TUGAS AKHIR – MO 091336

STUDI RESPON STRUKTUR LAMBUNG MEMANJANG FPSO SEAGOOD 101 AKIBAT BEBAN GELOMBANG DENGAN PENDEKATAN QUASI-STATIC

Alfian Guntoro Putra

NRP. 4310 100 066

DOSEN PEMBIMBING :

Prof. Dr. Ir. Eko Budi Djatmiko, M.Sc

Ir. Mas Murtedjo, M.Eng.

JURUSAN TEKNIK KELAUTAN

Fakultas Teknologi Kelautan

Institut Teknologi Sepuluh Nopember

2014

TUGAS AKHIR – MO 091336

STUDY OF FPSO SEAGOOD 101 LONGITUDINAL HULL STRUCTURAL RESPONSE ASPECTS DUE TO WAVE LOADS WITH QUASI-STATIC APPROACH

Alfian Guntoro Putra

NRP. 4310 100 066

DOSEN PEMBIMBING :

Prof. Dr. Ir. Eko Budi Djatmiko, M.Sc

Ir. Mas Murtedjo, M.Eng.

JURUSAN TEKNIK KELAUTAN

Fakultas Teknologi Kelautan

Institut Teknologi Sepuluh Nopember

2014

STUDI RESPON STRUKTUR LAMBUNG MEMANJANG FPSO SEAGOOD 101 AKIBAT BEBAN GELOMBANG DENGAN PENDEKATAN QUASI-STATIC

Nama : **Alfian Guntoro Putra**
NRP : **4310100066**
Jurusan : **Ocean Engineering –FTK ITS**
Dosen Pembimbing : **Prof. Dr. Ir. Eko Budi Djatmiko, M.Sc**
Ir. Mas Murtedjo, M.Eng

ABSTRACT

Laporan ini membahas tentang seberapa besar respon struktur yang terjadi pada lambung memanjang *FPSO seagood 101* akibat beban gelombang dengan pendekatan *Quasi Static*. Didalam kasus ini, *FPSO seagood 101* dimodelkan memiliki efek gerak, selanjutnya pergerakan FPSO juga dipengaruhi oleh gerakan gelombang. Dalam pemodelan FPSO berat lambung pada kapal dianggap merata serta distribusi beban diatas kapal diperhitungkan. Dari analisa akan diketahui pada kondisi *sheer force* serta *bending moment* terbesar yang dihasilkan dari beban gelombang hasil analisis menggunakan pendekatan *Quasi Static*. Komputasi dilanjutkan dengan analisis spektra dilakukan dalam rangka untuk memperoleh data yang akan digunakan untuk mengidentifikasikan respon struktur dilingkungan laut riil yang bergelombang acak pada distribusi gelombang kurun waktu pendek dan kurun waktu panjang. Distribusi gelombang kurun waktu pendek terdapat enam variasi Hs dengan masing-masing Tp 3,5s; 4,5s; 5,5s; 7,5s; 8,5s; 9,5s. Sedangkan untuk distribusi gelombang kurun waktu panjang terdapat tiga variasi Hs dengan Tp= 11.5s. Dari analisis tersebut didapatkan nilai maksimum respon struktur ekstrem untuk distribusi gelombang kurun waktu pendek pada tinggi gelombang 3.0 m sedangkan untuk distribusi gelombang kurun waktu panjang pada tinggi gelombang 5,1083 m dimana *shear force* maksimum berada pada midship dan *bending moment* maksimum berada pada ¼ AP. Hasil ini menunjukkan bahwa struktur *FPSO seagood 101* harus diberi penguatan yang seksama pada bagian kapal yang dikenai *shear force* dan *bending moment* maksimum.

Kata Kunci : *FPSO, Quasistatic, Shear force, Bending Moment,* Respon Struktur

STUDY OF FPSO SEAGOOD 101 LONGITUDINAL HULL STRUCTURAL RESPONSE ASPECTS DUE TO WAVE LOADS WITH QUASI-STATIC APPROACH

Name : **Alfian Guntoro Putra**
Reg. Number : **4310100066**
Department : **Ocean Engineering –FTK ITS**
Supervisors : **Prof. Dr. Ir. Eko Budi Djatmiko, M.Sc**
Ir. Mas Murtedjo, M.Eng

ABSTRACT

This report discuss on how big the response structure that occurs in FPSO seagood 101 longitudinal hull due to wave loads with a Quasi Static approach. In this case FPSO seagood modeled have effect motion, next movement FPSO also affected by wave motion. In modeling, the FPSO hull weight on the ship is considered distribution weight as well as top side load distribution counts. From the analysis will be resulting the largest sheer force and bending moment from wave load analysis results using Quasi Static approach. Computing continued with an analysis of spectra to obtain data will be used for identify the response structure of real sea surroundings are iregular wave in the distribution of short and long period waves. The distribution of short period waves there are six variations of Hs with each Tp 3s, 5s; 4, 5s; 5, 5s; 7, 5s; 8, 5s; 9,5s. As for the distribution of long-period waves there are three variations of Hs with Tp = 11,5s. From the analysis, obtained the maximum value response structure extremes of the distribution of short period waves on wave height 3.0 m the maximum shear force is at midship and the maximum bending moment is at ¼ AP. As the distribution of short period waves on wave height 5,1083 m the maximum shear force is at midship and the maximum bending moment is at ¼ AP. This results require the FPSO seagood 101 structure to be thoroughly strengthen should in ship section that maximum shear force and bending moment against

Key words : FPSO, Quasistatic, Shear force, Bending Moment, structural response

STUDI RESPON STRUKTUR LAMBUNG MEMANJANG FPSO SEAGOOD 101 AKIBAT BEBAN GELOMBANG DENGAN PENDEKATAN QUASI-STATIC

TUGAS AKHIR

Diajukan Untuk Memenuhi Salah Satu Syarat

Memperoleh Gelar Sarjana Teknik

pada

Program Studi S-1 Jurusan Teknik Kelautan

Fakultas Teknologi Kelautan

Institut Teknologi Sepuluh Nopember

Oleh:

ALFIAN GUNTORO PUTRA
NRP. 4310 100 066

Disetujui oleh Pembimbing Tugas Akhir :

1. Prof. Ir. Eko Budi Djatmiko, M.Sc. Ph.D. ..... (Pembimbing 1)
2. Ir. Mas Murtedjo, M.Eng. ..... (Pembimbing 2)

SURABAYA, AGUSTUS 2014

KATA PENGANTAR

Assalamu'alaikum Wr. Wb.

Puji syukur penulis panjatkan kepada Allah SWT atas segala limpahan rahmat, karunia dan hidayah-Nya, sehingga penulis dapat menyelesaikan Tugas Akhir ini dengan baik dan lancar. Tugas Akhir ini berjudul "**Studi Respon Struktur Lambung Memanjang FPSO Seagood 101 Akibat Beban Gelombang Dengan Pendekatan Quasi-Static"**

Tugas Akhir ini disusun guna memenuhi persyaratan dalam menyelesaikan Studi Kesarjanaan (S-1) di Jurusan Teknik Kelautan, Fakultas Teknologi Kelautan (FTK), Institut Teknologi Sepuluh Nopember (ITS) Surabaya. Tugas Akhir ini menitikberatkan pada respon struktur akibat beban gelombang yang terjadi pada struktur FPSO dengan pendekatan Quasi-Static.

Penulis menyadari dalam penulisan laporan ini mungkin masih terdapat kekurangan, Oleh karena itu saran dan kritik sangat penulis harapkan sebagai bahan penyempurnaan laporan selanjutnya. Penulis berharap semoga laporan ini dapat bermanfaat bagi perkembangan teknologi di bidang rekayasa kelautan bagi pembaca pada umumnya dan penulis pada khususnya.

Wassalamu'alaikum Wr. Wb.

Surabaya, Agustus 2014

Alfian Guntoro Putra

DAFTAR ISI

DAFTAR TABEL

DAFTAR GAMBAR

BAB I
PENDAHULUAN

1.1 Latar Belakang Masalah

Dikarenakan semakin meningkatnya permintaan dunia akan minyak dalam beberapa dekade terakhir, membuat suatu anjungan lepas pantai yang terpancang (*fixed platform*) menjadi tidak ekonomis jika dibandingkan dengan anjungan terapung (*floating platform*) yang dapat berpindah dari satu lokasi ke lokasi yang lain. Seiring perkembangan teknologi yang bertambah maju dalam satu dekade terakhir, para engineer mulai meninggalkan struktur terpancang dan mulai mengembangkan anjungan terapung untuk mengeksplorasi dan mengeksploitasi minyak dan gas bumi.

FPSO merupakan anjungan terapung yang beroperasi di lepas pantai. Anjungan terapung ini jenis ini digunakan untuk memroses, menyimpan, menerima dan digunakan untuk menyalurkan hasil eksplorasi berupa minyak dan gas bumi ke kapal pengangkut melalui proses yang dinamankan *offloading.* Struktur FPSO terdiri dari sebuah struktur apung berbentuk sebuah kapal (dapat berupa bangunan baru atau modifikasi dari kapal tanker) berukuran besar yang ditambatkan secara permanen di tempat operasinya. Sesuai fungsinya, maka FPSO dilengkapi dengan fasilitas produksi, *riser*, serta sistem tambat. (Sabana, 2012). Contoh salah satu FPSO dapat dilihat pada Gambar 1.1.

(sumber: http://www.sweetcrudereports.com)

Gambar 1.1. FPSO (*Floating Production Storage and Offloading*)

FPSO juga tidak lepas dari pengaruh beban gelombang yang merupakan sumber beban eksternal utama yang bekerja. Sehingga beban utama ini dipertimbangkan dalam perancangan untuk memberikan beban maksimum pada sistem struktur FPSO. Beban gelombang yang bersifat siklis, meskipun intensitasnya tidak dapat dikatakan ekstrim, akumulasinya jelas akan menyebabkan kerusakan dalam bentuk kelelahan struktur (Djatmiko, 1995).

Dengan adanya faktor tersebut maka studi pada interaksi pengaruh gelombang terhadap gerakan struktur FPSO sangatlah perlu. Hal ini penting, sebab respon gerakan terhadap gelombang mempengaruhi umur kerja FPSO. Evaluasi terhadap kinerja FPSO tergantung pada ketepatan dalam perhitungan respon gerakan yang bertujuan untuk dapat mengetahui apakah kekuatan dan desain FPSO dapat menahan beban dari gelombang pada saat beroperasi. Beban gelombang dipilih pada kondisi paling ekstrim. Analisis meliputi perhitungan pergerakan FPSO untuk mendapatkan kekuatan memanjang struktur dengan mencari gaya geser dan momen lengkung. Kemudian juga untuk mendapatkan respon struktur ekstrim yang terjadi pada FPSO akibat beban gelombang acak.

1.2 Perumusan Masalah

Permasalahan yang akan dibahas dalam tugas akhir ini adalah :

1. Bagaimana karakteristik gerakan kopel vertikal heave dan pitch FPSO *Seagood 101* pada gelombang regiler?
2 Bagaimana karakteristik RAO respon struktur memanjang (gaya gesek dan momen lengkung) pada FPSO *seagood* 101 akibat gerakan kopel *heave* dan *pitch* pada gelombang reguler?
3 Bagaimana karakteristik respon struktur ekstrim FPSO *seagood* 101 di gelombang acak?

1.3 Tujuan

Tujuan dari tugas akhir ini adalah :

1. Untuk mengetahui karakteristik gerakan kopel vertikal heave dan pitch FPSO *Seagood 101* pada gelombang reguler.
2. Untuk mengetahui karakteristik RAO respon struktur memanjang (gaya gesek dan momen lengkung) pada FPSO *seagood* 101 akibat gerakan kopel *heave* dan *pitch* pada gelombang reguler.
3. Untuk mengetahui karakteristik respon struktur ekstrim FPSO *seagood* 101 di gelombang acak.

1.4 Manfaat

Manfaat yang dapat diambil dari tugas akhir ini yaitu dapat mengetahui seberapa besar respons struktur FPSO akibat beban gelombang. Dari penelitian ini juga dapat diketahui *Response Amplitude Operators* (RAO) dari FPSO *seagood 101* serta *sheer force* dan *bending moment*, kemudian distribusi memanjang FPSO dapat diketahui.

1.5 Batasan Masalah

Batasan masalah dalam pengerjaan tugas akhir ini yaitu:

1. Penelitian ini menggunakan FPSO *Seagood 101*.
2. Arah datang gelombang yang ditinjau 180˚ atau *headseas*.
3. Berat lambung pada FPSO *Seagood 101* dianggap merata.
4. Distribusi berat top side berdasarkan desain yang ada.
5. Kapal diasumsikan tidak memiliki kecepatan atau diam.
6. Gerak FPSO *Seagood 101* yang ditinjau adalah *heave* dan *pitch.*
7. FPSO *Seagood 101* diasumsikan memiliki efek gerak.
8. Bentuk gerak gelombang ialah sepuluh posisi.
9. Pemodelan potongan pada FPSO diasumsikan sebanyak 40 potongan.
10. Prediksi gerakan di gelombang reguler dilakukan dengan menerapkan Teori Difraksi 3D.

11. Prediksi gerakan di gelombang acak akan dilakukan dengan menerapkan analisis spektra, dengan menggunakan formulasi spektra yang sesuai.
12. Perhitungan RAO serta pemodelan struktur menggunakan software Moses 7.0.
13. Keberadaan mooring diabaikan.
14. Beban angin dan arus diabaikan.
15. Kapal yang ditinjau tidak memiliki kecepatan atau pada kondisi diam.

BAB II
TINJAUAN PUSTAKA DAN DASAR TEORI

2.1 Tinjauan Pustaka

Operasi serta teknologi laut dalam membuat operabilitas suatu struktur terpancang (*fixed*) menjadi tidak efektif jika dibandingkan dengan struktur terapung (*floating*) yang dapat dipindahkan dari satu lokasi ke lokasi yang lain. (Sabana, 2012).

Soedjono (1998) menyebutkan bahwa konstruksi anjungan lepas pantai dapat dibedakan menjadi 3 golongan utama, yaitu :

1. Struktur terapung (*Mobile Offshore Drilling Unit* (MODU) atau *Floating Production Platform*), seperti: *semi-submersible*, *drilling ship*, *tension leg platform* (TLP), *jack-up*, dll.
2. Struktur terpancang (*Fixed Offshore Platform*), seperti: *jacket platform*, *concrete gravity*, *tripod*, dll.
3. Struktur lentur (*Compliant Platform*), seperti: *articulated tower*, *guyed tower*, dll.

Pada penelitian ini, struktur yang digunakan adalah struktur terapung FPSO *Seagood 101* yang dipengaruhi oleh sumber beban eksternal utama yaitu beban gelombang sehingga memberikan beban maksimum pada struktur. Lebih dari itu beban gelombang yang bersifat siklis, meskipun intensitasnya tidak dapat dikatakan ekstrim , akumulasinya jelas akan menyebabkan kerusakan dalam bentuk kelelahan struktur (Djatmiko 1995). Oleh karena itu perlu dilakukan analisa respon struktur akibat beban gelombang.

2.2 Dasar Teori

2.2.1 FPSO

Floating Production, Storage dan Offloading (FPSO) adalah struktur terapung yang digunakan oleh industri gas dan minyak lepas pantai pengolahan hidrokarbon dan untuk menyimpan minyak/gas. Sebuah

FPSO dirancang untuk menerima hidrokarbon yang dihasilkan dari platform terdekat atau subse, mengolahnya, dan menyimpan minyak/gas sampai dapat diturunkan ke kapal tanker atau dialirkan melalui pipa (www.wikipedia.com). Hyun (2012) menjelaskan bahwa ada beberapa faktor yang harus dipertimbangkan dalam desain FPSO ketika sedang beroperasi. Faktor tersebut antara lain:

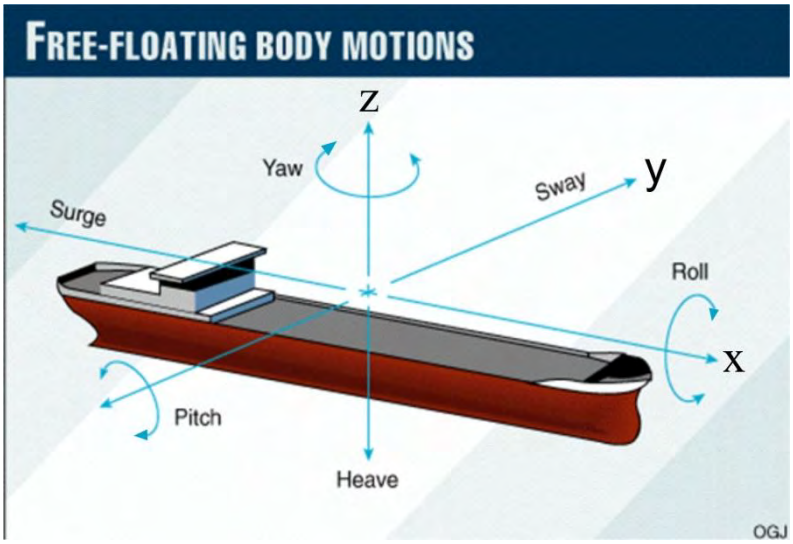
1) FPSO diinstal dengan system mooring seperti system spread mooring, system turret atau yang lainnya, lokasi spesifik dari FPSO dan berapa lama waktu operasinya
2) FPSO biasanya diposisikan relatif terhadap arah datang gelombang dan sudut datang gelombang karena gerakan roll dapat mengurangi kemampuan operasinya.
3) FPSO sering mengalami kondisi laut yang buruk selama operasi seiring dengan meningkatnya kedalaman di tempat operasi tersebut.

2.2.2 Teori Dasar Gerak Bangunan Laut

Benda yang mengapung mempunyai 6 mode gerakan bebas yang terbagi menjadi dua kelompok, yaitu 3 mode gerakan translasional dan 3 mode gerakan rotasional. Berikut adalah keenam mode gerakan tersebut :

1. Mode gerak translasional
   - Surge, gerakan osilasi transversal arah sumbu x
   - Sway, gerakan osilasi transversal arah sumbu y
   - Heave, gerakan osilasi transversal arah sumbu z
2. Mode gerak rotasional
   - Roll, gerakan osilasi rotasional arah sumbu x
   - Pitch, gerakan osilasi rotasional arah sumbu y
   - Yaw, gerakan osilasi rotasional arah sumbu z

Definisi gerakan bangunan laut dalam enam derajat kebebasan dapat dijelaskan dengan Gambar. 3.1.



(Sumber: www.ogj.com)

Gambar 2.1 Derajat kebebasan pada FPSO

Ada tiga gerakan utama pada kapal yang dipengaruhi gaya pengembali atau momen ketika anjungan terapung dipengaruhi dari posisi setimbangnya. Gerakan tersebut ialah heave, roll, dan pitch. Gerakan yang lain tidak dapat mengembalikan kapal tersebut pada posisi setimbang, selain itu tidak adanya pengaruh dari gaya luar atau momen yang menyebabkan aktifitas gangguan dari arah kebalikannya (Bhatacharya, 1972).

2.2.3 Spektrum Gelombang

Spektrum energi gelombang dipilih berdasarkan pada kondisi real laut yang ditinjau. Jika tidak ada maka dapat digunakan model spektrum yang dikeluarkan oleh berbagai institusi dengan mempertimbangkan kesamaan fisik lingkungan. Dari spektrum gelombang dapat diketahui parameter-parameter gelombang seperti pada Tabel 2.1

Tabel 2.1 Amplitudo dan Tinggi Gelombang Pada Spektrum

Profil Gelombang	**Amplitudo**	**Tinggi**
Gelombang rata-rata	$1{,}25\sqrt{m_0}$	$2{,}5\sqrt{m_0}$
Gelombang signifikan	$2{,}00\sqrt{m_0}$	$4{,}00\sqrt{m_0}$
Rata-rata 1/10 gelombang	$2{,}55\sqrt{m_0}$	$5{,}00\sqrt{m_0}$
Rata-rata 1/1000 gelombang	$3{,}44\sqrt{m_0}$	$6{,}67\sqrt{m_0}$

dengan:

m_0 = Luasan dibawah kurva spektrum (zero moment) = $\int_0^\infty S(\omega)\, d\omega$ (2.1)

Salah satu model spektral yang diajukan oleh Pierson Morkowitz (1964) dan masih secara luas digunakan. Aplikasi umum dari satu parameter spektrum gelombang Pierson Morkowitz dibatasi oleh fakta jika kondisi laut kadang dijangkau secara penuh situasi dikembangkan. Pengembangan dari laut juga dibatasi oleh *fetch*. Secara luas program pengukuran gelombang, diketahui sebagai *Joint North Sea Wave Project* (JONSWAP) yang berasal dari laut utara. Dari analisa dari pengukuran data JONSWAP spektrum diturunkan. Perumusan spektrum JONSWAP mewakili angin dengan batasan *fetch*.

Spektrum gelombang yang dipakai dalam tugas akhir ini adalah spektrum JONSWAP. Persamaan spektrum JONSWAP merupakan modifikasi dari persamaan spektrum Pierson-Morkowitz yang disesuaikan dengan kondisi laut yang ada. Persamaan spektrum JONSWAP dapat ditulis sebagai berikut:

$$S(\omega) = \alpha\, g^2 \omega^{-5} EXP\left[-1{,}25\left(\frac{\omega}{\omega_0}\right)^{-4}\right] \gamma^{EXP\left[\frac{-(\omega-\omega_0)^2}{2\tau^2\omega_0{}^2}\right]} \qquad (2.2)$$

dengan:

γ = parameter puncak *(peakedness parameter)*

τ = parameter bentuk *(shape parameter)*

untuk $\omega \leq \omega_0 = 0{,}07$ dan $\omega \geq \omega_0 = 0{,}09$

$\alpha = 0{,}0076\ (X_0)^{-0,22}$, untuk X_0 tidak diketahui $\alpha = 0{,}0081$

$$\omega_0 = 2\pi\left(\frac{g}{U_\omega}\right)(X_0)^{-0,33}$$

$$X_0 = \frac{g\,X}{U_\omega}$$

2.2.4 Respon Struktur

Respon pada struktur lepas pantai (baik struktur terpancang maupun terapung) akibat gelombang reguler dalam tiap-tiap frekuensi, dapat diketahui dengan menggunakan metode spektra. Nilai amplitudo pada suatu respon secara umum hampir sama dengan amplitudo gelombang. Bentuk normal suatu respon dari sistem linier tidak berbeda dengan bentuk amplitudo gelombang dalam fungsi frekuensi.

Response-Amplitude Operator (RAO) atau sering disebut sebagai *transfer function* adalah fungsi respon yang terjadi akibat gelombang dalam rentang frekuensi yang mengenai struktur. RAO disebut sebagai *transfer function* karena RAO merupakan alat untuk mentransfer beban luar (gelombang) dalam bentuk respon pada suatu struktur. Menurut Chakrabarti (1987), persamaan RAO dapat dicari dengan rumus sebagai berikut :

$$RAO(\omega) = \frac{X_p(\omega)}{\eta(\omega)} \tag{2.3}$$

dengan:

$X_p(\omega)$ = amplitudo struktur

$\eta(\omega)$ = amplitudo gelombang

Respon spektra didefinisikan sebagai respon kerapatan energi pada struktur akibat gelombang. Respon spektra merupakan perkalian antara spektrum gelombang dengan RAO kuadrat, secara matematis dapat ditulis sebagai berikut :

$$S_R = [RAO(\omega)]^2 \; S(\omega) \quad . \tag{2.4}$$

dengan:

S_R = spektrum respons (m^2-sec)

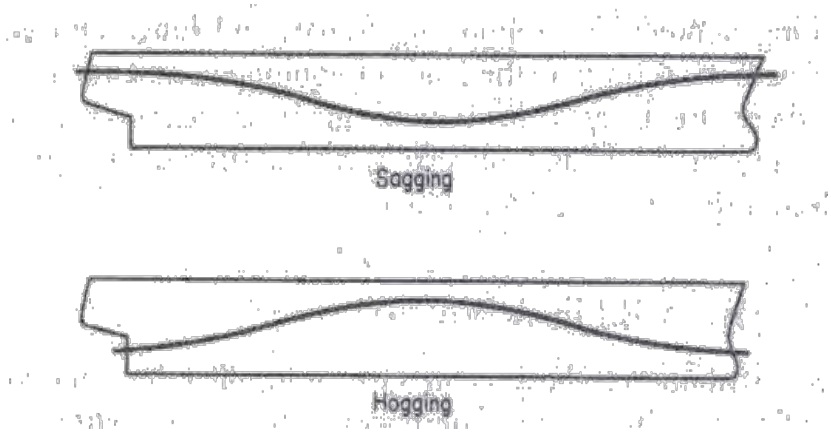
$S(\omega)$ = spektrum gelombang (m^2-dtk)

$RAO(\omega)$ = *transfer function*

ω = frekuensi gelombang (rad/dtk)

2.2.5 Kekuatan Memanjang Struktur Kapal

Dua kondisi yang perlu di perhatikan yang memiliki pengaruh besar pada kekuatan memanjang kapal adalah, suatu kondisi dimana puncak gelombang pada midship dan kondisi dimana puncak gelombang terdapat pada ujung-ujung kapal. Maka kapal akan mengalami hogging dan pada sisi lain akan mengalami sagging. Pada kondisi tertentu hogging dan sagging Gambar 2.2 mengalami nilai yang besar karena kondisi distribusi massa kapal.



(Sumber : Eric Tupper, Introduction to Naval Architcture, 2002)

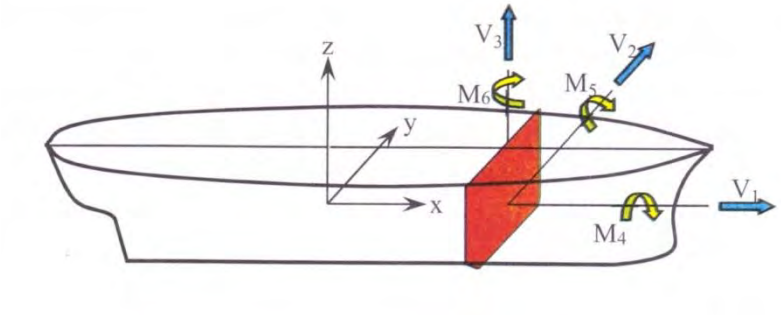
Gambar 2.2 Hogging dan sagging

Pada dasarnya kekuatan memanjang kapal diakibatkan oleh gaya vertikal yang dialami oleh girder badan kapal yakni gaya berat dan daya. Untuk suatu floating body total berat harus sebanding dengan

total buoyancy, dan kedua gaya tersebut harus beraksi sepanjang garis yang sama. Meskipun pada tiap lokasi sepanjang kapal berat tidak akan sebanding dengan buoyancy. Gaya berat dipengaruhi oleh kombinasi berat kapal dan berat muatan yang memiliki lokasi berat yang tetap, sedangkan gaya buoyancy dipengaruhi oleh bentuk badan kapal dan lokasi kapal pada air (draft dan trim).

2.2.6 Respon Struktur Bangunan Laut Berlambung Tunggal

Formulasi matematis respon struktur bangunan laut berlambung tunggal, sebagaimana dengan konfigurasi kapal pada umumnya, akan dijelaskan sebagai berikut dengan mengacu pada uraian oleh Selvensen dkk (1970). Respon struktur seperti ditunjukkan dalam Gambar 2.3 adalah dibagi menjadi dua kelompok, yaitu komponen vektor gaya-gaya geser (V) dan komponen vektor momen dan torsi (M) sesuai dengan sistem sumbunya.



(Sumber : Salvesen dkk, 1970)

Gambar 2.3 Konvensi komponen beban gelombang dinamis

Komponen vektor gaya geser pada setiap potongan melintang lambung kapal dapat dituliskan dalam bentuk:

$$V = V_1 i + V_2 j + V_3 k \qquad (2.5)$$

Mengacu pada sumbu-sumbu yang sama, vektor momen torsi dapat ditulis dalam bentuk:

$$M = M_4 i + M_5 j + M_6 k \quad (2.6)$$

Tipe respon struktur lain yang juga kemungkinan besar akan mengakibatkan kegagalan adalah momen puntir yang timbul saat kapal berada di atas gelombang melintang. Kondisi akan lebih kritis bila terjadi superposisi antara momen puntir dan momen lengkung dalam satu fase. Selain momen lengkung dan momen puntir, masih ada empat jenis respon lain yang dapat timbul, sehingga secara lengkap respon struktur kapal adalah.

1. Gaya geser memanjang / komprsi (V1), adalah komponen gaya yang cenderung untuk menggerakkan kedua sisi badan kapal secara berlawanan pada arah memanjang kapal.
2. Gaya geser horisontal (V2), adalah komponen gaya yang cenderung untuk menggerakkan kedua sisi badan kapal secara berlawanan pada arah melintang kapal.
3. Gaya geser vertikal (V3), adalah komponen gaya yang cenderung untuk menggerakkan kedua sisi badan kapal secara berlawanan pada arah vertikal kapal.
4. Momen lengkung melintang / torsi (M1), adalah momen yang cenderung untuk menggerakkan kedua sisi badan kapal secara berlawanan pada mode gerakan rotasi roll.
5. Momen lengkung vertikal (M2), adalah momen yang cenderung untuk menggerakkan kedua sisi badan kapal secara berlawanan pada mode gerakan rotasi pitch.
6. Momen torsi (M3), adalah momen yang cenderung untuk menggerakkan kedua sisi badan kapal secara berlawanan pada mode gerakan rotasi yaw.

Gaya geser dinamis pada penampang potongan adalah merupakan perbedaan antara gaya inersia dan penjumlahan gaya-gaya eksternal yang bekerja pada bagian lambung di depan potongan tersebut. Bila gaya eksternal dibagi menjadi gaya pengembali statis Rj, gaya eksitasi

Ej, dan gaya hidrodinamis akibat gerakan kapal Dj, serta inersia adalah Ij, maka akan didapat (Djatmiko, 2012).

$$Vj = Ij - Rj - Ej - Dj \; ; j = 2 \; \& \; 3 \tag{2.7}$$

Demikian pula momen torsi dan momen lengkung akan sama juga, sehingga persamaan (2.19) akan berlaku juga untuk momen-momen torsi dan lengkung (j = 4, 5, 6).

$$Mj = Ij - Rj - Ej - Dj; j = 4, 5, 6 \tag{2.8}$$

Gaya kompresi (j=1) dapat dianggap kecil dibandingkan dengan kekauan dan integritas struktur secara memanjang, sehingga bisa diasumsikan tidak diperhitungkan.

2.2.7 Gaya Geser dan Momen Lengkung di Air Tenang

Jika a merupakan luasan melintang struktur pada suatu titik, beban per satuan panjang pada suatu titik adalah ρga – mg, gaya geser (V) dan momen lengkung (M) dirumuskan sebagai berikut.

$$V = \int (\rho g a - mg)\, dx \tag{2.9}$$

$$M = \int S\, dx = \iint (\rho g a - mg)\, dx\, dx \tag{2.10}$$

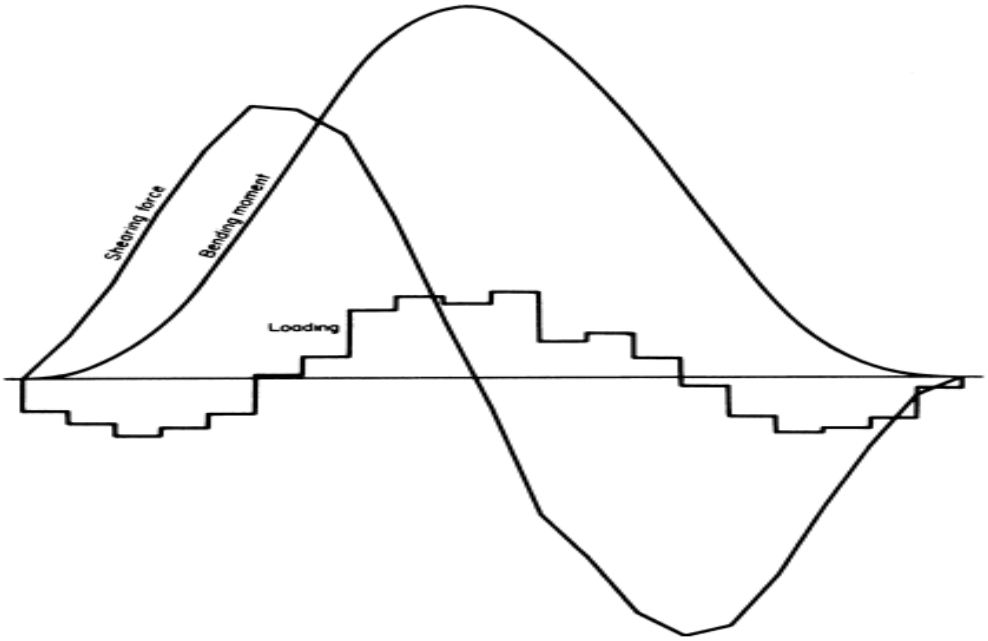
Pada tugas akhir ini untuk menghitung *shear force* dan *bending moment* menggunakan cara yang terdapat di buku *basic ship theory* 5E Volume 01. Pada perhitungan dengan menggunakan cara dari *basic ship theory* pada saat plotting kurva ada beberapa hal yang harus diperhatikan yaitu :

$$p' = \frac{dS}{dx} = \frac{d^2M}{dx^2} \tag{2.11}$$

a. Ketika p'= 0, maka S maksimum atau minimum dan point dari inflaksi terjadi pada kurva M
b. Ketika p' maksimum, point inflaksi terjadi pada kurva S

c. Ketika S = 0, nilai M menjadi maksimum atau minimum.

Dan kurva gaya geser dan momen lengkung ditunjukkan pada Gambar 2.4 berikut ini



(Sumber : *Basic Ship Theory*, 2001)

Gambar 2.4 Kurva gaya geser dan momen lengkung

2.2.8 Gaya Geser dan Momen Lengkung Akibat Gelombang

Pada struktur terapung aspek yang harus diperhitungkan adalah *longitudinal strength* (kekuatan memanjang kapal). Kekuatan struktur terapung ini berhubungan dengan kemampuan struktur untuk bertahan oleh beban yang ditimbulkannya, baik berupa beban internal maupun eksternal, yang diperkirakan oleh adanya pengaruh tekanan memanjang pada lambung struktur. Jika lengkung diagram gaya berat kita kurangi dengan lengkung diagram gaya tekan keatas, akan diperoleh lengkung penyebaran beban sepanjang struktur

$$V(x) = \int_0^x \big(w(x) - \Delta(x)\big)dx \tag{2.12}$$

$$M(x) = \int_0^x V(x)dx \tag{2.13}$$

Dengan :

$V(x)$ = *Shear force* pada sumbu x dari haluan (atau buritan)

$M(x)$ = *Bending moment* pada sumbu x dari haluan (atau buritan)

w = Beban per satuan panjang

Δ = *Bouyancy* per satuan panjang [ton/m] dan beban gaya geser f(x) ini merupakan turunan kedua dari momen lengkung

Perhitungan gaya geser dan momen lengkung di air bergelombang, distribusi massa diasumsikan sama dengan perhitungan gaya geser dan momen lengkung di air tenang. Perbedaannya adalah gaya yang bekerja pada struktur berasal dari gaya *buoyancy* dan gaya inersia yang berasal dari percepatan gerak yang terutama disebabkan oleh gerakan *heave, pitch* dan *roll.* Pada keadaan terkena gelombang, *buoyancy* setiap lokasi pada struktur bangunan apung akan berbeda, hal ini diakibatkan oleh perbedaan ketinggian sarat air pada lokasi-lokasi tersebut.

Dua kondisi yang biasanya digunakan pada analisa kekuatan memanjang struktur bangunan apung akibat gelombang adalah kondisi puncak gelombang pada bagian tengah struktur dan kondisi puncak gelombang pada ujung-ujung struktur bangunan apung. Pada kondisi pertama, struktur akan mengalami hogging, sedangkan pada kondisi kedua, struktur akan mengalami sagging. Pada kasus tertentu, kondisi hogging dan sagging dapat diatur dengan memodifikasi distribusi massa pada struktur. Menurut ABS, gaya geser dan momen lengkung dirumuskan sebagai berikut.

$M_{ws} = -k_1 C_1 L^2 B(C_b + 0.7)x10^{-3}$, untuk momen *sagging* (2.14)

$M_{wh} = +k_2 C_1 L^2 B\ C_b\ x10^{-3}$, untuk momen *hogging* (2.15)

$F_{wp} = +kF_1 C_1 L\ B(C_b + 0.7)x10^{-2}$, untuk gaya geser positif (2.16)

$F_{wn} = -kF_2 C_1 L\ B(C_b + 0.7)x10^{-2}$, untuk gaya geser negatif (2.17)

Dimana:

M_{ws}, M_{wh}= momen lengkung vertical (kN-m)

C_1 = koefisien gelombang

$$= 10.75 - \left(\frac{300 - L}{100}\right)^{1.5}, untuk\ 90 \leq L \leq 300\ m.$$

L = panjang kapal (m)

B = lebar kapal (m)

C_b = koefisien block

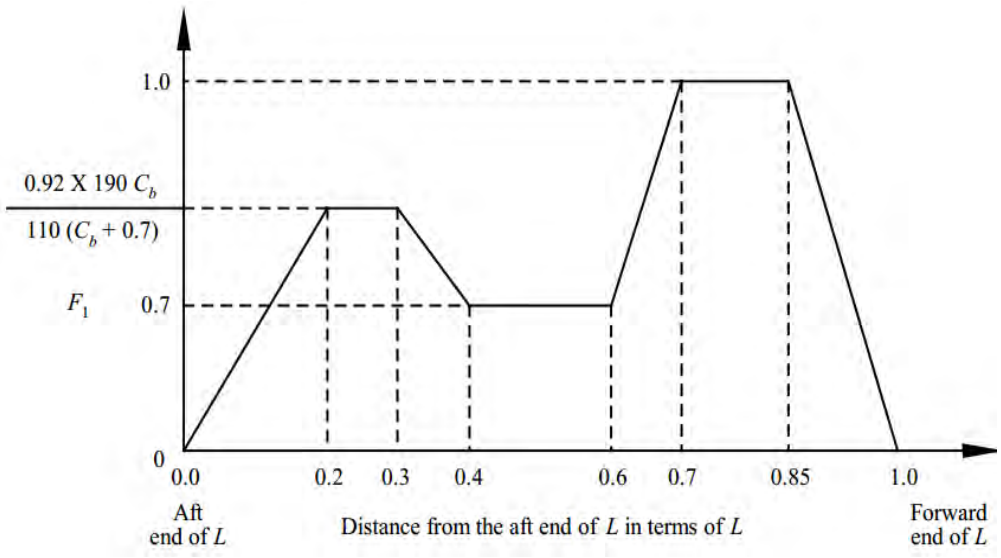
k = 30 (3.059, 0.2797)

k_1 = 110 (11.22, 1.026)

k_2 = 190 (19.37, 1.772)

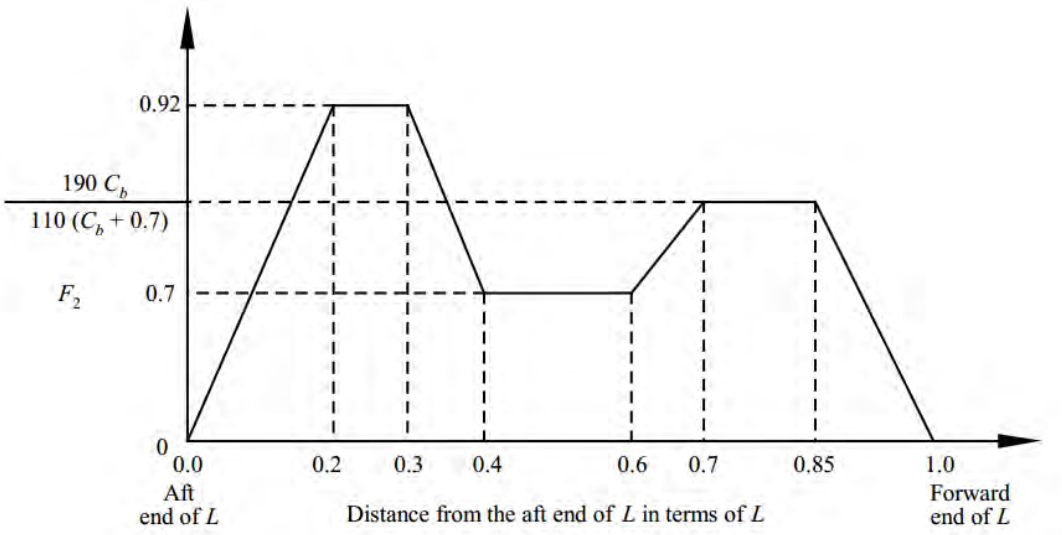
F_{wp}, F_{wn} = gaya geser maksimum yang di induksi oleh gelombang

$5F_1, F_2$ = faktor disribusi seperti pada gambar 2.5 dan 2.6 dibawah ini



(Sumber : ABS)

Gambar 2.5 Faktor Distribusi F_1



(Sumber : ABS)

Gambar 2.6 Faktor Distribusi F_2

2.2.9 Beban Gelombang

Perhitungan beban gelombang yang digunakan adalah periode ulang gelombang untuk 1, 10, dan 100 tahunan yang dapat dicari dengan analisis gelombang kurun waktu panjang. Analisis kurun waktu panjang adalah analisis yang dilakukan terhadap kumpulan data-data gelombang yang telah diperoleh dalam kurun waktu tahunan (minimal 1 tahun).

Distribusi gelombang dalam kurun waktu panjang dapat didekati dengan distribusi kontinyu dari Weibull. Persamaan linier dari fungsi kepadatan peluang diberikan dalam bentuk sebagai berikut.

$$\ln\left[ln\left\{\frac{1}{2a1-p(H)}\right\}\right] = \xi lnx - \xi ln\lambda \tag{2.18}$$

Dengan:

P(H)= Peluang terjadinya gelombang.

ξ = Parameter bentuk dengan harga umum antara 0.75 s.d. 2.0, sedangkan untuk gelombang laut umumnya berkisar antara 0.9 s.d. 1.1.

ξ = Parameter skala yang harganya tergantung dari harga ekstrim variable x.

x = Intensitas obyek/ parameter yang ditinjau, misalnya tinggi gelombang, sehingga x= H.

Kurva Distribusi Weibull akan mempunyai bentuk garis lurus jika digambarkan pada grafik yang yang mengkorelasikan ln{ln[1/1-P(H)]} sebagai ordinat dan ln(H-a) sebagai absisnya.

Tinggi gelombang yang digunakan adalah tinggi gelombang signifikan (HS), jika gelombang yang diketahui adalah tinggi gelombang maksimum (Hmax), maka tinggi gelombang signifikan dapat dicari dengan.

$$Hs = \frac{Hmax}{1{,}86} \quad (2.19)$$

2.2.10 Perhitungan Respon Struktur dengan Metode Quasi-Statis

Perhitungan dengan menggunakan metode quasi-statis adalah perhitungan dengan pendekatan statis terhadap perilaku dinamis objek. Dalam tugas akhir ini gerak FPSO Seagood 101 ditinjau terhadap tiap-tiap siklus gelombang yang terjadi. Untuk perhitungan respon struktur dengan pendekatan Quasi-Statis, perhitungan dilakukan pada saat kapal bergerak kopel heave-pitch dengan tinggi gelombang unity (amplitudo=1m) dan menggunakan variasi sudut fase gelombang. Pemilihan tinggi gelombang unity dalam hal ini dimaksudkan untuk menjaga supaya kemiringan kapal dalam pengaruh gerakan kopel heave pitch tidak terlalu besar sehingga dapat mengakibatkan nilai shear force dan bending moment yang jauh lebih besar dari kondisi yang sebenarnya kapal ini beroperasi. Dimana kapal pengebor ini akan beroperasi dikondisi perairan terutup seperti Indonesia yang mempunyai tinggi gelombang yang tidak terlalu besar.

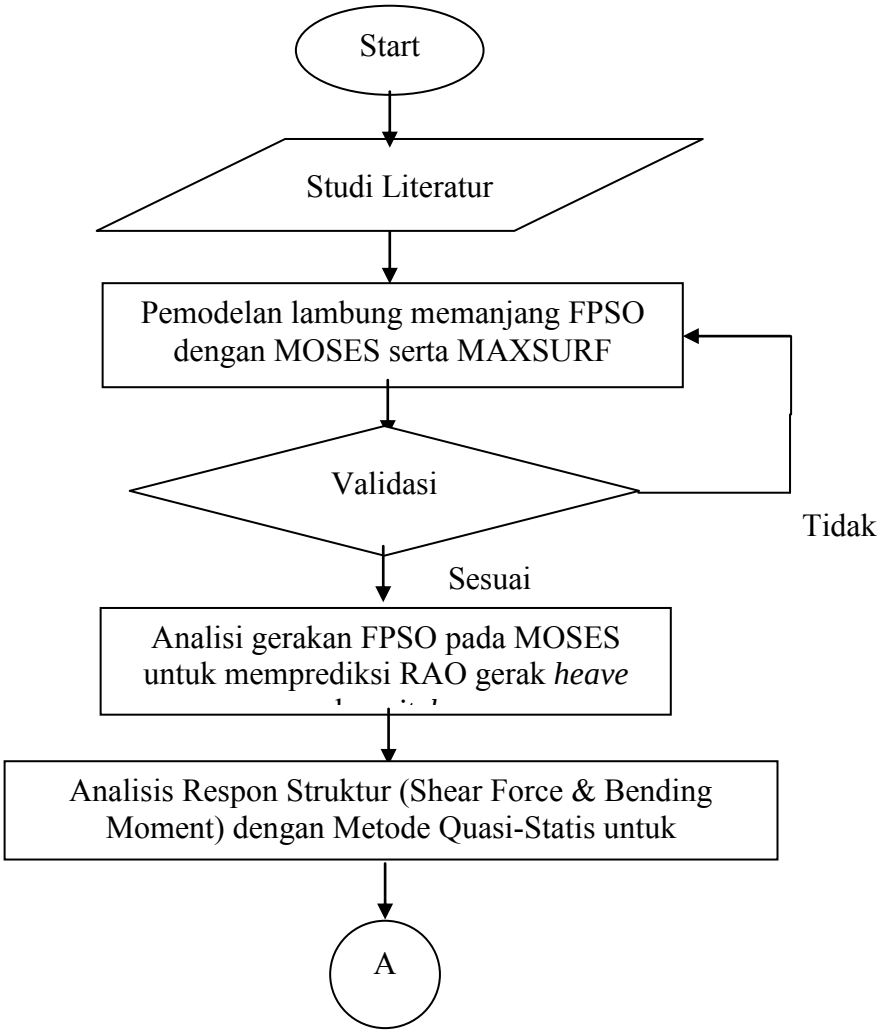
Perhitungan dengan menggunakan metode quasi-statis ini, hasil frekuensi gelombang respon gerak kapal dalam dua moda gerakan yakni heave-pitch diambil untuk divariasi periodenya yang selanjutnya digunakan untuk analisis respon struktur (gaya geser dan momen lengkung) pada tiap-tiap station kapal.

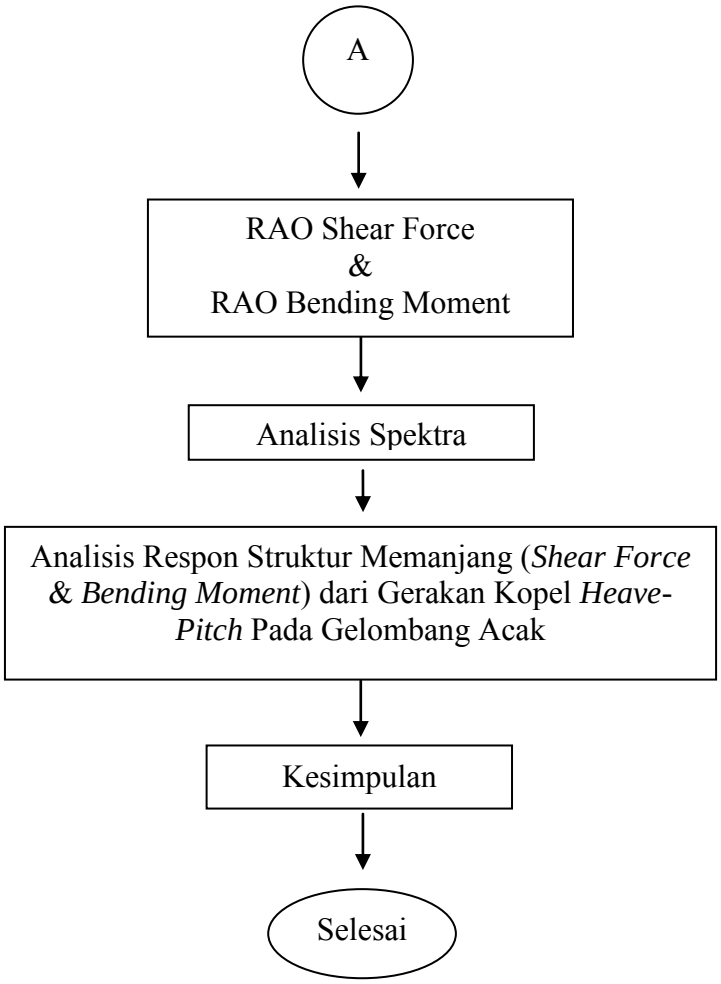
(Halaman ini sengaja dikosongkan)

BAB III
METODOLOGI PENELITIAN

3.1 Metode Penelitian

Metode penelitian yang digunakan dapat digambarkan dalam diagram alir pengerjaanyang terdapat pada Gambar 3.1.





Gambar 3.1 *flow chart* pengerjaan tugas akhir

3.2 Prosedur Penelitian

Metode yang dilakukan dalam pengerjaan penelitian ini adalah metode studi pustaka dan analisis data. Tahapan-tahapan yang akan dilakukan adalah sebagai berikut:

1. Studi literatur dilakukan bertujuan untuk mencari dasar teori, studi pustaka dari penelitian terbaru, peraturan/regulasi yang relevan dan dibutuhkan selama pengerjaan Tugas Akhir ini yang dapat diperoleh dari buku, jurnal, Tugas Akhir atau penelitian sebelumnya, Code/Standard, Peraturan/regulasi baik nasional maupun internasioanal. Data-data yang diperlukan antara lain, ukuran utama FPSO *seagood* 101, data lingkungan dan lain sebagainya.

2. Setelah memperoleh data, selanjutnya mulai memodelkan lambung memanjang FPSO *seagood 101* di Moses 7 dan MAXSURF, setelah itu dilakukan running dan akan diperoleh *output* dari berupa model FPSO tersebut.
3. Model kapal yang telah jadi akan divalidasi sebelum digunakan untuk analisis yang lebih jauh. Validasi dilakukan dengan membandingkan hasil pemodelan dari software dengan booklet. Apabila deviasi tidak lebih dari 5% model dinyatakan valid.
4. Dari pemodelan kapal yang telah dilakukan pada tahap sebelumya, maka dilanjutkan dengan analisis pada gerakan FPSO. Perhitungan dilakukan dengan menggunakan perangkat lunak MOSES untuk mendapatkan karakteristik hidrodinamis dari hull seperti RAO.
5. Distribusi Beban Struktur dan Analisis Respon Struktur (Shear Force & Bending Moment) pada Gelombang Reguler Selanjutnya dilakukan analisa terhadap FPSO *Seagood 101*untuk mencari gaya reaksi dari struktur hull secara global pada gelombang reguler dengan H = 2m pada kondisi Hogging dan Sagging.
6. Perhitungan Respon Struktur (Shear Force & Bending Moment) dengan metode Quasi-Statis untuk Memperoleh Efek dari Gerakan Heave-Pitch Perhitungan respon struktur dengan metode quasi-statis dilakukan pada tiap siklus pada periode gerakan yang berbeda dengan hasil adalah RAO Shear Force dan Bending Moment. Tinggi gelombang diambil 2m agar gerakan heave dan pitch tidak terlalu signifikan dari posisi diam FPSO *Seagood 101.*Langkah-langkah yang dilakukan sebagai berikut: T^2

   - Menentukan frekuensi dan periode yang akan dianalisa.
   - Mencari nilai panjang gelombang sesuai dengan periode-periode yang dianalisis. Panjang gelombang didapatkan dari rumus $\lambda = g\frac{T^2}{2\pi}$

- Menentukan frekuensi yang ditinjau sehingga didapatkan nilai RAO *heave*, sudut fase *heave,* RAO *pitch* dan sudut fase *pitch* pada frekuensi tersebut.
- Membagi periode yang didapatkan dari frekuensi yang dianalisis menjadi sepuluh vareasi periode. Pembagian dilakukan dengan cara membuat deret bilangan dari angka nol hingga nilai periode tersebut.
- Dari data-data yang diketahui diatas maka dapat ditentukan pergerakan gelombang (cos ωt), pergerakan heave (cos($\omega t + \varepsilon z$)) serta pergerakan pitch (cos($\omega t + \varepsilon q$)) pada tiap vareasi periode.
- Dengan adanya pergerakan gelombang, pergerakan heave serta pergerakan pitch pada tiap periode menjadikan posisi kapal pada tiap periode berbeda-beda. Sehingga bouyancy yang didapatkan juga berbeda-beda pula.
- Perbedaan bouyancy itulah yang membuat bentuk grafik sheer force dan bending moment yang beraneka ragam.

7. Analisis Spektra dilakukan untuk merepresentasikan suatu gelombang acak. Persamaan spektra yang digunakan dalam pengerjaan Tugas Akhir ini yaitu Spektra JONSWAP. Spektra tersebut cocok digunakan di kondisi lautan tertutup, dimana sama dengan kondisi lingkungan dalam Tugas Akhir ini.
8. Respon Struktur yang dipengaruhi oleh gerak heave dan pitch akan menghasilkan *shear force* serta *bending moment* maksimum FPSO *Seagood 101* yang didapatkan dari pendekatan *quasi static*. Seanjutnya analisa respon struktur dilakukan dengan mengalikan RAO^2 dengan spektra energi dari gelombang acak maka akan didapatkan spektra respon di gelombang acak untuk mengetahui posisi kapal yang dikenai *shear force* serta *bending moment* maksimum.
9. Dari keseluruhan analisis dan pembahasan penelitian yang dilakukan, akan diperoleh kesimpulan-kesimpulan yang merupakan intisari dari penelitian yang telah dilakukan.

3.3 Pengumpulan Data

3.3.1 Sejarah FPSO Seagood 101

Name : FPSO SEAGOOD 101
Owner's Name : Sabre System International
Builder : Guangxi Wuzhou Shipyard, China
Hull No : WCH - 97104
Classification : American Bereau of Shipping (ABS)
Designer : Conan WU & Associates PTE LTD
Mewah Building Level 3
S International Bussines Park
Jurong East Street 11,Singapore 609914

3.3.2 Data FPSO Seagood 101

Berikut ini adalah data dimensi General Arrangement FPSO Seagood 101 pada Tabel 3.1.

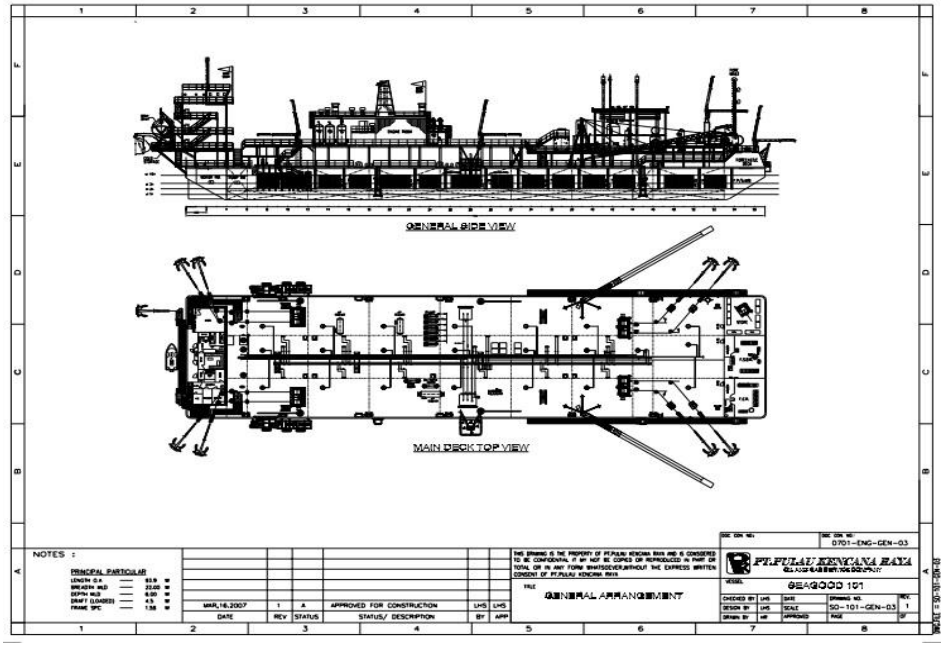
Tabel 3.1 Data General Arrangement Seagood 101

Parameter	Hidrostatic Seagood
L (m)	93,9
B (m)	22
H (m)	6
T (m)	4,5
Displacement (ton)	8988,97
Deadweight (ton)	5214,41
Lightweight (ton)	3774,56
VCB (m)	2,304 From B.L
TCB (m)	0,114 Port of C.L.
LCB (m)	0,003a (46,953) From AP

(sumber : GL Noble Denton)

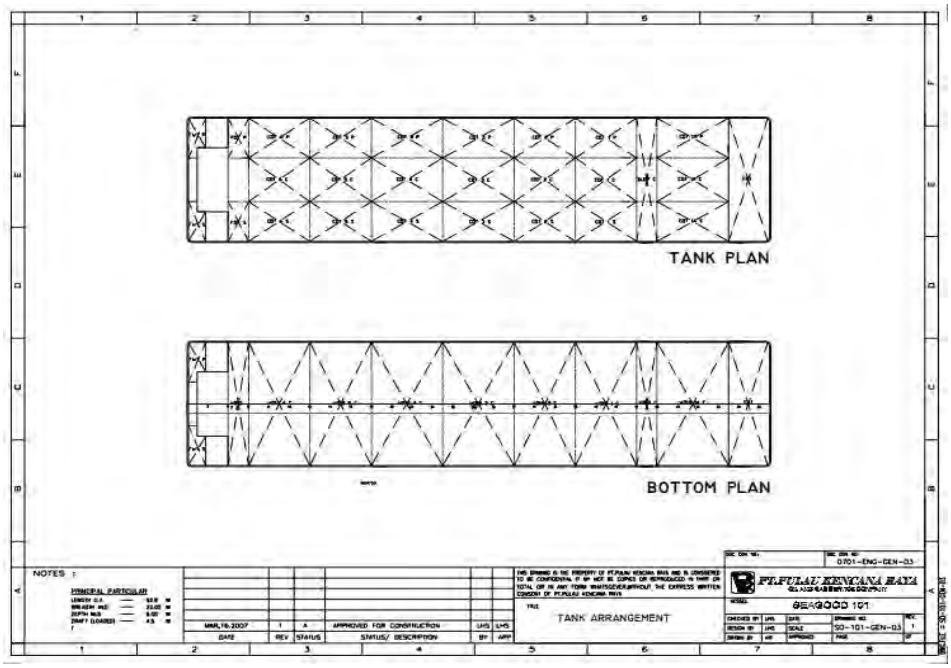
3.3.3 General Arrangement FPSO Seagood 101

Pemodelan FPSO dibuat dengan menggunakan acuan gambar General Arrangement (GA) pada Gambar 3.2 dan 3.3.



(sumber : GL Noble Denton)

Gambar 3.2 General arrangement FPSO seagood 101



(sumber : GL Noble Denton)

Gambar 3.3 General arrangement Tank FPSO seagood 101

3.3.4 Data Lingkungan

Pengumpulan data gelombang digunakan untuk menganalisa beban gelombang dari kondisi perairan. Dalam hal ini perairan yang digunakan adalah perairan Indonesia yang ditunjukkan pada Tabel 3.4.

Tabel 3.4 Data Peluang Kejadian Sebaran Gelombang perairan Indonesia

T_p		H_s											
Lower	Upper	0.00 0.49	0.50 0.99	1.00 1.49	1.50 1.99	2.00 2.49	2.50 2.99	3.00 3.49	3.50 3.99	4.00 4.49	4.50 4.99	5.00 5.49	5.50 5.99
0	0.9	-	-	-	-	-	-	-	-	-	-	-	-
1	1.9	0.0008	-	-	-	-	-	-	-	-	-	-	-
2	2.9	0.0210	-	-	-	-	-	-	-	-	-	-	-
3	3.9	0.1079	0.0863	0.0050	0.0018	0.0002	-	-	-	-	-	-	-
4	4.9	0.0183	0.1529	0.0143	-	-	-	-	-	-	-	-	-
5	5.9	0.0060	0.0370	0.0771	0.0047	-	-	-	-	-	-	-	-
6	6.9	0.0043	0.0177	0.0409	0.0257	0.0010	-	-	-	-	-	-	-
7	7.9	0.0023	0.0079	0.0280	0.0382	0.0105	0.0002	-	-	-	-	-	-
8	8.9	0.0020	0.0058	0.0103	0.0247	0.0334	0.0119	0.0009	-	-	-	-	-
9	9.9	0.0007	0.0041	0.0062	0.0158	0.0176	0.0255	0.0129	0.0012	-	-	-	-
10	10.9	-	0.0037	0.0051	0.0067	0.0095	0.0113	0.0114	0.0080	0.0017	-	-	-
11	11.9	0.0001	0.0027	0.0034	0.0034	0.0043	0.0059	0.0047	0.0049	0.0025	0.0022	0.0003	-
12	12.9	-	0.0020	0.0022	0.0016	0.0009	0.0020	0.0019	0.0018	0.0010	0.0009	0.0005	0.0003
13	13.9	-	0.0007	0.0010	0.0004	0.0006	0.0002	0.0004	0.0011	0.0003	0.0002	0.0002	0.0001
14	14.9	-	0.0002	0.0009	0.0004	0.0004	0.0003	0.0001	-	-	-	-	-
15	15.9	0.0001	0.0001	0.0002	0.0006	0.0004	0.0007	0.0001	-	-	-	-	-
16	16.9	-	0.0001	-	0.0001	-	-	-	-	-	-	-	-
17	17.9	-	-	-	-	-	-	-	-	-	-	-	-
18	18.9	-	-	-	-	-	-	-	-	-	-	-	-
Total		0.1636	0.3212	0.1947	0.1243	0.0789	0.058	0.0324	0.0169	0.0055	0.0033	0.0009	0.0004

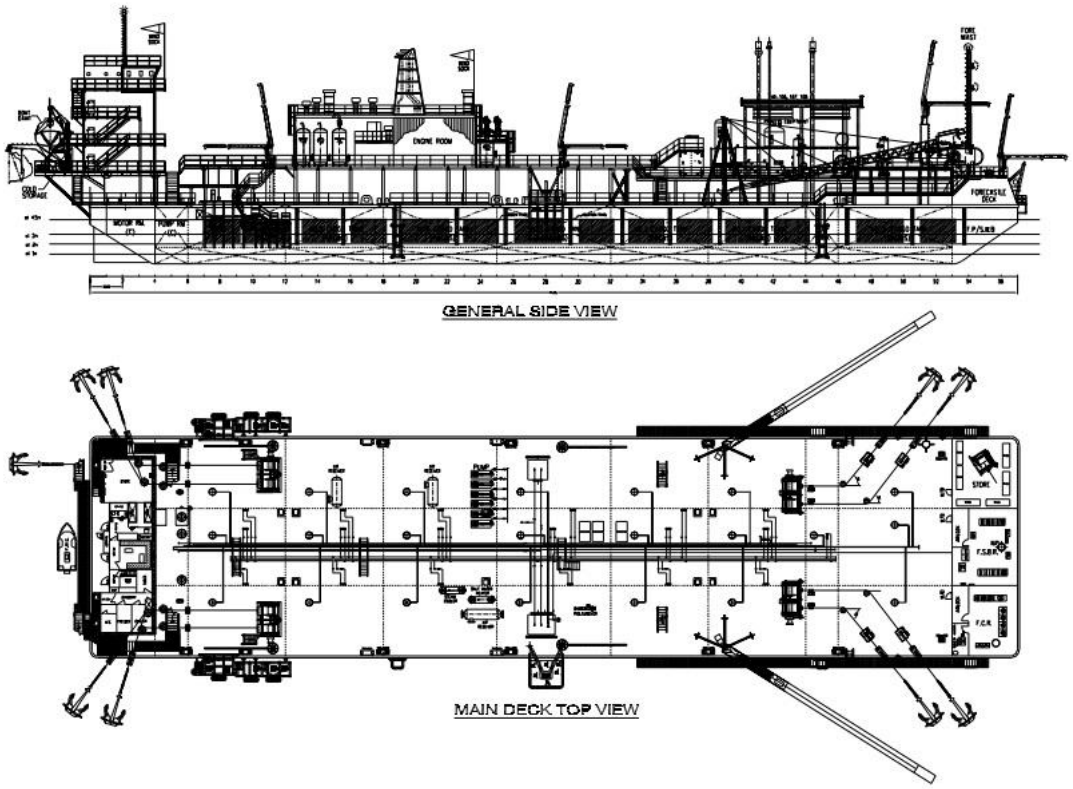
(Halaman ini sengaja dikosongkan)

BAB IV
ANALISIS DAN PEMBAHASAN

4.1. Pemodelan Struktur

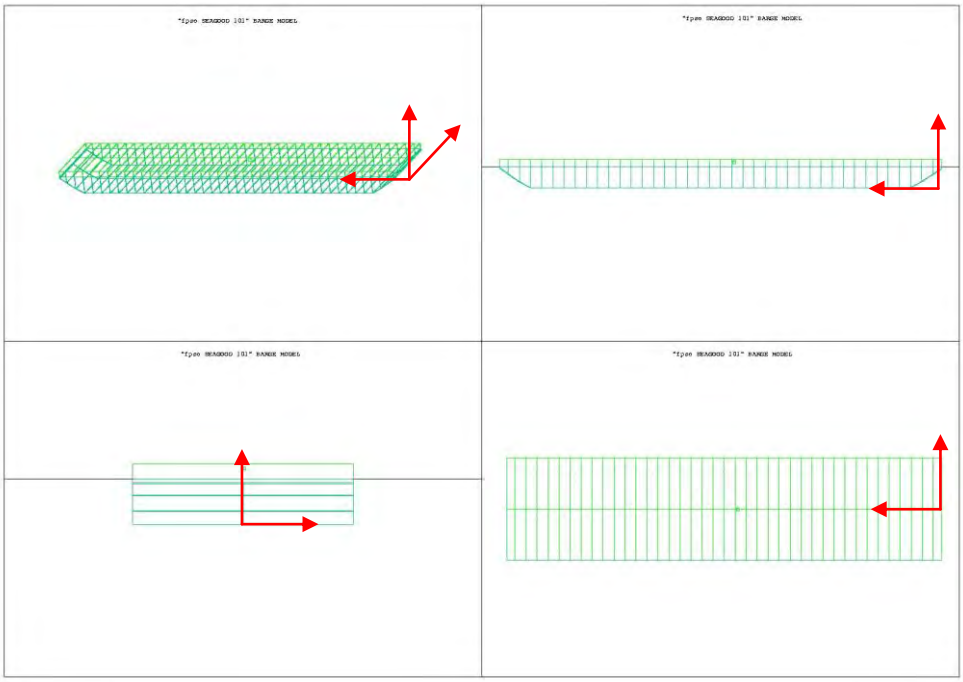
Model struktur yang akan dimodelkan adalah FPSO *Seagood* 101. Dalam memodelkan hull FPSO dibantu dengan perangkat lunak MAXSURF dan MOSES dengan acuan gambar General Arrangement(GA) dan ukurannya pada Gambar 4.1.

- Length (L) = 93,9 meter
- Breadth (B) = 22 meter
- Depth (H) = 6 meter
- Draft Full Load (T) = 4,5 meter
- Displcement (Δ) = 8988,97 ton

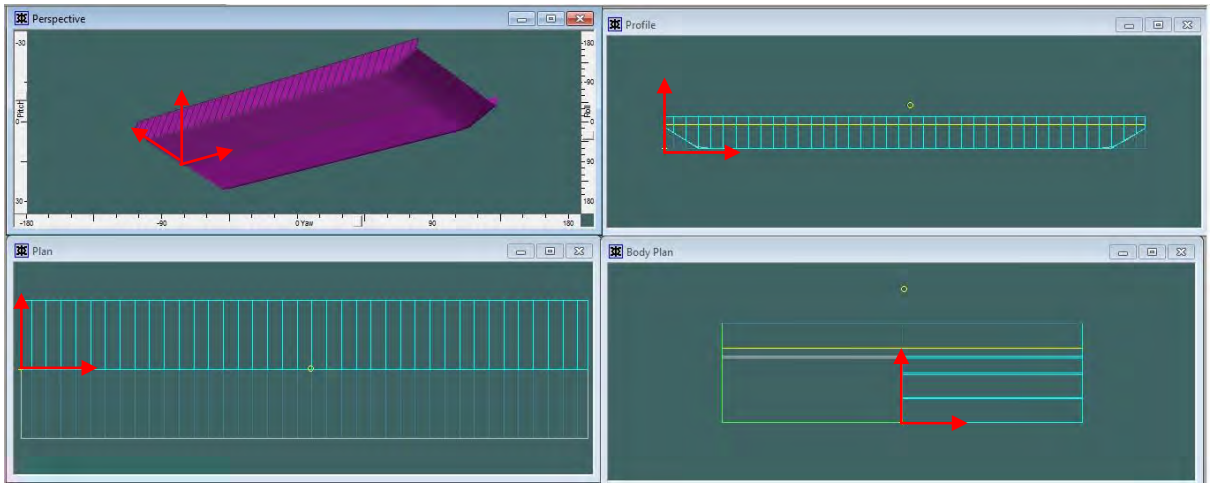


Gambar 4.1 General arrangement FPSO seagood 101

Gambar 4.2 dan 4.3 merupakan hasil pemodelan FPSO seagood 101 menggunakan perangkat lunak MOSES dan MAXSURF:



Gambar 4.2 Pemodelan FPSO seagood 101 menggunakan MOSES



Gambar 4.3 Pemodelan FPSO seagood 101 menggunakan MAXSURF

4.2. Hidrostatik

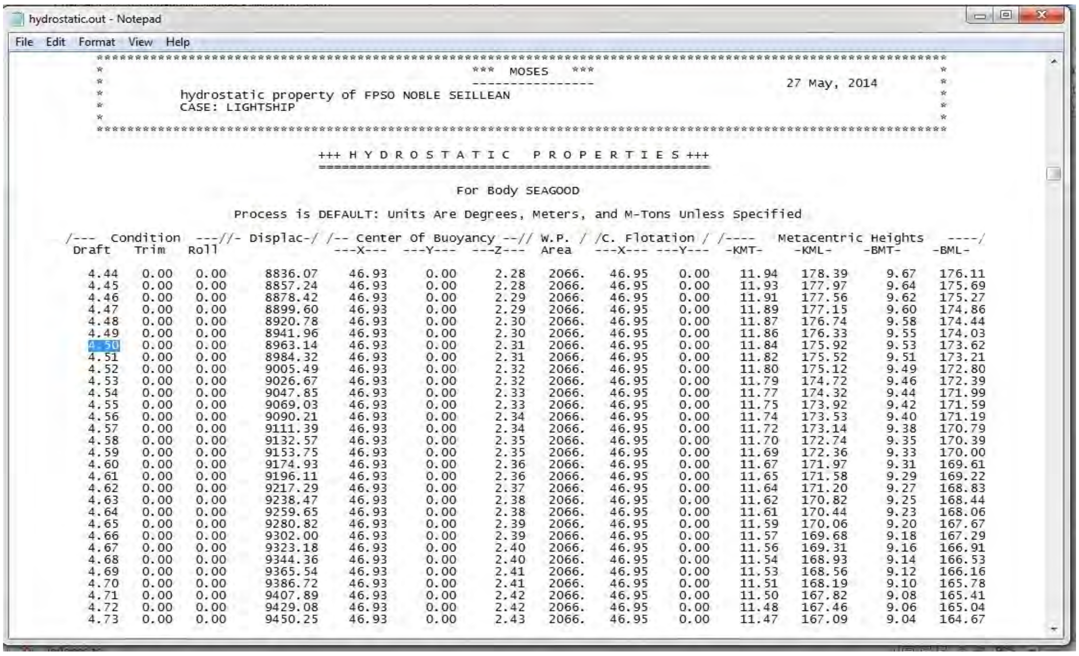
Validasi model dilakukan agar mendapatkan model yang akurat.Validasi dilakukan dengan membandingkan data dari hidrostatik seagood dengan hasil

perhitungan hidrostatik keluaran MAXSURF.Besaran-besaran hidrostatik yangdibandingkan terdapat pada Tabel.Hasil perhitungan hidrostatik yang dikeluarkan sudah menunjukkan kesesuaian dengan perbedaannya < 5%. Dengan demikian hasil perancangan rencana garis model dapat dikatakan valid untuk dipakai sebagai input dalam menghitung karakteristik gerakan FPSO seagood 101. Gambar 4.4 dan 4.5 merupakan hasil output hidrostatik dari MAXSURF serta MOSES:

Hydrostatics at DWL

	Measurement	Value	Units
1	Displacement	8921,4	tonne
2	Volume	8703805958	mm^3
3	Draft to Baseline	4500	mm
4	Immersed depth	4500	mm
5	Lwl	93900	mm
6	Beam wl	22000	mm
7	WSA	2907003675	mm^2
8	Max cross sect area	99000000	mm^2
9	Waterplane area	2064973713	mm^2
10	Cp	0,936	
11	Cb	0,936	
12	Cm	1	
13	Cwp	1	
14	LCB from zero pt	46925,3	mm
15	LCF from zero pt	46950	mm
16	KB	2311,7	mm
17	BMt	9569,1	mm
18	BMl	174183,8	mm
19	KMt	11880,8	mm
20	KMl	176495,5	mm
21	Immersion (TPc)	21,166	tonne/cm
22	MTc	167,688	tonne.m
23	RM at 1deg = GMt.Di	1849836,6	tonne.mm
24	Precision	Medium	50 station

Gambar 4.4 Output Hidrostatik MAXSURF



```
hydrostatic.out - Notepad
File  Edit  Format  View  Help
****************************************************************************************************
*                                   ***  MOSES   ***                                              *
*                                  ----------------                    27 May, 2014               *
*          hydrostatic property of FPSO NOBLE SEILLEAN                                            *
*          CASE: LIGHTSHIP                                                                        *
*                                                                                                 *
****************************************************************************************************

                      +++ H Y D R O S T A T I C   P R O P E R T I E S +++
                      ===================================================

                                    For Body SEAGOOD

              Process is DEFAULT: Units Are Degrees, Meters, and M-Tons Unless Specified

 /---  Condition  ---//- Displac-/ /-- Center of Buoyancy --// W.P. / /C. Flotation / /----   Metacentric Heights   ----/
  Draft   Trim   Roll               ---X---   ---Y---   ---Z---  Area   ---X--- ---Y---  -KMT-   -KML-    -BMT-    -BML-

   4.44   0.00   0.00    8836.07    46.93     0.00     2.28   2066.   46.95    0.00    11.94   178.39    9.67   176.11
   4.45   0.00   0.00    8857.24    46.93     0.00     2.28   2066.   46.95    0.00    11.93   177.97    9.64   175.69
   4.46   0.00   0.00    8878.42    46.93     0.00     2.29   2066.   46.95    0.00    11.91   177.56    9.62   175.27
   4.47   0.00   0.00    8899.60    46.93     0.00     2.29   2066.   46.95    0.00    11.89   177.15    9.60   174.86
   4.48   0.00   0.00    8920.78    46.93     0.00     2.30   2066.   46.95    0.00    11.87   176.74    9.58   174.44
   4.49   0.00   0.00    8941.96    46.93     0.00     2.30   2066.   46.95    0.00    11.86   176.33    9.55   174.03
   4.50   0.00   0.00    8963.14    46.93     0.00     2.31   2066.   46.95    0.00    11.84   175.92    9.53   173.62
   4.51   0.00   0.00    8984.32    46.93     0.00     2.31   2066.   46.95    0.00    11.82   175.52    9.51   173.21
   4.52   0.00   0.00    9005.49    46.93     0.00     2.32   2066.   46.95    0.00    11.80   175.12    9.49   172.80
   4.53   0.00   0.00    9026.67    46.93     0.00     2.32   2066.   46.95    0.00    11.79   174.72    9.46   172.39
   4.54   0.00   0.00    9047.85    46.93     0.00     2.33   2066.   46.95    0.00    11.77   174.32    9.44   171.99
   4.55   0.00   0.00    9069.03    46.93     0.00     2.33   2066.   46.95    0.00    11.75   173.92    9.42   171.59
   4.56   0.00   0.00    9090.21    46.93     0.00     2.34   2066.   46.95    0.00    11.74   173.53    9.40   171.19
   4.57   0.00   0.00    9111.39    46.93     0.00     2.34   2066.   46.95    0.00    11.72   173.14    9.38   170.79
   4.58   0.00   0.00    9132.57    46.93     0.00     2.35   2066.   46.95    0.00    11.70   172.74    9.35   170.39
   4.59   0.00   0.00    9153.75    46.93     0.00     2.35   2066.   46.95    0.00    11.69   172.36    9.33   170.00
   4.60   0.00   0.00    9174.93    46.93     0.00     2.36   2066.   46.95    0.00    11.67   171.97    9.31   169.61
   4.61   0.00   0.00    9196.11    46.93     0.00     2.36   2066.   46.95    0.00    11.65   171.58    9.29   169.22
   4.62   0.00   0.00    9217.29    46.93     0.00     2.37   2066.   46.95    0.00    11.64   171.20    9.27   168.83
   4.63   0.00   0.00    9238.47    46.93     0.00     2.38   2066.   46.95    0.00    11.62   170.82    9.25   168.44
   4.64   0.00   0.00    9259.65    46.93     0.00     2.38   2066.   46.95    0.00    11.61   170.44    9.23   168.06
   4.65   0.00   0.00    9280.82    46.93     0.00     2.39   2066.   46.95    0.00    11.59   170.06    9.20   167.67
   4.66   0.00   0.00    9302.00    46.93     0.00     2.39   2066.   46.95    0.00    11.57   169.68    9.18   167.29
   4.67   0.00   0.00    9323.18    46.93     0.00     2.40   2066.   46.95    0.00    11.56   169.31    9.16   166.91
   4.68   0.00   0.00    9344.36    46.93     0.00     2.40   2066.   46.95    0.00    11.54   168.93    9.14   166.53
   4.69   0.00   0.00    9365.54    46.93     0.00     2.41   2066.   46.95    0.00    11.53   168.56    9.12   166.16
   4.70   0.00   0.00    9386.72    46.93     0.00     2.41   2066.   46.95    0.00    11.51   168.19    9.10   165.78
   4.71   0.00   0.00    9407.89    46.93     0.00     2.42   2066.   46.95    0.00    11.50   167.82    9.08   165.41
   4.72   0.00   0.00    9429.08    46.93     0.00     2.42   2066.   46.95    0.00    11.48   167.46    9.06   165.04
   4.73   0.00   0.00    9450.25    46.93     0.00     2.43   2066.   46.95    0.00    11.47   167.09    9.04   164.67
```

Gambar 4.5 Output Hidrostatik MOSES

Dari output MAXSURF dan MOSES yang ada maka model dapat divalidasi dengan membandingkan hidrostatik seagood dengan hidrostatik output MAXSURF dan MOSES. Berikut merupakan validasi hidrostatik yang ditunjukkan Tabel 4.1 dan 4.2:

Tabel 4.1 Koreksi hidrostatik dari data general arrangement dan MAXSURF

Parameter	Hidrostatic Seagood	MAXSURF	Koreksi (%)
Displacement (ton)	8988,97	8921,4	0,75
L (m)	93,9	93,9	0,00
B (m)	22	22	0,00
H (m)	6	6	0,00
T (m)	4,5	4,5	0,00
VCB (m)	2,304 From B.L	2,304 From B.L	0,00
TCB (m)	0,114 Port of C.L.	0,114 Port of C.L.	0,00
LCB (m)	46,953 From AP	46,925 From AP	0,06
LCF (m)	46,944 From AP	46,950 From AP	0,01
KMl (m)	175.5	176,496	0,56
KMt (m)	11,832	11,881	0.41
MTc	168	167,688	0,19

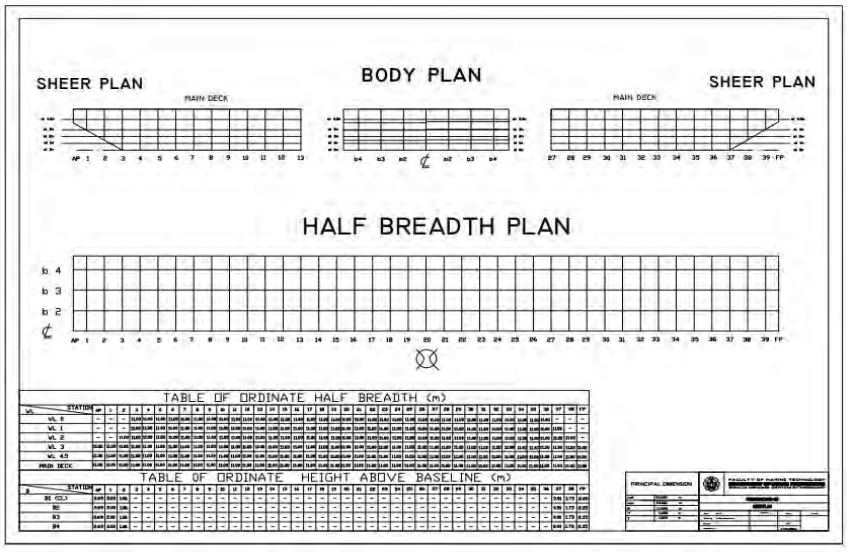
Tabel 4.2 Koreksi hidrostatik dari data keluaran MAXSURF dan MOSES

Parameter	MOSES	MAXSURF	Koreksi (%)
Displacement (ton)	8963,14	8921,4	0.28
L (m)	93,9	93,9	0,00
B (m)	22	22	0,00
H (m)	6	6	0,00
T (m)	4,5	4,5	0,00
KMl (m)	175,92	176,496	0,29
KMt (m)	11,84	11,881	0,35
BMl (m)	173,62	174,184	0,32
BMt (m)	9,53	9,569	0,41
LCF (m)	46,95 From AP	46,95 From AP	0,00
LCB (m)	46,93 From AP	46,93 From AP	0,00

Dari koreksi yang kurang dari 5%, maka model dikatakan dapat digunakan untuk analisa lebih lanjut dalam mengerjakan tugas akhir ini.

4.3. Rencana Garis

Model kapal yang telah divalidasi dapat digunakan untuk analisis lebih lanjut.Sebelumnya perlu dilakukan perancangan rencana garis atau yang disebut Lines Plan dan dapat dilihat pada Gambar 4.6.



Gambar 4.6 Rencana garis FPSO seagood 101

4.4. Analisis Gerakan FPSO *seagood* 101

Setelah melakukan pemodelan FPSO langkah selanjutnya adalah analisis gerakan FPSO pada kondisi *free floating* dengan menggunakan *software* MOSES. Hasil analisis dari Moses ini adalah RAO *motion* yang bertujuan untuk mengetahui karakteristik gerakan kapal pada mode gerakan *surge*, *heave*, *sway*, *roll*, *pitch* dan *yaw*. Dalam input untuk software Moses dibutuhkan nilai radius girasi yang digunakan untuk menghitung inersia kapal yang nilai radius girasi tersebut diperoleh dari harga titik berat kapal.

Dalam analisis gerakan FPSO pada tugas akhir ini dilakukan pada kondisi pembebanan full dan arah datang gelombang dari arah head seas (180^o). Dalam input untuk software Moses dibutuhkan nilai radius girasi yang berhubungan dengan Harga *center of grafity* ini yang akan berhubungan langsung dengan nilai radius girasi yang digunakan untuk menghitung inersia kapal, mengacu pada persamaan inersia yang merupakan hasil kali antara massa kapal dengan kuadrat dari radius girasi.

4.4.1 Perhitungan Titik Berat Struktur

Dikarenakan pemodelan hanya pada bagian lambung kapal saja, maka *center of gravity* dari lambung kapal tersebut perlu dikoreksi dengan menambahkan *point mass* dari bangunan atas, tangki muatan dan jumlah muatan yang mengisi tanki tersebut berdasarkan lokasi yang sesuai dengan *General Arrangement*. Berdasarkan perhitungan tersebut akan didapatkan *center of gravity* baru sesuai dengan skenario kondisi muatan yang akan dianalisis. Penambahan *point mass* ini juga akan berdampak pada sarat kapal yang akan semakin bertambah seiring dengan penambahan massa baru pada struktur.

Titik Berat		
COG X (meter)	COG Y (meter)	COG Z (meter)
44,49 From AP	-0,09 Port of C.L.	5,60 From B.L

4.4.2 Perhitungan Radius Girasi Struktur

Perhitungan radius girasi struktur didasarkan pada persamaan yang diajukan oleh Bhattacharyya (1978) dimana radius girasi dari gerak

rotasi struktur merupakan hasil akar dari jumlah massa dikalikan masing-masing jarak massa tersebut dari *center of gravity* struktur.

- Radius girasi *roll* $k_{xx} = \sqrt{\frac{\sum w_i(y_i^2 + z_i^2)}{\Delta}}$
- Radius girasi *pitch* $k_{yy} = \sqrt{\frac{\sum w_i(x_i^2 + z_i^2)}{\Delta}}$
- Radius girasi *yw* $k_{zz} = \sqrt{\frac{\sum w_i(x_i^2 + y_i^2)}{\Delta}}$

Menurut Bhattacharyya (1978) perhitungan ini dilakukan dengan membagi kapal dalam bentuk pias-pias kecil kemudian dihitung dengan perkalian simpson. Namun sejak bentuk kapal yang akan dianalisis berbentuk tidak homogen sehingga akan relatif susah menentukan titik *point mass* dari sebuah volume benda tak beraturan, maka dalam penelitian ini perhitungan radius girasi dilakukan dengan pendekatan standard Bureau Veritas, yaitu sebagai berikut :

- Radius girasi *roll*

$$k_{xx} = 0{,}289 * B * \left(1{,}0 + \left(\frac{2\,\overline{KG}}{B}\right)^2\right)$$

- Radius girasi *pitch* = radius girasi *yaw*

$$k_{yy} = k_{zz} = \sqrt{\frac{1}{12}}L$$

dengan,
B = lebar kapal (meter)
$\overline{KG}$ = jarak *keel to gravity* (meter)
L = *Length of Water Line* (meter)
Berikut ini hasil dari perhitungan *center of gravity* dan radius girasi kapal dalam kondisi full load

Radius Girasi		
k_{xx} (meter)	k_{yy} (meter)	k_{zz} (meter)
13,16	27,40	30,07

4.4.3. Analisis RAO

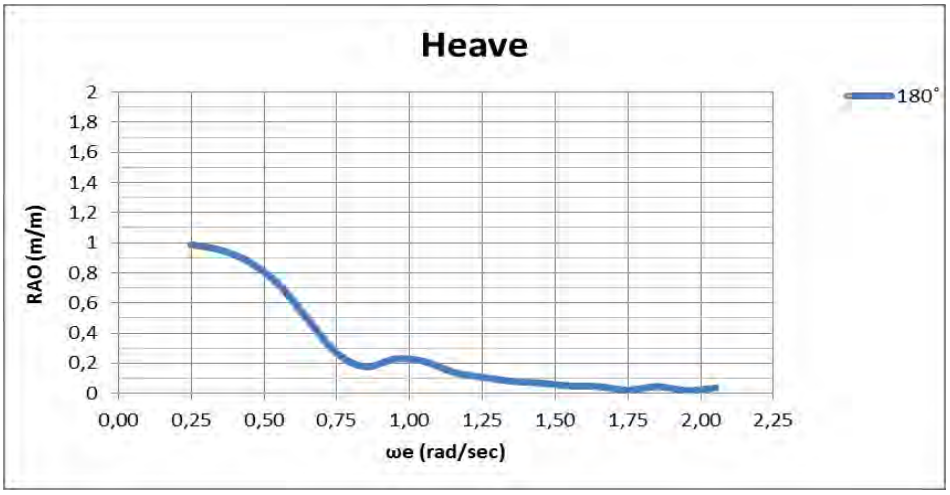
Analisis RAO *motion* ini dilakukan untuk mengetahui karakteristik gerakan kapal pada mode gerakan *heave* dan *pitch*. Grafik fungsi transfer (RAO/ *Response Amplitude Operator*) digambarkan sebagai grafik fungsi antara respon gerakan suatu bangunan apung akibat eksitasi yang terjadi. Dari grafik RAO dapat dilihat bahwa sumbu x merupakan fungsi frekuensi (**ω**) dan sumbu y merupakan fungsi RAO. Analisis gerakan ini dibantu dengan menggunakan *sofware* MOSES yang ditunjukkam Tabel 4.3.

Tabel 4.3 Hasil RAO Gerakan *Heave* dan *Pitch*

Frequency (rad/sec)	**Period (s)**	**Heave (m/m)**	**Phase (deg)**	**Pitch (deg/m)**	**Phase (deg)**
		180°		**180°**	
0,25	25,13	0,987	-15	0,366	73
0,35	17,95	0,952	-30	0,693	57
0,45	13,96	0,871	-50	1,091	35
0,55	11,42	0,723	-74	1,470	9
0,65	9,67	0,492	-100	1,745	-24
0,75	8,38	0,266	-114	1,656	-61
0,85	7,39	0,176	-95	1,150	-98
0,95	6,61	0,229	-97	0,556	-109
1,05	5,98	0,213	-127	0,627	-95
1,15	5,46	0,140	-143	0,610	-132
1,25	5,03	0,107	-149	0,373	-149
1,35	4,65	0,080	-165	0,278	-144
1,45	4,33	0,069	-166	0,200	-163
1,55	4,05	0,049	-172	0,194	-168
1,65	3,81	0,045	168	0,130	-175
1,75	3,59	0,021	171	0,134	158
1,85	3,40	0,045	-100	0,043	-131
1,95	3,22	0,019	141	0,169	164
2,05	3,06	0,035	161	0,078	162

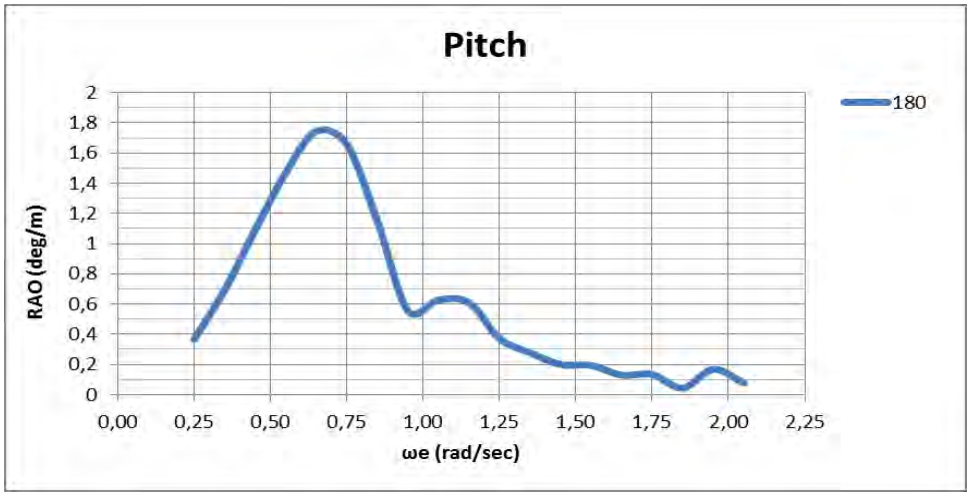
Pemodelan dengan perangkat lunak MOSES menghasilkan RAO untuk sudut datang gelombang 180° atau disebut juga head seas. Gerakan yang ditinjau hanya gerakan isolasi Heave dan pitch dikarenakan kedua

gerakan tersebut sangat mempengaruhi gerakan kapal pada bahasan tugas akhir ini. Data RAO ini menunjukkan karakteristik perilaku gerak FPSO pada kondisi terapung bebas.Dari Gambar 4.7 dan 4.8 tersebut dapat dilihat bahwa sumbu x merupakan fungsi frekuensi dan sumbu y merupakan fungsi RAO.



Gambar 4.7 Grafik RAO FPSO seagood 101 pada gerakan heave

Gerakan heave merupakan salah satu pola gerakan vertikal untuk kapal atau bangunan lepas pantai. Dilihat dari grafik, bahwa semakin kecil frekuensi maka semakin kecil pula nilai RAO, yang berarti respon gerakan struktur akibat adanya gelombang hampir tidak ada dan bahkan mengecil. Dapat dilihat gerakan *Heave* dimulai pada frekuensi 0,25 (rad/sec) sebesar 0,987 m/m kemudian grafik secara bertahap turun lalu naik secara tidak signifikan pada RAO 0,229 deg/m dan menurun lagi sampai mendekati 0 deg/m.



Gambar 4.8 Grafik RAO FPSO seagood 101 pada gerakan pitch

Gerakan pitch merupakan salah satu mode gerakan vertikal untuk kapal atau bangunan lepas pantai. Dari grafik *pitch* dapat dilihat bahwa karakteristik grafik RAO *pitch* berbeda dengan grafik RAO *Heave*. Dapat dilihat gerakan pitch jika dilihat dari grafik RAO dimulai pada frekuensi 0,25 rad/sec sebesar 0.366 deg/m naik hingga RAO sebesar 1,745 deg/m dan turun kembali hingga mendekati nol. Dari kedua grafik RAO diatas dapat diketahui nilai maksimum *Heave* dan *Pitch* pada sudut datang gelombang 180˚ yang dapat dilihat pada Tabel 4.4.

Tabel 4.4 Nilai maksimum RAO

Gerakan	**Unit**	**RAO Maksimal Sudut Datang Gelombang 180˚**
Heave	m/m	0,987
Pitch	deg/m	1,745

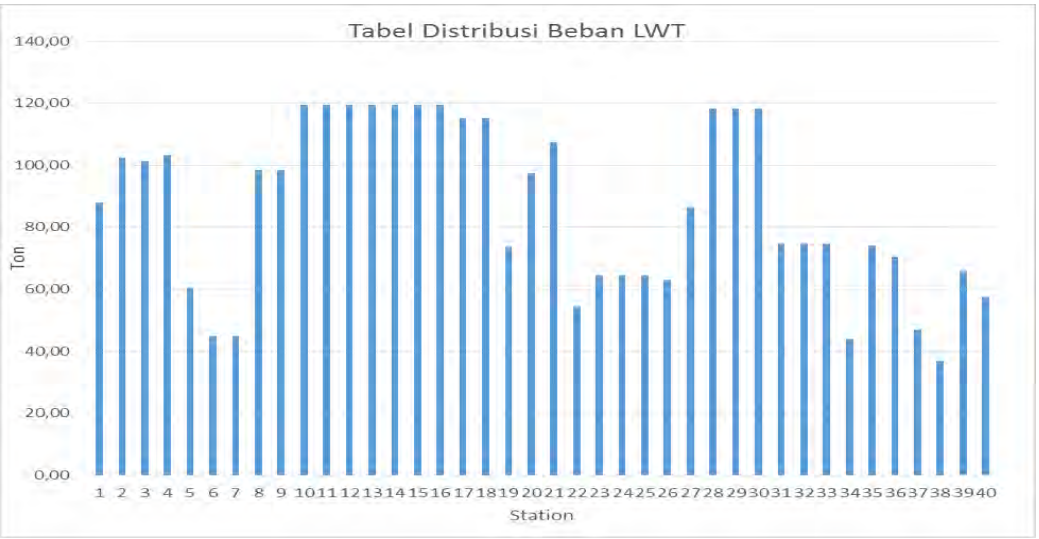
4.5. ANALISIS DISTRIBUSI BEBAN

Berat suatu kapal secra umum dapat dikategorikan menjadi dua yaitu LWT(Light Weight Tonnage) dan DWT(Dead Weight Tonnage).Perhitungan berat kapal dilakukan untuk megetahui gaya-gaya tekan ke bawah yang berkontribusi terhadap kekuatan memanjang kapal. Berat-berat yang

dipertimbangkan dalam perhitungan LWT berdasarkan general arrangement yang sudah ada antara lain, berat konstruksi tiap frame, permesinan, perlengkapan, furniture, perpipaan, alat pengeboran, dan sebagainya. Berikut adalah komponen-komponen dan grafik distribusi beban LWT pada FPSO *seagood* 101 dan dapat dilihat pada Tabel 4.5 dan Gambar 4.9.

Tabel 4.5 Komponen berat LWT

No	Nama Komponen	Berat (ton)
1	LIVING QUARTER	265
2	ENGINE EQUIPMENT	350,175
3	PROCESS EQUIPMENT	171,00
4	CRANE	321
5	STORE EQUIPMENT	312,3
6	PROCESS EQUIPMENT 2	331
7	FLARE BOOM	174,46
8	LIFE BOAT	1,20
9	MOTOR	26,92
10	PUMP	30,92
11	SEPARATOR EQUIPMENT	77,22
12	BERAT BAJA BADAN KAPAL	1473,56

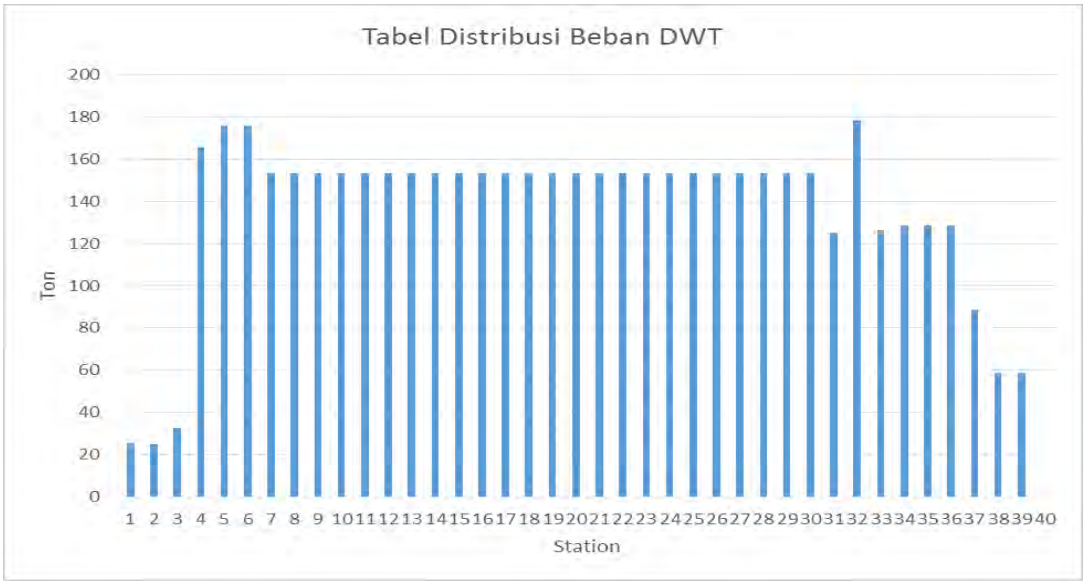


Gambar 4.9 Grafik distribusi beban LWT pada FPSO *seagood* 101

Sedangkan untuk distribusi beban DWT drillship dengan muatan penuh, berat-berat yang pertimbangkan dalam perhitungan DWT berdasarkan General Arrangement yang sudah ada antara lain, bahan bakar, air tawar, air untuk pengeboran, pelumas, logistik, dan sebagainya. Berikut adalah komponen berat dan grafik distribusi beban DWT pada FPSO *seagood* 101 dan dapat dilihat pada Tabel 4.6 dan Gambar 4.10.

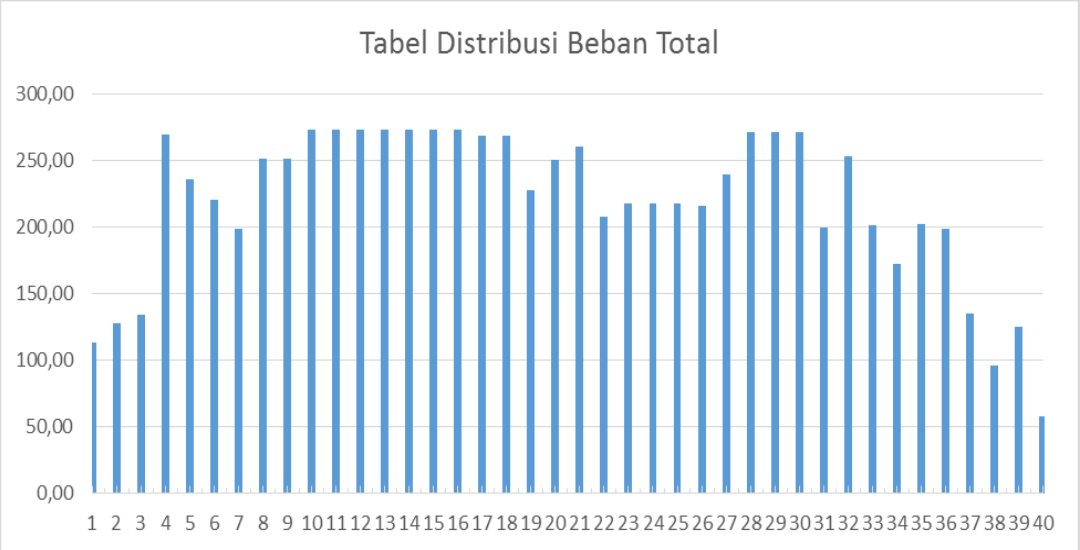
Tabel 4.6 Komponen berat DWT

No	Nama Komponen	Berat (ton)
1	CARGO	4825,6
2	FPT	176,34
3	FUEL OIL	79,76
4	FRESH WATER	40,39
5	LOGISTIK	20,40
6	SLOP	158,72



Gambar 4.10 Grafik distribusi beban DWT pada FPSO *seagood* 101

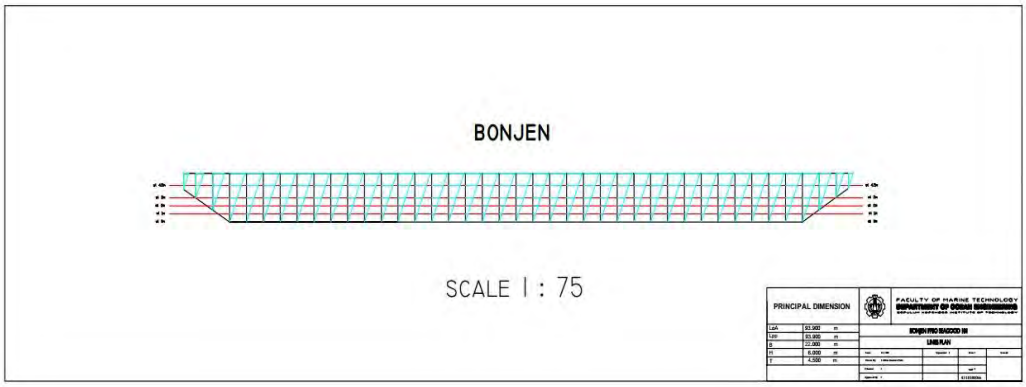
Setelah masing-masing distribusi beban LWT dan DWT diketahui maka didapatkan distribusi beban total yang terjadi pada FPSO *seagood* 101 tersebut yang dapat dilihat pada gambar di bawah ini. Pada Gambar 4.11 terlihat bahwa distribusi beban total yang terjadi pada FPSO *seagood* 101.



Gambar 4.11 Grafik distribusi beban total pada FPSO *seagood* 101

4.6 Analisa Gaya Geser dan Momen Lengkung pada Gelombang Reguler

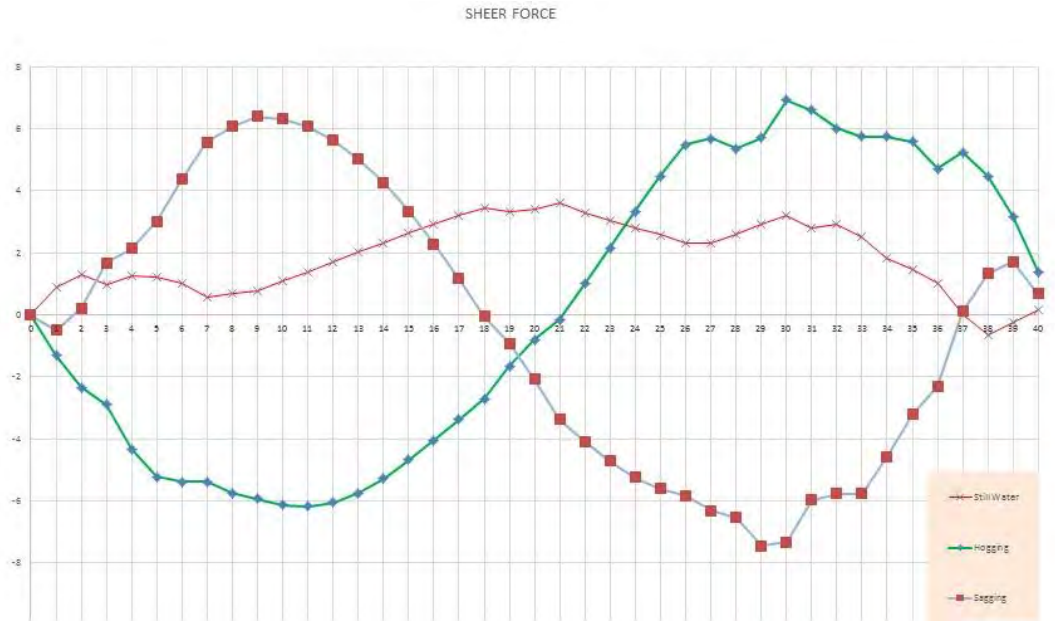
Dalam perhitungan shear force dan bending moment FPSO seagood 101 beracu pada buku basic ship theory. Dari buku tersebut dinyatakan bahwa sheer force pada ujung-ujung station harus mendekati nol dan nilai bending moment pada ujung-ujung station bernilai nol. Perhitungan didapatkan dari data-data sebelumnya yang diketahui seperti luasan bawah air per station serta berat total FPSO per station. Oleh karena itu digunakan grafik bonjean pada Gambar 4.12 untuk mengetahuinya.



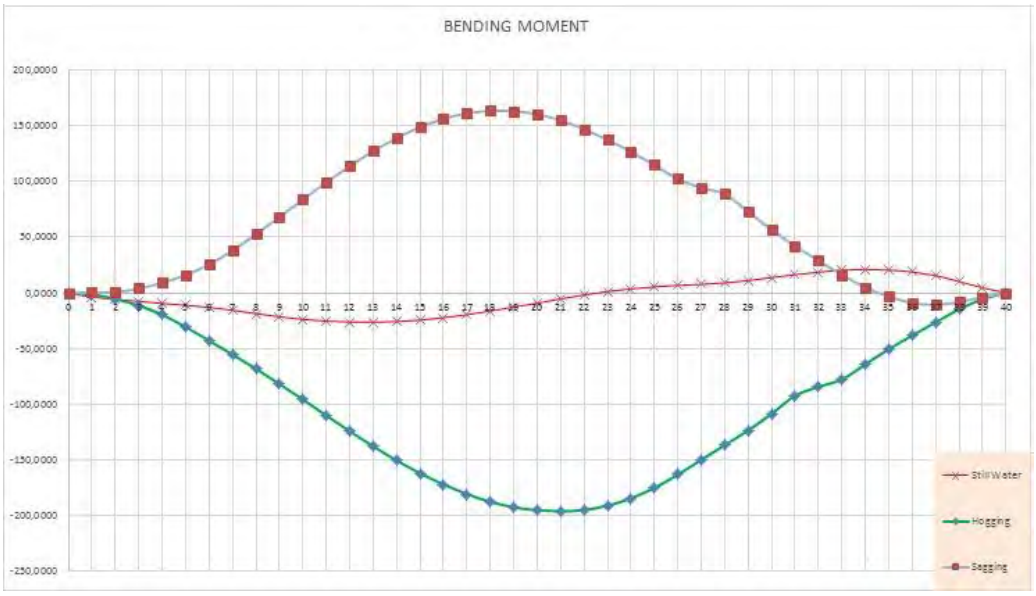
Gambar 4.12 Bonjen FPSO *seagood* 101

Perhitungan kekuatan memanjang kapal dititik beratkan oleh pengaruh gelombang reguler dengan kondisi-kondisi batas pemodelan yang telah

dilakukan dan *output* yang diperoleh serta perhitungan matematis dapat diperoleh sebaran gaya geser dan momen lengkung pada setiap *station* seperti yang ditunjukkan Gambar 4.13 dan 4.14.



Gambar 4.13 Grafik Shear Force pada gelombang reguler



Gambar 4.14 Grafik Bending Moment pada gelombang regular

Dari grafik tersebut didapatkan nilai *shear force* dan *bending moment still water* 3,608 MN dan 26,3595 MNm, nilai *shear force* dan *bending moment hogging* 6,9250 MN dan 196,2884 MNm serta nilai *shear force* dan *bending moment sagging* 7,3248 MN dan 163,5722 MNm

4.7. ANALISA GAYA GESER DAN MOMEN LENGKUNG DENGAN METODE QUASI-STATIS

Yang dimaksud dengan metode quasi-statis ialah perhitungan dengan pendekatan statis terhadap perilaku dinamis objek. Dalam tugas akhir ini gerak FPSO Seagood 101 ditinjau terhadap tiap-tiap siklus gelombang yang terjadi. Dalam perhitungan respon struktur dengan pendekatan Quasi-Statis, perhitungan dilakukan pada saat kapal bergerak kopel heave-pitch dengan tinggi gelombang unity (amplitudo=1m) dan menggunakan variasi sudut fase gelombang. Pemilihan tinggi gelombang unity dalam hal ini dimaksudkan untuk menjaga supaya kemiringan kapal dalam pengaruh gerakan kopel heave pitch tidak terlalu besar sehingga dapat mengakibatkan nilai shear force dan bending moment yang jauh lebih besar dari kondisi yang sebenarnya kapal ini beroperasi.

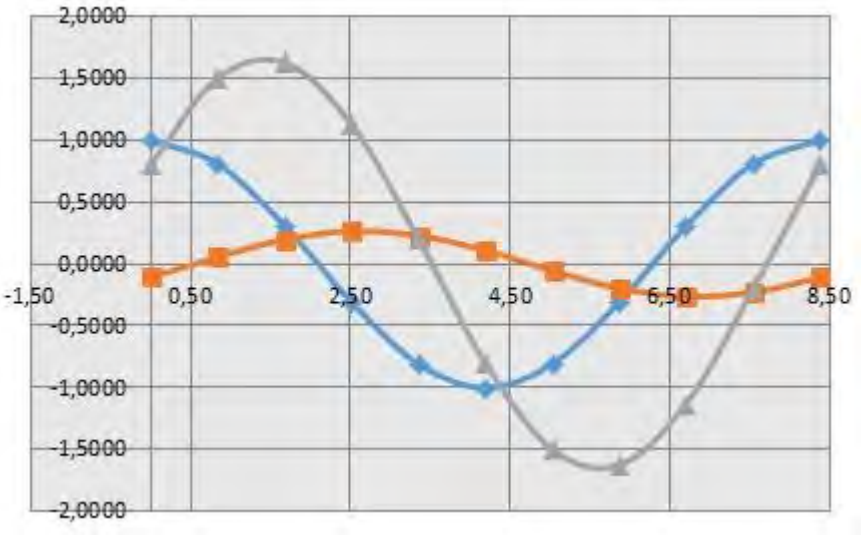
Dalam perhitungan quasi static kaliini diambil beberapa frekuensi yang didapat dari analisa RAO sebelumnya. Frekuensi-frekuensi tersebut antara lain 0,25 rad/s ; 0,35 rad/s ; 0,45 rad/s; 0,45 rad/s ; 0,65 rad/s ; 0,75 rad/s ; 0,85 rad/s ; 0,95 rad/s ; 1,05 rad/s ; 1,15 rad/s ; 1,25 rad/s. Setelah dilakukan pemodelan maka didapatkan sheer force serta bending moment tiap station. Analisa dilakukan pada tiga bagian yakni 1/4AP, ¼ FP, dan midship.

Dari hasil RAO frekuensi 0,75 rad/s didapatkan nilai periode 8,38s, heave 0,266m, sudut fase heave -114 deg, pitch 1,656 deg dan sudut fase pitch -61. Dari data tersebut maka dibuat sepuluh vareasi perperiode. Hasil sepuluh vareasi perperiode ditunjukkan pada Tabel 4.7. Dengan kurva yang

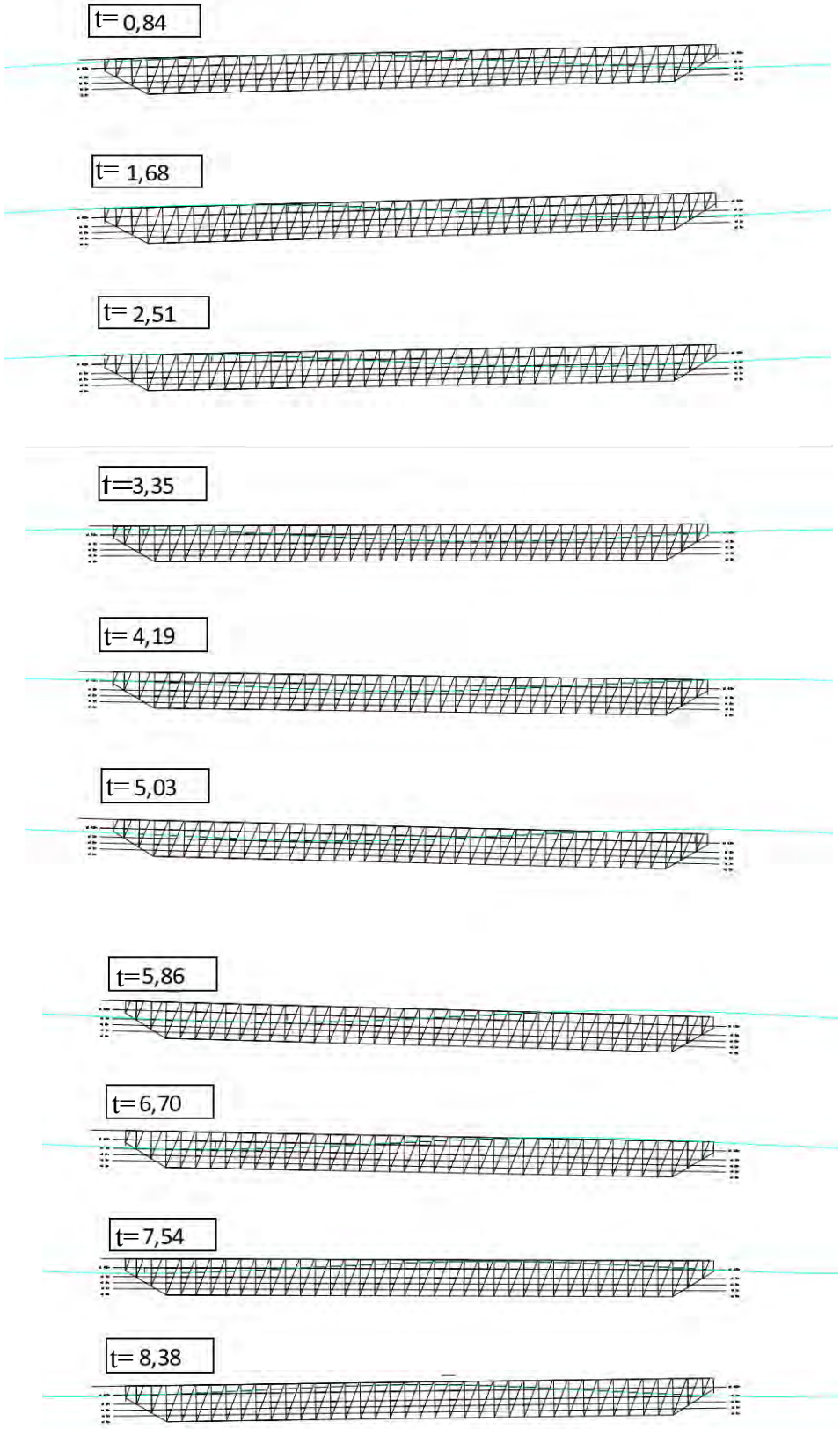
ditunjukkan Gambar 4.15. Dan Gambar 4.16 merupakan pergerakan kapal akibat gerakan heave dan pitch pada frekuensi 0,75 rad/s:

Tabel 4.7 sepuluh vareasi perperiode pada frekuensi 0,75 rad/s

t	zw	zz	zq
	cos ωt	cos(ωt + εz)	cos(ωt + εq)
0,84	0,8090	0,0553	1,5009
1,68	0,3090	0,1977	1,6255
2,51	-0,3090	0,2645	1,1293
3,35	-0,8090	0,2303	0,2017
4,19	-1,0000	0,1082	-0,8030
5,03	-0,8090	-0,0553	-1,5009
5,86	-0,3090	-0,1977	-1,6255
6,70	0,3090	-0,2645	-1,1293
7,54	0,8090	-0,2303	-0,2017
8,38	1,0000	-0,1082	0,8030

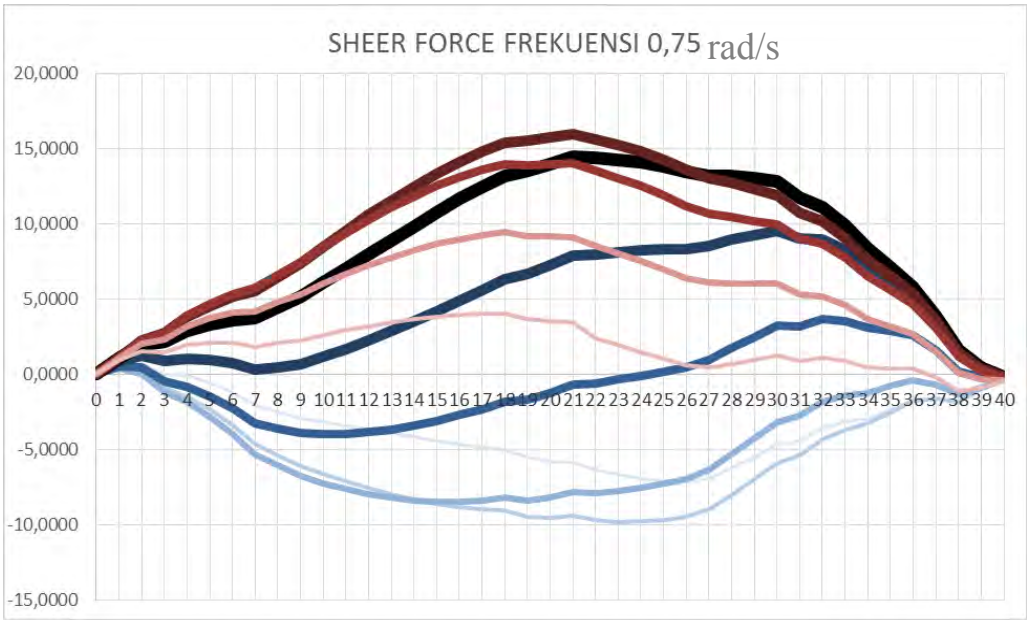


Gambar 4.15 grafik sepuluh vareasi perperiode pada frekuensi 0,75 rad/s

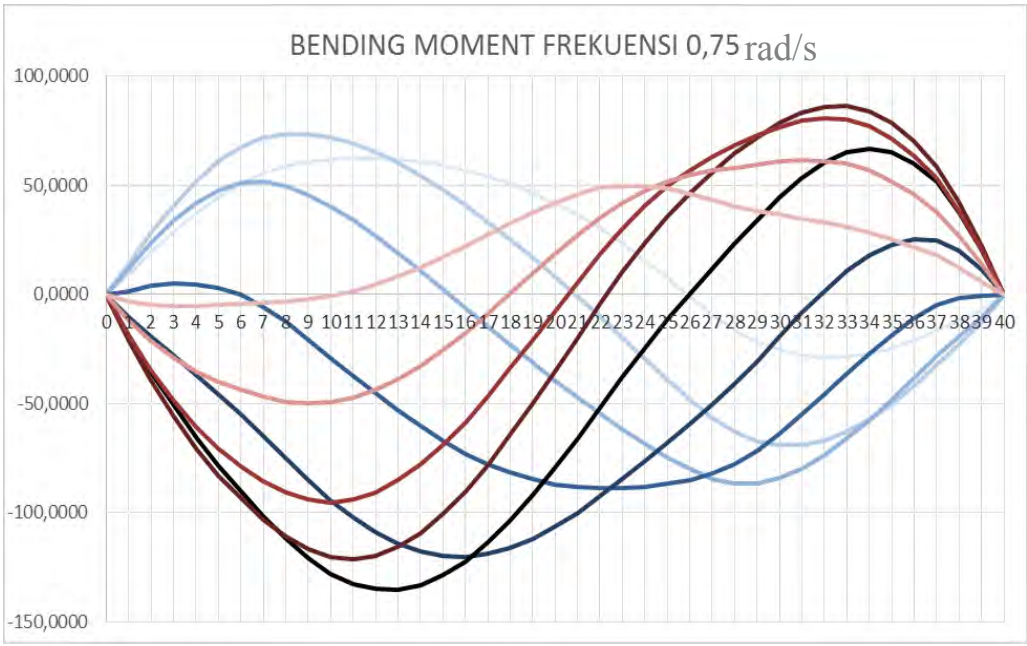


Gambar 4.16 Posisi FPSO dalam satu siklus akibat pengaruh *heave* dan *pitch* pada gelombang dengan tinggi H = 2m dan frekuensi 0,75 rad/s

Dari sepuluh vareasi fase diatas maka didapatkan nilai-nilai *shear force* serta *bending moment* yang berbeda-beda. Selanjutnya dilakukan plot nilai *shear force* serta *bending moment* untuk menghasilkan grafik untuk melihat perbedaan nilai *shear force* serta *bending moment* pada tiap fase. Gambar 4.17 dan 4.18 merupakan grafik hasil *shear force* serta *bending moment* yang terdapat pada frekuensi 0,75 rad/s.



Gambar 4.17 Grafik *shear force* pada frekuensi 0,75 rad/s



Gambar 4.18 Grafik *bending moment* pada frekuensi 0,75 rad/s

Dari data tersebut maka dilakukan plot nilai sheer force serta bending moment maksimal pada tiap-tiap frekuensi sehingga didapatkan RAO sheer force serta RAO bending moment yang ditunjukkan Tabel 4.8, 4.9 dan 4.10 serta Gambar 4.19 sampai Gambar 4.24.

Tabel 4.8 Nilai Tertinggi shear force dan bending moment perfrekuensi pada ¼AP

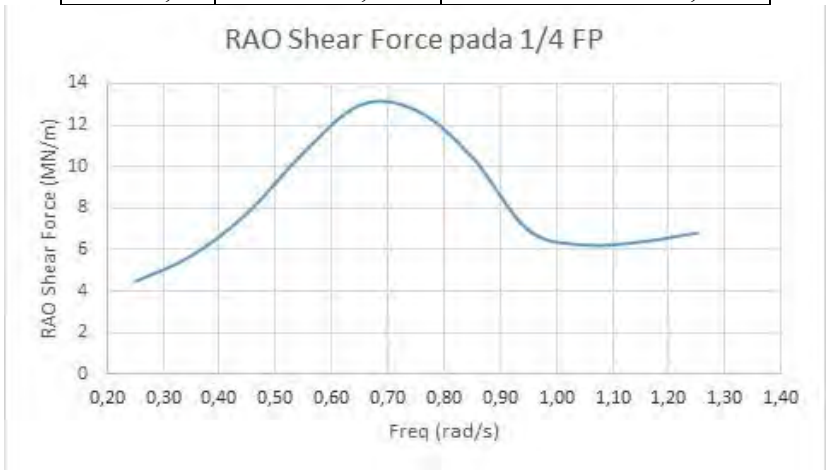
Frekuensi (Rad/Sec)	Nilai Tertinggi 1/4 AP	
	Shear Force (MN)	Bending Moment (MN.m)
0,25	2,2835	43,6428
0,35	2,4928	48,0192
0,45	3,8991	72,5943
0,55	5,9677	97,4961
0,65	7,6849	123,7498
0,75	8,6344	127,8363
0,85	7,6516	118,9455
0,95	5,2187	90,4032
1,05	3,3191	65,7881
1,15	3,5844	69,5650
1,25	2,7474	74,0748

Gambar 4.19 Grafik RAO shear force pada ¼ AP

Gambar 4.20 Grafik RAO bending moment pada ¼ AP

Tabel 4.9 Nilai Tertinggi shear force dan bending moment perfrekuensi pada ¼FP

Frekuensi (Rad/Sec)	Nilai Tertinggi 1/4 FP	
	Shear Force (MN)	Bending Moment (MN.m)
0,25	4,4812	21,3411
0,35	5,6889	15,5720
0,45	7,5337	22,5825
0,55	10,5799	37,7352
0,65	12,9678	67,1213
0,75	12,7199	89,0775
0,85	10,4586	88,2486
0,95	7,2064	65,5980
1,05	6,2314	33,1106
1,15	6,3777	27,0979
1,25	6,8067	37,2163



Gambar 4.21 Grafik RAO shear force pada ¼ FP

Gambar 4.22 Grafik RAO bending moment pada ¼ FP

Tabel 4.10 Nilai Tertinggi shear force dan bending moment per frekuensi pada midship

Frekuensi (Rad/Sec)	Nilai Tertinggi Midship	
	Shear Force (MN)	Bending Moment (MN.m)
0,25	4,7853	35,2344
0,35	5,7662	30,5669
0,45	8,0862	45,7012
0,55	11,6246	56,7347
0,65	14,8250	84,9287
0,75	15,8478	109,9094
0,85	13,9384	123,4643
0,95	9,4668	109,0780
1,05	7,3524	68,2424
1,15	6,5225	25,8358
1,25	6,2222	50,2561

Gambar 4.23 Grafik RAO shear force pada midship

Gambar 4.24 Grafik RAO bending moment pada midship

Dari data diatas maka dapat diketahui bahwa nilai maksimum *shear force* berada di bagian midship pada frekuensi 0,75 rad/s dengan nilai *shear force* maksimal 15,8478 MN dan nilai maksimum *bending moment* berada di bagian ¼ AP pada frekuensi 0,75 rad/s dengan nilai *bending moment* maksimal 127,8363 MN.

Jika dibandingkan dengan perhitungan menggunakan ABS pada sub-bab 2.2.8. maka didapatkan nilai *shear force* sebesar 7,1819 MN pada ¼ AP, 5,5926 MN pada midship dan 7,8994 MN pada ¼ FP. Sedangkan nilai *bending moment* dihasilkan dalam keadaan *hogging* dan *sagging* dengan nilai *bending moment hogging* sebesar 268,77 MN.m dan nilai *bending moment sagging* sebesar 271,98 MN.m

Jika dibandingkan dari hasil perhitungan manual Quasi-static dengan perhitungan ABS maka didapatkan nilai perhitungan Quasi-static lebih kecil dari perhitungan ABS pada *shear force* 1/4 AP, *shear force* 1/4 FP dan *bending moment.* Sedangkan nilai perhitungan Quasi-static lebih besar dari perhitungan ABS pada *shear force* Midship.

4.8 ANALISIS BEBAN GELOMBANG

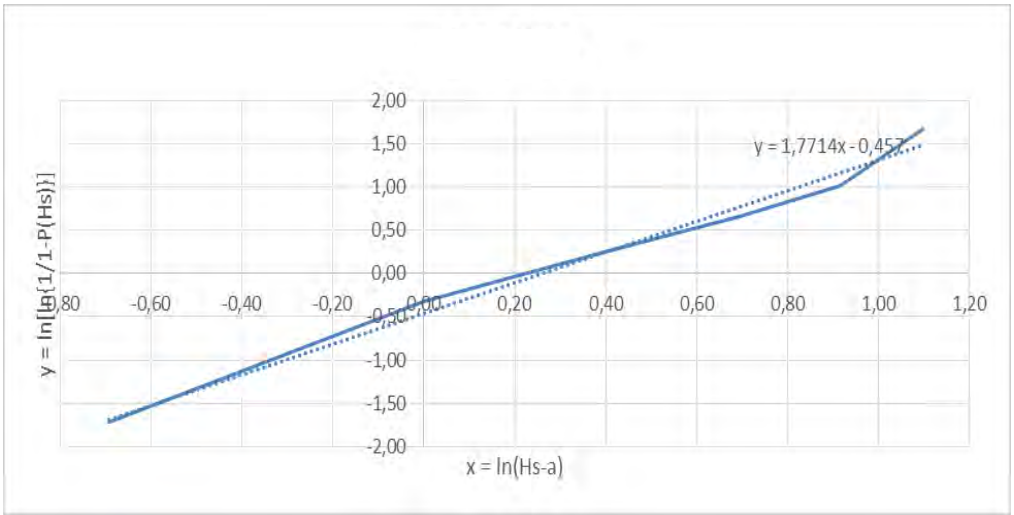
Pada tugas akhir ini digunakan beban gelombang dengan distribusi gelombang kurun waktu pendek dan distribusi gelombang kurun waktu

panjang. Dimana distribusi gelombang kurun waktu pendek digunakan untuk perhitungan beban gelombang pada kondisi operasi yang selanjutnya untuk mendapatkan shear force dan bending moment ekstrem dimana perhitungan distribusi gelombang kurun waktu pendek dilakukan dengan menggunakan periode pada jumlah kejadian terbanyak pada masing-masing Hs yang terjadi pada data sebaran gelombang pada perairan tempat FPSO dioperasikan yakni perairan Indonesia.

Perhitungan P(Hs) pada, jumlah gelombang total yang terjadi ditambahkan dengan 0.5 kali kejadian gelombang. Nilai 0.5 jumlah gelombang adalah untuk mengantisipasi ketaktentuan karena kemungkinan adanya gelombang dengan intensitas di atas $Hmax$ terbesar dari data yang ada. Nilai P(Hs) didapat dari pembagian antara kumulatif dari kejadian gelombang dibagi dengan jumlah total kejadian gelombang yang ditunjukkan Tabel 4.11. Dan dari hasil tabel tersebut didapat grafik distribusi seperti Gambar 4.25.

Tabel 4.11 Perhitungan komponen peluang kumulatif

Hs (m)	**P (Hs)**	**ln (Hs -a)**	**ln[ln{1/1-P(Hs)}]**
0,5	0,16347	-0,69315	-1,72322
1	0,51506	0,00000	-0,32332
1,5	0,72546	0,40547	0,25671
2	0,85433	0,69315	0,65566
2,5	0,93596	0,91629	1,01099
3	0,99503	1,09861	1,66846



Gambar 4.25 Grafik korelasi antara tinggi gelombang dan distribusi kumulatif

Dalam tugas akhir ini prediksi gelombang kurun waktu panjang yang dihitung yakni pada kurun waktu 10 tahun, 20 tahun, dan 30 tahun menyesuaikan dengan umur dari objek yang dianalisa yang ditunjukkan Tabel 4.12.

Tabel 4.12 Hasil perhitungan periode waktu gelombang

Kurun Waktu	P_y(Hs)	ln[ln{1/1-Py(Hs)}]	ln (Hs - a)	Hs (m)
10 Tahun	0,999965753	2,330387401	1,573550526	4,823744654
20 Tahun	0,999982877	2,395626444	1,610379611	5,004710712
30 Tahun	0,999988584	2,431904552	1,630859519	5,108263482

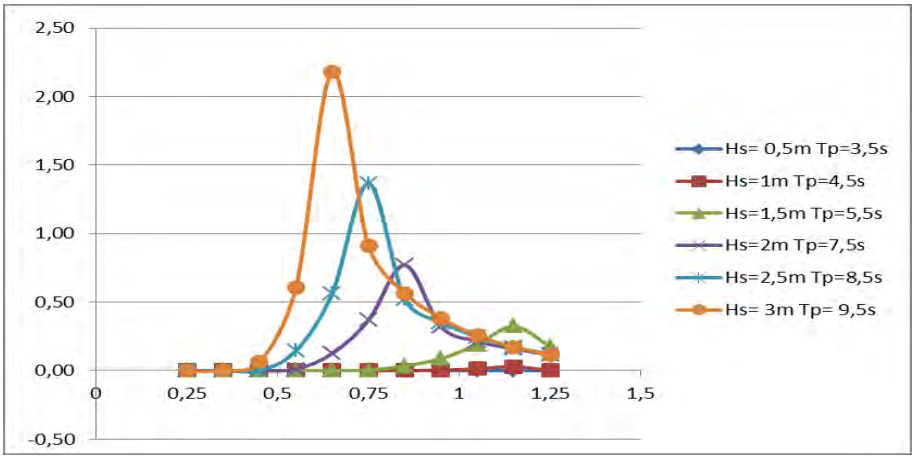
Dari hasil perhitungan Hs pada kurun waktu panjang tersebut maka yang digunakan dalam analisa kurun waktu panjang adalah Hs= 4,8237 m pada kurun waktu 10 tahun, Hs= 5,0047 m pada kurun waktu 20 tahun, dan Hs= 5,1083 m pada Tp= 11.5 s . Hs tersebut digunaka untuk memprediksi shear force dan bending moment ekstrem pada 10 tahunan, 20 tahunan, dan 30 tahunan pada perairan Indonesia.

4.9 ANALISIS SPEKTRA GELOMBANG

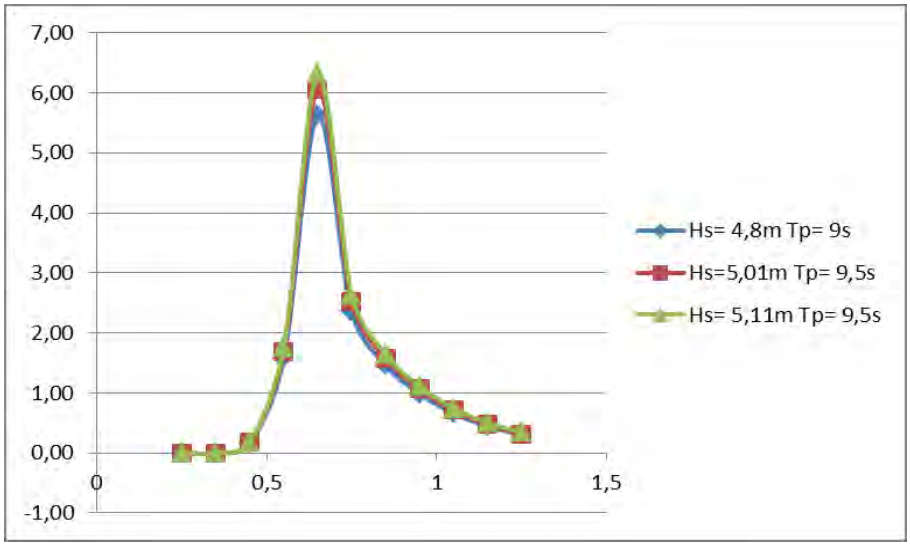
Analisis spektra dilakukan dalam rangka untuk memperoleh data yang akan digunakan untuk mengidentifikasikan respon struktur di lingkungan laut riil

yang bergelombang acak. Analisis ini dilakukan dengan menggunakan formulasi Spektra JONSWAP.

Distribusi gelombang kurun waktu pendek terdapat delapan variasi Hs dengan masing-masing Tp. Sedangkan untuk distribusi gelombang kurun waktu panjang terdapat tiga variasi Hs dengan Tp= 11.5s. Dengan bentuk kurva spectra seperti Gambar 4.26 dan 4.27 yang selanjutnya dihitung saat FPSO *seagood* 101 di atas gelombang acak untuk perairan dunia pada kondisi operasi 10 tahunan, 20 tahunan, dan 30 tahunan.



Gambar 4.26 Spektra Gelombang JONSWAP dengan variasi Hs pada distribusi gelombang kurun waktu pendek



Gambar 4.27 Spektra Gelombang JONSWAP dengan variasi Hs pada distribusi gelombang kurun waktu panjang

4.10 ANALISIS RESPON STRUKTUR DIGELOMBANG ACAK

Dilakukannya analisa respon struktur bertujuan untuk mengetahui seberapa besar gaya yang dialami oleh struktur akibat eksitasi gelombang acak. Perhitungan gaya yang terjadi pada struktur akan dilakukan pada sarat air operasi, yaitu 3 m dan menggunakan panjang gelombang yang divariasikan sesuai dengan frekuensi yang dihasilkan dari analisis RAO mode gerakan heave dan pitch. Arah datang gelombang menggunakan sudut datang gelombang dari arah 180˚. Spektra yang digunakan adalah Spektra Gelombang JONSWAP dengan tinggi gelombang yang divariasi. Respon struktur ekstrim FPSO seagood 101 dianalisa pada dua kondisi yakni pada perhitungan distribusi gelombang kurun waktu pendek Hs yang digunakan adalah pada Hs= 0.5 m, Hs= 1.0 m, Hs= 1.5 m, Hs= 2.0 m, Hs= 2.5m, Hs= 3.0 m. Sedangkan pada perhitungan distribusi gelombang kurun waktu panjang Hs yang digunakan adalah Hs= 4,8237 m, Hs= 5,0047 m, dan Hs= 5,1083 m.

Gambar 4.28 dan 4.29 merupakan hasil perhitungan shear force dan bending moment pada FPSO seagood 101 untuk distribusi gelombang kurun waktu pendek yang dilakukan pada bagian ¼ AP, Midship, dan ¼ FP. Dan hasil data yang ditunjukkan Tabel 4.13.

Gambar 4.28 Shear Force ekstrim pada distribusi gelombang kurun waktu pendek

Gambar 4.29 Bending moment ekstrim pada distribusi gelombang kurun waktu panjang

Tabel 4.13. Nilai maksimum respon struktur ekstrem untuk distribusi gelombang kurun waktu pendek

Hs (m)	Shear Force (MN)			Bending Moment (MN.m)		
	1/4 AP	MIDSHIP	1/4 FP	1/4 AP	MIDSHIP	1/4 FP
0,5	0,18	0,37	0,39	4,24	2,48	1,96
1,0	2,12	3,98	3,68	40,59	27,35	18,99
1,5	8,61	16,23	14,46	161,51	130,07	86,91
2,0	22,65	41,74	33,18	358,37	344,79	247,04
2,5	34,16	63,23	51,37	526,50	463,68	352,25
3,0	37,51	70,63	59,35	592,77	483,69	362,24

Sedangkan berikut merupakan hasil perhitungan shear force dan bending moment pada FPSO *seagood 101* untuk distribusi gelombang kurun waktu panjang. Sama dengan perhitungan shear force dan bending moment untuk distribusi gelombang kurun waktu pendek, perhitungan ini juga dilakukan pada bagian ¼ AP, Midship, dan ¼ FP dari FPSO *seagood 101* untuk sudut datang gelombang 180˚. Dan hasil data yang ditunjukkan Tabel 4.14.

Tabel 4.14. Nilai maksimum respon struktur ekstrem untuk distribusi gelombang kurun waktu panjang

Hs (m)	Shear Force (MN)			Bending Moment (MN.m)		
	1/4 AP	MIDSHIP	1/4 FP	1/4 AP	MIDSHIP	1/4 FP
4,8237	59,97	114,77	100,21	964,47	694,98	499,04
5,0047	62,22	119,07	103,97	1000,65	721,05	517,73
5,1083	63,50	121,54	106,12	1021,35	735,97	528,48

Dari kedua tabel di atas dapat dilihat bahwa untuk tinggi gelombang 3.0 m shear force maksimum berada pada midship dan bending moment maksimum berada pada ¼ AP sedangkan untuk tinggi gelombang 5,1083 m shear force maksimum berada pada midship dan bending moment maksimum maksimum berada pada ¼ AP. Sehingga jika dilakukan analisis kapal tersebut lebih lanjut maka harus diperhatikan bagian kapal yang terkena *shear force* dan *bending moment* maksimal.

BAB V
KESIMPULAN DAN SARAN

5.1 Kesimpulan

Berdasarkan analisis-analisi yang dilakukan maka dapat dihasilkan kesimpulan dari Tugas Akhir ini seperti berikut:

1. Analisis RAO *motion* FPSO seagood 101 ini dilakukan untuk mengetahui karakteristik gerakan kapal pada mode gerakan *heave* dan *pitch*. Trend RAO mengalami kondisi puncak pada kondisi *Heave* frekuensi 0.25 rad/s dengan nilai RAO maksimum sebesar 0,987 m/m. Sedangkan pada kondisi *pitch* diperoleh trend RAO pada frekuensi 0,25 rad/s dengan RAO maksimum sebesar 1,745 deg/m. Sehingga jika dilihat dari grafik RAO dapat disimpulkan bahwa semakin kecil frekuensi maka semakin kecil pula nilai RAO, yang berarti respon gerakan struktur akibat adanya gelombang mengecil dan bahkan hampir tidak ada.
2. Dengan menggunakan pendekatan quasistatis, maka dapat diketahui bahwa nilai maksimum shear force berada di bagian midship pada frekuensi 0,85 dengan nilai shear force maksimal 15,8478 MN sedangkan bending moment berada di bagian ¼ AP pada frekuensi 0,75 dengan nilai maksimal 127,8363 MN.m.
3. Didapatkan dari table nilai maksimum respon struktur ekstrem untuk distribusi gelombang kurun waktu pendek dan panjang dapat dilihat bahwa untuk tinggi gelombang 3.0 m shear force maksimum berada pada midship sebesar 70,63 MN dan bending moment maksimum berada pada 1/4AP sebesar 592,77 MN.m sedangkan untuk tinggi gelombang 5,1083 m shear force maksimum berada pada midship sebesar 121,54 MN dan bending moment maksimum berada pada ¼ AP sebesar 1021,35 MN.m. Dimana posisi tersebut merupakan posisi kritis dari FPSO seagood 101 dikarenakan terkena *shear force* serta *bending moment* maksimum.

5.2 Saran

Tugas Akhir ini dapat dilakukan analisis lebih lanjut untuk memperkaya ilmu pengetahuan dan menambah fakta-fakta baru.. Untuk menyempurnakan penelitian ini dapat dilakukan perhitungan modulus penampang tiap-tiap bagian kapal seperti ¼ AP, Midship dan ¼ FP bagi peneliti yang berkenan. Dan untuk mendapatkan hasil yang lebih lanjut dapat menggunakan metode elemen hinggu. Karena dengan begitu perhitungan kekuatan lambung kapal akan lebih akurat.

DAFTAR PUSTAKA

ABS (1987), *Rules for Building and Classing Steel Vessels*, American Bereau of Shipping, USA.

Bhattacharyya. R., 1978, *Dynamics of Marine Vehicles*, New York: John Wiley & Sons Inc.

Chakrabarti, S.K. 1987. *"Hydrodinamics of Offshore Structure"*. Berlin: Computational Mechanics Publications Southampton

Djatmiko, E.B. (1995), "Identifikasi Respons Srtuktur Global Kapal SWATH dengan Model Fisik", Jurusan Teknik Kelautan, Surabaya.

Djatmiko, E.B. (2012). *"Perilaku dan Operabilitas Bangunan Laut Di Atas Gelombang Acak"*. Surabaya: Jurusan Teknik Kelautan ITS

Ramadhan A., 2010, "Analisa Kekuatan Memanjang Double Hull CPO Barge Pengaruh Heaving-Pitching Couple dan Distribusi Beban". Tugas Akhir Jurusan Teknik Kelautan, ITS, Surabaya

Rawson, K.J., 2001, "Basic Ship Theory vol.1". London: Longman Group

Soedjono, J. J., 1989, *Kuliah Perencanaan Sistem Bangunan Laut 1*, Surabaya: Jurusan Teknik Kelautan.

Salvensen, N., Tuck, E.O., and Faltisen, O. (1970), "Ship Motion and Sea Loads", *Transactions of SNAME,* Vol 78,pp. 250-287.

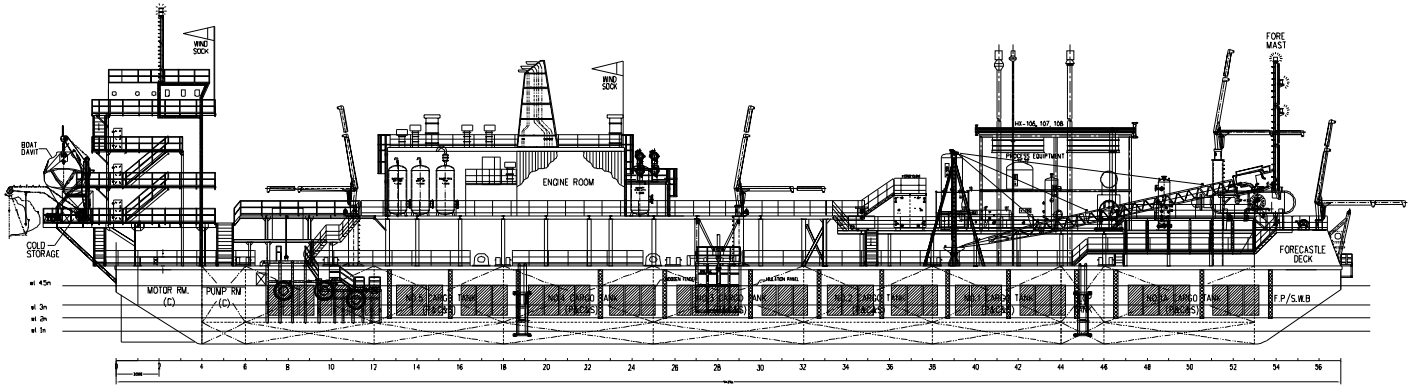
Tupper, E. 2002, "Introduction to Naval Architcture".

Yunus, M., 2013, *Studi Karakteristik Respon Struktur Global Akibat Beban Gelombang pada Perencanaan Drilling Ship Kelas Displacement 35000 Ton*, Tugas Akhir Jurusan Teknik Kelautan, ITS Surabaya, Indonesia.

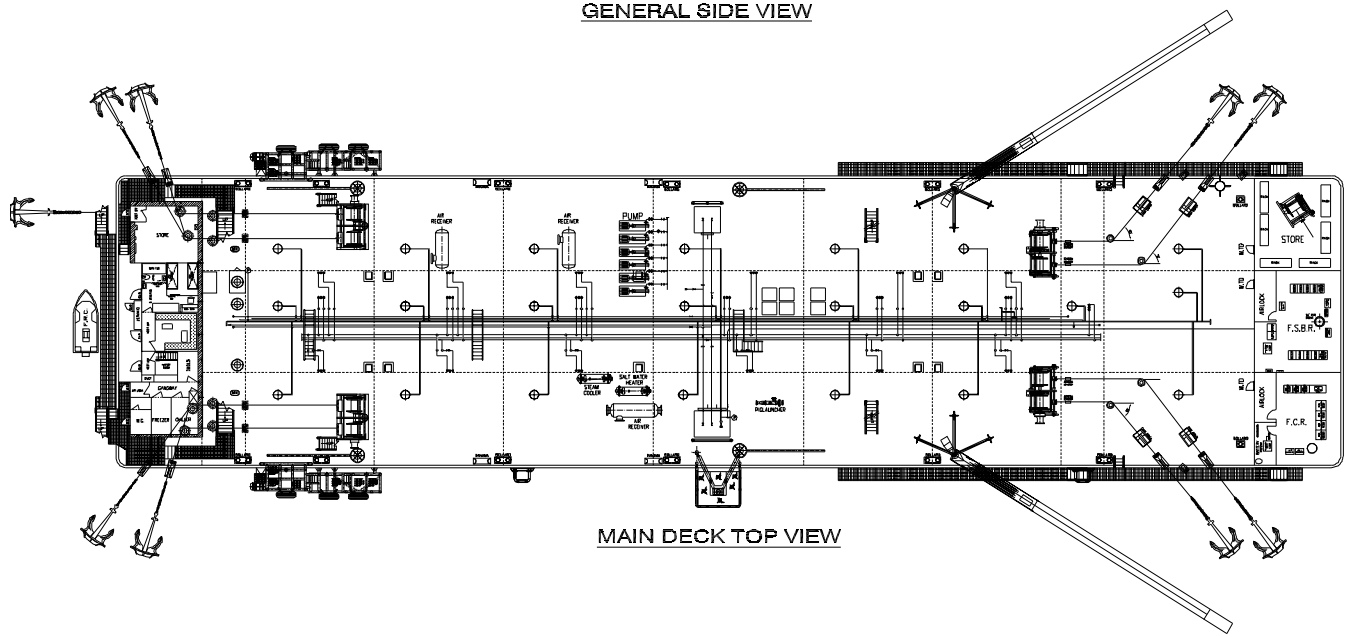
BIODATA PENULIS

Alfian Guntoro Putra lahir di Gresik, 16 Agustus 1992. Pendidikan SD, SMP dan SMA ditempuh di Surabaya, dan lulus dari SMA Negeri 21 Surabaya pada tahun 2010. Setelah itu penulis mengikuti Seleksi Penerimaan Mahasiswa Baru melalui jalur Seleksi Nasional Mahasiswa Perguruan Tinggi Negeri (SNMPTN) dan diterima di Jurusan Teknik Kelautan, Fakultas Teknologi Kelautan, Institut Teknologi Sepuluh Nopember Surabaya. Selama kuliah, penulis aktif di beberapa organisasi kemahasiswaan dalam kampus dan luar kampus seperti Paguyuban Karya Salemba Empat ITS. Penulis juga aktif di berbagai kegiatan sebagai panitia maupun peserta. Berbagai pelatihan dan seminar telah diikutinya dalam rangka untuk pengembangan dirinya, seperti Seminar Nasional Teori dan Aplikasi Teknologi Kelautan, *Indoofood Leadership Camp I-IV,* dan lain-lain. Penulis juga pernah menjuarai beberapa perlombaan seperti *EXPORT photography contest*, Pendanaan PKMK dikti, *Black Innovation Awards* dan *GO Creativepreneur*. Penulis memiliki minat di bidang hidrodinamika struktur lepas pantai terapung sehingga tugas akhir yang diambil berhubungan dengan respon struktur FPSO akibat beban gelombang.

DAFTAR LAMPIRAN



GENERAL SIDE VIEW



MAIN DECK TOP VIEW

NOTES :

PRINCIPAL PARTICULAR

LENGTH O.A	93.9	M
BREADTH MLD	22.00	M
DEPTH MLD	6.00	M
DRAFT (LOADED)	4.5	M

DATE	REV	STATUS	STATUS/ DESCRIPTION	BY	APP
MAR,16.2007	1	A	APPROVED FOR CONSTRUCTION	LHS	LHS

TITLE

GENERAL ARRANGEMENT

DOC. CON. NO.:

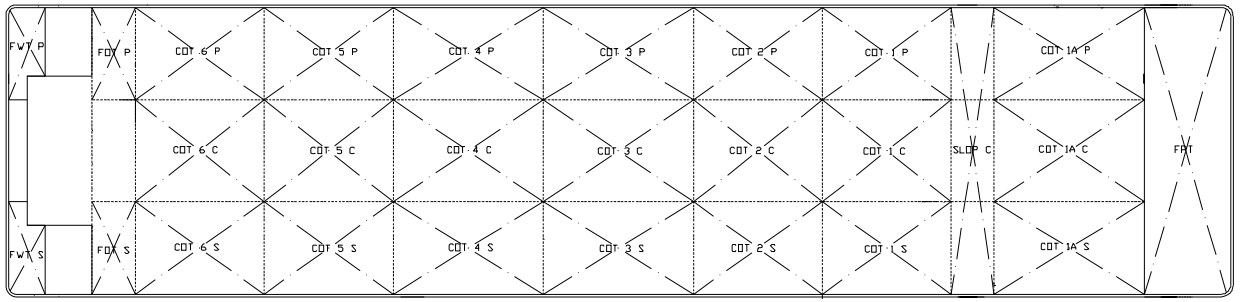
DOC. CON. NO.: 0701-ENG-GEN-03

PT.PULAU KENCANA RAYA
OIL AND GAS SERVICE COMPANY

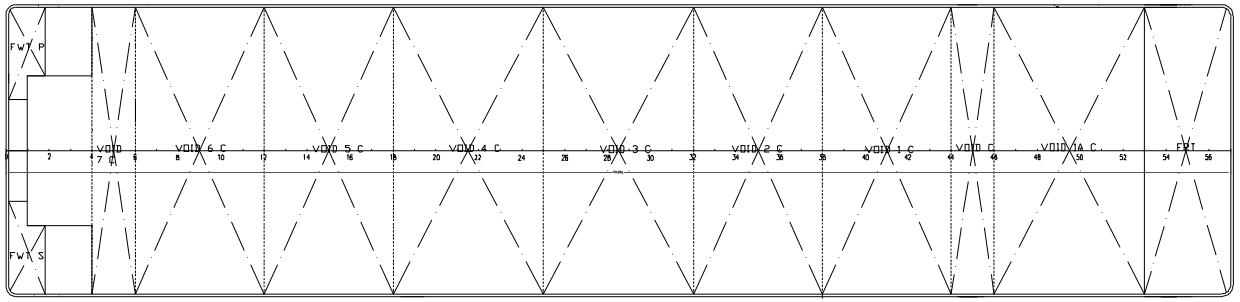
VESSEL: SEAGOOD 101

CHECKED BY	LHS	DATE	DRAWING NO.	REV.
DESIGN BY	LHS	SCALE	SO-101-GEN-03	1
DRAWN BY	HR	APPROVED	PAGE	OF

DWG.FILE = SO-101-GEN-03



TANK PLAN



botto

BOTTOM PLAN

NOTES :

PRINCIPAL PARTICULAR

LENGTH O.A	93.9	M
BREADTH MLD	22.00	M
DEPTH MLD	6.00	M
DRAFT (LOADED)	4.5	M

DATE	REV	STATUS	STATUS/ DESCRIPTION	BY	APP
MAR,16.2007	1	A	APPROVED FOR CONSTRUCTION	LHS	LHS

TITLE

TANK ARRANGEMENT

DOC. CON. NO.:

DOC. CON. NO.: 0701-ENG-GEN-03

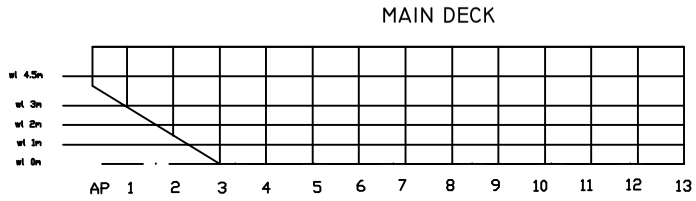
PT.PULAU KENCANA RAYA
OIL AND GAS SERVICE COMPANY

VESSEL: SEAGOOD 101

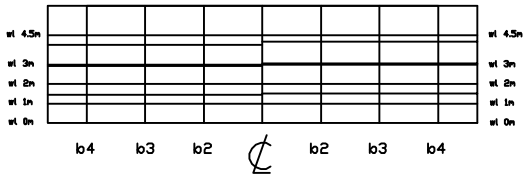
CHECKED BY	LHS	DATE	DRAWING NO.	REV.
DESIGN BY	LHS	SCALE	SO-101-GEN-03	1
DRAWN BY	HR	APPROVED	PAGE	OF

DWG.FILE = SO-101-GEN-03

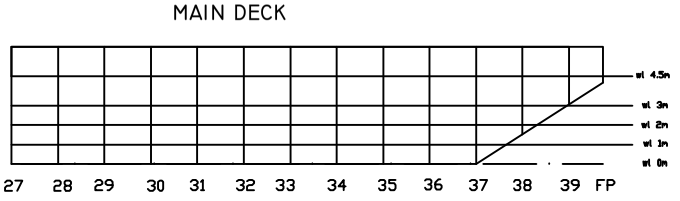
SHEER PLAN



BODY PLAN



SHEER PLAN



HALF BREADTH PLAN

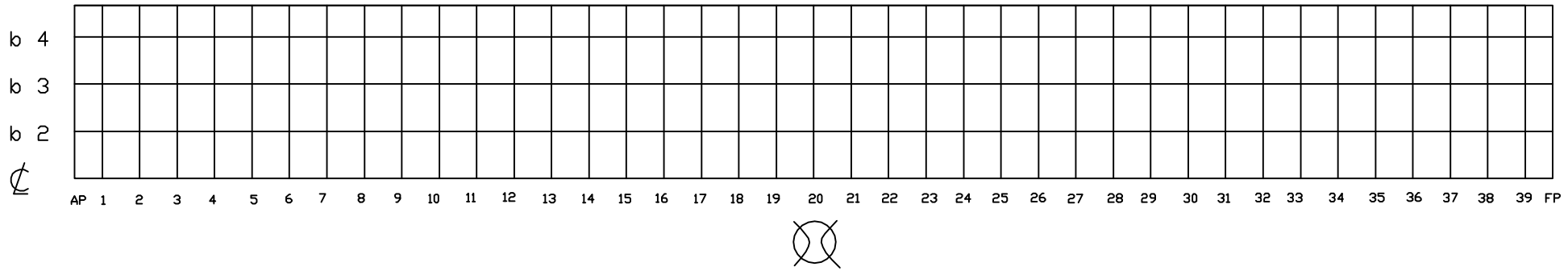


TABLE OF ORDINATE HALF BREADTH (m)

WL \ STATION	AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	FP
WL 0	–	–	–	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	–	–	–
WL 1	–	–	–	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	–	–
WL 2	–	–	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	–
WL 3	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
WL 4.5	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
MAIN DECK	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00

TABLE OF ORDINATE HEIGHT ABOVE BASELINE (m)

B \ STATION	AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	FP
B1 (CL)	2.69	2.00	1.06	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.91	1.73	2.35
B2	2.69	2.00	1.06	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.91	1.73	2.35
B3	2.69	2.00	1.06	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.91	1.73	2.35
B4	2.69	2.00	1.06	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.91	1.73	2.35

PRINCIPAL DIMENSION		
LoA	93.900	m
Lpp	93.900	m
B	22.000	m
H	6.000	m
T	4.500	m

FACULTY OF MARINE TECHNOLOGY
DEPARTMENT OF OCEAN ENGINEERING
SEPULUH NOPEMBER INSTITUTE OF TECHNOLOGY

FPSO SEAGOOD 101

LINES PLAN

Scale	: 1:75	Signature	:	Date	:	Remark
Drawn By	: Alfian Gumelar Putra					
Checked	:			NRP	:	
Approved By	:			4310100066		

INPUT MODEL FPSO SEAGOOD 101

```
$
&device  -clr n -cecho y -limerr 0
&device  -pri device
$
&set demo   = .false
&set ano   = -ano yes
&set ano   =
&set plot  = .true.
&set one   = .true.
&set two   = .true.
&set three = .true.
&set four  = .true.
&set five  = .true.
$
&MACRO SUPLOT NAMES
   &SELEC :N -SEL %NAMES
   &IF %DEMO &THEN
    &DEVICE -PRIMARY SCREEN
    &SUBTITLE %SUBT PICTURE ISO
    &PICT ISO -parent :N
    &LOCAL DUM = &GET(YES/NO )
    &IF &STRING(MATCH %DUM% YES) &THEN
    &ENDIF
    &SUBTITLE %SUBT PICTURE TOP
    &PICT TOP
    &LOCAL DUM = &GET(YES/NO )
    &IF &STRING(MATCH %DUM% YES) &THEN
    &ENDIF
    &SUBTITLE %SUBT PICTURE BOW
    &PICT BOW
    &LOCAL DUM = &GET(YES/NO )
    &IF &STRING(MATCH %DUM% YES) &THEN
    &ENDIF
    &SUBTITLE %SUBT PICTURE STARB
    &PICT STARB
    &LOCAL DUM = &GET(YES/NO )
    &IF &STRING(MATCH %DUM% YES) &THEN
    &ENDIF
   &ELSE
    &DEVICE -PRIMARY DEVICE
    &SUBTITLE %SUBT PICTURE ISO
    &PICT ISO -parent :N
    &SUBTITLE %SUBT PICTURE TOP
    &PICT TOP
    &SUBTITLE %SUBT PICTURE BOW
    &PICT BOW
    &SUBTITLE %SUBT PICTURE STARB
    &PICT STARB
   &ENDIF
  &ENDMACRO
$
$
&surface
$
$
$PGEN -PERM 1.45 -LOC 0 0 0 -DIFTYP 3DDIF $-CS_CURR 1 1 1
BLOCK seagood -LOCATION 0 0 0 0 0 0
PLANE 0          -CARTES          0          4.0091   \
                                  11         4.0091   \
```

```
                    11      6

PLANE 1.75      -CARTES     0       2.8362  \
                    11      2.8362  \
                    11      6

PLANE 4.129     -CARTES     0       1.3213  \
                    11      1.3213  \
                    11      6

PLANE 6.508     -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 8.887     -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 11.266    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 13.645    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 16.024    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 18.403    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 20.782    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 23.161    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 25.540    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 27.919    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 30.298    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 32.677    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 35.056    -CARTES     0       0       \
                    11      0   \
```

```
                    11      6

PLANE 37.435  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 39.814  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 42.193  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 44.572  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 46.951  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 49.330  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 51.709  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 54.088  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 56.467  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 58.846  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 61.225  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 63.604  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 65.983  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 68.362  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 70.741  -CARTES       0       0       \
                    11      0   \
```

```
                        11      6

PLANE 73.120  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 75.499  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 77.878  -CARTES     0       0       \
                        11      0    \
                        11      6


PLANE 80.257  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 82.636  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 85.015  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 87.394  -CARTES     0       0       \
                        11      0       \
                        11      6

PLANE 89.773  -CARTES     0       1.2645  \
                        11      1.2645 \
                        11      6

PLANE 92.152  -CARTES     0       2.9036  \
                        11      2.9036 \
                        11      6

PLANE 93.9    -CARTES     0       4.1727  \
                        11      4.1727 \
                        11      6
END BLOCK
$
$
  list_blocks
  &set subt = seagood
  suplot seagood
  &set sub = FOIL
$ suplot SMITBORNEOuplot 2SMITBORNEO
$
$
$
  rename seagood
  &set subt = seagood
  emit seagood -body
  emit seagood -piece "-diftype 3ddif" \
        -use_name yes \
        -compart "-descr 'This is Extra "'
&fini
```

INPUT HYDROSTATIC FPSO SEAGOOD 101

```
&title hydrostatic property of FPSO NOBLE SEILLEAN
&SUBTI  CASE : LIGHTSHIP CONDITION CONDITION
&devi -cecho yes -oecho NO -PRIMA DEV -auxin fpso_seagood.ppo
inmo
&DIMEN -DIMEN METERS M-TONS
&instate FPSONS -condi 4.5 0.0 0.0
MEDIT
&DESCRIBE BODY FPSONS
#weight 3774.56 13.16 27.40 30.07 -cen 44.49 -0.09 5.6
END_MEDIT
$
$
&apply @
$
$
&SUBTI CASE: LIGHTSHIP
$
hstati

&stat -hard
&stat comp -h
&stat draft -h
end
hstati
CFORM 1 0 0 -DRAFT 0.01 1060
REPORT
END
&eofile
$
$
rarm 1 80 -win 100 -num 10000
report
END
&fini
```

INPUT RAO FPSO SEAGOOD 101

```
&subtitle "fpso SEAGOOD 101" BARGE MODEL 93.9m X 22m X 6m
&devi -cecho yes -AUXIN fpso_seagood.ppo -oecho no -PRIMA DEV
inmo
&DIMEN -DIMEN METERS M-TONS
&instate seagood -condi 4.5 0.0 0.0
medit
&DESCRIBE BODY seagood
$&weight -compute seagood 5.60 13.16 27.40 30.07
$
end
$
&pltmodel vessel
  pic iso
  pic starboard
  pic bow
  pic top
end
$
hstati
equi -num 500 -echo yes
$
&stat -hard
&stat comp -h
&stat draft -h
END
hydro
$&para -m_dist 2.5
g_press seagood seagooddb -speed 0.0 -heading 180 -period 25.1328 17.952 13.9627 11.424 9.6665 8.3776
7.392 6.6139 5.984 5.4636 5.0266 4.6542 4.3332 4.0537 3.808 3.5904 3.3963 3.2222 3.0650
&DIMEN -DIMEN METERS K-NTS
V_MDRIFT
   REPORT
   END
end
$
freq_resp
rao -heading 180 -period 25.1328 17.952 13.9627 11.424 9.6665 8.3776 7.392 6.6139 5.984 5.4636 5.0266
4.6542 4.3332 4.0537 3.808 3.5904 3.3963 3.2222 3.0650
$
&subti seagood's respone amplitude operators
&DIMEN -DIMEN METERS K-NTS
fp_std &BODY(CG seagood)
equ_sum
MATRICES -FILE YES
   REPORT
   END
&EOFILE
```

OUTPUT HYDROSTATIC FPSO SEAGOOD 101

+++ H Y D R O S T A T I C P R O P E R T I E S +++

==========

For Body SEAGOOD

Process is DEFAULT: Units Are Degrees, Meters, and M-Tons Unless Specified

/--- Condition ---//- Displac-/				/-- Center Of Buoyancy --// W.P. /				/C. Flotation /		/-- Metacentric Heights --/			
Draft	Trim	Roll		---X---	---Y---	---Z---	Area	--X--	--Y--	-KMT-	-KML-	-BMT-	-BML-
4.01	0.00	0.00	7925.78	46.93	0.00	2.05	2061.	46.84	0.00	12.80	196.99	10.75	194.93
4.02	0.00	0.00	7946.91	46.93	0.00	2.06	2061.	46.84	0.00	12.78	196.56	10.72	194.50
4.03	0.00	0.00	7968.04	46.93	0.00	2.06	2062.	46.85	0.00	12.76	196.14	10.70	94.07
4.04	0.00	0.00	7989.18	46.93	0.00	2.07	2062.	46.86	0.00	12.74	195.71	10.67	93.64
4.05	0.00	0.00	8010.32	46.93	0.00	2.07	2062.	46.87	0.00	12.72	195.29	10.64	93.22
4.06	0.00	0.00	8031.46	46.93	0.00	2.08	2062.	46.87	0.00	12.70	194.87	10.62	92.79
4.07	0.00	0.00	8052.60	46.93	0.00	2.08	2063.	46.88	0.00	12.68	194.46	10.59	92.37
4.08	0.00	0.00	8073.76	46.93	0.00	2.09	2063.	46.89	0.00	12.66	194.04	10.57	91.95
4.09	0.00	0.00	8094.91	46.93	0.00	2.09	2063.	46.89	0.00	12.63	193.63	10.54	91.54
4.10	0.00	0.00	8116.06	46.93	0.00	2.10	2064.	46.90	0.00	12.61	193.22	10.51	91.12
4.11	0.00	0.00	8137.22	46.93	0.00	2.11	2064.	46.91	0.00	12.59	192.81	10.49	90.71
4.12	0.00	0.00	8158.38	46.93	0.00	2.11	2064.	46.91	0.00	12.57	192.41	10.46	90.30
4.13	0.00	0.00	8179.54	46.93	0.00	2.12	2065.	46.92	0.00	12.55	192.00	10.44	89.89
4.14	0.00	0.00	8200.71	46.93	0.00	2.12	2065.	46.93	0.00	12.53	191.60	10.41	89.48
4.15	0.00	0.00	8221.88	46.93	0.00	2.13	2065.	46.93	0.00	12.51	191.20	10.39	89.08
4.16	0.00	0.00	8243.05	46.93	0.00	2.13	2065.	46.94	0.00	12.49	190.81	10.36	88.67
4.17	0.00	0.00	8264.22	46.93	0.00	2.14	2066.	46.95	0.00	12.47	190.41	10.34	88.27
4.18	0.00	0.00	8285.41	46.93	0.00	2.14	2066.	46.95	0.00	12.45	189.96	10.31	87.82
4.19	0.00	0.00	8306.59	46.93	0.00	2.15	2066.	46.95	0.00	12.43	189.49	10.28	87.34
4.20	0.00	0.00	8327.77	46.93	0.00	2.15	2066.	46.95	0.00	12.41	189.01	10.26	86.86
4.21	0.00	0.00	8348.95	46.93	0.00	2.16	2066.	46.95	0.00	12.39	188.55	10.23	86.39
4.22	0.00	0.00	8370.13	46.93	0.00	2.16	2066.	46.95	0.00	12.37	188.08	10.21	85.92
4.23	0.00	0.00	8391.31	46.93	0.00	2.17	2066.	46.95	0.00	12.35	187.61	10.18	85.45
4.24	0.00	0.00	8412.49	46.93	0.00	2.17	2066.	46.95	0.00	12.33	187.15	10.15	84.98
4.25	0.00	0.00	8433.66	46.93	0.00	2.18	2066.	46.95	0.00	12.31	186.69	10.13	184.52
4.26	0.00	0.00	8454.84	46.93	0.00	2.18	2066.	46.95	0.00	12.29	186.24	10.10	184.05
4.27	0.00	0.00	8476.02	46.93	0.00	2.19	2066.	46.95	0.00	12.27	185.78	10.08	183.59
4.28	0.00	0.00	8497.20	46.93	0.00	2.19	2066.	46.95	0.00	12.25	185.33	10.05	183.14
4.29	0.00	0.00	8518.38	46.93	0.00	2.20	2066.	46.95	0.00	12.23	184.88	10.03	182.68
4.30	0.00	0.00	8539.56	46.93	0.00	2.20	2066.	46.95	0.00	12.21	184.43	10.00	182.23
4.31	0.00	0.00	8560.74	46.93	0.00	2.21	2066.	46.95	0.00	12.19	183.99	9.98	181.78
4.32	0.00	0.00	8581.91	46.93	0.00	2.21	2066.	46.95	0.00	12.17	183.54	9.95	181.33
4.33	0.00	0.00	8603.09	46.93	0.00	2.22	2066.	46.95	0.00	12.15	183.10	9.93	180.88
4.34	0.00	0.00	8624.27	46.93	0.00	2.23	2066.	46.95	0.00	12.13	182.66	9.90	180.44
4.35	0.00	0.00	8645.45	46.93	0.00	2.23	2066.	46.95	0.00	12.11	182.23	9.88	180.00
4.36	0.00	0.00	8666.63	46.93	0.00	2.24	2066.	46.95	0.00	12.09	181.79	9.86	179.56
4.37	0.00	0.00	8687.81	46.93	0.00	2.24	2066.	46.95	0.00	12.07	181.36	9.83	179.12
4.38	0.00	0.00	8708.98	46.93	0.00	2.25	2066.	46.95	0.00	12.05	180.93	9.81	178.68
4.39	0.00	0.00	8730.17	46.93	0.00	2.25	2066.	46.95	0.00	12.04	180.50	9.78	178.25
4.40	0.00	0.00	8751.35	46.93	0.00	2.26	2066.	46.95	0.00	12.02	180.07	9.76	177.82
4.41	0.00	0.00	8772.53	46.93	0.00	2.26	2066.	46.95	0.00	12.00	179.65	9.74	177.39
4.42	0.00	0.00	8793.71	46.93	0.00	2.27	2066.	46.95	0.00	11.98	179.23	9.71	176.96
4.43	0.00	0.00	8814.89	46.93	0.00	2.27	2066.	46.95	0.00	11.96	178.81	9.69	176.54
4.44	0.00	0.00	8836.07	46.93	0.00	2.28	2066.	46.95	0.00	11.94	178.39	9.67	176.11
4.45	0.00	0.00	8857.24	46.93	0.00	2.28	2066.	46.95	0.00	11.93	177.97	9.64	175.69
4.46	0.00	0.00	8878.42	46.93	0.00	2.29	2066.	46.95	0.00	11.91	177.56	9.62	175.27
4.47	0.00	0.00	8899.60	46.93	0.00	2.29	2066.	46.95	0.00	11.89	177.15	9.60	174.86
4.48	0.00	0.00	8920.78	46.93	0.00	2.30	2066.	46.95	0.00	11.87	176.74	9.58	174.44

4.49	0.00	0.00	8941.96	46.93	0.00	2.30	2066.	46.95	0.00	11.86	176.33	9.55	174.03
4.50	0.00	0.00	8963.14	46.93	0.00	2.31	2066.	46.95	0.00	11.84	175.92	9.53	173.62
4.51	0.00	0.00	8984.32	46.93	0.00	2.31	2066.	46.95	0.00	11.82	175.52	9.51	173.21
4.52	0.00	0.00	9005.49	46.93	0.00	2.32	2066.	46.95	0.00	11.80	175.12	9.49	172.80
4.53	0.00	0.00	9026.67	46.93	0.00	2.32	2066.	46.95	0.00	11.79	174.72	9.46	172.39
4.54	0.00	0.00	9047.85	46.93	0.00	2.33	2066.	46.95	0.00	11.77	174.32	9.44	171.99
4.55	0.00	0.00	9069.03	46.93	0.00	2.33	2066.	46.95	0.00	11.75	173.92	9.42	171.59
4.56	0.00	0.00	9090.21	46.93	0.00	2.34	2066.	46.95	0.00	11.74	173.53	9.40	171.19
4.57	0.00	0.00	9111.39	46.93	0.00	2.34	2066.	46.95	0.00	11.72	173.14	9.38	170.79
4.58	0.00	0.00	9132.57	46.93	0.00	2.35	2066.	46.95	0.00	11.70	172.74	9.35	170.39
4.59	0.00	0.00	9153.75	46.93	0.00	2.35	2066.	46.95	0.00	11.69	172.36	9.33	170.00
4.60	0.00	0.00	9174.93	46.93	0.00	2.36	2066.	46.95	0.00	11.67	171.97	9.31	169.61
4.61	0.00	0.00	9196.11	46.93	0.00	2.36	2066.	46.95	0.00	11.65	171.58	9.29	169.22
4.62	0.00	0.00	9217.29	46.93	0.00	2.37	2066.	46.95	0.00	11.64	171.20	9.27	168.83
4.63	0.00	0.00	9238.47	46.93	0.00	2.38	2066.	46.95	0.00	11.62	170.82	9.25	168.44
4.64	0.00	0.00	9259.65	46.93	0.00	2.38	2066.	46.95	0.00	11.61	170.44	9.23	168.06
4.65	0.00	0.00	9280.82	46.93	0.00	2.39	2066.	46.95	0.00	11.59	170.06	9.20	167.67
4.66	0.00	0.00	9302.00	46.93	0.00	2.39	2066.	46.95	0.00	11.57	169.68	9.18	167.29
4.67	0.00	0.00	9323.18	46.93	0.00	2.40	2066.	46.95	0.00	11.56	169.31	9.16	166.91
4.68	0.00	0.00	9344.36	46.93	0.00	2.40	2066.	46.95	0.00	11.54	168.93	9.14	166.53
4.69	0.00	0.00	9365.54	46.93	0.00	2.41	2066.	46.95	0.00	11.53	168.56	9.12	166.16
4.70	0.00	0.00	9386.72	46.93	0.00	2.41	2066.	46.95	0.00	11.51	168.19	9.10	165.78
4.71	0.00	0.00	9407.89	46.93	0.00	2.42	2066.	46.95	0.00	11.50	167.82	9.08	165.41
4.72	0.00	0.00	9429.08	46.93	0.00	2.42	2066.	46.95	0.00	11.48	167.46	9.06	165.04
4.73	0.00	0.00	9450.25	46.93	0.00	2.43	2066.	46.95	0.00	11.47	167.09	9.04	164.67
4.74	0.00	0.00	9471.43	46.93	0.00	2.43	2066.	46.95	0.00	11.45	166.73	9.02	164.30
4.75	0.00	0.00	9492.61	46.93	0.00	2.44	2066.	46.95	0.00	11.44	166.37	9.00	163.93
4.76	0.00	0.00	9513.79	46.93	0.00	2.44	2066.	46.95	0.00	11.42	166.01	8.98	163.57
4.77	0.00	0.00	9534.97	46.93	0.00	2.45	2066.	46.95	0.00	11.41	165.65	8.96	163.20
4.78	0.00	0.00	9556.14	46.93	0.00	2.45	2066.	46.95	0.00	11.39	165.29	8.94	162.84
4.79	0.00	0.00	9577.33	46.93	0.00	2.46	2066.	46.95	0.00	11.38	164.94	8.92	162.48
4.80	0.00	0.00	9598.51	46.93	0.00	2.46	2066.	46.95	0.00	11.36	164.59	8.90	162.12
4.81	0.00	0.00	9619.69	46.93	0.00	2.47	2066.	46.95	0.00	11.35	164.23	8.88	161.77
4.82	0.00	0.00	9640.87	46.93	0.00	2.47	2066.	46.95	0.00	11.33	163.88	8.86	161.41
4.83	0.00	0.00	9662.05	46.93	0.00	2.48	2066.	46.95	0.00	11.32	163.54	8.84	161.06
4.84	0.00	0.00	9683.22	46.93	0.00	2.48	2066.	46.95	0.00	11.31	163.19	8.82	160.71
4.85	0.00	0.00	9704.40	46.93	0.00	2.49	2066.	46.95	0.00	11.29	162.84	8.80	160.35
4.86	0.00	0.00	9725.58	46.93	0.00	2.49	2066.	46.95	0.00	11.28	162.50	8.78	160.01

OUPUT RAO FPSO SEAGOOD 101

+++ M O T I O N R E S P O N S E O P E R A T O R S +++

==========

Of Point On Body SEAGOOD At X = 44.0 Y = -0.1 Z = 5.6

Process is DEFAULT: Units Are Degrees, Meters, and KN Unless Specified

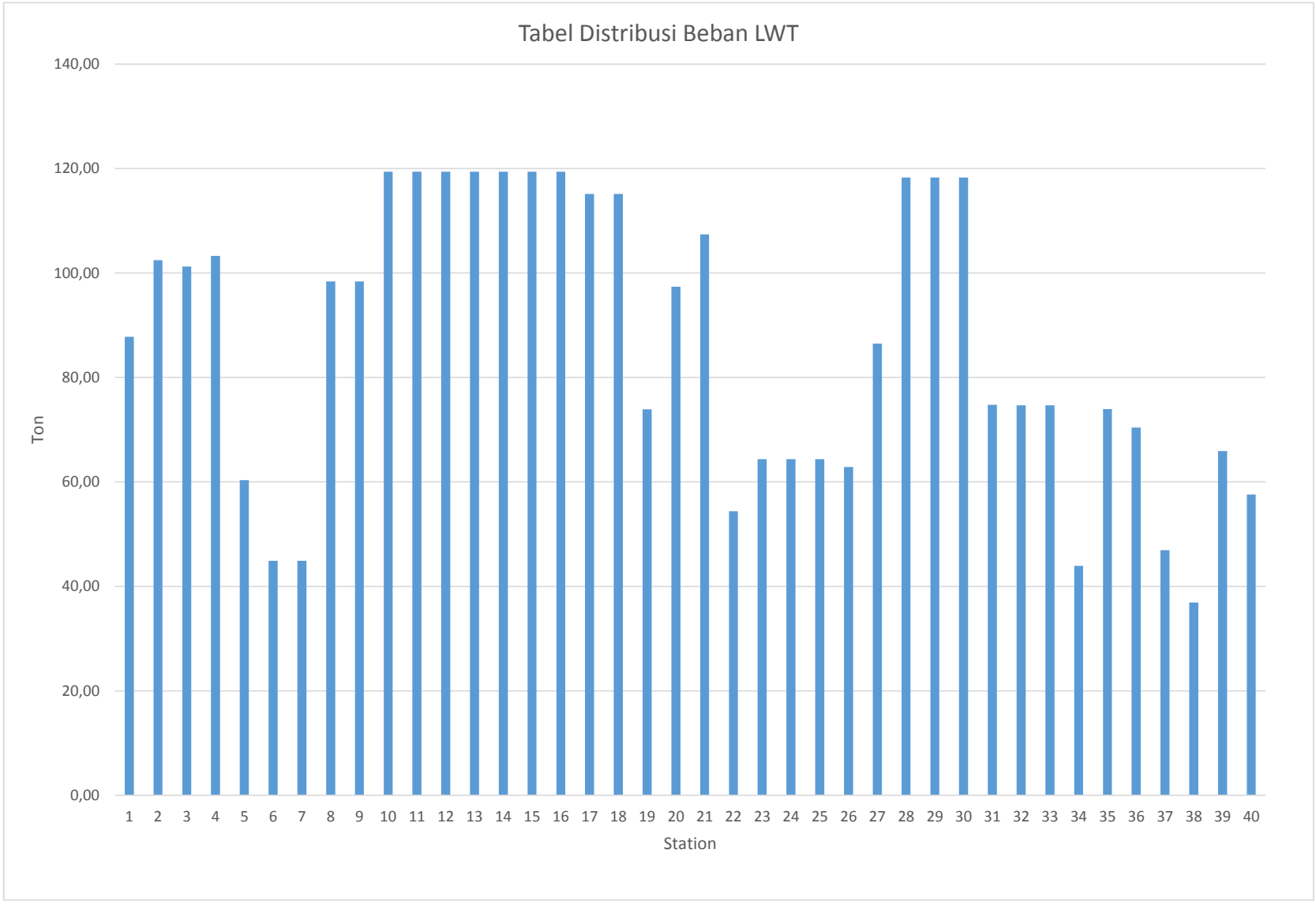
E N C O U N T E R		Surge /		Sway /		Heave /		Roll /		Pitch /		Yaw /	
		Wave Ampl.		Wave Ampl.		Wave Ampl.		Wave Ampl.		Wave Ampl.		Wave Ampl.	
Frequency	Period	/----------/		/----------/		/----------/		/----------/		/----------/		/----------/	
-(Rad/Sec)-	-(Sec)-	Ampl	Phase	Ampl.	Phase	Ampl	Phase	Ampl	Phase	Ampl	Phase	Ampl	Phase
0.2500	25.13	0.98	-104	0.005	-14	0.987	-15	0.000	0	0.363	73	0.002	-111
0.3500	17.95	0.939	-120	0.005	-30	0.952	-30	0.000	0	0.698	57	0.003	-126
0.4500	13.96	0.855	-140	0.005	-50	0.869	-50	0.002	-66	1.102	35	0.005	-148
0.5500	11.42	0.713	-166	0.004	-73	0.716	-75	0.006	-90	1.497	8	0.007	-175
0.6500	9.67	0.508	162	0.002	-91	0.492	-100	0.017	-121	1.745	-24	0.008	151
0.7500	8.38	0.262	128	0.001	-40	0.266	-114	0.058	-157	1.656	-61	0.007	113
0.8500	7.39	0.055	116	0.003	-73	0.176	-95	0.119	-7	1.150	-98	0.004	80
0.9500	6.61	0.077	-165	0.003	-96	0.229	-97	0.027	-62	0.556	-109	0.003	138
1.0500	5.98	0.077	159	0.002	-138	0.213	-127	0.007	-127	0.627	-95	0.008	97
1.1500	5.46	0.022	172	0.001	-125	0.140	-143	0.003	-69	0.610	-132	0.007	27
1.2500	5.03	0.045	-156	0.002	-155	0.107	-149	0.005	-157	0.373	-149	0.002	12
1.3500	4.65	0.039	-170	0.001	147	0.080	-165	0.003	99	0.278	-144	0.004	31
1.4500	4.33	0.034	-168	0.001	-159	0.069	-166	0.001	175	0.200	-163	0.002	-40
1.5500	4.05	0.041	-176	0.001	145	0.049	-172	0.002	105	0.194	-168	0.002	15
1.6500	3.81	0.028	176	0.000	0	0.045	168	0.001	54	0.130	-175	0.002	-41
1.7500	3.59	0.034	161	0.000	0	0.021	171	0.001	59	0.134	158	0.001	-30
1.8500	3.40	0.016	145	0.000	0	0.045	-100	0.003	-57	0.043	-131	0.001	-64
1.9500	3.22	0.015	157	0.000	0	0.019	141	0.001	75	0.169	164	0.001	-20
2.0500	3.06	0.013	159	0.000	0	0.035	161	0.001	100	0.078	162	0.000	0

TITIK BERAT FPSO SEAGOOD 101

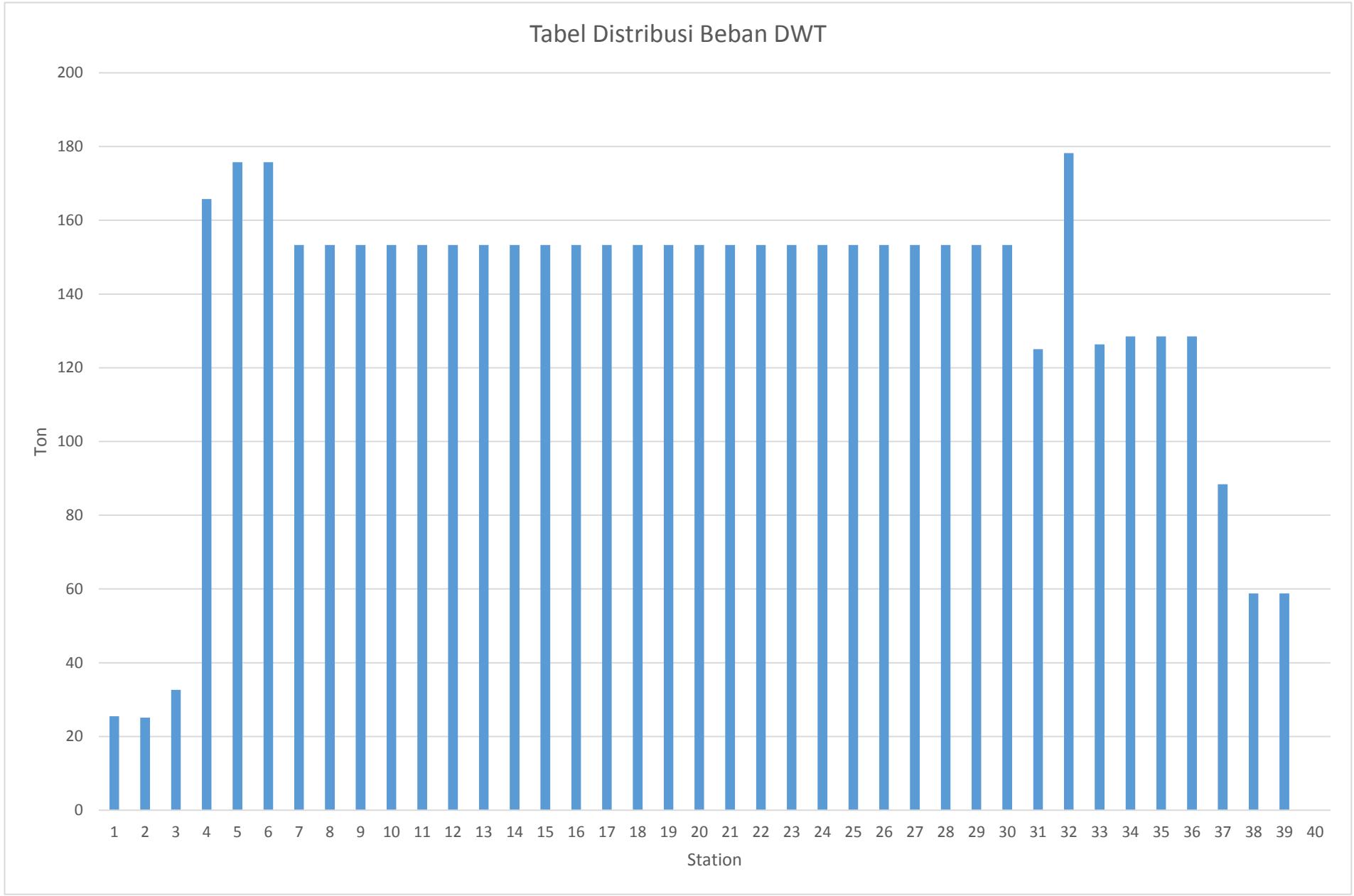
No.	Nama Komponen	Berat (Ton)	Titik Berat Terhadap			M*x (ton.m)	M*y (ton.m)	M*z (Ton.m)	
			Midship (m)	Centerline (m)	Keel (m)				
1	LIVING QUARTER	265,00	-45,43	0,00	13,56	-12038,90	0,00	3593,56	
2	ENGINE ROOM	350,18	-18,05	0,00	10,54	-6320,52	0,00	3689,34	
3	PROCESS EQUIPMENT	171,00	19,94	0,00	10,10	3410,25	0,00	1727,01	
4	CRANE 1	53,50	44,66	0,00	10,88	2389,47	0,00	582,08	
	CRANE 2	53,50	36,76	0,00	16,28	1966,48	0,00	870,98	
	CRANE 3	53,50	-0,06	10,14	11,95	-3,30	542,38	639,33	
	CRANE 4	53,50	-0,06	-10,14	11,95	-3,30	-542,38	639,33	
	CRANE 5	53,50	-29,68	10,25	11,95	-1587,87	548,50	639,33	
	CRANE 6	53,50	-29,68	-10,25	11,95	-1587,87	-548,50	639,33	
5	STORE EQUIPMENT	312,30	-18,05	0,00	12,47	-5636,89	0,00	3894,04	LWT
6	PROCESS EQUIPMENT 2	331,00	-5,47	0,00	7,85	-1811,86	0,00	2597,09	
7	FLARE BOOM	87,20	16,57	0,00	7,53	1444,74	0,00	656,62	
	FLARE BOOM	87,20	16,57	0,00	7,53	1444,74	0,00	656,62	
8	LIFE BOAT	1,20	-50,16	-0,27	13,26	-60,20	-0,32	15,91	
9	MOTOR ROOM	26,92	-43,47	-20,10	3,24	-1170,11	-541,17	87,20	
10	PUMP ROOM	30,92	-39,18	20,26	3,66	-1211,58	626,47	113,16	
11	SEPARATOR EQUIPMENT	77,22	36,97	0,00	10,95	2855,12	0,00	845,22	
12	BERAT BAJA KAPAL	1473,56	-10,00	-0,60	7,96	-14735,60	-884,14	11729,54	
13	LOGISTIK	20,40	-45,43	0,00	13,56	-926,77	0,00	276,64	
14	CARGO 6 P	223,15	-30,88	7,49	2,71	-6890,50	1671,56	604,72	
	CARGO 5 P	223,15	-20,97	7,49	2,71	-4678,30	1671,56	604,72	
	CARGO 4 P	223,15	-10,23	7,49	2,71	-2283,55	1671,56	604,72	
	CARGO 3 P	223,15	1,32	7,49	2,71	293,78	1671,56	604,72	
	CARGO 2 P	223,15	12,05	7,49	2,71	2688,56	1671,56	604,72	
	CARGO 1 P	223,15	21,95	7,49	2,71	4897,70	1671,56	604,72	
	CARGO 6 S	223,15	-30,88	-7,49	2,71	-6890,50	-1671,56	604,72	
	CARGO 5 S	223,15	-20,97	-7,49	2,71	-4678,30	-1671,56	604,72	
	CARGO 4 S	223,15	-10,23	-7,49	2,71	-2283,55	-1671,56	604,72	
	CARGO 3 S	223,15	1,32	-7,49	2,71	293,78	-1671,56	604,72	
	CARGO 2 S	223,15	12,05	-7,49	2,71	2688,56	-1671,56	604,72	
	CARGO 1 S	223,15	21,95	-7,49	2,71	4897,70	-1671,56	604,72	
	CARGO 6 C	251,25	-30,88	0,00	2,71	-7758,35	0,00	680,89	
	CARGO 5 C	251,25	-20,97	0,00	2,71	-5267,53	0,00	680,89	
	CARGO 4 C	251,25	-10,23	0,00	2,71	-2571,16	0,00	680,89	
	CARGO 3 C	251,25	1,32	0,00	2,71	330,78	0,00	680,89	
	CARGO 2 C	251,25	12,05	0,00	2,71	3027,18	0,00	680,89	
	CARGO 1 C	251,25	21,95	0,00	2,71	5514,56	0,00	680,89	
	CARGO 1A P	213,45	35,98	7,49	2,71	7680,96	1598,93	578,45	
	CARGO 1A S	213,45	35,98	-7,49	2,71	7680,96	-1598,93	578,45	
	CARGO 1A C	213,45	35,98	0,00	2,71	7680,96	0,00	578,45	
15	FPT	176,34	44,79	0,00	3,49	7898,78	0,00	614,79	DWT
16	FUEL OIL	39,88	-39,18	0,00	3,81	-1562,61	0,00	151,93	
	FUEL OIL	39,88	-39,18	0,00	3,81	-1562,61	0,00	151,93	
17	FRESH WATER	20,19	-45,36	7,50	4,06	-915,99	151,48	81,94	
	FRESH WATER	20,19	-45,36	-7,50	4,06	-915,94	-151,48	81,94	
18	SLOP	158,72	28,55	0,00	3,81	4531,97	0,00	604,70	
Jumlah		8835,90	-	-	-	-21736,623	-799,16	49454,671	
					LCG =	Mx / Δ =	-2,460035	m	
					TCG =	My / Δ =	-0,090444	m	
					VCG =	Mz / Δ =	5,5970166	m	

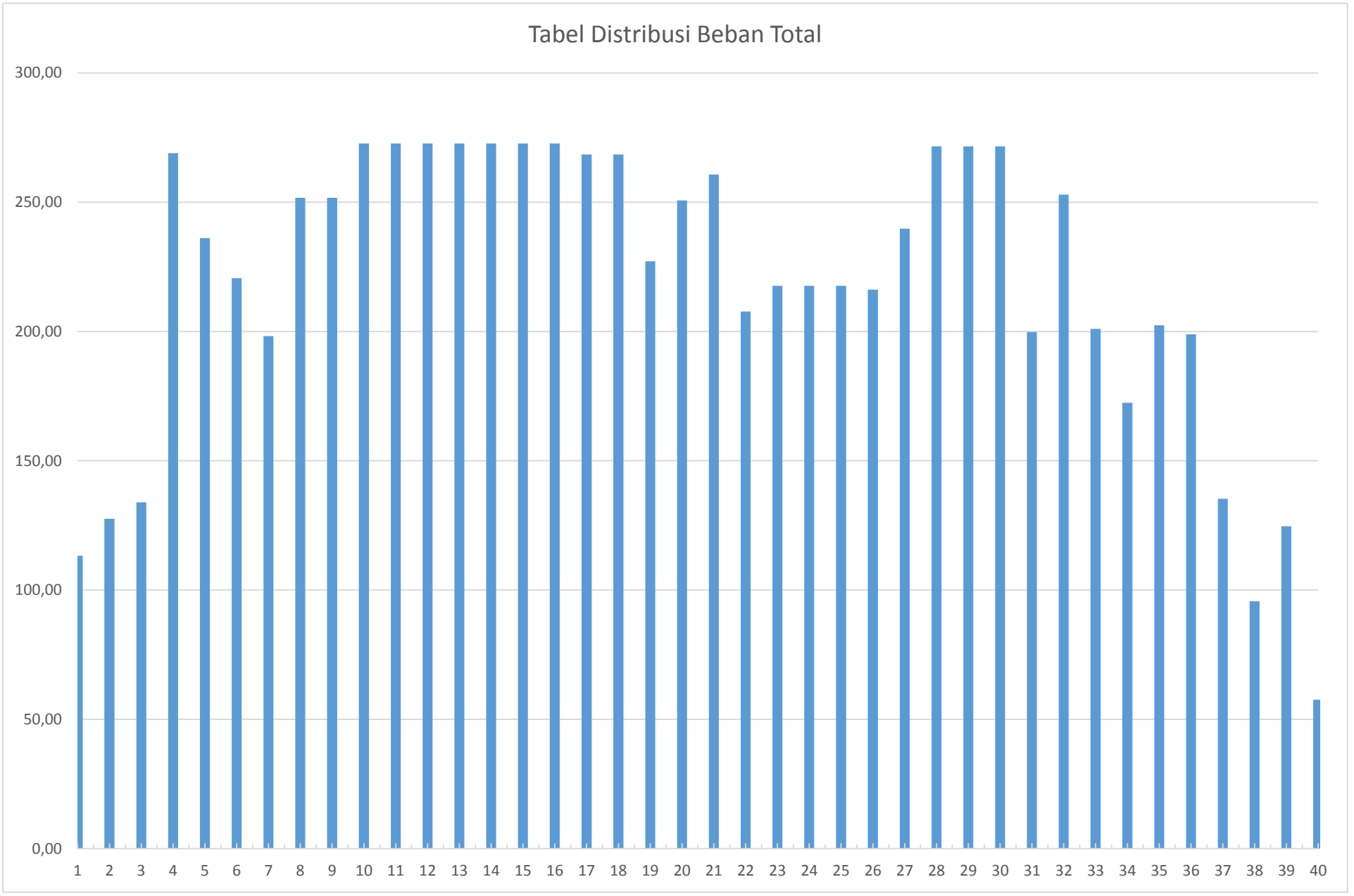
Tabel Distribusi Beban LWT

No.	Frame			Berat Baja Kapal	LIVING HOUSE	ENGINE EQUIPMENT	PROCESS EQUIPMENT	CRANE	STORE EQUIPMENT	PROCESS EQUIPMENT 2	FLARE	LIFE BOAT	MOTOR	PUMP	SEPARATOR EQUIPMENT	(LWT)
1	AP	-	1	21,54	66,25											87,79
2	1	-	2	21,54	66,25							1,2	13,46			102,45
3	2	-	3	21,54	66,25								13,46			101,25
4	3	-	4	21,54	66,25									15,46		103,25
5	4	-	5	34,84						10,030303				15,46		60,33
6	5	-	6	34,84						10,030303						44,87
7	6	-	7	34,84						10,030303						44,87
8	7	-	8	34,84				53,5		10,030303						98,37
9	8	-	9	34,84				53,5		10,030303						98,37
10	9	-	10	39,09		35,575			34,7	10,030303						119,40
11	10	-	11	39,09		35,575			34,7	10,030303						119,40
12	11	-	12	39,09		35,575			34,7	10,030303						119,40
13	12	-	13	39,09		35,575			34,7	10,030303						119,40
14	13	-	14	39,09		35,575			34,7	10,030303						119,40
15	14	-	15	39,09		35,575			34,7	10,030303						119,40
16	15	-	16	39,09		35,575			34,7	10,030303						119,40
17	16	-	17	34,84		35,575			34,7	10,030303						115,15
18	17	-	18	34,84		35,575			34,7	10,030303						115,15
19	18	-	19	33,84		30				10,030303						73,87
20	19	-	20	33,84				53,5		10,030303						97,37
21	20	-	21	43,84				53,5		10,030303						107,37
22	21	-	22	44,34						10,030303						54,37
23	22	-	23	54,34						10,030303						64,37
24	23	-	24	54,34						10,030303						64,37
25	24	-	25	54,34						10,030303						64,37
26	25	-	26	52,84						10,030303						62,87
27	26	-	27	32,84						10,030303	43,6					86,47
28	27	-	28	36,14			28,5			10,030303	43,6					118,27
29	28	-	29	36,14			28,5			10,030303	43,6					118,27
30	29	-	30	36,14			28,5			10,030303	43,6					118,27
31	30	-	31	36,2			28,5			10,030303						74,73
32	31	-	32	36,14			28,5			10,030303						74,67
33	32	-	33	36,14			28,5			10,030303						74,67
34	33	-	34	33,89						10,030303					19,305	43,92
35	34	-	35	33,89				30		10,030303					19,305	73,92
36	35	-	36	36,89				23,5		10,030303					19,305	70,42
37	36	-	37	36,89						10,030303					19,305	46,92
38	37	-	38	36,89												36,89
39	38	-	39	35,89				30								65,89
40	39	-	FP	34,09				23,5								57,59
Jumlah				1473,56	265	350,175	171	321	312,3	331	174,4	1,2	26,92	30,92	77,22	3534,695


Tabel Distribusi Beban LWT
140,00
120,00
100,00
80,00
60,00
40,00
20,00
0,00
Ton
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Station

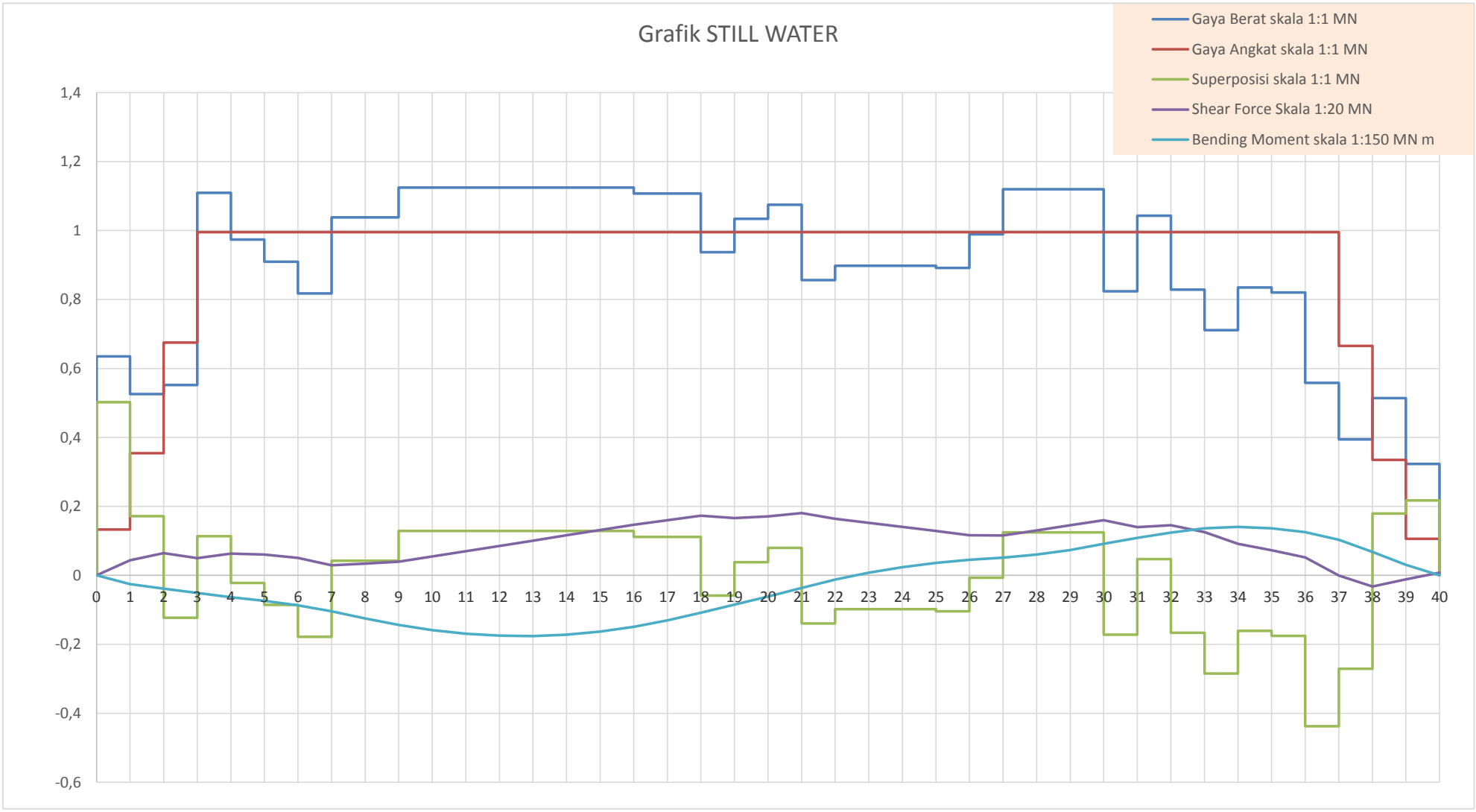
Tabel Distribusi Beban DWT										
No.	**Frame**			**LOGISTIK**	**CARGO**	**FPT**	**FUEL OIL**	**FRESH WATER**	**SLOP**	**(DWT)**
1	AP	-	1	5,1				20,39		25,49
2	1	-	2	5,1				20		25,1
3	2	-	3	10,2			22,44			32,64
4	3	-	4		153,32		12,44			165,7579
5	4	-	5		153,32		22,44			175,7579
6	5	-	6		153,32		22,44			175,7579
7	6	-	7		153,32					153,3179
8	7	-	8		153,32					153,3179
9	8	-	9		153,32					153,3179
10	9	-	10		153,32					153,3179
11	10	-	11		153,32					153,3179
12	11	-	12		153,32					153,3179
13	12	-	13		153,32					153,3179
14	13	-	14		153,32					153,3179
15	14	-	15		153,32					153,3179
16	15	-	16		153,32					153,3179
17	16	-	17		153,32					153,3179
18	17	-	18		153,32					153,3179
19	18	-	19		153,32					153,3179
20	19	-	20		153,32					153,3179
21	20	-	21		153,32					153,3179
22	21	-	22		153,32					153,3179
23	22	-	23		153,32					153,3179
24	23	-	24		153,32					153,3179
25	24	-	25		153,32					153,3179
26	25	-	26		153,32					153,3179
27	26	-	27		153,32					153,3179
28	27	-	28		153,32					153,3179
29	28	-	29		153,32					153,3179
30	29	-	30		153,32					153,3179
31	30	-	31		45,67				79,36	125,03
32	31	-	32		98,89				79,36	178,25
33	32	-	33		126,36					126,356
34	33	-	34		128,50					128,498
35	34	-	35		128,50					128,498
36	35	-	36		128,50					128,498
37	36	-	37		29,61	58,78				88,392
38	37	-	38			58,78				58,78
39	38	-	39			58,78				58,78
40	39	-	FP							0
Jumlah				20,4	4825,6	176,34	79,76	40,39	158,72	5301,21


Tabel Distribusi Beban DWT
Ton
Station
0
20
40
60
80
100
120
140
160
180
200
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40


Tabel Distribusi Beban Total
300,00
250,00
200,00
150,00
100,00
50,00
0,00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

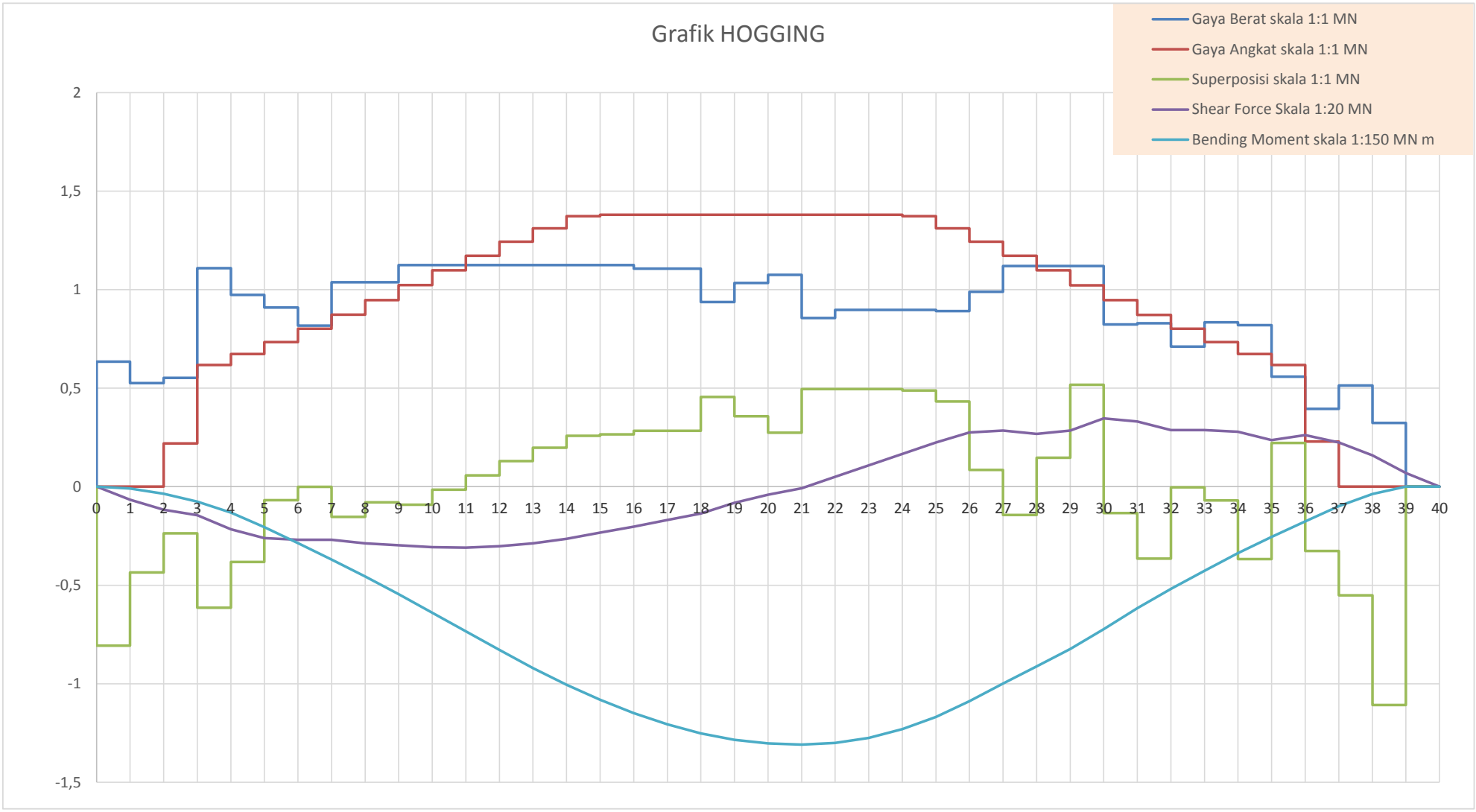
STILL WATER

Station			Area	a(x)	q(x)	load/m	f(x)	Σf(x)	Mid Σf(x)	BM	ΣBM	Correction	BM
				I	II	III = II - I	III x b		IV	IV x b			
			[m^2]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN m]	[MN m]		[MN m]
		0						**0**			0		0
AP	-	1	13,2220	0,132951	0,6350	0,502	0,878613	0,879	0,439307	0,768787	0,768787	4,554	-3,785
1	-	2	35,2462	0,354409	0,5260	0,172	0,408126	1,287	1,082676	2,575687	3,344473	9,107	-5,763
2	-	3	67,1132	0,67484	0,5521	-0,123	-0,291983	0,995	1,140747	2,713838	6,058311	13,661	-7,602
3	-	4	99,0000	0,99547	1,1093	0,114	0,270745	1,266	1,130128	2,688575	8,746887	18,214	-9,467
4	-	5	99,0000	0,99547	0,9735	-0,022	-0,052197	1,213	1,239403	2,948539	11,69543	22,768	-11,072
5	-	6	99,0000	0,99547	0,9098	-0,086	-0,203859	1,009	1,111375	2,64396	14,33939	27,321	-12,982
6	-	7	99,0000	0,99547	0,8172	-0,178	-0,423996	0,585	0,797447	1,897126	16,23651	31,875	-15,638
7	-	8	99,0000	0,99547	1,0379	0,042	0,100839	0,686	0,635869	1,512732	17,74924	36,428	-18,679
8	-	9	99,0000	0,99547	1,0379	0,042	0,100839	0,787	0,736708	1,752628	19,50187	40,982	-21,480
9	-	10	99,0000	0,99547	1,1246	0,129	0,307094	1,094	0,940675	2,237865	21,73974	45,536	-23,796
10	-	11	99,0000	0,99547	1,1246	0,129	0,307094	1,401	1,247769	2,968443	24,70818	50,089	-25,381
11	-	12	99,0000	0,99547	1,1246	0,129	0,307094	1,708	1,554864	3,699021	28,4072	54,643	-26,235
12	-	13	99,0000	0,99547	1,1246	0,129	0,307094	2,016	1,861958	4,429599	32,8368	59,196	-26,359
13	-	14	99,0000	0,99547	1,1246	0,129	0,307094	2,323	2,169053	5,160176	37,99698	63,750	-25,753
14	-	15	99,0000	0,99547	1,1246	0,129	0,307094	2,630	2,476147	5,890754	43,88773	68,303	-24,416
15	-	16	99,0000	0,99547	1,1246	0,129	0,307094	2,937	2,783242	6,621332	50,50906	72,857	-22,348
16	-	17	99,0000	0,99547	1,1070	0,112	0,265402	3,202	3,06949	7,302316	57,81138	77,410	-19,599
17	-	18	99,0000	0,99547	1,1070	0,112	0,265402	3,468	3,334892	7,933708	65,74509	81,964	-16,219
18	-	19	99,0000	0,99547	0,9368	-0,059	-0,139506	3,328	3,39784	8,083461	73,82855	86,518	-12,689
19	-	20	99,0000	0,99547	1,0337	0,038	0,091029	3,419	3,373602	8,025798	81,85435	91,071	-9,217
20	-	21	99,0000	0,99547	1,0750	0,079	0,189129	3,608	3,513681	8,359047	90,21339	95,625	-5,411
21	-	22	99,0000	0,99547	0,8564	-0,139	-0,330801	3,277	3,442845	8,190529	98,40392	100,178	-1,774
22	-	23	99,0000	0,99547	0,8977	-0,098	-0,232701	3,045	3,161094	7,520243	105,9242	104,732	1,192
23	-	24	99,0000	0,99547	0,8977	-0,098	-0,232701	2,812	2,928394	6,966648	112,8908	109,285	3,605
24	-	25	99,0000	0,99547	0,8977	-0,098	-0,232701	2,579	2,695693	6,413053	119,3039	113,839	5,465
25	-	26	99,0000	0,99547	0,8915	-0,104	-0,247416	2,332	2,455635	5,841954	125,1458	118,392	6,753
26	-	27	99,0000	0,99547	0,9888	-0,007	-0,0159	2,316	2,323977	5,528741	130,6746	122,946	7,729
27	-	28	99,0000	0,99547	1,1199	0,124	0,296058	2,612	2,464056	5,861989	136,5365	127,500	9,037
28	-	29	99,0000	0,99547	1,1199	0,124	0,296058	2,908	2,760114	6,566312	143,1029	132,053	11,050
29	-	30	99,0000	0,99547	1,1199	0,124	0,296058	3,204	3,056172	7,270634	150,3735	136,607	13,767
30	-	31	99,0000	0,99547	0,8237	-0,172	-0,40862	2,796	2,999892	7,136742	157,5102	141,160	16,350
31	-	32	99,0000	0,99547	1,0429	0,047	0,112886	2,908	2,852025	6,784968	164,2952	145,714	18,581
32	-	33	99,0000	0,99547	0,8289	-0,167	-0,396155	2,512	2,710391	6,448021	170,7432	150,267	20,476
33	-	34	99,0000	0,99547	0,7110	-0,284	-0,676799	1,836	2,173914	5,171742	175,915	154,821	21,094
34	-	35	99,0000	0,99547	0,8347	-0,161	-0,382499	1,453	1,644265	3,911707	179,8267	159,375	20,452
35	-	36	99,0000	0,99547	0,8203	-0,175	-0,416834	1,036	1,244599	2,960901	182,7876	163,928	18,860
36	-	37	99,0000	0,99547	0,5580	-0,437	-1,040809	-0,005	0,515778	1,227035	184,0146	168,482	15,533
37	-	38	66,1738	0,665394	0,3945	-0,271	-0,64445	-0,649	-0,326852	-0,77758	183,237	173,035	10,202
38	-	39	33,3058	0,334898	0,5141	0,179	0,42629	-0,223	-0,435932	-1,037082	182,1999	177,589	4,611
39	-	FP	10,5446	0,106029	0,3232	0,217	0,37962	0,157	-0,032977	-0,057643	182,1423	182,142	0,000


Grafik STILL WATER
Gaya Berat skala 1:1 MN
Gaya Angkat skala 1:1 MN
Superposisi skala 1:1 MN
Shear Force Skala 1:20 MN
Bending Moment skala 1:150 MN m
1,4
1,2
1
0,8
0,6
0,4
0,2
0
-0,2
-0,4
-0,6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

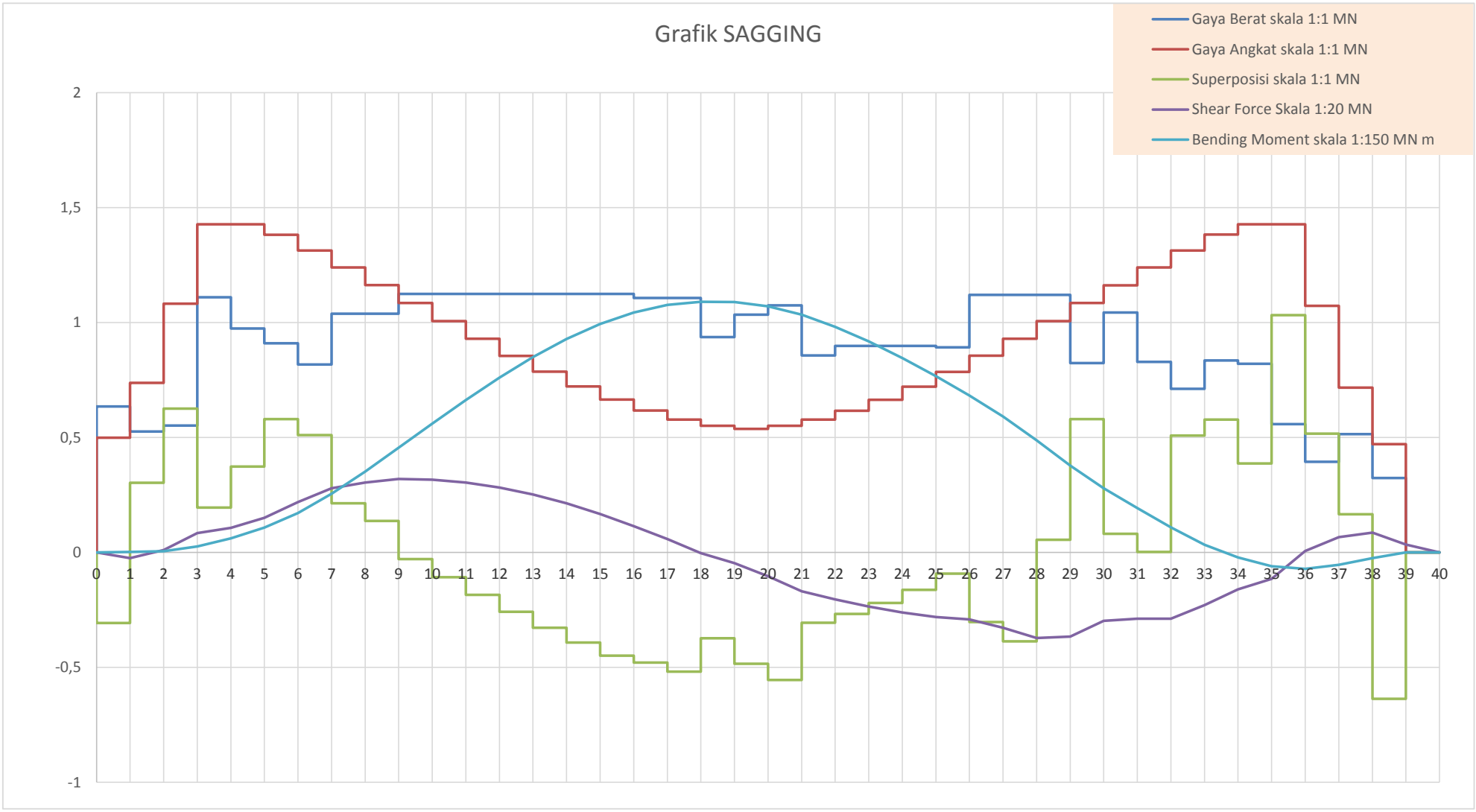
HOGGING

Station			Area	a(x)	q(x)	load/m	f(x)	Σf(x)	Mid Σf(x)	BM	ΣBM	Correction	BM
				I	II	III = II - I	III x b		IV	IV x b			
			[m^2]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN m]	[MN m]		[MN m]
		0						0			0		0
AP	-	1	0,0000	0,0000	0,6350	-0,8067	-1,3094	-1,3094	-0,6547	-1,5376	-1,5376	-0,1875	-1,3501
1	-	2	0,0000	0,0000	0,5260	-0,4350	-1,0217	-2,3312	-1,8203	-4,2750	-5,8126	-0,3751	-5,4375
2	-	3	21,8284	0,2195	0,5521	-0,2369	-0,5563	-2,8874	-2,6093	-6,1279	-11,9405	-0,5626	-11,3779
3	-	4	61,4561	0,6180	1,1093	-0,6144	-1,4429	-4,3303	-3,6089	-8,4755	-20,4159	-0,7501	-19,6658
4	-	5	66,9463	0,6732	0,9735	-0,3812	-0,8953	-5,2256	-4,7780	-11,2211	-31,6370	-0,9377	-30,6994
5	-	6	72,9945	0,7340	0,9098	-0,0684	-0,1605	-5,3862	-5,3059	-12,4609	-44,0979	-1,1252	-42,9727
6	-	7	79,7310	0,8017	0,8172	-0,0006	-0,0015	-5,3876	-5,3869	-12,6511	-56,7490	-1,3127	-55,4363
7	-	8	86,8150	0,8729	1,0379	-0,1529	-0,3590	-5,7466	-5,5671	-13,0744	-69,8234	-1,5002	-68,3232
8	-	9	94,1803	0,9470	1,0379	-0,0788	-0,1851	-5,9317	-5,8392	-13,7133	-83,5367	-1,6878	-81,8489
9	-	10	101,6874	1,0225	1,1246	-0,0911	-0,2140	-6,1457	-6,0387	-14,1819	-97,7186	-1,8753	-95,8433
10	-	11	109,1991	1,0980	1,1246	-0,0156	-0,0367	-6,1824	-6,1641	-14,4763	-112,1949	-2,0628	-110,1321
11	-	12	116,5118	1,1716	1,1246	0,0579	0,1360	-6,0464	-6,1144	-14,3596	-126,5546	-2,2504	-124,3042
1	-	13	123,6850	1,2437	1,1246	0,1300	0,3054	-5,7410	-5,8937	-13,8413	-140,3959	-2,4379	-137,9580
13	-	14	130,3849	1,3111	1,1246	0,1974	0,4636	-5,2773	-5,5091	-12,9382	-153,3341	-2,6254	-150,7087
14	-	15	136,4742	1,3723	1,1246	0,2586	0,6074	-4,6699	-4,9736	-11,6805	-165,0146	-2,8130	-162,2017
15	-	16	137,1991	1,3796	1,1246	0,2659	0,6246	-4,0453	-4,3576	-10,2339	-175,2485	-3,0005	-172,2480
16	-	17	137,1991	1,3796	1,1070	0,2837	0,6662	-3,3791	-3,7122	-8,7181	-183,9666	-3,1880	-180,7786
17	-	18	137,1991	1,3796	1,1070	0,2837	0,6662	-2,7129	-3,0460	-7,1535	-191,1201	-3,3755	-187,7445
18	-	19	137,1991	1,3796	0,9368	0,4561	1,0712	-1,6417	-2,1773	-5,1133	-196,2334	-3,5631	-192,6704
19	-	20	137,1991	1,3796	1,0337	0,3579	0,8406	-0,8011	-1,2214	-2,8684	-199,1019	-3,7506	-195,3513
20	-	21	137,1991	1,3796	1,0750	0,2744	0,6444	-0,1567	-0,4789	-1,1246	-200,2265	-3,9381	-196,2884
21	-	22	137,1991	1,3796	0,8564	0,4958	1,1643	1,0077	0,4255	0,9993	-199,2272	-4,1257	-195,1015
22	-	23	137,1991	1,3796	0,8977	0,4958	1,1643	2,1720	1,5899	3,7338	-195,4934	-4,3132	-191,1802
23	-	24	137,1991	1,3796	0,8977	0,4958	1,1643	3,3364	2,7542	6,4682	-189,0252	-4,5007	-184,5245
24	-	25	136,4811	1,3724	0,8977	0,4886	1,1474	4,4838	3,9101	9,1828	-179,8424	-4,6883	-175,1541
25	-	26	130,3277	1,3105	0,8915	0,4330	1,0168	5,5006	4,9922	11,7241	-168,1183	-4,8758	-163,2425
26	-	27	123,6941	1,2438	0,9888	0,0850	0,1997	5,7003	5,6004	13,1526	-154,9657	-5,0633	-149,9024
27	-	28	116,5872	1,1723	1,1199	-0,1431	-0,3360	5,3643	5,5323	12,9926	-141,9731	-5,2508	-136,7222
28	-	29	109,2105	1,0981	1,1199	0,1475	0,3464	5,7108	5,5376	13,0049	-128,9681	-5,4384	-123,5297
29	-	30	101,6302	1,0219	1,1199	0,5170	1,2142	6,9250	6,3179	14,8375	-114,1306	-5,6259	-108,5047
30	-	31	94,1918	0,9471	0,8237	-0,1336	-0,3138	6,6112	6,7681	15,8948	-98,2358	-5,8134	-92,4223
31	-	32	89,2431	0,9023	1,0429	-0,2320	-0,4212	6,0233	6,3212	15,2133	-93,4344	-5,9240	-84,4310
32	-	33	86,7579	0,8724	0,8289	-0,3649	-0,8570	5,7541	6,1827	14,5200	-83,7158	-6,0010	-77,7149
33	-	34	79,7401	0,8018	0,7110	-0,0024	-0,0057	5,7485	5,7513	13,5069	-70,2089	-6,1885	-64,0204
34	-	35	73,0036	0,7341	0,8347	-0,0702	-0,1648	5,5837	5,6661	13,3068	-56,9022	-6,3760	-50,5261
35	-	36	66,9554	0,6733	0,8203	-0,3670	-0,8619	4,7218	5,1527	12,1012	-44,8009	-6,5636	-38,2374
36	-	37	61,4538	0,6179	0,5580	0,2226	0,5227	5,2446	4,9832	11,7030	-33,0979	-6,7511	-26,3468
37	-	38	22,7705	0,2290	0,3945	-0,3260	-0,7656	4,4789	4,8618	11,4178	-21,6801	-6,9386	-14,7415
38	-	39	0,0000	0,0000	0,5141	-0,5508	-1,2935	3,1854	3,8322	8,9999	-12,6802	-7,1261	-5,5541
39	-	FP	0,0000	0,0000	0,3232	-1,1072	-1,8007	1,3847	2,2851	5,3665	-7,3137	-7,3137	0,0000

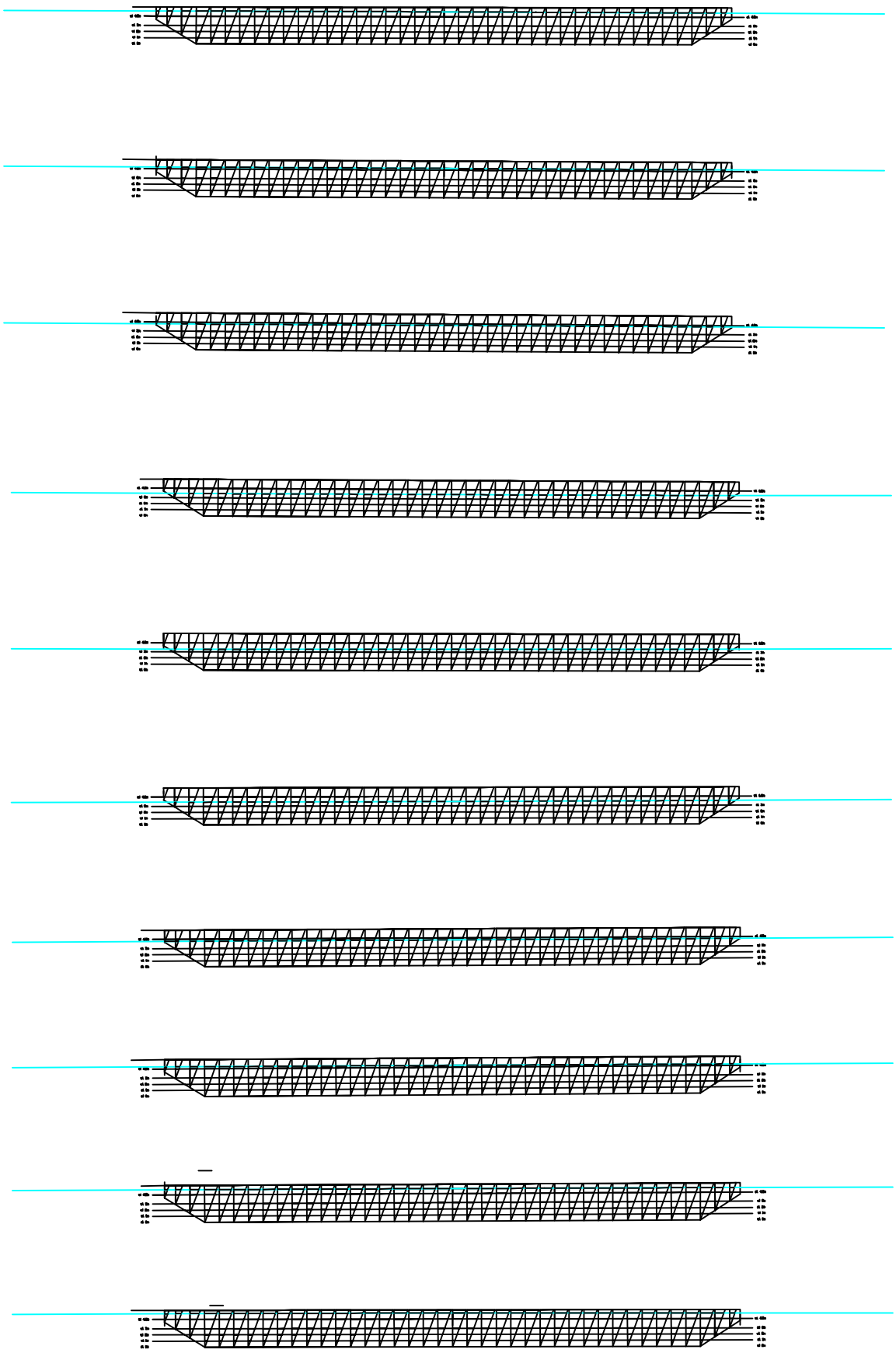

Grafik HOGGING
Gaya Berat skala 1:1 MN
Gaya Angkat skala 1:1 MN
Superposisi skala 1:1 MN
Shear Force Skala 1:20 MN
Bending Moment skala 1:150 MN m
2
1,5
1
0,5
0
-0,5
-1
-1,5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

SAGGING

Station			Area	a(x)	q(x)	load/m	f(x)	Σf(x)	Mid Σf(x)	BM	ΣBM	Correction	BM
				I	II	III = II - I	III x b		IV	IV x b			
			[m^2]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN m]	[MN m]		[MN m]
		0						**0**			0		0
AP	-	1	49,6585	0,4993	0,6350	-0,3074	-0,4989	-0,4989	-0,2495	-0,5859	-0,5859	-0,8579	0,2721
1	-	2	73,3426	0,7375	0,5260	0,3024	0,7103	0,2113	-0,1438	-0,3377	-0,9236	-1,7159	0,7923
2	-	3	107,6115	1,0821	0,5521	0,6257	1,4695	1,6808	0,9461	2,2218	1,2983	-2,5738	3,8720
3	-	4	141,9489	1,4273	1,1093	0,1950	0,4579	2,1387	1,9098	4,4851	5,7833	-3,4317	9,2150
4	-	5	141,9489	1,4273	0,9735	0,3729	0,8759	3,0146	2,5766	6,0512	11,8346	-4,2897	16,1242
5	-	6	137,4018	1,3816	0,9098	0,5793	1,3604	4,3750	3,6948	8,6772	20,5118	-5,1476	25,6594
6	-	7	130,5717	1,3129	0,8172	0,5106	1,1991	5,5741	4,9746	11,6828	32,1946	-6,0055	38,2001
7	-	8	123,2401	1,2392	1,0379	0,2134	0,5012	6,0753	5,8247	13,6794	45,8740	-6,8635	52,7374
8	-	9	115,6198	1,1626	1,0379	0,1368	0,3212	6,3965	6,2359	14,6451	60,5190	-7,7214	68,2404
9	-	10	107,8528	1,0845	1,1246	-0,0291	-0,0685	6,3281	6,3623	14,9419	75,4609	-8,5793	84,0402
10	-	11	100,0125	1,0057	1,1246	-0,1080	-0,2536	6,0745	6,2013	14,5637	90,0246	-9,4373	99,4618
11	-	12	92,3780	0,9289	1,1246	-0,1848	-0,4339	5,6406	5,8575	13,7564	103,7810	-10,2952	114,0762
12	-	13	85,0250	0,8549	1,1246	-0,2587	-0,6075	5,0331	5,3368	12,5335	116,3145	-11,1531	127,4676
13	-	14	78,1618	0,7859	1,1246	-0,3277	-0,7696	4,2635	4,6483	10,9164	127,2310	-12,0110	139,2420
14	-	15	71,7954	0,7219	1,1246	-0,3917	-0,9199	3,3435	3,8035	8,9325	136,1634	-12,8690	149,0324
15	-	16	66,0630	0,6643	1,1246	-0,4494	-1,0553	2,2882	2,8159	6,6131	142,7765	-13,7269	156,5034
16	-	17	61,3219	0,6166	1,1070	-0,4793	-1,1256	1,1626	1,7254	4,0521	146,8286	-14,5848	161,4135
17	-	18	57,4302	0,5775	1,1070	-0,5184	-1,2175	-0,0548	0,5539	1,3008	148,1295	-15,4428	163,5722
18	-	19	54,7426	0,5505	0,9368	-0,3730	-0,8760	-0,9309	-0,4929	-1,1575	146,9720	-16,3007	163,2727
19	-	20	53,3988	0,5369	1,0337	-0,4847	-1,1383	-2,0692	-1,5000	-3,5228	143,4491	-17,1586	160,6078
20	-	21	54,7355	0,5504	1,0750	-0,5548	-1,3029	-3,3721	-2,7207	-6,3895	137,0596	-18,0166	155,0762
21	-	22	57,4940	0,5781	0,8564	-0,3057	-0,7179	-4,0900	-3,7311	-8,7624	128,2972	-18,8745	147,1717
22	-	23	61,2462	0,6158	0,8977	-0,2679	-0,6293	-4,7193	-4,4046	-10,3443	117,9529	-19,7324	137,6854
23	-	24	66,0559	0,6642	0,8977	-0,2196	-0,5157	-5,2349	-4,9771	-11,6887	106,2642	-20,5904	126,8546
24	-	25	71,7173	0,7211	0,8977	-0,1627	-0,3820	-5,6169	-5,4259	-12,7428	93,5214	-21,4483	114,9697
25	-	26	78,0837	0,7852	0,8915	-0,0924	-0,2169	-5,8339	-5,7254	-13,4461	80,0753	-22,3062	102,3815
26	-	27	82,1241	0,8094	0,9888	-0,1340	-0,4233	-6,3211	-5,9344	-13,9343	72,3253	-22,8520	94,4530
27	-	28	85,0842	0,8555	1,1199	-0,3032	-0,7120	-6,5459	-6,1899	-14,5369	65,5383	-23,1642	88,7025
28	-	29	92,3685	0,9288	1,1199	-0,3866	-0,9079	-7,4538	-6,9998	-16,4391	49,0992	-24,0221	73,1213
29	-	30	100,0030	1,0056	1,1199	0,0549	0,1290	-7,3248	-7,3893	-17,3537	31,7455	-24,8800	56,6255
30	-	31	107,8433	1,0844	0,8237	0,5795	1,3609	-5,9638	-6,6443	-15,6042	16,1413	-25,7380	41,8793
31	-	32	115,5417	1,1618	1,0429	0,0811	0,1903	-5,7735	-5,8687	-13,7826	2,3587	-26,5959	28,9546
32	-	33	123,2306	1,2391	0,8289	0,0018	0,0043	-5,7692	-5,7714	-13,5540	-11,1953	-27,4538	16,2585
33	-	34	130,5622	1,3128	0,7110	0,5086	1,1945	-4,5748	-5,1720	-12,1464	-23,3417	-28,3118	4,9701
34	-	35	137,4633	1,3822	0,8347	0,5780	1,3574	-3,2173	-3,8960	-9,1499	-32,4916	-29,1697	-3,3219
35	-	36	141,9489	1,4273	0,8203	0,3871	0,9091	-2,3082	-2,7628	-6,4884	-38,9800	-30,0276	-8,9523
36	-	37	141,9489	1,4273	0,5580	1,0320	2,4236	0,1154	-1,0964	-2,5750	-41,5549	-30,8856	-10,6694
37	-	38	106,6013	1,0719	0,3945	0,5169	1,2140	1,3294	0,7224	1,6965	-39,8584	-31,7435	-8,1149
38	-	39	71,2560	0,7165	0,5141	0,1657	0,3892	1,7186	1,5240	3,5791	-36,2793	-32,6014	-3,6779
39	-	FP	46,7793	0,4704	0,3232	-0,6369	-1,0357	0,6829	1,2007	2,8199	-33,4593	-33,4593	0,0000

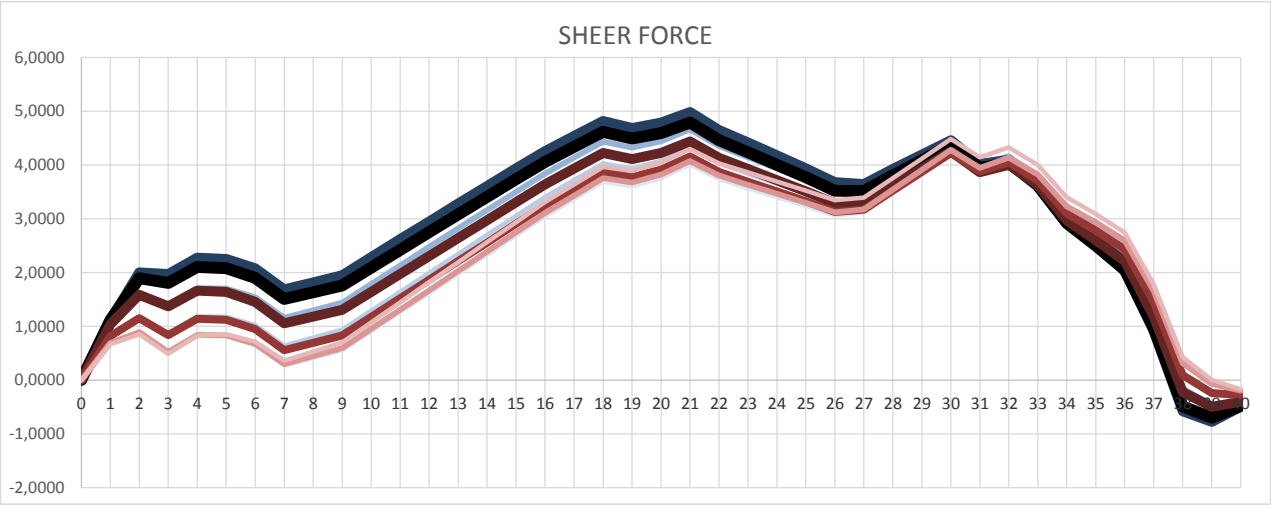

Grafik SAGGING
Gaya Berat skala 1:1 MN
Gaya Angkat skala 1:1 MN
Superposisi skala 1:1 MN
Shear Force Skala 1:20 MN
Bending Moment skala 1:150 MN m
2
1,5
1
0,5
0
-0,5
-1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

0,25



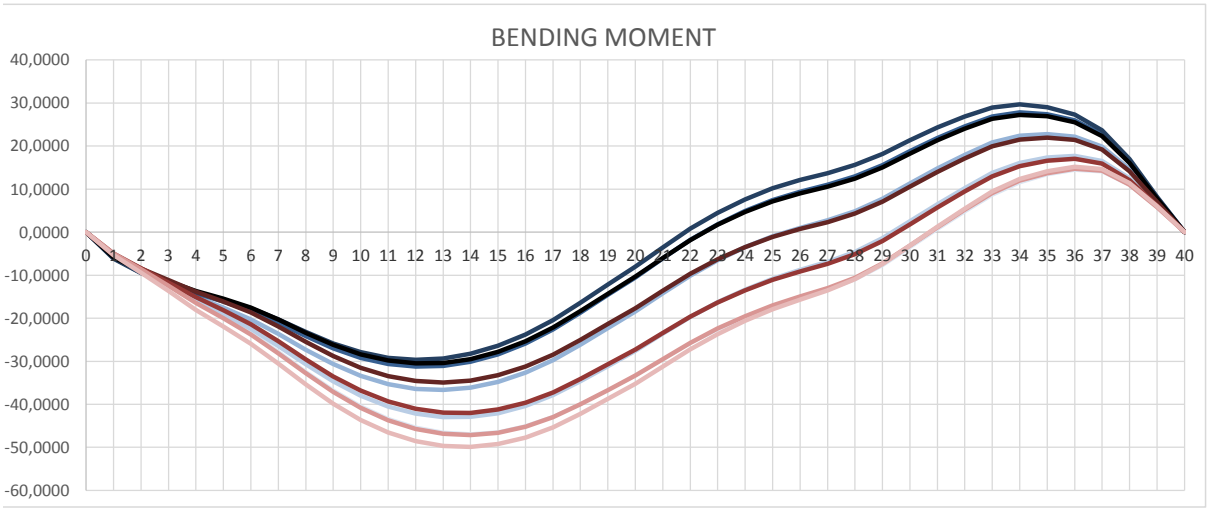
Sheer Force 0,25

STATION	PERIODE									
	2,51	5,03	7,54	10,05	12,57	15,08	17,59	20,11	22,62	25,13
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,6799	0,8258	1,0366	1,1113	1,1113	1,1113	1,0356	0,8180	0,6863	0,6621
2	0,8761	1,1688	1,5891	1,9040	2,0028	1,8956	1,5812	1,1493	0,8906	0,8496
3	0,4976	0,8673	1,3914	1,8239	1,9689	1,8052	1,3693	0,8345	0,5194	0,4834
4	0,8077	1,1844	1,7071	2,1331	2,2727	2,1036	1,6633	1,1367	0,8361	0,8270
5	0,7956	1,1784	1,6989	2,1182	2,2530	2,0789	1,6347	1,1169	0,8302	0,8465
6	0,6326	1,0205	1,5382	1,9505	2,0809	1,9022	1,4550	0,9462	0,6732	0,7133
7	0,2502	0,6423	1,1562	1,5615	1,6879	1,5049	1,0554	0,5562	0,2966	0,3590
8	0,3936	0,7888	1,2982	1,6960	1,8188	1,6316	1,1811	0,6917	0,4455	0,5286
9	0,5380	0,9352	1,4391	1,8290	1,9487	1,7577	1,3071	0,8283	0,5949	0,6974
10	0,8897	1,2879	1,7852	2,1669	2,2835	2,0892	1,6396	1,1718	0,9513	1,0715
11	1,2426	1,6405	2,1303	2,5032	2,6170	2,4197	1,9723	1,5163	1,3085	1,4450
12	1,5966	1,9931	2,4743	2,8379	2,9489	2,7493	2,3052	1,8617	1,6664	1,8180
13	1,9520	2,3457	2,8172	3,1709	3,2791	3,0776	2,6381	2,2079	2,0252	2,1903
14	2,3087	2,6984	3,1591	3,5020	3,6075	3,4047	2,9711	2,5551	2,3850	2,5622
15	2,6668	3,0513	3,5000	3,8311	3,9340	3,7304	3,3041	2,9031	2,7457	2,9336
16	3,0263	3,4043	3,8396	4,1584	4,2584	4,0547	3,6372	3,2521	3,1073	3,3048
17	3,3457	3,7158	4,1365	4,4419	4,5388	4,3356	3,9285	3,5604	3,4283	3,6340
18	3,6666	4,0275	4,4322	4,7232	4,8167	4,6149	4,2197	3,8697	3,7505	3,9630
19	3,5843	3,9344	4,3217	4,5975	4,6871	4,4876	4,1060	3,7751	3,6689	3,8871
20	3,7342	4,0722	4,4406	4,6998	4,7853	4,5888	4,2227	3,9120	3,8191	4,0416
21	3,9861	4,3082	4,6564	4,8977	4,9815	4,7861	4,4373	4,1538	4,0687	4,2944
22	3,7178	4,0247	4,3509	4,5734	4,6520	4,4614	4,1320	3,8710	3,7997	4,0275
23	3,5495	3,8396	4,1422	4,3445	4,4172	4,2326	3,9243	3,6873	3,6302	3,8589
24	3,3833	3,6548	3,9323	4,1128	4,1792	4,0016	3,7163	3,5048	3,4622	3,6906
25	3,2190	3,4704	3,7209	3,8783	3,9375	3,7682	3,5080	3,3233	3,2956	3,5229
26	3,0421	3,2848	3,4934	3,6262	3,6773	3,5176	3,2847	3,1283	3,1161	3,3408
27	3,0988	3,3178	3,4959	3,6025	3,6449	3,5135	3,2926	3,1661	3,1697	3,3908
28	3,4695	3,6633	3,8090	3,8875	3,9203	3,8014	3,6120	3,5169	3,5369	3,7535
29	3,8426	4,0092	4,1205	4,1695	4,1917	4,0864	3,9311	3,8691	3,9059	4,1169
30	4,2180	4,3556	4,4305	4,4481	4,4587	4,3686	4,2498	4,2225	4,2768	4,4812
31	3,8910	3,9976	4,0342	4,0186	4,0167	3,9432	3,8633	3,8725	3,9450	4,1416
32	4,0879	4,1616	4,1578	4,1070	4,0915	4,0364	3,9979	4,0454	4,1366	4,3245
33	3,7782	3,8171	3,7706	3,6826	3,6525	3,6175	3,6229	3,7106	3,8214	3,9994
34	3,1904	3,1923	3,1011	2,9738	2,9279	2,9149	2,9669	3,0966	3,2276	3,3949
35	2,8993	2,8625	2,7241	2,5555	2,4926	2,5033	2,6045	2,7783	2,9303	3,0859
36	2,5766	2,4986	2,3125	2,0988	2,0179	2,0540	2,2074	2,4272	2,6009	2,7438
37	1,6324	1,5066	1,2736	1,0140	0,9139	0,9774	1,1858	1,4536	1,6499	1,7791
38	0,3020	0,1310	-0,1561	-0,4639	-0,5846	-0,4916	-0,2253	0,0927	0,3126	0,4270
39	-0,0774	-0,2239	-0,4586	-0,6888	-0,7762	-0,7043	-0,4985	-0,2436	-0,0735	0,0008
40	-0,2001	-0,2776	-0,3954	-0,4762	-0,4995	-0,4804	-0,4058	-0,2807	-0,2008	-0,1747

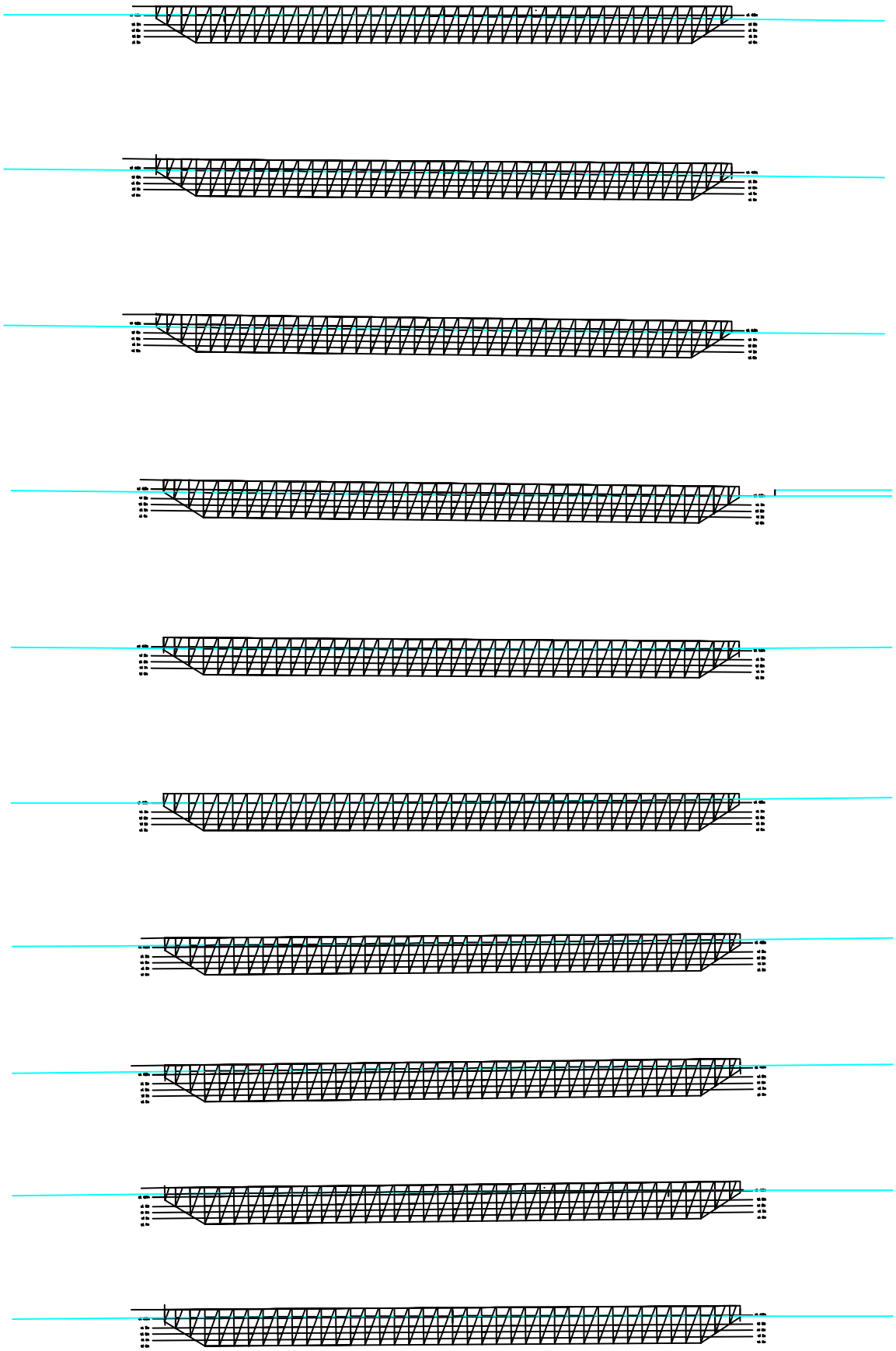


Bending Moment 0,25

STATION	PERIODE									
	2,51	5,03	7,54	10,05	12,57	15,08	17,59	20,11	22,62	25,13
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-4,8256	-5,2531	-5,6697	-6,0081	-6,1341	-5,8376	-5,3280	-5,0034	-4,9477	-5,3111
2	-8,3951	-8,8561	-9,1233	-9,4019	-9,5363	-9,0710	-8,4495	-8,3825	-8,6203	-9,4034
3	-12,1816	-12,4098	-12,1548	-11,9481	-11,9185	-11,4789	-11,1741	-11,7419	-12,4912	-13,7082
4	-16,0494	-15,9449	-15,0459	-14,2217	-13,9797	-13,6393	-13,8010	-15,1163	-16,4271	-18,0400
5	-19,5627	-19,1099	-17,5712	-16,1452	-15,7029	-15,4742	-16,1123	-18,1548	-19,9933	-21,9398
6	-23,2843	-22,4700	-20,2976	-18,2859	-17,6543	-17,5486	-18,6713	-21,4199	-23,7532	-25,9749
7	-27,6548	-26,4677	-23,6694	-21,0888	-20,2778	-20,3059	-21,9194	-25,3520	-28,1479	-30,5898
8	-32,3095	-30,7412	-27,3267	-24,1944	-23,2130	-23,3850	-25,4932	-29,5868	-32,8134	-35,4244
9	-36,6218	-34,6661	-30,6475	-26,9818	-25,8380	-26,1634	-28,7677	-33,4979	-37,1241	-39,8565
10	-40,3441	-37,9973	-33,3890	-29,2091	-27,9103	-28,3976	-31,4968	-36,8379	-40,8330	-43,6428
11	-43,2282	-40,4897	-35,3083	-30,6345	-29,1875	-29,8442	-33,4347	-39,3595	-43,6932	-46,5397
12	-45,2715	-42,1432	-36,4080	-31,2617	-29,6733	-30,5057	-34,5808	-41,0604	-45,7028	-48,5489
13	-46,4709	-42,9579	-36,6905	-31,0947	-29,3716	-30,3846	-34,9350	-41,9387	-46,8598	-49,6715
14	-46,8233	-42,9335	-36,1584	-30,1378	-28,2864	-29,4839	-34,4971	-41,9923	-47,1622	-49,9089
15	-46,3255	-42,0698	-34,8142	-28,3955	-26,4221	-27,8067	-33,2669	-41,2189	-46,6075	-49,2621
16	-44,9741	-40,3664	-32,6606	-25,8724	-23,7837	-25,3563	-31,2444	-39,6164	-45,1937	-47,7319
17	-42,8151	-37,8727	-29,7499	-22,6229	-20,4258	-22,1860	-28,4792	-37,2321	-42,9678	-45,3686
18	-39,8945	-34,6377	-26,1343	-18,7015	-16,4039	-18,3494	-25,0211	-34,1131	-39,9769	-42,2224
19	-36,6901	-31,1426	-22,2984	-14,5950	-12,2056	-14,3320	-21,3518	-30,7387	-36,6997	-38,7752
20	-33,4052	-27,5944	-18,4524	-10,5164	-8,0447	-10,3456	-17,6790	-27,3141	-33,3410	-35,2344
21	-29,6423	-23,6016	-14,2084	-6,0806	-3,5335	-6,0041	-13,6122	-23,4390	-29,5067	-31,2091
22	-25,8990	-19,6652	-10,0711	-1,7952	0,8191	-1,8143	-9,6533	-19,6127	-25,6955	-27,2007
23	-22,6749	-16,2863	-6,5454	1,8321	4,5005	1,7173	-6,3045	-16,3413	-22,4058	-23,7103
24	-19,8488	-13,3473	-3,5176	4,9115	7,6195	4,7019	-3,4502	-13,5056	-19,5177	-20,6206
25	-17,4159	-10,8476	-0,9910	7,4365	10,1679	7,1342	-1,0910	-11,1027	-17,0276	-17,9305
26	-15,3888	-8,7880	1,0135	9,3827	12,1192	8,9907	0,7548	-9,1476	-14,9491	-15,6567
27	-13,5048	-6,9099	2,7505	11,0008	13,7225	10,5442	2,3444	-7,3796	-13,0204	-13,5398
28	-11,1122	-4,5814	4,8629	12,9297	15,6149	12,4353	4,3233	-5,1493	-10,5912	-10,9321
29	-7,8349	-1,4305	7,7182	15,5331	18,1578	15,0077	7,0617	-2,0827	-7,2861	-7,4606
30	-3,6673	2,5438	11,3129	18,8033	21,3411	18,2550	10,5588	1,8232	-3,1010	-3,1237
31	0,5579	6,5042	14,8049	21,8941	24,3161	21,3320	13,9751	5,7331	1,1306	1,2426
32	4,6283	10,2340	17,9724	24,5790	26,8543	24,0138	17,0918	9,4323	5,1954	5,4226
33	8,5645	13,7490	20,8264	26,8644	28,9594	26,3081	19,9225	12,9390	9,1133	9,4335
34	11,4332	16,1111	22,4234	27,8018	29,6803	27,2685	21,5269	15,3170	11,9498	12,3386
35	13,2564	17,3377	22,7757	27,3984	29,0216	26,9034	21,9198	16,5860	13,7265	14,1570
36	14,3495	17,7391	22,1899	25,9542	27,2804	25,5142	21,4094	17,0588	14,7577	15,2009
37	13,9357	16,5278	19,8787	22,6764	23,6613	22,3100	19,2113	15,9559	14,2658	14,6904
38	10,8163	12,5001	14,6312	16,3503	16,9465	16,0779	14,1196	12,0761	11,0520	11,4241
39	5,6630	6,4140	7,3232	7,9987	8,2214	7,8454	7,0245	6,1774	5,7880	6,0425
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

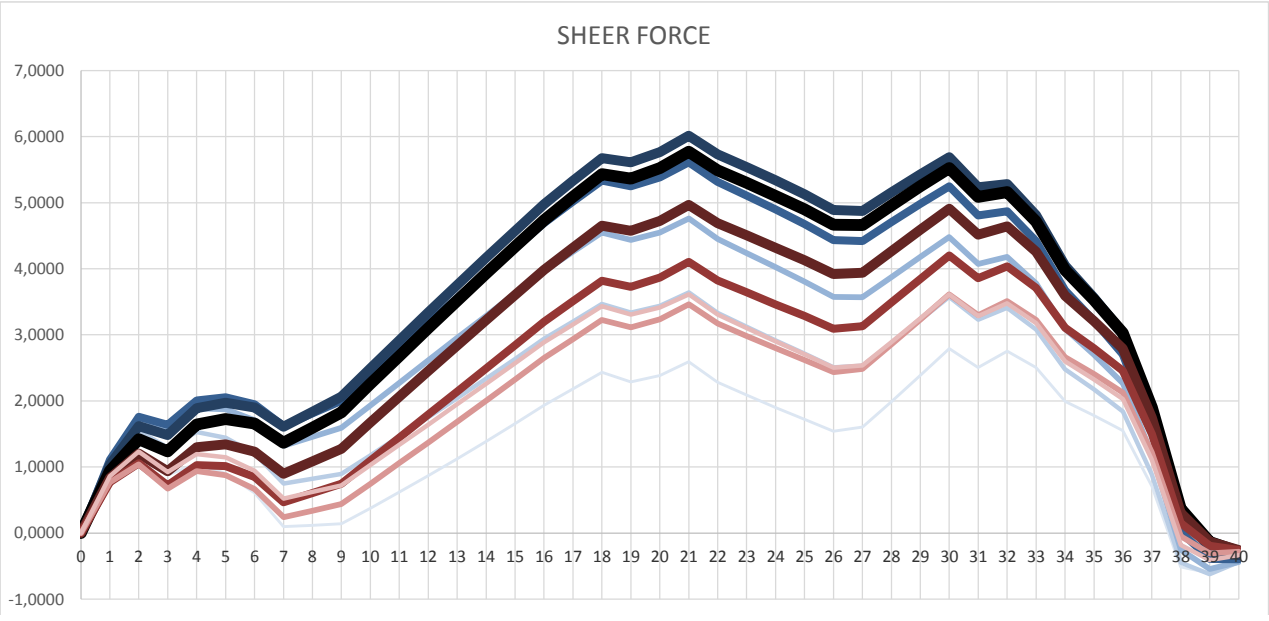


0,35



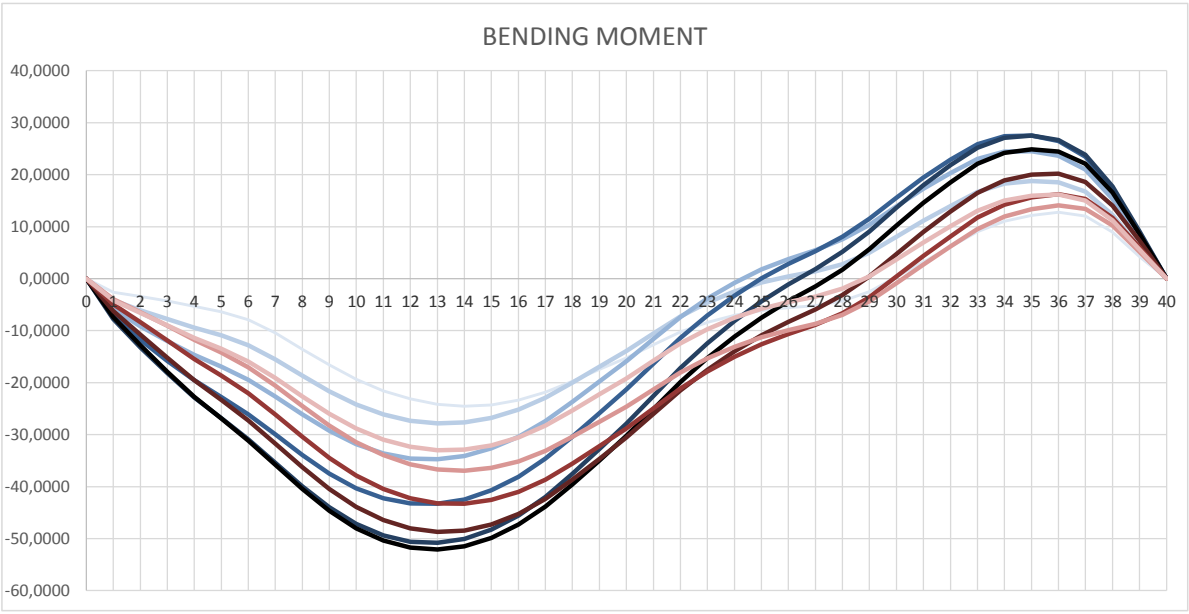
Sheer Force 0,35

STATION	PERIODE									
	1,80	3,59	5,39	7,18	8,98	10,77	12,57	14,36	16,16	17,95
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,8840	1,0272	1,1113	1,1113	1,0404	0,9391	0,8357	0,7705	0,7680	0,8626
2	1,2457	1,5482	1,7419	1,7587	1,6216	1,4208	1,2017	1,0563	1,0390	1,2325
3	0,8803	1,2940	1,5801	1,6365	1,4838	1,2346	0,9357	0,7214	0,6741	0,9222
4	1,0518	1,5285	1,8893	2,0080	1,8906	1,6436	1,3008	1,0293	0,9368	1,1971
5	0,9040	1,4413	1,8748	2,0546	1,9730	1,7280	1,3422	1,0150	0,8777	1,1477
6	0,6086	1,2041	1,7078	1,9476	1,9019	1,6586	1,2309	0,8498	0,6683	0,9454
7	0,0976	0,7488	1,3201	1,6183	1,6086	1,3665	0,8982	0,4650	0,2403	0,5219
8	0,1166	0,8203	1,4564	1,8113	1,8376	1,5971	1,0889	0,6057	0,3388	0,6227
9	0,1408	0,8942	1,5919	2,0019	2,0638	1,8276	1,2779	0,7470	0,4391	0,7230
10	0,3771	1,1770	1,9330	2,3959	2,4928	2,2567	1,6714	1,0951	0,7476	1,0295
11	0,6194	1,4624	2,2733	2,7869	2,9182	2,6817	2,0628	1,4438	1,0582	1,3362
12	0,8682	1,7508	2,6128	3,1746	3,3396	3,1024	2,4520	1,7931	1,3711	1,6435
13	1,1237	2,0423	2,9516	3,5589	3,7564	3,5182	2,8389	2,1430	1,6865	1,9515
14	1,3865	2,3371	3,2894	3,9393	4,1683	3,9290	3,2233	2,4935	2,0046	2,2607
15	1,6568	2,6353	3,6264	4,3159	4,5749	4,3343	3,6052	2,8448	2,3256	2,5714
16	1,9351	2,9371	3,9624	4,6882	4,9758	4,7338	3,9842	3,1967	2,6496	2,8839
17	2,1798	3,2010	4,2556	5,0142	5,3287	5,0855	4,3186	3,5076	2,9353	3,1569
18	2,4330	3,4688	4,5477	5,3354	5,6750	5,4309	4,6500	3,8194	3,2245	3,4323
19	2,2902	3,3357	4,4338	5,2465	5,6091	5,3645	4,5734	3,7271	3,1125	3,3057
20	2,3870	3,4373	4,5492	5,3828	5,7662	5,5216	4,7241	3,8662	3,2352	3,4129
21	2,5914	3,6428	4,7612	5,6114	6,0133	5,7697	4,9675	4,1045	3,4600	3,6133
22	2,2854	3,3311	4,4518	5,3141	5,7318	5,4902	4,6895	3,8238	3,1696	3,3063
23	2,0875	3,1220	4,2388	5,1086	5,5395	5,3009	4,5062	3,6424	2,9819	3,1018
24	1,9000	2,9174	4,0241	4,8962	5,3376	5,1035	4,3192	3,4623	2,7992	2,9021
25	1,7229	2,7173	3,8074	4,6769	5,1257	4,8977	4,1284	3,2834	2,6219	2,7075
26	1,5419	2,5072	3,5740	4,4355	4,8886	4,6685	3,9192	3,0914	2,4355	2,5037
27	1,6032	2,5332	3,5699	4,4177	4,8721	4,6620	3,9378	3,1324	2,4864	2,5373
28	1,9879	2,8759	3,8754	4,7037	5,1563	4,9583	4,2644	3,4871	2,8555	2,8892
29	2,3840	3,2235	4,1781	4,9811	5,4287	5,2453	4,5872	3,8436	3,2310	3,2476
30	2,7917	3,5757	4,4782	5,2497	5,6889	5,5228	4,9060	4,2022	3,6133	3,6130
31	2,5066	3,2281	4,0706	4,8042	5,2319	5,0859	4,5162	3,8581	3,2981	3,2811
32	2,7551	3,4068	4,1813	4,8706	5,2832	5,1604	4,6439	4,0378	3,5118	3,4783
33	2,5069	3,0814	3,7796	4,4177	4,8122	4,7157	4,2586	3,7108	3,2242	3,1745
34	1,9903	2,4801	3,0936	3,6735	4,0467	3,9800	3,5887	3,1059	2,6641	2,5985
35	1,7808	2,1731	2,6981	3,2126	3,5613	3,5281	3,2090	2,7981	2,4067	2,3254
36	1,5497	1,8413	2,2641	2,7060	3,0271	3,0311	2,7910	2,4589	2,1239	2,0271
37	0,7076	0,8902	1,2019	1,5633	1,8539	1,8993	1,7451	1,4989	1,2263	1,1141
38	-0,5104	-0,4452	-0,2538	0,0194	0,2766	0,3676	0,3065	0,1533	-0,0507	-0,1781
39	-0,6060	-0,6188	-0,5413	-0,3886	-0,2198	-0,1318	-0,1292	-0,1925	-0,3054	-0,4067
40	-0,3943	-0,4354	-0,4371	-0,3967	-0,3331	-0,2830	-0,2551	-0,2546	-0,2839	-0,3357

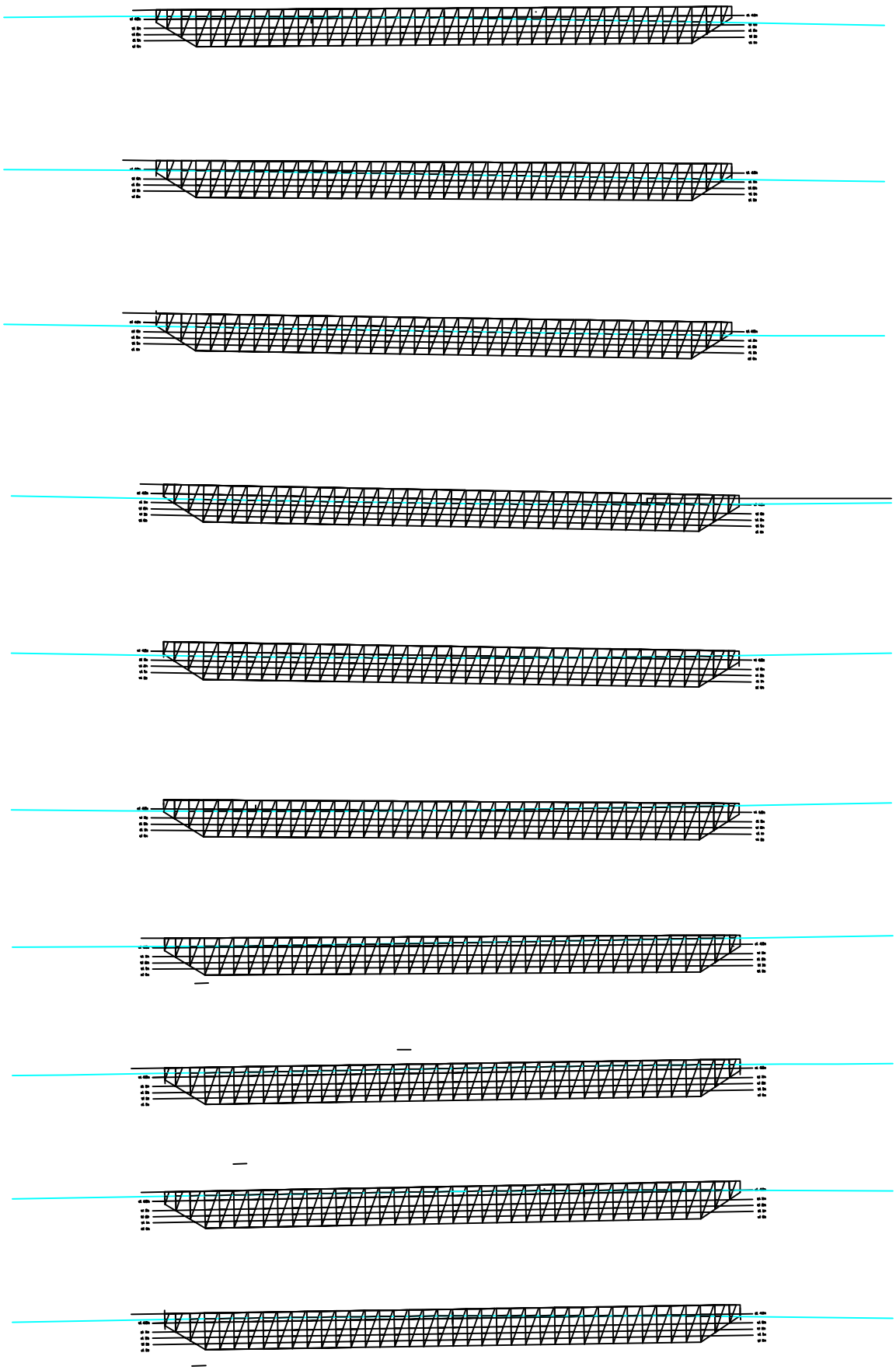


Bending Moment 0,35

STATION	PERIODE									
	1,80	3,59	5,39	7,18	8,98	10,77	12,57	14,36	16,16	17,95
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-2,5916	-4,1305	-5,8034	-7,1055	-7,7404	-7,4107	-6,2383	-4,9476	-3,9623	-4,1704
2	-3,4235	-6,0964	-9,1853	-11,7694	-13,2246	-12,8361	-10,7844	-8,3964	-6,4472	-6,6036
3	-4,2598	-7,7448	-12,0095	-15,8086	-18,1814	-17,9101	-15,2115	-11,9037	-9,0437	-8,9658
4	-5,3267	-9,4167	-14,6585	-19,5513	-22,8183	-22,7190	-19,5207	-15,4430	-11,7619	-11,3700
5	-6,3655	-10,9134	-16,9568	-22,7967	-26,8733	-26,9410	-23,3463	-18,6330	-14,2379	-13,5061
6	-7,9314	-12,7958	-19,4711	-26,1139	-30,9148	-31,1450	-27,2551	-22,0366	-17,0332	-15,9417
7	-10,4565	-15,5021	-22,6452	-29,9501	-35,3897	-35,7791	-31,6920	-26,0944	-20,5868	-19,1216
8	-13,5669	-18,6649	-26,1184	-33,9485	-39,9411	-40,4864	-36,2978	-30,4427	-24,5323	-22,6853
9	-16,6259	-21,6547	-29,2682	-37,4905	-43,9511	-44,6451	-40,4520	-34,4555	-28,2414	-26,0100
10	-19,3751	-24,2203	-31,8512	-40,3372	-47,1818	-48,0192	-43,9133	-37,8861	-31,4642	-28,8506
11	-21,5550	-26,1100	-33,6236	-42,2501	-49,3961	-50,3774	-46,4409	-40,4879	-33,9506	-30,9618
12	-23,1507	-27,3171	-34,5872	-43,2368	-50,6031	-51,7296	-48,0401	-42,2594	-35,6954	-32,3427
13	-24,1465	-27,8344	-34,7441	-43,3052	-50,8131	-52,0868	-48,7161	-43,1991	-36,6927	-32,9917
14	-24,5257	-27,6543	-34,0963	-42,4639	-50,0373	-51,4609	-48,4746	-43,3057	-36,9364	-32,9065
15	-24,2708	-26,7689	-32,6458	-40,7221	-48,2880	-49,8642	-47,3217	-42,5776	-36,4199	-32,0839
16	-23,3634	-25,1697	-30,3947	-38,0896	-45,5782	-47,3101	-45,2637	-41,0131	-35,1362	-30,5201
17	-21,8339	-22,8976	-27,3952	-34,6265	-41,9717	-43,8625	-42,3570	-38,6600	-33,1273	-28,2599
18	-19,7122	-19,9932	-23,6993	-30,3934	-37,5335	-39,5857	-38,6584	-35,5663	-30,4345	-25,3473
19	-17,4592	-16,9285	-19,7915	-25,8841	-32,7617	-34,9770	-34,6566	-32,2115	-27,5310	-22,2577
20	-15,2609	-13,9013	-15,8819	-21,3184	-27,8815	-30,2604	-30,5669	-28,8010	-24,6147	-19,1911
21	-12,7043	-10,5087	-11,5829	-16,3186	-22,5206	-25,0619	-26,0082	-24,9416	-21,2851	-15,7588
22	-10,2686	-7,2425	-7,3998	-11,4005	-17,2005	-19,9008	-21,4907	-21,1326	-18,0335	-12,4532
23	-8,4322	-4,5958	-3,8381	-7,0806	-12,4440	-15,2973	-17,5219	-17,8732	-15,3507	-9,7560
24	-7,0543	-2,4413	-0,7852	-3,2578	-8,1564	-11,1537	-13,9938	-15,0439	-13,1084	-7,5396
25	-6,1101	-0,7682	1,7546	0,0516	-4,3610	-7,4898	-10,9149	-12,6415	-11,2943	-5,7923
26	-5,5918	0,4170	3,7592	2,8130	-1,0998	-4,3433	-8,3118	-10,6804	-9,9128	-4,5189
27	-5,2159	1,3833	5,4811	5,2660	1,8599	-1,4772	-5,9355	-8,8990	-8,6925	-3,4479
28	-4,3094	2,7883	7,5616	8,0380	5,1380	1,7337	-3,1485	-6,6469	-6,9726	-1,9185
29	-2,4741	5,0143	10,3655	11,4803	9,0781	5,6384	0,4110	-3,5487	-4,3671	0,4560
30	0,3171	8,0727	13,8865	15,5720	13,6518	10,2146	4,7336	0,4000	-0,8601	3,6915
31	3,2542	11,1366	17,2795	19,4532	17,9914	14,6012	8,9718	4,3659	2,7266	6,9667
32	6,1479	13,9996	20,3193	22,8836	21,8484	18,5566	12,8983	8,1362	6,1926	10,0817
33	9,0419	16,6880	23,0130	25,8541	25,2061	22,0717	16,5183	11,7314	9,5707	13,0700
34	11,0262	18,2741	24,4129	27,4007	27,0931	24,1828	18,8831	14,2183	11,9405	15,0117
35	12,1467	18,7797	24,5264	27,5138	27,4921	24,8812	19,9994	15,6194	13,3379	15,9434
36	12,7432	18,5255	23,6532	26,4761	26,6783	24,4509	20,1669	16,2510	14,0927	16,1955
37	12,0631	16,7453	21,0004	23,4765	23,8335	22,0831	18,5931	15,3371	13,4434	15,0067
38	8,9325	12,2454	15,3524	17,2812	17,7170	16,5471	14,0640	11,6808	10,2074	11,1949
39	4,2394	5,9506	7,6309	8,7642	9,1339	8,5950	7,3054	6,0125	5,1494	5,5741
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

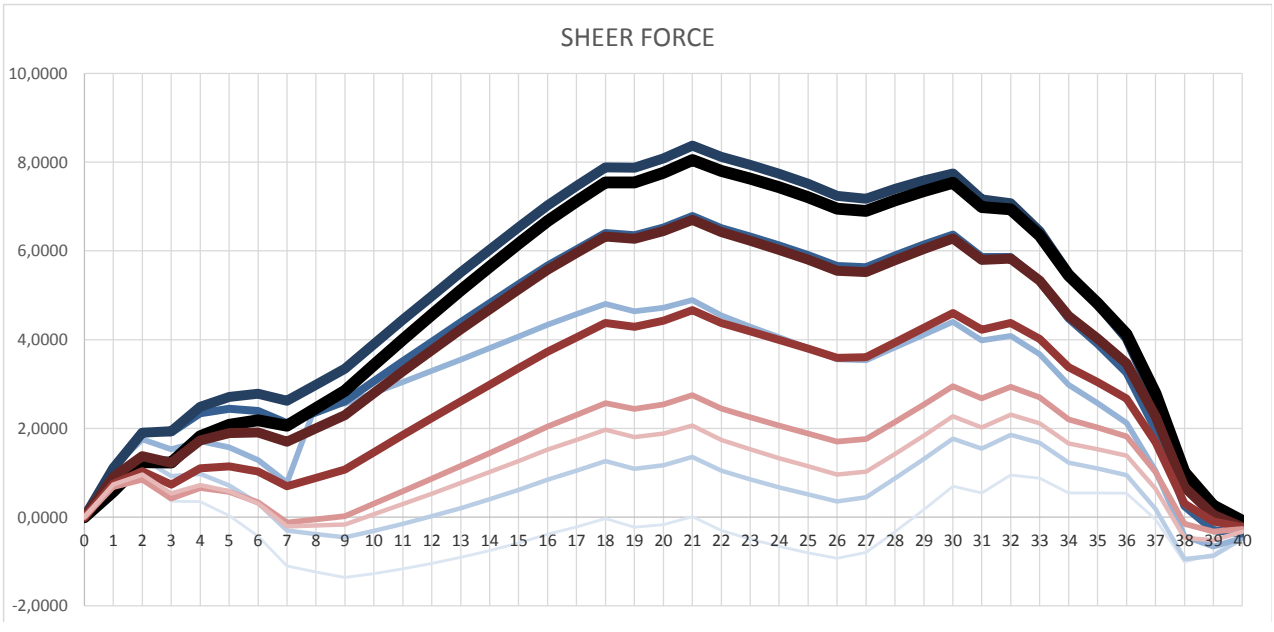


0,45



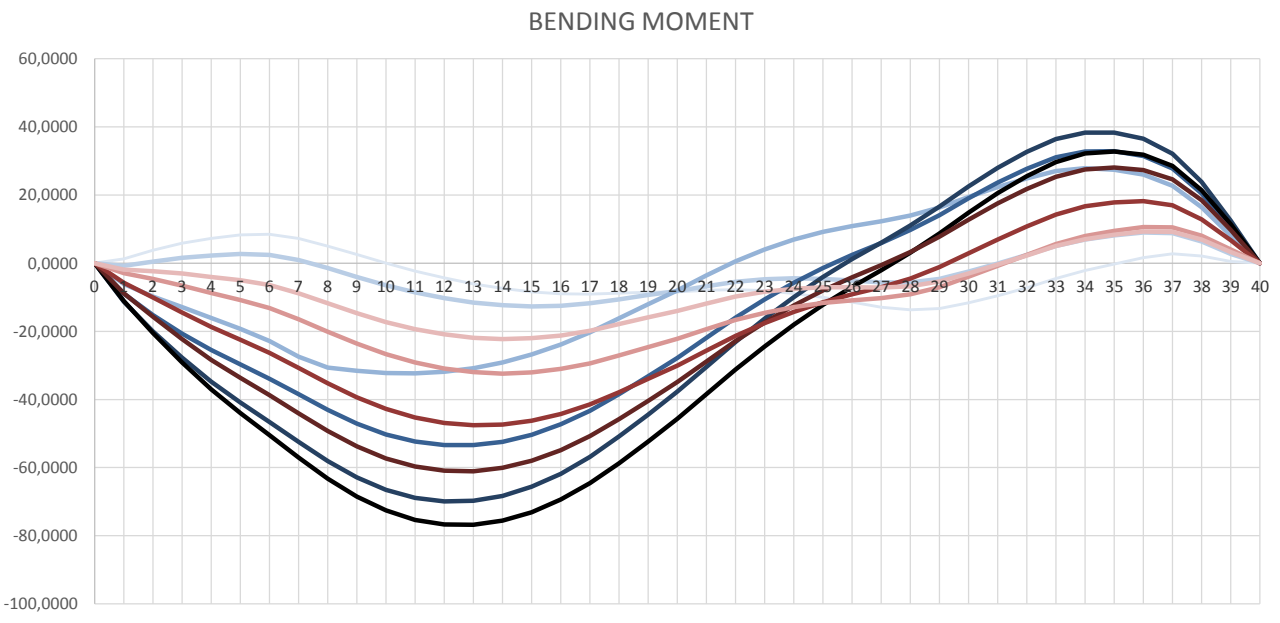
Sheer Force 0,45

STATION	PERIODE									
	1,40	2,79	4,19	5,59	6,98	8,38	9,77	11,17	12,57	13,96
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,7363	0,9428	1,1113	1,1113	1,1113	0,5837	0,9039	0,7527	0,6754	0,7391
2	0,9040	1,3313	1,7535	1,9239	1,9008	1,2411	1,3741	1,0370	0,8474	0,9612
3	0,3546	0,9212	1,5328	1,9116	1,9390	1,2323	1,2269	0,7315	0,4198	0,5346
4	0,3522	0,9771	1,7134	2,3401	2,4885	1,8198	1,7251	1,0993	0,6559	0,7229
5	0,0343	0,7167	1,5740	2,4419	2,7121	2,0808	1,8957	1,1423	0,5700	0,5878
6	-0,4272	0,3125	1,2863	2,3903	2,7804	2,1851	1,9094	1,0314	0,3333	0,3009
7	-1,0994	-0,3032	0,7824	2,1168	2,6238	2,0634	1,6969	0,6982	-0,1222	-0,2057
8	-1,2365	-0,3846	2,5321	2,3659	2,9867	2,4594	2,0024	0,8871	-0,0515	-0,1864
9	-1,3621	-0,4555	2,5613	2,6122	3,3433	2,8470	2,3004	1,0730	0,0206	-0,1656
10	-1,2691	-0,3090	2,8011	3,0619	3,8991	3,4311	2,7966	1,4624	0,3009	0,0636
11	-1,1625	-0,1506	3,0457	3,5080	4,4467	4,0045	3,2840	1,8486	0,5833	0,2955
12	-1,0413	0,0203	3,2949	3,9501	4,9852	4,5659	3,7620	2,2315	0,8683	0,5309
13	-0,9043	0,2047	3,5489	4,3877	5,5135	5,1142	4,2303	2,6110	1,1560	0,7704
14	-0,7506	0,4028	3,8078	4,8203	6,0306	5,6486	4,6881	2,9872	1,4470	1,0148
15	-0,5790	0,6155	4,0715	5,2470	6,5353	6,1679	5,1350	3,3599	1,7415	1,2647
16	-0,3886	0,8431	4,3400	5,6674	7,0265	6,6711	5,5707	3,7293	2,0402	1,5211
17	-0,2200	1,0445	4,5715	6,0389	7,4614	7,1156	5,9529	4,0535	2,3018	1,7430
18	-0,0307	1,2619	4,8074	6,4025	7,8804	7,5422	6,3230	4,3746	2,5684	1,9732
19	-0,2246	1,0908	4,6428	6,3525	7,8774	7,5451	6,2758	4,2877	2,4359	1,8074
20	-0,1654	1,1668	4,7204	6,5235	8,0862	7,7590	6,4463	4,4283	2,5401	1,8822
21	0,0151	1,3580	4,8896	6,7822	8,3734	8,0505	6,7019	4,6642	2,7502	2,0660
22	-0,3002	1,0464	4,5421	6,5096	8,1193	7,8009	6,4242	4,3774	2,4469	1,7420
23	-0,4927	0,8506	4,2959	6,3227	7,9408	7,6274	6,2310	4,1864	2,2500	1,5289
24	-0,6597	0,6724	4,0522	6,1225	7,7385	7,4314	6,0241	3,9933	2,0620	1,3299
25	-0,8004	0,5121	3,8106	5,9077	7,5109	7,2121	5,8033	3,7984	1,8836	1,1458
26	-0,9291	0,3552	3,5558	5,6628	7,2422	6,9541	5,5539	3,5873	1,7011	0,9628
27	-0,7990	0,4478	3,5336	5,6325	7,1774	6,9032	5,5220	3,6067	1,7613	1,0283
28	-0,3291	0,8704	3,8237	5,8964	7,3958	7,1391	5,7880	3,9373	2,1455	1,4234
29	0,1692	1,3110	4,1134	6,1412	7,5844	7,3494	6,0397	4,2676	2,5428	1,8371
30	0,6964	1,7697	4,4023	6,3655	7,7421	7,5337	6,2773	4,5982	2,9540	2,2704
31	0,5481	1,5415	3,9848	5,8634	7,1630	6,9869	5,7963	4,2248	2,6754	2,0195
32	0,9509	1,8526	4,0862	5,8598	7,0725	6,9347	5,8228	4,3741	2,9340	2,3113
33	0,8748	1,6722	3,6752	5,3224	6,4390	6,3461	5,3264	4,0163	2,7004	2,1161
34	0,5483	1,2286	2,9793	4,4785	5,4901	5,4492	4,5356	3,3800	2,2036	1,6632
35	0,5467	1,0961	2,5726	3,9014	4,7997	4,8188	4,0256	3,0411	2,0196	1,5283
36	0,5417	0,9461	2,1253	3,2611	4,0383	4,1258	3,4679	2,6716	1,8206	1,3836
37	-0,0564	0,1886	1,0468	1,9662	2,6157	2,7804	2,2732	1,6823	1,0180	0,6402
38	-1,0123	-0,9420	-0,4289	0,2507	0,7662	1,0175	0,6768	0,3093	-0,1525	-0,4659
39	-0,8355	-0,8714	-0,6643	-0,2914	0,0075	0,2670	0,0568	-0,0957	-0,3269	-0,5220
40	-0,4161	-0,4802	-0,4697	-0,3709	-0,2915	-0,0834	-0,2237	-0,2242	-0,2652	-0,3338

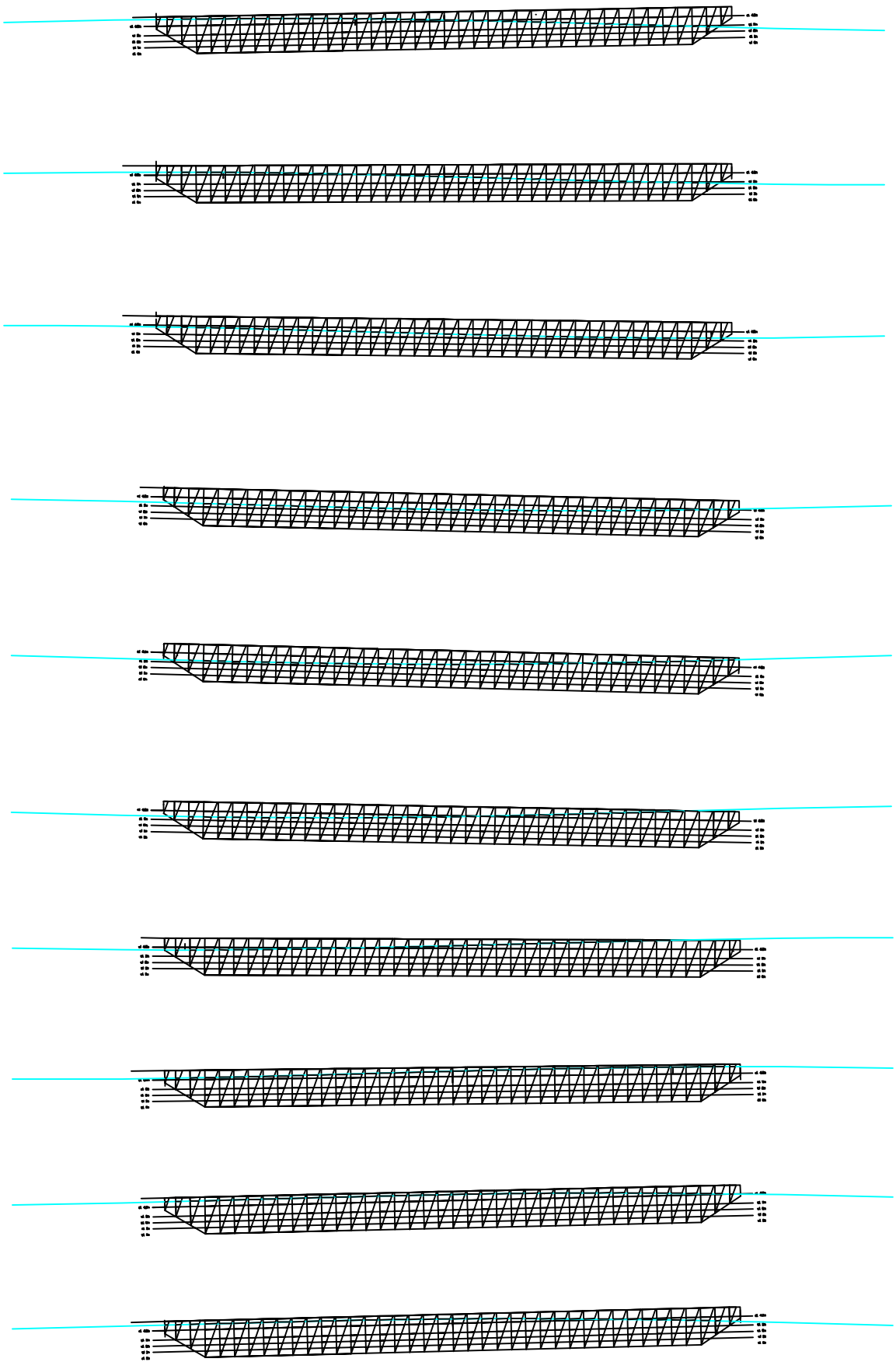


Bending Moment 0,45

STATION	PERIODE									
	1,40	2,79	4,19	5,59	6,98	8,38	9,77	11,17	12,57	13,96
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	1,2356	-0,7196	-6,0851	-8,9531	-11,3146	-11,0668	-8,8224	-5,7812	-2,8929	-1,8520
2	3,7781	0,4410	-9,7350	-15,2682	-20,0186	-20,4739	-15,7261	-10,0923	-4,5655	-2,3281
3	5,8665	1,5758	-12,8836	-20,6314	-27,7381	-29,1093	-22,2456	-14,4285	-6,5421	-3,0476
4	7,2985	2,2893	-16,0798	-25,4994	-34,7586	-37,0563	-28,3475	-18,6907	-8,7465	-4,0506
5	8,3496	2,7595	-19,2271	-29,7367	-40,8594	-43,9941	-33,6540	-22,4642	-10,7723	-4,9902
6	8,4736	2,4391	-22,8823	-33,9142	-46,6130	-50,4974	-38,7413	-26,3184	-13,1817	-6,4319
7	7,2491	0,9056	-27,4791	-38,4784	-52,4718	-57,0213	-44,0650	-30,7008	-16,4145	-8,8174
8	5,0619	-1,4571	-30,5941	-43,0717	-58,0851	-63,2189	-49,2780	-35,2550	-20,1051	-11,7826
9	2,5622	-4,0009	-31,5930	-47,0758	-62,8424	-68,4845	-53,7731	-39,3633	-23,6258	-14,7001
10	0,0237	-6,4548	-32,2720	-50,2518	-66,5145	-72,5943	-57,3235	-42,7872	-26,7273	-17,3202
11	-2,2773	-8,5461	-32,3747	-52,3623	-68,8742	-75,3273	-59,7040	-45,2887	-29,1596	-19,3918
12	-4,3074	-10,2456	-31,8901	-53,4165	-69,9419	-76,7105	-60,9361	-46,8753	-30,9168	-20,9076
13	-6,0304	-11,5225	-30,8069	-53,4241	-69,7406	-76,7735	-61,0426	-47,5549	-31,9929	-21,8584
14	-7,4076	-12,3445	-29,1137	-52,3967	-68,2959	-75,5487	-60,0475	-47,3357	-32,3806	-22,2337
15	-8,3978	-12,6777	-26,7988	-50,3471	-65,6358	-73,0706	-57,9763	-46,2257	-32,0717	-22,0211
16	-8,9575	-12,4872	-23,8509	-47,2899	-61,7910	-69,3762	-54,8552	-44,2330	-31,0574	-21,2062
17	-9,0901	-11,7864	-20,3083	-43,2908	-56,8446	-64,5545	-50,7613	-41,4152	-29,3766	-19,8223
18	-8,7971	-10,5874	-16,2097	-38,4171	-50,8824	-58,6967	-45,7725	-37,8297	-27,0675	-17,9006
19	-8,5094	-9,3334	-12,0261	-33,1704	-44,4254	-52,3278	-40,3995	-33,9657	-24,5988	-15,9024
20	-8,3819	-8,1925	-7,9461	-27,7798	-37,7237	-45,7012	-34,8800	-30,0379	-22,1639	-14,0124
21	-7,9693	-6,7339	-3,5724	-21,8781	-30,4320	-38,4734	-28,8536	-25,6622	-19,3550	-11,8148
22	-7,7171	-5,4184	0,5891	-15,9930	-23,1009	-31,1957	-22,8536	-21,3471	-16,6570	-9,7840
23	-8,0690	-4,7065	4,0444	-10,6544	-16,2843	-24,4214	-17,4136	-17,6002	-14,5539	-8,3920
24	-8,8483	-4,4394	6,9170	-5,7764	-9,9207	-18,0865	-12,4495	-14,3102	-12,9088	-7,4901
25	-9,9937	-4,5750	9,2122	-1,3919	-4,0685	-12,2457	-7,9942	-11,4818	-11,6995	-7,0440
26	-11,4596	-5,0878	10,9171	2,4457	1,1933	-6,9726	-4,0981	-9,1363	-10,9194	-7,0345
27	-12,9239	-5,6773	12,2924	5,9560	6,0585	-2,0669	-0,5367	-7,0188	-10,2848	-7,1647
28	-13,6745	-5,6539	13,9864	9,7442	11,1064	3,0588	3,3032	-4,4852	-9,1216	-6,7472
29	-13,2733	-4,6037	16,3701	14,1375	16,6385	8,7152	7,7588	-1,1653	-7,0288	-5,3675
30	-11,6524	-2,4838	19,4420	19,0888	22,5825	14,8412	12,7965	2,9407	-3,9742	-2,9804
31	-9,5808	-0,0896	22,3609	23,7097	28,0252	20,5359	17,5447	6,9958	-0,7619	-0,3763
32	-7,2064	2,4032	24,9037	27,7289	32,6714	25,5181	21,7522	10,7844	2,4265	2,2764
33	-4,4433	5,0515	27,0784	31,1047	36,4565	29,7380	25,4008	14,3250	5,6447	5,0441
34	-2,1591	6,9575	27,9365	32,8375	38,3592	32,1909	27,5183	16,6831	7,9940	7,0408
35	-0,2652	8,1782	27,4830	32,8799	38,3120	32,8272	28,0886	17,8812	9,5335	8,3384
36	1,6208	9,0629	26,0136	31,4743	36,5378	31,8893	27,3887	18,2367	10,6175	9,3034
37	2,7893	8,8681	22,7293	27,7667	32,1659	28,5268	24,6043	16,9758	10,5101	9,2120
38	2,1093	6,4274	16,4067	20,4782	23,9017	21,4669	18,5000	12,9051	8,0556	6,9206
39	0,5026	2,7259	8,0487	10,5043	12,5351	11,4172	9,7592	6,7194	4,0014	3,2467
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

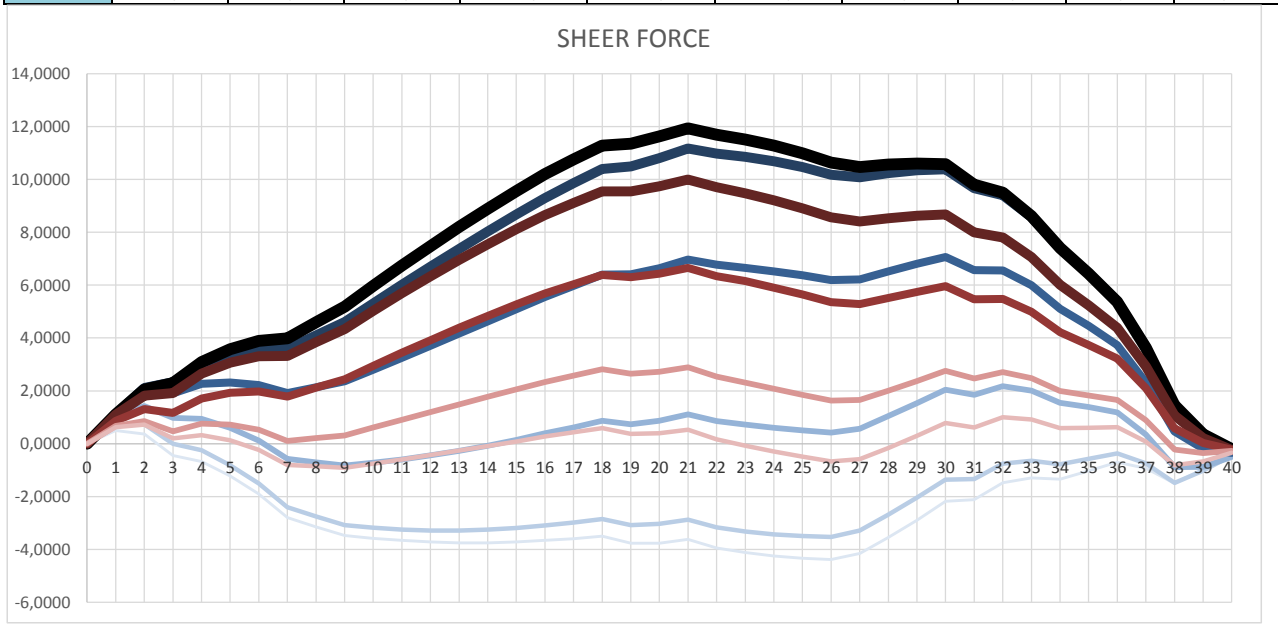


0,55



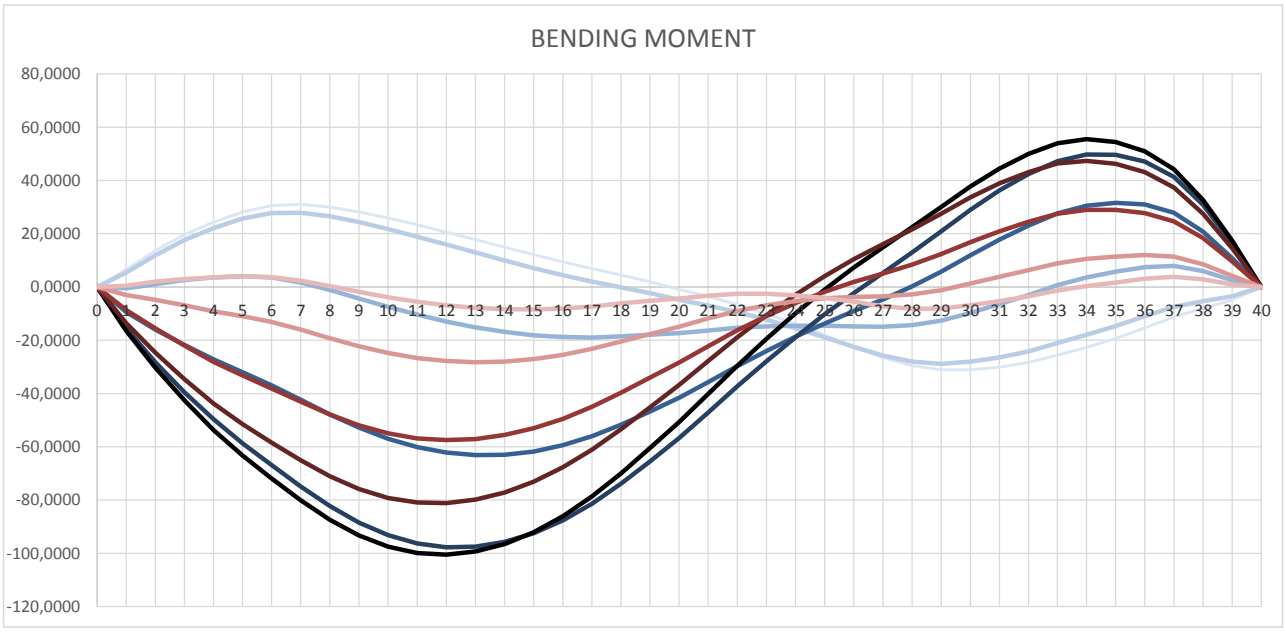
Sheer Force 0,55

STATION	PERIODE									
	1,14	2,28	3,43	4,57	5,71	6,85	8,00	9,14	10,28	11,42
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,5011	0,6863	1,0036	1,1113	1,1113	1,1113	1,0947	0,8656	0,6728	0,6291
2	0,3725	0,7361	1,4208	1,9413	2,1165	2,0491	1,8205	1,3099	0,8575	0,7268
3	-0,4406	0,0023	0,9816	1,9065	2,3321	2,2896	1,9222	1,1719	0,4643	0,2042
4	-0,6732	-0,2492	0,9451	2,2709	3,0208	3,0943	2,6608	1,7136	0,7560	0,3278
5	-1,2183	-0,8099	0,5997	2,3191	3,3864	3,5722	3,0673	1,9236	0,7204	0,1267
6	-1,9026	-1,5061	0,1183	2,2226	3,5991	3,8923	3,3108	1,9720	0,5285	-0,2277
7	-2,7927	-2,4036	-0,5660	1,9131	3,5891	3,9840	3,3205	1,7892	0,1117	-0,8032
8	-3,1419	-2,7547	-0,7069	2,1354	4,1003	4,5902	3,8393	2,1191	0,2150	-0,8544
9	-3,4728	-3,0820	-0,8281	2,3645	4,6062	5,1835	4,3403	2,4361	0,3135	-0,9052
10	-3,5771	-3,1768	-0,7222	2,8062	5,3117	5,9677	5,0279	2,9456	0,6135	-0,7486
11	-3,6590	-3,2433	-0,5943	3,2538	6,0087	6,7339	5,6940	3,4405	0,9092	-0,5900
12	-3,7162	-3,2794	-0,4440	3,7068	6,6953	7,4792	6,3371	3,9205	1,2009	-0,4283
13	-3,7464	-3,2833	-0,2704	4,1641	7,3696	8,2008	6,9554	4,3849	1,4890	-0,2623
14	-3,7475	-3,2534	-0,0733	4,6249	8,0294	8,8959	7,5475	4,8334	1,7742	-0,0908
15	-3,7170	-3,1878	0,1479	5,0882	8,6724	9,5620	8,1121	5,2656	2,0570	0,0876
16	-3,6526	-3,0853	0,3930	5,5525	9,2962	10,1964	8,6480	5,6815	2,3382	0,2744
17	-3,5939	-2,9863	0,6206	5,9747	9,8565	10,7549	9,1124	6,0392	2,5772	0,4296
18	-3,4966	-2,8478	0,8720	6,3950	10,3924	11,2771	9,5459	6,3805	2,8164	0,5965
19	-3,7641	-3,0737	0,7422	6,4066	10,4961	11,3559	9,5427	6,3007	2,6521	0,3721
20	-3,7586	-3,0277	0,8661	6,6432	10,8000	11,6246	9,7375	6,4353	2,7210	0,3936
21	-3,6110	-2,8768	1,1105	6,9704	11,1685	11,9348	9,9971	6,6494	2,8897	0,5309
22	-3,9378	-3,1680	0,8568	6,7678	10,9805	11,6949	9,7031	6,3314	2,5458	0,1679
23	-4,1192	-3,3178	0,7220	6,6512	10,8508	11,5071	9,4729	6,1512	2,3068	-0,0752
24	-4,2520	-3,4240	0,6071	6,5200	10,6785	11,2717	9,2081	5,9031	2,0762	-0,2945
25	-4,3349	-3,4866	0,5106	6,3714	10,4604	10,9874	8,9086	5,6411	1,8557	-0,4879
26	-4,3815	-3,5202	0,4166	6,1880	10,1793	10,6383	8,5594	5,3522	1,6325	-0,6683
27	-4,1444	-3,2786	0,5697	6,2132	10,0788	10,4693	8,4069	5,2833	1,6545	-0,5873
28	-3,5424	-2,6816	1,0488	6,5241	10,2369	10,5598	8,5314	5,5160	2,0043	-0,1628
29	-2,8866	-2,0417	1,5400	6,8055	10,3395	10,5969	8,6214	5,7396	2,3719	0,2951
30	-2,1764	-1,3591	2,0414	7,0593	10,3842	10,5799	8,6771	5,9554	2,7593	0,7882
31	-2,1158	-1,3395	1,8460	6,5668	9,6645	9,8034	7,9943	5,4599	2,4637	0,6134
32	-1,4783	-0,7572	2,1777	6,5561	9,4047	9,4930	7,7998	5,4811	2,7130	0,9986
33	-1,2942	-0,6438	2,0037	5,9933	8,5723	8,6178	7,0637	4,9899	2,4787	0,9149
34	-1,3348	-0,7720	1,5496	5,1037	7,3943	7,4059	6,0150	4,2164	1,9907	0,5923
35	-1,0252	-0,5679	1,3877	4,4592	6,4442	6,4319	5,2298	3,7374	1,8258	0,6071
36	-0,6942	-0,3618	1,1864	3,7286	5,3919	5,3674	4,3886	3,2268	1,6569	0,6323
37	-0,9314	-0,7445	0,3529	2,3193	3,6468	3,6226	2,9233	2,0957	0,8962	0,0795
38	-1,5023	-1,4827	-0,8807	0,4640	1,4428	1,4532	1,0692	0,5817	-0,2199	-0,8147
39	-0,9491	-1,0156	-0,8713	-0,1954	0,3404	0,3587	0,2098	0,0250	-0,3536	-0,6708
40	-0,3841	-0,4506	-0,4961	-0,3454	-0,2032	-0,1985	-0,2336	-0,2220	-0,2716	-0,3441

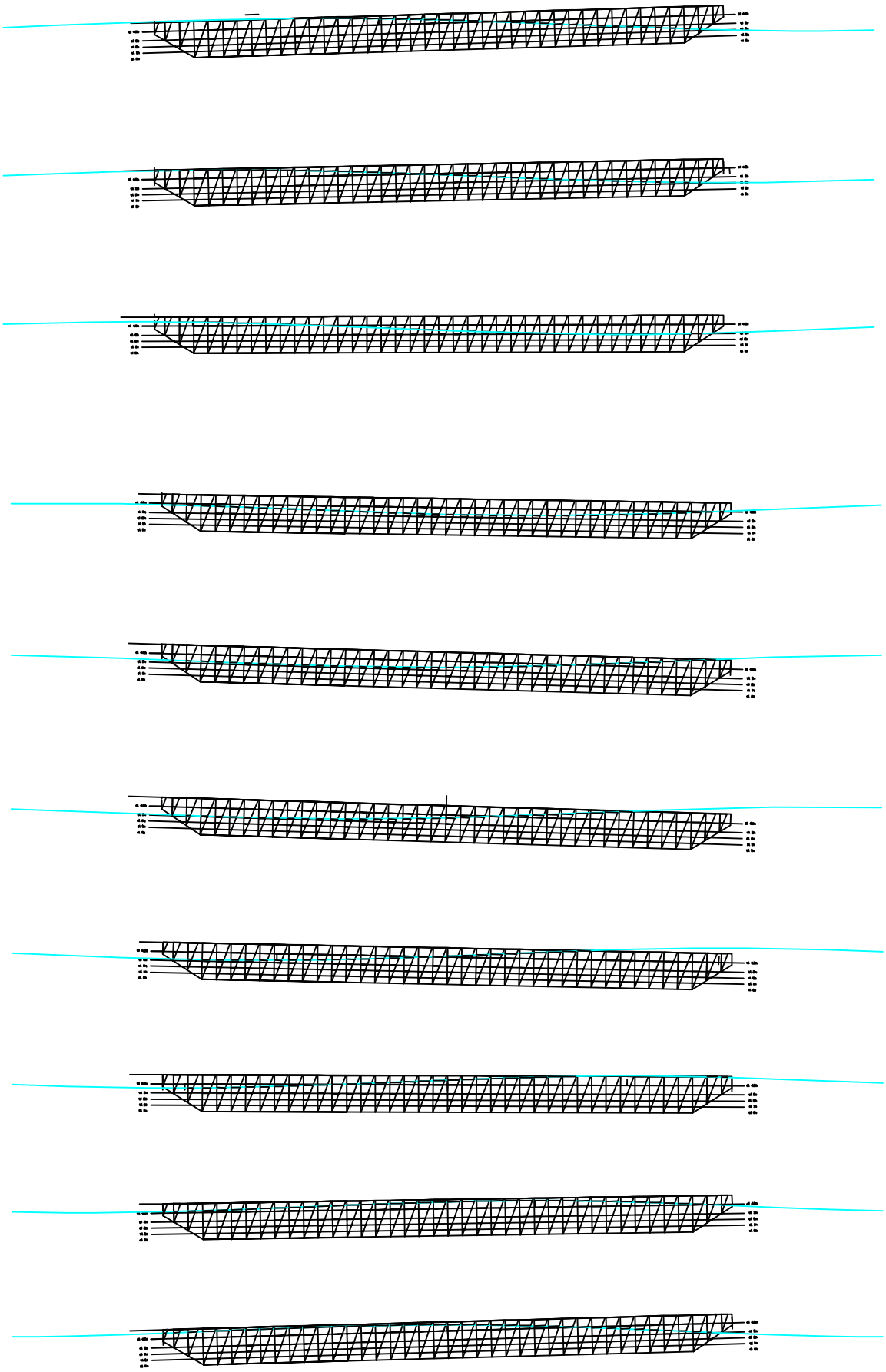


Bending Moment 0,55

STATION	PERIODE									
	1,14	2,28	3,43	4,57	5,71	6,85	8,00	9,14	10,28	11,42
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	6,5043	5,4053	-0,4589	-9,3537	-15,5725	-16,5336	-13,5634	-8,7031	-3,0509	0,4555
2	13,6094	11,9019	1,0879	-16,0486	-28,2780	-30,2803	-24,6170	-15,5758	-4,8701	1,9735
3	19,5944	17,5849	2,6085	-21,7976	-39,5313	-42,6254	-34,6863	-22,0842	-6,9373	2,9860
4	24,3355	22,0960	3,5631	-27,1547	-49,7089	-53,7272	-43,7562	-28,1124	-9,1252	3,5239
5	28,1514	25,6410	4,0634	-32,0209	-58,6323	-63,3034	-51,4639	-33,2465	-11,0085	3,9696
6	30,5049	27,6908	3,5803	-36,9445	-66,8680	-71,9304	-58,3985	-38,0731	-13,1625	3,7545
7	30,9857	27,8450	1,7105	-42,3510	-74,8625	-80,0674	-65,0318	-43,0596	-16,0406	2,4333
8	29,9924	26,5140	-1,1407	-47,8612	-82,2609	-87,3743	-71,0365	-47,8711	-19,2915	0,3666
9	28,1901	24,3761	-4,3037	-52,8346	-88,4495	-93,2545	-75,8281	-51,9131	-22,3025	-1,8214
10	25,8701	21,7361	-7,4848	-57,0102	-93,1970	-97,4961	-79,2060	-54,9721	-24,8393	-3,8836
11	23,3287	18,9042	-10,3878	-60,1279	-96,2762	-99,8936	-80,9735	-56,8363	-26,6675	-5,5709
12	20,6218	15,9502	-12,9600	-62,1743	-97,7097	-100,4931	-81,1838	-57,5408	-27,7971	-6,8771
13	17,8109	12,9486	-15,1468	-63,1378	-97,5244	-99,3478	-79,8937	-57,1220	-28,2369	-7,7934
14	14,9628	9,9780	-16,8927	-63,0093	-95,7522	-96,5173	-77,1638	-55,6172	-27,9949	-8,3083
15	12,1496	7,1210	-18,1411	-61,7815	-92,4304	-92,0676	-73,0580	-53,0649	-27,0773	-8,4071
16	9,4493	4,4639	-18,8349	-59,4505	-87,6017	-86,0710	-67,6432	-49,5037	-25,4887	-8,0714
17	6,8955	2,0465	-18,9663	-56,0650	-81,3645	-78,6554	-61,0385	-45,0225	-23,2814	-7,3289
18	4,5272	-0,0884	-18,5280	-51,6772	-73,8234	-69,9542	-53,3657	-39,7096	-20,5053	-6,2032
19	1,9565	-2,3272	-17,9449	-46,7756	-65,5215	-60,5382	-45,1812	-34,0858	-17,6401	-5,1460
20	-0,9259	-4,7800	-17,3688	-41,5788	-56,7347	-50,7088	-36,7687	-28,3967	-14,8885	-4,3302
21	-3,6262	-6,9987	-16,3547	-35,7114	-47,1482	-40,1908	-27,8157	-22,2928	-11,8542	-3,3254
22	-6,5397	-9,3842	-15,3517	-29,6957	-37,3469	-29,5893	-18,9036	-16,3126	-9,0282	-2,5892
23	-10,0575	-12,2943	-14,8108	-24,0598	-27,9233	-19,4965	-10,6151	-10,9251	-6,8955	-2,5739
24	-13,9491	-15,5089	-14,5670	-18,7187	-18,8591	-9,9071	-2,9154	-6,0470	-5,3214	-3,1085
25	-18,0974	-18,9243	-14,5747	-13,7104	-10,2594	-0,9359	4,1131	-1,7756	-4,2839	-4,1341
26	-22,3997	-22,4540	-14,8090	-9,0971	-2,2534	7,2820	10,3700	1,8404	-3,7743	-5,6043
27	-26,4753	-25,7364	-14,9728	-4,6719	5,2987	14,8835	16,0301	5,0308	-3,5040	-7,1927
28	-29,5529	-28,0214	-14,3847	0,1530	12,9193	22,3915	21,6569	8,4162	-2,7916	-8,1799
29	-31,1343	-28,8350	-12,6424	5,6825	20,8500	30,0514	27,5388	12,3443	-1,2257	-8,1174
30	-31,0907	-28,0755	-9,7194	11,8487	28,9559	37,7352	33,5939	16,7951	1,2382	-6,9237
31	-30,1304	-26,4807	-6,4325	17,7311	36,2590	44,4752	38,9032	20,9131	3,8113	-5,3514
32	-28,3397	-24,1699	-2,9834	23,0148	42,3968	49,9223	43,1691	24,4670	6,3294	-3,5288
33	-25,5717	-21,0315	0,6534	27,6163	47,2355	53,9593	46,3279	27,4618	8,8653	-1,3476
34	-22,6331	-17,9109	3,5429	30,4902	49,6829	55,5136	47,3637	28,9522	10,5421	0,3503
35	-19,3744	-14,6999	5,6997	31,5392	49,5989	54,4677	46,2181	28,9529	11,4423	1,6821
36	-15,3538	-11,0010	7,4244	30,9526	47,1331	50,9971	43,1379	27,7764	11,9455	3,0614
37	-11,2216	-7,5120	7,9183	27,8205	41,3397	44,1847	37,3141	24,6469	11,3428	3,8132
38	-8,0507	-5,3564	5,9533	20,8051	30,8488	32,7165	27,5419	18,3713	8,5077	2,8438
39	-4,9007	-3,5233	2,5322	10,7986	16,4250	17,3659	14,5421	9,6326	4,1860	0,9819
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

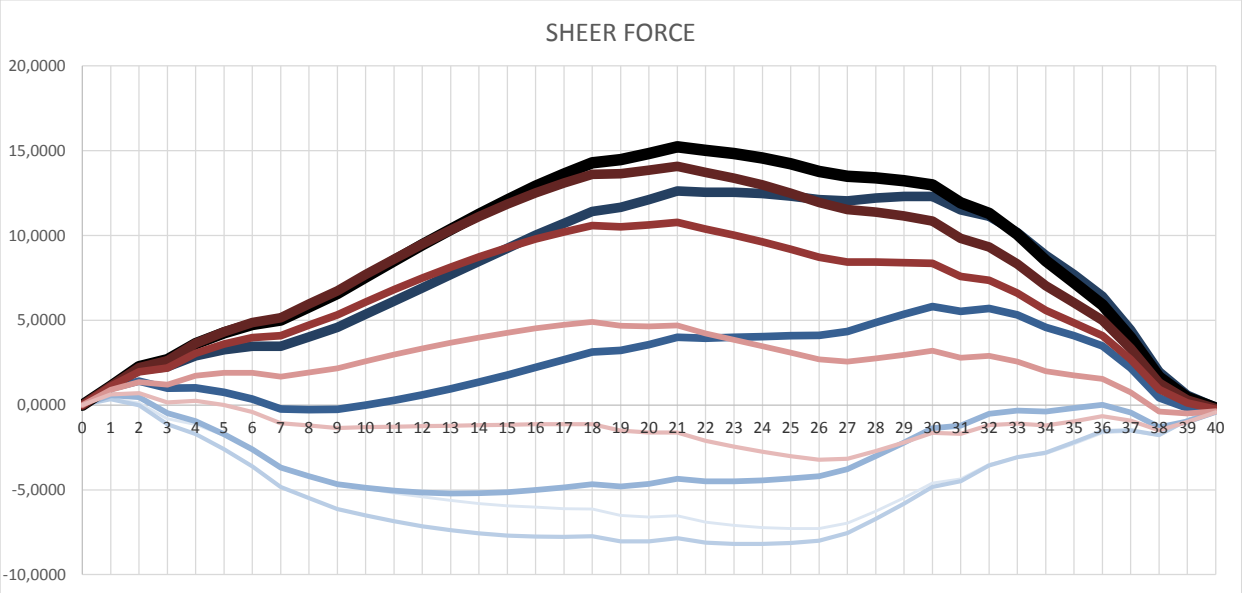


0,65



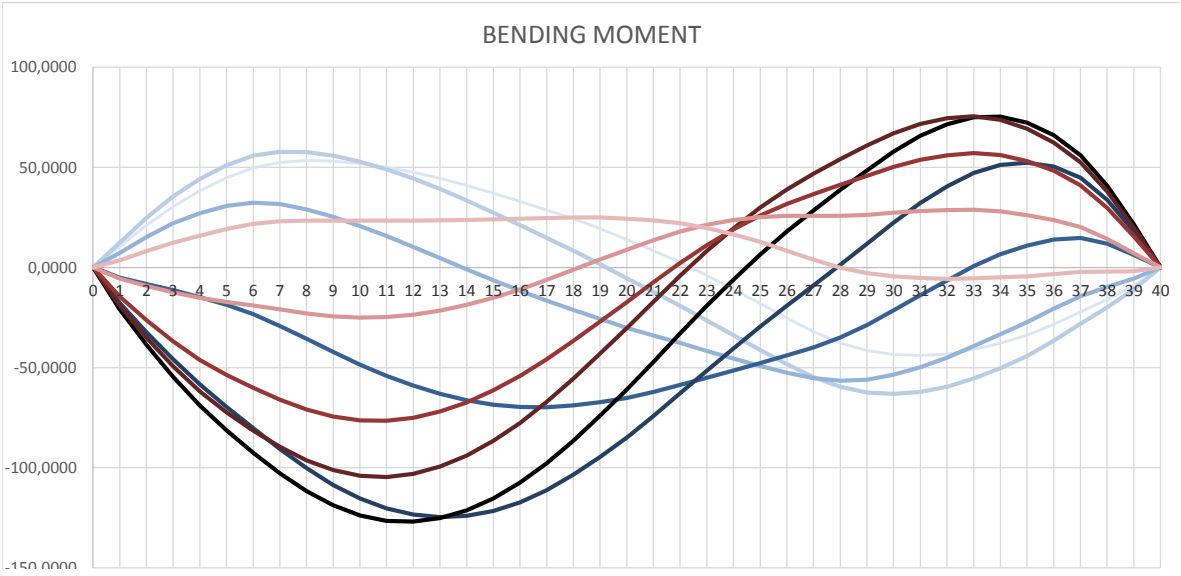
Sheer Force 0,65

STATION	PERIODE									
	0,97	1,93	2,90	3,87	4,83	5,80	6,77	7,73	8,70	9,67
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,3866	0,3494	0,5784	0,9835	1,1113	1,1113	1,1113	1,1113	0,8881	0,6242
2	0,1193	-0,0249	0,4587	1,4020	2,0731	2,2528	2,1941	1,9470	1,3491	0,7058
3	-0,8111	-1,1357	-0,4734	0,9898	2,2496	2,6684	2,6143	2,1759	1,2073	0,1586
4	-1,1410	-1,7154	-0,9490	1,0136	2,9047	3,6199	3,6316	3,0560	1,7234	0,2449
5	-1,7939	-2,6027	-1,7215	0,7413	3,2528	4,2537	4,3217	3,5977	1,8982	-0,0052
6	-2,5984	-3,6220	-2,6145	0,3465	3,4646	4,7384	4,8517	3,9677	1,9010	-0,4207
7	-3,6231	-4,8373	-3,6916	-0,2372	3,4709	5,0030	5,1480	4,0934	1,6614	-1,0700
8	-4,1230	-5,4992	-4,2035	-0,2635	4,0152	5,7890	5,9508	4,7159	1,9228	-1,2073
9	-4,6228	-6,1278	-4,6710	-0,2550	4,5712	6,5683	6,7296	5,3069	2,1592	-1,3567
10	-4,9164	-6,5120	-4,8843	-0,0053	5,3431	7,5429	7,6849	6,0695	2,5758	-1,3104
11	-5,1837	-6,8529	-5,0465	0,2799	6,1221	8,5022	8,6051	6,7947	2,9662	-1,2730
12	-5,4234	-7,1455	-5,1550	0,6004	6,9052	9,4417	9,4848	7,4799	3,3299	-1,2427
13	-5,6317	-7,3855	-5,2075	0,9560	7,6895	10,3563	10,3194	8,1233	3,6672	-1,2167
14	-5,8045	-7,5685	-5,2021	1,3457	8,4710	11,2403	11,1045	8,7235	3,9787	-1,1925
15	-5,9376	-7,6907	-5,1372	1,7682	9,2456	12,0880	11,8361	9,2783	4,2653	-1,1669
16	-6,0268	-7,7487	-5,0121	2,2218	10,0090	12,8932	12,5106	9,7873	4,5282	-1,1364
17	-6,1092	-7,7812	-4,8677	2,6626	10,7145	13,6080	13,0832	10,2079	4,7271	-1,1387
18	-6,1384	-7,7438	-4,6619	3,1296	11,3986	14,2683	13,5927	10,5816	4,9060	-1,1281
19	-6,5153	-8,0392	-4,8002	3,2149	11,6506	14,4638	13,6319	10,5036	4,6620	-1,5048
20	-6,6005	-8,0299	-4,6475	3,5507	12,0998	14,8250	13,8339	10,6097	4,6333	-1,6283
21	-6,5229	-7,8468	-4,3475	4,0003	12,6073	15,2151	14,0649	10,7683	4,6904	-1,6259
22	-6,8973	-8,1068	-4,4996	3,9416	12,5481	15,0118	13,7055	10,3626	4,2185	-2,1101
23	-7,1029	-8,1912	-4,4976	3,9880	12,5339	14,8296	13,3701	10,0121	3,8395	-2,4573
24	-7,2352	-8,1976	-4,4420	4,0360	12,4607	14,5671	12,9658	9,6204	3,4592	-2,7607
25	-7,2921	-8,1261	-4,3355	4,0801	12,3225	14,2215	12,4897	9,1899	3,0820	-3,0159
26	-7,2864	-7,9916	-4,1959	4,0995	12,0998	13,7757	11,9273	8,7082	2,6980	-3,2331
27	-6,9703	-7,5488	-3,7807	4,3341	12,0341	13,4741	11,5256	8,4247	2,5584	-3,1623
28	-6,2624	-6,7183	-3,0133	4,8572	12,2018	13,3955	11,3663	8,4230	2,7490	-2,7196
29	-5,4738	-5,8135	-2,2101	5,3499	12,2870	13,2270	11,1386	8,3947	2,9631	-2,2137
30	-4,6039	-4,8363	-1,3759	5,8052	12,2865	12,9678	10,8447	8,3420	3,2054	-1,6420
31	-4,3574	-4,4937	-1,2207	5,5120	11,4928	11,9132	9,8225	7,5847	2,7756	-1,7067
32	-3,5082	-3,5623	-0,5238	5,6907	11,1298	11,2894	9,3218	7,3488	2,9041	-1,1794
33	-3,0877	-3,0754	-0,3220	5,3053	10,1651	10,0666	8,3120	6,6039	2,5641	-1,0891
34	-2,8682	-2,8081	-0,3933	4,5793	8,8257	8,4949	7,0216	5,5783	1,9874	-1,2060
35	-2,2759	-2,1893	-0,1697	4,0830	7,6855	7,2175	6,0255	4,8471	1,7521	-0,9543
36	-1,6413	-1,5518	0,0133	3,4840	6,4155	5,9058	4,9951	4,0815	1,5321	-0,6619
37	-1,5557	-1,4898	-0,4405	2,1892	4,4259	3,9700	3,3407	2,6919	0,7402	-0,9183
38	-1,7865	-1,7731	-1,3018	0,4307	1,9524	1,6454	1,2974	0,9135	-0,3864	-1,4886
39	-0,9079	-0,8945	-0,9768	-0,1700	0,5675	0,4352	0,2970	0,1268	-0,4938	-0,9933
40	-0,3429	-0,3295	-0,4118	-0,3048	-0,1430	-0,1780	-0,2147	-0,2598	-0,3655	-0,4283



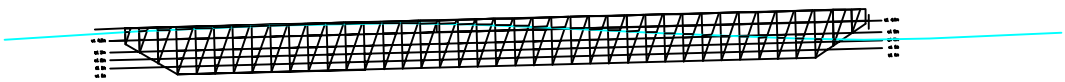
Bending Moment 0,65

STATION	PERIODE									
	0,97	1,93	2,90	3,87	4,83	5,80	6,77	7,73	8,70	9,67
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	10,4602	12,3778	7,2887	-5,0764	-17,6153	-20,8304	-18,9998	-14,4848	-5,5036	3,6098
2	21,1838	24,8357	15,3050	-8,1757	-32,4153	-38,6317	-35,0402	-26,3043	-9,1231	8,2555
3	30,4828	35,5273	22,0701	-11,2676	-45,8611	-54,5807	-49,2927	-36,8574	-12,3630	12,3473
4	38,2827	44,2079	27,1608	-14,8215	-58,3178	-68,9035	-61,8353	-46,0913	-15,1577	15,8909
5	44,9135	51,1436	30,7668	-18,6710	-69,5811	-81,3407	-72,3469	-53,6341	-17,1306	19,2397
6	49,8107	55,8113	32,3917	-23,3141	-80,1785	-92,4474	-81,4073	-60,0922	-18,8921	21,7968
7	52,5320	57,8211	31,6731	-29,1211	-90,5164	-102,6628	-89,4848	-65,9607	-20,9353	23,0872
8	53,4400	57,5980	29,0644	-35,6536	-100,1994	-111,6285	-96,2548	-70,9392	-22,9527	23,4420
9	53,1588	55,8397	25,2908	-42,2073	-108,5736	-118,7323	-101,1436	-74,4742	-24,3779	23,4557
10	51,9338	52,8767	20,7074	-48,4539	-115,3683	-123,7498	-103,9697	-76,3991	-25,0264	23,3468
11	50,0417	49,0513	15,6773	-54,0642	-120,3182	-126,4670	-104,5649	-76,5543	-24,7149	23,3375
12	47,5464	44,4723	10,3252	-58,9540	-123,4099	-126,9254	-103,0191	-75,0319	-23,5065	23,4087
13	44,5183	39,2597	4,7816	-63,0395	-124,6373	-125,1785	-99,4342	-71,9291	-21,4642	23,5469
14	41,0368	33,5441	-0,8181	-66,2386	-124,0021	-121,2921	-93,9227	-67,3471	-18,6501	23,7448
15	37,1914	27,4654	-6,3341	-68,4715	-121,5159	-115,3459	-86,6070	-61,3912	-15,1245	24,0018
16	33,0816	21,1723	-11,6242	-69,6623	-117,2002	-107,4336	-77,6188	-54,1698	-10,9455	24,3257
17	28,7677	14,7715	-16,5936	-69,7891	-111,1372	-97,7132	-67,1470	-45,8427	-6,2170	24,6830
18	24,3212	8,3766	-21,1464	-68,8362	-103,4214	-86,3571	-55,3881	-36,5709	-1,0392	25,0503
19	19,3915	1,6747	-25,6190	-67,2264	-94,5921	-73,9831	-42,9766	-26,9473	4,0612	24,9821
20	13,9121	-5,3675	-30,0743	-65,1156	-84,9287	-60,9469	-30,2782	-17,2903	8,8373	24,3190
21	8,4237	-12,1808	-33,9912	-62,0707	-74,1274	-47,0170	-17,0648	-7,3184	13,6472	23,5117
22	2,5823	-19,0856	-37,7322	-58,5607	-62,7927	-32,8650	-4,0041	2,3596	17,9635	22,1314
23	-3,9490	-26,4000	-41,6518	-55,0654	-51,5452	-19,1716	8,2302	11,1380	21,2678	19,7621
24	-10,8822	-33,8224	-45,5030	-51,4578	-40,4018	-6,0070	19,5848	19,0336	23,6688	16,6190
25	-18,0406	-41,1672	-49,1612	-47,7406	-29,5099	6,4343	29,8920	25,9512	25,1688	12,8114
26	-25,2597	-48,2671	-52,5267	-43,9479	-19,0472	17,9342	38,9639	31,7838	25,7633	8,4419
27	-32,0961	-54,6803	-55,2324	-39,8530	-8,9275	28,5450	46,8891	36,7061	25,7350	3,8983
28	-37,7145	-59,5789	-56,5312	-34,8568	1,3134	38,7036	54,1469	41,2892	25,7674	-0,0346
29	-41,5527	-62,4134	-55,9617	-28,6523	11,8551	48,5683	60,9443	45,8366	26,2813	-2,8391
30	-43,4183	-63,0093	-53,4447	-21,3201	22,4975	57,9242	67,1213	50,2878	27,3379	-4,3619
31	-43,9559	-62,0353	-49,7508	-13,7951	32,1953	65,7173	71,7327	53,7755	28,1716	-5,2816
32	-43,1901	-59,5459	-45,0433	-6,4064	40,5173	71,5140	74,5326	56,0816	28,6468	-5,6509
33	-40,9141	-55,3694	-39,2668	0,7364	47,2599	75,1142	75,5359	57,2212	28,8706	-5,2857
34	-37,8767	-50,2957	-33,3351	6,5572	51,2618	75,3903	73,8031	56,2548	28,0039	-4,9521
35	-33,8737	-44,1681	-27,2223	10,9240	52,3142	72,2773	69,3506	53,1986	26,1713	-4,4581
36	-28,4113	-36,5462	-20,6258	13,9879	50,4996	66,0846	62,4875	48,3620	23,7972	-3,3170
37	-22,0921	-28,0922	-14,3513	14,7993	44,8077	56,0291	52,4309	40,9618	20,2195	-2,1330
38	-15,9457	-19,9013	-9,6411	11,9788	33,8070	40,9059	37,9758	29,7933	14,3596	-1,9325
39	-9,0287	-11,0023	-5,5689	6,3520	18,2167	21,5781	19,9002	15,5735	7,0318	-1,8212
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

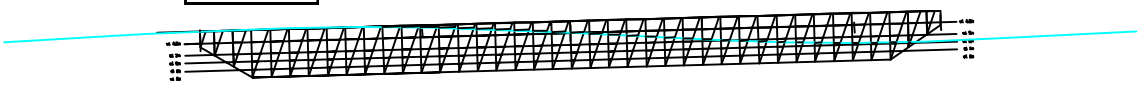


0,75

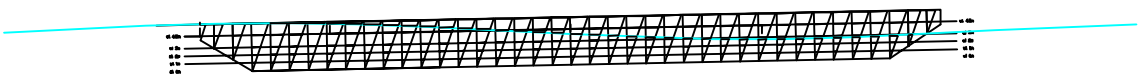
0,84



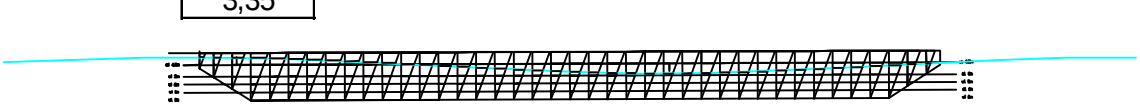
1,68



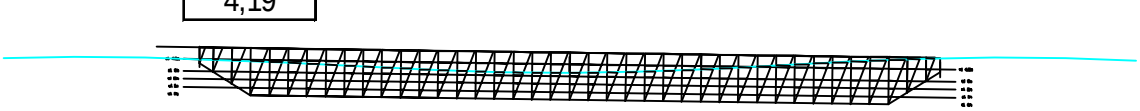
2,51



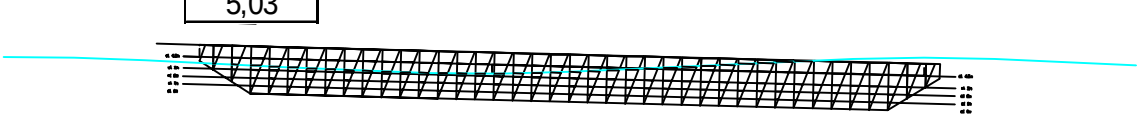
3,35



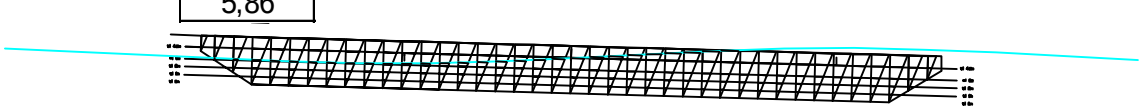
4,19



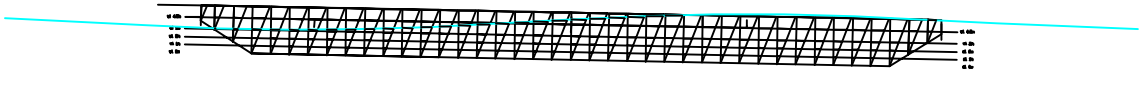
5,03



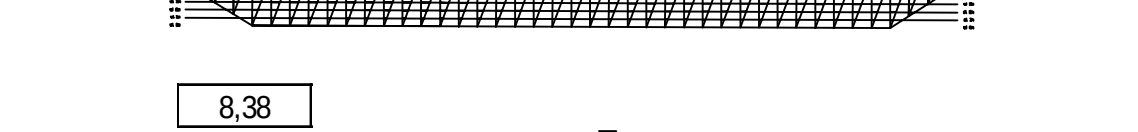
5,86



6,70



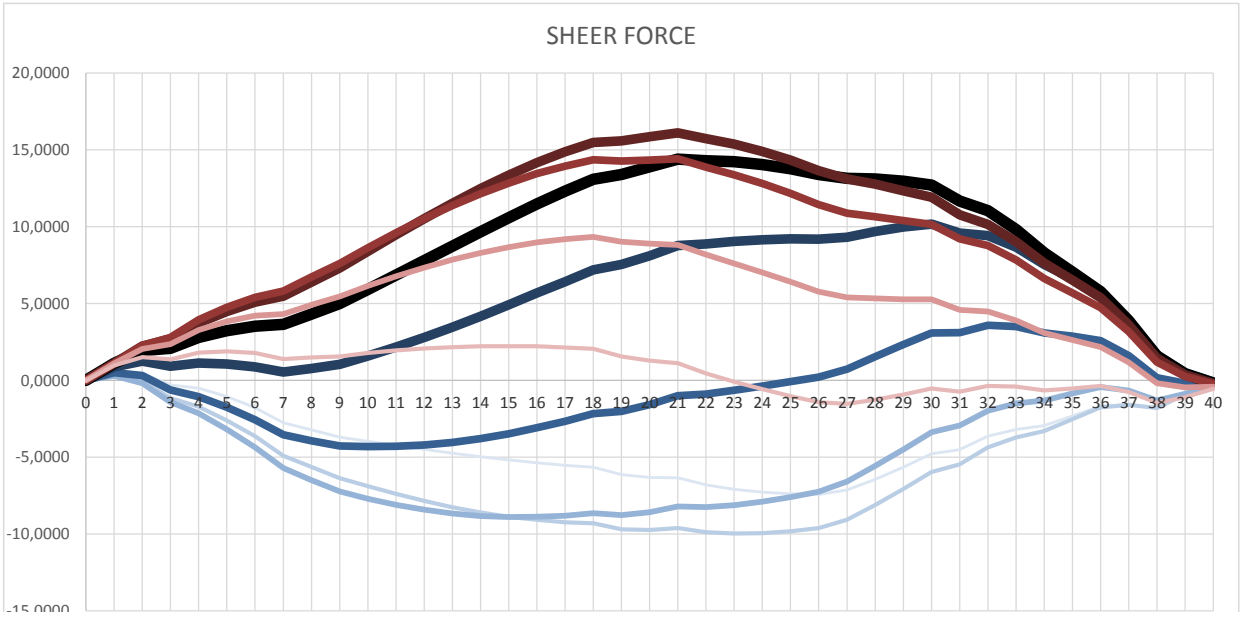
7,54



8,38

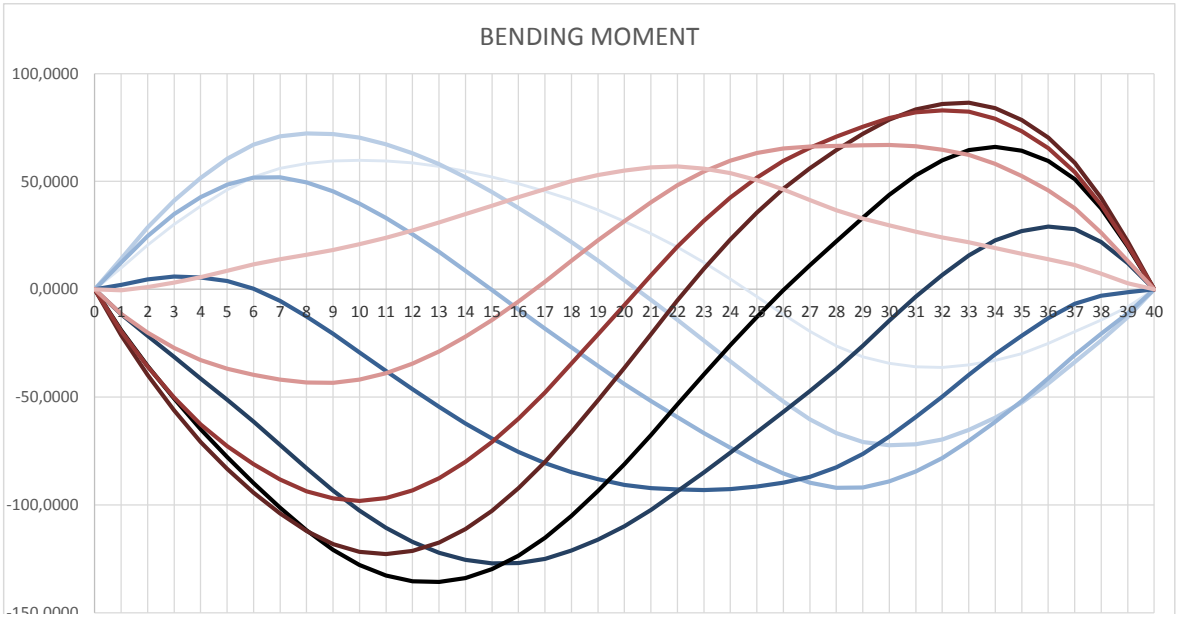
Sheer Force 0,75

STATION	PERIODE									
	0,84	1,68	2,51	3,35	4,19	5,03	5,86	6,70	7,54	8,38
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,5497	0,3302	0,2896	0,4974	0,8878	1,1113	1,1113	1,1113	1,1113	0,9826
2	0,4759	-0,0554	-0,1810	0,3095	1,2598	1,9462	2,2377	2,2691	2,0553	1,5182
3	-0,2966	-1,1606	-1,4115	-0,6305	0,9163	2,0878	2,6944	2,7907	2,3562	1,3753
4	-0,5019	-1,7217	-2,1388	-1,0499	1,1254	2,8005	3,7418	3,9327	3,2678	1,8114
5	-1,0570	-2,6059	-3,1806	-1,7538	1,0560	3,2234	4,4841	4,7498	3,8301	1,8887
6	-1,7871	-3,6416	-4,3487	-2,5629	0,8821	3,5269	5,0877	5,4048	4,2067	1,7746
7	-2,7568	-4,8976	-5,7031	-3,5388	0,5371	3,6396	5,4786	5,8202	4,3220	1,3979
8	-3,2166	-5,6286	-6,4900	-3,9307	0,7672	4,3062	6,3951	6,7311	4,9150	1,5012
9	-3,6868	-6,3597	-7,2252	-4,2585	1,0476	4,9973	7,3053	7,6033	5,4559	1,5587
10	-3,9561	-6,8845	-7,6938	-4,3116	1,5837	5,9148	8,4072	8,6344	6,1466	1,7766
11	-4,2253	-7,3861	-8,0945	-4,2933	2,1679	6,8471	9,4857	9,6103	6,7774	1,9491
12	-4,4886	-7,8439	-8,4207	-4,2012	2,7973	7,7885	10,5307	10,5240	7,3458	2,0779
13	-4,7400	-8,2496	-8,6664	-4,0339	3,4686	8,7317	11,5319	11,3698	7,8504	2,1655
14	-4,9730	-8,5944	-8,8268	-3,7911	4,1774	9,6691	12,4792	12,1427	8,2901	2,2151
15	-5,1806	-8,8705	-8,8979	-3,4734	4,9184	10,5918	13,3636	12,8384	8,6655	2,2312
16	-5,3558	-9,0705	-8,8766	-3,0822	5,6856	11,4905	14,1771	13,4537	8,9772	2,2190
17	-5,5326	-9,2298	-8,8026	-2,6616	6,4300	12,3127	14,8709	13,9445	9,1857	2,1427
18	-5,6615	-9,3011	-8,6328	-2,1731	7,1855	13,0896	15,4804	14,3512	9,3353	2,0510
19	-6,1393	-9,6850	-8,7718	-2,0259	7,5381	13,4058	15,5957	14,2683	9,0248	1,5471
20	-6,3232	-9,7423	-8,5849	-1,5898	8,1138	13,8878	15,8478	14,3315	8,8943	1,2751
21	-6,3393	-9,6023	-8,2060	-1,0033	8,7692	14,3950	16,1012	14,4097	8,8171	1,1123
22	-6,7998	-9,8812	-8,2555	-0,8913	8,8752	14,3022	15,7355	13,8869	8,1808	0,4509
23	-7,0820	-9,9599	-8,1188	-0,6438	9,0392	14,2212	15,3672	13,3844	7,6110	-0,0810
24	-7,2797	-9,9363	-7,8982	-0,3676	9,1535	14,0487	14,8981	12,8080	7,0176	-0,5730
25	-7,3896	-9,8111	-7,5988	-0,0727	9,2095	13,7807	14,3285	12,1626	6,4096	-1,0171
26	-7,4242	-9,6003	-7,2416	0,2155	9,1850	13,3992	13,6456	11,4391	5,7820	-1,4211
27	-7,1354	-9,0603	-6,5873	0,7319	9,3199	13,1484	13,0977	10,8831	5,3911	-1,5326
28	-6,4420	-8,1138	-5,5633	1,5456	9,6891	13,1075	12,7633	10,6390	5,3265	-1,2659
29	-5,6560	-7,0768	-4,4907	2,3346	9,9760	12,9644	12,3462	10,3949	5,2842	-0,9286
30	-4,7781	-5,9544	-3,3787	3,0900	10,1776	12,7199	11,9130	10,1508	5,2717	-0,5175
31	-4,5146	-5,4571	-2,9429	3,0989	9,5867	11,6712	10,7751	9,2020	4,5907	-0,7346
32	-3,6417	-4,3654	-1,9685	3,5808	9,4281	11,0473	10,1588	8,7747	4,4730	-0,3524
33	-3,1934	-3,7176	-1,4969	3,4993	8,6710	9,8216	9,0334	7,8384	3,8928	-0,4005
34	-2,9451	-3,2938	-1,3096	3,0778	7,5445	8,2892	7,6273	6,6215	3,0821	-0,6509
35	-2,3267	-2,5282	-0,8404	2,8875	6,6252	7,0511	6,5156	5,6988	2,6191	-0,5296
36	-1,6727	-1,7597	-0,4255	2,5971	5,5876	5,7786	5,3695	4,7418	2,1770	-0,3675
37	-1,5791	-1,5888	-0,6616	1,6155	3,8457	3,8822	3,5995	3,1609	1,1673	-0,7571
38	-1,8180	-1,7907	-1,3190	0,1770	1,6394	1,5969	1,4405	1,1910	-0,1745	-1,4672
39	-0,9665	-0,8876	-0,8730	-0,1754	0,4951	0,4159	0,3538	0,2453	-0,4500	-1,0844
40	-0,4015	-0,3226	-0,3080	-0,1779	-0,1031	-0,1832	-0,1996	-0,2284	-0,4128	-0,5471

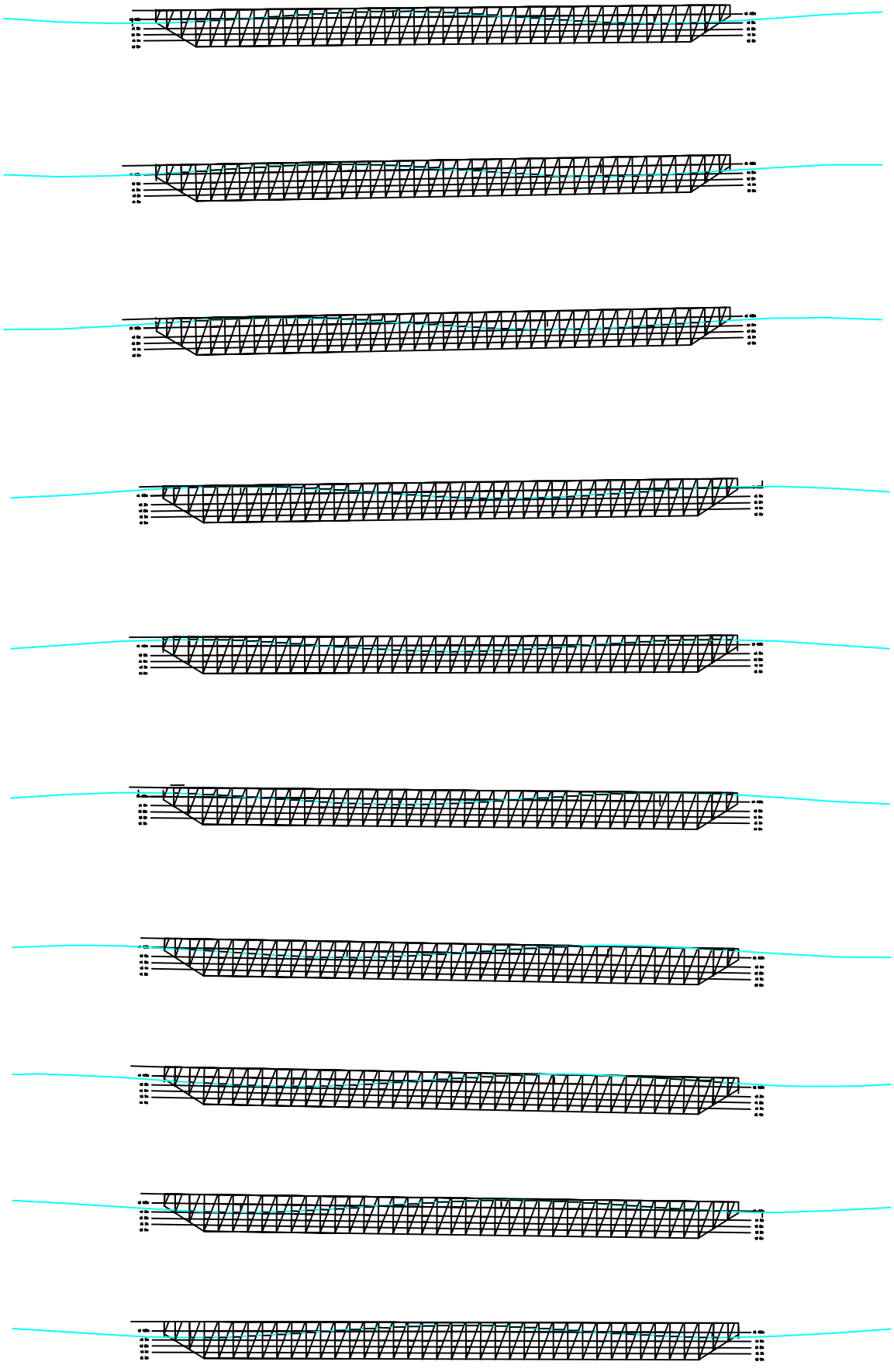


Bending Moment 0,75

STATION	PERIODE									
	0,84	1,68	2,51	3,35	4,19	5,03	5,86	6,70	7,54	8,38
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	9,8738	14,2672	12,3786	2,0628	-11,6619	-19,0553	-21,3372	-19,4425	-11,4129	-0,5173
2	20,4866	28,5723	24,6330	4,6501	-21,5461	-35,4460	-39,6632	-35,8365	-20,0315	1,0804
3	30,0927	41,1042	34,8640	5,8958	-31,3963	-50,6751	-56,1062	-50,2328	-27,1694	3,1451
4	38,5358	51,6541	42,7661	5,5245	-41,4064	-64,8880	-70,7599	-62,6502	-32,8650	5,5586
5	46,0743	60,4847	48,5638	3,8170	-51,2503	-77,7501	-83,2848	-72,7372	-36,8074	8,5828
6	52,0840	67,0317	51,7328	0,3099	-61,3838	-89,7482	-94,2087	-81,0732	-39,6329	11,5632
7	56,0719	70,8526	51,9014	-5,3205	-72,1344	-101,2513	-103,9497	-88,1360	-41,8734	13,9598
8	58,3594	72,3101	49,5228	-12,5780	-83,0217	-111,8274	-112,1356	-93,6212	-43,2713	16,0312
9	59,5406	72,0283	45,3337	-20,6914	-93,3017	-120,7885	-118,1486	-96,9852	-43,3203	18,2938
10	59,8422	70,2526	39,7127	-29,2580	-102,6105	-127,8363	-121,7682	-98,0854	-41,9043	20,8841
11	59,5032	67,2560	33,0577	-37,8660	-110,5867	-132,6836	-122,7942	-96,7983	-38,9165	23,9388
12	58,5309	63,1183	25,5381	-46,3426	-117,1194	-135,3022	-121,2943	-93,2634	-34,5022	27,3518
13	56,9463	57,9535	17,3382	-54,5106	-122,1048	-135,6791	-117,3604	-87,6355	-28,8116	31,0223
14	54,7856	51,8959	8,6552	-62,1908	-125,4486	-133,8189	-111,1088	-80,0823	-21,9977	34,8559
15	52,1007	45,0996	-0,3032	-69,2042	-127,0679	-129,7463	-102,6784	-70,7821	-14,2143	38,7678
16	48,9605	37,7371	-9,3209	-75,3745	-126,8932	-123,5070	-92,2283	-59,9224	-5,6136	42,6842
17	45,4016	29,9472	-18,2251	-80,5792	-124,9205	-115,2207	-79,9853	-47,7471	3,6059	46,4953
18	41,4789	21,8830	-26,8393	-84,7024	-121,1636	-105,0322	-66,1921	-34,5042	13,2513	50,1066
19	36,8347	13,2773	-35,4168	-88,0695	-116,0886	-93,5436	-51,5366	-20,8761	22,7054	53,0095
20	31,4034	4,1468	-43,9373	-90,7428	-109,9094	-81,1054	-36,4441	-7,2715	31,6349	54,9894
21	25,7342	-4,8853	-51,7849	-92,1997	-102,2657	-67,4906	-20,7503	6,5012	40,3173	56,4521
22	19,4980	-14,0827	-59,2406	-92,8257	-93,7164	-53,3829	-5,1901	19,7452	48,1510	56,9344
23	12,3784	-23,7054	-66,5927	-93,0240	-84,8460	-39,4821	9,4970	31,7696	54,5501	55,9974
24	4,6881	-33,3937	-73,5197	-92,5995	-75,6446	-25,8827	23,1880	42,5106	59,5656	53,8423
25	-3,3682	-42,9050	-79,8282	-91,4958	-66,2406	-12,8073	35,6434	51,7983	63,1520	50,5737
26	-11,5965	-52,0165	-85,3558	-89,6984	-56,7991	-0,5044	46,6090	59,4577	65,2686	46,2963
27	-19,5223	-60,2351	-89,6801	-86,9439	-47,2261	11,0464	56,1105	65,5951	66,1738	41,4057
28	-26,2799	-66,6853	-92,0081	-82,6072	-37,0536	22,2502	64,5626	70,7808	66,5371	36,6997
29	-31,2776	-70,7762	-91,8421	-76,3641	-26,1007	33,2350	72,1207	75,3857	66,7733	32,7123
30	-34,2960	-72,2984	-89,0775	-68,2839	-14,5666	43,7587	78,6674	79,4099	66,9442	29,6151
31	-35,9568	-71,8940	-84,4719	-59,2947	-3,4957	52,7443	83,3454	82,0151	66,2902	26,7487
32	-36,2659	-69,5996	-78,1889	-49,7215	6,6836	59,7402	85,9367	82,9836	64,6861	24,0787
33	-35,0035	-65,2361	-70,1859	-39,6722	15,7737	64,5362	86,4561	82,3301	62,2519	21,8061
34	-32,9123	-59,5979	-61,3991	-30,2212	22,6233	66,0513	83,9645	79,1153	58,1632	19,1784
35	-29,7903	-52,5447	-51,8313	-21,4980	27,0394	64,2709	78,4779	73,3553	52,5596	16,3971
36	-25,1548	-43,6668	-41,2120	-13,3465	29,1280	59,5041	70,3056	65,3596	45,8792	13,9529
37	-19,6299	-33,6715	-30,3800	-6,7080	27,9101	50,9680	58,6646	54,3449	37,4719	11,2381
38	-14,2779	-23,7131	-20,6108	-2,9482	21,9959	37,4577	42,3501	39,1066	26,2676	7,2152
39	-8,1972	-12,9206	-11,0930	-1,3188	12,0962	19,8242	22,1748	20,4002	13,1394	2,8031
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

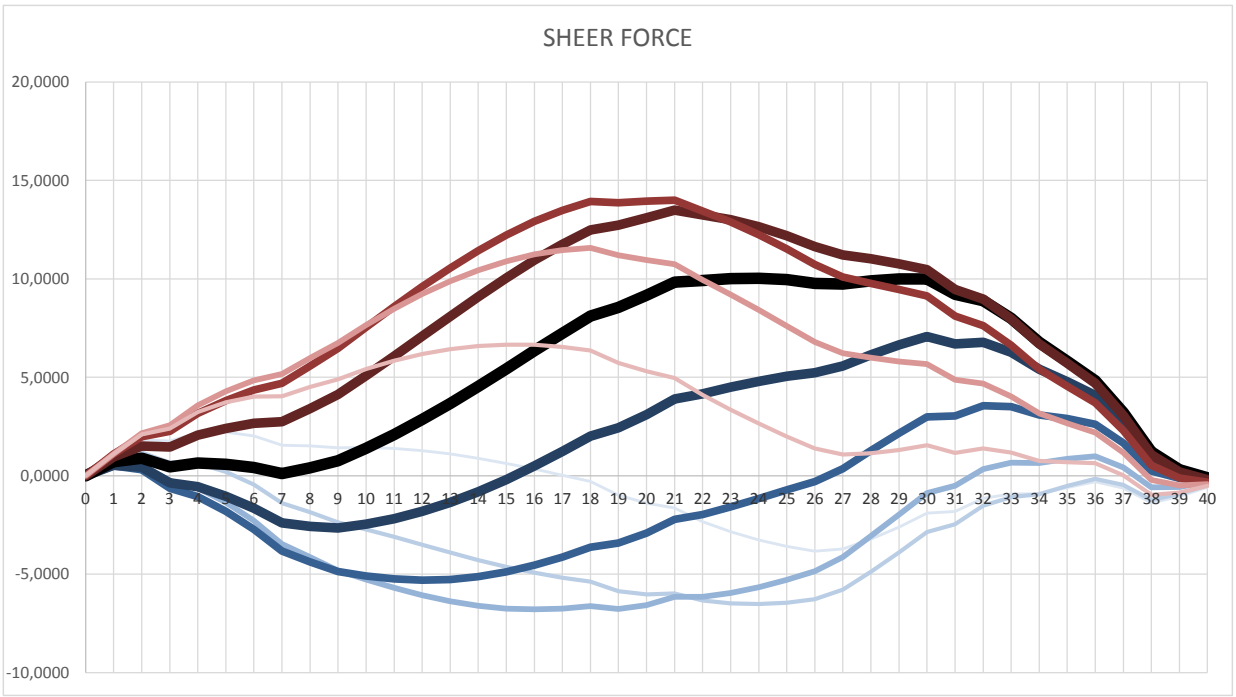


0,85



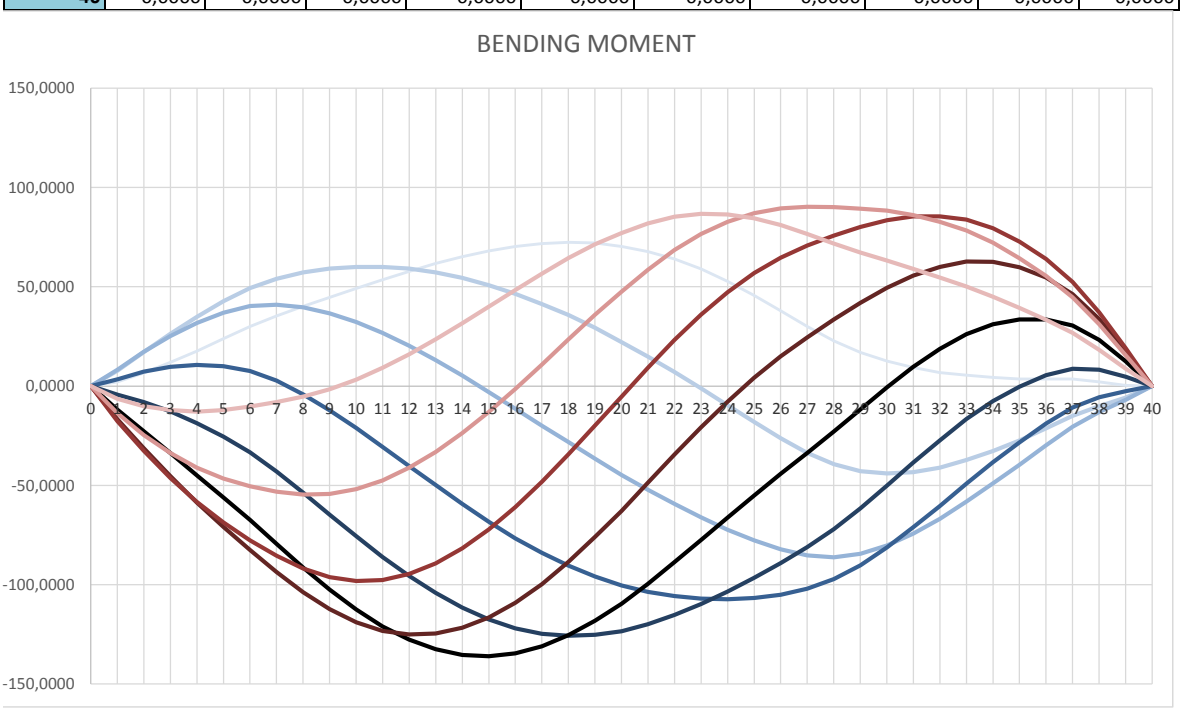
Shear Force 0,85

STATION	PERIODE									
	0,74	1,48	2,22	2,96	3,70	4,44	5,17	5,91	6,65	7,39
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	1,1113	0,8740	0,6196	0,4941	0,5312	0,7075	0,9615	1,1113	1,1113	1,1113
2	1,8205	1,1719	0,5735	0,3028	0,4314	0,8926	1,5133	1,9877	2,1586	2,1076
3	1,7588	0,6698	-0,2634	-0,6383	-0,3566	0,4480	1,4579	2,2550	2,5645	2,4030
4	2,1780	0,6272	-0,6238	-1,0539	-0,5516	0,6481	2,0625	3,1730	3,5768	3,2422
5	2,2134	0,1952	-1,3578	-1,8086	-1,0400	0,5805	2,4050	3,8159	4,2870	3,7295
6	2,0289	-0,4543	-2,2854	-2,7153	-1,6359	0,4236	2,6562	4,3471	4,8465	4,0210
7	1,5511	-1,3869	-3,4647	-3,8245	-2,3954	0,1139	2,7454	4,6884	5,1693	4,0350
8	1,5220	-1,8527	-4,1378	-4,3729	-2,5630	0,4029	3,4131	5,5727	5,9824	4,5057
9	1,4158	-2,3693	-4,8147	-4,8693	-2,6555	0,7597	4,1281	6,4613	6,7457	4,8992
10	1,4405	-2,7214	-5,2719	-5,0933	-2,4602	1,3930	5,0883	7,5446	7,6516	5,4153
11	1,3932	-3,1036	-5,6968	-5,2395	-2,1791	2,0935	6,0769	8,5985	8,4823	5,8432
12	1,2795	-3,5023	-6,0715	-5,2980	-1,8104	2,8560	7,0814	9,6065	9,2284	6,1806
13	1,1071	-3,9018	-6,3799	-5,2613	-1,3540	3,6734	8,0874	10,5538	9,8825	6,4272
14	0,8863	-4,2840	-6,6084	-5,1240	-0,8121	4,5365	9,0784	11,4279	10,4394	6,5852
15	0,6290	-4,6297	-6,7455	-4,8828	-0,1887	5,4342	10,0366	12,2181	10,8959	6,6585
16	0,3494	-4,9213	-6,7820	-4,5370	0,5097	6,3529	10,9462	12,9160	11,2510	6,6536
17	0,0222	-5,1852	-6,7525	-4,1288	1,2331	7,2362	11,7515	13,4733	11,4638	6,5371
18	-0,2923	-5,3666	-6,6106	-3,6199	2,0128	8,1082	12,4824	13,9273	11,5791	6,3613
19	-0,9803	-5,8594	-6,7587	-3,4209	2,4314	8,5469	12,7240	13,8707	11,1975	5,7341
20	-1,3898	-6,0197	-6,5610	-2,9037	3,1096	9,1725	13,1041	13,9384	10,9615	5,3059
21	-1,6389	-5,9735	-6,1517	-2,2106	3,8982	9,8392	13,4842	14,0000	10,7479	4,9614
22	-2,3332	-6,3347	-6,1531	-1,9715	4,1612	9,9177	13,2427	13,4409	9,9504	4,1008
23	-2,8451	-6,4834	-5,9535	-1,5824	4,4998	10,0170	12,9959	12,8852	9,2005	3,3593
24	-3,2646	-6,5181	-5,6597	-1,1576	4,8014	10,0318	12,6458	12,2425	8,4157	2,6539
25	-3,5864	-6,4415	-5,2822	-0,7153	5,0535	9,9570	12,1951	11,5227	7,6135	1,9975
26	-3,8218	-6,2731	-4,8491	-0,2885	5,2310	9,7748	11,6331	10,7231	6,7967	1,3864
27	-3,7234	-5,7740	-4,1291	0,3528	5,5716	9,7305	11,2126	10,0929	6,2268	1,0754
28	-3,2122	-4,8729	-3,0593	1,2751	6,1495	9,9054	11,0226	9,7748	5,9978	1,1518
29	-2,6032	-3,8935	-1,9708	2,1545	6,6487	9,9909	10,7615	9,4566	5,8090	1,3081
30	-1,9022	-2,8497	-0,8819	2,9814	7,0668	9,9917	10,4586	9,1385	5,6697	1,5470
31	-1,8216	-2,4623	-0,5128	3,0435	6,6994	9,2105	9,4511	8,1157	4,8825	1,1642
32	-1,1452	-1,5236	0,3472	3,5616	6,7746	8,8826	8,9650	7,6143	4,6791	1,3842
33	-0,9161	-1,0832	0,6594	3,5019	6,2662	7,9887	7,9699	6,6349	4,0321	1,1726
34	-0,9201	-0,9306	0,6416	3,0915	5,4085	6,7704	6,6941	5,4191	3,1713	0,7523
35	-0,5989	-0,5060	0,8614	2,9067	4,7850	5,8178	5,7127	4,5483	2,6708	0,6900
36	-0,3002	-0,1510	0,9857	2,6218	4,0773	4,8196	4,6969	3,6986	2,1993	0,6473
37	-0,6322	-0,4663	0,4221	1,6526	2,7084	3,2030	3,0572	2,2825	1,1623	0,0223
38	-1,3765	-1,2252	-0,5946	0,2417	0,9278	1,2181	1,0746	0,5361	-0,2116	-0,9639
39	-1,0486	-0,9269	-0,5647	-0,1261	0,2016	0,3082	0,1853	-0,1106	-0,4824	-0,8524
40	-0,5716	-0,4767	-0,3134	-0,1639	-0,0868	-0,1051	-0,2048	-0,3228	-0,4214	-0,5196

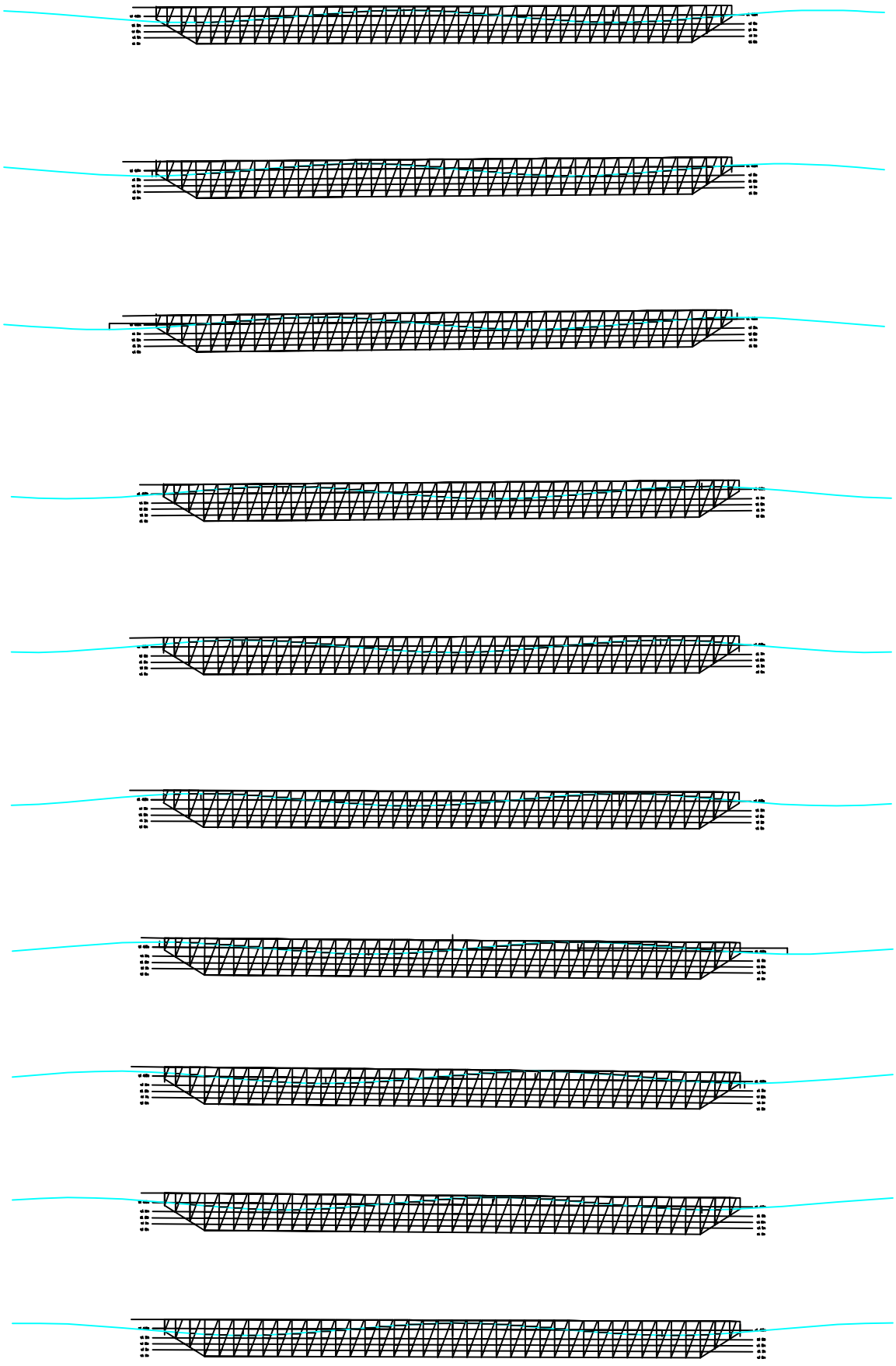


Bending Moment 0,85

STATION	PERIODE									
	0,74	1,48	2,22	2,96	3,70	4,44	5,17	5,91	6,65	7,39
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	2,0348	7,7160	8,1526	3,3330	-4,3561	-11,9648	-16,7058	-17,6583	-13,7637	-6,4673
2	6,5846	17,1009	17,1823	7,1815	-8,0320	-22,6452	-31,3091	-32,6028	-24,6102	-10,0782
3	11,9047	26,2428	25,1616	9,6830	-12,7640	-33,6345	-45,3218	-46,1868	-33,7282	-12,1527
4	17,6500	34,7368	31,7167	10,5708	-18,6652	-44,9145	-58,6813	-58,3609	-41,1592	-12,8775
5	23,9360	42,6663	36,9702	10,0665	-25,3793	-56,0370	-70,9143	-68,6784	-46,5412	-12,0244
6	30,0447	49,3094	40,2471	7,5859	-33,3831	-67,4265	-82,4412	-77,5993	-50,4129	-10,2449
7	35,3655	54,0707	41,0178	2,7074	-42,9993	-79,3710	-93,5631	-85,4823	-53,2352	-8,1020
8	40,0834	57,1685	39,5850	-4,1428	-53,7183	-91,3401	-103,7847	-91,9075	-54,7063	-5,3825
9	44,6403	59,0978	36,5465	-12,2357	-64,7467	-102,5409	-112,3614	-96,2237	-54,3022	-1,6351
10	49,1003	59,9938	32,1590	-21,1855	-75,6527	-112,5641	-118,9455	-98,1944	-51,9127	3,1943
11	53,5334	60,0164	26,7222	-30,5757	-85,9921	-121,0007	-123,2115	-97,6229	-47,4574	9,1466
12	57,7750	59,1099	20,3341	-40,2094	-95,5586	-127,6971	-125,1067	-94,5987	-41,1265	16,0093
13	61,6763	57,2540	13,1336	-49,8690	-104,1437	-132,5142	-124,6104	-89,2487	-33,1302	23,5666
14	65,1099	54,4682	5,2945	-59,3216	-111,5413	-135,3323	-121,7387	-81,7322	-23,6934	31,6052
15	67,9747	50,8166	-2,9795	-68,3241	-117,5527	-136,0560	-116,5485	-72,2360	-13,0511	39,9188
16	70,2009	46,4069	-11,4600	-76,6282	-121,9919	-134,6192	-109,1365	-60,9696	-1,4434	48,3138
17	71,7053	41,3365	-19,9488	-84,0354	-124,7398	-131,0388	-99,6846	-48,2103	10,8397	56,5644
18	72,4464	35,7364	-28,2339	-90,3519	-125,6997	-125,3705	-88,4054	-34,2480	23,5132	64,4673
19	71,9951	29,3344	-36,5263	-95,8263	-125,2343	-118,1431	-75,9695	-19,8131	35,8700	71,4151
20	70,2384	22,1555	-44,7596	-100,4487	-123,4643	-109,6498	-62,7940	-5,3649	47,4921	77,1074
21	67,6982	14,8409	-52,2708	-103,6315	-119,9496	-99,6193	-48,7143	9,2371	58,5793	81,8807
22	64,0358	7,1516	-59,2969	-105,7054	-115,1839	-88,7023	-34,4697	23,2474	68,4640	85,2204
23	58,9386	-1,1443	-66,0873	-107,0321	-109,7026	-77,5737	-20,8059	35,9317	76,5079	86,6544
24	52,7336	-9,6584	-72,2908	-107,3906	-103,4597	-66,3094	-7,8522	47,1904	82,7264	86,3674
25	45,6469	-18,1226	-77,6957	-106,7179	-96,5581	-55,1166	4,1490	56,8284	87,0571	84,4605
26	37,8973	-26,2954	-82,1365	-105,0113	-89,1456	-44,2295	14,9456	64,6591	89,4620	81,0460
27	29,9847	-33,6741	-85,2055	-102,0342	-81,1169	-33,6119	24,5736	70,7890	90,2174	76,5346
28	22,7973	-39,3873	-86,1457	-97,1972	-71,9956	-22,8389	33,4753	75,7910	90,0226	71,7441
29	16,9423	-42,8637	-84,5186	-90,2170	-61,5931	-11,7561	41,8406	80,0361	89,3308	67,2304
30	12,6456	-43,9334	-80,3014	-81,2072	-50,0994	-0,5706	49,5349	83,5243	88,2486	63,1868
31	9,2786	-43,3007	-74,3499	-71,1401	-38,5454	9,6866	55,6705	85,4174	86,0643	58,9721
32	6,8120	-41,0907	-66,9365	-60,3827	-27,3390	18,6245	60,0294	85,4975	82,7018	54,5637
33	5,4225	-37,2402	-58,1287	-49,0801	-16,6479	26,1092	62,6264	83,8163	78,3278	50,1653
34	4,3008	-32,6844	-48,9707	-38,3366	-7,5819	31,0813	62,5222	79,5238	72,1602	45,0153
35	3,5564	-27,4418	-39,5725	-28,3010	-0,2777	33,4711	59,7332	72,7494	64,3733	39,2912
36	3,5494	-21,2720	-29,7648	-18,8242	5,4431	33,5405	54,5683	63,9284	55,4303	33,4422
37	3,5028	-15,0550	-20,4798	-10,8392	8,6938	30,4996	46,2448	52,4122	44,6929	26,7989
38	2,1759	-10,1158	-13,0745	-5,6853	8,1981	23,1747	33,6125	37,1342	31,0877	18,2391
39	0,3537	-5,7245	-6,8430	-2,6472	4,7206	12,4064	17,5641	19,0096	15,5260	8,6388
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

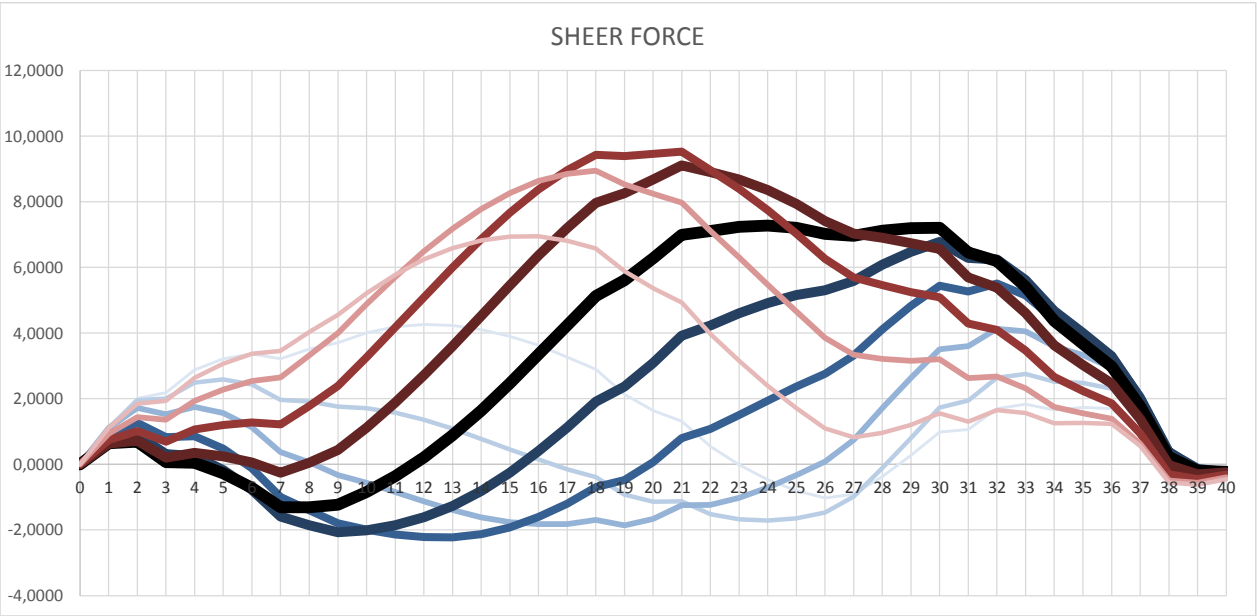


0,95



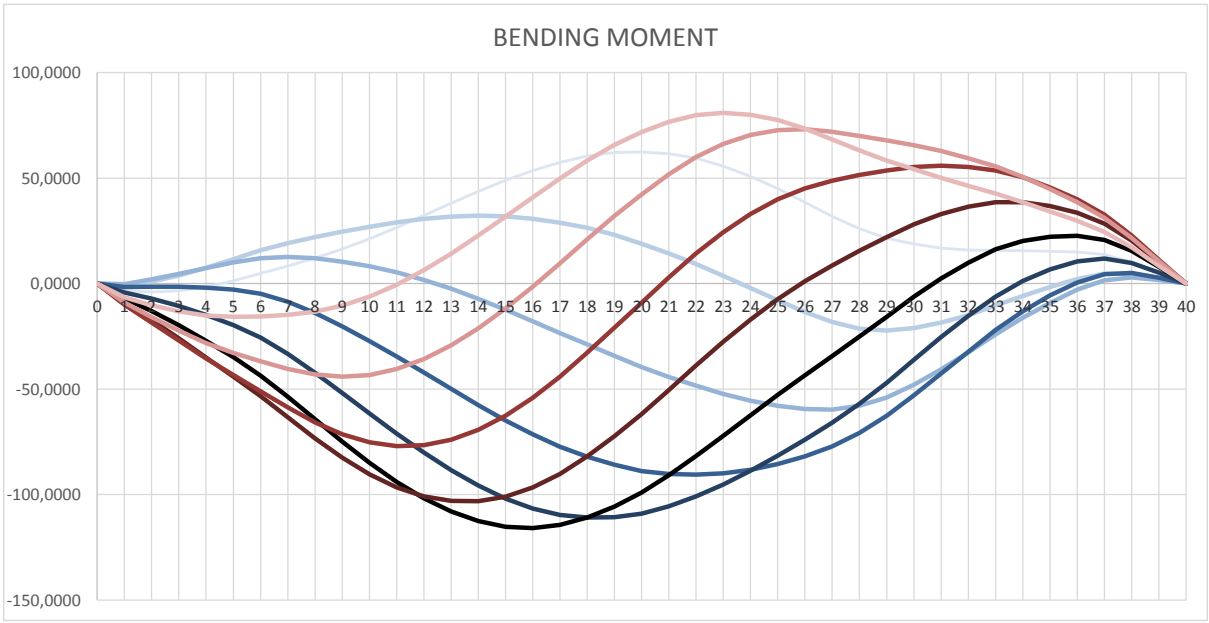
Shear Force 0,95

STATION	PERIODE									
	0,66	1,32	1,98	2,65	3,31	3,97	4,63	5,29	5,95	6,61
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	1,1113	1,1113	1,1113	0,9138	0,7453	0,6419	0,6329	0,7443	0,9272	1,1113
2	2,0086	1,9517	1,7262	1,2669	0,8994	0,6956	0,7229	1,0128	1,4423	1,8479
3	2,1844	2,0035	1,5225	0,8258	0,3097	0,0693	0,2003	0,6960	1,3591	1,9408
4	2,8754	2,4965	1,7551	0,8576	0,2537	0,0508	0,3479	1,0655	1,9376	2,6383
5	3,2205	2,5880	1,5664	0,4813	-0,1710	-0,2741	0,2396	1,2026	2,2796	3,0656
6	3,3655	2,4366	1,1277	-0,1201	-0,7713	-0,7114	0,0585	1,2789	2,5448	3,3700
7	3,2210	1,9654	0,3745	-0,9994	-1,5898	-1,3101	-0,2560	1,2225	2,6490	3,4547
8	3,5152	1,9154	0,0603	-1,3920	-1,8551	-1,3104	0,0448	1,7710	3,3173	4,0353
9	3,7109	1,7618	-0,3275	-1,7990	-2,0689	-1,2254	0,4364	2,3880	4,0010	4,5615
10	4,0063	1,7153	-0,5657	-1,9868	-2,0060	-0,8413	1,1213	3,2646	4,8784	5,2187
11	4,1912	1,5785	-0,8397	-2,1343	-1,8578	-0,3606	1,8858	4,1753	5,7159	5,7838
12	4,2665	1,3646	-1,1243	-2,2183	-1,6131	0,2165	2,7184	5,0967	6,4904	6,2446
13	4,2366	1,0907	-1,3908	-2,2197	-1,2647	0,8861	3,6038	6,0019	7,1828	6,5928
14	4,1109	0,7787	-1,6106	-2,1235	-0,8098	1,6402	4,5230	6,8653	7,7781	6,8248
15	3,9028	0,4547	-1,7600	-1,9190	-0,2491	2,4673	5,4532	7,6649	8,2655	6,9411
16	3,6299	0,1485	-1,8193	-1,5996	0,4127	3,3518	6,3678	8,3825	8,6382	6,9469
17	3,2726	-0,1528	-1,8149	-1,2043	1,1249	4,2325	7,2004	8,9624	8,8521	6,8094
18	2,8987	-0,3825	-1,6941	-0,6931	1,9166	5,1279	7,9715	9,4364	8,9505	6,5841
19	2,1341	-0,9266	-1,8553	-0,4767	2,3660	5,6067	8,2591	9,3935	8,5342	5,8841
20	1,6420	-1,1338	-1,6607	0,0701	3,0880	6,2795	8,6849	9,4668	8,2484	5,3668
21	1,3125	-1,1256	-1,2448	0,8010	3,9252	6,9932	9,1073	9,5329	7,9748	4,9266
22	0,5504	-1,5134	-1,2322	1,0798	4,2327	7,1127	8,9024	8,9652	7,1135	3,9747
23	-0,0127	-1,6770	-1,0156	1,5018	4,6035	7,2430	8,6865	8,3988	6,3047	3,1559
24	-0,4644	-1,7169	-0,7081	1,9427	4,9190	7,2766	8,3636	7,7492	5,4773	2,3947
25	-0,7985	-1,6401	-0,3293	2,3740	5,1626	7,2083	7,9396	7,0340	4,6582	1,7092
26	-1,0281	-1,4724	0,0825	2,7560	5,3068	7,0217	7,4094	6,2603	3,8578	1,0992
27	-0,9095	-0,9835	0,7451	3,3142	5,5889	6,9654	7,0332	5,6996	3,3425	0,8204
28	-0,3695	-0,1130	1,7096	4,1123	6,0848	7,1260	6,9087	5,4592	3,2095	0,9593
29	0,2683	0,8023	2,6384	4,8258	6,4814	7,2018	6,7455	5,2503	3,1591	1,2053
30	0,9879	1,7334	3,5098	5,4465	6,7820	7,2064	6,5686	5,0919	3,1999	1,5560
31	1,0641	1,9454	3,6024	5,2652	6,2889	6,4531	5,6990	4,2952	2,6317	1,2997
32	1,6980	2,6383	4,1292	5,5081	6,2395	6,1898	5,3852	4,0977	2,6813	1,6516
33	1,8299	2,7597	4,0517	5,1487	5,6181	5,4110	4,6154	3,4768	2,3144	1,5661
34	1,6580	2,5207	3,5939	4,4235	4,6722	4,3710	3,6326	2,6650	1,7521	1,2522
35	1,7316	2,4834	3,3310	3,9192	3,9996	3,6667	3,0229	2,2373	1,5578	1,2611
36	1,7005	2,3108	2,9390	3,3246	3,2982	2,9880	2,4650	1,8616	1,3874	1,2371
37	0,9582	1,4093	1,8372	2,0702	2,0042	1,7595	1,3730	0,9407	0,6318	0,5633
38	-0,2730	0,0144	0,2736	0,4156	0,3747	0,2274	-0,0181	-0,3016	-0,4975	-0,5482
39	-0,4781	-0,3455	-0,2330	-0,1465	-0,1412	-0,1909	-0,3029	-0,4518	-0,5647	-0,6176
40	-0,4203	-0,3851	-0,3553	-0,2802	-0,2343	-0,2202	-0,2475	-0,3164	-0,3946	-0,4573

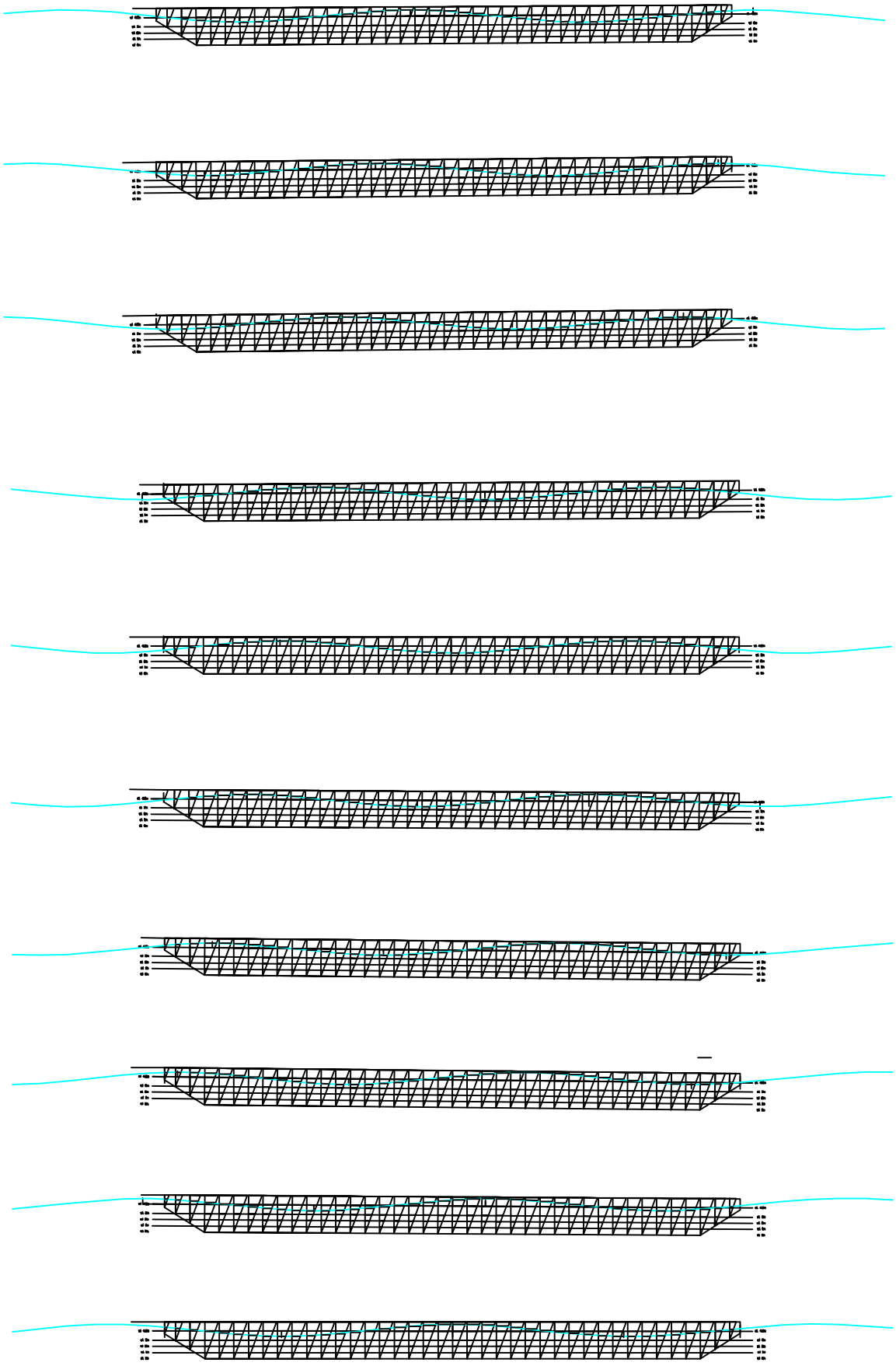


Bending Moment 0,95

STATION	PERIODE									
	0,66	1,32	1,98	2,65	3,31	3,97	4,63	5,29	5,95	6,61
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-3,3510	-0,8448	-0,2299	-1,6631	-4,2328	-7,0109	-9,1774	-9,9471	-8,9421	-6,4296
2	-3,9632	0,9816	1,9430	-1,5319	-7,1614	-12,9925	-17,2960	-18,4555	-15,8771	-10,3118
3	-3,2990	3,8691	4,6051	-1,5055	-10,6083	-19,6553	-25,9291	-27,0212	-22,2982	-13,2071
4	-1,6037	7,4047	7,3015	-1,9659	-14,8231	-27,0849	-35,0083	-35,5243	-28,1302	-15,1623
5	1,3240	11,6355	10,0502	-2,8360	-19,6097	-34,9230	-44,0407	-43,4248	-32,8672	-15,7795
6	4,8346	15,7951	12,0525	-4,8691	-25,6156	-43,6678	-53,4173	-51,0715	-36,8819	-15,5265
7	8,3459	19,2142	12,6371	-8,6635	-33,3092	-53,6450	-63,3834	-58,6946	-40,4572	-14,8106
8	12,0352	22,0134	11,9520	-13,9708	-42,2919	-64,3346	-73,3659	-65,7323	-43,1137	-13,3034
9	16,3073	24,5703	10,4319	-20,2293	-51,8444	-74,9234	-82,5248	-71,3836	-44,1619	-10,4795
10	21,1635	26,8891	8,1672	-27,1953	-61,5764	-84,9542	-90,4032	-75,2582	-43,3532	-6,2481
11	26,5911	28,9900	5,2933	-34,5602	-71,0573	-93,9564	-96,5575	-77,0069	-40,5046	-0,5626
12	32,3282	30,6736	1,7548	-42,2003	-80,0708	-101,7004	-100,8120	-76,5763	-35,7386	6,3432
13	38,1192	31,7770	-2,4392	-49,9420	-88,3790	-107,9614	-103,0230	-73,9730	-29,2277	14,2113
14	43,7252	32,1836	-7,2116	-57,5710	-95,7317	-112,5289	-103,0873	-69,2658	-21,1851	22,7695
15	48,9342	31,8336	-12,4232	-64,8423	-101,8762	-115,2155	-100,9518	-62,5806	-11,8547	31,7420
16	53,5710	30,7339	-17,8831	-71,4904	-106,5665	-115,8662	-96,6219	-54,0907	-1,5011	40,8598
17	57,4581	28,9117	-23,4083	-77,2884	-109,6225	-114,4173	-90,2137	-44,0573	9,5503	49,8209
18	60,4755	26,4579	-28,7845	-82,0080	-110,8897	-110,8557	-81,8980	-32,7702	20,9732	58,3506
19	62,1387	23,0836	-34,2089	-85,8623	-110,6805	-105,6595	-72,3230	-20,9704	32,0179	65,7795
20	62,3070	18,8155	-39,5934	-88,8087	-109,0780	-99,0934	-61,8994	-9,1346	42,2275	71,7605
21	61,4981	14,3108	-44,2518	-90,2352	-105,6208	-90,8781	-50,4668	2,8671	51,7716	76,6025
22	59,3907	9,3545	-48,4006	-90,4607	-100,8019	-81,6717	-38,7756	14,2721	59,9657	79,7886
23	55,7069	3,7424	-52,2766	-89,8527	-95,1762	-72,1682	-27,5848	24,3282	66,1733	80,8684
24	50,8161	-2,1118	-55,5291	-88,2181	-88,7341	-62,4696	-17,0350	32,9379	70,4346	80,0688
25	44,9905	-7,9221	-57,9653	-85,5461	-81,6269	-52,8123	-7,3737	39,9241	72,7374	77,5484
26	38,4944	-13,4415	-59,4611	-81,9067	-74,0585	-43,4583	1,1526	45,1393	73,1138	73,4870
27	31,8663	-18,1799	-59,6790	-77,1489	-65,9831	-34,3932	8,6008	48,7672	71,9251	68,3683
28	26,0216	-21,3014	-57,9614	-70,7779	-56,9821	-25,2040	15,4535	51,4423	69,9654	63,0833
29	21,5779	-22,2987	-53,9917	-62,6087	-46,9196	-15,7336	21,9640	53,5828	67,7874	58,2561
30	18,7488	-21,0997	-47,8807	-52,8525	-36,0278	-6,1676	28,0699	55,2864	65,5980	54,1386
31	16,8663	-18,5410	-40,6231	-42,5737	-25,3650	2,5079	32,9310	55,8540	62,7813	50,1334
32	15,8284	-14,9059	-32,6286	-32,2217	-15,3473	9,9740	36,3844	55,2389	59,3478	46,2419
33	15,7014	-10,3022	-24,0998	-22,0082	-6,1277	16,2006	38,5489	53,6503	55,5368	42,6672
34	15,5269	-5,8383	-16,2077	-13,0847	1,2277	20,2637	38,6287	50,3576	50,6205	38,6175
35	15,2355	-1,7032	-9,1729	-5,6239	6,6577	22,2520	36,8142	45,5905	44,8041	34,2051
36	14,9946	2,1824	-2,9170	0,5299	10,4534	22,5953	33,6109	39,8678	38,5540	29,7747
37	13,8337	4,7904	1,5619	4,4843	11,8756	20,6699	28,4450	32,6027	31,2023	24,5142
38	10,3253	4,6668	2,8704	4,9784	9,8204	15,4609	20,3254	22,7645	21,6086	17,1302
39	5,1086	2,4557	1,7165	2,8357	5,2131	7,9318	10,2123	11,2699	10,5918	8,3415
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

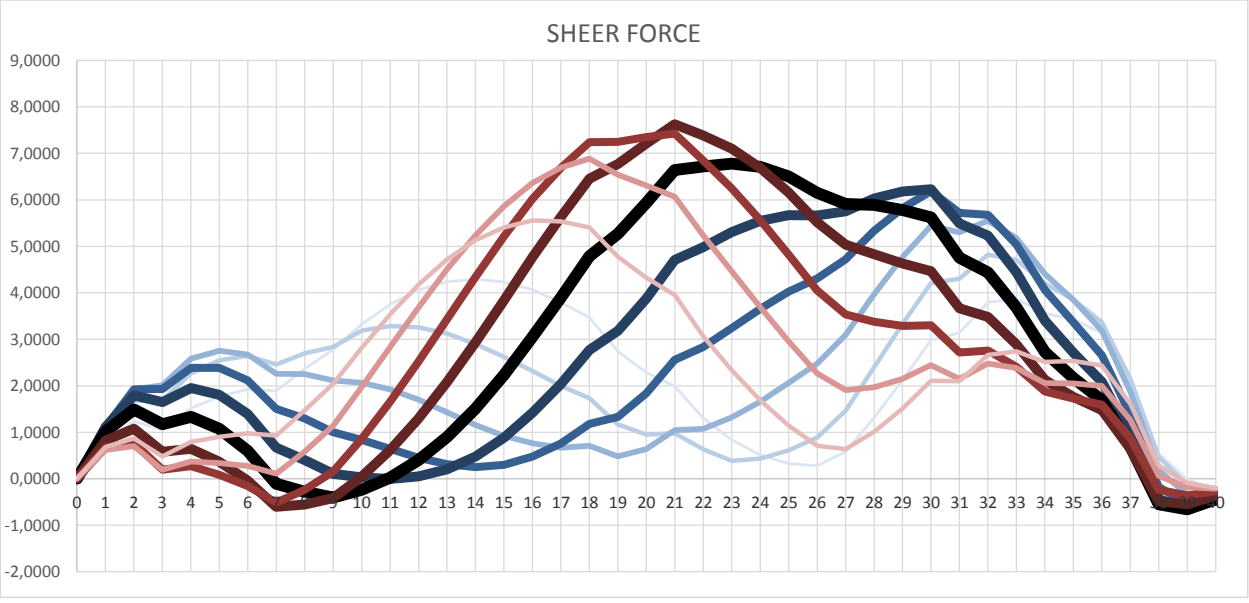


1,05



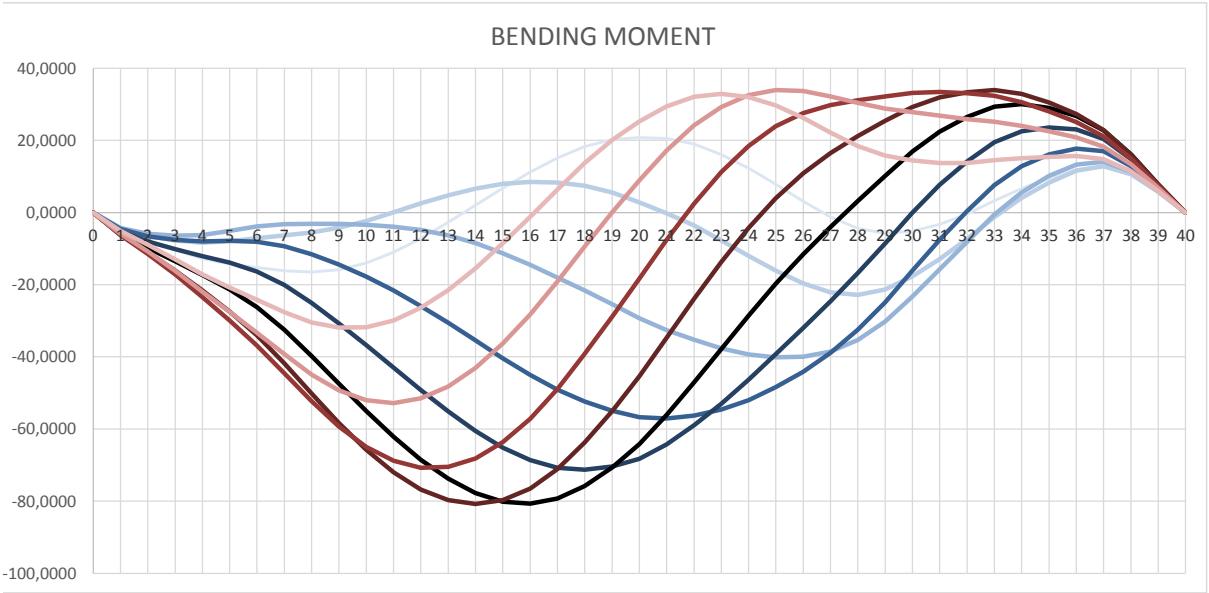
Sheer Force 1,05

STATION	PERIODE									
	0	0,95	1,9	2,85	3,8	4,75	5,7	6,65	7,6	8,55
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,8348	1,0359	1,1113	1,1113	1,1113	1,0168	0,8239	0,6705	0,6209	0,6792
2	1,2364	1,6822	1,9281	1,9232	1,7911	1,4927	1,0758	0,7646	0,7049	0,8685
3	1,0489	1,6835	2,0101	1,9330	1,6518	1,1710	0,5842	0,1974	0,1933	0,4834
4	1,5202	2,2686	2,5803	2,3824	1,9539	1,3294	0,6439	0,2690	0,3691	0,7900
5	1,7653	2,5454	2,7528	2,3890	1,8075	1,0742	0,3674	0,0864	0,3382	0,9018
6	1,9244	2,6422	2,6747	2,1176	1,3960	0,6057	-0,0350	-0,1573	0,2765	0,9775
7	1,8898	2,4550	2,2613	1,5022	0,6709	-0,1081	-0,5998	-0,5158	0,1127	0,9284
8	2,3628	2,7014	2,2492	1,2985	0,4048	-0,2813	-0,5571	-0,2366	0,5820	1,4717
9	2,7806	2,8371	2,1134	0,9997	0,1078	-0,4031	-0,4144	0,1556	1,1417	2,0471
10	3,3191	3,1908	2,0678	0,8383	0,0279	-0,2395	0,0450	0,8601	1,9729	2,8184
11	3,7502	3,2853	1,9216	0,6419	-0,0023	0,0243	0,6177	1,6561	2,8368	3,5400
12	4,0593	3,2589	1,6986	0,4519	0,0485	0,4016	1,2997	2,5221	3,6939	4,1801
13	4,2400	3,1242	1,4303	0,3102	0,2040	0,8983	2,0794	3,4292	4,5043	4,7145
14	4,2940	2,9021	1,1562	0,2515	0,4804	1,5132	2,9382	4,3411	5,2351	5,1267
15	4,2307	2,6211	0,9209	0,3024	0,8864	2,2376	3,8366	5,2175	5,8597	5,4077
16	4,0672	2,3178	0,7626	0,4818	1,4229	3,0554	4,7685	6,0234	6,3630	5,5561
17	3,7871	1,9945	0,6701	0,7591	2,0415	3,9015	5,6389	6,6895	6,6915	5,5368
18	3,4650	1,7347	0,7076	1,1793	2,7701	4,7867	6,4522	7,2371	6,8836	5,4054
19	2,7372	1,1671	0,4846	1,3343	3,1819	5,2682	6,7730	7,2483	6,5389	4,7787
20	2,2822	0,9529	0,6431	1,8443	3,8829	5,9413	7,2136	7,3524	6,3045	4,3213
21	1,9939	0,9772	1,0490	2,5582	4,7039	6,6398	7,6259	7,4263	6,0672	3,9497
22	1,3028	0,6316	1,0746	2,8300	4,9850	6,7192	7,3828	6,8451	5,2356	3,0643
23	0,8372	0,3870	1,3203	3,2417	5,3072	6,7788	7,1012	6,2505	4,4617	2,3319
24	0,5114	0,4362	1,6624	3,6528	5,5430	6,7084	6,6888	5,5675	3,6877	1,6844
25	0,3302	0,6158	2,0674	4,0229	5,6705	6,5039	6,1583	4,8266	2,9513	1,1442
26	0,2754	0,8884	2,4789	4,3050	5,6607	6,1533	5,5156	4,0507	2,2685	0,7116
27	0,5819	1,4695	3,0998	4,7205	5,7528	5,9132	5,0342	3,5385	1,9089	0,6407
28	1,3110	2,4008	3,9742	5,3330	6,0278	5,8897	4,8291	3,3762	1,9691	1,0118
29	2,1234	3,3259	4,7618	5,8212	6,1821	5,7796	4,6281	3,2909	2,1466	1,5063
30	2,9844	4,2051	5,4424	6,1835	6,2314	5,6232	4,4664	3,3013	2,4432	2,1092
31	3,1465	4,3023	5,2987	5,7216	5,4939	4,7548	3,6677	2,7143	2,1491	2,0986
32	3,7942	4,8201	5,5523	5,6755	5,2268	4,4391	3,4794	2,7611	2,4784	2,6626
33	3,8629	4,7124	5,1759	5,0363	4,4376	3,6770	2,8852	2,4085	2,3811	2,7385
34	3,5546	4,1997	4,4091	4,0617	3,3956	2,7215	2,1212	1,8760	2,0590	2,5149
35	3,4258	3,8574	3,8460	3,3638	2,7106	2,1647	1,7624	1,7223	2,0532	2,5327
36	3,1372	3,3649	3,1848	2,6565	2,0814	1,6884	1,4741	1,5954	1,9967	2,4355
37	2,0964	2,1489	1,8710	1,3882	0,9386	0,7065	0,6531	0,8756	1,2651	1,6123
38	0,5435	0,4683	0,1820	-0,1755	-0,4367	-0,5499	-0,4859	-0,2388	0,0651	0,2832
39	-0,0161	-0,1392	-0,3400	-0,5304	-0,6469	-0,6550	-0,5447	-0,3547	-0,1795	-0,0887
40	-0,2247	-0,3105	-0,3837	-0,4342	-0,4651	-0,4423	-0,3621	-0,2712	-0,2116	-0,2029

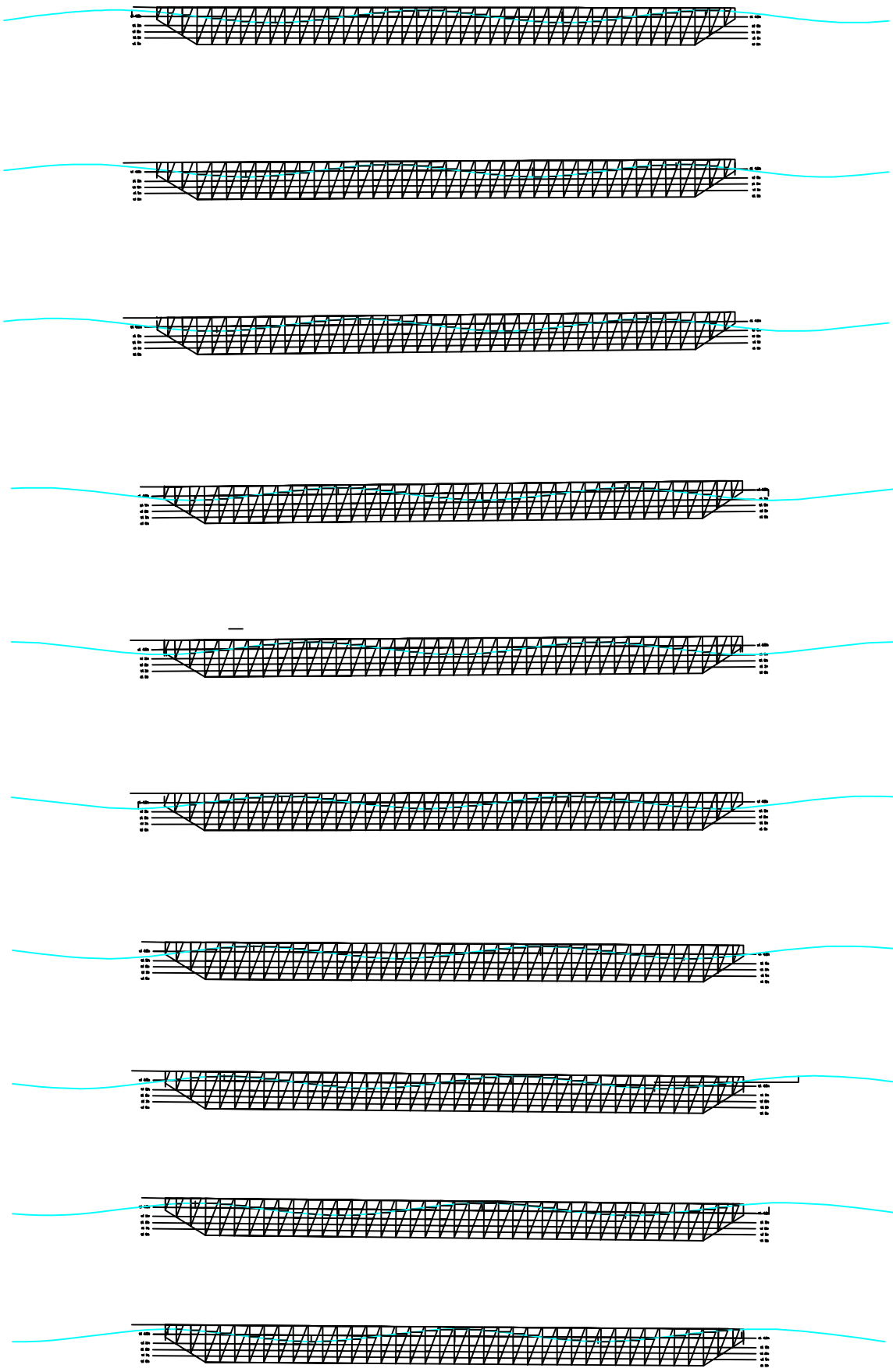


Bending Moment 1,05

STATION	PERIODE									
	0	0,95	1,9	2,85	3,8	4,75	5,7	6,65	7,6	8,55
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-4,6938	-4,4012	-4,2622	-4,5994	-5,2649	-5,9578	-6,2867	-6,2828	-5,9095	-5,0751
2	-7,6543	-6,4755	-5,8813	-6,5617	-8,0498	-9,8203	-11,0347	-11,4452	-10,7851	-8,9034
3	-10,3601	-7,7796	-6,4314	-7,5465	-10,1918	-13,4992	-16,0677	-17,1704	-16,1694	-12,9648
4	-12,7283	-8,3861	-6,2057	-7,9850	-12,1401	-17,3724	-21,6145	-23,4851	-21,9531	-17,1195
5	-14,2444	-7,9674	-5,0966	-7,8811	-13,9031	-21,3607	-27,4192	-29,9319	-27,5645	-20,7766
6	-15,2797	-7,1043	-3,8751	-8,0922	-16,3298	-26,2100	-34,0315	-36,8858	-33,2861	-24,2106
7	-16,1669	-6,3488	-3,2384	-9,3582	-20,1085	-32,4657	-41,7942	-44,5560	-39,2758	-27,6130
8	-16,5325	-5,5228	-3,1077	-11,5985	-25,0662	-39,7764	-50,1779	-52,3205	-44,9022	-30,4275
9	-15,8385	-4,2424	-3,1529	-14,4365	-30,6938	-47,4379	-58,3412	-59,2863	-49,3047	-31,9113
10	-14,0071	-2,3798	-3,4138	-17,8220	-36,7697	-55,0497	-65,7881	-64,9477	-52,0527	-31,7933
11	-11,0223	0,0159	-3,9030	-21,6331	-42,9765	-62,1531	-72,0074	-68,8242	-52,7843	-29,8994
12	-7,1571	2,4926	-4,8313	-25,9038	-49,1589	-68,4940	-76,7342	-70,7238	-51,4688	-26,3857
13	-2,7093	4,7777	-6,3440	-30,5691	-55,0958	-73,7952	-79,7223	-70,5143	-48,1699	-21,4750
14	2,0178	6,6385	-8,5020	-35,4726	-60,5190	-77,7742	-80,7615	-68,1411	-43,0377	-15,4383
15	6,7338	7,9007	-11,2658	-40,3856	-65,1306	-80,1601	-79,7105	-63,6407	-36,2933	-8,5771
16	11,1799	8,4680	-14,4979	-45,0245	-68,6210	-80,7116	-76,4824	-57,1392	-28,2072	-1,2051
17	15,0984	8,2898	-18,0282	-49,1202	-70,7374	-79,2838	-71,1104	-48,8868	-19,1317	6,3206
18	18,3006	7,4181	-21,6240	-52,3863	-71,2513	-75,7967	-63,7357	-39,1906	-9,4369	13,6669
19	20,2539	5,5622	-25,4404	-54,9681	-70,4087	-70,6839	-55,0120	-28,8298	0,0764	20,1115
20	20,8004	2,7764	-29,3335	-56,7588	-68,2424	-64,1976	-45,3827	-18,3318	8,9009	25,2665
21	20,4627	-0,2354	-32,5552	-57,0938	-64,2656	-56,0798	-34,7388	-7,6220	17,1642	29,4355
22	18,9599	-3,6294	-35,2638	-56,2563	-58,9780	-47,0366	-23,8935	2,4843	24,1562	32,1092
23	16,0812	-7,7253	-37,6496	-54,6058	-52,9728	-37,8282	-13,6724	11,1919	29,2384	32,8585
24	12,2612	-12,0536	-39,3362	-51,9766	-46,3039	-28,6327	-4,2769	18,3799	32,4793	31,9665
25	7,8381	-16,1098	-40,1341	-48,4182	-39,2027	-19,7641	3,9971	23,8742	33,9236	29,6618
26	3,1342	-19,6281	-39,9608	-44,0839	-31,9615	-11,5559	10,8756	27,5643	33,6798	26,1999
27	-1,2703	-22,1309	-38,5595	-38,9199	-24,6225	-4,0503	16,4169	29,7222	32,1960	22,1390
28	-4,4429	-22,8347	-35,3795	-32,5330	-16,8468	3,1418	21,1416	31,0777	30,3561	18,4352
29	-5,7819	-21,3304	-30,2225	-24,8368	-8,5604	10,1750	25,3833	32,1387	28,7990	15,7610
30	-5,1303	-17,6800	-23,3191	-16,1290	-0,0319	16,8911	29,1936	33,1106	27,8057	14,3922
31	-3,2618	-12,8679	-15,7771	-7,5396	7,6780	22,3883	31,8615	33,3967	26,8155	13,7280
32	-0,4301	-7,3244	-8,1044	0,4456	14,1930	26,4769	33,3553	33,0401	25,8672	13,7220
33	3,2539	-1,2931	-0,5778	7,6155	19,4514	29,2835	33,9183	32,3198	25,1949	14,4772
34	6,6528	4,0002	5,5890	12,8658	22,5317	30,0469	32,8657	30,5469	24,0236	15,0567
35	9,5318	8,2765	10,1739	16,1266	23,5578	29,0115	30,4776	27,9576	22,4623	15,3914
36	11,9143	11,5599	13,3025	17,7160	23,0206	26,7473	27,3198	25,0344	20,8269	15,6316
37	12,7155	12,8110	14,0819	16,9554	20,3756	22,7486	22,8424	21,1041	18,2540	14,7770
38	10,4314	10,6166	11,2895	12,8262	14,7354	16,0873	16,0337	14,9920	13,3835	11,3623
39	5,6346	5,7006	5,8670	6,4148	7,2092	7,8065	7,8002	7,4165	6,7946	5,9243
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

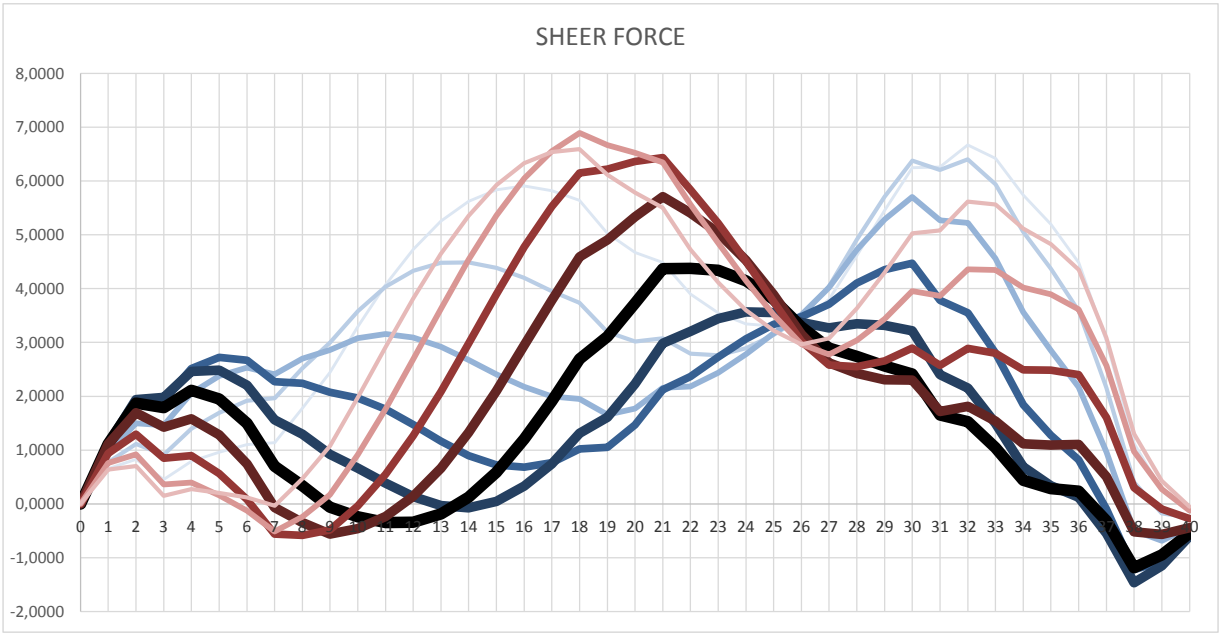


1,15



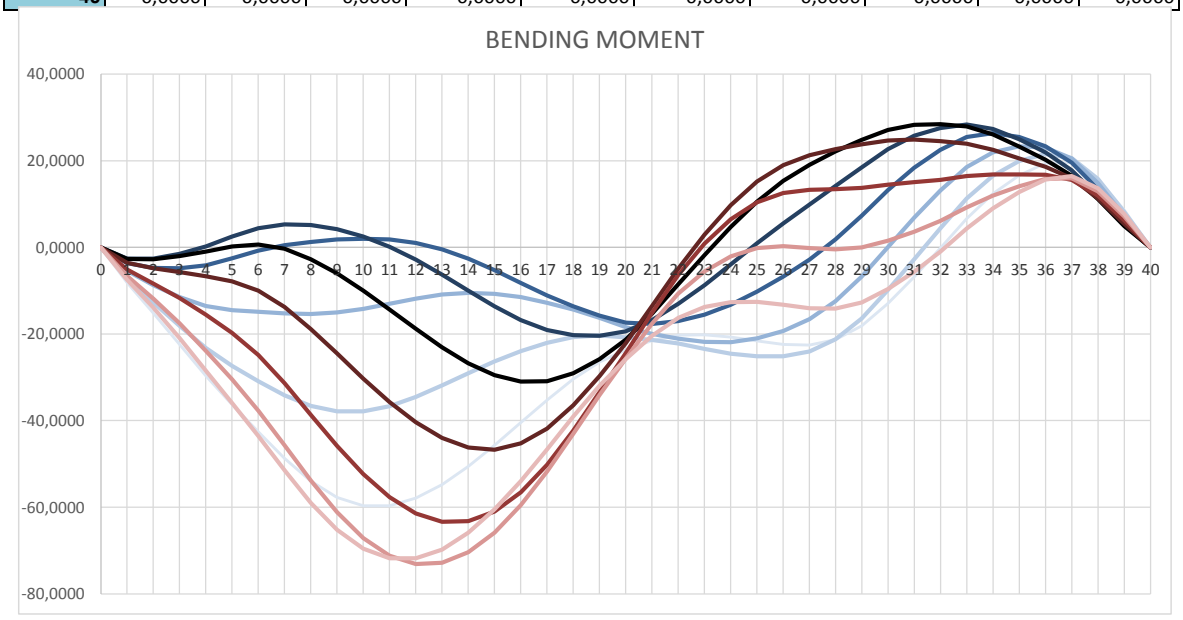
Sheer Force 1,15

STATION	PERIODE									
	0,55	1,09	1,64	2,19	2,73	3,28	3,82	4,37	4,92	5,46
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,6584	0,7730	0,9427	1,1113	1,1113	1,1113	1,1113	0,9372	0,7574	0,6353
2	0,8304	1,1158	1,4988	1,8587	1,9375	1,8695	1,6923	1,2980	0,9199	0,7023
3	0,4507	0,9086	1,4615	1,9254	1,9795	1,7861	1,4243	0,8516	0,3589	0,1473
4	0,7921	1,4021	2,0583	2,5172	2,4596	2,1084	1,5803	0,8951	0,3940	0,2753
5	0,9567	1,6935	2,3782	2,7223	2,4834	1,9521	1,2843	0,5630	0,1613	0,2044
6	1,1032	1,9191	2,5351	2,6713	2,2071	1,4981	0,7417	0,0832	-0,1282	0,1222
7	1,1396	1,9641	2,4076	2,2682	1,5599	0,7004	-0,0690	-0,5602	-0,5161	-0,0363
8	1,7769	2,5174	2,7002	2,2437	1,2977	0,3388	-0,3452	-0,5825	-0,2427	0,4651
9	2,4450	3,0017	2,8608	2,0718	0,9191	-0,0637	-0,5583	-0,4812	0,1691	1,0797
10	3,2956	3,5844	3,0817	1,9702	0,6671	-0,2417	-0,4616	-0,0356	0,9153	1,9797
11	4,0712	4,0320	3,1552	1,7578	0,3852	-0,3471	-0,2335	0,5503	1,7666	2,9118
12	4,7332	4,3308	3,0931	1,4724	0,1340	-0,3384	0,1409	1,2658	2,6875	3,8184
13	5,2553	4,4793	2,9200	1,1651	-0,0320	-0,1872	0,6634	2,0877	3,6300	4,6472
14	5,6240	4,4894	2,6737	0,8974	-0,0712	0,1216	1,3233	2,9804	4,5363	5,3584
15	5,8379	4,3852	2,4052	0,7236	0,0441	0,5901	2,0969	3,8953	5,3561	5,9250
16	5,9085	4,2037	2,1752	0,6845	0,3287	1,2068	2,9475	4,7747	6,0513	6,3326
17	5,8179	3,9533	1,9960	0,7658	0,7417	1,9059	3,7841	5,5257	6,5548	6,5377
18	5,6442	3,7354	1,9498	1,0226	1,3123	2,6914	4,5892	6,1520	6,8956	6,5932
19	5,0312	3,1981	1,6587	1,0501	1,6097	3,1077	4,9063	6,2232	6,6691	6,1178
20	4,6729	3,0157	1,7716	1,4701	2,2299	3,7299	5,3322	6,3620	6,5225	5,7835
21	4,4884	3,0767	2,1560	2,1229	2,9877	4,3731	5,7086	6,4360	6,3487	5,5068
22	3,8982	2,7891	2,1805	2,3645	3,2034	4,3797	5,4046	5,8395	5,5675	4,7272
23	3,5462	2,7643	2,4358	2,7288	3,4425	4,3414	5,0381	5,2162	4,8471	4,1123
24	3,3471	2,8906	2,7833	3,0707	3,5677	4,1473	4,5239	4,5058	4,1466	3,6009
25	3,3007	3,1418	3,1689	3,3378	3,5535	3,7972	3,8880	3,7589	3,5132	3,2178
26	3,3795	3,4631	3,5163	3,4772	3,3728	3,2897	3,1542	3,0181	2,9676	2,9611
27	3,8037	4,0479	4,0202	3,7100	3,2730	2,8974	2,6204	2,5776	2,7793	3,0772
28	4,6151	4,9161	4,7228	4,1054	3,3488	2,7405	2,4253	2,5532	3,0396	3,6350
29	5,4501	5,7052	5,2874	4,3536	3,3162	2,5595	2,3057	2,6561	3,4356	4,2984
30	6,2494	6,3777	5,7028	4,4701	3,2167	2,4142	2,2977	2,8975	3,9539	5,0309
31	6,2588	6,2045	5,2666	3,7794	2,4000	1,6495	1,7202	2,5715	3,8648	5,0794
32	6,6678	6,4009	5,2203	3,5502	2,1530	1,5285	1,8108	2,8910	4,3567	5,6157
33	6,4223	5,9383	4,5624	2,8082	1,4948	1,0450	1,5375	2,7999	4,3482	5,5638
34	5,7396	5,0606	3,5635	1,8426	0,6906	0,4387	1,1152	2,4888	4,0172	5,1167
35	5,1969	4,3710	2,8545	1,2775	0,3392	0,2832	1,0926	2,4828	3,8930	4,8254
36	4,4804	3,5827	2,1671	0,8206	0,1226	0,2359	1,1025	2,3993	3,6135	4,3473
37	3,0283	2,1606	0,9604	-0,0947	-0,5512	-0,3199	0,5043	1,6045	2,5661	3,0901
38	1,1167	0,3991	-0,4944	-1,2236	-1,4626	-1,1886	-0,5216	0,2998	0,9739	1,2967
39	0,2553	-0,1792	-0,6845	-1,0735	-1,1520	-0,9503	-0,5652	-0,0970	0,2709	0,4270
40	-0,1062	-0,2517	-0,4305	-0,5782	-0,5990	-0,5455	-0,4434	-0,2733	-0,1282	-0,0545

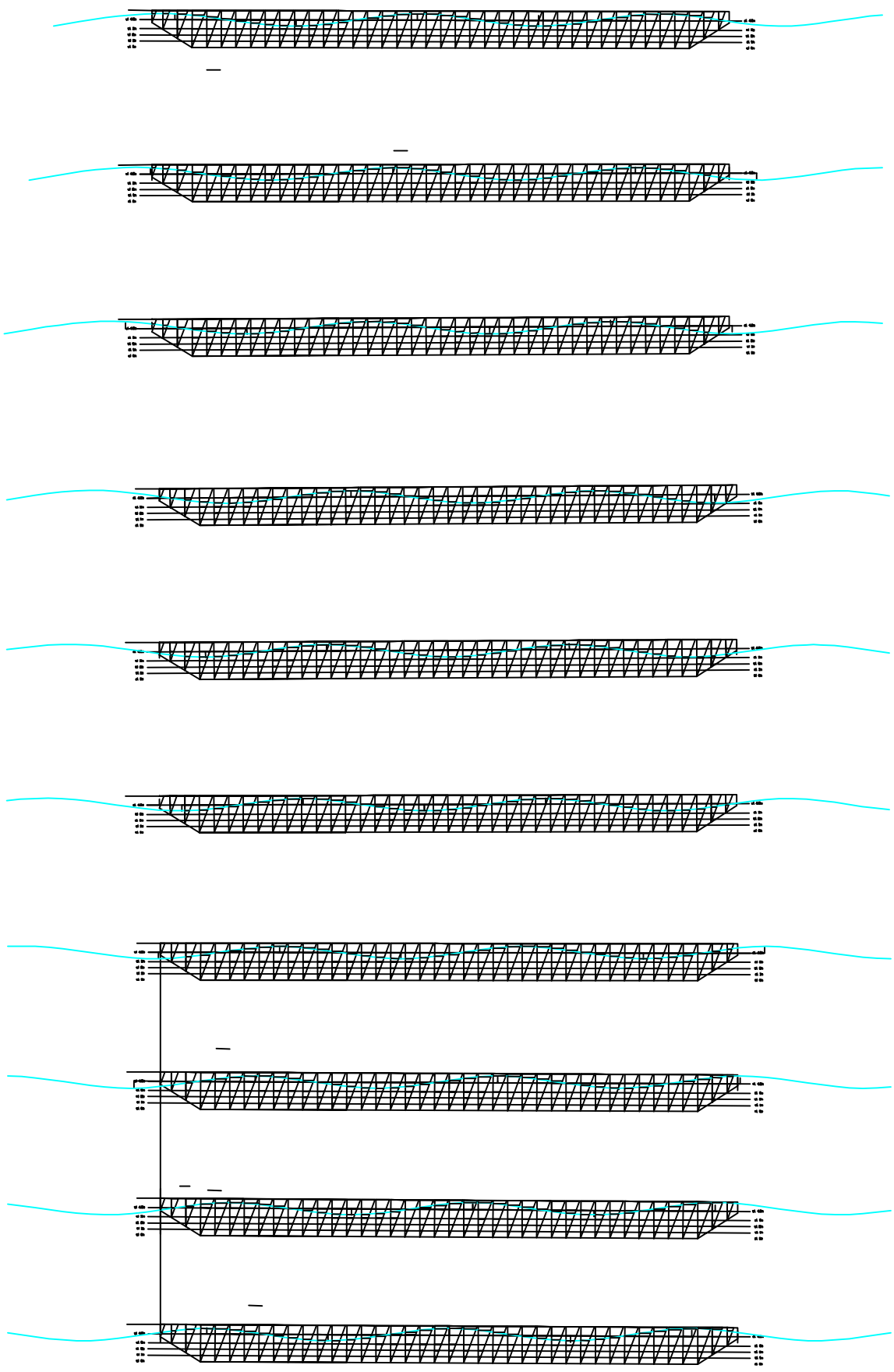


Bending Moment 1,15

STATION	PERIODE									
	0,55	1,09	1,64	2,19	2,73	3,28	3,82	4,37	4,92	5,46
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-8,1744	-7,1531	-5,4153	-3,6417	-2,6203	-2,6545	-3,6000	-5,0961	-6,5801	-7,4714
2	-15,1540	-12,7359	-8,7514	-4,7231	-2,5865	-2,7356	-4,8375	-8,3535	-11,8278	-13,9077
3	-22,3807	-18,1573	-11,4704	-4,8360	-1,5198	-2,0141	-5,7026	-11,7128	-17,5495	-20,9245
4	-29,6529	-23,2381	-13,5238	-4,1656	0,1677	-1,0084	-6,7009	-15,5512	-23,8967	-28,4491
5	-36,3231	-27,3853	-14,4869	-2,5474	2,4547	0,1947	-7,8658	-19,7330	-30,4790	-35,9059
6	-42,6234	-30,9176	-14,8828	-0,7458	4,4414	0,6719	-10,0283	-24,8806	-37,6824	-43,5448
7	-48,7061	-34,1280	-15,2436	0,5156	5,3295	-0,3398	-13,8005	-31,3642	-45,6916	-51,4699
8	-53,9875	-36,6266	-15,4082	1,2685	5,1359	-2,7306	-18,8656	-38,6397	-53,8371	-58,9871
9	-57,7161	-37,8911	-15,0336	1,7877	4,1800	-6,0302	-24,5126	-45,8213	-61,1675	-65,1769
10	-59,6382	-37,8864	-14,2051	1,9816	2,4740	-10,0203	-30,2982	-52,3522	-67,1204	-69,5650
11	-59,6259	-36,6562	-13,0265	1,8019	0,1330	-14,3476	-35,6973	-57,6561	-71,1730	-71,7739
12	-57,9037	-34,5382	-11,8344	1,0301	-2,8421	-18,7898	-40,3798	-61,4121	-73,1177	-71,7957
13	-54,7729	-31,8880	-10,9221	-0,4467	-6,3135	-23,0418	-43,9954	-63,3394	-72,8458	-69,7532
14	-50,5826	-29,0491	-10,5085	-2,6074	-10,0290	-26,7466	-46,2045	-63,2272	-70,3749	-65,8788
15	-45,6992	-26,3223	-10,7073	-5,2933	-13,6539	-29,5269	-46,7084	-60,9647	-65,8507	-60,4845
16	-40,4774	-23,9352	-11,4992	-8,2324	-16,8031	-31,0163	-45,2803	-56,5680	-59,5243	-53,9314
17	-35,2793	-22,0619	-12,7778	-11,1213	-19,1226	-30,9405	-41,8454	-50,2319	-51,7721	-46,6495
18	-30,3955	-20,7457	-14,3245	-13,6080	-20,2721	-29,0989	-36,4578	-42,2574	-43,0156	-39,0576
19	-26,4476	-20,3277	-16,2723	-15,7567	-20,3892	-25,8277	-29,7353	-33,4532	-34,1231	-31,9651
20	-23,6551	-20,7659	-18,4320	-17,3730	-19,4147	-21,3211	-22,1289	-24,3992	-25,6745	-25,8358
21	-21,5081	-21,3484	-20,0003	-17,7132	-16,8011	-15,3095	-13,5682	-15,0921	-17,6070	-20,4333
22	-20,2827	-22,2005	-21,0822	-16,9895	-13,0296	-8,5249	-4,9215	-6,4066	-10,6755	-16,2873
23	-20,1781	-23,4242	-21,8313	-15,5451	-8,7170	-1,7780	2,9277	0,8281	-5,5302	-13,8000
24	-20,7291	-24,5272	-21,8635	-13,2607	-3,9710	4,6925	9,7294	6,4762	-2,0749	-12,6525
25	-21,5721	-25,1811	-21,0235	-10,2519	0,9070	10,5156	15,1631	10,3909	-0,2064	-12,5690
26	-22,3765	-25,1541	-19,3115	-6,7595	5,5532	15,3187	18,9674	12,5360	0,2597	-13,2465
27	-22,5826	-24,0492	-16,5870	-2,8244	9,8656	19,0515	21,2640	13,2760	-0,1472	-14,0912
28	-21,3190	-21,2159	-12,4273	1,8579	14,1495	22,1310	22,6935	13,4628	-0,4684	-14,1343
29	-18,0970	-16,4113	-6,7603	7,3059	18,4848	24,8085	23,7487	13,7431	-0,0089	-12,7249
30	-12,9310	-9,8682	0,0724	13,1876	22,6630	27,0979	24,6521	14,4329	1,5381	-9,6550
31	-6,8031	-2,7311	6,8804	18,3863	25,7514	28,3048	24,8591	15,0220	3,5957	-5,6561
32	-0,1774	4,4336	13,1143	22,4908	27,5745	28,4581	24,4869	15,6034	6,1323	-0,9616
33	6,6427	11,2816	18,5106	25,4400	28,3208	27,8924	23,8975	16,4565	9,2440	4,3090
34	12,3587	16,5354	21,9361	26,3580	27,3277	26,0305	22,4806	16,8313	11,9518	8,9862
35	16,6172	19,9249	23,3301	25,4552	24,9600	23,2624	20,5344	16,8288	14,1182	12,7849
36	19,3778	21,5564	23,0631	23,3369	21,9166	20,2531	18,5731	16,7198	15,8043	15,6685
37	19,5588	20,5586	20,5432	19,5863	17,8141	16,5264	15,9120	15,5661	15,9122	16,4879
38	15,7388	15,7739	14,8573	13,4042	11,8259	11,1053	11,3191	11,9149	12,8802	13,6787
39	8,6202	8,2060	7,2147	6,0577	5,1231	4,9342	5,4539	6,2398	7,1181	7,7017
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

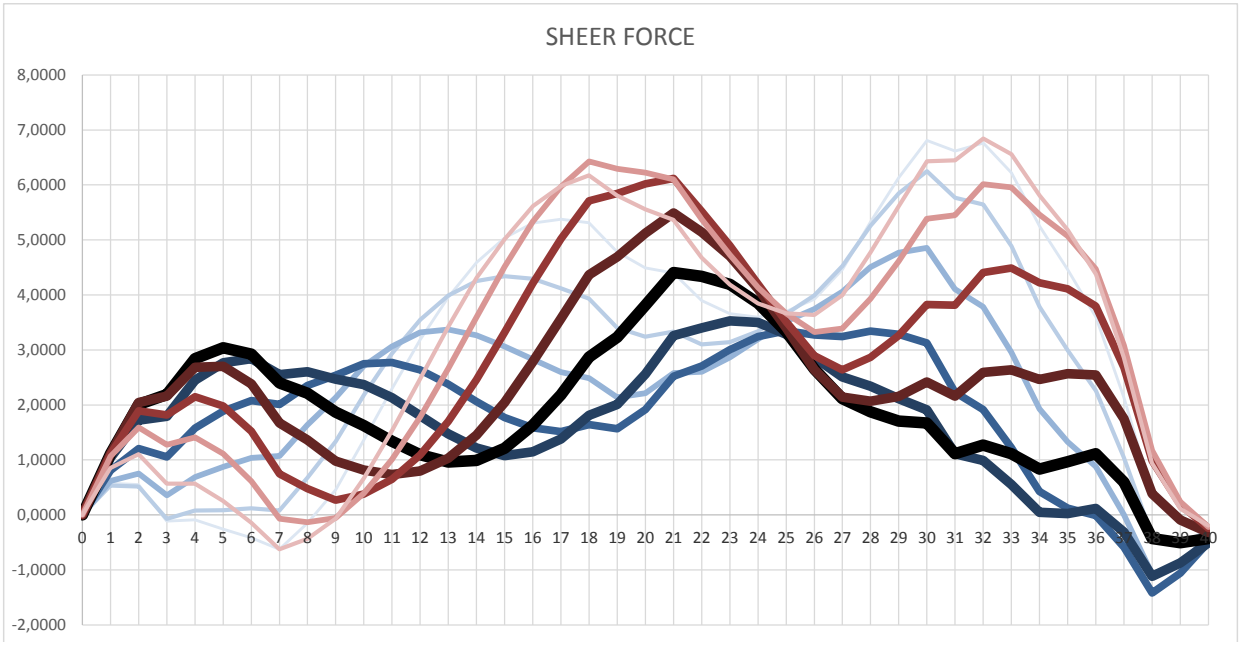


1,25



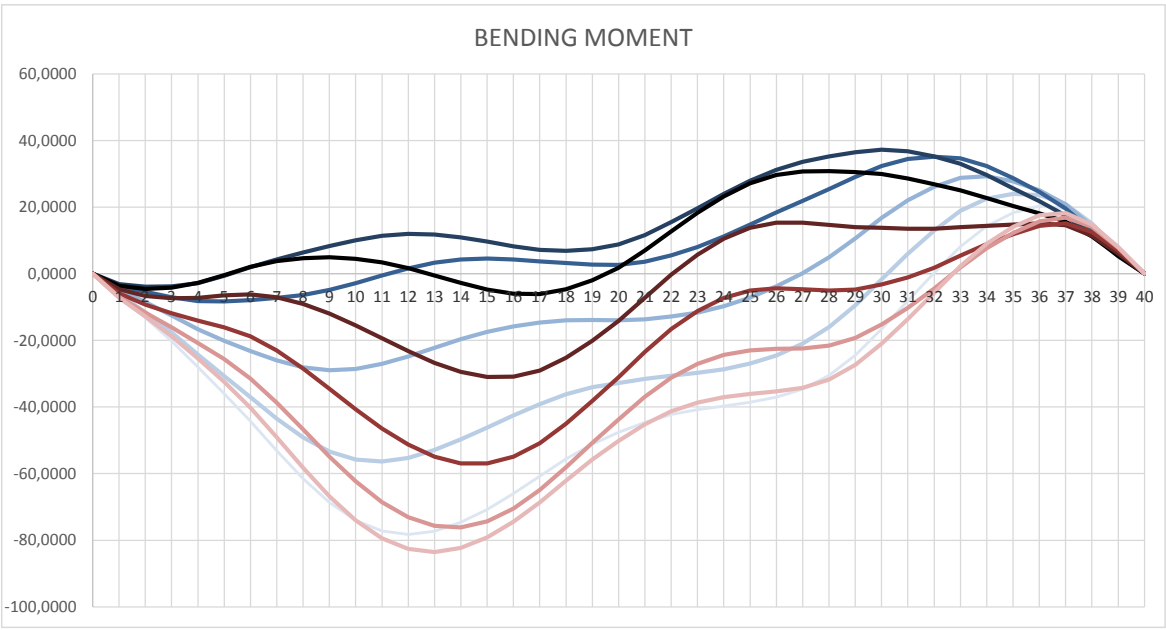
Sheer Force 1,25

STATION	PERIODE									
	0,50	1,01	1,51	2,01	2,51	3,02	3,52	4,02	4,52	5,03
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,5779	0,5356	0,6203	0,8105	1,0408	1,1113	1,1113	1,1113	1,0670	0,8520
2	0,5523	0,5143	0,7544	1,2085	1,7262	2,0074	2,0427	1,8915	1,5914	1,1033
3	-0,1102	-0,0688	0,3557	1,0536	1,7958	2,1896	2,1605	1,8197	1,2767	0,5701
4	-0,0880	0,0822	0,6897	1,5789	2,4515	2,8419	2,6830	2,1499	1,4105	0,5716
5	-0,2546	0,0887	0,8726	1,8872	2,7679	3,0425	2,7004	1,9830	1,1116	0,2541
6	-0,4126	0,1182	1,0403	2,0812	2,8411	2,9233	2,3807	1,5213	0,6152	-0,1397
7	-0,6221	0,0808	1,0703	2,0107	2,5487	2,3976	1,6734	0,7478	-0,0695	-0,6263
8	-0,1472	0,6817	1,6354	2,3532	2,6041	2,2140	1,3620	0,4788	-0,1327	-0,4294
9	0,4614	1,3385	2,1324	2,5379	2,4725	1,8729	0,9814	0,2674	-0,0550	-0,0631
10	1,3659	2,1827	2,7083	2,7474	2,3724	1,6273	0,8166	0,3795	0,3936	0,6696
11	2,2989	2,9370	3,0606	2,7735	2,1316	1,3391	0,7376	0,6473	1,0103	1,5326
12	3,1860	3,5503	3,3182	2,6363	1,8061	1,0931	0,7989	1,0886	1,7779	2,4756
13	3,9637	3,9921	3,3695	2,3773	1,4738	0,9610	1,0335	1,7002	2,6590	3,4282
14	4,5889	4,2529	3,2695	2,0605	1,2194	0,9922	1,4529	2,4580	3,5952	4,3134
15	5,0382	4,3435	3,0660	1,7696	1,0774	1,2138	2,0469	3,3167	4,5101	5,0188
16	5,3083	4,2958	2,8278	1,5832	1,1490	1,6308	2,7837	4,2107	5,3316	5,6133
17	5,3746	4,1205	2,5972	1,5157	1,3817	2,1835	3,5678	5,0175	5,9668	5,9841
18	5,3159	3,9323	2,4859	1,6419	1,8130	2,8737	4,3666	5,7120	6,4268	6,1759
19	4,7841	3,4061	2,1370	1,5678	2,0111	3,2339	4,6934	5,8436	6,2964	5,8077
20	4,4907	3,2382	2,2113	1,9180	2,5617	3,8166	5,1216	6,0230	6,2222	5,5590
21	4,3999	3,3357	2,5799	2,5220	3,2599	4,4104	5,4929	6,1192	6,1034	5,3626
22	3,8982	3,0987	2,6060	2,7056	3,4002	4,3405	5,1422	5,5224	5,3742	4,6791
23	3,6594	3,1420	2,8665	3,0068	3,5288	4,1904	4,7054	4,8946	4,7253	4,1914
24	3,5967	3,3424	3,2000	3,2429	3,4984	3,8504	4,1095	4,1984	4,1352	3,8456
25	3,7002	3,6538	3,5237	3,3504	3,2833	3,3311	3,4017	3,5112	3,6612	3,6653
26	3,9246	3,9937	3,7456	3,2740	2,8655	2,6511	2,6363	2,8920	3,3252	3,6391
27	4,4653	4,5262	4,0568	3,2421	2,5109	2,1123	2,1429	2,6389	3,3897	3,9957
28	5,3308	5,2635	4,5051	3,3405	2,3427	1,8732	2,0705	2,8632	3,9305	4,7778
29	6,1311	5,8468	4,7681	3,2848	2,1146	1,7058	2,1538	3,2627	4,6105	5,6149
30	6,8067	6,2512	4,8576	3,1260	1,9125	1,6740	2,4179	3,8261	5,3837	6,4299
31	6,6140	5,7688	4,1032	2,2329	1,1106	1,1142	2,1605	3,8163	5,4522	6,4477
32	6,7615	5,6439	3,7875	1,9191	0,9914	1,2714	2,5907	4,4059	6,0172	6,8438
33	6,2219	4,8856	2,9586	1,2249	0,5572	1,1111	2,6366	4,4901	5,9576	6,5576
34	5,2477	3,7839	1,9274	0,4264	0,0468	0,8352	2,4643	4,2197	5,4588	5,8076
35	4,4590	2,9887	1,3308	0,1233	0,0220	0,9696	2,5675	4,1112	5,0731	5,1803
36	3,5931	2,2572	0,8798	-0,0111	0,1184	1,1141	2,5426	3,7987	4,4700	4,3780
37	2,1405	1,0475	0,0022	-0,5876	-0,3127	0,5931	1,7468	2,6763	3,0784	2,8632
38	0,4020	-0,3739	-1,0724	-1,4212	-1,1174	-0,4284	0,3836	0,9837	1,1728	0,9425
39	-0,1426	-0,5371	-0,8846	-1,0602	-0,8709	-0,5046	-0,0896	0,1891	0,2394	0,1136
40	-0,1904	-0,2839	-0,3984	-0,4953	-0,5059	-0,4273	-0,3173	-0,2433	-0,2183	-0,1949



Bending Moment 1,25

STATION	PERIODE									
	0,50	1,01	1,51	2,01	2,51	3,02	3,52	4,02	4,52	5,03
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-7,0331	-6,1591	-4,8012	-3,5674	-3,1514	-3,6395	-4,7098	-5,9580	-6,9355	-7,2127
2	-13,2275	-11,5379	-8,5101	-5,4425	-3,9222	-4,5417	-6,6403	-9,3166	-11,6425	-12,8451
3	-20,2404	-17,6357	-12,5337	-7,0283	-3,7950	-4,1612	-7,3227	-11,8326	-16,0999	-18,8127
4	-28,0148	-24,2474	-16,6341	-8,1735	-2,8050	-2,7882	-7,2436	-14,0411	-20,7726	-25,4128
5	-35,9610	-30,6718	-20,1197	-8,3272	-0,6587	-0,4006	-6,5223	-16,0553	-25,6417	-32,3888
6	-44,2933	-37,0534	-23,1883	-7,8833	1,9510	2,0838	-6,1606	-18,8174	-31,4569	-40,2109
7	-53,0629	-43,4444	-26,0218	-7,2926	4,3000	3,8011	-7,0205	-23,0486	-38,6770	-49,0801
8	-61,5167	-49,1650	-28,1475	-6,3783	6,3670	4,6748	-9,0921	-28,5200	-46,7868	-58,2941
9	-68,6816	-53,3897	-29,0098	-4,8371	8,3435	4,9243	-11,9868	-34,5628	-54,8793	-66,8381
10	-74,0469	-55,8290	-28,5958	-2,8269	10,0443	4,4758	-15,5303	-40,7238	-62,3458	-74,0748
11	-77,2264	-56,3667	-27,0776	-0,5364	11,3396	3,3924	-19,3636	-46,4329	-68,5451	-79,4134
12	-78,2408	-55,2777	-24,8340	1,6220	11,9613	1,6737	-23,2181	-51,2984	-73,0977	-82,6039
13	-77,2750	-52,9337	-22,2230	3,3090	11,8006	-0,4949	-26,7207	-54,9115	-75,6893	-83,5395
14	-74,6404	-49,7540	-19,6699	4,3111	10,9421	-2,7835	-29,4453	-56,8957	-76,1191	-82,2890
15	-70,7277	-46,1564	-17,4779	4,5904	9,6120	-4,7714	-30,9645	-56,9571	-74,3470	-79,1466
16	-65,9593	-42,5077	-15,8113	4,3021	8,1982	-5,9996	-30,9008	-54,9336	-70,5095	-74,4580
17	-60,7907	-39,1242	-14,7024	3,7116	7,1463	-6,0744	-29,0278	-50,8870	-64,9391	-68,6210
18	-55,6131	-36,1732	-14,0000	3,1910	6,8844	-4,6708	-25,2720	-45,0547	-58,0661	-62,1148
19	-51,1378	-34,0719	-13,8451	2,7324	7,3710	-2,0177	-20,1774	-38,2398	-50,8010	-55,8185
20	-47,6442	-32,7963	-14,0168	2,6022	8,7482	1,7569	-14,1847	-31,0549	-43,7793	-50,2561
21	-44,6076	-31,6045	-13,6617	3,6070	11,6108	6,9311	-7,2410	-23,5421	-36,9871	-45,2230
22	-42,2757	-30,5785	-12,8371	5,5487	15,4707	12,7284	-0,2727	-16,6248	-31,2037	-41,2366
23	-40,8247	-29,7831	-11,6716	8,0669	19,6505	18,2640	5,7588	-11,1642	-27,0594	-38,6433
24	-39,7322	-28,6977	-9,7995	11,2242	23,9472	23,2167	10,5620	-7,2785	-24,3890	-37,0415
25	-38,5914	-27,0035	-7,1456	14,7903	27,9520	27,1472	13,8143	-5,0383	-22,9844	-36,0654
26	-37,0604	-24,5345	-3,8428	18,3933	31,2038	29,6512	15,3143	-4,3521	-22,5432	-35,3350
27	-34,6194	-21,0277	0,0942	21,8676	33,5369	30,7053	15,3170	-4,7035	-22,4250	-34,2116
28	-30,5056	-16,0106	4,9347	25,4210	35,2482	30,8341	14,6466	-5,0891	-21,5868	-31,7336
29	-24,4104	-9,4228	10,6212	29,0252	36,4881	30,4795	13,9892	-4,7327	-19,2964	-27,3297
30	-16,5596	-1,6599	16,7269	32,3743	37,2163	29,8879	13,7450	-3,2310	-15,2775	-20,9606
31	-8,1344	6,0102	22,0417	34,4720	36,7501	28,5926	13,5088	-1,0708	-10,2573	-13,6008
32	0,2371	12,9578	26,0836	35,1342	35,1883	26,8185	13,4782	1,7791	-4,4837	-5,7488
33	8,1421	18,8550	28,7641	34,5975	32,9682	25,0406	14,0138	5,4305	1,8912	2,2340
34	14,2464	22,5396	29,2320	32,2851	29,6245	22,7439	14,3991	8,8604	7,6019	8,9842
35	18,2538	23,9678	27,7636	28,6623	25,6443	20,2788	14,7022	11,8396	12,2604	14,0960
36	20,2930	23,5800	25,0491	24,5191	21,7492	18,1454	15,0984	14,3181	15,7427	17,5074
37	19,5744	20,8833	20,7542	19,5303	17,4560	15,5641	14,5185	15,0898	16,8524	18,1626
38	15,0599	15,0568	14,1371	12,8643	11,6927	11,1481	11,3703	12,5131	14,0401	14,7313
39	7,8298	7,3453	6,4654	5,6361	5,2654	5,4264	6,0378	6,9778	7,8507	8,0293
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000



1/4 AP

KURUN WAKTU PENDEK

				Tp	ωp
Hs	0,500000000	m		3,5	1,7952

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	0	0	0	0	0	0	0	0	0	0
0,35	0,000000000	4	2,4928	48,0192	6,21408549	2305,84451	0	0	0	0	0	0	0	0	0	0
0,45	0,000000000	2	3,8991	72,5943	15,2028453	5269,93871	1,6E-135	5,4E-133	3,1322E-135	1,0858E-132	1,4095E-135	4,8859E-133	6,3428E-136	2,1987E-133	1,2844E-136	4,4523E-134
0,55	0,000000000	4	5,9677	97,4961	35,6129546	9505,49038	1,02E-59	2,73E-57	4,09615E-59	1,09331E-56	2,25288E-59	6,01319E-57	1,23909E-59	3,30726E-57	3,74823E-60	1,00045E-57
0,65	0,000000000	2	7,6849	123,7498	59,0583094	15314,0254	7,9E-30	2,05E-27	1,57994E-29	4,09684E-27	1,02696E-29	2,66294E-27	6,67524E-30	1,73091E-27	2,82029E-30	7,31311E-28
0,75	0,000000000	4	8,6344	127,8363	74,5523142	16342,1126	2,85E-16	6,24E-14	1,13823E-15	2,49503E-13	8,53669E-16	1,87127E-13	6,40252E-16	1,40345E-13	3,60142E-16	7,89442E-14
0,85	0,000000000	2	7,6516	118,9455	58,5470458	14148,0349	1,25E-09	3,01E-07	2,49468E-09	6,02844E-07	2,12047E-09	5,12418E-07	1,8024E-09	4,35555E-07	1,30224E-09	3,14689E-07
0,95	0,000000092	4	5,2187	90,4032	27,2344914	8172,73863	2,52E-06	0,000755	1,00686E-05	0,003021478	9,56521E-06	0,002870404	9,08695E-06	0,002726884	8,20098E-06	0,002461013
1,05	0,000010769	2	3,3191	65,7881	11,0167558	4328,07524	0,000119	0,046607	0,000237271	0,093214821	0,000249134	0,097875562	0,000261591	0,10276934	0,000288404	0,113303197
1,15	0,000177639	4	3,5844	69,5650	12,8476424	4839,29109	0,002282	0,859644	0,009128944	3,438577741	0,010498286	3,954364403	0,012073028	4,547519063	0,01596658	6,014093961
1,25	0,000961106	1	2,7474	74,0748	7,5481137	5487,07199	0,007255	5,273659	0,00725454	5,27365948	0,009068175	6,59207435	0,011335218	8,240092938	0,017711278	12,87514522
		Σ =							0,016630825	8,808474124	0,019825162	10,64718523	0,023678926	12,89310866	0,033974465	19,0050037
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	0,00055
m_0 BM=	0,29362
m_1 SF =	0,00066
m_1 BM=	0,35491
m_2 SF =	0,00079
m_2 BM=	0,42977
m_4 SF =	0,00113
m_4 BM=	0,63350
SF Ext =	0,18390
BM Ext =	4,23622

				Tp	ωp
Hs	1,000000000	m		4,5	1,39626667

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	0	0	0	0	0	0	0	0	0	0
0,35	0,000000000	4	2,4928	48,0192	6,21408549	2305,84451	3,3E-135	1,2E-132	1,3169E-134	4,8865E-132	4,609E-135	1,7103E-132	1,6132E-135	5,9859E-133	1,9761E-136	7,3327E-134
0,45	0,000000000	2	3,8991	72,5943	15,2028453	5269,93871	3,47E-48	1,2E-45	6,94623E-48	2,40785E-45	3,1258E-48	1,08353E-45	1,40661E-48	4,8759E-46	2,84839E-49	9,8737E-47
0,55	0,000000000	4	5,9677	97,4961	35,6129546	9505,49038	1,75E-20	4,68E-18	7,00796E-20	1,8705E-17	3,85438E-20	1,02878E-17	2,11991E-20	5,65827E-18	6,41272E-21	1,71163E-18
0,65	0,000000000	2	7,6849	123,7498	59,0583094	15314,0254	1,23E-09	3,19E-07	2,46097E-09	6,38138E-07	1,59963E-09	4,1479E-07	1,03976E-09	2,69613E-07	4,39299E-10	1,13912E-07
0,75	0,000001111	4	8,6344	127,8363	74,5523142	16342,1126	8,28E-05	0,018158	0,000331354	0,072633829	0,000248515	0,054475372	0,000186386	0,040856529	0,000104842	0,022981797
0,85	0,000220002	2	7,6516	118,9455	58,5470458	14148,0349	0,01288	3,112598	0,025760947	6,225195006	0,021896805	5,291415755	0,018612284	4,497703392	0,013447375	3,249590701
0,95	0,003314183	4	5,2187	90,4032	27,2344914	8172,73863	0,09026	27,08595	0,361040356	108,3438062	0,342988338	102,9266159	0,325838921	97,78028512	0,294069626	88,24670732
1,05	0,013788102	2	3,3191	65,7881	11,0167558	4328,07524	0,1519	59,67594	0,303800309	119,3518872	0,318990324	125,3194815	0,334939841	131,5854556	0,369271174	145,0729648
1,15	0,029898278	4	3,5844	69,5650	12,8476424	4839,29109	0,384122	144,6865	1,536489562	578,7458895	1,766962996	665,5577729	2,032007445	765,3914388	2,687329846	1012,230178
1,25	0,000961106	1	2,7474	74,0748	7,5481137	5487,07199	0,007255	5,273659	0,00725454	5,27365948	0,009068175	6,59207435	0,011335218	8,240092938	0,017711278	12,87514522
		Σ =							2,234677069	818,0130718	2,460155154	905,7418362	2,722920097	1007,535833	3,381934143	1261,697568
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	0,07449
m_0 BM=	27,26710
m_1 SF =	0,08201
m_1 BM=	30,19139
m_2 SF =	0,09076
m_2 BM=	33,58453
m_4 SF =	0,11273
m_4 BM=	42,05659
SF Ext =	2,12087
BM Ext =	40,59213

				Tp	ωp
Hs	1,500000000	m		5,5	1,1424

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	9,3E-234	3,4E-231	9,3E-234	3,3971E-231	2,325E-234	8,4928E-232	5,8125E-235	2,1232E-232	3,6328E-236	1,327E-233
0,35	0,000000000	4	2,4928	48,0192	6,21408549	2305,84451	2,53E-59	9,38E-57	1,01084E-58	3,7509E-56	3,53794E-59	1,31281E-56	1,23828E-59	4,59485E-57	1,51689E-60	5,62869E-58
0,45	0,000000000	2	3,8991	72,5943	15,2028453	5269,93871	2,06E-20	7,13E-18	4,1135E-20	1,42591E-17	1,85107E-20	6,41659E-18	8,32983E-21	2,88747E-18	1,68679E-21	5,84712E-19
0,55	0,000000001	4	5,9677	97,4961	35,6129546	9505,49038	4,91E-08	1,31E-05	1,96384E-07	5,24171E-05	1,08011E-07	2,88294E-05	5,94062E-08	1,58562E-05	1,79704E-08	4,79649E-06
0,65	0,000050282	2	7,6849	123,7498	59,0583094	15314,0254	0,00297	0,770019	0,005939137	1,540038912	0,003860439	1,001025293	0,002509285	0,65066644	0,001060173	0,274906571
0,75	0,004448379	4	8,6344	127,8363	74,5523142	16342,1126	0,331637	72,69592	1,326547891	290,7836638	0,994910918	218,0877479	0,746183189	163,5658109	0,419728044	92,00576864
0,85	0,033720414	2	7,6516	118,9455	58,5470458	14148,0349	1,974231	477,0776	3,94846128	954,1551964	3,356192088	811,0319169	2,852763275	689,3771294	2,061121466	498,074976
0,95	0,087900019	4	5,2187	90,4032	27,2344914	8172,73863	2,393912	718,3839	9,575649265	2873,535527	9,096866802	2729,85875	8,642023462	2593,365813	7,799426174	2340,512646
1,05	0,191989059	2	3,3191	65,7881	11,0167558	4328,07524	2,115097	830,9431	4,230193152	1661,886183	4,441702809	1744,980492	4,66378795	1832,229516	5,141826214	2020,033042
1,15	0,323434140	4	3,5844	69,5650	12,8476424	4839,29109	4,155366	1565,192	16,62146473	6260,767812	19,11468444	7199,882983	21,98188711	8279,865431	29,0710457	10950,12203
1,25	0,175168034	1	2,7474	74,0748	7,5481137	5487,07199	1,322188	961,1596	1,32218824	961,1596154	1,6527353	1201,449519	2,065919125	1501,811899	3,227998633	2346,581092
		Σ =							37,03044389	13003,82809	38,66095291	13906,29246	40,95507345	15060,86628	47,72220642	18247,60447
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	1,23435
m_0 BM=	433,46094
m_1 SF =	1,28870
m_1 BM=	463,54308
m_2 SF =	1,36517
m_2 BM=	502,02888
m_4 SF =	1,59074
m_4 BM=	608,25348
SF Ext =	8,605742895
BM Ext =	161,5143733

1/4 AP

KURUN WAKTU PENDEK

Hs	2,000000000	m			Tp	ωp										
					7,5	0,83776										
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	8,48E-66	3,1E-63	8,47563E-66	3,09598E-63	2,11891E-66	7,73994E-64	5,29727E-67	1,93499E-64	3,31079E-68	1,20937E-65
0,35	0,000000000	4	2,4928	48,0192	6,21408549	2305,84451	8,13E-16	3,02E-13	3,2528E-15	1,20701E-12	1,13848E-15	4,22453E-13	3,98468E-16	1,47859E-13	4,88124E-17	1,81127E-14
0,45	0,000007408	2	3,8991	72,5943	15,2028453	5269,93871	0,000113	0,039038	0,000225234	0,078075549	0,000101355	0,035133997	4,56099E-05	0,015810299	9,23601E-06	0,003201585
0,55	0,010783950	4	5,9677	97,4961	35,6129546	9505,49038	0,384048	102,5067	1,536193271	410,0269271	0,844906299	225,5148099	0,464698465	124,0331455	0,140571286	37,5200265
0,65	0,124923027	2	7,6849	123,7498	59,0583094	15314,0254	7,377743	1913,074	14,75548557	3826,148811	9,59106562	2486,996727	6,234192653	1616,547873	2,633946396	682,9914762
0,75	0,368379840	4	8,6344	127,8363	74,5523142	16342,1126	27,46357	6020,105	109,8542784	24080,41939	82,39070879	18060,31454	61,79303159	13545,2359	34,75858027	7619,195196
0,85	0,770679448	2	7,6516	118,9455	58,5470458	14148,0349	45,121	10903,6	90,24200991	21807,19946	76,70570843	18536,11954	65,19985216	15755,70161	47,10689319	11383,49441
0,95	0,318918601	4	5,2187	90,4032	27,2344914	8172,73863	8,685586	2606,438	34,74234362	10425,75348	33,00522644	9904,465808	31,35496511	9409,242518	28,29785602	8491,841372
1,05	0,214534474	2	3,3191	65,7881	11,0167558	4328,07524	2,363474	928,5213	4,72694782	1857,04269	4,963295211	1949,894824	5,211459971	2047,389565	5,745634618	2257,246996
1,15	0,158668494	4	3,5844	69,5650	12,8476424	4839,29109	2,038516	767,843	8,154064288	3071,372111	9,377173931	3532,077928	10,78375002	4061,889617	14,2615094	5371,849019
1,25	0,115555461	1	2,7474	74,0748	7,5481137	5487,07199	0,872226	634,0611	0,872225758	634,0611336	1,090282198	792,576417	1,362852747	990,7205212	2,129457417	1548,000814
		Σ =							264,8837739	66112,10207	217,9684683	55487,99573	182,4048483	47550,77656	135,0744578	37392,14251
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	8,82946
m_0 BM=	2203,73674
m_1 SF =	7,26562
m_1 BM=	1849,59986
m_2 SF =	6,08016
m_2 BM=	1585,02589
m_4 SF =	4,50248
m_4 BM=	1246,40475
SF Ext =	22,64993
BM Ext =	358,36786

Hs	2,500000000	m			Tp	ωp										
					8,5	0,7392										
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	7,36E-39	2,69E-36	7,36313E-39	2,6896E-36	1,84078E-39	6,72401E-37	4,60196E-40	1,681E-37	2,87622E-41	1,05063E-38
0,35	0,000000001	4	2,4928	48,0192	6,21408549	2305,84451	8,04E-09	2,98E-06	3,21519E-08	1,19305E-05	1,12532E-08	4,17569E-06	3,93861E-09	1,46149E-06	4,8248E-10	1,79033E-07
0,45	0,002597247	2	3,8991	72,5943	15,2028453	5269,93871	0,039486	13,68733	0,078971092	27,37466615	0,035536991	12,31859977	0,015991646	5,543369896	0,003238308	1,122532404
0,55	0,144759354	4	5,9677	97,4961	35,6129546	9505,49038	5,155308	1376,009	20,62123327	5504,034596	11,3416783	3027,219028	6,237923063	1664,970465	1,886971727	503,6535657
0,65	0,563304631	2	7,6849	123,7498	59,0583094	15314,0254	33,26782	8626,461	66,53563839	17252,92282	43,24816495	11214,39983	28,11130722	7289,359892	11,8770273	3079,754554
0,75	1,364744856	4	8,6344	127,8363	74,5523142	16342,1126	101,7449	22302,81	406,9795489	89211,25662	305,2346617	66908,44246	228,9259963	50181,33185	128,7708729	28226,99916
0,85	0,519822186	2	7,6516	118,9455	58,5470458	14148,0349	30,43405	7354,462	60,86810664	14708,92485	51,73789065	12502,58612	43,97720705	10627,1982	31,77353209	7678,150703
0,95	0,351352713	4	5,2187	90,4032	27,2344914	8172,73863	9,568912	2871,514	38,27564982	11486,05557	36,36186733	10911,75279	34,54377396	10366,16515	31,175756	9355,46405
1,05	0,247722707	2	3,3191	65,7881	11,0167558	4328,07524	2,729101	1072,163	5,458201138	2144,325029	5,731111195	2251,541281	6,017666755	2364,118345	6,634477597	2606,440475
1,15	0,172622797	4	3,5844	69,5650	12,8476424	4839,29109	2,217796	835,372	8,871183857	3341,487843	10,20186144	3842,71102	11,73214065	4419,117673	15,51575601	5844,283122
1,25	0,120870370	1	2,7474	74,0748	7,5481137	5487,07199	0,912343	663,2244	0,912343299	663,2244246	1,140429124	829,0305308	1,425536405	1036,288163	2,227400633	1619,200255
		Σ =							608,6008765	144339,6064	465,0332017	111500,0017	360,987543	87954,09311	229,8650326	58915,06842
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	20,28670
m_0 BM=	4811,32021
m_1 SF =	15,50111
m_1 BM=	3716,66672
m_2 SF =	12,03292
m_2 BM=	2931,80310
m_4 SF =	7,66217
m_4 BM=	1963,83561
SF Ext =	34,15565
BM Ext =	526,49712

Hs	3,000000000	m			Tp	ωp										
					9,5	0,66138947										
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	5,41E-24	1,98E-21	5,40932E-24	1,97592E-21	1,35233E-24	4,93979E-22	3,38083E-25	1,23495E-22	2,11302E-26	7,71843E-24
0,35	0,000009031	4	2,4928	48,0192	6,21408549	2305,84451	5,61E-05	0,020825	0,000224485	0,083299028	7,85697E-05	0,02915466	2,74994E-05	0,010204131	3,36868E-06	0,001250006
0,45	0,062969477	2	3,8991	72,5943	15,2028453	5269,93871	0,957315	331,8453	1,914630449	663,6905719	0,861583702	298,6607574	0,387712666	134,3973408	0,078511815	27,21546152
0,55	0,607309223	4	5,9677	97,4961	35,6129546	9505,49038	21,62808	5772,772	86,51230325	23091,0879	47,58176679	12700,09835	26,16997173	6985,054091	7,916416449	2112,978863
0,65	2,177642469	2	7,6849	123,7498	59,0583094	15314,0254	128,6079	33348,47	257,2157653	66696,944	167,1902474	43353,0136	108,6736608	28179,45884	45,91462171	11905,82136
0,75	0,908918013	4	8,6344	127,8363	74,5523142	16342,1126	67,76194	14853,64	271,047765	59414,56219	203,2858238	44560,92165	152,4643678	33420,69123	85,76120691	18799,13882
0,85	0,565471190	2	7,6516	118,9455	58,5470458	14148,0349	33,10667	8000,306	66,21333539	16000,61228	56,28133508	13600,52043	47,83913482	11560,44237	34,56377491	8352,419612
0,95	0,382164805	4	5,2187	90,4032	27,2344914	8172,73863	10,40806	3123,333	41,63225645	12493,33227	39,55064362	11868,66566	37,57311144	11275,23237	33,90973308	10175,89722
1,05	0,255268044	2	3,3191	65,7881	11,0167558	4328,07524	2,812226	1104,819	5,624451408	2209,638601	5,905673978	2320,120532	6,200957677	2436,126558	6,836555839	2685,82953
1,15	0,171997383	4	3,5844	69,5650	12,8476424	4839,29109	2,209761	832,3454	8,839043511	3329,381615	10,16490004	3828,788858	11,68963504	4403,107186	15,45954234	5823,109254
1,25	0,117843362	1	2,7474	74,0748	7,5481137	5487,07199	0,889495	646,615	0,889495099	646,6150137	1,111868873	808,2687671	1,389836092	1010,335959	2,171618893	1578,649936
		Σ =							739,8892704	184545,9477	531,9339219	133339,0877	392,3884156	99404,85615	232,6119853	61461,0613
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	24,66298
m_0 BM=	6151,53159
m_1 SF =	17,73113
m_1 BM=	4444,63626
m_2 SF =	13,07961
m_2 BM=	3313,49521
m_4 SF =	7,75373
m_4 BM=	2048,70204
SF Ext =	37,51306
BM Ext =	592,77238

Midship

KURUN WAKTU PENDEK

Hs	0,5	m		Tp	ωp													m_0 SF =	0,00229
				3,5	1,7952													m_0 BM=	0,10021
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	0,00275
(rad/s)	(m^2/rad/s)																	m_1 BM=	0,12297
0,25	0,00	1	4,7853	35,2344	22,8986979	1241,46461	0	0	0	0	0	0	0	0	0	0		m_2 SF =	0,00331
0,35	0,00	4	5,7662	30,5669	33,2489682	934,333747	0	0	0	0	0	0	0	0	0	0		m_2 BM=	0,15116
0,45	0,00	2	8,0862	45,7012	65,3867934	2088,59701	6,7E-135	2,2E-133	1,3472E-134	4,3031E-133	6,0622E-135	1,9364E-133	2,728E-135	8,7138E-134	5,5242E-136	1,7646E-134		m_4 SF =	0,00484
0,55	0,00	4	11,6246	56,7347	135,132062	3218,83021	3,89E-59	9,26E-58	1,55427E-58	3,70225E-57	8,54848E-59	2,03624E-57	4,70167E-59	1,11993E-57	1,42225E-59	3,38779E-58		m_4 BM=	0,22938
0,65	0,00	2	14,8250	84,9287	219,781095	7212,8884	2,94E-29	9,65E-28	5,87962E-29	1,92961E-27	3,82176E-29	1,25424E-27	2,48414E-29	8,15258E-28	1,04955E-29	3,44447E-28			
0,75	0,00	4	15,8478	109,9094	251,154232	12080,0692	9,59E-16	4,61E-14	3,83449E-15	1,84432E-13	2,87587E-15	1,38324E-13	2,1569E-15	1,03743E-13	1,21326E-15	5,83555E-14		SF Ext =	0,37382
0,85	0,00	2	13,9384	123,4643	194,278995	15243,4436	4,14E-09	3,25E-07	8,27818E-09	6,4952E-07	7,03646E-09	5,52092E-07	5,98099E-09	4,69278E-07	4,32126E-09	3,39053E-07		BM Ext =	2,47731
0,95	0,00	4	9,4668	109,0780	89,6196154	11898,0094	8,28E-06	0,0011	3,31326E-05	0,004398718	3,14759E-05	0,004178782	2,99021E-05	0,003969843	2,69867E-05	0,003582784			
1,05	0,00	2	7,3524	68,2424	54,0578937	4657,02524	0,000582	0,05015	0,001164258	0,100299498	0,001222471	0,105314473	0,001283595	0,110580197	0,001415163	0,121914667			
1,15	0,00	4	6,5225	25,8358	42,5427975	667,488433	0,007557	0,118572	0,030228956	0,47428659	0,034763299	0,545429579	0,039977794	0,627244015	0,052870633	0,82953021			
1,25	0,00	1	6,2222	50,2561	38,7158697	2525,67118	0,03721	2,427438	0,037210066	2,427438495	0,046512583	3,034298118	0,058140729	3,792872648	0,090844889	5,926363512			
		Σ =							0,068636421	3,00642395	0,082529836	3,689221504	0,099432026	4,534667172	0,145157675	6,881391512			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Hs	1	m		Tp	ωp													m_0 SF =	0,26301
				4,5	1,39626667													m_0 BM=	12,50557
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	0,28883
(rad/s)	(m^2/rad/s)																	m_1 BM=	12,84211
0,25	0,00	1	4,7853	35,2344	22,8986979	1241,46461	0	0	0	0	0	0	0	0	0	0		m_2 SF =	0,31883
0,35	0,00	4	5,7662	30,5669	33,2489682	934,333747	1,8E-134	5E-133	7,046E-134	1,98E-132	2,4661E-134	6,93E-133	8,6313E-135	2,4255E-133	1,0573E-135	2,9712E-134		m_2 BM=	13,27256
0,45	0,00	2	8,0862	45,7012	65,3867934	2088,59701	1,49E-47	4,77E-46	2,98754E-47	9,54287E-46	1,34439E-47	4,29429E-46	6,04977E-48	1,93243E-46	1,22508E-48	3,91317E-47		m_4 SF =	0,39380
0,55	0,00	4	11,6246	56,7347	135,132062	3218,83021	6,65E-20	1,58E-18	2,65915E-19	6,33405E-18	1,46253E-19	3,48373E-18	8,04391E-20	1,91605E-18	2,43328E-20	5,79605E-19		m_4 BM=	14,45442
0,65	0,00	2	14,8250	84,9287	219,781095	7212,8884	4,58E-09	1,5E-07	9,15832E-09	3,00562E-07	5,95291E-09	1,95366E-07	3,86939E-09	1,26988E-07	1,63482E-09	5,36523E-08			
0,75	0,00	4	15,8478	109,9094	251,154232	12080,0692	0,000279	0,013423	0,001116275	0,053690835	0,000837206	0,040268126	0,000627905	0,030201095	0,000353196	0,016988116		SF Ext =	3,98458
0,85	0,00	2	13,9384	123,4643	194,278995	15243,4436	0,042742	3,35359	0,085483577	6,707179442	0,07266104	5,701102526	0,061761884	4,845937147	0,044622961	3,501189589		BM Ext =	27,35419
0,95	0,00	4	9,4668	109,0780	89,6196154	11898,0094	0,297016	39,43218	1,188063228	157,7287231	1,128660067	149,8422869	1,072227064	142,3501726	0,967684925	128,4710307			
1,05	0,01	2	7,3524	68,2424	54,0578937	4657,02524	0,745356	64,21154	1,49071152	128,4230795	1,565247096	134,8442335	1,643509451	141,5864452	1,81196917	156,0990558			
1,15	0,03	4	6,5225	25,8358	42,5427975	667,488433	1,271956	19,95676	5,087825622	79,82702009	5,850999465	91,8010731	6,728649385	105,5712341	8,898638811	139,617957			
1,25	0,00	1	6,2222	50,2561	38,7158697	2525,67118	0,03721	2,427438	0,037210066	2,427438495	0,046512583	3,034298118	0,058140729	3,792872648	0,090844889	5,926363512			
		Σ =							7,890410298	375,1671317	8,664917464	385,2632625	9,564916421	398,1768628	11,81411395	433,6325848			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Hs	1,5	m		Tp	ωp													m_0 SF =	4,38939
				5,5000	1,1424													m_0 BM=	284,04035
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	4,60017
(rad/s)	(m^2/rad/s)																	m_1 BM=	281,11318
0,25	0,00	1	4,7853	35,2344	22,8986979	1241,46461	4,1E-233	2,2E-231	4,0841E-233	2,2142E-231	1,021E-233	5,5355E-232	2,5526E-234	1,3839E-232	1,5954E-235	8,6493E-234		m_2 SF =	4,88993
0,35	0,00	4	5,7662	30,5669	33,2489682	934,333747	1,35E-58	3,8E-57	5,40858E-58	1,51987E-56	1,893E-58	5,31955E-57	6,62551E-59	1,86184E-57	8,11625E-60	2,28076E-58		m_2 BM=	281,47480
0,45	0,00	2	8,0862	45,7012	65,3867934	2088,59701	8,85E-20	2,83E-18	1,7692E-19	5,6512E-18	7,96139E-20	2,54304E-18	3,58263E-20	1,14437E-18	7,25482E-21	2,31735E-19		m_4 SF =	5,73247
0,55	0,00	4	11,6246	56,7347	135,132062	3218,83021	1,86E-07	4,44E-06	7,45173E-07	1,77499E-05	4,09845E-07	9,76246E-06	2,25415E-07	5,36935E-06	6,8188E-08	1,62423E-06		m_4 BM=	292,53933
0,65	0,00	2	14,8250	84,9287	219,781095	7212,8884	0,011051	0,362678	0,022102056	0,725356563	0,014366336	0,471481766	0,009338118	0,306463148	0,003945355	0,12948068			
0,75	0,00	4	15,8478	109,9094	251,154232	12080,0692	1,117229	53,73673	4,468917164	214,9469197	3,351687873	161,2101898	2,513765905	120,9076423	1,413993322	68,01054881		SF Ext =	16,2321663
0,85	0,03	2	13,9384	123,4643	194,278995	15243,4436	6,551168	514,0152	13,10233639	1028,030465	11,13698593	873,8258954	9,466438042	742,7520111	6,839501486	536,638328		BM Ext =	130,0660711
0,95	0,09	4	9,4668	109,0780	89,6196154	11898,0094	7,877566	1045,835	31,51026361	4183,341024	29,93475043	3974,173973	28,43801291	3775,465274	25,66530665	3407,35741			
1,05	0,19	2	7,3524	68,2424	54,0578937	4657,02524	10,37852	894,0979	20,75704823	1788,195784	21,79490064	1877,605573	22,88464567	1971,485851	25,23032186	2173,563151			
1,15	0,32	4	6,5225	25,8358	42,5427975	667,488433	13,75979	215,8885	55,03917257	863,5541901	63,29504845	993,0873186	72,78930572	1142,050416	96,26385682	1510,361676			
1,25	0,18	1	6,2222	50,2561	38,7158697	2525,67118	6,781783	442,4169	6,781782793	442,4168566	8,477228492	553,0210707	10,59653561	691,2763384	16,5570869	1080,119279			
		Σ =							131,6816236	8521,210614	138,0049686	8433,395512	146,6980422	8444,244002	171,9740125	8776,179875			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Midship

KURUN WAKTU PENDEK

Hs	2	m		Tp	ωp													m_0 SF =	29,97568
				7,5000	0,83776													m_0 BM=	2037,61621
ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM	m_1 SF =	24,68672
(rad/s)																	m_1 BM=	1731,27906
0,25	0,00000	1	4,7853	35,2344	22,8986979	1241,46461	3,72E-65	2,02E-63	3,72206E-65	2,01794E-63	9,30516E-66	5,04484E-64	2,32629E-66	1,26121E-64	1,45393E-67	7,88256E-66	m_2 SF =	20,69796
0,35	0,00000	4	5,7662	30,5669	33,2489682	934,333747	4,35E-15	1,22E-13	1,74044E-14	4,89083E-13	6,09153E-15	1,71179E-13	2,13204E-15	5,99126E-14	2,61174E-16	7,3393E-15	m_2 BM=	1490,30067
0,45	0,00001	2	8,0862	45,7012	65,3867934	2088,59701	0,000484	0,015472	0,000968723	0,030943122	0,000435925	0,013924405	0,000196166	0,006265982	3,97237E-05	0,001268861	m_4 SF =	15,44023
0,55	0,01078	4	11,6246	56,7347	135,132062	3218,83021	1,457257	34,7117	5,829029535	138,8468144	3,205966244	76,3657479	1,763281434	42,00116134	0,533392634	12,70535131	m_4 BM=	1149,20686
0,65	0,12492	2	14,8250	84,9287	219,781095	7212,8884	27,45572	901,0559	54,91143949	1802,111706	35,69243567	1171,372609	23,20008319	761,3921958	9,802035146	321,6882027		
0,75	0,36838	4	15,8478	109,9094	251,154232	12080,0692	92,52016	4450,054	370,0806232	17800,21581	277,5604674	13350,16186	208,1703505	10012,6214	117,0958222	5632,099535	SF Ext =	41,73734
0,85	0,77068	2	13,9384	123,4643	194,278995	15243,4436	149,7268	11747,81	299,4536571	23495,61737	254,5356086	19971,27476	216,3552673	16975,58355	156,3166806	12264,85911	BM Ext =	344,79417
0,95	0,31892	4	9,4668	109,0780	89,6196154	11898,0094	28,58136	3794,497	114,3254494	15177,98609	108,609177	14419,08678	103,1787181	13698,13245	93,1187931	12362,56453		
1,05	0,21453	2	7,3524	68,2424	54,0578937	4657,02524	11,59728	999,0925	23,19456355	1998,184919	24,35429173	2098,094165	25,57200631	2202,998873	28,19313696	2428,806258		
1,15	0,15867	4	6,5225	25,8358	42,5427975	667,488433	6,750202	105,9094	27,00080641	423,6375371	31,05092737	487,1831677	35,70856648	560,2606428	47,22457917	740,9447001		
1,25	0,11556	1	6,2222	50,2561	38,7158697	2525,67118	4,47383	291,8551	4,47383017	291,8550978	5,592287713	364,8188723	6,990359641	456,0235904	10,92243694	712,5368599		
		Σ =							899,2703676	61128,48629	740,6015976	51938,37189	620,9388291	44709,02012	463,2069165	34476,20582		
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM		

Hs	2,5	m		Tp	ωp													m_0 SF =	69,53369
				8,5000	0,7392													m_0 BM=	3719,61519
ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM	m_1 SF =	53,05031
(rad/s)																	m_1 BM=	2948,69980
0,25	0,00000	1	4,7853	35,2344	22,8986979	1241,46461	3,23E-38	1,75E-36	3,23351E-38	1,75306E-36	8,08378E-39	4,38266E-37	2,02094E-39	1,09567E-37	1,26309E-40	6,84791E-39	m_2 SF =	41,16193
0,35	0,00000	4	5,7662	30,5669	33,2489682	934,333747	4,3E-08	1,21E-06	1,72032E-07	4,83428E-06	6,02111E-08	1,692E-06	2,10739E-08	5,922E-07	2,58155E-09	7,25445E-08	m_2 BM=	2375,49454
0,45	0,00260	2	8,0862	45,7012	65,3867934	2088,59701	0,169826	5,424603	0,33965132	10,84920508	0,152843094	4,882142287	0,068779392	2,196964029	0,013927827	0,444885216	m_4 SF =	26,28542
0,55	0,14476	4	11,6246	56,7347	135,132062	3218,83021	19,56163	465,9558	78,24652016	1863,823128	43,03558609	1025,10272	23,66957235	563,8064961	7,160045636	170,5514651	m_4 BM=	1624,51159
0,65	0,56330	2	14,8250	84,9287	219,781095	7212,8884	123,8037	4063,053	247,6074179	8126,106881	160,9448216	5281,969472	104,6141341	3433,280157	44,19947164	1450,560866		
0,75	1,36474	4	15,8478	109,9094	251,154232	12080,0692	342,7614	16486,21	1371,045783	65944,84902	1028,284337	49458,63677	771,2132527	37093,97758	433,8074547	20865,36239	SF Ext =	63,23022
0,85	0,51982	2	13,9384	123,4643	194,278995	15243,4436	100,9905	7923,88	201,9810635	15847,76032	171,683904	13470,59627	145,9313184	11450,00683	105,4353775	8272,629934	BM Ext =	463,68108
0,95	0,35135	4	9,4668	109,0780	89,6196154	11898,0094	31,4881	4180,398	125,9523801	16721,59158	119,6547611	15885,512	113,672023	15091,2364	102,5890008	13619,84085		
1,05	0,24772	2	7,3524	68,2424	54,0578937	4657,02524	13,39137	1153,651	26,78273549	2307,301797	28,12187227	2422,666887	29,52796588	2543,800231	32,55458239	2804,539755		
1,15	0,17262	4	6,5225	25,8358	42,5427975	667,488433	7,343857	115,2237	29,37542672	460,8948798	33,78174073	530,0291118	38,84900183	609,5334786	51,37780493	806,1080254		
1,25	0,12087	1	6,2222	50,2561	38,7158697	2525,67118	4,679602	305,2788	4,679601513	305,2788116	5,849501892	381,5985145	7,311877365	476,9981431	11,42480838	745,3095986		
		Σ =							2086,010579	111588,4556	1591,509368	88460,99389	1234,857925	71264,83628	788,5624738	48735,34777		
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM		

Hs	3	m		Tp	ωp													m_0 SF =	87,49912
				9,5000	0,66138947													m_0 BM=	4065,92070
ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM	m_1 SF =	62,55082
(rad/s)																	m_1 BM=	3103,54465
0,25	0,00000	1	4,7853	35,2344	22,8986979	1241,46461	2,38E-23	1,29E-21	2,3755E-23	1,28789E-21	5,93875E-24	3,21972E-22	1,48469E-24	8,04931E-23	9,2793E-26	5,03082E-24	m_2 SF =	45,92226
0,35	0,00001	4	5,7662	30,5669	33,2489682	934,333747	0,0003	0,008438	0,001201125	0,033752967	0,000420394	0,011813538	0,000147138	0,004134738	1,80244E-05	0,000506505	m_2 BM=	2431,98237
0,45	0,06297	2	8,0862	45,7012	65,3867934	2088,59701	4,117372	131,5179	8,234744401	263,0357238	3,705634981	118,3660757	1,667535741	53,26473408	0,337675988	10,78610865	m_4 SF =	27,07719
0,55	0,60731	4	11,6246	56,7347	135,132062	3218,83021	82,06695	1954,825	328,2677905	7819,301084	180,5472848	4300,615596	99,30100661	2365,338578	30,0385545	715,5149198	m_4 BM=	1615,44565
0,65	2,17764	2	14,8250	84,9287	219,781095	7212,8884	478,6046	15707,09	957,2092946	31414,1842	622,1860415	20419,21973	404,420927	13272,49282	170,8678416	5607,628218		
0,75	0,90892	4	15,8478	109,9094	251,154232	12080,0692	228,2786	10979,79	913,1144209	43919,16987	684,8358157	32939,3774	513,6268617	24704,53305	288,9151097	13896,29984	SF Ext =	70,63220
0,85	0,56547	2	13,9384	123,4643	194,278995	15243,4436	109,8592	8619,728	219,7183491	17239,45637	186,7605967	14653,53792	158,7465072	12455,50723	114,6943515	8999,103974	BM Ext =	483,68546
0,95	0,38216	4	9,4668	109,0780	89,6196154	11898,0094	34,24946	4547	136,9978514	18188,00183	130,1479589	17278,60174	123,6405609	16414,67165	111,5856062	14814,24116		
1,05	0,25527	2	7,3524	68,2424	54,0578937	4657,02524	13,79925	1188,79	27,59850554	2377,579446	28,97843082	2496,458419	30,42735236	2621,28134	33,54615598	2889,962677		
1,15	0,17200	4	6,5225	25,8358	42,5427975	667,488433	7,31725	114,8063	29,26899939	459,2250553	33,6593493	528,1088136	38,7082517	607,3251356	51,19166287	803,1874918		
1,25	0,11784	1	6,2222	50,2561	38,7158697	2525,67118	4,562408	297,6336	4,562408266	297,6335847	5,703010332	372,0419808	7,128762915	465,052476	11,13869205	726,6444938		
		Σ =							2624,973565	121977,6209	1876,524543	93106,33948	1377,667913	72959,47115	812,3156685	48463,36939		
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM		

1/4 FP

KURUN WAKTU PENDEK

Hs	0,5	m		Tp	ωp
				3,5	1,7952

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	0	0	0	0	0	0	0	0	0	0
0,35	0,000000000	4	5,6889	15,5720	32,3639507	242,486644	0	0	0	0	0	0	0	0	0	0
0,45	0,000000000	2	7,5337	22,5825	56,7573622	509,968434	5,8E-135	5,3E-134	1,1694E-134	1,0507E-133	5,2622E-135	4,7281E-134	2,368E-135	2,1276E-134	4,7951E-136	4,3085E-135
0,55	0,000000000	4	10,5799	37,7352	111,933965	1423,94524	3,22E-59	4,09E-58	1,28745E-58	1,6378E-57	7,08097E-59	9,00791E-58	3,89453E-59	4,95435E-58	1,1781E-59	1,49869E-58
0,65	0,000000000	2	12,9678	67,1213	168,164124	4505,26757	2,25E-29	6,03E-28	4,49876E-29	1,20526E-27	2,92419E-29	7,83417E-28	1,90073E-29	5,09221E-28	8,03056E-30	2,15146E-28
0,75	0,000000000	4	12,7199	89,0775	161,794841	7934,80386	6,18E-16	3,03E-14	2,4702E-15	1,21144E-13	1,85265E-15	9,08583E-14	1,38949E-15	6,81437E-14	7,81586E-16	3,83308E-14
0,85	0,000000000	2	10,4586	88,2486	109,38323	7787,81075	2,33E-09	1,66E-07	4,66079E-09	3,31837E-07	3,96167E-09	2,82061E-07	3,36742E-09	2,39752E-07	2,43296E-09	1,73221E-07
0,95	0,000000092	4	7,2064	65,5980	51,9323143	4303,09824	4,8E-06	0,000398	1,91995E-05	0,001590864	1,82395E-05	0,001511321	1,73275E-05	0,001435755	1,56381E-05	0,001295769
1,05	0,000010769	2	6,2314	33,1106	38,8297633	1096,31235	0,000418	0,011806	0,000836286	0,023611549	0,0008781	0,024792126	0,000922005	0,026031733	0,001016511	0,028699985
1,15	0,000177639	4	6,3777	27,0979	40,6745002	734,297872	0,007225	0,13044	0,02890143	0,521758306	0,033236644	0,600022051	0,038222141	0,690025359	0,050548781	0,912558537
1,25	0,000961106	1	6,8067	37,2163	46,3306265	1385,05023	0,044529	1,331181	0,044528657	1,331180502	0,055660821	1,663975628	0,069576027	2,079969535	0,108712542	3,249952398
		Σ =							0,074285577	1,878141553	0,08979381	2,290301409	0,108737504	2,797462621	0,160293475	4,192506863
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	0,00248
m_0 BM=	0,06260
m_1 SF =	0,00299
m_1 BM=	0,07634
m_2 SF =	0,00362
m_2 BM=	0,09325
m_4 SF =	0,00534
m_4 BM=	0,13975
SF Ext =	0,38903
BM Ext =	1,95722

Hs	1	m		Tp	ωp
				4,5	1,39626667

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	0	0	0	0	0	0	0	0	0	0
0,35	0,000000000	4	5,6889	15,5720	32,3639507	242,486644	1,7E-134	1,3E-133	6,8584E-134	5,1387E-133	2,4005E-134	1,7985E-133	8,4016E-135	6,2949E-134	1,0292E-135	7,7112E-135
0,45	0,000000000	2	7,5337	22,5825	56,7573622	509,968434	1,3E-47	1,17E-46	2,59326E-47	2,33006E-46	1,16697E-47	1,04853E-46	5,25135E-48	4,71838E-47	1,0634E-48	9,55471E-48
0,55	0,000000000	4	10,5799	37,7352	111,933965	1423,94524	5,51E-20	7,01E-19	2,20265E-19	2,80206E-18	1,21146E-19	1,54113E-18	6,66302E-20	8,47622E-19	2,01556E-20	2,56406E-19
0,65	0,000000000	2	12,9678	67,1213	168,164124	4505,26757	3,5E-09	9,39E-08	7,00743E-09	1,87735E-07	4,55483E-09	1,22028E-07	2,96064E-09	7,93182E-08	1,25087E-09	3,35119E-08
0,75	0,000001111	4	12,7199	89,0775	161,794841	7934,80386	0,00018	0,008817	0,00071911	0,035266871	0,000539333	0,026450154	0,000404499	0,019837615	0,000227531	0,011158659
0,85	0,000220002	2	10,4586	88,2486	109,38323	7787,81075	0,024065	1,713335	0,048129082	3,426669565	0,04090972	2,91266913	0,034773262	2,475768761	0,025123682	1,78874293
0,95	0,003314183	4	7,2064	65,5980	51,9323143	4303,09824	0,172113	14,26126	0,688452776	57,04502036	0,654030137	54,19276934	0,621328631	51,48313088	0,560749089	46,46352562
1,05	0,013788102	2	6,2314	33,1106	38,8297633	1096,31235	0,535389	15,11607	1,070777486	30,23213349	1,12431636	31,74374017	1,180532179	33,33092717	1,301536727	36,74734721
1,15	0,029898278	4	6,3777	27,0979	40,6745002	734,297872	1,216098	21,95424	4,864390132	87,81696893	5,594048652	100,9895143	6,43315595	116,1379414	8,507848743	153,5924275
1,25	0,000961106	1	6,8067	37,2163	46,3306265	1385,05023	0,044529	1,331181	0,044528657	1,331180502	0,055660821	1,663975628	0,069576027	2,079969535	0,108712542	3,249952398
		Σ =							6,716997251	179,8872399	7,469505028	191,5291188	8,33977055	205,5275754	10,50419832	241,8531544
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	0,22390
m_0 BM=	5,99624
m_1 SF =	0,24898
m_1 BM=	6,38430
m_2 SF =	0,27799
m_2 BM=	6,85092
m_4 SF =	0,35014
m_4 BM=	8,06177
SF Ext =	3,67929
BM Ext =	18,98800

Hs	1,5	m		Tp	ωp
				5,5	1,1424

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	3,6E-233	8,1E-232	3,5815E-233	8,1231E-232	8,9538E-234	2,0308E-232	2,2385E-234	5,0769E-233	1,399E-235	3,1731E-234
0,35	0,000000000	4	5,6889	15,5720	32,3639507	242,486644	1,32E-58	9,86E-58	5,26462E-58	3,94451E-57	1,84262E-58	1,38058E-57	6,44915E-59	4,83202E-58	7,90021E-60	5,91923E-59
0,45	0,000000000	2	7,5337	22,5825	56,7573622	509,968434	7,68E-20	6,9E-19	1,53571E-19	1,37984E-18	6,91068E-20	6,20929E-19	3,10981E-20	2,79418E-19	6,29736E-21	5,65822E-20
0,55	0,000000001	4	10,5799	37,7352	111,933965	1423,94524	1,54E-07	1,96E-06	6,17249E-07	7,85221E-06	3,39487E-07	4,31871E-06	1,86718E-07	2,37529E-06	5,64821E-08	7,18526E-07
0,65	0,000050282	2	12,9678	67,1213	168,164124	4505,26757	0,008456	0,226534	0,016911249	0,453067512	0,010992312	0,294493883	0,007145003	0,191421024	0,003018764	0,080875383
0,75	0,004448379	4	12,7199	89,0775	161,794841	7934,80386	0,719725	35,29702	2,878899303	141,1880697	2,159174477	105,8910523	1,619380858	79,41828923	0,910901733	44,67278769
0,85	0,033720414	2	10,4586	88,2486	109,38323	7787,81075	3,688448	262,6082	7,376895672	525,2164099	6,270361321	446,4339484	5,329807123	379,4688561	3,850785646	274,1662486
0,95	0,087900019	4	7,2064	65,5980	51,9323143	4303,09824	4,564851	378,2424	18,25940568	1512,969669	17,3464354	1437,321186	16,47911363	1365,455126	14,87240005	1232,323251
1,05	0,191989059	2	6,2314	33,1106	38,8297633	1096,31235	7,45489	210,48	14,9097794	420,959954	15,65526837	442,0079517	16,43803179	464,1083492	18,12293005	511,679455
1,15	0,323434140	4	6,3777	27,0979	40,6745002	734,297872	13,15552	237,497	52,62208806	949,988004	60,51540127	1092,486205	69,59271146	1256,359135	92,03636091	1661,534956
1,25	0,175168034	1	6,8067	37,2163	46,3306265	1385,05023	8,115645	242,6165	8,115644768	242,6165255	10,14455596	303,2706569	12,68069495	379,0883211	19,81358586	592,3255017
		Σ =							104,1796248	3793,391707	112,1021895	3827,705498	122,146885	3924,089501	149,6099831	4316,783077
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	3,47265
m_0 BM=	126,44639
m_1 SF =	3,73674
m_1 BM=	127,59018
m_2 SF =	4,07156
m_2 BM=	130,80298
m_4 SF =	4,98700
m_4 BM=	143,89277
SF Ext =	14,46251136
BM Ext =	86,90657667

1/4 FP

KURUN WAKTU PENDEK

Hs	2	m		Tp	ωp
				7,5	0,83776

ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
(rad/s)																
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	3,26E-65	7,4E-64	3,26405E-65	7,40298E-64	8,16012E-66	1,85074E-64	2,04003E-66	4,62686E-65	1,27502E-67	2,89179E-66
0,35	0,000000000	4	5,6889	15,5720	32,3639507	242,486644	4,24E-15	3,17E-14	1,69411E-14	1,26931E-13	5,92939E-15	4,44259E-14	2,07529E-15	1,55491E-14	2,54223E-16	1,90476E-15
0,45	0,000007408	2	7,5337	22,5825	56,7573622	509,968434	0,00042	0,003778	0,000840875	0,007555319	0,000378394	0,003399893	0,000170277	0,001529952	3,44812E-05	0,000309815
0,55	0,010783950	4	10,5799	37,7352	111,933965	1423,94524	1,20709	15,35575	4,828361075	61,42301622	2,655598591	33,78265892	1,460579225	18,58046241	0,441825216	5,620589878
0,65	0,124923027	2	12,9678	67,1213	168,164124	4505,26757	21,00757	562,8117	42,01514282	1125,623326	27,30984283	731,6551619	17,75139784	475,5758553	7,499665588	200,9307988
0,75	0,368379840	4	12,7199	89,0775	161,794841	7934,80386	59,60196	2923,022	238,407831	11692,08712	178,8058733	8769,065342	134,1044049	6576,799007	75,43372778	3699,449441
0,85	0,770679448	2	10,4586	88,2486	109,38323	7787,81075	84,29941	6001,906	168,5988148	12003,81138	143,3089926	10203,23968	121,8126437	8672,753725	88,00963509	6266,064566
0,95	0,318918601	4	7,2064	65,5980	51,9323143	4303,09824	16,56218	1372,338	66,24872412	5489,35228	62,93628792	5214,884666	59,78947352	4954,140432	53,95999985	4471,11174
1,05	0,214534474	2	6,2314	33,1106	38,8297633	1096,31235	8,330323	235,1968	16,66064568	470,3935885	17,49367796	493,9132679	18,36836186	518,6089313	20,25111895	571,7663467
1,15	0,158668494	4	6,3777	27,0979	40,6745002	734,297872	6,453762	116,5099	25,81504675	466,0397494	29,68730376	535,9457118	34,14039932	616,3375685	45,1506781	815,1064344
1,25	0,115555461	1	6,8067	37,2163	46,3306265	1385,05023	5,353757	160,0501	5,353756898	160,0501173	6,692196123	200,0626466	8,365245154	250,0783083	13,07069555	390,7473567
		Σ =							567,9291641	31468,78814	468,8901515	26182,55253	395,7926759	22082,87582	303,8176806	16420,79758
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	18,93097
m_0 BM=	1048,95960
m_1 SF =	15,62967
m_1 BM=	872,75175
m_2 SF =	13,19309
m_2 BM=	736,09586
m_4 SF =	10,12726
m_4 BM=	547,35992
SF Ext =	33,17912
BM Ext =	247,03644

Hs	2,5	m		Tp	ωp
				8,5	0,7392

ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
(rad/s)																
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	2,84E-38	6,43E-37	2,83561E-38	6,43128E-37	7,08903E-39	1,60782E-37	1,77226E-39	4,01955E-38	1,10766E-40	2,51222E-39
0,35	0,000000001	4	5,6889	15,5720	32,3639507	242,486644	4,19E-08	3,14E-07	1,67452E-07	1,25464E-06	5,86084E-08	4,39123E-07	2,05129E-08	1,53693E-07	2,51283E-09	1,88274E-08
0,45	0,002597247	2	7,5337	22,5825	56,7573622	509,968434	0,147413	1,324514	0,29482579	2,649028081	0,132671605	1,192062636	0,059702222	0,536428186	0,0120897	0,108626708
0,55	0,144759354	4	10,5799	37,7352	111,933965	1423,94524	16,20349	206,1294	64,81395401	824,5175716	35,64767471	453,4846644	19,60622109	249,4165654	5,930881879	75,44851104
0,65	0,563304631	2	12,9678	67,1213	168,164124	4505,26757	94,72763	2537,838	189,4552596	5075,676177	123,1459188	3299,189515	80,0448472	2144,473185	33,81894794	906,0399206
0,75	1,364744856	4	12,7199	89,0775	161,794841	7934,80386	220,8087	10828,98	883,2347083	43315,93101	662,4260312	32486,94826	496,8195234	24365,21119	279,4609819	13705,4313
0,85	0,519822186	2	10,4586	88,2486	109,38323	7787,81075	56,85983	4048,277	113,7196595	8096,553614	96,6617106	6882,070572	82,16245401	5849,759986	59,36237302	4226,45159
0,95	0,351352713	4	7,2064	65,5980	51,9323143	4303,09824	18,24656	1511,905	72,98623817	6047,620964	69,33692626	5745,239916	65,87007995	5457,97792	59,44774715	4925,825073
1,05	0,247722707	2	6,2314	33,1106	38,8297633	1096,31235	9,619014	271,5815	19,23802815	543,1629283	20,19992955	570,3210748	21,20992603	598,8371285	23,38394345	660,2179342
1,15	0,172622797	4	6,3777	27,0979	40,6745002	734,297872	7,021346	126,7566	28,08538391	507,0262087	32,2981915	583,0801399	37,14292022	670,5421609	49,12151199	886,7920078
1,25	0,120870370	1	6,8067	37,2163	46,3306265	1385,05023	5,6	167,4115	5,599999985	167,4115339	6,999999981	209,2644173	8,749999976	261,5805217	13,67187496	408,7195651
		Σ =							1377,428058	64580,54903	1046,849054	50230,79062	811,6656741	39598,33509	524,210352	25795,03452
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	45,91427
m_0 BM=	2152,68497
m_1 SF =	34,89497
m_1 BM=	1674,35969
m_2 SF =	27,05552
m_2 BM=	1319,94450
m_4 SF =	17,47368
m_4 BM=	859,83448
SF Ext =	51,37261
BM Ext =	352,24754

Hs	3	m		Tp	ωp
				9,5	0,66138947

ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
(rad/s)																
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	2,08E-23	4,72E-22	2,08318E-23	4,72474E-22	5,20796E-24	1,18118E-22	1,30199E-24	2,95296E-23	8,13744E-26	1,8456E-24
0,35	0,000009031	4	5,6889	15,5720	32,3639507	242,486644	0,000292	0,00219	0,001169153	0,008759872	0,000409204	0,003065955	0,000143221	0,001073084	1,75446E-05	0,000131453
0,45	0,062969477	2	7,5337	22,5825	56,7573622	509,968434	3,573981	32,11245	7,147962859	64,22489144	3,216583287	28,90120115	1,447462479	13,00554052	0,293111152	2,633621955
0,55	0,607309223	4	10,5799	37,7352	111,933965	1423,94524	67,97853	864,7751	271,9141175	3459,100301	149,5527646	1902,505165	82,25402053	1046,377841	24,88184121	316,5292969
0,65	2,177642469	2	12,9678	67,1213	168,164124	4505,26757	366,2013	9810,862	732,4026759	19621,724	476,0617393	12754,1206	309,4401306	8290,178388	130,7384552	3502,600369
0,75	0,908918013	4	12,7199	89,0775	161,794841	7934,80386	147,0582	7212,086	588,232982	28848,34464	441,1747365	21636,25848	330,8810524	16227,19386	186,120592	9127,796547
0,85	0,565471190	2	10,4586	88,2486	109,38323	7787,81075	61,85307	4403,783	123,7061307	8807,565234	105,1502111	7486,430449	89,37767944	6363,465882	64,5753734	4597,6041
0,95	0,382164805	4	7,2064	65,5980	51,9323143	4303,09824	19,8467	1644,493	79,38681116	6577,9708	75,4174706	6249,07226	71,64659707	5936,618647	64,66105386	5357,798329
1,05	0,255268044	2	6,2314	33,1106	38,8297633	1096,31235	9,911998	279,8535	19,82399544	559,7070206	20,81519521	587,6923717	21,85595498	617,0769902	24,09619036	680,3273817
1,15	0,171997383	4	6,3777	27,0979	40,6745002	734,297872	6,995908	126,2973	27,98363042	505,18925	32,18117498	580,9676375	37,00835123	668,1127832	48,9435445	883,5791558
1,25	0,117843362	1	6,8067	37,2163	46,3306265	1385,05023	5,459757	163,219	5,459756807	163,2189757	6,824696009	204,0237197	8,530870011	255,0296496	13,32948439	398,4838275
		Σ =							1856,059232	68607,05387	1310,394981	51429,97495	952,4422619	39417,06066	557,6396635	24867,35276
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	61,86864
m_0 BM=	2286,90180
m_1 SF =	43,67983
m_1 BM=	1714,33250
m_2 SF =	31,74808
m_2 BM=	1313,90202
m_4 SF =	18,58799
m_4 BM=	828,91176
SF Ext =	59,34623
BM Ext =	362,24191

1/4 AP

KURUN WAKTU PANJANG

Hs	4,823744654	m		Tp	ωp
				11,5	0,54636522

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,00	1	2,2835	43,6428	5,21433451	1904,69184	1,05E-09	3,85E-07	1,05287E-09	3,84592E-07	2,63217E-10	9,6148E-08	6,58043E-11	2,4037E-08	4,11277E-12	1,50231E-09
0,35	0,05	4	2,4928	48,0192	6,21408549	2305,84451	0,337577	125,2638	1,350307664	501,0551467	0,472607682	175,3693014	0,165412689	61,37925547	0,020263054	7,518958795
0,45	1,78	2	3,8991	72,5943	15,2028453	5269,93871	27,02869	9369,269	54,05738114	18738,53737	24,32582151	8432,341815	10,94661968	3794,553817	2,216690486	768,3971479
0,55	6,99	4	5,9677	97,4961	35,6129546	9505,49038	249,0664	66478,57	996,2655463	265914,2624	547,9460505	146252,8443	301,3703278	80439,06437	91,16452415	24332,81697
0,65	2,26	2	7,6849	123,7498	59,0583094	15314,0254	133,3121	34568,3	266,6242566	69136,59857	173,3057668	44938,78907	112,6487484	29210,2129	47,59409621	12341,31495
0,75	1,42	4	8,6344	127,8363	74,5523142	16342,1126	105,5108	23128,32	422,0433147	92513,28365	316,532486	69384,96274	237,3993645	52038,72205	133,5371425	29271,78116
0,85	0,87	2	7,6516	118,9455	58,5470458	14148,0349	50,9062	12301,61	101,8123936	24603,21059	86,54053455	20912,729	73,55945437	17775,81965	53,14670578	12843,0297
0,95	0,54	4	5,2187	90,4032	27,2344914	8172,73863	14,66025	4399,363	58,64101066	17597,45191	55,70896013	16717,57932	52,92351212	15881,70035	47,76346969	14333,23457
1,05	0,34	2	3,3191	65,7881	11,0167558	4328,07524	3,761329	1477,687	7,522657023	2955,373269	7,898789875	3103,141933	8,293729368	3258,299029	9,143836628	3592,27468
1,15	0,22	4	3,5844	69,5650	12,8476424	4839,29109	2,862254	1078,118	11,44901415	4312,473083	13,16636627	4959,344046	15,14132121	5703,245653	20,0243973	7542,542376
1,25	0,15	1	2,7474	74,0748	7,5481137	5487,07199	1,128513	820,368	1,12851281	820,3680125	1,410641013	1025,460016	1,763301266	1281,82502	2,755158228	2002,851593
		Σ =							1920,894395	497092,614	1227,308024	315902,5615	814,2117914	209444,8221	407,3662841	107035,7621
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	64,02981
m_0 BM=	16569,75380
m_1 SF =	40,91027
m_1 BM=	10530,08538
m_2 SF =	27,14039
m_2 BM=	6981,49407
m_4 SF =	13,57888
m_4 BM=	3567,85874
SF Ext =	59,96705
BM Ext =	964,46601

Hs	5,004710712	m		Tp	ωp
				11,5	0,54636522

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,00	1	2,2835	43,6428	5,21433451	1904,69184	1,13E-09	4,14E-07	1,13335E-09	4,1399E-07	2,83337E-10	1,03497E-07	7,08343E-11	2,58743E-08	4,42714E-12	1,61715E-09
0,35	0,06	4	2,4928	48,0192	6,21408549	2305,84451	0,363381	134,8388	1,453523542	539,3551935	0,50873324	188,7743177	0,178056634	66,07101121	0,021811938	8,093698873
0,45	1,91	2	3,8991	72,5943	15,2028453	5269,93871	29,09473	10085,44	58,1894617	20170,8884	26,18525776	9076,899781	11,78336599	4084,604901	2,386131614	827,1324925
0,55	7,53	4	5,9677	97,4961	35,6129546	9505,49038	268,1047	71560,11	1072,418875	286240,4256	589,830381	157432,2341	324,4067095	86587,72874	98,13302964	26192,78794
0,65	2,43	2	7,6849	123,7498	59,0583094	15314,0254	143,5023	37210,66	287,0046909	74421,31619	186,5530491	48373,85552	121,2594819	31443,00609	51,23213111	13284,67007
0,75	1,52	4	8,6344	127,8363	74,5523142	16342,1126	113,5759	24896,22	454,303793	99584,88668	340,7278448	74688,66501	255,5458836	56016,49876	143,7445595	31509,28055
0,85	0,94	2	7,6516	118,9455	58,5470458	14148,0349	54,7974	13241,93	109,5948093	26483,85013	93,15558789	22511,27261	79,18224971	19134,58172	57,20917542	13824,73529
0,95	0,58	4	5,2187	90,4032	27,2344914	8172,73863	15,78086	4735,645	63,12345829	18942,57976	59,96728537	17995,45077	56,9689211	17095,67823	51,4144513	15428,84961
1,05	0,37	2	3,3191	65,7881	11,0167558	4328,07524	4,04884	1590,639	8,097679789	3181,278412	8,502563778	3340,342333	8,927691967	3507,359449	9,842780394	3866,863793
1,15	0,24	4	3,5844	69,5650	12,8476424	4839,29109	3,081041	1160,528	12,32416288	4642,113288	14,17278732	5338,430281	16,29870541	6139,194823	21,55503791	8119,085153
1,25	0,16	1	2,7474	74,0748	7,5481137	5487,07199	1,214775	883,0759	1,214774959	883,0759469	1,518468698	1103,844934	1,898085873	1379,806167	2,965759176	2155,947136
		Σ =							2067,725229	535089,7696	1321,121959	340049,7696	876,4491518	225454,5299	438,504868	115217,4457
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	68,92417
m_0 BM=	17836,32565
m_1 SF =	44,03740
m_1 BM=	11334,99232
m_2 SF =	29,21497
m_2 BM=	7515,15100
m_4 SF =	14,61683
m_4 BM=	3840,58152
SF Ext =	62,21675
BM Ext =	1000,64861

Hs	5,108263482	m		Tp	ωp
				11,5	0,54636522

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,00	1	2,2835	43,6428	5,21433451	1904,69184	1,18E-09	4,31E-07	1,18073E-09	4,31299E-07	2,95184E-10	1,07825E-07	7,37959E-11	2,69562E-08	4,61224E-12	1,68476E-09
0,35	0,06	4	2,4928	48,0192	6,21408549	2305,84451	0,378574	140,4764	1,51429571	561,9057636	0,530003499	196,6670173	0,185501224	68,83345604	0,0227239	8,432098365
0,45	1,99	2	3,8991	72,5943	15,2028453	5269,93871	30,31119	10507,12	60,62237706	21014,23809	27,28006968	9456,407139	12,27603135	4255,383213	2,485896349	861,7151005
0,55	7,84	4	5,9677	97,4961	35,6129546	9505,49038	279,3142	74552,05	1117,256965	298208,2065	614,4913308	164014,5136	337,9702319	90207,98246	102,2359952	27287,91469
0,65	2,53	2	7,6849	123,7498	59,0583094	15314,0254	149,5022	38766,44	299,004426	77532,88928	194,3528769	50396,37803	126,32937	32757,64572	53,37415881	13840,10532
0,75	1,59	4	8,6344	127,8363	74,5523142	16342,1126	118,3246	25937,14	473,2983437	103748,5547	354,9737578	77811,41602	266,2303183	58358,56202	149,7545541	32826,69113
0,85	0,98	2	7,6516	118,9455	58,5470458	14148,0349	57,0885	13795,57	114,1769946	27591,14626	97,05044538	23452,47432	82,49287857	19934,60317	59,60110477	14402,75079
0,95	0,60	4	5,2187	90,4032	27,2344914	8172,73863	16,44067	4933,643	65,76266523	19734,57357	62,47453197	18747,84489	59,35080537	17810,45264	53,56410184	16073,93351
1,05	0,38	2	3,3191	65,7881	11,0167558	4328,07524	4,218123	1657,144	8,436245724	3314,288426	8,85805801	3480,002847	9,300960911	3654,00299	10,2543094	4028,538296
1,15	0,25	4	3,5844	69,5650	12,8476424	4839,29109	3,20986	1209,05	12,83943909	4836,201158	14,76535496	5561,631332	16,9801582	6395,876032	22,45625922	8458,546052
1,25	0,17	1	2,7474	74,0748	7,5481137	5487,07199	1,265565	919,9976	1,265564991	919,9975642	1,581956239	1149,996955	1,977445299	1437,496194	3,089758279	2246,087803
		Σ =							2154,177317	557462,0013	1376,358385	354267,3321	913,0937011	234880,8379	456,8388618	120034,7148
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	71,80591
m_0 BM=	18582,06671
m_1 SF =	45,87861
m_1 BM=	11808,91107
m_2 SF =	30,43646
m_2 BM=	7829,36126
m_4 SF =	15,22796
m_4 BM=	4001,15716
SF Ext =	63,50408506
BM Ext =	1021,353093

KURUN WAKTU PANJANG

Midship

Hs	4,823744654	m		Tp	ωp
				11,5	0,54636522

ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	4,7853	35,2344	22,8986979	1241,46461	4,62E-09	2,51E-07	4,62366E-09	2,50674E-07	1,15592E-09	6,26686E-08	2,88979E-10	1,56671E-08	1,80612E-11	9,79196E-10
0,35	0,054324472	4	5,7662	30,5669	33,2489682	934,333747	1,806233	50,75719	7,224930637	203,0287518	2,528725723	71,06006314	0,885054003	24,8710221	0,108419115	3,046700207
0,45	1,777870522	2	8,0862	45,7012	65,3867934	2088,59701	116,2493	3713,255	232,4985049	7426,510106	104,6243272	3341,929548	47,08094723	1503,868296	9,533891815	304,53333
0,55	6,993701844	4	11,6246	56,7347	135,132062	3218,83021	945,0734	22511,54	3780,293407	90046,15497	2079,161374	49525,38524	1143,538756	27238,96188	345,9204736	8239,785969
0,65	2,257296725	2	14,8250	84,9287	219,781095	7212,8884	496,1111	16281,63	992,2222936	32563,25871	644,9444909	21166,11816	419,2139191	13757,9768	177,1178808	5812,7452
0,75	1,415258934	4	15,8478	109,9094	251,154232	12080,0692	355,4483	17096,43	1421,793081	68385,70327	1066,344811	51289,27745	799,758608	38466,95809	449,864217	21637,66393
0,85	0,869492151	2	13,9384	123,4643	194,278995	15243,4436	168,9241	13254,05	337,8481223	26508,10909	287,170904	22531,89272	244,0952684	19152,10881	176,3588314	13837,39862
0,95	0,538297280	4	9,4668	109,0780	89,6196154	11898,0094	48,242	6404,666	192,9679809	25618,66447	183,3195818	24337,73125	174,1536027	23120,84468	157,1736265	20866,56233
1,05	0,341418888	2	7,3524	68,2424	54,0578937	4657,02524	18,45639	1589,996	36,91277184	3179,992754	38,75841043	3338,992392	40,69633096	3505,942011	44,86770488	3865,301067
1,15	0,222784340	4	6,5225	25,8358	42,5427975	667,488433	9,477869	148,706	37,91147626	594,8238799	43,59819769	684,0474619	50,13792735	786,6545812	66,30740892	1040,350684
1,25	0,149509249	1	6,2222	50,2561	38,7158697	2525,67118	5,788381	377,6112	5,7883806	377,6112016	7,23547575	472,014002	9,044344687	590,0175025	14,13178857	921,9023476
		Σ =							7045,460949	254903,8572	4457,686298	176758,4483	2928,604758	128148,2037	1441,384243	76529,29017
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	234,84870
m_0 BM=	8496,79524
m_1 SF =	148,58954
m_1 BM=	5891,94828
m_2 SF =	97,62016
m_2 BM=	4271,60679
m_4 SF =	48,04614
m_4 BM=	2550,97634
SF Ext =	114,76603
BM Ext =	694,97968

Hs	5,004710712	m		Tp	ωp
				11,5	0,54636522

ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	4,7853	35,2344	22,8986979	1241,46461	4,98E-09	2,7E-07	4,97709E-09	2,69835E-07	1,24427E-09	6,74589E-08	3,11068E-10	1,68647E-08	1,94418E-11	1,05404E-09
0,35	0,058476969	4	5,7662	30,5669	33,2489682	934,333747	1,944299	54,63701	7,77719556	218,548023	2,722018446	76,49180805	0,952706456	26,77213282	0,116706541	3,27958627
0,45	1,913768785	2	8,0862	45,7012	65,3867934	2088,59701	125,1352	3997,092	250,2704082	7994,183518	112,6216837	3597,382583	50,67975765	1618,822162	10,26265092	327,8114879
0,55	7,528291918	4	11,6246	56,7347	135,132062	3218,83021	1017,314	24232,29	4069,254443	96929,17368	2238,089944	53311,04553	1230,949469	29321,07504	372,3622144	8869,6252
0,65	2,429841744	2	14,8250	84,9287	219,781095	7212,8884	534,0333	17526,18	1068,066561	35052,35465	694,2432644	22784,03052	451,2581218	14809,61984	190,6565565	6257,064383
0,75	1,523439608	4	15,8478	109,9094	251,154232	12080,0692	382,6183	18403,26	1530,473217	73613,02336	1147,854913	55209,76752	860,8911845	41407,32564	484,2512913	23291,62067
0,85	0,935955075	2	13,9384	123,4643	194,278995	15243,4436	181,8364	14267,18	363,6728224	28534,35675	309,121899	24254,20323	262,7536142	20616,07275	189,8394862	14895,11256
0,95	0,579444071	4	9,4668	109,0780	89,6196154	11898,0094	51,92955	6894,231	207,718219	27576,92406	197,332308	26198,07786	187,4656926	24888,17397	169,1877876	22461,57701
1,05	0,367516533	2	7,3524	68,2424	54,0578937	4657,02524	19,86717	1711,534	39,73433929	3423,067538	41,72105625	3594,220914	43,80710906	3773,93196	48,29733774	4160,759986
1,15	0,239813704	4	6,5225	25,8358	42,5427975	667,488433	10,20235	160,0729	40,80938345	640,2914948	46,93079097	736,335219	53,97040962	846,7855018	71,37586672	1119,873826
1,25	0,160937554	1	6,2222	50,2561	38,7158697	2525,67118	6,230837	406,4753	6,230837382	406,4753432	7,788546728	508,094179	9,735683409	635,1177237	15,21200533	992,3714433
		Σ =							7584,007426	274388,3984	4798,426424	190269,6494	3152,463748	137943,6967	1551,561903	82379,09615
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	252,80025
m_0 BM=	9146,27995
m_1 SF =	159,94755
m_1 BM=	6342,32165
m_2 SF =	105,08212
m_2 BM=	4598,12322
m_4 SF =	51,71873
m_4 BM=	2745,96987
SF Ext =	119,07156
BM Ext =	721,05232

Hs	5,108263482	m		Tp	ωp
				11,5	0,54636522

ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	4,7853	35,2344	22,8986979	1241,46461	5,19E-09	2,81E-07	5,18518E-09	2,81117E-07	1,2963E-09	7,02793E-08	3,24074E-10	1,75698E-08	2,02546E-11	1,09811E-09
0,35	0,060921905	4	5,7662	30,5669	33,2489682	934,333747	2,02559	56,92139	8,102361972	227,6855683	2,83582669	79,68994891	0,992539342	27,89148212	0,121586069	3,416706559
0,45	1,993783917	2	8,0862	45,7012	65,3867934	2088,59701	130,3671	4164,211	260,734274	8328,422249	117,3304233	3747,790012	52,79869049	1686,505506	10,69173482	341,5173649
0,55	7,843051610	4	11,6246	56,7347	135,132062	3218,83021	1059,848	25245,45	4239,390948	100981,8057	2331,665021	55539,99314	1282,415762	30546,99622	387,9307679	9240,466358
0,65	2,531434011	2	14,8250	84,9287	219,781095	7212,8884	556,3613	18258,95	1112,72268	36517,90201	723,2697419	23736,63631	470,1253322	15428,8136	198,6279529	6518,673746
0,75	1,587134984	4	15,8478	109,9094	251,154232	12080,0692	398,6157	19172,7	1594,462669	76690,80154	1195,847002	57518,10115	896,8852516	43138,57586	504,497954	24265,44892
0,85	0,975087581	2	13,9384	123,4643	194,278995	15243,4436	189,439	14863,69	378,8780704	29727,38505	322,0463598	25268,27729	273,7394059	21478,0357	197,7767207	15517,88079
0,95	0,603670766	4	9,4668	109,0780	89,6196154	11898,0094	54,10074	7182,48	216,4029675	28729,92188	205,5828192	27293,42578	195,3036782	25928,75449	176,2615696	23400,70093
1,05	0,382882487	2	7,3524	68,2424	54,0578937	4657,02524	20,69782	1783,093	41,39564155	3566,186813	43,46542363	3744,496154	45,63869481	3931,720961	50,31666102	4334,72236
1,15	0,249840373	4	6,5225	25,8358	42,5427975	667,488433	10,62891	166,7656	42,51563357	667,0622358	48,8929786	767,1215712	56,22692539	882,1898069	74,36010883	1166,69602
1,25	0,167666392	1	6,2222	50,2561	38,7158697	2525,67118	6,49135	423,4702	6,491350188	423,4701748	8,114187736	529,3377185	10,14273467	661,6721482	15,84802292	1033,862732
		Σ =							7901,096596	285860,6432	4999,049784	198224,8691	3284,269014	143711,1558	1616,433079	85823,38593
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	263,36989
m_0 BM=	9528,68811
m_1 SF =	166,63499
m_1 BM=	6607,49564
m_2 SF =	109,47563
m_2 BM=	4790,37186
m_4 SF =	53,88110
m_4 BM=	2860,77953
SF Ext =	121,5352729
BM Ext =	735,9716528

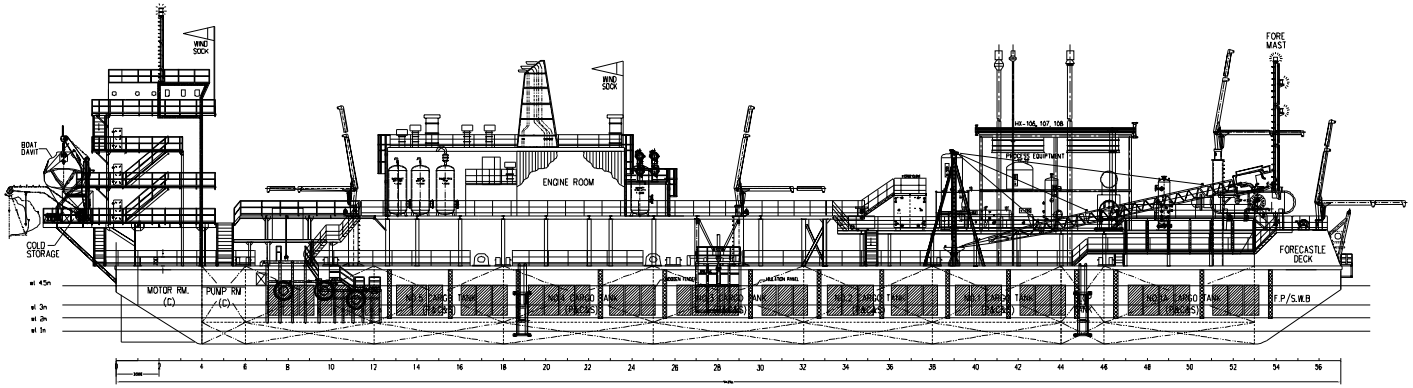
1/4 FP

KURUN WAKTU PANJANG

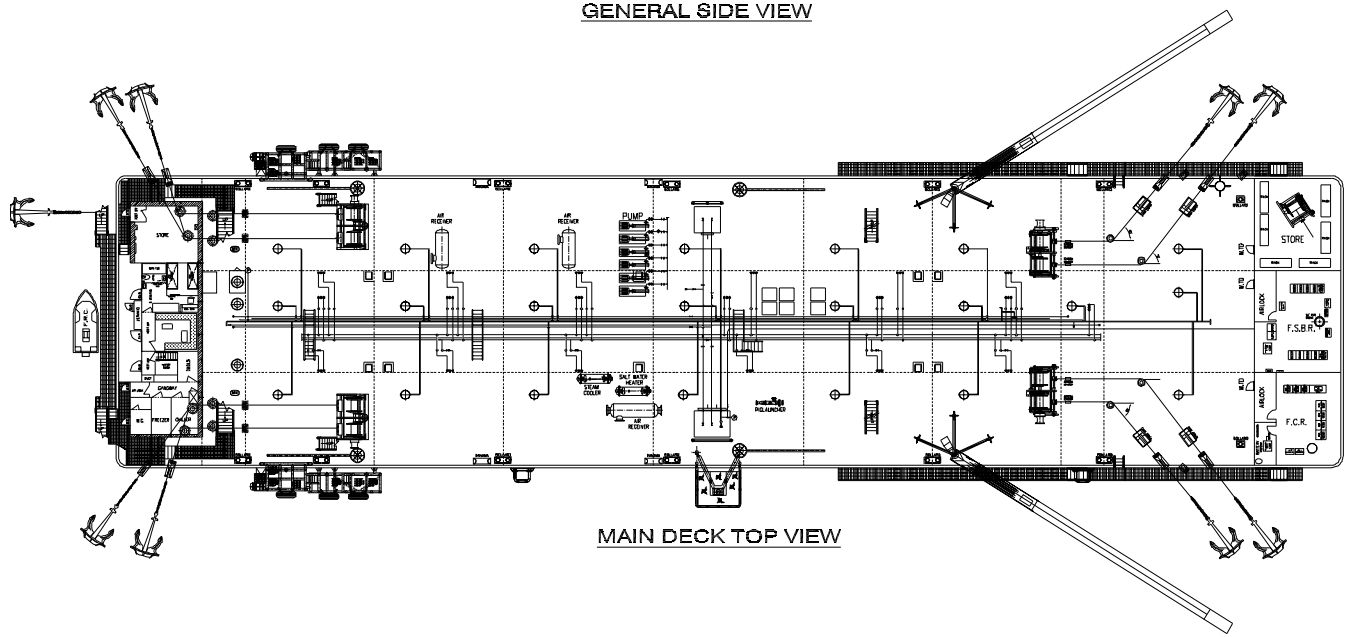
Hs	4,823744654	m		Tp	ωp													m_0 SF =	179,56736
				11,5	0,54636522													m_0 BM=	4379,25225
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	111,40083
(rad/s)	(m^2/rad/s)																	m_1 BM=	3058,81564
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	4,05E-09	9,2E-08	4,0547E-09	9,19621E-08	1,01368E-09	2,29905E-08	2,53419E-10	5,74763E-09	1,58387E-11	3,59227E-10		m_2 SF =	71,70880
0,35	0,054324472	4	5,6889	15,5720	32,3639507	242,486644	1,758155	13,17296	7,032618199	52,69183609	2,46141637	18,44214263	0,861495729	6,454749921	0,105533227	0,790706865		m_2 BM=	2214,83717
0,45	1,777870522	2	7,5337	22,5825	56,7573622	509,968434	100,9072	906,6578	201,8144822	1813,315691	90,816517	815,992061	40,86743265	367,1964274	8,275655112	74,35727656		m_4 SF =	34,10501
0,55	6,993701844	4	10,5799	37,7352	111,933965	1423,94524	782,8328	9958,648	3131,331112	39834,59371	1722,232112	21909,02654	947,2276615	12049,9646	286,5363676	3645,11429		m_4 BM=	1291,32850
0,65	2,257296725	2	12,9678	67,1213	168,164124	4505,26757	379,5963	10169,73	759,1926521	20339,45146	493,4752238	13220,64345	320,7588955	8593,418243	135,5206333	3630,719208			
0,75	1,415258934	4	12,7199	89,0775	161,794841	7934,80386	228,9816	11229,8	915,9263774	44919,20823	686,9447831	33689,40617	515,2085873	25267,05463	289,8048304	14212,71823		SF Ext =	100,21007
0,85	0,869492151	2	10,4586	88,2486	109,38323	7787,81075	95,10786	6771,44	190,2157201	13542,88064	161,6833621	11511,44855	137,4308577	9784,731264	99,29379472	7069,468338		BM Ext =	499,04094
0,95	0,538297280	4	7,2064	65,5980	51,9323143	4303,09824	27,95502	2316,346	111,8200942	9265,384313	106,2290895	8802,115098	100,9176351	8362,009343	91,07816564	7546,713432			
1,05	0,341418888	2	6,2314	33,1106	38,8297633	1096,31235	13,25721	374,3017	26,51442918	748,6034894	27,84015064	786,0336639	29,23215818	825,3353471	32,22845439	909,9322201			
1,15	0,222784340	4	6,3777	27,0979	40,6745002	734,297872	9,061642	163,5901	36,24656675	654,360267	41,68355176	752,514307	47,93608452	865,3914531	63,39547178	1144,480197			
1,25	0,149509249	1	6,8067	37,2163	46,3306265	1385,05023	6,926857	207,0778	6,926857165	207,0778189	8,658571456	258,8472737	10,82321432	323,5590921	16,91127237	505,5610814			
		Σ =							5387,02091	131377,5675	3342,024778	91764,46925	2151,264022	66445,11514	1023,150179	38739,85498			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Hs	5,004710712	m		Tp	ωp													m_0 SF =	193,29327
				11,5	0,54636522													m_0 BM=	4713,99697
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	119,91617
(rad/s)	(m^2/rad/s)																	m_1 BM=	3292,62779
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	4,36E-09	9,9E-08	4,36464E-09	9,89915E-08	1,09116E-09	2,47479E-08	2,7279E-10	6,18697E-09	1,70494E-11	3,86686E-10		m_2 SF =	77,19013
0,35	0,058476969	4	5,6889	15,5720	32,3639507	242,486644	1,892546	14,17988	7,570182992	56,71953604	2,649564047	19,85183761	0,927347416	6,948143165	0,113600059	0,851147538		m_2 BM=	2384,13663
0,45	1,913768785	2	7,5337	22,5825	56,7573622	509,968434	108,6205	975,9617	217,2409361	1951,92334	97,75842125	878,365503	43,99128956	395,2644763	8,908236136	80,04105646		m_4 SF =	36,71195
0,55	7,528291918	4	10,5799	37,7352	111,933965	1423,94524	842,6716	10719,88	3370,686259	42879,50166	1853,877443	23583,72592	1019,632593	12971,04925	308,4388595	3923,742399		m_4 BM=	1390,03608
0,65	2,429841744	2	12,9678	67,1213	168,164124	4505,26757	408,6122	10947,09	817,2244162	21894,17443	531,1958705	14231,21338	345,2773159	9250,288696	145,8796659	3908,246974			
0,75	1,523439608	4	12,7199	89,0775	161,794841	7934,80386	246,4847	12088,19	985,9386772	48352,77794	739,4540079	36264,58346	554,5905059	27198,43759	311,9571596	15299,12115		SF Ext =	103,96952
0,85	0,935955075	2	10,4586	88,2486	109,38323	7787,81075	102,3778	7289,041	204,7555787	14578,08199	174,0422419	12391,36969	147,9359056	10532,66424	106,8836918	7609,849911		BM Ext =	517,76280
0,95	0,579444071	4	7,2064	65,5980	51,9323143	4303,09824	30,09187	2493,405	120,3674864	9973,619036	114,3491121	9474,938084	108,6316565	9001,19118	98,04006999	8123,57504			
1,05	0,367516533	2	6,2314	33,1106	38,8297633	1096,31235	14,27058	402,9129	28,54115994	805,8258308	29,96821794	846,1171224	31,46662884	888,4229785	34,6919583	979,4863338			
1,15	0,239813704	4	6,3777	27,0979	40,6745002	734,297872	9,754303	176,0947	39,01721028	704,378771	44,86979182	810,0355866	51,6002606	931,5409246	68,24134464	1231,962873			
1,25	0,160937554	1	6,8067	37,2163	46,3306265	1385,05023	7,456338	222,9066	7,456337713	222,9065959	9,320422141	278,6332449	11,65052768	348,2915561	18,20394949	544,2055564			
		Σ =							5798,798245	141419,9091	3597,485092	98778,83382	2315,704031	71524,09904	1101,358535	41701,08244			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Hs	5,108263482	m		Tp	ωp													m_0 SF =	201,37491
				11,5	0,54636522													m_0 BM=	4911,09032
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	124,92989
(rad/s)	(m^2/rad/s)																	m_1 BM=	3430,29335
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	4,55E-09	1,03E-07	4,54712E-09	1,0313E-07	1,13678E-09	2,57826E-08	2,84195E-10	6,44565E-09	1,77622E-11	4,02853E-10		m_2 SF =	80,41747
0,35	0,060921905	4	5,6889	15,5720	32,3639507	242,486644	1,971674	14,77275	7,886694159	59,09099346	2,760342956	20,68184771	0,966120035	7,238646699	0,118349704	0,886734221		m_2 BM=	2483,81796
0,45	1,993783917	2	7,5337	22,5825	56,7573622	509,968434	113,1619	1016,767	226,3238318	2033,533723	101,8457243	915,0901755	45,83057594	411,790579	9,280691627	83,38759224		m_4 SF =	38,24689
0,55	7,843051610	4	10,5799	37,7352	111,933965	1423,94524	877,9039	11168,08	3511,615461	44672,30392	1931,388503	24569,76716	1062,263677	13513,37194	321,3347622	4087,795011		m_4 BM=	1448,15382
0,65	2,531434011	2	12,9678	67,1213	168,164124	4505,26757	425,6964	11404,79	851,3927652	22809,57512	553,4052974	14826,22383	359,7134433	9637,045486	151,9789298	4071,651718			
0,75	1,587134984	4	12,7199	89,0775	161,794841	7934,80386	256,7903	12593,6	1027,16101	50374,41919	770,3707574	37780,81439	577,7780681	28335,6108	325,0001633	15938,78107		SF Ext =	106,1207604
0,85	0,975087581	2	10,4586	88,2486	109,38323	7787,81075	106,6582	7593,798	213,3164585	15187,5951	181,3189898	12909,45583	154,1211413	10973,03746	111,3525246	7928,019563		BM Ext =	528,4758564
0,95	0,603670766	4	7,2064	65,5980	51,9323143	4303,09824	31,35002	2597,655	125,4000799	10390,61844	119,1300759	9871,087519	113,1735721	9377,533143	102,1391488	8463,223662			
1,05	0,382882487	2	6,2314	33,1106	38,8297633	1096,31235	14,86724	419,7588	29,73447269	839,5176022	31,22119633	881,4934823	32,78225614	925,5681565	36,1424374	1020,438893			
1,15	0,249840373	4	6,3777	27,0979	40,6745002	734,297872	10,16213	183,4573	40,64852921	733,8290165	46,74580859	843,9033689	53,75767988	970,4888743	71,09453164	1283,471536			
1,25	0,167666392	1	6,8067	37,2163	46,3306265	1385,05023	7,768089	232,2264	7,768088982	232,2263742	9,710111227	290,2829677	12,13763903	362,8537096	18,96506099	566,9589213			
		Σ =							6041,247391	147332,7095	3747,896807	102908,8006	2412,524173	74514,53878	1147,4066	43444,6147			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			



GENERAL SIDE VIEW



MAIN DECK TOP VIEW

NOTES :

PRINCIPAL PARTICULAR

LENGTH O.A	93.9	M
BREADTH MLD	22.00	M
DEPTH MLD	6.00	M
DRAFT (LOADED)	4.5	M

DATE	REV	STATUS	STATUS/ DESCRIPTION	BY	APP
MAR,16.2007	1	A	APPROVED FOR CONSTRUCTION	LHS	LHS

TITLE

GENERAL ARRANGEMENT

DOC. CON. NO.:

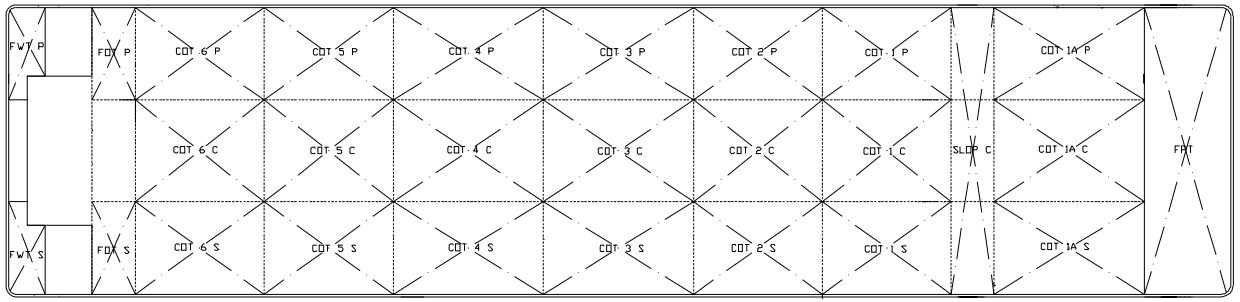
DOC. CON. NO.: 0701-ENG-GEN-03

PT.PULAU KENCANA RAYA
OIL AND GAS SERVICE COMPANY

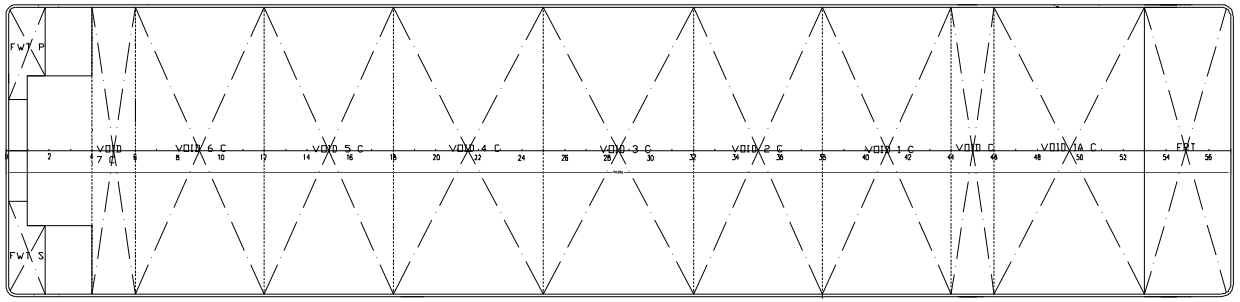
VESSEL: SEAGOOD 101

CHECKED BY	LHS	DATE	DRAWING NO.	REV.
DESIGN BY	LHS	SCALE	SO-101-GEN-03	1
DRAWN BY	HR	APPROVED	PAGE	OF

DWG.FILE = SO-101-GEN-03



TANK PLAN



botto

BOTTOM PLAN

NOTES :

PRINCIPAL PARTICULAR

LENGTH O.A	93.9	M
BREADTH MLD	22.00	M
DEPTH MLD	6.00	M
DRAFT (LOADED)	4.5	M

DATE	REV	STATUS	STATUS/ DESCRIPTION	BY	APP
MAR,16.2007	1	A	APPROVED FOR CONSTRUCTION	LHS	LHS

TITLE

TANK ARRANGEMENT

DOC. CON. NO.:

DOC. CON. NO.: 0701-ENG-GEN-03

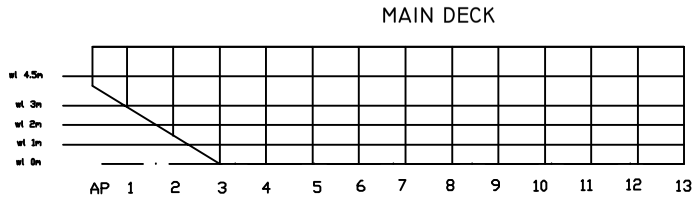
PT.PULAU KENCANA RAYA
OIL AND GAS SERVICE COMPANY

VESSEL: SEAGOOD 101

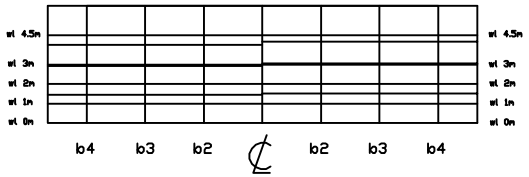
CHECKED BY	LHS	DATE	DRAWING NO.	REV.
DESIGN BY	LHS	SCALE	SO-101-GEN-03	1
DRAWN BY	HR	APPROVED	PAGE	OF

DWG.FILE = SO-101-GEN-03

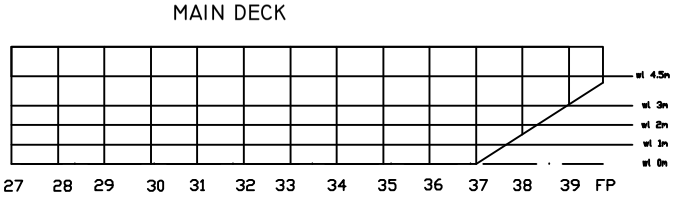
SHEER PLAN



BODY PLAN



SHEER PLAN



HALF BREADTH PLAN

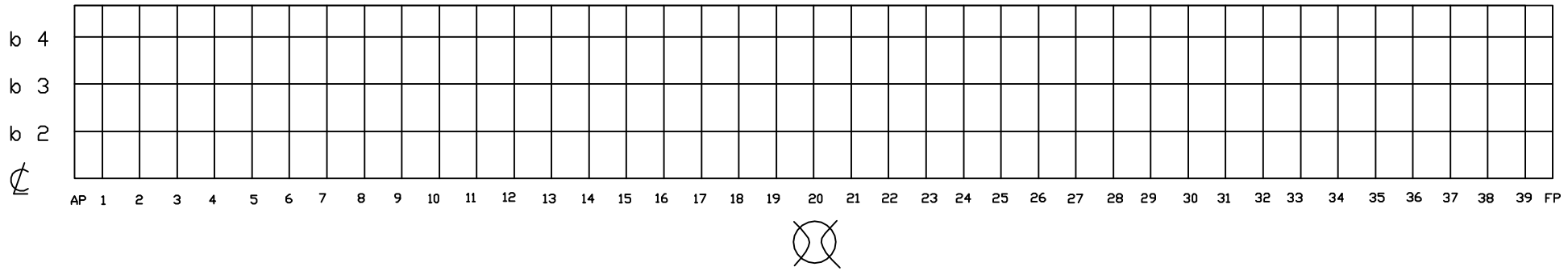


TABLE OF ORDINATE HALF BREADTH (m)

WL \ STATION	AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	FP
WL 0	–	–	–	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	–	–	–
WL 1	–	–	–	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	–	–
WL 2	–	–	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	–
WL 3	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
WL 4.5	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
MAIN DECK	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00

TABLE OF ORDINATE HEIGHT ABOVE BASELINE (m)

B \ STATION	AP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	FP
B1 (CL)	2.69	2.00	1.06	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.91	1.73	2.35
B2	2.69	2.00	1.06	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.91	1.73	2.35
B3	2.69	2.00	1.06	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.91	1.73	2.35
B4	2.69	2.00	1.06	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.91	1.73	2.35

PRINCIPAL DIMENSION		
LoA	93.900	m
Lpp	93.900	m
B	22.000	m
H	6.000	m
T	4.500	m

FACULTY OF MARINE TECHNOLOGY
DEPARTMENT OF OCEAN ENGINEERING
SEPULUH NOPEMBER INSTITUTE OF TECHNOLOGY

FPSO SEAGOOD 101

LINES PLAN

Scale	: 1:75	Signature	:	Date	:	Remark
Drawn By	: Alfian Gumelar Putra					
Checked	:			NRP	:	
Approved By	:			4310100066		

INPUT MODEL FPSO SEAGOOD 101

```
$
&device  -clr n -cecho y -limerr 0
&device  -pri device
$
&set demo   = .false
&set ano   = -ano yes
&set ano   =
&set plot  = .true.
&set one   = .true.
&set two   = .true.
&set three = .true.
&set four  = .true.
&set five  = .true.
$
&MACRO SUPLOT NAMES
   &SELEC :N -SEL %NAMES
   &IF %DEMO &THEN
    &DEVICE -PRIMARY SCREEN
    &SUBTITLE %SUBT PICTURE ISO
    &PICT ISO -parent :N
    &LOCAL DUM = &GET(YES/NO )
    &IF &STRING(MATCH %DUM% YES) &THEN
    &ENDIF
    &SUBTITLE %SUBT PICTURE TOP
    &PICT TOP
    &LOCAL DUM = &GET(YES/NO )
    &IF &STRING(MATCH %DUM% YES) &THEN
    &ENDIF
    &SUBTITLE %SUBT PICTURE BOW
    &PICT BOW
    &LOCAL DUM = &GET(YES/NO )
    &IF &STRING(MATCH %DUM% YES) &THEN
    &ENDIF
    &SUBTITLE %SUBT PICTURE STARB
    &PICT STARB
    &LOCAL DUM = &GET(YES/NO )
    &IF &STRING(MATCH %DUM% YES) &THEN
    &ENDIF
   &ELSE
    &DEVICE -PRIMARY DEVICE
    &SUBTITLE %SUBT PICTURE ISO
    &PICT ISO -parent :N
    &SUBTITLE %SUBT PICTURE TOP
    &PICT TOP
    &SUBTITLE %SUBT PICTURE BOW
    &PICT BOW
    &SUBTITLE %SUBT PICTURE STARB
    &PICT STARB
   &ENDIF
  &ENDMACRO
$
$
&surface
$
$
$PGEN -PERM 1.45 -LOC 0 0 0 -DIFTYP 3DDIF $-CS_CURR 1 1 1
BLOCK seagood -LOCATION 0 0 0 0 0 0
PLANE 0          -CARTES          0          4.0091   \
                                  11         4.0091   \
```

```
                    11      6

PLANE 1.75      -CARTES     0       2.8362  \
                    11      2.8362  \
                    11      6

PLANE 4.129     -CARTES     0       1.3213  \
                    11      1.3213  \
                    11      6

PLANE 6.508     -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 8.887     -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 11.266    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 13.645    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 16.024    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 18.403    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 20.782    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 23.161    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 25.540    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 27.919    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 30.298    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 32.677    -CARTES     0       0       \
                    11      0   \
                    11      6

PLANE 35.056    -CARTES     0       0       \
                    11      0   \
```

```
                    11      6

PLANE 37.435  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 39.814  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 42.193  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 44.572  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 46.951  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 49.330  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 51.709  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 54.088  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 56.467  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 58.846  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 61.225  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 63.604  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 65.983  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 68.362  -CARTES       0       0       \
                    11      0   \
                    11      6

PLANE 70.741  -CARTES       0       0       \
                    11      0   \
```

```
                        11      6

PLANE 73.120  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 75.499  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 77.878  -CARTES     0       0       \
                        11      0    \
                        11      6


PLANE 80.257  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 82.636  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 85.015  -CARTES     0       0       \
                        11      0    \
                        11      6

PLANE 87.394  -CARTES     0       0       \
                        11      0       \
                        11      6

PLANE 89.773  -CARTES     0       1.2645  \
                        11      1.2645 \
                        11      6

PLANE 92.152  -CARTES     0       2.9036  \
                        11      2.9036 \
                        11      6

PLANE 93.9    -CARTES     0       4.1727  \
                        11      4.1727 \
                        11      6
END BLOCK
$
$
  list_blocks
  &set subt = seagood
  suplot seagood
  &set sub = FOIL
$ suplot SMITBORNEOuplot 2SMITBORNEO
$
$
$
  rename seagood
  &set subt = seagood
  emit seagood -body
  emit seagood -piece "-diftype 3ddif" \
        -use_name yes \
        -compart "-descr 'This is Extra "'
&fini
```

INPUT HYDROSTATIC FPSO SEAGOOD 101

```
&title hydrostatic property of FPSO NOBLE SEILLEAN
&SUBTI  CASE : LIGHTSHIP CONDITION CONDITION
&devi -cecho yes -oecho NO -PRIMA DEV -auxin fpso_seagood.ppo
inmo
&DIMEN -DIMEN METERS M-TONS
&instate FPSONS -condi 4.5 0.0 0.0
MEDIT
&DESCRIBE BODY FPSONS
#weight 3774.56 13.16 27.40 30.07 -cen 44.49 -0.09 5.6
END_MEDIT
$
$
&apply @
$
$
&SUBTI CASE: LIGHTSHIP
$
hstati

&stat -hard
&stat comp -h
&stat draft -h
end
hstati
CFORM 1 0 0 -DRAFT 0.01 1060
REPORT
END
&eofile
$
$
rarm 1 80 -win 100 -num 10000
report
END
&fini
```

INPUT RAO FPSO SEAGOOD 101

```
&subtitle "fpso SEAGOOD 101" BARGE MODEL 93.9m X 22m X 6m
&devi -cecho yes -AUXIN fpso_seagood.ppo -oecho no -PRIMA DEV
inmo
&DIMEN -DIMEN METERS M-TONS
&instate seagood -condi 4.5 0.0 0.0
medit
&DESCRIBE BODY seagood
$&weight -compute seagood 5.60 13.16 27.40 30.07
$
end
$
&pltmodel vessel
  pic iso
  pic starboard
  pic bow
  pic top
end
$
hstati
equi -num 500 -echo yes
$
&stat -hard
&stat comp -h
&stat draft -h
END
hydro
$&para -m_dist 2.5
g_press seagood seagooddb -speed 0.0 -heading 180 -period 25.1328 17.952 13.9627 11.424 9.6665 8.3776
7.392 6.6139 5.984 5.4636 5.0266 4.6542 4.3332 4.0537 3.808 3.5904 3.3963 3.2222 3.0650
&DIMEN -DIMEN METERS K-NTS
V_MDRIFT
   REPORT
   END
end
$
freq_resp
rao -heading 180 -period 25.1328 17.952 13.9627 11.424 9.6665 8.3776 7.392 6.6139 5.984 5.4636 5.0266
4.6542 4.3332 4.0537 3.808 3.5904 3.3963 3.2222 3.0650
$
&subti seagood's respone amplitude operators
&DIMEN -DIMEN METERS K-NTS
fp_std &BODY(CG seagood)
equ_sum
MATRICES -FILE YES
   REPORT
   END
&EOFILE
```

OUTPUT HYDROSTATIC FPSO SEAGOOD 101

+++ H Y D R O S T A T I C P R O P E R T I E S +++

==========

For Body SEAGOOD

Process is DEFAULT: Units Are Degrees, Meters, and M-Tons Unless Specified

/--- Condition ---//- Displac-/				/-- Center Of Buoyancy --// W.P. /				/C. Flotation /		/-- Metacentric Heights --/			
Draft	Trim	Roll		---X---	---Y---	---Z---	Area	--X--	--Y--	-KMT-	-KML-	-BMT-	-BML-
4.01	0.00	0.00	7925.78	46.93	0.00	2.05	2061.	46.84	0.00	12.80	196.99	10.75	194.93
4.02	0.00	0.00	7946.91	46.93	0.00	2.06	2061.	46.84	0.00	12.78	196.56	10.72	194.50
4.03	0.00	0.00	7968.04	46.93	0.00	2.06	2062.	46.85	0.00	12.76	196.14	10.70	94.07
4.04	0.00	0.00	7989.18	46.93	0.00	2.07	2062.	46.86	0.00	12.74	195.71	10.67	93.64
4.05	0.00	0.00	8010.32	46.93	0.00	2.07	2062.	46.87	0.00	12.72	195.29	10.64	93.22
4.06	0.00	0.00	8031.46	46.93	0.00	2.08	2062.	46.87	0.00	12.70	194.87	10.62	92.79
4.07	0.00	0.00	8052.60	46.93	0.00	2.08	2063.	46.88	0.00	12.68	194.46	10.59	92.37
4.08	0.00	0.00	8073.76	46.93	0.00	2.09	2063.	46.89	0.00	12.66	194.04	10.57	91.95
4.09	0.00	0.00	8094.91	46.93	0.00	2.09	2063.	46.89	0.00	12.63	193.63	10.54	91.54
4.10	0.00	0.00	8116.06	46.93	0.00	2.10	2064.	46.90	0.00	12.61	193.22	10.51	91.12
4.11	0.00	0.00	8137.22	46.93	0.00	2.11	2064.	46.91	0.00	12.59	192.81	10.49	90.71
4.12	0.00	0.00	8158.38	46.93	0.00	2.11	2064.	46.91	0.00	12.57	192.41	10.46	90.30
4.13	0.00	0.00	8179.54	46.93	0.00	2.12	2065.	46.92	0.00	12.55	192.00	10.44	89.89
4.14	0.00	0.00	8200.71	46.93	0.00	2.12	2065.	46.93	0.00	12.53	191.60	10.41	89.48
4.15	0.00	0.00	8221.88	46.93	0.00	2.13	2065.	46.93	0.00	12.51	191.20	10.39	89.08
4.16	0.00	0.00	8243.05	46.93	0.00	2.13	2065.	46.94	0.00	12.49	190.81	10.36	88.67
4.17	0.00	0.00	8264.22	46.93	0.00	2.14	2066.	46.95	0.00	12.47	190.41	10.34	88.27
4.18	0.00	0.00	8285.41	46.93	0.00	2.14	2066.	46.95	0.00	12.45	189.96	10.31	87.82
4.19	0.00	0.00	8306.59	46.93	0.00	2.15	2066.	46.95	0.00	12.43	189.49	10.28	87.34
4.20	0.00	0.00	8327.77	46.93	0.00	2.15	2066.	46.95	0.00	12.41	189.01	10.26	86.86
4.21	0.00	0.00	8348.95	46.93	0.00	2.16	2066.	46.95	0.00	12.39	188.55	10.23	86.39
4.22	0.00	0.00	8370.13	46.93	0.00	2.16	2066.	46.95	0.00	12.37	188.08	10.21	85.92
4.23	0.00	0.00	8391.31	46.93	0.00	2.17	2066.	46.95	0.00	12.35	187.61	10.18	85.45
4.24	0.00	0.00	8412.49	46.93	0.00	2.17	2066.	46.95	0.00	12.33	187.15	10.15	84.98
4.25	0.00	0.00	8433.66	46.93	0.00	2.18	2066.	46.95	0.00	12.31	186.69	10.13	184.52
4.26	0.00	0.00	8454.84	46.93	0.00	2.18	2066.	46.95	0.00	12.29	186.24	10.10	184.05
4.27	0.00	0.00	8476.02	46.93	0.00	2.19	2066.	46.95	0.00	12.27	185.78	10.08	183.59
4.28	0.00	0.00	8497.20	46.93	0.00	2.19	2066.	46.95	0.00	12.25	185.33	10.05	183.14
4.29	0.00	0.00	8518.38	46.93	0.00	2.20	2066.	46.95	0.00	12.23	184.88	10.03	182.68
4.30	0.00	0.00	8539.56	46.93	0.00	2.20	2066.	46.95	0.00	12.21	184.43	10.00	182.23
4.31	0.00	0.00	8560.74	46.93	0.00	2.21	2066.	46.95	0.00	12.19	183.99	9.98	181.78
4.32	0.00	0.00	8581.91	46.93	0.00	2.21	2066.	46.95	0.00	12.17	183.54	9.95	181.33
4.33	0.00	0.00	8603.09	46.93	0.00	2.22	2066.	46.95	0.00	12.15	183.10	9.93	180.88
4.34	0.00	0.00	8624.27	46.93	0.00	2.23	2066.	46.95	0.00	12.13	182.66	9.90	180.44
4.35	0.00	0.00	8645.45	46.93	0.00	2.23	2066.	46.95	0.00	12.11	182.23	9.88	180.00
4.36	0.00	0.00	8666.63	46.93	0.00	2.24	2066.	46.95	0.00	12.09	181.79	9.86	179.56
4.37	0.00	0.00	8687.81	46.93	0.00	2.24	2066.	46.95	0.00	12.07	181.36	9.83	179.12
4.38	0.00	0.00	8708.98	46.93	0.00	2.25	2066.	46.95	0.00	12.05	180.93	9.81	178.68
4.39	0.00	0.00	8730.17	46.93	0.00	2.25	2066.	46.95	0.00	12.04	180.50	9.78	178.25
4.40	0.00	0.00	8751.35	46.93	0.00	2.26	2066.	46.95	0.00	12.02	180.07	9.76	177.82
4.41	0.00	0.00	8772.53	46.93	0.00	2.26	2066.	46.95	0.00	12.00	179.65	9.74	177.39
4.42	0.00	0.00	8793.71	46.93	0.00	2.27	2066.	46.95	0.00	11.98	179.23	9.71	176.96
4.43	0.00	0.00	8814.89	46.93	0.00	2.27	2066.	46.95	0.00	11.96	178.81	9.69	176.54
4.44	0.00	0.00	8836.07	46.93	0.00	2.28	2066.	46.95	0.00	11.94	178.39	9.67	176.11
4.45	0.00	0.00	8857.24	46.93	0.00	2.28	2066.	46.95	0.00	11.93	177.97	9.64	175.69
4.46	0.00	0.00	8878.42	46.93	0.00	2.29	2066.	46.95	0.00	11.91	177.56	9.62	175.27
4.47	0.00	0.00	8899.60	46.93	0.00	2.29	2066.	46.95	0.00	11.89	177.15	9.60	174.86
4.48	0.00	0.00	8920.78	46.93	0.00	2.30	2066.	46.95	0.00	11.87	176.74	9.58	174.44

4.49	0.00	0.00	8941.96	46.93	0.00	2.30	2066.	46.95	0.00	11.86	176.33	9.55	174.03
4.50	0.00	0.00	8963.14	46.93	0.00	2.31	2066.	46.95	0.00	11.84	175.92	9.53	173.62
4.51	0.00	0.00	8984.32	46.93	0.00	2.31	2066.	46.95	0.00	11.82	175.52	9.51	173.21
4.52	0.00	0.00	9005.49	46.93	0.00	2.32	2066.	46.95	0.00	11.80	175.12	9.49	172.80
4.53	0.00	0.00	9026.67	46.93	0.00	2.32	2066.	46.95	0.00	11.79	174.72	9.46	172.39
4.54	0.00	0.00	9047.85	46.93	0.00	2.33	2066.	46.95	0.00	11.77	174.32	9.44	171.99
4.55	0.00	0.00	9069.03	46.93	0.00	2.33	2066.	46.95	0.00	11.75	173.92	9.42	171.59
4.56	0.00	0.00	9090.21	46.93	0.00	2.34	2066.	46.95	0.00	11.74	173.53	9.40	171.19
4.57	0.00	0.00	9111.39	46.93	0.00	2.34	2066.	46.95	0.00	11.72	173.14	9.38	170.79
4.58	0.00	0.00	9132.57	46.93	0.00	2.35	2066.	46.95	0.00	11.70	172.74	9.35	170.39
4.59	0.00	0.00	9153.75	46.93	0.00	2.35	2066.	46.95	0.00	11.69	172.36	9.33	170.00
4.60	0.00	0.00	9174.93	46.93	0.00	2.36	2066.	46.95	0.00	11.67	171.97	9.31	169.61
4.61	0.00	0.00	9196.11	46.93	0.00	2.36	2066.	46.95	0.00	11.65	171.58	9.29	169.22
4.62	0.00	0.00	9217.29	46.93	0.00	2.37	2066.	46.95	0.00	11.64	171.20	9.27	168.83
4.63	0.00	0.00	9238.47	46.93	0.00	2.38	2066.	46.95	0.00	11.62	170.82	9.25	168.44
4.64	0.00	0.00	9259.65	46.93	0.00	2.38	2066.	46.95	0.00	11.61	170.44	9.23	168.06
4.65	0.00	0.00	9280.82	46.93	0.00	2.39	2066.	46.95	0.00	11.59	170.06	9.20	167.67
4.66	0.00	0.00	9302.00	46.93	0.00	2.39	2066.	46.95	0.00	11.57	169.68	9.18	167.29
4.67	0.00	0.00	9323.18	46.93	0.00	2.40	2066.	46.95	0.00	11.56	169.31	9.16	166.91
4.68	0.00	0.00	9344.36	46.93	0.00	2.40	2066.	46.95	0.00	11.54	168.93	9.14	166.53
4.69	0.00	0.00	9365.54	46.93	0.00	2.41	2066.	46.95	0.00	11.53	168.56	9.12	166.16
4.70	0.00	0.00	9386.72	46.93	0.00	2.41	2066.	46.95	0.00	11.51	168.19	9.10	165.78
4.71	0.00	0.00	9407.89	46.93	0.00	2.42	2066.	46.95	0.00	11.50	167.82	9.08	165.41
4.72	0.00	0.00	9429.08	46.93	0.00	2.42	2066.	46.95	0.00	11.48	167.46	9.06	165.04
4.73	0.00	0.00	9450.25	46.93	0.00	2.43	2066.	46.95	0.00	11.47	167.09	9.04	164.67
4.74	0.00	0.00	9471.43	46.93	0.00	2.43	2066.	46.95	0.00	11.45	166.73	9.02	164.30
4.75	0.00	0.00	9492.61	46.93	0.00	2.44	2066.	46.95	0.00	11.44	166.37	9.00	163.93
4.76	0.00	0.00	9513.79	46.93	0.00	2.44	2066.	46.95	0.00	11.42	166.01	8.98	163.57
4.77	0.00	0.00	9534.97	46.93	0.00	2.45	2066.	46.95	0.00	11.41	165.65	8.96	163.20
4.78	0.00	0.00	9556.14	46.93	0.00	2.45	2066.	46.95	0.00	11.39	165.29	8.94	162.84
4.79	0.00	0.00	9577.33	46.93	0.00	2.46	2066.	46.95	0.00	11.38	164.94	8.92	162.48
4.80	0.00	0.00	9598.51	46.93	0.00	2.46	2066.	46.95	0.00	11.36	164.59	8.90	162.12
4.81	0.00	0.00	9619.69	46.93	0.00	2.47	2066.	46.95	0.00	11.35	164.23	8.88	161.77
4.82	0.00	0.00	9640.87	46.93	0.00	2.47	2066.	46.95	0.00	11.33	163.88	8.86	161.41
4.83	0.00	0.00	9662.05	46.93	0.00	2.48	2066.	46.95	0.00	11.32	163.54	8.84	161.06
4.84	0.00	0.00	9683.22	46.93	0.00	2.48	2066.	46.95	0.00	11.31	163.19	8.82	160.71
4.85	0.00	0.00	9704.40	46.93	0.00	2.49	2066.	46.95	0.00	11.29	162.84	8.80	160.35
4.86	0.00	0.00	9725.58	46.93	0.00	2.49	2066.	46.95	0.00	11.28	162.50	8.78	160.01

OUPUT RAO FPSO SEAGOOD 101

+++ M O T I O N R E S P O N S E O P E R A T O R S +++

==========

Of Point On Body SEAGOOD At X = 44.0 Y = -0.1 Z = 5.6

Process is DEFAULT: Units Are Degrees, Meters, and KN Unless Specified

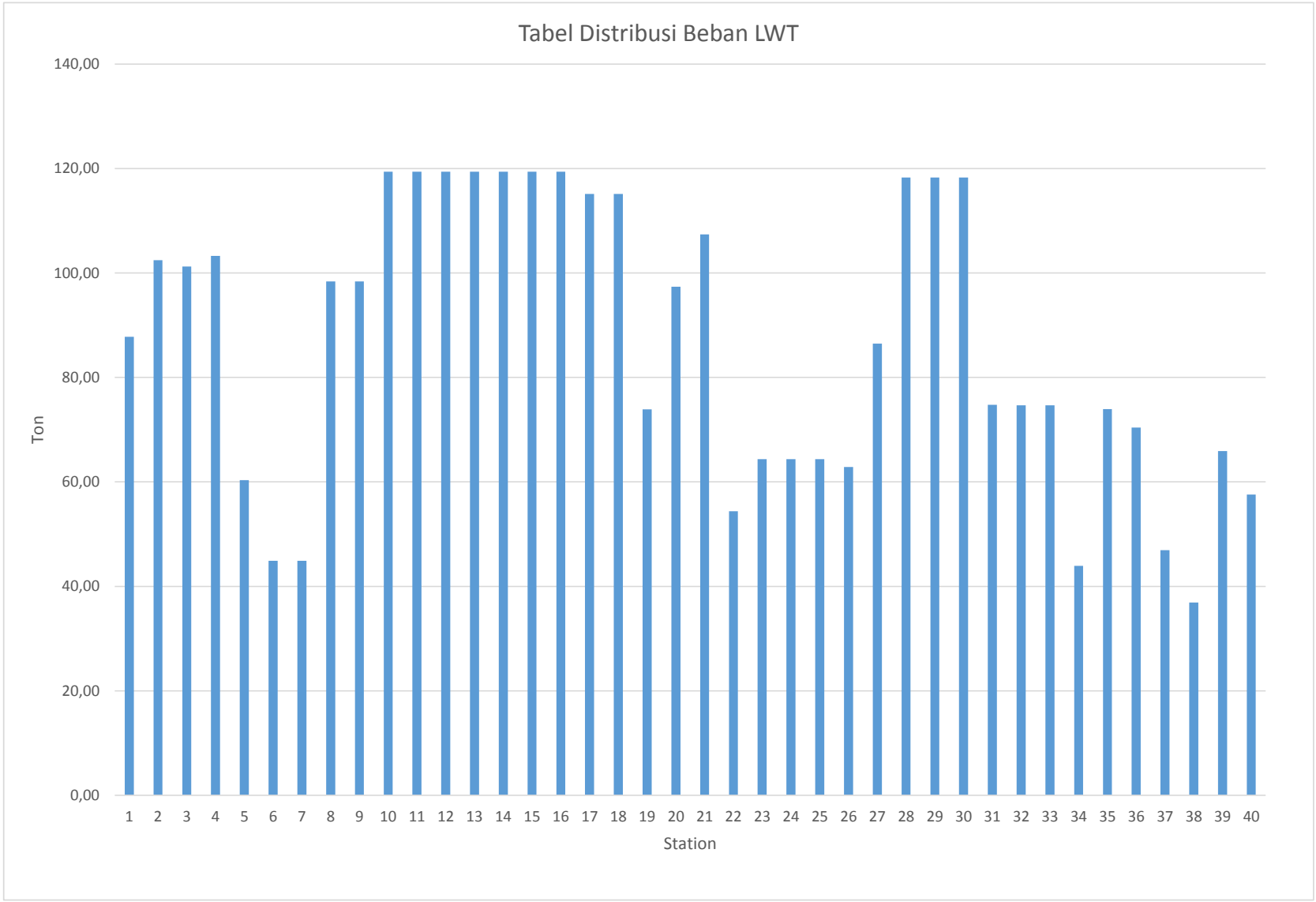
E N C O U N T E R		Surge /		Sway /		Heave /		Roll /		Pitch /		Yaw /	
		Wave Ampl.		Wave Ampl.		Wave Ampl.		Wave Ampl.		Wave Ampl.		Wave Ampl.	
Frequency	Period	/----------/		/----------/		/----------/		/----------/		/----------/		/----------/	
-(Rad/Sec)-	-(Sec)-	Ampl	Phase	Ampl.	Phase	Ampl	Phase	Ampl	Phase	Ampl	Phase	Ampl	Phase
0.2500	25.13	0.98	-104	0.005	-14	0.987	-15	0.000	0	0.363	73	0.002	-111
0.3500	17.95	0.939	-120	0.005	-30	0.952	-30	0.000	0	0.698	57	0.003	-126
0.4500	13.96	0.855	-140	0.005	-50	0.869	-50	0.002	-66	1.102	35	0.005	-148
0.5500	11.42	0.713	-166	0.004	-73	0.716	-75	0.006	-90	1.497	8	0.007	-175
0.6500	9.67	0.508	162	0.002	-91	0.492	-100	0.017	-121	1.745	-24	0.008	151
0.7500	8.38	0.262	128	0.001	-40	0.266	-114	0.058	-157	1.656	-61	0.007	113
0.8500	7.39	0.055	116	0.003	-73	0.176	-95	0.119	-7	1.150	-98	0.004	80
0.9500	6.61	0.077	-165	0.003	-96	0.229	-97	0.027	-62	0.556	-109	0.003	138
1.0500	5.98	0.077	159	0.002	-138	0.213	-127	0.007	-127	0.627	-95	0.008	97
1.1500	5.46	0.022	172	0.001	-125	0.140	-143	0.003	-69	0.610	-132	0.007	27
1.2500	5.03	0.045	-156	0.002	-155	0.107	-149	0.005	-157	0.373	-149	0.002	12
1.3500	4.65	0.039	-170	0.001	147	0.080	-165	0.003	99	0.278	-144	0.004	31
1.4500	4.33	0.034	-168	0.001	-159	0.069	-166	0.001	175	0.200	-163	0.002	-40
1.5500	4.05	0.041	-176	0.001	145	0.049	-172	0.002	105	0.194	-168	0.002	15
1.6500	3.81	0.028	176	0.000	0	0.045	168	0.001	54	0.130	-175	0.002	-41
1.7500	3.59	0.034	161	0.000	0	0.021	171	0.001	59	0.134	158	0.001	-30
1.8500	3.40	0.016	145	0.000	0	0.045	-100	0.003	-57	0.043	-131	0.001	-64
1.9500	3.22	0.015	157	0.000	0	0.019	141	0.001	75	0.169	164	0.001	-20
2.0500	3.06	0.013	159	0.000	0	0.035	161	0.001	100	0.078	162	0.000	0

TITIK BERAT FPSO SEAGOOD 101

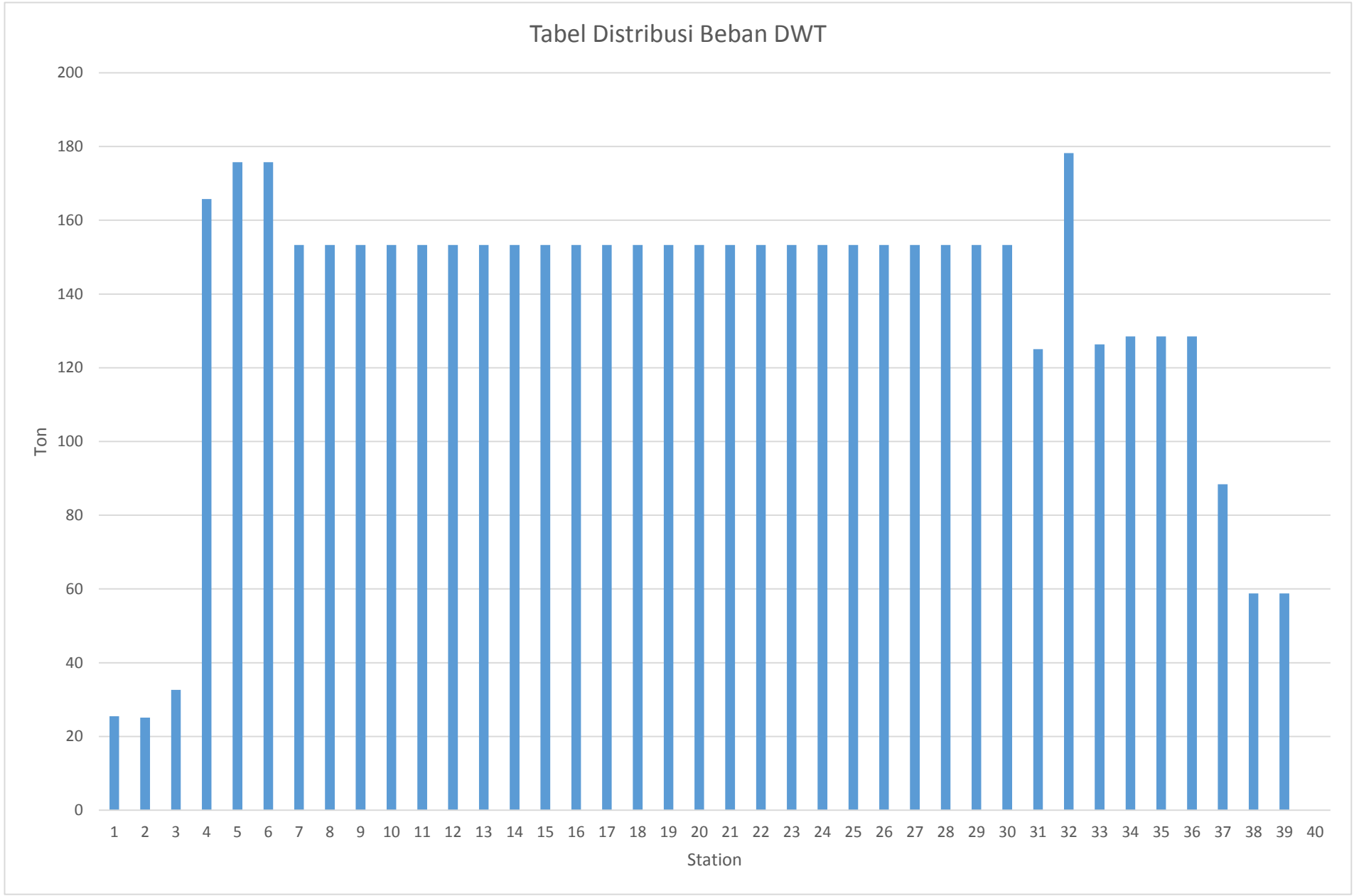
No.	Nama Komponen	Berat (Ton)	Titik Berat Terhadap			M*x (ton.m)	M*y (ton.m)	M*z (Ton.m)	
			Midship (m)	Centerline (m)	Keel (m)				
1	LIVING QUARTER	265,00	-45,43	0,00	13,56	-12038,90	0,00	3593,56	
2	ENGINE ROOM	350,18	-18,05	0,00	10,54	-6320,52	0,00	3689,34	
3	PROCESS EQUIPMENT	171,00	19,94	0,00	10,10	3410,25	0,00	1727,01	
4	CRANE 1	53,50	44,66	0,00	10,88	2389,47	0,00	582,08	
	CRANE 2	53,50	36,76	0,00	16,28	1966,48	0,00	870,98	
	CRANE 3	53,50	-0,06	10,14	11,95	-3,30	542,38	639,33	
	CRANE 4	53,50	-0,06	-10,14	11,95	-3,30	-542,38	639,33	
	CRANE 5	53,50	-29,68	10,25	11,95	-1587,87	548,50	639,33	
	CRANE 6	53,50	-29,68	-10,25	11,95	-1587,87	-548,50	639,33	
5	STORE EQUIPMENT	312,30	-18,05	0,00	12,47	-5636,89	0,00	3894,04	LWT
6	PROCESS EQUIPMENT 2	331,00	-5,47	0,00	7,85	-1811,86	0,00	2597,09	
7	FLARE BOOM	87,20	16,57	0,00	7,53	1444,74	0,00	656,62	
	FLARE BOOM	87,20	16,57	0,00	7,53	1444,74	0,00	656,62	
8	LIFE BOAT	1,20	-50,16	-0,27	13,26	-60,20	-0,32	15,91	
9	MOTOR ROOM	26,92	-43,47	-20,10	3,24	-1170,11	-541,17	87,20	
10	PUMP ROOM	30,92	-39,18	20,26	3,66	-1211,58	626,47	113,16	
11	SEPARATOR EQUIPMENT	77,22	36,97	0,00	10,95	2855,12	0,00	845,22	
12	BERAT BAJA KAPAL	1473,56	-10,00	-0,60	7,96	-14735,60	-884,14	11729,54	
13	LOGISTIK	20,40	-45,43	0,00	13,56	-926,77	0,00	276,64	
14	CARGO 6 P	223,15	-30,88	7,49	2,71	-6890,50	1671,56	604,72	
	CARGO 5 P	223,15	-20,97	7,49	2,71	-4678,30	1671,56	604,72	
	CARGO 4 P	223,15	-10,23	7,49	2,71	-2283,55	1671,56	604,72	
	CARGO 3 P	223,15	1,32	7,49	2,71	293,78	1671,56	604,72	
	CARGO 2 P	223,15	12,05	7,49	2,71	2688,56	1671,56	604,72	
	CARGO 1 P	223,15	21,95	7,49	2,71	4897,70	1671,56	604,72	
	CARGO 6 S	223,15	-30,88	-7,49	2,71	-6890,50	-1671,56	604,72	
	CARGO 5 S	223,15	-20,97	-7,49	2,71	-4678,30	-1671,56	604,72	
	CARGO 4 S	223,15	-10,23	-7,49	2,71	-2283,55	-1671,56	604,72	
	CARGO 3 S	223,15	1,32	-7,49	2,71	293,78	-1671,56	604,72	
	CARGO 2 S	223,15	12,05	-7,49	2,71	2688,56	-1671,56	604,72	
	CARGO 1 S	223,15	21,95	-7,49	2,71	4897,70	-1671,56	604,72	
	CARGO 6 C	251,25	-30,88	0,00	2,71	-7758,35	0,00	680,89	
	CARGO 5 C	251,25	-20,97	0,00	2,71	-5267,53	0,00	680,89	
	CARGO 4 C	251,25	-10,23	0,00	2,71	-2571,16	0,00	680,89	
	CARGO 3 C	251,25	1,32	0,00	2,71	330,78	0,00	680,89	
	CARGO 2 C	251,25	12,05	0,00	2,71	3027,18	0,00	680,89	
	CARGO 1 C	251,25	21,95	0,00	2,71	5514,56	0,00	680,89	
	CARGO 1A P	213,45	35,98	7,49	2,71	7680,96	1598,93	578,45	
	CARGO 1A S	213,45	35,98	-7,49	2,71	7680,96	-1598,93	578,45	
	CARGO 1A C	213,45	35,98	0,00	2,71	7680,96	0,00	578,45	
15	FPT	176,34	44,79	0,00	3,49	7898,78	0,00	614,79	DWT
16	FUEL OIL	39,88	-39,18	0,00	3,81	-1562,61	0,00	151,93	
	FUEL OIL	39,88	-39,18	0,00	3,81	-1562,61	0,00	151,93	
17	FRESH WATER	20,19	-45,36	7,50	4,06	-915,99	151,48	81,94	
	FRESH WATER	20,19	-45,36	-7,50	4,06	-915,94	-151,48	81,94	
18	SLOP	158,72	28,55	0,00	3,81	4531,97	0,00	604,70	
Jumlah		8835,90	-	-	-	-21736,623	-799,16	49454,671	
					LCG =	Mx / Δ =	-2,460035	m	
					TCG =	My / Δ =	-0,090444	m	
					VCG =	Mz / Δ =	5,5970166	m	

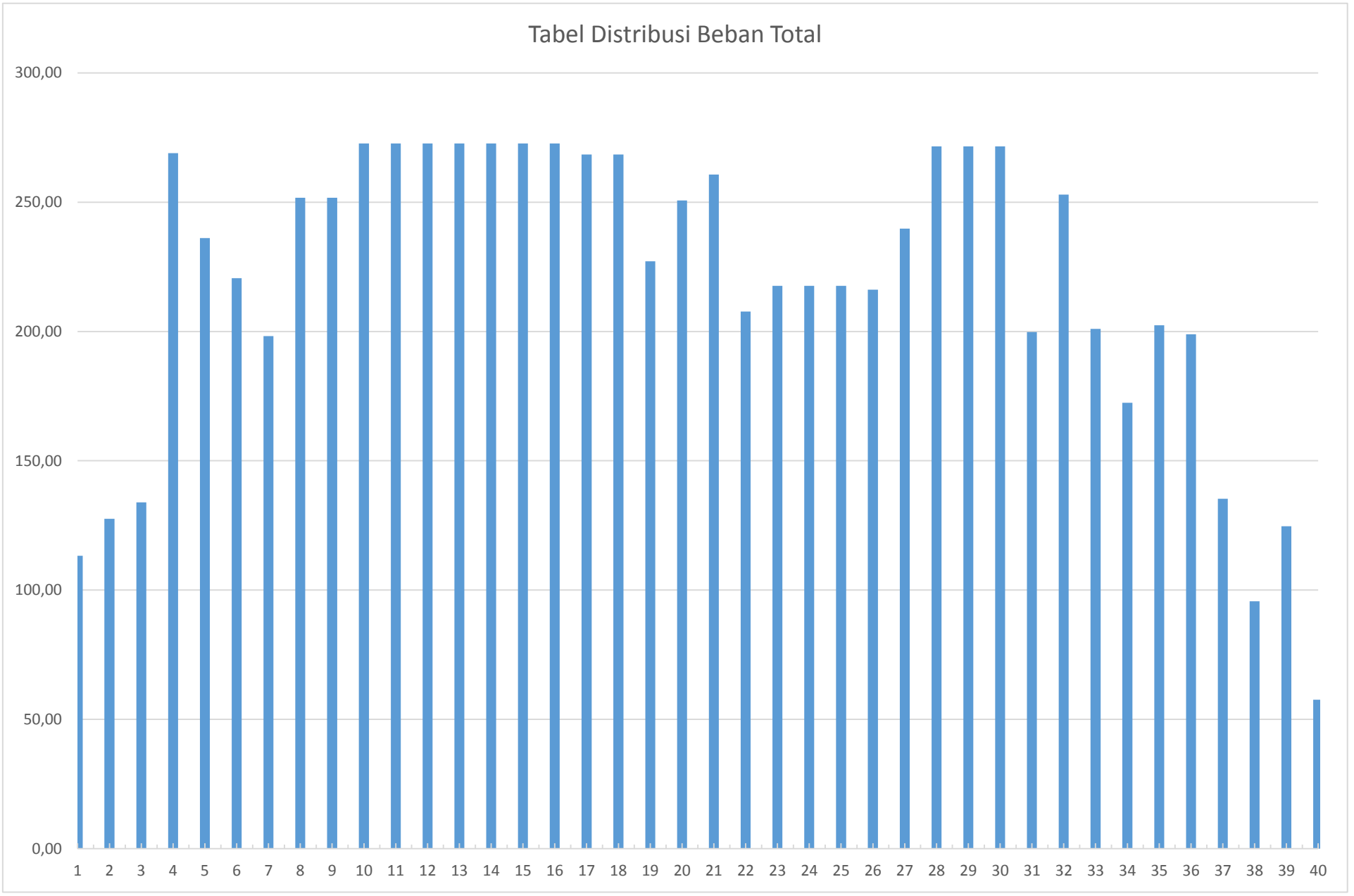
Tabel Distribusi Beban LWT

No.	Frame			Berat Baja Kapal	LIVING HOUSE	ENGINE EQUIPMENT	PROCESS EQUIPMENT	CRANE	STORE EQUIPMENT	PROCESS EQUIPMENT 2	FLARE	LIFE BOAT	MOTOR	PUMP	SEPARATOR EQUIPMENT	(LWT)
1	AP	-	1	21,54	66,25											87,79
2	1	-	2	21,54	66,25							1,2	13,46			102,45
3	2	-	3	21,54	66,25								13,46			101,25
4	3	-	4	21,54	66,25									15,46		103,25
5	4	-	5	34,84						10,030303				15,46		60,33
6	5	-	6	34,84						10,030303						44,87
7	6	-	7	34,84						10,030303						44,87
8	7	-	8	34,84				53,5		10,030303						98,37
9	8	-	9	34,84				53,5		10,030303						98,37
10	9	-	10	39,09		35,575			34,7	10,030303						119,40
11	10	-	11	39,09		35,575			34,7	10,030303						119,40
12	11	-	12	39,09		35,575			34,7	10,030303						119,40
13	12	-	13	39,09		35,575			34,7	10,030303						119,40
14	13	-	14	39,09		35,575			34,7	10,030303						119,40
15	14	-	15	39,09		35,575			34,7	10,030303						119,40
16	15	-	16	39,09		35,575			34,7	10,030303						119,40
17	16	-	17	34,84		35,575			34,7	10,030303						115,15
18	17	-	18	34,84		35,575			34,7	10,030303						115,15
19	18	-	19	33,84		30				10,030303						73,87
20	19	-	20	33,84				53,5		10,030303						97,37
21	20	-	21	43,84				53,5		10,030303						107,37
22	21	-	22	44,34						10,030303						54,37
23	22	-	23	54,34						10,030303						64,37
24	23	-	24	54,34						10,030303						64,37
25	24	-	25	54,34						10,030303						64,37
26	25	-	26	52,84						10,030303						62,87
27	26	-	27	32,84						10,030303	43,6					86,47
28	27	-	28	36,14			28,5			10,030303	43,6					118,27
29	28	-	29	36,14			28,5			10,030303	43,6					118,27
30	29	-	30	36,14			28,5			10,030303	43,6					118,27
31	30	-	31	36,2			28,5			10,030303						74,73
32	31	-	32	36,14			28,5			10,030303						74,67
33	32	-	33	36,14			28,5			10,030303						74,67
34	33	-	34	33,89						10,030303					19,305	43,92
35	34	-	35	33,89				30		10,030303					19,305	73,92
36	35	-	36	36,89				23,5		10,030303					19,305	70,42
37	36	-	37	36,89						10,030303					19,305	46,92
38	37	-	38	36,89												36,89
39	38	-	39	35,89				30								65,89
40	39	-	FP	34,09				23,5								57,59
Jumlah				1473,56	265	350,175	171	321	312,3	331	174,4	1,2	26,92	30,92	77,22	3534,695


Tabel Distribusi Beban LWT
140,00
120,00
100,00
80,00
60,00
40,00
20,00
0,00
Ton
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Station

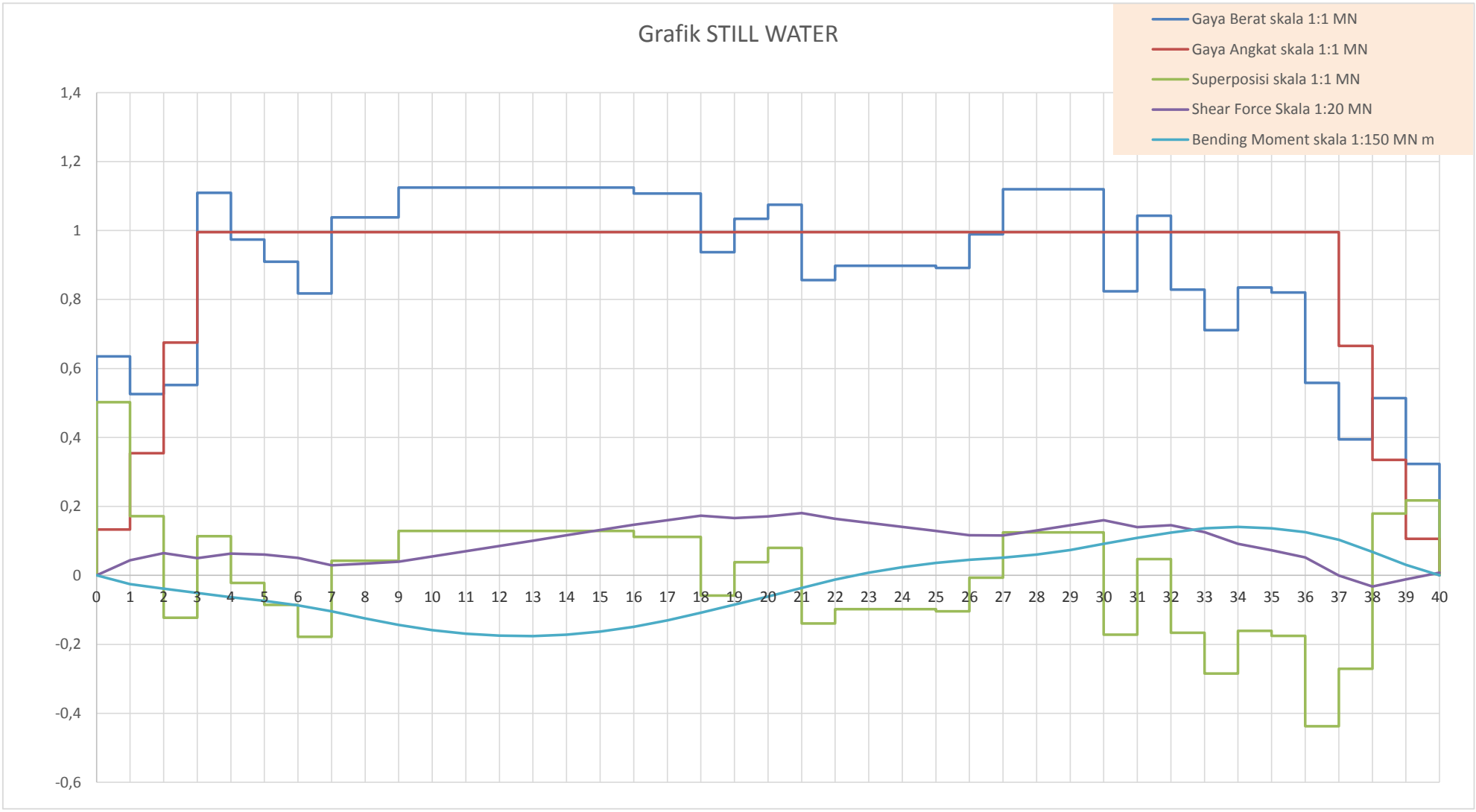
Tabel Distribusi Beban DWT										
No.	**Frame**			**LOGISTIK**	**CARGO**	**FPT**	**FUEL OIL**	**FRESH WATER**	**SLOP**	**(DWT)**
1	AP	-	1	5,1				20,39		25,49
2	1	-	2	5,1				20		25,1
3	2	-	3	10,2			22,44			32,64
4	3	-	4		153,32		12,44			165,7579
5	4	-	5		153,32		22,44			175,7579
6	5	-	6		153,32		22,44			175,7579
7	6	-	7		153,32					153,3179
8	7	-	8		153,32					153,3179
9	8	-	9		153,32					153,3179
10	9	-	10		153,32					153,3179
11	10	-	11		153,32					153,3179
12	11	-	12		153,32					153,3179
13	12	-	13		153,32					153,3179
14	13	-	14		153,32					153,3179
15	14	-	15		153,32					153,3179
16	15	-	16		153,32					153,3179
17	16	-	17		153,32					153,3179
18	17	-	18		153,32					153,3179
19	18	-	19		153,32					153,3179
20	19	-	20		153,32					153,3179
21	20	-	21		153,32					153,3179
22	21	-	22		153,32					153,3179
23	22	-	23		153,32					153,3179
24	23	-	24		153,32					153,3179
25	24	-	25		153,32					153,3179
26	25	-	26		153,32					153,3179
27	26	-	27		153,32					153,3179
28	27	-	28		153,32					153,3179
29	28	-	29		153,32					153,3179
30	29	-	30		153,32					153,3179
31	30	-	31		45,67				79,36	125,03
32	31	-	32		98,89				79,36	178,25
33	32	-	33		126,36					126,356
34	33	-	34		128,50					128,498
35	34	-	35		128,50					128,498
36	35	-	36		128,50					128,498
37	36	-	37		29,61	58,78				88,392
38	37	-	38			58,78				58,78
39	38	-	39			58,78				58,78
40	39	-	FP							0
Jumlah				20,4	4825,6	176,34	79,76	40,39	158,72	5301,21


Tabel Distribusi Beban DWT
Ton
Station
0
20
40
60
80
100
120
140
160
180
200
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40


Tabel Distribusi Beban Total
300,00
250,00
200,00
150,00
100,00
50,00
0,00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

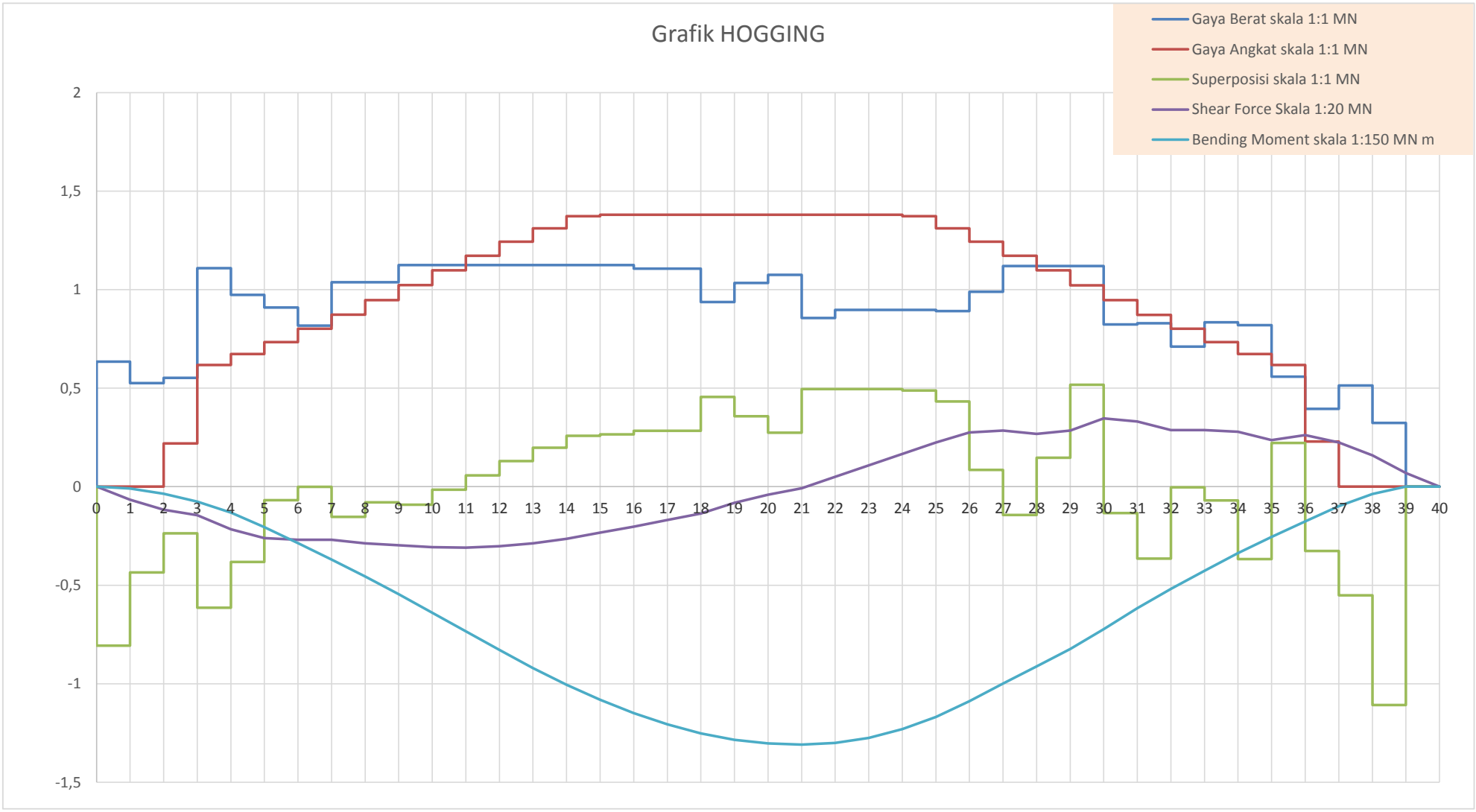
STILL WATER

Station			Area	a(x)	q(x)	load/m	f(x)	Σf(x)	Mid Σf(x)	BM	ΣBM	Correction	BM
				I	II	III = II - I	III x b		IV	IV x b			
			[m^2]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN m]	[MN m]		[MN m]
		0						**0**			0		0
AP	-	1	13,2220	0,132951	0,6350	0,502	0,878613	0,879	0,439307	0,768787	0,768787	4,554	-3,785
1	-	2	35,2462	0,354409	0,5260	0,172	0,408126	1,287	1,082676	2,575687	3,344473	9,107	-5,763
2	-	3	67,1132	0,67484	0,5521	-0,123	-0,291983	0,995	1,140747	2,713838	6,058311	13,661	-7,602
3	-	4	99,0000	0,99547	1,1093	0,114	0,270745	1,266	1,130128	2,688575	8,746887	18,214	-9,467
4	-	5	99,0000	0,99547	0,9735	-0,022	-0,052197	1,213	1,239403	2,948539	11,69543	22,768	-11,072
5	-	6	99,0000	0,99547	0,9098	-0,086	-0,203859	1,009	1,111375	2,64396	14,33939	27,321	-12,982
6	-	7	99,0000	0,99547	0,8172	-0,178	-0,423996	0,585	0,797447	1,897126	16,23651	31,875	-15,638
7	-	8	99,0000	0,99547	1,0379	0,042	0,100839	0,686	0,635869	1,512732	17,74924	36,428	-18,679
8	-	9	99,0000	0,99547	1,0379	0,042	0,100839	0,787	0,736708	1,752628	19,50187	40,982	-21,480
9	-	10	99,0000	0,99547	1,1246	0,129	0,307094	1,094	0,940675	2,237865	21,73974	45,536	-23,796
10	-	11	99,0000	0,99547	1,1246	0,129	0,307094	1,401	1,247769	2,968443	24,70818	50,089	-25,381
11	-	12	99,0000	0,99547	1,1246	0,129	0,307094	1,708	1,554864	3,699021	28,4072	54,643	-26,235
12	-	13	99,0000	0,99547	1,1246	0,129	0,307094	2,016	1,861958	4,429599	32,8368	59,196	-26,359
13	-	14	99,0000	0,99547	1,1246	0,129	0,307094	2,323	2,169053	5,160176	37,99698	63,750	-25,753
14	-	15	99,0000	0,99547	1,1246	0,129	0,307094	2,630	2,476147	5,890754	43,88773	68,303	-24,416
15	-	16	99,0000	0,99547	1,1246	0,129	0,307094	2,937	2,783242	6,621332	50,50906	72,857	-22,348
16	-	17	99,0000	0,99547	1,1070	0,112	0,265402	3,202	3,06949	7,302316	57,81138	77,410	-19,599
17	-	18	99,0000	0,99547	1,1070	0,112	0,265402	3,468	3,334892	7,933708	65,74509	81,964	-16,219
18	-	19	99,0000	0,99547	0,9368	-0,059	-0,139506	3,328	3,39784	8,083461	73,82855	86,518	-12,689
19	-	20	99,0000	0,99547	1,0337	0,038	0,091029	3,419	3,373602	8,025798	81,85435	91,071	-9,217
20	-	21	99,0000	0,99547	1,0750	0,079	0,189129	3,608	3,513681	8,359047	90,21339	95,625	-5,411
21	-	22	99,0000	0,99547	0,8564	-0,139	-0,330801	3,277	3,442845	8,190529	98,40392	100,178	-1,774
22	-	23	99,0000	0,99547	0,8977	-0,098	-0,232701	3,045	3,161094	7,520243	105,9242	104,732	1,192
23	-	24	99,0000	0,99547	0,8977	-0,098	-0,232701	2,812	2,928394	6,966648	112,8908	109,285	3,605
24	-	25	99,0000	0,99547	0,8977	-0,098	-0,232701	2,579	2,695693	6,413053	119,3039	113,839	5,465
25	-	26	99,0000	0,99547	0,8915	-0,104	-0,247416	2,332	2,455635	5,841954	125,1458	118,392	6,753
26	-	27	99,0000	0,99547	0,9888	-0,007	-0,0159	2,316	2,323977	5,528741	130,6746	122,946	7,729
27	-	28	99,0000	0,99547	1,1199	0,124	0,296058	2,612	2,464056	5,861989	136,5365	127,500	9,037
28	-	29	99,0000	0,99547	1,1199	0,124	0,296058	2,908	2,760114	6,566312	143,1029	132,053	11,050
29	-	30	99,0000	0,99547	1,1199	0,124	0,296058	3,204	3,056172	7,270634	150,3735	136,607	13,767
30	-	31	99,0000	0,99547	0,8237	-0,172	-0,40862	2,796	2,999892	7,136742	157,5102	141,160	16,350
31	-	32	99,0000	0,99547	1,0429	0,047	0,112886	2,908	2,852025	6,784968	164,2952	145,714	18,581
32	-	33	99,0000	0,99547	0,8289	-0,167	-0,396155	2,512	2,710391	6,448021	170,7432	150,267	20,476
33	-	34	99,0000	0,99547	0,7110	-0,284	-0,676799	1,836	2,173914	5,171742	175,915	154,821	21,094
34	-	35	99,0000	0,99547	0,8347	-0,161	-0,382499	1,453	1,644265	3,911707	179,8267	159,375	20,452
35	-	36	99,0000	0,99547	0,8203	-0,175	-0,416834	1,036	1,244599	2,960901	182,7876	163,928	18,860
36	-	37	99,0000	0,99547	0,5580	-0,437	-1,040809	-0,005	0,515778	1,227035	184,0146	168,482	15,533
37	-	38	66,1738	0,665394	0,3945	-0,271	-0,64445	-0,649	-0,326852	-0,77758	183,237	173,035	10,202
38	-	39	33,3058	0,334898	0,5141	0,179	0,42629	-0,223	-0,435932	-1,037082	182,1999	177,589	4,611
39	-	FP	10,5446	0,106029	0,3232	0,217	0,37962	0,157	-0,032977	-0,057643	182,1423	182,142	0,000


Grafik STILL WATER
Gaya Berat skala 1:1 MN
Gaya Angkat skala 1:1 MN
Superposisi skala 1:1 MN
Shear Force Skala 1:20 MN
Bending Moment skala 1:150 MN m
1,4
1,2
1
0,8
0,6
0,4
0,2
0
-0,2
-0,4
-0,6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

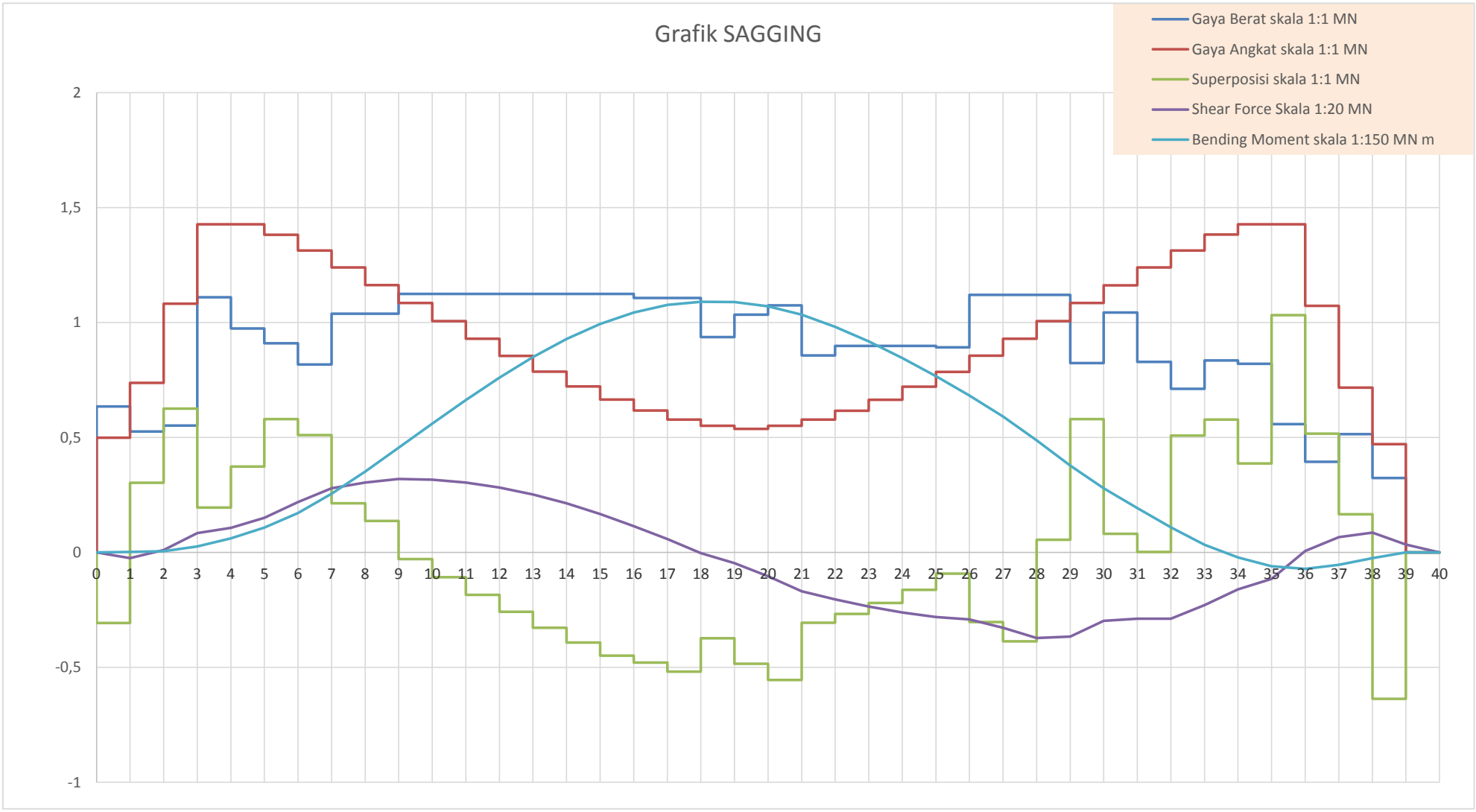
HOGGING

Station			Area	a(x)	q(x)	load/m	f(x)	Σf(x)	Mid Σf(x)	BM	ΣBM	Correction	BM
				I	II	III = II - I	III x b		IV	IV x b			
			[m^2]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN m]	[MN m]		[MN m]
		0						0			0		0
AP	-	1	0,0000	0,0000	0,6350	-0,8067	-1,3094	-1,3094	-0,6547	-1,5376	-1,5376	-0,1875	-1,3501
1	-	2	0,0000	0,0000	0,5260	-0,4350	-1,0217	-2,3312	-1,8203	-4,2750	-5,8126	-0,3751	-5,4375
2	-	3	21,8284	0,2195	0,5521	-0,2369	-0,5563	-2,8874	-2,6093	-6,1279	-11,9405	-0,5626	-11,3779
3	-	4	61,4561	0,6180	1,1093	-0,6144	-1,4429	-4,3303	-3,6089	-8,4755	-20,4159	-0,7501	-19,6658
4	-	5	66,9463	0,6732	0,9735	-0,3812	-0,8953	-5,2256	-4,7780	-11,2211	-31,6370	-0,9377	-30,6994
5	-	6	72,9945	0,7340	0,9098	-0,0684	-0,1605	-5,3862	-5,3059	-12,4609	-44,0979	-1,1252	-42,9727
6	-	7	79,7310	0,8017	0,8172	-0,0006	-0,0015	-5,3876	-5,3869	-12,6511	-56,7490	-1,3127	-55,4363
7	-	8	86,8150	0,8729	1,0379	-0,1529	-0,3590	-5,7466	-5,5671	-13,0744	-69,8234	-1,5002	-68,3232
8	-	9	94,1803	0,9470	1,0379	-0,0788	-0,1851	-5,9317	-5,8392	-13,7133	-83,5367	-1,6878	-81,8489
9	-	10	101,6874	1,0225	1,1246	-0,0911	-0,2140	-6,1457	-6,0387	-14,1819	-97,7186	-1,8753	-95,8433
10	-	11	109,1991	1,0980	1,1246	-0,0156	-0,0367	-6,1824	-6,1641	-14,4763	-112,1949	-2,0628	-110,1321
11	-	12	116,5118	1,1716	1,1246	0,0579	0,1360	-6,0464	-6,1144	-14,3596	-126,5546	-2,2504	-124,3042
1	-	13	123,6850	1,2437	1,1246	0,1300	0,3054	-5,7410	-5,8937	-13,8413	-140,3959	-2,4379	-137,9580
13	-	14	130,3849	1,3111	1,1246	0,1974	0,4636	-5,2773	-5,5091	-12,9382	-153,3341	-2,6254	-150,7087
14	-	15	136,4742	1,3723	1,1246	0,2586	0,6074	-4,6699	-4,9736	-11,6805	-165,0146	-2,8130	-162,2017
15	-	16	137,1991	1,3796	1,1246	0,2659	0,6246	-4,0453	-4,3576	-10,2339	-175,2485	-3,0005	-172,2480
16	-	17	137,1991	1,3796	1,1070	0,2837	0,6662	-3,3791	-3,7122	-8,7181	-183,9666	-3,1880	-180,7786
17	-	18	137,1991	1,3796	1,1070	0,2837	0,6662	-2,7129	-3,0460	-7,1535	-191,1201	-3,3755	-187,7445
18	-	19	137,1991	1,3796	0,9368	0,4561	1,0712	-1,6417	-2,1773	-5,1133	-196,2334	-3,5631	-192,6704
19	-	20	137,1991	1,3796	1,0337	0,3579	0,8406	-0,8011	-1,2214	-2,8684	-199,1019	-3,7506	-195,3513
20	-	21	137,1991	1,3796	1,0750	0,2744	0,6444	-0,1567	-0,4789	-1,1246	-200,2265	-3,9381	-196,2884
21	-	22	137,1991	1,3796	0,8564	0,4958	1,1643	1,0077	0,4255	0,9993	-199,2272	-4,1257	-195,1015
22	-	23	137,1991	1,3796	0,8977	0,4958	1,1643	2,1720	1,5899	3,7338	-195,4934	-4,3132	-191,1802
23	-	24	137,1991	1,3796	0,8977	0,4958	1,1643	3,3364	2,7542	6,4682	-189,0252	-4,5007	-184,5245
24	-	25	136,4811	1,3724	0,8977	0,4886	1,1474	4,4838	3,9101	9,1828	-179,8424	-4,6883	-175,1541
25	-	26	130,3277	1,3105	0,8915	0,4330	1,0168	5,5006	4,9922	11,7241	-168,1183	-4,8758	-163,2425
26	-	27	123,6941	1,2438	0,9888	0,0850	0,1997	5,7003	5,6004	13,1526	-154,9657	-5,0633	-149,9024
27	-	28	116,5872	1,1723	1,1199	-0,1431	-0,3360	5,3643	5,5323	12,9926	-141,9731	-5,2508	-136,7222
28	-	29	109,2105	1,0981	1,1199	0,1475	0,3464	5,7108	5,5376	13,0049	-128,9681	-5,4384	-123,5297
29	-	30	101,6302	1,0219	1,1199	0,5170	1,2142	6,9250	6,3179	14,8375	-114,1306	-5,6259	-108,5047
30	-	31	94,1918	0,9471	0,8237	-0,1336	-0,3138	6,6112	6,7681	15,8948	-98,2358	-5,8134	-92,4223
31	-	32	89,2431	0,9023	1,0429	-0,2320	-0,4212	6,0233	6,3212	15,2133	-93,4344	-5,9240	-84,4310
32	-	33	86,7579	0,8724	0,8289	-0,3649	-0,8570	5,7541	6,1827	14,5200	-83,7158	-6,0010	-77,7149
33	-	34	79,7401	0,8018	0,7110	-0,0024	-0,0057	5,7485	5,7513	13,5069	-70,2089	-6,1885	-64,0204
34	-	35	73,0036	0,7341	0,8347	-0,0702	-0,1648	5,5837	5,6661	13,3068	-56,9022	-6,3760	-50,5261
35	-	36	66,9554	0,6733	0,8203	-0,3670	-0,8619	4,7218	5,1527	12,1012	-44,8009	-6,5636	-38,2374
36	-	37	61,4538	0,6179	0,5580	0,2226	0,5227	5,2446	4,9832	11,7030	-33,0979	-6,7511	-26,3468
37	-	38	22,7705	0,2290	0,3945	-0,3260	-0,7656	4,4789	4,8618	11,4178	-21,6801	-6,9386	-14,7415
38	-	39	0,0000	0,0000	0,5141	-0,5508	-1,2935	3,1854	3,8322	8,9999	-12,6802	-7,1261	-5,5541
39	-	FP	0,0000	0,0000	0,3232	-1,1072	-1,8007	1,3847	2,2851	5,3665	-7,3137	-7,3137	0,0000

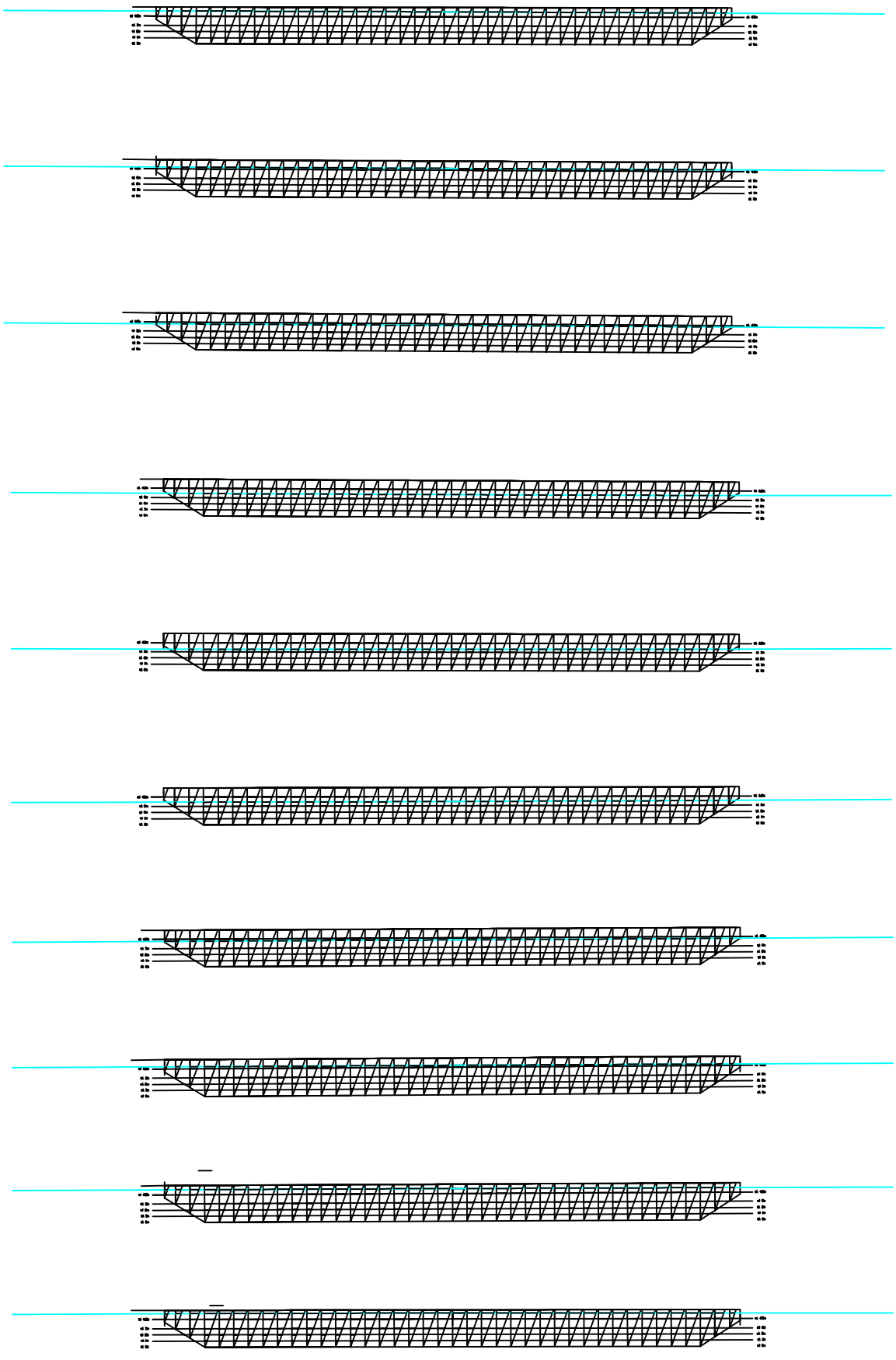

Grafik HOGGING
Gaya Berat skala 1:1 MN
Gaya Angkat skala 1:1 MN
Superposisi skala 1:1 MN
Shear Force Skala 1:20 MN
Bending Moment skala 1:150 MN m
2
1,5
1
0,5
0
-0,5
-1
-1,5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

SAGGING

Station			Area	a(x)	q(x)	load/m	f(x)	Σf(x)	Mid Σf(x)	BM	ΣBM	Correction	BM
				I	II	III = II - I	III x b		IV	IV x b			
			[m^2]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN]	[MN m]	[MN m]		[MN m]
		0						**0**			0		0
AP	-	1	49,6585	0,4993	0,6350	-0,3074	-0,4989	-0,4989	-0,2495	-0,5859	-0,5859	-0,8579	0,2721
1	-	2	73,3426	0,7375	0,5260	0,3024	0,7103	0,2113	-0,1438	-0,3377	-0,9236	-1,7159	0,7923
2	-	3	107,6115	1,0821	0,5521	0,6257	1,4695	1,6808	0,9461	2,2218	1,2983	-2,5738	3,8720
3	-	4	141,9489	1,4273	1,1093	0,1950	0,4579	2,1387	1,9098	4,4851	5,7833	-3,4317	9,2150
4	-	5	141,9489	1,4273	0,9735	0,3729	0,8759	3,0146	2,5766	6,0512	11,8346	-4,2897	16,1242
5	-	6	137,4018	1,3816	0,9098	0,5793	1,3604	4,3750	3,6948	8,6772	20,5118	-5,1476	25,6594
6	-	7	130,5717	1,3129	0,8172	0,5106	1,1991	5,5741	4,9746	11,6828	32,1946	-6,0055	38,2001
7	-	8	123,2401	1,2392	1,0379	0,2134	0,5012	6,0753	5,8247	13,6794	45,8740	-6,8635	52,7374
8	-	9	115,6198	1,1626	1,0379	0,1368	0,3212	6,3965	6,2359	14,6451	60,5190	-7,7214	68,2404
9	-	10	107,8528	1,0845	1,1246	-0,0291	-0,0685	6,3281	6,3623	14,9419	75,4609	-8,5793	84,0402
10	-	11	100,0125	1,0057	1,1246	-0,1080	-0,2536	6,0745	6,2013	14,5637	90,0246	-9,4373	99,4618
11	-	12	92,3780	0,9289	1,1246	-0,1848	-0,4339	5,6406	5,8575	13,7564	103,7810	-10,2952	114,0762
12	-	13	85,0250	0,8549	1,1246	-0,2587	-0,6075	5,0331	5,3368	12,5335	116,3145	-11,1531	127,4676
13	-	14	78,1618	0,7859	1,1246	-0,3277	-0,7696	4,2635	4,6483	10,9164	127,2310	-12,0110	139,2420
14	-	15	71,7954	0,7219	1,1246	-0,3917	-0,9199	3,3435	3,8035	8,9325	136,1634	-12,8690	149,0324
15	-	16	66,0630	0,6643	1,1246	-0,4494	-1,0553	2,2882	2,8159	6,6131	142,7765	-13,7269	156,5034
16	-	17	61,3219	0,6166	1,1070	-0,4793	-1,1256	1,1626	1,7254	4,0521	146,8286	-14,5848	161,4135
17	-	18	57,4302	0,5775	1,1070	-0,5184	-1,2175	-0,0548	0,5539	1,3008	148,1295	-15,4428	163,5722
18	-	19	54,7426	0,5505	0,9368	-0,3730	-0,8760	-0,9309	-0,4929	-1,1575	146,9720	-16,3007	163,2727
19	-	20	53,3988	0,5369	1,0337	-0,4847	-1,1383	-2,0692	-1,5000	-3,5228	143,4491	-17,1586	160,6078
20	-	21	54,7355	0,5504	1,0750	-0,5548	-1,3029	-3,3721	-2,7207	-6,3895	137,0596	-18,0166	155,0762
21	-	22	57,4940	0,5781	0,8564	-0,3057	-0,7179	-4,0900	-3,7311	-8,7624	128,2972	-18,8745	147,1717
22	-	23	61,2462	0,6158	0,8977	-0,2679	-0,6293	-4,7193	-4,4046	-10,3443	117,9529	-19,7324	137,6854
23	-	24	66,0559	0,6642	0,8977	-0,2196	-0,5157	-5,2349	-4,9771	-11,6887	106,2642	-20,5904	126,8546
24	-	25	71,7173	0,7211	0,8977	-0,1627	-0,3820	-5,6169	-5,4259	-12,7428	93,5214	-21,4483	114,9697
25	-	26	78,0837	0,7852	0,8915	-0,0924	-0,2169	-5,8339	-5,7254	-13,4461	80,0753	-22,3062	102,3815
26	-	27	82,1241	0,8094	0,9888	-0,1340	-0,4233	-6,3211	-5,9344	-13,9343	72,3253	-22,8520	94,4530
27	-	28	85,0842	0,8555	1,1199	-0,3032	-0,7120	-6,5459	-6,1899	-14,5369	65,5383	-23,1642	88,7025
28	-	29	92,3685	0,9288	1,1199	-0,3866	-0,9079	-7,4538	-6,9998	-16,4391	49,0992	-24,0221	73,1213
29	-	30	100,0030	1,0056	1,1199	0,0549	0,1290	-7,3248	-7,3893	-17,3537	31,7455	-24,8800	56,6255
30	-	31	107,8433	1,0844	0,8237	0,5795	1,3609	-5,9638	-6,6443	-15,6042	16,1413	-25,7380	41,8793
31	-	32	115,5417	1,1618	1,0429	0,0811	0,1903	-5,7735	-5,8687	-13,7826	2,3587	-26,5959	28,9546
32	-	33	123,2306	1,2391	0,8289	0,0018	0,0043	-5,7692	-5,7714	-13,5540	-11,1953	-27,4538	16,2585
33	-	34	130,5622	1,3128	0,7110	0,5086	1,1945	-4,5748	-5,1720	-12,1464	-23,3417	-28,3118	4,9701
34	-	35	137,4633	1,3822	0,8347	0,5780	1,3574	-3,2173	-3,8960	-9,1499	-32,4916	-29,1697	-3,3219
35	-	36	141,9489	1,4273	0,8203	0,3871	0,9091	-2,3082	-2,7628	-6,4884	-38,9800	-30,0276	-8,9523
36	-	37	141,9489	1,4273	0,5580	1,0320	2,4236	0,1154	-1,0964	-2,5750	-41,5549	-30,8856	-10,6694
37	-	38	106,6013	1,0719	0,3945	0,5169	1,2140	1,3294	0,7224	1,6965	-39,8584	-31,7435	-8,1149
38	-	39	71,2560	0,7165	0,5141	0,1657	0,3892	1,7186	1,5240	3,5791	-36,2793	-32,6014	-3,6779
39	-	FP	46,7793	0,4704	0,3232	-0,6369	-1,0357	0,6829	1,2007	2,8199	-33,4593	-33,4593	0,0000

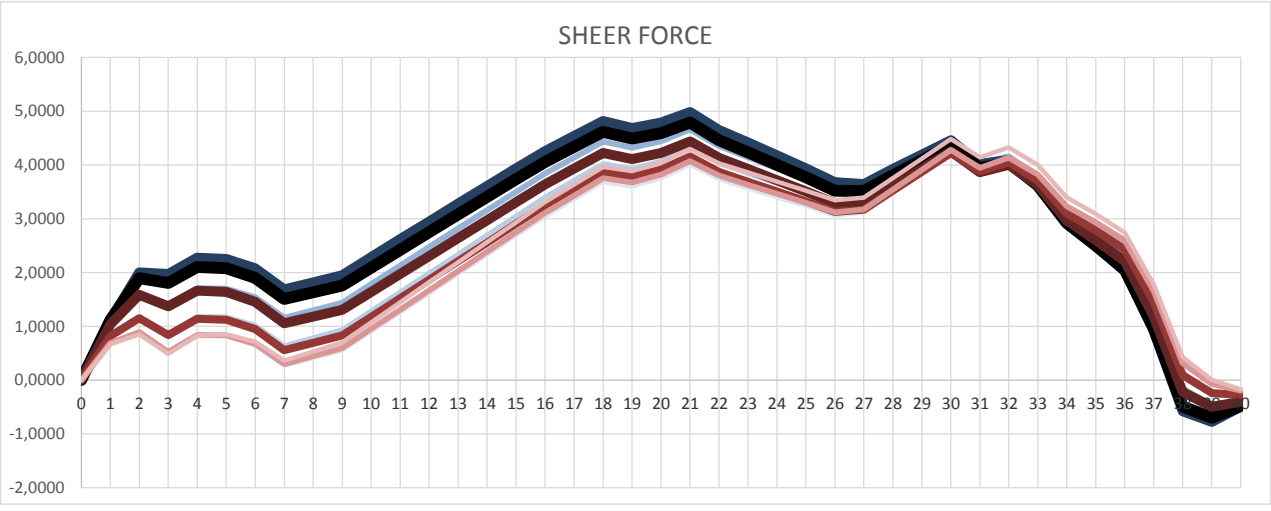

Grafik SAGGING
Gaya Berat skala 1:1 MN
Gaya Angkat skala 1:1 MN
Superposisi skala 1:1 MN
Shear Force Skala 1:20 MN
Bending Moment skala 1:150 MN m
2
1,5
1
0,5
0
-0,5
-1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

0,25



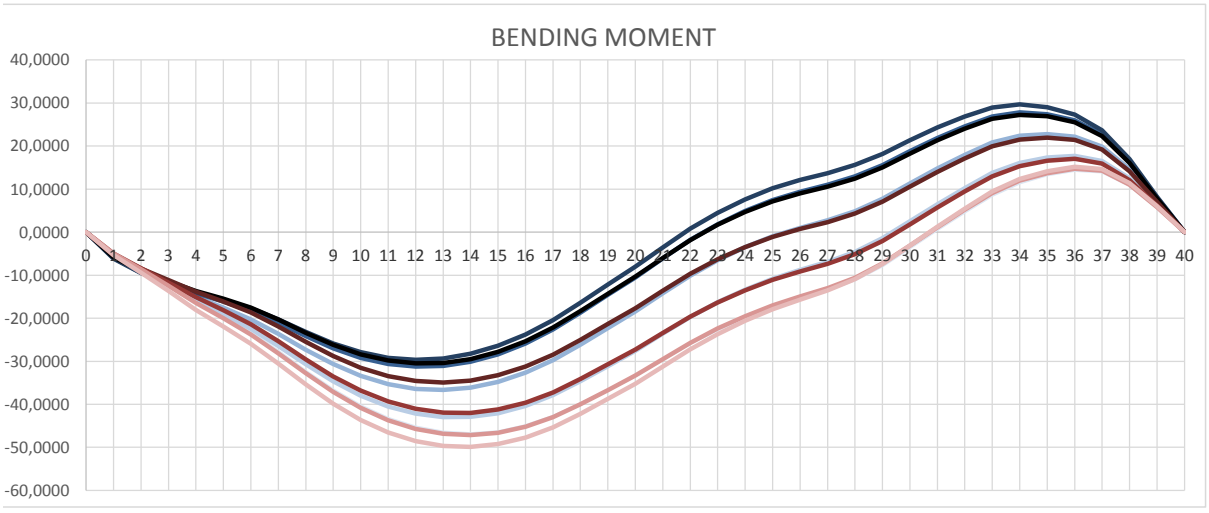
Sheer Force 0,25

STATION	PERIODE									
	2,51	5,03	7,54	10,05	12,57	15,08	17,59	20,11	22,62	25,13
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,6799	0,8258	1,0366	1,1113	1,1113	1,1113	1,0356	0,8180	0,6863	0,6621
2	0,8761	1,1688	1,5891	1,9040	2,0028	1,8956	1,5812	1,1493	0,8906	0,8496
3	0,4976	0,8673	1,3914	1,8239	1,9689	1,8052	1,3693	0,8345	0,5194	0,4834
4	0,8077	1,1844	1,7071	2,1331	2,2727	2,1036	1,6633	1,1367	0,8361	0,8270
5	0,7956	1,1784	1,6989	2,1182	2,2530	2,0789	1,6347	1,1169	0,8302	0,8465
6	0,6326	1,0205	1,5382	1,9505	2,0809	1,9022	1,4550	0,9462	0,6732	0,7133
7	0,2502	0,6423	1,1562	1,5615	1,6879	1,5049	1,0554	0,5562	0,2966	0,3590
8	0,3936	0,7888	1,2982	1,6960	1,8188	1,6316	1,1811	0,6917	0,4455	0,5286
9	0,5380	0,9352	1,4391	1,8290	1,9487	1,7577	1,3071	0,8283	0,5949	0,6974
10	0,8897	1,2879	1,7852	2,1669	2,2835	2,0892	1,6396	1,1718	0,9513	1,0715
11	1,2426	1,6405	2,1303	2,5032	2,6170	2,4197	1,9723	1,5163	1,3085	1,4450
12	1,5966	1,9931	2,4743	2,8379	2,9489	2,7493	2,3052	1,8617	1,6664	1,8180
13	1,9520	2,3457	2,8172	3,1709	3,2791	3,0776	2,6381	2,2079	2,0252	2,1903
14	2,3087	2,6984	3,1591	3,5020	3,6075	3,4047	2,9711	2,5551	2,3850	2,5622
15	2,6668	3,0513	3,5000	3,8311	3,9340	3,7304	3,3041	2,9031	2,7457	2,9336
16	3,0263	3,4043	3,8396	4,1584	4,2584	4,0547	3,6372	3,2521	3,1073	3,3048
17	3,3457	3,7158	4,1365	4,4419	4,5388	4,3356	3,9285	3,5604	3,4283	3,6340
18	3,6666	4,0275	4,4322	4,7232	4,8167	4,6149	4,2197	3,8697	3,7505	3,9630
19	3,5843	3,9344	4,3217	4,5975	4,6871	4,4876	4,1060	3,7751	3,6689	3,8871
20	3,7342	4,0722	4,4406	4,6998	4,7853	4,5888	4,2227	3,9120	3,8191	4,0416
21	3,9861	4,3082	4,6564	4,8977	4,9815	4,7861	4,4373	4,1538	4,0687	4,2944
22	3,7178	4,0247	4,3509	4,5734	4,6520	4,4614	4,1320	3,8710	3,7997	4,0275
23	3,5495	3,8396	4,1422	4,3445	4,4172	4,2326	3,9243	3,6873	3,6302	3,8589
24	3,3833	3,6548	3,9323	4,1128	4,1792	4,0016	3,7163	3,5048	3,4622	3,6906
25	3,2190	3,4704	3,7209	3,8783	3,9375	3,7682	3,5080	3,3233	3,2956	3,5229
26	3,0421	3,2848	3,4934	3,6262	3,6773	3,5176	3,2847	3,1283	3,1161	3,3408
27	3,0988	3,3178	3,4959	3,6025	3,6449	3,5135	3,2926	3,1661	3,1697	3,3908
28	3,4695	3,6633	3,8090	3,8875	3,9203	3,8014	3,6120	3,5169	3,5369	3,7535
29	3,8426	4,0092	4,1205	4,1695	4,1917	4,0864	3,9311	3,8691	3,9059	4,1169
30	4,2180	4,3556	4,4305	4,4481	4,4587	4,3686	4,2498	4,2225	4,2768	4,4812
31	3,8910	3,9976	4,0342	4,0186	4,0167	3,9432	3,8633	3,8725	3,9450	4,1416
32	4,0879	4,1616	4,1578	4,1070	4,0915	4,0364	3,9979	4,0454	4,1366	4,3245
33	3,7782	3,8171	3,7706	3,6826	3,6525	3,6175	3,6229	3,7106	3,8214	3,9994
34	3,1904	3,1923	3,1011	2,9738	2,9279	2,9149	2,9669	3,0966	3,2276	3,3949
35	2,8993	2,8625	2,7241	2,5555	2,4926	2,5033	2,6045	2,7783	2,9303	3,0859
36	2,5766	2,4986	2,3125	2,0988	2,0179	2,0540	2,2074	2,4272	2,6009	2,7438
37	1,6324	1,5066	1,2736	1,0140	0,9139	0,9774	1,1858	1,4536	1,6499	1,7791
38	0,3020	0,1310	-0,1561	-0,4639	-0,5846	-0,4916	-0,2253	0,0927	0,3126	0,4270
39	-0,0774	-0,2239	-0,4586	-0,6888	-0,7762	-0,7043	-0,4985	-0,2436	-0,0735	0,0008
40	-0,2001	-0,2776	-0,3954	-0,4762	-0,4995	-0,4804	-0,4058	-0,2807	-0,2008	-0,1747

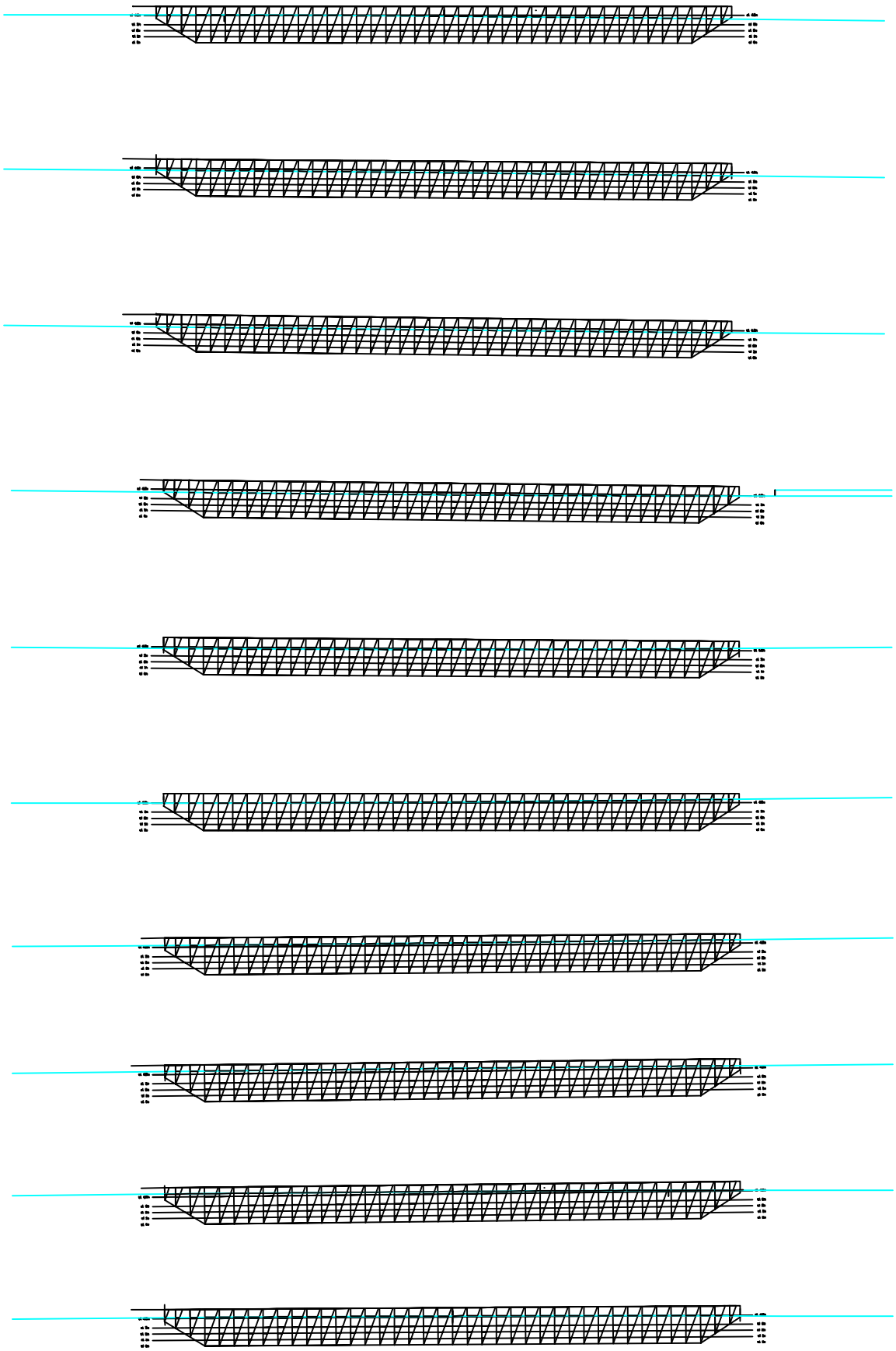


Bending Moment 0,25

STATION	PERIODE									
	2,51	5,03	7,54	10,05	12,57	15,08	17,59	20,11	22,62	25,13
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-4,8256	-5,2531	-5,6697	-6,0081	-6,1341	-5,8376	-5,3280	-5,0034	-4,9477	-5,3111
2	-8,3951	-8,8561	-9,1233	-9,4019	-9,5363	-9,0710	-8,4495	-8,3825	-8,6203	-9,4034
3	-12,1816	-12,4098	-12,1548	-11,9481	-11,9185	-11,4789	-11,1741	-11,7419	-12,4912	-13,7082
4	-16,0494	-15,9449	-15,0459	-14,2217	-13,9797	-13,6393	-13,8010	-15,1163	-16,4271	-18,0400
5	-19,5627	-19,1099	-17,5712	-16,1452	-15,7029	-15,4742	-16,1123	-18,1548	-19,9933	-21,9398
6	-23,2843	-22,4700	-20,2976	-18,2859	-17,6543	-17,5486	-18,6713	-21,4199	-23,7532	-25,9749
7	-27,6548	-26,4677	-23,6694	-21,0888	-20,2778	-20,3059	-21,9194	-25,3520	-28,1479	-30,5898
8	-32,3095	-30,7412	-27,3267	-24,1944	-23,2130	-23,3850	-25,4932	-29,5868	-32,8134	-35,4244
9	-36,6218	-34,6661	-30,6475	-26,9818	-25,8380	-26,1634	-28,7677	-33,4979	-37,1241	-39,8565
10	-40,3441	-37,9973	-33,3890	-29,2091	-27,9103	-28,3976	-31,4968	-36,8379	-40,8330	-43,6428
11	-43,2282	-40,4897	-35,3083	-30,6345	-29,1875	-29,8442	-33,4347	-39,3595	-43,6932	-46,5397
12	-45,2715	-42,1432	-36,4080	-31,2617	-29,6733	-30,5057	-34,5808	-41,0604	-45,7028	-48,5489
13	-46,4709	-42,9579	-36,6905	-31,0947	-29,3716	-30,3846	-34,9350	-41,9387	-46,8598	-49,6715
14	-46,8233	-42,9335	-36,1584	-30,1378	-28,2864	-29,4839	-34,4971	-41,9923	-47,1622	-49,9089
15	-46,3255	-42,0698	-34,8142	-28,3955	-26,4221	-27,8067	-33,2669	-41,2189	-46,6075	-49,2621
16	-44,9741	-40,3664	-32,6606	-25,8724	-23,7837	-25,3563	-31,2444	-39,6164	-45,1937	-47,7319
17	-42,8151	-37,8727	-29,7499	-22,6229	-20,4258	-22,1860	-28,4792	-37,2321	-42,9678	-45,3686
18	-39,8945	-34,6377	-26,1343	-18,7015	-16,4039	-18,3494	-25,0211	-34,1131	-39,9769	-42,2224
19	-36,6901	-31,1426	-22,2984	-14,5950	-12,2056	-14,3320	-21,3518	-30,7387	-36,6997	-38,7752
20	-33,4052	-27,5944	-18,4524	-10,5164	-8,0447	-10,3456	-17,6790	-27,3141	-33,3410	-35,2344
21	-29,6423	-23,6016	-14,2084	-6,0806	-3,5335	-6,0041	-13,6122	-23,4390	-29,5067	-31,2091
22	-25,8990	-19,6652	-10,0711	-1,7952	0,8191	-1,8143	-9,6533	-19,6127	-25,6955	-27,2007
23	-22,6749	-16,2863	-6,5454	1,8321	4,5005	1,7173	-6,3045	-16,3413	-22,4058	-23,7103
24	-19,8488	-13,3473	-3,5176	4,9115	7,6195	4,7019	-3,4502	-13,5056	-19,5177	-20,6206
25	-17,4159	-10,8476	-0,9910	7,4365	10,1679	7,1342	-1,0910	-11,1027	-17,0276	-17,9305
26	-15,3888	-8,7880	1,0135	9,3827	12,1192	8,9907	0,7548	-9,1476	-14,9491	-15,6567
27	-13,5048	-6,9099	2,7505	11,0008	13,7225	10,5442	2,3444	-7,3796	-13,0204	-13,5398
28	-11,1122	-4,5814	4,8629	12,9297	15,6149	12,4353	4,3233	-5,1493	-10,5912	-10,9321
29	-7,8349	-1,4305	7,7182	15,5331	18,1578	15,0077	7,0617	-2,0827	-7,2861	-7,4606
30	-3,6673	2,5438	11,3129	18,8033	21,3411	18,2550	10,5588	1,8232	-3,1010	-3,1237
31	0,5579	6,5042	14,8049	21,8941	24,3161	21,3320	13,9751	5,7331	1,1306	1,2426
32	4,6283	10,2340	17,9724	24,5790	26,8543	24,0138	17,0918	9,4323	5,1954	5,4226
33	8,5645	13,7490	20,8264	26,8644	28,9594	26,3081	19,9225	12,9390	9,1133	9,4335
34	11,4332	16,1111	22,4234	27,8018	29,6803	27,2685	21,5269	15,3170	11,9498	12,3386
35	13,2564	17,3377	22,7757	27,3984	29,0216	26,9034	21,9198	16,5860	13,7265	14,1570
36	14,3495	17,7391	22,1899	25,9542	27,2804	25,5142	21,4094	17,0588	14,7577	15,2009
37	13,9357	16,5278	19,8787	22,6764	23,6613	22,3100	19,2113	15,9559	14,2658	14,6904
38	10,8163	12,5001	14,6312	16,3503	16,9465	16,0779	14,1196	12,0761	11,0520	11,4241
39	5,6630	6,4140	7,3232	7,9987	8,2214	7,8454	7,0245	6,1774	5,7880	6,0425
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

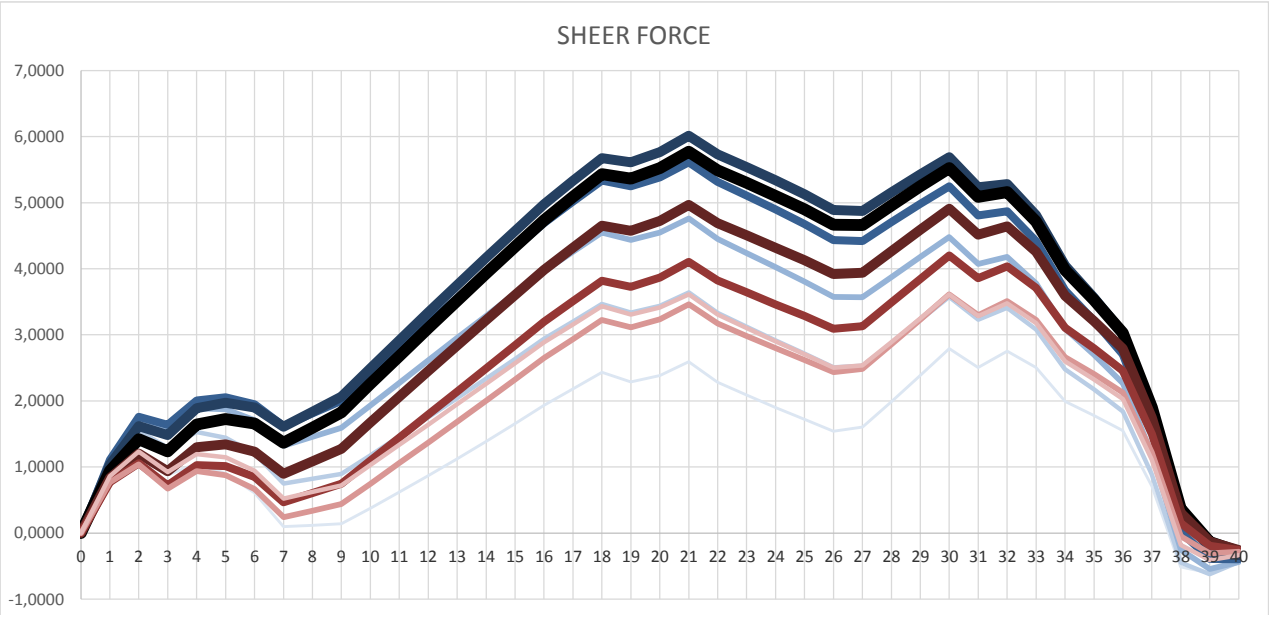


0,35



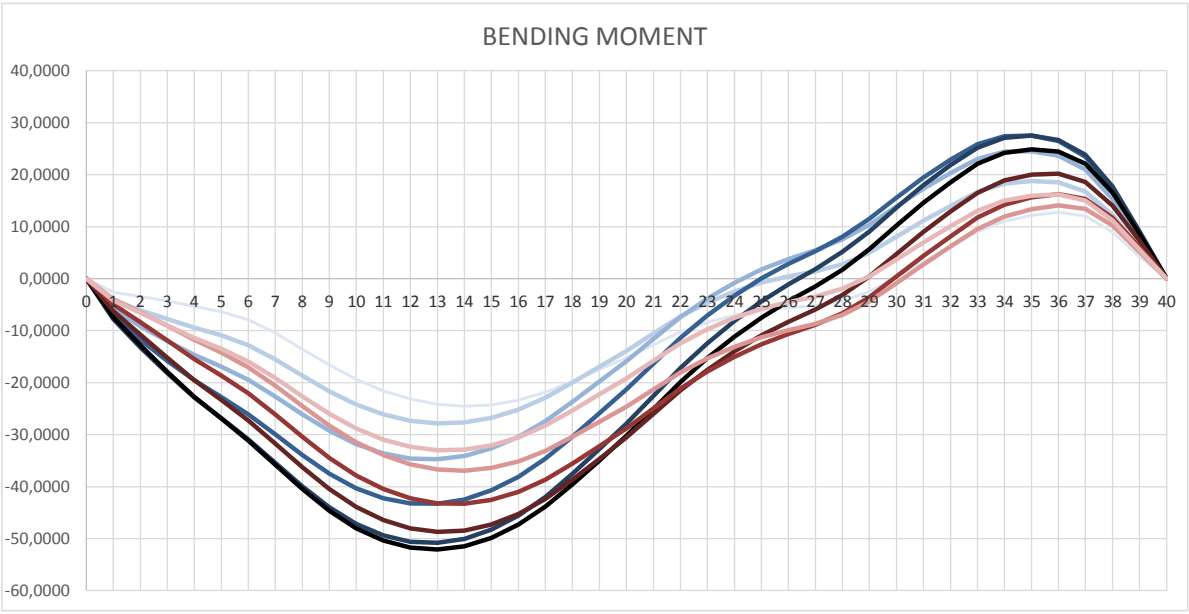
Sheer Force 0,35

STATION	PERIODE									
	1,80	3,59	5,39	7,18	8,98	10,77	12,57	14,36	16,16	17,95
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,8840	1,0272	1,1113	1,1113	1,0404	0,9391	0,8357	0,7705	0,7680	0,8626
2	1,2457	1,5482	1,7419	1,7587	1,6216	1,4208	1,2017	1,0563	1,0390	1,2325
3	0,8803	1,2940	1,5801	1,6365	1,4838	1,2346	0,9357	0,7214	0,6741	0,9222
4	1,0518	1,5285	1,8893	2,0080	1,8906	1,6436	1,3008	1,0293	0,9368	1,1971
5	0,9040	1,4413	1,8748	2,0546	1,9730	1,7280	1,3422	1,0150	0,8777	1,1477
6	0,6086	1,2041	1,7078	1,9476	1,9019	1,6586	1,2309	0,8498	0,6683	0,9454
7	0,0976	0,7488	1,3201	1,6183	1,6086	1,3665	0,8982	0,4650	0,2403	0,5219
8	0,1166	0,8203	1,4564	1,8113	1,8376	1,5971	1,0889	0,6057	0,3388	0,6227
9	0,1408	0,8942	1,5919	2,0019	2,0638	1,8276	1,2779	0,7470	0,4391	0,7230
10	0,3771	1,1770	1,9330	2,3959	2,4928	2,2567	1,6714	1,0951	0,7476	1,0295
11	0,6194	1,4624	2,2733	2,7869	2,9182	2,6817	2,0628	1,4438	1,0582	1,3362
12	0,8682	1,7508	2,6128	3,1746	3,3396	3,1024	2,4520	1,7931	1,3711	1,6435
13	1,1237	2,0423	2,9516	3,5589	3,7564	3,5182	2,8389	2,1430	1,6865	1,9515
14	1,3865	2,3371	3,2894	3,9393	4,1683	3,9290	3,2233	2,4935	2,0046	2,2607
15	1,6568	2,6353	3,6264	4,3159	4,5749	4,3343	3,6052	2,8448	2,3256	2,5714
16	1,9351	2,9371	3,9624	4,6882	4,9758	4,7338	3,9842	3,1967	2,6496	2,8839
17	2,1798	3,2010	4,2556	5,0142	5,3287	5,0855	4,3186	3,5076	2,9353	3,1569
18	2,4330	3,4688	4,5477	5,3354	5,6750	5,4309	4,6500	3,8194	3,2245	3,4323
19	2,2902	3,3357	4,4338	5,2465	5,6091	5,3645	4,5734	3,7271	3,1125	3,3057
20	2,3870	3,4373	4,5492	5,3828	5,7662	5,5216	4,7241	3,8662	3,2352	3,4129
21	2,5914	3,6428	4,7612	5,6114	6,0133	5,7697	4,9675	4,1045	3,4600	3,6133
22	2,2854	3,3311	4,4518	5,3141	5,7318	5,4902	4,6895	3,8238	3,1696	3,3063
23	2,0875	3,1220	4,2388	5,1086	5,5395	5,3009	4,5062	3,6424	2,9819	3,1018
24	1,9000	2,9174	4,0241	4,8962	5,3376	5,1035	4,3192	3,4623	2,7992	2,9021
25	1,7229	2,7173	3,8074	4,6769	5,1257	4,8977	4,1284	3,2834	2,6219	2,7075
26	1,5419	2,5072	3,5740	4,4355	4,8886	4,6685	3,9192	3,0914	2,4355	2,5037
27	1,6032	2,5332	3,5699	4,4177	4,8721	4,6620	3,9378	3,1324	2,4864	2,5373
28	1,9879	2,8759	3,8754	4,7037	5,1563	4,9583	4,2644	3,4871	2,8555	2,8892
29	2,3840	3,2235	4,1781	4,9811	5,4287	5,2453	4,5872	3,8436	3,2310	3,2476
30	2,7917	3,5757	4,4782	5,2497	5,6889	5,5228	4,9060	4,2022	3,6133	3,6130
31	2,5066	3,2281	4,0706	4,8042	5,2319	5,0859	4,5162	3,8581	3,2981	3,2811
32	2,7551	3,4068	4,1813	4,8706	5,2832	5,1604	4,6439	4,0378	3,5118	3,4783
33	2,5069	3,0814	3,7796	4,4177	4,8122	4,7157	4,2586	3,7108	3,2242	3,1745
34	1,9903	2,4801	3,0936	3,6735	4,0467	3,9800	3,5887	3,1059	2,6641	2,5985
35	1,7808	2,1731	2,6981	3,2126	3,5613	3,5281	3,2090	2,7981	2,4067	2,3254
36	1,5497	1,8413	2,2641	2,7060	3,0271	3,0311	2,7910	2,4589	2,1239	2,0271
37	0,7076	0,8902	1,2019	1,5633	1,8539	1,8993	1,7451	1,4989	1,2263	1,1141
38	-0,5104	-0,4452	-0,2538	0,0194	0,2766	0,3676	0,3065	0,1533	-0,0507	-0,1781
39	-0,6060	-0,6188	-0,5413	-0,3886	-0,2198	-0,1318	-0,1292	-0,1925	-0,3054	-0,4067
40	-0,3943	-0,4354	-0,4371	-0,3967	-0,3331	-0,2830	-0,2551	-0,2546	-0,2839	-0,3357

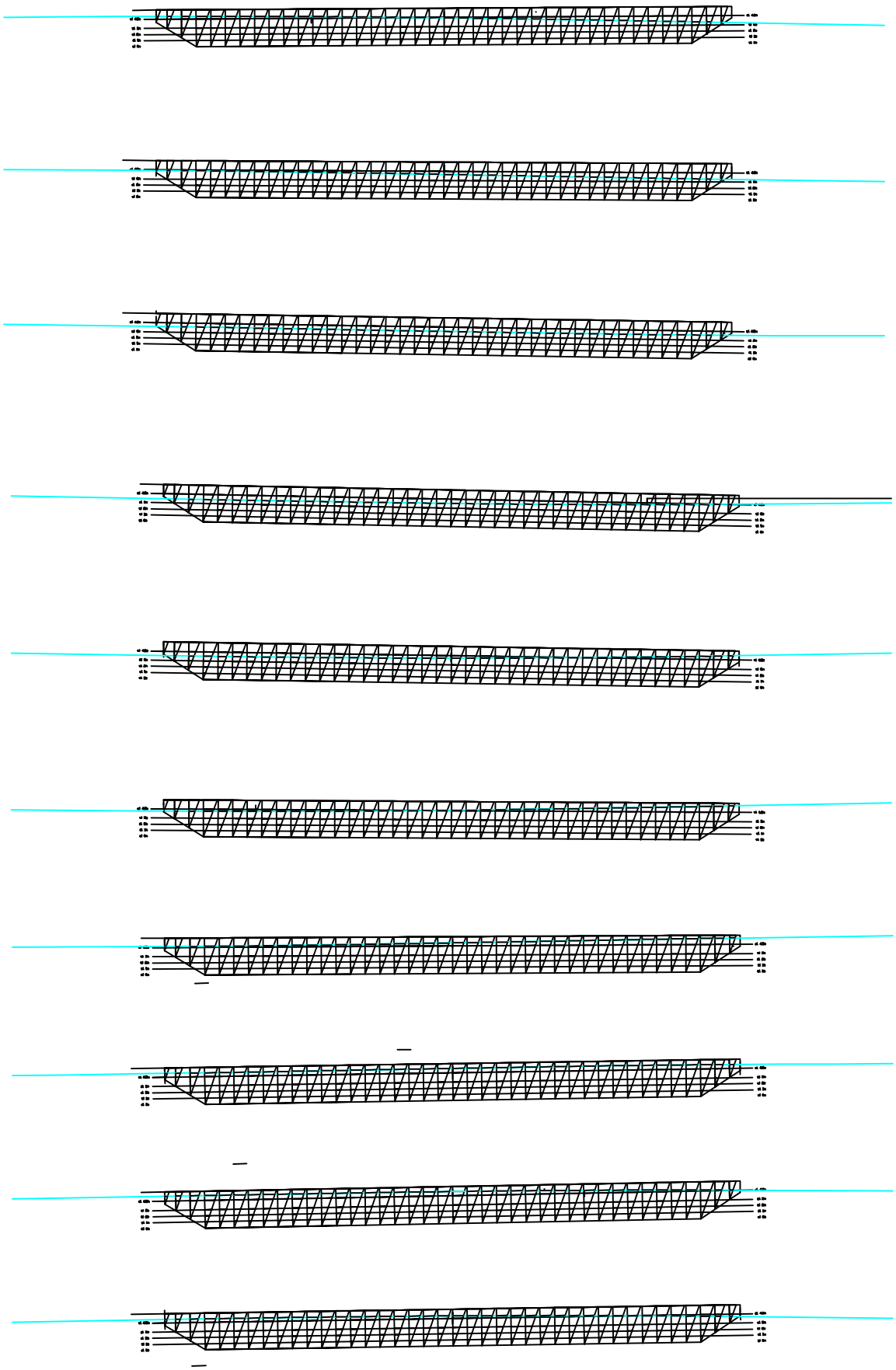


Bending Moment 0,35

STATION	PERIODE									
	1,80	3,59	5,39	7,18	8,98	10,77	12,57	14,36	16,16	17,95
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-2,5916	-4,1305	-5,8034	-7,1055	-7,7404	-7,4107	-6,2383	-4,9476	-3,9623	-4,1704
2	-3,4235	-6,0964	-9,1853	-11,7694	-13,2246	-12,8361	-10,7844	-8,3964	-6,4472	-6,6036
3	-4,2598	-7,7448	-12,0095	-15,8086	-18,1814	-17,9101	-15,2115	-11,9037	-9,0437	-8,9658
4	-5,3267	-9,4167	-14,6585	-19,5513	-22,8183	-22,7190	-19,5207	-15,4430	-11,7619	-11,3700
5	-6,3655	-10,9134	-16,9568	-22,7967	-26,8733	-26,9410	-23,3463	-18,6330	-14,2379	-13,5061
6	-7,9314	-12,7958	-19,4711	-26,1139	-30,9148	-31,1450	-27,2551	-22,0366	-17,0332	-15,9417
7	-10,4565	-15,5021	-22,6452	-29,9501	-35,3897	-35,7791	-31,6920	-26,0944	-20,5868	-19,1216
8	-13,5669	-18,6649	-26,1184	-33,9485	-39,9411	-40,4864	-36,2978	-30,4427	-24,5323	-22,6853
9	-16,6259	-21,6547	-29,2682	-37,4905	-43,9511	-44,6451	-40,4520	-34,4555	-28,2414	-26,0100
10	-19,3751	-24,2203	-31,8512	-40,3372	-47,1818	-48,0192	-43,9133	-37,8861	-31,4642	-28,8506
11	-21,5550	-26,1100	-33,6236	-42,2501	-49,3961	-50,3774	-46,4409	-40,4879	-33,9506	-30,9618
12	-23,1507	-27,3171	-34,5872	-43,2368	-50,6031	-51,7296	-48,0401	-42,2594	-35,6954	-32,3427
13	-24,1465	-27,8344	-34,7441	-43,3052	-50,8131	-52,0868	-48,7161	-43,1991	-36,6927	-32,9917
14	-24,5257	-27,6543	-34,0963	-42,4639	-50,0373	-51,4609	-48,4746	-43,3057	-36,9364	-32,9065
15	-24,2708	-26,7689	-32,6458	-40,7221	-48,2880	-49,8642	-47,3217	-42,5776	-36,4199	-32,0839
16	-23,3634	-25,1697	-30,3947	-38,0896	-45,5782	-47,3101	-45,2637	-41,0131	-35,1362	-30,5201
17	-21,8339	-22,8976	-27,3952	-34,6265	-41,9717	-43,8625	-42,3570	-38,6600	-33,1273	-28,2599
18	-19,7122	-19,9932	-23,6993	-30,3934	-37,5335	-39,5857	-38,6584	-35,5663	-30,4345	-25,3473
19	-17,4592	-16,9285	-19,7915	-25,8841	-32,7617	-34,9770	-34,6566	-32,2115	-27,5310	-22,2577
20	-15,2609	-13,9013	-15,8819	-21,3184	-27,8815	-30,2604	-30,5669	-28,8010	-24,6147	-19,1911
21	-12,7043	-10,5087	-11,5829	-16,3186	-22,5206	-25,0619	-26,0082	-24,9416	-21,2851	-15,7588
22	-10,2686	-7,2425	-7,3998	-11,4005	-17,2005	-19,9008	-21,4907	-21,1326	-18,0335	-12,4532
23	-8,4322	-4,5958	-3,8381	-7,0806	-12,4440	-15,2973	-17,5219	-17,8732	-15,3507	-9,7560
24	-7,0543	-2,4413	-0,7852	-3,2578	-8,1564	-11,1537	-13,9938	-15,0439	-13,1084	-7,5396
25	-6,1101	-0,7682	1,7546	0,0516	-4,3610	-7,4898	-10,9149	-12,6415	-11,2943	-5,7923
26	-5,5918	0,4170	3,7592	2,8130	-1,0998	-4,3433	-8,3118	-10,6804	-9,9128	-4,5189
27	-5,2159	1,3833	5,4811	5,2660	1,8599	-1,4772	-5,9355	-8,8990	-8,6925	-3,4479
28	-4,3094	2,7883	7,5616	8,0380	5,1380	1,7337	-3,1485	-6,6469	-6,9726	-1,9185
29	-2,4741	5,0143	10,3655	11,4803	9,0781	5,6384	0,4110	-3,5487	-4,3671	0,4560
30	0,3171	8,0727	13,8865	15,5720	13,6518	10,2146	4,7336	0,4000	-0,8601	3,6915
31	3,2542	11,1366	17,2795	19,4532	17,9914	14,6012	8,9718	4,3659	2,7266	6,9667
32	6,1479	13,9996	20,3193	22,8836	21,8484	18,5566	12,8983	8,1362	6,1926	10,0817
33	9,0419	16,6880	23,0130	25,8541	25,2061	22,0717	16,5183	11,7314	9,5707	13,0700
34	11,0262	18,2741	24,4129	27,4007	27,0931	24,1828	18,8831	14,2183	11,9405	15,0117
35	12,1467	18,7797	24,5264	27,5138	27,4921	24,8812	19,9994	15,6194	13,3379	15,9434
36	12,7432	18,5255	23,6532	26,4761	26,6783	24,4509	20,1669	16,2510	14,0927	16,1955
37	12,0631	16,7453	21,0004	23,4765	23,8335	22,0831	18,5931	15,3371	13,4434	15,0067
38	8,9325	12,2454	15,3524	17,2812	17,7170	16,5471	14,0640	11,6808	10,2074	11,1949
39	4,2394	5,9506	7,6309	8,7642	9,1339	8,5950	7,3054	6,0125	5,1494	5,5741
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

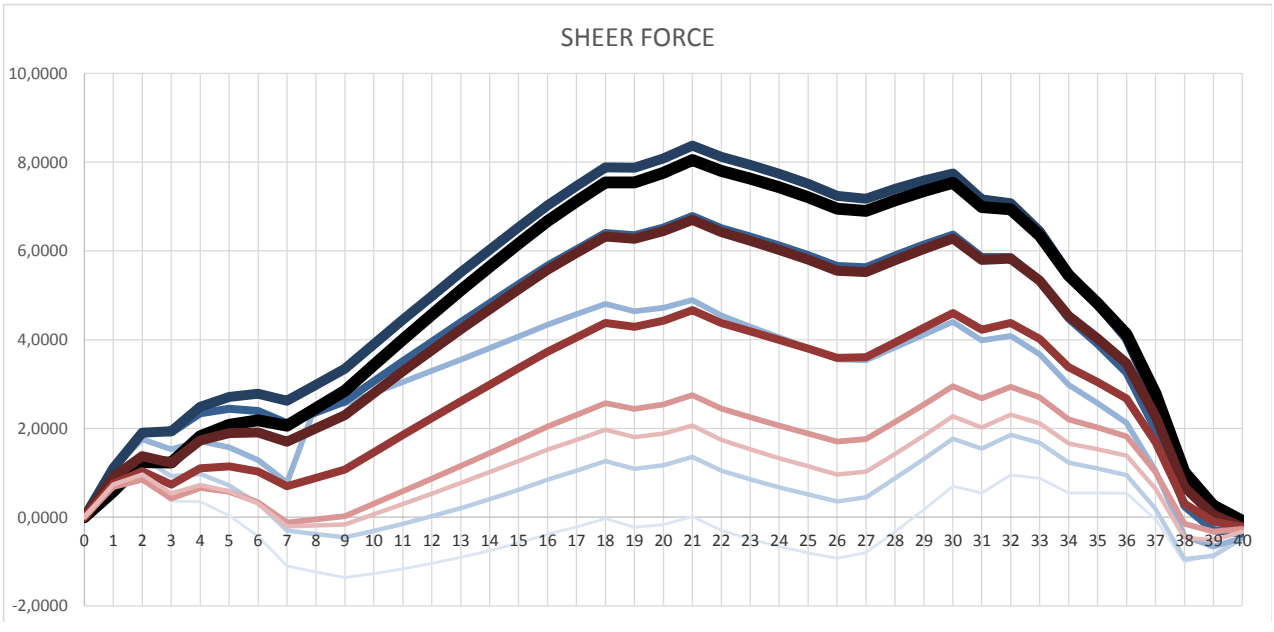


0,45



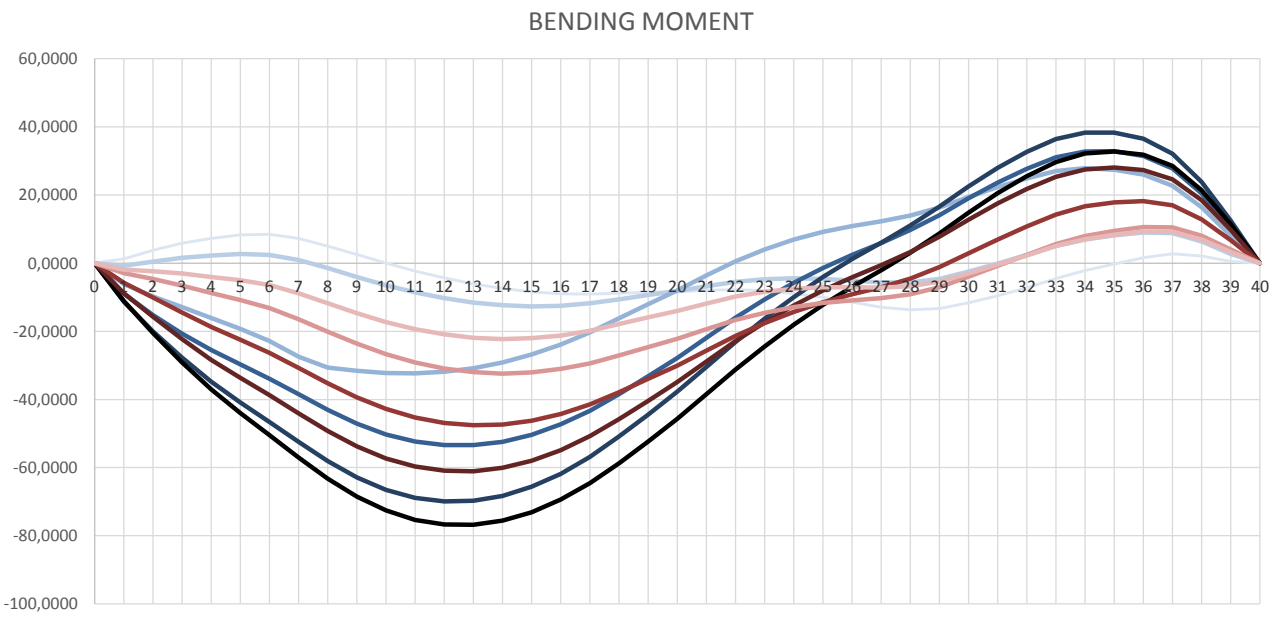
Sheer Force 0,45

STATION	PERIODE									
	1,40	2,79	4,19	5,59	6,98	8,38	9,77	11,17	12,57	13,96
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,7363	0,9428	1,1113	1,1113	1,1113	0,5837	0,9039	0,7527	0,6754	0,7391
2	0,9040	1,3313	1,7535	1,9239	1,9008	1,2411	1,3741	1,0370	0,8474	0,9612
3	0,3546	0,9212	1,5328	1,9116	1,9390	1,2323	1,2269	0,7315	0,4198	0,5346
4	0,3522	0,9771	1,7134	2,3401	2,4885	1,8198	1,7251	1,0993	0,6559	0,7229
5	0,0343	0,7167	1,5740	2,4419	2,7121	2,0808	1,8957	1,1423	0,5700	0,5878
6	-0,4272	0,3125	1,2863	2,3903	2,7804	2,1851	1,9094	1,0314	0,3333	0,3009
7	-1,0994	-0,3032	0,7824	2,1168	2,6238	2,0634	1,6969	0,6982	-0,1222	-0,2057
8	-1,2365	-0,3846	2,5321	2,3659	2,9867	2,4594	2,0024	0,8871	-0,0515	-0,1864
9	-1,3621	-0,4555	2,5613	2,6122	3,3433	2,8470	2,3004	1,0730	0,0206	-0,1656
10	-1,2691	-0,3090	2,8011	3,0619	3,8991	3,4311	2,7966	1,4624	0,3009	0,0636
11	-1,1625	-0,1506	3,0457	3,5080	4,4467	4,0045	3,2840	1,8486	0,5833	0,2955
12	-1,0413	0,0203	3,2949	3,9501	4,9852	4,5659	3,7620	2,2315	0,8683	0,5309
13	-0,9043	0,2047	3,5489	4,3877	5,5135	5,1142	4,2303	2,6110	1,1560	0,7704
14	-0,7506	0,4028	3,8078	4,8203	6,0306	5,6486	4,6881	2,9872	1,4470	1,0148
15	-0,5790	0,6155	4,0715	5,2470	6,5353	6,1679	5,1350	3,3599	1,7415	1,2647
16	-0,3886	0,8431	4,3400	5,6674	7,0265	6,6711	5,5707	3,7293	2,0402	1,5211
17	-0,2200	1,0445	4,5715	6,0389	7,4614	7,1156	5,9529	4,0535	2,3018	1,7430
18	-0,0307	1,2619	4,8074	6,4025	7,8804	7,5422	6,3230	4,3746	2,5684	1,9732
19	-0,2246	1,0908	4,6428	6,3525	7,8774	7,5451	6,2758	4,2877	2,4359	1,8074
20	-0,1654	1,1668	4,7204	6,5235	8,0862	7,7590	6,4463	4,4283	2,5401	1,8822
21	0,0151	1,3580	4,8896	6,7822	8,3734	8,0505	6,7019	4,6642	2,7502	2,0660
22	-0,3002	1,0464	4,5421	6,5096	8,1193	7,8009	6,4242	4,3774	2,4469	1,7420
23	-0,4927	0,8506	4,2959	6,3227	7,9408	7,6274	6,2310	4,1864	2,2500	1,5289
24	-0,6597	0,6724	4,0522	6,1225	7,7385	7,4314	6,0241	3,9933	2,0620	1,3299
25	-0,8004	0,5121	3,8106	5,9077	7,5109	7,2121	5,8033	3,7984	1,8836	1,1458
26	-0,9291	0,3552	3,5558	5,6628	7,2422	6,9541	5,5539	3,5873	1,7011	0,9628
27	-0,7990	0,4478	3,5336	5,6325	7,1774	6,9032	5,5220	3,6067	1,7613	1,0283
28	-0,3291	0,8704	3,8237	5,8964	7,3958	7,1391	5,7880	3,9373	2,1455	1,4234
29	0,1692	1,3110	4,1134	6,1412	7,5844	7,3494	6,0397	4,2676	2,5428	1,8371
30	0,6964	1,7697	4,4023	6,3655	7,7421	7,5337	6,2773	4,5982	2,9540	2,2704
31	0,5481	1,5415	3,9848	5,8634	7,1630	6,9869	5,7963	4,2248	2,6754	2,0195
32	0,9509	1,8526	4,0862	5,8598	7,0725	6,9347	5,8228	4,3741	2,9340	2,3113
33	0,8748	1,6722	3,6752	5,3224	6,4390	6,3461	5,3264	4,0163	2,7004	2,1161
34	0,5483	1,2286	2,9793	4,4785	5,4901	5,4492	4,5356	3,3800	2,2036	1,6632
35	0,5467	1,0961	2,5726	3,9014	4,7997	4,8188	4,0256	3,0411	2,0196	1,5283
36	0,5417	0,9461	2,1253	3,2611	4,0383	4,1258	3,4679	2,6716	1,8206	1,3836
37	-0,0564	0,1886	1,0468	1,9662	2,6157	2,7804	2,2732	1,6823	1,0180	0,6402
38	-1,0123	-0,9420	-0,4289	0,2507	0,7662	1,0175	0,6768	0,3093	-0,1525	-0,4659
39	-0,8355	-0,8714	-0,6643	-0,2914	0,0075	0,2670	0,0568	-0,0957	-0,3269	-0,5220
40	-0,4161	-0,4802	-0,4697	-0,3709	-0,2915	-0,0834	-0,2237	-0,2242	-0,2652	-0,3338

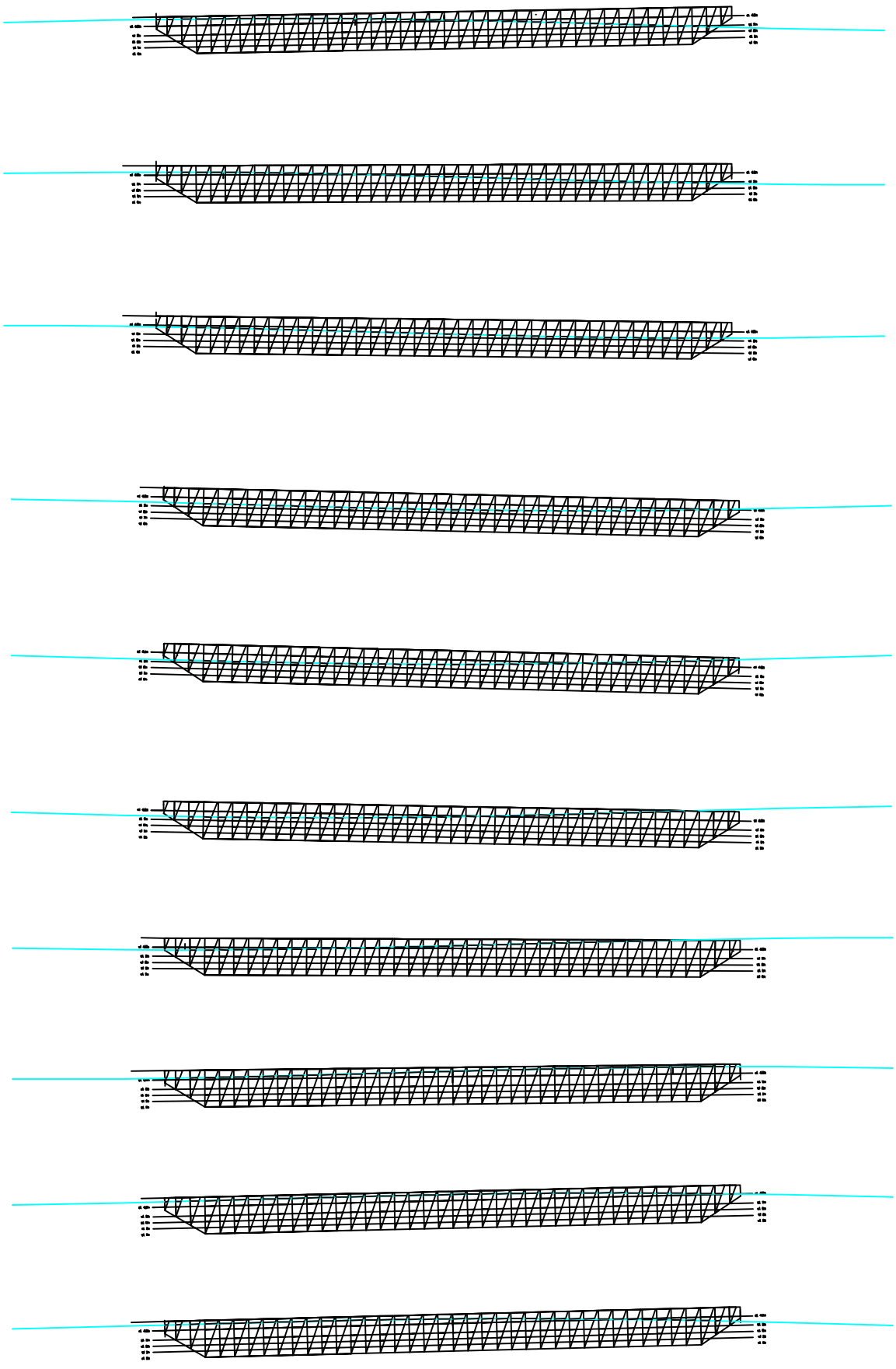


Bending Moment 0,45

STATION	PERIODE									
	1,40	2,79	4,19	5,59	6,98	8,38	9,77	11,17	12,57	13,96
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	1,2356	-0,7196	-6,0851	-8,9531	-11,3146	-11,0668	-8,8224	-5,7812	-2,8929	-1,8520
2	3,7781	0,4410	-9,7350	-15,2682	-20,0186	-20,4739	-15,7261	-10,0923	-4,5655	-2,3281
3	5,8665	1,5758	-12,8836	-20,6314	-27,7381	-29,1093	-22,2456	-14,4285	-6,5421	-3,0476
4	7,2985	2,2893	-16,0798	-25,4994	-34,7586	-37,0563	-28,3475	-18,6907	-8,7465	-4,0506
5	8,3496	2,7595	-19,2271	-29,7367	-40,8594	-43,9941	-33,6540	-22,4642	-10,7723	-4,9902
6	8,4736	2,4391	-22,8823	-33,9142	-46,6130	-50,4974	-38,7413	-26,3184	-13,1817	-6,4319
7	7,2491	0,9056	-27,4791	-38,4784	-52,4718	-57,0213	-44,0650	-30,7008	-16,4145	-8,8174
8	5,0619	-1,4571	-30,5941	-43,0717	-58,0851	-63,2189	-49,2780	-35,2550	-20,1051	-11,7826
9	2,5622	-4,0009	-31,5930	-47,0758	-62,8424	-68,4845	-53,7731	-39,3633	-23,6258	-14,7001
10	0,0237	-6,4548	-32,2720	-50,2518	-66,5145	-72,5943	-57,3235	-42,7872	-26,7273	-17,3202
11	-2,2773	-8,5461	-32,3747	-52,3623	-68,8742	-75,3273	-59,7040	-45,2887	-29,1596	-19,3918
12	-4,3074	-10,2456	-31,8901	-53,4165	-69,9419	-76,7105	-60,9361	-46,8753	-30,9168	-20,9076
13	-6,0304	-11,5225	-30,8069	-53,4241	-69,7406	-76,7735	-61,0426	-47,5549	-31,9929	-21,8584
14	-7,4076	-12,3445	-29,1137	-52,3967	-68,2959	-75,5487	-60,0475	-47,3357	-32,3806	-22,2337
15	-8,3978	-12,6777	-26,7988	-50,3471	-65,6358	-73,0706	-57,9763	-46,2257	-32,0717	-22,0211
16	-8,9575	-12,4872	-23,8509	-47,2899	-61,7910	-69,3762	-54,8552	-44,2330	-31,0574	-21,2062
17	-9,0901	-11,7864	-20,3083	-43,2908	-56,8446	-64,5545	-50,7613	-41,4152	-29,3766	-19,8223
18	-8,7971	-10,5874	-16,2097	-38,4171	-50,8824	-58,6967	-45,7725	-37,8297	-27,0675	-17,9006
19	-8,5094	-9,3334	-12,0261	-33,1704	-44,4254	-52,3278	-40,3995	-33,9657	-24,5988	-15,9024
20	-8,3819	-8,1925	-7,9461	-27,7798	-37,7237	-45,7012	-34,8800	-30,0379	-22,1639	-14,0124
21	-7,9693	-6,7339	-3,5724	-21,8781	-30,4320	-38,4734	-28,8536	-25,6622	-19,3550	-11,8148
22	-7,7171	-5,4184	0,5891	-15,9930	-23,1009	-31,1957	-22,8536	-21,3471	-16,6570	-9,7840
23	-8,0690	-4,7065	4,0444	-10,6544	-16,2843	-24,4214	-17,4136	-17,6002	-14,5539	-8,3920
24	-8,8483	-4,4394	6,9170	-5,7764	-9,9207	-18,0865	-12,4495	-14,3102	-12,9088	-7,4901
25	-9,9937	-4,5750	9,2122	-1,3919	-4,0685	-12,2457	-7,9942	-11,4818	-11,6995	-7,0440
26	-11,4596	-5,0878	10,9171	2,4457	1,1933	-6,9726	-4,0981	-9,1363	-10,9194	-7,0345
27	-12,9239	-5,6773	12,2924	5,9560	6,0585	-2,0669	-0,5367	-7,0188	-10,2848	-7,1647
28	-13,6745	-5,6539	13,9864	9,7442	11,1064	3,0588	3,3032	-4,4852	-9,1216	-6,7472
29	-13,2733	-4,6037	16,3701	14,1375	16,6385	8,7152	7,7588	-1,1653	-7,0288	-5,3675
30	-11,6524	-2,4838	19,4420	19,0888	22,5825	14,8412	12,7965	2,9407	-3,9742	-2,9804
31	-9,5808	-0,0896	22,3609	23,7097	28,0252	20,5359	17,5447	6,9958	-0,7619	-0,3763
32	-7,2064	2,4032	24,9037	27,7289	32,6714	25,5181	21,7522	10,7844	2,4265	2,2764
33	-4,4433	5,0515	27,0784	31,1047	36,4565	29,7380	25,4008	14,3250	5,6447	5,0441
34	-2,1591	6,9575	27,9365	32,8375	38,3592	32,1909	27,5183	16,6831	7,9940	7,0408
35	-0,2652	8,1782	27,4830	32,8799	38,3120	32,8272	28,0886	17,8812	9,5335	8,3384
36	1,6208	9,0629	26,0136	31,4743	36,5378	31,8893	27,3887	18,2367	10,6175	9,3034
37	2,7893	8,8681	22,7293	27,7667	32,1659	28,5268	24,6043	16,9758	10,5101	9,2120
38	2,1093	6,4274	16,4067	20,4782	23,9017	21,4669	18,5000	12,9051	8,0556	6,9206
39	0,5026	2,7259	8,0487	10,5043	12,5351	11,4172	9,7592	6,7194	4,0014	3,2467
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

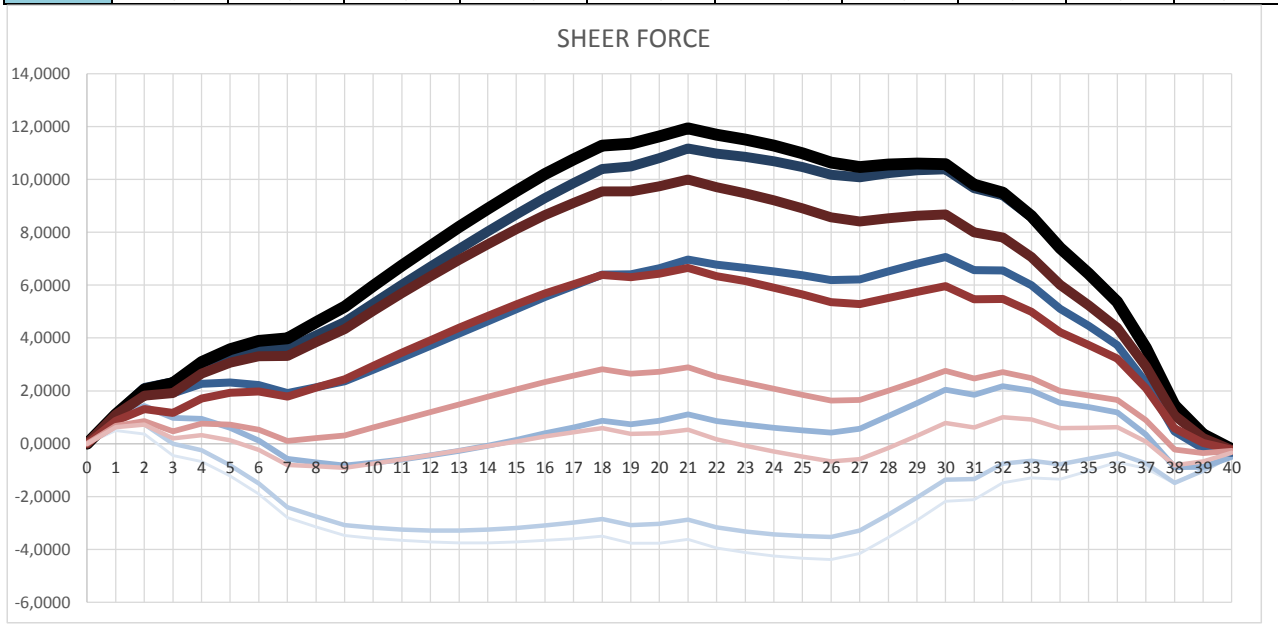


0,55



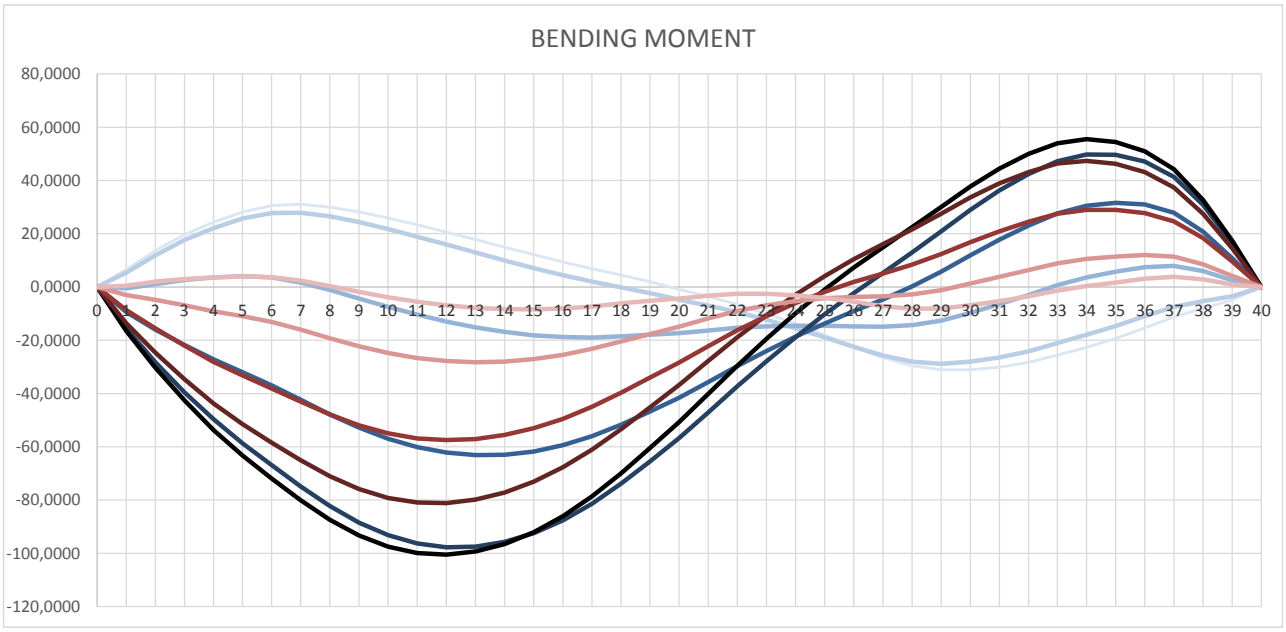
Sheer Force 0,55

STATION	PERIODE									
	1,14	2,28	3,43	4,57	5,71	6,85	8,00	9,14	10,28	11,42
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,5011	0,6863	1,0036	1,1113	1,1113	1,1113	1,0947	0,8656	0,6728	0,6291
2	0,3725	0,7361	1,4208	1,9413	2,1165	2,0491	1,8205	1,3099	0,8575	0,7268
3	-0,4406	0,0023	0,9816	1,9065	2,3321	2,2896	1,9222	1,1719	0,4643	0,2042
4	-0,6732	-0,2492	0,9451	2,2709	3,0208	3,0943	2,6608	1,7136	0,7560	0,3278
5	-1,2183	-0,8099	0,5997	2,3191	3,3864	3,5722	3,0673	1,9236	0,7204	0,1267
6	-1,9026	-1,5061	0,1183	2,2226	3,5991	3,8923	3,3108	1,9720	0,5285	-0,2277
7	-2,7927	-2,4036	-0,5660	1,9131	3,5891	3,9840	3,3205	1,7892	0,1117	-0,8032
8	-3,1419	-2,7547	-0,7069	2,1354	4,1003	4,5902	3,8393	2,1191	0,2150	-0,8544
9	-3,4728	-3,0820	-0,8281	2,3645	4,6062	5,1835	4,3403	2,4361	0,3135	-0,9052
10	-3,5771	-3,1768	-0,7222	2,8062	5,3117	5,9677	5,0279	2,9456	0,6135	-0,7486
11	-3,6590	-3,2433	-0,5943	3,2538	6,0087	6,7339	5,6940	3,4405	0,9092	-0,5900
12	-3,7162	-3,2794	-0,4440	3,7068	6,6953	7,4792	6,3371	3,9205	1,2009	-0,4283
13	-3,7464	-3,2833	-0,2704	4,1641	7,3696	8,2008	6,9554	4,3849	1,4890	-0,2623
14	-3,7475	-3,2534	-0,0733	4,6249	8,0294	8,8959	7,5475	4,8334	1,7742	-0,0908
15	-3,7170	-3,1878	0,1479	5,0882	8,6724	9,5620	8,1121	5,2656	2,0570	0,0876
16	-3,6526	-3,0853	0,3930	5,5525	9,2962	10,1964	8,6480	5,6815	2,3382	0,2744
17	-3,5939	-2,9863	0,6206	5,9747	9,8565	10,7549	9,1124	6,0392	2,5772	0,4296
18	-3,4966	-2,8478	0,8720	6,3950	10,3924	11,2771	9,5459	6,3805	2,8164	0,5965
19	-3,7641	-3,0737	0,7422	6,4066	10,4961	11,3559	9,5427	6,3007	2,6521	0,3721
20	-3,7586	-3,0277	0,8661	6,6432	10,8000	11,6246	9,7375	6,4353	2,7210	0,3936
21	-3,6110	-2,8768	1,1105	6,9704	11,1685	11,9348	9,9971	6,6494	2,8897	0,5309
22	-3,9378	-3,1680	0,8568	6,7678	10,9805	11,6949	9,7031	6,3314	2,5458	0,1679
23	-4,1192	-3,3178	0,7220	6,6512	10,8508	11,5071	9,4729	6,1512	2,3068	-0,0752
24	-4,2520	-3,4240	0,6071	6,5200	10,6785	11,2717	9,2081	5,9031	2,0762	-0,2945
25	-4,3349	-3,4866	0,5106	6,3714	10,4604	10,9874	8,9086	5,6411	1,8557	-0,4879
26	-4,3815	-3,5202	0,4166	6,1880	10,1793	10,6383	8,5594	5,3522	1,6325	-0,6683
27	-4,1444	-3,2786	0,5697	6,2132	10,0788	10,4693	8,4069	5,2833	1,6545	-0,5873
28	-3,5424	-2,6816	1,0488	6,5241	10,2369	10,5598	8,5314	5,5160	2,0043	-0,1628
29	-2,8866	-2,0417	1,5400	6,8055	10,3395	10,5969	8,6214	5,7396	2,3719	0,2951
30	-2,1764	-1,3591	2,0414	7,0593	10,3842	10,5799	8,6771	5,9554	2,7593	0,7882
31	-2,1158	-1,3395	1,8460	6,5668	9,6645	9,8034	7,9943	5,4599	2,4637	0,6134
32	-1,4783	-0,7572	2,1777	6,5561	9,4047	9,4930	7,7998	5,4811	2,7130	0,9986
33	-1,2942	-0,6438	2,0037	5,9933	8,5723	8,6178	7,0637	4,9899	2,4787	0,9149
34	-1,3348	-0,7720	1,5496	5,1037	7,3943	7,4059	6,0150	4,2164	1,9907	0,5923
35	-1,0252	-0,5679	1,3877	4,4592	6,4442	6,4319	5,2298	3,7374	1,8258	0,6071
36	-0,6942	-0,3618	1,1864	3,7286	5,3919	5,3674	4,3886	3,2268	1,6569	0,6323
37	-0,9314	-0,7445	0,3529	2,3193	3,6468	3,6226	2,9233	2,0957	0,8962	0,0795
38	-1,5023	-1,4827	-0,8807	0,4640	1,4428	1,4532	1,0692	0,5817	-0,2199	-0,8147
39	-0,9491	-1,0156	-0,8713	-0,1954	0,3404	0,3587	0,2098	0,0250	-0,3536	-0,6708
40	-0,3841	-0,4506	-0,4961	-0,3454	-0,2032	-0,1985	-0,2336	-0,2220	-0,2716	-0,3441

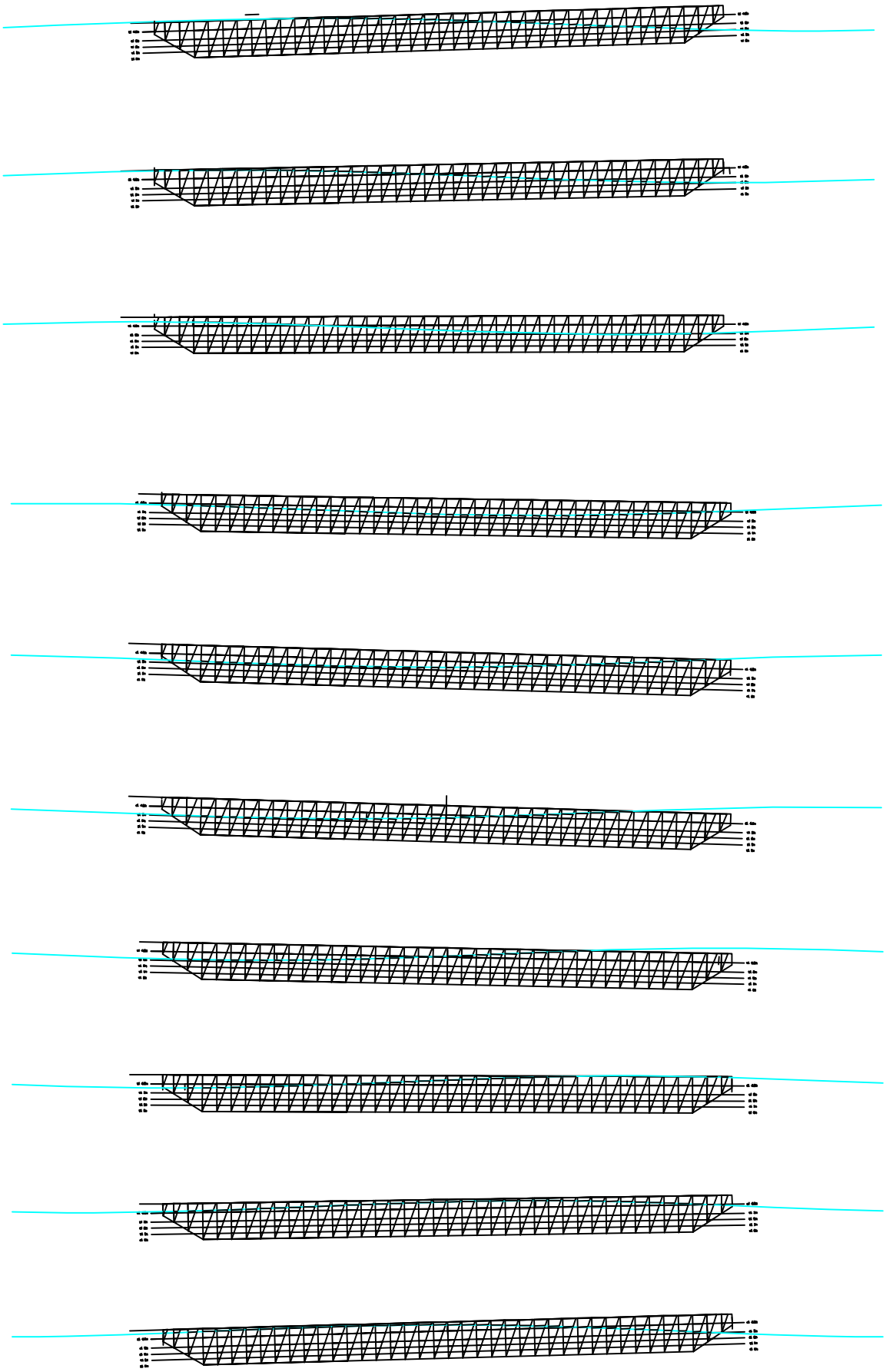


Bending Moment 0,55

STATION	PERIODE									
	1,14	2,28	3,43	4,57	5,71	6,85	8,00	9,14	10,28	11,42
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	6,5043	5,4053	-0,4589	-9,3537	-15,5725	-16,5336	-13,5634	-8,7031	-3,0509	0,4555
2	13,6094	11,9019	1,0879	-16,0486	-28,2780	-30,2803	-24,6170	-15,5758	-4,8701	1,9735
3	19,5944	17,5849	2,6085	-21,7976	-39,5313	-42,6254	-34,6863	-22,0842	-6,9373	2,9860
4	24,3355	22,0960	3,5631	-27,1547	-49,7089	-53,7272	-43,7562	-28,1124	-9,1252	3,5239
5	28,1514	25,6410	4,0634	-32,0209	-58,6323	-63,3034	-51,4639	-33,2465	-11,0085	3,9696
6	30,5049	27,6908	3,5803	-36,9445	-66,8680	-71,9304	-58,3985	-38,0731	-13,1625	3,7545
7	30,9857	27,8450	1,7105	-42,3510	-74,8625	-80,0674	-65,0318	-43,0596	-16,0406	2,4333
8	29,9924	26,5140	-1,1407	-47,8612	-82,2609	-87,3743	-71,0365	-47,8711	-19,2915	0,3666
9	28,1901	24,3761	-4,3037	-52,8346	-88,4495	-93,2545	-75,8281	-51,9131	-22,3025	-1,8214
10	25,8701	21,7361	-7,4848	-57,0102	-93,1970	-97,4961	-79,2060	-54,9721	-24,8393	-3,8836
11	23,3287	18,9042	-10,3878	-60,1279	-96,2762	-99,8936	-80,9735	-56,8363	-26,6675	-5,5709
12	20,6218	15,9502	-12,9600	-62,1743	-97,7097	-100,4931	-81,1838	-57,5408	-27,7971	-6,8771
13	17,8109	12,9486	-15,1468	-63,1378	-97,5244	-99,3478	-79,8937	-57,1220	-28,2369	-7,7934
14	14,9628	9,9780	-16,8927	-63,0093	-95,7522	-96,5173	-77,1638	-55,6172	-27,9949	-8,3083
15	12,1496	7,1210	-18,1411	-61,7815	-92,4304	-92,0676	-73,0580	-53,0649	-27,0773	-8,4071
16	9,4493	4,4639	-18,8349	-59,4505	-87,6017	-86,0710	-67,6432	-49,5037	-25,4887	-8,0714
17	6,8955	2,0465	-18,9663	-56,0650	-81,3645	-78,6554	-61,0385	-45,0225	-23,2814	-7,3289
18	4,5272	-0,0884	-18,5280	-51,6772	-73,8234	-69,9542	-53,3657	-39,7096	-20,5053	-6,2032
19	1,9565	-2,3272	-17,9449	-46,7756	-65,5215	-60,5382	-45,1812	-34,0858	-17,6401	-5,1460
20	-0,9259	-4,7800	-17,3688	-41,5788	-56,7347	-50,7088	-36,7687	-28,3967	-14,8885	-4,3302
21	-3,6262	-6,9987	-16,3547	-35,7114	-47,1482	-40,1908	-27,8157	-22,2928	-11,8542	-3,3254
22	-6,5397	-9,3842	-15,3517	-29,6957	-37,3469	-29,5893	-18,9036	-16,3126	-9,0282	-2,5892
23	-10,0575	-12,2943	-14,8108	-24,0598	-27,9233	-19,4965	-10,6151	-10,9251	-6,8955	-2,5739
24	-13,9491	-15,5089	-14,5670	-18,7187	-18,8591	-9,9071	-2,9154	-6,0470	-5,3214	-3,1085
25	-18,0974	-18,9243	-14,5747	-13,7104	-10,2594	-0,9359	4,1131	-1,7756	-4,2839	-4,1341
26	-22,3997	-22,4540	-14,8090	-9,0971	-2,2534	7,2820	10,3700	1,8404	-3,7743	-5,6043
27	-26,4753	-25,7364	-14,9728	-4,6719	5,2987	14,8835	16,0301	5,0308	-3,5040	-7,1927
28	-29,5529	-28,0214	-14,3847	0,1530	12,9193	22,3915	21,6569	8,4162	-2,7916	-8,1799
29	-31,1343	-28,8350	-12,6424	5,6825	20,8500	30,0514	27,5388	12,3443	-1,2257	-8,1174
30	-31,0907	-28,0755	-9,7194	11,8487	28,9559	37,7352	33,5939	16,7951	1,2382	-6,9237
31	-30,1304	-26,4807	-6,4325	17,7311	36,2590	44,4752	38,9032	20,9131	3,8113	-5,3514
32	-28,3397	-24,1699	-2,9834	23,0148	42,3968	49,9223	43,1691	24,4670	6,3294	-3,5288
33	-25,5717	-21,0315	0,6534	27,6163	47,2355	53,9593	46,3279	27,4618	8,8653	-1,3476
34	-22,6331	-17,9109	3,5429	30,4902	49,6829	55,5136	47,3637	28,9522	10,5421	0,3503
35	-19,3744	-14,6999	5,6997	31,5392	49,5989	54,4677	46,2181	28,9529	11,4423	1,6821
36	-15,3538	-11,0010	7,4244	30,9526	47,1331	50,9971	43,1379	27,7764	11,9455	3,0614
37	-11,2216	-7,5120	7,9183	27,8205	41,3397	44,1847	37,3141	24,6469	11,3428	3,8132
38	-8,0507	-5,3564	5,9533	20,8051	30,8488	32,7165	27,5419	18,3713	8,5077	2,8438
39	-4,9007	-3,5233	2,5322	10,7986	16,4250	17,3659	14,5421	9,6326	4,1860	0,9819
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

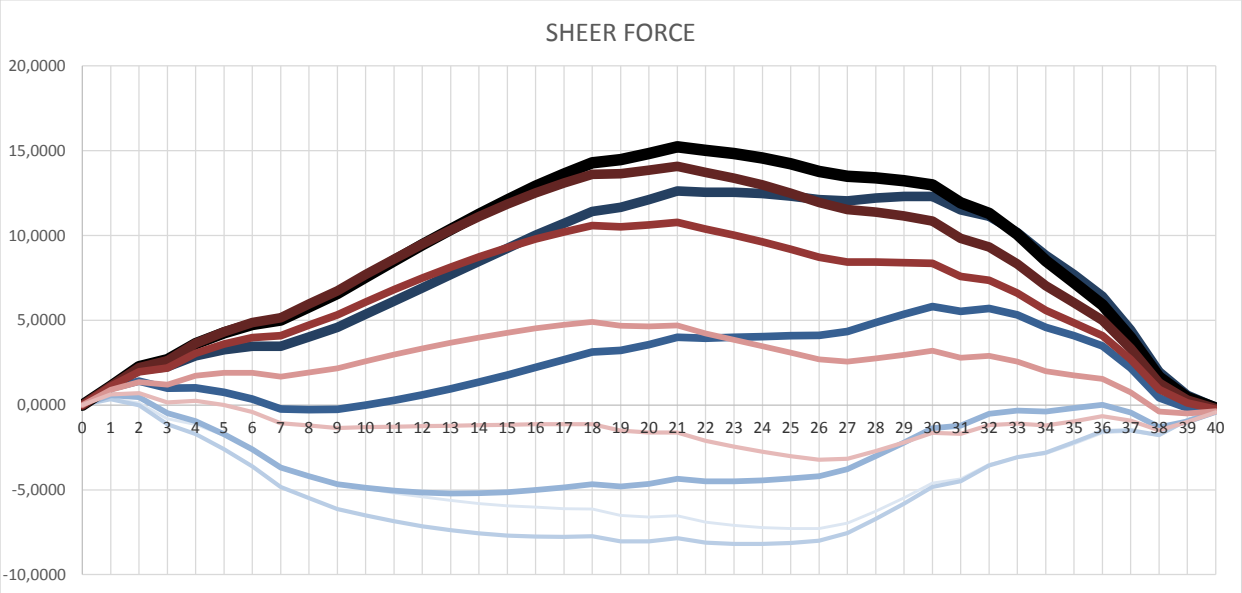


0,65



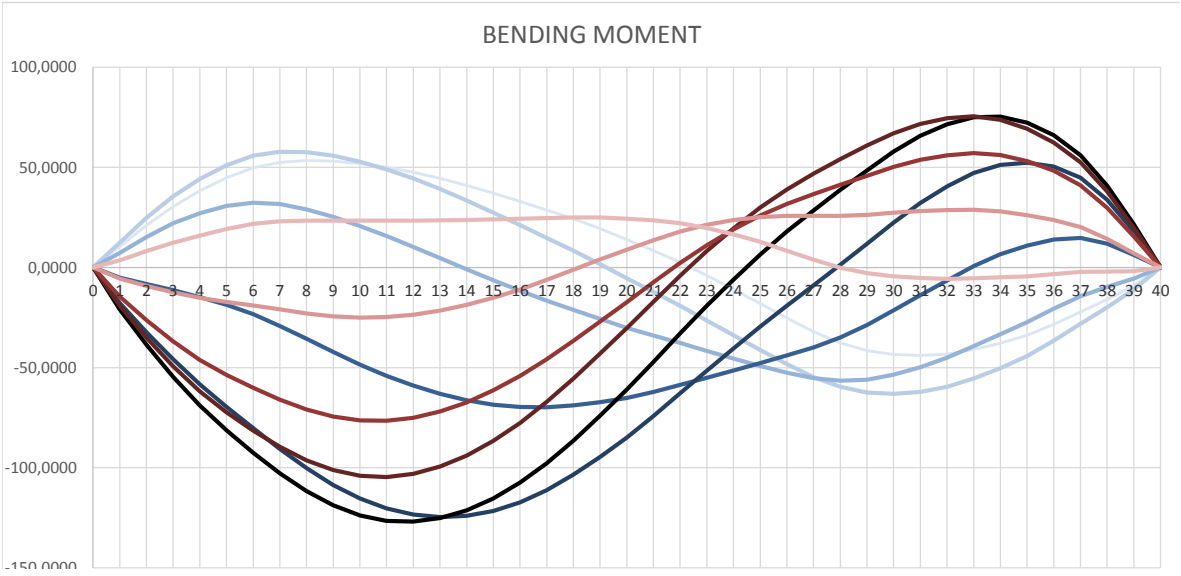
Sheer Force 0,65

STATION	PERIODE									
	0,97	1,93	2,90	3,87	4,83	5,80	6,77	7,73	8,70	9,67
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,3866	0,3494	0,5784	0,9835	1,1113	1,1113	1,1113	1,1113	0,8881	0,6242
2	0,1193	-0,0249	0,4587	1,4020	2,0731	2,2528	2,1941	1,9470	1,3491	0,7058
3	-0,8111	-1,1357	-0,4734	0,9898	2,2496	2,6684	2,6143	2,1759	1,2073	0,1586
4	-1,1410	-1,7154	-0,9490	1,0136	2,9047	3,6199	3,6316	3,0560	1,7234	0,2449
5	-1,7939	-2,6027	-1,7215	0,7413	3,2528	4,2537	4,3217	3,5977	1,8982	-0,0052
6	-2,5984	-3,6220	-2,6145	0,3465	3,4646	4,7384	4,8517	3,9677	1,9010	-0,4207
7	-3,6231	-4,8373	-3,6916	-0,2372	3,4709	5,0030	5,1480	4,0934	1,6614	-1,0700
8	-4,1230	-5,4992	-4,2035	-0,2635	4,0152	5,7890	5,9508	4,7159	1,9228	-1,2073
9	-4,6228	-6,1278	-4,6710	-0,2550	4,5712	6,5683	6,7296	5,3069	2,1592	-1,3567
10	-4,9164	-6,5120	-4,8843	-0,0053	5,3431	7,5429	7,6849	6,0695	2,5758	-1,3104
11	-5,1837	-6,8529	-5,0465	0,2799	6,1221	8,5022	8,6051	6,7947	2,9662	-1,2730
12	-5,4234	-7,1455	-5,1550	0,6004	6,9052	9,4417	9,4848	7,4799	3,3299	-1,2427
13	-5,6317	-7,3855	-5,2075	0,9560	7,6895	10,3563	10,3194	8,1233	3,6672	-1,2167
14	-5,8045	-7,5685	-5,2021	1,3457	8,4710	11,2403	11,1045	8,7235	3,9787	-1,1925
15	-5,9376	-7,6907	-5,1372	1,7682	9,2456	12,0880	11,8361	9,2783	4,2653	-1,1669
16	-6,0268	-7,7487	-5,0121	2,2218	10,0090	12,8932	12,5106	9,7873	4,5282	-1,1364
17	-6,1092	-7,7812	-4,8677	2,6626	10,7145	13,6080	13,0832	10,2079	4,7271	-1,1387
18	-6,1384	-7,7438	-4,6619	3,1296	11,3986	14,2683	13,5927	10,5816	4,9060	-1,1281
19	-6,5153	-8,0392	-4,8002	3,2149	11,6506	14,4638	13,6319	10,5036	4,6620	-1,5048
20	-6,6005	-8,0299	-4,6475	3,5507	12,0998	14,8250	13,8339	10,6097	4,6333	-1,6283
21	-6,5229	-7,8468	-4,3475	4,0003	12,6073	15,2151	14,0649	10,7683	4,6904	-1,6259
22	-6,8973	-8,1068	-4,4996	3,9416	12,5481	15,0118	13,7055	10,3626	4,2185	-2,1101
23	-7,1029	-8,1912	-4,4976	3,9880	12,5339	14,8296	13,3701	10,0121	3,8395	-2,4573
24	-7,2352	-8,1976	-4,4420	4,0360	12,4607	14,5671	12,9658	9,6204	3,4592	-2,7607
25	-7,2921	-8,1261	-4,3355	4,0801	12,3225	14,2215	12,4897	9,1899	3,0820	-3,0159
26	-7,2864	-7,9916	-4,1959	4,0995	12,0998	13,7757	11,9273	8,7082	2,6980	-3,2331
27	-6,9703	-7,5488	-3,7807	4,3341	12,0341	13,4741	11,5256	8,4247	2,5584	-3,1623
28	-6,2624	-6,7183	-3,0133	4,8572	12,2018	13,3955	11,3663	8,4230	2,7490	-2,7196
29	-5,4738	-5,8135	-2,2101	5,3499	12,2870	13,2270	11,1386	8,3947	2,9631	-2,2137
30	-4,6039	-4,8363	-1,3759	5,8052	12,2865	12,9678	10,8447	8,3420	3,2054	-1,6420
31	-4,3574	-4,4937	-1,2207	5,5120	11,4928	11,9132	9,8225	7,5847	2,7756	-1,7067
32	-3,5082	-3,5623	-0,5238	5,6907	11,1298	11,2894	9,3218	7,3488	2,9041	-1,1794
33	-3,0877	-3,0754	-0,3220	5,3053	10,1651	10,0666	8,3120	6,6039	2,5641	-1,0891
34	-2,8682	-2,8081	-0,3933	4,5793	8,8257	8,4949	7,0216	5,5783	1,9874	-1,2060
35	-2,2759	-2,1893	-0,1697	4,0830	7,6855	7,2175	6,0255	4,8471	1,7521	-0,9543
36	-1,6413	-1,5518	0,0133	3,4840	6,4155	5,9058	4,9951	4,0815	1,5321	-0,6619
37	-1,5557	-1,4898	-0,4405	2,1892	4,4259	3,9700	3,3407	2,6919	0,7402	-0,9183
38	-1,7865	-1,7731	-1,3018	0,4307	1,9524	1,6454	1,2974	0,9135	-0,3864	-1,4886
39	-0,9079	-0,8945	-0,9768	-0,1700	0,5675	0,4352	0,2970	0,1268	-0,4938	-0,9933
40	-0,3429	-0,3295	-0,4118	-0,3048	-0,1430	-0,1780	-0,2147	-0,2598	-0,3655	-0,4283



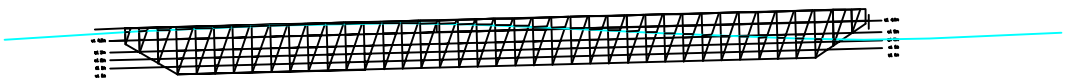
Bending Moment 0,65

STATION	PERIODE									
	0,97	1,93	2,90	3,87	4,83	5,80	6,77	7,73	8,70	9,67
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	10,4602	12,3778	7,2887	-5,0764	-17,6153	-20,8304	-18,9998	-14,4848	-5,5036	3,6098
2	21,1838	24,8357	15,3050	-8,1757	-32,4153	-38,6317	-35,0402	-26,3043	-9,1231	8,2555
3	30,4828	35,5273	22,0701	-11,2676	-45,8611	-54,5807	-49,2927	-36,8574	-12,3630	12,3473
4	38,2827	44,2079	27,1608	-14,8215	-58,3178	-68,9035	-61,8353	-46,0913	-15,1577	15,8909
5	44,9135	51,1436	30,7668	-18,6710	-69,5811	-81,3407	-72,3469	-53,6341	-17,1306	19,2397
6	49,8107	55,8113	32,3917	-23,3141	-80,1785	-92,4474	-81,4073	-60,0922	-18,8921	21,7968
7	52,5320	57,8211	31,6731	-29,1211	-90,5164	-102,6628	-89,4848	-65,9607	-20,9353	23,0872
8	53,4400	57,5980	29,0644	-35,6536	-100,1994	-111,6285	-96,2548	-70,9392	-22,9527	23,4420
9	53,1588	55,8397	25,2908	-42,2073	-108,5736	-118,7323	-101,1436	-74,4742	-24,3779	23,4557
10	51,9338	52,8767	20,7074	-48,4539	-115,3683	-123,7498	-103,9697	-76,3991	-25,0264	23,3468
11	50,0417	49,0513	15,6773	-54,0642	-120,3182	-126,4670	-104,5649	-76,5543	-24,7149	23,3375
12	47,5464	44,4723	10,3252	-58,9540	-123,4099	-126,9254	-103,0191	-75,0319	-23,5065	23,4087
13	44,5183	39,2597	4,7816	-63,0395	-124,6373	-125,1785	-99,4342	-71,9291	-21,4642	23,5469
14	41,0368	33,5441	-0,8181	-66,2386	-124,0021	-121,2921	-93,9227	-67,3471	-18,6501	23,7448
15	37,1914	27,4654	-6,3341	-68,4715	-121,5159	-115,3459	-86,6070	-61,3912	-15,1245	24,0018
16	33,0816	21,1723	-11,6242	-69,6623	-117,2002	-107,4336	-77,6188	-54,1698	-10,9455	24,3257
17	28,7677	14,7715	-16,5936	-69,7891	-111,1372	-97,7132	-67,1470	-45,8427	-6,2170	24,6830
18	24,3212	8,3766	-21,1464	-68,8362	-103,4214	-86,3571	-55,3881	-36,5709	-1,0392	25,0503
19	19,3915	1,6747	-25,6190	-67,2264	-94,5921	-73,9831	-42,9766	-26,9473	4,0612	24,9821
20	13,9121	-5,3675	-30,0743	-65,1156	-84,9287	-60,9469	-30,2782	-17,2903	8,8373	24,3190
21	8,4237	-12,1808	-33,9912	-62,0707	-74,1274	-47,0170	-17,0648	-7,3184	13,6472	23,5117
22	2,5823	-19,0856	-37,7322	-58,5607	-62,7927	-32,8650	-4,0041	2,3596	17,9635	22,1314
23	-3,9490	-26,4000	-41,6518	-55,0654	-51,5452	-19,1716	8,2302	11,1380	21,2678	19,7621
24	-10,8822	-33,8224	-45,5030	-51,4578	-40,4018	-6,0070	19,5848	19,0336	23,6688	16,6190
25	-18,0406	-41,1672	-49,1612	-47,7406	-29,5099	6,4343	29,8920	25,9512	25,1688	12,8114
26	-25,2597	-48,2671	-52,5267	-43,9479	-19,0472	17,9342	38,9639	31,7838	25,7633	8,4419
27	-32,0961	-54,6803	-55,2324	-39,8530	-8,9275	28,5450	46,8891	36,7061	25,7350	3,8983
28	-37,7145	-59,5789	-56,5312	-34,8568	1,3134	38,7036	54,1469	41,2892	25,7674	-0,0346
29	-41,5527	-62,4134	-55,9617	-28,6523	11,8551	48,5683	60,9443	45,8366	26,2813	-2,8391
30	-43,4183	-63,0093	-53,4447	-21,3201	22,4975	57,9242	67,1213	50,2878	27,3379	-4,3619
31	-43,9559	-62,0353	-49,7508	-13,7951	32,1953	65,7173	71,7327	53,7755	28,1716	-5,2816
32	-43,1901	-59,5459	-45,0433	-6,4064	40,5173	71,5140	74,5326	56,0816	28,6468	-5,6509
33	-40,9141	-55,3694	-39,2668	0,7364	47,2599	75,1142	75,5359	57,2212	28,8706	-5,2857
34	-37,8767	-50,2957	-33,3351	6,5572	51,2618	75,3903	73,8031	56,2548	28,0039	-4,9521
35	-33,8737	-44,1681	-27,2223	10,9240	52,3142	72,2773	69,3506	53,1986	26,1713	-4,4581
36	-28,4113	-36,5462	-20,6258	13,9879	50,4996	66,0846	62,4875	48,3620	23,7972	-3,3170
37	-22,0921	-28,0922	-14,3513	14,7993	44,8077	56,0291	52,4309	40,9618	20,2195	-2,1330
38	-15,9457	-19,9013	-9,6411	11,9788	33,8070	40,9059	37,9758	29,7933	14,3596	-1,9325
39	-9,0287	-11,0023	-5,5689	6,3520	18,2167	21,5781	19,9002	15,5735	7,0318	-1,8212
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

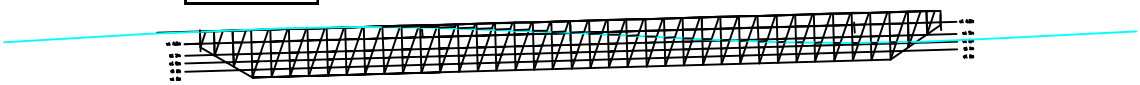


0,75

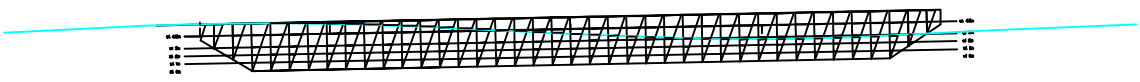
0,84



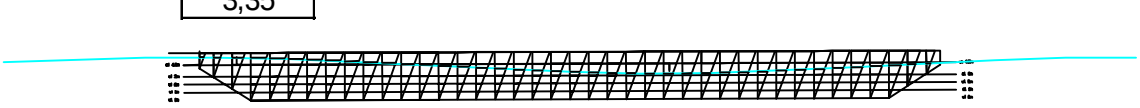
1,68



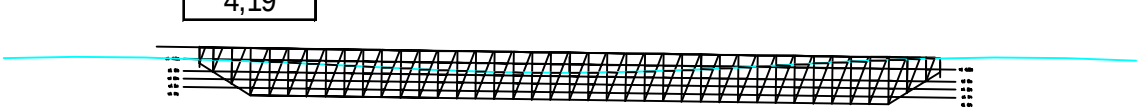
2,51



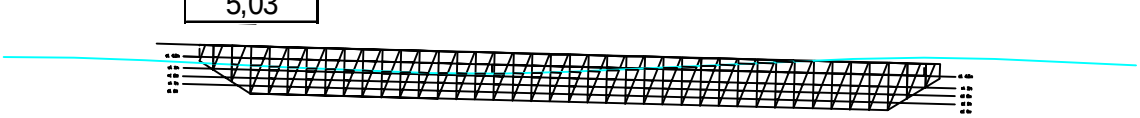
3,35



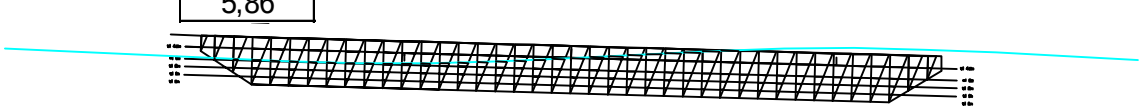
4,19



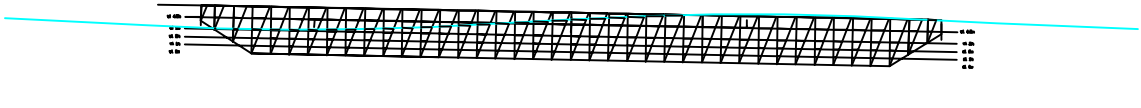
5,03



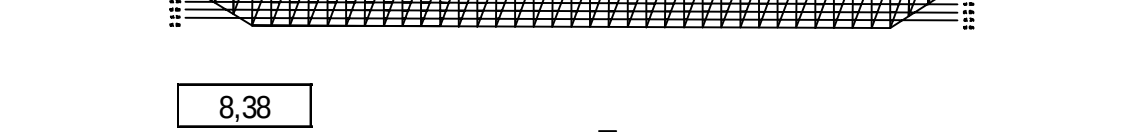
5,86



6,70



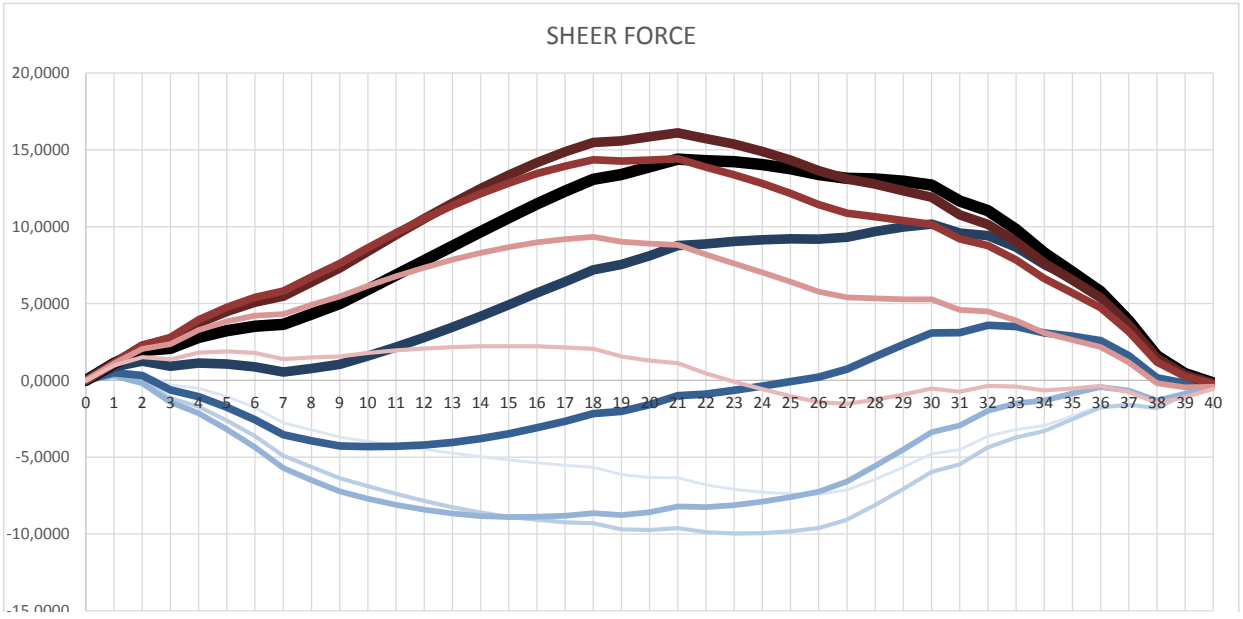
7,54



8,38

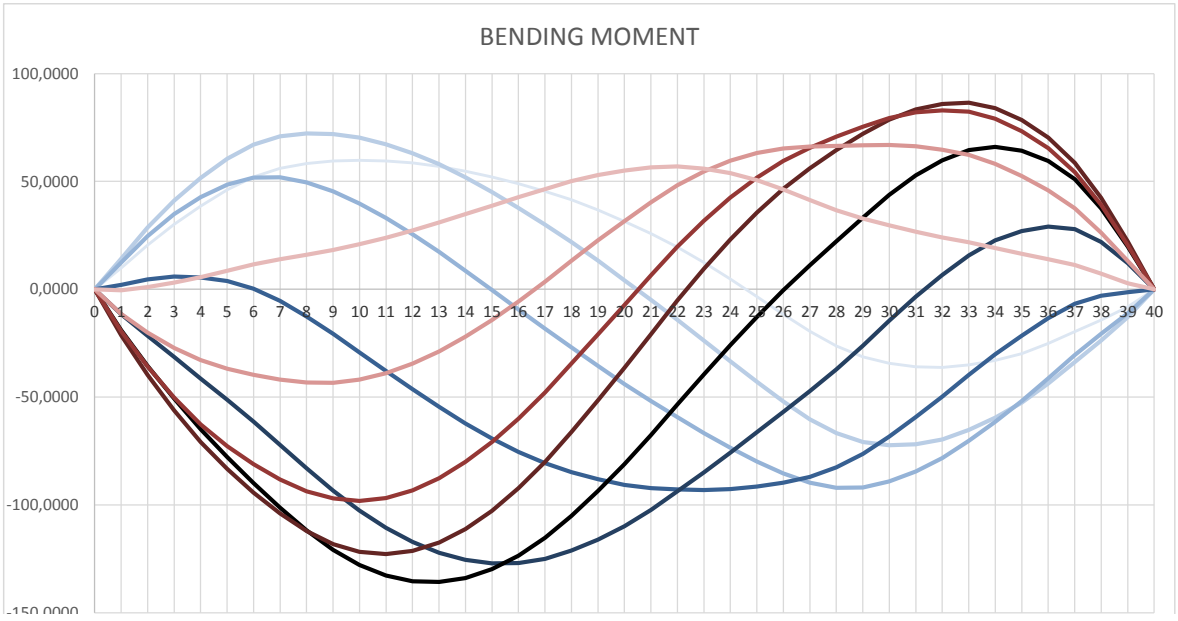
Sheer Force 0,75

STATION	PERIODE									
	0,84	1,68	2,51	3,35	4,19	5,03	5,86	6,70	7,54	8,38
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,5497	0,3302	0,2896	0,4974	0,8878	1,1113	1,1113	1,1113	1,1113	0,9826
2	0,4759	-0,0554	-0,1810	0,3095	1,2598	1,9462	2,2377	2,2691	2,0553	1,5182
3	-0,2966	-1,1606	-1,4115	-0,6305	0,9163	2,0878	2,6944	2,7907	2,3562	1,3753
4	-0,5019	-1,7217	-2,1388	-1,0499	1,1254	2,8005	3,7418	3,9327	3,2678	1,8114
5	-1,0570	-2,6059	-3,1806	-1,7538	1,0560	3,2234	4,4841	4,7498	3,8301	1,8887
6	-1,7871	-3,6416	-4,3487	-2,5629	0,8821	3,5269	5,0877	5,4048	4,2067	1,7746
7	-2,7568	-4,8976	-5,7031	-3,5388	0,5371	3,6396	5,4786	5,8202	4,3220	1,3979
8	-3,2166	-5,6286	-6,4900	-3,9307	0,7672	4,3062	6,3951	6,7311	4,9150	1,5012
9	-3,6868	-6,3597	-7,2252	-4,2585	1,0476	4,9973	7,3053	7,6033	5,4559	1,5587
10	-3,9561	-6,8845	-7,6938	-4,3116	1,5837	5,9148	8,4072	8,6344	6,1466	1,7766
11	-4,2253	-7,3861	-8,0945	-4,2933	2,1679	6,8471	9,4857	9,6103	6,7774	1,9491
12	-4,4886	-7,8439	-8,4207	-4,2012	2,7973	7,7885	10,5307	10,5240	7,3458	2,0779
13	-4,7400	-8,2496	-8,6664	-4,0339	3,4686	8,7317	11,5319	11,3698	7,8504	2,1655
14	-4,9730	-8,5944	-8,8268	-3,7911	4,1774	9,6691	12,4792	12,1427	8,2901	2,2151
15	-5,1806	-8,8705	-8,8979	-3,4734	4,9184	10,5918	13,3636	12,8384	8,6655	2,2312
16	-5,3558	-9,0705	-8,8766	-3,0822	5,6856	11,4905	14,1771	13,4537	8,9772	2,2190
17	-5,5326	-9,2298	-8,8026	-2,6616	6,4300	12,3127	14,8709	13,9445	9,1857	2,1427
18	-5,6615	-9,3011	-8,6328	-2,1731	7,1855	13,0896	15,4804	14,3512	9,3353	2,0510
19	-6,1393	-9,6850	-8,7718	-2,0259	7,5381	13,4058	15,5957	14,2683	9,0248	1,5471
20	-6,3232	-9,7423	-8,5849	-1,5898	8,1138	13,8878	15,8478	14,3315	8,8943	1,2751
21	-6,3393	-9,6023	-8,2060	-1,0033	8,7692	14,3950	16,1012	14,4097	8,8171	1,1123
22	-6,7998	-9,8812	-8,2555	-0,8913	8,8752	14,3022	15,7355	13,8869	8,1808	0,4509
23	-7,0820	-9,9599	-8,1188	-0,6438	9,0392	14,2212	15,3672	13,3844	7,6110	-0,0810
24	-7,2797	-9,9363	-7,8982	-0,3676	9,1535	14,0487	14,8981	12,8080	7,0176	-0,5730
25	-7,3896	-9,8111	-7,5988	-0,0727	9,2095	13,7807	14,3285	12,1626	6,4096	-1,0171
26	-7,4242	-9,6003	-7,2416	0,2155	9,1850	13,3992	13,6456	11,4391	5,7820	-1,4211
27	-7,1354	-9,0603	-6,5873	0,7319	9,3199	13,1484	13,0977	10,8831	5,3911	-1,5326
28	-6,4420	-8,1138	-5,5633	1,5456	9,6891	13,1075	12,7633	10,6390	5,3265	-1,2659
29	-5,6560	-7,0768	-4,4907	2,3346	9,9760	12,9644	12,3462	10,3949	5,2842	-0,9286
30	-4,7781	-5,9544	-3,3787	3,0900	10,1776	12,7199	11,9130	10,1508	5,2717	-0,5175
31	-4,5146	-5,4571	-2,9429	3,0989	9,5867	11,6712	10,7751	9,2020	4,5907	-0,7346
32	-3,6417	-4,3654	-1,9685	3,5808	9,4281	11,0473	10,1588	8,7747	4,4730	-0,3524
33	-3,1934	-3,7176	-1,4969	3,4993	8,6710	9,8216	9,0334	7,8384	3,8928	-0,4005
34	-2,9451	-3,2938	-1,3096	3,0778	7,5445	8,2892	7,6273	6,6215	3,0821	-0,6509
35	-2,3267	-2,5282	-0,8404	2,8875	6,6252	7,0511	6,5156	5,6988	2,6191	-0,5296
36	-1,6727	-1,7597	-0,4255	2,5971	5,5876	5,7786	5,3695	4,7418	2,1770	-0,3675
37	-1,5791	-1,5888	-0,6616	1,6155	3,8457	3,8822	3,5995	3,1609	1,1673	-0,7571
38	-1,8180	-1,7907	-1,3190	0,1770	1,6394	1,5969	1,4405	1,1910	-0,1745	-1,4672
39	-0,9665	-0,8876	-0,8730	-0,1754	0,4951	0,4159	0,3538	0,2453	-0,4500	-1,0844
40	-0,4015	-0,3226	-0,3080	-0,1779	-0,1031	-0,1832	-0,1996	-0,2284	-0,4128	-0,5471

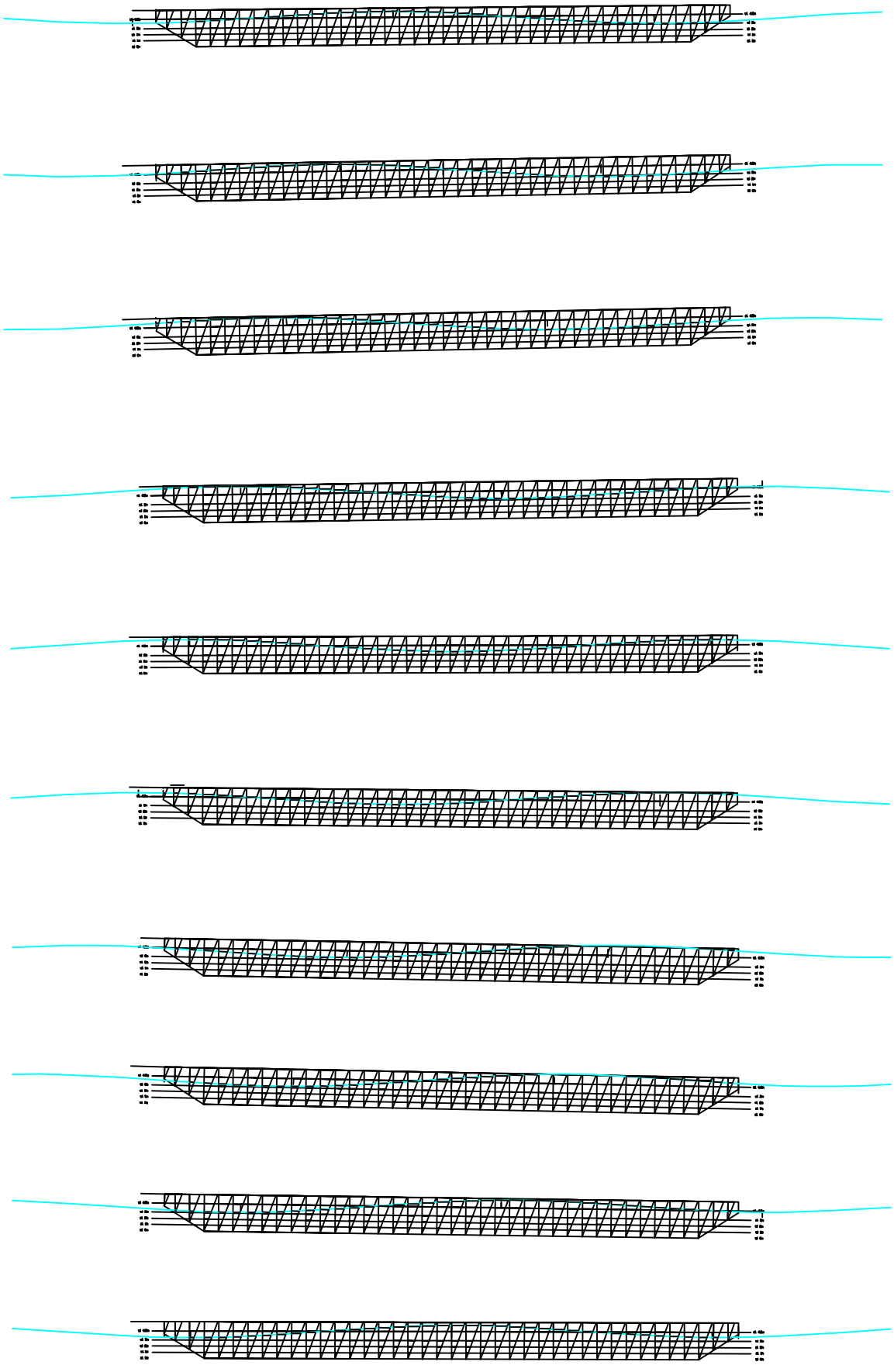


Bending Moment 0,75

STATION	PERIODE									
	0,84	1,68	2,51	3,35	4,19	5,03	5,86	6,70	7,54	8,38
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	9,8738	14,2672	12,3786	2,0628	-11,6619	-19,0553	-21,3372	-19,4425	-11,4129	-0,5173
2	20,4866	28,5723	24,6330	4,6501	-21,5461	-35,4460	-39,6632	-35,8365	-20,0315	1,0804
3	30,0927	41,1042	34,8640	5,8958	-31,3963	-50,6751	-56,1062	-50,2328	-27,1694	3,1451
4	38,5358	51,6541	42,7661	5,5245	-41,4064	-64,8880	-70,7599	-62,6502	-32,8650	5,5586
5	46,0743	60,4847	48,5638	3,8170	-51,2503	-77,7501	-83,2848	-72,7372	-36,8074	8,5828
6	52,0840	67,0317	51,7328	0,3099	-61,3838	-89,7482	-94,2087	-81,0732	-39,6329	11,5632
7	56,0719	70,8526	51,9014	-5,3205	-72,1344	-101,2513	-103,9497	-88,1360	-41,8734	13,9598
8	58,3594	72,3101	49,5228	-12,5780	-83,0217	-111,8274	-112,1356	-93,6212	-43,2713	16,0312
9	59,5406	72,0283	45,3337	-20,6914	-93,3017	-120,7885	-118,1486	-96,9852	-43,3203	18,2938
10	59,8422	70,2526	39,7127	-29,2580	-102,6105	-127,8363	-121,7682	-98,0854	-41,9043	20,8841
11	59,5032	67,2560	33,0577	-37,8660	-110,5867	-132,6836	-122,7942	-96,7983	-38,9165	23,9388
12	58,5309	63,1183	25,5381	-46,3426	-117,1194	-135,3022	-121,2943	-93,2634	-34,5022	27,3518
13	56,9463	57,9535	17,3382	-54,5106	-122,1048	-135,6791	-117,3604	-87,6355	-28,8116	31,0223
14	54,7856	51,8959	8,6552	-62,1908	-125,4486	-133,8189	-111,1088	-80,0823	-21,9977	34,8559
15	52,1007	45,0996	-0,3032	-69,2042	-127,0679	-129,7463	-102,6784	-70,7821	-14,2143	38,7678
16	48,9605	37,7371	-9,3209	-75,3745	-126,8932	-123,5070	-92,2283	-59,9224	-5,6136	42,6842
17	45,4016	29,9472	-18,2251	-80,5792	-124,9205	-115,2207	-79,9853	-47,7471	3,6059	46,4953
18	41,4789	21,8830	-26,8393	-84,7024	-121,1636	-105,0322	-66,1921	-34,5042	13,2513	50,1066
19	36,8347	13,2773	-35,4168	-88,0695	-116,0886	-93,5436	-51,5366	-20,8761	22,7054	53,0095
20	31,4034	4,1468	-43,9373	-90,7428	-109,9094	-81,1054	-36,4441	-7,2715	31,6349	54,9894
21	25,7342	-4,8853	-51,7849	-92,1997	-102,2657	-67,4906	-20,7503	6,5012	40,3173	56,4521
22	19,4980	-14,0827	-59,2406	-92,8257	-93,7164	-53,3829	-5,1901	19,7452	48,1510	56,9344
23	12,3784	-23,7054	-66,5927	-93,0240	-84,8460	-39,4821	9,4970	31,7696	54,5501	55,9974
24	4,6881	-33,3937	-73,5197	-92,5995	-75,6446	-25,8827	23,1880	42,5106	59,5656	53,8423
25	-3,3682	-42,9050	-79,8282	-91,4958	-66,2406	-12,8073	35,6434	51,7983	63,1520	50,5737
26	-11,5965	-52,0165	-85,3558	-89,6984	-56,7991	-0,5044	46,6090	59,4577	65,2686	46,2963
27	-19,5223	-60,2351	-89,6801	-86,9439	-47,2261	11,0464	56,1105	65,5951	66,1738	41,4057
28	-26,2799	-66,6853	-92,0081	-82,6072	-37,0536	22,2502	64,5626	70,7808	66,5371	36,6997
29	-31,2776	-70,7762	-91,8421	-76,3641	-26,1007	33,2350	72,1207	75,3857	66,7733	32,7123
30	-34,2960	-72,2984	-89,0775	-68,2839	-14,5666	43,7587	78,6674	79,4099	66,9442	29,6151
31	-35,9568	-71,8940	-84,4719	-59,2947	-3,4957	52,7443	83,3454	82,0151	66,2902	26,7487
32	-36,2659	-69,5996	-78,1889	-49,7215	6,6836	59,7402	85,9367	82,9836	64,6861	24,0787
33	-35,0035	-65,2361	-70,1859	-39,6722	15,7737	64,5362	86,4561	82,3301	62,2519	21,8061
34	-32,9123	-59,5979	-61,3991	-30,2212	22,6233	66,0513	83,9645	79,1153	58,1632	19,1784
35	-29,7903	-52,5447	-51,8313	-21,4980	27,0394	64,2709	78,4779	73,3553	52,5596	16,3971
36	-25,1548	-43,6668	-41,2120	-13,3465	29,1280	59,5041	70,3056	65,3596	45,8792	13,9529
37	-19,6299	-33,6715	-30,3800	-6,7080	27,9101	50,9680	58,6646	54,3449	37,4719	11,2381
38	-14,2779	-23,7131	-20,6108	-2,9482	21,9959	37,4577	42,3501	39,1066	26,2676	7,2152
39	-8,1972	-12,9206	-11,0930	-1,3188	12,0962	19,8242	22,1748	20,4002	13,1394	2,8031
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

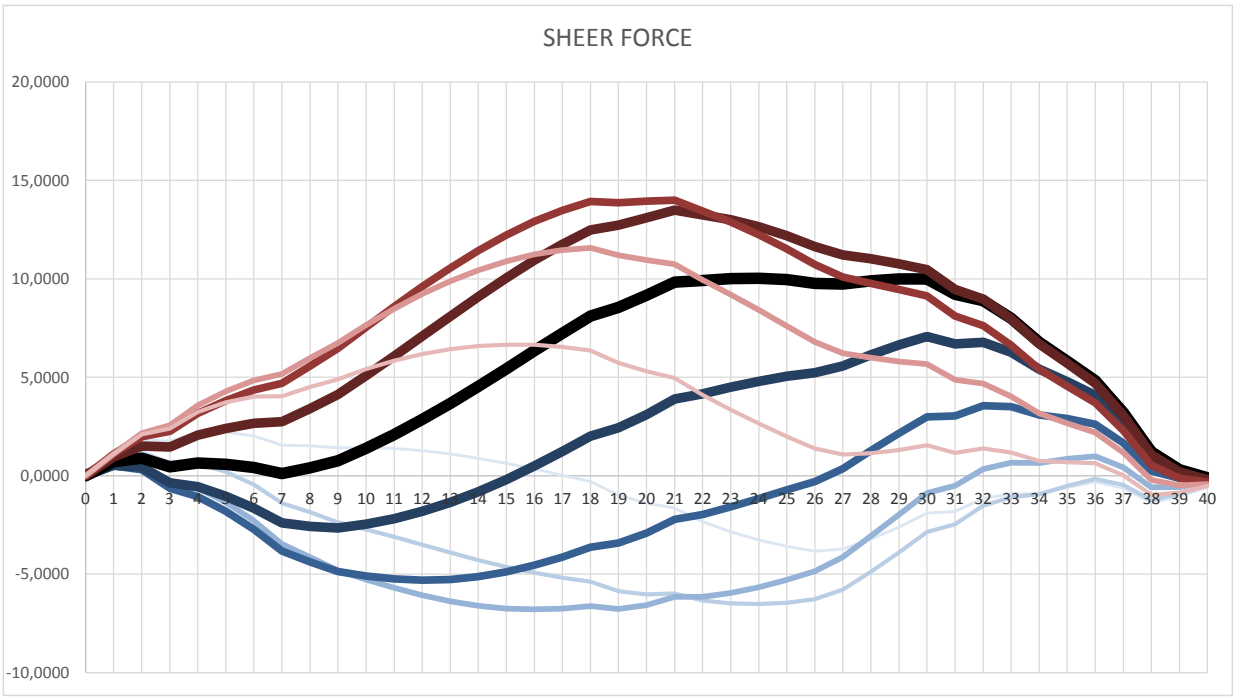


0,85



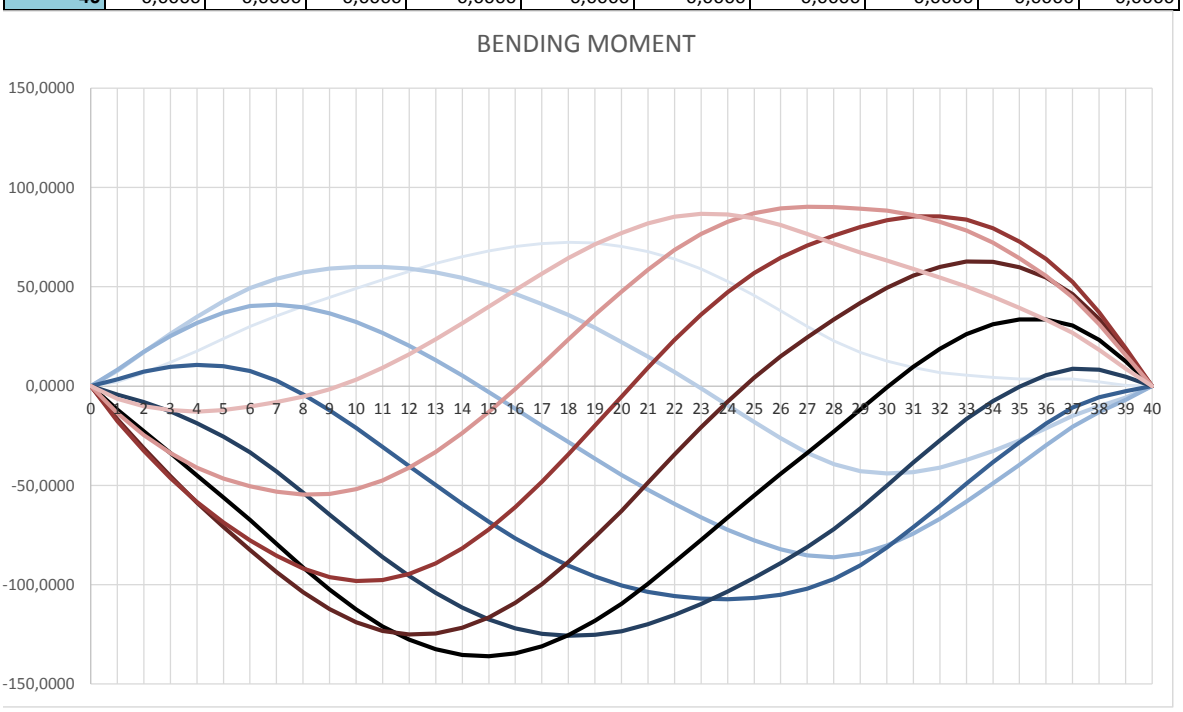
Shear Force 0,85

STATION	PERIODE									
	0,74	1,48	2,22	2,96	3,70	4,44	5,17	5,91	6,65	7,39
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	1,1113	0,8740	0,6196	0,4941	0,5312	0,7075	0,9615	1,1113	1,1113	1,1113
2	1,8205	1,1719	0,5735	0,3028	0,4314	0,8926	1,5133	1,9877	2,1586	2,1076
3	1,7588	0,6698	-0,2634	-0,6383	-0,3566	0,4480	1,4579	2,2550	2,5645	2,4030
4	2,1780	0,6272	-0,6238	-1,0539	-0,5516	0,6481	2,0625	3,1730	3,5768	3,2422
5	2,2134	0,1952	-1,3578	-1,8086	-1,0400	0,5805	2,4050	3,8159	4,2870	3,7295
6	2,0289	-0,4543	-2,2854	-2,7153	-1,6359	0,4236	2,6562	4,3471	4,8465	4,0210
7	1,5511	-1,3869	-3,4647	-3,8245	-2,3954	0,1139	2,7454	4,6884	5,1693	4,0350
8	1,5220	-1,8527	-4,1378	-4,3729	-2,5630	0,4029	3,4131	5,5727	5,9824	4,5057
9	1,4158	-2,3693	-4,8147	-4,8693	-2,6555	0,7597	4,1281	6,4613	6,7457	4,8992
10	1,4405	-2,7214	-5,2719	-5,0933	-2,4602	1,3930	5,0883	7,5446	7,6516	5,4153
11	1,3932	-3,1036	-5,6968	-5,2395	-2,1791	2,0935	6,0769	8,5985	8,4823	5,8432
12	1,2795	-3,5023	-6,0715	-5,2980	-1,8104	2,8560	7,0814	9,6065	9,2284	6,1806
13	1,1071	-3,9018	-6,3799	-5,2613	-1,3540	3,6734	8,0874	10,5538	9,8825	6,4272
14	0,8863	-4,2840	-6,6084	-5,1240	-0,8121	4,5365	9,0784	11,4279	10,4394	6,5852
15	0,6290	-4,6297	-6,7455	-4,8828	-0,1887	5,4342	10,0366	12,2181	10,8959	6,6585
16	0,3494	-4,9213	-6,7820	-4,5370	0,5097	6,3529	10,9462	12,9160	11,2510	6,6536
17	0,0222	-5,1852	-6,7525	-4,1288	1,2331	7,2362	11,7515	13,4733	11,4638	6,5371
18	-0,2923	-5,3666	-6,6106	-3,6199	2,0128	8,1082	12,4824	13,9273	11,5791	6,3613
19	-0,9803	-5,8594	-6,7587	-3,4209	2,4314	8,5469	12,7240	13,8707	11,1975	5,7341
20	-1,3898	-6,0197	-6,5610	-2,9037	3,1096	9,1725	13,1041	13,9384	10,9615	5,3059
21	-1,6389	-5,9735	-6,1517	-2,2106	3,8982	9,8392	13,4842	14,0000	10,7479	4,9614
22	-2,3332	-6,3347	-6,1531	-1,9715	4,1612	9,9177	13,2427	13,4409	9,9504	4,1008
23	-2,8451	-6,4834	-5,9535	-1,5824	4,4998	10,0170	12,9959	12,8852	9,2005	3,3593
24	-3,2646	-6,5181	-5,6597	-1,1576	4,8014	10,0318	12,6458	12,2425	8,4157	2,6539
25	-3,5864	-6,4415	-5,2822	-0,7153	5,0535	9,9570	12,1951	11,5227	7,6135	1,9975
26	-3,8218	-6,2731	-4,8491	-0,2885	5,2310	9,7748	11,6331	10,7231	6,7967	1,3864
27	-3,7234	-5,7740	-4,1291	0,3528	5,5716	9,7305	11,2126	10,0929	6,2268	1,0754
28	-3,2122	-4,8729	-3,0593	1,2751	6,1495	9,9054	11,0226	9,7748	5,9978	1,1518
29	-2,6032	-3,8935	-1,9708	2,1545	6,6487	9,9909	10,7615	9,4566	5,8090	1,3081
30	-1,9022	-2,8497	-0,8819	2,9814	7,0668	9,9917	10,4586	9,1385	5,6697	1,5470
31	-1,8216	-2,4623	-0,5128	3,0435	6,6994	9,2105	9,4511	8,1157	4,8825	1,1642
32	-1,1452	-1,5236	0,3472	3,5616	6,7746	8,8826	8,9650	7,6143	4,6791	1,3842
33	-0,9161	-1,0832	0,6594	3,5019	6,2662	7,9887	7,9699	6,6349	4,0321	1,1726
34	-0,9201	-0,9306	0,6416	3,0915	5,4085	6,7704	6,6941	5,4191	3,1713	0,7523
35	-0,5989	-0,5060	0,8614	2,9067	4,7850	5,8178	5,7127	4,5483	2,6708	0,6900
36	-0,3002	-0,1510	0,9857	2,6218	4,0773	4,8196	4,6969	3,6986	2,1993	0,6473
37	-0,6322	-0,4663	0,4221	1,6526	2,7084	3,2030	3,0572	2,2825	1,1623	0,0223
38	-1,3765	-1,2252	-0,5946	0,2417	0,9278	1,2181	1,0746	0,5361	-0,2116	-0,9639
39	-1,0486	-0,9269	-0,5647	-0,1261	0,2016	0,3082	0,1853	-0,1106	-0,4824	-0,8524
40	-0,5716	-0,4767	-0,3134	-0,1639	-0,0868	-0,1051	-0,2048	-0,3228	-0,4214	-0,5196

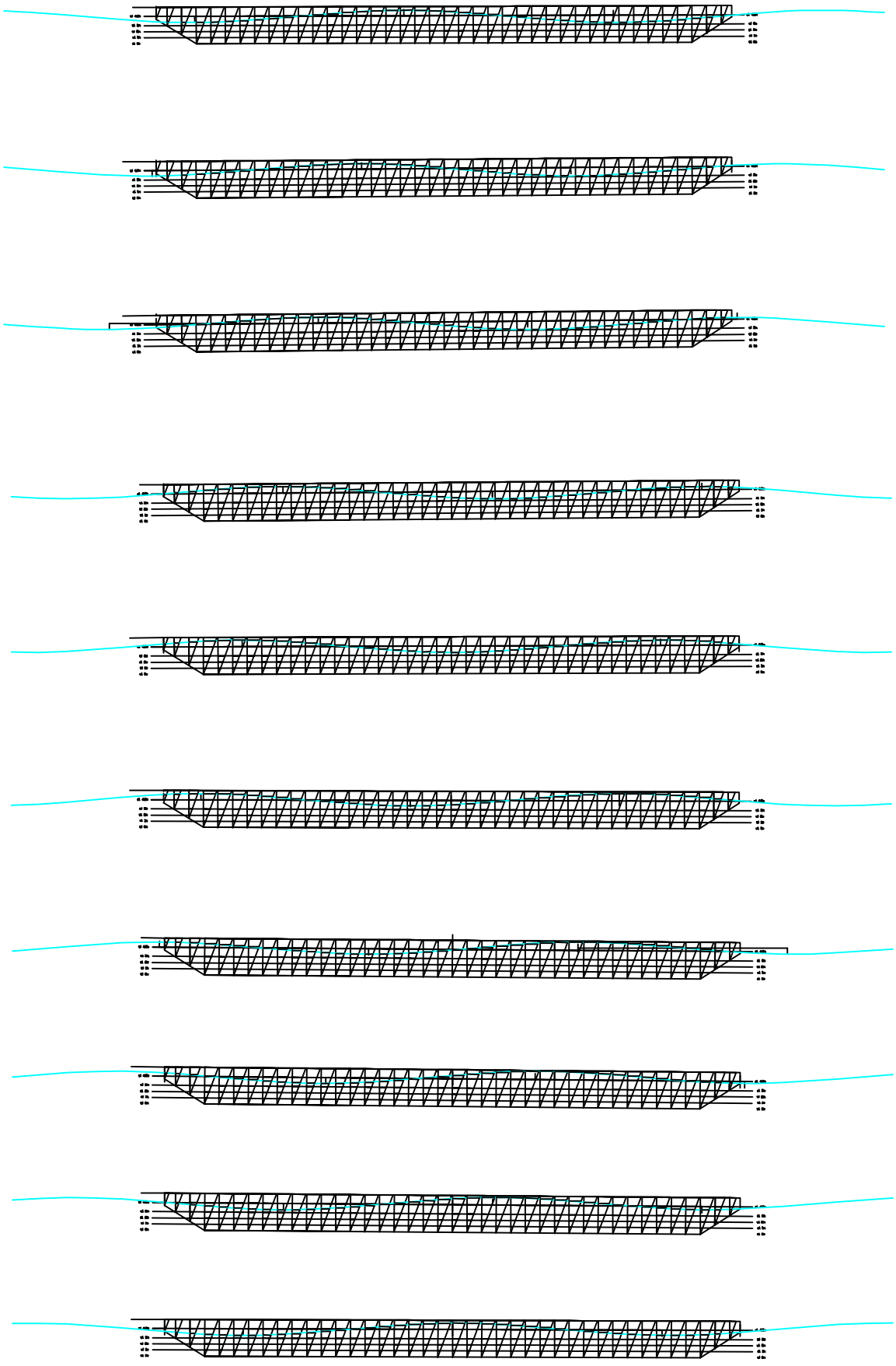


Bending Moment 0,85

STATION	PERIODE									
	0,74	1,48	2,22	2,96	3,70	4,44	5,17	5,91	6,65	7,39
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	2,0348	7,7160	8,1526	3,3330	-4,3561	-11,9648	-16,7058	-17,6583	-13,7637	-6,4673
2	6,5846	17,1009	17,1823	7,1815	-8,0320	-22,6452	-31,3091	-32,6028	-24,6102	-10,0782
3	11,9047	26,2428	25,1616	9,6830	-12,7640	-33,6345	-45,3218	-46,1868	-33,7282	-12,1527
4	17,6500	34,7368	31,7167	10,5708	-18,6652	-44,9145	-58,6813	-58,3609	-41,1592	-12,8775
5	23,9360	42,6663	36,9702	10,0665	-25,3793	-56,0370	-70,9143	-68,6784	-46,5412	-12,0244
6	30,0447	49,3094	40,2471	7,5859	-33,3831	-67,4265	-82,4412	-77,5993	-50,4129	-10,2449
7	35,3655	54,0707	41,0178	2,7074	-42,9993	-79,3710	-93,5631	-85,4823	-53,2352	-8,1020
8	40,0834	57,1685	39,5850	-4,1428	-53,7183	-91,3401	-103,7847	-91,9075	-54,7063	-5,3825
9	44,6403	59,0978	36,5465	-12,2357	-64,7467	-102,5409	-112,3614	-96,2237	-54,3022	-1,6351
10	49,1003	59,9938	32,1590	-21,1855	-75,6527	-112,5641	-118,9455	-98,1944	-51,9127	3,1943
11	53,5334	60,0164	26,7222	-30,5757	-85,9921	-121,0007	-123,2115	-97,6229	-47,4574	9,1466
12	57,7750	59,1099	20,3341	-40,2094	-95,5586	-127,6971	-125,1067	-94,5987	-41,1265	16,0093
13	61,6763	57,2540	13,1336	-49,8690	-104,1437	-132,5142	-124,6104	-89,2487	-33,1302	23,5666
14	65,1099	54,4682	5,2945	-59,3216	-111,5413	-135,3323	-121,7387	-81,7322	-23,6934	31,6052
15	67,9747	50,8166	-2,9795	-68,3241	-117,5527	-136,0560	-116,5485	-72,2360	-13,0511	39,9188
16	70,2009	46,4069	-11,4600	-76,6282	-121,9919	-134,6192	-109,1365	-60,9696	-1,4434	48,3138
17	71,7053	41,3365	-19,9488	-84,0354	-124,7398	-131,0388	-99,6846	-48,2103	10,8397	56,5644
18	72,4464	35,7364	-28,2339	-90,3519	-125,6997	-125,3705	-88,4054	-34,2480	23,5132	64,4673
19	71,9951	29,3344	-36,5263	-95,8263	-125,2343	-118,1431	-75,9695	-19,8131	35,8700	71,4151
20	70,2384	22,1555	-44,7596	-100,4487	-123,4643	-109,6498	-62,7940	-5,3649	47,4921	77,1074
21	67,6982	14,8409	-52,2708	-103,6315	-119,9496	-99,6193	-48,7143	9,2371	58,5793	81,8807
22	64,0358	7,1516	-59,2969	-105,7054	-115,1839	-88,7023	-34,4697	23,2474	68,4640	85,2204
23	58,9386	-1,1443	-66,0873	-107,0321	-109,7026	-77,5737	-20,8059	35,9317	76,5079	86,6544
24	52,7336	-9,6584	-72,2908	-107,3906	-103,4597	-66,3094	-7,8522	47,1904	82,7264	86,3674
25	45,6469	-18,1226	-77,6957	-106,7179	-96,5581	-55,1166	4,1490	56,8284	87,0571	84,4605
26	37,8973	-26,2954	-82,1365	-105,0113	-89,1456	-44,2295	14,9456	64,6591	89,4620	81,0460
27	29,9847	-33,6741	-85,2055	-102,0342	-81,1169	-33,6119	24,5736	70,7890	90,2174	76,5346
28	22,7973	-39,3873	-86,1457	-97,1972	-71,9956	-22,8389	33,4753	75,7910	90,0226	71,7441
29	16,9423	-42,8637	-84,5186	-90,2170	-61,5931	-11,7561	41,8406	80,0361	89,3308	67,2304
30	12,6456	-43,9334	-80,3014	-81,2072	-50,0994	-0,5706	49,5349	83,5243	88,2486	63,1868
31	9,2786	-43,3007	-74,3499	-71,1401	-38,5454	9,6866	55,6705	85,4174	86,0643	58,9721
32	6,8120	-41,0907	-66,9365	-60,3827	-27,3390	18,6245	60,0294	85,4975	82,7018	54,5637
33	5,4225	-37,2402	-58,1287	-49,0801	-16,6479	26,1092	62,6264	83,8163	78,3278	50,1653
34	4,3008	-32,6844	-48,9707	-38,3366	-7,5819	31,0813	62,5222	79,5238	72,1602	45,0153
35	3,5564	-27,4418	-39,5725	-28,3010	-0,2777	33,4711	59,7332	72,7494	64,3733	39,2912
36	3,5494	-21,2720	-29,7648	-18,8242	5,4431	33,5405	54,5683	63,9284	55,4303	33,4422
37	3,5028	-15,0550	-20,4798	-10,8392	8,6938	30,4996	46,2448	52,4122	44,6929	26,7989
38	2,1759	-10,1158	-13,0745	-5,6853	8,1981	23,1747	33,6125	37,1342	31,0877	18,2391
39	0,3537	-5,7245	-6,8430	-2,6472	4,7206	12,4064	17,5641	19,0096	15,5260	8,6388
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

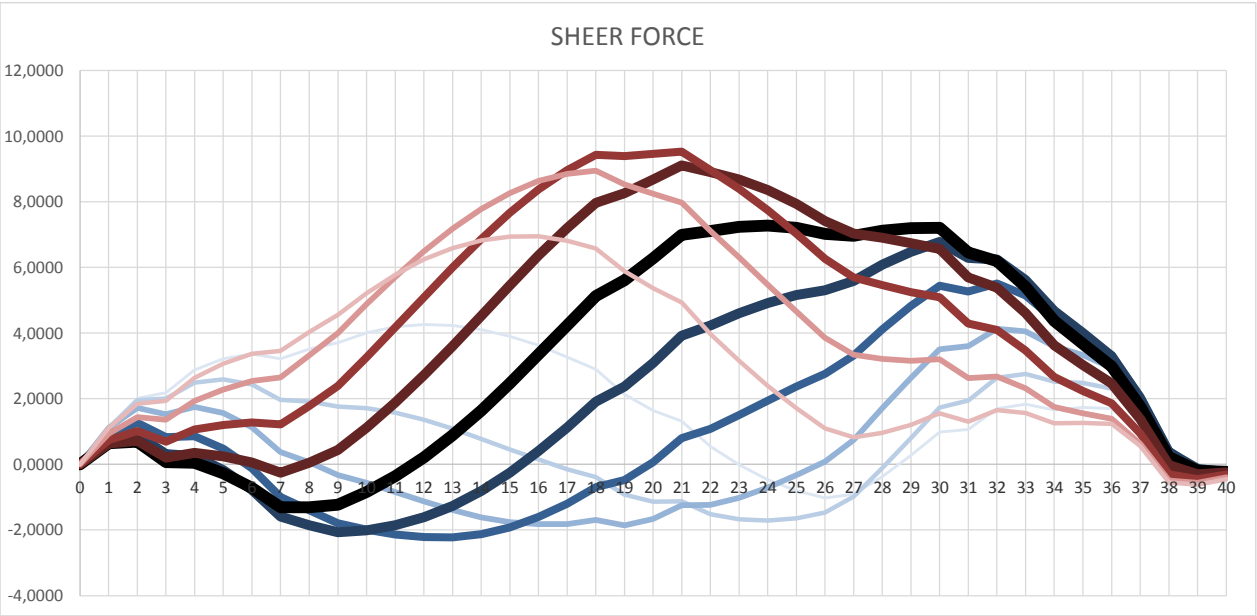


0,95



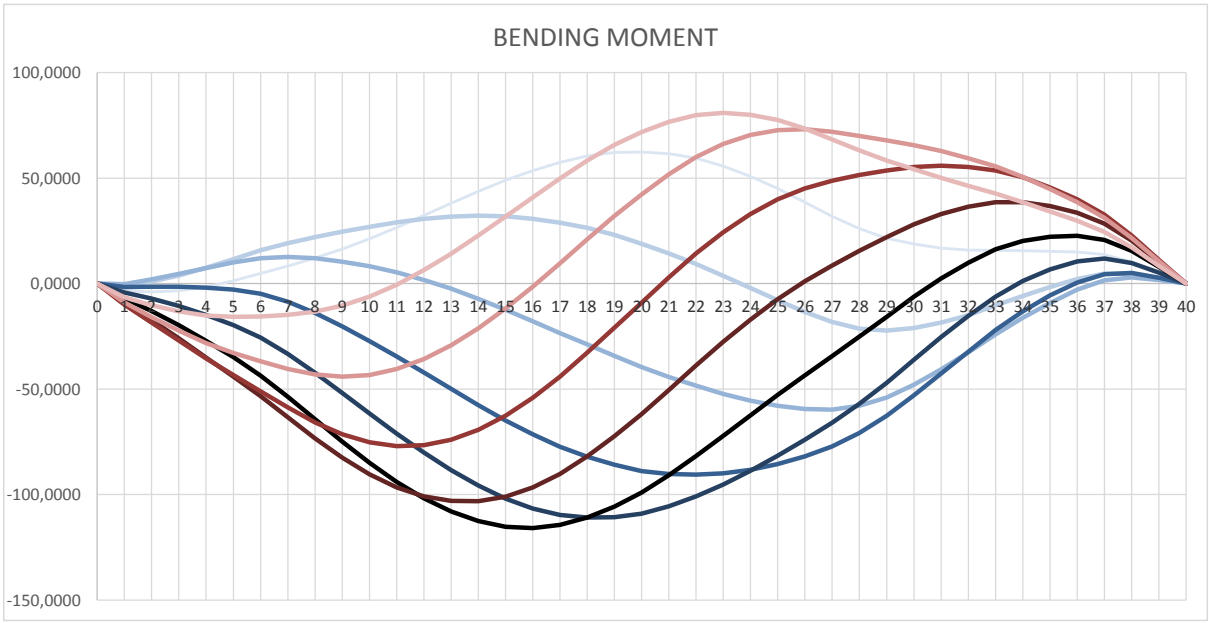
Shear Force 0,95

STATION	PERIODE									
	0,66	1,32	1,98	2,65	3,31	3,97	4,63	5,29	5,95	6,61
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	1,1113	1,1113	1,1113	0,9138	0,7453	0,6419	0,6329	0,7443	0,9272	1,1113
2	2,0086	1,9517	1,7262	1,2669	0,8994	0,6956	0,7229	1,0128	1,4423	1,8479
3	2,1844	2,0035	1,5225	0,8258	0,3097	0,0693	0,2003	0,6960	1,3591	1,9408
4	2,8754	2,4965	1,7551	0,8576	0,2537	0,0508	0,3479	1,0655	1,9376	2,6383
5	3,2205	2,5880	1,5664	0,4813	-0,1710	-0,2741	0,2396	1,2026	2,2796	3,0656
6	3,3655	2,4366	1,1277	-0,1201	-0,7713	-0,7114	0,0585	1,2789	2,5448	3,3700
7	3,2210	1,9654	0,3745	-0,9994	-1,5898	-1,3101	-0,2560	1,2225	2,6490	3,4547
8	3,5152	1,9154	0,0603	-1,3920	-1,8551	-1,3104	0,0448	1,7710	3,3173	4,0353
9	3,7109	1,7618	-0,3275	-1,7990	-2,0689	-1,2254	0,4364	2,3880	4,0010	4,5615
10	4,0063	1,7153	-0,5657	-1,9868	-2,0060	-0,8413	1,1213	3,2646	4,8784	5,2187
11	4,1912	1,5785	-0,8397	-2,1343	-1,8578	-0,3606	1,8858	4,1753	5,7159	5,7838
12	4,2665	1,3646	-1,1243	-2,2183	-1,6131	0,2165	2,7184	5,0967	6,4904	6,2446
13	4,2366	1,0907	-1,3908	-2,2197	-1,2647	0,8861	3,6038	6,0019	7,1828	6,5928
14	4,1109	0,7787	-1,6106	-2,1235	-0,8098	1,6402	4,5230	6,8653	7,7781	6,8248
15	3,9028	0,4547	-1,7600	-1,9190	-0,2491	2,4673	5,4532	7,6649	8,2655	6,9411
16	3,6299	0,1485	-1,8193	-1,5996	0,4127	3,3518	6,3678	8,3825	8,6382	6,9469
17	3,2726	-0,1528	-1,8149	-1,2043	1,1249	4,2325	7,2004	8,9624	8,8521	6,8094
18	2,8987	-0,3825	-1,6941	-0,6931	1,9166	5,1279	7,9715	9,4364	8,9505	6,5841
19	2,1341	-0,9266	-1,8553	-0,4767	2,3660	5,6067	8,2591	9,3935	8,5342	5,8841
20	1,6420	-1,1338	-1,6607	0,0701	3,0880	6,2795	8,6849	9,4668	8,2484	5,3668
21	1,3125	-1,1256	-1,2448	0,8010	3,9252	6,9932	9,1073	9,5329	7,9748	4,9266
22	0,5504	-1,5134	-1,2322	1,0798	4,2327	7,1127	8,9024	8,9652	7,1135	3,9747
23	-0,0127	-1,6770	-1,0156	1,5018	4,6035	7,2430	8,6865	8,3988	6,3047	3,1559
24	-0,4644	-1,7169	-0,7081	1,9427	4,9190	7,2766	8,3636	7,7492	5,4773	2,3947
25	-0,7985	-1,6401	-0,3293	2,3740	5,1626	7,2083	7,9396	7,0340	4,6582	1,7092
26	-1,0281	-1,4724	0,0825	2,7560	5,3068	7,0217	7,4094	6,2603	3,8578	1,0992
27	-0,9095	-0,9835	0,7451	3,3142	5,5889	6,9654	7,0332	5,6996	3,3425	0,8204
28	-0,3695	-0,1130	1,7096	4,1123	6,0848	7,1260	6,9087	5,4592	3,2095	0,9593
29	0,2683	0,8023	2,6384	4,8258	6,4814	7,2018	6,7455	5,2503	3,1591	1,2053
30	0,9879	1,7334	3,5098	5,4465	6,7820	7,2064	6,5686	5,0919	3,1999	1,5560
31	1,0641	1,9454	3,6024	5,2652	6,2889	6,4531	5,6990	4,2952	2,6317	1,2997
32	1,6980	2,6383	4,1292	5,5081	6,2395	6,1898	5,3852	4,0977	2,6813	1,6516
33	1,8299	2,7597	4,0517	5,1487	5,6181	5,4110	4,6154	3,4768	2,3144	1,5661
34	1,6580	2,5207	3,5939	4,4235	4,6722	4,3710	3,6326	2,6650	1,7521	1,2522
35	1,7316	2,4834	3,3310	3,9192	3,9996	3,6667	3,0229	2,2373	1,5578	1,2611
36	1,7005	2,3108	2,9390	3,3246	3,2982	2,9880	2,4650	1,8616	1,3874	1,2371
37	0,9582	1,4093	1,8372	2,0702	2,0042	1,7595	1,3730	0,9407	0,6318	0,5633
38	-0,2730	0,0144	0,2736	0,4156	0,3747	0,2274	-0,0181	-0,3016	-0,4975	-0,5482
39	-0,4781	-0,3455	-0,2330	-0,1465	-0,1412	-0,1909	-0,3029	-0,4518	-0,5647	-0,6176
40	-0,4203	-0,3851	-0,3553	-0,2802	-0,2343	-0,2202	-0,2475	-0,3164	-0,3946	-0,4573

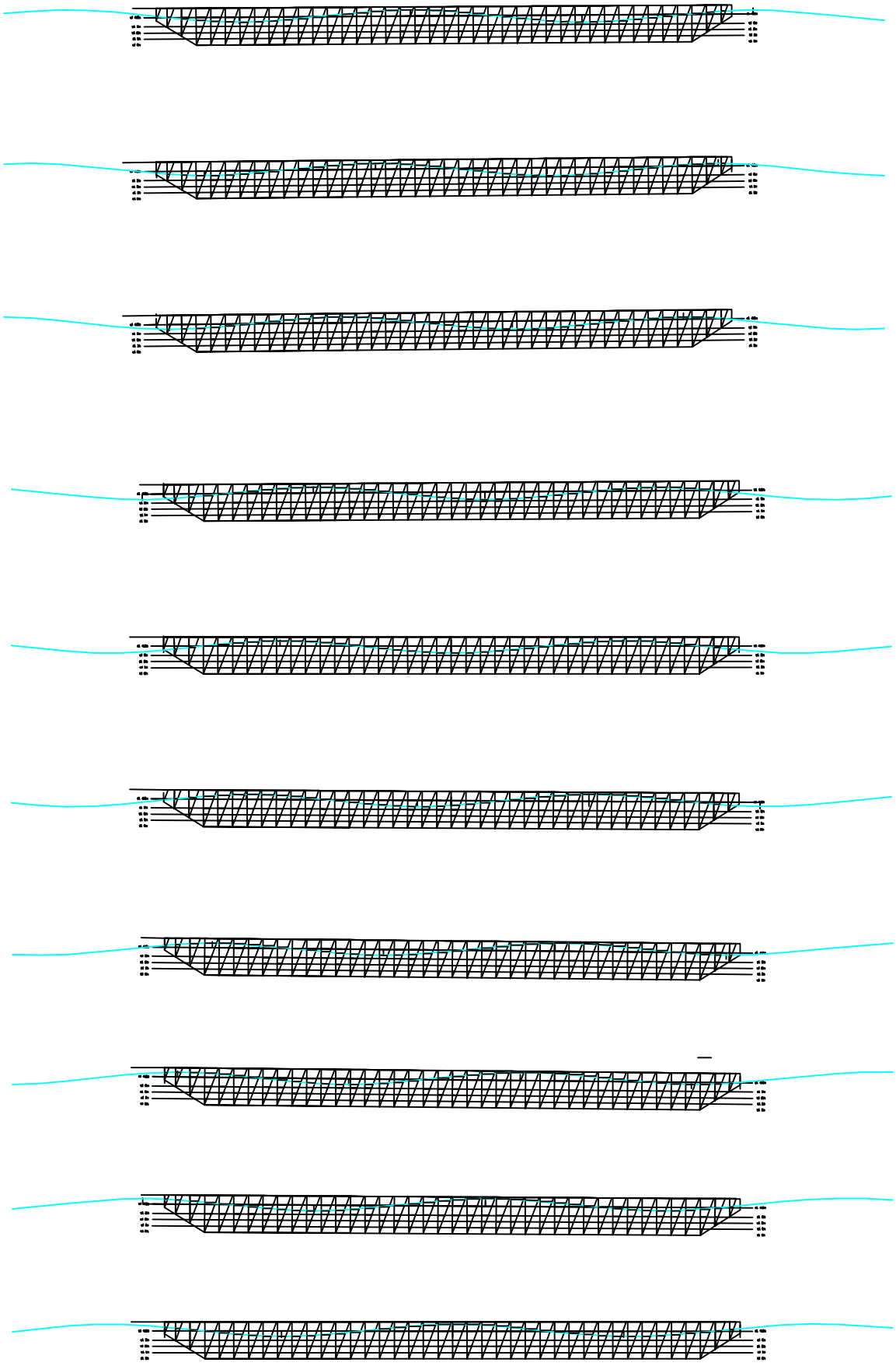


Bending Moment 0,95

STATION	PERIODE									
	0,66	1,32	1,98	2,65	3,31	3,97	4,63	5,29	5,95	6,61
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-3,3510	-0,8448	-0,2299	-1,6631	-4,2328	-7,0109	-9,1774	-9,9471	-8,9421	-6,4296
2	-3,9632	0,9816	1,9430	-1,5319	-7,1614	-12,9925	-17,2960	-18,4555	-15,8771	-10,3118
3	-3,2990	3,8691	4,6051	-1,5055	-10,6083	-19,6553	-25,9291	-27,0212	-22,2982	-13,2071
4	-1,6037	7,4047	7,3015	-1,9659	-14,8231	-27,0849	-35,0083	-35,5243	-28,1302	-15,1623
5	1,3240	11,6355	10,0502	-2,8360	-19,6097	-34,9230	-44,0407	-43,4248	-32,8672	-15,7795
6	4,8346	15,7951	12,0525	-4,8691	-25,6156	-43,6678	-53,4173	-51,0715	-36,8819	-15,5265
7	8,3459	19,2142	12,6371	-8,6635	-33,3092	-53,6450	-63,3834	-58,6946	-40,4572	-14,8106
8	12,0352	22,0134	11,9520	-13,9708	-42,2919	-64,3346	-73,3659	-65,7323	-43,1137	-13,3034
9	16,3073	24,5703	10,4319	-20,2293	-51,8444	-74,9234	-82,5248	-71,3836	-44,1619	-10,4795
10	21,1635	26,8891	8,1672	-27,1953	-61,5764	-84,9542	-90,4032	-75,2582	-43,3532	-6,2481
11	26,5911	28,9900	5,2933	-34,5602	-71,0573	-93,9564	-96,5575	-77,0069	-40,5046	-0,5626
12	32,3282	30,6736	1,7548	-42,2003	-80,0708	-101,7004	-100,8120	-76,5763	-35,7386	6,3432
13	38,1192	31,7770	-2,4392	-49,9420	-88,3790	-107,9614	-103,0230	-73,9730	-29,2277	14,2113
14	43,7252	32,1836	-7,2116	-57,5710	-95,7317	-112,5289	-103,0873	-69,2658	-21,1851	22,7695
15	48,9342	31,8336	-12,4232	-64,8423	-101,8762	-115,2155	-100,9518	-62,5806	-11,8547	31,7420
16	53,5710	30,7339	-17,8831	-71,4904	-106,5665	-115,8662	-96,6219	-54,0907	-1,5011	40,8598
17	57,4581	28,9117	-23,4083	-77,2884	-109,6225	-114,4173	-90,2137	-44,0573	9,5503	49,8209
18	60,4755	26,4579	-28,7845	-82,0080	-110,8897	-110,8557	-81,8980	-32,7702	20,9732	58,3506
19	62,1387	23,0836	-34,2089	-85,8623	-110,6805	-105,6595	-72,3230	-20,9704	32,0179	65,7795
20	62,3070	18,8155	-39,5934	-88,8087	-109,0780	-99,0934	-61,8994	-9,1346	42,2275	71,7605
21	61,4981	14,3108	-44,2518	-90,2352	-105,6208	-90,8781	-50,4668	2,8671	51,7716	76,6025
22	59,3907	9,3545	-48,4006	-90,4607	-100,8019	-81,6717	-38,7756	14,2721	59,9657	79,7886
23	55,7069	3,7424	-52,2766	-89,8527	-95,1762	-72,1682	-27,5848	24,3282	66,1733	80,8684
24	50,8161	-2,1118	-55,5291	-88,2181	-88,7341	-62,4696	-17,0350	32,9379	70,4346	80,0688
25	44,9905	-7,9221	-57,9653	-85,5461	-81,6269	-52,8123	-7,3737	39,9241	72,7374	77,5484
26	38,4944	-13,4415	-59,4611	-81,9067	-74,0585	-43,4583	1,1526	45,1393	73,1138	73,4870
27	31,8663	-18,1799	-59,6790	-77,1489	-65,9831	-34,3932	8,6008	48,7672	71,9251	68,3683
28	26,0216	-21,3014	-57,9614	-70,7779	-56,9821	-25,2040	15,4535	51,4423	69,9654	63,0833
29	21,5779	-22,2987	-53,9917	-62,6087	-46,9196	-15,7336	21,9640	53,5828	67,7874	58,2561
30	18,7488	-21,0997	-47,8807	-52,8525	-36,0278	-6,1676	28,0699	55,2864	65,5980	54,1386
31	16,8663	-18,5410	-40,6231	-42,5737	-25,3650	2,5079	32,9310	55,8540	62,7813	50,1334
32	15,8284	-14,9059	-32,6286	-32,2217	-15,3473	9,9740	36,3844	55,2389	59,3478	46,2419
33	15,7014	-10,3022	-24,0998	-22,0082	-6,1277	16,2006	38,5489	53,6503	55,5368	42,6672
34	15,5269	-5,8383	-16,2077	-13,0847	1,2277	20,2637	38,6287	50,3576	50,6205	38,6175
35	15,2355	-1,7032	-9,1729	-5,6239	6,6577	22,2520	36,8142	45,5905	44,8041	34,2051
36	14,9946	2,1824	-2,9170	0,5299	10,4534	22,5953	33,6109	39,8678	38,5540	29,7747
37	13,8337	4,7904	1,5619	4,4843	11,8756	20,6699	28,4450	32,6027	31,2023	24,5142
38	10,3253	4,6668	2,8704	4,9784	9,8204	15,4609	20,3254	22,7645	21,6086	17,1302
39	5,1086	2,4557	1,7165	2,8357	5,2131	7,9318	10,2123	11,2699	10,5918	8,3415
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

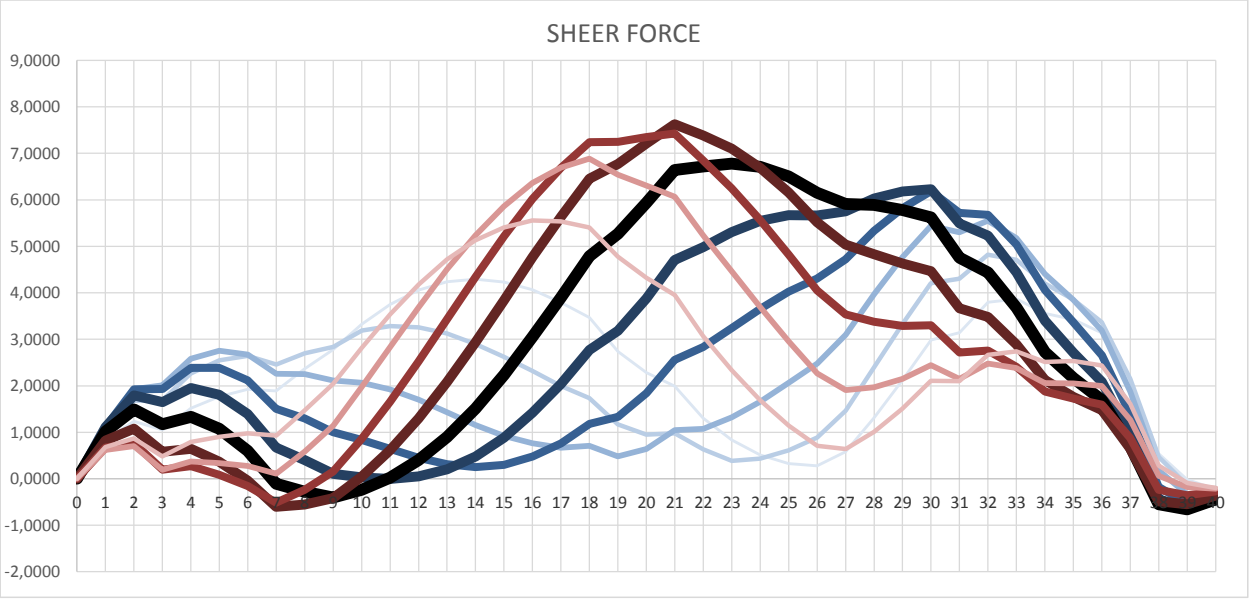


1,05



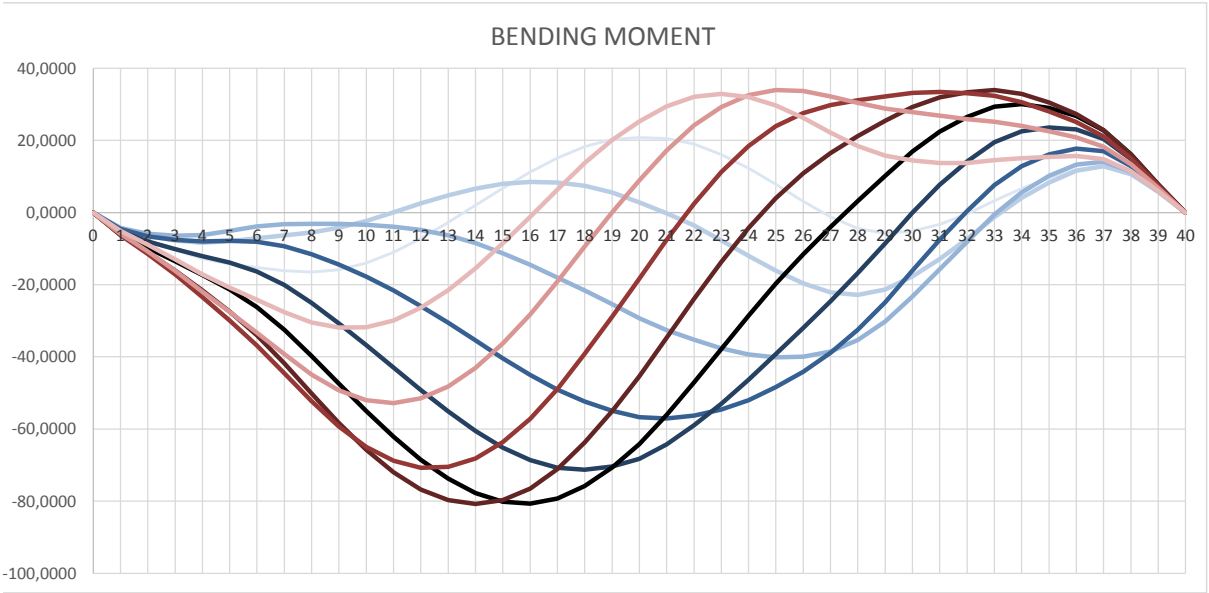
Sheer Force 1,05

STATION	PERIODE									
	0	0,95	1,9	2,85	3,8	4,75	5,7	6,65	7,6	8,55
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,8348	1,0359	1,1113	1,1113	1,1113	1,0168	0,8239	0,6705	0,6209	0,6792
2	1,2364	1,6822	1,9281	1,9232	1,7911	1,4927	1,0758	0,7646	0,7049	0,8685
3	1,0489	1,6835	2,0101	1,9330	1,6518	1,1710	0,5842	0,1974	0,1933	0,4834
4	1,5202	2,2686	2,5803	2,3824	1,9539	1,3294	0,6439	0,2690	0,3691	0,7900
5	1,7653	2,5454	2,7528	2,3890	1,8075	1,0742	0,3674	0,0864	0,3382	0,9018
6	1,9244	2,6422	2,6747	2,1176	1,3960	0,6057	-0,0350	-0,1573	0,2765	0,9775
7	1,8898	2,4550	2,2613	1,5022	0,6709	-0,1081	-0,5998	-0,5158	0,1127	0,9284
8	2,3628	2,7014	2,2492	1,2985	0,4048	-0,2813	-0,5571	-0,2366	0,5820	1,4717
9	2,7806	2,8371	2,1134	0,9997	0,1078	-0,4031	-0,4144	0,1556	1,1417	2,0471
10	3,3191	3,1908	2,0678	0,8383	0,0279	-0,2395	0,0450	0,8601	1,9729	2,8184
11	3,7502	3,2853	1,9216	0,6419	-0,0023	0,0243	0,6177	1,6561	2,8368	3,5400
12	4,0593	3,2589	1,6986	0,4519	0,0485	0,4016	1,2997	2,5221	3,6939	4,1801
13	4,2400	3,1242	1,4303	0,3102	0,2040	0,8983	2,0794	3,4292	4,5043	4,7145
14	4,2940	2,9021	1,1562	0,2515	0,4804	1,5132	2,9382	4,3411	5,2351	5,1267
15	4,2307	2,6211	0,9209	0,3024	0,8864	2,2376	3,8366	5,2175	5,8597	5,4077
16	4,0672	2,3178	0,7626	0,4818	1,4229	3,0554	4,7685	6,0234	6,3630	5,5561
17	3,7871	1,9945	0,6701	0,7591	2,0415	3,9015	5,6389	6,6895	6,6915	5,5368
18	3,4650	1,7347	0,7076	1,1793	2,7701	4,7867	6,4522	7,2371	6,8836	5,4054
19	2,7372	1,1671	0,4846	1,3343	3,1819	5,2682	6,7730	7,2483	6,5389	4,7787
20	2,2822	0,9529	0,6431	1,8443	3,8829	5,9413	7,2136	7,3524	6,3045	4,3213
21	1,9939	0,9772	1,0490	2,5582	4,7039	6,6398	7,6259	7,4263	6,0672	3,9497
22	1,3028	0,6316	1,0746	2,8300	4,9850	6,7192	7,3828	6,8451	5,2356	3,0643
23	0,8372	0,3870	1,3203	3,2417	5,3072	6,7788	7,1012	6,2505	4,4617	2,3319
24	0,5114	0,4362	1,6624	3,6528	5,5430	6,7084	6,6888	5,5675	3,6877	1,6844
25	0,3302	0,6158	2,0674	4,0229	5,6705	6,5039	6,1583	4,8266	2,9513	1,1442
26	0,2754	0,8884	2,4789	4,3050	5,6607	6,1533	5,5156	4,0507	2,2685	0,7116
27	0,5819	1,4695	3,0998	4,7205	5,7528	5,9132	5,0342	3,5385	1,9089	0,6407
28	1,3110	2,4008	3,9742	5,3330	6,0278	5,8897	4,8291	3,3762	1,9691	1,0118
29	2,1234	3,3259	4,7618	5,8212	6,1821	5,7796	4,6281	3,2909	2,1466	1,5063
30	2,9844	4,2051	5,4424	6,1835	6,2314	5,6232	4,4664	3,3013	2,4432	2,1092
31	3,1465	4,3023	5,2987	5,7216	5,4939	4,7548	3,6677	2,7143	2,1491	2,0986
32	3,7942	4,8201	5,5523	5,6755	5,2268	4,4391	3,4794	2,7611	2,4784	2,6626
33	3,8629	4,7124	5,1759	5,0363	4,4376	3,6770	2,8852	2,4085	2,3811	2,7385
34	3,5546	4,1997	4,4091	4,0617	3,3956	2,7215	2,1212	1,8760	2,0590	2,5149
35	3,4258	3,8574	3,8460	3,3638	2,7106	2,1647	1,7624	1,7223	2,0532	2,5327
36	3,1372	3,3649	3,1848	2,6565	2,0814	1,6884	1,4741	1,5954	1,9967	2,4355
37	2,0964	2,1489	1,8710	1,3882	0,9386	0,7065	0,6531	0,8756	1,2651	1,6123
38	0,5435	0,4683	0,1820	-0,1755	-0,4367	-0,5499	-0,4859	-0,2388	0,0651	0,2832
39	-0,0161	-0,1392	-0,3400	-0,5304	-0,6469	-0,6550	-0,5447	-0,3547	-0,1795	-0,0887
40	-0,2247	-0,3105	-0,3837	-0,4342	-0,4651	-0,4423	-0,3621	-0,2712	-0,2116	-0,2029

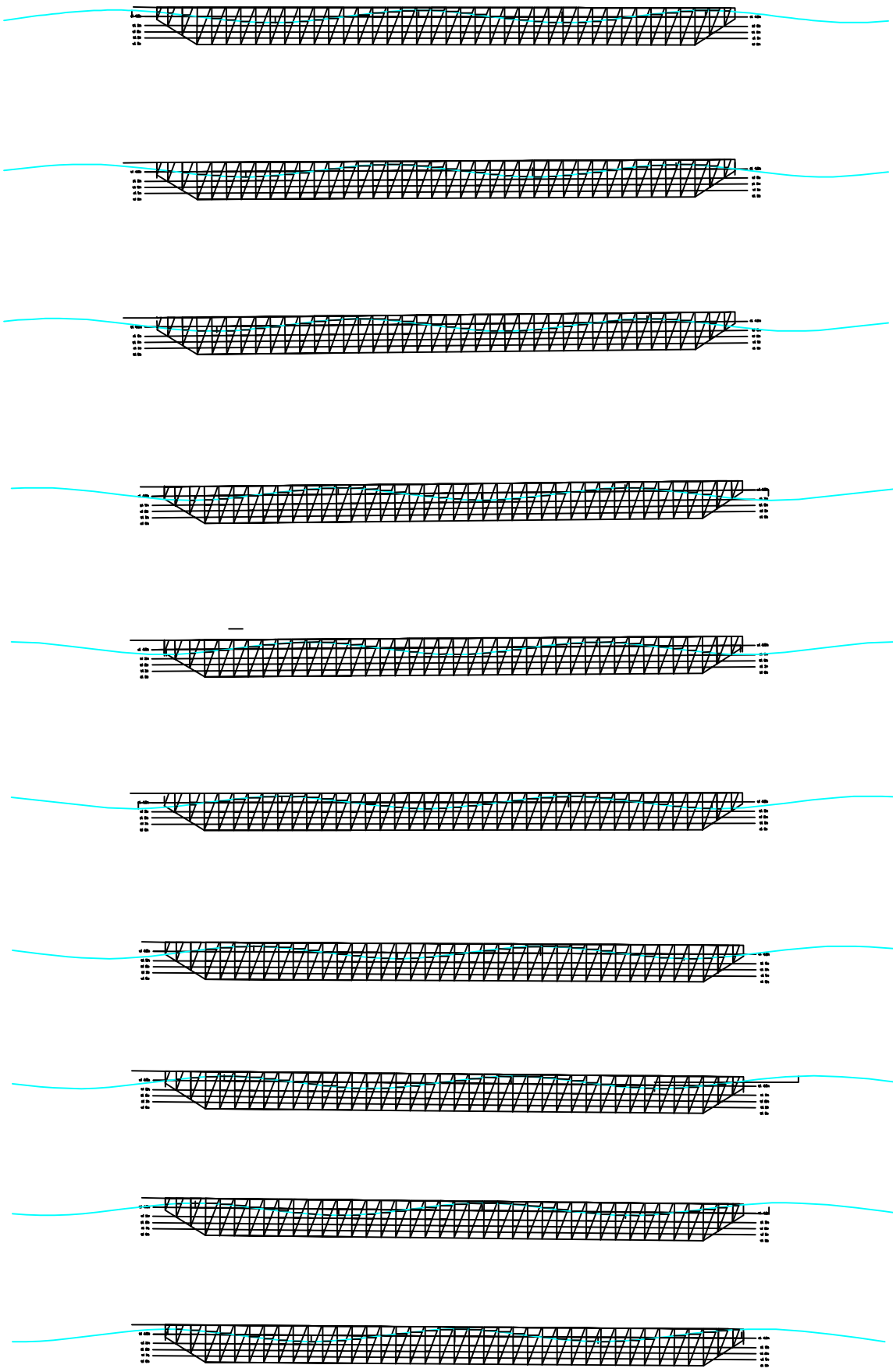


Bending Moment 1,05

STATION	PERIODE									
	0	0,95	1,9	2,85	3,8	4,75	5,7	6,65	7,6	8,55
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-4,6938	-4,4012	-4,2622	-4,5994	-5,2649	-5,9578	-6,2867	-6,2828	-5,9095	-5,0751
2	-7,6543	-6,4755	-5,8813	-6,5617	-8,0498	-9,8203	-11,0347	-11,4452	-10,7851	-8,9034
3	-10,3601	-7,7796	-6,4314	-7,5465	-10,1918	-13,4992	-16,0677	-17,1704	-16,1694	-12,9648
4	-12,7283	-8,3861	-6,2057	-7,9850	-12,1401	-17,3724	-21,6145	-23,4851	-21,9531	-17,1195
5	-14,2444	-7,9674	-5,0966	-7,8811	-13,9031	-21,3607	-27,4192	-29,9319	-27,5645	-20,7766
6	-15,2797	-7,1043	-3,8751	-8,0922	-16,3298	-26,2100	-34,0315	-36,8858	-33,2861	-24,2106
7	-16,1669	-6,3488	-3,2384	-9,3582	-20,1085	-32,4657	-41,7942	-44,5560	-39,2758	-27,6130
8	-16,5325	-5,5228	-3,1077	-11,5985	-25,0662	-39,7764	-50,1779	-52,3205	-44,9022	-30,4275
9	-15,8385	-4,2424	-3,1529	-14,4365	-30,6938	-47,4379	-58,3412	-59,2863	-49,3047	-31,9113
10	-14,0071	-2,3798	-3,4138	-17,8220	-36,7697	-55,0497	-65,7881	-64,9477	-52,0527	-31,7933
11	-11,0223	0,0159	-3,9030	-21,6331	-42,9765	-62,1531	-72,0074	-68,8242	-52,7843	-29,8994
12	-7,1571	2,4926	-4,8313	-25,9038	-49,1589	-68,4940	-76,7342	-70,7238	-51,4688	-26,3857
13	-2,7093	4,7777	-6,3440	-30,5691	-55,0958	-73,7952	-79,7223	-70,5143	-48,1699	-21,4750
14	2,0178	6,6385	-8,5020	-35,4726	-60,5190	-77,7742	-80,7615	-68,1411	-43,0377	-15,4383
15	6,7338	7,9007	-11,2658	-40,3856	-65,1306	-80,1601	-79,7105	-63,6407	-36,2933	-8,5771
16	11,1799	8,4680	-14,4979	-45,0245	-68,6210	-80,7116	-76,4824	-57,1392	-28,2072	-1,2051
17	15,0984	8,2898	-18,0282	-49,1202	-70,7374	-79,2838	-71,1104	-48,8868	-19,1317	6,3206
18	18,3006	7,4181	-21,6240	-52,3863	-71,2513	-75,7967	-63,7357	-39,1906	-9,4369	13,6669
19	20,2539	5,5622	-25,4404	-54,9681	-70,4087	-70,6839	-55,0120	-28,8298	0,0764	20,1115
20	20,8004	2,7764	-29,3335	-56,7588	-68,2424	-64,1976	-45,3827	-18,3318	8,9009	25,2665
21	20,4627	-0,2354	-32,5552	-57,0938	-64,2656	-56,0798	-34,7388	-7,6220	17,1642	29,4355
22	18,9599	-3,6294	-35,2638	-56,2563	-58,9780	-47,0366	-23,8935	2,4843	24,1562	32,1092
23	16,0812	-7,7253	-37,6496	-54,6058	-52,9728	-37,8282	-13,6724	11,1919	29,2384	32,8585
24	12,2612	-12,0536	-39,3362	-51,9766	-46,3039	-28,6327	-4,2769	18,3799	32,4793	31,9665
25	7,8381	-16,1098	-40,1341	-48,4182	-39,2027	-19,7641	3,9971	23,8742	33,9236	29,6618
26	3,1342	-19,6281	-39,9608	-44,0839	-31,9615	-11,5559	10,8756	27,5643	33,6798	26,1999
27	-1,2703	-22,1309	-38,5595	-38,9199	-24,6225	-4,0503	16,4169	29,7222	32,1960	22,1390
28	-4,4429	-22,8347	-35,3795	-32,5330	-16,8468	3,1418	21,1416	31,0777	30,3561	18,4352
29	-5,7819	-21,3304	-30,2225	-24,8368	-8,5604	10,1750	25,3833	32,1387	28,7990	15,7610
30	-5,1303	-17,6800	-23,3191	-16,1290	-0,0319	16,8911	29,1936	33,1106	27,8057	14,3922
31	-3,2618	-12,8679	-15,7771	-7,5396	7,6780	22,3883	31,8615	33,3967	26,8155	13,7280
32	-0,4301	-7,3244	-8,1044	0,4456	14,1930	26,4769	33,3553	33,0401	25,8672	13,7220
33	3,2539	-1,2931	-0,5778	7,6155	19,4514	29,2835	33,9183	32,3198	25,1949	14,4772
34	6,6528	4,0002	5,5890	12,8658	22,5317	30,0469	32,8657	30,5469	24,0236	15,0567
35	9,5318	8,2765	10,1739	16,1266	23,5578	29,0115	30,4776	27,9576	22,4623	15,3914
36	11,9143	11,5599	13,3025	17,7160	23,0206	26,7473	27,3198	25,0344	20,8269	15,6316
37	12,7155	12,8110	14,0819	16,9554	20,3756	22,7486	22,8424	21,1041	18,2540	14,7770
38	10,4314	10,6166	11,2895	12,8262	14,7354	16,0873	16,0337	14,9920	13,3835	11,3623
39	5,6346	5,7006	5,8670	6,4148	7,2092	7,8065	7,8002	7,4165	6,7946	5,9243
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

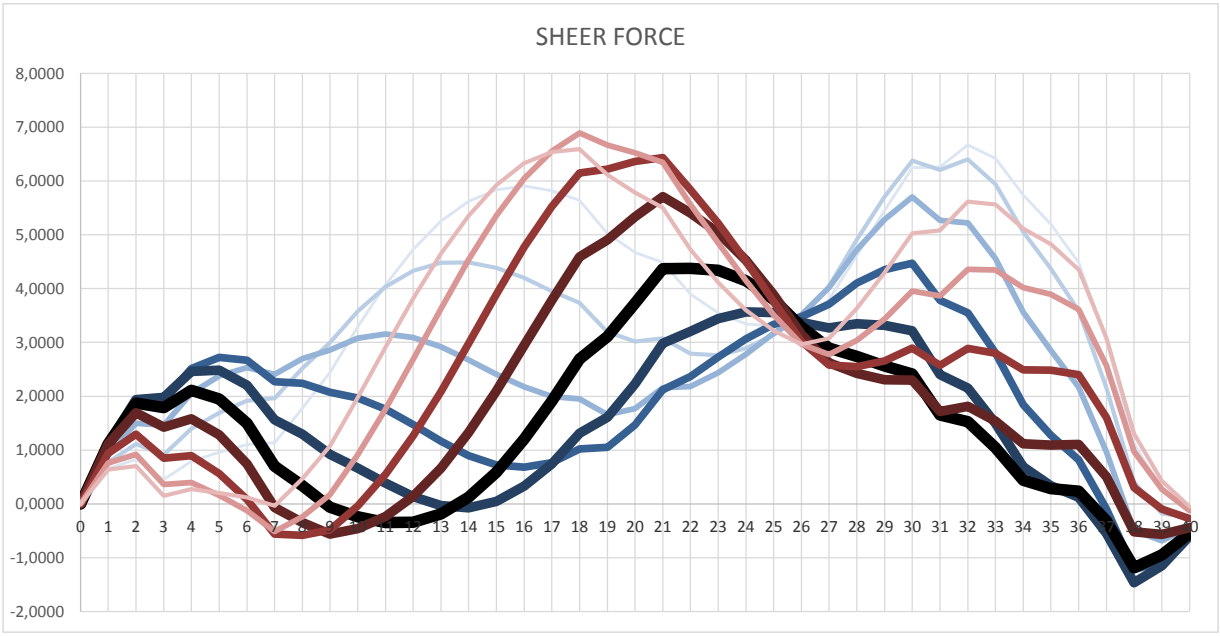


1,15



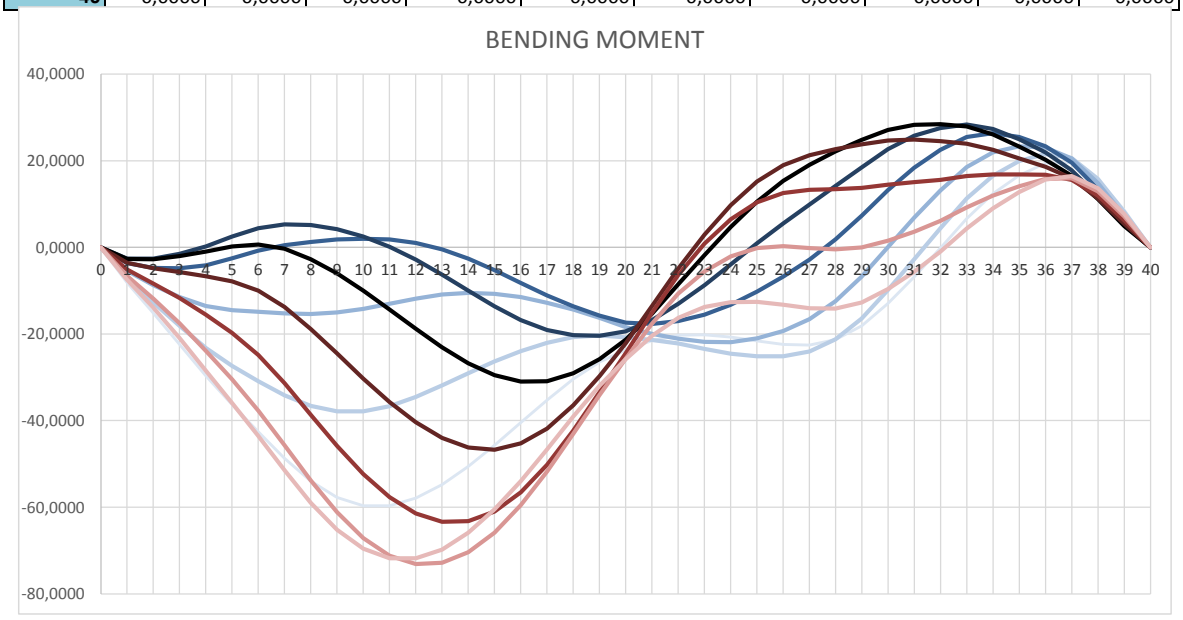
Sheer Force 1,15

STATION	PERIODE									
	0,55	1,09	1,64	2,19	2,73	3,28	3,82	4,37	4,92	5,46
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,6584	0,7730	0,9427	1,1113	1,1113	1,1113	1,1113	0,9372	0,7574	0,6353
2	0,8304	1,1158	1,4988	1,8587	1,9375	1,8695	1,6923	1,2980	0,9199	0,7023
3	0,4507	0,9086	1,4615	1,9254	1,9795	1,7861	1,4243	0,8516	0,3589	0,1473
4	0,7921	1,4021	2,0583	2,5172	2,4596	2,1084	1,5803	0,8951	0,3940	0,2753
5	0,9567	1,6935	2,3782	2,7223	2,4834	1,9521	1,2843	0,5630	0,1613	0,2044
6	1,1032	1,9191	2,5351	2,6713	2,2071	1,4981	0,7417	0,0832	-0,1282	0,1222
7	1,1396	1,9641	2,4076	2,2682	1,5599	0,7004	-0,0690	-0,5602	-0,5161	-0,0363
8	1,7769	2,5174	2,7002	2,2437	1,2977	0,3388	-0,3452	-0,5825	-0,2427	0,4651
9	2,4450	3,0017	2,8608	2,0718	0,9191	-0,0637	-0,5583	-0,4812	0,1691	1,0797
10	3,2956	3,5844	3,0817	1,9702	0,6671	-0,2417	-0,4616	-0,0356	0,9153	1,9797
11	4,0712	4,0320	3,1552	1,7578	0,3852	-0,3471	-0,2335	0,5503	1,7666	2,9118
12	4,7332	4,3308	3,0931	1,4724	0,1340	-0,3384	0,1409	1,2658	2,6875	3,8184
13	5,2553	4,4793	2,9200	1,1651	-0,0320	-0,1872	0,6634	2,0877	3,6300	4,6472
14	5,6240	4,4894	2,6737	0,8974	-0,0712	0,1216	1,3233	2,9804	4,5363	5,3584
15	5,8379	4,3852	2,4052	0,7236	0,0441	0,5901	2,0969	3,8953	5,3561	5,9250
16	5,9085	4,2037	2,1752	0,6845	0,3287	1,2068	2,9475	4,7747	6,0513	6,3326
17	5,8179	3,9533	1,9960	0,7658	0,7417	1,9059	3,7841	5,5257	6,5548	6,5377
18	5,6442	3,7354	1,9498	1,0226	1,3123	2,6914	4,5892	6,1520	6,8956	6,5932
19	5,0312	3,1981	1,6587	1,0501	1,6097	3,1077	4,9063	6,2232	6,6691	6,1178
20	4,6729	3,0157	1,7716	1,4701	2,2299	3,7299	5,3322	6,3620	6,5225	5,7835
21	4,4884	3,0767	2,1560	2,1229	2,9877	4,3731	5,7086	6,4360	6,3487	5,5068
22	3,8982	2,7891	2,1805	2,3645	3,2034	4,3797	5,4046	5,8395	5,5675	4,7272
23	3,5462	2,7643	2,4358	2,7288	3,4425	4,3414	5,0381	5,2162	4,8471	4,1123
24	3,3471	2,8906	2,7833	3,0707	3,5677	4,1473	4,5239	4,5058	4,1466	3,6009
25	3,3007	3,1418	3,1689	3,3378	3,5535	3,7972	3,8880	3,7589	3,5132	3,2178
26	3,3795	3,4631	3,5163	3,4772	3,3728	3,2897	3,1542	3,0181	2,9676	2,9611
27	3,8037	4,0479	4,0202	3,7100	3,2730	2,8974	2,6204	2,5776	2,7793	3,0772
28	4,6151	4,9161	4,7228	4,1054	3,3488	2,7405	2,4253	2,5532	3,0396	3,6350
29	5,4501	5,7052	5,2874	4,3536	3,3162	2,5595	2,3057	2,6561	3,4356	4,2984
30	6,2494	6,3777	5,7028	4,4701	3,2167	2,4142	2,2977	2,8975	3,9539	5,0309
31	6,2588	6,2045	5,2666	3,7794	2,4000	1,6495	1,7202	2,5715	3,8648	5,0794
32	6,6678	6,4009	5,2203	3,5502	2,1530	1,5285	1,8108	2,8910	4,3567	5,6157
33	6,4223	5,9383	4,5624	2,8082	1,4948	1,0450	1,5375	2,7999	4,3482	5,5638
34	5,7396	5,0606	3,5635	1,8426	0,6906	0,4387	1,1152	2,4888	4,0172	5,1167
35	5,1969	4,3710	2,8545	1,2775	0,3392	0,2832	1,0926	2,4828	3,8930	4,8254
36	4,4804	3,5827	2,1671	0,8206	0,1226	0,2359	1,1025	2,3993	3,6135	4,3473
37	3,0283	2,1606	0,9604	-0,0947	-0,5512	-0,3199	0,5043	1,6045	2,5661	3,0901
38	1,1167	0,3991	-0,4944	-1,2236	-1,4626	-1,1886	-0,5216	0,2998	0,9739	1,2967
39	0,2553	-0,1792	-0,6845	-1,0735	-1,1520	-0,9503	-0,5652	-0,0970	0,2709	0,4270
40	-0,1062	-0,2517	-0,4305	-0,5782	-0,5990	-0,5455	-0,4434	-0,2733	-0,1282	-0,0545

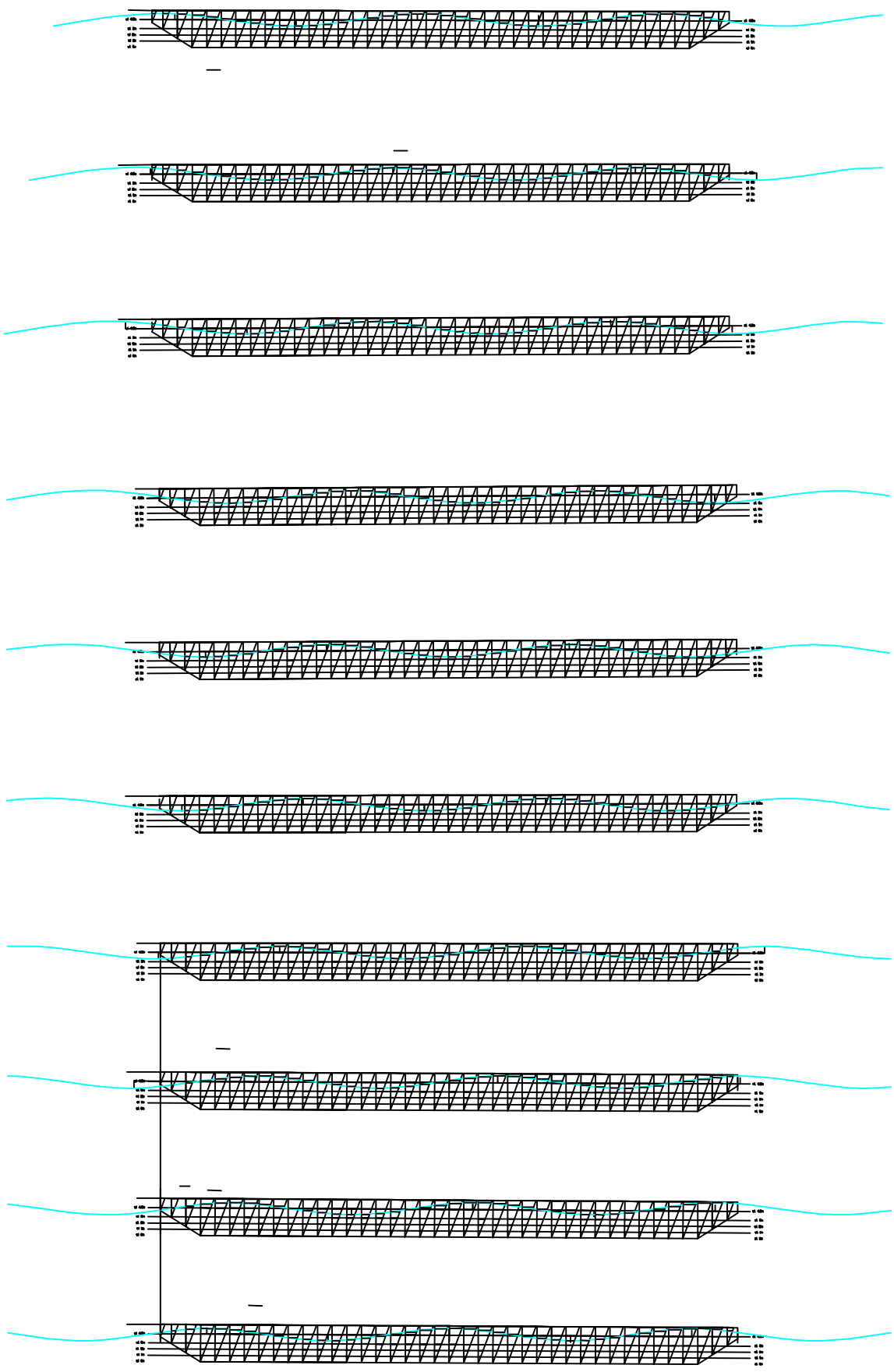


Bending Moment 1,15

STATION	PERIODE									
	0,55	1,09	1,64	2,19	2,73	3,28	3,82	4,37	4,92	5,46
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-8,1744	-7,1531	-5,4153	-3,6417	-2,6203	-2,6545	-3,6000	-5,0961	-6,5801	-7,4714
2	-15,1540	-12,7359	-8,7514	-4,7231	-2,5865	-2,7356	-4,8375	-8,3535	-11,8278	-13,9077
3	-22,3807	-18,1573	-11,4704	-4,8360	-1,5198	-2,0141	-5,7026	-11,7128	-17,5495	-20,9245
4	-29,6529	-23,2381	-13,5238	-4,1656	0,1677	-1,0084	-6,7009	-15,5512	-23,8967	-28,4491
5	-36,3231	-27,3853	-14,4869	-2,5474	2,4547	0,1947	-7,8658	-19,7330	-30,4790	-35,9059
6	-42,6234	-30,9176	-14,8828	-0,7458	4,4414	0,6719	-10,0283	-24,8806	-37,6824	-43,5448
7	-48,7061	-34,1280	-15,2436	0,5156	5,3295	-0,3398	-13,8005	-31,3642	-45,6916	-51,4699
8	-53,9875	-36,6266	-15,4082	1,2685	5,1359	-2,7306	-18,8656	-38,6397	-53,8371	-58,9871
9	-57,7161	-37,8911	-15,0336	1,7877	4,1800	-6,0302	-24,5126	-45,8213	-61,1675	-65,1769
10	-59,6382	-37,8864	-14,2051	1,9816	2,4740	-10,0203	-30,2982	-52,3522	-67,1204	-69,5650
11	-59,6259	-36,6562	-13,0265	1,8019	0,1330	-14,3476	-35,6973	-57,6561	-71,1730	-71,7739
12	-57,9037	-34,5382	-11,8344	1,0301	-2,8421	-18,7898	-40,3798	-61,4121	-73,1177	-71,7957
13	-54,7729	-31,8880	-10,9221	-0,4467	-6,3135	-23,0418	-43,9954	-63,3394	-72,8458	-69,7532
14	-50,5826	-29,0491	-10,5085	-2,6074	-10,0290	-26,7466	-46,2045	-63,2272	-70,3749	-65,8788
15	-45,6992	-26,3223	-10,7073	-5,2933	-13,6539	-29,5269	-46,7084	-60,9647	-65,8507	-60,4845
16	-40,4774	-23,9352	-11,4992	-8,2324	-16,8031	-31,0163	-45,2803	-56,5680	-59,5243	-53,9314
17	-35,2793	-22,0619	-12,7778	-11,1213	-19,1226	-30,9405	-41,8454	-50,2319	-51,7721	-46,6495
18	-30,3955	-20,7457	-14,3245	-13,6080	-20,2721	-29,0989	-36,4578	-42,2574	-43,0156	-39,0576
19	-26,4476	-20,3277	-16,2723	-15,7567	-20,3892	-25,8277	-29,7353	-33,4532	-34,1231	-31,9651
20	-23,6551	-20,7659	-18,4320	-17,3730	-19,4147	-21,3211	-22,1289	-24,3992	-25,6745	-25,8358
21	-21,5081	-21,3484	-20,0003	-17,7132	-16,8011	-15,3095	-13,5682	-15,0921	-17,6070	-20,4333
22	-20,2827	-22,2005	-21,0822	-16,9895	-13,0296	-8,5249	-4,9215	-6,4066	-10,6755	-16,2873
23	-20,1781	-23,4242	-21,8313	-15,5451	-8,7170	-1,7780	2,9277	0,8281	-5,5302	-13,8000
24	-20,7291	-24,5272	-21,8635	-13,2607	-3,9710	4,6925	9,7294	6,4762	-2,0749	-12,6525
25	-21,5721	-25,1811	-21,0235	-10,2519	0,9070	10,5156	15,1631	10,3909	-0,2064	-12,5690
26	-22,3765	-25,1541	-19,3115	-6,7595	5,5532	15,3187	18,9674	12,5360	0,2597	-13,2465
27	-22,5826	-24,0492	-16,5870	-2,8244	9,8656	19,0515	21,2640	13,2760	-0,1472	-14,0912
28	-21,3190	-21,2159	-12,4273	1,8579	14,1495	22,1310	22,6935	13,4628	-0,4684	-14,1343
29	-18,0970	-16,4113	-6,7603	7,3059	18,4848	24,8085	23,7487	13,7431	-0,0089	-12,7249
30	-12,9310	-9,8682	0,0724	13,1876	22,6630	27,0979	24,6521	14,4329	1,5381	-9,6550
31	-6,8031	-2,7311	6,8804	18,3863	25,7514	28,3048	24,8591	15,0220	3,5957	-5,6561
32	-0,1774	4,4336	13,1143	22,4908	27,5745	28,4581	24,4869	15,6034	6,1323	-0,9616
33	6,6427	11,2816	18,5106	25,4400	28,3208	27,8924	23,8975	16,4565	9,2440	4,3090
34	12,3587	16,5354	21,9361	26,3580	27,3277	26,0305	22,4806	16,8313	11,9518	8,9862
35	16,6172	19,9249	23,3301	25,4552	24,9600	23,2624	20,5344	16,8288	14,1182	12,7849
36	19,3778	21,5564	23,0631	23,3369	21,9166	20,2531	18,5731	16,7198	15,8043	15,6685
37	19,5588	20,5586	20,5432	19,5863	17,8141	16,5264	15,9120	15,5661	15,9122	16,4879
38	15,7388	15,7739	14,8573	13,4042	11,8259	11,1053	11,3191	11,9149	12,8802	13,6787
39	8,6202	8,2060	7,2147	6,0577	5,1231	4,9342	5,4539	6,2398	7,1181	7,7017
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

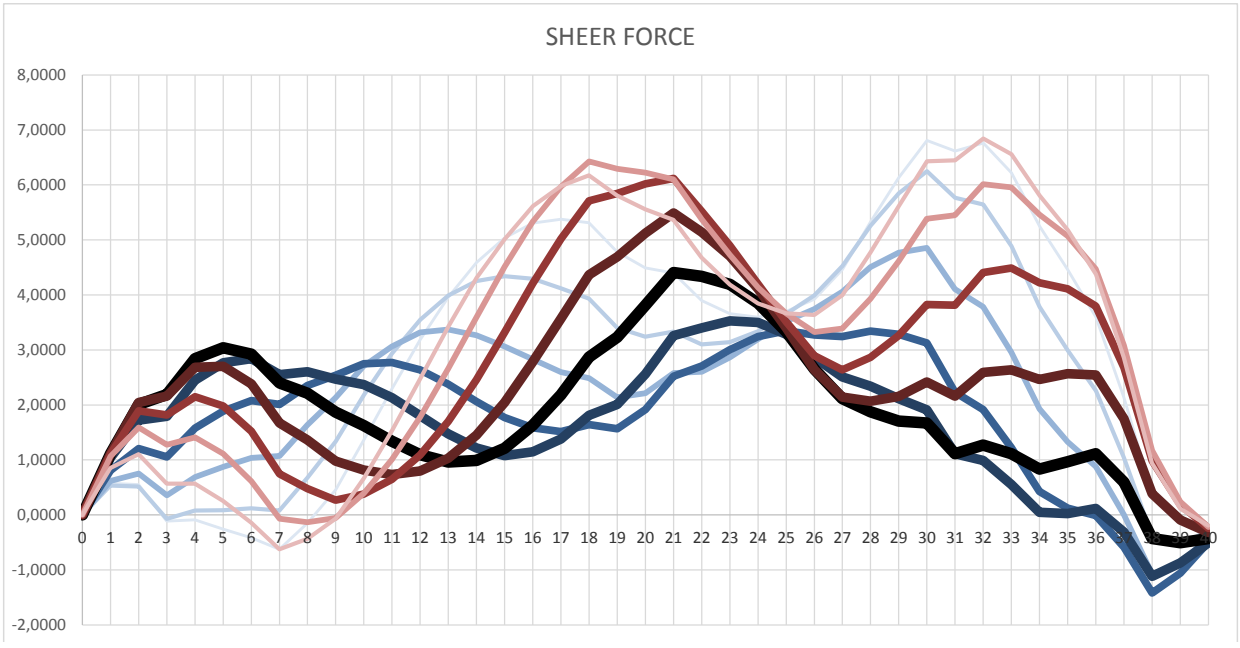


1,25



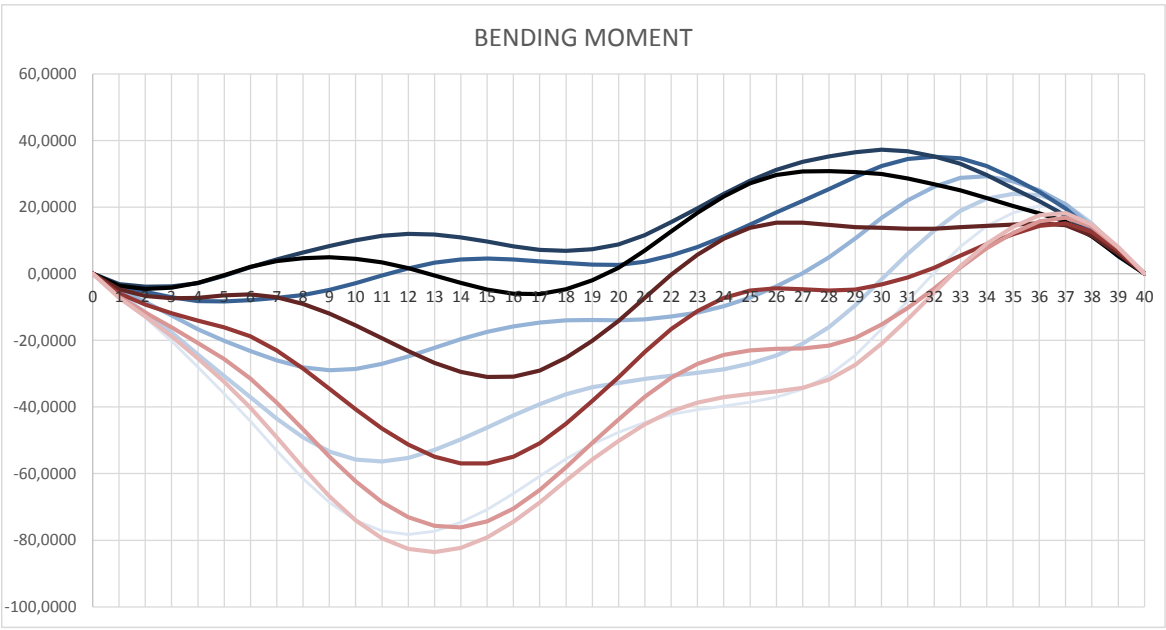
Sheer Force 1,25

STATION	PERIODE									
	0,50	1,01	1,51	2,01	2,51	3,02	3,52	4,02	4,52	5,03
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	0,5779	0,5356	0,6203	0,8105	1,0408	1,1113	1,1113	1,1113	1,0670	0,8520
2	0,5523	0,5143	0,7544	1,2085	1,7262	2,0074	2,0427	1,8915	1,5914	1,1033
3	-0,1102	-0,0688	0,3557	1,0536	1,7958	2,1896	2,1605	1,8197	1,2767	0,5701
4	-0,0880	0,0822	0,6897	1,5789	2,4515	2,8419	2,6830	2,1499	1,4105	0,5716
5	-0,2546	0,0887	0,8726	1,8872	2,7679	3,0425	2,7004	1,9830	1,1116	0,2541
6	-0,4126	0,1182	1,0403	2,0812	2,8411	2,9233	2,3807	1,5213	0,6152	-0,1397
7	-0,6221	0,0808	1,0703	2,0107	2,5487	2,3976	1,6734	0,7478	-0,0695	-0,6263
8	-0,1472	0,6817	1,6354	2,3532	2,6041	2,2140	1,3620	0,4788	-0,1327	-0,4294
9	0,4614	1,3385	2,1324	2,5379	2,4725	1,8729	0,9814	0,2674	-0,0550	-0,0631
10	1,3659	2,1827	2,7083	2,7474	2,3724	1,6273	0,8166	0,3795	0,3936	0,6696
11	2,2989	2,9370	3,0606	2,7735	2,1316	1,3391	0,7376	0,6473	1,0103	1,5326
12	3,1860	3,5503	3,3182	2,6363	1,8061	1,0931	0,7989	1,0886	1,7779	2,4756
13	3,9637	3,9921	3,3695	2,3773	1,4738	0,9610	1,0335	1,7002	2,6590	3,4282
14	4,5889	4,2529	3,2695	2,0605	1,2194	0,9922	1,4529	2,4580	3,5952	4,3134
15	5,0382	4,3435	3,0660	1,7696	1,0774	1,2138	2,0469	3,3167	4,5101	5,0188
16	5,3083	4,2958	2,8278	1,5832	1,1490	1,6308	2,7837	4,2107	5,3316	5,6133
17	5,3746	4,1205	2,5972	1,5157	1,3817	2,1835	3,5678	5,0175	5,9668	5,9841
18	5,3159	3,9323	2,4859	1,6419	1,8130	2,8737	4,3666	5,7120	6,4268	6,1759
19	4,7841	3,4061	2,1370	1,5678	2,0111	3,2339	4,6934	5,8436	6,2964	5,8077
20	4,4907	3,2382	2,2113	1,9180	2,5617	3,8166	5,1216	6,0230	6,2222	5,5590
21	4,3999	3,3357	2,5799	2,5220	3,2599	4,4104	5,4929	6,1192	6,1034	5,3626
22	3,8982	3,0987	2,6060	2,7056	3,4002	4,3405	5,1422	5,5224	5,3742	4,6791
23	3,6594	3,1420	2,8665	3,0068	3,5288	4,1904	4,7054	4,8946	4,7253	4,1914
24	3,5967	3,3424	3,2000	3,2429	3,4984	3,8504	4,1095	4,1984	4,1352	3,8456
25	3,7002	3,6538	3,5237	3,3504	3,2833	3,3311	3,4017	3,5112	3,6612	3,6653
26	3,9246	3,9937	3,7456	3,2740	2,8655	2,6511	2,6363	2,8920	3,3252	3,6391
27	4,4653	4,5262	4,0568	3,2421	2,5109	2,1123	2,1429	2,6389	3,3897	3,9957
28	5,3308	5,2635	4,5051	3,3405	2,3427	1,8732	2,0705	2,8632	3,9305	4,7778
29	6,1311	5,8468	4,7681	3,2848	2,1146	1,7058	2,1538	3,2627	4,6105	5,6149
30	6,8067	6,2512	4,8576	3,1260	1,9125	1,6740	2,4179	3,8261	5,3837	6,4299
31	6,6140	5,7688	4,1032	2,2329	1,1106	1,1142	2,1605	3,8163	5,4522	6,4477
32	6,7615	5,6439	3,7875	1,9191	0,9914	1,2714	2,5907	4,4059	6,0172	6,8438
33	6,2219	4,8856	2,9586	1,2249	0,5572	1,1111	2,6366	4,4901	5,9576	6,5576
34	5,2477	3,7839	1,9274	0,4264	0,0468	0,8352	2,4643	4,2197	5,4588	5,8076
35	4,4590	2,9887	1,3308	0,1233	0,0220	0,9696	2,5675	4,1112	5,0731	5,1803
36	3,5931	2,2572	0,8798	-0,0111	0,1184	1,1141	2,5426	3,7987	4,4700	4,3780
37	2,1405	1,0475	0,0022	-0,5876	-0,3127	0,5931	1,7468	2,6763	3,0784	2,8632
38	0,4020	-0,3739	-1,0724	-1,4212	-1,1174	-0,4284	0,3836	0,9837	1,1728	0,9425
39	-0,1426	-0,5371	-0,8846	-1,0602	-0,8709	-0,5046	-0,0896	0,1891	0,2394	0,1136
40	-0,1904	-0,2839	-0,3984	-0,4953	-0,5059	-0,4273	-0,3173	-0,2433	-0,2183	-0,1949



Bending Moment 1,25

STATION	PERIODE									
	0,50	1,01	1,51	2,01	2,51	3,02	3,52	4,02	4,52	5,03
0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
1	-7,0331	-6,1591	-4,8012	-3,5674	-3,1514	-3,6395	-4,7098	-5,9580	-6,9355	-7,2127
2	-13,2275	-11,5379	-8,5101	-5,4425	-3,9222	-4,5417	-6,6403	-9,3166	-11,6425	-12,8451
3	-20,2404	-17,6357	-12,5337	-7,0283	-3,7950	-4,1612	-7,3227	-11,8326	-16,0999	-18,8127
4	-28,0148	-24,2474	-16,6341	-8,1735	-2,8050	-2,7882	-7,2436	-14,0411	-20,7726	-25,4128
5	-35,9610	-30,6718	-20,1197	-8,3272	-0,6587	-0,4006	-6,5223	-16,0553	-25,6417	-32,3888
6	-44,2933	-37,0534	-23,1883	-7,8833	1,9510	2,0838	-6,1606	-18,8174	-31,4569	-40,2109
7	-53,0629	-43,4444	-26,0218	-7,2926	4,3000	3,8011	-7,0205	-23,0486	-38,6770	-49,0801
8	-61,5167	-49,1650	-28,1475	-6,3783	6,3670	4,6748	-9,0921	-28,5200	-46,7868	-58,2941
9	-68,6816	-53,3897	-29,0098	-4,8371	8,3435	4,9243	-11,9868	-34,5628	-54,8793	-66,8381
10	-74,0469	-55,8290	-28,5958	-2,8269	10,0443	4,4758	-15,5303	-40,7238	-62,3458	-74,0748
11	-77,2264	-56,3667	-27,0776	-0,5364	11,3396	3,3924	-19,3636	-46,4329	-68,5451	-79,4134
12	-78,2408	-55,2777	-24,8340	1,6220	11,9613	1,6737	-23,2181	-51,2984	-73,0977	-82,6039
13	-77,2750	-52,9337	-22,2230	3,3090	11,8006	-0,4949	-26,7207	-54,9115	-75,6893	-83,5395
14	-74,6404	-49,7540	-19,6699	4,3111	10,9421	-2,7835	-29,4453	-56,8957	-76,1191	-82,2890
15	-70,7277	-46,1564	-17,4779	4,5904	9,6120	-4,7714	-30,9645	-56,9571	-74,3470	-79,1466
16	-65,9593	-42,5077	-15,8113	4,3021	8,1982	-5,9996	-30,9008	-54,9336	-70,5095	-74,4580
17	-60,7907	-39,1242	-14,7024	3,7116	7,1463	-6,0744	-29,0278	-50,8870	-64,9391	-68,6210
18	-55,6131	-36,1732	-14,0000	3,1910	6,8844	-4,6708	-25,2720	-45,0547	-58,0661	-62,1148
19	-51,1378	-34,0719	-13,8451	2,7324	7,3710	-2,0177	-20,1774	-38,2398	-50,8010	-55,8185
20	-47,6442	-32,7963	-14,0168	2,6022	8,7482	1,7569	-14,1847	-31,0549	-43,7793	-50,2561
21	-44,6076	-31,6045	-13,6617	3,6070	11,6108	6,9311	-7,2410	-23,5421	-36,9871	-45,2230
22	-42,2757	-30,5785	-12,8371	5,5487	15,4707	12,7284	-0,2727	-16,6248	-31,2037	-41,2366
23	-40,8247	-29,7831	-11,6716	8,0669	19,6505	18,2640	5,7588	-11,1642	-27,0594	-38,6433
24	-39,7322	-28,6977	-9,7995	11,2242	23,9472	23,2167	10,5620	-7,2785	-24,3890	-37,0415
25	-38,5914	-27,0035	-7,1456	14,7903	27,9520	27,1472	13,8143	-5,0383	-22,9844	-36,0654
26	-37,0604	-24,5345	-3,8428	18,3933	31,2038	29,6512	15,3143	-4,3521	-22,5432	-35,3350
27	-34,6194	-21,0277	0,0942	21,8676	33,5369	30,7053	15,3170	-4,7035	-22,4250	-34,2116
28	-30,5056	-16,0106	4,9347	25,4210	35,2482	30,8341	14,6466	-5,0891	-21,5868	-31,7336
29	-24,4104	-9,4228	10,6212	29,0252	36,4881	30,4795	13,9892	-4,7327	-19,2964	-27,3297
30	-16,5596	-1,6599	16,7269	32,3743	37,2163	29,8879	13,7450	-3,2310	-15,2775	-20,9606
31	-8,1344	6,0102	22,0417	34,4720	36,7501	28,5926	13,5088	-1,0708	-10,2573	-13,6008
32	0,2371	12,9578	26,0836	35,1342	35,1883	26,8185	13,4782	1,7791	-4,4837	-5,7488
33	8,1421	18,8550	28,7641	34,5975	32,9682	25,0406	14,0138	5,4305	1,8912	2,2340
34	14,2464	22,5396	29,2320	32,2851	29,6245	22,7439	14,3991	8,8604	7,6019	8,9842
35	18,2538	23,9678	27,7636	28,6623	25,6443	20,2788	14,7022	11,8396	12,2604	14,0960
36	20,2930	23,5800	25,0491	24,5191	21,7492	18,1454	15,0984	14,3181	15,7427	17,5074
37	19,5744	20,8833	20,7542	19,5303	17,4560	15,5641	14,5185	15,0898	16,8524	18,1626
38	15,0599	15,0568	14,1371	12,8643	11,6927	11,1481	11,3703	12,5131	14,0401	14,7313
39	7,8298	7,3453	6,4654	5,6361	5,2654	5,4264	6,0378	6,9778	7,8507	8,0293
40	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000



1/4 AP

KURUN WAKTU PENDEK

				Tp	ωp
Hs	0,500000000	m		3,5	1,7952

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	0	0	0	0	0	0	0	0	0	0
0,35	0,000000000	4	2,4928	48,0192	6,21408549	2305,84451	0	0	0	0	0	0	0	0	0	0
0,45	0,000000000	2	3,8991	72,5943	15,2028453	5269,93871	1,6E-135	5,4E-133	3,1322E-135	1,0858E-132	1,4095E-135	4,8859E-133	6,3428E-136	2,1987E-133	1,2844E-136	4,4523E-134
0,55	0,000000000	4	5,9677	97,4961	35,6129546	9505,49038	1,02E-59	2,73E-57	4,09615E-59	1,09331E-56	2,25288E-59	6,01319E-57	1,23909E-59	3,30726E-57	3,74823E-60	1,00045E-57
0,65	0,000000000	2	7,6849	123,7498	59,0583094	15314,0254	7,9E-30	2,05E-27	1,57994E-29	4,09684E-27	1,02696E-29	2,66294E-27	6,67524E-30	1,73091E-27	2,82029E-30	7,31311E-28
0,75	0,000000000	4	8,6344	127,8363	74,5523142	16342,1126	2,85E-16	6,24E-14	1,13823E-15	2,49503E-13	8,53669E-16	1,87127E-13	6,40252E-16	1,40345E-13	3,60142E-16	7,89442E-14
0,85	0,000000000	2	7,6516	118,9455	58,5470458	14148,0349	1,25E-09	3,01E-07	2,49468E-09	6,02844E-07	2,12047E-09	5,12418E-07	1,8024E-09	4,35555E-07	1,30224E-09	3,14689E-07
0,95	0,000000092	4	5,2187	90,4032	27,2344914	8172,73863	2,52E-06	0,000755	1,00686E-05	0,003021478	9,56521E-06	0,002870404	9,08695E-06	0,002726884	8,20098E-06	0,002461013
1,05	0,000010769	2	3,3191	65,7881	11,0167558	4328,07524	0,000119	0,046607	0,000237271	0,093214821	0,000249134	0,097875562	0,000261591	0,10276934	0,000288404	0,113303197
1,15	0,000177639	4	3,5844	69,5650	12,8476424	4839,29109	0,002282	0,859644	0,009128944	3,438577741	0,010498286	3,954364403	0,012073028	4,547519063	0,01596658	6,014093961
1,25	0,000961106	1	2,7474	74,0748	7,5481137	5487,07199	0,007255	5,273659	0,00725454	5,27365948	0,009068175	6,59207435	0,011335218	8,240092938	0,017711278	12,87514522
		Σ =							0,016630825	8,808474124	0,019825162	10,64718523	0,023678926	12,89310866	0,033974465	19,0050037
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	0,00055
m_0 BM=	0,29362
m_1 SF =	0,00066
m_1 BM=	0,35491
m_2 SF =	0,00079
m_2 BM=	0,42977
m_4 SF =	0,00113
m_4 BM=	0,63350
SF Ext =	0,18390
BM Ext =	4,23622

				Tp	ωp
Hs	1,000000000	m		4,5	1,39626667

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	0	0	0	0	0	0	0	0	0	0
0,35	0,000000000	4	2,4928	48,0192	6,21408549	2305,84451	3,3E-135	1,2E-132	1,3169E-134	4,8865E-132	4,609E-135	1,7103E-132	1,6132E-135	5,9859E-133	1,9761E-136	7,3327E-134
0,45	0,000000000	2	3,8991	72,5943	15,2028453	5269,93871	3,47E-48	1,2E-45	6,94623E-48	2,40785E-45	3,1258E-48	1,08353E-45	1,40661E-48	4,8759E-46	2,84839E-49	9,8737E-47
0,55	0,000000000	4	5,9677	97,4961	35,6129546	9505,49038	1,75E-20	4,68E-18	7,00796E-20	1,8705E-17	3,85438E-20	1,02878E-17	2,11991E-20	5,65827E-18	6,41272E-21	1,71163E-18
0,65	0,000000000	2	7,6849	123,7498	59,0583094	15314,0254	1,23E-09	3,19E-07	2,46097E-09	6,38138E-07	1,59963E-09	4,1479E-07	1,03976E-09	2,69613E-07	4,39299E-10	1,13912E-07
0,75	0,000001111	4	8,6344	127,8363	74,5523142	16342,1126	8,28E-05	0,018158	0,000331354	0,072633829	0,000248515	0,054475372	0,000186386	0,040856529	0,000104842	0,022981797
0,85	0,000220002	2	7,6516	118,9455	58,5470458	14148,0349	0,01288	3,112598	0,025760947	6,225195006	0,021896805	5,291415755	0,018612284	4,497703392	0,013447375	3,249590701
0,95	0,003314183	4	5,2187	90,4032	27,2344914	8172,73863	0,09026	27,08595	0,361040356	108,3438062	0,342988338	102,9266159	0,325838921	97,78028512	0,294069626	88,24670732
1,05	0,013788102	2	3,3191	65,7881	11,0167558	4328,07524	0,1519	59,67594	0,303800309	119,3518872	0,318990324	125,3194815	0,334939841	131,5854556	0,369271174	145,0729648
1,15	0,029898278	4	3,5844	69,5650	12,8476424	4839,29109	0,384122	144,6865	1,536489562	578,7458895	1,766962996	665,5577729	2,032007445	765,3914388	2,687329846	1012,230178
1,25	0,000961106	1	2,7474	74,0748	7,5481137	5487,07199	0,007255	5,273659	0,00725454	5,27365948	0,009068175	6,59207435	0,011335218	8,240092938	0,017711278	12,87514522
		Σ =							2,234677069	818,0130718	2,460155154	905,7418362	2,722920097	1007,535833	3,381934143	1261,697568
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	0,07449
m_0 BM=	27,26710
m_1 SF =	0,08201
m_1 BM=	30,19139
m_2 SF =	0,09076
m_2 BM=	33,58453
m_4 SF =	0,11273
m_4 BM=	42,05659
SF Ext =	2,12087
BM Ext =	40,59213

				Tp	ωp
Hs	1,500000000	m		5,5	1,1424

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	9,3E-234	3,4E-231	9,3E-234	3,3971E-231	2,325E-234	8,4928E-232	5,8125E-235	2,1232E-232	3,6328E-236	1,327E-233
0,35	0,000000000	4	2,4928	48,0192	6,21408549	2305,84451	2,53E-59	9,38E-57	1,01084E-58	3,7509E-56	3,53794E-59	1,31281E-56	1,23828E-59	4,59485E-57	1,51689E-60	5,62869E-58
0,45	0,000000000	2	3,8991	72,5943	15,2028453	5269,93871	2,06E-20	7,13E-18	4,1135E-20	1,42591E-17	1,85107E-20	6,41659E-18	8,32983E-21	2,88747E-18	1,68679E-21	5,84712E-19
0,55	0,000000001	4	5,9677	97,4961	35,6129546	9505,49038	4,91E-08	1,31E-05	1,96384E-07	5,24171E-05	1,08011E-07	2,88294E-05	5,94062E-08	1,58562E-05	1,79704E-08	4,79649E-06
0,65	0,000050282	2	7,6849	123,7498	59,0583094	15314,0254	0,00297	0,770019	0,005939137	1,540038912	0,003860439	1,001025293	0,002509285	0,65066644	0,001060173	0,274906571
0,75	0,004448379	4	8,6344	127,8363	74,5523142	16342,1126	0,331637	72,69592	1,326547891	290,7836638	0,994910918	218,0877479	0,746183189	163,5658109	0,419728044	92,00576864
0,85	0,033720414	2	7,6516	118,9455	58,5470458	14148,0349	1,974231	477,0776	3,94846128	954,1551964	3,356192088	811,0319169	2,852763275	689,3771294	2,061121466	498,074976
0,95	0,087900019	4	5,2187	90,4032	27,2344914	8172,73863	2,393912	718,3839	9,575649265	2873,535527	9,096866802	2729,85875	8,642023462	2593,365813	7,799426174	2340,512646
1,05	0,191989059	2	3,3191	65,7881	11,0167558	4328,07524	2,115097	830,9431	4,230193152	1661,886183	4,441702809	1744,980492	4,66378795	1832,229516	5,141826214	2020,033042
1,15	0,323434140	4	3,5844	69,5650	12,8476424	4839,29109	4,155366	1565,192	16,62146473	6260,767812	19,11468444	7199,882983	21,98188711	8279,865431	29,0710457	10950,12203
1,25	0,175168034	1	2,7474	74,0748	7,5481137	5487,07199	1,322188	961,1596	1,32218824	961,1596154	1,6527353	1201,449519	2,065919125	1501,811899	3,227998633	2346,581092
		Σ =							37,03044389	13003,82809	38,66095291	13906,29246	40,95507345	15060,86628	47,72220642	18247,60447
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	1,23435
m_0 BM=	433,46094
m_1 SF =	1,28870
m_1 BM=	463,54308
m_2 SF =	1,36517
m_2 BM=	502,02888
m_4 SF =	1,59074
m_4 BM=	608,25348
SF Ext =	8,605742895
BM Ext =	161,5143733

1/4 AP

KURUN WAKTU PENDEK

Hs	2,000000000	m			Tp	ωp										
					7,5	0,83776										
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	8,48E-66	3,1E-63	8,47563E-66	3,09598E-63	2,11891E-66	7,73994E-64	5,29727E-67	1,93499E-64	3,31079E-68	1,20937E-65
0,35	0,000000000	4	2,4928	48,0192	6,21408549	2305,84451	8,13E-16	3,02E-13	3,2528E-15	1,20701E-12	1,13848E-15	4,22453E-13	3,98468E-16	1,47859E-13	4,88124E-17	1,81127E-14
0,45	0,000007408	2	3,8991	72,5943	15,2028453	5269,93871	0,000113	0,039038	0,000225234	0,078075549	0,000101355	0,035133997	4,56099E-05	0,015810299	9,23601E-06	0,003201585
0,55	0,010783950	4	5,9677	97,4961	35,6129546	9505,49038	0,384048	102,5067	1,536193271	410,0269271	0,844906299	225,5148099	0,464698465	124,0331455	0,140571286	37,5200265
0,65	0,124923027	2	7,6849	123,7498	59,0583094	15314,0254	7,377743	1913,074	14,75548557	3826,148811	9,59106562	2486,996727	6,234192653	1616,547873	2,633946396	682,9914762
0,75	0,368379840	4	8,6344	127,8363	74,5523142	16342,1126	27,46357	6020,105	109,8542784	24080,41939	82,39070879	18060,31454	61,79303159	13545,2359	34,75858027	7619,195196
0,85	0,770679448	2	7,6516	118,9455	58,5470458	14148,0349	45,121	10903,6	90,24200991	21807,19946	76,70570843	18536,11954	65,19985216	15755,70161	47,10689319	11383,49441
0,95	0,318918601	4	5,2187	90,4032	27,2344914	8172,73863	8,685586	2606,438	34,74234362	10425,75348	33,00522644	9904,465808	31,35496511	9409,242518	28,29785602	8491,841372
1,05	0,214534474	2	3,3191	65,7881	11,0167558	4328,07524	2,363474	928,5213	4,72694782	1857,04269	4,963295211	1949,894824	5,211459971	2047,389565	5,745634618	2257,246996
1,15	0,158668494	4	3,5844	69,5650	12,8476424	4839,29109	2,038516	767,843	8,154064288	3071,372111	9,377173931	3532,077928	10,78375002	4061,889617	14,2615094	5371,849019
1,25	0,115555461	1	2,7474	74,0748	7,5481137	5487,07199	0,872226	634,0611	0,872225758	634,0611336	1,090282198	792,576417	1,362852747	990,7205212	2,129457417	1548,000814
		Σ =							264,8837739	66112,10207	217,9684683	55487,99573	182,4048483	47550,77656	135,0744578	37392,14251
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	8,82946
m_0 BM=	2203,73674
m_1 SF =	7,26562
m_1 BM=	1849,59986
m_2 SF =	6,08016
m_2 BM=	1585,02589
m_4 SF =	4,50248
m_4 BM=	1246,40475
SF Ext =	22,64993
BM Ext =	358,36786

Hs	2,500000000	m			Tp	ωp										
					8,5	0,7392										
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	7,36E-39	2,69E-36	7,36313E-39	2,6896E-36	1,84078E-39	6,72401E-37	4,60196E-40	1,681E-37	2,87622E-41	1,05063E-38
0,35	0,000000001	4	2,4928	48,0192	6,21408549	2305,84451	8,04E-09	2,98E-06	3,21519E-08	1,19305E-05	1,12532E-08	4,17569E-06	3,93861E-09	1,46149E-06	4,8248E-10	1,79033E-07
0,45	0,002597247	2	3,8991	72,5943	15,2028453	5269,93871	0,039486	13,68733	0,078971092	27,37466615	0,035536991	12,31859977	0,015991646	5,543369896	0,003238308	1,122532404
0,55	0,144759354	4	5,9677	97,4961	35,6129546	9505,49038	5,155308	1376,009	20,62123327	5504,034596	11,3416783	3027,219028	6,237923063	1664,970465	1,886971727	503,6535657
0,65	0,563304631	2	7,6849	123,7498	59,0583094	15314,0254	33,26782	8626,461	66,53563839	17252,92282	43,24816495	11214,39983	28,11130722	7289,359892	11,8770273	3079,754554
0,75	1,364744856	4	8,6344	127,8363	74,5523142	16342,1126	101,7449	22302,81	406,9795489	89211,25662	305,2346617	66908,44246	228,9259963	50181,33185	128,7708729	28226,99916
0,85	0,519822186	2	7,6516	118,9455	58,5470458	14148,0349	30,43405	7354,462	60,86810664	14708,92485	51,73789065	12502,58612	43,97720705	10627,1982	31,77353209	7678,150703
0,95	0,351352713	4	5,2187	90,4032	27,2344914	8172,73863	9,568912	2871,514	38,27564982	11486,05557	36,36186733	10911,75279	34,54377396	10366,16515	31,175756	9355,46405
1,05	0,247722707	2	3,3191	65,7881	11,0167558	4328,07524	2,729101	1072,163	5,458201138	2144,325029	5,731111195	2251,541281	6,017666755	2364,118345	6,634477597	2606,440475
1,15	0,172622797	4	3,5844	69,5650	12,8476424	4839,29109	2,217796	835,372	8,871183857	3341,487843	10,20186144	3842,71102	11,73214065	4419,117673	15,51575601	5844,283122
1,25	0,120870370	1	2,7474	74,0748	7,5481137	5487,07199	0,912343	663,2244	0,912343299	663,2244246	1,140429124	829,0305308	1,425536405	1036,288163	2,227400633	1619,200255
		Σ =							608,6008765	144339,6064	465,0332017	111500,0017	360,987543	87954,09311	229,8650326	58915,06842
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	20,28670
m_0 BM=	4811,32021
m_1 SF =	15,50111
m_1 BM=	3716,66672
m_2 SF =	12,03292
m_2 BM=	2931,80310
m_4 SF =	7,66217
m_4 BM=	1963,83561
SF Ext =	34,15565
BM Ext =	526,49712

Hs	3,000000000	m			Tp	ωp										
					9,5	0,66138947										
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	2,2835	43,6428	5,21433451	1904,69184	5,41E-24	1,98E-21	5,40932E-24	1,97592E-21	1,35233E-24	4,93979E-22	3,38083E-25	1,23495E-22	2,11302E-26	7,71843E-24
0,35	0,000009031	4	2,4928	48,0192	6,21408549	2305,84451	5,61E-05	0,020825	0,000224485	0,083299028	7,85697E-05	0,02915466	2,74994E-05	0,010204131	3,36868E-06	0,001250006
0,45	0,062969477	2	3,8991	72,5943	15,2028453	5269,93871	0,957315	331,8453	1,914630449	663,6905719	0,861583702	298,6607574	0,387712666	134,3973408	0,078511815	27,21546152
0,55	0,607309223	4	5,9677	97,4961	35,6129546	9505,49038	21,62808	5772,772	86,51230325	23091,0879	47,58176679	12700,09835	26,16997173	6985,054091	7,916416449	2112,978863
0,65	2,177642469	2	7,6849	123,7498	59,0583094	15314,0254	128,6079	33348,47	257,2157653	66696,944	167,1902474	43353,0136	108,6736608	28179,45884	45,91462171	11905,82136
0,75	0,908918013	4	8,6344	127,8363	74,5523142	16342,1126	67,76194	14853,64	271,047765	59414,56219	203,2858238	44560,92165	152,4643678	33420,69123	85,76120691	18799,13882
0,85	0,565471190	2	7,6516	118,9455	58,5470458	14148,0349	33,10667	8000,306	66,21333539	16000,61228	56,28133508	13600,52043	47,83913482	11560,44237	34,56377491	8352,419612
0,95	0,382164805	4	5,2187	90,4032	27,2344914	8172,73863	10,40806	3123,333	41,63225645	12493,33227	39,55064362	11868,66566	37,57311144	11275,23237	33,90973308	10175,89722
1,05	0,255268044	2	3,3191	65,7881	11,0167558	4328,07524	2,812226	1104,819	5,624451408	2209,638601	5,905673978	2320,120532	6,200957677	2436,126558	6,836555839	2685,82953
1,15	0,171997383	4	3,5844	69,5650	12,8476424	4839,29109	2,209761	832,3454	8,839043511	3329,381615	10,16490004	3828,788858	11,68963504	4403,107186	15,45954234	5823,109254
1,25	0,117843362	1	2,7474	74,0748	7,5481137	5487,07199	0,889495	646,615	0,889495099	646,6150137	1,111868873	808,2687671	1,389836092	1010,335959	2,171618893	1578,649936
		Σ =							739,8892704	184545,9477	531,9339219	133339,0877	392,3884156	99404,85615	232,6119853	61461,0613
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	24,66298
m_0 BM=	6151,53159
m_1 SF =	17,73113
m_1 BM=	4444,63626
m_2 SF =	13,07961
m_2 BM=	3313,49521
m_4 SF =	7,75373
m_4 BM=	2048,70204
SF Ext =	37,51306
BM Ext =	592,77238

Midship

KURUN WAKTU PENDEK

Hs	0,5	m		Tp	ωp													m_0 SF =	0,00229
				3,5	1,7952													m_0 BM=	0,10021
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	0,00275
(rad/s)	(m^2/rad/s)																	m_1 BM=	0,12297
0,25	0,00	1	4,7853	35,2344	22,8986979	1241,46461	0	0	0	0	0	0	0	0	0	0		m_2 SF =	0,00331
0,35	0,00	4	5,7662	30,5669	33,2489682	934,333747	0	0	0	0	0	0	0	0	0	0		m_2 BM=	0,15116
0,45	0,00	2	8,0862	45,7012	65,3867934	2088,59701	6,7E-135	2,2E-133	1,3472E-134	4,3031E-133	6,0622E-135	1,9364E-133	2,728E-135	8,7138E-134	5,5242E-136	1,7646E-134		m_4 SF =	0,00484
0,55	0,00	4	11,6246	56,7347	135,132062	3218,83021	3,89E-59	9,26E-58	1,55427E-58	3,70225E-57	8,54848E-59	2,03624E-57	4,70167E-59	1,11993E-57	1,42225E-59	3,38779E-58		m_4 BM=	0,22938
0,65	0,00	2	14,8250	84,9287	219,781095	7212,8884	2,94E-29	9,65E-28	5,87962E-29	1,92961E-27	3,82176E-29	1,25424E-27	2,48414E-29	8,15258E-28	1,04955E-29	3,44447E-28			
0,75	0,00	4	15,8478	109,9094	251,154232	12080,0692	9,59E-16	4,61E-14	3,83449E-15	1,84432E-13	2,87587E-15	1,38324E-13	2,1569E-15	1,03743E-13	1,21326E-15	5,83555E-14		SF Ext =	0,37382
0,85	0,00	2	13,9384	123,4643	194,278995	15243,4436	4,14E-09	3,25E-07	8,27818E-09	6,4952E-07	7,03646E-09	5,52092E-07	5,98099E-09	4,69278E-07	4,32126E-09	3,39053E-07		BM Ext =	2,47731
0,95	0,00	4	9,4668	109,0780	89,6196154	11898,0094	8,28E-06	0,0011	3,31326E-05	0,004398718	3,14759E-05	0,004178782	2,99021E-05	0,003969843	2,69867E-05	0,003582784			
1,05	0,00	2	7,3524	68,2424	54,0578937	4657,02524	0,000582	0,05015	0,001164258	0,100299498	0,001222471	0,105314473	0,001283595	0,110580197	0,001415163	0,121914667			
1,15	0,00	4	6,5225	25,8358	42,5427975	667,488433	0,007557	0,118572	0,030228956	0,47428659	0,034763299	0,545429579	0,039977794	0,627244015	0,052870633	0,82953021			
1,25	0,00	1	6,2222	50,2561	38,7158697	2525,67118	0,03721	2,427438	0,037210066	2,427438495	0,046512583	3,034298118	0,058140729	3,792872648	0,090844889	5,926363512			
		Σ =							0,068636421	3,00642395	0,082529836	3,689221504	0,099432026	4,534667172	0,145157675	6,881391512			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Hs	1	m		Tp	ωp													m_0 SF =	0,26301
				4,5	1,39626667													m_0 BM=	12,50557
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	0,28883
(rad/s)	(m^2/rad/s)																	m_1 BM=	12,84211
0,25	0,00	1	4,7853	35,2344	22,8986979	1241,46461	0	0	0	0	0	0	0	0	0	0		m_2 SF =	0,31883
0,35	0,00	4	5,7662	30,5669	33,2489682	934,333747	1,8E-134	5E-133	7,046E-134	1,98E-132	2,4661E-134	6,93E-133	8,6313E-135	2,4255E-133	1,0573E-135	2,9712E-134		m_2 BM=	13,27256
0,45	0,00	2	8,0862	45,7012	65,3867934	2088,59701	1,49E-47	4,77E-46	2,98754E-47	9,54287E-46	1,34439E-47	4,29429E-46	6,04977E-48	1,93243E-46	1,22508E-48	3,91317E-47		m_4 SF =	0,39380
0,55	0,00	4	11,6246	56,7347	135,132062	3218,83021	6,65E-20	1,58E-18	2,65915E-19	6,33405E-18	1,46253E-19	3,48373E-18	8,04391E-20	1,91605E-18	2,43328E-20	5,79605E-19		m_4 BM=	14,45442
0,65	0,00	2	14,8250	84,9287	219,781095	7212,8884	4,58E-09	1,5E-07	9,15832E-09	3,00562E-07	5,95291E-09	1,95366E-07	3,86939E-09	1,26988E-07	1,63482E-09	5,36523E-08			
0,75	0,00	4	15,8478	109,9094	251,154232	12080,0692	0,000279	0,013423	0,001116275	0,053690835	0,000837206	0,040268126	0,000627905	0,030201095	0,000353196	0,016988116		SF Ext =	3,98458
0,85	0,00	2	13,9384	123,4643	194,278995	15243,4436	0,042742	3,35359	0,085483577	6,707179442	0,07266104	5,701102526	0,061761884	4,845937147	0,044622961	3,501189589		BM Ext =	27,35419
0,95	0,00	4	9,4668	109,0780	89,6196154	11898,0094	0,297016	39,43218	1,188063228	157,7287231	1,128660067	149,8422869	1,072227064	142,3501726	0,967684925	128,4710307			
1,05	0,01	2	7,3524	68,2424	54,0578937	4657,02524	0,745356	64,21154	1,49071152	128,4230795	1,565247096	134,8442335	1,643509451	141,5864452	1,81196917	156,0990558			
1,15	0,03	4	6,5225	25,8358	42,5427975	667,488433	1,271956	19,95676	5,087825622	79,82702009	5,850999465	91,8010731	6,728649385	105,5712341	8,898638811	139,617957			
1,25	0,00	1	6,2222	50,2561	38,7158697	2525,67118	0,03721	2,427438	0,037210066	2,427438495	0,046512583	3,034298118	0,058140729	3,792872648	0,090844889	5,926363512			
		Σ =							7,890410298	375,1671317	8,664917464	385,2632625	9,564916421	398,1768628	11,81411395	433,6325848			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Hs	1,5	m		Tp	ωp													m_0 SF =	4,38939
				5,5000	1,1424													m_0 BM=	284,04035
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	4,60017
(rad/s)	(m^2/rad/s)																	m_1 BM=	281,11318
0,25	0,00	1	4,7853	35,2344	22,8986979	1241,46461	4,1E-233	2,2E-231	4,0841E-233	2,2142E-231	1,021E-233	5,5355E-232	2,5526E-234	1,3839E-232	1,5954E-235	8,6493E-234		m_2 SF =	4,88993
0,35	0,00	4	5,7662	30,5669	33,2489682	934,333747	1,35E-58	3,8E-57	5,40858E-58	1,51987E-56	1,893E-58	5,31955E-57	6,62551E-59	1,86184E-57	8,11625E-60	2,28076E-58		m_2 BM=	281,47480
0,45	0,00	2	8,0862	45,7012	65,3867934	2088,59701	8,85E-20	2,83E-18	1,7692E-19	5,6512E-18	7,96139E-20	2,54304E-18	3,58263E-20	1,14437E-18	7,25482E-21	2,31735E-19		m_4 SF =	5,73247
0,55	0,00	4	11,6246	56,7347	135,132062	3218,83021	1,86E-07	4,44E-06	7,45173E-07	1,77499E-05	4,09845E-07	9,76246E-06	2,25415E-07	5,36935E-06	6,8188E-08	1,62423E-06		m_4 BM=	292,53933
0,65	0,00	2	14,8250	84,9287	219,781095	7212,8884	0,011051	0,362678	0,022102056	0,725356563	0,014366336	0,471481766	0,009338118	0,306463148	0,003945355	0,12948068			
0,75	0,00	4	15,8478	109,9094	251,154232	12080,0692	1,117229	53,73673	4,468917164	214,9469197	3,351687873	161,2101898	2,513765905	120,9076423	1,413993322	68,01054881		SF Ext =	16,2321663
0,85	0,03	2	13,9384	123,4643	194,278995	15243,4436	6,551168	514,0152	13,10233639	1028,030465	11,13698593	873,8258954	9,466438042	742,7520111	6,839501486	536,638328		BM Ext =	130,0660711
0,95	0,09	4	9,4668	109,0780	89,6196154	11898,0094	7,877566	1045,835	31,51026361	4183,341024	29,93475043	3974,173973	28,43801291	3775,465274	25,66530665	3407,35741			
1,05	0,19	2	7,3524	68,2424	54,0578937	4657,02524	10,37852	894,0979	20,75704823	1788,195784	21,79490064	1877,605573	22,88464567	1971,485851	25,23032186	2173,563151			
1,15	0,32	4	6,5225	25,8358	42,5427975	667,488433	13,75979	215,8885	55,03917257	863,5541901	63,29504845	993,0873186	72,78930572	1142,050416	96,26385682	1510,361676			
1,25	0,18	1	6,2222	50,2561	38,7158697	2525,67118	6,781783	442,4169	6,781782793	442,4168566	8,477228492	553,0210707	10,59653561	691,2763384	16,5570869	1080,119279			
		Σ =							131,6816236	8521,210614	138,0049686	8433,395512	146,6980422	8444,244002	171,9740125	8776,179875			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Midship

KURUN WAKTU PENDEK

Hs	2	m		Tp	ωp													m_0 SF =	29,97568
				7,5000	0,83776													m_0 BM=	2037,61621
ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM	m_1 SF =	24,68672
(rad/s)																	m_1 BM=	1731,27906
0,25	0,00000	1	4,7853	35,2344	22,8986979	1241,46461	3,72E-65	2,02E-63	3,72206E-65	2,01794E-63	9,30516E-66	5,04484E-64	2,32629E-66	1,26121E-64	1,45393E-67	7,88256E-66	m_2 SF =	20,69796
0,35	0,00000	4	5,7662	30,5669	33,2489682	934,333747	4,35E-15	1,22E-13	1,74044E-14	4,89083E-13	6,09153E-15	1,71179E-13	2,13204E-15	5,99126E-14	2,61174E-16	7,3393E-15	m_2 BM=	1490,30067
0,45	0,00001	2	8,0862	45,7012	65,3867934	2088,59701	0,000484	0,015472	0,000968723	0,030943122	0,000435925	0,013924405	0,000196166	0,006265982	3,97237E-05	0,001268861	m_4 SF =	15,44023
0,55	0,01078	4	11,6246	56,7347	135,132062	3218,83021	1,457257	34,7117	5,829029535	138,8468144	3,205966244	76,3657479	1,763281434	42,00116134	0,533392634	12,70535131	m_4 BM=	1149,20686
0,65	0,12492	2	14,8250	84,9287	219,781095	7212,8884	27,45572	901,0559	54,91143949	1802,111706	35,69243567	1171,372609	23,20008319	761,3921958	9,802035146	321,6882027		
0,75	0,36838	4	15,8478	109,9094	251,154232	12080,0692	92,52016	4450,054	370,0806232	17800,21581	277,5604674	13350,16186	208,1703505	10012,6214	117,0958222	5632,099535	SF Ext =	41,73734
0,85	0,77068	2	13,9384	123,4643	194,278995	15243,4436	149,7268	11747,81	299,4536571	23495,61737	254,5356086	19971,27476	216,3552673	16975,58355	156,3166806	12264,85911	BM Ext =	344,79417
0,95	0,31892	4	9,4668	109,0780	89,6196154	11898,0094	28,58136	3794,497	114,3254494	15177,98609	108,609177	14419,08678	103,1787181	13698,13245	93,1187931	12362,56453		
1,05	0,21453	2	7,3524	68,2424	54,0578937	4657,02524	11,59728	999,0925	23,19456355	1998,184919	24,35429173	2098,094165	25,57200631	2202,998873	28,19313696	2428,806258		
1,15	0,15867	4	6,5225	25,8358	42,5427975	667,488433	6,750202	105,9094	27,00080641	423,6375371	31,05092737	487,1831677	35,70856648	560,2606428	47,22457917	740,9447001		
1,25	0,11556	1	6,2222	50,2561	38,7158697	2525,67118	4,47383	291,8551	4,47383017	291,8550978	5,592287713	364,8188723	6,990359641	456,0235904	10,92243694	712,5368599		
		Σ =							899,2703676	61128,48629	740,6015976	51938,37189	620,9388291	44709,02012	463,2069165	34476,20582		
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM		

Hs	2,5	m		Tp	ωp													m_0 SF =	69,53369
				8,5000	0,7392													m_0 BM=	3719,61519
ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM	m_1 SF =	53,05031
(rad/s)																	m_1 BM=	2948,69980
0,25	0,00000	1	4,7853	35,2344	22,8986979	1241,46461	3,23E-38	1,75E-36	3,23351E-38	1,75306E-36	8,08378E-39	4,38266E-37	2,02094E-39	1,09567E-37	1,26309E-40	6,84791E-39	m_2 SF =	41,16193
0,35	0,00000	4	5,7662	30,5669	33,2489682	934,333747	4,3E-08	1,21E-06	1,72032E-07	4,83428E-06	6,02111E-08	1,692E-06	2,10739E-08	5,922E-07	2,58155E-09	7,25445E-08	m_2 BM=	2375,49454
0,45	0,00260	2	8,0862	45,7012	65,3867934	2088,59701	0,169826	5,424603	0,33965132	10,84920508	0,152843094	4,882142287	0,068779392	2,196964029	0,013927827	0,444885216	m_4 SF =	26,28542
0,55	0,14476	4	11,6246	56,7347	135,132062	3218,83021	19,56163	465,9558	78,24652016	1863,823128	43,03558609	1025,10272	23,66957235	563,8064961	7,160045636	170,5514651	m_4 BM=	1624,51159
0,65	0,56330	2	14,8250	84,9287	219,781095	7212,8884	123,8037	4063,053	247,6074179	8126,106881	160,9448216	5281,969472	104,6141341	3433,280157	44,19947164	1450,560866		
0,75	1,36474	4	15,8478	109,9094	251,154232	12080,0692	342,7614	16486,21	1371,045783	65944,84902	1028,284337	49458,63677	771,2132527	37093,97758	433,8074547	20865,36239	SF Ext =	63,23022
0,85	0,51982	2	13,9384	123,4643	194,278995	15243,4436	100,9905	7923,88	201,9810635	15847,76032	171,683904	13470,59627	145,9313184	11450,00683	105,4353775	8272,629934	BM Ext =	463,68108
0,95	0,35135	4	9,4668	109,0780	89,6196154	11898,0094	31,4881	4180,398	125,9523801	16721,59158	119,6547611	15885,512	113,672023	15091,2364	102,5890008	13619,84085		
1,05	0,24772	2	7,3524	68,2424	54,0578937	4657,02524	13,39137	1153,651	26,78273549	2307,301797	28,12187227	2422,666887	29,52796588	2543,800231	32,55458239	2804,539755		
1,15	0,17262	4	6,5225	25,8358	42,5427975	667,488433	7,343857	115,2237	29,37542672	460,8948798	33,78174073	530,0291118	38,84900183	609,5334786	51,37780493	806,1080254		
1,25	0,12087	1	6,2222	50,2561	38,7158697	2525,67118	4,679602	305,2788	4,679601513	305,2788116	5,849501892	381,5985145	7,311877365	476,9981431	11,42480838	745,3095986		
		Σ =							2086,010579	111588,4556	1591,509368	88460,99389	1234,857925	71264,83628	788,5624738	48735,34777		
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM		

Hs	3	m		Tp	ωp													m_0 SF =	87,49912
				9,5000	0,66138947													m_0 BM=	4065,92070
ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM	m_1 SF =	62,55082
(rad/s)																	m_1 BM=	3103,54465
0,25	0,00000	1	4,7853	35,2344	22,8986979	1241,46461	2,38E-23	1,29E-21	2,3755E-23	1,28789E-21	5,93875E-24	3,21972E-22	1,48469E-24	8,04931E-23	9,2793E-26	5,03082E-24	m_2 SF =	45,92226
0,35	0,00001	4	5,7662	30,5669	33,2489682	934,333747	0,0003	0,008438	0,001201125	0,033752967	0,000420394	0,011813538	0,000147138	0,004134738	1,80244E-05	0,000506505	m_2 BM=	2431,98237
0,45	0,06297	2	8,0862	45,7012	65,3867934	2088,59701	4,117372	131,5179	8,234744401	263,0357238	3,705634981	118,3660757	1,667535741	53,26473408	0,337675988	10,78610865	m_4 SF =	27,07719
0,55	0,60731	4	11,6246	56,7347	135,132062	3218,83021	82,06695	1954,825	328,2677905	7819,301084	180,5472848	4300,615596	99,30100661	2365,338578	30,0385545	715,5149198	m_4 BM=	1615,44565
0,65	2,17764	2	14,8250	84,9287	219,781095	7212,8884	478,6046	15707,09	957,2092946	31414,1842	622,1860415	20419,21973	404,420927	13272,49282	170,8678416	5607,628218		
0,75	0,90892	4	15,8478	109,9094	251,154232	12080,0692	228,2786	10979,79	913,1144209	43919,16987	684,8358157	32939,3774	513,6268617	24704,53305	288,9151097	13896,29984	SF Ext =	70,63220
0,85	0,56547	2	13,9384	123,4643	194,278995	15243,4436	109,8592	8619,728	219,7183491	17239,45637	186,7605967	14653,53792	158,7465072	12455,50723	114,6943515	8999,103974	BM Ext =	483,68546
0,95	0,38216	4	9,4668	109,0780	89,6196154	11898,0094	34,24946	4547	136,9978514	18188,00183	130,1479589	17278,60174	123,6405609	16414,67165	111,5856062	14814,24116		
1,05	0,25527	2	7,3524	68,2424	54,0578937	4657,02524	13,79925	1188,79	27,59850554	2377,579446	28,97843082	2496,458419	30,42735236	2621,28134	33,54615598	2889,962677		
1,15	0,17200	4	6,5225	25,8358	42,5427975	667,488433	7,31725	114,8063	29,26899939	459,2250553	33,6593493	528,1088136	38,7082517	607,3251356	51,19166287	803,1874918		
1,25	0,11784	1	6,2222	50,2561	38,7158697	2525,67118	4,562408	297,6336	4,562408266	297,6335847	5,703010332	372,0419808	7,128762915	465,052476	11,13869205	726,6444938		
		Σ =							2624,973565	121977,6209	1876,524543	93106,33948	1377,667913	72959,47115	812,3156685	48463,36939		
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM		

1/4 FP

KURUN WAKTU PENDEK

Hs	0,5	m		Tp	ωp
				3,5	1,7952

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	0	0	0	0	0	0	0	0	0	0
0,35	0,000000000	4	5,6889	15,5720	32,3639507	242,486644	0	0	0	0	0	0	0	0	0	0
0,45	0,000000000	2	7,5337	22,5825	56,7573622	509,968434	5,8E-135	5,3E-134	1,1694E-134	1,0507E-133	5,2622E-135	4,7281E-134	2,368E-135	2,1276E-134	4,7951E-136	4,3085E-135
0,55	0,000000000	4	10,5799	37,7352	111,933965	1423,94524	3,22E-59	4,09E-58	1,28745E-58	1,6378E-57	7,08097E-59	9,00791E-58	3,89453E-59	4,95435E-58	1,1781E-59	1,49869E-58
0,65	0,000000000	2	12,9678	67,1213	168,164124	4505,26757	2,25E-29	6,03E-28	4,49876E-29	1,20526E-27	2,92419E-29	7,83417E-28	1,90073E-29	5,09221E-28	8,03056E-30	2,15146E-28
0,75	0,000000000	4	12,7199	89,0775	161,794841	7934,80386	6,18E-16	3,03E-14	2,4702E-15	1,21144E-13	1,85265E-15	9,08583E-14	1,38949E-15	6,81437E-14	7,81586E-16	3,83308E-14
0,85	0,000000000	2	10,4586	88,2486	109,38323	7787,81075	2,33E-09	1,66E-07	4,66079E-09	3,31837E-07	3,96167E-09	2,82061E-07	3,36742E-09	2,39752E-07	2,43296E-09	1,73221E-07
0,95	0,000000092	4	7,2064	65,5980	51,9323143	4303,09824	4,8E-06	0,000398	1,91995E-05	0,001590864	1,82395E-05	0,001511321	1,73275E-05	0,001435755	1,56381E-05	0,001295769
1,05	0,000010769	2	6,2314	33,1106	38,8297633	1096,31235	0,000418	0,011806	0,000836286	0,023611549	0,0008781	0,024792126	0,000922005	0,026031733	0,001016511	0,028699985
1,15	0,000177639	4	6,3777	27,0979	40,6745002	734,297872	0,007225	0,13044	0,02890143	0,521758306	0,033236644	0,600022051	0,038222141	0,690025359	0,050548781	0,912558537
1,25	0,000961106	1	6,8067	37,2163	46,3306265	1385,05023	0,044529	1,331181	0,044528657	1,331180502	0,055660821	1,663975628	0,069576027	2,079969535	0,108712542	3,249952398
		Σ =							0,074285577	1,878141553	0,08979381	2,290301409	0,108737504	2,797462621	0,160293475	4,192506863
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	0,00248
m_0 BM=	0,06260
m_1 SF =	0,00299
m_1 BM=	0,07634
m_2 SF =	0,00362
m_2 BM=	0,09325
m_4 SF =	0,00534
m_4 BM=	0,13975
SF Ext =	0,38903
BM Ext =	1,95722

Hs	1	m		Tp	ωp
				4,5	1,39626667

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	0	0	0	0	0	0	0	0	0	0
0,35	0,000000000	4	5,6889	15,5720	32,3639507	242,486644	1,7E-134	1,3E-133	6,8584E-134	5,1387E-133	2,4005E-134	1,7985E-133	8,4016E-135	6,2949E-134	1,0292E-135	7,7112E-135
0,45	0,000000000	2	7,5337	22,5825	56,7573622	509,968434	1,3E-47	1,17E-46	2,59326E-47	2,33006E-46	1,16697E-47	1,04853E-46	5,25135E-48	4,71838E-47	1,0634E-48	9,55471E-48
0,55	0,000000000	4	10,5799	37,7352	111,933965	1423,94524	5,51E-20	7,01E-19	2,20265E-19	2,80206E-18	1,21146E-19	1,54113E-18	6,66302E-20	8,47622E-19	2,01556E-20	2,56406E-19
0,65	0,000000000	2	12,9678	67,1213	168,164124	4505,26757	3,5E-09	9,39E-08	7,00743E-09	1,87735E-07	4,55483E-09	1,22028E-07	2,96064E-09	7,93182E-08	1,25087E-09	3,35119E-08
0,75	0,000001111	4	12,7199	89,0775	161,794841	7934,80386	0,00018	0,008817	0,00071911	0,035266871	0,000539333	0,026450154	0,000404499	0,019837615	0,000227531	0,011158659
0,85	0,000220002	2	10,4586	88,2486	109,38323	7787,81075	0,024065	1,713335	0,048129082	3,426669565	0,04090972	2,91266913	0,034773262	2,475768761	0,025123682	1,78874293
0,95	0,003314183	4	7,2064	65,5980	51,9323143	4303,09824	0,172113	14,26126	0,688452776	57,04502036	0,654030137	54,19276934	0,621328631	51,48313088	0,560749089	46,46352562
1,05	0,013788102	2	6,2314	33,1106	38,8297633	1096,31235	0,535389	15,11607	1,070777486	30,23213349	1,12431636	31,74374017	1,180532179	33,33092717	1,301536727	36,74734721
1,15	0,029898278	4	6,3777	27,0979	40,6745002	734,297872	1,216098	21,95424	4,864390132	87,81696893	5,594048652	100,9895143	6,43315595	116,1379414	8,507848743	153,5924275
1,25	0,000961106	1	6,8067	37,2163	46,3306265	1385,05023	0,044529	1,331181	0,044528657	1,331180502	0,055660821	1,663975628	0,069576027	2,079969535	0,108712542	3,249952398
		Σ =							6,716997251	179,8872399	7,469505028	191,5291188	8,33977055	205,5275754	10,50419832	241,8531544
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	0,22390
m_0 BM=	5,99624
m_1 SF =	0,24898
m_1 BM=	6,38430
m_2 SF =	0,27799
m_2 BM=	6,85092
m_4 SF =	0,35014
m_4 BM=	8,06177
SF Ext =	3,67929
BM Ext =	18,98800

Hs	1,5	m		Tp	ωp
				5,5	1,1424

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	3,6E-233	8,1E-232	3,5815E-233	8,1231E-232	8,9538E-234	2,0308E-232	2,2385E-234	5,0769E-233	1,399E-235	3,1731E-234
0,35	0,000000000	4	5,6889	15,5720	32,3639507	242,486644	1,32E-58	9,86E-58	5,26462E-58	3,94451E-57	1,84262E-58	1,38058E-57	6,44915E-59	4,83202E-58	7,90021E-60	5,91923E-59
0,45	0,000000000	2	7,5337	22,5825	56,7573622	509,968434	7,68E-20	6,9E-19	1,53571E-19	1,37984E-18	6,91068E-20	6,20929E-19	3,10981E-20	2,79418E-19	6,29736E-21	5,65822E-20
0,55	0,000000001	4	10,5799	37,7352	111,933965	1423,94524	1,54E-07	1,96E-06	6,17249E-07	7,85221E-06	3,39487E-07	4,31871E-06	1,86718E-07	2,37529E-06	5,64821E-08	7,18526E-07
0,65	0,000050282	2	12,9678	67,1213	168,164124	4505,26757	0,008456	0,226534	0,016911249	0,453067512	0,010992312	0,294493883	0,007145003	0,191421024	0,003018764	0,080875383
0,75	0,004448379	4	12,7199	89,0775	161,794841	7934,80386	0,719725	35,29702	2,878899303	141,1880697	2,159174477	105,8910523	1,619380858	79,41828923	0,910901733	44,67278769
0,85	0,033720414	2	10,4586	88,2486	109,38323	7787,81075	3,688448	262,6082	7,376895672	525,2164099	6,270361321	446,4339484	5,329807123	379,4688561	3,850785646	274,1662486
0,95	0,087900019	4	7,2064	65,5980	51,9323143	4303,09824	4,564851	378,2424	18,25940568	1512,969669	17,3464354	1437,321186	16,47911363	1365,455126	14,87240005	1232,323251
1,05	0,191989059	2	6,2314	33,1106	38,8297633	1096,31235	7,45489	210,48	14,9097794	420,959954	15,65526837	442,0079517	16,43803179	464,1083492	18,12293005	511,679455
1,15	0,323434140	4	6,3777	27,0979	40,6745002	734,297872	13,15552	237,497	52,62208806	949,988004	60,51540127	1092,486205	69,59271146	1256,359135	92,03636091	1661,534956
1,25	0,175168034	1	6,8067	37,2163	46,3306265	1385,05023	8,115645	242,6165	8,115644768	242,6165255	10,14455596	303,2706569	12,68069495	379,0883211	19,81358586	592,3255017
		Σ =							104,1796248	3793,391707	112,1021895	3827,705498	122,146885	3924,089501	149,6099831	4316,783077
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	3,47265
m_0 BM=	126,44639
m_1 SF =	3,73674
m_1 BM=	127,59018
m_2 SF =	4,07156
m_2 BM=	130,80298
m_4 SF =	4,98700
m_4 BM=	143,89277
SF Ext =	14,46251136
BM Ext =	86,90657667

1/4 FP

KURUN WAKTU PENDEK

Hs	2	m		Tp	ωp
				7,5	0,83776

ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
(rad/s)																
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	3,26E-65	7,4E-64	3,26405E-65	7,40298E-64	8,16012E-66	1,85074E-64	2,04003E-66	4,62686E-65	1,27502E-67	2,89179E-66
0,35	0,000000000	4	5,6889	15,5720	32,3639507	242,486644	4,24E-15	3,17E-14	1,69411E-14	1,26931E-13	5,92939E-15	4,44259E-14	2,07529E-15	1,55491E-14	2,54223E-16	1,90476E-15
0,45	0,000007408	2	7,5337	22,5825	56,7573622	509,968434	0,00042	0,003778	0,000840875	0,007555319	0,000378394	0,003399893	0,000170277	0,001529952	3,44812E-05	0,000309815
0,55	0,010783950	4	10,5799	37,7352	111,933965	1423,94524	1,20709	15,35575	4,828361075	61,42301622	2,655598591	33,78265892	1,460579225	18,58046241	0,441825216	5,620589878
0,65	0,124923027	2	12,9678	67,1213	168,164124	4505,26757	21,00757	562,8117	42,01514282	1125,623326	27,30984283	731,6551619	17,75139784	475,5758553	7,499665588	200,9307988
0,75	0,368379840	4	12,7199	89,0775	161,794841	7934,80386	59,60196	2923,022	238,407831	11692,08712	178,8058733	8769,065342	134,1044049	6576,799007	75,43372778	3699,449441
0,85	0,770679448	2	10,4586	88,2486	109,38323	7787,81075	84,29941	6001,906	168,5988148	12003,81138	143,3089926	10203,23968	121,8126437	8672,753725	88,00963509	6266,064566
0,95	0,318918601	4	7,2064	65,5980	51,9323143	4303,09824	16,56218	1372,338	66,24872412	5489,35228	62,93628792	5214,884666	59,78947352	4954,140432	53,95999985	4471,11174
1,05	0,214534474	2	6,2314	33,1106	38,8297633	1096,31235	8,330323	235,1968	16,66064568	470,3935885	17,49367796	493,9132679	18,36836186	518,6089313	20,25111895	571,7663467
1,15	0,158668494	4	6,3777	27,0979	40,6745002	734,297872	6,453762	116,5099	25,81504675	466,0397494	29,68730376	535,9457118	34,14039932	616,3375685	45,1506781	815,1064344
1,25	0,115555461	1	6,8067	37,2163	46,3306265	1385,05023	5,353757	160,0501	5,353756898	160,0501173	6,692196123	200,0626466	8,365245154	250,0783083	13,07069555	390,7473567
		Σ =							567,9291641	31468,78814	468,8901515	26182,55253	395,7926759	22082,87582	303,8176806	16420,79758
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	18,93097
m_0 BM=	1048,95960
m_1 SF =	15,62967
m_1 BM=	872,75175
m_2 SF =	13,19309
m_2 BM=	736,09586
m_4 SF =	10,12726
m_4 BM=	547,35992
SF Ext =	33,17912
BM Ext =	247,03644

Hs	2,5	m		Tp	ωp
				8,5	0,7392

ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
(rad/s)																
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	2,84E-38	6,43E-37	2,83561E-38	6,43128E-37	7,08903E-39	1,60782E-37	1,77226E-39	4,01955E-38	1,10766E-40	2,51222E-39
0,35	0,000000001	4	5,6889	15,5720	32,3639507	242,486644	4,19E-08	3,14E-07	1,67452E-07	1,25464E-06	5,86084E-08	4,39123E-07	2,05129E-08	1,53693E-07	2,51283E-09	1,88274E-08
0,45	0,002597247	2	7,5337	22,5825	56,7573622	509,968434	0,147413	1,324514	0,29482579	2,649028081	0,132671605	1,192062636	0,059702222	0,536428186	0,0120897	0,108626708
0,55	0,144759354	4	10,5799	37,7352	111,933965	1423,94524	16,20349	206,1294	64,81395401	824,5175716	35,64767471	453,4846644	19,60622109	249,4165654	5,930881879	75,44851104
0,65	0,563304631	2	12,9678	67,1213	168,164124	4505,26757	94,72763	2537,838	189,4552596	5075,676177	123,1459188	3299,189515	80,0448472	2144,473185	33,81894794	906,0399206
0,75	1,364744856	4	12,7199	89,0775	161,794841	7934,80386	220,8087	10828,98	883,2347083	43315,93101	662,4260312	32486,94826	496,8195234	24365,21119	279,4609819	13705,4313
0,85	0,519822186	2	10,4586	88,2486	109,38323	7787,81075	56,85983	4048,277	113,7196595	8096,553614	96,6617106	6882,070572	82,16245401	5849,759986	59,36237302	4226,45159
0,95	0,351352713	4	7,2064	65,5980	51,9323143	4303,09824	18,24656	1511,905	72,98623817	6047,620964	69,33692626	5745,239916	65,87007995	5457,97792	59,44774715	4925,825073
1,05	0,247722707	2	6,2314	33,1106	38,8297633	1096,31235	9,619014	271,5815	19,23802815	543,1629283	20,19992955	570,3210748	21,20992603	598,8371285	23,38394345	660,2179342
1,15	0,172622797	4	6,3777	27,0979	40,6745002	734,297872	7,021346	126,7566	28,08538391	507,0262087	32,2981915	583,0801399	37,14292022	670,5421609	49,12151199	886,7920078
1,25	0,120870370	1	6,8067	37,2163	46,3306265	1385,05023	5,6	167,4115	5,599999985	167,4115339	6,999999981	209,2644173	8,749999976	261,5805217	13,67187496	408,7195651
		Σ =							1377,428058	64580,54903	1046,849054	50230,79062	811,6656741	39598,33509	524,210352	25795,03452
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	45,91427
m_0 BM=	2152,68497
m_1 SF =	34,89497
m_1 BM=	1674,35969
m_2 SF =	27,05552
m_2 BM=	1319,94450
m_4 SF =	17,47368
m_4 BM=	859,83448
SF Ext =	51,37261
BM Ext =	352,24754

Hs	3	m		Tp	ωp
				9,5	0,66138947

ω (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM
(rad/s)																
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	2,08E-23	4,72E-22	2,08318E-23	4,72474E-22	5,20796E-24	1,18118E-22	1,30199E-24	2,95296E-23	8,13744E-26	1,8456E-24
0,35	0,000009031	4	5,6889	15,5720	32,3639507	242,486644	0,000292	0,00219	0,001169153	0,008759872	0,000409204	0,003065955	0,000143221	0,001073084	1,75446E-05	0,000131453
0,45	0,062969477	2	7,5337	22,5825	56,7573622	509,968434	3,573981	32,11245	7,147962859	64,22489144	3,216583287	28,90120115	1,447462479	13,00554052	0,293111152	2,633621955
0,55	0,607309223	4	10,5799	37,7352	111,933965	1423,94524	67,97853	864,7751	271,9141175	3459,100301	149,5527646	1902,505165	82,25402053	1046,377841	24,88184121	316,5292969
0,65	2,177642469	2	12,9678	67,1213	168,164124	4505,26757	366,2013	9810,862	732,4026759	19621,724	476,0617393	12754,1206	309,4401306	8290,178388	130,7384552	3502,600369
0,75	0,908918013	4	12,7199	89,0775	161,794841	7934,80386	147,0582	7212,086	588,232982	28848,34464	441,1747365	21636,25848	330,8810524	16227,19386	186,120592	9127,796547
0,85	0,565471190	2	10,4586	88,2486	109,38323	7787,81075	61,85307	4403,783	123,7061307	8807,565234	105,1502111	7486,430449	89,37767944	6363,465882	64,5753734	4597,6041
0,95	0,382164805	4	7,2064	65,5980	51,9323143	4303,09824	19,8467	1644,493	79,38681116	6577,9708	75,4174706	6249,07226	71,64659707	5936,618647	64,66105386	5357,798329
1,05	0,255268044	2	6,2314	33,1106	38,8297633	1096,31235	9,911998	279,8535	19,82399544	559,7070206	20,81519521	587,6923717	21,85595498	617,0769902	24,09619036	680,3273817
1,15	0,171997383	4	6,3777	27,0979	40,6745002	734,297872	6,995908	126,2973	27,98363042	505,18925	32,18117498	580,9676375	37,00835123	668,1127832	48,9435445	883,5791558
1,25	0,117843362	1	6,8067	37,2163	46,3306265	1385,05023	5,459757	163,219	5,459756807	163,2189757	6,824696009	204,0237197	8,530870011	255,0296496	13,32948439	398,4838275
		Σ =							1856,059232	68607,05387	1310,394981	51429,97495	952,4422619	39417,06066	557,6396635	24867,35276
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	61,86864
m_0 BM=	2286,90180
m_1 SF =	43,67983
m_1 BM=	1714,33250
m_2 SF =	31,74808
m_2 BM=	1313,90202
m_4 SF =	18,58799
m_4 BM=	828,91176
SF Ext =	59,34623
BM Ext =	362,24191

1/4 AP

KURUN WAKTU PANJANG

Hs	4,823744654	m		Tp	ωp
				11,5	0,54636522

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,00	1	2,2835	43,6428	5,21433451	1904,69184	1,05E-09	3,85E-07	1,05287E-09	3,84592E-07	2,63217E-10	9,6148E-08	6,58043E-11	2,4037E-08	4,11277E-12	1,50231E-09
0,35	0,05	4	2,4928	48,0192	6,21408549	2305,84451	0,337577	125,2638	1,350307664	501,0551467	0,472607682	175,3693014	0,165412689	61,37925547	0,020263054	7,518958795
0,45	1,78	2	3,8991	72,5943	15,2028453	5269,93871	27,02869	9369,269	54,05738114	18738,53737	24,32582151	8432,341815	10,94661968	3794,553817	2,216690486	768,3971479
0,55	6,99	4	5,9677	97,4961	35,6129546	9505,49038	249,0664	66478,57	996,2655463	265914,2624	547,9460505	146252,8443	301,3703278	80439,06437	91,16452415	24332,81697
0,65	2,26	2	7,6849	123,7498	59,0583094	15314,0254	133,3121	34568,3	266,6242566	69136,59857	173,3057668	44938,78907	112,6487484	29210,2129	47,59409621	12341,31495
0,75	1,42	4	8,6344	127,8363	74,5523142	16342,1126	105,5108	23128,32	422,0433147	92513,28365	316,532486	69384,96274	237,3993645	52038,72205	133,5371425	29271,78116
0,85	0,87	2	7,6516	118,9455	58,5470458	14148,0349	50,9062	12301,61	101,8123936	24603,21059	86,54053455	20912,729	73,55945437	17775,81965	53,14670578	12843,0297
0,95	0,54	4	5,2187	90,4032	27,2344914	8172,73863	14,66025	4399,363	58,64101066	17597,45191	55,70896013	16717,57932	52,92351212	15881,70035	47,76346969	14333,23457
1,05	0,34	2	3,3191	65,7881	11,0167558	4328,07524	3,761329	1477,687	7,522657023	2955,373269	7,898789875	3103,141933	8,293729368	3258,299029	9,143836628	3592,27468
1,15	0,22	4	3,5844	69,5650	12,8476424	4839,29109	2,862254	1078,118	11,44901415	4312,473083	13,16636627	4959,344046	15,14132121	5703,245653	20,0243973	7542,542376
1,25	0,15	1	2,7474	74,0748	7,5481137	5487,07199	1,128513	820,368	1,12851281	820,3680125	1,410641013	1025,460016	1,763301266	1281,82502	2,755158228	2002,851593
		Σ =							1920,894395	497092,614	1227,308024	315902,5615	814,2117914	209444,8221	407,3662841	107035,7621
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	64,02981
m_0 BM=	16569,75380
m_1 SF =	40,91027
m_1 BM=	10530,08538
m_2 SF =	27,14039
m_2 BM=	6981,49407
m_4 SF =	13,57888
m_4 BM=	3567,85874
SF Ext =	59,96705
BM Ext =	964,46601

Hs	5,004710712	m		Tp	ωp
				11,5	0,54636522

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,00	1	2,2835	43,6428	5,21433451	1904,69184	1,13E-09	4,14E-07	1,13335E-09	4,1399E-07	2,83337E-10	1,03497E-07	7,08343E-11	2,58743E-08	4,42714E-12	1,61715E-09
0,35	0,06	4	2,4928	48,0192	6,21408549	2305,84451	0,363381	134,8388	1,453523542	539,3551935	0,50873324	188,7743177	0,178056634	66,07101121	0,021811938	8,093698873
0,45	1,91	2	3,8991	72,5943	15,2028453	5269,93871	29,09473	10085,44	58,1894617	20170,8884	26,18525776	9076,899781	11,78336599	4084,604901	2,386131614	827,1324925
0,55	7,53	4	5,9677	97,4961	35,6129546	9505,49038	268,1047	71560,11	1072,418875	286240,4256	589,830381	157432,2341	324,4067095	86587,72874	98,13302964	26192,78794
0,65	2,43	2	7,6849	123,7498	59,0583094	15314,0254	143,5023	37210,66	287,0046909	74421,31619	186,5530491	48373,85552	121,2594819	31443,00609	51,23213111	13284,67007
0,75	1,52	4	8,6344	127,8363	74,5523142	16342,1126	113,5759	24896,22	454,303793	99584,88668	340,7278448	74688,66501	255,5458836	56016,49876	143,7445595	31509,28055
0,85	0,94	2	7,6516	118,9455	58,5470458	14148,0349	54,7974	13241,93	109,5948093	26483,85013	93,15558789	22511,27261	79,18224971	19134,58172	57,20917542	13824,73529
0,95	0,58	4	5,2187	90,4032	27,2344914	8172,73863	15,78086	4735,645	63,12345829	18942,57976	59,96728537	17995,45077	56,9689211	17095,67823	51,4144513	15428,84961
1,05	0,37	2	3,3191	65,7881	11,0167558	4328,07524	4,04884	1590,639	8,097679789	3181,278412	8,502563778	3340,342333	8,927691967	3507,359449	9,842780394	3866,863793
1,15	0,24	4	3,5844	69,5650	12,8476424	4839,29109	3,081041	1160,528	12,32416288	4642,113288	14,17278732	5338,430281	16,29870541	6139,194823	21,55503791	8119,085153
1,25	0,16	1	2,7474	74,0748	7,5481137	5487,07199	1,214775	883,0759	1,214774959	883,0759469	1,518468698	1103,844934	1,898085873	1379,806167	2,965759176	2155,947136
		Σ =							2067,725229	535089,7696	1321,121959	340049,7696	876,4491518	225454,5299	438,504868	115217,4457
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	68,92417
m_0 BM=	17836,32565
m_1 SF =	44,03740
m_1 BM=	11334,99232
m_2 SF =	29,21497
m_2 BM=	7515,15100
m_4 SF =	14,61683
m_4 BM=	3840,58152
SF Ext =	62,21675
BM Ext =	1000,64861

Hs	5,108263482	m		Tp	ωp
				11,5	0,54636522

ω (rad/s) (rad/s)	S(ω) (m^2/rad/s)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
0,25	0,00	1	2,2835	43,6428	5,21433451	1904,69184	1,18E-09	4,31E-07	1,18073E-09	4,31299E-07	2,95184E-10	1,07825E-07	7,37959E-11	2,69562E-08	4,61224E-12	1,68476E-09
0,35	0,06	4	2,4928	48,0192	6,21408549	2305,84451	0,378574	140,4764	1,51429571	561,9057636	0,530003499	196,6670173	0,185501224	68,83345604	0,0227239	8,432098365
0,45	1,99	2	3,8991	72,5943	15,2028453	5269,93871	30,31119	10507,12	60,62237706	21014,23809	27,28006968	9456,407139	12,27603135	4255,383213	2,485896349	861,7151005
0,55	7,84	4	5,9677	97,4961	35,6129546	9505,49038	279,3142	74552,05	1117,256965	298208,2065	614,4913308	164014,5136	337,9702319	90207,98246	102,2359952	27287,91469
0,65	2,53	2	7,6849	123,7498	59,0583094	15314,0254	149,5022	38766,44	299,004426	77532,88928	194,3528769	50396,37803	126,32937	32757,64572	53,37415881	13840,10532
0,75	1,59	4	8,6344	127,8363	74,5523142	16342,1126	118,3246	25937,14	473,2983437	103748,5547	354,9737578	77811,41602	266,2303183	58358,56202	149,7545541	32826,69113
0,85	0,98	2	7,6516	118,9455	58,5470458	14148,0349	57,0885	13795,57	114,1769946	27591,14626	97,05044538	23452,47432	82,49287857	19934,60317	59,60110477	14402,75079
0,95	0,60	4	5,2187	90,4032	27,2344914	8172,73863	16,44067	4933,643	65,76266523	19734,57357	62,47453197	18747,84489	59,35080537	17810,45264	53,56410184	16073,93351
1,05	0,38	2	3,3191	65,7881	11,0167558	4328,07524	4,218123	1657,144	8,436245724	3314,288426	8,85805801	3480,002847	9,300960911	3654,00299	10,2543094	4028,538296
1,15	0,25	4	3,5844	69,5650	12,8476424	4839,29109	3,20986	1209,05	12,83943909	4836,201158	14,76535496	5561,631332	16,9801582	6395,876032	22,45625922	8458,546052
1,25	0,17	1	2,7474	74,0748	7,5481137	5487,07199	1,265565	919,9976	1,265564991	919,9975642	1,581956239	1149,996955	1,977445299	1437,496194	3,089758279	2246,087803
		Σ =							2154,177317	557462,0013	1376,358385	354267,3321	913,0937011	234880,8379	456,8388618	120034,7148
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	71,80591
m_0 BM=	18582,06671
m_1 SF =	45,87861
m_1 BM=	11808,91107
m_2 SF =	30,43646
m_2 BM=	7829,36126
m_4 SF =	15,22796
m_4 BM=	4001,15716
SF Ext =	63,50408506
BM Ext =	1021,353093

KURUN WAKTU PANJANG

Midship

Hs	4,823744654	m		Tp	ωp
				11,5	0,54636522

ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	4,7853	35,2344	22,8986979	1241,46461	4,62E-09	2,51E-07	4,62366E-09	2,50674E-07	1,15592E-09	6,26686E-08	2,88979E-10	1,56671E-08	1,80612E-11	9,79196E-10
0,35	0,054324472	4	5,7662	30,5669	33,2489682	934,333747	1,806233	50,75719	7,224930637	203,0287518	2,528725723	71,06006314	0,885054003	24,8710221	0,108419115	3,046700207
0,45	1,777870522	2	8,0862	45,7012	65,3867934	2088,59701	116,2493	3713,255	232,4985049	7426,510106	104,6243272	3341,929548	47,08094723	1503,868296	9,533891815	304,53333
0,55	6,993701844	4	11,6246	56,7347	135,132062	3218,83021	945,0734	22511,54	3780,293407	90046,15497	2079,161374	49525,38524	1143,538756	27238,96188	345,9204736	8239,785969
0,65	2,257296725	2	14,8250	84,9287	219,781095	7212,8884	496,1111	16281,63	992,2222936	32563,25871	644,9444909	21166,11816	419,2139191	13757,9768	177,1178808	5812,7452
0,75	1,415258934	4	15,8478	109,9094	251,154232	12080,0692	355,4483	17096,43	1421,793081	68385,70327	1066,344811	51289,27745	799,758608	38466,95809	449,864217	21637,66393
0,85	0,869492151	2	13,9384	123,4643	194,278995	15243,4436	168,9241	13254,05	337,8481223	26508,10909	287,170904	22531,89272	244,0952684	19152,10881	176,3588314	13837,39862
0,95	0,538297280	4	9,4668	109,0780	89,6196154	11898,0094	48,242	6404,666	192,9679809	25618,66447	183,3195818	24337,73125	174,1536027	23120,84468	157,1736265	20866,56233
1,05	0,341418888	2	7,3524	68,2424	54,0578937	4657,02524	18,45639	1589,996	36,91277184	3179,992754	38,75841043	3338,992392	40,69633096	3505,942011	44,86770488	3865,301067
1,15	0,222784340	4	6,5225	25,8358	42,5427975	667,488433	9,477869	148,706	37,91147626	594,8238799	43,59819769	684,0474619	50,13792735	786,6545812	66,30740892	1040,350684
1,25	0,149509249	1	6,2222	50,2561	38,7158697	2525,67118	5,788381	377,6112	5,7883806	377,6112016	7,23547575	472,014002	9,044344687	590,0175025	14,13178857	921,9023476
		Σ =							7045,460949	254903,8572	4457,686298	176758,4483	2928,604758	128148,2037	1441,384243	76529,29017
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	234,84870
m_0 BM=	8496,79524
m_1 SF =	148,58954
m_1 BM=	5891,94828
m_2 SF =	97,62016
m_2 BM=	4271,60679
m_4 SF =	48,04614
m_4 BM=	2550,97634
SF Ext =	114,76603
BM Ext =	694,97968

Hs	5,004710712	m		Tp	ωp
				11,5	0,54636522

ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	4,7853	35,2344	22,8986979	1241,46461	4,98E-09	2,7E-07	4,97709E-09	2,69835E-07	1,24427E-09	6,74589E-08	3,11068E-10	1,68647E-08	1,94418E-11	1,05404E-09
0,35	0,058476969	4	5,7662	30,5669	33,2489682	934,333747	1,944299	54,63701	7,77719556	218,548023	2,722018446	76,49180805	0,952706456	26,77213282	0,116706541	3,27958627
0,45	1,913768785	2	8,0862	45,7012	65,3867934	2088,59701	125,1352	3997,092	250,2704082	7994,183518	112,6216837	3597,382583	50,67975765	1618,822162	10,26265092	327,8114879
0,55	7,528291918	4	11,6246	56,7347	135,132062	3218,83021	1017,314	24232,29	4069,254443	96929,17368	2238,089944	53311,04553	1230,949469	29321,07504	372,3622144	8869,6252
0,65	2,429841744	2	14,8250	84,9287	219,781095	7212,8884	534,0333	17526,18	1068,066561	35052,35465	694,2432644	22784,03052	451,2581218	14809,61984	190,6565565	6257,064383
0,75	1,523439608	4	15,8478	109,9094	251,154232	12080,0692	382,6183	18403,26	1530,473217	73613,02336	1147,854913	55209,76752	860,8911845	41407,32564	484,2512913	23291,62067
0,85	0,935955075	2	13,9384	123,4643	194,278995	15243,4436	181,8364	14267,18	363,6728224	28534,35675	309,121899	24254,20323	262,7536142	20616,07275	189,8394862	14895,11256
0,95	0,579444071	4	9,4668	109,0780	89,6196154	11898,0094	51,92955	6894,231	207,718219	27576,92406	197,332308	26198,07786	187,4656926	24888,17397	169,1877876	22461,57701
1,05	0,367516533	2	7,3524	68,2424	54,0578937	4657,02524	19,86717	1711,534	39,73433929	3423,067538	41,72105625	3594,220914	43,80710906	3773,93196	48,29733774	4160,759986
1,15	0,239813704	4	6,5225	25,8358	42,5427975	667,488433	10,20235	160,0729	40,80938345	640,2914948	46,93079097	736,335219	53,97040962	846,7855018	71,37586672	1119,873826
1,25	0,160937554	1	6,2222	50,2561	38,7158697	2525,67118	6,230837	406,4753	6,230837382	406,4753432	7,788546728	508,094179	9,735683409	635,1177237	15,21200533	992,3714433
		Σ =							7584,007426	274388,3984	4798,426424	190269,6494	3152,463748	137943,6967	1551,561903	82379,09615
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	252,80025
m_0 BM=	9146,27995
m_1 SF =	159,94755
m_1 BM=	6342,32165
m_2 SF =	105,08212
m_2 BM=	4598,12322
m_4 SF =	51,71873
m_4 BM=	2745,96987
SF Ext =	119,07156
BM Ext =	721,05232

Hs	5,108263482	m		Tp	ωp
				11,5	0,54636522

ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	ω^2*Sr(w) SF*SM	ω^2*Sr(w) BM*SM	ω^4*Sr(w) SF*SM	ω^4*Sr(w) BM*SM
(rad/s)	(m^2/rad/s)															
0,25	0,000000000	1	4,7853	35,2344	22,8986979	1241,46461	5,19E-09	2,81E-07	5,18518E-09	2,81117E-07	1,2963E-09	7,02793E-08	3,24074E-10	1,75698E-08	2,02546E-11	1,09811E-09
0,35	0,060921905	4	5,7662	30,5669	33,2489682	934,333747	2,02559	56,92139	8,102361972	227,6855683	2,83582669	79,68994891	0,992539342	27,89148212	0,121586069	3,416706559
0,45	1,993783917	2	8,0862	45,7012	65,3867934	2088,59701	130,3671	4164,211	260,734274	8328,422249	117,3304233	3747,790012	52,79869049	1686,505506	10,69173482	341,5173649
0,55	7,843051610	4	11,6246	56,7347	135,132062	3218,83021	1059,848	25245,45	4239,390948	100981,8057	2331,665021	55539,99314	1282,415762	30546,99622	387,9307679	9240,466358
0,65	2,531434011	2	14,8250	84,9287	219,781095	7212,8884	556,3613	18258,95	1112,72268	36517,90201	723,2697419	23736,63631	470,1253322	15428,8136	198,6279529	6518,673746
0,75	1,587134984	4	15,8478	109,9094	251,154232	12080,0692	398,6157	19172,7	1594,462669	76690,80154	1195,847002	57518,10115	896,8852516	43138,57586	504,497954	24265,44892
0,85	0,975087581	2	13,9384	123,4643	194,278995	15243,4436	189,439	14863,69	378,8780704	29727,38505	322,0463598	25268,27729	273,7394059	21478,0357	197,7767207	15517,88079
0,95	0,603670766	4	9,4668	109,0780	89,6196154	11898,0094	54,10074	7182,48	216,4029675	28729,92188	205,5828192	27293,42578	195,3036782	25928,75449	176,2615696	23400,70093
1,05	0,382882487	2	7,3524	68,2424	54,0578937	4657,02524	20,69782	1783,093	41,39564155	3566,186813	43,46542363	3744,496154	45,63869481	3931,720961	50,31666102	4334,72236
1,15	0,249840373	4	6,5225	25,8358	42,5427975	667,488433	10,62891	166,7656	42,51563357	667,0622358	48,8929786	767,1215712	56,22692539	882,1898069	74,36010883	1166,69602
1,25	0,167666392	1	6,2222	50,2561	38,7158697	2525,67118	6,49135	423,4702	6,491350188	423,4701748	8,114187736	529,3377185	10,14273467	661,6721482	15,84802292	1033,862732
		Σ =							7901,096596	285860,6432	4999,049784	198224,8691	3284,269014	143711,1558	1616,433079	85823,38593
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM

m_0 SF =	263,36989
m_0 BM=	9528,68811
m_1 SF =	166,63499
m_1 BM=	6607,49564
m_2 SF =	109,47563
m_2 BM=	4790,37186
m_4 SF =	53,88110
m_4 BM=	2860,77953
SF Ext =	121,5352729
BM Ext =	735,9716528

1/4 FP

KURUN WAKTU PANJANG

Hs	4,823744654	m		Tp	ωp													m_0 SF =	179,56736
				11,5	0,54636522													m_0 BM=	4379,25225
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	111,40083
(rad/s)	(m^2/rad/s)																	m_1 BM=	3058,81564
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	4,05E-09	9,2E-08	4,0547E-09	9,19621E-08	1,01368E-09	2,29905E-08	2,53419E-10	5,74763E-09	1,58387E-11	3,59227E-10		m_2 SF =	71,70880
0,35	0,054324472	4	5,6889	15,5720	32,3639507	242,486644	1,758155	13,17296	7,032618199	52,69183609	2,46141637	18,44214263	0,861495729	6,454749921	0,105533227	0,790706865		m_2 BM=	2214,83717
0,45	1,777870522	2	7,5337	22,5825	56,7573622	509,968434	100,9072	906,6578	201,8144822	1813,315691	90,816517	815,992061	40,86743265	367,1964274	8,275655112	74,35727656		m_4 SF =	34,10501
0,55	6,993701844	4	10,5799	37,7352	111,933965	1423,94524	782,8328	9958,648	3131,331112	39834,59371	1722,232112	21909,02654	947,2276615	12049,9646	286,5363676	3645,11429		m_4 BM=	1291,32850
0,65	2,257296725	2	12,9678	67,1213	168,164124	4505,26757	379,5963	10169,73	759,1926521	20339,45146	493,4752238	13220,64345	320,7588955	8593,418243	135,5206333	3630,719208			
0,75	1,415258934	4	12,7199	89,0775	161,794841	7934,80386	228,9816	11229,8	915,9263774	44919,20823	686,9447831	33689,40617	515,2085873	25267,05463	289,8048304	14212,71823		SF Ext =	100,21007
0,85	0,869492151	2	10,4586	88,2486	109,38323	7787,81075	95,10786	6771,44	190,2157201	13542,88064	161,6833621	11511,44855	137,4308577	9784,731264	99,29379472	7069,468338		BM Ext =	499,04094
0,95	0,538297280	4	7,2064	65,5980	51,9323143	4303,09824	27,95502	2316,346	111,8200942	9265,384313	106,2290895	8802,115098	100,9176351	8362,009343	91,07816564	7546,713432			
1,05	0,341418888	2	6,2314	33,1106	38,8297633	1096,31235	13,25721	374,3017	26,51442918	748,6034894	27,84015064	786,0336639	29,23215818	825,3353471	32,22845439	909,9322201			
1,15	0,222784340	4	6,3777	27,0979	40,6745002	734,297872	9,061642	163,5901	36,24656675	654,360267	41,68355176	752,514307	47,93608452	865,3914531	63,39547178	1144,480197			
1,25	0,149509249	1	6,8067	37,2163	46,3306265	1385,05023	6,926857	207,0778	6,926857165	207,0778189	8,658571456	258,8472737	10,82321432	323,5590921	16,91127237	505,5610814			
		Σ =							5387,02091	131377,5675	3342,024778	91764,46925	2151,264022	66445,11514	1023,150179	38739,85498			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Hs	5,004710712	m		Tp	ωp													m_0 SF =	193,29327
				11,5	0,54636522													m_0 BM=	4713,99697
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	119,91617
(rad/s)	(m^2/rad/s)																	m_1 BM=	3292,62779
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	4,36E-09	9,9E-08	4,36464E-09	9,89915E-08	1,09116E-09	2,47479E-08	2,7279E-10	6,18697E-09	1,70494E-11	3,86686E-10		m_2 SF =	77,19013
0,35	0,058476969	4	5,6889	15,5720	32,3639507	242,486644	1,892546	14,17988	7,570182992	56,71953604	2,649564047	19,85183761	0,927347416	6,948143165	0,113600059	0,851147538		m_2 BM=	2384,13663
0,45	1,913768785	2	7,5337	22,5825	56,7573622	509,968434	108,6205	975,9617	217,2409361	1951,92334	97,75842125	878,365503	43,99128956	395,2644763	8,908236136	80,04105646		m_4 SF =	36,71195
0,55	7,528291918	4	10,5799	37,7352	111,933965	1423,94524	842,6716	10719,88	3370,686259	42879,50166	1853,877443	23583,72592	1019,632593	12971,04925	308,4388595	3923,742399		m_4 BM=	1390,03608
0,65	2,429841744	2	12,9678	67,1213	168,164124	4505,26757	408,6122	10947,09	817,2244162	21894,17443	531,1958705	14231,21338	345,2773159	9250,288696	145,8796659	3908,246974			
0,75	1,523439608	4	12,7199	89,0775	161,794841	7934,80386	246,4847	12088,19	985,9386772	48352,77794	739,4540079	36264,58346	554,5905059	27198,43759	311,9571596	15299,12115		SF Ext =	103,96952
0,85	0,935955075	2	10,4586	88,2486	109,38323	7787,81075	102,3778	7289,041	204,7555787	14578,08199	174,0422419	12391,36969	147,9359056	10532,66424	106,8836918	7609,849911		BM Ext =	517,76280
0,95	0,579444071	4	7,2064	65,5980	51,9323143	4303,09824	30,09187	2493,405	120,3674864	9973,619036	114,3491121	9474,938084	108,6316565	9001,19118	98,04006999	8123,57504			
1,05	0,367516533	2	6,2314	33,1106	38,8297633	1096,31235	14,27058	402,9129	28,54115994	805,8258308	29,96821794	846,1171224	31,46662884	888,4229785	34,6919583	979,4863338			
1,15	0,239813704	4	6,3777	27,0979	40,6745002	734,297872	9,754303	176,0947	39,01721028	704,378771	44,86979182	810,0355866	51,6002606	931,5409246	68,24134464	1231,962873			
1,25	0,160937554	1	6,8067	37,2163	46,3306265	1385,05023	7,456338	222,9066	7,456337713	222,9065959	9,320422141	278,6332449	11,65052768	348,2915561	18,20394949	544,2055564			
		Σ =							5798,798245	141419,9091	3597,485092	98778,83382	2315,704031	71524,09904	1101,358535	41701,08244			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			

Hs	5,108263482	m		Tp	ωp													m_0 SF =	201,37491
				11,5	0,54636522													m_0 BM=	4911,09032
ω (rad/s)	S(ω)	SM	RAO SF	RAO BM	RAO^2 SF	RAO^2BM	Sr(w) SF	Sr(w) BM	Sr(ω) SF*SM	Sr(ω) BM*SM	ω*Sr(w) SF*SM	ω*Sr(w) BM*SM	$ω^2$*Sr(w) SF*SM	$ω^2$*Sr(w) BM*SM	$ω^4$*Sr(w) SF*SM	$ω^4$*Sr(w) BM*SM		m_1 SF =	124,92989
(rad/s)	(m^2/rad/s)																	m_1 BM=	3430,29335
0,25	0,000000000	1	4,4812	21,3411	20,0809123	455,442393	4,55E-09	1,03E-07	4,54712E-09	1,0313E-07	1,13678E-09	2,57826E-08	2,84195E-10	6,44565E-09	1,77622E-11	4,02853E-10		m_2 SF =	80,41747
0,35	0,060921905	4	5,6889	15,5720	32,3639507	242,486644	1,971674	14,77275	7,886694159	59,09099346	2,760342956	20,68184771	0,966120035	7,238646699	0,118349704	0,886734221		m_2 BM=	2483,81796
0,45	1,993783917	2	7,5337	22,5825	56,7573622	509,968434	113,1619	1016,767	226,3238318	2033,533723	101,8457243	915,0901755	45,83057594	411,790579	9,280691627	83,38759224		m_4 SF =	38,24689
0,55	7,843051610	4	10,5799	37,7352	111,933965	1423,94524	877,9039	11168,08	3511,615461	44672,30392	1931,388503	24569,76716	1062,263677	13513,37194	321,3347622	4087,795011		m_4 BM=	1448,15382
0,65	2,531434011	2	12,9678	67,1213	168,164124	4505,26757	425,6964	11404,79	851,3927652	22809,57512	553,4052974	14826,22383	359,7134433	9637,045486	151,9789298	4071,651718			
0,75	1,587134984	4	12,7199	89,0775	161,794841	7934,80386	256,7903	12593,6	1027,16101	50374,41919	770,3707574	37780,81439	577,7780681	28335,6108	325,0001633	15938,78107		SF Ext =	106,1207604
0,85	0,975087581	2	10,4586	88,2486	109,38323	7787,81075	106,6582	7593,798	213,3164585	15187,5951	181,3189898	12909,45583	154,1211413	10973,03746	111,3525246	7928,019563		BM Ext =	528,4758564
0,95	0,603670766	4	7,2064	65,5980	51,9323143	4303,09824	31,35002	2597,655	125,4000799	10390,61844	119,1300759	9871,087519	113,1735721	9377,533143	102,1391488	8463,223662			
1,05	0,382882487	2	6,2314	33,1106	38,8297633	1096,31235	14,86724	419,7588	29,73447269	839,5176022	31,22119633	881,4934823	32,78225614	925,5681565	36,1424374	1020,438893			
1,15	0,249840373	4	6,3777	27,0979	40,6745002	734,297872	10,16213	183,4573	40,64852921	733,8290165	46,74580859	843,9033689	53,75767988	970,4888743	71,09453164	1283,471536			
1,25	0,167666392	1	6,8067	37,2163	46,3306265	1385,05023	7,768089	232,2264	7,768088982	232,2263742	9,710111227	290,2829677	12,13763903	362,8537096	18,96506099	566,9589213			
		Σ =							6041,247391	147332,7095	3747,896807	102908,8006	2412,524173	74514,53878	1147,4066	43444,6147			
									Σ0 SF	Σ0 BM	Σ1 SF	Σ1 BM	Σ2 SF	Σ2 BM	Σ4 SF	Σ4 BM			