

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	119	

Section 157.17) Profile Grade
EL. 659.51

— Profile Grade
EL 658.02

Design Specifications AASHTO-1961
Loading H20-31.6/44 (Future wearing surface 15 p.s.f.)
Structural Steel Stress (A.S.T.M. A7) 15,000 psi.
Structural Steel Stress (A.S.T.M. A36) 20,000 psi.
Reinforcing Steel Stress 20,000 psi.
Concrete, Class B Stress 1,200 psi.
Concrete, Class B1 Stress 1,200 psi.
Superstructure concrete and intermediate bents
below footings shall be Class B1.
Substructure concrete, and bents 1A, 1 and 5 and
int. bent footings shall be Class B or B1 except
payment will be on the basis of Class B.
Fabricated structural steel for wide flange beams
and flange plates shall be A.S.T.M. A36 and all other
steel shall be A.S.T.M. A7 except as noted for bearings.
Payment will be made as Fabricated Structural Carbon
Steel.

See Standard Specification 55.3.13 for qualification of welding operators.

Field connections, High Strength bolts $\frac{3}{4}$ ", holes $\frac{1}{2}$ " except as noted.

Paint: shop, none; Field, By Contractor.

Where joint filler is specified on the plans it shall conform to Standard Specification 1512.4.

Superstructure deck to be surface sealed.

See Special Provisions.

GENERAL ELEVATION

Note: In no case shall the footings of bent No. 2 and Right Footings of bent No. 3 be placed higher than the elevations shown.

Note: All piles shall be driven to or into solid rock, boulders, shale or cemented gravel; or to not less than the full length authorized and to sustain at least the above load.



Sta. 548+44.94 E Rte. I-244
= Sta. 411+62.53 E Rte. 100

ESTIMATED QUANTITIES

Item	Sub-str.	Super-str.	Total
Class I Separation for Structures	Cu.Yds.	410	410
10" Steel Piles in Place	Lin. Ft.	660	660
10" Steel Pile Cut Offs	Lin. Ft.	90	90
Class B Concrete	Cu.Yds.	180.9	180.9
Class B1 Concrete	Cu.Yds.	197.2	755.7
Reinforcing Steel	Lbs.	68610	217, 210
Tube and/or Struct. Carbon Steel	Lbs.	652,950	652,950
Bridge Rail (Two Tube Type)	Lin. Ft.	560	560
Painting	Tons	323.0	323
Conduit System on Structures (Lighting/Traffic)	L.S		1
Conduit System on Struct. (Tel. Ducts)	L.S		1

Class I excavation for bridge shall be paid for as Class I Excavation for structures.

Class I excavation for structures will be computed from the original ground line or from the lower limits of roadway excavation, whichever is lower regardless of the sequence of operations and the method of removal.

Weight of bolts (steel to steel) is included in weight of Fabricated Structural Carbon Steel on the basis of the following weights per 100 bolts. $\frac{3}{8}$ " 40", $\frac{1}{2}$ " 65", $\frac{3}{4}$ " 95", 1" 135".

B.M. #44 Spike in 6" tree from edge of orchard
212' Rt. Sta. 534+21 EL. 652.02

B.M. #45 □ on E. end rd w/ 18" V.C.P. on N.
side Rte. 100 165' Lt. Sta. 547+70
EL. 652.83

BRIDGE RTE. 100 (MANCHESTER RD.) UNDERPASS

STATE ROAD INTERSTATE ROUTE 244
ABOUT 4 MILES N.W. OF KIRKWOOD
PROJECT NO. IG-244-A (27) STA 548 + 44.94
SEC. A (STE. I-244)
ST. LOUIS COUNTY

SUBMITTED BY:
Jack M. Hadley

REGISTERED PROFESSIONAL ENGINEER
MISSOURI NO. E-8243

SL SUBMITTED BY D.B. Jenkins DATE 8/24/62
BRIDGE ENGINEER
APPROVED BY J.J. Corbett DATE 8/24/62
BRIDGE ENGINEER

STD. 54.00

A-960

LOCATION	SKETCH
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Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 10

Drawn Feb. 1962 by D.L.B.
Checked Apr. 1962 by LAA

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	120	

No.	Size	Length	Mark	Location
END BENT NO. 1				
5	#6	29'-9"	AB3	Beam
25	#4	13'-0"	AB4	"
24	#4	13'-6"	AB5	"
12	#4	13'-6"	AB6	"
24	#4	12'-9"	AB7	"
5	#6	31'-3"	AB8	"
5	#6	17'-9"	AB9	"
5	#6	25'-3"	AB10	"
9	#6	36'-6"	AB11	"
9	#6	28'-3"	AB12	"
9	#6	35'-3"	AB13	"
15	#4	3'-9"	U2	"
18	#4	3'-9"	U3	"
24	#2	19'-9"	PI	A.B. Wells
Backwall				
6	#6	31'-3"	AB1	"
12	#4	31'-3"	AB2	"
28	#4	6'-6"	V2	"
168	#4	5'-9"	V3	"
Wing Walls				
7	#4	14'-3"	V1	"
4	#6	11'-6"	W2	"
2	#6	11'-6"	W2	"
7	#6	16'-9"	W3	"
6	#6	9'-9"	W4	"
2	#6	7'-9"	W5	"
2	#6	4'-0"	W6	"
2	#6	11'-6"	W7	"
INT. BENT NO. 2				
32	#10	5'-6"	D1	Footings
32	#10	19'-0"	PC1	Columns
4	#4	6'-6"	PC6	"
Beam				
54	#5	12'-6"	PB1	"
38	#5	13'-6"	PB2	"
58	#5	13'-9"	PB3	"
54	#5	12'-9"	PB4	"
8	#7	8'-3"	PB5	"
8	#11	29'-3"	PB6	"
12	#11	20'-0"	PB7	"
4	#11	19'-6"	PB8	"
12	#11	17'-0"	PB9	"
4	#11	25'-6"	PB10	"
8	#6	32'-0"	PB11	"
8	#9	17'-0"	PB12	"
4	#6	27'-6"	PB13	"
8	#10	32'-3"	PB14	"
12	#11	18'-3"	PB15	"
4	#10	27'-9"	PB16	"
6	#10	17'-9"	PB17	"
24	#4	4'-0"	U1	"
24	#2	19'-9"	PI	A.B. Wells
INT. BENT NO. 3				
64	#11	5'-9"	D2	Footings
32	#11	21'-9"	PC2	Columns
32	#11	20'-6"	PC3	"
2	#4	9'-9"	PC7	"
2	#4	6'-6"	PC9	"
Beam				
54	#5	12'-6"	PB1	"
38	#5	13'-6"	PB2	"
58	#5	13'-9"	PB3	"
54	#5	12'-9"	PB4	"
8	#7	8'-3"	PB5	"
8	#11	29'-3"	PB6	"
12	#11	20'-0"	PB7	"
4	#11	19'-6"	PB8	"
12	#11	17'-0"	PB9	"
4	#11	25'-6"	PB10	"
8	#6	32'-0"	PB11	"
8	#9	17'-0"	PB12	"
4	#6	27'-6"	PB13	"
8	#10	32'-3"	PB14	"
12	#11	18'-3"	PB15	"
4	#10	27'-9"	PB16	"
6	#10	17'-9"	PB17	"
24	#4	4'-0"	U1	"
24	#2	19'-9"	PI	A.B. Wells
INT. BENT NO. 3 CONT.				
8	#11	29'-3"	PB6	Beam
12	#11	20'-0"	PB7	"
4	#11	19'-6"	PB8	"
12	#11	17'-0"	PB9	"
4	#11	25'-6"	PB10	"
8	#6	32'-0"	PB11	"
8	#9	17'-0"	PB12	"
4	#6	27'-6"	PB13	"
8	#10	32'-3"	PB14	"
12	#11	18'-3"	PB15	"
4	#11	27'-9"	PB16	"
6	#11	17'-9"	PB17	"
24	#4	4'-0"	U1	"
24	#2	19'-9"	PI	A.B. Wells
INT. BENT NO. 4				
32	#10	5'-6"	D1	Footings
16	#10	21'-3"	PC3	Columns
16	#10	26'-0"	PC5	"
2	#4	6'-6"	PC8	"
2	#4	35'-9"	PC10	"
Beam				
54	#5	12'-6"	PB1	"
38	#5	13'-6"	PB2	"
58	#5	13'-9"	PB3	"
54	#5	12'-9"	PB4	"
8	#7	8'-3"	PB5	"
8	#11	29'-3"</		

Note: This drawing is not to scale. Follow dimensions

Drawn April 1962 by D.L.B.
Checked Apr 1962 by LAA

Sheet No. 2 of 10

STATE ROAD INTERSTATE ROUTE 244
ABOUT 4 MILES N.W. OF KIRKWOOD
PROJECT NO. I-IG-244-4 (27) STA 548 + 44.94
SEC. A (RTE. I-244)
ST. LOUIS COUNTY

0548-5385

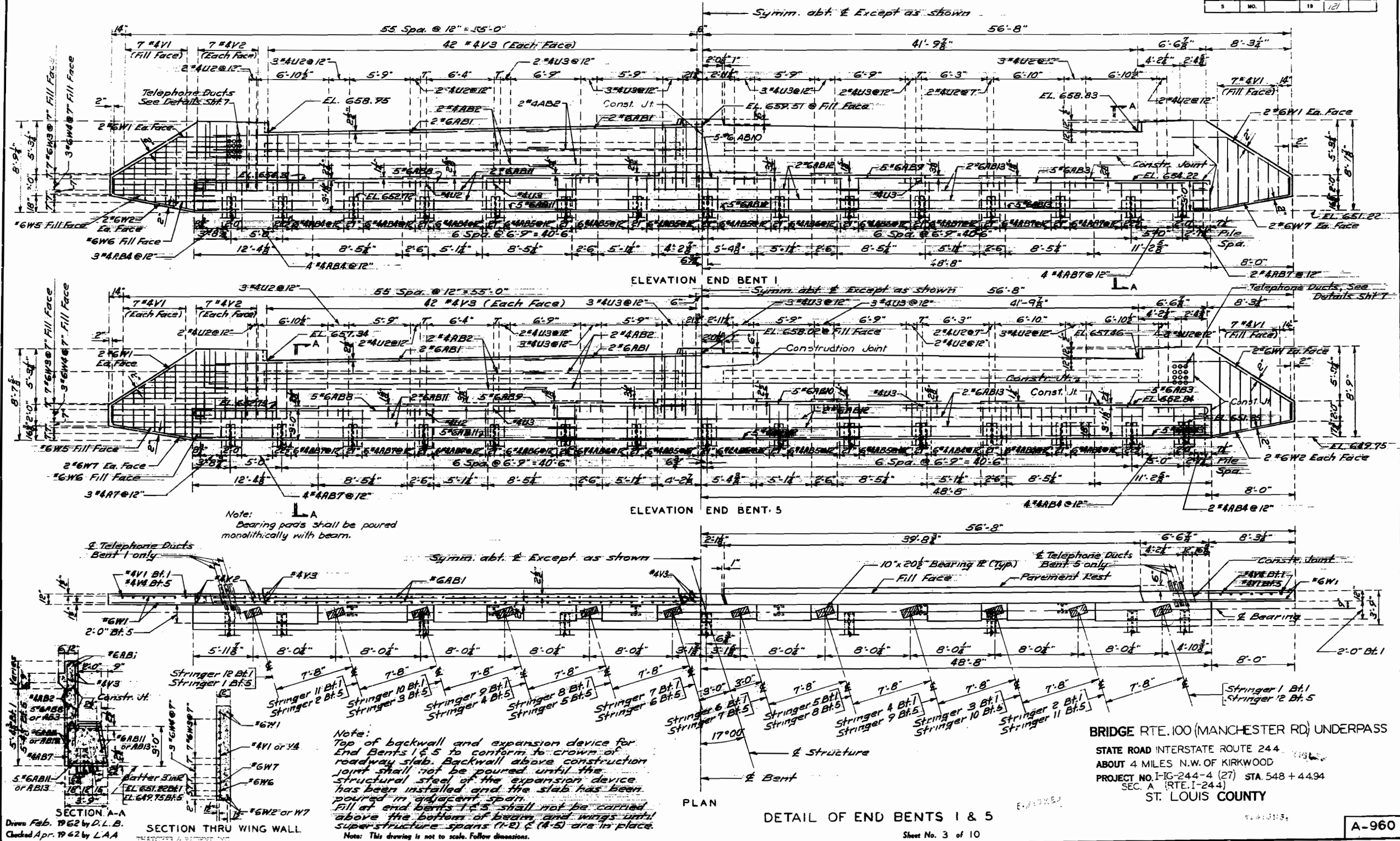
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A-960:

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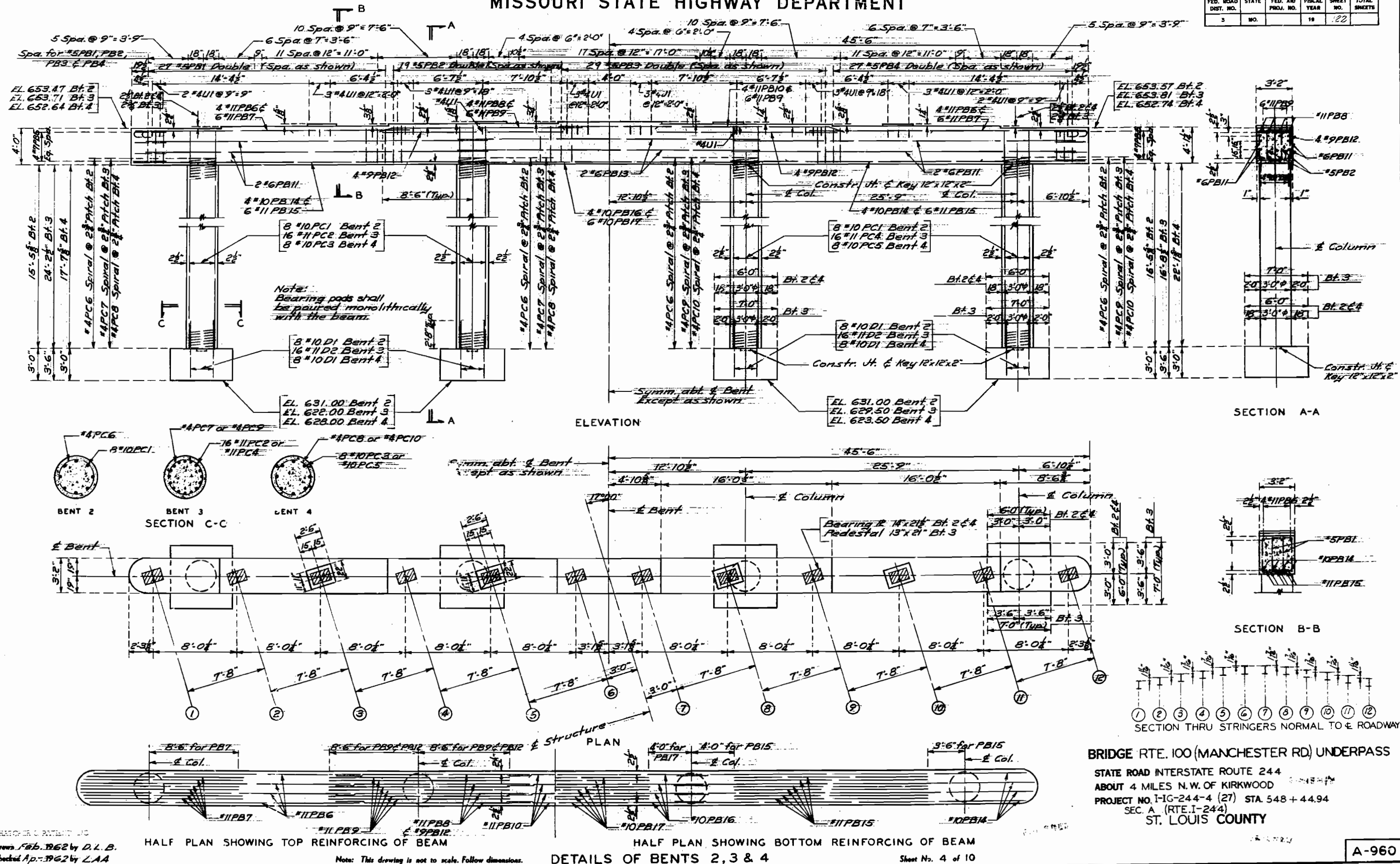
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	121	



MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	MO.		18	22	

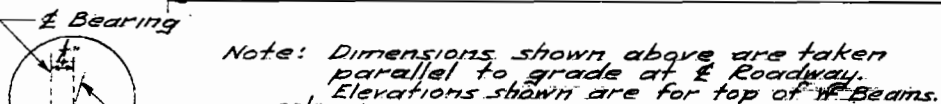


THOMPSON & PATENT, INC.
 Drawn 5-26-1962 by D.L.B.
 Checked A.P.-3962 by L.A.A.

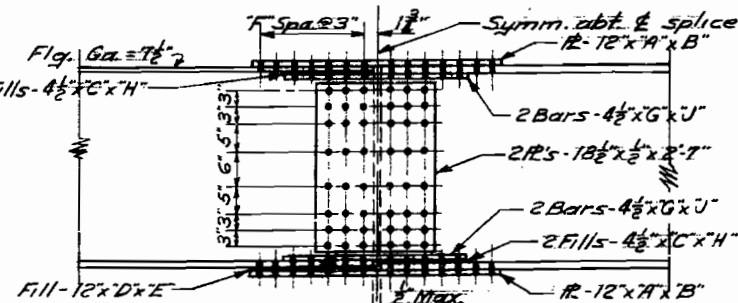
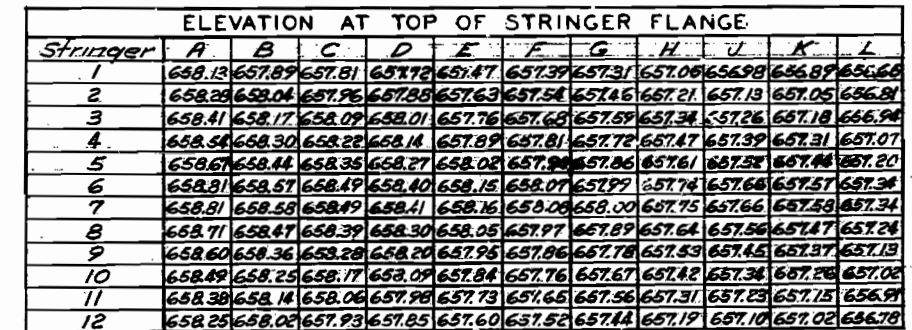
Note: This drawing is not to scale. Follow dimensions.

SEE FINAL PLANS BROWN-LINES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	123	



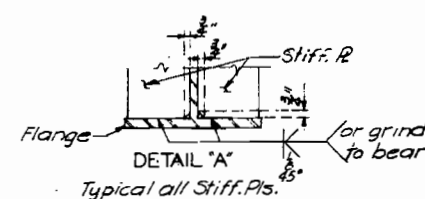
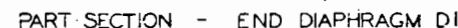
Note. See sheet 10 of 10 for L-5x3 $\frac{1}{2}$ x $\frac{1}{2}$ "
light brackets.



BRIDGE RTE. 100 (MANCHESTER RD.) UNDERPASS

DETAIL OF SPIRAL AROUND ANCHOR BOLTS

FED. ROAD DIST. NO.	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	125	



DETAIL "B"



The image contains two hand-drawn structural drawings of a bridge deck.

The top drawing is a plan view of the bridge deck. It shows a rectangular cross-section with a total width of 10'-3" (9'-3" + 1'-0"). The deck is divided into three sections: a left section of 9'-3", a central section of 1'-0", and a right section of 9'-3". The right section is labeled "Bents 2 & 4" and "Bent 3". The deck is supported by a central pier. The deck is labeled "12-11'x1" Stringer 1", "12-10'x3/4" Str. 2 thru 11", and "12-14'x1" Stringer 12". The central pier is labeled "Symm. abt. & Bearing" and "R-6'x3/8\"". The deck is supported by "2 Bars - 5/8'x3/8" (Str. 2 Thru 11 only)".

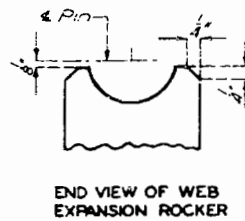
The bottom drawing is a cross-section of the bridge deck. It shows a T-shaped cross-section with a total width of 10'-3" (9'-3" + 1'-0"). The deck is labeled "12-11'x1" Stringer 1", "12-10'x3/4" Str. 2 thru 11", and "12-14'x1" Stringer 12". The central pier is labeled "Symm. abt. & Bearing" and "R-6'x3/8\"". The deck is supported by "2 Bars - 5/8'x3/8" (Str. 2 Thru 11 only)". The cross-section shows a "Flange R." and a "Bar - 5/8'x3/8" (Str. 2 thru 11 only)". The deck is supported by "2 Bars - 5/8'x3/8" (Str. 2 Thru 11 only)".



STATE ROAD INTERSTATE ROUTE 244
ABOUT 4 MILES N.W. OF KIRKWOOD
PROJECT NO. I-IG-244-4 (27) STA. 548 + 44.94
SEC. A (RTE. I-244)
ST. LOUIS COUNTY

MISSOURI STATE HIGHWAY DEPARTMENT

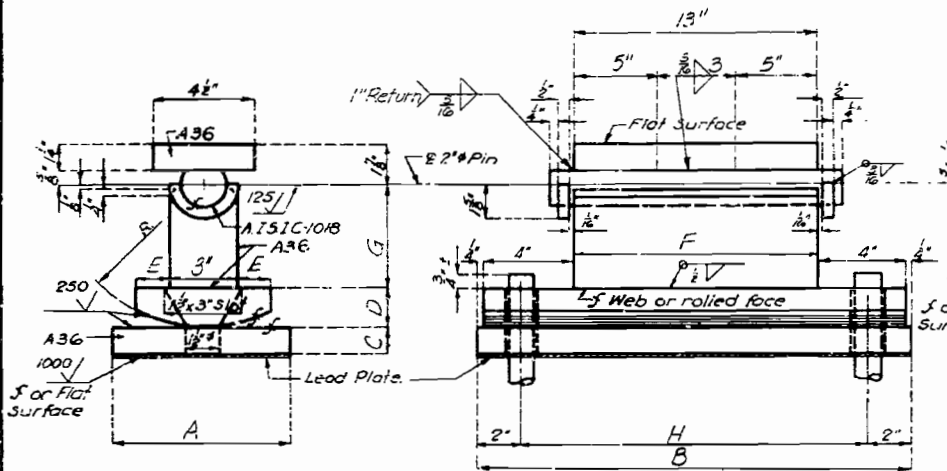
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO		19	26	



Bottom Flange or Flange R.
(Narrower than Brg Top R.)

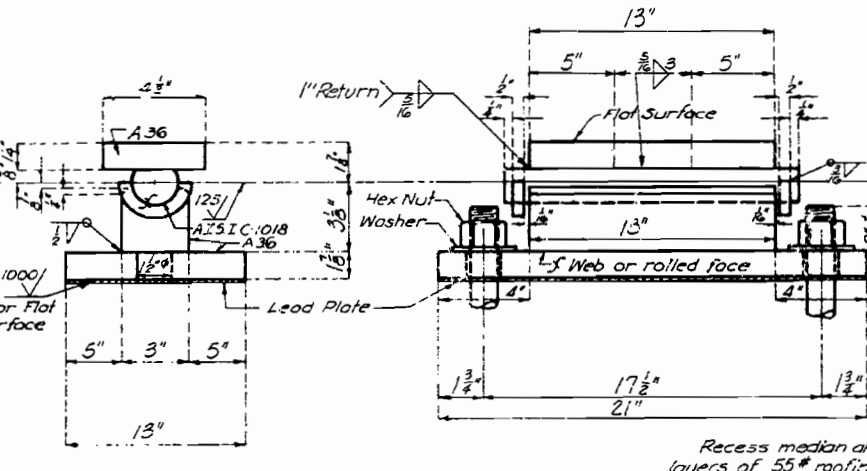
Bottom Flange or Flange R.
(Wider than Brg Top R.)

WELDING DETAILS



EXPANSION
Reqd: 24 Sets - Bent 1 & 5.
24 Sets - Bent 2 & 4.

TYPE "D" BEARINGS (Estimated Weight 13,210)



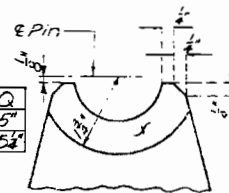
FIXED
Reqd: 12 Sets - Bent 3

GENERAL NOTES:

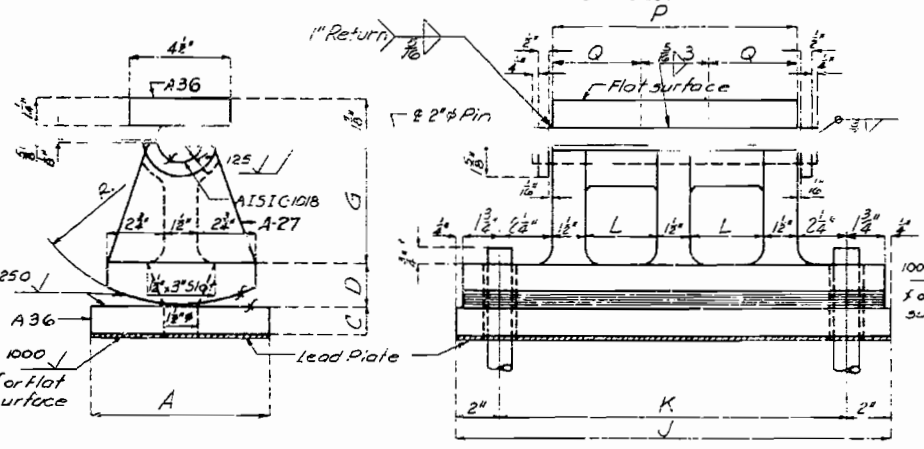
Finish all surfaces as indicated.
Material for Type "D" Bearings shall be as noted.

Material for bearings will be paid for as Fabricated Structural Carbon Steel.
Material for Alternate Type "D" Bearings shall be as noted.
Anchor Bolts for Type "D" Bearings and Alternate Type "D" Bearings shall be 1/2" swaged bolts and shall extend 12" into concrete, with hexagon nuts and plain washers for Fixed Bearings, no nuts for Expansion Bearings.
Alternate Type "D" Bearing may be furnished in place of Type "D" Bearings but will be paid for under the same item and weight of the Type "D" Bearing it is substituted for.
Estimated Weight does not include weight of anchor bolts.
Lead plates under bearings shall be approximately 1/8" thickness and weigh 8" 5q Fl. Cost of lead plates shall be included in price bid for other items.

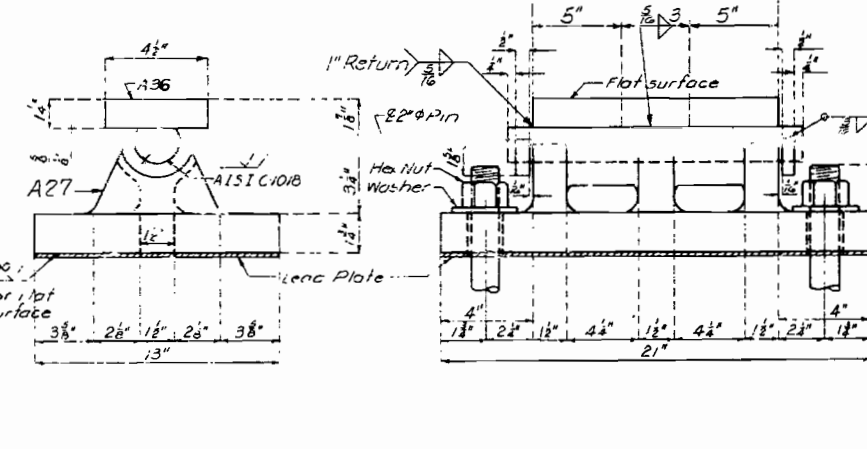
Location	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Bents 1 & 5	10'	20'	14'	13'	14'	12'	53'	164'	214'	174'	44'	7'	13'	5'			
Bents 2 & 4	14'	214'	124'	124'	2'	13'	53'	174'	22'	18'	44'	110'	134'	54'			



END VIEW OF WEB
EXPANSION ROCKER
(Finish fixed casting as shown above)

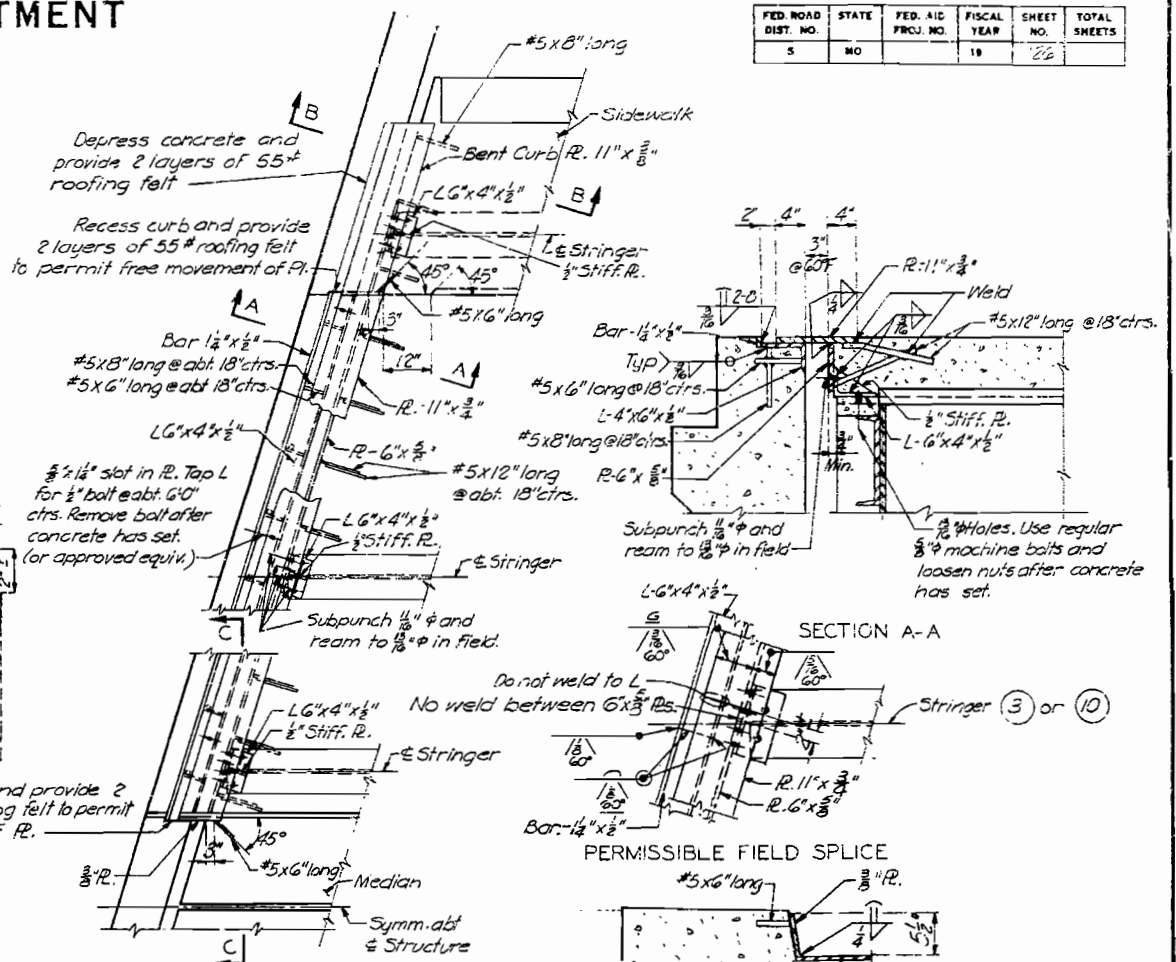


EXPANSION



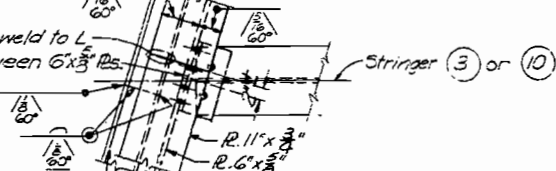
FIXED

ALTERNATE TYPE "D" BEARINGS

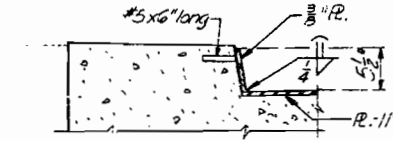


PART PLAN
END BENT 1
Note: End Bent 5 same by 90° rotation.

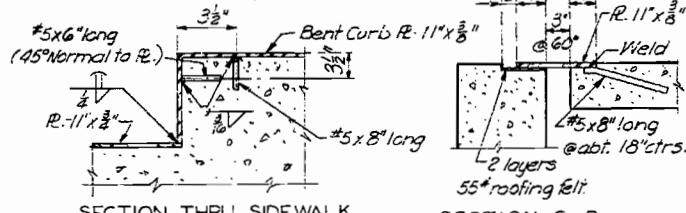
SECTION A-A



PERMISSIBLE FIELD SPLICE



SECTION C-C



SECTION THRU SIDEWALK

SECTION B-B

DETAILS OF EXPANSION DEVICE

Note:
Expansion device as shown above shall be fabricated in one section, except that when the length is over 40 feet splicing is permissible. Expansion device shall be made to conform to grade of roadway. #5 bars for expansion device shall be structural grade. Approved steel anchors shall be used. Use #5 bars shown. Use #5 anchors immediately adjacent to L supports over stringers and the remaining anchors at not more than 18" ctrs. Use edging tool with 1/4" radius at edge of expansion device.

Note:
Use Bevel as shown for exposed face of all filled joints except at top surface of roadway slab.

DETAIL OF BEVEL FOR FILLED JOINTS

BRIDGE RTE. 100 (MANCHESTER RD.) UNDERPASS

STATE ROAD INTERSTATE ROUTE 244
ABOUT 4 MILES N.W. OF KIRKWOOD
PROJECT NO. IG-244-4 (27) STA. 548+44.94
SEC. A (RTE. I-244)
ST. LOUIS COUNTY

THAYER & PAUL, INC.
Assembled Feb. 1962 by ACW
Checked L.P. 1962 L.A.A.

Note: This drawing is not to scale. Follow dimensions.

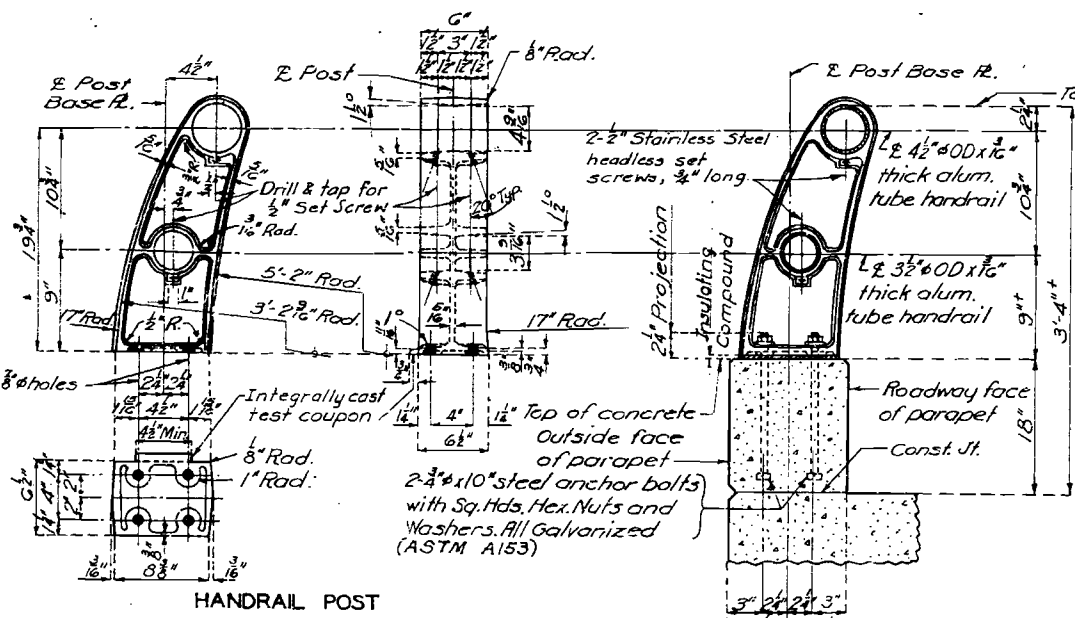
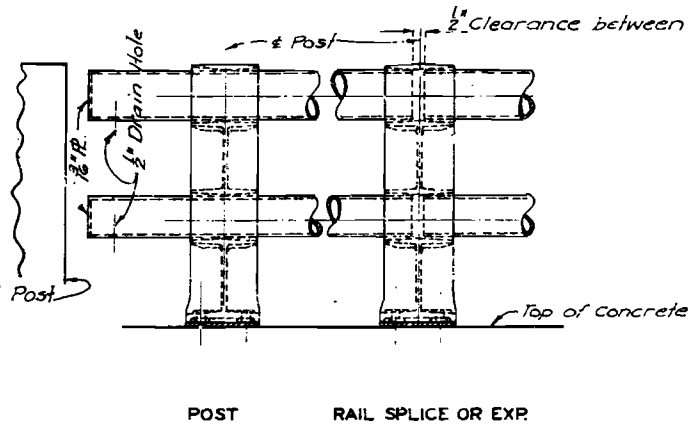
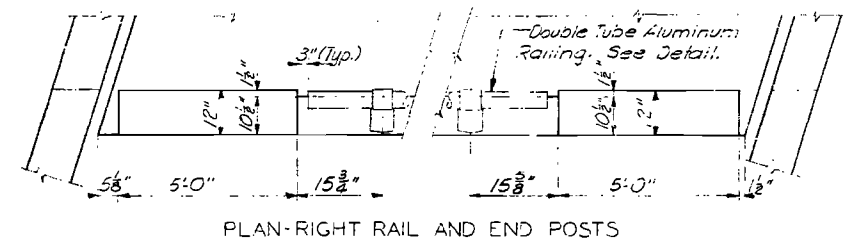
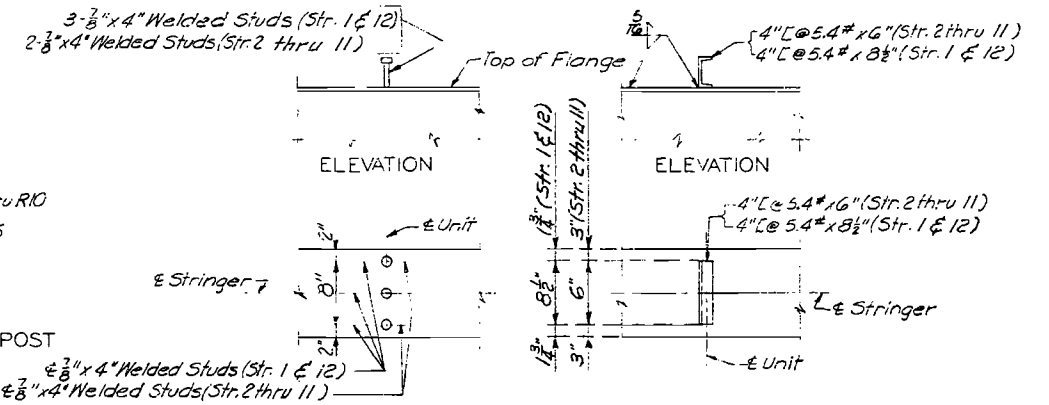
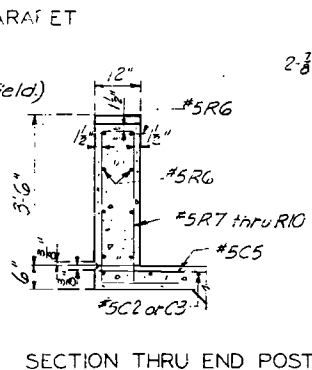
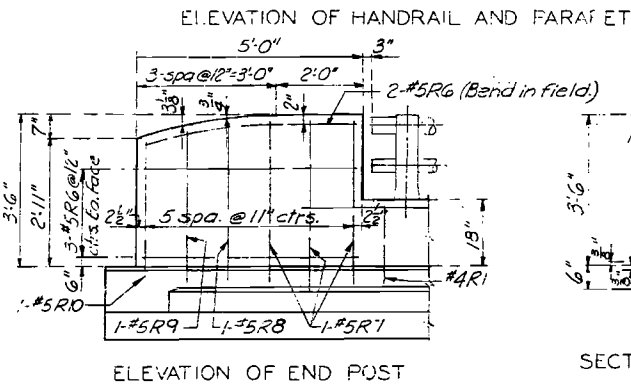
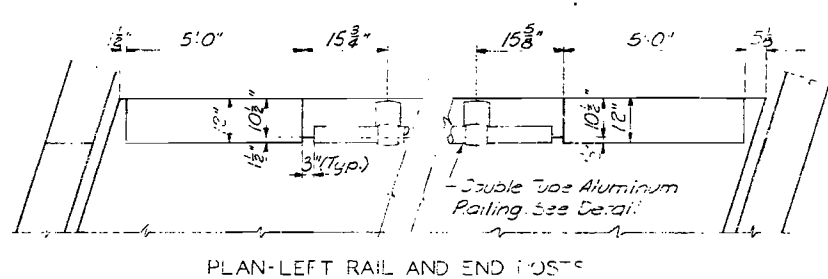
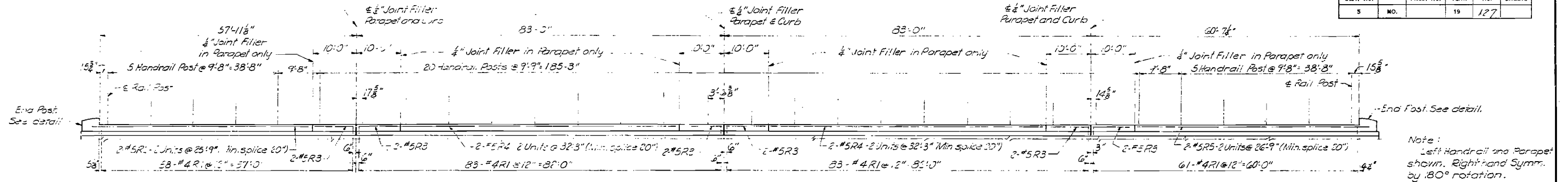
Sheet No. 8 of 10

NO CONSTRUCTION CHANGES

A-960

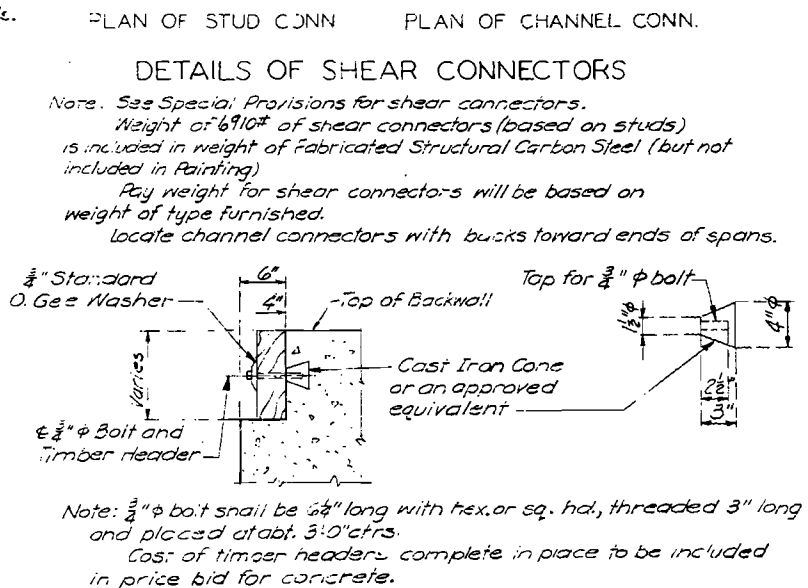
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	127	



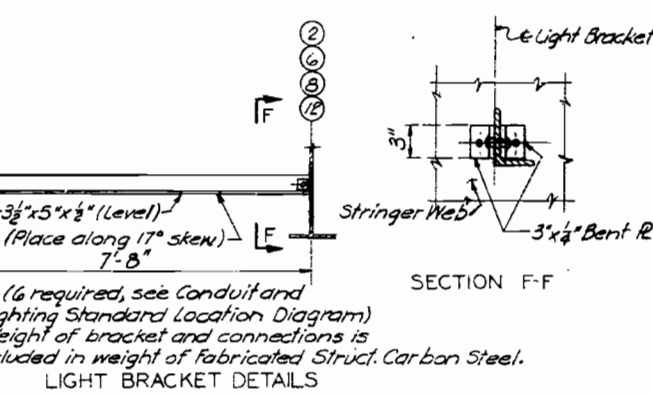
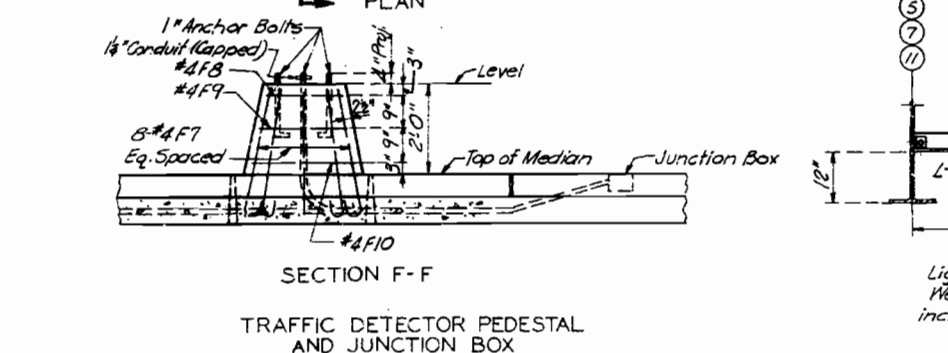
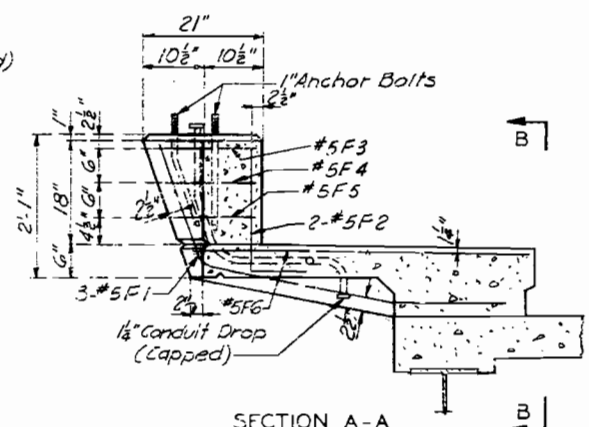
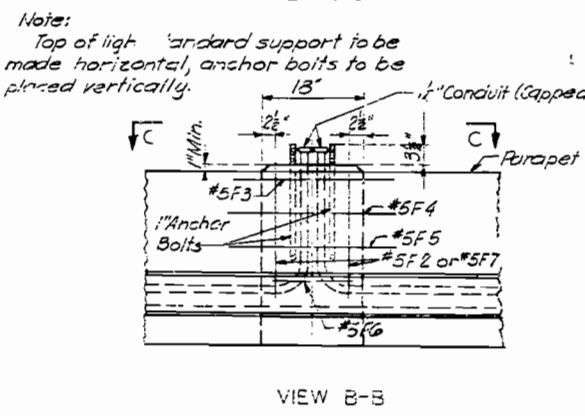
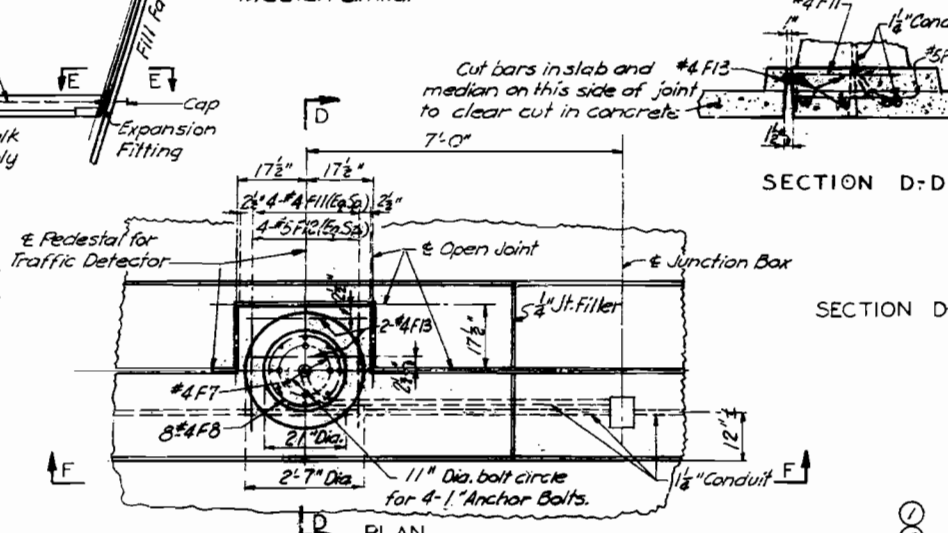
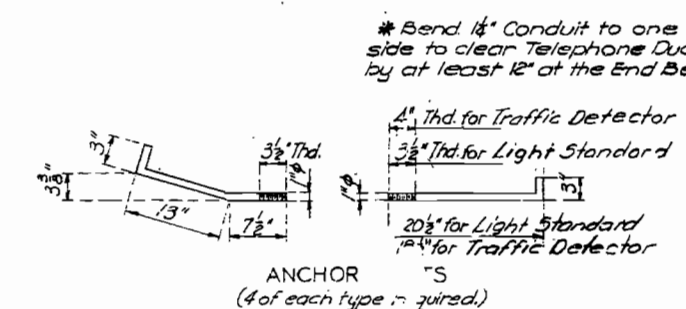
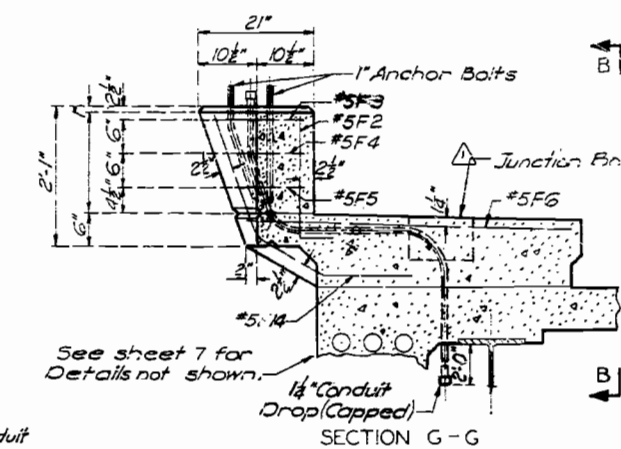
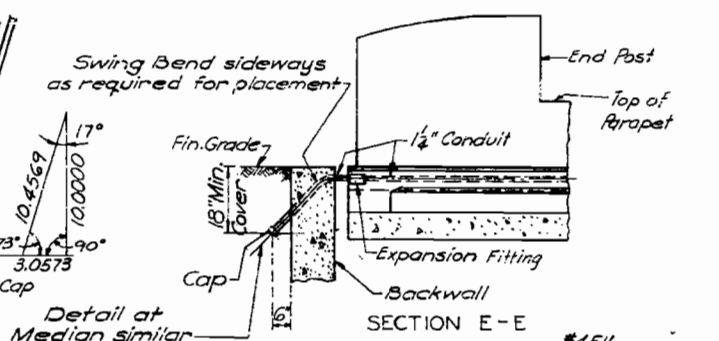
SECTION THRU HANDRAIL
DOUBLE TUBE ALUMINUM RAILING

Note: All handrail posts shall be set normal to grade.
Aluminum tube handrail shall be bent to conform to vertical and horizontal alignment of parapet.
Aluminum washer shims between top of parapet and post base may be used for adjusting handrail alignment. Maximum thickness of shims to be 1/4". Where more tilting of post is required for proper alignment, concrete bearing areas shall be ground down.
All parts of handrail, except anchor bolts, nuts, washers, and set screws are to be of aluminum material.
The contract unit price per linear foot of "Bridge Rail (Two Tube Type)" shall include furnishing and erecting the handrail complete with anchor bolts, shims and insulating compound.
All fillets 1/4" except as noted.
All draft 3° except as noted.
Pipe rail to be fabricated in two or three panel lengths unless otherwise approved.
Omit set screw on side near filled joint in parapet at all expansion posts.
Top of curbs and parapets to be built parallel to grade. Vertical faces of end posts to be vertical.
All exposed edges of end posts and parapets to be beveled 1/2".



BRIDGE RTE. 100 (MANCHESTER RD) UNDERPASS
STATE ROAD INTERSTATE ROUTE 244
ABOUT 4 MILES N.W. OF KIRKWOOD
PROJECT NO. I-IG-244-4 (27) STA. 548 + 44.94
SEC. A (RTE. I-244)
ST. LOUIS COUNTY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	128	



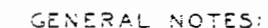
Note:
Cost of furnishing and placing conduit, expansion fittings, junction box, and anchor bolts for light standards and traffic detector shall be included in contract unit price for Conduit System on Structures (Lighting and Traffic)

All conduit shall be 1½" rigid galvanized steel with 3" min. cover in concrete. Expansion fittings shall be O.Z. Mfg. Co. Cat. No. AX125 (6 req'd.), or equal and copper bonding jumper Cat. No. AJ 125 (6 req'd.), or equal. Junction box shall be Cast Iron O.Z. Mfg. Co. Cat. No. YU120806 or equal. Shift reinforcing steel where necessary to clear conduit and junction box. Anchor bolts shall be in accordance with Standard Specification 70.8. Payment for furnishing and installing bolts shall be included in price bid for other items. Lighting Standards, Traffic Detector, wiring and fixtures to be furnished and installed by others.

BRIDGE RTE. 100 (MANCHESTER RD) UNDERPASS
STATE ROAD INTERSTATE ROUTE 244
ABOUT 4 MILES N.W. OF KIRKWOOD
PROJECT NO. I-IG-244-4 (27) STA. 548 + 44.94
SEC. A (RTE. I-244)
ST. LOUIS COUNTY

FED ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	119	

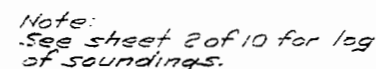
64'-83'-23'-64' Continuous I Beam Spans (Composite)



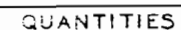
The footings of bent No. 2 and Right Footings of bent No. 3 were not placed Higher than the plan elevation.

GENERAL ELEVATION

Sta. 548+44.94 @ Rte. I-244
Sta. 411+62.53 @ Rte. 100



B.M. 45 D - "□" on Lt. Wing East Abut. Sta. 410+20, Rte 100
Elev. 659.97



Test Notes 66 66

Class: Excavation for structures was computed from the original ground line and from the lower limits of roadway excavation, whichever was lower regardless of the sequence of operations and the method of removal.

Height of coits (steel or steel) is included in weight of Fabricated Structural Carbon Steel on the basis of the following weights per 100 bolts: $\frac{3}{8}$ " 10", $\frac{3}{8}$ " 65", $\frac{7}{8}$ " 95", 1" 135".

BRIDGE RTE. 100 (MANCHESTER RD.) UNDERPASS

STATE ROAD INTERSTATE ROUTE 244
ABOUT 4 MILES N. N. OF KIRKWOOD
PROJECT NO. HD-244-4 271 STA. 548 + 44.94
RTE. 1-244
SE LOUIS COUNTY

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A of 2

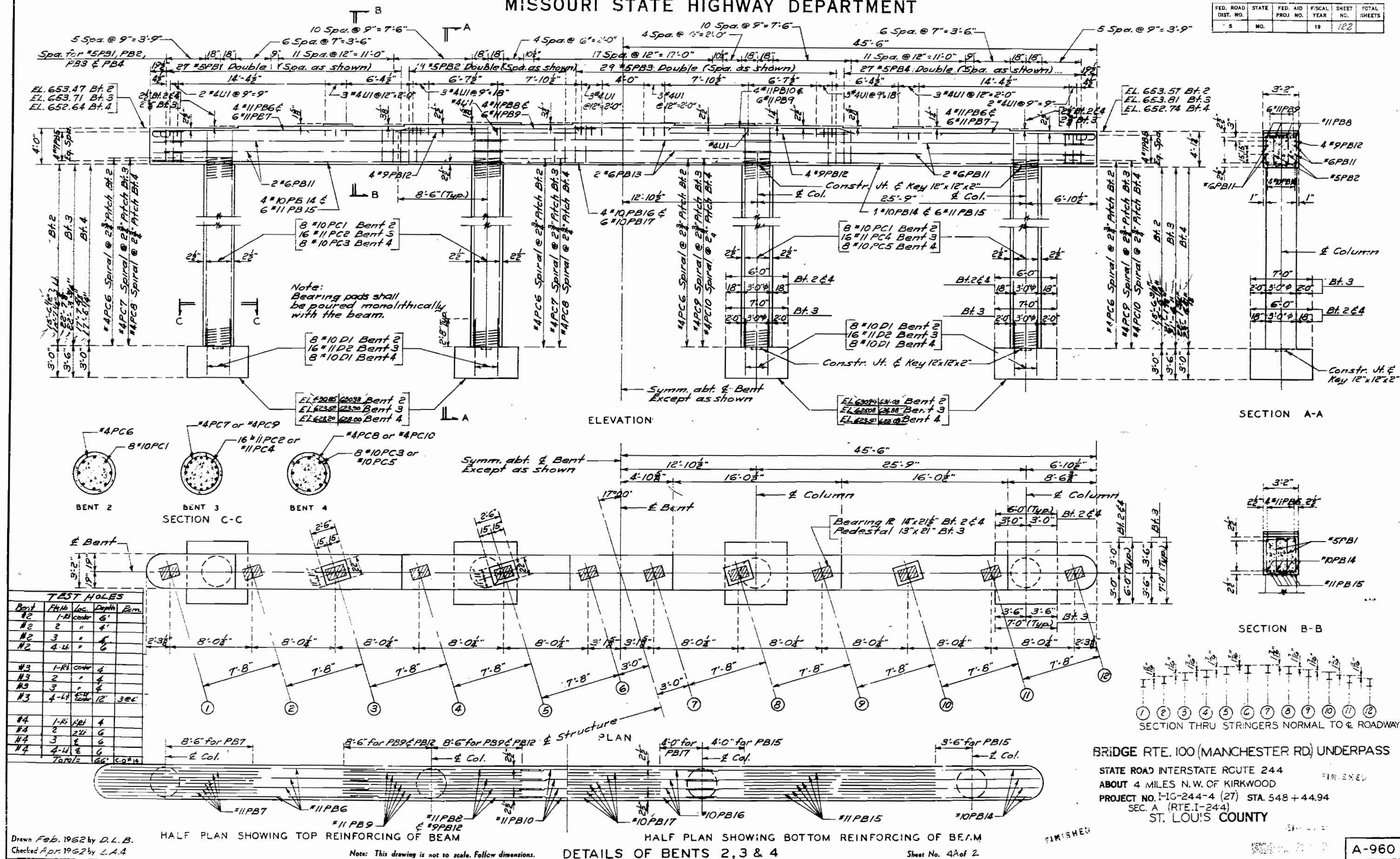
ANAL. Calcd for $C_{10}H_{10}O$: C, 88.10%; H, 11.90%. Found: C, 88.1%; H, 11.9%.

STG 5400

A-960

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	122	



122

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		

TABLE OF ESTIMATED QUANTITIES

ITEM DESCRIPTION	UNIT	SUBSTRUCTURE	SUPERSTRUCTURE	TOTAL
REMOVAL AND STORAGE OF EXISTING BRIDGE RAIL - METRIC	METER	---	173	173
REMOVAL OF EXISTING BRIDGE DECK - METRIC	SO. METER	---	2460	2460
REMOVAL OF EXISTING STRUCTURAL STEEL	LUMP SUM	---	1	1
REMOVAL OF EXISTING SUBSTRUCTURE (BRIDGE)	LUMP SUM	1	---	1
REMOVAL OF EXISTING APPROACH SLAB (BRIDGE)	LUMP SUM	1	---	1
CLASS 1 EXCAVATION - METRIC	CU. METER	116	---	116
BRIDGE APPROACH SLAB (BRIDGE) - METRIC	SO. METER	468	---	468
PILES - END BENTS ONLY - METRIC	METER	231	---	231
CLASS B CONCRETE (SUBSTR.) - METRIC	CU. METER	74	---	74
CLASS B2 CONCRETE (SUPERSTR.) - METRIC	SO. METER	---	83	83
SLAB ON STEEL - METRIC	SO. METER	---	2654	2654
* SAFETY BARRIER CURB - METRIC	METER	---	195.5	195.5
MEDIAN BARRIER CURB - METRIC	METER	---	106.5	106.5
RAISED MEDIAN BARRIER - METRIC	SO. METER	---	130	130
TYPE N PTFE BEARINGS (SPECIAL)	EACH	---	36	36
THREADED REBAR COUPLER	EACH	203	1202	1405
FABRICATED STRUCTURAL CARBON STEEL (I-BEAM) - METRIC	KILOGRAM	---	132 020	132 020
SLAB DRAIN	EACH	---	24	24
SLAB DRAIN WITH GRATE	EACH	---	13	13
VERTICAL DRAIN AT END BENTS	EACH	---	2	2
SHEAR CONNECTORS - FIELD INSTALLED	EACH	---	6720	6720
SURFACE PREPARATION FOR RECOATING STRUCTURAL STEEL - METRIC	SO. METER	---	3100	3100
FIELD APPLICATION OF INORGANIC ZINC PRIMER - METRIC	SO. METER	---	3100	3100
INTERMEDIATE FIELD COAT (SYSTEM G) GRAY - METRIC	SO. METER	---	4120	4120
FINISH FIELD COAT (SYSTEM G) GRAY - METRIC	SO. METER	---	631	631
TRANSPORTING LEAD CONTAMINATED RESIDUE TO STORAGE AREA	LUMP SUM	---	1	1
TRANSPORTING LEAD CONTAMINATED RESIDUE TO SMELTER	LUMP SUM	---	1	1
DISPOSAL OF LEAD CONTAMINATED RESIDUE	LUMP SUM	---	1	1
MODIFICATIONS TO EXISTING BENTS	LUMP SUM	1	---	1
TEMPORARY SHORING	LUMP SUM	1	---	1
NON - DESTRUCTIVE TESTING - METRIC	METER	---	55.1	55.1

ESTIMATED QUANTITIES FOR SLAB ON STEEL

REINFORCING STEEL (PLAIN)	KILOGRAM	8337	8335
REINFORCING STEEL (EPOXY COATED)	KILOGRAM	115 827	110 335
CONCRETE	CU. METER	725	

NOTES FOR ESTIMATED QUANTITIES

ALL CONCRETE BETWEEN THE UPPER AND LOWER CONSTRUCTION JOINTS IN THE END BENTS IS INCLUDED IN THE ESTIMATED SUPERSTRUCTURE QUANTITIES FOR SLAB ON STEEL.

ALL REINFORCEMENT IN THE END BENTS IS INCLUDED IN THE ESTIMATED QUANTITIES FOR SLAB ON STEEL.

ALL CONCRETE ABOVE THE LOWER CONSTRUCTION JOINT IN THE WINGWALLS IS INCLUDED IN THE ESTIMATED SUPERSTRUCTURE QUANTITIES FOR SLAB ON STEEL.

THE COST OF FURNISHING, FABRICATING AND INSTALLING TYPE N PTFE BEARINGS, COMPLETE-IN-PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR TYPE N PTFE BEARINGS (SPECIAL) PER EACH.

*SAFETY BARRIER CURB SHALL BE CAST-IN-PLACE OR SLIP-FORM OPTION.

THE TABLE OF ESTIMATED QUANTITIES FOR SLAB ON STEEL REPRESENTS THE QUANTITIES USED BY THE STATE IN PREPARING THE COST ESTIMATE FOR CONCRETE SLABS. VARIATIONS MAY BE ENCOUNTERED IN THESE ESTIMATED QUANTITIES BUT THESE VARIATIONS CANNOT BE USED FOR AN ADJUSTMENT IN THE CONTRACT UNIT PRICE PER SQUARE METER OF SLAB ON STEEL.

DETAILED BY: JDS
CHECKED BY: ROR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

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1. GENERAL PLAN AND ELEVATION
2. ESTIMATED QUANTITIES AND INDEX OF DRAWINGS
3. GENERAL NOTES
4. LOG OF BORINGS

5. CONSTRUCTION PHASING
6. CONSTRUCTION PHASING
7. EXISTING END BENT 1 DEMOLITION
8. EXISTING END BENT 5 DEMOLITION
9. END BENT 1
10. END BENT 5
11. END BENT DETAILS
12. END BENT DETAILS
13. END BENT DETAILS
14. END BENT DETAILS
15. BENTS 2, 3 AND 4 CAP RETROFIT
16. FRAMING PLAN - SPANS 1 THRU 4
17. BEAM ELEVATIONS - SPANS 1 THRU 4
18. STEEL DETAILS
19. STEEL DETAILS
20. STEEL DETAILS
21. STEEL DETAILS
22. STEEL DETAILS

23. SLAB ELEVATIONS, BEAM LAYOUT AND DEFLECTIONS

24. SLAB PLAN - SPANS 1 THRU 4
25. SLAB PLAN - SPANS 1 THRU 4
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27. SLAB POURING SEQUENCE

28. BARRIER CURBS
29. MEDIAN BARRIER CURB AND RAISED MEDIAN
30. BEARING DETAILS AT BENTS 2 AND 4
31. BEARING DETAILS AT BENTS 2 AND 4
32. BEARING DETAILS AT BENT 3
33. BEARING DETAILS AT BENT 3
34. SLAB DRAINS

35. BRIDGE APPROACH SLAB
36. BRIDGE APPROACH SLAB
37. BAR LIST - END BENT 1
38. BAR LIST - END BENT 5
39. BAR LIST - SLAB
40. BAR LIST - BARRIER CURB, RAISED MEDIAN, BENT CAP RETROFIT AND APPROACH SLAB

2. ESTIMATED QUANTITIES AND INDEX OF DRAWINGS-REVISED

ABBREVIATIONS:

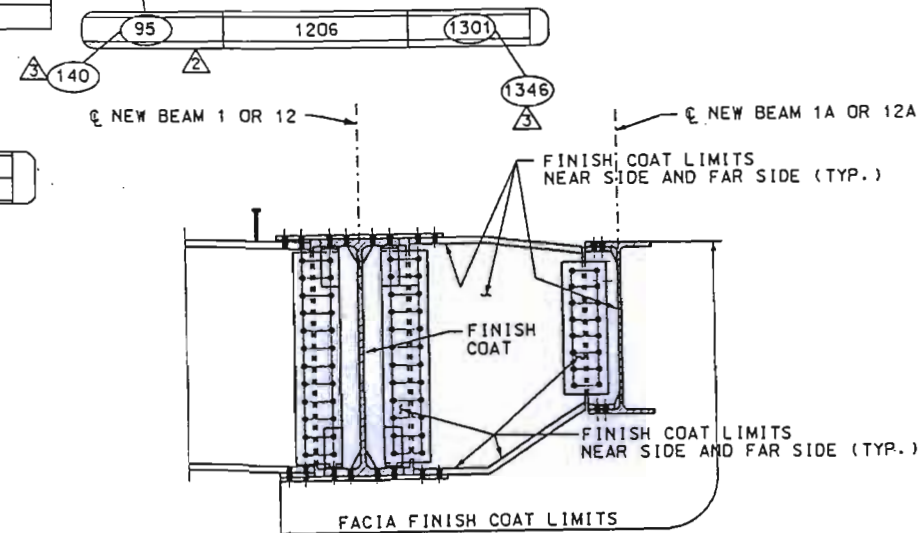
N.F. INDICATES NEAR FACE.
F.F. INDICATES FAR FACE.
E.F. INDICATES EACH FACE.
PR. INDICATES PAIR.
TYP. INDICATES TYPICAL.
CL. INDICATES CLEAR

5. CONSTRUCTION PHASING-DELETED
- 5A. CONSTRUCTION PHASING-NEW SHEET
6. CONSTRUCTION PHASING-DELETED
7. EXISTING END BENT 1 DEMOLITION-DELETED
- 7A. EXISTING END BENT 1 DEMOLITION-NEW SHEET
8. EXISTING END BENT 5 DEMOLITION-DELETED
- 8A. EXISTING END BENT 5 DEMOLITION-NEW SHEET
9. END BENT 1-DELETED
- 9A. END BENT 1-NEW SHEET
10. END BENT 5-DELETED
- 10A. END BENT 5-NEW SHEET
11. END BENT DETAILS-REVISED

23. SLAB ELEVATIONS, BEAM LAYOUT AND DEFLECTIONS - REVISED
- 23A. SLAB ELEVATIONS - NEW SHEET

24. SLAB PLAN - SPANS 1 THRU 4-DELETED
- 24A. SLAB PLAN - SPANS 1 THRU 4-NEW SHEET
25. SLAB PLAN - SPANS 1 THRU 4-DELETED
- 25A. SLAB PLAN - SPANS 1 THRU 4-NEW SHEET
26. SLAB DETAILS-DELETED
- 26A. SLAB DETAILS-NEW SHEET
27. SLAB POURING SEQUENCE-REVISED

35. BRIDGE APPROACH SLAB-REVISED
- 35A. BRIDGE APPROACH SLAB-NEW SHEET
36. BRIDGE APPROACH SLAB-DELETED
- 36A. BRIDGE APPROACH SLAB-NEW SHEET
37. BAR LIST - END BENT 1-REVISED
38. BAR LIST - END BENT 5-REVISED
39. BAR LIST - SLAB-REVISED
40. BAR LIST - BARRIER CURB, RAISED MEDIAN, BENT CAP RETROFIT AND APPROACH SLAB-REVISED

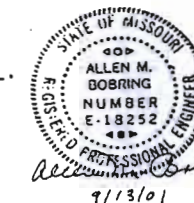


FINISH FIELD COAT DETAIL

NOTE: FINISH COAT SHALL BE APPLIED FROM ROADWAY FACE OF END BENT 1 TO ROADWAY FACE OF END BENT 5. SEE SPECIAL PROVISIONS.

- REVISOR: 8-31-00
- REVISOR: 3-15-01
- REVISOR: 9-13-01

SHEET 2 OF 40



ESTIMATED QUANTITIES AND
INDEX OF DRAWINGS

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		B 3

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 1996 EDITION (METRIC), OR LATEST REVISION THEREOF, AND SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS:

IN ACCORDANCE WITH DIVISION I AND I-A OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SIXTEENTH EDITION, 1996, INCLUDING THE 1997 INTERIM SPECIFICATIONS AS MODIFIED AND INTERPRETED BY THE MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION'S BRIDGE MANUAL OF DESIGN SECTION, 1988 EDITION WITH ADDENDA THRU MARCH 1998.
LOAD FACTOR DESIGN METHOD - ALL BRIDGE COMPONENTS EXCEPT PILING AND LONGITUDINAL GIRDERS WHICH ARE DESIGNED BY SERVICE LOAD METHOD.
SEISMIC DESIGN - SEISMIC PERFORMANCE CATEGORY C
ACCELERATION COEFFICIENT = 0.11

DESIGN LOADING:

LIVE LOAD: MS18

REINFORCED CONCRETE WEIGHT - 2480 kg/m³
EARTH - 1900 kg/m³, EQUIVALENT FLUID PRESSURE 7.0 kPa/m³, $\phi = 27^\circ$
FATIGUE STRESS - CASE 1

FOUNDATION DESIGN CAPACITIES:

FOR COMBINATION LOADING CASES AS SPECIFIED IN AASHTO 3.22 THE FOLLOWING ALLOWABLE AXIAL CAPACITIES APPLY. INCREASES ARE PERMITTED FOR COMBINATION LOADING CASES AS SPECIFIED IN AASHTO 3.22.

STEEL PILES -
COMPRESSION - 62 MPa ON THE CROSS SECTIONAL AREA OF THE PILE
TENSION - 0 MPa ON THE CROSS SECTIONAL AREA OF THE PILE

DESIGN UNIT STRESSES:

CONCRETE (CLASS B) - $f_c = 8.3$ MPa
 $f'_c = 21$ MPa
CONCRETE (CLASS B-1) - $f_c = 11$ MPa
 $f'_c = 28$ MPa
CONCRETE (CLASS B-2) - $f_c = 11$ MPa
 $f'_c = 28$ MPa
REINFORCING STEEL (GRADE 420) -
 $f_s = 168$ MPa
 $f_y = 420$ MPa
STRUCTURAL STEEL (ASTM A709M) -
GRADE 250 - $f_s = 138$ MPa
 $f_y = 250$ MPa

CONCRETE:

ALL CONCRETE FOR SUBSTRUCTURE SHALL BE CLASS B.
ALL CONCRETE FOR RAISED MEDIAN, SAFETY BARRIERS AND MEDIAN BARRIERS SHALL BE CLASS B-1.
ALL CONCRETE FOR BRIDGE DECK SHALL BE CLASS B-2.
ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 20 mm UNLESS OTHERWISE NOTED.

REINFORCEMENT:

ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 420 SEE SPECIAL PROVISIONS.
ALL DIMENSIONS TO REINFORCING STEEL ON DETAIL DRAWINGS ARE TO THE CENTERLINE OF BAR EXCEPT WHERE CLEAR DISTANCE IS NOTED FROM THE FACE OF CONCRETE.
ALL REINFORCING STEEL SHALL BE LAPPED IN ACCORDANCE WITH AASHTO 8.32, UNLESS OTHERWISE NOTED.
MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 40 mm UNLESS OTHERWISE NOTED.

CONSTRUCTION JOINTS:

CONSTRUCTION JOINTS SHALL BE MADE ONLY AT LOCATIONS SHOWN ON THE PLANS, EXCEPT WITH THE APPROVAL OF THE ENGINEER.

JOINT FILLER AND PLASTIC WATERSTOPS

ALL JOINT FILLER SHALL MEET THE REQUIREMENTS OF SECTION 1057.2.4 OF THE MISSOURI STANDARD SPECIFICATIONS (METRIC), EXCEPT AS SHOWN.
PLASTIC WATERSTOPS SHALL MEET THE REQUIREMENTS OF SECTION 1057.2.1 OF THE MISSOURI STANDARD SPECIFICATIONS (METRIC).

ANCHOR BOLTS:

ANCHOR BOLTS SHALL BE PLACED IN ACCORDANCE WITH SECTION 712.6 OF THE MISSOURI STANDARD SPECIFICATIONS (METRIC).

STRUCTURAL STEEL:

ALL STEEL SHAPES AND PLATES SHALL BE ASTM A709M GRADE 250, EXCEPT AS NOTED.

NOTCH TOUGHNESS:

NTR INDICATES STRUCTURAL STEEL MEMBERS AND PLATES SUBJECT TO NOTCH TOUGHNESS REQUIREMENTS. SEE SPECIAL PROVISIONS. MEMBERS FOR WHICH NOTCH TOUGHNESS REQUIREMENTS ARE MANDATORY ARE NOTED ON THE PLANS.

WELDING:

ALL WELDING SHALL CONFORM TO ANSI/AASHTO/AWS D1.5-95 BRIDGE WELDING CODE AND AS SUPPLEMENTED BY THE MISSOURI STANDARD SPECIFICATIONS (METRIC) AND THE SPECIAL PROVISIONS.

HIGH STRENGTH BOLTS:

HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE SAMPLED FOR QUALITY ASSURANCE AS SPECIFIED IN SECTION 106 OF THE MISSOURI STANDARD SPECIFICATIONS (METRIC) AND FIELD SECTION (FS-712) FROM MATERIALS MANUAL.
+ INDICATES A SHOP OR FIELD CONNECTOR.
ALL CONNECTORS SHALL BE HIGH STRENGTH BOLTS UNLESS NOTED.
FIELD CONNECTIONS SHALL BE MADE WITH 19.0 mm DIAMETER HIGH STRENGTH BOLTS IN 20.6 mm DIAMETER HOLES, EXCEPT AS NOTED.
HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325, TYPE 1.
HIGH STRENGTH BOLTS SHALL NOT BE REUSED AFTER TORQUING.
ALL HIGH STRENGTH BOLTED CONNECTIONS SHALL BE CLASS B SLIP CRITICAL USING CLASS B COATINGS BETWEEN THE CONTACT SURFACES. SEE SECTION 712.8 OF THE STANDARD SPECIFICATIONS FOR CLASS B COATINGS.

THE PREFERRED MIN. SPACING OF FASTENERS IN STANDARD HOLES IS:

BOLT DIAMETER (mm)	PREFERRED SPACING (mm)
15.9	55
19.0	65
22.2	75
25.4	90

NOMINAL HOLE DIMENSIONS ARE:

BOLT DIAMETER (mm)	STANDARD HOLE DIAMETER (mm)	OVERSIZE HOLE DIAMETER (mm)	SHORT SLOT (WxL) (mm)	LONG SLOT (WxL) (mm)
15.9	17.5	20.6	17.5x22.2	17.5x39.7
19.0	20.6	23.8	20.6x25.4	20.6x47.6
22.2	23.8	27.0	23.8x28.6	23.8x55.6
25.4	27.0	31.8	27.0x33.3	27.0x63.5

MINIMUM EDGE DISTANCE OF FASTENERS IN STANDARD HOLES IS:

BOLT DIAMETER (mm)	SHEARED OR THERMALLY CUT EDGES (mm)	ROLLED OR PLANED EDGES, EXCEPT IN FLANGES OF BEAMS AND CHANNELS (mm)	FLANGES OF BEAMS AND CHANNELS (mm)
15.9	29	25	22
19.0	32	29	25
22.2	38	32	29
25.4	44	38	32

COATING:

THE STRUCTURAL STEEL SHALL BE COATED WITH SYSTEM G BY THE CONTRACTOR, EXCEPT AS NOTED.

PRIME COAT:

AREAS OF EXISTING STRUCTURAL STEEL IN CONTACT WITH CONCRETE OR ENCASED IN CONCRETE SHALL RECEIVE A PRIME COAT AFTER CLEANING. THE COST OF PRIME COAT FOR SHOP FABRICATED STEEL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR FABRICATED STRUCTURAL STEEL. TINT OF THE PRIME COAT FOR FOR SYSTEM G SHALL BE SIMILAR TO THE COLOR OF THE FIELD COAT TO BE USED.

FIELD COAT:

THE COLOR OF THE FINISH COAT SHALL BE GRAY (FEDERAL STANDARD #26373). THE COST OF THE FIELD APPLIED PRIME COAT AND THE INTERMEDIATE AND FINISH COATS SHALL BE INCLUDED IN THE CONTRACT PRICE PER SQUARE METER FOR FIELD APPLICATION OF INORGANIC ZINC PRIMER, INTERMEDIATE FIELD COAT (SYSTEM G) GRAY - METRIC, AND FIELD COAT (SYSTEM G) GRAY - METRIC.

PAINT REMOVAL:

ALL EXISTING STRUCTURAL STEEL REMAINING IN PLACE SHALL BE CLEANED TO BARE STEEL IN PREPARATION FOR RECOATING. THE PAINT TO BE REMOVED IS A LEAD-BASED PAINT SYSTEM, AND SPECIAL MEASURES ARE REQUIRED FOR REMOVAL, CONTAINMENT AND DISPOSAL. SEE SPECIAL PROVISIONS. THE COST FOR PREPARING EXISTING STRUCTURAL STEEL FOR COATING SHALL BE INCLUDED IN THE CONTRACT PRICE PER SQUARE METER FOR SURFACE PREPARATION FOR RECOATING STRUCTURAL STEEL.

CONSTRUCTION CLEARANCE:

A MINIMUM VERTICAL CLEARANCE OF 4496 mm OVER ALL LANES OF I-270 SHALL BE MAINTAINED DURING CONSTRUCTION.

PLAN DIMENSIONS:

ALL DIMENSIONS ARE IN MILLIMETERS (mm), EXCEPT AS NOTED.
ALL ELEVATIONS ARE IN METERS.
ALL STATIONS ARE IN KILOMETERS.
ALL LONGITUDINAL AND TRANSVERSE DIMENSIONS ARE MEASURED HORIZONTALLY, EXCEPT AS NOTED, AT A NORMAL TEMPERATURE OF 16°C.
PLAN DIMENSIONS AND DETAILS RELATIVE TO THE EXISTING STRUCTURE ARE TAKEN FROM THE EXISTING PLANS AND ARE SUBJECT TO NORMAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE THE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION AS A CHANGE IN THE SCOPE OF WORK.
NEW END BENTS ARE DESIGNED TO MOVE DUE TO THERMAL EXPANSION AND CONTRACTION. SUCH MOVEMENTS MAY EFFECT CERTAIN DIMENSIONS AND FORMWORK DURING PHASE CONSTRUCTION.

TRAFFIC CONTROL:

TRAFFIC CONTROL SHALL BE COORDINATED WITH THE PHASE CONSTRUCTION DETAILS SHOWN HEREIN AND WITH THE REQUIREMENTS SHOWN ON THE ROADWAY PLANS AND CONTAINED IN THE JOB SPECIAL PROVISIONS.

DEMOLITION:

SEE SPECIAL PROVISIONS.

CONCRETE SLOPE PROTECTION:

REMOVE EXISTING CONCRETE SLOPE PROTECTION AS REQUIRED FOR CONSTRUCTION OPERATIONS INCLUDING TEMPORARY GIRDER SUPPORTS FOR END BENT REPLACEMENT. PROVIDE EROSION CONTROL AS DIRECTED BY THE ENGINEER. THE COST FOR REMOVAL OF SLOPE PROTECTION AND EROSION CONTROL SHALL BE INCLUDED IN OTHER ITEMS OF WORK. THE ROADWAY CONTRACTOR WILL REMOVE THE REMAINING PORTIONS OF EXISTING CONCRETE SLOPE PROTECTION, DRESS THE SLOPE AND PLACE NEW SLOPE PROTECTION.

CENTERLINE REFERENCE:

℄ ROUTE 100, AS USED IN THESE PLANS, REFERS TO EXISTING ℄ ROUTE 100.

BRIDGE SLAB DESIGN AND CONSTRUCTION:

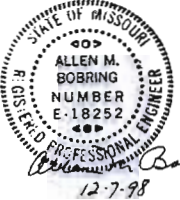
THE 220mm THICK CONCRETE SLAB INCLUDES A 25mm MONOLITHIC WEARING SURFACE. ONLY CAST-IN-PLACE CONSTRUCTION SHALL BE USED; NO OTHER OPTIONS PERMITTED.

GENERAL NOTES

DETAILED BY: JOS
CHECKED BY: AMB

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 3 OF 40



A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		84

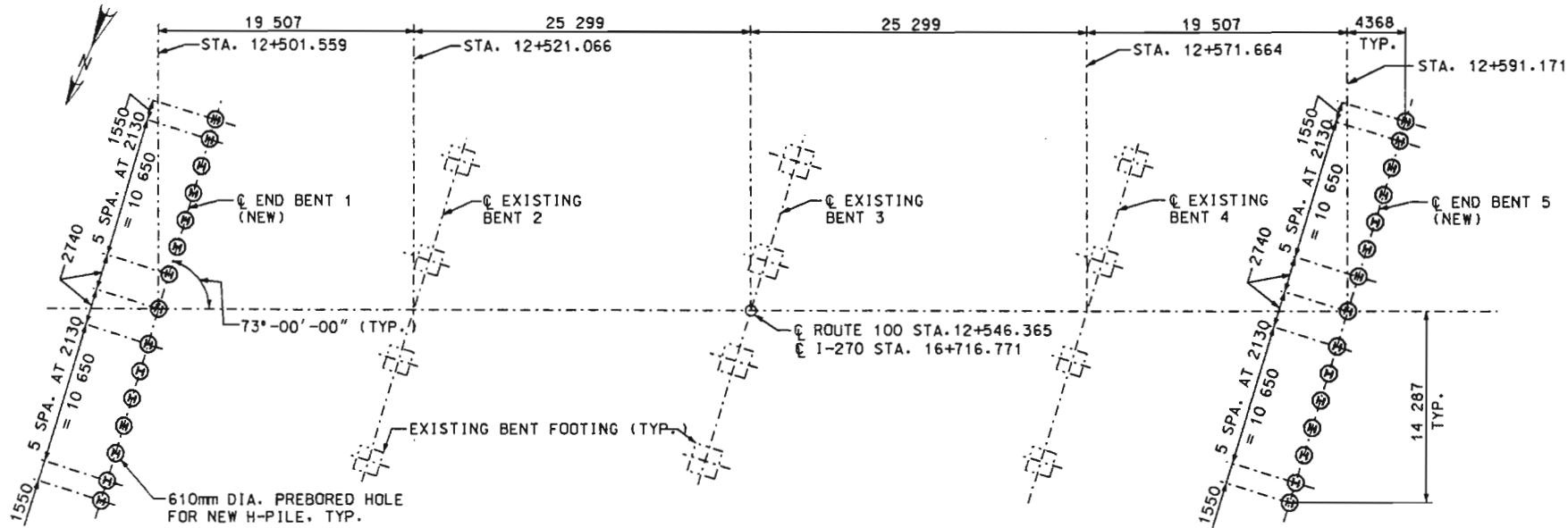
LOG OF TEST BORING STA 12+502.5, 14.5m LT			
DATE: MAY 26, 1998 EQUIPMENT: FAIRING 1500 AUTOMATIC HAMMER EFFICIENCY=73% DEPTH TO WATER: WATER CHECKED:			
ELEVATION DEPTH	SOIL SYMBOLS, SAMPLER SYMBOLS AND FIELD TEST DATA	DESCRIPTION	TESTS
0		BROWN TO GRAY LEAN CLAY AND GRAVEL, STIFF.	
1			
199		FINE TO MEDIUM GRAVEL.	LL= 30, PI= 9
2		BROWN TO GRAY MOTTLED LEAN CLAY, SCATTERED GRAVEL, STIFF.	PP=2.25
3			
198			
197		BROWN MOTTLED LEAN CLAY, MEDIUM STIFF TO STIFF.	LL= 41, PI= 18 w= 25% PP=1.25 -#200= 90%
4			
196			
195		BROWN LEAN CLAY AND GRAVEL, SOFT, MOIST.	LL= 53, PI= 32 w= 24% PP=2.75 OU=190 kPa
6		BROWN MOTTLED LEAN CLAY, IRON CONCRETIONS, STIFF TO VERY STIFF.	LL= 60, PI= 35 w= 26% PP=1.75 -#200= 84%
7			
194			
193		LIGHT BROWN TO ORANGE-BROWN MOTTLED FAT CLAY, VERY STIFF.	
8		GRAVEL FROM 7.42 TO 7.60m.	PP=2.50
9			
192			
191		WEATHERED LIMESTONE.	
		BORING TERMINATED AT 9.08m.	

LOG OF TEST BORING STA 12+593.9, 15.4m LT			
DATE: JUNE 1, 1998 EQUIPMENT: SIMCO 4000 TR-2 AUTOMATIC HAMMER EFFICIENCY=60% DEPTH TO WATER: WATER CHECKED:			
ELEVATION DEPTH	SOIL SYMBOLS, SAMPLER SYMBOLS AND FIELD TEST DATA	DESCRIPTION	TESTS
0		REDDISH-BROWN LEAN CLAY, STIFF.	
1			w= 24% PP=1.50, IV=0.5 LL= 35, PI= 15
197			PP=1.50
2			
196		BROWN TO GRAY MOTTLED FAT CLAY, SCATTERED SAND AND GRAVEL, VERY STIFF.	w= 25% PP=2.75, IV=0.9 LL= 60, PI= 38 PP=2.50
3			
195			
4		RED FAT CLAY, SCATTERED COBBLES, SOME IRON STAINING, VERY STIFF.	w= 45% PP=2.25, IV=0.6 LL= 92, PI= 50 w= 42% -#200= 98%
5			
194			
193			
192		HARD ROCK, PROBABLY LIMESTONE.	
7		BORING TERMINATED AT 6.87m.	
8		*BROKE PENETRATION TUBE.	
9			
190			
189			

NOTICE AND DISCLAIMER REGARDING BORING LOG DATA

THE LOCATIONS OF ALL SUBSURFACE BORINGS FOR THIS STRUCTURE ARE SHOWN ON THE BRIDGE PLAN SHEET FOR THIS STRUCTURE. BORING DATA FOR THE NUMBERED LOCATIONS IS SHOWN ON THIS SHEET. THE BORING DATA FOR ALL LOCATIONS INDICATED, AS WELL AS ANY OTHER BORING LOGS OR OTHER FACTUAL RECORDS OF SUBSURFACE DATA AND INVESTIGATIONS PERFORMED BY THE DEPARTMENT FOR THE DESIGN OF THIS PROJECT IS AVAILABLE FROM THE PROJECT CONTACT UPON WRITTEN REQUEST AS OUTLINED IN THE PROJECT SPECIAL PROVISIONS. NO GREATER SIGNIFICANCE OR WEIGHT SHOULD BE GIVEN TO THE BORING DATA DEPICTED ON THE PLAN SHEET THAN TO SUBSURFACE DATA AVAILABLE FROM THE DISTRICT OR ELSEWHERE.

THE COMMISSION DOES NOT REPRESENT OR WARRANT THAT ANY SUCH BORING DATA ACCURATELY DEPICTS THE CONDITIONS TO BE ENCOUNTERED IN CONSTRUCTING THIS PROJECT. A CONTRACTOR ASSUMES ALL RISKS IT MAY ENCOUNTER IN BASING ITS BID PRICES, TIME OR SCHEDULE OF PERFORMANCE ON THE BORING DATA DEPICTED HERE OR THOSE AVAILABLE FROM THE DISTRICT, OR ON ANY OTHER DOCUMENTATION NOT EXPRESSLY WARRANTED, WHICH THE CONTRACTOR MAY OBTAIN FROM THE COMMISSION.



SUBSTRUCTURE LAYOUT

NOTES

FOR LOCATION OF BORING, SEE THE GENERAL PLAN AND ELEVATION. BORING LOCATIONS ARE RELATIVE TO CENTERLINE OF ROUTE 100.

DETAILED BY: JDS
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 4 OF 40

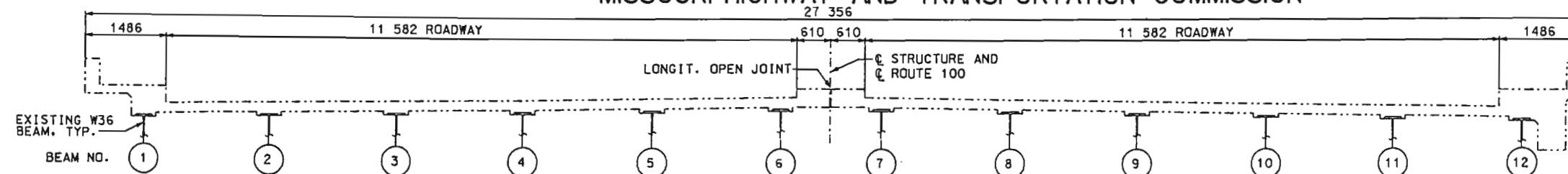


LOG OF BORINGS

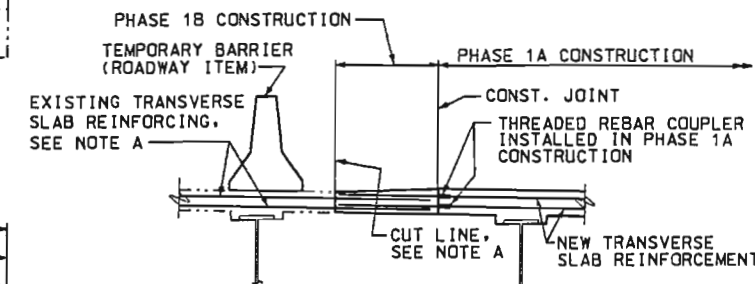
A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



CROSS SECTION THRU EXISTING BRIDGE



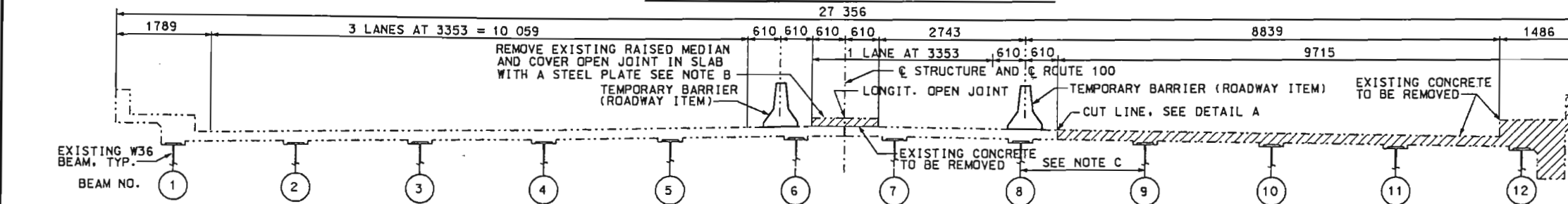
DETAIL A

NOTE A: THE EXISTING SLAB SHALL BE NEATLY SAW CUT ALONG THE CUT LINE TO SUCH A DEPTH AS WILL CLEAR THE EXISTING #6 TOP AND BOTTOM TRANSVERSE SLAB REINFORCEMENT. THE EXISTING #6 TOP AND BOTTOM TRANSVERSE SLAB REINFORCEMENT SHALL BE CLEANLY STRIPPED OF CONCRETE AND STRAIGHTENED FOR A LENGTH OF 850mm BEYOND THE CUT LINE FOR INCORPORATION INTO PHASE 1B CONSTRUCTION. EXISTING #6 BOTTOM TRANSVERSE REINFORCING BARS MAY BE BENT PARALLEL TO BOTTOM OF CLOSURE SLAB.

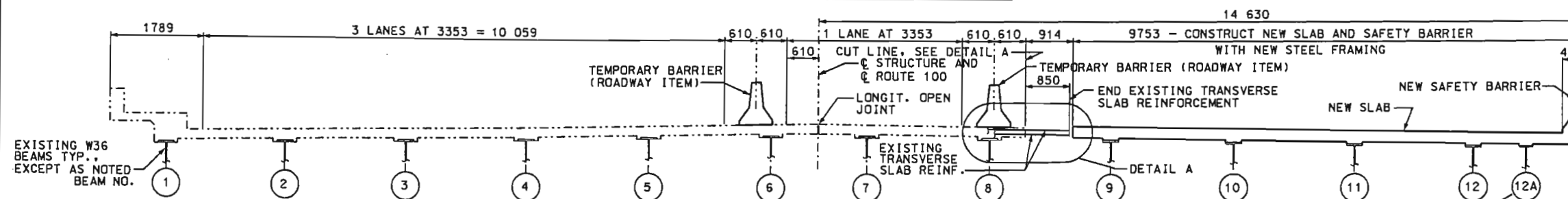
NOTE B: REMOVE EXISTING RAISED MEDIAN AND COVER OPEN JOINT IN SLAB WITH A 25mmx1828mm STEEL PLATE OVER THE LENGTH OF THE BRIDGE. STEEL PLATE SHALL CONFORM TO ASTM A709M, GRADE 250 AND THE EDGES OF PLATE SHALL BE LOCATED AT APPROXIMATELY THE CENTERLINES OF BEAMS 6 AND 7. TRAFFIC SURFACE OF STEEL PLATE SHALL BE COATED WITH A 6mm EPOXY POLYMER OVERLAY WITH A SKID-RESISTANT SURFACE. SECTIONS OF STEEL PLATE MAY BE WELDED TOGETHER WITH STEEL BANDS OR SECURED TO THE DECK BY BOLTING. A 12mm TO 25mm BITUMINOUS LEVELING COURSE SHALL BE PLACED UNDER THE STEEL PLATE. STEEL PLATE SHALL BE EMBEDDED IN BITUMINOUS PAVING MATERIAL AND THE PAVING MATERIAL SHALL BE FEATHERED OUT TO FORM AN EVEN RIDING SURFACE. CONTRACTOR SHALL PROVIDE A MEANS, APPROVED BY THE ENGINEER, TO PREVENT BITUMINOUS MATERIAL FROM FALLING THROUGH THE EXISTING OPEN JOINT.

NOTE C: PRIOR TO FORMING AND INSTALLING NEW DECK, REMOVE BOLTS CONNECTING ALL INTERMEDIATE DIAPHRAGMS BETWEEN SUPPORTS. PAYMENT SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

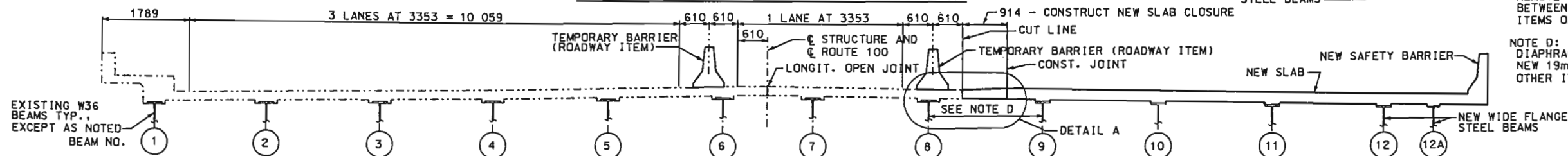
NOTE D: PRIOR TO ALLOWING TRAFFIC ON NEW DECK ABOVE DIAPHRAGMS, RECONNECT DIAPHRAGMS TO GIRDERS USING NEW 19mm H.S. BOLTS. PAYMENT SHALL BE INCLUDED IN OTHER ITEMS OF WORK.



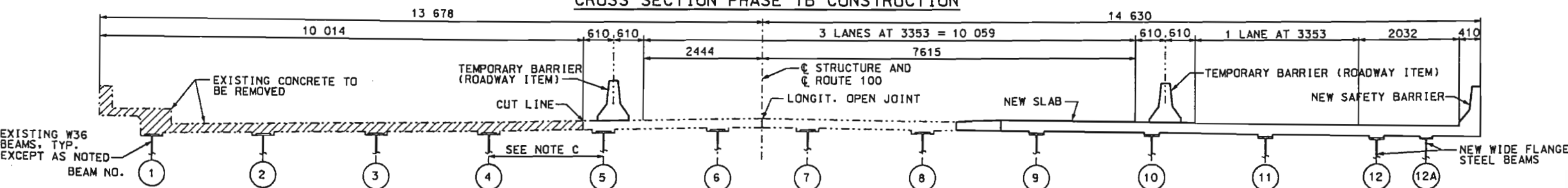
CROSS SECTION PHASE 1 DEMOLITION



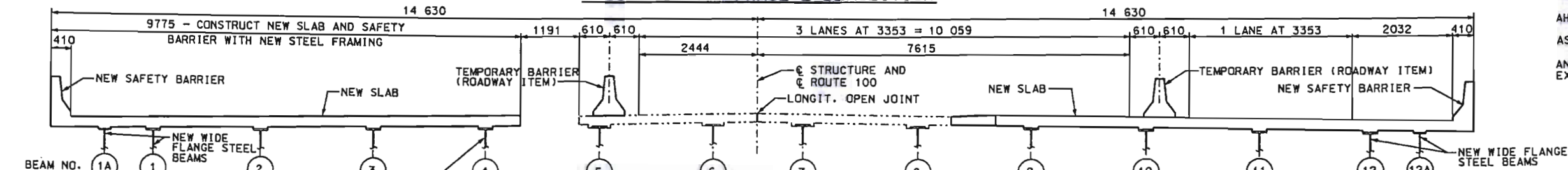
CROSS SECTION PHASE 1A CONSTRUCTION



CROSS SECTION PHASE 1B CONSTRUCTION



CROSS SECTION PHASE 2 DEMOLITION



CROSS SECTION PHASE 2 CONSTRUCTION



NOTES

FOR ADDITIONAL CONSTRUCTION PHASING REQUIREMENTS, SEE SPECIAL PROVISIONS. ALL SECTIONS ARE SHOWN LOOKING WEST. AHEAD STATION.

CLOSURE SLAB CONCRETE SHALL BE PAID FOR AS CLASS B-2 CONCRETE, PER SQ. METER.

REMOVAL OF EXISTING BRIDGE SLAB, MEDIAN, CURBS AND PARAPET SHALL BE PAID FOR AS REMOVAL OF EXISTING BRIDGE DECK, PER SQ. METER.

CONSTRUCTION PHASING

DETAILED BY: JDS
CHECKED BY: DJS

EXISTING W36 BEAMS, TYP. EXCEPT AS NOTED

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

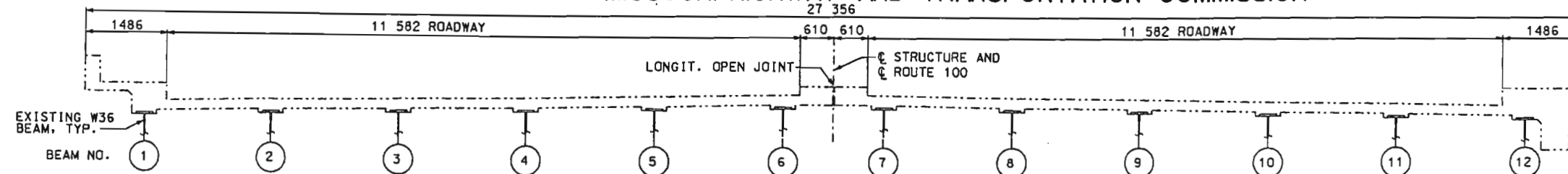
SHEET 5 OF 40

△ SHEET OLELETED 03-15-01

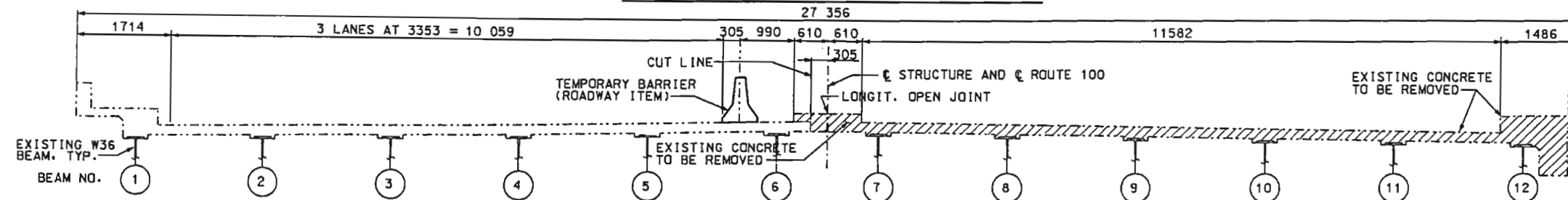
A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

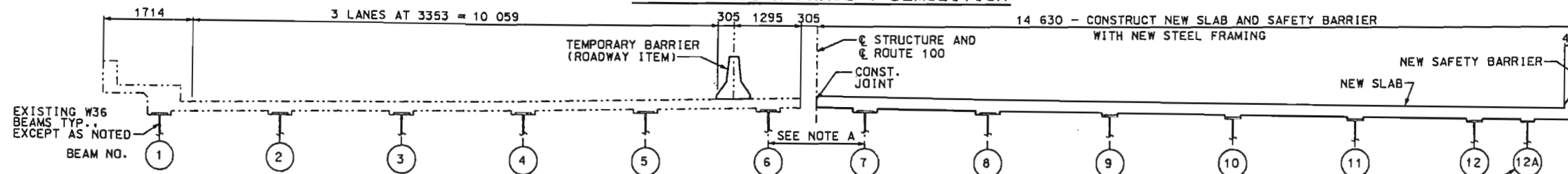
STATE	PROJ. NO.	SHEET NO.
MO.		



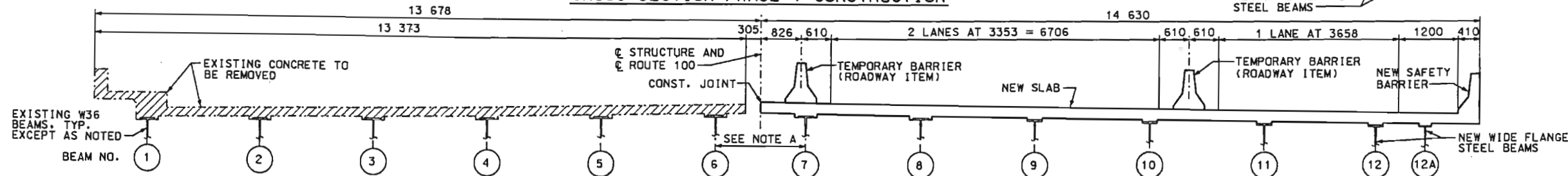
CROSS SECTION THRU EXISTING BRIDGE



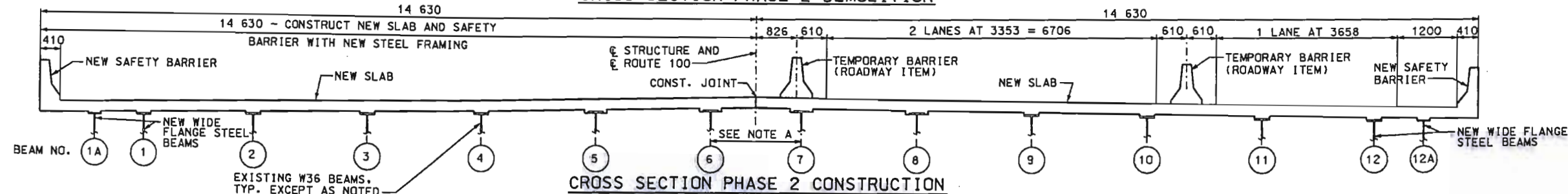
CROSS SECTION PHASE 1 DEMOLITION



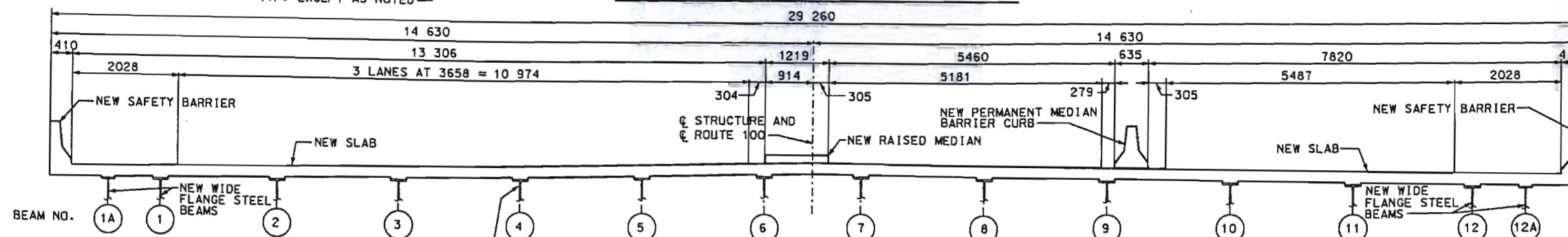
CROSS SECTION PHASE 1 CONSTRUCTION



CROSS SECTION PHASE 2 DEMOLITION



CROSS SECTION PHASE 2 CONSTRUCTION



CROSS SECTION THRU FINAL DECK STRUCTURE

NOTE A: IF NEW DIAPHRAGMS BETWEEN BEAMS 6 AND 7 ARE INSTALLED PRIOR TO COMPLETION OF PHASE 2 DECK, THE FOLLOWING PROCEDURE SHALL BE FOLLOWED. INSTALL AND TIGHTEN ALL BOLTS CONNECTING THE DIAPHRAGMS TO BEAM 7. DO NOT INSTALL THE BOLTS CONNECTING THE DIAPHRAGMS TO BEAM 6 UNTIL AFTER PHASE 2 DECK IS COMPLETED. THE DIAPHRAGMS SHALL BE FULLY CONNECTED TO BOTH BEAMS PRIOR TO ALLOWING TRAFFIC ON THE NEW DECK ABOVE THE DIAPHRAGMS.

NOTES

FOR ADDITIONAL CONSTRUCTION PHASING REQUIREMENTS, SEE SPECIAL PROVISIONS. ALL SECTIONS ARE SHOWN LOOKING WEST. AHEAD STATION. REMOVAL OF EXISTING BRIDGE SLAB, MEDIAN, CURBS AND PARAPET SHALL BE PAID FOR AS REMOVAL OF EXISTING BRIDGE DECK, PER SQ. METER.

CONSTRUCTION PHASING

DETAILED BY: SEM
CHECKED BY: RDR

EXISTING W36 BEAMS.
TYP. EXCEPT AS NOTED

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 5A OF 40

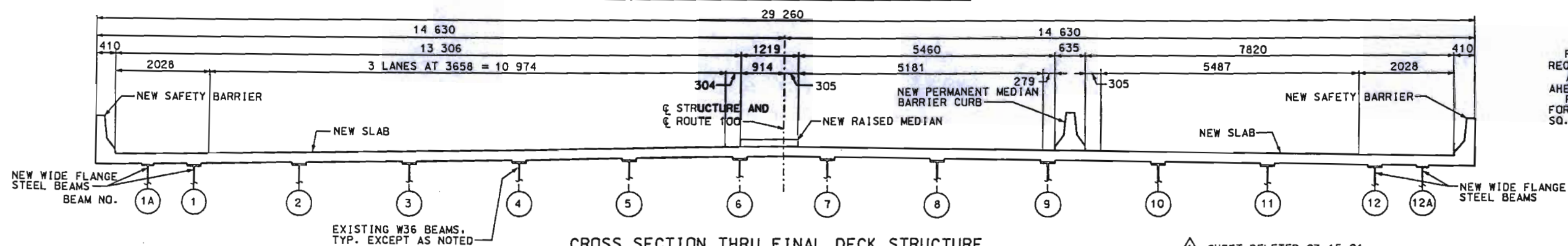
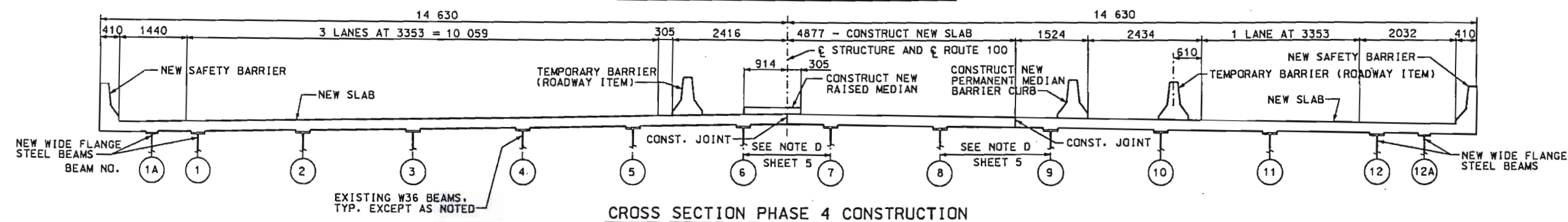
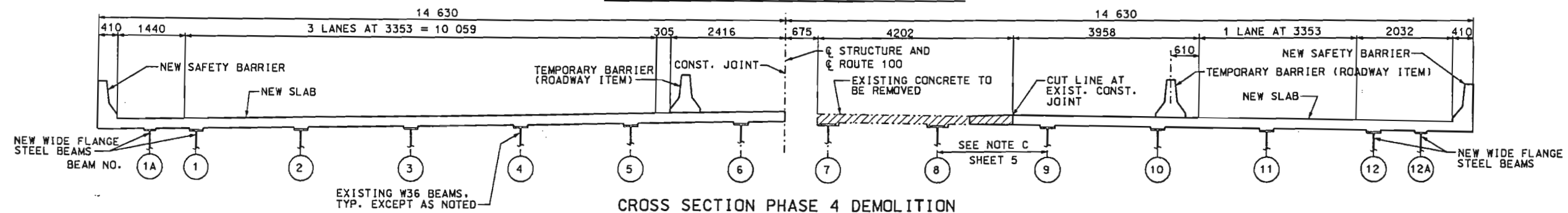
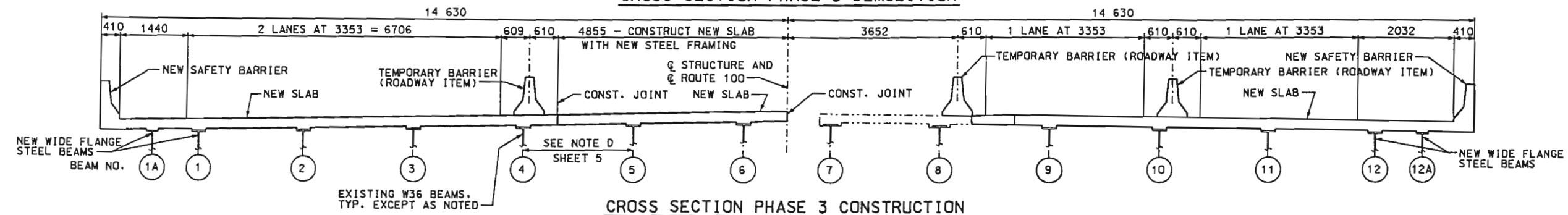
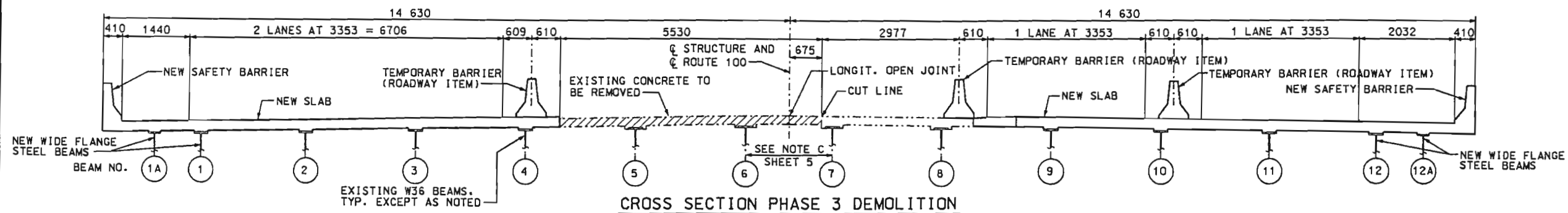
1 SHEET ADDED 03-15-01



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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



NOTES

FOR ADDITIONAL CONSTRUCTION PHASING REQUIREMENTS, SEE SPECIAL PROVISIONS. ALL SECTIONS ARE SHOWN LOOKING WEST, AHEAD STATION. REMOVAL OF CLOSURE SLAB SHALL BE PAID FOR AS REMOVAL OF EXISTING BRIDGE DECK, SQ. METER.

CONSTRUCTION PHASING

DETAILED BY: JDS
CHECKED BY: DJS

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 6 OF 40

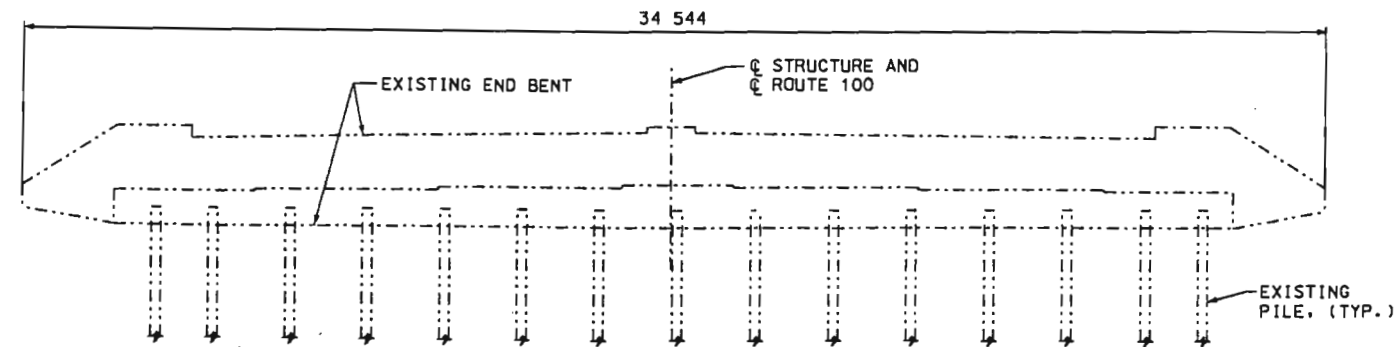
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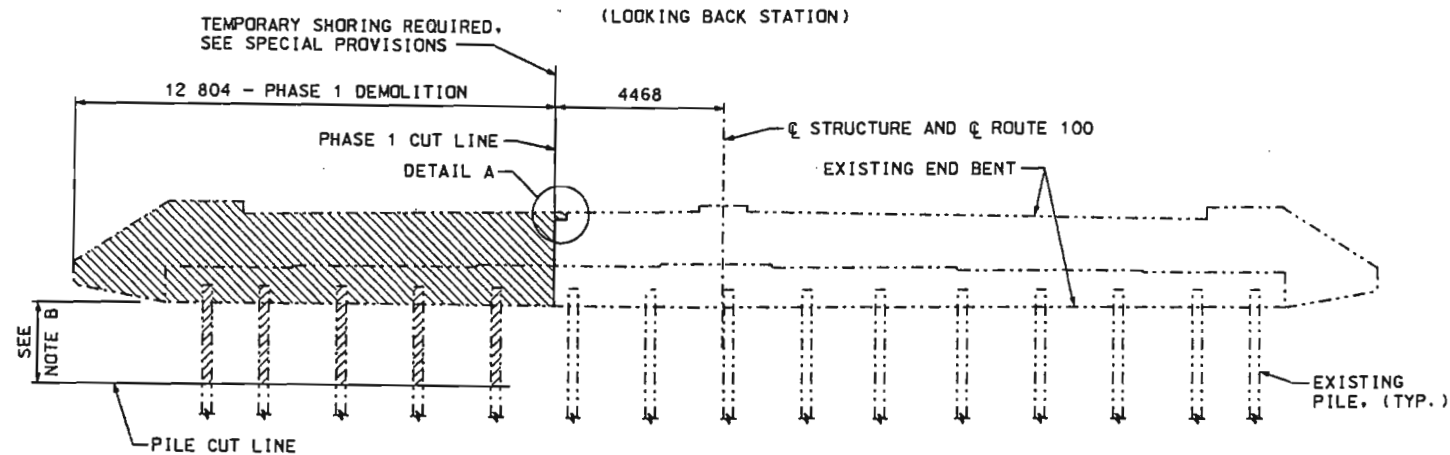
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

TEMPORARY SHORING REQUIRED,
SEE SPECIAL PROVISIONS

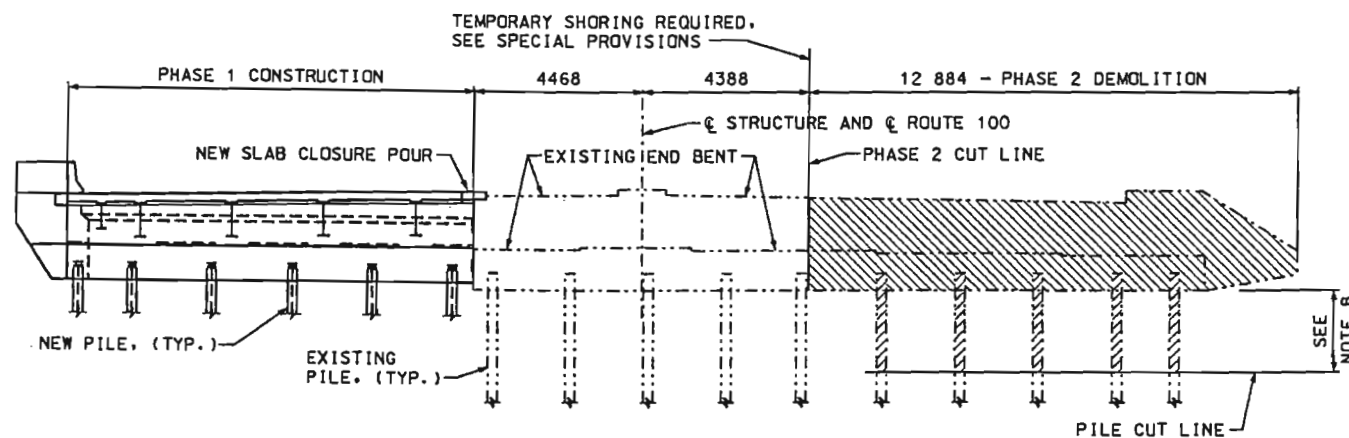
STATE	PROJ. NO.	SHEET NO.
MO.		



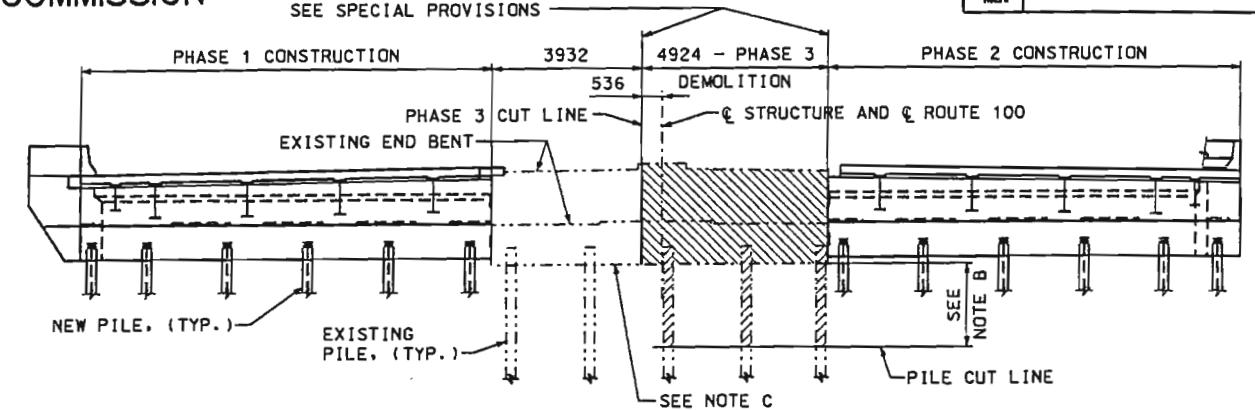
EXISTING END BENT ELEVATION



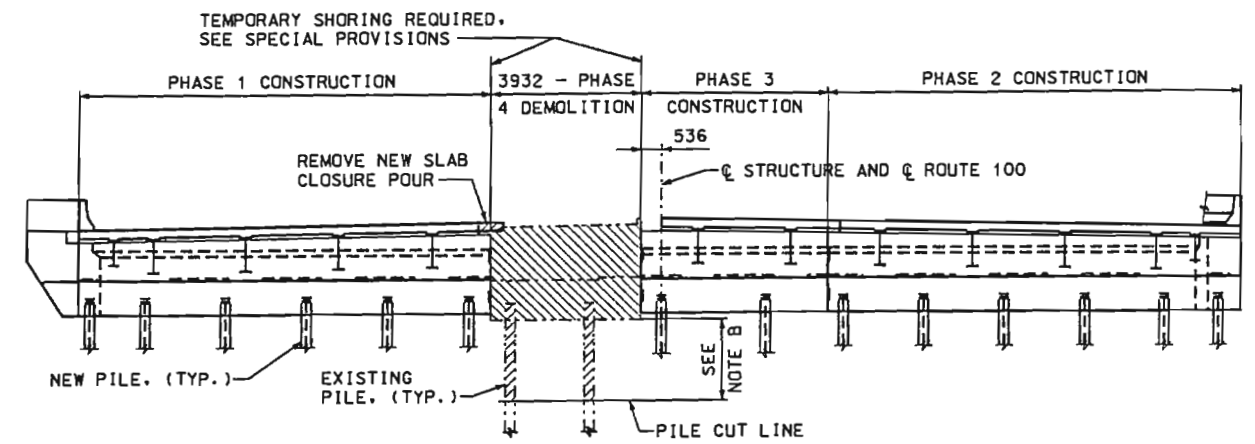
PHASE 1 DEMOLITION



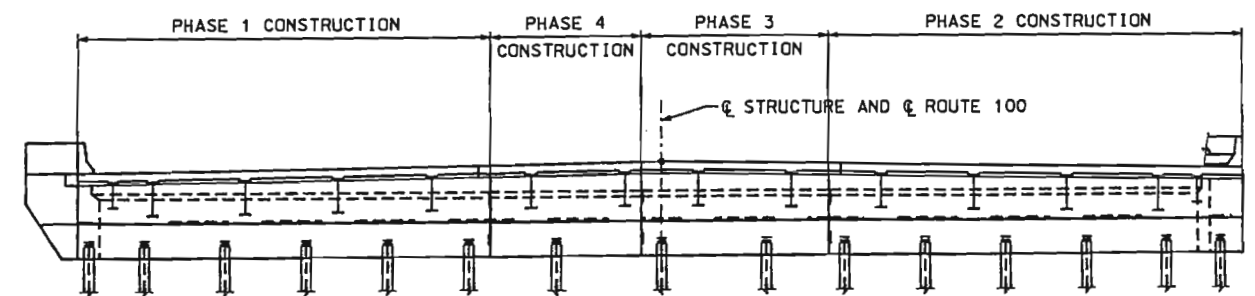
PHASE 2 DEMOLITION



PHASE 3 DEMOLITION



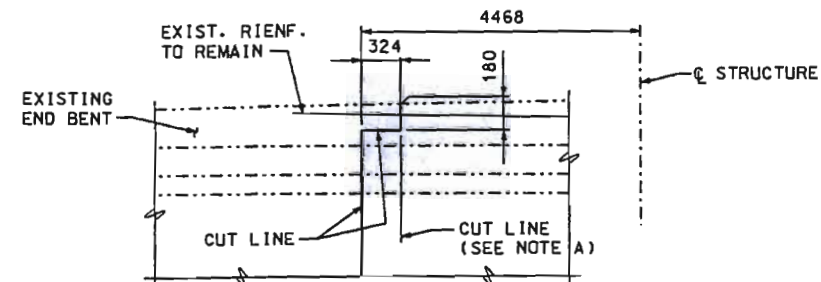
PHASE 4 DEMOLITION



NEW END BENT ELEVATION

NOTE B: EXISTING PILES SHALL BE CUT OFF A MINIMUM OF 610mm BELOW BOTTOM OF CAP. SOME PILES MAY NEED TO BE CUT OFF UP TO 2150mm OR MORE TO CLEAR PREBORED HOLES FOR NEW PILES.

NOTE A: THE EXISTING BACKWALL SHALL BE NEATLY SAW CUT ALONG THE CUT LINE TO SUCH A DEPTH AS WILL CLEAR THE EXISTING BARS AT THE TOP OF THE BACKWALL. THE EXISTING REINFORCEMENT SHALL BE CLEANED, STRIPPED OF CONCRETE AND STRAIGHTENED FOR A LENGTH OF 850mm BEYOND THE CUT LINE FOR INCORPORATION INTO FUTURE PHASED CONSTRUCTION.



DETAIL A

NOTE C: CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT FOR END BENT AT BEAM 7 AS NECESSARY TO SUPPORT CONSTRUCTION, VEHICLE AND AND EQUIPMENT LOADS. PAYMENT FOR TEMPORARY SUPPORT SHALL BE AT THE CONTRACTOR'S EXPENSE.

NOTES

DIMENSIONS ARE MEASURED ALONG C BEARING. CUT LINES THRU END BENT ARE PARALLEL TO C ROADWAY. REFER TO CONSTRUCTION PHASING DRAWINGS FOR EXISTING SLAB DEMOLITION LIMITS AND NEW SLAB CONSTRUCTION.

EXISTING END BENT 1 DEMOLITION



DETAILED BY: CD
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 7 OF 40

1 SHEET DELETED 03-15-01

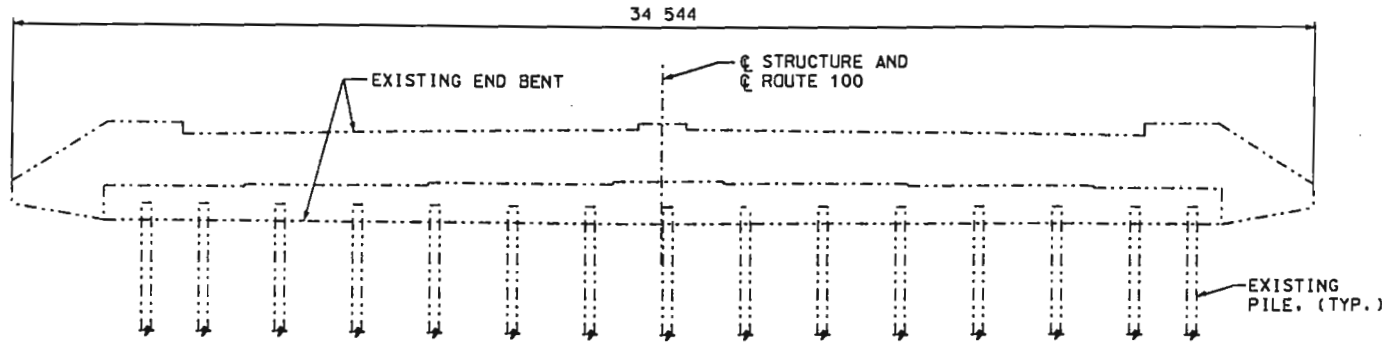
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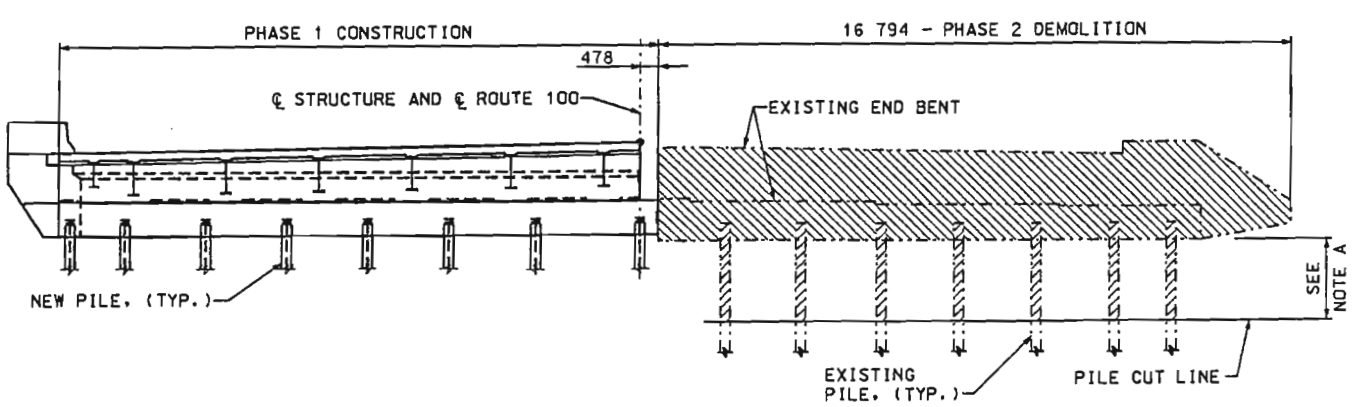
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

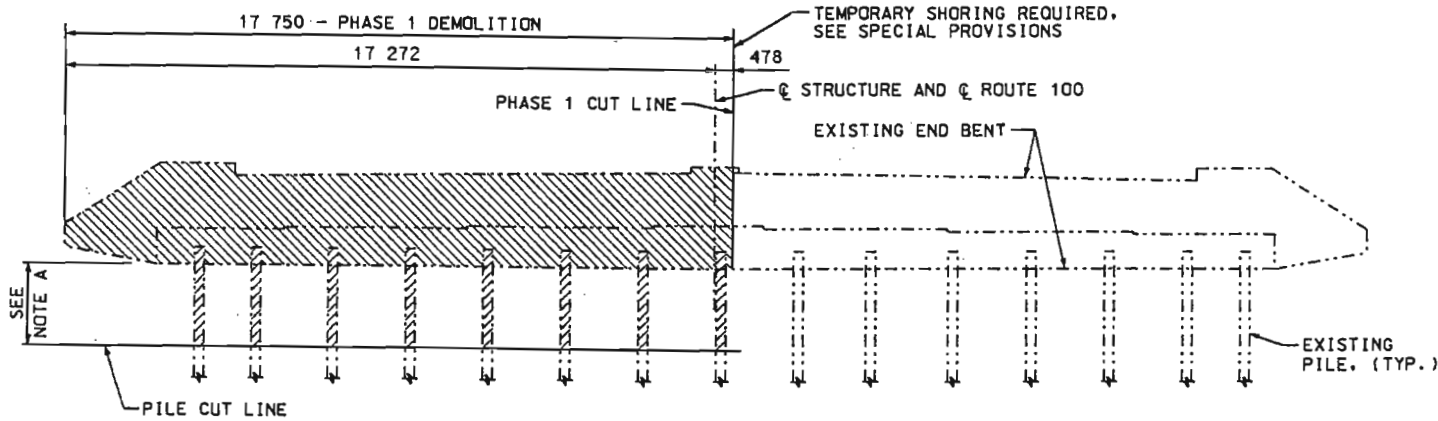
STATE	PROJ. NO.	SHEET NO.
MO.		



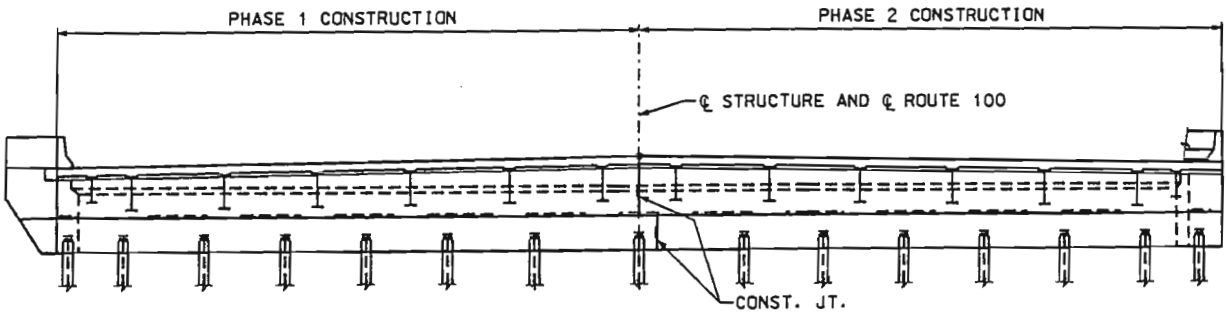
EXISTING END BENT ELEVATION
(LOOKING BACK STATION)



PHASE 2 DEMOLITION



PHASE 1 DEMOLITION



NEW END BENT ELEVATION

NOTE A: EXISTING PILES SHALL BE CUT OFF A MINIMUM OF 610mm BELOW BOTTOM OF CAP. SOME PILES MAY NEED TO BE CUT OFF UP TO 2150mm OR MORE TO CLEAR PREBORED HOLES FOR NEW PILES.

NOTES

DIMENSIONS ARE MEASURED ALONG C BEARING. CUT LINES THRU END BENT ARE PARALLEL TO C ROADWAY. REFER TO CONSTRUCTION PHASING DRAWINGS FOR EXISTING SLAB DEMOLITION LIMITS AND NEW SLAB CONSTRUCTION.

EXISTING END BENT 1 DEMOLITION

DETAILED BY: SEM
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

1 SHEET ADDED 03-15-01

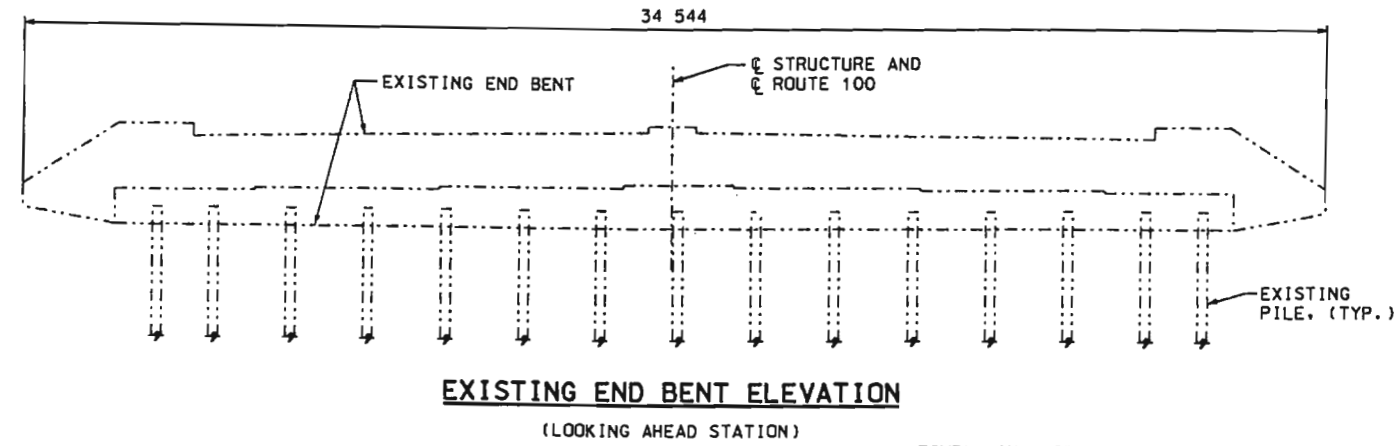
SHEET 7A OF 40



A09601

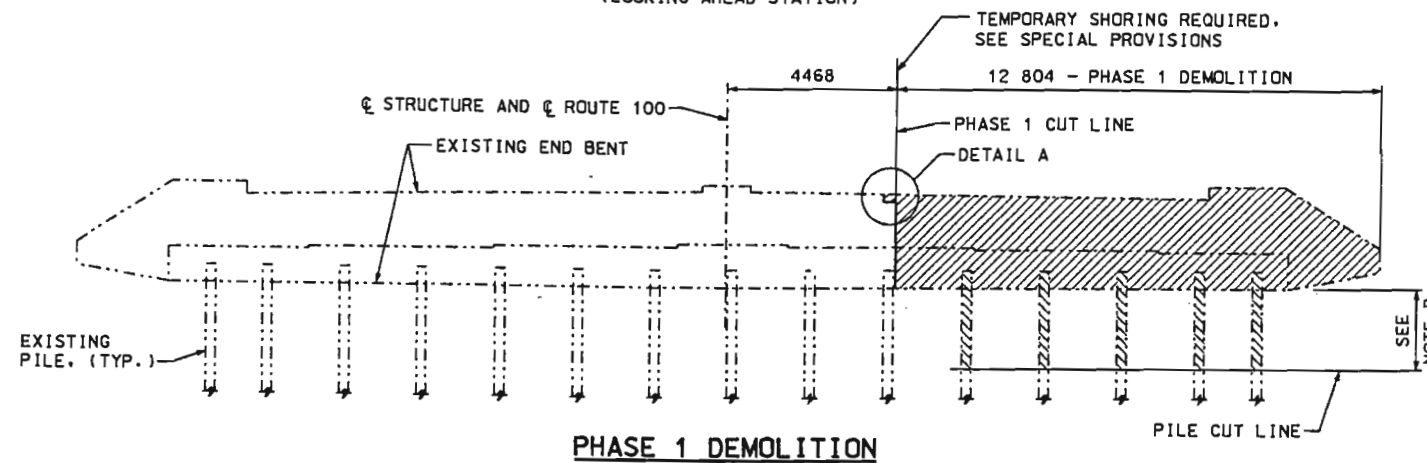
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		

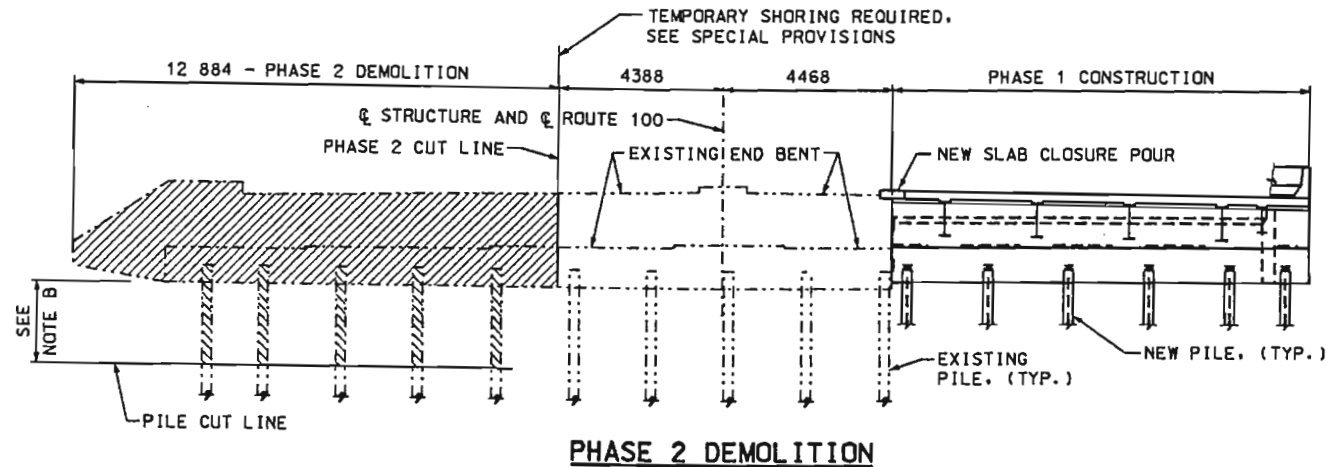


EXISTING END BENT ELEVATION

(LOOKING AHEAD STATION)

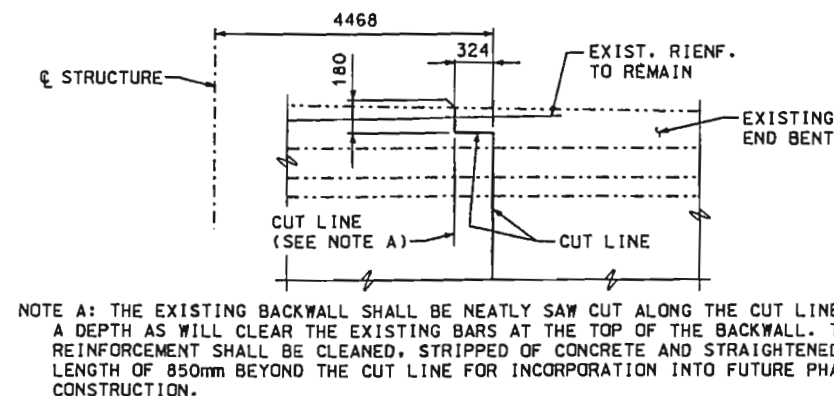


PHASE 1 DEMOLITION



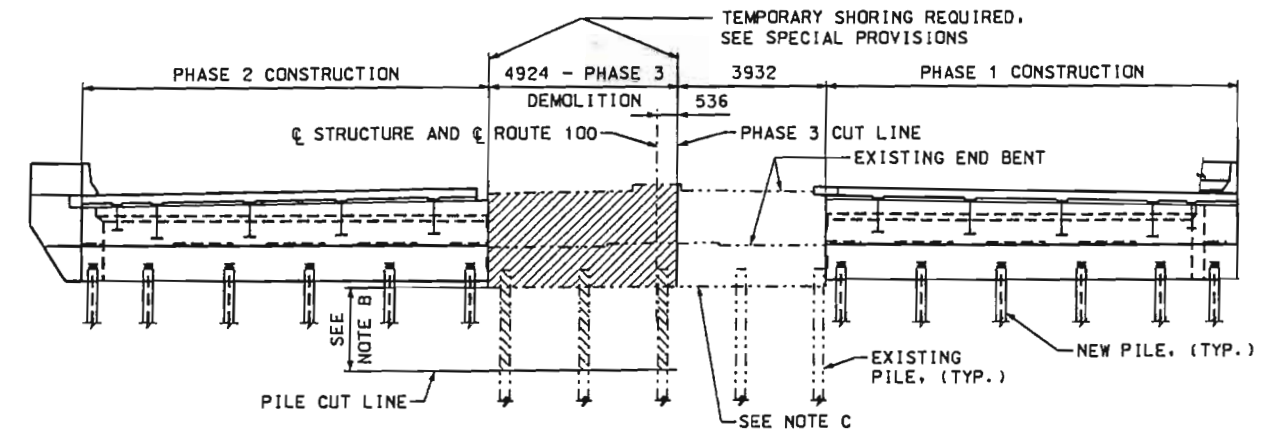
PHASE 2 DEMOLITION

NOTE B: EXISTING PILES SHALL BE CUT OFF A MINIMUM OF 610mm BELOW BOTTOM OF CAP. SOME PILES MAY NEED TO BE CUT OFF UP TO 2150mm OR MORE TO CLEAR PREBORED HOLES FOR NEW PILES.

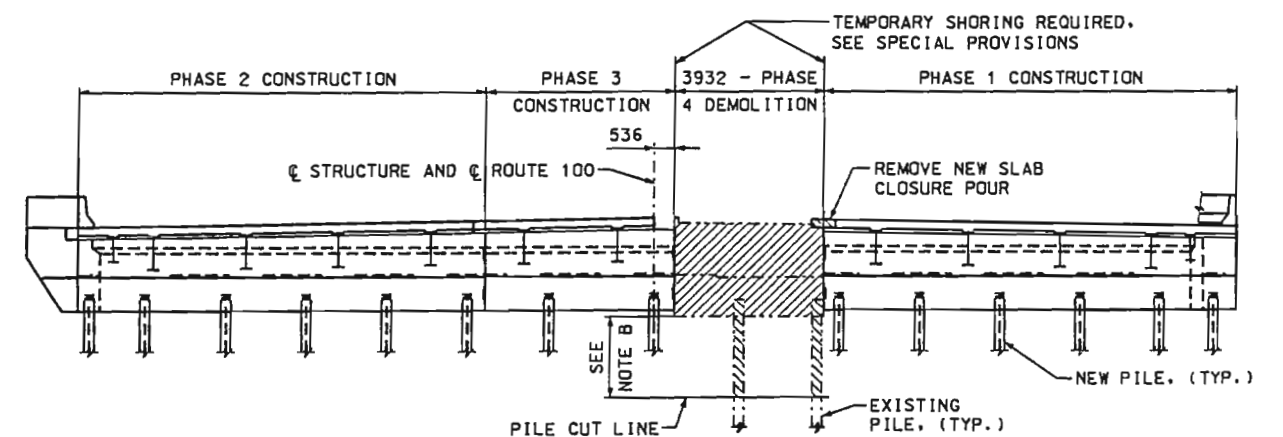


NOTE A: THE EXISTING BACKWALL SHALL BE NEATLY SAW CUT ALONG THE CUT LINE TO SUCH A DEPTH AS WILL CLEAR THE EXISTING BARS AT THE TOP OF THE BACKWALL. THE EXISTING REINFORCEMENT SHALL BE CLEANED, STRIPPED OF CONCRETE AND STRAIGHTENED FOR A LENGTH OF 850mm BEYOND THE CUT LINE FOR INCORPORATION INTO FUTURE PHASED CONSTRUCTION.

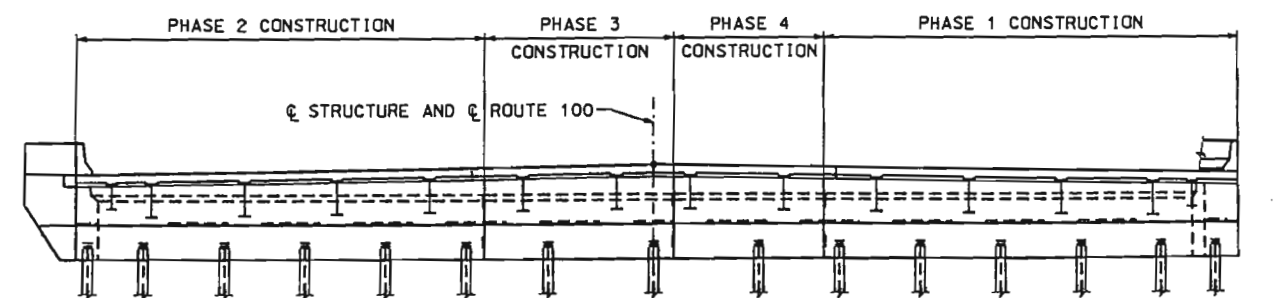
DETAIL A



PHASE 3 DEMOLITION



PHASE 4 DEMOLITION



NEW END BENT ELEVATION

NOTE C: CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT FOR END BENT AT BEAM 7 AS NECESSARY TO SUPPORT CONSTRUCTION. VEHICLE AND EQUIPMENT LOADS. PAYMENT FOR TEMPORARY SUPPORT SHALL BE AT THE CONTRACTOR'S EXPENSE.

NOTES

DIMENSIONS ARE MEASURED ALONG & BEARING. CUT LINES THRU END BENT ARE PARALLEL TO & ROADWAY. REFER TO CONSTRUCTION PHASING DRAWINGS FOR EXISTING SLAB DEMOLITION LIMITS AND NEW SLAB CONSTRUCTION.

EXISTING END BENT 5 DEMOLITION



DETAILED BY: CD
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 8 OF 40

△ SHEET DELETED 03-15-01

A09601

STATE	PROJ. NO.	SHEET NO.
MO.		



NOTES

DIMENSIONS ARE MEASURED ALONG C BEARING.
CUT LINES THRU END BENT ARE PARALLEL
TO C ROADWAY.
REFER TO CONSTRUCTION PHASING DRAWINGS
FOR EXISTING SLAB DEMOLITION LIMITS AND NEW
SLAB CONSTRUCTION.

EXISTING END BENT 5
DEMOLITION

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

1 SHEET ADDED 03-15-01

SHEET 8A OF 40

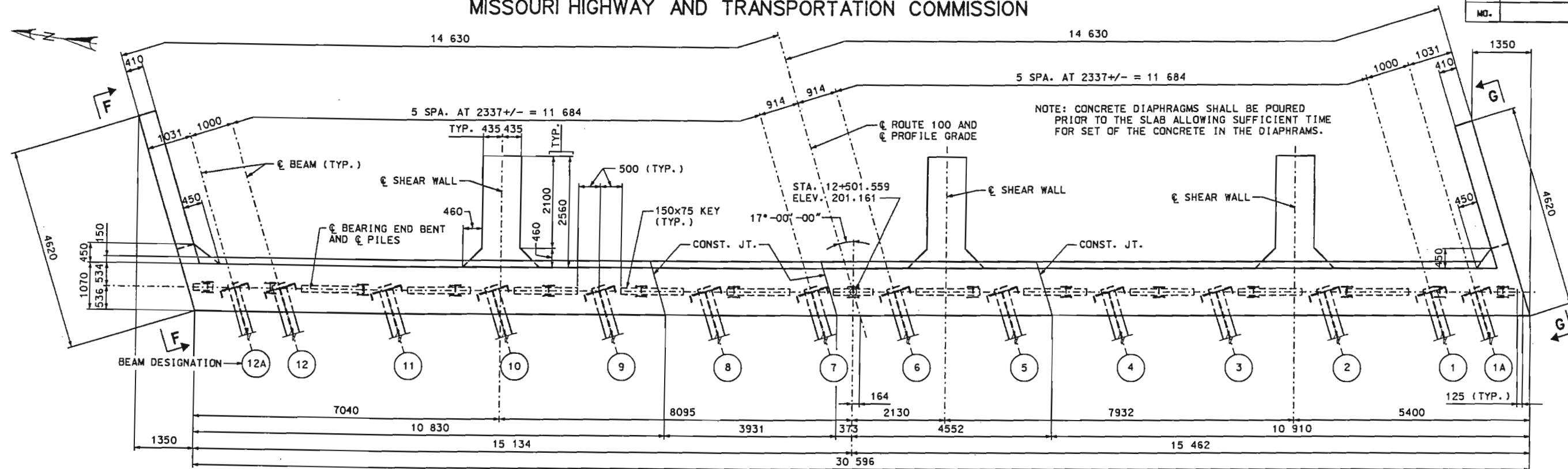


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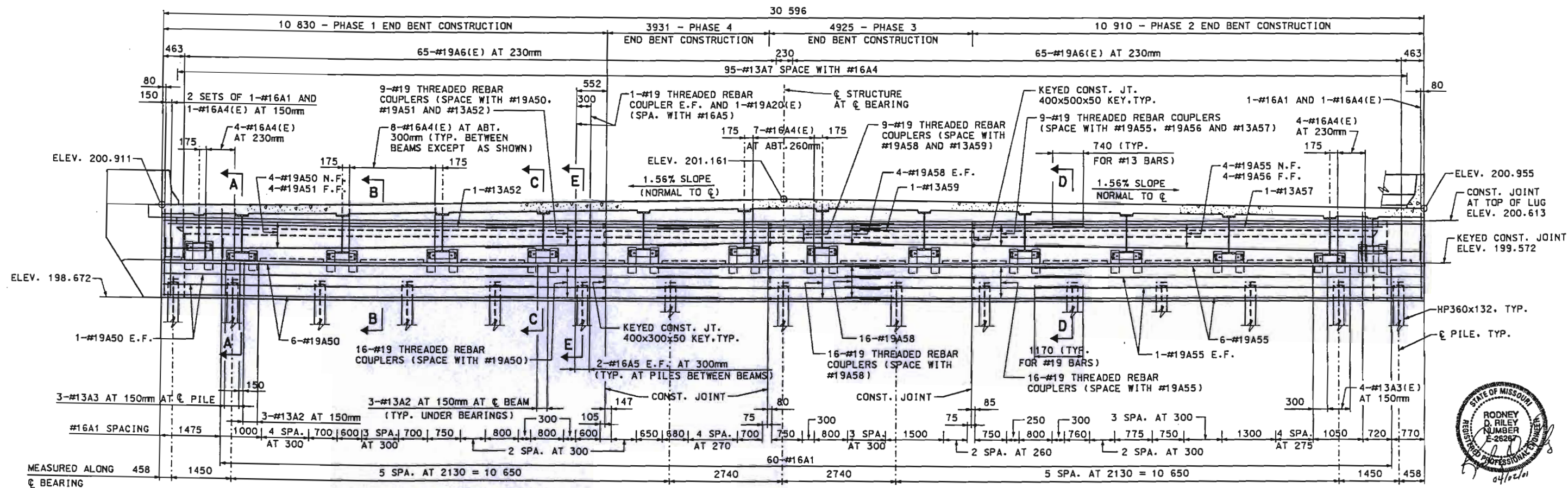
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



PLAN



ELEVATION

(LOOKING BACK STATION)

END BENT 1

DETAILED BY: CD
CHECKED BY: RLD

NOTE: ALL DIMENSIONS IN ELEVATION VIEW ARE MEASURED ALONG FRONT FACE OF END BENT, EXCEPT AS NOTED. REINFORCEMENT IN END BENT SHALL BE PLACED PARALLEL TO ROADWAY. ELEVATIONS AT TOP OF SLAB ARE AT THE C BEARINGS.

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 9 OF 40

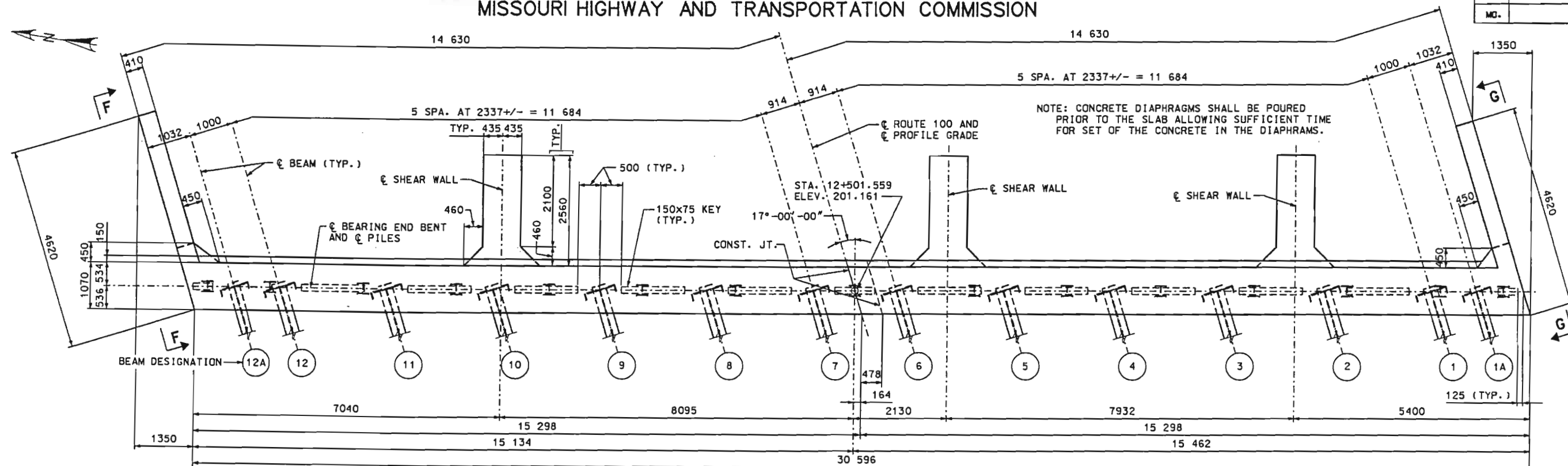
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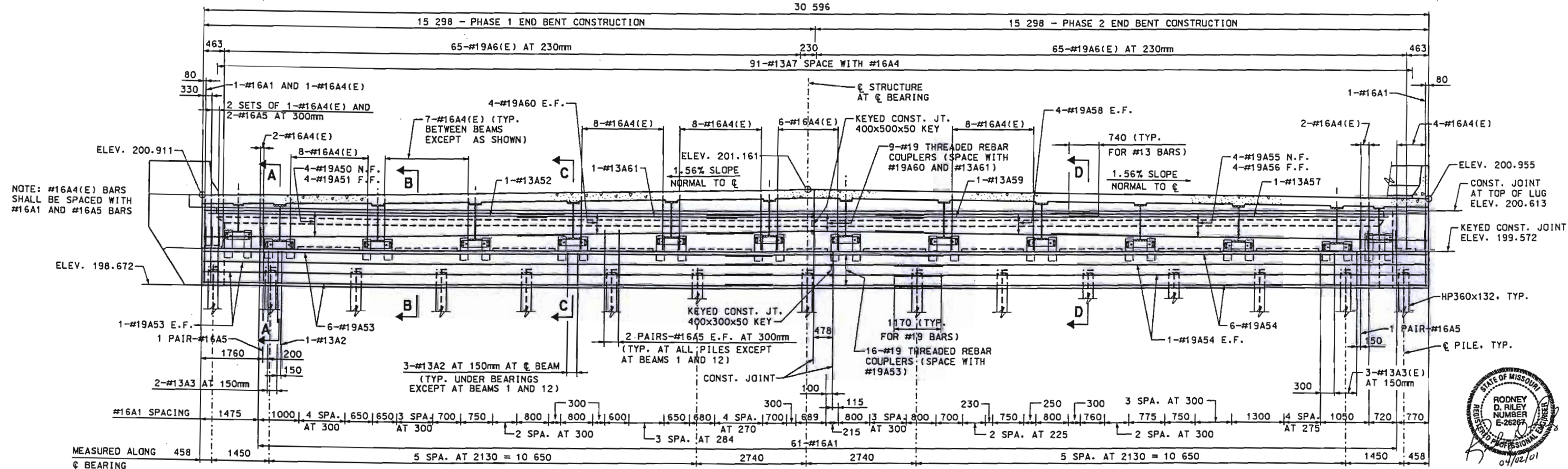
A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



PLAN



ELEVATION

(LOOKING BACK STATION)

△ SHEET ADDED 03-15-01

END BENT 1

DETAILED BY: SEM
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 9A OF 40



A09601

STATE	PROJ. NO.	SHEET NO.
NO.		



ELEVATION

1 SHEET DELETED 03-15-01

SHEET 10 OF 40

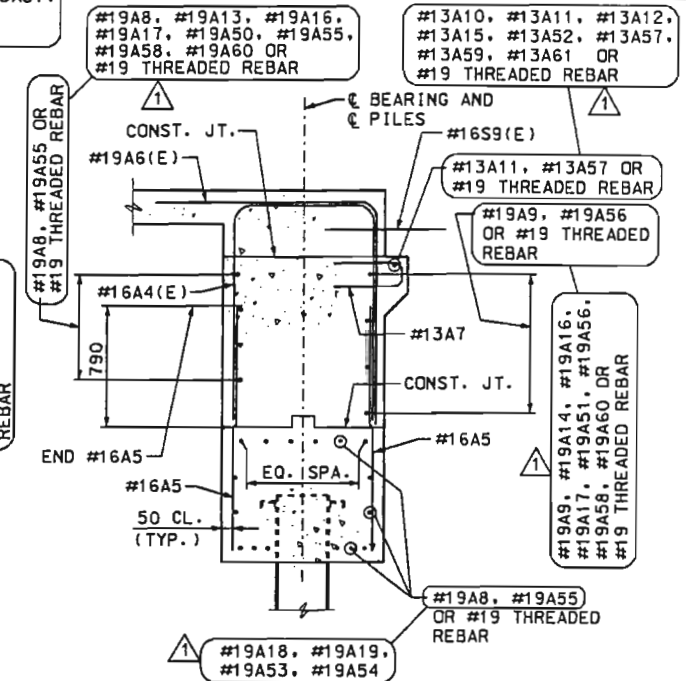
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A09601



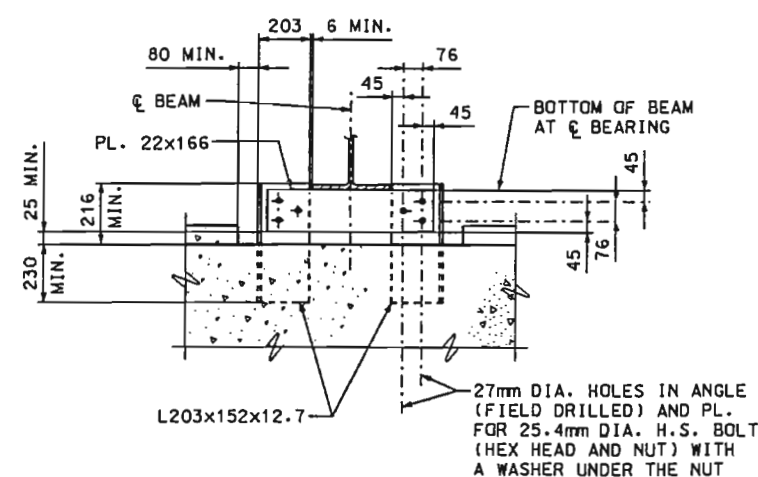
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A09601



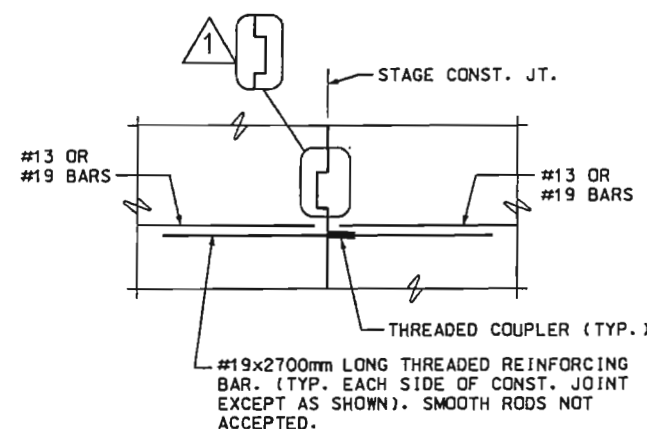
SECTION D-D

NOTE: FOR DETAILS NOT SHOWN,
SEE SECTION A-A OR B-B.



BEAM CHAIR DETAIL

NOTE: DETAIL SHOWN IS TYPICAL AT EACH BEAM.
SPACE REINFORCING IN BENT CAP TO MISS ANGLES.
THE MASS OF ANGLES, PLATES, BOLTS AND WASHER
IS INCLUDED IN THE PAY ITEM FABRICATED STRUCTURAL
CARBON STEEL (I-BEAM)-METRIC ON SHEET 2.



THREADED REBAR COUPLER DETAIL

THREADED REBAR COUPLER NOTES

STEEL COUPLER ASSEMBLY SHALL BE OF AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125 PERCENT OF THE YIELD STRENGTH OF THE LAPPED REINFORCEMENT BARS.

ALL REINFORCEMENT BARS SHALL LAPPED AND TIED TO THE SPLICER BARS.

COUPLER ASSEMBLY IN THE SLAB SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

MINIMUM CAPACITY = 334KN - TENSION WITH A MINIMUM PULLOUT STRENGTH = 133KN - TENSION IN 28 DAY CONCRETE.

PAYMENT FOR REBAR COUPLERS AND THREADED REINFORCING BARS SHALL BE INCLUDED IN THE PRICE BID FOR THREADED REBAR COUPLER (EACH).

TABLE OF ESTIMATED QUANTITIES			
ITEM		QUANTITY (END BENT 1)	QUANTITY (END BENT 5)
CLASS 1 EXCAVATION - METRIC	CU. M	58	58
PILES - END BENTS ONLY	M	137	94
CLASS B CONCRETE (SUBSTR.) - METRIC	CU. M	35	35
THREADED REBAR COUPLER	EA	79	79

NOTE: THESE QUANTITIES ARE INCLUDED IN THE TABLES SHOWN ON THE
ESTIMATED QUANTITIES AND INDEX OF DRAWINGS SHEET.

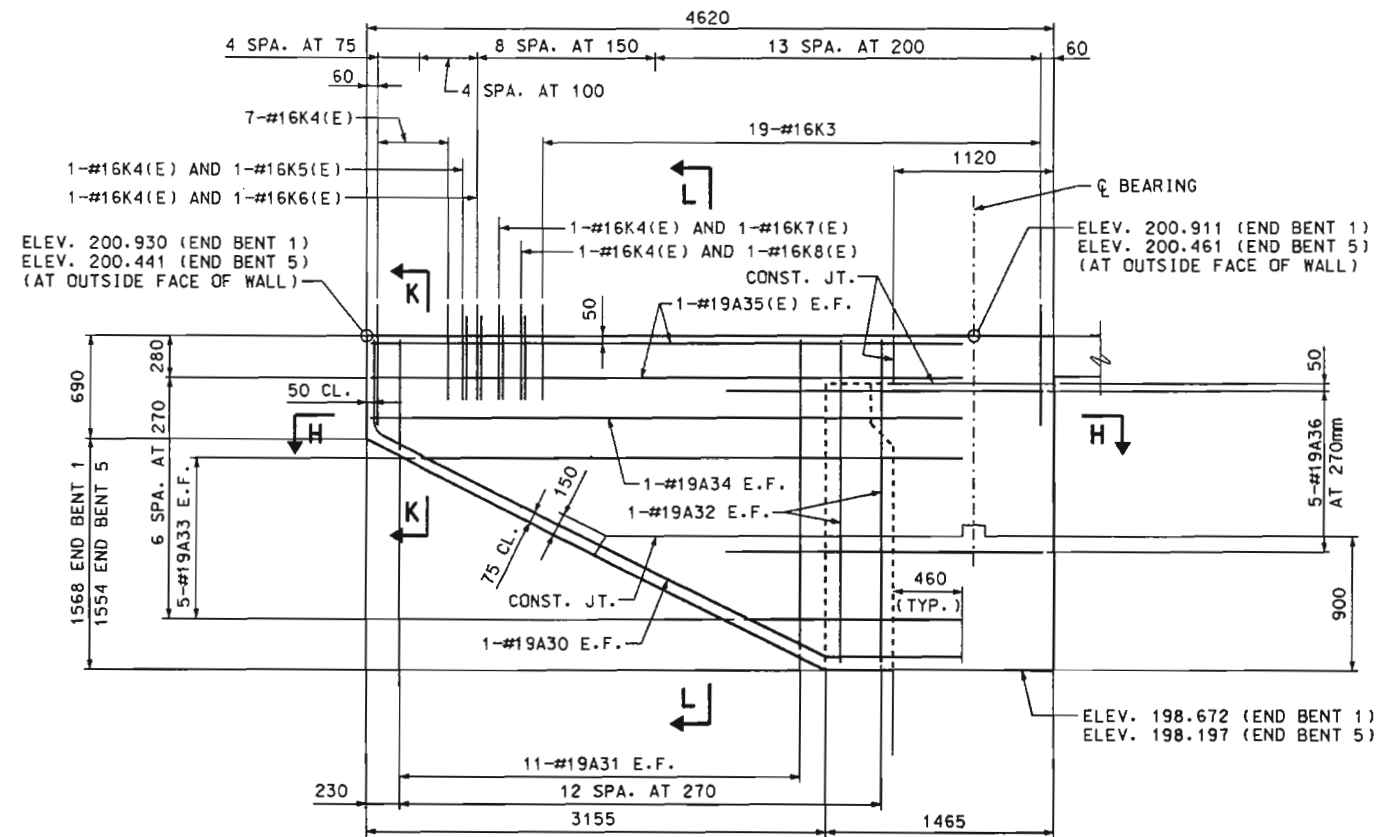
BOTTOM OF BEAM ELEVATIONS (IN METERS)														
LOCATION	BEAM 1A	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7	BEAM 8	BEAM 9	BEAM 10	BEAM 11	BEAM 12	BEAM 12A
☉ BEARING END BENT 1	199.994	199.763	199.820	199.860	199.900	199.940	199.980	199.980	199.940	199.920	199.880	199.840	199.783	200.018
☉ BEARING END BENT 5	199.519	199.288	199.360	199.400	199.450	199.480	199.520	199.520	199.490	199.450	199.420	199.380	199.318	199.553

END BENT DETAILS

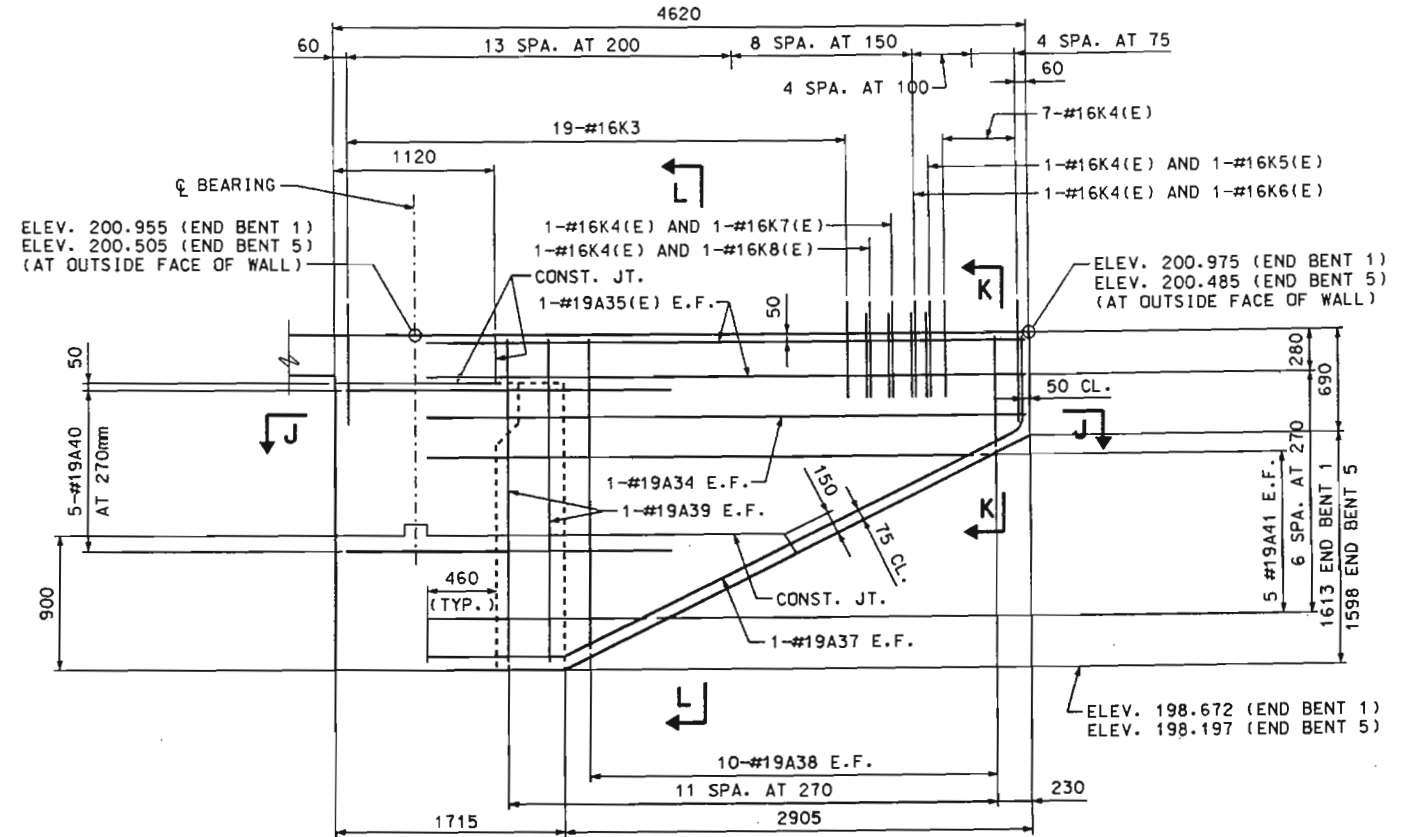
A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

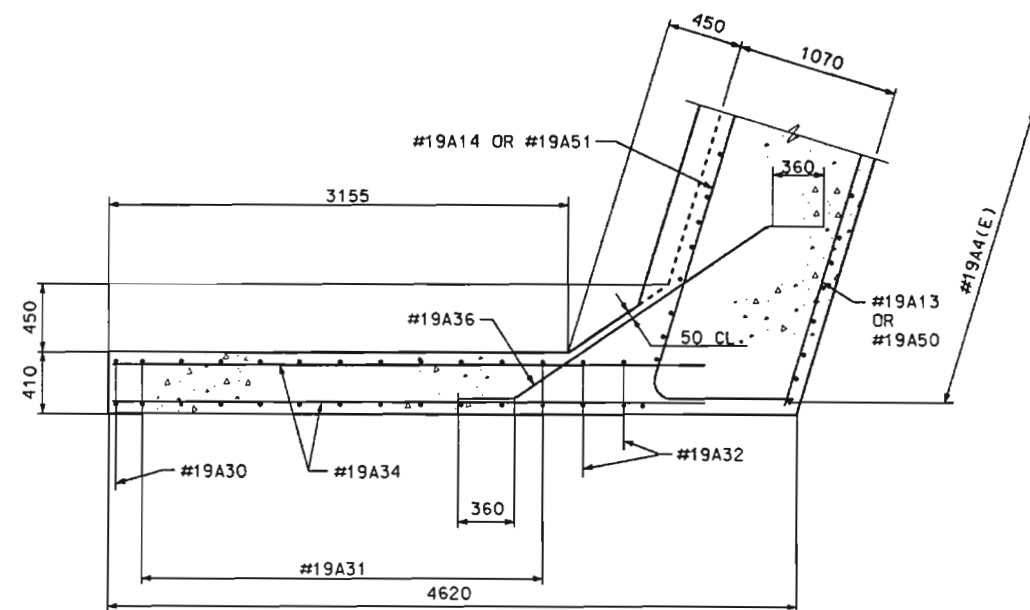
STATE	PROJ. NO.	SHEET NO.
MO.		812



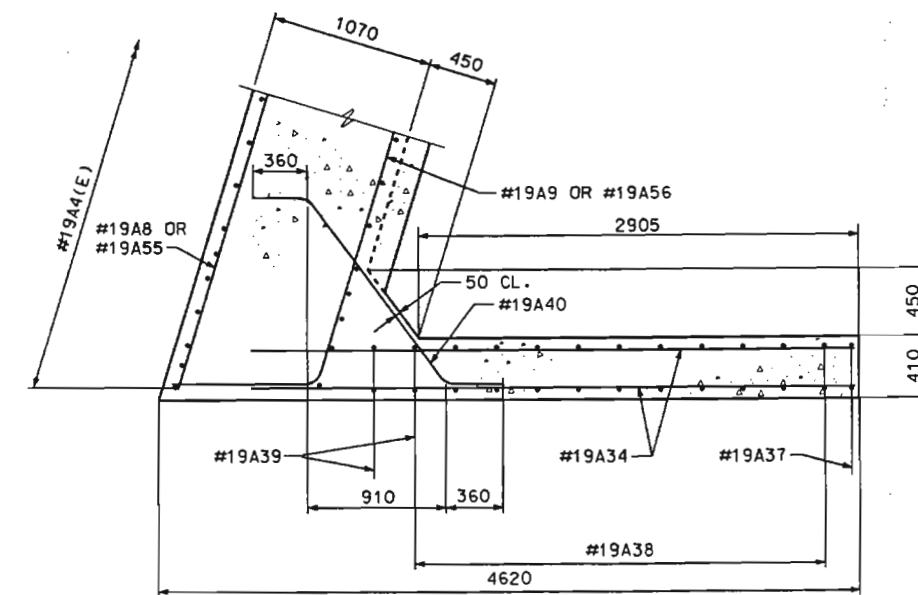
VIEW F-F



VIEW G-G



SECTION H-H



SECTION J-J



END BENT DETAILS

DETAILED BY: CD
CHECKED BY: RLO

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

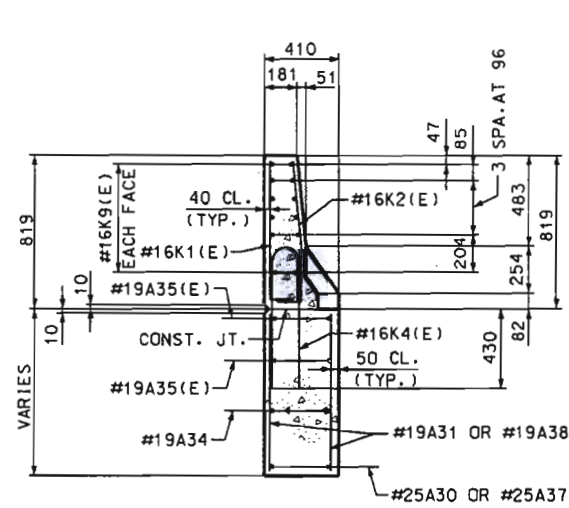
SHEET 12 OF 40

A09601

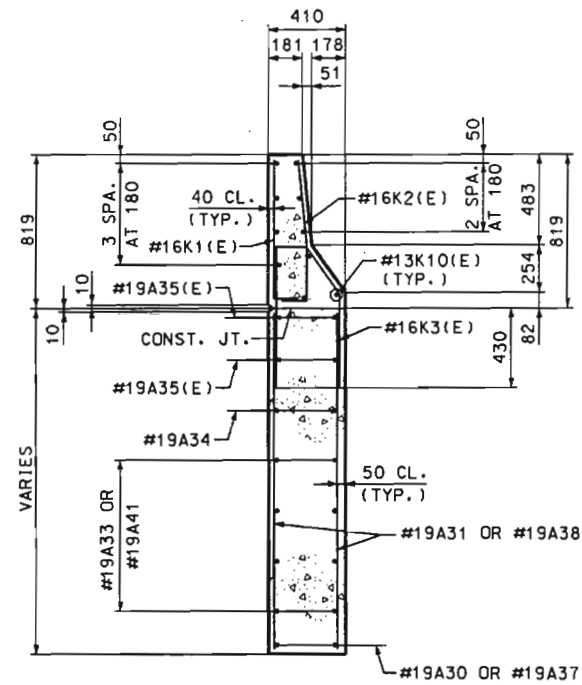
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

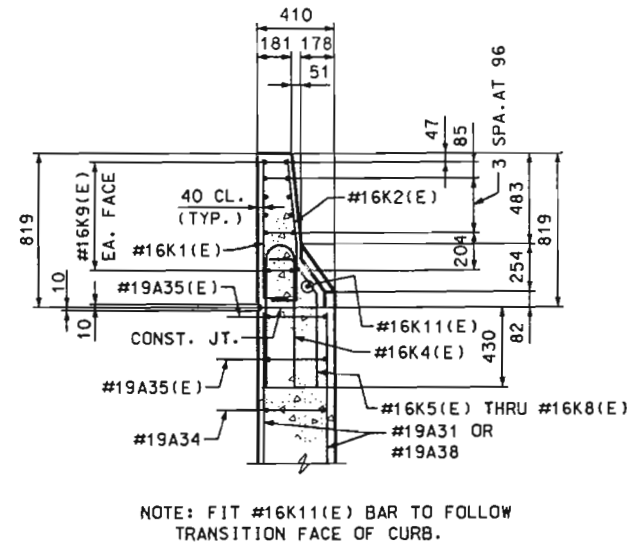
STATE	PROJ. NO.	SHEET NO.
MO.		B 13



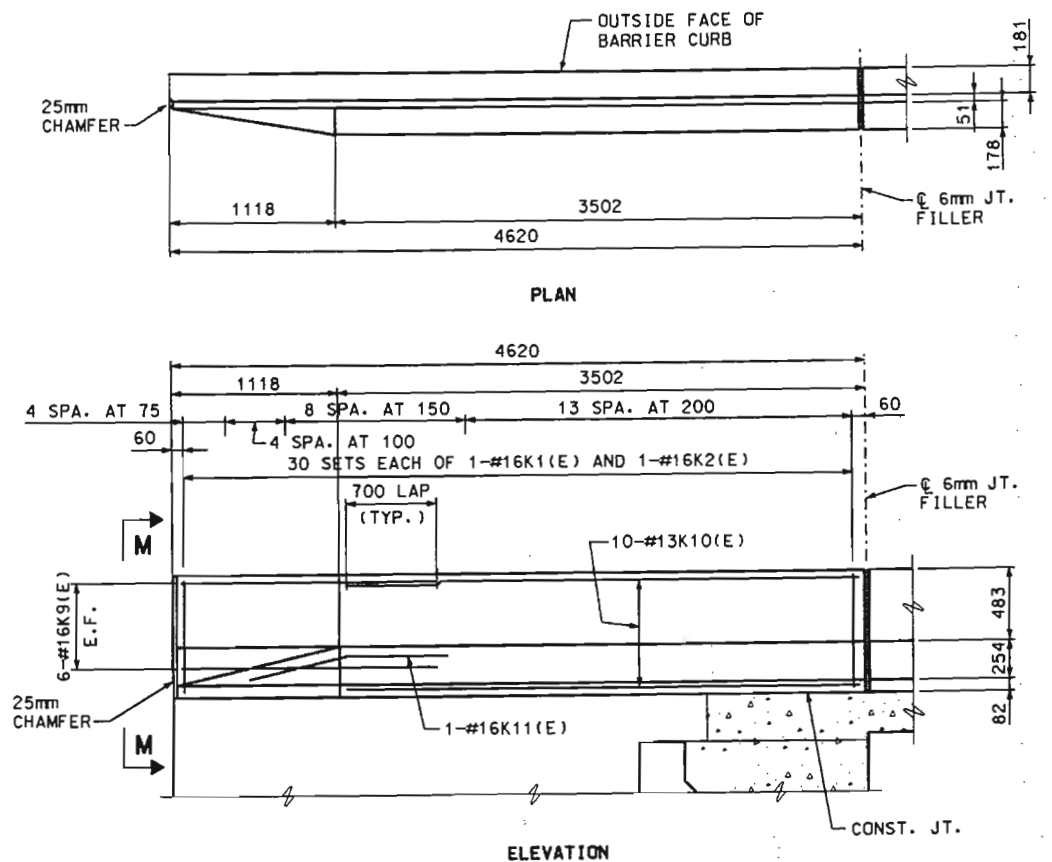
SECTION K-K



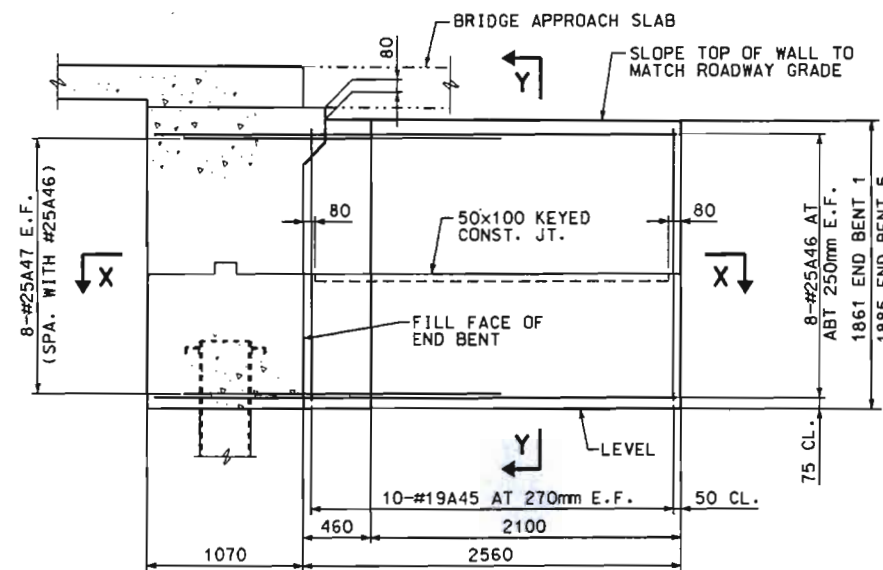
SECTION L-L



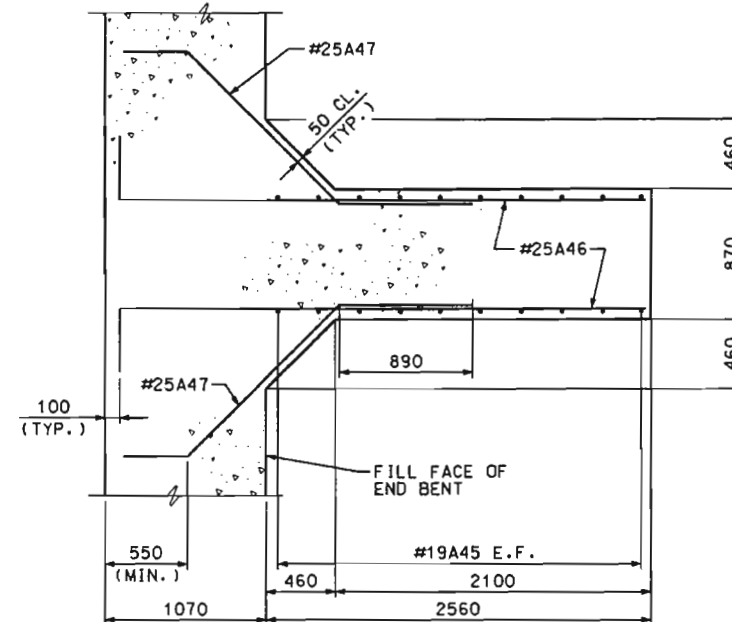
SECTION AT BARRIER TRANSITION



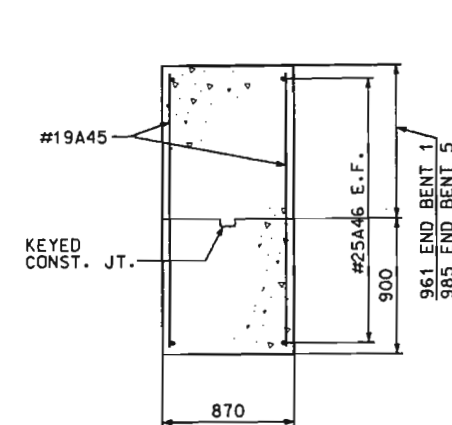
SAFETY BARRIER CURB DETAILS



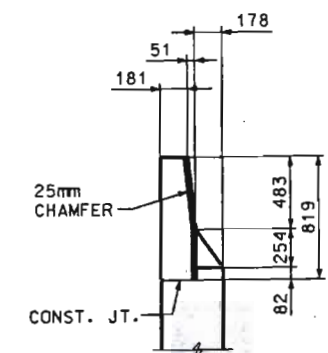
ELEVATION - SHEAR WALL



SECTION X-X



SECTION Y-Y



VIEW M-M

END BENT DETAILS

DETAILED BY: CD
CHECKED BY: RLO

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 13 OF 40

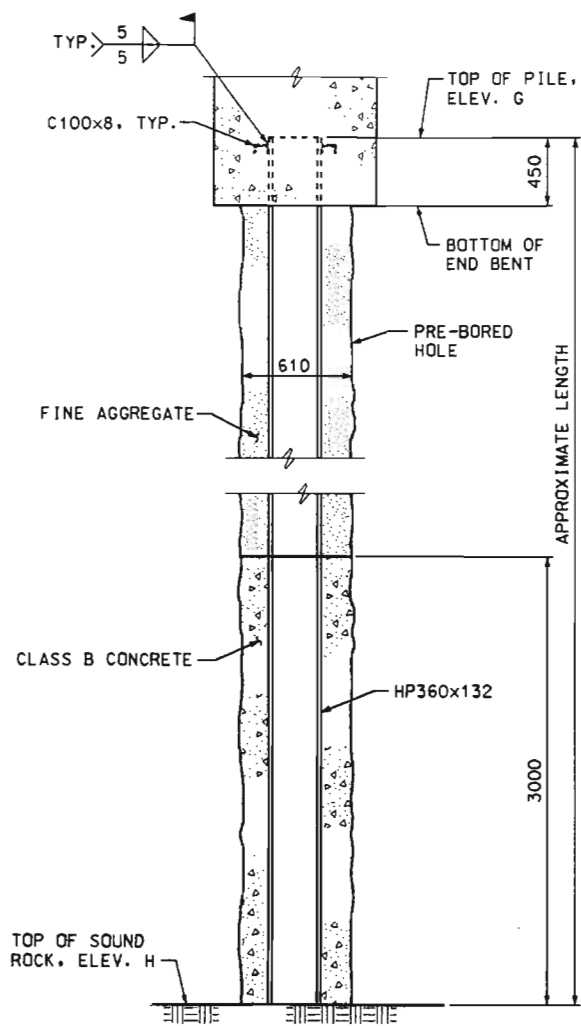


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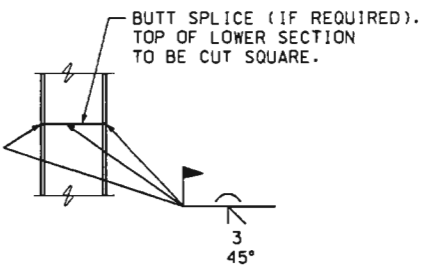
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		814



STEEL PILE DETAIL
END BENTS 1 AND 5



STEEL PILE SPLICE DETAIL

PILE DATA			
END BENT		1	5
BRIDGE NO. A09601	PILE TYPE AND SIZE	HP 360x132	HP 360x132
	NUMBER	15	15
	APPROXIMATE LENGTH	m 9.1	6.2
	DESIGN BEARING	kN 732	732
	ELEV. G	m 199.122	198.647
	ELEV. H	m 190.0	192.4

PILE NOTES

PILES SHALL NOT BE DRIVEN. PILES SHALL BE PLACED IN HOLES PREBORED THROUGH THE OVERBURDEN TO THE TOP OF SOUND ROCK. TEMPORARY CASING IS REQUIRED. SEE SPECIAL PROVISIONS. THE TOP OF SOUND ROCK ELEVATION IS AN ASSUMED ELEVATION DETERMINED FROM THE BORINGS. THE APPROXIMATE LENGTHS SHOWN ARE BASED ON THIS ASSUMED TOP OF ROCK ELEVATION. FINE AGGREGATE SHALL BE SAND NATURALLY PRODUCED MEETING THE GRADATION REQUIREMENTS SPECIFIED IN SECTION 1005.2.4. THE SAND SHALL BE PLACED AS LOOSELY AS POSSIBLE BY CONTINUOUSLY RAINING THE MATERIAL AROUND THE PILE. THE SAND SHALL NOT BE COMPACTED OR DENSIFIED.



END BENT DETAILS

DETAILED BY: CD
CHECKED BY: RLO

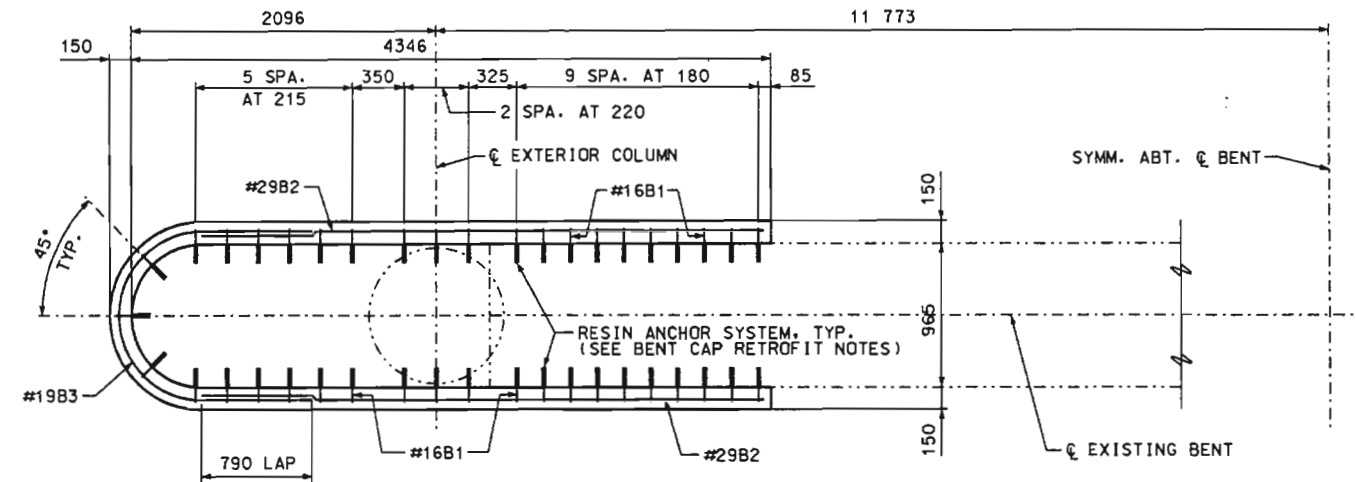
SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 14 OF 40

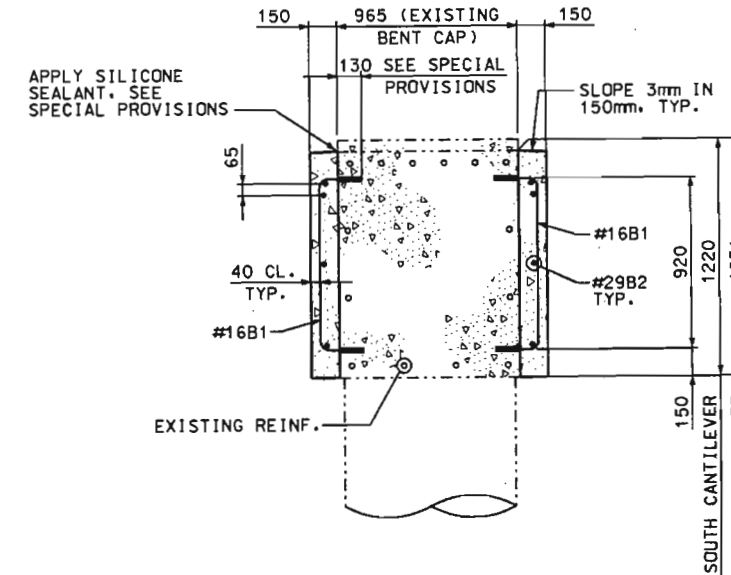
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

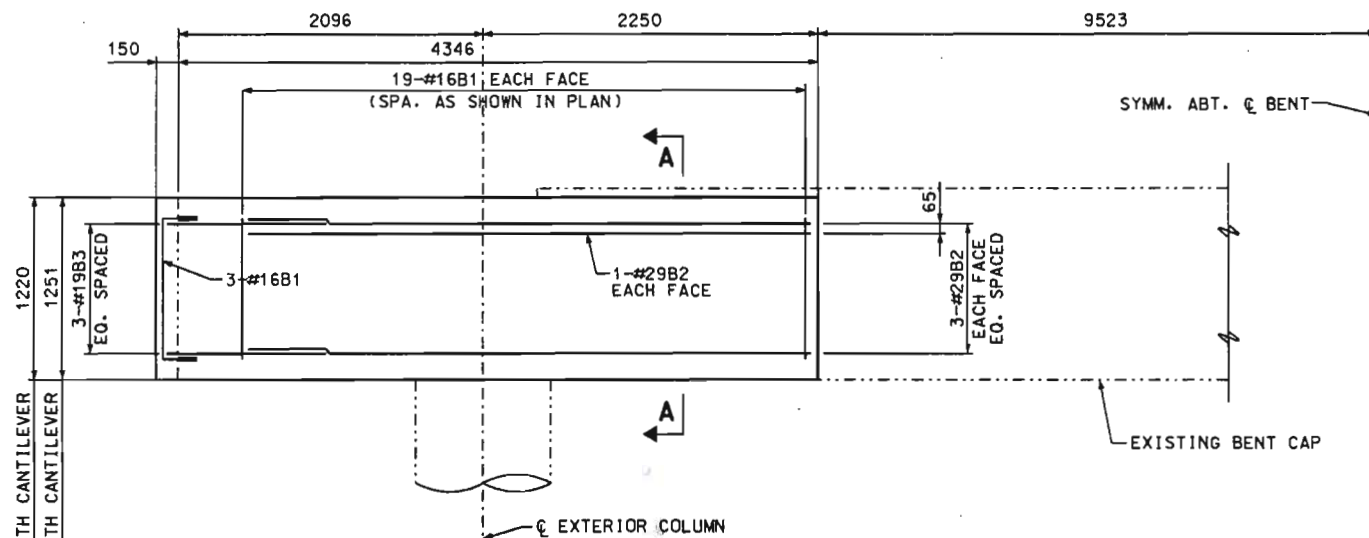
STATE	PROJ. NO.	SHEET NO.
MO.		B15



PLAN



SECTION A-A



ELEVATION

BENT CAP RETROFIT NOTES

CONCRETE SHALL BE CLASS B1.

THE CAP RETROFIT SHALL BE CAST AFTER THE EXISTING DECK SLAB AND EXTERIOR BEAMS HAVE BEEN REMOVED. NEW CONCRETE SHALL BE CAST PRIOR TO THE INSTALLATION OF THE NEW BEAMS AND DECK SLAB.

THE EXISTING CONCRETE SURFACES THAT WILL BE IN CONTACT WITH NEW CONCRETE SHALL BE ROUGHENED BY SANDBLASTING TO A FULL AMPLITUDE OF 6mm AND COATED WITH AN APPROVED EPOXY BONDING ADHESIVE.

THE EPOXY BONDING ADHESIVE AND REINFORCING BARS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL AVOID NICKING OR CUTTING EXISTING REINFORCING BARS. EXISTING REINFORCING SHALL BE LOCATED AND MARKED PRIOR TO DRILLING HOLES IN CAP.

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE SPECIAL PROVISIONS. THESE ANCHOR SYSTEMS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS, EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS.

THE RESIN ANCHOR SYSTEM USED SHALL PRODUCE A MINIMUM ULTIMATE BOND STRENGTH OF 83 KN.

COST OF FURNISHING AND INSTALLING THE ANCHOR SYSTEM COMPLETE IN PLACE SHALL BE INCLUDED IN THE RESPECTIVE PRICE BID FOR BENT CAP RETROFIT.

TABLE OF ESTIMATED QUANTITIES

ITEM	QUANTITY (BENTS 2, 3 AND 4)
CLASS B1 CONCRETE (SUBSTR.) - METRIC	CU. M 10.6
REINFORCING STEEL (BRIDGE) - METRIC	kg 1574
RESIN ANCHORS	EACH 492
SILICONE SEALANT	METERS 55.5

NOTE: THE ESTIMATED QUANTITIES SHOWN IN THE ABOVE TABLE ARE INCLUDED IN THE LUMP SUM PAYMENT FOR MODIFICATIONS TO EXISTING BENTS SHOWN ON THE ESTIMATED QUANTITIES AND INDEX OF DRAWINGS SHEET.



BENTS 2,3 AND 4
CAP RETROFIT

DETAILED BY: CD
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 15 OF 40

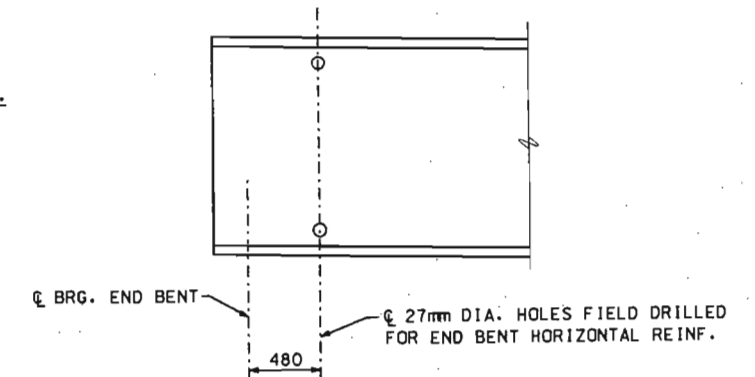
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STATE	PROJ. NO.	SHEET NO.
NO.		B16



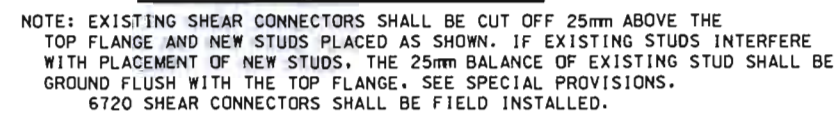
STATE	PROJ. NO.	SHEET NO.
MO.		817



NOTE: 27mm DIA. HOLES ARE REQUIRED FOR BOTH
NEW AND EXISTING BEAMS.

SHEAR CONNECTOR DETAIL

NOTE: ALL BEARING STIFFENERS SHALL BE VERTICAL IN THEIR FINAL POSITION.



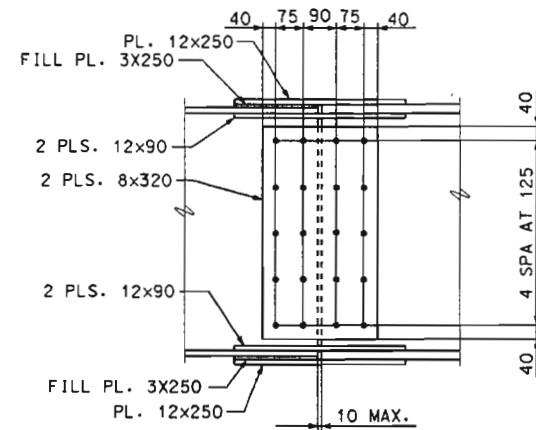
NTR INDICATES PLATES SUBJECT TO NOTCH TOUGHNESS REQUIREMENTS. IN ADDITION TO THOSE PLATES MARKED NTR, ALL BEAM SEGMENTS ARE SUBJECT TO NOTCH TOUGHNESS. SHEAR CONNECTORS MAY BE SHIFTED SLIGHTLY TO CLEAR THE EDGES OF THE COVER PLATES.

STATE OF MISSOURI
 ALLEN M.
 BOBRING
 NUMBER
 E-18252
 PROFESSIONAL ENGINEER
 12-7-98

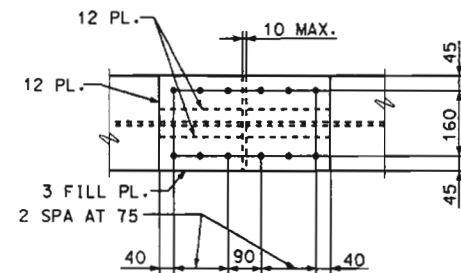
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

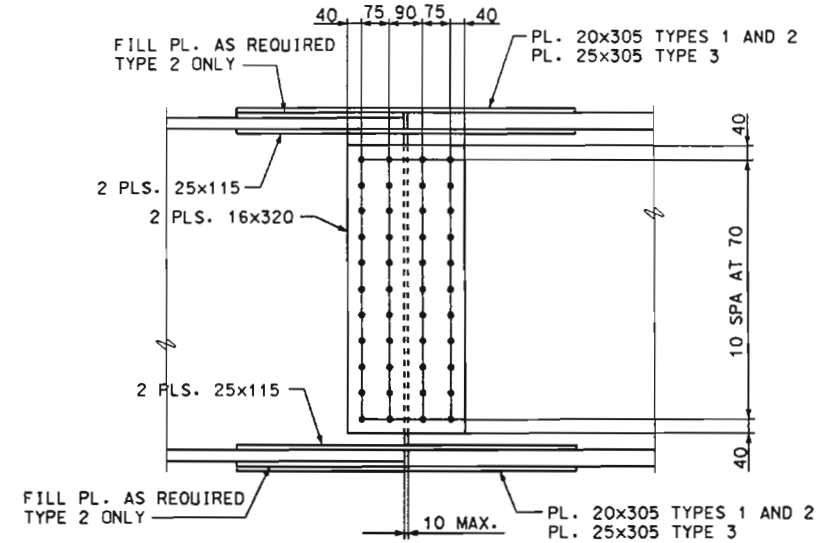
STATE	PROJ. NO.	SHEET NO.
MO.		B18



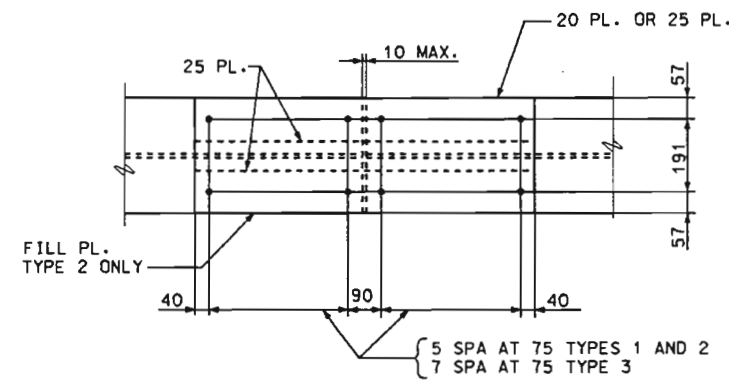
WEB SPLICE



TOP AND BOTTOM FLANGE SPLICE
BEAM 1A AND 12A FIELD SPLICES



WEB SPLICE



TOP AND BOTTOM FLANGE SPLICE
BEAM 1 AND 12 FIELD SPLICES - TYPES 1, 2 AND 3

NOTES

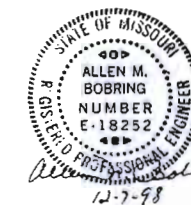
ALL FIELD SPLICE BOLTS ARE TO BE 22.2 mm HIGH STRENGTH BOLTS WITH 23.8 mm DIAMETER HOLES.
ALL FIELD SPLICED PLATES, EXCEPT FILL PLATES, ARE SUBJECT TO NOTCH TOUGHNESS REQUIREMENTS.

STEEL DETAILS

DETAILED BY: JGC
CHECKED BY: DJS

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 18 OF 40

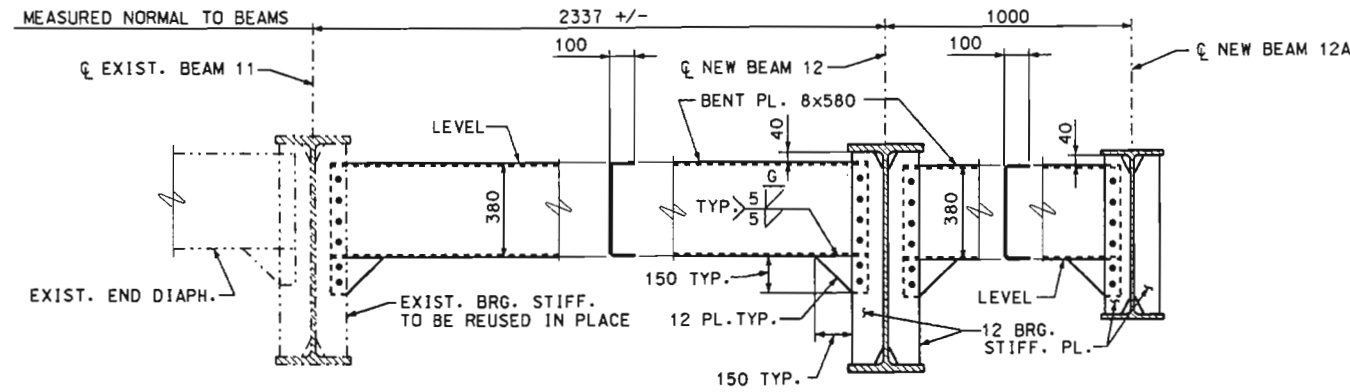


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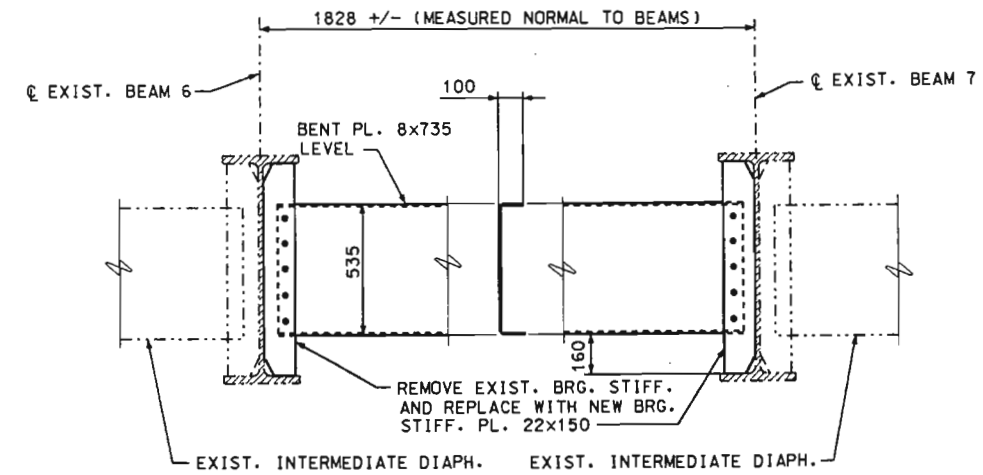
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		B19

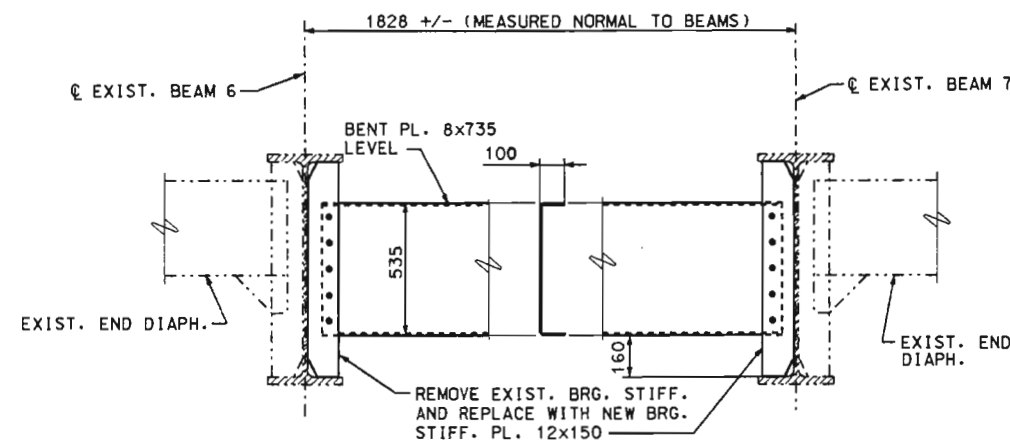


END DIAPHRAGM TYPE 1 AT END BENTS 1 AND 5

NOTE: DIAPHRAGM AT END BENT 5 SHOWN. ALL OTHERS ARE SIMILAR.
THE HOLES IN THE DIAPHRAGM PLATES USED FOR THE CONNECTION TO THE EXISTING BEARING STIFFENER SHALL BE SHOP SUBPUNCHED AND FIELD REAMED TO SIZE USING THE EXISTING BEARING STIFFENER AS A TEMPLATE.

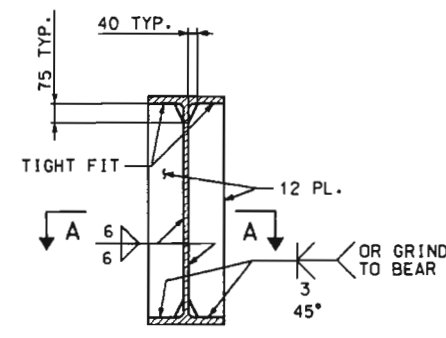


INTERMEDIATE DIAPHRAGM TYPE 4 AT BENTS 2, 3 AND 4

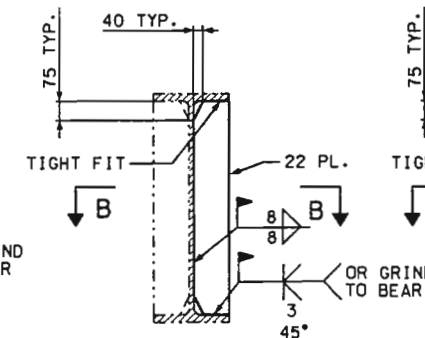


END DIAPHRAGM TYPE 2

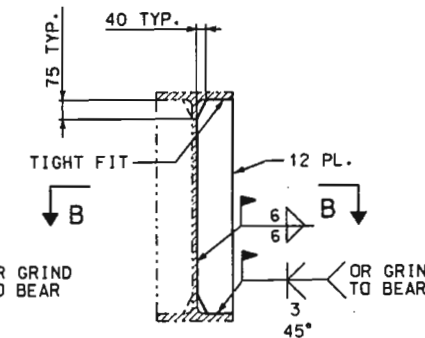
NOTE: DIAPHRAGM AT END BENT 5 SHOWN. END BENT 1 IS SIMILAR.



NEW BEARING STIFFENERS

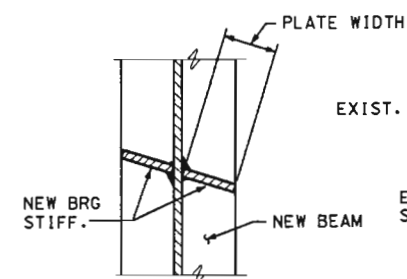


REPLACEMENT BEARING STIFFENERS AT BENTS 2 THRU 4

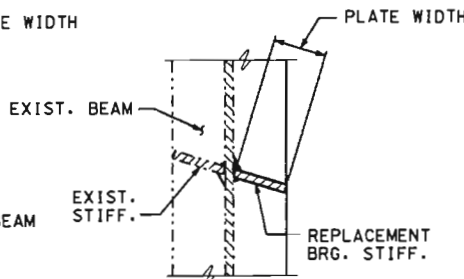


REPLACEMENT BEARING STIFFENERS AT END BENTS 1 AND 5

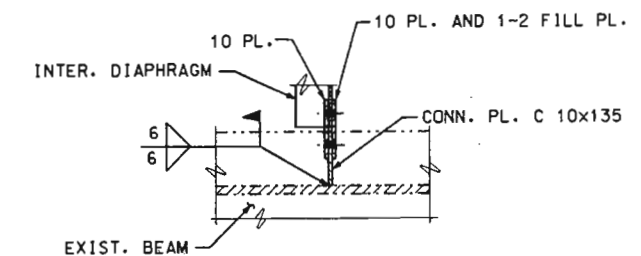
BEARING STIFFENERS DETAILS



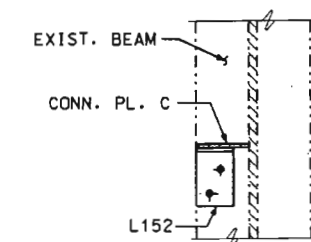
SECTION A-A



SECTION B-B



CONNECTION PLATE C



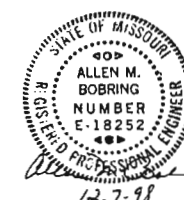
SECTION C-C

LEGEND

--- EXISTING STRUCTURAL MEMBER
— NEW STRUCTURAL MEMBER

NOTE

ALL BOLTS SHALL BE 19.0 mm HIGH STRENGTH BOLTS WITH 20.6 mm DIAMETER HOLES.



STEEL DETAILS

DETAILED BY: JGC
CHECKED BY: DJS

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

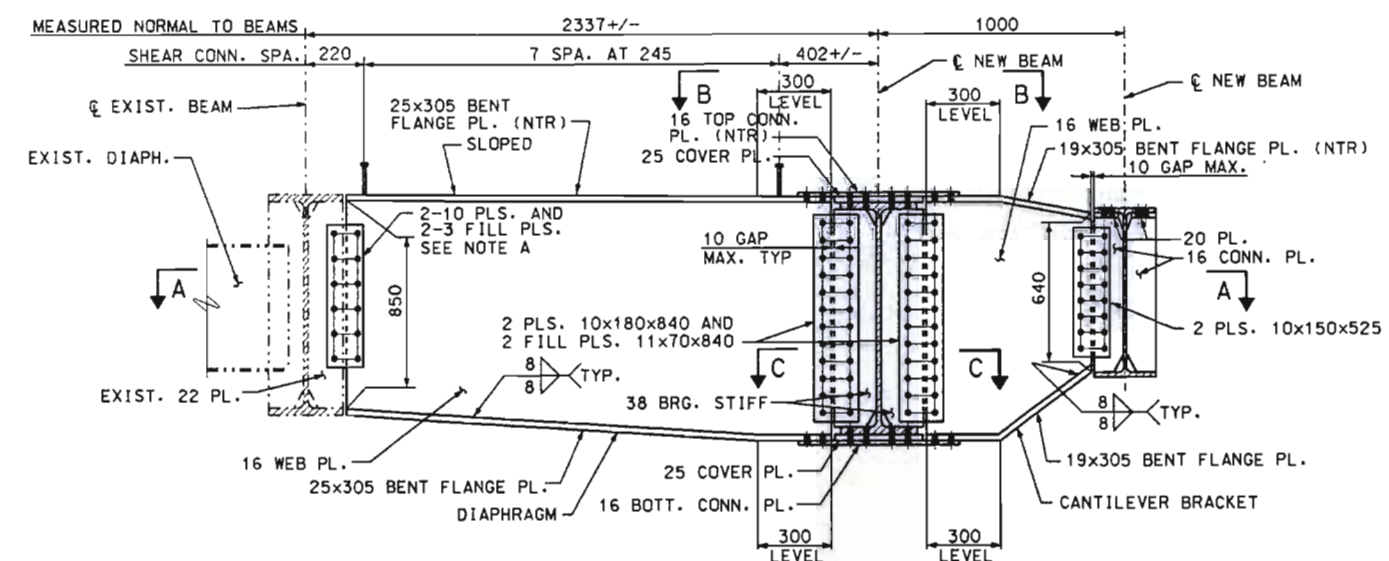
SHEET 19 OF 40

A09601

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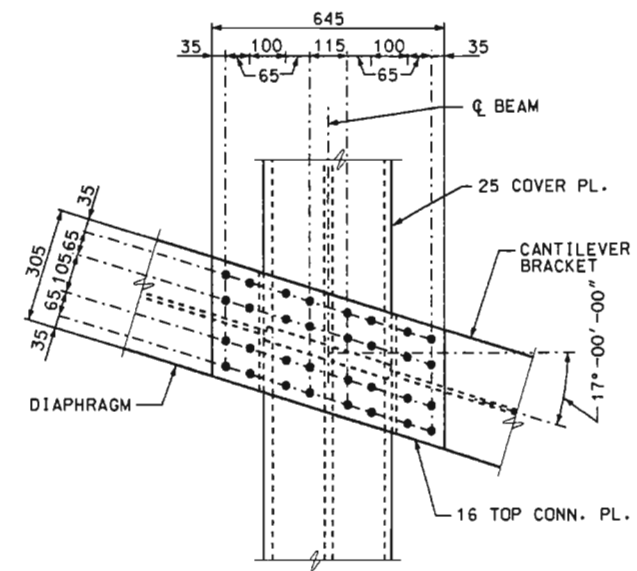
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		20



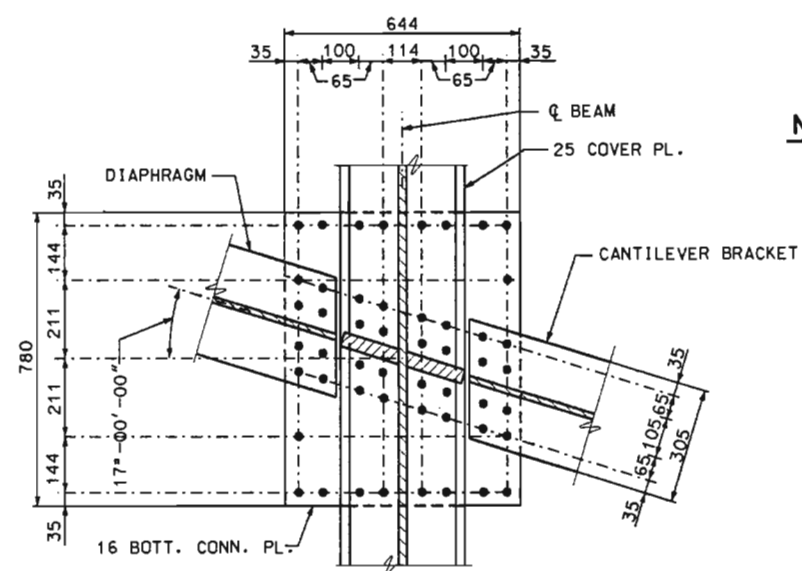
INTERMEDIATE DIAPHRAGM TYPE 5 AT BENTS 2 AND 4

NOTE A: THE 10 PLATES SHALL BE SIZED TO UTILIZE THE HOLES IN THE EXISTING 22 PLATE, WITH THE ADDITION OF ONE NEW HOLE AT THE TOP OF THE EXISTING HOLE GROUP. THE HOLES IN THE 10 PLATES SHALL BE SHOP SUBPUNCHED AND REAMED TO SIZE IN THE FIELD USING THE EXISTING HOLES AS A TEMPLATE. THE ADDITIONAL HOLE IN THE EXISTING 22 PLATE SHALL BE FIELD DRILLED AND REAMED TO SIZE, USING THE NEW 10 PLATE AS A TEMPLATE.



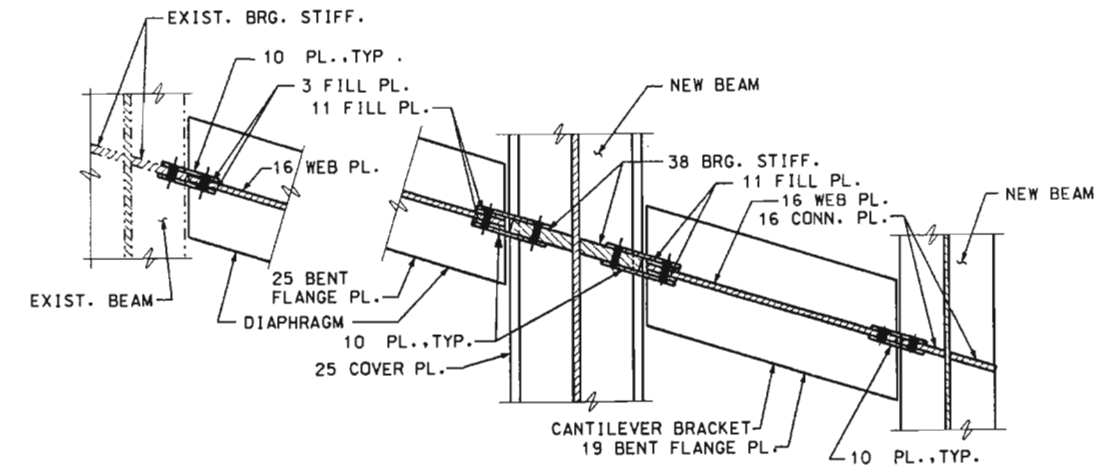
VIEW B-B

NOTE: WEB SPLICE PLS., NOT SHOWN FOR CLARITY.



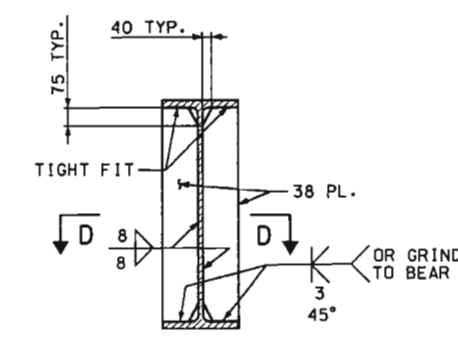
SECTION C-C

NOTE: WEB SPLICE PLS. AND BEARING NOT SHOWN FOR CLARITY.

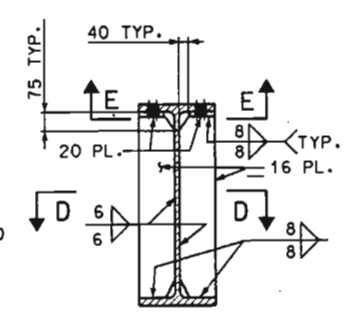


SECTION A-A

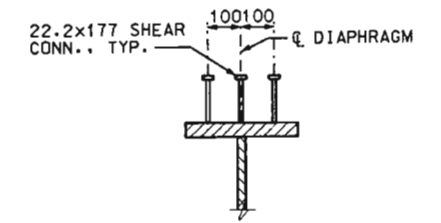
NOTE: 16 BOTTOM CONN. PL. NOT SHOWN FOR CLARITY.



NEW BEARING STIFFENERS

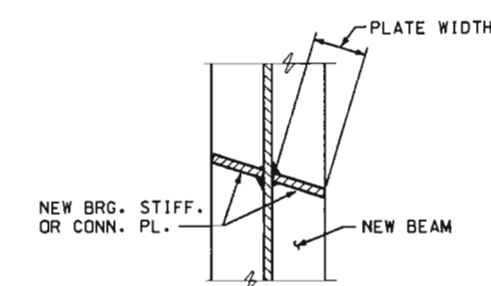


NEW CONNECTION PLATE

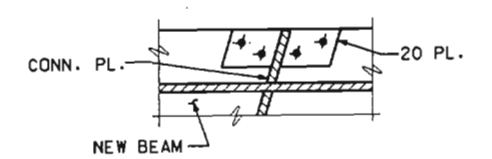


SHEAR CONNECTOR DETAIL

NOTE: MASS OF 661 kg OF SHEAR CONNECTORS IS INCLUDED IN THE MASS OF FABRICATED STRUCTURAL CARBON STEEL (I-BEAM). (NEW DIAPHRAGMS ONLY)



SECTION D-D



SECTION E-E

LEGEND

----- EXISTING STRUCTURAL MEMBER
 ———— NEW STRUCTURAL MEMBER

NOTE

ALL BOLTS SHALL BE 19.0 mm HIGH STRENGTH BOLTS WITH 20.6 mm DIAMETER HOLES.

STEEL DETAILS



DETAILED BY: JGC
 CHECKED BY: DJS

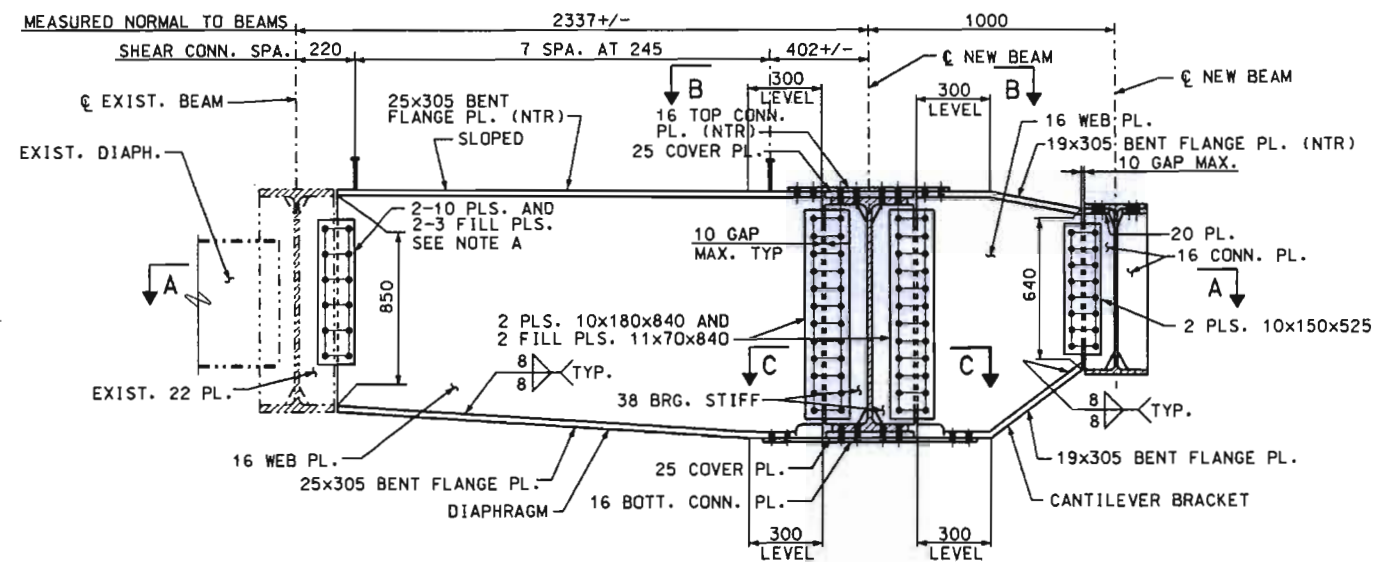
SVERDRUP CIVIL, INC.
 MARYLAND HEIGHTS, MO.

SHEET 20 OF 40

A09601

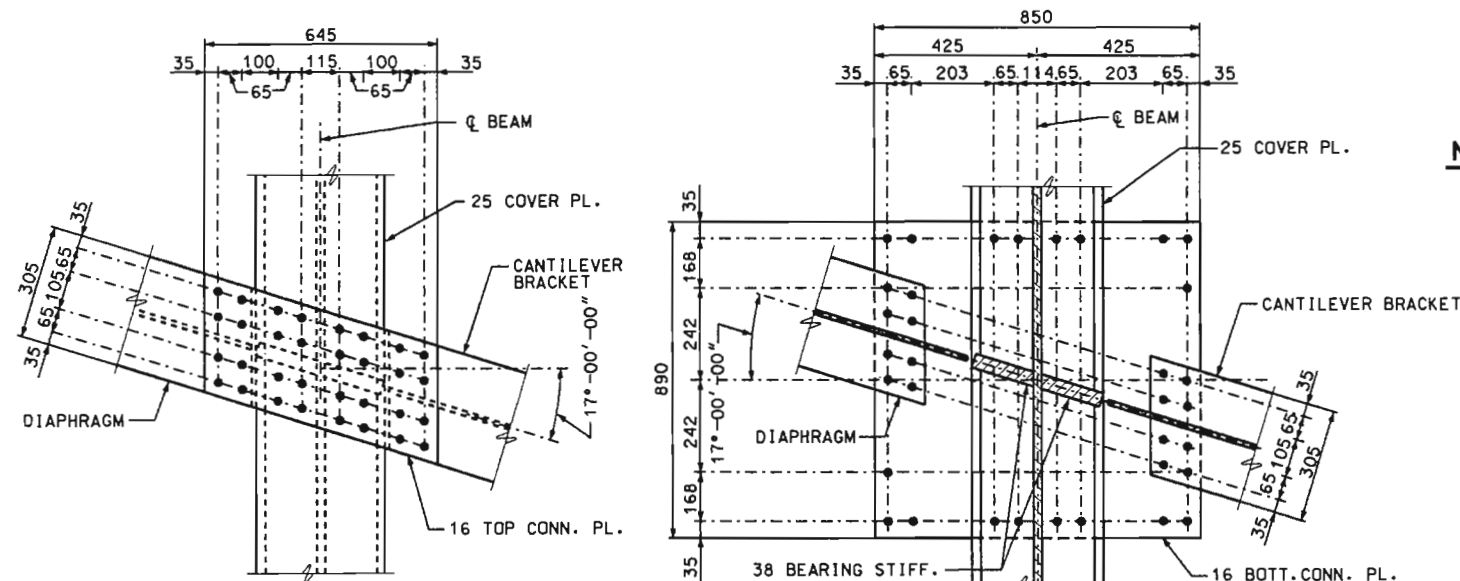
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		821



INTERMEDIATE DIAPHRAGM TYPE 6 AT BENT 3

NOTE A: THE 10 PLATES SHALL BE SIZED TO UTILIZE THE HOLES IN THE EXISTING 22 PLATE, WITH THE ADDITION OF ONE NEW HOLE AT THE TOP OF THE EXISTING HOLE GROUP. THE HOLES IN THE 10 PLATES SHALL BE SHOP SUBPUNCHED AND REAMED TO SIZE IN THE FIELD USING THE EXISTING HOLES AS A TEMPLATE. THE ADDITIONAL HOLE IN THE EXISTING 22 PLATE SHALL BE FIELD DRILLED AND REAMED TO SIZE, USING THE NEW 10 PLATE AS A TEMPLATE.

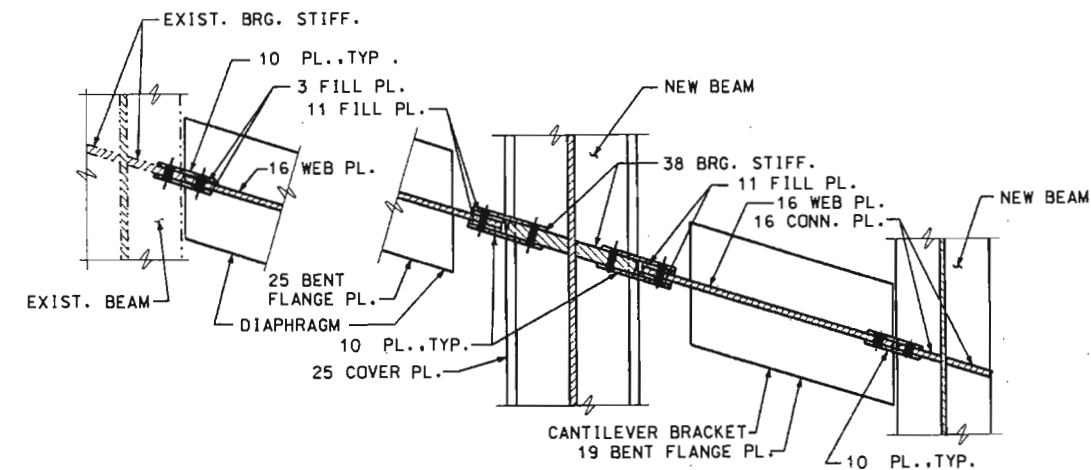


VIEW B-B

NOTE: WEB SPLICE PLS., NOT SHOWN FOR CLARITY.

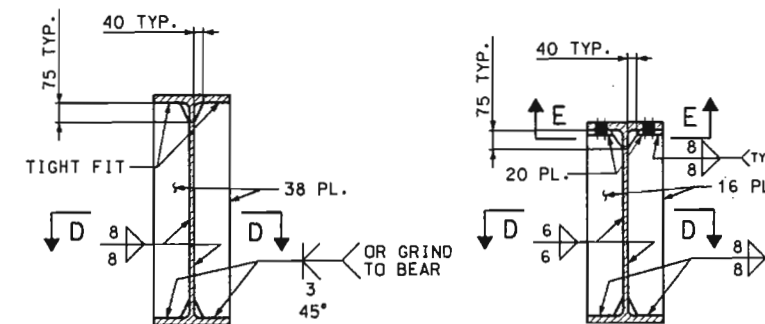
VIEW C-C

NOTE: WEB SPLICE PLS. AND BEARING NOT SHOWN FOR CLARITY.



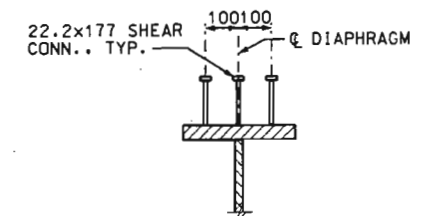
SECTION A-A

NOTE: 16 BOTTOM CONN. PL. NOT SHOWN FOR CLARITY.



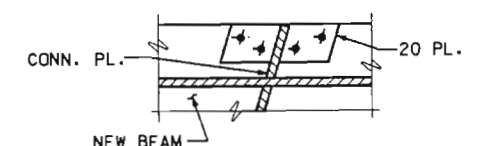
NEW BEARING STIFFENERS

NEW CONNECTION PLATE



SHEAR CONNECTOR DETAIL

NOTE: MASS OF 661 kg OF SHEAR CONNECTORS IS INCLUDED IN THE MASS OF FABRICATED STRUCTURAL CARBON STEEL (I-BEAM). (NEW DIAPHRAGMS ONLY)



SECTION E-E

LEGEND

----- EXISTING STRUCTURAL MEMBER
 ———— NEW STRUCTURAL MEMBER

NOTE

ALL BOLTS SHALL BE 19.0 mm HIGH STRENGTH BOLTS WITH 20.6 mm DIAMETER HOLES.

STEEL DETAILS

DETAILED BY: JGC
 CHECKED BY: DJS

SVERDRUP CIVIL, INC.
 MARYLAND HEIGHTS, MO.

SHEET 21 OF 40

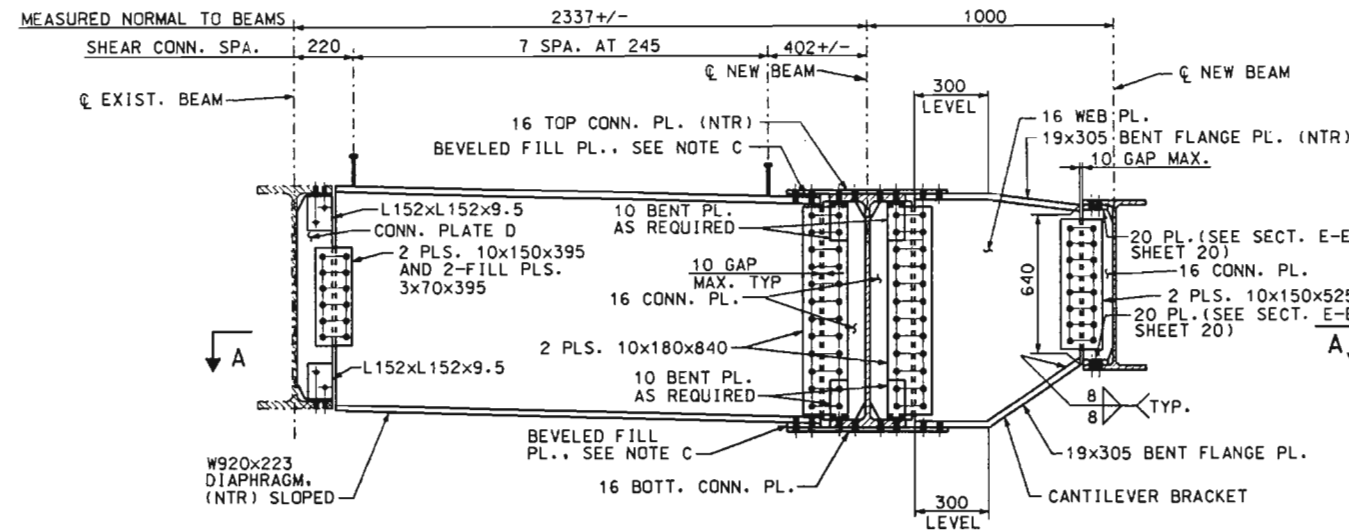


A09601

n:\014044\700codd\709str\j6u0132_gdrconn_30.f.dgn 13:22:07 DEC 1998

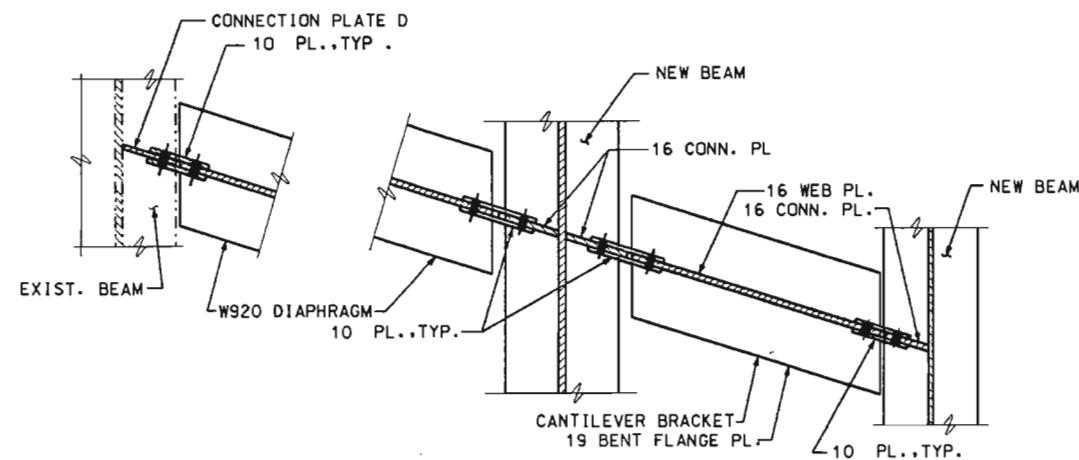
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		22



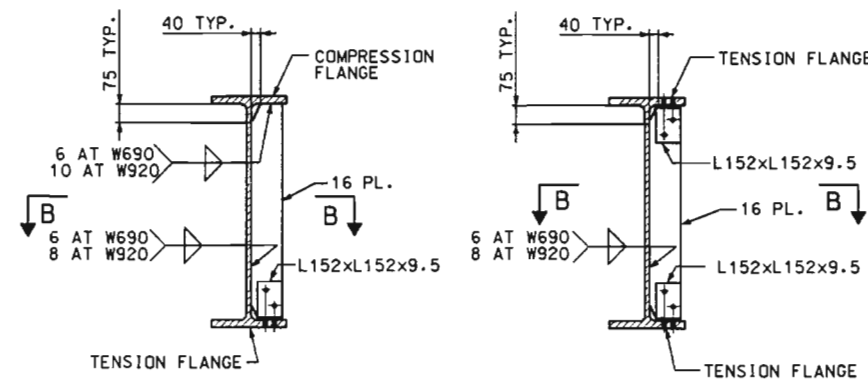
INTERMEDIATE DIAPHRAGM TYPE 7

NOTE C: BEVELED FILL PLS. SHALL BE BEVELED FOR BOTH SLOPE OF DIAPHRAGM AND BEAM FLANGE.



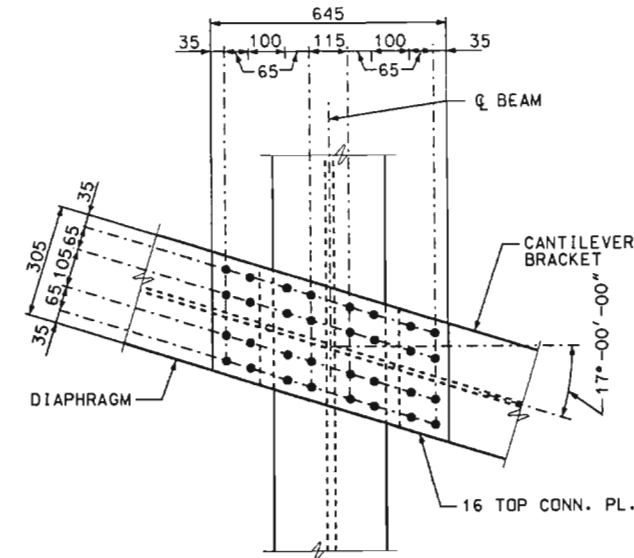
SECTION A-A

NOTE: 16 BOTTOM CONN. PL. AND TENSION FLANGE CLIP ANGLES NOT SHOWN FOR CLARITY.



CONNECTION PLATE DETAILS

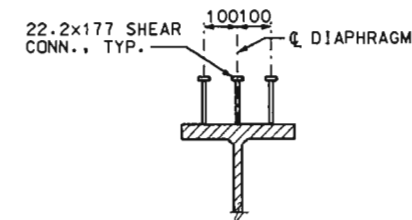
NOTE: FOR LOCATION OF NOTES A AND B, SEE FRAMING PLAN.



TOP CONNECTION PLATE - SHOWN

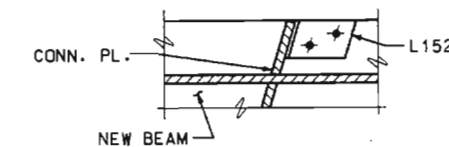
BOTTOM CONNECTION PLATE - SIMILAR

NOTE: WEB SPLICE PLS. AND TENSION FLANGE CLIP ANGLES NOT SHOWN FOR CLARITY.

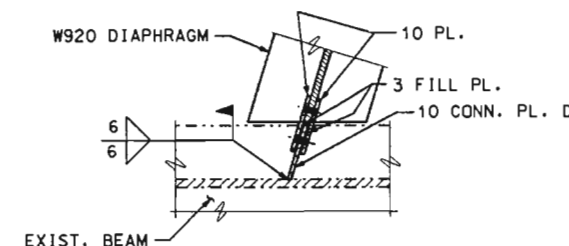


SHEAR CONNECTOR DETAIL

NOTE: MASS OF 661 kg OF SHEAR CONNECTORS IS INCLUDED IN THE MASS OF FABRICATED STRUCTURAL CARBON STEEL (I-BEAM). (NEW DIAPHRAGMS ONLY)



SECTION B-B



CONNECTION PLATE D

LEGEND

----- EXISTING STRUCTURAL MEMBER
——— NEW STRUCTURAL MEMBER

NOTE

ALL BOLTS SHALL BE 19.0 mm HIGH STRENGTH BOLTS WITH 20.6 mm DIAMETER HOLES.

STEEL DETAILS



DETAILED BY: JGC
CHECKED BY: DJS

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

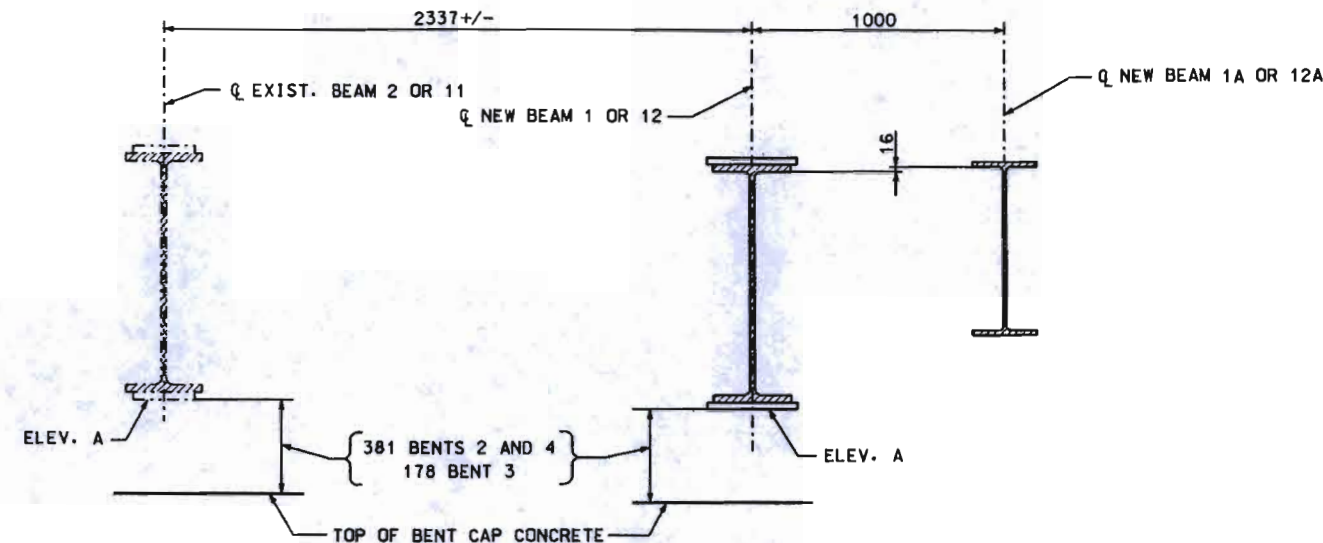
SHEET 22 OF 40

A09601

13-2307-DEC-1998

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		

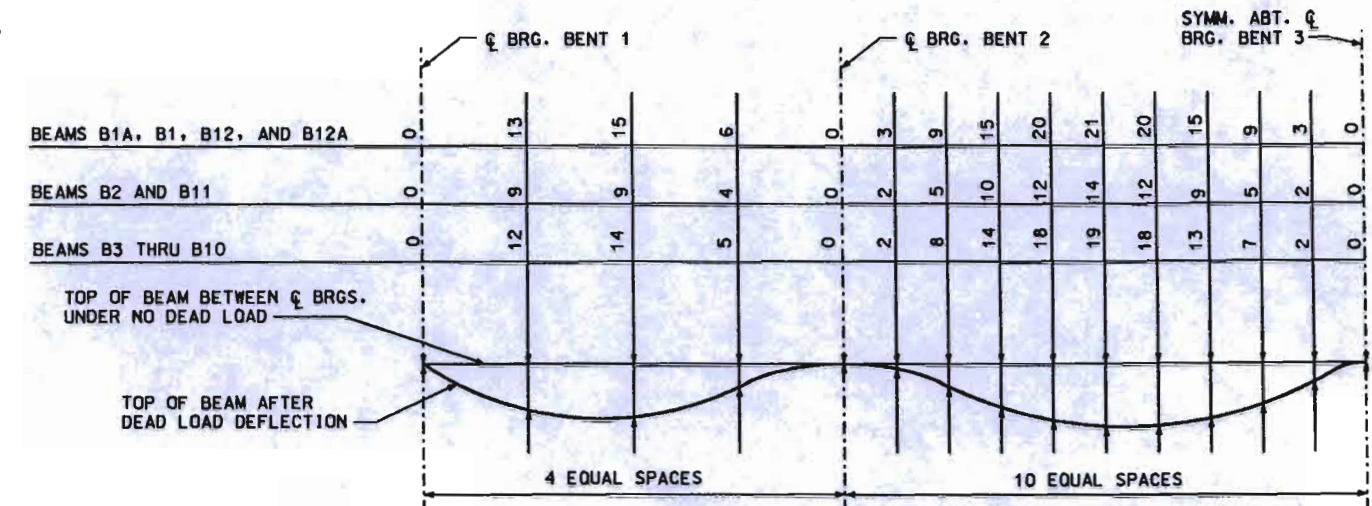


PART SECTION THRU BEAMS AT BENTS 2, 3 AND 4

NOTE: ALL DIMENSIONS ARE MEASURED NORMAL TO BEAMS
ELEVATION A AND B ARE TAKEN AT Q BRG.

ELEVATION VARIABLES

LOCATION	ELEV. A	LOCATION	ELEV. A	LOCATION	ELEV. A
BENT 2 - BEAM 1	199.640	BENT 3 - BEAM 1	199.490	BENT 4 - BEAM 1	199.360
BENT 2 - BEAM 2	199.690	BENT 3 - BEAM 2	199.550	BENT 4 - BEAM 2	199.420
BENT 2 - BEAM 11	199.720	BENT 3 - BEAM 11	199.580	BENT 4 - BEAM 11	199.450
BENT 2 - BEAM 12	199.660	BENT 3 - BEAM 12	199.520	BENT 4 - BEAM 12	199.390



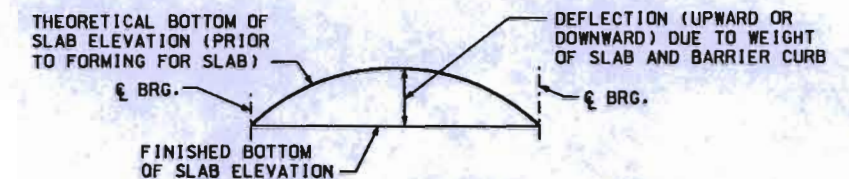
DEAD LOAD DEFLECTIONS

DEAD LOAD DEFLECTION INCLUDES WEIGHT OF STRUCTURAL STEEL, CONCRETE SLAB, RAISED MEDIAN, MEDIAN BARRIER, AND BARRIER CURB. 17% OF DEAD LOAD DEFLECTION IS DUE TO THE WEIGHT OF STRUCTURAL STEEL. SLAB HAUNCHING IS INCIDENTAL TO THE PAY ITEM "SLAB ON STEEL." NO PAYMENT WILL BE MADE FOR ANY ADJUSTMENT IN FORMING OR ADDITIONAL CONCRETE REQUIRED FOR VARIATION IN HAUNCHING. ESTIMATED VOLUME OF CONCRETE ASSUMES AN AVERAGE HAUNCH HEIGHT OF 84mm.

BOTTOM OF SLAB ELEVATIONS (PRIOR TO FORMING FOR SLAB)

BEAM NO.	SPAN 1					SPAN 2										Q BRG BENT 3
	Q BRG BENT 1	0.25	0.5	0.75	Q BRG BENT 2	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Q BRG BENT 3	
B1A	200.710	200.707	200.682	200.658	200.634	200.609	200.597	200.584	200.571	200.559	200.546	200.533	200.521	200.508	200.495	
B1	200.727	200.724	200.700	200.675	200.651	200.626	200.614	200.601	200.588	200.576	200.563	200.551	200.538	200.525	200.513	
B2	200.768	200.765	200.741	200.717	200.692	200.668	200.655	200.643	200.630	200.617	200.605	200.592	200.579	200.567	200.554	
B3	200.808	200.805	200.781	200.757	200.732	200.708	200.695	200.683	200.670	200.657	200.645	200.632	200.619	200.607	200.594	
B4	200.848	200.845	200.821	200.797	200.772	200.748	200.735	200.723	200.710	200.697	200.685	200.672	200.659	200.647	200.634	
B5	200.888	200.886	200.861	200.837	200.812	200.788	200.775	200.763	200.750	200.737	200.725	200.712	200.699	200.687	200.674	
B6	200.928	200.926	200.901	200.877	200.852	200.828	200.815	200.803	200.790	200.777	200.765	200.752	200.739	200.727	200.714	
B7	200.931	200.928	200.904	200.880	200.855	200.831	200.818	200.806	200.793	200.780	200.768	200.755	200.742	200.730	200.717	
B8	200.898	200.895	200.871	200.847	200.822	200.798	200.785	200.773	200.760	200.747	200.735	200.722	200.709	200.697	200.684	
B9	200.861	200.858	200.833	200.809	200.785	200.760	200.748	200.735	200.722	200.710	200.697	200.684	200.672	200.659	200.646	
B10	200.832	200.830	200.805	200.781	200.757	200.732	200.720	200.707	200.694	200.682	200.669	200.656	200.644	200.631	200.618	
B11	200.800	200.797	200.772	200.748	200.724	200.699	200.687	200.674	200.661	200.649	200.636	200.623	200.611	200.598	200.585	
B12	200.765	200.763	200.738	200.714	200.689	200.665	200.652	200.640	200.627	200.614	200.602	200.589	200.576	200.564	200.551	
B12A	200.751	200.748	200.724	200.700	200.675	200.651	200.638	200.626	200.613	200.600	200.588	200.575	200.562	200.550	200.537	

BEAM NO.	SPAN 3					SPAN 4										Q BRG BENT 5
	Q BRG BENT 3	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Q BRG BENT 4	0.25	0.5	0.75	Q BRG BENT 5	
B1A	200.495	200.483	200.470	200.458	200.445	200.432	200.420	200.407	200.394	200.382	200.369	200.356	200.332	200.308	200.283	
B1	200.513	200.500	200.487	200.475	200.462	200.449	200.437	200.424	200.411	200.399	200.386	200.373	200.349	200.325	200.300	
B2	200.554	200.541	200.529	200.516	200.503	200.491	200.478	200.465	200.453	200.440	200.428	200.415	200.390	200.366	200.342	
B3	200.594	200.581	200.569	200.556	200.543	200.531	200.518	200.506	200.493	200.480	200.468	200.455	200.431	200.406	200.382	
B4	200.634	200.621	200.609	200.596	200.583	200.571	200.558	200.546	200.533	200.520	200.508	200.495	200.471	200.446	200.422	
B5	200.674	200.661	200.649	200.636	200.624	200.611	200.598	200.586	200.573	200.560	200.548	200.535	200.511	200.486	200.462	
B6	200.714	200.702	200.689	200.676	200.664	200.651	200.638	200.626	200.613	200.600	200.588	200.575	200.551	200.526	200.502	
B7	200.717	200.704	200.692	200.679	200.666	200.654	200.641	200.628	200.616	200.603	200.590	200.578	200.553	200.529	200.505	
B8	200.684	200.671	200.659	200.646	200.633	200.621	200.608	200.596	200.583	200.570	200.558	200.545	200.521	200.496	200.472	
B9	200.646	200.634	200.621	200.609	200.596	200.583	200.571	200.558	200.545	200.533	200.520	200.507	200.483	200.459	200.434	
B10	200.618	200.606	200.593	200.580	200.568	200.555	200.542	200.530	200.517	200.504	200.492	200.479	200.455	200.430	200.406	
B11	200.585	200.573	200.560	200.547	200.535	200.522	200.510	200.497	200.484	200.472	200.459	200.446	200.422	200.398	200.373	
B12	200.551	200.538	200.526	200.513	200.501	200.488	200.475	200.463	200.450	200.437	200.425	200.412	200.388	200.363	200.339	
B12A	200.537	200.524	200.512	200.499	200.486	200.474	200.461	200.449	200.436	200.423	200.411	200.398	200.374	200.349	200.325	



TYPICAL SLAB ELEVATION DIAGRAM

BOTTOM OF SLAB ELEVATION NOTES

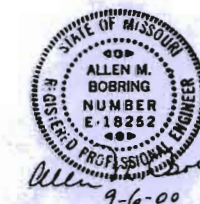
ELEVATIONS ARE ALONG THE CENTERLINE OF BEAM AT THE POINTS INDICATED, AND INCLUDE ALLOWANCES FOR THEORETICAL DEAD LOAD DEFLECTIONS DUE TO THE MASS OF SLAB AND BARRIER CURBS.

DETAILED BY: CD/RDR
CHECKED BY: JDS

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

REVISD 8-31-00

SHEET 23 OF 40



SLAB ELEVATIONS, BEAM
LAYOUT AND DEFLECTIONS

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		

BOTTOM OF SLAB ELEVATIONS (PRIOR TO FORMING FOR SLAB)														
BEAM NO.	SPAN 1					SPAN 2								
	ℰ Brg End Bent 1	0.25	0.5	0.75	ℰ Brg BENT 2	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
B1A	200.707	200.693	200.671	200.639	200.609	200.600	200.591	200.584	200.575	200.564	200.549	200.533	200.515	200.498
B1	200.724	200.711	200.687	200.656	200.626	200.616	200.608	200.600	200.592	200.580	200.567	200.550	200.532	200.515
B2	200.765	200.748	200.725	200.695	200.668	200.657	200.648	200.638	200.627	200.616	200.602	200.587	200.571	200.555
B3	200.805	200.791	200.768	200.736	200.708	200.697	200.689	200.681	200.672	200.661	200.647	200.630	200.613	200.596
B4	200.845	200.831	200.808	200.776	200.748	200.737	200.729	200.721	200.712	200.701	200.687	200.670	200.653	200.636
B5	200.886	200.871	200.848	200.816	200.788	200.777	200.769	200.761	200.752	200.741	200.727	200.710	200.693	200.676
B6	200.926	200.911	200.888	200.856	200.828	200.817	200.809	200.801	200.792	200.781	200.767	200.750	200.733	200.716
B7	200.928	200.914	200.891	200.859	200.831	200.820	200.812	200.804	200.795	200.784	200.770	200.753	200.736	200.719
B8	200.895	200.881	200.858	200.826	200.798	200.787	200.779	200.771	200.762	200.751	200.737	200.720	200.703	200.686
B9	200.858	200.843	200.820	200.789	200.760	200.750	200.741	200.733	200.725	200.713	200.699	200.683	200.665	200.648
B10	200.830	200.815	200.792	200.761	200.732	200.722	200.713	200.705	200.697	200.685	200.671	200.655	200.637	200.620
B11	200.797	200.779	200.756	200.727	200.699	200.689	200.679	200.669	200.659	200.647	200.633	200.619	200.602	200.586
B12	200.763	200.749	200.726	200.694	200.665	200.654	200.647	200.639	200.630	200.619	200.605	200.588	200.571	200.553
B12A	200.748	200.735	200.713	200.680	200.651	200.641	200.633	200.626	200.616	200.606	200.591	200.574	200.557	200.540
BEAM NO.	SPAN 3					SPAN 4								
	ℰ Brg BENT 3	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	ℰ Brg BENT 4	0.25	0.5	0.75
B1A	200.483	200.473	200.465	200.457	200.448	200.438	200.423	200.407	200.389	200.372	200.356	200.337	200.321	200.294
B1	200.500	200.489	200.482	200.474	200.465	200.454	200.440	200.423	200.406	200.388	200.373	200.354	200.337	200.311
B2	200.541	200.530	200.520	200.511	200.501	200.489	200.475	200.461	200.445	200.430	200.415	200.393	200.374	200.349
B3	200.581	200.571	200.562	200.554	200.546	200.534	200.521	200.504	200.486	200.470	200.455	200.435	200.417	200.392
B4	200.621	200.611	200.602	200.594	200.586	200.574	200.561	200.544	200.526	200.510	200.495	200.475	200.457	200.432
B5	200.661	200.651	200.642	200.635	200.626	200.614	200.601	200.584	200.566	200.550	200.535	200.515	200.497	200.472
B6	200.702	200.691	200.682	200.675	200.666	200.654	200.641	200.624	200.606	200.590	200.575	200.555	200.537	200.512
B7	200.704	200.694	200.685	200.677	200.669	200.657	200.643	200.627	200.609	200.592	200.578	200.557	200.540	200.515
B8	200.671	200.661	200.652	200.644	200.636	200.624	200.611	200.594	200.576	200.560	200.545	200.525	200.507	200.482
B9	200.634	200.623	200.615	200.607	200.598	200.587	200.573	200.556	200.539	200.522	200.507	200.487	200.470	200.444
B10	200.606	200.595	200.586	200.579	200.570	200.558	200.545	200.528	200.510	200.494	200.479	200.459	200.441	200.416
B11	200.573	200.561	200.551	200.543	200.532	200.521	200.507	200.492	200.477	200.461	200.446	200.425	200.406	200.380
B12	200.538	200.528	200.520	200.513	200.504	200.492	200.479	200.462	200.444	200.427	200.412	200.393	200.375	200.350
B12A	200.524	200.515	200.506	200.498	200.490	200.479	200.465	200.449	200.430	200.414	200.398	200.379	200.362	200.336

DETAILED BY: JOS
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

⚠ SHEET ADDED 8-31-00

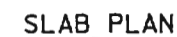
SHEET 23A OF 40



SLAB ELEVATIONS

A09601

STATE	PROJ. NO.	SHEET NO.
MO.		



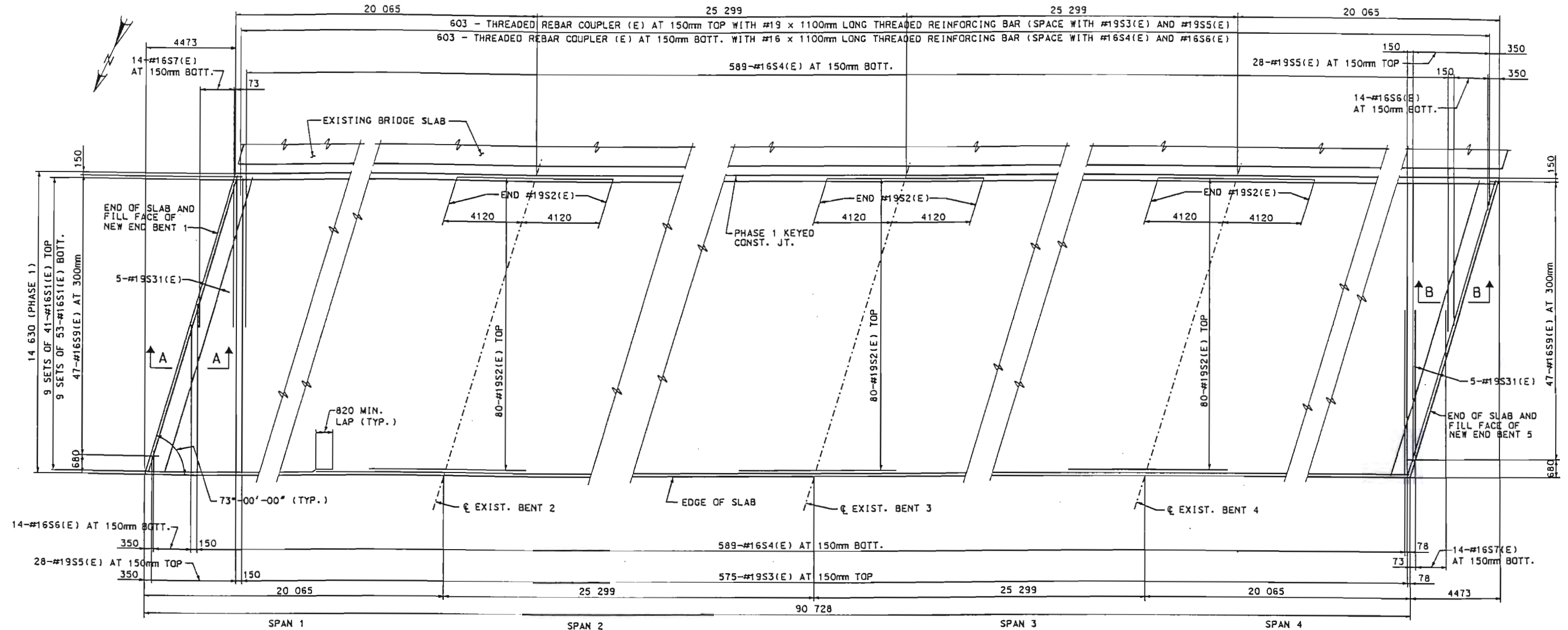
FOR DETAILS OF BARRIER CURBS, SEE SHEETS 28 AND 29.
FOR SLAB NOTES, SEE SHEET 26.
FOR THREADED REBAR COUPLER DETAIL, SEE SHEET 26.
V-DRIPS EXTEND FROM FRONT FACE TO FRONT FACE OF END BENTS.

A09601

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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



SLAB PLAN

NOTES

FOR DETAILS OF BARRIER CURBS, SEE SHEETS 28 AND 29.
FOR SLAB NOTES, SEE SHEET 26A.
FOR THREADED REBAR COUPLER DETAIL, SEE SHEET 26A.
V-DRIPS EXTEND FROM FRONT FACE TO FRONT FACE OF END BENTS.



1 SHEET ADDED 03-15-01

SLAB PLAN - SPANS 1 THRU 4

DETAILED BY: SEM
CHECKED BY: ROR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 24A OF 40

A09601

STATE	PROJ. NO.	SHEET NO.
MO.		



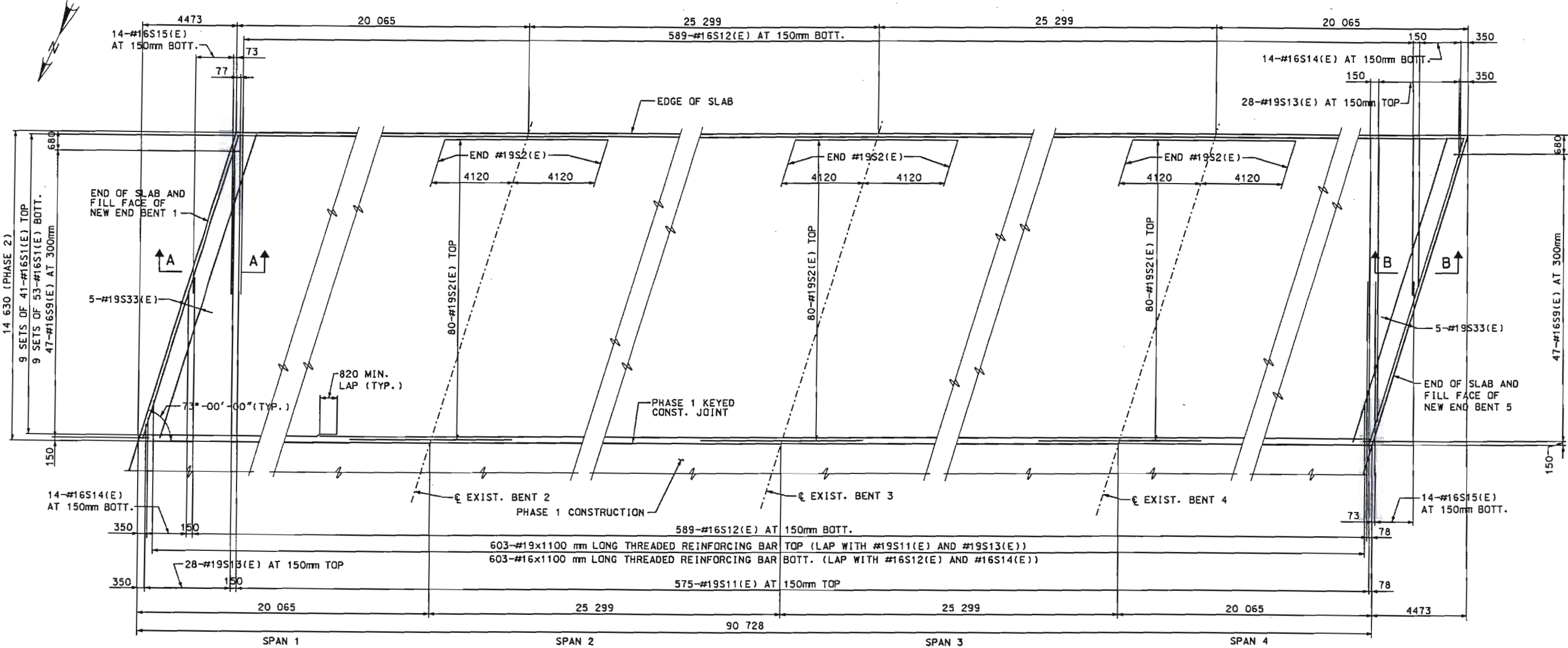
STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
ALLEN M. BOBRING
NUMBER E-18252
Allen M. Bobring
4-02-01

A09601

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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



SLAB PLAN

NOTES
FOR SLAB NOTES, SEE SHEET 26A.
FOR THREADED REBAR COUPER DETAIL, SEE SHEET 26A.

1 SHEET ADDED 03-15-01



SLAB PLAN - SPANS 1 THRU 4

DETAILED BY: SEM
CHECKED BY: RDR

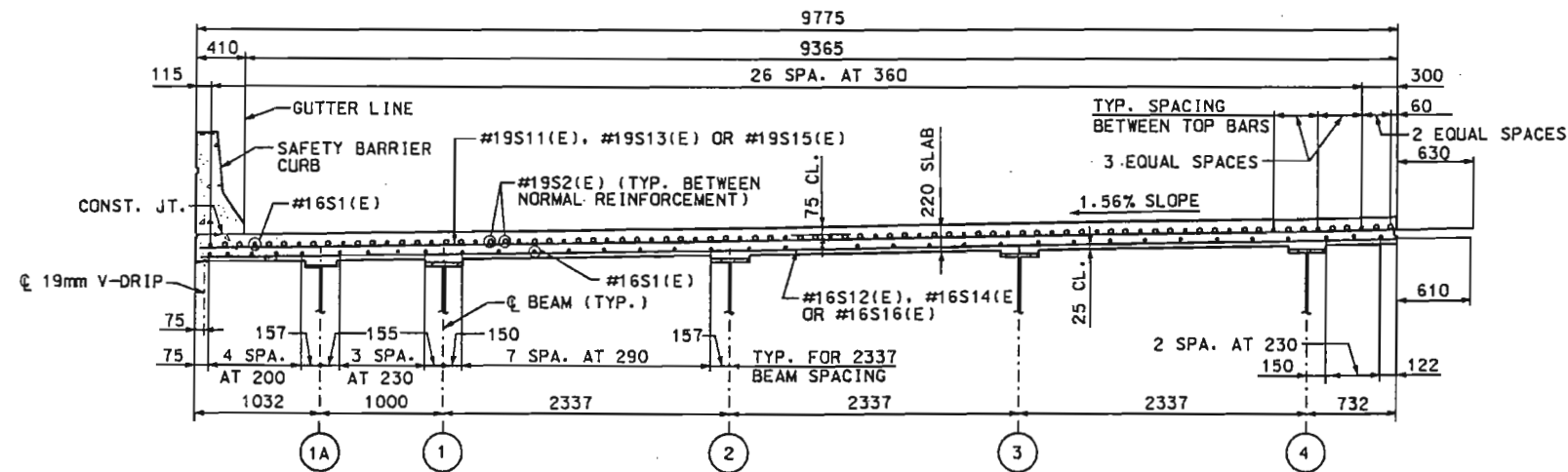
SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 25A OF 40

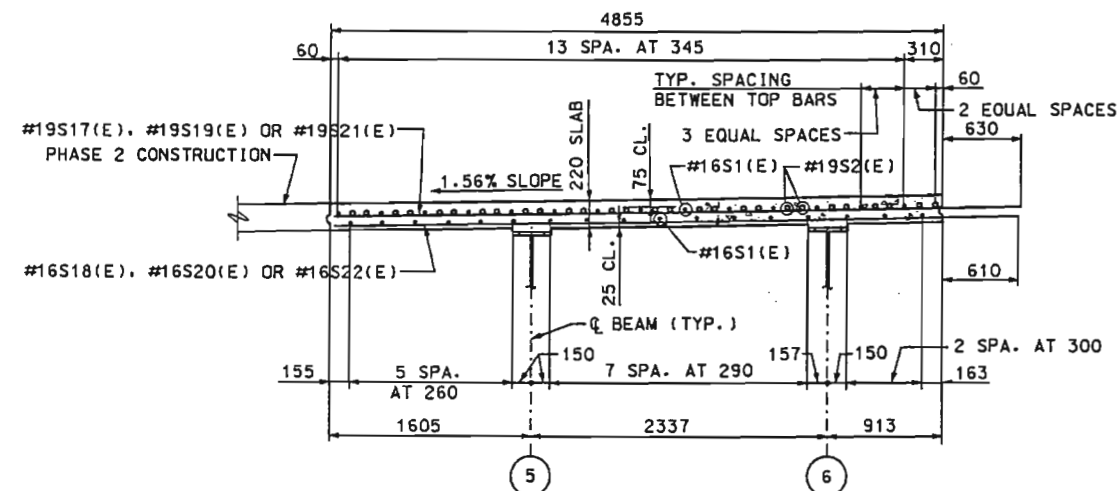
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

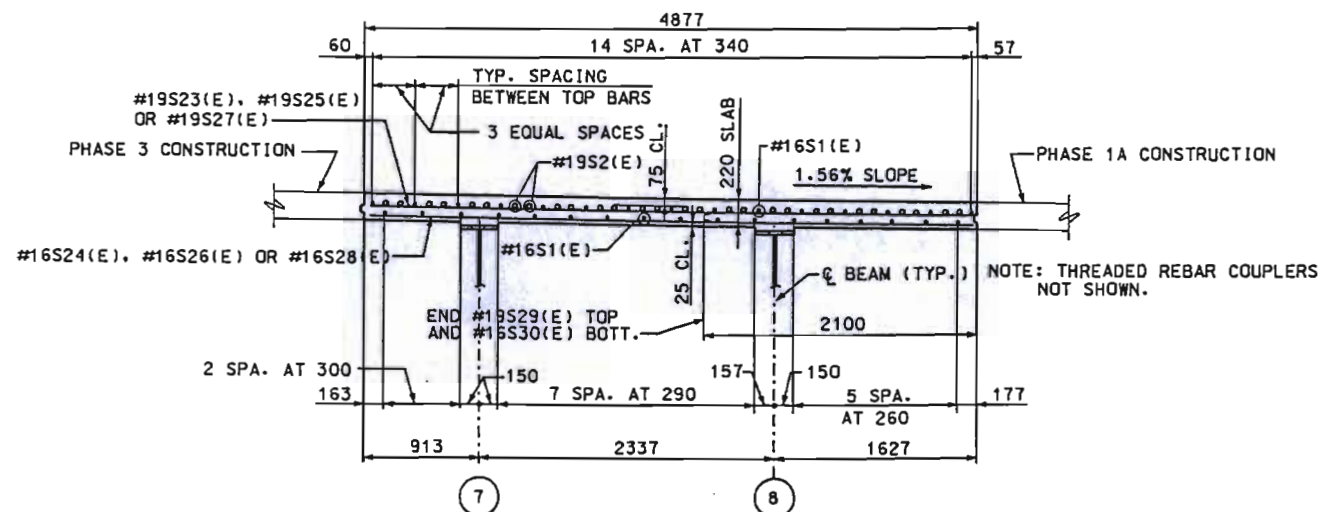
STATE	PROJ. NO.	SHEET NO.
MO.		



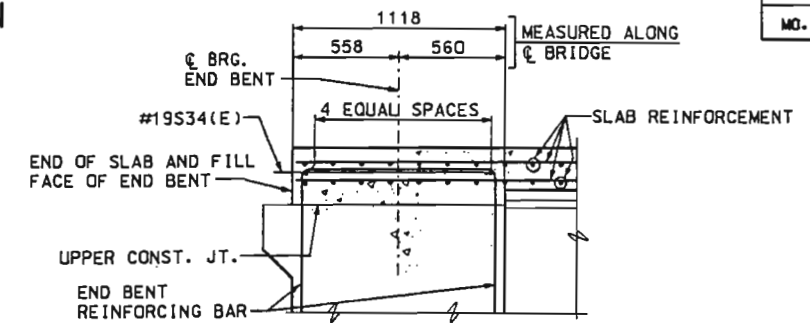
CROSS SECTION PHASE 2 CONSTRUCTION
LOOKING AHEAD STATION



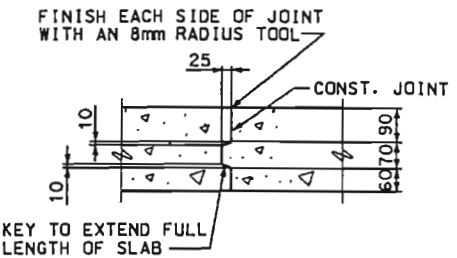
CROSS SECTION PHASE 3 CONSTRUCTION
LOOKING AHEAD STATION



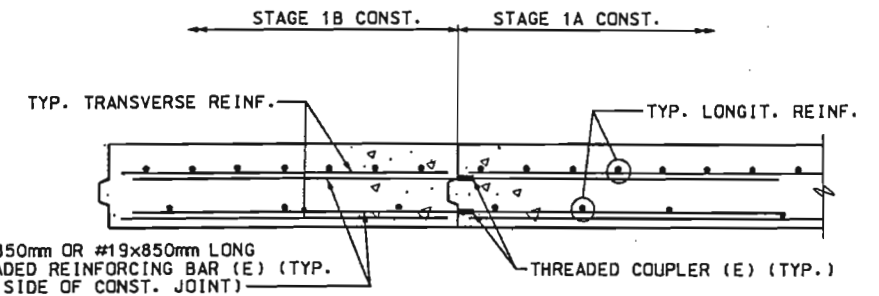
CROSS SECTION PHASE 4 CONSTRUCTION
LOOKING AHEAD STATION



SECTION A-A
NOTE: SECTION B-B OPPOSITE HAND.
END BENT REINFORCEMENT NOT SHOWN,
EXCEPT AS NOTED.

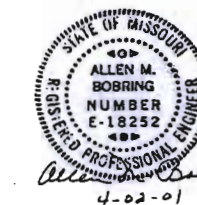


LONGIT. CONSTRUCTION JOINT DETAIL



THREADED REBAR COUPLER DETAIL

SLAB NOTES
ROADWAY DRAINS NOT SHOWN, FOR DETAILS SEE SLAB DRAINS SHEET 34.
CONCRETE IN THE HAUNCHES IS INCLUDED IN THE ESTIMATED QUANTITY
FOR SLAB ON STEEL.
V-DRIPS EXTEND FROM FRONT FACE TO FRONT FACE OF END BENTS.
ALL SLAB REINFORCING BARS SHALL BE EPOXY COATED.
FOR DETAILS OF BARRIER CURBS, SEE SHEETS 28 AND 29.
FOR DETAILS OF RAISED MEDIAN, SEE SHEET 29.



SHEET DELETED 03-15-01

SHEET 26 OF 40

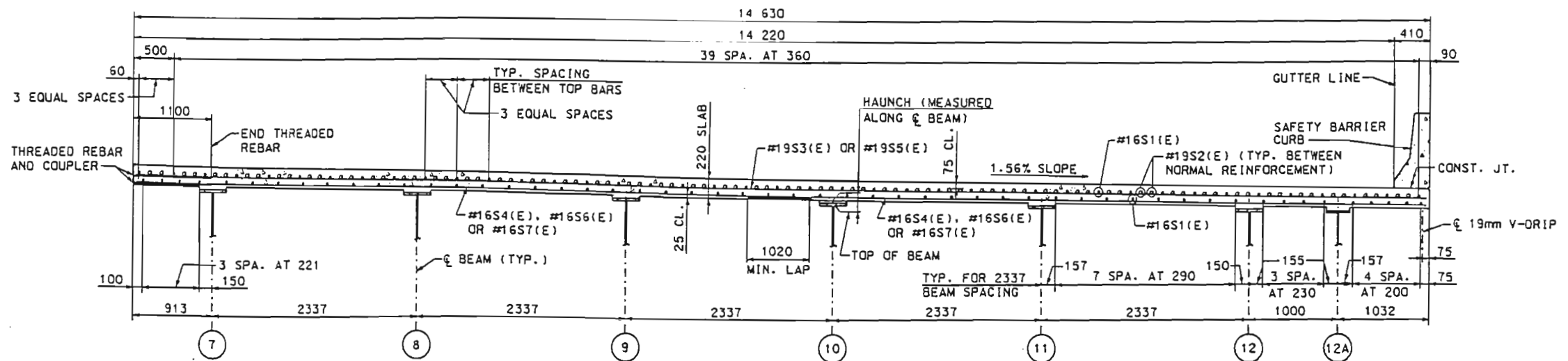
DETAILED BY: JDS
CHECKED BY: RLO

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

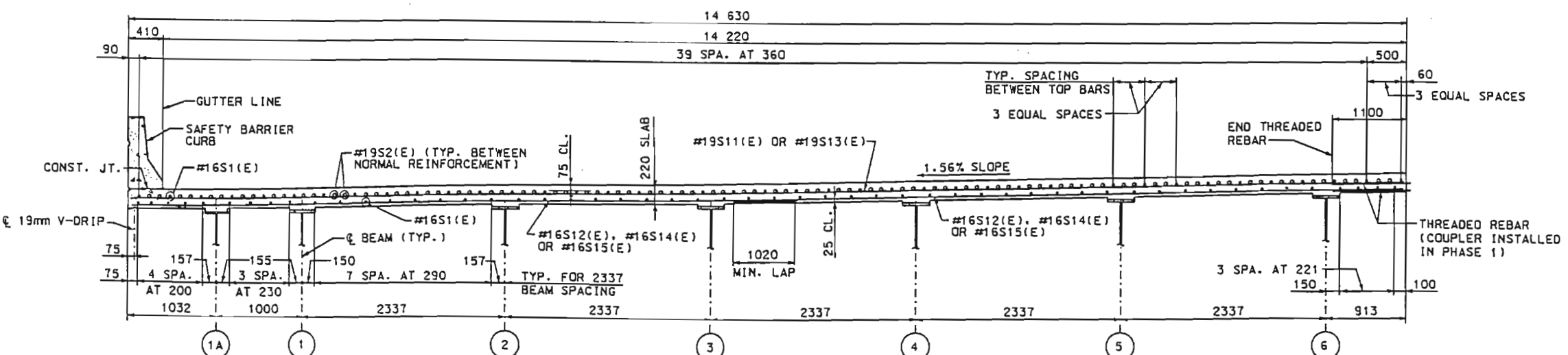
SLAB DETAILS

A09601

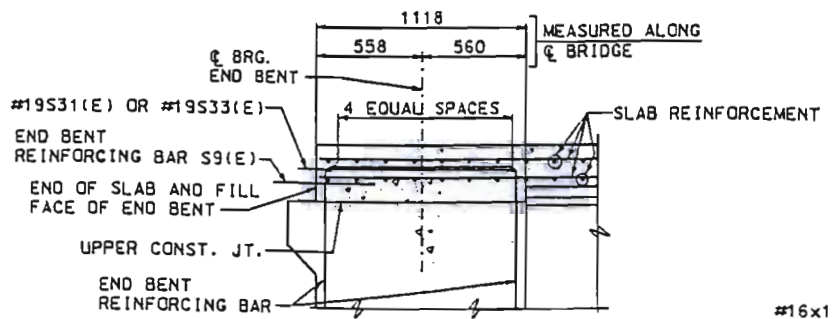
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CROSS SECTION PHASE 1 CONSTRUCTION
LOOKING AHEAD STATION

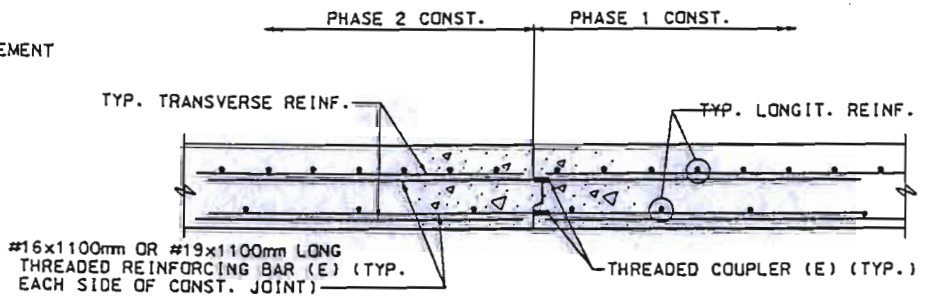


CROSS SECTION PHASE 2 CONSTRUCTION
LOOKING AHEAD STATION



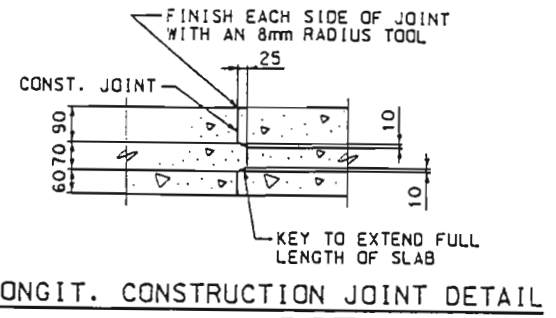
SECTION A-A

NOTE: SECTION B-B OPPOSITE HAND.
END BENT REINFORCEMENT NOT SHOWN,
EXCEPT AS NOTED.



THREADED REBAR COUPLER DETAIL

FOR THREADED REBAR COUPLER NOTES. SEE SHEET 11.



LONGIT. CONSTRUCTION JOINT DETAIL

SLAB NOTES

ROADWAY DRAINS NOT SHOWN. FOR DETAILS SEE SLAB DRAINS SHEET 34.
CONCRETE IN THE HAUNCHES IS INCLUDED IN THE ESTIMATED QUANTITY FOR SLAB ON STEEL.
V-ORIPS EXTEND FROM FRONT FACE TO FRONT FACE OF END BENTS.
ALL SLAB REINFORCING BARS SHALL BE EPOXY COATED.
FOR DETAILS OF BARRIER CURBS, SEE SHEETS 28 AND 29.
FOR DETAILS OF RAISED MEDIAN, SEE SHEET 29.

DETAILED BY: SEM
CHECKED BY: ROR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 26A OF 40

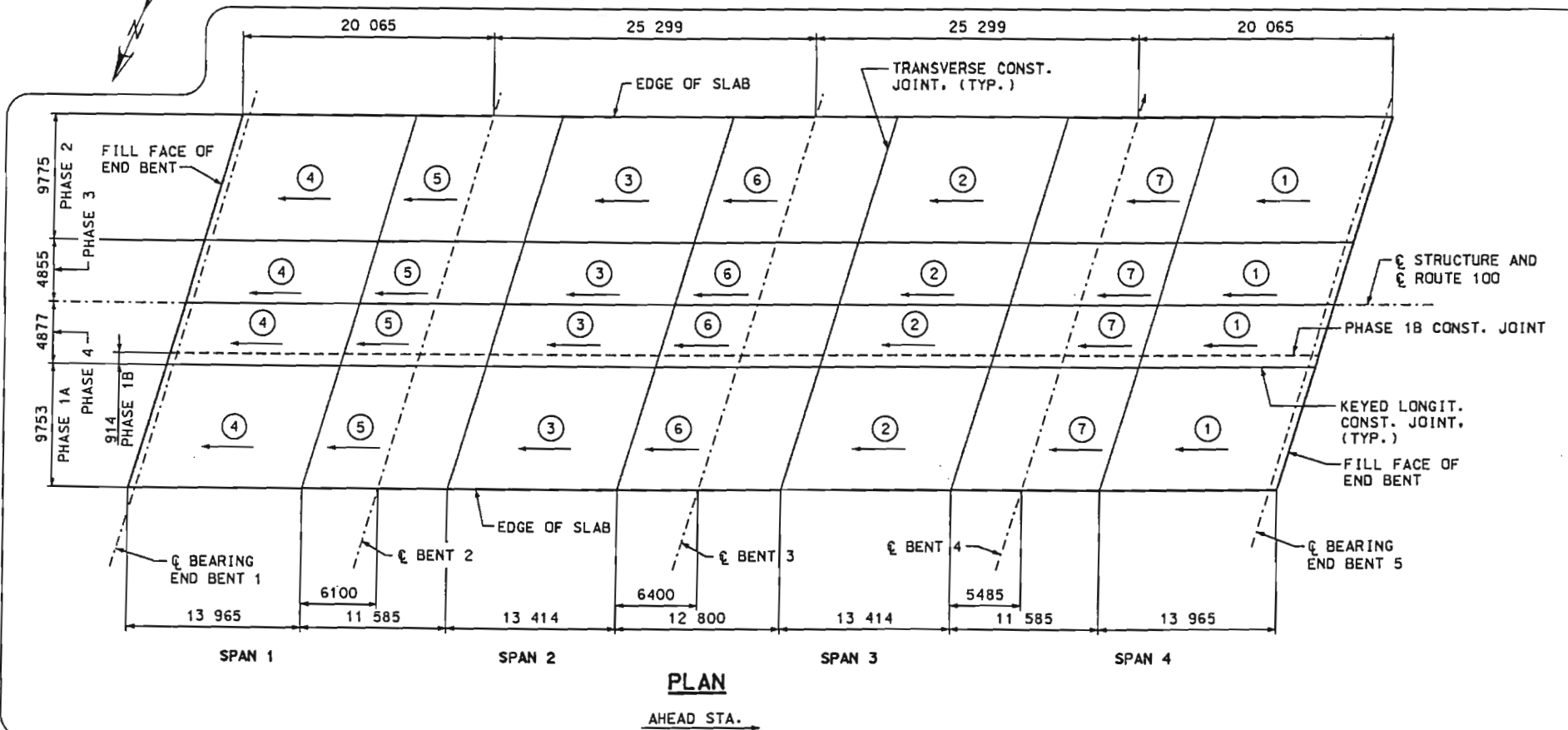
1 SHEET ADDED 03-15-01



SLAB DETAILS

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

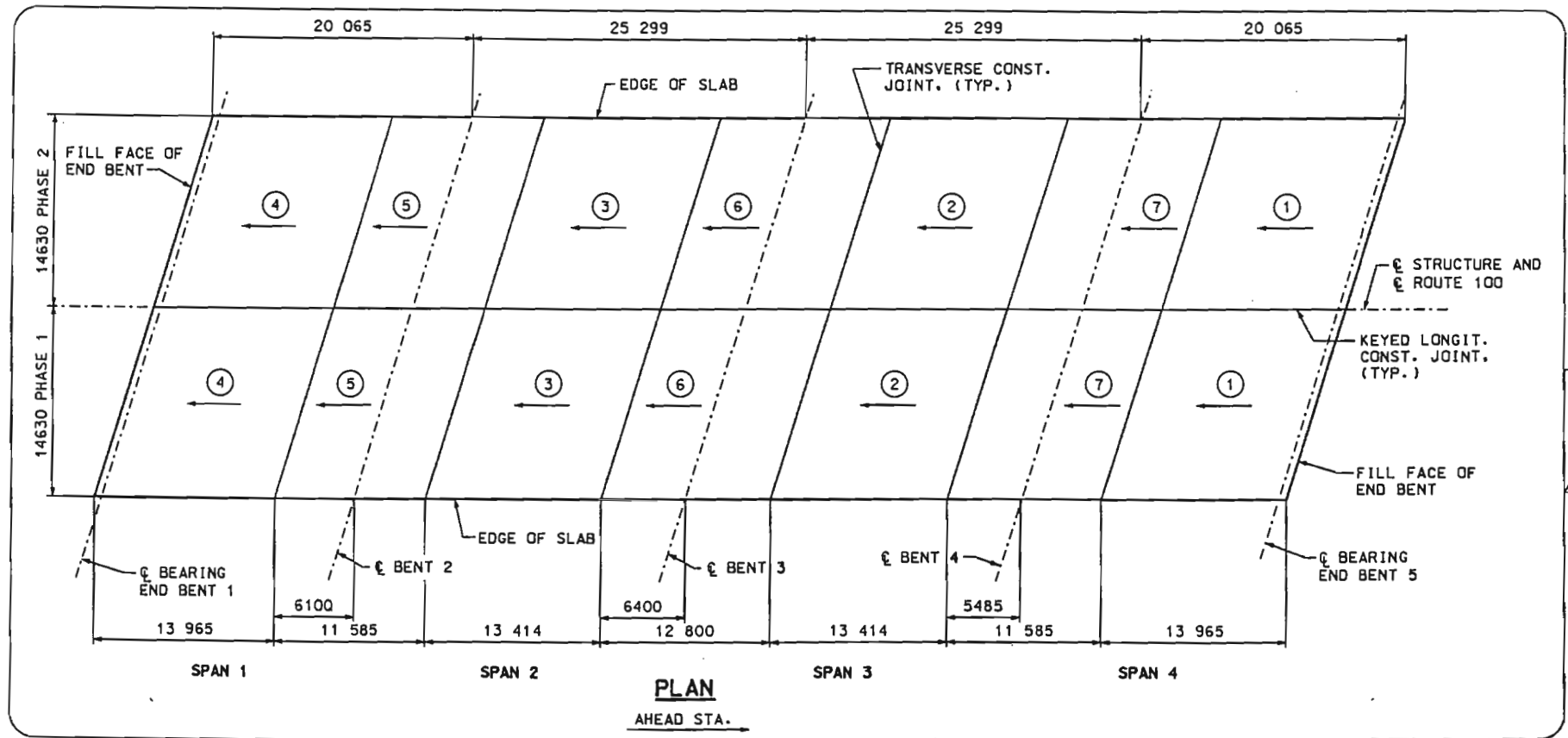


	SEQUENCE OF POURS PHASE 1A OR PHASE 2 POURS			MIN. RATE OF POUR (CU. M/HR.)	
	DIRECTION			WITH RETARDER	WITHOUT RETARDER
BASIC SEQUENCE	1+7+2 END TO 6	6+3 2 TO 5	5+4 3 TO END	25.7	25.7
ALTERNATE "A" POURS	1+7+2 END TO 6		6+3+5+4 2 TO END	24.2	40.4
ALTERNATE "B" POURS	1+7+2+6+3+5+4 END TO END			49.7	49.7
CLOSURE POUR IN PHASE 1B MAY BE POURED IN ANY OF THE SEQUENCES SHOWN ABOVE FOR PHASE 1A.					
	SEQUENCE OF POURS PHASE 3 OR PHASE 4 POURS			MIN. RATE OF POUR (CU. M/HR.)	
	DIRECTION			WITH RETARDER	WITHOUT RETARDER
BASIC SEQUENCE	1+7+2 END TO 6		6+3+5+4 2 TO END	20.3	20.3
ALTERNATE "A" POURS	1+7+2+6+3+5+4 END TO END			27.4	45.6

SLAB POURING NOTES

ARROWS INDICATE DIRECTION OF PLACING CONCRETE. THE CIRCLED NUMBERS INDICATE THE PLACING SEQUENCE. ALL ROADWAY PANELS UNDER ONE PHASE NUMBER SHALL BE POURED PRIOR TO ADVANCING TO THE NEXT PHASE NUMBER, SEE CONSTRUCTION PHASING SHEETS. USE EXPANSIVE CLASS B2 CONCRETE IN PHASE 1B CLOSURE POUR. SEE SPECIAL PROVISIONS. THE CONTRACTOR SHALL POUR AND SATISFACTORILY FINISH THE ROADWAY SLAB AT THE RATE GIVEN. RETARDER, IF USED, SHALL BE AN APPROVED TYPE AND RETARD THE SET OF CONCRETE TO 2.5 HOURS.

DELETE NOTE



	SEQUENCE OF POURS				MIN. RATE OF POUR (CU. M/HR.)	
	DIRECTION				WITH RETARDER	WITHOUT RETARDER
BASIC SEQUENCE	1	7+2	6+3	5+4	19.6	22.4
	END TO 7	1 TO 6	2 TO 5	3 TO END		
ALTERNATE "A" POURS	1+7+2	6+3	5+4		24.6	41.0
	END TO 6	2 TO 5	3 TO END			
ALTERNATE "B" POURS	1+7+2	6+3+5+4			37.5	49.7
	END TO 6	2 TO END				
ALTERNATE "C" POURS	1+7+2+6+3+5+4				49.7	49.7
	END TO END					

1

DETAILED BY: CD
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

REvised 03-15-01
SHEET 27 OF 40

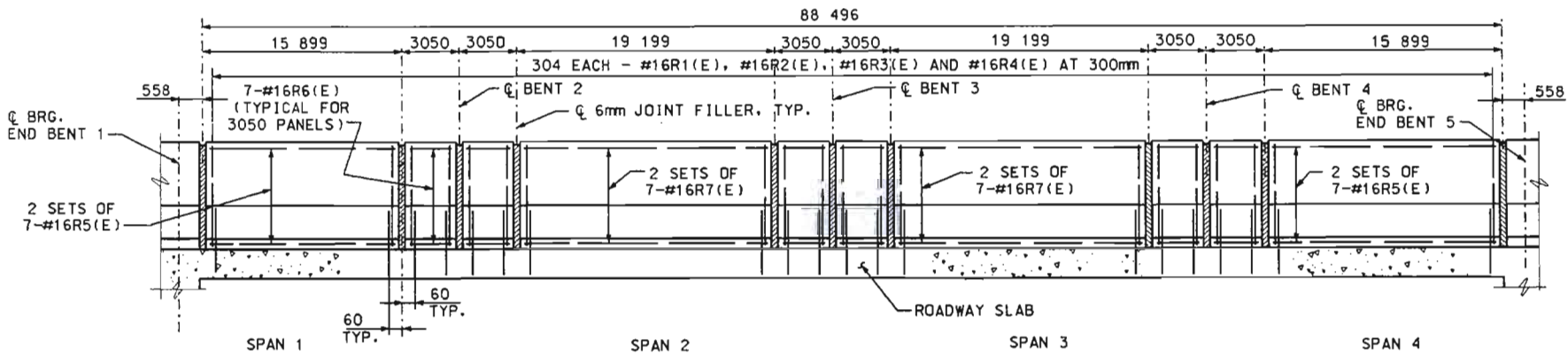


SLAB POURING SEQUENCE

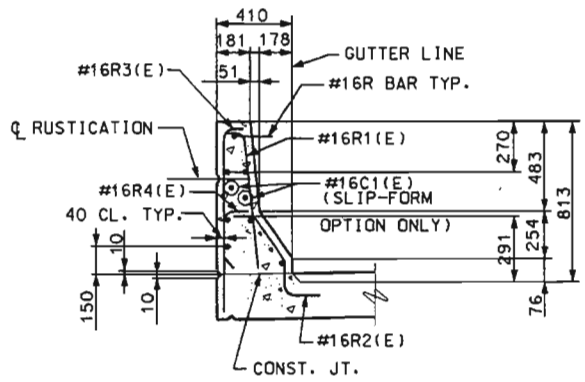
A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		B28

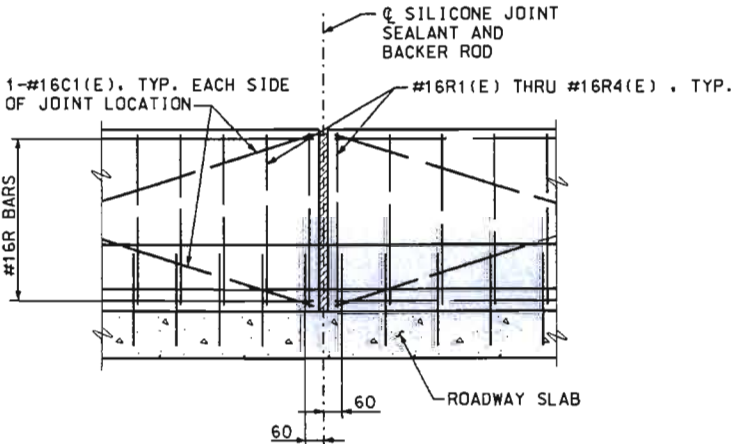


ELEVATION - SAFETY BARRIER CURB
NOTE: FOR CONTINUATION OF SAFETY BARRIER CURB, SEE END BENT DETAILS.

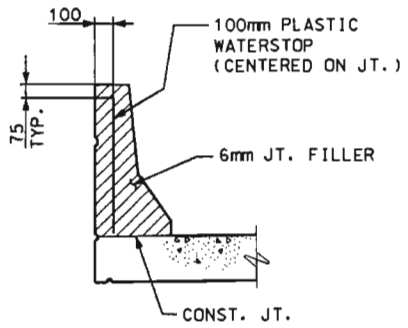


TYPICAL SECTION THRU SAFETY BARRIER CURB

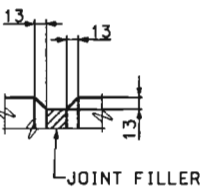
NOTE: THE CROSS-SECTIONAL AREA ABOVE THE SLAB = 213 500 sq. mm.
USE A MIN. LAP SPLICE LENGTH OF 925 FOR HORIZ. R BARS



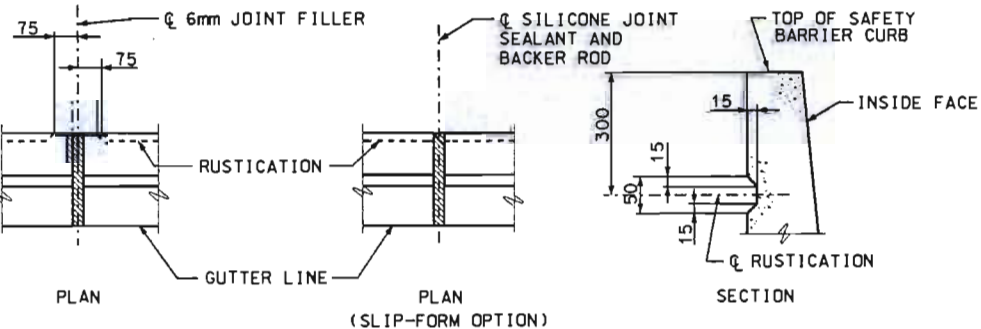
PART ELEVATION BARRIER CURB (SLIP-FORM OPTION)



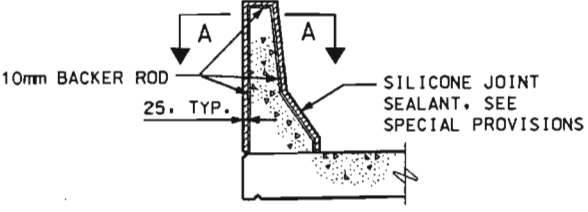
WATERSTOP DETAIL



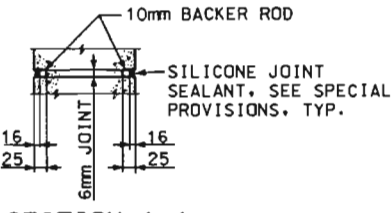
BEVELED EDGE OF CONCRETE AT FILLED JOINTS



RUSTICATION DETAILS



SECTION THRU SILICONE JOINT



SECTION A-A

BARRIER CURB NOTES

TOP OF BARRIER CURBS SHALL BE BUILT PARALLEL TO PROFILE GRADE WITH JOINTS NORMAL TO GRADE, EXCEPT JOINTS SHALL BE VERTICAL AT END BENTS.
ALL EXPOSED EDGES OF SAFETY BARRIER CURB AND MEDIAN BARRIER CURB SHALL HAVE EITHER A 15mm RADIUS OR 10mm BEVEL UNLESS OTHERWISE NOTED.
THE CONTRACT UNIT PRICE OF SAFETY BARRIER CURB-METRIC, MEDIAN BARRIER CURB-METRIC AND RAISED MEDIAN-METRIC SHALL INCLUDE THE COST OF ALL CONCRETE, REINFORCEMENT, PLASTIC WATERSTOP, JOINT FILLER AND APPURTENANCES, COMPLETE IN PLACE.
CONCRETE IN SAFETY BARRIER CURBS SHALL BE CLASS B-1. MEASUREMENT OF SAFETY BARRIER CURBS IS TO THE NEAREST HALF METER, MEASURED ALONG THE OUTSIDE TOP OF SLAB FROM END OF WINGWALL TO END OF WINGWALL.
CONCRETE IN MEDIAN BARRIER AND RAISED MEDIAN SHALL BE CLASS B-1. MEASUREMENT OF MEDIAN BARRIER AND RAISED MEDIAN IS TO THE NEAREST HALF METER, MEASURED ALONG THE TOP OF SLAB FROM END OF APPROACH SLAB TO END OF APPROACH SLAB.
PLASTIC WATERSTOP SHALL BE PLACED IN ALL BARRIER CURB AND MEDIAN BARRIER FILLED JOINTS.
JOINT SEALANT AND BACKER RODS SHALL BE USED ON ALL SLIP-FORM BARRIER CURB AND MEDIAN BARRIER JOINTS INSTEAD OF JOINT FILLER.
PLASTIC WATERSTOP SHALL NOT BE USED WITH SLIP-FORM OPTION.
#16C BARS (SLIP-FORM OPTION ONLY) SHALL BE USED IN ADDITION TO CAST-IN-PLACE CONVENTIONAL FORMING REINFORCEMENT FOR SAFETY BARRIER CURBS AND MEDIAN BARRIER CURB.

BARRIER CURBS



DETAILED BY: JGC
CHECKED BY: RLO

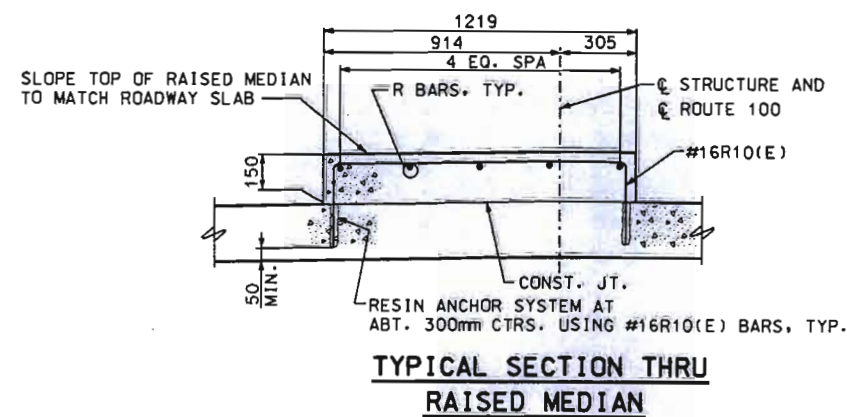
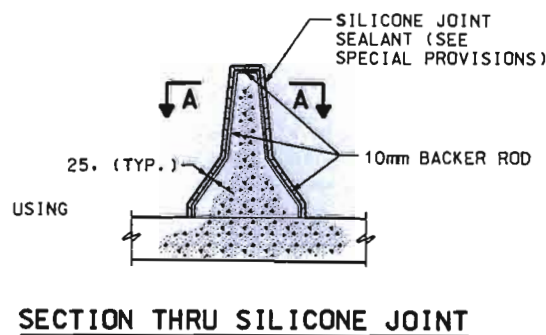
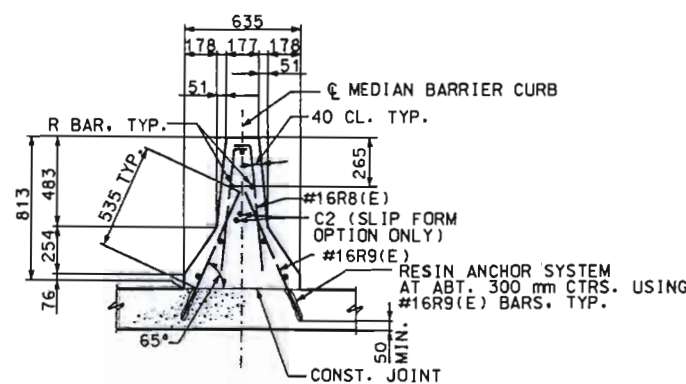
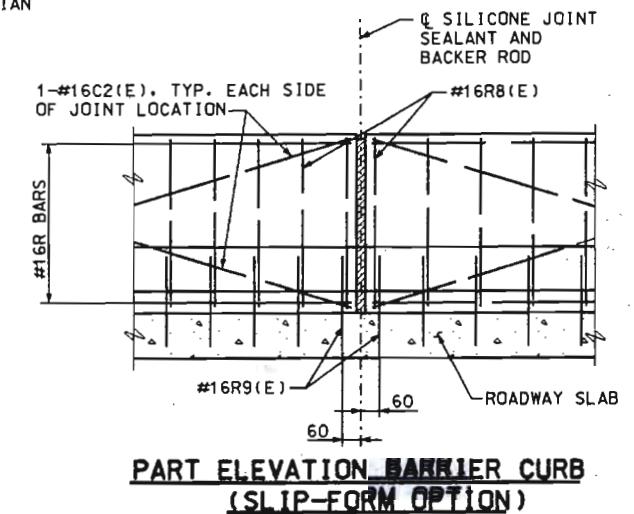
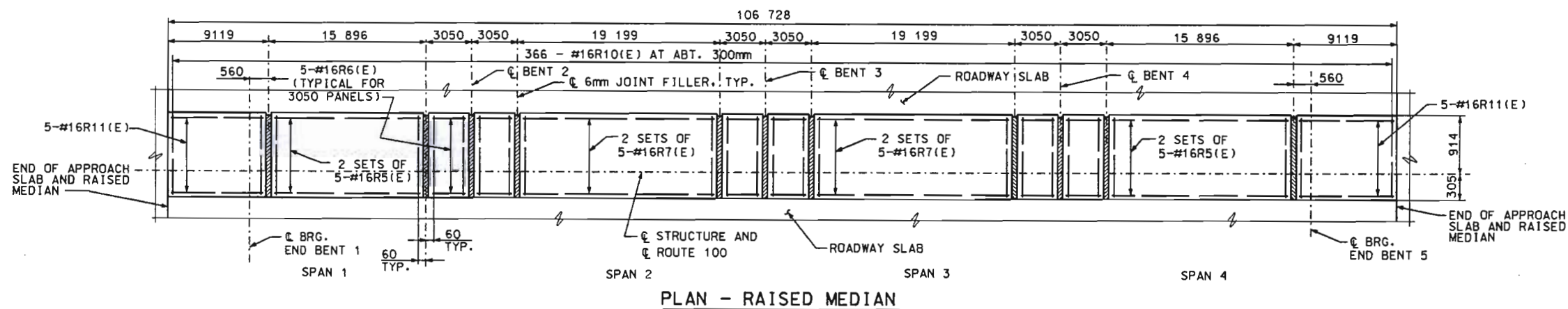
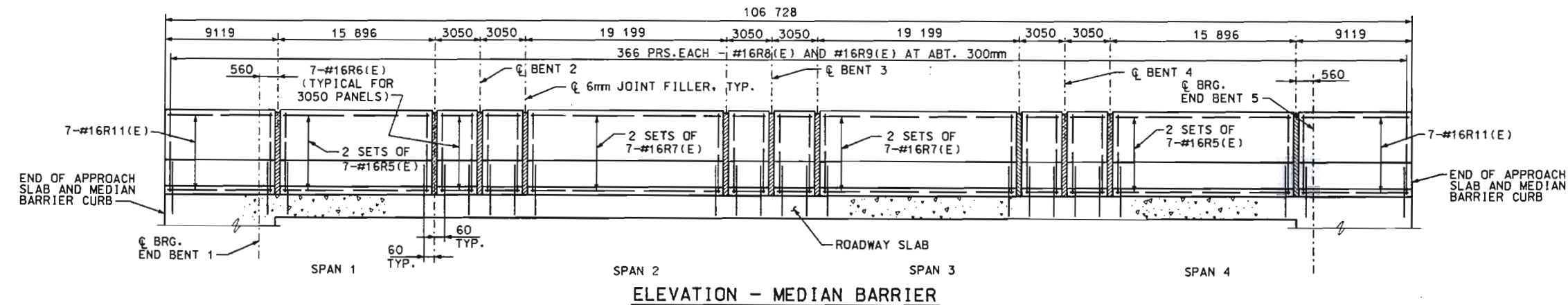
SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 28 OF 40

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		829



RESIN ANCHOR NOTES

THE CONTRACTOR SHALL AVOID NICKING OR CUTTING SLAB REINFORCING BARS. SLAB REINFORCING SHALL BE LOCATED AND MARKED PRIOR TO DRILLING HOLES IN SLAB.

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE SPECIAL PROVISIONS. THESE ANCHOR SYSTEMS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS, EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS.

COST OF FURNISHING AND INSTALLING THE ANCHOR SYSTEM COMPLETE IN PLACE SHALL BE INCLUDED IN THE RESPECTIVE PRICE BID FOR MEDIAN BARRIER CURB AND RAISED MEDIAN.

RESIN ANCHOR SYSTEM TYPICAL SECTION THRU MEDIAN BARRIER CURB

NOTE: THE CROSS-SECTIONAL AREA ABOVE THE SLAB = 274 500 sq. mm.
USE A MIN. LAP SPLICE LENGTH OF 925 FOR HORIZ. R BARS

DETAILED BY: JGC
CHECKED BY: RLO

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

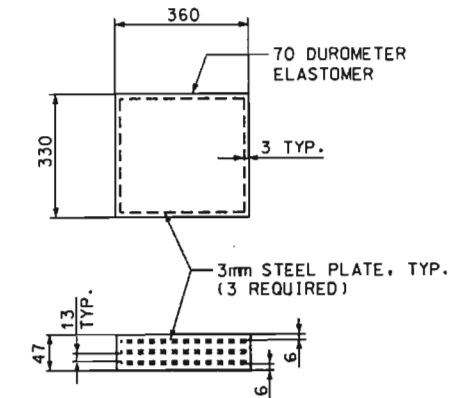
SHEET 29 OF 40



MEDIAN BARRIER CURB AND RAISED MEDIAN

A09601

STATE	PROJ. NO.	SHEET NO.
NO.		B 31



NOTE: THE 3mm STEEL PLATES SHALL BE PLACED BETWEEN LAYERS OF ELASTOMER AND MOLDED TOGETHER TO FORM AN INTEGRAL UNIT.

500

250 250

160 90 90 160

Ø 20.6mm DIA. FIELD DRILLED HOLES IN BEAM FLANGE AND COVER PLATE FOR 19.0mm HIGH STRENGTH BOLTS

25 PL. TYP.

25 PL.

Ø EXIST. BEAM, WELDMENT AND EXIST. COVER PLATE

Ø BEARING STIFF.

17°-00'-00"

90, 90

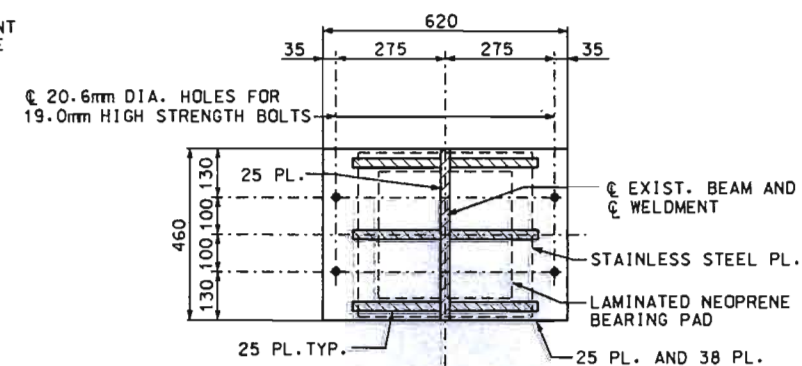
BEVELED SOLE PL.

460

230 30 230 30

SECTION A-A

SECTION B-B



SWEDGED ANCHOR
BOLT DETAIL

OPTIONAL SWEDGED ANCHOR BOLT DETAIL

FOR BEARING NOTES, SEE SHEET 30.



DETAILED BY: JDS
CHECKED BY: DJS

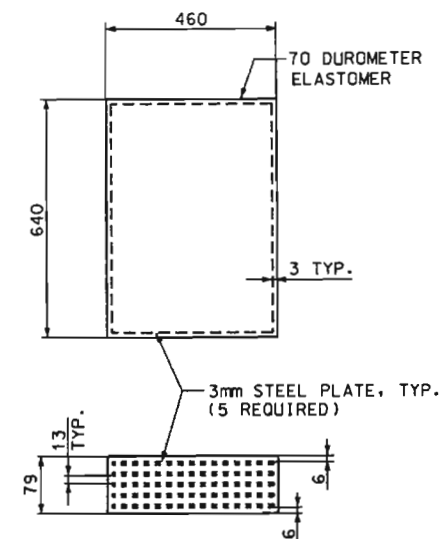
SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 31 OF 40

A09601

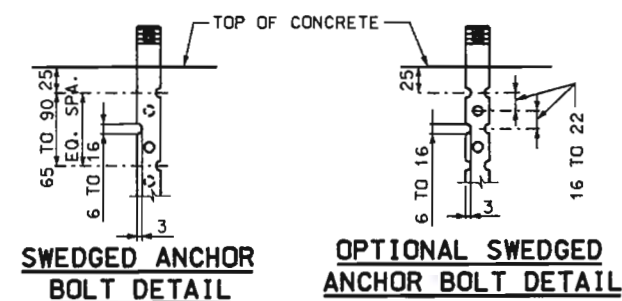
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STATE	PROJ. NO.	SHEET NO.
MO.		1332



NOTE: THE 3mm STEEL PLATES SHALL BE PLACED BETWEEN LAYERS OF ELASTOMER AND MOLDED TOGETHER TO FORM AN INTEGRAL UNIT.

NOTE: PROVIDE A TOTAL OF 4-3mm SHIM PLATES FOR
ADDITIONAL ADJUSTMENT.



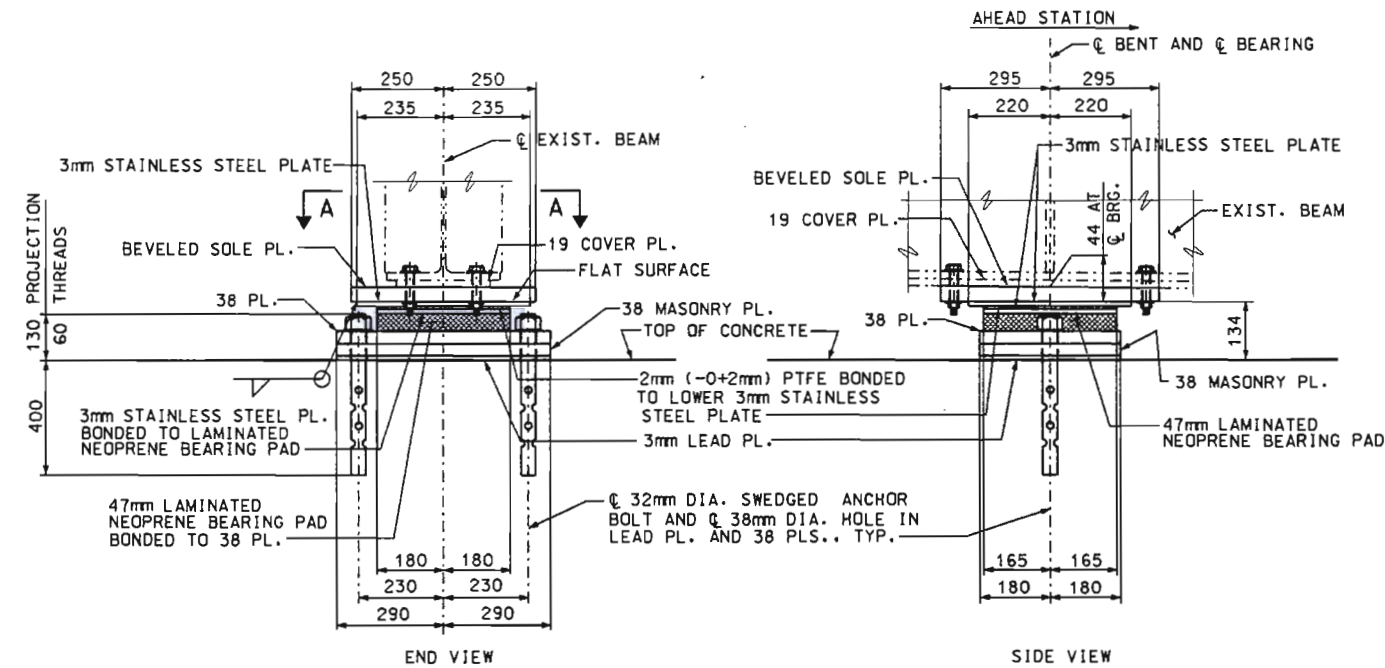
FOR BEARING NOTES, SEE SHEET 30.

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
RODNEY D. RILEY
NUMBER E-26287
12-7-98

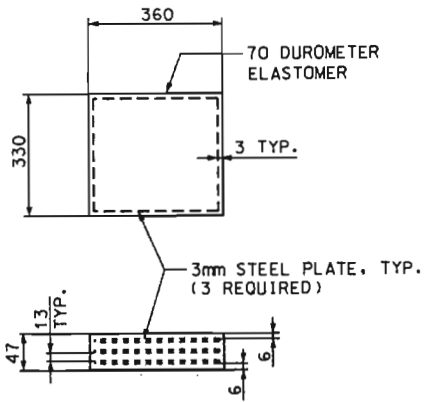
A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

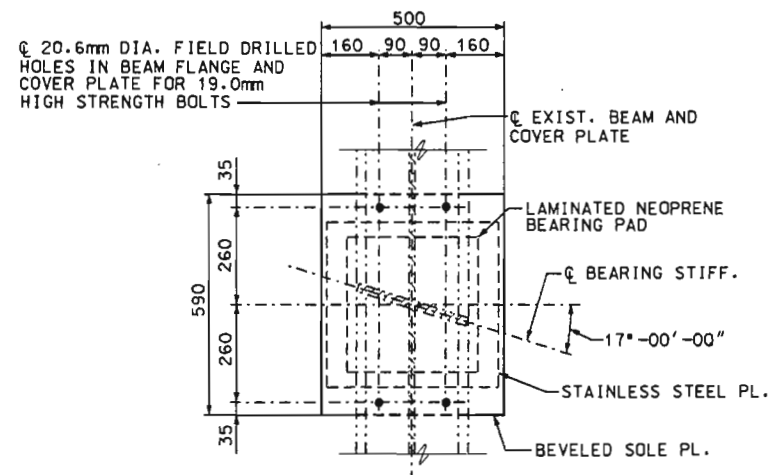
STATE	PROJ. NO.	SHEET NO.
MO.		B33



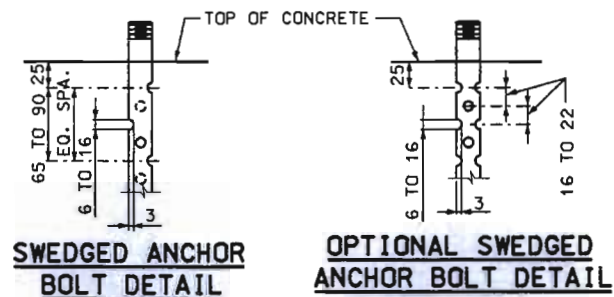
**TYPE "N" PTFE EXPANSION BEARING AT
BENT 3 - BEAMS 2 THRU 11**



LAMINATED NEOPRENE BEARING PAD
NOTE: THE 3mm STEEL PLATES SHALL BE PLACED BETWEEN LAYERS OF ELASTOMER AND MOLDED TOGETHER TO FORM AN INTEGRAL UNIT.



SECTION A-A



NOTES
FOR BEARING NOTES, SEE SHEET 30.

DETAILED BY: JOS
CHECKED BY: DJS

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET 33 OF 40

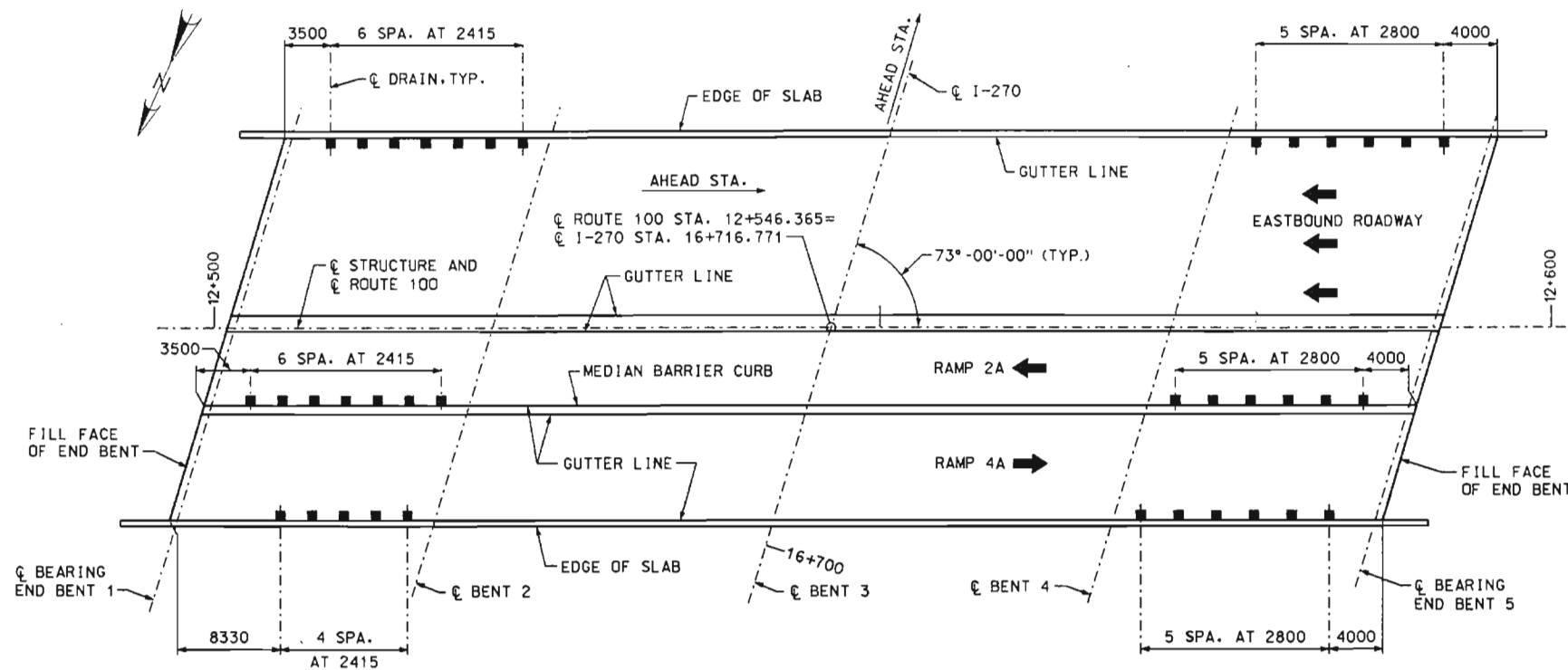


BEARING DETAILS AT BENT 3

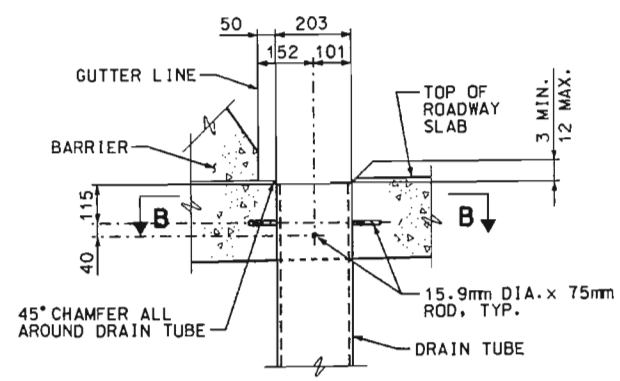
A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

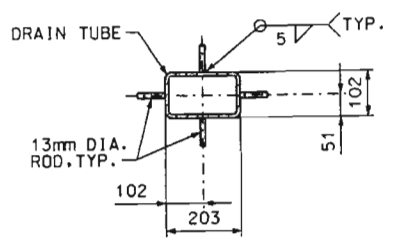
STATE	PROJ. NO.	SHEET NO.
MO.		B 34



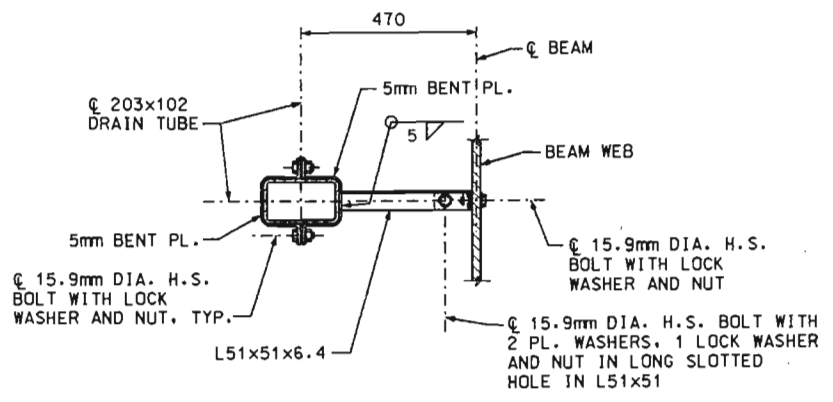
DRAIN LOCATION PLAN



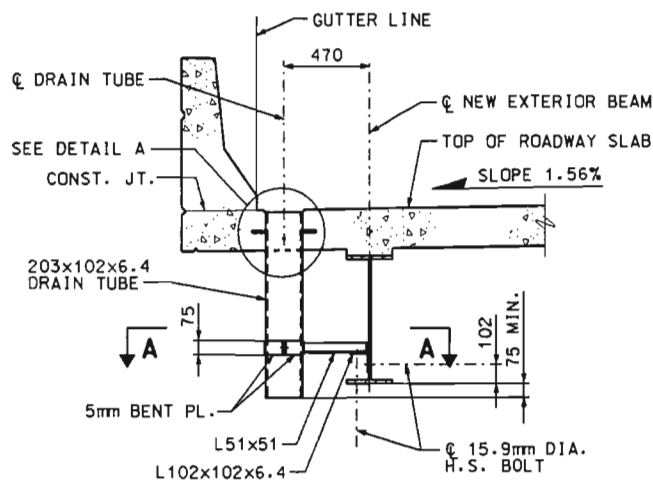
DETAIL A



SECTION B-B

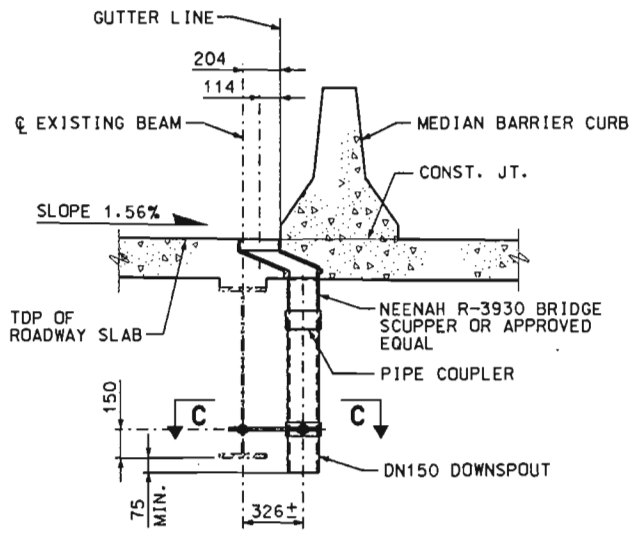


SECTION A-A



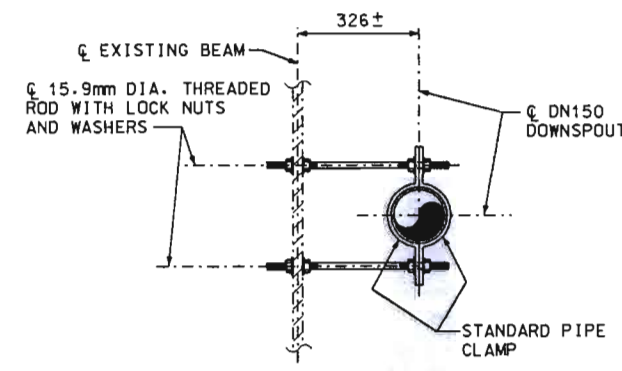
ELEVATION - TUBE TYPE SLAB DRAIN AT EXTERIOR BARRIER

(24 REQUIRED)



ELEVATION - SLAB DRAIN WITH GRATE AT MEDIAN BARRIER CURB

(13 REQUIRED)



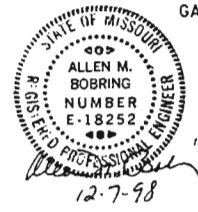
SECTION C-C

NOTE: THREADED RODS SHALL HAVE 150mm MIN. LENGTH OF THREADS AT EACH END.

NOTES

TUBE TYPE SLAB DRAINS MAY BE FABRICATED OF EITHER 6mm WELDED SHEETS OF ASTM A709M GRADE 250 STEEL OR FROM 6.4mm STRUCTURAL STEEL TUBING ASTM A500 OR A501. SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS. THE DRAINS AND BRACKET ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. ALL BOLTS, PLATE WASHERS, LOCK WASHERS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. THE BOLT HOLES FOR THE BRACKET ASSEMBLY ATTACHMENT SHALL BE LOCATED ON THE BEAM SHOP DRAWINGS. SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE TUBE TYPE SLAB DRAINS AND THE BRACKET ASSEMBLY. ALL STEEL RODS SHALL CONFORM TO ASTM A709M, GRADE 250. THE RESPECTIVE CONTRACT UNIT PRICE FOR SLAB DRAIN AND SLAB DRAIN WITH GRATE SHALL INCLUDE THE COST OF THE SLAB DRAIN, GRATE BRACKET ASSEMBLY, BOLTS, PLATE WASHERS, LOCK WASHERS, NUTS, GALVANIZING AND APPURTENANCES COMPLETE IN PLACE.

SLAB DRAINS

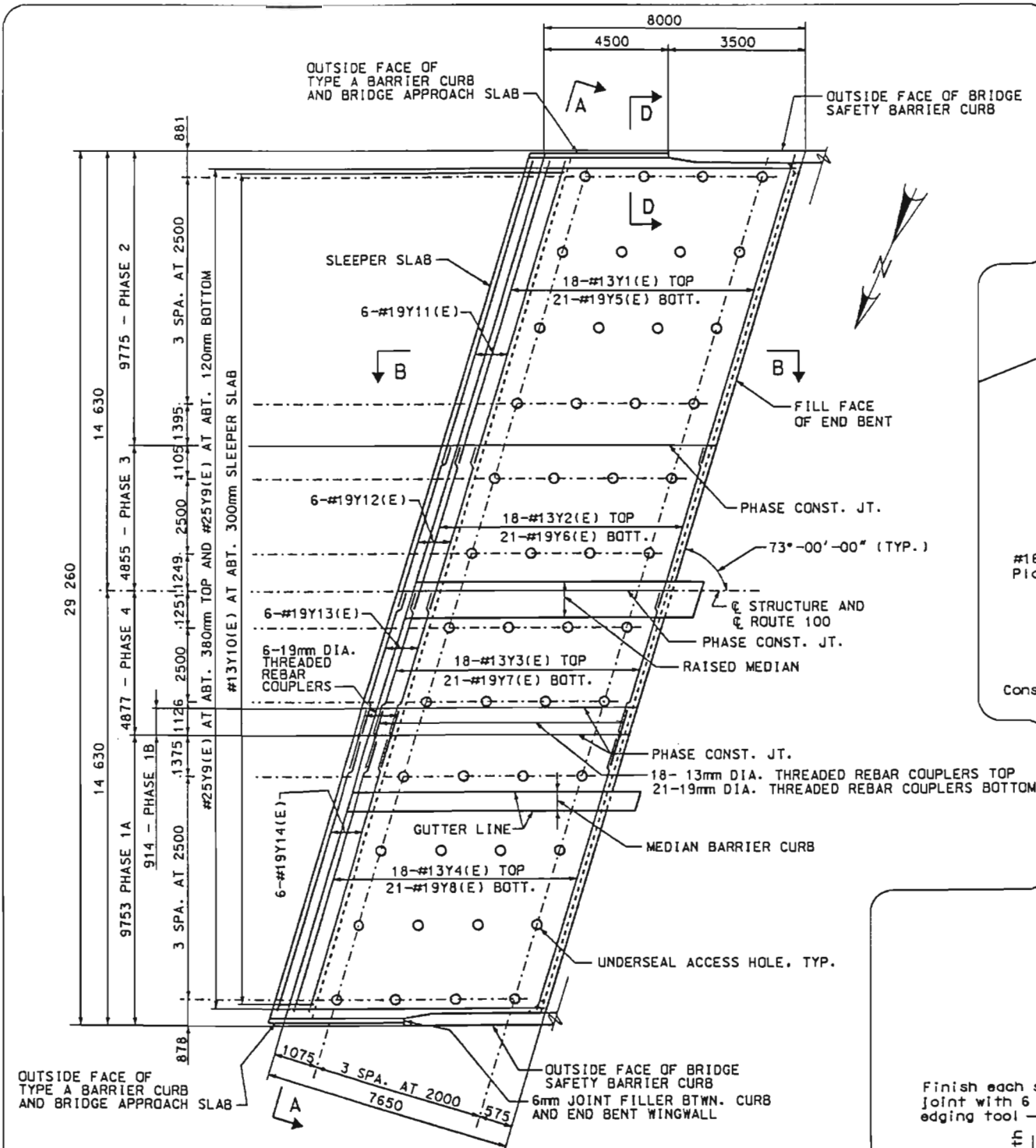


DETAILED BY: CD
CHECKED BY: RDR

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MARYLAND HEIGHTS, MO.

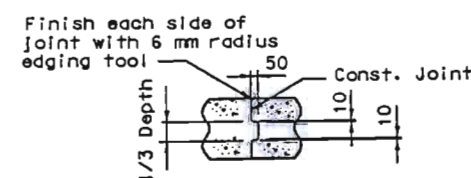
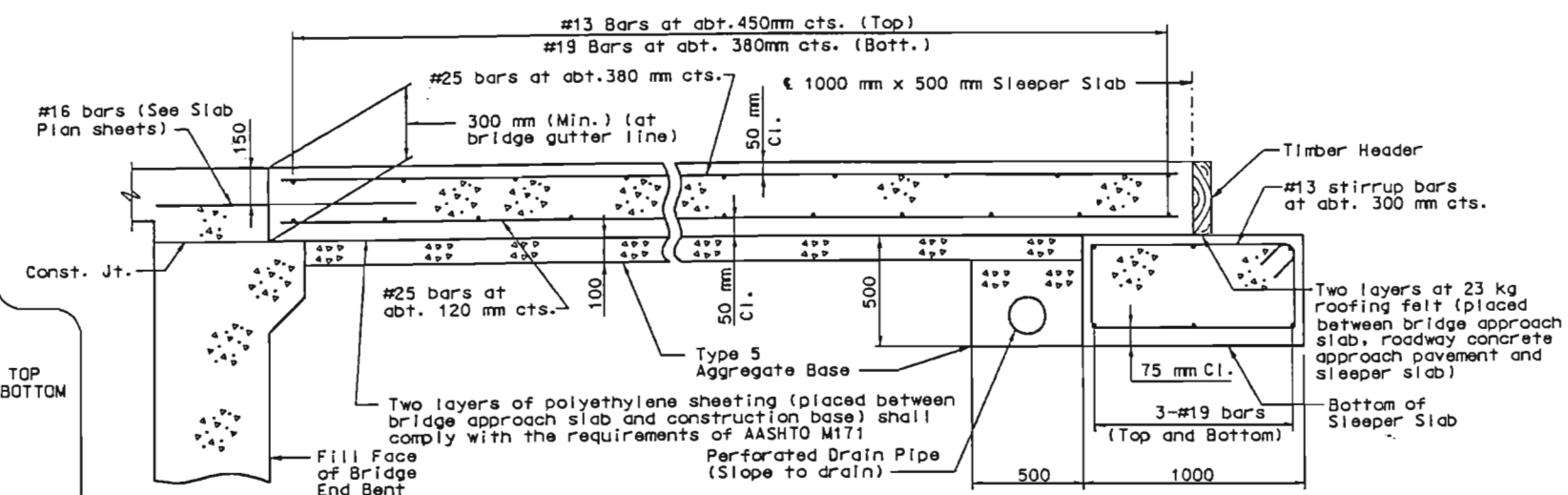
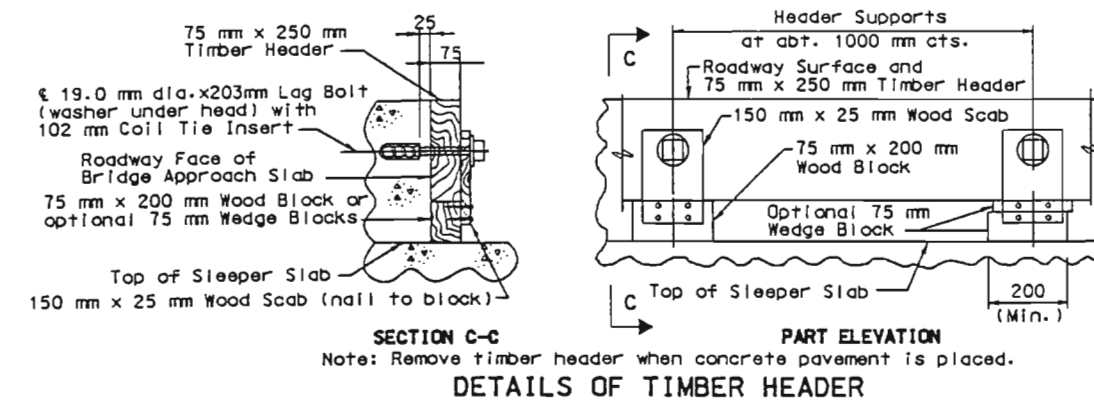
SHEET 34 OF 40

A09601

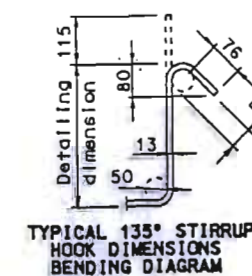
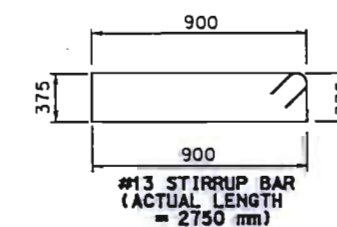
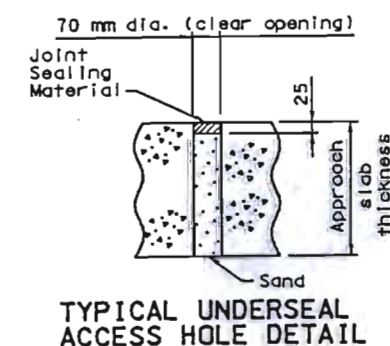


PLAN - END BENT 1
END BENT 5 OPPOSITE HAND

NOTE: FOR DETAILS OF MEDIAN BARRIER CURB AND RAISED MEDIAN, SEE BARRIER SHEETS.



CONST. JOINT DETAIL
(IF REQUIRED)



Note:
Nominal lengths are based on out to out dimensions shown in bending diagram and are listed for fabricators use (nearest 5 mm).



BRIDGE APPROACH SLAB

DETAILED BY: JGC
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

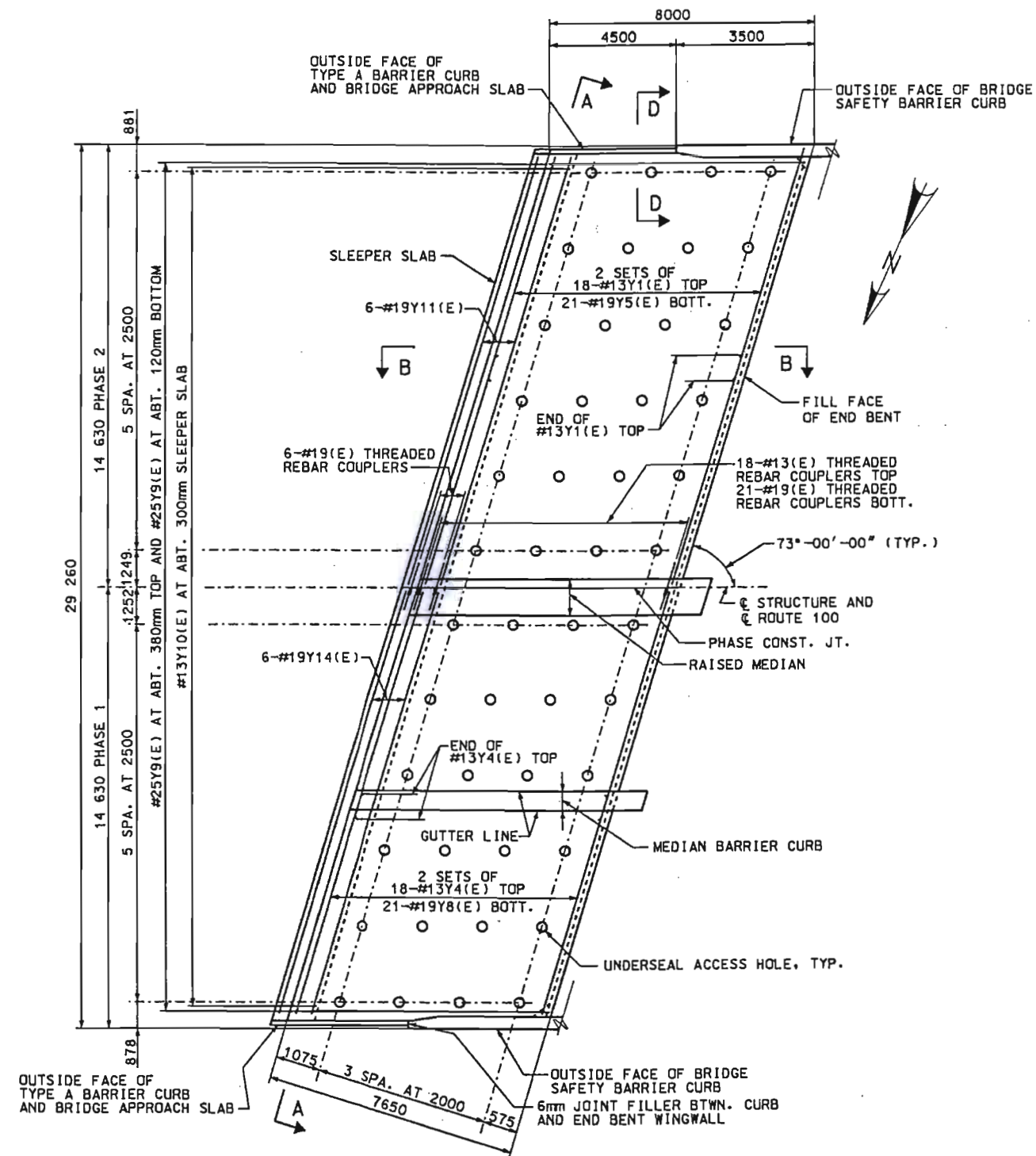
REVISED 03-15-01

SHEET 35 OF 40

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



PLAN - END BENT 1
END BENT 5 OPPOSITE HAND

NOTE: FOR DETAILS OF MEDIAN BARRIER CURB AND
RAISED MEDIAN, SEE BARRIER SHEETS.

NOTE: FOR THREADED REBAR COUPLER DETAIL AND
APPROACH SLAB NOTES, SEE SHEET 36A.

DETAILED BY: SEM
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

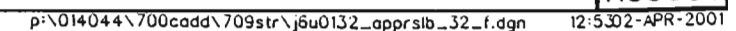
1 SHEET ADDED 03-15-01
SHEET 35A OF 40



BRIDGE APPROACH SLAB

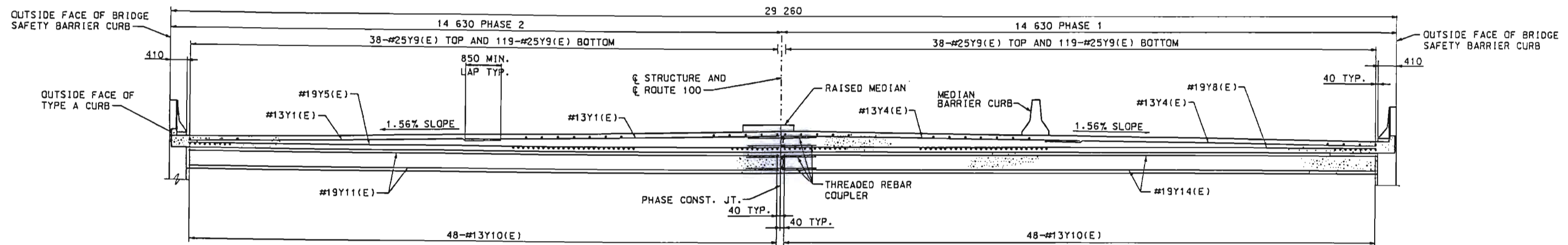
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STATE	PROJ. NO.	SHEET NO.
MO.		



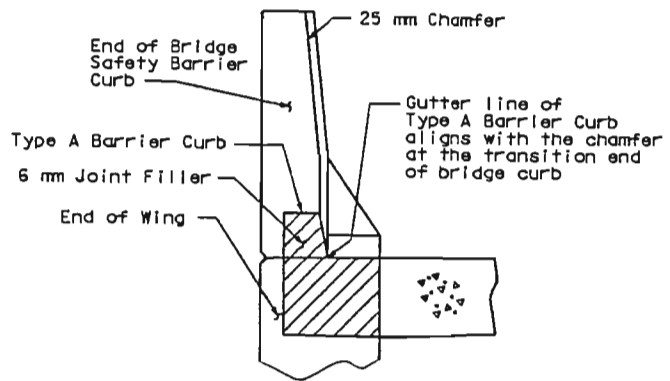
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		

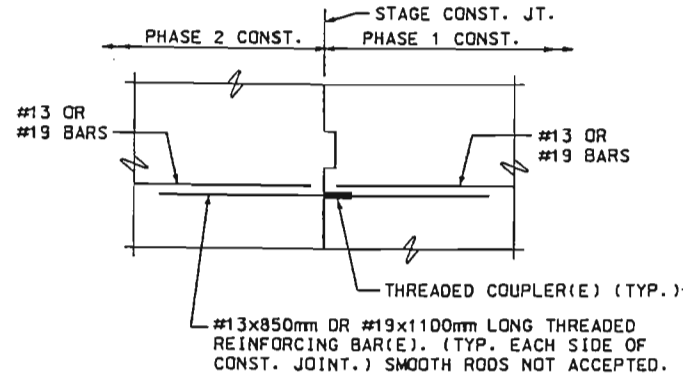


SECTION A-A

NOTE: FOR ADDITIONAL STAGE CONSTRUCTION NOTES AND DETAILS, SEE PHASE CONSTRUCTION SHEETS AND THE ROADWAY DRAWING.



SECTION D-D (BETWEEN CURBS)



THREADED REBAR COUPLER DETAIL

FOR THREADED REBAR COUPLER NOTES, SEE SHEET 11.

APPROACH SLAB GENERAL NOTES

Dimensions shown are measured normal to ϕ of Structure.

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Section 503 ($f'c = 28$ MPa) of the Missouri Standard Specifications (Metric).

All joint filler shall meet the requirements of Section 1057.2.5 of Missouri Standard Specifications (Metric), except as noted.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 420 with $F_y = 420$ MPa.

Minimum clearance to reinforcing steel shall be 40 mm, unless otherwise shown.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel shall be made continuous by lap splicing the #13 & #19 bars as shown.

Mechanical bar splices will be permitted and shall develop at least 125 percent of the specified yield strength of the reinforcing bars being spliced. The contractor shall furnish the Engineer the manufacturer's certification that this requirement is met and is required to follow the manufacturer's recommendation for installation.

Mechanical bar splices shall be epoxy coated in accordance with Section 710 of the Missouri Standard Specifications (Metric).

When a lap splice is required for the use of a mechanical bar splice, the minimum lap length shall be 850 mm for transverse approach slab bar splices.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

The contractor shall pour and satisfactorily finish the bridge slab before pouring the bridge approach slabs.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge slab.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base and all other appurtenances and incidental work as shown on this sheet, complete in place, shall be considered as completely covered under the contract unit price for Bridge Approach Slab (Bridge), per square meter.

For Concrete Approach Pavement details, see roadway plans.

See Missouri Standard Plans Drawing M609.00 for details of Type A Barrier Curb.

At the contractor's option, Grade 300 reinforcement may be substituted for the Grade 420 #16 dowel bars connecting the bridge approach slab to the bridge abutment. No additional payment will be made for this substitution.

When Grade 300 reinforcement is substituted for the Grade 420 #16 dowel bars connecting the bridge approach slab to the bridge abutment, the reinforcement may be bent up to 90 degrees with a 50 mm minimum radius near the abutment to allow compaction of the backfill material near the abutment. Damage to epoxy coating shall be repaired according to Section 710.3.3 of the Missouri Standard Specifications (Metric).

Drain pipe may be either 150 mm diameter corrugated metallic-coated steel pipe underdrain, 100 mm diameter corrugated polyvinyl chloride (PVC) drain pipe, or 100 mm diameter corrugated polyethylene (PE) drain pipe.



BRIDGE APPROACH SLAB

DETAILED BY: SEM
CHECKED BY: ROR

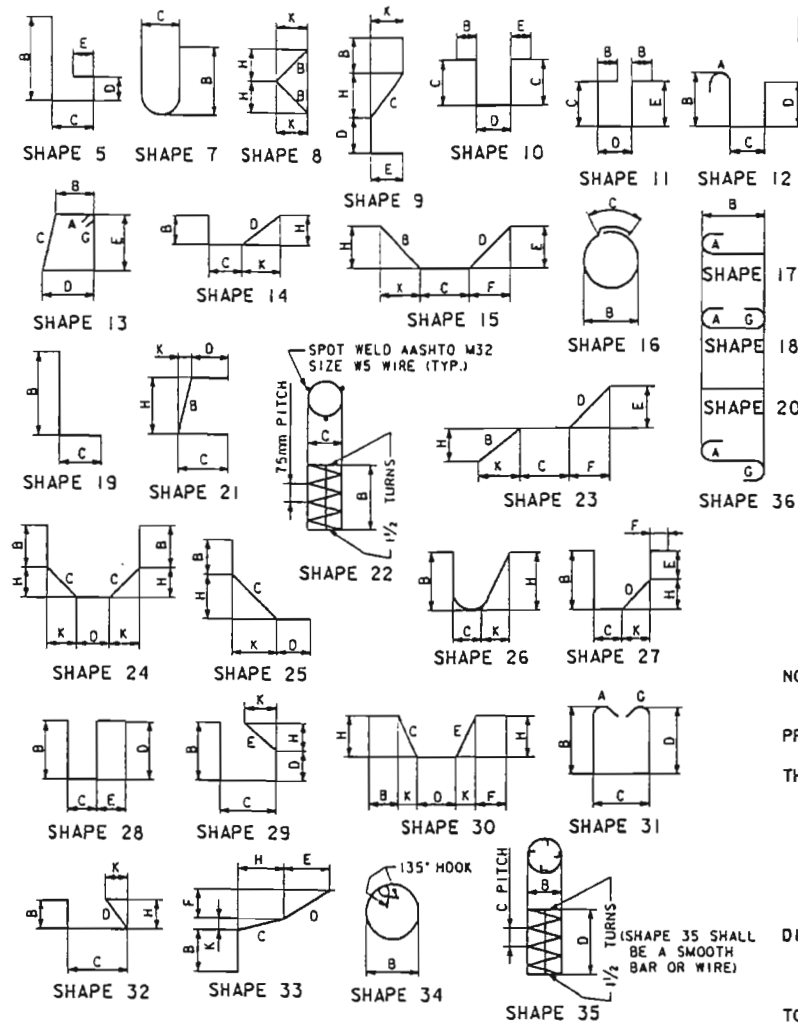
SYVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

SHEET ADDED 03-15-01
SHEET 36A OF 40

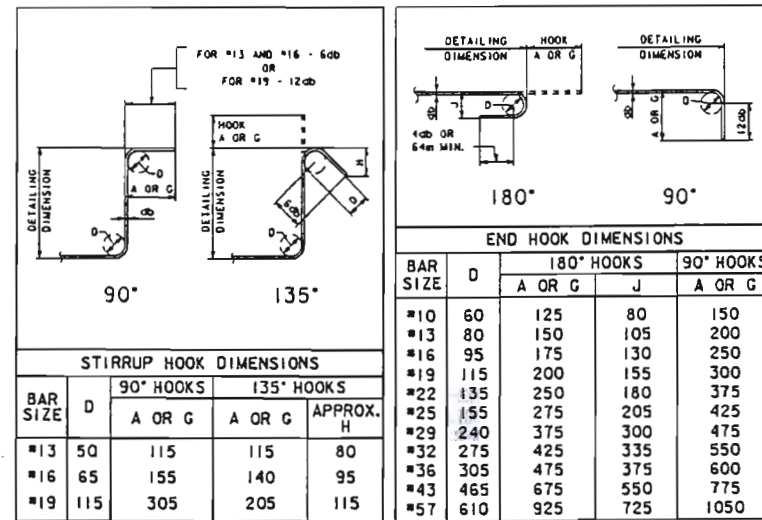
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



BENDING DIAGRAMS



NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm).
UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

NOTE:
ALL REINFORCING STEEL SHALL BE METRIC ASTM A615M (GRADE 420) = FY 420 MPa.
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
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E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN.
SP = BAR REQUIRING SPECIAL BENDING, SEE DETAIL.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST 5mm).
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST 5mm.
PAY WEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLES OR CHANNELS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRAL. LENGTH AND WEIGHT OF COLUMN SPIRAL DO NOT INCLUDE SPLICE OR SPACERS.

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP(S)	SUBSTR.(X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
	SIZE	MARK								B	C	D	E	F	H	K			
										mm	mm	mm	mm	mm	mm	mm			
END BENT 1 (CONTINUED)																			
60	19	A45	SHR WALL	20						1735							1735	1735	233
48	25	A46	SHR WALL	19						3480	275						3755	3690	704
48	25	A47	SHR WALL	9						890	1385	275			980	980	2550	2520	481
		A48	NOT USED																
		A49	NOT USED																
20	19	A50	END BENT	20						9300							9300	9300	416
4	19	A51	END BENT	21						995	9300				950	290	10295	10215	91
1	13	A52	END BENT	20						7970							7970	7970	8
		A53	NOT USED																
		A54	NOT USED																
20	19	A55	END BENT	20						9380							9380	9380	419
4	19	A56	END BENT	14							9300	995			950	290	10295	10215	92
1	13	A57	END BENT	20						8050							8050	8050	8
24	19	A58	END BENT	20						1500							1500	1500	80
1	13	A59	END BENT	20						850							850	850	1
60	16	K1	BARRIER	E 19						735	130						865	825	77
60	16	K2	BARRIER	E 14						130	280	460			50	455	870	830	77
38	16	K3	WINGWALL	E 27						760	130	305	510		250	175	1705	1645	97
22	16	K4	WINGWALL	E 7						760	150						1605	1580	54
2	16	K5	WINGWALL	E 25						510	170	110			140	100	790	770	2
2	16	K6	WINGWALL	E 25						510	200	110			165	115	820	800	2
2	16	K7	WINGWALL	E 25						510	245	110			200	140	865	845	3
2	16	K8	WINGWALL	E 25						510	285	110			235	165	905	885	3
24	16	K9	BARRIER	E 20						1710							1710	1710	64
20	13	K10	BARRIER	E 20						3510							3510	3510	70
2	16	K11	BARRIER	E 14							665	665			115	655	1330	1330	4
			</																

BILL OF REINFORCING STEEL																			
NO. REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP(S)	SUBSTR.(X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
	SIZE	MARK								B	C	D	E	F	H	K			
END BENT 1																			
58	16	A1	END BENT	10	S					1615	1015						4245	4180	376
36	13	A2	END BENT	13	S					1015	775	1015	775				3810	3730	133
7	13	A3	END BENT	10	S						800	1015					2615	2565	18
99	16	A4	END BENT	10	S						1290	1015					3595	3530	542
24	16	A5	END BENT	20						1615							1615	1615	60
130	19	A6	END BENT	E SP				V 2	2	2 SERIES OF 65 BARS (2790 TO 3030)									846
95	13	A7	END BENT	10	S						450	150					1050	1000	94
2	19	A20	CL. SLAB	17						1515							1715	1715	8
2	19	A30	WINGWALL	25						580	3485	790			1550	3120	4855	4830	22
22	19	A31	WINGWALL	SP				V 2	2	2 SERIES OF 11 BARS (700 TO 2040)									67
4	19	A32	WINGWALL	20						2135							2135	2135	19
10	19	A33	WINGWALL	SP				V 2	2	2 SERIES OF 5 BARS (1415 TO 3590)									56
4	19	A34	WINGWALL	20						3910							3910	3910	35
8	19	A35	WINGWALL	E 20						3910							3910	3910	70
5	19	A36	WINGWALL	9						360	1575	360			1075	1150	2295	2270	25
2	19	A37	WINGWALL	25						580	3270	1060			1600	2850	4910	4885	22
20	19	A38	WINGWALL	SP				V 2	2	2 SERIES OF 10 BARS (710 TO 2020)									61
4	19	A39	WINGWALL	20						2135							2135	2135	19
5	19	A40	WINGWALL	9						360	1370	360			910	1025	2090	2065	23
10	19	A41	WINGWALL	SP				V 2	2	2 SERIES OF 5 BARS (1615 TO 3615)									58
		A42	NOT USED																
		A43	NOT USED																
		A44	NOT USED																

BAR A6(E)
SPECIAL BENDING DIAGRAM

REVISD 03-15-01

SHEET 37 OF 40

BAR LIST - END BENT 1

DETAILED BY: CD
CHECKED BY: RDR

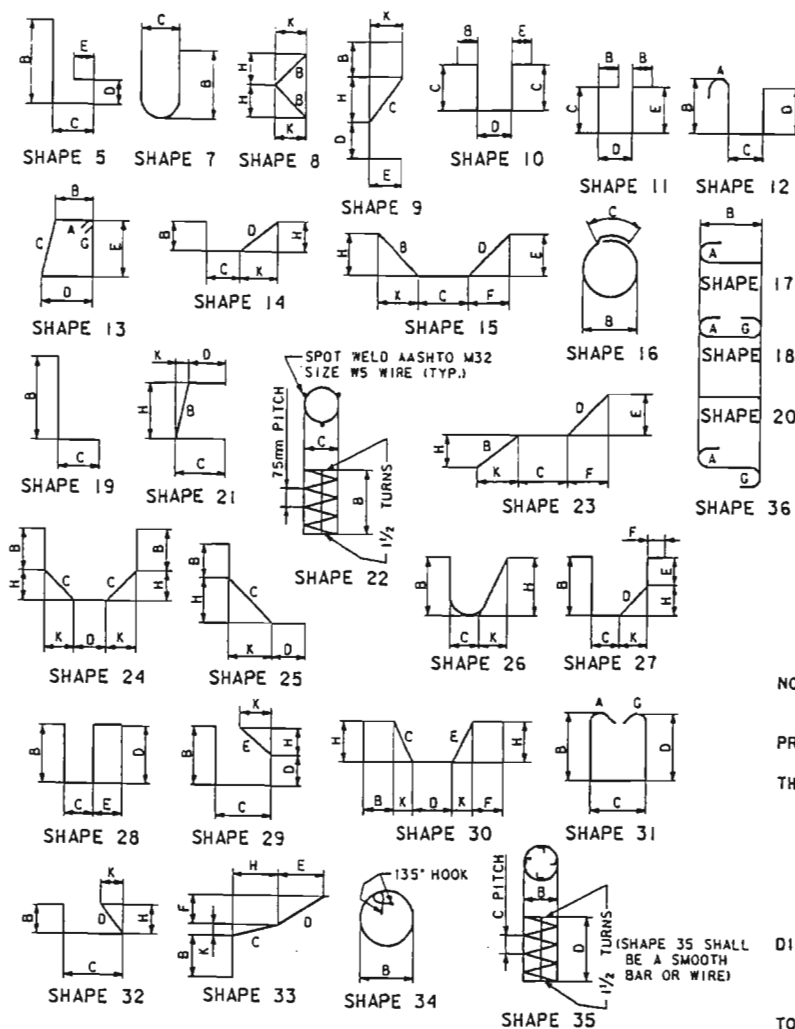
SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.



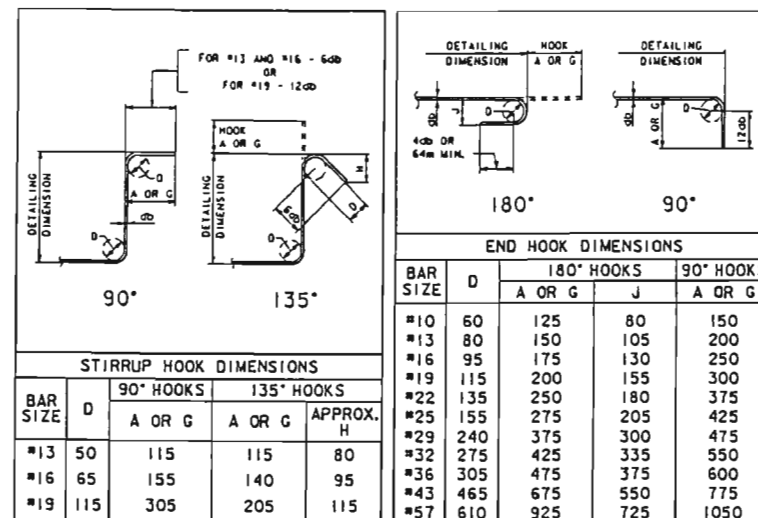
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



BENDING DIAGRAMS



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BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
	SIZE	MARK								B	C	D	E	F	H	K			

120

END BENT 5 (CONTINUED)

2	19	A30	WINGWALL	25						580	3485	790			1550	3120	4855	4830	22	
22	19	A31	WINGWALL	(SP)				V	2	2	SERIES OF 11 BARS (700 TO 2040)									67
4	19	A32	WINGWALL	20						2135							2135	2135	19	
10	19	A33	WINGWALL	(SP)				V	2	2	SERIES OF 5 BARS (1415 TO 3590)									56
4	19	A34	WINGWALL	20						3910							3910	3910	35	
8	19	A35	WINGWALL	E 20						3910							3910	3910	70	
5	19	A36	WINGWALL	9						360	1575	360			1075	1150	2295	2270	25	
2	19	A37	WINGWALL	25						580	3270	1060			1600	2850	4910	4885	22	
20	19	A38	WINGWALL	(SP)				V	2	2	SERIES OF 10 BARS (710 TO 2020)									61
4	19	A39	WINGWALL	20						2135							2135	2135	19	
5	19	A40	WINGWALL	9						360	1370	360			910	1025	2090	2065	23	
10	19	A41	WINGWALL	(SP)				V	2	2	SERIES OF 5 BARS (1615 TO 3615)									58
		A42	NOT USED																	
		A43	NOT USED																	
		A44	NOT USED																	
60	19	A45	SHR WALL	20						1735							1735	1735	233	
48	25	A46	SHR WALL	19						3480	275						3755	3690	704	
48	25	A47	SHR WALL	9						890	1385	275			980	980	2550	2520	481	
		A48	NOT USED																	
		A49	NOT USED																	
60	16	K1	BARRIER	E 19						735	130						865	825	77	
60	16	K2	BARRIER	E 14						130	280	460			50	455	870	830	77	
38	16	K3	WINGWALL	E 27						760	130	305	510		250	175	1705	1645	97	
22	16	K4	WINGWALL	E 7						760	150						1605	1580	54	
2	16	K5	WINGWALL	E 25						510	170	110			140	100	790	770	2	
2	16	K6	WINGWALL	E 25						510	200	110			165	115	820	800	2	
2	16	K7	WINGWALL	E 25						510	245	110			200	140	865	845	3	
2	16	K8	WINGWALL	E 25						510	285	110			235	165	905	885	3	
24	16	K9	BARRIER	E 20						1710							1710	1710	64	
20	13	K10	BARRIER	E 20						3510							3510	3510	70	
2	16	K11	BARRIER	E 14							665	665			115	655	1330	1330	4	

BILL OF REINFORCING STEEL																				
NO. REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP(S)	SUBSTR.(X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS	
	SIZE	MARK								B	C	D	E	F	H	K				
																				mm
61	END BENT 5																			
37	60	16	A1	END BENT	10	S					1615	1015				4245	4180	389		
5	36	13	A2	END BENT	13	S					1015	775	1015	775		3810	3730	133		
89	7	13	A3	END BENT	10	S						800	1015			2615	2565	18		
56	98	16	A4	END BENT	10	S						1290	1015			3595	3530	537		
130	24	16	A5	END BENT	20						1615					1615	1615	60		
89	130	19	A6	END BENT	E	SP		V	2	2 SERIES OF 65 BARS (2790 TO 3030)									846	
1	95	13	A7	END BENT	10	S					450	150				1050	1000	94		
	20	19	A8	END BENT	20						9300					9300	9300	416		
	4	19	A9	END BENT	14						9300	995			950	290	10295	10265	92	
			A10	NOT USED																
	1	13	A11	END BENT	20						7970						7970	7970	8	
			A12	NOT USED																
	20	19	A13	END BENT	20						9380						9380	9380	419	
	4	19	A14	END BENT	21						995	9300				950	290	10295	10215	91
	1	13	A15	END BENT	20						8050						8050	8050	8	
			A16	NOT USED																
			A17	NOT USED																
	20	19	A18	END BENT	20						1500						1500	1500	67	
	1	13	A19	END BENT	20						850						850	850	1	
	2	19	A20	CL. SLAB	17						1515						1715	1715	8	
			A21	NOT USED																
			THRU																	
			A29	NOT USED																

4	19	A8	END BENT	20			9300								9300	9300	83
4	19	A9	END BENT	14				9300	995				950	290	10295	10265	92
1	13	A10	END BENT	20			6200								6200	6200	6
1	13	A11	END BENT	20			7970								7970	7970	8
1	13	A12	END BENT	20			5200								5200	5200	5
4	19	A13	END BENT	20			9380								9380	9380	84
4	19	A14	END BENT	21			995	9300				950	290		10295	10215	91
1	13	A15	END BENT	20			8050								8050	8050	8
8	19	A16	END BENT	20			6100								6100	6100	109
8	19	A17	END BENT	20			5200								5200	5200	93
16	19	A18	END BENT	20			14210								14210	14210	508
16	19	A19	END BENT	20			13250								13250	13250	474
		A20	NOT USED														

BAR A6(E)

SPECIAL BENDING DIAGRAM

REVISED 03-15-01

SHEET 38 OF 40

BAR LIST - END BENT 5

DETAILED BY: CD
CHECKED BY: ROR

SYVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

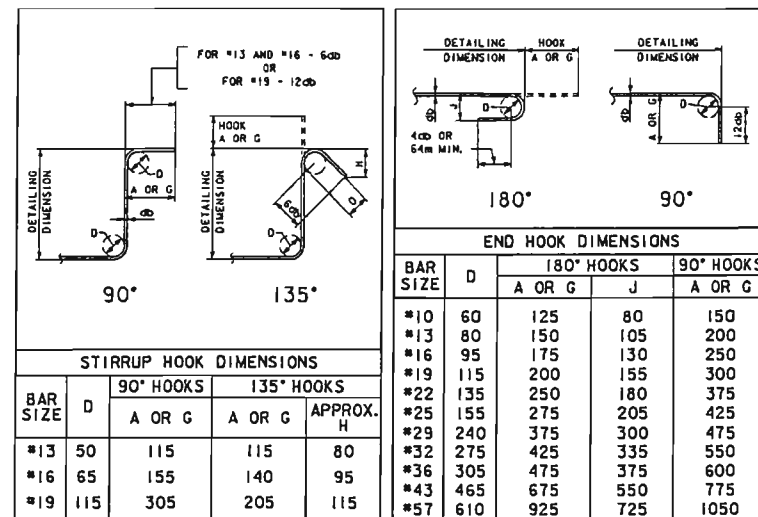
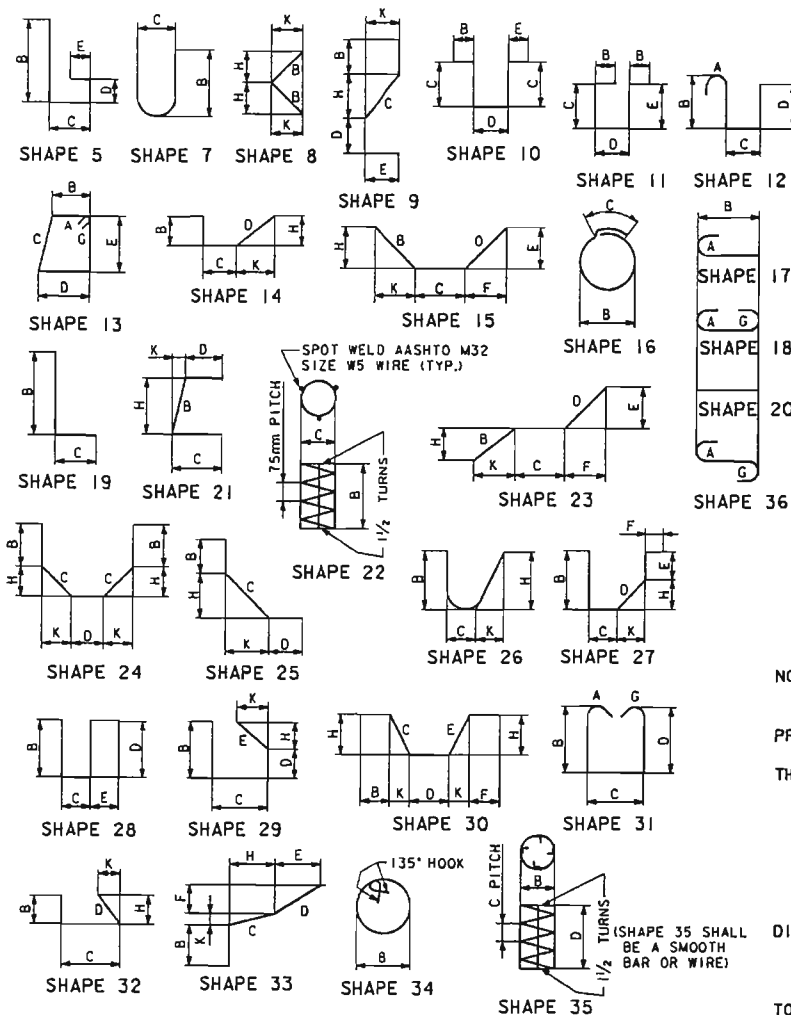


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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		



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BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP(S)	SUBSTR.(X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
	SIZE	MARK								B	C	D	E	F	H	K			
										mm	mm	mm	mm	mm	mm	mm			
SLAB (CONTINUED)																			
600	16	S30	SLAB	E 20					2100						2100	2100	1956		
10	19	S31	SLAB	E 20					10100						10100	10100	226		
10	19	S32	SLAB	E 20					800						800	800	18		
10	19	S33	SLAB	E 20					10790						10790	10790	241		
10	19	S34	SLAB	E 20					5630						5630	5630	126		
10	19	S35	SLAB	E 20					5000						5000	5000	112		

10	19	S30	NOT USED	E 20					15220					15220	340
10	19	S31	NOT USED	E 20					15220					15220	340
10	19	S32	NOT USED	E 20					15220					15220	340
10	19	S33	NOT USED	E 20					15220					15220	340
10	19	S34	NOT USED	E 20					15220					15220	340
10	19	S35	NOT USED	E 20					15220					15220	340

BENDING DIAGRAMS

BILL OF REINFORCING STEEL

BILL OF REINFORCING STEEL																			
NO. REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP(S)	SUBSTR.(X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
	SIZE	MARK								B	C	D	E	F	H	K			
SLAB																			
1755	16	S1	SLAB	E 20					10620						10620	10620	28926		
504	19	S2	SLAB	E 20					8240						8240	8240	9282		
584	19	S3	SLAB	E 20					9650						9650	9650	12596		
584	16	S4	SLAB	E 20					9650						9650	9650	8746		
19	19	S5	SLAB	E SP			V	1	1	SERIES	OF 19 BARS (920	TO 9650)					224		
19	16	S6	SLAB	E SP			V	1	1	SERIES	OF 19 BARS (920	TO 9650)					156		
18	19	S7	SLAB	E SP			V	1	1	SERIES	OF 18 BARS (950	TO 9290)					206		
18	16	S8	SLAB	E SP			V	1	1	SERIES	OF 18 BARS (950	TO 9290)					143		
194	16	S9	SLAB	E 20					800						800	800	241		
2	19	S10	SLAB	E 20					810						810	810	4		
584	19	S11	SLAB	E 20					10350						10350	10350	13509		
584	16	S12	SLAB	E 20					10330						10330	10330	9363		
18	19	S13	SLAB	E SP			V	1	1	SERIES	OF 18 BARS (1560	TO 9900)					231		
18	16	S14	SLAB	E SP			V	1	1	SERIES	OF 18 BARS (1540	TO 9880)					160		
19	19	S15	SLAB	E SP			V	1	1	SERIES	OF 19 BARS (1000	TO 9675)					227		
19	16	S16	SLAB	E SP			V	1	1	SERIES	OF 19 BARS (1000	TO 9675)					157		
593	19	S17	SLAB	E 20					5430						5430	5430	7197		
593	16	S18	SLAB	E 20					5410						5410	5410	4979		
9	19	S19	SLAB	E SP			V	1	1	SERIES	OF 9 BARS (1510	TO 5430)					70		
9	16	S20	SLAB	E SP			V	1	1	SERIES	OF 9 BARS (1490	TO 5460)					49		
10	19	S21	SLAB	E SP			V	1	1	SERIES	OF 10 BARS (600	TO 4750)					60		
10	16	S22	SLAB	E SP			V	1	1	SERIES	OF 10 BARS (600	TO 4750)					42		
594	19	S23	SLAB	E 20					4820						4820	4820	6399		
594	16	S24	SLAB	E 20					4820						4820	4820	4444		
9	19	S25	SLAB	E SP			V	1	1	SERIES	OF 9 BARS (790	TO 4680)					55		
9	16	S26	SLAB	E SP			V	1	1	SERIES	OF 9 BARS (790	TO 4680)					38		
9	19	S27	SLAB	E SP			V	1	1	SERIES	OF 9 BARS (680	TO 4560)					53		
9	16	S28	SLAB	E SP			V	1	1	SERIES	OF 9 BARS (680	TO 4560)					37		
600	19	S29	SLAB	E 20					2100						2100	2100	2816		

1692	16	S1	SLAB	E 20					10800					10800	10800	28361
480	19	S2	SLAB	E 20					8240					8240	8240	8840
575	19	S3	SLAB	E 20					14550					14550	14550	18699
1178	16	S4	SLAB	E 20					7785					7785	7785	14233
56	19	S5	SLAB	E 20			V 2	2	2 SERIES OF 28 BARS (970 TO 14215)							950
28	16	S6	SLAB	E 20			V 2	2	2 SERIES OF 14 BARS (970 TO 7345)							181
28	16	S7	SLAB	E 20			V 2	2	2 SERIES OF 14 BARS (1075 TO 7450)							185
188	16	S8	NOT USED													
188	16	S9	SLAB	E 20					800					800	800	233
188	16	S10	NOT USED													
575	19	S11	SLAB	E 20					14550					14550	14550	18699
1178	16	S12	SLAB	E 20					7785					7785	7785	14233
56	19	S13	SLAB	E 20			V 2	2	2 SERIES OF 28 BARS (970 TO 14215)							950
28	16	S14	SLAB	E 20			V 2	2	2 SERIES OF 14 BARS (970 TO 7345)							181
28	16	S15	SLAB	E 20			V 2	2	2 SERIES OF 14 BARS (1075 TO 7450)							185
188	16	S16	NOT USED													
188	16	S17	NOT USED													
188	16	S18	NOT USED													
188	16	S19	NOT USED													
188	16	S20	NOT USED													
188	16	S21	NOT USED													
188	16	S22	NOT USED													
188	16	S23	NOT USED													
188	16	S24	NOT USED													
188	16	S25	NOT USED													
188	16	S26	NOT USED													
188	16	S27	NOT USED													
188	16	S28	NOT USED													
188	16	S29	NOT USED													

DETAILED BY: CD
CHECKED BY: RDR

SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MO.

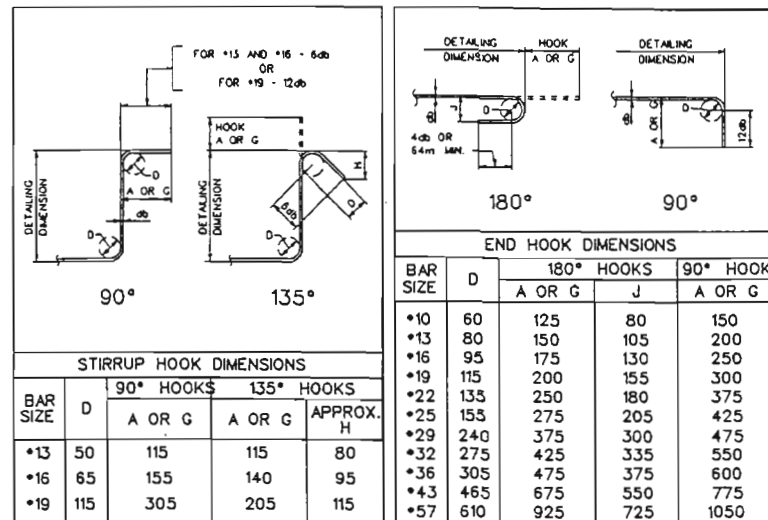
SHEET REVISED 03-15-01

SHEET 39 OF 40



BAR LIST - SLAB

A09601



BENDING DIAGRAMS

[illegible][illegible][illegible]

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

ROUTE 100	STATE MO	DISTRICT 6	SHEET NO. 1
JOB NO. J6U1032			
CONTRACT 990423-605			
PROJECT NO. FAF-100-1(21)			
COUNTY ST. LOUIS			DATE

ROUTE 100 OVER I-270 MANCHESTER ROAD

ST. LOUIS CO. MO.

MISSOURI BRIDGE NO. A09601 (ROUTE 100 OVER I-270)

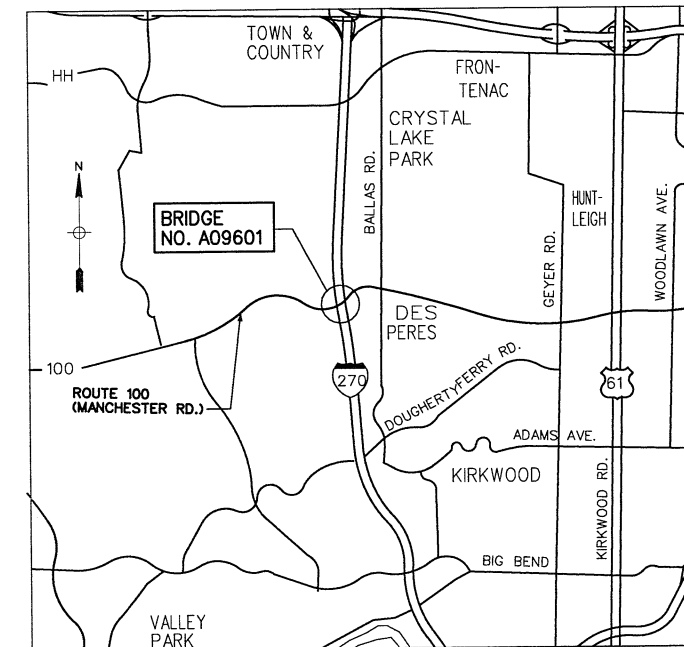
JOB NO. J6U0132

FINAL PLANS
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE *Karen D. Veomans* DATE 3-27-05
STATE OF MISSOURI
KAREN D. VEOMANS
REGISTERED PROFESSIONAL ENGINEER
E-29693



VICINITY MAP



LOCATION MAP

PREPARED BY :
SVERDRUP CIVIL, INC.
MARYLAND HEIGHTS, MISSOURI

DETAILED: JOS
CHECKED: X

STATE	PROJ. NO.	SHEET NO.
MO.	FAF-100-1(21)	2

COUNTY ST. LOUIS

3 27-05

SIGNATURE _____ DATE _____

STATE OF MISSOURI
KAREN D. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-29693

INDICATES
LOCATION
OF BORING

5-15.4 LT.

—BORING NO.

OFFSET IN METERS
LEFT OR RIGHT
OF C ROUTE 100

BENT NO.

ALL DIMENSIONS ARE IN MILLIMETERS(mm)
EXCEPT AS NOTED.
ALL ELEVATIONS ARE IN METERS.
ALL STATIONS ARE IN KILOMETERS.
EXP. INDICATES EXPANSION BEARINGS.
FOR BORING LOGS AND NOTES, SEE SHEET 4.
TEMPORARY SHORING FOR STAGED CONSTRUCTION IS
REQUIRED, SEE SHEETS 7 AND 8.

COUNTY

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032 SHEET NO. 3
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

TABLE OF FINAL QUANTITIES

ITEM DESCRIPTION	UNIT	SUBSTRUCTURE	SUPERSTRUCTURE	TOTAL
REMOVAL AND STORAGE OF EXISTING BRIDGE RAIL - METRIC	METER	---	173	173
REMOVAL OF EXISTING BRIDGE DECK - METRIC	SQ. METER	---	2460	2460
REMOVAL OF EXISTING STRUCTURAL STEEL	LUMP SUM	---	1	1
REMOVAL OF EXISTING SUBSTRUCTURE (BRIDGE)	LUMP SUM	1	---	1
REMOVAL OF EXISTING APPROACH SLAB (BRIDGE)	LUMP SUM	1	---	1
CLASS 1 EXCAVATION - METRIC	CU. METER	116	---	116
BRIDGE APPROACH SLAB (BRIDGE) - METRIC	SQ. METER	468	---	468
PILES - END BENTS ONLY - METRIC	METER	159	---	159
CLASS B CONCRETE (SUBSTR.) - METRIC	CU. METER	74	---	74
CLASS B2 CONCRETE (SUPERSTR.) - METRIC	SQ. METER	---	0	0
SLAB ON STEEL - METRIC	SQ. METER	---	2654	2654
* SAFETY BARRIER CURB - METRIC	METER	---	195.5	195.5
MEDIAN BARRIER CURB - METRIC	METER	---	106.5	106.5
RAISED MEDIAN BARRIER - METRIC	SQ. METER	---	130	130
TYPE N PTFE BEARINGS (SPECIAL)	EACH	---	36	36
THREADED REBAR COUPLER	EACH	203	1202	1405
FABRICATED STRUCTURAL CARBON STEEL (I-BEAM) - METRIC	KILOGRAM	---	132020	132020
SLAB DRAIN	EACH	---	24	24
SLAB DRAIN WITH GRATE	EACH	---	13	13
VERTICAL DRAIN AT END BENTS	EACH	---	2	2
SHEAR CONNECTORS - FIELD INSTALLED	EACH	---	6720	6720
SURFACE PREPARATION FOR RECOATING STRUCTURAL STEEL - METRIC	SQ. METER	---	3100	3100
FIELD APPLICATION OF INORGANIC ZINC PRIMER - METRIC	SQ. METER	---	3100	3100
INTERMEDIATE FIELD COAT (SYSTEM G) GRAY - METRIC	SQ. METER	---	4120	4120
FINISH FIELD COAT (SYSTEM G) GRAY - METRIC	SQ. METER	---	631	631
TRANSPORTING LEAD CONTAMINATED RESIDUE TO STORAGE AREA	LUMP SUM	---	1	1
TRANSPORTING LEAD CONTAMINATED RESIDUE TO SMELTER	LUMP SUM	---	1	1
DISPOSAL OF LEAD CONTAMINATED RESIDUE	LUMP SUM	---	1	1
MODIFICATIONS TO EXISTING BENTS	LUMP SUM	1	---	1
TEMPORARY SHORING	LUMP SUM	1	---	1
NON - DESTRUCTIVE TESTING - METRIC	METER	---	55.1	55.1
MISC. COSTS ADDITIONAL APPROACH SLAB STEEL	LUMP SUM	1	---	1

FINAL QUANTITIES FOR SLAB ON STEEL			
REINFORCING STEEL (PLAIN)	KILOGRAM	8337	
REINFORCING STEEL (EPOXY COATED)	KILOGRAM	115 827	
CONCRETE	CU. METER	725	

INDEX OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. FINAL QUANTITIES AND INDEX OF DRAWINGS
3. GENERAL NOTES
4. LOG OF BORINGS
5. CONSTRUCTION PHASING
6. CONSTRUCTION PHASING
7. EXISTING END BENT 1 DEMOLITION
8. EXISTING END BENT 5 DEMOLITION
9. END BENT 1
10. END BENT 5
11. END BENT DETAILS
12. END BENT DETAILS
13. END BENT DETAILS
14. END BENT DETAILS
15. BENTS 2, 3 AND 4 CAP RETROFIT
16. FRAMING PLAN - SPANS 1 THRU 4
17. BEAM ELEVATIONS - SPANS 1 THRU 4
18. STEEL DETAILS
19. STEEL DETAILS
20. STEEL DETAILS
21. STEEL DETAILS
22. STEEL DETAILS
23. SLAB ELEVATIONS, BEAM LAYOUT AND DEFLECTIONS
24. SLAB PLAN - SPANS 1 THRU 4
25. SLAB PLAN - SPANS 1 THRU 4
26. SLAB DETAILS
27. SLAB POURING SEQUENCE
28. BARRIER CURBS
29. MEDIAN BARRIER CURB AND RAISED MEDIAN
30. BEARING DETAILS AT BENTS 2 AND 4
31. BEARING DETAILS AT BENTS 2 AND 4
32. BEARING DETAILS AT BENT 3
33. BEARING DETAILS AT BENT 3
34. SLAB DRAINS
35. BRIDGE APPROACH SLAB
36. BRIDGE APPROACH SLAB
37. BAR LIST - END BENT 1
38. BAR LIST - END BENT 5
39. BAR LIST - SLAB
40. BAR LIST - BARRIER CURB, RAISED MEDIAN, BENT CAP RETROFIT AND APPROACH SLAB

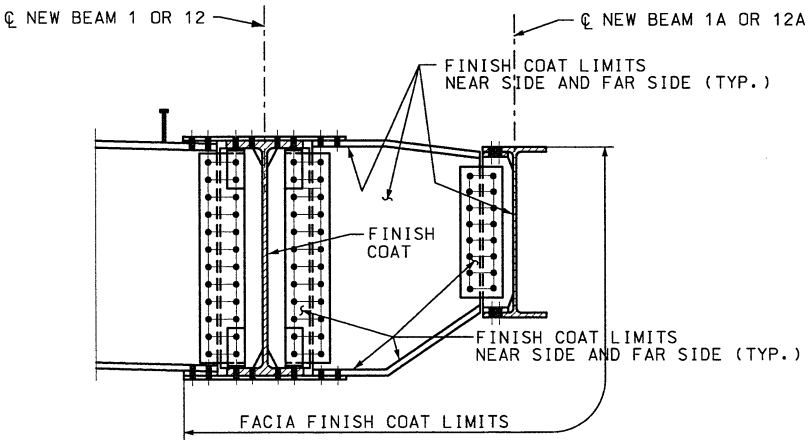
ABBREVIATIONS:

N.F. INDICATES NEAR FACE.
F.F. INDICATES FAR FACE.
E.F. INDICATES EACH FACE.
PR. INDICATES PAIR.
TYP. INDICATES TYPICAL.
CL. INDICATES CLEAR

FINAL PLANS

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION, AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE *Karen D. Yeomans* DATE 3-27-05
STATE OF MISSOURI
KAREN D. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-296693



FINISH FIELD COAT DETAIL



FINAL QUANTITIES AND
INDEX OF DRAWINGS

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032 SHEET NO. 4
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 1996 EDITION (METRIC), OR LATEST REVISION THEREOF, AND SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS:

IN ACCORDANCE WITH DIVISION I AND I-A OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SIXTEENTH EDITION, 1996, INCLUDING THE 1997 INTERIM SPECIFICATIONS AS MODIFIED AND INTERPRETED BY THE MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION'S BRIDGE MANUAL OF DESIGN SECTION, 1988 EDITION WITH ADDENDA THRU MARCH 1998.
LOAD FACTOR DESIGN METHOD - ALL BRIDGE COMPONENTS EXCEPT PILING AND LONGITUDINAL GIRDERS WHICH ARE DESIGNED BY SERVICE LOAD METHOD.
SEISMIC DESIGN - SEISMIC PERFORMANCE CATEGORY C
ACCELERATION COEFFICIENT = 0.11

DESIGN LOADING:

LIVE LOAD: MS18

REINFORCED CONCRETE WEIGHT - 2480 kg/m³
EARTH - 1900 kg/m³, EQUIVALENT FLUID PRESSURE 7.0 kPa/m³, $\phi = 27^\circ$
FATIGUE STRESS - CASE 1

FOUNDATION DESIGN CAPACITIES:

FOR COMBINATION LOADING CASES AS SPECIFIED IN AASHTO 3.22 THE FOLLOWING ALLOWABLE AXIAL CAPACITIES APPLY. INCREASES ARE PERMITTED FOR COMBINATION LOADING CASES AS SPECIFIED IN AASHTO 3.22.

STEEL PILES -
COMPRESSION - 62 MPa ON THE CROSS SECTIONAL AREA OF THE PILE
TENSION - 0 MPa ON THE CROSS SECTIONAL AREA OF THE PILE

DESIGN UNIT STRESSES:

CONCRETE (CLASS B) - $f_c = 8.3$ MPa
 $f'_c = 21$ MPa
CONCRETE (CLASS B-1) - $f_c = 11$ MPa
 $f'_c = 28$ MPa
CONCRETE (CLASS B-2) - $f_c = 11$ MPa
 $f'_c = 28$ MPa
REINFORCING STEEL (GRADE 420) -
 $f_s = 168$ MPa
 $f_y = 420$ MPa
STRUCTURAL STEEL (ASTM A709M) -
GRADE 250 - $f_s = 138$ MPa
 $f_y = 250$ MPa

CONCRETE:

ALL CONCRETE FOR SUBSTRUCTURE SHALL BE CLASS B.
ALL CONCRETE FOR RAISED MEDIAN, SAFETY BARRIERS AND MEDIAN BARRIERS SHALL BE CLASS B-1.
ALL CONCRETE FOR BRIDGE DECK SHALL BE CLASS B-2.
ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 20 mm UNLESS OTHERWISE NOTED.

REINFORCEMENT:

ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 420 SEE SPECIAL PROVISIONS.
ALL DIMENSIONS TO REINFORCING STEEL ON DETAIL DRAWINGS ARE TO THE CENTERLINE OF BAR EXCEPT WHERE CLEAR DISTANCE IS NOTED FROM THE FACE OF CONCRETE.
ALL REINFORCING STEEL SHALL BE LAPPED IN ACCORDANCE WITH AASHTO 8.32, UNLESS OTHERWISE NOTED.
MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 40 mm UNLESS OTHERWISE NOTED.

CONSTRUCTION JOINTS:

CONSTRUCTION JOINTS SHALL BE MADE ONLY AT LOCATIONS SHOWN ON THE PLANS, EXCEPT WITH THE APPROVAL OF THE ENGINEER.

JOINT FILLER AND PLASTIC WATERSTOPS

ALL JOINT FILLER SHALL MEET THE REQUIREMENTS OF SECTION 1057.2.4 OF THE MISSOURI STANDARD SPECIFICATIONS (METRIC), EXCEPT AS SHOWN.
PLASTIC WATERSTOPS SHALL MEET THE REQUIREMENTS OF SECTION 1057.2.1 OF THE MISSOURI STANDARD SPECIFICATIONS (METRIC).

ANCHOR BOLTS:

ANCHOR BOLTS SHALL BE PLACED IN ACCORDANCE WITH SECTION 712.6 OF THE MISSOURI STANDARD SPECIFICATIONS (METRIC).

STRUCTURAL STEEL:

ALL STEEL SHAPES AND PLATES SHALL BE ASTM A709M GRADE 250, EXCEPT AS NOTED.

NOTCH TOUGHNESS:

NTR INDICATES STRUCTURAL STEEL MEMBERS AND PLATES SUBJECT TO NOTCH TOUGHNESS REQUIREMENTS. SEE SPECIAL PROVISIONS. MEMBERS FOR WHICH NOTCH TOUGHNESS REQUIREMENTS ARE MANDATORY ARE NOTED ON THE PLANS.

WELDING:

ALL WELDING SHALL CONFORM TO ANSI/AASHTO/AWS D1.5-95 BRIDGE WELDING CODE AND AS SUPPLEMENTED BY THE MISSOURI STANDARD SPECIFICATIONS (METRIC) AND THE SPECIAL PROVISIONS.

HIGH STRENGTH BOLTS:

HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE SAMPLED FOR QUALITY ASSURANCE AS SPECIFIED IN SECTION 106 OF THE MISSOURI STANDARD SPECIFICATIONS (METRIC) AND FIELD SECTION (FS-712) FROM MATERIALS MANUAL. * INDICATES A SHOP OR FIELD CONNECTOR.
ALL CONNECTORS SHALL BE HIGH STRENGTH BOLTS UNLESS NOTED.
FIELD CONNECTIONS SHALL BE MADE WITH 19.0 mm DIAMETER HIGH STRENGTH BOLTS IN 20.6 mm DIAMETER HOLES, EXCEPT AS NOTED.
HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325, TYPE 1.
HIGH STRENGTH BOLTS SHALL NOT BE REUSED AFTER TORQUING.
ALL HIGH STRENGTH BOLTED CONNECTIONS SHALL BE CLASS B SLIP CRITICAL USING CLASS B COATINGS BETWEEN THE CONTACT SURFACES. SEE SECTION 712.8 OF THE STANDARD SPECIFICATIONS FOR CLASS B COATINGS.

THE PREFERRED MIN. SPACING OF FASTENERS IN STANDARD HOLES IS:

BOLT DIAMETER (mm)	PREFERRED SPACING (mm)
15.9	55
19.0	65
22.2	75
25.4	90

NOMINAL HOLE DIMENSIONS ARE:

BOLT DIAMETER (mm)	STANDARD HOLE DIAMETER (mm)	OVERSIZE HOLE DIAMETER (mm)	SHORT SLOT (WxL) (mm)	LONG SLOT (WxL) (mm)
15.9	17.5	20.6	17.5x22.2	17.5x39.7
19.0	20.6	23.8	20.6x25.4	20.6x47.6
22.2	23.8	27.0	23.8x28.6	23.8x55.6
25.4	27.0	31.8	27.0x33.3	27.0x63.5

MINIMUM EDGE DISTANCE OF FASTENERS IN STANDARD HOLES IS:

BOLT DIAMETER (mm)	SHEARED OR THERMALLY CUT EDGES (mm)	ROLLED OR PLANED EDGES, EXCEPT IN FLANGES OF BEAMS AND CHANNELS (mm)	FLANGES OF BEAMS AND CHANNELS (mm)
15.9	29	25	22
19.0	32	29	25
22.2	38	32	29
25.4	44	38	32

COATING:

THE STRUCTURAL STEEL SHALL BE COATED WITH SYSTEM G BY THE CONTRACTOR, EXCEPT AS NOTED.

PRIME COAT:

AREAS OF EXISTING STRUCTURAL STEEL IN CONTACT WITH CONCRETE OR ENCASED IN CONCRETE SHALL RECEIVE A PRIME COAT AFTER CLEANING. THE COST OF PRIME COAT FOR SHOP FABRICATED STEEL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR FABRICATED STRUCTURAL STEEL. TINT OF THE PRIME COAT FOR FOR SYSTEM G SHALL BE SIMILAR TO THE COLOR OF THE FIELD COAT TO BE USED.

FIELD COAT:

THE COLOR OF THE FINISH COAT SHALL BE GRAY (FEDERAL STANDARD #26373). THE COST OF THE FIELD APPLIED PRIME COAT AND THE INTERMEDIATE AND FINISH COATS SHALL BE INCLUDED IN THE CONTRACT PRICE PER SQUARE METER FOR FIELD APPLICATION OF INORGANIC ZINC PRIMER, INTERMEDIATE FIELD COAT (SYSTEM G) GRAY - METRIC, AND FIELD COAT (SYSTEM G) GRAY - METRIC.

PAINT REMOVAL:

ALL EXISTING STRUCTURAL STEEL REMAINING IN PLACE SHALL BE CLEANED TO BARE STEEL IN PREPARATION FOR RECOATING. THE PAINT TO BE REMOVED IS A LEAD-BASED PAINT SYSTEM, AND SPECIAL MEASURES ARE REQUIRED FOR REMOVAL, CONTAINMENT AND DISPOSAL. SEE SPECIAL PROVISIONS. THE COST FOR PREPARING EXISTING STRUCTURAL STEEL FOR COATING SHALL BE INCLUDED IN THE CONTRACT PRICE PER SQUARE METER FOR STEEL PREPARATION FOR RECOATING STRUCTURAL STEEL.

CONSTRUCTION CLEARANCE:

A MINIMUM VERTICAL CLEARANCE OF 4496 mm OVER ALL LANES OF I-270 SHALL BE MAINTAINED DURING CONSTRUCTION.

PLAN DIMENSIONS:

ALL DIMENSIONS ARE IN MILLIMETERS (mm), EXCEPT AS NOTED.
ALL ELEVATIONS ARE IN METERS.
ALL STATIONS ARE IN KILOMETERS.
ALL LONGITUDINAL AND TRANSVERSE DIMENSIONS ARE MEASURED HORIZONTALLY, EXCEPT AS NOTED, AT A NORMAL TEMPERATURE OF 16°C.
PLAN DIMENSIONS AND DETAILS RELATIVE TO THE EXISTING STRUCTURE ARE TAKEN FROM THE EXISTING PLANS AND ARE SUBJECT TO NORMAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE THE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION AS A CHANGE IN THE SCOPE OF WORK.
NEW END BENTS ARE DESIGNED TO MOVE DUE TO THERMAL EXPANSION AND CONTRACTION. SUCH MOVEMENTS MAY EFFECT CERTAIN DIMENSIONS AND FORMWORK DURING PHASE CONSTRUCTION.

TRAFFIC CONTROL:

TRAFFIC CONTROL SHALL BE COORDINATED WITH THE PHASE CONSTRUCTION DETAILS SHOWN HEREIN AND WITH THE REQUIREMENTS SHOWN ON THE ROADWAY PLANS AND CONTAINED IN THE JOB SPECIAL PROVISIONS.

DEMOLITION:

SEE SPECIAL PROVISIONS.

CONCRETE SLOPE PROTECTION:

REMOVE EXISTING CONCRETE SLOPE PROTECTION AS REQUIRED FOR CONSTRUCTION OPERATIONS INCLUDING TEMPORARY GIRDER SUPPORTS FOR END BENT REPLACEMENT. PROVIDE EROSION CONTROL AS DIRECTED BY THE ENGINEER. THE COST FOR REMOVAL OF SLOPE PROTECTION AND EROSION CONTROL SHALL BE INCLUDED IN OTHER ITEMS OF WORK. THE ROADWAY CONTRACTOR WILL REMOVE THE REMAINING PORTIONS OF EXISTING CONCRETE SLOPE PROTECTION, DRESS THE SLOPE AND PLACE NEW SLOPE PROTECTION.

CENTERLINE REFERENCE:

℄ ROUTE 100, AS USED IN THESE PLANS, REFERS TO EXISTING ℄ ROUTE 100.

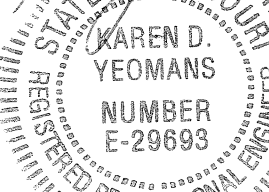
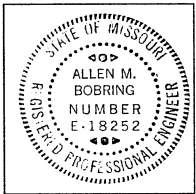
BRIDGE SLAB DESIGN AND CONSTRUCTION:

THE 220mm THICK CONCRETE SLAB INCLUDES A 25mm MONOLITHIC WEARING SURFACE. ONLY CAST-IN-PLACE CONSTRUCTION SHALL BE USED; NO OTHER OPTIONS PERMITTED.

FINAL PLANS

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE:  DATE: 3-27-05



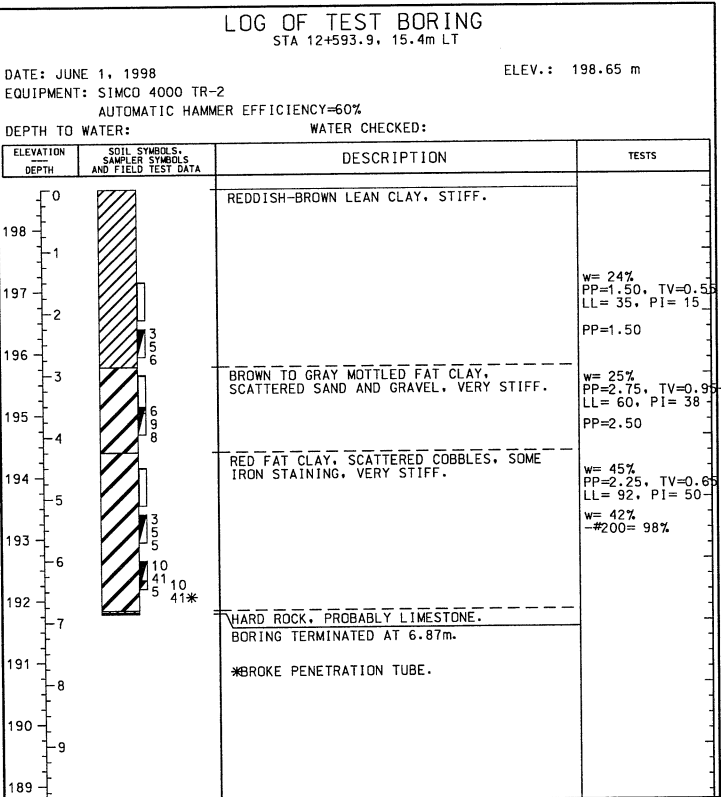
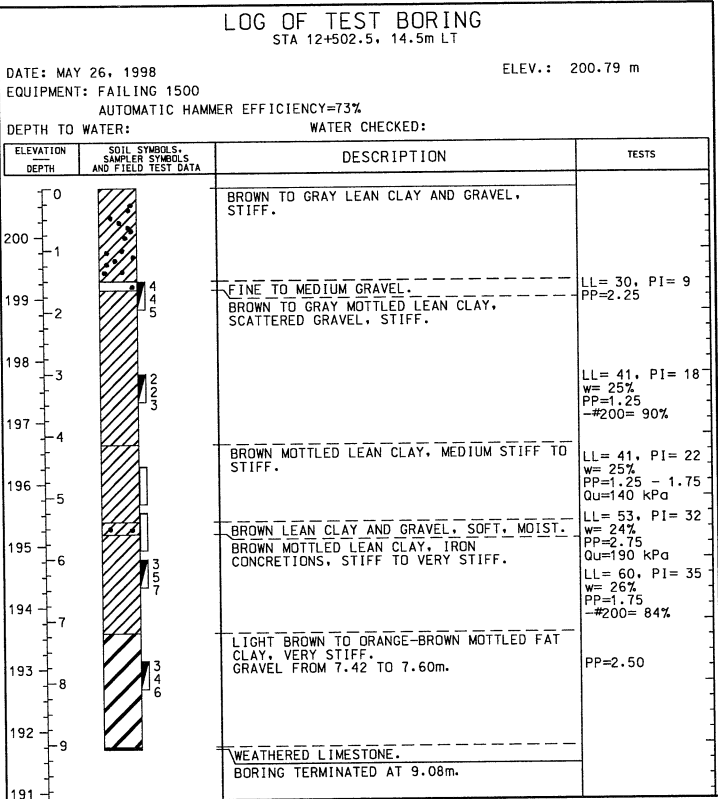
GENERAL NOTES

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

SHEET NO. 5



NOTICE AND DISCLAIMER REGARDING BORING LOG DATA

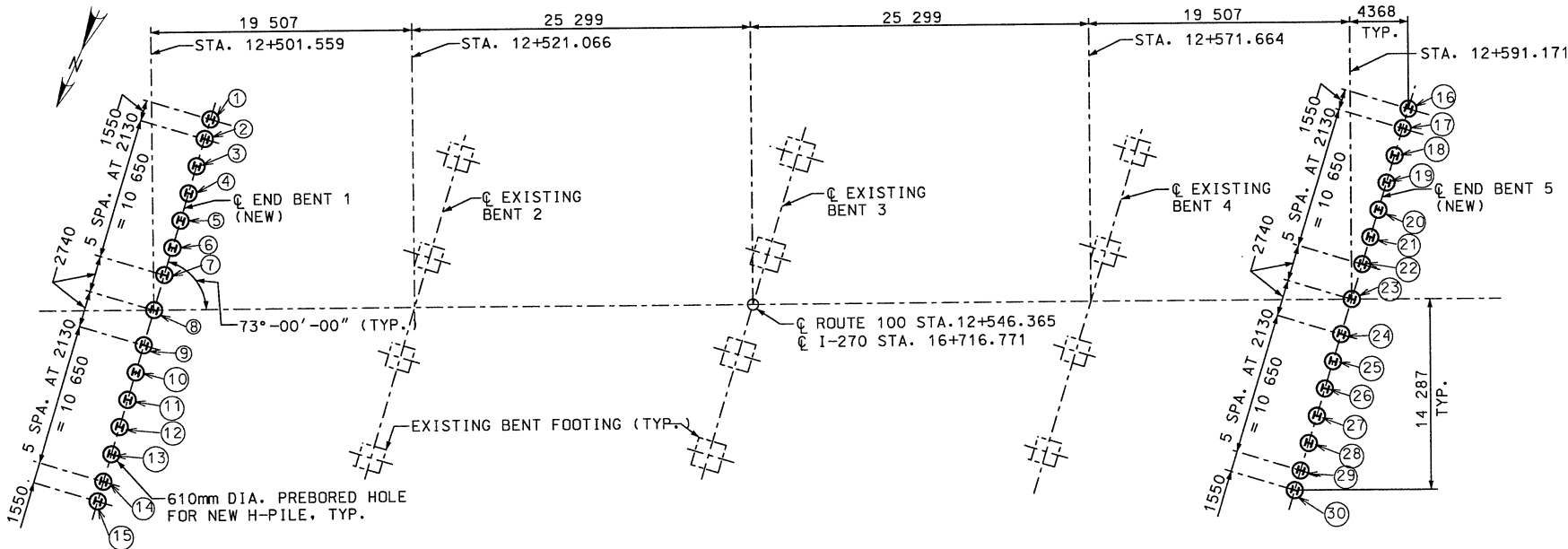
THE LOCATIONS OF ALL SUBSURFACE BORINGS FOR THIS STRUCTURE ARE SHOWN ON THE BRIDGE PLAN SHEET FOR THIS STRUCTURE. BORING DATA FOR THE NUMBERED LOCATIONS IS SHOWN ON THIS SHEET. THE BORING DATA FOR ALL LOCATIONS INDICATED, AS WELL AS ANY OTHER BORING LOGS OR OTHER FACTUAL RECORDS OF SUBSURFACE DATA AND INVESTIGATIONS PERFORMED BY THE DEPARTMENT FOR THE DESIGN OF THIS PROJECT IS AVAILABLE FROM THE PROJECT CONTACT UPON WRITTEN REQUEST AS OUTLINED IN THE PROJECT SPECIAL PROVISIONS. NO GREATER SIGNIFICANCE OR WEIGHT SHOULD BE GIVEN TO THE BORING DATA DEPICTED ON THE PLAN SHEET THAN TO SUBSURFACE DATA AVAILABLE FROM THE DISTRICT OR ELSEWHERE.

THE COMMISSION DOES NOT REPRESENT OR WARRANT THAT ANY SUCH BORING DATA ACCURATELY DEPICTS THE CONDITIONS TO BE ENCOUNTERED IN CONSTRUCTING THIS PROJECT. A CONTRACTOR ASSUMES ALL RISKS IT MAY ENCOUNTER IN BASING ITS BID PRICES, TIME OR SCHEDULE OF PERFORMANCE ON THE BORING DATA DEPICTED HERE OR THOSE AVAILABLE FROM THE DISTRICT, OR ON ANY OTHER DOCUMENTATION NOT EXPRESSLY WARRANTED, WHICH THE CONTRACTOR MAY OBTAIN FROM THE COMMISSION.

"AS BUILT PILE" DATA

Pile No.	Length in Place (m)	Computed Bearing (KN)	Remarks
1	6.5	ROR	End Bent No. 1
2	6.0	ROR	
3	6.0	ROR	
4	5.0	ROR	
5	6.0	ROR	
6	6.0	ROR	
7	5.0	ROR	
8	4.5	ROR	
9	5.5	ROR	
10	5.0	ROR	
11	5.0	ROR	
12	5.0	ROR	
13	5.5	ROR	
14	7.0	ROR	
15	6.0	ROR	
			End Bent No. 5
16	5.0	ROR	
17	4.5	ROR	
18	4.5	ROR	
19	6.5	ROR	
20	4.5	ROR	
21	4.5	ROR	
22	4.0	ROR	
23	4.0	ROR	
24	5.5	ROR	
25	4.0	ROR	
26	4.5	ROR	
27	4.5	ROR	
28	6.0	ROR	
29	6.5	ROR	
30	6.5	ROR	

159.0 LENGTH IN PLACE
159.0 FINAL TOTAL



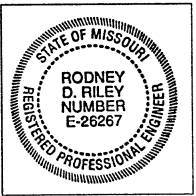
SUBSTRUCTURE LAYOUT

FINAL PLANS

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

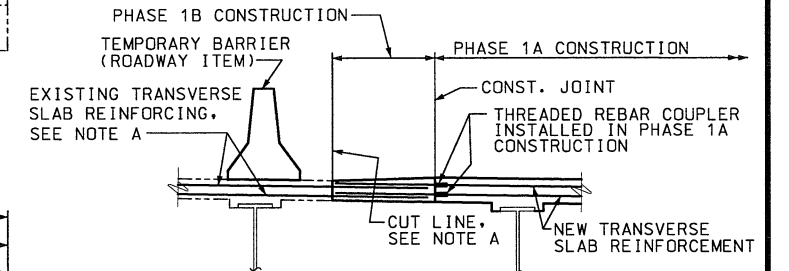
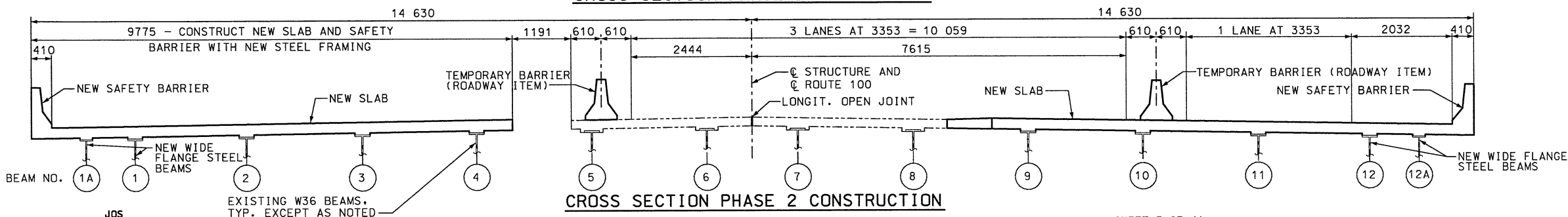
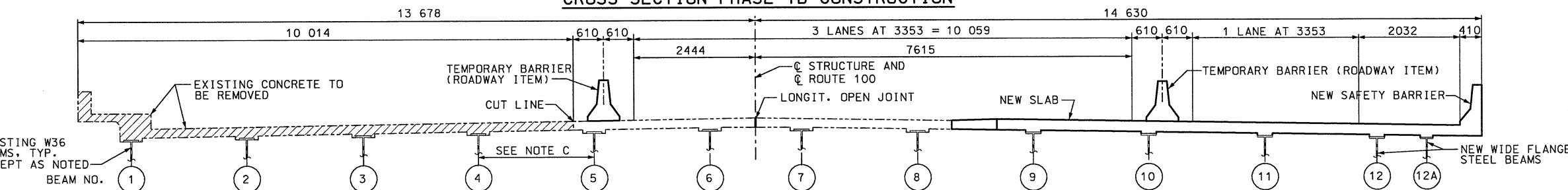
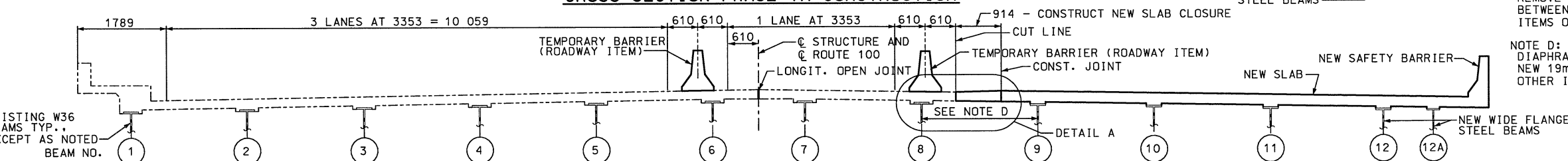
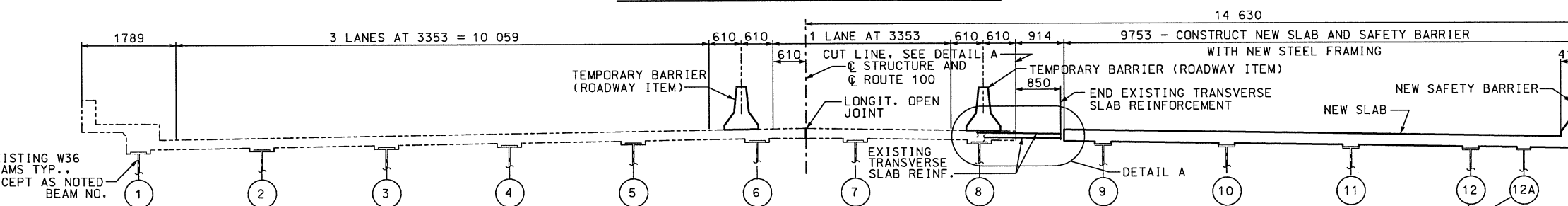
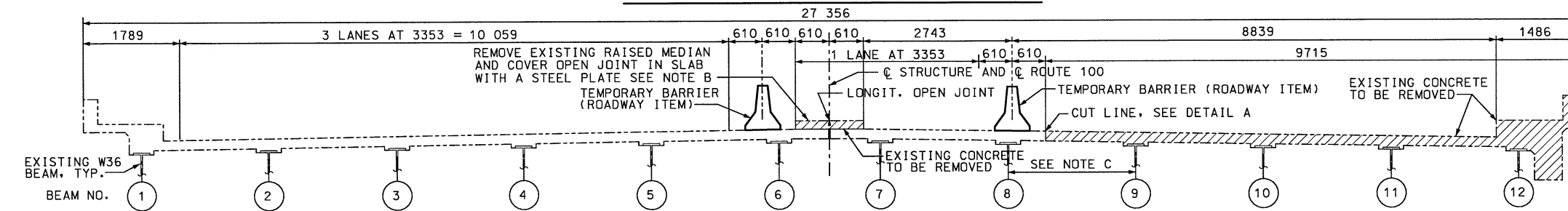
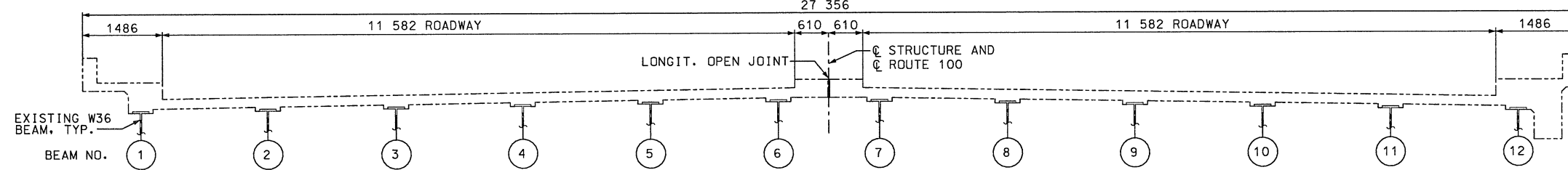
SIGNATURE: *Karen D. Yedmans* DATE: 3-27-05

LOG OF BORINGS



MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032 PROJECT NO. FAF-100-1(21) SHEET NO. 6
CONTRACT NO. 990423-605 COUNTY ST. LOUIS



NOTE A: THE EXISTING SLAB SHALL BE NEATLY SAW CUT ALONG THE CUT LINE TO SUCH A DEPTH AS WILL CLEAR THE EXISTING #6 TOP AND BOTTOM TRANSVERSE SLAB REINFORCEMENT. THE EXISTING #6 TOP AND BOTTOM TRANSVERSE SLAB REINFORCEMENT SHALL BE CLEANLY STRIPPED OF CONCRETE AND STRAIGHTENED FOR A LENGTH OF 850mm BEYOND THE CUT LINE FOR INCORPORATION INTO PHASE 1B CONSTRUCTION. EXISTING #6 BOTTOM TRANSVERSE REINFORCING BARS MAY BE BENT PARALLEL TO BOTTOM OF CLOSURE SLAB.

NOTE B: REMOVE EXISTING RAISED MEDIAN AND COVER OPEN JOINT IN SLAB WITH A 25mmx1828mm STEEL PLATE OVER THE LENGTH OF THE BRIDGE. STEEL PLATE SHALL CONFORM TO ASTM A709M, GRADE 250 AND THE EDGES OF PLATE SHALL BE LOCATED AT APPROXIMATELY THE CENTERLINES OF BEAMS 6 AND 7. TRAFFIC SURFACE OF STEEL PLATE SHALL BE COATED WITH A 6mm EPOXY POLYMER OVERLAY WITH A SKID-RESISTANT SURFACE. SECTIONS OF STEEL PLATE MAY BE WELDED TOGETHER WITH STEEL BANDS OR SECURED TO THE DECK BY BOLTING. A 12mm TO 25mm BITUMINOUS LEVELING COURSE SHALL BE PLACED UNDER THE STEEL PLATE. STEEL PLATE SHALL BE EMBEDDED IN BITUMINOUS PAVING MATERIAL AND THE PAVING MATERIAL SHALL BE FEATHERED OUT TO FORM AN EVEN RIDING SURFACE. CONTRACTOR SHALL PROVIDE A MEANS, APPROVED BY THE ENGINEER, TO PREVENT BITUMINOUS MATERIAL FROM FALLING THROUGH THE EXISTING OPEN JOINT.

NOTE C: PRIOR TO FORMING AND INSTALLING NEW DECK, REMOVE BOLTS CONNECTING ALL INTERMEDIATE DIAPHRAGMS BETWEEN SUPPORTS. PAYMENT SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

NOTE D: PRIOR TO ALLOWING TRAFFIC ON NEW DECK ABOVE DIAPHRAGMS, RECONNECT DIAPHRAGMS TO GIRDERS USING NEW 19mm H.S. BOLTS. PAYMENT SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

FINAL PLANS
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED. THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT, I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

KAREND. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-29693

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
ALLEN M. BOHRING
NUMBER E-18252

CONSTRUCTION PHASING

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

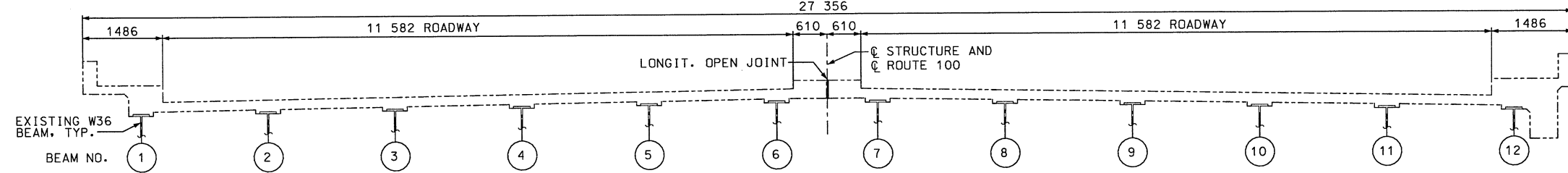
JOB NO. J6U1032

SHEET NO. 7

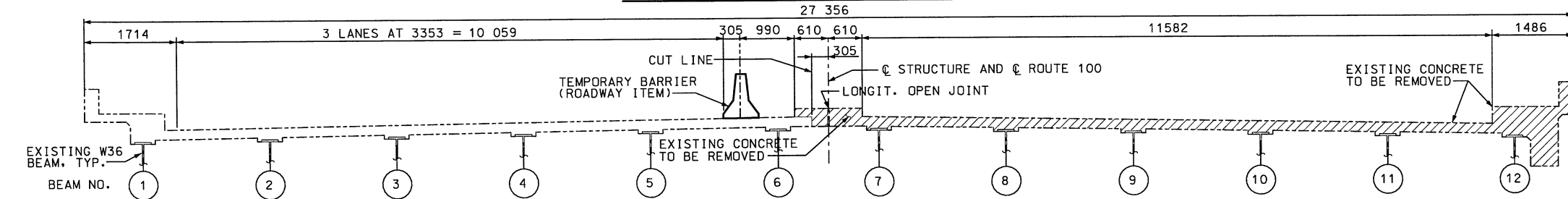
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PROJECT NO. FAF-100-1(21)

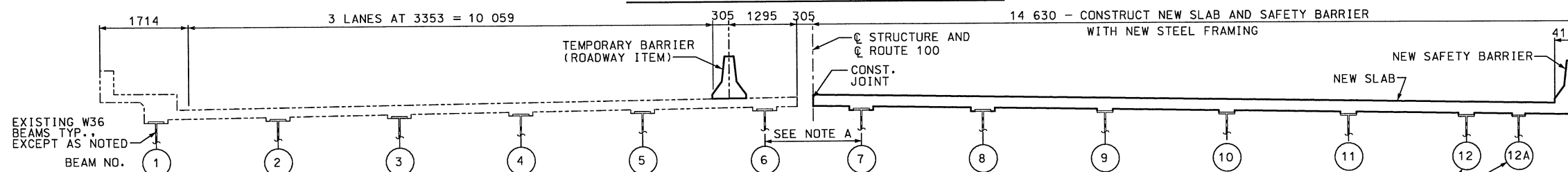
COUNTY ST. LOUIS



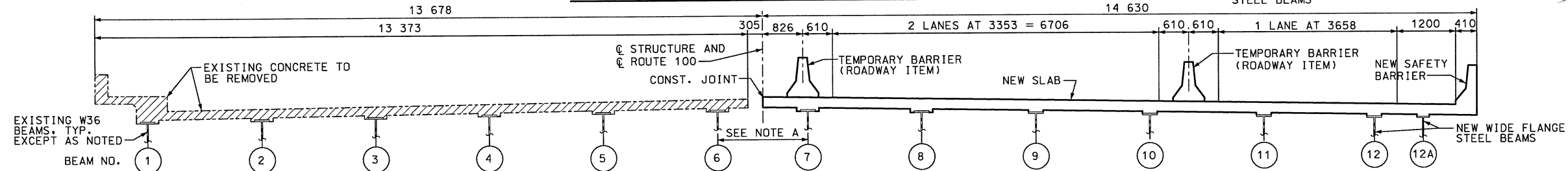
CROSS SECTION THRU EXISTING BRIDGE



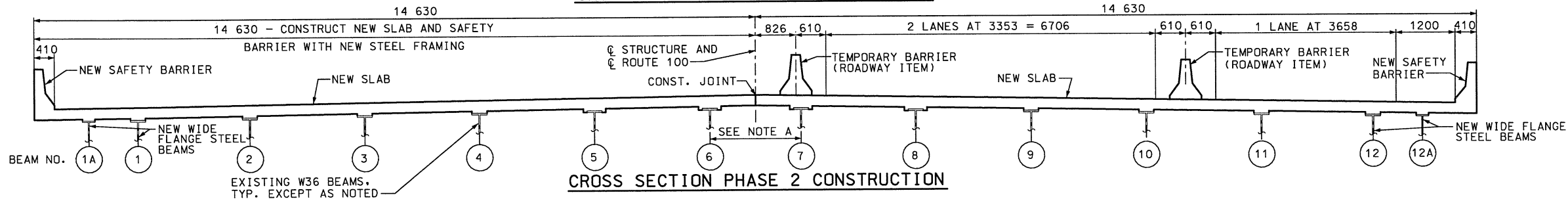
CROSS SECTION PHASE 1 DEMOLITION



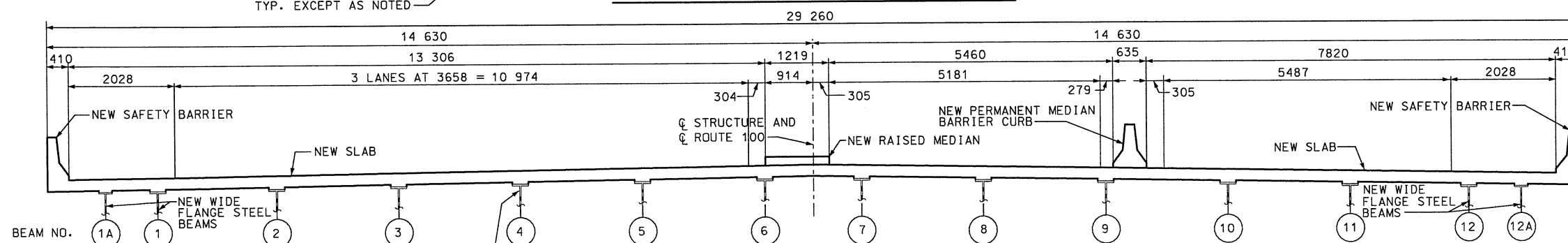
CROSS SECTION PHASE 1 CONSTRUCTION



CROSS SECTION PHASE 2 DEMOLITION



CROSS SECTION PHASE 2 CONSTRUCTION



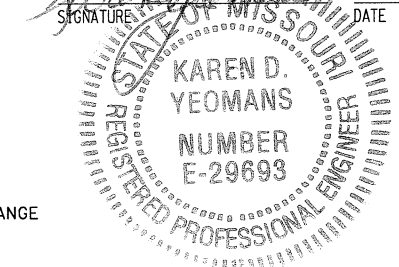
CROSS SECTION THRU FINAL DECK STRUCTURE

NOTE A: IF NEW DIAPHRAGMS BETWEEN BEAMS 6 AND 7 ARE INSTALLED PRIOR TO COMPLETION OF PHASE 2 DECK, THE FOLLOWING PROCEDURE SHALL BE FOLLOWED. INSTALL AND TIGHTEN ALL BOLTS CONNECTING THE DIAPHRAGMS TO BEAM 7. DO NOT INSTALL THE BOLTS CONNECTING THE DIAPHRAGMS TO BEAM 6 UNTIL AFTER PHASE 2 DECK IS COMPLETED. THE DIAPHRAGMS SHALL BE FULLY CONNECTED TO BOTH BEAMS PRIOR TO ALLOWING TRAFFIC ON THE NEW DECK ABOVE THE DIAPHRAGMS.

FINAL PLANS

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SIGNATURE: *Karen D. Yeomans* DATE: 3-27-05



CONSTRUCTION PHASING

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

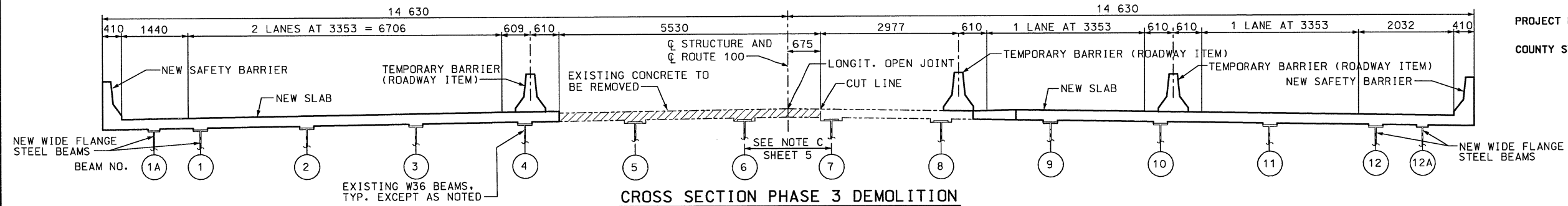
JOB NO. J6U1032

SHEET NO. 8

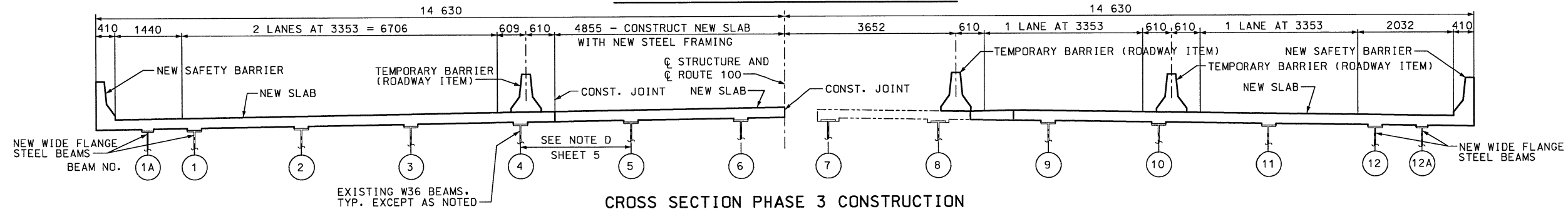
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PROJECT NO. FAF-100-1(21)

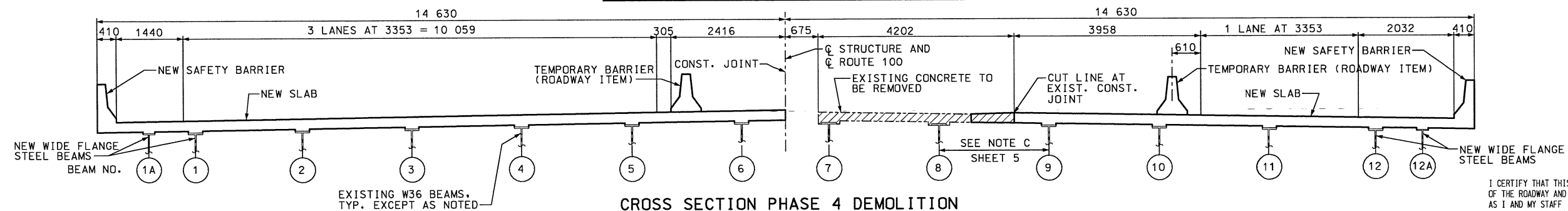
COUNTY ST. LOUIS



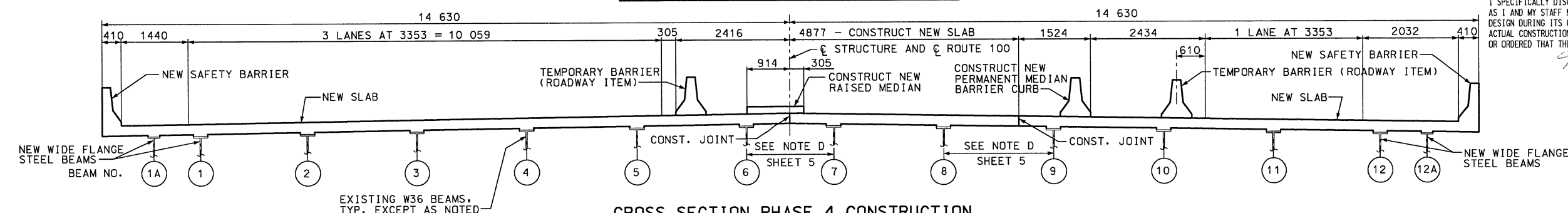
CROSS SECTION PHASE 3 DEMOLITION



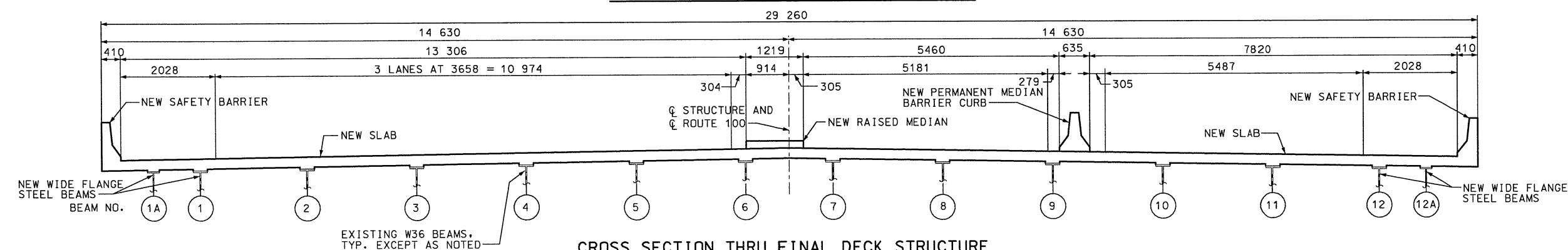
CROSS SECTION PHASE 3 CONSTRUCTION



CROSS SECTION PHASE 4 DEMOLITION



CROSS SECTION PHASE 4 CONSTRUCTION



CROSS SECTION THRU FINAL DECK STRUCTURE

FINAL PLANS
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SIGNATURE *Karen D. Yeomans* DATE 3-27-05



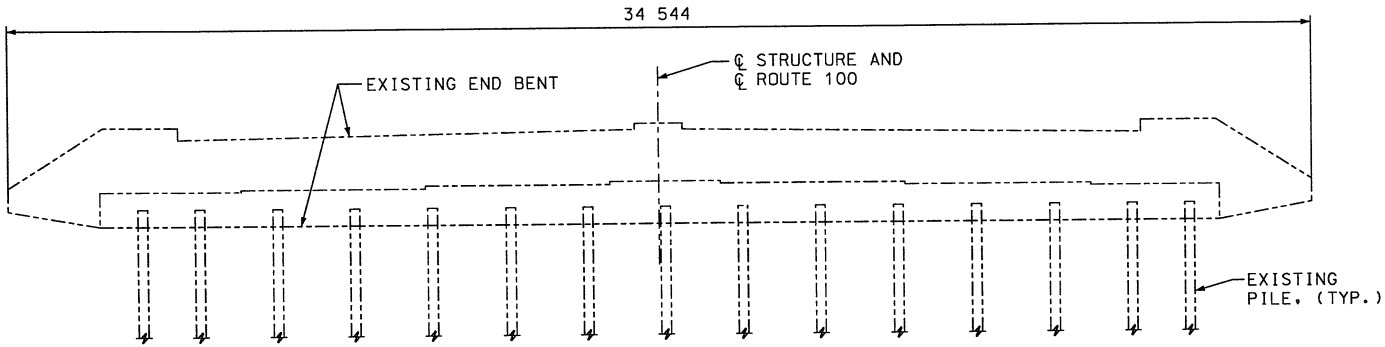
CONSTRUCTION PHASING

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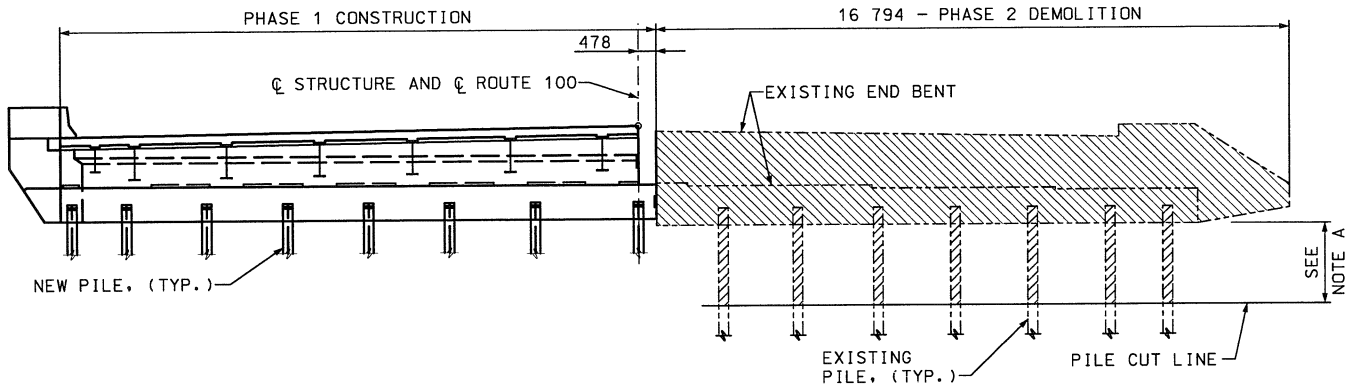
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

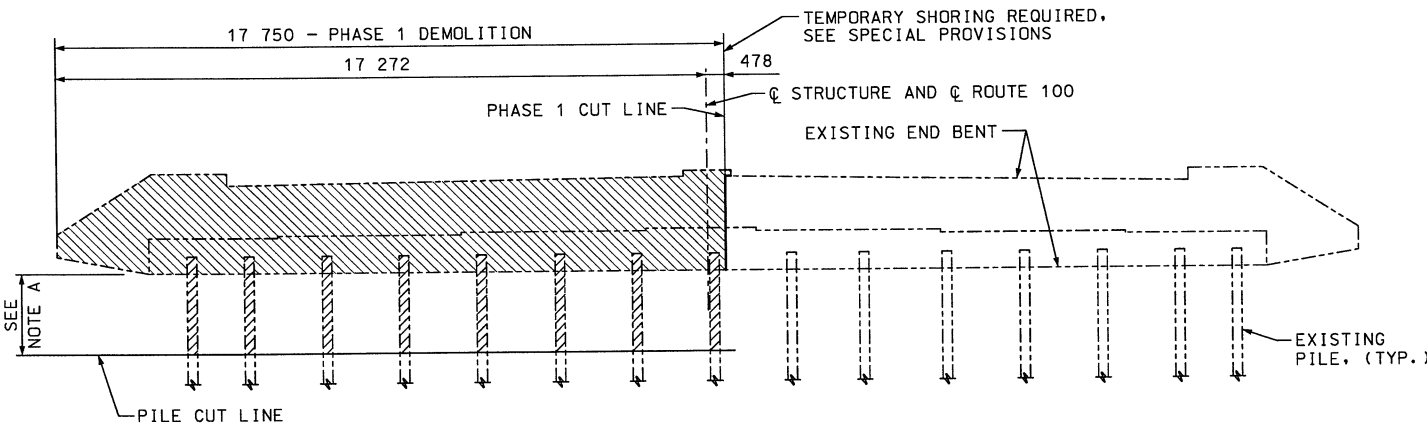
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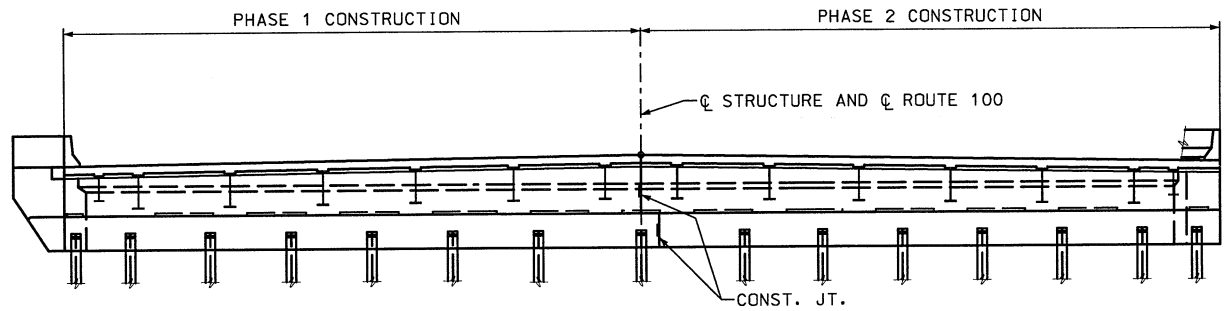
EXISTING END BENT ELEVATION
(LOOKING BACK STATION)



PHASE 2 DEMOLITION



PHASE 1 DEMOLITION



NEW END BENT ELEVATION

NOTE A: EXISTING PILES SHALL BE CUT OFF A MINIMUM OF 610mm BELOW BOTTOM OF CAP. SOME PILES MAY NEED TO BE CUT OFF UP TO 2150mm OR MORE TO CLEAR PREBORED HOLES FOR NEW PILES.

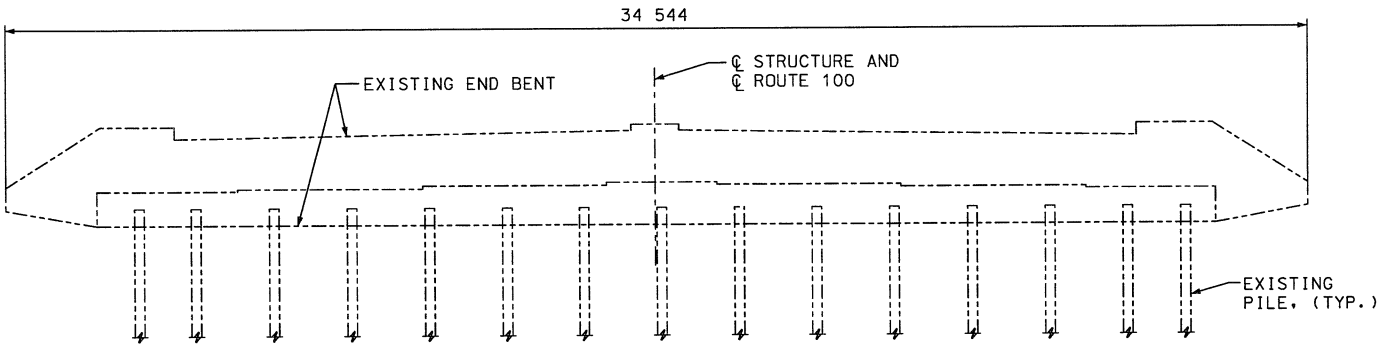
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SIGNATURE
KAREN D. YEOMANS
NUMBER
E-29693
REGISTERED PROFESSIONAL ENGINEER
STATE OF MISSOURI

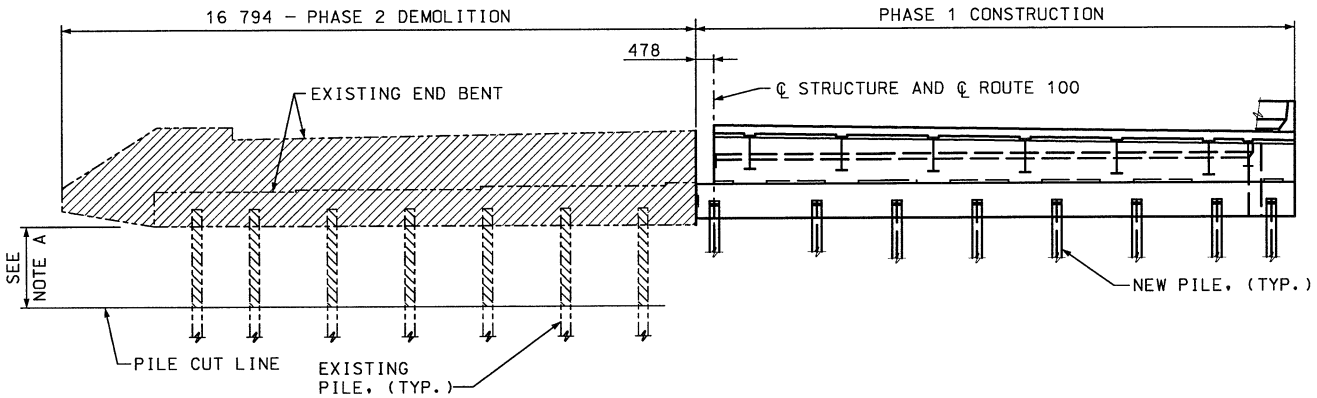
DATE
3-27-05

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
RODNEY D. RILEY
NUMBER
E-26267

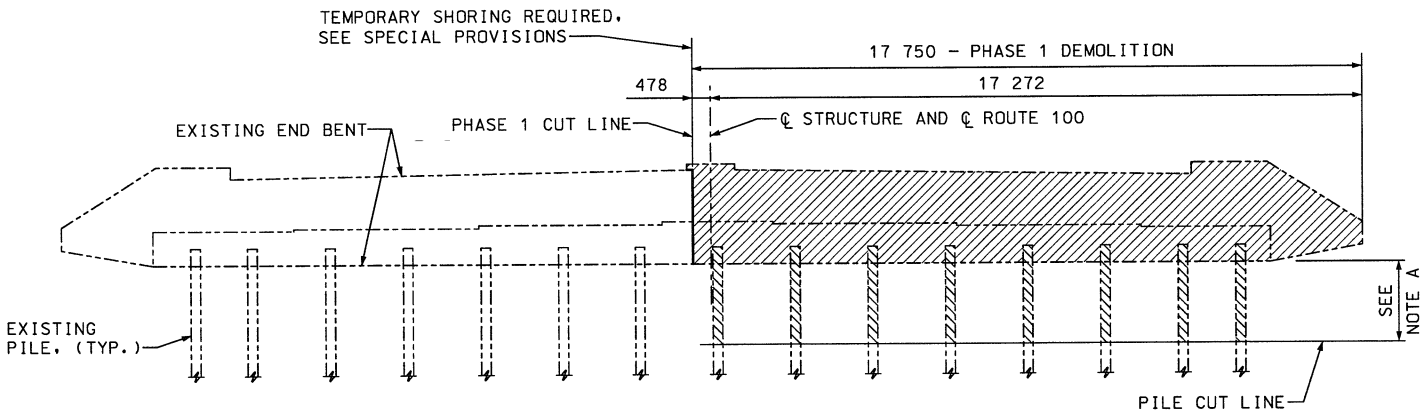
EXISTING END BENT 1
DEMOLITION



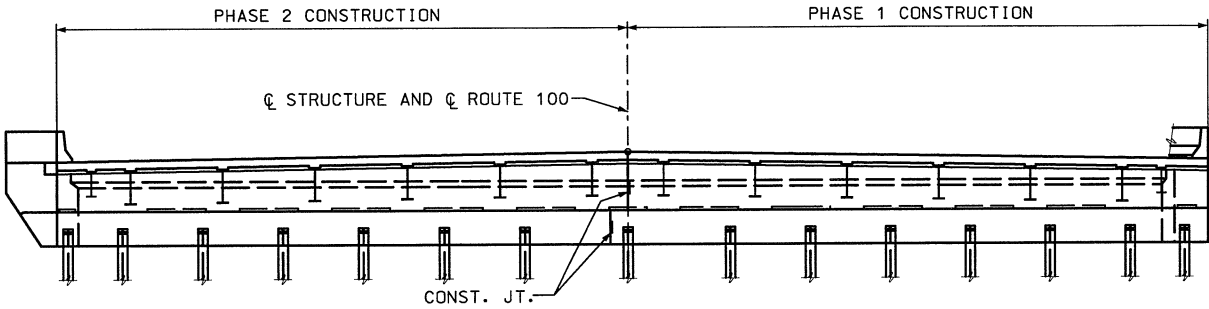
EXISTING END BENT ELEVATION
(LOOKING AHEAD STATION)



PHASE 2 DEMOLITION



PHASE 1 DEMOLITION



NEW END BENT ELEVATION

NOTE A: EXISTING PILES SHALL BE CUT OFF A MINIMUM OF 610mm BELOW BOTTOM OF CAP. SOME PILES MAY NEED TO BE CUT OFF UP TO 2150mm OR MORE TO CLEAR PREBORED HOLES FOR NEW PILES.

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[Signature]
KAREN D. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-29693

3-27-05
DATE

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
RODNEY D. RILEY
NUMBER E-26267

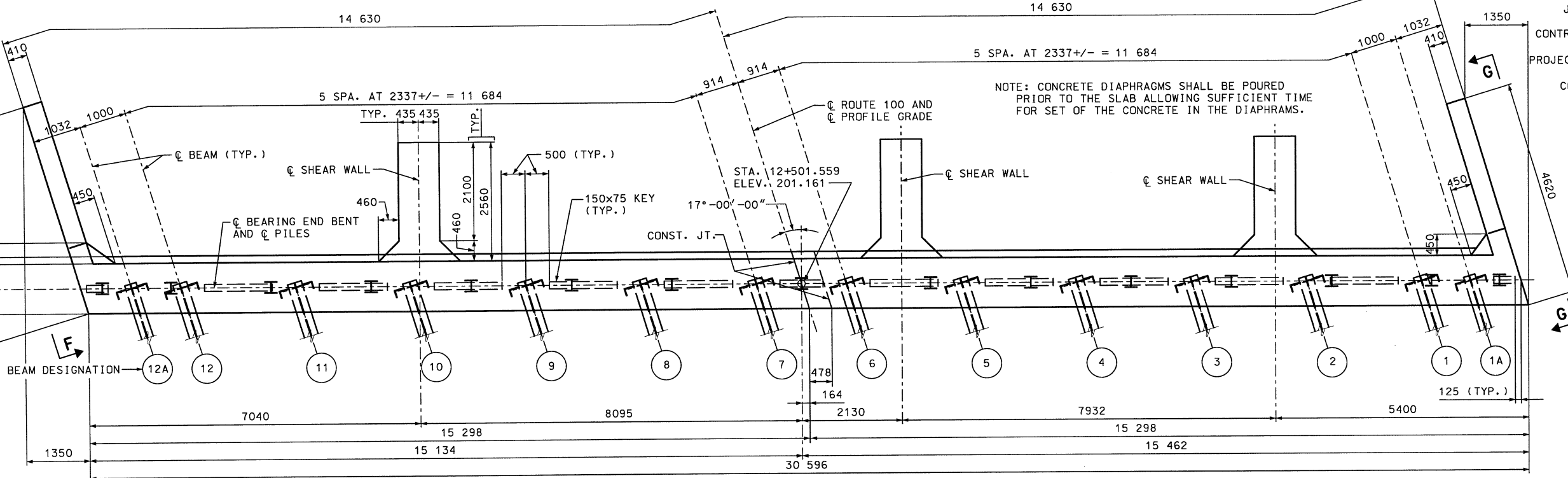
EXISTING END BENT 5
DEMOLITION

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

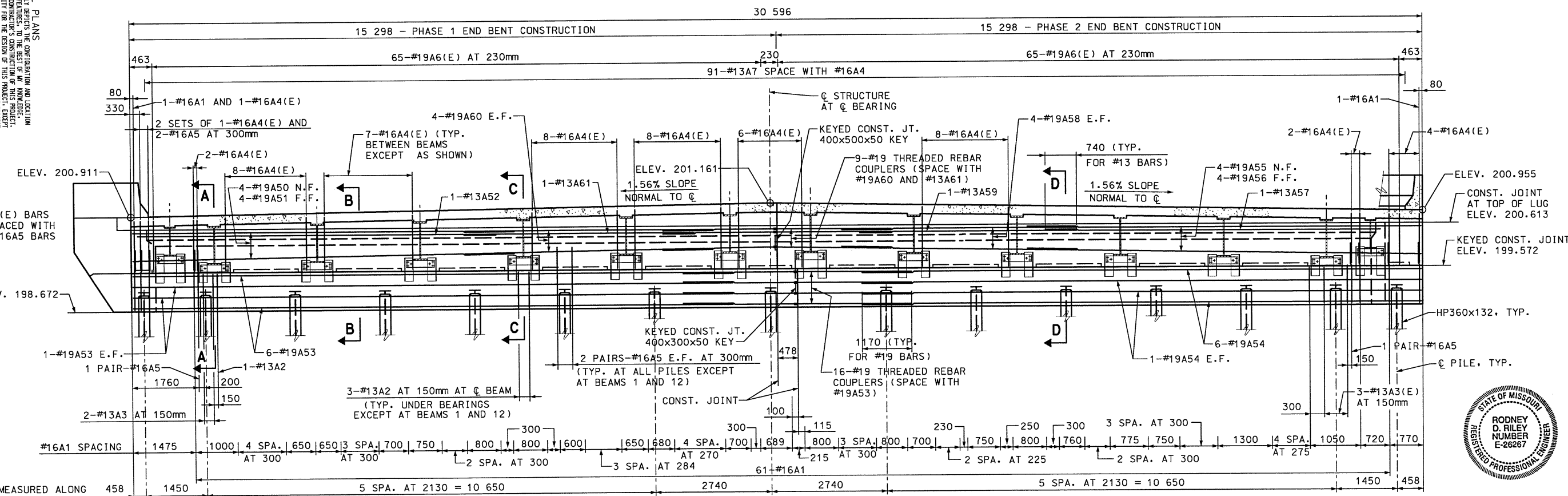
SHEET NO. 11

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

NOTE: CONCRETE DIAPHRAGMS SHALL BE POURED PRIOR TO THE SLAB ALLOWING SUFFICIENT TIME FOR SET OF THE CONCRETE IN THE DIAPHRAGMS.



PLAN

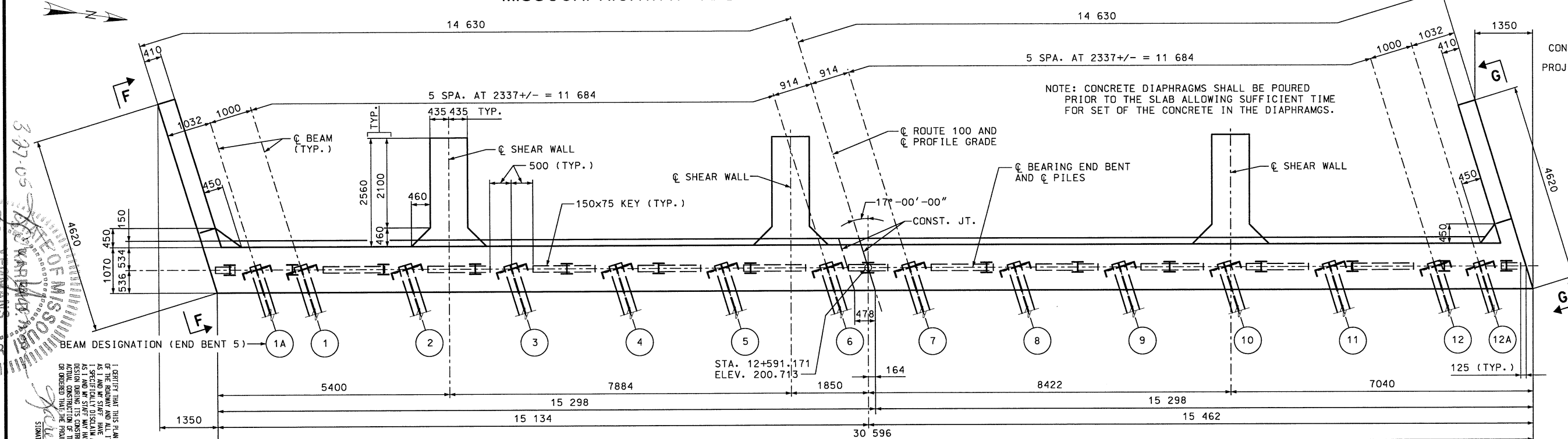


ELEVATION

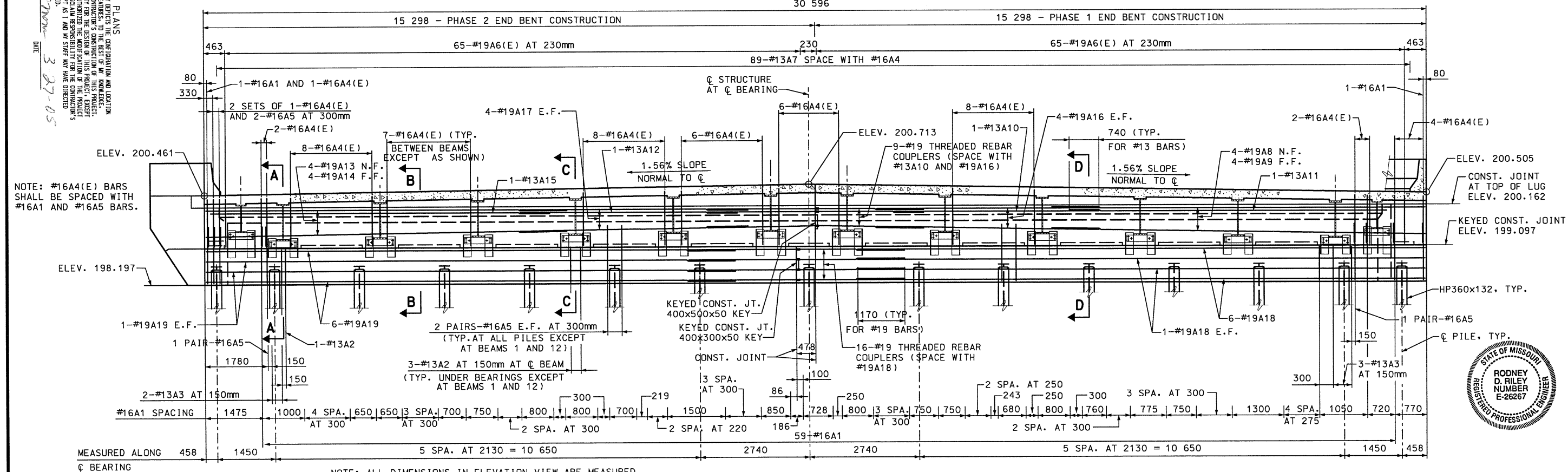
END BENT 1

NOTE: ALL DIMENSIONS IN ELEVATION VIEW ARE MEASURED ALONG FRONT FACE OF END BENT, EXCEPT AS NOTED. REINFORCEMENT IN END BENT SHALL BE PLACED PARALLEL TO ROADWAY. ELEVATIONS AT TOP OF SLAB ARE AT THE Q BEARINGS.

NOTE: CONCRETE DIAPHRAGMS SHALL BE POURED
PRIOR TO THE SLAB ALLOWING SUFFICIENT TIME
FOR SET OF THE CONCRETE IN THE DIAPHRAGMS.



PLAN



ELEVATION
(LOOKING AHEAD STATION)

END BENT 5

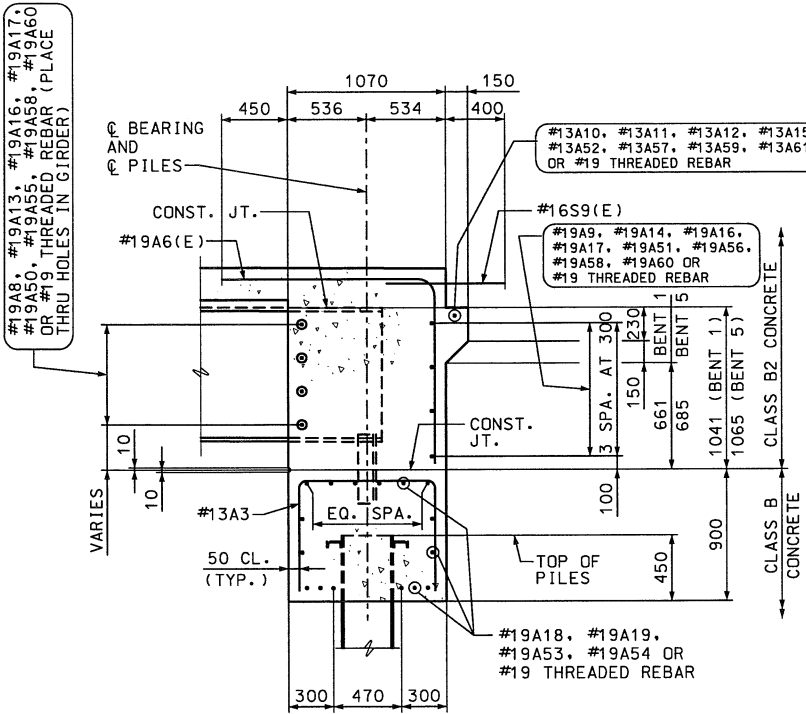
NOTE: ALL DIMENSIONS IN ELEVATION VIEW ARE MEASURED
ALONG FRONT FACE OF END BENT, EXCEPT AS NOTED.
REINFORCEMENT IN END BENT SHALL BE PLACED PARALLEL
TO ϕ ROADWAY.
ELEVATIONS AT TOP OF SLAB ARE AT THE ϕ BEARINGS.

SHEET 11 OF 41

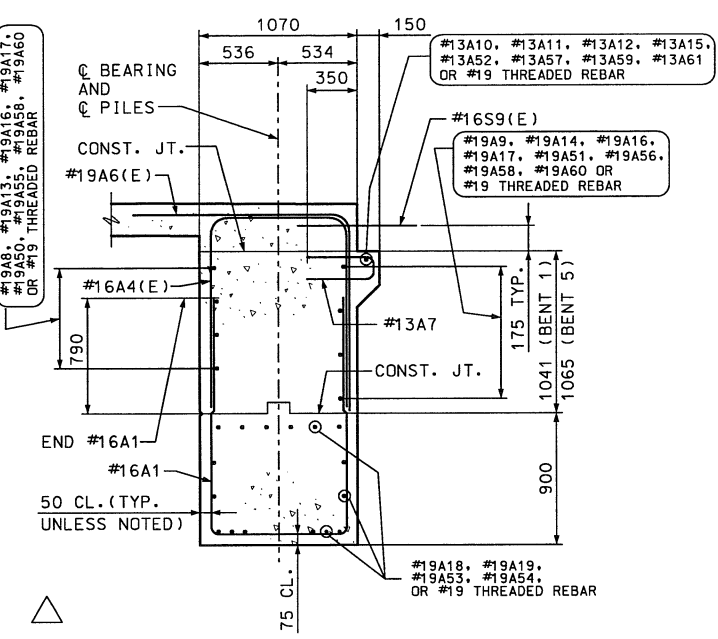
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

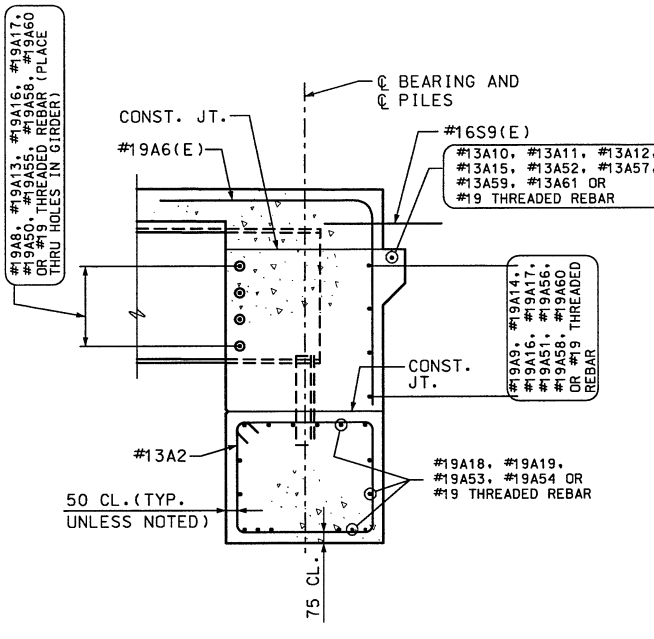


SECTION A-A



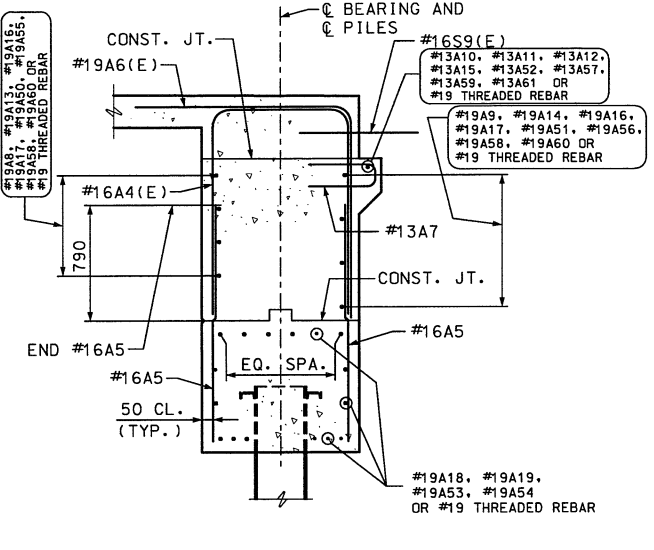
SECTION B-B

NOTE: FOR DETAILS NOT SHOWN,
SEE SECTION A-A.



SECTION C-C

NOTE: FOR DETAILS NOT SHOWN,
SEE SECTION A-A OR B-B.



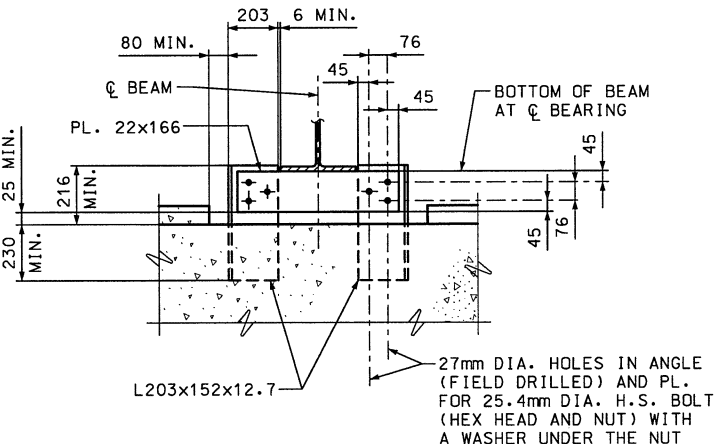
SECTION D-D

NOTE: FOR DETAILS NOT SHOWN,
SEE SECTION A-A OR B-B.

FINAL PLANS

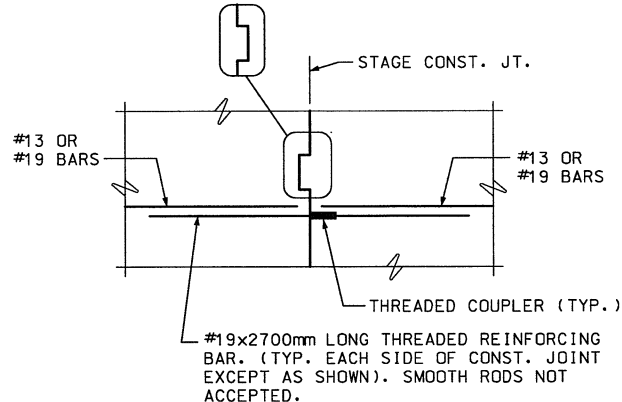
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE: *Karen D. Yeomans* DATE: 3-27-05
KAREN D. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-29693



BEAM CHAIR DETAIL

NOTE: DETAIL SHOWN IS TYPICAL AT EACH BEAM.
SPACE REINFORCING IN BENT CAP TO MISS ANGLES.
THE MASS OF ANGLES, PLATES, BOLTS AND WASHER
IS INCLUDED IN THE PAY ITEM FABRICATED STRUCTURAL
CARBON STEEL (I-BEAM)-METRIC ON SHEET 3.



THREADED REBAR COUPLER DETAIL

THREADED REBAR COUPLER NOTES

STEEL COUPLER ASSEMBLY SHALL BE OF AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125 PERCENT OF THE YIELD STRENGTH OF THE LAPPED REINFORCEMENT BARS.
ALL REINFORCEMENT BARS SHALL LAPPED AND TIED TO THE SPLICER BARS.
COUPLER ASSEMBLY IN THE SLAB SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.
MINIMUM CAPACITY = 334kN - TENSION WITH A MINIMUM PULLOUT STRENGTH = 133kN - TENSION IN 28 DAY CONCRETE.
PAYMENT FOR REBAR COUPLERS AND THREADED REINFORCING BARS SHALL BE INCLUDED IN THE PRICE BID FOR THREADED REBAR COUPLER (EACH).

BOTTOM OF BEAM ELEVATIONS (IN METERS)														
LOCATION	BEAM 1A	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7	BEAM 8	BEAM 9	BEAM 10	BEAM 11	BEAM 12	BEAM 12A
Q BEARING END BENT 1	199.994	199.763	199.820	199.860	199.900	199.940	199.980	199.980	199.940	199.920	199.880	199.840	199.783	200.018
Q BEARING END BENT 5	199.519	199.288	199.360	199.400	199.450	199.480	199.520	199.520	199.490	199.450	199.420	199.380	199.318	199.553

END BENT DETAILS

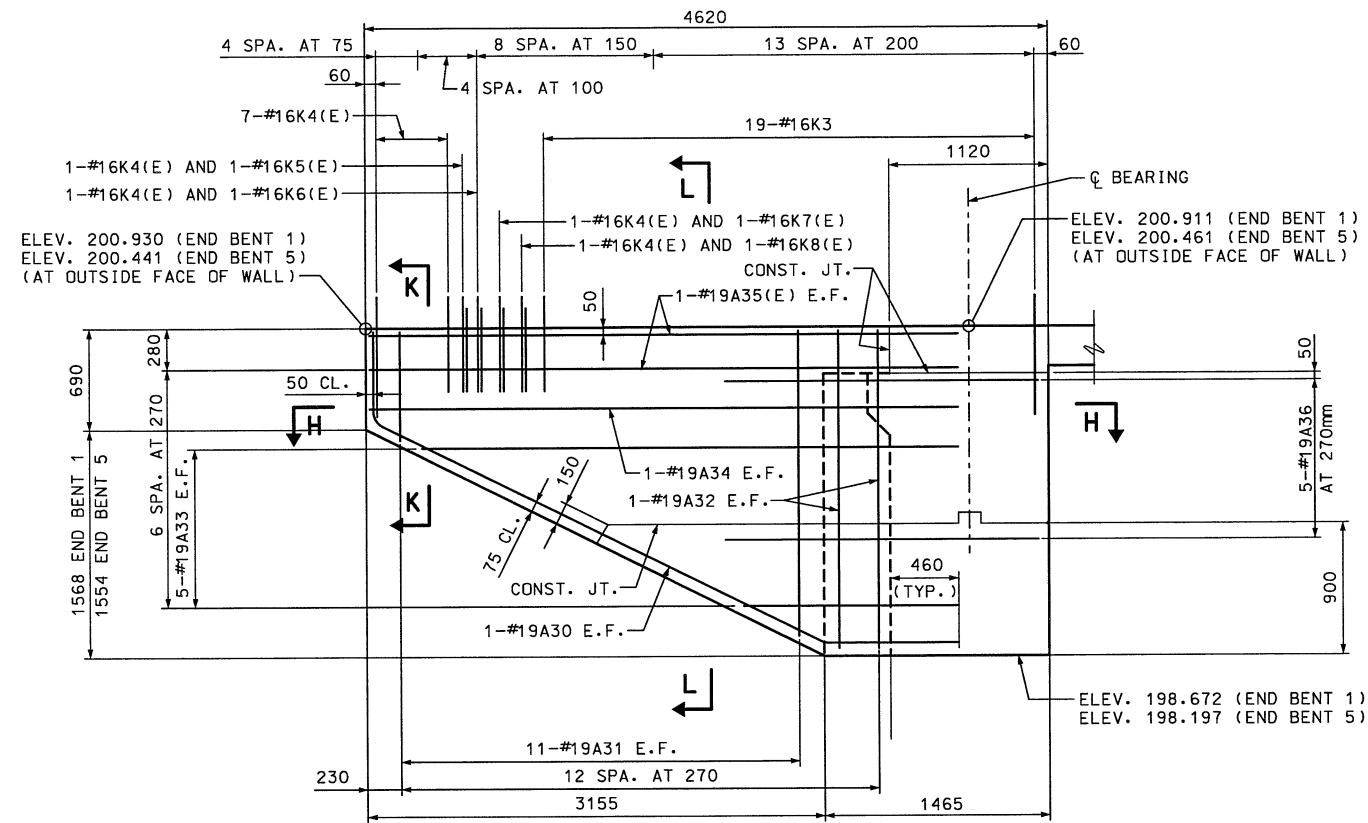


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

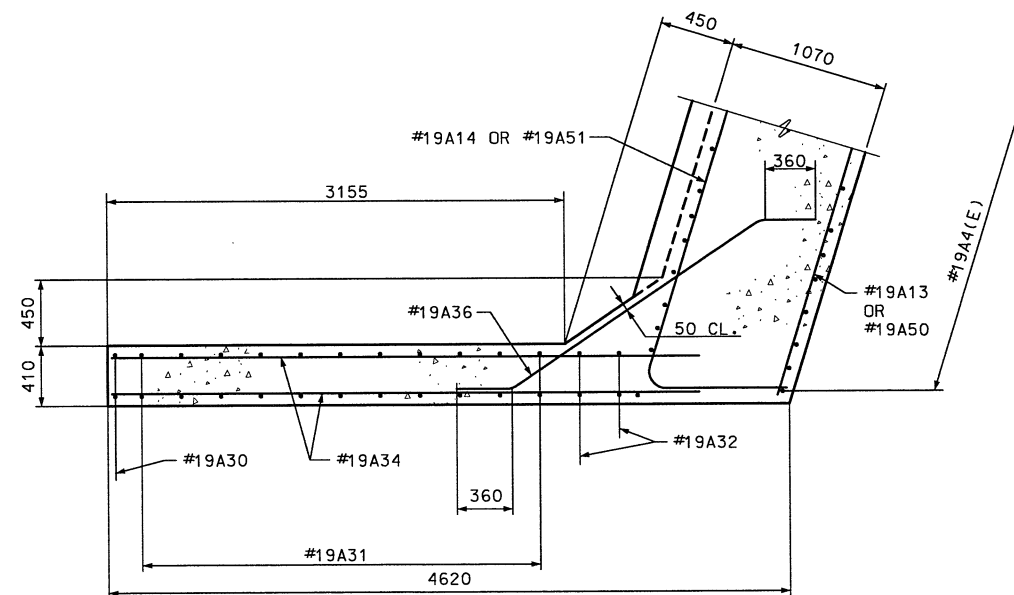
JOB NO. J6U1032
CONTRACT NO. 990423-605

PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

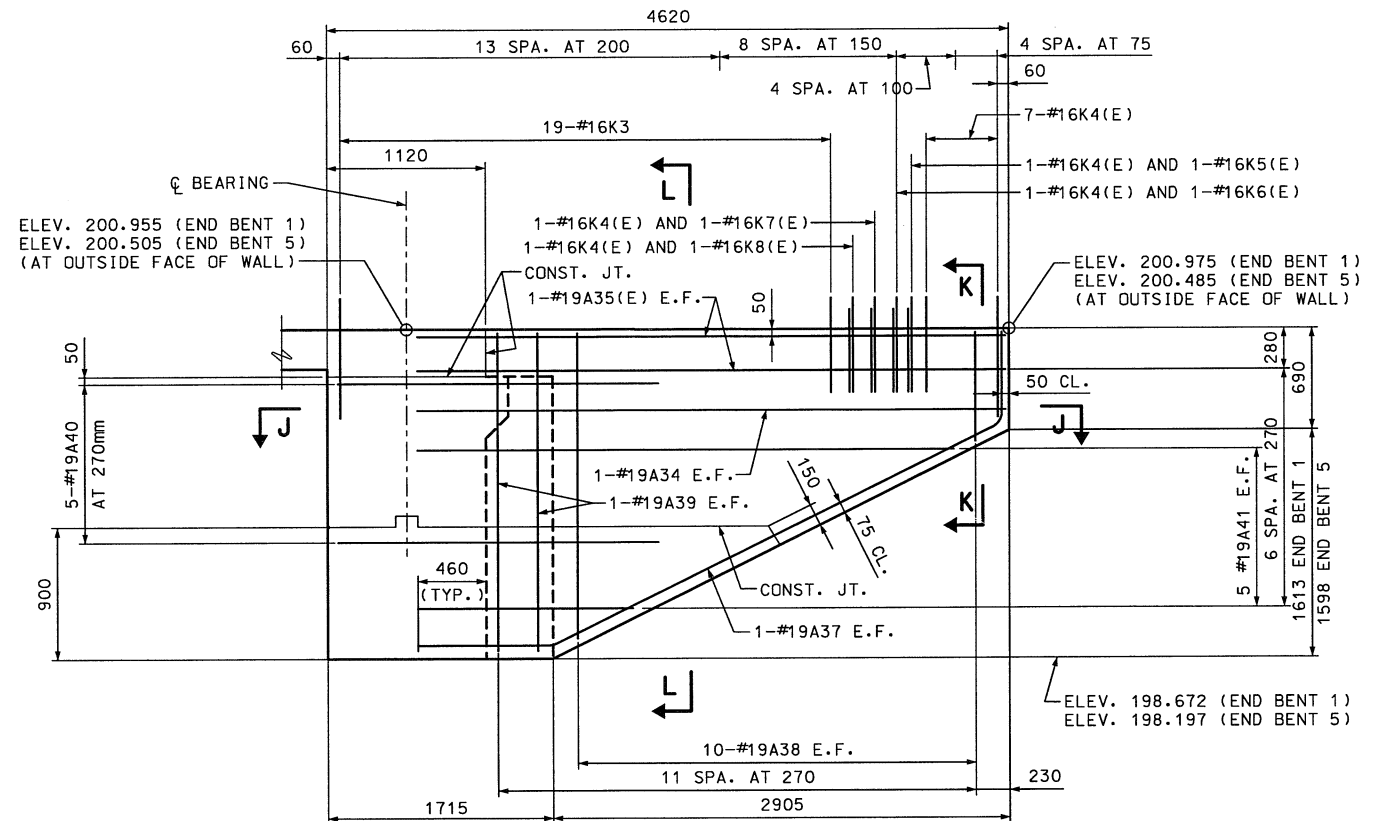
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VIEW F-F



SECTION H-H



VIEW G-G

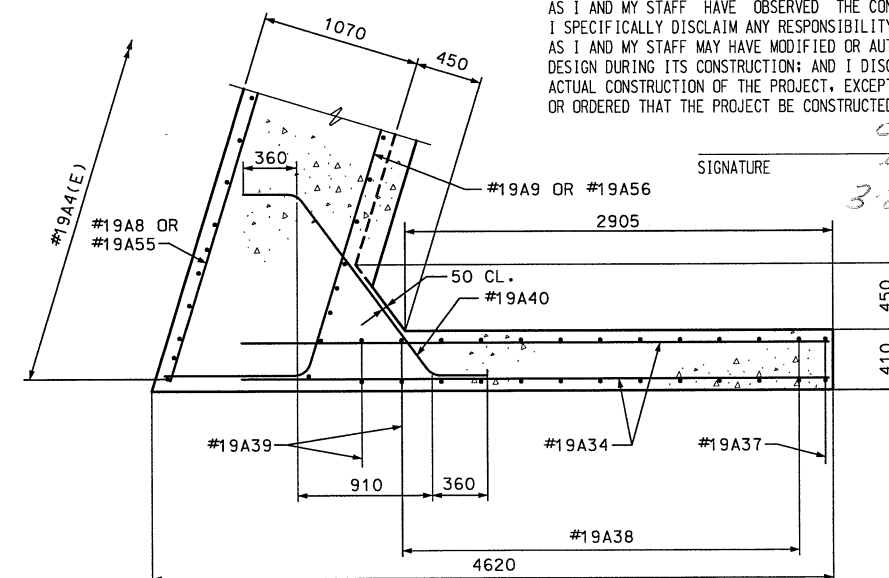
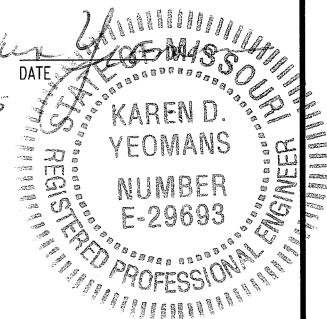
FINAL PLANS

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SIGNATURE

DATE

3-27-05

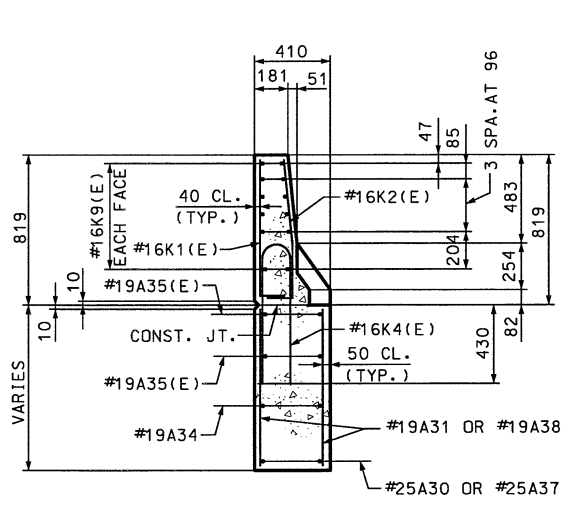


SECTION J-J

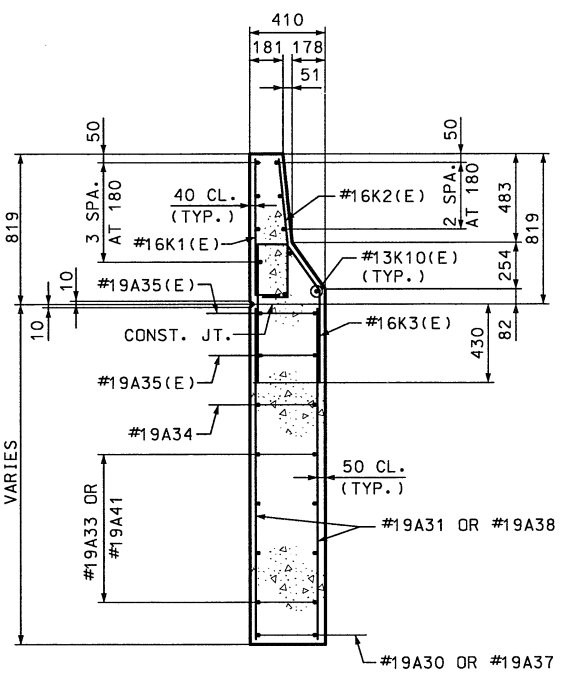
END BENT DETAILS

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

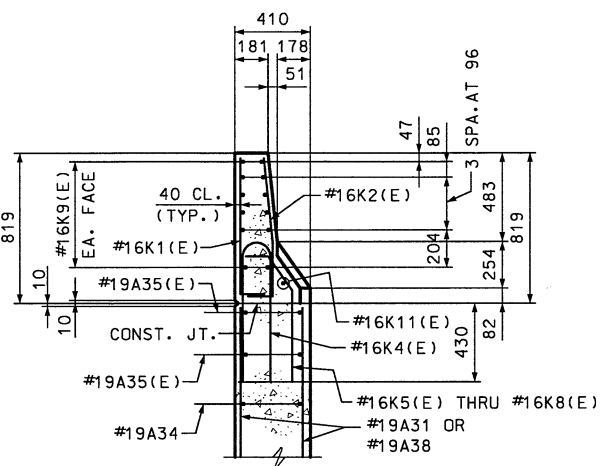
JOB NO. J6U1032 PROJECT NO. FAF-100-1(21) SHEET NO. 15
CONTRACT NO. 990423-605 COUNTY ST. LOUIS



SECTION K-K



SECTION L-L



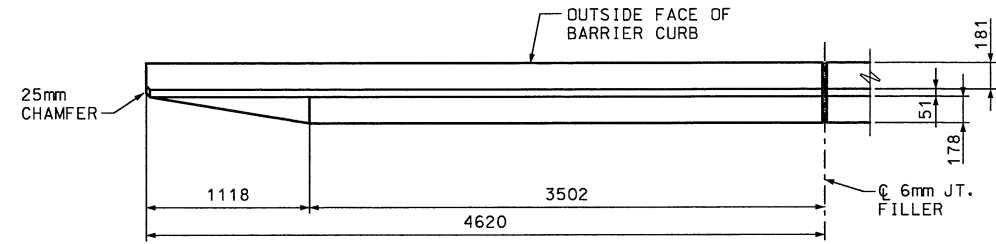
SECTION AT BARRIER TRANSITION

NOTE: FIT #16K11(E) BAR TO FOLLOW TRANSITION FACE OF CURB.

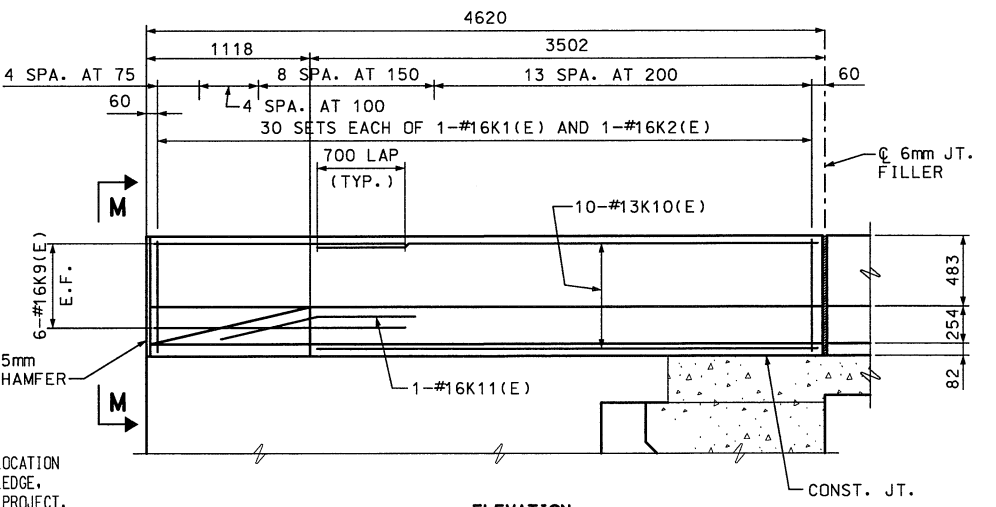
FINAL PLANS

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SIGNATURE: *Karen Yeomans* DATE: 3-27-05

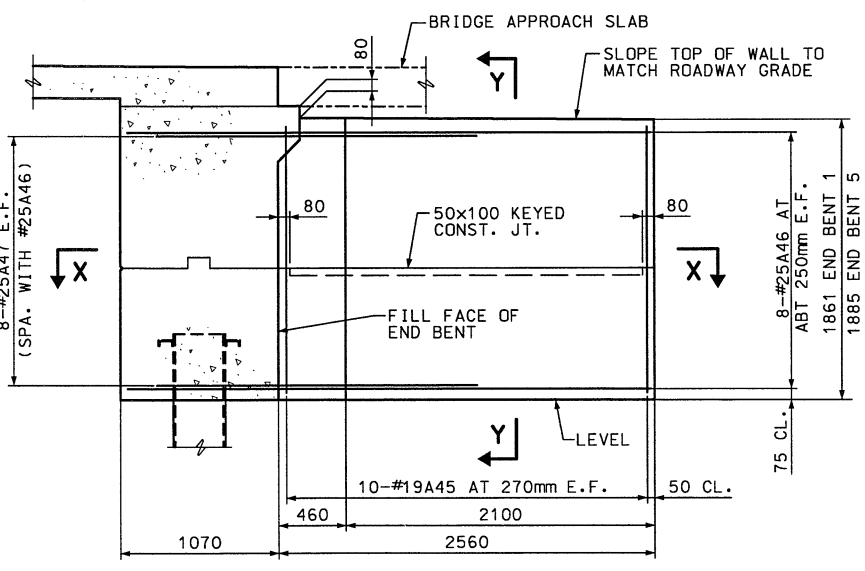


PLAN

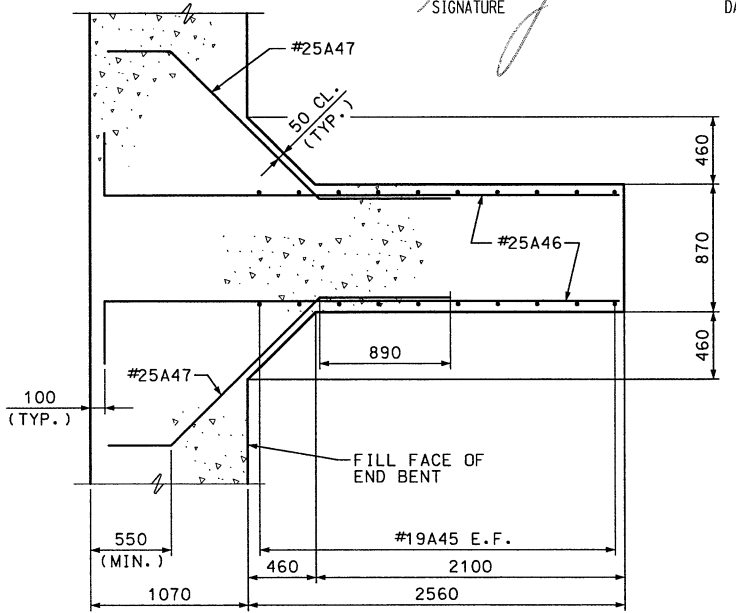


ELEVATION

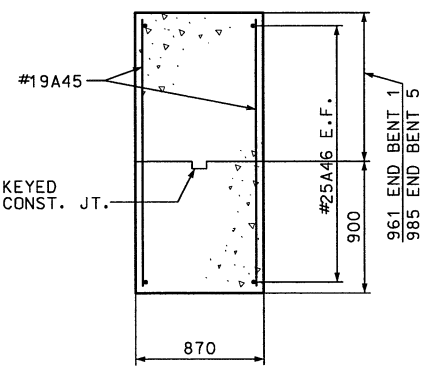
SAFETY BARRIER CURB DETAILS



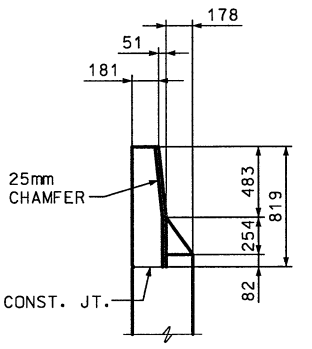
ELEVATION - SHEAR WALL



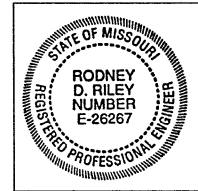
SECTION X-X



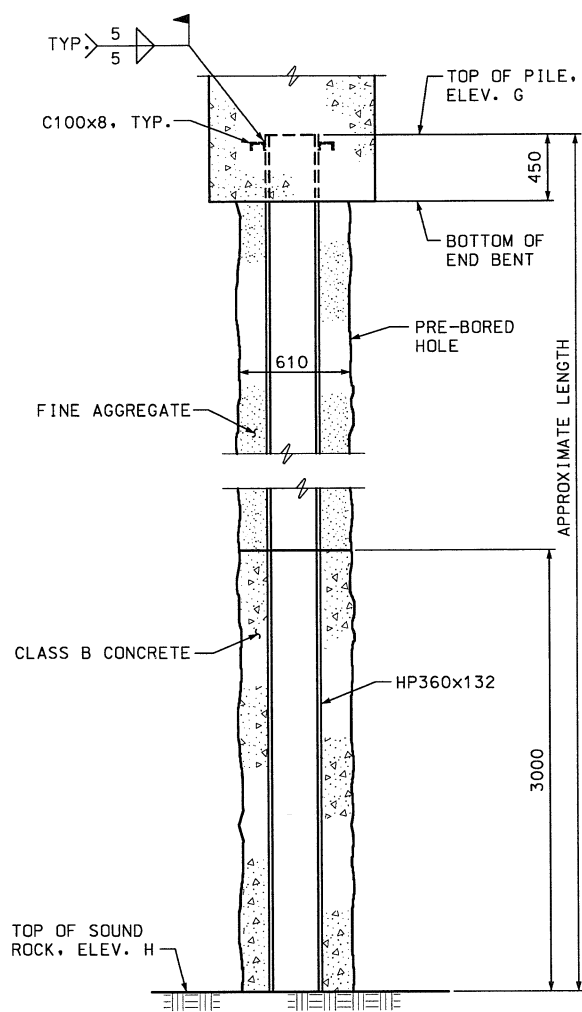
SECTION Y-Y



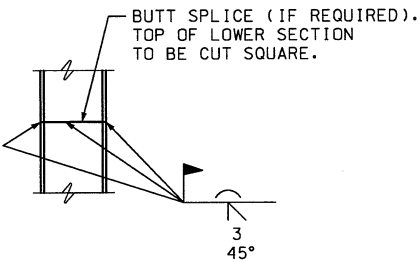
VIEW M-M



END BENT DETAILS



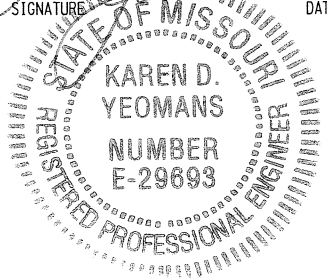
STEEL PILE DETAIL
END BENTS 1 AND 5



STEEL PILE SPLICE DETAIL

FINAL PLANS
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE *Karen D. Yeomans* DATE 3-27-05



PILE DATA				
END BENT		1	5	
BRIDGE NO. A09601	PILE TYPE AND SIZE	HP 360x132	HP 360x132	
	NUMBER	15	15	
	APPROXIMATE LENGTH	m 7.1	4.2	
	DESIGN BEARING	kN 732	732	
	ELEV. G	m 199.122	198.647	
	ELEV. H	m 192.0	194.4	

PILE NOTES

PILES SHALL NOT BE DRIVEN. PILES SHALL BE PLACED IN HOLES PREBORED THROUGH THE OVERBURDEN TO THE TOP OF SOUND ROCK. TEMPORARY CASING IS REQUIRED. SEE SPECIAL PROVISIONS. THE TOP OF SOUND ROCK ELEVATION IS AN ASSUMED ELEVATION DETERMINED FROM THE BORINGS. THE APPROXIMATE LENGTHS SHOWN ARE BASED ON THIS ASSUMED TOP OF ROCK ELEVATION. FINE AGGREGATE SHALL BE SAND NATURALLY PRODUCED MEETING THE GRADATION REQUIREMENTS SPECIFIED IN SECTION 1005.2.4. THE SAND SHALL BE PLACED AS LOOSELY AS POSSIBLE BY CONTINUOUSLY RAINING THE MATERIAL AROUND THE PILE. THE SAND SHALL NOT BE COMPACTED OR DENSIFIED.



END BENT DETAILS

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

Plan view of bent cap retrofit showing dimensions and reinforcement details. The diagram includes the following labels and dimensions:

- Overall width: 11 773
- Overall length: 2096
- Left side offset: 150
- Top reinforcement spacing: 5 SPA. AT 215, 350, 325, 9 SPA. AT 180, 85
- Reinforcement labels: #29B2, #16B1, #19B3, #16B1, #29B2
- Centerline labels: CL EXTERIOR COLUMN, CL EXISTING BENT
- Angle: 45° TYP.
- Resin anchor system: RESIN ANCHOR SYSTEM, TYP. (SEE BENT CAP RETROFIT NOTES)
- Lap dimension: 790 LAP
- Vertical dimensions: 150, 965, 150
- Symmetry line: SYMM. ABT. CL BENT

[illegible]

Structural drawing of a bent cap showing dimensions and reinforcement details. The drawing includes the following information:

- Dimensions:**
 - Overall width: 9523
 - Overall length: 2250
 - Distance from left edge to centerline: 2096
 - Distance from centerline to right edge: 4346
 - Left cantilever length: 150
 - Right cantilever length: 65
 - Section cut length: 1251
- Reinforcement:**
 - 19-#16B1 EACH FACE (SPA. AS SHOWN IN PLAN)
 - 3-#16B1
 - 1-#29B2 EACH FACE
 - 3-#29B2 EACH FACE EQ. SPACED
- Labels and Notes:**
 - UTL CANTILEVER
 - URTH CANTILEVER
 - EQ. SPACED
 - SECTION CUT
 - CL EXTERIOR COLUMN
 - EXISTING BENT CAP
 - SYMM. ABT. CL BENT

FINAL PLANS

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE [Signature] DATE 3-27-09

SIGNATURE _____

STATE OF MISSOURI
KAREN D. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-296693

CONCRETE SHALL BE CLASS B1.

THE CAP RETROFIT SHALL BE CAST AFTER THE EXISTING DECK SLAB AND EXTERIOR BEAMS HAVE BEEN REMOVED. NEW CONCRETE SHALL BE CAST PRIOR TO THE INSTALLATION OF THE NEW BEAMS AND DECK SLAB.

THE EXISTING CONCRETE SURFACES THAT WILL BE IN CONTACT WITH NEW CONCRETE SHALL BE ROUGHENED BY SANDBLASTING TO A FULL AMPLITUDE OF 6mm AND COATED WITH AN APPROVED EPOXY BONDING ADHESIVE.

THE EPOXY BONDING ADHESIVE AND REINFORCING BARS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL AVOID NICKING OR CUTTING
EXISTING REINFORCING BARS. EXISTING REINFORCING SHALL
BE LOCATED AND MARKED PRIOR TO DRILLING HOLES IN CAP.

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR SYSTEMS LISTED IN THE SPECIAL PROVISIONS. THESE ANCHOR SYSTEMS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS, EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS.

THE RESIN ANCHOR SYSTEM USED SHALL PRODUCE A MINIMUM
ULTIMATE BOND STRENGTH OF 83 kN.

COST OF FURNISHING AND INSTALLING THE ANCHOR SYSTEM COMPLETE IN PLACE SHALL BE INCLUDED IN THE RESPECTIVE PRICE BID FOR BENT CAP RETROFIT.

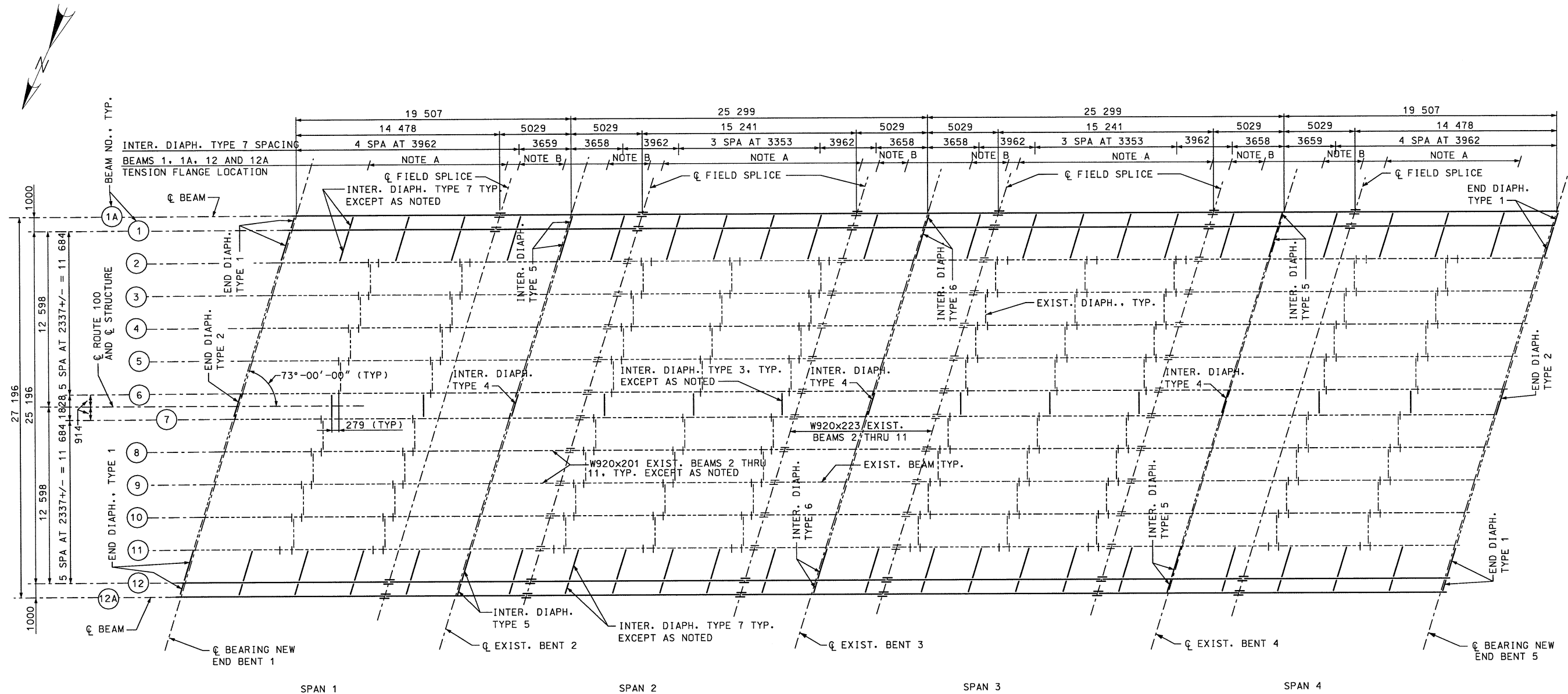
**BENTS 2,3 AND 4
CAP RETROFIT**

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

SHEET NO. 18



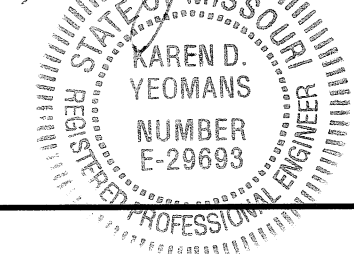
FRAMING PLAN

NOTE: EXISTING INTERMEDIATE AND END DIAPHRAGMS SHALL BE REMOVED BETWEEN BEAMS 1 AND 2 AND 11 AND 12.
NOTE A: THE BOTTOM FLANGE IS THE TENSION FLANGE.
NOTE B: THE TOP AND BOTTOM FLANGES ARE THE TENSION FLANGE.

FINAL PLANS

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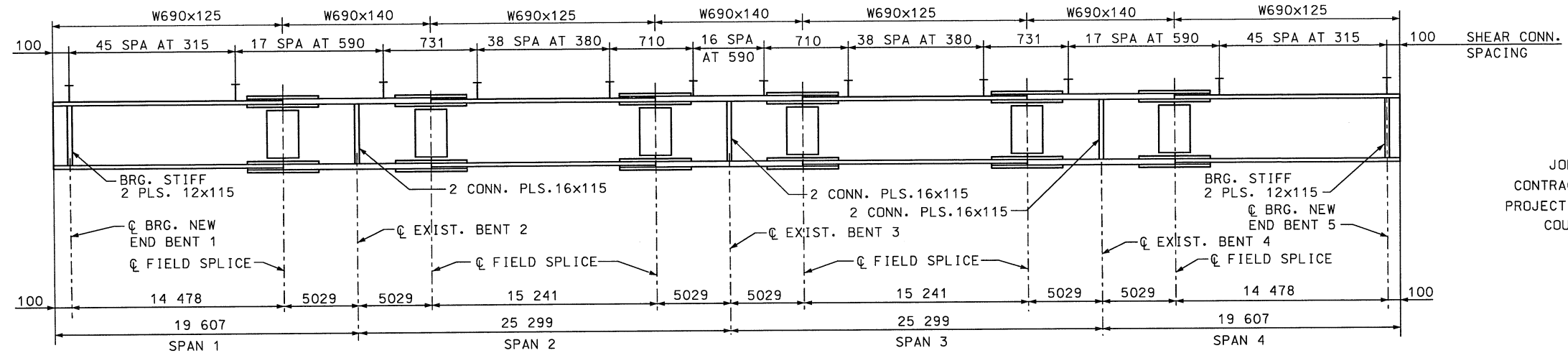
SIGNATURE DATE 3-27-05



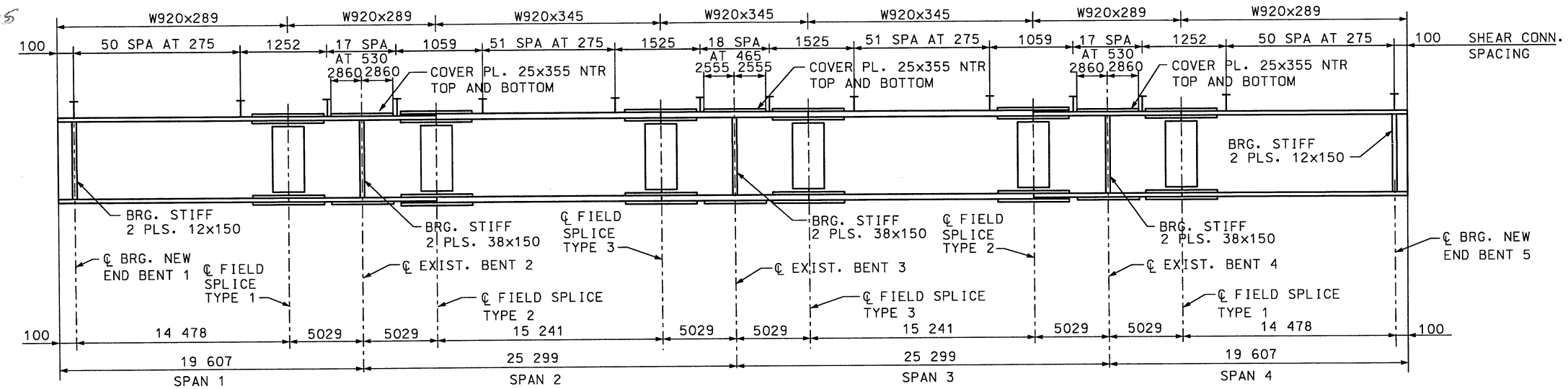
LEGEND

----- EXISTING STRUCTURAL MEMBER
————— NEW STRUCTURAL MEMBER

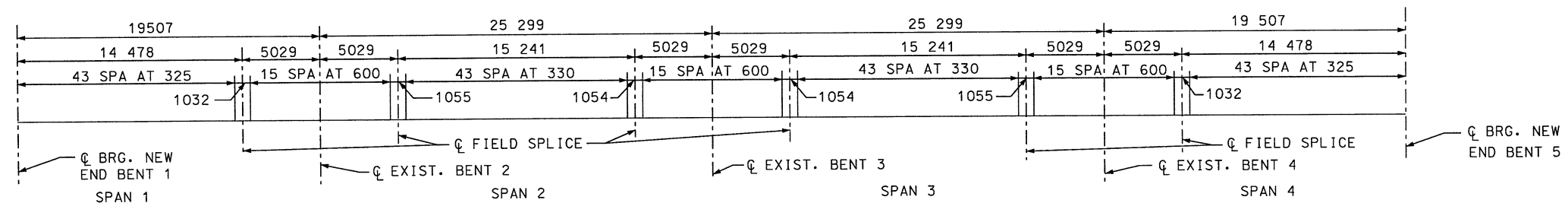
FRAMING PLAN - SPANS 1 THRU 4

**ELEVATION - BEAM 1A AND 12A**

NOTE: ALL BEARING STIFFENERS SHALL BE VERTICAL IN THEIR FINAL POSITION.

**ELEVATION - BEAM 1 AND 12**

NOTE: ALL BEARING STIFFENERS SHALL BE VERTICAL IN THEIR FINAL POSITION.

**SHEAR CONNECTOR REPLACEMENT SPACING****EXISTING BEAMS 2 THRU 11**

NOTE: EXISTING SHEAR CONNECTORS SHALL BE CUT OFF 25mm ABOVE THE TOP FLANGE AND NEW STUDS PLACED AS SHOWN. IF EXISTING STUDS INTERFERE WITH PLACEMENT OF NEW STUDS, THE 25mm BALANCE OF EXISTING STUD SHALL BE GROUND FLUSH WITH THE TOP FLANGE. SEE SPECIAL PROVISIONS.

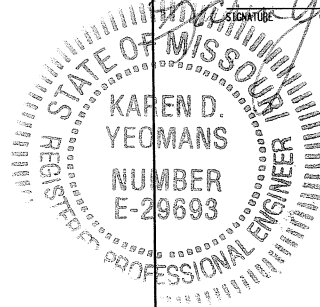
6720 SHEAR CONNECTORS SHALL BE FIELD INSTALLED.

FINAL PLANS

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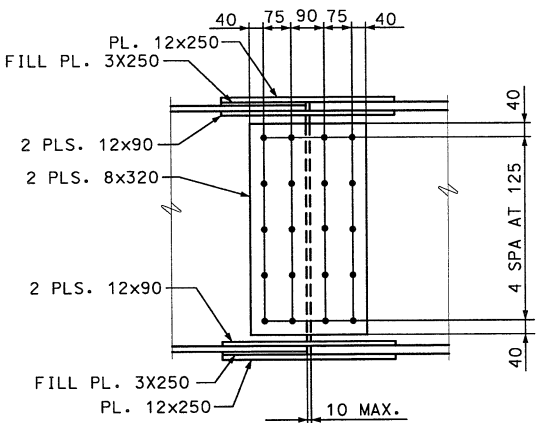
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3-27-05

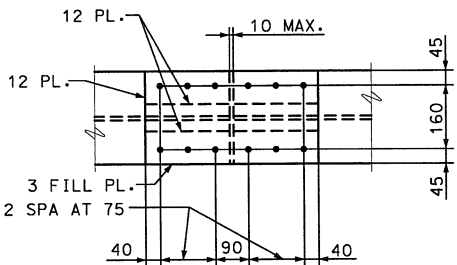


MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

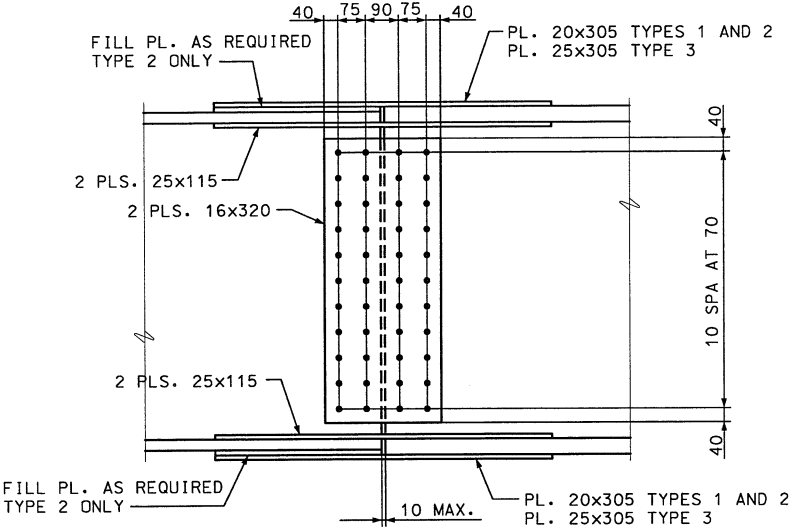
JOB NO. J6U1032 SHEET NO. 20
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS



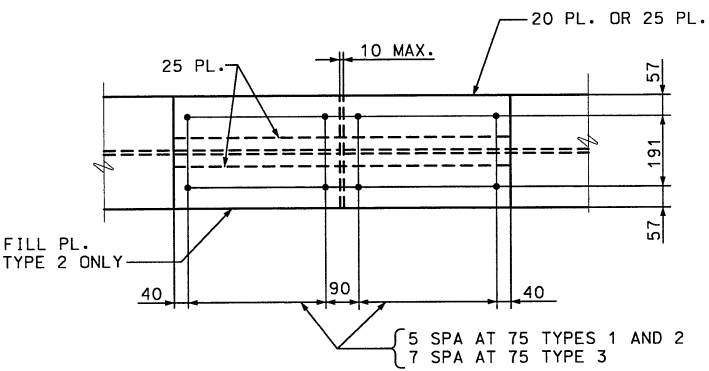
WEB SPLICE



TOP AND BOTTOM FLANGE SPLICE
BEAM 1A AND 12A FIELD SPLICES



WEB SPLICE

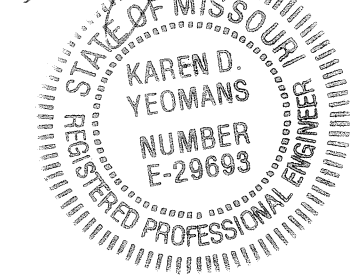


TOP AND BOTTOM FLANGE SPLICE
BEAM 1 AND 12 FIELD SPLICES - TYPES 1, 2 AND 3

FINAL PLANS

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SIGNATURE Karen D. Yeomans DATE 3-27-05



NOTES

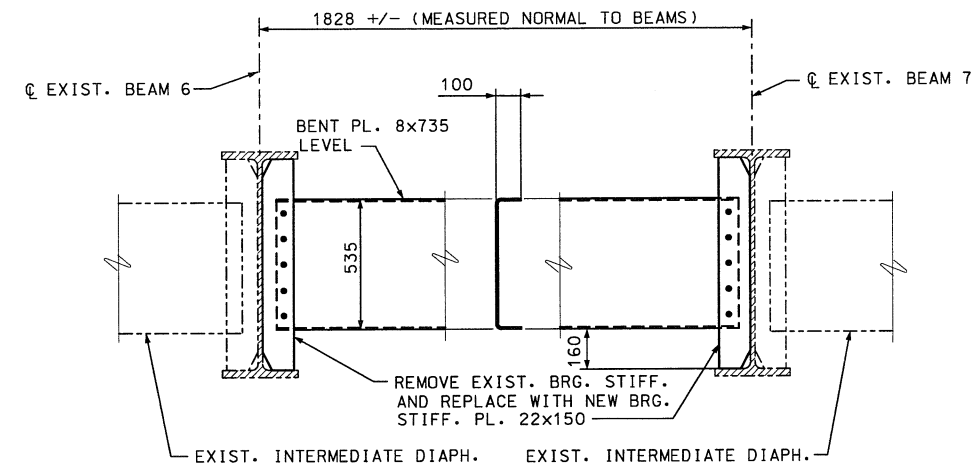
ALL FIELD SPLICE BOLTS ARE TO BE 22.2 mm HIGH STRENGTH BOLTS WITH 23.8 mm DIAMETER HOLES.
ALL FIELD SPICED PLATES, EXCEPT FILL PLATES, ARE SUBJECT TO NOTCH TOUGHNESS REQUIREMENTS.



STEEL DETAILS

SHEET NO. 21

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS



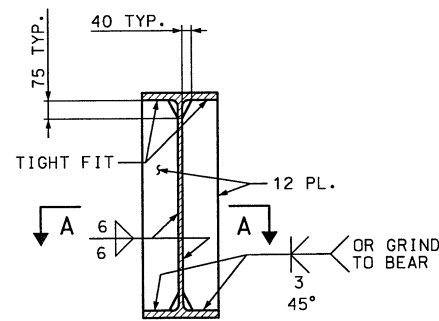
INTERMEDIATE DIAPHRAGM TYPE 4 AT BENTS 2,3 AND 4

LEGEND

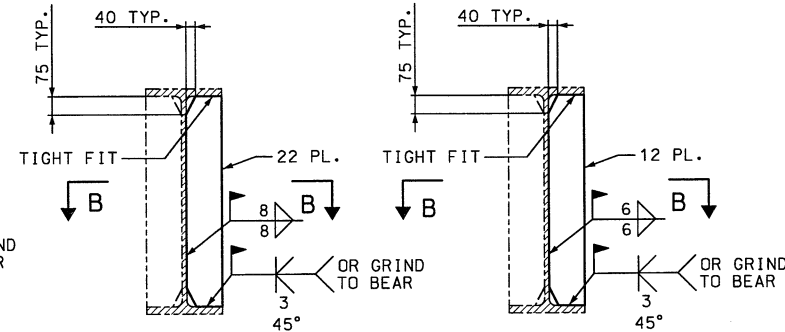
----- EXISTING STRUCTURAL MEMBER
 _____ NEW STRUCTURAL MEMBER

NOTE

ALL BOLTS SHALL BE 19.0 mm HIGH STRENGTH
BOLTS WITH 20.6 mm DIAMETER HOLES.



NEW BEARING STIFFENERS



REPLACEMENT BEARING STIFFENERS AT BENTS 2 THRU 4 REPLACEMENT BEARING STIFFENERS AT END BENTS 1 AND 5

Diagram illustrating the repair of a beam-to-column joint using a new beam and stiffeners.

Left Diagram (New Beam Installation):

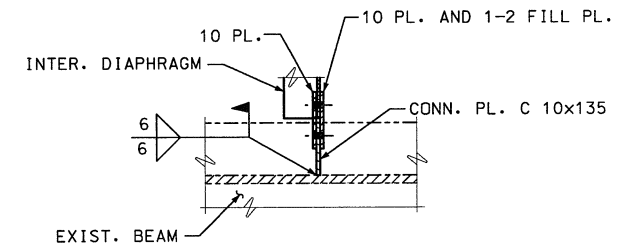
- PLATE WIDTH
- NEW BRG STIFF.
- NEW BEAM

Right Diagram (Replacement Stiffener):

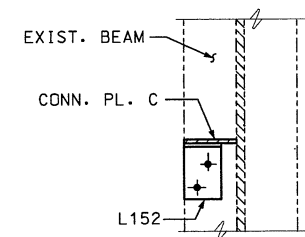
- PLATE WIDTH
- EXIST. BEAM
- EXIST. STIFF.
- REPLACEMENT BRG. STIFF.

SECTION A-A

SECTION B-B



CONNECTION PLATE C



SECTION C-C

STEEL DETAILS

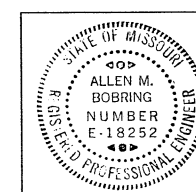


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KAREN D
YEOMANS
NUMBER
E-29693

~~SIGNATURE~~

DATE _____



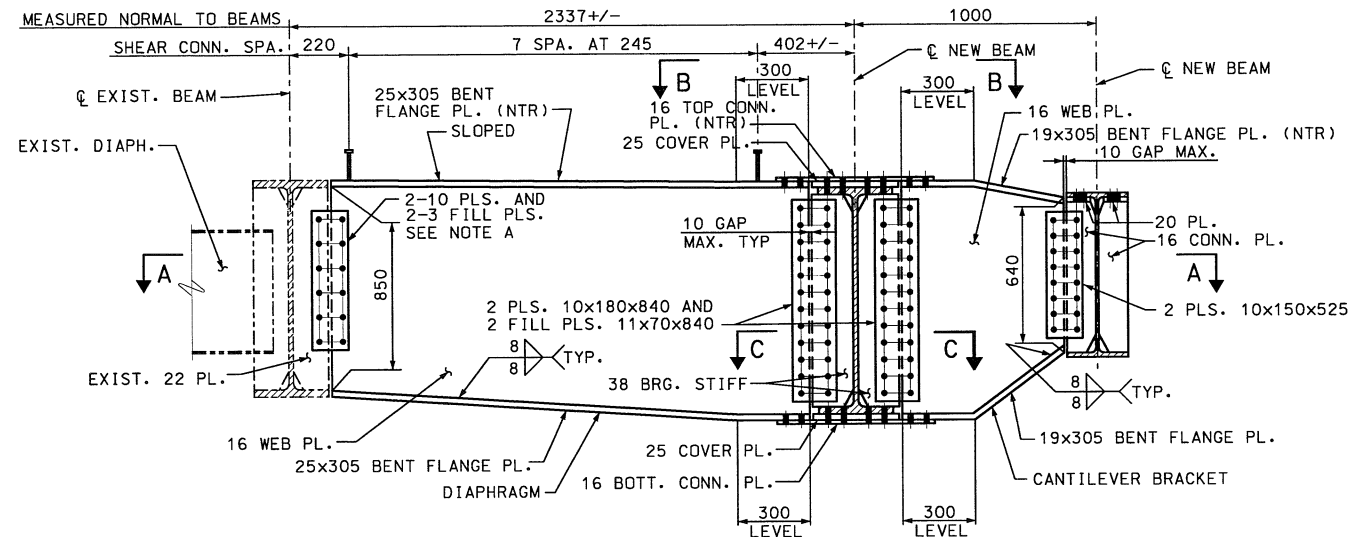
SHEET 20 OF 41

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

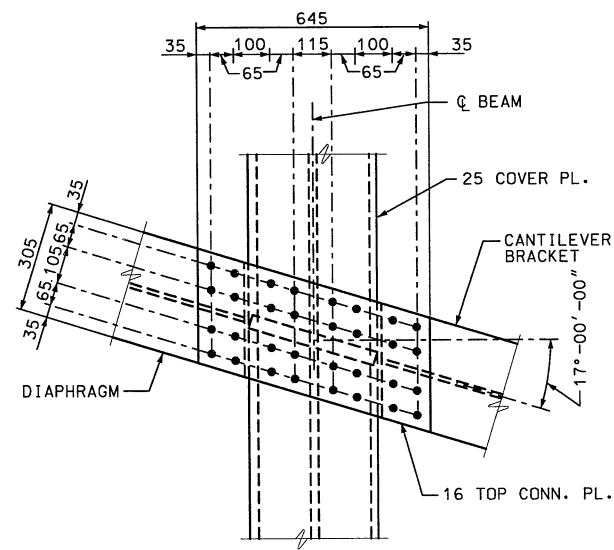
JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

SHEET NO. 22



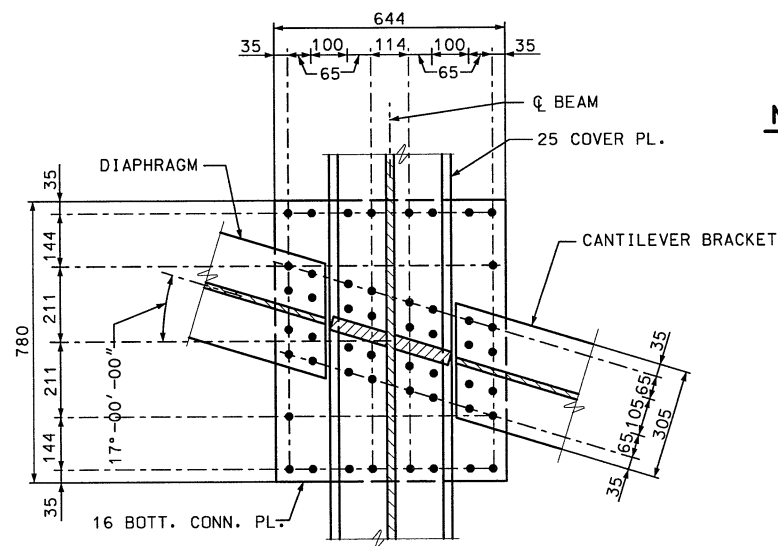
INTERMEDIATE DIAPHRAGM TYPE 5 AT BENTS 2 AND 4

NOTE A: THE 10 PLATES SHALL BE SIZED TO UTILIZE THE HOLES IN THE EXISTING 22 PLATE, WITH THE ADDITION OF ONE NEW HOLE AT THE TOP OF THE EXISTING HOLE GROUP. THE HOLES IN THE 10 PLATES SHALL BE SHOP SUBPUNCHED AND REAMED TO SIZE IN THE FIELD USING THE EXISTING HOLES AS A TEMPLATE. THE ADDITIONAL HOLE IN THE EXISTING 22 PLATE SHALL BE FIELD DRILLED AND REAMED TO SIZE, USING THE NEW 10 PLATE AS A TEMPLATE.



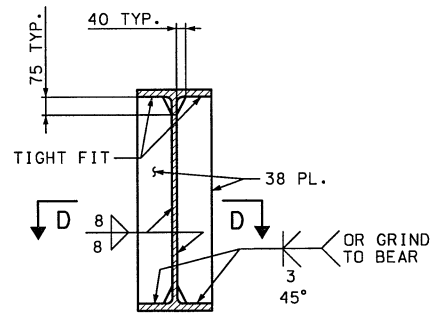
VIEW B-B

NOTE: WEB SPLICE PLS., NOT SHOWN FOR CLARITY.

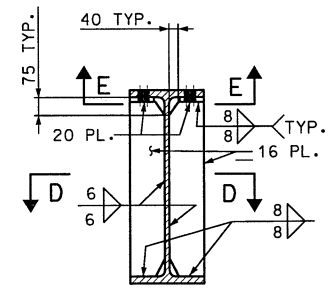


SECTION C-C

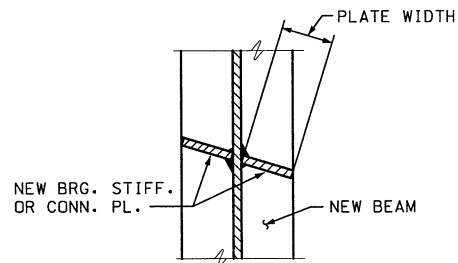
NOTE: WEB SPLICE PLS. AND BEARING NOT SHOWN FOR CLARITY.



NEW BEARING STIFFENERS



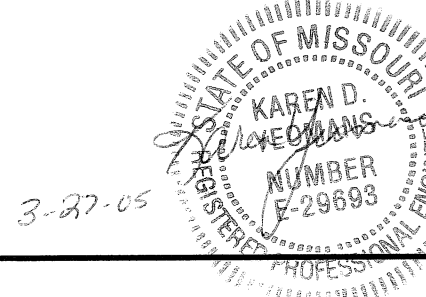
NEW CONNECTION PLATE



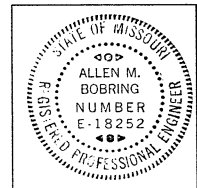
SECTION D-D

FINAL PLANS

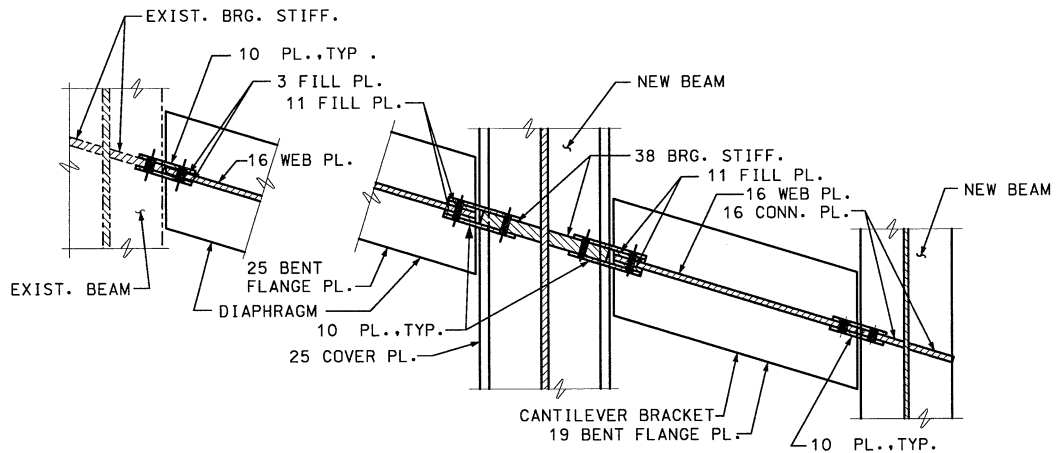
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SIGNATURE: Karen Delaney
DATE: 3-27-05

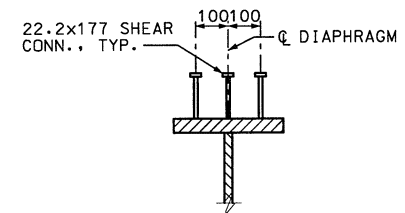


SHEET 21 OF 41



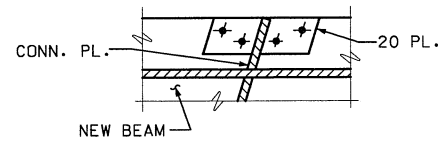
SECTION A-A

NOTE: 16 BOTTOM CONN. PL. NOT SHOWN FOR CLARITY.



SHEAR CONNECTOR
DETAIL

NOTE: MASS OF 661 kg OF SHEAR CONNECTORS IS INCLUDED IN THE MASS OF FABRICATED STRUCTURAL CARBON STEEL (I-BEAM). (NEW DIAPHRAGMS ONLY)



SECTION E-E

LEGEND

----- EXISTING STRUCTURAL MEMBER
————— NEW STRUCTURAL MEMBER

NOTE

ALL BOLTS SHALL BE 19.0 mm HIGH STRENGTH BOLTS WITH 20.6 mm DIAMETER HOLES.

STEEL DETAILS

A09601

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

MEASURED NORMAL TO BEAMS

2337+/-

1000

SHEAR CONN. SPA. 220

7 SPA. AT 245

402+/-

CL NEW BEAM

CL NEW BEAM

CL EXIST. BEAM

EXIST. DIAPH.

25x305 BENT FLANGE PL. (NTR) SLOPED

16 TOP CONN. PL. (NTR)

25 COVER PL.

300 LEVEL

300 LEVEL

16 WEB PL.

19x305 BENT FLANGE PL. (NTR)

10 GAP MAX.

2-10 PLS. AND 2-3 FILL PLS. SEE NOTE A

10 GAP MAX. TYP

20 PL.

16 CONN. PL.

2 PLS. 10x150x525

2 PLS. 10x180x840 AND 2 FILL PLS. 11x70x840

8 TYP.

8 TYP.

38 BRG. STIFF

16 WEB PL.

25x305 BENT FLANGE PL.

DIAPHRAGM

25 COVER PL.

16 BOTT. CONN. PL.

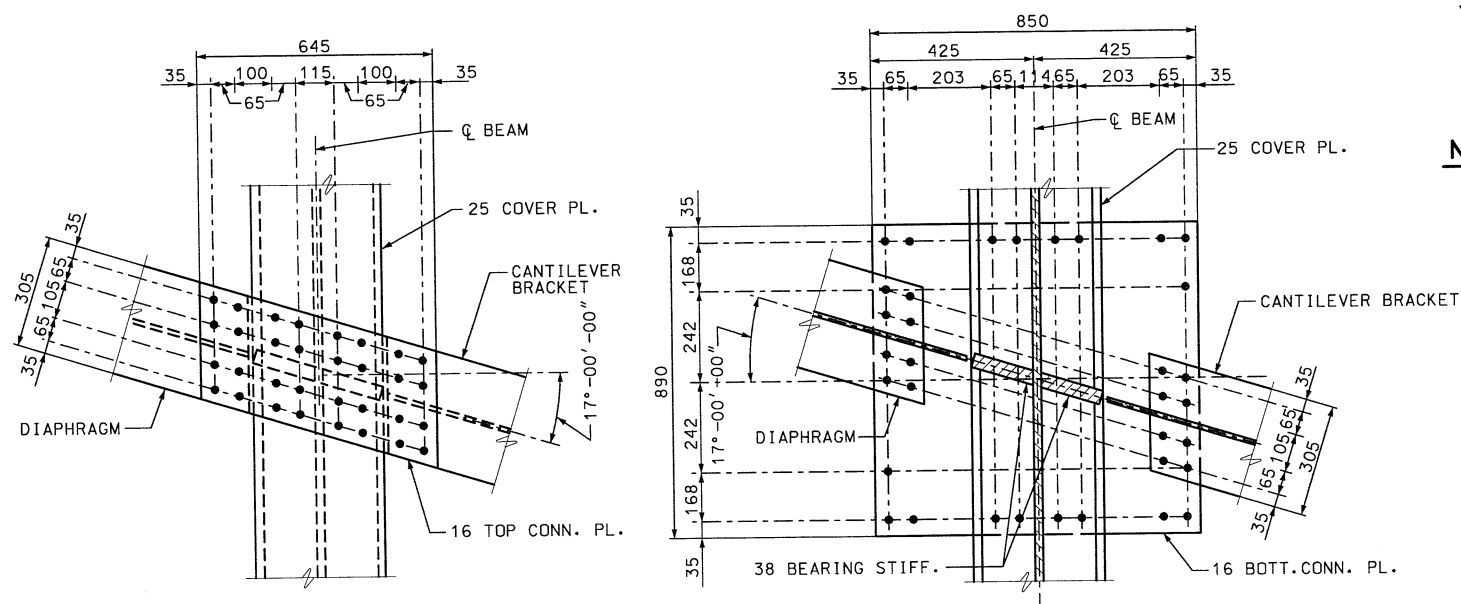
300 LEVEL

300 LEVEL

19x305 BENT FLANGE PL.

CANTILEVER BRACKET

NOTE A: THE 10 PLATES SHALL BE SIZED TO UTILIZE THE HOLES IN THE EXISTING 22 PLATE, WITH THE ADDITION OF ONE NEW HOLE AT THE TOP OF THE EXISTING HOLE GROUP. THE HOLES IN THE 10 PLATES SHALL BE SHOP SUBPUNCHED AND REAMED TO SIZE IN THE FIELD USING THE EXISTING HOLES AS A TEMPLATE. THE ADDITIONAL HOLE IN THE EXISTING 22 PLATE SHALL BE FIELD DRILLED AND REAMED TO SIZE, USING THE NEW 10 PLATE AS A TEMPLATE.

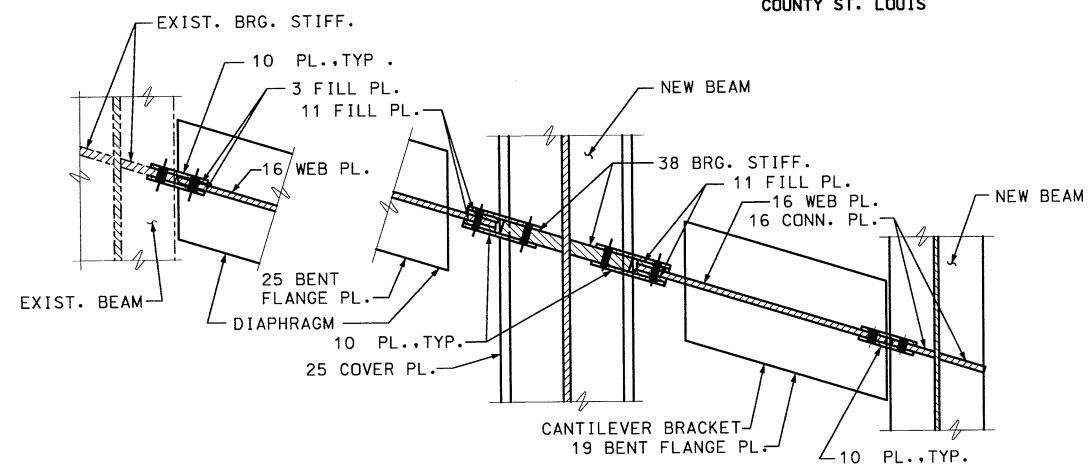


NOTE: WEB SPLICE PLS., NOT SHOWN FOR CLARITY.

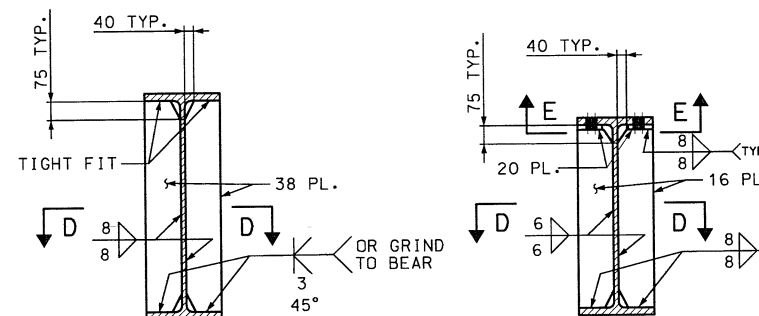
NOTE: WEB SPLICE PLS. AND BEARING
NOT SHOWN FOR CLARITY.

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS ESSENTIAL FEATURES, TO THE BEST OF MY KNOWLEDGE, AND AS FAR AS I HAVE OBSERVED, THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT, A SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

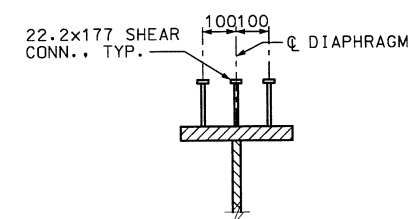
SIGNATURE _____ DATE _____



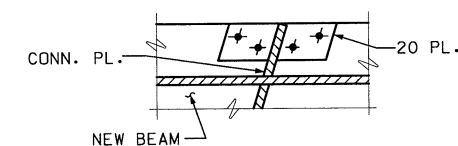
NOTE: 16 BOTTOM CONN. PL. NOT SHOWN FOR CLARITY.



NEW CONNECTION PLATE

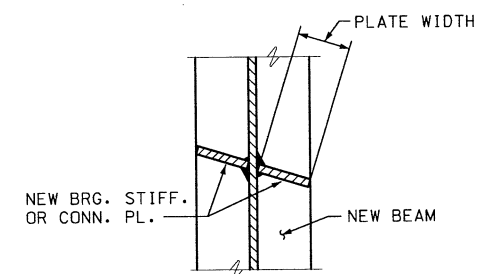


NOTE: MASS OF 661 kg OF SHEAR CONNECTORS IS INCLUDED IN THE MASS OF FABRICATED STRUCTURAL CARBON STEEL (I-BEAM). (NEW DIAPHRAGMS ONLY)



LEGEND

----- EXISTING STRUCTURAL MEMBER
 _____ NEW STRUCTURAL MEMBER



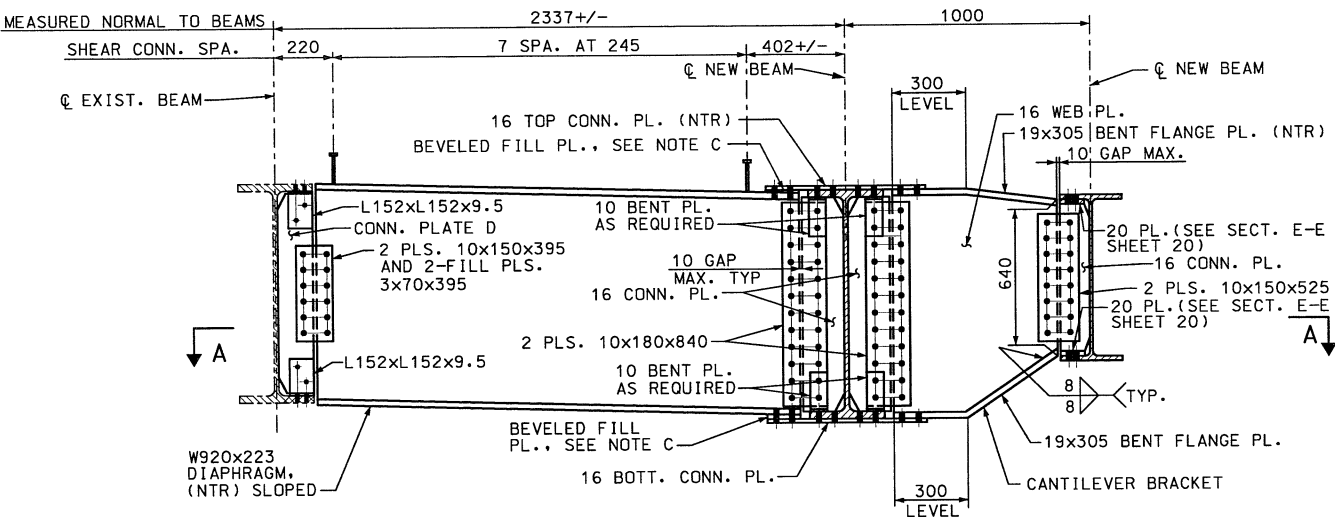
A circular professional engineer seal for the State of Missouri. The outer ring contains the text "STATE OF MISSOURI" at the top and "REGISTERED PROFESSIONAL ENGINEER" at the bottom. The center of the seal contains the name "ALLEN M. BOHRING", the word "NUMBER", and the number "E-18252". There are decorative arrows pointing outwards from the top and bottom of the central text.

ALL BOLTS SHALL BE 19.0 mm HIGH STRENGTH
BOLTS WITH 20.6 mm DIAMETER HOLES.

A09601

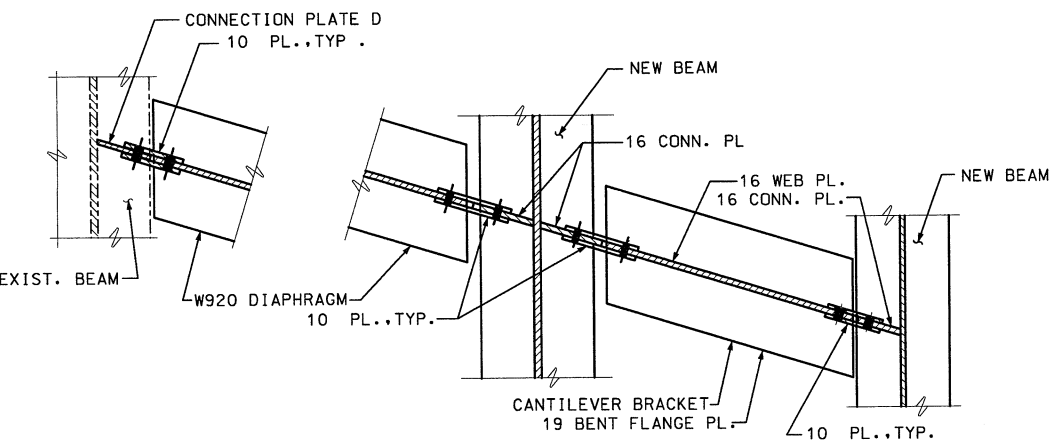
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

SHEET NO. 24



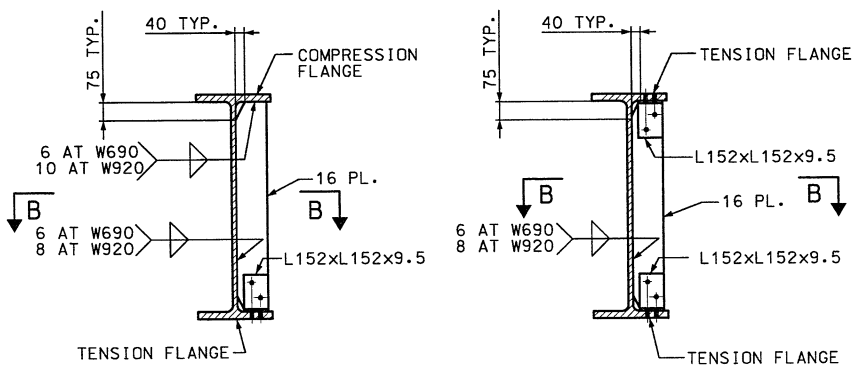
INTERMEDIATE DIAPHRAGM TYPE 7

NOTE C: BEVELED FILL PLS. SHALL BE BEVELED FOR BOTH SLOPE OF DIAPHRAGM AND BEAM FLANGE.



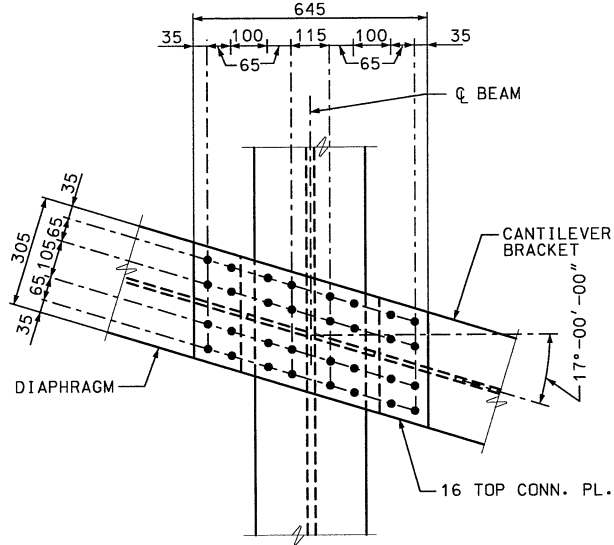
SECTION A-A

NOTE: 16 BOTTOM CONN. PL. AND TENSION FLANGE CLIP ANGLES NOT SHOWN FOR CLARITY.



CONNECTION PLATE DETAILS

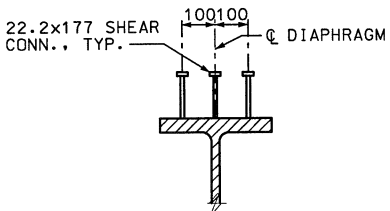
NOTE: FOR LOCATION OF NOTES A AND B, SEE FRAMING PLAN.



TOP CONNECTION PLATE - SHOWN

BOTTOM CONNECTION PLATE - SIMILAR

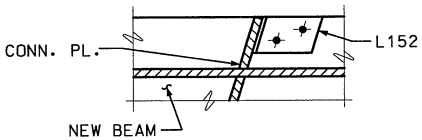
NOTE: WEB SPLICE PLS., AND TENSION FLANGE CLIP ANGLES NOT SHOWN FOR CLARITY.



SHEAR CONNECTOR

DETAIL

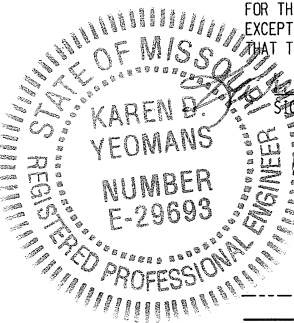
NOTE: MASS OF 661 kg OF SHEAR CONNECTORS IS INCLUDED IN THE MASS OF FABRICATED STRUCTURAL CARBON STEEL (I-BEAM). (NEW DIAPHRAGMS ONLY)



SECTION B-B

FINAL PLANS

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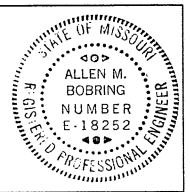
LEGEND

----- EXISTING STRUCTURAL MEMBER
———— NEW STRUCTURAL MEMBER

NOTE

ALL BOLTS SHALL BE 19.0 mm HIGH STRENGTH BOLTS WITH 20.6 mm DIAMETER HOLES.

STEEL DETAILS



MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

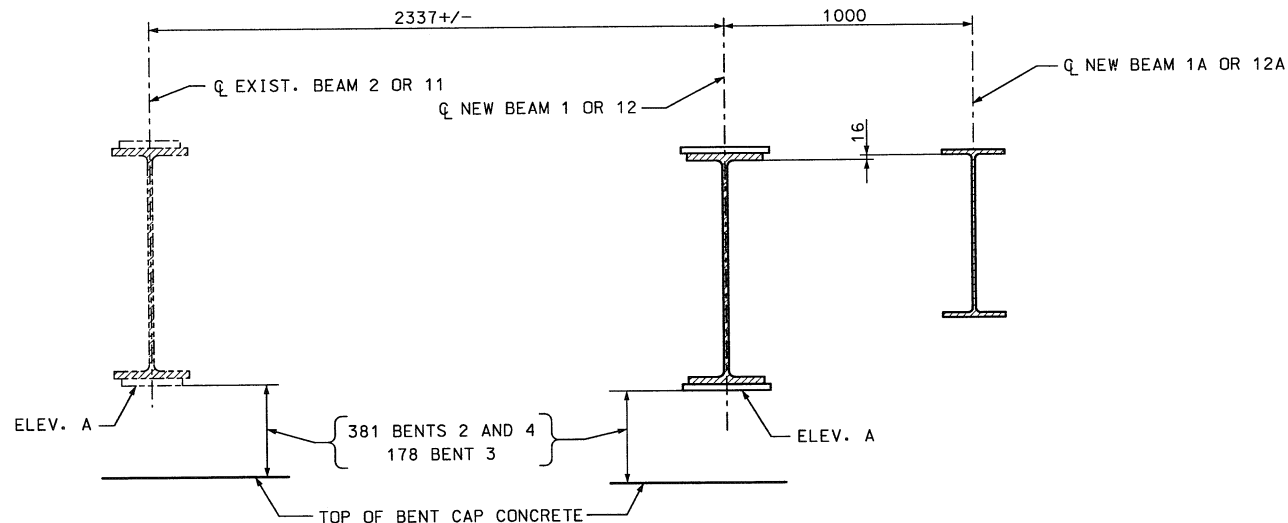
JOB NO. J6U1032

SHEET NO. 25

CONTRACT NO. 990423-605

PROJECT NO. FAF-100-1(21)

COUNTY ST. LOUIS

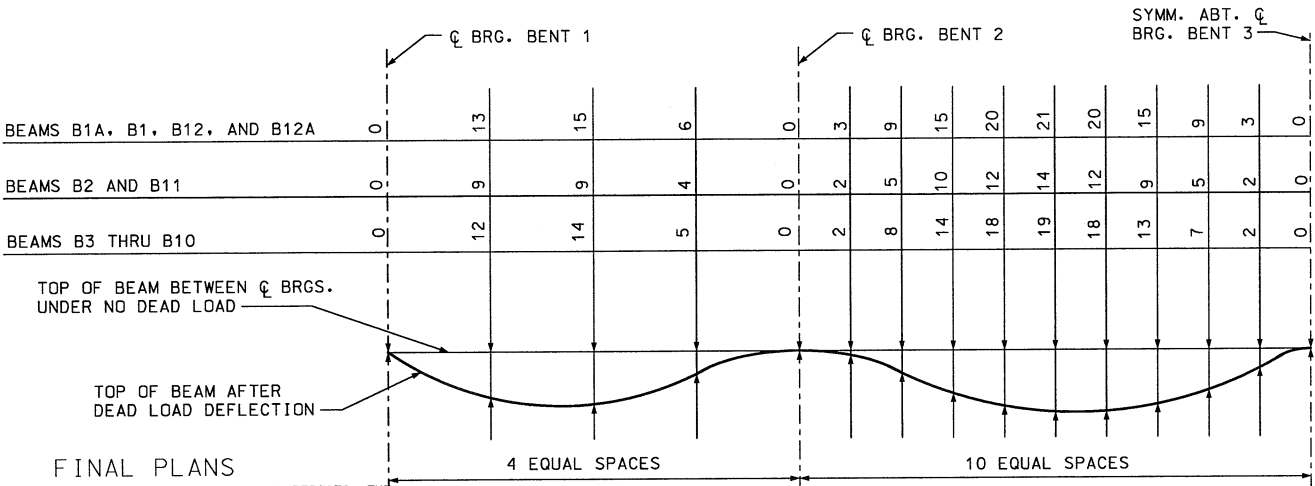


PART SECTION THRU BEAMS AT BENTS 2, 3 AND 4

NOTE: ALL DIMENSIONS ARE MEASURED NORMAL TO BEAMS
ELEVATION A AND B ARE TAKEN AT C BRG.

ELEVATION VARIABLES

LOCATION	ELEV. A	LOCATION	ELEV. A	LOCATION	ELEV. A
BENT 2 - BEAM 1	199.640	BENT 3 - BEAM 1	199.490	BENT 4 - BEAM 1	199.360
BENT 2 - BEAM 2	199.690	BENT 3 - BEAM 2	199.550	BENT 4 - BEAM 2	199.420
BENT 2 - BEAM 11	199.720	BENT 3 - BEAM 11	199.580	BENT 4 - BEAM 11	199.450
BENT 2 - BEAM 12	199.660	BENT 3 - BEAM 12	199.520	BENT 4 - BEAM 12	199.390

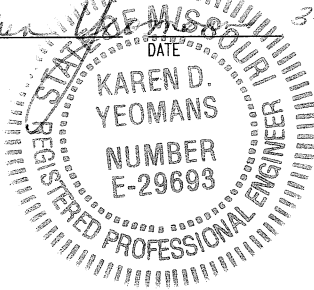


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SIGNATURE

DATE



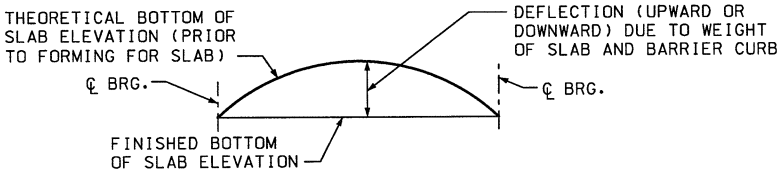
DEAD LOAD DEFLECTIONS

DEAD LOAD DEFLECTION INCLUDES WEIGHT OF STRUCTURAL STEEL, CONCRETE SLAB, RAISED MEDIAN, MEDIAN BARRIER, AND BARRIER CURB. 17% OF DEAD LOAD DEFLECTION IS DUE TO THE WEIGHT OF STRUCTURAL STEEL. SLAB HAUNCHING IS INCIDENTAL TO THE PAY ITEM "SLAB ON STEEL." NO PAYMENT WILL BE MADE FOR ANY ADJUSTMENT IN FORMING OR ADDITIONAL CONCRETE REQUIRED FOR VARIATION IN HAUNCHING. ESTIMATED VOLUME OF CONCRETE ASSUMES AN AVERAGE HAUNCH HEIGHT OF 84mm.

BOTTOM OF SLAB ELEVATIONS (PRIOR TO FORMING FOR SLAB)

BEAM NO.	SPAN 1					SPAN 2										C BRG BENT 3
	C BRG End Bent 1	0.25	0.5	0.75	C BRG BENT 2	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		
B1A	200.707	200.693	200.671	200.639	200.609	200.600	200.591	200.584	200.575	200.564	200.549	200.533	200.515	200.498	200.483	
B1	200.724	200.711	200.687	200.656	200.626	200.616	200.608	200.600	200.592	200.580	200.567	200.550	200.532	200.515	200.500	
B2	200.765	200.748	200.725	200.695	200.668	200.657	200.648	200.638	200.627	200.616	200.602	200.587	200.571	200.555	200.541	
B3	200.805	200.791	200.768	200.736	200.708	200.697	200.689	200.681	200.672	200.661	200.647	200.630	200.613	200.596	200.581	
B4	200.845	200.831	200.808	200.776	200.748	200.737	200.729	200.721	200.712	200.701	200.687	200.670	200.653	200.636	200.621	
B5	200.886	200.871	200.848	200.816	200.788	200.777	200.769	200.761	200.752	200.741	200.727	200.710	200.693	200.676	200.661	
B6	200.926	200.911	200.888	200.856	200.828	200.817	200.809	200.801	200.792	200.781	200.767	200.750	200.733	200.716	200.702	
B7	200.928	200.914	200.891	200.859	200.831	200.820	200.812	200.804	200.795	200.784	200.770	200.753	200.736	200.719	200.704	
B8	200.895	200.881	200.858	200.826	200.798	200.787	200.779	200.771	200.762	200.751	200.737	200.720	200.703	200.686	200.671	
B9	200.858	200.843	200.820	200.789	200.760	200.750	200.741	200.733	200.725	200.713	200.699	200.683	200.665	200.648	200.634	
B10	200.830	200.815	200.792	200.761	200.732	200.722	200.713	200.705	200.697	200.685	200.671	200.655	200.637	200.620	200.606	
B11	200.797	200.779	200.756	200.727	200.699	200.689	200.679	200.669	200.659	200.647	200.633	200.619	200.602	200.586	200.573	
B12	200.763	200.749	200.726	200.694	200.665	200.654	200.647	200.639	200.630	200.619	200.605	200.588	200.571	200.553	200.538	
B12A	200.748	200.735	200.713	200.680	200.651	200.641	200.633	200.626	200.616	200.606	200.591	200.574	200.557	200.540	200.524	

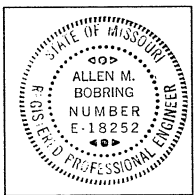
BEAM NO.	SPAN 3										SPAN 4					C BRG END BENT 5
	C BRG BENT 3	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	C BRG BENT 4	0.25	0.5	0.75		
B1A	200.483	200.473	200.465	200.457	200.448	200.438	200.423	200.407	200.389	200.372	200.356	200.337	200.321	200.294	200.259	
B1	200.500	200.489	200.482	200.474	200.465	200.454	200.440	200.423	200.406	200.388	200.373	200.354	200.337	200.311	200.276	
B2	200.541	200.530	200.520	200.511	200.501	200.489	200.475	200.461	200.445	200.430	200.415	200.393	200.374	200.349	200.317	
B3	200.581	200.571	200.562	200.554	200.546	200.534	200.521	200.504	200.486	200.470	200.455	200.435	200.417	200.392	200.357	
B4	200.621	200.611	200.602	200.594	200.586	200.574	200.561	200.544	200.526	200.510	200.495	200.475	200.457	200.432	200.397	
B5	200.661	200.651	200.642	200.635	200.626	200.614	200.601	200.584	200.566	200.550	200.535	200.515	200.497	200.472	200.437	
B6	200.702	200.691	200.682	200.675	200.666	200.654	200.641	200.624	200.606	200.590	200.575	200.555	200.537	200.512	200.477	
B7	200.704	200.694	200.685	200.677	200.669	200.657	200.643	200.627	200.609	200.592	200.578	200.557	200.540	200.515	200.480	
B8	200.671	200.661	200.652	200.644	200.636	200.624	200.611	200.594	200.576	200.560	200.545	200.525	200.507	200.482	200.447	
B9	200.634	200.623	200.615	200.607	200.598	200.587	200.573	200.556	200.539	200.522	200.507	200.487	200.470	200.444	200.410	
B10	200.606	200.595	200.586	200.579	200.570	200.558	200.545	200.528	200.510	200.494	200.479	200.459	200.441	200.416	200.382	
B11	200.573	200.561	200.551	200.543	200.532	200.521	200.507	200.492	200.477	200.461	200.446	200.425	200.406	200.380	200.349	
B12	200.538	200.528	200.520	200.513	200.504	200.492	200.479	200.462	200.444	200.427	200.412	200.393	200.375	200.350	200.314	
B12A	200.524	200.515	200.506	200.498	200.490	200.479	200.465	200.449	200.430	200.414	200.398	200.379	200.362	200.336	200.300	



TYPICAL SLAB ELEVATION DIAGRAM

BOTTOM OF SLAB ELEVATION NOTES

ELEVATIONS ARE ALONG THE CENTERLINE OF BEAM AT THE POINTS INDICATED, AND INCLUDE ALLOWANCES FOR THEORETICAL DEAD LOAD DEFLECTIONS DUE TO THE MASS OF SLAB AND BARRIER CURBS.



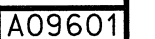
SLAB ELEVATIONS, BEAM LAYOUT AND DEFLECTIONS

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

[illegible]

A09601

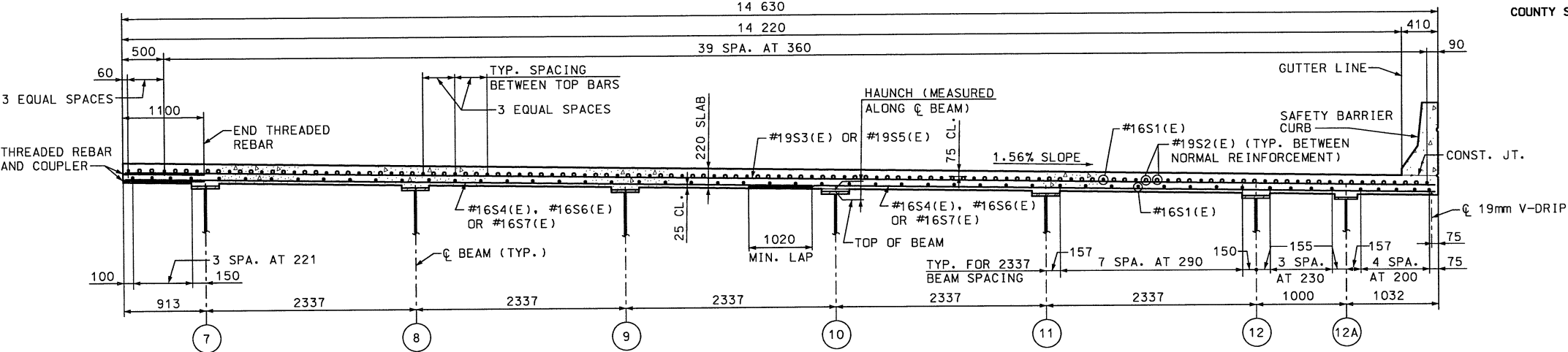
SHEET NO. 27



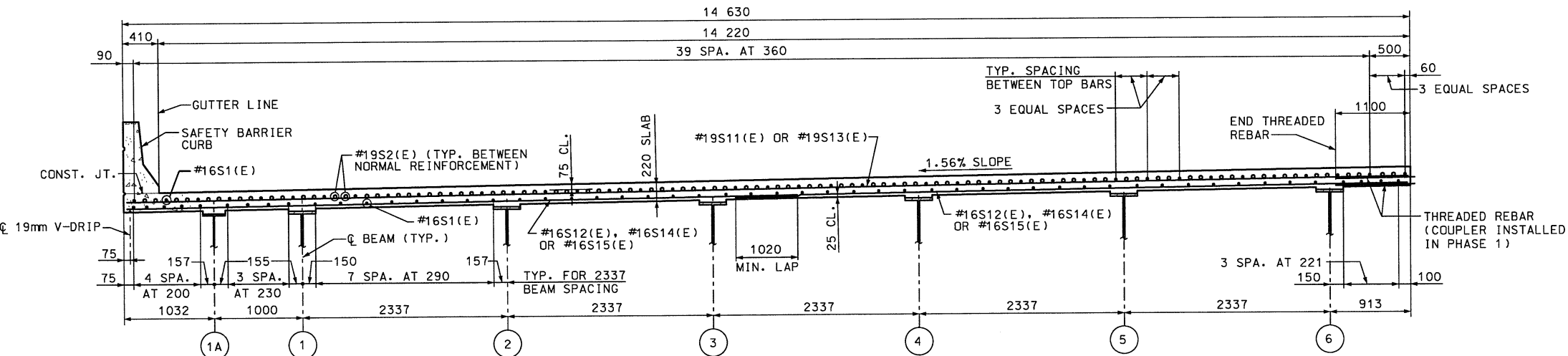
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

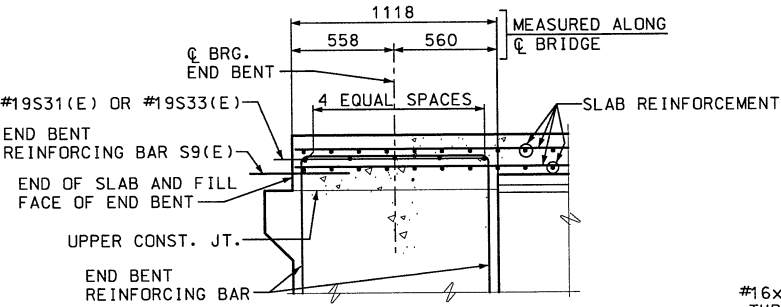
SHEET NO. 28



CROSS SECTION PHASE 1 CONSTRUCTION
LOOKING AHEAD STATION

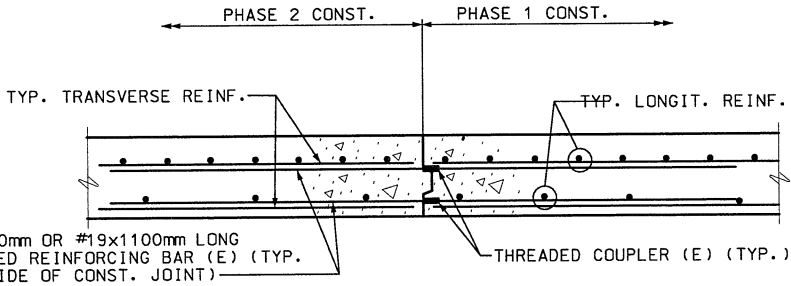


CROSS SECTION PHASE 2 CONSTRUCTION
LOOKING AHEAD STATION



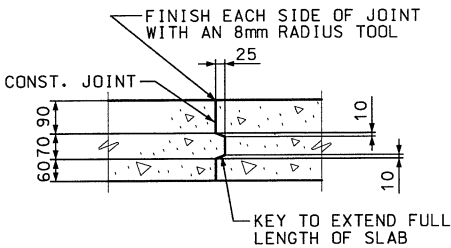
SECTION A-A

NOTE: SECTION B-B OPPOSITE HAND.
END BENT REINFORCEMENT NOT SHOWN,
EXCEPT AS NOTED.



THREADED REBAR COUPLER DETAIL

FOR THREADED REBAR COUPLER NOTES, SEE SHEET 13.



LONGIT. CONSTRUCTION JOINT DETAIL

FINAL PLANS

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE
KAREN D. YEOMANS
NUMBER
E-29693
REGISTERED PROFESSIONAL ENGINEER

DATE
3-27-05

SLAB NOTES

ROADWAY DRAINS NOT SHOWN. FOR DETAILS SEE SLAB DRAINS SHEET 36.
CONCRETE IN THE HAUNCHES IS INCLUDED IN THE ESTIMATED QUANTITY FOR SLAB ON STEEL.
V-DRIPS EXTEND FROM FRONT FACE TO FRONT FACE OF END BENTS.
ALL SLAB REINFORCING BARS SHALL BE EPOXY COATED.
FOR DETAILS OF BARRIER CURBS, SEE SHEETS 30 AND 31.
FOR DETAILS OF RAISED MEDIAN, SEE SHEET 31.

STATE OF MISSOURI
ALLEN M. BOBRING
NUMBER
E-18252
REGISTERED PROFESSIONAL ENGINEER

SLAB DETAILS

A09601

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
SHEET NO. 29
COUNTY ST. LOUIS

	SEQUENCE OF POURS PHASE 1A OR PHASE 2 POURS			MIN. RATE OF POUR (CU. M/HR.)	
	DIRECTION			WITH RETARDER	WITHOUT RETARDER
BASIC SEQUENCE	1+7+2 END TO 6	6+3 2 TO 5	5+4 3 TO END	25.7	25.7
ALTERNATE "A" POURS	1+7+2 END TO 6	6+3+5+4 2 TO END		24.2	40.4
ALTERNATE "B" POURS	1+7+2+6+3+5+4 END TO END			49.7	49.7
	CLOSURE POUR IN PHASE 1B MAY BE POURED IN ANY OF THE SEQUENCES SHOWN ABOVE FOR PHASE 1A.				
	SEQUENCE OF POURS PHASE 3 OR PHASE 4 POURS			MIN. RATE OF POUR (CU. M/HR.)	
	DIRECTION			WITH RETARDER	WITHOUT RETARDER
BASIC SEQUENCE	1+7+2 END TO 6	6+3+5+4 2 TO END		20.3	20.3
ALTERNATE "A" POURS	1+7+2+6+3+5+4 END TO END			27.4	45.6

SLAB POURING NOTES

ARROWS INDICATE DIRECTION OF PLACING CONCRETE.
THE CIRCLED NUMBERS INDICATE THE PLACING SEQUENCE.
ALL ROADWAY PANELS UNDER ONE PHASE NUMBER SHALL BE
POURED PRIOR TO ADVANCING TO THE NEXT PHASE NUMBER, SEE
CONSTRUCTION PHASING SHEETS.

THE CONTRACTOR SHALL POUR AND SATISFACTORILY
FINISH THE ROADWAY SLAB AT THE RATE GIVEN. RETARDER,
IF USED, SHALL BE AN APPROVED TYPE AND RETARD THE SET
OF CONCRETE TO 2.5 HOURS.

	SEQUENCE OF POURS				MIN. RATE OF POUR (CU. M/HR.)	
	DIRECTION				WITH RETARDER	WITHOUT RETARDER
BASIC SEQUENCE	1	7+2	6+3	5+4	19.6	22.4
	END TO 7	1 TO 6	2 TO 5	3 TO END		
ALTERNATE "A" POURS	1+7+2	6+3	5+4		24.6	41.0
	END TO 6	2 TO 5	3 TO END			
ALTERNATE "B" POURS	1+7+2		6+3+5+4		37.5	49.7
	END TO 6		2 TO END			
ALTERNATE "C" POURS	1+7+2+6+3+5+4				49.7	49.7
	END TO END					

FINAL PLANS
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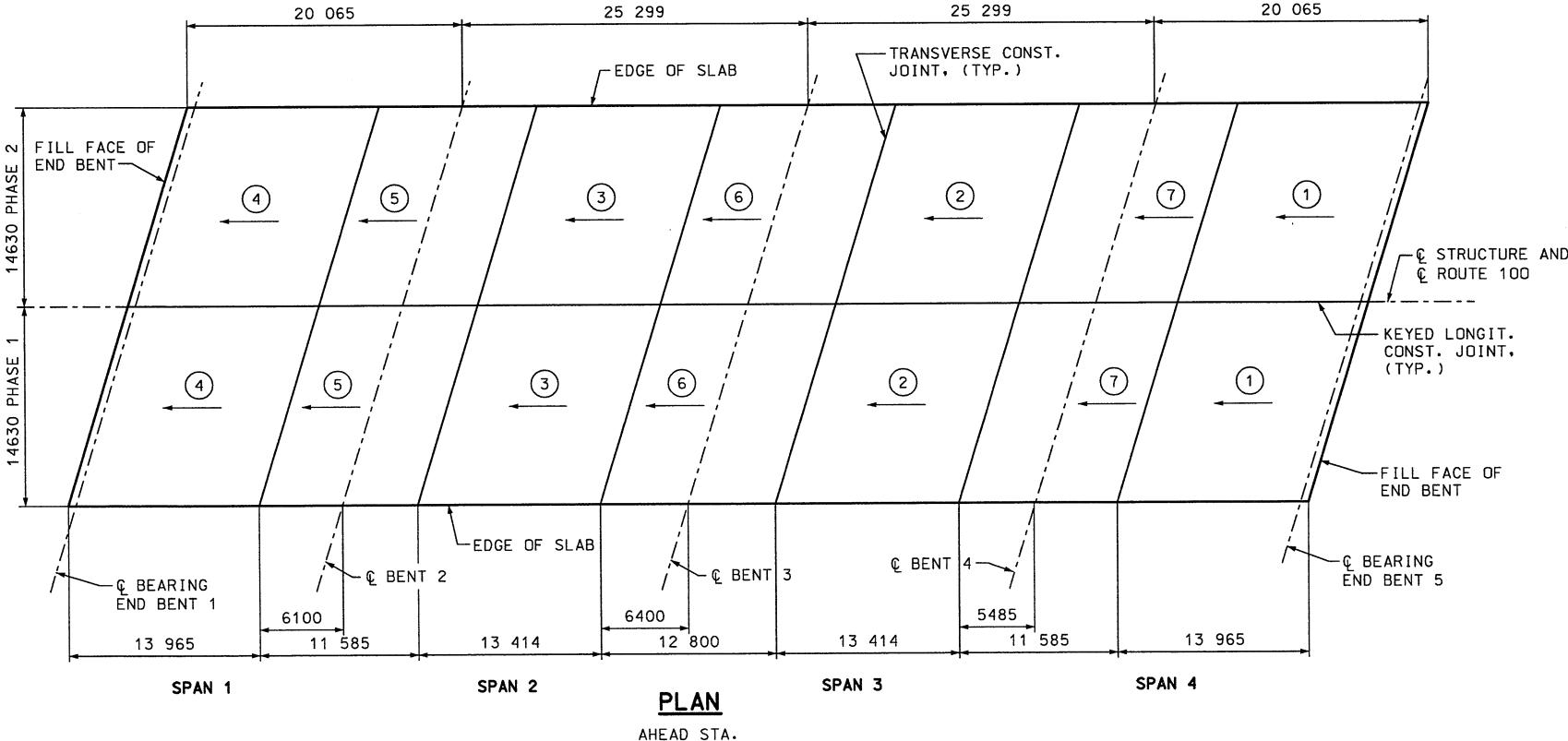
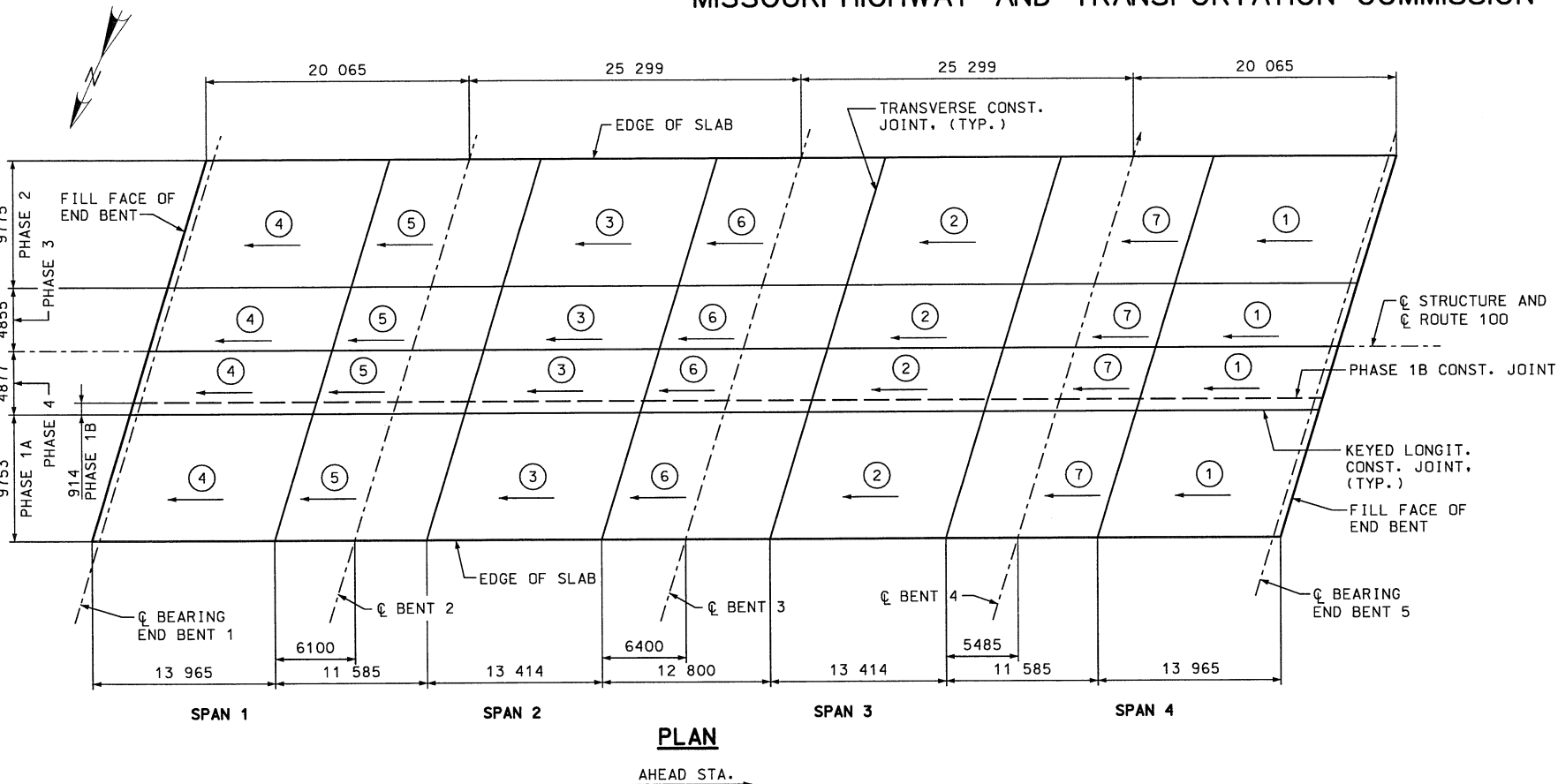
SIGNATURE DATE

KAREN D. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-29699

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
ALLEN M. BOHRING
NUMBER E-18252

SLAB POURING SEQUENCE

A09601



MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

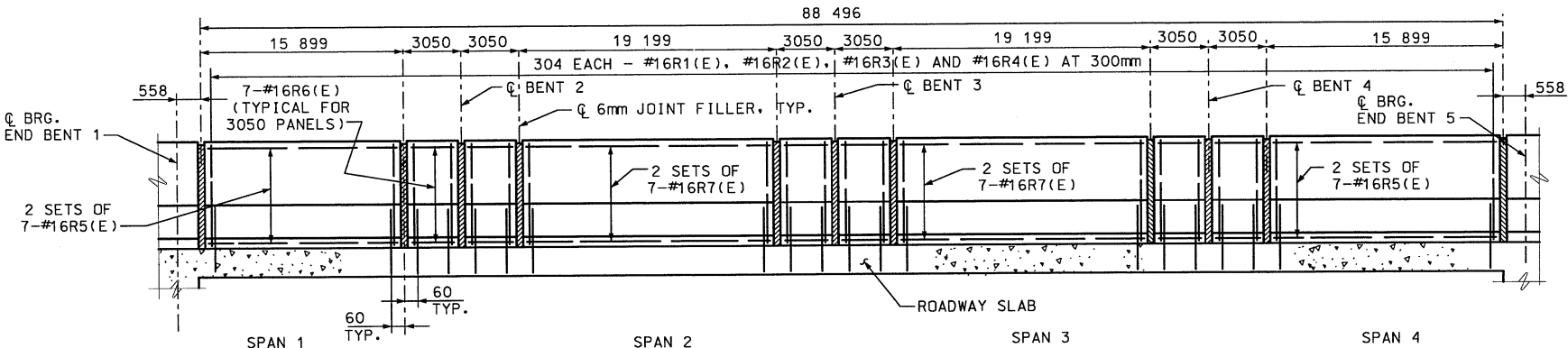
JOB NO. J6U1032

SHEET NO. 30

CONTRACT NO. 990423-605

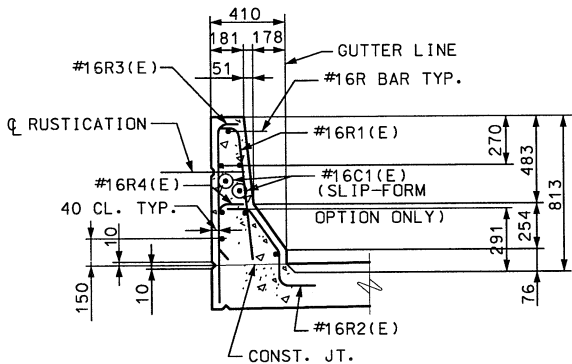
PROJECT NO. FAF-100-1(21)

COUNTY ST. LOUIS



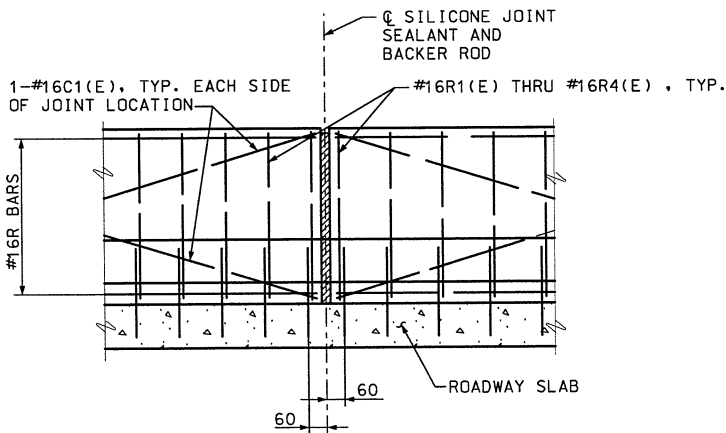
ELEVATION - SAFETY BARRIER CURB

NOTE: FOR CONTINUATION OF SAFETY BARRIER CURB, SEE END BENT DETAILS.

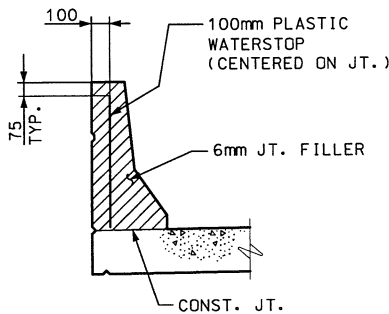


TYPICAL SECTION THRU SAFETY BARRIER CURB

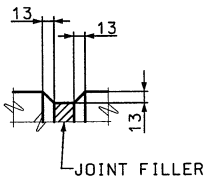
NOTE: THE CROSS-SECTIONAL AREA ABOVE THE SLAB = 213 500 sq. mm.
USE A MIN. LAP SPLICE LENGTH OF 925 FOR HORIZ. R BARS



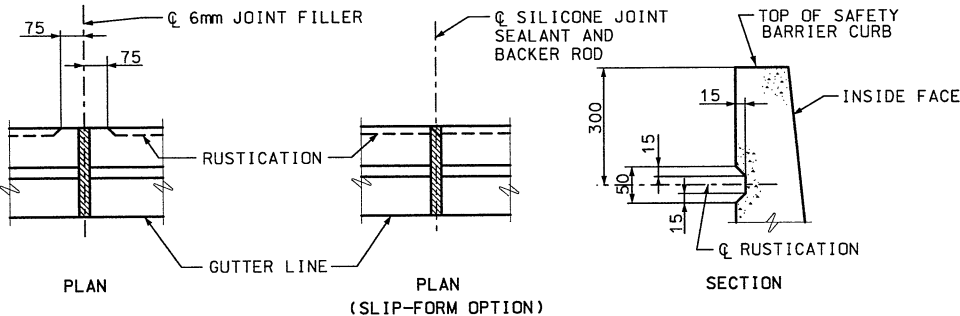
PART ELEVATION BARRIER CURB (SLIP-FORM OPTION)



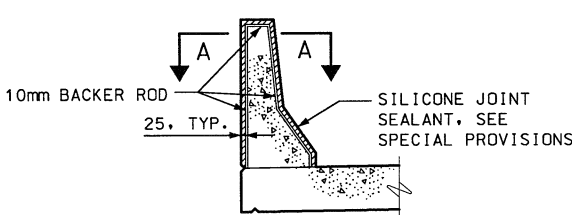
WATERSTOP DETAIL



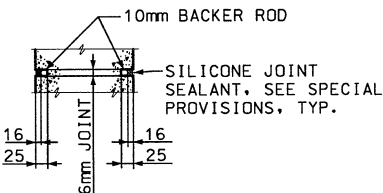
BEVELED EDGE OF CONCRETE AT FILLED JOINTS



RUSTICATION DETAILS



SECTION THRU SILICONE JOINT



SECTION A-A

FINAL PLANS

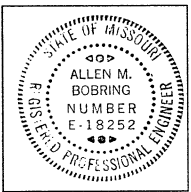
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE
KAREN D. VEOMANS
NUMBER
E-29693
DATE
3-27-05
REGISTERED PROFESSIONAL ENGINEER

BARRIER CURB NOTES

TOP OF BARRIER CURBS SHALL BE BUILT PARALLEL TO PROFILE GRADE WITH JOINTS NORMAL TO GRADE, EXCEPT JOINTS SHALL BE VERTICAL AT END BENTS.
ALL EXPOSED EDGES OF SAFETY BARRIER CURB AND MEDIAN BARRIER CURB SHALL HAVE EITHER A 15mm RADIUS OR 10mm BEVEL UNLESS OTHERWISE NOTED.
THE CONTRACT UNIT PRICE OF SAFETY BARRIER CURB-METRIC, MEDIAN BARRIER CURB-METRIC AND RAISED MEDIAN-METRIC SHALL INCLUDE THE COST OF ALL CONCRETE, REINFORCEMENT, PLASTIC WATERSTOP, JOINT FILLER AND APPURTENANCES, COMPLETE IN PLACE.
CONCRETE IN SAFETY BARRIER CURBS SHALL BE CLASS B-1. MEASUREMENT OF SAFETY BARRIER CURBS IS TO THE NEAREST HALF METER, MEASURED ALONG THE OUTSIDE TOP OF SLAB FROM END OF WINGWALL TO END OF WINGWALL.
CONCRETE IN MEDIAN BARRIER AND RAISED MEDIAN SHALL BE CLASS B-1. MEASUREMENT OF MEDIAN BARRIER AND RAISED MEDIAN IS TO THE NEAREST HALF METER, MEASURED ALONG THE TOP OF SLAB FROM END OF APPROACH SLAB TO END OF APPROACH SLAB.
PLASTIC WATERSTOP SHALL BE PLACED IN ALL BARRIER CURB AND MEDIAN BARRIER FILLED JOINTS.
JOINT SEALANT AND BACKER RODS SHALL BE USED ON ALL SLIP-FORM BARRIER CURB AND MEDIAN BARRIER JOINTS INSTEAD OF JOINT FILLER.
PLASTIC WATERSTOP SHALL NOT BE USED WITH SLIP-FORM OPTION.
#16C BARS (SLIP-FORM OPTION ONLY) SHALL BE USED IN ADDITION TO CAST-IN-PLACE CONVENTIONAL FORMING REINFORCEMENT FOR SAFETY BARRIER CURBS AND MEDIAN BARRIER CURB.

BARRIER CURBS



MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

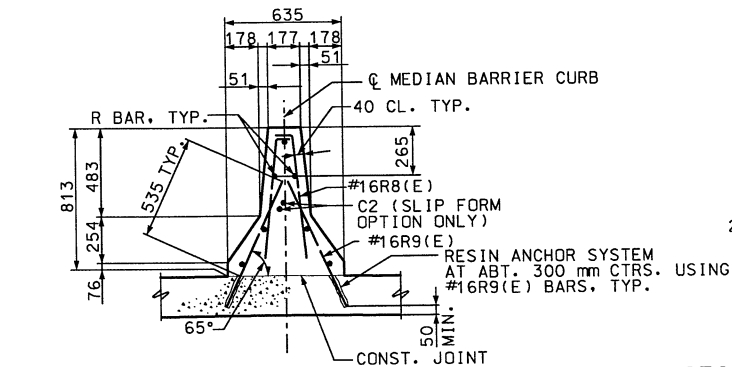
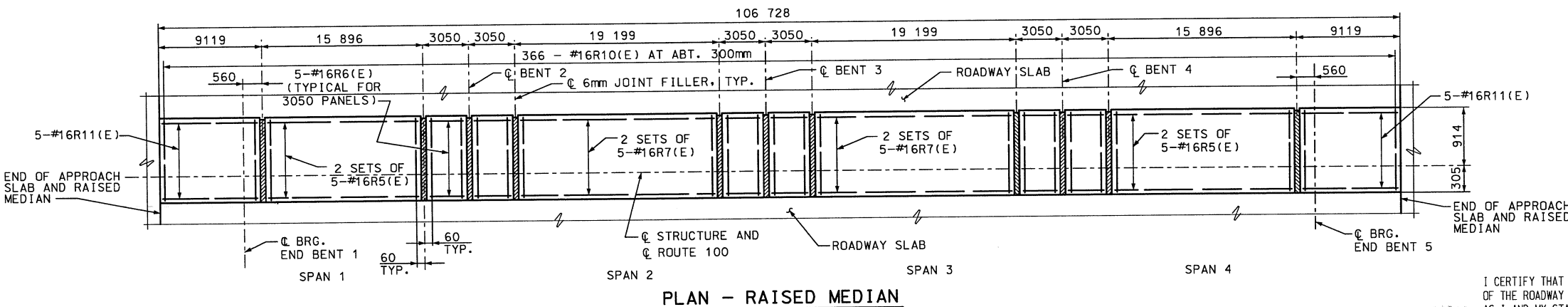
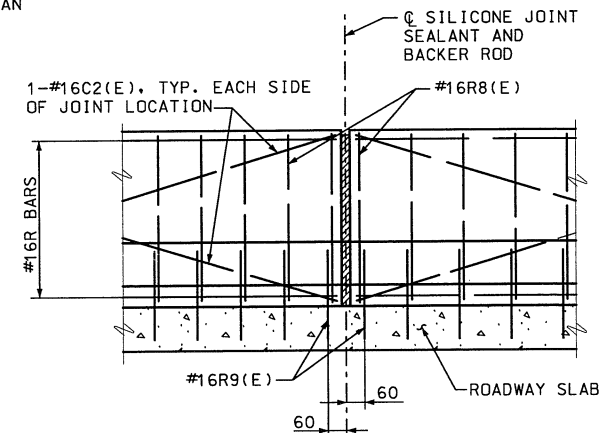
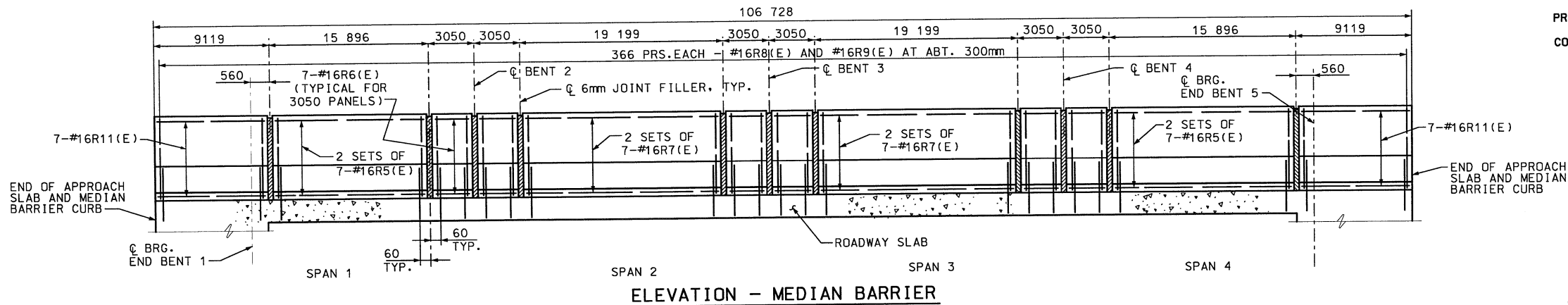
JOB NO. J6U1032

SHEET NO. 31

CONTRACT NO. 990423-605

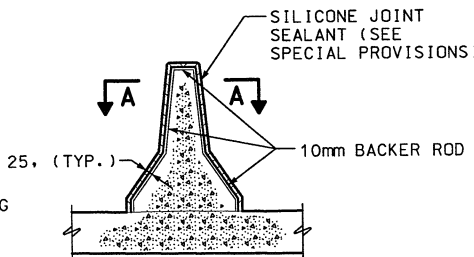
PROJECT NO. FAF-100-1(21)

COUNTY ST. LOUIS

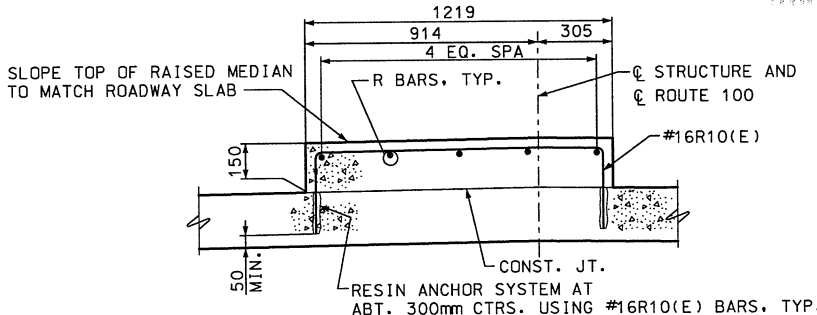


RESIN ANCHOR SYSTEM
TYPICAL SECTION THRU
MEDIAN BARRIER CURB

NOTE: THE CROSS-SECTIONAL AREA ABOVE
THE SLAB = 274 500 sq. mm.
USE A MIN. LAP SPLICE LENGTH OF
925 FOR HORIZ. R BARS

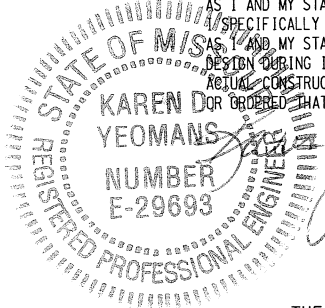


SECTION THRU SILICONE JOINT



TYPICAL SECTION THRU
RAISED MEDIAN

FINAL PLANS
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OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE,
AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT.
SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT
AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT
DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S
ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED
OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

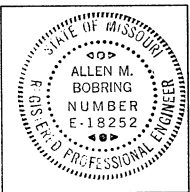


RESIN ANCHOR NOTES

THE CONTRACTOR SHALL AVOID NICKING OR CUTTING SLAB
REINFORCING BARS. SLAB REINFORCING SHALL BE LOCATED
AND MARKED PRIOR TO DRILLING HOLES IN SLAB.

THE CONTRACTOR SHALL USE ONE OF THE RESIN ANCHOR
SYSTEMS LISTED IN THE SPECIAL PROVISIONS. THESE
ANCHOR SYSTEMS SHALL BE INSTALLED ACCORDING TO THE
MANUFACTURER'S SPECIFICATIONS, EXCEPT AS MODIFIED
BY THE SPECIAL PROVISIONS.

COST OF FURNISHING AND INSTALLING THE ANCHOR SYSTEM
COMPLETE IN PLACE SHALL BE INCLUDED IN THE RESPECTIVE
PRICE BID FOR MEDIAN BARRIER CURB AND RAISED MEDIAN.



MEDIAN BARRIER CURB
AND RAISED MEDIAN

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

The technical drawings illustrate the bearing assembly from two perspectives: End View and Side View.

End View: This view shows the top-down layout of the bearing. Key dimensions include a total width of 310 mm, with 250 mm between the centerlines of the existing beam and the bent and bearing. The bearing itself is 235 mm wide. The assembly consists of a 19 mm cover plate, 15x15 mm clips, 25 mm plates, a beveled sole plate, a 3 mm stainless steel plate with a flat surface, a 38 mm plate, and a 38 mm masonry plate. The top of the concrete is indicated. The bearing is supported by a 47 mm laminated neoprene bearing pad bonded to the 38 mm plate. The bottom of the assembly is 400 mm high, with a 50 mm projection of threads. The bottom dimensions are 180 mm between the centerlines of the 32 mm diameter swaged anchor bolts and 230 mm between the centerlines of the 38 mm diameter holes in the lead plate and 38 mm plate.

Side View: This view shows the side profile of the bearing. Key dimensions include a total width of 230 mm, with 200 mm between the centerlines of the existing beam and the bent and bearing. The bearing is 200 mm wide. The assembly consists of a 19 mm cover plate, a beveled sole plate, a 25 mm plate, a 3 mm stainless steel plate, a 38 mm plate, and a 38 mm masonry plate. The bearing is supported by a 47 mm laminated neoprene bearing pad. The bottom of the assembly is 134 mm high, with a 222 mm projection of threads. The bottom dimensions are 165 mm between the centerlines of the 32 mm diameter swaged anchor bolts and 220 mm between the centerlines of the 38 mm diameter holes in the lead plate and 38 mm plate.

Technical drawing of a rectangular plate with dimensions and labels:

- Overall width: 360
- Overall height: 330
- Inner frame width: 70 DUROMETER ELASTOMER
- Inner frame height: 3 TYP.
- Plate thickness: 3mm STEEL PLATE, TYP. (3 REQUIRED)
- Plate width: 47
- Plate height: 13 TYP.
- Plate width (bottom): 6
- Plate height (bottom): 6

NOTE: THE 3mm STEEL PLATES SHALL BE PLACED BETWEEN LAYERS OF ELASTOMER AND MOLDED TOGETHER TO FORM AN INTEGRAL UNIT.

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NUMBER
E-29693

BE CONSTRUCTED.

OF MISSOURI

3-27-05

DATE

KAREN D.
YEOMANS
NUMBER
E-29693

REGISTERED PROFESSIONAL ENGINEER

© 20.6mm DIA. FIELD DRILLED HOLES IN BEAM FLANGE AND COVER PLATE FOR 19.0mm HIGH STRENGTH BOLTS

25 PL. TYP.

25 PL.

© EXIST. BEAM, WELDED TO COLUMN AND EXIST. COVER PLATE

© BEARING STIFF.

BEVELED SOLE PL.

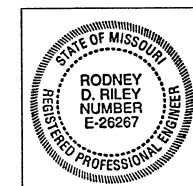
Dimensions:

- Overall width: 500
- Top flange segments: 250, 250
- Top flange hole offsets: 160, 90, 90, 160
- Overall height: 460
- Web segment heights: 230, 30, 230, 30
- Bottom flange hole offset: 190
- Angle: 17°-00'-00"

[illegible]

OPTIONAL SWEDGED ANCHOR BOLT DETAIL

FOR BEARING NOTES, SEE SHEET 31.



BEARING DETAILS AT BENTS 2 AND 4

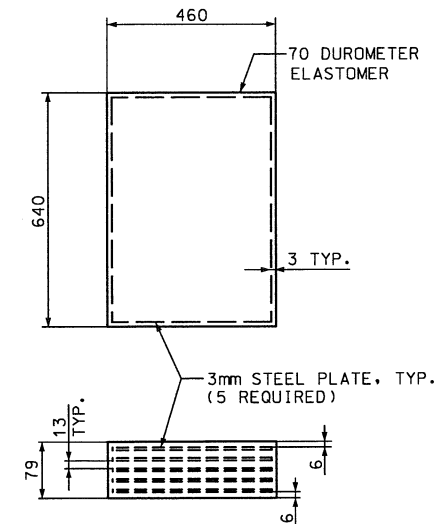
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JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

JOB NO. J6U1032

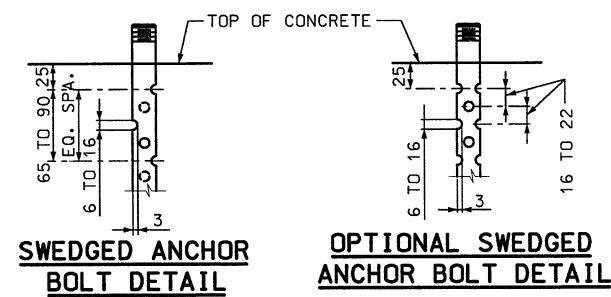
PROJECT NO. FAF-100-1(21)

COUNTY ST. LOUIS



NOTE: THE 3mm STEEL PLATES SHALL BE PLACED BETWEEN LAYERS OF ELASTOMER AND MOLDED TOGETHER TO FORM AN INTEGRAL UNIT.


NOTE: PROVIDE A TOTAL OF 4-3mm SHIM PLATES FOR
ADDITIONAL ADJUSTMENT.



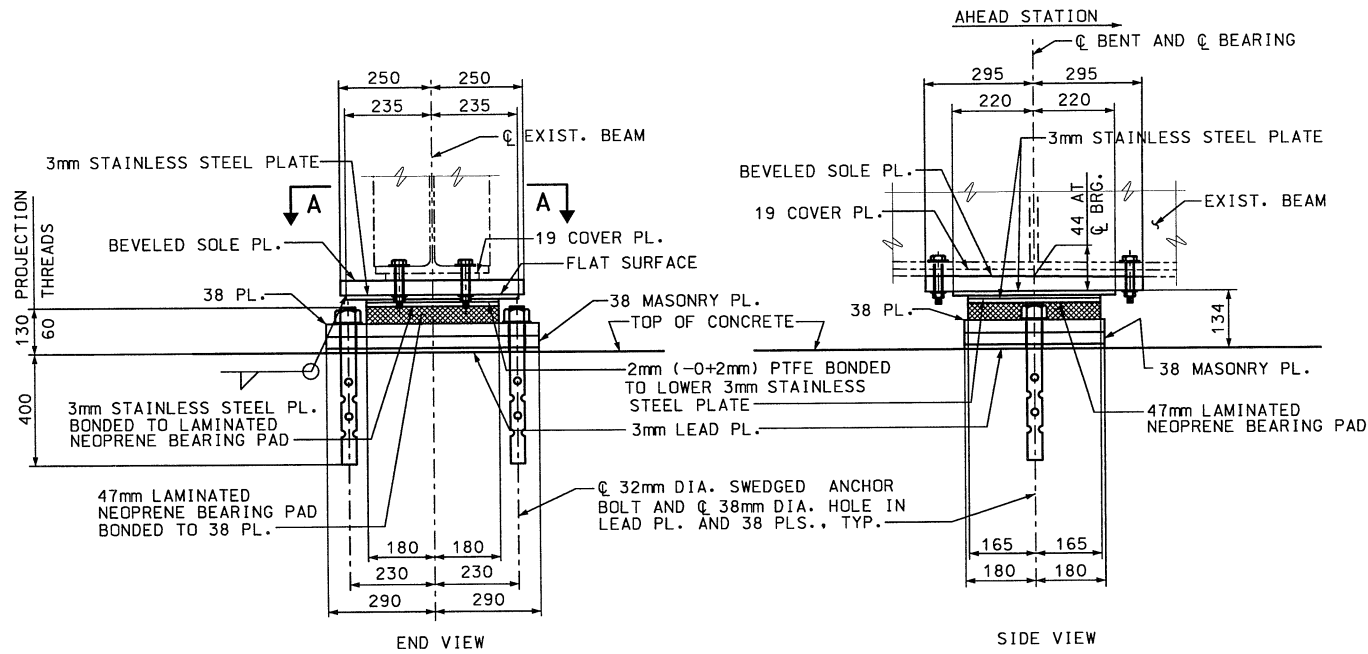
3-27-05
DATE

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
KAREN D. YEOMANS
NUMBER E-29693

FOR BEARING NOTES, SEE SHEET 30.

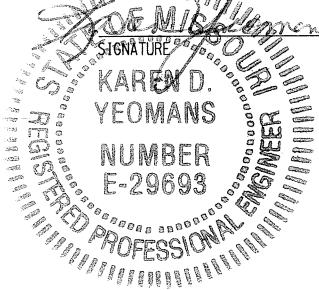


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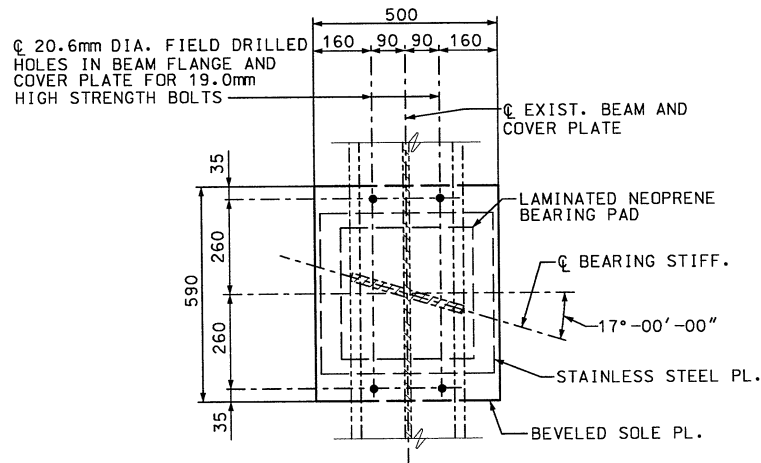


TYPE "N" PTFE EXPANSION BEARING AT
BENT 3 - BEAMS 2 THRU 11

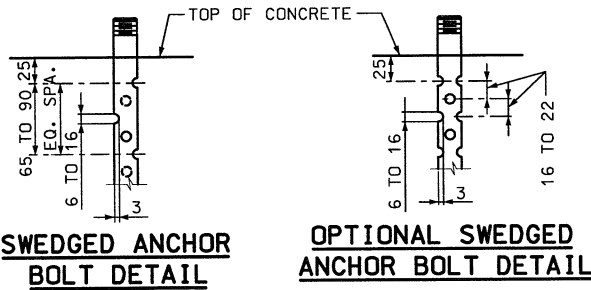
FINAL PLANS
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3-27-05
DATE

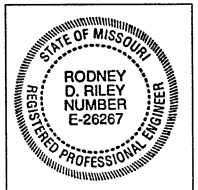


SECTION A-A



NOTES

FOR BEARING NOTES, SEE SHEET 30.

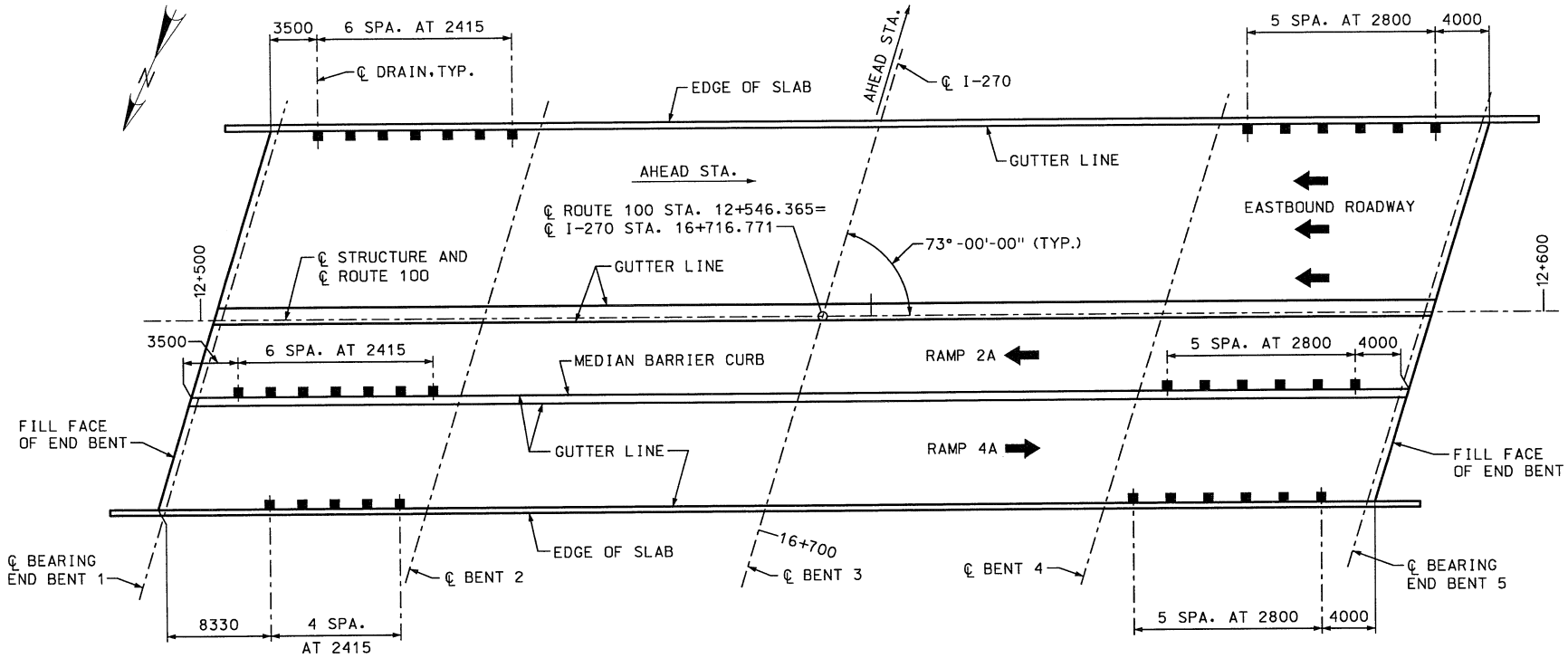


BEARING DETAILS AT BENT 3

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

SHEET NO. 36

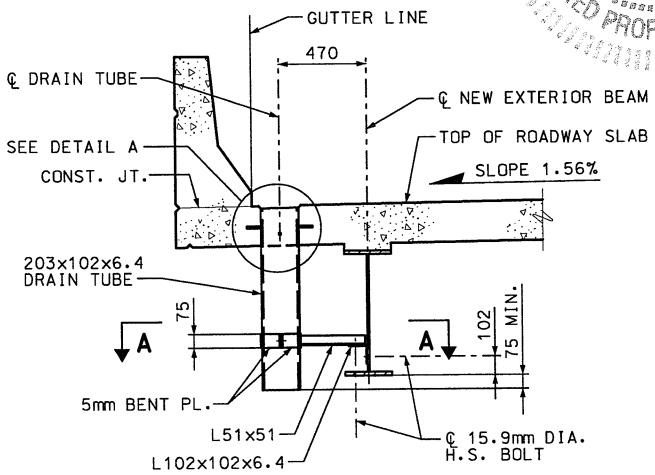


DRAIN LOCATION PLAN

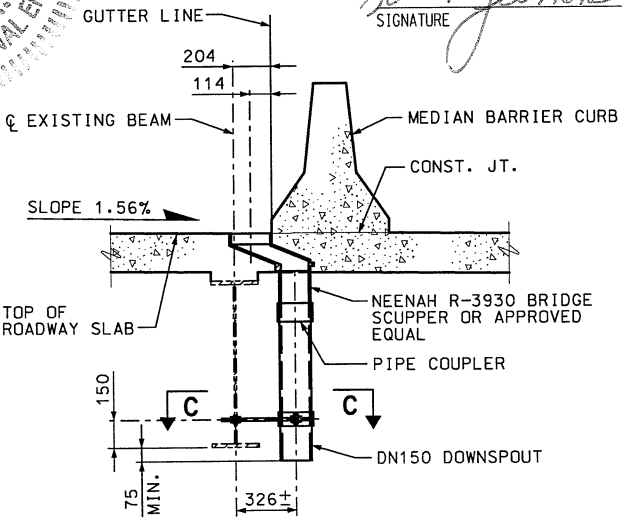
FINAL PLANS

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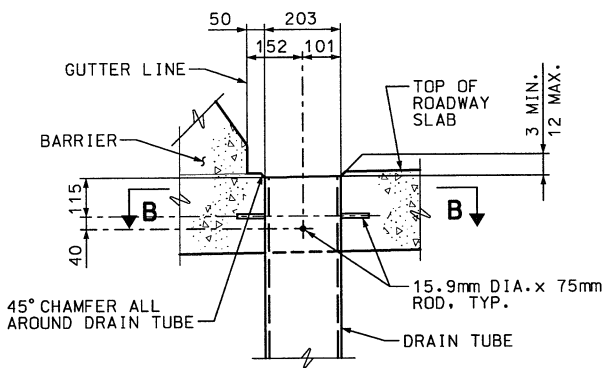
SIGNATURE: *Karen D. Yeoman* DATE: 3-27-05



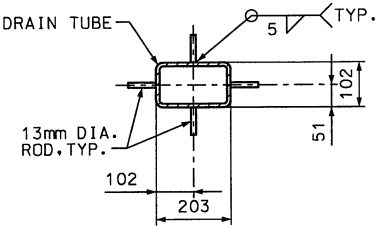
ELEVATION - TUBE TYPE SLAB DRAIN
AT EXTERIOR BARRIER
(24 REQUIRED)



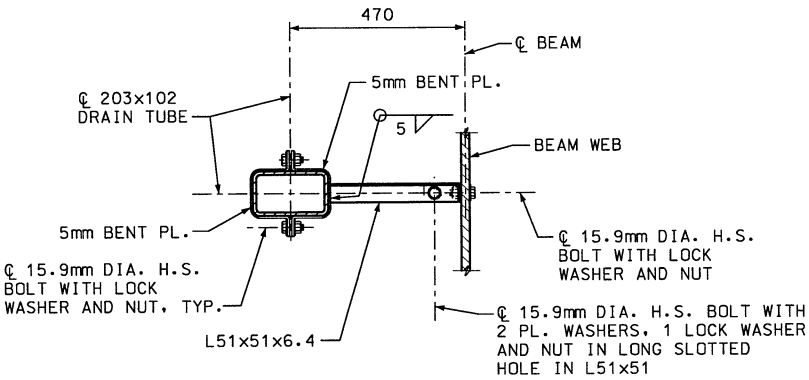
ELEVATION - SLAB DRAIN WITH GRATE
AT MEDIAN BARRIER CURB
(13 REQUIRED)



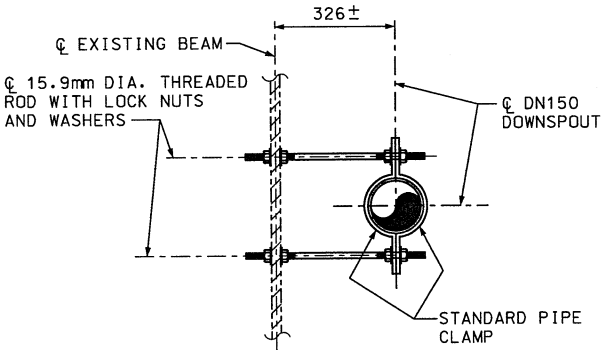
DETAIL A



SECTION B-B



SECTION A-A

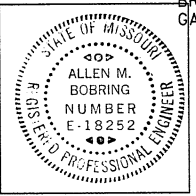


SECTION C-C

NOTE: THREADED RODS SHALL HAVE 150mm MIN. LENGTH OF THREADS AT EACH END.

NOTES

TUBE TYPE SLAB DRAINS MAY BE FABRICATED OF EITHER 6mm WELDED SHEETS OF ASTM A709M GRADE 250 STEEL OR FROM 6.4mm STRUCTURAL STEEL TUBING ASTM A500 OR A501. SHIFT REINFORCING STEEL IN FIELD WHERE NECESSARY TO CLEAR DRAINS. THE DRAINS AND BRACKET ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. ALL BOLTS, PLATE WASHERS, LOCK WASHERS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. THE BOLT HOLES FOR THE BRACKET ASSEMBLY ATTACHMENT SHALL BE LOCATED ON THE BEAM SHOP DRAWINGS. SHOP DRAWINGS WILL NOT BE REQUIRED FOR THE TUBE TYPE SLAB DRAINS AND THE BRACKET ASSEMBLY. ALL STEEL RODS SHALL CONFORM TO ASTM A709M, GRADE 250. THE RESPECTIVE CONTRACT UNIT PRICE FOR SLAB DRAIN AND SLAB DRAIN WITH GRATE SHALL INCLUDE THE COST OF THE SLAB DRAIN, GRATE BRACKET ASSEMBLY, BOLTS, PLATE WASHERS, LOCK WASHERS, NUTS, GALVANIZING AND APPURTENANCES COMPLETE IN PLACE.



SLAB DRAINS

A09601

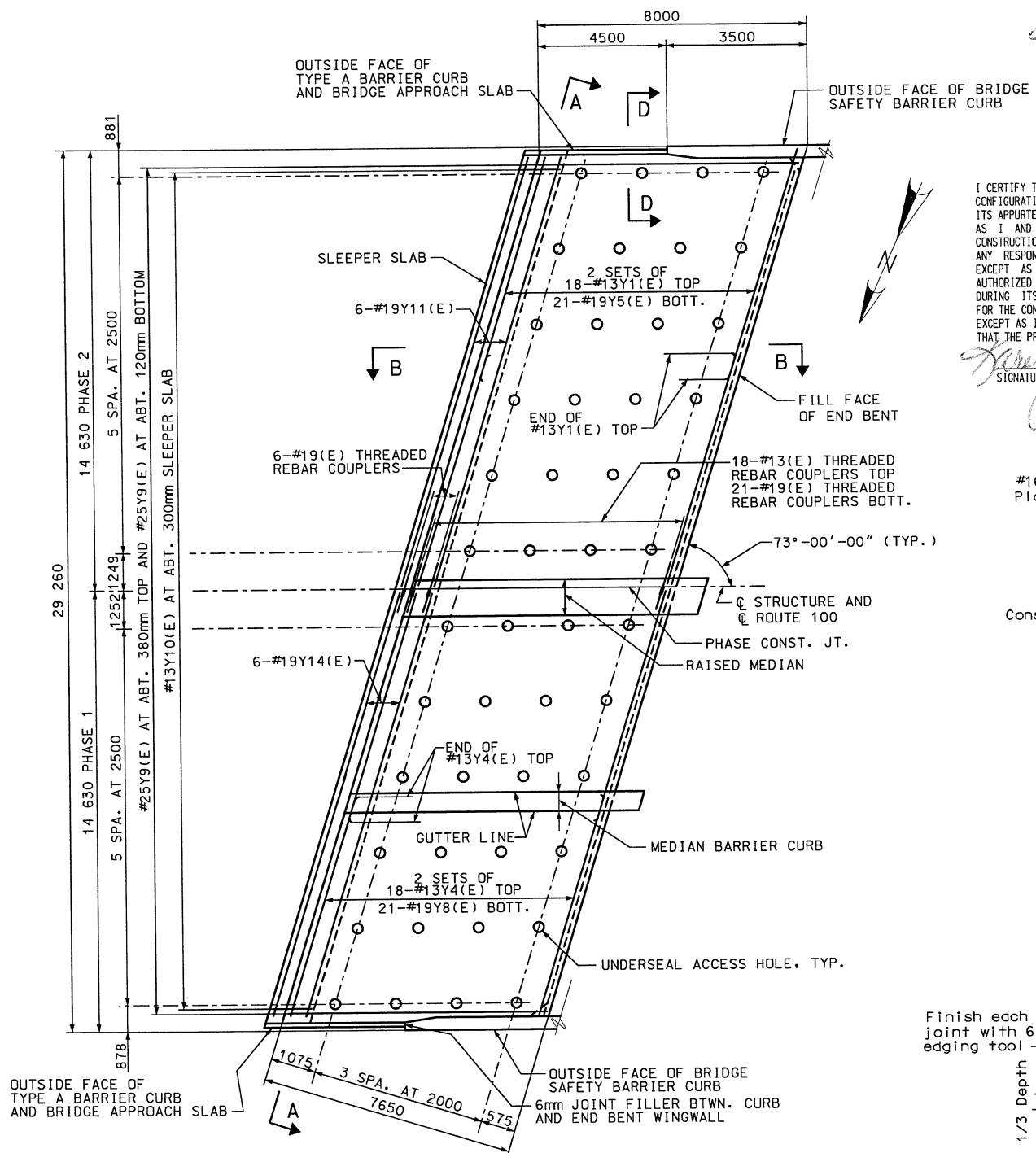
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21) COUNTY ST. LOUIS



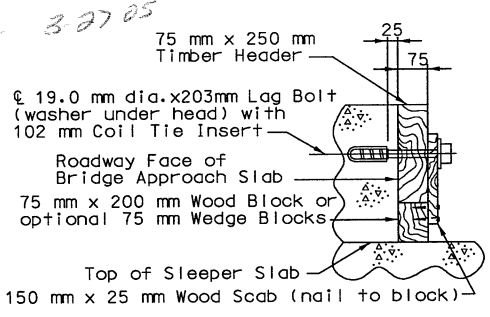
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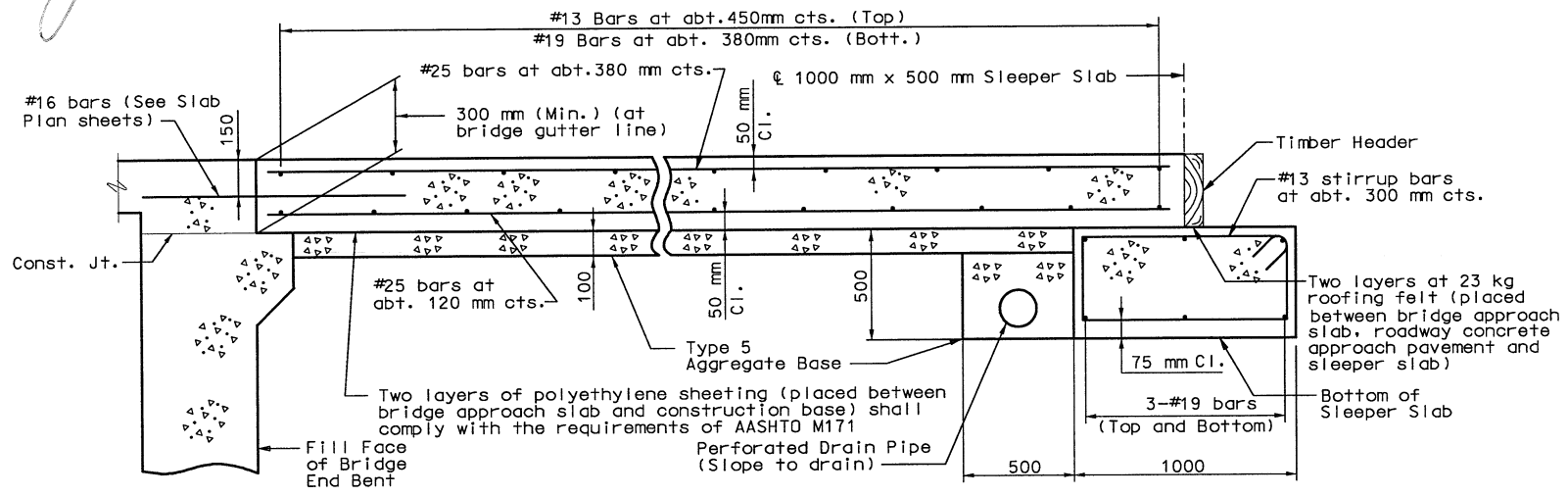
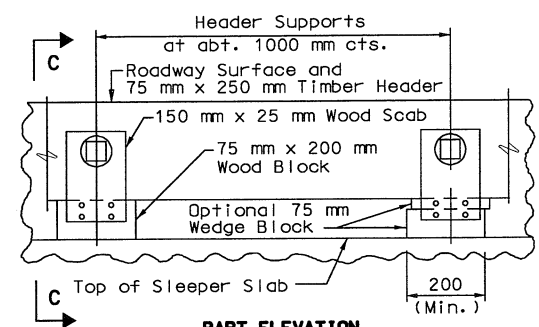


PLAN - END BENT 1
END BENT 5 OPPOSITE HAND

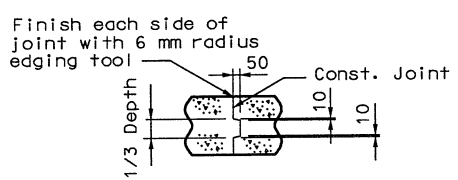
NOTE: FOR DETAILS OF MEDIAN BARRIER CURB AND RAISED MEDIAN, SEE BARRIER SHEETS.



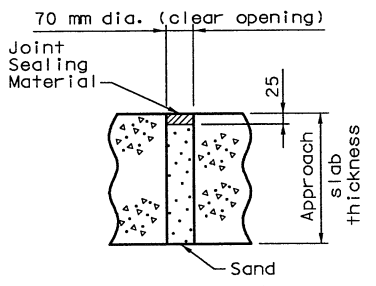
SECTION C-C
Note: Remove timber header when concrete pavement is placed.
DETAILS OF TIMBER HEADER



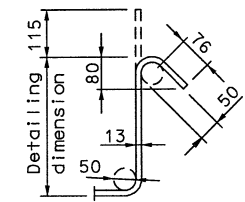
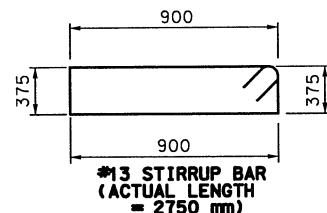
SECTION B-B



CONST. JOINT DETAIL
(IF REQUIRED)



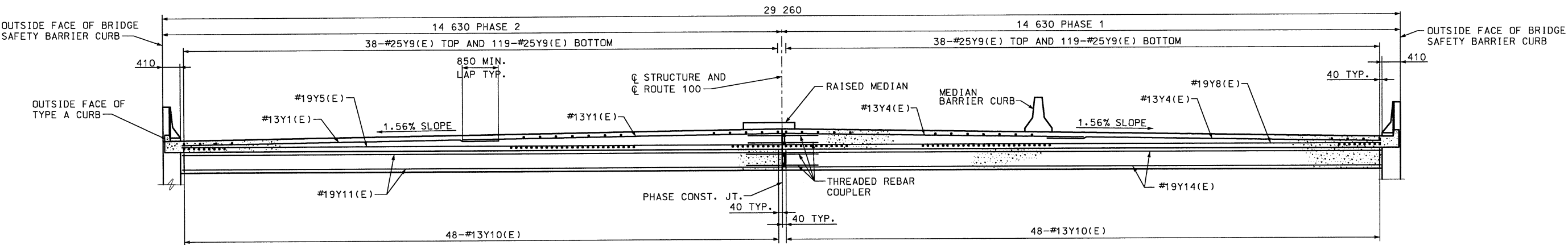
TYPICAL UNDERSEAL
ACCESS HOLE DETAIL



Note:
Nominal lengths are based on out to out dimensions shown in bending diagram and are listed for fabricators use (nearest 5 mm).

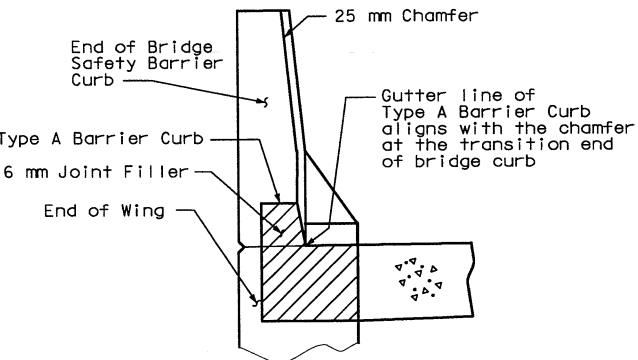


BRIDGE APPROACH SLAB

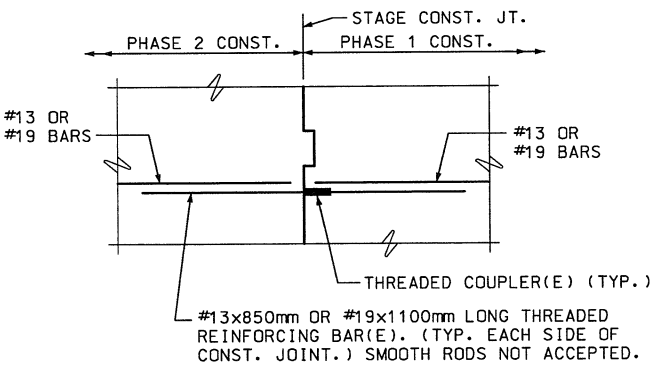


SECTION A-A

NOTE: FOR ADDITIONAL STAGE CONSTRUCTION NOTES AND DETAILS, SEE PHASE CONSTRUCTION SHEETS AND THE ROADWAY DRAWING.



SECTION D-D
(BETWEEN CURBS)



THREADED REBAR COUPLER DETAIL

FOR THREADED REBAR COUPLER NOTES, SEE SHEET 11.

APPROACH SLAB GENERAL NOTES

Dimensions shown are measured normal to ϕ of Structure.

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Section 503 (F'c = 28 MPa) of the Missouri Standard Specifications (Metric).

All joint filler shall meet the requirements of Section 1057.2.5 of Missouri Standard Specifications (Metric), except as noted.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 420 with $F_y = 420$ MPa.

Minimum clearance to reinforcing steel shall be 40 mm, unless otherwise shown.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel shall be made continuous by lap splicing the #13 & #19 bars as shown.

Mechanical bar splices will be permitted and shall develop at least 125 percent of the specified yield strength of the reinforcing bars being spliced. The contractor shall furnish the Engineer the manufacturer's certification that this requirement is met and is required to follow the manufacturer's recommendation for installation.

Mechanical bar splices shall be epoxy coated in accordance with Section 710 of the Missouri Standard Specifications (Metric).

When a lap splice is required for the use of a mechanical bar splice, the minimum lap length shall be 850 mm for transverse approach slab bar splices.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

The contractor shall pour and satisfactorily finish the bridge slab before pouring the bridge approach slabs.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge slab.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base and all other appurtenances and incidental work as shown on this sheet, complete in place, shall be considered as completely covered under the contract unit price for Bridge Approach Slab (Bridge), per square meter.

For Concrete Approach Pavement details, see roadway plans.

See Missouri Standard Plans Drawing M609.00 for details of Type A Barrier Curb.

At the contractor's option, Grade 300 reinforcement may be substituted for the Grade 420 #16 dowel bars connecting the bridge approach slab to the bridge abutment. No additional payment will be made for this substitution.

When Grade 300 reinforcement is substituted for the Grade 420 #16 dowel bars connecting the bridge approach slab to the bridge abutment, the reinforcement may be bent up to 90 degrees with a 50 mm minimum radius near the abutment to allow compaction of the backfill material near the abutment. Damage to epoxy coating shall be repaired according to Section 710.3.3 of the Missouri Standard Specifications (Metric).

Drain pipe may be either 150 mm diameter corrugated metallic-coated steel pipe underdrain, 100 mm diameter corrugated polyvinyl chloride (PVC) drain pipe, or 100 mm diameter corrugated polyethylene (PE) drain pipe.

FINAL PLANS

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE: KAREN D. YEOMANS
DATE: 3-27-05
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-29693

STATE OF MISSOURI
RODNEY D. RILEY
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-26267

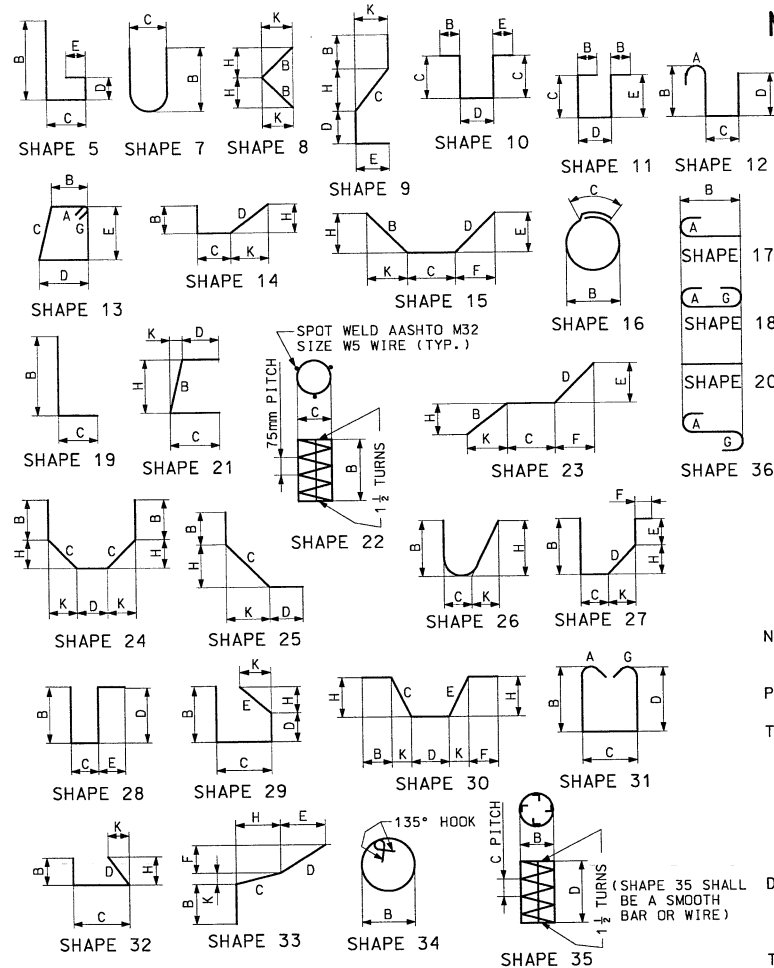
BRIDGE APPROACH SLAB

A09601

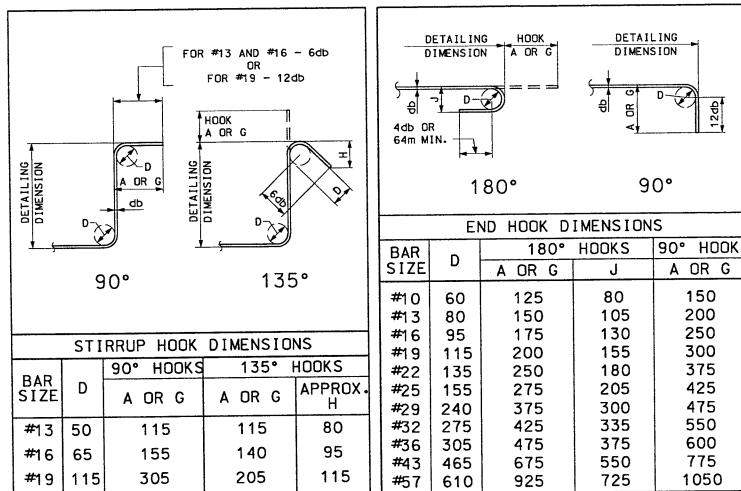
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

JOB NO. J6U1032
CONTRACT NO. 990423-605
PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

SHEET NO. 39



BENDING DIAGRAMS

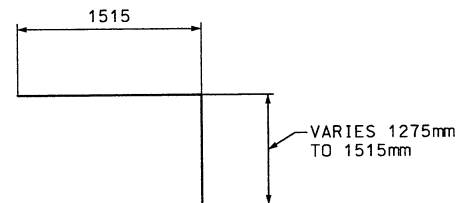


NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm).
UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL
BENDS AND HOOKS ON A BAR.

NOTE:
ALL REINFORCING STEEL SHALL BE METRIC ASTM A615M (GRADE 420) = FY 420 MPa.
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME
PROCEDURE AS FOR 90 DEG. STD. HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON
THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN.
SP = BAR REQUIRING SPECIAL BENDING. SEE DETAIL.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING
DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST 5mm).
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST 5mm.
PAY WEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLES OR CHANNELS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE
TO BE PLACED ON INSIDE OF SPIRAL. LENGTH AND WEIGHT OF COLUMN SPIRAL DO NOT
INCLUDE SPLICE OR SPACERS.

BILL OF REINFORCING STEEL

NO.	REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP(S)	SUBSTR.(X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
		SIZE	MARK								B	C	D	E	F	H	K			
END BENT 1																				
63	16	A1	END BENT		10	S					1615	1015					4245	4180	409	
37	13	A2	END BENT		13	S					1015	775	1015	775			3810	3730	137	
5	13	A3	END BENT		10	S						800	1015				2615	2565	13	
91	16	A4	END BENT	E	10	S						1290	1015				3595	3530	499	
56	16	A5	END BENT		20						1615						1615	1615	140	
130	19	A6	END BENT	E	SP				V	2	2 SERIES OF 65 BARS (2790 TO 3030)									846
91	13	A7	END BENT		10	S						450	150				1050	1000	90	
2	19	A20	NOT USED																	
2	19	A30	WINGWALL		25						580	3485	790			1550	3120	4855	4830	22
22	19	A31	WINGWALL		20				V	2	2 SERIES OF 11 BARS (700 TO 2040)									67
4	19	A32	WINGWALL		20						2135						2135	2135	19	
10	19	A33	WINGWALL		20				V	2	2 SERIES OF 5 BARS (1415 TO 3590)									56
4	19	A34	WINGWALL		20						3910							3910	3910	35
8	19	A35	WINGWALL	E	20						3910							3910	3910	70
5	19	A36	WINGWALL		9						360	1575	360			1075	1150	2295	2270	25
2	19	A37	WINGWALL		25						580	3270	1060			1600	2850	4910	4885	22
20	19	A38	WINGWALL		20				V	2	2 SERIES OF 10 BARS (710 TO 2020)									61
4	19	A39	WINGWALL		20						2135							2135	2135	19
5	19	A40	WINGWALL		9						360	1370	360			910	1025	2090	2065	23
10	19	A41	WINGWALL		20				V	2	2 SERIES OF 5 BARS (1615 TO 3615)									58
		A42	NOT USED																	
		A43	NOT USED																	
		A44	NOT USED																	



BAR A6(E)

SPECIAL BENDING DIAGRAMS



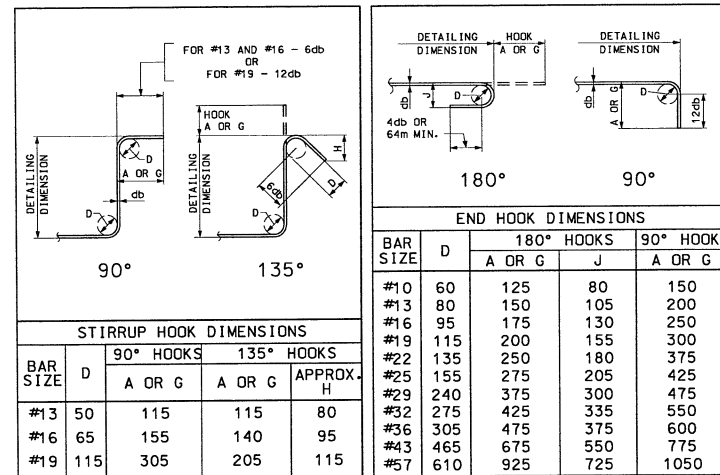
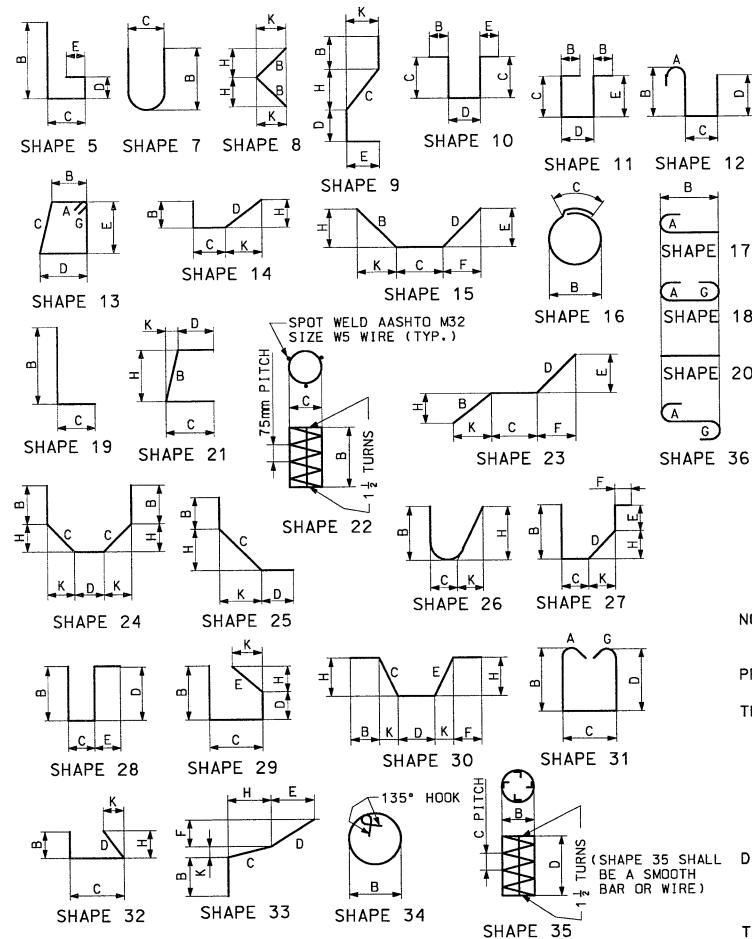
FINAL PLANS
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION
OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE,
AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT.
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DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S
ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED
OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE: *Karen D. Yeomans* DATE: 3-27-05
KAREN D. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-29693

BAR LIST - END BENT 1

A09601

COUNTY ST. LOUIS



NOTE:

- ALL REINFORCING STEEL SHALL BE METRIC ASTM A615M (GRADE 420) = FY 420 MPa.
- ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH THE SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.
- HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
- E = EPOXY COATED REINFORCEMENT.
- S = STIRRUP.
- X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
- V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN.
- SP = BAR REQUIRING SPECIAL BENDING, SEE DETAIL.
- NO. EA. = NUMBER OF BARS OF EACH LENGTH.
- NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST 5mm).
- ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST 5mm.
- PAY WEIGHTS ARE BASED ON ACTUAL LENGTHS.
- FOUR ANGLES OR CHANNELS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRAL. LENGTH AND WEIGHT OF COLUMN SPIRAL DO NOT INCLUDE SPLICE OR SPACERS.

BENDING DIAGRAMS

[illegible]

NO.	REQ'D	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
		SIZE	MARK								B	C	D	E	F	H	K			
END BENT 5 (CONTINUED)																				
2	19	A30	WINGWALL		25						580	3485	790			1550	3120	4855	4830	22
22	19	A31	WINGWALL		20			V	2		2	SERIES OF 11 BARS	(700 TO 2040)							67
4	19	A32	WINGWALL		20						2135						2135	2135	19	
10	19	A33	WINGWALL		20			V	2		2	SERIES OF 5 BARS	(1415 TO 3590)							56
4	19	A34	WINGWALL		20						3910							3910	3910	35
8	19	A35	WINGWALL	E	20						3910						3910	3910	70	
5	19	A36	WINGWALL		9						360	1575	360		1075	1150	2295	2270	25	
2	19	A37	WINGWALL		25						580	3270	1060		1600	2850	4910	4885	22	
20	19	A38	WINGWALL		20			V	2		2	SERIES OF 10 BARS	(710 TO 2020)						61	
4	19	A39	WINGWALL		20						2135						2135	2135	19	
5	19	A40	WINGWALL		9						360	1370	360		910	1025	2090	2065	23	
10	19	A41	WINGWALL		20			V	2		2	SERIES OF 5 BARS	(1615 TO 3615)						58	
		A42	NOT USED																	
		A43	NOT USED																	
		A44	NOT USED																	
60	19	A45	SHR WALL		20						1735						1735	1735	233	
48	25	A46	SHR WALL		19						3480	275					3755	3690	704	
48	25	A47	SHR WALL		9						890	1385	275		980	980	2550	2520	481	
		A48	NOT USED																	
		A49	NOT USED																	
60	16	K1	BARRIER	E	19						735	130					865	825	77	
60	16	K2	BARRIER	E	14						130	280	460		50	455	870	830	77	
38	16	K3	WINGWALL	E	27						760	130	305	510	250	175	1705	1645	97	
22	16	K4	WINGWALL	E	7						760	150					1605	1580	54	
2	16	K5	WINGWALL	E	25						510	170	110		140	100	790	770	2	
2	16	K6	WINGWALL	E	25						510	200	110		165	115	820	800		

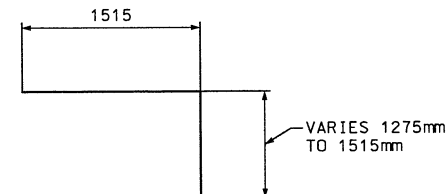
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

SIGNATURE

KAREN D.
YEOMANS

NUMBER
E-29693

DATE _____



BAR A6(E)

SPECIAL BENDING DIAGRAMS



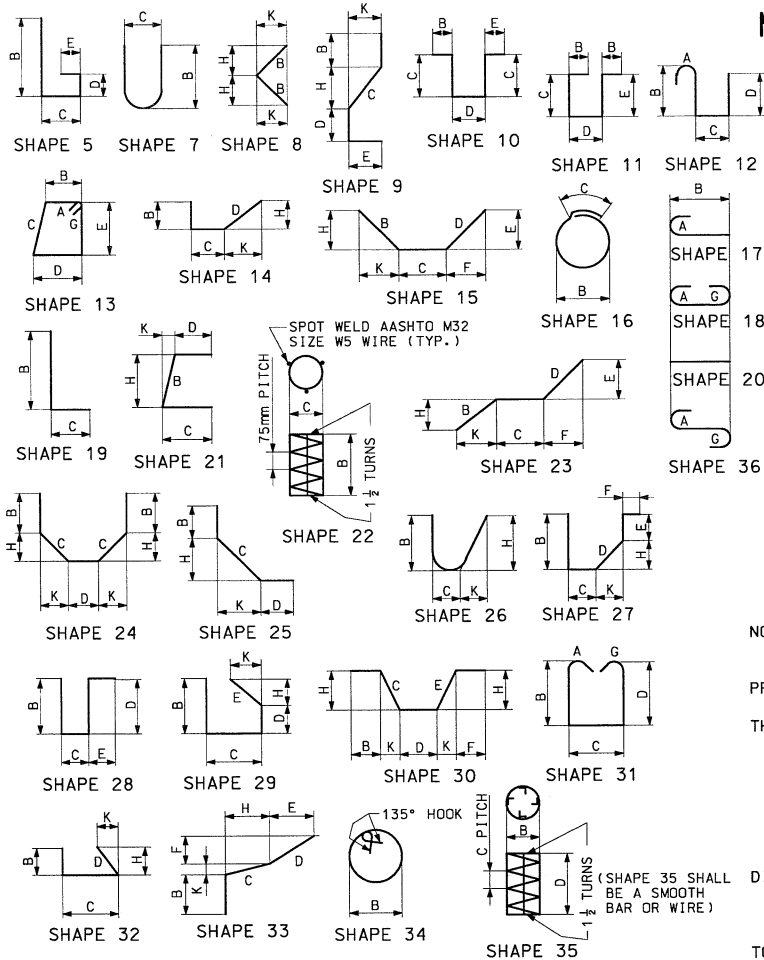
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

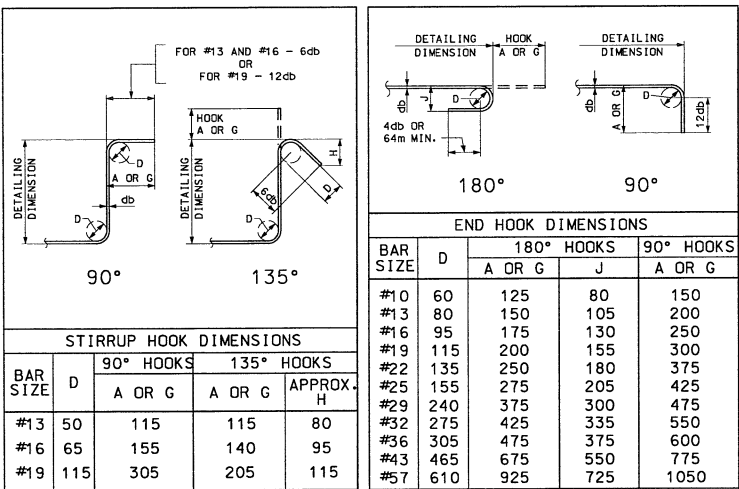
JOB NO. J6U1032
CONTRACT NO. 990423-605

PROJECT NO. FAF-100-1(21)
COUNTY ST. LOUIS

SHEET NO. 41



BENDING DIAGRAMS



NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm).
UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

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BILL OF REINFORCING STEEL

NO.	REQ'D.	MARK NO.	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP(S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
											B	C	D	E	F	H	K			
											mm	mm	mm	mm	mm	mm	mm			
SLAB (CONTINUED)																				
10	19	S30	NOT USED								15220							15220	15220	340
		S31	SLAB	E	20															
		S32	NOT USED																	
10	19	S33	SLAB	E	20						15220							15220	15220	340
		S34	NOT USED																	
		S35	NOT USED																	

BILL OF REINFORCING STEEL																				
NO.	REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP(S)	SUBSTR.(X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	MASS
		SIZE	MARK								B	C	D	E	F	H	K			
SLAB																				
1692	16	S1	SLAB	E 20							10800						10800	10800	28361	
480	19	S2	SLAB	E 20							8240						8240	8240	8840	
575	19	S3	SLAB	E 20							14550						14550	14550	18699	
1178	16	S4	SLAB	E 20							7785						7785	7785	14233	
56	19	S5	SLAB	E 20					V	2	2 SERIES OF 28 BARS (970 TO 14215)									950
28	16	S6	SLAB	E 20					V	2	2 SERIES OF 14 BARS (970 TO 7345)									181
28	16	S7	SLAB	E 20					V	2	2 SERIES OF 14 BARS (1075 TO 7450)									185
		S8	NOT USED																	
188	16	S9	SLAB	E 20							800						800	800	233	
		S10	NOT USED																	
575	19	S11	SLAB	E 20							14550						14550	14550	18699	
1178	16	S12	SLAB	E 20							7785						7785	7785	14233	
56	19	S13	SLAB	E 20					V	2	2 SERIES OF 28 BARS (970 TO 14215)									950
28	16	S14	SLAB	E 20					V	2	2 SERIES OF 14 BARS (970 TO 7345)									181
28	16	S15	SLAB	E 20					V	2	2 SERIES OF 14 BARS (1075 TO 7450)									185
		S16	NOT USED																	
		S17	NOT USED																	
		S18	NOT USED																	
		S19	NOT USED																	
		S20	NOT USED																	
		S21	NOT USED																	
		S22	NOT USED																	
		S23	NOT USED																	
		S24	NOT USED																	
		S25	NOT USED																	
		S26	NOT USED																	
		S27	NOT USED																	
		S28	NOT USED																	
		S29	NOT USED																	

FINAL PLANS
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.

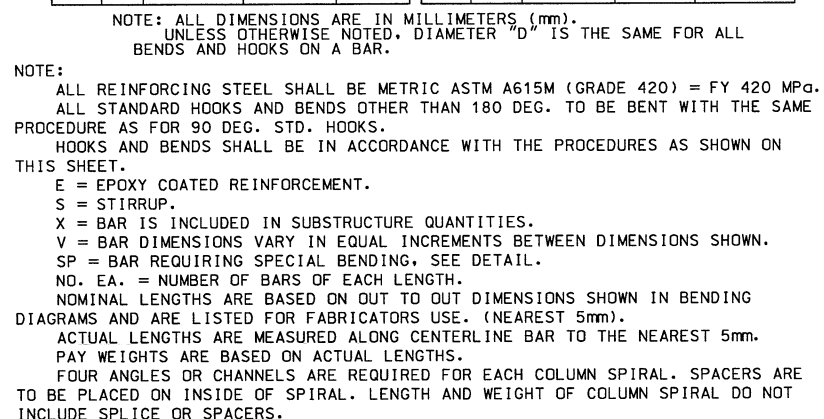
SIGNATURE
KAREN D. YEOMANS
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-29693
DATE 3-27-05



BAR LIST - SLAB

A09601

SHEET NO. 42

[illegible][illegible]

I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE MODIFIED OR AUTHORIZED THE MODIFICATION OF THE PROJECT DESIGN DURING ITS CONSTRUCTION; AND I DISCLAIM RESPONSIBILITY FOR THE CONTRACTOR'S ACTUAL CONSTRUCTION OF THE PROJECT, EXCEPT AS I AND MY STAFF MAY HAVE DIRECTED OR ORDERED THAT THE PROJECT BE CONSTRUCTED.



BAR LIST - BARRIER CURB
RAISED MEDIAN, BENT CAP
RETROFIT AND APPROACH SLAB