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2. TYPICAL SECTION & SUMMARY
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10. STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS
11. ALIGNMENT PLAN PROFILE

COLORADO
STATE HIGHWAY DEPARTMENT
PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. S 0165 (1)
STATE HIGHWAY NO. 25
LOGAN COUNTY

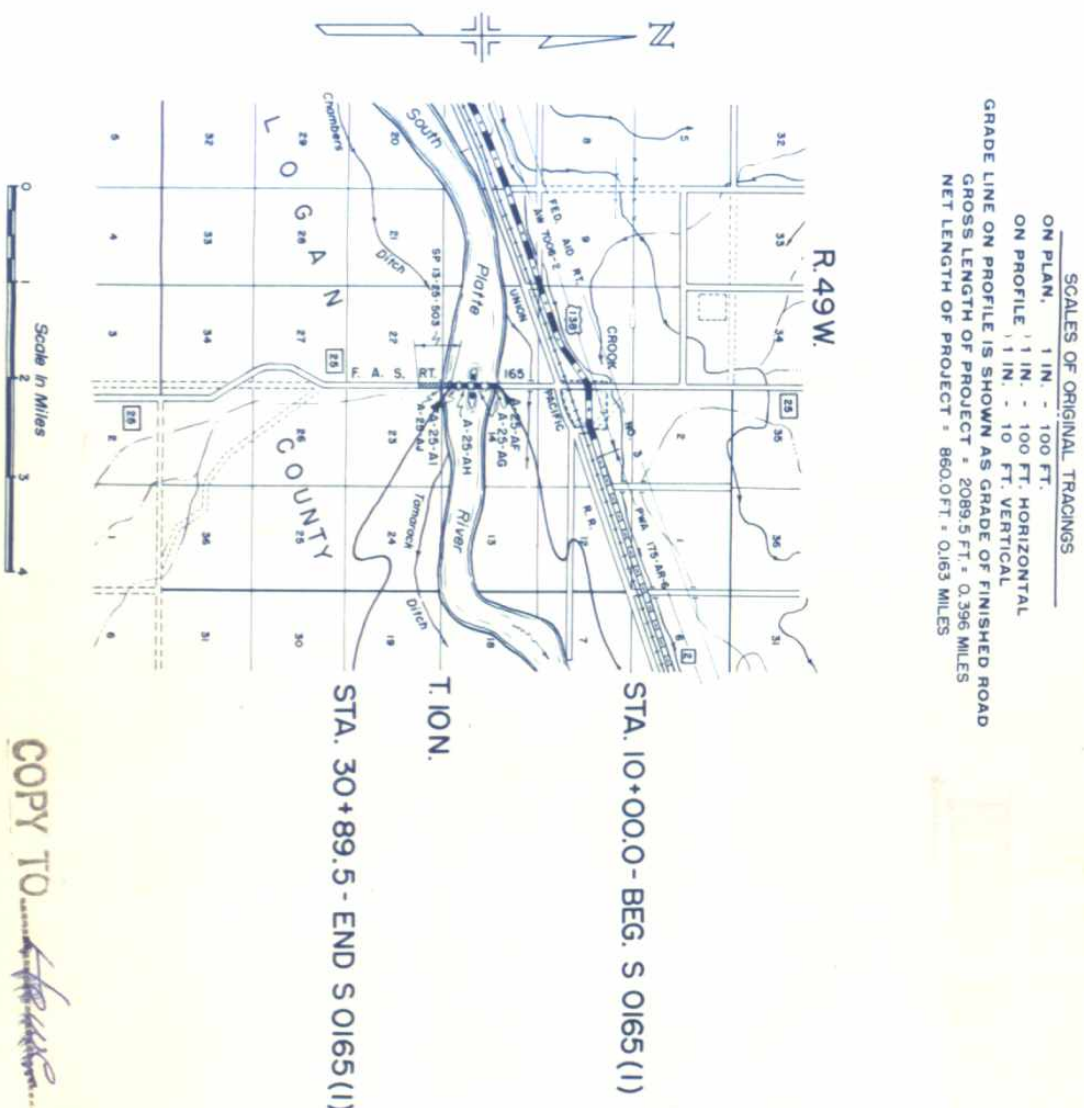
CONVENTIONAL SIGNS

CENTER LINE
SECTION LINE
TOWNSHIP OR RANGE LINE
RAILROAD
BARBED WIRE FENCE
PRESENT ROADWAY
CITY LIMITS
RIGHT OF WAY LINE

FED. ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 0165 (1)	1.	

TABULATION OF LENGTH & DESIGN

STA. TO STA.	BRIDGES		BRIDGE NON-FED AID		NO-WORK SECTION
	LIN. FT.		LIN. FT.	LOADING	LIN. FT.
BEGIN S 0165 (1) = 10+00.0 - Bridge End Structure No. A-25-AF 14 + 37.0 - Bridge End 16 + 62.0 - Bridge End Structure No. A-25-AF 17 + 59.3 - Bridge End 22 + 72.0 - Bridge End Structure No. A-25-AH 24 + 58.2 - Bridge End 29 + 50.0 - Bridge End Structure No. A-25-AI 30 + 89.5 - Bridge End * END S 0165 (1)	437.0 97.3 139.5	H-15-44 H-15-44 H-15-44	186.2 H-11-44	225.0 51.27 491.8	
TOTALS	673.8		186.2		1229.5
SUMMARY					
TOTALS - S 0165 (1) - 3 Bridges (Fed Aid)	673.8		186.2		0.128
TOTALS - S 0165 (1) - 1 Bridge (Non-Fed Aid)	860.0		1229.5		0.035
NET LENGTH - S 0165 (1)					0.163
TOTALS - S 0165 (1) - No-Work Section					0.233
GROSS LENGTH S 0165 (1)			2089.5		0.396



COPY TO



HIGHWAY DEPARTMENT
STATE OF COLORADO

RECOMMENDED FOR APPROVAL
ASSISTANT ENGINEER
DATE 6-21-51

APPROVED
STATE HIGHWAY ENGINEER
DATE 6-21-51

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL
DISTRICT ENGINEER
DATE

APPROVED
DIVISION ENGINEER
DATE

TIMBER FOR SUPERSTRUCTURE
UNTREATED

DESCRIPTION	SIZE	NO. OF	LENGTH	TOTAL D.F.
HAND RAIS	3" x 8"	26	20' 0"	1040
HANDRAIL POSTS	6" x 8"	78	3' 1"	1062
do	6" x 8"	28	4' 3"	476

TOTAL UNTREATED TIMBER					2578
TREATED TIMBER					
WHEEL GUARDS	6"x10"	26	20'0"	2600	
LAMINATED FLOORING	2"x4"	1030	20'0"	24400	
BRICKING	3"x6"	46	24'0"	1656	
STRINGER BLOCKING	6"x10"	9	20'0"	1620	
STRINGERS - OUTSIDE	6"x10"	26	20'0"	4680	
STRINGERS - INSIDE	6"x10"	91	22'0"	18018	
FILLERS OVER CANS	2"x12"	12	22'0"	528	
do	2"x6"	1	22'0"	22	
TOTAL TREATED TIMBER.					53624

TIMBER FOR RAUIMENT.				
TREATED TIMBER				
HEADER	4"x6"	1	20'0"	60
BULKHEAD PLANK	3"x10	2	20'0"	100
DO	3"x12	1	20'0"	60
FILLER OVER CAB	2"x12	1	20'0"	40
STRINGER BLOCKING	6"x18	1	10'0"	90
TOTAL TREATED TIMBER				354

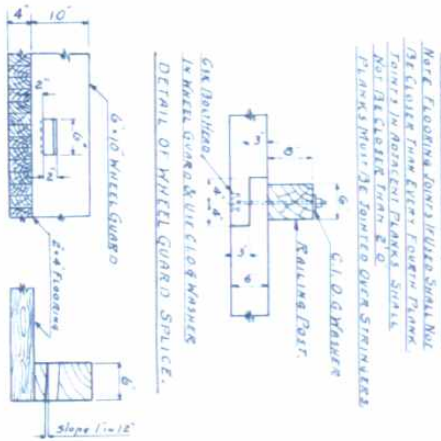
TIMBER FOR WING 5.				
UNTREATED				
HAND RAIL S. & S.	3 x 8"	2	12'-0"	48
HANDRAIL POSTS S. & S.	6 x 8"	6	4'-0"	96
TOTAL UNTREATED TIMBER				144
TREATED TIMBER				
CURB PLANK	4 x 8"	2	12'-0"	64
BACKING PLANK	4 x 12"	4	16'-0"	256
TOTAL TREATED TIMBER				320

SUMMARY OF QUANTITIES			
ITEM No.	DESCRIPTION	UNIT	QUANTITY
A	REMOVAL/Disposition Of Pierce/Structure		
1/A B	DRY COMMON ETC. (STRUCTURE/ETC)	Cu Yd	19
1/B A	STRUCTURE DAME/ETC (ETC/ETC)	Cu Yd	20
1/B A	MECHANICAL TAPPING	M	2
3/2	ROAD Mtl Oil PROCESSING		*
4/2 A	UNREFINED CRUDE/TAP/ETC	M FL/DM	2.722
4/2 B	TREATED TAP/ETC TAP/ETC	M FL/DM	54.198

DATE: 10-17-74;
TIME: 1040 H. L.S.M.D. 949 H.S. 44-
DEAD LEAD 25 lbs per sq ft additional
NEARBY SURFACE WHICH INCLUDES 0.1 MAT.
NO IMPACT f_p 1800 PSI.

COLORADO
STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE WITH 4" LAMINATED
FLOOR AND OIL MAT WEARING SURFACE

STRUCTURE № A.25-AF

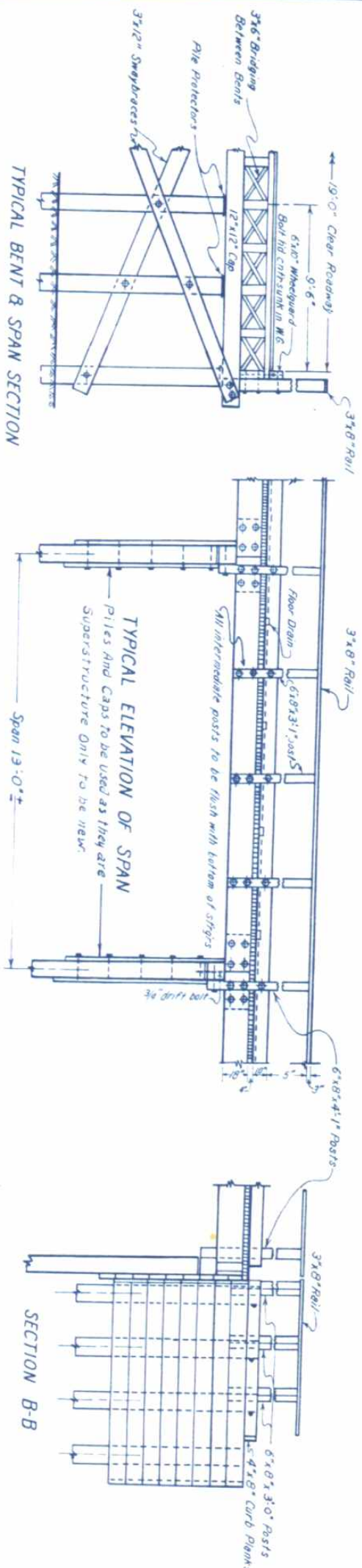


NAILS AND WIRE SPIKES					
LOCATION	units	rod/cm	dac/cm	Wire Spikes	Total Wt.
Rails To Posts	"		25		25
Stringers To Bracing	"		93		93
- To Blocking	"		25		25
- To CMS	"		28		28
Balunero To Cms Stringers	"			8	8
Jacking Pads To Posts	"			5	5
Laminated Flooring	"	1450			1450
TOTAL WT.					1634 LB.

OTHER FLOOR PLANK.

HER FLOOR PLANK.

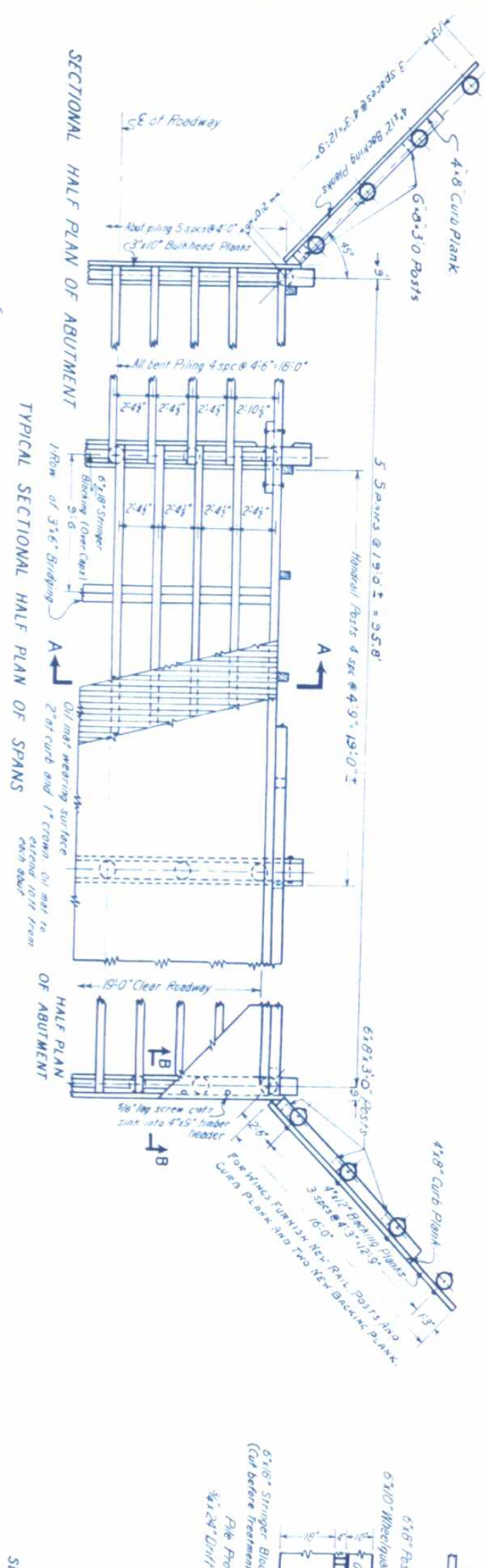
FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	50165 (1)	4	



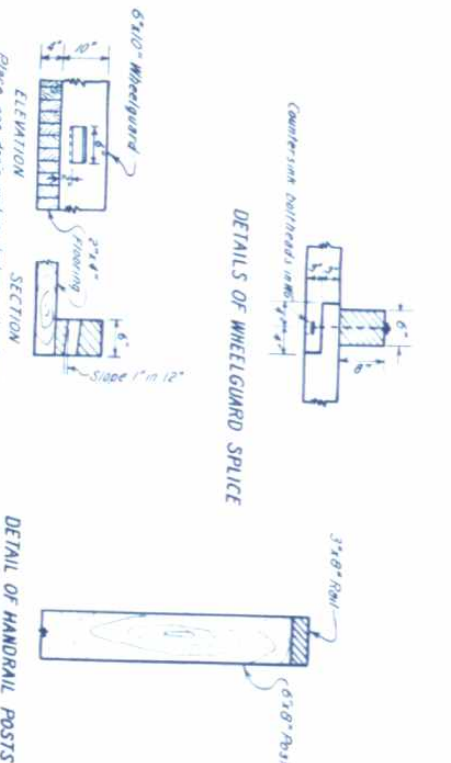
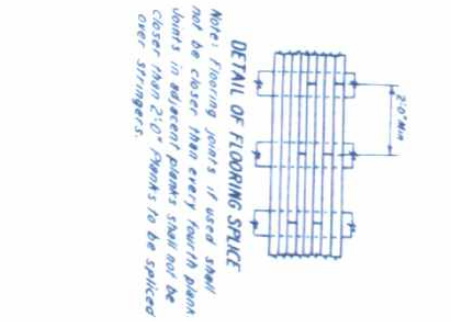
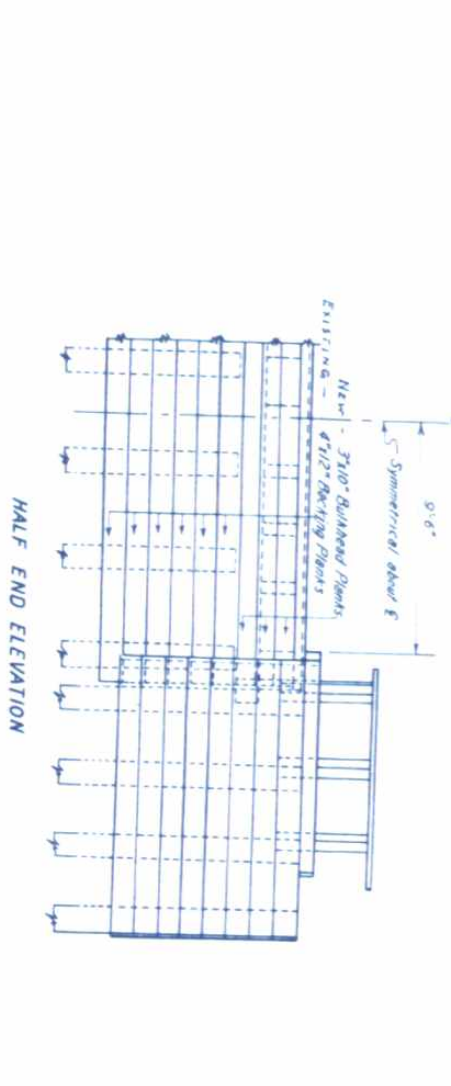
Nailing Directions
Rails to Posts - 4-40d nails per rail per post.
Stringer Blocking - 4-40d nails per block.
Stringers to Cap - 2-40d nails per stringer per cap.
Swaybrace to Piles - 2-7 wire spikes per brace per pile and bolts as called for.
Bulkheads to Cap to Stringer - 2-7 wire spikes per bulkhead per stringer.
Backing Planks to Piles - 2-7 wire spikes per plank per pile.
Swaybrace to Cap - 2-7 wire spikes per brace per cap and bolts as called for.
Floor Planks to Floor Planks - 1-20d nail at 12 inch centers and toe nail planks to stringers with 1-20d nail per stringer every other floor plank.
Stringer Bridging - 4-40d nails per piece of bridging.

GENERAL NOTES.

All work shall be done according to the Standard Specifications of the Colorado State Highway Department, Adopted Jan. 1-1948.
All timber and piling shall be dense Southern Yellow Pine or heart Coast Douglas Fir.
The ends of all stringers shall be tapered on one side, if necessary to obtain an even depth over caps.
All cut surfaces or bored holes in treated timber or piles shall be thoroughly saturated with hot creosote oil.
All handrailing and posts, above the wheel guards, shall be painted white, and all handrail posts below the top of the wheel guards shall be painted black as specified.
All bolts more than 12 inches long must be threaded not less than 4 inches.
All bolts in the finished structure shall not project more than 1/4 inch beyond the nut.
All bolts must have standard C.I.D. or Millicable cast washers under each head and nut.
Bolt lengths are calculated assuming C.I.D. washers will be used.
The Contractor is cautioned to check bolt lengths before ordering.
Because calculations in thickness of lumber and piling, the entire exposed surface of all untreated timber shall be painted one coat as specified immediately after material is received to the project.
Before placing handrailing the contact surfaces shall receive the second coat of paint.
All hardware to be galvanized. Weights as shown are for all necessary blocking for swaybracing shall be treated timber.
Mechanical Tamping. Special care must be used to prevent deflection of abutments and wings by wedging action. Backfill in six inch earth layers shall be tamped, beginning at the wall and proceeding outward and downward therefrom at a 4:1 minimum slope.
Below Channel elevation forms uniformly on both sides.
Above Channel ground line ramp out to six feet from wall.
Rolling equipment shall not be used within six feet of any wall.



SECTION THRU ABUTMENT



LOADING DATA:
Live Load - A.S.H.C. 4445 H-15-44
Dead Load - 25 lbs per sq ft additional
wearing surface which includes oil mat
No Impact A-1800 psi

COLORADO STATE HIGHWAY DEPARTMENT
SUPERSTRUCTURE WITH 4 LAMINATED FLOOR AND OIL MAT WEARING SURFACE
5-SPANS AT 19'-0" x 97'-3"
12'-0" CLEAR ROADWAY
Across S.D. PLATE RIVER
Sta. 16+65 to Sta. 17+59.3
Map - C-602
See 1412 T 100 R 45W
Designed by J.W.A.
Made by J.W.A.
Checked by J.W.A.
Date: Mar. 27, 1951

Note: 20 Darning Nails to be installed by Engineering Forces

STRUCTURE NO. A-25-AQ.

VED. ROAD DIST. AND	STATE	PROJECT NR	SHEET NO.	TOTAL SHEETS
3	COLO.	50165 (1)	5	

BILLS OF MATERIAL.

TIMBER FOR SUPERSTRUCTURE.					
UNTREATED TIMBER					
DESCRIPTION	SIZE	WPS.	LENGTH	TOTAL RFT.	
HAND RAILS	54.5	3" x 8"	10	20' 0"	400
HAND RAIL POSTS	54.5	6" x 8"	30	3' 1"	370
do		6" x 8"	12	4' 1"	196
TOTAL UNTREATED TIMBER 966					
TREATED TIMBER					
WHEEL GUARDS	6" x 10"	10	200	1000	
★ LAMINATED FLOORING	2" x 4"	708	20' 0"	9440	
BRIDGING	3" x 6"	10	20' 0"	300	
★ STRINGER BLOCKING	6" x 18"	3	16' 0"	432	
STRINGERS - OUTSIDE	6" x 18"	10	20' 0"	1800	
do - INSIDE	6" x 18"	35	20' 0"	6300	
STRINGER SPICING	6" x 18"	2	16' 0"	288	
TOTAL TREATED TIMBER 19560					

TIMBER FOR ABUTMENTS					
TREATED TIMBER					
HEADERS	4" x 9"	2	20' 0"	120	
★ STRINGER BLOCKING	6" x 18"	2	18' 0"	324	
BULKHEAD PLANK	3" x 10"	6	22' 0"	330	
TOTAL TREATED TIMBER 774					

TIMBER FOR WINGS.					
UNTREATED TIMBER					
HAND RAILS	54.5	3" x 8"	4	12' 0"	96
HAND RAIL POSTS	54.5	6" x 8"	12	3' 0"	144
TOTAL UNTREATED TIMBER 240					
TREATED TIMBER					
CURB PLANK	4" x 8"	4	12' 0"	128	
BACKING PLANK	4" x 12"	8	16' 0"	512	
TOTAL TREATED TIMBER 640.					
★ 50% SLS. 50% S2S 12% OFF HYPOTHESIS.					
▲ CUT TO SIZE BEFORE TREATMENT.					

SUMMARY OF QUANTITIES.			
ITEM#	DESCRIPTION	UNIT	QUANTITY.
▲	REMOVAL/REVISION OF PRESENT STRUCTURE		
140	DRY COMMON EXCAVATION (SFR)	Cu Yd	35
104	STRUCTURE BACKFILL (CLASS 1)	Cu Yd	40
154	MECHANICAL TAMPING	HR.	4
★ 312	ROAD MIX OIL PROCESSING	LUMP SUM	•
42 a	UNTREATED BRIDGE TIMBER	SF - DM.	1,206
42 b	TREATED BRIDGE TIMBER	"	20,974

- Work by State Forces (Non-Fed Aid)
- ▲ Work by County, No Cost to Project

BOLTS AND WASHERS.					
LOCATION	SIZE	No.	LENGTH	Wt. Ea.	TOTAL Wt.
POSTS To WHEEL GUARD	3/4"	42	14"	2.12	890.16
POSTS To STRINGER	3/8"	60	16"	2.16	160.8
POSTS To STRINGER To SPICE	3/4"	16	22"	3.08	49.5
POSTS To CAP	5/8"	8	20"	1.90	15.0
POSTS To PILES	3/4"	24	20"	2.84	68.0
WHEEL GUARD To STRINGER	3/4"	42	34"	4.52	190.0
SPICE To STRINGER	5/8"	48	14"	1.41	68.0
POSTS To BULKHEAD To CAP	5/8"	4	23"	2.15	8.5
HEADER To STRINGER	5/8" x 1/4"	16	16"	1.16	24.5
PILES To CURB PLANK	3/8"	12	18"	1.74	21.0
WASHERS C/O G	3/4"	364	-	1.25	480
"	5/8"	90	-	0.75	68
TOTAL WEIGHT:					1242

NAILS AND WIRE SPIKES					
LOCATION	Wt. Ea.	20d (cm)	40d (cm)	7 Wt. (cm)	Wt. - Lbs
RAILS To POSTS	18		216		12
STRINGER BRIDGING	18		320		18
BLOCKING	18		192		11
STRINGERS To CAPS	18		130		10
BULKHEAD To STRINGER (cm)	7			108	16
BACKING PLANK To PILES	7			64	9
FLOOR To FLOOR To STRINGERS	31	19054			582
TOTAL WEIGHT:					638

COLORADO
STATE HIGHWAY DEPARTMENT

SUPERSTRUCTURE WITH 4" LAMINATED
FLOOR AND OIL MAT WEARING SURFACE
5' SPANS AT 19'-0" ± = 97.3'
19'-0" CLEAR ROADWAY
ACROSS SO PLATE RIVER
Sta. 16+02.16 STA. 17+59.3
Near CROOK Sec. 14, T. 10N. R. 42W.

Designed by JW/B Approved by JW/B
Made by JW/B Bridge Engineer
Checked by _____ Date: Mar. 27, 1951

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	50165 (I)	6	

BILL OF MATERIAL.
TIMBER FOR SUPERSTRUCTURE.

DESCRIPTION	SIZE	NPS	LENGTH	TOTAL Bb/Ft
HAND RAILS S4S.	3x8	2	260	104
do	3x8	14	240	672
POSTS S4S	6x8	18	40	288
do	6x8	43	30	376
TOTAL UNTREATED = 1640				
TREATED TIMBER				
HEADERS	4x9	2	200	120
W LAMINATED FLOORING	2x4	1365	200	18200
WHEEL GUARDS	6x10	2	260	260
do	6x10	14	240	1680
TOTAL TREATED = 20260				

TIMBER FOR WINGS				
UNTREATED				
HAND RAILS	5x5	3x8	4	120
POSTS	5x5	6x8	12	40
TOTAL UNTREATED = 288				
TREATED TIMBER				
CURB PLANK.	4x8	4	120	128
BACKING PLANK	4x12	8	160	512
TOTAL TREATED = 640				

* 50% 525-50% 525 1/4 ON H10R MISS.

LOCATION	SIZE	NO	LENGTH	AREA	TOTAL WT.
POSTS TO WHEEL GUARDS	3/4	60	14	212	140
POSTS TO STRINGERS	3/4	104	14	212	220.5
POSTS TO STRINGER SPLICE	3/4	28	18	260	72.8
POSTS TO CAPS	5/8	14	20	190	27.0
WHEEL GUARD TO STRINGERS	3/4	60	33	440	290.4
HEADER TO STRINGERS	3/4	28	16	127	33.0
PILES TO CURB PLANK	3/4	12	18	210	21.0
POSTS TO PILES	3/4	24	20	284	68.2
POSTS TO BULKHEAD TO CAPS	1/8	4	23	215	8.6
WASHERS C.I.O.G.	3/4	576	-	125	7200
WASHERS C.I.O.G.	5/8	86	-	0.75	645
TOTAL WT. =					16660

NAILS AND WIRE SPINES				
LOCATION	N/10	200	400	20
RAILS TO POSTS	18	18	312	18
FLOORING	3/10	37	565	1212
BACKING PLANK TO PILES	7/10	-	-	70
TOTAL N/10 =				1240

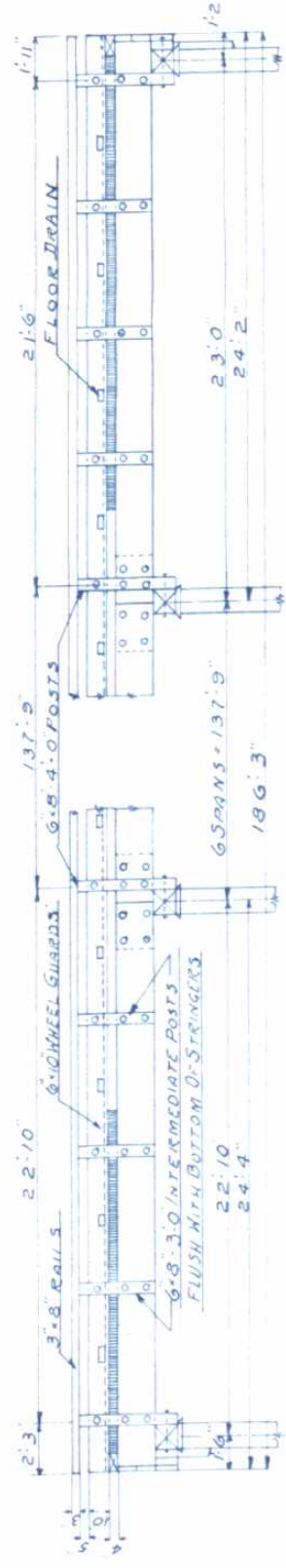
ITEM	DESCRIPTION	UNIT	QUANTITY
312	ROAD MIX OIL PROCESSING	Lump Sum	1
42 a	UNTREATED BRIDGE TIMBER	Mt. bm	1928
42 b	TREATED BRIDGE TIMBER	Mt. bm	20900

• Work by State Forces (Not Fed Aid)
LOADING DATA:
LIVE LOAD - AASHTO 1949 - H 11 - 44
DEAD LOAD - 25 LBS PER SQ FT ADDITIONAL WEARING SURFACE.
WHEN INCLUDES OIL MAT.
No Impact - ft - 1300 ft.

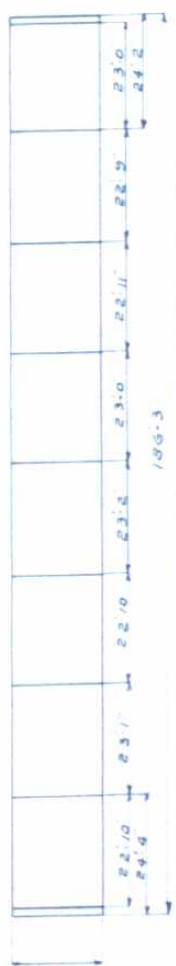
COLORADO
STATE HIGHWAY DEPARTMENT
NEW DECK WITH 4" LAMINATED FLOOR,
WHEEL GUARDS POSTS AND HANDRAILS
ON PRESENT STRINGERS & SUBSTRUCTURE.
8 SPANS @ 23' - 186'-3"
19'0" CLEAR ROADWAY
Across SOUTH PLATTE RIVER
Sta. 22+16.5 STA. 24+58.2
Near GROOMS
Sec. 9/15 T105 R420
Designed by J.W.A.
Made by J.W.A.
Checked by J.W.A.
Date: Mar. 27, 1951.

NAILING DIRECTIONS.

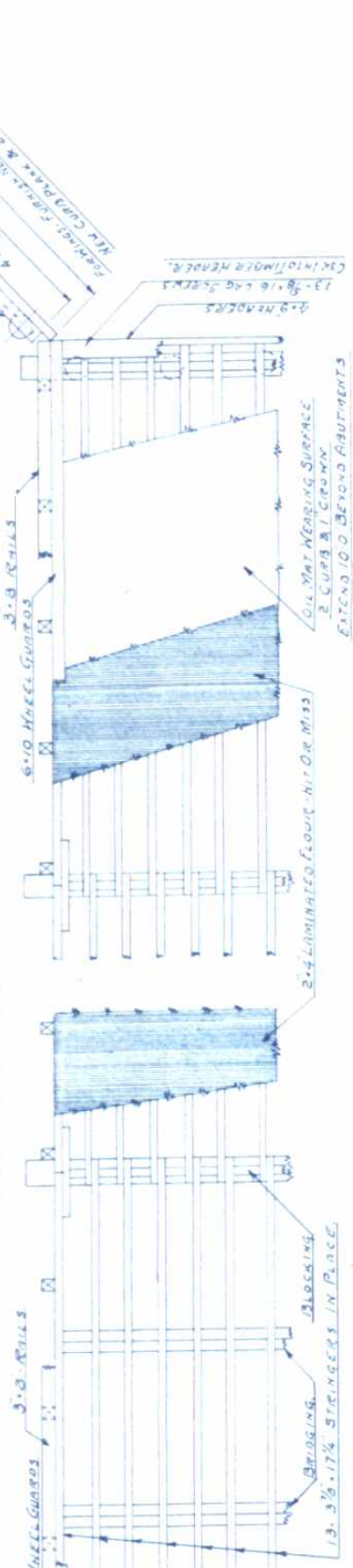
RAILS TO POSTS - 4-40d NAILS PER RAIL PER POST.
BACKING PLANK TO PILES - 2-7 WIRE SPIKES PER
PLANK PER PILE.
FLOOR PLANK TO FLOOR PLANK - 1-20d NAIL AT 12"
CENTERS, AND TOE NAIL PLANKS TO STRINGERS WITH 1-20d
NAIL PER STRINGER EVERY OTHER FLOOR PLANK.



TYPICAL ELEVATION FOR NEW 4" LAMINATED FLOOR WHEEL GUARDS.
POSTS AND HANDRAILS - USE PRESENT 3x8x17 1/2 STRINGERS
AND SUBSTRUCTURE.



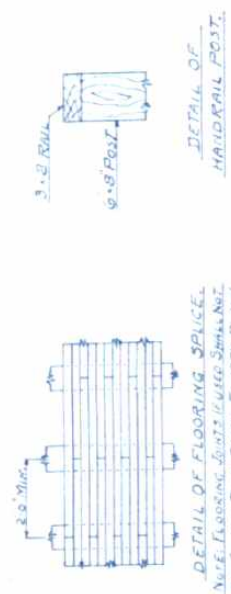
LAYOUT FOR NEW 4" LAMINATED FLOOR WHEEL GUARDS.
POSTS AND HANDRAILS -



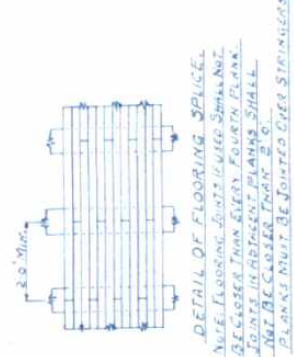
TYPICAL SECTIONAL HALF PLAN - USING PRESENT STRINGERS AND SUBSTRUCTURE.

GENERAL NOTES.
ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS
OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JAN. 1, 1948.
ALL TIMBER SHALL BE DENSE SOUTHERN YELLOW PINE OR
WEST COAST DOUGLAS FIR.
ALL HANDRAILING AND POSTS ABOVE THE WHEEL GUARDS SHALL
BE PAINTED WHITE AND ALL HANDRAIL POSTS BELOW THE TOP OF THE WHEEL
GUARDS SHALL BE PAINTED BLACK, AS SPECIFIED.
ALL BOLTS MORE THAN 12 INCHES LONG MUST BE THREADED NOT
LESS THAN 4 INCHES.
BOLTS IN THE FINISHED STRUCTURE SHALL NOT PROJECT MORE THAN
1/2 INCH BEYOND THE NUT.
ALL BOLTS MUST HAVE STANDARD C.I.O.G. OR MALLEABLE CAST
WASHERS UNDER EACH HEAD AND NUT.
BOLT LENGTHS ARE CALCULATED, ASSUMING C.I.O.G. WASHERS WILL
BE USED.
THE CONTRACTOR IS CAUTIONED TO CHECK BOLT LENGTHS BEFORE
ORDERING BECAUSE OF VARIATIONS IN THICKNESS OF LUMBER AND PILING.
THE ENTIRE EXPOSED SURFACE OF ALL UNTREATED TIMBER SHALL BE
PAINTED ONE COAT AS SPECIFIED IMMEDIATELY AFTER MATERIAL IS
DELIVERED TO THE PROJECT.
BEFORE PLACING HANDRAILING THE CONTACT SURFACES SHALL RECEIVE
THE SECOND COAT OF PAINT.
ALL HARDWARE TO BE GALVANIZED. WEIGHTS AS SHOWN ARE FOR
UNGALVANIZED MATERIAL.

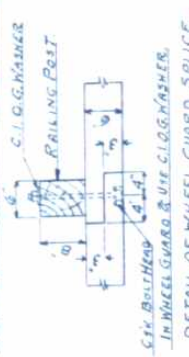
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UNGALVANIZED MATERIAL.



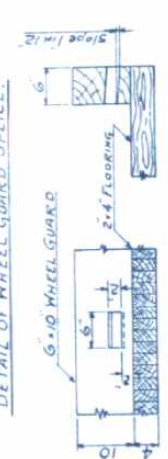
DETAIL OF
HANDRAIL POST.



DETAIL OF FLOORING - SPLICE
NAIL FLOORING JOINTS UNDER SHIMMING
BE CLOSER THAN EVERY FOURTH PLANK.
JOINTS IN ADJACENT PLANKS SHALL
NOT BE CLOSER THAN 2'-0".
PLANKS MUST BE JOINTED OVER STRINGERS.

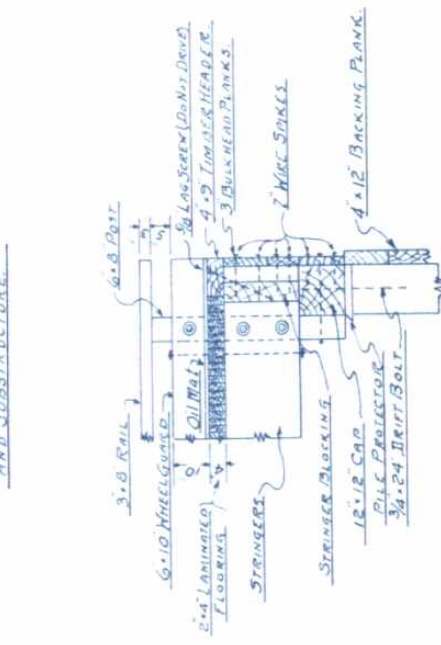


DETAIL OF WHEEL GUARD - SPLICE.



Place One Drain Manway Between Handrail Posts
on Each Side of Structure.
DETAIL OF FLOOR DRAIN.

TYPICAL BENT - USE PRESENT STRINGERS
AND SUBSTRUCTURE.

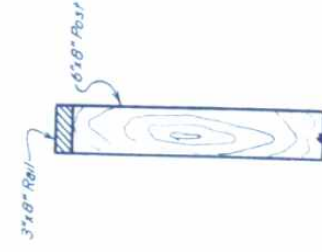
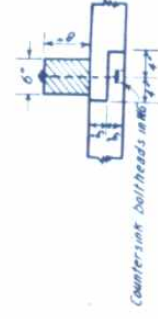
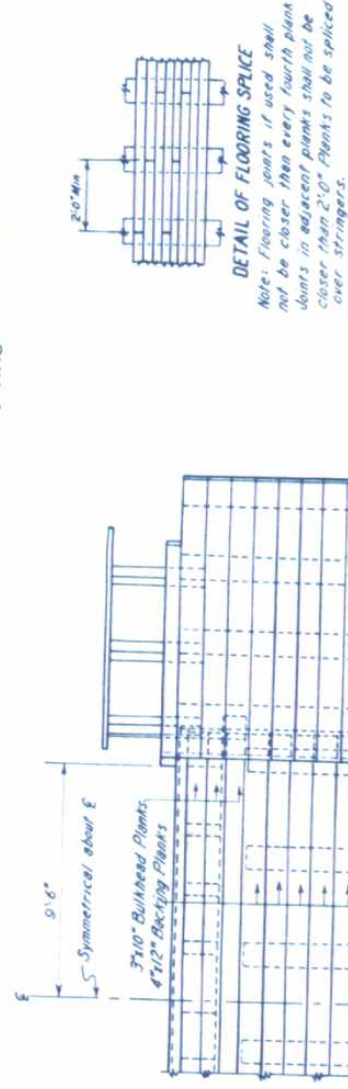
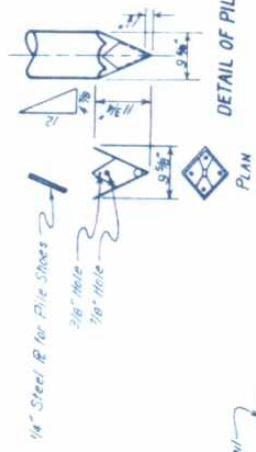
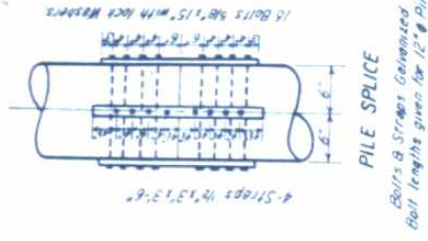
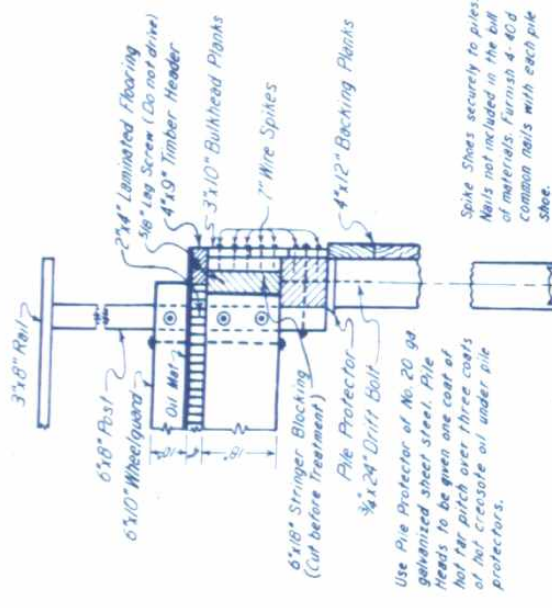
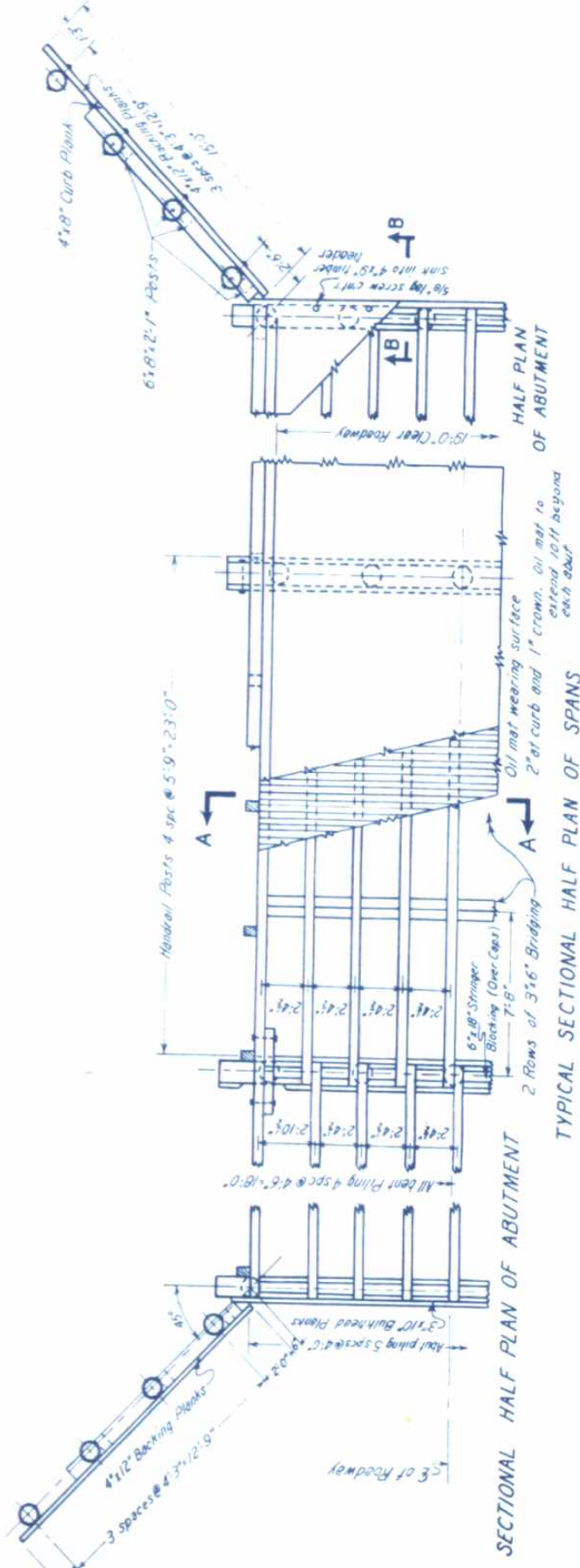


TYPICAL SECTION THROUGH ABUTMENT.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	50165(1)	7	

Nailing Directions

Rolling Directions
Rails to Posts—4-40d nails per rail per post.
Stringer Blocking—4-40d nails per block.
Stringers to Cap—2-40d nails per stringer per cap.
Swaybrace to Piles—2-7" wire spikes per brace per pile and bolt as called for.
Bulkheads to Cap to Stringer—2-7" wire spikes per bulkhead per stringer.
Backing Planks to Piles—2-7" wire spikes per plank per pile.
Swaybrace to Cap—2-7" wire spikes per brace per cap and bolt as called for.
Floor Planks to Floor Planks—1-20d nail at 12 inch centers and two nail planks to stringers with 1-20d nail per stringer every other floor plank.
Stringer Bracing—4-40d nails per piece of bracing.



DETAIL OF FLOORING SPLICE

Note: Flooring joints if used shall not be closer than every fourth plank joints in adjacent planks shall not be closer than 2'-0". Planks to be spliced over stringers.

LOADING DATA:
Live Load-AAS
Dead Load-25
wearing surface
No Impact fi

COLORADO
STATE HIGHWAY DEPARTMENT
TREATED TIMBER PILE TRESTLE WITH
4" LAMINATED FLOOR AND OIL MAT
WEARING SURFACE. 6 SPANS @ 23'-0"
19'-0" CLEAR ROADWAY

Across SO. PLATE RIVER
Sta. 29+50 to 30+89.5
Near CRACK Sec. 11/12 T. 10N R. 49W
Designed by A.L.P. Approved by C.D. Bailey
Made by A.L.P. Bridge Engineer
Checked by J.W.B. Date: Mar. 27, 1951.

DETAIL OF HANDRAIL POSTS

DETAILS OF WHEELGUARD SPLICE

DETAIL OF FLOOR DRAIN

ELEVATION SECTION

DETAIL OF FLOOR DRAIN

HALF END ELEVATION

Note: 32 Daring Nails to be installed by Engineering Forces.

STRUCTURE NO. A-25-AI

BILLS OF MATERIAL

TIMBER FOR SUPERSTRUCTURE

LOCATION	SIZE	NO.	LENGTH	TOTAL
Post to Wheelguard	3/4"	36	14"	76.4 lbs
Post to Stringer	3/4"	72	16"	169.9 "
Wheelguard to Stringers	3/4"	36	34"	162.7 "
Std C.I. OG Washers	3/4"	288		360.0 "
Total Weight for Superstructure				769.0 lbs

BOLTS AND WASHERS FOR ABUTMENTS

Post to Cap to Bulkhead	3/8"	4	23"	8.6 lbs
Posts to Stringers	3/4"	8	16"	18.9 "
Posts to Wheelguard	3/4"	4	14"	8.5 "
Wheelguard to Stringers	3/4"	4	34"	16.1 "
Timber Header to Stringers	5/8"dg	18	14"	22.0 "
Std C.I. OG Washers	3/8" 3/4" 288 32			59.5 "
Caps to Piles (Drill Bolts)	3/4"	12	24"	36.0
Total Weight for Abutments				171.0 lbs

BOLTS AND WASHERS FOR WINGS

Posts to Piles	3/4"	24	20"	68.2 lbs
Curb Pile to Piles	5/8"	12	16"	20.9 "
Std C.I. OG Washers	3/8" 3/4" 24 45			78.0 "
Total Weight for Wings				167.0 lbs

BOLTS AND WASHERS FOR BENTS

Posts to Wheelguard	3/4"	10	14"	21.2 lbs
Post to Stringer to Splice	3/4"	20	22"	61.6 "
Post to Cap to Splice	5/8"	10	23"	21.5 "
Wheelguard to Stringers	3/4"	10	34"	45.2 "
Splice to Stringers	5/8"	40	14"	84.6 "
Splice to Cap	5/8"	10	17"	19.5
Splice to Piles	5/8"	40	17"	61.0
Splice to Pile to Splice	5/8"	5	20"	9.5
Std C.I. OG Washers	3/8" 5/8" 20 230			287.5
Caps to Piles (Drill Bolts)	3/4"	25	24"	75.0
Total Weight for Bents				688.6 lb

Nails

LOCATION	UNIT	20d 20m	40d 20m	7" 16d	TOTAL
Superstructure	Lbs	807	51		6.58
Abutments			7	40	47
Wings			3	46	49
Bents			21	17	38
Total Weight of Nails		807	82	103	992 lbs

DESCRIPTION	SIZE	NO.	LENGTH	TOTAL
Handrails	5" x 6"	12	24'-0"	576 Bd Ft
Handrail Posts	5" x 6"	36	3'-1"	444 "
Total Untreated Timber in Superstructure				1020 Bd Ft

TREATED

Wheelguards	6" x 10"	4	23'-4"	467 Bd Ft
Wheelguards	6" x 10"	8	23'-8"	947 "
* Laminated Flooring	2" x 4"	1020	20'-0"	13600 "
Bracing	3" x 6"	46	12'-0"	828 "
Stringers	6" x 18"	8	23'-0"	1656 "
Stringers	6" x 18"	4	23'-6"	846 "
Stringers	6" x 18"	42	24'-0"	5072 "

Total Treated Timber in Superstructure 2446 Bd Ft
Oil Met Weaving Surface 50 Tons

TIMBER FOR ABUTMENTS

DESCRIPTION	SIZE	NO.	LENGTH	TOTAL
Handrail Posts	5" x 6"	4	4'-1"	68 Bd Ft
Total Untreated Timber in Abutments				68 Bd Ft

TREATED

Timber Headers	4" x 9"	2	20'-0"	120 Bd Ft
Caps	12" x 12"	2	24'-0"	576 "
Bulkhead Planks	3" x 10"	6	22'-0"	330 "
Backing Planks	4" x 12"	14	22'-0"	1232 "
Stringer Blocking	6" x 18"	2	16'-0"	288 "
Total Treated Timber in Abutments				2546 Bd Ft
125 lbs Treated Timber Piling @ 30'-0"				360 Lin Ft

TIMBER FOR WINGS

DESCRIPTION	SIZE	NO.	LENGTH	TOTAL
Handrails	5" x 6"	4	12'-0"	56 Bd Ft
Handrail Posts	5" x 6"	12	2'-1"	100 "
Total Untreated Timber in Wings				156 Bd Ft

TREATED

Curb Planks	4" x 6"	4	12'-0"	128 Bd Ft
Blocking Planks	4" x 12"	40	16'-0"	2560 "
Total Treated Timber in Wings				2688 Bd Ft
16 lbs Treated Timber Piling @ 34'-0"				544 Lin Ft

TIMBER FOR BENTS

DESCRIPTION	SIZE	NO.	LENGTH	TOTAL
Handrail Posts	5" x 6"	10	4'-1"	163 Bd Ft
Total Untreated Timber in Bents				163 Bd Ft

TREATED

Stringer Slices	6" x 18"	10	4'-0"	360 Bd Ft
Caps	12" x 12"	5	24'-0"	1440 "
Standards	3" x 12"	10	24'-0"	720 "
Stringer Blocking	6" x 18"	4	14'-0"	504 "
Total Treated Timber in Bents				3024 Bd Ft
25 lbs Treated Timber Piling @ 30'-0"				750 Lin Ft

GENERAL NOTES

All work shall be done according to the Standard Specification of the Colorado State Highway Department adopted January 1, 1918.

All timber and piling to be treated or untreated as shown on the bills of material.

All timber and piling shall be dense Southern Yellow Pine or West Coast Douglas fir.

The ends of all stringers shall be dapped on one edge if necessary to obtain an even depth over caps.

All cut surfaces or bored holes in treated timber or piles shall be thoroughly saturated with hot creosote oil.

All piling, supporting caps, shall be covered with galvanized pile protectors as specified, all other piling tops shall be saturated with hot creosote oil and covered with a thick layer of heavy asphalt or tar.

All handrails and posts above the wheelguards shall be painted white, and all handrail posts below the top of the wheelguards shall be painted black as specified.

All bolts more than 12 inches long must be threaded not less than 4 in. Bolts in the finished structure shall not project more than 1/2 inch beyond the nut.

All bolts must have standard C. I. O.G. or malleable cast washers under each head and nut.

Bolt lengths are calculated assuming C. I. O.G. washers will be used. The contractor is cautioned to check bolt lengths before ordering because of variations in thickness of lumber and piling.

The entire exposed surface of all untreated timber shall be painted one coat as specified immediately after material is delivered to the project.

Before placing handrails, the contact surfaces shall receive the second coat of paint.

When contractor is permitted to drill holes to facilitate pile driving, these holes must be drilled so piling will stand in vertical position after final driving.

All hardware to be galvanized. Weights as shown are for ungalvanized material.

All necessary blocking for swaying shall be treated timber. All caps must be surfaced on vertical grain face.

Contractors attention is called to specifications covering Mechanical Tamping. Special care must be used to prevent deflection of abutments and wings by wedging action. Backfill in six inch earth layers shall be tamped beginning at the wall and proceeding outward and downward therefrom at a 4:1 minimum slope. Below channel elevation tamp uniformly on both sides. Above original ground line tamp out to six feet from wall. Rolling equipment shall not be used within six feet of any wall.

SUMMARY OF QUANTITIES

NO.	ITEM	UNIT	QUANTITY
14a	Removal of Bridge		
14b	Dry Rock Excavation (Struct)	Cu Yd	2
14c	Dry Common Excav (Struct)	Cu Yd	42
14d	Wet Rock Excavation (Struct)	Cu Yd	1
14d	Wet Common Excav (Struct)	Cu Yd	5
16d	Mechanical Tamping	Lbs	9
31c	Road Mix Oil Processing	Lump Sum	1
42a	Untreated Bridge Timber	M Ft	1,444
42b	Treated Bridge Timber	M Ft	35,674
60a	Treated Timber Piling	Lb Ft	1654
60e	Metal Pile Shoes	Each	53

*Work by State Forces (Non-Fed Aid)
*Work by County No Cost to Project

COLORADO
STATE HIGHWAY DEPARTMENT
TREATED TIMBER PILE TRESTLE
WITH 4" LAMINATED WOOD FLOOR
AND OIL MAT WEARING SURFACE
19'-0" CLEAR ROADWAY

ACROSS SE PLATTE RIVER
Sta. 29+50 To 30+89.5
Near CROWN Sec. 24, T. 1 S. R. 42 N.
Designed by A. L. P. Approved by J. B. B.
Made by A. L. P. Bridge Engineer
Checked by J. W. B. Date: Mar. 27, 1951.

Rev 12-13-47 J.P.K.
Rev 7-1-49 J.R.E.
Rev 9-14-50 J.E.R.

STANDARD M-10-B

DATE	STATE	TOTAL SHEETS
3	COLO	7

1234567890

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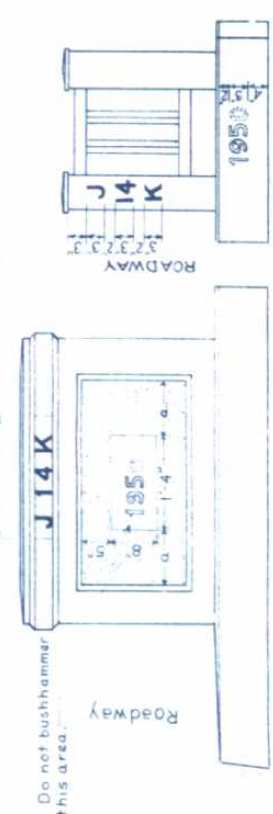
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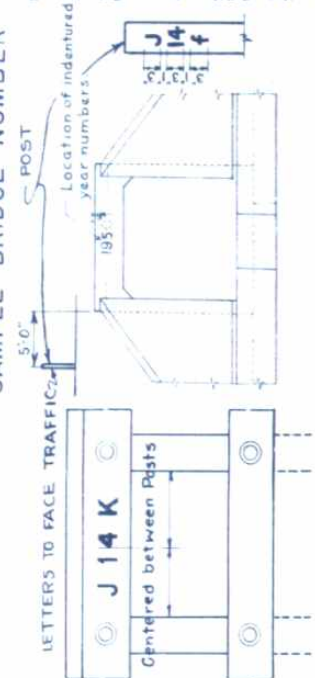


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SAMPLE BRIDGE NUMBER



SAMPLE YEAR NUMBER

GENERAL NOTES
ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JANUARY 1974.
COMPENSATION FOR THIS WORK SHALL BE INCLUDED IN THE ORIGINAL CONTRACT ITEMS AND WILL NOT BE PAID FOR AS A SEPARATE ITEM.
THE YEAR NUMBERS ARE RECESSED IN CONCRETE 3/8" MINIMUM AS SHOWN INTO THE PANEL OF THE ENDPOST ON THE RIGHT HAND SIDE OF EACH BRIDGE END AND INTO THE FACE OF THE DOWNSTREAM HEADWALL OF CULVERTS AS SHOWN ON PLAN DETAIL 5.
NUMBERS TO BE MADE OF WOOD, METAL OR OTHER SUITABLE MATERIAL AND ATTACHED TO THE FORMS BEFORE CONCRETE IS POURED.
THE YEAR NUMBER OF EACH STRUCTURE SHALL CORRESPOND WITH THE YEAR IN WHICH THE CONCRETE IS POURED.
THE STRUCTURE NUMBER SHALL BE STENCILED ON THE RIGHT HAND SIDE OF EACH BRIDGE END AS SHOWN ON THIS STANDARD AND AS SPECIFIED.
THE CORRECT NUMBER FOR EACH BRIDGE IS SHOWN IN THE LOWER RIGHT HAND CORNER OF THE DETAIL SHEETS FOR THAT BRIDGE. A PROPER WHITE BACKGROUND RECTANGULAR IN SHAPE AND EXTENDING THREE INCHES BEYOND THE LIMITS OF THE NUMBER SHALL BE PAINTED WITH TWO COATS OF ACCEPTABLE WHITE PAINT UNLESS AN APPROVED WHITE CONCRETE PAINT IS USED. BEFORE THE PAINT DRIES IT SHALL BE THOROUGHLY DRIED, CLEANED AND PROPERLY SIZED. ON TIMBER HANDRAILS THE WHITE PAINT USED ON THE BRIDGE WILL BE SATISFACTORY.
AFTER THE WHITE BACKGROUND HAS DRIED SUFFICIENTLY THE CORRECT STRUCTURE NUMBER SHALL BE CAREFULLY STENCILED ON IT. WITH TWO COATS OF SECOND FIELD COAT-DARK OR EXTERIOR BLACK PAINT (WANT) AS SPECIFIED UNDER ITEM 38 PAINTS AND PAINTING ON IT. STENCILED LETTERS AND FIGURES SHALL BE CAREFULLY FILLED IN BY HAND TO MAKE SOLID FIGURES.
MINOR STRUCTURE NUMBERS SHALL BE ALLOWED TO BE PAINTED ON THE HANDRAILS OF BRIDGES AND CULVERTS STENCILED WITH STRUCTURE NUMBER "TUS W-18-S" ON 3" STEEL MARKER POSTS WHERE PROVIDED AND AS SHOWN ON STATE HIGHWAY STD. M-23-A.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
LETTERS AND FIGURES
FOR
YEAR NUMBERS AND
STRUCTURE NUMBERS

Designed by GHD
Made by WPM
Checked by
Approved by GHD
Bridge Engineer
Date: June 1, 1946

