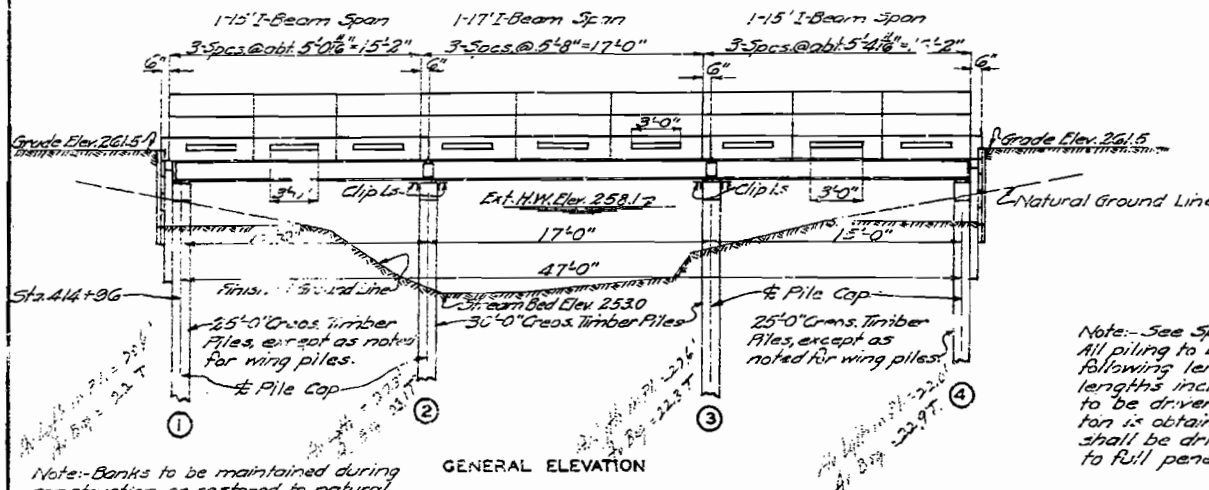


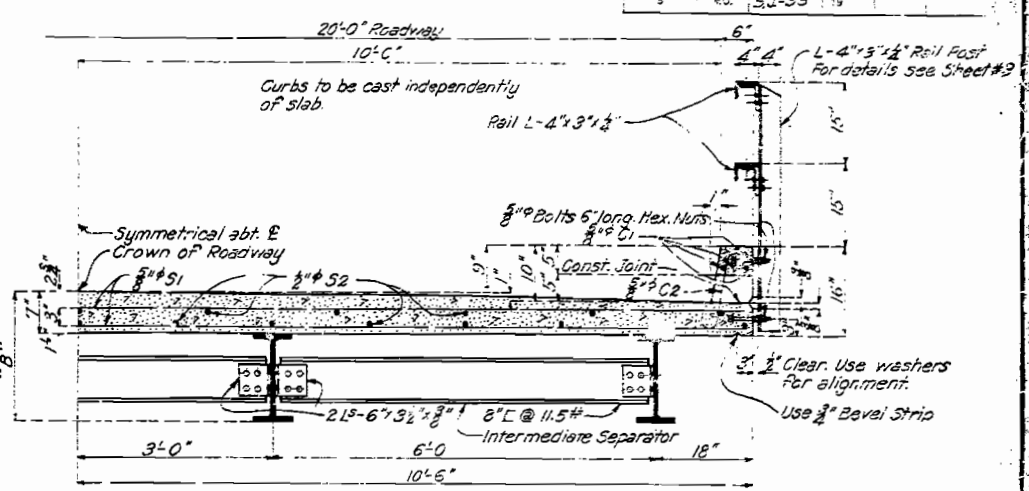
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S-35	19		

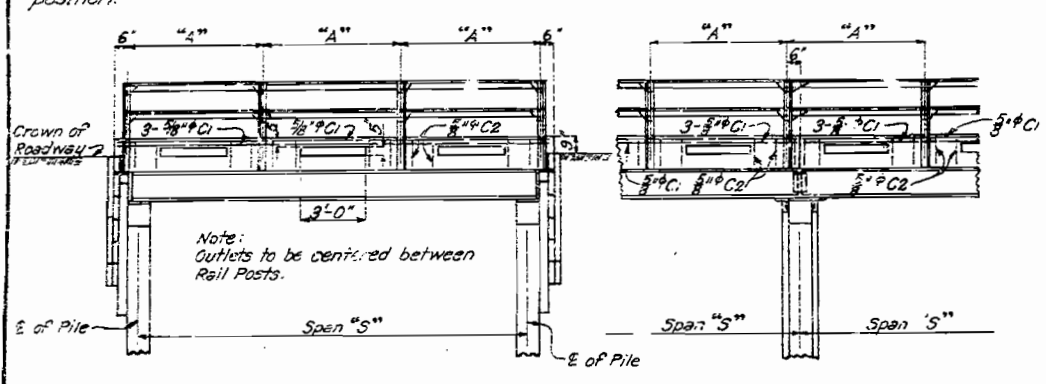


Note: See Special Provisions in regard to ordering piling. All piling to be creosoted timber and ordered in line following lengths: 8 @ 25'-0", 4 @ 15'-0" and 8 @ 30'-0". These lengths include 12" cut-offs. All piling, except wing piles, to be driven to full penetration unless a bearing of 15 tons is obtained at a lesser depth, in which case tips shall be driven to Elev. 237.0. Wing piles to be driven to full penetration.

DIMENSION "B"	
SPAN "S"	"B"
15'-0"	20'
17'-0"	21'
19'-0"	22'
21'-0"	23'
23'-0"	24'
25'-0"	25'
27'-0"	26'
29'-0"	27'
31'-0"	28'
33'-0"	29'
35'-0"	30'
37'-0"	31'
39'-0"	32'
41'-0"	33'
43'-0"	34'
45'-0"	35'
47'-0"	36'
49'-0"	37'



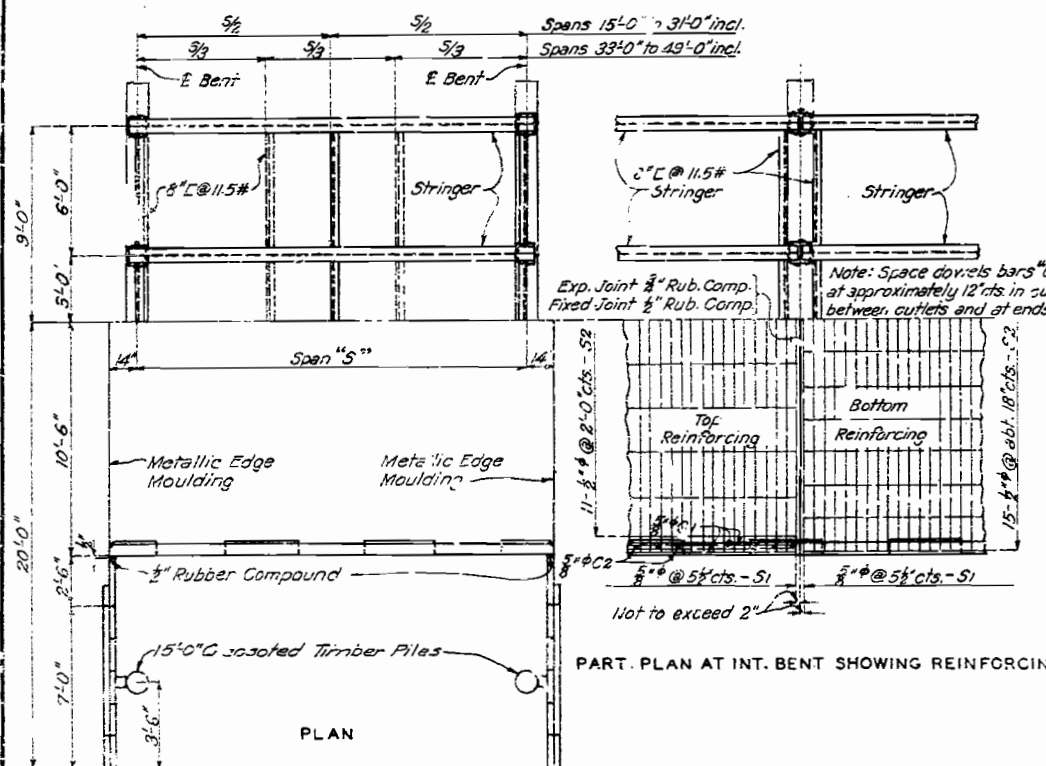
Note: Top of channel separators at ends of each I-Beam Span to be flush with bottom of floor slab as shown in section thru end bent at E.
 Note: Depth of outside stringers will in some cases be a fraction of an inch less than that of inside stringers and in order to keep bottom of slab horizontal it will be necessary to haunch slab down to top of outside stringers.



HANDRAIL SPACING				
SPAN "S"	NO. PANELS	"A" DIMENSIONS		
		SINGLE SPAN	1ST END SPAN	LAST END SPAN
15'-0"	3	5'-0" abt.	5'-0" abt.	5'-4" abt.
17'-0"	3	5'-0" abt.	5'-0" abt.	5'-8" abt.
19'-0"	3	6'-3" abt.	6'-4" abt.	6'-4" abt.
21'-0"	4	5'-7" abt.	5'-3" abt.	5'-6" abt.
23'-0"	4	6'-1" abt.	5'-9" abt.	6'-0" abt.
25'-0"	4	6'-7" abt.	6'-3" abt.	6'-6" abt.
27'-0"	5	5'-8" abt.	5'-4" abt.	5'-7" abt.
29'-0"	5	6'-0" abt.	5'-10" abt.	6'-0" abt.
31'-0"	5	6'-5" abt.	6'-2" abt.	6'-5" abt.
33'-0"	6	5'-8" abt.	5'-6" abt.	5'-9" abt.
35'-0"	6	6'-0" abt.	5'-10" abt.	6'-0" abt.
37'-0"	6	6'-5" abt.	6'-2" abt.	6'-4" abt.
39'-0"	7	5'-9" abt.	5'-7" abt.	5'-8" abt.
41'-0"	7	6'-0" abt.	5'-10" abt.	6'-0" abt.
43'-0"	7	6'-4" abt.	6'-2" abt.	6'-3" abt.
45'-0"	8	5'-9" abt.	5'-7" abt.	5'-9" abt.
47'-0"	8	6'-0" abt.	5'-10" abt.	6'-0" abt.
49'-0"	8	6'-3" abt.	6'-1" abt.	6'-5" abt.

SPAN "S"	TABLE OF STRINGERS			
	PER PLANS		PERMISSIBLE SUBSTITUTIONS	
	CARNEGIE BEAMS	STANDARD I-BEAMS	BETHLEHEM BEAMS	
15'-0"	14" @ 30"	14" @ 30"	12" @ 30"	12" @ 30"
17'-0"	14" @ 33"	14" @ 33"	15" @ 29"	14" @ 33"
19'-0"	16" @ 37"	16" @ 37"	15" @ 29"	16" @ 37"
21'-0"	15" @ 40"	16" @ 37"	15" @ 50"	16" @ 40"
23'-0"	16" @ 45"	16" @ 40"	18" @ 54"	16" @ 45"
25'-0"	18" @ 47"	18" @ 41"	18" @ 54"	18" @ 47"
27'-0"	18" @ 52"	18" @ 47"	18" @ 60"	18" @ 52"
29'-0"	20" @ 55"	20" @ 55"	20" @ 65"	20" @ 55"
31'-0"	21" @ 58"	21" @ 58"	20" @ 65"	22" @ 58"
33'-0"	21" @ 62"	21" @ 58"	20" @ 75"	22" @ 62"
35'-0"	21" @ 67"	21" @ 62"	20" @ 81"	22" @ 67"
37'-0"	24" @ 70"	24" @ 70"	24" @ 79"	24" @ 70"
39'-0"	24" @ 74"	24" @ 70"	24" @ 79"	24" @ 74"
41'-0"	24" @ 81"	24" @ 74"	24" @ 85"	24" @ 74"
43'-0"	24" @ 85"	24" @ 81"	24" @ 100"	26" @ 85"
45'-0"	27" @ 85"	27" @ 85"	24" @ 105"	26" @ 85"
47'-0"	27" @ 91"	27" @ 85"	24" @ 105"	28" @ 91"
49'-0"	27" @ 91"	27" @ 91"	24" @ 115"	28" @ 91"

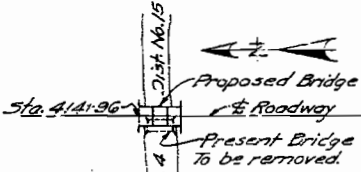
GENERAL NOTES:
 Loading: One 10 Ton Truck, 80% of weight on rear axle, 30% impact, 14'-0" wheel base, 6'-0" gage, 10" tire.
 All concrete to be 1:2:3 mix 1 1/2".
 Exposed edges to be beveled 3/4" wide no other bevel is noted.
 All timber to be creosoted Douglas Fir of the West Coast Region, Close-grained Structural Grade; creosoted Southern Yellow Pine, Dense Structural Square Edge and Sound Grader untreated California Redwood, Prime Structural Grade. Timber rough full-sawn except as noted in timber bill for pile caps. Slight variations in sawing to be in accordance with grading rules. All treated timber to be cut to lengths, shored and bored as shown before treating. Backing plank are all billed 8' long and are to be fitted and cut in the field.
 Field holes for drift pins shall be field bored 3/4". Unless otherwise noted all other field holes in timber shall be field bored 1/2".
 When bolts with countersunk heads are indicated on plans cut washers shall be used under heads. O.G. washers shall be used under heads of all other bolts and under nuts of all bolts.
 Number of bolts, drift pins, nails and washers given exact; no allowance made for excess. Cost of substructure hardware to be included in price bid for timber in place.
 I-Beams with fastenings, spacers, handrail, handrail posts with fastenings, clip angles and cap plate on end bent with fastenings, will be part of structural steel. Cost of metallic edge moulding will be included in unit bid price for concrete.
 Rivets 3/4", holes 1/2", except in handrail where rivets shall be 5/8", holes 3/4". Field connections riveted.



DEFLECTION	
SPAN "S"	"D"
15'-0"	1/8"
17'-0"	1/8"
19'-0"	1/8"
21'-0"	1/8"
23'-0"	1/8"
25'-0"	1/8"
27'-0"	1/8"
29'-0"	1/8"
31'-0"	1/8"
33'-0"	1/8"
35'-0"	1/8"
37'-0"	1/8"
39'-0"	1/8"
41'-0"	1/8"
43'-0"	1/8"
45'-0"	1/8"
47'-0"	1/8"
49'-0"	1/8"

Note: Floor slab to be brought to grade and dead load deflection taken care of by increasing slab thickness. Depth of slab at outside face of curb to be kept uniform and bottom surface of slab warped between curb and outside beam to obtain required thickness at beam. Payment will be allowed for additional concrete required for thickening slab. This additional concrete is included in "Estimated Quantities."

DEFLECTION DIAGRAM



LOCATION SKETCH

ITEM	ESTIMATED QUANTITIES		
	SUPERSTR.	SUBSTR.	TOTAL
Bridge Excavation Class 1	Cu. Yds.	65	65
Bridge Excavation Class 2	Cu. Yds.		
Concrete 1:2:4 mix "3"	Cu. Yds.		
Concrete 1:2:3 1/2 mix "X"	Cu. Yds.	22.6	22.6
Fabricated Structural Steel	Lbs.	11480	11480
Reinforcing Steel	Lbs.	6010	6010
Creosoted Timber Piles	Lin. Ft.	480	480
Creosoted Timber Pile Cut-offs	Lin. Ft.	20	20
Timber (See Special Provisions)	F.B.M.	2172	2072

Note: Bridge excavation will be allowed for all bents within horizontal limits shown and noted on these design plans, sheet # 2. This excavation will be computed from existing ground line to bottom end of 6"x6" backing supports for end bents and to bottom of sway bracing for interior bents.
 All bridge excavation will be paid for as Class 1 Bridge Excavation.
 Strengthen banks under ends of bridge shall be excavated to a depth of 2'-0" below bottom of beams within the maximum horizontal limits of 4'-0" outside of curb lines and will be paid for at unit price bid for roadway excavation.

Detail shop drawings shall be submitted to the State Highway Department in duplicate and shall be approved before steel is fabricated.
 Where rubber compound is specified on plans for use in partition and expansion joints, the pre-moulded joint shall be securely stitched to one face of concrete with copper wire.
 Paint: Shop, none; Field, contact surfaces of bolted field connections one coat red lead and surfaces inaccessible after erection three coats of red lead. No other paint to be applied by contractor. All paint required will be furnished by the Missouri State Highway Department.
 See Special Provisions in regard to permissible beam substitutions.

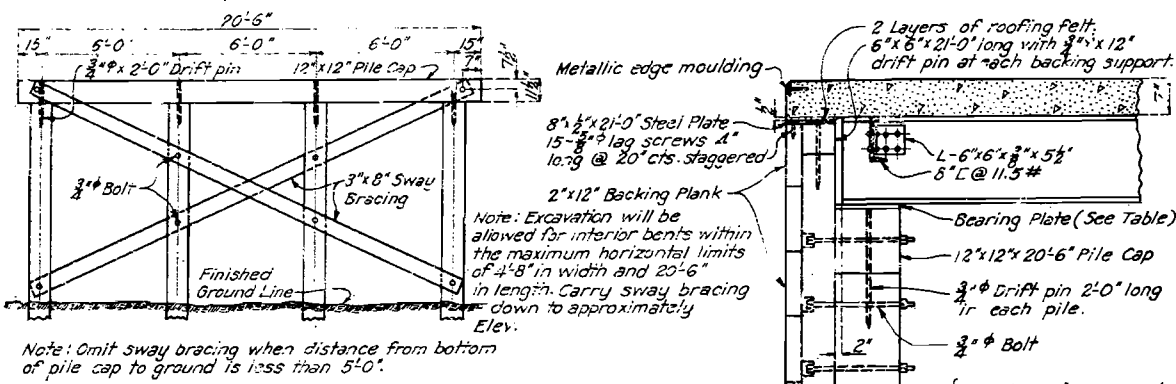
BRIDGE OVER D.D. NO. 4 DIST. NO. 15
 STATE ROAD FROM STEELE TO ROUTE S.N.
 ABOUT 8 MILES N.W. OF STEELE
 PROJECT NO. S-35 STA. 414+98
 PEWESKOT COUNTY
 SUBMITTED BY: T.H. Cutler DATE 2/18/33
 APPROVED BY: T.H. Cutler DATE 2/18/33

Designed Nov. 1929 By F.W.H.
 Drawn Mar. 1930 By R.J.G.
 Traced Dec. 1931 By R.J.G.
 Checked Dec. 1931 By R.J.G.
 Assembled Jan. 1933 By J.G.-C.A.F.
 Checked Jan. 1933 By J.E.

335

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID	SCALE	SHEET NO.	TOTAL SHEETS
5	MO.	S.J.-33	1/8"	19	



DETAIL OF INTERIOR BENTS

Note: Excavation will be allowed for interior bents within the maximum horizontal limits of 4'-8" in width and 20'-6" in length. Carry sway bracing down to approximately Elev.

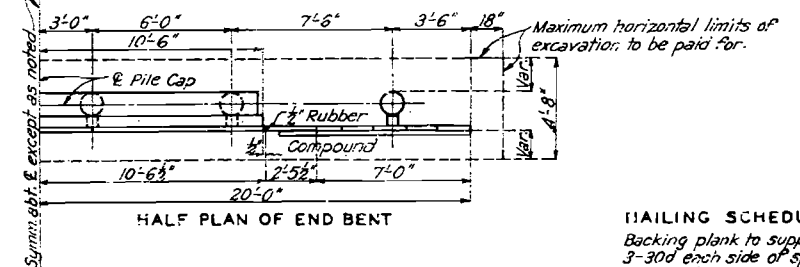
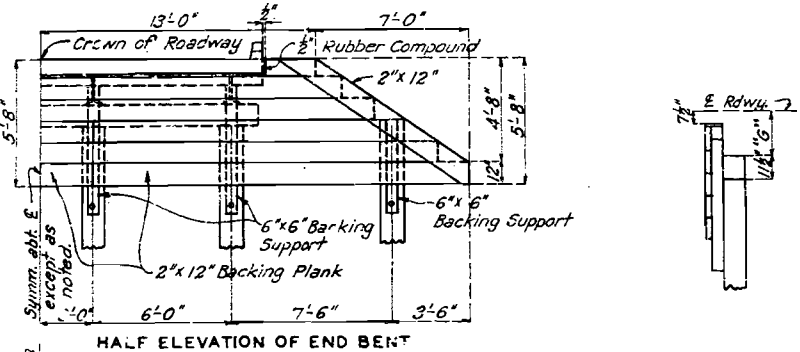
Note: Omit sway bracing when distance from bottom of pile cap to ground is less than 5'-0".

Note: Any irregularity in alignment of piling in end bents to be corrected by facing one surface of the 6"x6" backing support so as to place the surface of the backing in a true plane and eliminate any strain on the backing plank. Splice in backing plank to be made at center of 6"x6" backing support and to be alternated on the two intermediaries supports.

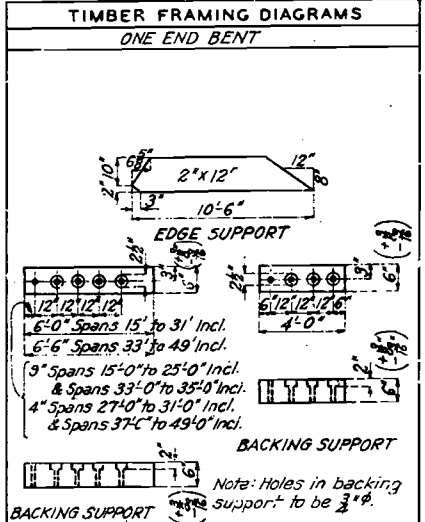
BILL OF REINFORCING STEEL														
NO.	SIZE	LENGTH	MARK	LOCATION	BENDING SKETCH									
					A		B		C		D		E	
A	3/8"	2'-0"	C1	Curb	[Bending sketch for bar A]									
C	3/8"	2'-0"	C2	"	[Bending sketch for bar C]									
D	3/8"	20'-9"	S1	Slab	[Bending sketch for bar D]									
E	3/8"	20'-9"	S2	"	[Bending sketch for bar E]									

SPAN	SINGLE SPAN					ONE END SPAN					ONE INT. SPAN							
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E			
15'-0"	8	20'-9"	23	92	26	20'-9"	8	19'-9"	28	88	26	19'-9"	8	16'-9"	20	74	26	16'-9"
17'-0"	8	22'-9"	30	100	26	22'-9"	8	21'-9"	28	96	26	21'-9"	8	18'-9"	28	84	26	18'-9"
19'-0"	8	24'-9"	36	112	26	24'-9"	8	23'-9"	34	106	26	23'-9"	8	20'-9"	32	100	26	20'-9"
21'-0"	8	26'-9"	42	126	26	26'-9"	8	25'-9"	36	114	26	25'-9"	8	22'-9"	32	110	26	22'-9"
23'-0"	8	28'-9"	48	144	26	28'-9"	8	27'-9"	38	124	26	27'-9"	8	24'-9"	32	118	26	24'-9"
25'-0"	8	30'-9"	54	162	26	30'-9"	8	29'-9"	40	132	26	29'-9"	8	26'-9"	40	126	26	26'-9"
27'-0"	8	32'-9"	60	180	26	32'-9"	8	31'-9"	42	140	26	31'-9"	8	28'-9"	44	134	26	28'-9"
29'-0"	8	34'-9"	66	198	26	34'-9"	8	33'-9"	44	150	26	33'-9"	8	30'-9"	48	144	26	30'-9"
31'-0"	8	36'-9"	72	216	26	36'-9"	8	35'-9"	46	160	26	35'-9"	8	32'-9"	52	154	26	32'-9"
33'-0"	16	18'-6"	52	154	52	18'-6"	16	18'-0"	50	150	52	18'-0"	16	17'-6"	48	146	52	17'-6"
35'-0"	16	19'-6"	52	162	52	19'-6"	16	19'-0"	50	158	52	19'-0"	16	18'-6"	48	154	52	18'-6"
37'-0"	16	20'-6"	52	172	52	20'-6"	16	20'-0"	50	168	52	20'-0"	16	19'-6"	48	164	52	19'-6"
39'-0"	16	21'-6"	52	180	52	21'-6"	16	21'-0"	50	176	52	21'-0"	16	20'-6"	56	172	52	20'-6"
41'-0"	16	22'-6"	60	188	52	22'-6"	16	22'-0"	58	184	52	22'-0"	16	21'-6"	56	180	52	21'-6"
43'-0"	16	23'-6"	60	198	52	23'-6"	16	23'-0"	58	194	52	23'-0"	16	22'-6"	56	190	52	22'-6"
45'-0"	16	24'-6"	68	206	52	24'-6"	16	24'-0"	66	202	52	24'-0"	16	23'-6"	64	198	52	23'-6"
47'-0"	16	25'-6"	68	216	52	25'-6"	16	25'-0"	66	210	52	25'-0"	16	24'-6"	64	204	52	24'-6"
49'-0"	16	26'-6"	68	224	52	26'-6"	16	26'-0"	66	220	52	26'-0"	16	25'-6"	64	216	52	25'-6"

Note: Reinforcing bars in each span to be billed and tagged separately.

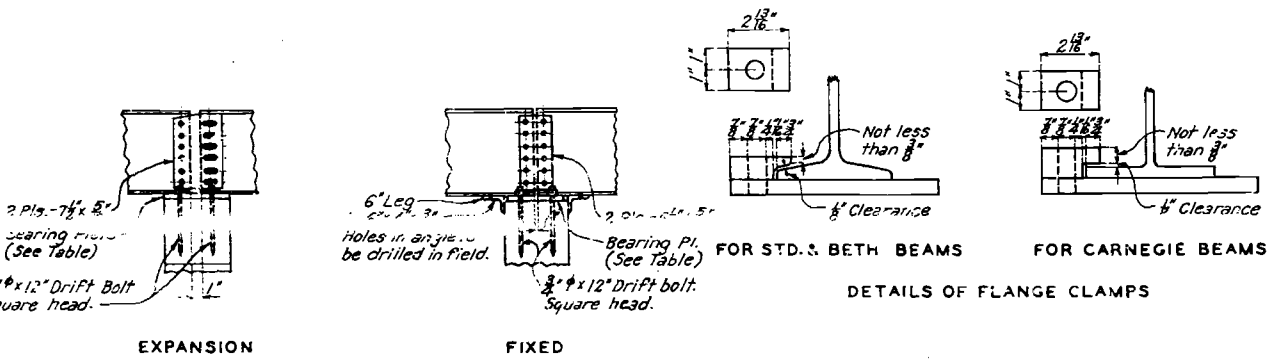


DIMENSIONS			
SPAN	5	6	4
15'-0"	21 1/2"	23 1/2"	25 1/2"
17'-0"	23 1/2"	25 1/2"	27 1/2"
19'-0"	25 1/2"	27 1/2"	29 1/2"
21'-0"	27 1/2"	29 1/2"	31 1/2"
23'-0"	29 1/2"	31 1/2"	33 1/2"
25'-0"	31 1/2"	33 1/2"	35 1/2"
27'-0"	33 1/2"	35 1/2"	37 1/2"
29'-0"	35 1/2"	37 1/2"	39 1/2"
31'-0"	37 1/2"	39 1/2"	41 1/2"
33'-0"	39 1/2"	41 1/2"	43 1/2"
35'-0"	41 1/2"	43 1/2"	45 1/2"
37'-0"	43 1/2"	45 1/2"	47 1/2"
39'-0"	45 1/2"	47 1/2"	49 1/2"
41'-0"	47 1/2"	49 1/2"	51 1/2"
43'-0"	49 1/2"	51 1/2"	53 1/2"
45'-0"	51 1/2"	53 1/2"	55 1/2"
47'-0"	53 1/2"	55 1/2"	57 1/2"
49'-0"	55 1/2"	57 1/2"	59 1/2"



SUBSTRUCTURE TIMBER BILLS					
PIECE	NO. PCS	SIZE	LENGTH	REMARKS	
Backing Plank	1	2"x12"	23'-5"	Cut to length.	
"	1	2"x12"	17'-6"	Cut to length.	
"	1	2"x12"	22'-0"	Cut to length.	
"	2	2"x12"	16'-0"	" " " "	
"	1	2"x12"	20'-6"	" " " "	
"	1	2"x12"	14'-6"	" " " "	
"	1	2"x12"	19'-0"	" " " "	
"	1	2"x12"	13'-0"	" " " "	
"	1	2"x12"	17'-6"	" " " "	
"	1	2"x12"	11'-6"	" " " "	
Shoulder Plank	2	2"x8"	2'-5 1/2"	" " " "	
Edge Support	2	2"x12"	10'-6"	Cut to length & shape	
Backing Support	4	6"x6"	6'-0"	" " " "	
Spans 15' to 31' Incl.	4	6"x6"	6'-6"	" " " "	
Spans 33' to 49' Incl.	2	6"x6"	4'-0"	" " " "	
Backing Support Cap	1	6"x6"	21'-0"	Cut to length.	
Pile Cap	1	12"x12"	20'-5"	**	
Pile Cap	2	12"x12"	20'-6"	Cut to length. **	
Bracing	—	3"x8"	—	" " " "	

Note: Pile caps to be classified as beams and stringers. All other timber to be classified as joist and plank. ** S2S to exact depth of 1 1/8"



EXPANSION **FIXED**

TYPICAL JOINTS OVER INT. BENT

Note: Cast iron clamps used on bearing plates to have 1/2" clearance at flanges of beam to allow for expansion. All clamps to have 3/8" cored holes. Use two clamps only on each I beam at pile caps on end bents.

DETAILS OF BEARING ON PILE CAP

SUPERSTRUCTURE HARDWARE BILL					
PIECE	LOCATION	NO. PCS	SIZE	LENGTH	REMARKS
Cap Plate	Under Slab	2	8"x4"	21'-0"	See detail.
3/8" Leg Screws	Cap Pl.	30	3/8"	4"	Flat csp. heads.
Handrail Bolts	Spans 15'	16	3/8"	6"	Sq. hds., washers, hex. nuts.
"	to 19' Incl.	—	3/8"	14"	Button heads.
"	Spans 21'	20	3/8"	6"	Sq. hds., washers, hex. nuts.
"	to 25' Incl.	—	3/8"	14"	Button heads.
"	Spans 27'	24	3/8"	6"	Sq. hds., washers, hex. nuts.
"	to 31' Incl.	—	3/8"	14"	Button heads.
"	Spans 33'	28	3/8"	6"	Sq. hds., washers, hex. nuts.
"	to 37' Incl.	—	3/8"	14"	Button heads.
"	Spans 39'	32	3/8"	6"	Sq. hds., washers, hex. nuts.
"	to 43' Incl.	—	3/8"	14"	Button heads.
"	Spans 45'	36	3/8"	6"	Sq. hds., washers, hex. nuts.
"	to 49' Incl.	—	3/8"	14"	Button heads.
Bolts	Bearing Pls.	16	3/8"	12"	Sq. heads, no threads.
Flange Clamp	Bearings	16	—	—	See Detail

SUBSTRUCTURE HARDWARE BILL						
PIECE	LOCATION	NO. PCS	SIZE	LENGTH	O.G. WASHERS	CUT WASHERS
Drift Pin	Backing Cap	4	3/8"	12"		
"	Pile Cap	4	3/8"	2'-0"		
Bolts	Backing Support	4	3/8"	22"	4	4
Nails	Backing	141	30d	4 1/2"		
Bolts	Backing Support	24	3/8"	2'-0"	30	18
Drift Pin	Pile Cap	8	3/8"	2'-0"		
Bolts & Bracing	—	—	3/8"	18"		
Bolts & Bracing	—	—	3/8"	22"		

* 2 Washers plus washers for fill required for alignment of railposts. Total number required.

DETAILS OF BEVEL FOR RUBBER COMPOUND JOINTS

Note: Use bevel as shown for exposed faces of all joints consisting of rubber compound except at top surface of roadway slab. Use edging tool with 1/2" radius at top surface of roadway slab each side of rubber compound joint.

BRIDGE OVER D.D. NO. 4 DIST. NO. 15

STATE ROAD FROM STEELE TO ROUTE S.N. ABOUT 8 MILES N.W. OF STEELE

PROJECT NO. S.J.-33 STA. 414 + 96

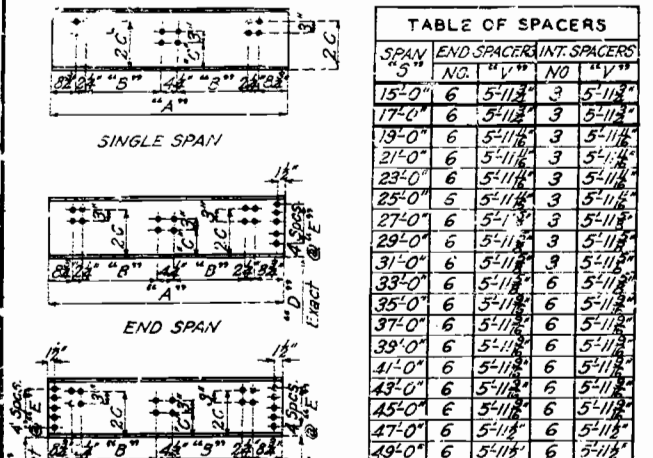
PEMISCOT COUNTY

Designed Nov. 1929 By F.W.H.
 Drawn Dec. 1930 By R.J.G.
 Traced Dec. 1931 By R.J.G.
 Checked Dec. 1931 By J.M.V.

DETAILS OF BEARING ON PILE CAP

MISSOURI STATE HIGHWAY DEPARTMENT

STATE ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	1-7-53	3		



SPAN "S"	END SPACERS		INT. SPACERS	
	NO.	"V"	NO.	"V"
15'-0"	6	5-11 1/2	3	5-11 1/2
17'-0"	6	5-11 1/2	3	5-11 1/2
19'-0"	6	5-11 1/2	3	5-11 1/2
21'-0"	6	5-11 1/2	3	5-11 1/2
23'-0"	6	5-11 1/2	3	5-11 1/2
25'-0"	6	5-11 1/2	3	5-11 1/2
27'-0"	6	5-11 1/2	3	5-11 1/2
29'-0"	6	5-11 1/2	3	5-11 1/2
31'-0"	6	5-11 1/2	3	5-11 1/2
33'-0"	6	5-11 1/2	6	5-11 1/2
35'-0"	6	5-11 1/2	6	5-11 1/2
37'-0"	6	5-11 1/2	6	5-11 1/2
39'-0"	6	5-11 1/2	6	5-11 1/2
41'-0"	6	5-11 1/2	6	5-11 1/2
43'-0"	6	5-11 1/2	6	5-11 1/2
45'-0"	6	5-11 1/2	6	5-11 1/2
47'-0"	6	5-11 1/2	6	5-11 1/2
49'-0"	6	5-11 1/2	6	5-11 1/2

SPAN "S"	NO.	SIZE	SINGLE SPAN		END SPAN		INT. SPAN		"C"	"D"	"E"
			"A"	"B"	"A"	"B"	"A"	"B"			
15'-0"	4	14" C.B. @ 30"	15'-0"	6'-6"	15'-0"	6'-6"	15'-0"	6'-6"	5 3/4"	2 1/2"	2 1/2"
17'-0"	4	14" C.B. @ 33"	17'-0"	6'-6"	17'-0"	6'-6"	17'-0"	6'-6"	5 3/4"	2 1/2"	2 1/2"
19'-0"	4	16" C.B. @ 37"	19'-0"	8'-8"	19'-0"	8'-6"	19'-0"	8'-4"	6 1/2"	2 3/4"	2 3/4"
21'-0"	2	16" C.B. @ 37"	21'-0"	9'-8"	21'-0"	9'-6"	21'-0"	9'-4"	6 1/2"	2 3/4"	2 3/4"
21'-0"	2	16" C.B. @ 40"	21'-0"	9'-8"	21'-0"	9'-6"	21'-0"	9'-4"	6 1/2"	2 3/4"	2 3/4"
23'-0"	2	16" C.B. @ 40"	23'-0"	10'-8"	23'-0"	10'-6"	23'-0"	10'-4"	6 1/2"	2 3/4"	2 3/4"
23'-0"	2	16" C.B. @ 45"	23'-0"	10'-8"	23'-0"	10'-6"	23'-0"	10'-4"	6 1/2"	2 3/4"	2 3/4"
25'-0"	4	18" C.B. @ 47"	25'-0"	11'-8"	25'-0"	11'-6"	25'-0"	11'-4"	7 1/2"	3 1/4"	2 3/4"
27'-0"	2	18" C.B. @ 47"	27'-0"	12'-8"	27'-0"	12'-6"	27'-0"	12'-4"	7 1/2"	3 1/4"	2 3/4"
27'-0"	2	18" C.B. @ 52"	27'-0"	12'-8"	27'-0"	12'-6"	27'-0"	12'-4"	7 1/2"	3 1/4"	2 3/4"
29'-0"	4	20" C.B. @ 55"	29'-0"	13'-8"	29'-0"	13'-6"	29'-0"	13'-4"	8 1/2"	4 1/4"	2 3/4"
31'-0"	4	21" C.B. @ 53"	31'-0"	14'-8"	31'-0"	14'-6"	31'-0"	14'-4"	9 1/2"	5 1/4"	2 3/4"
31'-0"	4	21" C.B. @ 62"	31'-0"	14'-8"	31'-0"	14'-6"	31'-0"	14'-4"	9 1/2"	5 1/4"	2 3/4"
33'-0"	2	21" C.B. @ 53"	33'-0"	10'-4"	33'-0"	10'-3"	33'-0"	10'-1 1/2"	9 1/2"	3"	
33'-0"	2	21" C.B. @ 62"	33'-0"	10'-4"	33'-0"	10'-3"	33'-0"	10'-1 1/2"	9 1/2"	3"	
35'-0"	2	21" C.B. @ 62"	35'-0"	11'-0"	35'-0"	10'-11"	35'-0"	10'-9 1/2"	9 1/2"	3"	
37'-0"	2	24" C.B. @ 70"	37'-0"	11'-8"	37'-0"	11'-7"	37'-0"	11'-5 1/2"	10 1/2"	4 1/4"	
39'-0"	2	24" C.B. @ 74"	39'-0"	12'-4"	39'-0"	12'-3"	39'-0"	12'-1 1/2"	10 1/2"	4 1/4"	
41'-0"	2	24" C.B. @ 74"	41'-0"	13'-0"	41'-0"	12'-11"	41'-0"	12'-9 1/2"	10 1/2"	4 1/4"	
41'-0"	2	24" C.B. @ 81"	41'-0"	13'-0"	41'-0"	12'-11"	41'-0"	12'-9 1/2"	10 1/2"	4 1/4"	
43'-0"	2	24" C.B. @ 85"	43'-0"	13'-8"	43'-0"	13'-7"	43'-0"	13'-5 1/2"	10 1/2"	4 1/4"	
45'-0"	4	27" C.B. @ 85"	45'-0"	14'-4"	45'-0"	14'-3"	45'-0"	14'-1 1/2"	12"	6"	
47'-0"	4	27" C.B. @ 91"	47'-0"	15'-0"	47'-0"	14'-11"	47'-0"	14'-9 1/2"	12"	6"	
49'-0"	4	27" C.B. @ 91"	49'-0"	15'-8"	49'-0"	15'-7"	49'-0"	15'-5 1/2"	12"	6"	

SPAN	MARK	RAIL ANGLE DIMENSIONS											
		"L"	"M"	"N"	"O"	"P"	"R"	"T"	"U"	"W"	"X"	"Y"	"Z"
15'-0"	RA1	16'-7 1/2"	5'-0"	0	0	0	0	0	5'-5 1/2"	0	0	0	5'-0 1/2"
17'-0"	"	18'-7 1/2"	5'-8"	0	0	0	0	0	6'-1 1/2"	0	0	0	5'-8 1/2"
19'-0"	"	20'-7 1/2"	6'-4"	0	0	0	0	0	6'-9 1/2"	0	0	0	6'-4 1/2"
21'-0"	"	22'-7 1/2"	5'-2"	0	0	0	0	5'-4 1/2"	2 1/2"	5'-7 1/2"	0	0	5'-2"
23'-0"	"	24'-7 1/2"	5'-8"	0	0	0	0	5'-10 1/2"	2 1/2"	6'-1"	0	0	5'-8"
25'-0"	"	26'-7 1/2"	6'-2"	0	0	0	0	6'-4 1/2"	2 1/2"	6'-7"	0	0	6'-2"
27'-0"	"	28'-7 1/2"	5'-3"	0	0	0	0	5'-5 1/2"	2 1/2"	5'-8"	2 1/2"	5'-5 1/2"	5'-3"
29'-0"	"	30'-7 1/2"	5'-7 1/2"	0	0	0	0	5'-10 1/2"	2 1/2"	6'-0 1/2"	2 1/2"	5'-10 1/2"	5'-7 1/2"
31'-0"	"	32'-7 1/2"	6'-0"	0	0	0	0	6'-2 1/2"	2 1/2"	6'-5 1/2"	2 1/2"	6'-2 1/2"	6'-0"
33'-0"	"	34'-7 1/2"	5'-9"	5'-9"	2 1/2"	0	0	0	0	2 1/2"	5'-8"	2 1/2"	5'-9"
35'-0"	"	36'-7 1/2"	5'-7"	5'-9"	2 1/2"	0	0	0	0	2 1/2"	5'-7"	2 1/2"	5'-7"
37'-0"	"	38'-7 1/2"	5'-11 1/2"	6'-1 1/2"	2 1/2"	0	0	0	0	2 1/2"	6'-1 1/2"	2 1/2"	5'-11 1/2"
39'-0"	"	40'-7 1/2"	5'-9"	5'-6"	2 1/2"	0	0	0	2 1/2"	5'-9"	2 1/2"	5'-9"	5'-6"
41'-0"	"	42'-7 1/2"	5'-7"	5'-9"	2 1/2"	0	0	0	2 1/2"	5'-7"	2 1/2"	5'-7"	5'-9"
43'-0"	"	44'-7 1/2"	5'-1 1/2"	5'-1 1/2"	2 1/2"	0	0	0	2 1/2"	5'-1 1/2"	2 1/2"	5'-1 1/2"	5'-1 1/2"
45'-0"	"	46'-7 1/2"	5'-4"	5'-4"	2 1/2"	2 1/2"	5'-4"	2 1/2"	5'-4"	2 1/2"	5'-4"	2 1/2"	5'-4"
47'-0"	"	48'-7 1/2"	5'-9"	5'-9"	2 1/2"	2 1/2"	5'-9"	2 1/2"	5'-9"	2 1/2"	5'-9"	2 1/2"	5'-9"
49'-0"	"	50'-7 1/2"	5'-10 1/2"	6'-0"	2 1/2"	2 1/2"	6'-0"	2 1/2"	6'-0"	2 1/2"	6'-0"	2 1/2"	5'-10 1/2"
15'-0"	RA2	15'-4 1/2"	4'-7 1/2"	0	0	0	0	0	5'-0 1/2"	0	0	0	4'-7 1/2"
17'-0"	"	17'-4 1/2"	5'-3 1/2"	0	0	0	0	0	5'-8 1/2"	0	0	0	5'-3 1/2"
19'-0"	"	19'-4 1/2"	5'-11 1/2"	0	0	0	0	0	6'-4 1/2"	0	0	0	5'-11 1/2"
21'-0"	"	21'-4 1/2"	4'-10"	0	0	0	0	5'-0 1/2"	2 1/2"	5'-9"	0	0	4'-10"
23'-0"	"	23'-4 1/2"	5'-0"	0	0	0	0	5'-6 1/2"	2 1/2"	5'-9"	0	0	5'-0"
25'-0"	"	25'-4 1/2"	5'-10"	0	0	0	0	6'-0 1/2"	2 1/2"	6'-3 1/2"	0	0	5'-10"
27'-0"	"	27'-4 1/2"	5'-0"	0	0	0	0	5'-2 1/2"	2 1/2"	5'-5 1/2"	2 1/2"	5'-0"	5'-0"
29'-0"	"	29'-4 1/2"	5'-5"	0	0	0	0	5'-7 1/2"	2 1/2"	5'-10"	2 1/2"	5'-5"	5'-5"
31'-0"	"	31'-4 1/2"	5'-9"	0	0	0	0	6'-0 1/2"	2 1/2"	6'-3 1/2"	2 1/2"	6'-0"	5'-9"
33'-0"	"	33'-4 1/2"	5'-11 1/2"	5'-11 1/2"	2 1/2"	0	0	0	0	2 1/2"	5'-11 1/2"	2 1/2"	5'-11 1/2"
35'-0"	"	35'-4 1/2"	5'-9"	5'-7"	2 1/2"	0	0	0	0	2 1/2"	5'-9"	2 1/2"	5'-9"
37'-0"	"	37'-4 1/2"	5'-9"	5'-11 1/2"	2 1/2"	0	0	0	0	2 1/2"	5'-9"	2 1/2"	5'-9"
39'-0"	"	39'-4 1/2"	5'-8"	5'-4"	2 1/2"	0	0	2 1/2"	5'-7"	2 1/2"	5'-8"	2 1/2"	5'-8"
41'-0"	"	41'-4 1/2"	5'-8"	5'-6"	2 1/2"	0	0	2 1/2"	5'-10 1/2"	2 1/2"	5'-8"	2 1/2"	5'-8"
43'-0"	"	43'-4 1/2"	5'-9"	5'-11 1/2"	2 1/2"	0	0	2 1/2"	6'-2"	2 1/2"	5'-11 1/2"	2 1/2"	5'-9"
45'-0"	"	45'-4 1/2"	5'-5"	5'-5"	2 1/2"	2 1/2"	5'-5"	2 1/2"	5'-5"	2 1/2"	5'-5"	2 1/2"	5'-5"
47'-0"	"	47'-4 1/2"	5'-8"	5'-8"	2 1/2"	2 1/2"	5'-8"	2 1/2"	5'-8"	2 1/2"	5'-8"	2 1/2"	5'-8"
49'-0"	"	49'-4 1/2"	5'-8"	5'-11 1/2"	2 1/2"	2 1/2"	5'-11 1/2"	2 1/2"	6'-1 1/2"	2 1/2"	5'-11 1/2"	2 1/2"	5'-8"
15'-0"	RA3	14'-1 1/2"	4'-5 1/2"	0	0	0	0	0	4'-9 1/2"	0	0	0	4'-1 1/2"
17'-0"	"	16'-1 1/2"	5'-1 1/2"	0	0	0	0	0	5'-5 1/2"	0	0	0	5'-1 1/2"
19'-0"	"	18'-1 1/2"	5'-9"	0	0	0	0	0	6'-1 1/2"	0	0	0	5'-9"
21'-0"	"	20'-1 1/2"	4'-8"	0	0	0	0	5'-0 1/2"	2 1/2"	5'-0 1/2"	0	0	4'-8"
23'-0"	"	22'-1 1/2"	5'-2"	0	0	0	0	5'-6 1/2"	2 1/2"	5'-6 1/2"	0	0	5'-2"
25'-0"	"	24'-1 1/2"	5'-8"	0	0	0	0	6'-0 1/2"	2 1/2"	6'-0 1/2"	0	0	5'-8"
27'-0"	"	26'-1 1/2"	4'-10"	0	0	0	0	5'-2 1/2"	2 1/2"	5'-2 1/2"	2 1/2"	5'-2 1/2"	4'-10"
29'-0"	"	28'-1 1/2"	5'-3"	0	0	0	0	5'-6 1/2"	2 1/2"	5'-6 1/2"	2 1/2"	5'-6 1/2"	5'-3"
31'-0"	"	30'-1 1/2"	5'-7 1/2"	0	0	0	0	5'-10 1/2"	2 1/2"	5'-10 1/2"	2 1/2"	5'-10 1/2"	5'-7 1/2"
33'-0"	"	32'-1 1/2"	4'-11 1/2"	5'-3 1/2"	2 1/2"	0	0	0	0	2 1/2"	5'-3 1/2"	2 1/2"	4'-11 1/2"
35'-0"	"	34'-1 1/2"	5'-3"	5'-7 1/2"	2 1/2"	0	0	0	0	2 1/2"	5'-3"	2 1/2"	5'-3"
37'-0"	"	36'-1 1/2"	5'-7 1/2"	5'-11 1/2"	2 1/2"	0	0	0	0	2 1/2"	5'-7 1/2"	2 1/2"	5'-7 1/2"
39'-0"	"	38'-1 1/2"	5'-0"	5'-4"	2 1/2"	0	0	2 1/2"	5'-4 1/2"	2 1/2"	5'-4 1/2"	2 1/2"	5'-0"
41'-0"	"	40'-1 1/2"	5'-9"	5'-7"	2 1/2"	0	0	2 1/2"	5'-7"	2 1/2"	5'-7"	2 1/2"	5'-9"
43'-0"	"	42'-1 1/2"	5'-7 1/2"	5'-11 1/2"	2 1/2"	0	0	2 1/2"	5'-10 1/2"	2 1/2"	5'-7 1/2"	2 1/2"	5'-7 1/2"
45'-0"	"	44'-1 1/2"	5'-1 1/2"	5'-4"	2 1/2"	2 1/2"	5'-4"	2 1/2"	5'-4"	2 1/2"	5'-4"	2 1/2"	5'-1 1/2"
47'-0"	"	46'-1 1/2"	5'-4"	5'-7 1/2"	2 1/2"	2 1/2"	5'-7 1/2"	2 1/2"	5'-7 1/2"	2 1/2"	5'-7 1/2"	2 1/2"	5'-4"
49'-0"	"	48'-1 1/2"	5'-7 1/2"	5'-10 1/2"	2 1/2"	2 1/2"	5'-10 1/2"	2 1/2"	6'-1 1/2"	2 1/2"	5'-10 1/2"	2 1/2"	5'-7 1/2"
15'-0"	RA4	16'-1 1/2"	4'-7 1/2"	0	0	0	0	0	5'-4 1/2"	0	0	0	4'-1 1/2"
17'-0"	"	18'-1 1/2"	5'-3 1/2"	0	0	0	0	0	6'-0 1/2"	0	0	0	5'-3 1/2"
19'-0"	"	20'-1 1/2"	5'-11 1/2"	0	0	0	0	0	6'-6 1/2"	0	0	0	6'-1 1/2"
21'-0"	"	22'-1 1/2"	4'-9"	0	0	0	0	5'-3 1/2"	2 1/2"	5'-6 1/2"	0	0	4'-9"
23'-0"	"	24'-1 1/2"	5'-3"	0	0	0	0	5'-9 1/2"	2 1/2"	6'-0 1/2"	0	0	5'-7 1/2"
25'-0"	"	26'-1 1/2"	5'-9"	0	0	0	0	6'-3 1/2"	2 1/2"	6'-6 1/2"	0	0	6'-1 1/2"
27'-0"	"	28'-1 1/2"	4'-10"	0	0	0	0	5'-4 1/2"	2 1/2"	5'-7 1/2"	2 1/2"	5'-4 1/2"	4'-10"
29'-0"	"	30'-1 1/2"	5'-3"	0	0	0	0	5'-8 1/2"	2 1/2"	6'-0 1/2"	2 1/2"	5'-8	