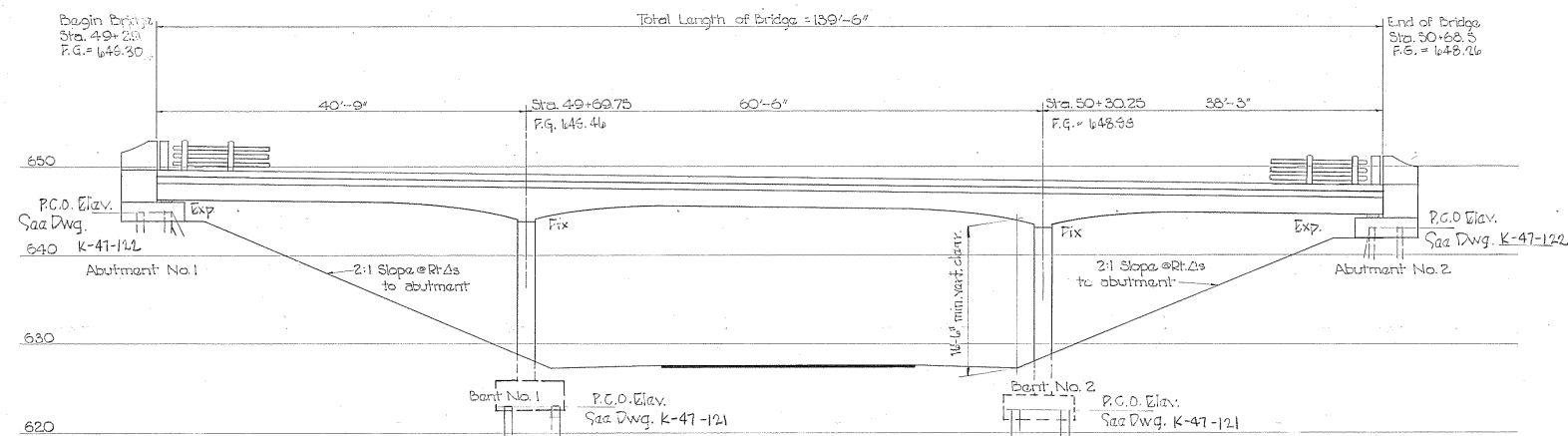
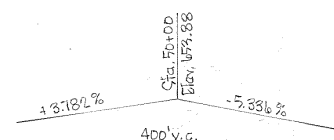
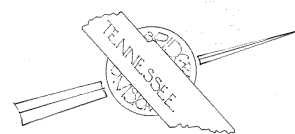


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.		18		

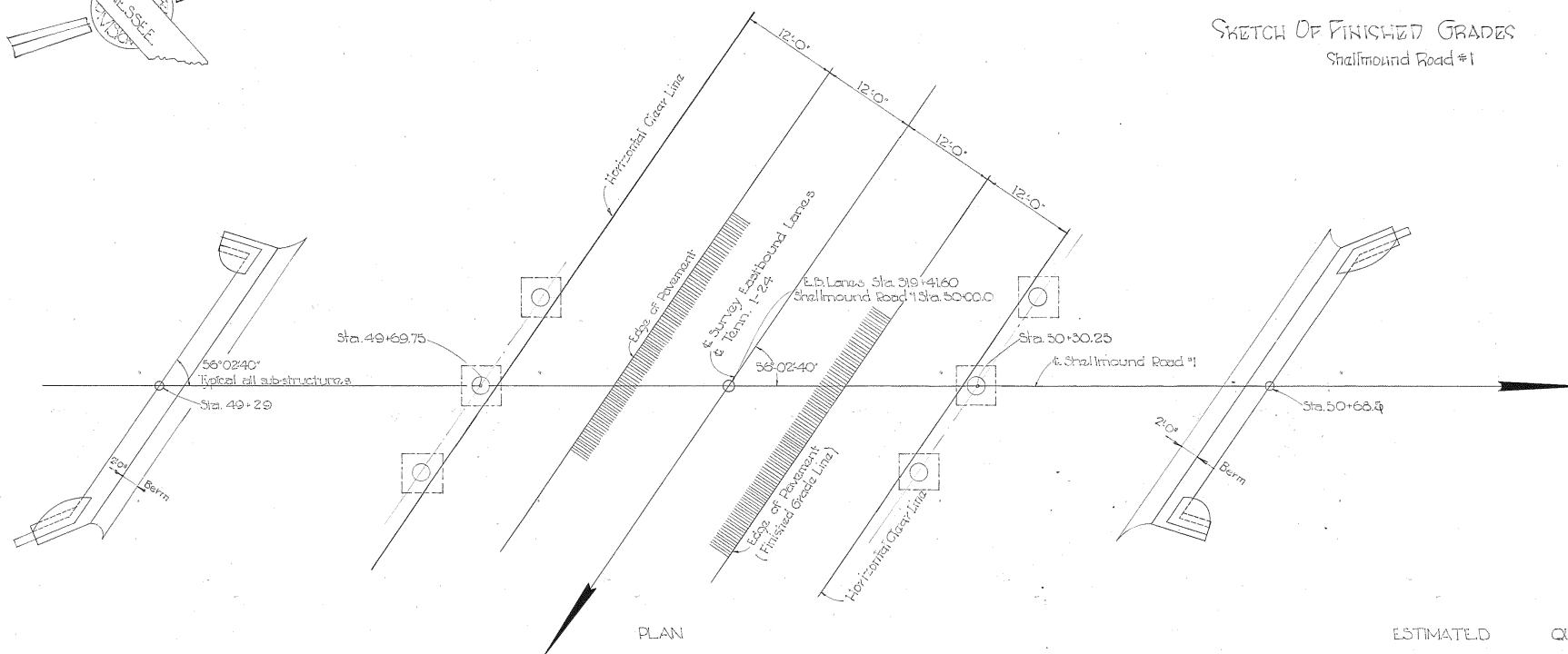


NOTE: Fills at end of Bridge to be in place and thoroughly compacted before abutment piles are driven

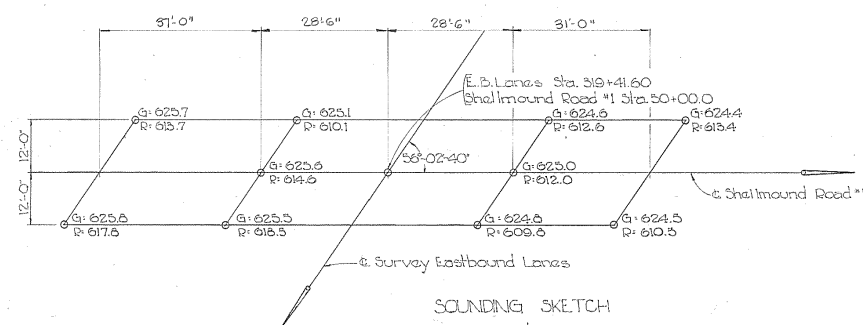
ELEVATION AT RT. 25 TO E SURVEY SHELLMOUND RD #1



SKETCH OF FINISHED GRADES
Shellmound Road #1



PLAN



SOUNDING SKETCH

G = Ground
R = Rock

ESTIMATED QUANTITIES

ITEM	Dry Excavation Cuyds.	Concrete Class 'A' Cuyds.	Reinforcing Steel lbs.	Metal Bridge Rail Lin. Ft.	Steel Piles 10" DP 42 Lin. Ft.	Linseed Oil Treatment Sq. Yds.
Superstructure		184.1	70,715			
Abutment No. 1		17.7	1,981			
Bent No. 1		17.0	2,436			
Bent No. 2		16.9	2,404			
Abutment No. 2		17.7	1,981			
Totals	86	253.4	79,517	268	604	585

Notes: Cost of Neoprene Bearing Pads, Rubber Bonding Cement and all Joint Material to be included in the Unit Price Bid for Class 'A' Concrete.

The special provisions on Linseed Oil Treatment does not apply to Bent Caps.

GENERAL NOTES

SPECIFICATIONS: Standard Road and Bridge Specifications of the Tennessee Department of Highways.
LOADING: HS20-44
CONCRETE: To be Class 'A'
REINFORCING STEEL: To be intermediate or Hard Grade, Standard CRSI Hook Details shall apply.
DESIGN SPECIFICATIONS: AASHTO 1961 Edition.
NEOPRENE PADS: See special provisions.
PILES: To be 10" DP 42.
JOINT SEALER: See Special Provisions, Class 'A' or 'B'
LINSEED OIL TREATMENT: See Special Provisions.

FOUNDATION NOTE

Foundation for Bents shall be excavated to the pile cut off elevations shown, rod soundings shall then be made, as directed by the Engineer. From the results obtained, the Engineer will decide if piles will be used or the footing carried to rock. Piles shall be driven to rock or minimum bearing of 31 ton for Bents and 81 tons for Abutments. No reinforcing steel for columns shall be ordered until final footing elevations are established. Cost of rod soundings shall be included in the cost of items bid on.

BRIDGE RAIL NOTE

Build Bridge Rail according to Dwg. No. K-38-149 or K-38-150. Use endpost as shown on Dwg. No. K-47-122.
Steel Rail 15 Spacing L = 8' 9/2" with X = 1'-0" 8"
Aluminum Rail 17 Spacing L = 7' 6" with X = 1'-0" 8"

LIST OF DRAWINGS

	DWG. NO.
LAYOUT	K-47-119
SUPERSTRUCTURE	K-47-120
BENTS NO. 1 & 2	K-47-121
ABUTMENTS NO. 1 & 2	K-47-122
BILL OF STEEL	K-47-123
STEEL BRIDGE RAIL	K-38-150
PILE SPLICE DETAIL	H-5-111
ALUMINUM BRIDGE RAIL	K-38-149

TRAFFIC DATA

1965 ADT-1241

28'-0" Roadway with safety curbs

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

LAYOUT
SHELLMOUND ROAD #1 OVER EASTBOUND LANE 1-24
STATION 319+41.6
MARION COUNTY
1965

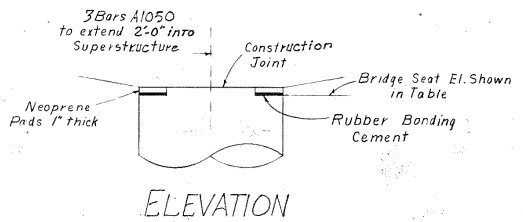
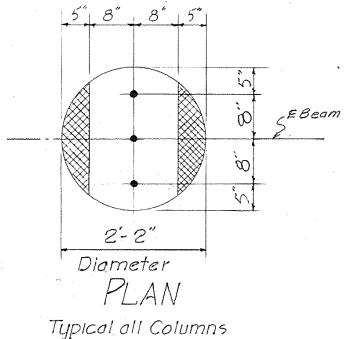
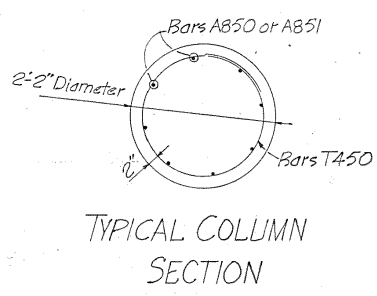
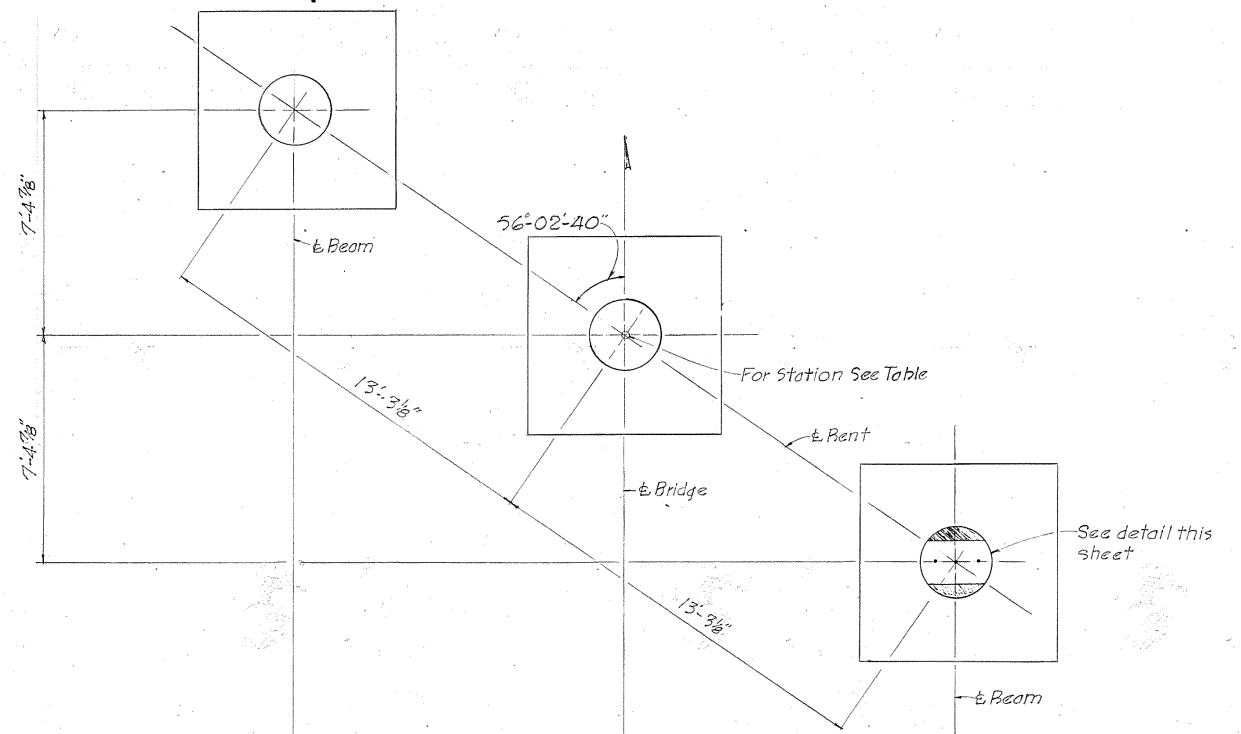
CORRECT *Paul Owen* BRIDGE ENGINEER

APPROVED *McDunlop* STATE HIGHWAY ENG.

K-47-119

MICROFILMED

DESIGNED BY H. Mims & Burke DATE March 65
DRAWN BY J. R. LITTLE, III DATE MARCH 65
TRACED BY DATE
CHECKED BY Burke DATE Mar 65



Note: Neoprene Pads shall be in place a minimum of two days before being disturbed by placing superstructure forms or concrete. Place Rubber Bonding Cement in such a way that Column surfaces will not be stained

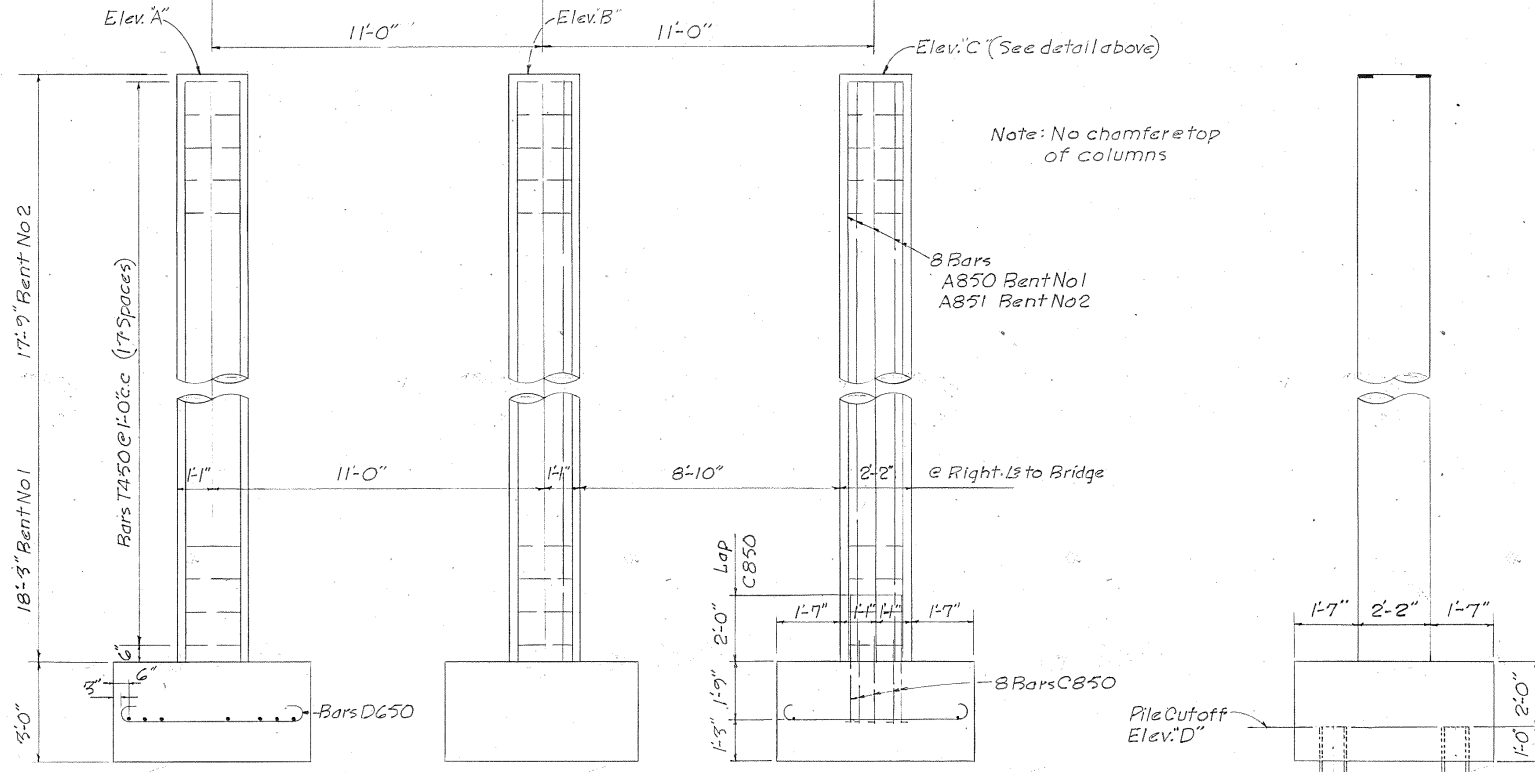
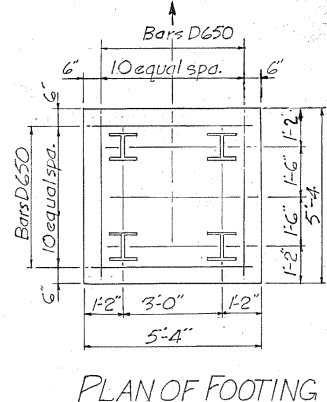


TABLE OF STATIONS AND ELEVATIONS

Location	Stations	Elevations			
		"A"	"B"	"C"	"D"
Bent No 1	47+67.75	645.25	645.38	645.26	625.00
Bent No 2	50+80.25	644.68	644.71	644.70	624.93

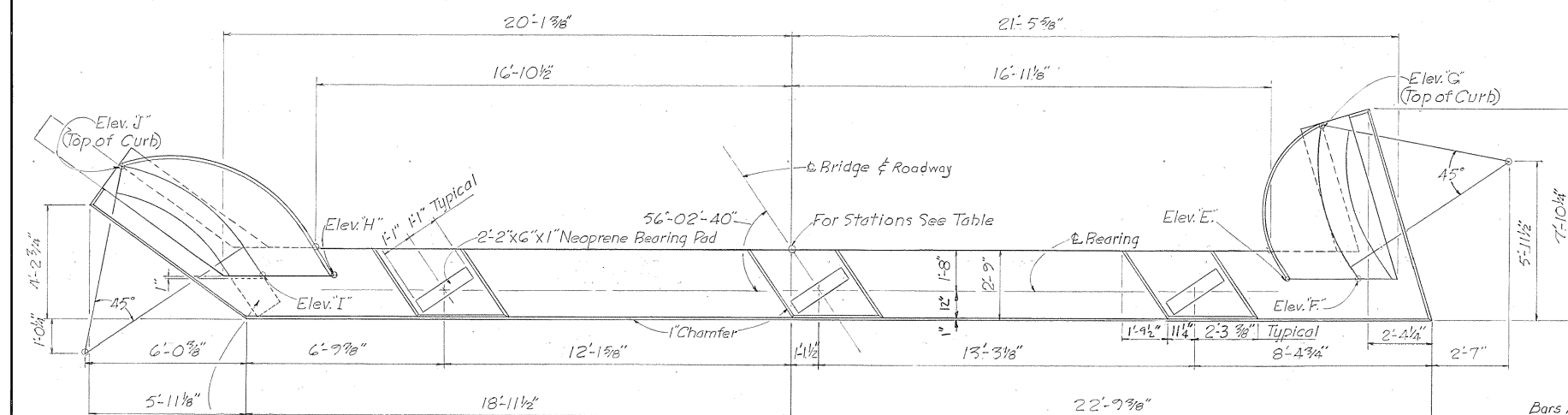
ESTIMATED QUANTITIES

Item	Concrete Class A Cu Yds.	Reinforcing Steel Lbs.
Bent No 1	17.0	2,436
Bent No 2	16.9	2,404

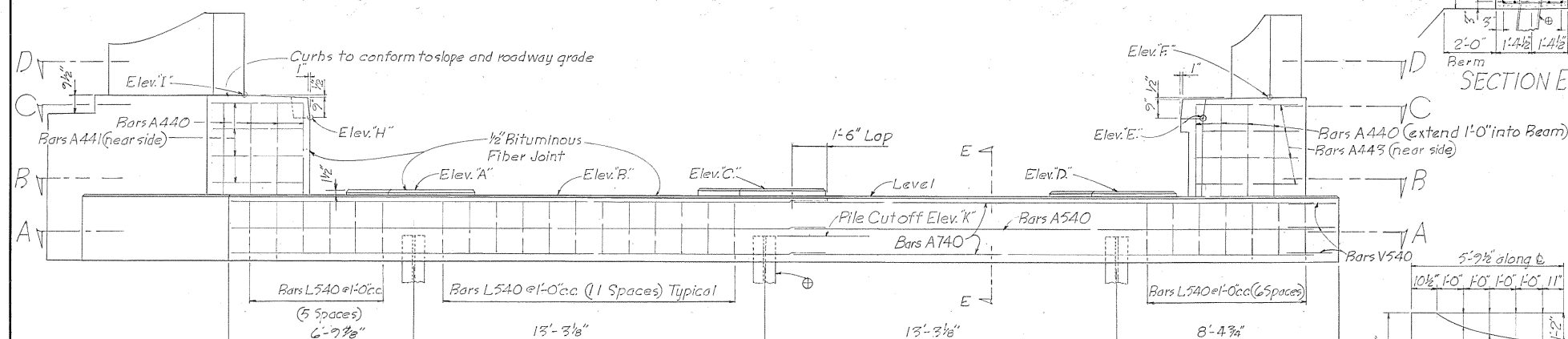
STATE OF TENNESSEE
 DEPARTMENT OF HIGHWAYS
 NASHVILLE
 BENTS No. 1 & 2
 SHELLMOUND RD. #1 OVER EASTBOUND LN. I-24
 STATION 3/9+4/6
 MARION COUNTY
 1965

DESIGNED BY Burke DATE _____
 DRAWN BY JAMES FLANDS DATE _____
 TRACED BY _____ DATE _____
 CHECKED BY Burke DATE _____

CORRECT Fred Gagne
 BRIDGE ENGINEER
 APPROVED M. D. Dunlap
 STATE HIGHWAY ENGINEER



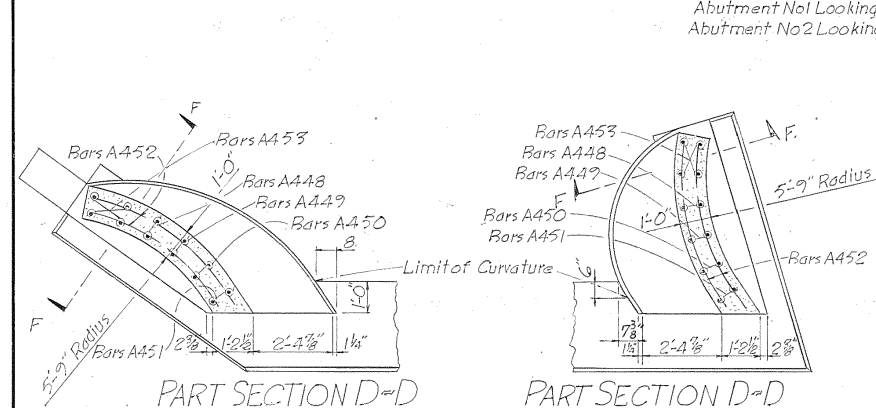
PLAN



ELEVATION

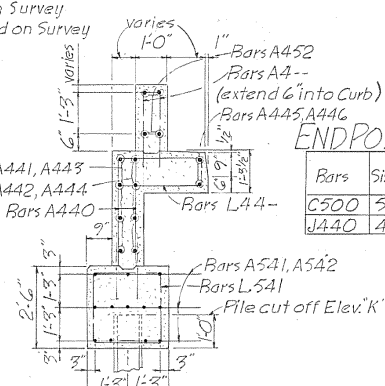
Abutment No1 Looking Back on Survey
Abutment No2 Looking Forward on Survey

Note: @ Batter these piles forward 2:12



PART SECTION D-D

PART SECTION D-D



SECTION F-F

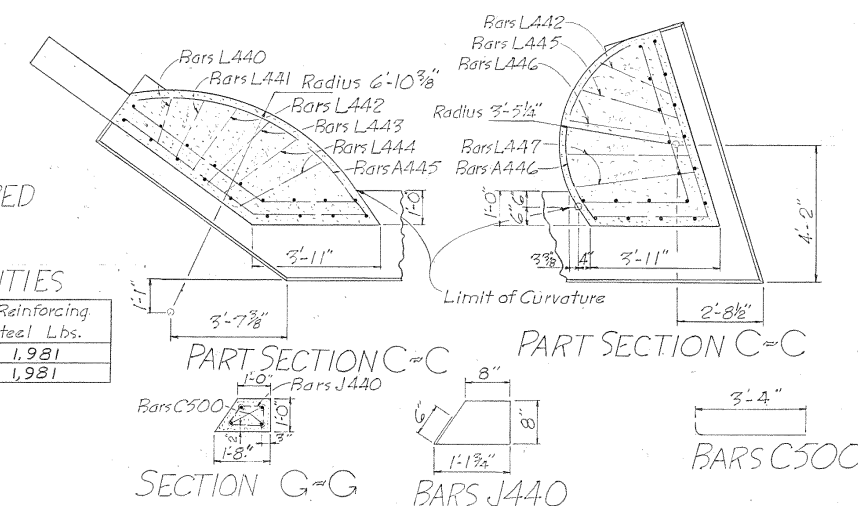
45, A446
ENDPOST- LIST OF MATERIALS- EACH

Bars	Size	No	Length	Quantities	
				concrete Class A' Cu. yds	Reinforcing steel Lbs.
C500	5	4	3'-8"	.16	25
.1440	4	4	3'-8"		

WING POST DEVELOPED

ESTIMATED QUANTITIES

Item	Concrete Class 'A" Cu. Yds.	Reinforcing Steel Lbs.
Abutment No 1	17.7	1,981
Abutment No 2	17.7	1,981



SECTION G-G

1-1 3/4"
BARS J440

PART SECTION C-C

BARS C500

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

Abutments No 1 and 2
Shellmound Road #1 over E.B. Lane Interstate 24
Station 317+41.6
Marion County
1965

CORRECT Fred Green

BRIDGE ENGINEER

APPROVED R. D. Dunlap

K-47-122

Item	Stations	Elevation										
		"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	"K"
Abutment No1	49+29.00	647.06	646.93	647.24	647.18	649.23	650.02	650.00	649.08	649.86	649.79	645.43
Abutment No2	50+28.50	645.94	645.83	646.23	646.28	648.36	649.18	649.07	647.93	648.67	648.53	644.93

ELEVATION END POST

Cost of end post to be included
in the unit price bld for Bridgerail

DESIGNED BY _____ DATE _____
DRAWN BY Tommy Eval Peters DATE 3-5-65
TRACED BY _____ DATE _____
CHECKED BY _____ DATE _____

BILL OF STEEL

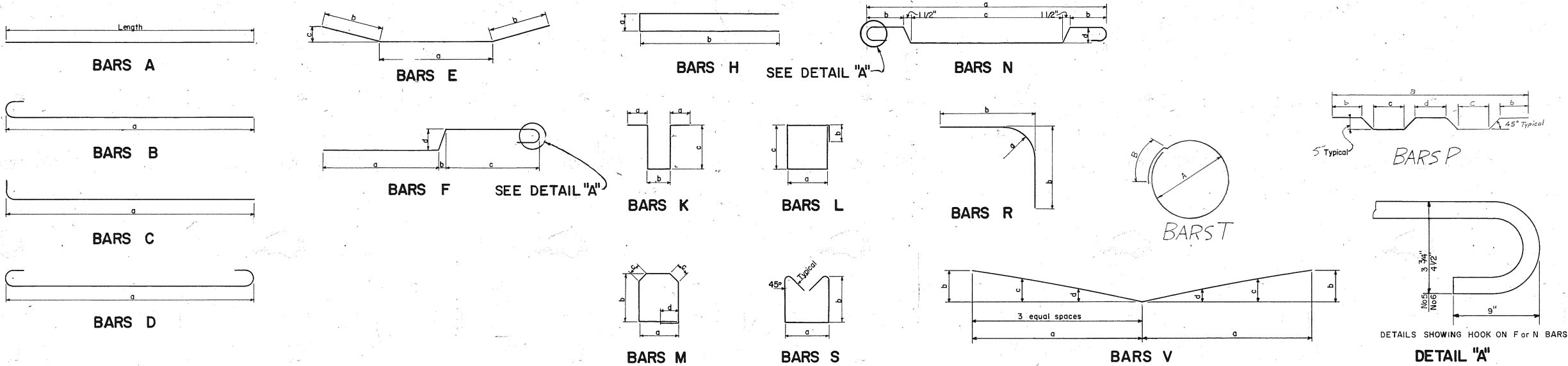
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.		19		

SUPERSTRUCTURE									SUPERSTRUCTURE									ABUTMENTS NO.1,2									BENT NO.1,2								
BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH	BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH	BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH	BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS				LENGTH
				a	b	c	d						a	b	c	d						a	b	c	d						a	b	c	d	
A500	Slab	5	136					35'-8"	S506	Beam	5	12	1'-10"	1'-10"			6'-4"	A440	Wingwall	4	74					3'-8"	A850	Column Bent No 1	8	24					18'-0"
A501	Beam	5	12					28'-6"	S507	Beam	5	12	1'-10"	1'-10 1/2"			6'-5"	A441	Wingwall	4	8					8'-3"	A851	Column Bent No 2	8	24					17'-6"
A502	Endwall	5	8					33'-3"	S508	Beam	5	12	1'-10"	1'-11"			6'-6"	A442	Wingwall	4	8					7'-8"									
A503	In. Diaph	5	4					11'-0"	S509	Beam	5	12	1'-10"	1'-11 1/2"			6'-7"	A443	Wingwall	4	8					8'-9"	C850	Footing	8	48	3'-9"				4'-3"
A504	Support Diaph	5	8					26'-6"	S510	Beam	5	12	1'-10"	2'-0"			6'-8"	A444	Wingwall	4	8					7'-10"									
									S511	Beam	5	12	1'-10"	2'-0 1/2"			6'-9"	A445	Curb	4	4					8'-1"	D650	Footing	6	132	4'-10"				6'-2"
AG00	Slab	6	114					27'-8"	S512	Beam	5	12	1'-10"	2'-1"			6'-10"	A446	Curb	4	4					6'-2"									
AG01	Slab	6	12					28'-8"	S513	Beam	5	12	1'-10"	2'-2"			7'-0"	A447	Wingwall	4	36					4'-3"	T450	Column	4	108	1'-10"	1'-0"			6'-9"
AG02	Slab Series	6	4	Length varies in equal increments from 5'-5" to 27'-11" (22 Bars)					S514	Beam	5	12	1'-10"	2'-2 1/2"			7'-1"	A448	Wingpost	4	8					2'-6"									
								A83'-4"	S515	Beam	5	12	1'-10"	2'-3 1/2"			7'-3"	A449	Wingpost	4	8					2'-9"									
									S516	Beam	5	12	1'-10"	2'-4"			7'-4"	A450	Wingpost	4	8					3'-1"	A1050	Dowel Bars	10	18					4'-0"
AG03	Slab	6	4					4'-9"	S517	Beam	5	12	1'-10"	2'-5 1/2"			7'-7"	A451	Wingpost	4	8					3'-5"									
AG04	Slab	6	4					4'-2"	S518	Beam	5	12	1'-10"	2'-6 1/2"			7'-9"	A452	Wingpost	4	16					5'-3"									
AG05	Slab	6	4					4'-0"	S519	Beam	5	12	1'-10"	2'-8"			8'-0"	A453	Wingpost	4	16					2'-4"									
AG06	Curb	6	48					35'-0"	S520	Beam	5	12	1'-10"	2'-9 1/2"			8'-3"																		
									S521	Beam	5	12	1'-10"	2'-11"			8'-6"	A540	Abutment Beam	5	20					21'-3"									
									S522	Beam	5	12	1'-10"	3'-0 1/2"			8'-9"	A541	Abutment Beam	5	24					6'-10"									
									S523	Beam	5	12	1'-10"	3'-2"			9'-0"	A542	Abutment Beam	5	24					7'-8"									
A1001	Beam	10	36					24'-0"	S524	Beam	5	12	1'-10"	3'-4"			9'-4"	A740	Abutment Beam	7	32					21'-3"									
A1002	Beam	10	18					34'-6"	S525	Beam	5	12	1'-10"	3'-6"			9'-8"	L440	Curb	4	2	1'-6"	6"	11"		5'-4"									
A1003	Beam	10	18					38'-6"									L441	Curb	4	2	2'-0"	6"	11"		6'-4"										
A1004	Beam	10	18					21'-6"									L442	Curb	4	2	2'-4"	6"	11"		7'-0"										
A1005	Slab	10	18					17'-9"	V1000	Beam	10	36	13'-0"	1'-10"	1'-5 1/2"	10"	26'-3"	L443	Curb	4	2	2'-7"	6"	11"		7'-6"									
A1006	Slab	10	36					42'-3"									L444	Curb	4	4	2'-9"	6"	11"		7'-10"										
A1007	Slab	10	18					22'-6"									L445	Curb	4	2	3'-0"	6"	11"		8'-4"										
A1008	Slab	10	18					15'-3"									L446	Curb	4	2	3'-6"	6"	11"		9'-4"										
A1009	Slab	10	24					28'-6"									L447	Curb	4	4	3'-9"	6"	11"		9'-10"										
A1010	Slab	10	24					38'-3"																											
B1000	Beam	10	18	27'-6"				30'-11"									L540	Abutment Beam	5	74	2'-5"	1'-0"	2'-2"		10'-2"										
B1001	Beam	10	18	27'-0"				28'-5"									L541	Abutment Beam	5	20	2'-2"	1'-0"	2'-2"		9'-8"										
E500	Slab & Curb	5	40	2'-0"	1 1/2"	2'-9"	1'-1"	6'-9"									V540	Abutment Beam	5	6					5'-0"										
E501	Slab & Curb	5	4	2'-0"	1 1/2"	3'-4"	1'-1"	7'-4"																											
K400	In. Diaph.	4	18	6"	5"	10"		3'-1"																											
K401	Support Diaph.	4	44	6"	5"	2'-10"		7'-1"																											
L400	Endwall	4	68	5"	6"	1'-10"		5'-0"																											
N600	Slab	6	106	34'-2"	2'-10"	28'-3"	1'-1"	37'-11"																											
P600	Slab	6	107	27'-6"	6'-8"	4'-5"	5'-10"	30'-2"																											
S500	Beam	5	264	1'-10"	1'-8"			6'-0"																											
S501	Beam	5	36	1'-10"	1'-8 1/2"			6'-1"																											
S502	Beam	5	12	1'-10"	1'-9"			6'-2"																											
S503	Beam	5	12	1'-10"	1'-9"			6'-2"																											
S504	Beam	5	12	1'-10"	1'-9 1/2"			6'-3"																											
S505	Beam	5	12	1'-10"	1'-10"			6'-4"																											

REINFORCING STEEL CODE

TYPE	SIZE	SERIES
A	5	06

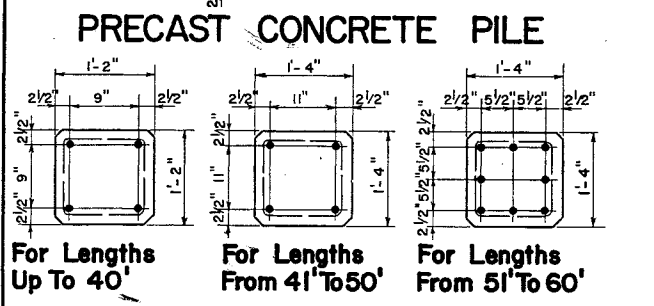
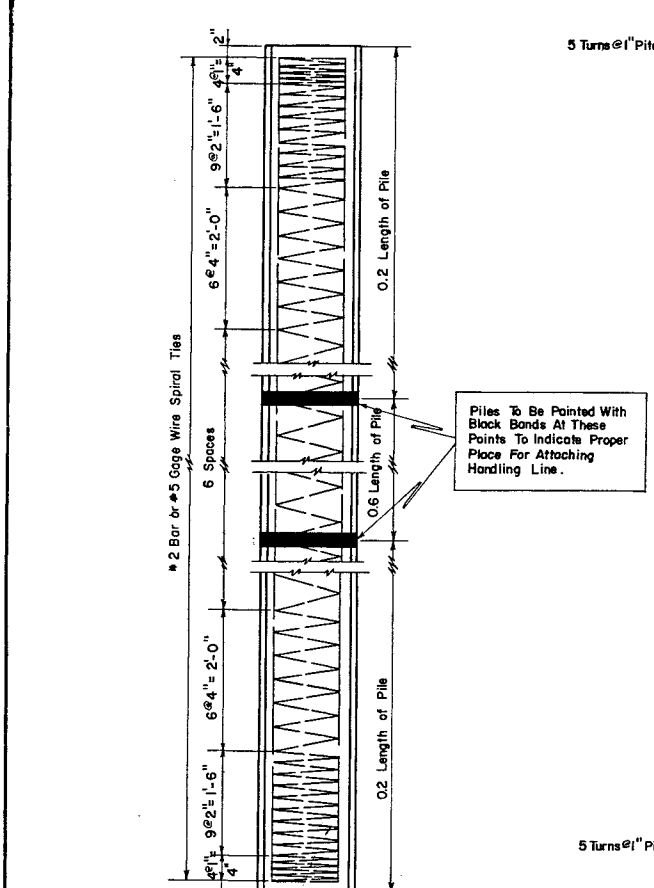
NOTE: Dimensions shown on this sheet are outside to outside of Bar.



DESIGNED BY Mires & Burke DATE _____
DRAWN BY T. P. DATE _____
TRACED BY J.W. & Goyl Parker DATE 11-14-60
CHECKED BY Burke DATE _____

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE
BILL OF STEEL
SHELLMOUND ROAD#1 OVER E.B. LANE INTERSTATE 24
STATION 319+41.6
MARION COUNTY
1965
CORRECT Red Grove
APPROVED R. Duval
BRIDGE ENGINEER
STATE HIGHWAY ENGINEER
K-47-123

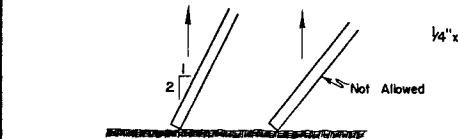
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.		19		



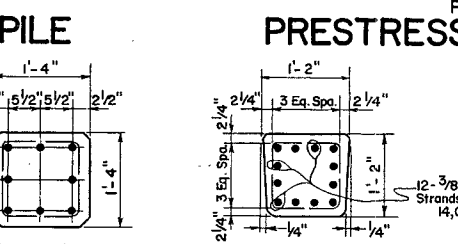
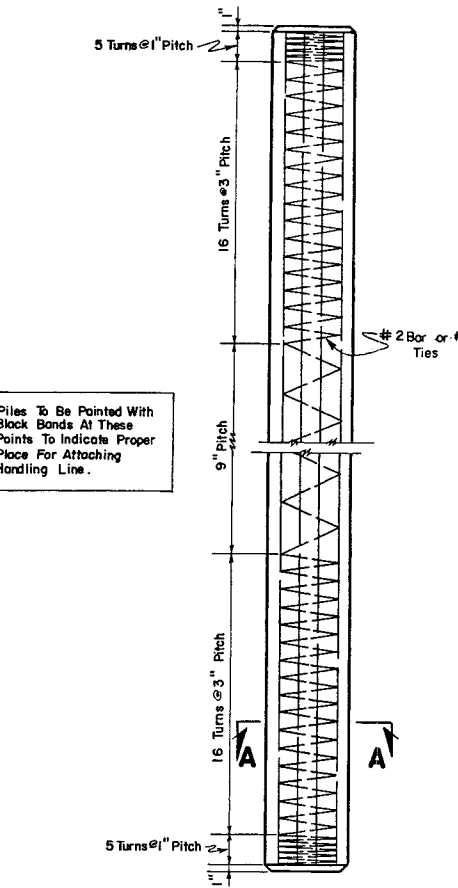
NOTE: If it becomes necessary to use size 2 piles the contractor will be allowed an increase in the size 1 bid of 25%.

Length Of Pile	Longitudinal Reinforcing	Weight Of Steel Per Ft.	Weight Of Pile Per Ft.
Up To 35'	4 #7 Bars	9.6 #	205.3 #
36' To 40'	4 #8 Bars	12.2 #	205.3 #
41' To 45'	4 #9 Bars	15.1 #	265.3 #
46' To 50'	4 #10 Bars	18.8 #	265.3 #
51' To 55'	8 #9 Bars	28.9 #	265.3 #
56' To 60'	8 #10 Bars	36.2 #	265.3 #

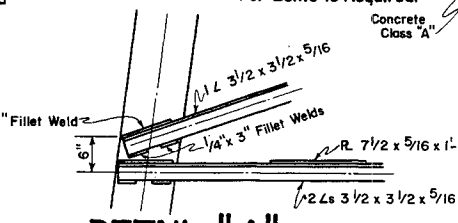
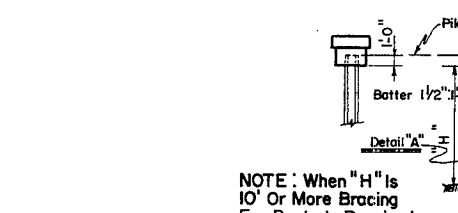
NOTE: In Handling The Piles, They Shall Be Supported At The Points Indicated. Piles To Be Picked Up By Pulling On Both Lines Uniformly. End Of Pile Not To Touch Ground Unless Piles Inclined 1:2 Or Steeper.



DESIGNED BY: J.W. SOUTHERLAND
 DRAWN BY: J.W. SOUTHERLAND
 CHECKED BY: B. CANTRELL JR.
 DATE: 5-27-60
 DATE: 2-6-62

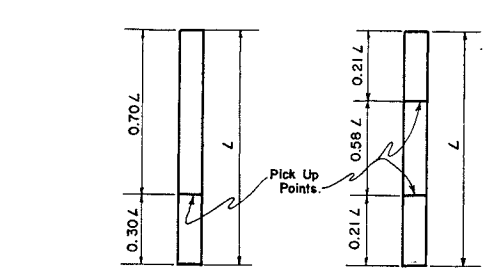


NOTE: Driving Of Built-Up Piles Shall Be Permitted Only At The Direction Of The Engineer.



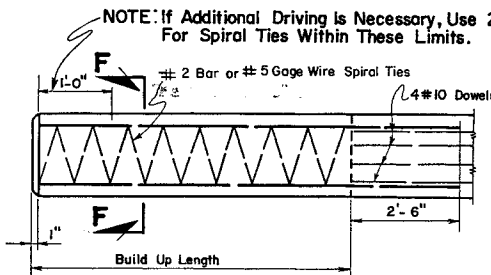
DETAIL "A"
 Welds Typical For All End Joints And Intersections.

REV. - FEB. 6, 1962
 REV. - MAR. 1, 1961 BATTER ON PRESTRESSED PILE
 REV. - DEC. 8, 1960
 REV. - OCT. 27, 1960
 REV. - SEPT. 27, 1960 DELETE PILE SUBSTITUTIONS

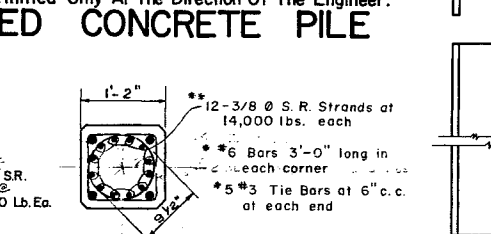


SINGLE POINT PICK-UP
 DOUBLE POINT PICK-UP

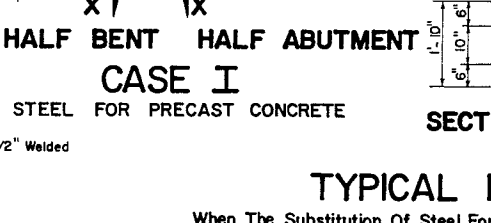
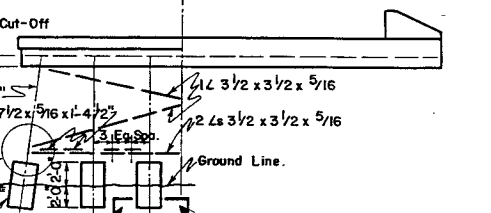
NOTES: (1) Maximum Length Single Pick Up Point - 60'-0"
 (2) Maximum Length Double Pick Up Point - 85'-0"
 (3) Piles To Be Marked At These Points To Indicate Proper Place For Attaching Handling Lines.
 (4) For Greater Lengths Three Point Pick-up is Required.



BUILD UP DETAILS
 NOTE: Driving Of Built-Up Piles Shall Be Permitted Only At The Direction Of The Engineer.

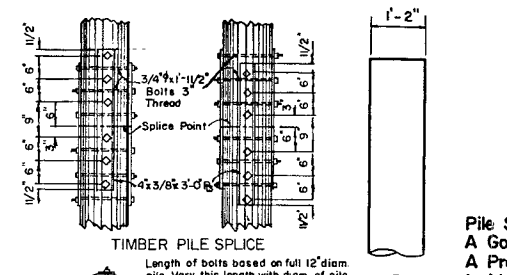


NOTE: End reinforcement required at tip end and driving end for all piles with circular strand patterns.
 ** NOTE: Subject to the approval of the Engineer of Structures, alternate strand sizes and arrangements of equivalent total force may be substituted.

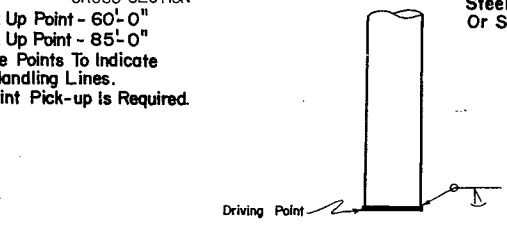


DETAIL "A"
 Welds Typical For All End Joints And Intersections.

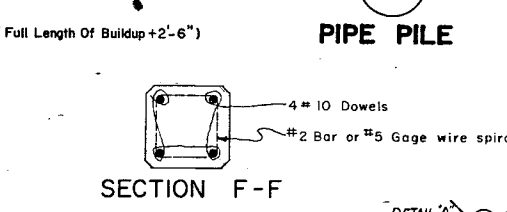
REV. - JULY 25, 1960
 REV. - DEC. 14, 1964 SPIRAL TIES
 REV. - JAN. 22, 1964 COST OF WIRE FABRIC
 REV. - FEB. 24, 1966 TIMBER PILE SPLICE, DETAIL OF PILE DRIVING POINT
 REV. - NOV. 27, 1973 ADDED ALT. SECTION A-A



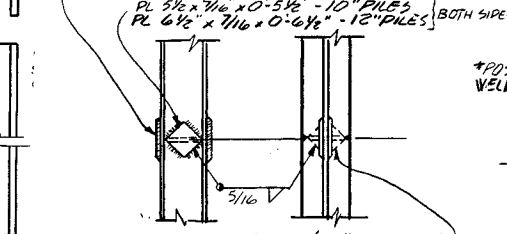
TIMBER PILE SPLICE
 Length of bolts based on full 12" diam pile. Vary this length with diam. of pile.



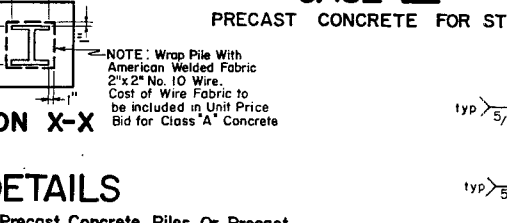
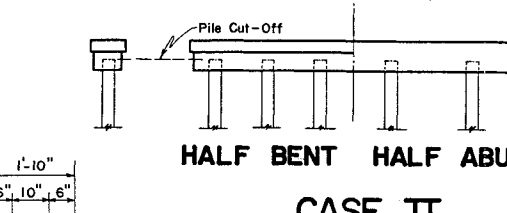
PIPE PILE
 NOTE: Pile Shall Be Driven With A Good Steel Head Having A Projecting Ring Fitting Inside The Pipe. Clearance Between Ring And Pipe Should Be 1/4". Steel Pipe May Be Welded Or Seamless Steel.



SECTION F-F
 FILL SPACES BETWEEN PILE SECTIONS WITH BUTT WELD. GRIND THIS BUTT WELD FLUSH, IN WAY OF SECOND WEB SPLICE R.

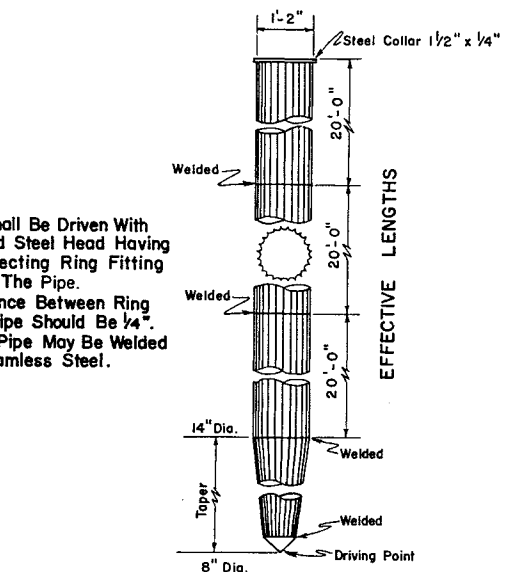


DETAIL OF PILE SPLICE
 PL. 5/8" x 7/16" x 0'-5 1/2" - 10" PILES
 PL. 6/8" x 7/16" x 0'-6 1/2" - 12" PILES
 PL. 7" x 7/16" x 0'-7" - 10" PILES
 PL. 8 3/8" x 7/16" x 0'-8 3/8" - 12" PILES

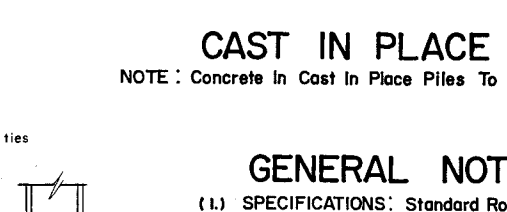


DETAIL OF PILE DRIVING POINT
 NOTE: Cost of driving point to be included in the unit price bid for steel piles.

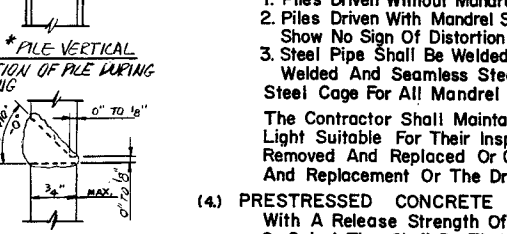
REV. - NOV. 12, 1982 DETAIL OF PILE SPLICE



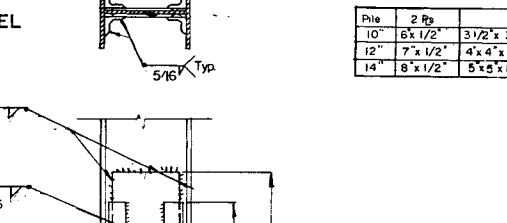
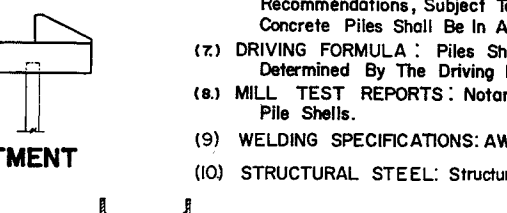
STEP TAPER PILE
 NOTE: Concrete In Cast In Place Piles To Be Class "A"



CAST IN PLACE PILES
 NOTE: Concrete In Cast In Place Piles To Be Class "A"

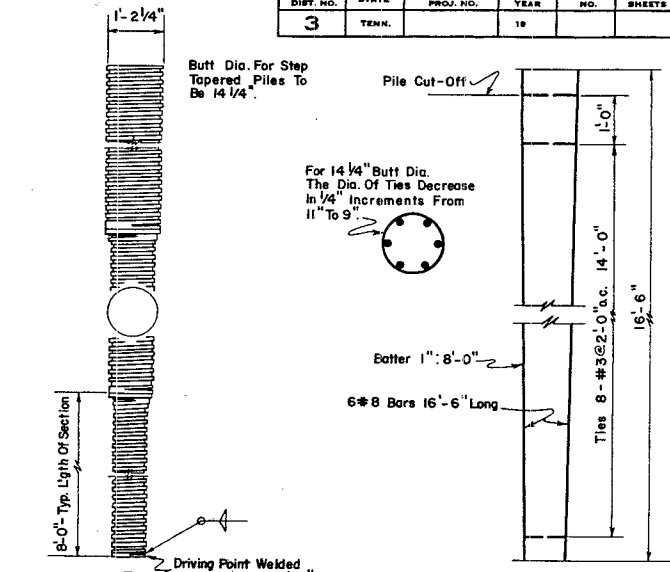


GENERAL NOTES
 (1) SPECIFICATIONS: Standard Road And Bridge Specifications Of The Tennessee Department Of Highways.
 (2) CHOICE OF PILES: To Be Specified On The Layout Sheet For Each Bridge.
 (3) CAST IN PLACE: Pile Shells Shall Have A Minimum Thickness As Follows:
 1. Piles Driven Without Mandrel - 7 Gage.
 2. Piles Driven With Mandrel Shall Be Of Sufficient Strength And Thickness To Hold Its Original Form And Show No Sign Of Distortion After The Core Has Been Withdrawn.
 3. Steel Pipe Shall Be Welded Or Seamless Steel Conforming To ASTM Designation A-252 Grade 2 Welded And Seamless Steel Pipe Piles.
 Steel Cage For All Mandrel Driver Piles Will Be Required.
 The Contractor Shall Maintain On The Job At All Time Prior To And During The Filling Of The Shells, A Light Suitable For Their Inspection. Improperly Driven, Broken Or Otherwise Defective Shells Shall Be Removed And Replaced Or Otherwise Corrected To The Satisfaction Of The Engineer By Removal And Replacement Or The Driving Of An Additional Pile At No Extra Cost.
 (4) PRESTRESSED CONCRETE PILES: 1. Concrete Shall Have A Minimum 28 Day Strength Of 5000 PSI With A Release Strength Of 3500 PSI For 3/8" Strands.
 2. Spiral Ties Shall Be Tied To Corner Strands At Intervals Adequate To Prevent Excessive Movement During Vibration. They May Be Manufactured From Stock Meeting Any Grade Of Reinforcing Steel Or Hard Drawn Wire.
 (5) PILE POINTS: All Cast In Place Piles Shall Be Equipped With A Steel Driving Point. Driving Points Shall Be Mill Welded To The Pile Shell. Driving Points May Be Either Structural Steel, Forged Steel Or Cast Steel. Steel Piles Shall Have A Square Cut End Only. No Driving Point Is Required Unless Shown On The Bridge Plans.
 (6) SPLICES: Splice Details For Cast In Place Piles Shall Be Made In Accordance With The Manufacturers Recommendations, Subject To The Approval Of The Engineer. Splice Details For Steel And Prestressed Concrete Piles Shall Be In Accordance With The Details Shown On This Sheet.
 (7) DRIVING FORMULA: Piles Shall Be Driven To A Minimum Capacity As Specified On The Layout Sheet As Determined By The Driving Formulas Stipulated In The Specifications.
 (8) MILL TEST REPORTS: Notarized Mill Test Reports Will Be Required For All Steel Piles And Cast In Place Pile Shells.
 (9) WELDING SPECIFICATIONS: AWS for Bridges.
 (10) STRUCTURAL STEEL: Structural Steel conforming to ASTM A-7 or ASTM A-36-62T will be acceptable.

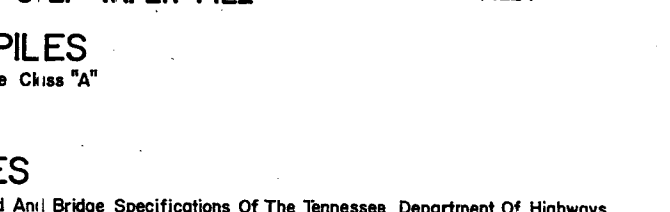


DETAIL OF PILE DRIVING POINT
 NOTE: Cost of driving point to be included in the unit price bid for steel piles.

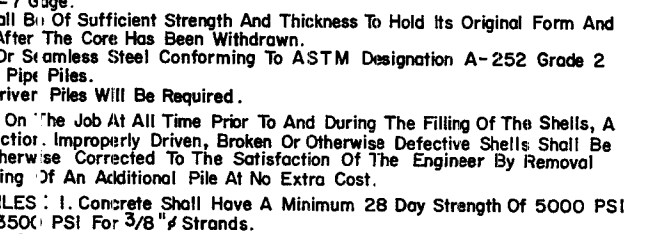
REV. - NOV. 12, 1982 DETAIL OF PILE SPLICE



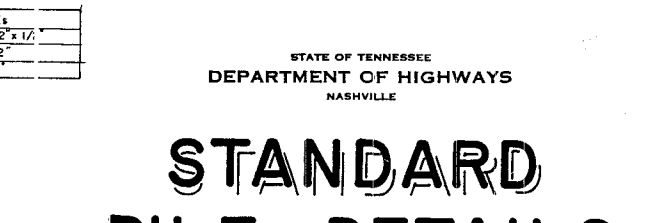
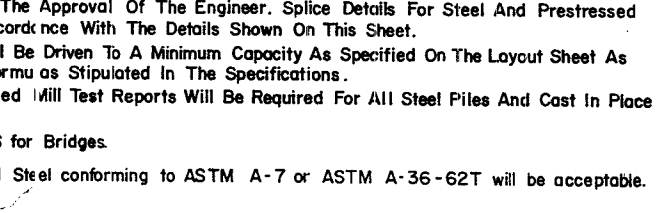
STEEL CAGE FOR MANDREL DRIVEN PILE.



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DETAIL OF PILE DRIVING POINT
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REV. - NOV. 12, 1982 DETAIL OF PILE SPLICE

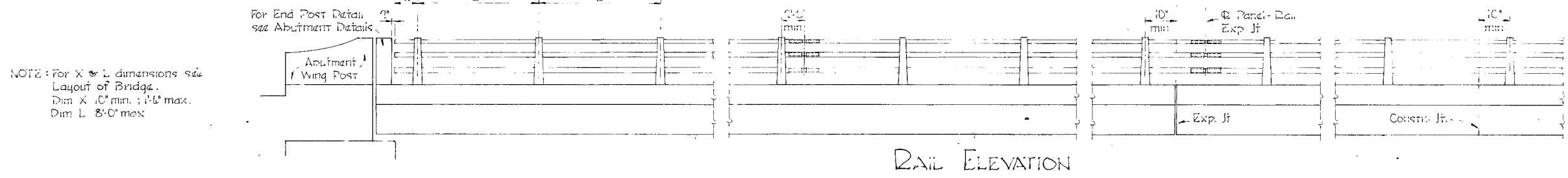
STANDARD
 PILE DETAILS

STATE OF TENNESSEE
 DEPARTMENT OF HIGHWAYS
 NASHVILLE

DESIGNED BY: J.W. SOUTHERLAND
 DRAWN BY: J.W. SOUTHERLAND
 CHECKED BY: B. CANTRELL JR.
 DATE: 5-27-60
 DATE: 2-6-62

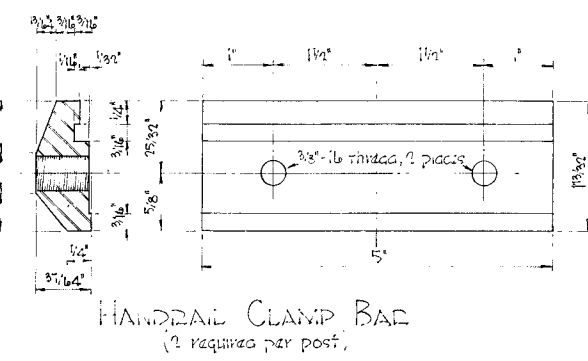
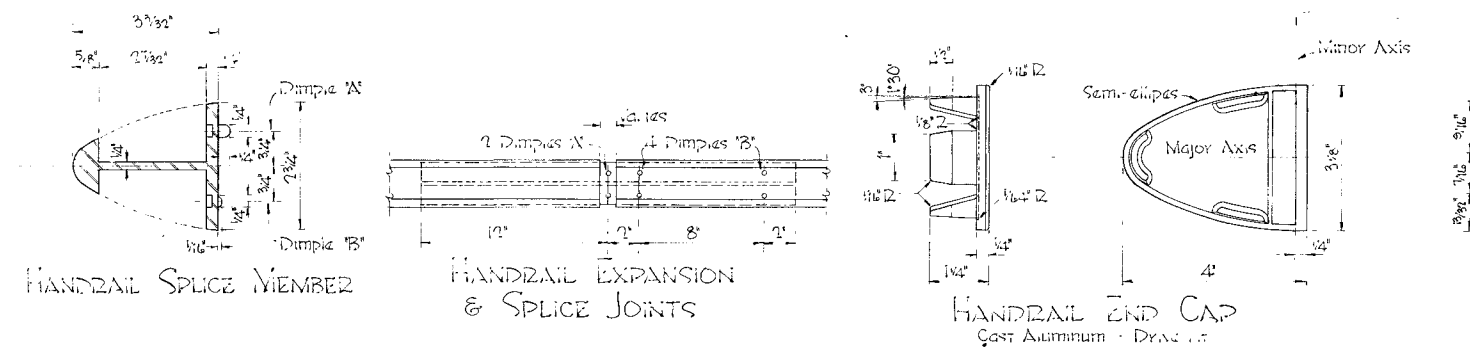
H-5-III

SEE Std-5-1 & 5-2



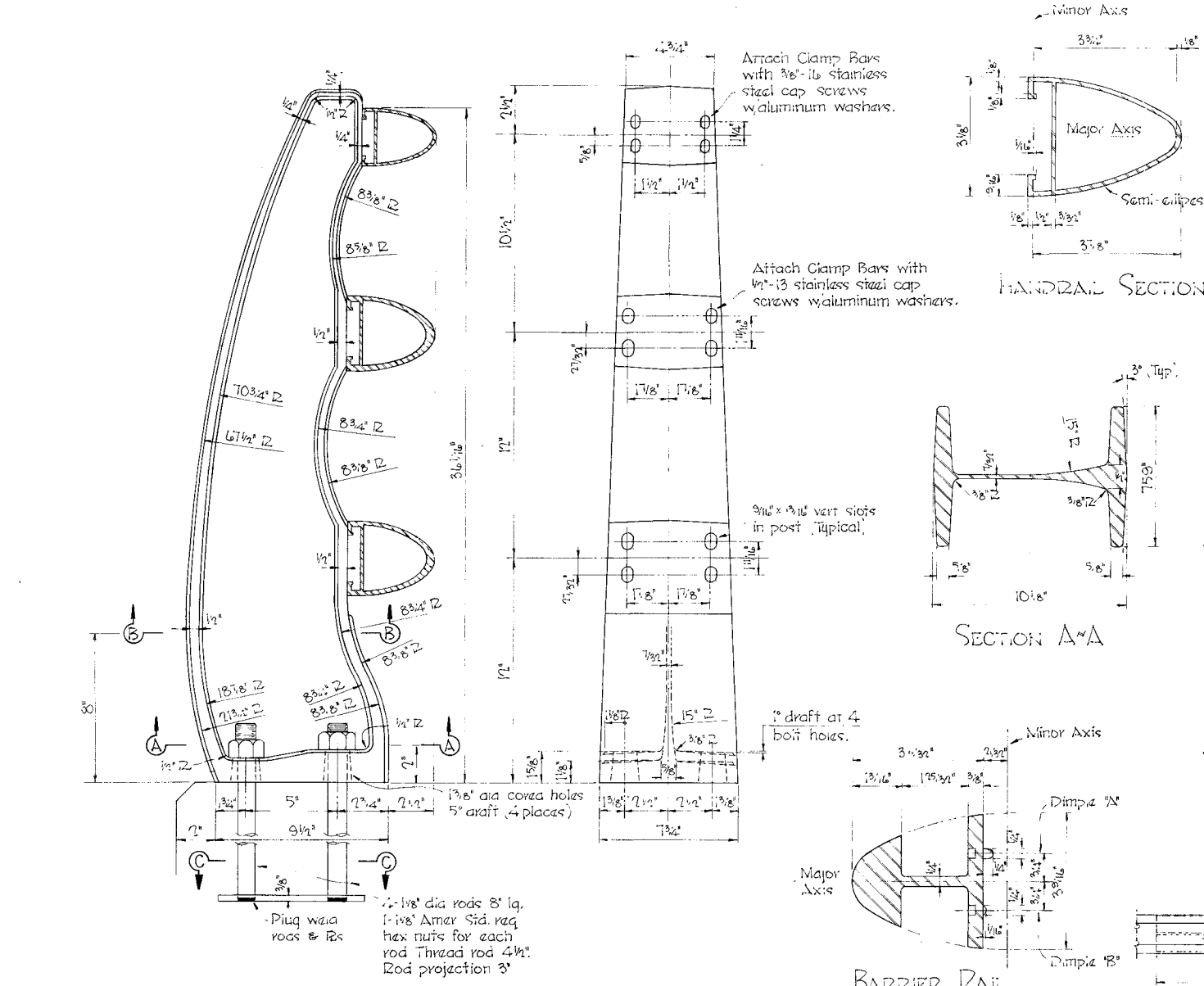
NOTE: For X & L dimensions see Layout of Bridge.
Dim X 10' min. ; 14' max.
Dim L 8' 0" max.

RAIL ELEVATION



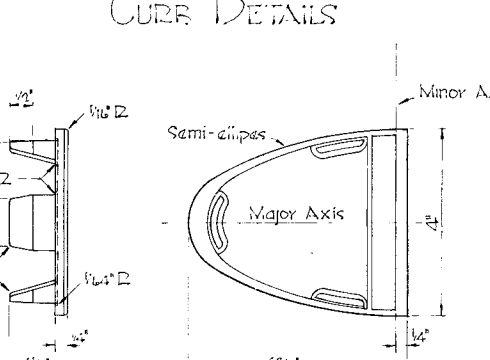
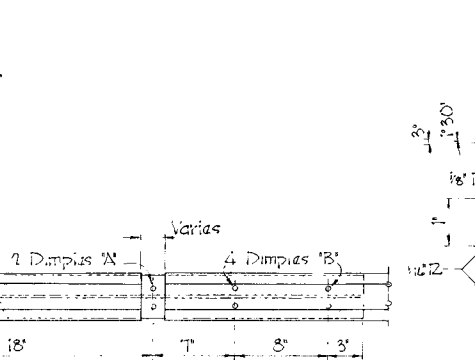
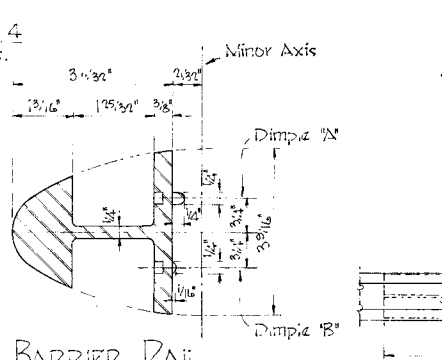
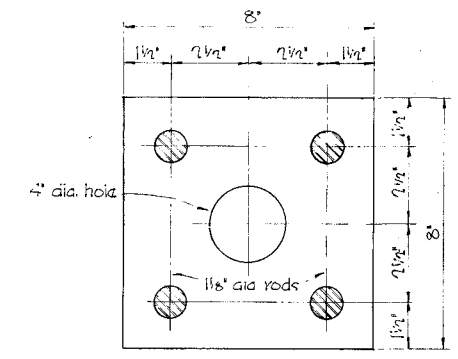
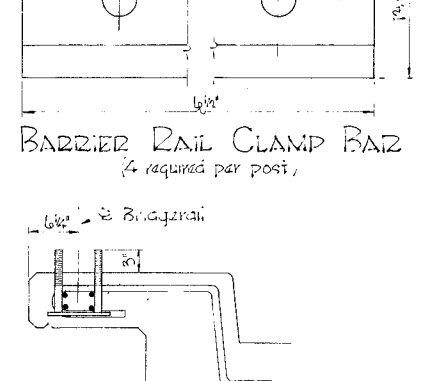
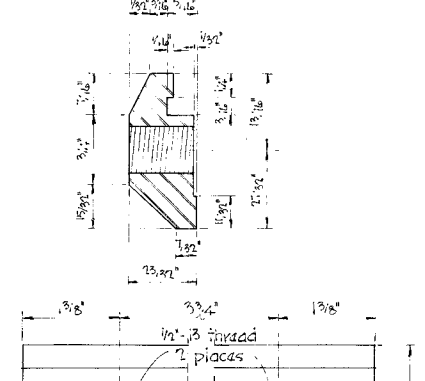
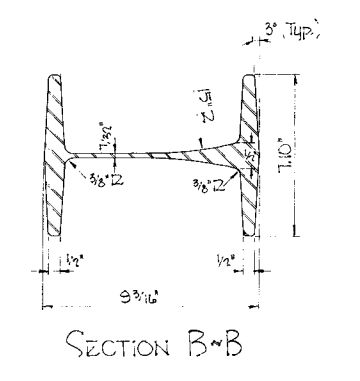
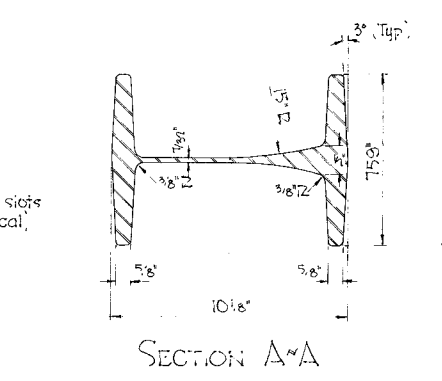
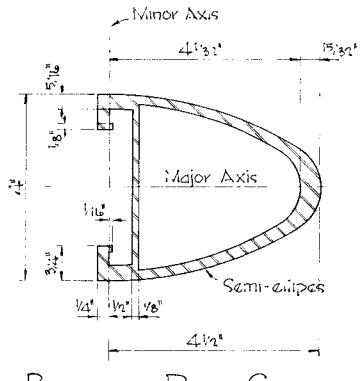
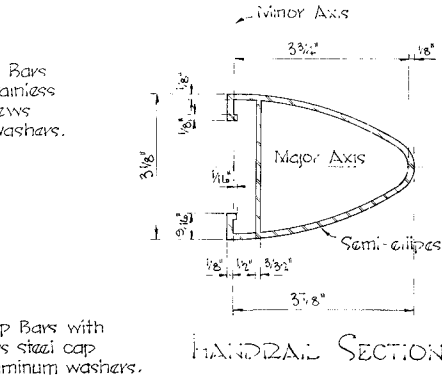
GENERAL NOTES

DESIGN: AASHTO 1964 Interim Specifications.
All anchorage provisions and hardware are considered as parts of the rail for payment.
All open ends of rail members shall be capped.
Panel lengths of rail shall be attached to a minimum of 4 posts.
Rail post shall be set plumb unless otherwise noted on Plans.
Anchor bolts & nuts to be steel, galvanized to ASTM A-153.
Posts & End Caps shall be cast aluminum Alloy A36-T6.
Material for rail members shall be aluminum ASTM B221 Alloy 6061-T6, or 6061-T6.
Castings shall have a maximum draft of 3° and a minimum radius of fillet of 1/4" unless otherwise shown.
Splice material required to plumb post shall be aluminum alloy made from sheet or plate conforming to ASTM Specification B209-T6, Alloy 1100 Condition O. Shims shall be of such dimensions to provide full bearing for the post.
All aluminum surfaces in contact with concrete shall be given a shop coat of zinc chromate paint.
All rails to be sawed to length. Flame cutting is not permitted.
Rails may be heated to a temperature not exceeding 400°F, for a period not exceeding 30 minutes, to facilitate bending.
Anchor bolts & nuts shall be ASTM A307 & anchor plates shall be ASTM A36 or A7.
Clamping Bar Attachment: Clamp Bars to be aluminum ASTM B221, Alloy 6061-T6 or 6061-T6. Stainless steel cap screws shall be ASTM A-193, grade B-8, 100,000 psi minimum yield & aluminum washers Aiscad 1024.



DESIGNED BY: JWS
DRAWN BY: JWS
TRACED BY: JWS
CHECKED BY: JWS

DATE: _____
DATE: _____
DATE: _____
DATE: _____

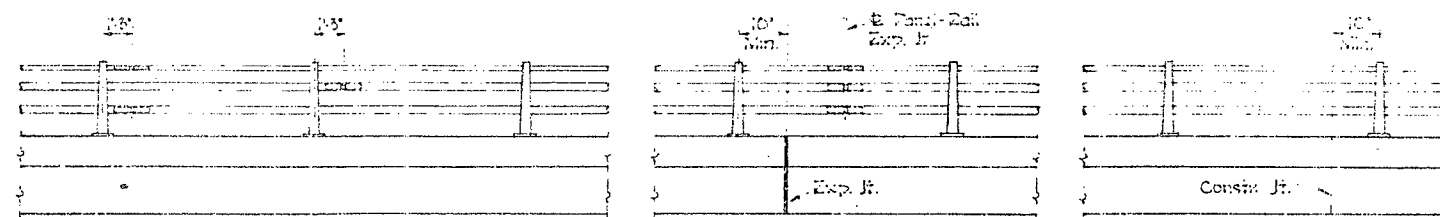
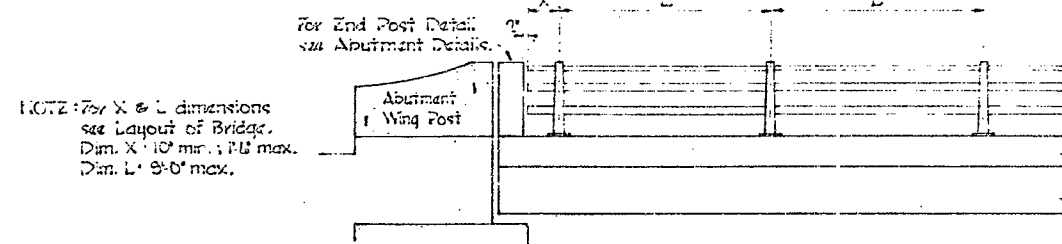


STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE

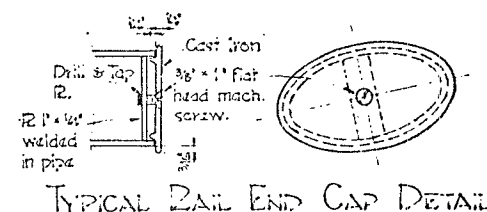
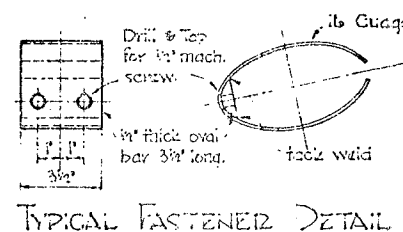
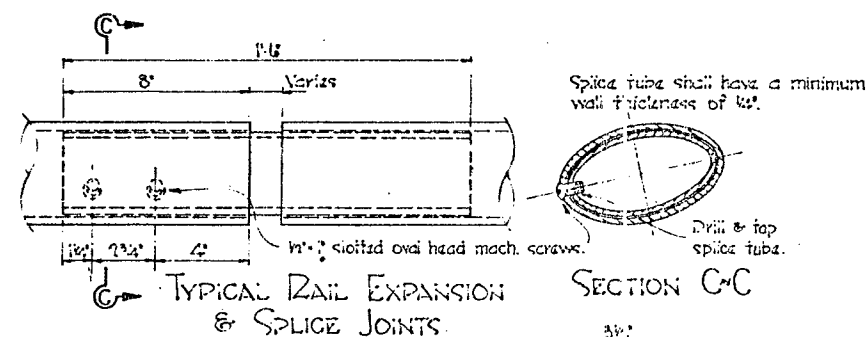
STANDARD
THREE RAIL
ALUMINUM BRIDGERAILING

CORRECT: Fred Gure
APPROVED: M. Dunlap
STATE HIGHWAY ENGINEER

F-682-169

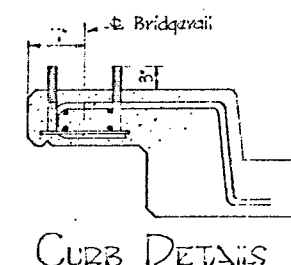
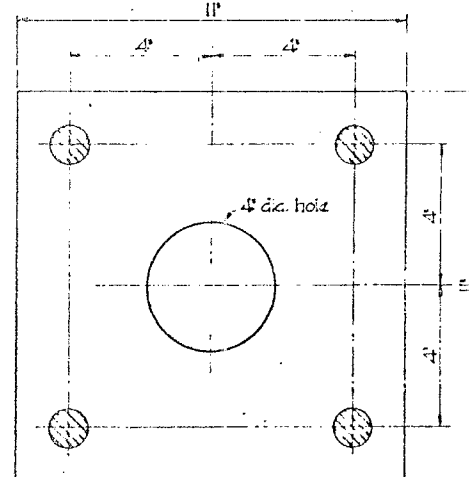
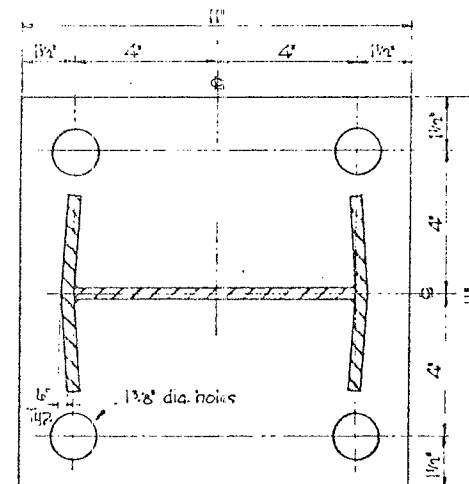
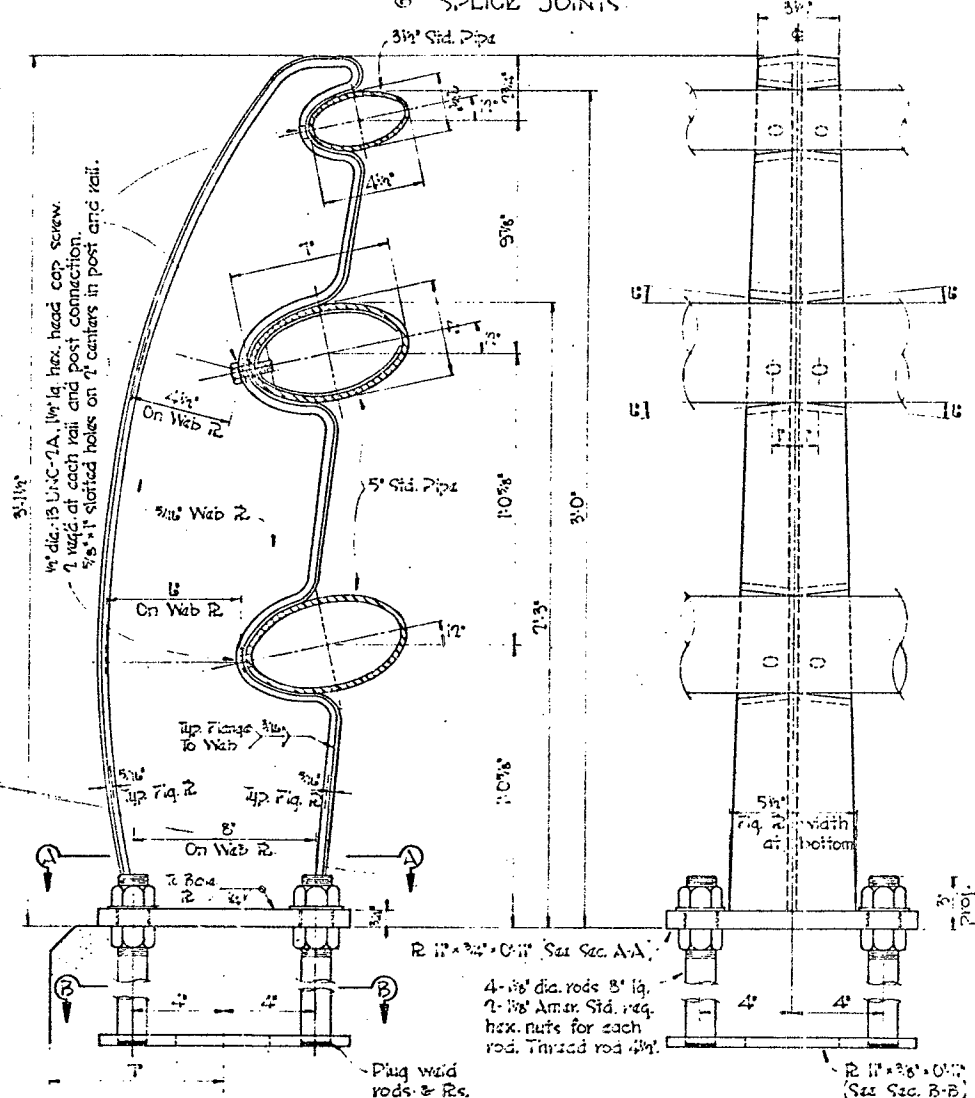


RAIL ELEVATION



GENERAL NOTES

- DESIGN: AASHTO 1964 Interim Specifications.
- POST, ANCHOR BOLT ASSEMBLY: ASTM-A36.
- RAILING: Steel rail pipe, schedule 40 ASTM-A53 grade A or B.
- END CAPS: ASTM-A53-61 Class 40.
- RAIL FASTENERS & MISC. ITEMS: ASTM-A36 or A36.
- TUBING FOR SPLICE JOINTS: ASTM-A53. Seamless tubing: Grade A or B.
- BOILERS, MACHINE SCREWS & NUTS: ASTM-A36.
- GENERAL FABRICATION & ERECTION REQUIREMENTS:
- Each rail shall be attached to a minimum of 4 post.
 - Each rail length furnished with splice joint at one end as required.
 - All welding shall conform to the Special Provisions regarding Welded Structures.
 - Railing to be fabricated and erected parallel to top of curb and each other. Post to be set plumb or truly vertical unless otherwise noted on Plans.
- RAIL ITEM: This item shall include rails, end caps, fasteners, machine screws, splice joints, post, anchor bolt assemblies and all other items to complete the railing.
- GALVANIZING:
- Post and rails to be hot dip galvanized to ASTM A153 after fabrication.
 - Anchor bolts, end caps, fasteners, splice joints, bolts and nuts to be galvanized to ASTM A153.
- SPECIAL NOTE: Since the finished railing must meet all requirements of fit, alignment, grade and verticality of posts to the full satisfaction of the engineer, it is suggested that complete field measurements be made before any shop fabrication is performed.



STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

STANDARD
THREE RAIL
STEEL BRIDGERAILING

DESIGNED BY: JWS DATE: _____
DRAWN BY: _____ DATE: _____
TRACED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

CORRECT: _____
APPROVED: _____
12-38-150

2 Copies