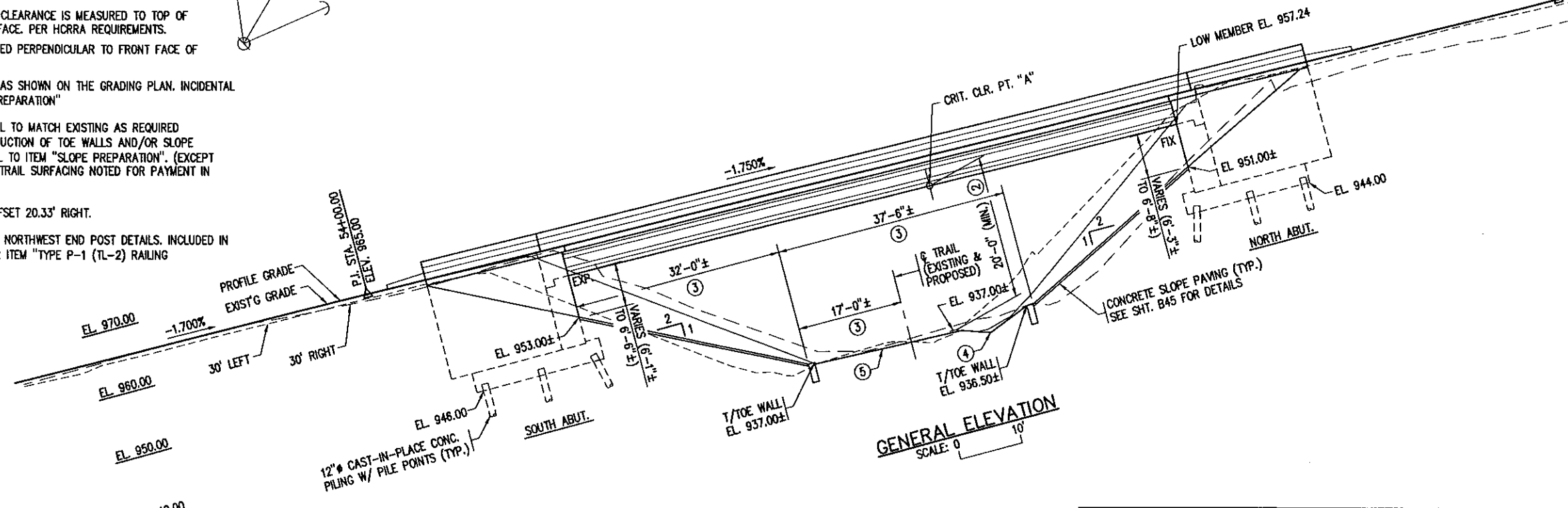


DESIGN DATA
 2012 A.A.S.H.T.O. LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH ED. & ALL CURRENT INTERIMS.
 LOAD AND RESISTANCE FACTOR DESIGN METHOD.
 HL-93 LOADING
 DEAD LOAD INCLUDES 20 P.S.F. ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.
 MATERIAL DESIGN PROPERTIES:
 REINFORCED CONCRETE
 $f_c = 4$ K.S.I. $n = 8$
 $f_y = 60$ K.S.I. FOR REINFORCEMENT
 PRESTRESSED CONCRETE
 $f_c = 9$ K.S.I. $n = 1$
 $f_s = 270$ K.S.I. FOR STRAND (LOW RELAX)
 DECK AREA = 5539 SQ. FT.
 5220 CURRENT A.D.T. FOR 2014
 DESIGN SPEED = 35 M.P.H.
 HL 93 LRFR BRIDGE OPERATING RATING R.F. = 1.68 (SHEAR)

- KEY NOTES:**
- ① ϕ VINE HILL ROAD (PROPOSED) STA. 54+31.12
 ϕ BRG. SOUTH ABUT. AT W.P. "C"
 $X = 463786.092$
 $Y = 148589.228$
 - ② MINIMUM VERTICAL CLEARANCE IS MEASURED TO TOP OF EXIST'G TRAIL SURFACE. PER HCRRRA REQUIREMENTS.
 - ③ DIMENSION MEASURED PERPENDICULAR TO FRONT FACE OF SOUTH ABUTMENT.
 - ④ CONSTRUCT DITCH AS SHOWN ON THE GRADING PLAN. INCIDENTAL TO ITEM "SLOPE PREPARATION"
 - ⑤ RECONSTRUCT TRAIL TO MATCH EXISTING AS REQUIRED FOLLOWING CONSTRUCTION OF TOE WALLS AND/OR SLOPE PAVING. INCIDENTAL TO ITEM "SLOPE PREPARATION". (EXCEPT FOR QUANTITY OF TRAIL SURFACING NOTED FOR PAYMENT IN GRADING PLAN.
 - ⑥ STA. 54+97.57 OFFSET 20.33' RIGHT.
 - ⑦ SEE SHT. B34 FOR NORTHWEST END POST DETAILS. INCLUDED IN PAY QUANTITY FOR ITEM "TYPE P-1 (TL-2) RAILING CONCRETE".

GENERAL PLAN
 SCALE: 0 10'



GENERAL ELEVATION
 SCALE: 0 10'

LHB
 PERFORMANCE DRIVEN DESIGN.
 LHBcorp.com
 PROJ. NO. 110494
 21 W. Superior St., Ste. 500 | Duluth, MN 55802 | 218.727.8446

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
 SIGNED *Jon W. Sitter*
 BY **JON W. SITTER**
 DATE **06/28/2013** LICENSE NO. **25128**

APPROVED _____ DATE _____
 HENNEPIN COUNTY ENGINEER

B.M. ELEV. **964.617** (N.G.V.D. 28 ADJ.)
 B.M. DESC. **MNDOT MONUMENT, S.E. CORNER BR. 27505**
 VINE HILL ROAD HENNEPIN COUNTY
 MINNESOTA
 DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 27B90
 ON VINE HILL ROAD 1.1 MILES NORTH OF THE JUNCTION WITH T.H. 7 OVER THE HCRRRA
 105' PRESTRESSED CONCRETE BEAM SPAN WITH A SIDEWALK AND ORNAMENTAL METAL RAILING WITH TRAFFIC BARRIER AND CONCRETE BARRIER (TYPE F, TL-4)
 IDENTIFICATION NO. 501 15° SKEW
GENERAL PLAN AND ELEVATION
 SEC. 19 T. 117 N. R. 22 W
 DEEPHAVEN CITY HENNEPIN COUNTY

APPROVED _____ DATE _____
 STATE BRIDGE ENGINEER
 DES: **JWS** DR: **GAV**
 CHK: **JUL** CHK: **JWS** **27B90**

CONSTRUCTION NOTES:

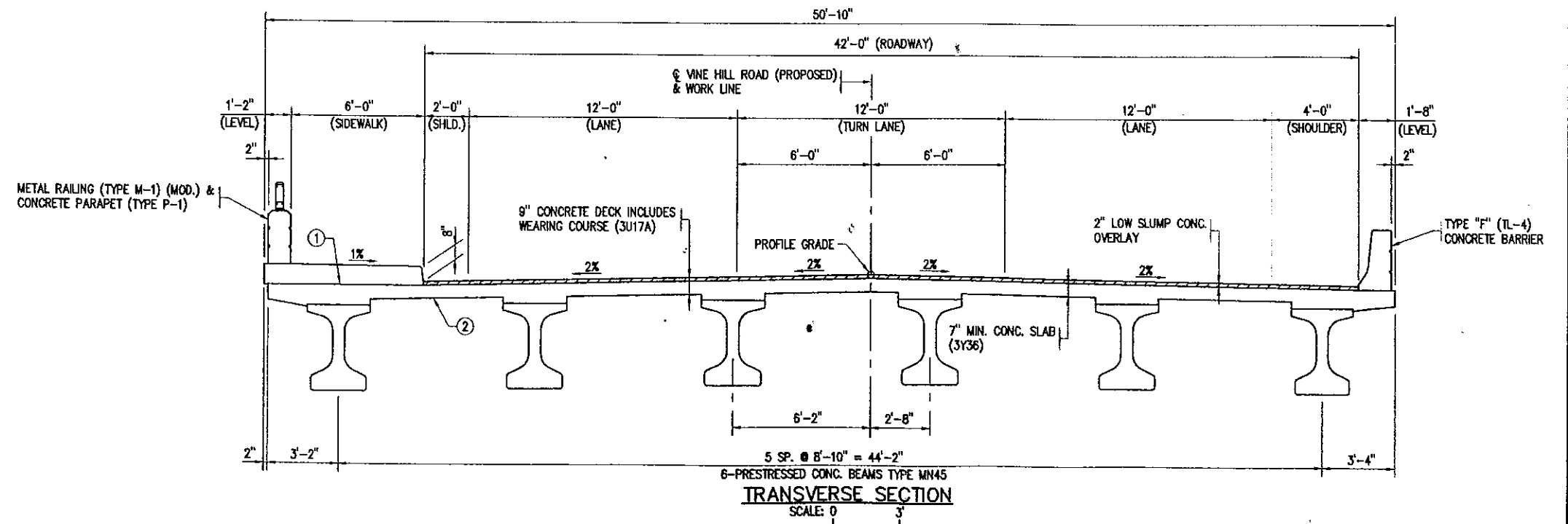
- THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
- THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE.
- BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.
- BARS MARKED WITH THE SUFFIX "S" SHALL BE STAINLESS STEEL PER MNDOT SPEC. 3312. SEE SPECIAL PROVISIONS.
- BRIDGE APPROACH EMBANKMENTS AND TREATMENTS ARE TO BE CONSTRUCTED UNDER THE GRADING PORTION OF THE CONTRACT. BRIDGE APPROACH PANELS SHALL BE CONSTRUCTED UNDER BRIDGE PORTION OF THE CONTRACT.
- THE PILE LOADS SHOWN IN THE PLANS AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (R_p) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.
- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF O/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

KEY NOTES:

- ① DECK SHALL BE LEVEL UNDER SIDEWALK
- ② BOTTOM OF SLAB SHALL FOLLOW SLOPE OF DECK.
- ③ ALL PILE SHELLS SHALL HAVE A MINIMUM WALL THICKNESS OF 5/16"

STATEMENT OF ESTIMATED QUANTITIES						
BID ITEM	SPEC. NO.	ITEM	UNIT	ESTIMATED QUANTITY		
				BRIDGE BOND FUND PARTICIPATING	BRIDGE BOND FUND NON-PARTICIPATING	
1	2104.601	REMOVE REGULATED WASTE MATERIAL (BRIDGE)	LUMP SUM	1		
2	2301.551	BRIDGE APPROACH PANEL	EACH	2		
3	2401.501	STRUCTURAL CONCRETE (1A43)	CU YD	188 (P)		
4	2401.501	STRUCTURAL CONCRETE (3Y43)	CU YD	250 (P)		
5	2401.512	BRIDGE SLAB CONCRETE (3Y36)	SQ FT	5539 (P)		
6	2401.513	TYPE F (TL-4) RAILING CONCRETE (3Y46)	LIN FT	109 (P)		
7	2401.513	TYPE P-1 (TL-2) RAILING CONCRETE (3Y46)	LIN FT	149 (P)		
8	2401.515	SIDEWALK CONCRETE (3Y46)	SQ FT	783 (P)		
9	2401.541	REINFORCEMENT BARS	POUND	15 260 (P)		
10	2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	70 220 (P)		
11	2401.541	REINFORCEMENT BARS (STAINLESS STEEL)	POUND	580 (P)		
12	2401.601	STRUCTURE EXCAVATION	LUMP SUM	1		
13	2401.601	SLOPE PREPARATION	LUMP SUM	1		
14	2401.618	BRIDGE DECK PLANING	SQ FT	6402 (P)		
15	2402.595	BEARING ASSEMBLY	EACH	12 (P)		
16	2402.603	METAL RAILING FOR BIKEWAYS (DESIGN M-1) (MOD.)	LIN FT	145 (P)		
17	2404.501	CONCRETE WEARING COURSE (3U17A)	SQ FT	6944 (P)		
18	2405.502	PRESTRESSED CONCRETE BEAMS MN45	LIN FT	638 (P)		
19	2405.511	DIAPHRAGMS FOR TYPE MN45 PREST BEAMS	LIN FT	110 (P)		
20	2442.501	REMOVE EXISTING BRIDGE	LUMP SUM		1	
③ 21	2452.507	C-I-P CONCRETE PILING DELIVERED 12"	LIN FT	3230		
③ 22	2452.508	C-I-P CONCRETE PILING DRIVEN 12"	LIN FT	3230		
③ 23	2452.519	C-I-P CONCRETE TEST PILE 75 FT LONG 12"	EACH	2		
③ 24	2452.519	C-I-P CONCRETE TEST PILE 85 FT LONG 12"	EACH	2		
25	2452.527	PILE REDRIVING	EACH	50		
26	2452.529	PILE POINTS 12"	EACH	50		
27	2502.502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1		
28	2514.501	CONCRETE SLOPE PAVING	SQ YD	446		

LIST OF SHEETS	
NO.	DESCRIPTION
B01	GENERAL PLAN AND ELEVATION
B02	PLAN INDEX, STATEMENT OF ESTIMATED QUANTITIES
B03	BRIDGE LAYOUT
B04-B12	SOUTH ABUTMENT DETAILS
B13	SOUTH ABUTMENT BILL OF REINFORCEMENT
B14-B25	NORTH ABUTMENT DETAILS
B26	NORTH ABUTMENT BILL OF REINFORCEMENT
B27	SOUTH AND NORTH SUMMARY OF QUANTITIES
B28	FRAMING PLAN
B29	MN 45" PRESTRESSED CONCRETE BEAM (PRETENSIONED) DETAIL
B30-B36	SUPERSTRUCTURE DETAILS
B37	CONCRETE BARRIER (TYPE F, TL-4)
B38	METAL RAILING FOR BIKEWAYS (TYPE M-1) AND CONCRETE PARAPET (TYPE P-1)
B39-B44	BRIDGE APPROACH PANEL DETAILS AND APPROACH PANEL RAILING DETAILS
B45	CONCRETE SLOPE PAVING UNDER BRIDGES
B46	BRIDGE NAMEPLATE AND PILE SPLICE
B47	SOLE PLATE AND CURVED PLATE BEARING ASSEMBLY (FIXED)
B48	CURVED PLATE BEARING ASSEMBLY (EXPANSION) AND STEEL INTERMEDIATE DIAPHRAGM
B49	CONCRETE RAILING (TYPE F) AND CONCRETE PARAPET RAILING (SLIPFORM ALTERNATIVE)
B50	DRAINAGE SYSTEM
B51	AS-BUILT BRIDGE DATA
B52	BRIDGE SURVEY
B53	BRIDGE SURVEY PLAN AND PROFILE
B54	BRIDGE SURVEY - BORINGS



State Aid Proj. No. 098-594-002

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 NAME: *John W. Siter* LIC. NO. 25128 DATE 06/28/2013
 JOHN W. SITER

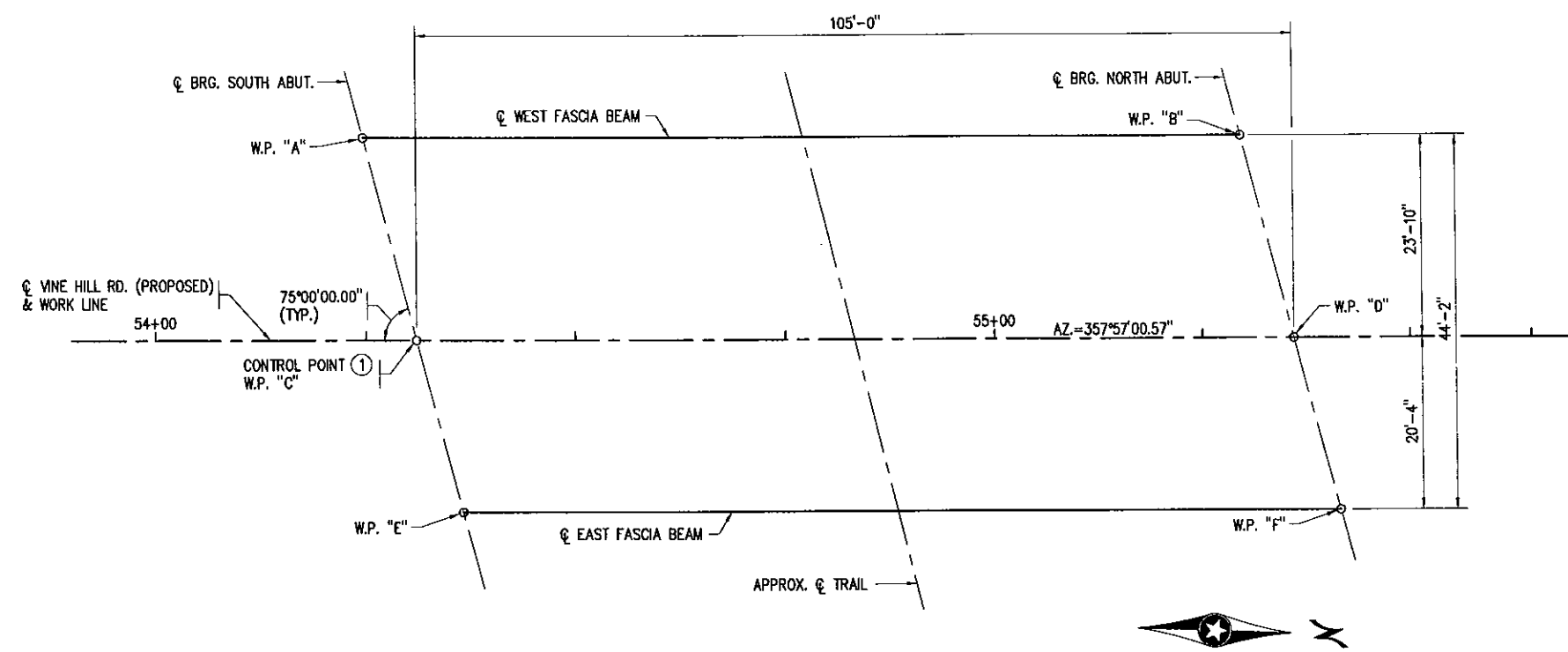
TITLE: PLAN INDEX, STATEMENT OF EST. QUANT. & TRANSVERSE SECTION

DES: JWS DR: GAV APPROVED: _____
 CHK: JWS CHK: JWS

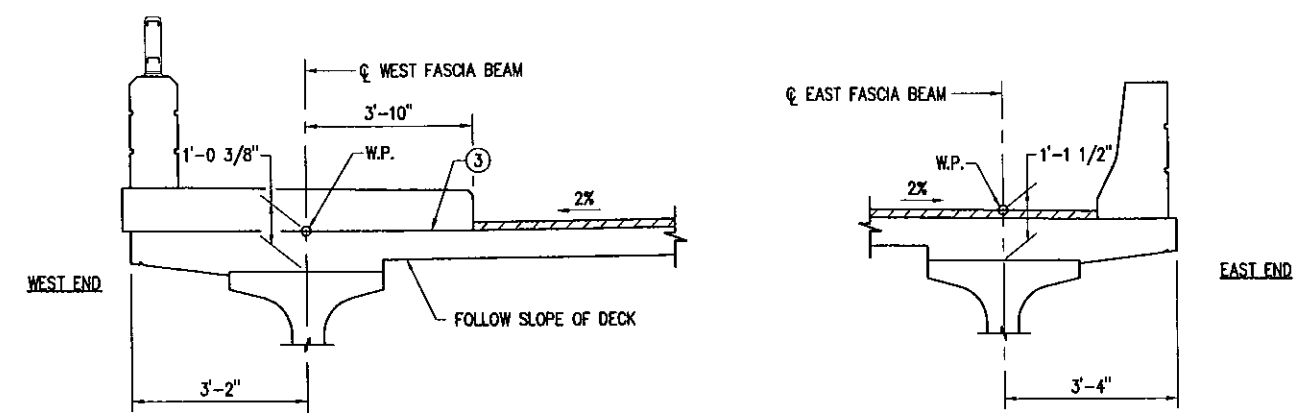
Bridge No. 27B90
 Sheet No. B02 of 54 Sheets

KEY NOTES:

- ① ϕ VINE HILL ROAD (PROPOSED) STA. 54+31.12
 ϕ BRG. SOUTH ABUT. AT W.P. "C"
 X = 463786.092
 Y = 148589.228
- ② INCLUDES 2" LOW SLUMP CONCRETE OVERLAY.
- ③ DECK SHALL BE LEVEL UNDER SIDEWALK.



WORK POINT LAYOUT



DIMENSIONS BETWEEN WORKING POINTS										ELEVATIONS			
POINT	STATION	X-COORD	Y-COORD	A	B	C	D	E	F	TOP OF RDWY.	TOP OF RDWY TO BR. SEAT	BRIDGE SEAT	POINT
A	54+24.73	463762.502	148581.994		105.00	24.67	113.91		124.90	964.00	5.17	958.83	A
B	55+29.73	463758.746	148686.927				24.67	103.10		962.16	5.05	957.11	B
C	54+31.12	463786.092	148589.228				105.00	21.05	112.30	964.46	---	---	C
D	55+36.12	463782.336	148694.161						21.05	962.62	---	---	D
E	54+36.57	463806.217	148595.401						105.00	963.95	5.26	958.69	E
F	55+41.57	463802.461	148700.333							962.12	5.15	956.97	F

TOP OF ROADWAY TO BRIDGE SEAT (BEAM LINES 2 TO 6)						
	SLAB THICKNESS	STOOL HEIGHT	BEAM HEIGHT	BEARING HEIGHT	TOTAL	
					INCHES	FEET
SOUTH ABUTMENT	0.750' ②	0.375'	3.75'	0.385'	63 1/8"	5.26'
NORTH ABUTMENT	0.750' ②	0.375'	3.75'	0.271'	61 3/4"	5.15'
TOP OF ROADWAY TO BRIDGE SEAT (BEAM LINE 1)						
SOUTH ABUTMENT	0.660'	0.375'	3.75'	0.385'	62"	5.17'
NORTH ABUTMENT	0.660'	0.375'	3.75'	0.271'	60 5/8"	5.05'

NOTE: X-Y COORDINATES ARE IN THE HENNEPIN COUNTY COORDINATE SYSTEM.

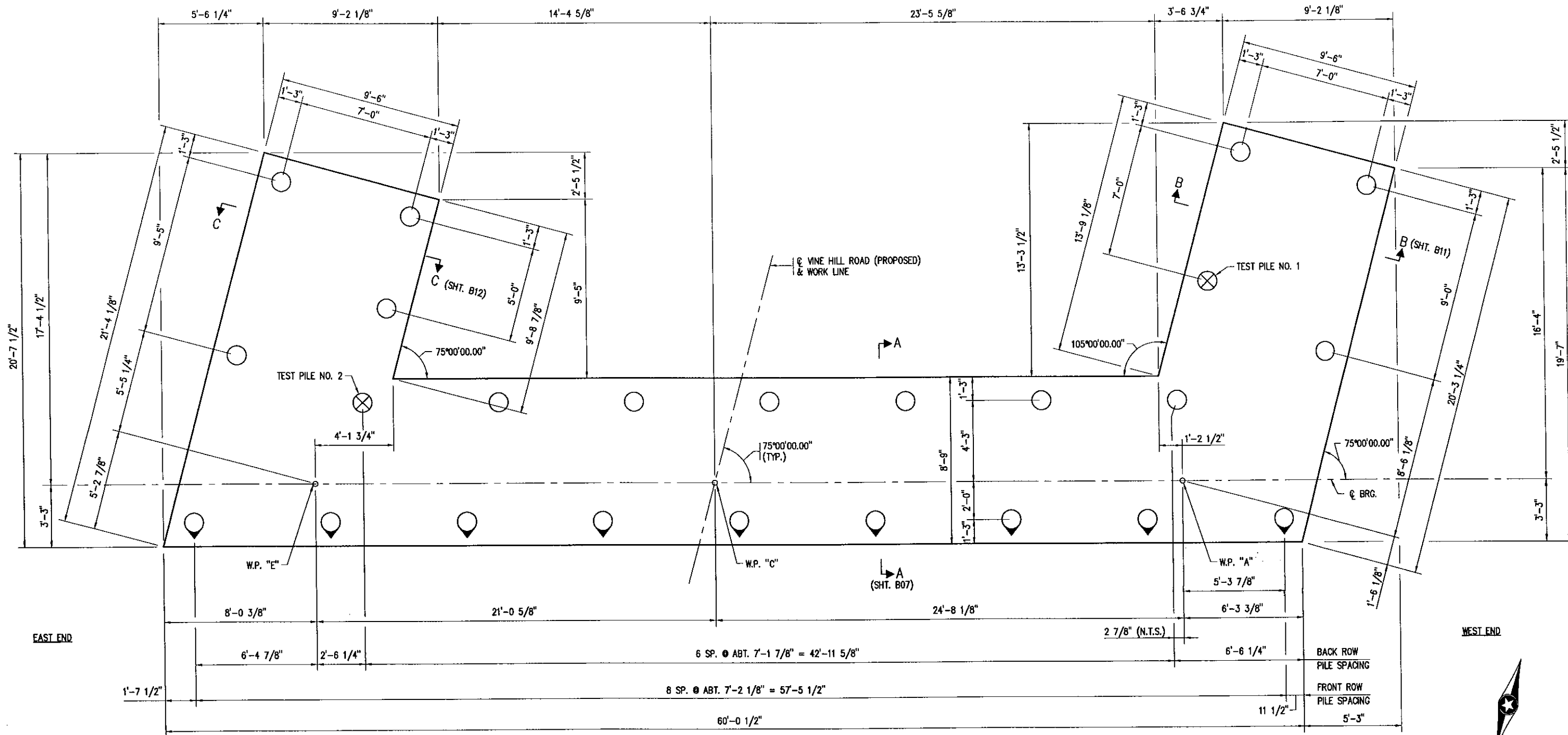
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 NAME: *Jon W. Siter* LIC. NO. 25128 DATE 06/28/2013

TITLE: **BRIDGE LAYOUT**

DES: JWS DR: GAV APPROVED:
 CHK: JDL CHK: JWS
 Sheet No. B03 of 54 Sheets

Bridge No. 27B90

State Aid Proj. No. 098-594-002



FOOTING PLAN-SOUTH ABUTMENT
SCALE: 0 2'-8"

State Aid Proj. No. 098-594-002

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NAME: *Jon W. Siter* LIC. NO. 25128 DATE 06/28/2013
JON W. SITER

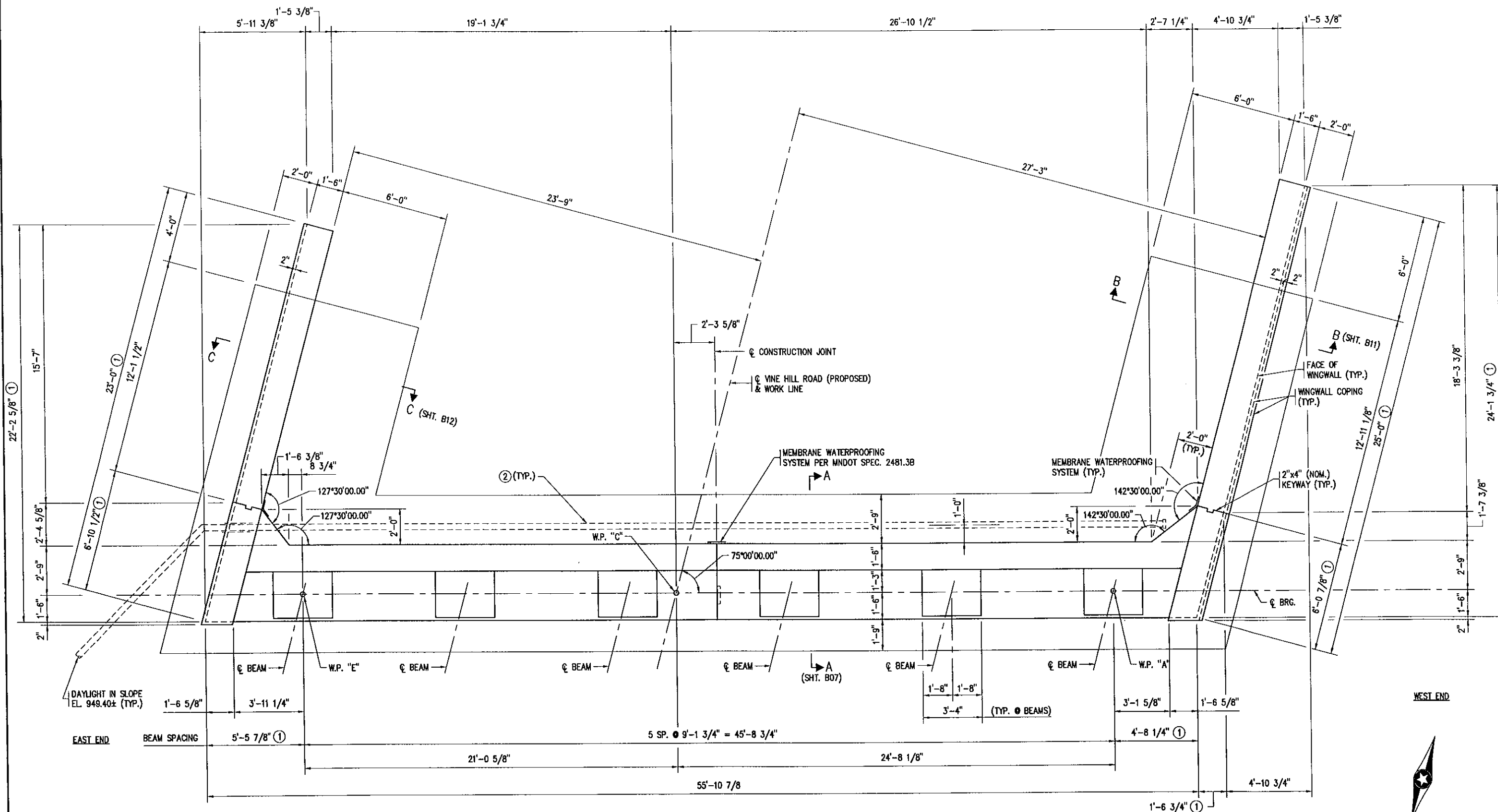
TITLE:
SOUTH ABUTMENT FOOTING
GEOMETRICS

DES: C.M	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	
Sheet No. B04 of 54 Sheets		

Bridge No.
27B90

KEY NOTES:

- ① DIMENSIONS MEASURED TO FACE OF WALL AT TOP OF FOOTING
- ② SEE DETAIL B910, SHT B50.



ABUTMENT PLAN—SOUTH ABUTMENT

SCALE: 0 2'-8"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 NAME: *Jon W. Sitter* LIC. NO. 25128 DATE 06/28/2013
 JON W. SITTER

TITLE: SOUTH ABUTMENT GEOMETRICS

DES: C.M.	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	
Sheet No. B05 of 54 Sheets		

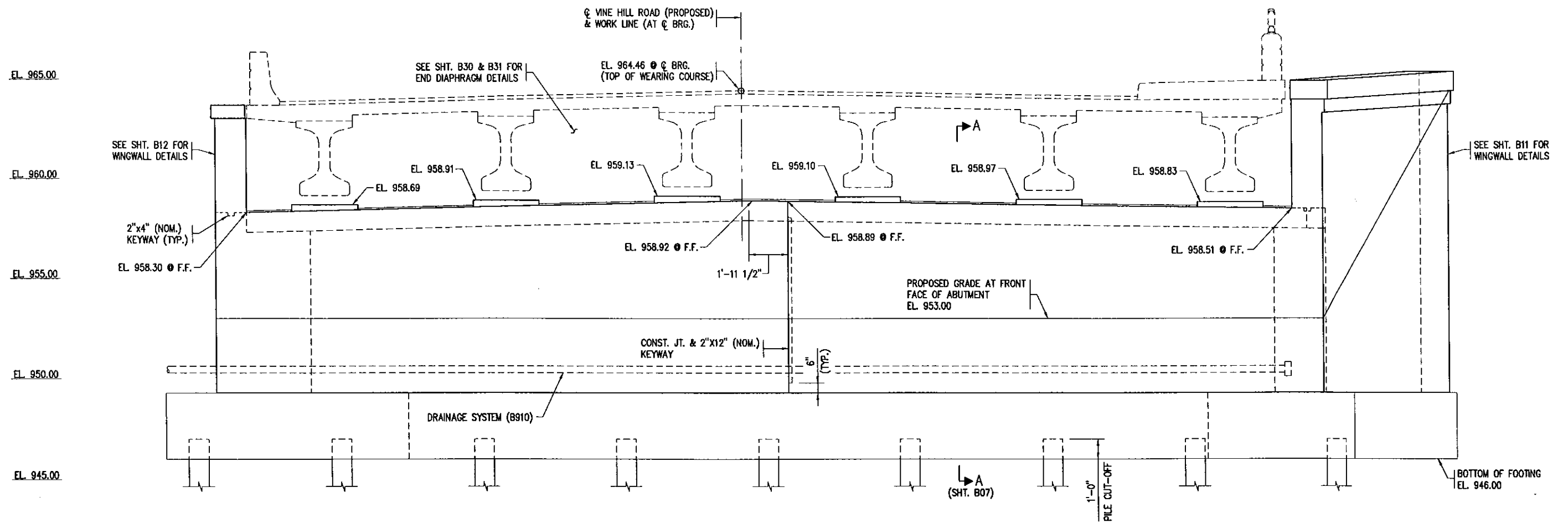
Bridge No. 27B90

State Aid Proj. No. 098-594-002



EAST END

WEST END



ELEVATION-SOUTH ABUTMENT

SCALE: 0 2'-8"

NOTES:
F.F. = FRONT FACE

State Aid Proj. No. 098-594-002

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 JON W. SITER

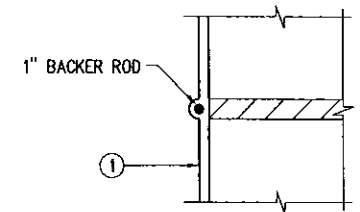
TITLE:
 SOUTH ABUTMENT ELEVATION

DES: C.M.	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	
Sheet No. B06 of 54 Sheets		

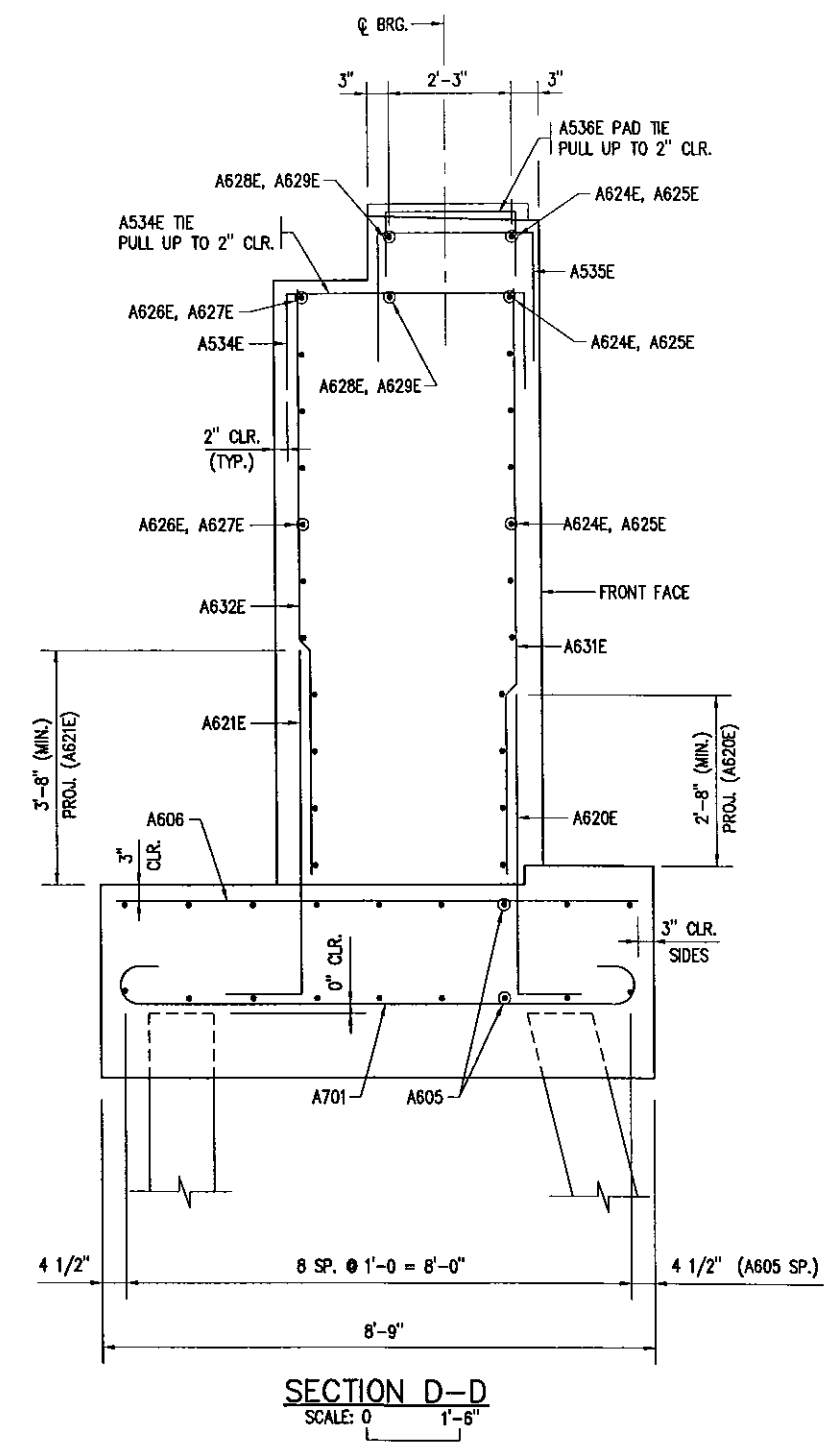
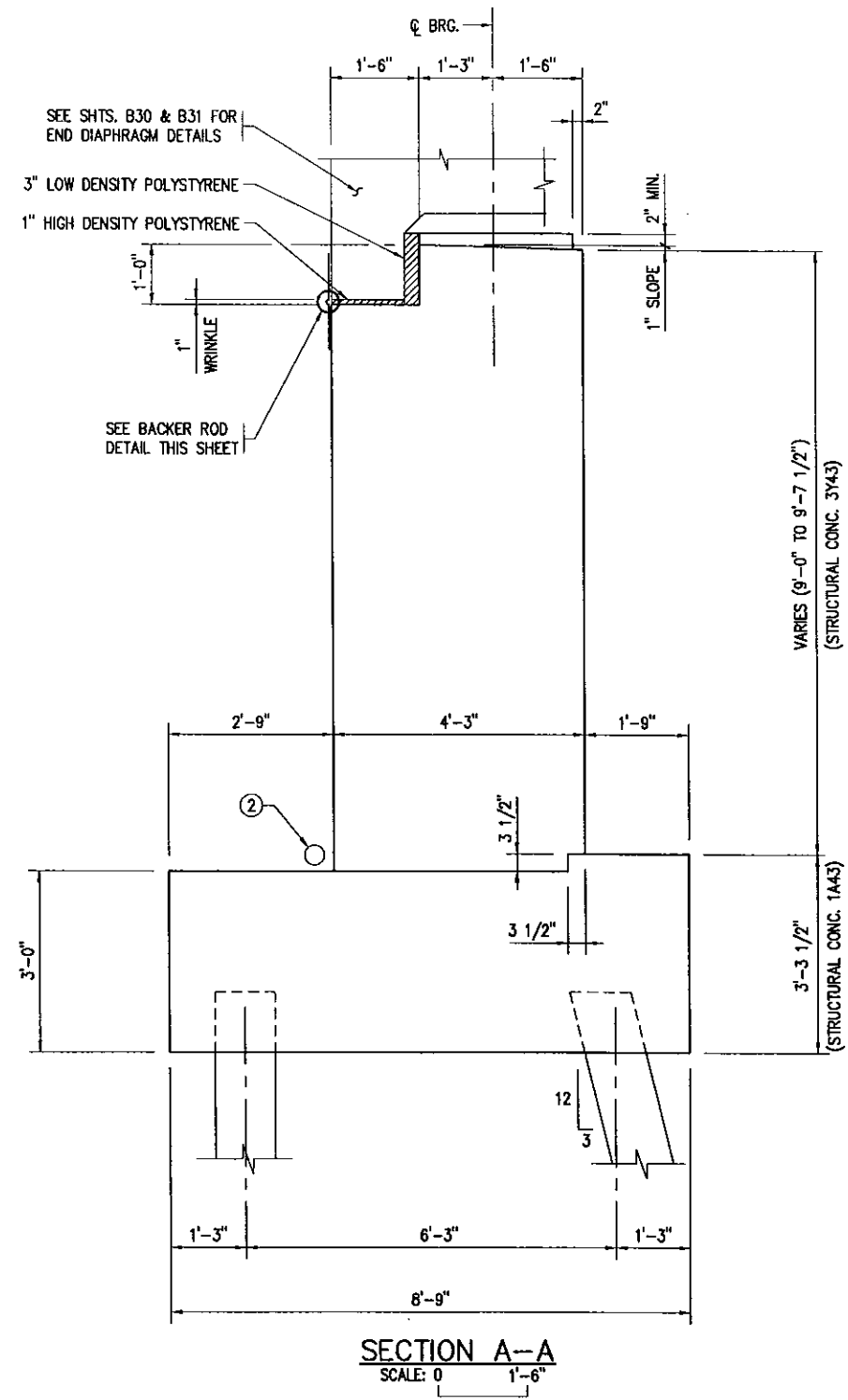
Bridge No.
 27B90

KEY NOTES:

- ① MEMBRANE WATERPROOFING SYSTEM PER MNDOT SPEC. 2481.3B EXCEPT THE STRIP SHALL BE 24" WIDE TO ALLOW MOVEMENT. MEMBRANE PLACEMENT SHALL BE SUCH THAT A 1" WRINKLE IN THE MEMBRANE WILL BE FORMED OVER THE JOINT OPENING. ALL COST ASSOCIATED WITH WATERPROOFING SYSTEM SHALL BE INCIDENTAL TO AND INCLUDED IN ITEM "STRUCTURAL CONCRETE (3Y43)".
- ② DRAINAGE SYSTEM B910.



BACKER ROD DETAIL



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NAME: *Jon W. Siter* LIC. NO. 25128 DATE 06/28/2013

TITLE: SOUTH ABUTMENT DETAILS

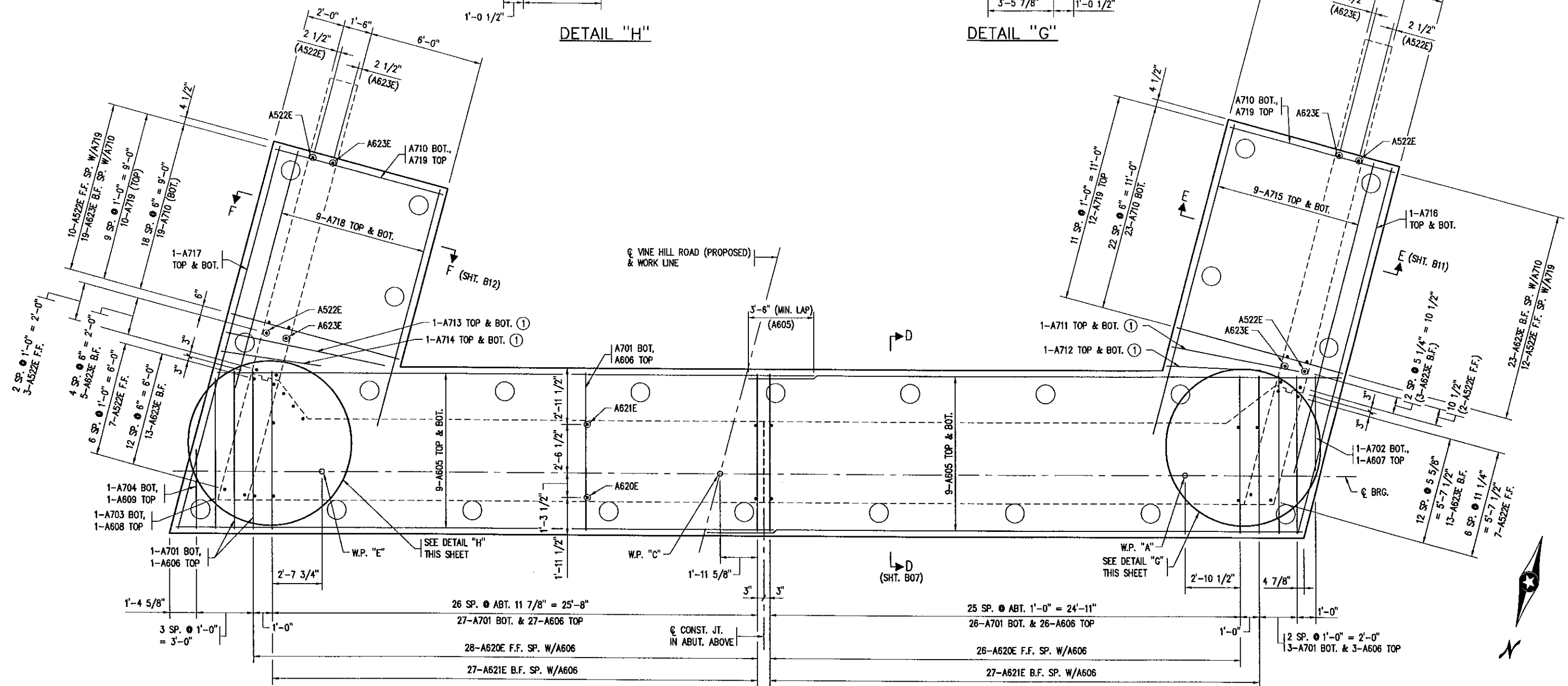
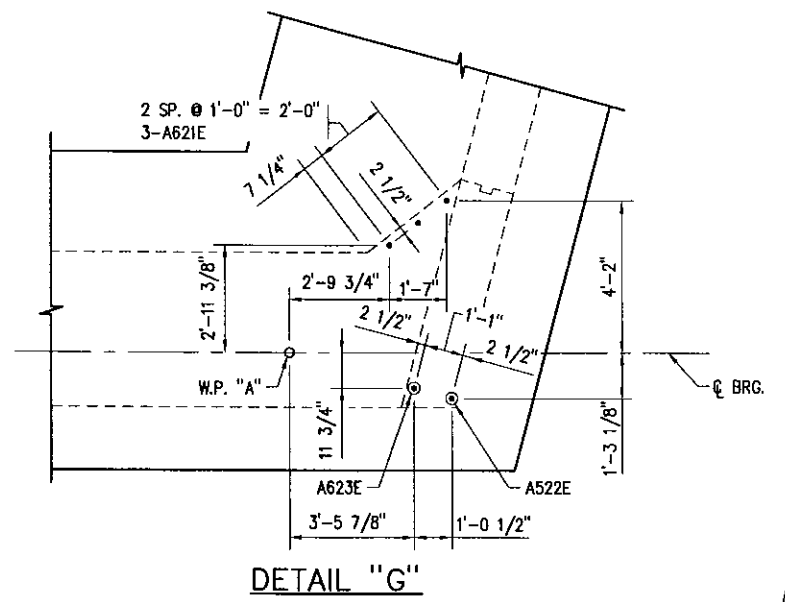
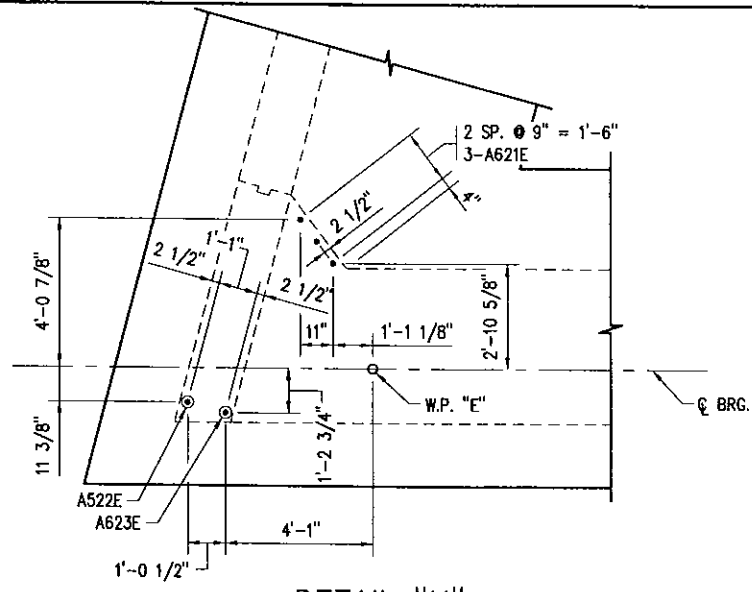
DES: C.M DR: GAV APPROVED:
CHK: RAM CHK: JWS

State Aid Proj. No. 098-594-002

Sheet No. B07 of 54 Sheets

Bridge No. 27B90

KEY NOTES:
 ① PLACE REINFORCING AS SHOWN.



FOOTING PLAN-SOUTH ABUTMENT
 SCALE: 0 2'-8"

NOTES:
 1. B.F. = BACK FACE
 F.F. = FRONT FACE
 E.F. = EACH FACE

State Aid Proj. No. 098-594-002

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 NAME: *Jon W. Suter* LIC. NO. 25128 DATE 06/28/2013
 JON W. SUTER

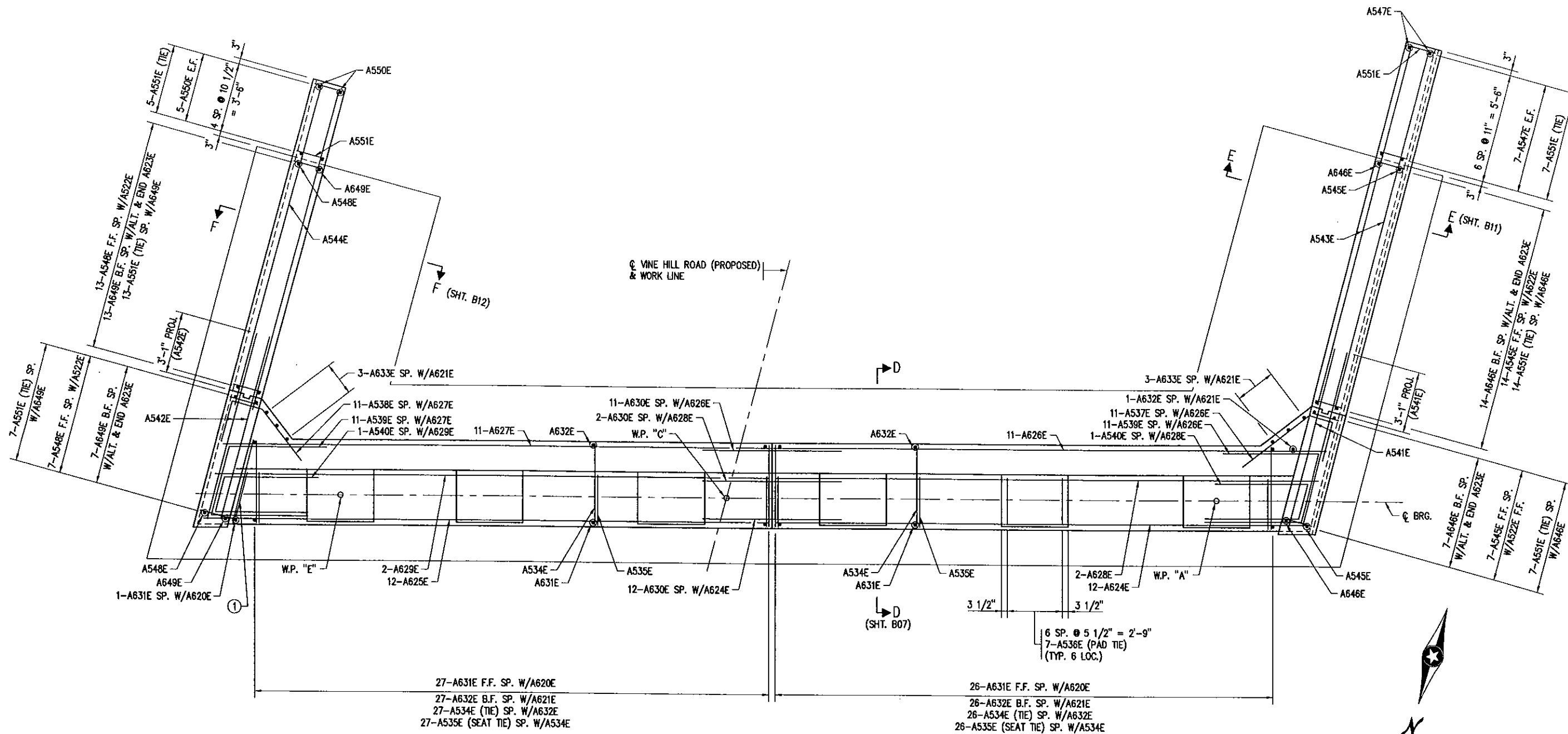
TITLE:
SOUTH ABUTMENT FOOTING REINFORCEMENT

DES: CJM	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	

Sheet No. B08 of 54 Sheets

Bridge No.
 27B90

KEY NOTES:
 ① PLACE 1-A534E AS SHOWN AND 1-A535E AS SHOWN



ABUTMENT PLAN-SOUTH ABUTMENT

SCALE: 0 2'-8"

NOTES:
 1. B.F. = BACK FACE
 F.F. = FRONT FACE
 E.F. = EACH FACE
 M.F. = MIDDLE FACE

State Aid Proj. No. 098-594-002

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 NAME: *Jon W. Siter* LIC. NO. 25128 DATE 06/28/2013
 JUN W. SITER

TITLE:
SOUTH ABUTMENT REINFORCEMENT

DES: CJM	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	

Sheet No. B09 of 54 Sheets

Bridge No.
 27B90

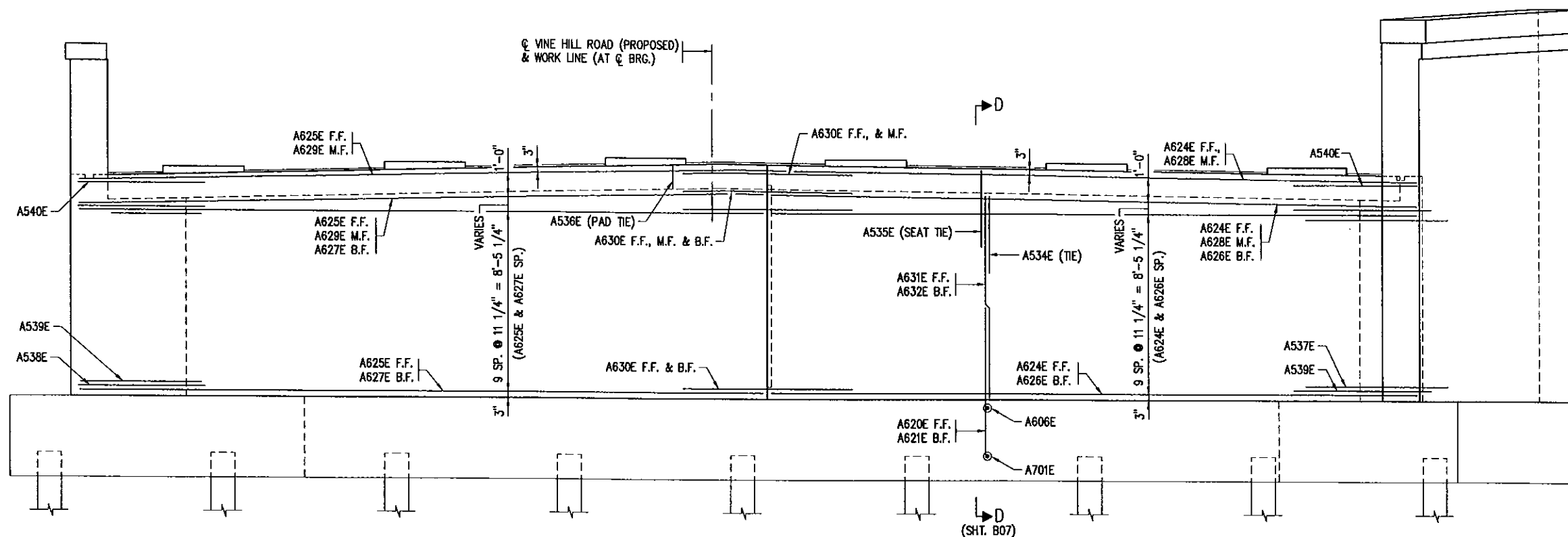
EL. 965.00

EL. 960.00

EL. 955.00

EL. 950.00

EL. 945.00



ELEVATION-SOUTH ABUTMENT

SCALE: 0 2'-8"

State Aid Proj. No. 098-594-002

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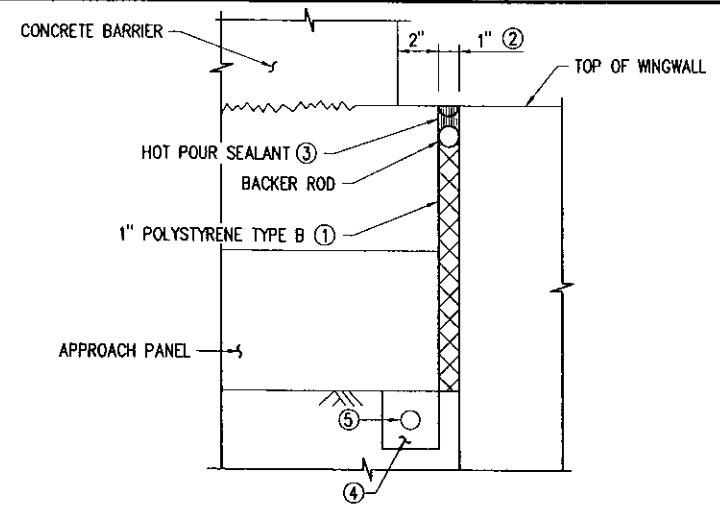
NAME: *Jon W. Sitter* LIC. NO. 25128 DATE 06/28/2013

TITLE: SOUTH ABUTMENT ELEVATION REINFORCEMENT

DES: CJM	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	

Bridge No. 27B90

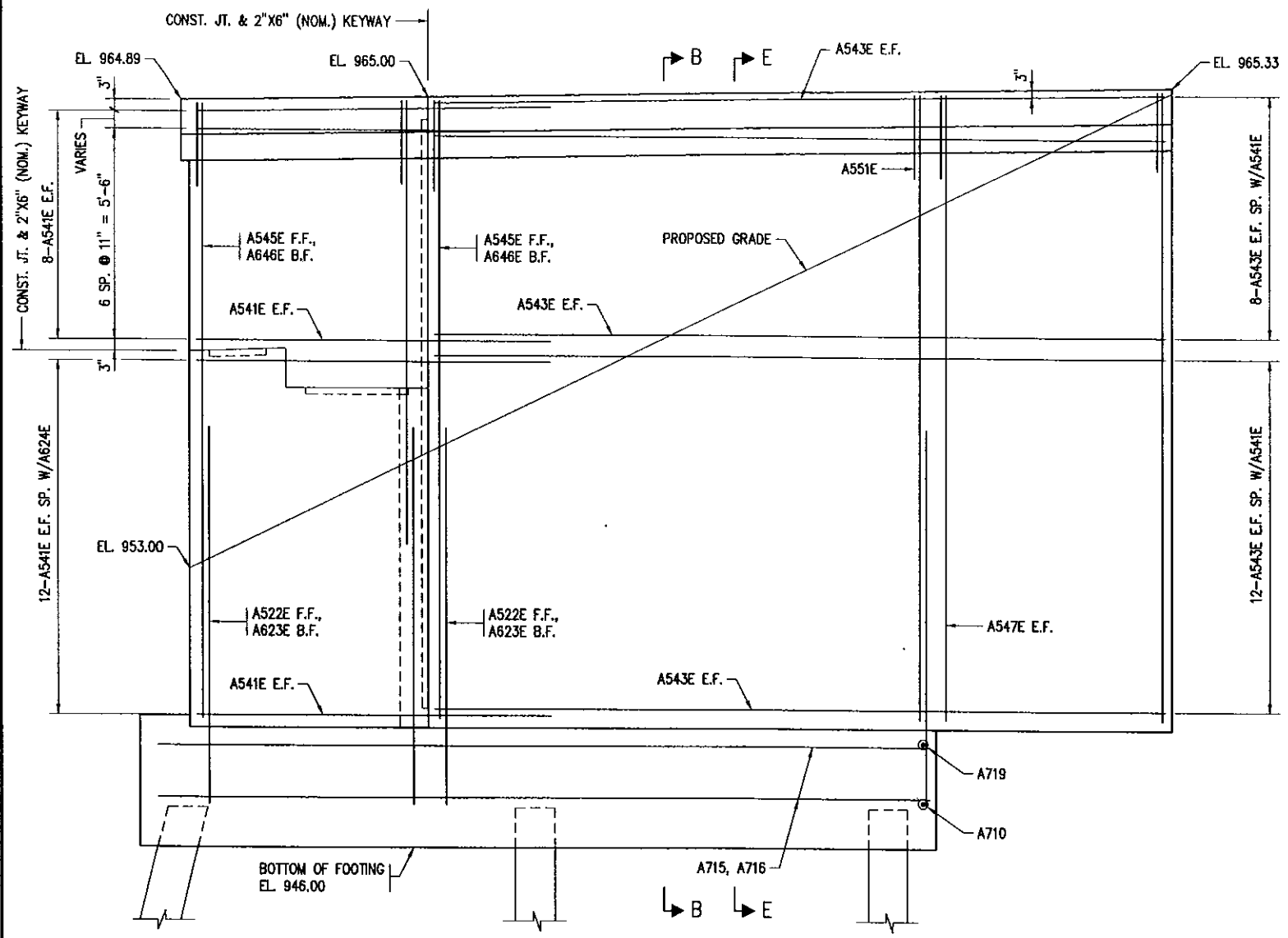
Sheet No. B10 of 54 Sheets



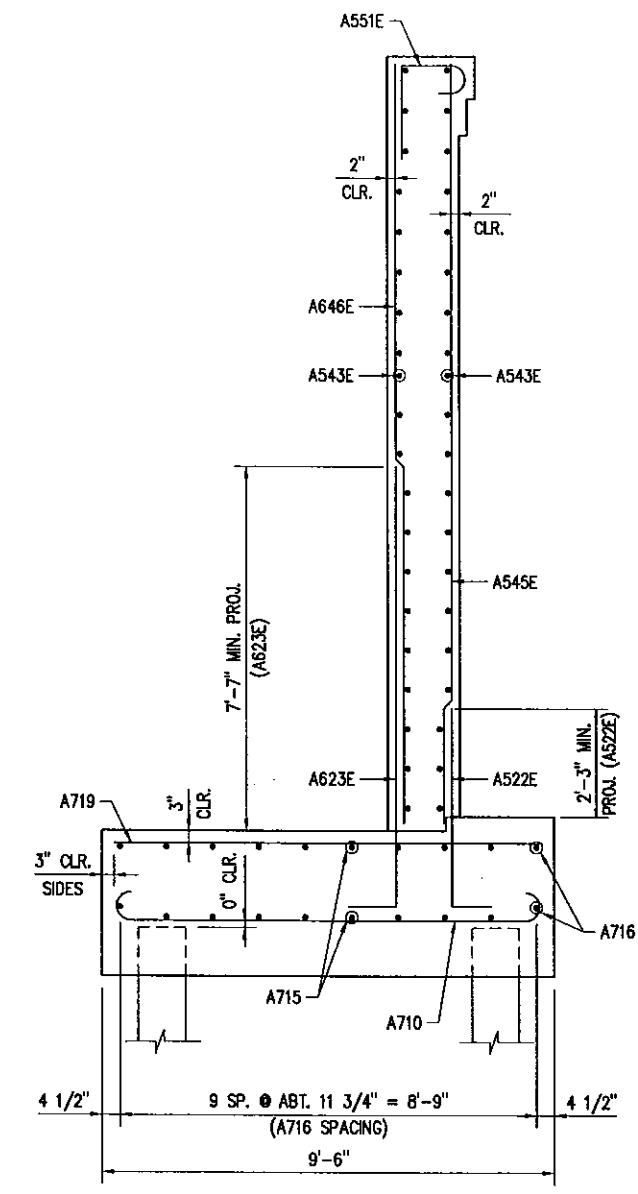
JOINT DETAIL ②⑥

KEY NOTES:

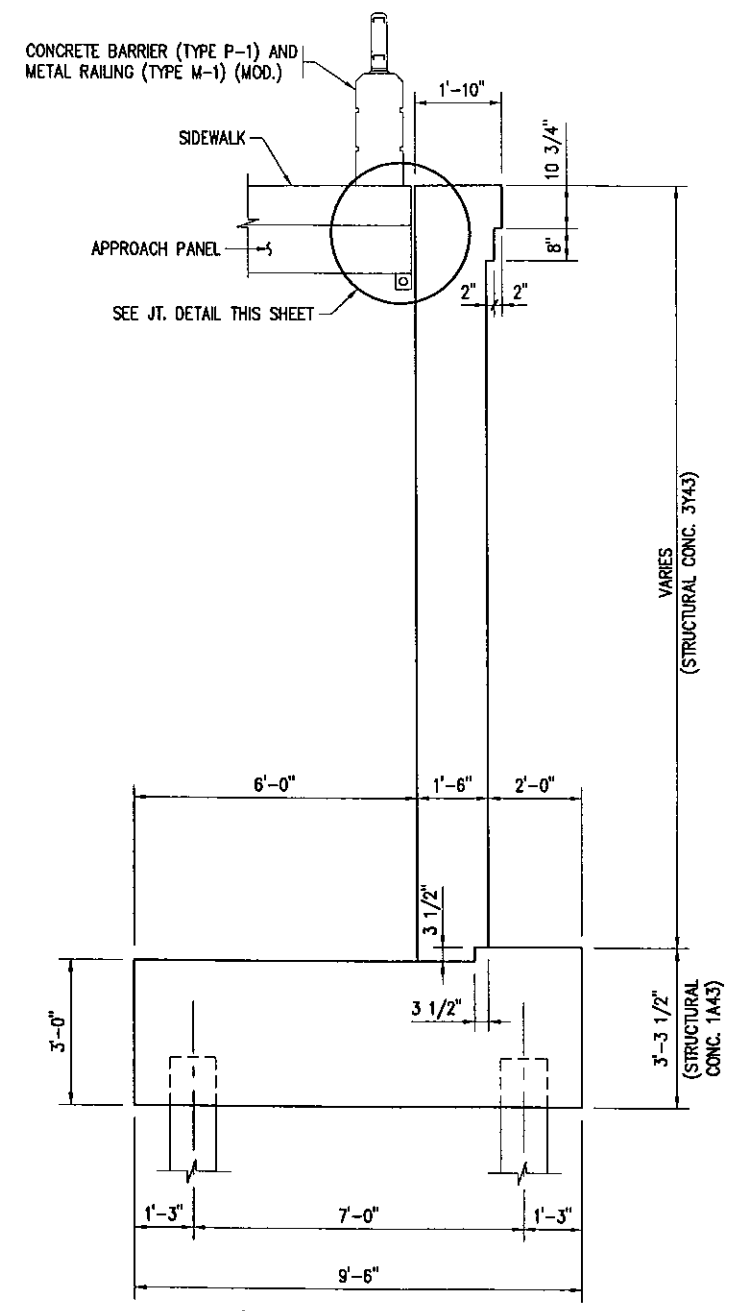
- ① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
- ② THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING PRIOR TO SEALING THE JOINT.
- ③ HOT POUR JOINT SEALER SPEC. 3725. TOP OF SEALER FLUSH TO 1/8 INCH BELOW TOP OF PAYMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION EBH JOINTS FLUSH WITH SURFACE (+ 1/8 INCH OR - 1/8 INCH).
- ④ BACKFILL WITH FINE FILTER AGGREGATE (MNDOT 3149) MODIFIED TO 3% PASSING THE NO. 200 SIEVE (INCIDENTAL).
- ⑤ 2" NOM. DIA. THERMOPLASTIC PIPE AS PER ASTM D1785M, SCH. 40. SLOPE PIPE TO DITCH OR DRAINAGE SYSTEM AS DIRECTED BY THE ENGINEER IN THE FIELD. WRAP PERFORATED PIPE WITH GEOTEXTILE TYPE I AS PER SPEC. 3733. 1/8 INCH 12" MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.
- ⑥ DETAIL AND NOTES PROVIDED FOR REFERENCE ONLY. PAYMENT IS INCLUDED IN APPROACH PANEL WORK.



SOUTHWEST WINGWALL ELEVATION
SCALE: 0 2'-0"



SECTION E-E
SCALE: 0 2'-0"



SECTION B-B
SCALE: 0 2'-0"

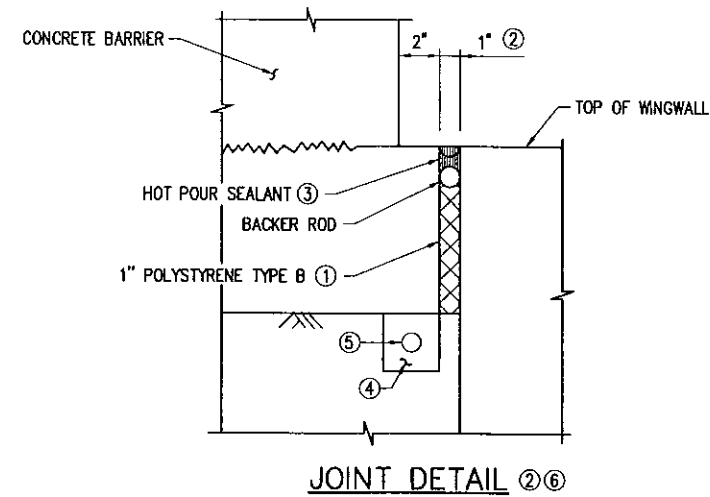
State Aid Proj. No. 098-594-002

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NAME: *Jon W. Sitter* LIC. NO. 25128 DATE 06/28/2013
JON W. SITTER

TITLE: SOUTHWEST WINGWALL DETAILS

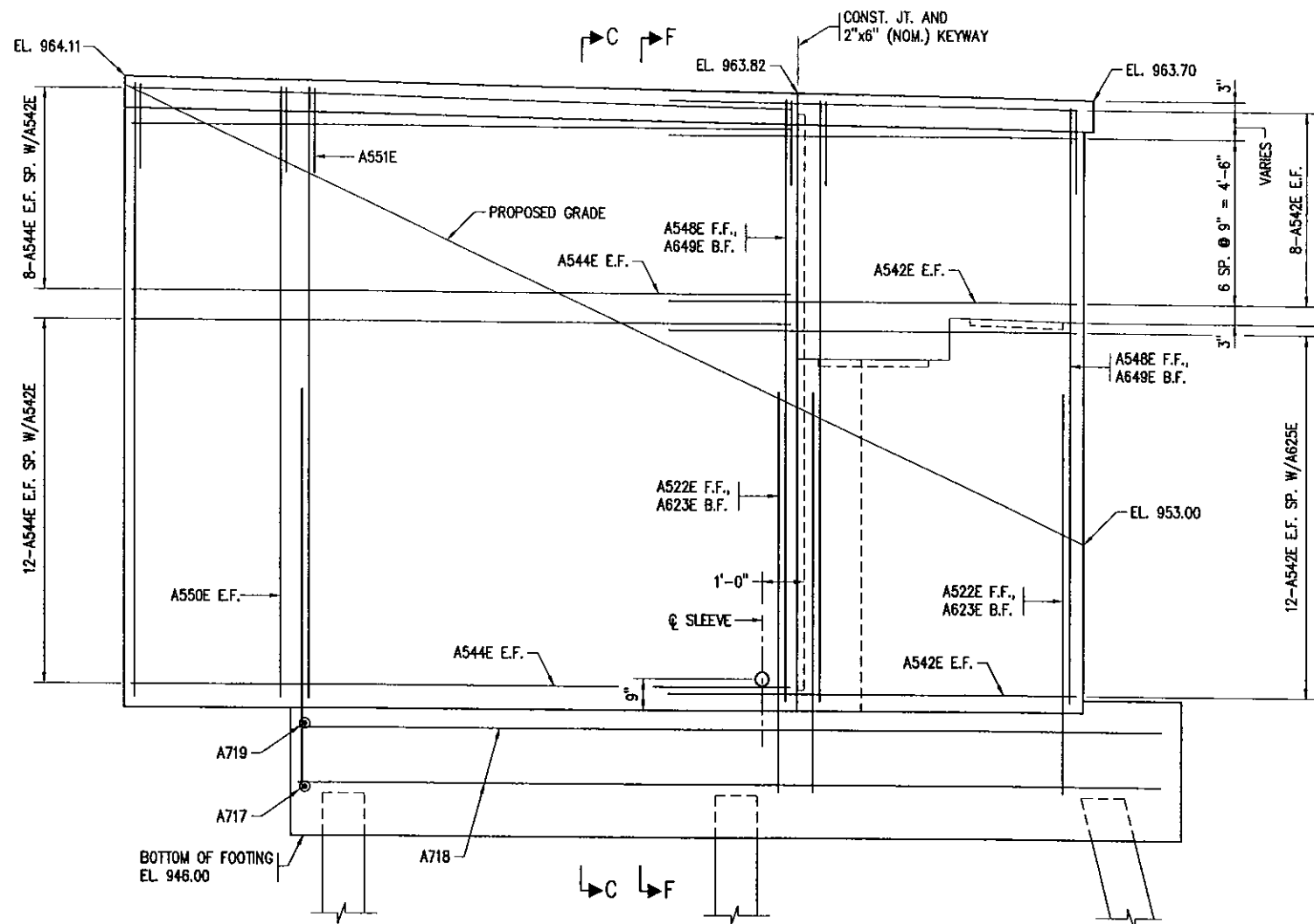
DES: C.M. DR: GAV. APPROVED:
CHK: RAM. CHK: JWS.

Bridge No. 27B90
Sheet No. B11 of 54 Sheets



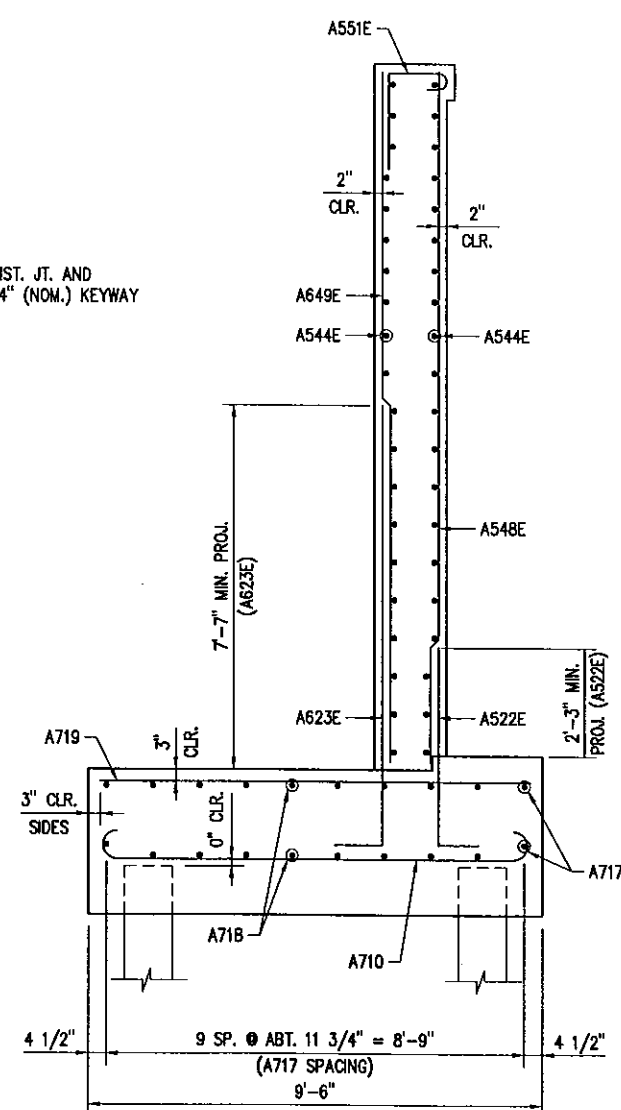
KEY NOTES:

- ① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
- ② THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING PRIOR TO SEALING THE JOINT.
- ③ HOT POUR JOINT SEALER SPEC. 3725. TOP OF SEALER FLUSH TO 1/8 INCH BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E8H JOINTS FLUSH WITH SURFACE (+ 1/8 INCH OR - 1/8 INCH).
- ④ BACKFILL WITH FINE FILTER AGGREGATE (MNDOT 3149) MODIFIED TO 3% PASSING THE NO. 200 SIEVE (INCIDENTAL).
- ⑤ 2" NOM. DIA. THERMOPLASTIC PIPE AS PER ASTM D1785M, SCH. 40. SLOPE PIPE TO DITCH OR DRAINAGE SYSTEM AS DIRECTED BY THE ENGINEER IN THE FIELD. WRAP PERFORATED PIPE WITH GEOTEXTILE TYPE I AS PER SPEC. 3733. 1/8 INCH 12" MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.
- ⑥ DETAIL AND NOTES PROVIDED FOR REFERENCE ONLY. PAYMENT IS INCLUDED IN APPROACH PANEL WORK.



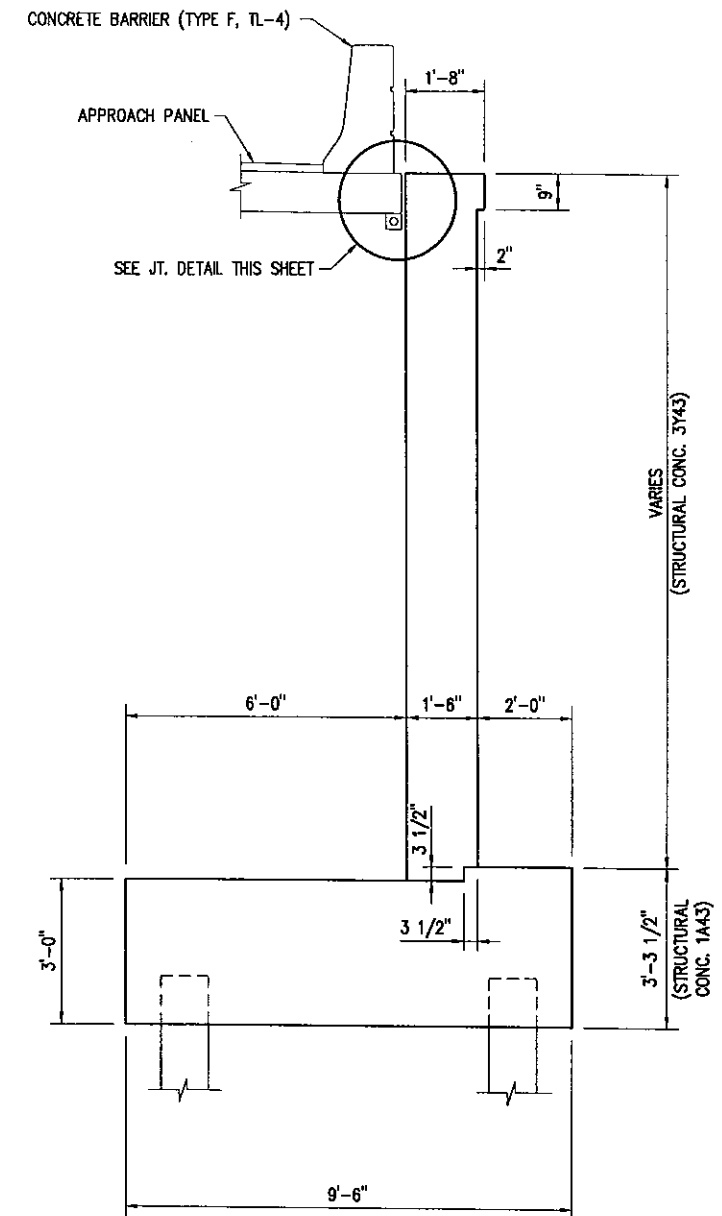
SOUTHEAST WINGWALL ELEVATION

SCALE: 0 2'-0"



SECTION F-F

SCALE: 0 2'-0"



SECTION C-C

SCALE: 0 2'-0"

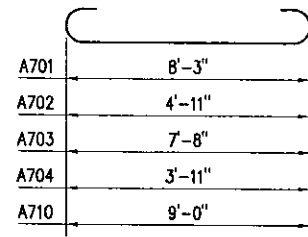
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 NAME: *Jon W. Sitter* LIC. NO. 25128 DATE 06/28/2013

TITLE: SOUTHEAST WINGWALL DETAILS

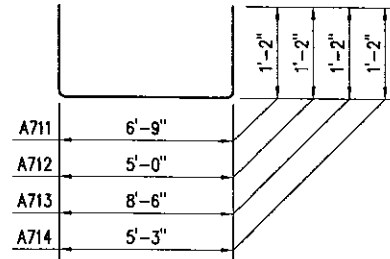
DES: CM	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	
Sheet No. B12 of 54 Sheets		

Bridge No. 27B90

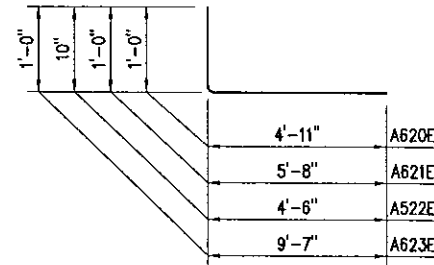
State Aid Proj. No. 098-594-002



A701, A702, A703, A704, A710

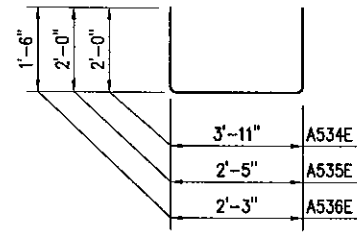


A711, A712, A713, A714

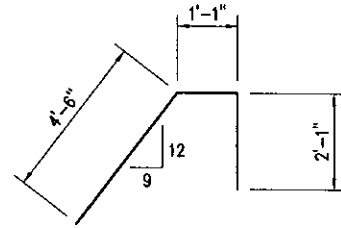


A620E, A621E, A522E, A623E

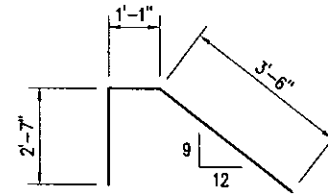
NOTE:
 PROVIDE STANDARD HOOKS FOR DIMENSIONS NOT SHOWN.
 BENT BAR DIMENSIONS ARE OUT-TO-OUT. ACTUAL BAR LENGTHS SHALL BE DETERMINED BASED ON DETAIL DIMENSIONS SHOWN IN THE BAR BENDING DIAGRAMS. TOTAL BAR LENGTHS SHOWN ARE FOR USE IN COMPUTING REINFORCEMENT BAR WEIGHTS FOR PAYMENT ONLY.
 ALL REINFORCEMENT SHALL BE DELIVERED TO SITE IN BUNDLES IDENTIFIED BY SUBSTRUCTURE & BAR MARK.



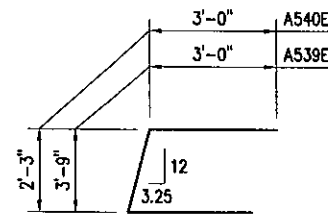
A534E, A535E, A536E



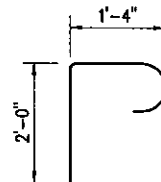
A537E



A538E

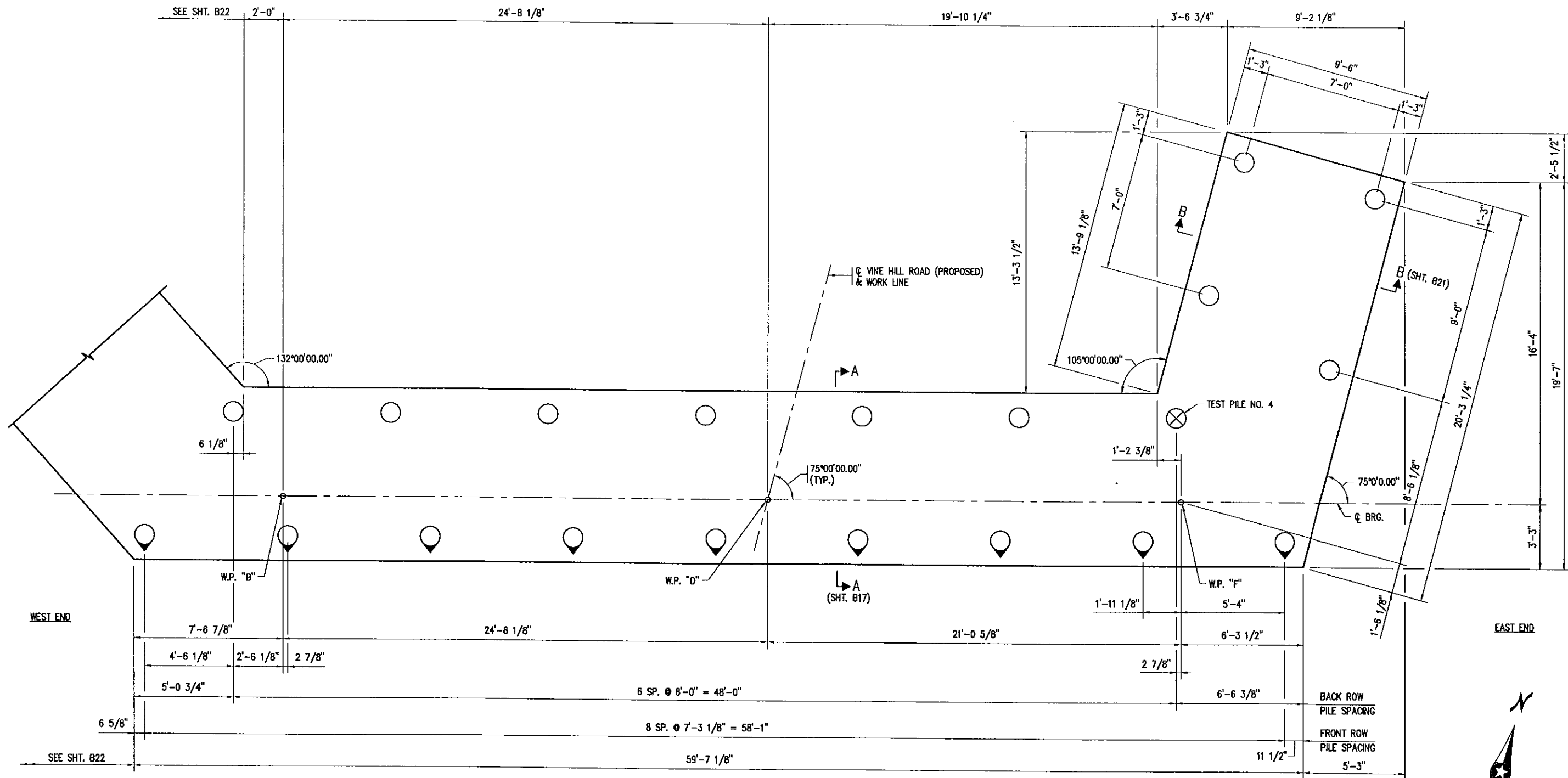


A539E, A540E



A551E

BILL OF REINFORCEMENT FOR SOUTH ABUTMENT					
BAR MARK	NO. OF BARS	NO. OF SERIES	LENGTH (FT.-IN.)	SHAPE	LOCATION
A701	58		9'-11"	BENT	FOOTING BOTTOM TRANSVERSE
A702	1		6'-7"	BENT	FOOTING BOTTOM TRANSVERSE
A703	1		9'-4"	BENT	FOOTING BOTTOM TRANSVERSE
A704	1		5'-7"	BENT	FOOTING BOTTOM TRANSVERSE
A605	36		31'-9"	STR.	FOOTING LONGITUDINAL
A606	58		8'-3"	STR.	FOOTING TOP TRANSVERSE
A607	1		4'-11"	STR.	FOOTING TOP TRANSVERSE
A608	1		7'-8"	STR.	FOOTING TOP TRANSVERSE
A609	1		3'-11"	STR.	FOOTING TOP TRANSVERSE
A710	42		10'-8"	BENT	WINGWALL FOOTING BOTTOM TRANSVERSE
A711	2		9'-1"	BENT	WINGWALL FOOTING TOP AND BOTTOM TRANSVERSE
A712	2		7'-4"	BENT	WINGWALL FOOTING TOP AND BOTTOM TRANSVERSE
A713	2		10'-10"	BENT	WINGWALL FOOTING TOP AND BOTTOM TRANSVERSE
A714	2		7'-7"	BENT	WINGWALL FOOTING TOP AND BOTTOM TRANSVERSE
A715	18		16'-10"	STR.	WINGWALL FOOTING LONGITUDINAL
A716	2		19'-10"	STR.	WINGWALL FOOTING LONGITUDINAL
A717	2		20'-9"	STR.	WINGWALL FOOTING LONGITUDINAL
A718	18		12'-10"	STR.	WINGWALL FOOTING LONGITUDINAL
A719	22		9'-0"	STR.	WINGWALL FOOTING TOP TRANSVERSE
A620E	54		5'-11"	BENT	ABUTMENT FRONT FACE DOWEL
A621E	60		6'-8"	BENT	ABUTMENT BACK FACE DOWEL
A522E	41		5'-4"	BENT	WINGWALL FRONT FACE DOWEL
A623E	76		10'-7"	BENT	WINGWALL BACK FACE DOWEL
A624E	12		26'-8"	STR.	ABUTMENT STEM HORIZONTAL
A625E	12		28'-4"	STR.	ABUTMENT STEM HORIZONTAL
A626E	11		27'-8"	STR.	ABUTMENT STEM HORIZONTAL
A627E	11		27'-4"	STR.	ABUTMENT STEM HORIZONTAL
A628E	2		27'-3"	STR.	ABUTMENT STEM HORIZONTAL
A629E	2		27'-8"	STR.	ABUTMENT STEM HORIZONTAL
A630E	25		7'-0"	STR.	ABUTMENT DOWEL
A631E	54		8'-2"	STR.	ABUTMENT FRONT FACE VERTICAL
A632E	54		8'-2"	STR.	ABUTMENT BACK FACE VERTICAL
A633E	6		8'-2"	STR.	ABUTMENT CORNER VERTICAL
A534E	54		7'-11"	BENT	ABUTMENT TIE
A535E	54		6'-5"	BENT	ABUTMENT SEAT TIE
A536E	42		5'-3"	BENT	ABUTMENT PAD TIE
A537E	11		7'-8"	BENT	ABUTMENT TIE
A538E	11		7'-2"	BENT	ABUTMENT TIE
A539E	22		9'-9"	BENT	ABUTMENT TIE
A540E	2		8'-3"	BENT	ABUTMENT TIE
A541E	40		9'-4"	STR.	WINGWALL DOWEL
A542E	40		9'-9"	STR.	WINGWALL DOWEL
A543E	40		18'-6"	STR.	WINGWALL HORIZONTAL
A544E	40		15'-8"	STR.	WINGWALL HORIZONTAL
A545E	21		15'-5"	STR.	WINGWALL FRONT FACE VERTICAL
A646E	21		15'-5"	STR.	WINGWALL BACK FACE VERTICAL
A547E	14		15'-9"	STR.	WINGWALL VERTICAL
A548E	20		14'-3"	STR.	WINGWALL FRONT FACE VERTICAL
A649E	20		14'-3"	STR.	WINGWALL BACK FACE VERTICAL
A550E	10		14'-6"	STR.	WINGWALL VERTICAL
A551E	53		3'-11"	BENT	WINGWALL TOP TIE



FOOTING PLAN-NORTH ABUTMENT

SCALE: 0 2'-8"

State Aid Proj. No. 098-594-002

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 NAME: *Jon W. Siter* LIC. NO. 25128 DATE 06/28/2013
 JON W. SITER

TITLE:
NORTH ABUTMENT FOOTING GEOMETRICS

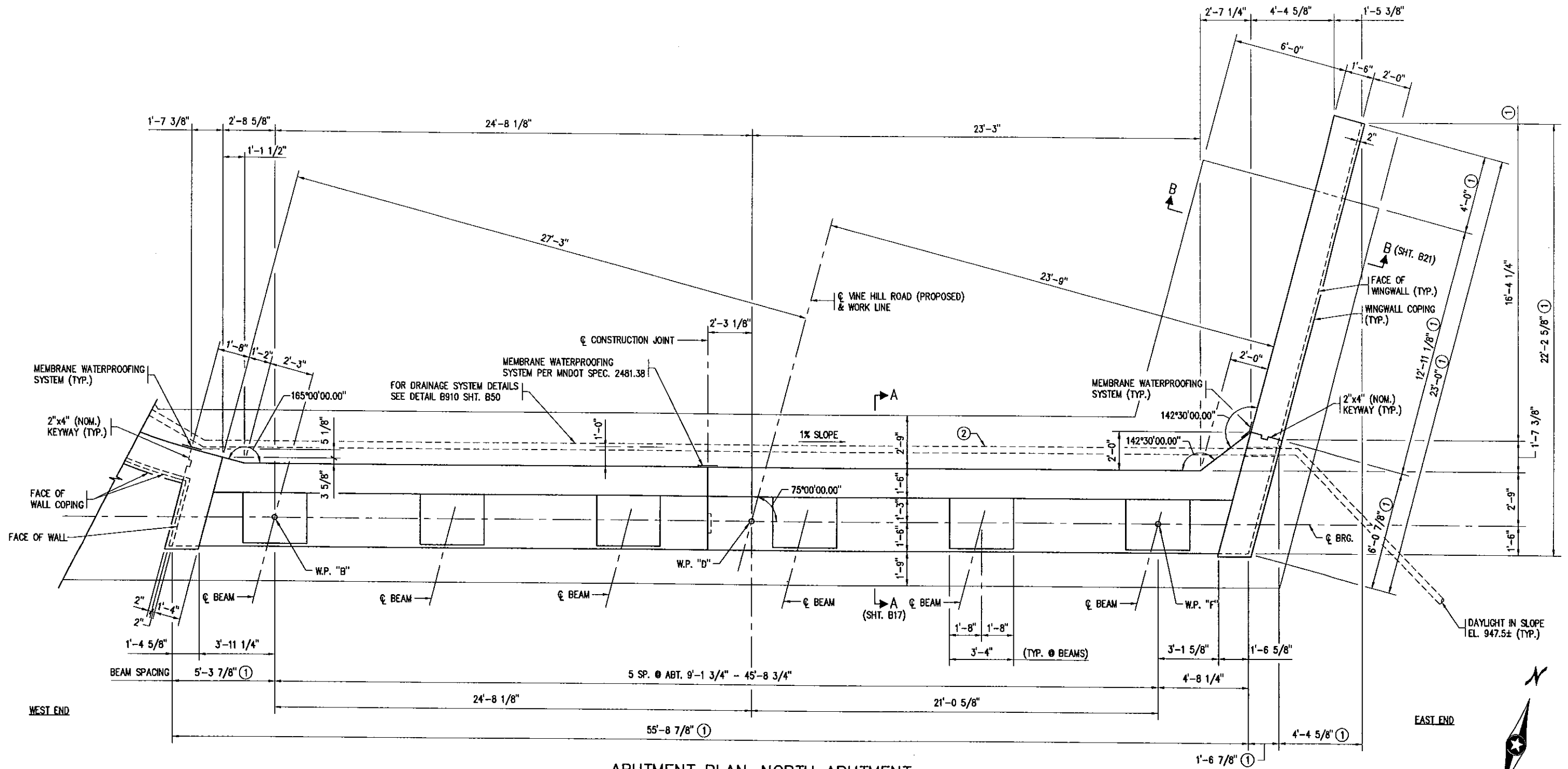
DES: CM	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	

Sheet No. B14 of 54 Sheets

Bridge No.
 27B90

KEY NOTES:

- ① DIMENSION MEASURED TO FACE OF WALL AT TOP OF FOOTING.
- ② SEE DETAIL B910, SHT. B50.



ABUTMENT PLAN-NORTH ABUTMENT

SCALE: 0 2'-8"

State Aid Proj. No. 098-594-002

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 NAME: *Jon W. Siter* LIC. NO. 25128 DATE 06/28/2013
 JON W. SITER

TITLE: NORTH ABUTMENT GEOMETRICS

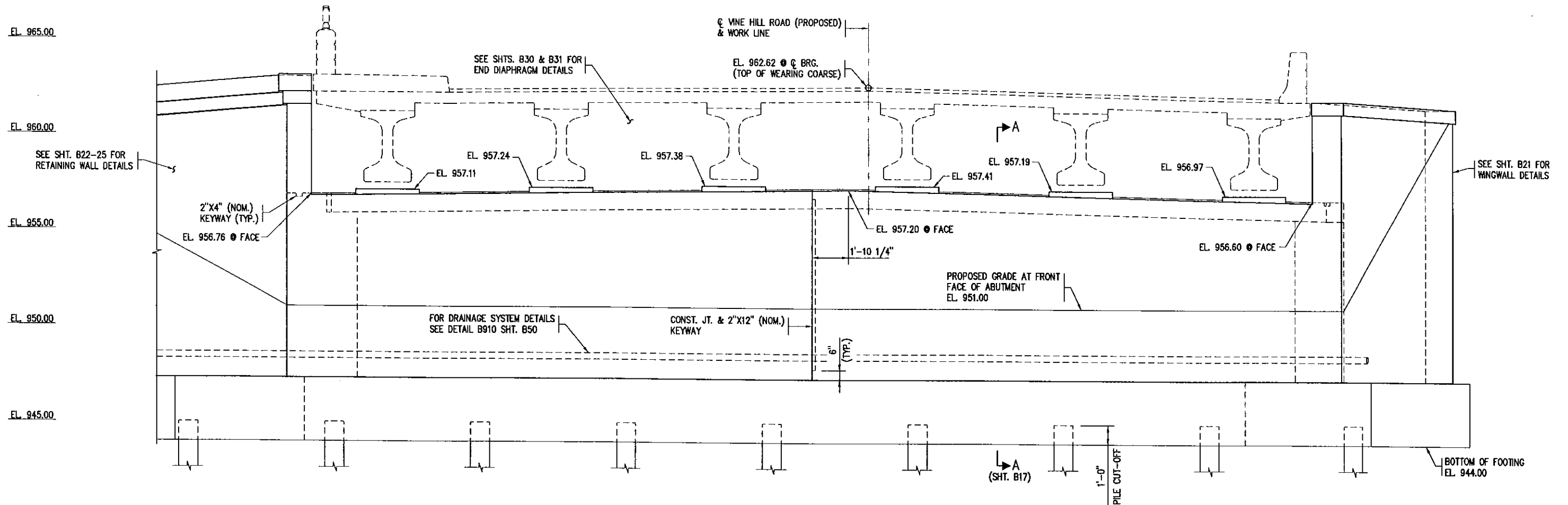
DES: CJM DR: GAV APPROVED:
 CHK: RAM CHK: JWS

Sheet No. B15 of 54 Sheets

Bridge No. 27B90

WEST SIDE

EAST SIDE



ELEVATION-NORTH ABUTMENT

SCALE: 0 2'-8"

State Aid Proj. No. 098-594-002

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NAME: *Jon W. Sitter* LIC. NO. 25128 DATE 06/28/2013
 JON W. SITTER

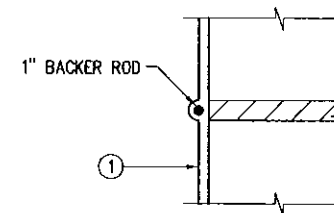
TITLE: NORTH ABUTMENT ELEVATION

DES: C.M.	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	
Sheet No. B16 of 54 Sheets		

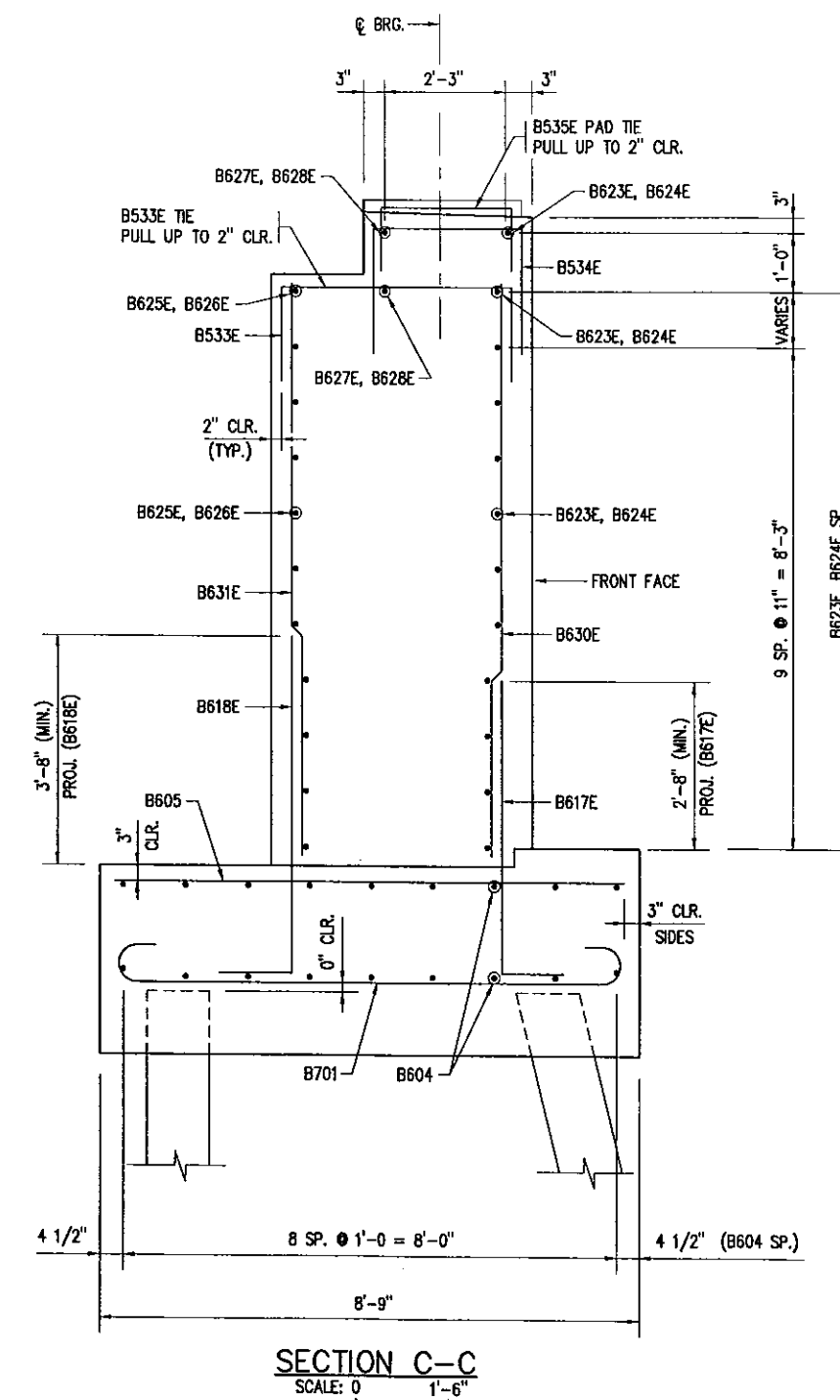
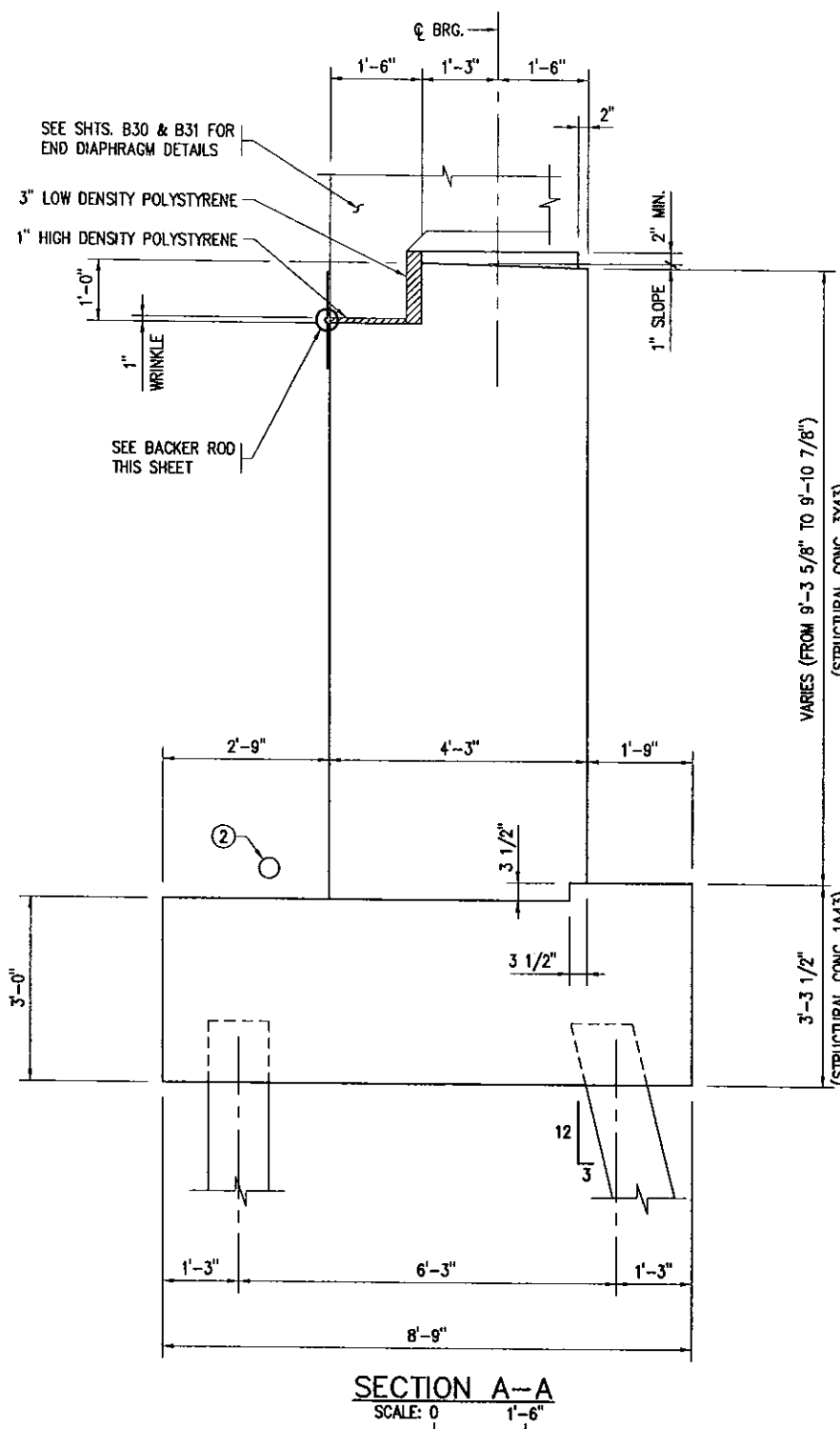
Bridge No. 27B90

KEY NOTES:

- ① MEMBRANE WATERPROOFING SYSTEM PER MNDOT SPEC. 2481.3B EXCEPT THE STRIP SHALL BE 24" WIDE TO ALLOW MOVEMENT. MEMBRANE PLACEMENT SHALL BE SUCH THAT A 1" WRINKLE IN THE MEMBRANE WILL BE FORMED OVER THE JOINT OPENING. ALL COST ASSOCIATED WITH WATERPROOFING SYSTEM SHALL BE INCIDENTAL TO AND INCLUDED IN ITEM "STRUCTURAL CONCRETE (3Y43)".
- ② DRAINAGE SYSTEM B910.

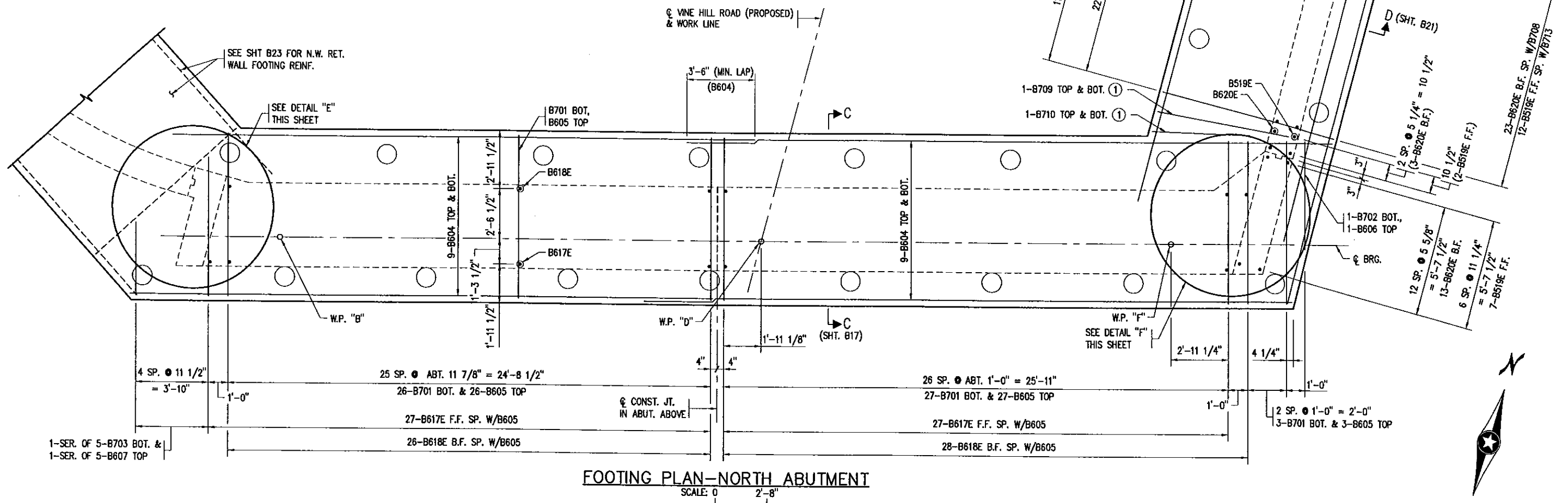
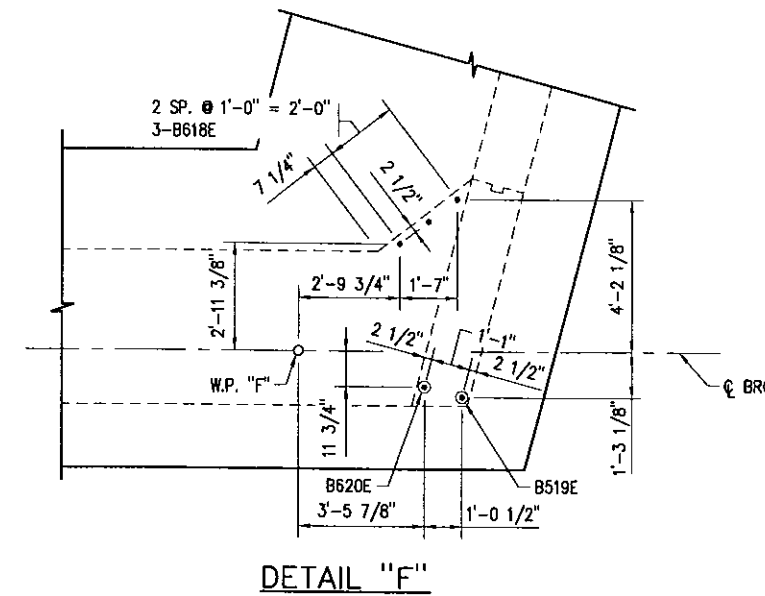
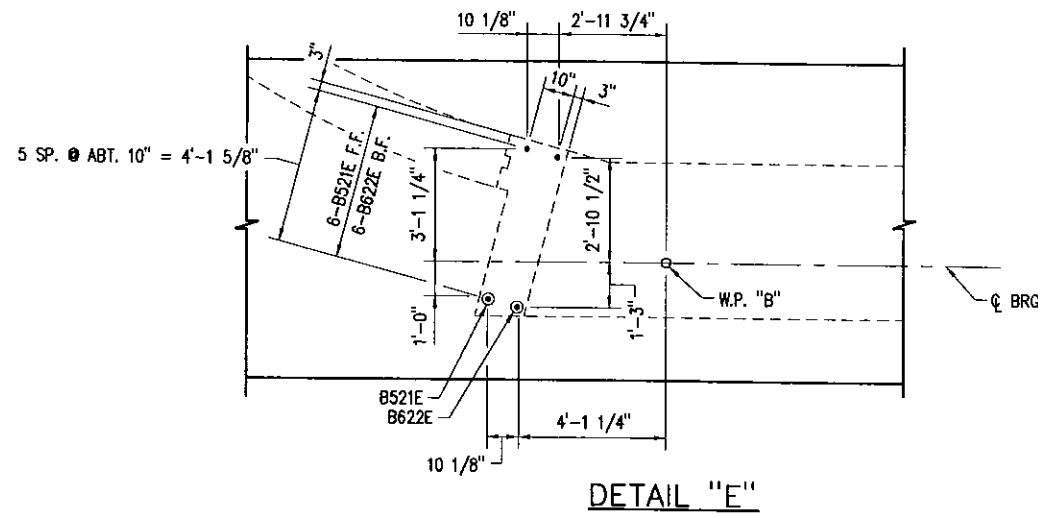


BACKER ROD DETAIL



KEY NOTES:

① PLACE REINFORCING AS SHOWN.



FOOTING PLAN-NORTH ABUTMENT

SCALE: 0 2'-8"

State Aid Proj. No. 098-594-002

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 NAME: *Jon W. Silver* LIC. NO. 25128 DATE 06/28/2013
 JOHN W. SILVER

TITLE: NORTH ABUTMENT FOOTING REINFORCEMENT

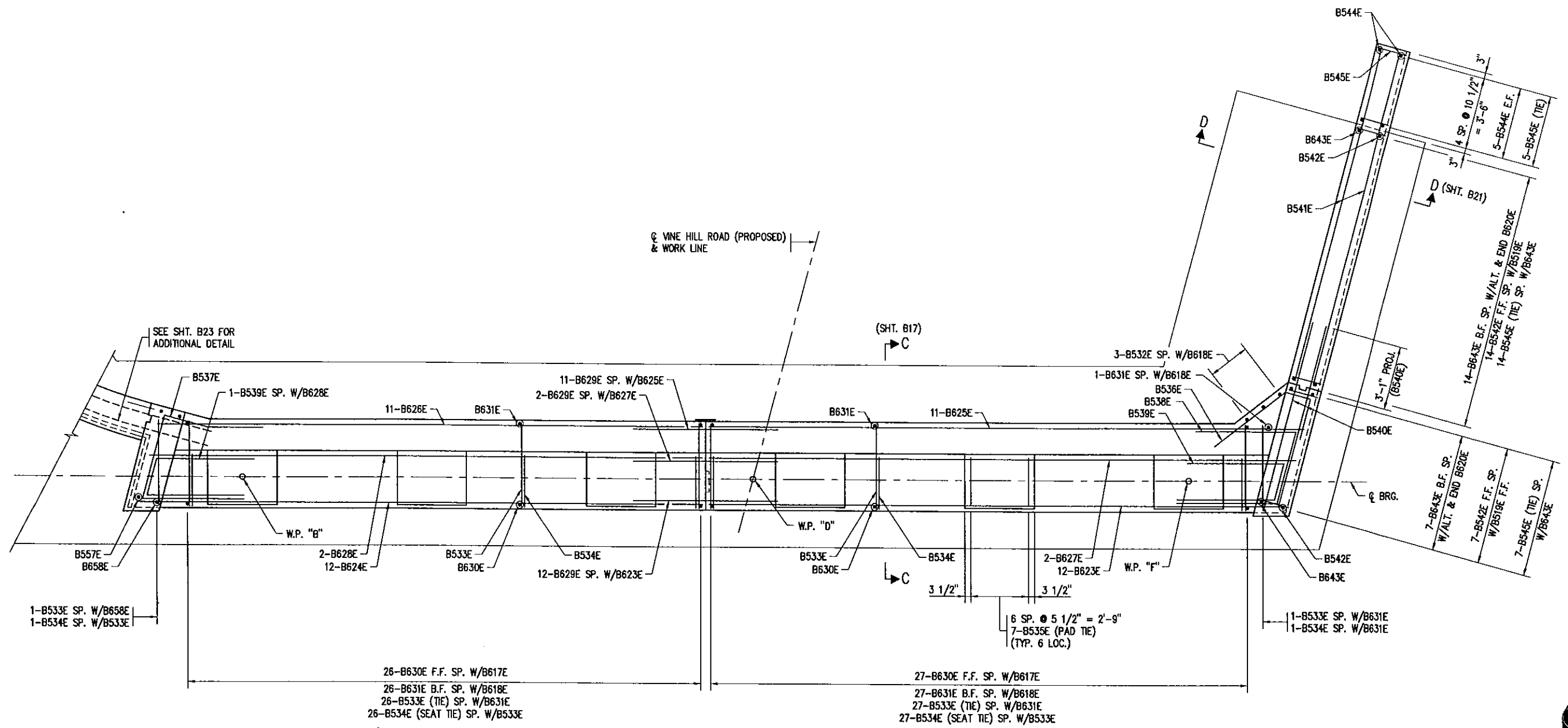
DES: CM DR: GAV APPROVED:
 CHK: RAM CHK: JWS

Bridge No. 27B90

Sheet No. B18 of 54 Sheets

KEY NOTES:

① MATCHLINE B - FOR RETAINING WALL DETAILS SEE SHEET B23.



ABUTMENT PLAN--NORTH ABUTMENT

SCALE: 0 2'-8"

State Aid Proj. No. 098-594-002

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 NAME: *Jon W. Siter* LIC. NO. 25128 DATE 06/28/2013
 JON W. SITER

TITLE:
 NORTH ABUTMENT REINFORCEMENT

DES: CM	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	

Sheet No. B19 of 54 Sheets

Bridge No.
 27B90

WEST SIDE

EAST SIDE

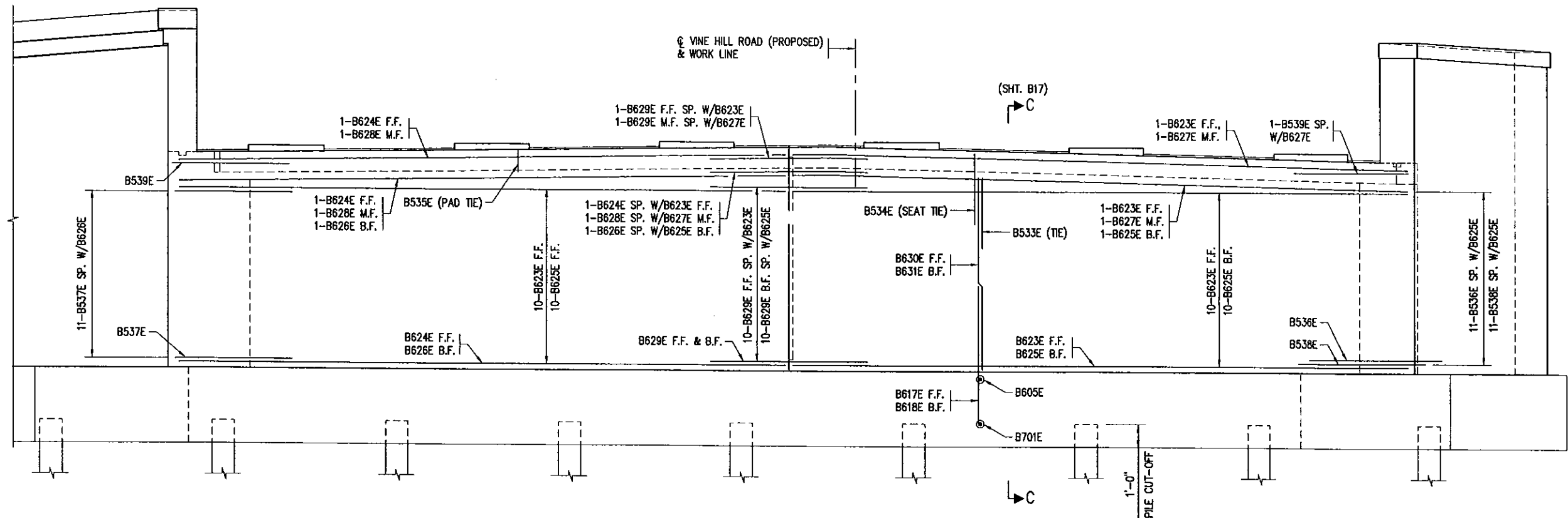
EL. 965.00

EL. 960.00

EL. 955.00

EL. 950.00

EL. 945.00



ELEVATION-NORTH ABUTMENT

SCALE: 0 2'-8"

NOTES:
 1. B.F. = BACK FACE
 F.F. = FRONT FACE
 E.F. = EACH FACE
 M.F. = MIDDLE FACE

State Aid Proj. No. 098-594-002

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 NAME: *Jon W. Sitzer* LIC. NO. 25128 DATE 06/28/2013
 JON W. SIZER

TITLE:
 NORTH ABUTMENT ELEVATION
 REINFORCEMENT

DES: CJM	DR: GAV	APPROVED:
CHK: RAM	CHK: JWS	

Bridge No.
 27B90

Sheet No. B20 of 54 Sheets