LAMPIRAN

A. CONOCOPHILLIPS, SEJARAH DAN PROFIL PERUSAHAAN

Sejarah ConocoPhillips bermula pada tahun 1875, ketika *founder* dari Conoco, Isaac E. Blake, merumuskan sebuah visi untuk membuat minyak tanah (*kerosene*) yang dapat tersedia dengan mudah dan murah untuk penduduk perkotaan di Ogden, Utah, Amerika Serikat. Tiga puluh tahun kemudian, pondasi dari Phillips Petroleum Company dimulai ketika kakak-beradik Frank dan L.E. Phillips berhasil melakukan pengeboran pada 81 sumur pertama mereka tanpa ada satupun sumur yang kering (*dry hole*). Hampir satu abad kemudian, kedua perusahaan ini melakukan merger dan membentuk perusahaan yang sekarang dikenal sebagai perusahaan energi ketiga terbesar di Amerika Serikat. Merger ConocoPhillips ini diselesaikan pada 30 Agustus 2002, menguatkan jalur dari kesuksesan perusahaan ini, sekarang dan di masa yang akan datang.

Proses *oilcanning* di Conoco

Tahun-tahun berikutnya merupakan tantangan bagi ConocoPhillips. Phillips merupakan perusahaan pionir pada pengembangan pasar propan untuk kebutuhan rumah tangga, yang pertama membangun jalur pipa multi-produk dan merupakan inovator dari proses pembuatan bahan bakar bensin yang memiliki bilangan oktan yang tinggi. Sementara Conoco merupakan pionir dari pembangunan sistem stasiun pengisian bahan bakar umum di daerah Barat, membangun konstruksi dari *refinery* yang beroperasi paling lama di Amerika Serikat dan mengembangkan serta menerima hak paten dari metoda *Vibrosis*, metoda seismik untuk eksplorasi minyak bumi. Setelah merger dilakukan, perusahaan ini terus berkembang dan memberikan kontribusi yang signifikan terhadap industri energi di dunia.

Pada tahun 2006, Burlington Resources bergabung dengan ConocoPhillips. Akuisisi ini membawa pengalaman Burlington selama lebih dari 100 tahun ke dalam ConocoPhillips dan memperkuat posisi perusahaan ini sebagai pemimpin dari produsen dan pemasar gas alam. Saat ini, ConocoPhillips memulai komersialisasi dari produksi bahan bakar diesel yang dapat diperbaharui, dimulai pada lapangan minyak satelit yang pertama, Alpine, mengumunkan rencana untuk pusat pemeliharaan air global dan membentuk sebuah kerjasama dengan Tyson Foods, Inc. untuk memproduksi generasi berikut dari bahan bakar diesel yang dapat diperbaharui. Sejarah ConocoPhillips masih muda, akan tetapi, sejarah dari Conoco, Phillips dan Burlington menyediakan pondasi yang solid bagi ConocoPhillips untuk terus berkiprah di dunia industri, khususnya industri energi.

Eksplorasi dan Produksi

Melalui aktifitas pada segmen Eksplorasi dan Produksi (E&P)-nya, ConocoPhillips mengeksplorasi untuk dan memproduksi minyak bumi, gas alam dan gas alam cair (*natural gas liquid*/NGL) di seluruh dunia. Portofolio ConocoPhillips termasuk aset yang secara legal berproduksi di Lower 48 Amerika Serikat, Alaska, Kanada, United Kingdom dan Norwegia; kesempatan untuk tumbuh ditawarkan melalui proyek-proyek pengembangan yang utama di Timur Tengah, Afrika Utara dan regional Asia Pasifik; dan program eksplorasi global.

Area Operasi Eksplorasi dan Produksi ConocoPhillips di Seluruh Dunia

Pada 31 Maret 2006, ConocoPhillips menyelesaikan akuisisi Burlington Resources senilai US $ 33.9 milyar, salah satu dari perusahaan E&P minyak bumi dan gas alam independen terbesar di dunia. Pada awal 2007, ConocoPhillips melakukan ekspansi posisinya ke Kanada, dengan membentuk sebuah *joint venture* dengan EnCana, sebuah perusahaan dengan *oil sands* dengan bisnis utamanya, dengan mendapatkan 50 persen kepemilikan saham dalam dua dari *holdings* Athabacsa mereka.

Pada akhir tahun 2007, ConocoPhillips berada di 23 negara dan memproduksi hidrokarbon di 16 negara, dengan cadangan terbukti di tiga negara tambahan. Area produksi termasuk Alaska, Lower 48 dan Teluk Meksiko di Amerika Serikat; Norwegia, U.K. dan Belanda di *North Sea* (Laut Utara); Kanada, Ekuador; Argentina; Indonesia; Laut Timor; Australia; Vietnam; Cina; Nigeria; Algeria; Libya; dan Rusia.

Area eksplorasi meliputi Amerika Serikat, Kanada, Amerika Selatan, Laut Utara, Rusia, Laut Kaspia, Cina, Vietnam, Malaysia, Indonesia, Australia, Laut Timor, Timur Tengah dan Afrika. Program pengeboran eksplorasi dari ConocoPhillips meliputi 209 sumur di tahun 2007. ConocoPhillips juga memiliki daerah potensi eksplorasi tambahan di Australia, Kanada, Teluk Meksiko, Lower 48 di Amerika Serikat, Indonesia, Laut Utara dan Peru.

Eksplorasi dan Produksi – Data dan Fakta

Sampai akhir 2007:

Cadangan Total	10.6 BBOE[1]
Aset	$120.1 billion
Karyawan	11,859
Cadangan Pengganti Rata-rata Untuk Lima Tahun	176%[2]
Produksi Total secara Korporat	1,880 MBOED[3]
Produksi Minyak Mentah (*Crude Oil*)	854 MBD
Produksi Gas Alam	5,087 MMCFD
Produksi Gas Alam Cair	155 MBD
Syncrude	23 MBD

1. Termasuk LUKOIL.

2. Termasuk penjualan, akuisis dan equitas dari afiliasi, dan mencakup LUKOIL.

3. Mencakup Syncrude, tidak termasuk LUKOIL.

Worldwide Proved Reserves *Year-end 2007*
Includes equity affiliates and LUKOIL.

Area	Oil MMBBL	Gas BCF	NGL MMBBL	Total Reserves MMBOE
Alaska	1,335	3,431	133	2,040
Canada[1]	121	2,838	65	659
U.S. Lower 48	308	9,203	466	2,308
Europe	605	2,583	38	1,073
Asia Pacific	319	3,252	56	917
Middle East and Africa	290	1,029	1	463
Russia and Caspian	117	98	–	133
Other Areas	9	65	–	20
Equity Affiliates	2,398	2,939	59	2,947
Total Reserves	**5,502**	**25,438**	**818**	**10,560**

[1] Excludes 221 MMBBL of Canadian Syncrude.

Cadangan Terbukti ConocoPhillips di Seluruh Dunia

Worldwide Production *Average Daily Net Production, 2007*
Includes equity affiliates and LUKOIL.

Area	Oil MBD	Gas MMCFD	NGL MBD	Total MBOED
Alaska	261	110	19	298
Canada[1]	19	1,106	27	230
U.S. Lower 48	102	2,182	79	545
Europe	210	961	14	384
Asia Pacific	87	579	14	198
Middle East and Africa	81	125	2	104
Other Areas	10	19	–	13
Equity Affiliates	485	261	–	529
Total Production	**1,255**	**5,343**	**155**	**2,301**

[1] Excludes 23 MBD of Canadian Syncrude.

Rata-rata Produksi ConocoPhillips di Seluruh Dunia

Major Exploration and Production Projects

Region	Planned First Production	Asset	Interest
Norwegian North Sea	2008	Alvheim	20%
U.K. North Sea	2008	Britannia Satellites	79%
Russia/Caspian	2008	Yuzhno Khylchuyu (YK)	30%[1]
China	2009	Bohai Phase II	49%
Indonesia	2009	North Belut	40%
Canada	2009	Foster Creek 1D and 1E	50%
Qatar	2009	Qatargas 3	30%
Nigeria	2009	N-LNG Train 6 supply	20%
Alaska	2010-12	Northeast West Sak	53%
Vietnam	2010-12	Su Tu Den Northeast	23%
Vietnam	2010-12	Su Tu Trang	23%
Malaysia	2010-12	Gumusut-Kakap	33%
Canada	2010-12	Christina Lake C-F	50%
Canada	2010-12	Foster Creek 1F and 1G	50%
Libya	2010-12	North Gialo	16%
Libya	2010-12	Faregh II	16%
Algeria	2010-12	El Merk (EMK)	17%
U.K. North Sea	2010-12	Jasmine	37%
Caspian Sea	2010-12	Kashagan Phase I	8%
Alaska	2013+	Ugnu	56%
Alaska	2013+	Prudhoe Gas Cap	36%
Alaska	2013+	Moose's Tooth	78%
Indonesia	2013+	Suban III	54%
Vietnam	2013+	Su Tu Nau	23%
Australia/Timor-Leste	2013+	Sunrise	30%
Australia/Timor-Leste	2013+	Caldita/Barossa	60%
Malaysia	2013+	Kebabangan	30%[2]
Malaysia	2013+	Malikai	35%
Canada	2013+	Surmont II	50%
Canada	2013+	Surmont III, IV	50%
Canada	2013+	Thornbury I,II	100%
Canada	2013+	Clyden I	100%
Canada	2013+	FCCL other	50%
Canada	2013+	Parsons Lake	75%
Canada	2013+	Amauligak	51%
Libya	2013+	NC98	16%
Libya	2013+	Dahra Jofra	13%
Norwegian North Sea	2013+	Ekofisk South	35%
Norwegian North Sea	2013+	Eldfisk II	35%
Norwegian North Sea	2013+	Tor Redevelopment	31%
Norwegian North Sea	2013+	Tommeliten Alpha	28%
U.K. North Sea	2013+	Clair Phase II	24%
Caspian Sea	2013+	Kashagan Phase II+	8%
Caspian Sea	2013+	Kalamkas	8%
Caspian Sea	2013+	Aktote	8%
Caspian Sea	2013+	Kairan	8%
Nigeria	2013+	Brass LNG supply	20%[3]

[1] Includes direct working interest only.

[2] Jointly operated.

[3] Represents equity in the upstream gas supply project. Working interest in liquefaction plant is 17 percent.

Proyek Eksplorasi dan Produksi Utama ConocoPhillips di Seluruh Dunia

Salah satu unit fasilitas produksi ConocoPhillips

ConocoPhillips memiliki empat aktifitas utama yang meliputi:

Eksplorasi dan Produksi (E&P)

Segmen eksplorasi dan produksi (E&P) ConocoPhillips adalah mengeksplorasi dan memproduksi minyak bumi, gas alam dan gas alam cair. Melalui aktifitas E&P, ConocoPhillips mengembangkan secara legal aset yang dapat memberikan pengembalian modal yang kuat dalam jangka waktu yang lama. Pada tanggal 31 Desember 2007, ConocoPhillips memiliki operasi eksplorasi di 23 negara dan produksi di 16 negara.

***Refining*, Pemasaran dan Suplai dan Transportasi**

ConocoPhillips adalah *refiner* kedua terbesar di Amerika Serikat dan *refiner* terkendali non pemerintah terbesar kelima di dunia. Pada 31 Desember 2007, *refineries* yang dimiliki oleh ConocoPhillips mencakup 12 di Amerika Serikat, enam di Eropa, dan satu di Asia. Pada Januari 2007, kapasitas *refining* dari ConocoPhillips adalah sebesar 2.7 milyar BPD komprehensif secara global.

Pengumpulan Gas Alam, Proses dan Pemasaran

Aset dari ConocoPhillips mencakup pengumpulan gas alam dan operasi proses, serta fraksi gas alam cair dan bisnis pemasaran. Proses ini dilakukan di Amerika Utara melalui 50 persen kepemilikan saham ConocoPhillips di DCP Midstream, LLC. Pada bulan Desember 2007, ConocoPhillips memiliki *plant* pengolahan gas alam sebanyak 63 buah dan jalur pengumpulan sepanjang 58.000 *mile* (~ 93.350 km).

Kimia dan Plastik

ConocoPhillips berpartisipasi dalam produksi kimia dan plastic secara *worldwide* melalui 50 persen kepemilikan saham pada Chevron Phillips Chemical Company, LLC (CPChem), salah satu dari produser terbesar yang menghasilkan *olefins*, *polyolefins*, aromatik dan *styrenics*, perpipaan dan plastik untuk kebutuhan sehari-hari. Pada Desember 2007, CPChem memiliki enam pusat penelitian dan teknologi dan 36 fasilitas produksi di tujuh negara.

Sebagai tambahan, ConocoPhillips juga bekerja untuk mengembangkan sumber energi dan teknologi baru – dari konvensional sampai *heavy oil* dan gas alam, dan suplai alternatif untuk energi – dalam aplikasi yang meningkatkan keahlian dan dibangun pada bisnis yang telah terbukti eksistensinya.

Siapa ConocoPhillips

ConocoPhillips menggunakan semangat pionirnya untuk menyalurkan energi kepada dunia secara bertanggung jawab. Tujuan ini ditanamkan secara kuat pada seluruh operasi ConocoPhillips. Perusahaan ini melakukan bisnisnya untuk memberikan pengembalian dengan nilai yang maksimal kepada *shareholders*-nya dengan menggunakan kekayaan dari pengetahuan dam sumber dari karyawannya dan beraktifitas secara bertanggung jawab di seluruh komunitas di mana ConocoPhillips beroperasi.

Sebagai perusahaan energi terintegrasi terbesar ketiga di Amerika Serikat, berdasarkan dari kapital market, cadangan minyak dan gas alam, perusahaan ini mengerti tanggung jawabnya untuk menyalurkan energi pada metoda dan pendekatan yang aman, baik dari perspektif sosial dan lingkungan. ConocoPhillips memikul tanggung jawab ini dalam operasinya secara global, di mana ConocoPhillips merupakan *refiner* terbesar kelima dan terbesar keenam untuk pemegang cadangan terbesar untuk perusahaan terkendali non pemerintah. ConocoPhillips dikenal secara luas dalam keahlian teknologis pada manajemen *reservoir* dan eksplorasi, teknologi 3D seismik, *high-grade petroleum coke upgrading* dan pembuangan sulfur.

Sekitar 32.600 karyawan ConocoPhillips bekerja di seluruh dunia secara konsisten menghantarkan pekerjaan dan nilai terbaiknya untuk menjaga dan mempertahankan posisi perusahaan pada pasar global. Bakat-bakat dan kekuatan individual dari karyawan dikombinasikan untuk membuat kekuatan kerja yang bervariasi dan fleksibel di dalam ConocoPhillips.

Dengan operasi di hampir 40 negara, ConocoPhillips berkomitmen untuk berkontribusi pada pengembangan di bidang sosial, ekonomi dan lingkungan di semua komunitas di mana ConocoPhillips beroperasi. Perusahaan ini saat ini membiayai berbagai macam program-program lingkungan, sosial, kesehatan dan edukasi di seluruh dunia.

Dengan bermarkas besar di Houston, Texas, ConocoPhillips memiliki aset sebesar US $ 178 milyar. Saham ConocoPhillips terdaftar di Bursa Efek New York berada di bawah simbol “COP”.

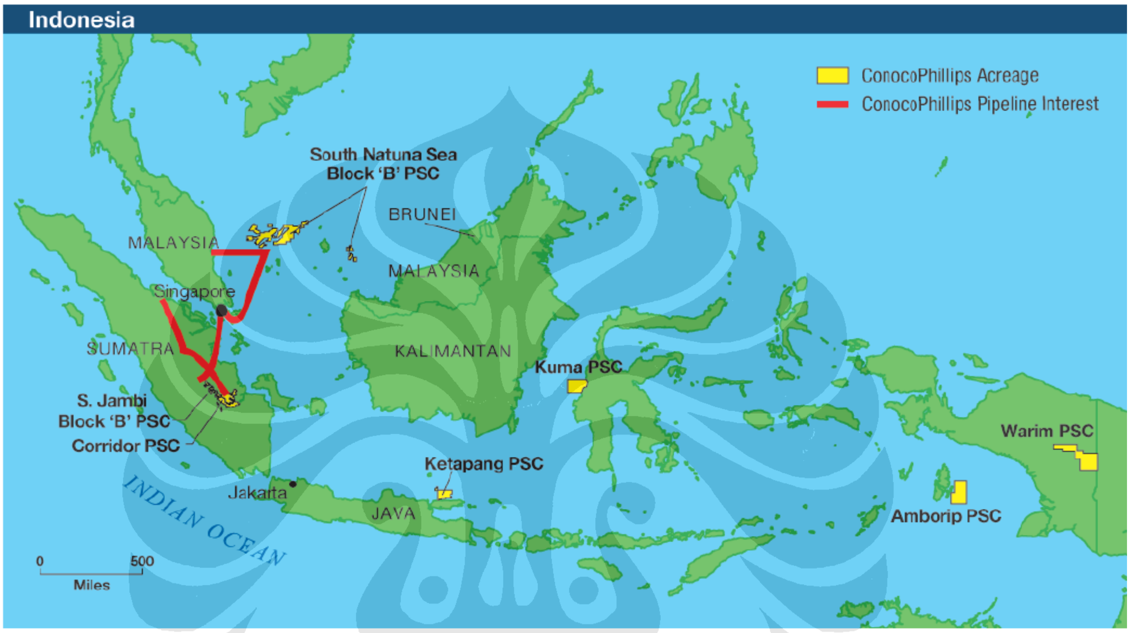
ConocoPhillips di Indonesia

ConocoPhillips telah hadir di Indonesia selama lebih dari 40 tahun dan memiliki aset yang telah berproduksi di dua area utama, Laut Natuna Selatan dan Sumatra Selatan (*onshore*/daratan). ConocoPhillips memiliki tujuh KKS (Kontrak Kerja Sama Produksi – PSC – *Production Sharing Contracts*) terdiri dari 12.3 juta *acre* (~ 50.000 km^2) area eksplorasi dan produksi. Empat KKS adalah lepas pantai: KKS Laut Natuna Selatan Blok B, KKS Ketapang, KKS Amborip VI dan KKS Kuma. Sementara tiga KKS yang lain adalah lapangan *onshore*: KKS Blok Koridor dan KKS Jambi Selatan di Sumatra Selatan dan KKS Warim di Papua. ConocoPhillips menjual gas alam dibawah kontrak jangka panjang ke Singapura dan Malaysia dari Laut Natuna Selatan dan ke Batam, Singapura dan Jawa Barat serta Duri *steamflood* (salah satu metoda pengangkatan minyak (*uplift*/EOR – *Enhanced Oil Recovery*) dengan menginjeksikan uap ke dalam sumur minyak untuk mengangkat minyak ke permukaan) dari Sumatra Selatan. Produksi dari Indonesia rata-rata 215 MBOED (gross) dan 69 MBOED (net) di tahun 2007.

Indonesia *Average Daily Net Production, 2007*						
Area	Interest	Operator	Oil MBD	Gas MMCFD	NGL MBD	Total MBOED
South Natuna Sea Block B PSC	40.0%	ConocoPhillips	9	104	2	28
Sumatra Corridor Block PSC	54.0%	ConocoPhillips	2	217	0	38
Sumatra South Jambi PSC	45.0%	ConocoPhillips	0	6	0	1
Others[1]	Various	ConocoPhillips	1	3	0	2
Total Indonesia			**12**	**330**	**2**	**69**

[1] Assets disposition in 2007, Sumatra Corridor TAC and E. Java Pangkah.

Rata-rata Produksi Per Hari di ConocoPhillips Indonesia pada Tahun 2007



Area Eksplorasi dan Produksi ConocoPhillips di Indonesia

Laut Natuna Selatan

KKS Blok B

Operator: ConocoPhillips (40.0%)

Pemegang Saham Lainnya: Inpex (35.0%), Chevron (25.0%)

Kontrak kerjasama Blok B diberikan pada tahun 1968, dan produksi pertama dilakukan pada tahun 1979. Perpanjangan kontrak kerjasama dilakukan pada tahun 1998 dan kontrak ini akan berakhir pada tahun 2028. Kedalaman laut rata-rata di Blok B adalah 300 kaki (~ 100 meter). KKS ini memiliki satu lapangan yang telah berproduksi secara matang (*mature*) dan 16 lapangan gas pada fase pengembangan yang bervariasi, dimana tujuh dari lapangan ini memiliki volume minyak atau kondensat yang *recoverable* (dapat diangkat ke permukaan – dari perspektif reservoir). Pada akhir 2004, produksi minyak dimulai dari lapangan minyak dan gas Belanak melalui sebuah FPSO dan fasilitas lain yang baru dibangun. Sebuah LPG FSO (*liquefied propane gas floating storage and offloading vessel* – fasilitas terapung untuk penyimpanan dan *offloading* gas propan cair) secara sukses mulai beroperasi pada April 2007 dan telah mulai menerima LPG dari FPSO. LPG ini diproduksi dari lapangan Belanak, Hiu dan Kerisi di dalam Blok B. Pada area lain di Blok B, lapangan Hiu secara sukses mendistribusikan gas pertamanya pada Desember 2006 dan produksi dari Kerisi dimulai pada Desember 2007. Saat ini pengembangan dari lapangan North Well X sedang di laksanakan (penulis terlibat dalam pengembangan lapangan North Well X) dan produksi pertama dari lapangan ini dijadwalkan pada Agustus 2009. Gas dari North Well X ini akan di proses di fasilitas Belanak di mana LPG akan diekstraksi. Gas alam dari Blok B dijual melalui dua kontrak jangka panjang. Pada kontrak pertama, ConocoPhillips merupakan partisipan dari WNG (*West Natuna Supply Group* – Suplai Grup dari Natuna Barat). WNG memasarkan secara bersama gas alam dari 3 KKS di lapangan yang berada di Laut Natuna Selatan, termasuk Blok B ke SembGas di Singapura. Pada kontrak kedua, gas alam yang hanya diproduksi dari blok B didistribusikan ke Petronas di Malaysia. Produksi net pada tahun 2007 adalah 9 MBD minyak mentah, 104 MMCFD gas alam dan 2 MBD NGL (*Natural Gas Liquid* – Gas Alam Cair).

Sumatra

KKS Blok Koridor

Operator: ConocoPhillips (54.0%)

Pemegang Saham Lainnya: Talisman (36.0%), Pertamina (10.0%)

KKS Blok Koridor terletak di Sumatra Selatan dan mencakup area kontrak sebesar 872 mil^2 (~ 2260 km^2). Kontrak kerjasama ini didapatkan pada tahun 1983 dan dijadwalkan akan berakhir pada tahun 2003 dengan perpanjangan kontrak yang berlaku saat ini. Aset ini terdiri dari enam lapangan minyak dan enam lapangan gas alam. Lapangan minyak utama yang berproduksi adalah Puyuh, Supat dan Rawa. Sedangkan lapangan gas yang utama adalah Suban, Sumpal, Dayung dan Gelam. Produksi gas dimulai pada tahun 1998, dengan pengembangan dari beberapa lapangan minyak dan pusat gas plant untuk menyuplai gas ke Duri *steamflood* di Sumatra. Lapangan Sumpal adalah pengembangan kedua, memberikan suplai gas ke Gas Supply Pte. Ltd, yang berada di Singapura, dimulai pada Juli 2003. Ini merupakan penjualan ekspor pertama dari Blok Koridor. Pada tahun 2002, fase pertama dari pengembangan lapangan Suban mulai beroperasi, meningkatkan penjualan gas ke Duri *steamflood*. Sebagai bagian dari rencana pengembangan sumber daya yang tersedia di Blok Koridor, ConocoPhillips menyelesaikan fase kedua dari pengembangan lapangan Suban pada Desember 2006. Proyek ini termasuk ekspansi dari gas plant Suban yang telah ada, jalur pipa dan sumur-sumur tambahan. Pada Oktober 2007, KKS Blok Koridor memulai penjualan gas pertamanya dari Suban Fase II ke PT Perusahaan Gas Negara (Persero) TBK (PGN), dibawah kontrak suplai gas selama 17 tahun dengan nilai kontrak sebesar 2.2 trilyun kaki kubik gas (gross). Gas ini didistribusikan untuk pasar industri dan tenaga di Jawa Barat dan DKI Jakarta. Pada tahun 2007, ConocoPhillips menandatangani perjanjian penjualan gas dengan PT Energasindo Heksa Karya (Energas) untuk menyuplai 65 milyar kaki kubik gas untuk pasar di Sumatra bagian tengah dimulai pada tahun 2009. Produksi net di tahun 2007 adalah 2 MBD minyak mentah dan 217 MMCFD gas alam.

KKS Jambi Selatan ‘B’

Operator: ConocoPhillips (45.0%)

Pemegang Saham Lainnya: PetroChina (30.0%), Pertamina(25.0%)

KKS Jambi Selatan ‘B’ berlokasi di Sumatra Selatan dan mencakup area kontrak sebesar 594 *mile*^{2} (~ 1540 km^2). KKS ini didapatkan pada tahun 1990 dan dijadwalkan akan berakhir pada tahun 2020. Secara keseluruhan, terdapat enam lapangan gas dimana lapangan Teluk Rendah dan Geger Kalong saat ini berproduksi. Produksi gas dimulai di tahun 2004 untuk menyuplai Gas Supply Pte. Ltd. pada kontrak penjualan gas. Penemuan gas yang lainnya sedang dalam evaluasi. Produksi net di tahun 2007 adalah 6 MMCFD gas alam.

TransAsia Pipeline Co. Pvt. Ltd.

Melalui 35 persen kepemilikan saham di TransAsia Pipeline Co. Pvt. Ltd., ConocoPhillips memegang secara tidak langsung 14 persen kepemilikan saham dari perusahaan jalur transmisi pipa gas terbesar di Indonesia, PT Transportasi Gas Indonesia (TGI). TGI memiliki dan mengoperasikan 621 *mile* (~ 1000 km) pipa gas alam di darat dan lepas pantai yang menghantarkan gas alam ConocoPhillips yang berasal dari Sumatra Selatan ke pasar gas Indonesia, termasuk jalur pipa dari Grissik ke Duri dan Grissik ke Singapura.

Indonesia Exploration and Business Development *2007 Activity*

License	Interest	Operator	Activity
Ketapang PSC	50.0% 50.0%	ConocoPhillips (Operator) PETRONAS	The Ketapang PSC, located off East Java, was acquired in 1998, and ConocoPhillips sold its interest in mid-2008.
Kuma PSC	60.0% 40.0%	ConocoPhillips (Operator) Statoil	The Kuma PSC was signed on Jan. 16, 2007. This block is in a deepwater, frontier exploration area of the East Makassar Straits. The block covers about 3,160 square miles. A 3-D seismic survey was acquired in the second quarter of 2008. There is a firm obligation to drill one well, which is expected to spud in early 2010.
Amborip VI PSC	100%	ConocoPhillips	The Amborip VI PSC in the Arafura Sea was signed on Sept. 22, 2006. The block is situated in the remote far eastern portion of Indonesia, south of Papua. The block is situated in shallow water and covers about 5,996 square miles. A 2-D seismic program is planned for 2008. There is a firm two well obligation, and the first well is expected to spud in 2009.
Warim PSC	80.0% 20.0%	ConocoPhillips (Operator) Santos	The Warim PSC was signed in May 1987. This is an onshore exploration block in an area of Papua that covers about 9,480 square miles. Work continues in order to determine the prospectivity of the block.

Eksplorasi dan Pengembangan Pengembangan Bisnis di ConocoPhillips Indonesia

B. STUDI UNTUK SUMUR X EKSPLORASI, *CONDUCTOR ASSESSMENT* UNTUK BEBAN LINGKUNGAN

MONTHLY OMNIDIRECTIONAL EXTREME METOCEAN CRITERIA FOR BELUT

RETURN PERIOD = 1 YEAR

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WINDS													
1-HOUR SUSTAINED WIND SPEED (m/s)	14	14	13	11	7	8	9	9	10	10	10	13.3	14
REFERENCED TO 10m ABOVE MSL	AVG	14	14	14	14	14	14	14	14	14	14	14	14
Wind (Knts) - 1 Year		27	25	22	14	16	18	18	19	19	19	26	27
Avarage Wind (Knts) - Aug - Sept 03									17	17			

1-MINUTE SUSTAINED WIND SPEED =1-HOUR SPEED *1.20
3-SECOND GUST SPEED = 1-HOUR SPEED * 1.40
FOR SUSTAINED WIND SPEEDS AT OTHER REFERENCE LEVELS (Z): V(Z) = V(10)*((Z/10)^0.12)

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SigWave (m) - 1 Year													
WAVES									1.3	1.3			
SIGNIFICANT WAVE HEIGHT (m)	2.9	2.9	2.8	2.6	1.4	1.3	1.2	1.1	1.3	1.2	1.5	2.8	2.9
SPECTRAL PEAK PERIOD (s)	9.1	9.1	8.9	8.7	6.6	6.3	6.0	5.7	6.3	6.0	6.9	8.9	9.1
AVERAGE ZERO-CROSSING PERIOD (s)	7.0	7.0	6.8	6.7	5.1	4.9	4.6	4.4	4.8	4.6	5.3	6.8	7.0
MAXIMUM WAVE HEIGHT (m)	5.6	5.6	5.3	5.0	2.8	2.5	2.3	2.1	2.5	2.3	2.9	5.3	5.6
PERIOD OF MAXIMUM WAVE (s)	8.2	8.2	8.1	7.9	6.0	5.8	5.5	5.2	5.7	5.5	6.2	8.1	8.2

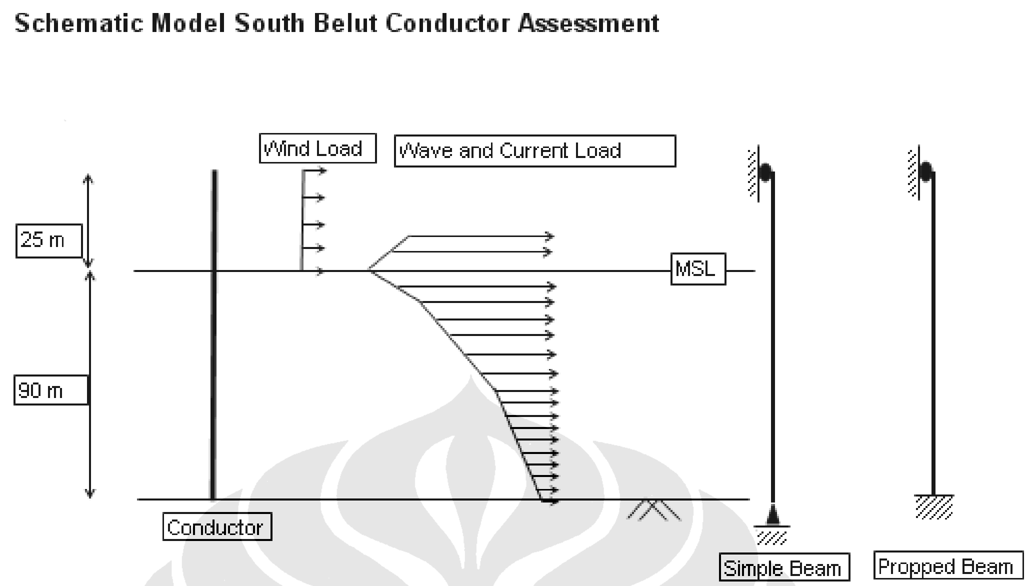
FOR AIR GAP CALCULATIONS: CREST ELEVATION WILL BE DERIVED AS (0.6 * HMAX)

GIVEN THAT A WAVE SPECTRUM IS REQUIRED, IN LIEU OF DATA OR ACCEPTED PRACTICE TO THE CONTRARY, A JONSWAP SPECTRAL FORM WITH A PEAK ENHANCEMENT FACTOR (GAMMA) OF 3.3 SHALL BE ASSUMED TO APPLY

WATER LEVELS (m) - REFERENCED TO MEAN SEA LEVEL													
HIGHEST ASTRONOMICAL TIDE	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
LOWEST ASTRONOMICAL TIDE	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
POSITIVE STORM SURGE	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2

CURRENT SPEED (m/s)													
SURFACE	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
MID-DEPTH	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
NEAR-BOTTOM	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7

***Environmental Load* untuk satu tahun**



Wind Forces

F = 0,473.V^2.Cs.OD
V = 14 m/s
Cs = 1

OD = 13-3/8" = 0.34 m
F = 31.52 N/m = **0.0024 kips/ft**

OD = 20" = 0.5 m
F = 46.35 N/m = **0.0035 kips/ft**

Near Bottom Kalkulasi

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 6/Feb/2008

INPUT PARAMETERS :

Wave Height H = 2.900 m
Wave Period T = 7.020 sec

Water Depth d	= 90.000 m
Reference Height above mudline	= 0.000 m
Current at Reference height	= 0.600 m/sec
Density of Sea Water	= 1027.000 kg/m^3
Inertia Coefficient Ci	= 1.600
Drag Coefficient Cd	= 0.650
Lift Coefficient Cl	= 0.900
Tubular Diameter	= 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	**00.0018**	**00.0000**	**000041.10**	**000056.91**	**000000.00**
01.0	00.0018	00.0000	000041.10	000056.91	000000.00
02.0	00.0018	00.0001	000041.10	000056.91	000000.01
03.0	00.0018	00.0001	000041.10	000056.91	000000.01
04.0	00.0018	00.0001	000041.10	000056.91	000000.02
05.0	00.0018	00.0001	000041.10	000056.91	000000.02
06.0	00.0018	00.0002	000041.10	000056.91	000000.03
07.0	00.0018	00.0002	000041.10	000056.90	000000.03
08.0	00.0018	00.0002	000041.10	000056.90	000000.03
09.0	00.0018	00.0003	000041.10	000056.90	000000.04
10.0	00.0018	00.0003	000041.10	000056.90	000000.04
11.0	00.0018	00.0003	000041.09	000056.90	000000.05
12.0	00.0018	00.0003	000041.09	000056.90	000000.05
13.0	00.0018	00.0004	000041.09	000056.90	000000.05
14.0	00.0017	00.0004	000041.09	000056.90	000000.06
15.0	00.0017	00.0004	000041.09	000056.90	000000.06
16.0	00.0017	00.0004	000041.09	000056.89	000000.07
17.0	00.0017	00.0005	000041.09	000056.89	000000.07
18.0	00.0017	00.0005	000041.09	000056.89	000000.07
19.0	00.0017	00.0005	000041.09	000056.89	000000.08
20.0	00.0017	00.0006	000041.08	000056.89	000000.08
21.0	00.0017	00.0006	000041.08	000056.88	000000.09
22.0	00.0017	00.0006	000041.08	000056.88	000000.09
23.0	00.0017	00.0006	000041.08	000056.88	000000.09
24.0	00.0016	00.0007	000041.08	000056.88	000000.10
25.0	00.0016	00.0007	000041.08	000056.88	000000.10
26.0	00.0016	00.0007	000041.07	000056.87	000000.11
27.0	00.0016	00.0007	000041.07	000056.87	000000.11
28.0	00.0016	00.0008	000041.07	000056.87	000000.11
29.0	00.0016	00.0008	000041.07	000056.86	000000.12
30.0	00.0016	00.0008	000041.07	000056.86	000000.12
31.0	00.0015	00.0008	000041.06	000056.86	000000.12
32.0	00.0015	00.0009	000041.06	000056.86	000000.13

33.0	00.0015	00.0009	000041.06	000056.85	000000.13
34.0	00.0015	00.0009	000041.06	000056.85	000000.13
35.0	00.0015	00.0009	000041.06	000056.85	000000.14
36.0	00.0015	00.0009	000041.05	000056.84	000000.14
37.0	00.0014	00.0010	000041.05	000056.84	000000.14
38.0	00.0014	00.0010	000041.05	000056.83	000000.15
39.0	00.0014	00.0010	000041.04	000056.83	000000.15
40.0	00.0014	00.0010	000041.04	000056.83	000000.15
41.0	00.0014	00.0011	000041.04	000056.82	000000.16
42.0	00.0013	00.0011	000041.04	000056.82	000000.16
43.0	00.0013	00.0011	000041.03	000056.82	000000.16
44.0	00.0013	00.0011	000041.03	000056.81	000000.17
45.0	00.0013	00.0011	000041.03	000056.81	000000.17
46.0	00.0012	00.0012	000041.02	000056.80	000000.17
47.0	00.0012	00.0012	000041.02	000056.80	000000.18
48.0	00.0012	00.0012	000041.02	000056.79	000000.18
49.0	00.0012	00.0012	000041.01	000056.79	000000.18
50.0	00.0012	00.0012	000041.01	000056.79	000000.18
51.0	00.0011	00.0013	000041.01	000056.78	000000.19
52.0	00.0011	00.0013	000041.01	000056.78	000000.19
53.0	00.0011	00.0013	000041.00	000056.77	000000.19
54.0	00.0011	00.0013	000041.00	000056.77	000000.19
55.0	00.0010	00.0013	000040.99	000056.76	000000.20
56.0	00.0010	00.0013	000040.99	000056.76	000000.20
57.0	00.0010	00.0014	000040.99	000056.75	000000.20
58.0	00.0010	00.0014	000040.98	000056.75	000000.20
59.0	00.0009	00.0014	000040.98	000056.74	000000.21
60.0	00.0009	00.0014	000040.98	000056.74	000000.21
61.0	00.0009	00.0014	000040.97	000056.73	000000.21
62.0	00.0008	00.0014	000040.97	000056.73	000000.21
63.0	00.0008	00.0014	000040.97	000056.72	000000.21
64.0	00.0008	00.0014	000040.96	000056.72	000000.22
65.0	00.0008	00.0015	000040.96	000056.71	000000.22
66.0	00.0007	00.0015	000040.95	000056.71	000000.22
67.0	00.0007	00.0015	000040.95	000056.70	000000.22
68.0	00.0007	00.0015	000040.95	000056.69	000000.22
69.0	00.0006	00.0015	000040.94	000056.69	000000.22
70.0	00.0006	00.0015	000040.94	000056.68	000000.23
71.0	00.0006	00.0015	000040.93	000056.68	000000.23
72.0	00.0006	00.0015	000040.93	000056.67	000000.23
73.0	00.0005	00.0015	000040.93	000056.67	000000.23
74.0	00.0005	00.0015	000040.92	000056.66	000000.23
75.0	00.0005	00.0016	000040.92	000056.65	000000.23
76.0	00.0004	00.0016	000040.91	000056.65	000000.23
77.0	00.0004	00.0016	000040.91	000056.64	000000.23
78.0	00.0004	00.0016	000040.90	000056.64	000000.24
79.0	00.0003	00.0016	000040.90	000056.63	000000.24
80.0	00.0003	00.0016	000040.90	000056.63	000000.24

81.0	00.0003	00.0016	000040.89	000056.62	000000.24
82.0	00.0002	00.0016	000040.89	000056.61	000000.24
83.0	00.0002	00.0016	000040.88	000056.61	000000.24
84.0	00.0002	00.0016	000040.88	000056.60	000000.24
85.0	00.0002	00.0016	000040.88	000056.60	000000.24
86.0	00.0001	00.0016	000040.87	000056.59	000000.24
87.0	00.0001	00.0016	000040.87	000056.58	000000.24
88.0	00.0001	00.0016	000040.86	000056.58	000000.24
89.0	00.0000	00.0016	000040.86	000056.57	000000.24
90.0	00.0000	00.0016	000040.85	000056.57	000000.24

Kalkulsi 45 meter

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 6/Feb/2008

INPUT PARAMETERS :

Wave Height H	= 2.900 m
Wave Period T	= 7.020 sec
Water Depth d	= 90.000 m
Reference Height above mudline	= 45.000 m
Current at Reference height	= 0.600 m/sec
Density of Sea Water	= 1027.000 kg/m^3
Inertia Coefficient Ci	= 1.600
Drag Coefficient Cd	= 0.650
Lift Coefficient Cl	= 0.900
Tubular Diameter	= 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	**00.0339**	**00.0000**	**000045.60**	**000063.14**	**000000.00**
01.0	00.0339	00.0005	000045.60	000063.14	000000.08
02.0	00.0339	00.0011	000045.60	000063.14	000000.16
03.0	00.0339	00.0016	000045.59	000063.13	000000.24

04.0	00.0338	00.0021	000045.59	000063.12	000000.32
05.0	00.0338	00.0026	000045.58	000063.11	000000.40
06.0	00.0337	00.0032	000045.57	000063.10	000000.47
07.0	00.0336	00.0037	000045.56	000063.09	000000.55
08.0	00.0336	00.0042	000045.55	000063.07	000000.63
09.0	00.0335	00.0048	000045.54	000063.06	000000.71
10.0	00.0334	00.0053	000045.53	000063.04	000000.79
11.0	00.0333	00.0058	000045.51	000063.02	000000.86
12.0	00.0332	00.0063	000045.49	000062.99	000000.94
13.0	00.0330	00.0068	000045.48	000062.97	000001.02
14.0	00.0329	00.0073	000045.46	000062.94	000001.10
15.0	00.0327	00.0079	000045.43	000062.91	000001.17
16.0	00.0326	00.0084	000045.41	000062.88	000001.25
17.0	00.0324	00.0089	000045.39	000062.84	000001.33
18.0	00.0322	00.0094	000045.36	000062.81	000001.40
19.0	00.0321	00.0099	000045.34	000062.77	000001.48
20.0	00.0319	00.0104	000045.31	000062.73	000001.55
21.0	00.0316	00.0109	000045.28	000062.69	000001.62
22.0	00.0314	00.0114	000045.25	000062.65	000001.70
23.0	00.0312	00.0119	000045.21	000062.60	000001.77
24.0	00.0310	00.0124	000045.18	000062.56	000001.84
25.0	00.0307	00.0128	000045.14	000062.51	000001.92
26.0	00.0305	00.0133	000045.11	000062.46	000001.99
27.0	00.0302	00.0138	000045.07	000062.41	000002.06
28.0	00.0299	00.0143	000045.03	000062.35	000002.13
29.0	00.0296	00.0147	000044.99	000062.30	000002.20
30.0	00.0294	00.0152	000044.95	000062.24	000002.27
31.0	00.0291	00.0156	000044.91	000062.18	000002.33
32.0	00.0287	00.0161	000044.86	000062.12	000002.40
33.0	00.0284	00.0165	000044.82	000062.05	000002.47
34.0	00.0281	00.0170	000044.77	000061.99	000002.53
35.0	00.0278	00.0174	000044.72	000061.92	000002.60
36.0	00.0274	00.0179	000044.67	000061.86	000002.66
37.0	00.0271	00.0183	000044.62	000061.79	000002.73
38.0	00.0267	00.0187	000044.57	000061.72	000002.79
39.0	00.0263	00.0191	000044.52	000061.64	000002.85
40.0	00.0260	00.0195	000044.47	000061.57	000002.91
41.0	00.0256	00.0199	000044.41	000061.49	000002.97
42.0	00.0252	00.0203	000044.36	000061.42	000003.03
43.0	00.0248	00.0207	000044.30	000061.34	000003.09
44.0	00.0244	00.0211	000044.24	000061.26	000003.15
45.0	00.0240	00.0215	000044.18	000061.18	000003.20
46.0	00.0235	00.0218	000044.12	000061.09	000003.26
47.0	00.0231	00.0222	000044.06	000061.01	000003.31
48.0	00.0227	00.0226	000044.00	000060.92	000003.37
49.0	00.0222	00.0229	000043.94	000060.84	000003.42
50.0	00.0218	00.0233	000043.87	000060.75	000003.47
51.0	00.0213	00.0236	000043.81	000060.66	000003.52

52.0	00.0209	00.0239	000043.74	000060.57	000003.57
53.0	00.0204	00.0243	000043.68	000060.48	000003.62
54.0	00.0199	00.0246	000043.61	000060.38	000003.67
55.0	00.0194	00.0249	000043.54	000060.29	000003.71
56.0	00.0189	00.0252	000043.47	000060.20	000003.76
57.0	00.0185	00.0255	000043.41	000060.10	000003.80
58.0	00.0180	00.0258	000043.34	000060.00	000003.84
59.0	00.0174	00.0260	000043.26	000059.90	000003.88
60.0	00.0169	00.0263	000043.19	000059.81	000003.92
61.0	00.0164	00.0266	000043.12	000059.71	000003.96
62.0	00.0159	00.0268	000043.05	000059.61	000004.00
63.0	00.0154	00.0271	000042.97	000059.50	000004.04
64.0	00.0148	00.0273	000042.90	000059.40	000004.07
65.0	00.0143	00.0275	000042.83	000059.30	000004.11
66.0	00.0138	00.0277	000042.75	000059.19	000004.14
67.0	00.0132	00.0279	000042.68	000059.09	000004.17
68.0	00.0127	00.0282	000042.60	000058.98	000004.20
69.0	00.0121	00.0283	000042.52	000058.88	000004.23
70.0	00.0116	00.0285	000042.45	000058.77	000004.26
71.0	00.0110	00.0287	000042.37	000058.66	000004.28
72.0	00.0105	00.0289	000042.29	000058.56	000004.31
73.0	00.0099	00.0290	000042.21	000058.45	000004.33
74.0	00.0093	00.0292	000042.13	000058.34	000004.36
75.0	00.0088	00.0293	000042.06	000058.23	000004.38
76.0	00.0082	00.0295	000041.98	000058.12	000004.40
77.0	00.0076	00.0296	000041.90	000058.01	000004.41
78.0	00.0070	00.0297	000041.82	000057.90	000004.43
79.0	00.0064	00.0298	000041.74	000057.79	000004.45
80.0	00.0059	00.0299	000041.66	000057.68	000004.46
81.0	00.0053	00.0300	000041.58	000057.57	000004.48
82.0	00.0047	00.0301	000041.50	000057.46	000004.49
83.0	00.0041	00.0301	000041.42	000057.34	000004.50
84.0	00.0035	00.0302	000041.34	000057.23	000004.51
85.0	00.0029	00.0302	000041.25	000057.12	000004.51
86.0	00.0023	00.0303	000041.17	000057.01	000004.52
87.0	00.0018	00.0303	000041.09	000056.90	000004.52
88.0	00.0012	00.0303	000041.01	000056.79	000004.53
89.0	00.0006	00.0303	000040.93	000056.67	000004.53
90.0	00.0000	00.0304	000040.85	000056.56	000004.53

Kalkulasi 85.5 meter

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 6/Feb/2008

INPUT PARAMETERS :

Wave Height H	= 2.900 m
Wave Period T	= 7.020 sec
Water Depth d	= 90.000 m
Reference Height above mudline	= 88.500 m
Current at Reference height	= 0.600 m/sec
Density of Sea Water	= 1027.000 kg/m^3
Inertia Coefficient Ci	= 1.600
Drag Coefficient Cd	= 0.650
Lift Coefficient Cl	= 0.900
Tubular Diameter	= 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	01.1316	00.0000	000340.28	000471.16	000000.00
01.0	01.1315	00.0178	000340.22	000471.07	000002.65
02.0	01.1309	00.0355	000340.01	000470.79	000005.30
03.0	01.1301	00.0533	000339.67	000470.31	000007.95
04.0	01.1289	00.0710	000339.20	000469.66	000010.60
05.0	01.1273	00.0887	000338.59	000468.81	000013.24
06.0	01.1254	00.1064	000337.84	000467.78	000015.88
07.0	01.1231	00.1241	000336.96	000466.56	000018.52
08.0	**01.1206**	**00.1417**	**000335.95**	**000465.16**	**000021.15**
09.0	01.1176	00.1593	000334.80	000463.57	000023.77
10.0	01.1143	00.1768	000333.53	000461.81	000026.39
11.0	01.1107	00.1943	000332.12	000459.86	000028.99
12.0	01.1068	00.2117	000330.59	000457.73	000031.59
13.0	01.1025	00.2290	000328.92	000455.43	000034.18
14.0	01.0978	00.2463	000327.13	000452.96	000036.76
15.0	01.0929	00.2635	000325.22	000450.31	000039.32
16.0	01.0876	00.2806	000323.19	000447.49	000041.88
17.0	01.0819	00.2976	000321.03	000444.51	000044.42
18.0	01.0760	00.3145	000318.76	000441.36	000046.94
19.0	01.0697	00.3314	000316.37	000438.05	000049.46
20.0	01.0630	00.3481	000313.86	000434.58	000051.95
21.0	01.0561	00.3647	000311.24	000430.95	000054.43
22.0	01.0488	00.3812	000308.51	000427.17	000056.90

23.0	01.0412	00.3976	000305.68	000423.25	000059.35
24.0	01.0333	00.4139	000302.74	000419.18	000061.77
25.0	01.0251	00.4300	000299.70	000414.96	000064.18
26.0	01.0165	00.4460	000296.55	000410.61	000066.57
27.0	01.0077	00.4619	000293.32	000406.13	000068.94
28.0	00.9985	00.4776	000289.98	000401.51	000071.29
29.0	00.9891	00.4932	000286.56	000396.77	000073.61
30.0	00.9793	00.5086	000283.05	000391.91	000075.91
31.0	00.9692	00.5239	000279.45	000386.93	000078.19
32.0	00.9589	00.5390	000275.77	000381.83	000080.45
33.0	00.9482	00.5539	000272.01	000376.63	000082.68
34.0	00.9373	00.5687	000268.18	000371.32	000084.88
35.0	00.9260	00.5833	000264.27	000365.92	000087.06
36.0	00.9145	00.5977	000260.30	000360.42	000089.21
37.0	00.9027	00.6119	000256.26	000354.82	000091.33
38.0	00.8906	00.6260	000252.16	000349.15	000093.43
39.0	00.8783	00.6398	000248.00	000343.39	000095.49
40.0	00.8657	00.6535	000243.79	000337.56	000097.53
41.0	00.8528	00.6669	000239.53	000331.65	000099.54
42.0	00.8397	00.6801	000235.22	000325.68	000101.51
43.0	00.8263	00.6932	000230.86	000319.65	000103.46
44.0	00.8127	00.7060	000226.47	000313.57	000105.37
45.0	00.7988	00.7186	000222.03	000307.43	000107.25
46.0	00.7846	00.7310	000217.57	000301.25	000109.09
47.0	00.7703	00.7431	000213.08	000295.03	000110.91
48.0	00.7556	00.7550	000208.56	000288.77	000112.69
49.0	00.7408	00.7667	000204.02	000282.49	000114.43
50.0	00.7257	00.7781	000199.46	000276.18	000116.14
51.0	00.7105	00.7894	000194.89	000269.84	000117.81
52.0	00.6950	00.8003	000190.30	000263.50	000119.45
53.0	00.6793	00.8110	000185.71	000257.14	000121.05
54.0	00.6633	00.8215	000181.12	000250.78	000122.61
55.0	00.6472	00.8317	000176.53	000244.43	000124.13
56.0	00.6309	00.8417	000171.94	000238.07	000125.62
57.0	00.6144	00.8514	000167.36	000231.73	000127.07
58.0	00.5977	00.8608	000162.79	000225.40	000128.48
59.0	00.5808	00.8700	000158.23	000219.09	000129.85
60.0	00.5638	00.8789	000153.70	000212.81	000131.18
61.0	00.5465	00.8875	000149.18	000206.56	000132.47
62.0	00.5292	00.8959	000144.69	000200.34	000133.71
63.0	00.5116	00.9040	000140.23	000194.16	000134.92
64.0	00.4939	00.9118	000135.80	000188.03	000136.09
65.0	00.4760	00.9193	000131.40	000181.94	000137.21
66.0	00.4581	00.9266	000127.04	000175.90	000138.29
67.0	00.4399	00.9336	000122.72	000169.93	000139.33
68.0	00.4216	00.9402	000118.45	000164.01	000140.33
69.0	00.4032	00.9466	000114.22	000158.15	000141.28
70.0	00.3847	00.9527	000110.04	000152.37	000142.19

71.0	00.3661	00.9585	000105.92	000146.66	000143.06
72.0	00.3473	00.9640	000101.85	000141.02	000143.88
73.0	00.3285	00.9693	000097.84	000135.46	000144.66
74.0	00.3095	00.9742	000093.88	000129.99	000145.40
75.0	00.2905	00.9788	000089.99	000124.61	000146.09
76.0	00.2714	00.9831	000086.17	000119.31	000146.73
77.0	00.2522	00.9872	000082.41	000114.11	000147.33
78.0	00.2329	00.9909	000078.72	000109.00	000147.89
79.0	00.2135	00.9943	000075.11	000103.99	000148.40
80.0	00.1941	00.9974	000071.56	000099.09	000148.86
81.0	00.1746	01.0002	000068.10	000094.29	000149.28
82.0	00.1551	01.0027	000064.71	000089.59	000149.66
83.0	00.1355	01.0049	000061.39	000085.01	000149.98
84.0	00.1159	01.0068	000058.16	000080.53	000150.27
85.0	00.0963	01.0084	000055.01	000076.17	000150.50
86.0	00.0766	01.0097	000051.95	000071.93	000150.69
87.0	00.0569	01.0106	000048.97	000067.80	000150.84
88.0	00.0372	01.0113	000046.07	000063.79	000150.94
89.0	00.0174	01.0117	000043.26	000059.90	000150.99
90.0	-00.0023	01.0117	000040.54	000056.14	000151.00

Kalkulasi 90 meter

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 6/Feb/2008

INPUT PARAMETERS :

Wave Height H = 2.900 m
Wave Period T = 7.020 sec
Water Depth d = 90.000 m
Reference Height above mudline = 90.000 m
Current at Reference height = 0.600 m/sec
Density of Sea Water = 1027.000 kg/m^3
Inertia Coefficient Ci = 1.600
Drag Coefficient Cd = 0.650
Lift Coefficient Cl = 0.900
Tubular Diameter = 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	01.2773	00.0000	000399.97	000553.80	000000.00
01.0	01.2772	00.0201	000399.88	000553.68	000003.00
02.0	01.2766	00.0401	000399.63	000553.34	000005.99
03.0	01.2756	00.0602	000399.22	000552.76	000008.98
04.0	01.2742	00.0802	000398.63	000551.95	000011.97
05.0	01.2725	00.1002	000397.88	000550.92	000014.96
06.0	01.2703	00.1202	000396.97	000549.65	000017.94
07.0	**01.2678**	**00.1401**	**000395.90**	**000548.16**	**000020.92**
08.0	01.2648	00.1600	000394.66	000546.45	000023.89
09.0	01.2615	00.1799	000393.25	000544.51	000026.85
10.0	01.2578	00.1997	000391.69	000542.34	000029.80
11.0	01.2537	00.2194	000389.97	000539.96	000032.74
12.0	01.2493	00.2391	000388.09	000537.36	000035.68
13.0	01.2444	00.2586	000386.06	000534.54	000038.60
14.0	01.2392	00.2781	000383.87	000531.51	000041.51
15.0	01.2336	00.2976	000381.53	000528.27	000044.41
16.0	01.2276	00.3169	000379.04	000524.83	000047.30
17.0	01.2212	00.3361	000376.41	000521.18	000050.16
18.0	01.2145	00.3552	000373.62	000517.33	000053.02
19.0	01.2074	00.3742	000370.70	000513.28	000055.86
20.0	01.1999	00.3931	000367.64	000509.04	000058.68
21.0	01.1920	00.4119	000364.44	000504.61	000061.48
22.0	01.1838	00.4306	000361.10	000499.99	000064.26
23.0	01.1752	00.4491	000357.64	000495.19	000067.02
24.0	01.1663	00.4674	000354.05	000490.22	000069.76
25.0	01.1570	00.4857	000350.33	000485.08	000072.48
26.0	01.1474	00.5037	000346.50	000479.77	000075.18
27.0	01.1374	00.5217	000342.54	000474.29	000077.86
28.0	01.1270	00.5394	000338.48	000468.66	000080.51
29.0	01.1163	00.5570	000334.30	000462.88	000083.13
30.0	01.1053	00.5744	000330.02	000456.94	000085.73
31.0	01.0939	00.5917	000325.63	000450.87	000088.30
32.0	01.0822	00.6087	000321.15	000444.66	000090.85
33.0	01.0702	00.6256	000316.57	000438.32	000093.37
34.0	01.0578	00.6422	000311.90	000431.86	000095.85
35.0	01.0451	00.6587	000307.14	000425.28	000098.31
36.0	01.0321	00.6750	000302.31	000418.58	000100.74
37.0	01.0188	00.6910	000297.39	000411.78	000103.14
38.0	01.0052	00.7069	000292.41	000404.87	000105.50
39.0	00.9913	00.7225	000287.35	000397.87	000107.83
40.0	00.9770	00.7379	000282.23	000390.78	000110.13
41.0	00.9625	00.7531	000277.05	000383.61	000112.40
42.0	00.9476	00.7680	000271.82	000376.36	000114.63

43.0	00.9325	00.7827	000266.53	000369.04	000116.82
44.0	00.9171	00.7972	000261.20	000361.66	000118.98
45.0	00.9014	00.8114	000255.83	000354.22	000121.10
46.0	00.8855	00.8253	000250.42	000346.73	000123.18
47.0	00.8693	00.8391	000244.98	000339.20	000125.23
48.0	00.8528	00.8525	000239.51	000331.63	000127.24
49.0	00.8360	00.8657	000234.02	000324.02	000129.20
50.0	00.8190	00.8786	000228.51	000316.39	000131.13
51.0	00.8017	00.8912	000222.98	000308.74	000133.02
52.0	00.7842	00.9036	000217.45	000301.08	000134.86
53.0	00.7665	00.9157	000211.91	000293.42	000136.67
54.0	00.7485	00.9275	000206.37	000285.75	000138.43
55.0	00.7303	00.9390	000200.84	000278.09	000140.15
56.0	00.7119	00.9503	000195.32	000270.44	000141.83
57.0	00.6933	00.9612	000189.81	000262.81	000143.46
58.0	00.6744	00.9719	000184.32	000255.21	000145.05
59.0	00.6554	00.9822	000178.85	000247.63	000146.59
60.0	00.6361	00.9923	000173.40	000240.10	000148.09
61.0	00.6167	01.0020	000167.99	000232.60	000149.55
62.0	00.5970	01.0114	000162.61	000225.16	000150.95
63.0	00.5772	01.0205	000157.27	000217.76	000152.31
64.0	00.5572	01.0293	000151.98	000210.43	000153.63
65.0	00.5371	01.0378	000146.73	000203.17	000154.90
66.0	00.5168	01.0460	000141.53	000195.97	000156.11
67.0	00.4963	01.0538	000136.39	000188.85	000157.29
68.0	00.4757	01.0614	000131.31	000181.81	000158.41
69.0	00.4549	01.0686	000126.29	000174.86	000159.48
70.0	00.4340	01.0754	000121.33	000168.00	000160.51
71.0	00.4130	01.0820	000116.45	000161.23	000161.49
72.0	00.3918	01.0882	000111.63	000154.57	000162.41
73.0	00.3705	01.0941	000106.89	000148.01	000163.29
74.0	00.3491	01.0996	000102.23	000141.55	000164.12
75.0	00.3276	01.1048	000097.66	000135.22	000164.89
76.0	00.3061	01.1097	000093.16	000128.99	000165.62
77.0	00.2844	01.1142	000088.76	000122.89	000166.30
78.0	00.2626	01.1184	000084.44	000116.92	000166.92
79.0	00.2408	01.1222	000080.22	000111.07	000167.49
80.0	00.2188	01.1257	000076.09	000105.36	000168.02
81.0	00.1969	01.1289	000072.06	000099.77	000168.49
82.0	00.1748	01.1317	000068.13	000094.33	000168.91
83.0	00.1527	01.1342	000064.30	000089.03	000169.28
84.0	00.1306	01.1363	000060.57	000083.87	000169.59
85.0	00.1084	01.1381	000056.95	000078.85	000169.86
86.0	00.0862	01.1395	000053.44	000073.99	000170.07
87.0	00.0000	00.0000	000000.00	000000.00	000000.00
88.0	00.0000	00.0000	000000.00	000000.00	000000.00
89.0	00.0000	00.0000	000000.00	000000.00	000000.00
90.0	00.0000	00.0000	000000.00	000000.00	000000.00

Kalkulasi 91.5 meter

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 6/Feb/2008

INPUT PARAMETERS :

Wave Height H = 2.900 m
Wave Period T = 7.020 sec
Water Depth d = 90.000 m
Reference Height above mudline = 91.500 m
Current at Reference height = 0.600 m/sec
Density of Sea Water = 1027.000 kg/m^3
Inertia Coefficient Ci = 1.600
Drag Coefficient Cd = 0.650
Lift Coefficient Cl = 0.900
Tubular Diameter = 0.340 m

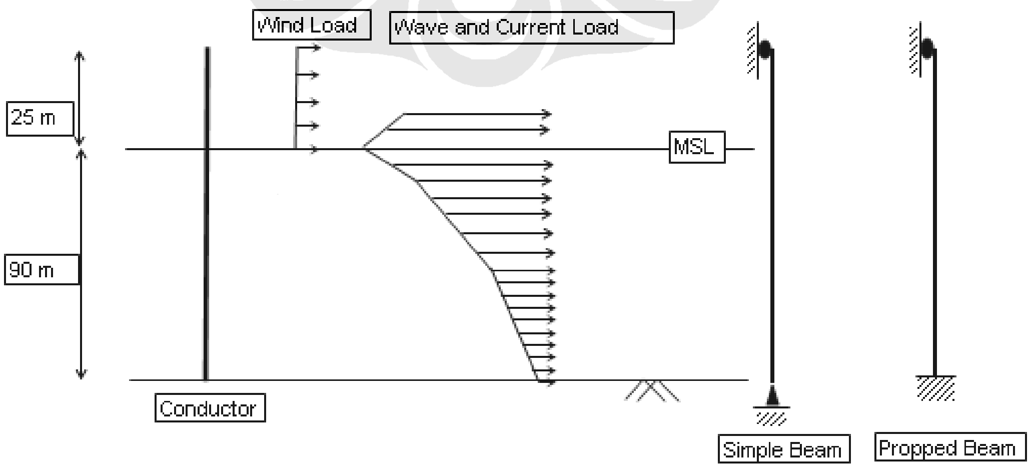
HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	01.4419	00.0000	000473.14	000655.12	000000.00
01.0	01.4416	00.0227	000473.04	000654.97	000003.38
02.0	01.4410	00.0453	000472.73	000654.55	000006.77
03.0	01.4399	00.0680	000472.22	000653.84	000010.15
04.0	01.4383	00.0906	000471.50	000652.85	000013.52
05.0	01.4363	00.1132	000470.58	000651.58	000016.90
06.0	01.4339	00.1358	000469.46	000650.02	000020.26
07.0	01.4311	00.1583	000468.14	000648.19	000023.63
08.0	01.4277	00.1808	000466.62	000646.08	000026.98
09.0	**01.4240**	**00.2032**	**000464.89**	**000643.70**	**000030.33**
10.0	01.4198	00.2255	000462.98	000641.04	000033.66
11.0	00.0000	00.0000	000000.00	000000.00	000000.00
12.0	00.0000	00.0000	000000.00	000000.00	000000.00
13.0	00.0000	00.0000	000000.00	000000.00	000000.00
14.0	00.0000	00.0000	000000.00	000000.00	000000.00
15.0	00.0000	00.0000	000000.00	000000.00	000000.00

16.0	00.0000	00.0000	000000.00	000000.00	000000.00
17.0	00.0000	00.0000	000000.00	000000.00	000000.00
18.0	00.0000	00.0000	000000.00	000000.00	000000.00
19.0	00.0000	00.0000	000000.00	000000.00	000000.00
20.0	00.0000	00.0000	000000.00	000000.00	000000.00
21.0	00.0000	00.0000	000000.00	000000.00	000000.00
22.0	00.0000	00.0000	000000.00	000000.00	000000.00
23.0	00.0000	00.0000	000000.00	000000.00	000000.00
24.0	00.0000	00.0000	000000.00	000000.00	000000.00
25.0	00.0000	00.0000	000000.00	000000.00	000000.00
26.0	00.0000	00.0000	000000.00	000000.00	000000.00
27.0	00.0000	00.0000	000000.00	000000.00	000000.00
28.0	00.0000	00.0000	000000.00	000000.00	000000.00
29.0	00.0000	00.0000	000000.00	000000.00	000000.00
30.0	00.0000	00.0000	000000.00	000000.00	000000.00
31.0	00.0000	00.0000	000000.00	000000.00	000000.00
32.0	00.0000	00.0000	000000.00	000000.00	000000.00
33.0	00.0000	00.0000	000000.00	000000.00	000000.00
34.0	00.0000	00.0000	000000.00	000000.00	000000.00
35.0	00.0000	00.0000	000000.00	000000.00	000000.00
36.0	00.0000	00.0000	000000.00	000000.00	000000.00
37.0	00.0000	00.0000	000000.00	000000.00	000000.00
38.0	00.0000	00.0000	000000.00	000000.00	000000.00
39.0	00.0000	00.0000	000000.00	000000.00	000000.00
40.0	00.0000	00.0000	000000.00	000000.00	000000.00
41.0	00.0000	00.0000	000000.00	000000.00	000000.00
42.0	00.0000	00.0000	000000.00	000000.00	000000.00
43.0	00.0000	00.0000	000000.00	000000.00	000000.00
44.0	00.0000	00.0000	000000.00	000000.00	000000.00
45.0	00.0000	00.0000	000000.00	000000.00	000000.00
46.0	00.0000	00.0000	000000.00	000000.00	000000.00
47.0	00.0000	00.0000	000000.00	000000.00	000000.00
48.0	00.0000	00.0000	000000.00	000000.00	000000.00
49.0	00.0000	00.0000	000000.00	000000.00	000000.00
50.0	00.0000	00.0000	000000.00	000000.00	000000.00
51.0	00.0000	00.0000	000000.00	000000.00	000000.00
52.0	00.0000	00.0000	000000.00	000000.00	000000.00
53.0	00.0000	00.0000	000000.00	000000.00	000000.00
54.0	00.0000	00.0000	000000.00	000000.00	000000.00
55.0	00.0000	00.0000	000000.00	000000.00	000000.00
56.0	00.0000	00.0000	000000.00	000000.00	000000.00
57.0	00.0000	00.0000	000000.00	000000.00	000000.00
58.0	00.0000	00.0000	000000.00	000000.00	000000.00
59.0	00.0000	00.0000	000000.00	000000.00	000000.00
60.0	00.0000	00.0000	000000.00	000000.00	000000.00
61.0	00.0000	00.0000	000000.00	000000.00	000000.00
62.0	00.0000	00.0000	000000.00	000000.00	000000.00
63.0	00.0000	00.0000	000000.00	000000.00	000000.00

64.0	00.0000	00.0000	000000.00	000000.00	000000.00
65.0	00.0000	00.0000	000000.00	000000.00	000000.00
66.0	00.0000	00.0000	000000.00	000000.00	000000.00
67.0	00.0000	00.0000	000000.00	000000.00	000000.00
68.0	00.0000	00.0000	000000.00	000000.00	000000.00
69.0	00.0000	00.0000	000000.00	000000.00	000000.00
70.0	00.0000	00.0000	000000.00	000000.00	000000.00
71.0	00.0000	00.0000	000000.00	000000.00	000000.00
72.0	00.0000	00.0000	000000.00	000000.00	000000.00
73.0	00.0000	00.0000	000000.00	000000.00	000000.00
74.0	00.0000	00.0000	000000.00	000000.00	000000.00
75.0	00.0000	00.0000	000000.00	000000.00	000000.00
76.0	00.0000	00.0000	000000.00	000000.00	000000.00
77.0	00.0000	00.0000	000000.00	000000.00	000000.00
78.0	00.0000	00.0000	000000.00	000000.00	000000.00
79.0	00.0000	00.0000	000000.00	000000.00	000000.00
80.0	00.0000	00.0000	000000.00	000000.00	000000.00
81.0	00.0000	00.0000	000000.00	000000.00	000000.00
82.0	00.0000	00.0000	000000.00	000000.00	000000.00
83.0	00.0000	00.0000	000000.00	000000.00	000000.00
84.0	00.0000	00.0000	000000.00	000000.00	000000.00
85.0	00.0000	00.0000	000000.00	000000.00	000000.00
86.0	00.0000	00.0000	000000.00	000000.00	000000.00
87.0	00.0000	00.0000	000000.00	000000.00	000000.00
88.0	00.0000	00.0000	000000.00	000000.00	000000.00
89.0	00.0000	00.0000	000000.00	000000.00	000000.00
90.0	00.0000	00.0000	000000.00	000000.00	000000.00

*Environmental Load* untuk satu tahun



Wind Forces

$F = 0.473\ V^2\ Cs\ OD$
V = 11 m/s
Cs = 1

OD = 13-3/8" = 0.34 m
F = 19.46 N/m = **0.0015 kips/ft**

Kalkulasi *Near Bottom*

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 8/Feb/2008

INPUT PARAMETERS :

Wave Height H	= 1.900 m
Wave Period T	= 5.870 sec
Water Depth d	= 90.000 m
Reference Height above mudline	= 0.000 m
Current at Reference height	= 0.700 m/sec
Density of Sea Water	= 1027.000 kg/m^3
Inertia Coefficient Ci	= 1.600
Drag Coefficient Cd	= 0.650
Lift Coefficient Cl	= 0.900
Tubular Diameter	= 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	**00.0001**	**00.0000**	**000055.62**	**000077.01**	**000000.00**
01.0	00.0001	00.0000	000055.62	000077.01	000000.00
02.0	00.0001	00.0000	000055.62	000077.01	000000.00
03.0	00.0001	00.0000	000055.62	000077.01	000000.00
04.0	00.0001	00.0000	000055.62	000077.01	000000.00
05.0	00.0001	00.0000	000055.62	000077.01	000000.00
06.0	00.0001	00.0000	000055.62	000077.01	000000.00

07.0	00.0001	00.0000	000055.62	000077.01	000000.00
08.0	00.0001	00.0000	000055.62	000077.01	000000.00
09.0	00.0001	00.0000	000055.62	000077.01	000000.00
10.0	00.0001	00.0000	000055.62	000077.01	000000.00
11.0	00.0001	00.0000	000055.62	000077.01	000000.00
12.0	00.0001	00.0000	000055.62	000077.01	000000.00
13.0	00.0001	00.0000	000055.62	000077.01	000000.00
14.0	00.0001	00.0000	000055.62	000077.01	000000.00
15.0	00.0001	00.0000	000055.62	000077.01	000000.00
16.0	00.0001	00.0000	000055.62	000077.01	000000.00
17.0	00.0001	00.0000	000055.62	000077.01	000000.00
18.0	00.0001	00.0000	000055.62	000077.01	000000.00
19.0	00.0001	00.0000	000055.62	000077.01	000000.00
20.0	00.0001	00.0000	000055.62	000077.01	000000.00
21.0	00.0001	00.0000	000055.62	000077.01	000000.00
22.0	00.0001	00.0000	000055.62	000077.01	000000.00
23.0	00.0001	00.0000	000055.62	000077.01	000000.00
24.0	00.0001	00.0000	000055.62	000077.01	000000.00
25.0	00.0001	00.0000	000055.62	000077.01	000000.00
26.0	00.0001	00.0000	000055.62	000077.01	000000.00
27.0	00.0001	00.0000	000055.62	000077.01	000000.00
28.0	00.0001	00.0000	000055.62	000077.01	000000.00
29.0	00.0001	00.0000	000055.62	000077.01	000000.00
30.0	00.0001	00.0000	000055.62	000077.01	000000.00
31.0	00.0001	00.0000	000055.62	000077.01	000000.01
32.0	00.0001	00.0000	000055.62	000077.01	000000.01
33.0	00.0001	00.0000	000055.62	000077.01	000000.01
34.0	00.0001	00.0000	000055.62	000077.01	000000.01
35.0	00.0001	00.0000	000055.62	000077.01	000000.01
36.0	00.0001	00.0000	000055.61	000077.01	000000.01
37.0	00.0000	00.0000	000055.61	000077.01	000000.01
38.0	00.0000	00.0000	000055.61	000077.01	000000.01
39.0	00.0000	00.0000	000055.61	000077.00	000000.01
40.0	00.0000	00.0000	000055.61	000077.00	000000.01
41.0	00.0000	00.0000	000055.61	000077.00	000000.01
42.0	00.0000	00.0000	000055.61	000077.00	000000.01
43.0	00.0000	00.0000	000055.61	000077.00	000000.01
44.0	00.0000	00.0000	000055.61	000077.00	000000.01
45.0	00.0000	00.0000	000055.61	000077.00	000000.01
46.0	00.0000	00.0000	000055.61	000077.00	000000.01
47.0	00.0000	00.0000	000055.61	000077.00	000000.01
48.0	00.0000	00.0000	000055.61	000077.00	000000.01
49.0	00.0000	00.0001	000055.61	000077.00	000000.01
50.0	00.0000	00.0001	000055.61	000077.00	000000.01
51.0	00.0000	00.0001	000055.61	000077.00	000000.01
52.0	00.0000	00.0001	000055.61	000077.00	000000.01
53.0	00.0000	00.0001	000055.61	000077.00	000000.01
54.0	00.0000	00.0001	000055.61	000077.00	000000.01

55.0	00.0000	00.0001	000055.61	000077.00	000000.01
56.0	00.0000	00.0001	000055.61	000077.00	000000.01
57.0	00.0000	00.0001	000055.61	000077.00	000000.01
58.0	00.0000	00.0001	000055.61	000077.00	000000.01
59.0	00.0000	00.0001	000055.61	000077.00	000000.01
60.0	00.0000	00.0001	000055.61	000077.00	000000.01
61.0	00.0000	00.0001	000055.61	000077.00	000000.01
62.0	00.0000	00.0001	000055.61	000077.00	000000.01
63.0	00.0000	00.0001	000055.61	000077.00	000000.01
64.0	00.0000	00.0001	000055.61	000077.00	000000.01
65.0	00.0000	00.0001	000055.61	000077.00	000000.01
66.0	00.0000	00.0001	000055.61	000077.00	000000.01
67.0	00.0000	00.0001	000055.61	000077.00	000000.01
68.0	00.0000	00.0001	000055.61	000077.00	000000.01
69.0	00.0000	00.0001	000055.61	000077.00	000000.01
70.0	00.0000	00.0001	000055.61	000077.00	000000.01
71.0	00.0000	00.0001	000055.61	000077.00	000000.01
72.0	00.0000	00.0001	000055.61	000077.00	000000.01
73.0	00.0000	00.0001	000055.61	000077.00	000000.01
74.0	00.0000	00.0001	000055.61	000077.00	000000.01
75.0	00.0000	00.0001	000055.61	000077.00	000000.01
76.0	00.0000	00.0001	000055.61	000077.00	000000.01
77.0	00.0000	00.0001	000055.61	000077.00	000000.01
78.0	00.0000	00.0001	000055.61	000077.00	000000.01
79.0	00.0000	00.0001	000055.61	000077.00	000000.01
80.0	00.0000	00.0001	000055.61	000077.00	000000.01
81.0	00.0000	00.0001	000055.61	000077.00	000000.01
82.0	00.0000	00.0001	000055.61	000077.00	000000.01
83.0	00.0000	00.0001	000055.61	000077.00	000000.01
84.0	00.0000	00.0001	000055.61	000077.00	000000.01
85.0	00.0000	00.0001	000055.61	000077.00	000000.01
86.0	00.0000	00.0001	000055.61	000077.00	000000.01
87.0	00.0000	00.0001	000055.61	000076.99	000000.01
88.0	00.0000	00.0001	000055.61	000076.99	000000.01
89.0	00.0000	00.0001	000055.61	000076.99	000000.01
90.0	00.0000	00.0001	000055.61	000076.99	000000.01

Kalkulasi 45 meter

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :

Date : 8/Feb/2008

INPUT PARAMETERS :

Wave Height H	= 1.900 m
Wave Period T	= 5.870 sec
Water Depth d	= 90.000 m
Reference Height above mudline	= 45.000 m
Current at Reference height	= 0.700 m/sec
Density of Sea Water	= 1027.000 kg/m^3
Inertia Coefficient Ci	= 1.600
Drag Coefficient Cd	= 0.650
Lift Coefficient Cl	= 0.900
Tubular Diameter	= 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	**00.0056**	**00.0000**	**000056.51**	**000078.24**	**000000.00**
01.0	00.0056	00.0001	000056.51	000078.24	000000.02
02.0	00.0056	00.0002	000056.50	000078.24	000000.03
03.0	00.0056	00.0003	000056.50	000078.24	000000.05
04.0	00.0056	00.0004	000056.50	000078.23	000000.06
05.0	00.0056	00.0005	000056.50	000078.23	000000.08
06.0	00.0056	00.0006	000056.50	000078.23	000000.09
07.0	00.0056	00.0007	000056.50	000078.23	000000.11
08.0	00.0056	00.0008	000056.50	000078.23	000000.13
09.0	00.0056	00.0009	000056.49	000078.22	000000.14
10.0	00.0055	00.0010	000056.49	000078.22	000000.16
11.0	00.0055	00.0012	000056.49	000078.21	000000.17
12.0	00.0055	00.0013	000056.49	000078.21	000000.19
13.0	00.0055	00.0014	000056.48	000078.21	000000.20
14.0	00.0055	00.0015	000056.48	000078.20	000000.22
15.0	00.0054	00.0016	000056.47	000078.20	000000.23
16.0	00.0054	00.0017	000056.47	000078.19	000000.25
17.0	00.0054	00.0018	000056.47	000078.18	000000.26
18.0	00.0054	00.0019	000056.46	000078.18	000000.28
19.0	00.0053	00.0020	000056.46	000078.17	000000.29
20.0	00.0053	00.0021	000056.45	000078.16	000000.31
21.0	00.0053	00.0022	000056.45	000078.15	000000.32
22.0	00.0052	00.0023	000056.44	000078.15	000000.34
23.0	00.0052	00.0024	000056.43	000078.14	000000.35
24.0	00.0051	00.0025	000056.43	000078.13	000000.37
25.0	00.0051	00.0025	000056.42	000078.12	000000.38
26.0	00.0051	00.0026	000056.41	000078.11	000000.39

27.0	00.0050	00.0027	000056.41	000078.10	000000.41
28.0	00.0050	00.0028	000056.40	000078.09	000000.42
29.0	00.0049	00.0029	000056.39	000078.08	000000.44
30.0	00.0049	00.0030	000056.38	000078.07	000000.45
31.0	00.0048	00.0031	000056.38	000078.06	000000.46
32.0	00.0048	00.0032	000056.37	000078.05	000000.48
33.0	00.0047	00.0033	000056.36	000078.04	000000.49
34.0	00.0047	00.0034	000056.35	000078.02	000000.50
35.0	00.0046	00.0035	000056.34	000078.01	000000.52
36.0	00.0046	00.0035	000056.33	000078.00	000000.53
37.0	00.0045	00.0036	000056.32	000077.99	000000.54
38.0	00.0044	00.0037	000056.31	000077.97	000000.55
39.0	00.0044	00.0038	000056.30	000077.96	000000.57
40.0	00.0043	00.0039	000056.29	000077.95	000000.58
41.0	00.0042	00.0040	000056.28	000077.93	000000.59
42.0	00.0042	00.0040	000056.27	000077.92	000000.60
43.0	00.0041	00.0041	000056.26	000077.90	000000.61
44.0	00.0040	00.0042	000056.25	000077.89	000000.63
45.0	00.0040	00.0043	000056.24	000077.87	000000.64
46.0	00.0039	00.0043	000056.23	000077.86	000000.65
47.0	00.0038	00.0044	000056.22	000077.84	000000.66
48.0	00.0038	00.0045	000056.21	000077.82	000000.67
49.0	00.0037	00.0046	000056.20	000077.81	000000.68
50.0	00.0036	00.0046	000056.18	000077.79	000000.69
51.0	00.0035	00.0047	000056.17	000077.78	000000.70
52.0	00.0035	00.0048	000056.16	000077.76	000000.71
53.0	00.0034	00.0048	000056.15	000077.74	000000.72
54.0	00.0033	00.0049	000056.13	000077.72	000000.73
55.0	00.0032	00.0049	000056.12	000077.71	000000.74
56.0	00.0031	00.0050	000056.11	000077.69	000000.75
57.0	00.0031	00.0051	000056.09	000077.67	000000.75
58.0	00.0030	00.0051	000056.08	000077.65	000000.76
59.0	00.0029	00.0052	000056.07	000077.63	000000.77
60.0	00.0028	00.0052	000056.05	000077.61	000000.78
61.0	00.0027	00.0053	000056.04	000077.60	000000.79
62.0	00.0026	00.0053	000056.03	000077.58	000000.79
63.0	00.0026	00.0054	000056.01	000077.56	000000.80
64.0	00.0025	00.0054	000056.00	000077.54	000000.81
65.0	00.0024	00.0055	000055.99	000077.52	000000.82
66.0	00.0023	00.0055	000055.97	000077.50	000000.82
67.0	00.0022	00.0056	000055.96	000077.48	000000.83
68.0	00.0021	00.0056	000055.94	000077.46	000000.83
69.0	00.0020	00.0056	000055.93	000077.44	000000.84
70.0	00.0019	00.0057	000055.91	000077.42	000000.85
71.0	00.0018	00.0057	000055.90	000077.40	000000.85
72.0	00.0017	00.0057	000055.88	000077.38	000000.86
73.0	00.0016	00.0058	000055.87	000077.36	000000.86
74.0	00.0015	00.0058	000055.85	000077.34	000000.87

75.0	00.0015	00.0058	000055.84	000077.31	000000.87
76.0	00.0014	00.0059	000055.82	000077.29	000000.87
77.0	00.0013	00.0059	000055.81	000077.27	000000.88
78.0	00.0012	00.0059	000055.79	000077.25	000000.88
79.0	00.0011	00.0059	000055.78	000077.23	000000.88
80.0	00.0010	00.0059	000055.76	000077.21	000000.89
81.0	00.0009	00.0060	000055.75	000077.19	000000.89
82.0	00.0008	00.0060	000055.73	000077.17	000000.89
83.0	00.0007	00.0060	000055.72	000077.14	000000.89
84.0	00.0006	00.0060	000055.70	000077.12	000000.90
85.0	00.0005	00.0060	000055.68	000077.10	000000.90
86.0	00.0004	00.0060	000055.67	000077.08	000000.90
87.0	00.0003	00.0060	000055.65	000077.06	000000.90
88.0	00.0002	00.0060	000055.64	000077.04	000000.90
89.0	00.0001	00.0060	000055.62	000077.02	000000.90
90.0	00.0000	00.0060	000055.61	000076.99	000000.90

Kalkulasi 89 meter

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 8/Feb/2008

INPUT PARAMETERS :

Wave Height H = 1.900 m
Wave Period T = 5.870 sec
Water Depth d = 90.000 m
Reference Height above mudline = 89.000 m
Current at Reference height = 0.700 m/sec
Density of Sea Water = 1027.000 kg/m^3
Inertia Coefficient Ci = 1.600
Drag Coefficient Cd = 0.650
Lift Coefficient Cl = 0.900
Tubular Diameter = 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m

00.0	00.9065	00.0000	000292.88	000405.53	000000.00
01.0	00.9064	00.0170	000292.83	000405.46	000002.54
02.0	00.9059	00.0340	000292.68	000405.25	000005.08
03.0	00.9053	00.0510	000292.43	000404.90	000007.61
04.0	00.9043	00.0680	000292.08	000404.41	000010.15
05.0	00.9030	00.0850	000291.62	000403.78	000012.68
06.0	00.9015	00.1019	000291.07	000403.02	000015.21
07.0	00.8997	00.1188	000290.41	000402.11	000017.73
08.0	**00.8976**	**00.1357**	**000289.66**	**000401.07**	**000020.25**
09.0	00.8953	00.1525	000288.81	000399.89	000022.76
10.0	00.8927	00.1693	000287.86	000398.58	000025.26
11.0	00.8898	00.1860	000286.81	000397.13	000027.76
12.0	00.8866	00.2027	000285.67	000395.55	000030.25
13.0	00.8832	00.2193	000284.43	000393.83	000032.72
14.0	00.8795	00.2358	000283.10	000391.99	000035.19
15.0	00.8755	00.2523	000281.68	000390.02	000037.65
16.0	00.8712	00.2686	000280.16	000387.92	000040.09
17.0	00.8667	00.2849	000278.55	000385.69	000042.53
18.0	00.8619	00.3012	000276.86	000383.34	000044.95
19.0	00.8569	00.3173	000275.07	000380.87	000047.35
20.0	00.8516	00.3333	000273.20	000378.28	000049.74
21.0	00.8460	00.3492	000271.25	000375.57	000052.12
22.0	00.8402	00.3650	000269.21	000372.75	000054.48
23.0	00.8341	00.3807	000267.09	000369.81	000056.82
24.0	00.8278	00.3963	000264.88	000366.76	000059.15
25.0	00.8212	00.4118	000262.61	000363.61	000061.46
26.0	00.8144	00.4271	000260.25	000360.34	000063.74
27.0	00.8073	00.4423	000257.82	000356.98	000066.01
28.0	00.7999	00.4574	000255.32	000353.51	000068.26
29.0	00.7924	00.4723	000252.74	000349.95	000070.49
30.0	00.7845	00.4870	000250.10	000346.29	000072.69
31.0	00.7765	00.5017	000247.39	000342.54	000074.87
32.0	00.7682	00.5161	000244.62	000338.70	000077.03
33.0	00.7596	00.5304	000241.78	000334.78	000079.17
34.0	00.7509	00.5446	000238.89	000330.77	000081.28
35.0	00.7419	00.5586	000235.94	000326.68	000083.37
36.0	00.7327	00.5724	000232.93	000322.51	000085.43
37.0	00.7232	00.5860	000229.87	000318.28	000087.46
38.0	00.7136	00.5994	000226.76	000313.97	000089.47
39.0	00.7037	00.6127	000223.60	000309.59	000091.45
40.0	00.6936	00.6258	000220.39	000305.16	000093.40
41.0	00.6833	00.6387	000217.14	000300.66	000095.32
42.0	00.6727	00.6513	000213.85	000296.10	000097.21
43.0	00.6620	00.6638	000210.52	000291.50	000099.07
44.0	00.6511	00.6761	000207.16	000286.84	000100.91
45.0	00.6400	00.6882	000203.76	000282.14	000102.71
46.0	00.6287	00.7000	000200.34	000277.39	000104.48

47.0	00.6172	00.7117	000196.88	000272.60	000106.21
48.0	00.6055	00.7231	000193.40	000267.78	000107.92
49.0	00.5936	00.7343	000189.90	000262.93	000109.59
50.0	00.5815	00.7452	000186.37	000258.05	000111.23
51.0	00.5693	00.7560	000182.83	000253.15	000112.83
52.0	00.5569	00.7665	000179.27	000248.22	000114.40
53.0	00.5443	00.7768	000175.70	000243.27	000115.93
54.0	00.5315	00.7868	000172.12	000238.31	000117.43
55.0	00.5186	00.7966	000168.53	000233.34	000118.89
56.0	00.5055	00.8062	000164.93	000228.37	000120.32
57.0	00.4923	00.8155	000161.33	000223.38	000121.71
58.0	00.4790	00.8245	000157.74	000218.40	000123.06
59.0	00.4654	00.8333	000154.14	000213.42	000124.37
60.0	00.4518	00.8418	000150.55	000208.45	000125.64
61.0	00.4380	00.8501	000146.96	000203.49	000126.88
62.0	00.4241	00.8581	000143.39	000198.54	000128.08
63.0	00.4100	00.8659	000139.82	000193.60	000129.24
64.0	00.3958	00.8734	000136.27	000188.69	000130.35
65.0	00.3815	00.8806	000132.74	000183.80	000131.43
66.0	00.3671	00.8876	000129.23	000178.93	000132.47
67.0	00.3526	00.8943	000125.73	000174.09	000133.47
68.0	00.3379	00.9007	000122.26	000169.28	000134.42
69.0	00.3232	00.9068	000118.81	000164.51	000135.34
70.0	00.3084	00.9127	000115.39	000159.77	000136.21
71.0	00.2935	00.9182	000112.00	000155.08	000137.05
72.0	00.2784	00.9235	000108.64	000150.43	000137.84
73.0	00.2633	00.9285	000105.31	000145.82	000138.58
74.0	00.2482	00.9333	000102.02	000141.26	000139.29
75.0	00.2329	00.9377	000098.77	000136.75	000139.95
76.0	00.2176	00.9419	000095.55	000132.30	000140.57
77.0	00.2022	00.9457	000092.37	000127.90	000141.15
78.0	00.1867	00.9493	000089.23	000123.55	000141.68
79.0	00.1712	00.9526	000086.14	000119.27	000142.17
80.0	00.1557	00.9556	000083.09	000115.05	000142.62
81.0	00.1401	00.9583	000080.09	000110.89	000143.02
82.0	00.1244	00.9607	000077.13	000106.80	000143.38
83.0	00.1087	00.9628	000074.23	000102.77	000143.70
84.0	00.0930	00.9647	000071.37	000098.82	000143.97
85.0	00.0773	00.9662	000068.56	000094.93	000144.20
86.0	00.0615	00.9674	000065.81	000091.12	000144.39
87.0	00.0457	00.9684	000063.11	000087.38	000144.53
88.0	00.0299	00.9690	000060.47	000083.72	000144.62
89.0	00.0141	00.9694	000057.88	000080.14	000144.68
90.0	-00.0017	00.9694	000055.34	000076.63	000144.68

Kalkulasi 90 meter

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 8/Feb/2008

INPUT PARAMETERS :

Wave Height H	= 1.900 m
Wave Period T	= 5.870 sec
Water Depth d	= 90.000 m
Reference Height above mudline	= 90.000 m
Current at Reference height	= 0.700 m/sec
Density of Sea Water	= 1027.000 kg/m^3
Inertia Coefficient Ci	= 1.600
Drag Coefficient Cd	= 0.650
Lift Coefficient Cl	= 0.900
Tubular Diameter	= 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	01.0176	00.0000	000334.79	000463.56	000000.00
01.0	01.0174	00.0191	000334.73	000463.48	000002.85
02.0	01.0170	00.0382	000334.55	000463.23	000005.70
03.0	01.0162	00.0573	000334.25	000462.81	000008.55
04.0	01.0151	00.0764	000333.82	000462.22	000011.40
05.0	01.0137	00.0954	000333.28	000461.46	000014.24
06.0	01.0120	00.1144	000332.61	000460.54	000017.08
07.0	**01.0100**	**00.1334**	**000331.83**	**000459.46**	**000019.91**
08.0	01.0076	00.1524	000330.93	000458.20	000022.74
09.0	01.0050	00.1713	000329.90	000456.79	000025.56
10.0	01.0021	00.1901	000328.76	000455.21	000028.37
11.0	00.9988	00.2089	000327.51	000453.47	000031.18
12.0	00.9953	00.2276	000326.14	000451.58	000033.97
13.0	00.9914	00.2462	000324.65	000449.52	000036.75
14.0	00.9872	00.2648	000323.06	000447.31	000039.52
15.0	00.9828	00.2833	000321.35	000444.94	000042.28

16.0	00.9780	00.3017	000319.53	000442.42	000045.03
17.0	00.9729	00.3200	000317.60	000439.75	000047.76
18.0	00.9675	00.3382	000315.57	000436.94	000050.48
19.0	00.9619	00.3563	000313.43	000433.97	000053.18
20.0	00.9559	00.3743	000311.18	000430.87	000055.87
21.0	00.9497	00.3922	000308.84	000427.62	000058.53
22.0	00.9431	00.4099	000306.40	000424.24	000061.18
23.0	00.9363	00.4276	000303.85	000420.72	000063.82
24.0	00.9292	00.4451	000301.22	000417.07	000066.43
25.0	00.9218	00.4624	000298.49	000413.29	000069.02
26.0	00.9141	00.4796	000295.67	000409.39	000071.59
27.0	00.9062	00.4967	000292.76	000405.36	000074.13
28.0	00.8979	00.5136	000289.76	000401.21	000076.66
29.0	00.8894	00.5304	000286.68	000396.95	000079.16
30.0	00.8806	00.5470	000283.52	000392.57	000081.63
31.0	00.8716	00.5634	000280.29	000388.09	000084.08
32.0	00.8623	00.5796	000276.97	000383.50	000086.51
33.0	00.8527	00.5957	000273.58	000378.81	000088.91
34.0	00.8428	00.6116	000270.13	000374.02	000091.28
35.0	00.8327	00.6273	000266.60	000369.14	000093.62
36.0	00.8224	00.6427	000263.01	000364.17	000095.93
37.0	00.8118	00.6580	000259.36	000359.11	000098.21
38.0	00.8009	00.6731	000255.65	000353.98	000100.47
39.0	00.7898	00.6880	000251.88	000348.76	000102.69
40.0	00.7785	00.7027	000248.06	000343.47	000104.88
41.0	00.7669	00.7172	000244.19	000338.12	000107.04
42.0	00.7551	00.7314	000240.28	000332.69	000109.16
43.0	00.7431	00.7454	000236.32	000327.21	000111.25
44.0	00.7308	00.7592	000232.32	000321.67	000113.31
45.0	00.7183	00.7727	000228.28	000316.08	000115.33
46.0	00.7056	00.7860	000224.21	000310.44	000117.31
47.0	00.6927	00.7991	000220.10	000304.76	000119.26
48.0	00.6795	00.8119	000215.97	000299.04	000121.18
49.0	00.6662	00.8245	000211.81	000293.28	000123.05
50.0	00.6526	00.8368	000207.63	000287.49	000124.89
51.0	00.6389	00.8488	000203.44	000281.68	000126.69
52.0	00.6250	00.8606	000199.22	000275.85	000128.45
53.0	00.6108	00.8722	000195.00	000270.00	000130.17
54.0	00.5965	00.8834	000190.76	000264.13	000131.85
55.0	00.5820	00.8944	000186.52	000258.26	000133.49
56.0	00.5674	00.9051	000182.28	000252.38	000135.09
57.0	00.5525	00.9156	000178.03	000246.51	000136.65
58.0	00.5375	00.9257	000173.79	000240.63	000138.16
59.0	00.5223	00.9356	000169.55	000234.77	000139.63
60.0	00.5070	00.9452	000165.33	000228.91	000141.06
61.0	00.4915	00.9544	000161.11	000223.08	000142.45
62.0	00.4759	00.9634	000156.91	000217.26	000143.79
63.0	00.4601	00.9721	000152.73	000211.47	000145.09

64.0	00.4442	00.9805	000148.56	000205.70	000146.34
65.0	00.4281	00.9886	000144.42	000199.97	000147.55
66.0	00.4119	00.9964	000140.31	000194.27	000148.72
67.0	00.3956	01.0039	000136.22	000188.62	000149.84
68.0	00.3792	01.0111	000132.17	000183.00	000150.91
69.0	00.3626	01.0180	000128.15	000177.44	000151.93
70.0	00.3460	01.0245	000124.16	000171.92	000152.91
71.0	00.3292	01.0308	000120.22	000166.45	000153.85
72.0	00.3124	01.0367	000116.31	000161.05	000154.73
73.0	00.2954	01.0423	000112.45	000155.70	000155.57
74.0	00.2784	01.0476	000108.63	000150.41	000156.36
75.0	00.2613	01.0526	000104.86	000145.20	000157.10
76.0	00.2441	01.0573	000101.14	000140.05	000157.80
77.0	00.2268	01.0616	000097.48	000134.97	000158.44
78.0	00.2094	01.0656	000093.86	000129.96	000159.04
79.0	00.1920	01.0693	000090.30	000125.04	000159.59
80.0	00.1746	01.0726	000086.80	000120.19	000160.09
81.0	00.1571	01.0757	000083.36	000115.42	000160.54
82.0	00.1395	01.0783	000079.98	000110.74	000160.94
83.0	00.1219	01.0807	000076.66	000106.15	000161.30
84.0	00.1043	01.0828	000073.41	000101.64	000161.60
85.0	00.0866	01.0845	000070.22	000097.22	000161.86
86.0	00.0689	01.0858	000067.09	000092.90	000162.06
87.0	00.0000	00.0000	000000.00	000000.00	000000.00
88.0	00.0000	00.0000	000000.00	000000.00	000000.00
89.0	00.0000	00.0000	000000.00	000000.00	000000.00
90.0	00.0000	00.0000	000000.00	000000.00	000000.00

Kalkulasi 91 meter

Stokes Ver 1.2.5
HYDRODYNAMIC LOADS ON TUBULAR MEMBERS
STOKES 5TH ORDER THEORY

Project Title : Well X
Filename : Well X wave.out
Kalkulasi by :
Checked by :
Date : 8/Feb/2008

INPUT PARAMETERS :

Wave Height H = 1.900 m
Wave Period T = 5.870 sec
Water Depth d = 90.000 m
Reference Height above mudline = 91.000 m
Current at Reference height = 0.700 m/sec

Density of Sea Water = 1027.000 kg/m^3
Inertia Coefficient Ci = 1.600
Drag Coefficient Cd = 0.650
Lift Coefficient Cl = 0.900
Tubular Diameter = 0.340 m

HYDRODYNAMIC FORCES :

Phase angle Degrees	Wave Velocity m/s	Wave Acceleration m/s^2	Drag Force N/m	Lift Force N/m	Inertia Force N/m
00.0	01.1423	00.0000	000385.19	000533.34	000000.00
01.0	01.1422	00.0215	000385.12	000533.24	000003.20
02.0	01.1416	00.0429	000384.90	000532.93	000006.41
03.0	01.1408	00.0644	000384.53	000532.43	000009.61
04.0	01.1395	00.0858	000384.02	000531.72	000012.80
05.0	01.1380	00.1072	000383.36	000530.81	000016.00
06.0	01.1361	00.1285	000382.56	000529.70	000019.18
07.0	01.1338	00.1499	000381.62	000528.39	000022.37
08.0	01.1312	00.1711	000380.53	000526.89	000025.54
09.0	**01.1282**	**00.1924**	**000379.30**	**000525.18**	**000028.71**
10.0	00.0000	00.0000	000000.00	000000.00	000000.00
11.0	00.0000	00.0000	000000.00	000000.00	000000.00
12.0	00.0000	00.0000	000000.00	000000.00	000000.00
13.0	00.0000	00.0000	000000.00	000000.00	000000.00
14.0	00.0000	00.0000	000000.00	000000.00	000000.00
15.0	00.0000	00.0000	000000.00	000000.00	000000.00
16.0	00.0000	00.0000	000000.00	000000.00	000000.00
17.0	00.0000	00.0000	000000.00	000000.00	000000.00
18.0	00.0000	00.0000	000000.00	000000.00	000000.00
19.0	00.0000	00.0000	000000.00	000000.00	000000.00
20.0	00.0000	00.0000	000000.00	000000.00	000000.00
21.0	00.0000	00.0000	000000.00	000000.00	000000.00
22.0	00.0000	00.0000	000000.00	000000.00	000000.00
23.0	00.0000	00.0000	000000.00	000000.00	000000.00
24.0	00.0000	00.0000	000000.00	000000.00	000000.00
25.0	00.0000	00.0000	000000.00	000000.00	000000.00
26.0	00.0000	00.0000	000000.00	000000.00	000000.00
27.0	00.0000	00.0000	000000.00	000000.00	000000.00
28.0	00.0000	00.0000	000000.00	000000.00	000000.00
29.0	00.0000	00.0000	000000.00	000000.00	000000.00
30.0	00.0000	00.0000	000000.00	000000.00	000000.00
31.0	00.0000	00.0000	000000.00	000000.00	000000.00
32.0	00.0000	00.0000	000000.00	000000.00	000000.00
33.0	00.0000	00.0000	000000.00	000000.00	000000.00
34.0	00.0000	00.0000	000000.00	000000.00	000000.00
35.0	00.0000	00.0000	000000.00	000000.00	000000.00

36.0	00.0000	00.0000	000000.00	000000.00	000000.00
37.0	00.0000	00.0000	000000.00	000000.00	000000.00
38.0	00.0000	00.0000	000000.00	000000.00	000000.00
39.0	00.0000	00.0000	000000.00	000000.00	000000.00
40.0	00.0000	00.0000	000000.00	000000.00	000000.00
41.0	00.0000	00.0000	000000.00	000000.00	000000.00
42.0	00.0000	00.0000	000000.00	000000.00	000000.00
43.0	00.0000	00.0000	000000.00	000000.00	000000.00
44.0	00.0000	00.0000	000000.00	000000.00	000000.00
45.0	00.0000	00.0000	000000.00	000000.00	000000.00
46.0	00.0000	00.0000	000000.00	000000.00	000000.00
47.0	00.0000	00.0000	000000.00	000000.00	000000.00
48.0	00.0000	00.0000	000000.00	000000.00	000000.00
49.0	00.0000	00.0000	000000.00	000000.00	000000.00
50.0	00.0000	00.0000	000000.00	000000.00	000000.00
51.0	00.0000	00.0000	000000.00	000000.00	000000.00
52.0	00.0000	00.0000	000000.00	000000.00	000000.00
53.0	00.0000	00.0000	000000.00	000000.00	000000.00
54.0	00.0000	00.0000	000000.00	000000.00	000000.00
55.0	00.0000	00.0000	000000.00	000000.00	000000.00
56.0	00.0000	00.0000	000000.00	000000.00	000000.00
57.0	00.0000	00.0000	000000.00	000000.00	000000.00
58.0	00.0000	00.0000	000000.00	000000.00	000000.00
59.0	00.0000	00.0000	000000.00	000000.00	000000.00
60.0	00.0000	00.0000	000000.00	000000.00	000000.00
61.0	00.0000	00.0000	000000.00	000000.00	000000.00
62.0	00.0000	00.0000	000000.00	000000.00	000000.00
63.0	00.0000	00.0000	000000.00	000000.00	000000.00
64.0	00.0000	00.0000	000000.00	000000.00	000000.00
65.0	00.0000	00.0000	000000.00	000000.00	000000.00
66.0	00.0000	00.0000	000000.00	000000.00	000000.00
67.0	00.0000	00.0000	000000.00	000000.00	000000.00
68.0	00.0000	00.0000	000000.00	000000.00	000000.00
69.0	00.0000	00.0000	000000.00	000000.00	000000.00
70.0	00.0000	00.0000	000000.00	000000.00	000000.00
71.0	00.0000	00.0000	000000.00	000000.00	000000.00
72.0	00.0000	00.0000	000000.00	000000.00	000000.00
73.0	00.0000	00.0000	000000.00	000000.00	000000.00
74.0	00.0000	00.0000	000000.00	000000.00	000000.00
75.0	00.0000	00.0000	000000.00	000000.00	000000.00
76.0	00.0000	00.0000	000000.00	000000.00	000000.00
77.0	00.0000	00.0000	000000.00	000000.00	000000.00
78.0	00.0000	00.0000	000000.00	000000.00	000000.00
79.0	00.0000	00.0000	000000.00	000000.00	000000.00
80.0	00.0000	00.0000	000000.00	000000.00	000000.00
81.0	00.0000	00.0000	000000.00	000000.00	000000.00
82.0	00.0000	00.0000	000000.00	000000.00	000000.00
83.0	00.0000	00.0000	000000.00	000000.00	000000.00

84.0	00.0000	00.0000	000000.00	000000.00	000000.00
85.0	00.0000	00.0000	000000.00	000000.00	000000.00
86.0	00.0000	00.0000	000000.00	000000.00	000000.00
87.0	00.0000	00.0000	000000.00	000000.00	000000.00
88.0	00.0000	00.0000	000000.00	000000.00	000000.00
89.0	00.0000	00.0000	000000.00	000000.00	000000.00
90.0	00.0000	00.0000	000000.00	000000.00	000000.00

Summary of Structural Analysis

Conductor - 1 Year Environmental Design

No	Conductor	Method	Properties						Loads							Analysis			Remark
			Yield Strength (ksi)	Allowable Stress (ksi)	Allowable Shear (ksi)	Moment Inertia (ft^4)	Wall Thickness (inch)	Area ($inch^2$)	Moment Max.(kips.ft)	Shear Max.(kips)	Self Load (lbs/ft)	Stress (ksi)			Shear (ksi)	Stress Ratio	Shear Ratio	Maximum Deflection (inch)	
												Moment	Normal	Total					
1	13-3/8" - N80	Simple beam	80	60	32	0.019526	0.48	19.45	434.09	4.08	67.24	86.04	0.69	86.73	0.21	1.45	0.0066	-889.72	
2	13-3/8" - N80	Propped beam	80	60	32	0.019526	0.48	19.45	-373.24	3.88	67.24	-73.98	-0.69	-74.67	0.20	1.24	0.0062	-424.29	
3	13-3/8" - N80	Fixed beam	80	60	32	0.019526	0.48	19.45	-317.28	4.35	67.24	-62.89	-0.69	-63.58	0.22	1.06	0.0070	-190.48	
4	13-3/8" - P110	Simple beam	110	82.5	44	0.0207	0.514	20.77	434.09	4.08	72.00	81.16	0.69	81.85	0.20	0.99	0.0045	-839.27	
5	13-3/8" - P110	Propped beam	110	82.5	44	0.0207	0.514	20.77	-373.24	3.88	72.00	-69.78	-0.69	-70.47	0.19	0.85	0.0042	-400.23	
6	13-3/8" - P110	Fixed beam	110	82.5	44	0.0207	0.514	20.77	-317.28	4.35	72.00	-59.32	-0.69	-60.01	0.21	0.73	0.0048	-179.68	
7	20" - X52	Simple beam	52	39	20.8	0.0875	0.635	199.07	608.59	5.71	88.95	26.92	0.09	27.01	0.03	0.69	0.0014	-279.07	
8	20" - X52	Propped beam	52	39	20.8	0.0875	0.635	199.07	-525.27	4.32	88.95	-23.23	-0.09	-23.32	0.02	0.60	0.0010	-132.72	
9	20" - X53	Fixed beam	52	39	20.8	0.0875	0.635	199.07	-443.95	6.08	88.95	-19.64	-0.09	-19.73	0.03	0.51	0.0015	-59.74	

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SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

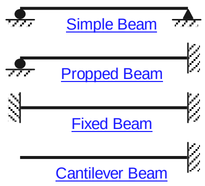
For Simple, Propped, Fixed, or Cantilever Beams
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

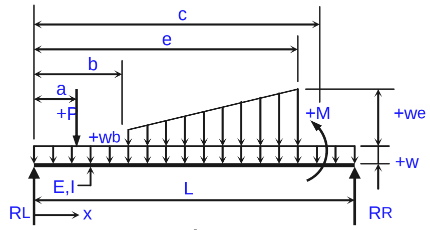
Job Name:	- 1 Year Fixed - 20" - X52	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Fixed	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	1813.54	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w =   kips/ft.

Distributed:

	Start b (ft.)	Start Wb (kips/ft.)	End e (ft.)	End We (kips/ft.)
#1:	0.0000	0.0035	82.0000	0.0035
#2:	77.0000	0.1180	82.0000	0.1000
#3:	82.0000	0.1000	87.0000	0.0854
#4:	87.0000	0.0854	230.0000	0.0113
#5:	230.0000	0.0113	378.0000	0.0100
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

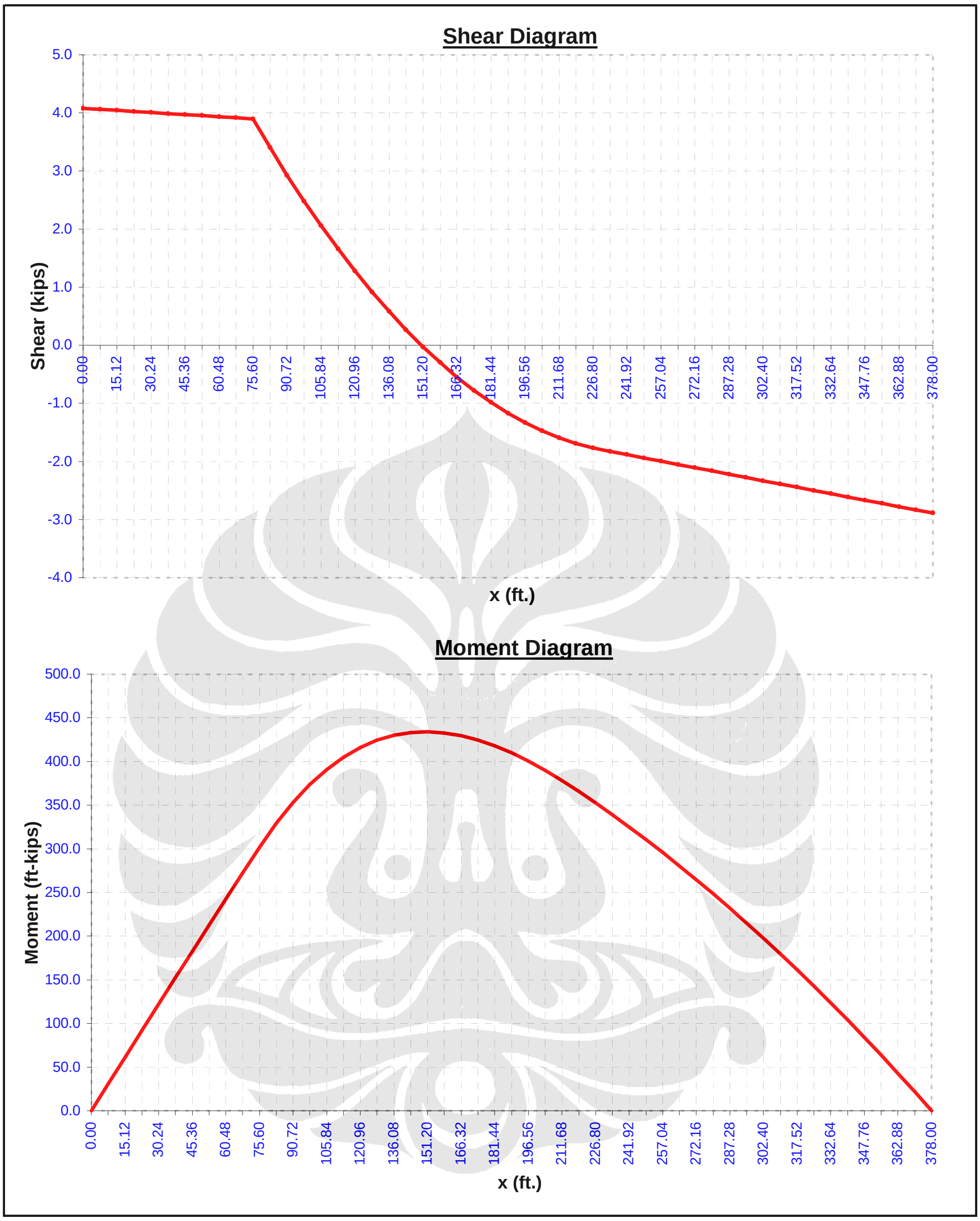
RL =	6.08	kips	RR =	3.71	kips
MxL =	-443.95	ft-kips	MxR =	-303.29	ft-kips

Maximum Moments:

+Mx(max) =	222.28	ft-kips	@ x =	158.64	ft.
-Mx(max) =	-443.95	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-59.743	in.	@ x =	175.04	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/76				



Shear Diagram
Shear (kips)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	6.08	-443.95	0.0000	0.0000
2	7.5600	6.06	-398.07	-0.4993	-0.4025
3	15.1200	6.03	-352.39	-0.9443	-1.5525
4	22.6800	6.00	-306.91	-1.3352	-3.3643
5	30.2400	5.98	-261.62	-1.6724	-5.7524
6	37.8000	5.95	-216.54	-1.9559	-8.6319
7	45.3600	5.92	-171.66	-2.1861	-11.9180
8	52.9200	5.90	-126.98	-2.3631	-15.5265
9	60.4800	5.87	-82.50	-2.4873	-19.3735
10	68.0400	5.84	-38.21	-2.5589	-23.3754
11	75.6000	5.82	5.87	-2.5781	-27.4492
12	83.1600	5.14	47.65	-2.5457	-31.5121
13	90.7200	4.47	83.91	-2.4672	-35.4865
14	98.2800	3.86	115.38	-2.3486	-39.3040
15	105.8400	3.27	142.30	-2.1954	-42.9056
16	113.4000	2.71	164.90	-2.0128	-46.2407
17	120.9600	2.19	183.40	-1.8058	-49.2667
18	128.5200	1.69	198.03	-1.5793	-51.9489
19	136.0800	1.22	209.01	-1.3376	-54.2599
20	143.6400	0.78	216.56	-1.0849	-56.1789
21	151.2000	0.37	220.91	-0.8252	-57.6917
22	158.7600	-0.01	222.28	-0.5621	-58.7901
23	166.3200	-0.36	220.89	-0.2990	-59.4716
24	173.8800	-0.68	216.97	-0.0391	-59.7387
25	181.4400	-0.97	210.74	0.2147	-59.5987
26	189.0000	-1.23	202.43	0.4599	-59.0633
27	196.5600	-1.46	192.26	0.6942	-58.1480
28	204.1200	-1.66	180.46	0.9153	-56.8720
29	211.6800	-1.83	167.24	1.1216	-55.2573
30	219.2400	-1.97	152.83	1.3115	-53.3287
31	226.8000	-2.09	137.45	1.4838	-51.1133
32	234.3600	-2.18	121.33	1.6373	-48.6399
33	241.9200	-2.26	104.56	1.7713	-45.9388
34	249.4800	-2.35	87.15	1.8850	-43.0414
35	257.0400	-2.43	69.10	1.9778	-39.9805
36	264.6000	-2.51	50.41	2.0487	-36.7899
37	272.1600	-2.60	31.10	2.0971	-33.5047
38	279.7200	-2.68	11.16	2.1222	-30.1613
39	287.2800	-2.76	-9.40	2.1233	-26.7970
40	294.8400	-2.84	-30.58	2.0997	-23.4504
41	302.4000	-2.92	-52.37	2.0505	-20.1613
42	309.9600	-3.00	-74.78	1.9752	-16.9707
43	317.5200	-3.08	-97.79	1.8729	-13.9206
44	325.0800	-3.16	-121.40	1.7430	-11.0542
45	332.6400	-3.24	-145.62	1.5847	-8.4159
46	340.2000	-3.32	-170.43	1.3974	-6.0512
47	347.7600	-3.40	-195.83	1.1802	-4.0066
48	355.3200	-3.48	-221.82	0.9326	-2.3298
49	362.8800	-3.55	-248.40	0.6538	-1.0696
50	370.4400	-3.63	-275.56	0.3432	-0.2760
51	378.0000	-3.71	-303.29	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

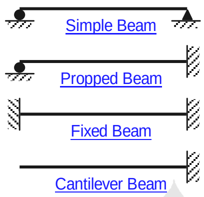
For Simple, Propped, Fixed, or Cantilever Beams
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

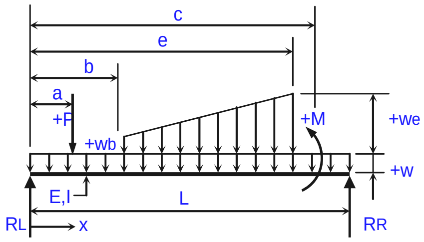
Job Name:	1 Year Propped - 20" - X52	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Propped	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	1813.54	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = kips/ft.

Distributed:

	Start b (ft.)	Start Wb (kips/ft.)	End e (ft.)	End We (kips/ft.)
#1:	0.0000	0.0035	82.0000	0.0035
#2:	77.0000	0.1180	82.0000	0.1000
#3:	82.0000	0.1000	87.0000	0.0854
#4:	87.0000	0.0854	230.0000	0.0113
#5:	230.0000	0.0113	378.0000	0.0100
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

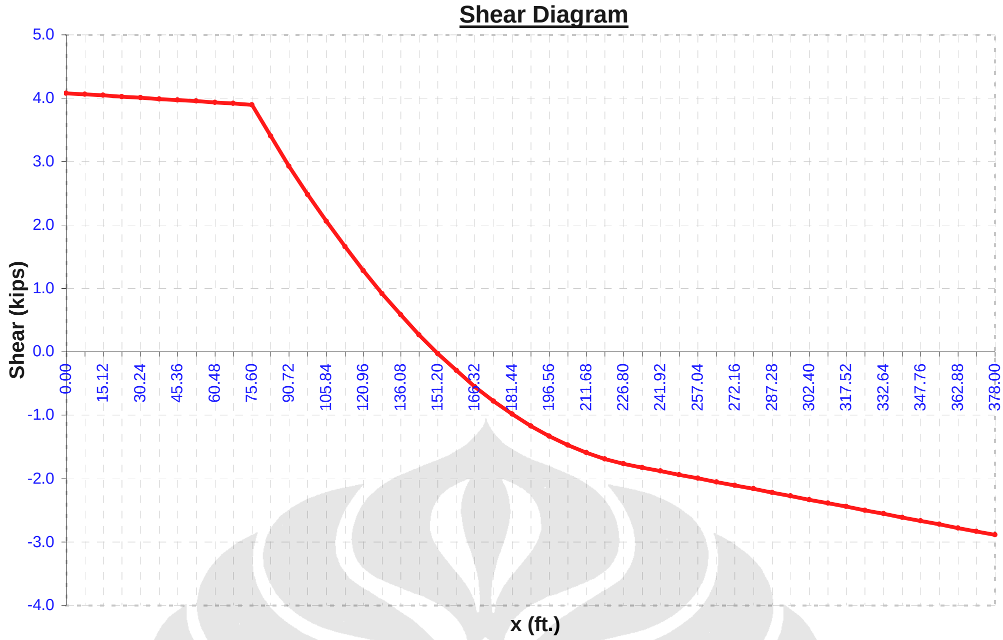
RL =	4.32	kips	RR =	5.47	kips
MxL =	N.A.	ft-kips	MxR =	-525.27	ft-kips

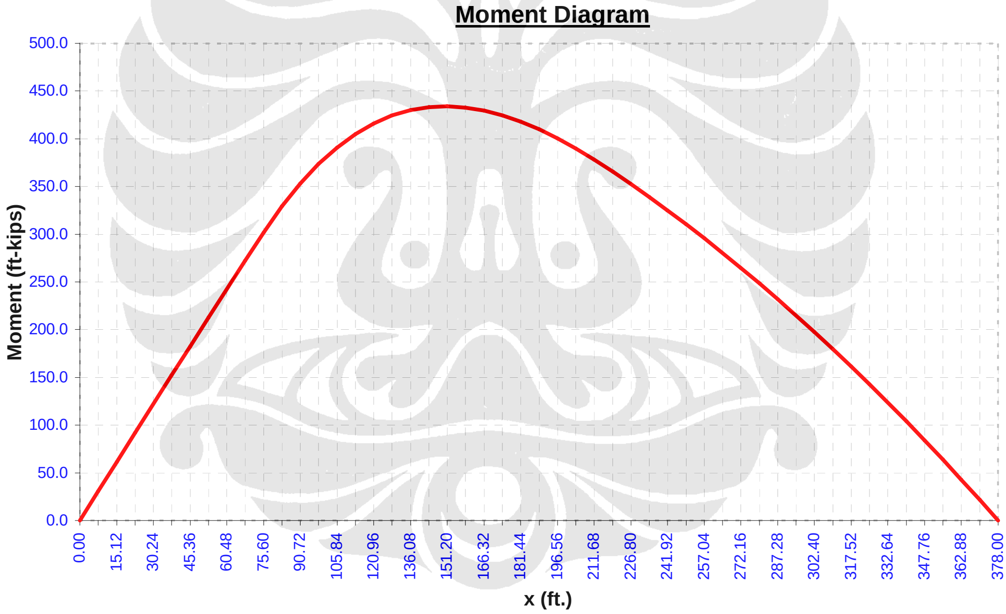
Maximum Moments:

+Mx(max) =	415.61	ft-kips	@ x =	127.41	ft.
-Mx(max) =	-525.27	ft-kips	@ x =	378.00	ft.

Maximum Deflections:

-Δ(max) =	-132.725	in.	@ x =	151.77	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/34				


Shear Diagram
Shear (kips)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)


Moment Diagram
Moment (ft-kips)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	4.32	0.00	-6.5816	0.0000
2	7.5600	4.29	32.56	-6.5622	-10.4108
3	15.1200	4.27	64.93	-6.5044	-20.7605
4	22.6800	4.24	97.09	-6.4083	-30.9882
5	30.2400	4.21	129.05	-6.2742	-41.0337
6	37.8000	4.19	160.82	-6.1023	-50.8369
7	45.3600	4.16	192.38	-5.8928	-60.3381
8	52.9200	4.14	223.74	-5.6460	-69.4781
9	60.4800	4.11	254.91	-5.3622	-78.1979
10	68.0400	4.08	285.87	-5.0415	-86.4391
11	75.6000	4.06	316.63	-4.6842	-94.1435
12	83.1600	3.37	345.10	-4.2912	-101.2536
13	90.7200	2.71	368.04	-3.8678	-107.7165
14	98.2800	2.10	386.19	-3.4201	-113.4890
15	105.8400	1.51	399.79	-2.9536	-118.5370
16	113.4000	0.95	409.07	-2.4735	-122.8350
17	120.9600	0.42	414.26	-1.9849	-126.3654
18	128.5200	-0.07	415.57	-1.4924	-129.1185
19	136.0800	-0.54	413.23	-1.0006	-131.0918
20	143.6400	-0.98	407.46	-0.5136	-132.2896
21	151.2000	-1.39	398.49	-0.0354	-132.7228
22	158.7600	-1.77	386.54	0.4304	-132.4082
23	166.3200	-2.12	371.83	0.8804	-131.3681
24	173.8800	-2.44	354.60	1.3114	-129.6302
25	181.4400	-2.73	335.05	1.7206	-127.2268
26	189.0000	-2.99	313.42	2.1053	-124.1945
27	196.5600	-3.22	289.93	2.4633	-120.5740
28	204.1200	-3.42	264.81	2.7924	-116.4092
29	211.6800	-3.59	238.27	3.0908	-111.7474
30	219.2400	-3.74	210.54	3.3571	-106.6383
31	226.8000	-3.85	181.85	3.5899	-101.1341
32	234.3600	-3.94	152.41	3.7881	-95.2884
33	241.9200	-4.02	122.32	3.9511	-89.1567
34	249.4800	-4.11	91.59	4.0780	-82.7954
35	257.0400	-4.19	60.22	4.1681	-76.2622
36	264.6000	-4.27	28.22	4.2206	-69.6160
37	272.1600	-4.36	-4.42	4.2348	-62.9169
38	279.7200	-4.44	-37.67	4.2099	-56.2263
39	287.2800	-4.52	-71.55	4.1452	-49.6064
40	294.8400	-4.60	-106.05	4.0399	-43.1210
41	302.4000	-4.69	-141.16	3.8934	-36.8349
42	309.9600	-4.77	-176.89	3.7048	-30.8140
43	317.5200	-4.85	-213.22	3.4736	-25.1253
44	325.0800	-4.93	-250.15	3.1989	-19.8370
45	332.6400	-5.00	-287.68	2.8800	-15.0187
46	340.2000	-5.08	-325.81	2.5162	-10.7406
47	347.7600	-5.16	-364.53	2.1069	-7.0745
48	355.3200	-5.24	-403.84	1.6513	-4.0930
49	362.8800	-5.32	-443.74	1.1488	-1.8700
50	370.4400	-5.39	-484.21	0.5986	-0.4803
51	378.0000	-5.47	-525.27	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

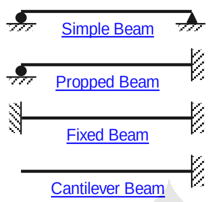
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

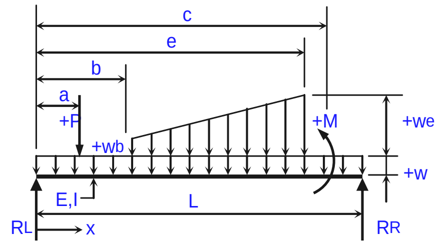
Job Name:	1 Year Simple - 20" - X52	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Simple	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	1813.54	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ______ kips/ft.

Distributed:	Start b (ft.)	Start Wb (kips/ft.)	End e (ft.)	End We (kips/ft.)
#1:	0.0000	0.0035	82.0000	0.0035
#2:	77.0000	0.1180	82.0000	0.1000
#3:	82.0000	0.1000	87.0000	0.0854
#4:	87.0000	0.0854	230.0000	0.0113
#5:	230.0000	0.0113	378.0000	0.0100
#6:				
#7:				
#8:				

Point Loads:	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

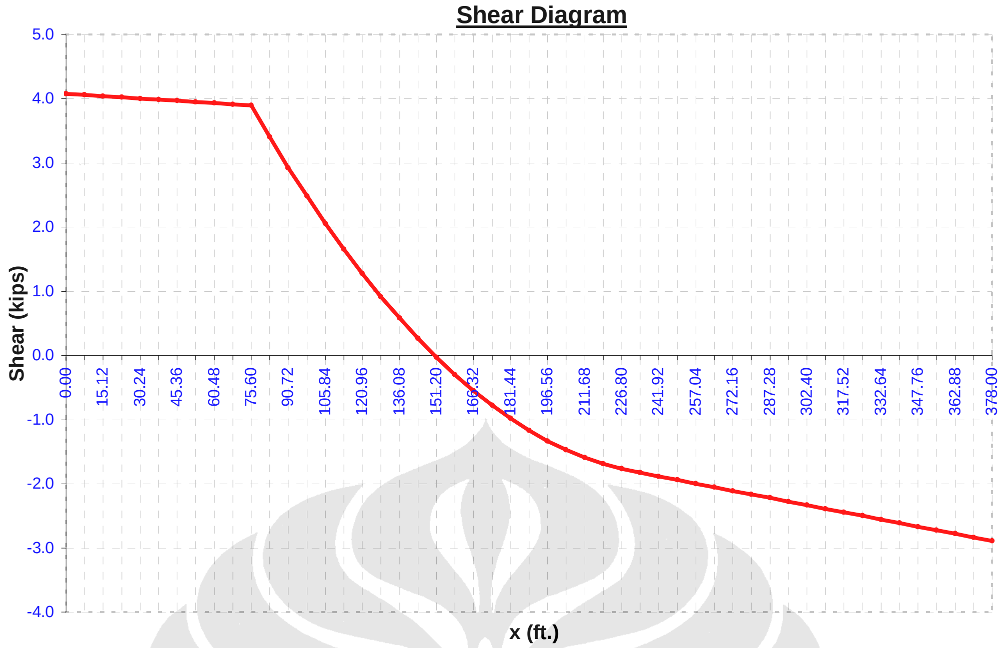
RL =	5.71	kips	RR =	4.08	kips
MxL =	N.A.	ft-kips	MxR =	N.A.	ft-kips

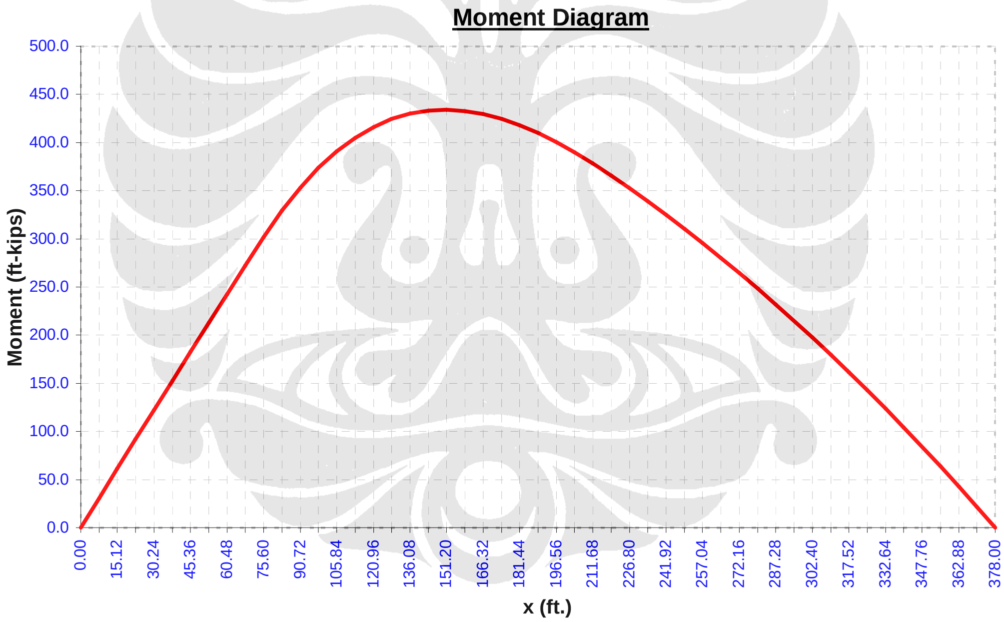
Maximum Moments:

+Mx(max) =	608.59	ft-kips	@ x =	151.22	ft.
-Mx(max) =	0.00	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-279.065	in.	@ x =	180.17	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/16				


Shear Diagram
Shear (kips)
x (ft.)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00


Moment Diagram
Moment (ft-kips)
x (ft.)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	5.71	0.00	-11.7729	0.0000
2	7.5600	5.68	43.07	-11.7473	-18.6273
3	15.1200	5.66	85.94	-11.6708	-37.1737
4	22.6800	5.63	128.61	-11.5436	-55.5588
5	30.2400	5.60	171.08	-11.3659	-73.7024
6	37.8000	5.58	213.34	-11.1379	-91.5248
7	45.3600	5.55	255.41	-10.8599	-108.9466
8	52.9200	5.52	297.28	-10.5321	-125.8888
9	60.4800	5.50	338.95	-10.1548	-142.2728
10	68.0400	5.47	380.42	-9.7282	-158.0203
11	75.6000	5.45	421.69	-9.2525	-173.0535
12	83.1600	4.76	460.66	-8.7287	-187.2951
13	90.7200	4.10	494.10	-8.1621	-200.6724
14	98.2800	3.48	522.76	-7.5586	-213.1227
15	105.8400	2.90	546.87	-6.9239	-224.5920
16	113.4000	2.34	566.65	-6.2632	-235.0351
17	120.9600	1.81	582.34	-5.5814	-244.4147
18	128.5200	1.32	594.16	-4.8834	-252.7013
19	136.0800	0.85	602.32	-4.1735	-259.8728
20	143.6400	0.41	607.06	-3.4561	-265.9138
21	151.2000	0.00	608.59	-2.7349	-270.8153
22	158.7600	-0.38	607.15	-2.0137	-274.5744
23	166.3200	-0.73	602.95	-1.2958	-277.1938
24	173.8800	-1.05	596.22	-0.5845	-278.6813
25	181.4400	-1.34	587.18	0.1175	-279.0496
26	189.0000	-1.60	576.06	0.8075	-278.3155
27	196.5600	-1.83	563.07	1.4832	-276.5000
28	204.1200	-2.03	548.45	2.1424	-273.6274
29	211.6800	-2.20	532.42	2.7835	-269.7251
30	219.2400	-2.35	515.20	3.4049	-264.8232
31	226.8000	-2.46	497.01	4.0052	-258.9540
32	234.3600	-2.55	478.07	4.5835	-252.1516
33	241.9200	-2.63	458.49	5.1389	-244.4515
34	249.4800	-2.72	438.26	5.6707	-235.8906
35	257.0400	-2.80	417.40	6.1782	-226.5068
36	264.6000	-2.89	395.90	6.6605	-216.3392
37	272.1600	-2.97	373.78	7.1170	-205.4283
38	279.7200	-3.05	351.02	7.5469	-193.8157
39	287.2800	-3.13	327.65	7.9494	-181.5439
40	294.8400	-3.21	303.66	8.3238	-168.6569
41	302.4000	-3.30	279.05	8.6694	-155.1999
42	309.9600	-3.38	253.83	8.9855	-141.2189
43	317.5200	-3.46	228.01	9.2713	-126.7613
44	325.0800	-3.54	201.58	9.5261	-111.8757
45	332.6400	-3.61	174.55	9.7492	-96.6116
46	340.2000	-3.69	146.93	9.9399	-81.0198
47	347.7600	-3.77	118.71	10.0974	-65.1522
48	355.3200	-3.85	89.91	10.2212	-49.0618
49	362.8800	-3.93	60.52	10.3105	-32.8027
50	370.4400	-4.00	30.55	10.3645	-16.4300
51	378.0000	-4.08	0.00	10.3827	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

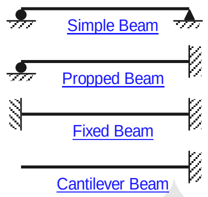
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

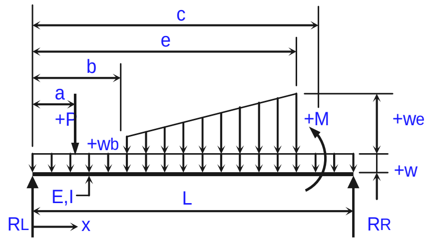
Job Name:	1 Year Fixed - 13.375" - N80	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Fixed	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	404.89	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ______ kips/ft.

Distributed:

	b (ft.)	Wb (kips/ft.)	e (ft.)	We (kips/ft.)
	Start		End	
#1:	0.0000	0.0024	82.0000	0.0024
#2:	77.0000	0.0853	82.0000	0.0723
#3:	82.0000	0.0723	87.0000	0.0617
#4:	87.0000	0.0617	230.0000	0.0075
#5:	230.0000	0.0075	378.0000	0.0073
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

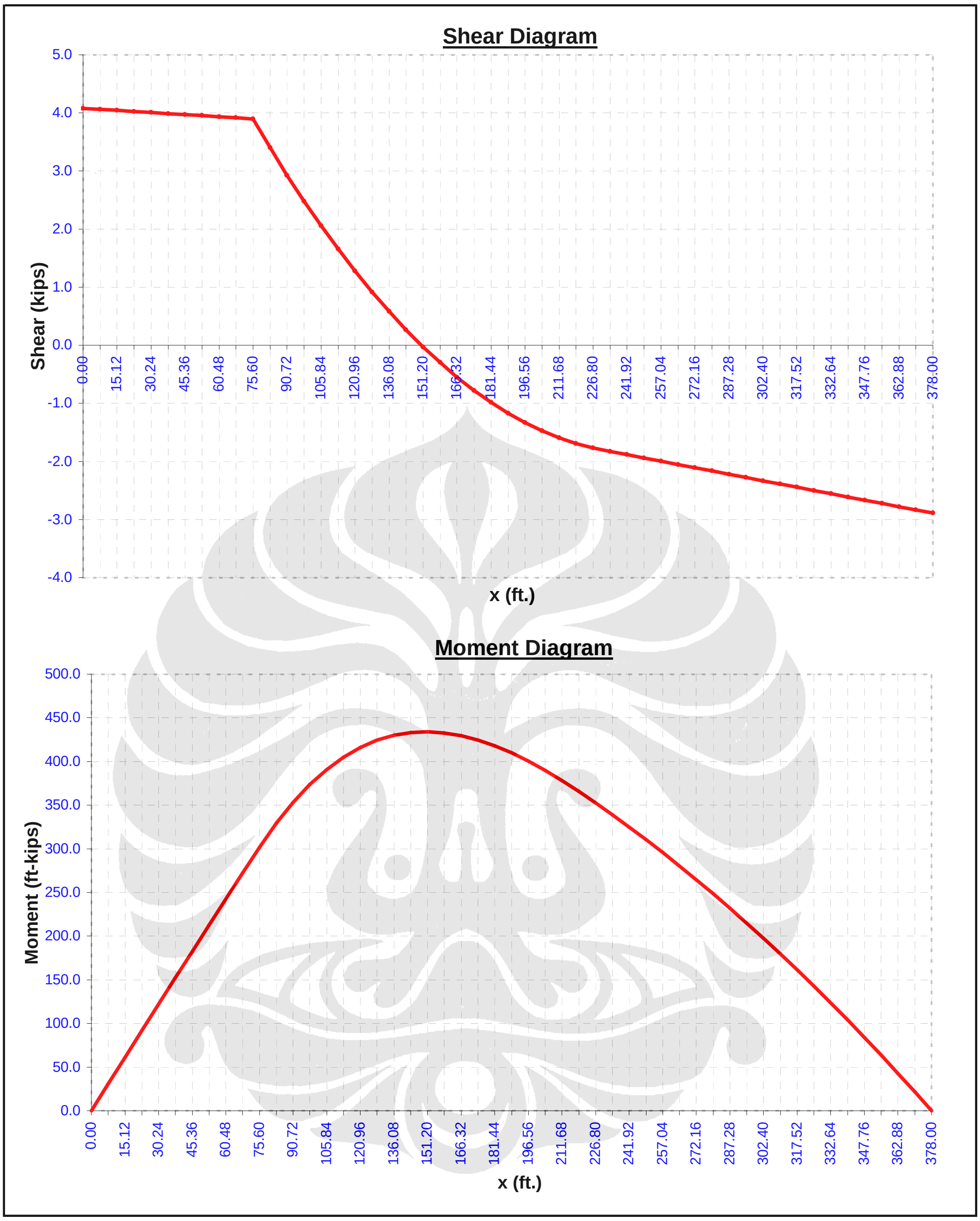
RL =	4.35	kips	RR =	2.62	kips
MxL =	-317.28	ft-kips	MxR =	-214.60	ft-kips

Maximum Moments:

+Mx(max) =	158.70	ft-kips	@ x =	158.03	ft.
-Mx(max) =	-317.28	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-190.477	in.	@ x =	174.69	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/24				



Shear Diagram
Shear (kips)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	4.35	-317.28	0.0000	0.0000
2	7.5600	4.33	-284.45	-1.5982	-1.2883
3	15.1200	4.32	-251.76	-3.0224	-4.9692
4	22.6800	4.30	-219.21	-4.2732	-10.7678
5	30.2400	4.28	-186.79	-5.3515	-18.4102
6	37.8000	4.26	-154.51	-6.2580	-27.6239
7	45.3600	4.24	-122.37	-6.9934	-38.1374
8	52.9200	4.22	-90.37	-7.5584	-49.6802
9	60.4800	4.21	-58.50	-7.9537	-61.9831
10	68.0400	4.19	-26.77	-8.1802	-74.7783
11	75.6000	4.17	4.82	-8.2384	-87.7987
12	83.1600	3.68	34.76	-8.1314	-100.7794
13	90.7200	3.20	60.71	-7.8762	-113.4705
14	98.2800	2.75	83.20	-7.4925	-125.6534
15	105.8400	2.33	102.40	-6.9981	-137.1389
16	113.4000	1.93	118.49	-6.4101	-147.7652
17	120.9600	1.55	131.62	-5.7445	-157.3970
18	128.5200	1.19	141.96	-5.0167	-165.9237
19	136.0800	0.85	149.67	-4.2410	-173.2583
20	143.6400	0.54	154.92	-3.4309	-179.3357
21	151.2000	0.25	157.87	-2.5991	-184.1116
22	158.7600	-0.03	158.69	-1.7574	-187.5612
23	166.3200	-0.28	157.53	-0.9167	-189.6774
24	173.8800	-0.50	154.57	-0.0870	-190.4699
25	181.4400	-0.71	149.96	0.7226	-189.9635
26	189.0000	-0.90	143.87	1.5036	-188.1968
27	196.5600	-1.06	136.46	2.2487	-185.2210
28	204.1200	-1.20	127.90	2.9513	-181.0982
29	211.6800	-1.32	118.35	3.6058	-175.9004
30	219.2400	-1.42	107.98	4.2073	-169.7076
31	226.8000	-1.50	96.94	4.7518	-162.6071
32	234.3600	-1.55	85.40	5.2363	-154.6916
33	241.9200	-1.61	73.43	5.6584	-146.0581
34	249.4800	-1.67	61.03	6.0157	-136.8072
35	257.0400	-1.72	48.21	6.3061	-127.0432
36	264.6000	-1.78	34.96	6.5272	-116.8741
37	272.1600	-1.84	21.28	6.6767	-106.4112
38	279.7200	-1.89	7.18	6.7525	-95.7696
39	287.2800	-1.95	-7.35	6.7523	-85.0679
40	294.8400	-2.01	-22.30	6.6737	-74.4283
41	302.4000	-2.06	-37.67	6.5146	-63.9766
42	309.9600	-2.12	-53.47	6.2727	-53.8421
43	317.5200	-2.17	-69.69	5.9457	-44.1576
44	325.0800	-2.23	-86.34	5.5315	-35.0596
45	332.6400	-2.28	-103.40	5.0277	-26.6881
46	340.2000	-2.34	-120.88	4.4322	-19.1866
47	347.7600	-2.40	-138.79	3.7427	-12.7022
48	355.3200	-2.45	-157.11	2.9569	-7.3854
49	362.8800	-2.51	-175.86	2.0727	-3.3904
50	370.4400	-2.56	-195.02	1.0878	-0.8749
51	378.0000	-2.62	-214.60	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

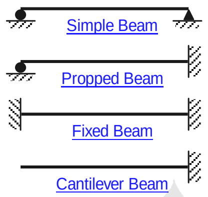
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

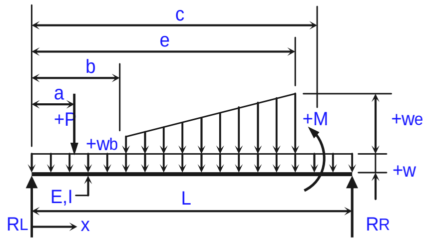
Job Name:	1 Year Propped - 13.375" - N80	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Propped	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	404.89	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ____ kips/ft.

Distributed:

	Start b (ft.)	Start Wb (kips/ft.)	End e (ft.)	End We (kips/ft.)
#1:	0.0000	0.0024	82.0000	0.0024
#2:	77.0000	0.0853	82.0000	0.0723
#3:	82.0000	0.0723	87.0000	0.0617
#4:	87.0000	0.0617	230.0000	0.0075
#5:	230.0000	0.0075	378.0000	0.0073
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

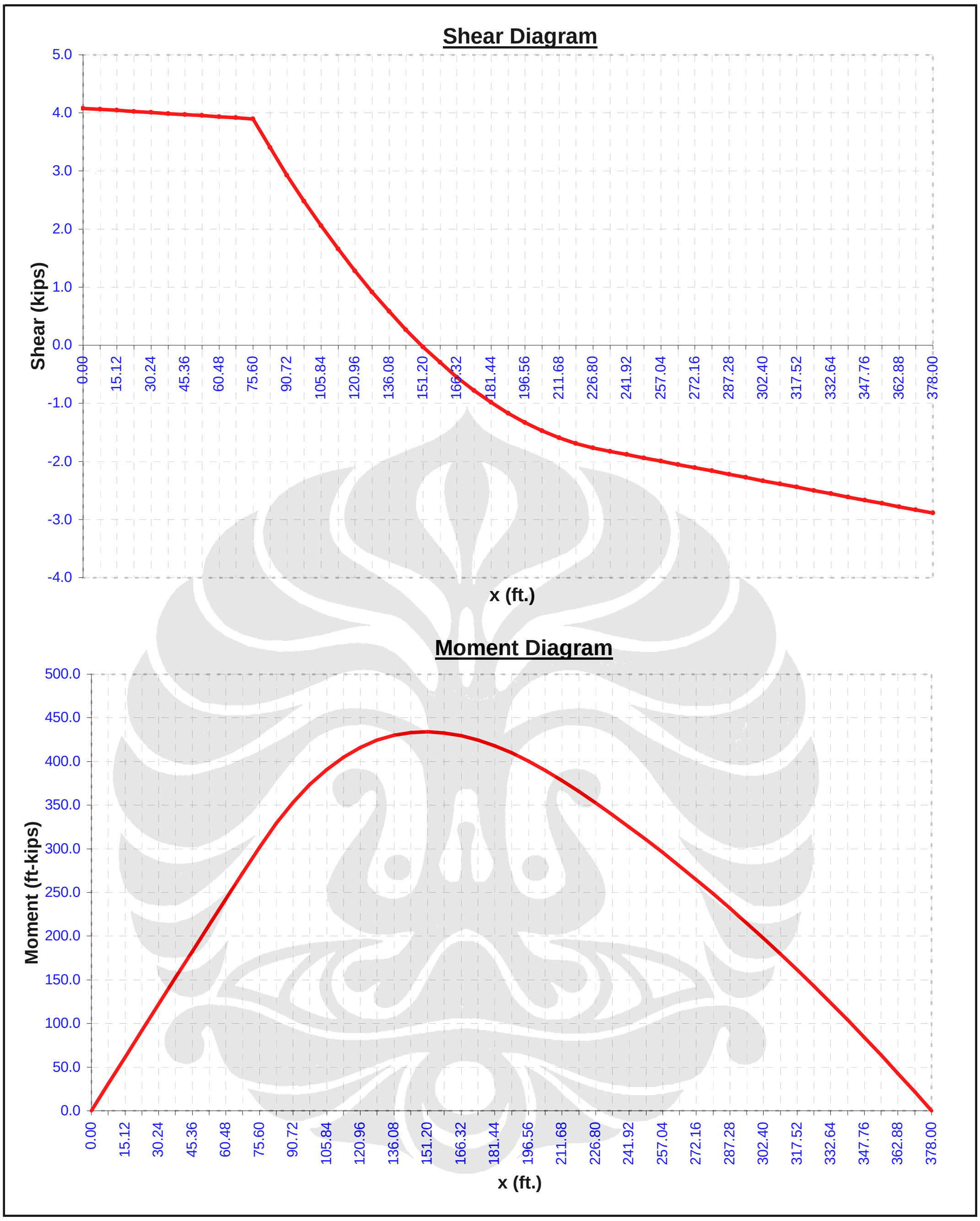
RL =	3.09	kips	RR =	3.88	kips
MxL =	N.A.	ft-kips	MxR =	-373.24	ft-kips

Maximum Moments:

+Mx(max) =	297.47	ft-kips	@ x =	127.07	ft.
-Mx(max) =	-373.24	ft-kips	@ x =	378.00	ft.

Maximum Deflections:

-Δ(max) =	-424.294	in.	@ x =	151.56	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/11				



Shear Diagram
Shear (kips)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	3.09	0.00	-21.0680	0.0000
2	7.5600	3.07	23.31	-21.0060	-33.3255
3	15.1200	3.06	46.48	-20.8206	-66.4551
4	22.6800	3.04	69.52	-20.5124	-99.1939
5	30.2400	3.02	92.41	-20.0823	-131.3480
6	37.8000	3.00	115.17	-19.5309	-162.7249
7	45.3600	2.98	137.80	-18.8589	-193.1332
8	52.9200	2.97	160.28	-18.0671	-222.3826
9	60.4800	2.95	182.63	-17.1562	-250.2839
10	68.0400	2.93	204.84	-16.1270	-276.6492
11	75.6000	2.91	226.92	-14.9802	-301.2916
12	83.1600	2.42	247.34	-13.7186	-324.0263
13	90.7200	1.94	263.77	-12.3595	-344.6834
14	98.2800	1.49	276.74	-10.9224	-363.1243
15	105.8400	1.07	286.42	-9.4252	-379.2398
16	113.4000	0.67	292.99	-7.8849	-392.9485
17	120.9600	0.29	296.60	-6.3176	-404.1948
18	128.5200	-0.07	297.42	-4.7386	-412.9484
19	136.0800	-0.41	295.62	-3.1623	-419.2021
20	143.6400	-0.72	291.35	-1.6022	-422.9711
21	151.2000	-1.01	284.78	-0.0710	-424.2911
22	158.7600	-1.29	276.08	1.4196	-423.2173
23	166.3200	-1.54	265.40	2.8587	-419.8228
24	173.8800	-1.76	252.92	4.2362	-414.1971
25	181.4400	-1.97	238.79	5.5429	-406.4453
26	189.0000	-2.16	223.19	6.7706	-396.6860
27	196.5600	-2.32	206.26	7.9118	-385.0504
28	204.1200	-2.46	188.18	8.9599	-371.6807
29	211.6800	-2.58	169.12	9.9094	-356.7289
30	219.2400	-2.68	149.22	10.7552	-340.3552
31	226.8000	-2.76	128.67	11.4936	-322.7268
32	234.3600	-2.81	107.61	12.1214	-304.0165
33	241.9200	-2.87	86.12	12.6361	-284.4015
34	249.4800	-2.93	64.21	13.0356	-264.0623
35	257.0400	-2.98	41.86	13.3175	-243.1834
36	264.6000	-3.04	19.09	13.4796	-221.9526
37	272.1600	-3.10	-4.10	13.5196	-200.5616
38	279.7200	-3.15	-27.72	13.4353	-179.2053
39	287.2800	-3.21	-51.77	13.2244	-158.0825
40	294.8400	-3.26	-76.24	12.8846	-137.3954
41	302.4000	-3.32	-101.13	12.4136	-117.3498
42	309.9600	-3.38	-126.45	11.8094	-98.1552
43	317.5200	-3.43	-152.19	11.0695	-80.0244
44	325.0800	-3.49	-178.35	10.1917	-63.1739
45	332.6400	-3.54	-204.93	9.1739	-47.8239
46	340.2000	-3.60	-231.93	8.0138	-34.1978
47	347.7600	-3.66	-259.36	6.7090	-22.5228
48	355.3200	-3.71	-287.20	5.2575	-13.0296
49	362.8800	-3.77	-315.46	3.6570	-5.9523
50	370.4400	-3.82	-344.14	1.9052	-1.5287
51	378.0000	-3.88	-373.24	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

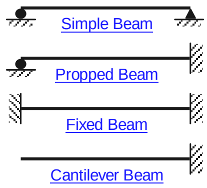
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

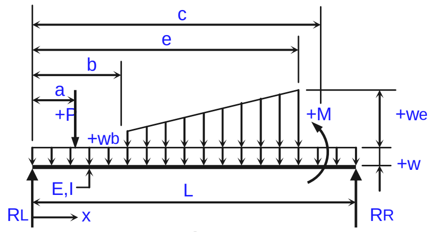
Job Name:	Year Simple - 13.375" - N80	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Simple	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	404.89	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = [ ] kips/ft.

Distributed:

	Start b (ft.)	Wb (kips/ft.)	End e (ft.)	We (kips/ft.)
#1:	0.0000	0.0024	82.0000	0.0024
#2:	77.0000	0.0853	82.0000	0.0723
#3:	82.0000	0.0723	87.0000	0.0617
#4:	87.0000	0.0617	230.0000	0.0075
#5:	230.0000	0.0075	378.0000	0.0073
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

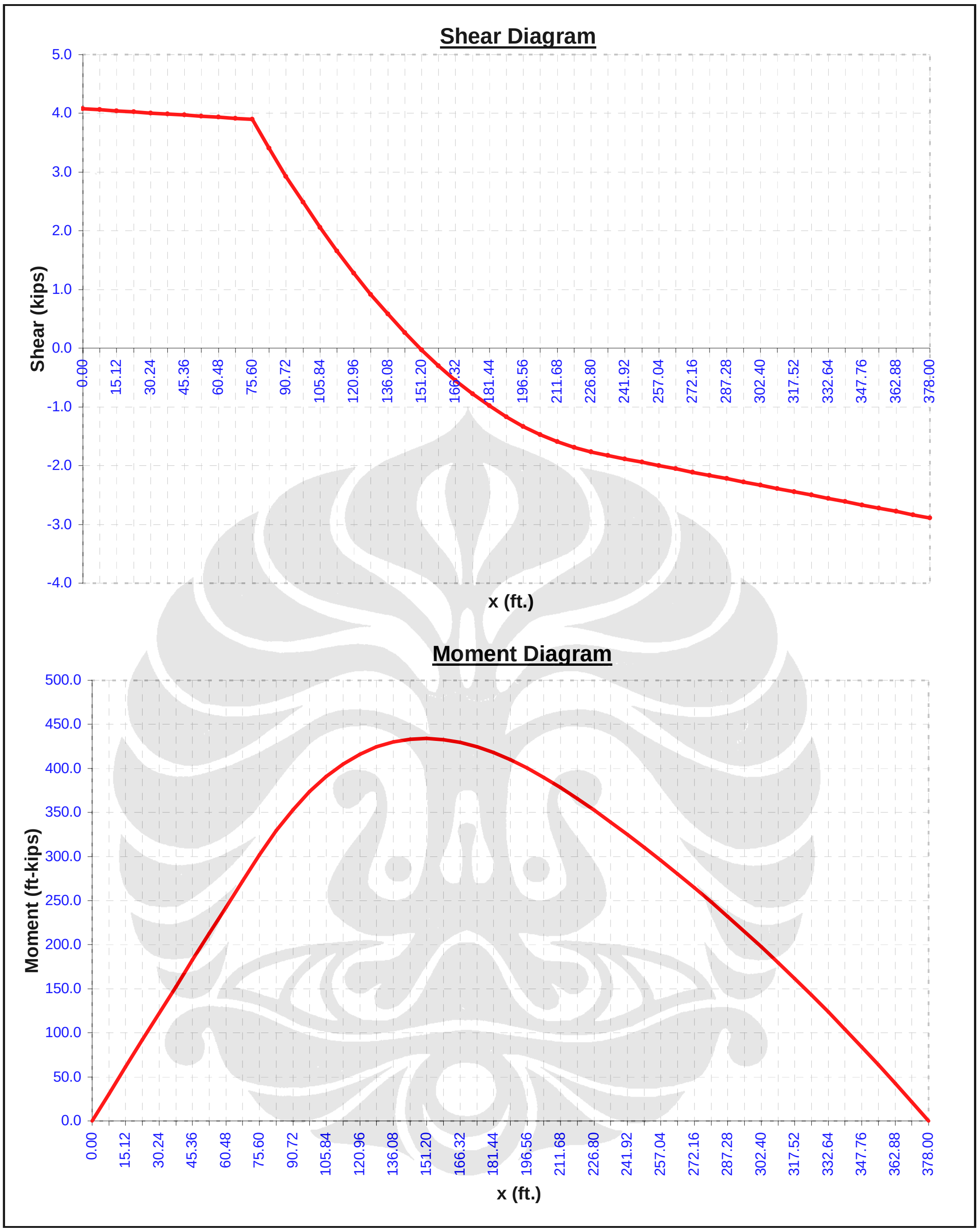
RL =	4.08	kips	RR =	2.89	kips
MXL =	N.A.	ft-kips	MXR =	N.A.	ft-kips

Maximum Moments:

+Mx(max) =	434.09	ft-kips	@ x =	150.52	ft.
-Mx(max) =	0.00	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-889.721	in.	@ x =	179.95	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/5				



Shear Diagram
Shear (kips)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	4.08	0.00	-37.5905	0.0000
2	7.5600	4.06	30.77	-37.5087	-59.4762
3	15.1200	4.04	61.41	-37.2638	-118.6937
4	22.6800	4.03	91.91	-36.8565	-177.3948
5	30.2400	4.01	122.27	-36.2876	-235.3229
6	37.8000	3.99	152.50	-35.5577	-292.2226
7	45.3600	3.97	182.58	-34.6676	-347.8398
8	52.9200	3.95	212.54	-33.6181	-401.9213
9	60.4800	3.93	242.35	-32.4098	-454.2153
10	68.0400	3.92	272.03	-31.0435	-504.4710
11	75.6000	3.90	301.56	-29.5200	-552.4387
12	83.1600	3.41	329.45	-27.8421	-597.8707
13	90.7200	2.93	353.35	-26.0269	-640.5346
14	98.2800	2.48	373.78	-24.0941	-680.2288
15	105.8400	2.06	390.93	-22.0616	-716.7815
16	113.4000	1.66	404.96	-19.9463	-750.0482
17	120.9600	1.28	416.04	-17.7644	-779.9108
18	128.5200	0.92	424.32	-15.5311	-806.2760
19	136.0800	0.58	429.98	-13.2609	-829.0741
20	143.6400	0.27	433.18	-10.9672	-848.2572
21	151.2000	-0.03	434.08	-8.6627	-863.7985
22	158.7600	-0.30	432.84	-6.3592	-875.6901
23	166.3200	-0.55	429.63	-4.0675	-883.9425
24	173.8800	-0.78	424.61	-1.7978	-888.5825
25	181.4400	-0.98	417.95	0.4408	-889.6522
26	189.0000	-1.17	409.80	2.6400	-887.2076
27	196.5600	-1.33	400.34	4.7923	-881.3169
28	204.1200	-1.47	389.73	6.8913	-872.0598
29	211.6800	-1.59	378.13	8.9312	-859.5252
30	219.2400	-1.69	365.70	10.9072	-843.8108
31	226.8000	-1.77	352.61	12.8154	-825.0209
32	234.3600	-1.83	339.02	14.6526	-803.2655
33	241.9200	-1.88	325.00	16.4165	-778.6588
34	249.4800	-1.94	310.54	18.1047	-751.3189
35	257.0400	-2.00	295.67	19.7150	-721.3673
36	264.6000	-2.05	280.36	21.2452	-688.9291
37	272.1600	-2.11	264.63	22.6929	-654.1331
38	279.7200	-2.17	248.47	24.0560	-617.1115
39	287.2800	-2.22	231.89	25.3321	-578.0003
40	294.8400	-2.28	214.89	26.5189	-536.9389
41	302.4000	-2.33	197.46	27.6144	-494.0704
42	309.9600	-2.39	179.61	28.6161	-449.5413
43	317.5200	-2.45	161.33	29.5218	-403.5018
44	325.0800	-2.50	142.64	30.3294	-356.1056
45	332.6400	-2.56	123.52	31.0365	-307.5099
46	340.2000	-2.61	103.98	31.6410	-257.8757
47	347.7600	-2.67	84.02	32.1405	-207.3671
48	355.3200	-2.72	63.65	32.5329	-156.1520
49	362.8800	-2.78	42.85	32.8160	-104.4020
50	370.4400	-2.83	21.63	32.9874	-52.2918
51	378.0000	-2.89	0.00	33.0451	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

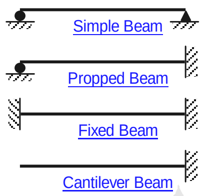
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

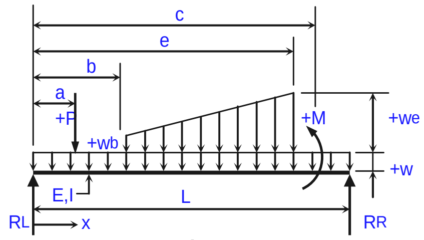
Job Name:	- 1 Year Fixed - 13.375" - P110	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Fixed	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	429.23	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ____ kips/ft.

Distributed:

	Start		End	
	b (ft.)	Wb (kips/ft.)	e (ft.)	We (kips/ft.)
#1:	0.0000	0.0024	82.0000	0.0024
#2:	77.0000	0.0853	82.0000	0.0723
#3:	82.0000	0.0723	87.0000	0.0617
#4:	87.0000	0.0617	230.0000	0.0075
#5:	230.0000	0.0075	378.0000	0.0073
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

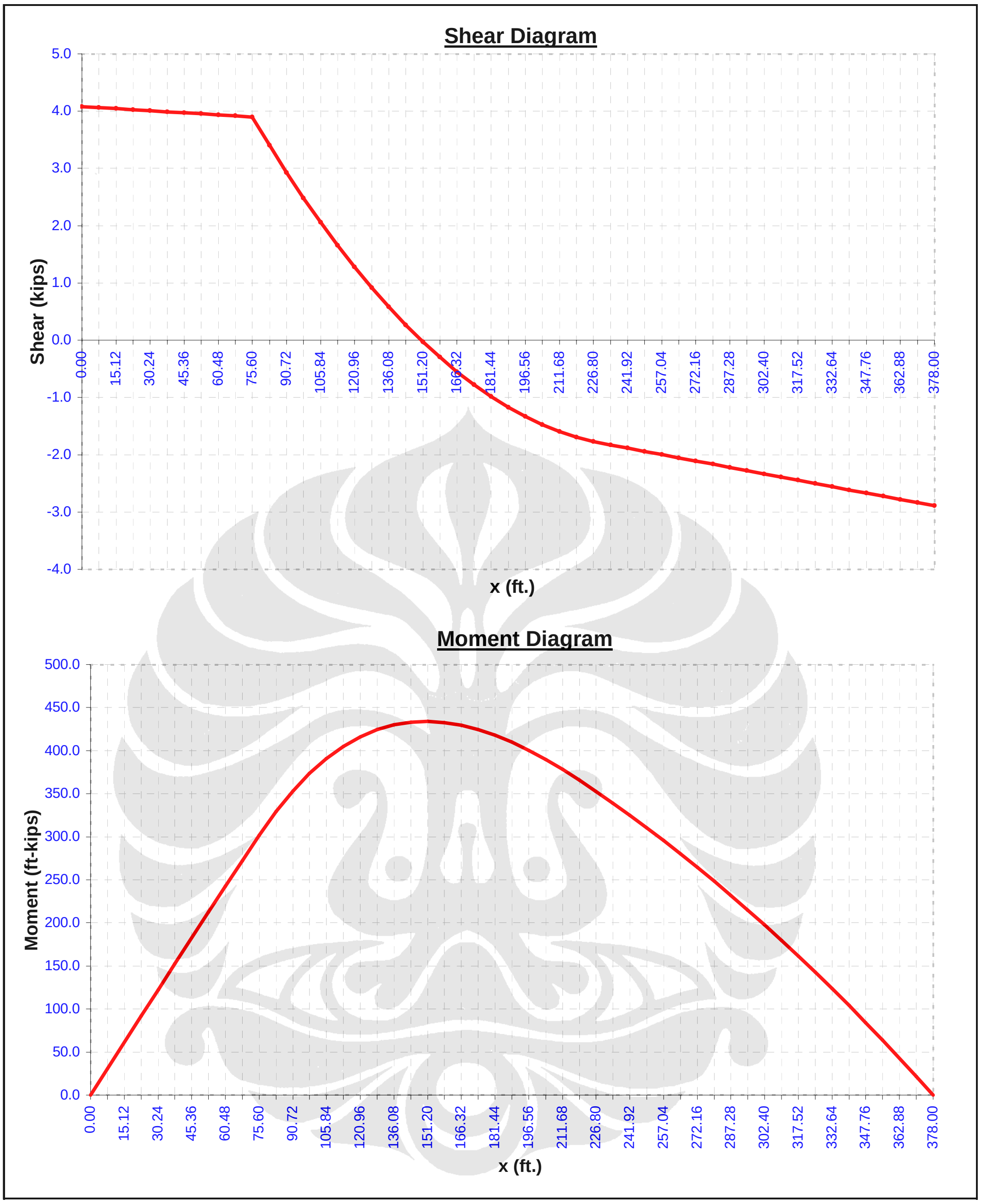
RL =	4.35	kips	RR =	2.62	kips
MxL =	-317.28	ft-kips	MxR =	-214.60	ft-kips

Maximum Moments:

+Mx(max) =	158.70	ft-kips	@ x =	158.03	ft.
-Mx(max) =	-317.28	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-179.676	in.	@ x =	174.69	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/25				



Shear Diagram
Shear (kips)
x (ft.)
Moment Diagram
Moment (ft-kips)
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	4.35	-317.28	0.0000	0.0000
2	7.5600	4.33	-284.45	-1.5076	-1.2152
3	15.1200	4.32	-251.76	-2.8510	-4.6874
4	22.6800	4.30	-219.21	-4.0309	-10.1572
5	30.2400	4.28	-186.79	-5.0481	-17.3663
6	37.8000	4.26	-154.51	-5.9031	-26.0575
7	45.3600	4.24	-122.37	-6.5968	-35.9747
8	52.9200	4.22	-90.37	-7.1298	-46.8630
9	60.4800	4.21	-58.50	-7.5027	-58.4683
10	68.0400	4.19	-26.77	-7.7163	-70.5379
11	75.6000	4.17	4.82	-7.7712	-82.8200
12	83.1600	3.68	34.76	-7.6703	-95.0646
13	90.7200	3.20	60.71	-7.4296	-107.0360
14	98.2800	2.75	83.20	-7.0676	-118.5281
15	105.8400	2.33	102.40	-6.6013	-129.3622
16	113.4000	1.93	118.49	-6.0466	-139.3860
17	120.9600	1.55	131.62	-5.4188	-148.4716
18	128.5200	1.19	141.96	-4.7322	-156.5148
19	136.0800	0.85	149.67	-4.0005	-163.4334
20	143.6400	0.54	154.92	-3.2364	-169.1662
21	151.2000	0.25	157.87	-2.4517	-173.6713
22	158.7600	-0.03	158.69	-1.6578	-176.9253
23	166.3200	-0.28	157.53	-0.8647	-178.9215
24	173.8800	-0.50	154.57	-0.0820	-179.6691
25	181.4400	-0.71	149.96	0.6816	-179.1914
26	189.0000	-0.90	143.87	1.4183	-177.5249
27	196.5600	-1.06	136.46	2.1212	-174.7178
28	204.1200	-1.20	127.90	2.7840	-170.8288
29	211.6800	-1.32	118.35	3.4013	-165.9257
30	219.2400	-1.42	107.98	3.9687	-160.0841
31	226.8000	-1.50	96.94	4.4824	-153.3863
32	234.3600	-1.55	85.40	4.9394	-145.9196
33	241.9200	-1.61	73.43	5.3375	-137.7757
34	249.4800	-1.67	61.03	5.6746	-129.0494
35	257.0400	-1.72	48.21	5.9485	-119.8391
36	264.6000	-1.78	34.96	6.1571	-110.2466
37	272.1600	-1.84	21.28	6.2981	-100.3770
38	279.7200	-1.89	7.18	6.3696	-90.3388
39	287.2800	-1.95	-7.35	6.3694	-80.2440
40	294.8400	-2.01	-22.30	6.2953	-70.2078
41	302.4000	-2.06	-37.67	6.1452	-60.3487
42	309.9600	-2.12	-53.47	5.9170	-50.7889
43	317.5200	-2.17	-69.69	5.6086	-41.6536
44	325.0800	-2.23	-86.34	5.2178	-33.0715
45	332.6400	-2.28	-103.40	4.7426	-25.1747
46	340.2000	-2.34	-120.88	4.1809	-18.0986
47	347.7600	-2.40	-138.79	3.5304	-11.9819
48	355.3200	-2.45	-157.11	2.7892	-6.9666
49	362.8800	-2.51	-175.86	1.9552	-3.1982
50	370.4400	-2.56	-195.02	1.0261	-0.8253
51	378.0000	-2.62	-214.60	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

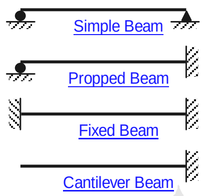
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

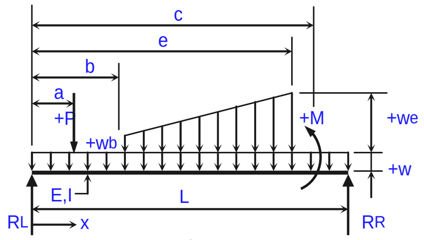
Job Name:	1 Year Propped - 13.375" - P110	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Propped	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	429.23	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ____ kips/ft.

Distributed:

	Start b (ft.)	Start wb (kips/ft.)	End e (ft.)	End we (kips/ft.)
#1:	0.0000	0.0024	82.0000	0.0024
#2:	77.0000	0.0853	82.0000	0.0723
#3:	82.0000	0.0723	87.0000	0.0617
#4:	87.0000	0.0617	230.0000	0.0075
#5:	230.0000	0.0075	378.0000	0.0073
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

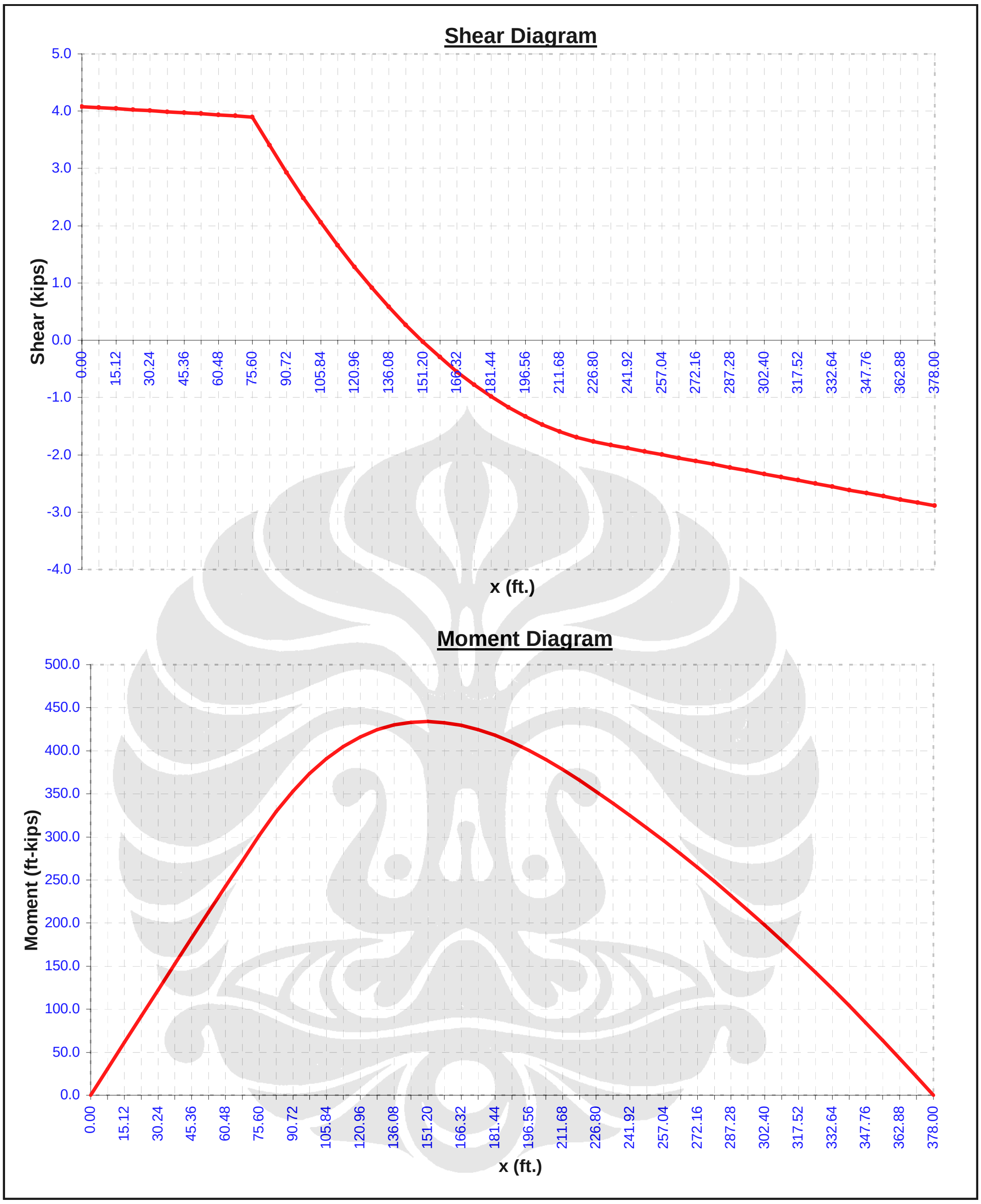
RL =	3.09	kips	RR =	3.88	kips
MxL =	N.A.	ft-kips	MxR =	-373.24	ft-kips

Maximum Moments:

+Mx(max) =	297.47	ft-kips	@ x =	127.07	ft.
-Mx(max) =	-373.24	ft-kips	@ x =	378.00	ft.

Maximum Deflections:

-Δ(max) =	-400.234	in.	@ x =	151.56	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/11				



Shear Diagram
Shear (kips)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	3.09	0.00	-19.8733	0.0000
2	7.5600	3.07	23.31	-19.8148	-31.4358
3	15.1200	3.06	46.48	-19.6399	-62.6867
4	22.6800	3.04	69.52	-19.3493	-93.5690
5	30.2400	3.02	92.41	-18.9435	-123.8997
6	37.8000	3.00	115.17	-18.4233	-153.4974
7	45.3600	2.98	137.80	-17.7895	-182.1814
8	52.9200	2.97	160.28	-17.0426	-209.7721
9	60.4800	2.95	182.63	-16.1834	-236.0913
10	68.0400	2.93	204.84	-15.2125	-260.9615
11	75.6000	2.91	226.92	-14.1307	-284.2065
12	83.1600	2.42	247.34	-12.9407	-305.6520
13	90.7200	1.94	263.77	-11.6586	-325.1377
14	98.2800	1.49	276.74	-10.3030	-342.5329
15	105.8400	1.07	286.42	-8.8907	-357.7346
16	113.4000	0.67	292.99	-7.4377	-370.6658
17	120.9600	0.29	296.60	-5.9593	-381.2745
18	128.5200	-0.07	297.42	-4.4699	-389.5316
19	136.0800	-0.41	295.62	-2.9830	-395.4308
20	143.6400	-0.72	291.35	-1.5114	-398.9860
21	151.2000	-1.01	284.78	-0.0670	-400.2312
22	158.7600	-1.29	276.08	1.3391	-399.2183
23	166.3200	-1.54	265.40	2.6966	-396.0162
24	173.8800	-1.76	252.92	3.9960	-390.7096
25	181.4400	-1.97	238.79	5.2286	-383.3974
26	189.0000	-2.16	223.19	6.3867	-374.1915
27	196.5600	-2.32	206.26	7.4631	-363.2156
28	204.1200	-2.46	188.18	8.4518	-350.6041
29	211.6800	-2.58	169.12	9.3474	-336.5001
30	219.2400	-2.68	149.22	10.1453	-321.0549
31	226.8000	-2.76	128.67	10.8418	-304.4262
32	234.3600	-2.81	107.61	11.4340	-286.7769
33	241.9200	-2.87	86.12	11.9196	-268.2741
34	249.4800	-2.93	64.21	12.2964	-249.0883
35	257.0400	-2.98	41.86	12.5623	-229.3934
36	264.6000	-3.04	19.09	12.7152	-209.3665
37	272.1600	-3.10	-4.10	12.7530	-189.1885
38	279.7200	-3.15	-27.72	12.6734	-169.0432
39	287.2800	-3.21	-51.77	12.4745	-149.1182
40	294.8400	-3.26	-76.24	12.1539	-129.6042
41	302.4000	-3.32	-101.13	11.7097	-110.6954
42	309.9600	-3.38	-126.45	11.1397	-92.5892
43	317.5200	-3.43	-152.19	10.4418	-75.4865
44	325.0800	-3.49	-178.35	9.6138	-59.5916
45	332.6400	-3.54	-204.93	8.6537	-45.1120
46	340.2000	-3.60	-231.93	7.5593	-32.2586
47	347.7600	-3.66	-259.36	6.3286	-21.2457
48	355.3200	-3.71	-287.20	4.9594	-12.2908
49	362.8800	-3.77	-315.46	3.4496	-5.6148
50	370.4400	-3.82	-344.14	1.7972	-1.4420
51	378.0000	-3.88	-373.24	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

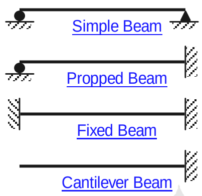
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

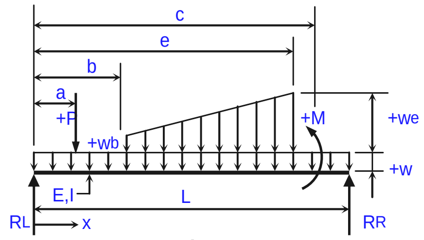
Job Name:	- 1 Year Simple - 13.375" - P110	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Simple	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	429.23	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = kips/ft.

Distributed:

	Start b (ft.)	Start wb (kips/ft.)	End e (ft.)	End we (kips/ft.)
#1:	0.0000	0.0024	82.0000	0.0024
#2:	77.0000	0.0853	82.0000	0.0723
#3:	82.0000	0.0723	87.0000	0.0617
#4:	87.0000	0.0617	230.0000	0.0075
#5:	230.0000	0.0075	378.0000	0.0073
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

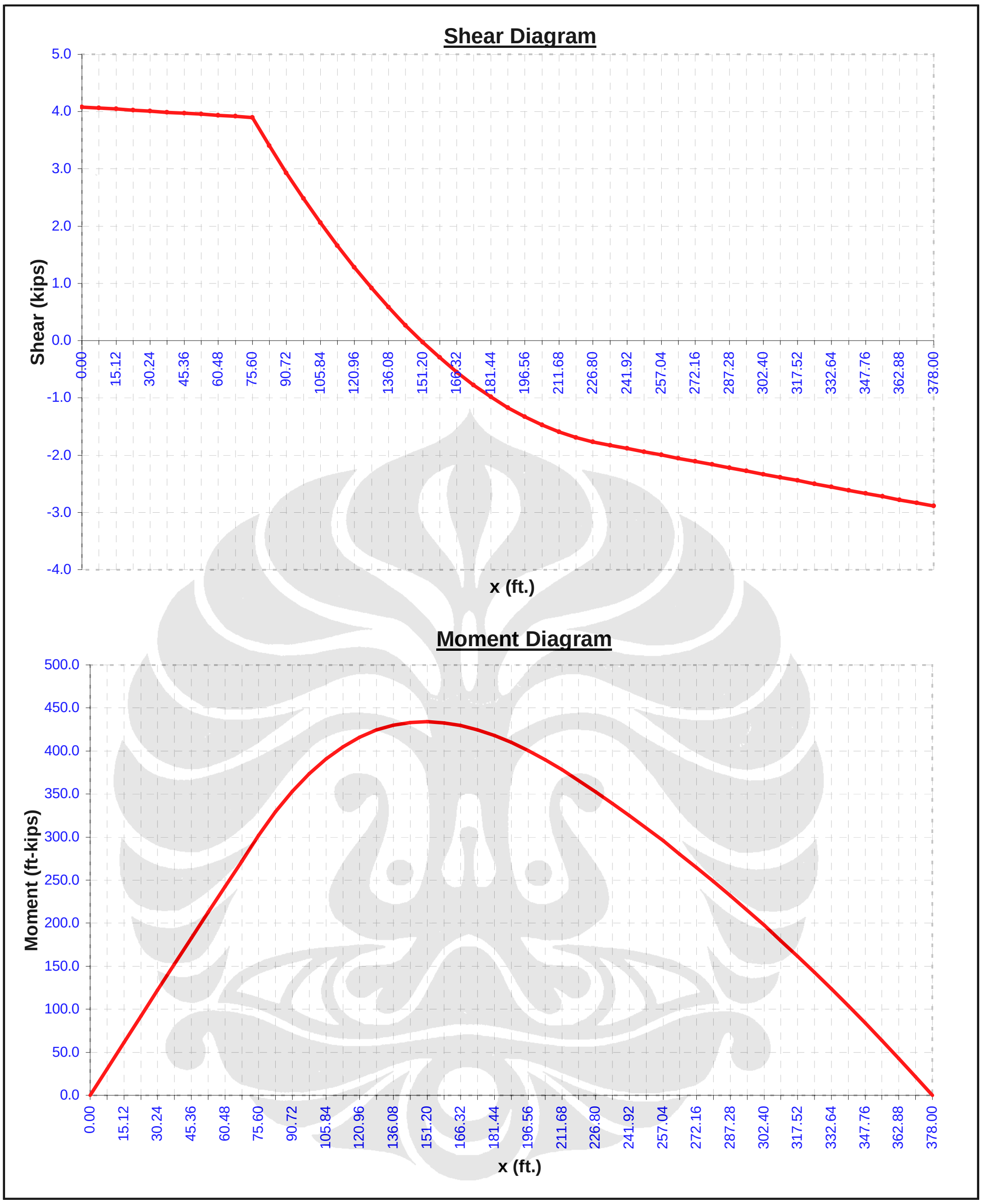
RL =	4.08	kips	RR =	2.89	kips
MxL =	N.A.	ft-kips	MxR =	N.A.	ft-kips

Maximum Moments:

+Mx(max) =	434.09	ft-kips	@ x =	150.52	ft.
-Mx(max) =	0.00	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-839.269	in.	@ x =	179.95	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/5				



Shear Diagram
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
Shear (kips)
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
Moment (ft-kips)
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	4.08	0.00	-35.4589	0.0000
2	7.5600	4.06	30.77	-35.3817	-56.1036
3	15.1200	4.04	61.41	-35.1507	-111.9630
4	22.6800	4.03	91.91	-34.7665	-167.3354
5	30.2400	4.01	122.27	-34.2298	-221.9786
6	37.8000	3.99	152.50	-33.5414	-275.6518
7	45.3600	3.97	182.58	-32.7018	-328.1151
8	52.9200	3.95	212.54	-31.7117	-379.1299
9	60.4800	3.93	242.35	-30.5720	-428.4585
10	68.0400	3.92	272.03	-29.2832	-475.8643
11	75.6000	3.90	301.56	-27.8460	-521.1120
12	83.1600	3.41	329.45	-26.2633	-563.9678
13	90.7200	2.93	353.35	-24.5510	-604.2123
14	98.2800	2.48	373.78	-22.7279	-641.6556
15	105.8400	2.06	390.93	-20.8106	-676.1355
16	113.4000	1.66	404.96	-18.8152	-707.5158
17	120.9600	1.28	416.04	-16.7570	-735.6850
18	128.5200	0.92	424.32	-14.6504	-760.5552
19	136.0800	0.58	429.98	-12.5089	-782.0604
20	143.6400	0.27	433.18	-10.3453	-800.1558
21	151.2000	-0.03	434.08	-8.1715	-814.8157
22	158.7600	-0.30	432.84	-5.9986	-826.0331
23	166.3200	-0.55	429.63	-3.8369	-833.8175
24	173.8800	-0.78	424.61	-1.6959	-838.1944
25	181.4400	-0.98	417.95	0.4158	-839.2034
26	189.0000	-1.17	409.80	2.4903	-836.8974
27	196.5600	-1.33	400.34	4.5206	-831.3408
28	204.1200	-1.47	389.73	6.5005	-822.6086
29	211.6800	-1.59	378.13	8.4248	-810.7848
30	219.2400	-1.69	365.70	10.2887	-795.9615
31	226.8000	-1.77	352.61	12.0887	-778.2371
32	234.3600	-1.83	339.02	13.8217	-757.7153
33	241.9200	-1.88	325.00	15.4856	-734.5041
34	249.4800	-1.94	310.54	17.0781	-708.7145
35	257.0400	-2.00	295.67	18.5971	-680.4613
36	264.6000	-2.05	280.36	20.0405	-649.8626
37	272.1600	-2.11	264.63	21.4061	-617.0397
38	279.7200	-2.17	248.47	22.6919	-582.1175
39	287.2800	-2.22	231.89	23.8956	-545.2241
40	294.8400	-2.28	214.89	25.0152	-506.4912
41	302.4000	-2.33	197.46	26.0485	-466.0535
42	309.9600	-2.39	179.61	26.9934	-424.0495
43	317.5200	-2.45	161.33	27.8478	-380.6207
44	325.0800	-2.50	142.64	28.6095	-335.9122
45	332.6400	-2.56	123.52	29.2766	-290.0722
46	340.2000	-2.61	103.98	29.8467	-243.2525
47	347.7600	-2.67	84.02	30.3179	-195.6081
48	355.3200	-2.72	63.65	30.6881	-147.2973
49	362.8800	-2.78	42.85	30.9551	-98.4818
50	370.4400	-2.83	21.63	31.1168	-49.3266
51	378.0000	-2.89	0.00	31.1712	0.0000

Summary of Structural Analysis

Conductor - 10 Year Month August

No	Conductor	Method	Properties						Loads							Analysis				Remark
			Yield Strength (ksi)	Allowable Stress (ksi)	Allowable Shear (ksi)	Moment Inertia (ft^4)	Wall Thickness (inch)	Area ($inch^2$)	Moment Max.(kips.ft)	Shear Max.(kips)	Self Load (lbs/ft)	Stress (ksi) Moment	Stress (ksi) Normal	Stress (ksi) Total	Shear (ksi)	Stress Ratio	Shear Ratio	Maximum Deflection (inch)	Maximum Deflection (meter)	
1	13-3/8" - N80	Simple beam	80	60	32	0.019526	0.48	19.45	365.07	3.27	67.24	72.36	0.69	73.05	0.17	1.22	0.0053	-761.10	-19.03	
2	13-3/8" - N80	Propped beam	80	60	32	0.019526	0.48	19.45	-326.09	3.61	67.24	-64.63	-0.69	-65.32	0.19	1.09	0.0058	-351.57	-8.79	
3	13-3/8" - N80	Fixed beam	80	60	32	0.019526	0.48	19.45	-258.32	3.44	67.24	-51.20	-0.69	-51.89	0.18	0.86	0.0055	-162.78	-4.07	
4	13-3/8" - P110	Simple beam	110	82.5	44	0.0207	0.514	20.77	365.07	3.27	72.00	68.25	0.69	68.95	0.16	0.84	0.0036	-717.94	-17.95	
5	13-3/8" - P110	Propped beam	110	82.5	44	0.0207	0.514	20.77	-326.09	3.61	72.00	-60.97	-0.69	-61.66	0.17	0.75	0.0039	-331.63	-8.29	
6	13-3/8" - P110	Fixed beam	110	82.5	44	0.0207	0.514	20.77	-258.32	3.44	72.00	-48.30	-0.69	-48.99	0.17	0.59	0.0038	-153.55	-3.84	

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

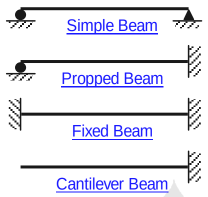
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

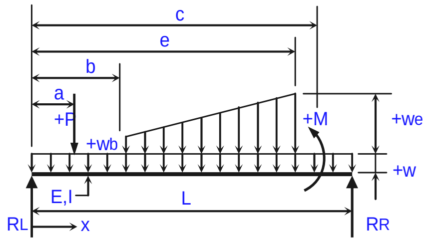
Job Name:	1 Year Fixed - 13.375" - N80	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Fixed	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	404.89	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ____ kips/ft.

Distributed:

	Start: b (ft.)	Start: Wb (kips/ft.)	End: e (ft.)	End: We (kips/ft.)
#1:	0.0000	0.0015	82.0000	0.0015
#2:	79.0000	0.0640	82.0000	0.0556
#3:	82.0000	0.0556	85.0000	0.0487
#4:	85.0000	0.0487	230.0000	0.0092
#5:	230.0000	0.0092	378.0000	0.0091
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

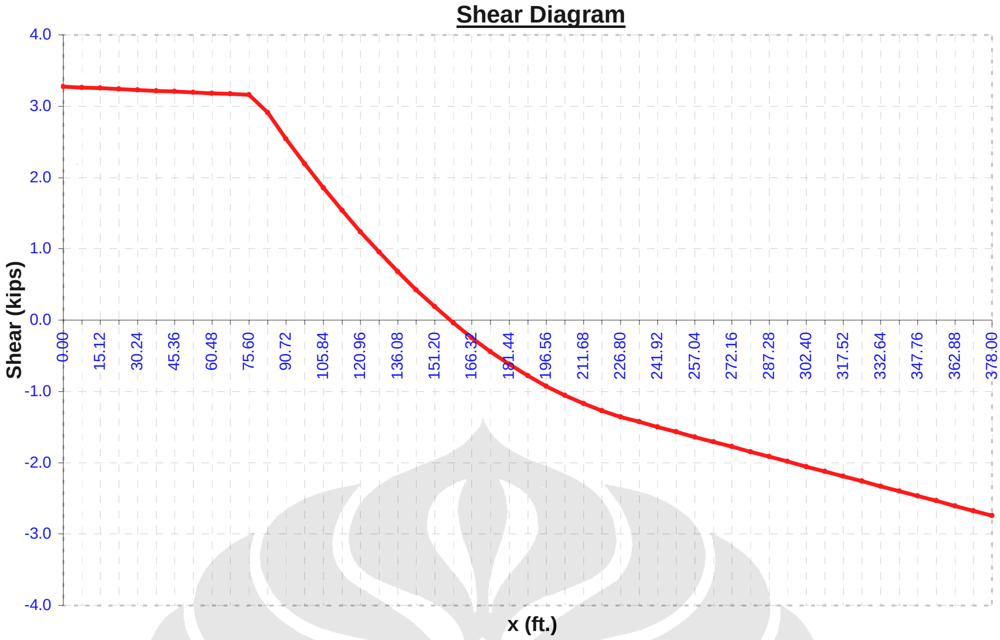
RL =	3.44	kips	RR =	2.58	kips
MxL =	-258.32	ft-kips	MxR =	-196.93	ft-kips

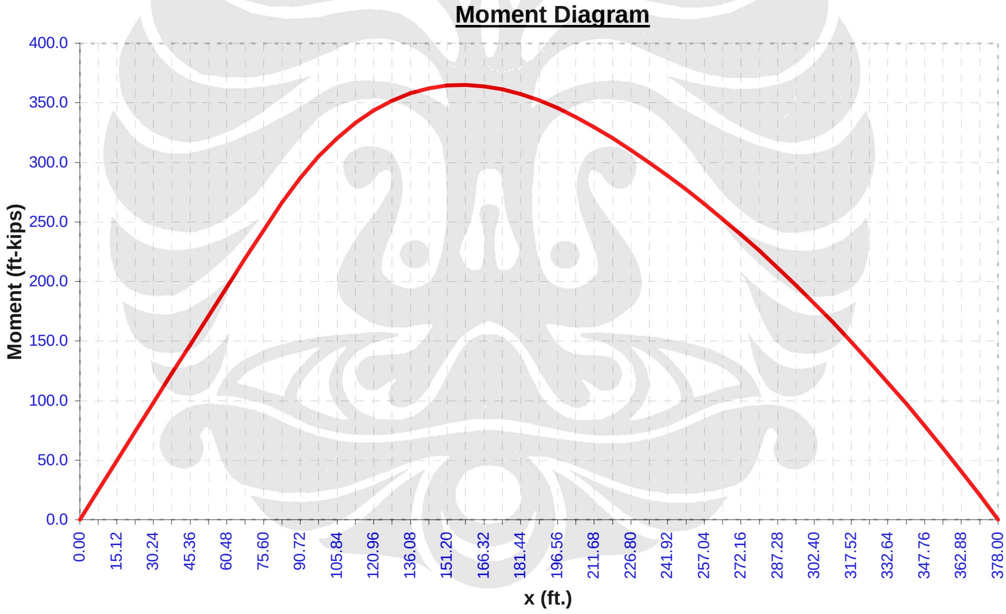
Maximum Moments:

+Mx(max) =	132.77	ft-kips	@ x =	163.24	ft.
-Mx(max) =	-258.32	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-162.782	in.	@ x =	177.83	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/28				


Shear Diagram
Shear (kips)
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)


Moment Diagram
Moment (ft-kips)
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	3.44	-258.32	0.0000	0.0000
2	7.5600	3.42	-232.39	-1.3033	-1.0500
3	15.1200	3.41	-206.54	-2.4691	-4.0547
4	22.6800	3.40	-180.78	-3.4979	-8.7968
5	30.2400	3.39	-155.11	-4.3900	-15.0595
6	37.8000	3.38	-129.52	-5.1460	-22.6268
7	45.3600	3.37	-104.02	-5.7662	-31.2837
8	52.9200	3.36	-78.60	-6.2512	-40.8155
9	60.4800	3.35	-53.27	-6.6014	-51.0084
10	68.0400	3.33	-28.02	-6.8173	-61.6494
11	75.6000	3.32	-2.86	-6.8993	-72.5262
12	83.1600	3.07	21.70	-6.8483	-83.4272
13	90.7200	2.70	43.50	-6.6739	-94.1478
14	98.2800	2.35	62.60	-6.3910	-104.5044
15	105.8400	2.02	79.13	-6.0134	-114.3363
16	113.4000	1.70	93.19	-5.5546	-123.5043
17	120.9600	1.40	104.92	-5.0274	-131.8901
18	128.5200	1.11	114.41	-4.4439	-139.3951
19	136.0800	0.84	121.80	-3.8156	-145.9391
20	143.6400	0.59	127.20	-3.1534	-151.4601
21	151.2000	0.35	130.73	-2.4675	-155.9124
22	158.7600	0.12	132.50	-1.7676	-159.2665
23	166.3200	-0.09	132.64	-1.0626	-161.5072
24	173.8800	-0.28	131.25	-0.3611	-162.6333
25	181.4400	-0.46	128.47	0.3294	-162.6564
26	189.0000	-0.62	124.40	1.0016	-161.5999
27	196.5600	-0.76	119.17	1.6490	-159.4978
28	204.1200	-0.90	112.88	2.2658	-156.3942
29	211.6800	-1.01	105.67	2.8467	-152.3417
30	219.2400	-1.11	97.64	3.3870	-147.4010
31	226.8000	-1.19	88.92	3.8828	-141.6395
32	234.3600	-1.27	79.62	4.3307	-135.1305
33	241.9200	-1.34	69.78	4.7278	-127.9522
34	249.4800	-1.41	59.42	5.0712	-120.1873
35	257.0400	-1.47	48.54	5.3582	-111.9230
36	264.6000	-1.54	37.13	5.5859	-103.2507
37	272.1600	-1.61	25.19	5.7517	-94.2666
38	279.7200	-1.68	12.72	5.8526	-85.0710
39	287.2800	-1.75	-0.27	5.8859	-75.7687
40	294.8400	-1.82	-13.78	5.8489	-66.4690
41	302.4000	-1.89	-27.82	5.7386	-57.2856
42	309.9600	-1.96	-42.38	5.5524	-48.3365
43	317.5200	-2.03	-57.46	5.2874	-39.7443
44	325.0800	-2.10	-73.07	4.9410	-31.6357
45	332.6400	-2.17	-89.20	4.5102	-24.1421
46	340.2000	-2.24	-105.85	3.9923	-17.3992
47	347.7600	-2.31	-123.03	3.3846	-11.5470
48	355.3200	-2.38	-140.72	2.6843	-6.7299
49	362.8800	-2.44	-158.94	1.8886	-3.0969
50	370.4400	-2.51	-177.68	0.9948	-0.8010
51	378.0000	-2.58	-196.93	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

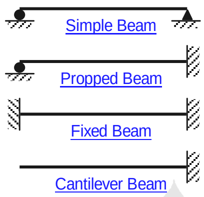
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

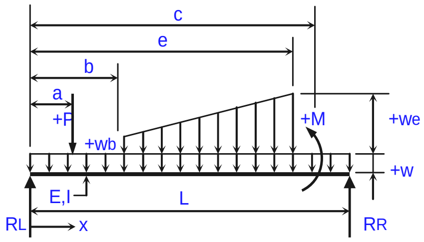
Job Name:	1 Year Propped - 13.375" - N80	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Propped	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	404.89	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ____ kips/ft.

Distributed:

	Start		End	
	b (ft.)	Wb (kips/ft.)	e (ft.)	We (kips/ft.)
#1:	0.0000	0.0015	82.0000	0.0015
#2:	79.0000	0.0640	82.0000	0.0556
#3:	82.0000	0.0556	85.0000	0.0487
#4:	85.0000	0.0487	230.0000	0.0092
#5:	230.0000	0.0092	378.0000	0.0091
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

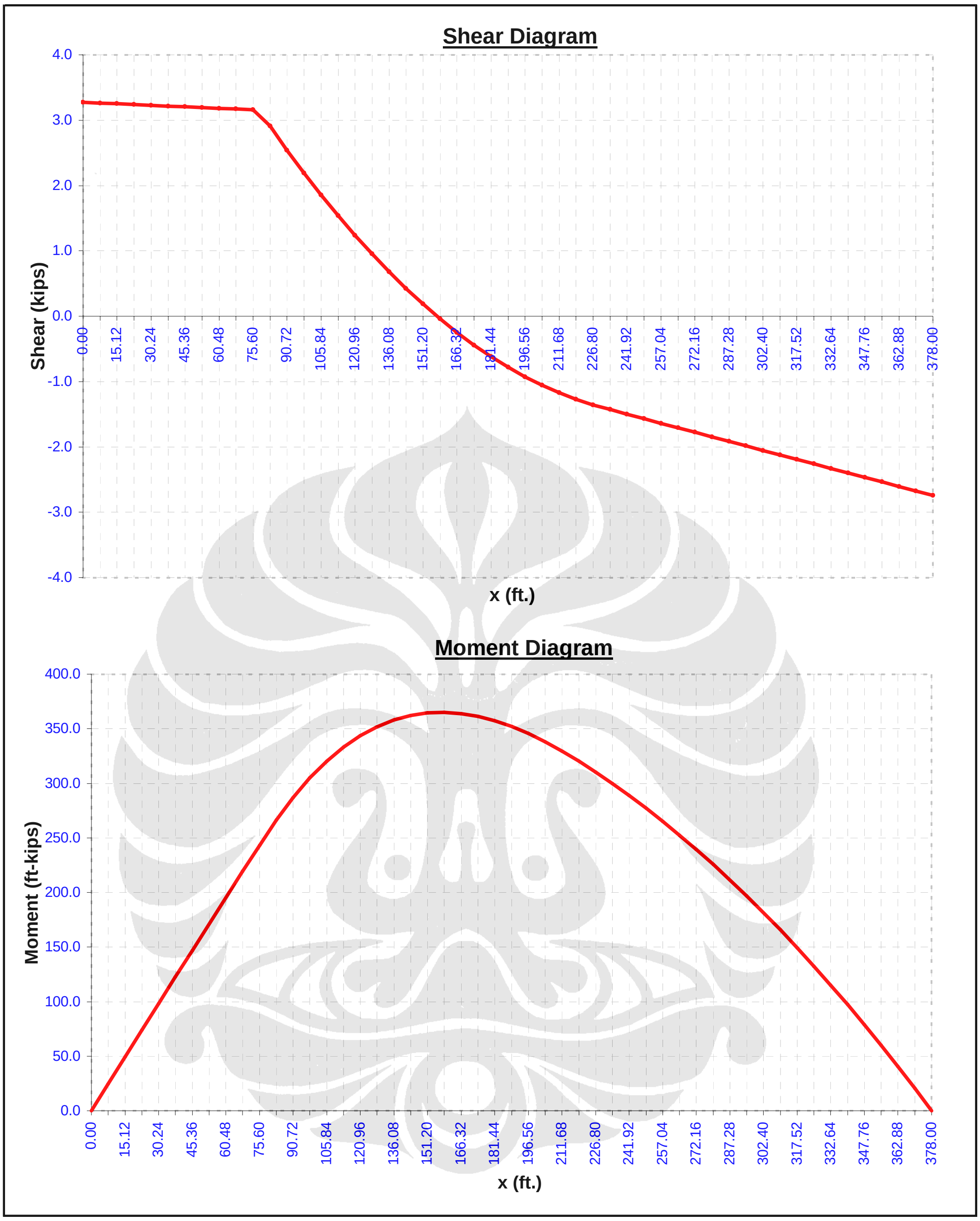
RL =	2.41	kips	RR =	3.61	kips
MxL =	N.A.	ft-kips	MxR =	-326.09	ft-kips

Maximum Moments:

+Mx(max) =	241.10	ft-kips	@ x =	131.01	ft.
-Mx(max) =	-326.09	ft-kips	@ x =	378.00	ft.

Maximum Deflections:

-Δ(max) =	-351.569	in.	@ x =	153.72	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/13				


Shear Diagram
Shear (kips)
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	2.41	0.00	-17.1532	0.0000
2	7.5600	2.40	18.18	-17.1048	-27.1342
3	15.1200	2.39	36.28	-16.9601	-54.1154
4	22.6800	2.38	54.29	-16.7195	-80.7916
5	30.2400	2.37	72.22	-16.3835	-107.0113
6	37.8000	2.35	90.05	-15.9525	-132.6235
7	45.3600	2.34	107.81	-15.4269	-157.4784
8	52.9200	2.33	125.48	-14.8072	-181.4265
9	60.4800	2.32	143.06	-14.0939	-204.3193
10	68.0400	2.31	160.56	-13.2875	-226.0089
11	75.6000	2.30	177.97	-12.3883	-246.3481
12	83.1600	2.05	194.77	-11.3973	-265.1906
13	90.7200	1.68	208.83	-10.3241	-282.3969
14	98.2800	1.33	220.18	-9.1835	-297.8487
15	105.8400	1.00	228.96	-7.9894	-311.4503
16	113.4000	0.68	235.27	-6.7553	-323.1279
17	120.9600	0.38	239.24	-5.4940	-332.8283
18	128.5200	0.09	240.99	-4.2175	-340.5179
19	136.0800	-0.18	240.63	-2.9373	-346.1820
20	143.6400	-0.44	238.28	-1.6645	-349.8235
21	151.2000	-0.68	234.06	-0.4091	-351.4621
22	158.7600	-0.90	228.08	0.8191	-351.1333
23	166.3200	-1.11	220.47	2.0112	-348.8872
24	173.8800	-1.30	211.33	3.1588	-344.7878
25	181.4400	-1.48	200.80	4.2540	-338.9119
26	189.0000	-1.64	188.98	5.2899	-331.3479
27	196.5600	-1.79	176.00	6.2598	-322.1951
28	204.1200	-1.92	161.96	7.1579	-311.5628
29	211.6800	-2.04	147.00	7.9789	-299.5689
30	219.2400	-2.14	131.22	8.7182	-286.3390
31	226.8000	-2.22	114.75	9.3718	-272.0060
32	234.3600	-2.29	97.70	9.9363	-256.7081
33	241.9200	-2.36	80.12	10.4089	-240.5888
34	249.4800	-2.43	62.01	10.7866	-223.7961
35	257.0400	-2.50	43.37	11.0667	-206.4821
36	264.6000	-2.57	24.21	11.2465	-188.8037
37	272.1600	-2.64	4.52	11.3230	-170.9221
38	279.7200	-2.71	-15.69	11.2936	-153.0028
39	287.2800	-2.78	-36.43	11.1554	-135.2158
40	294.8400	-2.85	-57.69	10.9056	-117.7356
41	302.4000	-2.92	-79.48	10.5415	-100.7411
42	309.9600	-2.99	-101.79	10.0602	-84.4154
43	317.5200	-3.06	-124.63	9.4591	-68.9464
44	325.0800	-3.12	-147.98	8.7352	-54.5259
45	332.6400	-3.19	-171.86	7.8859	-41.3505
46	340.2000	-3.26	-196.27	6.9084	-29.6211
47	347.7600	-3.33	-221.19	5.7998	-19.5428
48	355.3200	-3.40	-246.64	4.5574	-11.3253
49	362.8800	-3.47	-272.60	3.1785	-5.1827
50	370.4400	-3.54	-299.09	1.6603	-1.3334
51	378.0000	-3.61	-326.09	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

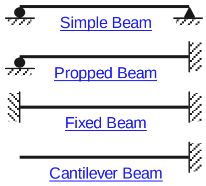
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

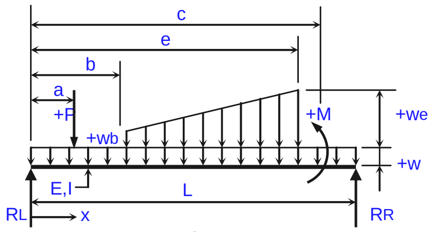
Job Name:	Year Simple - 13.375" - N80	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Simple	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	404.89	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ____ kips/ft.

Distributed:

	Start b (ft.)	Start Wb (kips/ft.)	End e (ft.)	End We (kips/ft.)
#1:	0.0000	0.0015	82.0000	0.0015
#2:	79.0000	0.0640	82.0000	0.0556
#3:	82.0000	0.0556	85.0000	0.0487
#4:	85.0000	0.0487	230.0000	0.0092
#5:	230.0000	0.0092	378.0000	0.0091
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

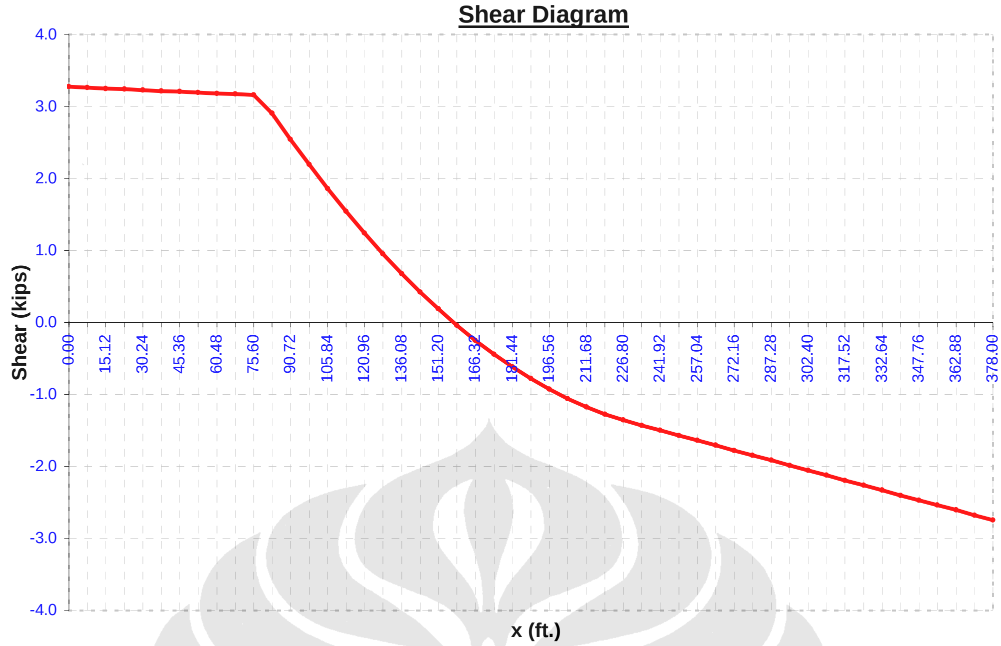
RL =	3.27	kips	RR =	2.74	kips
MxL =	N.A.	ft-kips	MxR =	N.A.	ft-kips

Maximum Moments:

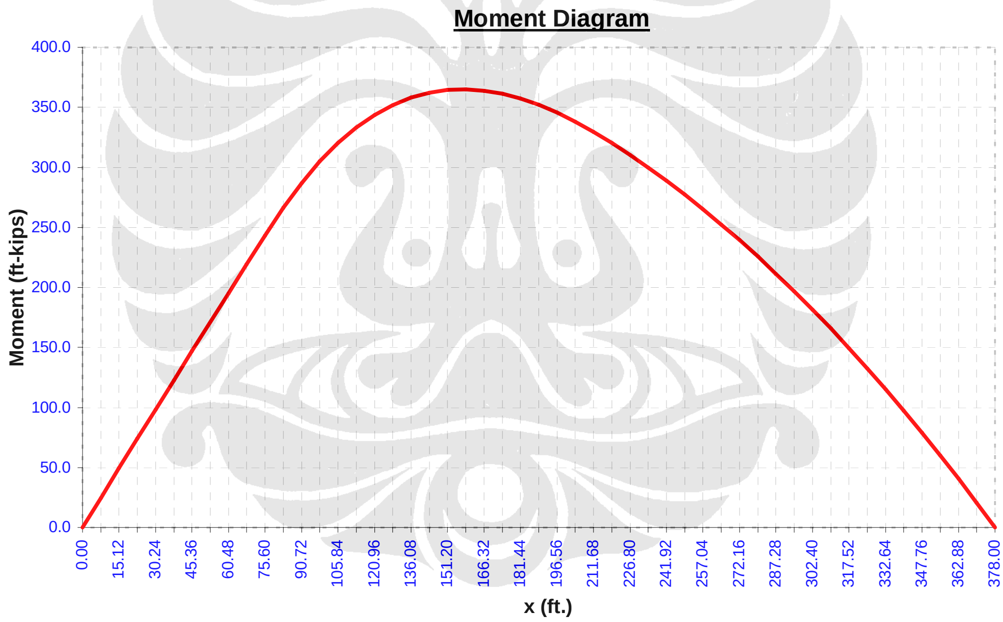
+Mx(max) =	365.07	ft-kips	@ x =	157.45	ft.
-Mx(max) =	0.00	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-761.101	in.	@ x =	182.26	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/6				



Shear Diagram
Shear (kips)
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)



Moment Diagram
Moment (ft-kips)
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	3.27	0.00	-31.5887	0.0000
2	7.5600	3.26	24.70	-31.5230	-49.9817
3	15.1200	3.25	49.32	-31.3264	-99.7556
4	22.6800	3.24	73.86	-30.9992	-149.1148
5	30.2400	3.23	98.30	-30.5418	-197.8528
6	37.8000	3.22	122.66	-29.9549	-245.7640
7	45.3600	3.21	146.94	-29.2388	-292.6435
8	52.9200	3.19	171.13	-28.3939	-338.2872
9	60.4800	3.18	195.23	-27.4208	-382.4916
10	68.0400	3.17	219.25	-26.3198	-425.0539
11	75.6000	3.16	243.19	-25.0915	-465.7721
12	83.1600	2.91	266.51	-23.7368	-504.4450
13	90.7200	2.54	287.09	-22.2652	-540.8784
14	98.2800	2.19	304.96	-20.6915	-574.8989
15	105.8400	1.86	320.26	-19.0297	-606.3561
16	113.4000	1.54	333.10	-17.2933	-635.1214
17	120.9600	1.24	343.59	-15.4949	-661.0865
18	128.5200	0.95	351.86	-13.6468	-684.1632
19	136.0800	0.68	358.02	-11.7603	-704.2819
20	143.6400	0.43	362.20	-9.8465	-721.3905
21	151.2000	0.19	364.50	-7.9156	-735.4540
22	158.7600	-0.04	365.04	-5.9771	-746.4530
23	166.3200	-0.25	363.95	-4.0401	-754.3827
24	173.8800	-0.44	361.34	-2.1131	-759.2522
25	181.4400	-0.62	357.32	-0.2037	-761.0836
26	189.0000	-0.78	352.03	1.6810	-759.9103
27	196.5600	-0.93	345.57	3.5343	-755.7769
28	204.1200	-1.06	338.05	5.3505	-748.7376
29	211.6800	-1.17	329.61	7.1243	-738.8556
30	219.2400	-1.27	320.36	8.8510	-726.2018
31	226.8000	-1.36	310.41	10.5267	-710.8539
32	234.3600	-1.43	299.88	12.1479	-692.8955
33	241.9200	-1.50	288.82	13.7117	-672.4152
34	249.4800	-1.57	277.23	15.2154	-649.5060
35	257.0400	-1.64	265.12	16.6562	-624.2653
36	264.6000	-1.71	252.48	18.0312	-596.7952
37	272.1600	-1.78	239.31	19.3376	-567.2017
38	279.7200	-1.85	225.62	20.5727	-535.5959
39	287.2800	-1.92	211.40	21.7337	-502.0927
40	294.8400	-1.98	196.66	22.8178	-466.8117
41	302.4000	-2.05	181.39	23.8222	-429.8770
42	309.9600	-2.12	165.60	24.7440	-391.4170
43	317.5200	-2.19	149.29	25.5807	-351.5644
44	325.0800	-2.26	132.46	26.3292	-310.4565
45	332.6400	-2.33	115.10	26.9870	-268.2349
46	340.2000	-2.40	97.22	27.5511	-225.0455
47	347.7600	-2.47	78.82	28.0189	-181.0388
48	355.3200	-2.54	59.89	28.3876	-136.3696
49	362.8800	-2.61	40.45	28.6543	-91.1969
50	370.4400	-2.68	20.48	28.8164	-45.6844
51	378.0000	-2.74	0.00	28.8710	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

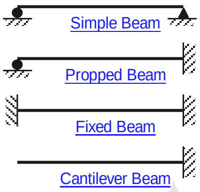
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

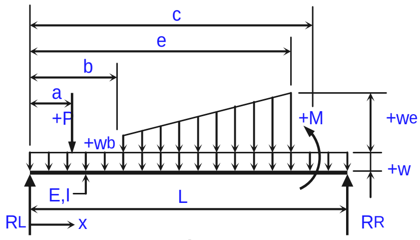
Job Name:	- 1 Year Fixed - 13.375" - P110	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Fixed	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	429.23	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ____ kips/ft.

Distributed:

	Start b (ft.)	Start wb (kips/ft.)	End e (ft.)	End we (kips/ft.)
#1:	0.0000	0.0015	82.0000	0.0015
#2:	79.0000	0.0640	82.0000	0.0556
#3:	82.0000	0.0556	85.0000	0.0487
#4:	85.0000	0.0487	230.0000	0.0092
#5:	230.0000	0.0092	378.0000	0.0091
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

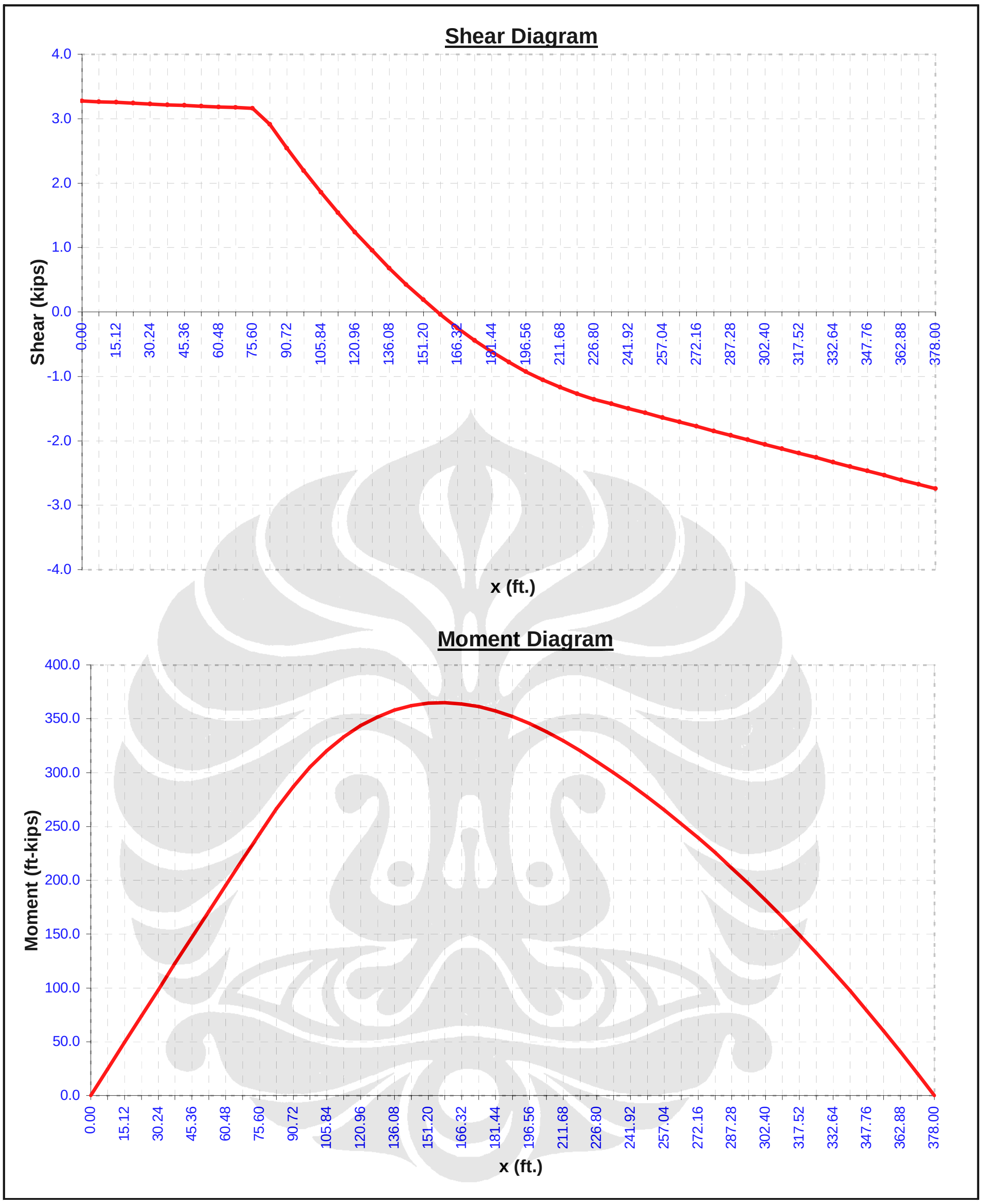
RL =	3.44	kips	RR =	2.58	kips
MxL =	-258.32	ft-kips	MxR =	-196.93	ft-kips

Maximum Moments:

+Mx(max) =	132.77	ft-kips	@ x =	163.24	ft.
-Mx(max) =	-258.32	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-153.551	in.	@ x =	177.83	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/30				


Shear Diagram
Shear (kips)
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	3.44	-258.32	0.0000	0.0000
2	7.5600	3.42	-232.39	-1.2294	-0.9905
3	15.1200	3.41	-206.54	-2.3291	-3.8248
4	22.6800	3.40	-180.78	-3.2995	-8.2979
5	30.2400	3.39	-155.11	-4.1411	-14.2055
6	37.8000	3.38	-129.52	-4.8542	-21.3438
7	45.3600	3.37	-104.02	-5.4392	-29.5097
8	52.9200	3.36	-78.60	-5.8967	-38.5010
9	60.4800	3.35	-53.27	-6.2271	-48.1159
10	68.0400	3.33	-28.02	-6.4307	-58.1535
11	75.6000	3.32	-2.86	-6.5080	-68.4135
12	83.1600	3.07	21.70	-6.4600	-78.6963
13	90.7200	2.70	43.50	-6.2955	-88.8090
14	98.2800	2.35	62.60	-6.0285	-98.5784
15	105.8400	2.02	79.13	-5.6724	-107.8527
16	113.4000	1.70	93.19	-5.2396	-116.5009
17	120.9600	1.40	104.92	-4.7423	-124.4111
18	128.5200	1.11	114.41	-4.1919	-131.4905
19	136.0800	0.84	121.80	-3.5992	-137.6635
20	143.6400	0.59	127.20	-2.9745	-142.8714
21	151.2000	0.35	130.73	-2.3275	-147.0712
22	158.7600	0.12	132.50	-1.6673	-150.2351
23	166.3200	-0.09	132.64	-1.0024	-152.3487
24	173.8800	-0.28	131.25	-0.3406	-153.4110
25	181.4400	-0.46	128.47	0.3107	-153.4328
26	189.0000	-0.62	124.40	0.9448	-152.4362
27	196.5600	-0.76	119.17	1.5555	-150.4533
28	204.1200	-0.90	112.88	2.1373	-147.5256
29	211.6800	-1.01	105.67	2.6852	-143.7030
30	219.2400	-1.11	97.64	3.1949	-139.0425
31	226.8000	-1.19	88.92	3.6626	-133.6077
32	234.3600	-1.27	79.62	4.0851	-127.4678
33	241.9200	-1.34	69.78	4.4597	-120.6965
34	249.4800	-1.41	59.42	4.7836	-113.3720
35	257.0400	-1.47	48.54	5.0543	-105.5763
36	264.6000	-1.54	37.13	5.2692	-97.3958
37	272.1600	-1.61	25.19	5.4255	-88.9211
38	279.7200	-1.68	12.72	5.5207	-80.2469
39	287.2800	-1.75	-0.27	5.5522	-71.4721
40	294.8400	-1.82	-13.78	5.5172	-62.6998
41	302.4000	-1.89	-27.82	5.4132	-54.0372
42	309.9600	-1.96	-42.38	5.2375	-45.5956
43	317.5200	-2.03	-57.46	4.9876	-37.4905
44	325.0800	-2.10	-73.07	4.6608	-29.8418
45	332.6400	-2.17	-89.20	4.2544	-22.7731
46	340.2000	-2.24	-105.85	3.7659	-16.4126
47	347.7600	-2.31	-123.03	3.1927	-10.8922
48	355.3200	-2.38	-140.72	2.5321	-6.3483
49	362.8800	-2.44	-158.94	1.7815	-2.9213
50	370.4400	-2.51	-177.68	0.9384	-0.7556
51	378.0000	-2.58	-196.93	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

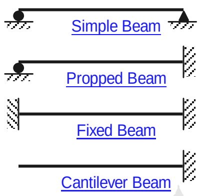
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

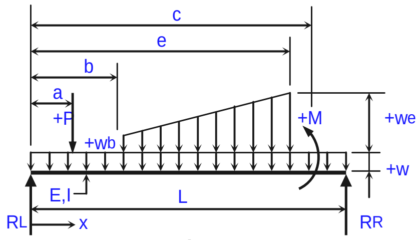
Job Name:	1 Year Propped - 13.375" - P110	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Propped	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	429.23	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = ______ kips/ft.

Distributed:

	Start		End	
	b (ft.)	wb (kips/ft.)	e (ft.)	we (kips/ft.)
#1:	0.0000	0.0015	82.0000	0.0015
#2:	79.0000	0.0640	82.0000	0.0556
#3:	82.0000	0.0556	85.0000	0.0487
#4:	85.0000	0.0487	230.0000	0.0092
#5:	230.0000	0.0092	378.0000	0.0091
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

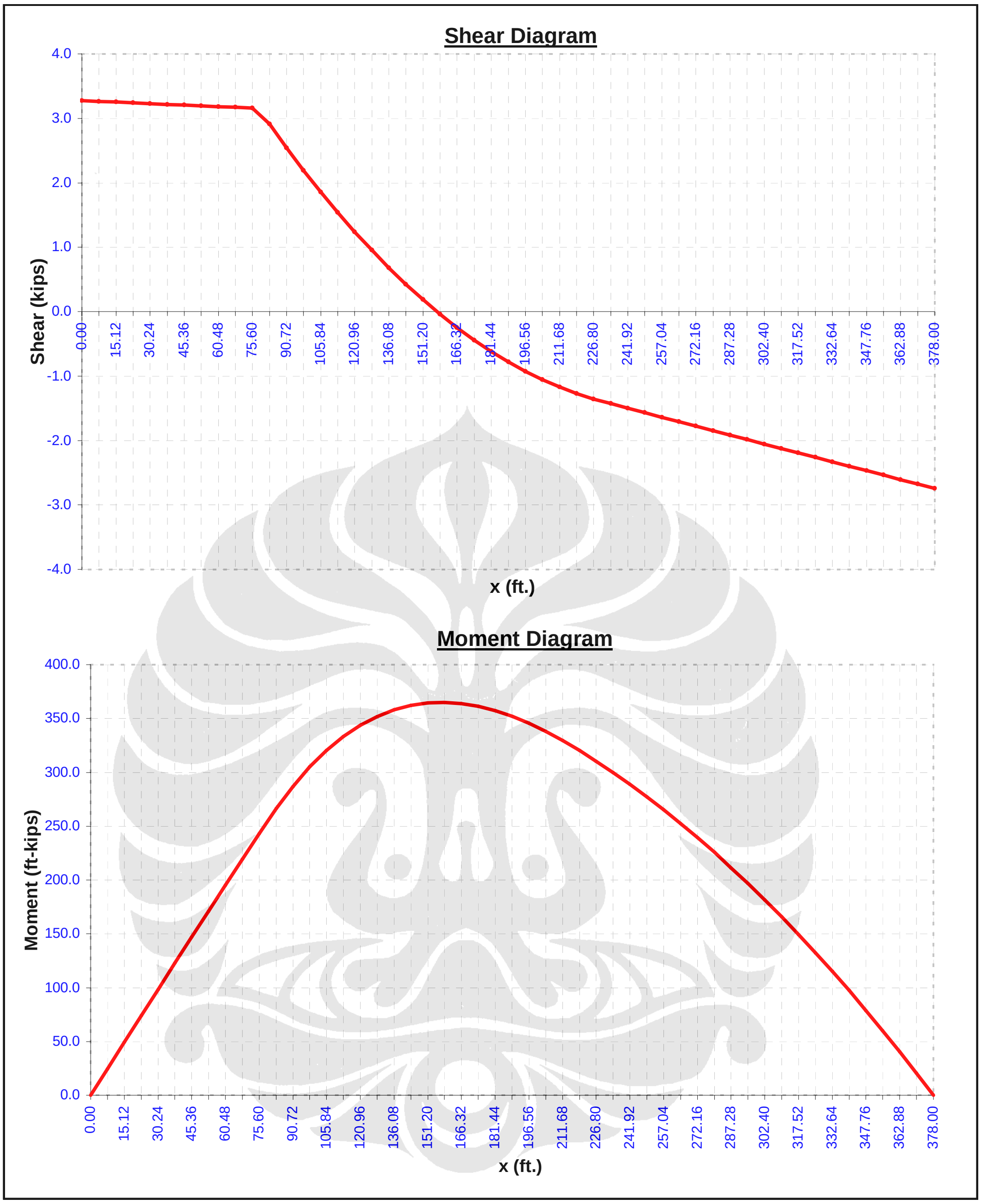
RL =	2.41	kips	RR =	3.61	kips
MxL =	N.A.	ft-kips	MxR =	-326.09	ft-kips

Maximum Moments:

+Mx(max) =	241.10	ft-kips	@ x =	131.01	ft.
-Mx(max) =	-326.09	ft-kips	@ x =	378.00	ft.

Maximum Deflections:

-Δ(max) =	-331.633	in.	@ x =	153.72	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/14				


Shear Diagram
Shear (kips)
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	2.41	0.00	-16.1805	0.0000
2	7.5600	2.40	18.18	-16.1349	-25.5955
3	15.1200	2.39	36.28	-15.9984	-51.0468
4	22.6800	2.38	54.29	-15.7714	-76.2102
5	30.2400	2.37	72.22	-15.4544	-100.9431
6	37.8000	2.35	90.05	-15.0478	-125.1029
7	45.3600	2.34	107.81	-14.5521	-148.5484
8	52.9200	2.33	125.48	-13.9675	-171.1385
9	60.4800	2.32	143.06	-13.2947	-192.7332
10	68.0400	2.31	160.56	-12.5340	-213.1928
11	75.6000	2.30	177.97	-11.6858	-232.3786
12	83.1600	2.05	194.77	-10.7510	-250.1526
13	90.7200	1.68	208.83	-9.7387	-266.3833
14	98.2800	1.33	220.18	-8.6627	-280.9588
15	105.8400	1.00	228.96	-7.5364	-293.7892
16	113.4000	0.68	235.27	-6.3723	-304.8046
17	120.9600	0.38	239.24	-5.1824	-313.9549
18	128.5200	0.09	240.99	-3.9783	-321.2084
19	136.0800	-0.18	240.63	-2.7708	-326.5513
20	143.6400	-0.44	238.28	-1.5701	-329.9863
21	151.2000	-0.68	234.06	-0.3859	-331.5320
22	158.7600	-0.90	228.08	0.7727	-331.2219
23	166.3200	-1.11	220.47	1.8972	-329.1031
24	173.8800	-1.30	211.33	2.9796	-325.2362
25	181.4400	-1.48	200.80	4.0128	-319.6935
26	189.0000	-1.64	188.98	4.9899	-312.5584
27	196.5600	-1.79	176.00	5.9048	-303.9247
28	204.1200	-1.92	161.96	6.7520	-293.8953
29	211.6800	-2.04	147.00	7.5264	-282.5815
30	219.2400	-2.14	131.22	8.2238	-270.1018
31	226.8000	-2.22	114.75	8.8404	-256.5815
32	234.3600	-2.29	97.70	9.3729	-242.1512
33	241.9200	-2.36	80.12	9.8186	-226.9460
34	249.4800	-2.43	62.01	10.1749	-211.1054
35	257.0400	-2.50	43.37	10.4392	-194.7733
36	264.6000	-2.57	24.21	10.6087	-178.0974
37	272.1600	-2.64	4.52	10.6809	-161.2297
38	279.7200	-2.71	-15.69	10.6532	-144.3266
39	287.2800	-2.78	-36.43	10.5228	-127.5482
40	294.8400	-2.85	-57.69	10.2872	-111.0593
41	302.4000	-2.92	-79.48	9.9437	-95.0284
42	309.9600	-2.99	-101.79	9.4898	-79.6286
43	317.5200	-3.06	-124.63	8.9227	-65.0367
44	325.0800	-3.12	-147.98	8.2399	-51.4339
45	332.6400	-3.19	-171.86	7.4387	-39.0057
46	340.2000	-3.26	-196.27	6.5166	-27.9414
47	347.7600	-3.33	-221.19	5.4709	-18.4346
48	355.3200	-3.40	-246.64	4.2990	-10.6831
49	362.8800	-3.47	-272.60	2.9983	-4.8888
50	370.4400	-3.54	-299.09	1.5662	-1.2577
51	378.0000	-3.61	-326.09	0.0000	0.0000

SINGLE-SPAN BEAM ANALYSIS and AISC ASD CODE CHECK

For Simple, Propped, Fixed, or Cantilever Beams

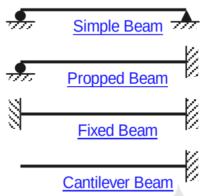
Using AISC W, S, C, or MC Shapes Subjected to X-Axis Bending Only

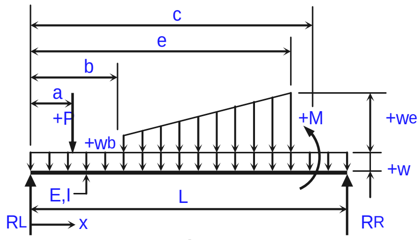
Job Name:	- 1 Year Simple - 13.375" - P110	Subject:	
Job Number:		Originator:	

Input Data:

Beam Data:

Span Type?	Simple	
Span, L =	378.0000	ft.
Modulus, E =	29000	ksi
Inertia, Ix =	429.23	in.^4
Beam Size =		
Yield, Fy =		ksi
Length, Lb =		ft.
Coef., Cb =	1.00	





Nomenclature

Beam Loadings:

Full Uniform:

w = kips/ft.

Distributed:

	b (ft.) (Start)	wb (kips/ft.) (Start)	e (ft.) (End)	we (kips/ft.) (End)
#1:	0.0000	0.0015	82.0000	0.0015
#2:	79.0000	0.0640	82.0000	0.0556
#3:	82.0000	0.0556	85.0000	0.0487
#4:	85.0000	0.0487	230.0000	0.0092
#5:	230.0000	0.0092	378.0000	0.0091
#6:				
#7:				
#8:				

Point Loads:

	a (ft.)	P (kips)
#1:		
#2:		
#3:		
#4:		
#5:		
#6:		
#7:		
#8:		
#9:		
#10:		
#11:		
#12:		
#13:		
#14:		
#15:		

Moments:

	c (ft.)	M (ft-kips)
#1:		
#2:		
#3:		
#4:		

Results:

End Reactions:

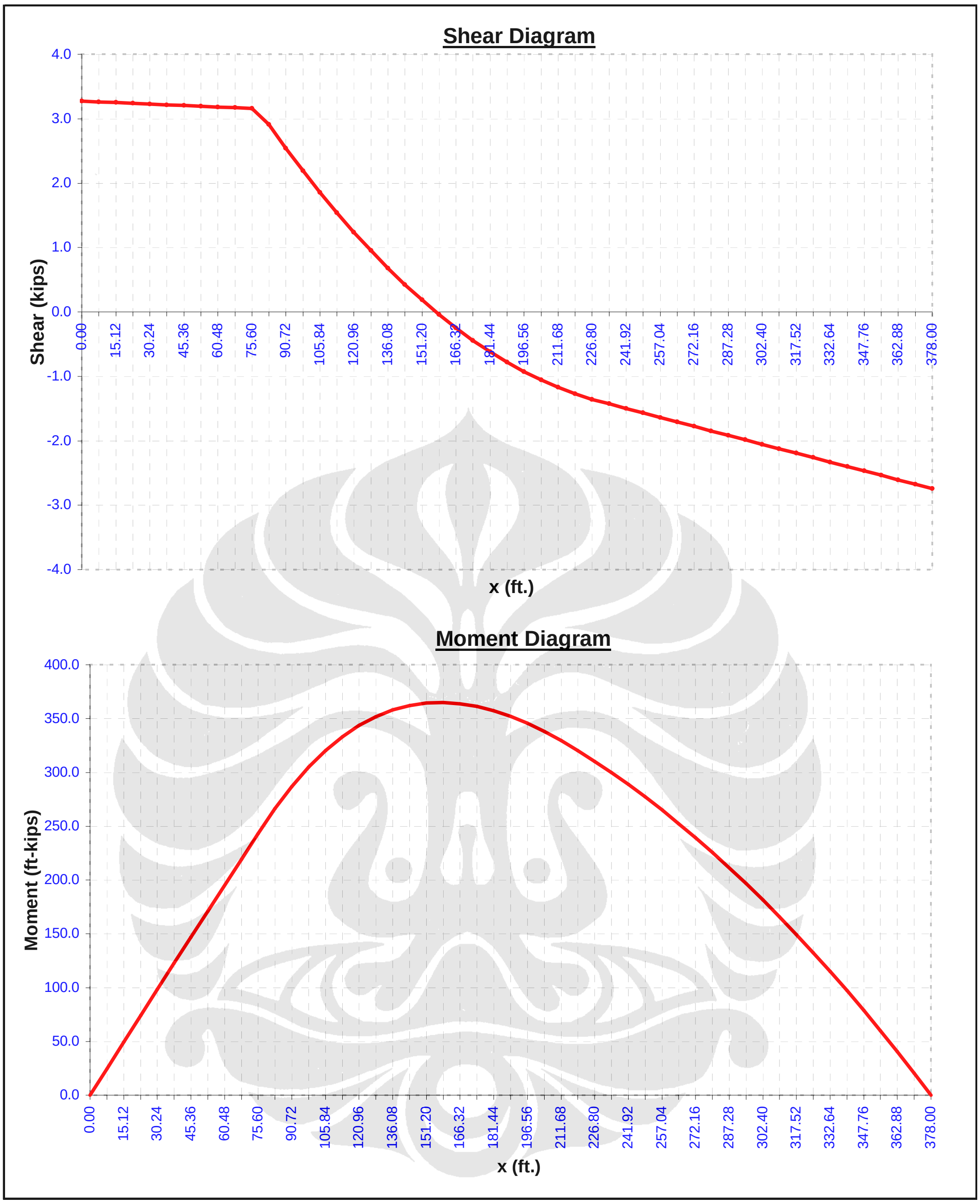
RL =	3.27	kips	RR =	2.74	kips
MxL =	N.A.	ft-kips	MxR =	N.A.	ft-kips

Maximum Moments:

+Mx(max) =	365.07	ft-kips	@ x =	157.45	ft.
-Mx(max) =	0.00	ft-kips	@ x =	0.00	ft.

Maximum Deflections:

-Δ(max) =	-717.942	in.	@ x =	182.26	ft.
+Δ(max) =	0.000	in.	@ x =	0.00	ft.
Δ(ratio) =	L/6				



Shear Diagram
Shear (kips)
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)
Moment Diagram
Moment (ft-kips)
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0.00
15.12
30.24
45.36
60.48
75.60
90.72
105.84
120.96
136.08
151.20
166.32
181.44
196.56
211.68
226.80
241.92
257.04
272.16
287.28
302.40
317.52
332.64
347.76
362.88
378.00
x (ft.)

Tabulation of Single-Span Beam Shear, Moment, Slope, and Deflection for 50 Equal Segments					
Point #	x (ft.)	Shear (k)	Moment (ft-k)	Slope or Rotation (deg.)	Deflection (in.)
1	0.0000	3.27	0.00	-29.7974	0.0000
2	7.5600	3.26	24.70	-29.7355	-47.1474
3	15.1200	3.25	49.32	-29.5500	-94.0989
4	22.6800	3.24	73.86	-29.2413	-140.6590
5	30.2400	3.23	98.30	-28.8099	-186.6333
6	37.8000	3.22	122.66	-28.2563	-231.8277
7	45.3600	3.21	146.94	-27.5808	-276.0488
8	52.9200	3.19	171.13	-26.7838	-319.1042
9	60.4800	3.18	195.23	-25.8659	-360.8019
10	68.0400	3.17	219.25	-24.8273	-400.9507
11	75.6000	3.16	243.19	-23.6687	-439.3599
12	83.1600	2.91	266.51	-22.3908	-475.8398
13	90.7200	2.54	287.09	-21.0026	-510.2072
14	98.2800	2.19	304.96	-19.5182	-542.2986
15	105.8400	1.86	320.26	-17.9506	-571.9720
16	113.4000	1.54	333.10	-16.3126	-599.1061
17	120.9600	1.24	343.59	-14.6163	-623.5988
18	128.5200	0.95	351.86	-12.8729	-645.3669
19	136.0800	0.68	358.02	-11.0934	-664.3447
20	143.6400	0.43	362.20	-9.2882	-680.4832
21	151.2000	0.19	364.50	-7.4667	-693.7492
22	158.7600	-0.04	365.04	-5.6382	-704.1245
23	166.3200	-0.25	363.95	-3.8110	-711.6045
24	173.8800	-0.44	361.34	-1.9933	-716.1979
25	181.4400	-0.62	357.32	-0.1921	-717.9254
26	189.0000	-0.78	352.03	1.5857	-716.8187
27	196.5600	-0.93	345.57	3.3339	-712.9197
28	204.1200	-1.06	338.05	5.0471	-706.2796
29	211.6800	-1.17	329.61	6.7203	-696.9579
30	219.2400	-1.27	320.36	8.3491	-685.0217
31	226.8000	-1.36	310.41	9.9297	-670.5441
32	234.3600	-1.43	299.88	11.4590	-653.6040
33	241.9200	-1.50	288.82	12.9342	-634.2851
34	249.4800	-1.57	277.23	14.3526	-612.6750
35	257.0400	-1.64	265.12	15.7117	-588.8656
36	264.6000	-1.71	252.48	17.0087	-562.9532
37	272.1600	-1.78	239.31	18.2411	-535.0379
38	279.7200	-1.85	225.62	19.4061	-505.2243
39	287.2800	-1.92	211.40	20.5013	-473.6209
40	294.8400	-1.98	196.66	21.5239	-440.3406
41	302.4000	-2.05	181.39	22.4713	-405.5003
42	309.9600	-2.12	165.60	23.3409	-369.2212
43	317.5200	-2.19	149.29	24.1301	-331.6285
44	325.0800	-2.26	132.46	24.8362	-292.8517
45	332.6400	-2.33	115.10	25.4567	-253.0243
46	340.2000	-2.40	97.22	25.9888	-212.2840
47	347.7600	-2.47	78.82	26.4301	-170.7728
48	355.3200	-2.54	59.89	26.7778	-128.6366
49	362.8800	-2.61	40.45	27.0295	-86.0255
50	370.4400	-2.68	20.48	27.1823	-43.0938
51	378.0000	-2.74	0.00	27.2339	0.0000

C. STANDAR API UNTUK CASING DAN TUBING

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
4.500	9.50	H-40	4.090	2760	111000	3190
4.500	9.50	J-55	4.090	3310	152000	4380
4.500	9.50	K-55	4.090	3310	152000	4380
4.500	9.50	M-65	4.090	3600	180000	5180
4.500	10.50	J-55	4.052	4010	166000	4790
4.500	10.50	K-55	4.052	4010	166000	4790
4.500	10.50	M-65	4.052	4430	196000	5660
4.500	11.60	J-55	4.000	4960	184000	5350
4.500	11.60	K-55	4.000	4960	184000	5350
4.500	11.60	M-65	4.000	5560	217000	6320
4.500	11.60	L-80	4.000	6350	267000	7780
4.500	11.60	N-80	4.000	6350	267000	7780
4.500	11.60	C-90	4.000	6820	300000	8750
4.500	11.60	C-95	4.000	7030	317000	9240
4.500	11.60	C/T-95	4.000	7030	317000	9240
4.500	11.60	P-110	4.000	7580	367000	10690
4.500	13.50	M-65	3.920	7310	249000	7330
4.500	13.50	L-80	3.920	8540	307000	9020
4.500	13.50	N-80	3.920	8540	307000	9020
4.500	13.50	C-90	3.920	9300	345000	10150
4.500	13.50	C-95	3.920	9660	364000	10710
4.500	13.50	C/T-95	3.920	9660	364000	10710
4.500	13.50	P-110	3.920	10690	422000	12410
4.500	15.10	P-110	3.826	14340	485000	14420

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
4.500	15.10	Q-125	3.826	15830	551000	16380
5.000	11.50	J-55	4.560	3060	182000	4240
5.000	11.50	K-55	4.560	3060	182000	4240
5.000	11.50	M-65	4.560	3290	215000	5010
5.000	13.00	J-55	4.494	4140	208000	4870
5.000	13.00	K-55	4.494	4140	208000	4870
5.000	13.00	M-65	4.494	4590	245000	5760
5.000	15.00	J-55	4.408	5560	241000	5700
5.000	15.00	K-55	4.408	5560	241000	5700
5.000	15.00	M-65	4.408	6280	284000	6730
5.000	15.00	L-80	4.408	7250	350000	8290
5.000	15.00	N-80	4.408	7250	350000	8290
5.000	15.00	C-90	4.408	7830	394000	9320
5.000	15.00	C-95	4.408	8110	416000	9840
5.000	15.00	C/T-95	4.408	8110	416000	9840
5.000	15.00	P-110	4.408	8850	481000	11400
5.000	18.00	M-65	4.276	8730	343000	8240
5.000	18.00	L-80	4.276	10490	422000	10140
5.000	18.00	N-80	4.276	10490	422000	10140
5.000	18.00	C-90	4.276	11520	475000	11400
5.000	18.00	C-95	4.276	12030	501000	12040
5.000	18.00	C/T-95	4.276	12030	501000	12040
5.000	18.00	P-110	4.276	13470	580000	13940
5.000	18.00	Q-125	4.276	14820	659000	15840

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Interna Yield
in	lbm/ft		in	psi	lbm	psi
5.000	21.40	M-65	4.126	10370	407000	9940
5.000	21.40	L-80	4.126	12760	501000	12240
5.000	21.40	N-80	4.126	12760	501000	12240
5.000	21.40	C-90	4.126	14360	564000	13770
5.000	21.40	C-95	4.126	15150	595000	14530
5.000	21.40	C/T-95	4.126	15150	595000	14530
5.000	21.40	P-110	4.126	17550	689000	16820
5.000	21.40	Q-125	4.126	19940	783000	19120
5.000	23.20	L-80	4.044	13830	543000	13380
5.000	23.20	N-80	4.044	13830	543000	13380
5.000	23.20	C-90	4.044	15560	611000	15060
5.000	23.20	C-95	4.044	16430	645000	15890
5.000	23.20	C/T-95	4.044	16430	645000	15890
5.000	23.20	P-110	4.044	19020	747000	18400
5.000	23.20	Q-125	4.044	21620	849000	20910
5.000	24.10	L-80	4.000	14400	565000	14000
5.000	24.10	N-80	4.000	14400	565000	14000
5.000	24.10	C-90	4.000	16200	636000	15750
5.000	24.10	C-95	4.000	17100	672000	16630
5.000	24.10	C/T-95	4.000	17100	672000	16630
5.000	24.10	P-110	4.000	19800	778000	19250
5.000	24.10	Q-125	4.000	22500	884000	21880
5.500	14.00	H-40	5.012	2620	161000	3110
5.500	14.00	J-55	5.012	3120	222000	4270

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
5.500	14.00	K-55	5.012	3120	222000	4270
5.500	14.00	M-65	5.012	3360	262000	5050
5.500	15.50	J-55	4.950	4040	248000	4810
5.500	15.50	K-55	4.950	4040	248000	4810
5.500	15.50	M-65	4.950	4470	293000	5690
5.500	17.00	J-55	4.892	4910	273000	5320
5.500	17.00	K-55	4.892	4910	273000	5320
5.500	17.00	M-65	4.892	5500	323000	6290
5.500	17.00	L-80	4.892	6290	397000	7740
5.500	17.00	N-80	4.892	6290	397000	7740
5.500	17.00	C-90	4.892	6740	447000	8710
5.500	17.00	C-95	4.892	6940	471000	9190
5.500	17.00	C/T-95	4.892	6940	471000	9190
5.500	17.00	P-110	4.892	7480	546000	10640
5.500	20.00	M-65	4.778	7540	379000	7470
5.500	20.00	L-80	4.778	8830	466000	9190
5.500	20.00	N-80	4.778	8830	466000	9190
5.500	20.00	C-90	4.778	9630	525000	10340
5.500	20.00	C-95	4.778	10020	554000	10910
5.500	20.00	C/T-95	4.778	10020	554000	10910
5.500	20.00	P-110	4.778	11100	641000	12640
5.500	23.00	M-65	4.670	9070	431000	8580
5.500	23.00	L-80	4.670	11160	530000	10560
5.500	23.00	N-80	4.670	11160	530000	10560

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
5.500	23.00	C-90	4.670	12380	597000	11880
5.500	23.00	C-95	4.670	12930	630000	12540
5.500	23.00	C/T-95	4.670	12930	630000	12540
5.500	23.00	P-110	4.670	14540	729000	14530
5.500	23.00	Q-125	4.670	16060	829000	16510
5.500	26.80	C-90	4.500	14880	707000	14320
5.500	26.80	C/T-95	4.500	15700	746000	15110
5.500	29.70	C-90	4.376	16510	785000	16090
5.500	29.70	C/T-95	4.376	17430	828000	16990
5.500	32.60	C-90	4.250	18130	861000	17900
5.500	32.60	C/T-95	4.250	19140	909000	18890
5.500	35.30	C-90	4.126	19680	935000	19670
5.500	35.30	C/T-95	4.126	20770	987000	20770
5.500	38.00	C-90	4.000	21200	1007000	21480
5.500	38.00	C/T-95	4.000	22380	1063000	22670
5.500	40.50	C-90	3.876	22650	1076000	23250
5.500	40.50	C/T-95	3.876	23910	1136000	24540
5.500	43.10	C-90	3.750	24080	1144000	25060
5.500	43.10	C/T-95	3.750	25420	1208000	26450
6.625	20.00	H-40	6.049	2520	229000	3040
6.625	20.00	J-55	6.049	2970	315000	4180
6.625	20.00	K-55	6.049	2970	315000	4180
6.625	20.00	M-65	6.049	3190	373000	4940
6.625	24.00	J-55	5.921	4560	382000	5110

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
6.625	24.00	K-55	5.921	4560	382000	5110
6.625	24.00	M-65	5.921	5080	451000	6040
6.625	24.00	L-80	5.921	5760	555000	7440
6.625	24.00	N-80	5.921	5760	555000	7440
6.625	24.00	C-90	5.921	6140	624000	8370
6.625	24.00	C-95	5.921	6310	659000	8830
6.625	24.00	C/T-95	5.921	6310	659000	8830
6.625	24.00	P-110	5.921	6730	763000	10230
6.625	28.00	M-65	5.791	7010	529000	7160
6.625	28.00	L-80	5.791	8170	651000	8810
6.625	28.00	N-80	5.791	8170	651000	8810
6.625	28.00	C-90	5.791	8880	732000	9910
6.625	28.00	C-95	5.791	9220	773000	10460
6.625	28.00	C/T-95	5.791	9220	773000	10460
6.625	28.00	P-110	5.791	10160	895000	12120
6.625	32.00	L-80	5.675	10320	734000	10040
6.625	32.00	N-80	5.675	10320	734000	10040
6.625	32.00	C-90	5.675	11330	826000	11290
6.625	32.00	C-95	5.675	11820	872000	11920
6.625	32.00	C/T-95	5.675	11820	872000	11920
6.625	32.00	P-110	5.675	13220	1010000	13800
6.625	32.00	Q-125	5.675	14540	1147000	15680
7.000	17.00	H-40	6.538	1420	196000	2310
7.000	20.00	H-40	6.456	1970	230000	2720

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
6.625	24.00	K-55	5.921	4560	382000	5110
6.625	24.00	M-65	5.921	5080	451000	6040
6.625	24.00	L-80	5.921	5760	555000	7440
6.625	24.00	N-80	5.921	5760	555000	7440
6.625	24.00	C-90	5.921	6140	624000	8370
6.625	24.00	C-95	5.921	6310	659000	8830
6.625	24.00	C/T-95	5.921	6310	659000	8830
6.625	24.00	P-110	5.921	6730	763000	10230
6.625	28.00	M-65	5.791	7010	529000	7160
6.625	28.00	L-80	5.791	8170	651000	8810
6.625	28.00	N-80	5.791	8170	651000	8810
6.625	28.00	C-90	5.791	8880	732000	9910
6.625	28.00	C-95	5.791	9220	773000	10460
6.625	28.00	C/T-95	5.791	9220	773000	10460
6.625	28.00	P-110	5.791	10160	895000	12120
6.625	32.00	L-80	5.675	10320	734000	10040
6.625	32.00	N-80	5.675	10320	734000	10040
6.625	32.00	C-90	5.675	11330	826000	11290
6.625	32.00	C-95	5.675	11820	872000	11920
6.625	32.00	C/T-95	5.675	11820	872000	11920
6.625	32.00	P-110	5.675	13220	1010000	13800
6.625	32.00	Q-125	5.675	14540	1147000	15680
7.000	17.00	H-40	6.538	1420	196000	2310
7.000	20.00	H-40	6.456	1970	230000	2720

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
7.000	29.00	C-95	6.184	7840	803000	9690
7.000	29.00	C/T-95	6.184	7840	803000	9690
7.000	29.00	P-110	6.184	8530	929000	11220
7.000	32.00	M-65	6.094	7360	606000	7360
7.000	32.00	L-80	6.094	8600	745000	9060
7.000	32.00	N-80	6.094	8600	745000	9060
7.000	32.00	C-90	6.094	9380	839000	10190
7.000	32.00	C-95	6.094	9740	885000	10760
7.000	32.00	C/T-95	6.094	9740	885000	10760
7.000	32.00	P-110	6.094	10780	1025000	12460
7.000	35.00	L-80	6.004	10180	814000	9960
7.000	35.00	N-80	6.004	10180	814000	9960
7.000	35.00	C-90	6.004	11170	916000	11210
7.000	35.00	C-95	6.004	11650	966000	11830
7.000	35.00	C/T-95	6.004	11650	966000	11830
7.000	35.00	P-110	6.004	13030	1119000	13700
7.000	35.00	Q-125	6.004	14310	1272000	15560
7.000	38.00	L-80	5.920	11390	877000	10800
7.000	38.00	N-80	5.920	11390	877000	10800
7.000	38.00	C-90	5.920	12810	986000	12150
7.000	38.00	C-95	5.920	13430	1041000	12830
7.000	38.00	C/T-95	5.920	13430	1041000	12830
7.000	38.00	P-110	5.920	15130	1206000	14850
7.000	38.00	Q-125	5.920	16740	1370000	16880
7.000	42.70	C-90	5.750	14640	1127000	14060
7.000	42.70	C/T-95	5.750	15450	1189000	14840
7.000	46.40	C-90	5.626	15930	1226000	15460
7.000	46.40	C/T-95	5.626	16820	1294000	16320
7.000	50.10	C-90	5.500	17220	1325000	16880
7.000	50.10	C/T-95	5.500	18180	1399000	17810
7.000	53.60	C-90	5.376	18460	1421000	18270
7.000	53.60	C/T-95	5.376	19480	1500000	19290
7.000	57.10	C-90	5.250	19690	1515000	19690
7.000	57.10	C/T-95	5.250	20780	1600000	20780
7.625	24.00	H-40	7.025	2030	276000	2750
7.625	26.40	J-55	6.969	2900	414000	4140
7.625	26.40	K-55	6.969	2900	414000	4140
7.625	26.40	M-65	6.969	3100	489000	4890
7.625	26.40	L-80	6.969	3400	602000	6020
7.625	26.40	N-80	6.969	3400	602000	6020
7.625	26.40	C-90	6.969	3610	677000	6780
7.625	26.40	C-95	6.969	3710	714000	7150
7.625	26.40	C/T-95	6.969	3710	714000	7150
7.625	29.70	M-65	6.875	4310	555000	5590
7.625	29.70	L-80	6.875	4790	683000	6890
7.625	29.70	N-80	6.875	4790	683000	6890
7.625	29.70	C-90	6.875	5030	769000	7750
7.625	29.70	C-95	6.875	5130	811000	8180

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
7.000	42.70	C-90	5.750	14640	1127000	14060
7.000	42.70	C/T-95	5.750	15450	1189000	14840
7.000	46.40	C-90	5.626	15930	1226000	15460
7.000	46.40	C/T-95	5.626	16820	1294000	16320
7.000	50.10	C-90	5.500	17220	1325000	16880
7.000	50.10	C/T-95	5.500	18180	1399000	17810
7.000	53.60	C-90	5.376	18460	1421000	18270
7.000	53.60	C/T-95	5.376	19480	1500000	19290
7.000	57.10	C-90	5.250	19690	1515000	19690
7.000	57.10	C/T-95	5.250	20780	1600000	20780
7.625	24.00	H-40	7.025	2030	276000	2750
7.625	26.40	J-55	6.969	2900	414000	4140
7.625	26.40	K-55	6.969	2900	414000	4140
7.625	26.40	M-65	6.969	3100	489000	4890
7.625	26.40	L-80	6.969	3400	602000	6020
7.625	26.40	N-80	6.969	3400	602000	6020
7.625	26.40	C-90	6.969	3610	677000	6780
7.625	26.40	C-95	6.969	3710	714000	7150
7.625	26.40	C/T-95	6.969	3710	714000	7150
7.625	29.70	M-65	6.875	4310	555000	5590
7.625	29.70	L-80	6.875	4790	683000	6890
7.625	29.70	N-80	6.875	4790	683000	6890
7.625	29.70	C-90	6.875	5030	769000	7750
7.625	29.70	C-95	6.875	5130	811000	8180

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
7.625	45.30	N-80	6.435	11510	1051000	10920
7.625	45.30	C-90	6.435	12950	1183000	12290
7.625	45.30	C-95	6.435	13670	1248000	12970
7.625	45.30	C/T-95	6.435	13670	1248000	12970
7.625	45.30	P-110	6.435	15440	1445000	15020
7.625	45.30	Q-125	6.435	17100	1643000	17070
7.625	47.10	L-80	6.375	12040	1100000	11480
7.625	47.10	N-80	6.375	12040	1100000	11480
7.625	47.10	C-90	6.375	13540	1237000	12910
7.625	47.10	C-95	6.375	14300	1306000	13630
7.625	47.10	C/T-95	6.375	14300	1306000	13630
7.625	47.10	P-110	6.375	16550	1512000	15780
7.625	47.10	Q-125	6.375	18700	1718000	17930
7.625	51.20	C-90	6.251	14760	1348000	14190
7.625	51.20	C/T-95	6.251	15580	1423000	14980
7.625	55.30	C-90	6.125	15960	1458000	15490
7.625	55.30	C/T-95	6.125	16850	1539000	16350
7.750	46.10	L-80	6.560	11340	1070000	10750
7.750	46.10	N-80	6.560	11340	1070000	10750
7.750	46.10	C-90	6.560	12750	1204000	12090
7.750	46.10	C-95	6.560	13320	1271000	12760
7.750	46.10	C/T-95	6.560	13320	1271000	12760
7.750	46.10	P-110	6.560	15000	1471000	14780
7.750	46.10	Q-125	6.560	16590	1672000	16790

OD (in)	Weight (lbm/ft)	Grade	ID (in)	Collapse Resist. (psi)	Pipe Body Yield (lbm)	Pipe Body Internal Yield (psi)
8.625	24.00	J-55	8.097	1370	381000	2950
8.625	24.00	K-55	8.097	1370	381000	2950
8.625	24.00	M-65	8.097	1420	451000	3480
8.625	28.00	H-40	8.017	1610	318000	2470
8.625	28.00	M-65	8.017	2020	517000	4010
8.625	32.00	H-40	7.921	2200	366000	2860
8.625	32.00	J-55	7.921	2530	503000	3930
8.625	32.00	K-55	7.921	2530	503000	3930
8.625	32.00	M-65	7.921	2740	595000	4640
8.625	36.00	J-55	7.825	3450	568000	4460
8.625	36.00	K-55	7.825	3450	568000	4460
8.625	36.00	M-65	7.825	3760	672000	5280
8.625	36.00	L-80	7.825	4100	827000	6490
8.625	36.00	N-80	7.825	4100	827000	6490
8.625	36.00	C-90	7.825	4250	930000	7300
8.625	36.00	C-95	7.825	4350	982000	7710
8.625	36.00	C/T-95	7.825	4350	982000	7710
8.625	40.00	M-65	7.725	4900	751000	5930
8.625	40.00	L-80	7.725	5520	925000	7300
8.625	40.00	N-80	7.725	5520	925000	7300
8.625	40.00	C-90	7.725	5870	1040000	8220
8.625	40.00	C-95	7.725	6020	1098000	8670
8.625	40.00	C/T-95	7.725	6020	1098000	8670
8.625	40.00	P-110	7.725	6390	1271000	10040
8.625	44.00	L-80	7.625	6950	1021000	8120
8.625	44.00	N-80	7.625	6950	1021000	8120
8.625	44.00	C-90	7.625	7490	1149000	9130
8.625	44.00	C-95	7.625	7740	1212000	9640
8.625	44.00	C/T-95	7.625	7740	1212000	9640
8.625	44.00	P-110	7.625	8420	1404000	11160
8.625	49.00	L-80	7.511	8570	1129000	9040
8.625	49.00	N-80	7.511	8570	1129000	9040
8.625	49.00	C-90	7.511	9340	1271000	10170
8.625	49.00	C-95	7.511	9700	1341000	10740
8.625	49.00	C/T-95	7.511	9700	1341000	10740
8.625	49.00	P-110	7.511	10730	1553000	12430
8.625	49.00	Q-125	7.511	11660	1765000	14130
9.625	32.30	H-40	9.001	1370	365000	2270
9.625	36.00	H-40	8.921	1720	410000	2560
9.625	36.00	J-55	8.921	2020	564000	3520
9.625	36.00	K-55	8.921	2020	564000	3520
9.625	36.00	M-65	8.921	2190	667000	4160
9.625	40.00	J-55	8.835	2570	630000	3950
9.625	40.00	K-55	8.835	2570	630000	3950
9.625	40.00	M-65	8.835	2770	744000	4670
9.625	40.00	L-80	8.835	3090	916000	5750
9.625	40.00	N-80	8.835	3090	916000	5750
9.625	40.00	C-90	8.835	3260	1031000	6460

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
9.625	40.00	C-95	8.835	3330	1088000	6820
9.625	40.00	C/T-95	8.835	3330	1088000	6820
9.625	43.50	M-65	8.755	3530	816000	5140
9.625	43.50	L-80	8.755	3810	1005000	6330
9.625	43.50	N-80	8.755	3810	1005000	6330
9.625	43.50	C-90	8.755	4010	1130000	7120
9.625	43.50	C-95	8.755	4130	1193000	7510
9.625	43.50	C/T-95	8.755	4130	1193000	7510
9.625	43.50	P-110	8.755	4420	1381000	8700
9.625	47.00	M-65	8.681	4280	882000	5580
9.625	47.00	L-80	8.681	4750	1086000	6870
9.625	47.00	N-80	8.681	4750	1086000	6870
9.625	47.00	C-90	8.681	4990	1222000	7720
9.625	47.00	C-95	8.681	5090	1289000	8150
9.625	47.00	C/T-95	8.681	5090	1289000	8150
9.625	47.00	P-110	8.681	5300	1493000	9440
9.625	47.00	Q-125	8.681	5630	1697000	10730
9.625	53.50	C-95	8.535	7340	1477000	9410
9.625	53.50	C/T-95	8.535	7340	1477000	9410
9.625	53.50	L-80	8.535	6620	1244000	7930
9.625	53.50	N-80	8.535	6620	1244000	7930
9.625	53.50	C-90	8.535	7110	1399000	8920
9.625	53.50	P-110	8.535	7950	1710000	10900
9.625	53.50	Q-125	8.535	8440	1943000	12390

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
10.750	51.00	K-55	9.850	2710	801000	4030
10.750	51.00	M-65	9.850	2870	946000	4760
10.750	51.00	L-80	9.850	3220	1165000	5860
10.750	51.00	N-80	9.850	3220	1165000	5860
10.750	51.00	C-90	9.850	3400	1311000	6590
10.750	51.00	C-95	9.850	3480	1383000	6960
10.750	51.00	C/T-95	9.850	3480	1383000	6960
10.750	51.00	P-110	9.850	3660	1602000	8060
10.750	55.50	M-65	9.760	2870	946000	4760
10.750	55.50	L-80	9.760	4020	1276000	6450
10.750	55.50	N-80	9.760	4020	1276000	6450
10.750	55.50	C-90	9.760	4160	1435000	7250
10.750	55.50	C-95	9.760	4290	1515000	7660
10.750	55.50	C/T-95	9.760	4290	1515000	7660
10.750	55.50	P-110	9.760	4610	1754000	8860
10.750	60.70	C-90	9.660	5460	1573000	7980
10.750	60.70	C/T-95	9.660	5580	1660000	8430
10.750	60.70	P-110	9.660	5880	1922000	9760
10.750	60.70	Q-125	9.660	6070	2184000	11090
10.750	65.70	C-90	9.560	6760	1708000	8720
10.750	65.70	C/T-95	9.560	6970	1803000	9200
10.750	65.70	P-110	9.560	7500	2088000	10650
10.750	65.70	Q-125	9.560	7920	2373000	12110
10.750	73.20	C-90	9.406	8760	1915000	9850

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
9.625	58.40	L-80	8.435	7890	1350000	8650
9.625	58.40	N-80	8.435	7890	1350000	8650
9.625	58.40	C-90	8.435	8570	1519000	9740
9.625	58.40	C-95	8.435	8890	1604000	10280
9.625	58.40	C/T-95	8.435	8890	1604000	10280
9.625	58.40	P-110	8.435	9770	1857000	11900
9.625	58.40	Q-125	8.435	10540	2110000	13520
9.625	59.40	C-90	8.407	8970	1552000	9970
9.625	59.40	C/T-95	8.407	9320	1639000	10520
9.625	64.90	C-90	8.281	10800	1701000	11000
9.625	64.90	C/T-95	8.281	11260	1796000	11610
9.625	70.30	C-90	8.157	12600	1845000	12010
9.625	70.30	C/T-95	8.157	13170	1948000	12680
9.625	75.60	C-90	8.031	13670	1989000	13040
9.625	75.60	C/T-95	8.031	14430	2100000	13770
10.750	32.75	H-40	10.192	840	367000	1820
10.750	40.50	H-40	10.050	1390	457000	2280
10.750	40.50	J-55	10.050	1580	629000	3130
10.750	40.50	K-55	10.050	1580	629000	3130
10.750	40.50	M-65	10.050	1670	743000	3700
10.750	45.50	J-55	9.950	2090	715000	3580
10.750	45.50	K-55	9.950	2090	715000	3580
10.750	45.50	M-65	9.950	2270	845000	4230
10.750	51.00	J-55	9.850	2710	801000	4030

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
9.625	58.40	L-80	8.435	7890	1350000	8650
9.625	58.40	N-80	8.435	7890	1350000	8650
9.625	58.40	C-90	8.435	8570	1519000	9740
9.625	58.40	C-95	8.435	8890	1604000	10280
9.625	58.40	C/T-95	8.435	8890	1604000	10280
9.625	58.40	P-110	8.435	9770	1857000	11900
9.625	58.40	Q-125	8.435	10540	2110000	13520
9.625	59.40	C-90	8.407	8970	1552000	9970
9.625	59.40	C/T-95	8.407	9320	1639000	10520
9.625	64.90	C-90	8.281	10800	1701000	11000
9.625	64.90	C/T-95	8.281	11260	1796000	11610
9.625	70.30	C-90	8.157	12600	1845000	12010
9.625	70.30	C/T-95	8.157	13170	1948000	12680
9.625	75.60	C-90	8.031	13670	1989000	13040
9.625	75.60	C/T-95	8.031	14430	2100000	13770
10.750	32.75	H-40	10.192	840	367000	1820
10.750	40.50	H-40	10.050	1390	457000	2280
10.750	40.50	J-55	10.050	1580	629000	3130
10.750	40.50	K-55	10.050	1580	629000	3130
10.750	40.50	M-65	10.050	1670	743000	3700
10.750	45.50	J-55	9.950	2090	715000	3580
10.750	45.50	K-55	9.950	2090	715000	3580
10.750	45.50	M-65	9.950	2270	845000	4230
10.750	51.00	J-55	9.850	2710	801000	4030

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
10.750	51.00	K-55	9.850	2710	801000	4030
10.750	51.00	M-65	9.850	2870	946000	4760
10.750	51.00	L-80	9.850	3220	1165000	5860
10.750	51.00	N-80	9.850	3220	1165000	5860
10.750	51.00	C-90	9.850	3400	1311000	6590
10.750	51.00	C-95	9.850	3480	1383000	6960
10.750	51.00	C/T-95	9.850	3480	1383000	6960
10.750	51.00	P-110	9.850	3660	1602000	8060
10.750	55.50	M-65	9.760	2870	946000	4760
10.750	55.50	L-80	9.760	4020	1276000	6450
10.750	55.50	N-80	9.760	4020	1276000	6450
10.750	55.50	C-90	9.760	4160	1435000	7250
10.750	55.50	C-95	9.760	4290	1515000	7660
10.750	55.50	C/T-95	9.760	4290	1515000	7660
10.750	55.50	P-110	9.760	4610	1754000	8860
10.750	60.70	C-90	9.660	5460	1573000	7980
10.750	60.70	C/T-95	9.660	5580	1660000	8430
10.750	60.70	P-110	9.660	5880	1922000	9760
10.750	60.70	Q-125	9.660	6070	2184000	11090
10.750	65.70	C-90	9.560	6760	1708000	8720
10.750	65.70	C/T-95	9.560	6970	1803000	9200
10.750	65.70	P-110	9.560	7500	2088000	10650
10.750	65.70	Q-125	9.560	7920	2373000	12110
10.750	73.20	C-90	9.406	8760	1915000	9850

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
10.750	73.20	C/T-95	9.406	9090	2021000	10390
10.750	79.20	C-90	9.282	10370	2079000	10750
10.750	79.20	C/T-95	9.282	10800	2194000	11350
10.750	85.30	C-90	9.156	12010	2243000	11680
10.750	85.30	C/T-95	9.156	12540	2367000	12330
11.750	42.00	H-40	11.084	1040	478000	1980
11.750	47.00	J-55	11.000	1510	737000	3070
11.750	47.00	K-55	11.000	1510	737000	3070
11.750	47.00	M-65	11.000	1590	871000	3630
11.750	54.00	J-55	10.880	2070	850000	3560
11.750	54.00	K-55	10.880	2070	850000	3560
11.750	54.00	M-65	10.880	2250	1005000	4210
11.750	60.00	J-55	10.772	2670	951000	4010
11.750	60.00	K-55	10.772	2670	951000	4010
11.750	60.00	M-65	10.772	2840	1124000	4730
11.750	60.00	L-80	10.772	3180	1384000	5830
11.750	60.00	N-80	10.772	3180	1384000	5830
11.750	60.00	C-90	10.772	3360	1557000	6550
11.750	60.00	C-95	10.772	3440	1643000	6920
11.750	60.00	C/T-95	10.772	3440	1643000	6920
11.750	60.00	P-110	10.772	3610	1903000	8010
11.750	60.00	Q-125	10.772	3680	2162000	9100
11.750	65.00	L-80	10.682	3870	1505000	6360
11.750	65.00	N-80	10.682	3870	1505000	6360

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
11.750	65.00	C-90	10.682	4060	1693000	7160
11.750	65.00	C/T-95	10.682	4170	1788000	7560
11.750	65.00	C-95	10.682	4170	1788000	7560
11.750	65.00	P-110	10.682	4480	2070000	8750
11.750	65.00	Q-125	10.682	4690	2352000	9940
11.750	71.00	L-80	10.586	4880	1634000	6930
11.750	71.00	N-80	10.586	4880	1634000	6930
11.750	71.00	C-90	10.586	5130	1838000	7800
11.750	71.00	C/T-95	10.586	5240	1940000	8230
11.750	71.00	C-95	10.586	5240	1940000	8230
11.750	71.00	P-110	10.586	5470	2246000	9530
11.750	71.00	Q-125	10.586	5760	2552000	10840
13.375	48.00	H-40	12.715	740	541000	1730
13.375	54.50	J-55	12.615	1130	853000	2730
13.375	54.50	K-55	12.615	1130	853000	2730
13.375	54.50	M-65	12.615	1140	1008000	3230
13.375	61.00	J-55	12.515	1540	962000	3090
13.375	61.00	K-55	12.515	1540	962000	3090
13.375	61.00	M-65	12.515	1620	1137000	3660
13.375	68.00	J-55	12.415	1950	1069000	3450
13.375	68.00	K-55	12.415	1950	1069000	3450
13.375	68.00	M-65	12.415	2100	1264000	4080
13.375	68.00	L-80	12.415	2260	1556000	5020
13.375	68.00	N-80	12.415	2260	1556000	5020

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
13.375	68.00	C-90	12.415	2320	1750000	5650
13.375	68.00	C-95	12.415	2330	1847000	5970
13.375	68.00	C/T-95	12.415	2330	1847000	5970
13.375	68.00	P-110	12.415	2330	2139000	6910
13.375	72.00	L-80	12.347	2670	1661000	5380
13.375	72.00	N-80	12.347	2670	1661000	5380
13.375	72.00	C-90	12.347	2780	1869000	6050
13.375	72.00	C-95	12.347	2820	1973000	6390
13.375	72.00	C/T-95	12.347	2820	1973000	6390
13.375	72.00	P-110	12.347	2880	2284000	7400
13.375	72.00	Q-125	12.347	2880	2596000	8410
16.000	65.00	H-40	15.250	630	736000	1640
16.000	75.00	J-55	15.124	1020	1178000	2630
16.000	75.00	K-55	15.124	1020	1178000	2630
16.000	75.00	M-65	15.124	1020	1392000	3110
16.000	84.00	J-55	15.010	1410	1326000	2980
16.000	84.00	K-55	15.010	1410	1326000	2980
16.000	84.00	M-65	15.010	1460	1567000	3520
16.000	109.00	J-55	14.688	2560	1739000	3950
16.000	109.00	K-55	14.688	2560	1739000	3950
16.000	109.00	L-80	14.688	3080	2530000	5740
16.000	109.00	N-80	14.688	3080	2530000	5740
16.000	109.00	C-95	14.688	3320	3004000	6820
16.000	109.00	P-110	14.688	3470	3478000	7890

OD	Weight	Grade	ID	Collapse Resist.	Pipe Body Yield	Pipe Body Internal Yield
in	lbm/ft		in	psi	lbm	psi
16.000	109.00	Q-125	14.688	3520	3953000	8970
18.625	87.50	H-40	17.755	630	994000	1630
18.625	87.50	J-55	17.755	630	1367000	2250
18.625	87.50	K-55	17.755	630	1367000	2250
18.625	87.50	M-65	17.755	630	1616000	2660
20.000	94.00	H-40	19.124	520	1077000	1530
20.000	94.00	J-55	19.124	520	1480000	2110
20.000	94.00	K-55	19.124	520	1480000	2110
20.000	94.00	M-65	19.124	520	1750000	2490
20.000	106.50	J-55	19.000	770	1685000	2410
20.000	106.50	K-55	19.000	770	1685000	2410
20.000	106.50	M-65	19.000	770	1991000	2840
20.000	133.00	J-55	18.730	1500	2125000	3060
20.000	133.00	K-55	18.730	1500	2125000	3060

D. DAFTAR KONVERSI

Metric "SI" Unit Conversion Table

Property	Traditional Unit	Recommended "SI Unit"	Symbol	Conversion Factor	Example
Mechanical Properties					
Depth	feet	meter	m	0.3048	10,000 ft = 3048 m
Hole diameter	inch	millimeter	mm	25.4	12¼ in. = 311 mm
Pipe diameter	inch	millimeter	mm	25.4	4½ in. = 114 mm
Bit size	inch	millimeter	mm	25.4	12¼ in. = 311 mm
Weight on bit	pound	newton	N	4.4	20,000 lb = 88,000 N
Rotary table speed	rpm	*rev. per minute	r/min	1	45 rpm = 45 r/min
Nozzle size	$^{1}/_{32}$ inch	millimeter	mm	0.79	$^{10}/_{32}$ in. = 7.9 mm
Nozzle velocity	feet/sec	meter/sec	m/s	0.3048	400 ft/sec = 122 m/s
Drilling rate	feet/hour	*meter/hour	m/h	0.3048	30 ft/h = 9 m/h
Volume	barrels	cubic meter	m^3	0.159	3000 bbl = 477 m^3
Liner size	inch	millimeter	mm	25.4	6½ in. = 165 mm
Rod diameter	inch	millimeter	mm	25.4	2¼ in. = 57 mm
Stroke length	inch	millimeter	mm	25.4	16 in. = 406 mm
Pump output	barrel/minute or	*cubic meter/min	m^3/min	0.159	8.5 bbl/mm = 1.35 m^3/min
	gallon/minute	*cubic meter/min	m^3/min	0.00378	357 gpm = 1.35 m^3/min
Pump pressure	pound/sq inch	kilopascal	kPa	6.9	2500 psi= 17,300 kPa
Armular velocity,	feet/min	*meter/minute	m/min	0.3048	200 ft/min = 61 m/min
Slip velocity	feet/min	*meter/minute	m/min	0.3048	20 ft/min = 6.1 m/min
Temperature	degree Farenheit	degree Celsius	°C	(°F–32) ÷ 1.8	80°F = 27°C
	degree Centigrade	degree Celsius	°C	1.0	
Funnel viscosity	seconds/quart	seconds/liter	s/L	*Units cannot*	*normally be converted*
	seconds/1000cm^3	seconds/liler	s/L	1.0	

Metric "SI" Unit Conversion Table (continued)

Property	Traditional Unit	Recommended "SI Unit"	Symbol	Conv. Factor	Example
Fluid weight	pounds/gallon	kilogram/cubic meter	kg/m^3	120	10 lb/gal = 1200 kg/m^3
	pounds/ft^3	kilogram/cubic meter	kg/m^3	1.6	74.8 lb/ft^3 = 1200 kg/m^3
Pressure gradient	psi/ft	kilopascal/meter	kPa/m	22.6	0.52 psi/ft = 11.8 kPa/m
Hydrostatic head	psi	kilopascal	kPa	6.9	4000 psi = 27,600 kPa
Shear stress	lb_f /100 ft^2	pascal	Pa	0.48	20 lb_f /100 ft^2 = 960 Pa
	dynes/cm^2	pascal	Pa	0.100	1.0 dynes/cm^2 = 1.0 Pa
Shear rate	reciprocal second	reciprocal second	s^{-1}	1.0	
Apparent, plastic & effective viscosity	*centipoise	*centipoise	cP		
Yield point	lb_f /100 ft^2	pascal	Pa	0.48	15 lb_f /100 ft^2 = 7.2 Pa
Gel strength	lb_f /100 ft^2	pascal	Pa	0.48	3 lb_f /100ft^2 = 1.44 Pa
Dial reading	lb_f /100 ft^2	pascal	Pa	0.51	dial reading -10 = 5.1 Pa
Standard V-G meter	1.065				
Power law constants					
n	dimensionless				
K	dynes s^n/cm^2	millipascal $seconds^n$/ square centimeter	$mPa.s^n/cm^2$	100	10 dynes s^n/cm^2 = 100 mPa s^n/cm^2
	lb_f /s^n/100 ft^2	millipascal $seconds^n$/ square centimeter	$mPa.s^n/cm^2$	479	1.2 lb_f s^n/100 ft^2 = 575 mPa s^n/cm^2
API filtrate	cubic centimeter/ 30 min	*cubic centimeter/ 30 min	cm^3/30 min		

Metric "SI" Unit Conversion Table (continued)

Property	Traditional Unit	Recommended "SI Unit"	Symbol	Conv. Factor	Example
Filter cake	$^{1}/_{32}$ inch	millimeter	mm	0.8	$^{3}/_{32}$ in = 2.4 mm
Sand, solid, oil, & water content	Volume percent	cubic meter/cubic meter	m^3/m^3	0.01	10 %= 0.1 m^3/m^3
Particle size	micron	micrometer	µm	1.0	
Chemical Properties					
Ionic concentration	grains/gallon	*milligram/liter	mg/L	17.1	500 grains/gal = 8600 mg/L
	parts/million	*milligram/liter	mg/L	× specific gravity	100,000 ppm of NaCl × 1.070 = 107,070 mg/L
Alkalinity P_f, M_f, P1, P2	cubic centimeter/ cubic centimeter	cubic centimeter/ cubic centimeter	cm^3/cm^3		
MBT Methylene Blue Content	cubic centimeter/ cubic centimeter	cubic centimeter/ cubic centimeter	cm^3/cm^3		
Miscellaneous					
Additive concentration	pound/barrel	kilogram/cubic meter	kg/m^3	2.85	10 lb_m/bbl = 28.5 kg/m^3
Corrosion rate	lb/ft/yr	kilogram/square meter/year	$kg/m^2/yr$	4.9	87 $lb/ft^2/yr$ = 426 $kg/m^2/yr$
	mils/year	millimeter/year	mm/yr	0.0254	200 mils/year = 5.08 mm/yr
Bemonite yield	barrels/U.S. ton	*cu meter/metric ton	m^3/t	0.175	100 bbl/ton = 17.5 m^3/t
Hydraulic HP	horsepower	kilowatt	kw	0.746	600 hhp = 450 kw

Metric "SI" Unit Conversion Table (continued)

Property	Traditional Unit	Recommended "SI Unit"	Symbol	Conv. Factor	Example
Screen Size					
Mesh	openings/inch	openings/centimeter	openings/cm	0.254	100 mesh = 25.4 openings/cm
Aperature	micron	micrometer	µm	1.0	
Open area	area percent	square meter/square meter	m^2/m^2	0.01	30% = 0.3 m^2/m^2
Weight of drillpipe	pound/foot	kilogram/meter	kg/m	1.49	19.5 lb/ft = 29.1 kg/m
Oil Fluids					
Oil content	volume percent	cubic meter/cubic meter	m^3/m^3	0.01	10% = 0.1 m^3/m^3
Water content	volume percent	cubic meter/cubic meter	m^3/m^3	0.01	10% = 0.1 m^3/m^3
Emulsion stability	volts	volts	V		
Activity	dimensionless				
Salinity	ppm	*milligrams/liter	mg/L	specific gravity	250,000 ppm of $CaC1_2$ × 1.24 = 310,000 mg/L
Aniline point	degree Fahrenheit	degree Celsius	°C	$\frac{(°F - 32)}{1.8}$	150°F = 66°C