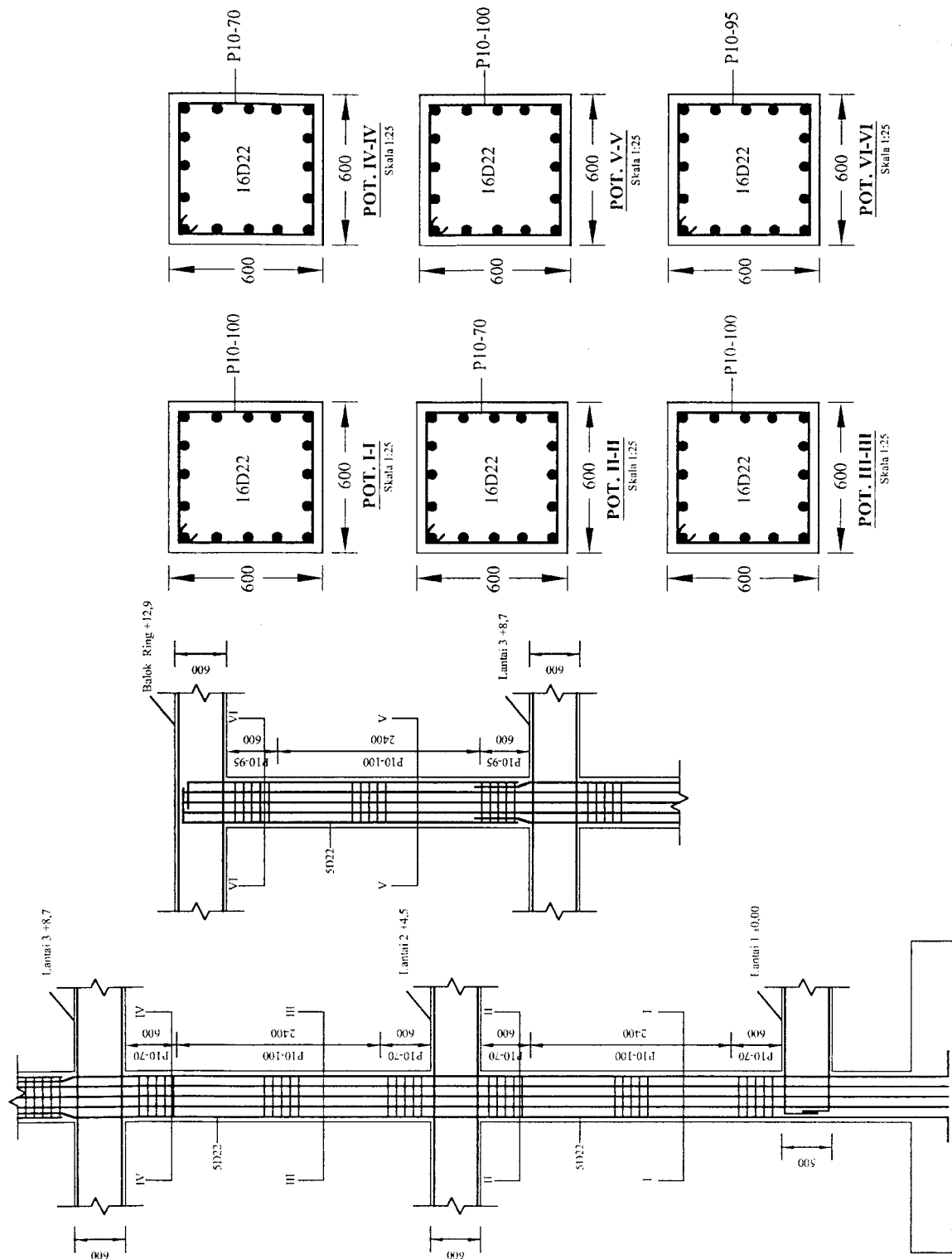
Skala 1:75



**PENULANGAN KOLOM K2C=K9C**  
Skala 1:75

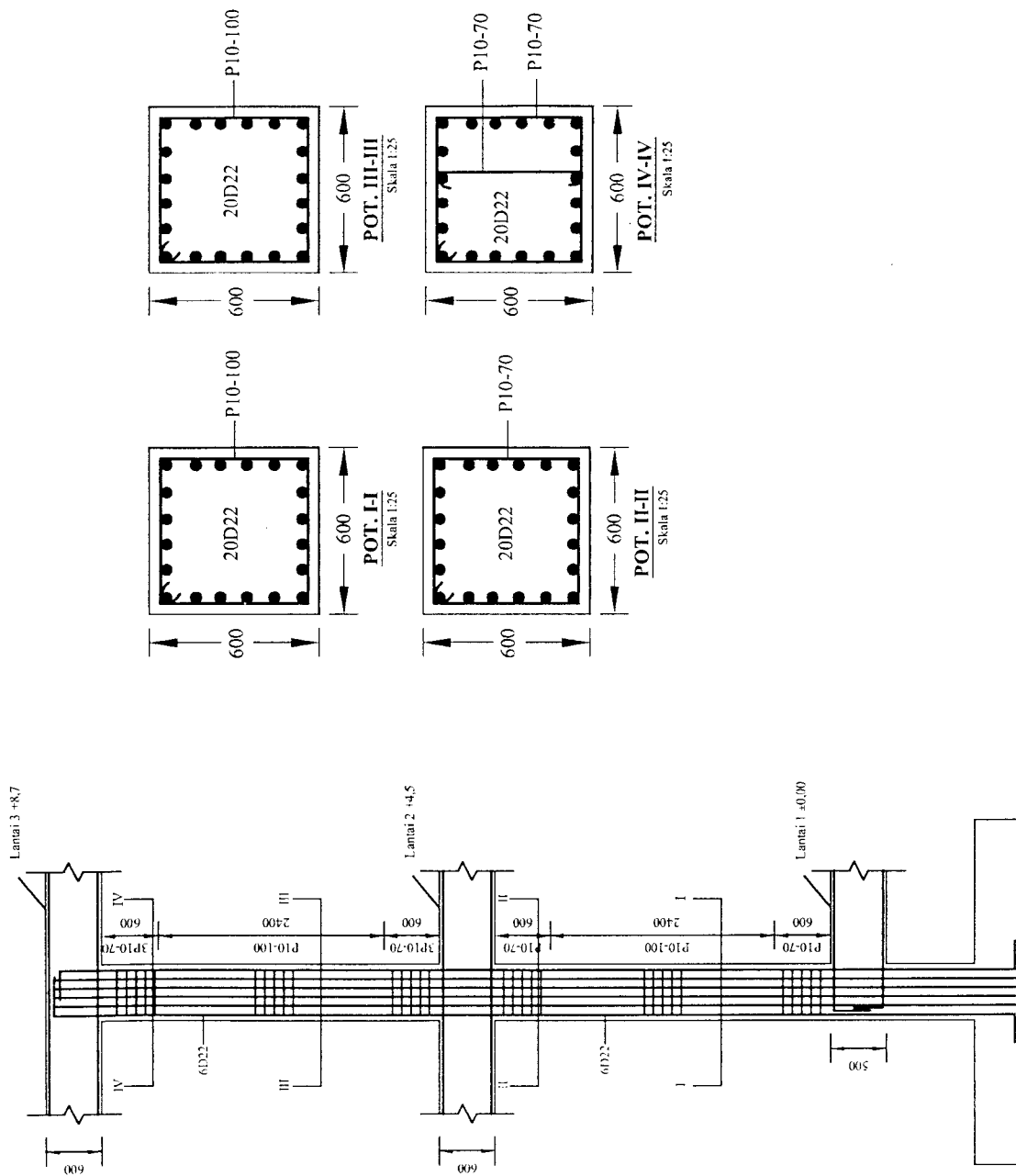


**PENULANGAN KOLOM K2E=K9E**  
Skala 1:75



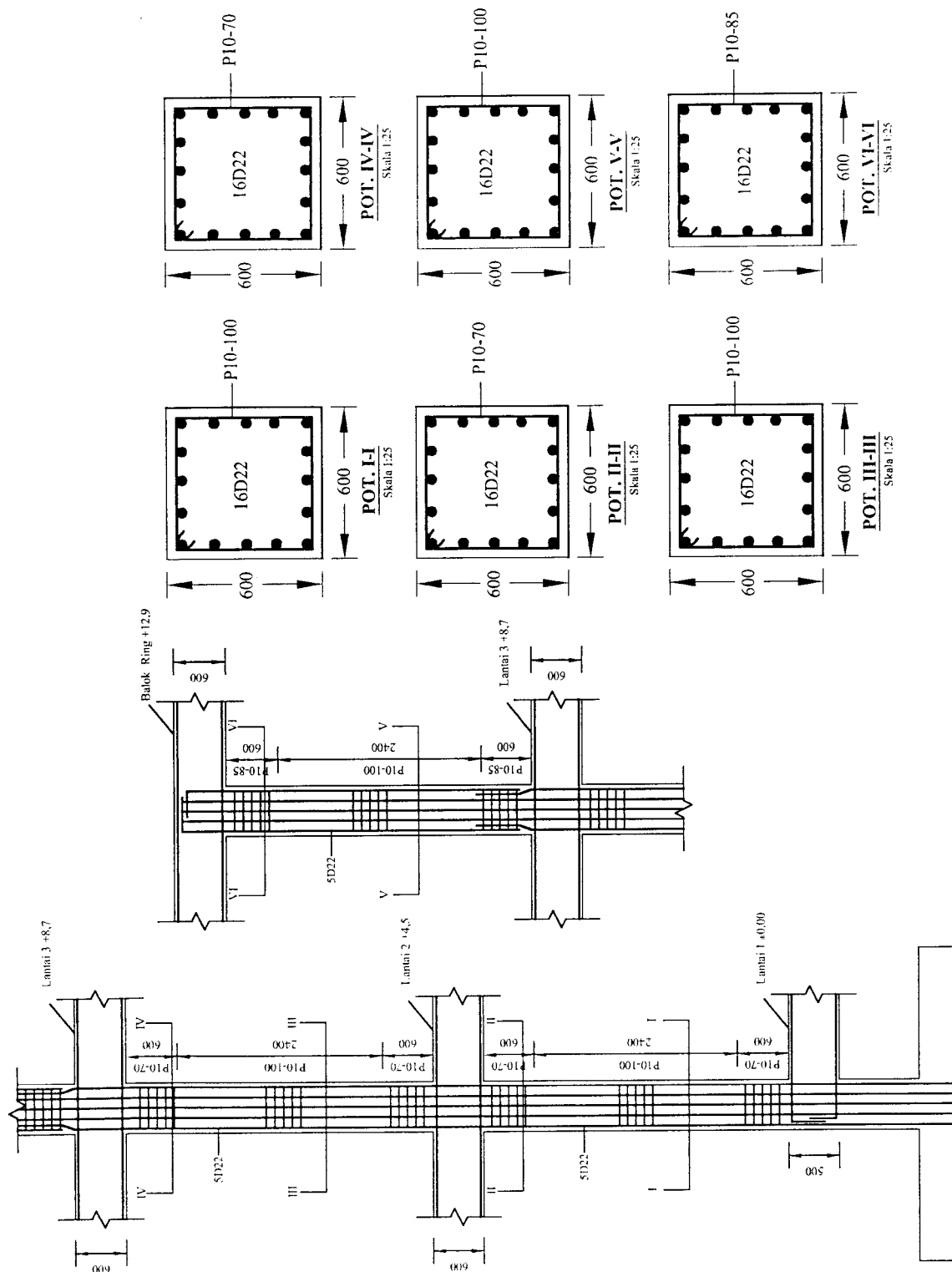
**PENULANGAN KOLOM K3A=K8A**

Skala 1:25

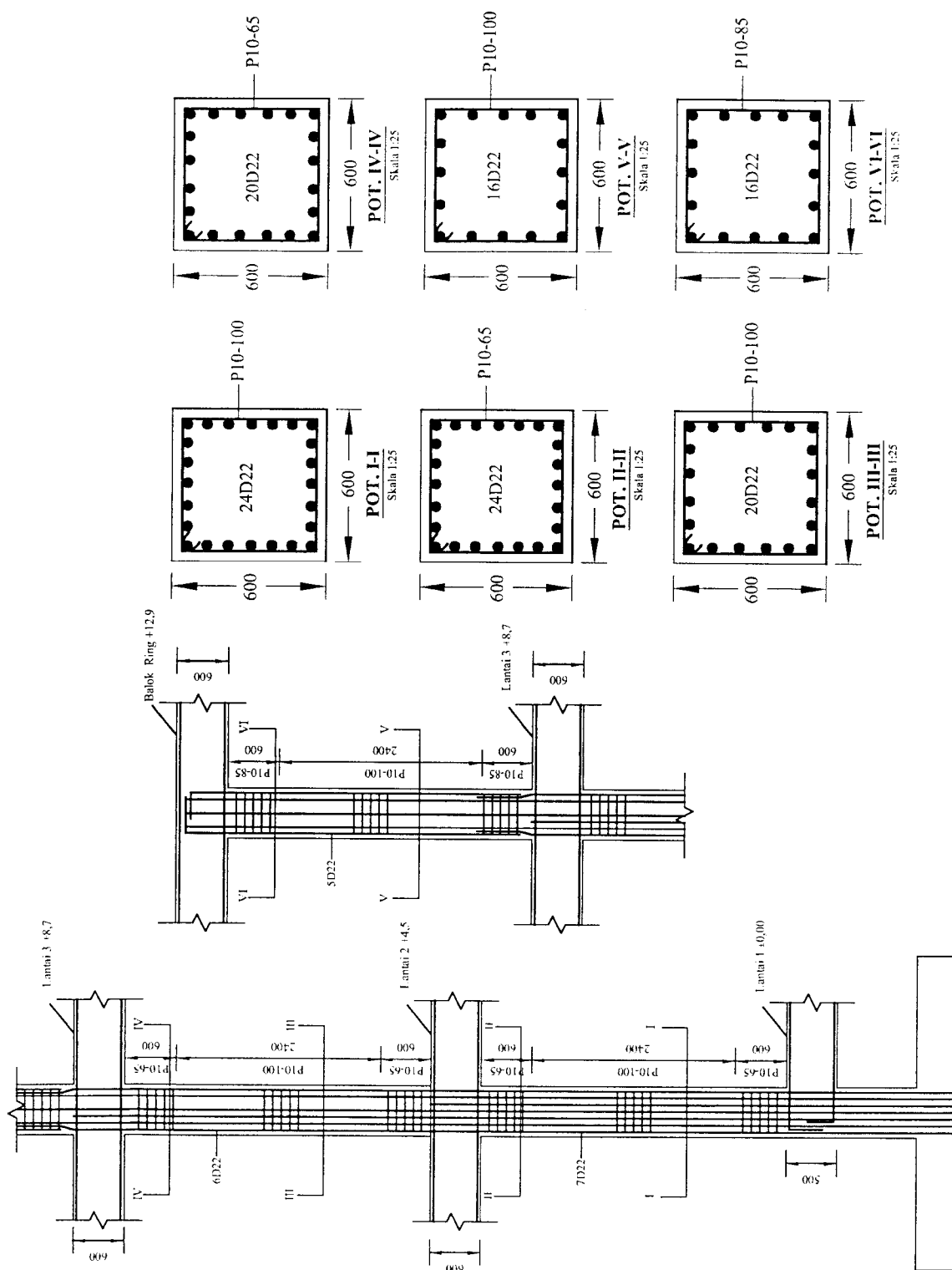


**PENULANGAN KOLOM K3C=K8C**

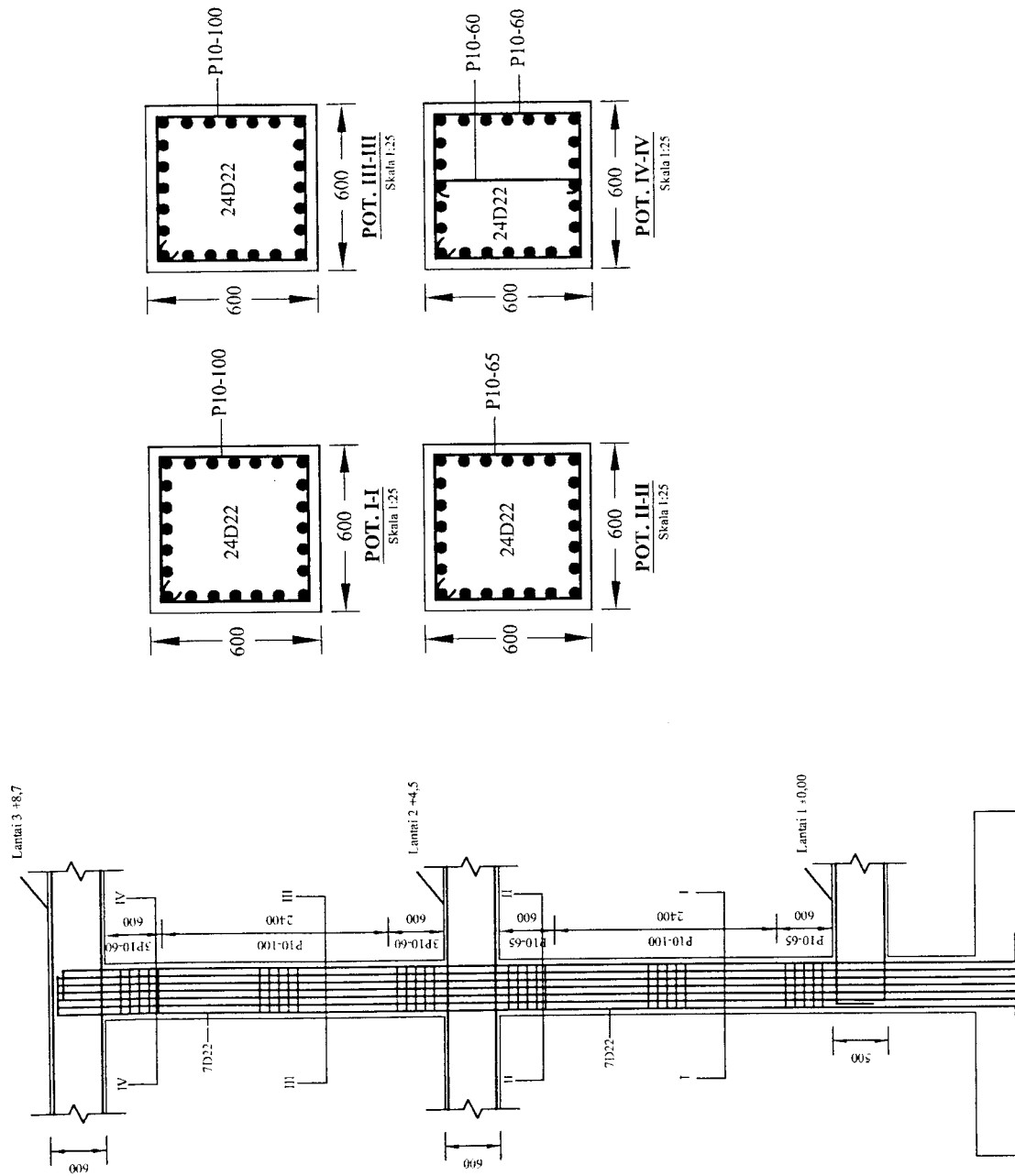
Skala 1:75



**PENULANGAN KOLOM K3E=K8E**  
Skala 1:75



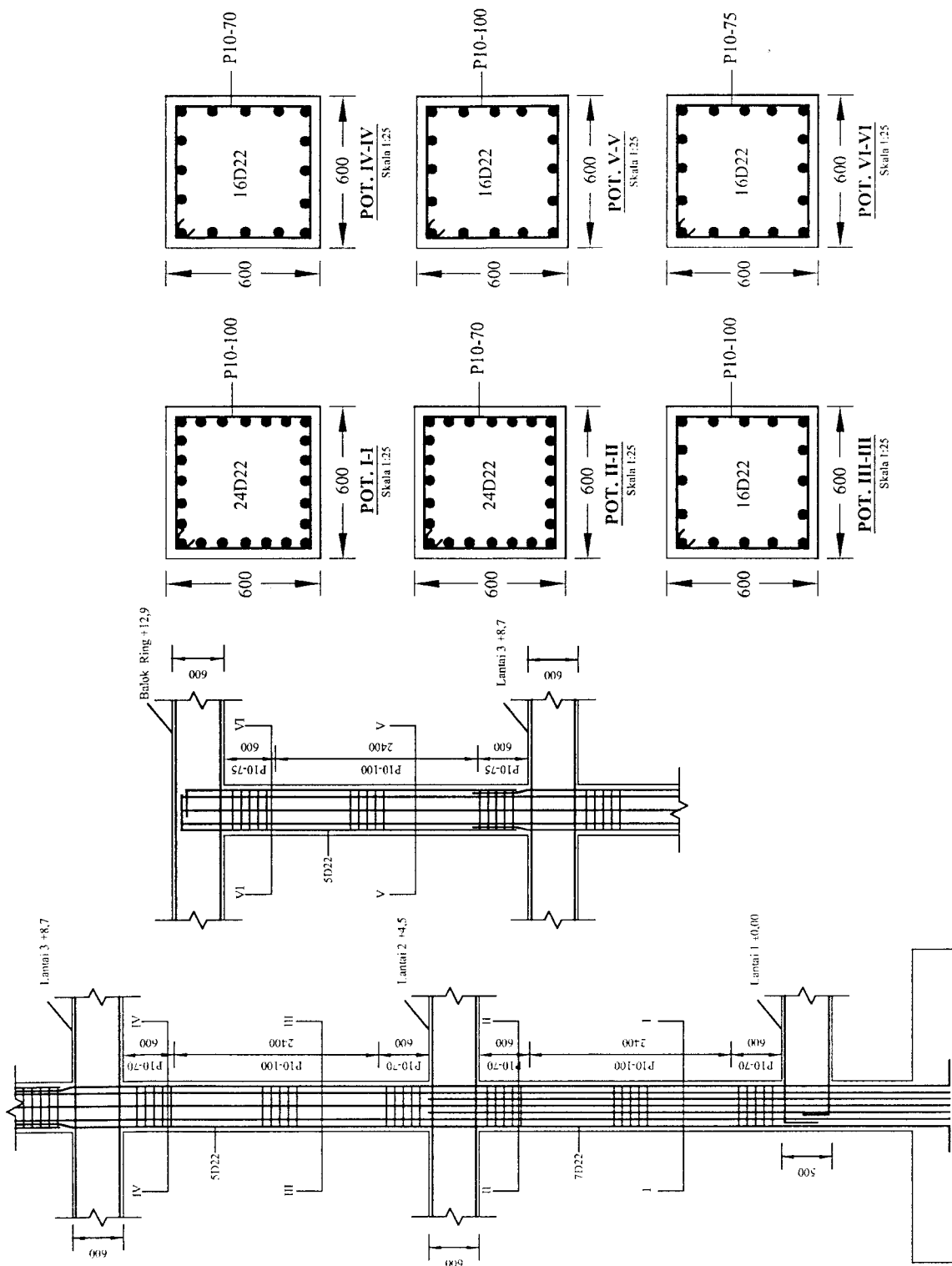
**PENULANGAN KOLOM K4A=K7A**



**PENULANGAN KOLOM K4C=K7C**

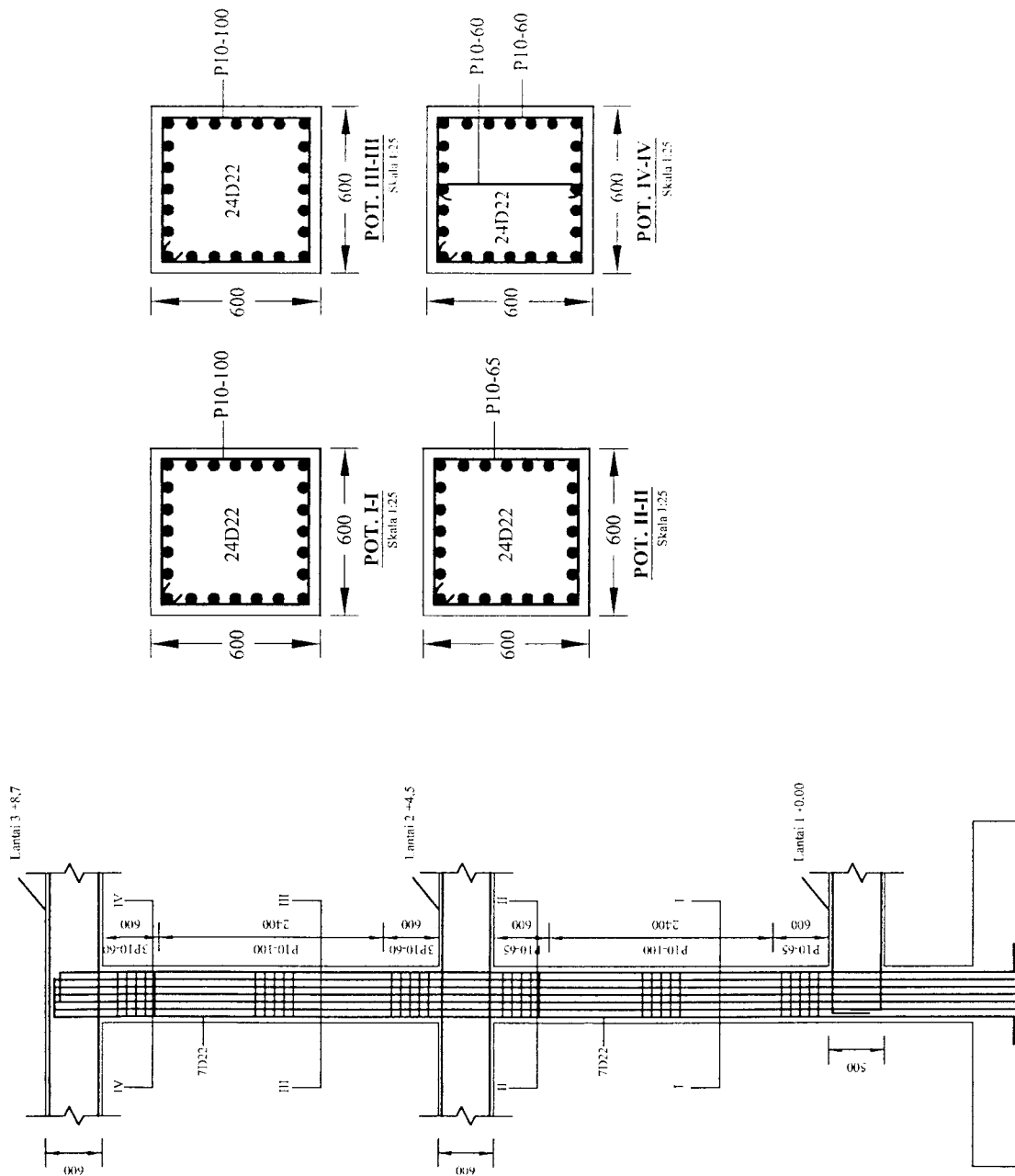
Skala 1:75





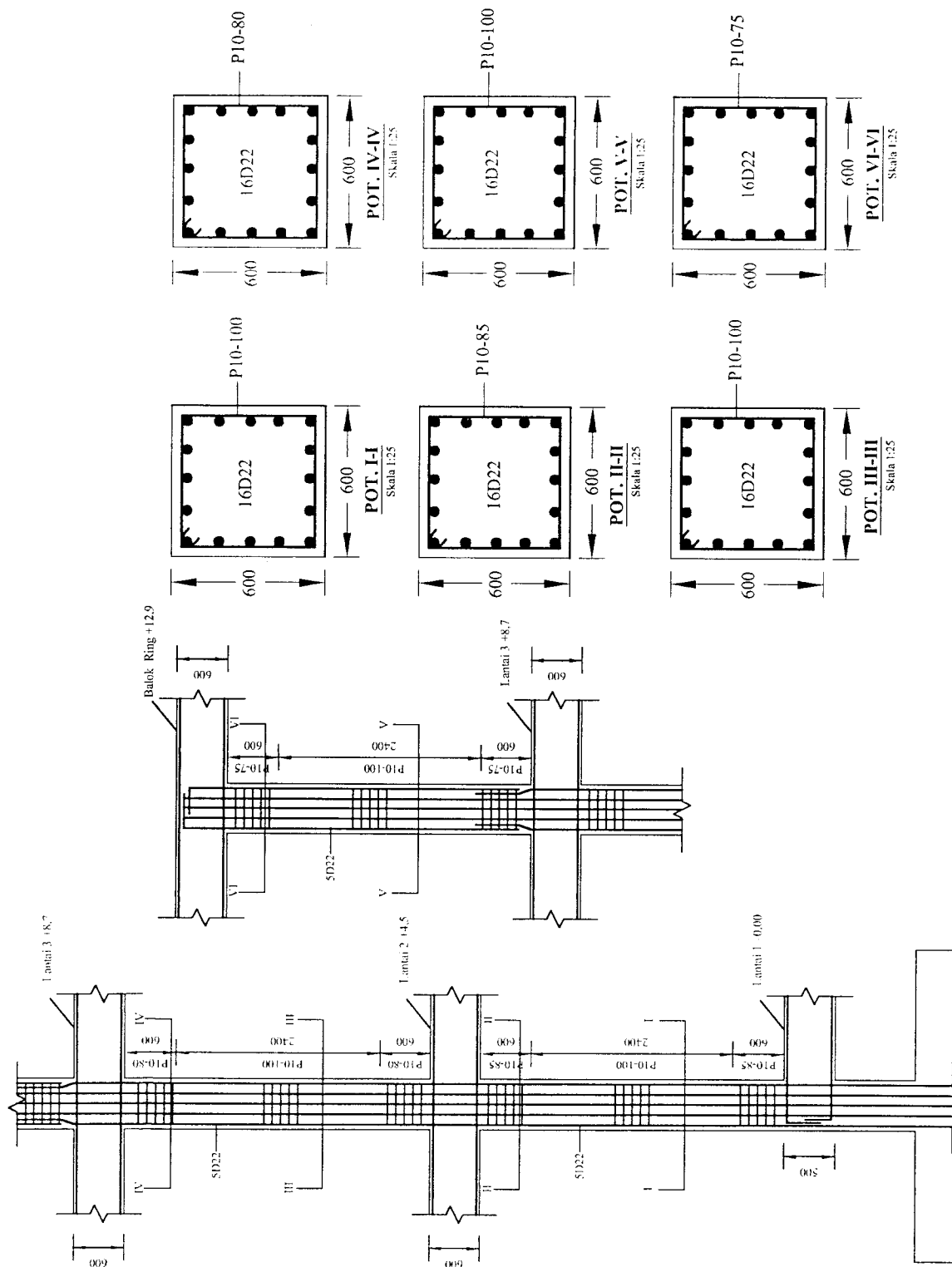
PENULANGAN KOLOM K4E=K7E

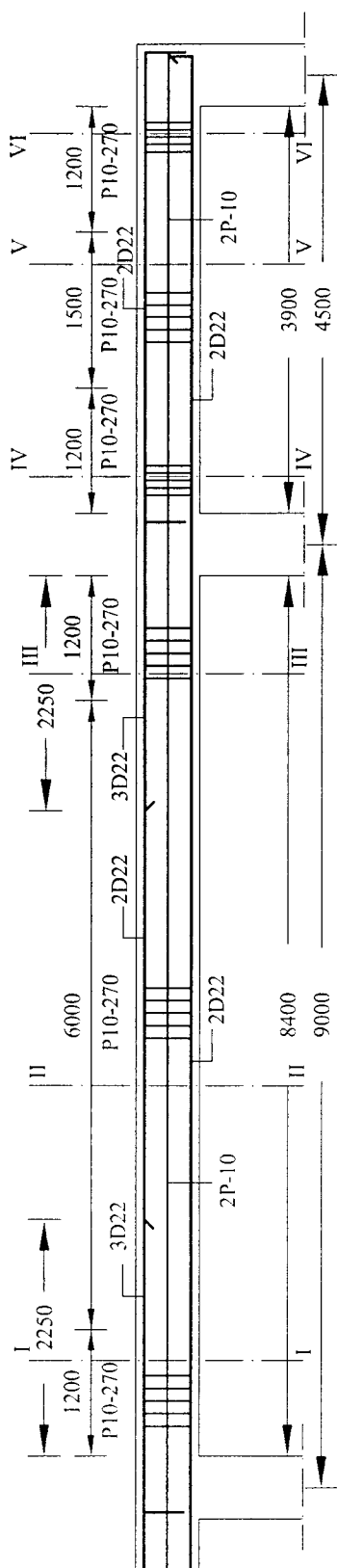
Skala 1:75



**PENULANGAN KOLOM K5C=K6C**

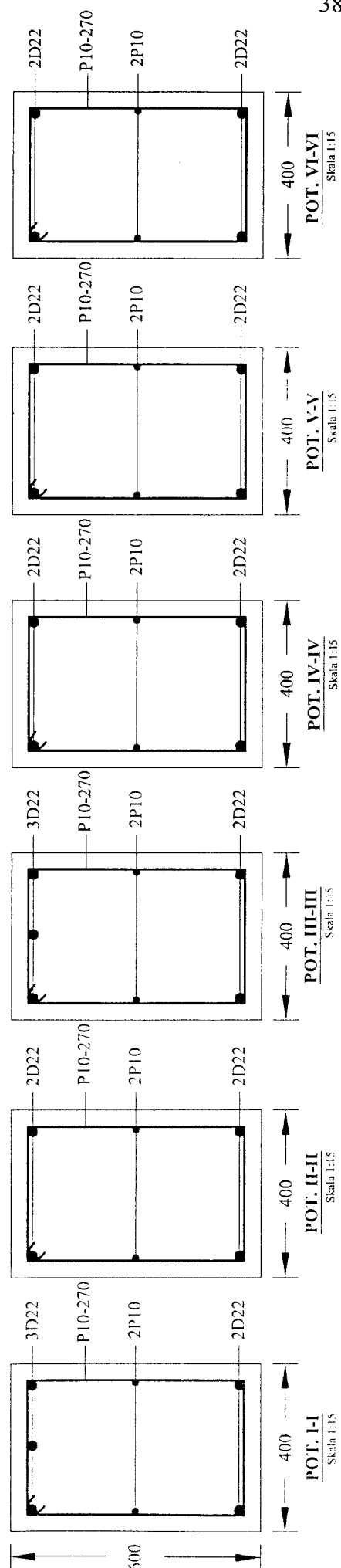
Skala 1:75

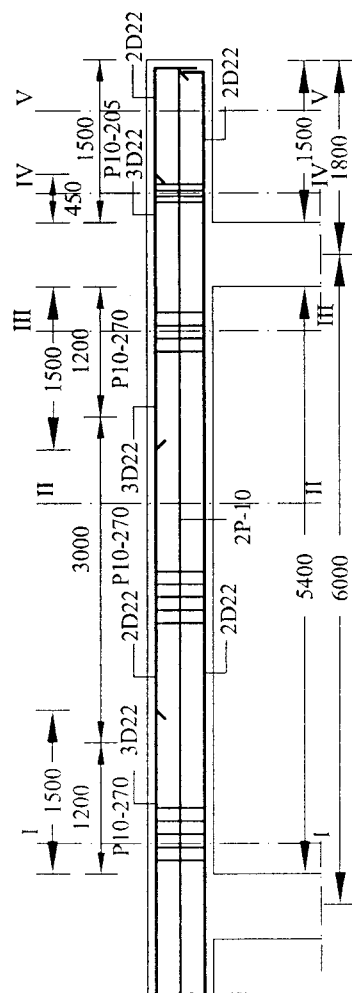
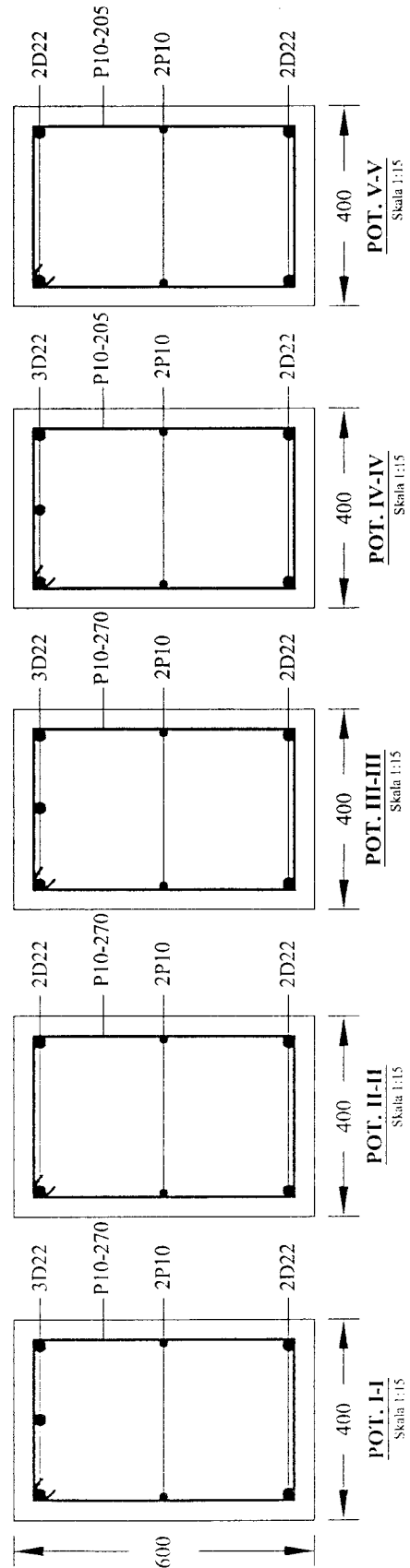


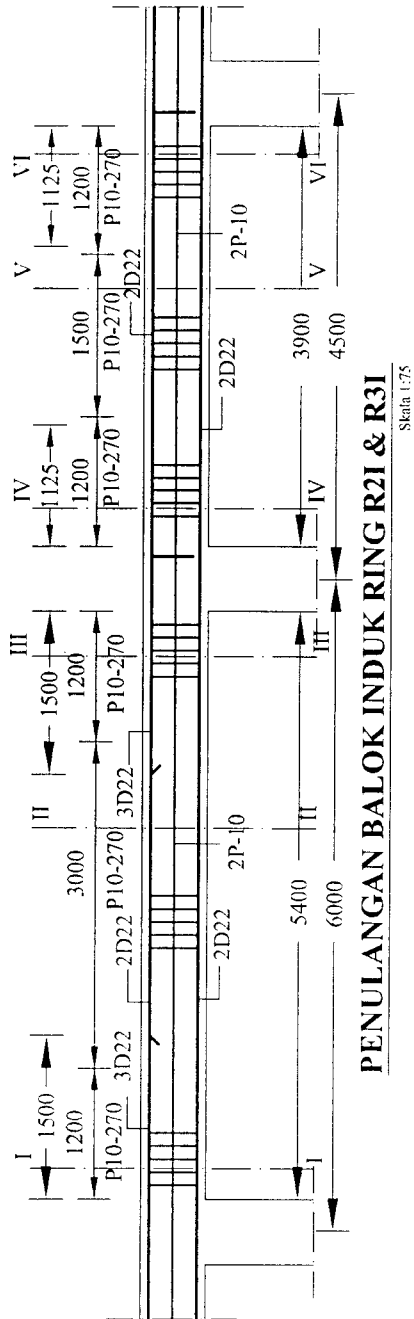
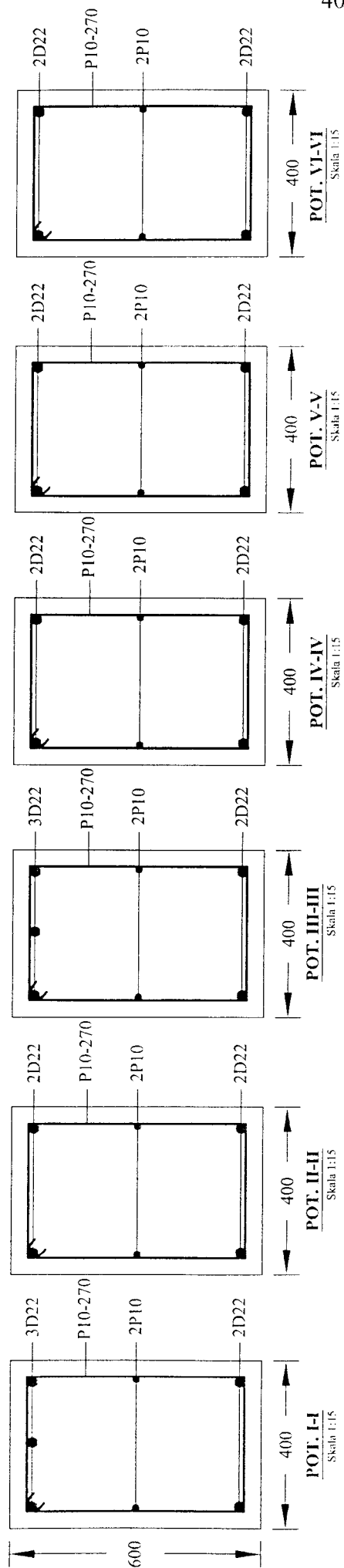


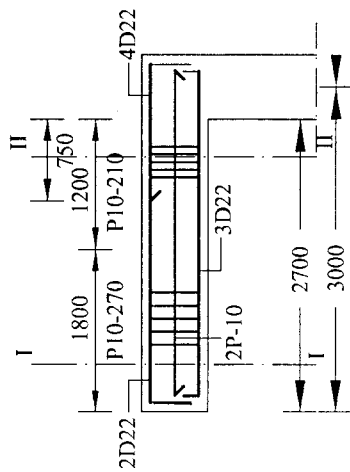
**PENULANGAN BALOK INDUK RING RII & R3I**

Skala 1:75

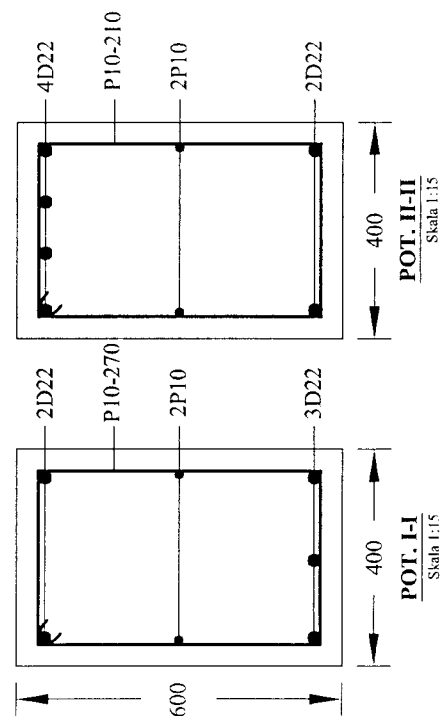


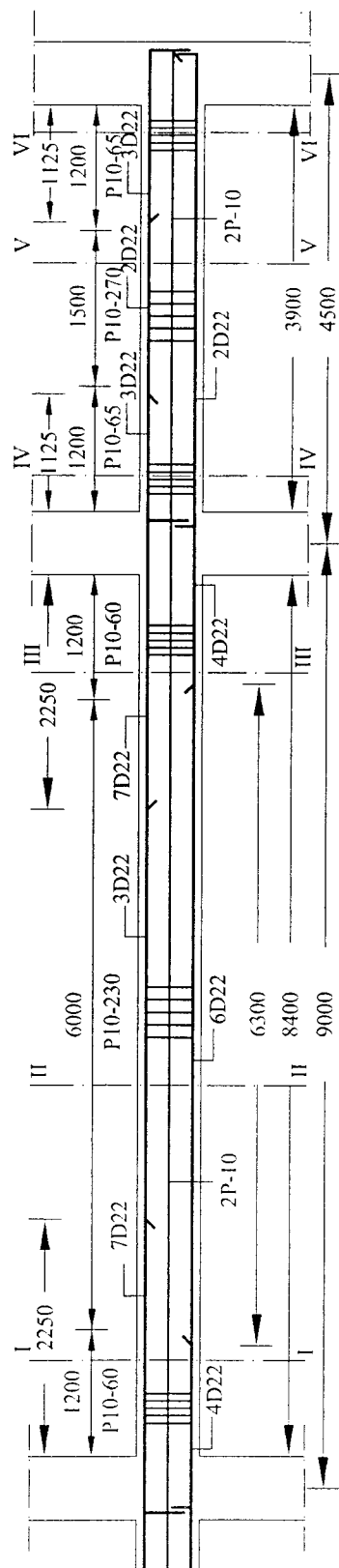






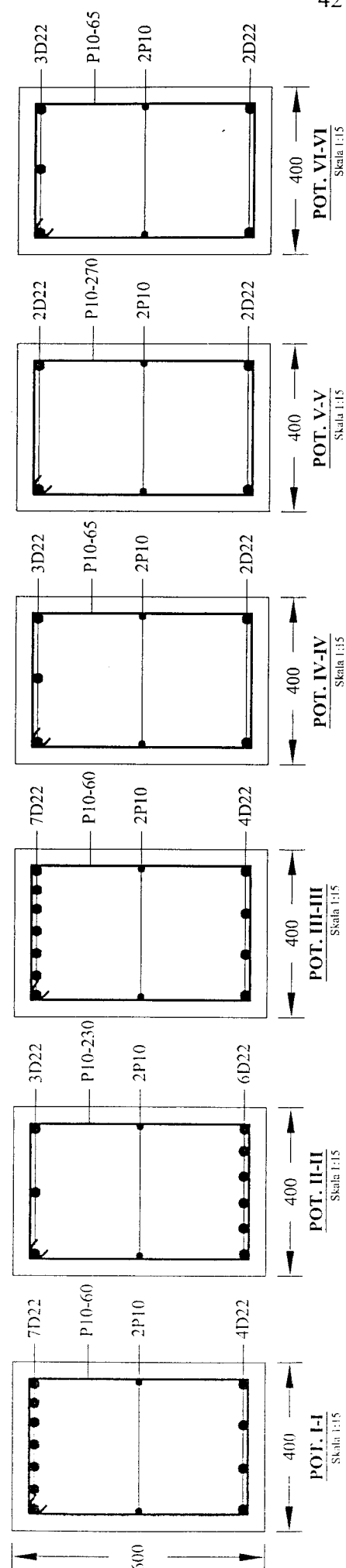
**PENULANGAN BALOK INDUK RING R4I**  
Skala 1:75



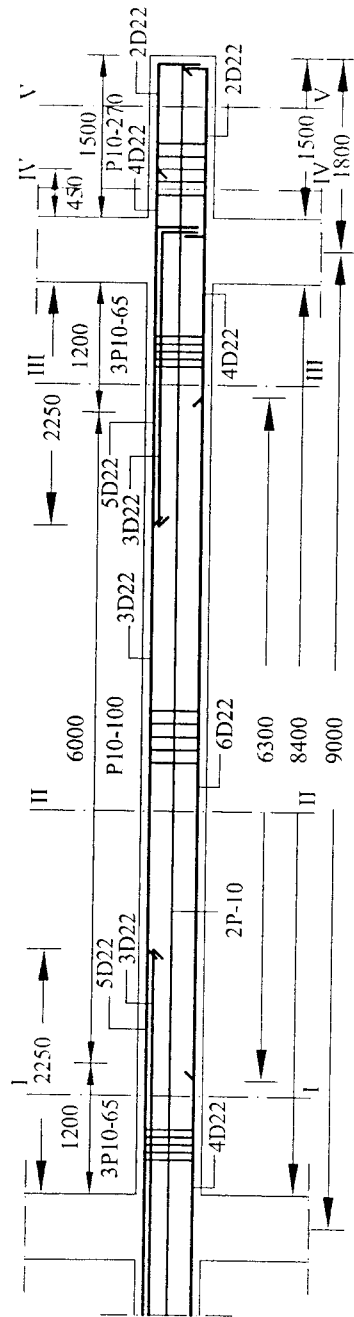


# PENULANGAN BALOK INDUK B1aI & B3bI LANTAI-3

Skala 1:75

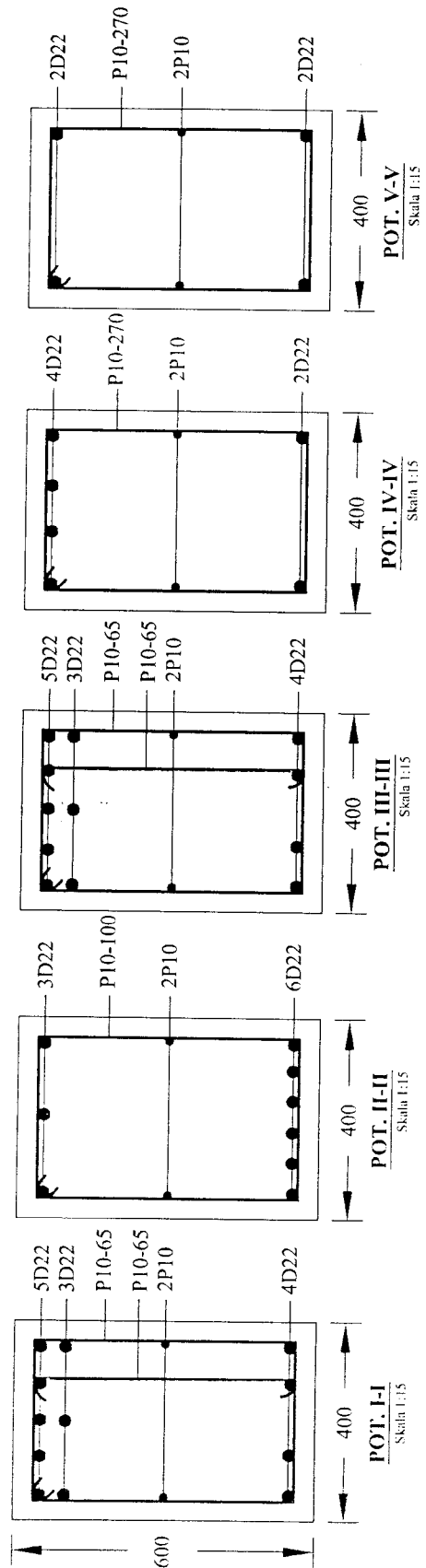


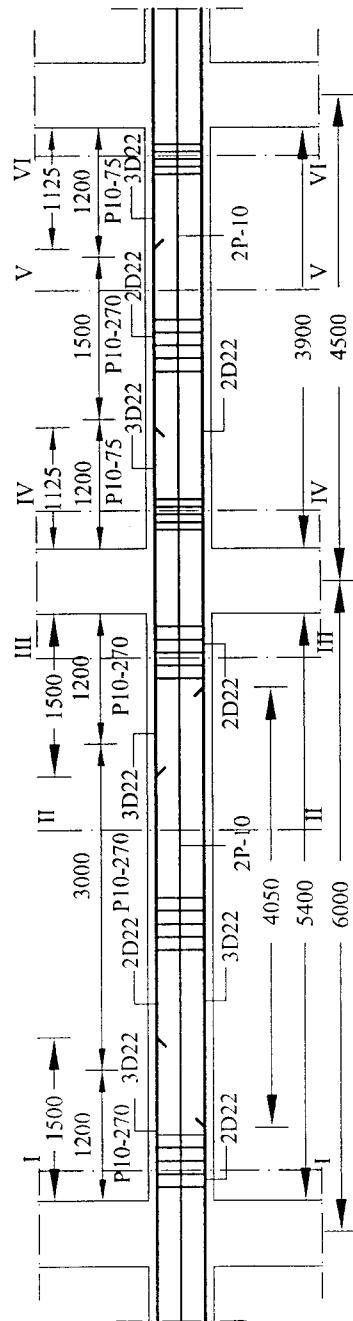
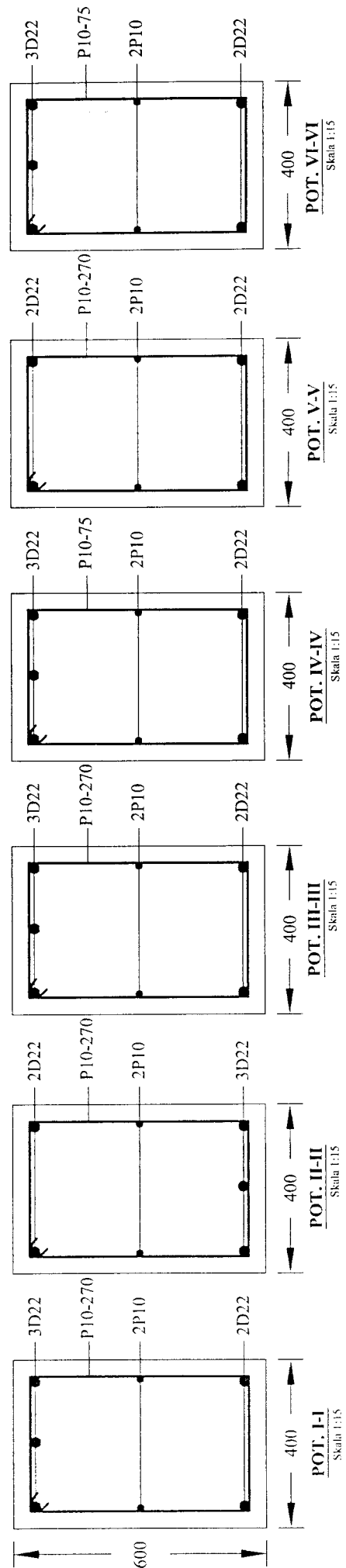


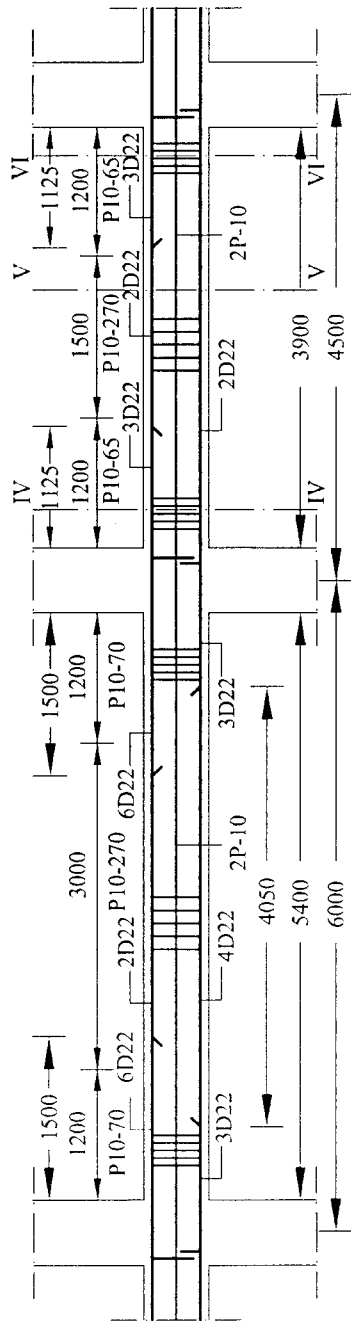


### PENULANGAN BALOK INDUK BIBI & BSI LANTAI-3

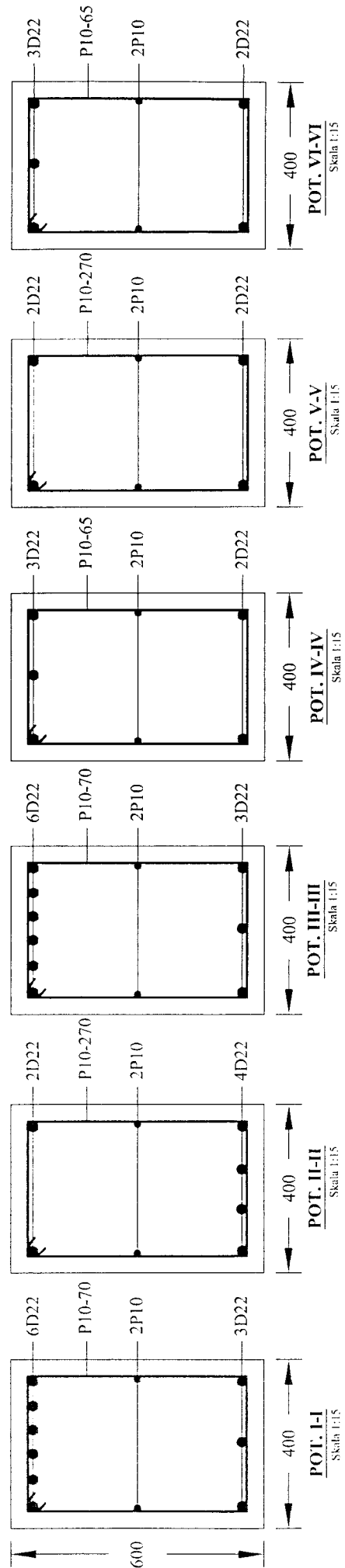
Skala 1:75

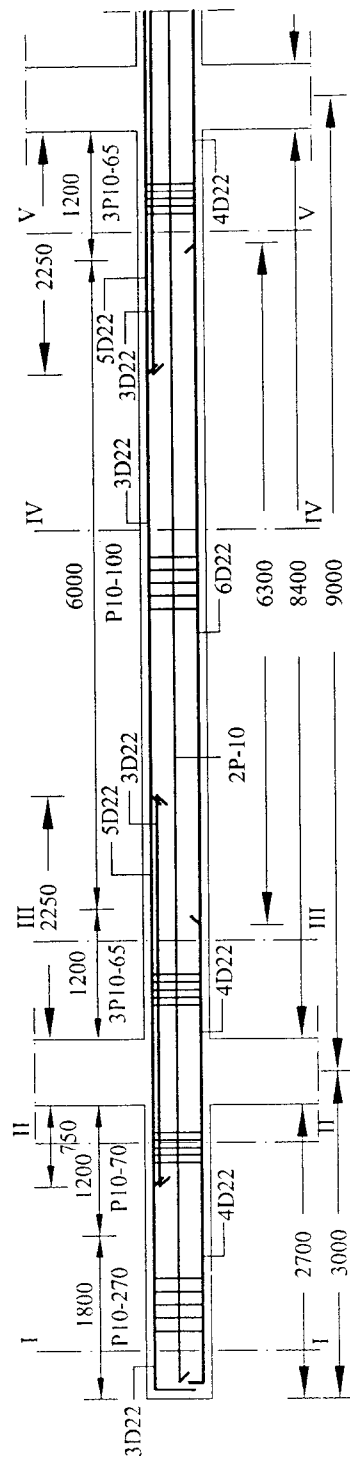






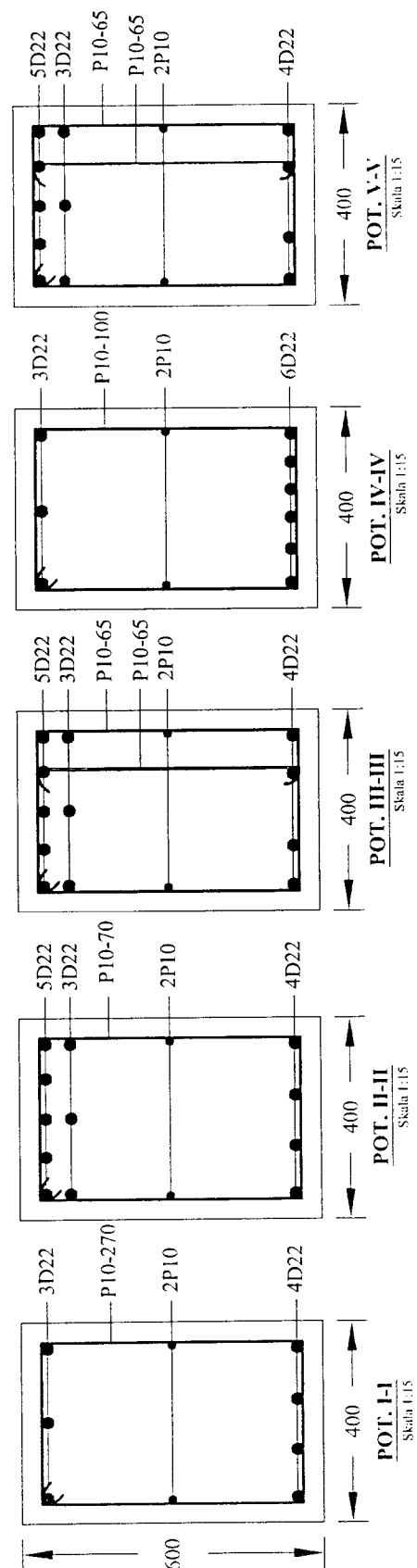
**PENULANGAN BALOK INDUK B2bI & B3bI LANTAI-3**  
Skala 1:75

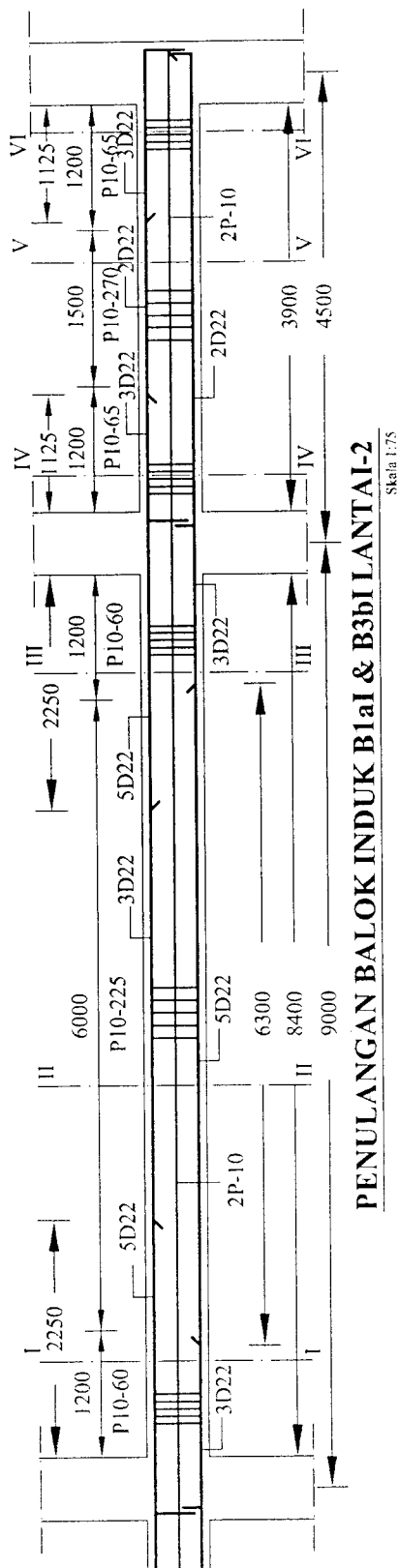
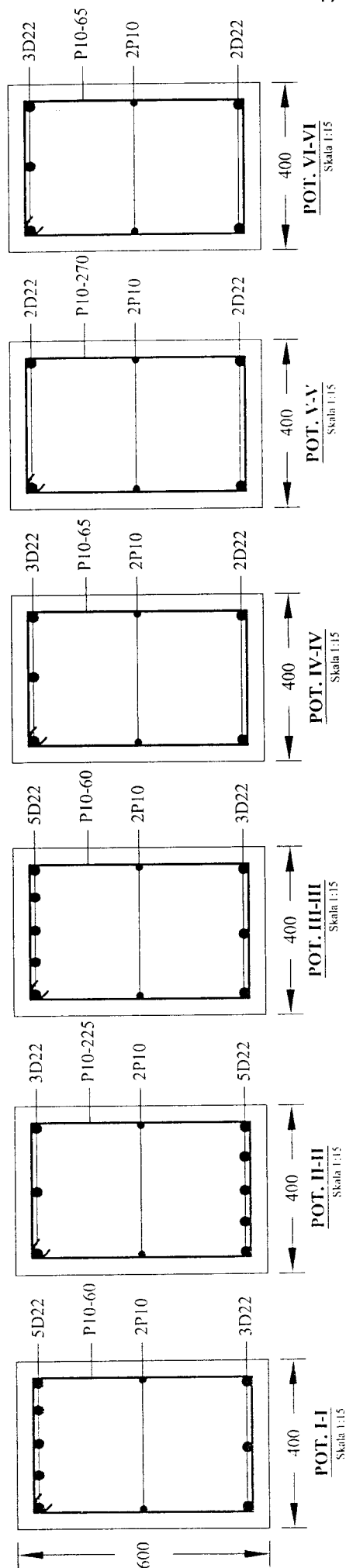


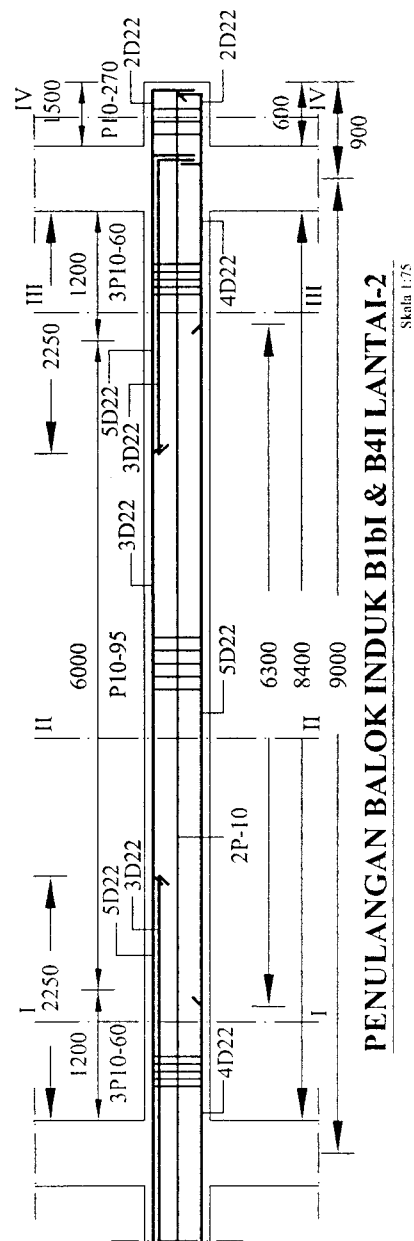
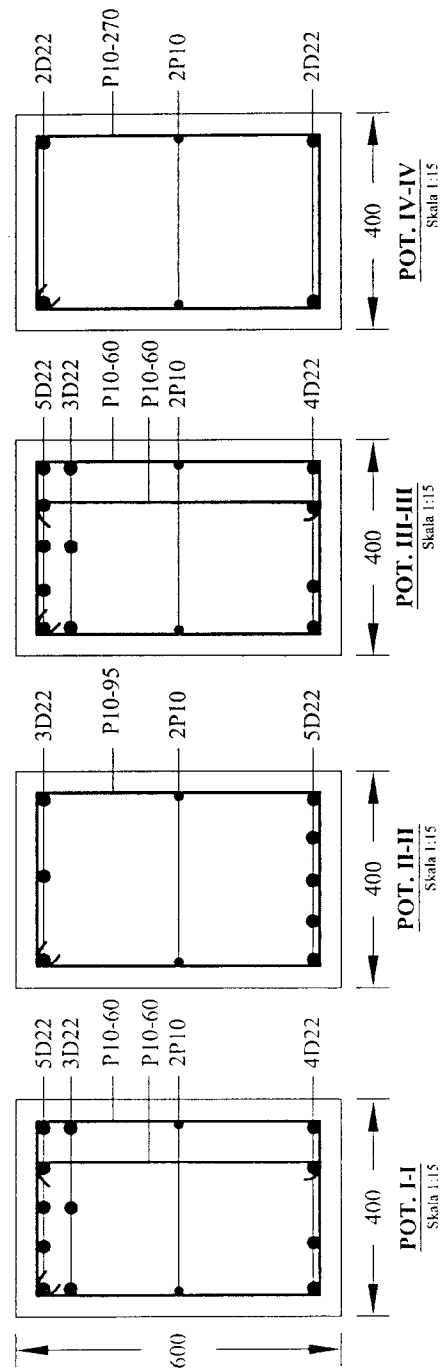


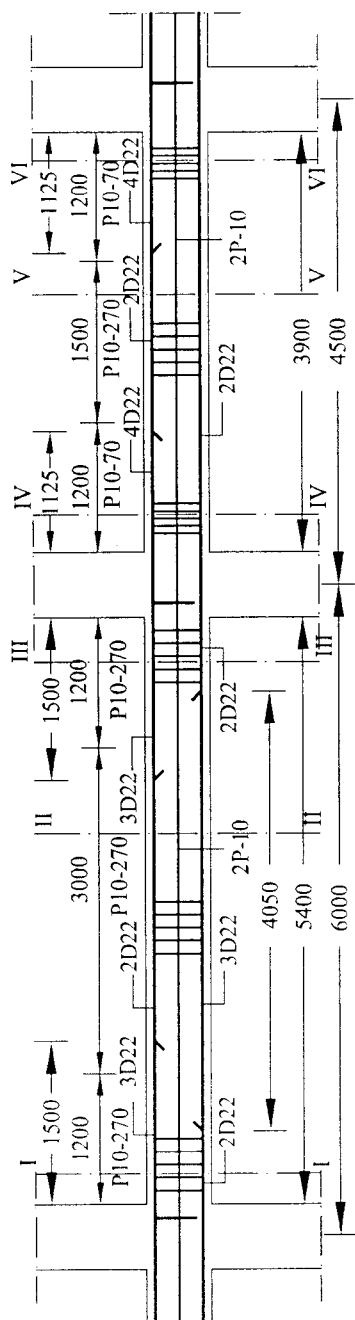
### PENULANGAN BALOK INDUK B4I & B1bI LANTAI-3

Skala 1:75



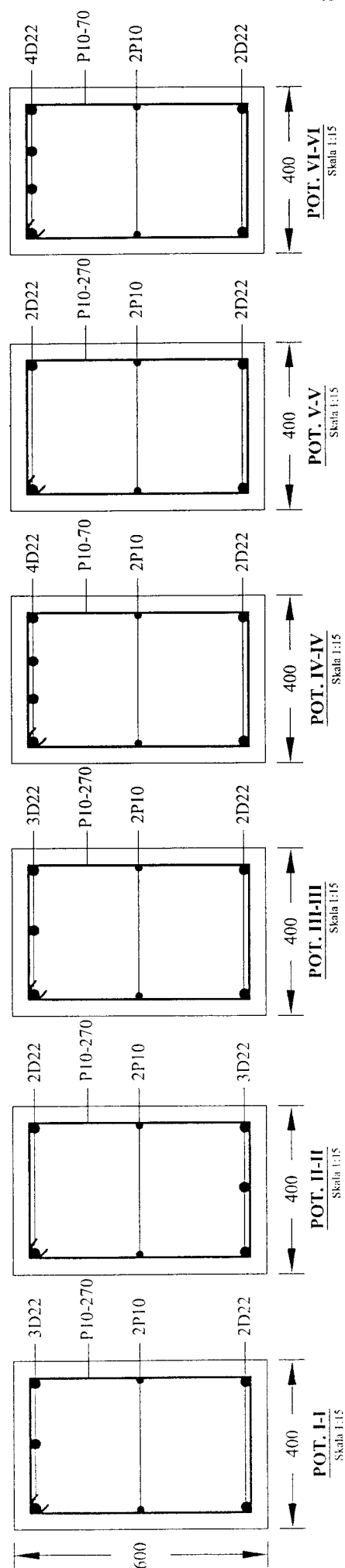


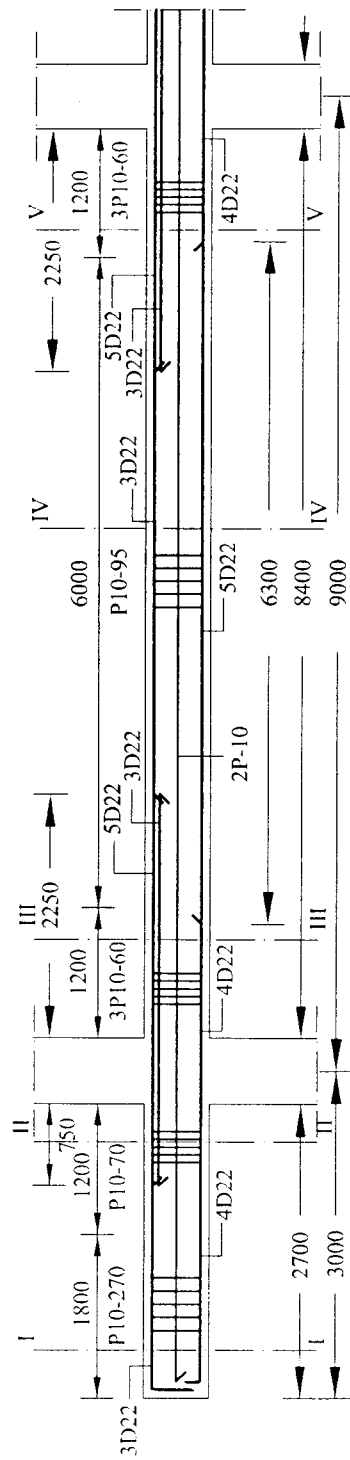
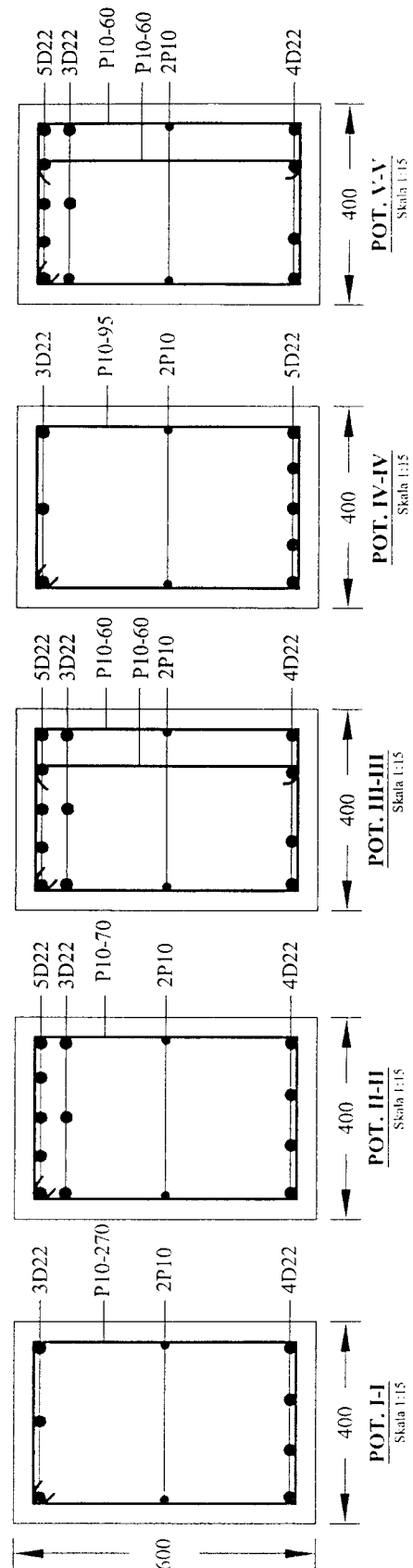




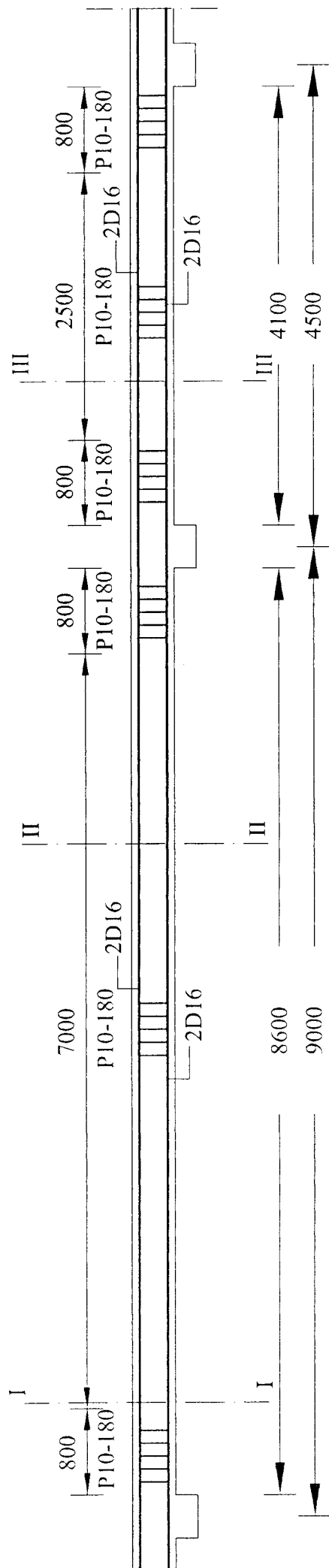
## PENULANGAN BALOK INDUK B2aI & B3aI LANTAI-2

Skala 1:75



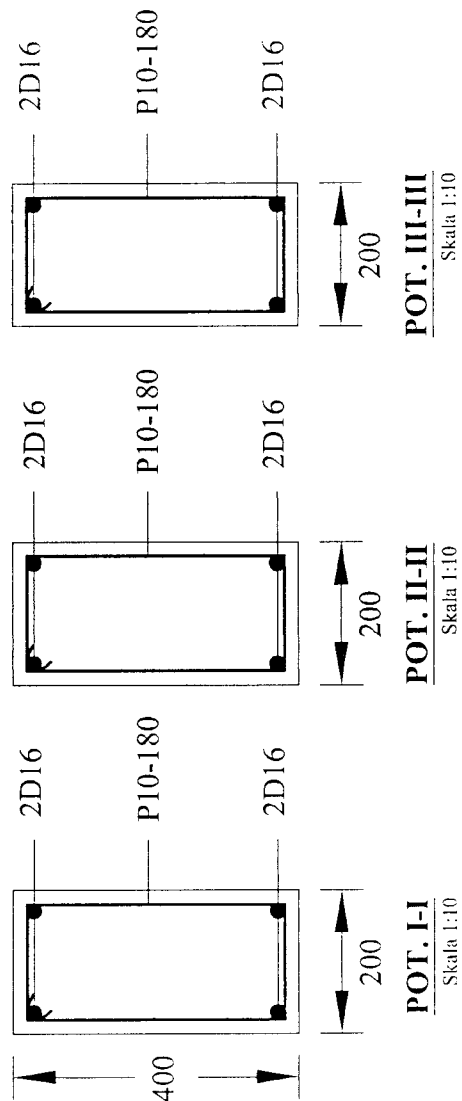






# **PENULANGAN BALOK ANAK RING RIA & R3A**

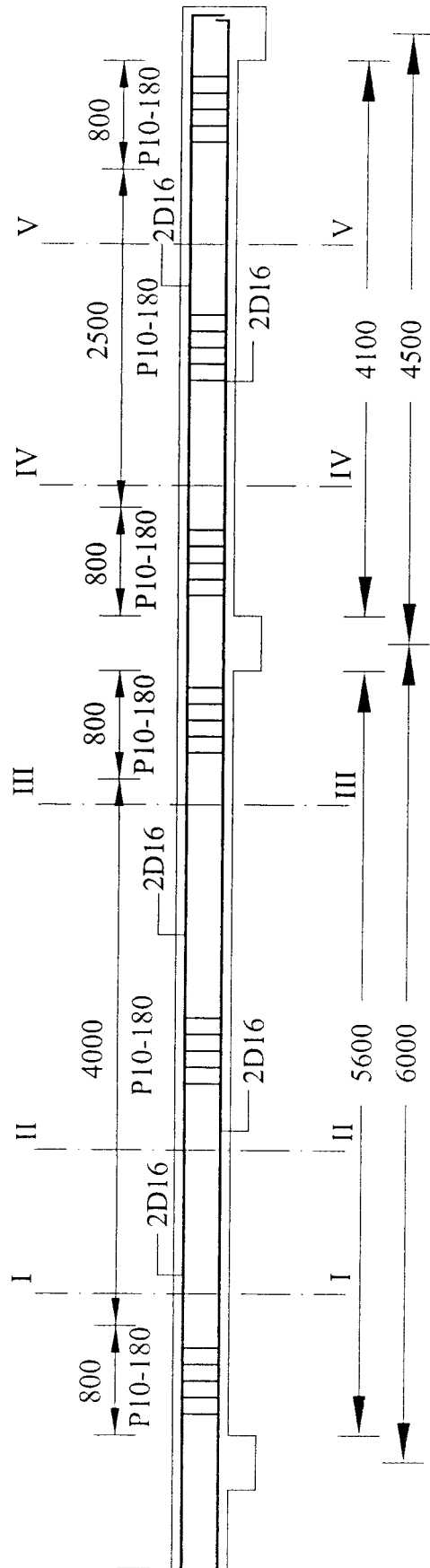
Skala 1:50



**POT. III-III**  
Skala 1:10

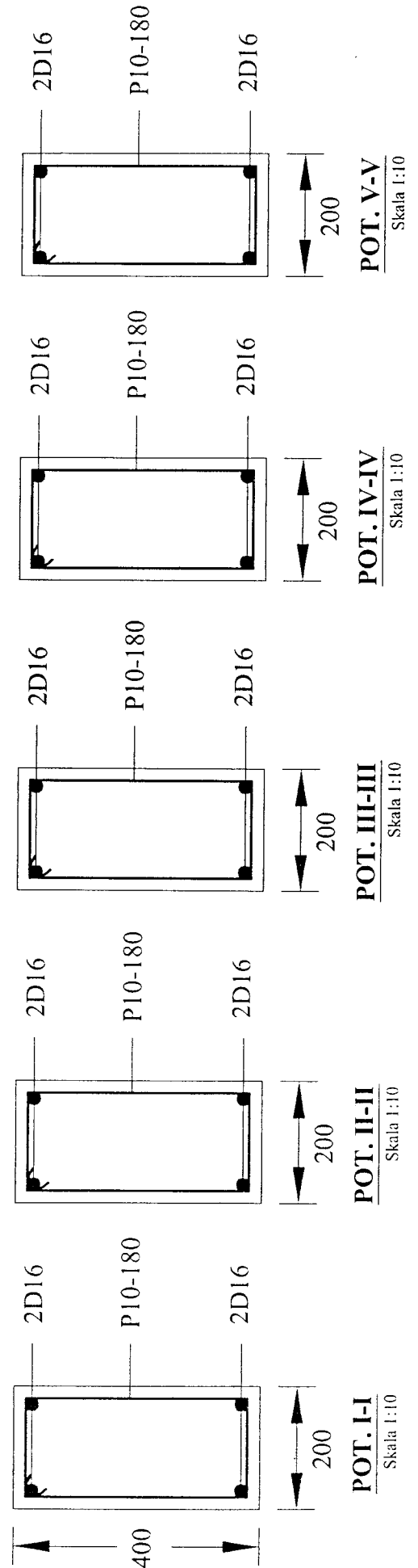
**POT. II-II**  
Skala 1:10

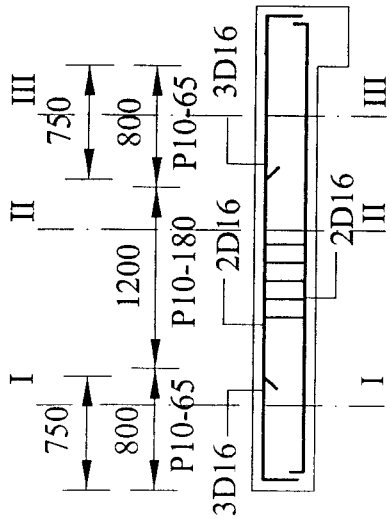
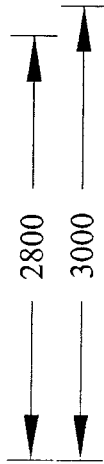
**POT. I-I**  
Skala 1:10



### PENULANGAN BALOK ANAK RING R2A & R3A

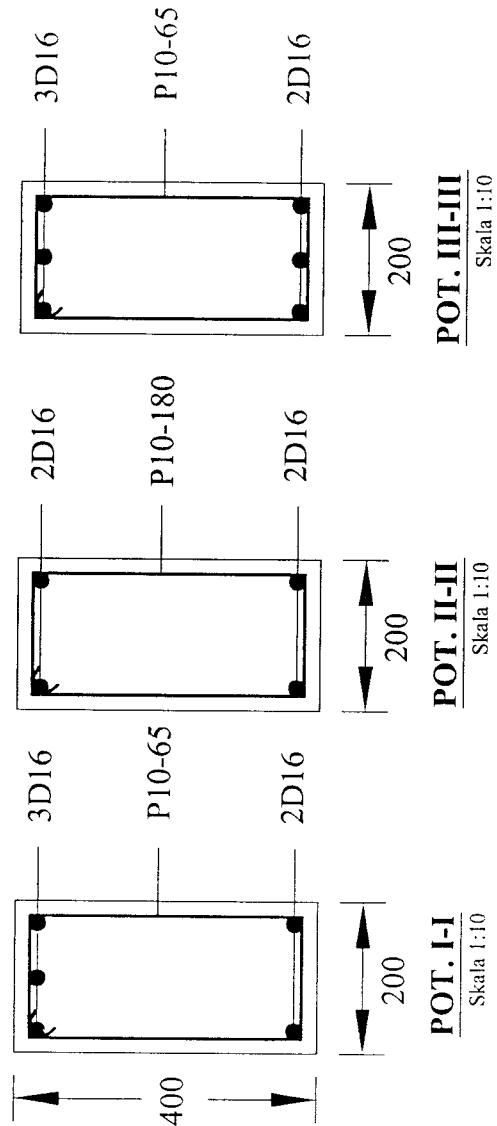
Skala 1:50

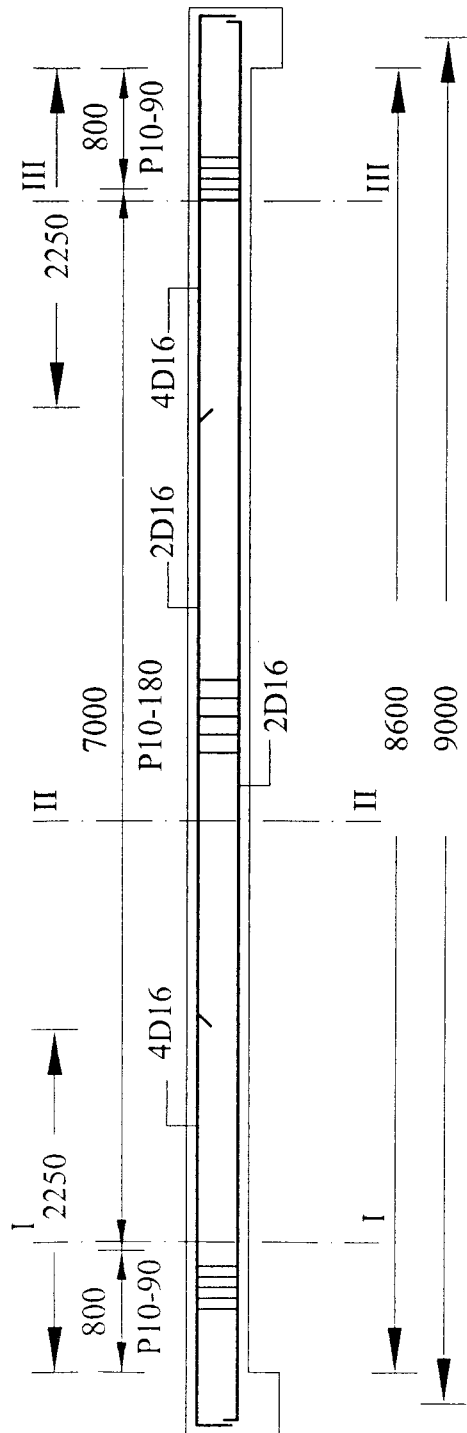




**PENULANGAN BALOK ANAK RING B4A**

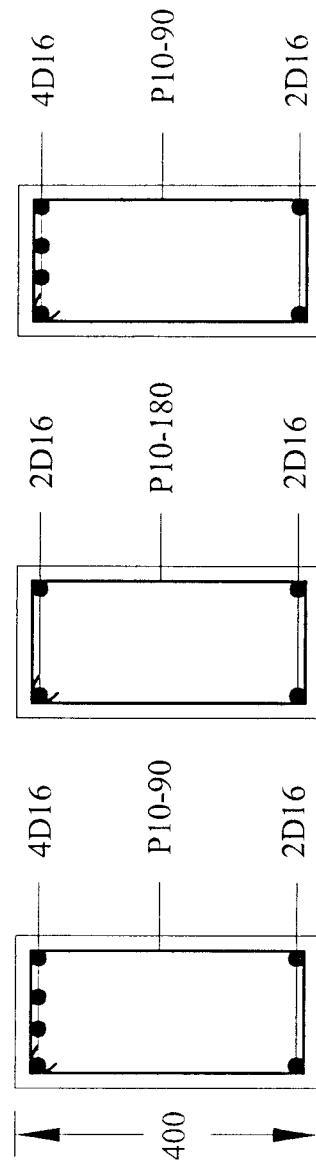
Skala 1:50





### PENULANGAN BALOK ANAK B1aA LANTAI-3

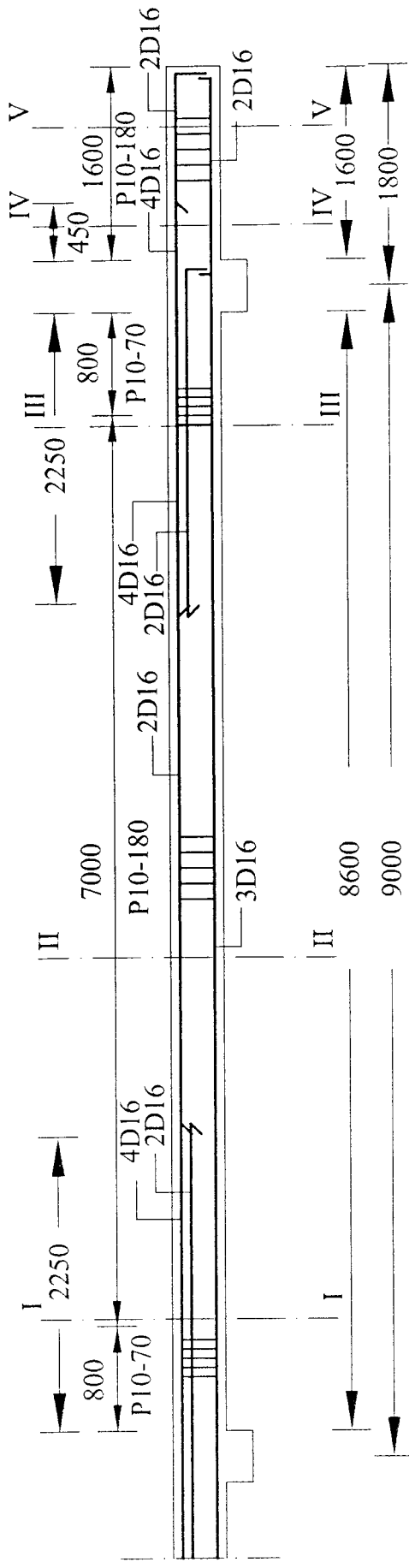
Skala 1:50



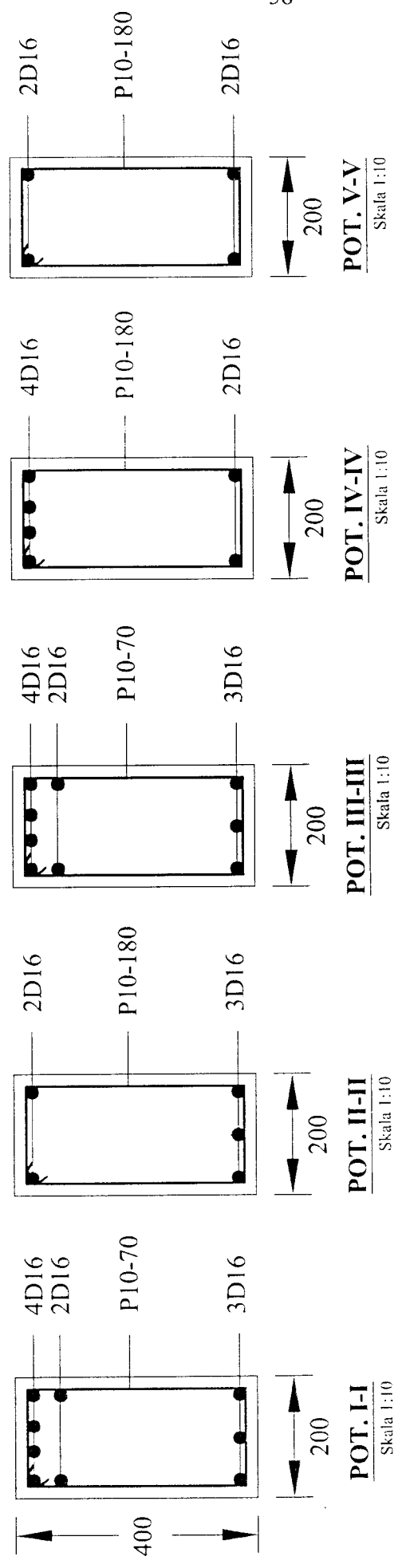
POT. I-I  
Skala 1:10

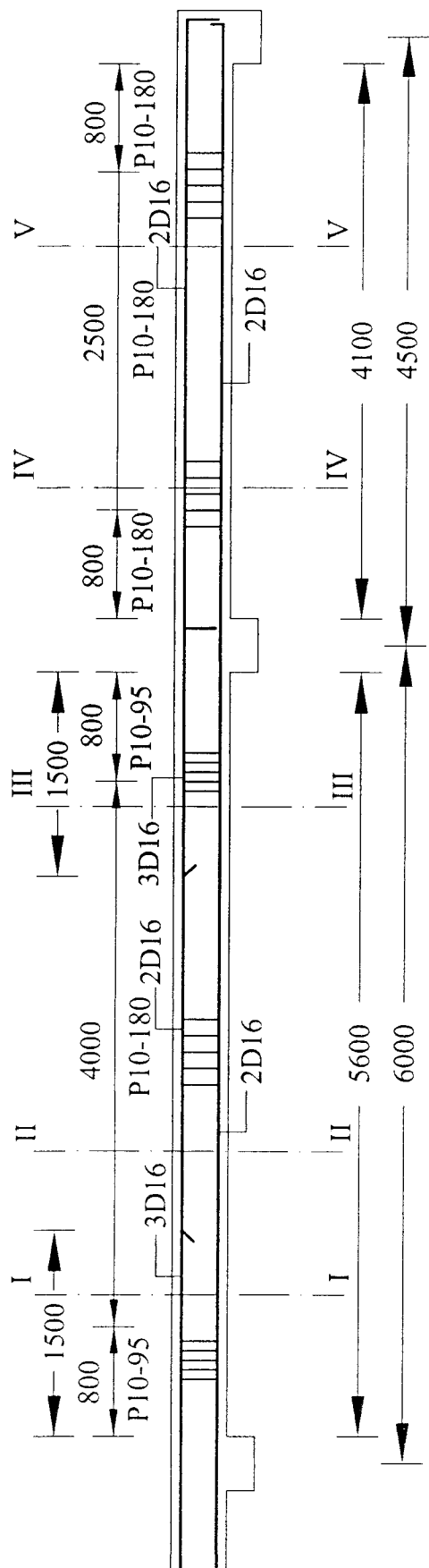
POT. II-II  
Skala 1:10

POT. III-III  
Skala 1:10



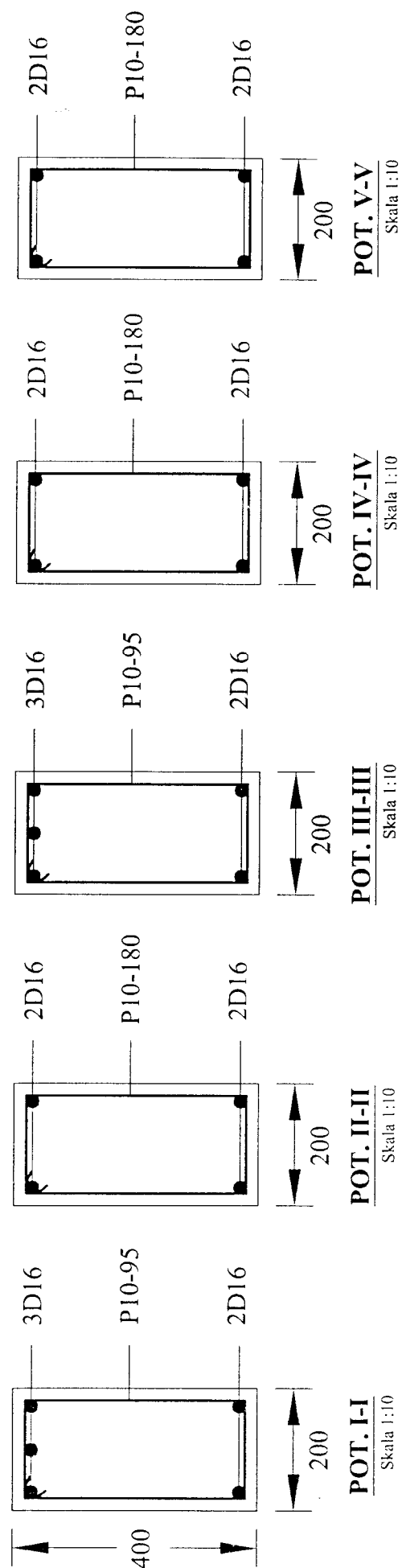
**PENULANGAN BALOK ANAK B1ba & B5a LANTAI-3**  
Skala 1:50

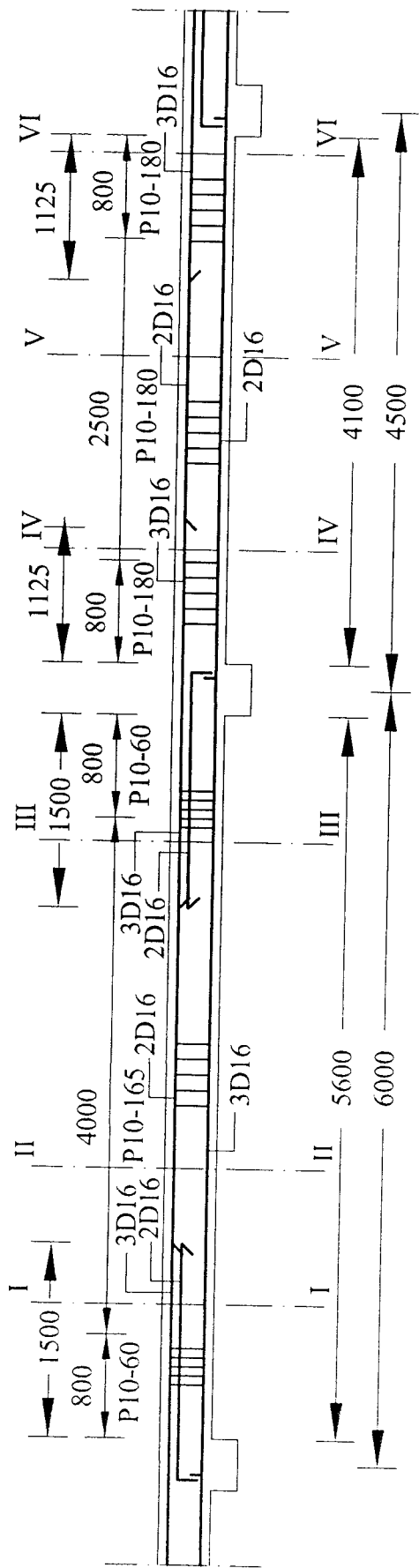




### PENULANGAN BALOK ANAK B2aA & B3aA LANTAI-3

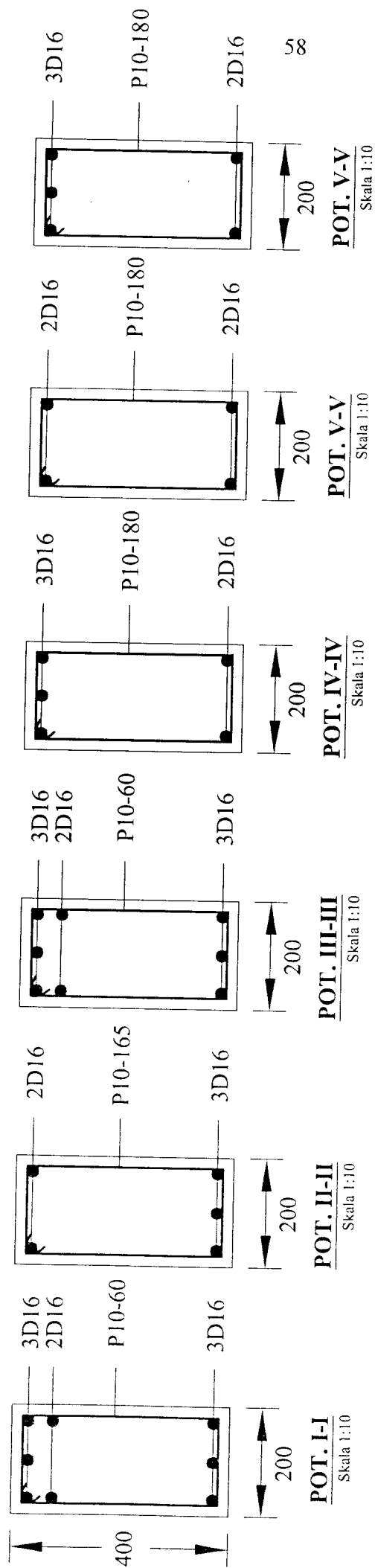
Skala 1:50





### PENULANGAN BALOK ANAK B2ba & B3ba LANTAI-3

Skala 1:50



POT. I-I  
Skala 1:10

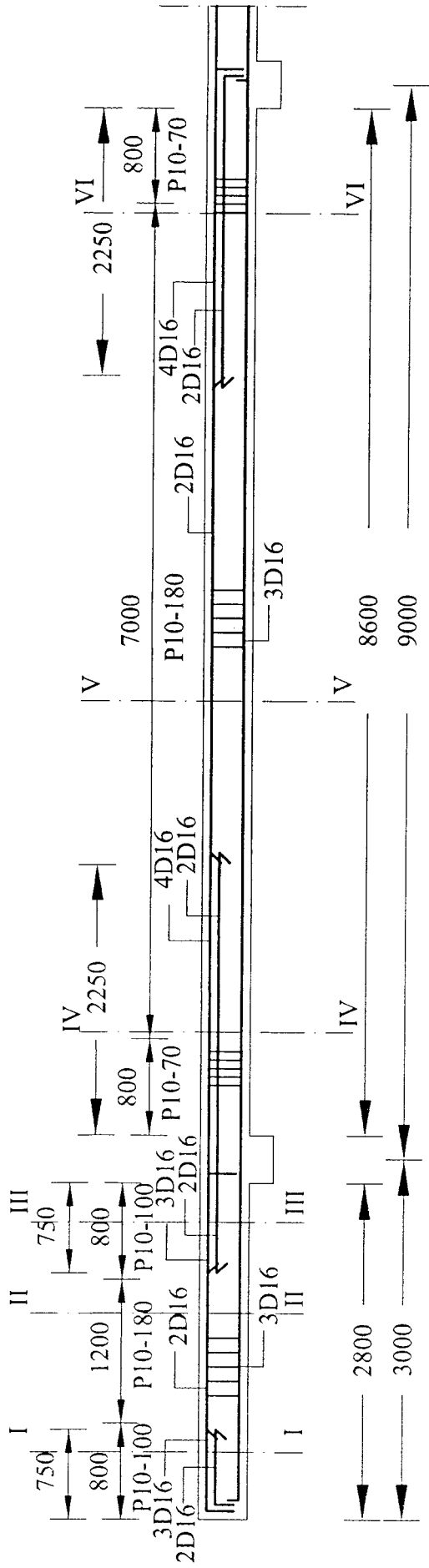
POT. II-II  
Skala 1:10

POT. III-III  
Skala 1:10

POT. IV-IV  
Skala 1:10

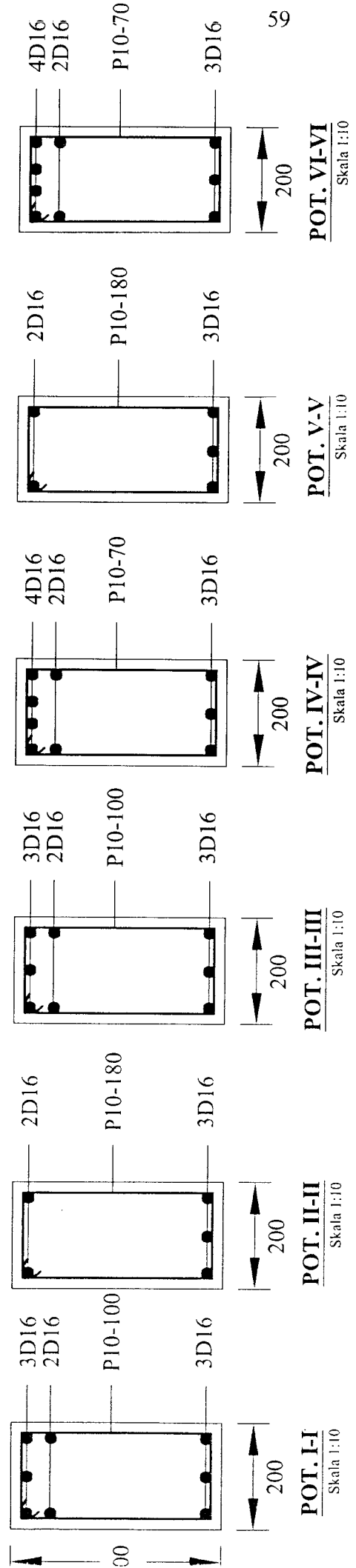
POT. V-V  
Skala 1:10

POT. V-V  
Skala 1:10

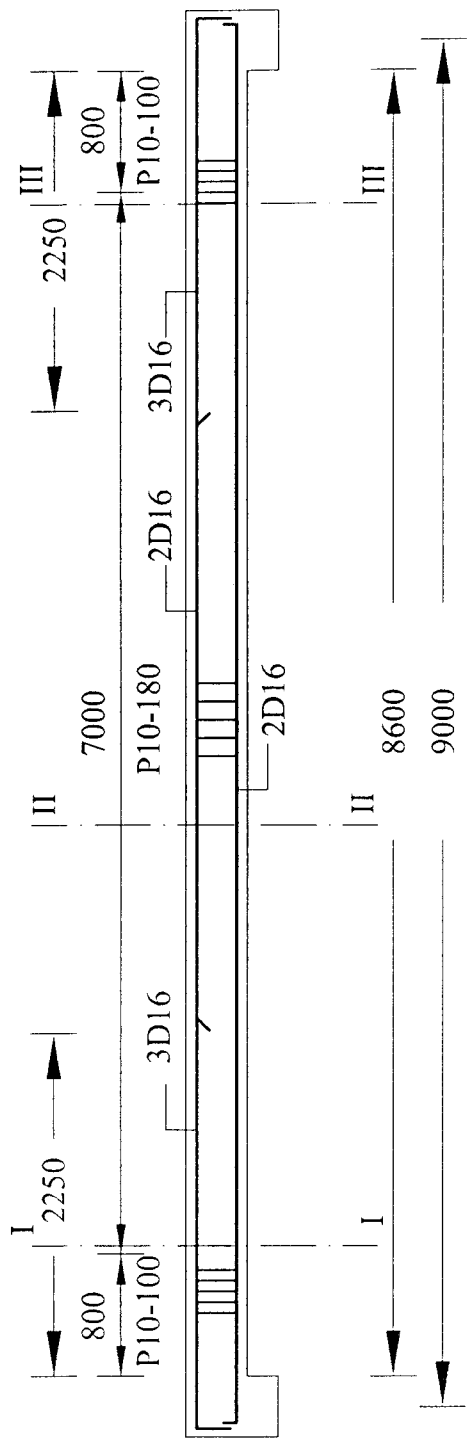


### PENULANGAN BALOK ANAK B4A & B1ba LANTAI-3

Skala 1:50

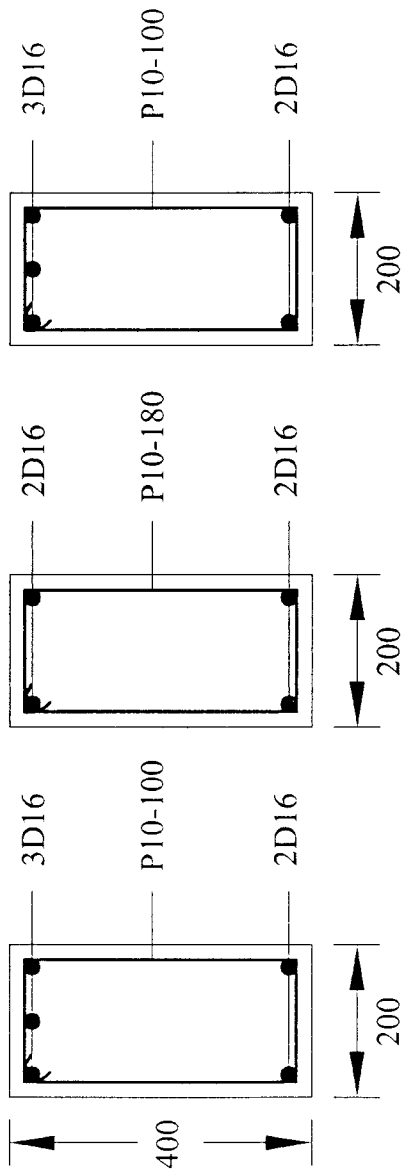






**PENULANGAN BALOK ANAK B1a LANTAI-2**

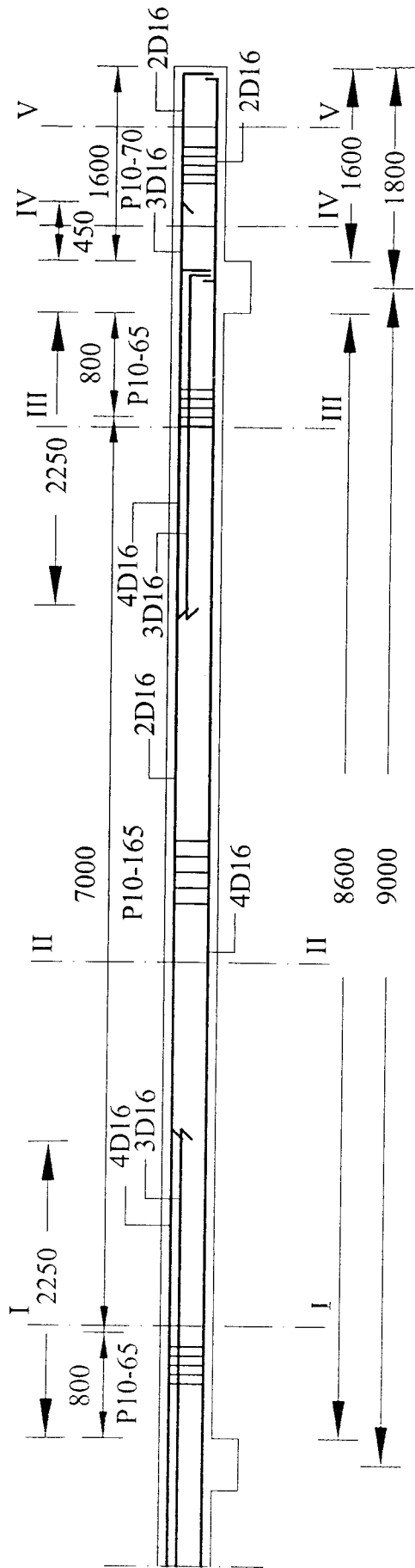
Skala 1:50



**POT. I-I**  
Skala 1:10

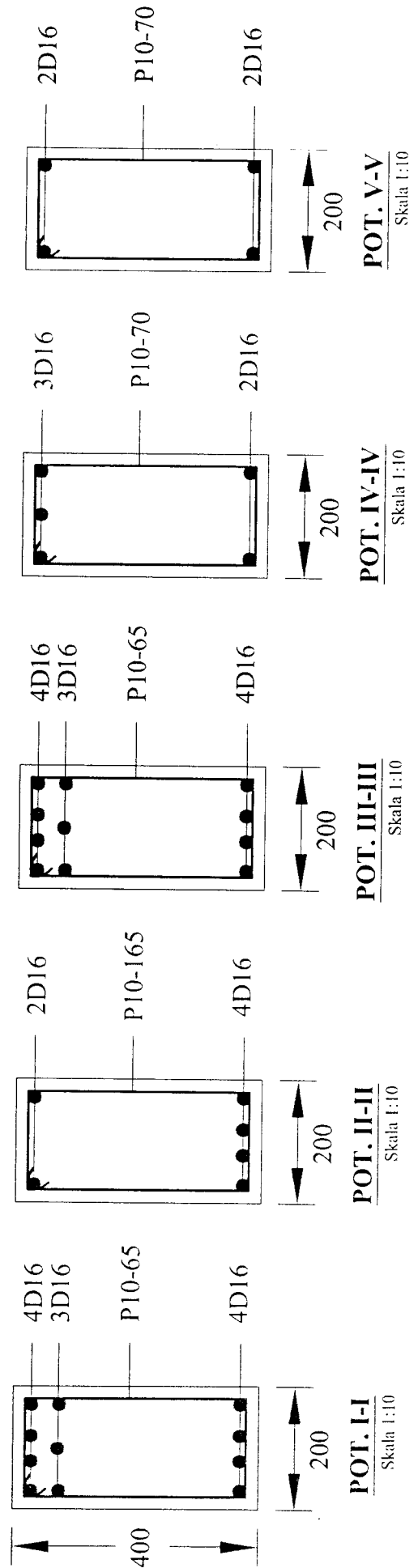
**POT. II-II**  
Skala 1:10

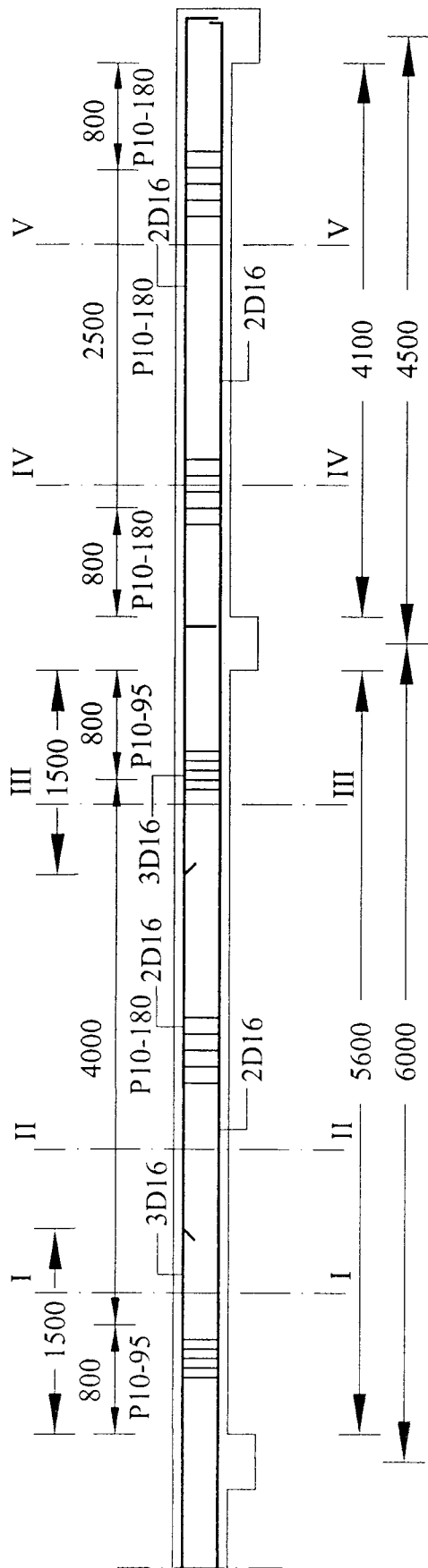
**POT. III-III**  
Skala 1:10



**PENULANGAN BALOK ANAK B1bA & B5A LANTAI-2**

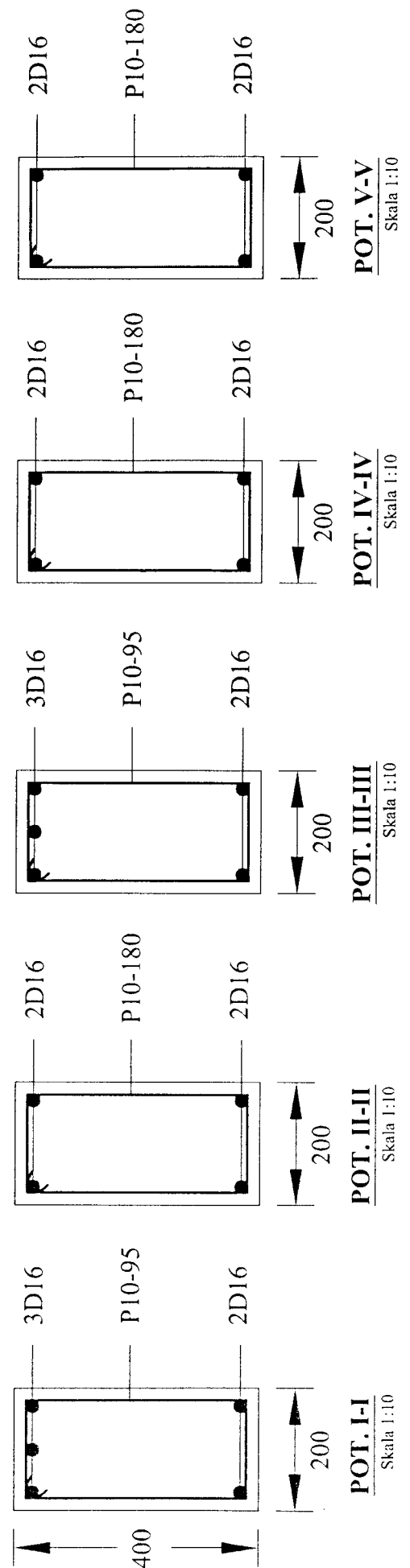
Skala 1:50

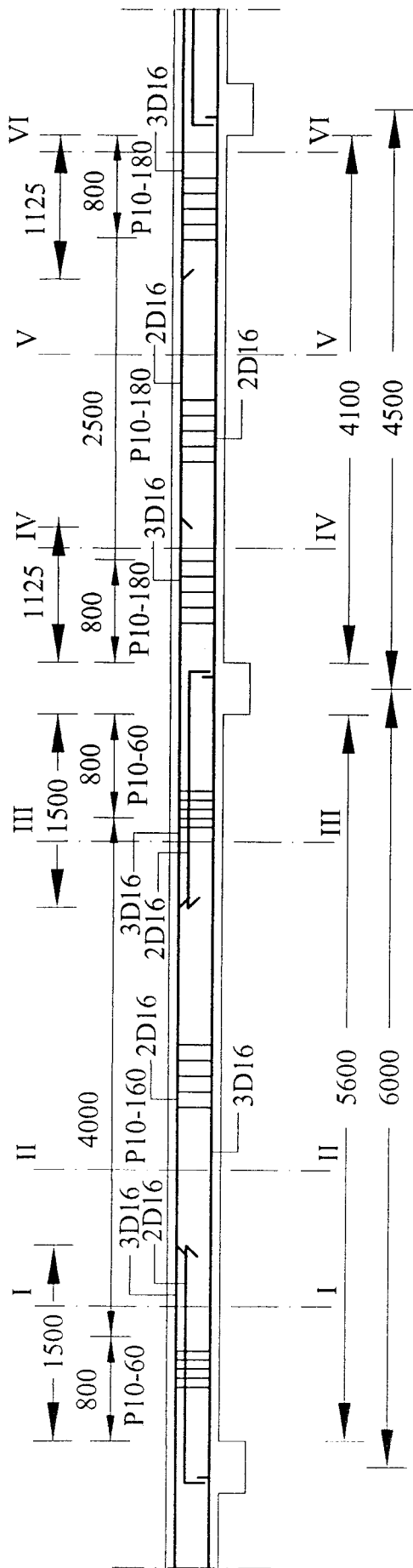




### PENULANGAN BALOK ANAK B2aA & B3aA LANTAI-2

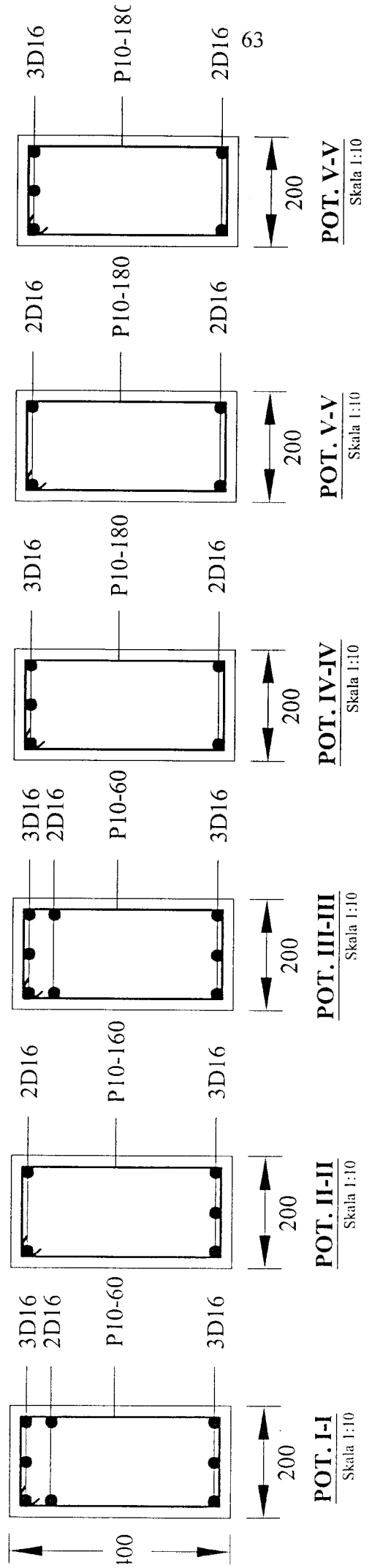
Skala 1:50

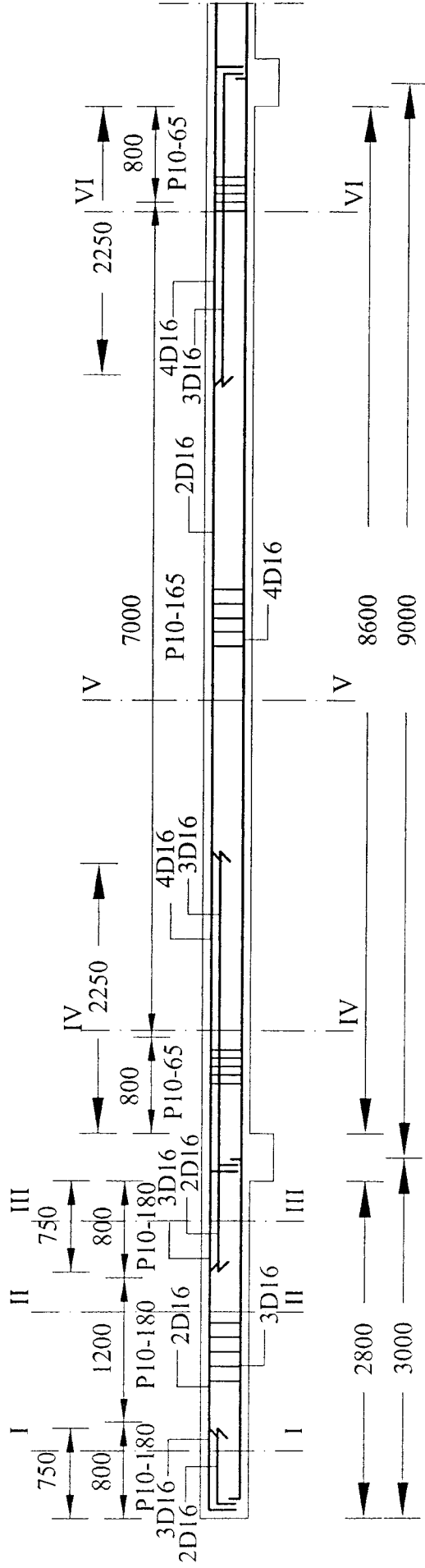




# **PENULANGAN BALOK ANAK B2ba & B3ba LANTAI-2**

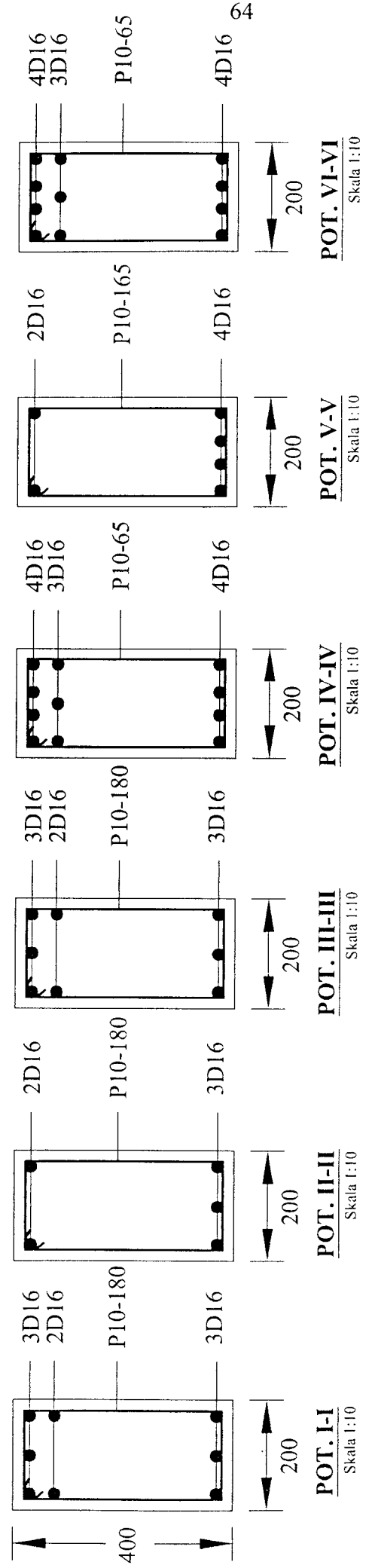
Skala 1:50

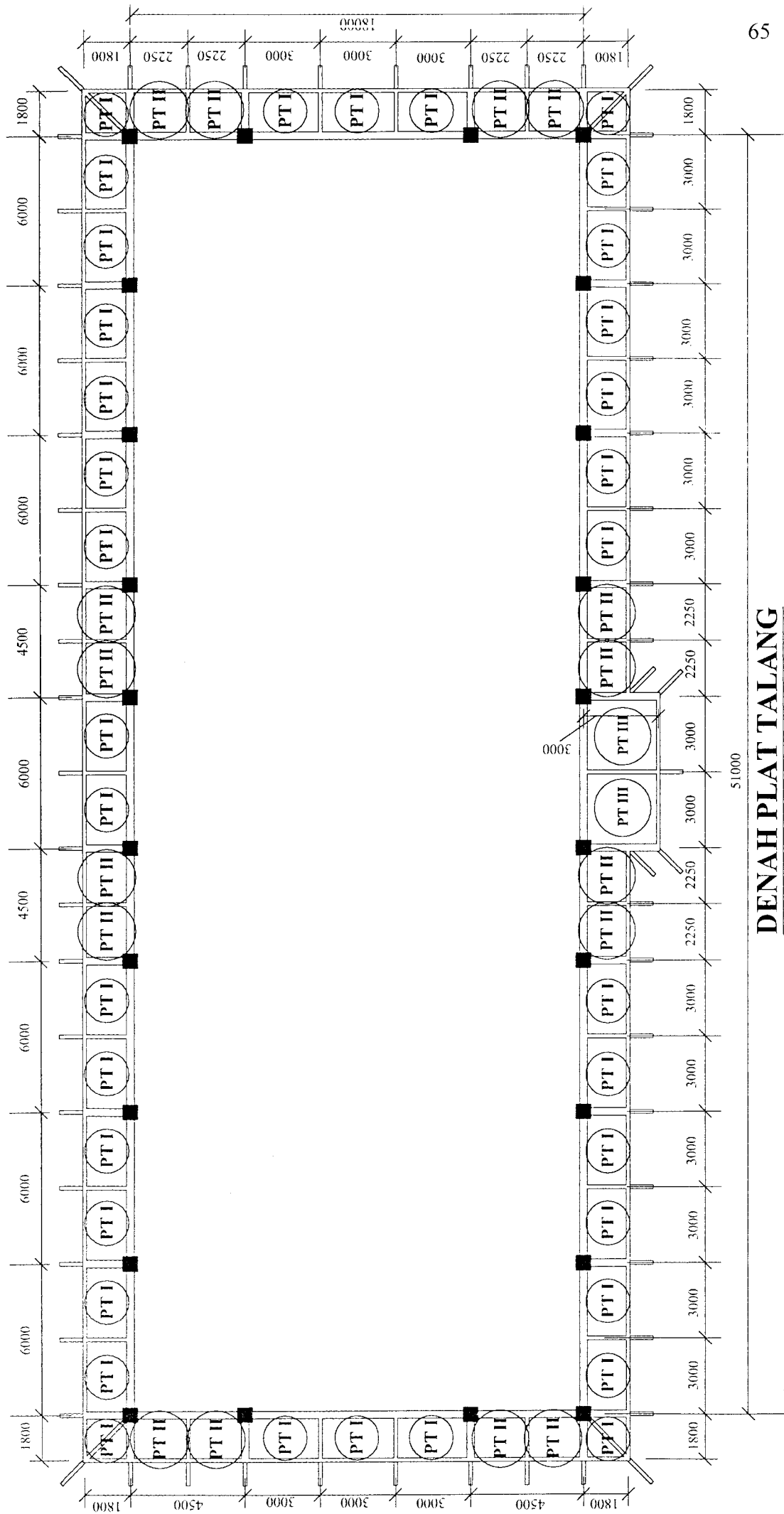




## PENULANGAN BALOK ANAK B4A & B1bA LANTAI-2

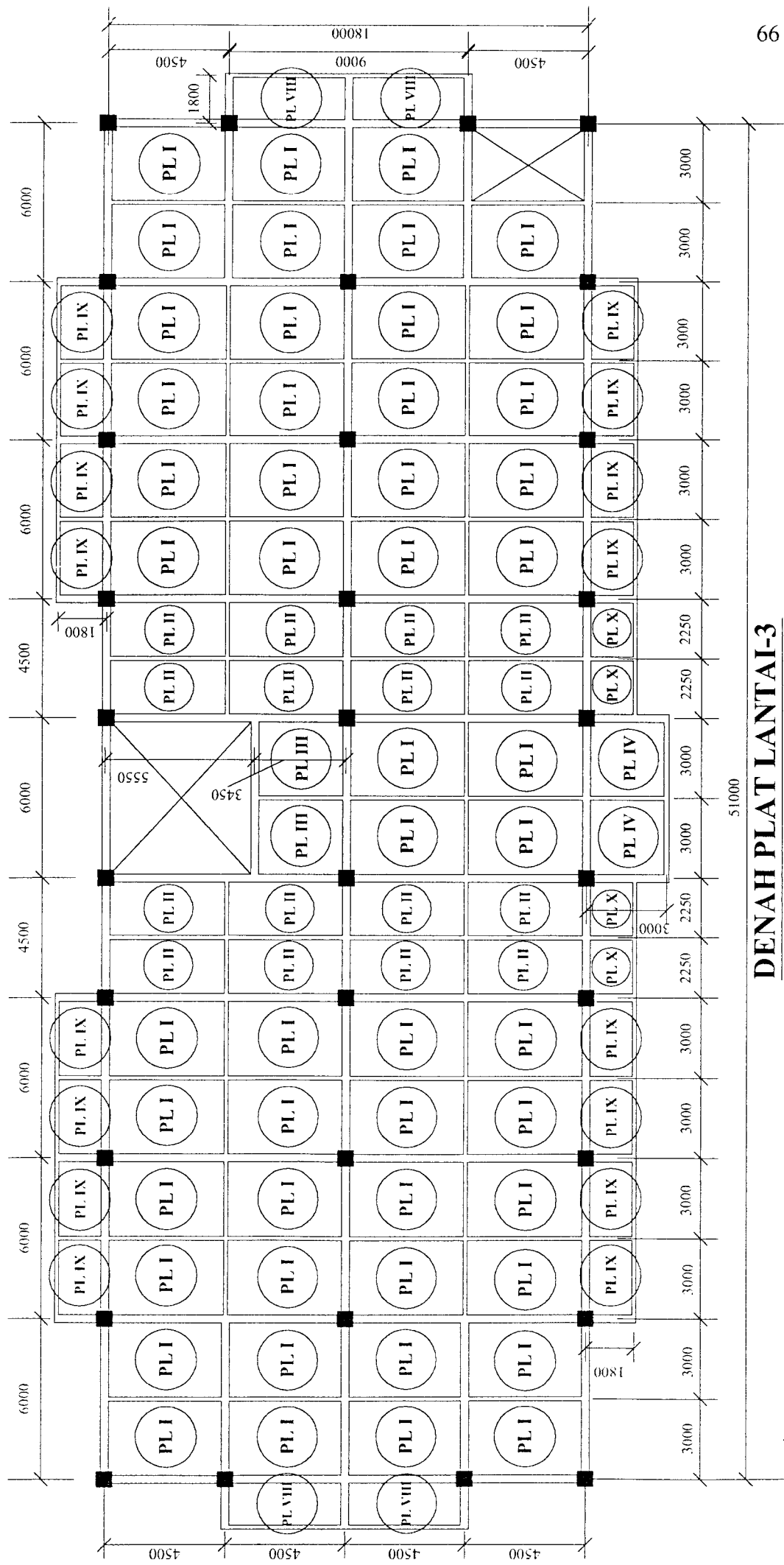
Skala 1:50





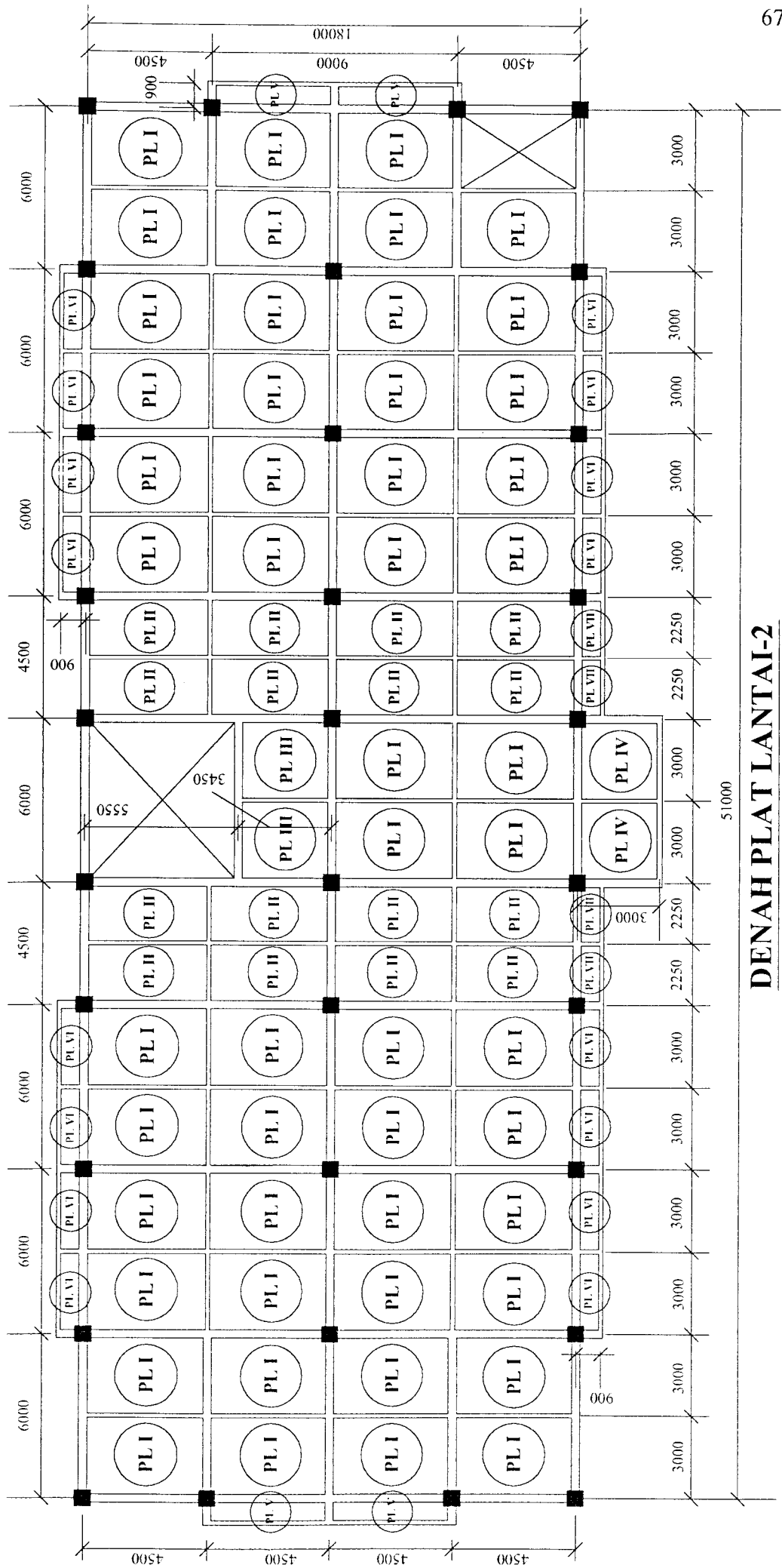
# DENAH PLAT TALANG

Skala 1:200



### DENAH PLAT LANTAI-3

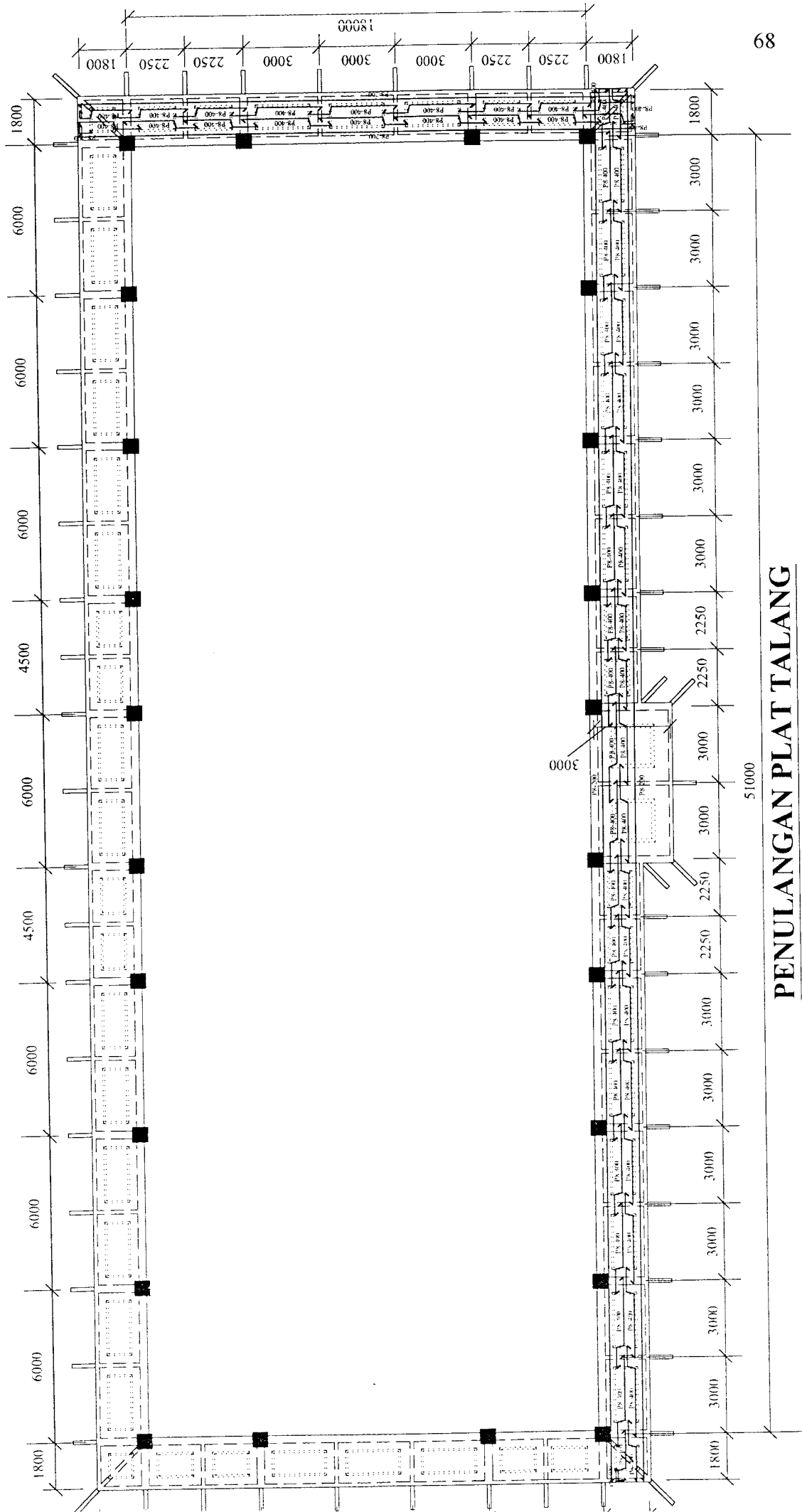
**Skala 1:200**



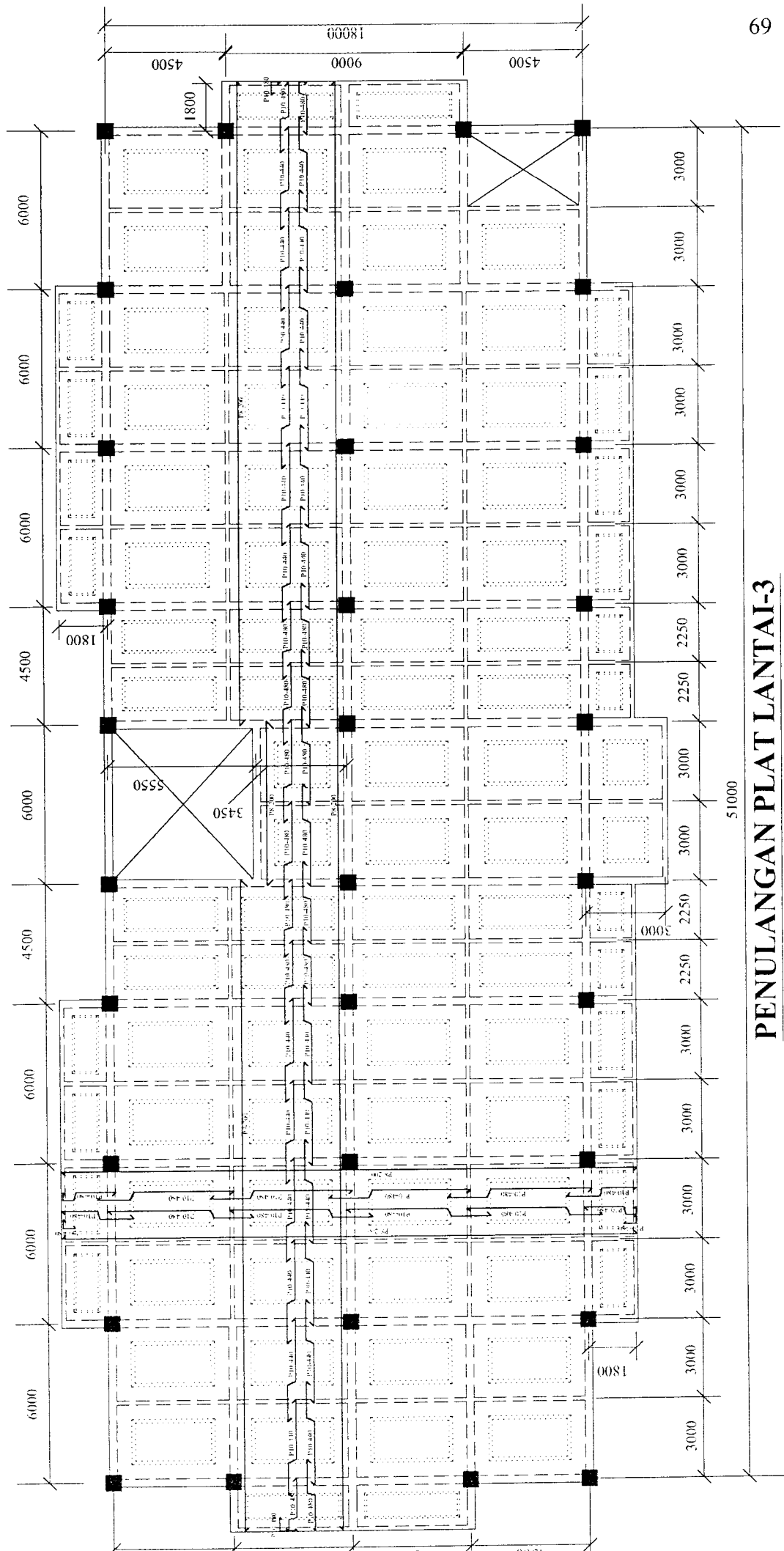
## DENAH PLAT LANTAI-2

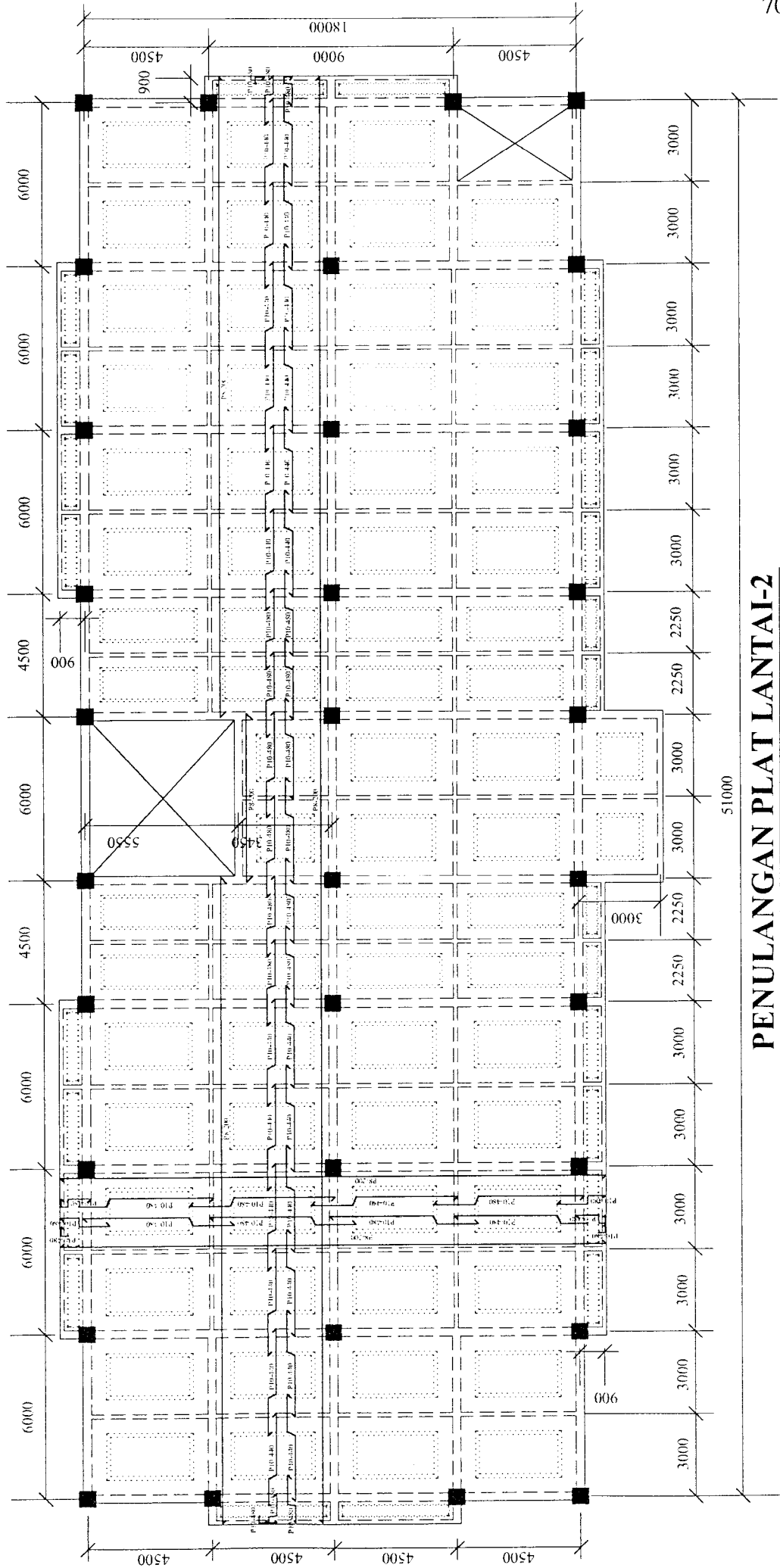
Skala 1:200





**PENULANGAN PLAT TALANG**  
Skala 1:200





## PENULANGAN PLAT LANTAI-2

Skala 1:200

### TIPE I

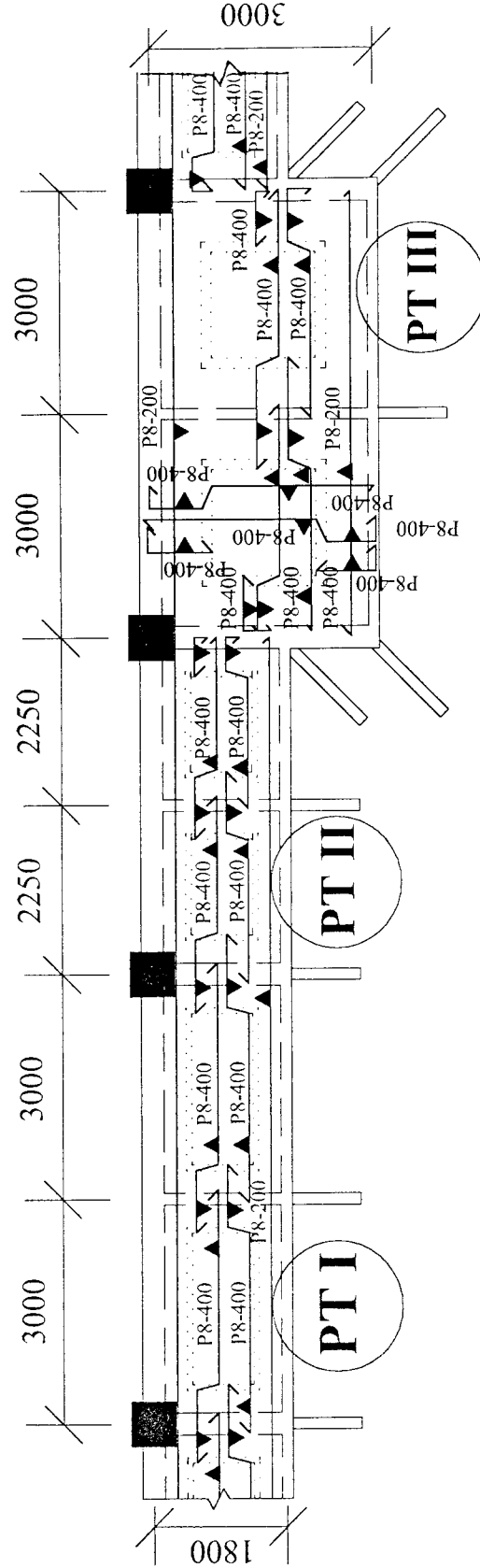
lx = 1800 mm  
 ly = 3000 mm  
 tul. lx = tx = P8-200  
 tul. ly = P8-200  
 tul. ty = P8-200  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

### TIPE II

lx = 1800 mm  
 ly = 2250 mm  
 tul. lx = tx = P8-200  
 tul. ly = P8-200  
 tul. ty = P8-200  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

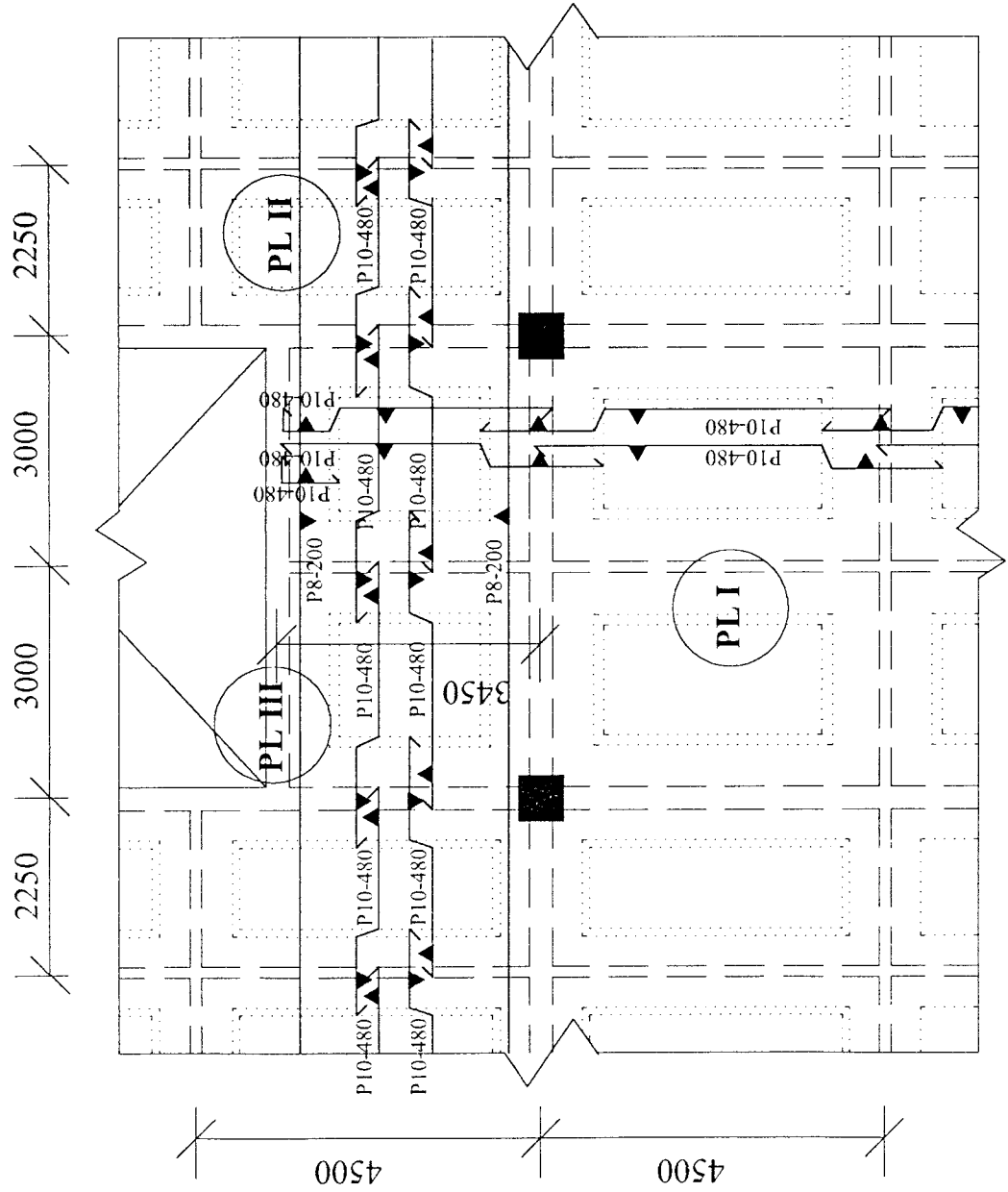
### TIPE III

lx = 3000 mm  
 ly = 3000 mm  
 tul. lx = tx = P8-200  
 tul. ly = P8-200  
 tul. ty = P8-200  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200



**DETAIL PENULANGAN PLAT TALANG TIPE I, II & III**

Skala 1:100



**TIPE I**

lx = 3000 mm  
ly = 4500 mm  
tul. lx = tx = P10-220  
tul. ly = P10-240  
tul. ty = P10-240  
tul. bagi tx = P8-200  
tul. bagi ty = P8-200

**TIPE III**

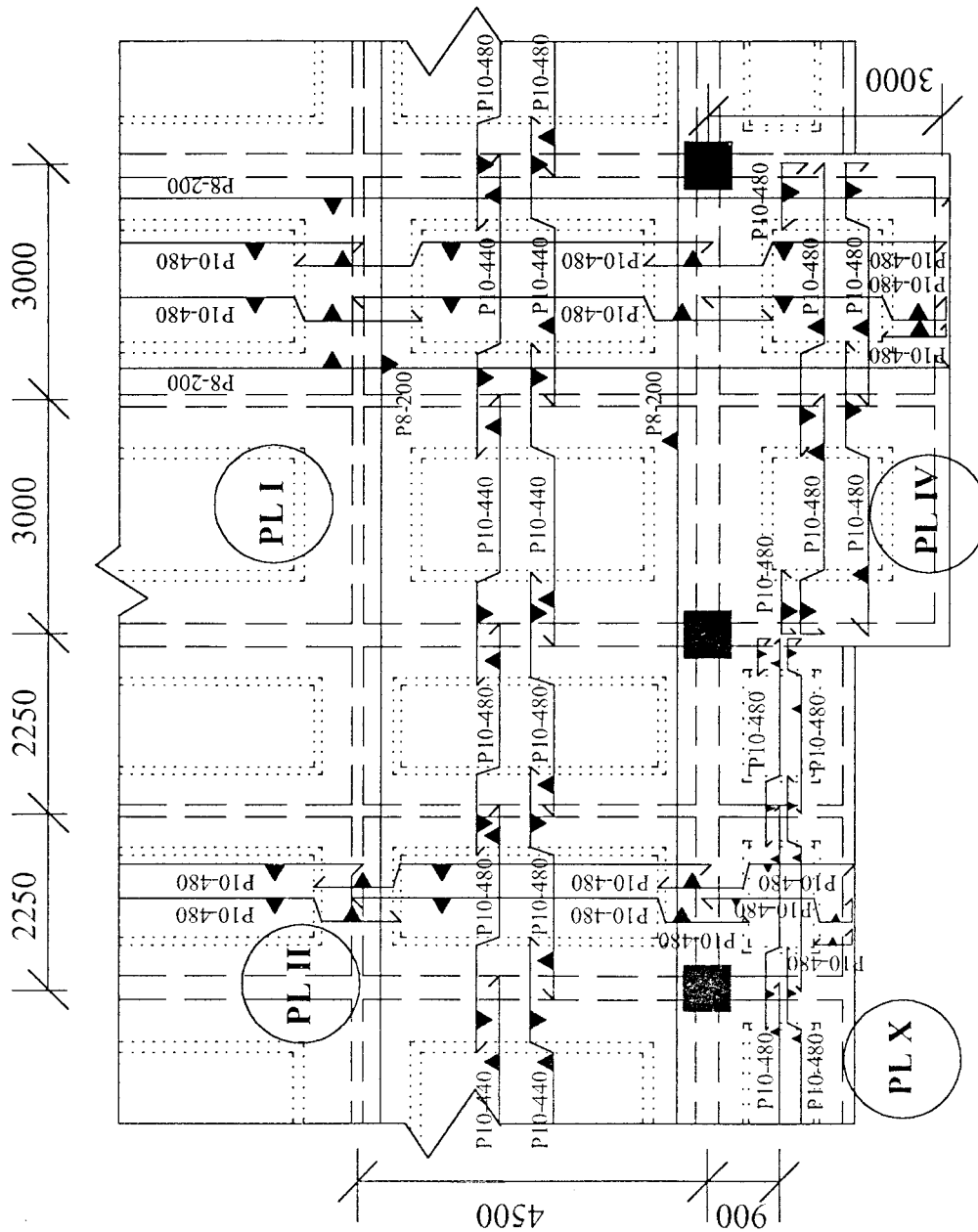
lx = 3000 mm  
ly = 3450 mm  
tul. lx = tx = P10-240  
tul. ly = P10-240  
tul. ty = P10-240  
tul. bagi tx = P8-200  
tul. bagi ty = P8-200

**TIPE II**

lx = 2250 mm  
ly = 4500 mm  
tul. lx = tx = P10-240  
tul. ly = P10-240  
tul. ty = P10-240  
tul. bagi tx = P8-200  
tul. bagi ty = P8-200

**DETAIL PENULANGAN PLAT TIPE I, II & III LANTAI 3**

Skala 1:100

**TIPE I**

lx = 3000 mm  
 ly = 4500 mm  
 tul. lx = tx = P10-220  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

**TIPE IV**

lx = 3000 mm  
 ly = 3000 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

**TIPE II**

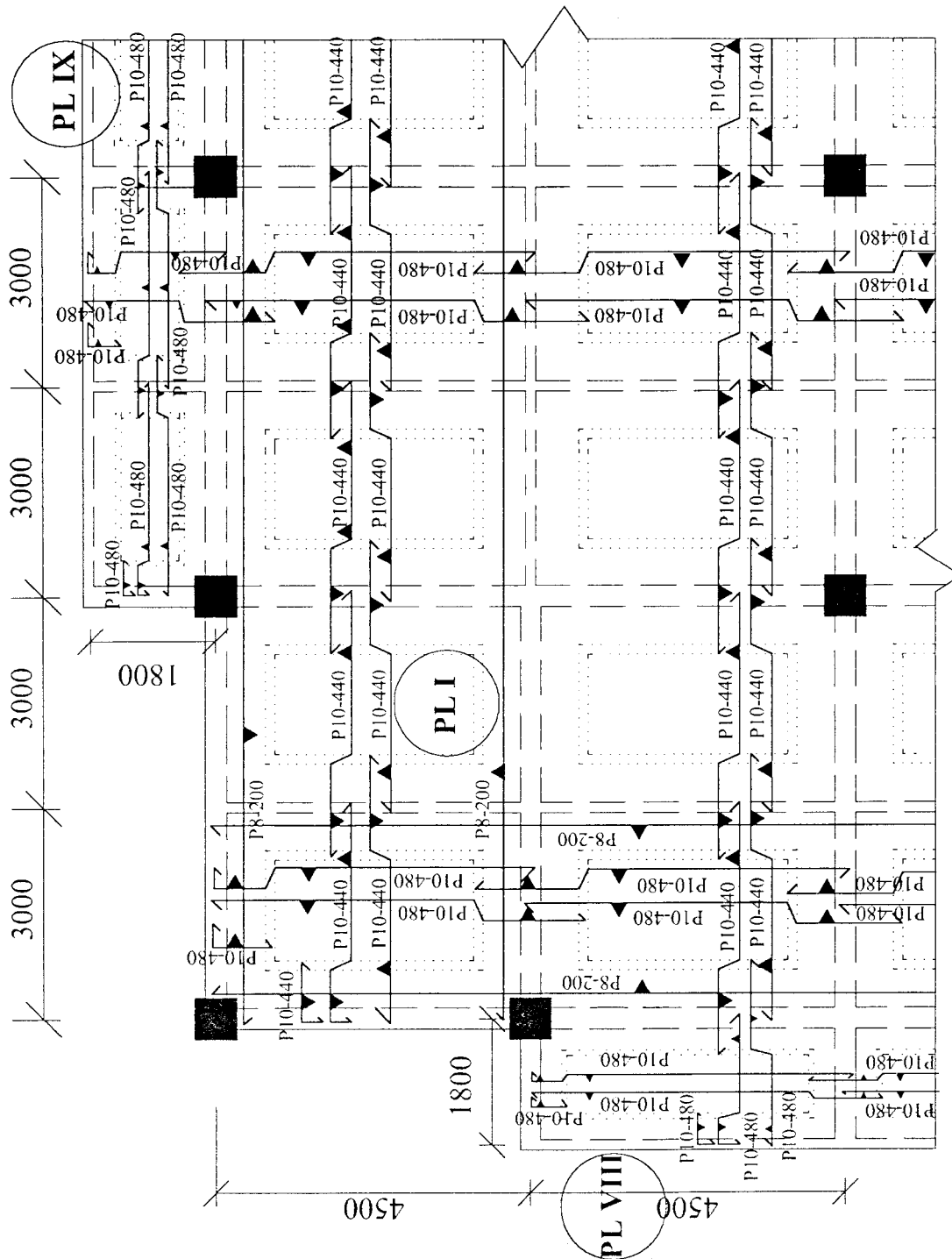
lx = 2250 mm  
 ly = 4500 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

**TIPE X**

lx = 1800 mm  
 lx = 2250 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

**DETAIL PENULANGAN PLAT TIPE I, II, IV & X LANTAI 3**

Skala 1:100



### TIPE I

lx = 3000 mm  
 ly = 4500 mm  
 tul. lx = tx = P10-220  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

### TIPE VIII

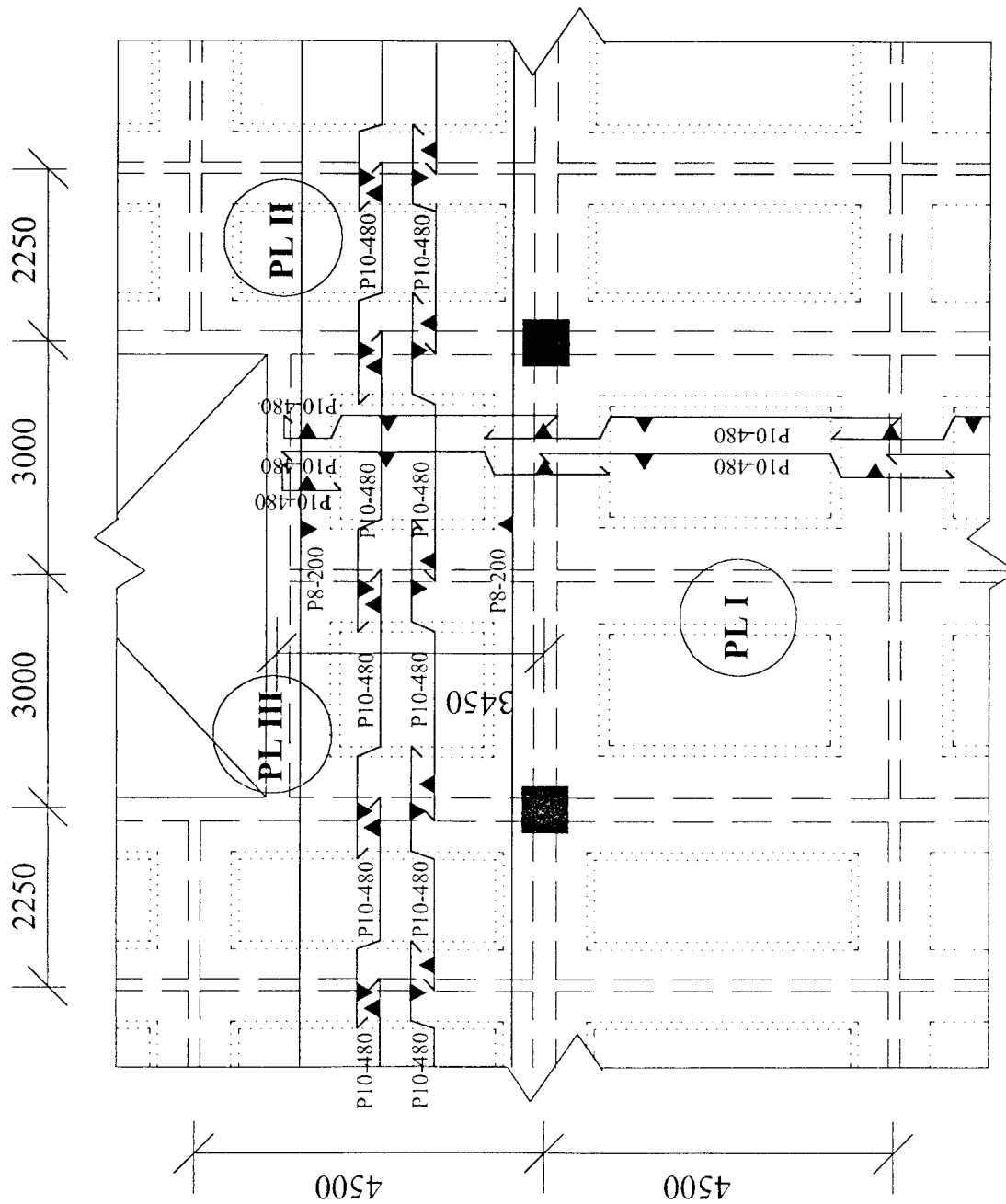
lx = 1800 mm  
 ly = 4500 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

### TIPE IX

lx = 1800 mm  
 ly = 3000 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

DETAIL PENULANGAN PLAT TIPE I, VIII & IX LANTAI 3

Skala 1:100



**DETAIL PENULANGAN PLAT TYPE I, II & III LANTAI 2**

Skala 1:100

### TYPE I

lx = 3000 mm  
 ly = 4500 mm  
 tul. lx = tx = P10-220  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

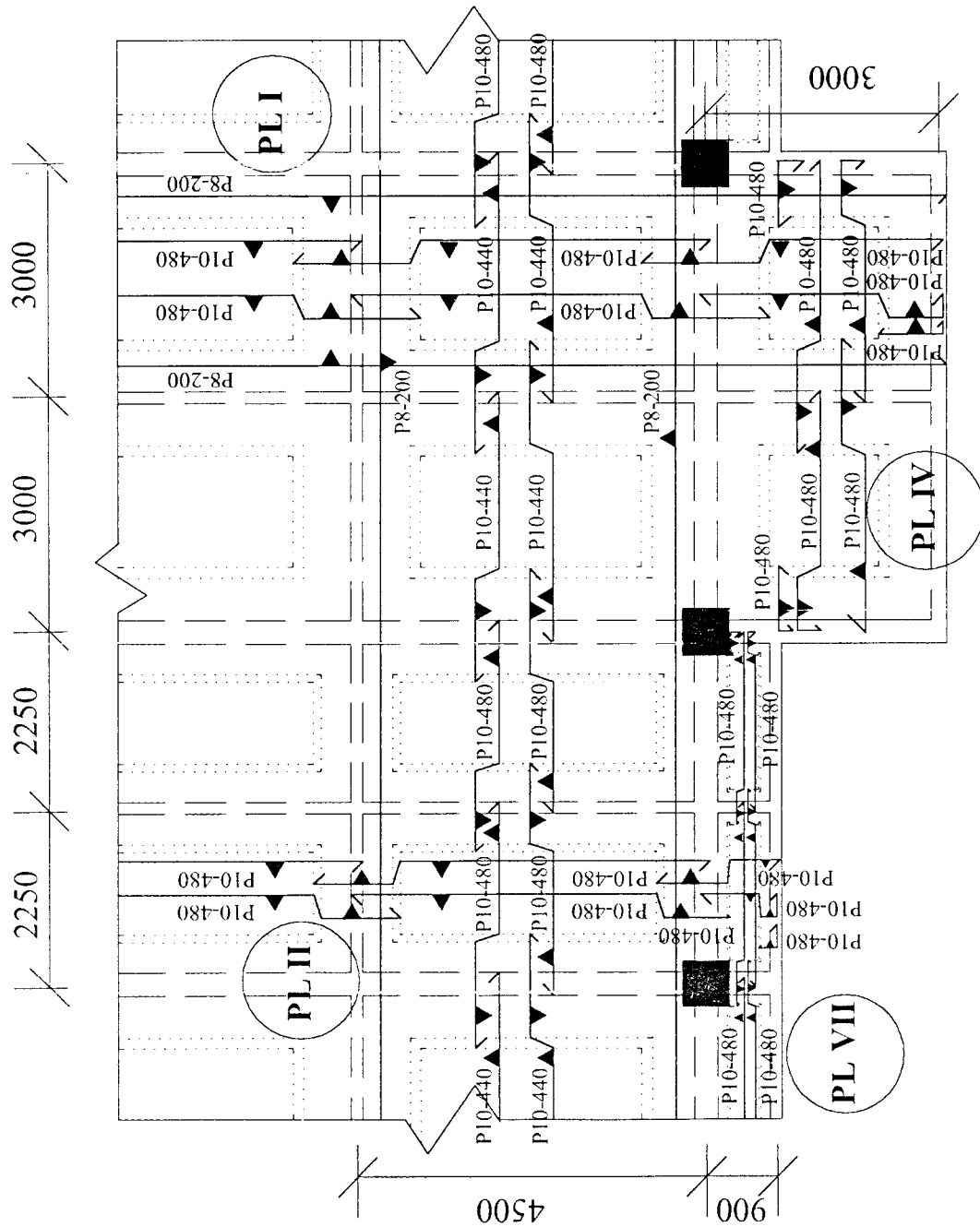
### TYPE III

lx = 3000 mm  
 ly = 3450 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

### TYPE II

lx = 2250 mm  
 ly = 4500 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200





### TIPE I

lx = 3000 mm  
 ly = 4500 mm  
 tul. lx = tx = P10-220  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

### TIPE IV

lx = 3000 mm  
 ly = 3000 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

### TIPE II

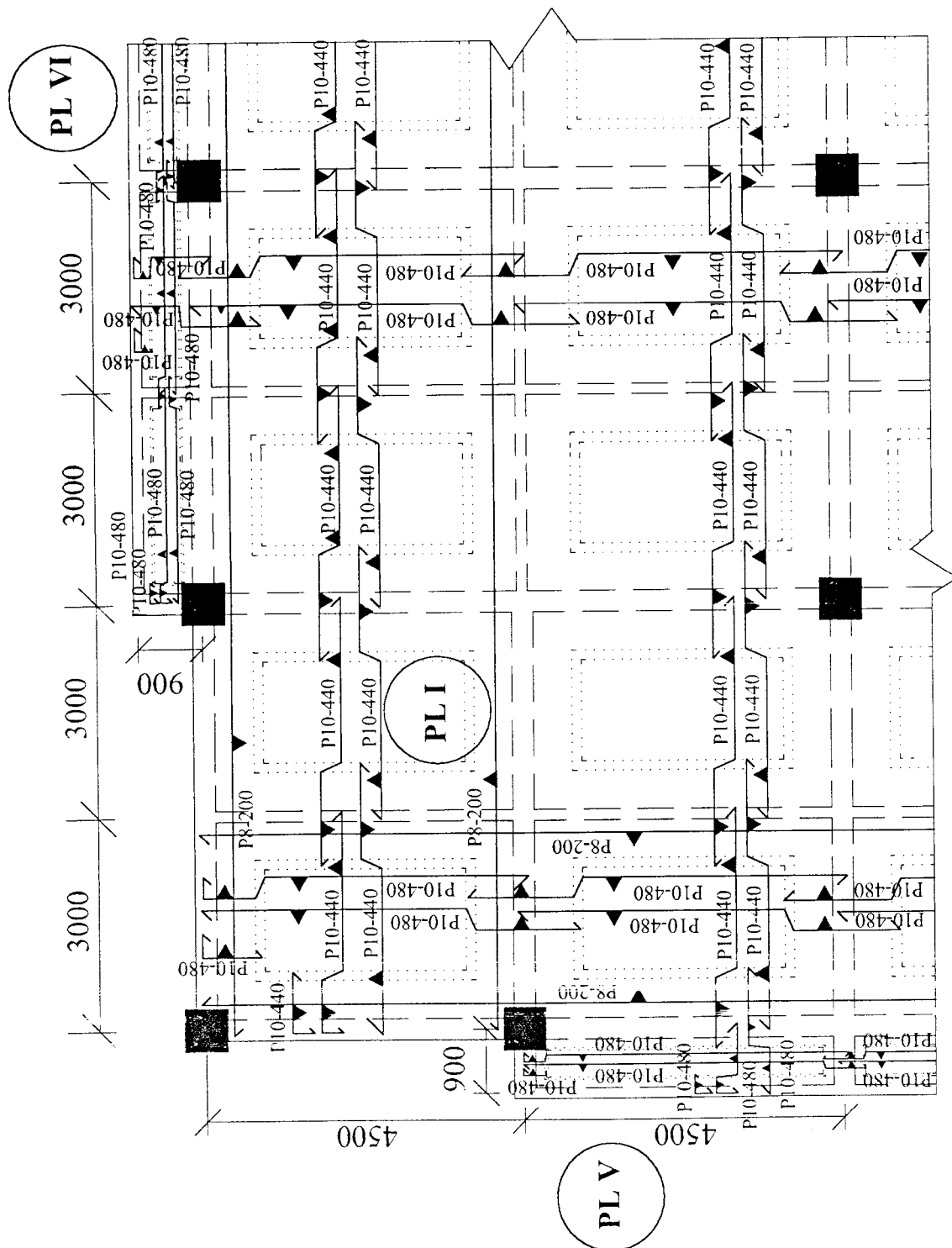
lx = 2250 mm  
 ly = 4500 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

### TIPE VII

lx = 900 mm  
 ly = 2250 mm  
 tul. lx = tx = P10-240  
 tul. ly = P10-240  
 tul. ty = P10-240  
 tul. bagi tx = P8-200  
 tul. bagi ty = P8-200

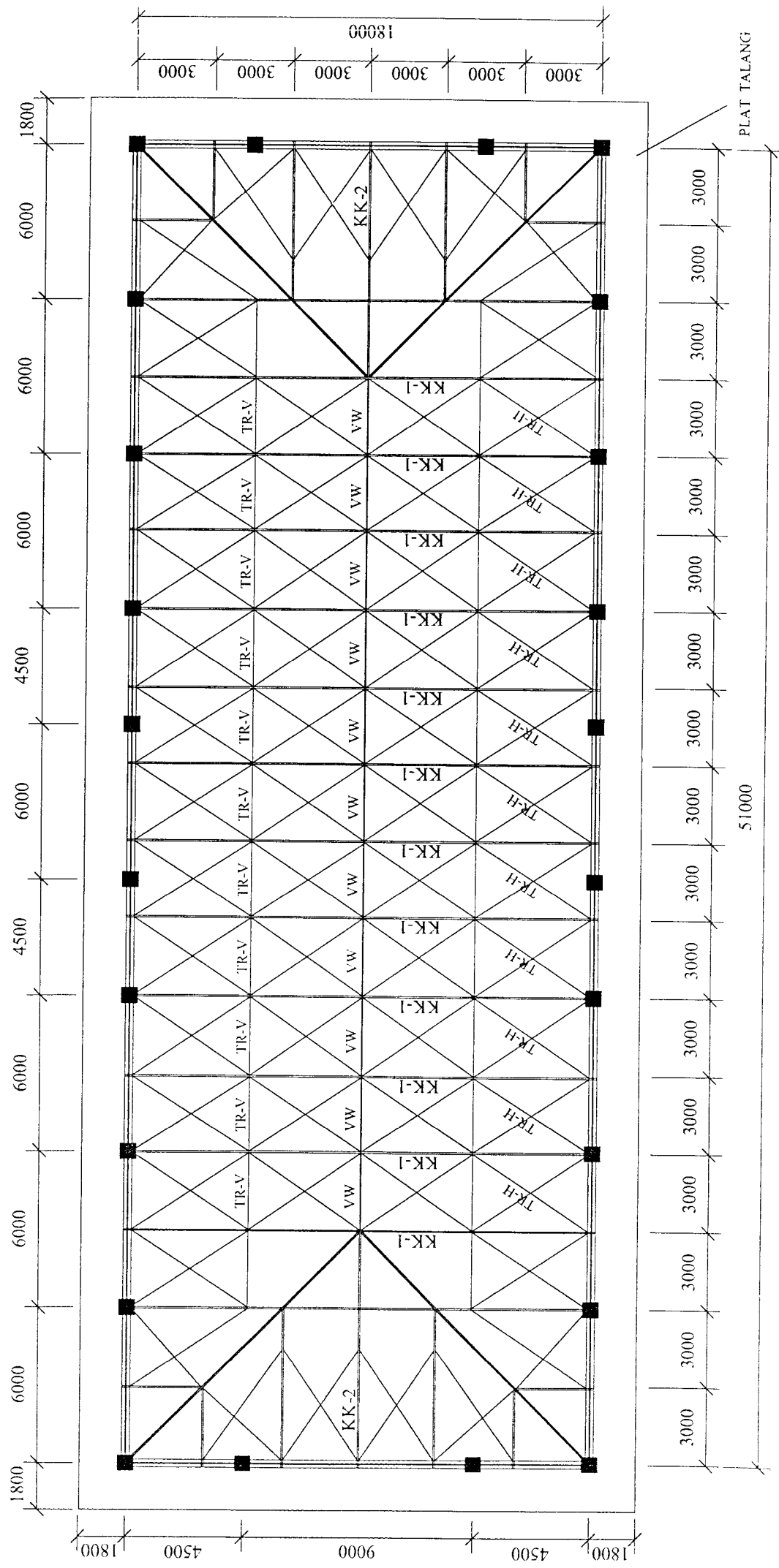
## DETAIL PENULANGAN PLAT TIPE I, II, IV & VII LANTAI 2

Skala 1:100



DETAIL PENULANGAN PLAT TIPE I, V & VI LANTAI 2

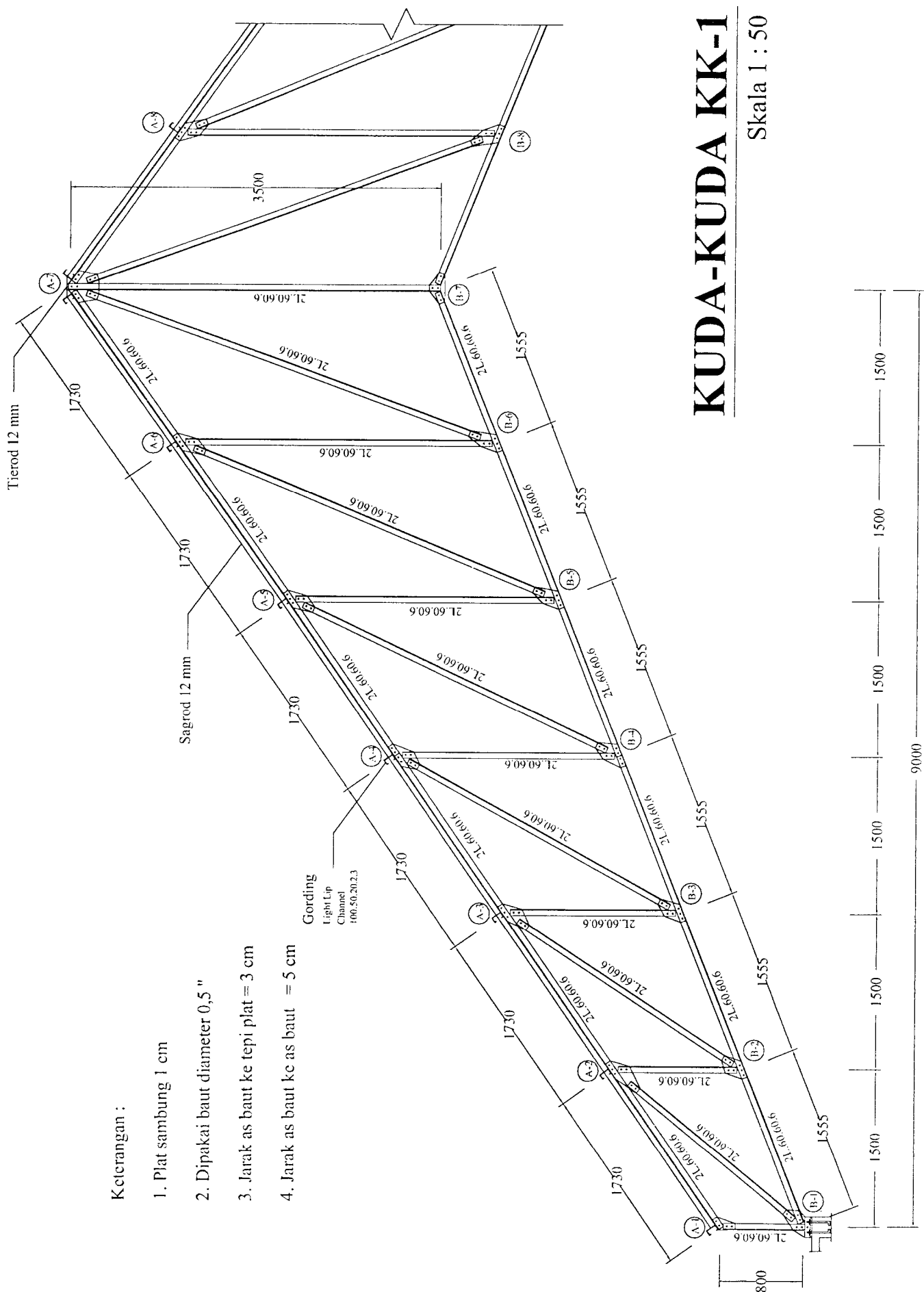
Skala 1:100



Keterangan :  
 KK = Kuda - kuda  
 VW = Vark - werk  
 TR - II = Track stank horizontal  
 TR - V = Track stank vertikal

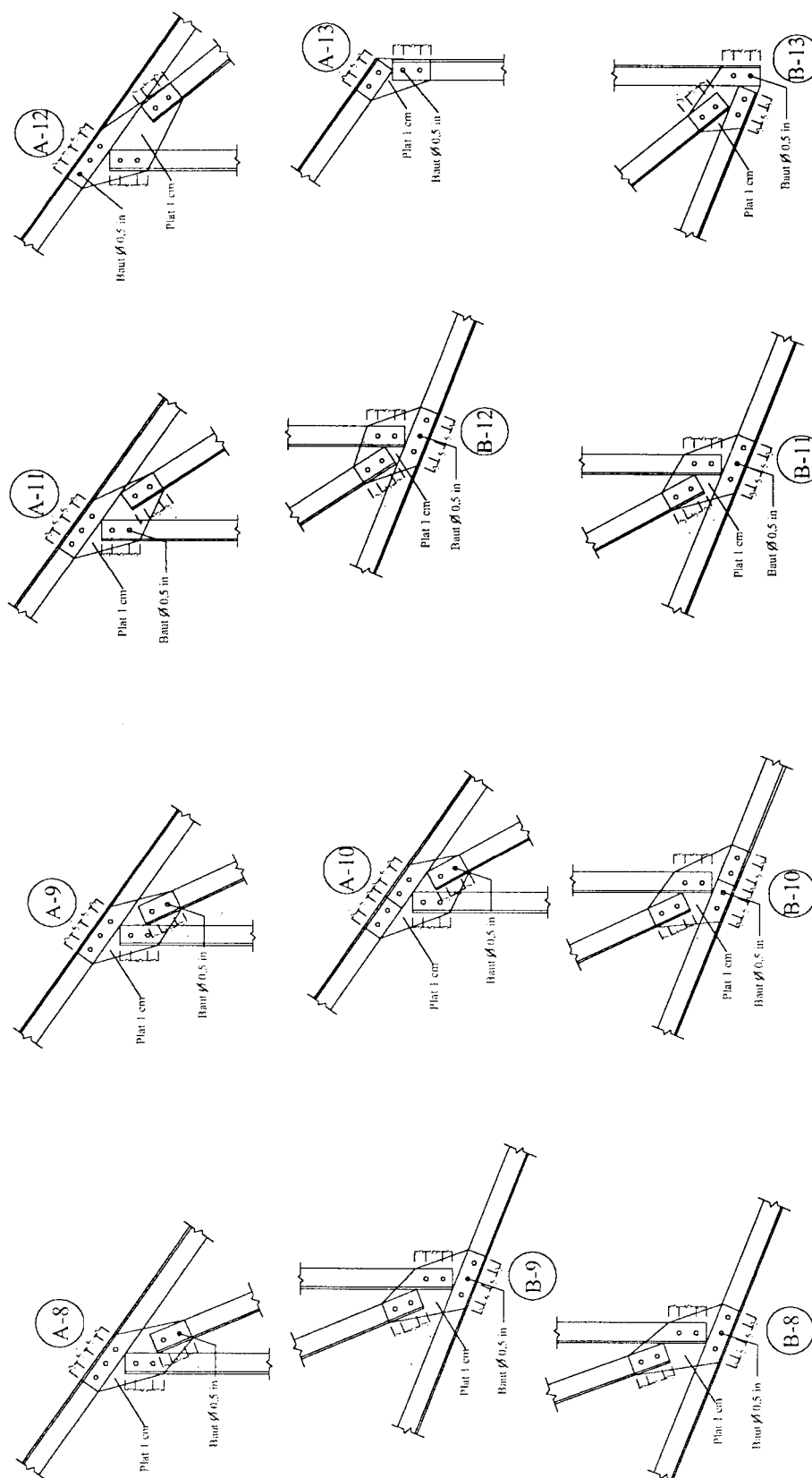
# DENAH KUDA-KUDA

Skala 1:200



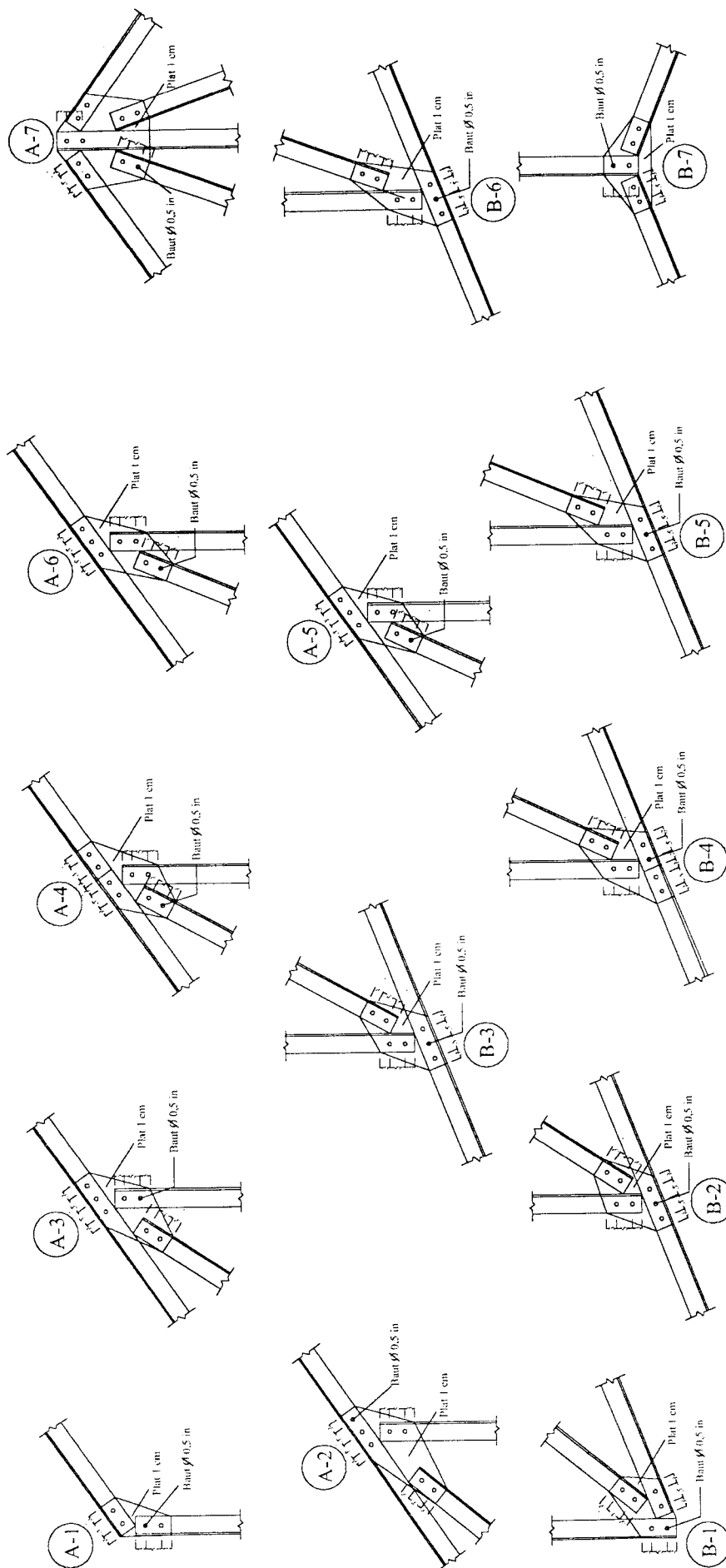
# KUDA-KUDA KK-1

Skala 1 : 50



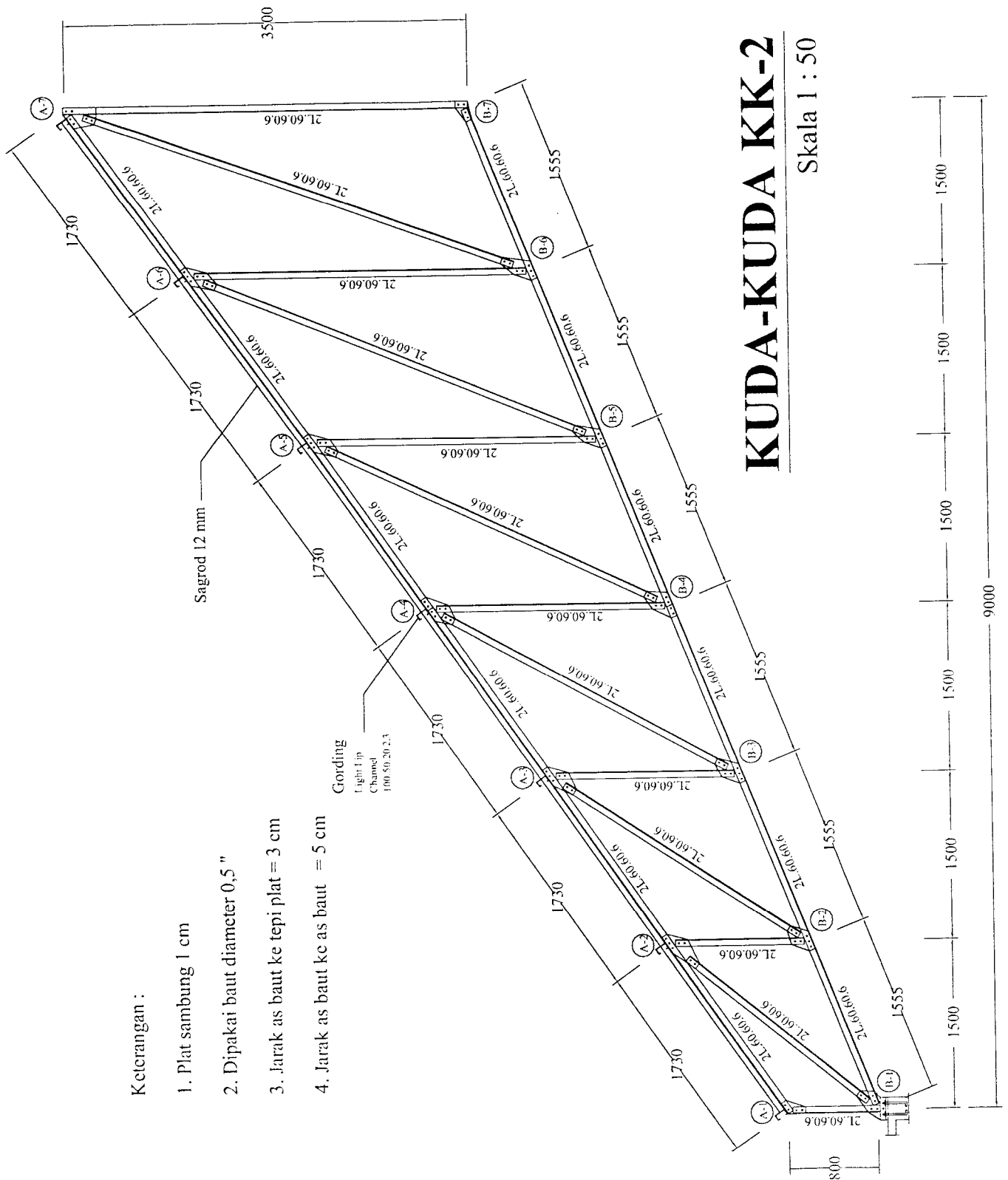
## DETAIL KUDA-KUDA KK-1

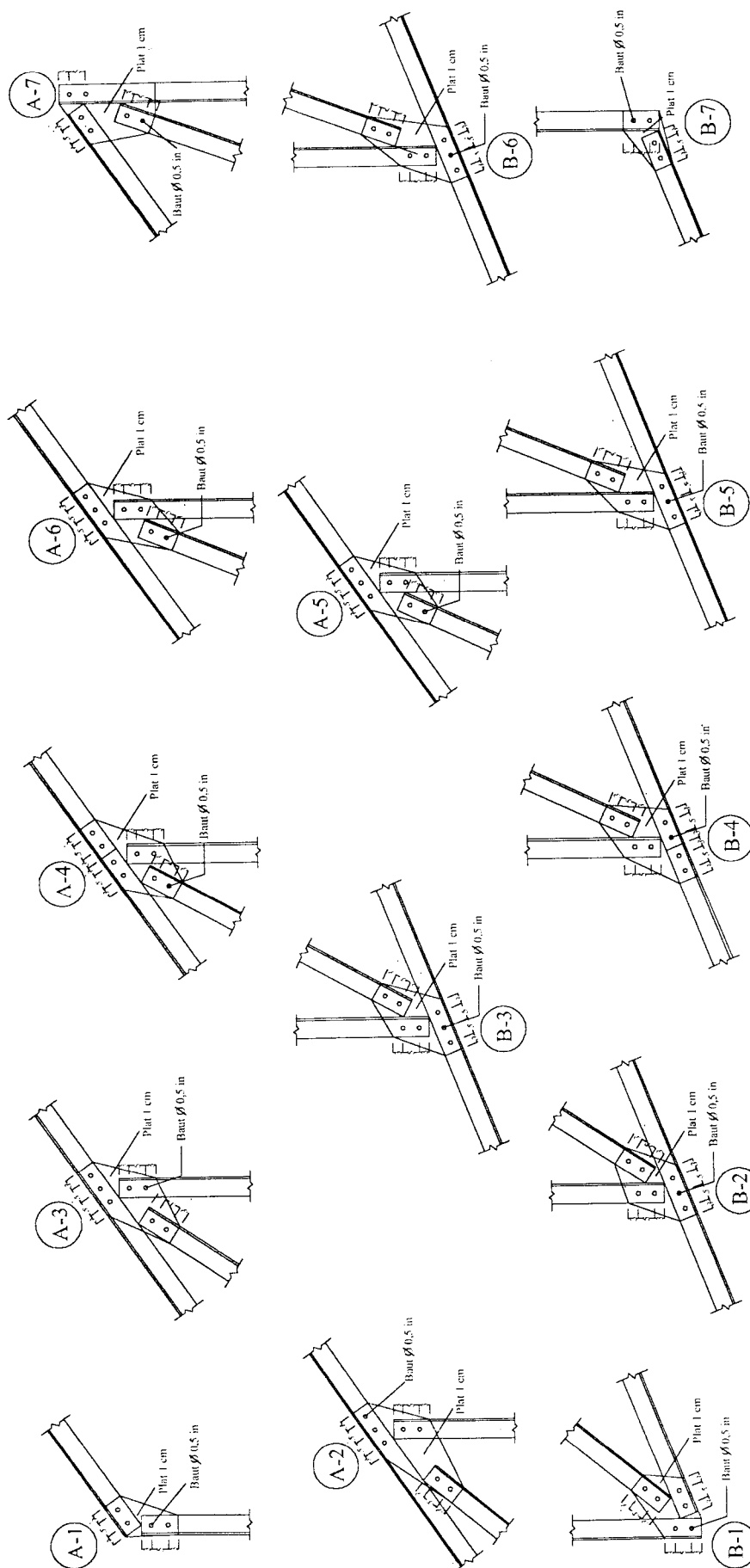
Skala 1 : 20



## DETAIL KUDA-KUDA KK-1

Skala 1 : 20

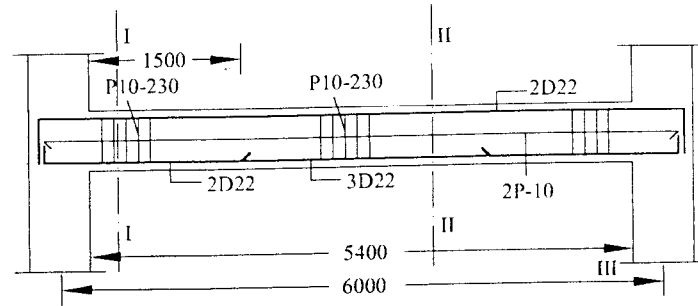




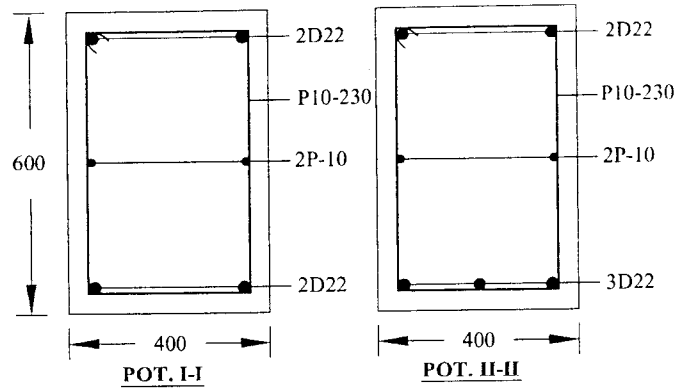
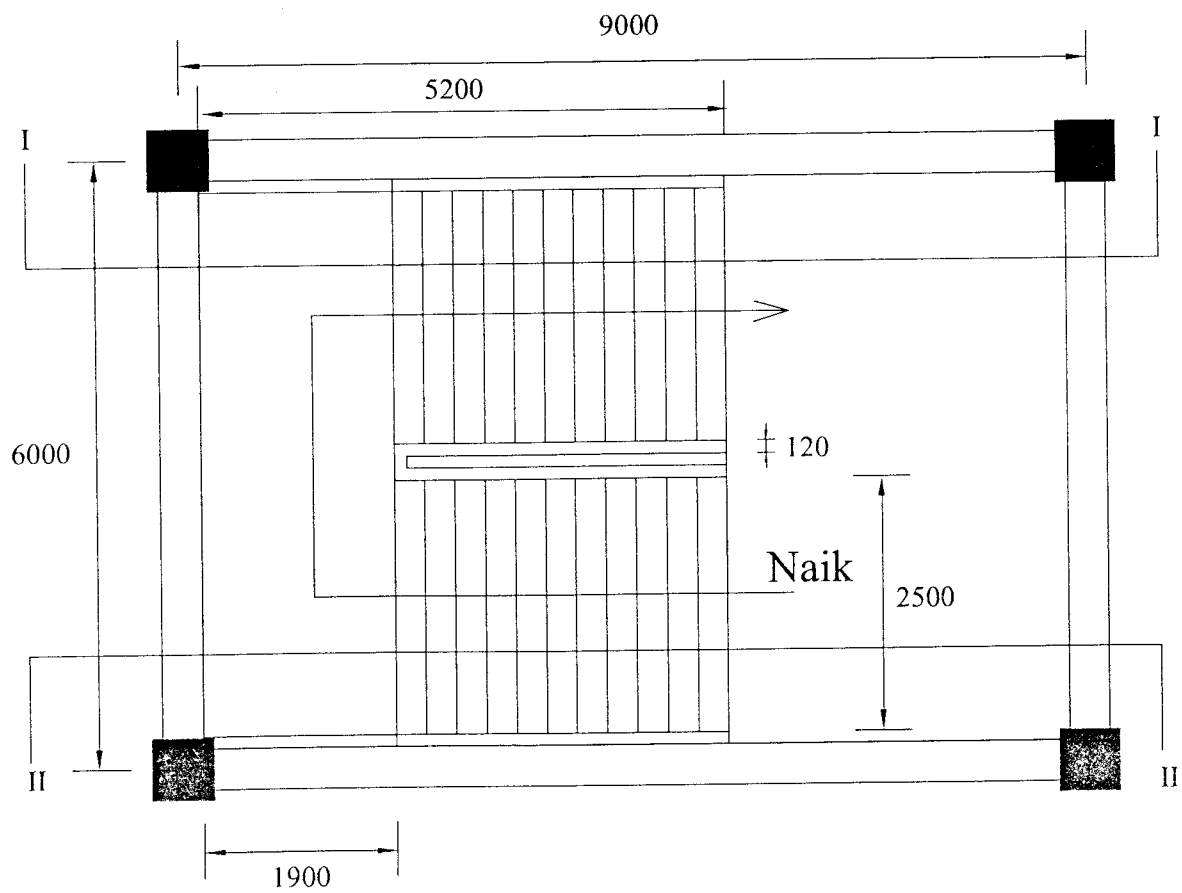
## DETAIL KUDA-KUDA KK-2

Skala 1 : 20



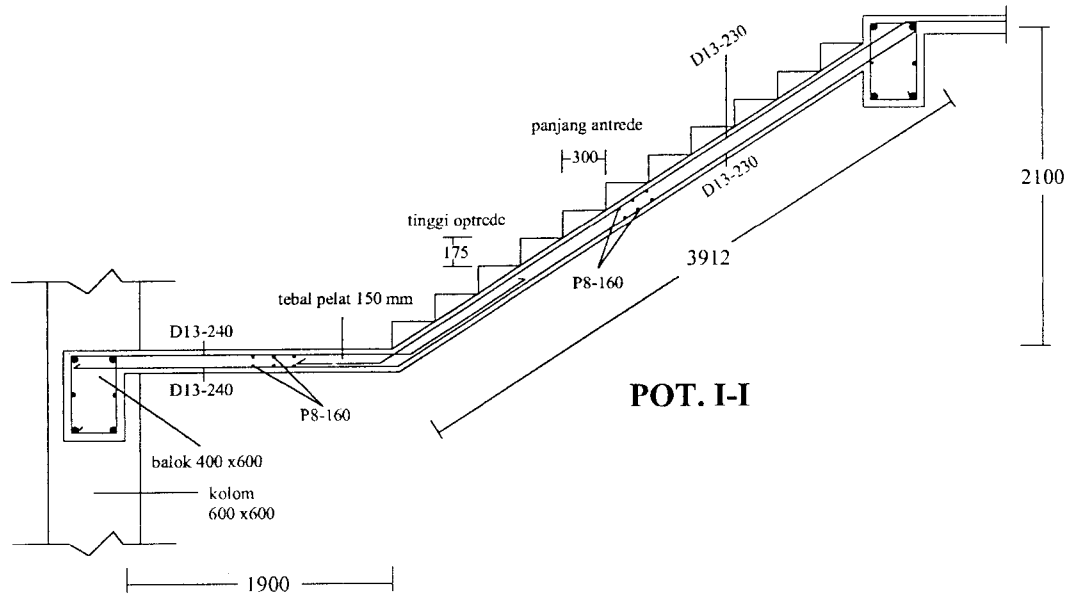


**PENULANGAN BALOK BORDES**



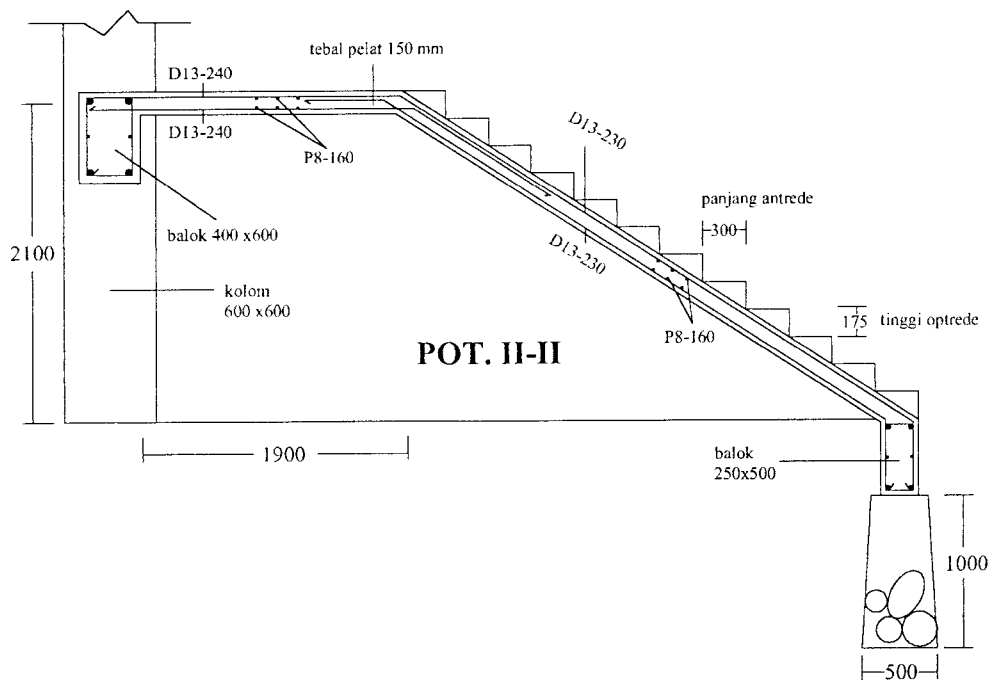
**DENAH TANGGA I**

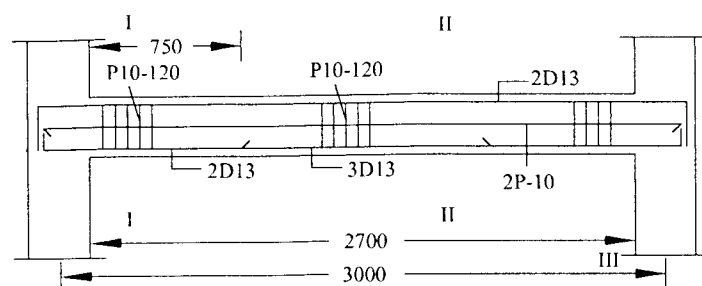
Skala 1:75



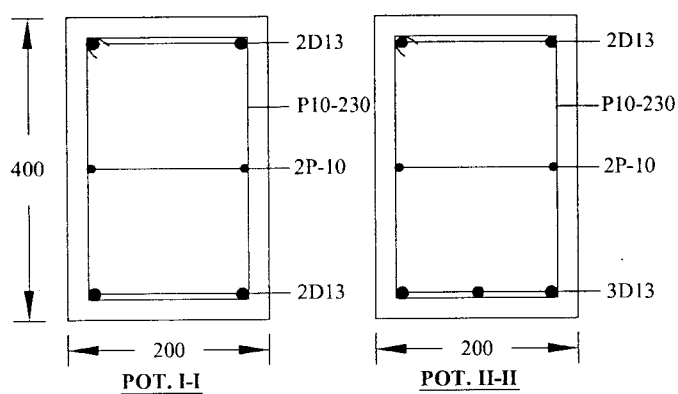
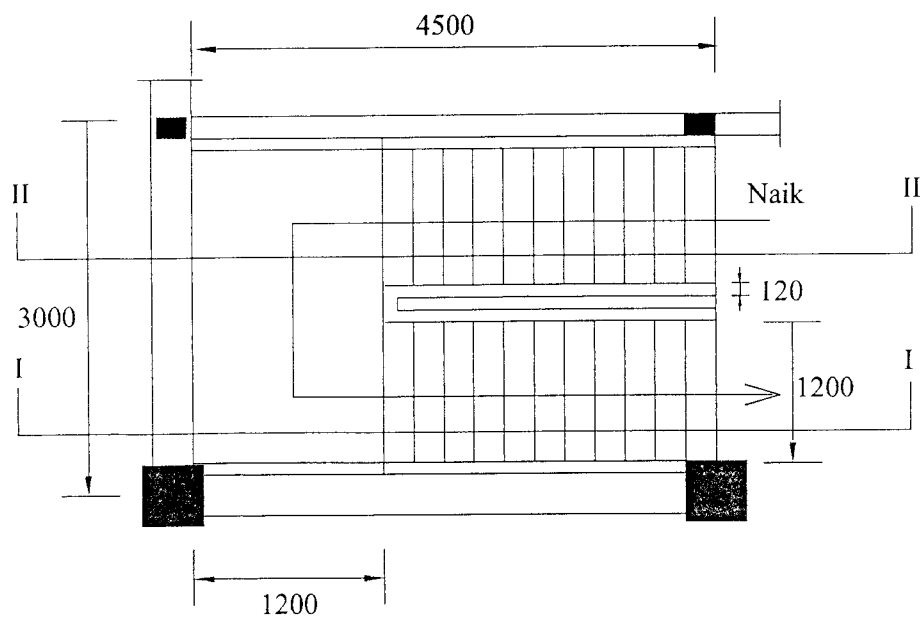
## DETAIL PENULANGAN TANGGA I

Skala 1:50



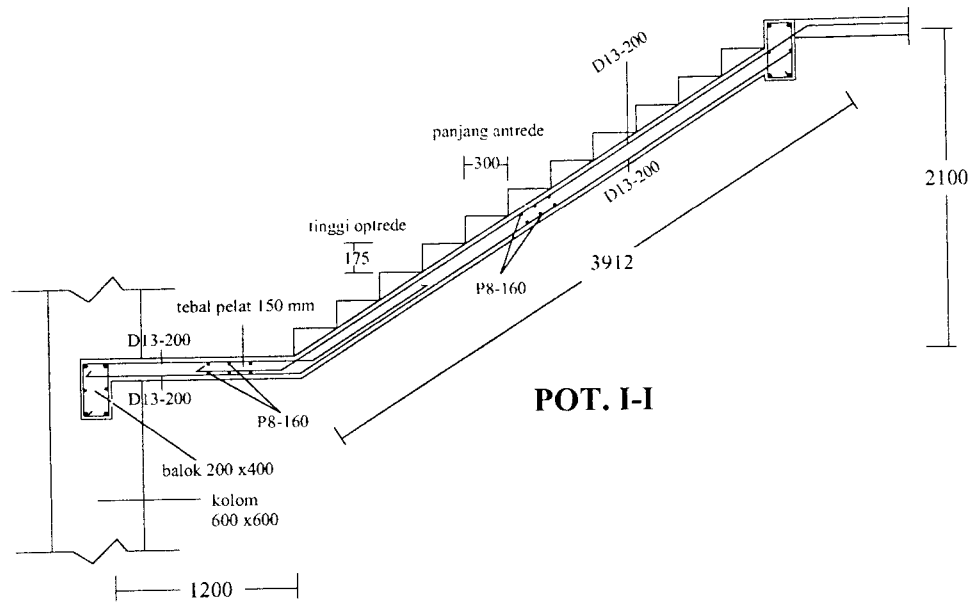


**PENULANGAN BALOK BORDES**



**DENAH TANGGA II**

Skala 1:75



## DETAIL PENULANGAN TANGGA II

Skala 1:50

