

Date Printed: 1/4/2011
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PLAN SYMBOLS

STATE LINE	----
COUNTY LINE	-----
TOWNSHIP OR RANGE LINE	-----
SECTION LINE	-----
QUARTER LINE	-----
SIXTEENTH LINE	-----
RIGHT-OF-WAY LINE	-----
SLOPE EASEMENT	-----
PRESENT RIGHT-OF-WAY	-----
CONTROL OF ACCESS LINE	-----
PROPERTY LINES (EXCEPT LAND LINES)	-----
VACATED PLATTED PROPERTY	-----
CORPORATE OR CITY LIMITS	-----
TRUNK HIGHWAY CENTER LINE	-----
RETAINING WALL	-----
RAILROAD	-----
RAILROAD RIGHT-OF-WAY	-----
RIVER OR CREEK	-----
DRY RUN	-----
DRAINAGE DITCH	-----
DRAIN TILE	-----
CULVERT	-----
DROP INLET	-----
GUARD RAIL	-----
BARBED WIRE FENCE	-----
WOVEN WIRE FENCE	-----
CHAIN LINK FENCE	-----
RAILROAD SNOW FENCE	-----
STONE WALL OR FENCE	-----
HEDGE	-----
RAILROAD CROSSING SIGN	-----
RAILROAD CROSSING BELL	-----
ELECTRIC WARNING SIGN	-----
CROSSING GATE	-----
MEANDER CORNER	-----
SPRINGS	-----
MARSH	-----
TIMBER	-----
ORCHARD	-----
BRUSH	-----
NURSERY	-----
CATCH BASIN	-----
FIRE HYDRANT	-----
CATTLE GUARD	-----
OVERPASS (HIGHWAY OVER)	-----
UNDERPASS (HIGHWAY UNDER)	-----
BRIDGE	-----
BUILDING (ONE STORY FRAME)	-----
F - FRAME	-----
G - CONCRETE	-----
S - STONE	-----
T - TILE	-----
B - BRICK	-----
ST - STUCCO	-----
IRON ROD OR PIPE	-----
MONUMENT (STONE, CONCRETE, OR METAL)	-----
WOODEN HUB	-----
GRAVEL PIT	-----
SAND PIT	-----
BORROW PIT	-----
ROCK QUARRY	-----

UTILITY SYMBOLS

POWER POLE LINE	-----
TELEPHONE OR TELEGRAPH POLE LINE	-----
JOINT TELEPHONE AND POWER	-----
ON POWER POLE	-----
ON TELEPHONE POLES	-----
ANCHOR	-----
STREET LIGHT	-----
PEDESTAL (TELEPHONE CABLE TERMINAL)	-----
GAS MAIN	-----
WATER MAIN	-----
CONDUIT	-----
TELEPHONE CABLE IN CONDUIT	-----
ELECTRIC CABLE IN CONDUIT	-----
TELEPHONE MANHOLE	-----
ELECTRIC MANHOLE	-----
BURIED TELEPHONE CABLE	-----
BURIED ELECTRIC CABLE	-----
AERIAL TELEPHONE CABLE	-----
SEWER (SANITARY OR STORM)	-----
SEWER MANHOLE	-----

SCALES

INDEX MAP	0 4000 8000
PLAN	0 50 100
PROFILE	0 50 100
HORIZ.	0 5 10
VERT.	0 10 20
CROSS SECTION	0 10 20

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

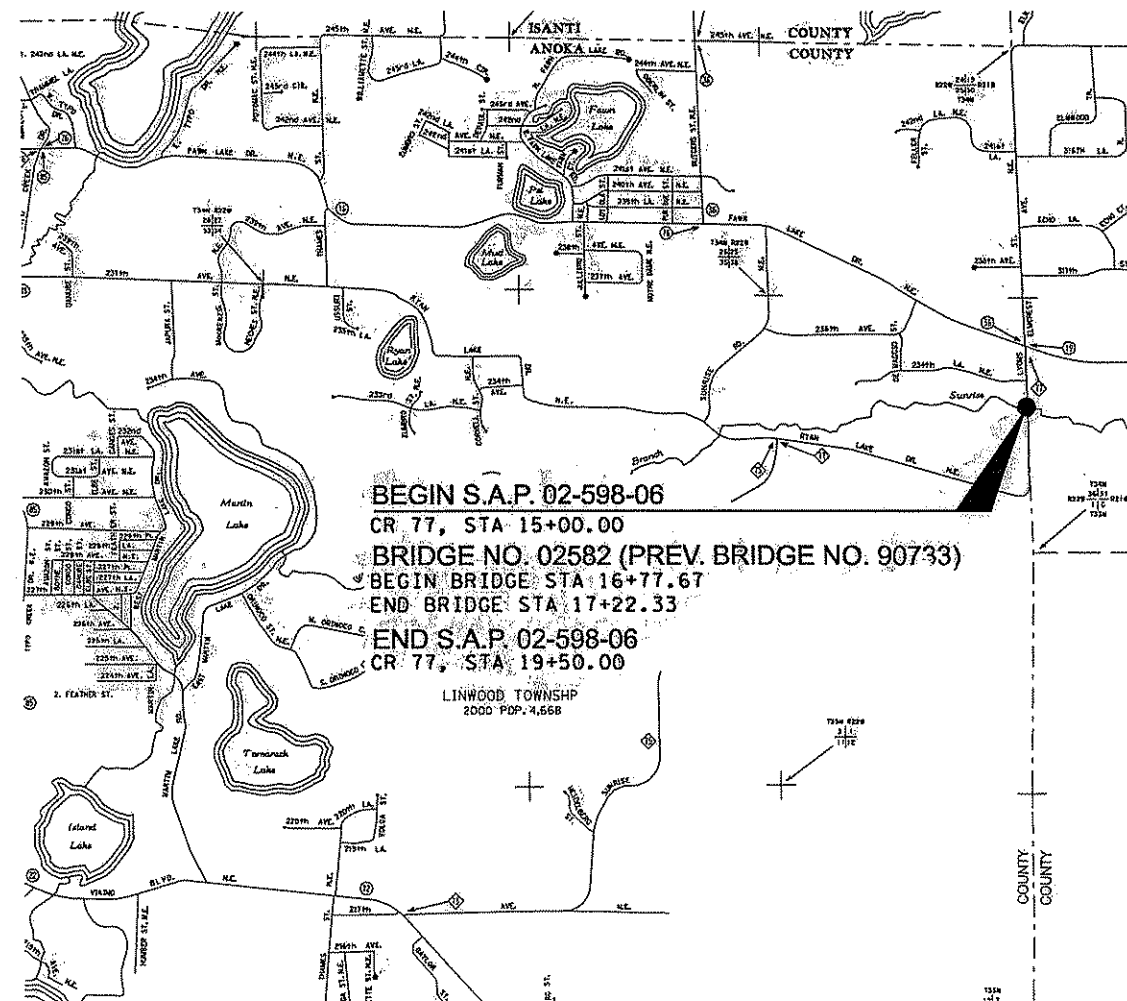
CONSTRUCTION PLAN FOR BRIDGE NO. 02582 WITH APPROACH GRADING

LOCATED IN ANOKA COUNTY LOCATED ON COUNTY ROAD 77 OVER WEST BRANCH OF THE SUNRISE RIVER IN LINWOOD TOWNSHIP (Geographic Description)

FROM NORTH HALF OF SECTION 36 TOWNSHIP 34N RANGE 22W (Legal Description)

CR 77 - S.A.P. 02-598-06

GROSS LENGTH	450.00 ft	0.085 miles
BRIDGES-LENGTH	44.66 ft	0.008 miles
EXCEPTIONS-LENGTH	0.00 ft	0.000 miles
NET LENGTH	450.00 ft	0.085 miles



PROJECT LOCATION
COUNTY: ANOKA
DISTRICT: METRO

DESIGN DESIGNATION

CR 77

R VALUE	=	45
ADT (Current Year) 2011	=	470
ADT (Future Year) 2031	=	1,000
HCAAT (Future Year) 2031	=	89
ESALS	=	181,000
DESIGN SPEED	=	55 MPH
BASED ON STOPPING SIGHT DISTANCE		
HEIGHT OF EYE	=	3.5
HEIGHT OF OBJECT	=	2.0
DESIGN SPEED NOT ACHIEVED AT:		N/A
FUNCTIONAL CLASSIFICATION	=	MAJOR COLLECTOR
NO. OF TRAFFIC LANES	=	2
NO. OF PARKING LANES	=	0
SHOULDER WIDTH	=	6'
TOT DESIGN	=	10

DATE	SHEET NO.	APPROVED BY

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D
THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C1/ASCE 38/02.
ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING
SUBSURFACE UTILITY DATA."

MINN. PROJECT NO. _____

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2 - 3	ESTIMATED QUANTITIES
4	EARTHWORK TABULATION & SUMMARY
5	DRAINAGE TABULATION
6	CONSTRUCTION & SOIL NOTES & STANDARD PLATES
7	TYPICAL SECTIONS
8 - 9	MISCELLANEOUS DETAILS
10 - 17	STANDARD PLANS
18 - 19	CONSTRUCTION STAGING & TRAFFIC CONTROL
20	INPLACE TOPOGRAPHY AND REMOVALS
21	ROADWAY PLAN & PROFILE
22 - 24	SWPPP
25 - 31	TURF ESTABLISHMENT & EROSION CONTROL
32 - 33	SIGNING & STRIPING PLAN
34 - 38	CROSS SECTIONS

B1 - B25 BRIDGE PLANS

THIS PLAN CONTAINS 63 SHEETS.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.



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INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

SIGNATURE: [Signature] TYPED OR PRINTED NAME: DONALD W. STERNA, PE
LICENSED PROFESSIONAL ROADWAY ENGINEER - DONALD W. STERNA, PE

ROADWAY DESIGN ENGINEER: I HEREBY CERTIFY THAT PLAN SHEETS 1 TO 38 OF THIS PLAN 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.

DATE: 01/03/11 LICENSE NUMBER 19103

SIGNATURE: [Signature] TYPED OR PRINTED NAME: JAMES ARCHER, PE

BRIDGE DESIGN ENGINEER: I HEREBY CERTIFY THAT PLAN SHEETS B1 TO B25 OF THIS PLAN 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.

DATE: 01/03/11 LICENSE NUMBER 45501



APPROVED: ANOKA COUNTY ENGINEER

DATE: 4/26/11



RECOMMENDED FOR APPROVAL: STATE BRIDGE ENGINEER

DATE: 5-15-11



DISTRICT STATE ENGINEER
REVIEWED FOR COMPLIANCE WITH STATE AID RULES / POLICY

DATE: 5/12/11



APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

DATE: 6/6/11

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THE PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE _____ LIC. NO. _____

S.A.P. 02-598-06

SHEET NO. 1 OF 38 SHEETS

Date Printed: 1/4/2011
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ESTIMATED QUANTITIES						
ITEM NUMBER	DESCRIPTION	NOTES	UNITS	PROJECT TOTAL	ROADWAY	BRIDGE S.A.P. 02-598-06
				ESTIMATED	ESTIMATED	ESTIMATED
2021.501	MOBILIZATION		LUMP SUM	1		1
2104.501	REMOVE GUARD RAIL		LIN FT	160	160	
2104.505	REMOVE BITUMINOUS PAVEMENT		SQ YD	1140	1140	
2104.509	REMOVE MARKER		EACH	8	8	
2104.509	REMOVE SIGN TYPE C		EACH	4	4	
2104.513	SAWING BIT PAVEMENT (FULL DEPTH)		LIN FT	53	53	
2104.601	REMOVE REGULATED WASTE MATERIAL (BRIDGE)		LUMP SUM	1	1	
2105.501	COMMON EXCAVATION	2	CU YD	2171	2171	
2105.522	SELECT GRANULAR BORROW (CV)		CU YD	2524	2524	
2105.522	SELECT GRANULAR BORROW MOD 10% (CV)		CU YD	330	330	
2105.523	COMMON BORROW (CV)		CU YD	1449	1449	
2211.503	AGGREGATE BASE (CV) CLASS 5		CU YD	405	405	
2221.503	AGGREGATE SHOULDERING (CV) CLASS 2		CU YD	85	85	
2360.501	TYPE SP 12.5 WEARING COURSE MIX (3,C)	1	TON	380	380	
2401.501	STRUCTURAL CONCRETE (3Y43)	(P)	CU YD	60	6	54
2401.512	BRIDGE SLAB CONCRETE (3Y36)	(P)	SQ FT	1757	178	1579
2401.513	TYPE MOD F (7L-4) RAILING CONCRETE(3Y46)	(P)	LIN FT	122		122
2401.541	REINFORCEMENT BARS (EPOXY COATED)	(P)	POUND	16925	1003	15922
2401.601	STRUCTURE EXCAVATION		LUMP SUM	1		1
2401.601	SLOPE PREPARATION		LUMP SUM	1		1
2402.590	ELASTOMERIC BEARING PAD TYPE 1	(P)	EACH	12		12
2405.502	PRESTRESSED CONCRETE BEAMS 18RB	(P)	LIN FT	266		266
2411.511	STRUCTURE EXCAVATION CLASS WE		CU YD	300	300	
2442.501	REMOVE EXISTING BRIDGE		LUMP SUM	1	1	
2452.507	C-I-P CONCRETE PILING DELIVERED 12"		LIN FT	550		550
2452.508	C-I-P CONCRETE PILING DRIVEN 12"		LIN FT	550		550
2452.519	C-I-P CONC TEST PILE 60 FT LONG 12"		EACH	2		2
2452.527	PILE REDRIVING		EACH	2		2
2452.602	PILE ANALYSIS		EACH	2		2
2503.541	15" RC PIPE SEWER DES 3006 CL V	5	LIN FT	60	60	
2506.501	CONST DRAINAGE STRUCTURE DES 48-4020		LIN FT	9	9	
2506.516	CASTING ASSEMBLY		EACH	2	2	
2511.501	RANDOM RIPRAP CLASS III		CU YD	144.4	15.7	128.7
2511.515	GEOTEXTILE FILTER TYPE IV (MOD)		SQ YD	242.8	27.7	215.1
2531.501	CONCRETE CURB & GUTTER DESIGN B424 (MOD)		LIN FT	24	24	
2531.603	CONCRETE GUTTER DESIGN SPECIAL	6	LIN FT	16	16	
2554.501	TRAFFIC BARRIER DESIGN SPECIAL		LIN FT	100		100
2554.501	TRAFFIC BARRIER DESIGN B8338		LIN FT	50		50
2554.523	END TREATMENT-TANGENT TERMINAL	4	EACH	4		4
2563.601	TRAFFIC CONTROL		LUMP SUM	1		1

NOTES

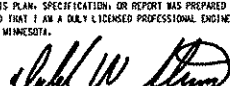
1. TACK COAT IS INCIDENTAL.
 2. INCLUDES ALL EXCAVATION FOR THE ROADWAY AND SALVAGING OF THE TOPSOIL.
 3. TO BE USED AS DIRECTED BY THE ENGINEER.
 4. SEE DETAILS FOR ET-2000 TERMINAL AND/OR SKT-350.
 5. INCLUDES APRON.
 6. 24" GUTTER FOR USE ON WALL ALONG RAILING LOCATED AT THE SOUTH END OF THE BRIDGE.
- (P) DENOTES PLAN QUANTITY

BASIS FOR QUANTITIES

UNIT WEIGHT OF BITUMINOUS MIX.....113 LBS/SY/IN
AGGREGATE BASE AND SHOULDERING CLASS 5.....105 LBS/SY/IN
TACK COAT
- MILLED SURFACE.....0.07 GAL/SY
- BETWEEN NEW LAYERS.....0.05 GAL/SY
TURF ESTABLISHMENT
- SEED MIXTURE 250.....70 LBS/ACRE
- MULCH MATERIAL - TYPE 1.....2 TON/ACRE
- FERTILIZER TYPE 2 (22-0-10).....350 LBS/ACRE

NO.	DATE	BY	CHK	REVISIONS

Design By:	THG
Plan By:	CWK
Checked By:	DWS
Approved By:	DWS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	
CERTIFIED BY	
LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE	
DATE: 01/03/11	LIC. NO: 19103



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ANOKA COUNTY

CR 77 - Bridge Replacement

Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

ESTIMATED QUANTITIES
S.A.P. 02-598-06

[illegible]

NOTES

1. TACK COAT IS INCIDENTAL.
 2. INCLUDES ALL EXCAVATION FOR THE ROADWAY AND SALVAGING OF THE TOPSOIL.
 3. TO BE USED AS DIRECTED BY THE ENGINEER.
 4. SEE DETAILS FOR ET-2000 TERMINAL AND/OR SKT-350.
 5. INCLUDES APRON.
 6. 24" GUTTER FOR USE ON WALL ALONG RAILING LOCATED AT THE SOUTH END OF THE BRIDGE.
- (P) DENOTES PLAN QUANTITY

BASIS FOR QUANTITIES

UNIT WEIGHT OF BITUMINOUS MIX.....	113 LBS/SY/IN
AGGREGATE BASE AND SHOULDERING CLASS 5.....	105 LBS/SY/IN
TACK COAT	
- MILLED SURFACE.....	0.07 GAL/SY
- BETWEEN NEW LAYERS.....	0.05 GAL/SY
TURF ESTABLISHMENT	
- SEED MIXTURE 250.....	70 LBS/ACRE
- MULCH MATERIAL - TYPE 1.....	2 TON/ACRE
- FERTILIZER TYPE 2 (22-0-10).....	350 LBS/ACRE

NO.	DATE	BY	CHK	REVISIONS	Design By: THG Plan By: CWK Checked By: DWS Approved By: DWS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER OF DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. CERTIFIED BY:  LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE DATE: 01/03/11 L.E.C. NO: 19103	 701 Xenia Avenue South, Suite 300 Minneapolis, MN 55416 www.wsbeng.com 763-541-4300 - Fax 763-541-1700 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION	 CR 77 - Bridge Replacement Anoka County, Minnesota	ANOKA COUNTY, MINNESOTA ESTIMATED QUANTITIES S.A.P. 02-598-06	SHEET 3 OF 38 SHEETS
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EXCAVATION

COMMON EXCAVATION

2171 CU YD (EV)

SALVAGE TOPSOIL

1108 CU YD (EV)

EMBANKMENT

SELECT GRANULAR BORROW

2524 CU YD (CV)

SELECT GRADING (CV)

2512 CU YD (CV)

TOPSOIL BORROW (CV)

704 CU YD (CV)

EARTHWORK ACCOUNTING

SELECT GRADING BALANCE
MATERIAL AVAILABLE TO BE USED FOR SELECT GRADING
(COMMON EXCAVATION - TOPSOIL SALVAGE)

2171 - 1108CU YD (EV) / 1.25= 1063CU YD (CV)

BORROW NEEDED FOR SELECT GRADING
(SELECT GRADING - MATERIAL AVAILABLE)

2512- 1063 = 1449CU YD (CV) BORROW

TOPSOIL BALANCE

TOPSOIL SALVAGE - TOPSOIL APPLIED

1108	CU YD (EV) /	1.25	=	886	CU YD (CV)
	886 -	704	=	182	CU YD (CV) EXCESS
	182 *	1.4	=	255	CU YD (LV) EXCESS

EARTHWORK TABULATION

EARTHWORK TABULATION					
	EXCAVATION		EMBANKMENT		
STATION	COMMON EXCAVATION	SALVAGE TOPSOIL	SELECT GRANULAR	SELECT GRADING	TOPSOIL
	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
	CY	CY	CY	CY	CY
DRIVEWAY					
15+00					
15+50	130	30	85	61	24
16+00	119	40	95	137	32
16+50	98	47	110	167	38
17+50	160	101	215	336	81
18+00	1330	800	1734	1700	467
18+50	73	39	93	78	23
19+00	114	32	96	31	21
19+50	147	19	96	2	18
TOTAL	2171	1108	2524	2512	704

NOTES

1. COMMON EXCAVATION DOES NOT INCLUDE PAVEMENT VOLUMES. PAVEMENT THICKNESS ASSUMED TO AVERAGE 5 INCHES FOR CALCULATION PURPOSES. ACTUAL DEPTHS WILL VARY.
2. COMMON EXCAVATION INCLUDES ALL ROADWAY EXCAVATION AND TOPSOIL SALVAGE.
3. ANY MATERIAL NO UTILIZED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE DISPOSAL OF WHICH SHALL BE HIS / HER RESPONSIBILITY WITH NO ADDITIONAL COMPENSATION PAID OTHER THAN THE PRICE BID FOR COMMON EXCAVATION.
4. 125% SHRINKAGE FACTOR USED FROM EXCAVATED VOLUME (EV) TO COMPACTED VOLUME (CV) FOR COMMON EXCAVATION. 125% SHRINKAGE FACTOR USED FROM EXCAVATED VOL (EV) TO COMPACTED VOL (CV) FOR TOPSOIL EXCAVATION. 130% EXPANSION FACTOR USED FROM COMPACTED VOLUME (CV) TO LOOSE VOLUME (LV) FOR SELECT GRANULAR AND COMMON BORROW. 140% EXPANSION FACTOR USED FROM COMPACTED VOLUME (CV) TO LOOSE VOLUME (LV) FOR TOPSOIL.

NO.	DATE	BY	CHK	REVISIONS	Design By: THG Plan By: CWK Checked By: DWS Approved By: DWS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. CERTIFIED BY:  LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE DATE: 01/03/11 L.C. NO: 19103	 701 Xenia Avenue South, Suite 300 Minneapolis, MN 55416 www.wsbeng.com	 CR 77 - Bridge Replacement Anoka County, Minnesota	ANOKA COUNTY, MINNESOTA EARTHWORK SUMMARY & TABULATION S.A.P. 02-598-06	SHEET 4 OF 38 SHEETS
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DRAINAGE TABULATION																	
STRUCT. NO.	STREET	STATION	OFFSET FT	SIDE	STRUCTURE PAY HEIGHTS	CASTING ASSEMBLY	TOP CASTING ELEV FINISHED	OUTLET ELEVATION BOTTOM	CIRCULAR PIPE	CIRCULAR PIPE APRONS		DRAINS TO			RIPRAP CL III CU YD	GEOTEXTILE FABRIC TYPE IV SQ. YD	REMARKS
					4020-48 LIN FT				15" RCP CL V FT	15" RCP		STRUCT NO	PIPE GRADE FT/FT	INVERT ELEVATION			
										APRON EACH	TRASH GUARD EACH						
5000	CR 77	16+61.65	17	LT	4.39	B-17	891.39	886.96	34			5001	0.01	886.62			
5001	CR 77	16+61.65	17	RT	4.73	B-17	891.39	886.62	26			5002	0.01	886.30			
5002	CR 77	16+66.87	43	RT				886.30		1	1				4.4	8.8	
					9				60	1	1				4.4	8.8	

NOTES:
1. OFFSETS ARE TO CENTER OF GRATE
2. TOP OF CASTING ELEVATIONS ARE TO CENTER OF GRATE
3. PAY HEIGHTS ARE FROM BOTTOM OF CASTING TO INVERT PLUS 0.7'

CASTING TABULATION						
ASSEMBLY	RING OR FRAME	COVER OR GRATE	CURB BOX	STANDARD PLATE NUMBER	USE	TOTAL
B-17	806	816	825	4125 4154 4134		2
TOTAL						2

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GENERAL NOTES

1. EXISTING UTILITIES ARE INDICATED IN ACCORDANCE WITH AVAILABLE RECORDS, AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. EXACT LOCATIONS MAY DIFFER FROM THOSE SHOWN ON THE DRAWINGS. OTHER UTILITIES MAY ALSO BE PRESENT. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES, INCLUDING SEWER AND WATER, FROM THE OWNERS OF THE RESPECTIVE UTILITIES WHETHER OR NOT THEY ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL CONTACT UTILITY OWNERS FOR LOCATIONS AT LEAST 72 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE UNLESS OTHERWISE SPECIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER. NO ADDITIONAL COMPENSATION WILL BE GIVEN IF UTILITIES DIFFER IN NUMBER AND/OR LOCATION FROM THOSE SHOWN ON THE DRAWINGS.
2. CLEARING, GRUBBING SHALL BE AS DIRECTED BY THE ENGINEER, AND SHALL BE INCIDENTAL.
3. DEBRIS AND OTHER UNSUITABLE MATERIAL RESULTING FROM THE CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF OFF-SITE BY CONTRACTOR IN ACCORDANCE WITH MN/DOT SPEC. 2104. 3C3 AND IN ACCORDANCE WITH FEDERAL, STATE, CITY, AND COUNTY REQUIREMENTS.
4. THE CONTRACTOR SHALL HAVE PLACED ALL THE TOPSOIL AND COMPLETED ALL TURF RESTORATION ACTIVITIES PRIOR TO THE PLACING OF THE BITUMINOUS WEAR COURSE.

GRADING NOTES

1. UNSUITABLE MATERIALS FOR EMBANKMENT CONSTRUCTION ARE DEFINED AS ANY NON-GRANULAR MATERIALS SUCH AS LOAM, PEAT, MUCK, MARL, SILT, TOPSOIL OR OTHER ORGANIC MATERIAL AND DEBRIS. UNSUITABLE MATERIALS SHALL NOT BE PLACED WITHIN A 1:1.5 SLOPE, DRAWN DOWN AND OUTWARD, FROM THE GRADING SHOULDER P.I., NOR SHALL THEY BE PLACED OUTSIDE THAT LINE IN THE UPPER 1.0 FOOT OF THE EMBANKMENT EXCEPT FOR TOPSOIL AS CALLED FOR IN THE PLAN.
2. SUITABLE GRADING MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE DEFINED AS ANY GRANULAR MATERIAL ENCOUNTERED WITHIN THE PROJECT EXCAVATIONS OR BORROW MATERIAL THAT MEETS THE REQUIREMENTS OF Mn/DOT SPECIFICATION 3149.2B1, GRANULAR BORROW.
3. SELECT GRADING MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE DEFINED AS ANY GRANULAR MATERIAL ENCOUNTERED WITHIN THE PROJECT EXCAVATIONS OR BORROW MATERIAL THAT MEETS THE REQUIREMENTS OF Mn/DOT SPECIFICATION 3149.2B2, SELECT GRANULAR BORROW.
4. THE GRADING GRADE IS HEREBY DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
5. WHEN CONNECTING TO INPLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION CUT VERTICALLY TO THE BOTTOM OF THE NEW SURFACING, THEN AT A 1(V):20(H) TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
6. ALL EMBANKMENT MATERIAL SHALL BE COMPACTED AS REQUIRED BY THE "MODIFIED PENETRATION INDEX METHOD" EXCEPT FOR PORTIONS OF THE EMBANKMENT AS DESCRIBED IN Mn/DOT SPECIFICATION 2105.3F.
7. COMPACTION OF THE CLASS 5 AGGREGATE BASE SHALL BE OBTAINED BY THE "MODIFIED PENETRATION INDEX METHOD" IN ACCORDANCE WITH Mn/DOT SPECIFICATION 2211.3C3.
8. THE CONTRACTOR SHALL STRIP ALL TOPSOIL FROM ALL CUT, EMBANKMENT, AND STOCK PILE AREAS PRIOR TO UTILITY INSTALLATION. ALL COST FOR THIS WORK SHALL BE INCLUDED IN COMMON EXCAVATION.
9. THE CONTRACTOR SHALL STOCK PILE AND/OR PLACE EXCAVATION MATERIAL ON THE PROJECT SITE AT A LOCATION TO BE DETERMINED IN THE FIELD. PRIORITY OF FILL PLACEMENT SHALL BE AS DIRECTED BY THE ENGINEER.
10. SELECT GRANULAR BORROW MOD. 10% IS DEFINED AS SAND HAVING LESS THAN 10% BY WEIGHT PASSING THE #200 SIEVE.

CURB AND GUTTER NOTES

1. EXPANSION JOINTS SHALL EXTEND TO THE FULL DEPTH AND SECTION OF THE JOINT.

BITUMINOUS SURFACING NOTES

1. WHERE PROPOSED BITUMINOUS SURFACING MEETS EXISTING BITUMINOUS, THE EDGE OF THE EXISTING BITUMINOUS SURFACE SHALL BE CUT AND REMOVED TO OBTAIN A VERTICAL, STRAIGHT EDGE. CONSTRUCT MILLED LAP JOINT IN ACCORDANCE WITH DETAIL.
2. INFORMATION CONTAINED IN THE PLANS AND SPECIFICATIONS CONCERNING DEPTH AND TYPE OF EXISTING PAVEMENTS ON THIS PROJECT WERE BASED ON RECORDED DRAWINGS AND SOIL BORINGS TAKEN ON THE PROJECT. PAVEMENT DEPTH AND TYPES MAY VARY ALONG THE PROJECT.

THE FOLLOWING STANDARD PLATES APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY TO THIS PROJECT.

Mn/DOT STANDARD PLATES

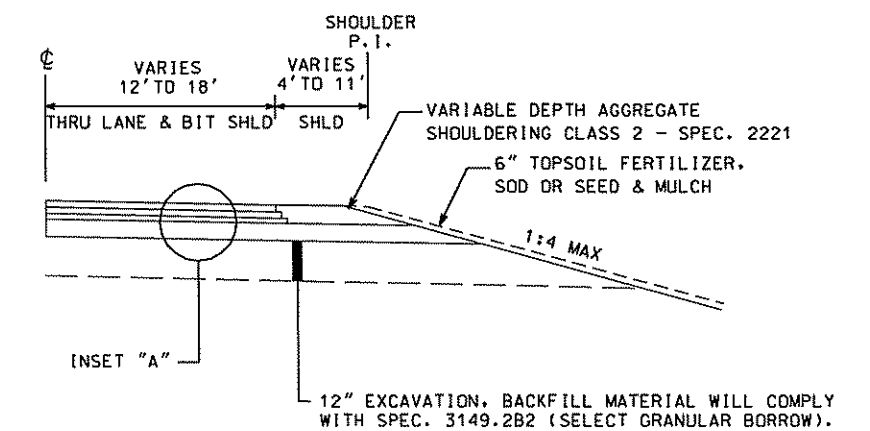
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR R.C. PIPE
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3128 H	METAL SAFETY APRON & GRATE
3133 C	RIPRAP AT RCP OUTLETS
3145 F	CONCRETE PIPE TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
4010 H	CONCRETE SHORT CONE & ADJUSTING RING
4011 E	PRECAST CONCRETE BASE
4020 J	MANHOLE OR CATCH BASIN COVER
4026 A	CONCRETE ENCASED ADJUSTMENT RINGS
4125 D	CATCH BASIN FRAME CASTING
4134 A	CURB BOX CASTING FOR CATCH BASIN
4154 B	CATCH BASIN GRATE CASTING
4180 J	MANHOLE OR CATCH BASIN STEP
7100 H	CONCRETE CURB AND GUTTER (DESIGN B and DESIGN V)
7111 J	INSTALLATION OF CATCH BASIN CASTINGS
8000 I	STANDARD BARRICADES
8150 C	INSTALLATION OF CULVERT MARKERS
8318 C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES AND BCT'S
8338 C	W-BEAM GUARDRAIL & END ANCHORAGES (STEEL POSTS) (4 SHEETS)

NO.	DATE	BY	CHK	REVISIONS	Design By: THG Plan By: CWK Checked By: DWS Approved By: DWS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. CERTIFIED BY:  LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE DATE: 01/03/11 LIC. NO: 19103	 701 Xenia Avenue South, Suite 300 Minneapolis, MN 55416 www.ws beng.com 763-541-4800 - Fax 763-541-1700 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION	 CR 77 - Bridge Replacement Anoka County, Minnesota	ANOKA COUNTY, MINNESOTA CONSTRUCTION NOTES & STANDARD PLATES S.A.P. 02-598-06	SHEET 6 OF 38 SHEETS
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STA 15+00 TO STA 16+77
SEE BRIDGE SHEET FOR TYPICAL SECTION FROM (APPROX) STA 16+77 TO STA 17+23
STA 17+23 TO STA 19+50



Plan view of a proposed road improvement project. The diagram shows a cross-section of a road with a centerline marked "CR 77". The total width of the road is 66 feet, divided into two 33-foot sections. The road has two 12-foot "THRU LANES" separated by a 4-foot "GRAVEL SHLD" on each side. A vertical line indicates the centerline. Below the road, a dashed line represents the "EXISTING BITUMINOUS PAVEMENT" with a 0.02% grade indicated by arrows. The road is flanked by "R/W" (Right of Way) lines.



A 3D perspective diagram of a gutter cross-section. The gutter is a rectangular channel with a width of 2'-0" and a depth of 7". The top surface of the gutter is sloped, with a label indicating "SAME SLOPE AS ROADWAY". The gutter is shown with a textured interior and a smooth exterior.

① SEE STANDARD PLANS MANUAL FOR JOINT INFORMATION

ement sota	ANOKA COUNTY, MINNESOTA	SHEET 7 OF 38 SHEETS
	TYPICAL SECTIONS S.A.P. 02-598-06	

[illegible]

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

CERTIFIED BY: Donald W. Sterna LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE

DATE: 01/03/11 19103



CR 77 - Bridge Replacement
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

TYPICAL SECTIONS
S.A.P. 02-598-06

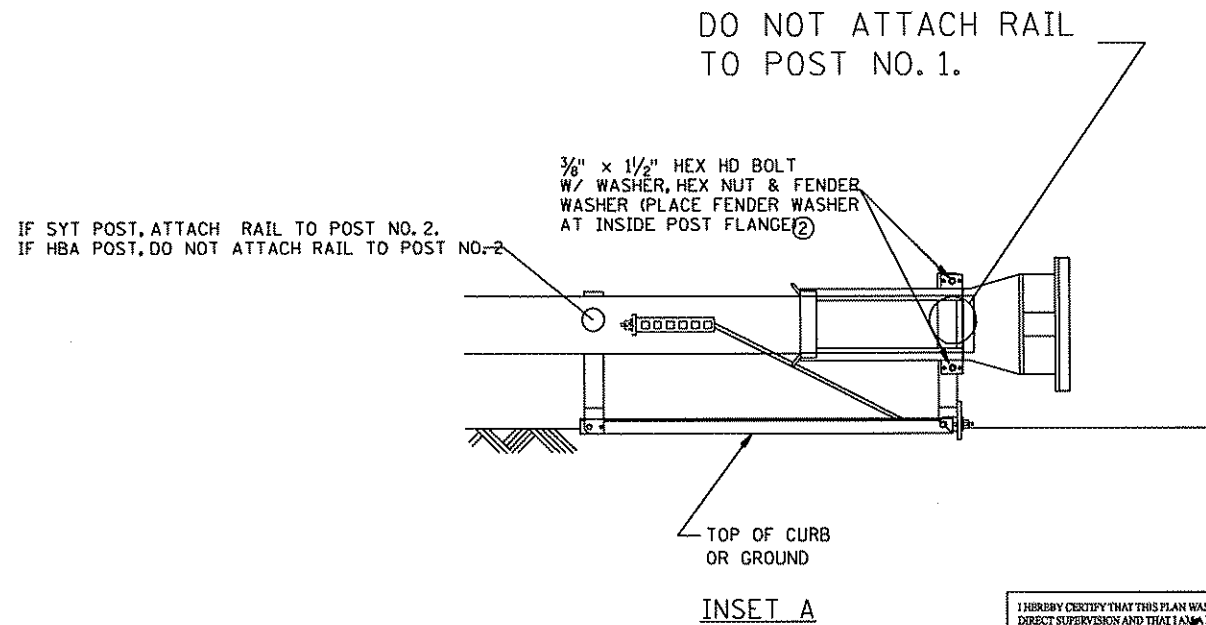
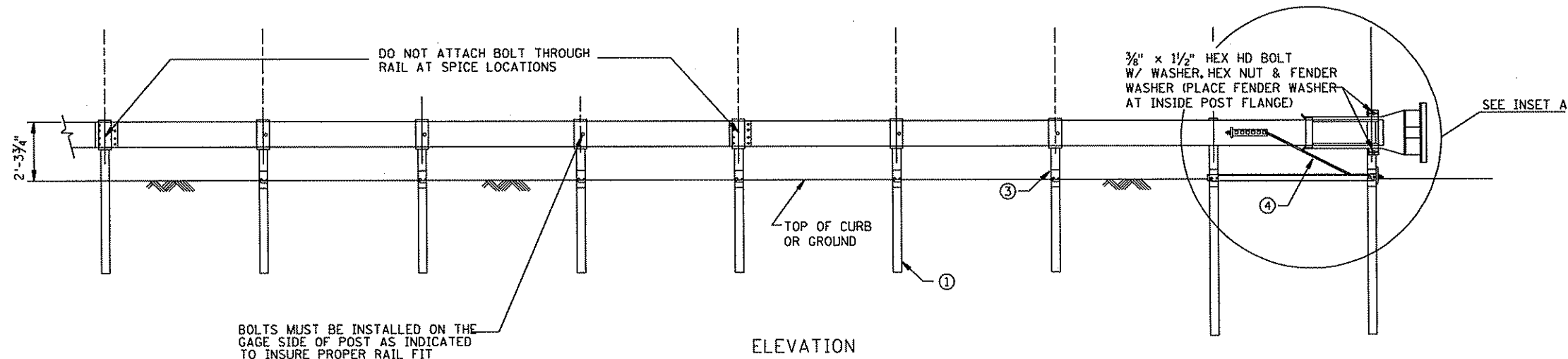
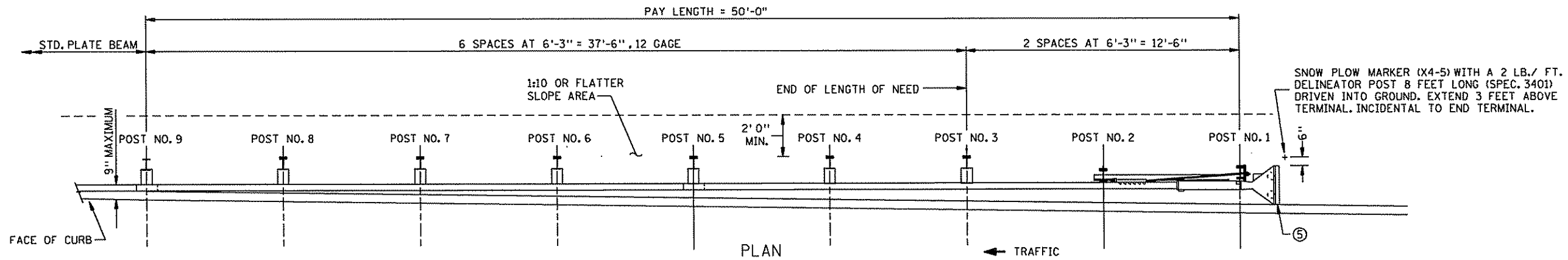
SHEET
7
OF
38
SHEETS

Date Printed: 1/3/2011
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PLOTTED/REVISED:
1/3/2011

DISTRICT #: METRO
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NOTES:
THIS DRAWING IS FOR INFORMATION ONLY. CONTACT THE MANUFACTURER FOR INSTALLATION INSTRUCTIONS DURING THE CONSTRUCTION PHASE.

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

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- NOTES:
- HINGED BREAKAWAY (HBA) POSTS OR STEEL YEILDING TERMINAL (SYT) POSTS ARE REQUIRED WITH THE ET-2000 AND ET-2000 PLUS.
 - ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
 - THE NON-BREAKAWAY SECTION OF THE HBA OR SYT POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE THE FINISHED GROUND LINE.
 - THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT UPON COMPLETION OF INSTALLATION. PREVENT CABLE FROM TWISTING DURING INSTALLATION.
 - EXTRUDER HEAD OFFSETS UP TO 2' MAX. ARE ALLOWABLE USING A STRAIGHT TAPER BETWEEN POSTS 1 AND 9. SET EXTRUDER HEAD A MAX. OF 9" BEHIND FACE OF CURB.

I HEREBY CERTIFY THAT THIS PLAN 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.

Donald W. Sterna
DONALD W. STERNA, PE

DATE: 01/03/11 REG NO: 18103

REFERENCE DATE
6-28-04

ET-2000 END TREATMENT (STEEL POSTS)
(ENGLISH)

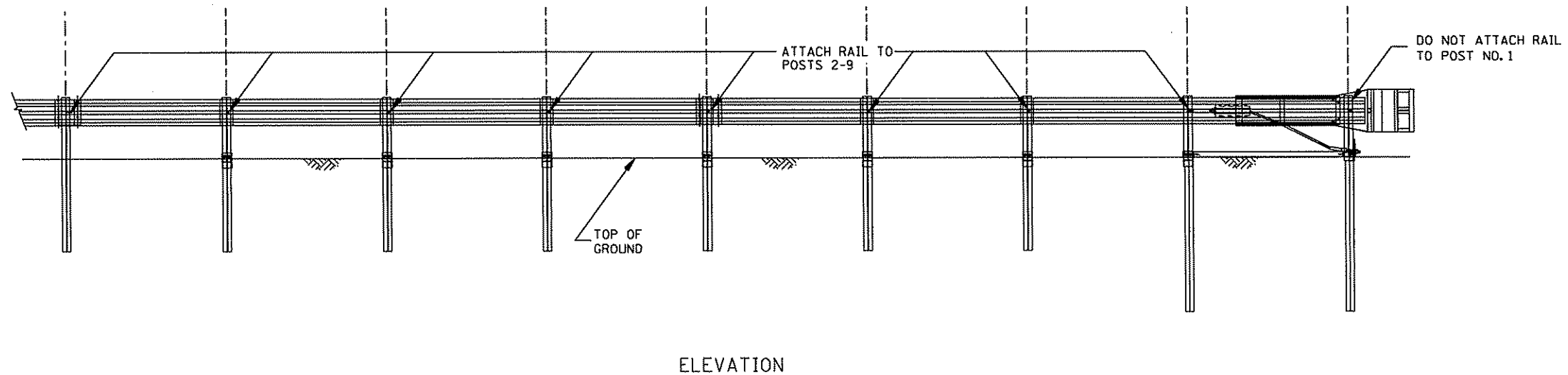
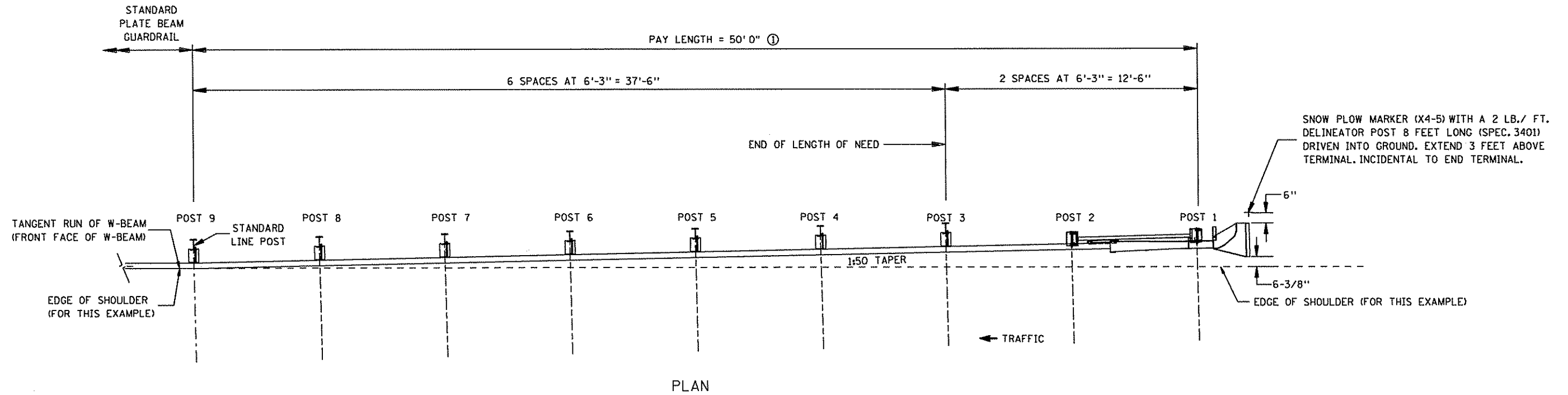
S.A.P. 02-598-06

SHEET NO. 8 OF 38 SHEETS

PLOTTED/REVISED:
1/3/2011

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NOTES:

THIS DRAWING IS TO BE USED ONLY FOR PICTORIAL REPRESENTATION. DESIGN CHANGES ARE NOT ALWAYS SHOWN.

THIS DRAWING IS FOR INFORMATION ONLY. CONTACT THE MANUFACTURER FOR INSTALLATION INSTRUCTIONS DURING THE CONSTRUCTION PHASE.

A SPECIAL SITE EVALUATION SHOULD BE CONSIDERED PRIOR TO USING THE SKT WHERE THERE IS LESS THAN 25' BETWEEN THE OUTLET SIDE OF THE SKT AND ANY ADJACENT DRIVING LANE.

WHEN THE TERMINAL IS ADJACENT TO THE SHOULDER, THE SKT CAN BE FLARED UP TO 1:50 TO PREVENT NUISANCE HITS. THE FLARE IS NOT REQUIRED AND MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS. THE 1:50 FLARE IS RECOMMENDED WHEN THE GUARDRAIL IS ADJACENT TO THE ROADWAY. IF FLARED, FLARE OVER ENTIRE TERMINAL LENGTH.

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

I HEREBY CERTIFY THAT THIS PLAN 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.

Donald W. Sterna

DONALD W. STERNA, PE

DATE: 01/03/11 REG NO: 12102

REFERENCE DATE
8-31-07

SKT-350 END TREATMENT (STEEL BOLTED HINGED POSTS)
(ENGLISH)

S.A.P. 02-598-06

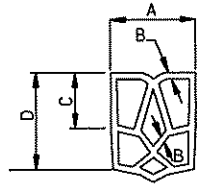
SHEET NO. 9 OF 38 SHEETS

PLOTTED/REVISED:
1/3/2011

DISTRICT #: METRO
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REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16"
A	0.69" + 0.13" - 0.05"
B	0.08" ± 0.02"
C	0.25" MIN.
D	0.63" MIN.



SPEC.
REFERENCE
3721

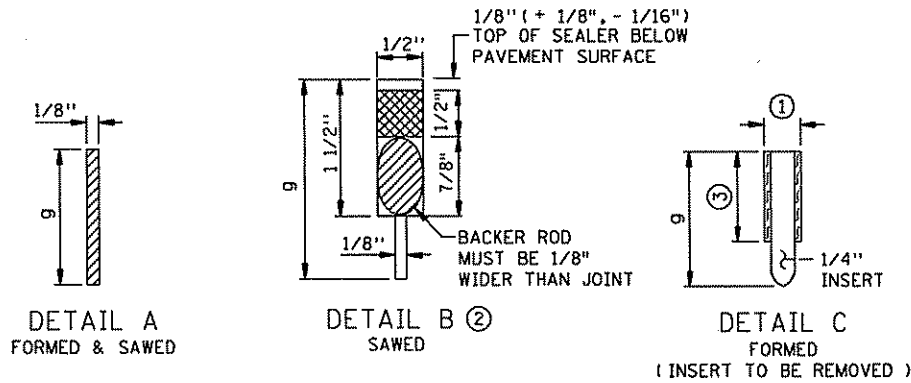
TYPICAL SHAPE FOR
SATISFACTORY INSTALLATION
IN JOINT (5 CELL MIN.)

CONTRACTION JOINT SEALER PREFORMED ELASTIC TYPE

NOTES:

"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 1/8 IN., NOR MORE THAN 5/16 IN. BELOW THE PAVEMENT SURFACE.

SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.



CONTRACTION JOINT CLASS DESIGNATION, DETAIL & SEALER SPEC. TABLE

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT DOWELS	WITH DOWELS		
C1A	C1A-D	A	UNSEALED
C2A	C2A-D	A	3725
C2B	C2B-D	B	3725
C2X	C2X-D	B OR C	3725
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	3722

DOWEL BAR DIAMETER TABLE

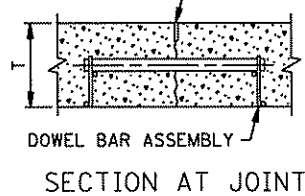
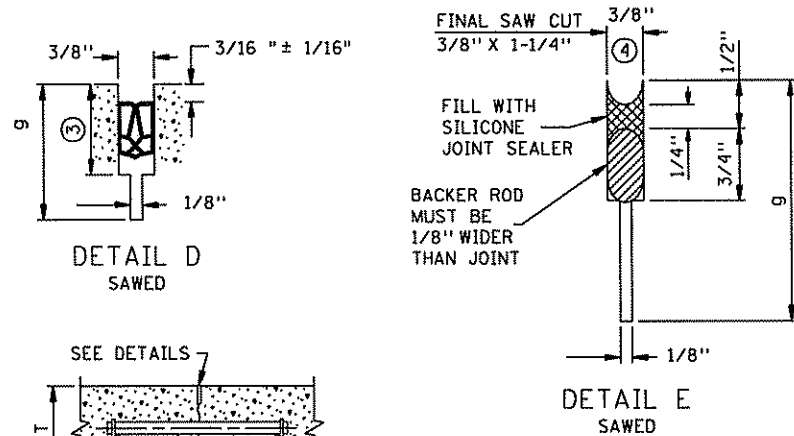
PAVEMENT THICKNESS T	DOWEL BAR DIAMETER
6" - 6 1/2"	1"
7" - 10"	1 1/4"
10 1/2" - 14"	1 1/2"

LEGEND

EXAMPLE
C2B-D

C = CONTRACTION JOINT
NO. = SEALANT TYPE
1 = UNSEALED
2 = 3725
3 = 3721
4 = 3722

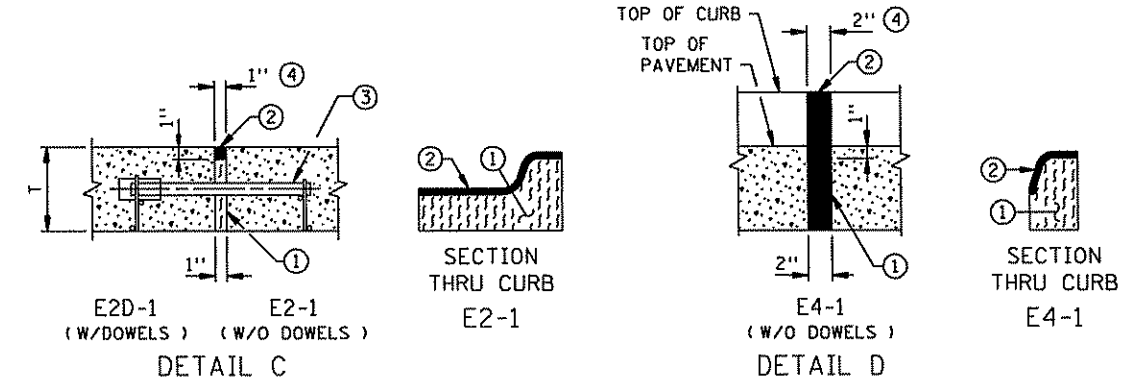
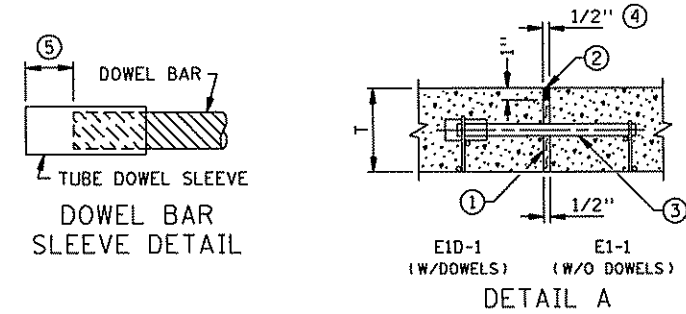
LETTER = DETAIL
X = MORE THAN 1 DETAIL
-D = DOWEL BARS



GENERAL NOTES:

SEE STANDARD PLATE 1103, DOWEL BAR ASSEMBLY.
SEE STANDARD PLATE 1150, CONSTRUCTION OF
HEADER JOINTS. SEE STANDARD PLANS 5-297.217
AND 5-297.219, CONCRETE MAINLINE/RAMP PAVEMENT.
SEE PAVING LAYOUTS IN THE PLANS FOR JOINT
CLASS DESIGNATION TO BE USED AND SPECIAL
REINFORCEMENT REQUIRED.
FOR UNBONDED OVERLAYS, THE JOINT DEPTH "g"
SHALL BE T/3.
FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g"
SHALL BE T/4.

CONTRACTION JOINTS DESIGN C



EXPANSION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITH DOWELS	WITHOUT DOWELS		
E1D-1	E1-1	A	3723
E2D-1	E2-1	C	3723
	E4-1	D	3723
E4D-1		E	3723
	E8S-1	(6)	3725

LEGEND

E = EXPANSION JOINT
NO. = JOINT REFERENCE
D = DOWEL BARS
S = CONCRETE SILL
-1 = HOT POURED SEAL

EXAMPLE

E1D-1
HOT POURED SEAL
DOWEL BARS
JOINT REFERENCE
EXPANSION JOINT

NOTES:

- PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
- JOINT SEALER SPEC. 3723. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E JOINTS FLUSH WITH SURFACE ± 1/8".
- DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.
- THE FIRST NUMBER IN THE JOINT DESIGNATION IS EQUAL TO HALF OF THE JOINT NUMBER IN 1/2" INTERVALS (I.E. E1 = 1/2", E2 = 1", E4 = 2", AND E8 = 4").
- SPACE FROM END OF DOWEL BAR TO END OF SLEEVE TO BE EQUAL TO EXPANSION JOINT WIDTH.
- SEE STANDARD PLAN 5-297.223 FOR E8S JOINT DETAIL.

EXPANSION JOINTS DESIGN E

STANDARD SHEET NO.
5-297.221 (1 OF 2)

STANDARD APPROVED:
JUNE 6, 2005

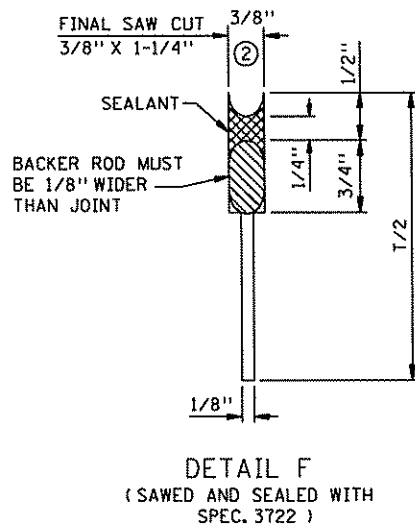
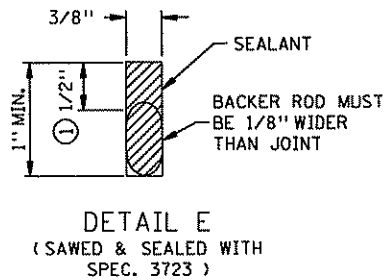
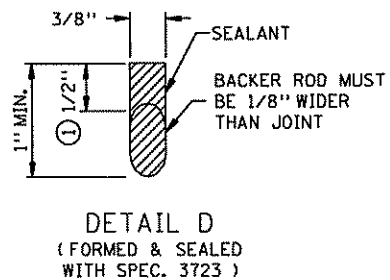
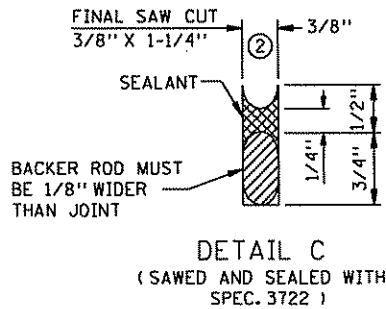
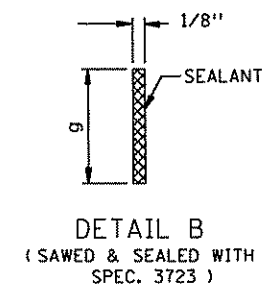
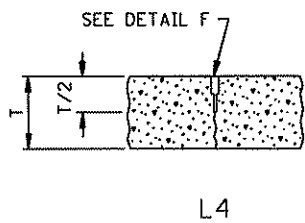
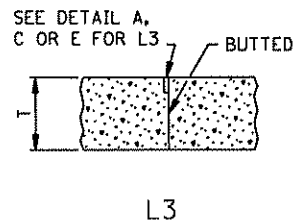
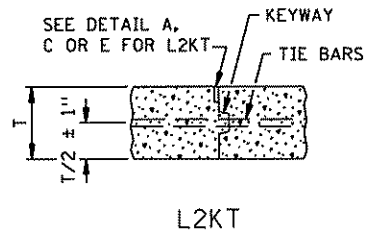
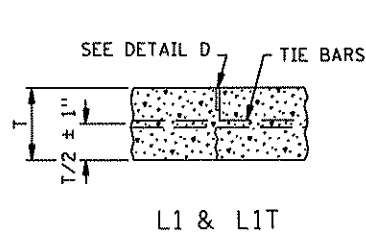
TITLE:

PAVEMENT JOINTS
CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

S.A.P. 02-598-06

SHEET NO. 10 OF 38 SHEETS

PLOTTED/REVISED:
1/3/2011

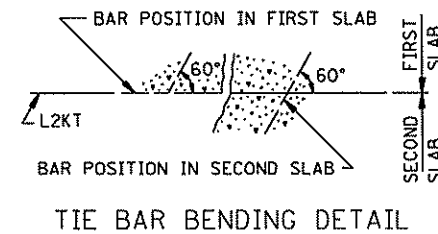


LONGITUDINAL JOINT CLASS DESIGNATION, DETAIL & SEALER SPECIFICATION TABLE

CLASS DESIGNATION				JOINT DETAIL	JOINT SEALER SPECIFICATION
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS	BUTTED		
L1H	L1TH			B	3723
		L2KTH		D OR E	3723
		L2KTS		C	3722
			L3H	D OR E	3723
			L3S	C	3722
L4S				F	3722

LEGEND
L = LONGITUDINAL JOINT
NO. = JOINT REFERENCE
K = KEYWAY
T = TIE BARS
U = UNSEALED
H = HOT POUR (SEALANT)
S = SILICONE (SEALANT)

JOINT REFERENCE NUMBERS
1 = SAWED TO A DEPTH OF T/3
2 = KEYED CONSTRUCTION JOINT
3 = BUTTED CONSTRUCTION JOINT
4 = SAWED TO A DEPTH OF T/2



LONGITUDINAL JOINT NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

THE TIE BAR SPACING FOR ALL L2KT JOINTS SHALL BE 2' - 6" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 13 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53.

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED FOUR LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.

FOR CONCRETE PAVEMENT THE JOINT DEPTH "g" SHALL BE T/3 INCHES.

SPEC. 3723 SEALER - TOP OF SEALER FLUSH TO - 3/16 IN. BELOW TOP OF PAVEMENT SURFACE.

- ① THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F, WITH A DIAMETER 1/8 IN. LARGER THAN THE JOINT OPENING, MAY BE PLACED 1/2 IN. BELOW THE TOP OF THE PAVEMENT.
- ② THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2 IN. DIAMETER CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2 IN. BELOW THE SURFACE OF THE PAVEMENT. NON-SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4 IN.

GENERAL NOTES:

SEE STANDARD PLATE 1103, DOWEL BAR ASSEMBLY. SEE STANDARD PLATE 1141, PAVEMENT KEYWAY. SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED & SPECIAL REINFORCEMENT REQUIRED.

STANDARD SHEET NO.
5-297.221 (2 OF 2)

STANDARD APPROVED:
JUNE 6, 2005

S.A.P. 02-598-06

TITLE:

PAVEMENT JOINTS
LONGITUDINAL (DESIGN L)

SHEET NO. 11 OF 38 SHEETS

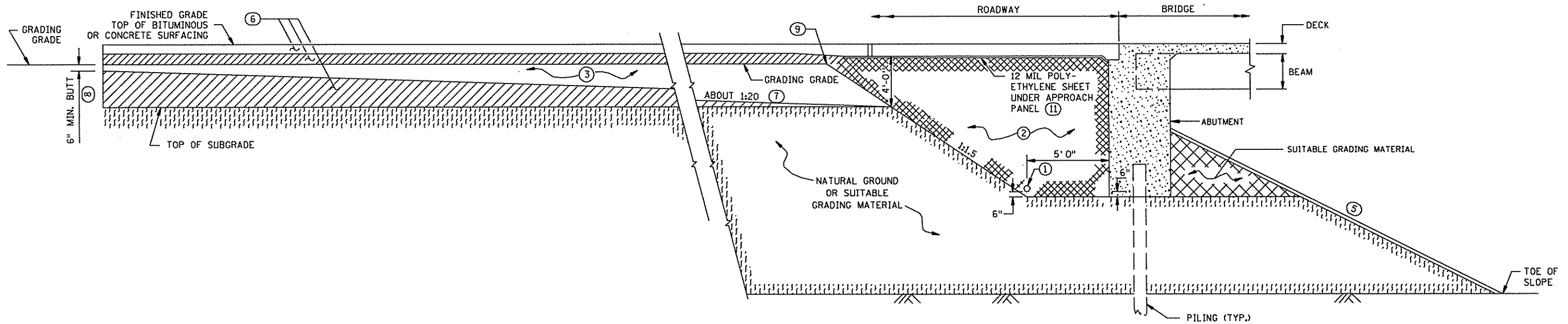
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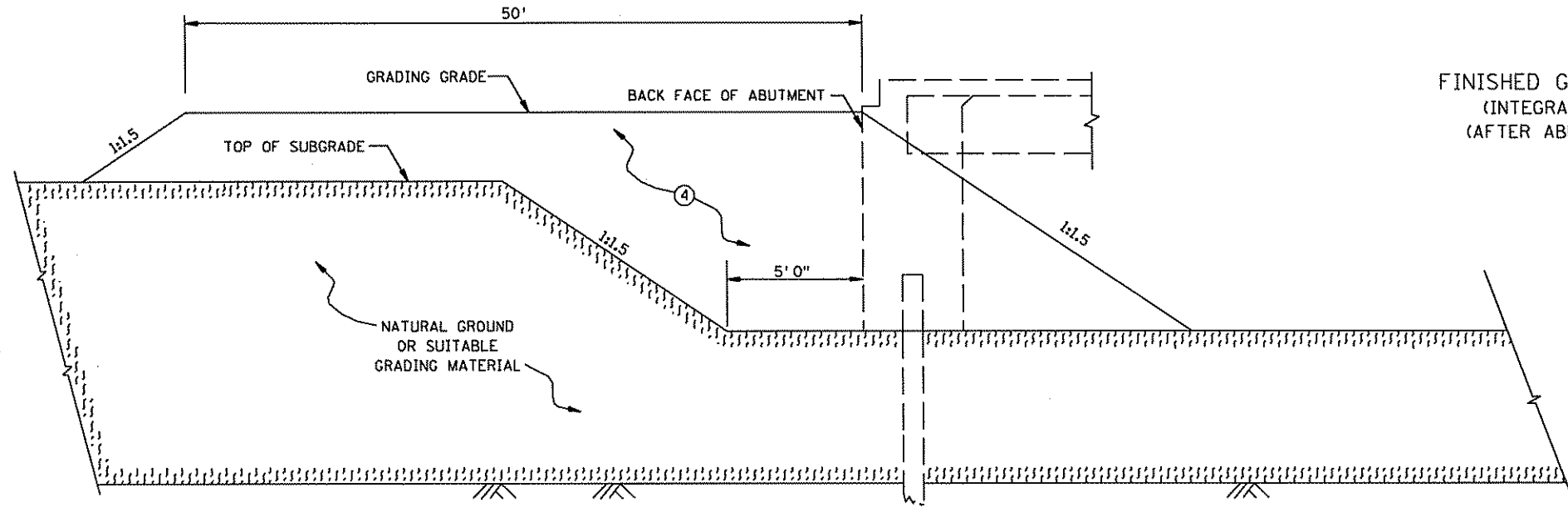
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ELEVATION
FINISHED GRADING SECTION AT ABUTMENT
(INTEGRAL ABUTMENT ON PILING SHOWN)
(AFTER ABUTMENT HAS BEEN CONSTRUCTED)

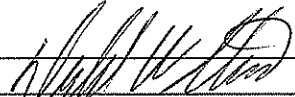


ELEVATION
ROUGH GRADING SECTION AT ABUTMENT
(PRIOR TO ABUTMENT CONSTRUCTION)

NOTES:

- ① SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.
- ② QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% IS BASED ON DIMENSIONS SHOWN AND PAYMENT IS BASED ON THIS QUANTITY. SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE. SEE GRADING PLAN FOR QUANTITY. Mn/DOT SPEC. 1903 SHALL NOT APPLY IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS AND ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
- ③ BACKFILL MATERIAL SHALL COMPLY WITH SPEC. 3149.2B2 (SELECT GRANULAR BORROW).
- ④ SURCHARGE MATERIAL SHALL BE PLACED DURING ROADWAY EMBANKMENT CONSTRUCTION. THIS SAME MATERIAL TO BE REMOVED AS STRUCTURE EXCAVATION JUST PRIOR TO THE ABUTMENT CONSTRUCTION (SEE BRIDGE PLAN FOR METHOD OF PAYMENT AND QUANTITIES). EXCAVATION LIMITS ARE SHOWN.
- ⑤ SEE BRIDGE PLANS FOR SLOPE AND SLOPE PROTECTION.
- ⑥ SEE GRADING PLANS FOR TYPE OF MATERIAL.
- ⑦ START 1:20 TAPER AT END OF APPROACH PANEL. 1:20 VARIES WHEN APPROACH PANEL IS SKEWED.
- ⑧ GRADING TO BE SQUARED OFF ON SKEWED BRIDGES.
- ⑨ TOP OF 1:1.5 SLOPE (FORMS A LINE PARALLEL TO END OF BRIDGE).

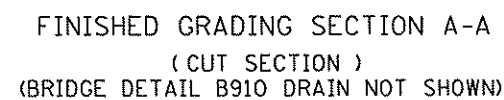
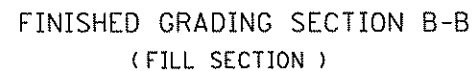
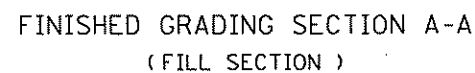
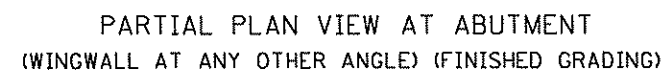
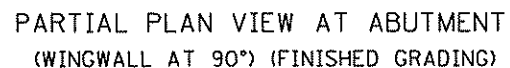
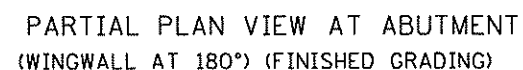
- ⑪ PLACE 12 MIL POLYETHYLENE SHEETING (OR TWO LAYERS OF OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCIDENTAL.

CERTIFIED BY 
LICENSED PROFESSIONAL ENGINEER
DATE 01/03/11
PRINTED NAME: DONALD W. STERNA, PE LIC. NO. 19103

STANDARD SHEET NO.
5-297.234 (1 OF 2)
STANDARD APPROVED:
FEBRUARY 11, 2010
S.A.P. 02-598-06

TITLE:
BRIDGE APPROACH TREATMENT
FOR INTEGRAL ABUTMENTS
SHEET NO. 12 OF 38 SHEETS

FILE NAME: 1898std-200.dgn



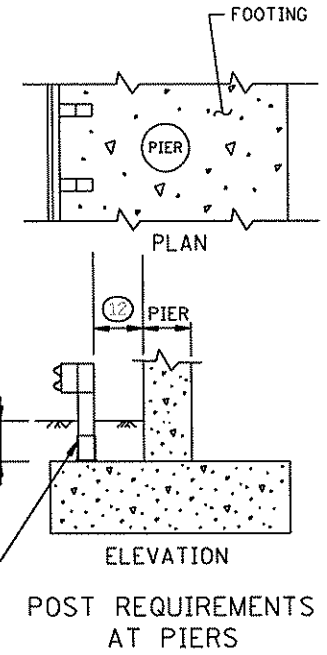
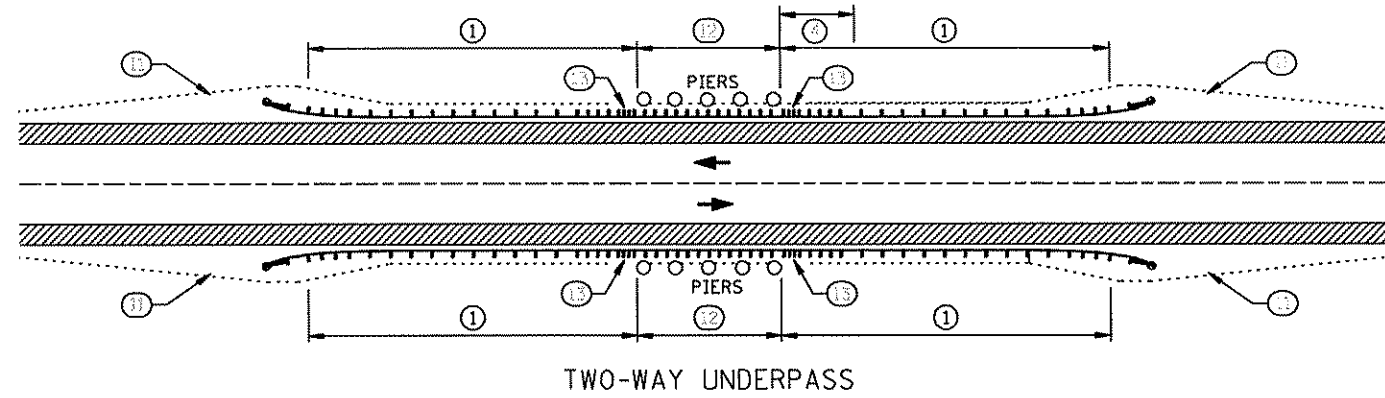
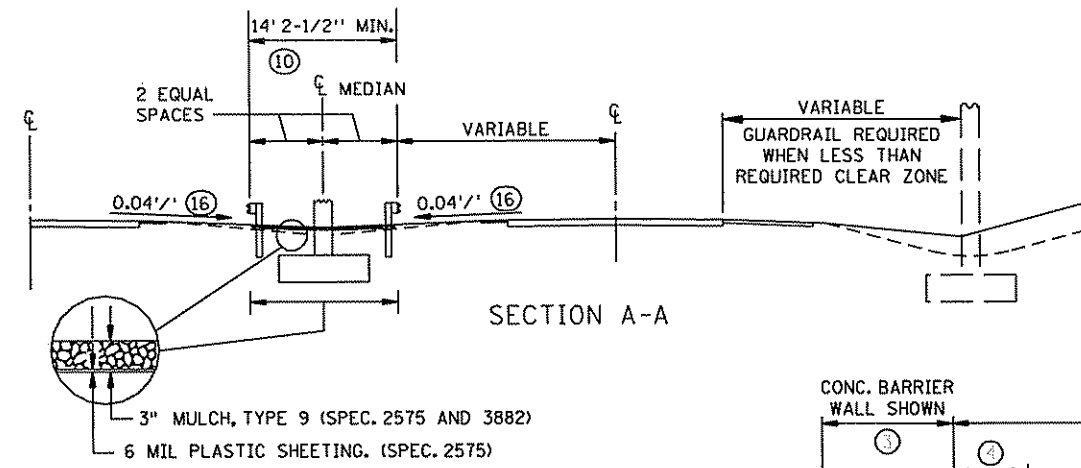
- ① NATURAL GROUND OR SUITABLE GRADING MATERIAL.
- ② SUBSURFACE PIPE DRAIN. SEE BRIDGE PLAN FOR STANDARD DETAIL B910 FOR DETAILS.
- ③ SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.
- ④ SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE.
- ⑤ QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% IS BASED ON DIMENSIONS SHOWN AND PAYMENT IS BASED ON THIS QUANTITY. SEE GRADING PLAN FOR QUANTITY. Mn/DOT SPEC. 1903 SHALL NOT APPLY IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS AND ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
- ⑥ SUITABLE GRADING MATERIAL.

STANDARD SHEET NO. 5-297.234 (2 OF 2)	TITLE: BRIDGE APPROACH TREATMENT FOR INTEGRAL ABUTMENTS
STANDARD APPROVED: APRIL 11, 2008	
S.A.P. 02-598-06	SHEET NO. 13 OF 38 SHEETS

PLOTTED/REVISED:
1/3/2011

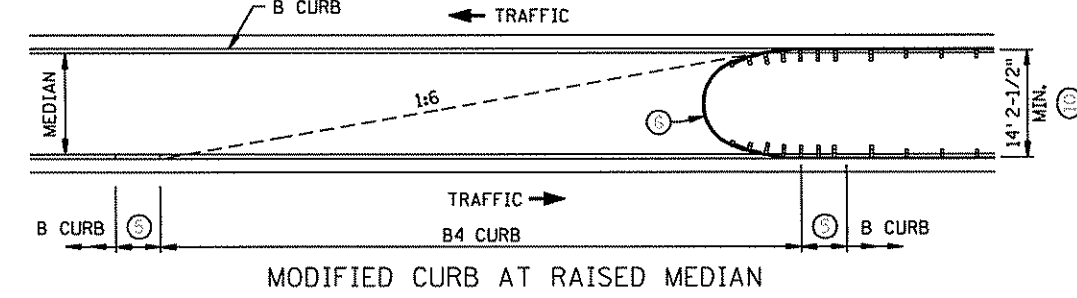
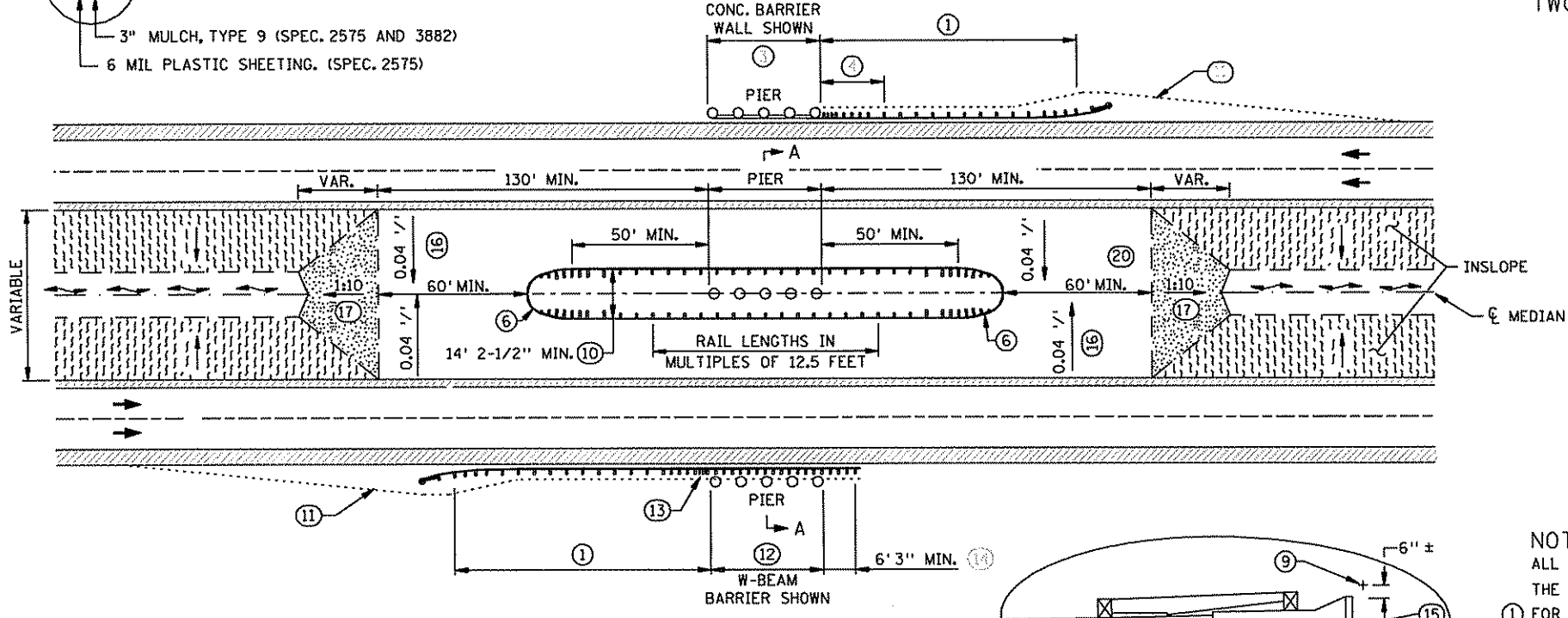
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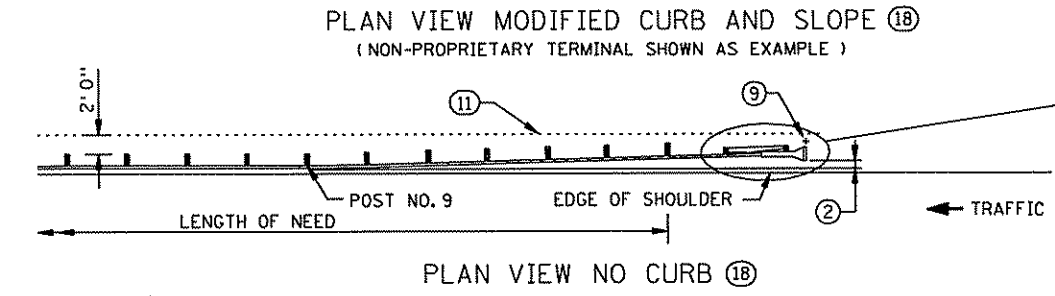
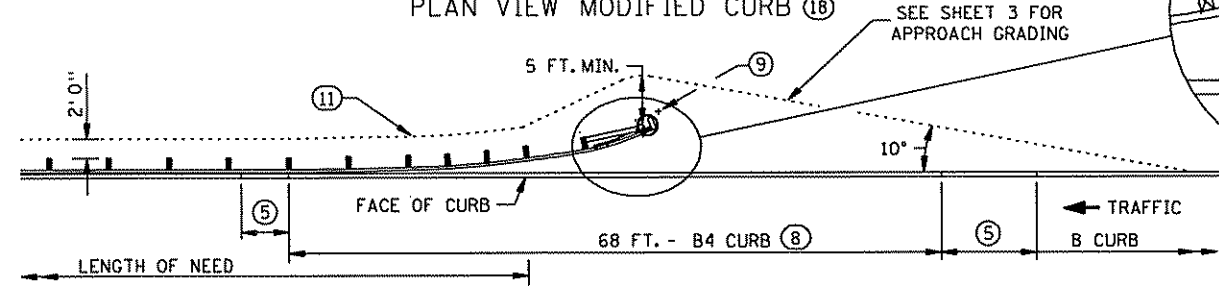
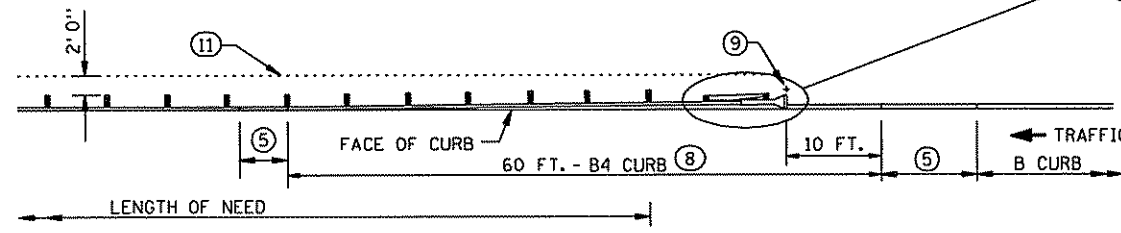


ESTIMATED DESIGN DEFLECTION TABLE
FOR DESIGN B W-BEAM GUARDRAIL

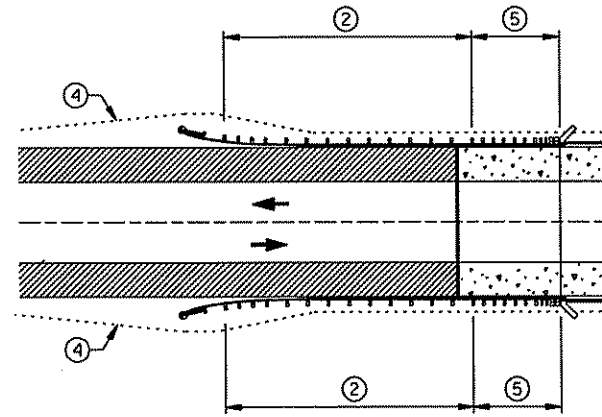
6' 3" POST SPACING	3' 0"
6' 3" POST SPACING WITH DOUBLE NESTED RAIL	2' 8"
MODIFIED 3' 1-1/2" POST SPACING	2' 3"
MODIFIED POST SPACING WITH DOUBLE NESTED RAIL	2' 0"



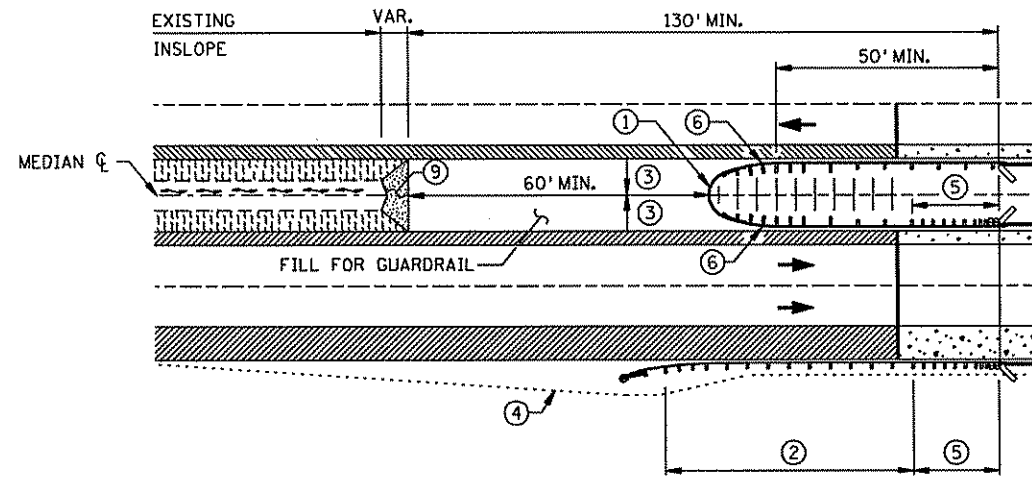
- NOTES:
- ALL GUARDRAIL SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
 - THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.
 - (1) FOR REQUIRED LENGTH OF INSTALLATION SEE ROAD DESIGN MANUAL CHAPTER 10.
 - (2) THE LAST 50 FT. OF TANGENT TERMINALS MAY BE FLARED AT 1:50 TAPER.
 - (3) CONC. BARRIER WALL BETWEEN PIER COLUMNS MAY BE USED, STD. PLAN 5-297.610. SEE SHEET NO. ... FOR WALL DETAILS. CONNECT GUARDRAIL TO BARRIER WALL ANCHORAGE PLATE, SEE SHEET NO. ... FOR DETAILS.
 - (4) AN APPROVED TRANSITION MUST BE USED.
 - (5) 10 FT. CURB TRANSITION, USE IF ADJACENT CURB IS GREATER THAN 4 INCHES.
 - (6) THREE BEAM BULLNOSE. SEE SHEET NO. ... FOR DETAILS.
 - (7) IF EMBEDMENT IS GREATER THAN 3 FT. 0 IN., OR IF EMBEDMENT IS 2 FT. 6 IN. TO 3 FT. 0 IN. AND ADJACENT POSTS ARE EMBEDDED 3 FT. 0 IN. OR MORE, POST SEAT IS NOT REQUIRED.
 - (8) FOR CURB 6 IN. OR HIGHER, MILL TO 3 IN. HEIGHT.
 - (9) SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND. EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.
 - (10) MEASUREMENT IS FROM BACK OF RAIL TO BACK OF RAIL.
 - (11) 1:10 OR FLATTER SLOPE P.I..
 - (12) SEE ESTIMATED DESIGN DEFLECTION TABLE FOR DESIGN B W-BEAM GUARDRAIL.
 - (13) WHEN CLOSE POST SPACING OR DOUBLE NESTED RAIL IS USED, THIS POST SPACING SHOULD EXTEND A MINIMUM OF 12 FT. IN THE DIRECTION OF APPROACHING TRAFFIC.
 - (14) THE ANCHOR ASSEMBLY MUST BE LOCATED DOWNSTREAM OF THE HAZARD.
 - (15) MARK THE APPROACH END OF PLATE BEAM GUARDRAIL INSTALLATIONS WITH A STRIPED OBJECT MARKER SIZED TO FIT THE END TERMINAL, HAVING ALTERNATING BLACK AND REFLECTIVE YELLOW (WIDE ANGLE PRISMATIC RETROREFLECTIVE SHEETING) STRIPES SLOPED DOWNWARD AT A 45 DEGREE ANGLE TOWARD THE SIDE ON WHICH TRAFFIC PASSES. FOR FLAT END TREATMENTS THE OBJECT MARKER SHALL FIT INSIDE THE RECESSED AREA. FOR ROUNDED END TREATMENTS THE OBJECT MARKER SHALL WRAP AROUND THE CIRCULAR END AND BE MOUNTED SO THE TOP OF THE OBJECT MARKER LINES UP WITH THE TOP OF THE END TREATMENT.
 - (16) 0.04 FT./FT. CROSS SLOPE TYPICAL. 0.10 FT./FT. CROSS SLOPE MAXIMUM.
 - (17) 1:10 SLOPE OR FLATTER.
 - (18) USE ONLY FOR RETROFITS WITH SITE RESTRICTIONS. FOR RETROFITS WITHOUT SITE RESTRICTIONS AND NEW CONSTRUCTION, SEE SHEET 3.
 - (19) MEDIAN GRADING DETAIL SHOWN APPLIES TO THREE-BEAM BULLNOSE ONLY.
 - (20) DRAINAGE DETAILS SHOWN ON GRADING PLAN.



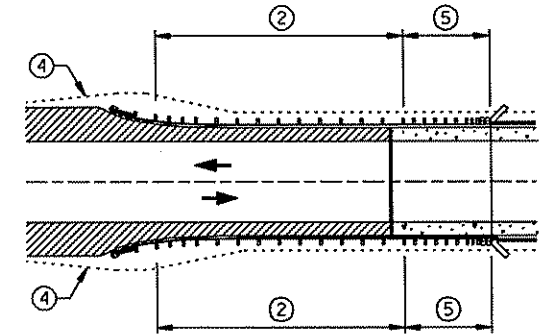
PLOTTED/REVISED:
1/3/2011



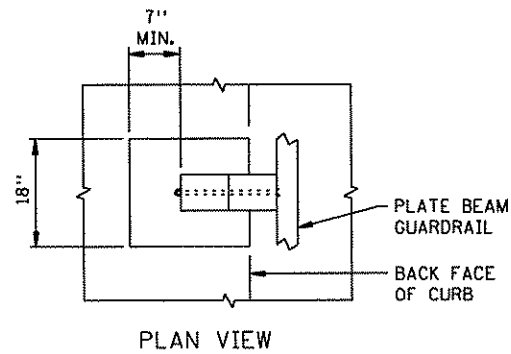
TWO - WAY BRIDGE
WITH FULL SHOULDERS



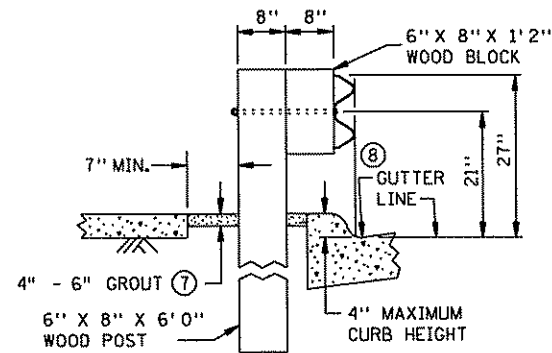
ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER
(FOR 14' 2-1/2" THRIE BEAM BULLNOSE)



TWO - WAY BRIDGE
WITHOUT FULL SHOULDERS

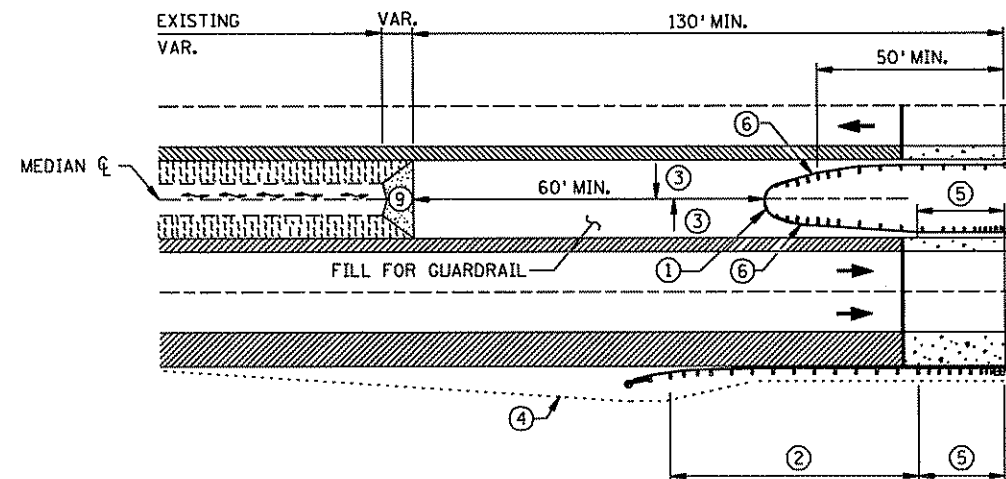


PLAN VIEW



ELEVATION

TYPICAL SECTION AT POST
SET IN CONCRETE



ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER
(FOR MEDIANS WIDER THAN 14' 2-1/2" THRIE BEAM BULLNOSE)

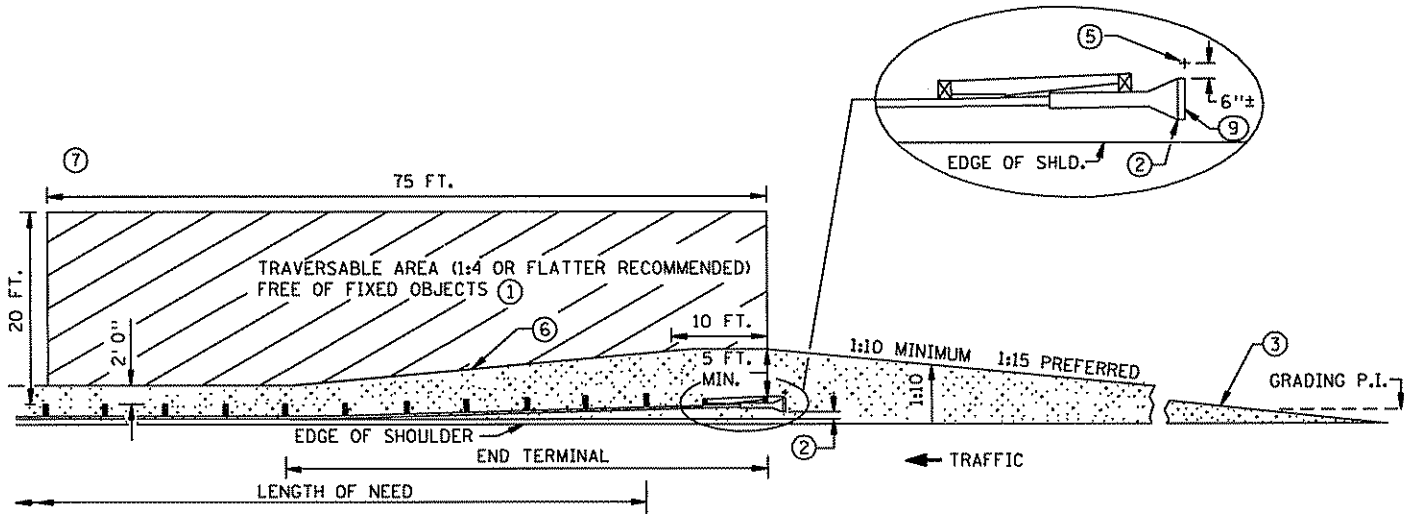
NOTES:

- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.
- ① THRIE BEAM BULLNOSE, SEE SHEET NO. ___ FOR DETAILS.
- ② FOR THE REQUIRED LENGTH SEE ROAD DESIGN MANUAL CHAPTER 10.
- ③ 0.04 FT./FT. CROSS SLOPE TYPICAL, 0.10 FT./FT. CROSS SLOPE MAXIMUM.
- ④ 1:10 OR FLATTER SLOPE P.I., APPROACH GRADING VARIES WITH TERMINAL TYPE.
- ⑤ PLATE BEAM GUARDRAIL ATTACHMENTS TO FIXED OBJECTS REQUIRE AN APPROVED TRANSITION SECTION.
- ⑥ FOR MEDIANS WIDER THAN THE 14 FT. 2-1/2 IN., BEFORE TAPERING THE APPROACH SIDE TAPER THE OPPOSING SIDE AS SHOWN ON THE BULLNOSE DESIGN DETAIL. APPROACH TAPER SHOULD NOT EXCEED 1:25 IF THE BARRIER IS WITHIN THE SHY LINE OR 1:15 IF IT IS OUTSIDE.
- ⑦ TWO-SACK GROUT MIX (BY VOLUME: 1 PART CEMENT, 14 PARTS SAND, 5 PARTS WATER).
- ⑧ PLACE FRONT FACE OF W-BEAM DIRECTLY ABOVE FRONT FACE OF CURB.
- ⑨ 1:10 SLOPE OR FLATTER.

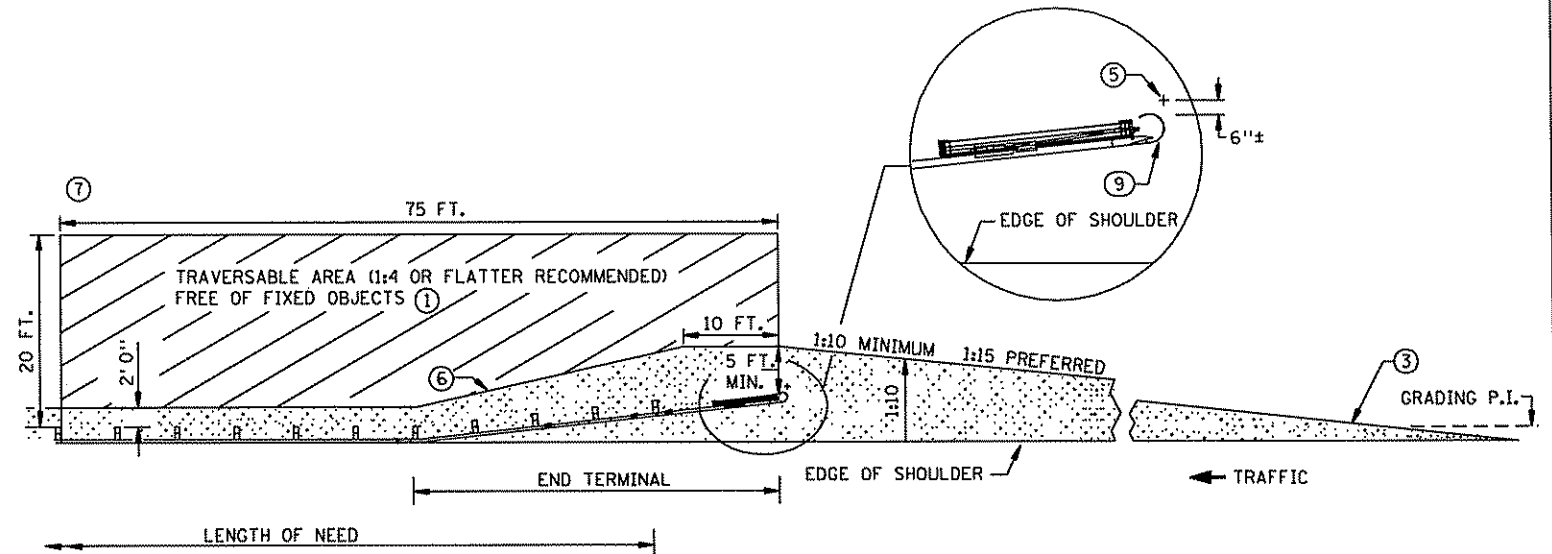
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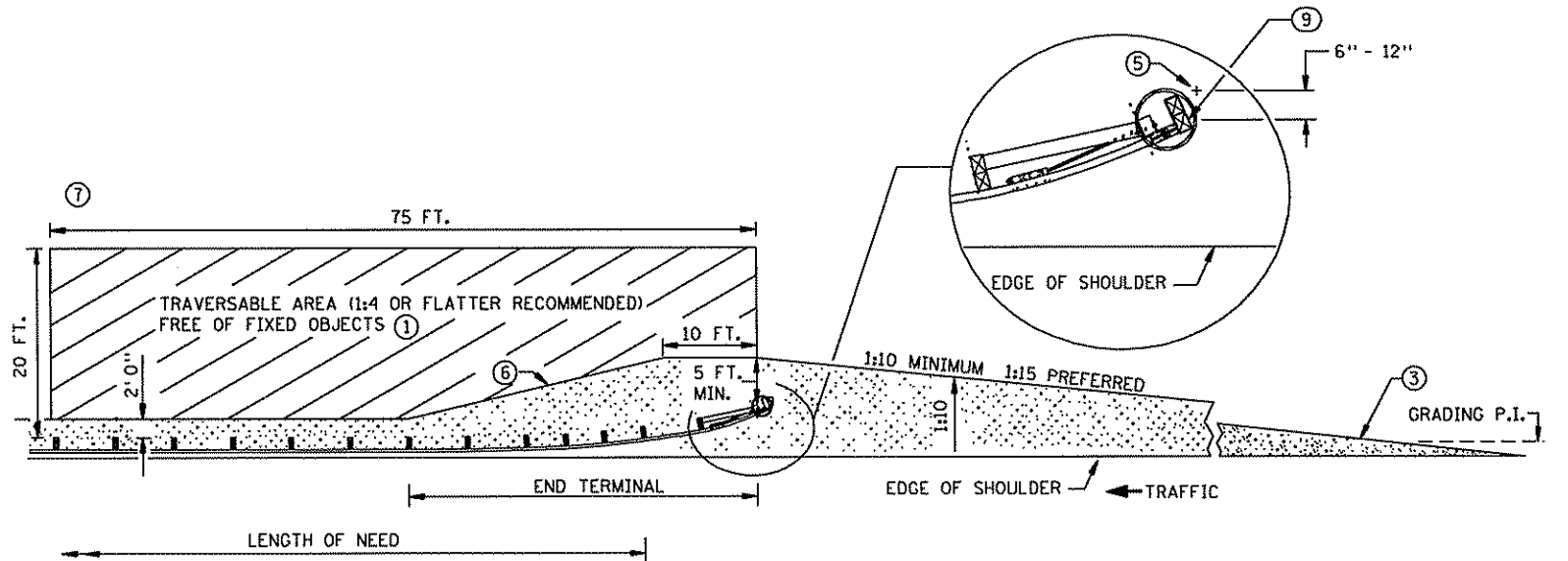
STANDARD SHEET NO. 5-297.601 (2 OF 3)	TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
STANDARD APPROVED: AUGUST 17, 2005	
S.A.P. 02-598-06	SHEET NO. 15 OF 38 SHEETS



PLAN VIEW
 (PROPRIETARY TANGENT TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ⑧
 (PROPRIETARY FLARED TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ④ ⑧
 (ELT)

NOTES:

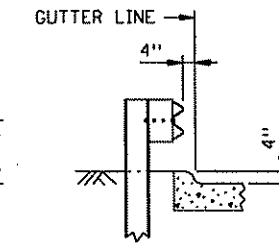
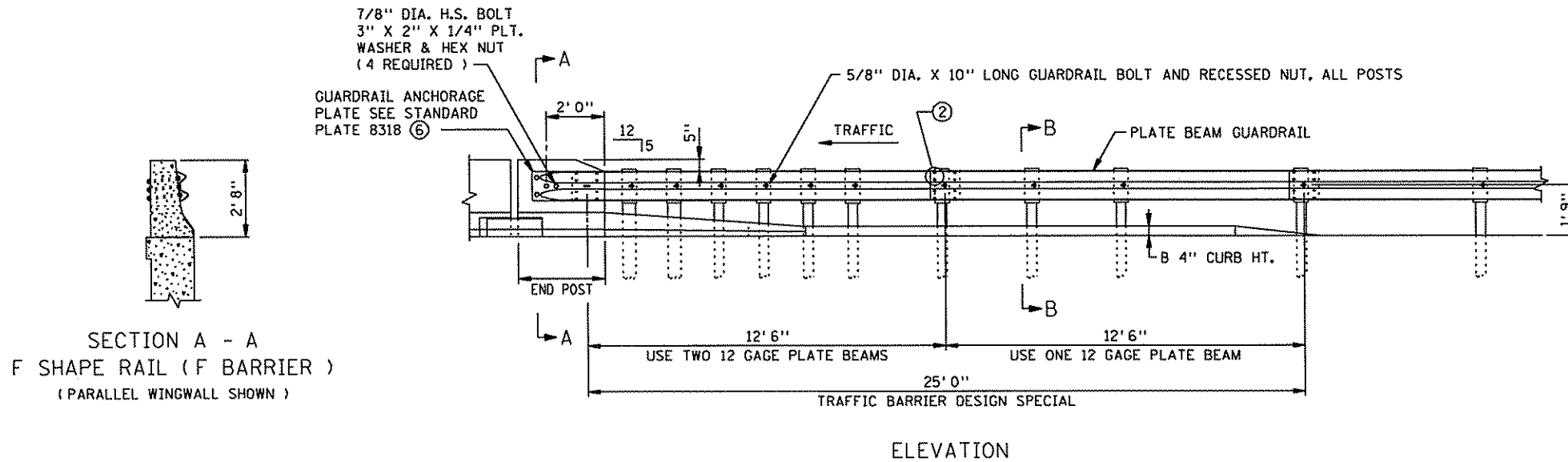
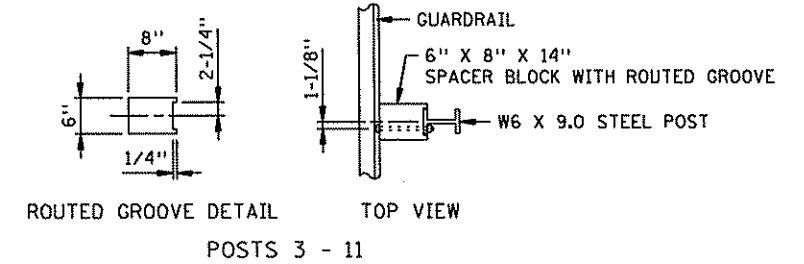
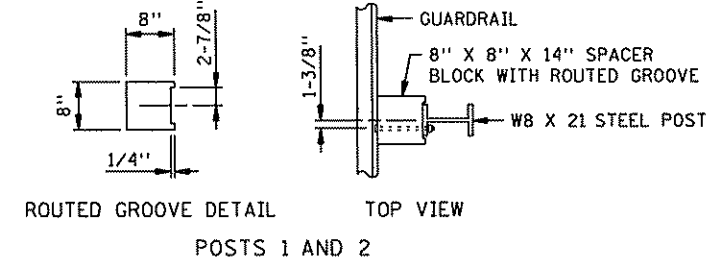
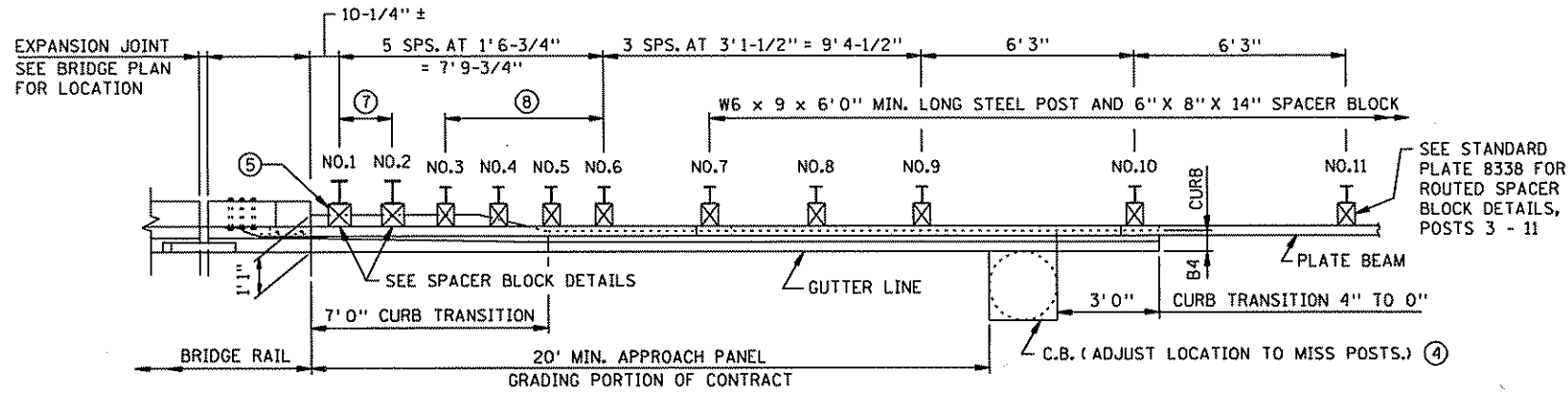
- ALL CROSS SLOPES ARE IN FOOT/FOOT UNLESS OTHERWISE NOTED.
- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- CHANGES (TO SUBJECTS COVERED BY THIS SHEET) INDICATED IN THE PLANS OR ON PLATES WITH MORE RECENT APPROVAL DATES SHALL APPLY.
- GRADING AND DRAINAGE HARDWARE ARE NOT INCIDENTAL TO GUARDRAIL INSTALLATION.
- ① SLOPES BETWEEN 1:3 AND 1:4 PERMITTED WHEN 1:4 OR FLATTER IS NOT POSSIBLE. FOR SLOPES STEEPER THAN 1:3 THE AREA IMMEDIATELY BEHIND AND BEYOND THE END TERMINAL SHOULD, AT LEAST, BE SIMILAR IN CROSS SECTION TO THE UNSHIELDED ROADSIDE AREA UPSTREAM OF THE END TERMINAL.
- ② THE LAST 50 FT. OF TANGENT TERMINALS CAN BE FLARED AT 1:50 TAPER.
- ③ WHEN GRADING PLATFORMS ARE BUILT, THEY MUST BE SMOOTHLY TRANSITIONED TO EXISTING SIDE SLOPE SO THE ENTIRE ROADSIDE APPROACH TO THE BARRIER REMAINS TRAVERSABLE, AS WELL AS THE AREA IMMEDIATELY BEHIND IT.
- ④ SEE STANDARD PLATE 8329.
- ⑤ SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND. EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE. MARK BOTH THE BEGINNING AND END OF PLATE BEAM GUARDRAIL INSTALLATION.
- ⑥ 1:10 OR FLATTER SLOPE P.I..
- ⑦ GRADUALLY BLEND SLOPE FROM TRAVERSABLE AREA TO STEEP EXISTING SLOPE (WHEN SLOPE IS STEEPER THAN 1:6).
- ⑧ IF THE TERRAIN BEYOND THE TERMINAL END AND IMMEDIATELY BEHIND THE BARRIER IS NOT SAFELY TRAVERSABLE, A TANGENT (ENERGY- ABSORBING) TERMINAL SHALL BE USED.

- ⑨ MARK THE APPROACH END OF PLATE BEAM GUARDRAIL INSTALLATIONS WITH A STRIPED OBJECT MARKER SIZED TO FIT THE END TERMINAL, HAVING ALTERNATING BLACK AND REFLECTIVE YELLOW (WIDE ANGLE PRISMATIC RETROREFLECTIVE SHEETING). STRIPES SHALL SLOPE DOWNWARD AT A 45 DEGREE ANGLE TOWARD THE SIDE ON WHICH TRAFFIC PASSES. FOR FLAT END TREATMENTS THE OBJECT MARKER SHALL FIT INSIDE THE RECESSED AREA. FOR ROUNDED END TREATMENTS THE OBJECT MARKER SHALL WRAP AROUND THE CIRCULAR END AND BE MOUNTED SO THE TOP OF THE OBJECT MARKER LINES UP WITH THE TOP OF THE END TREATMENT.

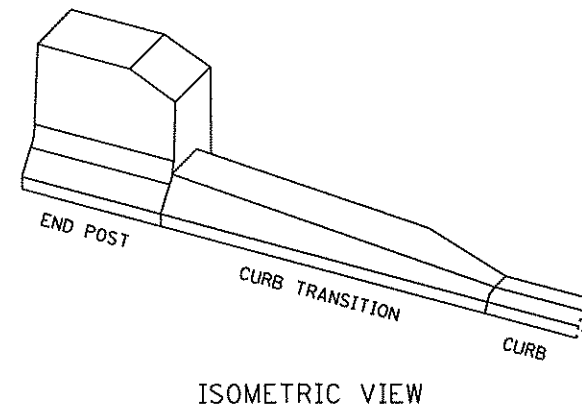
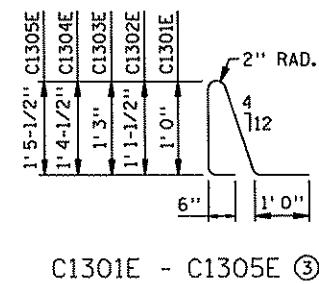
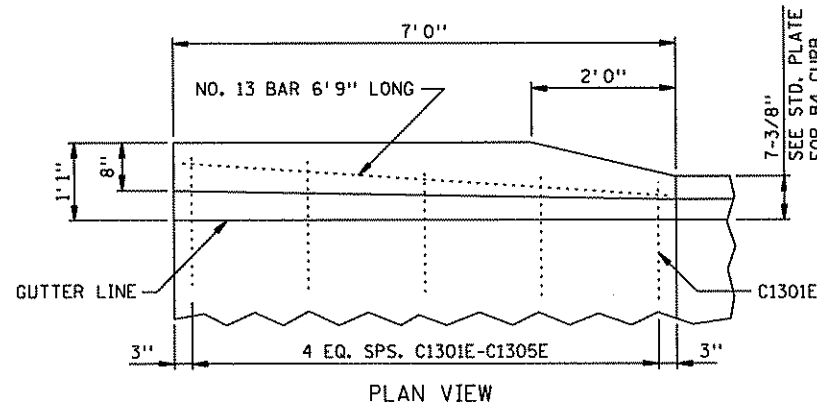
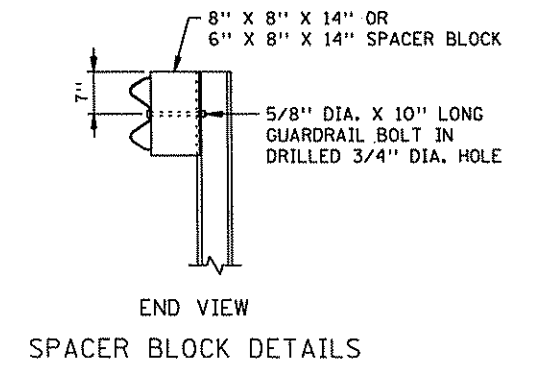
STANDARD SHEET NO. 5-297.601 (3 OF 3)	TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS & END TREATMENTS (FOR NEW CONSTRUCTION AND RETROFITS WITHOUT SITE RESTRICTIONS)
STANDARD APPROVED: AUGUST 17, 2005	
S.A.P. 02-598-06	SHEET NO. 16 OF 38 SHEETS

PLOTTED/REVISED:
1/3/2011

DISTRICT #: METRO
USER NAME: WSB & Associates
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SECTION B-B
THE TRANSITION SECTION HAS
BEEN TESTED AND APPROVED
WITH THE CURB PLACED AS SHOWN



NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

- ① END OF TRANSITION TO MATCH BRIDGE RAIL SURFACE.
- ② 5/8" DIA. X 1'-1/4" LONG GUARDRAIL BOLTS AND NUTS
TYPICAL AT SPLICES.
- ③ REINFORCEMENT TO BE EPOXY COATED AS PER SPEC. 3301.
- ④ SEE ROAD PLANS TO VERIFY ACTUAL DIMENSION AND LOCATION.
- ⑤ ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE
STRUCTURE. VERIFY IN FIELD.
- ⑥ SANDWICH ANCHOR PLATE BETWEEN RAIL BEAMS.
- ⑦ POSTS 1 AND 2 TO BE W8 x 21 x 8'0" MINIMUM LONG STEEL POST
AND 8" X 8" X 14" SPACER BLOCK.
- ⑧ POSTS 3, 4, 5, AND 6 TO BE W6 x 9 x 6'0" MIN. LONG STEEL POST
AND 6" X 8" X 14" SPACER BLOCK.

INSIDE ELEVATION

CURB TRANSITION DETAILS

END VIEW

STANDARD SHEET NO.
5-297.603

STANDARD APPROVED:
DECEMBER 20, 2001

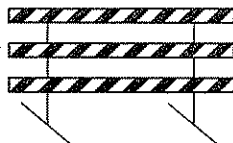
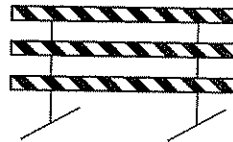
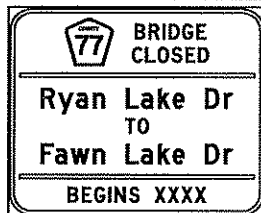
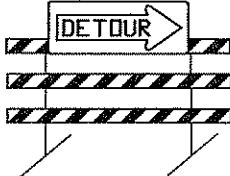
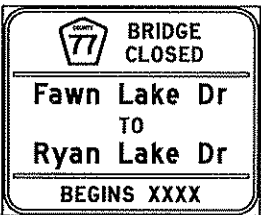
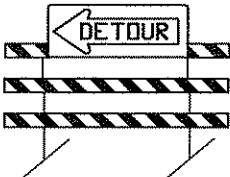
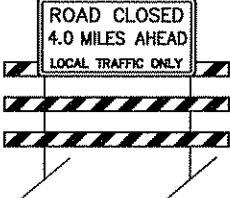
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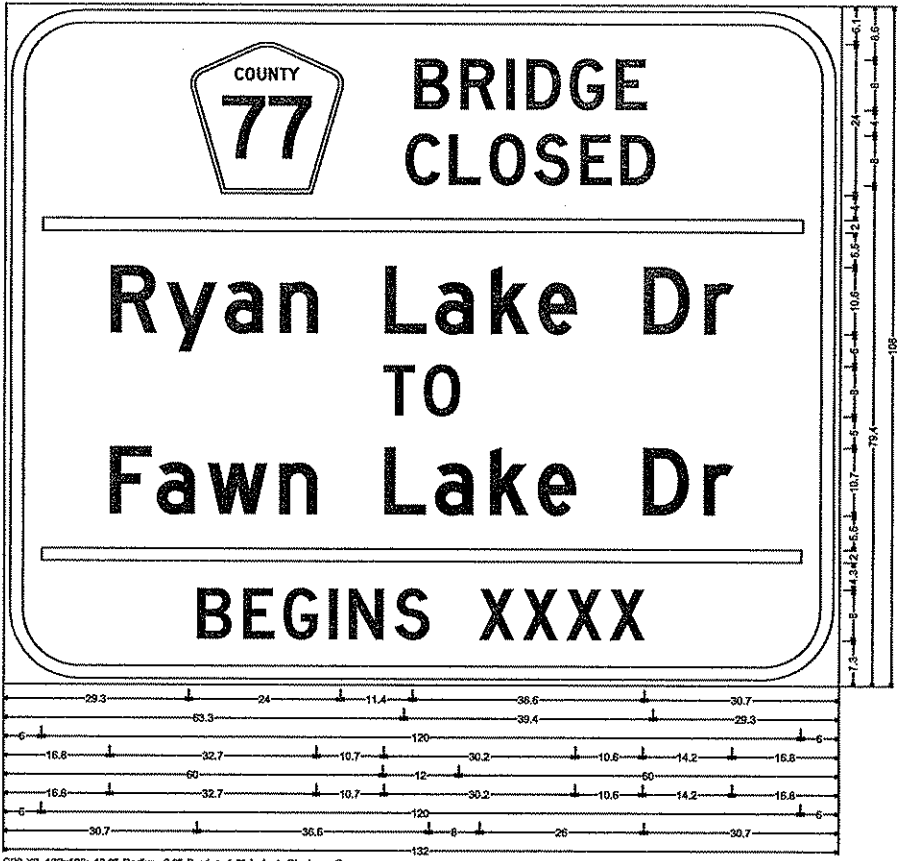
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SAFETY RAIL WITH APPROACH CURB
(STEEL POST)

TRAFFIC BARRIER DESIGN SPECIAL

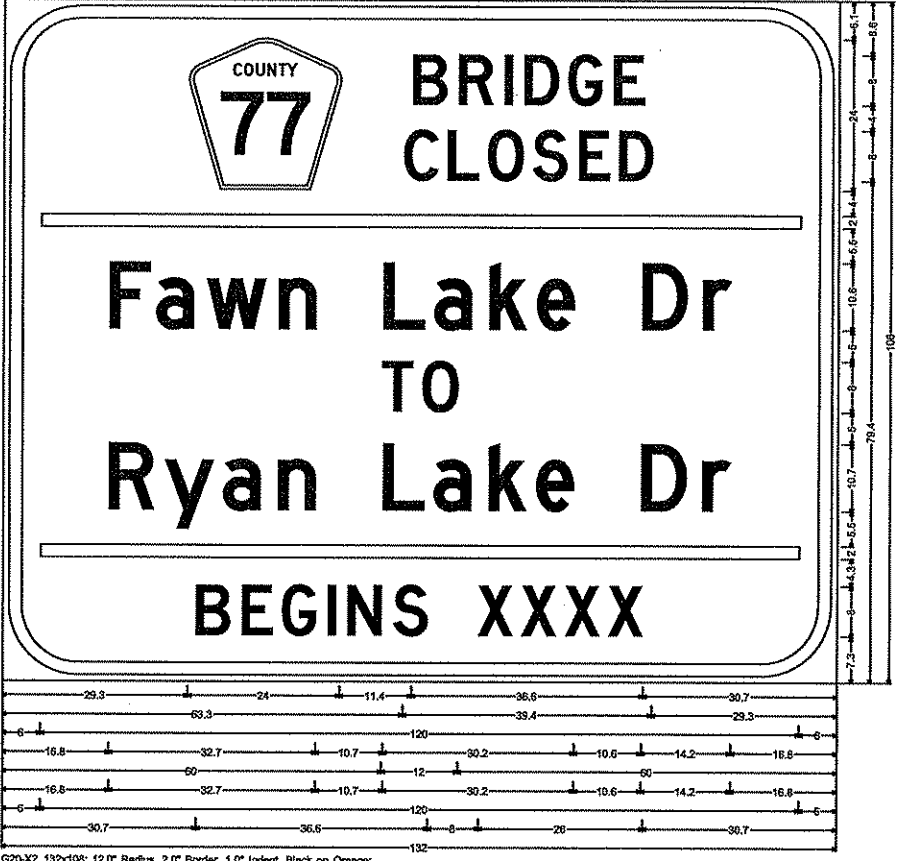
REVISION DATE
01-21-2006

SHEET NO. 17 OF 38 SHEETS

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY	M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY		
W20-1	48' x 48'		• 0	TYPE III	8 FOOT		• 2		
W20-2	48' x 48'		• 0	TYPE III	8 FOOT		• 2		
W20-3	48' x 48'		• 4	G20-X2	132' x 108'		• 2		
W20-100P	24' x 18'		• 2						
W20-100P	24' x 18'		• 2						
M4-10R	48' x 18'		SEE NOTE ②	G20-X2	132' x 108'		• 2		
TYPE III	8 FOOT		• 1						
M4-10L	48' x 18'		SEE NOTE ②	G20-X1	60' x 48'		• 2		
TYPE III	8 FOOT		• 1						
R11-2	48' x 30'		SEE NOTE ②	* SIGN TO BE INSTALLED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. SIGNS TO BE REMOVED AT TIME OF DETOUR INSTALLATION.					
TYPE III	8 FOOT		• 2	M4-8A	24' x 12'		M5-1AR		• 2
				M3-1A	24' x 12'		M6-1AR		• 2
				M1-6A	24' x 24'		M5-1AL		• 1
					21' x 15'		M6-1AL		• 1
							M6-3A		• 5
R11-3	48' x 30'		SEE NOTE ②	M4-8A	24' x 12'		M5-1AR		• 1
TYPE III	8 FOOT		• 1	M3-3A	24' x 12'		M6-1AR		• 1
				M1-6A	24' x 24'		M5-1AL		• 2
					21' x 15'		M6-1AL		• 2
							M6-3A		• 7
R11-3	48' x 30'		SEE NOTE ②	M4-6A	24' x 12'				
TYPE III	8 FOOT		• 1	M4-8A	24' x 12'				• 2
				M1-6A	24' x 24'				
NOTES: 1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY, 2007. 2. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES. BARRICADE MARKING SHALL BE SLANTED IN ACCORDANCE WITH THE M.U.T.C.D.									



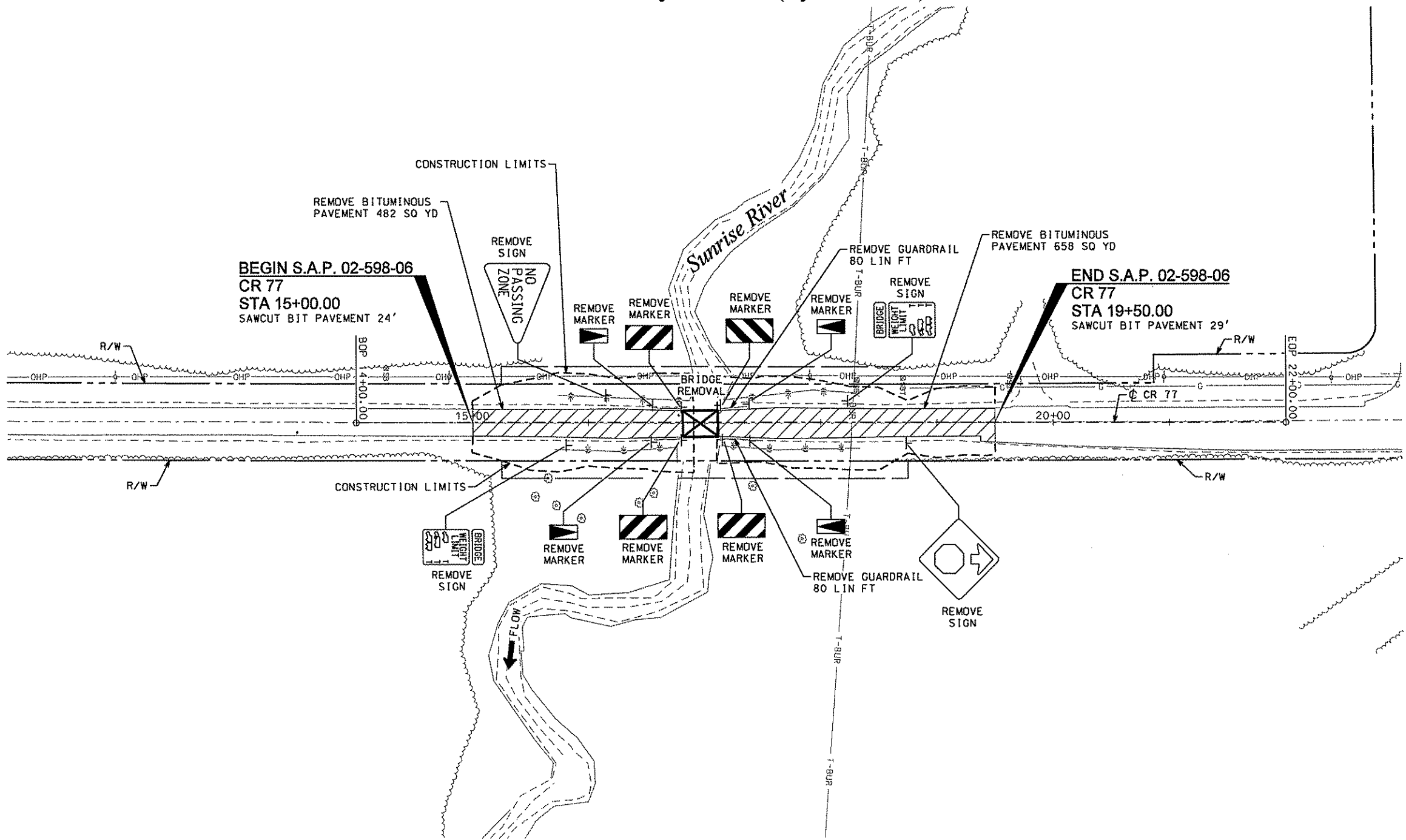
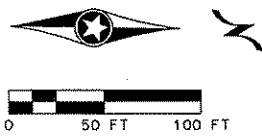
G20-X2 132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
[BRIDGE] D; [CLOSED] D; [Ryan Lake Dr] D; [TO] D; [Fawn Lake Dr] D; [BEGINS] D; [XXXX] D;



G20-X2 132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
[BRIDGE] D; [CLOSED] D; [Fawn Lake Dr] D; [TO] D; [Ryan Lake Dr] D; [BEGINS] D; [XXXX] D;

CR 77 (Lyon Street)

County Road 77 (Lyons Street)



Date Printed: 1/3/2011
WSB Filename: k:\0899-00\road\cr 77\plan\0899mr-01.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: THG
Plan By: CWK
Checked By: DWS
Approved By: DWS

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

CERTIFIED BY:
LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE
DATE: 01/03/11 L.I.C. NO: 19103

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
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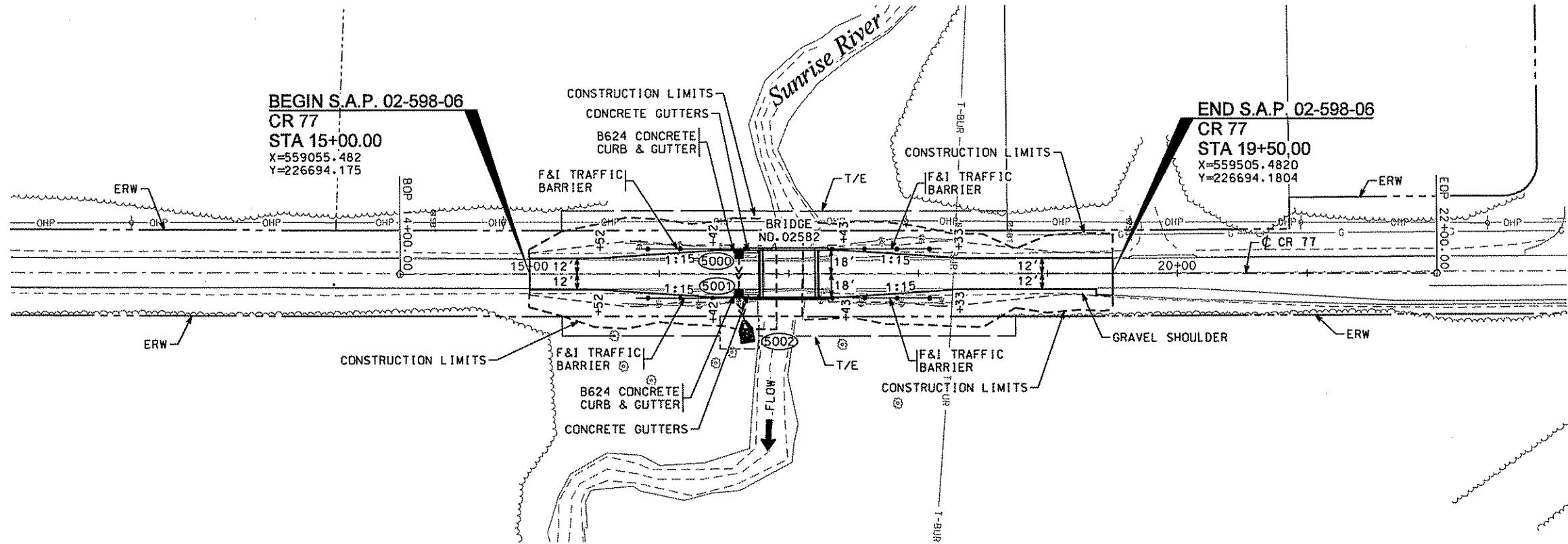
763-541-4000 • Fax 763-541-1700
INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

CR 77 - Bridge Replacement
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

INPLACE TOPOGRAPHY AND REMOVALS
S.A.P. 02-598-06

County Road 77 (Lyons Street)



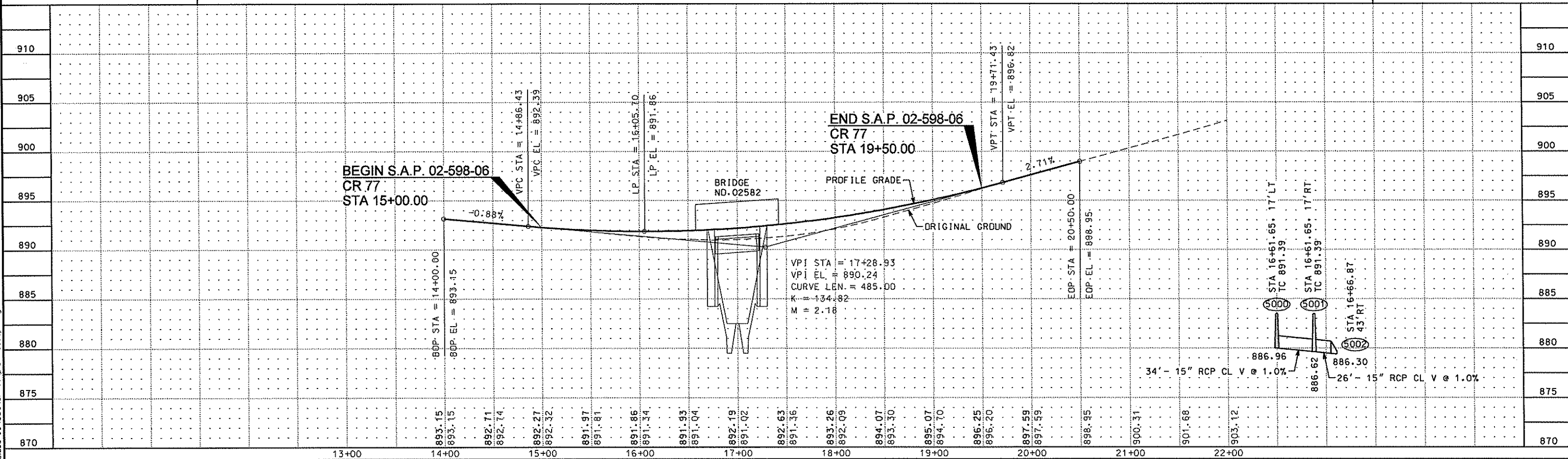
NOTES

- 1) ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF BITUMINOUS, UNLESS NOTED OTHERWISE.
- 2) STORMSEWER CASTING OFFSETS ARE TO CENTER OF GRATE AND END OF APRON.



BENCH MARK ELEV

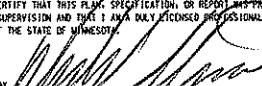
BENCH MARK ELEV



NO.	DATE	BY	CHK	REVISIONS

Design By:	THG
Plan By:	CWK
Checked By:	DWS
Approved By:	DWS

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

CERTIFIED BY:  DONALD W. STERNA, PE
DATE: 01/03/11 L.I.C. NO. 19103

WSB
& Associates, Inc.
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Minneapolis, MN 55416
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ANOKA COUNTY
CR 77 - Bridge Replacement
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
ROADWAY PLAN & PROFILE
S.A.P. 02-598-06

SHEET
21
OF
38
SHEETS

Date Printed: 1/4/2011
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PROJECT DESCRIPTION

SAP 02-596-06 IS LOCATED ON CR 77 AT THE SUNRISE RIVER, THE PROJECT LIMITS EXTEND 200' SOUTH AND 250' NORTH FROM THE CENTER OF THE SUNRISE RIVER IN LINWOOD TOWNSHIP AS SHOWN ON THE TITLE SHEET (SHEET 1).

THE PROJECT INCLUDES:

- REPLACEMENT OF THE CR 77 BRIDGE OVER THE SUNRISE RIVER.
- RAISING OF EXISTING ROADWAY TO NEW BRIDGE ELEVATION.

RECEIVING WATERS

STORM WATER FROM THE PROJECT WILL BE DIRECTED TO ADJACENT ROADSIDE, DITCHES, PRIOR TO STREET FLOWING INTO THE CEDAR CREEK.

ENVIRONMENTALLY SENSITIVE AREAS

FISH EXCLUSION DATES: CONTRACTOR IS PROHIBITED FROM CONDUCTING IN-STREAM WORK DURING THE FISH MIGRATION AND SPAWNING DATES OF MARCH 15 - JUNE 15. CONTACT DNR FISHERIES FOR APPROVAL DURING THIS TIME FRAME.

RESPONSIBLE PARTIES

ANOKA COUNTY AND THE CONTRACTOR ARE RESPONSIBLE FOR THE IMPLEMENTATION OF THE SWPPP. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, INSPECTIONS, MAINTENANCE, AND REPAIR OF ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE, DURING AND AFTER ACTIVE CONSTRUCTION. MILLE LACS COUNTY IS RESPONSIBLE FOR THE LONG-TERM OPERATIONS AND MAINTENANCE OF ALL PERMANENT STORMWATER MANAGEMENT SYSTEMS. CONTRACTOR IS LIABLE UNTIL FINAL STABILIZATION OF ALL DISTURBED AREAS IS ACHIEVED.

RESPONSIBLE PARTY FOR LONG-TERM MAINTENANCE/OWNER

ANOKA COUNTY
CHARLES CADENHEAD
1440 BUNKER LAKE BLVD
ANDOVER, MN 55304-4005
(763) 862-4237

CONTRACTOR

TBD

MISCELLANEOUS NOTES

CONSTRUCTION SHALL BE GOVERNED BY MN/DOT SPEC BOOK, SPECIAL PROVISIONS, AMENDMENTS, AND THE PROJECT SPECIFICATIONS AND DETAIL PLATES. THE CONTRACTOR SHALL KEEP THE INSPECTION AND MAINTENANCE LOG ON-SITE AT ALL TIMES DURING ACTIVE CONSTRUCTION. MAPS RELATING TO THIS PROJECT SWPPP CAN BE FOUND IN THE PROJECT MANUAL.

BMP NOTES

1. BMPs MUST BE ADEQUATELY LOCATED AND INSTALLED TO PREVENT EROSION AND SEDIMENTATION FROM A 0.5 INCH RAINFALL.

2. SILT FENCE IS NOT AN ACCEPTABLE INLET OR CULVERT PROTECTION BMP

3. CONTRACTOR SHALL SUBMIT A LOCATION MAP AND BMP DETAIL FOR ROCK CONSTRUCTION ENTRANCES (OR EQUIVALENT), AND STOCK PILES (IF PROPOSED ON SITE) TO PROJECT ENGINEER FOR APPROVAL PRIOR TO LAND DISTURBANCE.

TIMING OF BMP INSTALLATION

No construction operations, including removals, that require erosion & sediment control per the SWPPP can commence until the erosion control supervisor certifies the proper installation of BMP's.

The Erosion Prevention and Sediment Control BMP's shall be installed as necessary to minimize erosion from disturbed surfaces and to capture sediment on site. Perimeter controls (silt fence, construction rock entrance, etc.) shall be installed prior to the start of construction. Contractor shall implement the necessary on site BMP(s) to prevent nuisance conditions (MN Rules 7050.0210) from any discharges from the project site.

SPECIAL / IMPAIRED WATERS

SUNRISE RIVER IS IMPAIRED FOR TURBIDITY, PH AND FISH & MICROINVERTEBRATE BIOASSESSMENTS AND OCCURS DISCHARGE TO SUNRISE RIVER.

CALCULATIONS

Calculations:

Area to be disturbed =	0.76 Acres
Pre-Construction Impervious Area =	0.32 Acres
Post-Construction Impervious Area =	0.42 Acres
Net Increase In Impervious Area =	0.10 Acres

CONSTRUCTION TIMELINE: JUNE 2011 TO SEPTEMBER 2011

LOCATION OF SWPPP REQUIREMENTS IN THE PLAN

DESCRIPTION	TITLE	LOCATION
Surface Drainage Direction	Turf Establishment & Erosion control plan	25
Receiving Surface Waters	SWPPP	22
Permanent Erosion Control	Turf Establishment & Erosion Control Plan	25
Temporary Erosion Control	Turf Establishment & Erosion Control Plan	25
Erosion Control BMP Details	Standard Plan Sheets	26 - 31
Topographic Features	Inplace Topography & Removal Plan	20
Construction Limits	Construction Plan	21
Preconstruction & Final Grades	Cross Sections	34 - 38

CONTACTS

AGENCY	PERMIT	NAME	PHONE NUMBER
MPCA	N/A	Scott Lucas	218-316-3874
DNR-Waters	Public Waters / Dewatering	Kate Drewry	651-772-7977
ACOE	Section 404	Tim Fell	651-290-5360
State Duty Officer	N/A	MPCA	1-800-422-0798
Design	N/A	Don Sterna, P.E.	763-541-4800
SWPPP Design	N/A	Travis Fristed	763-287-7169
Erosion Control Supervisor	N/A	TBD	
Erosion Control Inspectors	TBD	TBD	
DNR Fisheries	TBD	N/A	320-616-2450

SEQUENCE OF CONSTRUCTION

1. Contractor to verify that all applicable permits have been obtained.
2. Contractor must plan for and implement appropriate construction phasing, vegetative buffer strips, horizontal slope grading, and other construction practices that minimize erosion, so that the inspection and maintenance requirements of the SWPP are complied with. The location of areas not to be disturbed must be delineated (e.g. with flags, stakes, signs, silt fence, tree protection fence, etc.) on the project site before work begins.
3. Sediment control practices must be established on all down gradient perimeters before any up gradient land disturbing activities begin. These practices shall remain in place until Final Stabilization is achieved.
4. Contractor to rough grade site then install and maintain all temporary/permanent erosion control BMPs as shown on plans.
5. Contractor to achieve Final Stabilization.

INSPECTION, MAINTENENCE, & RECORD KEEPING

The contractor/site operator must assign a trained individual(s) to oversee the implementation, maintenance, and repair of BMPs. This individual(s) shall also perform inspections, revise/amend the SWPPP (document in SWPPP as necessary), and be available for an onsite inspection within 72 hours upon request by the owner (or its designee), local government units, or MPCA.

Amendments to the SWPPP will be made by the project engineer or by the contractor after written approval by the project engineer.

DEWATERING AND BASIN DRAINING

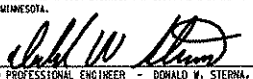
In the event that dewatering or basin draining is required, the contractor shall submit a dewatering plan to the project engineer for approval prior to any dewatering activities taking place. The dewatering plan must include BMPs to prevent sediment transport, erosion, and adverse impacts to downstream waters. If an approved TMDL waste load allocation is established on an impaired waterbody or watercourse, the contractor must implement all necessary BMP's to meet the TMDL wasteland amount. The approved dewatering plan and DNR appropriation permit will become part of this SWPPP.

POLLUTION PREVENTION MANAGEMENT MEASURES

Hazardous Materials: Storage devices and locations must be submitted by the contractor for review and approval by project engineer.

Truck Washing: External washing of trucks and other construction vehicles is prohibited onsite. Contractor shall submit a containment plan and location map to the project engineer for approval, if proposed onsite. Runoff must be contained and waste properly disposed of.

Concrete washout onsite: The contractor/site operator must submit a concrete washout plan to the project engineer for all on site containment facilities or impermeable liners. The approved plan will be incorporated into the SWPPP.

NO.	DATE	BY	CHK	REVISIONS	Design By:	Plan By:	Checked By:	Approved By:	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	 701 Xenia Avenue South, Suite 300 Minneapolis, MN 55416 www.wsbg.com	 CR 77 - Bridge Replacement Anoka County, Minnesota	ANOKA COUNTY, MINNESOTA	SHEET
					THG	CHW	DWS	DWS	 DONALD W. STERNA, P.E. LICENSED PROFESSIONAL ENGINEER DATE: 01/03/11 LIC. NO: 19103	701 Xenia Avenue South, Suite 300 Minneapolis, MN 55416 www.wsbg.com		SWPPP S.A.P. 02-598-06	22 OF 38 SHEETS

SEQUENCE OF CONSTRUCTION

- 1. Contractor to verify that all applicable permits have been obtained and NPDES permit modification form has been submitted to MPCA prior to the start of construction.
- 2. Permittee(s) must plan for and implement appropriate construction phasing, vegetative buffer strips, horizontal slope grading, and other construction practices that minimize erosion, so that the inspection and maintenance requirements of Part IV.E. of the NPDES construction permit are complied with. The location of areas not to be disturbed (including tree protection fencing) must be delineated (e.g. with flags, stakes, signs, silt fence, orange tree protection fence, etc.) on the project site before work begins (Part IV.B.1).
- 3. Sediment control practices must be established on all down gradient perimeters before any up gradient land disturbing activities begin. These practices shall remain in place until Final Stabilization is achieved (Part IV.C.1.b).
- 4. Contractor to rough grade site and install utilities, then install and maintain all temporary/permanent erosion control BMPs as shown on plans and in conformance with the NPDES construction permit.
- 5. Contractor to achieve Final Stabilization prior to submission of the NOT to the MPCA.

CHANGE OF PERMIT COVERAGE (PART II.B.5)

For construction projects where the owner or operator changes, The original/current owner shall provide a copy of the complete notice of termination/permit modification form (as required in Part II.C.2.b) to the new owner. The original/current owner shall provide a SWPPP to the new owner and operator that specifically addresses the remaining construction activity. The new owner or operator shall submit a complete and signed permit modification portion (permit modifications include subdivision registration or permit transfer) of the notice of termination/permit modification form to the MPCA prior to commencing construction activity on site or in no case later than seven (7) days after taking ownership of the property. If an operator or general contractor has completed their portion of work on the site, is no longer in operational control of the project, and all contractual obligations between the owner and operator or general contractor relating to compliance with the terms and conditions of this permit have been met, the operator or general contractor, may transfer permit coverage back to the owner or to a new operator using the notice of termination/permit modification form. A signature from both the owner and operator is required.

TERMINATION OF PERMIT COVERAGE

The Permittee(s) coverage under this permit terminates at midnight on the postmark date of the Notice of Termination (NOT), or on the date an online NOT is submitted to the MPCA (PART II.C.1).

TERMINATION OF COVERAGE FOR THE ENTIRE PROJECT (PART II.C.2.A)

All Permittee(s) must submit a NOT within 30 days after Final Stabilization has been completed on all portions of the site for which the Permittee is responsible and all construction activity has been completed. If the site includes permanent stormwater management systems, the requirements for final cleanout/maintenance must be performed as required in Final Stabilization. Permittee(s) must submit a NOT within 30 days after selling the entire site including roads and stormwater infrastructure, and coverage is transferred to another owner.

TERMINATION OF COVERAGE FOR A PORTION OF THE PROJECT SITE (PART II.C.2.B)

All Permittee(s) must submit a NOT within seven (7) days after selling or otherwise legally transferring portions of the site to another party and they are no longer the owner or operator. The portions of the site being sold to another party must be in compliance with the permit (e.g. all temporary erosion protection and sediment control measures must be in place). The form must include signatures from the original Permittee(s) and contact information for the new owner of the property.

TERMINATION OF COVERAGE PRIOR TO COMPLETING ALL CONSTRUCTION ACTIVITY (PART IV.G.6.A-C)

- Permittee(s) may terminate permit coverage prior to completing all construction activity, if Final Stabilization is achieved (all Parts IV.G.1-5 of the NPDES construction permit) and the following three (3) conditions are met:
- 1. Construction activity has ceased for at least 90 days.
 - 2. At least 90% (by area) of all originally proposed construction activity has been completed and permanent cover established on those areas.
 - 3. On areas where construction activity is not complete, permanent cover has been established.

INSPECTION, MAINTENANCE, & RECORD KEEPING

The contractor/site operator must assign a trained individual(s) (pursuant to Part III.A.1-2) to oversee the implementation, maintenance, and repair of BMPs. This individual(s) shall also perform inspections, revise/amend the SWPPP (document in SWPPP as necessary), and be available for an onsite inspection within 72 hours upon request by the permitted owner (or its designee), local government units, or MPCA (Part III.A.2.a.ii).

Amendments to the SWPPP will be made by the project engineer or by the contractor after written approval by the project engineer.

Proposed changes to the SWPPP or other modifications shall be documented in the SWPPP, including reasons for changes in accordance with Part III.A.5 of the NPDES permit.

The SWPPP shall be amended to include additional requirements, such as additional or modified BMPs, designed to correct problems identified or address situations whenever (Part III.A.5):

- a. There is a change in design, construction, operation, maintenance, weather or seasonal conditions that has a significant effect on the discharge of pollutants to surface waters or underground waters;
- b. Inspections or investigations by site operators, local, state or federal officials indicate the SWPPP is not effective in eliminating or significantly minimizing the discharge of pollutants to surface waters or underground waters or that the discharges are causing water quality standard degradation (e.g. nuisance conditions as defined in Minn. R. 7050.0210, subp. 2); or
- c. The SWPPP is not achieving the general objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of this permit.
- d. The MPCA notifies the Permittee(s) in writing, that the project's stormwater discharges may contribute to non-attainment of any applicable water quality standards, impaired waters standards, and/or TMDL Waste Load Allocations. In response, the Permittee(s) must develop a supplemental BMP action plan or appropriate SWPPP amendments describing SWPPP

modifications to address the identified concerns and submit information requested by MPCA, which may include an individual permit application. If MPCA's written notification requires a response, failure to respond within the specified timeframe constitutes a permit violation.

INSPECTION AND ENTRY (Part V.H)

The Permittee(s) must comply with the provisions of 40 CFR 122.41(i), Minn. Stat. ch. 115.04 and Minn. Stat. ch. 115B.17. The contractor/site operator shall allow representatives of the MPCA or any member, employee or agent thereof, when authorized by it, upon presentation of credentials, to enter upon any property, public or private, for the purpose of obtaining information or examination of records or conducting surveys or investigations.

INSPECTIONS (Part IV.E)

- 1. The contractor/site operator must routinely inspect the entire construction site at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection which occurs within 24 hours after a rainfall event, the next inspection must be conducted within seven (7) days after that.
- 2. All inspections and maintenance conducted during construction must be recorded in writing and these records must be retained with the SWPPP in accordance with Part III.D of the NPDES construction permit. Records of each inspection and maintenance activity shall include:
 - a. Date and time of inspections;
 - b. Name of person(s) conducting inspections;
 - c. Findings of inspections, including recommendations for corrective actions;
 - d. Corrective actions taken (including dates, times, and party completing maintenance activities);
 - e. Date and amount of all rainfall events greater than 1/2 inch (0.5 inches) in 24 hours;
 - f. Documentation of changes made to the SWPPP
- 3. Where parts of the construction site have permanent cover, but work remains on other parts of the site, inspections of the areas with permanent cover may be reduced to once per month. Where construction sites have permanent cover on all exposed soil areas and no construction activity is occurring anywhere on the site, the site must be inspected for a period of twelve (12) months (the inspections may be ceased during frozen ground conditions). Following the twelfth month of permanent cover and no construction activity, inspections may be terminated until construction activity is once again initiated or sooner if notified in writing by the MPCA. Where work has been suspended due to frozen ground conditions, the required inspections and maintenance schedule must begin within 24 hours after runoff occurs at the site or prior to resuming construction, whichever comes first.

MAINTENANCE (Part IV.E)

The contractor/site operator are responsible for the operation and maintenance of all temporary and permanent water quality management BMPs, as well as all erosion prevention and sediment control BMPs, for the duration of the construction work at the site. The contractor/site operator are responsible until another contractor/site operator has assumed control (see change of permit coverage) over all areas of the site that have not been finally stabilized or the site has undergone Final Stabilization, and a NOT has been submitted to the MPCA (Part IV.E.4.e).

If sediment escapes the construction site, off-site accumulations of sediment must be removed in a manner and at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment in streets could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets) (Part IV.E.4.f).

All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow access unless another time frame is specified below.

Silt fences: All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the height of the fence. These repairs must be made within 24 hours of discovery, or as soon as field conditions allow access (Part IV.E.4.a).

Temporary and permanent sedimentation basins: Must be drained and the sediment removed when the depth of sediment collected in the basin reaches 1/2 the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access (Part IV.E.4.b).

Surface waters: including drainage ditches, catch basins, and conveyance systems, must be inspected for evidence of erosion and sediment deposition. The removal and stabilization of exposed soils must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints. If precluded, removal and stabilization must take place within seven (7) calendar days of obtaining access. The Permittees are responsible for contacting all local, regional, state and federal agencies and receiving any applicable permits, prior to conducting any work (Part IV.E.4.c).

Construction site vehicle exit locations: Must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all paved surfaces, within 24 hours of discovery, or if applicable, within a shorter time to comply with Part IV.C.6 of the NPDES construction permit (Part IV.E.4.d).

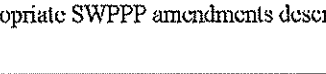
RECORD RETENTION (Part III.D)

The SWPPP (original or copies), all changes to the SWPPP, project manual, and inspections/maintenance records must be kept at the site during construction by the contractor/site operator who has operational control of that portion of the site. The SWPPP can be kept in either the field office or in an on site vehicle during normal working hours.

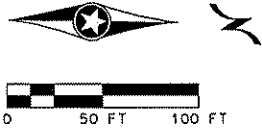
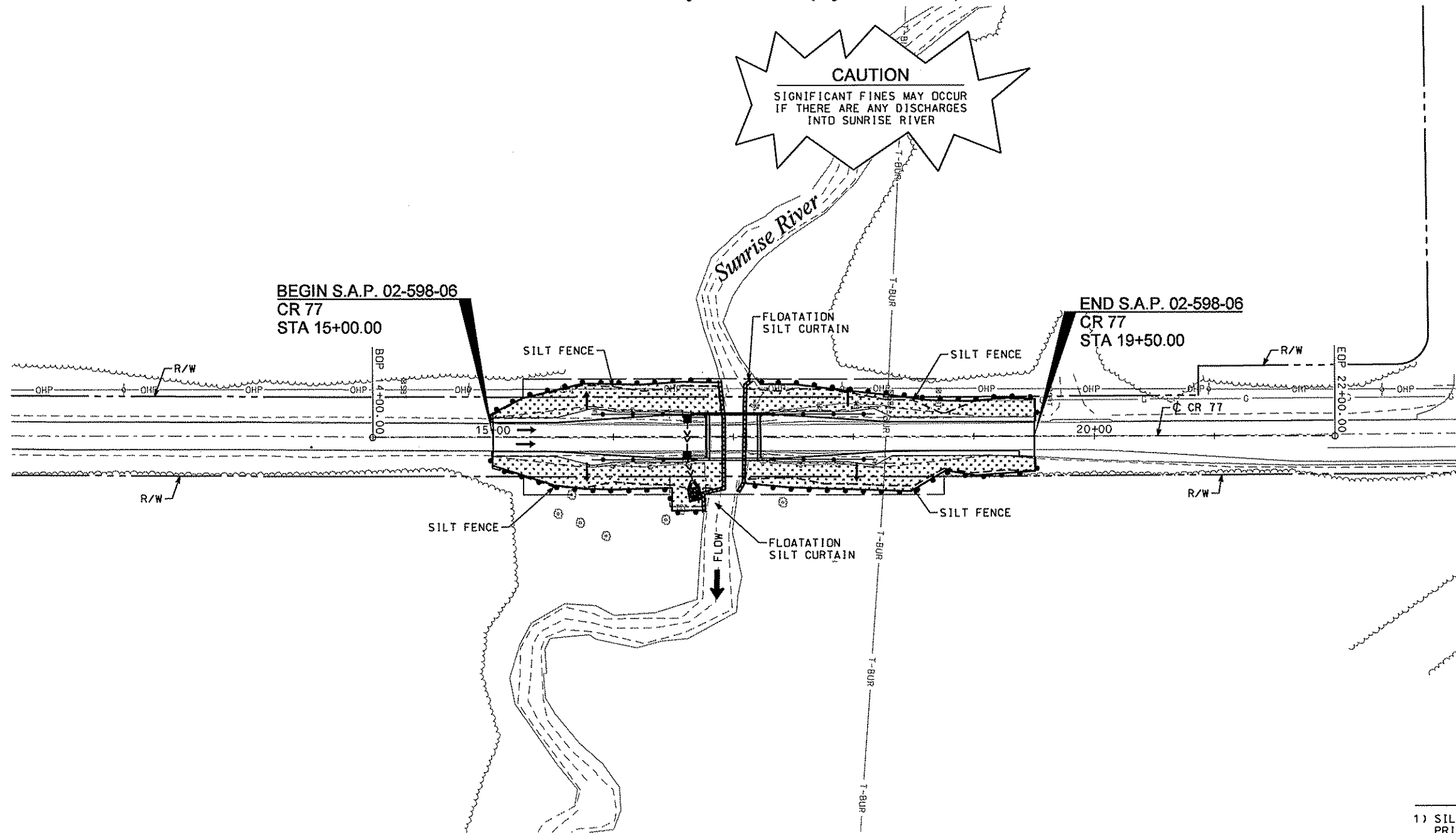
All owner(s) must keep the SWPPP, along with the following additional records, on file for three (3) years after submittal of the NOT. This does not include any records after submittal of the NOT. Any other permits required for the project,

- 1. Records of all inspection and maintenance conducted during construction.
- 2. All permanent operation and maintenance agreements that have been implemented, including all
- 3. Right of way, contracts, covenants and other binding requirements regarding perpetual maintenance; and
- 4. All required calculations for design of the temporary and Permanent Stormwater Management Systems.

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County Road 77 (Lyons Street)



GENERAL NOTES

INLETS AND DITCHES MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION MUST BE COMPLETED WITHIN 24 HOURS OF CONNECTING TO SURFACE WATER.

WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.

ALL AREAS TEMPORARILY DISTURBED WILL BE HYDROSEEDING WITH MNDOT SEED MIX 150 (40 LBS/AC), FERTILIZER 10-10-20 AND TYPE 1 MULCH (2 TONS/AC) WITHIN 7 DAYS.

SILT FENCE SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR LINE.

ALL STREETS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ANY SEDIMENT OR DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY. THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR STOCKPILES.

LEGEND

- SILT FENCE (ORANGE), TYPE MACHINE SLICED
- FLOATATION SILT CURTAIN, TYPE STILL WATER
- DRAINAGE DIRECTION
- BIO ROLLS
- MNDOT SEED MIXTURE 250 (70 LBS./AC.), TYPE 2 FERTILIZER AND EROSION CONTROL (WOOD FIBER) BLANKET CATEGORY 3 WITHIN 72 HOURS.

NOTES

- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY SURFACE DISTURBANCE.
- CONTRACTOR SHALL SUBMIT A 1717 SITE PLAN FOR ANY PROPOSED INSTREAM BRIDGE WORK AND DEMOLITION TO THE PROJECT ENGINEER FOR APPROVAL.
- TURF ESTABLISHMENT MUST BE ACCOMPLISHED WITHIN 72 HOURS OF THE COMPLETION OF GRADING OPERATIONS OR AS DIRECTED BY THE ENGINEER.
- CONTRACTOR SHALL INSTALL AND MAINTAIN ADDITIONAL BMP'S TO MINIMIZE EROSION FROM DISTURBED AREAS AND TO CAPTURE SEDIMENT ONSITE, AS NECESSARY.
- DEWATERING: CONTRACTOR TO SUBMIT DEWATERING PLAN TO THE PROJECT ENGINEER FOR REVIEW 24 HOURS BEFORE ANY DEWATERING ACTIVITIES OCCUR.

Date Printed: 1/3/2011
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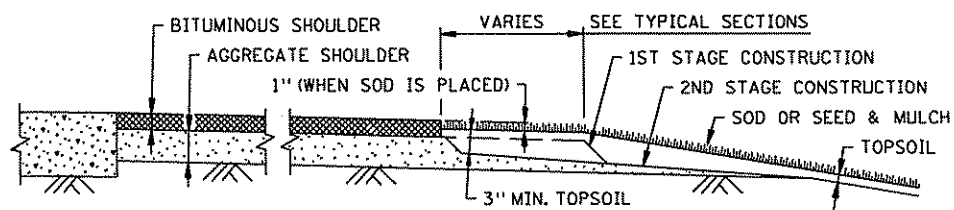
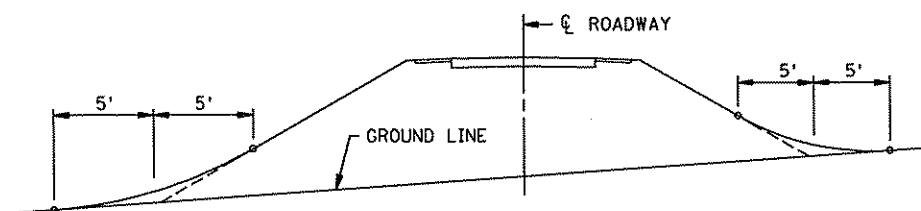
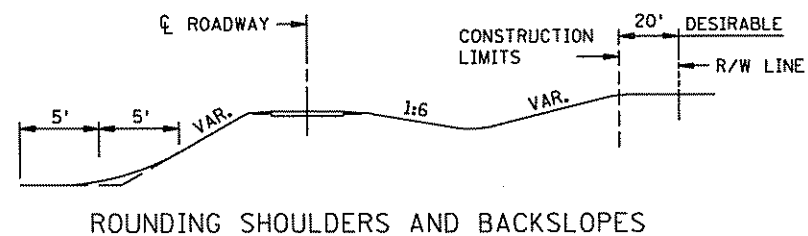
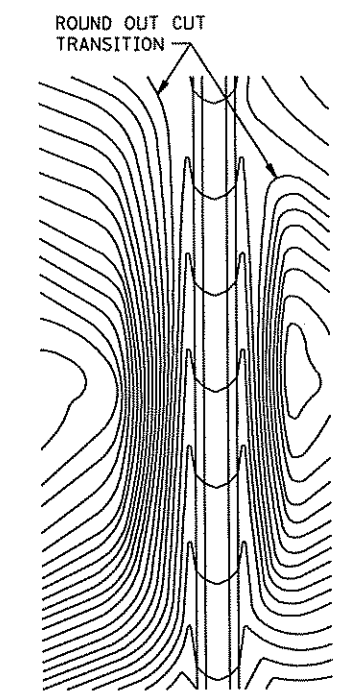
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TURF ESTABLISHMENT & EROSION CONTROL
S.A.P. 02-598-06

SHEET
25
OF
38
SHEETS

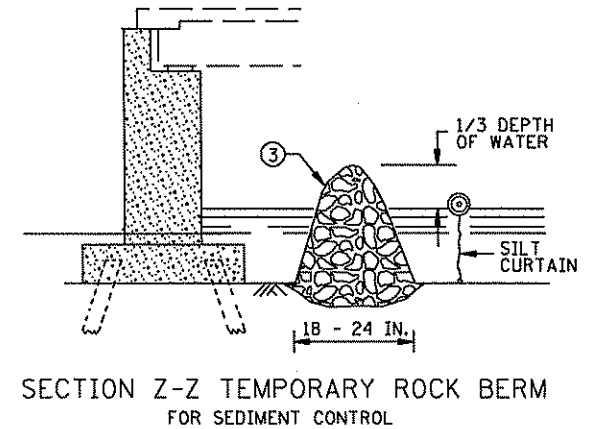
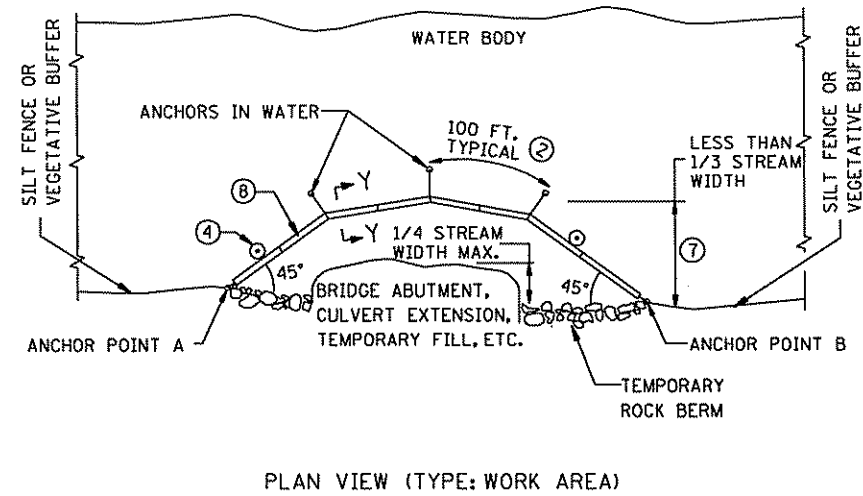
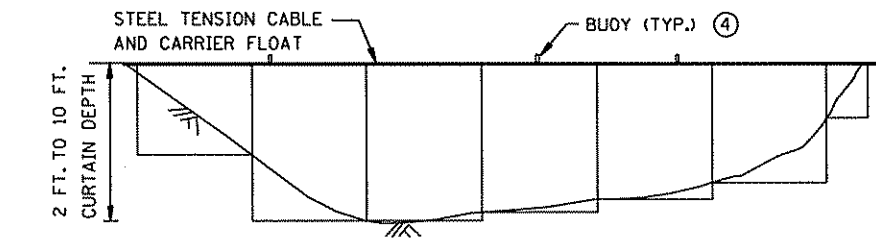
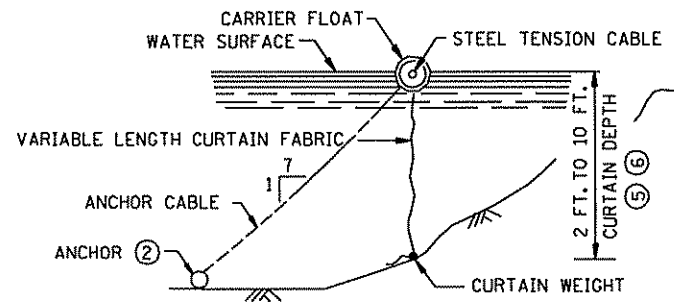
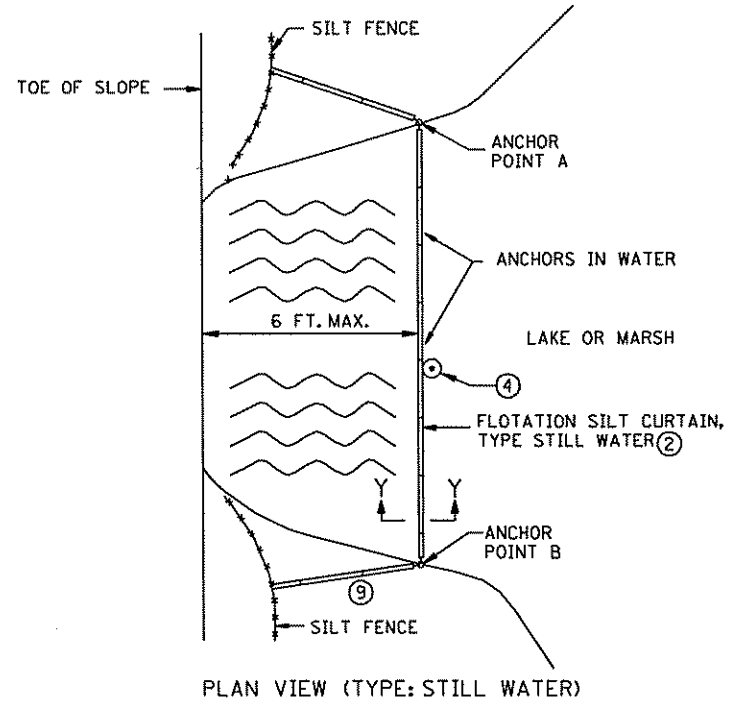
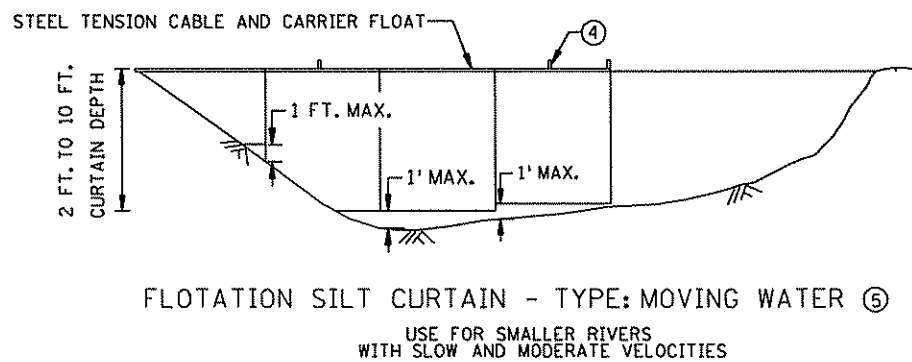
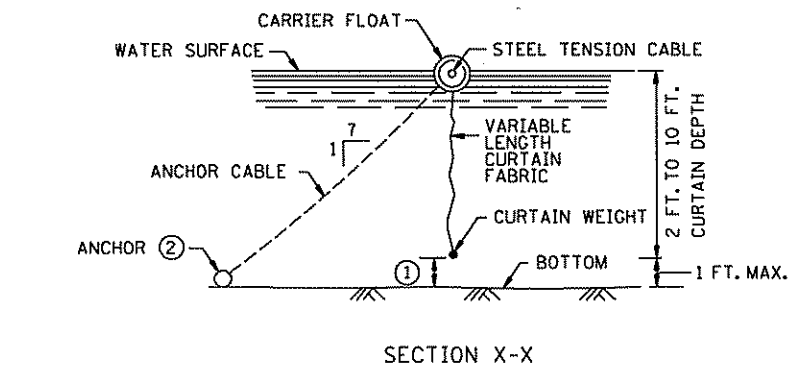
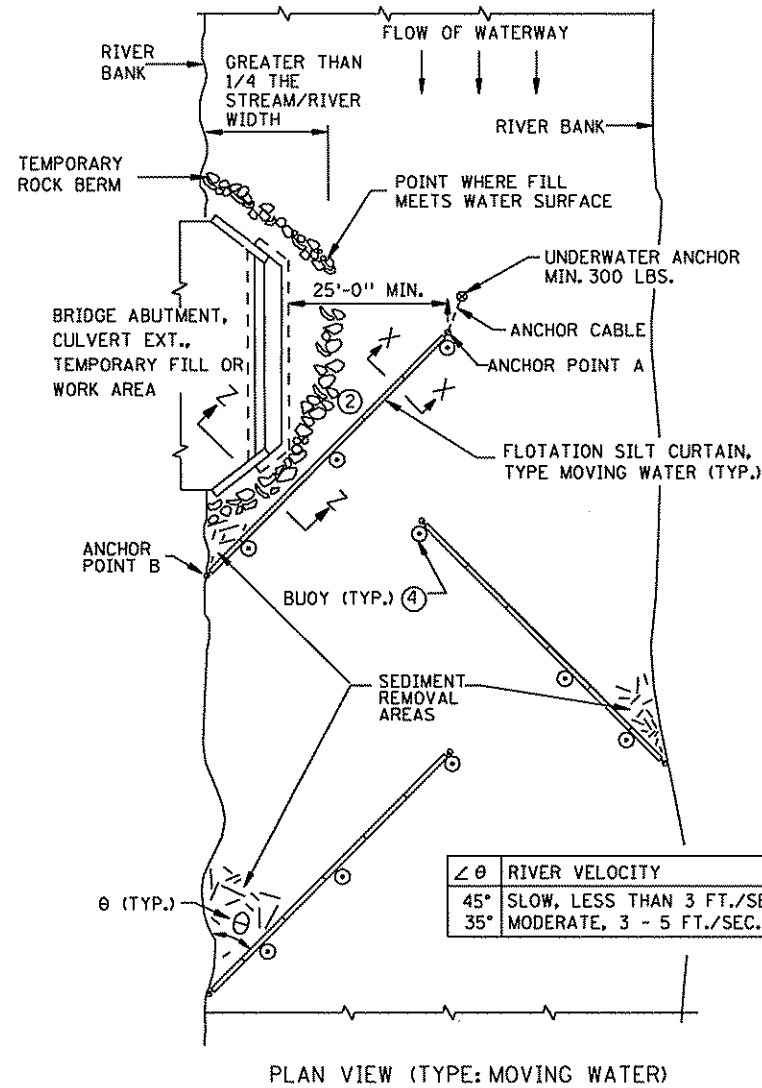
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1/3/2011

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USER NAME: WSB & Associates
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FILE NAME:
1898\02.dgn



DESIGN GUIDELINES:
MOVING WATER
WHEN TEMPORARY FILL ENCLOSES MORE THAN 1/4 BUT LESS THAN 1/3 WIDTH OF THE STREAM.
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 11 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC. (1) (6)

DESIGN GUIDELINES:
WORK AREA
WHEN TEMPORARY FILL ENCLOSES LESS THAN 1/4 OF THE WIDTH OF STREAM.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

DESIGN GUIDELINES: (6)
STILL WATER
MINIMUM WATER DEPTH: 0 FT.
MAXIMUM WATER DEPTH: 10 FT.

NOTES:

SEE SPECS. 2573 & 3887.

- (1) CURTAIN EXTENDS TO 1 FT. MAXIMUM FROM BOTTOM OF WATER BODY.
- (2) FOR ANCHOR AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
- (3) IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT THE BRIDGE, A TEMPORARY ROCK BERM WILL BE USED TO PROVIDE ADDITIONAL PROTECTION. THE TEMPORARY ROCK BERM IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.
- (4) ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
- (5) WATER DEPTH CAN BE 0 TO 10 FEET, 0 TO 11 FEET FOR TYPE MOVING WATER.
- (6) SILT CURTAIN HEIGHT INCLUDES MAXIMUM WAVE HEIGHT FOR WATER BODY.
- (7) KEEP AS CLOSE TO WORK AREA AS POSSIBLE.
- (8) SILT CURTAIN, ROCK BERM OR SHEET PILE AS REQUIRED TO CONTROL THE INFILTRATION OF SILT.
- (9) IF 6 INCHES OR LESS OF WATER, USE BALE BARRIERS, SEE SHEET 2.

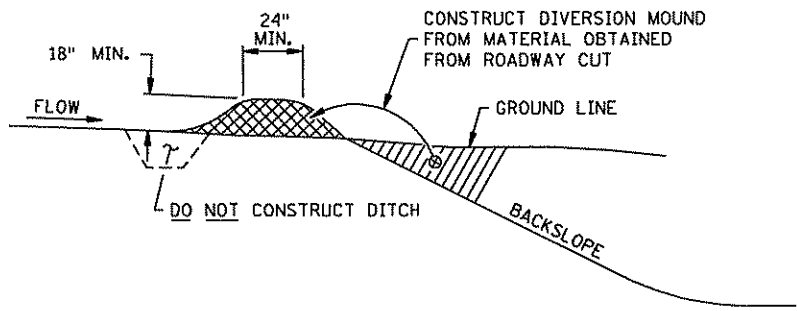
STANDARD SHEET NO.
5-297.405 (1 OF 4)
STANDARD APPROVED:
SEPTEMBER 27, 2006
S.A.P. 02-654-02

TITLE:
TEMPORARY SEDIMENT CONTROL
SILT CURTAIN
SHEET NO. 27 OF 38 SHEETS

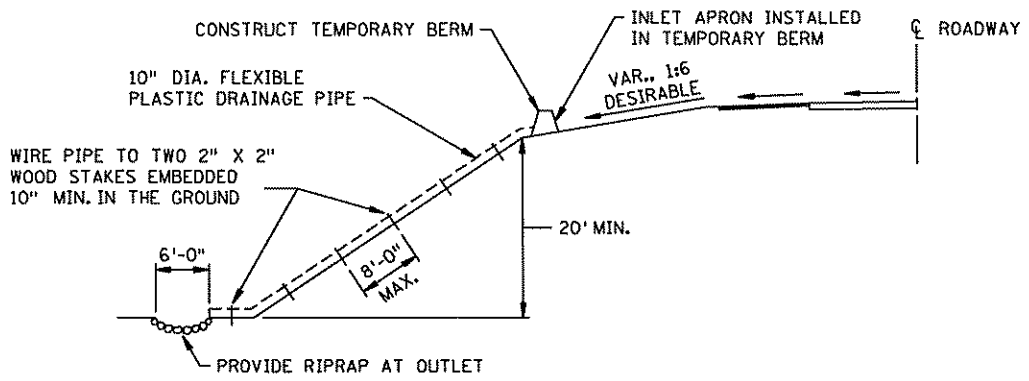
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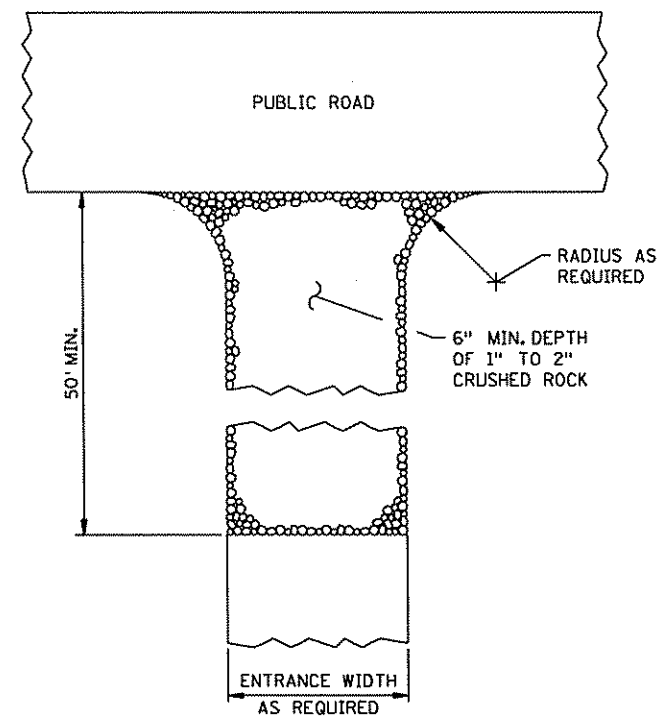


DIVERSION MOUND
 DESIGN GUIDELINES:
 STORM FREQUENCY: 10 YEAR - 24 HOUR
 MAXIMUM DRAINAGE AREA: 5 ACRES
 MAXIMUM DIVERSION: GRADE 5%

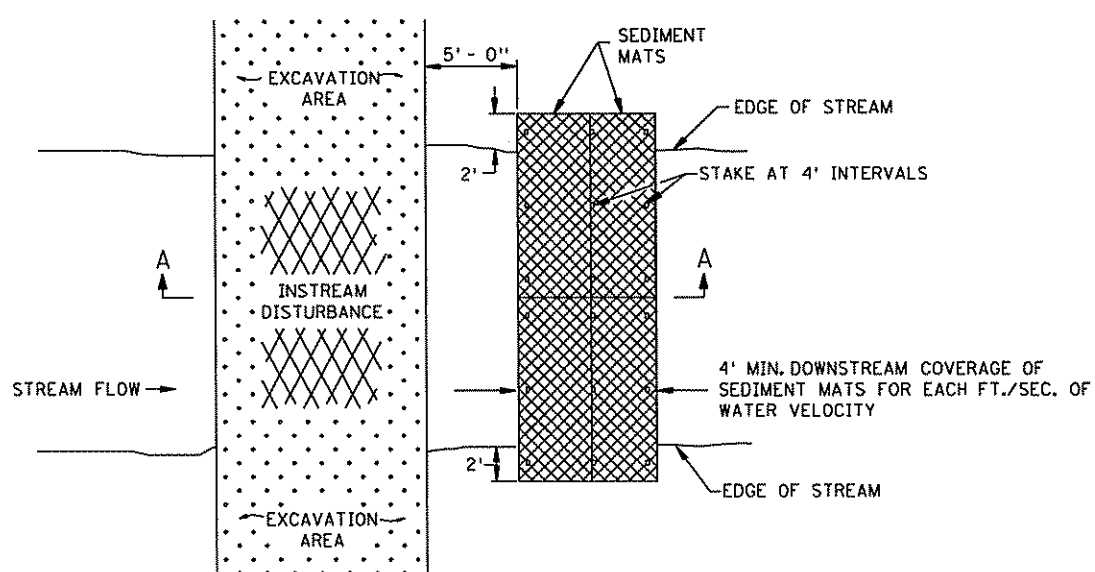


TEMPORARY DOWN DRAIN ON FILL SLOPE

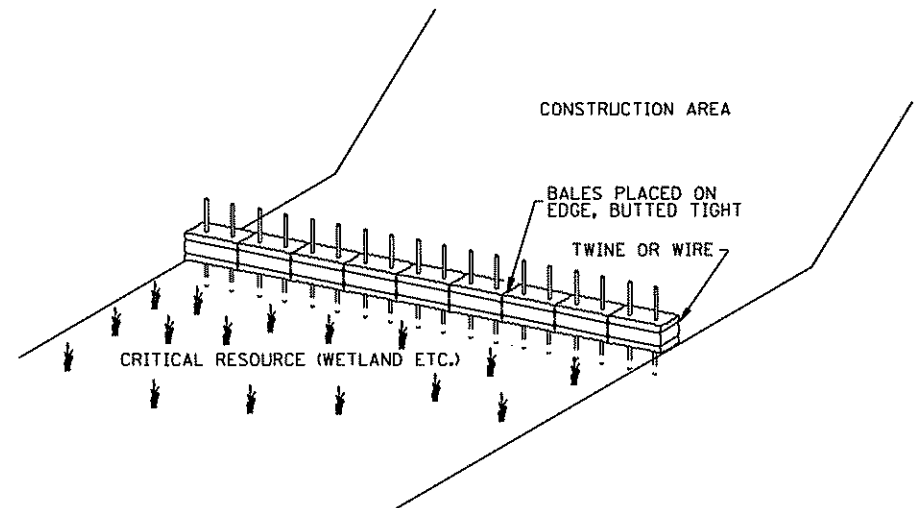
DESIGN GUIDELINES:
 STORM FREQUENCY: 2 YEAR - 24 HOUR
 MAXIMUM DRAINAGE AREA: 3 ACRES



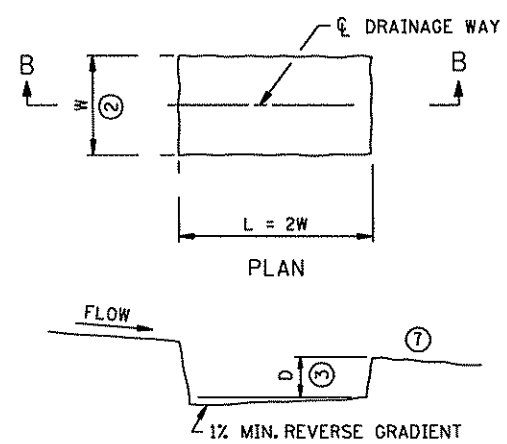
ROCK CONSTRUCTION ENTRANCE ①



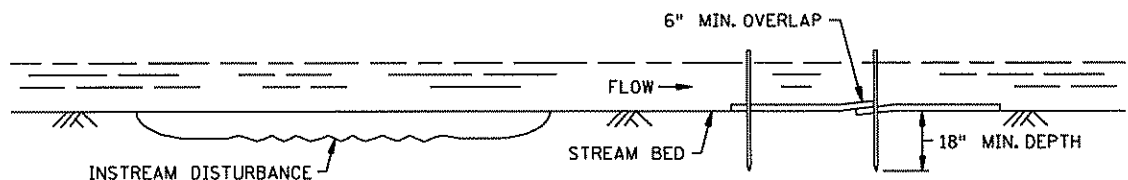
PLAN VIEW



BALE BARRIERS
 TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS



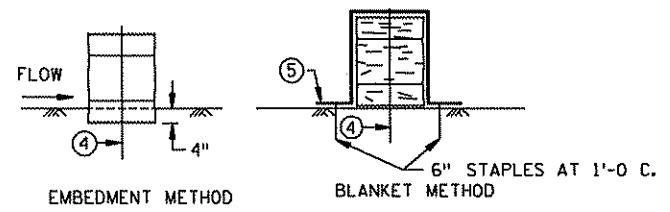
SECTION B-B
 SEDIMENT TRAP DETAIL



SECTION A-A

SEDIMENT MAT ⑥
 TYPICAL STREAM BED INSTALLATION

DESIGN GUIDELINES:
 MAXIMUM FLOW VELOCITY: 5 FT./SEC.
 MAXIMUM FLOW DEPTH: 2 FT.



BALE BARRIER DETAIL
 APPROX. BALE SIZE: 14" X 18" X 36" LONG

NOTES:

SEE SPECS. 2573, 3892, & 3894.

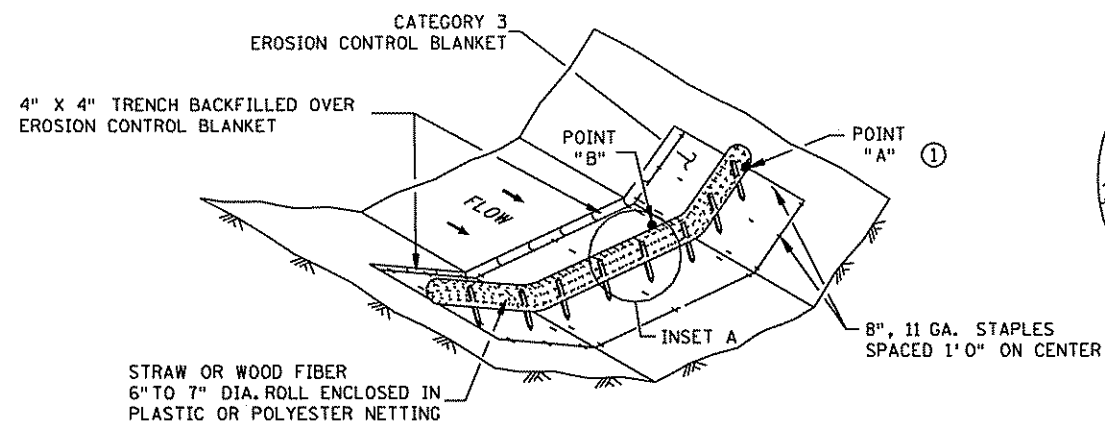
- ① ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE TRUCKS ENTER MAIN ROAD. KEEPING MUD OFF THE ROAD WILL PREVENT AUTO DAMAGE AND KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS. GEOTEXTILE MAY BE PLACED UNDER THE ROCK TO KEEP ROCKS SEPARATE FROM SOIL.
- ② W = 10 FT. MIN., 20 FT. MAX.
- ③ D = 2 FT.
- ④ TWO 2 IN. X 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE EMBEDDED 10 INCHES MINIMUM IN THE GROUND.
- ⑤ PLACE A CATEGORY 3 EROSION CONTROL BLANKET, 6 FT. WIDE MINIMUM, OVER THE BALE INSTEAD OF TRENCHING.
- ⑥ THIS DETAIL MAY NOT BE ACCEPTABLE FOR WORK ON PUBLIC WATERS, SEE GENERAL PUBLIC WATERS PERMIT (GP) 2004-0001.
- ⑦ LOCATION OF DOWNSTREAM TEMPORARY SEDIMENT CONTROL DEVICE.

STANDARD SHEET NO. 5-297.405 (2 of 4)	TITLE: TEMPORARY SEDIMENT CONTROL MISCELLANEOUS DETAILS
STANDARD APPROVED: SEPTEMBER 27, 2006	
S.A.P. 02-654-02	SHEET NO. 28 OF 38 SHEETS

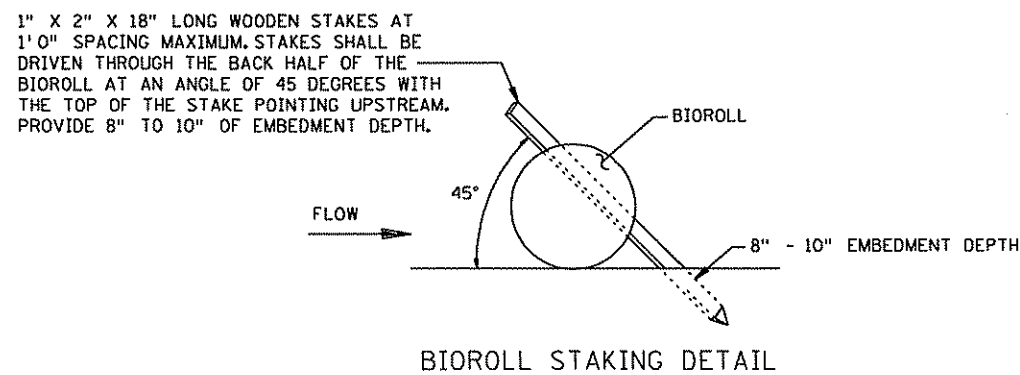
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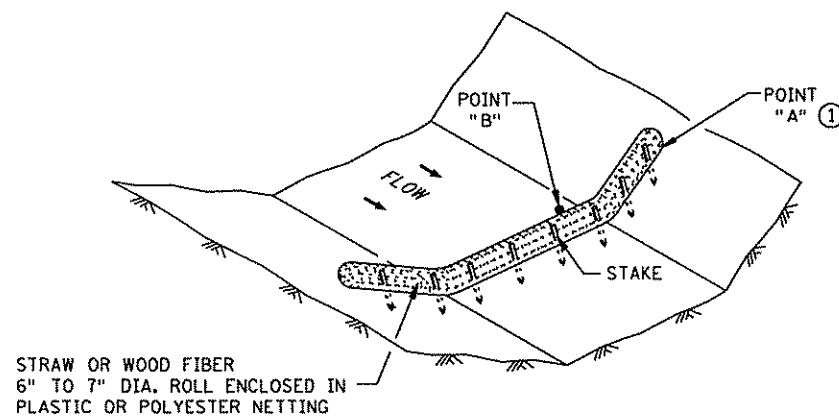
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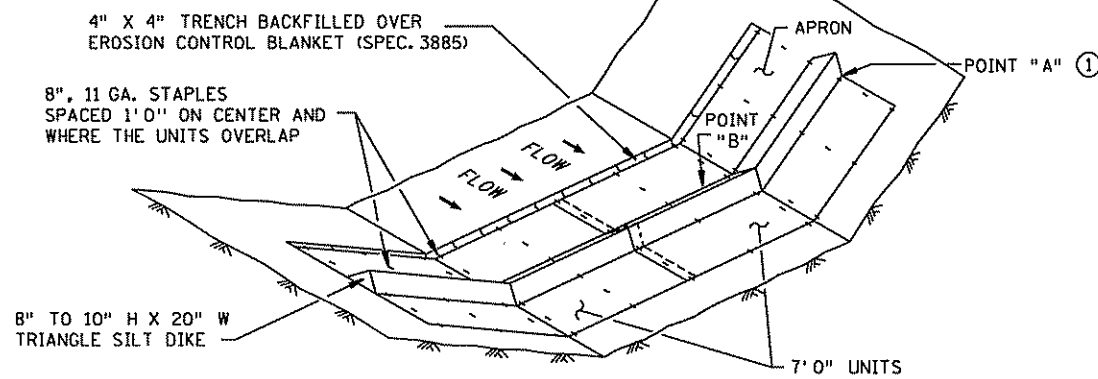
TYPE 3: BIOROLL BLANKET SYSTEM DITCH CHECK



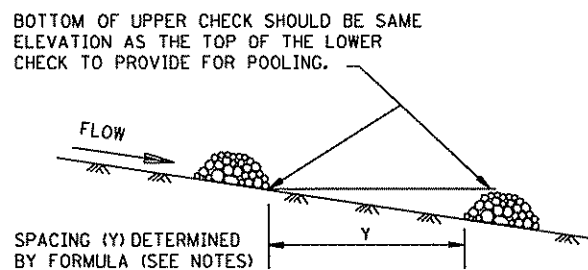
BIOROLL STAKING DETAIL



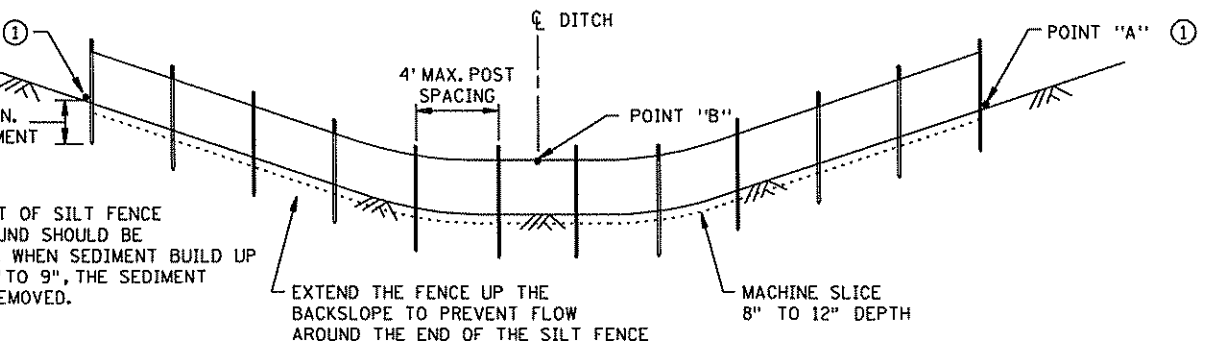
TYPE 2: BIOROLL DITCH CHECK
USE ON ROUGH GRADED AREAS



TYPE 6: GEOTEXTILE TRIANGULAR DIKE DITCH CHECK



DITCH CHECK SPACING ④



TYPE 1: SLICED IN SILT FENCE DITCH CHECK

NOTES:

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT.)}}{\% \text{ CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② CLASS I - IV RIPRAP (SPEC. 3601) WITH GEOTEXTILE FABRIC LINER, TYPE IV (SPEC. 3733).

③ THE ROCK WEEPER FILTERS SEDIMENT OUT OF THE WATER BETTER THAN THE OTHER DITCH CHECKS. THE ROCK WEEPER COULD BE USED AS A PERMANENT WATER FILTERING FEATURE.

④ PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE WILL NEED TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

GENERAL DESIGN GUIDELINES						
DITCH CHECK TYPE	SILT FENCE	BIOROLL	BIOROLL BLANKET	TRIANGULAR DIKE	ROCK WEEPER	ROCK CHECK
STORM FREQUENCY:	2 YR. - 24 HR.	2 YR. - 24 HR.	2 YR. - 24 HR.	2 YR. - 24 HR.	5 YR. - 24 HR.	5 YR. - 24 HR.
MAX. FLOW VELOCITY:	< 1 FT./SECOND	1.5 FT./SECOND	4.5 FT./SECOND	1.5 FT./SECOND	12 FT./SECOND	12 FT./SECOND
MAX. DITCH GRADE:	0% - 0.5%	1.5% - 3%	1.5% - 3%	1.5% - 2.0%	3% - 5%	3% - 5%
MAX. DRAINAGE AREA:	1 ACRE	2 ACRE	2 ACRE	4 ACRE	4+ ACRE	4+ ACRE

STANDARD SHEET NO.
5-297.405 (3 OF 4)

STANDARD APPROVED:
SEPTEMBER 27, 2006

S.A.P. 02-654-02

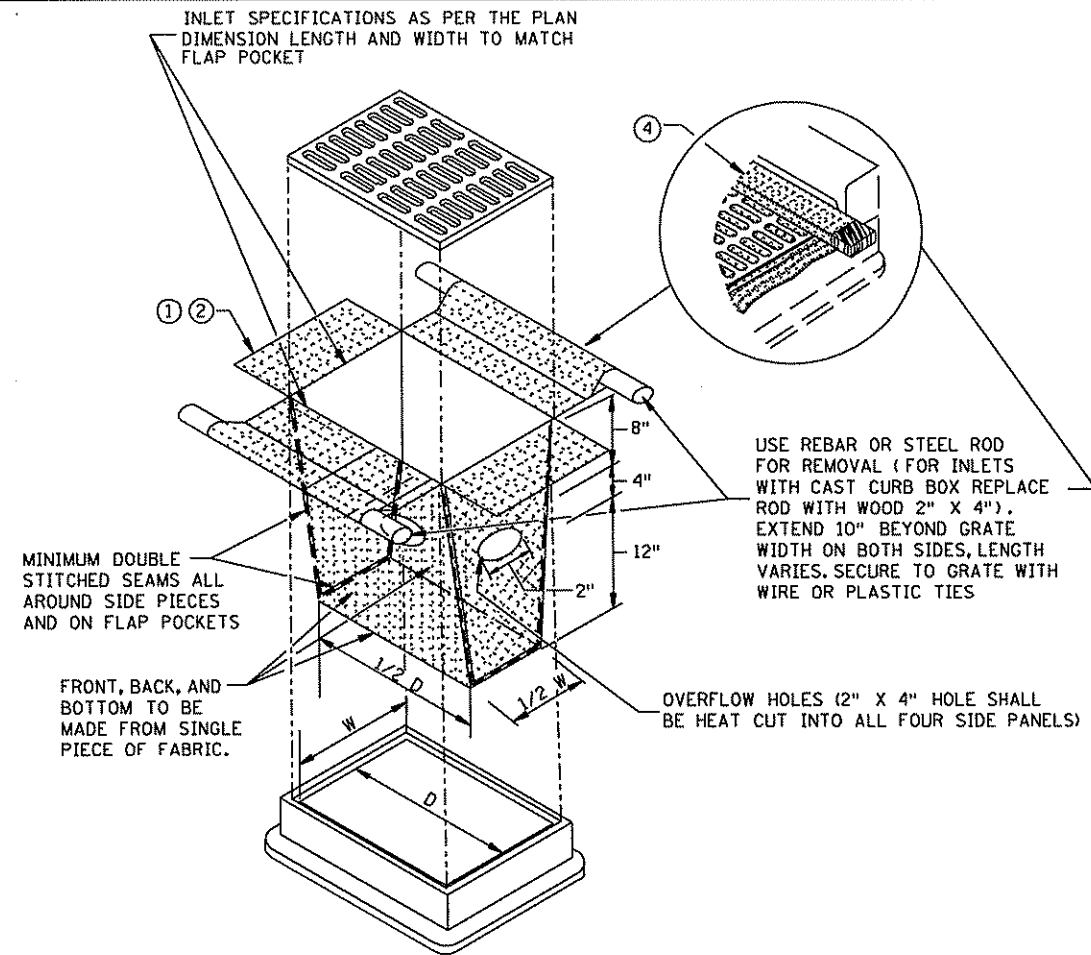
TEMPORARY SEDIMENT CONTROL
DITCH CHECK/BARRIER

SHEET NO. 29 OF 38 SHEETS

PLOTTED/REVISED:
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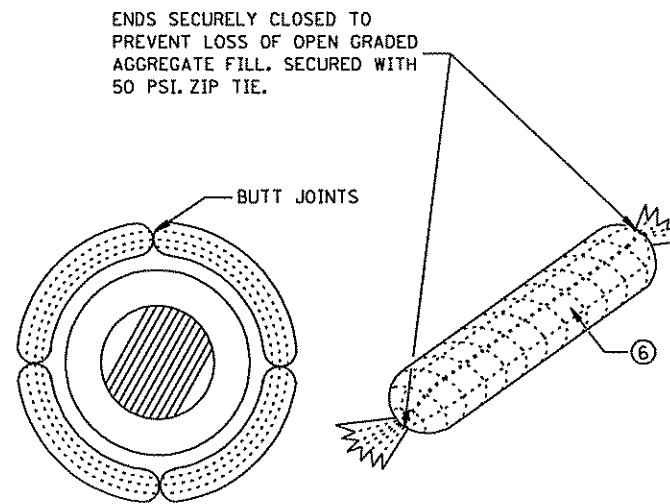
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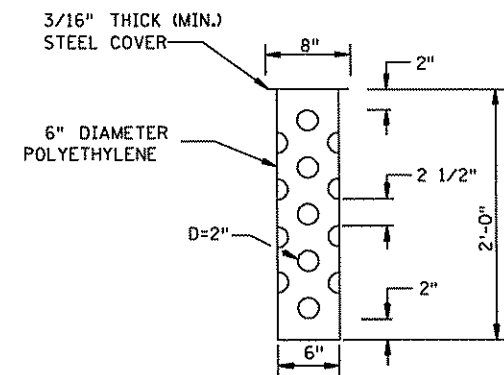


FILTER BAG INSERT ③

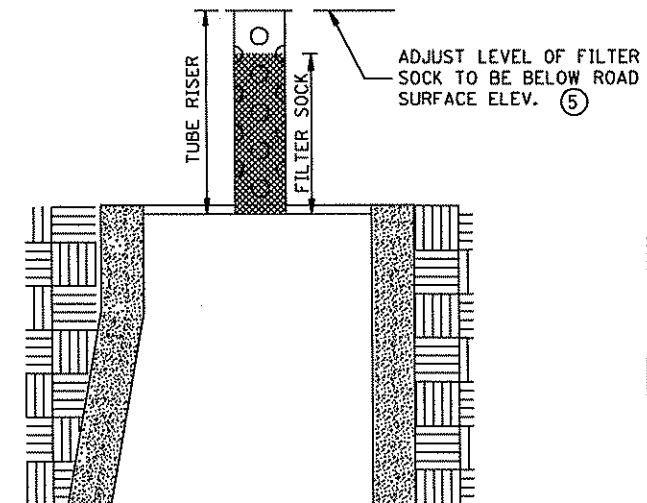
(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)



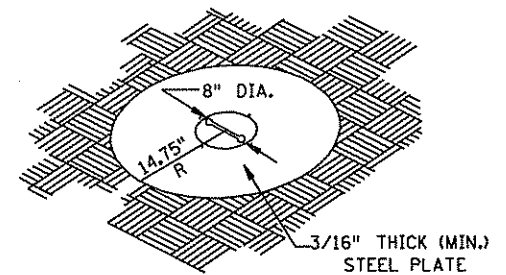
ROCK LOG/COMPOST LOG



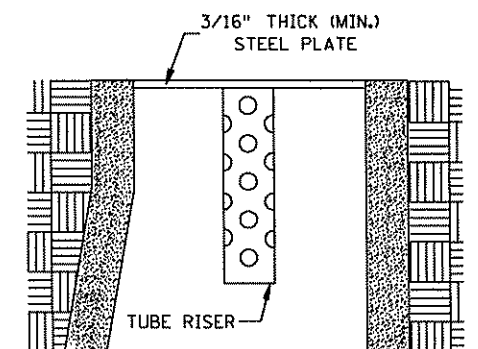
TUBE RISER



SECTION
(UP POSITION)

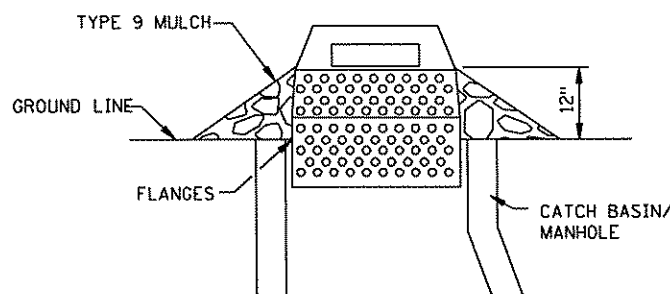


PERSPECTIVE VIEW



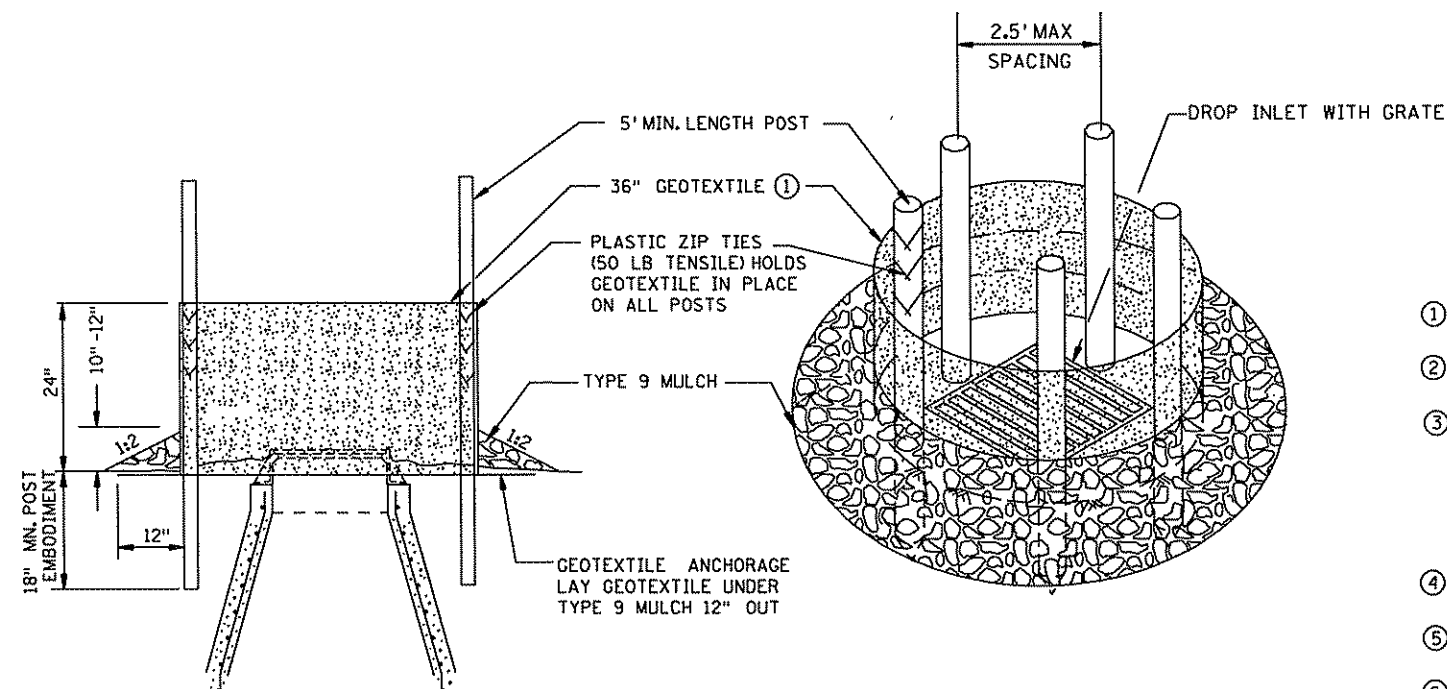
SECTION
(DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL
OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE
THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW
FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING,
FLANGES AND A LID/COVER.



SILT FENCE RING AND ROCK FILTER BERM
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

NOTES:

SEE SPECS. 2573, 3137, 3886 & 3891.

MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST
MAY BE SUBSTITUTED.

- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH
DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF
10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:
DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLower THAN 30 INCHES,
MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE
INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN
THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES.
WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES,
TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A
ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE
FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE
JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A
HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED
AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE
CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

STANDARD SHEET NO.
297.405 (4 OF 4)

STANDARD APPROVED:
SEPTEMBER 27, 2006

S.A.P. 02-654-02

TITLE:

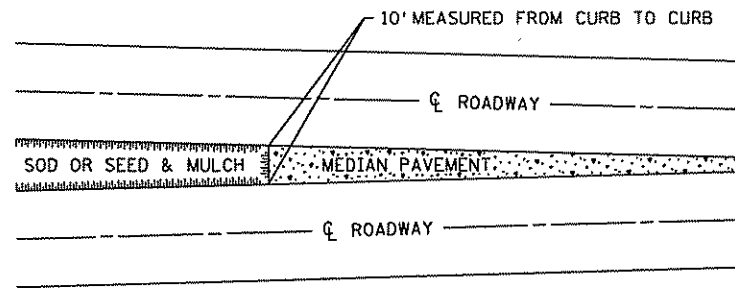
TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION

SHEET NO. 30 OF 38 SHEETS

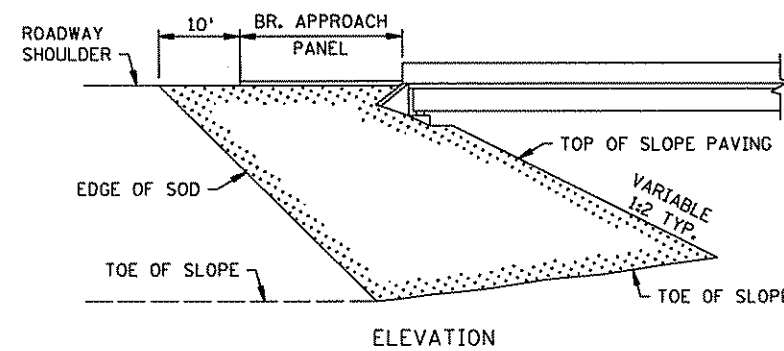
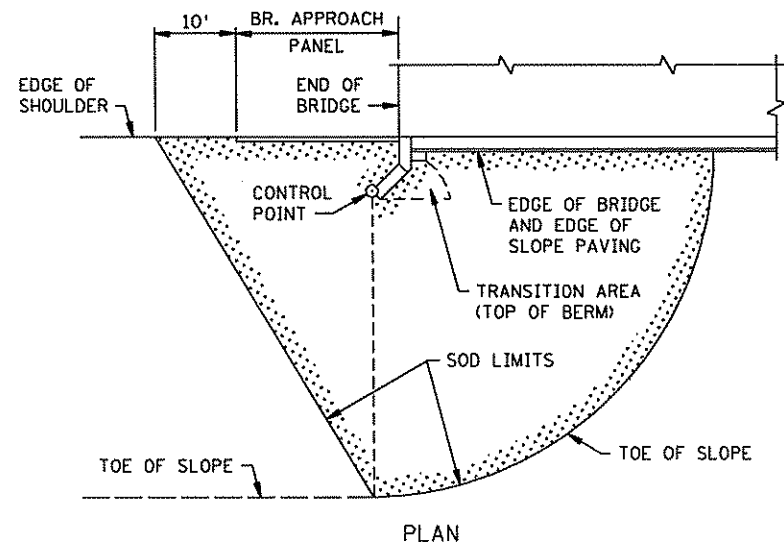
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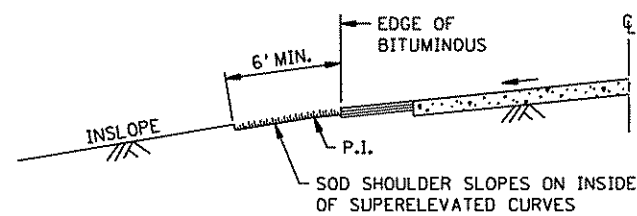
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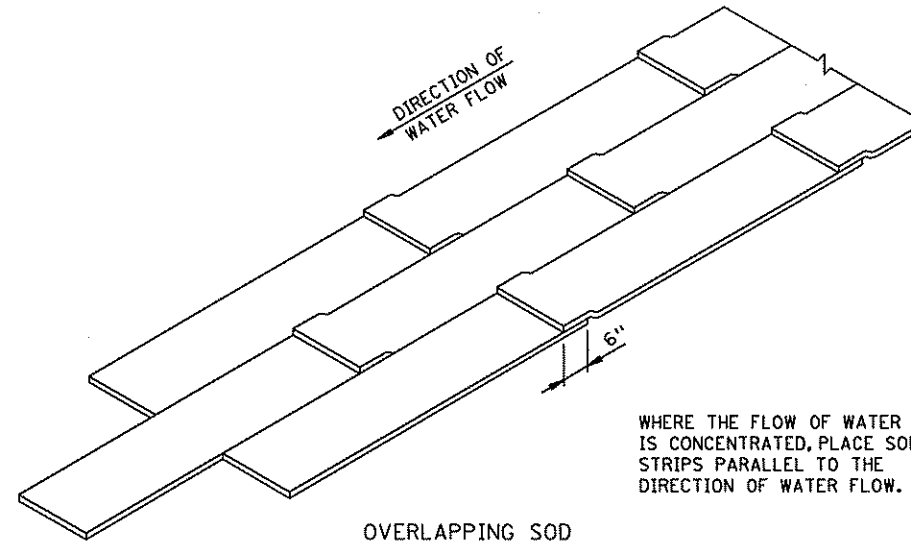
SODDING LIMITS AT GORE AREA



SODDING LIMITS AT BRIDGE APPROACH FILLS

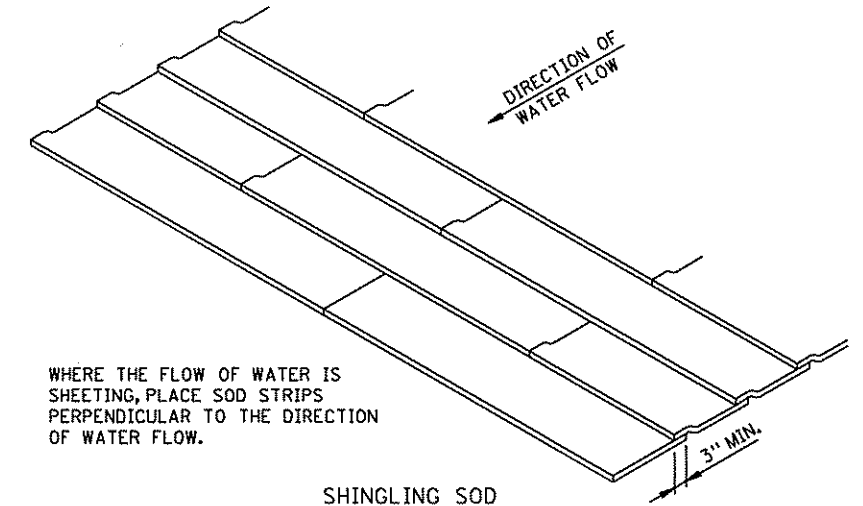


SODDING INSLOPES OF SUPERELEVATED CURVES



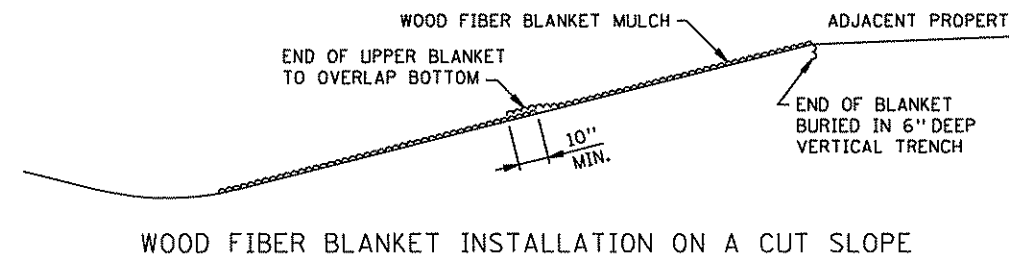
OVERLAPPING SOD

WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.

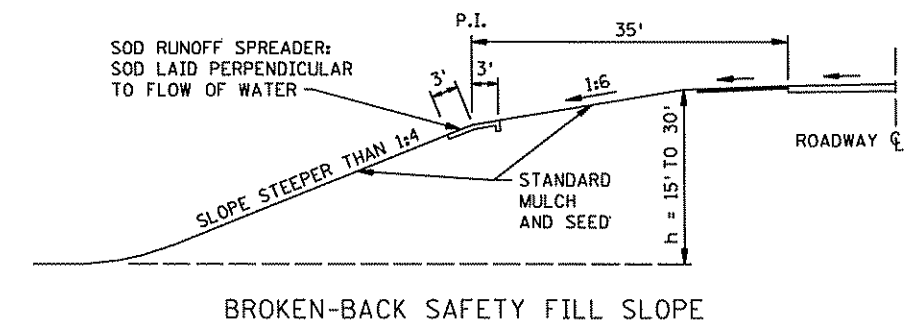


SHINGLING SOD

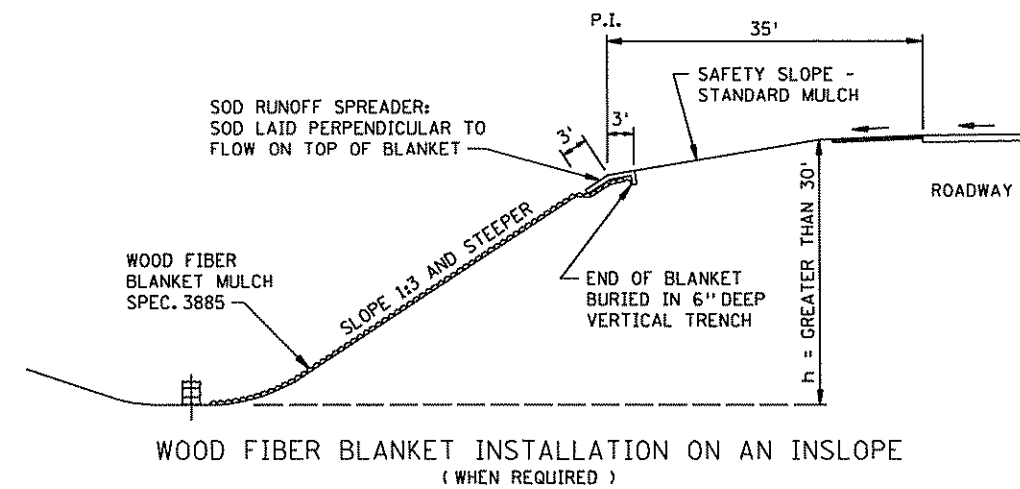
SPECIAL SOD PLACEMENT TECHNIQUES



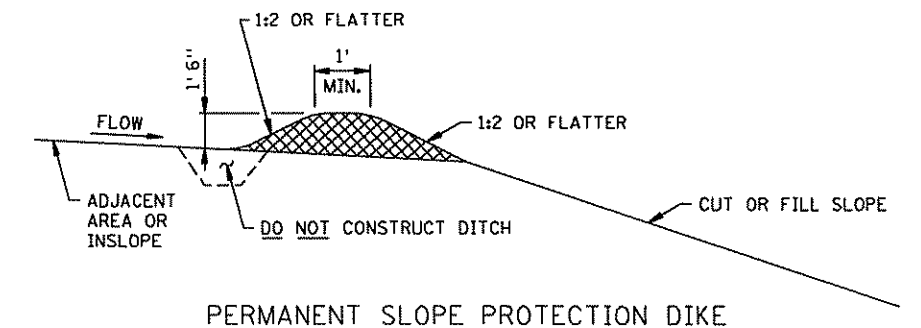
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



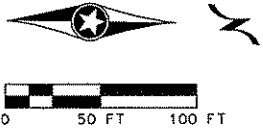
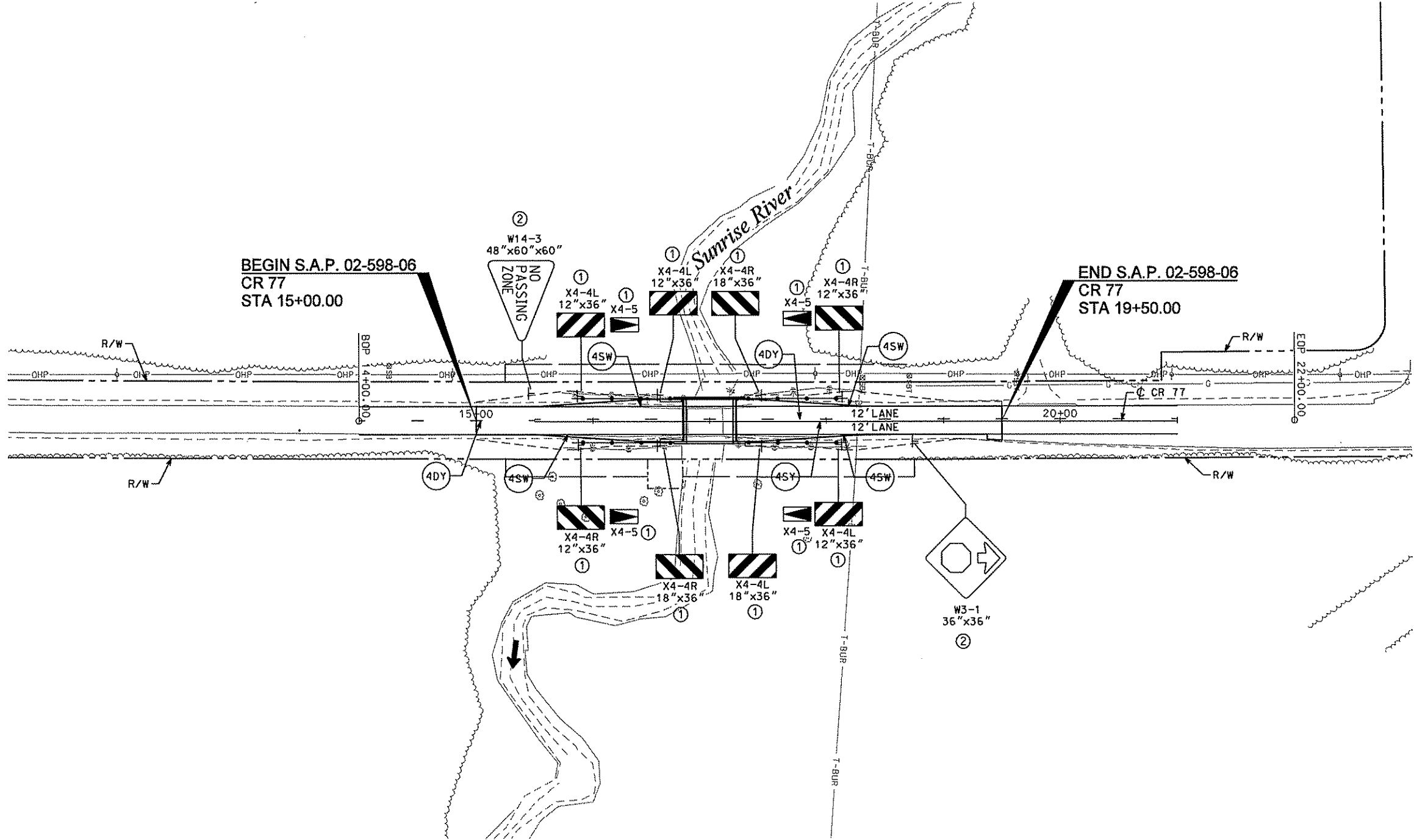
WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)



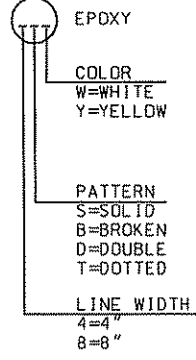
PERMANENT SLOPE PROTECTION DIKE

STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT CORE AREAS & BRIDGE APPROACH FILLS
STANDARD APPROVED: JANUARY 31, 1985	
REVISION DATE 10-26-2000	S.A.P. 02-654-02
	SHEET NO. 31 OF 38 SHEETS

County Road 77 (Lyons Street)



STRIPING KEY



LEGEND

- ① F&I MARKER
- ② F&I SIGN

Date Printed: 1/3/2011
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NO.	DATE	BY	CHK	REVISIONS

Design By: THG
Plan By: CWK
Checked By: DWS
Approved By: DWS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
CERTIFIED BY: *[Signature]*
LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNIA, PE
DATE: 01/03/11 L.I.C. NO: 19103

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsberg.com

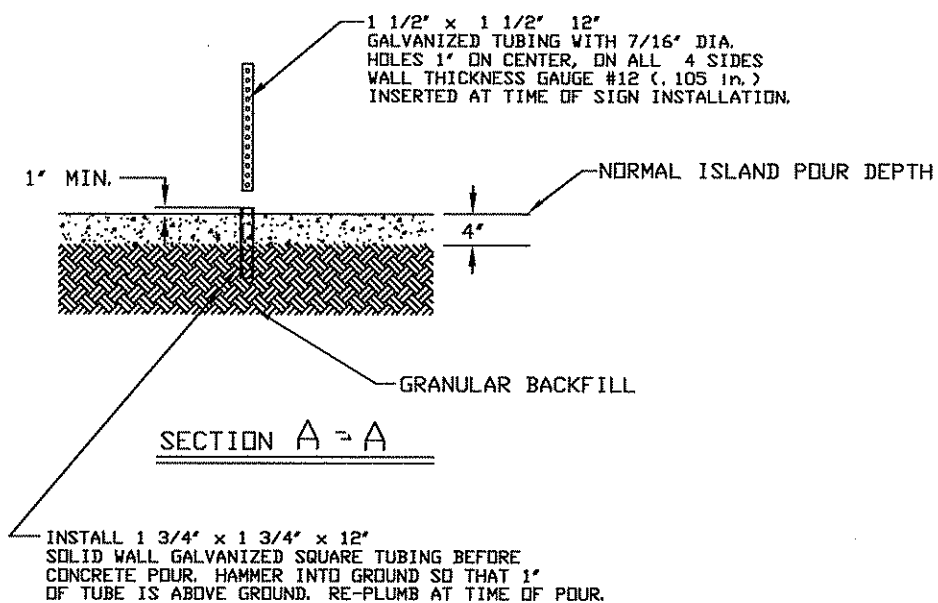
763-561-4030 Fax 763-561-1700
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CR 77 - Bridge Replacement
Anoka County, Minnesota

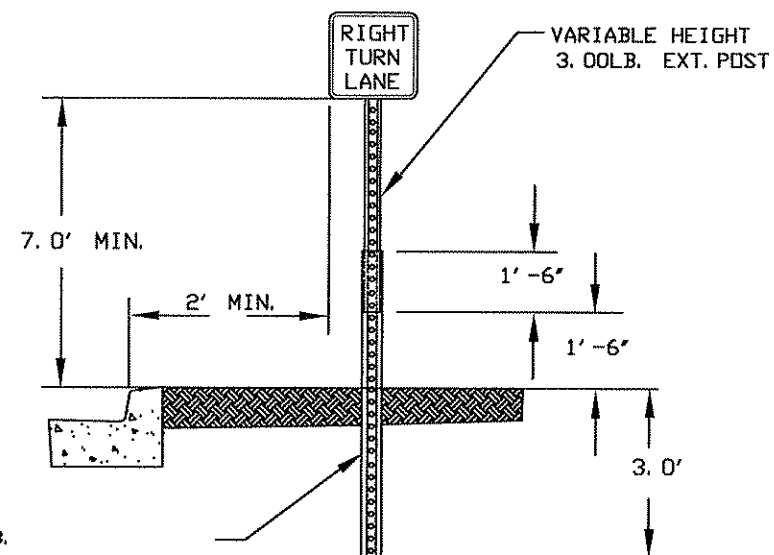
ANOKA COUNTY, MINNESOTA

SIGNING & STRIPING PLAN
S.A.P. 02-598-06

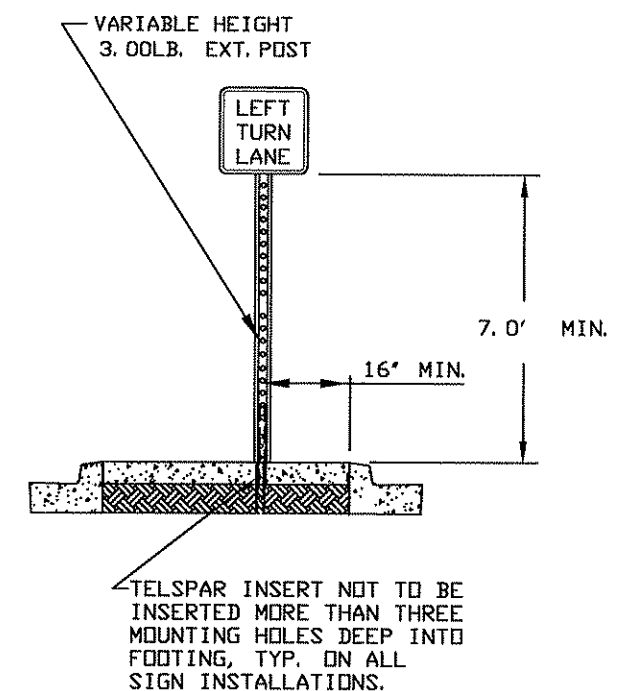
SHEET
32
OF
38
SHEETS



GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: _____

DATE: _____ REG. NO. 24756

DRAWN BY: ST DATE 09/21/10

DESIGN BY: ST DATE 09/21/10

CHECKED BY: RB DATE 09/27/10



ANOKA COUNTY
HIGHWAY DEPT.

STATE PROJECT NO. _____

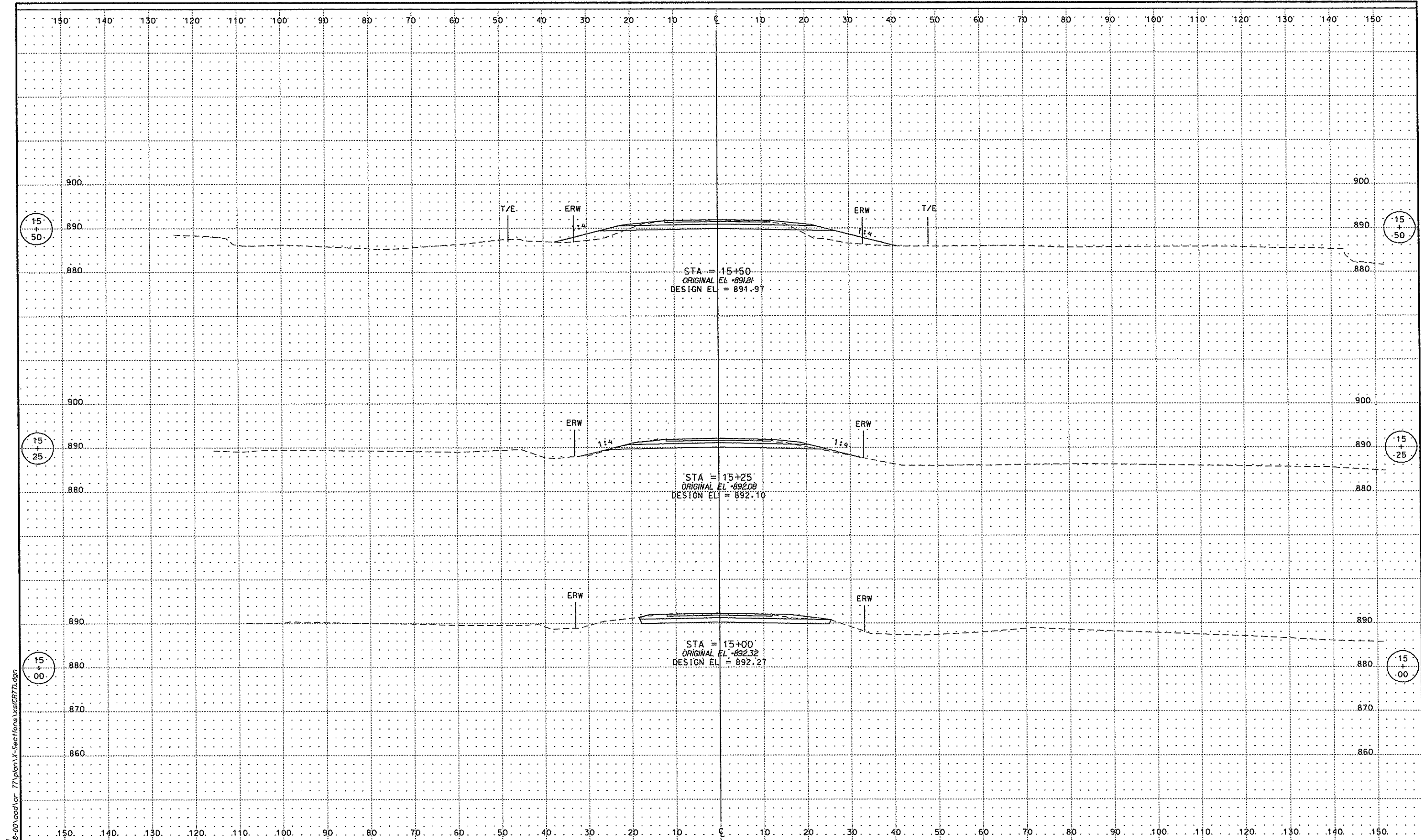
STATE AID PROJECT NO. 02-598-06

STATE AID PROJECT NO. _____

COUNTY PROJECT NO. _____

SIGNING/
STRIPING DETAILS

Sheet 33 of 38 Sheets

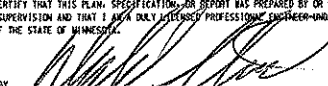


Date Printed: 1/3/2011
WSB Filename: K:\0898-00\cod\cr 77\plan\X-Sections\cr77.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: THG
Plan By: CWK
Checked By: DWS
Approved By: DWS

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

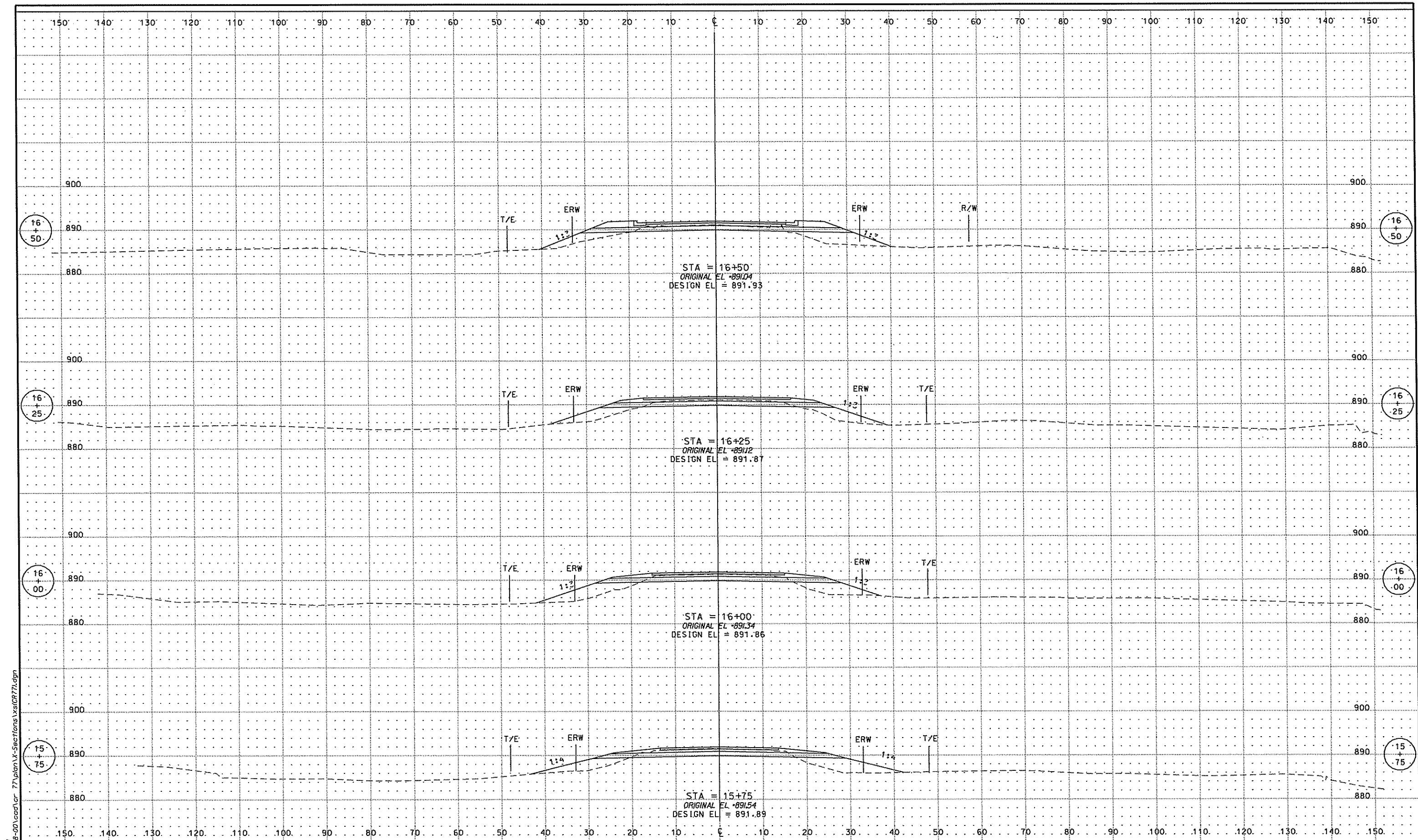
CERTIFIED BY: 
LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE
DATE: 01/03/11 L.I.C. NO: 19103


701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
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CR 77 - Bridge Replacement
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CR 77
CROSS SECTIONS
S.A.P. 02-598-06

SHEET
34
OF
38
SHEETS



Date Printed: 1/3/2011
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NO.	DATE	BY	CHK	REVISIONS

Design By: THG
Plan By: CWK
Checked By: DWS
Approved By: DWS

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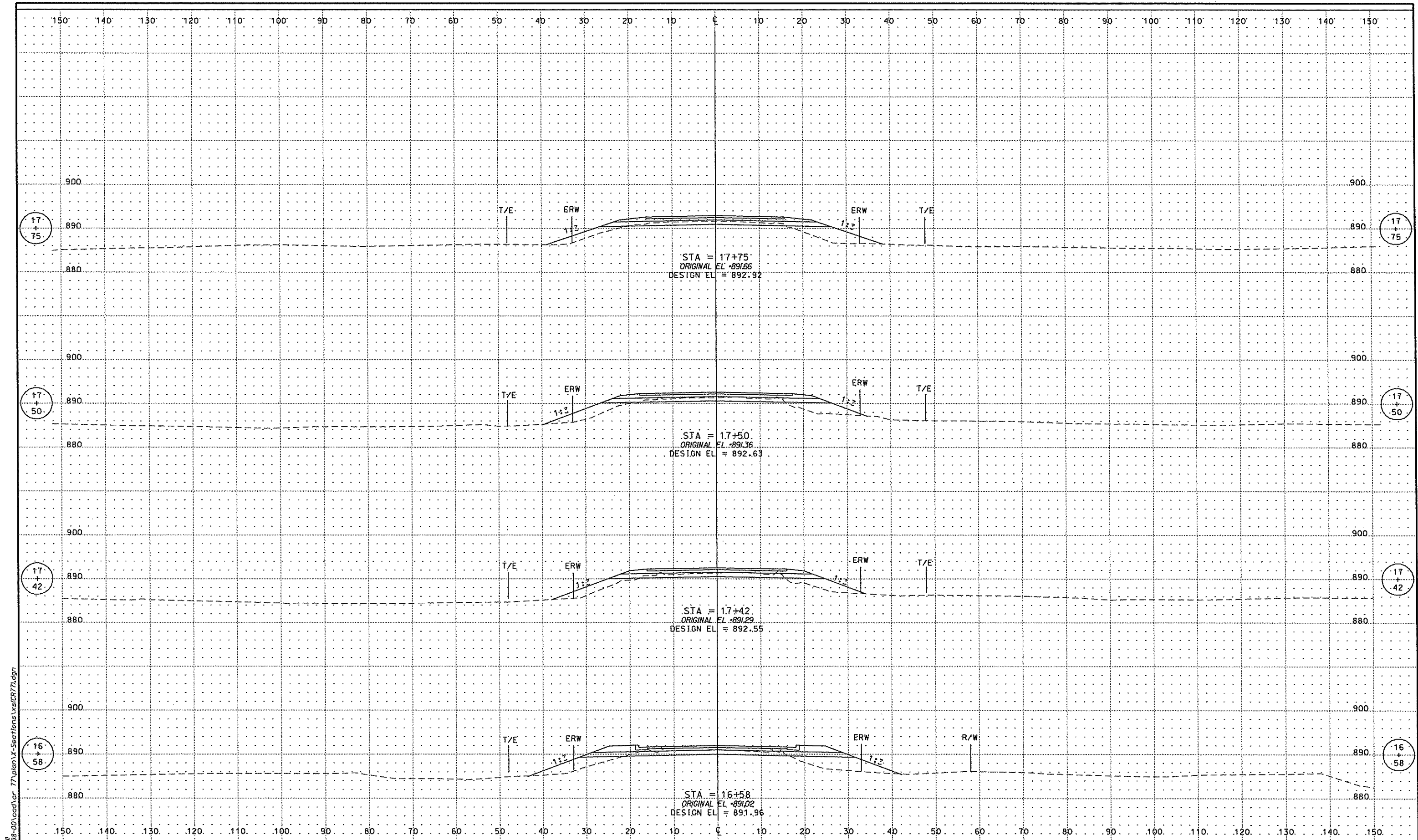
CERTIFIED BY: *[Signature]*
DONALD W. STERNA, P.E.
DATE: 01/03/11
LIC. NO.: 19103

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ANOKA COUNTY
CR 77 - Bridge Replacement
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CR 77
CROSS SECTIONS
S.A.P. 02-598-06

SHEET
35
OF
38
SHEETS



Date Printed: 1/3/2011
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NO.	DATE	BY	CHK	REVISIONS

Design By: THG
Plan By: CWK
Checked By: DWS
Approved By: DWS

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CERTIFIED BY:
LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE
DATE: 01/03/11
LIC. NO: 19103

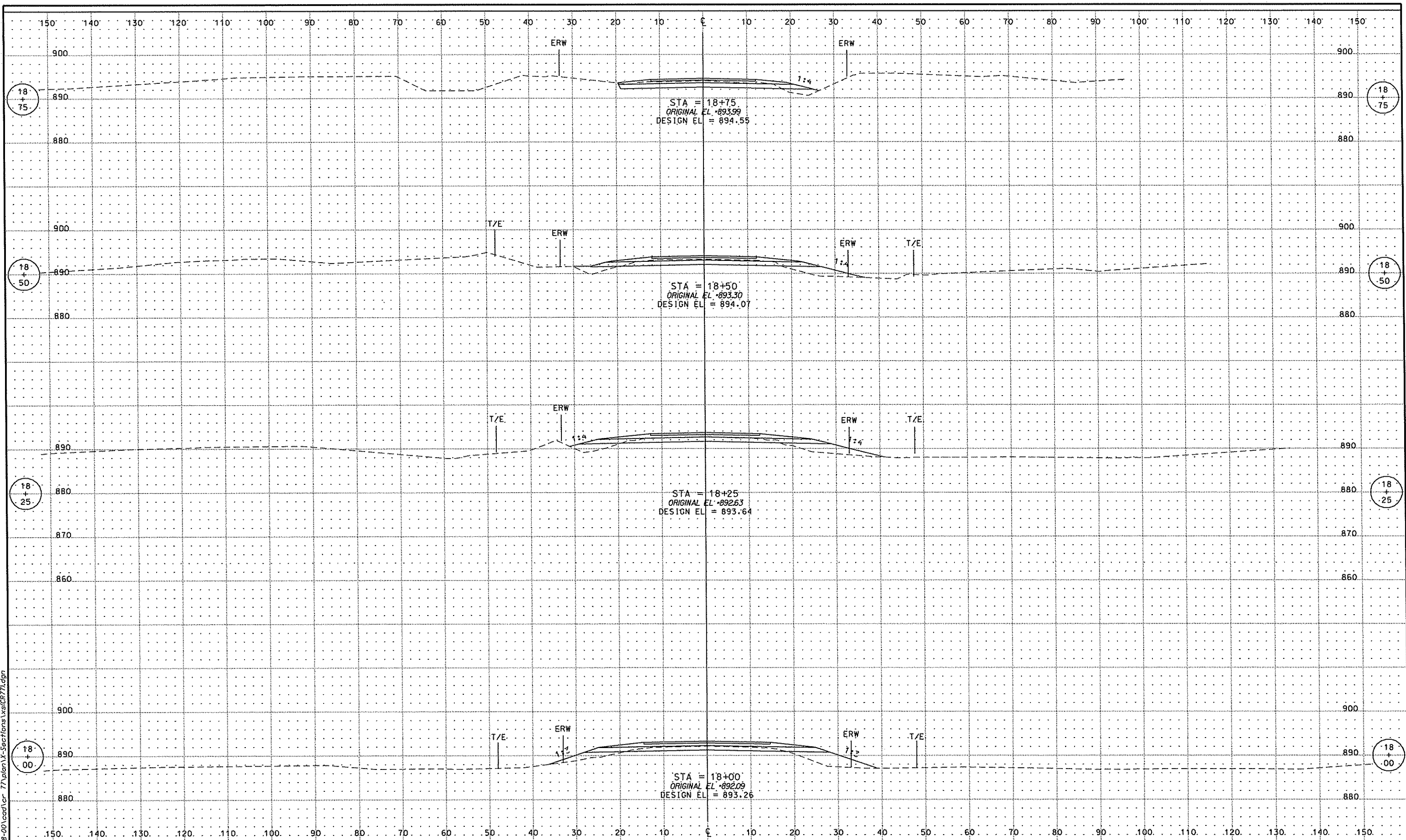
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ANOKA COUNTY
CR 77 - Bridge Replacement
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CR 77
CROSS SECTIONS
S.A.P. 02-598-06

SHEET
36
OF
38
SHEETS

Date Printed: 1/3/2011
WSB Filename: K:\0899-00\cadd\cr 77\plan\X-Sections\Xst(CR77).dgn



NO.	DATE	BY	CHK	REVISIONS

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Plan By: CWK
Checked By: DWS
Approved By: DWS

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CERTIFIED BY: *[Signature]*
LICENSED PROFESSIONAL ENGINEER - DONALD W. STERNA, PE
DATE: 01/03/11 L.I.C. NO: 19103

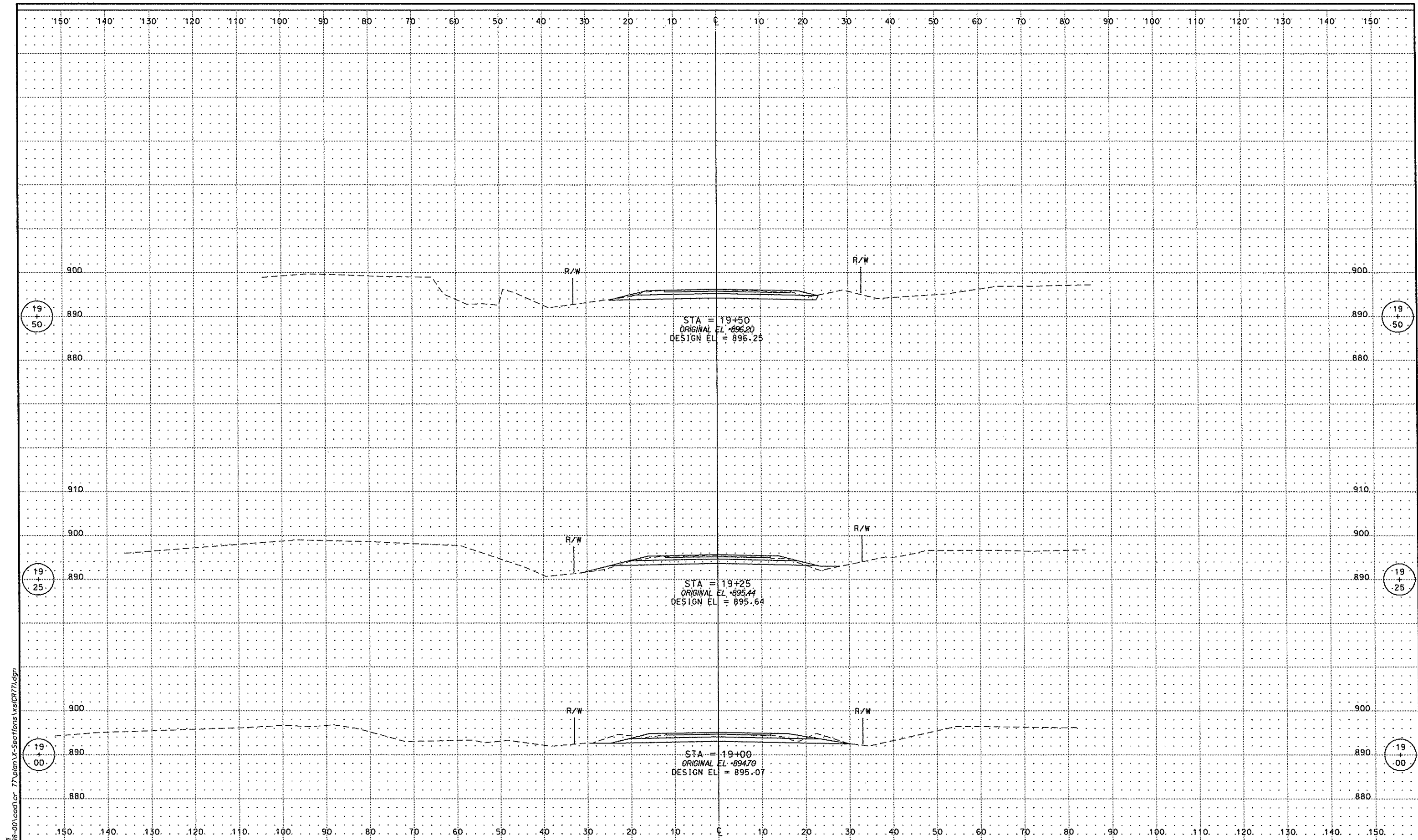
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CR 77 - Bridge Replacement
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CR 77
CROSS SECTIONS
S.A.P. 02-598-06

SHEET
37
OF
38
SHEETS



Date Printed: 1/3/2011
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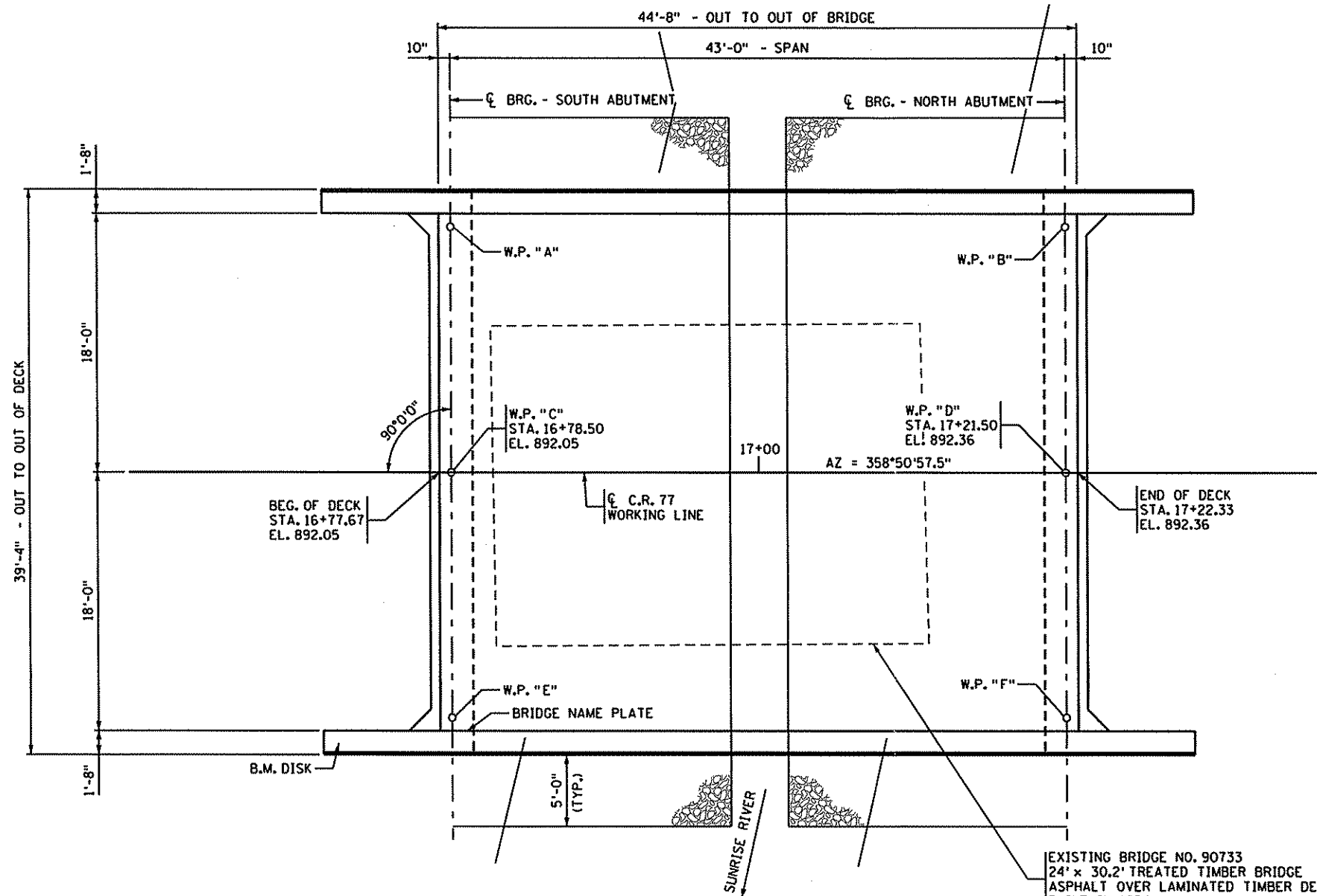
CERTIFIED BY: *[Signature]*
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DATE: 01/03/11 L.I.C. NO: 19103

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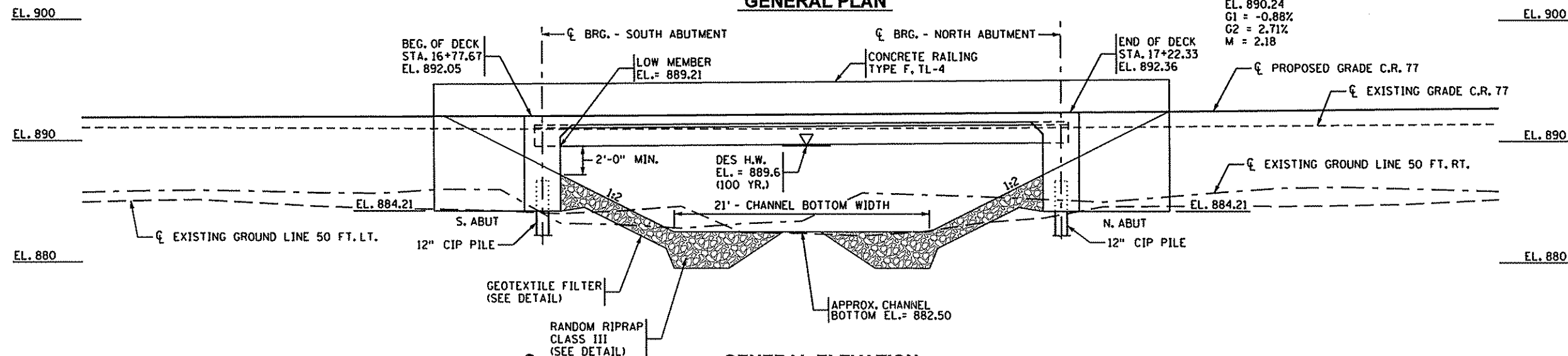
ANOKA COUNTY
CR 77 - Bridge Replacement
Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA
CR 77
CROSS SECTIONS
S.A.P. 02-598-06

SHEET
38
OF
38
SHEETS



GENERAL PLAN



GENERAL ELEVATION

C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE:
GENERAL PLAN
AND ELEVATION

DESIGN DATA

2010 AND CURRENT INTERIM AASHTO LRFD
BRIDGE DESIGN SPECIFICATIONS
DESIGN LOADING HL93 LIVE LOAD
LOAD AND RESISTANCE FACTOR DESIGN METHOD
DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR
FUTURE WEARING COURSE MODIFICATIONS.
MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 ksi n = 8
f'y = 60 ksi REINFORCEMENT
PRESTRESSED CONCRETE:
f'c = 9 ksi n = 1
fpu = 270 ksi STRANDS LOW RELAX
0.75fpu FOR INITIAL PULL
STRUCTURAL STEEL:
fy = 36 ksi
STRUCTURAL STEEL
MNDOT 3306
DESIGN SPEED 55 MPH
APPROXIMATE DECK AREA: 1757 SF
OPERATING RATING HS 2.17 (LRFD)
CURRENT ADT FOR 2010 = 400

LIST OF SHEETS

NO.	DESCRIPTION
1	GENERAL PLAN AND ELEVATION
2	TRANSVERSE SECTION & QUANTITIES
3	BRIDGE LAYOUT
4-5	SOUTH ABUTMENT DETAILS
6-8	SOUTH ABUTMENT REINFORCEMENT
9-10	NORTH ABUTMENT DETAILS
11-13	NORTH ABUTMENT REINFORCEMENT
14	FRAMING PLAN
15	PRESTRESSED BEAM DETAILS
16-18	SUPERSTRUCTURE DETAILS & REINF.
19	TYPE F CONCRETE RAILING DETAILS
20	RIPRAP SLOPE WITH GEOTEXTILE FILTER
21-22	BRIDGE DETAILS
23	AS-BUILT BRIDGE DATA
24	BRIDGE SURVEY
25	BRIDGE SURVEY - PLAN & PROFILE

BENCH MARK EL. 893.258
LOCATION: EAST 1/4 CORNER SECTION 36
TOWNSHIP 34 N RANGE 22W 332 FEET ±
SOUTH OF BRIDGE NO. 90733
VERTICAL DATUM IS NAVD 88

APPROVED: *[Signature]*
ANOKA COUNTY ENGINEER

DATE: 4/26/11

701 Xenia Avenue
Suite 300
Minneapolis, MN 55416
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FAX 763-541-1700
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MINNESOTA DEPARTMENT OF TRANSPORTATION

Bridge No. 02582

PROPOSED BRIDGE LOCATED ON C.R. 77
1/4 MILE SOUTH OF JCT. C.S.A.H. 36
AND C.R. 77 OVER THE SUNRISE RIVER

43'-0" PRESTR. BEAM SPANS
36'-0" CLEAR ROADWAY

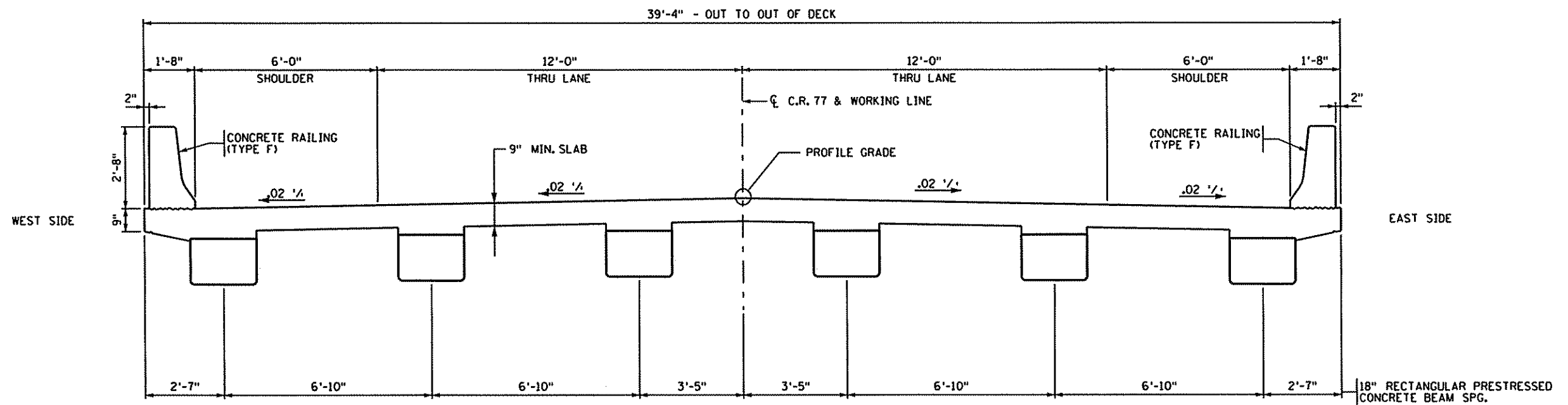
SPAN IDENTIFICATION NO. 501

SEC. 36 TWP. 34 N R. 22 W
LINWOOD TOWNSHIP ANOKA COUNTY

ACCEPTED: *[Signature]* 5/16/11
FOR STATE BRIDGE ENGINEER DATE

DES: JDA DR: BJR
CHK: BRL CHK: JDA
02582

Sheet B1 of B25 Sheets



TRANSVERSE SECTION THRU DECK

[illegible]

① NON-PARTICIPATING FUNDS, STATION 17+00

CONSTRUCTION NOTES

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT
OF TRANSPORTATION "STANDARD SPECIFICATIONS
FOR CONSTRUCTION" SHALL GOVERN.

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE, WHICH APPROXIMATES THE NOMINAL DIAMETER OF THE BAR IN MILLIMETERS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED.

BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPERSTRUCTURE BEAMS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR & PLACING ANCHOR RODS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C1/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

THE PILE LOADS SHOWN IN THE PLAN AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (IN) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.

CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM OVERTURNING (NO PERMANENT BEAM DIAPHRAGMS ARE PRESENT). CONTRACTOR SHALL PROVIDE TEMPORARY BRACING.

[illegible]

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DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

[Signature]

LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER

DATE: 1/3/2011 REG NO: 45501



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Suite 300
Minneapolis, MN 55416
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FAX 763-541-1700
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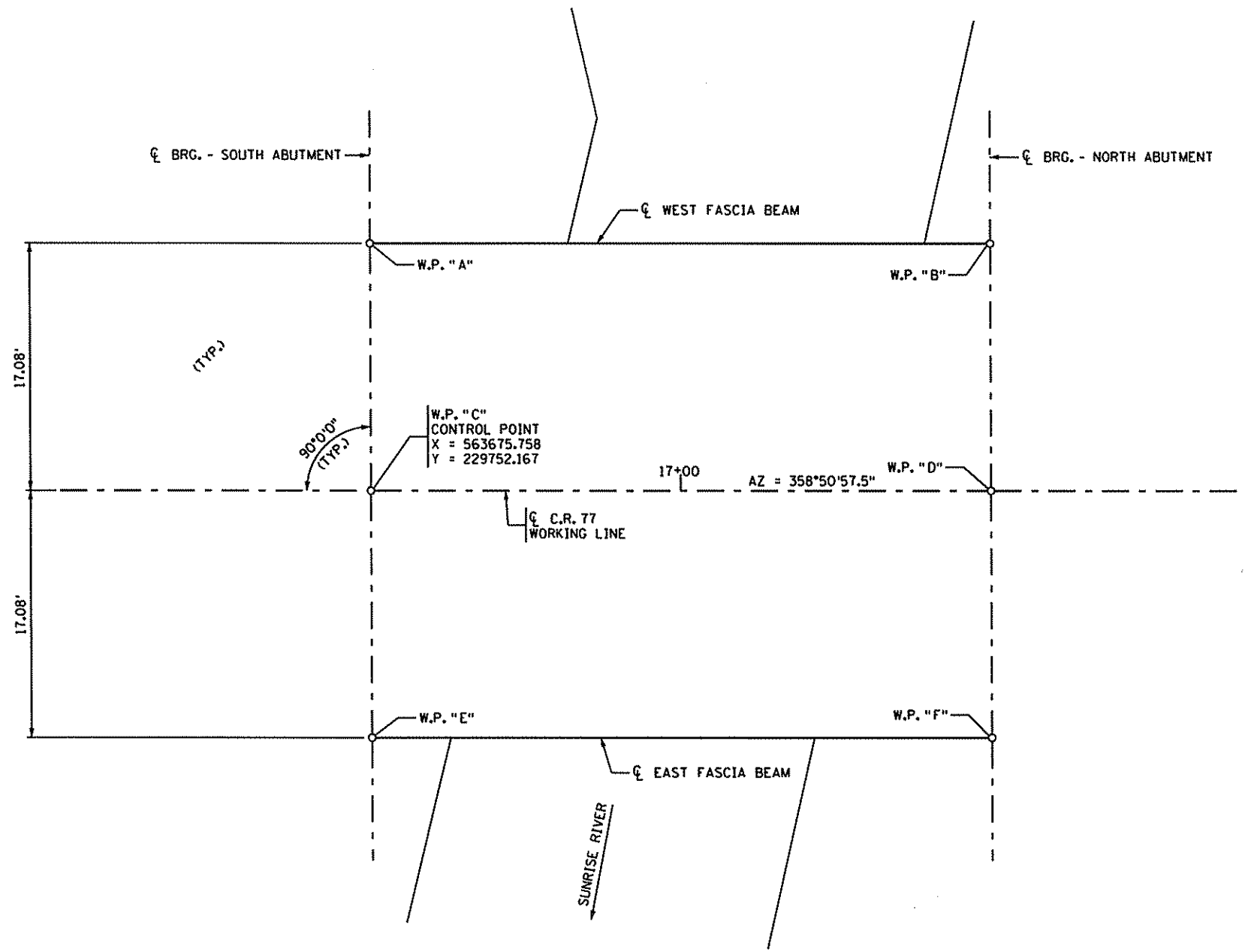
C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE: **TRANSVERSE SECTION
AND QUANTITIES**

DES: JDA	DR: BJR	
CHK: BRL	CHK: JDA	

Sheet B2 of B25 Sheets

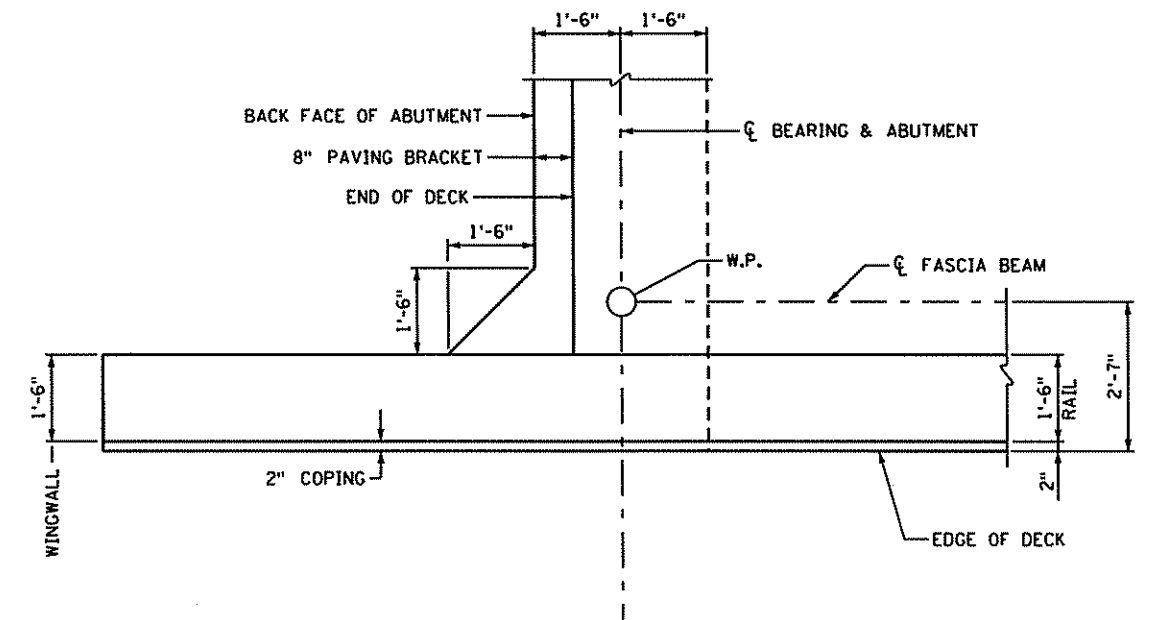
Bridge No.
02582



WORKING POINT LAYOUT

TOP OF ROADWAY TO BRIDGE SEAT					
	SLAB THICKNESS	STOOL HEIGHT	BEAM HEIGHT	BEARING HEIGHT	TOTAL
SOUTH ABUT.	9"	3"	18"	1/2"	2.54'
NORTH ABUT.	9"	3"	18"	1/2"	2.54'

DIMENSIONS BETWEEN WORKING POINTS										ELEVATIONS			
POINT	STATION	X-COORD	Y-COORD	A	B	C	D	E	F	TOP OF DECK	TOP OF DECK TO BRIDGE SEAT	BRIDGE SEAT	POINT
A	16+78.50	563658.678	229751.823		43.00	17.08	46.27		54.92	891.71	2.54	889.17	A
B	17+21.50	563657.814	229794.815			46.27	17.08	54.92		892.02	2.54	889.48	B
C	16+78.50	563675.758	229752.167				43.00	17.08	46.27	892.05	-	-	C
D	17+21.50	563674.894	229795.158					46.27	17.08	892.36	-	-	D
E	16+78.50	563692.838	229752.510						43.00	891.71	2.54	889.17	E
F	17+21.50	563691.974	229795.501							892.02	2.54	889.48	F



TYPICAL CORNER DETAIL

NO	DATE	BY	CHK	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN 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.

James Archer
LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



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Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700
INFRASTRUCTURE - ENGINEERS - PLANNERS

C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE:

BRIDGE LAYOUT

DES:	JDA	DR:	BJR
CHK:	BRL	CHK:	JDA

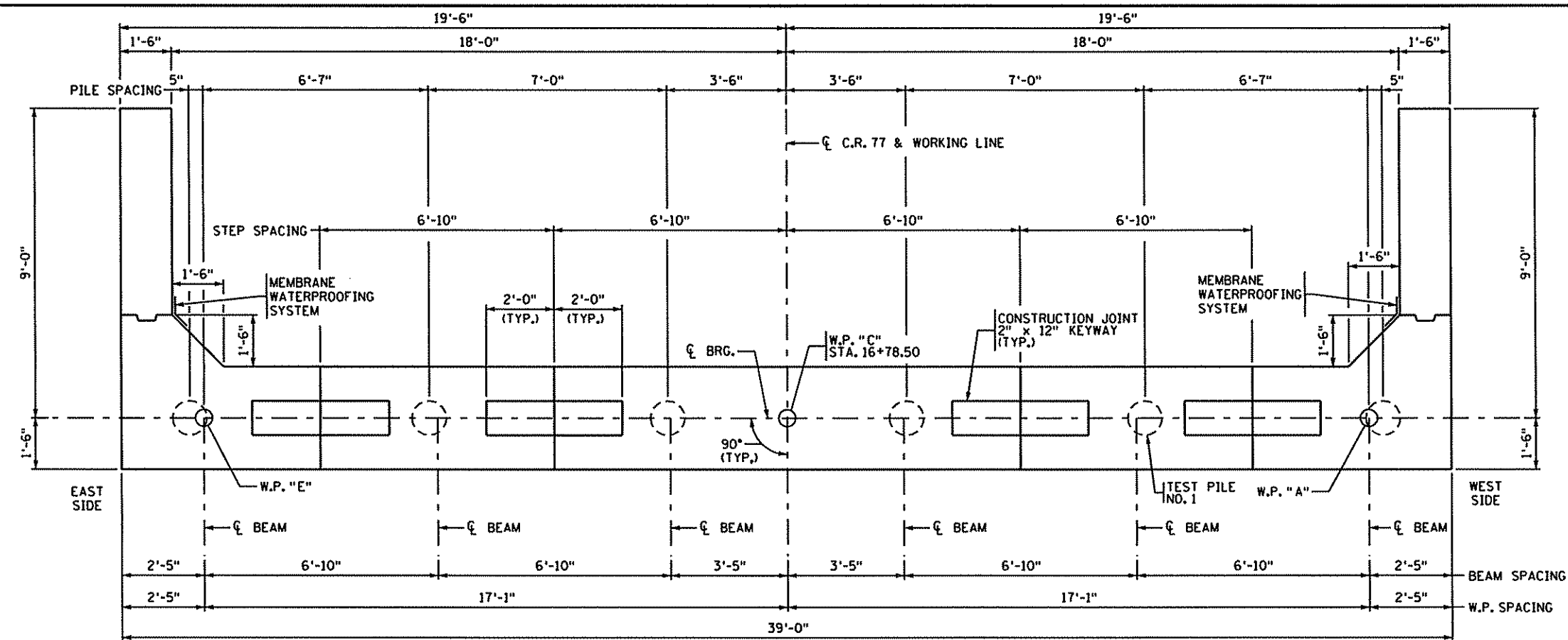
Sheet B3 of B25 Sheets

Bridge No.
02582

SUMMARY OF QUANTITIES - SOUTH ABUTMENT

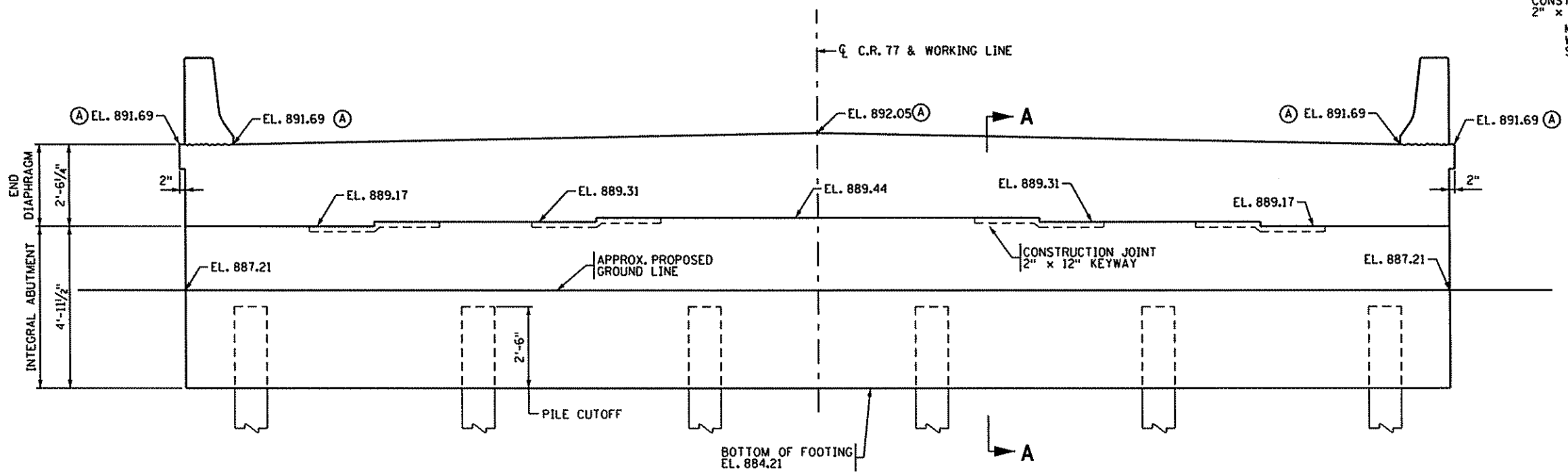
STRUCTURAL CONCRETE (3Y43)	29	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	2680	POUND
12" CIP PILING DELIVERED	275	LIN. FT.
12" CIP PILING DRIVEN	275	LIN. FT.
12" CIP TEST PILES 60 FT. LONG	1	EACH
MEMBRANE WATERPROOFING SYSTEM	50	LIN. FT.
STRUCTURE EXCAVATION	1	LUMP SUM
RANDOM RIPRAP CLASS III	70	CU. YD.
GEOTEXTILE FILTER TYPE IV (MODIFIED)	117	SQ. YD.
SLOPE PREPARATION	1	LUMP SUM

- ① DOES NOT INCLUDE TEST PILES.
② TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

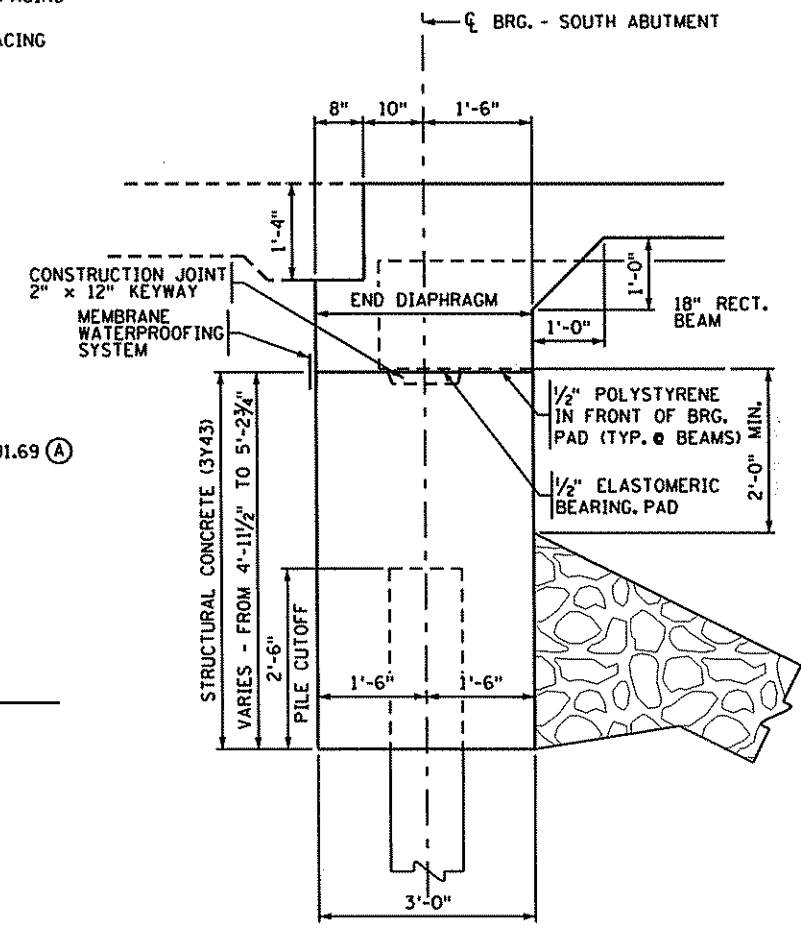


PLAN VIEW

Ⓐ ELEVATIONS ARE ALONG Ⓢ BEARING.



GENERAL ELEVATION



SECTION A-A

1/4/2011 11:24:40 AM
K:\0898-00\cad\plan\br-02582-CBR02582_SAB.TL.dgn

NO	DATE	BY	CHK	REVISIONS

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LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501

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FAX 763-541-4700

**C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06**

TITLE:
**SOUTH ABUTMENT
DETAILS**

DES: JDA DR: BJR
CHK: BRL CHK: JDA

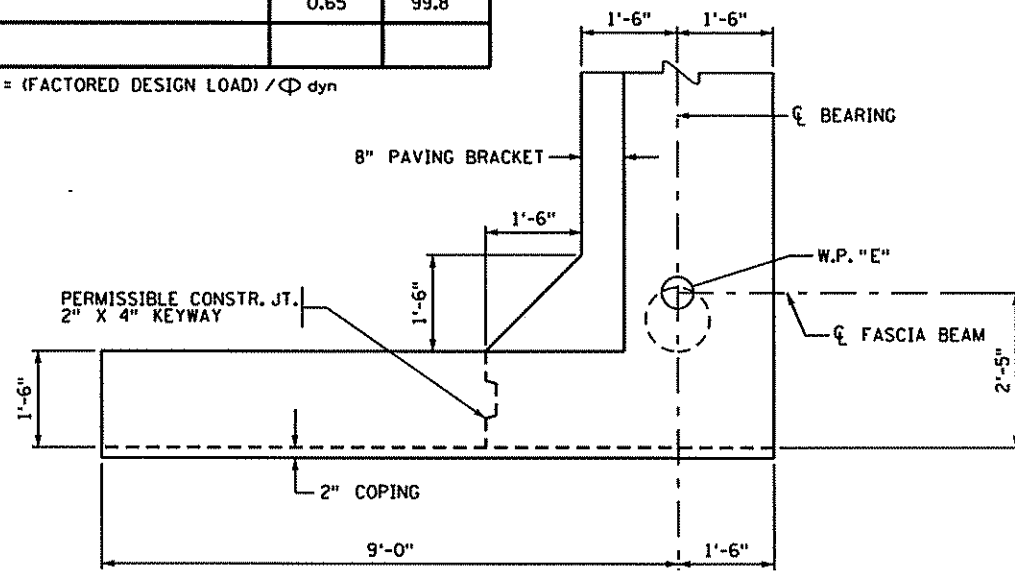
Bridge No.
02582

Sheet **B4** of B25 Sheets

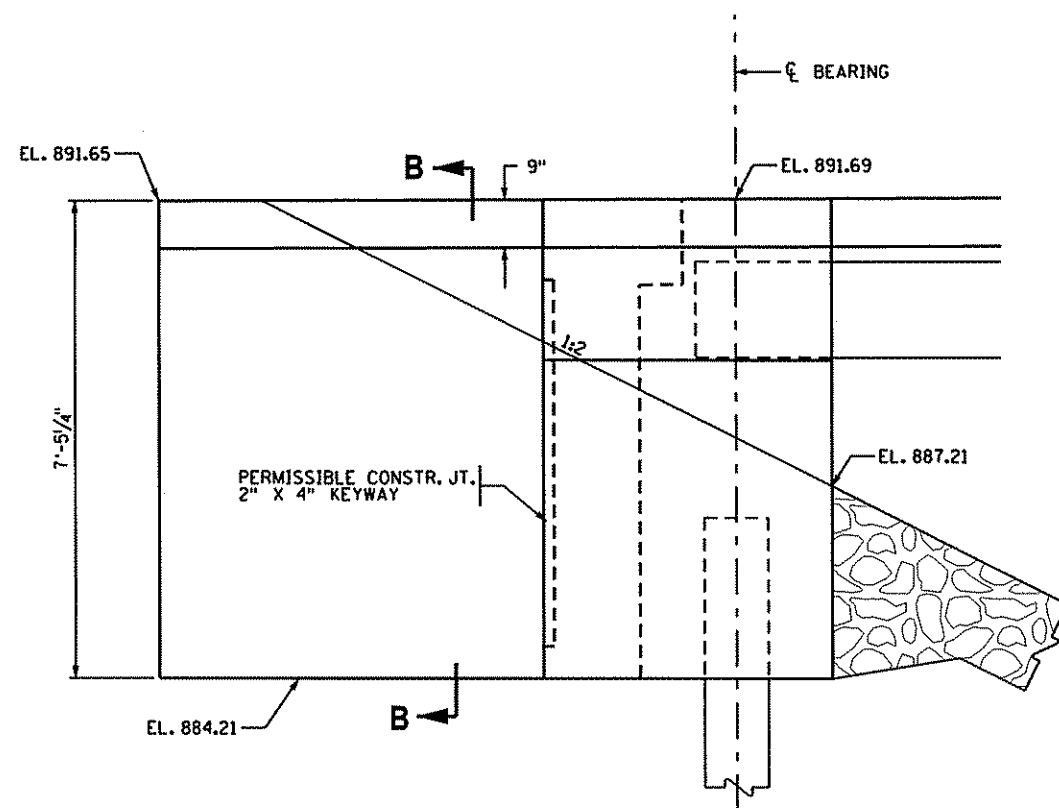
SOUTH ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE R_n - TONS/PILE

FIELD CONTROL METHOD	ϕ_{dyn}	$\bullet R_n$
MN/DOT NOMINAL RESISTANCE FORMULA	0.40	162.1
PDA	0.65	99.8

$$\bullet R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$$



S.E. WINGWALL PLAN

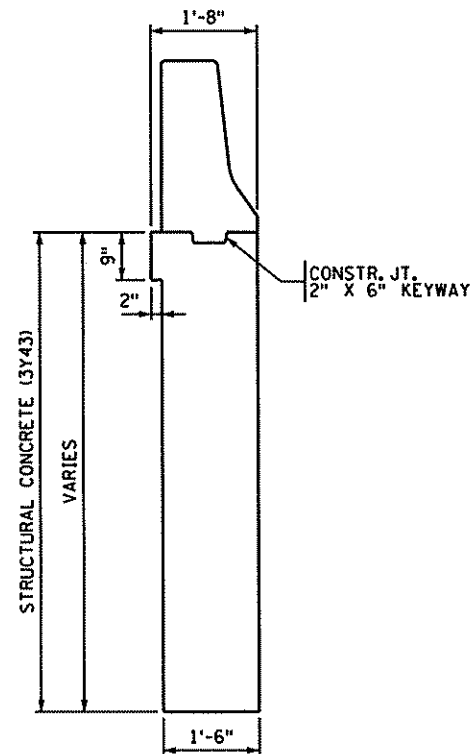


S.E. WINGWALL ELEVATION

PILE NOTES

- 1 12" CIP TEST PILES 60 FT. LONG
- 5 12" CIP PILES EST. LENGTH 55 FT.
- 6 12" CIP PILES REQ'D FOR SOUTH ABUTMENT

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES TO BE 12" CIP
FOR PILE SPLICE DETAILS SEE DETAIL B202.
PILE CUTOFF IS EL. 886.71

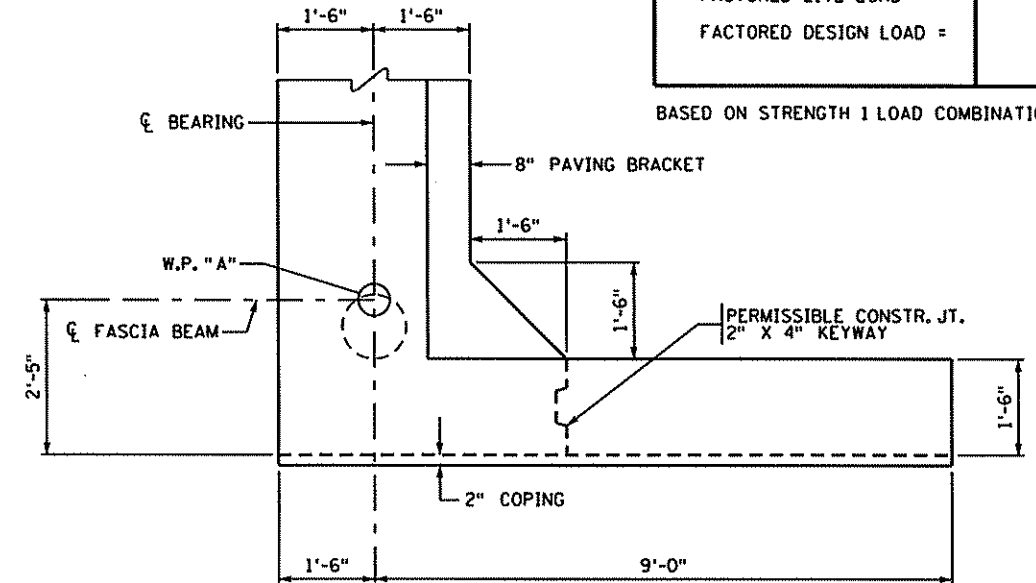


SECTION B-B

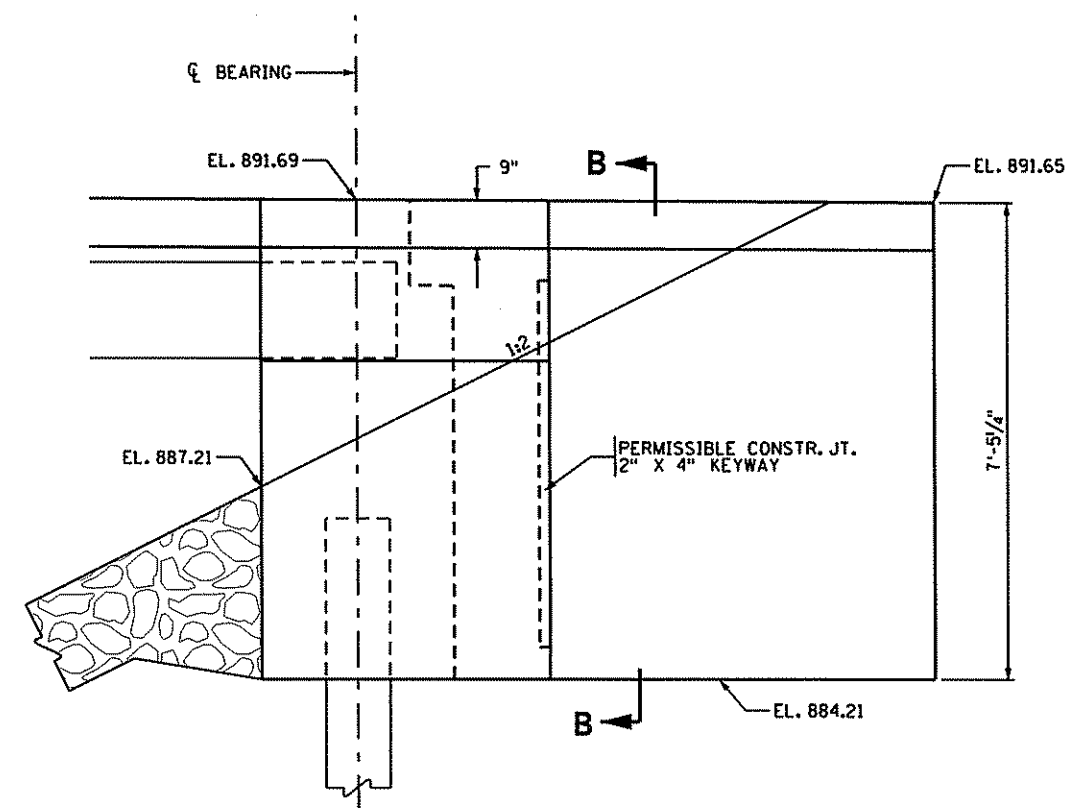
SOUTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE

	SOUTH ABUT.
FACTORED DEAD LOAD + EARTH PRESSURE	38.3
FACTORED LIVE LOAD	26.5
FACTORED DESIGN LOAD =	64.8

BASED ON STRENGTH I LOAD COMBINATION.



S.W. WINGWALL PLAN



S.W. WINGWALL ELEVATION

NO	DATE	BY	CHK	REVISIONS
1	1/3/2011	JAMES ARCHER		

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LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



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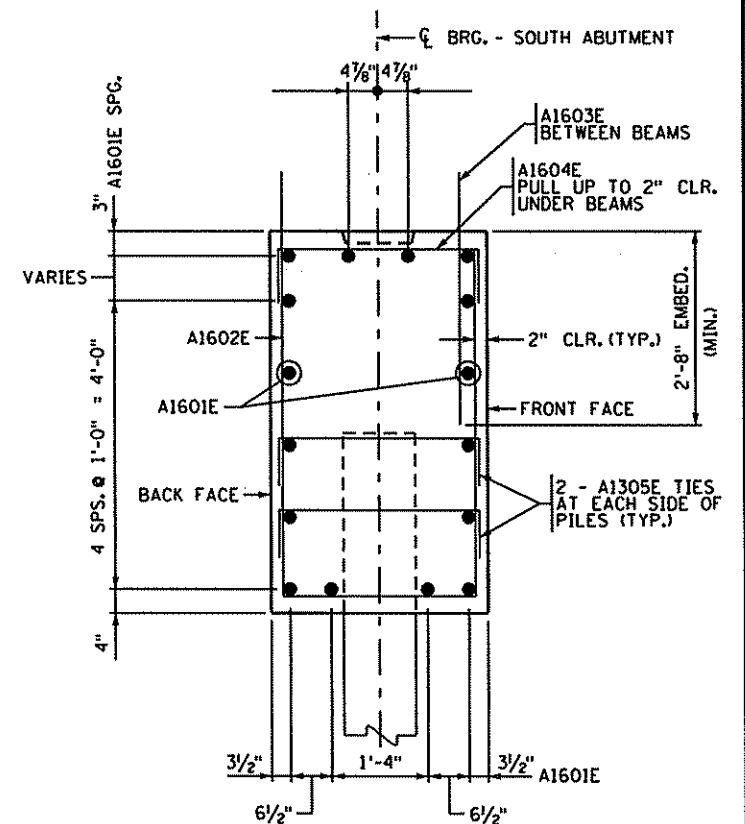
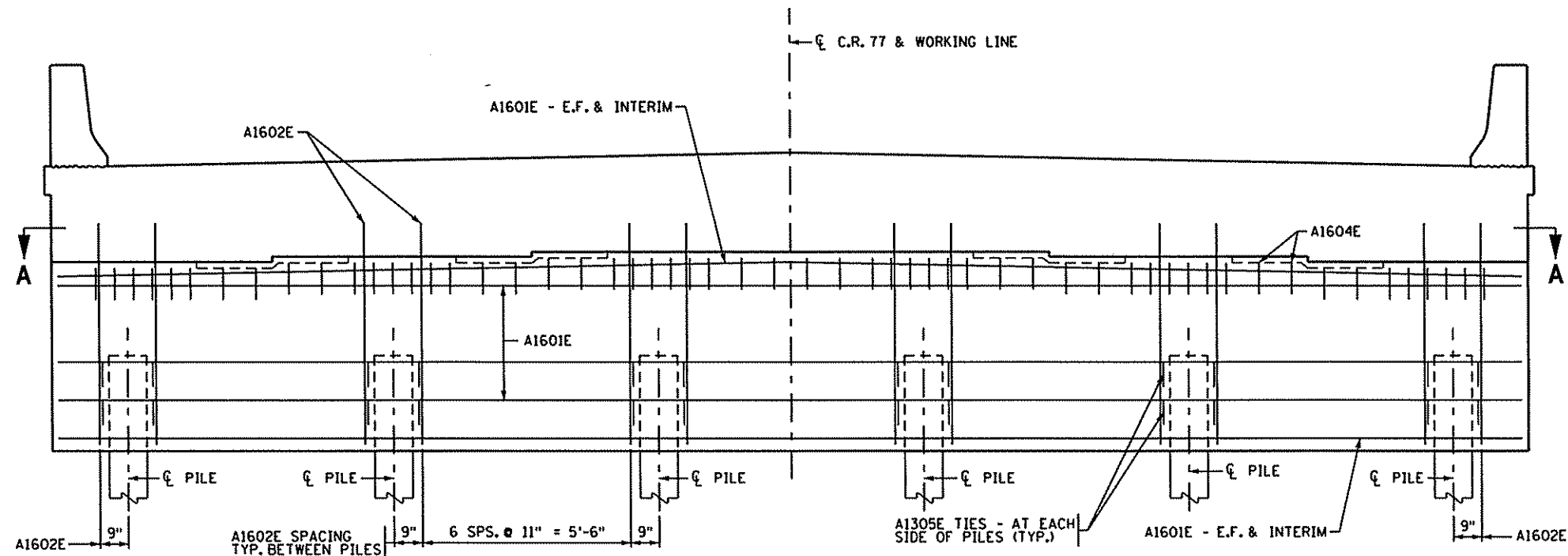
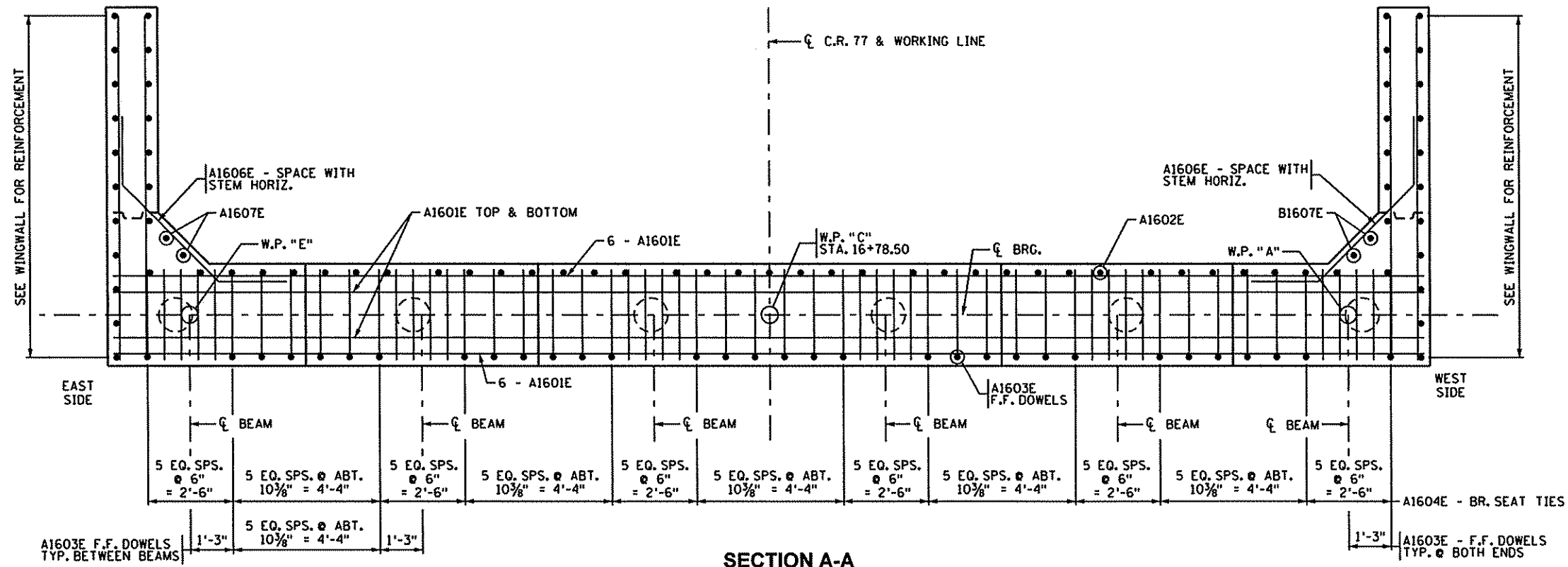
**C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06**

**TITLE:
SOUTH ABUTMENT
DETAILS**

DES: JDA	DR: BJR
CHK: BRL	CHK: JDA

Sheet B5 of B25 Sheets

**Bridge No.
02582**



NO	DATE	BY	CHK	REVISIONS

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LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



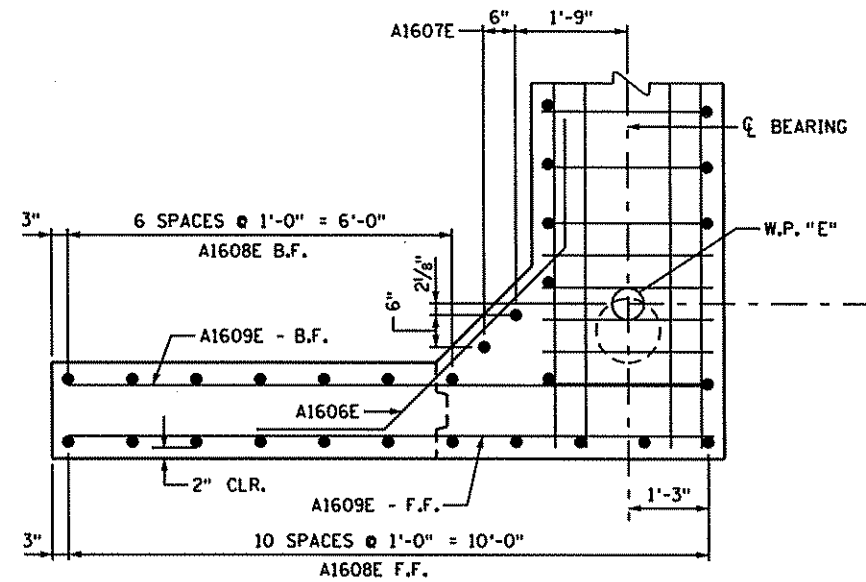
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Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700

C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

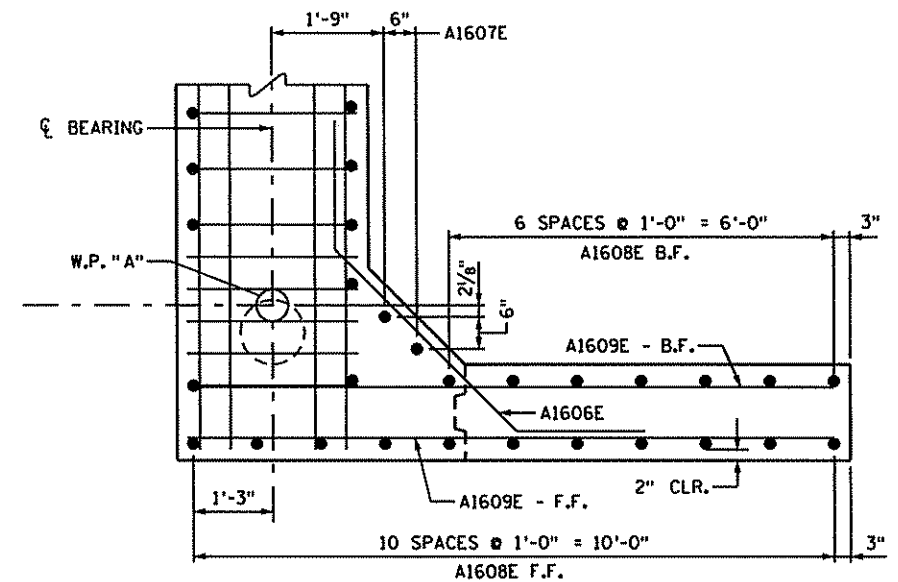
TITLE:
SOUTH ABUTMENT
REINFORCEMENT

DES: JDA DR: BJR
CHK: BRL CHK: JDA
Sheet B6 of B25 Sheets

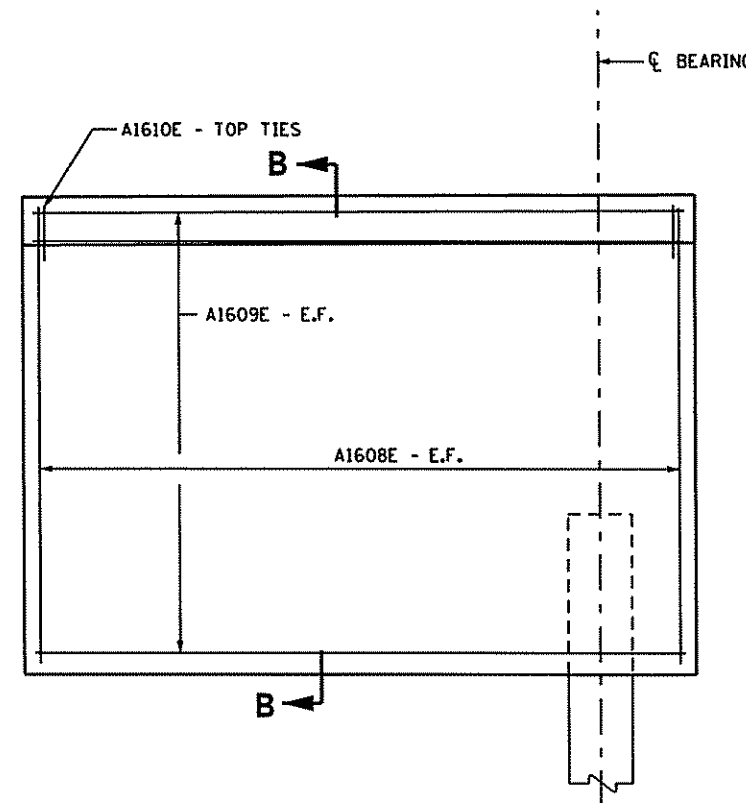
Bridge No.
02582



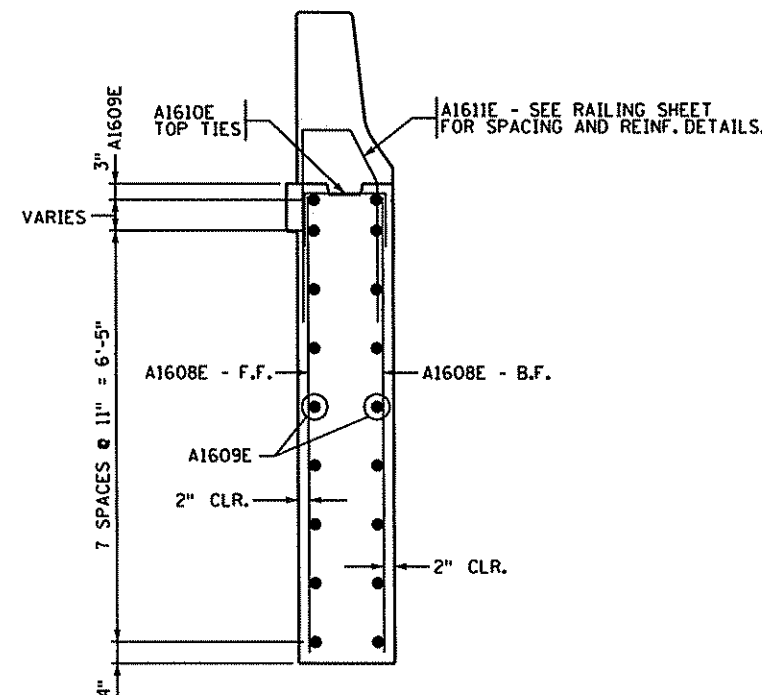
S.E. WINGWALL PLAN



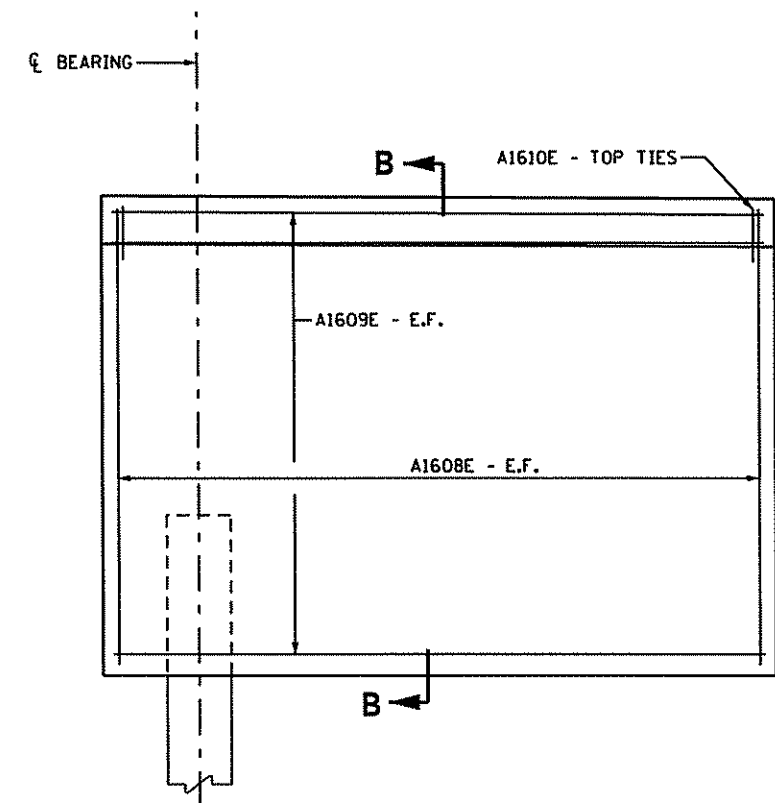
S.W. WINGWALL PLAN



S.E. WINGWALL ELEVATION



SECTION B-B



S.W. WINGWALL ELEVATION

NO	DATE	BY	CHK	REVISIONS

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LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
 DATE: 1/3/2011 REG NO: 45501



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 FAX 763-541-1700

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 ANOKA COUNTY
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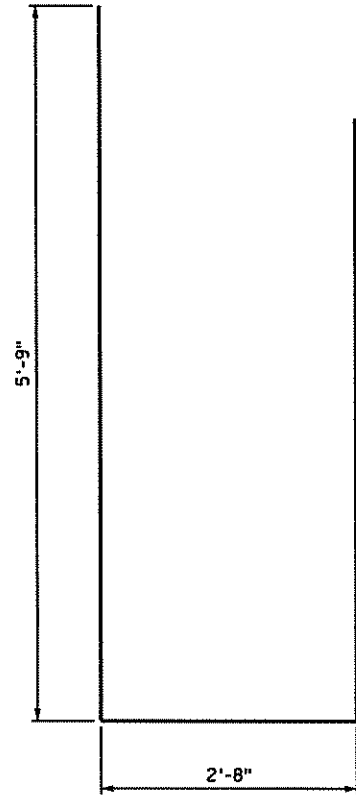
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**SOUTH ABUTMENT
 REINFORCEMENT**

DES: JDA	DR: BJR
CHK: BRL	CHK: JDA
Sheet B7 of B25 Sheets	

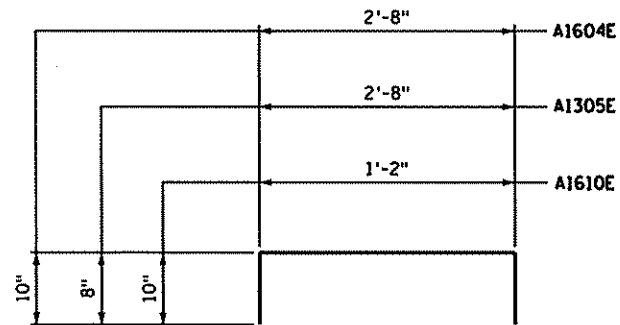
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02582

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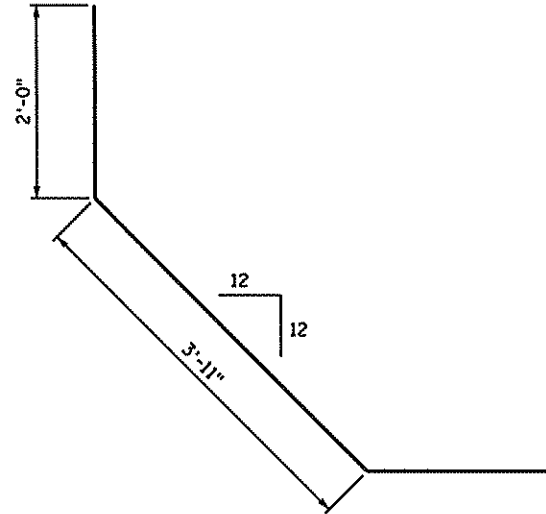
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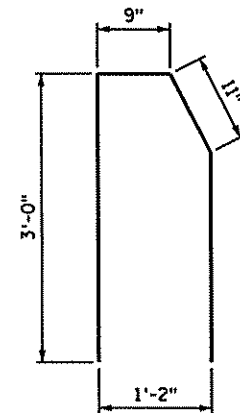
A1602E



A1604E, A1305E, & A1610E



A1606E

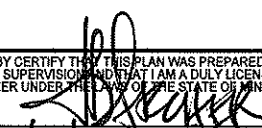


A1611E

BILL OF REINFORCEMENT - SOUTH ABUTMENT				
BAR	NO.	LENGTH	SHAPE	LOCATION
A1601E	16	38'-8"	STR.	STEM - LONGIT.
A1602E	37	13'-0"	BENT	STEM - B.F. TIES
A1603E	32	4'-11"	STR.	STEM - F.F. DOWELS
A1604E	56	4'-4"	BENT	STEM - BR. SEAT TIES
A1305E	24	4'-0"	BENT	STEM - TIES @ PILES
A1606E	12	7'-11"	BENT	STEM - FILLET TIES
A1607E	4	5'-9"	STR.	STEM - FILLET VERTS.
A1608E	36	7'-1"	STR.	WINGWALLS - VERTS.
A1609E	36	10'-2"	STR.	WINGWALLS - HORIZ.
A1610E	22	2'-10"	BENT	WINGWALLS - TOP TIES
A1611E	30	6'-10"	BENT	WINGWALLS - RAIL TIES

NO.	DATE	BY	CHK	REVISIONS

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DATE: 1/3/11 LIC. NO.: 45501



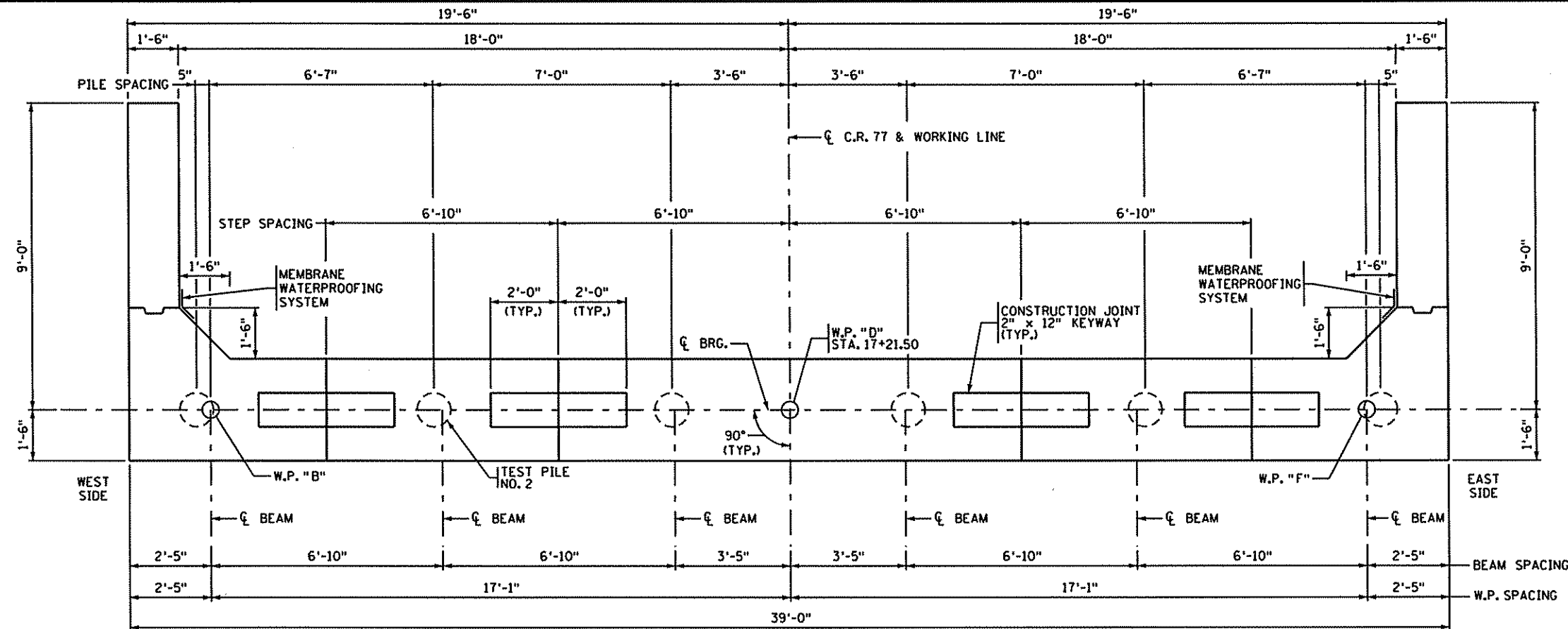
701 Xenia Ave. South
Suite 300
Minneapolis, MN 55416
763-541-4800
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C.S.A.H. 26
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S.A.P. 02-626-05

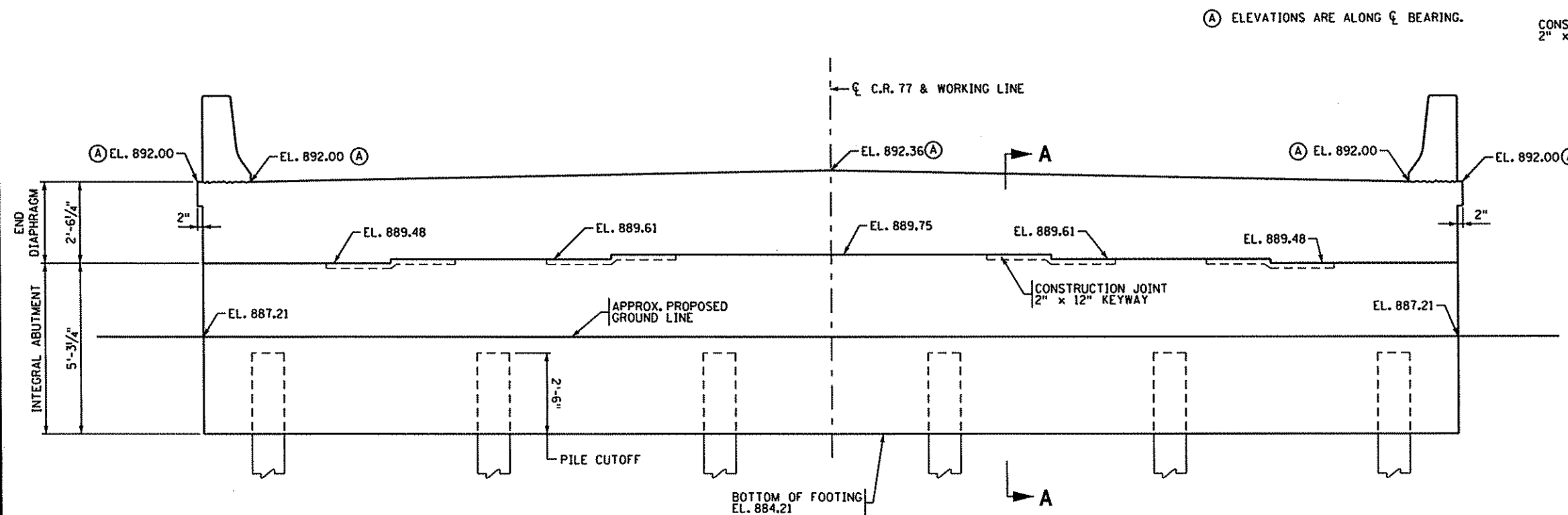
TITLE:
**SOUTH ABUTMENT
REINFORCEMENT**

DES: JDA DR: BJR
CHK: BRL CHK: JDA
Sheet B8 of B25 Sheets

Bridge No.
02581



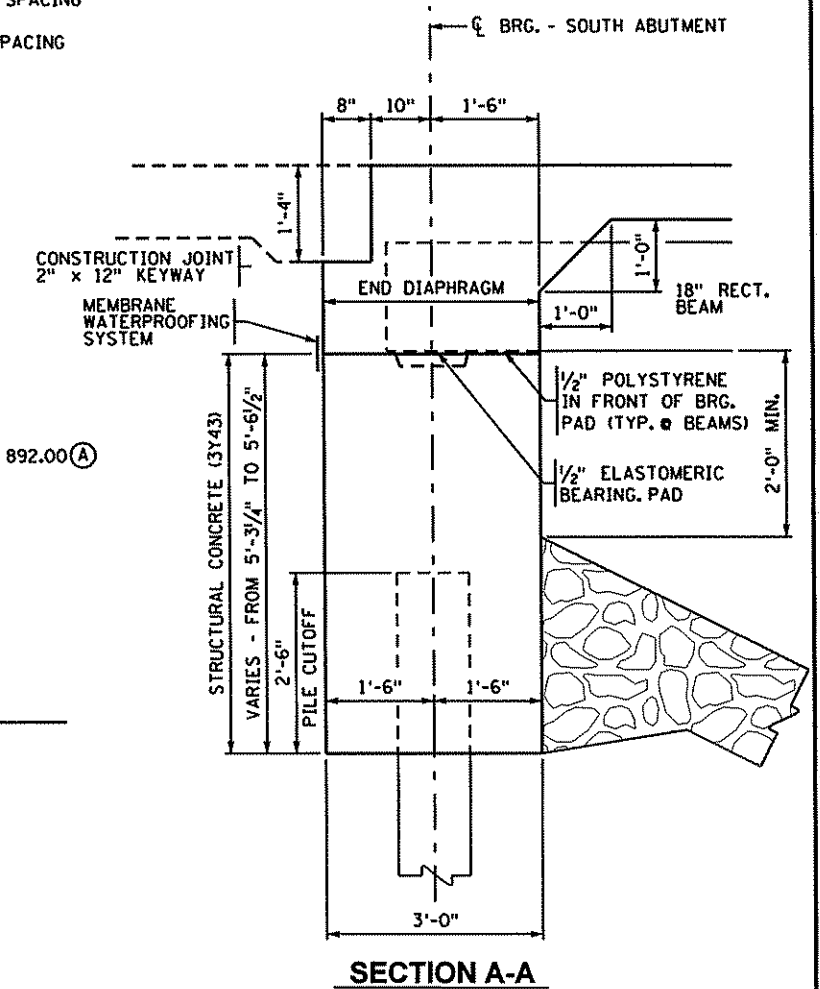
PLAN VIEW



GENERAL ELEVATION

SUMMARY OF QUANTITIES - NORTH ABUTMENT		
STRUCTURAL CONCRETE (3Y43)	31	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	2715	POUND
① 12" CIP PILING DELIVERED	275	LIN. FT.
① 12" CIP PILING DRIVEN	275	LIN. FT.
② 12" CIP TEST PILES 60 FT. LONG	1	EACH
MEMBRANE WATERPROOFING SYSTEM	50	LIN. FT.
STRUCTURE EXCAVATION	1	LUMP SUM
RANDOM RIPRAP CLASS III	70	CU. YD.
GEOTEXTILE FILTER TYPE IV (MODIFIED)	117	SQ. YD.
SLOPE PREPARATION	1	LUMP SUM

- ① DOES NOT INCLUDE TEST PILES.
 ② TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.



SECTION A-A

NO.	DATE	BY	CHK	REVISIONS

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 DATE: 1/3/2011 REG NO: 45501



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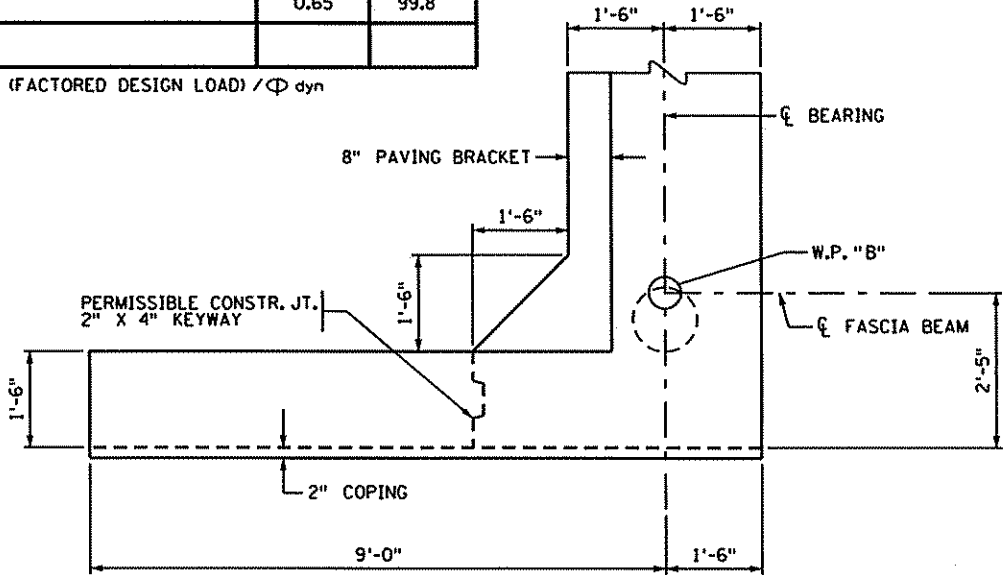
TITLE:
 NORTH ABUTMENT
 DETAILS

DES: JDA	DR: BJR	Bridge No. 02582
CHK: BRL	CHK: JDA	
Sheet B9 of B25 Sheets		

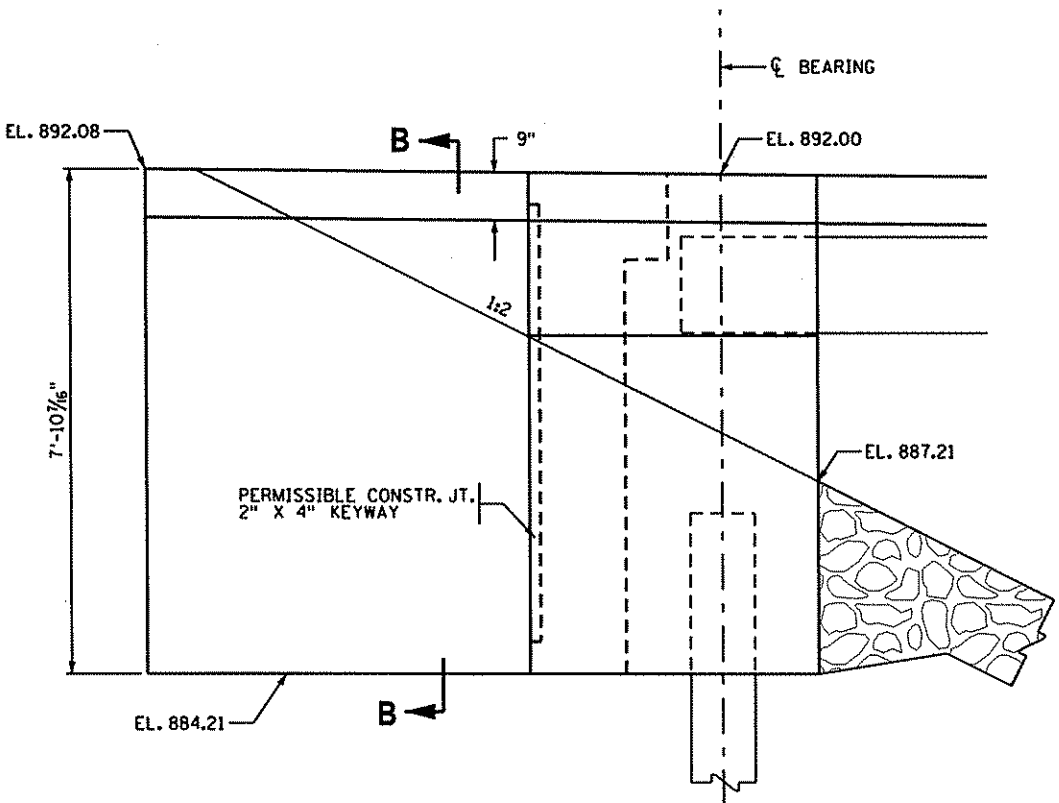
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NORTH ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{dyn}	$\bullet R_n$
MN/DOT NOMINAL RESISTANCE FORMULA	0.40	162.1
PDA	0.65	99.8

$\bullet R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$



N.W. WINGWALL PLAN

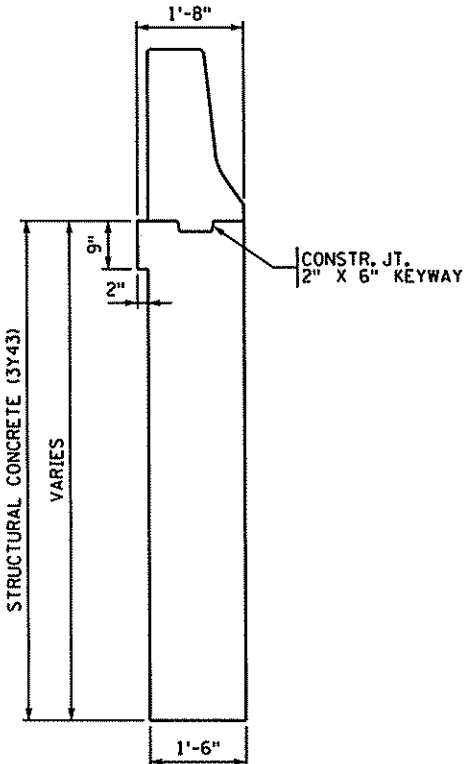


N.W. WINGWALL ELEVATION

PILE NOTES

- 1 12" CIP TEST PILES 60 FT. LONG
- 5 12" CIP PILES EST. LENGTH 55 FT.
- 6 12" CIP PILES REQ'D FOR NORTH ABUTMENT

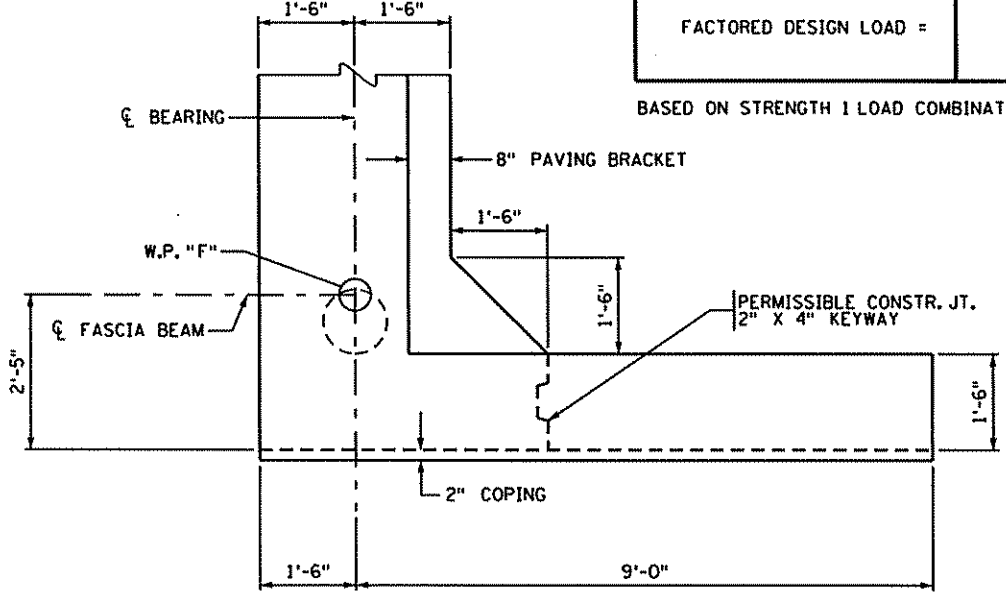
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES TO BE 12" CIP
FOR PILE SPLICE DETAILS SEE DETAIL B202.
PILE CUTOFF IS EL. 886.71



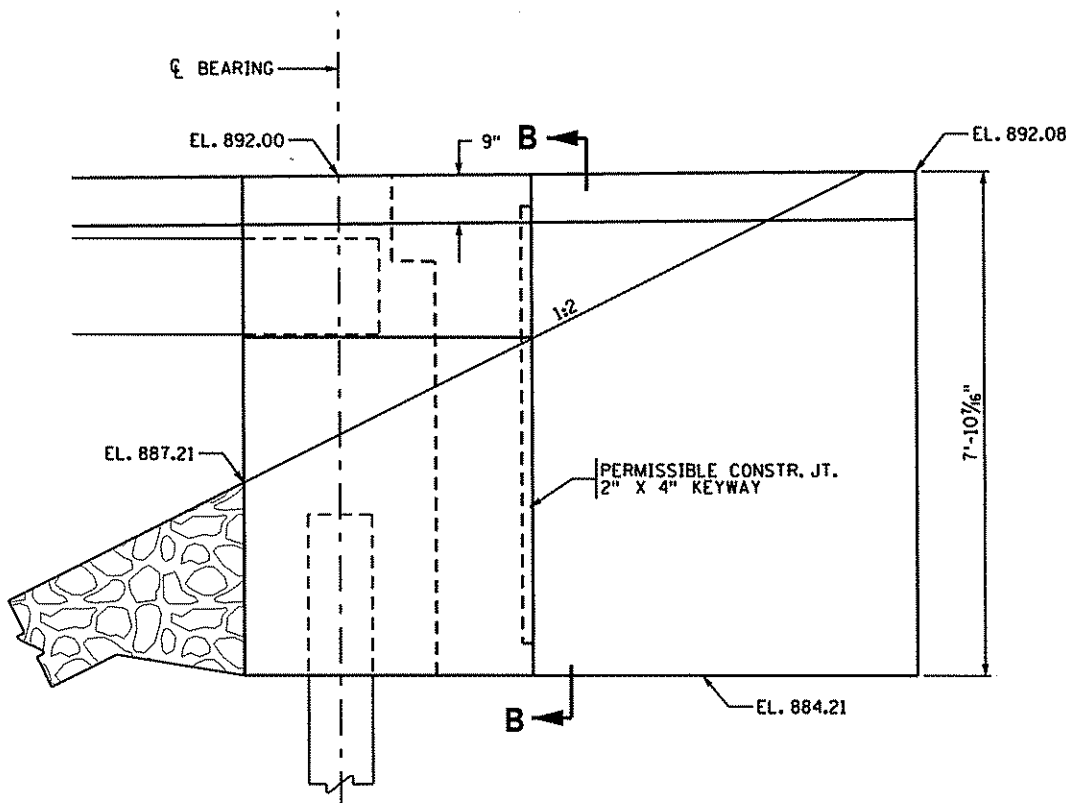
SECTION B-B

NORTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
	NORTH ABUT.
FACTORED DEAD LOAD + EARTH PRESSURE	38.3
FACTORED LIVE LOAD	26.5
FACTORED DESIGN LOAD =	64.8

BASED ON STRENGTH I LOAD COMBINATION.



N.E. WINGWALL PLAN



N.E. WINGWALL ELEVATION

NO	DATE	BY	CHK	REVISIONS

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LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



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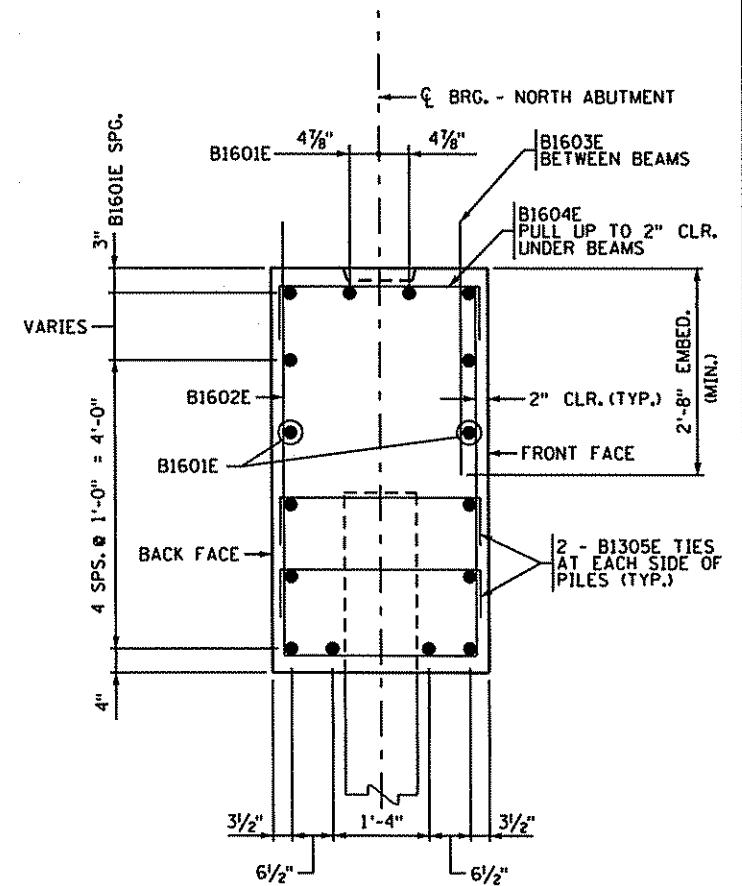
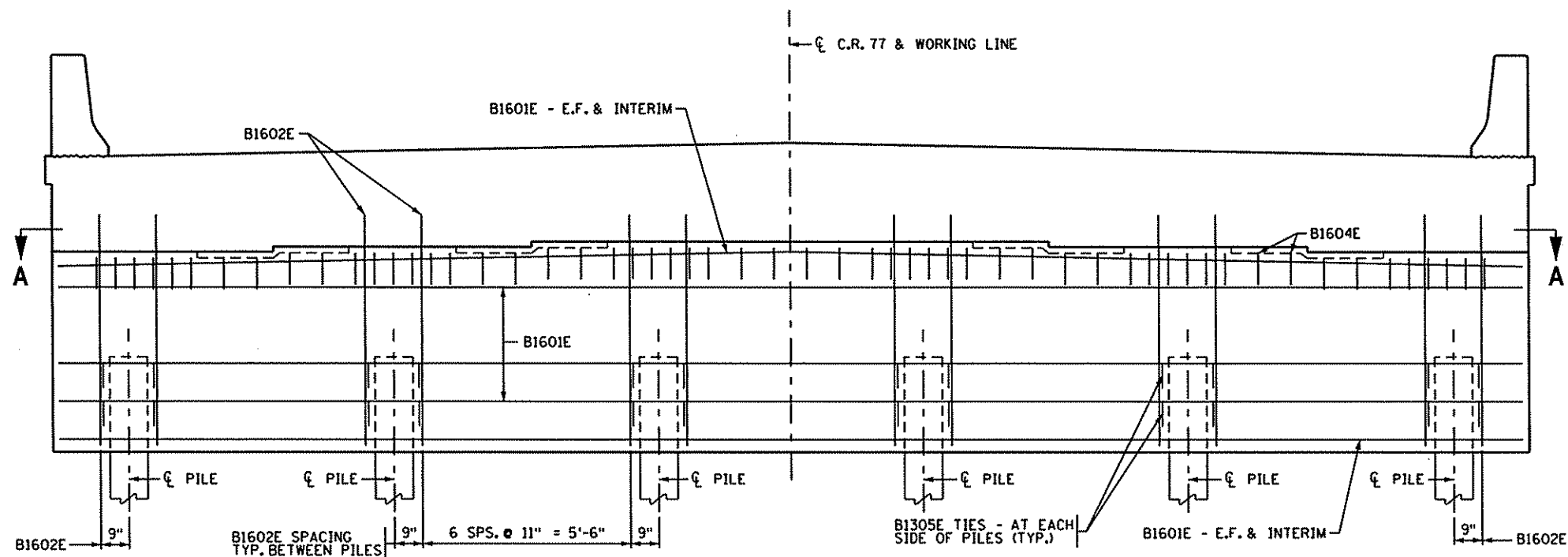
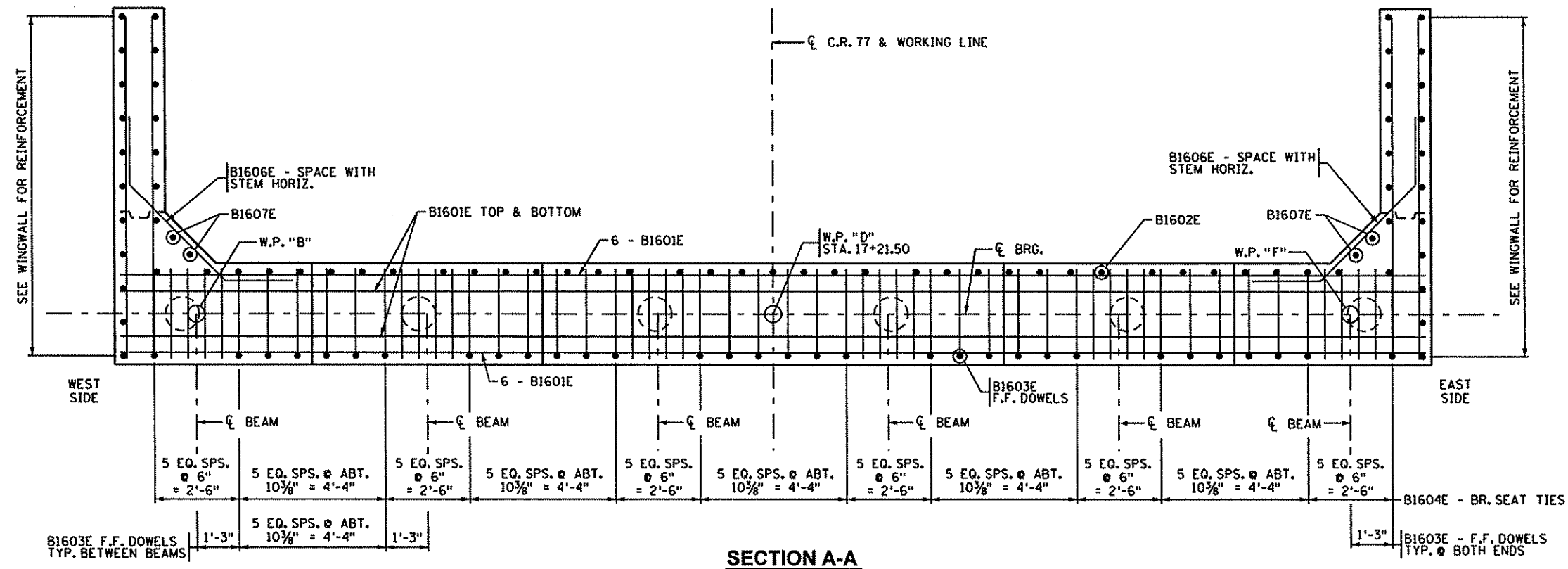
INFRASTRUCTURE - ENGINEERS - PLANNERS

C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE:
NORTH ABUTMENT
DETAILS

DES: JDA DR: BJR
CHK: BRL CHK: JDA
Sheet B10 of B25 Sheets

Bridge No.
02582

[illegible]

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LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER

DATE: 1/3/2011 REG NO: 45501



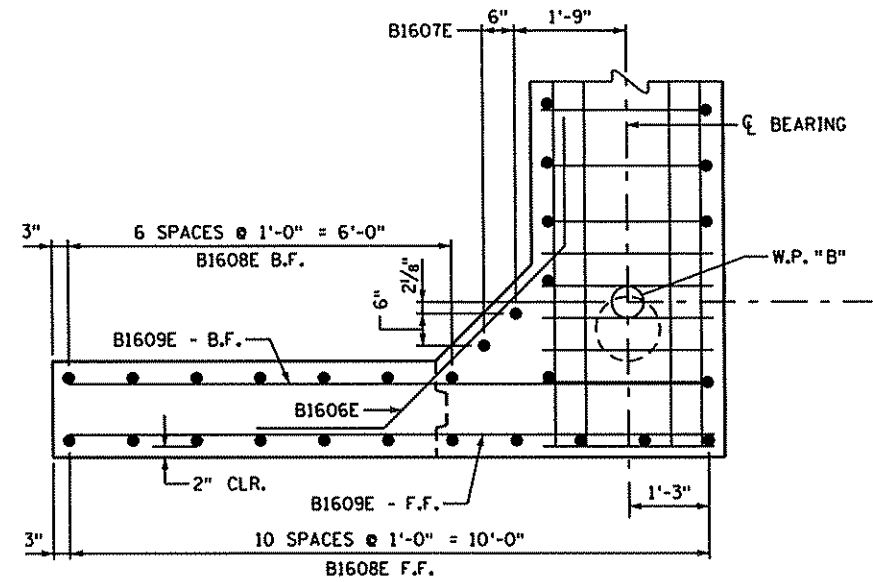
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Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700
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ANOKA COUNTY
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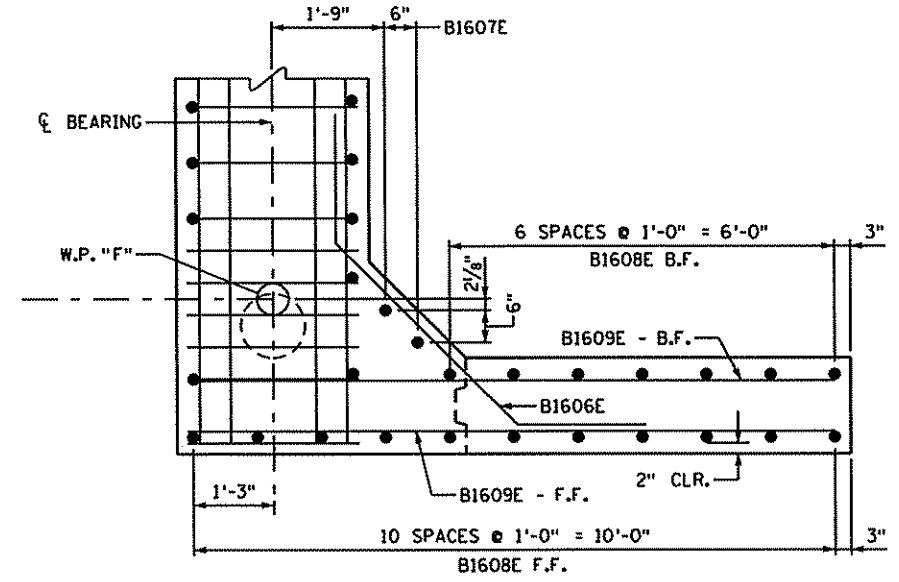
TITLE:
**NORTH ABUTMENT
REINFORCEMENT**

DES: JDA	DR: BJR	
CHK: BRL	CHK: JDA	
Sheet B11 of B25 Sheets		

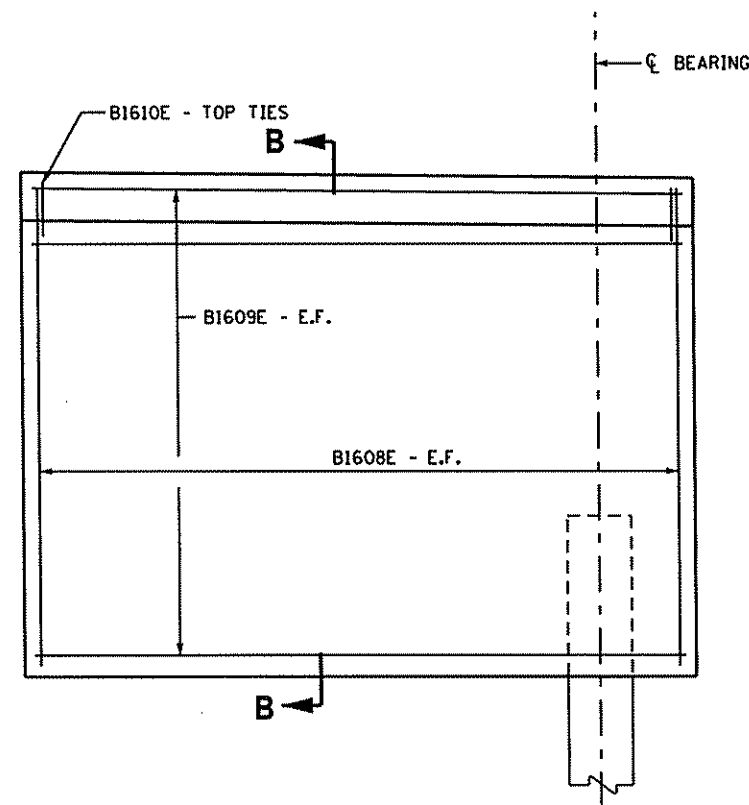
Bridge No.
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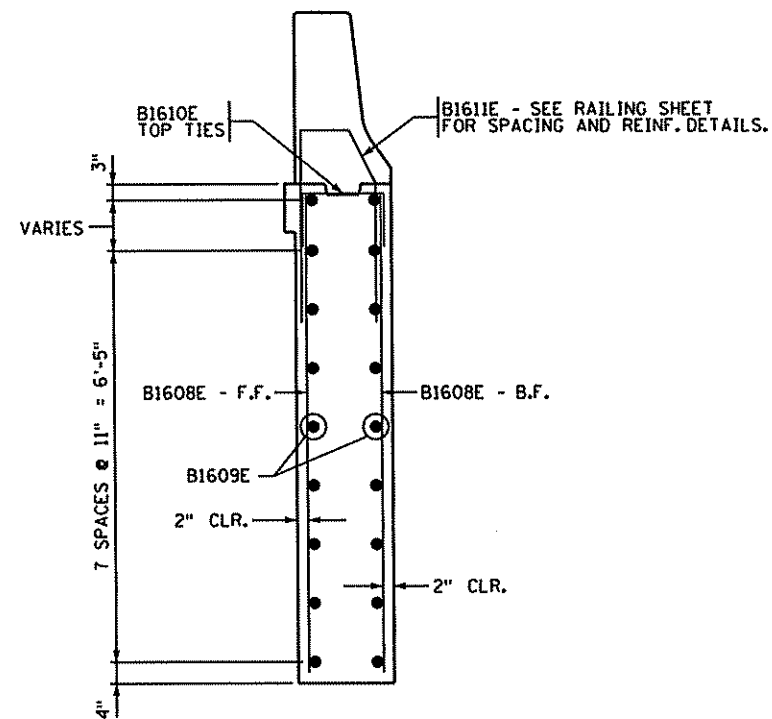
N.W. WINGWALL PLAN



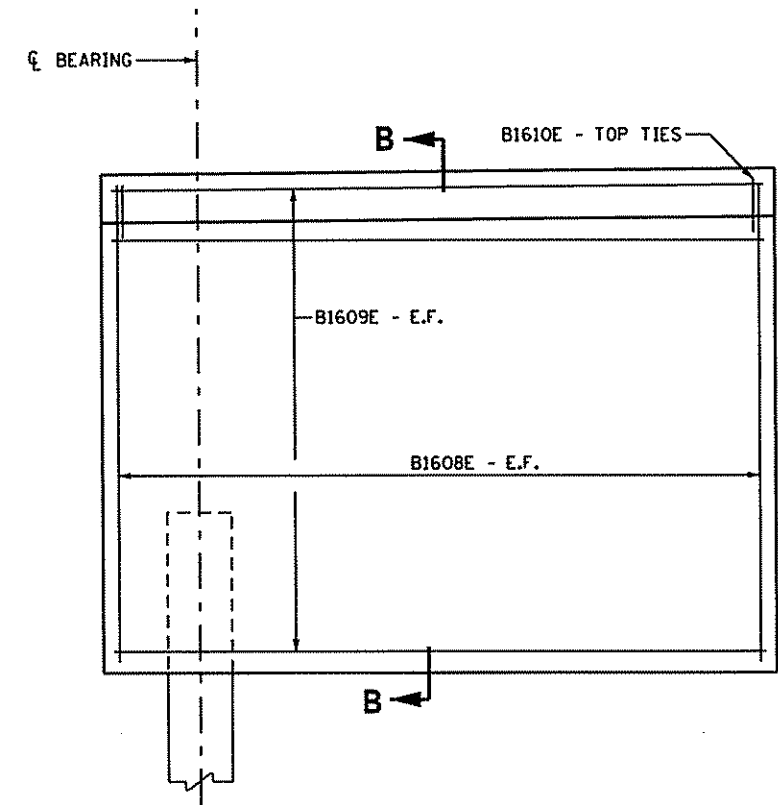
N.E. WINGWALL PLAN



N.W. WINGWALL ELEVATION



SECTION B-B



N.E. WINGWALL ELEVATION

NO	DATE	BY	CHK	REVISIONS

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James Archer

LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/2/2011 REG NO: 45501



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FAX 763-541-4700

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S.A.P. 02-598-06

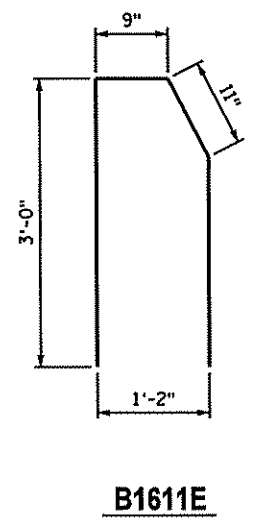
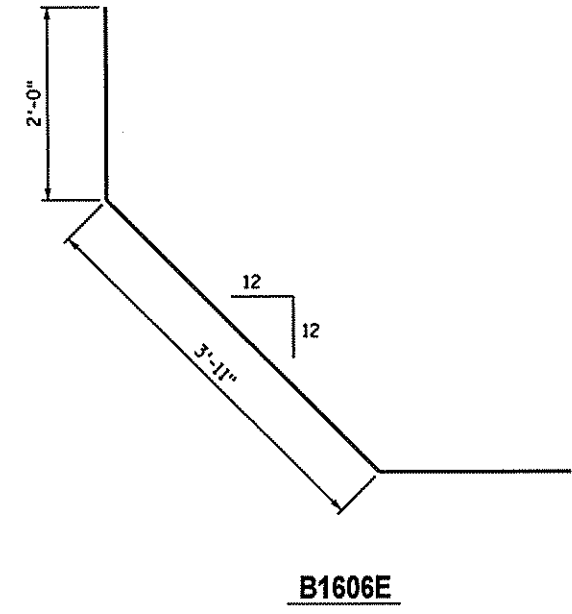
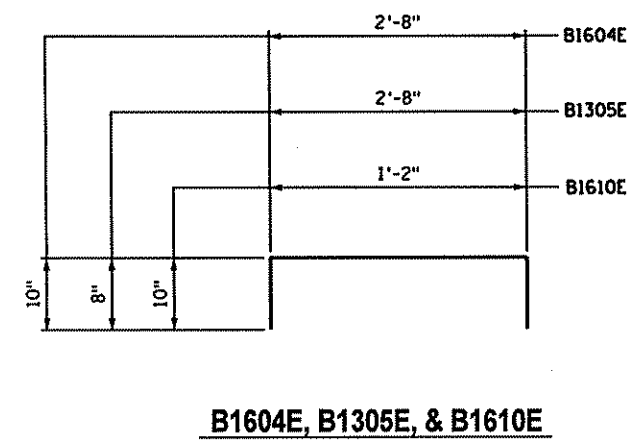
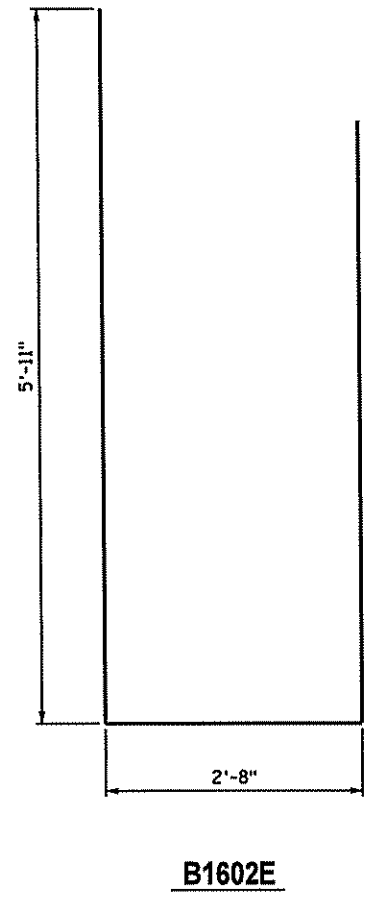
TITLE:
NORTH ABUTMENT
REINFORCEMENT

DES: JDA	DR: BJR
CHK: BRL	CHK: JDA
Sheet B12 of B25 Sheets	

Bridge No.
02582

BILL OF REINFORCEMENT - NORTH ABUTMENT

BAR	NO.	LENGTH	SHAPE	LOCATION
B1601E	16	38'-8"	STR.	STEM - LONGIT.
B1602E	37	13'-6"	BENT	STEM - B.F. TIES
B1603E	32	4'-11"	STR.	STEM - F.F. DOWELS
B1604E	56	4'-4"	BENT	STEM - BR. SEAT TIES
B1305E	24	4'-0"	BENT	STEM - TIES @ PILES
B1606E	12	7'-11"	BENT	STEM - FILLET TIES
B1607E	4	5'-11"	STR.	STEM - FILLET VERTS.
B1608E	36	7'-5"	STR.	WINGWALLS - VERTS.
B1609E	36	10'-2"	STR.	WINGWALLS - HORIZ.
B1610E	22	2'-10"	BENT	WINGWALLS - TOP TIES
B1611E	30	6'-10"	BENT	WINGWALLS - RAIL TIES



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NO	DATE	BY	CHK	REVISIONS

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James Archer
LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 11/3/11 LIC. NO: 45501

WSB
Associates, Inc.

701 Xenia Ave. South
Suite 300
Minneapolis, MN 55416

763-541-4800
FAX 763-541-1700

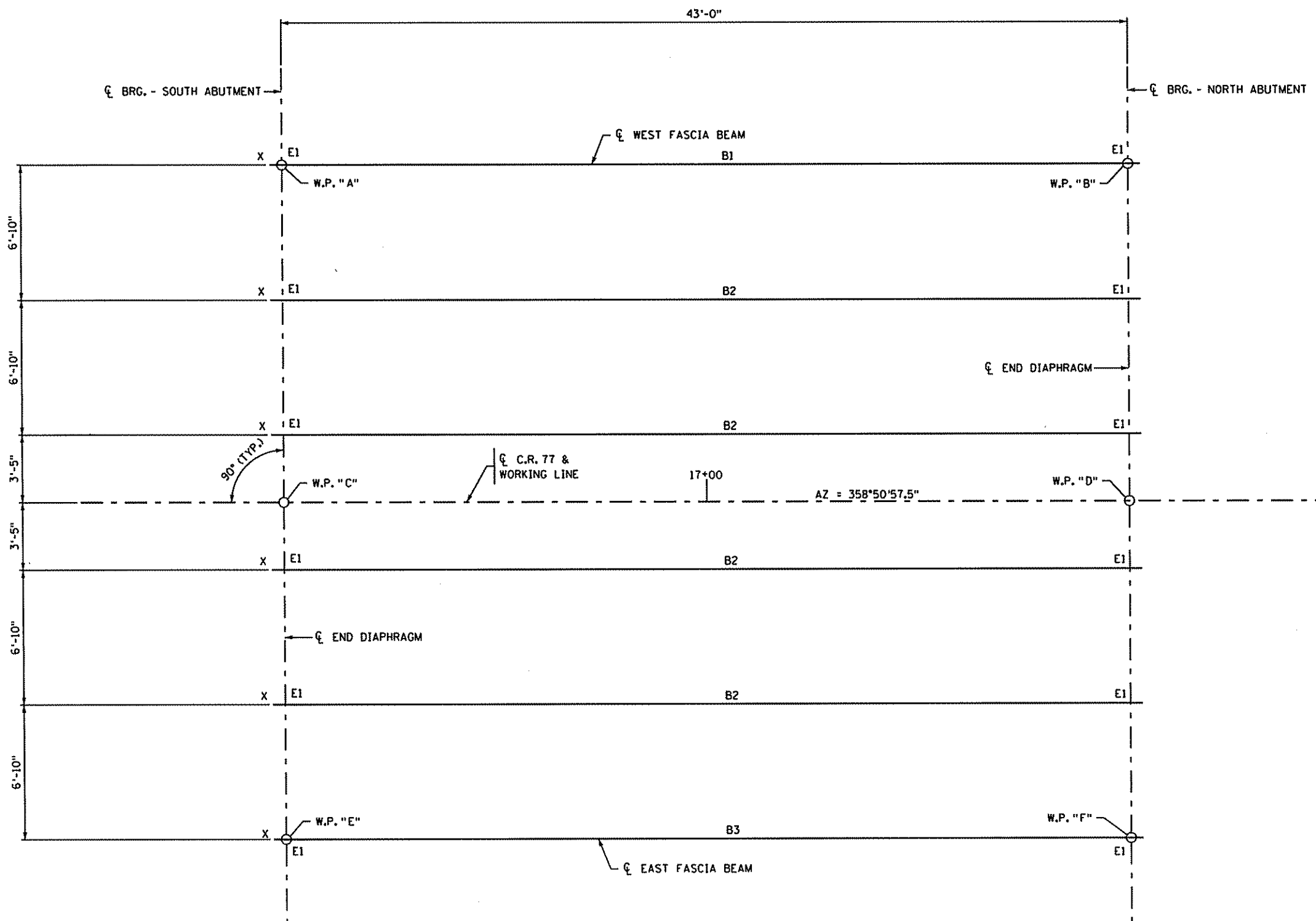
INFRASTRUCTURE - ENGINEERS - PLANNERS

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ANOKA COUNTY
S.A.P. 02-626-05

TITLE:
NORTH ABUTMENT REINFORCEMENT

DES: JDA	DR: BJR
CHK: BRL	CHK: JDA
Sheet B13 of B25 Sheets	

Bridge No.
02581

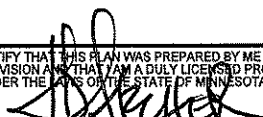


FRAMING PLAN

E1 = ELASTOMERIC PAD, TYPE 1
X = MARKS END OF BEAM

1/3/2011 2:31:30 PM K:\0898-00\cad\plan\br02582\CBR02582_FRA.dgn

NO	DATE	BY	CHK	REVISIONS

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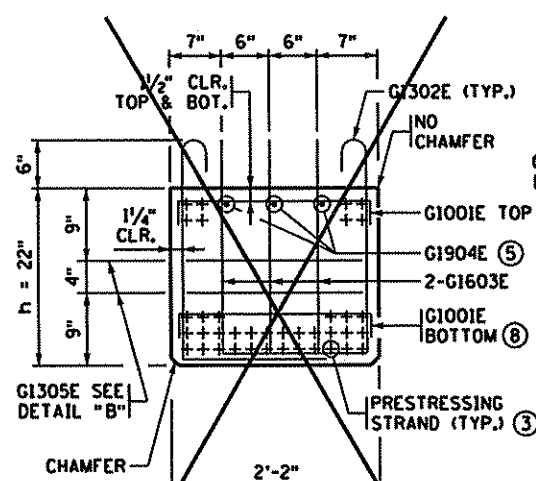

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 INFRASTRUCTURE - ENGINEERS - PLANNERS

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ANOKA COUNTY
S.A.P. 02-598-06

TITLE:
FRAMING PLAN

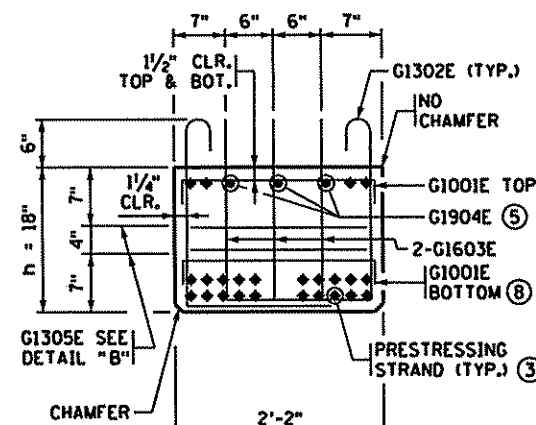
DES: JDA	DR: BJR
CHK: BRL	CHK: JDA
Sheet B14 of B25 Sheets	

Bridge No.
02582



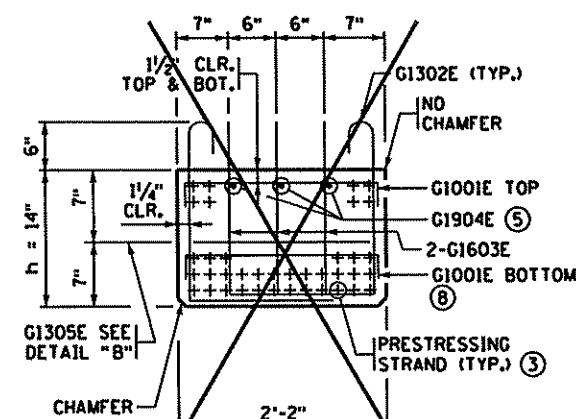
END VIEW - 22" RB

CUT STRANDS FLUSH WITH CONCRETE. PAINT ENDS WITH AN APPROVED GRAY EPOXY EXCEPT AS NOTED.



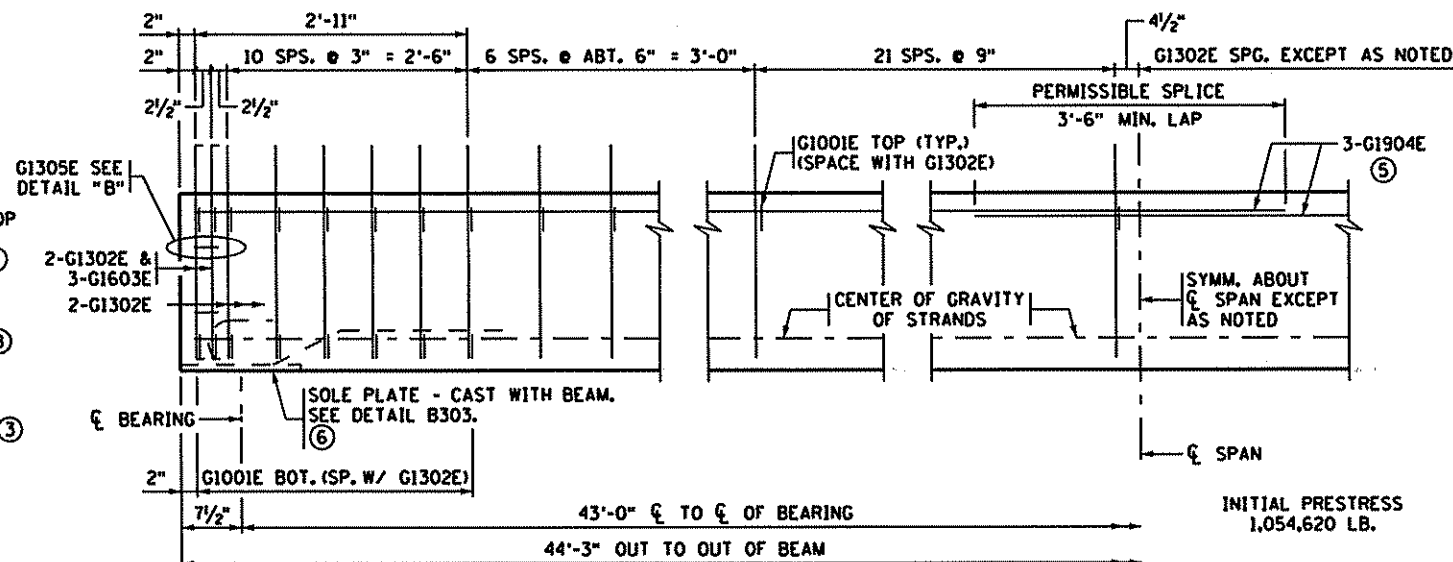
END VIEW - 18" RB

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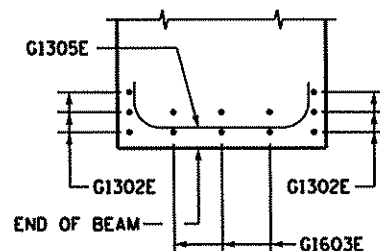


END VIEW - 14" RB

CUT STRANDS FLUSH WITH CONCRETE. PAINT ENDS WITH AN APPROVED GRAY EPOXY EXCEPT AS NOTED.

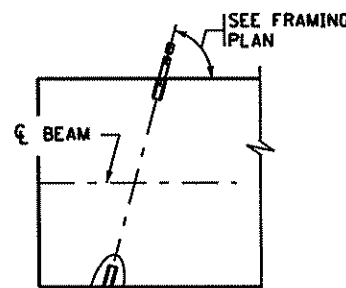


BEAM ELEVATION

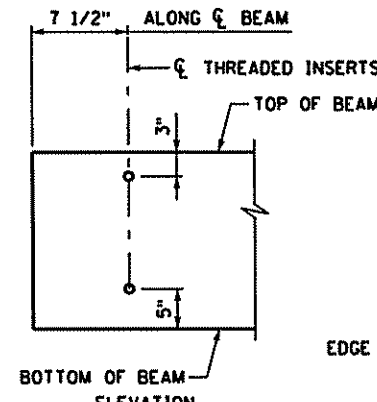


DETAIL "B"

PLAN VIEW SHOWING PLACEMENT OF G1305E BAR

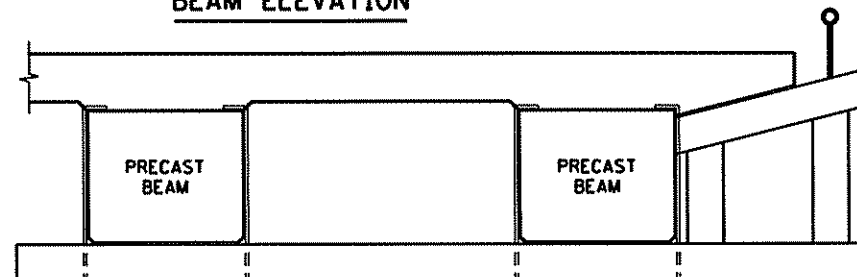


DETAIL "A"



CONCRETE END DIAPHRAGM ANCHORAGES

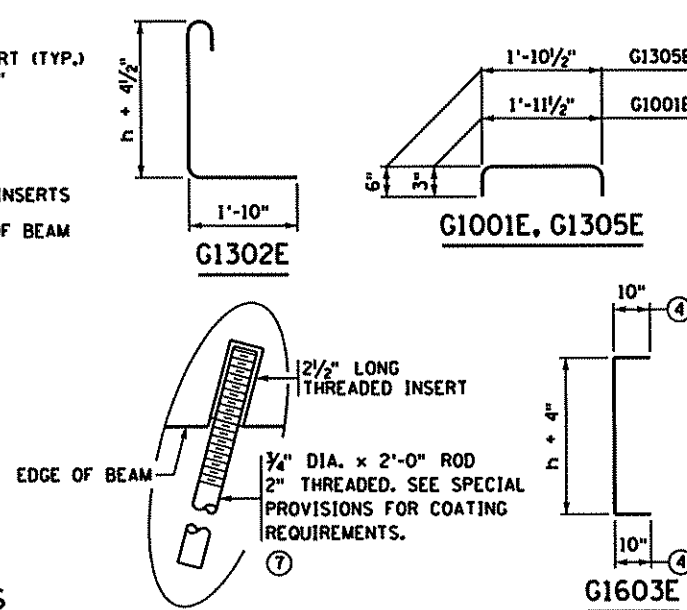
INTEGRAL ABUTMENT (SEE DETAIL B816 FOR CONCRETE END DIAPHRAGM DETAILS)



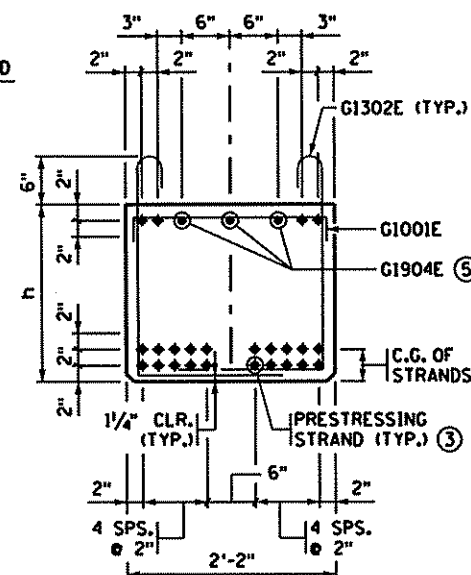
OVERHANG SUPPORT CONCEPT SKETCH

SEE THE "CONSTRUCTION NOTES" ON FRONT PORTION OF THE BRIDGE PLANS. THIS CONCEPT HAS BEEN USED SUCCESSFULLY ON PREVIOUS PROJECTS. CONTRACTORS MAY CONSIDER THIS OR ANOTHER SYSTEM AT THEIR DISCRETION.

CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM OVERTURNING (NO PERMANENT BEAM DIAPHRAGMS ARE PRESENT). CONTRACTOR SHALL PROVIDE TEMPORARY BRACING.



DETAIL "A"



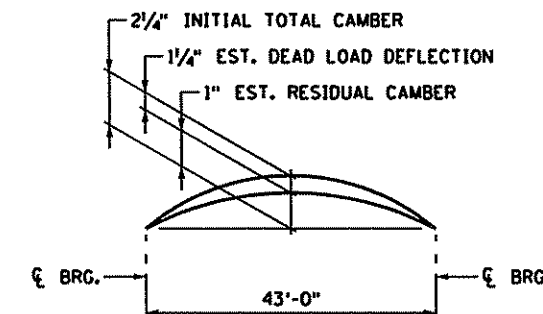
SECTION AT CENTER SPAN

STRAND ARRANGEMENT	
LOCATION	NO. OF STRANDS
TOP ROW	4
2ND ROW FROM TOP	0
3RD ROW FROM BOTTOM	0
2ND ROW FROM BOTTOM	10
BOTTOM ROW	10
TOTAL	24

C.G. OF STRANDS = 5.17 INCHES

C.G. = DISTANCE TO CENTER OF GRAVITY OF ALL STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

ALL STRAIGHT STRAND.



CAMBER DIAGRAM

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, RAILING, SIDEWALK AND MEDIAN WHERE APPLICABLE.

ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

GENERAL NOTES

TOPS OF BEAMS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BOND.

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X".

APPROXIMATE WEIGHT OF BEAM IS 11 TONS.

AS AN ALTERNATE TO THE END DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.

- MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.
- MAY STAGGER BARS TO AVOID INTERFERENCE.
- PROVIDE 2" CLEARANCE AT ENDS OF BEAM.
- FOR INTEGRAL ABUTMENT BRIDGES, SOLE PLATE CAN BE ELIMINATED OR BE REPLACED WITH APPROVED PROTECTION PLATE.
- FOR INSERTS IN THE OUTSIDE OF FASCIA BEAM, THE ROD LENGTH SHALL BE ADJUSTED ACCORDING TO THE OVERHANG DIMENSION.
- PLACE G1001E BAR ON TOP OF THE TOP ROW OF PRESTRESSING STRANDS IN THE BOTTOM OF THE BEAM.

SECTION HEIGHT "h"	
14" ☐	18" ☒
22" ☐	

AN "X" IN THE BOX INDICATES THE SECTION HEIGHT.

CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	17.4 KSI
LONG TERM LOSSES	22.1 KSI
TOTAL LOSSES	39.4 KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f'cl	② f'c
7.5 KSI	9.0 KSI

PRESTRESSING STRAND DIAMETER	
③ 1/2" ☐	④ 5/8" ☒

REVISED: 10-22-2009
APPROVED: OCTOBER 22, 2008
STATE BRIDGE ENGINEER

NO	DATE	BY	CHK	REVISIONS
1	10/22/09	JDA	BJR	REVISED

I HEREBY CERTIFY THAT THIS PLAN 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.
LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/2/2011 REG NO: 45501

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FAX 763-541-1700
W&B
& Associates, Inc.
INFRASTRUCTURE - ENGINEERS - PLANNERS

C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE:
14", 18" & 22" RECTANGULAR
PRESTRESSED CONCRETE BEAM
(PRETENSIONED) 18RB-45

DES: JDA DR: BJR
CHK: BRL CHK: JDA
Sheet B15 of B25 Sheets
Bridge No. 02582

BEAMS B1 - B3 FIG. 5-397.550

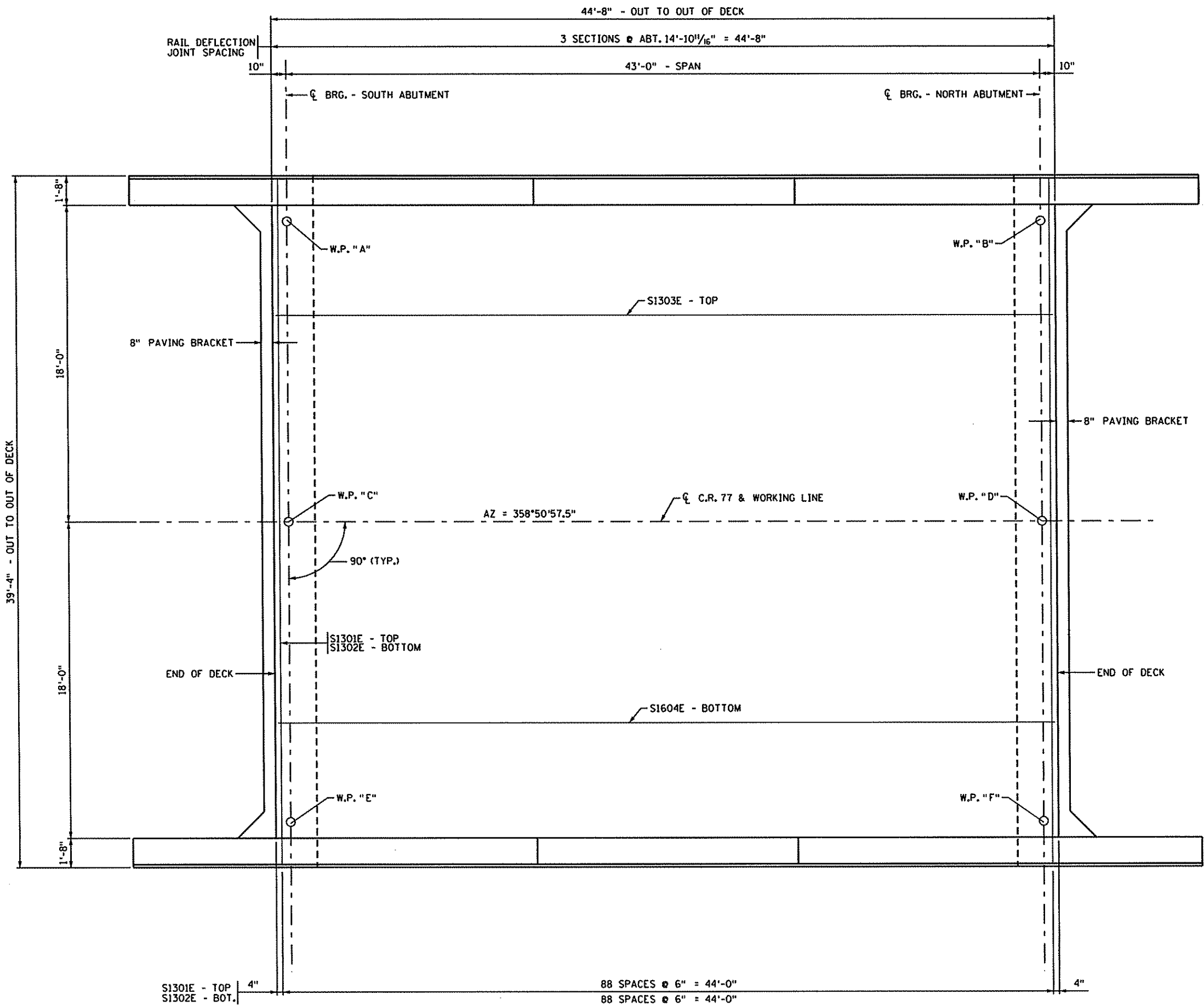
BILL OF REINFORCEMENT - SUPERSTRUCTURE

BAR	NO.	LENGTH	SHAPE	LOCATION
S1301E	89	39'-0"	STR.	TOP - TRANSV.
S1302E	89	38'-8"	STR.	BOTTOM - TRANSV.
S1303E	27	44'-4"	STR.	TOP - LONGIT.
S1604E	47	44'-4"	STR.	BOTTOM - LONGIT.

SUMMARY OF QUANTITIES - SUPERSTRUCTURE

①	BRIDGE SLAB CONCRETE (3Y33)	1757	SQ. FT.
②	TYPE F, (TL-4) RAILING CONCRETE (3Y46)	122	LIN. FT.
④	REINFORCEMENT BARS (EPOXY COATED)	11530	POUND
⑤	PRESTRESSED CONCRETE BEAMS 18RB	266	LIN. FT.
	ELASTOMERIC BEARING PAD, TYPE 1	12	EACH
⑥	BENCH MARK DISK	1	EACH
⑦	1" THICK CORK	13	SQ. FT.
⑦	BRIDGE NAME PLATE	1	EACH
⑦	1/2" POLYSTYRENE	26	SQ. FT.

- ① "BRIDGE SLAB CONCRETE (3Y33)" WAS COMPUTED USING AN AVERAGE STUOL HEIGHT OF 3" INCHES AND IS APPROXIMATELY 70 CU. YDS. WHICH INCLUDES 15 CU. YDS. FOR END DIAPHRAGMS.
- ② "TYPE F, (TL-4) RAILING CONCRETE (3Y46)" APPROXIMATELY 14 CU. YDS.
- ③ CONCRETE END DIAPHRAGM SHALL BE POURED INTEGRALLY WITH DECK.
- ④ INCLUDES SLAB, END DIAPHRAGM, AND RAILING REINFORCEMENT.
- ⑤ PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS 18RB" PER LINEAR FOOT.
- ⑥ STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ⑦ TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.



DECK PLAN VIEW

NO	DATE	BY	CHK	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN 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.

LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



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INFRASTRUCTURE - ENGINEERS - PLANNERS

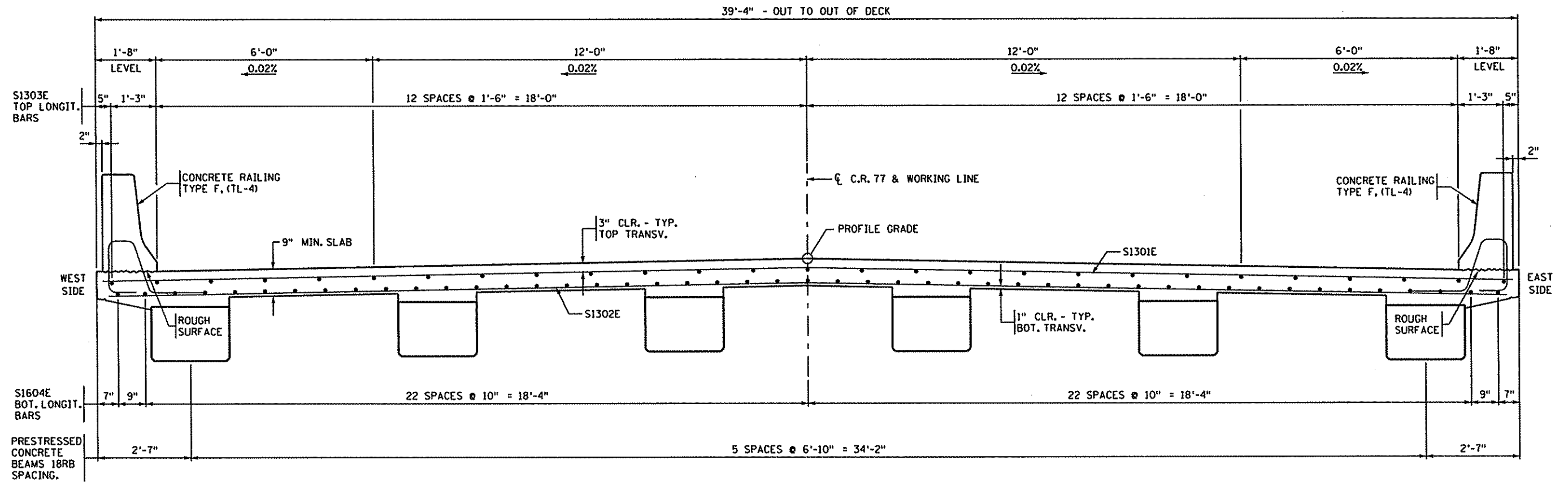
C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE:
SUPERSTRUCTURE
DETAILS

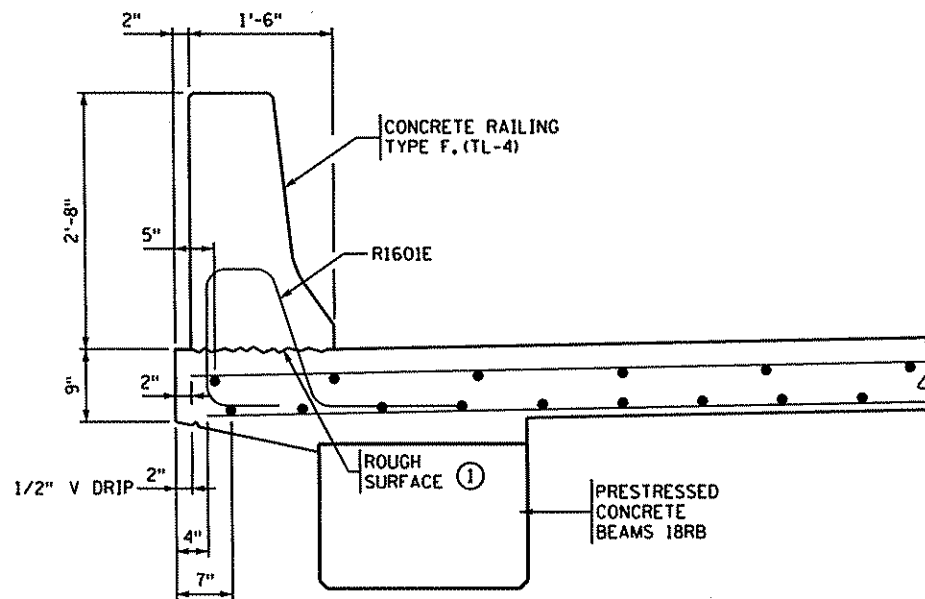
DES: JDA DR: BJR
CHK: BRL CHK: JDA

Sheet B16 of B25 Sheets

Bridge No.
02582



TRANSVERSE SECTION THRU DECK



EDGE OF DECK DETAIL

① SURFACE BETWEEN DECK AND BARRIER RAIL SHALL BE MADE ROUGH. THE LIMITS OF THE ROUGH SURFACE SHALL BE 2" INSIDE EITHER EDGE OF THE BARRIER RAIL FOR A TOTAL ROUGHNESS WIDTH OF 1'-2".

NO	DATE	BY	CHK	REVISIONS

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LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



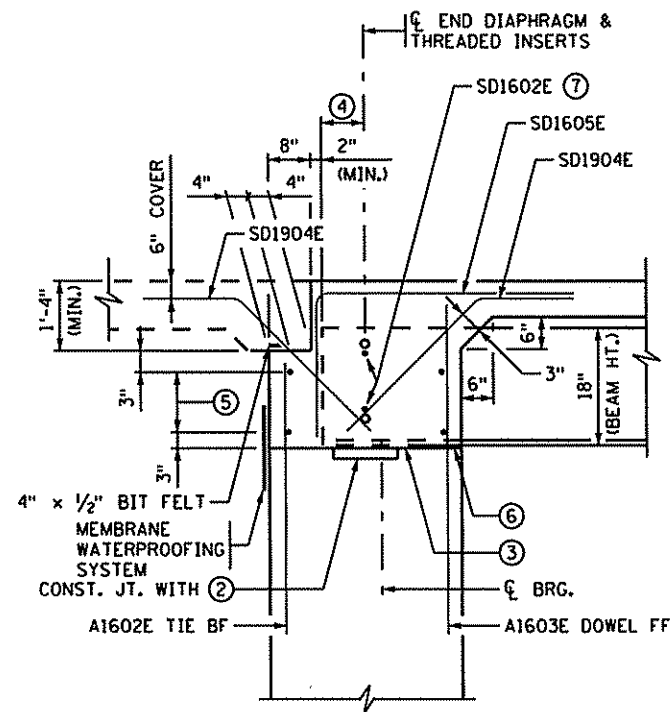
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763-541-4800
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ANOKA COUNTY
S.A.P. 02-598-06**

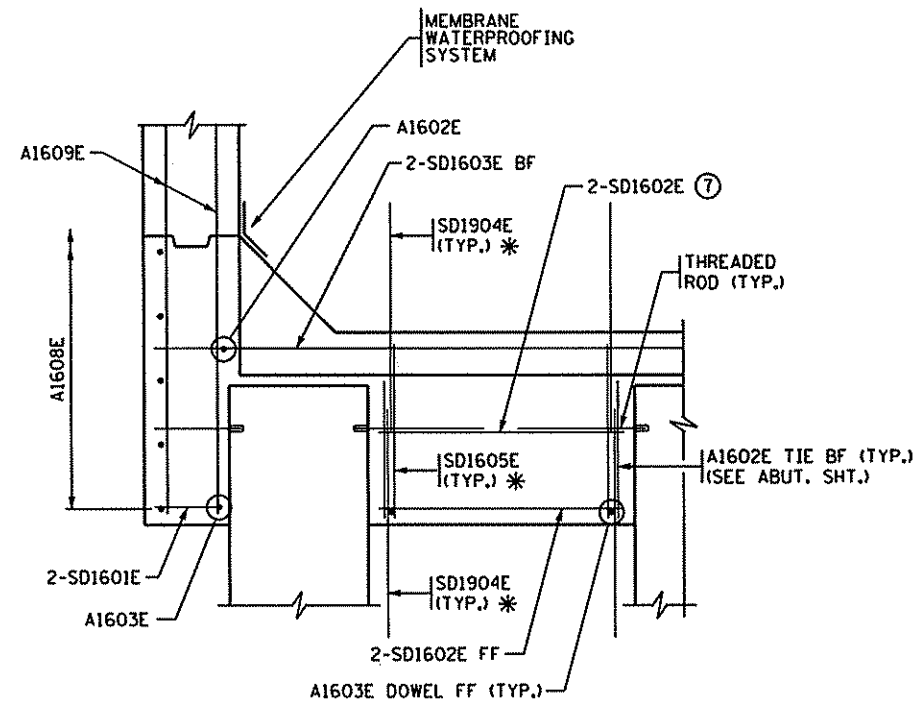
TITLE: **SUPERSTRUCTURE
DETAILS**

DES: JDA	DR: BJR
CHK: BRL	CHK: JDA
Sheet B17 of B25 Sheets	

Bridge No.
02582

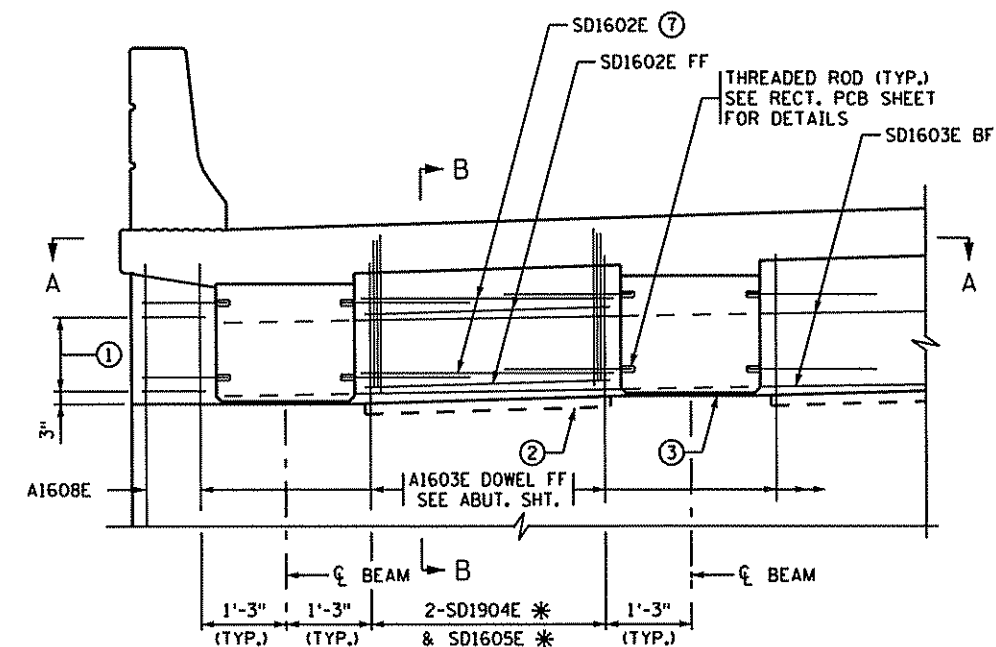


SECTION B-B



SECTION A-A

* SPACE WITH ABUTMENT DOWELS



PARTIAL ELEVATION

* SPACE WITH ABUTMENT DOWELS

NOTES:

DIAPHRAGM CONCRETE AND REINFORCEMENT QUANTITIES ARE INCLUDED IN SUPERSTRUCTURE QUANTITIES.

CONCRETE FOR END DIAPHRAGMS SHALL BE THE SAME MIX AS USED IN DECK.

POLYSTYRENE TO BE PLACED BETWEEN APPROACH PANEL AND WING WALLS, SUPPLIED IN BRIDGE PORTION OF CONTRACT, INSTALLED IN GRADING PORTION OF PLAN, SEAL PER MN/DOT SPEC. 3723.

BF DENOTES BACK FACE.
FF DENOTES FRONT FACE.

- ① SD1601E END TIE.
- ② 2" x 12" KEYWAY (BETWEEN BEAMS ONLY)
- ③ 12" x 24" x 1/2" ELASTOMERIC BEARING PAD
- ④ SEE BEAM DETAIL SHEETS FOR DIMENSION.
- ⑤ SD1603E BF & SD1602E FF HORIZONTAL.
- ⑥ 1/2" MIN. TYPE B POLYSTYRENE IN FRONT OF BEARING PAD (UNDER BEAM).
- ⑦ SPACE WITH THREADED RODS.



SD1604E



SD1605E

**BILL OF REINFORCEMENT
FOR END DIAPHRAGM**

BAR	NO.	LENGTH	SHAPE	LOCATION
SD1601E	8	1'-0"	—	HORIZ. END TIE
SD1602E	40	4'-4"	—	HORIZ.
SD1603E	4	38'-8"	—	HORIZ. BF
SD1904E	128	4'-9"	—	VERTICAL TIE
SD1605E	64	4'-2"	—	VERTICAL TIE

NO	DATE	BY	CHK	REVISIONS

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LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



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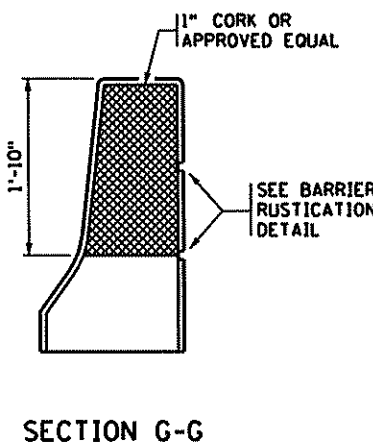
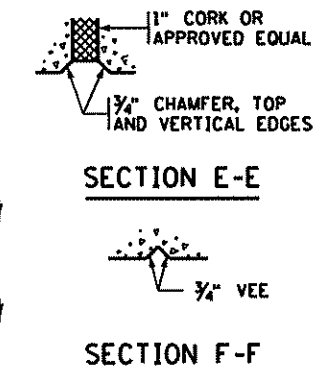
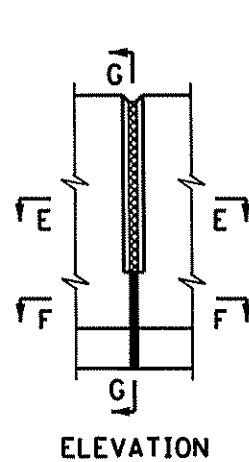
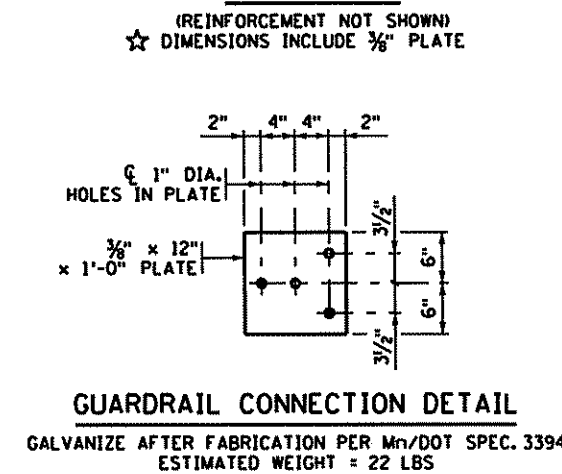
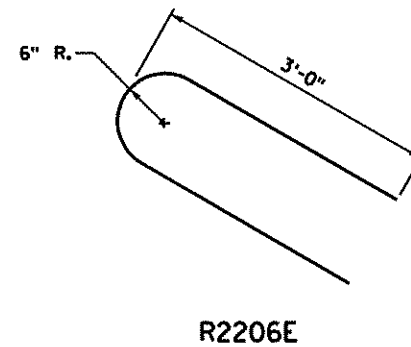
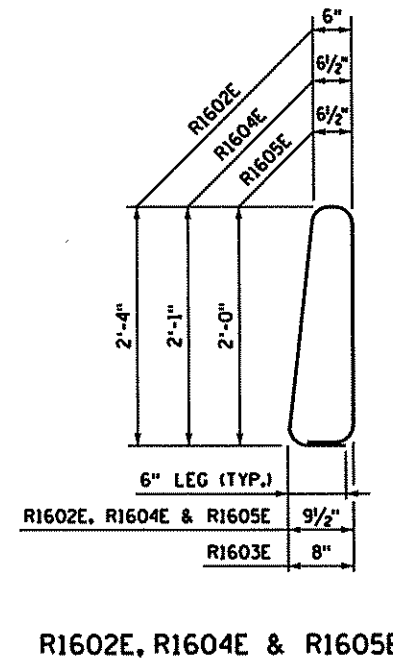
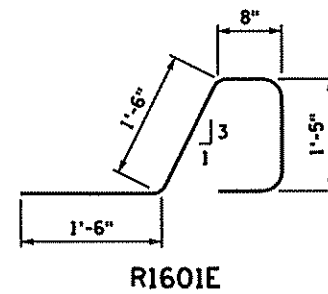
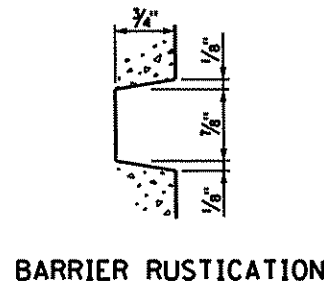
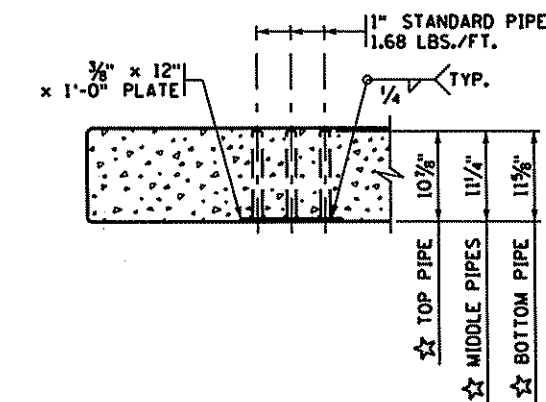
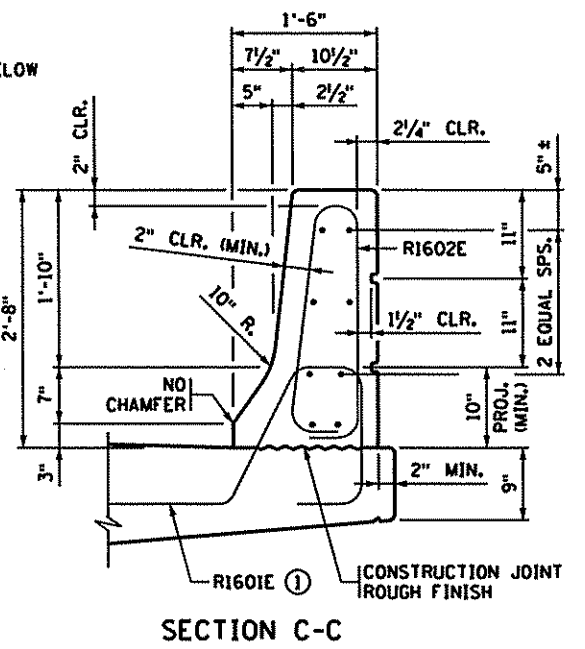
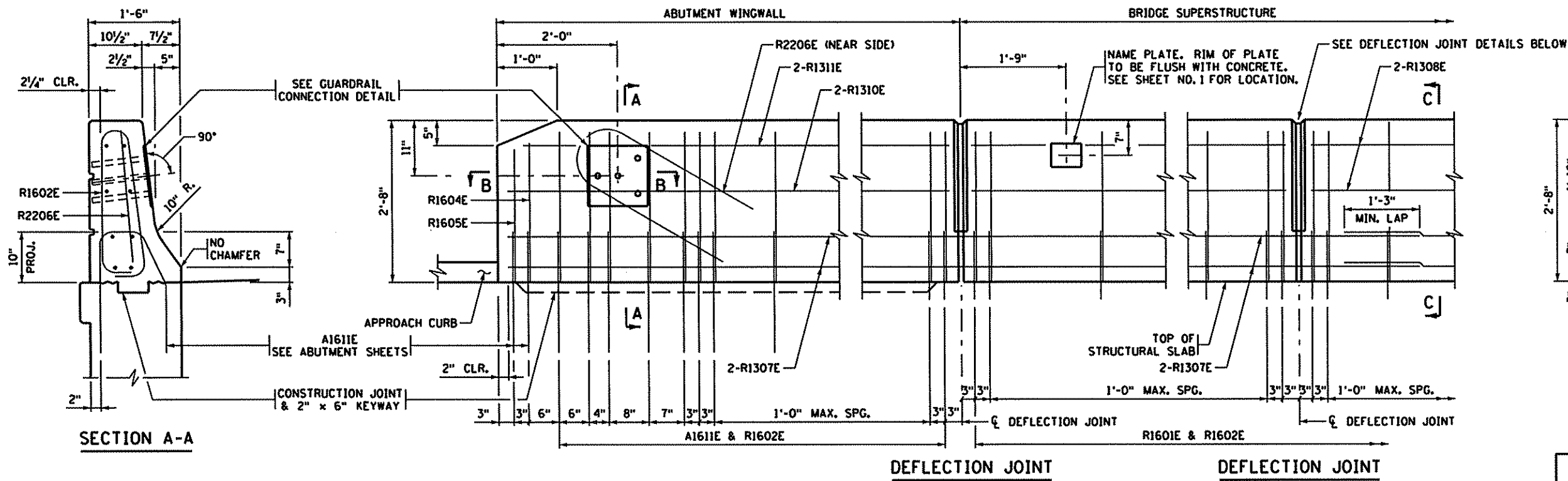
**C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06**

TITLE:
**SUPERSTRUCTURE
DETAILS**

DES: JDA DR: BJR
CHK: BRL CHK: JDA

Sheet B18 of B25 Sheets

Bridge No.
02582



DEFLECTION JOINT DETAILS

I HEREBY CERTIFY THAT THIS PLAN 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.

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELL
DATE: 12/16 REG NO: 40456

WSB & Associates, Inc.
701 Xenia Ave. South Suite 300 Minneapolis, MN 55416
763-541-4800 FAX 763-541-4700
INFRASTRUCTURE - ENGINEERS - PLANNERS

C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE: CONCRETE BARRIER (TYPE F, TL-4)
WITH INTEGRAL END POST (WITHOUT CONCRETE WEARING COURSE)

DES: JDA DR: BJR
CHK: BRL CHK: JDA
Sheet B19 of B25 Sheets
Bridge No. 02582

BILL OF REINFORCEMENT FOR BARRIER				
BAR	NO.	LENGTH	SHAPE	LOCATION
R1601E	106	5'-7"		BARRIER DOWEL
R1602E	158	6'-3"		BARRIER VERTICAL
R1604E	4	5'-9"		BARRIER VERTICAL
R1605E	4	5'-7"		BARRIER VERTICAL
R2206E	4	6'-6"		BARRIER VERTICAL
R1307E	16	31'-0"		BARRIER LONGIT.
R1308E	24	14'-6"		BARRIER LONGIT.
R1310E	8	7'-10"		BARRIER LONGIT.
R1311E	8	7'-7"		BARRIER LONGIT.

GENERAL NOTES

LENGTH OF "TYPE F (TL-4) RAILING CONCRETE (3Y46 OR 3Y46A)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE BARRIER.

CONCRETE BARRIER = 439 LBS./FT. (0.108 CU. YDS./FT.)

FINISH ALL EDGES OF BARRIER WITH 1/2" VEE, EXCEPT WHERE OTHERWISE NOTED.

MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.

SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.

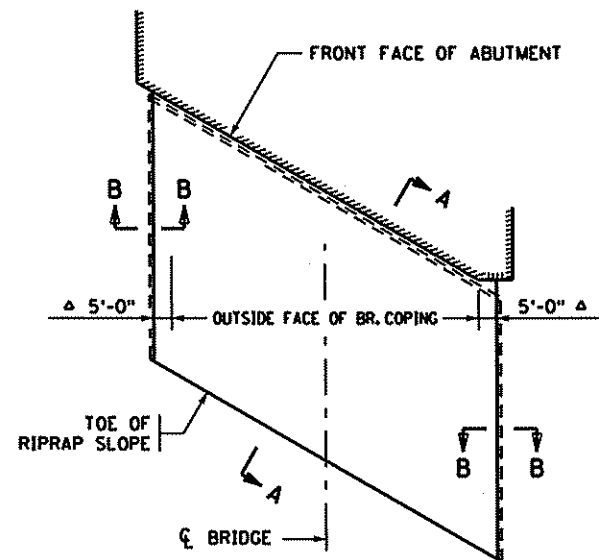
GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL. Mn/DOT SPEC. 3306.

GUARDRAIL CONNECTION, CORK, AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO "TYPE F (TL-4) RAILING CONCRETE (3Y46 OR 3Y46A)".

BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

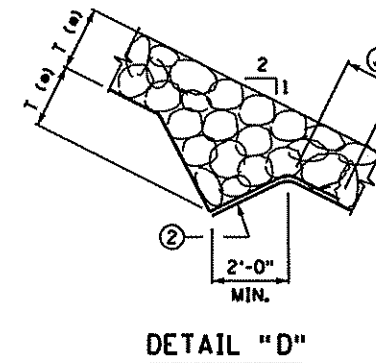
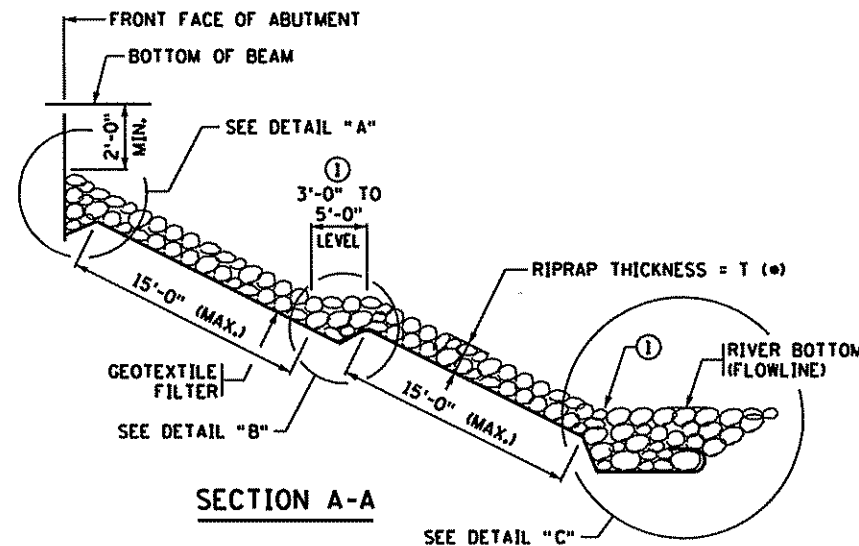
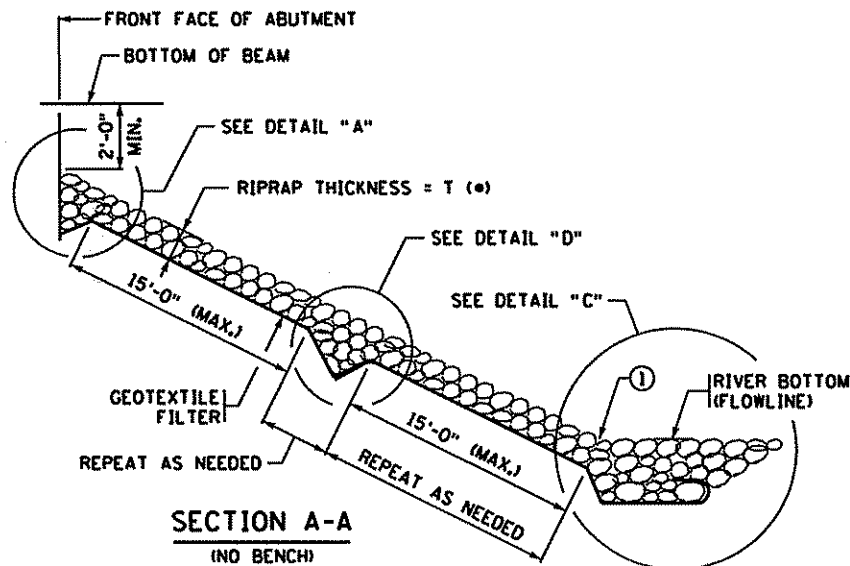
① PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT.

FIG. 5-397.115

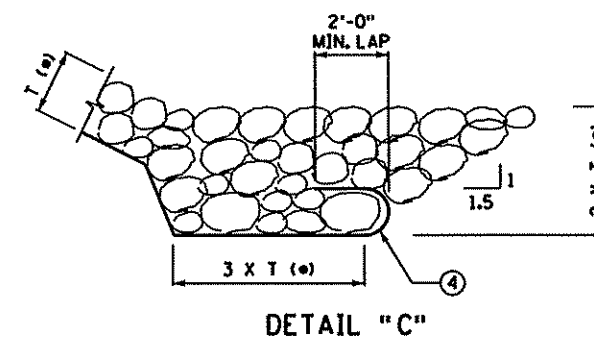
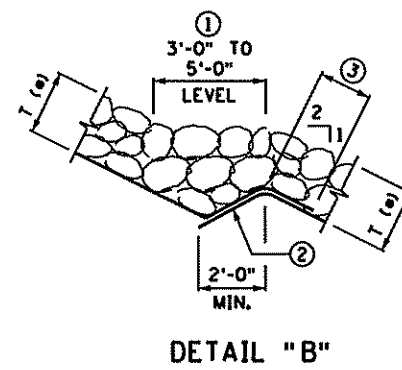
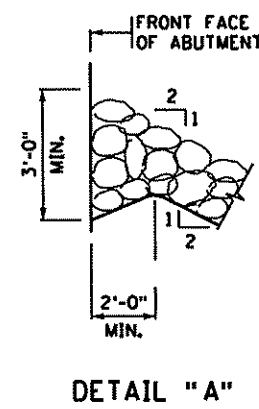
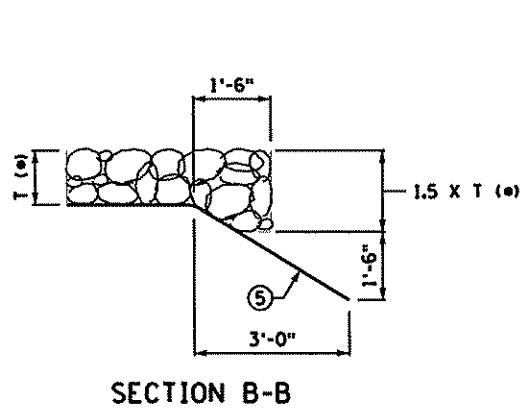


LAYOUT FOR 1:2 SLOPES

Δ 5'-0" FOR TANGENT BRIDGE SUPERSTRUCTURES. VARIES 5'-0" MINIMUM FOR CURVED BRIDGE SUPERSTRUCTURES.



* DIMENSION T	
CLASS III	= 1'-6"
CLASS IV	= 2'-0"



GENERAL NOTES

SEE SPECIAL PROVISIONS FOR MATERIALS, PREPARATION AND PLACEMENT.

GEOTEXTILE FILTER MATERIAL AS PER Mn/DOT SPECIAL PROVISION 2511.515.

PAYMENT WILL BE MADE UNDER ITEM 2511.515 GEOTEXTILE FILTER TYPE IV (MODIFIED) BY THE SQ. YD.

PAYMENT WILL BE MADE UNDER ITEM 2511.501 RANDOM RIPRAP CLASS III BY THE CU. YD.

SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE : HORIZONTAL DISTANCE.

① RIPRAP TOE AND BENCHES TO HAVE DIMENSIONS AND ELEVATIONS AS SPECIFIED ON PLAN SHEET NO....

BENCHES TO BE SURFACED WITH AGGREGATE CLASS 5. BENCHES SHOULD TIE INTO NATURAL GROUND LINES OUTSIDE OF BRIDGE.

② PLACE RIPRAP IN TRENCH TO HOLD THE GEOTEXTILE FABRIC IN PLACE BEFORE PLACING THE REST OF THE RIPRAP. (FROM THE BOTTOM OF THE SLOPE).

③ OVERLAP GEOTEXTILE FILTER 1'-6" MINIMUM.

④ WRAP GEOTEXTILE FILTER AROUND TOE, OVERHANG BETWEEN 1ST AND 2ND LAYER OF RIPRAP.

⑤ BURY EDGES OF GEOTEXTILE FILTER SUFFICIENTLY TO DIRECT WATER FLOW OVER THE FABRIC WITHOUT UNDERMINING.

NO	DATE	BY	CHK	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN 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.

LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



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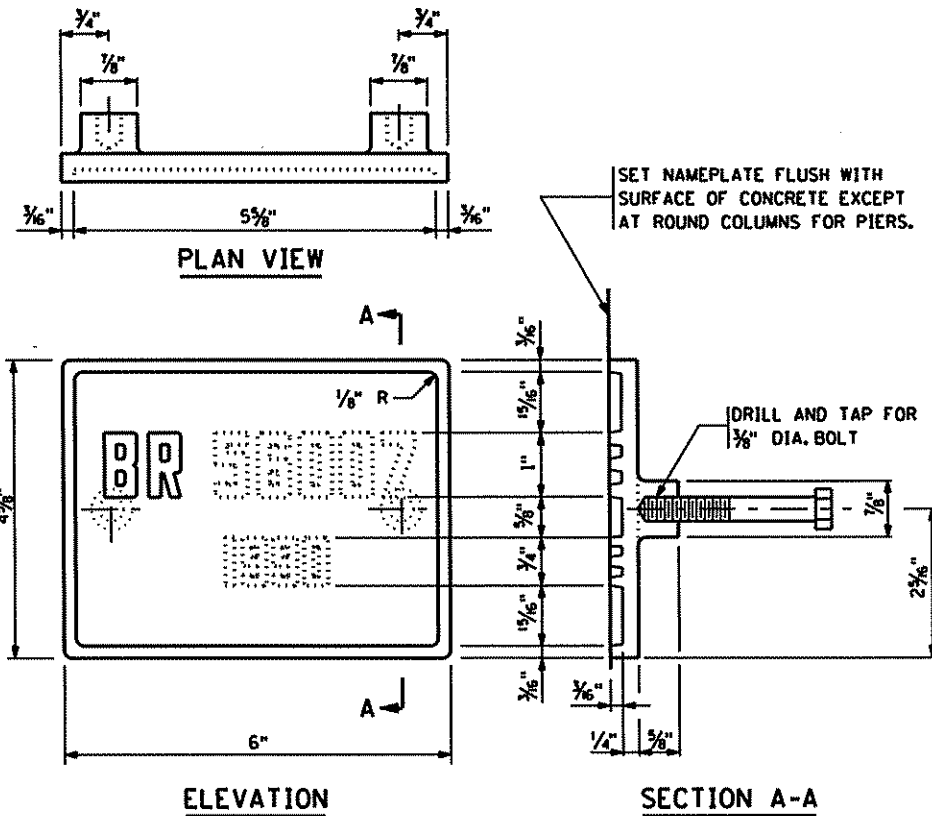
C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE: RIPRAP SLOPE WITH
GEOTEXTILE FILTER
TYPE IV (MODIFIED)

DES: JDA	DR: BJR
CHK: BRL	CHK: JDA

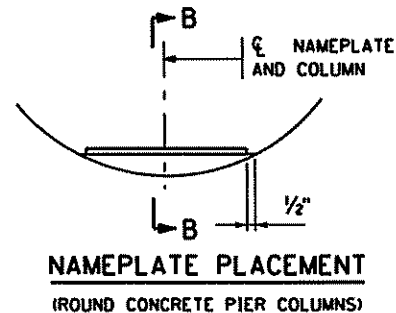
Sheet B20 of B25 Sheets

Bridge No.
02582



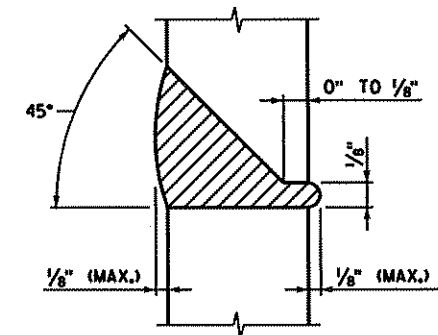
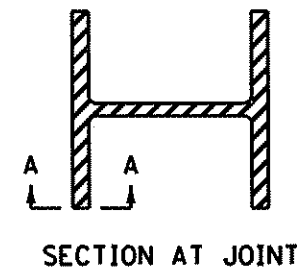
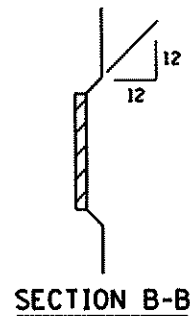
THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 02582
YEAR 2011



1234567890
NUMBERS FOR NAMEPLATE

NOTES:
NO SHOP DRAWING REQUIRED.
MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.
LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.



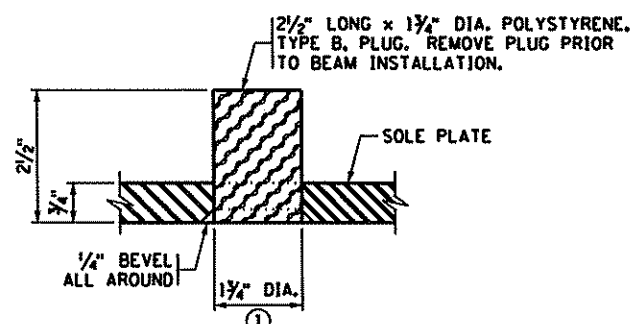
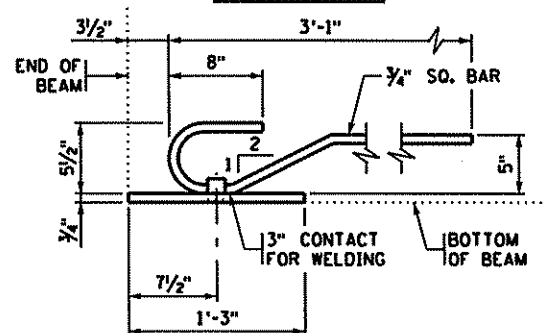
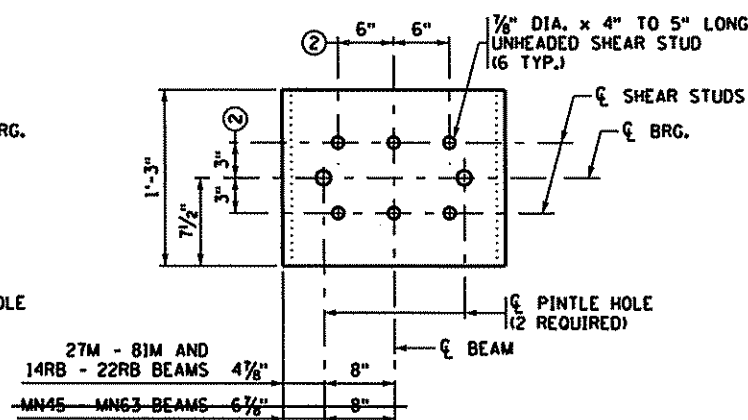
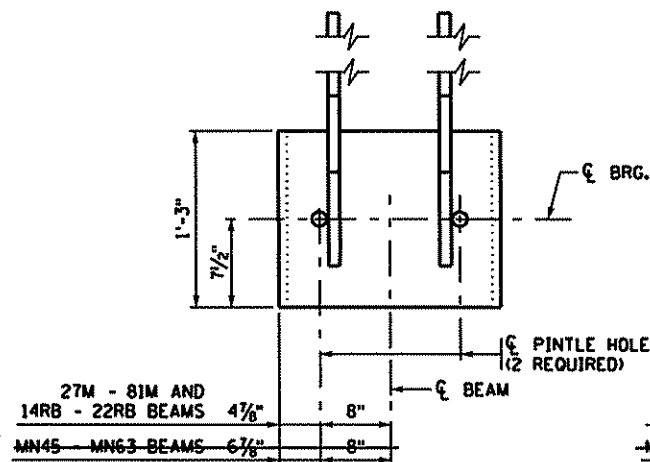
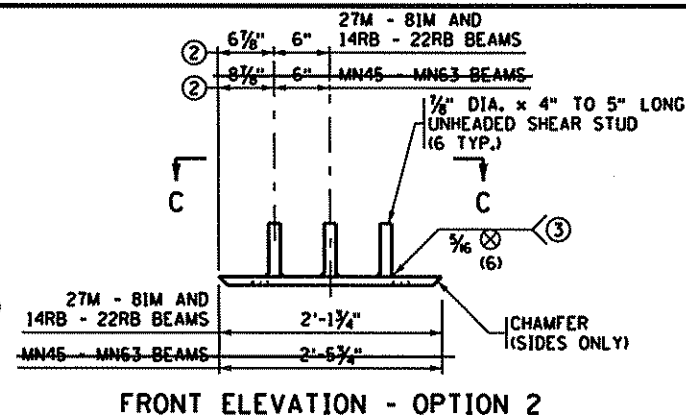
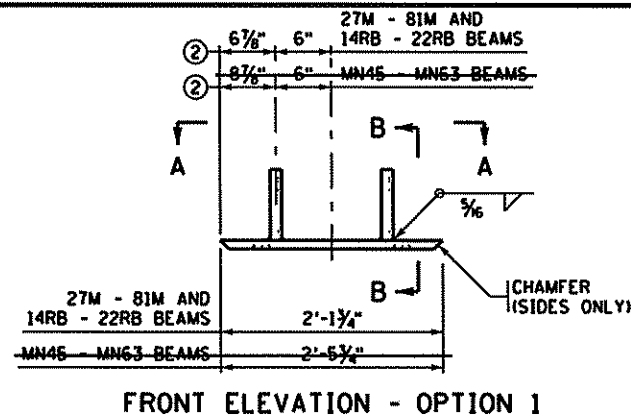
SECTION A-A
100% BUTT WELDED PILE SPLICE

NOTES:
CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011 SHALL BE USED FOR 100% BUTT WELDED SPLICES.
ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Daniel J. Morgan</i> STATE BRIDGE ENGINEER	BRIDGE NAMEPLATE (FOR NEW BRIDGES)		B101

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Daniel J. Morgan</i> STATE BRIDGE ENGINEER	PILE SPLICE (STEEL H BEARING PILES 10" TO 14")		B202

1/3/2011 2:32:43 PM K:\0898-00\cod\plan\br02582\CBR02582_DET1.dgn



NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

WELDED STUDS TO BE WELDABLE CARBON STEEL PER Mn/DOT SPEC. 3391.2D.

SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER Mn/DOT SPEC. 3394 AFTER FABRICATION.

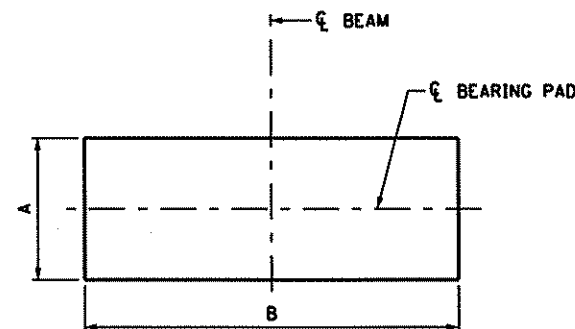
PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.

SOLE PLATES ARE INCIDENTAL TO PRESTRESSED CONCRETE BEAMS.

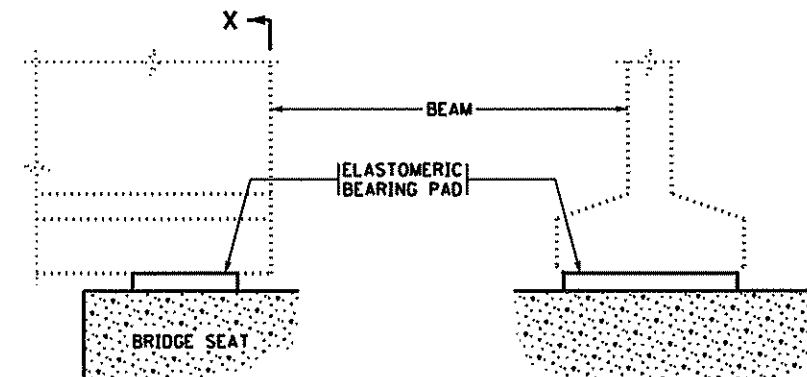
① FOR 1 1/2\"/>

② THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.

③ THE REQUIREMENTS FOR WELDING STUDS SHALL COMPLY WITH AASHTO/AWS D1.5.



PLAN
(BEAM NOT SHOWN)



SIDE ELEVATION

SECTION X-X

TABLE						
PAD TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR
			A	B	D ①	
I	ABT	18RB	12	24	1/2	8.0

NOTES:

ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH Mn/DOT SPEC. 3741.

PAYMENT FOR ELASTOMERIC BEARING PAD, TYPE I, INCLUDED IN ITEM "ELASTOMERIC BEARING PAD" PER EACH.

① "D" INDICATES THE THICKNESS OF THE BEARING PAD.

APPROVED: OCTOBER 26, 2005

David J. Morgan
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

SOLE PLATE
(PRESTRESSED CONCRETE BEAMS)
(FOR BEARINGS WITH PINTLES)

REVISED
06-14-2006
10-28-2008

DETAIL NO.

B303

APPROVED: NOVEMBER 22, 2002

David J. Morgan
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING PAD
(PRESTRESSED CONCRETE BEAMS)

REVISION
12-17-2008

DETAIL NO.

B305

NO.	DATE	BY	CHK	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN 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.

LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



701 Xenia Ave. South
Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700
INFRASTRUCTURE - ENGINEERS - PLANNERS

C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE:

BRIDGE DETAILS

DES: JDA DR: BJR
CHK: BRL CHK: JDA

Sheet B22 of B25 Sheets

Bridge No.
02582

CONCRETE WEARING COURSE

☐ LOW SLUMP

☐ OTHER _____
TYPE OR MANUFACTURER

EXPANSION JOINTS

JOINT MANUFACTURER _____

MANUFACTURER'S IDENTIFICATION _____
MFR'S No. AND/OR LETTER DESIGNATION FOR JOINT USED

GLAND MANUFACTURER _____
NAME AND ADDRESS (CITY, STATE)

SIZE OF GLAND _____

MANUFACTURER'S IDENTIFICATION _____
MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED

ELASTOMERIC BEARING PADS

PAD MANUFACTURER _____
NAME AND ADDRESS (CITY, STATE)

SPECIAL SURFACE FINISH

SYSTEM: _____ COLOR: _____

FINISHING ROADWAY FACES OF BARRIER RAILING

TYPE: _____ COLOR: _____

ANTI-GRAFFITI COATING

MANUFACTURER _____
NAME AND ADDRESS (CITY, STATE)

PRODUCT NAME: _____ LOCATION: _____

PAINT SYSTEM

Mn/DOT SPECIFICATION NUMBER _____
2478 OR 2479 OR OTHER

MANUFACTURER _____
NAME AND ADDRESS (CITY, STATE)

PRIME COAT _____
Mn/DOT MATERIAL SPECIFICATION NUMBER

INTERMEDIATE COAT _____
Mn/DOT MATERIAL SPECIFICATION NUMBER

FINISH COAT _____
Mn/DOT MATERIAL SPECIFICATION NUMBER COLOR

PLAN QUALITY

RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)

DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. _____

BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. _____

SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. _____

(SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT. _____

COMMENTS: _____

NUMBER OF BRIDGE
SUPPLEMENTAL AGREEMENTS: _____ COST: \$ _____

LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE
SPACE PROVIDED AT RIGHT.

BRIDGE REMOVAL / BRIDGE OPENING

NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE):

BRIDGE NUMBER _____ DATE REMOVED _____

DATE NEW BRIDGE WAS OPENED TO TRAFFIC _____

NOTIFY THE BRIDGE OFFICE BRIDGE MANAGEMENT UNIT WITH THIS INFORMATION AS SOON
AS POSSIBLE. (651) 366-4557

OTHER ITEMS ①

① UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.

FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES ☐ NO ☐

SUMMARY OF SIGNIFICANT AS-BUILT CHANGES

THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:

INSPECTOR(S) SIGNATURE _____ DATE _____

CHECKED BY: _____ PROJECT ENGINEER/SUPERVISOR SIGNATURE _____ DATE _____

AT THE TIME OF THE FINAL, THIS COMPLETED AS-BUILT BRIDGE DATA SHEET MUST BE
SUBMITTED TO THE BRIDGE OFFICE - ATTN: REGIONAL CONSTRUCTION ENGINEER (MS610).

FIG. 5-397.900

REVISION: 10-28-2008

APPROVED: SEPTEMBER 26, 2003

Daniel J. Hargrave
STATE BRIDGE ENGINEER

AS-BUILT DETAILS (AS NEEDED)

I HEREBY CERTIFY THAT THIS PLAN 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.

James Archer
LICENSED PROFESSIONAL ENGINEER: JAMES ARCHER
DATE: 1/3/2011 REG NO: 45501



701 Xenia Ave. South
Suite 300
Minneapolis, MN 55415
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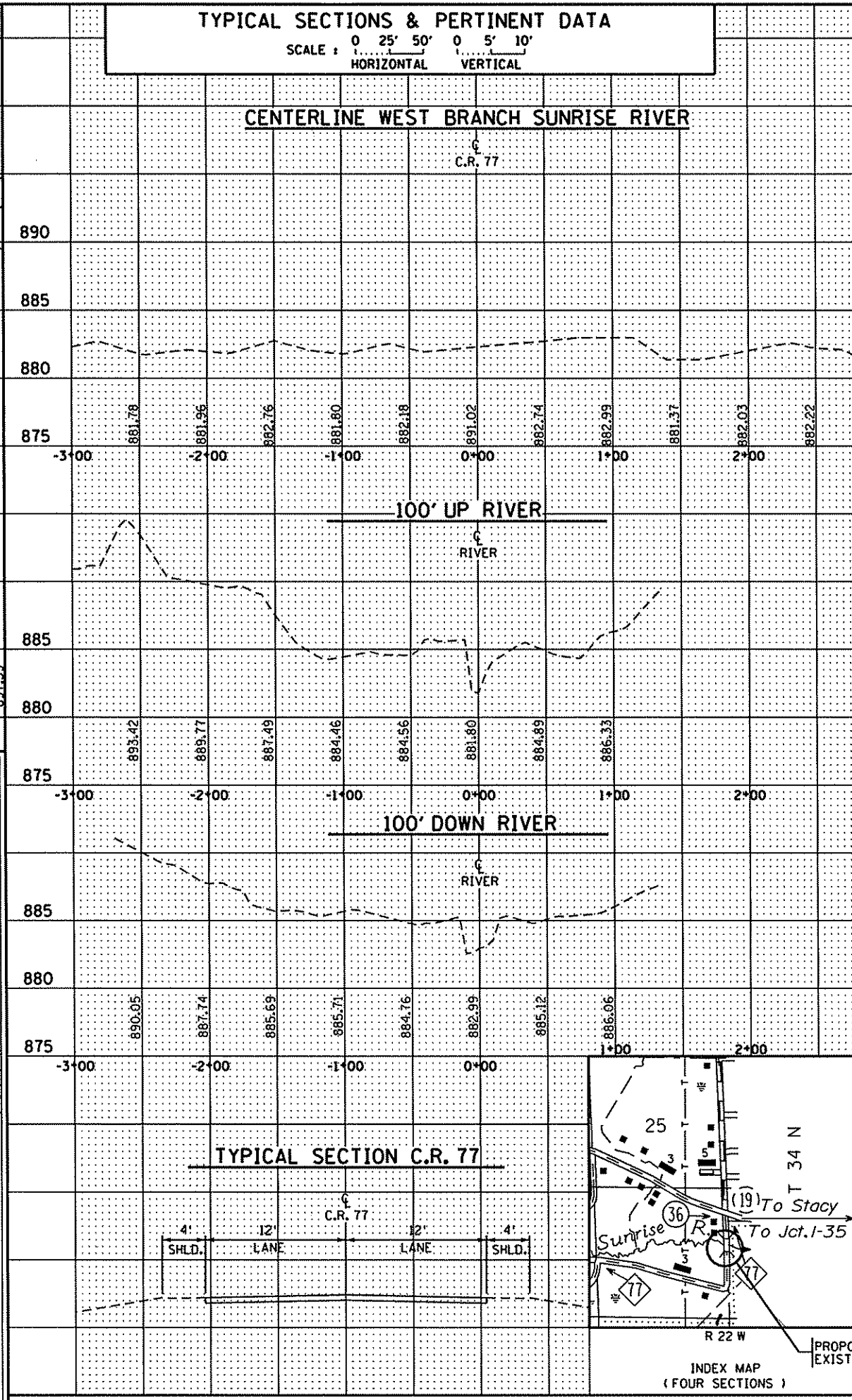
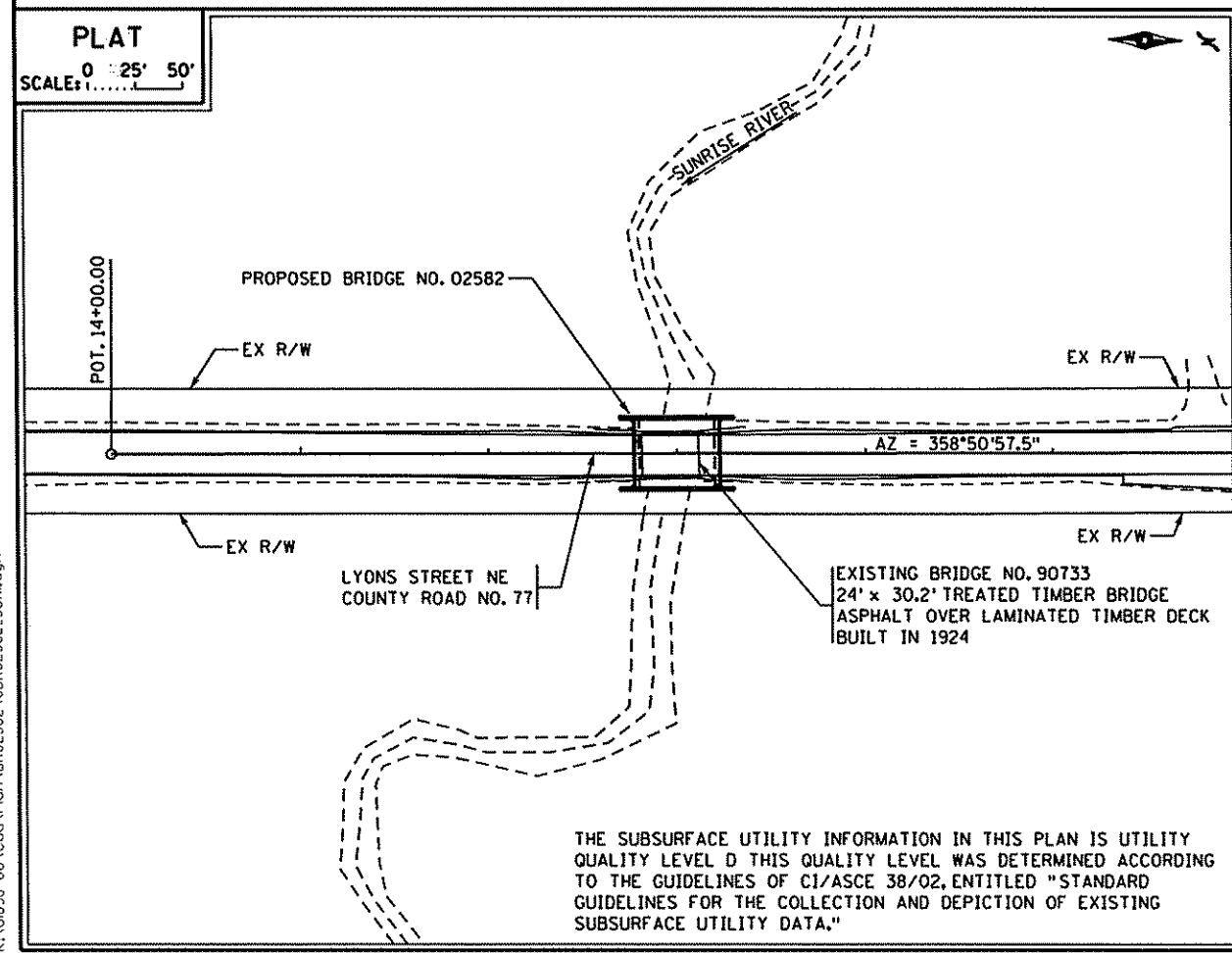
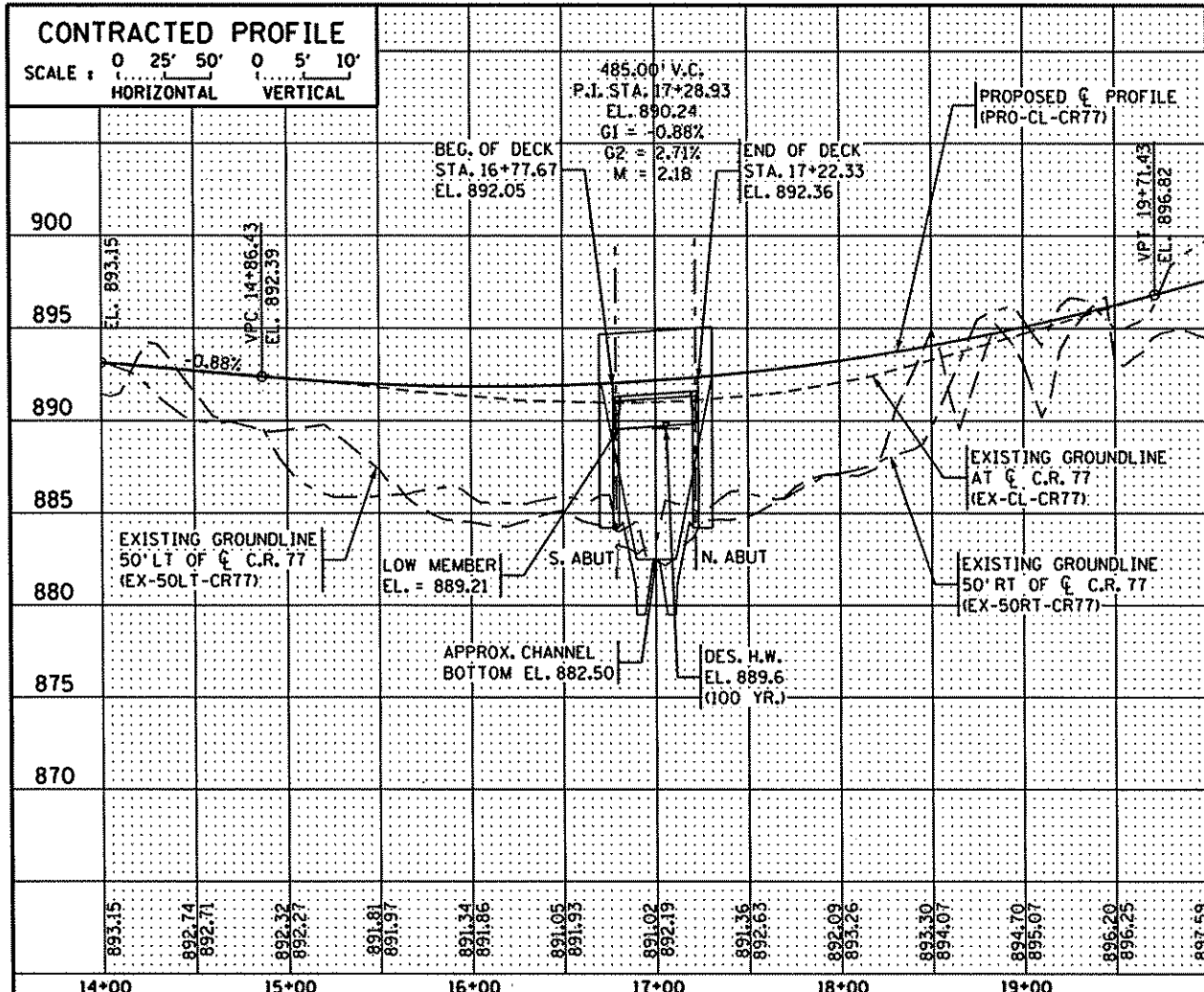
C.R. 77
ANOKA COUNTY
S.A.P. 02-598-06

TITLE:
AS-BUILT BRIDGE DATA

DES: JDA DR: BJR
CHK: BRL CHK: JDA

Sheet B23 of B25 Sheets

Bridge No.
02582



**LOCATION ENGINEER'S OBSERVATIONS
AT BRIDGE SITE**

- SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
- OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY): GIVEN LOCATION, TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
- APPARENT HIGHWATER ELEVATION: UNKNOWN OBTAINED FROM:
- OTHER DATA:

HYDRAULIC ENGINEERS RECOMMENDATION
DATE: 05/04/10

STREAM OR DITCH DESIGNATION: WEST BRANCH SUNRISE RIVER
DRAINAGE AREA: 45.5 SQ. MI.
MAX. FLOOD ON RECORD: UNKNOWN
MAXIMUM OBSERVED HIGHWATER ELEVATION: UNKNOWN
DESIGN FLOOD (100 YR. FREQ.): 628 C.F.S.
HEADWATER ELEVATION: 889.6 FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: 3.5 F.P.S.
TOTAL STAGE INCREASE: 0.4 FT.
LOW MEMBER AT OR ABOVE ELEVATION: 889.0 FT.
WATERWAY AREA REQUIRED BELOW ELEV. 889.0 FT. = 181 SQ. FT. AT RIGHT ANGLES TO CHANNEL
BASIC FLOOD (100 YR. FREQ.): 628 C.F.S.
HEADWATER ELEVATION: 889.6 FT.
TOTAL STAGE INCREASE: 0.4 FT.
MEAN VELOCITY THROUGH STRUCTURE: 3.5 F.P.S.
FLOWLINE ELEVATION: 882.5 FT. SKEW ANGLE: 0°
ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. N/A FT. (500 YR. FREQ.)

SCOUR CONFIRMATION RECOMMENDATION
DATE: 05/04/10

TOTAL SCOUR AT PIER EL. N/A (500 YR. FREQ.)
SCOUR CODE: L

BRIDGE SURVEY SHEETS MADE FROM :
ANOKA COUNTY SURVEY ON 08/05/2009
BENCH MARK ELEVATION 893.258 (N.A.V.D. 88 ADJ.)
LOCATION: EAST 1/4 CORNER SECTION 36
TOWNSHIP 34 N RANGE 22W
332 FEET ± SOUTH OF BRIDGE
NO. 90733

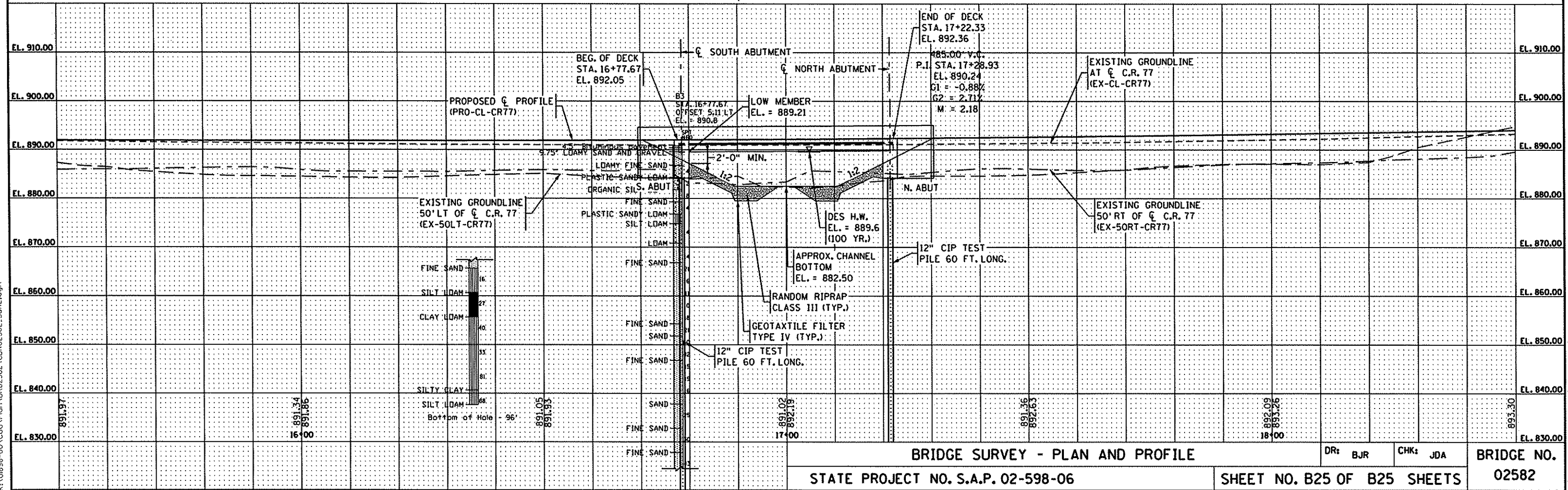
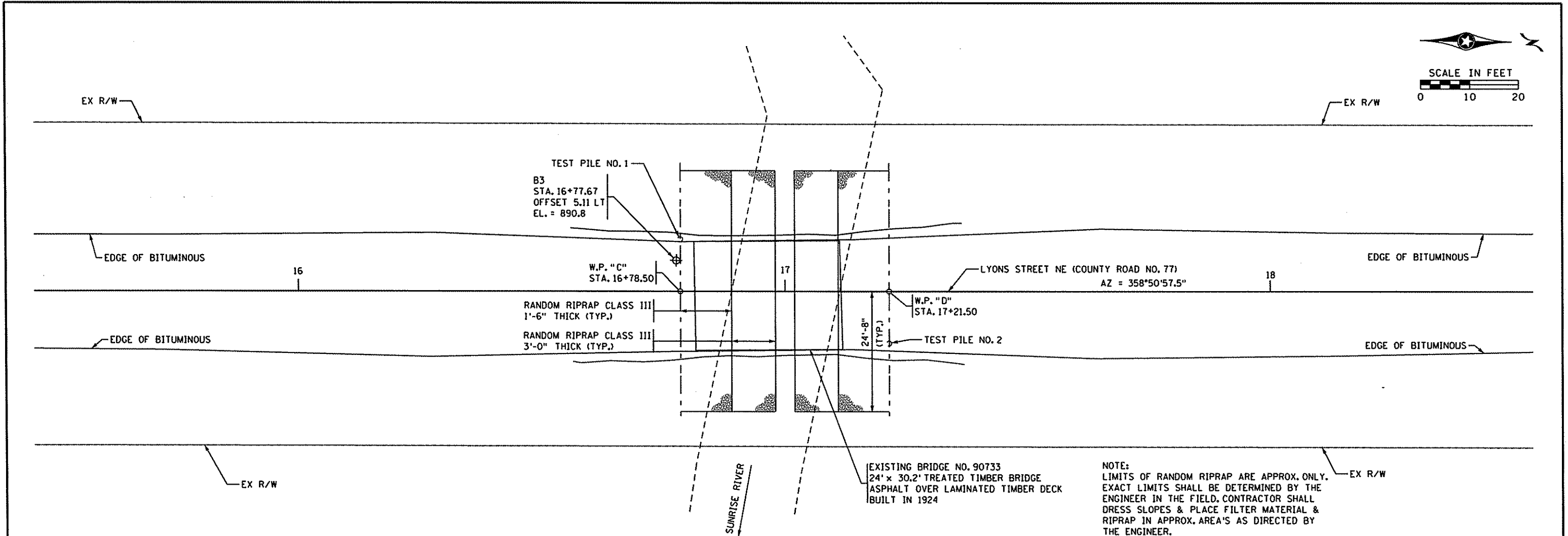
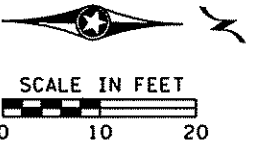
MNDOT MONUMENT:
HORIZONTAL DATUM NAD 83 (96 ADJ.)
VERTICAL DATUM IS NAVD 88

BRIDGE SURVEY
PROPOSED BRIDGE LOCATED ON C.R. 77
1/4 MILE SOUTH OF JCT. C.S.A.H. 36
AND C.R. 77 OVER THE SUNRISE RIVER

SEC 36 T 34 N R 22 W
COUNTY: ANOKA
TOWNSHIP: LINWOOD

BRIDGE NO. 02582

1/3/2010 2:33:28 PM
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1/3/2011 2:33:37 PM
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