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Analysis of
Draw-Bridge

A Thesis Submitted to

The Faculty of
M I C H I G A N A G R I C U L T U R A L C O L L E G E

By

W. O. Dow

E. H. Walker

Candidates for the Degree of
Bachelor of Science

May 23, 1918

THESIS

cap. 2

The following books were used thro'out the work as reference.

Ketchum's--Structural Hand Book (S. H. B.)
Wrights'--Designing of Draw-Plans
Melitor's--Kinetic Theory of Engineering
Structures.

We are especially indebted to Professor C. A. Melick for the series of lectures he gave us in preparation, for the loan of detail drawings, and for his suggestions and help during the progress of the work.

The Authors.

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American Bridge Co. Order Nos. C9213 and C9216

Two 257'-0" Riveted draw spans. One span over Old River
San Joaquin and Contra Costa Co. California. One span over
Middle River San Joaquin Co. California.

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L4U5 - - - - - 24x36

6---Top Chords U3-U5 - - - - 24x36

7---Stringers and Laterals (Top) TL1-2-3-4, S1-2-3-4-5-6-7-

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M2---End Latch M2 and Counter weight bars M3	-	-	-	-	12x30
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M6---Worm wheel bearings C8, C11 and cap C9	-	-	-	-	12x30
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2. The second section focuses on the role of technology in modern business management. It highlights how digital tools can streamline processes, reduce errors, and improve overall efficiency. The author argues that embracing technology is not just a luxury but a necessity for staying competitive in today's market.

3. The third part of the document addresses the challenges of human resource management. It discusses the importance of recruiting the right talent, providing ongoing training, and fostering a positive work environment. The text suggests that organizations should invest in their employees, as this leads to higher productivity and loyalty.

4. The fourth section explores the impact of market trends and external factors on business performance. It encourages organizations to stay informed about industry developments and to adapt their strategies accordingly. The author notes that flexibility and innovation are key to navigating uncertain markets.

6. The sixth section focuses on the importance of customer satisfaction and retention. It suggests that organizations should prioritize understanding their customers' needs and providing excellent service. The author argues that satisfied customers are more likely to return and recommend the organization to others.

8. The eighth section focuses on the importance of communication and collaboration within the organization. It suggests that organizations should encourage open communication and teamwork among all employees. The author argues that a strong internal communication system is essential for effective management.

10. The tenth and final section of the document provides a summary of the key points discussed. It reiterates the importance of maintaining accurate records, embracing technology, managing human resources effectively, staying informed about market trends, managing finances wisely, prioritizing customer satisfaction, ensuring legal compliance, fostering communication, and investing in innovation.

M25---	Balance wheels and bearings	C35-36-37	-	-	-	-	12x30
M26---	Shafts	S18-19-21-22-23	-	-	-	-	12x30
M27---	Phosphor-bronze washers	MB-18 inch	-	-	-	-	12x30
M28---	Shims	-	-	-	-	-	12x30
M29---	Shims	-	-	-	-	-	12x30
M30---	Grease cups and oil cups	-	-	-	-	-	12x30
M31---	Turned bolts	-	-	-	-	-	12x30
M32---	Gears and bearings	C40-41, B14-15-16-8	-	-	-	-	12x30
M33---	Brake wheel & capstan	C44-45, M14	-	-	-	-	12x30
M34---	Rods and Levers	-	-	-	-	-	12x30
M35---	Handles, Knuckles, and Cotters	-	-	-	-	-	12x30
M36---	Shaft couplings & levers (brakes)	-	-	-	-	-	12x30
M37---	Shims	-	-	-	-	-	12x30
M38---	Turned bolts	-	-	-	-	-	12x30
M101---	Name plates	-	-	-	-	-	12x30

O U T L I N E
ANALYSIS OF DRAWBRIDGE.

1. Estimate dead weight of all structural steel.
2. Estimate value of top and bottom dead panel concentrations.
3. Diagram and tabulate dead load cantilever stresses.
4. Calculate left reaction for dead load continuous and calculate and tabulate stresses due to the uplift of 1000# at each end.
5. Combine stresses dead load cantilever and uplift of reaction for dead load continuous and tabulate as dead load continuous.
6. Calculate values of left reaction for live panel load of 1000# at each panel of bridge and plot influence line for R_o .
7. Calculate ordinates for all chord stresses. Live load continuous.
8. Calculate ordinates for all web stresses. Live load continuous.
9. Plot influence lines for all chord and web stresses. Live load continuous.
10. Using live panel loads calculate and tabulate maximum positive and negative live load continuous chord stresses.
11. Using live panel loads calculate and tabulate maximum positive and negative live load continuous chord stresses.
12. Calculate and tabulate maximum, positive or negative chord stresses, live load simple span.
13. Calculate and tabulate maximum, positive and negative web stresses, live load simple span.
14. Calculate maximum uplift on left reaction. Live load continuous.

15. Calculate and tabulate the lengths and areas of all main members, and the unit stresses and changes in length of all members under action of a 1# load at center pier with pier removed.

16. Draw Williot diagram for above loading.

17. Compute true left reactions for 1000# panel loads at each panel point of span and note correction to approximate continuous beam method.

18. Correct dead and live load continuous stresses for the above correction in left reaction.

19. Tabulate the maximum combined stresses in all members noting the case and panel points loaded with live load to produce same. Include in this table the actual unit stresses produced by above maximum stresses and the units allowed by specification together with the % by which the actual exceeds the allowed when such case occurs.

I N T R O D U C T I O N

In July 1915 the American Bridge Co. built two highway bridges, very similar in character, which were erected in California. They were both draw-bridges of the center pin bearing type and were built from the same set of plans. With the exception of the two center panels, both were of the parallel chord type containing nine panels each and were of 257'-0" span center to center of end bearings.

The clear road way was 21'-0" and was paved with creosoted wood blocks resting on a double plank flooring.

Both bridges were provided with end wedges and center wedges to eliminate the pounding caused by the passage of trains and to care for the variable deflections of the free ends of the truss also end latches to guide the structure to a proper alignment. The bridges were arranged so that they could be operated either by power or by hand and the design of the machinery and machinery supports was included in the plans.

To use the American Bridge Co.'s designation for these bridges contract No. C9213 was built over Old River between San Joaquin and Contra Costa counties, Claifornia, while No. C9216 was built over Middle River in San Joaquin county, California.

Since these bridges were different only in some of the details the analysis of one was sufficient to cover both. So No. C9213 was chosen to analyze.

From the plans which were obtainable it was impossible to find the specifications or loading used in the original design; so it was decided to use standard specifications (Milo Ketchum's specifications for highway bridges and his class B loading which are

commonly used because the floor system of this bridge is not materially different from that of a simple span bridge, the floor system was omitted and the main truss members only were reviewed.

DISCUSSION

The bridge was analyzed for four conditions of loading, 1. Dead Load Cantilever, 2. Dead Load Continuous, 3. Live Load Continuous, and 4. Live Load Simple Span.

Plate 1 is a marker diagram of the truss, and from it an idea may be had of the general form of the truss analyzed.

When the bridge is swinging from the center pier, or when the end wedges are loose, or just touching without producing an uplift the truss members get a stress from the cantilever effect. The stresses were determined graphically by placing the true dead weight panel concentrations on the respective panel points and solving for the stress in the members by a stress diagram as shown on P2. These stresses were then scaled from the diagram and tabulated, on P2 also.

When as is usually the case the end wedges are driven tight enough to bring the bridge to a bearing at three points the bridge acts somewhat as a continuous beam, and dead load continuous stresses are produced. The end wedges however must be driven just tight enough to take out the deflection of the span when swinging.

Dead load continuous stresses may be considered to be made up of two parts, namely those produced by the weight of the bridge supported at the center, and those produced by the wedge uplift at the ends, and considered as anchored at the center pier. Since the stresses due to the weight of the bridge supported at the center, or dead load cantilever have already been considered, it only remains to find those due to the uplift of the reactions and combine with the cantilever to get the dead load continuous stresses. The stresses due to a 1000# uplift at the left reaction

were found by a graphical solution, P3, and these stresses were multiplied by the summations of the reactions due to the separate panel loads, found by the continuous beam theory. The final stresses obtained by this method were combined with the dead load cantilever stresses to form the dead load continuous stresses.

The live load continuous stresses were calculated by the continuous beam theory first and corrected later by means of true reactions found by means of a Williot Diagram in connection with the theory of rigidity. The continuous beam theory consists of calculating the reaction at the right and left supports, produced by a 1000# load at each panel point successively. The stress produced in each member by each separate reaction is then calculated and the positive and negative results summed up giving a positive and negative force respectively in each member. As an aid in checking the accuracy of this work typical influence lines were drawn for the members of the truss and are shown in P6 & P7. The influence lines were not used in solving for stresses, the work being entirely analytical.

The negative reactions or those produced at the left support by panel loads on the right half of the span were calculated by means of the formula $R_2 = -\frac{P}{4} (K-K^3)$ in which R_2 equals the negative reaction, P equals the panel load of one pig (1000#) and K is the ratio of the distance of the panel point in question to the right support, to the length of the half span. In like manner the formula for positive reactions at the left support $R_0 = \frac{P}{4} (4-5K + K^3)$ was used.

If the end and center wedges are driven just tight enough to make a good fit without producing an uplift at the supports, and

a train comes on the bridge, the loaded half of the bridge acts as a simple span for live load and live load simple span stresses are produced. The chord stresses were computed analytically by means of the method of chord increments, with each panel point load equal to 49,000#. The web members were calculated by the method of maximum shears. Both positive and negative stresses were computed for each member and tabulated for each member under live load simple span. (Case 1V, T40). To these stresses impact was added calculated from Spec. 39, P. 141, S. H. B.

When a bridge is built the weight of the bridge itself and the live load which comes on it causes the bridge to sag or deflect from the horizontal. To provide for this deflection when designing the bridge the amount and direction of movement of each member must be known. This is determined by means of the Williot Deformation Diagram. To construct this diagram it is first necessary to know the change in length of each member due to the loading for which the deflections are wanted. This change in length is computed from the formula $\Delta l = \frac{sl}{E}$ in which Δl equals the change in length, s equals the unit stress, l equals the length of the member, and E equals the modulus of elasticity.

Knowing the change in length of all members the Williot Diagram is constructed as explained in part 2--Roofs and Bridges, by Merriman and Jacoby. In order to find the deflection of the ends of the truss so as to determine the amount of wedge movement to provide for, it is necessary to draw a Williot Diagram for dead load cantilever. The changes in length for this condition are given in T45.

Since the trusses are not of a constant depth thru'out and the sectional areas of the members are variable, the moment of

dead load cantilever to form dead load continuous.

The true live load continuous stresses were found by means of the Williot Diagram and the Theorem of Rigidity. The stresses in the members perviously found, by placing a 1000# load at each panel point in succession, or the continuous beam theory, stresses were multiplied by the ratio of the Theorem of Rigidity reaction to its corresponding Continuous Beam Theory reaction, giving the true stresses in the members. This was done simply to save the time which would have to have been spent in calculating the stresses from the true reactions in the usual manner. These stresses were multiplied by the 49 kip panel load to produce the total true live load continuous stresses. The impact was obtained by the formula $I = \frac{100}{L \text{ plus } 300} = 18\%$. (spec. 36 page 141 S. H. B.) The impact was added to the live load stresses to make the total live load continuous stresses.

When a bridge is designed it must be made to stand the maximum possible stress that can ever occur in the members, due to an assumed liberal loading to provide for future increase. To get this maximum stress for a given member all the possible practicable combinations of stresses were made and the largest positive and largest negative stress produced by these combinations were tabulated. The combinations possible to make are Case I dead load cantilever, Case I and IV dead load cantilever and live load simple span, Case I and III dead load cantilever and live load continuous, Case II and III dead load continuous and live load continuous

When the max positive and max negative stresses were tabulated the actual unit stresses were calculated. In the case of pure tension and compression the total stress was divided by the cross sectional area to get the unit stress. In the case of alternating

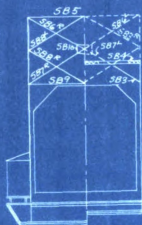
inertia of the whole section is not constant. Hence the Continuous Beam Theory previously used in finding the live and dead load end reactions was in error. To find the true value of the reactions proceed as follows : By the Theorem of Rigidity the center reaction for a load at any panel point is equal to the load times the ratio between the deflection at the given panel point and the deflection at the center, due to the same load placed at the center with the center pier removed. See Modern Framed Structures Vol. 11. Johnson, Bryan, and Turneaure. A Williot Diagram was constructed to obtain the deflections due to a 1# load at the center with the center pier removed. The deflections were scaled from this diagram and the center reactions calculated for a 1000# load at each panel point. The left reactions were then calculated by the formula $R_0 = 500 (1 \text{ plus } K) - R_1$ in which K is the ratio of the distance of the panel point in question from the center of the truss to the length of the half span, and R_1 is the center reaction just obtained. Since the sum of the three reactions must equal zero in each case, the right reactions R_2 were found by assigning to them such values that this result was obtained.

The next step in the analysis was to correct the live and dead load continuous stresses for the true reactions found. This was easily done in the case of the dead load continuous stresses by multiplying the reaction produced by the 1 Kip load as obtained above by the actual dead panel load giving the total reaction in each case. The algebraic summation of these gave the true left reaction. The stresses obtained by a 1000# uplift were multiplied by this reaction and the resulting stresses were combined with

stresses, however, where the stress changes from tension to compression, or vice versa during the passage of the live load the specifications for design say that the member must be designed for the larger max stress plus one half the cross sectional area required for the max stress of opposite sign. To find the actual unit stress in this case, the following formula were devised by Professor Melick. When the positive max stress was the larger $S_t = T \text{ plus } \frac{C}{2K}$

When the negative stress was the larger $S_c = \frac{2C \text{ plus } T}{2A} \cdot K$. Where S_t equals the unit tensile stress, S_c equals the unit compressor stress, T equals the max total positive stress, C equals the max total negative stress, A equals the cross sectional area of the member, and K equals $\frac{S_c}{S_t}$ allowed by the specifications. The allowed unit stresses were computed for the compressive stresses by the formula $S = \frac{16,000 - 70}{r} \cdot l$ where S equals the allowed unit stress, r equals the least radius of gyration, and l equals the length of the member. Wherever the actual unit stress was larger than the allowed, the per cent of excess was tabulated.

It was found in the analysis that the chord members were quite badly over-stressed, while the web members were almost all on the safe side. This might be explained by the fact that the loading and specifications used in the design were unknown. Evidently they were not the specifications to use, or else there was some bad blunder in the design, or the results would check more closely with those which were obtained in the analysis, with specifications in common use.



Half Sect. U6L6 Half Int. Sect.



Portal at U6L6 Portal at U5L6

MARKER DIAGRAM

WEIGHT OF MEMBERS

SHEET #1

DWG. #1

No. Fts	Mark	Description	Length	Wght/Lt	Weight			No. Rep.	Total
					Main Membr	Details	Complete Member		
		Top Chord Section U3							
2	hal	2" $\times$ $\frac{3}{8}$ "	1'-11 $\frac{1}{2}$ "	37.0		72.4			
4	pal	2" $\times$ $\frac{5}{16}$ "	2'-4"	12.7		59.4			
2	pbl	2" $\times$ $\frac{3}{8}$ "	1'-8"	22.9		38.1			
2	aal	L 4" $\times$ 4" $\times$ $\frac{3}{8}$ "	1'-6"	9.8		14.7			
4	pcl	2" $\times$ 3" $\times$ $\frac{3}{8}$ "	4'-0"	41.7		334.0			
4	pdl	2" $\times$ 18" $\times$ $\frac{3}{8}$ "	0'-10"	22.9		38.2			
4	pcl	2" $\times$ 18" $\times$ $\frac{3}{8}$ "	0'-9"	22.9		35.4			
2		L 12" @ 20.5"	40'-0"	20.5	1630.0				
1		2" $\times$ 20" $\times$ $\frac{5}{16}$ "	40'-0"	17.0	693.0				
2	pfl	2" $\times$ 12" $\times$ $\frac{5}{16}$ "	1'-2"	12.7		14.9			
6	pgl	2" $\times$ 15" $\times$ $\frac{3}{8}$ "	1'-7 $\frac{1}{2}$ "	19.1		100.8			
88	yol	Loc. Bars 2" $\times$ $\frac{3}{16}$ "	2'-0"	3.3		294.8			
2	pfl	2" $\times$ 18" $\times$ $\frac{3}{8}$ "	1'-7 $\frac{1}{2}$ "	22.9		36.8			
514	Rvt	Heads 16/100				64.0			
514	Rvt	Heads Driven 12.5/100				82.0			
					2323.0	1185.5	3508.5	2	7038.0

WEIGHT OF MEMBERS

SHEET #1

DWG. #2

No. Pcs	Mark	Description	Length	Wgt/ft	Weight			No. Rep. per foot	Total Wgt.
					Main Memb.	Details	Complete Member		
		<u>End Post EPI</u>							
4		13 12" @ 30*	34'-5"	30.0	2064.0				
2		12 20 x 3/8	29'-0 3/4"	25.5	742.0				
2	pc2	12 33 x 1/2	2'-1 1/2"	56.1		237.0			
2	pa2	12 10 1/2 x 3/8	2'-7 1/2"	13.4		35.2			
2	pam2	12 7 x 3/8	0'-10"	12.7		10.6			
4	ab2L	L 4 x 3 1/2 x 3/8	5'-0 1/2"	9.1		91.8			
2	pg2	12 20 x 5/16	1'-3 3/4"	21.1		27.9			
2	pb2	12 11 x 3/8	1'-6"	14.1		45.3			
4	aa2L	L 3 1/2 x 3 1/2 x 3/8	2'-7"	8.5		44.0			
2	ha2	12 11 x 3/8	3'-2 1/2"	14.1		45.3			
4	pf2	12 33 x 1/2	4'-0"	56.1		448.4			
4	pd2	12 57 x 1/2	5'-2"	97.0		1002.0			
4	fc2	Fill 12 x 3/16	3'-2"	7.6		48.6			
4	fa2	Fill 3 1/2 x 1/16	2'-3 1/2"	8.7		50.8			
4	fd2	Fill 3 1/2 x 1/2	3'-2 3/4"	5.9		38.4			
4	fc2	Fill 3 1/2 x 1/16	1'-3"	6.7		23.4			
4	ac2	L 4 x 4 x 3/8	3'-0 1/2"	9.8		59.8			
4	pc2	12 15 x 3/8	1'-8"	19.1		77.6			
76	ya2	Loc. Bars 2 1/2 x 1/2	1'-11 1/2"	4.3		67.6			
332	Rvt.	Heads 1 1/16				53.0			
42	"	" Drivers 1 1/16				8.0			
332	"	" " 12.5/16				41.0			
42	"	" " 2 1/16				10.1			
					2806.0	2466.8	5272.8	2	10545.6

WEIGHT OF MEMBERS

SHEET #1

DWB. #3

No. Pcs.	Mark	Description	Length	Wght/Ht.	Weight			No. Rep. per mass	Total Wght.
					Main Memb.	Details	Complete Member		
<u>End Posts EP2^R</u>									
4	003	L 4 x 4 x $\frac{3}{8}$	1'-9 $\frac{1}{2}$ "	9.8		35.6	19.2%		
4	fa3	Fill 3 $\frac{1}{2}$ x $\frac{3}{16}$	0'-10"	5.2		8.7			
4	pa3	R 20 $\frac{1}{2}$ x $\frac{3}{8}$	2'-6"	26.1		130.6			
4	pg1	R 15 x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	19.3		62.0			
2	pb3	R 24 x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	30.6		48.8			
68	ya1	Lac. Bers 2 $\frac{1}{4}$ x $\frac{3}{16}$	1'-11 $\frac{1}{2}$ "	3.3		262.0			
4		[12" @ 25 *	36'-5"	25.0	1824.0				
2		Cov. R. 20 x $\frac{5}{16}$	33'-4 $\frac{1}{2}$ "	21.1	705.0				
218	Rvt. Heads	$\frac{16}{100}$				35.0			
218	"	" Driven	12' 5/100			27.3			
					2529.0	609.9	3138.9	2	6278.0

WEIGHT OF MEMBERS

SHEET #1

DWB. #4

No. Pcs.	Mark	Description	Length	Weight	Weight		Complete Member	No. Rep.	Total
					Main Mem.	Details			
<u>Portal 5B1</u>									
1	pa4	H 17 x $\frac{5}{16}$	2'-4"	18.0		42.1			
1		L 6 x 6 x $\frac{3}{8}$	22'-11"	14.9	330.0				
1		L 6 x 4 x $\frac{3}{8}$	22'-11"	12.3	272.1				
1	pb4	H 15 x $\frac{5}{16}$	1'-9"	15.9		27.9			
2		L 5 x 3 $\frac{1}{2}$ x $\frac{5}{16}$	14'-4"	8.7	124.9				
2		L 5 x 3 $\frac{1}{2}$ x $\frac{5}{16}$	12'-7"	8.7	109.5				
1	pc4	H 20 x $\frac{5}{16}$	2'-8"	21.2		38.2			
2		L 5 x 3 $\frac{1}{2}$ x $\frac{5}{16}$	7'-0"	8.7	122.4				
1	fa4	F 11 3 x $\frac{3}{8}$	1'-3"	3.8		4.8			
1	pd4	H 20 x $\frac{5}{16}$	1'-9"	21.2		26.1			
1	qa4	L 4 x 3 x $\frac{3}{8}$	0'-8"	8.5		6.7			
1	qa4	L 4 x 3 x $\frac{3}{8}$	0'-8"	8.5		6.7			
78		Rvt. Heads $\frac{16}{100}$				12.5			
78		" " Driven $\frac{12}{100}$				9.8			
					958.9	174.8	1168.2	1	1168.2
<u>Portal 5B2</u>									
1		L 6 x 4 x $\frac{3}{8}$	25'-0"	12.3	304.0				
1		L 6 x 6 x $\frac{3}{8}$	25'-0"	14.9	372.0				
2		L 5 x 3 $\frac{1}{2}$ x $\frac{5}{16}$	6'-1"	8.7	105.8				
2		L 5 x 3 $\frac{1}{2}$ x $\frac{5}{16}$	12'-11"	8.7	226.0				
1	pe4	H 19 x $\frac{5}{16}$	2'-8"	20.2		54.9			
1	pf4	H 16 x $\frac{5}{16}$	2'-10"	17.1		48.4			
1	pg4	H 16 x $\frac{5}{16}$	2'-7"	17.1		44.3			
1	ph4	H 15 x $\frac{5}{16}$	1'-7"	15.9		25.9			
72		Rvt. Heads $\frac{16}{100}$				20.5			
72		" " Driven $\frac{12}{100}$				10.5			
					1007.8	204.5	1201.8	1	1201.8
<u>Knee Brace 5B3</u>									
2		L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{5}{16}$	5'-6"	7.2	79.6				
4		L 5 x 3 x $\frac{5}{16}$	21'-6"	8.2	690.0				
6	pk4	H 12 x $\frac{5}{16}$	0'-11"	12.7		25.5			
6	pmd	H 16 x $\frac{5}{16}$	1'-9"	16.8		60.2			
6	pc4	H 2 $\frac{3}{4}$ x $\frac{5}{16}$	1'-4"	2.9		6.6			
114	ya4	Lac. Bors 2 $\frac{1}{4}$ x $\frac{5}{16}$	0'-10"	2.4		76.9			
6	pb4	H 2 $\frac{3}{4}$ x $\frac{5}{16}$	1'-0"	2.9		5.8			
					769.6	175.0	944.6	4	3784.4



WEIGHT OF MEMBERS

SHEET *1

DWB. *5

No. Pcs	Mark	Description	Length	Wght./ft.	Weight		Complete Member	No. Rep. Per truss	Total Wght.
					Main Memb.	Details			
<u>Diagonal L4U5*</u>									
1		L 12" @ 40*	35'-3"	40.0	2824.0				
2	pa5	R 12" x $\frac{3}{8}$	1'-7 $\frac{3}{4}$ "	15.3		50.4			
80	ya5	Lac. Bars 2 $\frac{1}{4}$ x $\frac{7}{16}$	1'-11 $\frac{1}{2}$ "	3.3		535.0			
2	aa5	L 3 $\frac{1}{2}$ x 3 x $\frac{3}{8}$	1'-4 $\frac{1}{2}$ "	7.9		21.7			
1	bb5	R 6 $\frac{3}{4}$ x $\frac{3}{8}$	0'-9 $\frac{3}{8}$ "	8.6		7.1			
2	ab5	L 3 $\frac{1}{2}$ x 3 x $\frac{3}{8}$	1'-4 $\frac{1}{2}$ "	7.9		20.0			
238		Rvt. Heads ^{16/100}				38.1	25%		
238	"	" " Driven ^{12/100}	5/100			29.8			
					2824.0	702.1	3526.2	1	3526.2
<u>Post U2L2</u>									
4		L 12" @ 20 $\frac{1}{2}$ *	29'-8"	20.5	1220.0				
4	pg5	R 12" x $\frac{5}{16}$	0'-11 $\frac{1}{2}$ "	12.7		23.9			
8	af5	L 4 x 3 x $\frac{5}{16}$	2'-2 $\frac{1}{2}$ "	7.2		63.8			
2	ph5	R 11" x $\frac{5}{16}$	2'-2 $\frac{1}{2}$ "	11.7		25.7			
4	ae5	L 5 x 3 x $\frac{5}{16}$	1'-6"	8.2		24.6			
2	pc5	R 18" x $\frac{5}{16}$	1'-1"	19.1		20.7			
232	yc5	Lac. Bars 2 $\frac{1}{4}$ x $\frac{5}{16}$	0'-10 $\frac{1}{2}$ "	2.4		232.0	42.5%		
418		Rvt. Heads ^{16/100}				67.0			
418	"	" " Driven ^{12/100}	5/100			52.3			
					1220.0	510.0	1730.0	2	3460.0
<u>Post U3L3</u>									
4		L 12" @ 25*	29'-8"	25.0	1486.00				
4	ac5	L 4 x 3 x $\frac{5}{16}$	2'-9 $\frac{1}{2}$ "	7.2		80.4			
2	pe5	R 11" x $\frac{5}{16}$	2'-9 $\frac{1}{2}$ "	11.7		32.6			
224	ye5	Lac. Bars 2 $\frac{1}{4}$ x $\frac{5}{16}$	0'-10 $\frac{1}{2}$ "	2.4		224.2			
4	pg5	R 12" x $\frac{5}{16}$	0'-11 $\frac{1}{2}$ "	12.7		23.9			
2	pc5	R 18" x $\frac{5}{16}$	1'-1"	19.3		20.9			
4	ae5	L 5 x 3 x $\frac{5}{16}$	1'-6"	8.2		24.6			
273		Rvt. Heads ^{16/100}				43.7	32.5%		
273	"	" " Driven ^{12/100}	5/100			39.1			
					1486.0	484.4	1970.4	2	3940.8
<u>Post U4L4</u>									
2		L 12" @ 35*	29'-8"	35.0	2080.0				
4	ad5	L 4 x 3 x $\frac{5}{16}$	2'-10 $\frac{1}{2}$ "	7.2		98.0			
1	pd5	R 10 $\frac{1}{2}$ x $\frac{5}{16}$	2'-10 $\frac{1}{2}$ "	11.1		32.1			
112	yb5	Lac. Bars 2 $\frac{1}{4}$ x $\frac{5}{16}$	0'-9 $\frac{3}{8}$ "	2.4		212.8			
4	pf5	R 12" x $\frac{5}{16}$	0'-10 $\frac{1}{2}$ "	12.7		45.7			
1	pc5	R 18" x $\frac{5}{16}$	1'-1"	19.3		20.9			
2	ae5	L 5 x 3 x $\frac{5}{16}$	1'-6"	8.2		24.6			

WEIGHT OF MEMBERS

SHEET *2

DWB. *5

No. Pts.	Mark	Description	Length	Night ft.	Weight			No. Rep. Br Truss	Total Weight
					Main Memb.	Details	Complete Member		
273	Rvt.	Heads $\frac{16}{100}$				43.7	266.2		
273	"	" Heads $\frac{12.5}{100}$			2080.0	34.1	511.9	2	5183.4
<u>Diagonal L2U1E</u>									
2		E 12" @ 25"	35'-4"	25.0	1768.0				
4	pos	E 12" x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	15.3		98.4			
80	pos	Lac. Bars 2 $\frac{1}{4}$ " x $\frac{7}{16}$	1'-11 $\frac{1}{8}$ "	3.3		534.0			
208	Rvt.	Heads $\frac{16}{100}$				33.3	394.2		
208	"	" Driven $\frac{12.5}{100}$			1768.0	26.0	2459.7	2	4919.4
<u>Diagonal L2U3E</u>									
2		E 12" @ 20"	35'-3"	20.5	1448.0				
2	pos	E 7" x $\frac{3}{8}$	0'-9 $\frac{3}{8}$ "	8.9		14.7			
80	pos	Lac. Bars 2 $\frac{1}{4}$ " x $\frac{7}{16}$	1'-11 $\frac{1}{8}$ "	3.3		534.0			
4	pos	E 12" x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	15.3		98.4			
184	Rvt.	Heads $\frac{16}{100}$				29.5	484.2		
184	"	" Driven $\frac{12.5}{100}$			1448.0	22.0	2146.6	2	4223.2
<u>Diagonal L3U4</u>									
2		E 12" @ 30"	35'-3"	30.0	2120.0				
4	pos	E 12" x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	15.3		98.4			
76	pos	Lac. Bars 2 $\frac{1}{4}$ " x $\frac{7}{16}$	1'-11 $\frac{1}{8}$ "	3.3		507.0			
192	Rvt.	Heads $\frac{16}{100}$				30.1	310.2		
192	"	" Driven $\frac{12.5}{100}$			2120.0	24.0	2779.5	2	5538.0

WEIGHT OF MEMBERS

SHEET #1

DWB. #6

No. Pcs	Mark	Description	Length	Wght./ft.	Weight			No. Rep. Per Truss	Total Wght.
					Main Memb.	Details	Complete Member		
		<u>Top Chords U3 U5 E</u>							
2		L 12" @ 20 1/2"	46'-1 1/2"	20.5	1881.3				
1		R 20 x 5/16	43'-6 1/2"	21.2	925.0				
2	pc6	R 12 x 3/16	2'-4"	12.7		59.5			
2	pa1	R 12 x 5/16	2'-0"	12.7		51.0			
2	pd6	R 12 x 3/16	1'-3"	12.7		22.3			
2	aa6 L	L 4 x 3 1/2 x 3/8	3'-8 1/2"	5.1		37.9			
1	pe6	R 10 1/2 x 3/8	2'-4 1/2"	13.8		32.8			
2	fo6	Fill 3 1/2 x 1/2	1'-3 1/2"	5.9		15.4			
2	fb6	Fill 3 1/2 x 1/2	2'-4 1/2"	5.9		28.3			
2	pa6	R 31 x 3/8	2'-9"	39.7		218.4			
2	pb6	R 36 x 3/8	3'-4 1/2"	45.9		344.2			
4	pg1	R 15 x 3/8	1'-7"	19.3		122.4			
44	ya1	Lac. Bars 2 1/4 x 7/16	1'-11 1/16"	3.3		288.2			
459		Rvt. Heads 16/100				89.0			
459	"	" Driven 12 5/100				69.0			
					2806.3	1378.4	4184.7	2	8369.4

WEIGHT OF MEMBERS

SHEET #1

DWB. #7

No. Pcs.	Mark	Description	Length	Wght./ft.	Weight			No. Rep. Br. Truss	Total Wght.
					Mem.	Details	Complete Member		
<u>Top Lateral TL1</u>									
2		L 3 x 2 1/2 x 5/16	14'-4 1/2"	5.6	161.00				
1	pb7	L 4 x 3/8	1'-10 1/2"	6.2		11.8			
27	ya7	Lac. Bars 2 1/4 x 5/16	0'-11"	2.4		59.2			
50		Rvt. Heads 16/100				8.0	52.5		
50	"	" Driven 12.5/100				6.2			
					161.0	85.2	246.2	4	785.0
<u>Top Lateral TL2</u>									
2		L 3 x 2 1/2 x 5/16	14'-6 1/2"	5.6	163.0				
1	pb7	L 4 x 3/8	1'-10 1/2"	6.2		11.8			
27	ya7	Lac. Bars 2 1/4 x 5/16	0'-11"	2.4		59.2			
50		Rvt. Heads 16/100				8.0	52.0		
50	"	" Driven 12.5/100				6.2			
					163.0	85.2	248.2	4	985.0
<u>Top Lateral TL3</u>									
2		L 3 x 2 1/2 x 5/16	29'-2"	5.6	332.6				
59	ya7	Lac. Bars 2 1/4 x 5/16	0'-11"	2.4		129.3	45.5		
78		Rvt. Heads 16/100				12.5			
78	"	" Driven 12.5/100				9.7			
					332.6	151.5	481.5	2	975.0
<u>Top Lateral TL4</u>									
4		L 3 x 2 1/2 x 5/16	29'-5 1/2"	5.6	330.0				
59	ya7	Lac. Bars 2 1/4 x 5/16	0'-11"	2.4		129.3	46.0		
78		Rvt. Heads 16/100				12.5			
78	"	" Driven 12.5/100				9.7			
					330.0	151.5	481.5	2	965.0
<u>Roadway Stringer S1</u>									
1		I 12" @ 3 1/2"	21'-4"	31.5	670.0				
7		Rvt. Heads 16/100				1.1	0.3		
7	"	" Driven 12.5/100				.9			
					670.0	2.0	670.2	8	5361.6
<u>Roadway Stringer S2</u>									
1		I 12" @ 3 1/2"	21'-4"	31.5	670.0				
5		Rvt. Heads 16/100				.8	0.2		
5	"	" Driven 12.5/100				.6			
					670.0	1.4	671.4	8	5371.2

WEIGHT OF MEMBERS

SHEET #2

DWG. #7

No. Pcs.	Mark	Description	Length	Wght/ Ft.	Weight			No. Req. Per Truss	Total Wght.
					Main Memb.	Details	Complete Member		
<u>Roadway Stringer S3</u>									
1		I 12" @ 31 1/2"	21'-4"	31.5	670.0		2 1/2		
12		Rvt. Heads Driven 12-5/100			670.0	1.5	1.5	8	5390.0
<u>Roadway Stringer S5-S6</u>									
1		I 12" @ 31 1/2"	22'-4 1/2"	31.5	702.0		1.5	2	1404.0
1		I 12" @ 31 1/2"	22'-6 1/2"	31.5	708.0		1.5		
11		Rvt. Heads 16/100			708.0	1.7	1.7	2	1494
<u>Roadway Stringer S7</u>									
1		I 12" @ 31 1/2"	22'-7 1/2"	31.5	715.0		1.2		
6		Rvt. Heads 16/100			715.0	.9	.9	2	1431.8
<u>Roadway Stringer S10</u>									
1		I 12" @ 31 1/2"	22'-2 1/2"	31.5	698.0		1		
48		Rvt. Heads 16/100			698.0	7.0	7.0	2	1406.0
<u>Track Stringer S4</u>									
1		I 24" @ 80"	21'-4"	80.0	1730.0		10.8		
3	ac7L	L 6 x 4 x 1/2	1'-5 1/2"	16.2		75.9			
2	aa7	L 6 x 6 x 3/8	1'-1"	14.9		32.3			
1	ab7	L 6 x 6 x 1/2	1'-5 1/2"	19.6		30.3			
2	pc7	PL 8 x 1/2	1'-1"	13.5		29.3			
65		Rvt. Heads 16/100				10.4			
65		" " Driven 12-5/100				8.1			
					1730.0	186.3	1916.3	8	15304
<u>Track Stringer S8</u>									
1		I 24" @ 80"	22'-7 1/2"	80.0	1815.0		13.8		
1	ad7R	L 6 x 4 x 1/2	2'-9"	16.2		44.6			
1	ae7	L 6 x 6 x 1/2	2'-9"	19.6		53.9			
1	ah7	L 6 x 6 x 3/8	1'-1"	14.9		16.2			
1	aa7	L 6 x 6 x 3/8	1'-1"	14.9		16.1			
2	ac7	L 6 x 4 x 1/2	1'-5 1/2"	16.2		50.6			
2	pc7	PL 8 x 1/2	1'-1"	13.5		29.3			
101		Rvt. Heads 16/100				16.2			
101		" " Driven 12-5/100				12.6			
					1815.0	239.5	2054.5	1	2054.5

WEIGHT OF MEMBERS

SHEET *1

DWB. *3

No. Pcs.	Mark	Description	Length	Wght/Ht.	Weight			No. Rep.	Total
					Main Memb.	Details	Complete Member		
<u>End Posts EP2^R</u>									
4	aa3	L 4" x 4" x $\frac{3}{8}$	1'-9 $\frac{3}{4}$ "	9.8		35.6			
4	fa3	Fill 3 $\frac{1}{2}$ " x $\frac{3}{16}$	0'-10"	5.2		8.7			
4	pa3	# 20 $\frac{1}{2}$ " x $\frac{3}{8}$	2'-6"	26.1		130.6			
4	pg1	# 15" x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	19.3		62.0			
2	pb3	# 24" x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	30.6		48.8			
68	ya1	Lac. Bars 2 $\frac{1}{2}$ " x $\frac{3}{16}$	1'-11 $\frac{1}{2}$ "	3.3		262.0			
4		L 12" @ 25"	36'-5"	25.0	1824.0				
2		Cov. #2. 20" x $\frac{5}{16}$	33'-4 $\frac{1}{2}$ "	21.1	705.0				
218	Rvt.	Heads $\frac{16}{100}$				35.0			
218	"	" Driven $\frac{12.5}{100}$				27.3			
					2529.0	609.9	3138.9	2	6278.0

WEIGHT OF MEMBERS

SHEET #1

DWB. #4

No. Pcs.	Mark	Description	Length	Height	Weight		Complete Member	No. Rep.	Total
					Main Mem.	Details			
<u>Portal 5B1</u>									
1	pg4	# 17 x $\frac{3}{16}$	2'-4"	18.0		42.1			
1		L 6 x 6 x $\frac{3}{8}$	22'-11"	14.9	330.0				
1		L 6 x 4 x $\frac{3}{8}$	22'-11"	12.3	272.1				
1	pb4	# 15 x $\frac{3}{16}$	1'-9"	15.9		27.9			
2		L 5 x 3 $\frac{1}{2}$ x $\frac{3}{16}$	14'-4"	8.7	124.9				
2		L 5 x 3 $\frac{1}{2}$ x $\frac{3}{16}$	12'-7"	8.7	109.5				
1	pc4	# 20 x $\frac{3}{16}$	2'-0"	21.2		38.2			
2		L 5 x 3 $\frac{1}{2}$ x $\frac{3}{16}$	7'-0"	8.7	122.4				
1	fg4	Fill 3 x $\frac{3}{8}$	1'-3"	3.8		4.8			
1	pd4	# 20 x $\frac{3}{16}$	1'-9"	21.2		26.1			
1	aa4	L 4 x 3 x $\frac{3}{8}$	0'-8"	8.5		6.7			
1	aa4	L 4 x 3 x $\frac{3}{8}$	0'-8"	8.5		6.7			
78		Rxt. Heads $\frac{10}{100}$				12.5			
78		" " Driven $\frac{12.5}{100}$				9.8			
					958.9	174.8	1168.2	1	1168.2
<u>Portal 5B2</u>									
1		L 6 x 4 x $\frac{3}{8}$	25'-0"	12.3	309.0				
1		L 6 x 6 x $\frac{3}{8}$	25'-0"	14.9	372.0				
2		L 5 x 3 $\frac{1}{2}$ x $\frac{3}{16}$	6'-1"	8.7	103.8				
2		L 5 x 3 $\frac{1}{2}$ x $\frac{3}{16}$	12'-11"	8.7	226.0				
1	pet	# 19 x $\frac{3}{16}$	2'-8"	20.2		54.9			
1	pt4	# 16 x $\frac{3}{16}$	2'-10"	17.1		48.4			
1	pg4	# 16 x $\frac{3}{16}$	2'-7"	17.1		44.3			
1	ph4	# 15 x $\frac{3}{16}$	1'-7"	15.9		25.9			
72		Rxt. Heads $\frac{10}{100}$				20.5			
72		" " Driven $\frac{12.5}{100}$				10.5			
					1007.8	204.5	1201.8	1	1201.8
<u>Knee Brace 5B3</u>									
2		L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{16}$	5'-6"	7.2	79.6				
4		L 5 x 3 x $\frac{3}{16}$	21'-6"	8.2	670.0				
6	pk4	# 12 x $\frac{3}{16}$	0'-11"	12.7		25.5			
6	pm4	# 16 x $\frac{3}{16}$	1'-9"	16.8		60.2			
6	pc4	# 2 $\frac{3}{4}$ x $\frac{3}{16}$	1'-4"	2.9		6.6			
114	ya4	Lac. Bors 2 $\frac{1}{4}$ x $\frac{3}{16}$	0'-10"	2.4		76.9			
6	pb4	# 2 $\frac{3}{4}$ x $\frac{3}{16}$	1'-0"	2.9		5.8			
					769.6	175.0	944.6	4	3760.4

WEIGHT OF MEMBERS

SHEET *1

DWG. *5

No. Pcs	Mark	Description	Length	Wght./ft	Weight			No. Rep.	Total Wght.
					Main Memb.	Details	Complete Member		
<u>Diagonal L4U5*</u>									
1		L 12" @ 40*	35'-3"	40.0	2824.0				
2	pa5	PL 12 x $\frac{3}{8}$	1'-7 $\frac{3}{4}$ "	15.3		50.4			
80	yo5	Lac. Bars 2 $\frac{1}{4}$ x $\frac{7}{16}$	1'-11 $\frac{1}{2}$ "	3.3		535.0			
2	aa $\frac{1}{2}$	L 3 $\frac{1}{2}$ x 3 x $\frac{3}{8}$	1'-4 $\frac{1}{2}$ "	7.9		21.7			
1	bb $\frac{1}{2}$	PL 6 $\frac{3}{4}$ x $\frac{3}{8}$	0'-9 $\frac{1}{8}$ "	8.6		7.1			
2	ab $\frac{1}{2}$	L 3 $\frac{1}{2}$ x 3 x $\frac{3}{8}$	1'-4 $\frac{1}{2}$ "	7.9		20.0			
238		Rvt. Heads $\frac{16}{100}$				38.1	25%		
238	"	" " Driven $\frac{12}{100}$				29.8			
					2824.0	702.1	3526.2	1	3526.2
<u>Post U2L2</u>									
4		L 12" @ 20 $\frac{1}{2}$ *	29'-8"	20.5	1220.0				
4	pg5	PL 12 x $\frac{5}{16}$	0'-11 $\frac{1}{2}$ "	12.7		23.9			
8	at5 $\frac{1}{2}$	L 4 x 3 x $\frac{5}{16}$	2'-2 $\frac{1}{2}$ "	7.2		63.8			
2	ph5	PL 11 x $\frac{5}{16}$	2'-2 $\frac{1}{2}$ "	11.7		25.7			
4	ae5	L 5 x 3 x $\frac{5}{16}$	1'-6"	8.2		24.6			
2	pc5	PL 18 x $\frac{5}{16}$	1'-1"	19.1		20.7			
232	yc5	Lac. Bars 2 $\frac{1}{4}$ x $\frac{5}{16}$	0'-10 $\frac{1}{2}$ "	2.4		232.0	42.5%		
418		Rvt. Heads $\frac{16}{100}$				67.0			
418	"	" " Driven $\frac{12}{100}$				52.3			
					1220.0	510.0	1730.0	2	3460.0
<u>Post U3L3</u>									
4		L 12" @ 25*	29'-8"	25.0	1486.00				
8	ac5 $\frac{1}{2}$	L 4 x 3 x $\frac{5}{16}$	2'-9 $\frac{1}{2}$ "	7.2		80.4			
2	pe5	PL 11 x $\frac{5}{16}$	2'-9 $\frac{1}{2}$ "	11.7		32.6			
224	ye5	Lac. Bars 2 $\frac{1}{4}$ x $\frac{5}{16}$	0'-10 $\frac{1}{2}$ "	2.4		224.2			
4	pg5	PL 12 x $\frac{5}{16}$	0'-11 $\frac{1}{2}$ "	12.7		23.9			
2	pc5	PL 18 x $\frac{5}{16}$	1'-1"	19.3		20.9			
4	ae5	L 5 x 3 x $\frac{5}{16}$	1'-6"	8.2		24.6			
273		Rvt. Heads $\frac{16}{100}$				43.7	32.5%		
273	"	" " Driven $\frac{12}{100}$				34.1			
					1486.0	484.4	1970.4	2	3940.8
<u>Post U4L4</u>									
2		L 12" @ 35*	29'-8"	35.0	2080.0				
4	ad5 $\frac{1}{2}$	L 4 x 3 x $\frac{5}{16}$	2'-10 $\frac{1}{2}$ "	7.2		98.0			
1	pd5	PL 10 $\frac{1}{2}$ x $\frac{5}{16}$	2'-10 $\frac{1}{2}$ "	11.1		32.1			
112	yb5	Lac. Bars 2 $\frac{1}{4}$ x $\frac{5}{16}$	0'-9 $\frac{1}{8}$ "	2.4		212.8			
4	pt5	PL 12 x $\frac{5}{16}$	0'-10 $\frac{3}{4}$ "	12.7		45.7			
1	pc5	PL 18 x $\frac{5}{16}$	1'-1"	19.3		20.9			
2	ae5	L 5 x 3 x $\frac{5}{16}$	1'-6"	8.2		24.6			

WEIGHT OF MEMBERS

SHEET #2

DWB. #5

No. Pcs.	Mark	Description	Length	Height	Weight			No. Rep.	Total Weight
					Main Memb.	Details	Complete Member		
273	Rvt	Heads $\frac{16}{100}$				43.7	246.2		
273	"	" Heads $\frac{12.5}{100}$				34.1			
					2080.0	511.9	2591.7	2	5183.4
<u>Diagonal L2U1</u>									
2		L 12" @ 25"	35'-4"	25.0	1768.0		394.2		
4	pos	R 12" x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	15.3		98.4			
80	pos	Lac. Bars 2 $\frac{1}{4}$ " x $\frac{7}{16}$	1'-11 $\frac{1}{8}$ "	3.3		534.0			
208	Rvt	Heads $\frac{16}{100}$				33.3			
208	"	" Driven $\frac{12.5}{100}$				26.0			
					1768.0	691.7	2459.7	2	4919.4
<u>Diagonal L2U3</u>									
2		L 12" @ 20"	35'-3"	20.5	1448.0		484.2		
2	pos	R 7" x $\frac{3}{8}$	0'-9 $\frac{1}{2}$ "	8.9		14.7			
80	pos	Lac. Bars 2 $\frac{1}{4}$ " x $\frac{7}{16}$	1'-11 $\frac{1}{8}$ "	3.3		534.0			
4	pos	R 12" x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	15.3		98.4			
184	Rvt	Heads $\frac{16}{100}$				24.5			
184	"	" Driven $\frac{12.5}{100}$				22.0			
					1448.0	698.6	2146.6	2	4293.2
<u>Diagonal L3U4</u>									
2		L 12" @ 30"	35'-3"	30.0	2120.0		310.2		
4	pos	R 12" x $\frac{3}{8}$	1'-7 $\frac{1}{2}$ "	15.3		98.4			
76	pos	Lac. Bars 2 $\frac{1}{4}$ " x $\frac{7}{16}$	1'-11 $\frac{1}{8}$ "	3.3		507.0			
192	Rvt	Heads $\frac{16}{100}$				30.1			
192	"	" Driven $\frac{12.5}{100}$				24.0			
					2120.0	659.5	2779.5	2	5558.0

WEIGHT OF MEMBERS

SHEET #1

DWB. #6

No. Pcs.	Mark	Description	Length	Wght./ft.	Weight			No. Reg. Per Truss	Total Wght.
					Main Membr	Details	Complete Member		
		<u>Top Chords U3 U5 L</u>							
2		L 12" @ 20 1/2"	46' 1 1/2"	20.5	1881.3				
1		L 20 x 5/16	43' 6 1/2"	21.2	925.0				
2	pc6	L 12 x 5/16	2' 4"	12.7		59.5			
2	pa1	L 12 x 5/16	2' 0"	12.7		51.0			
2	pd6	L 12 x 5/16	1' 3"	12.7		22.3			
2	aa6 L	L 4 x 3 1/2 x 3/8	3' 8 1/2"	5.1		37.9			
1	pe6	L 10 1/2 x 3/8	2' 4 1/2"	13.8		32.8			
2	fo6	Fill 3 1/2 x 1/2	1' 3 1/2"	5.9		15.4			
2	fb6	Fill 3 1/2 x 1/2	2' 4 1/2"	5.9		28.3			
2	pa6	L 31 x 3/8	2' 9"	39.7		218.4			
2	pb6	L 36 x 3/8	3' 4 1/2"	45.9		344.2			
4	pg1	L 15 x 3/8	1' 7"	19.3		122.4			
44	ya1	Lac. Bars 2 1/4 x 1/8	1' 11 1/16"	3.3		288.2			
459		Rvt. Heads 16/100				89.0			
459		" " Driven 12 5/100				69.0			
					2806.3	1378.4	4184.7	2	8369.4

WEIGHT OF MEMBERS

SHEET #1

DWB. #7

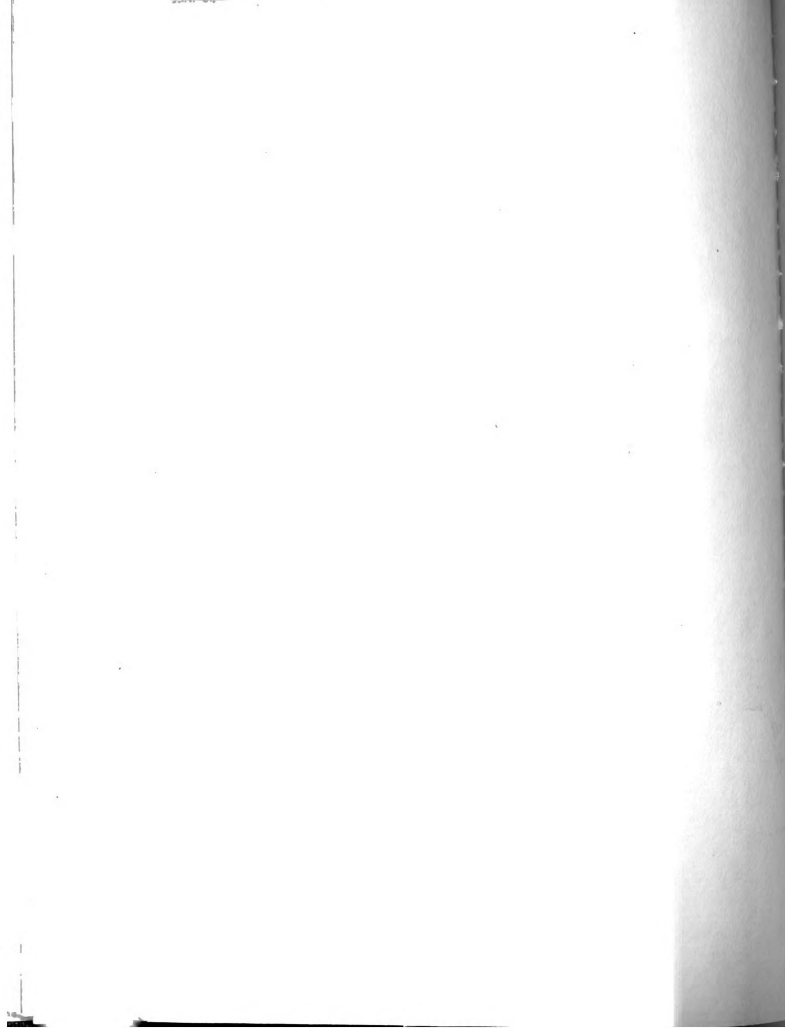
No. Pcs.	Mark	Description	Length	Wt./Ft.	Weight			No. Req. For Truss	Total Wt.
					Mem.	Details	Complete Member		
<u>Top Lateral TL1</u>									
2		L 3 x 2 1/2 x 3/16	14'-4 1/2"	5.6	161.00				
1	pb7	R 4 x 3/16	1'-10 1/2"	6.2		11.8			
27	ya7	Lac. Bars 2 1/4 x 3/16	0'-11"	2.4		59.2			
50		Rvt. Heads 16/100				8.0	52.5		
50	"	" Driven 12.5/100				6.2			
					161.0	85.2	246.2	4	785.0
<u>Top Lateral TL2</u>									
2		L 3 x 2 1/2 x 5/16	14'-6 1/2"	5.6	163.0				
1	pb7	R 4 x 3/16	1'-10 1/2"	6.2		11.8			
27	ya7	Lac. Bars 2 1/4 x 3/16	0'-11"	2.4		59.2			
50		Rvt. Heads 16/100				8.0	52.0		
50	"	" Driven 12.5/100				6.2			
					163.0	85.2	248.2	4	985.0
<u>Top Lateral TL3</u>									
2		L 3 x 2 1/2 x 3/16	27'-2"	5.6	332.6				
59	ya7	Lac. Bars 2 1/4 x 5/16	0'-11"	2.4		129.3			
78		Rvt. Heads 16/100				12.5	45.5		
78	"	" Driven 12.5/100				9.7			
					332.6	151.5	481.5	2	975.0
<u>Top Lateral TL4</u>									
4		L 3 x 2 1/2 x 5/16	27'-5 1/2"	5.6	330.0				
59	ya7	Lac. Bars 2 1/4 x 5/16	0'-11"	2.4		129.3			
78		Rvt. Heads 16/100				12.5	46.0		
78	"	" Driven 12.5/100				9.7			
					330.0	151.5	481.5	2	965.0
<u>Roadway Stringer S1</u>									
1		I 12" @ 3 1/2"	21'-4"	31.5	670.0				
7		Rvt. Heads 16/100				1.1	0.3		
7	"	" Driven 12.5/100				.9			
					670.0	2.0	670.2	8	5361.6
<u>Roadway Stringer S2</u>									
1		I 12" @ 3 1/2"	21'-4"	31.5	670.0				
5		Rvt. Heads 16/100				.8	0.2		
5	"	" Driven 12.5/100				.6			
					670.0	1.4	671.4	8	5371.2

WEIGHT OF MEMBERS

SHEET #2

DWB. #7

No. Pcs.	Mark	Description	Length	Wght/ Ft.	Weight			No. Req. Per Truss	Total Wght.
					Main Memb.	Details	Complete Member		
<u>Roadway Stringer S3</u>									
1		I 12" @ 31 1/2"	21'-4"	31.5	670.0		2.5		
12		Rvt. Heads Driven 12.5/100			670.0	1.5	671.5	8	5390.0
<u>Roadway Stringer S5-S6</u>									
1		I 12" @ 31 1/2"	22'-4 1/2"	31.5	702.0		2.5	2	1404.0
1		I 12" @ 31 1/2"	22'-6 1/2"	31.5	708.0		2.5	2	
11		Rvt. Heads 16/100			708.0	1.7	709.7	2	1419.4
<u>Roadway Stringer S7</u>									
1		I 12" @ 31 1/2"	22'-7 1/4"	31.5	715.0		2.1		
6		Rvt. Heads 16/100			715.0	.9	715.9	2	1431.8
<u>Roadway Stringer S10</u>									
1		I 12" @ 31 1/2" I	22'-2 1/2"	31.5	698.0		1.0		
48		Rvt. Heads 16/100			698.0	7.0	703.0	2	1406.0
<u>Track Stringer S4</u>									
1		I 24" @ 80"	21'-4"	80.0	1730.0		2.0		
3	act	L 6 x 4 x 1/2	1'-5 1/2"	16.2		75.9	10.8		
2	act	L 6 x 6 x 3/8	1'-1"	14.9		32.3			
1	act	L 6 x 6 x 1/2	1'-5 1/2"	19.6		30.3			
2	pc	L 8 x 1/2	1'-1"	13.5		29.3			
65		Rvt. Heads 16/100				10.4			
65		" " Driven 12.5/100				8.1			
					1730.0	186.3	1916.3	8	1530.4
<u>Track Stringer S8</u>									
1		I 24" @ 80"	22'-7 1/2"	80.0	1815.0		2.0		
1	act	L 6 x 4 x 1/2	2'-9"	16.2		44.6			
1	act	L 6 x 6 x 1/2	2'-9"	19.6		53.9			
1	act	L 6 x 6 x 3/8	1'-1"	14.9		16.2			
1	act	L 6 x 6 x 3/8	1'-1"	14.9		16.1			
2	act	L 6 x 4 x 1/2	1'-5 1/2"	16.2		50.6			
2	pc	L 8 x 1/2	1'-1"	13.5		29.3			
101		Rvt. Heads 16/100				16.2			
101		" " Driven 12.5/100				12.6			
					1815.0	239.5	2054.5	1	2054.5



WEIGHT OF MEMBERS

SHEET #3

DWS. #7

No. Pcs	Mark	Description	Length	Wght/lb	Weight			No. Rep.	Total
					Main Membr	Details	Complete Member		
		<u>Track Stringer</u>	<u>59'</u>						
1		I 24' @ 80*	22'-7 $\frac{1}{2}$ "	80.0	1815.0				
2	ad7L	L 6 x 4 x $\frac{1}{2}$	2'-9"	16.2		89.2			
1	ag7	L 6 x 6 x $\frac{3}{8}$	1'-2 $\frac{1}{4}$ "	14.9		17.7			
1	ag7	L 6 x 6 x $\frac{3}{8}$	1'-1"	14.9		16.1			
1	ag7	L 6 x 6 x $\frac{1}{2}$	1'-5 $\frac{1}{2}$ "	19.6		30.3			
1	ag7	L 6 x 4 x $\frac{1}{2}$	1'-5 $\frac{1}{2}$ "	16.2		25.3			
2	pc7	H 8 x $\frac{1}{16}$	1'-1"	13.5		29.3			
95		Rvt. Heads $\frac{16}{100}$				15.2			
95		" " Driven $\frac{12.5}{100}$				11.9			
					1815.0	235.0	2050.0	1	2050.0

WEIGHT OF MEMBERS

SHEET #1

DWG. #8

No. Pcs	Mark	Description	Length	Wght./ft.	Weight			No. Req.	Total Wght.
					Main Membr	Details	Complete Member		
<u>Floor Beam FB1</u>									
2		L 6 x 6 x $\frac{3}{4}$	22'-2 $\frac{3}{8}$ "	28.7	1280.0				
2		L 6 x 6 x $\frac{3}{4}$	22'-2 $\frac{3}{8}$ "	28.7	1280.0				
2		# 30 x $\frac{3}{8}$	22'-2 $\frac{3}{8}$ "	38.3	854.0				
2	pc8	# 12 x $\frac{1}{2}$	1'-1 $\frac{1}{2}$ "	20.4		45.9			
8	fd8	Fill 9 x $\frac{3}{16}$	1'-2"	13.4		124.9			
4	fa8	Fill 9 x $\frac{3}{4}$	1'-6"	23.0		138.0			
4	sc8	L 5 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	2'-5"	10.4		100.4			
4	fp8	Fill 3 $\frac{1}{2}$ x $\frac{3}{4}$	1'-6"	8.9		35.6			
2	sf8	L 4 x 3 x $\frac{3}{8}$	2'-5"	8.5		41.0			
2	st8	Fill 3 x $\frac{3}{4}$	1'-6"	7.6		23.0			
6	fc8	Fill 9 x $\frac{1}{2}$	1'-2"	23.0		160.8			
284		Rvt. Heads $\frac{10}{100}$				45.5			
284		" " Driven $\frac{128}{100}$				35.7			
					3414.0	750.8	41.648	1	4164.8
<u>Floor Beam FB2</u>									
2		L 6 x 6 x $\frac{3}{16}$	22'-2 $\frac{3}{8}$ "	21.9	976.0				
2		L 6 x 6 x $\frac{3}{16}$	22'-2 $\frac{3}{8}$ "	21.9	976.0				
1		# 30 x $\frac{3}{8}$	22'-2 $\frac{3}{8}$ "	38.3	854.0				
2		# 14 x $\frac{1}{2}$	17'-0"	23.8	810.0				
5	fc8	Fill 9 x $\frac{1}{2}$	1'-2"	15.3		89.4			
2	fe8	" 7 x $\frac{3}{8}$	0'-8 $\frac{1}{2}$ "	14.9		21.2			
1	aa8	L 6 x 4 x $\frac{3}{16}$	1'-1"	14.3		15.5			
4	SD8 $\frac{1}{2}$	L 5 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	2'-5 $\frac{3}{8}$ "	10.4		97.7			
4	fg8	Fill 3 $\frac{1}{2}$ x $\frac{3}{16}$	1'-6"	6.7		40.2			
4	fb8	" 9 x $\frac{3}{16}$	1'-6"	17.2		103.4			
4	sb8 $\frac{1}{2}$	L 6 x 3 $\frac{1}{2}$ x $\frac{3}{16}$	2'-5 $\frac{3}{8}$ "	13.5		132.4			
2	pb8	# 18 x $\frac{3}{8}$	3'-3"	22.9		102.6			
180		Rvt. Heads $\frac{10}{100}$				28.7			
180		" " Driven $\frac{128}{100}$				22.5			
					3616.0	653.6	4269.6	1	4269.6
<u>Floor Beam FB3</u>									
2		L 6 x 6 x $\frac{3}{16}$	22'-2 $\frac{3}{8}$ "	21.9	976.0				
2		L 6 x 6 x $\frac{3}{16}$	22'-2 $\frac{3}{8}$ "	21.9	976.0				
1		# 30 x $\frac{3}{8}$	22'-2 $\frac{3}{8}$ "	38.3	854.0				
2		# 14 x $\frac{1}{2}$	17'-0"	23.8	810.0				
5	pc8	Fill 9 x $\frac{1}{2}$	1'-2"	15.3		89.4			
1	aa8	L 6 x 4 x $\frac{3}{16}$	1'-1"	14.3		15.5			
4	SD8 $\frac{1}{2}$	L 5 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	2'-5 $\frac{3}{8}$ "	10.4		97.7			
4	fg8	Fill 3 $\frac{1}{2}$ x $\frac{3}{16}$	1'-6"	6.7		40.2			
4	fb8	" 9 x $\frac{3}{16}$	1'-6"	17.2		103.4			

WEIGHT OF MEMBERS

SHEET * 2

DWB. * 8

No. Pcs	Mark	Description	Length	Wght. / ft.	Weight			No. Repts Per Truss	Total Wght.
					Main Membr	Details	Complete Member		
4	568 L	L 6 x 3 1/2 x 7/16	2' - 5 3/8"	13.5		132.4	16.0%		
2	pa8	R 18 x 7/8	3' - 3"	22.9		102.6			
					3614.0	581.2	4237.2	1	4237.2

WEIGHT OF MEMBERS

SHEET *1

DWB. *9

No. Pcs.	Mark	Description	Length	Wt. (lb.)	Weight			No. Req. Per Truss	Total Wt.
					Main Memb.	Details	Complete Member		
		<u>Bottom Chord</u>	<u>L2L4</u>	<u>2</u>					
4		L 6 x 3 1/2 x 1/2	42'-1 1/2"	15.3	2580.0				
2	pa9	PL 37 x 3/8	4'-8"	47.3		444.0			
2	pb9	PL 36 x 3/8	3'-8"	45.9		326.8			
2	pt9	PL 13 x 1/2	2'-6 1/2"	22.1		112.4			
1	pc9	PL 12 x 5/8	4'-5"	25.5		112.5			
1	pd9	PL 12 x 5/8	3'-0"	25.5		76.5			
1	pe9	PL 12 x 5/8	2'-6 1/2"	25.5		64.9			
1	ya9	Lac. Bars 2 1/4 x 5/8	0'-9 1/2"	2.4		162.9			
3/2	Rvt	Heads 1 1/100				50.0			
3/2	"	" Driven	12.5/100			38.0			
3/2					2580.0	1388.0	3968.0	2	7936.0

WEIGHT OF MEMBERS

SHEET * 1

DWG. * 10

NO. Pcs.	Mark	Description	Length	Wgt. Pcs.	Weight		Complete Member	No. Rivets Per Piece	Total Wgt.
					Main Member	Details			
<u>Post U₆L₆^R</u>									
2		15' L ₆ @ 55"	36'-3 1/2"	550"	4050.0"				
6	ab10"	L 3 1/2 x 3 1/2 x 5/16	1'-3"	7.2		59.0"			
4	ag10"	L 6 x 4 x 5/16	0'-6 3/4"	12.3		28.0			
1	Pb10	R 15 x 5/16	1'-6 1/2"	15.94		24.5			
1	Pe10	R 18 x 5/16	1'-3"	19.3		24.0			
6	ad10	L 3 1/2 x 3 1/2 x 5/16	1'-6"	7.2		65.0			
1	Pf10	R 12 x 5/16	0'-11 1/2"	12.75		12.2			
4	ae10	L 7 x 5 1/2 x 5/16	1'-0"	13.0		52.0			
2	aa10	L 3 1/2 x 3 1/2 x 5/16	2'-6"	7.2		36.0			
2	Pa10	R 30 x 5/8"	3'-1"	76.5		472.0			
1	Ph10	R 30 x 5/8"	3'-6"	31.80		111.0			
1	Pd10	R 15 x 5/16	1'-1"	15.34		17.2			
76	ya10	Lac. Bars 2 1/2 x 1/2	2'-2"	4.25		69.5			
1	Pg10	R 18 x 5/16	1'-1"	19.13		20.6			
152		5/8" Rivet Hds. 16"				24.3	25.7%		
152		5/8" Driven Riv. Hds. 15 5/8"				19.0			
29		5/8" Riv. Hds. 2 3/8"				7.0			
29		5/8" Driven Riv. Hds. 2 3/8"				5.4			
					4050.0	1041.7	5091.7	1	5091.7
<u>Sway Bracing Strut SB5</u>									
2		L 4 x 4 x 5/16	21'-9"	8.2"	350.0"	38.5"	14.5%		
1	Pm10	R 13 x 5/16	2'-9 1/2"	13.81		3.8			
24		5/8" Riv. Hds. 16"				3.0			
24		5/8" Driven Riv. Hds. 15 5/8"				5.6			
4		Ring flls. @ 1 1/4"			350.0	50.9	400.9	1/2	400.9
<u>Sway Bracing Strut SB6</u>									
1		L 4 x 5 x 5/16	11'-3"	7.2"	81.0	85.1	18.9%		
1	Pk10	R 26 x 5/16	3'-1"	27.63		31.5			
2	ha10"	L 3 1/2 x 3 1/2 x 5/16	2'-2 1/4"	7.2		2.3			
2	fa10	fil 3 x 5/16	0'-8 3/4"	3.19		23.9			
2	ka10"	L 5 5/8 x 3 1/2 x 5/16	1'-0 1/4"	11.7		5.6			
35		5/8" Riv. hds. 15 5/8"				4.4			
35		5/8" Riv. hds. driven 15 5/8"			81.0	152.8	233.8	1	233.8
<u>Sway Bracing SB7</u>									
1	ah10"	L 4 x 3 x 5/16	11'-7 1/2"	7.2	84.0	7.8	12.1%		
1	Pa10	R 8 x 5/16	0'-11"	8.5		1.9			
11		5/8" Riv. Hds. 15 5/8"				1.5			
11		5/8" Riv. hds. driven 15 5/8"			84.0	10.2	94.2	1	94.2

WEIGHT OF MEMBERS

SHEET * I

DWS. * II

No. Pos	Mark	Description	Length	Wght./ft.	Weight			No. Legs Per cross	Total Wght.
					Main Memb.	Details	Complete Member		
<u>Bottom Chord Lo L2</u>									
4		LS 6 x 3 1/2 x 3/8	41'-2"	11.7	1930.0				
1	hal	PL 20 x 3/8	3'-3 1/2"	25.5		84.0			
2	coll	LS 3 1/2 x 3 x 3/8	2'-4 1/2"	7.9		37.5			
1	pal	PL 35 x 3/8	3'-8 1/2"	44.63		164.0			
1	pbl	PL 35 x 3/8	3'-8 1/2"	44.63		164.0			
1	pcl	PL 12 x 5/8	2'-6 1/2"	12.75		32.2			
4	abl	LS 4 x 4 x 5/16	2'-6 1/2"	8.2		83.0			
2	acl	LS 6 x 3 1/2 x 3/8	0'-10 1/2"	11.7		20.4			
2	fall	F 4 x 3/8	0'-5 1/2"	4.25		3.9			
1	adl	L 7 x 3 1/2 x 3/8	2'-11"	13.0		37.7			
1	ael	L 6 x 3 1/2 x 3/8	1'-6 3/4"	11.7		15.6			
1	pdl	PL 35 x 1/2	2'-11"	59.5		173.0			
1	pel	PL 12 x 3/8	2'-11"	15.3		44.5			
2	fbll	F 3 x 1/4	2'-11"	2.55		14.9			
2	pfll	PL 40 x 1/2	3'-4 1/2"	68.0		595.0			
2	mafl	L 15 @ 33"	6'-10 1/2"	33.0		455.0			
1	pgll	PL 15 x 3/8	1'-8 1/2"	19.13		31.6			
1	phll	PL 17 x 3/8	1'-8 1/2"	21.68		36.0			
1	pkll	PL 15 x 3/8	3'-8"	19.13		70.0			
1	prll	PL 15 x 3/8	2'-0 1/2"	19.13		39.0			
1	pol	PL 12 x 5/8	1'-5"	25.5		42.3			
25	ya9	Lac. Bars 2 1/4 x 5/8	0'-9 1/2"	2.39		153.0			
1	phll	PL 12 x 5/8	1'-0"	25.5		25.5			
513	Riv. hds	3/4" 16/100				82.0			
513	Dr. "	3/4" 12.5/100				63.0			
					1930.0	2467.1	4397.1	2	8794.2

WEIGHT OF MEMBERS

SHEET # 2

DWB. # 11

No.	Pcs	Mark	Description	Length	Wt/ft.	Weight			No. Pcs per lot	Total Wgt.
						Main Member	Details	Complete member		
			<u>Sway Bracing SB8</u>							
1		at 10	L 4x5x $\frac{5}{16}$	11'-7 $\frac{1}{2}$ "	7.2	84.0				
10		$\frac{5}{16}$ "	Rvt. hds. $\frac{1}{16}$ "				1.6			
10		$\frac{5}{16}$ "	Rvt. hds. driven	12'-5 $\frac{5}{16}$ "			1.3			
						84.0	2.9	66.9	2	86.9
			<u>Sway Bracing SB9</u>							
2			L 4x4x $\frac{5}{16}$	21'-5"	8.2	350.0				
1		PM 10	R 13x $\frac{5}{16}$	2'-9 $\frac{1}{2}$ "	13.81		38.5			
12		$\frac{5}{16}$ "	Rvt. hds. $\frac{1}{16}$ "				1.9			
12		$\frac{5}{16}$ "	Rvt. hds. driven	12'-5 $\frac{5}{16}$ "			1.5			
						350.0	41.9	391.9	1/2	391.9
			<u>Sway Bracing SB10</u>							
1		PM 10	R 19x $\frac{5}{16}$	2'-3 $\frac{1}{2}$ "	20.9		46.0	46.0	1/2	46.0

WEIGHT OF MEMBERS

SHEET * 1

DWB. * 12

No. Pos	Mark	Description	Length	Wt. per ft.	Weight			No. Repd. per Truss	Total Wght.
					Main Member	Details	Complete Member		
1		<u>Stringer Lateral SL1</u> L 3x3 7/8	5'-6 7/8"	6.1	33.4		33.4	1	33.4
1		<u>Stringer Lateral SL2</u> L 3x3 7/8	6'-3 3/4"	6.1	38.5		38.5	1	38.5
1		<u>Stringer Lateral SL3</u> L 3x3 7/8	5'-11 7/8"	6.1	36.5		36.5	26	912.0
1		<u>Stringer Lateral SL4</u> L 3x3 7/8	6'-2 1/2"	6.1	38.0		38.0	1	38.0
1		<u>Stringer Lateral SL5</u> L 3x3 7/8	5'-1 3/4"	6.1	31.3		31.3	1	31.3
1		<u>Bot. Lateral Pls. P1</u> P1 R 24x7/8	2'-3"	30.6	69.0		69.0	1	69.0
1		<u>Bot. Lateral Pls. P4</u> P4 R 16x7/8	2'-11 1/2"	20.4	65.0		60.5	1/2	30.25
1		<u>Bottom Lateral P2</u> P2 R 24x7/8	2'-3"	30.6	69.0		69.0	1/2	34.5
1		<u>Bottom Lateral L13</u> L13 R 6x7/8	5'-11 7/8"	10.2	60.5		60.5	1/2	30.25
1		<u>Bottom Lateral L7²</u> L 4x3 1/2 x 3/8	13'-1 1/2"	9.1	119.0		11.9		
1	ab12 ²	L 3x3 1/2 x 3/8	0'-10"	7.9		6.6	6.6		
1	ab12 ²	L 3x3 1/2 x 3/8	0'-10"	7.9		6.6	6.6		
					119.0	13.2	132.2	1	132.2
1		<u>Bot. Lateral L8²</u> L 3x3 1/2 x 3/8	0'-10"	7.9		6.6	6.6		
1	ab12 ²	L 3x3 1/2 x 3/8	0'-10"	7.9		6.6	6.6		
1		L 4x3 1/2 x 3/8	13'-10 1/2"	9.1		126.0	13.2		
					126.0	13.2	139.2	1	139.2

WEIGHT OF MEMBERS

SHEET #2

DWG. #12

No. Pcs.	Mark	Description	Length	Wt./ft.	Weight		complete member	No. Fixed Per Ton	Total Wgt.
					main member	Details			
<u>Bottom Lateral L 9</u>									
1		PL 6x $\frac{1}{2}$	11'-0"	10.2	112.0		2.0		
8		Rvt. hds.	$\frac{16}{100}$			1.2			
8		Rvt. hds. driven	$\frac{15.5}{100}$			1.0			
					112.0	2.2	114.2	$\frac{1}{2}$	67.1
<u>Bottom Lateral L 10</u>									
1		PL 6x $\frac{1}{2}$	4'-10 $\frac{1}{2}$ "	10.2	49.5		112.0		
1	pk12	PL 12x $\frac{1}{2}$	2'-6"	20.4		51.0			
16		Rvt. hds.	$\frac{16}{100}$			2.5			
16		Rvt. hds. driven	$\frac{15.5}{100}$			2.0			
					49.5	55.5	105.0		105.0
<u>Bottom Lateral L 11</u>									
1		PL 6x $\frac{1}{2}$	15'-1 $\frac{3}{4}$ "	10.2	155.0		155.0	$\frac{1}{2}$	77.5
<u>Bottom Lateral L 12</u>									
1		PL 6x $\frac{1}{2}$	14'-3 $\frac{3}{4}$ "	10.2	146.0		146.0	$\frac{1}{2}$	73.0
<u>Hanger U.L. # 6 U.L. # 4</u>									
2		LS 4x3x $\frac{5}{16}$	28'-11 $\frac{1}{2}$ "	7.2	415.0				
2		LS 4x3x $\frac{5}{16}$	28'-6 $\frac{1}{2}$ "	7.2	410.0				
7	pb12	PL 12x $\frac{5}{16}$	0'-6"	12.75		44.8			
1	pg12	PL 12x $\frac{5}{16}$	0'-11 $\frac{1}{2}$ "	12.75		11.9			
1	pa12	PL 12x $\frac{5}{16}$	2'-0"	20.4		40.8			
130		Rvt. hds.	$\frac{16}{100}$			20.7			
130		Rvt. hds. driven	$\frac{12.5}{100}$			16.2			
					825.0	134.4	959.4	2	1918.8
<u>Hanger U.L. # 5 U.L. # 4</u>									
4		LS 4x3x $\frac{5}{16}$	28'-0"	7.2	810.0				
7	pb12	PL 12x $\frac{5}{16}$	0'-6"	12.75		44.8			
1	pa12	PL 12x $\frac{1}{2}$	2'-0"	20.4		40.8			
1	pg12	PL 12x $\frac{5}{16}$	0'-11 $\frac{1}{2}$ "	12.75		11.9			
136		Rvt. hds.	$\frac{16}{100}$			21.7			
136		Rvt. hds. driven	$\frac{12.5}{100}$			17.0			
					810.0	136.2	946.2	2	1892.4
<u>Bottom Lateral L 1</u>									
1		L 4x3 $\frac{1}{2}$ x $\frac{5}{8}$	29'-1"	9.1	265.0		6.6		
1	aa12	L 3x3 $\frac{1}{2}$ x $\frac{5}{8}$	0'-10"	7.9					

WEIGHT OF MEMBERS

SHEET #3

DWG. # 12

No. Pcs	Mark	Description	Length	Wgt./Ft.	Weight			No. Pcs Per 100	Total Wgt.
					Main Member	Details	Complete Member		
1	aa12 ¹⁴	L 3 x 3 1/2 x 3/8	0'-10"	7.9		6.6	76%		
24	3/4"	Rvt. hds. ¹⁶ / ₁₀₀				4.0			
24	3/4"	Rvt. hds. driven ^{12.5} / ₁₀₀			265.0	20.2	285.2	1	285.2
<u>Bottom Lateral L2</u>									
1		L 4 x 3 1/2 x 3/8	14'-3 1/2"	9.1	130.0				
1	aa12 ¹⁴	L 3 x 3 1/2 x 3/8	0'-10"	7.9		6.6			
1	ab12 ¹⁴	L 3 x 3 1/2 x 3/8	0'-10"	7.9		6.6			
1	pc12	R 8 x 3/8	2'-11 1/2"	10.2		30.2	40.3%		
32	3/4"	Rvt. hds. ¹⁶ / ₁₀₀				5.1			
32	3/4"	Rvt. hds. driven ^{12.5} / ₁₀₀			130.0	52.5	182.5	1	182.5
<u>Bottom Lateral L3</u>									
1		L 4 x 3 1/2 x 3/8	14'-3 1/2"	9.1	130.0				
1	aa12 ¹⁴	L 3 x 3 1/2 x 3/8	0'-10"	7.9		6.6			
1	ab12 ¹⁴	L 3 x 3 1/2 x 3/8	0'-10"	7.9		6.6	15%		
22		Rvt. hds. ¹⁶ / ₁₀₀				3.5			
22		Rvt. hds. driven ^{12.5} / ₁₀₀			130.0	19.5	149.5	1	149.5
<u>Bottom Lateral L4</u>									
1		L 3 x 3 x 3/8	29'-1"	7.2	209.0		209.0	4	836.0
<u>Bottom Lateral L5</u>									
1		L 3 x 3 x 3/8	14'-4"	7.2	103.0				
1	pd12	R 6 x 3/8	2'-10 1/2"	7.65		22.0	24.4%		
11	3/4"	Rvt. hds. ¹⁶ / ₁₀₀				1.3			
11	3/4"	Rvt. hds. driven ^{12.5} / ₁₀₀			103.0	25.2	128.2	4	512.8
<u>Bottom Lateral L6</u>									
1		L 3 x 3 x 3/8	14'-4"	7.2	103.0		103.0	4	412.0

WEIGHT OF MEMBERS

SHEET #1

DWB. #13

No. Pcs.	Mark	Description	Length	Wght./ft.	Weight		Complete Member	No. Repet.	Total
					Main memb.	Details			
Machine Support M56									
2	pm13	# 13 1/2 x 3/8	1'-2 3/4"	17.21		42.2			
2	qm13	L 6 x 4 x 3/8	1'-6"	12.3		37.0			
1	qm13 ⁸	L 6 x 4 x 3/8	1'-6"	12.3		18.0			
2	pm13	# 9 x 3/4	1'-3"	22.95		57.0			
1	qm13 ⁸	L 6 x 4 x 3/8	1'-6"	12.3		37.0			
1		[12" @ 12 1/2"	2'-9 1/2"	20.5	57.0		361.0		
52	Rvt.	Heads 3/4"	16/100			8.3			
52	Rvt.	Heads Driven	12.5/100			6.5			
					57.0	206.0	263.0	1	263.0
Machine Support M59									
1		L 6 x 4 x 1/2	5'-6"	16.2	89.0				
1	pb13	# 24 x 1/2	2'-2"	40.8		88.0			
2	qa13	L 6 x 6 x 3/8	1'-5"	14.9		42.0			
2	pa13	# 13 x 3/8	1'-5"	16.58		46.4			
1	ac13	L 8 x 6 x 1/2	0'-5 1/2"	23.0		10.5			
1	ad13	L 8 x 3 1/2 x 1/2	0'-5 1/2"	18.7		8.5			
2	ab13 ⁸	L 4 x 3 x 3/8	2'-0"	8.5		39.0			
71	Rvt.	Heads 3/4"	16/100			11.4			
71	Rvt.	Heads Driven	12.5/100			8.9			
					89.0	249.7	338.7	1	338.7

WEIGHT OF MEMBERS

SHEET *2

DWB. *13.

No. Pcs	Mark	Description	Length	Wght. lb.	Weight			No. Reps	Total
					Main member	Details	Complete Member		
<u>Machine Support M53K</u>									
1	aab13	L 3 x 3 x 3/8	1'-8 1/2"	7.2	12.0				
1	pc13	H 9 x 3/8	2'-6"	11.5		28.7			
1	pf13	H 9 x 3/8	2'-6"	11.5		28.7			
11		Rvt. Heads 16/100				1.8	50.5%		
11		Rvt. Heads Driven 12.5/100				1.4			
					12.0	60.6	72.6	1	72.6
<u>Machine Support M54</u>									
2		L 12" @ 25"	4'-10 1/2"	25.0	244.0				
2	ag13	L 6 x 4 x 7/16	0'-7 1/2"	14.3		17.8			
1	af13	L 2 1/2 x 3 x 3/8	2'-6"	6.6		16.5			
1	ae13	L 3 x 3 x 3/8	2'-6"	7.2		18.0			
16		Rvt. Heads 16/100				2.5	23.3%		
16		Rvt. Heads Driven 12.5/100				2.0			
					244.0	56.8	300.8	1	300.8
<u>Machine Support M53</u>									
2	pd13	H 6 x 3/8	1'-0"	7.6		15.3			
1	pc13	H 9 x 3/8	0'-9"	11.4		8.6			
2		L 3 x 3 x 3/8	3'-10 1/2"	7.2	55.0				
1	pac13	H 6 x 3/8	0'-9 1/2"	7.6		5.9			
18		Rvt. Heads 16/100				2.9	63.5%		
18		Rvt. Heads Driven 12.5/100				2.2			
					55.0	34.9	89.9	1	89.9
<u>Machine Support M55</u>									
2		L 12" @ 25"	4'-10 1/2"	25.0	244.0				
2	ag13	L 6 x 4 x 7/16	0'-7 1/2"	14.3		17.8			
2	af13	L 2 1/2 x 3 x 3/8	2'-6"	6.6		38.0			
16		Rvt. Heads 16/100				2.5	22.7%		
16		Rvt. Heads Driven 12.5/100				2.0			
					244.0	55.3	299.3	1/2	149.65

WEIGHT OF MEMBERS

SHEET #1

DRAW #14

No. Pcs.	Mark	Description	Length	Wgt/lb	Weight			No. Holes per foot	Total Wgt.
					Main member	Details	Complete		
<u>Machinery Supports MIS1</u>									
2		LS 12" @ 20.5"	6'-6"	20.5	268.0				
1	aa14	L 6 x 4 x $\frac{1}{2}$	1'-11 $\frac{3}{4}$ "	16.2		31.8			
1	ab14	L 6 x 4 x $\frac{1}{2}$	1'-11 $\frac{3}{4}$ "	16.2		31.8			
4	fa14	Fill 3 x $\frac{5}{8}$	0'-6"	6.38		12.8			
2	fb14	Fill 3 x $\frac{5}{8}$	0'-6"	5.74		3.8			
2	pa14	PL 15 x $\frac{3}{8}$	1'-4 $\frac{1}{2}$ "	19.38		53.0			
1	pb14	PL 16 x $\frac{3}{8}$	1'-4 $\frac{3}{4}$ "	40.8		57.0			
1	pc14	PL 16 x $\frac{3}{8}$	1'-4 $\frac{3}{4}$ "	20.4		28.5			
2	ac14	LS 6 x 6 x $\frac{7}{8}$	1'-0"	17.2		34.4			
2	ae14	LS 6 x 6 x $\frac{7}{8}$	3'-6"	14.9		105.0			
2	af14	LS 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{1}{2}$	3'-0"	11.1		66.6			
2	ag14	LS 6 x 3 $\frac{1}{2}$ x $\frac{1}{2}$	1'-3"	15.3		38.2			
1	ad14	L 6 x 4 x $\frac{7}{8}$	1'-0 $\frac{1}{4}$ "	14.3		14.6			
121		Rvt. hds. $\frac{7}{8}$ " @ $\frac{16}{100}$				19.4			
121		Rvt. hds. $\frac{12.5}{100}$				15.2			
					268.0	512.1	780.1	$\frac{1}{2}$	390.05
<u>Machinery Support MIS2</u>									
1		L 12 x 40"	7'-9 $\frac{1}{16}$ "	40.0	311.0				
1	ah14	L 6 x 4 x $\frac{7}{8}$	0'-10 $\frac{3}{4}$ "	14.3		12.2			
1	ah14	L 6 x 4 x $\frac{7}{8}$	0'-10 $\frac{3}{4}$ "	14.3		12.2			
2	ah14	L 6 x 6 x $\frac{3}{8}$	2'-3 $\frac{3}{8}$ "	14.9		68.6			
2	am14	L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$	1'-9 $\frac{1}{2}$ "	8.5		30.4			
1	an14	L 6 x 6 x $\frac{1}{2}$	2'-5 $\frac{1}{4}$ "	19.6		47.7			
1	pd14	PL 17 x $\frac{1}{2}$	2'-5 $\frac{1}{4}$ "	28.9		71.0			
54		Rvt. hds. $\frac{16}{100}$				8.6			
54		Rvt. hds. driven $\frac{18.5}{100}$				6.7			
					311.0	257.4	568.4	$\frac{1}{2}$	284.2
<u>Machinery Supports MIS7^R & MIS7^L</u>									
1		L 10" @ 20"	3'-5 $\frac{1}{2}$ "	20"	69.0		69.0	1	69.0
<u>Machinery Supports MIS8^R & MIS8^L</u>									
1		L 10" @ 20"	3'-8"	20"	73.0		73.0	1	73.0
<u>Machinery Support MIS12</u>									
1		L 20" @ 65	12'-11 $\frac{1}{2}$ "	65.0	840.0				
2	ap14	L 4 x 6 x $\frac{7}{8}$	1'-5"	14.3		40.4			
1	ar14	L 8 x 3 $\frac{1}{2}$ x $\frac{1}{2}$	1'-2 $\frac{3}{4}$ "	18.7		23.0			
1	ar14	L 8 x 3 $\frac{1}{2}$ x $\frac{1}{2}$	1'-2 $\frac{3}{4}$ "	18.7		23.0			
2	ap14	L 4 x 6 x $\frac{7}{8}$	1'-5"	14.3		40.4			
110		Rvt. hds. $\frac{16}{100}$				17.6			
110		Rvt. hds. driven $\frac{12.5}{100}$				13.8			
					840.0	158.2	998.2	$\frac{1}{2}$	499.1

WEIGHT OF MEMBERS

SHEET #1

DRAW #15

No. Pcs.	Mark	Description	Length	Wt./ft.	Weight			No. Pcs. per Truss	Total Wgt.
					Main member	Details	Complete member		
<u>Circular Rails T1</u>									
1		Circular 65" rail	21'-2 $\frac{1}{2}$ "	21.9	462.0				
3	pa15	12 13 x $\frac{1}{2}$	7'-2 $\frac{1}{2}$ "	22.1		477.6			
1	ha15	Bent bar 2 x $\frac{1}{2}$	1'-7 $\frac{1}{2}$ "	3.4		5.5			
1	hb15	Bent bar 2 x $\frac{1}{2}$	1'-7 $\frac{1}{2}$ "	3.4		5.5			
					462.0	169.2	631.2	2	1262.4
<u>Girder G4</u>									
1		Web 12 41 x $\frac{3}{8}$	12'-10"	52.28	672.0				
2		Top Flg. Ls 5 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	12'-10 $\frac{1}{4}$ "	10.4	268.0				
2		Bot. Flg. Ls 5 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	12'-11 $\frac{1}{2}$ "	10.4	270.0				
2	fa15	Fill 3 $\frac{1}{2}$ x $\frac{3}{8}$	1'-1 $\frac{3}{8}$ "	4.46		9.8			
1	fb15	Fill 6 x $\frac{3}{8}$	2'-2 $\frac{3}{8}$ "	7.65		16.8			
2	ff15	Fill 5 x $\frac{3}{8}$	1'-6"	6.38		19.1			
4	pb15	Pl 7 x $\frac{3}{8}$	1'-5"	8.93		50.5			
4	fd15	Fill 6 x $\frac{3}{8}$	1'-6"	7.65		46.0			
4	fe15	Fill 6 x $\frac{3}{8}$	1'-2 $\frac{3}{4}$ "	7.65		32.0			
4	ka15 ^h	Ls 6 x 4 x $\frac{1}{2}$	1'-9 $\frac{5}{16}$ "	16.2		112.5			
4	kb15	Ls 6 x 4 x $\frac{1}{2}$	1'-6 $\frac{7}{16}$ "	16.2		97.5			
4	sa15	Ls 4 x 3 x $\frac{3}{8}$	3'-5 $\frac{5}{8}$ "	8.5		118.0			
2	sb15	Ls 4 x 3 x $\frac{3}{8}$	3'-5 $\frac{5}{8}$ "	8.5		59.0			
255		Rvt. hds. $\frac{16}{100}$				40.8			
255		Rvt. hds. driven $\frac{12.5}{100}$				32.0			
					1210.0	634.0	1844.0	$\frac{1}{2}$	922.0
<u>Plate P3</u>									
1		Pl 46 x $\frac{3}{8}$	5'-5 $\frac{7}{8}$ "	58.65	320.0				
62		Rvt. hds. $\frac{16}{100}$				9.9			
62		Rvt. hds. driven $\frac{12.5}{100}$				7.7			
					320.0	17.6	337.6	$\frac{1}{2}$	168.8

WEIGHT OF MEMBERS

SHEET #1

DRAW #16

No. Pcs	mark	Description	Length	Wgt./ft.	Weight			No. Fts. per Truss	Total Wgt.
					Main Member	Details	Complete Member		
		<u>Girder G5</u>							
2		IP 54 x $\frac{7}{8}$	22-2 $\frac{1}{2}$	80.3	3580.0				
4		LS 8 x 8 x $\frac{5}{8}$	22-2 $\frac{1}{2}$	32.7	2900.0				
4		Cov IP 16 x $\frac{9}{16}$	22-2 $\frac{1}{2}$	30.6	2720.0				
4		Cov IP 16 x $\frac{5}{8}$	19-0 $\frac{1}{2}$	27.2	1520.0				
8	sa/16	LS 8 x 6 x $\frac{1}{2}$	4-5 $\frac{1}{2}$	23.0		815.0			
8	fa/16	F11. 12 x $\frac{5}{8}$	3'-2"	25.5		642.0			
1	pa/16	IP 24 x $\frac{1}{2}$	3'-3"	40.8		132.0			
8	sb/16	LS 6 x 3 $\frac{1}{2}$ x $\frac{3}{4}$	4-5 $\frac{1}{2}$	11.7		450.0			
8	ha/16	LS 5 x 3 $\frac{1}{2}$ x $\frac{3}{4}$	4-9 $\frac{1}{2}$	10.4		368.0			
8	fb/16	F11. 7 x $\frac{5}{8}$	3'-2"	14.88		376.0			
2	pb/16	IP 18 x $\frac{3}{8}$	4'-4 $\frac{1}{2}$	22.95		200.0			
1	fd/16	F11 3 $\frac{1}{2}$ x $\frac{5}{8}$	0-8 $\frac{1}{2}$	7.44		5.2			
4	sc/16	LS 5 x 3 $\frac{1}{2}$ x $\frac{3}{4}$	4-5 $\frac{1}{2}$	10.4		184.0			
8	fc/16	F11. 3 $\frac{1}{2}$ x $\frac{5}{8}$	3'-2"	7.44		188.0			
4	ff/16	F11. 6 x $\frac{7}{8}$	3'-3"	8.93		116.0			
2	pc/16	IP 12 x $\frac{3}{8}$	3'-3"	15.3		99.5			
4	fg/16	F11 16 x $\frac{1}{2}$	1'-4"	10.2		54.3			
2	pd/16	F11. 12 x 1	3'-3"	20.4		132.0			
4	sd/16	LS 6 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	4-5 $\frac{1}{2}$	11.7		207.0			
4	oa/16	LS 4 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	1-6 $\frac{1}{4}$	9.1		54.5			
2	pe/16	IP 12 x $\frac{3}{8}$	3'-3"	15.3		93.5			
B/R		Rivet hds	24 $\frac{1}{2}$	70		194.5			
B/R		Rvt. hds. driven	18.5	70		150.0			
					1072.00	4017.5	14737.5	1/2	73687

WEIGHT OF MEMBERS

SHEET #1

DRAW # 17

No. Pcs.	Work	Description	Length	Wt./ft.	Weight			No Riv Per Pcs	Total Wgt.
					Main member	Details	complete member		
<u>Hand Rail HR1ⁿ</u>					<u>HR1^L</u>				
3		L ₃ 2½ x 3 x ¼	21-7¼	4.5	287.0				
2		L ₃ 2½ x 3 x ¼	10-7¼	4.5	96.0				
1	ab17 ⁿ	L ₃ 8 x 3½ x ½	0-9	18.7		14.0			
2	pa17	R ₂ 5 x ⅜	0-5	6.38		5.3			
2	ac17 ⁿ	L ₃ 2½ x 2½ x ¼	2-9	4.1		22.5			
2	pb17	R ₂ 5 x ⅞	0-5	3.188		2.6			
1	ab17 ^L	L ₃ 8 x 3½ x ½	0-9	18.7		14.0			
1	ha17 ⁿ	R ₂ 7 x ⅜	0-9½	8.93		7.9			
2	fa17	Fill 2½ x ½	0-6¾	0.956		1.1			
2	aa17 ⁿ	L ₃ 2½ x 3 x ¼	4-9	4.5		42.7			
1	ad17	L ₃ 6 x 3½ x ⅜	0-8½	11.7		8.2			
18	ya17	Lac. Bars. 1½ x ⅞	3-9½	0.956		65.0			
4	yb17	Lac. Bars. 1½ x ⅞	2-6¾	0.956		3.6			
4	yc17	Lac. Bars. 1½ x ⅞	1-3¾	0.956		4.8			
2	yd17	Lac. Bars 1½ x ⅞	2-7	0.956		4.9			
72	Rvt. hds. ½"	500				3.6			
72	Rvt. hds. ½" driven	400				2.9			
					383.0	209.1	592.1	2	1184.2
<u>Hand Rail HR2ⁿ</u>					<u>HR2^L</u>				
2		L ₃ 2½ x 3 x ¼	10-7¼	4.5	96.0				
3		L ₃ 2½ x 3 x ¼	21-7¼	4.5	287.0				
2	ab17	L ₃ 8 x 3½ x ½	0-9	18.7		28.0			
1	ha17	R ₂ 7 x ⅜	0-9½	8.93		7.9			
1	fa17	Fill 2½ x ½	0-6¾	0.956		0.5			
2	pa17	R ₂ 5 x ⅜	0-5	6.38		5.3			
1	ac17	L ₃ 2½ x 2½ x ¼	2-9	4.1		11.2			
2	pb17	R ₂ 5 x ⅞	0-5	3.188		2.6			
2	aa17	L ₃ 2½ x 3 x ¼	4-9	4.5		42.7			
1	ad17	L ₃ 6 x 3½ x ⅜	0-8½	11.7		8.2			
18	ya17	Lac. bars 1½ x ⅞	3-9½	0.956		65.0			
4	yb17	Lac. bars 1½ x ⅞	2-6¾	0.956		3.6			
4	yc17	Lac. bars 1½ x ⅞	1-3¾	0.956		4.8			
2	yd17	Lac. bars 1½ x ⅞	2-7	0.956		4.9			
57	Rvt. hds. ½"	500				2.8			
57	Rvt. hds. ½" driven	300				2.3			
					383.0	195.8	578.8	2	1157.6
<u>Hand Rail HR3</u>					(Same as HR2 - 14")				
					383.0	194.4	577.4	2	1154.8
<u>Hand Rail HR4</u>					(Same as HR1 - 2 ab17)				
					383.0	181.1	564.1	2	1128.2

WEIGHT OF MEMBERS

SHEET 2
DRAW # 17

No. pcs	mark	Description	Length	Wgt/ ft	Weight			No. rd per Truss	Total Wgt.
					main member	Details	Complete member		
<u>Hand Rail HR5</u>									
1		L 2½ x 3 x ¼	20-8½	4.5	93.0				
1		L 2½ x 3 x ¼	21-7¼	4.5	95.7				
1		L 2½ x 3 x ¼	9-11½	4.5	44.9				
1		L 2½ x 3 x ¼	21-7¼	4.5	95.7				
1		L 2½ x 3 x ¼	10-7¼	4.5	47.9				
2	hc17	R 6¾ x ⅜	0-9½	8.61		13.7			
2	at17	L 8 x 6 x ½	0-9	23.0		34.5			
2	pa17	R 5 x ⅜	0-5	6.38		5.3			
2	pb17	R 5 x ⅜	0-5	3.188		2.6			
2	aa17	L 3 2½ x 3 x ¼	4-9	4.5		42.7			
2	fa17	Fill. 2¼ x ⅛	0-6⅜	0.956		1.1			
1	ad17	L 6 x 3½ x ⅜	0-8½	11.7		8.2			
18	ya17	Lac. bars 1½ x ⅜	3-9⅝	0.956		65.0			
4	yb17	Lac. bars 1½ x ⅜	2-6⅝	0.956		9.6			
4	yc17	Lac. bars 1½ x ⅜	1-3⅝	0.956		4.8			
4	yd17	Lac. bars 1½ x ⅜	2-7	0.956		4.9			
1	ae17	L 2½ x 2½ x ¼	2-9	4.1		11.3			
57	Rvt.	hds. ½	5#			2.8			
57	Rvt.	hds. ½ driven	3#			2.3			
					377.2	218.8	596.0	1½	890.0
<u>Hand Rail HR6</u>									
3		L 3 2½ x 3 x ¼	22-4	4.5	300.0				
1		L 2½ x 2' x ¼	11-6½	4.5	52.0				
1		L 2½ x 3 x ¼	10-7¼	4.5	48.0				
1	hd17	R 7 x ⅜	0-8½	8.93		7.0			
2	aa17	L 3 2½ x 3 x ¼	4-9	4.5		42.7			
1	ad17	L 6 x 3½ x ⅜	0-8½	11.7		8.2			
19	ya17	Lac. bar 1½ x ⅜	3-9⅝	0.956		68.5			
4	yb17	Lac. bar 1½ x ⅜	2-6⅝	0.956		3.6			
4	yc17	Lac. bar 1½ x ⅜	1-3⅝	0.956		4.8			
2	yd17	Lac. bar 1½ x ⅜	2-7	0.956		4.9			
1	ae17	L 2½ x 2½ x ¼	2-9	4.1		11.3			
2	fa17	Fill. 2¼ x ⅛	0-6⅜	0.956		1.1			
1	pa17	R 5 x ⅜	0-5	6.38		2.6			
3	pb17	R 5 x ⅜	0-5	3.188		3.9			
1	ae17	L 6 x 3½ x ⅜	0-6⅜	11.7		6.5			
1	ag17	L 2½ x 3 x ¼	4-9	4.5		21.4			
1	af17	L 3 x 3 x ⅜	0-10	7.2		6.0			
1	ah17	L 4 x 3 x ⅜	0-8½	8.5		6.0			
57	Rvt.	hds. ½	5#			2.8			
57	Rvt.	hds. ½ driven	3#			2.3			
					390.0	209.6	599.6	2	1192.2

WEIGHT OF MEMBERS

SHEET #1

DRAW #18

No. Pcs.	Mark	Description	Length	Wgt./ft.	Weight		Complete member	No. Pcs. per truss	Total Wgt.
					Main member	Details			
<u>Hand Rail HR7</u>									
1	ac17	L 2 1/2 x 2 1/2 x 1/4	2'-9"	4.1		11.3			
1	pb18	Bar 2 x 3/8	0'-4"	2.55		0.85			
2		L 2 1/2 x 3 x 1/4	7'-8 3/4"	4.5	69.0				
1		L 2 1/2 x 3 x 1/4	7'-0 1/2"	4.5	31.7				
2	hc17 ^{re}	R 6 3/4 x 3/8	0'-9 1/2"	8.61		13.7			
3	pb17	R 5 x 3/8	0'-5"	3.188		3.9			
1		L 2 1/2 x 3 x 1/4	6'-11 3/4"	4.5	31.4				
1	ad18	L 3 x 2 1/2 x 1/4	4'-9"	4.5		21.4			
1	ab18	L 6 x 3 1/2 x 3/8	0'-8 1/2"	11.7		8.2			
6	ya17	Lac. bars 1 1/2 x 3/8	3'-9 3/8"	0.956		21.6			
2	yb17	Lac. bars 1 1/2 x 3/8	2'-6 3/8"	0.956		4.8			
2	yc17	Lac. bars 1 1/2 x 3/8	1'-3 7/8"	0.956		2.4			
40		Rvt. hds. 1/2" 5/16"				2.0			
40		Rvt. hds. 1/2" driven 3/16"				1.6			
					132.1	91.8	223.9	1/2	111.95
<u>Hand Rail HR8</u>									
4	A	L 2 1/2 x 3 x 1/4	3'-1 1/2"	4.5	56.0				
4	pb17	R 5 x 3/8	0'-5"	3.188		5.3			
1	ae18	L 3 x 2 1/2 x 1/4	2'-9 1/2"	4.5		12.5			
1	ad18	L 3 x 2 1/2 x 1/4	4'-9"	4.5		21.4			
1	ak18	L 2 1/2 x 2 1/2 x 1/4	0'-6"	4.1		2.5			
1	ya17	Lac. bar 1 1/2 x 3/8	3'-9 3/8"	0.956		3.6			
2	yb17	Lac. bar 1 1/2 x 3/8	2'-6 3/8"	0.956		4.8			
2	yc17	Lac. bar 1 1/2 x 3/8	1'-3 7/8"	0.956		2.4			
20		Rvt. hds. 1/2" 5/16"				1.0			
20		Rvt. hds. 1/2" driven 3/16"				0.8			
					56.0	54.3	110.3	1/2	55.15
<u>Hand Rail HR9</u>									
4		L 2 1/2 x 3 x 1/4	10'-5 1/4"	4.5	188.0				
2	at17	L 8 x 6 x 1/2	0'-9"	23.0		34.5			
3	pb17	R 5 x 3/8	0'-5"	3.188		4.0			
1	pa17	R 5 x 3/8	0'-5"	6.38		2.65			
1	ac17	L 2 1/2 x 2 1/2 x 1/4	2'-9"	4.1		11.3			
1	ac18	L 3 x 2 1/2 x 1/4	4'-9"	4.5		21.4			
1	ab18	L 6 x 3 1/2 x 3/8	0'-8 1/2"	11.7		8.3			
4	ha18	R 4 x 3/8	0'-6"	5.10		10.2			
9	ya17	Lac. bar 1 1/2 x 3/8	3'-9 3/8"	0.956		21.8			
2	yb17	Lac. bar 1 1/2 x 3/8	2'-6 3/8"	0.956		4.8			
2	yc17	Lac. bar 1 1/2 x 3/8	1'-3 7/8"	0.956		2.4			
43		Rivet hds. 1/2" 5/16"				2.1			
43		Rvt. hds. 1/2" driven 3/16"				1.7			
					188.0	125.2	313.2	1/2	156.6

WEIGHT OF MEMBERS

SHEET #1
DRAW #19

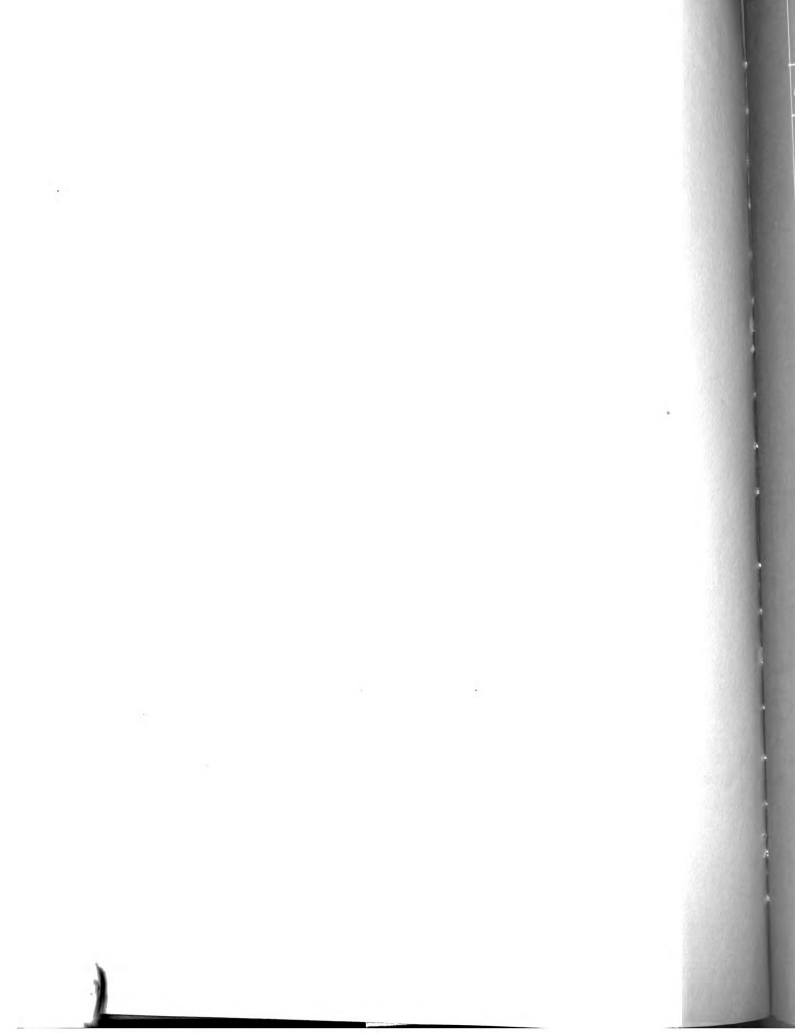
No. Pcs	Mark	Description	Length	Wgt./ft.	Weight			No. Pcs per lot	Total Wgt.
					Main Member	Details	Complete Member		
<u>Center Gussets CG1^R</u>									
2		R 90 $\frac{3}{4}$ x $\frac{1}{2}$	8-7 $\frac{1}{2}$	154.28	2660.0				
4	af19	L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{5}{16}$	2-0	7.2		57.5			
1	pf19	R 12 x $\frac{5}{16}$	2-0	12.75		25.5			
2	qe19	L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$	1-3 $\frac{1}{2}$	8.5		22.0			
1	pc19	R 15 x $\frac{3}{8}$	1-0	19.13		19.1			
4	qa19	L 3 x 3 x $\frac{3}{8}$	1-3	7.2		36.0			
4	ah19	L 5 7 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	5-2 $\frac{1}{2}$	15.30		159.9			
4	ak19	L 5 x 3 $\frac{1}{2}$ x $\frac{3}{8}$	5-2 $\frac{1}{2}$	10.4		217.0			
2	ma19	B 12 @ 20.5"	5-11	20.5		243.0			
2	fa19	fill 10 x $\frac{1}{2}$	0-10	17.0		28.4			
1	pd19	R 12 x $\frac{3}{8}$ x 1	1-0	15.30		15.3			
2	ab19	L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$	1-0	8.5		17.0			
2	ad19	L 5 x 3 $\frac{1}{2}$ x $\frac{1}{2}$	3-0	15.3		91.8			
1	pe19	R 36 x $\frac{1}{2}$	1-9	61.2		107.5			
190	Rvt	hds. $\frac{3}{8}$ 24# 700				45.0			
180	Rvt	hds. $\frac{3}{8}$ driven 24# 700				33.2			
					2660.0	388.8	4548.8	1	4548.8
<u>Bracket BK1</u>									
2	po19	R 32 x $\frac{3}{8}$	4-5 $\frac{1}{4}$	40.8	357.0				
2	up19	L 6 x 4 x $\frac{3}{8}$	2-3 $\frac{1}{2}$	12.3		56.0			
2	bt19	L 6 x 4 x $\frac{3}{8}$	1-6	12.3		37.0			
2	av19	L 6 x 4 x $\frac{3}{8}$	4-4 $\frac{1}{2}$	12.3		138.0			
2	ay19	L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$	3-10	8.5		65.0			
1	pm19	R 16 x $\frac{1}{2}$	2-3 $\frac{1}{8}$	27.2		61.5			
2	aw19	L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$	4-7 $\frac{1}{4}$	8.5		78.1			
2	pp19	R 12 x $\frac{3}{8}$	1-1 $\frac{1}{2}$	15.3		34.5			
1	pk19	R 18 x $\frac{3}{8}$	1-6	22.95		34.3			
56	Rvt	hds. $\frac{3}{8}$ 24# 700				13.4			
56	Rvt	hds. $\frac{3}{8}$ driven 24# 700				10.3			
					357.0	528.1	885.0	$\frac{1}{2}$	442.55
<u>Bracket BK2</u>									
2	ph19	R 27 x $\frac{3}{8}$	4-5 $\frac{1}{4}$	34.43	305.0				
2	am19	L 6 x 4 x $\frac{3}{8}$	1-10 $\frac{1}{2}$	12.3		46.0			
2	an19	L 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$	4-5 $\frac{1}{4}$	8.5		75.0			
1	pm19	R 16 x $\frac{1}{2}$	2-3 $\frac{1}{8}$	27.2		61.5			
2	qa19	L 6 x 4 x $\frac{3}{8}$	1-11 $\frac{1}{2}$	12.3		48.2			
1	pn19	R 18 x $\frac{3}{8}$	2-2 $\frac{1}{8}$	22.95		50.0			
					305.0	280.7	585.7	$\frac{1}{2}$	292.8

WEIGHT OF MEMBERS

SHEET # 1

DRAW # 20

No. Pcs	Mark	Description	Length	Wt./ft.	Weight			No. Pcs per Truss	Total Wgt.
					Main member	Details	Complete member		
<u>Track Stringers S19 S12</u>									
1		I-24 @ 80"	21-4	80.0	1710.0				
1	ac20	L 6x6x $\frac{3}{8}$	1-1	14.9		15.0			
1	ab20	L 6x4x $\frac{1}{2}$	2-11 $\frac{1}{4}$	19.6		57.5			
1	aq7	L 6x6x $\frac{3}{8}$	1-1	14.9		15.0			
1	pc7	R 8x $\frac{1}{2}$	1-1	13.6		13.9			
2	ac7	L 6x6x $\frac{1}{2}$	1-5 $\frac{1}{2}$	16.2		47.0			
61		Rvt. hds. $\frac{3}{4}$ " $\frac{16}{100}$	12.5			9.75			
61		Rvt. hds. $\frac{3}{4}$ " driven	100			7.65			
					1710.0	213.3	1923.3	1	1923.3
<u>Balance Wheel Struts S18</u>									
3		L 4x3x $\frac{5}{16}$	11-0	7.2	238.0				
1		L 4x3x $\frac{5}{16}$	10-10	7.2	77.7				
1	per20	R 12x $\frac{5}{16}$	1-10 $\frac{1}{4}$	12.75		22.5			
1	pd20	R 36x $\frac{3}{8}$	2-9	45.90		126.0			
1	fd20	Fill 2 $\frac{1}{2}$ x $\frac{5}{8}$	1-3	5.31		6.6			
1	pf20	R 20x $\frac{3}{8}$	1-10 $\frac{3}{4}$	25.50		47.2			
1	fr20	Fill 2 $\frac{1}{2}$ x $\frac{5}{8}$	0-9	5.31		4.0			
1	ff20	Fill 4x $\frac{5}{8}$	1-0	8.50		4.2			
12	ya20	Lac. bars 2 $\frac{1}{2}$ x $\frac{5}{8}$	2-2 $\frac{1}{2}$	2.39		64.0			
1	fg20	Fill 4x $\frac{5}{8}$	0-6	8.50		8.5			
40		Rvt. hds. $\frac{3}{4}$ " $\frac{16}{100}$	18.5			6.9			
40		Rvt. hds. $\frac{3}{4}$ " driven	100			5.0			
					315.7	294.4	610.1	$\frac{1}{2}$	305.5
<u>Track Stringers S11 S20</u>									
1		I-24 @ 80"	21-4	80.0	170.0				
2	ac7	L 6x6x $\frac{1}{2}$	1-5 $\frac{1}{2}$	19.6		57.0			
2	aa20	L 6x6x $\frac{3}{8}$	1-1	14.9		30.0			
2	ab20	L 6x4x $\frac{1}{2}$	2-11 $\frac{1}{4}$	16.2		95.0			
1	pc7	R 8x $\frac{1}{2}$	1-1	13.6		13.8			
1	pa20	R 10x $\frac{1}{2}$	1-0 $\frac{3}{4}$	17.0		17.1			
59		Rvt. hds. $\frac{3}{4}$ " $\frac{16}{100}$	12.5			9.4			
59		Rvt. hds. $\frac{3}{4}$ " driven	100			7.4			
					170.0	239.7	409.7	1	409.7
<u>Roadway Stringers S13-S14-S15-S16</u>									
4		Is 12" @ 31 $\frac{1}{2}$ "	21-4	31.5	671.0		2684.0	2	5368.0
<u>Balance Wheel Girder G1^R</u>									
1		Web R 23x $\frac{5}{16}$	20-4 $\frac{3}{4}$	24.44	495.0				
2		Fg L 6x4x $\frac{3}{8}$	20-4 $\frac{3}{4}$	12.3	500.0				
2		Fg L 6x4x $\frac{3}{8}$	19-10 $\frac{1}{2}$	12.3	490.0				



WEIGHT OF MEMBERS

SHEET #2

DRAW # 20

No. Pcs.	Mark	Description	Length	Wtd./ft.	Weight			No. Pcs. per 100	Total Wgt.
					Main member	Details	Complete member		
1	pg20	R 12 1/2 x 1/2	0' 10 1/2"	21.25		18.6			
1	ga20	R 12 1/2 x 1/2	0' 11 1/2"	21.25		20.2			
2	fd20	Fill. 6 x 3/8	1-3	7.65		19.1			
2	sa20	L 6 x 4 x 3/8	1-10 1/16"	12.3		46.5			
1	sb20	L 3 1/2 x 5 x 3/8	140 1/16"	10.4		19.7			
1	fb20	Fill. 3 1/2 x 3/8	1-3	4.46		5.6			
1	fc20	Fill. 12 1/2 x 5/8	2-0	25.56		53.0			
1	ag20	L 8 x 3 1/2 x 1/2	0-6	18.7		9.4			
1	pb20	R 12 x 3/8	1-9	15.3		26.7			
1	pc20	R 24 x 1/2	2-9 1/2"	40.8		113.0			
171	Rvt.	hds. 3/4" 16 #				27.2			
171	Rvt.	hds. 3/4" driven 12.5 #				21.3			
					1485.0	380.3	18653.0	1	18653.0

1

1



WEIGHT OF MEMBERS

SHEET # 1
DRAW # 21

No. Pcs.	Mark	Description	Length	Wgt./ft.	Weight			No. Pcs. per Truss	Total Wgt.
					main member	Details	complete member		
<u>Floor Beams FB4 FB5</u>									
2		Ls 6x6 x $\frac{9}{16}$	22-28 $\frac{3}{4}$	21.9	970.0				
2		Ls 6x6 x $\frac{9}{16}$	22-28 $\frac{3}{4}$	21.9	970.0				
1		PL 30 x $\frac{3}{8}$	3-1 $\frac{3}{4}$	38.25	118.0				
1		PL 30 x $\frac{3}{8}$	9-11 $\frac{1}{2}$	38.25	381.0				
1		PL 36 x $\frac{3}{8}$	4-5	45.9	203.0				
2		Cor. PL 14 x $\frac{1}{2}$	17-0	23.8	808.0				
3	ft21	Fill. 7 x $\frac{1}{2}$	0-9	11.9		20.7			
1	fc8	Fill. 9 x $\frac{1}{2}$	1-2	15.3		17.7			
2	fe8	Fill. 7 x $\frac{5}{8}$	0-8 $\frac{1}{2}$	14.88		21.0			
2	sb8 ⁿ	Ls 6 x 3 $\frac{1}{2}$ x $\frac{3}{16}$	2-5 $\frac{3}{8}$	13.5		66.0			
3	sd8	Ls 3 $\frac{1}{2}$ x 5 x $\frac{3}{8}$	2-5 $\frac{3}{8}$	10.4		83.0			
3	fg8	Fill. 3 $\frac{1}{2}$ x 9 $\frac{1}{4}$	1-6	6.69		30.0			
1	aq8	Ls 6 x 4 x $\frac{1}{16}$	1-1	14.3		15.4			
4	pc12	PL 18 x $\frac{3}{8}$	1-0 $\frac{3}{4}$	22.95		97.0			
2	fb8	Fill. 9 x $\frac{9}{16}$	1-6	17.21		51.8			
1	pa21	PL 18 x $\frac{3}{8}$	3-3	22.95		74.2			
290		Rvt. hds. $\frac{3}{4}$ " 16 #				46.5	161.06		
290		Rvt. hds. $\frac{3}{4}$ " driven		12.5 #		36.2			
					3450.0	559.5	4009.5	1	4009.5
<u>Balance Wheel Girder G2</u>									
1		Web PL 23 x $\frac{1}{2}$	3-7 $\frac{5}{16}$	39.1	141.0				
1		Web PL 23 x $\frac{1}{2}$	11-7 $\frac{3}{4}$	39.1	141.0				
2		Ls 6 x 4 x $\frac{1}{2}$	20-4 $\frac{3}{4}$	16.2	660.0				
2		Ls 6 x 4 x $\frac{1}{2}$	19-10 $\frac{3}{4}$	16.2	644.0				
1	pd21	PL 25 x $\frac{1}{2}$	3-4 $\frac{1}{4}$	42.5		142.0			
3	pe21	PL 13 x $\frac{3}{8}$	1-3	16.58		62.0			
1	pf21	PL 15 x $\frac{1}{2}$	1-10 $\frac{1}{4}$	25.50		46.5			
1	pg21	PL 36 x $\frac{1}{2}$	3-5 $\frac{1}{2}$	61.2		212.0			
2	sa21	Ls 6 x 4 x $\frac{3}{8}$	1-10 $\frac{3}{4}$	25.50		46.5			
2	fa21	Fill. 6 x $\frac{1}{2}$	1-3	10.2		25.5			
2	pa21	PL 12 x $\frac{3}{8}$	1-3	15.3		38.2			
2	sb21	Ls 3 $\frac{1}{2}$ x 5 x $\frac{3}{16}$	1-10 $\frac{1}{16}$	10.4		39.0			
2	fb21	Fill. 3 $\frac{1}{2}$ x $\frac{1}{2}$	1-3	5.95		14.8			
2	ph21	PL 12 x $\frac{3}{8}$	1-9	15.30		53.5			
2	qa21	Ls 8 x 3 $\frac{1}{2}$ x $\frac{1}{2}$	0-6	18.7		18.7			
1	fc20	Fill. 12 $\frac{1}{2}$ x $\frac{5}{8}$	2-0	26.56		53.1			
1	pk21	PL 15 x $\frac{1}{2}$	2-0	25.5		51.0			
202		Rvt. hds. $\frac{3}{4}$ " 16 #				32.5	69.38		
202		Rvt. hds. $\frac{3}{4}$ " driven		12.5 #		25.2			
					1586.0	860.1	2446.1	$\frac{1}{2}$	1223.05
<u>Machinery Support MS10</u>									
1		L4 x 4 x $\frac{3}{8}$	4-1 $\frac{1}{2}$	9.8	40.5				
2	ab21	L3 x 3 x $\frac{3}{8}$	1-7 $\frac{1}{2}$	7.2		23.5			
2	ac21	L8 x 6 x $\frac{1}{2}$	0-8	23.0		30.5			

DRAW # 21

No. Pcs.	Mark	Description	Length	Wt./ft.	Weight		complete member	No. Pcs.	Total Wgt.
					main member	Details			
Floor Beams FB4 FB5									
2		Ls 6x6 x $\frac{9}{16}$	22-2 $\frac{1}{2}$	21.9	370.0				
2		Ls 6x6 x $\frac{7}{16}$	22-2 $\frac{1}{2}$	21.9	370.0				
1		FL 30 x $\frac{3}{8}$	3-1 $\frac{1}{16}$	38.25	118.0				
1		FL 30 x $\frac{3}{8}$	9-11 $\frac{1}{2}$	38.25	381.0				
1		FL 30 x $\frac{3}{8}$	4-5	45.9	203.0				
2		COR FL 14 x $\frac{1}{2}$	17-0	23.8	808.0				
3	ft 21	Fill. 7 x $\frac{1}{2}$	0-9	11.9		20.7			
1	ft 8	Fill. 9 x $\frac{1}{2}$	1-2	15.3		17.7			
2	ft 8	Fill. 7 x $\frac{5}{8}$	0-8 $\frac{1}{2}$	14.88		21.0			
2	sb 6 ^P	Ls 6 x 3 $\frac{1}{2}$ x $\frac{7}{16}$	2-5 $\frac{3}{8}$	13.5		66.0			
3	sd 8	Ls 3 $\frac{1}{2}$ x 5 x $\frac{3}{8}$	2-5 $\frac{3}{8}$	10.4		83.0			
3	fg 8	Fill. 3 $\frac{1}{2}$ x 9 $\frac{1}{16}$	1-6	6.69		30.0			
1	aa 8	Ls 6 x 4 x $\frac{7}{16}$	1-1	14.3		15.4			
4	pc 12	FL 18 x $\frac{3}{8}$	1-0 $\frac{3}{4}$	22.95		97.0			
2	pb 8	Fill. 9 x $\frac{9}{16}$	1-6	17.21		51.8			
1	pa 21	FL 18 x $\frac{3}{8}$	3-3	22.95		74.2			
290		FLVt. hds. $\frac{3}{4}$ 16" 700	12.5			46.5			
290		FLVt. hds. $\frac{3}{4}$ 16" 700 driven	12.5			46.5			
					3450.0	559.5	4009.5	1	4009.5
Balance Wheel Girder G2									
1		Web FL 23 x $\frac{1}{2}$	3-7 $\frac{5}{16}$	39.1	141.0				
1		Web FL 23 x $\frac{1}{2}$	11-7 $\frac{3}{4}$	39.1	141.0				
2		Ls 6 x 4 x $\frac{1}{2}$	20-4 $\frac{3}{4}$	16.2	660.0				
2		Ls 6 x 4 x $\frac{1}{2}$	19-10 $\frac{1}{2}$	16.2	644.0				
1	pd 21	FL 25 x $\frac{1}{2}$	3-4 $\frac{1}{4}$	42.5		142.0			
3	pe 21	FL 13 x $\frac{3}{8}$	1-3	16.58		62.0			
1	pf 21	FL 15 x $\frac{1}{2}$	1-10 $\frac{1}{4}$	25.50		46.5			
1	pg 21	FL 36 x $\frac{1}{2}$	3-5 $\frac{1}{2}$	61.2		212.0			
2	sq 21	Ls 6 x 4 x $\frac{3}{8}$	1-10 $\frac{1}{4}$	25.50		46.5			
2	fa 21	Fill. 6 x $\frac{1}{2}$	1-3	10.2		25.5			
2	pa 21	FL 12 x $\frac{3}{8}$	1-3	15.3		38.2			
2	sb 21	Ls 3 $\frac{1}{2}$ x 5 x $\frac{3}{8}$	1-10 $\frac{7}{16}$	10.4		39.0			
2	fb 21	Fill 3 $\frac{1}{2}$ x $\frac{1}{2}$	1-3	5.95		14.8			
2	ph 21	FL 12 x $\frac{3}{8}$	1-9	15.30		53.5			
2	aa 21	Ls 8 x 3 $\frac{1}{2}$ x $\frac{1}{2}$	0-6	18.7		18.7			
1	fc 20	Fill. 12 $\frac{1}{2}$ x $\frac{5}{8}$	2-0	26.56		53.1			
1	pk 21	FL 15 x $\frac{1}{2}$	2-0	25.5		51.0			
202		FLVt. hds. $\frac{3}{4}$ 16" 700	12.5			32.5			
202		FLVt. hds. $\frac{3}{4}$ 16" 700 driven	12.5			32.5			
					1586.0	860.1	2446.1	$\frac{1}{2}$	1223.05
Machinery Support MS10									
1		L 4 x 4 x $\frac{3}{8}$	4-1 $\frac{1}{2}$	9.8	40.5				
2	ab 21	L 3 x 3 x $\frac{3}{8}$	1-7 $\frac{1}{2}$	7.2		23.5			
2	ac 21	L 8 x 6 x $\frac{1}{2}$	0-8	23.0		30.5			

WEIGHT OF MEMBERS

SHEET # 2

DRAW # 21

No. Rs.	Mark	Description	Length	Wgt./ft.	Weight			No. Rys. per truss	Total Wgt.
					main member	Details	complete member		
1	h021	12 8 x $\frac{3}{8}$	1-5 $\frac{3}{4}$	10.20		15.1	200.2		
1	pm21	12 6 x $\frac{3}{8}$	0-6	7.65		7.65			
18	Rvt	hds. $\frac{3}{4}$ $\frac{16}{100}$ #				2.87			
18	Rvt	hds. $\frac{3}{4}$ $\frac{12.5}{100}$ #				2.25			
					40.5	81.9	122.4	5	612.0
<u>Machinery Support</u>					<u>175.11</u>				
1		L 4 x 4 x $\frac{3}{8}$	4-1 $\frac{1}{2}$	9.8	40.5		163.22		
2	ab21	L 3 x 3 x $\frac{3}{8}$	1-7 $\frac{1}{2}$	7.2		23.5			
2	ac21	L 3 8 x 6 x $\frac{1}{2}$	0-8	23.0		30.5			
2	pm21	12 6 x $\frac{3}{8}$	0-6	7.65		7.65			
16	Rvt	hds. $\frac{3}{4}$ $\frac{16}{100}$ #				2.56			
16	Rvt	hds. $\frac{3}{4}$ $\frac{12.5}{100}$ #				2.0			
					40.5	66.2	106.7	1	106.7

WEIGHT OF MEMBERS

* SHEET * 1

DWG. * 22

No. Pcs	Mark	Description	Length	Wght./ft.	Weight			No. Rep.	Total Wght.
					Main Memb.	Details	Complete Member		
4		<u>Bottom Chord L4LGAR</u>							
		L6 x 4 x $\frac{3}{4}$	43'-2 $\frac{3}{4}$ "	23.6	4160.0				
1	pd22	R 12 x $\frac{5}{8}$	3'-0"	25.5		76.5			
1	pe22	R 12 x $\frac{5}{8}$	1'-9"	25.5		44.6			
1	pt22	R 12 x $\frac{5}{8}$	3'-5 $\frac{3}{4}$ "	25.5		88.5			
2	pa22	R 36 x $\frac{3}{8}$	3'-9"	45.9		343.0			
1	pk1	R 15 x $\frac{3}{8}$	2'-0 $\frac{1}{2}$ "	19.1		70.5			
1	pm11	R 15 x $\frac{3}{8}$	3'-8"	19.1		39.3			
85	ya22	Lac. Bars 2 $\frac{1}{2}$ x $\frac{5}{16}$	0'-8 $\frac{5}{8}$ "	2.3		140.0			
292		Rvt. Heads $\frac{16}{100}$				46.9			
292	"	" Driven $\frac{125}{100}$				36.5			
					4160.0	885.8	5045.8	1	5045.8
4		<u>Bottom Chord L4LGC</u>							
		L6 x 4 x $\frac{3}{4}$	42'-2 $\frac{3}{4}$ "	23.6	4065.5				
		Rest same as L4LGA							
					4065.5	885.8	4951.3	1	4951.3
		<u>Bottom Chord L4LGB</u>							
		Same as L4LGC (+ 2 Rvs)			4065.0	885.8			
1	pb22	R 24 x $\frac{3}{8}$	2'-9"	30.6		84.0			
1	ma22	[12" @ 20 $\frac{1}{2}$ "	2'-9"	20.5		56.4			
17		Rvt. Heads $\frac{16}{100}$				2.7			
17	"	" Driven $\frac{125}{100}$				2.1			
					4065.0	1031.1	5096.6	$\frac{1}{2}$	5096.6

WEIGHT OF MEMBERS

SHEET #1

DWG. #23

No. Pcs	Mark	Description	Length	Wght./ft.	Weight			No. Rep.	Total Wght.
					Main Mem.	Details	Complete Member		
<u>Machine Support M517</u>									
2		L 10" @ 20"	3'-1 1/4"	20.0	124.0				
2	ap23	L 6 x 6 x 3/4	0'-6"	17.2		17.2			
1	pt23	L 10 x 3/4	1'-3 3/8"	25.5		32.5			
2	ag23	L 6 x 6 x 3/4	0'-6"	17.2		17.2			
14	Rvt	Heads 16/100				2.2	57%		
14	"	" Driven 12.5/100				1.7			
					124.0	70.9	194.9	1/2	97.5
<u>Machine Support M518 + M519</u>									
1		L 8" @ 11 1/2"	2'-10 5/8"	11.2	32.3				
2	ah23	L 6 x 3 1/2 x 3/8	0'-10 1/2"	11.7		20.5	74%		
12	Rvt	Heads 16/100				1.9			
12	"	" Driven 12.5/100				1.5			
					32.3	23.9	56.2	1	56.2
<u>Plate P6</u>									
1		L 21 x 3/4	2'-7 3/8"	53.6	140.0		27%		
1	fw23	Fill 18 1/2 x 3/4	1'-9"	21.7		38.0			
					140.0	38.0	178.0	1/2	89.0
<u>Plate 5</u>									
1		L 19 x 3/4	2'-8"	48.5	129.5		71.5%		
2	fr23	Fill 19 x 1/2	1'-4 7/8"	32.3		92.5			
					129.5	92.5	222.0	1/2	111.0
<u>Balance Wheel Bider B3</u>									
1		L 23 x 1/2	3'-7 1/2"	39.1	141.0				
1		L 23 x 1/2	11'-7 1/2"	39.1	455.0				
2		L 6 x 4 x 1/2	26'-7 1/2"	16.2	660.0				
2		L 6 x 4 x 1/2	19'-10 1/2"	16.2	642.0				
1	pd21	L 25 x 1/2	3'-4 1/4"	42.3		142.5			
3	pe21	L 13 x 3/8	1'-3"	16.6		62.0			
1	pt21	L 15 x 1/2	1'-10 1/2"	25.5		27.5			
1	pa23	L 36 x 1/2	3'-5 1/2"	61.2		21.2			
2	sq21	L 6 x 4 x 3/8	1'-10 1/2"	12.3		46.0			
2	fa21	Fill 6 x 1/2	1'-3"	10.2		25.5			
2	pa21	L 12 x 3/8	1'-3"	15.3		38.2			
2	sb21	L 5 x 3 1/2 x 3/8	1'-10 1/2"	10.4		38.2			
2	fb21	Fill 3 1/2 x 1/2	1'-3"	5.9		14.8			
2	ph21	L 12 x 3/8	1'-9"	15.3		53.5			
2	aa21	L 8 x 3 1/2 x 1/2	0'-6"	18.7		18.7			
1	fc20	Fill 12 1/2 x 5/8	2'-0"	26.6		53.0			

WEIGHT OF MEMBERS

SHEET *2

DWG. * 23

No.Pcs	Mark	Description	Length	Wght/Lft	Weight			No.Rep.	Total
					Main Memb.	Details	Complete Member		
<u>Balance Wheel Bider G3 (cont.)</u>									
1	pk21	R. 15 x 1/2	2'-0"	25.5		51.0	34.0 %		
184		Rvt. Heads 16/100				29.5			
184		" " Driven 12.5/100				23.0			
					1898.0	644.6	2542.6	1/2	1271.3
<u>Machine Support M513</u>									
2		E 10" @ 20*	6'-6 1/2"	20.0	262.0				
8	ab23	L 6 x 4 x 3/8	1'-0"	14.1		114.0	51 %		
4	pm23	12 9 x 3/8	1'-2"	11.5		53.5			
34		Rvt. Heads 16/100				5.4			
34		" " Driven 12.5/100				4.3			
					262.0	177.2	439.2	1/2	219.6
<u>Machine Support M514</u>									
2		E 10" @ 20*	6'-6 1/2"	20.0	262.0				
8	ac23	L 6 x 4 x 3/8	1'-1 1/2"	14.1		124.0	51 %		
4	ph23	12 9 x 3/8	1'-3 1/2"	11.5		60.0			
34		Rvt. Heads 16/100				5.4			
34		" " Driven 12.5/100				4.2			
					262.0	133.7	395.7	1/2	197.9
<u>Machine Support M515</u>									
2		E 10" @ 20*	6'-6 1/2"	20.0	262.0				
2	Ps23	Fill 6 x 3/4	1'-5 1/2"	15.9		43.5	54 %		
2	Pt23	" 6 x 1/2	1'-5 1/2"	10.2		29.2			
2	ae23	L 4 x 6 x 1/2	1'-1 1/2"	14.1		28.5			
2	Po23	Fill 6 x 1/2	1'-1 1/2"	10.2		20.6			
1	Pp23	" 6 x 1/2	1'-1 1/2"	12.7		12.9			
26		Rvt. Heads 16/100				4.1			
26		" " Driven 12.5/100				2.2			
					262.0	68.8	330.8	1/2	165.4
<u>Machine Support M516</u>									
2		E 10" @ 20*	6'-6 1/2"	20.0	262.0				
2	ad23	L 6 x 4 x 3/8	1'-0"	14.1		28.3	26.1 %		
1	fn23	Fill 6 x 3/4	1'-0"	12.7		12.7			
2	fm23	" 6 x 1/2	1'-0"	10.2		20.4			
26		Rvt. Heads 16/100				4.2			
26		" " Driven 12.5/100				3.2			
					262.0	68.8	330.8	1/2	165.4

TOTAL PANEL POINT LOADS

SHEET #1
of 2

Weight	From Membr	%	Weight	From Membr	%	Weight	From Membr	%
<u>Panel Point L0</u>								
1570.0	EP2	50	300.0	HR6	50	158.0	S11	50
351.0	S5	50	61.0	M510	50	12000.0	Floor	
354.0	S6	50	100.0	S10	25	26031.0	Total	
357.0	S7	50	60.0	S9	25			
337.0	S10	50	12000.0	Floor		<u>Panel Point L4</u>		
1025.0	S8	50	23401.0	Total		1761.0	L4U5	50
2080.0	FB1	50				1297.0	U4L4	50
168.0	M59	50	<u>Panel Point L2</u>			672.0	S1	100
80.0	M53	100	866.0	U2L2	50	1005.0	S2	150
1090.0	LoL2	25	1228.0	L2U1	50	672.0	S3	100
16.7	SL1	50	1074.0	L2U3	50	1916.3	S4	100
19.1	SL2	50	672.0	S1	100	2118.0	FB3	50
86.0	SL3	25	1005.0	S2	150	993.0	L2L4	25
149.5	L3	100	672.0	S3	100	289.0	HR2	50
300.0	M54	100	1916.3	S4	100	289.0	HR3	50
30.5	M510	25	2118.0	FB3	50	61.0	M510	50
132.0	M56	50	993.0	L2L4	25	1260.0	L4L6	25
300.0	HR6	50	1090.0	LoL2	25	86.0	SL3	250
837.0	C1	200	104.5	L4	50	104.5	L4	50
110.0	C2	200	296.0	HR1	50	103.0	L6	100
141.5	M2	100	282.0	HR4	50	200.0	S10	50
36.0	M3	100	61.0	M510	50	158.0	S11	50
60.0	S9	25	86.0	SL3	250	12000.0	Floor	
95.0	S1	100	103.0	L6	100	24984.8	Total	
46.0	S6	100	78.0	S11	25			
119.0	S4	100	100.0	S10	25	<u>Panel Point L5</u>		
6000.0	Floor		12000.0	Floor		336.0	S1	50
15964.8	Total		24744.8	Total		505.0	S2	75
						336.0	S3	50
<u>Panel Point L1</u>			<u>Panel Point L3</u>			956.0	S4	50
1336.0	S1	50	987.0	U3L3	50	132.0	L7	100
505.0	S2	75	1389.0	L3U4	50	472.0	U5L5	50
336.0	S3	50	672.0	S1	100	289.0	HR3	50
351.0	S5	50	1005.0	S2	150	297.0	HR5	50
354.0	S6	50	672.0	S3	100	2000.0	FB4	50
357.0	S7	50	1916.3	S4	100	30.5	M510	25
337.0	S10	50	2118.0	FB3	50	26.5	M511	25
956.0	S4	50	1975.0	L2L4	50	152.0	S18	25
1025.0	S8	50	296.0	HR1	50	671.0	S13	100
2130.0	FB2	50	289.0	HR2	50	336.0	S16	50
2190.0	LoL2	50	61.0	M510	50	908.3	B1	50
475.0	U1L1	50	86.0	SL3	250	2500.0	L4L6	50
143.0	L1	50	104.5	L4	50	86.0	SL3	250
103.0	L6	100	103.0	L6	100	104.5	L4	50
282.0	HR4	50	200.0	S10	50	499.0	M55	50

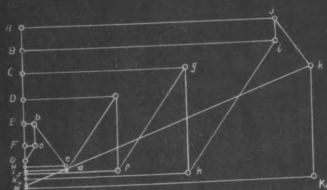
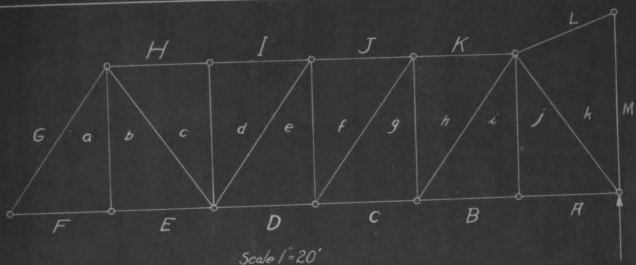
TOTAL PANEL POINT LOADS

SHEET #2
of 2

Weight	From Membr	%	Weight	From Membr	%	Weight	From Membr	%
<u>Panel Point L5 (cont)</u>			<u>Panel Point U1</u>			<u>Panel Point U5</u>		
106.0	S12	50	895.0	U1 U3	25	2620.0	EP1	50
78.0	S11	25	1570.0	EP2	50	683.0	SB1	50
138.0	S12	50	600.0	SB2	50	1761.0	L4 U5	50
12000.0	Floor		1228.0	L2 U1	50	1043.0	U3 U5	25
23292.8	Total		241.0	TL3	50	123.5	TL1	50
			475.0	U1 L1	50	472.0	U5 L5	50
			5009.0	Total		6702.5	Total	
<u>Panel Point L6</u>			<u>Panel Point U2</u>			<u>Panel Point U6</u>		
149.0			1768.0	U1 U3	50	1270.0	U6 L6	25
1270.0	U6 L6	25	432.0	SB4	50	100.2	SB5	25
19.0	SL4	50	866.0	U2 L2	50	126.9	SB6	50
15.7	SL5	50	123.5	TL1	50	47.1	SB7	50
34.5	P2	50	240.7	TL4	50	86.9	SB8	100
139.2	L8	100	3430.2	Total		195.0	SB9	50
4575.0	B5	25				1826.1	Total	
297.0	M55	100	<u>Panel Point U3</u>					
2260.0	GB1	50	895.0	U1 U3	25			
442.5	BK1	50	432.0	SB4	50			
26.5	M511	25	987.0	U3 L3	50			
152.0	S18	25	1074.0	L2 U3	50			
671.0	S13	100	1043.0	U3 U5	25			
336.0	S14	50	124.2	TL2	50			
336.0	S16	50	240.7	TL4	50			
908.3	B1	50	3795.9	Total				
1260.0	L4 L6	25	<u>Panel Point U4</u>					
2620.0	EP1	50	432.0	SB4	50			
17.0	FI	25	1297.0	U4 L4	50			
499.0	M55	50	1389.0	L3 U4	50			
297.0	HR5	50	2090.0	U3 U5	50			
106.0	S12	50	124.2	TL2	50			
57.0	S14	50	241.0	TL3	50			
12000.0	Floor		5573.2	Total				
28487.7	Total							

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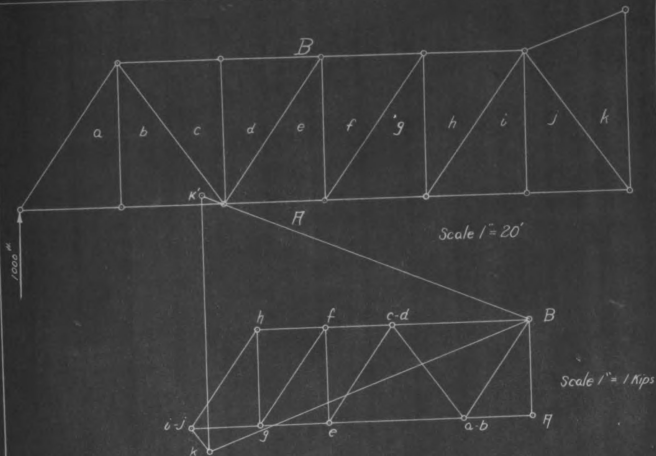
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Case I
Dead Load Cantilever

Scale 1" = 100 Kips

Member	Stress	Member	Stress
L ₀ U ₁	+ 20.00 Kips	L ₀ L ₁	- 11.80 Kips
U ₁ L ₁	+ 23.45	L ₁ L ₂	- 11.80
U ₂ L ₂	- 3.43	L ₂ L ₃	- 94.90
U ₃ L ₃	- 77.20	L ₃ L ₄	- 168.45
U ₄ L ₄	- 107.90	L ₄ L ₅	- 263.00
U ₅ L ₅	+ 23.25	L ₅ L ₆	- 263.00
U ₆ L ₆	- 234.0	L ₆ U ₇	+ 54.30
U ₇ U ₈	+ 43.1	L ₇ U ₈	+ 89.60
U ₈ U ₉	+ 43.1	L ₈ U ₉	+ 126.80
U ₉ U ₁₀	+ 94.90	L ₉ U ₁₀	+ 162.9
U ₁₀ U ₁₁	+ 168.50	U ₁₀ L ₁₀	- 57.9
U ₁₁ U ₁₂	+ 318.50		



1000# Uplift at Left and Right Supports

Member	Stress	Member	Stress
$L_0 U_1$	- 1.24 Kips	$L_0 L_1$	+ 0.72
$U_1 L_1$	0.0	$L_1 L_2$	+ 0.72
$U_2 L_2$	- 0.0	$L_2 L_3$	+ 2.17
$U_3 L_3$	+ 1.00	$L_3 L_4$	+ 2.90
$U_4 L_4$	+ 1.00	$L_4 L_5$	+ 3.63
$U_5 L_5$	0.0	$L_5 L_6$	+ 3.63
$U_6 L_6$	+ 2.54	$L_2 U_3$	- 1.23
$U_1 U_2$	- 1.45	$L_3 U_4$	- 1.23
$U_2 U_3$	- 1.45	$L_4 U_5$	- 1.23
$U_3 U_4$	- 2.17	$U_5 L_6$	- 0.33
$U_4 U_5$	- 2.91		
$U_5 U_6$	- 3.66		

LEFT REACTION - DEAD LOAD CONTINUOUS

$$R_0 = -\frac{P}{4}(K-K^3)$$

$$R_2 = \frac{P}{4}(4-5K+K^3)$$

Panel/Point	Panel/Load	$\frac{P}{4}$	K	5K	K^3	$(4-5K+K^3)$	$K-K^3$	R_0	R_2
L ₀	15.96	3.99	0	0	0	4.000	0	-0	+15.96
L ₁	28.41	7.10	.1661	.832	.00457	3.172	.16153	-1.12	+22.58
L ₂	28.17	7.04	.332	1.660	.03695	2.376	.295	-2.07	+16.70
L ₃	29.83	7.46	.50	2.500	.12500	1.625	.375	-2.80	+12.15
L ₄	30.55	7.64	.666	3.330	.29500	.965	.361	-2.76	+7.38
L ₅	29.99	7.49	.834	4.170	.58000	.410	.254	-1.89	+3.07
L ₆	30.31	7.58	1.00	5.000	1.0000	0	0	-0	+0

$$\Sigma R_2 = +77.84K \quad \Sigma R_0 = -70.64K \quad 77.84 - 10.64 = 67.2 \text{ Kips}$$

LEFT REACTION X STRESS FROM 1000*UPLIFT

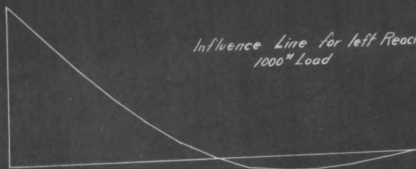
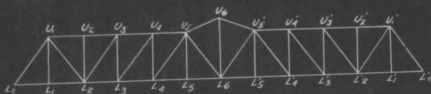
Member	Stress	Member	Stress
L ₀ U ₁	-83.0	L ₀ L ₁	+48.4
U ₁ L ₁	0	L ₁ L ₂	+48.4
U ₂ L ₂	0	L ₂ L ₃	+145.0
U ₃ L ₃	+67.2	L ₃ L ₄	+195.0
U ₄ L ₄	+67.2	L ₄ L ₅	+243.0
U ₅ L ₅	0	L ₅ L ₆	+243.0
U ₆ L ₆	+170.0	L ₂ U ₁	+83.0
U ₁ U ₂	-97.2	L ₂ U ₃	-82.5
U ₂ U ₃	-97.2	L ₃ U ₄	-82.5
U ₃ U ₄	-145.0	L ₄ U ₅	-82.5
U ₄ U ₅	-195.0	U ₅ L ₆	-22.2
U ₅ U ₆	-246.0		

Dead Load Cantilever Combined With Stress Produced By 1000*Uplift

DEAD LOAD CONTINUOUS STRESS

Member	Stress	Member	Stress
L ₀ U ₁	-63.0	L ₀ L ₁	+36.6
U ₁ L ₁	+23.45	L ₁ L ₂	+36.6
U ₂ L ₂	-3.43	L ₂ L ₃	+50.1
U ₃ L ₃	-10.00	L ₃ L ₄	+26.55
U ₄ L ₄	-40.7	L ₄ L ₅	-20.0
U ₅ L ₅	+23.25	L ₅ L ₆	-20.0
U ₆ L ₆	-64.0	L ₂ U ₁	+137.3
U ₁ U ₂	-54.1	L ₂ U ₃	+7.1
U ₂ U ₃	-54.1	L ₃ U ₄	+44.3
U ₃ U ₄	-50.1	L ₄ U ₅	+80.4
U ₄ U ₅	-27.5	U ₅ L ₆	-80.1
U ₅ U ₆	+72.5		

LIVE LOAD CONTINUOUS



REACTIONS

$$R_0 = \frac{P}{4}(4 - 5K + K^3)$$

$$R_2 = -\frac{P}{4}(K - K^3)$$

Panel Point	$\frac{P}{4}$	K	$5K$	K^3	$4 - 5K + K^3$	R_0	$K - K^3$	R_2
L_0	0.25	0.0	0.0	0.0	4.0	+1.00	0.0	0.000
L_1	0.25	0.166	0.83	0.005	3.17	+0.79	0.16	-0.040
L_2	0.25	0.332	1.66	0.036	2.38	+0.59	0.29	-0.074
L_3	0.25	0.50	2.50	0.125	1.62	+0.41	0.37	-0.094
L_4	0.25	0.66	3.33	0.295	0.96	+0.24	0.36	-0.090
L_5	0.25	0.83	4.17	0.580	0.41	+0.10	0.25	-0.064
L_6	0.25	1.0	5.00	1.000	0.0	+0.0	0.0	0.000

LIVE LOAD CONTINUOUS STRESSES
CONTINUOUS BEAM THEORY

Member	Stress For Load At Panel Point															Stress	
	L ₀	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₅	L ₄	L ₃	L ₂	L ₁	L ₀	Total Tension	Total Comp.		
L ₀ U ₁	0	-0.695	-0.522	-0.357	-0.212	-0.090	0.0	+0.055	+0.079	+0.082	+0.069	+0.0352	0.0	0.3164	1.876		
U ₁ L ₁	0	+1.00	0	0	0	0	0	0	0	0	0	0	0	1.00	0		
U ₂ L ₂	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0		
U ₃ L ₃	0	-0.207	-0.408	+0.406	+0.241	+0.102	0	-0.064	-0.090	-0.094	-0.074	-0.040	0	0.7495	0.976		
U ₄ L ₄	0	-0.207	-0.408	-0.594	+0.241	+0.102	0	-0.0	-0.090	-0.094	-0.074	-0.040	0	0.3435	1.57		
U ₅ L ₅	0	0.0	0	0	0	+1.00	0	0	0	0	0	0	0	1.00	0		
U ₆ L ₆	0	-0.091	-0.194	-0.236	-0.235	-0.164	0	-0.167	-0.232	-0.238	-0.188	-0.101	0	0	1.966		
U ₁ U ₂	0	-1.135	-0.846	-0.581	-0.345	-0.143	0	+0.091	+0.129	+0.134	+0.105	+0.057	0	0.5167	3.050		
U ₂ U ₃	0	-1.135	-0.846	-0.581	-0.345	-0.143	0	+0.091	+0.129	+0.134	+0.105	+0.057	0	0.5167	3.050		
U ₃ U ₄	0	-0.28	-0.55	-0.87	-0.516	-0.22	0	+0.136	+0.194	+0.202	+0.158	+0.086	0	0.7755	2.436		
U ₄ U ₅	0	-0.12	-0.266	-0.446	-0.69	-0.294	0	+0.182	+0.258	+0.268	+0.211	+0.114	0	1.0377	1.814		
U ₅ U ₆	0	+0.129	+0.279	+0.339	+0.235	+0.336	0	+0.230	+0.330	+0.340	+0.268	+0.144	0	2.430	0		
L ₀ L ₁	0	+0.559	+0.422	+0.29	+0.172	+0.073	0	-0.045	-0.0644	-0.0669	-0.0526	-0.0258	0	1.5165	0.2577		
L ₁ L ₂	0	+0.559	+0.422	+0.29	+0.172	+0.073	0	-0.045	-0.0644	-0.0669	-0.0526	-0.0258	0	1.5165	0.2577		
L ₂ L ₃	0	+0.28	+0.55	+0.87	+0.516	+0.22	0	-0.136	-0.194	-0.202	-0.158	-0.086	0	2.436	0.776		
L ₃ L ₄	0	+0.12	+0.266	+0.446	+0.690	+0.244	0	-0.182	-0.258	-0.268	-0.211	-0.114	0	1.814	1.0337		
L ₄ L ₅	0	-0.01	-0.02	+0.02	+0.146	+0.367	0	-0.227	-0.323	-0.335	-0.263	-0.143	0	0.433	1.321		
L ₅ L ₆	0	-0.01	-0.02	+0.02	+0.146	+0.367	0	-0.227	-0.323	-0.335	-0.263	-0.143	0	0.433	1.321		
L ₂ U ₁	0	-0.256	+0.73	+0.50	+0.297	+0.126	0	-0.078	-0.111	-0.115	-0.0905	-0.0492	0	1.6535	0.6997		
L ₂ U ₃	0	+0.256	+0.51	-0.50	-0.297	-0.126	0	+0.078	+0.111	+0.115	+0.0905	+0.0492	0	1.2097	0.913		
L ₃ U ₄	0	+0.256	+0.51	+0.732	-0.297	-0.126	0	+0.078	+0.111	+0.115	+0.0905	+0.0492	0	1.9417	0.413		
L ₄ U ₅	0	+0.256	+0.51	+0.732	+0.811	-0.126	0	+0.078	+0.111	+0.115	+0.0905	+0.0492	0	2.7527	0.126		
U ₅ L ₆	0	+0.253	+0.194	+0.133	+0.078	+0.0334	0	-0.0208	-0.0295	-0.030	-0.0242	-0.0131	0	0.7019	0.118		

CRSE IV
LIVE LOAD SIMPLE SPAN STRESSES

MEMBER	No Panels Live Load		SHEAR	CHORD INC	+ STRESS	- STRESS	+ IMPACT	- IMPACT	TOTAL STRESSES	
	LEFT	RIGHT							TENSION	COMP
L0U1	6	6	122.5		0	211.0		49.1	60.4	270.1
U1L1		6	49.0		49.0	0	11.4		0	
U2L2	1	5	0		0		0	0	0	0
U3L3	2	3	-24.5 +49.0		49.0	24.5	11.4	5.7	73.4	30.2
U4L4	3	2	-49.0 +24.5		24.5	49.0	5.7	11.4	30.2	60.4
U5L5	6	6	49.0		49.0	0	11.4		60.4	
U6L6	6	6	0	0	0	0	0	0	0	0
U1U2	6	6	73.5	103.0		274.5		63.9		338.4
U2U3	6	6	73.5	103.0		274.5		63.9		338.4
U3U4	6	6	24.5	34.3		308.8		71.9		380.7
U4U5	6	6	73.5			274.5		63.9		338.4
U5U6	6	6	0	0	0	0	0	0	0	0
L0L1	6	6	122.5	171.5	171.5		39.8		211.3	
L1L2	6	6	122.5	171.5	171.5		39.8		211.3	
L2L3	6	6	24.5	34.3	308.8		71.9		380.7	
L3L4	6	6	73.5	34.3	274.5		63.9		338.4	
L4L5	6	6	122.5		171.5		39.8		211.3	
L5L6	6	6	122.5		171.5		39.8		211.3	
L2U1	1	4	-8.18 +81.8		141.0	141.0	32.8	32.8	173.8	173.8
L2U3	2	3	-24.5 +49.0		42.2	84.5	9.81	19.6	52.01	104.1
L3U4	3	2	+49.0 +24.5		84.5	42.2	19.6	9.81	104.1	52.01
L4U5	4	1	+81.8 -8.18		141.0	141.0	3.28	32.8	173.8	173.8
U5L6	6	6	122.5			211.0		49.0		260.0

TRUE DEAD LOAD REACTIONS

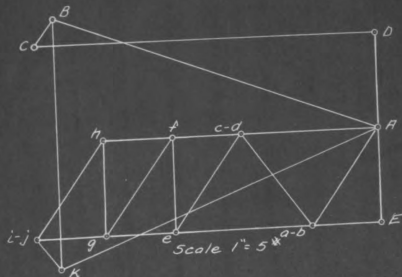
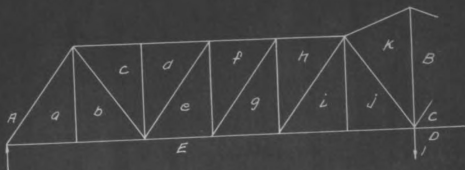
PANEL	R_0	R_2	LOAD
L_0	+15.96	0	15.96
L_1	+19.30	-4.35	28.41
L_2	+16.80	-2.03	28.17
L_3	+11.50	-3.45	29.83
L_4	+6.49	-3.70	30.55
L_5	+2.45	-2.45	29.99
L_6	0	0	30.31

STRESSES FROM TRUE UPLIFT

MEMBER	STRESS	MEMBER	STRESS
$L_0 U_1$	-70.0	$L_0 L_1$	+40.75
$U_1 L_1$	0	$L_1 L_2$	+40.75
$U_2 L_2$	0	$L_2 L_3$	+123.0
$U_3 L_3$	+56.52	$L_3 L_4$	+164.0
$U_4 L_4$	+56.52	$L_4 L_5$	+205.5
$U_5 L_5$	0	$L_5 L_6$	+205.5
$U_6 L_6$	+143.9	$L_2 U_1$	+70.0
$U_1 U_2$	-82.0	$L_2 U_3$	-69.7
$U_2 U_3$	-82.0	$L_3 U_4$	-69.7
$U_3 U_4$	-123.0	$L_4 U_5$	-69.7
$U_4 U_5$	-164.8	$U_5 L_6$	-18.65
$U_5 U_6$	-207.3		

CASE II DEAD LOAD CONTINUOUS

MEMBER	STRESS	MEMBER	STRESS
$L_0 U_1$	-50.0	$L_0 L_1$	+28.95
$U_1 L_1$	+23.45	$L_1 L_2$	+28.95
$U_2 L_2$	-3.43	$L_2 L_3$	+28.1
$U_3 L_3$	-20.68	$L_3 L_4$	-4.45
$U_4 L_4$	-51.38	$L_4 L_5$	-57.5
$U_5 L_5$	+23.35	$L_5 L_6$	-57.5
$U_6 L_6$	-90.1	$L_2 U_1$	+124.3
$U_1 U_2$	-38.9	$L_2 U_3$	+19.9
$U_2 U_3$	-38.9	$L_3 U_4$	+57.1
$U_3 U_4$	-28.1	$L_4 U_5$	+93.2
$U_4 U_5$	+3.7	$U_5 L_6$	-76.55
$U_5 U_6$	+111.2		



STRESS IN LBS. DUE TO 1* LOAD AT ϕ
PIER REMOVED

Member	Stress	Member	Stress
$L_0 U_1$	-6.15	$L_0 L_1$	+3.36
$U_1 L_1$	0	$L_1 L_2$	+3.36
$U_2 L_2$	0	$L_2 L_3$	+1.09
$U_3 L_3$	+5	$L_3 L_4$	+1.45
$U_4 L_4$	+5	$L_4 L_5$	+1.82
$U_5 L_5$	0	$L_5 L_6$	+1.82
$U_6 L_6$	-1.3	$L_2 U_1$	+6.1
$U_1 U_2$	-7.3	$L_2 U_3$	-6.1
$U_2 U_3$	-7.3	$L_3 U_4$	-6.1
$U_3 U_4$	-1.09	$L_4 U_5$	-6.1
$U_4 U_5$	-1.45	$L_6 U_5$	-20
$U_5 U_6$	-1.825		

TRUE LIVE LOAD REACTIONS

$$R_0 = 500(1+K) - \frac{P_1}{2}$$

PANEL	DEFLECTION	R_1	K	$500(1+K)$	$R_1/2$	R_0	R_2
L ₀	0	0	1	1,000	0	+1,000	0
L ₁	489	.474	.835	.916	.237	+6.79	-15.3
L ₂	489	.474	.668	.835	.237	+5.98	-10.72
L ₃	751	.730	.501	.751	.365	+3.86	-11.6
L ₄	937	.909	.334	.666	.454	+2.12	-12.1
L ₅	1030	1.00	.167	.582	.500	+0.82	-0.82
L ₆	1030	1.00	0	.500	.500	0	0

CASE III

ACTUAL LIVE LOAD CONTINUOUS STRESSES

MEMBER	TENSION		COMPRESSION		TOTAL	
	STRESS	IMPACT	STRESS	IMPACT	TENSION	COMPRESSION
L ₀ U ₁	23.4	4.2	84.9	15.3	27.6	100.2
U ₁ L ₁	49.0	8.8	0	0	57.8	0
U ₂ L ₂	0	0	0	0	0	0
U ₃ L ₃	33.4	6.0	55.8	10.0	39.4	65.8
U ₄ L ₄	14.6	8.6	78.0	14.1	17.2	92.1
U ₅ L ₅	49.0	8.8	0	0	57.8	0
U ₆ L ₆	0	0	109.9	19.8	0	129.7
U ₁ U ₂	38.0	5.0	137.0	24.6	43.0	161.6
U ₂ U ₃	38.0	5.0	137.0	24.6	43.0	161.6
U ₃ U ₄	57.3	10.4	110.5	19.8	67.7	130.3
U ₄ U ₅	76.0	13.7	80.5	14.5	89.7	95.0
U ₅ U ₆	150.0	27.0	0	0	177.0	0
L ₀ L ₁	68.0	12.2	18.6	3.35	80.2	21.95
L ₁ L ₂	68.0	12.2	18.6	3.35	80.2	21.95
L ₂ L ₃	113.0	20.3	51.4	9.25	133.3	60.65
L ₃ L ₄	78.6	14.2	76.0	13.7	92.8	89.7
L ₄ L ₅	22.0	3.95	96.8	17.4	25.95	114.2
L ₅ L ₆	22.0	3.95	96.8	17.4	25.95	114.2
L ₂ U ₁	76.1	13.8	43.4	7.8	89.9	51.2
L ₂ U ₃	69.0	12.4	41.0	7.4	81.4	48.4
L ₃ U ₄	102.5	18.5	7.1	1.28	121.0	8.38
L ₄ U ₅	138.0	24.9	5.05	0.91	162.9	5.96
U ₆ L ₆	31.1	5.6	8.7	1.57	36.7	10.27

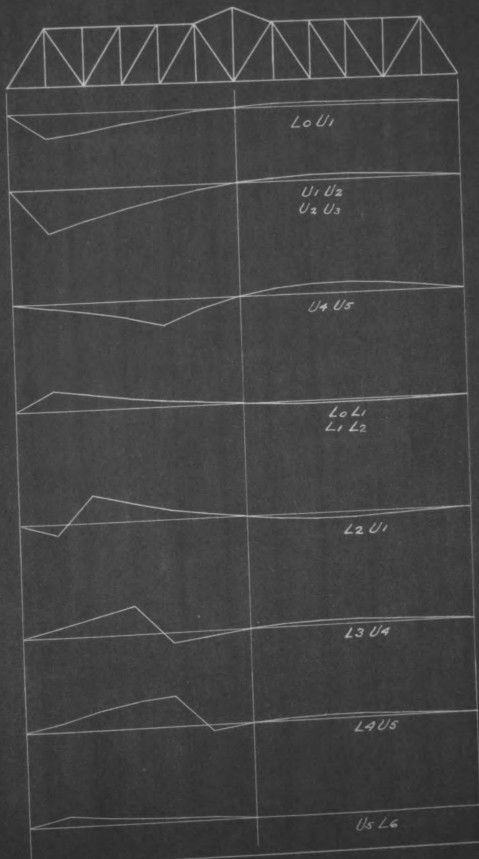
1629[#]/LINEAR FT. TRACK + 74.3[#]/SPR. REMAINING ROAD.

S.H.B. TABLE I p. 140. CLASS B LOADING.

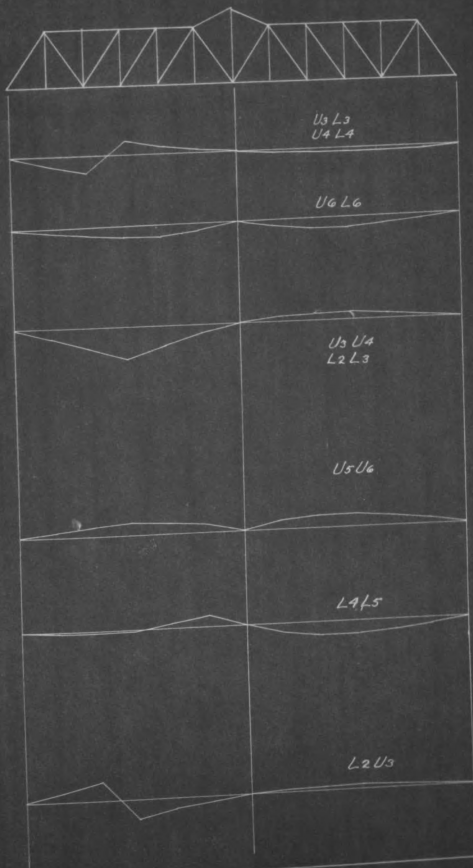
74.3 x 9 = 670[#]/LIN. FT. 670[#] + 1629[#] = 2290[#] TOTAL/LIN. FT.

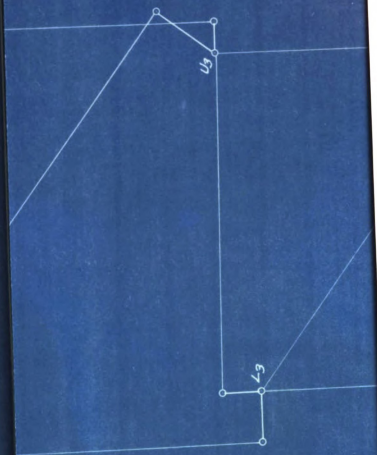
2290[#] x 21.4167' = 49,000[#] PANEL LOAD.

TYPICAL INFLUENCE LINES
LIVE LOAD CONTINUOUS STRESSES CASE III



TYPICAL INFLUENCE LINES
LIVE LOAD CONTINUOUS STRESSES CASE III





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LIVE LOAD CONTINUOUS STRESSES
THEORY OF RIGIDITY

Member	Panel Point Stress														Total	
	L ₀	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₅	L ₄	L ₃	L ₂	L ₁	L ₀	Tension	Comp.	
L ₀ U ₁	0	-595	-539	-336	-188	-074	0	+07	+106	+103	+063	+135	0	.477	1,732	
U ₁ L ₁	0	+10	0	0	0	0	0	0	0	0	0	0	0	1.0	0	
U ₂ L ₂	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
U ₃ L ₃	0	-178	-413	+383	+213	+084	0	-082	-121	-116	-072	-154	0	.68	1,136	
U ₄ L ₄	0	-178	-413	-56	+213	+084	0	0	-121	-116	-072	-154	0	.297	1,614	
U ₅ L ₅	0	0	0	0	0	+10	0	0	0	0	0	0	0	1.0	0	
U ₆ L ₆	0	-078	-196	-223	-208	-134	0	-214	-312	-294	-183	-388	0	0	2.23	
U ₁ U ₂	0	.97	-856	-548	-305	-117	0	+116	+173	+165	+102	+219	0	.775	2,796	
U ₂ U ₃	0	-97	-856	-548	-305	-117	0	+116	+173	+165	+102	+219	0	.775	2,796	
U ₃ U ₄	0	-24	-558	-82	-455	-18	0	+174	+26	+249	+154	+33	0	1.167	2,253	
U ₄ U ₅	0	-103	-27	-42	-61	-241	0	+233	+346	+33	+205	+436	0	1.55	1,644	
U ₅ U ₆	0	+111	+282	+319	+208	+276	0	+295	+444	+418	+26	+436	0	3.049	0	
L ₀ L ₁	0	+479	+426	+273	+152	+06	0	-058	-087	-082	-052	-099	0	1.39	.378	
L ₁ L ₂	0	+479	+426	+273	+152	+06	0	-058	-087	-082	-052	-099	0	1.39	.378	
L ₂ L ₃	0	+24	+558	+82	+455	+18	0	-174	-26	-249	-154	-33	0	2.253	1,167	
L ₃ L ₄	0	+103	+27	+42	+61	+2	0	-233	-346	-33	-205	-436	0	1.603	1,55	
L ₄ L ₅	0	-0086	-02	+019	+129	+301	0	-29	-434	-411	-256	-55	0	.449	1,9696	
L ₅ L ₆	0	-0086	-02	+019	+129	+301	0	-29	-434	-411	-256	-55	0	.449	1,9696	
L ₂ U ₁	0	-219	+74	+47	+262	+103	0	-1	-149	-142	-088	-189	0	1.575	.887	
L ₂ U ₃	0	+219	+519	-47	-262	-103	0	+1	+149	+142	+088	+189	0	1.406	.835	
L ₃ U ₄	0	+219	+519	+69	-262	-103	0	+1	+149	+142	+088	+189	0	2.096	.145	
L ₄ U ₅	0	+219	+519	+69	+72	-103	0	+1	+149	+142	+088	+189	0	2.816	.103	
U ₅ L ₆	0	+217	+196	+126	+069	+027	0	-027	-0385	-0370	-0235	-05	0	.635	.177	

ALLOWED UNIT COMPRESSIVE STRESSES

MEMBER	RADIUS GYR	LENGTH	UNIT STRESS	K
L ₀ U ₁	4.68	39'-5"	12000 #	.75
U ₂ L ₂	4.61	29'-8"	10600	.66
U ₃ L ₃	4.43	29'-8"	10400	.65
U ₄ L ₄	4.17	29'-8"	10380	.645
U ₆ L ₆	5.16	36'-9½"	10000	.625
U ₁ U ₂	4.76	20'-0½"	12460	.780
U ₂ U ₃	4.76	20'-0½"	12460	.780
U ₃ U ₄	4.76	23'-0½"	11850	.740
U ₄ U ₅	4.76	23'-0½"	11850	.740
L ₀ L ₁	3.05	20'-7"	10350	.640
L ₁ L ₂	3.05	20'-7"	10350	.640
L ₂ L ₃	3.00	21'-0¾"	10220	.640
L ₃ L ₄	3.00	21'-0¾"	10220	.640
L ₄ L ₅	3.04	21'-7⅜"	10010	.620
L ₅ L ₆	3.04	21'-7⅜"	10010	.620
U ₅ L ₆	4.59	34'-4⅞"	9710	.605

$$S_c = 16000 - 70 \frac{L}{R}$$

COMBINATION OF STRESSES

UNIT CHANGE IN LENGTH

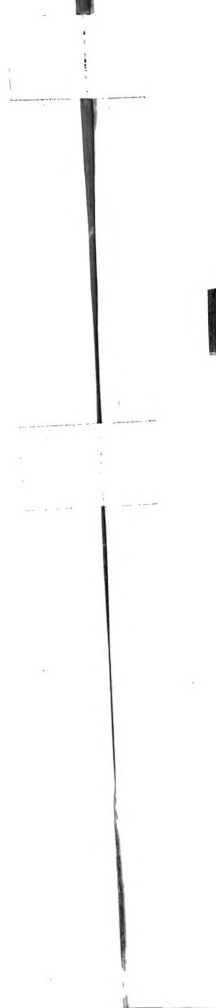
Member	I	I + IV	I + III	II + III	Length	At eo	Unit Stress	Change in Lg.
L ₀ U ₁	+ 20.0	- 256.6	- 86.8	- 150.2	34'-5"	20.95	-0.295	.00000042
U ₁ L ₁	+ 23.0	+ 83.85	+ 80.8	+ 81.25	28'-11 1/4"	8.35	0	0
U ₂ L ₂	- 3.43	- 3.43	- 3.43	- 3.43	29'-8"	12.06	0	0
U ₃ L ₃	- 77.2	- 107.4	- 143	- 86.48	29'-8"	14.7	+ .034	.00000042
U ₄ L ₄	- 107.9	- 168.3	- 199	- 143.48	29'-8"	20.6	+ .0243	.00000028
U ₅ L ₅	+ 23.25	+ 83.65	+ 81.05	+ 81.05	28'-0"	8.35	0	0
U ₆ L ₆	- 234.0	- 23.4	- 363.7	- 219.8	36'-9 1/2"	32.3	- .0402	.000000611
U ₁ U ₂	+ 43.1	- 309.7	- 133.2	- 200.5	20'-0 1/2"	18.31	- .039	.000000323
U ₂ U ₃	+ 43.1	- 309.7	- 133.2	- 200.5	20'-0 1/2"	18.31	- .039	.000000323
U ₃ U ₄	+ 94.9	- 317.7	+ 162.6	- 158.4	23'-0 1/4"	18.31	- .0595	.000000566
U ₄ U ₅	+ 168.5	- 226.4	+ 258.2	+ 93.4	23'-0 1/4"	18.31	- .079	.000000754
U ₅ U ₆	+ 318.5	+ 318.5	+ 495.5	+ 288.2	21'-6"	31.49	- .058	.000000515
L ₀ L ₁	- 11.8	+ 203.5	+ 72.4	+ 109.15	20'-7"	13.7	+ .0263	.000000224
L ₁ L ₂	- 11.8	+ 203.5	+ 72.4	+ 109.15	20'-7"	13.7	+ .0263	.000000224
L ₂ L ₃	- 94.9	+ 317.7	- 155.55	+ 161.4	21'-0 3/8"	18.0	+ .0605	.000000525
L ₃ L ₄	- 168.45	+ 227.1	- 258.15	+ 256.8	21'-0 3/8"	18.0	+ .0805	.0000007
L ₄ L ₅	- 263	+ 46.3	- 377.2	- 171.7	21'-1 1/8"	27.7	+ .066	.000000579
L ₅ L ₆	- 263	+ 46.3	- 377.2	- 171.7	21'-1 1/8"	27.7	+ .066	.000000579
L ₂ U ₁	+ 54.3	+ 228.1	+ 144.2	+ 214.2	35'-3"	14.7	+ .0445	.000000606
L ₂ U ₃	+ 89.6	+ 141.6	+ 171.0	+ 101.3	35'-3"	12.1	- .0501	.000000876
L ₃ U ₄	+ 126.8	+ 230.9	+ 247.8	+ 178.1	35'-3"	17.6	- .0346	.000000505
L ₄ U ₅	+ 162.9	+ 180.2	+ 325.8	+ 256.1	35'-3"	23.52	- .026	.000000380
U ₆ L ₆	- 57.9	- 317.9	- 68.17	- 86.82	34'-5"	25.14	- .00799	.000000114

UNIT STRESSES & EXCESS

Member	Positive		Negative		Unit Stresses	
	Comb.	Max. Stress Panel Point Loaded	Comb.	Min. Stress Panel Point Loaded	Actual Unit	Allowed Unit % excess
L ₀ U ₁	I	20	I + IV	256.6	12,580	12,000 4.82
U ₁ L ₁	I + IV	83.85			2,850	16,000
U ₂ L ₂			Any Comb.	3.43	284	10,600
U ₃ L ₃			I + III	143	9,725	10,400
U ₄ L ₄			I + III	199	9,670	10,380
U ₅ L ₅	I + IV	83.65			10,000	16,000
U ₆ L ₆			I + III	363.7	11,250	10,000 12.5
U ₁ U ₂	I	43.1	I + IV	309.7	17,700	12,460 42.0
U ₂ U ₃	I	43.1	I + IV	309.7	17,700	12,460 42.0
U ₃ U ₄	I + III	162.6	I + IV	317.7	17,300	11,850 45.6
U ₄ U ₅	I + III	258.2	I + IV	226.4	12,390	11,850 4.6
U ₅ U ₆	I + III	495.5			15,740	16,000
L ₀ L ₁	I + IV	203.5	I	11.8	15,400	16,000
L ₁ L ₂	I + IV	203.5	I	11.8	15,400	16,000
L ₂ L ₃	I + IV	317.7	I + III	155.55	17,700	16,000 6.87
L ₃ L ₄	II + III	256.8	I + III	258.15	14,200	10,220 38.9
L ₄ L ₅	I + IV	46.3	I + III	377.2	13,600	10,010 35.9
L ₅ L ₆	I + IV	46.3	I + III	377.2	13,600	10,010 35.9
L ₂ U ₁	I + IV	228.1			15,500	16,000
L ₂ U ₃	I + III	171.0			14,120	16,000
L ₃ U ₄	I + III	247.8			14,060	16,000
L ₄ U ₅	I + III	325.8			13,860	16,000
U ₅ L ₆			I + IV	317.9	12,600	9,710 29.7



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