

GOVERNING SPECIFICATIONS

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

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

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C1	CONSTRUCTION/SOIL NOTES
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C3	UTILITY TABULATIONS
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THIS PLAN CONTAINS 88 SHEETS



I HEREBY CERTIFY THAT SHEETS T1 - T2 AND B1 - B42 OF THIS PLAN WERE 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.

SIGNATURE: *Casey E. Black*  
 DATE 4/4/13 LIC. NO. 49163 PRINT NAME CASEY E. BLACK



I HEREBY CERTIFY THAT SHEETS C1 THROUGH C44 OF THIS PLAN WERE 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.

SIGNATURE: *Jeffrey N. Tykeson*  
 DATE 4/4/13 LIC. NO. 42792 PRINT NAME JEFFREY N. TYKESON

APPROVED:	<i>James C. Walker</i>	4/8/13
	CITY OF LINO LAKES	DATE
APPROVED:	<i>Robert J. ...</i>	4/4/13
	ANOKA COUNTY ENGINEER	DATE
RECOMMENDED FOR APPROVAL:	<i>...</i>	4/10/13
	DISTRICT TRANSPORTATION ENGINEER	DATE
RECOMMENDED FOR APPROVAL:	<i>Timothy R. Cline</i>	4/10/13
	DISTRICT MATERIALS ENGINEER	DATE
RECOMMENDED FOR APPROVAL:	<i>Scott Coffman</i>	4/10/13
	DISTRICT WATER RESOURCES/HYDRAULICS ENGINEER	DATE
RECOMMENDED FOR APPROVAL:	<i>William J. Degen</i>	4/10/13
	DISTRICT TRAFFIC ENGINEER	DATE
RECOMMENDED FOR APPROVAL:	<i>Nancy Daubert</i>	4/10/13
	STATE BRIDGE ENGINEER	DATE
RECOMMENDED FOR APPROVAL:	<i>Tom R. ...</i>	4/26/13
	FOR STATE PRE-LETTING ENGINEER	DATE
RECOMMENDED FOR APPROVAL:	<i>...</i>	4/26/13
	DIRECTOR, LAND MANAGEMENT	DATE
APPROVED:	<i>Christine ...</i>	4/26/13
	STATE DESIGN ENGINEER	DATE
	<i>D. P. Chen</i>	4/8/13
	DISTRICT STATE AID ENGINEER; REVIEWED FOR COMPLIANCE WITH STATE AND FEDERAL AID RULES/POLICY	DATE
	<i>D. P. Chen</i>	4/10/13
	APPROVED FOR STATE AND FEDERAL AID FUNDING; STATE AID ENGINEER	DATE

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY, MINNESOTA  
 CONSTRUCTION PLAN FOR BRIDGE NO. 02006  
 APPROACH GRADING, BITUMINOUS TRAIL AND PLATE BEAM GUARDRAIL

PEDESTRIAN / BICYCLE BRIDGE OVER T.H. 35W

LOCATED ON: C.S.A.H. 14 FROM: 570 FEET NORTH OF 35W TO: 670 FEET SOUTH OF 35W

STATE PROJECT NO. 002-614-035, 0280-71

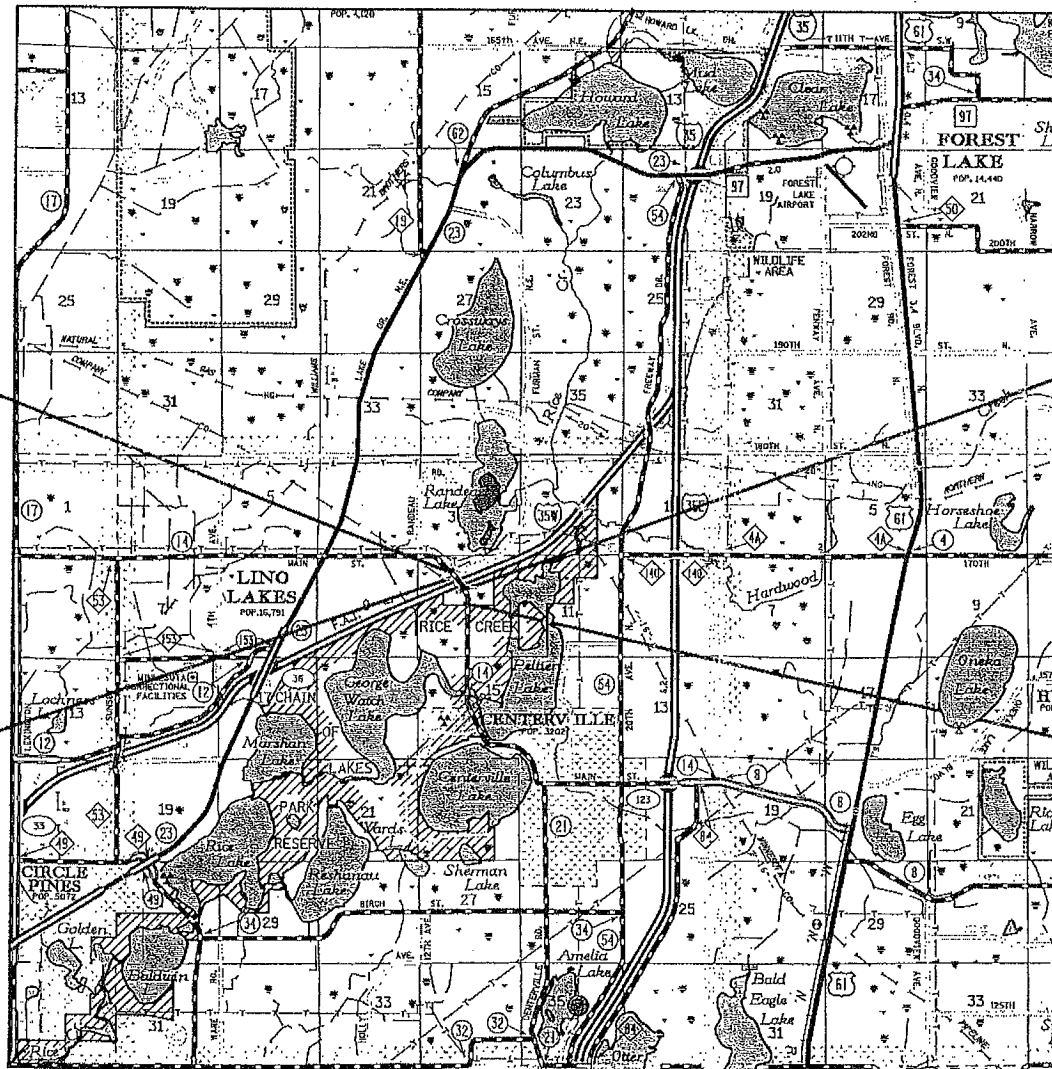
GROSS LENGTH 1281.88 FEET 0.243 MILES  
 BRIDGES-LENGTH 198.33 FEET 0.038 MILES  
 EXCEPTIONS-LENGTH 0.00 FEET 0.000 MILES  
 NET LENGTH 1281.88 FEET 0.243 MILES  
 REF POINT 38+00.630

PLAN SYMBOLS

STATE LINE	---
COUNTY LINE	---
TOWNSHIP OR RANGE LINE	---
SECTION LINE	---
QUARTER LINE	---
SIXTEENTH LINE	---
RIGHT-OF-WAY LINE	---
PRESENT RIGHT-OF-WAY LINE	---
CONTROL OF ACCESS LINE	---
PROPERTY LINE (Except Land Lines)	---
VACATED PLATTED PROPERTY	---
CORPORATE OR CITY LIMITS	---
TRUNK HIGHWAY CENTER LINE	---
CONC. RETAINING WALL	---
RAILROAD	---
RAILROAD RIGHT-OF-WAY LINE	---
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	---
MAIL BOX	---
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 C-CONCRETE	---
S-STONE T-TILE	---
B-BRICK ST-STUCCO	---
IRON PIPE OR ROD	---
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 POLES	---
JOINT TELEPHONE AND POWER ON TELEPHONE POLES	---
ANCHOR	---
STEEL TOWER	---
STREET LIGHT	---
PEDESTAL (TELEPHONE CABLE TERMINAL)	---
GAS MAIN	---
WATER MAIN	---
CONDUIT	---
TELEPHONE CABLE IN CONDUIT	---
ELECTRIC CABLE IN CONDUIT	---
TELEPHONE MANHOLE	---
ELECTRIC MANHOLE	---
BURNED TELEPHONE CABLE	---
BURNED ELECTRIC CABLE	---
AERIAL TELEPHONE CABLE	---
SEWER (SANITARY)	---
SEWER (STORM)	---
SEWER MANHOLE	---
HANDHOLE	---



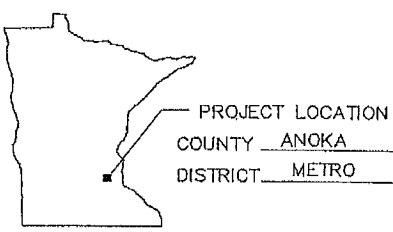
BEGIN S.P. 002-614-035  
 STA. 246+34.00

BEGIN BRIDGE  
 NO. 02006  
 STA. 26+24.16  
 (TRAIL 1)

END BRIDGE  
 NO. 02006  
 STA. 28+22.49  
 (TRAIL 1)

END S.P. 002-614-035  
 STA. 259+15.88

AGREEMENT NO. 03667  
 ANOKA COUNTY  
 S.P. 0280-71 (T.H. 35W=394)  
 METRO DISTRICT



DESIGN DESIGNATION (TRAIL)  
 Design Speed 20MPH  
 Based on STOPPING Sight Distance  
 Height of Eye 4.5' Height of Object 0.0'  
 Design Speed Not Achieved At: N/A

SCALES	
PLAN	1" = 10'
PROFILE	1" = 10' HORIZ. 1" = 10' VERT.
INDEX MAP	NO SCALE

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

9:18:05 AM  
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 4/10/13 10:17:13 AM

THIS PLAN AND/OR SPECIFICATION WAS PREPARED SPECIFICALLY FOR THIS PROJECT, AND ANY RE-USE OF DETAILS OR SPECIFICATIONS ON OTHER PROJECTS IS NOT INTENDED OR AUTHORIZED BY THE DESIGNER. LIABILITY FOR ANY RE-USE ON OTHER PROJECTS IS THE RESPONSIBILITY OF THE PERSON, AGENCY, OR CORPORATION USING PLAN OR SPECIFICATION DATA FROM THIS PROJECT.

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

TABS	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITY PARTICIPATING SP 002-614-035
		2021.501	MOBILIZATION	LUMP SUM	1
		2101.511	CLEARING AND GRUBBING	LUMP SUM	1
		2104.501	REMOVE SEWER PIPE (STORM)	LIN FT	100
A		2104.501	REMOVE CURB AND GUTTER	LIN FT	10
G		2104.501	REMOVE CHAIN LINK FENCE	LIN FT	55
		2104.501	REMOVE GUARD RAIL	LIN FT	88
		2104.503	REMOVE CONCRETE SLOPE PAVING	SQ FT	1070
A		2104.503	REMOVE BITUMINOUS PAVEMENT	SQ FT	5207
		2104.509	REMOVE ANCHORAGE ASSEMBLY	EACH	1
		2104.509	REMOVE CASTING	EACH	2
A		2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	1062
G		2104.521	SALVAGE CHAIN LINK FENCE	LIN FT	135
		2104.521	SALVAGE GUARD RAIL	LIN FT	98
		2104.521	SALVAGE GUARD RAIL-BULL NOSE	LIN FT	102
		2104.523	SALVAGE SIGN	EACH	4
B		2105.501	COMMON EXCAVATION (P)	CU YD	826
B		2105.522	SELECT GRANULAR BORROW MOD (CV) (P)	CU YD	1095
		2105.522	SELECT GRANULAR BORROW MOD 10% (CV) (P)	CU YD	987
		2105.523	COMMON BORROW (CV) (P)	CU YD	1893
		2105.602	SETTLEMENT PLATES	EACH	4
B		2105.607	PREMIUM TOPSOIL BORROW	CU YD	108
C		2211.503	AGGREGATE BASE (CV) CLASS 5	CU YD	240
		2301.551	BRIDGE APPROACH PANEL (P)	EACH	2
C		2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,C)	TON	239
		2401.501	STRUCTURAL CONCRETE (1A43) (P)	CU YD	130
		2401.501	STRUCTURAL CONCRETE (3Y43) (P)	CU YD	216
		2401.512	BRIDGE SLAB CONCRETE (3Y33) (P)	SQ FT	2770
		2401.541	REINFORCEMENT BARS (P)	POUND	10740
		2401.541	REINFORCEMENT BARS (EPOXY COATED) (P)	POUND	53610
		2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
		2401.601	FOUNDATION PREPARATION PIER	LUMP SUM	1
		2402.591	EXPANSION JOINT DEVICES TYPE 4 (P)	LIN FT	28
		2402.595	BEARING ASSEMBLY	EACH	8
		2403.502	TREATED TIMBER	MBM	3
		2405.502	PRESTRESSED CONCRETE BEAMS 63M (P)	LIN FT	390
B		2411.511	STRUCTURE EXCAVATION CLASS U (P)	CU YD	219
B	(1)	2411.604	REINFORCED SOIL SLOPE (P)	SQ YD	456
		2433.516	ANCHORAGES TYPE REINF BARS	EACH	40
		2452.507	C-I-P CONCRETE PILING DELIVERED 12"	LIN FT	2240
		2452.508	C-I-P CONCRETE PILING DRIVEN 12"	LIN FT	2240
		2452.519	C-I-P CONC TEST PILE 80 FT LONG 12"	EACH	5
		2501.515	15" RC PIPE APRON	EACH	1
		2502.501	4" PRECAST CONCRETE HEADWALL	EACH	3
		2502.501	6" PRECAST CONCRETE HEADWALL	EACH	2
		2502.502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1
		2502.521	6" TP PIPE DRAIN	LIN FT	164
		2502.541	4" PERF TP PIPE DRAIN	LIN FT	795
		2503.511	15" RC PIPE SEWER	LIN FT	26
		2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH	2
		2503.603	TRENCH DRAIN	LIN FT	6
		2506.501	CONST DRAINAGE STRUCTURE DESIGN F	LIN FT	15
		2506.501	CONST DRAINAGE STRUCTURE DESIGN G	LIN FT	4
J		2506.516	CASTING ASSEMBLY	EACH	5
		2506.522	ADJUST FRAME & RING CASTING	EACH	2
		2511.501	RANDOM RIPRAP CLASS II	CU YD	18
		2514.501	CONCRETE SLOPE PAVING	SQ YD	228
D		2521.618	CONCRETE WALK	SQ FT	160
D		2531.501	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	1032
D		2531.618	TRUNCATED DOMES	SQ FT	20
		2533.507	PORTABLE PRECAST CONC BARRIER DES 8337	LIN FT	2460
		2540.603	METAL RAILING TYPE 1 (P)	LIN FT	391
		2540.603	METAL RAILING TYPE 2 (P)	LIN FT	40
		2540.603	METAL RAILING TYPE 3 (P)	LIN FT	26
		2554.501	TRAFFIC BARRIER DESIGN B8338	LIN FT	338
		2554.511	INSTALL TRAFFIC BARRIER DESIGN BULL NOSE	LIN FT	102

TABS	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITY PARTICIPATING SP 002-614-035
		2554.511	INSTALL TRAFFIC BARRIER DESIGN B8338	LIN FT	98
		2554.521	ANCHORAGE ASSEMBLY-PLATE BEAM	LIN FT	1
	(2)	2554.602	IMPACT ATTENUATOR BARRELS	EACH	108
	(9)	2554.603	RECONSTRUCT TENSION CABLE GUARDRAIL	LIN FT	43
	(3)	2554.615	IMPACT ATTENUATOR NO 1	ASSEMBLY	2
G		2557.501	WIRE FENCE DESIGN 60V-9322	LIN FT	990
G		2557.527	ELECTRICAL GROUND	EACH	2
G		2557.603	INSTALL CHAIN LINK FENCE	LIN FT	135
		2563.601	TRAFFIC CONTROL	LUMP SUM	1
		2563.602	RAISED PAVEMENT MARKER TEMPORARY	EACH	275
	(7)	2563.602	MEDIAN BARRIER DELINEATOR	EACH	90
		2564.554	SNOW PLOW MARKER X4-5	EACH	2
		2564.602	INSTALL SIGN	EACH	4
F		2573.502	SILT FENCE, TYPE MACHINE SLICED	LIN FT	1135
		2573.530	STORM DRAIN INLET PROTECTION	EACH	5
F	(6)	2575.501	SEEDING	ACRE	1
F		2575.502	SEED MIXTURE 250	POUND	70
F	(5)	2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	5950
F	(5)	2575.523	EROSION CONTROL BLANKETS CATEGORY 4	SQ YD	456
F		2575.532	FERTILIZER TYPE 3	POUND	350
	(8)	2575.570	RAPID STABILIZATION METHOD 2	ACRE	1
		2581.501	REMOVABLE PREFORMED PLASTIC MARKING	LIN FT	1250
		2582.502	4" SOLID LINE WHITE-EPOXY	LIN FT	200

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

PLATE NO.	DESCRIPTION
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133C	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE TIES
4005L	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) * CASTING NO. 715 AND 716
4129G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 802A
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4160D	CURB BOX CASTING FOR CATCH BASIN - CASTING NO. 823A AND 833A
4180J	MANHOLE OR CATCH BASIN STEP
7035N	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7065C	BITUMINOUS CURB
7100H	CONCRETE CURB AND GUTTER (DESIGN B and DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
8000I	STANDARD BARRICADES
8307S	W-BEAM GUARDRAIL & END ANCHORAGES (INSTALLATION WITH WOOD POSTS) (4 SHEETS)
8318C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES AND BCT'S
8337C	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER (TYPE "F") (3 SHEETS)
8338D	W-BEAM GUARDRAIL & END ANCHORAGES (STEEL POSTS) (4 SHEETS)
9322K	CHAIN LINK FENCE (2 SHEETS)

NOTES:

- (P) PLAN QUANTITY
- (1) 70 DEGREE CASE II REINFORCED SOIL SLOPE (RSS)
- (2) TEMPORARY CRASH ATTENUATORS, 20 BARRELS ADDED FOR REPLACEMENT OF DAMAGED BARRELS
- (3) CRASH-CUSION/ATTENUATING TERMINAL (C-A-T)
- (4) FOR TEMPORARY EROSION CONTROL
- (5) INCLUDES MAINTENANCE. NATURAL NETTING AND STICHING MATERIAL ONLY.
- (6) INCLUDES HYDROSEEDING REINFORCED SOIL SLOPE (RSS)
- (7) PLACE ON FACE OF PORTABLE CONCRETE BARRIER AT TAPER LOCATIONS
- (8) PLACE RAPID STABILIZATION AS DIRECTED BY THE ENGINEER.
- (9) INCLUDES FURNISHING & INSTALLING NEW ANCHORAGE ASSEMBLY AND REMOVAL OF EXISTING ANCHORAGE ASSEMBLY

GENERAL NOTES:

- 1. TABULATION TABLES A, B, C, D, AND F ARE LOCATED ON SHEET C2.
- 2. TABULATION TABLE J IS LOCATED ON SHEET C36.

12:15:04 PM 4/25/13 H:\P\01\B\01\BRP\Plans\Final\7781\_esf01.dgn

1	4/25/13	CEB	JNT	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Pr Int Name: CASEY E. BLACK  
 Date: 4/25/13 License # 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

DRAWN BY C. BLACK  
 DESIGNED BY C. BLACK  
 CHECKED BY J. TYKESON  
 COMM. NO. 7781



ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 STATEMENT OF ESTIMATED QUANTITIES

SHEET  
T2  
OF  
T2

**DESIGN DATA**

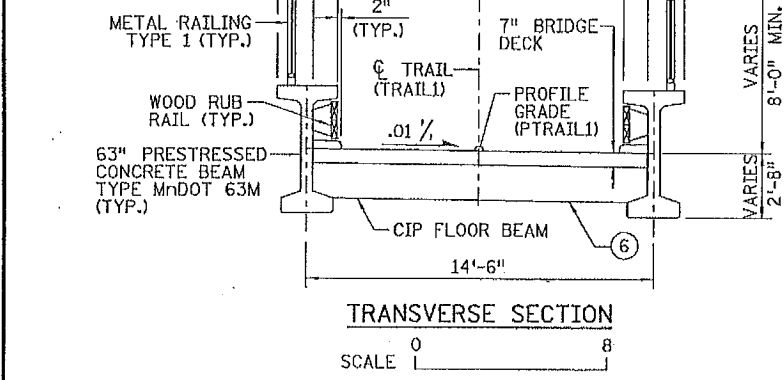
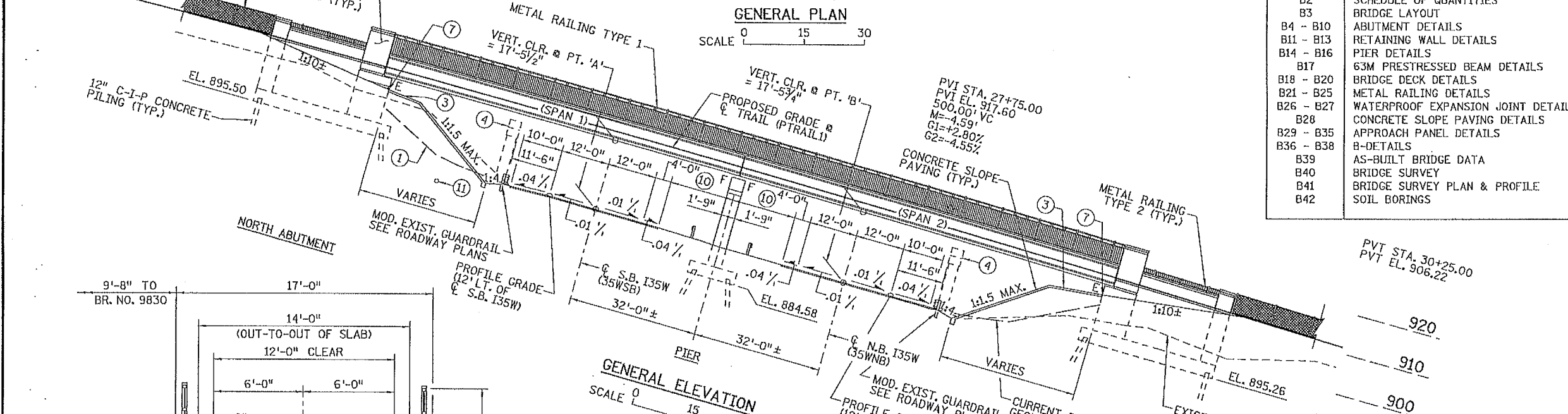
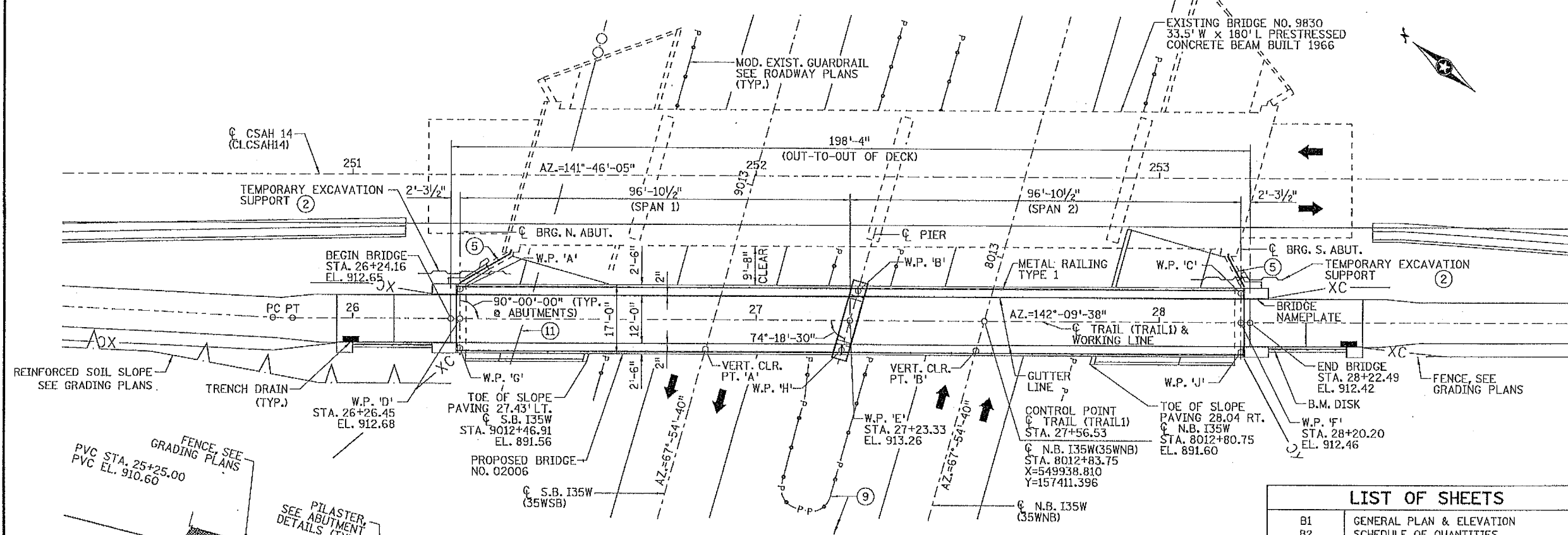
2012 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.  
 2009 AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES.  
 LOAD AND RESISTANCE FACTOR DESIGN METHOD  
 90 PSF or H10 TRUCK LIVE LOADING  
 MATERIAL DESIGN PROPERTIES:  
 REINFORCED CONCRETE:  
 f'c = 4 ksi n = 8  
 fy = 60 ksi for reinforcement  
 PRESTRESSED CONCRETE:  
 f'c = 6800 psi n = 1  
 fs = 27000 psi LOW RELAXATION STRANDS  
 DESIGN SPEED:  
 UNDER = 70 MPH  
 DECK AREA 2770 ft<sup>2</sup>.

**CONSTRUCTION NOTES**

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.  
 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 AND PLACING ANCHOR RODS.  
 THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR NUMBER WHICH APPROXIMATES THE NOMINAL DIAMETER OF THE BAR IN MILLIMETERS (mm).  
 BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED.  
 ALL REINFORCEMENT SHALL BE 2 IN. CLEAR, UNLESS SHOWN OR NOTED OTHERWISE.  
 THE PILE LOADS SHOWN IN THE PLANS AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (Rn) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.  
 THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

**LIST OF SHEETS**

B1	GENERAL PLAN & ELEVATION
B2	SCHEDULE OF QUANTITIES
B3	BRIDGE LAYOUT
B4 - B10	ABUTMENT DETAILS
B11 - B13	RETAINING WALL DETAILS
B14 - B16	PIER DETAILS
B17	63M PRESTRESSED BEAM DETAILS
B18 - B20	BRIDGE DECK DETAILS
B21 - B25	METAL RAILING DETAILS
B26 - B27	WATERPROOF EXPANSION JOINT DETAILS
B28	CONCRETE SLOPE PAVING DETAILS
B29 - B35	APPROACH PANEL DETAILS
B36 - B38	B-DETAILS
B39	AS-BUILT BRIDGE DATA
B40	BRIDGE SURVEY
B41	BRIDGE SURVEY PLAN & PROFILE
B42	SOIL BORINGS



**NOTES:**

- FOOTING DEPTH OF ABUTMENTS ARE IN COMPLIANCE WITH CURRENT MNDOT ROADWAY GEOMETRIC REQUIREMENTS FOR FUTURE SECTION CONSISTING OF A 10'-0" SHOULDER AT 4% 14' DIMENSION AT 1:10 AND 6' DIMENSION AT 1:6 TO PRODUCE A 30' CLEAR ZONE. FUTURE SLOPE PAVING SHALL BE AT 1:2. FOR THIS PROJECT, ABUTMENTS WILL BE BACKFILLED TO MATCH, OR BE ALIGNED WITH GRADES OF EXISTING BRIDGE NO. 9830.
- LIMITS AND DESIGN OF TEMPORARY SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL IN COMPLIANCE WITH THE SPECIAL PROVISIONS.
- SLOPE AT 1:10 TO MATCH EXISTING SLOPE PAVING AND BREAKLINE LOCATION.
- EXISTING SIDE PIER AT BRIDGE NO. 9830.
- METAL RAILING TYPE 3 ON PROPOSED RETAINING WALLS 'A' AND 'B', AND MODIFIED EXISTING WINGWALL.
- SLOPE FLOOR BEAM TO MATCH TOP OF DECK.
- PROPOSED SLOPE PAVING ELEVATIONS AT ABUTMENTS ARE DEPENDANT ON THE EXISTING BRIDGE NO. 9830 SLOPE PAVING:  
 NW CORNER ELEVATION = APPROX. 907.90  
 NE CORNER ELEVATION = APPROX. 908.39  
 SW CORNER ELEVATION = APPROX. 908.11  
 SE CORNER ELEVATION = APPROX. 907.62
- SEE BORING SURVEY SHEET FOR INPLACE UTILITY INFORMATION.
- MODIFY EXISTING GUARDRAIL, MEDIAN TURNAROUND, AND 3-CABLE TENSION GUARDRAIL. SEE GRADING PLANS.
- APPROXIMATELY 16'-0"
- EXISTING FIBER OPTIC LINE. SEE BRIDGE SURVEY PLAN AND PROFILE SHEET B44 FOR REQUIREMENTS AND ADDITIONAL EXISTING UTILITY INFORMATION.

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.  
 Print Name: CASEY E. BLACK  
 Signature: [Signature]  
 Date: 4/4/13 License: 49163  
 SRH Consulting Group, Inc.

**ANOKA COUNTY**  
**GENERAL PLAN & ELEVATION**  
**BRIDGE NO. 02006**  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 2.2 MILES NE OF JCT. OF CSAH 23 & I-35W  
 63M INCH PRESTRESSED CONCRETE BEAMS  
 SPANS 97' - 97'  
 12' TRAIL  
 BRIDGE I.D. NO. 505  
 SEC. 10, T31N, R22W,  
 ANOKA COUNTY  
 APPROVED: [Signature] 4/11/13  
 ANOKA COUNTY ENGINEER DATE  
 APPROVED: [Signature] 4/10/13  
 STATE ENGINEER DATE

**SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE**

ITEM NO.	ITEM	UNIT	QUANTITY
② 2104	REMOVE CONCRETE SLOPE PAVING	SQ FT	1070
2105	SELECT GRANULAR BORROW MOD 10% (CV)	CU YD	987 (P)
2301	BRIDGE APPROACH PANEL	EACH	2 (P)
2401	STRUCTURAL CONCRETE (1A43)	CU YD	130 (P)
2401	STRUCTURAL CONCRETE (3Y43)	CU YD	216 (P)
2401	BRIDGE SLAB CONCRETE (3Y33)	SQ FT	2770 (P)
2401	REINFORCEMENT BARS	POUND	10740 (P)
2401	REINFORCEMENT BARS (EPOXY COATED)	POUND	53610 (P)
2401	FOUNDATION PREPARATION PIER	LUMP SUM	1
2401	STRUCTURE EXCAVATION	LUMP SUM	1
2402	EXPANSION JOINT DEVICES TYPE 4	LIN FT	28 (P)
2402	BEARING ASSEMBLY	EACH	8
2403	TREATED TIMBER	MBM	3
2405	PRESTRESSED CONCRETE BEAMS 63M	LIN FT	390 (P)
2433	ANCHORAGES TYPE REINF BARS	EACH	40
2452	C-I-P CONCRETE PILING DELIVERED 12"	LIN FT	2240
2452	C-I-P CONCRETE PILING DRIVEN 12"	LIN FT	2240
2452	C-I-P CONG TEST PILE 80 FT LONG 12"	EACH	5
2502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1
① 2503	TRENCH DRAIN	LIN FT	6
② 2514	CONCRETE SLOPE PAVING	SQ YD	228
2540	METAL RAILING TYPE 1	LIN FT	391 (P)
2540	METAL RAILING TYPE 2	LIN FT	40 (P)
2540	METAL RAILING TYPE 3	LIN FT	26 (P)

**NOTES:**

- ① TRENCH DRAIN TO BE PAID FOR BY LENGTH OF TRENCH DRAIN UNITS. 4-INCH TP PIPE AND CONNECTION TO DRAINAGE STRUCTURE SHALL BE INCIDENTAL.
- ② QUANTITY MEASURED PERPENDICULAR TO SLOPE OF GRADE.

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1	4/1/13	CEB	CLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Prt Name: CASEY E. BLACK  
 Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



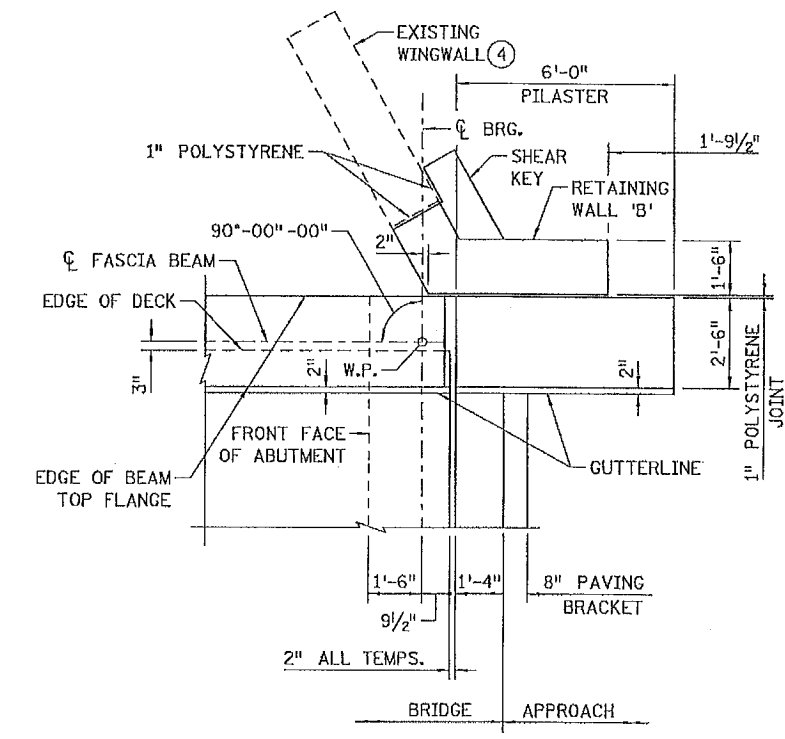
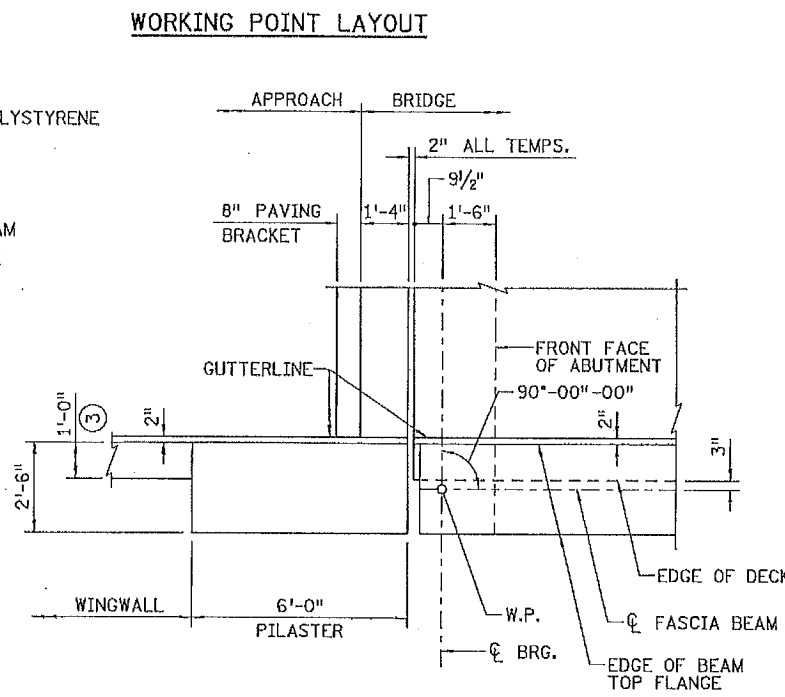
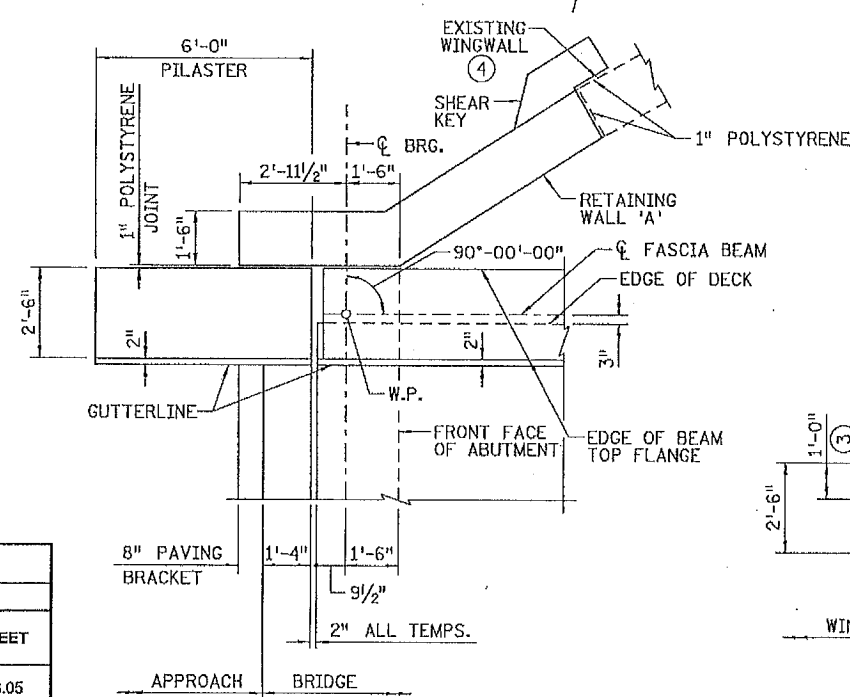
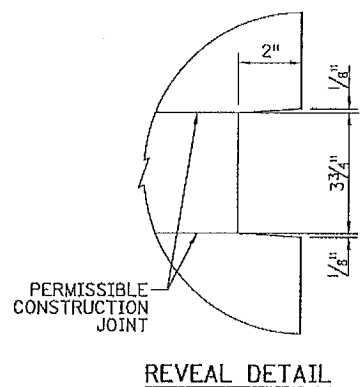
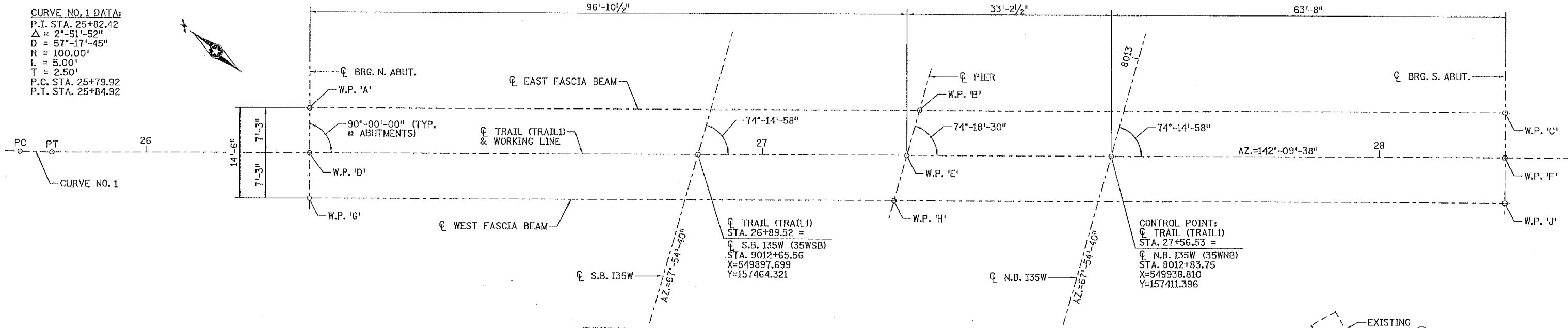
ENGINEERS  
 PLANNERS  
 DESIGNERS

**ANOKA COUNTY**  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 SCHEDULE OF QUANTITIES

SHEET  
 B2  
 OF  
 B42



CURVE NO. 1 DATA:  
 P.I. STA. 25+82.42  
 $\Delta = 2^{\circ}-51'-52''$   
 $D = 57^{\circ}-17'-45''$   
 $R = 100.00'$   
 $L = 5.00'$   
 $T = 2.50'$   
 P.C. STA. 25+79.92  
 P.T. STA. 25+84.92



	TOP OF ROADWAY TO BRIDGE SEAT				TOTAL	
	SLAB THICKNESS	STOOL HEIGHT	BEAM HEIGHT	BEARING HEIGHT	INCHES	FEET
NORTH ABUTMENT	7"	N/A	25"	4 5/8"	36 5/8"	3.05
PIER	7"	N/A	25"	3 1/4"	35 1/4"	2.94
SOUTH ABUTMENT	7"	N/A	25"	4 5/8"	36 5/8"	3.05

POINT	STATION	DIMENSIONS BETWEEN WORKING POINTS									COORDINATES		ELEVATION			POINT
		A	B	C	D	E	F	G	H	J	X	Y	TOP OF FIN. DECK	FIN. DECK TO BR. SEAT	BRIDGE SEAT	
A	26+26.45		98.91		7.25	97.15				194.29	549864.738	157518.573	912.76	3.05	909.71	A
B	27+25.36			94.84		7.53	95.12	99.97	95.94	194.29	549925.415	157440.459	913.33	2.94	910.39	B
C	28+20.20						7.25	194.29	99.97		549983.593	157365.562	912.53	3.05	909.48	C
D	26+26.45					96.87			95.11		549859.012	157514.126	912.88	-	-	D
E	27+23.33						96.88		7.53	97.15	549818.440	157437.620	913.26	-	-	E
F	28+20.20								7.25		549977.868	157361.114	912.46	-	-	F
G	26+26.45								94.84		549853.286	157509.678	912.61	3.05	909.56	G
H	27+21.29								98.91		549811.465	157434.781	913.19	2.94	910.25	H
J	28+20.20										549972.142	157356.667	912.39	3.05	909.34	J

- NOTES:
- TOP OF DECK ELEVATION IS THEORETICAL AND BASED ON A CONTINUATION OF THE DECK CROSS SLOPE TO THE CENTERLINE OF THE PRESTRESSED CONCRETE BEAM. ACTUAL DECK LIMIT WILL TERMINATE AT THE FACE OF THE BEAM WEB.
  - DIMENSION IS GIVEN FROM THEORETICAL BOTTOM OF DECK ELEVATION AT CENTERLINE OF BEAM TO BOTTOM OF BEAM BOTTOM FLANGE.
  - DIMENSION AT TOP OF WINGWALL.
  - MODIFY TOP OF EXISTING WINGWALL TO BE LEVEL AND RETAIN PROPOSED GRADE, SEE RETAINING WALL DETAILS.

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 4/1/2013  
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1	4/1/13	CEB	CLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Pr Int Name: CASEY E. BLACK  
 Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



ENGINEERS PLANNERS DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 BRIDGE LAYOUT

SHEET B3 OF B42



NORTH ABUTMENT ELEVATIONS			
POINT	STATION	ELEVATION	LOCATION DESCRIPTION
A	N/A	917.06	TOP OF 2.5 FT. X 4.0 FT. PILASTER
B	25+99.99	914.81	TOP OF WALL
C	26+19.49	915.11	TOP OF WALL
D1	N/A	920.90	TOP OF EAST 2.5 FT. X 6.0 FT. PILASTER
D2	N/A	920.78	TOP OF WEST 2.5 FT. X 6.0 FT. PILASTER
E	N/A	911.33	TOP OF BACKWALL
F1	26+26.45	909.71	TOP OF EAST BEARING SEAT (W.P. 'A')
F2	26+26.45	909.56	TOP OF WEST BEARING SEAT (W.P. 'G')
G	N/A	895.60	BOTTOM OF PILE CAP/FOOTING
H1	25+95.99	912.49	TOP OF CURB
H2	25+99.99	912.56	TOP OF CURB
J1	26+19.49	912.86	TOP OF CURB
J2	26+25.49	912.95	TOP OF CURB
K1	26+19.49	912.98	TOP OF CURB
K2	26+25.49	913.06	TOP OF CURB
L	N/A	909.25	FRONT FACE ABUTMENT ELEVATION

SOUTH ABUTMENT ELEVATIONS			
POINT	STATION	ELEVATION	LOCATION DESCRIPTION
A	N/A	916.78	TOP OF 2.5 FT. X 4.0 FT. PILASTER
B	28+46.66	914.53	TOP OF WALL
C	28+27.16	914.87	TOP OF WALL
D1	N/A	920.67	TOP OF EAST 2.5 FT. X 6.0 FT. PILASTER
D2	N/A	920.55	TOP OF WEST 2.5 FT. X 6.0 FT. PILASTER
E	N/A	911.09	TOP OF BACKWALL
F1	28+20.20	909.48	TOP OF EAST BEARING SEAT (W.P. 'C')
F2	28+20.20	909.34	TOP OF WEST BEARING SEAT (W.P. 'J')
G	N/A	895.26	BOTTOM OF PILE CAP/FOOTING
H1	28+50.66	912.20	TOP OF CURB
H2	28+46.66	912.28	TOP OF CURB
J1	28+27.16	912.62	TOP OF CURB
J2	28+21.16	912.72	TOP OF CURB
K1	28+27.16	912.74	TOP OF CURB
K2	28+21.16	912.84	TOP OF CURB
L	N/A	909.01	FRONT FACE ABUTMENT ELEVATION

NORTH & SOUTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	64.3
FACTORED DOWNDRAW	35.7
* FACTORED DESIGN LOAD = PILE BEARING RESISTANCE	100.0 (3)

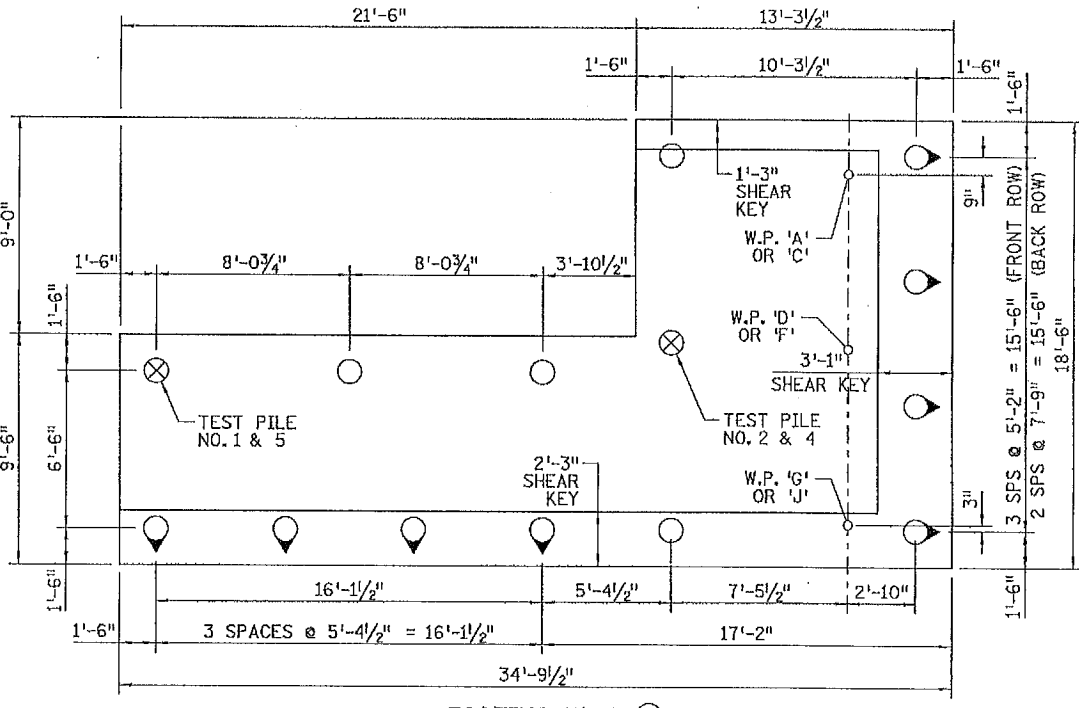
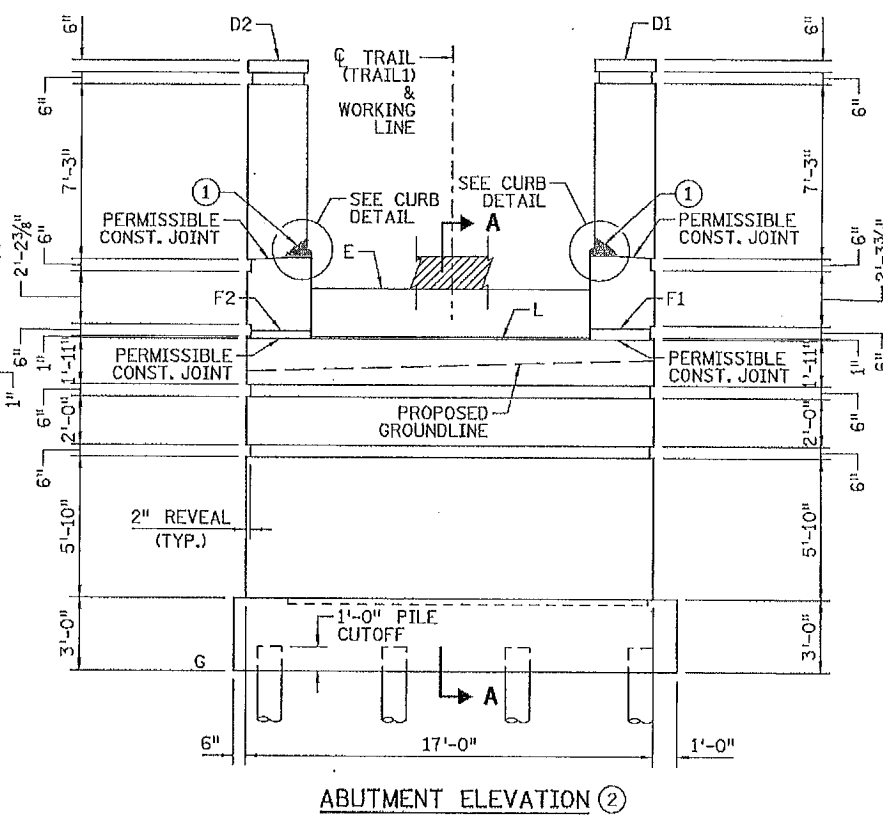
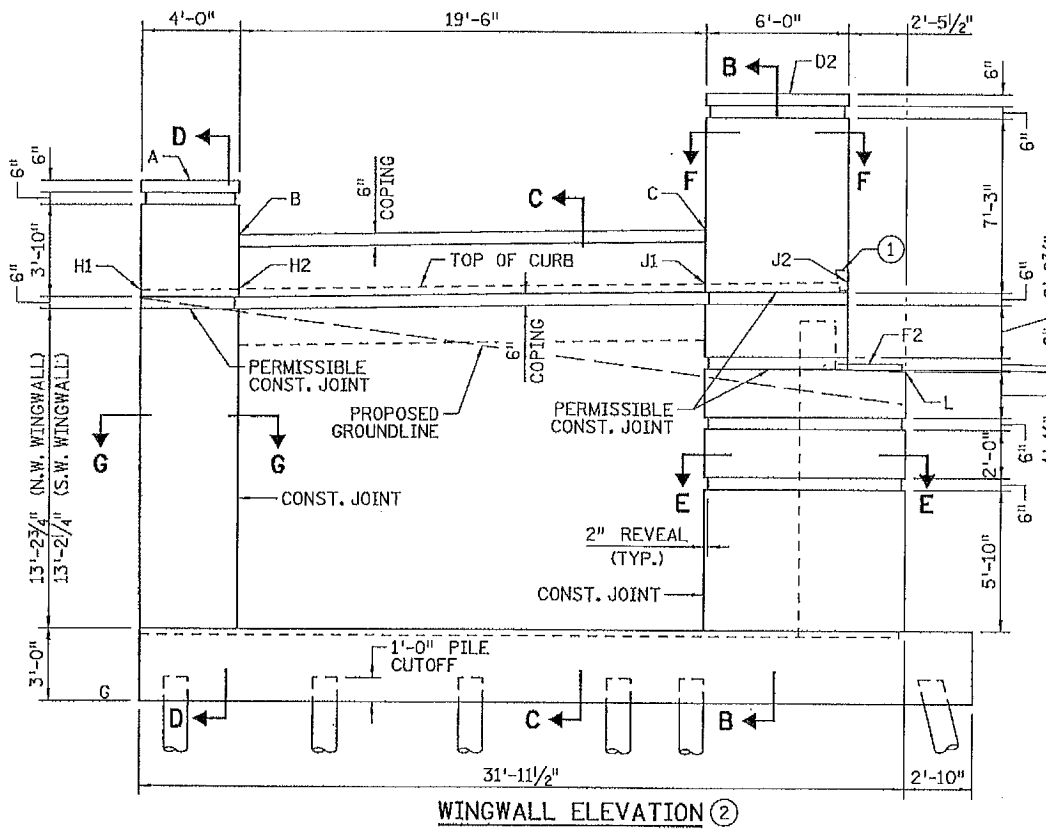
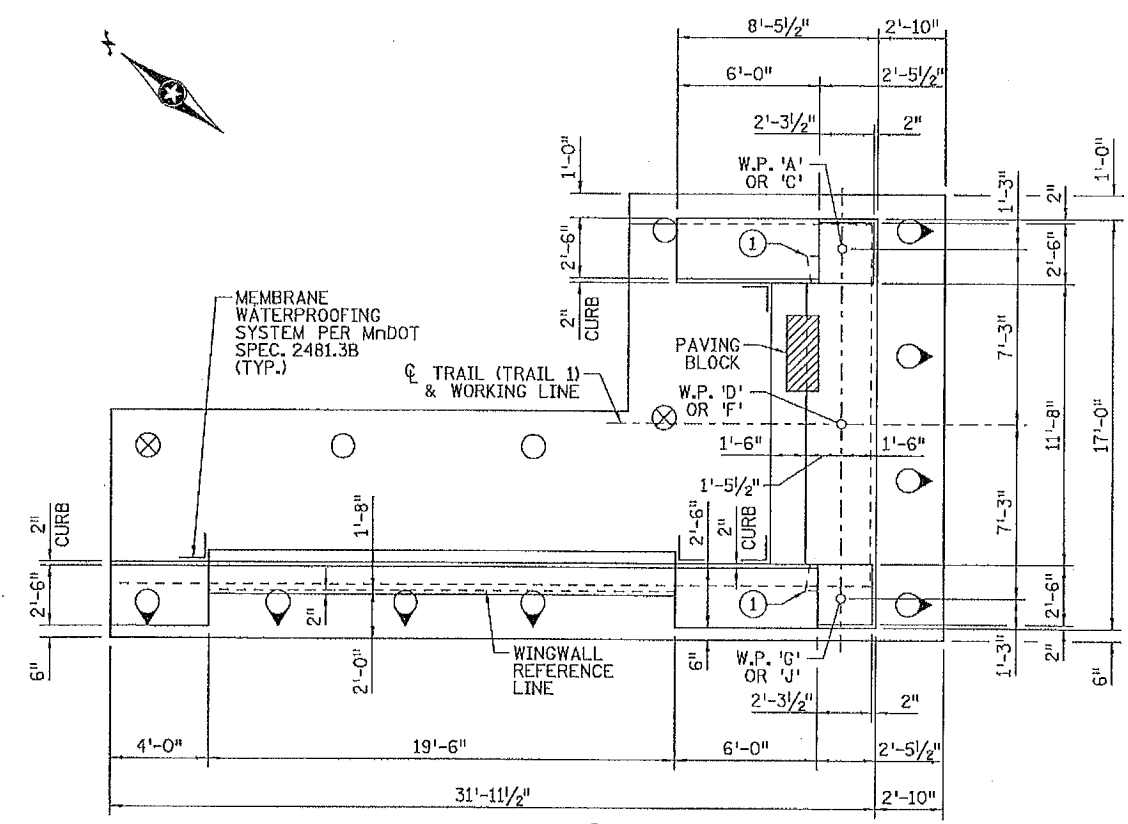
NORTH & SOUTH ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE R <sub>n</sub> - TONS/PILE		
FIELD CONTROL METHOD	Φ dyn	* R <sub>n</sub>
Mn/DOT NOMINAL RESISTANCE FORMULA	0.40	250.0
PDA	0.65	153.8

- NOTES:**
- (1) EXPANSION JOINT BLOCKOUT - SEE EXPANSION JOINT DETAILS
  - (2) NORTH ABUTMENT DETAILS ARE SHOWN. SOUTH ABUTMENT DETAILS WILL BE SIMILAR BUT MIRRORED ABOUT THE CENTERLINE OF TRAIL.
  - (3) THE VALUE REPORTED IN THE TABLE IS A REDUCED VALUE LIMITED BY THE MAXIMUM DRIVING RESISTANCE. THE FULL COMPUTED FACTORED DOWNDRAW LOAD IS 70 TONS PER PILE AND FULL FACTORED DESIGN LOAD IS 134.3 TONS PER PILE WHICH IS LESS THAN THE FULL STRUCTURAL RESISTANCE OF THE PILE ACHIEVED THROUGH THE ANTICIPATED END BEARING RESISTANCE OF THE SOIL.

\* BASED ON STRENGTH I LOAD COMBINATION

**PILE NOTES:**

- 2 - 12" C-I-P TEST PILES, 80 FEET LONG.
- 12 - 12" C-I-P PILES, ESTIMATED LENGTH 70 FEET LONG.
- 14 - 12" C-I-P PILES REQUIRED FOR NORTH & SOUTH ABUT.
- PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
- PILES MARKED THUS ◯ SHALL BE BATTERED 1" PER FOOT IN THE DIRECTION SHOWN.
- FOR PILE SPLICE, SEE DETAIL B201.
- PILES SHALL HAVE A NOMINAL DIAMETER OF 12", AND A MINIMUM 1/4" WALL THICKNESS.



8:00:05 AM  
 11/25/13  
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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: CASEY E. BLACK Date: 4/1/13 License #: 49163					

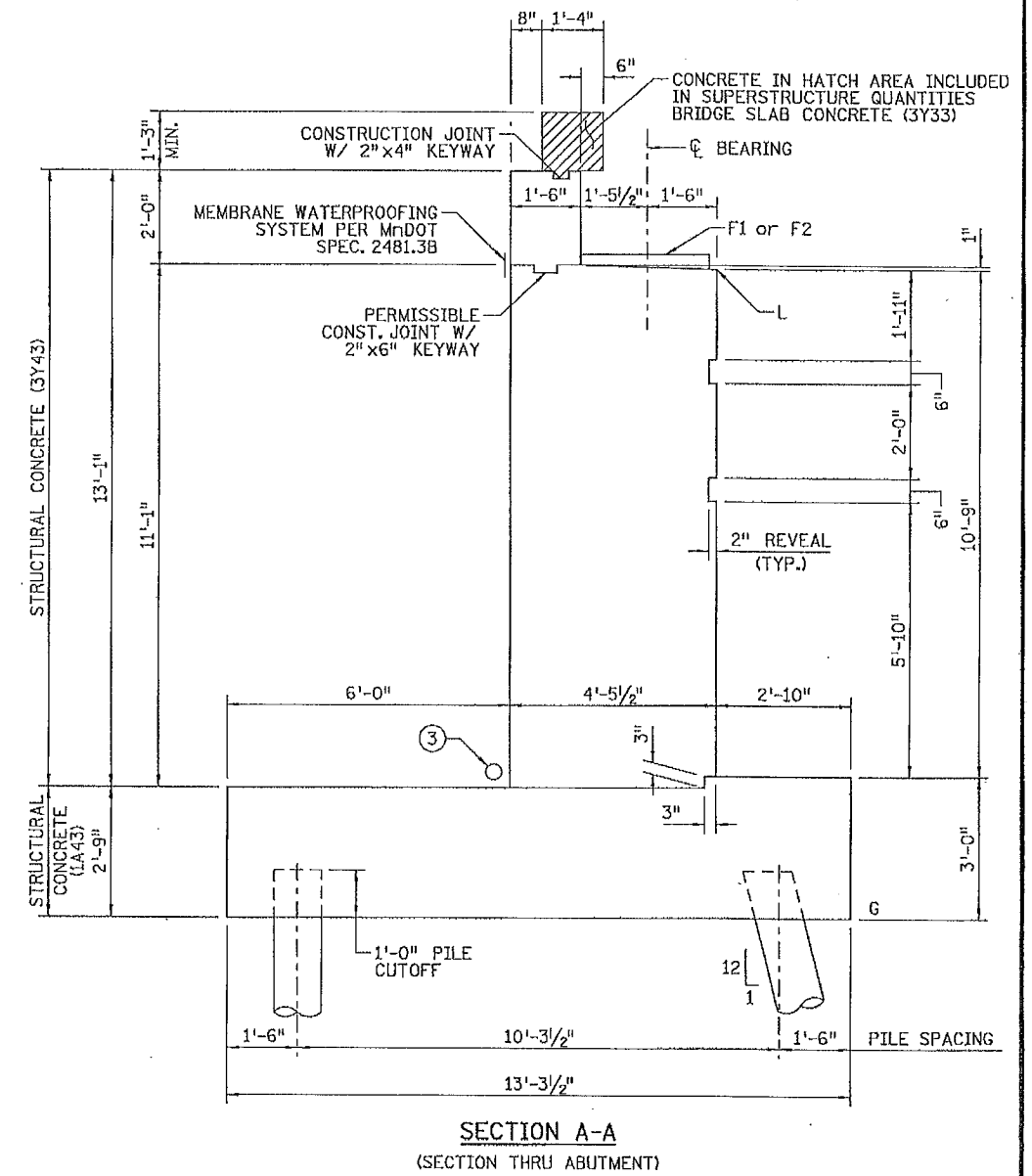
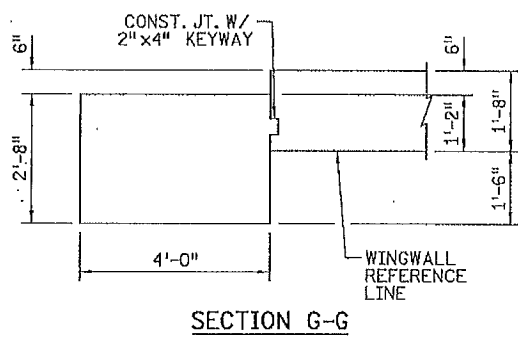
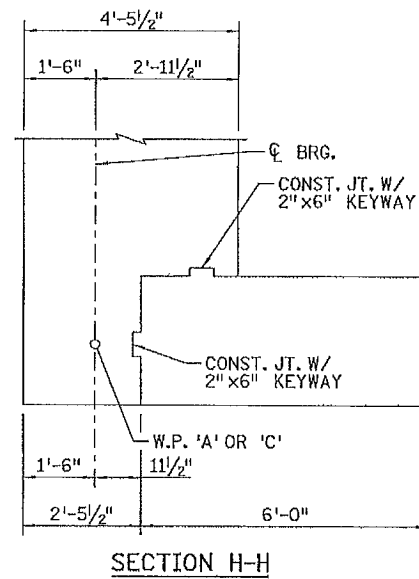
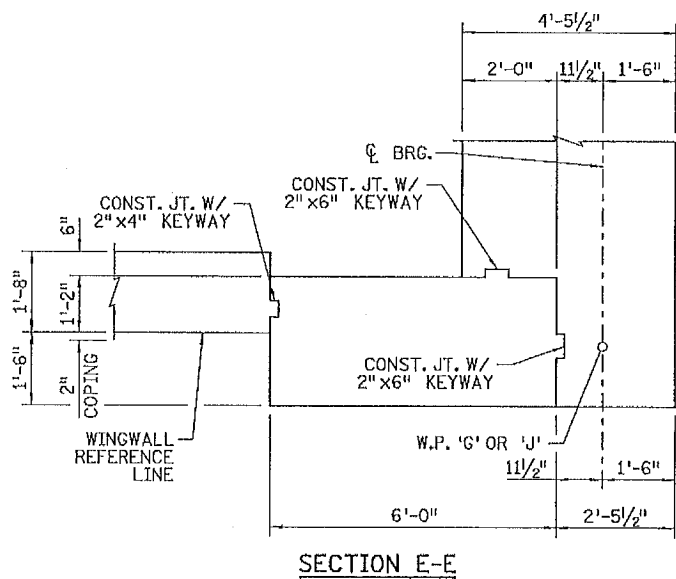
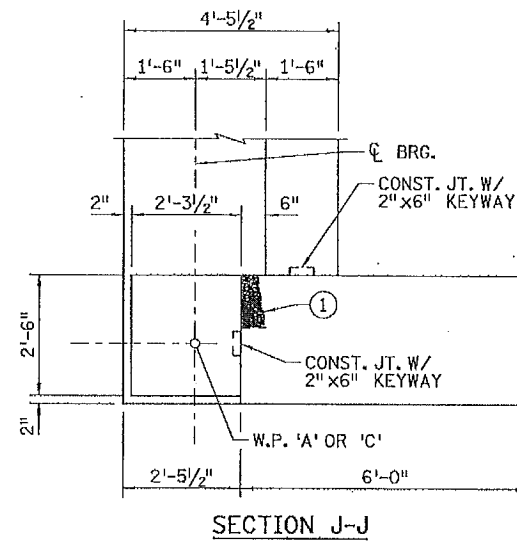
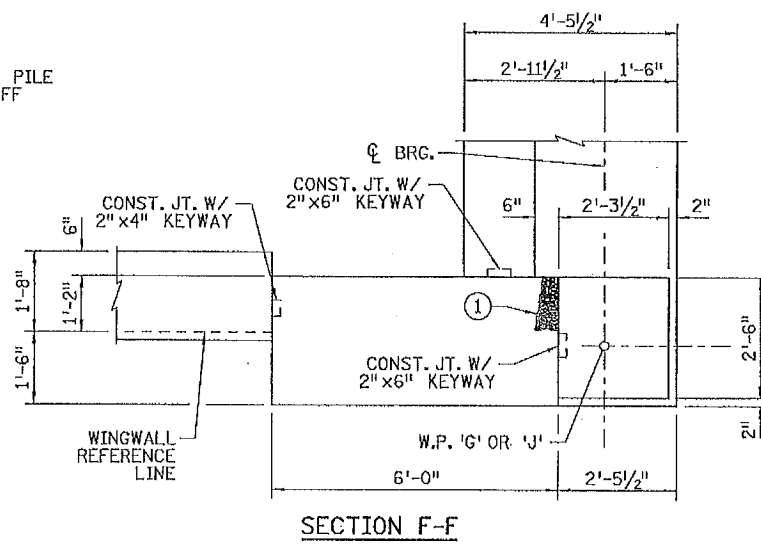
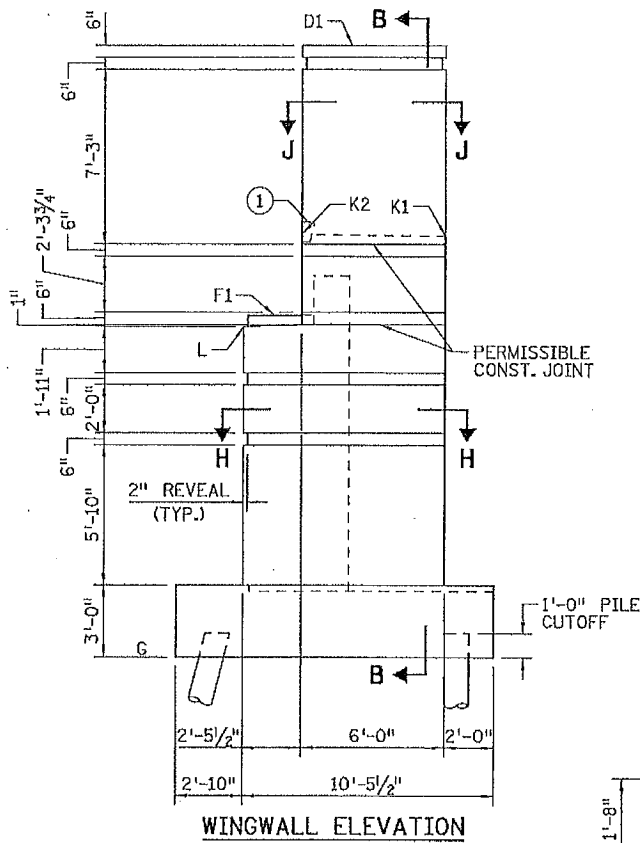
STATE PROJECT NO. 002-614-035	DRAWN BY E. JOHNSON
STATE PROJECT NO. 0280-71 (T.H. 35W)	DESIGNED BY C. BLACK
BRIDGE NUMBER 02006	CHECKED BY K. SWEHLA
	COMM. NO. 7781

	<b>ENGINEERS</b>
	<b>PLANNERS</b>
	<b>DESIGNERS</b>
<b>ANOKA COUNTY</b> CSAH 14 PEDESTRIAN BRIDGE OVER I-35W <b>ABUTMENT DETAILS</b> (SHEET 1 OF 3)	

SHEET	B4
OF	B42

**NOTES:**

- ① EXPANSION JOINT BLOCKOUT - SEE EXPANSION JOINT DETAILS
2. SEE ELEVATION TABLES ON SHEET B4.
- ③ 4" NOMINAL DIA. PERFORATED PIPE, SEE DETAIL B910.
4. NORTH ABUTMENT DETAILS ARE SHOWN. SOUTH ABUTMENT DETAILS WILL BE SIMILAR BUT MIRRORED ABOUT THE CENTERLINE OF TRAIL.



8:00:05 AM  
 4/1/2013  
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1	4/1/13	CFB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: **CASEY E. BLACK**  
*Casey E. Black*  
 Date: **4/1/13** License # **49163**

STATE PROJECT NO.  
 002-614-035  
 STATE PROJECT NO.  
 0280-71 (T.H. 35W)  
 BRIDGE NUMBER  
 02006

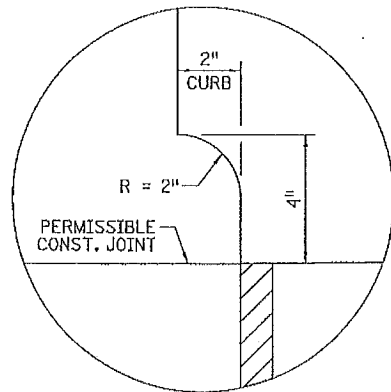
DRAWN BY  
 E. JOHNSON  
 DESIGNED BY  
 C. BLACK  
 CHECKED BY  
 K. SWEHLA  
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**ENGINEERS  
 PLANNERS  
 DESIGNERS**

**ANOKA COUNTY**  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
**ABUTMENT DETAILS**  
 (SHEET 2 OF 3)

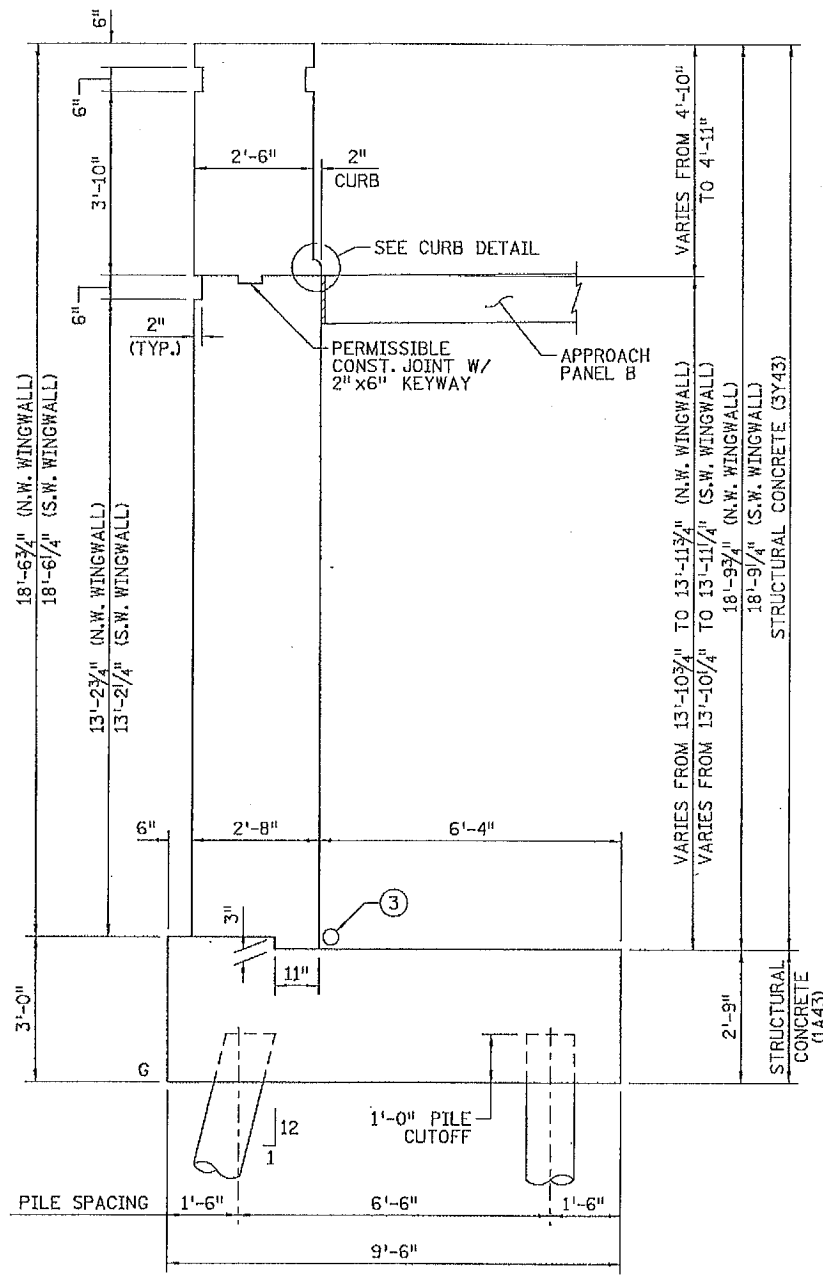
**SHEET  
 B5  
 OF  
 B42**



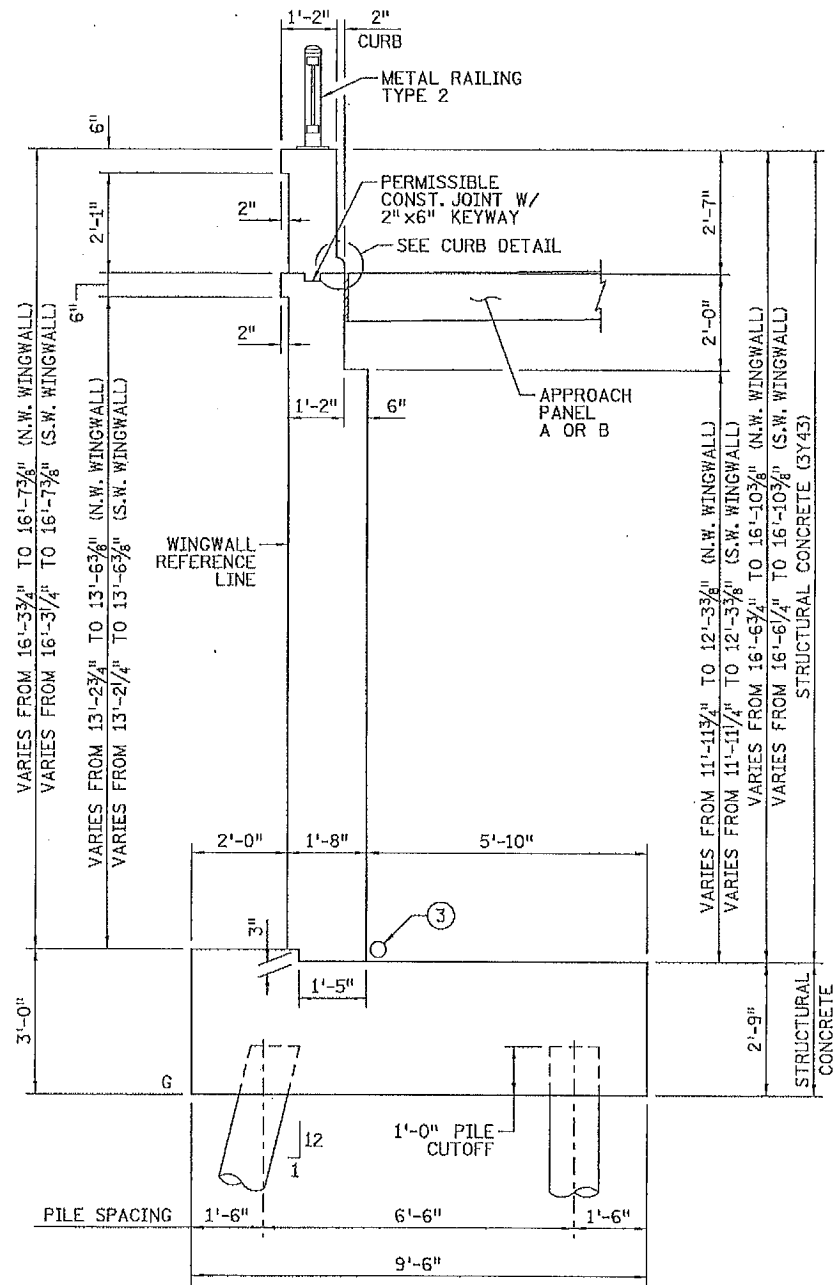
CURB DETAIL

NOTES:

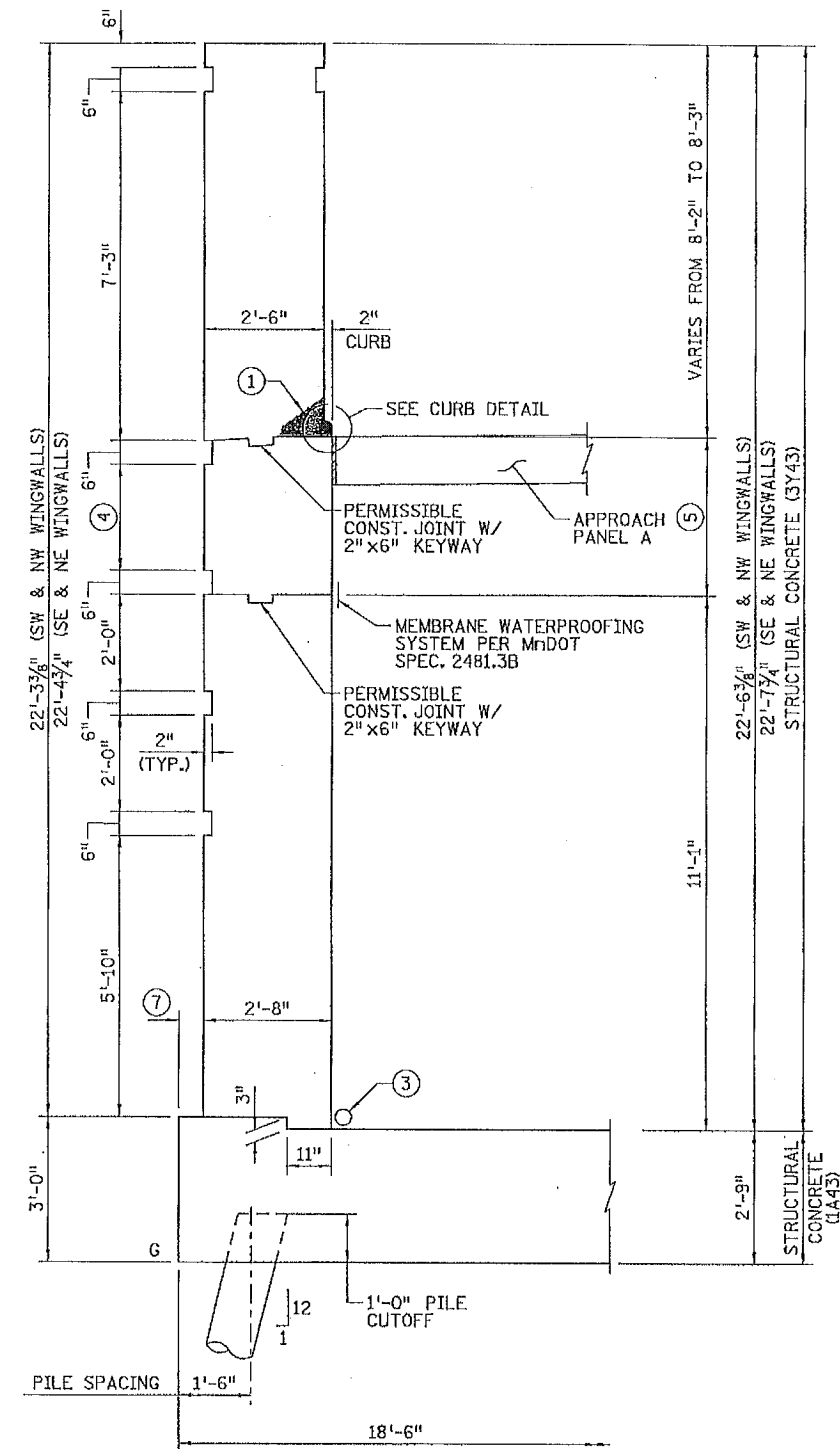
- ① EXPANSION JOINT BLOCKOUT - SEE EXPANSION JOINT DETAILS
2. SEE ELEVATION TABLES ON SHEET B4.
- ③ 4" NOMINAL DIA. PERFORATED PIPE, SEE DETAIL B910.
- ④ 2'-23/4" (SW & NW WINGWALLS)  
2'-33/4" (SE & NE WINGWALLS)
- ⑤ VARIES 3'-23/8" TO 3'-33/8" (SW & NW WINGWALLS)  
VARIES 3'-33/4" TO 3'-43/4" (SE & NE WINGWALLS)
6. NORTH ABUTMENT DETAILS ARE SHOWN, SOUTH ABUTMENT DETAILS WILL BE SIMILAR BUT MIRRORED ABOUT THE CENTERLINE OF TRAIL.
- ⑦ 6" AT N.W. & S.W. WINGWALL AND  
1'-0" AT N.E. & S.E. WINGWALL.



SECTION D-D



SECTION C-C



SECTION B-B

8:00:07 AM 4/1/2013 H:\Proj\Bridges\7781\BRN\Plans\7781\BRN\1\7781\_abt03.dgn

1	4/1/13	CEB	CLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION

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 Date: 4/1/13 License #: 49163

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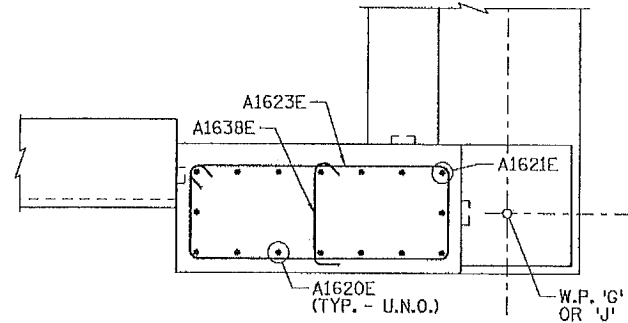
ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 ABUTMENT DETAILS  
 (SHEET 3 OF 3)

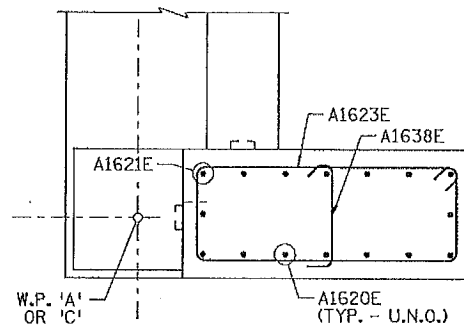
SHEET  
 B6  
 OF  
 B42



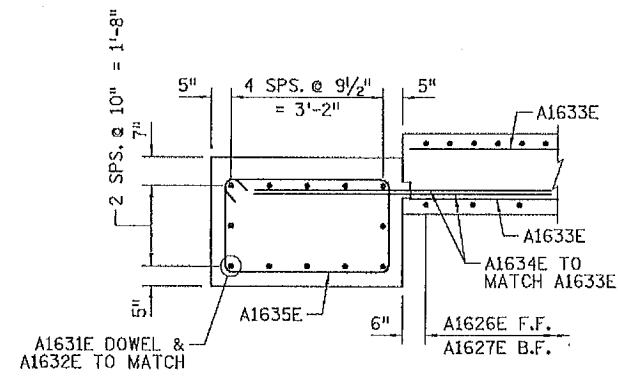




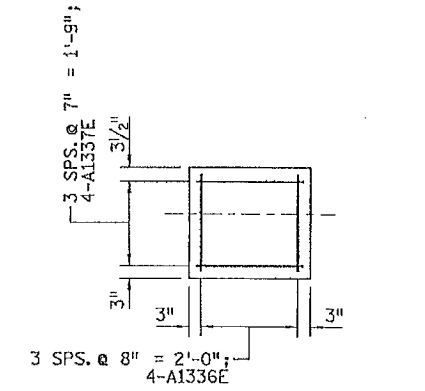
REINFORCEMENT SECTION K-K



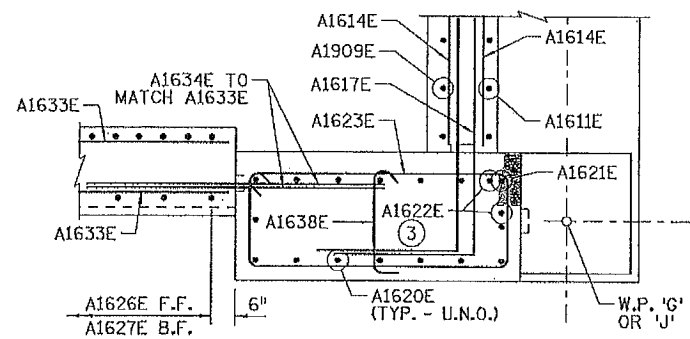
REINFORCEMENT SECTION L-L



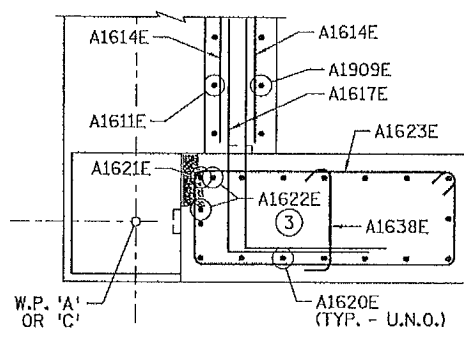
REINFORCEMENT SECTION G-G



BEARING SEAT REINFORCEMENT

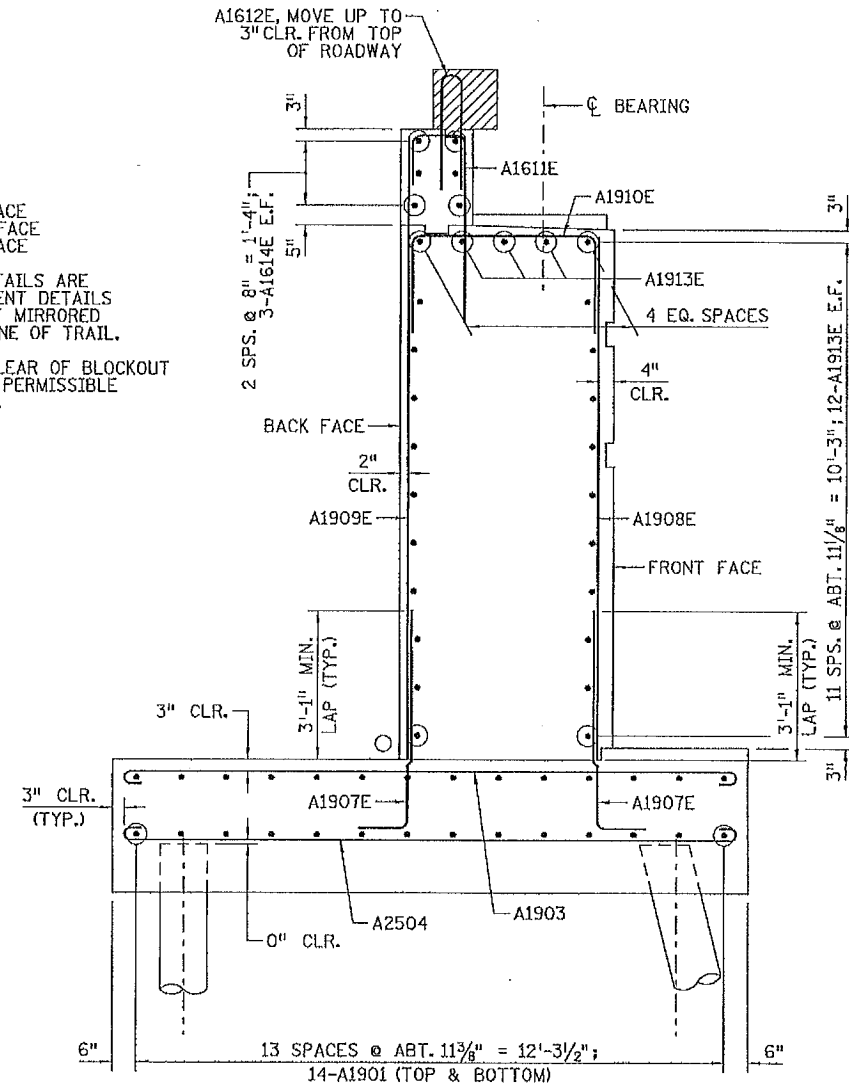


REINFORCEMENT SECTION F-F

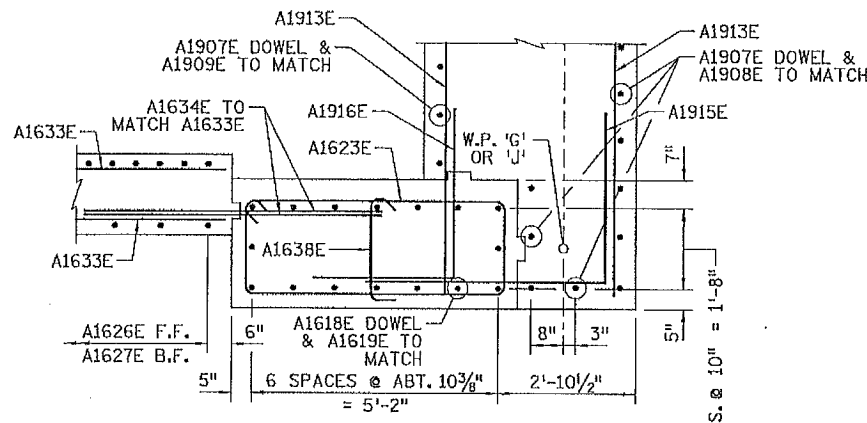


REINFORCEMENT SECTION J-J

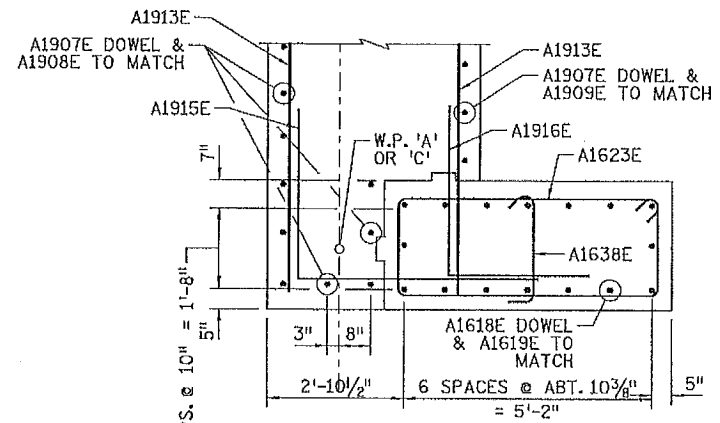
- NOTES:**
1. E.F. DENOTES EACH FACE  
F.F. DENOTES FRONT FACE  
B.F. DENOTES BACK FACE
  2. NORTH ABUTMENT DETAILS ARE SHOWN, SOUTH ABUTMENT DETAILS WILL BE SIMILAR BUT MIRRORED ABOUT THE CENTERLINE OF TRAIL.
  3. TIE INTO CAGE 2" CLEAR OF BLOCKOUT AND CENTER BAR AT PERMISSIBLE CONSTRUCTION JOINT.



REINFORCEMENT SECTION A-A  
(SECTION THRU ABUTMENT)



REINFORCEMENT SECTION E-E



REINFORCEMENT SECTION H-H

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 4/1/2013  
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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO.	DATE	BY	CHKD	APPR	REVISION

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 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



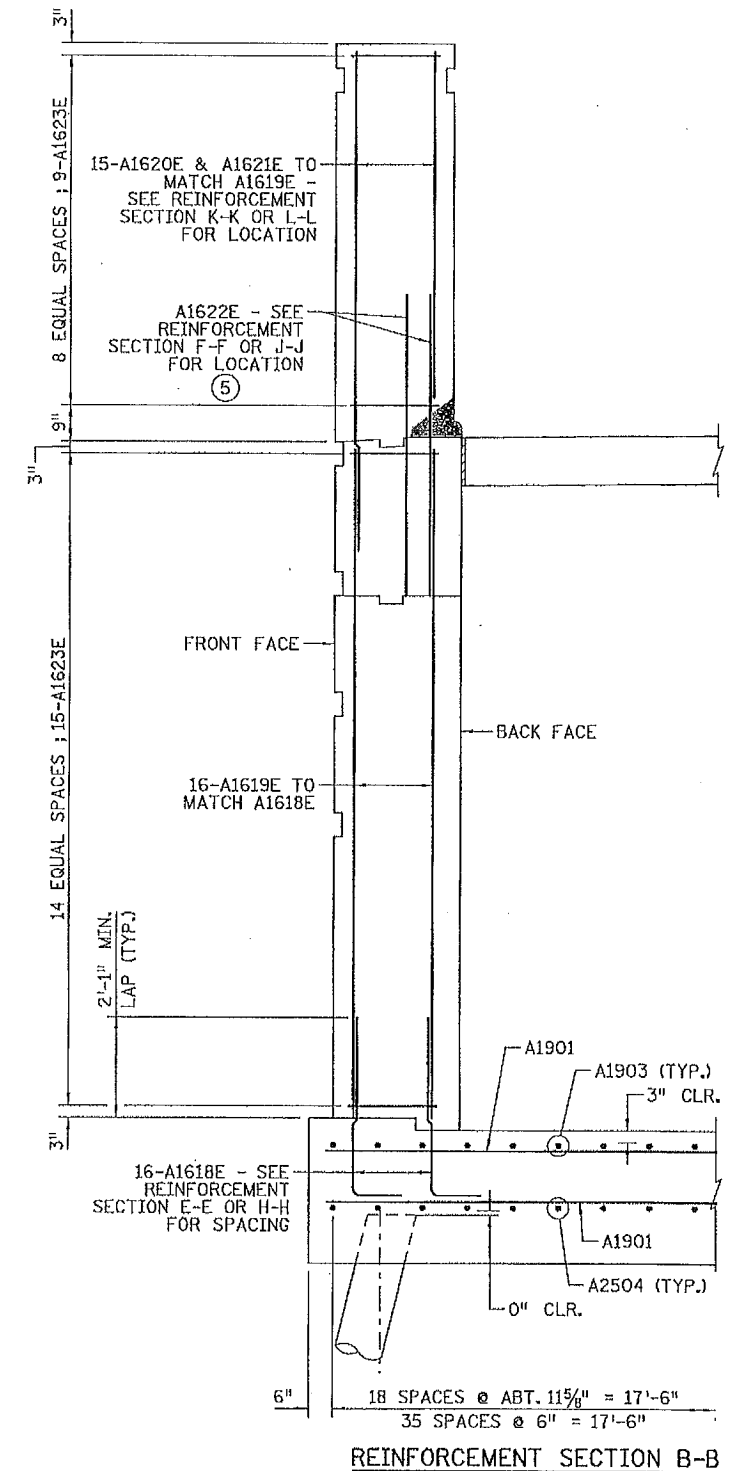
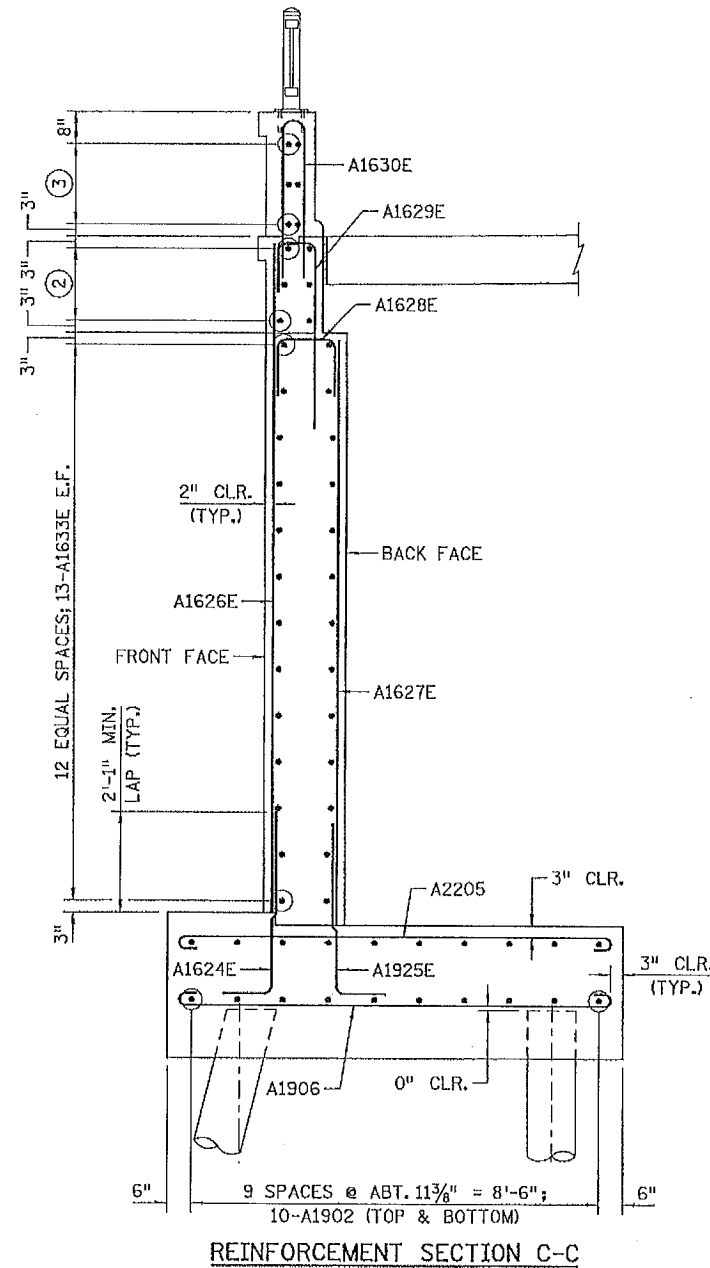
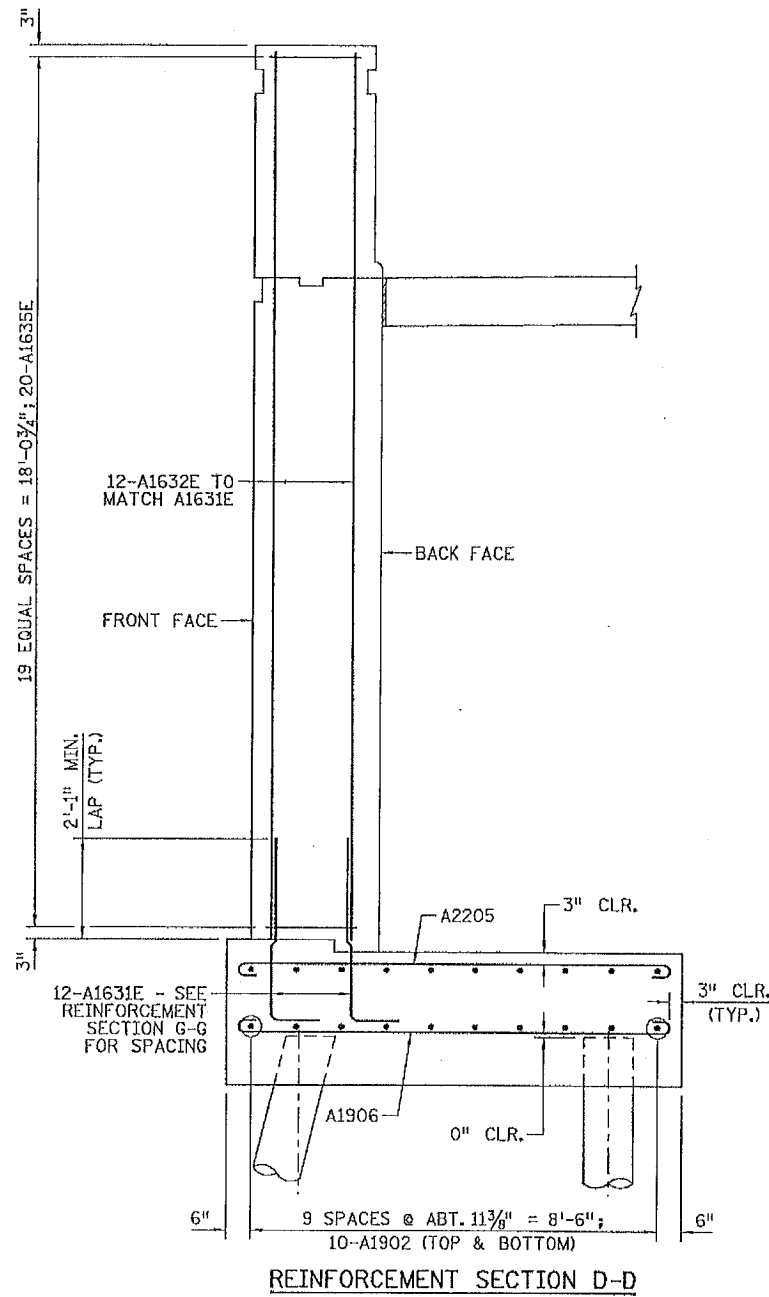
ENGINEERS  
 PLANNERS  
 DESIGNERS

**ANOKA COUNTY**  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 ABUTMENT REINFORCEMENT DETAILS  
 (SHEET 2 OF 4)

SHEET  
 B8  
 OF  
 B42

**NOTES:**

1. E.F. DENOTES EACH FACE  
F.F. DENOTES FRONT FACE  
B.F. DENOTES BACK FACE
- ② 2 SPACES @ 9" = 1'-6"; 3-A1633E E.F.
- ③ 2 SPACES @ 10" = 1'-8"; 3-A1633E E.F.
4. NORTH ABUTMENT DETAILS ARE SHOWN.  
SOUTH ABUTMENT DETAILS WILL BE  
SIMILAR BUT MIRRORED ABOUT THE  
CENTERLINE OF TRAIL.
- ⑤ TIE INTO CAGE 2" CLEAR OF BLOCKOUT  
AND CENTER BAR AT PERMISSIBLE  
CONSTRUCTION JOINT.



8/00/11 AM 4/1/2013 ... \BRN\Plans\7781\BRN\Iand\F\7781\_abt06.dgn

1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: CASEY E. BLACK

Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035

STATE PROJECT NO. 0280-71 (T.H. 35W)

BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON

DESIGNED BY C. BLACK

CHECKED BY K. SWEHLA

COMM. NO. 7781



ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY

CSAH 14 PEDESTRIAN BRIDGE OVER I-35W

ABUTMENT REINFORCEMENT DETAILS

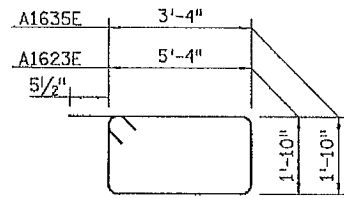
(SHEET 3 OF 4)

SHEET B9 OF B42

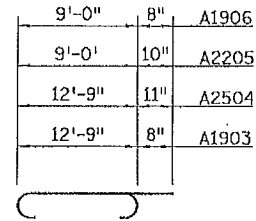
**BILL OF REINFORCEMENT:  
NORTH AND SOUTH ABUTMENT**

MARK	NO	LENGTH (FT - IN)	SHAPE	LOCATION
A1901	28	18 - 0	—	FOOTING LONG
A1902	20	25 - 0	—	FOOTING LONG
A1903	19	14 - 1	—	FOOTING TRANS
A2504	36	14 - 7	—	FOOTING TRANS
A2205	22	10 - 8	—	FOOTING TRANS
A1906	22	10 - 4	—	FOOTING TRANS
A1907E	37	6 - 1	—	STEM DOWEL
A1908E	25	10 - 7	—	STEM VERT
A1909E	12	12 - 11	—	STEM VERT
A1910E	17	7 - 5	—	STEM TOP
A1611E	12	6 - 2	—	BACKWALL VERT
A1612E	12	6 - 4	—	PAVING BLOCK
A1913E	27	16 - 4	—	STEM HORIZ
A1614E	6	11 - 4	—	BACKWALL HORIZ
A1915E	24	9 - 6	—	STEM CORNER
A1916E	24	7 - 0	—	STEM CORNER
A1617E	12	8 - 3	—	BACKWALL CORNER
A1618E	32	5 - 1	—	PILASTER DOWEL
A1619E	32	13 - 10	—	PILASTER VERT
A1620E	30	10 - 6	—	PILASTER VERT
A1621E	2	7 - 0	—	PILASTER VERT
A1622E	4	6 - 6	—	PILASTER VERT
A1623E	48	15 - 3	—	PILASTER TIE
A1624E	20	5 - 4	—	WINGWALL DOWEL
A1925E	38	5 - 3	—	WINGWALL DOWEL
A1626E	20	13 - 6	—	WINGWALL FF VERT
A1627E	38	11 - 9	—	WINGWALL BF VERT
A1628E	20	4 - 4	—	WINGWALL CAP
A1629E	20	5 - 2	—	WINGWALL BF VERT
A1630E	23	9 - 9	—	WINGWALL BARRIER
A1631E	12	5 - 0	—	PILASTER DOWEL
A1632E	12	18 - 4	—	PILASTER VERT
A1633E	38	19 - 2	—	WINGWALL HORIZ
A1634E	50	4 - 8	—	WW HORIZ DOWEL
A1635E	20	11 - 3	—	PILASTER TIE
A1336E	8	5 - 11	—	BRG SEAT
A1337E	8	6 - 2	—	BRG SEAT
A1638E	48	2 - 10	—	PILASTER TIE

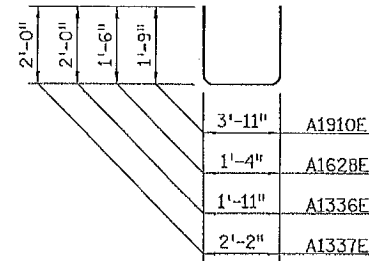
**BAR SHAPES:**



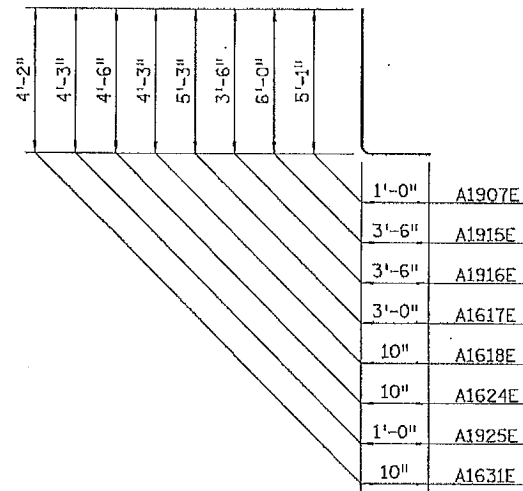
A1623E, A1635E



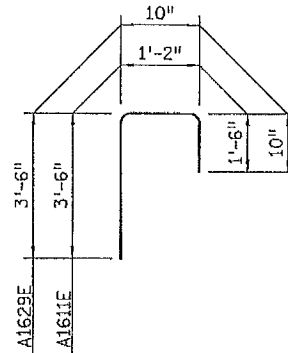
A1903, A2504, A2205, A1906



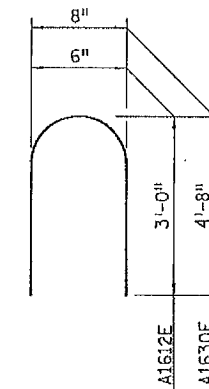
A1910E, A1628E, A1336E, A1337E



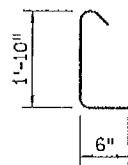
A1907E, A1915E, A1916E, A1617E,  
A1618E, A1624E, A1925E, A1631E



A1611E, A1629E



A1612E, A1630E



A1638E

**SUMMARY OF QUANTITIES : NORTH ABUTMENT**

ITEM	UNIT	QUANTITY
1 SELECT GRANULAR BORROW MOD 10% (CV)	CU YD	373
STRUCTURAL CONCRETE (1A43)	CU YD	48
STRUCTURAL CONCRETE (3Y43)	CU YD	80
REINFORCEMENT BARS	POUND	4140
REINFORCEMENT BARS (EPOXY COATED)	POUND	7840
C-I-P CONCRETE PILING DELIVERED 12"	LIN FT	840
C-I-P CONCRETE PILING DRIVEN 12"	LIN FT	840
C-I-P CONC TEST PILE 80 FT LONG 12"	EACH	2
CONCRETE SLOPE PAVING	SQ YD	101
METAL RAILING TYPE 2	LIN FT	20
2 MEMBRANE WATERPROOFING	LIN FT	80

**SUMMARY OF QUANTITIES : SOUTH ABUTMENT**

ITEM	UNIT	QUANTITY
3 SELECT GRANULAR BORROW MOD 10% (CV)	CU YD	373
STRUCTURAL CONCRETE (1A43)	CU YD	48
STRUCTURAL CONCRETE (3Y43)	CU YD	80
REINFORCEMENT BARS	POUND	4140
REINFORCEMENT BARS (EPOXY COATED)	POUND	7840
C-I-P CONCRETE PILING DELIVERED 12"	LIN FT	840
C-I-P CONCRETE PILING DRIVEN 12"	LIN FT	840
C-I-P CONC TEST PILE 80 FT LONG 12"	EACH	2
6 CONCRETE SLOPE PAVING	SQ YD	127
METAL RAILING TYPE 2	LIN FT	20
2 MEMBRANE WATERPROOFING	LIN FT	80
4 B.M. DISK	EACH	1
5 BRIDGE NAMEPLATE	EACH	1

**NOTES:**

- 1 INCLUDES VOLUME FOR RETAINING WALL 'A'.
- 2 PAYMENT FOR MEMBRANE WATERPROOFING SYSTEM TO BE CONSIDERED INCIDENTAL TO "STRUCTURAL CONCRETE (3Y43)".
- 3 INCLUDES VOLUME FOR RETAINING WALL 'B'.
- 4 COUNTY WILL FURNISH DISKS. BEND PRONGS OUTWARD TO ANCHOR IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACEMENT SHALL BE CONSIDERED INCIDENTAL TO "STRUCTURAL CONCRETE (3Y43)". SEE SHEET B1 FOR PLACEMENT.
- 5 TO BE INCLUDED IN PRICE BID FOR "STRUCTURAL CONCRETE (3Y43)". SEE SHEET B1 AND B22 FOR PLACEMENT.
- 6 QUANTITY MEASURED PERPENDICULAR TO SLOPE OF GRADE.

8:00:12 AM 4/1/13 H:\Projects\BRN\lans\F Inq\7781\_abt07.dgn

1 4/1/13 CEB KLS CEB RELEASED FOR CONSTRUCTION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: CASEY E. BLACK  
Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035

STATE PROJECT NO. 0280-71 (T.H. 35W)

BRIDGE NUMBER

02006

DRAWN BY E. JOHNSON

DESIGNED BY C. BLACK

CHECKED BY K. SWEHLA

COMM. NO. 7781



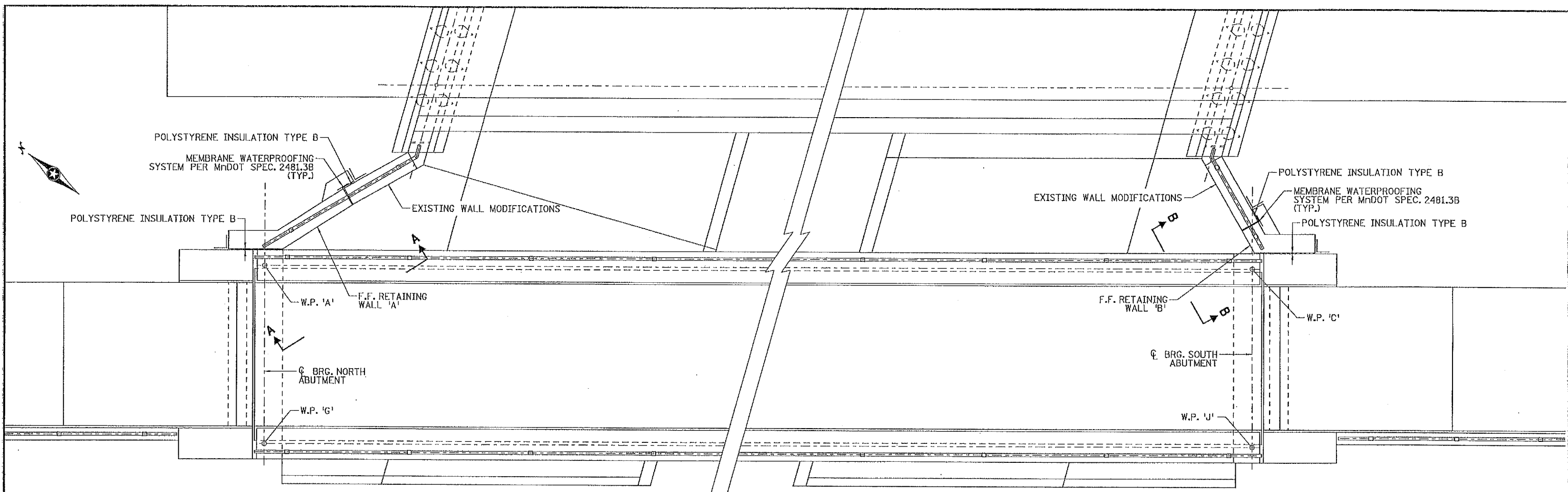
ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY

CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
ABUTMENT REINFORCEMENT DETAILS  
(SHEET 4 OF 4)

SHEET  
B10  
OF  
B42

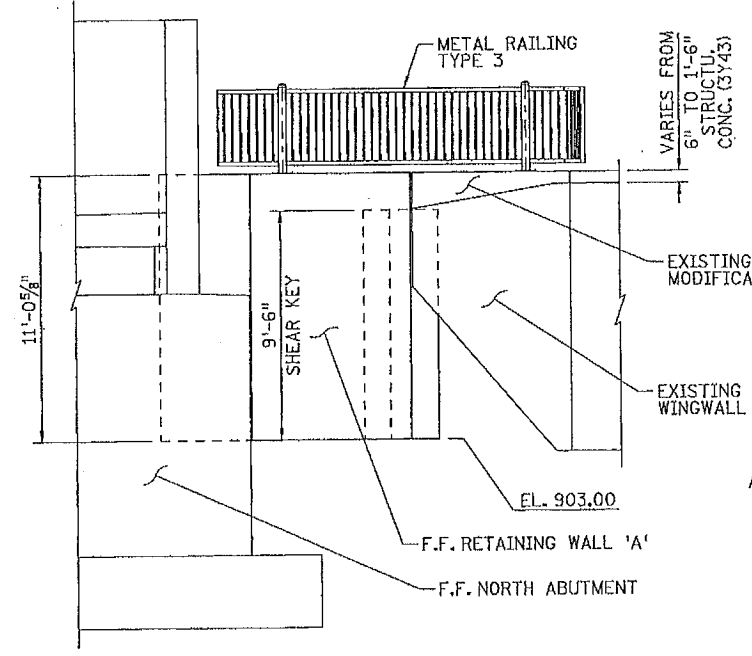




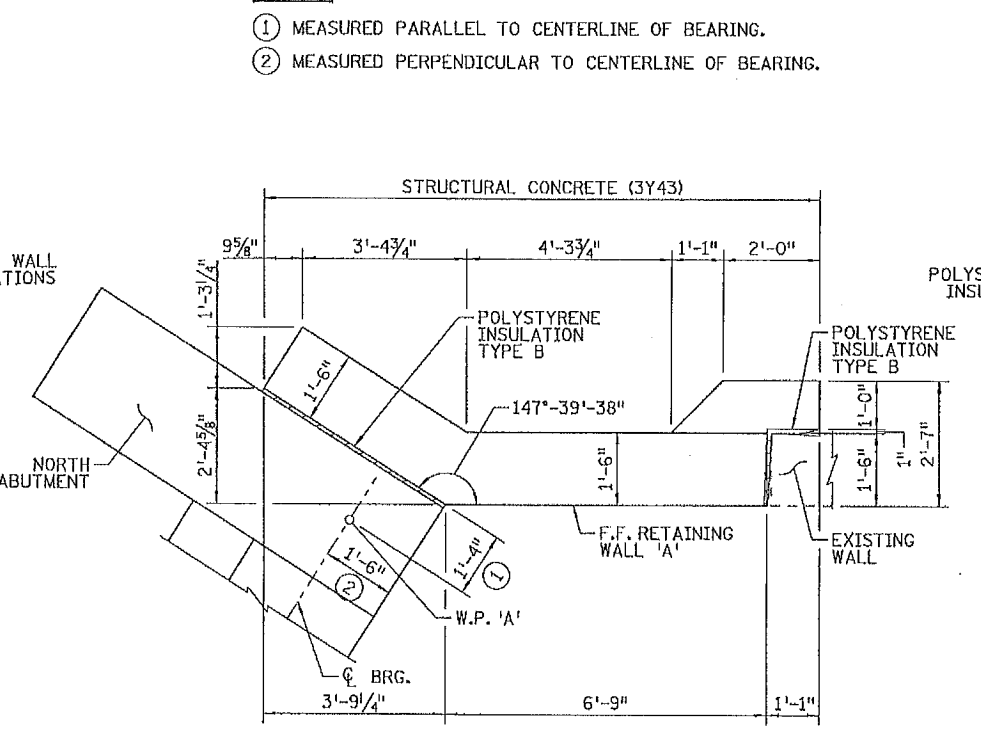
GENERAL RETAINING WALL PLAN VIEW

NOTES:

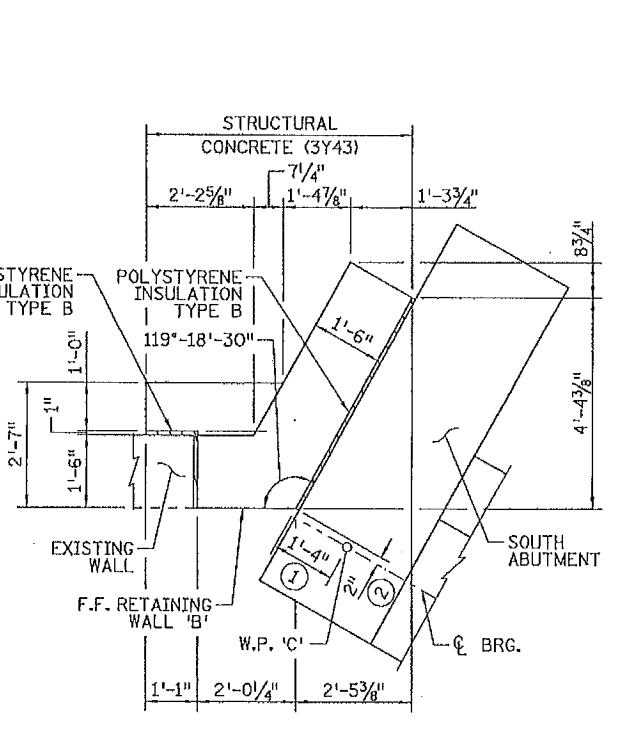
- ① MEASURED PARALLEL TO CENTERLINE OF BEARING.
- ② MEASURED PERPENDICULAR TO CENTERLINE OF BEARING.



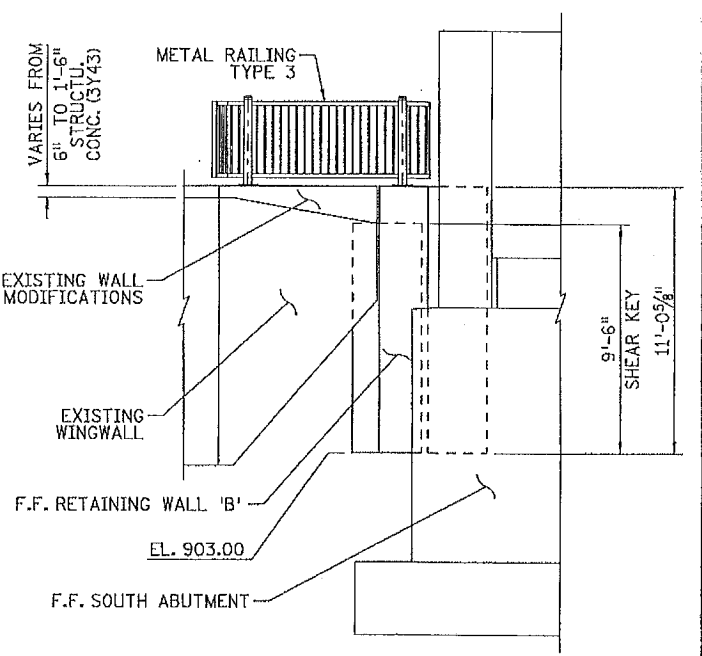
ELEVATION A-A



RETAINING WALL 'A' DETAIL PLAN



RETAINING WALL 'B' DETAIL PLAN



ELEVATION B-B

8:00:13 AM  
 4/11/2013  
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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

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 Date: 4/11/13 License #: 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

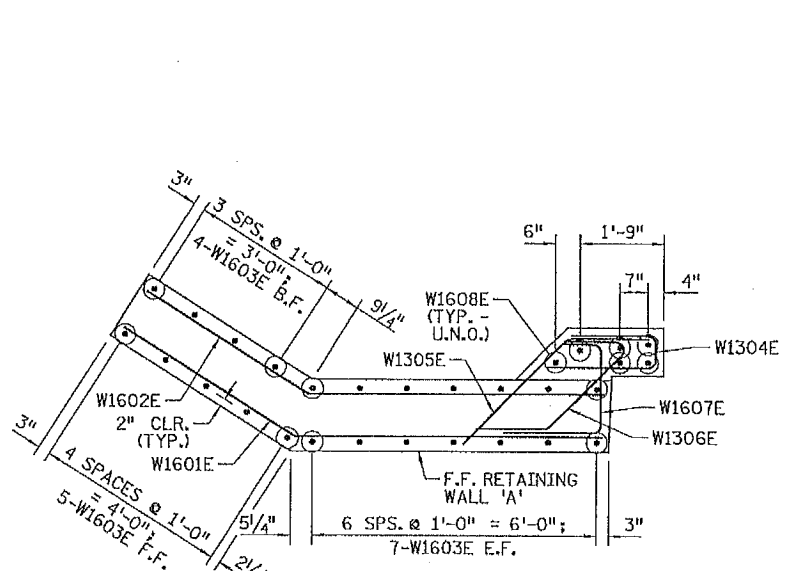
DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



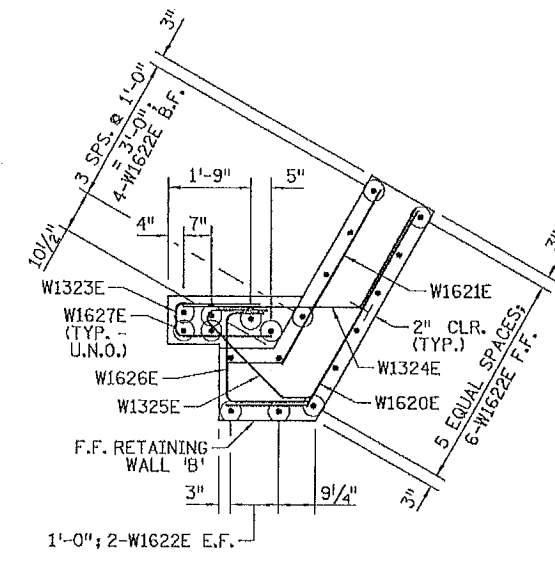
ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 RETAINING WALL DETAILS

SHEET B11 OF B42



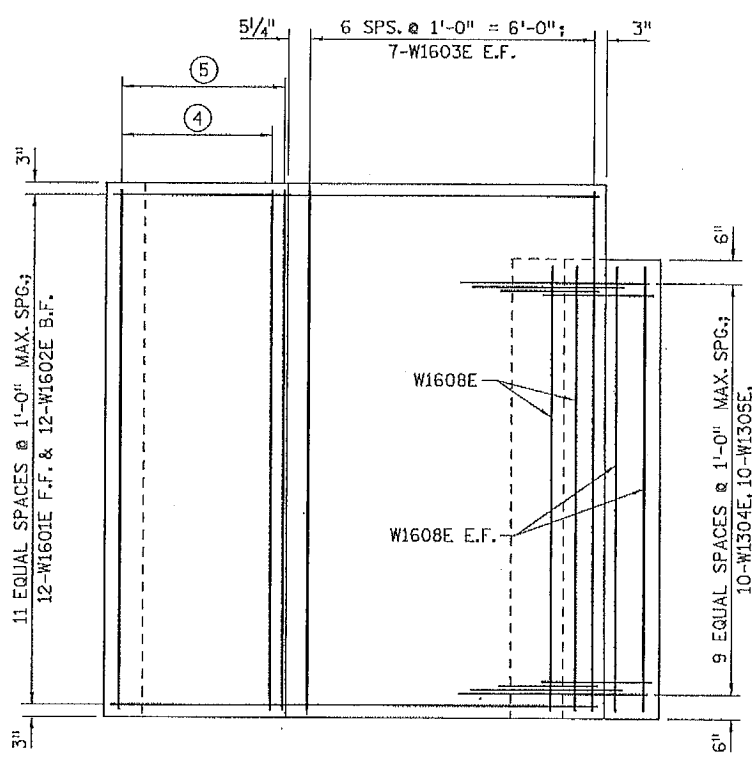
REINFORCING WALL 'A' REINFORCEMENT PLAN



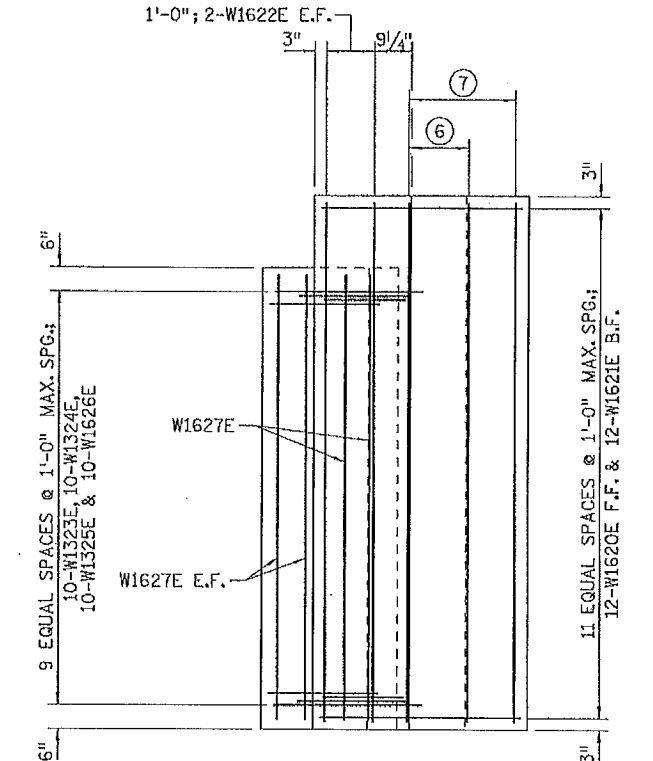
REINFORCING WALL 'B' REINFORCEMENT PLAN

NOTES:

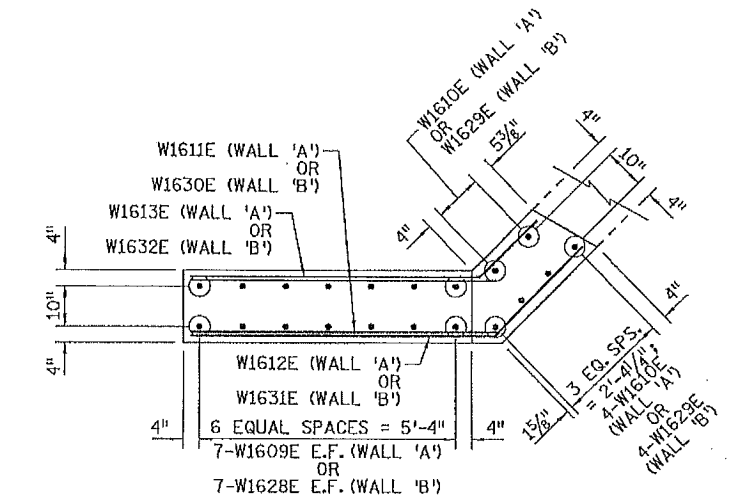
1. E.F. DENOTES EACH FACE  
F.F. DENOTES FRONT FACE  
B.F. DENOTES BACK FACE
2. W1610E B.F. (WALL 'A') OR 2-W1629E B.F. (WALL 'B') - SEE EXISTING WALL MODIFICATION REINFORCEMENT PLAN FOR LOCATIONS
3. 4-W1610E F.F. (WALL 'A') OR 4-W1629E B.F. (WALL 'B') - SEE EXISTING WALL MODIFICATION REINFORCEMENT PLAN FOR LOCATIONS
4. W1603E B.F. - SEE RETAINING WALL 'A' REINFORCEMENT PLAN FOR LOCATIONS
5. W1603E F.F. - SEE RETAINING WALL 'A' REINFORCEMENT PLAN FOR LOCATIONS
6. W1622E B.F. - SEE RETAINING WALL 'B' REINFORCEMENT PLAN FOR LOCATIONS
7. W1622E F.F. - SEE RETAINING WALL 'B' REINFORCEMENT PLAN FOR LOCATIONS



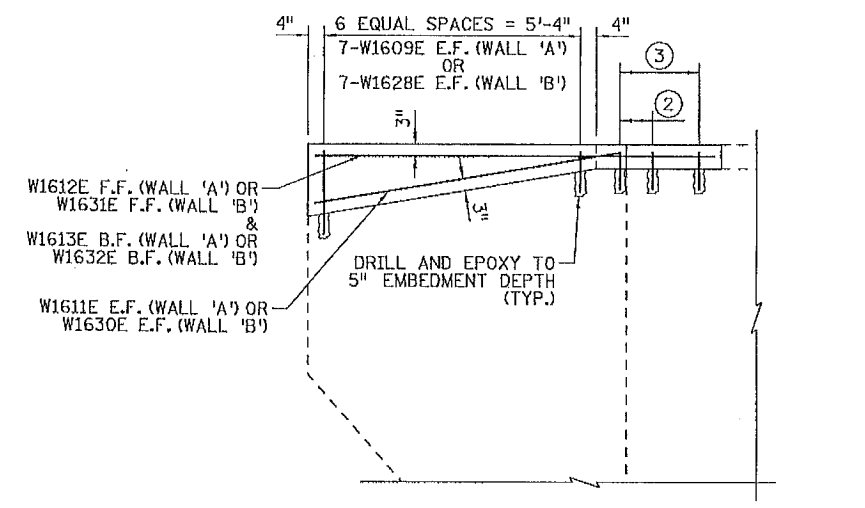
REINFORCING WALL 'A' REINFORCEMENT ELEVATION



REINFORCING WALL 'B' REINFORCEMENT ELEVATION



EXISTING WALL MODIFICATION REINFORCEMENT PLAN  
(SIMILAR AT NORTH AND SOUTH ABOUTMENT OF BRIDGE NO. 9830)



EXISTING WALL MODIFICATION REINFORCEMENT ELEVATION  
(SIMILAR AT NORTH AND SOUTH ABOUTMENT OF BRIDGE NO. 9830)

8:00114 AM 4/1/13 14:07:03 \\srs\p\eng\7781\BRN\Plans\Final\7781\_wr02.dgn

1	4/1/13	CEB	RLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION
... \BRN\Plans\Final\7781_wr02.dgn					

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 Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035  
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 BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
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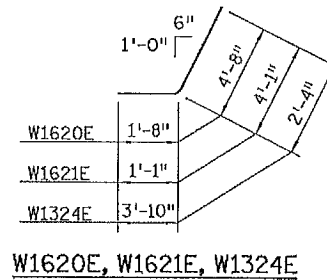
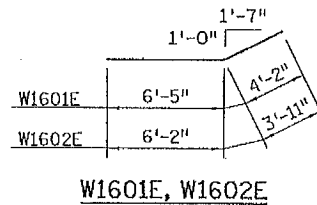


ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 RETAINING WALL REINFORCEMENT DETAILS  
 (SHEET 1 OF 2)

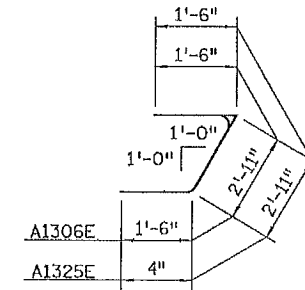
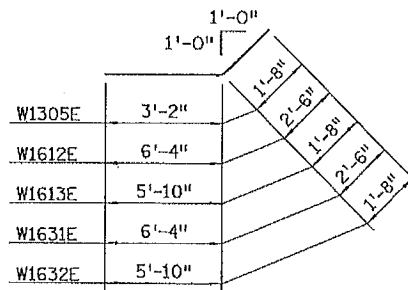
SHEET  
 B12  
 OF  
 B42

BILL OF REINFORCEMENT: WALL 'A'				
MARK	NO	LENGTH [FT - IN]	SHAPE	LOCATION
W1601E	12	10 - 7	—	WALL HORIZ
W1602E	12	10 - 1	—	WALL HORIZ
W1603E	23	10 - 8	—	WALL VET
W1304E	10	4 - 8	┌	SHEAR KEY HORIZ
W1305E	10	4 - 10	┌	SHEAR KEY HORIZ
W1306E	10	5 - 11	┌	SHEAR KEY HORIZ
W1607E	10	4 - 10	┌	SHEAR KEY HORIZ
W1608E	6	9 - 2	—	SHEAR KEY VERT
W1609E	2 SERIES	0 - 9	—	WALL MOD VERT
	OF 7	1 - 9	—	
W1610E	6	0 - 9	—	WALL MOD VERT
W1611E	2	6 - 4	—	WALL MOD HORIZ
W1612E	1	8 - 10	—	WALL MOD HORIZ
W1613E	1	7 - 6	—	WALL MOD HORIZ



SUMMARY OF QUANTITIES : RETAINING WALL 'A'		
ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (3Y43)	CU YD	9
REINFORCEMENT BARS (EPOXY COATED)	POUND	780
ANCHORAGES TYPE REINF BARS	EACH	20
METAL RAILING TYPE 3	LIN FT	16
MEMBRANE WATERPROOFING	LIN FT	25
POLYSTYRENE INSULATION	SQ YD	65

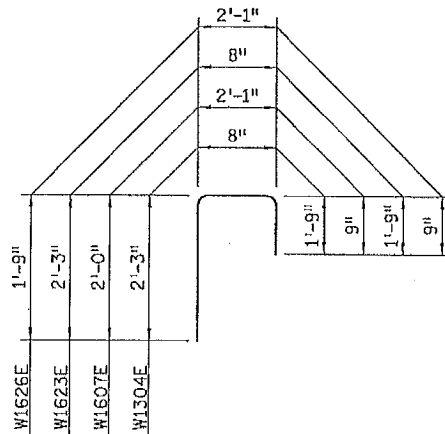
BILL OF REINFORCEMENT: WALL 'B'				
MARK	NO	LENGTH [FT - IN]	SHAPE	LOCATION
W1620E	12	6 - 4	—	WALL HORIZ
W1621E	12	5 - 2	—	WALL HORIZ
W1622E	14	10 - 8	—	WALL VET
W1323E	10	4 - 8	┌	SHEAR KEY HORIZ
W1324E	10	6 - 2	┌	SHEAR KEY HORIZ
W1325E	10	4 - 9	┌	SHEAR KEY HORIZ
W1626E	10	4 - 7	┌	SHEAR KEY HORIZ
W1627E	6	9 - 2	—	SHEAR KEY VERT
W1628E	2 SERIES	0 - 9	—	WALL MOD VERT
	OF 7	1 - 9	—	
W1629E	6	0 - 9	—	WALL MOD VERT
W1630E	2	6 - 4	—	WALL MOD HORIZ
W1631E	1	8 - 10	—	WALL MOD HORIZ
W1632E	1	7 - 6	—	WALL MOD HORIZ



SUMMARY OF QUANTITIES : RETAINING WALL 'B'		
ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (3Y43)	CU YD	6
REINFORCEMENT BARS (EPOXY COATED)	POUND	570
ANCHORAGES TYPE REINF BARS	EACH	20
METAL RAILING TYPE 3	LIN FT	10
MEMBRANE WATERPROOFING	LIN FT	25
POLYSTYRENE INSULATION	SQ YD	70

W1305E, W1612E, W1613E, W1631E, W1632E

W1306E, W1325E



W1304E, W1607E, W1323E, W1626E

**NOTES:**

- ① PAYMENT FOR MEMBRANE WATERPROOFING SYSTEM AND POLYSTYRENE INSULATION TO BE CONSIDERED INCIDENTAL TO "STRUCTURAL CONCRETE (3Y43)".

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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

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 Pr Int Name: CASEY E. BLACK  
 Date: 4/1/13 License #: 49163

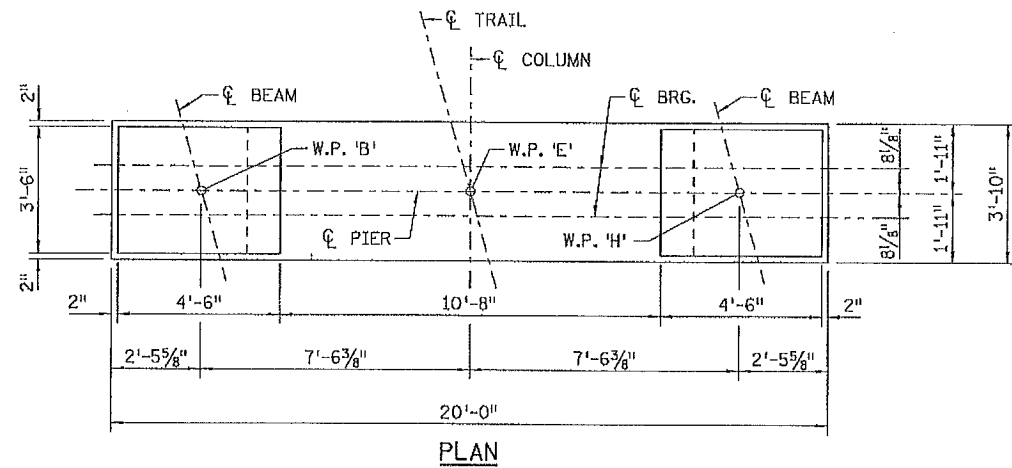
STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006  
 DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 CONN. NO. 7781



ENGINEERS  
PLANNERS  
DESIGNERS

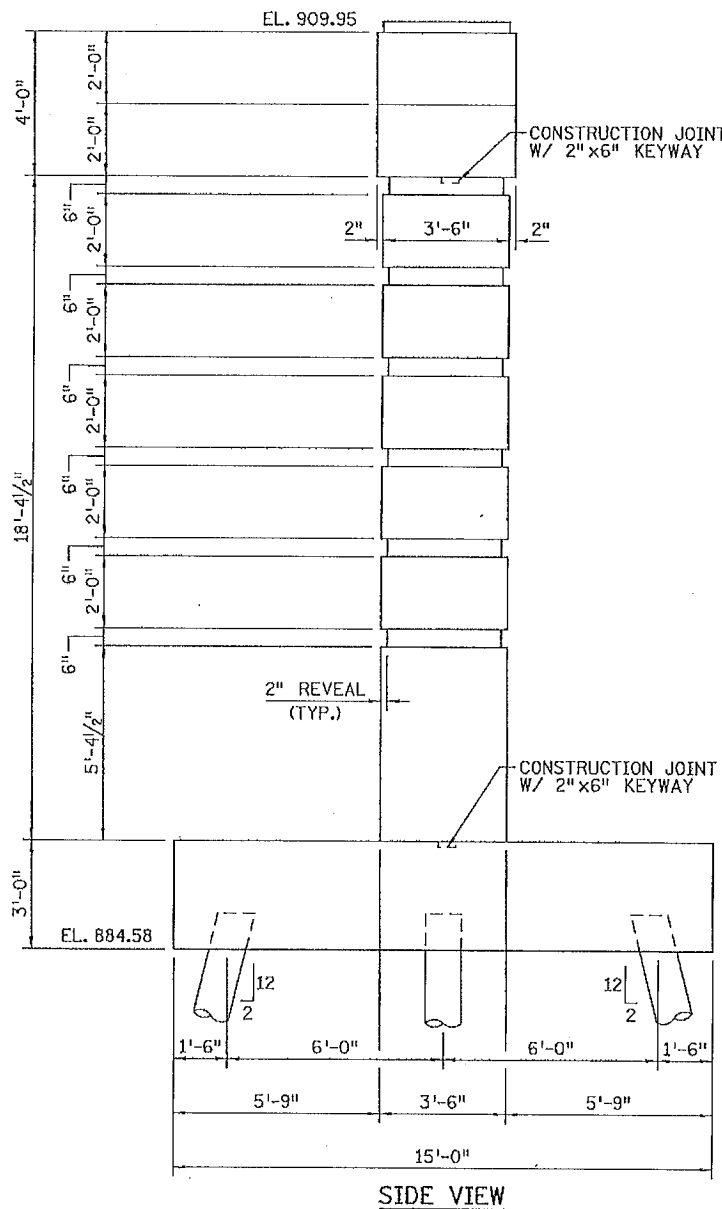
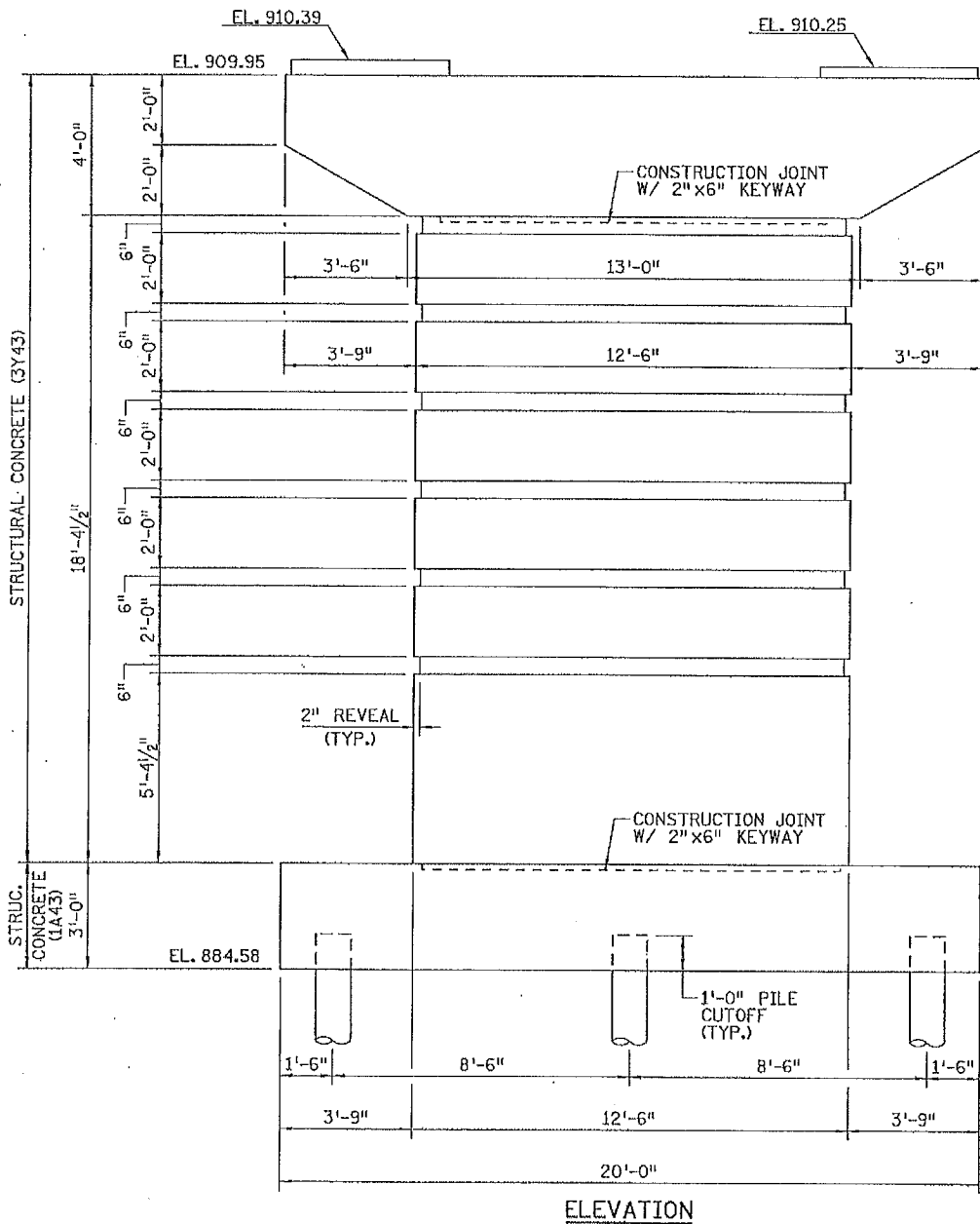
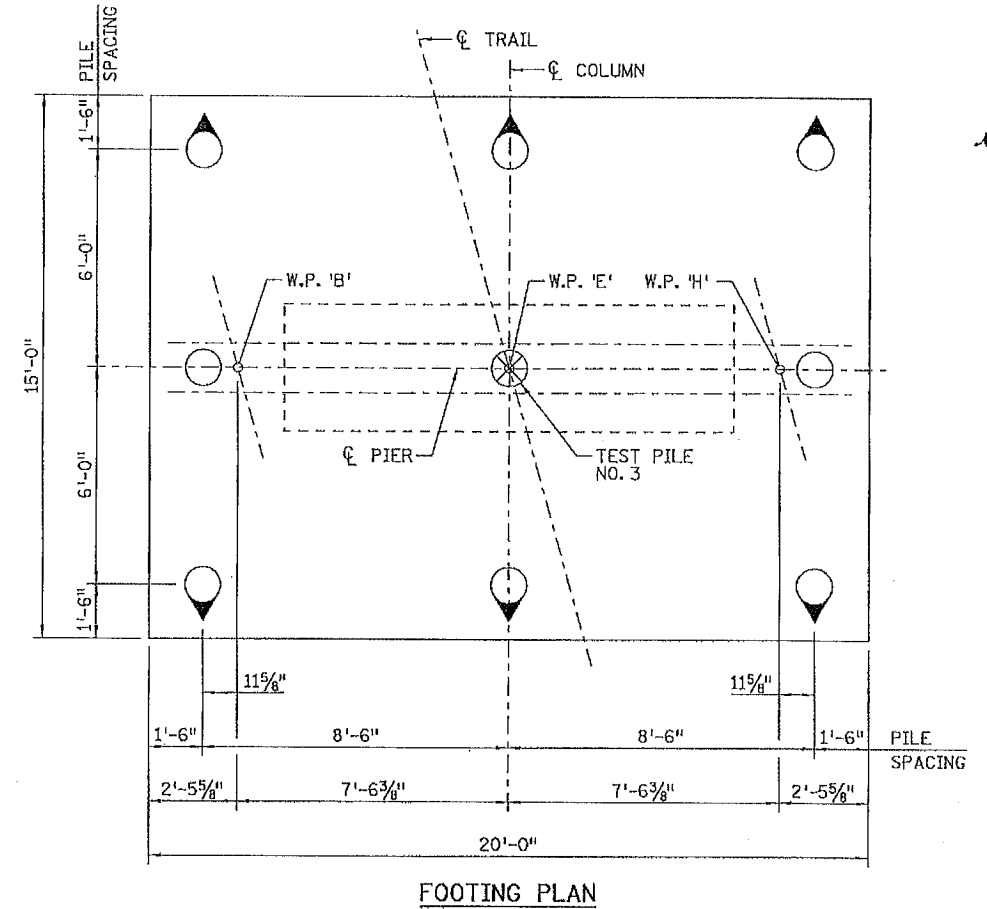
ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 RETAINING WALL REINFORCEMENT DETAILS  
 (SHEET 2 OF 2)

SHEET  
B13  
OF  
B42



**PILE NOTES:**

- 1 - 12" C-I-P TEST PILE, 80 FEET LONG.
  - 8 - 12" C-I-P PILES, ESTIMATED LENGTH 70 FEET LONG.
  - 9 - 12" C-I-P PILES REQUIRED FOR PIER.
- PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
- PILES MARKED THUS SHALL BE BATTERED 2" PER FOOT IN THE DIRECTION SHOWN.
- FOR PILE SPLICE, SEE DETAIL B201.
- PILES SHALL HAVE A NOMINAL DIAMETER OF 12", AND MINIMUM WALL THICKNESS OF 1/4".



PIER COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD	51.6
FACTORED LIVE LOAD	15.4
FACTORED OVERTURNING	6.6
* FACTORED DESIGN LOAD = PILE BEARING RESISTANCE	73.7

\* BASED ON STRENGTH III LOAD COMBINATION

PIER REQUIRED NOMINAL PILE BEARING RESISTANCE $R_n$ - TONS/PILE		
FIELD CONTROL METHOD	$\phi_{dyn}$	* $R_n$
Mn/DOT NOMINAL RESISTANCE FORMULA	0.40	184.2
PDA	0.65	113.3

\*  $R_n$  = FACTORED DESIGN LOAD /  $\phi_{dyn}$

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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: **CASEY E. BLACK**

Date: *4/1/13* License # 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781

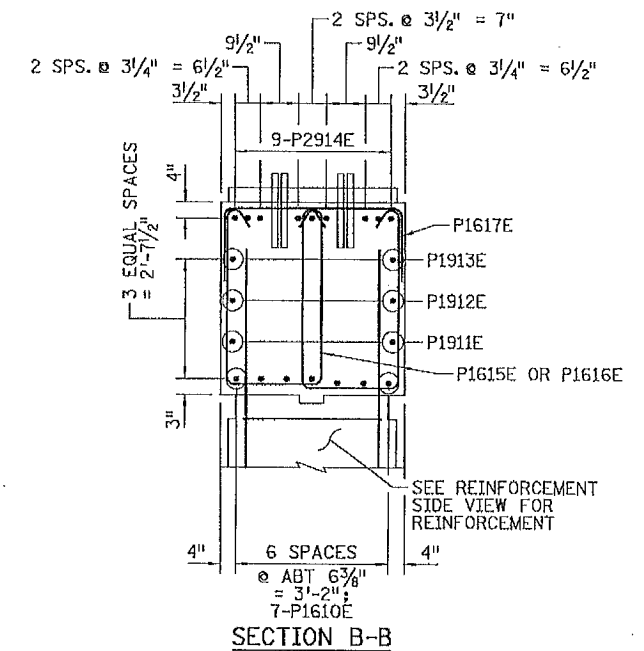
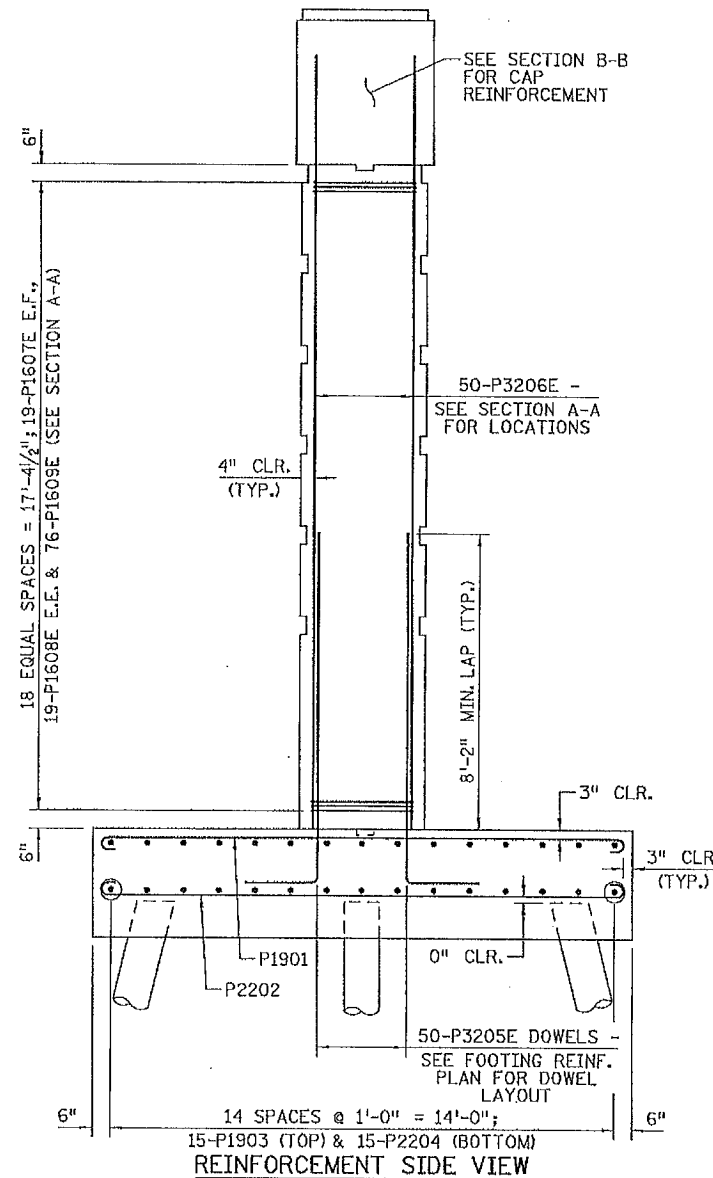
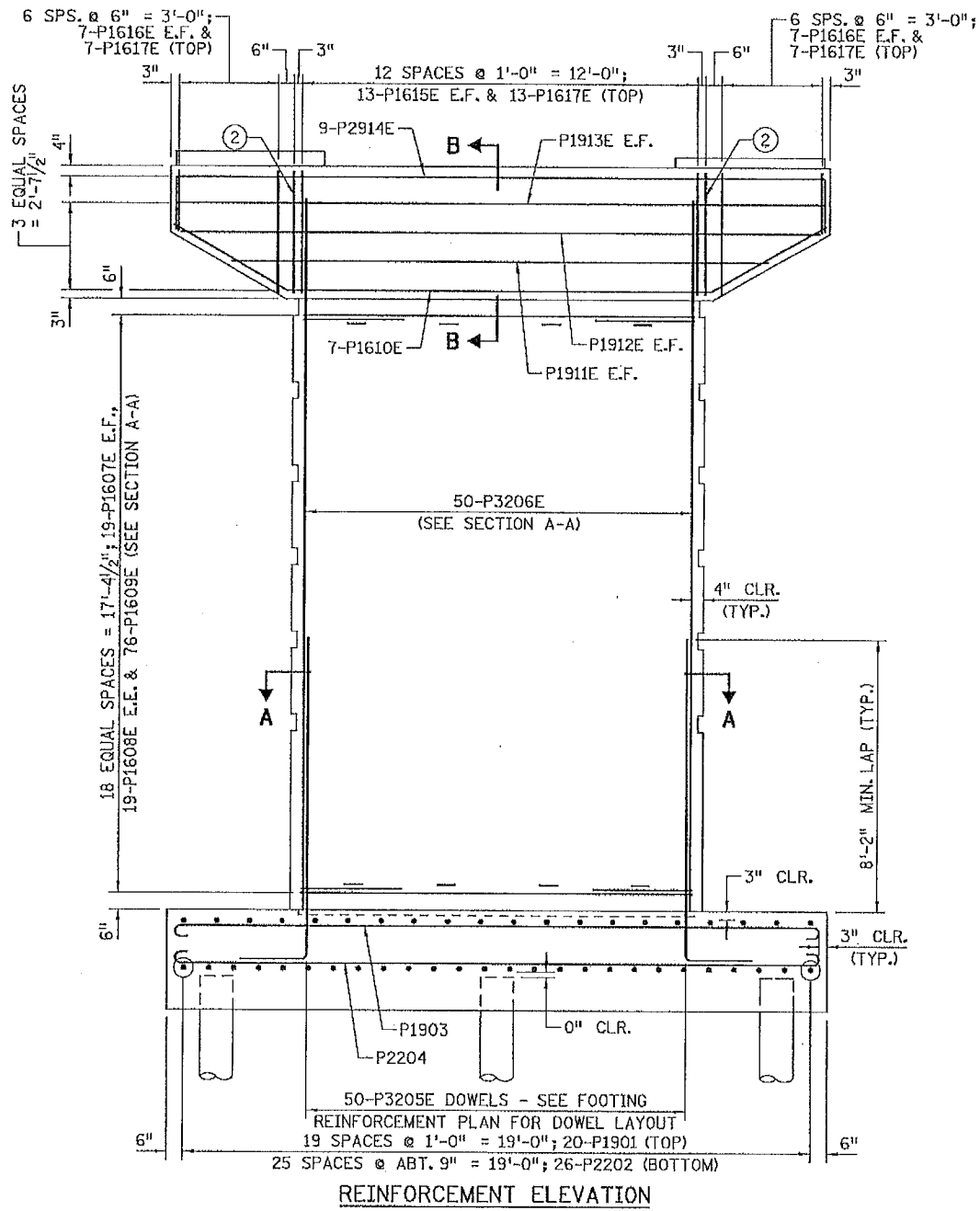
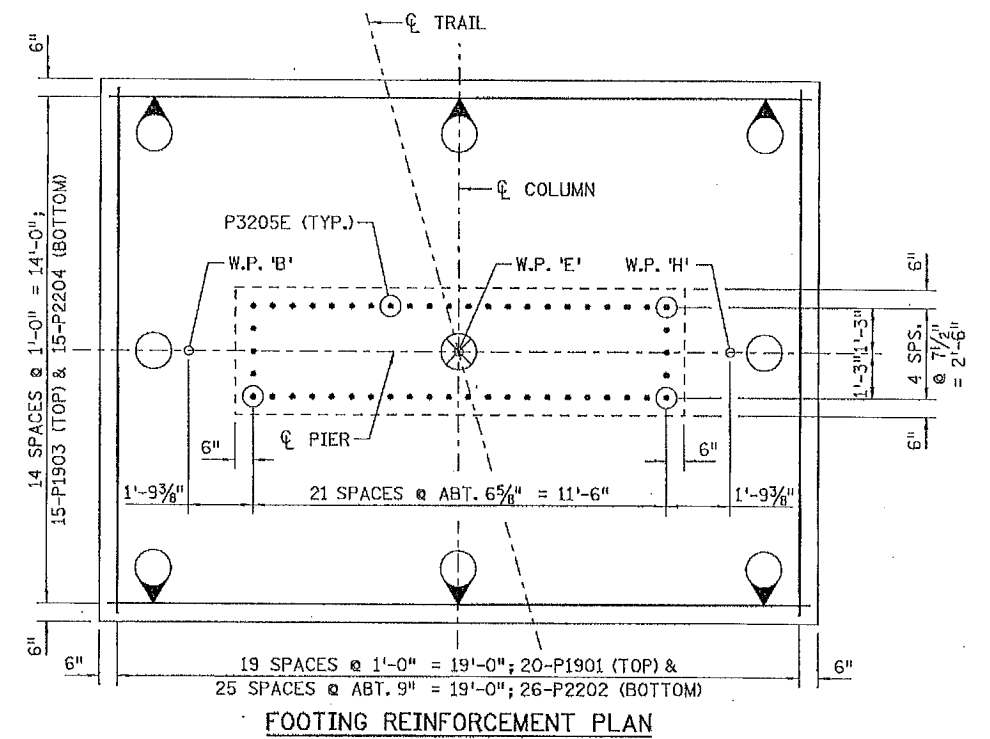
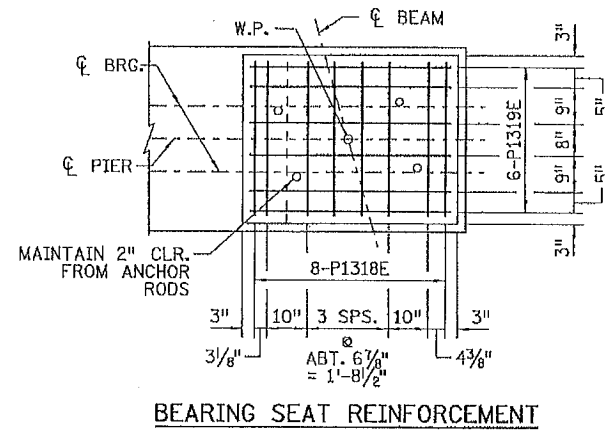
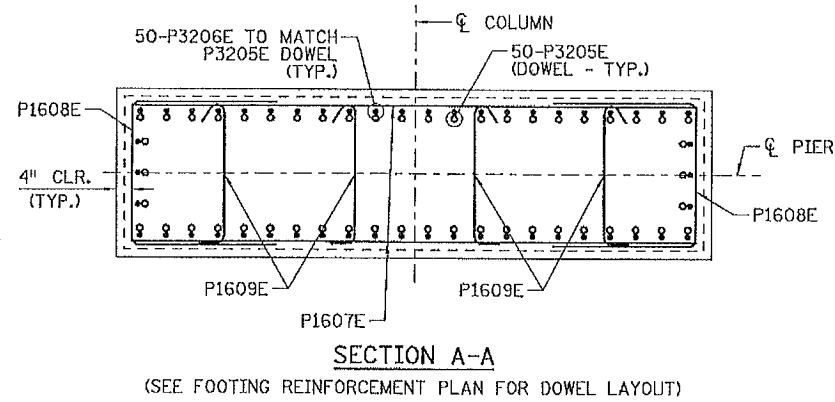


ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY  
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
PIER DETAILS

SHEET  
B14  
OF  
B42





NOTES:

- E.F. DENOTES EACH FACE  
F.F. DENOTES FRONT FACE  
B.F. DENOTES BACK FACE  
E.E. DENOTES EACH END
- P1615E E.F. AND P1617E (TOP)

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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
REVISION					
NO	DATE	BY	CHKD	APPR	
... \BRN\Plans\Final\7781_P1r02.dgn					

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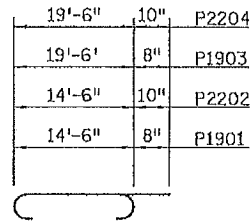
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ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 PIER REINFORCEMENT DETAILS  
 (SHEET 1 OF 2)

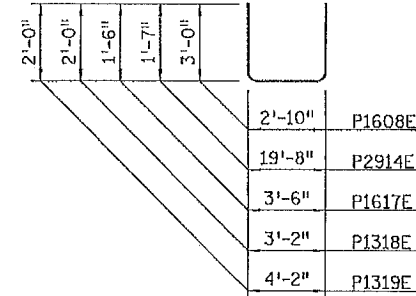
SHEET B15 OF B42

BILL OF REINFORCEMENT: PIER				
MARK	NO	LENGTH [FT - IN]	SHAPE	LOCATION
P1901	20	15 - 10		FOOTING TRANS
P2202	26	16 - 2		FOOTING TRANS
P1903	15	20 - 10		FOOTING LONG
P2204	15	21 - 2		FOOTING LONG
P3205E	50	12 - 0		COLUMN DOWEL
P3206E	50	21 - 4		COLUMN VERT
P1607E	38	11 - 10		COLUMN HORIZ
P1608E	38	8 - 10		COLUMN HORIZ
P1609E	76	3 - 10		COLUMN TIE
P1610E	7	20 - 8		CAP HORIZ
P1911E	2	16 - 3		CAP HORIZ
P1912E	2	19 - 4		CAP HORIZ
P1913E	2	19 - 8		CAP HORIZ
P2914E	9	22 - 10		CAP HORIZ
P1616E	30	10 - 2		CAP TIE
P1616E	4 SERIES	6 - 2		CAP TIE
	OF 7	9 - 10		CAP TIE
P1617E	29	6 - 6		CAP TOP
P1318E	16	7 - 2		BRG SEAT
P1319E	12	8 - 2		BRG SEAT

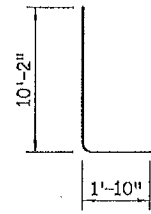
**BAR SHAPES:**



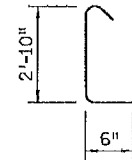
P1901, P2202, P1903, P2204



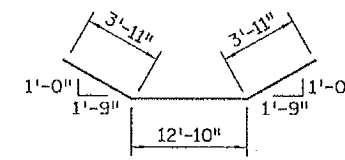
P1608E, P2914E, P1617E, P1318E, P1319E



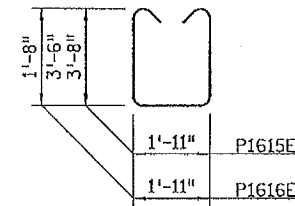
P3205E



P1609E



P1610E



P1615E, P1616E

SUMMARY OF QUANTITIES : PIER		
ITEM	UNIT	QUANTITY
SELECT GRANULAR BORROW MOD 10% (CV)	CU. YD.	241
STRUCTURAL CONCRETE (1A43)	CU. YD.	34
STRUCTURAL CONCRETE (3Y43)	CU. YD.	41
REINFORCEMENT BARS	POUND	2460
REINFORCEMENT BARS (EPOXY COATED)	POUND	10150
FOUNDATION PREPARATION PIER	LUMP SUM	1
C-I-P CONCRETE PILING DELIVERED 12"	LIN. FT.	560
C-I-P CONCRETE PILING DRIVEN 12"	LIN. FT.	560
C-I-P CONC TEST PILE 60 FT LONG 12"	EACH	1

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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION

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 Print Name: CASEY E. BLACK  
 Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (I.H. 35W)  
 BRIDGE NUMBER 02006

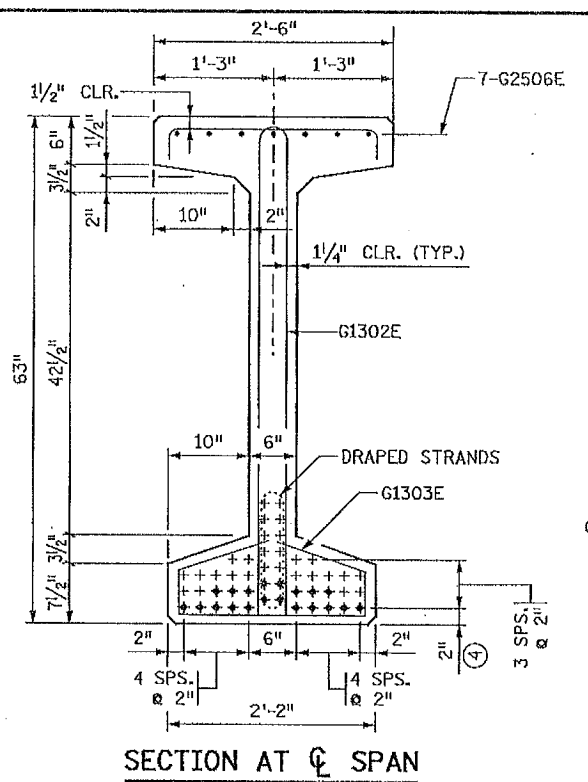
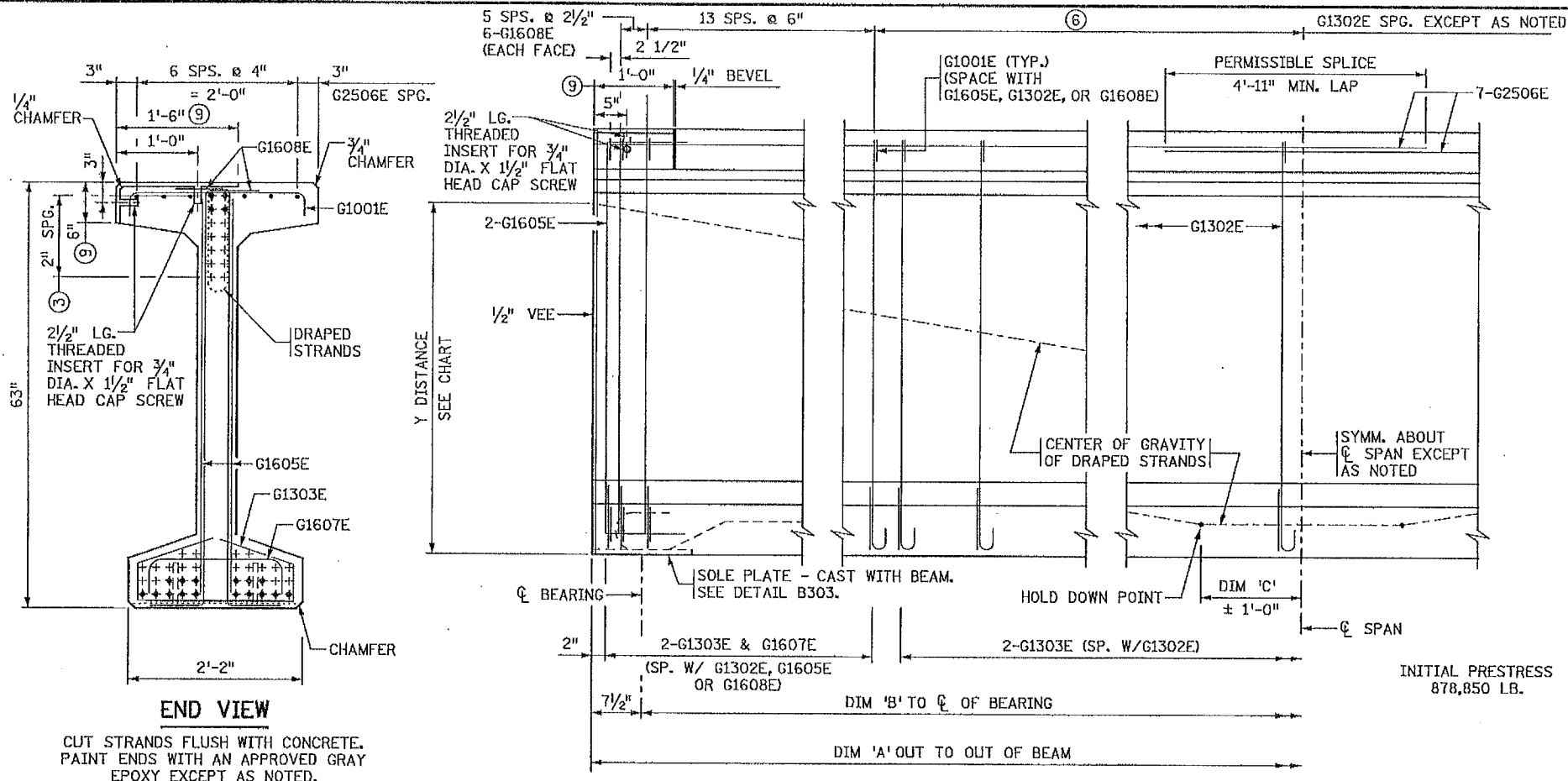
DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
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ENGINEERS  
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ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 PIER REINFORCEMENT DETAILS  
 (SHEET 2 OF 2)

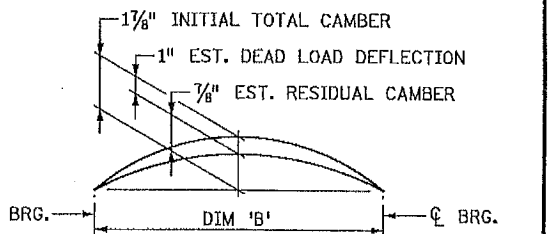
SHEET B16 OF B42



Y DISTANCES (IN INCHES)			
	NO.	CL SPAN	END
STRAIGHT STRANDS	16	2.75	
DRAPED STRANDS	4	4	60
TOTAL STRANDS	20	3.	

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

A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.



**CAMBER DIAGRAM**

INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS ARE IN PLACE.

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.

**SECTION AT CL SPAN**

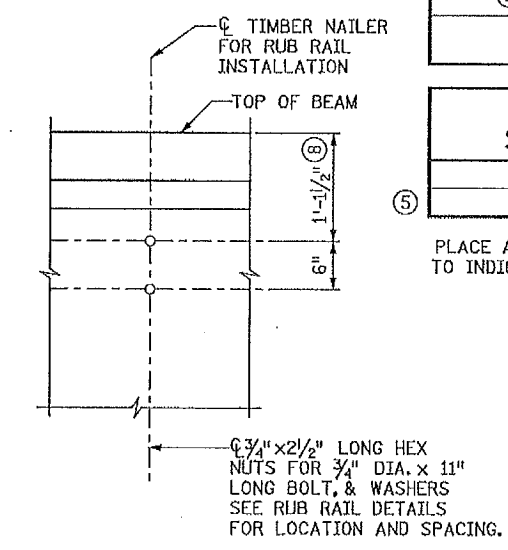
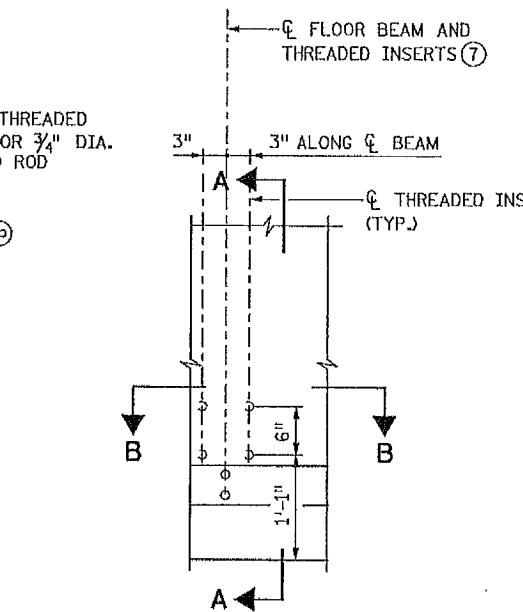
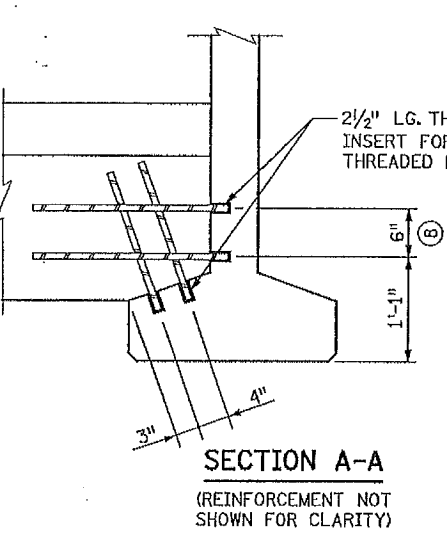
**GENERAL NOTES**

- CONCRETE SHALL BE MIX NO. 3W36, MODIFIED TO PROVIDE MINIMUM CONCRETE STRENGTH SHOWN.
- TOPS OF BEAMS SHALL BE FINISHED SMOOTH.
- PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR. HOLES OR DEVICES SHALL BE REMOVED TO 2" BELOW THE SURFACE OF TOP FLANGE, AND PATCHED TO A SMOOTH FINISH
- 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 STENCILED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE DECK & FRAMING PLAN.
- SEE DECK & FRAMING PLAN FOR BEAM END MARKED "X" AND FLOOR BEAM SPACING.
- APPROXIMATE WEIGHT OF BEAM B1 IS 37.6 TONS AND BEAM B2 IS 39.3 TONS.
- AS AN ALTERNATE TO THE FLOOR BEAM ANCHORAGE 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.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE MNDOT SPEC. 2405.

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

BEAM DIMENSION TABLE			
BEAM	DIMENSION 'A'	DIMENSION 'B'	DIMENSION 'C'
B1	95'-4 1/2"	94'-1 1/2"	9'-4 1/2"
B2	99'-5 1/2"	98'-2 1/2"	9'-9 1/2"

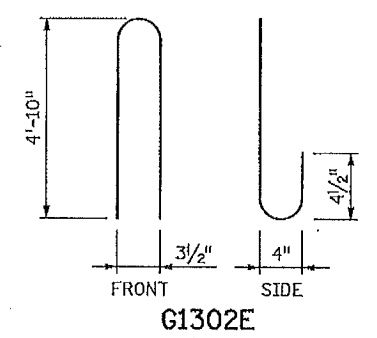
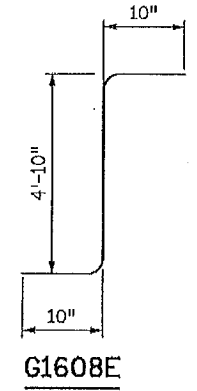
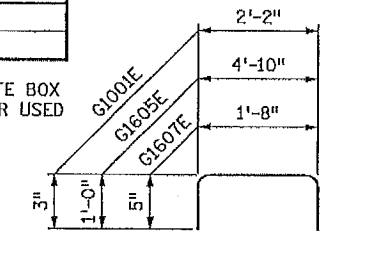
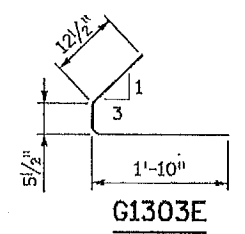
**BEAM ELEVATION**



MINIMUM CONCRETE STRENGTH - P.S.I.	
① f'cl	② f'c
6000	6800

PRESTRESSING STRAND DIAMETER	
⑤	
1/2" □	
0.60" ☒	

PLACE AN "X" IN THE APPROPRIATE BOX TO INDICATE THE STRAND DIAMETER USED FOR THE DESIGN.



REVISED: 03-31-2005  
APPROVED: APRIL 29, 2003  
STATE BRIDGE ENGINEER

**THREADED INSERT ELEVATION AT FLOOR BEAM CONNECTION**

**THREADED INSERT ELEVATION AT TIMBER NAILER CONNECTION**

NO	DATE	BY	CHKD	APPR	REVISION
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Pr Int Name: CASEY E. BLACK  
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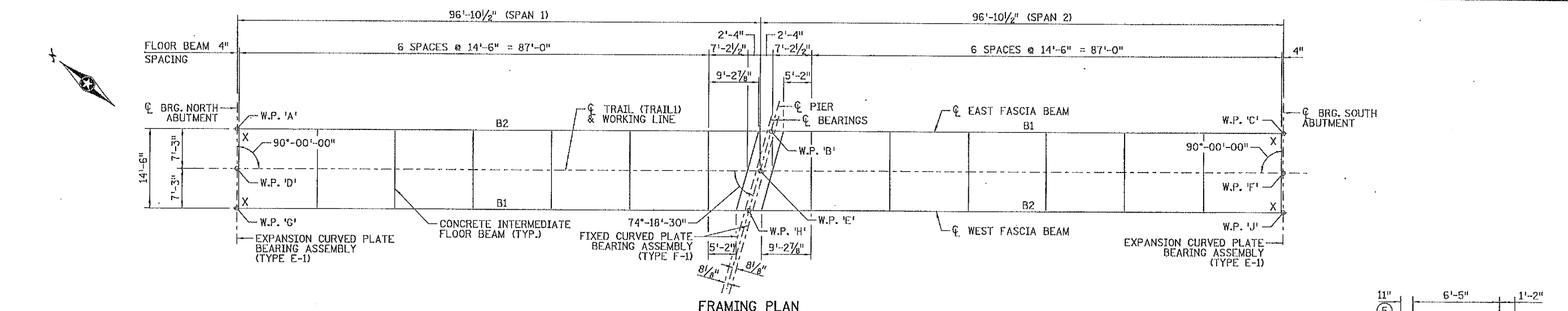
STATE PROJECT NO. 002-614-035  
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BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
DESIGNED BY C. BLACK  
CHECKED BY K. SWEHLA  
COMM. NO. 7781

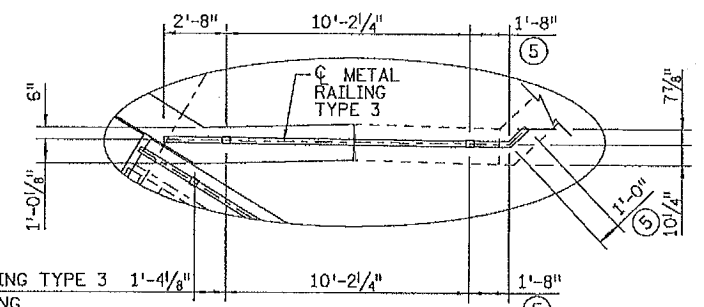


ANOKA COUNTY  
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
63M PRESTRESSED CONCRETE BEAM  
BEAM TYPES 63M-96 & 63M-100  
SHEET B17 OF B42

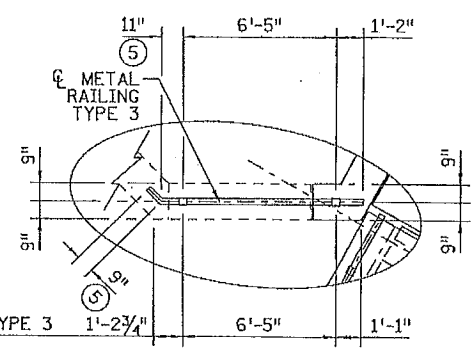
BEAMS B1 & B2  
MODIFIED  
FIG. 5-397.516



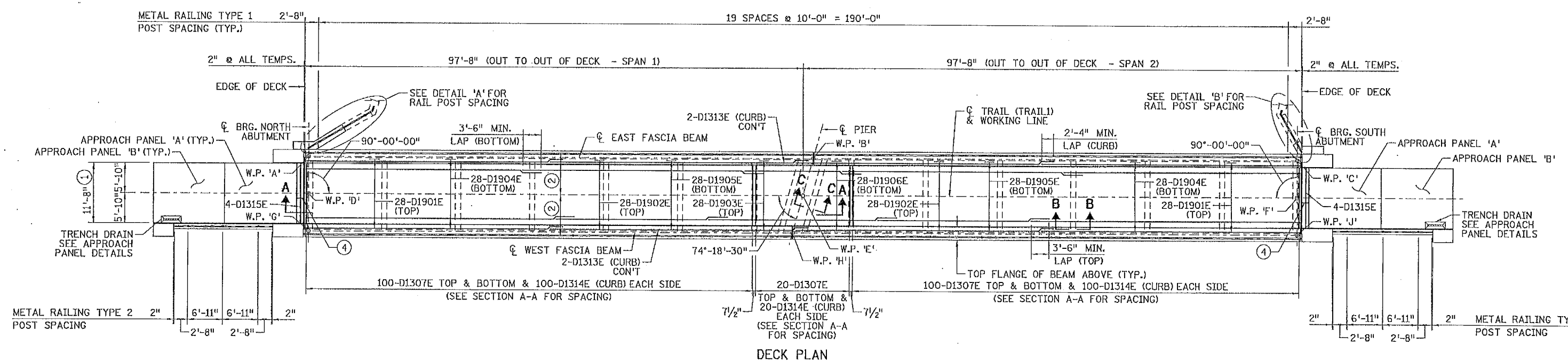
FRAMING PLAN



DETAIL 'A'



DETAIL 'B'



DECK PLAN

NOTES:

- ① EDGE OF SLAB TO EDGE OF SLAB
- ② 7'-11"  $\phi$  TRAIL TO  $\phi$  METAL RAILING TYPE 1
- 3. X DENOTES WHICH END OF THE BEAM IS TO BE MARKED WITH AN "X".
- ④ 12-D1316E TO MATCH A1612E
- ⑤ MEASURED ALONG CENTERLINE OF RAILING.

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ANOKA COUNTY

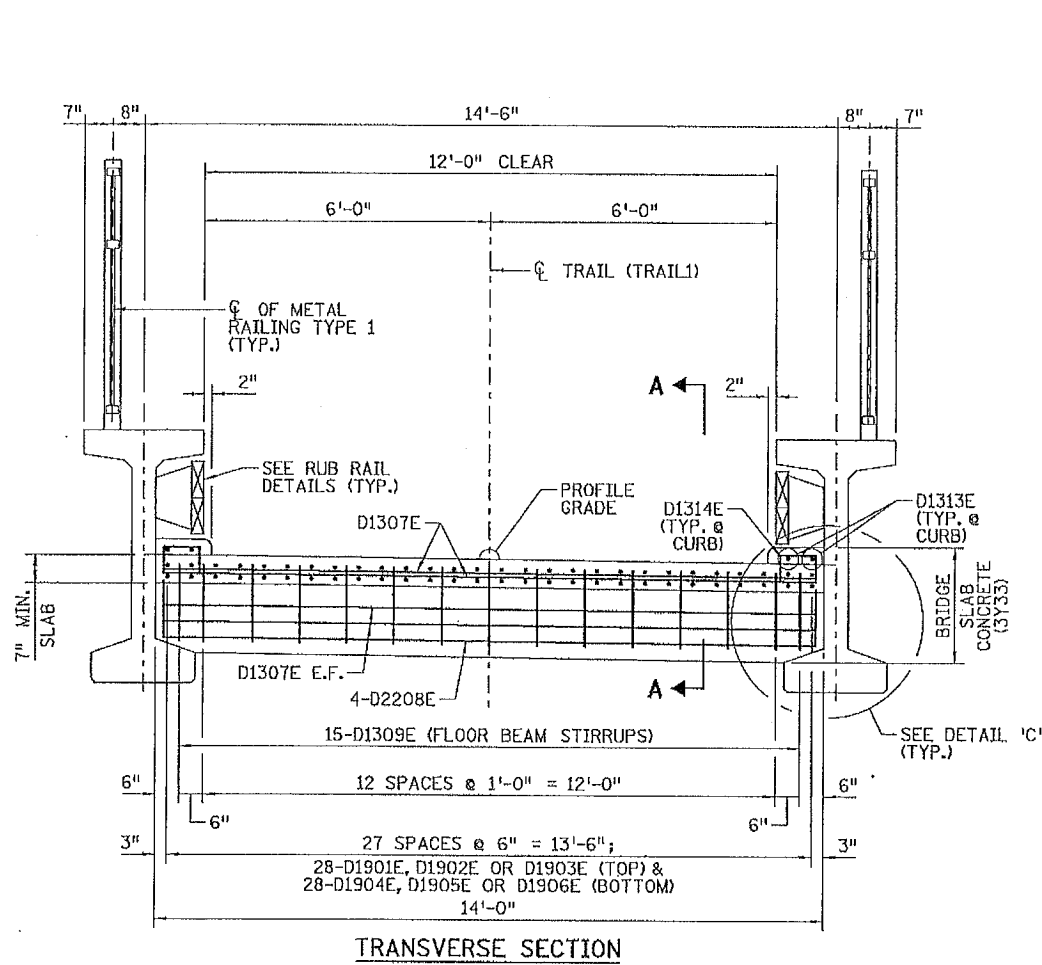
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W

BRIDGE DECK DETAILS

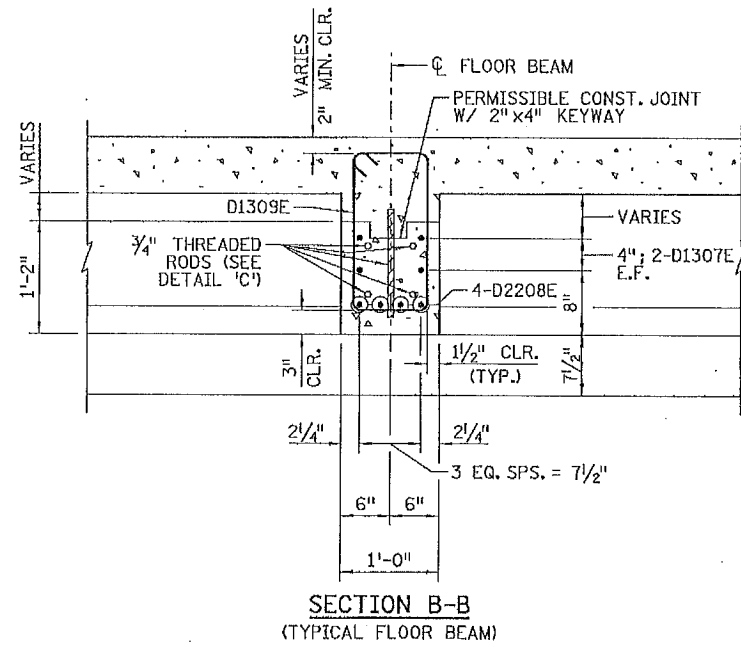
(SHEET 1 OF 3)

SHEET B18 OF B42

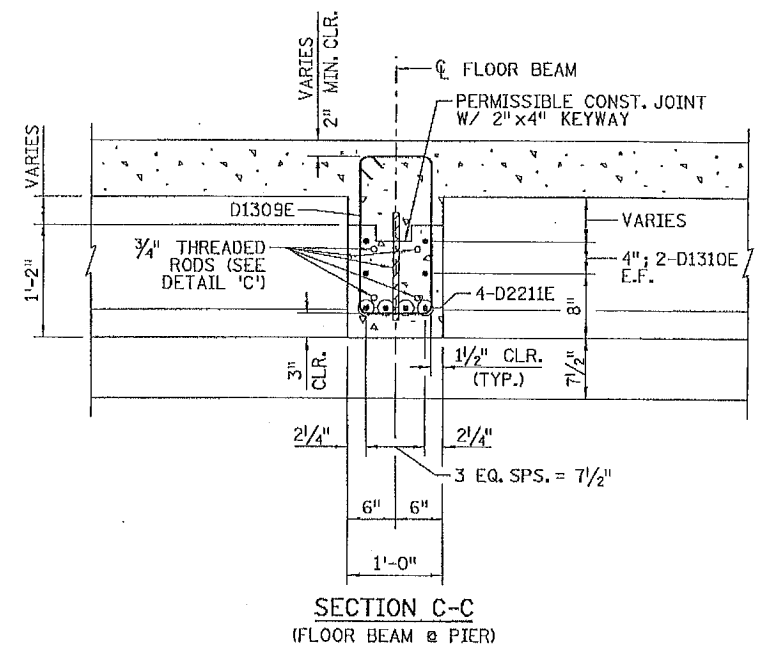




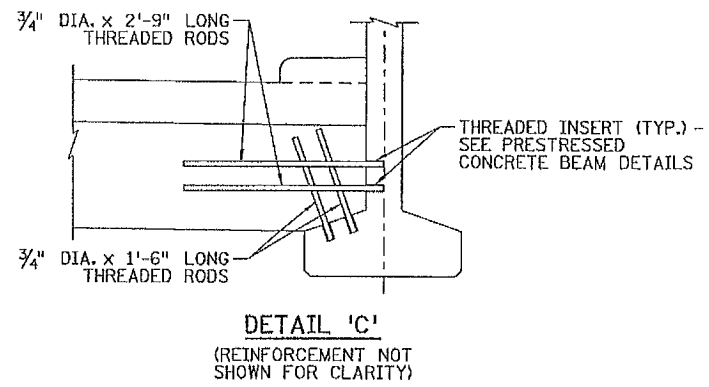
TRANSVERSE SECTION



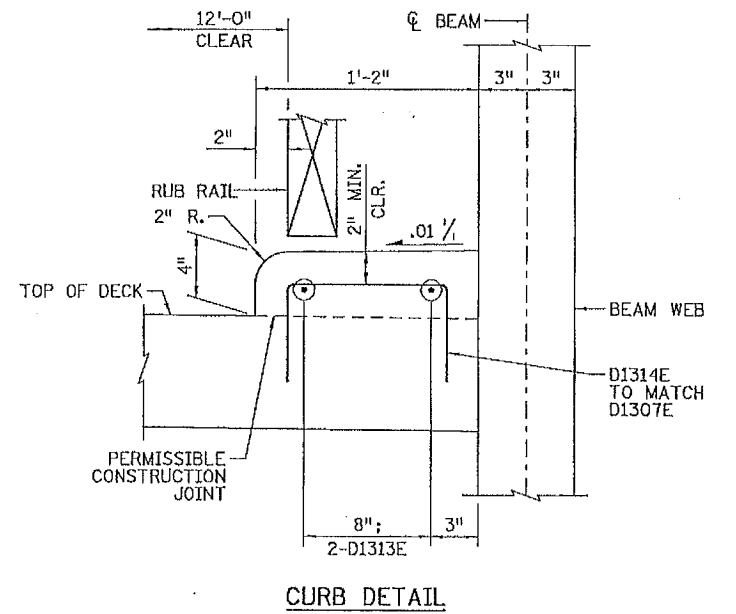
SECTION B-B  
(TYPICAL FLOOR BEAM)



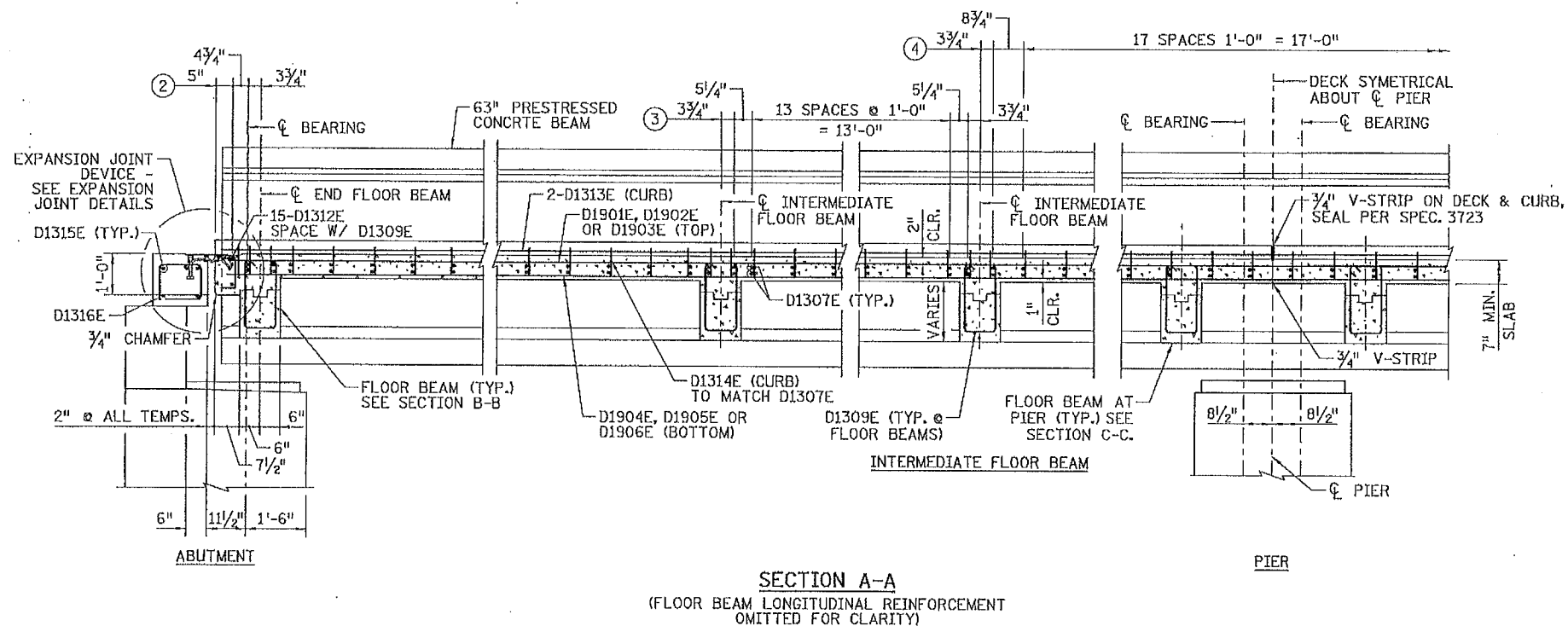
SECTION C-C  
(FLOOR BEAM @ PIER)



DETAIL 'C'  
(REINFORCEMENT NOT SHOWN FOR CLARITY)



CURB DETAIL



SECTION A-A  
(FLOOR BEAM LONGITUDINAL REINFORCEMENT OMITTED FOR CLARITY)

- NOTES:**
- E.F. DENOTES EACH FACE  
U.N.O. DENOTES UNLESS NOTED OTHERWISE
  - D1307E BAR SPACING (TOP & BOTTOM OF DECK) AT ABUTMENT W/ D1314E (CURB) TO MATCH
  - D1307E BAR SPACING (TOP & BOTTOM OF DECK) TYPICAL U.N.O. W/ D1314E (CURB) TO MATCH
  - D1307E BAR SPACING (TOP & BOTTOM OF DECK) AT PIER W/ D1314E (CURB) TO MATCH

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11/2013  
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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION
					...

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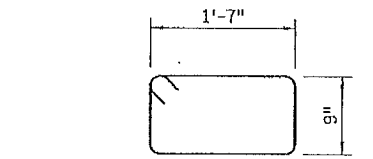
ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY  
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
BRIDGE DECK DETAILS  
(SHEET 2 OF 3)

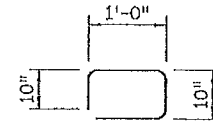
SHEET  
B19  
OF  
B42

BILL OF REINFORCEMENT: SUPERSTRUCTURE				
MARK	NO	LENGTH [FT - IN]	SHAPE	LOCATION
D1901E	56	52 - 6	---	TOP LONG.
D1902E	56	33 - 6	---	TOP LONG.
D1903E	28	37 - 0	---	TOP LONG.
D1904E	56	46 - 0	---	BOTTOM LONG.
D1905E	56	48 - 0	---	BOTTOM LONG.
D1906E	28	22 - 8	---	BOTTOM LONG.
D1307E	496	13 - 8	---	TRANS.
D2208E	56	15 - 10	□	FLOOR BEAM
D1309E	240	5 - 5	□	FLOOR BEAM
D1310E	8	14 - 2	---	FLOOR BEAM
D2211E	8	16 - 4	□	FLOOR BEAM
D1312E	30	1 - 5	□	EXP JOINT
D1313E	16	50 - 6	---	CURB LONG
D1314E	440	1 - 10	□	CURB TIE
D1315E	8	11 - 4	---	END BLOCK
D1316E	24	3 - 6	□	END BLOCK

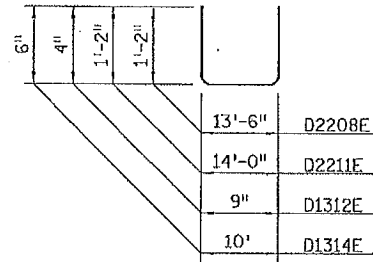
**BAR SHAPES:**



D1309E



D1316E



D2208E, D2211E, D1312E, D1314E

SUMMARY OF QUANTITIES : SUPERSTRUCTURE		
ITEM	UNIT	QUANTITY
BRIDGE SLAB CONCRETE (3Y33)	SQ FT	2770
REINFORCEMENT BARS (EPOXY COATED)	POUND	26430
EXPANSION JOINT DEVICES TYPE 4	LIN FT	28
BEARING ASSEMBLY	EACH	8
TREATED TIMBER	MBM	3
PRESTRESSED CONCRETE BEAMS 63M	LIN FT	390
METAL RAILING TYPE 1	LIN FT	391
FIXED CURVED PLATE BEARING ASSY., TYPE F-1	EACH	4
EXP. CURVED PLATE BEARING ASSY., TYPE E-1	EACH	4

**NOTES:**

- ① PAYMENT FOR BEARINGS INCLUDED IN ITEM "BEARING ASSEMBLY" PER EACH.
- ② BRIDGE SLAB CONCRETE (3Y33) VOLUME IS APPROXIMATELY 80 CU. YDS. AND INCLUDES CONCRETE FLOOR BEAMS AND CURBS.
- ③ INCLUDES DECK, FLOOR BEAM, CURB AND PAVING BLOCK REINFORCEMENT.

8/01/22 AM  
 4/1/2013  
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1	4/1/13	CEB	RLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

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PLANNERS  
DESIGNERS

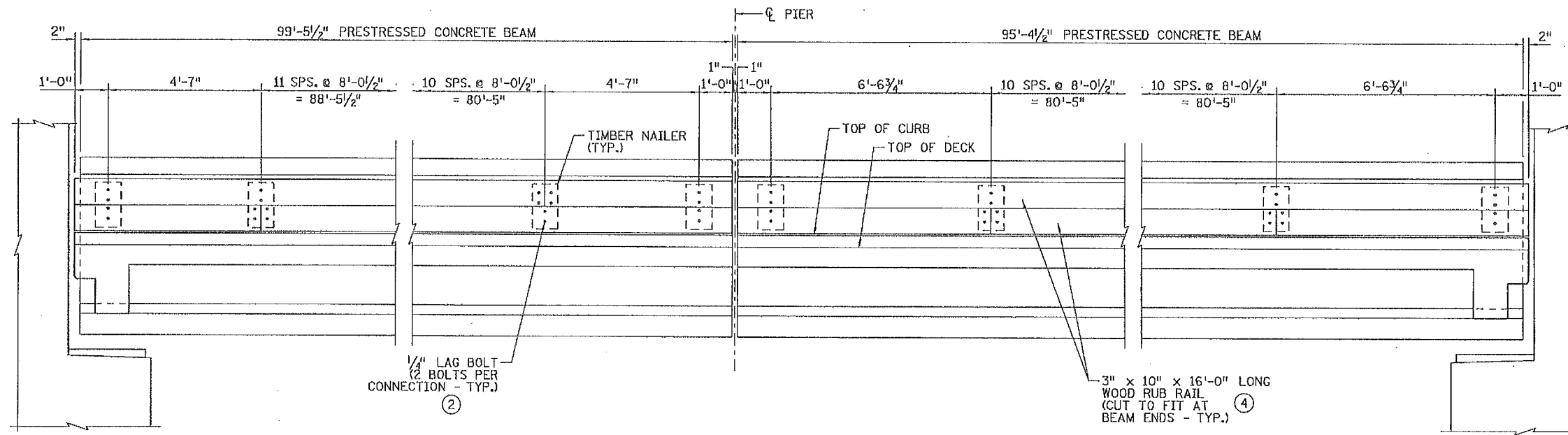
ANOKA COUNTY

CSAH 14 PEDESTRIAN BRIDGE OVER I-35W

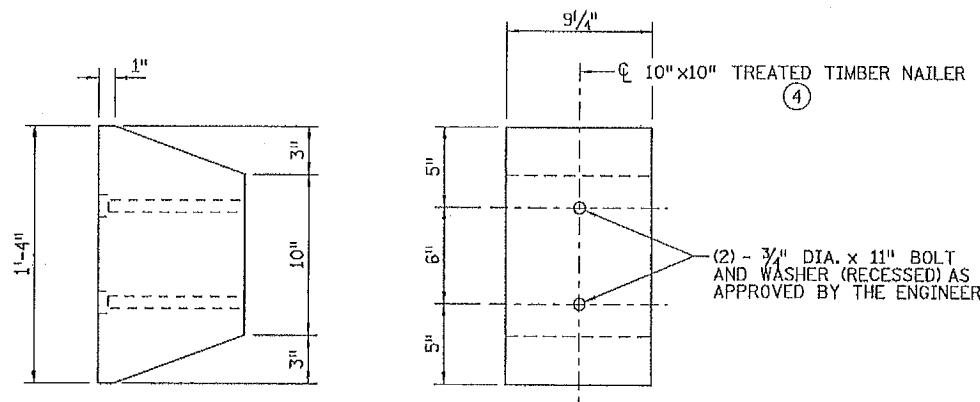
BRIDGE DECK DETAILS

(SHEET 3 OF 3)

SHEET  
B20  
OF  
B42



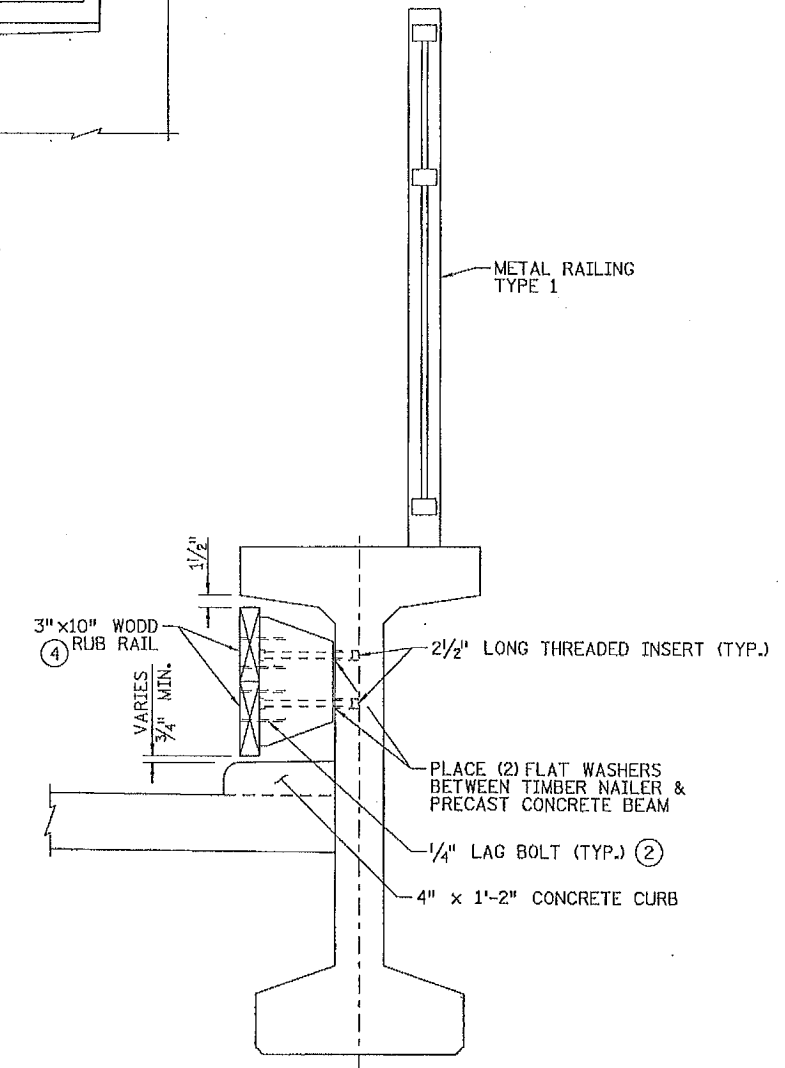
**RUB RAIL ELEVATION**  
(ORNAMENTAL METAL RAILING & FLOOR BEAMS NOT SHOWN FOR CLARITY)



**TIMBER NAILER DETAILS**

**NOTES:**

1. ALL WOOD SHALL BE PRESSURE TREATED PER THE SPECIAL PROVISIONS.
- ② FASTEN 3" x 10" TIMBER RUB RAILS TO THE 10" x 10" TIMBER NAILER WITH (2) 1/4" LAG BOLTS & (2) FLAT WASHERS. MINIMUM EDGE DISTANCE SHALL BE 1 1/2". BOLTS & NUTS SHALL NOT PROJECT BEYOND THE FACE OF THE RUB RAIL.
3. FASTENERS SHALL MEET MnDOT SPEC. 3391. GALVANIZE ALL THE FASTENERS PER MnDOT SPEC. 3392.
- ④ WOOD SHALL BE SOUTHERN YELLOW, RED OR PONDEROSA PINE AND BE GRADED NO. 2 OR BETTER (S4S). NO INTERMIXING OF SPECIES IS ALLOWED.



**RUB RAILING & FENCE DETAIL**

8/00/22 AM  
 4/1/2013  
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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: **CASEY E. BLACK**  
 Date: **4/1/13** License # **49163**

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

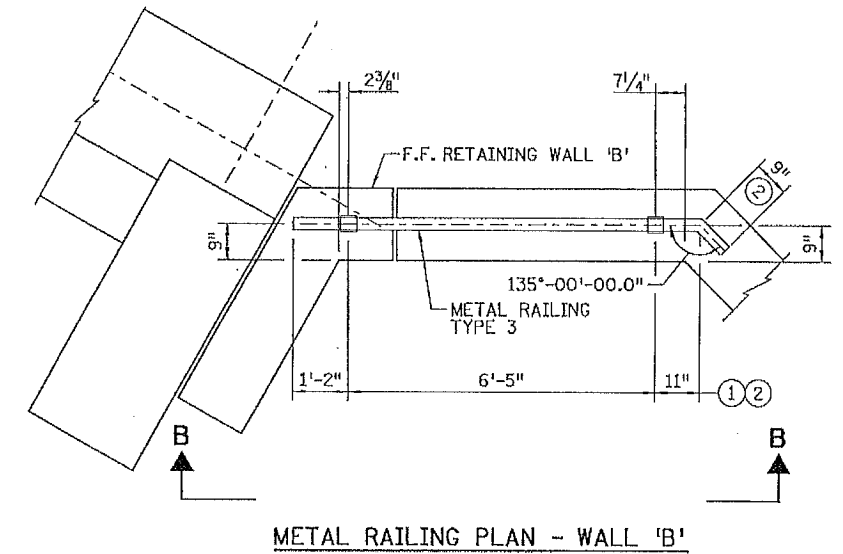
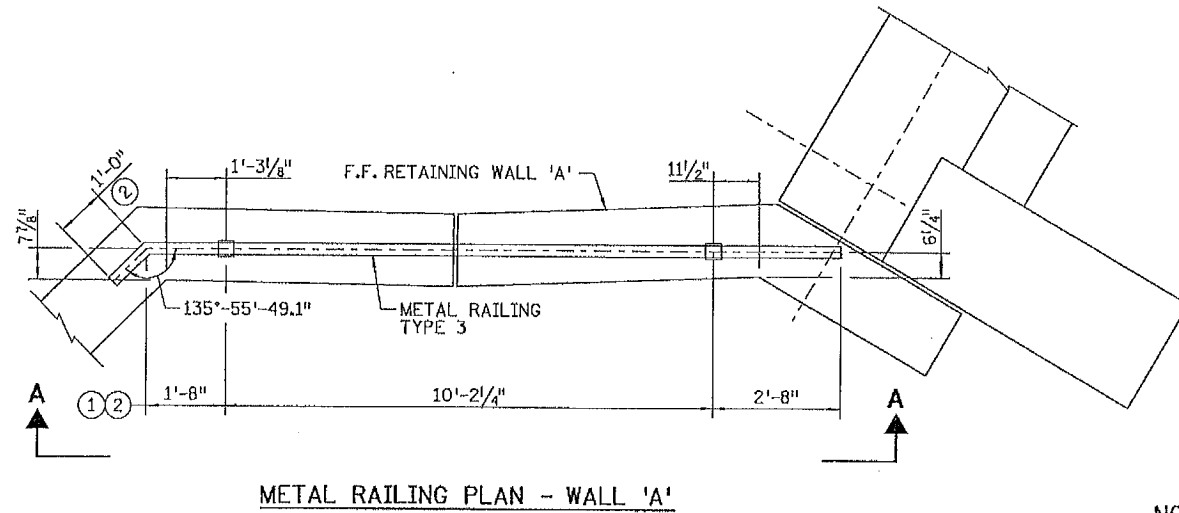
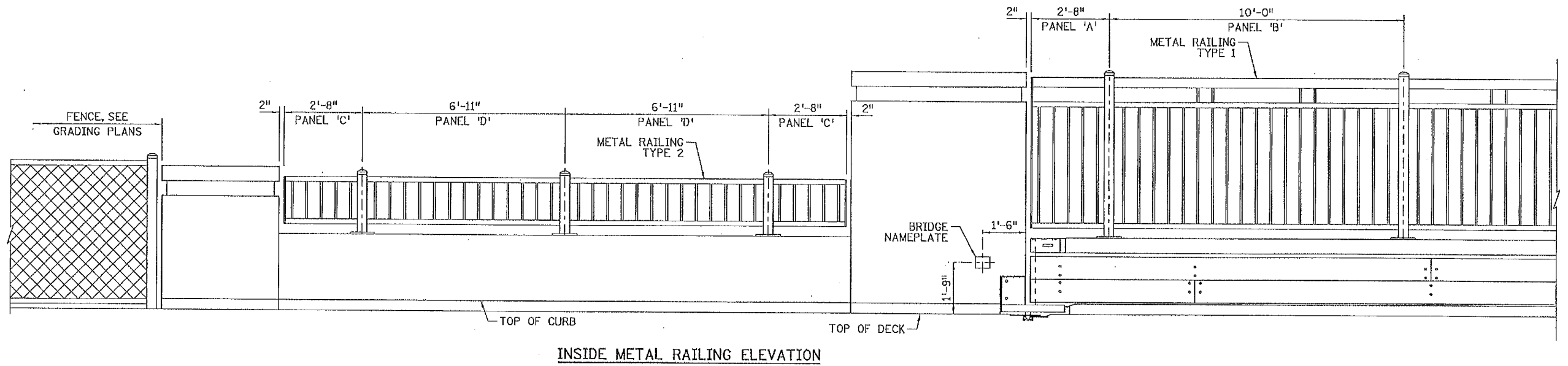
DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



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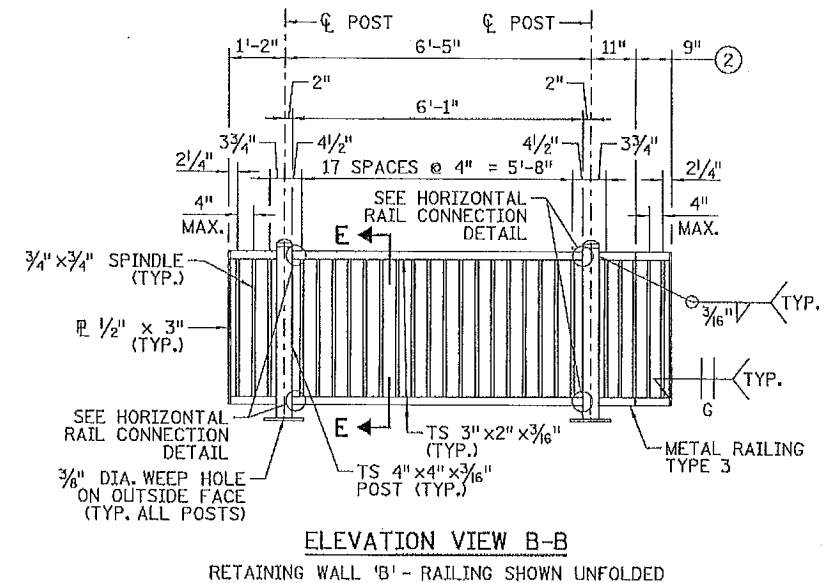
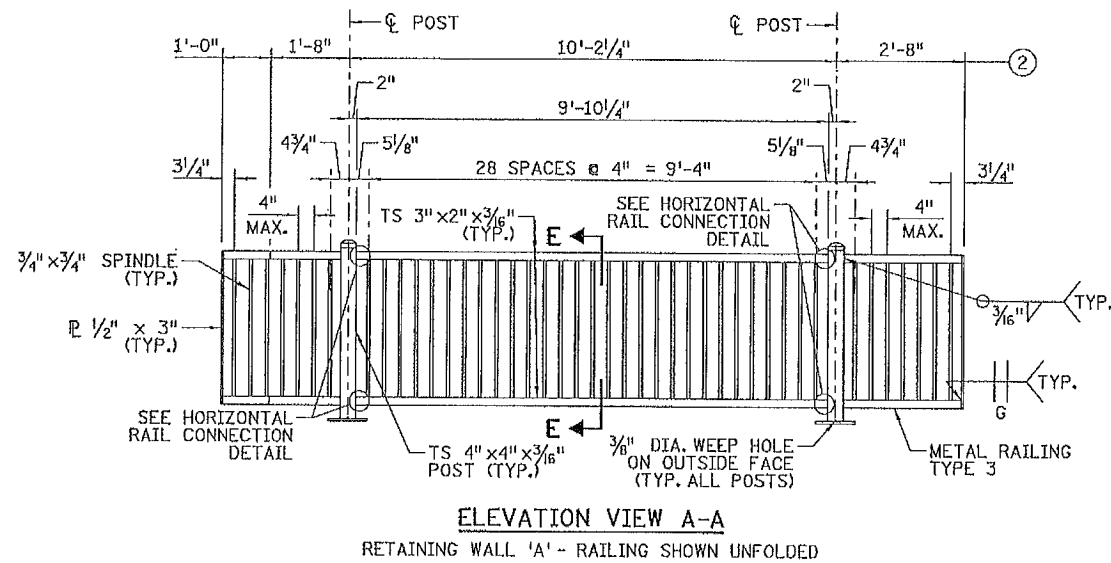
**ANOKA COUNTY**  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
**RUB RAIL DETAILS**

SHEET  
 B21  
 OF  
 B42



**NOTES:**

- ① FIELD MEASURE ACTUAL FIELD CONDITIONS AFTER CONSTRUCTION OF RETAINING WALLS 'A' & 'B' PRIOR TO FABRICATING RAIL TO ENSURE FIT-UP. ADJUST DIMENSIONS AS NECESSARY TO FIT FINAL CONDITIONS PRIOR TO SUBMITTING SHOP PLANS FOR REVIEW.
- ② MEASURED ALONG CENTERLINE OF RAIL.



8:00:23 AM 4/1/13 1:14:07 PM \\brnp\ans\F\Inal\7781\_det02.dgn

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*Casey E. Black*  
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 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER **02006**

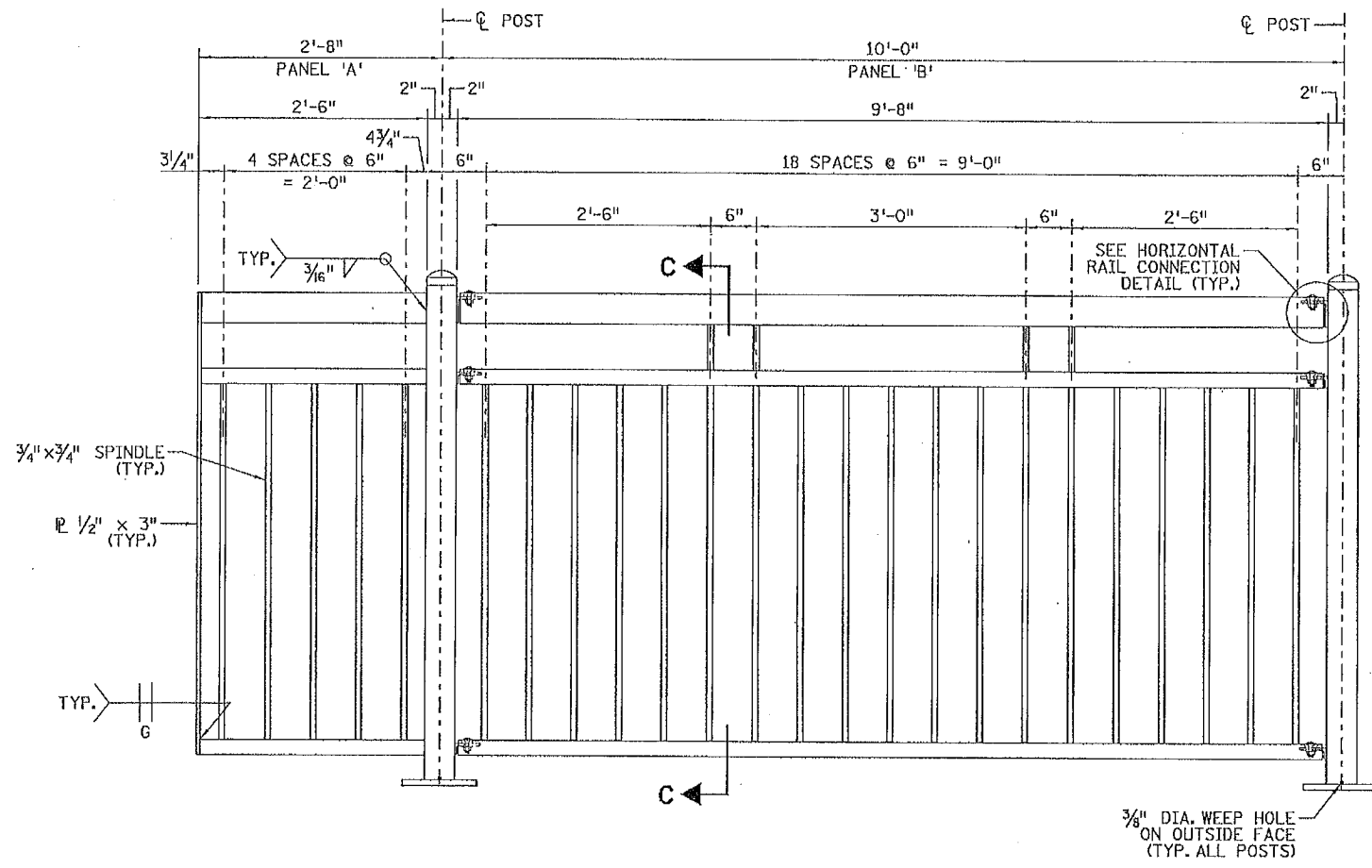
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 CHECKED BY **K. SWEHLA**  
 COMM. NO. 7781



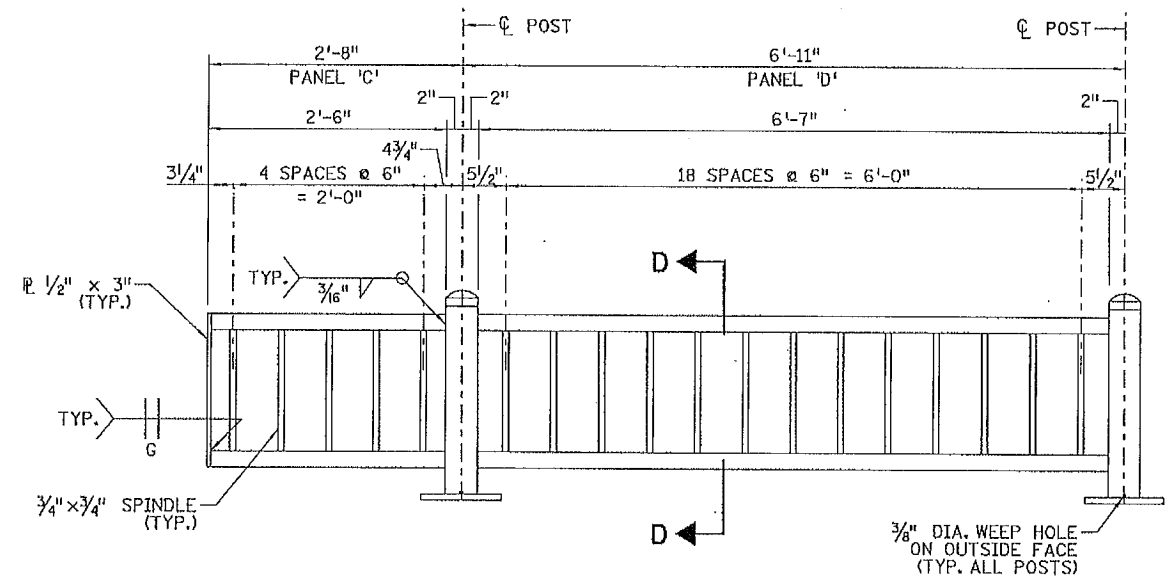
**ENGINEERS PLANNERS DESIGNERS**

**ANOKA COUNTY**  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
**METAL RAILING DETAILS**  
 (SHEET 1 OF 4)

**SHEET B22 OF B42**



METAL RAILING TYPE 1 PANEL ELEVATION



METAL RAILING TYPE 2 PANEL ELEVATION

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 4/1/2013  
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STATE PROJECT NO.  
 002-614-035  
 STATE PROJECT NO.  
 0280-71 (T.H. 35W)  
 BRIDGE NUMBER  
 02006

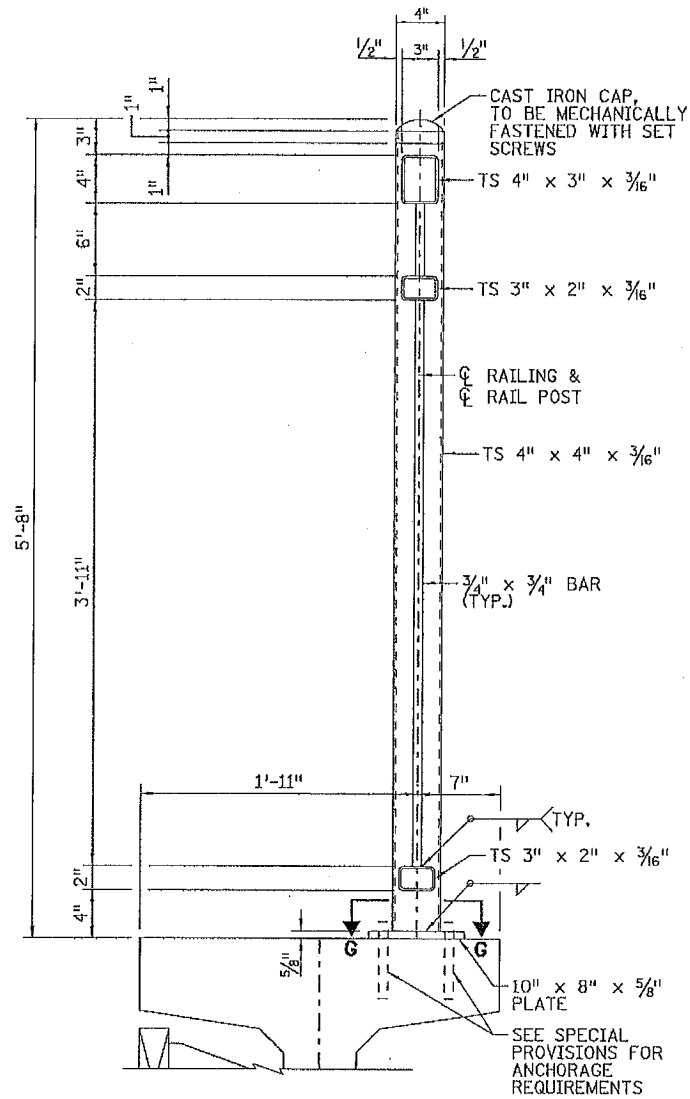
DRAWN BY  
 E. JOHNSON  
 DESIGNED BY  
 C. BLACK  
 CHECKED BY  
 K. SWEHLA  
 COMM. NO. 7781



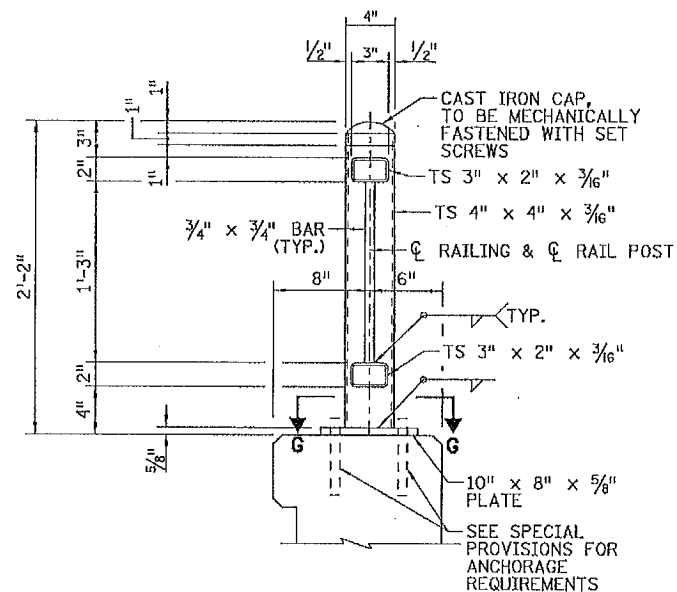
**ENGINEERS  
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 DESIGNERS**

**ANOKA COUNTY**  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
**METAL RAILING DETAILS**  
 (SHEET 2 OF 4)

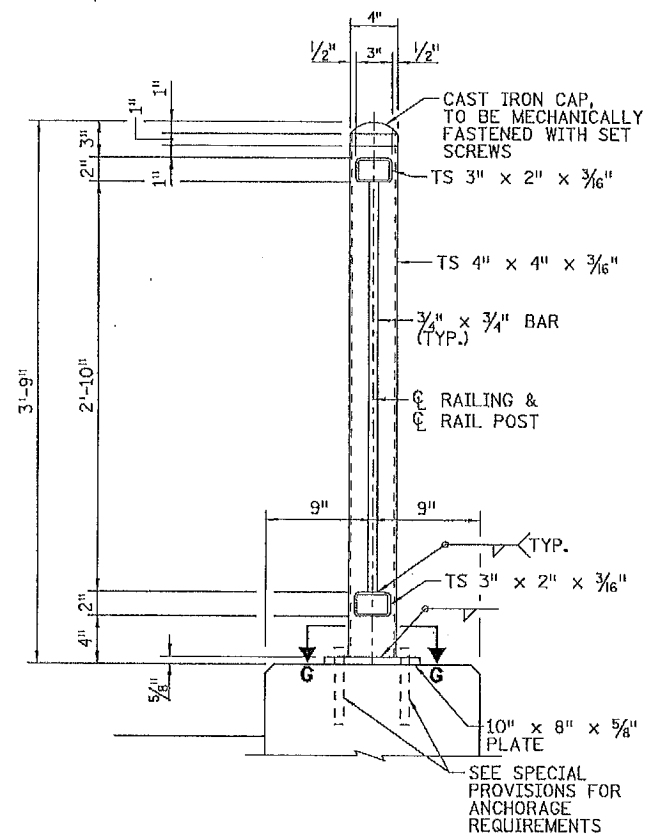
**SHEET  
 B23  
 OF  
 B42**



SECTION C-C  
(METAL RAILING  
TYPE 1)



SECTION D-D  
(METAL RAILING  
TYPE 2)



SECTION E-E  
(METAL RAILING  
TYPE 3)

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 4/17/2013  
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Date: *4/1/13* License # 49163

STATE PROJECT NO.  
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STATE PROJECT NO.  
0280-71 (T.H. 35W)

BRIDGE NUMBER  
02006

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PLANNERS  
DESIGNERS

ANOKA COUNTY

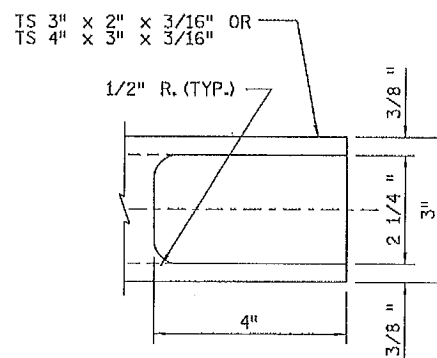
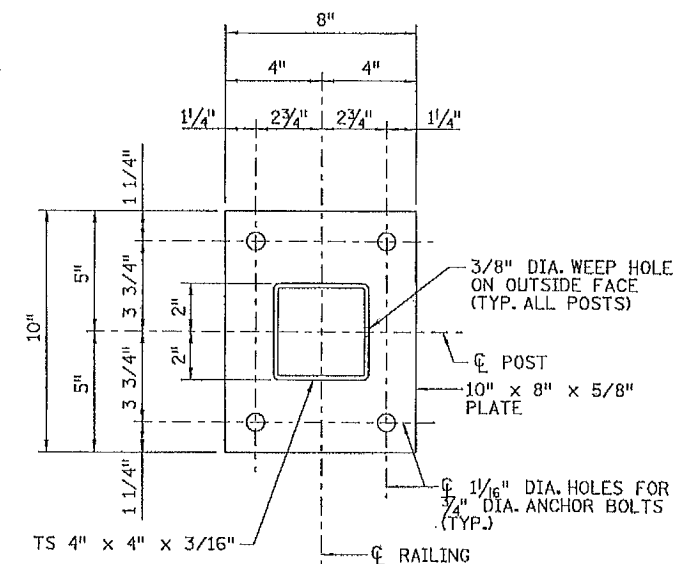
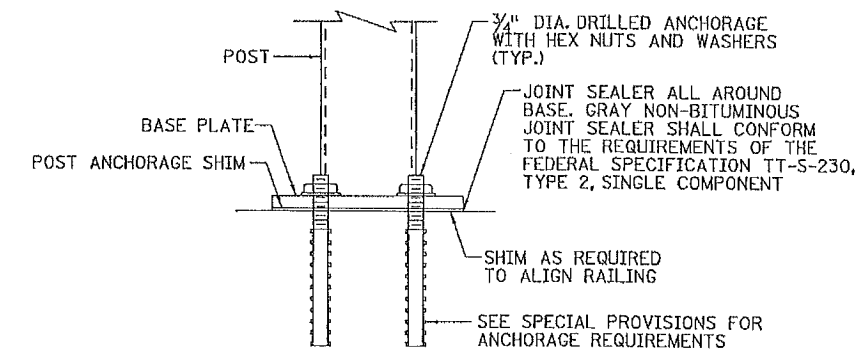
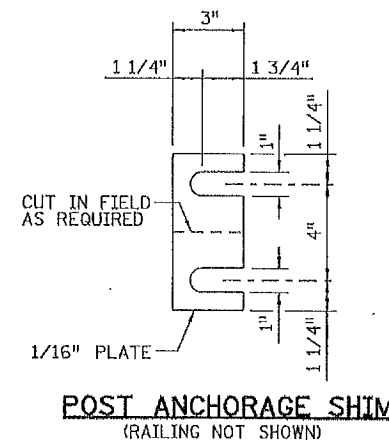
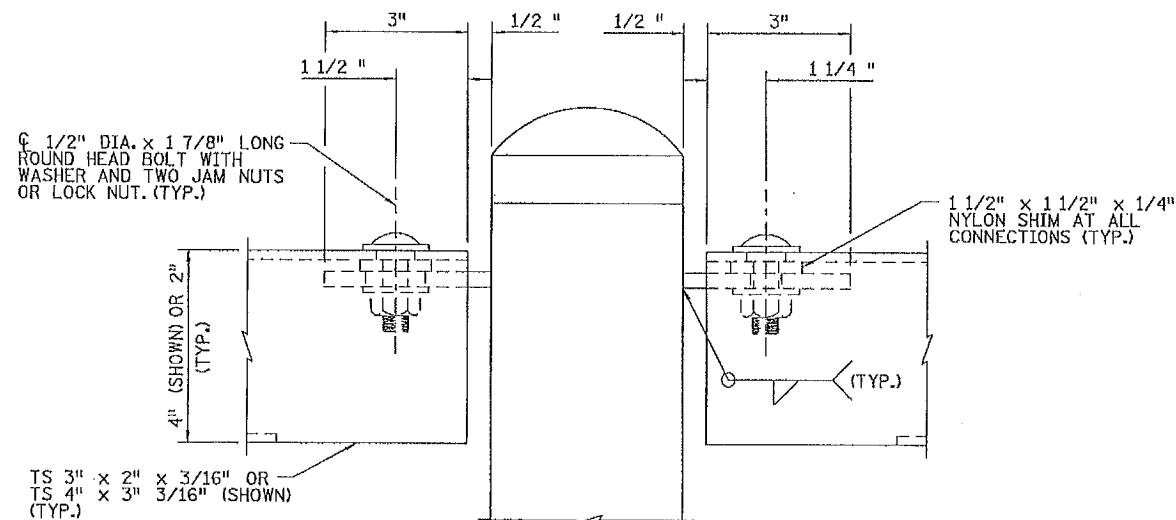
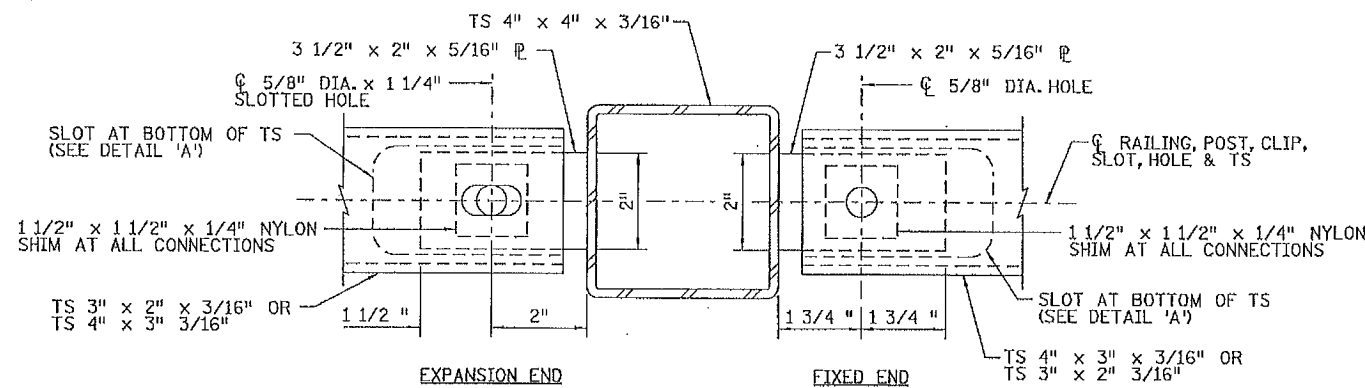
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W

METAL RAILING DETAILS

(SHEET 3 OF 4)

SHEET  
B24  
OF  
B42





**GENERAL NOTES:**

- LENGTH OF "METAL RAILING TYPE" FOR PAYMENT SHALL BE MEASURED BETWEEN THE ENDS OF CANTILEVER PANELS.
- ALL STRUCTURAL STEEL TUBING IN THE RAIL SHALL BE PER 3361 TYPE A.
- MATERIAL FOR CLOSURE ANGLES AND BASE PLATES SHALL CONFORM TO MN/DOT SPEC. 3306.
- FOR RAILING POST ANCHORAGE TYPE A SEE MN/DOT SPEC. 3385 AND SPECIAL PROVISIONS.
- RAIL POSTS AND PICKETS SHALL BE VERTICAL.
- FOR RAIL COATING SEE SPECIAL PROVISIONS.
- THE RAILING, BASE PLATES AND PROTRUDING PORTIONS OF ANCHOR RODS, BOLTS, NUTS AND WASHERS SHALL BE PAINTED AFTER GALVANIZING IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- RAILING SHALL BE GROUNDED WITH COPPER WIRE AT EACH APPROACH PANEL. ATTACH WIRE TO ABUTMENT PILE IN FOOTING OR 5/8" DIAMETER COPPER ROD PER SPEC. 2557.3.E.
- THE CONNECTION AT ONE END OF EACH PANEL SHALL ALLOW FOR EXPANSION.
- GALVANIZE THREADED RODS, BOLTS, NUTS AND WASHERS PER MN/DOT SPEC. 3392.
- GALVANIZE ALL RAILING MEMBERS PER MN/DOT SPEC. 3394 AFTER FABRICATION.
- ALL RAILING MEMBERS SHALL BE FLAT AFTER FABRICATION AND GALVANIZING TO WITHIN 1/8" IN 10 FT. VERTICAL AND HORIZONTALLY BY MECHANICAL MEANS WITHOUT DAMAGE TO THE ZINC COATING.

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 Pr Int Name: **CASEY E. BLACK**  
*Casey E. Black*  
 Date 4/1/13 License # 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

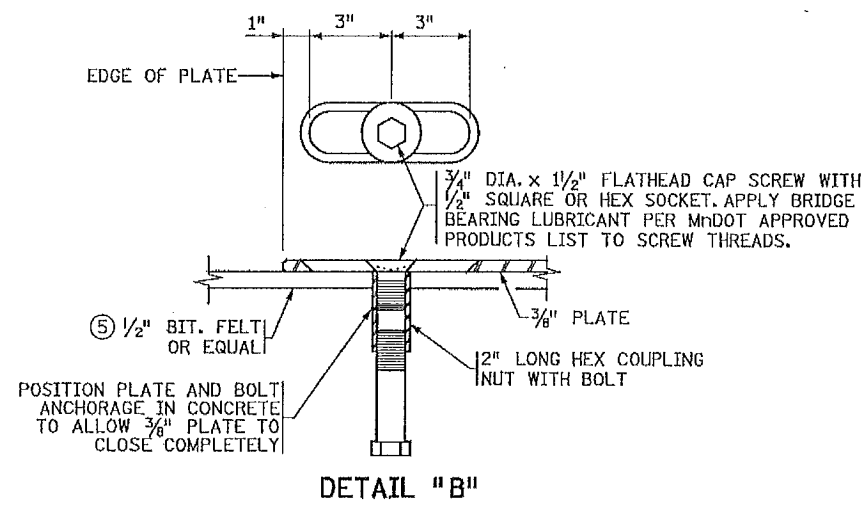
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 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



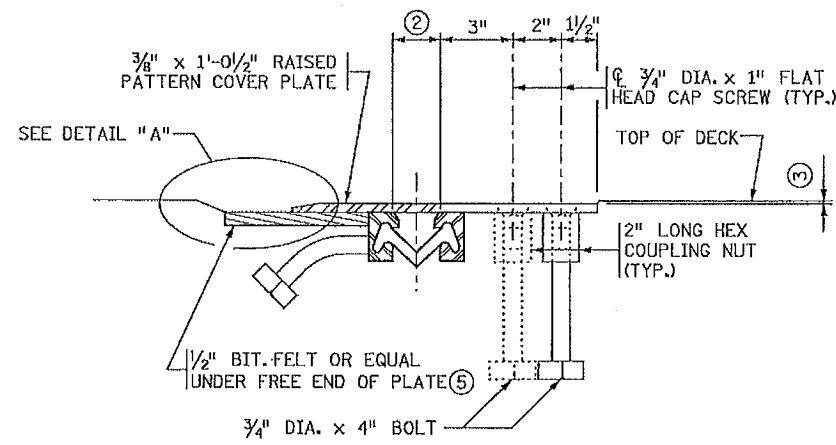
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 PLANNERS  
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ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 METAL RAILING DETAILS  
 (SHEET 4 OF 4)

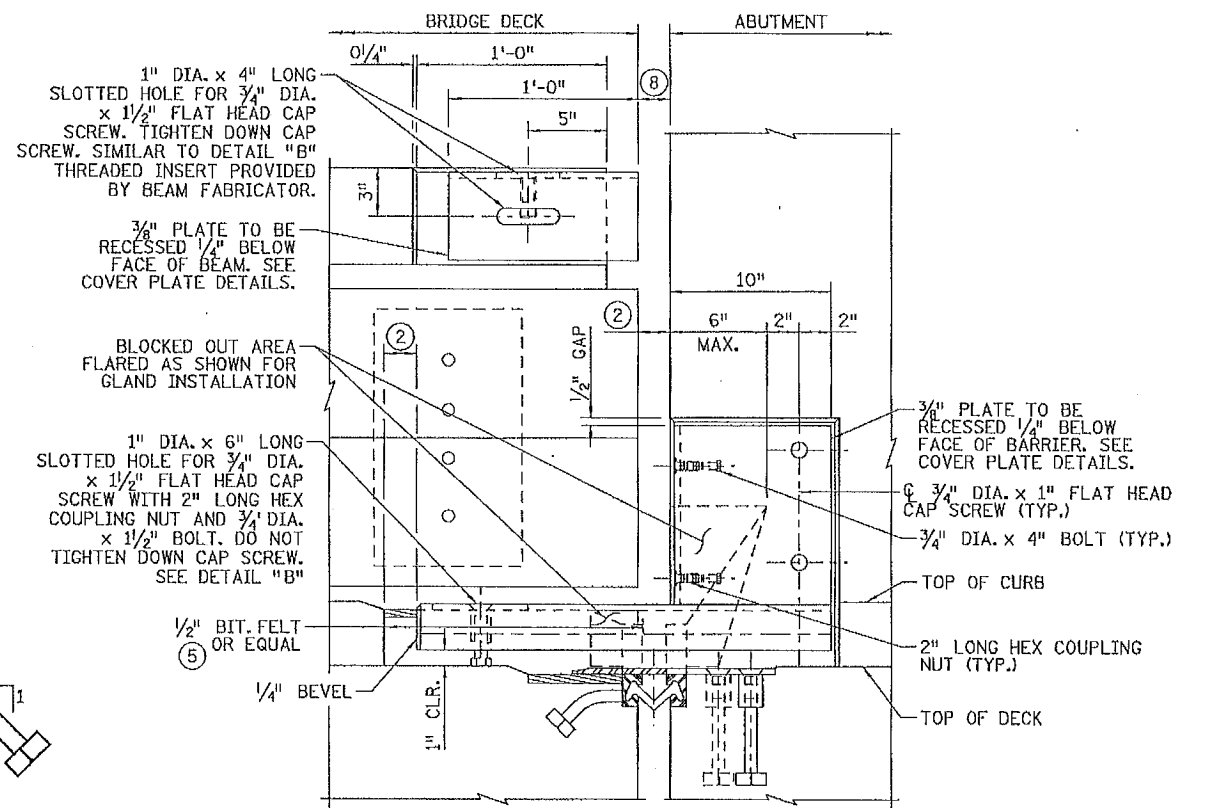
SHEET B25 OF B42



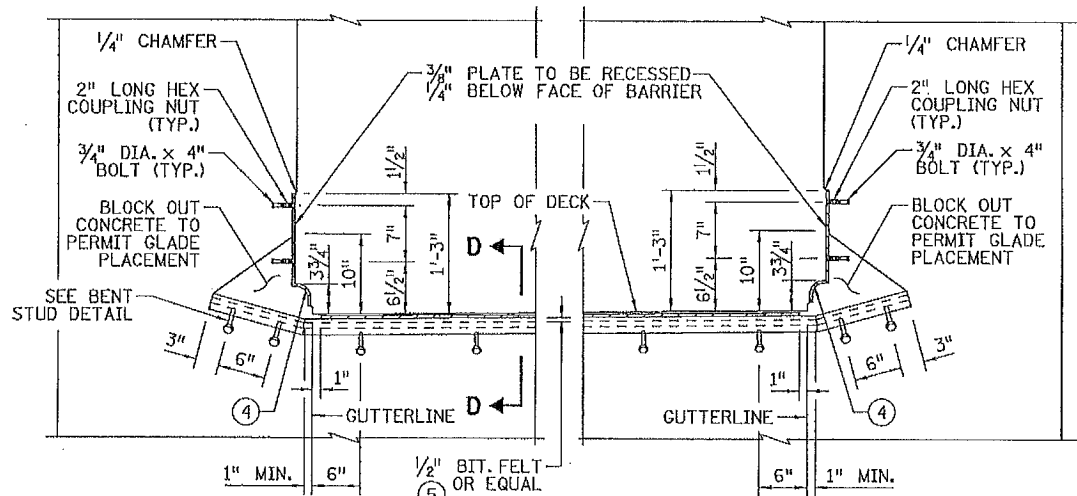
DETAIL "B"



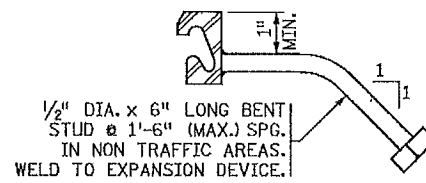
SECTION D-D



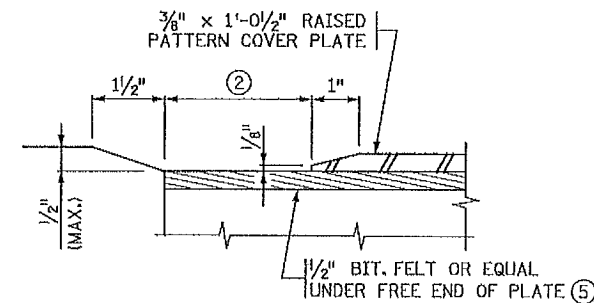
INSIDE ELEVATION



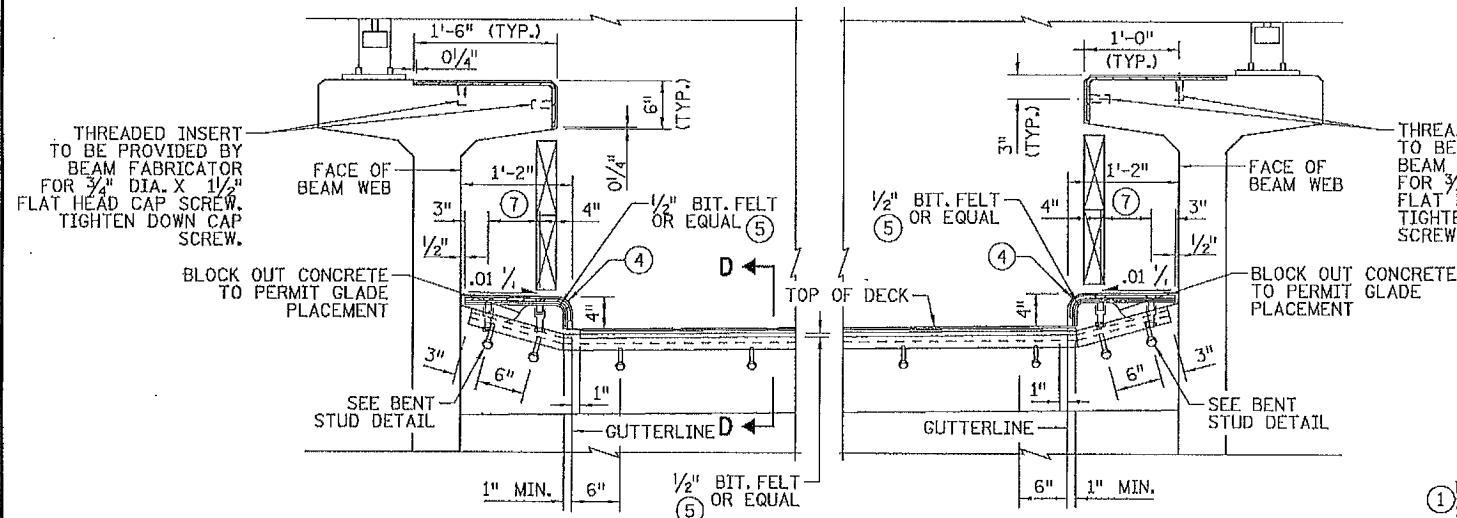
SECTION A-A  
(THROUGH ABUTMENT)



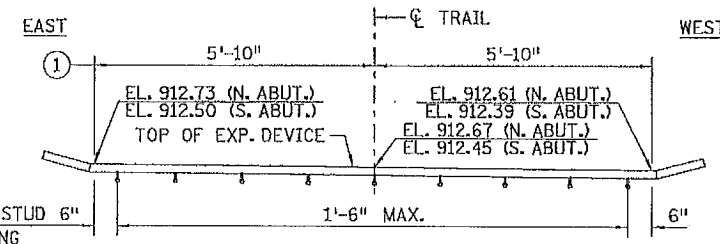
BENT STUD DETAIL



DETAIL "A"



SECTION A-A  
(THROUGH BRIDGE DECK)



SECTION B-B ~ ALONG CENTERLINE OF JOINT  
ELEVATIONS SHOWN ARE 1/2" BELOW TOP OF SLAB @ CENTERLINE OF JOINT

GENERAL NOTES

GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER SPEC. 3394. GALVANIZE FASTENERS AS PER SPEC. 3392.

JOINTS IN EXTRUSION SHALL BE LOCATED AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED. JOINTS SHALL BE CLOSE FIT AND WELDED. REPAIR AFTER WELDING AS PER SPEC. 2471.3L.

STRUCTURAL STEEL SHALL COMPLY WITH SPEC. 3306 OR SPEC. 3309.

EXPANSION DEVICE SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/8" IN 10 FT.

3/4" DIA. X 1/2" FLATHEAD CAP SCREW WITH 1/2" SQUARE OR HEX SOCKET PER SPEC 3391. CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE. APPLY BRIDGE BEARING LUBRICANT PER MnDOT APPROVED PRODUCTS LIST TO SCREW THREADS

LENGTH OF PAYMENT FOR DEVICE IS FROM OUT TO OUT OF EXTRUSION ALONG CENTERLINE OF JOINT.

- ① DIMENSIONS ARE ALONG CENTERLINE OF JOINT.
- ② 2" AT ALL TEMPERATURES
- ③ 1/8" (1/4" MAX.).
- ④ SEE SUPERSTRUCTURE DETAILS FOR RADIUS.
- ⑤ USE THE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.
- ⑥ PLACE BAR-ROD NORMAL TO JOINT ON NEW BRIDGES.
- ⑦ 6/2" - BOLT AND CAP SCREW
- ⑧ SET TOP FLANGE COVER PLATE TO PROVIDE A 2" GAP BETWEEN THE COVER PLATE AND CONCRETE PILASTER. TIGHTEN CAP SCREW TO PREVENT COVER PLATE MOVEMENT.

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1 4/1/13 CEB KLS CEB RELEASED FOR CONSTRUCTION

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Print Name: CASEY E. BLACK  
Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035

STATE PROJECT NO. 0280-71 (T.H. 35W)

BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON

DESIGNED BY C. BLACK

CHECKED BY K. SWEHLA

COMM. NO. 7781

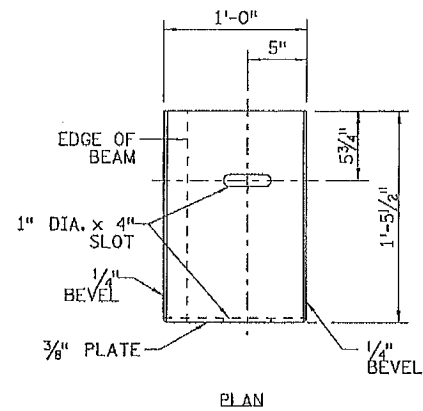


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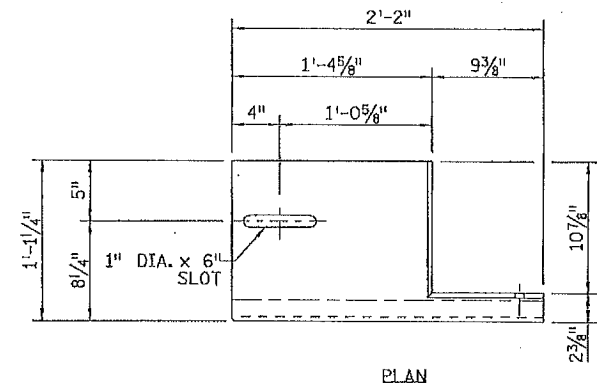
ANOKA COUNTY

CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
WATERPROOF EXPANSION DEVICE DETAILS  
(SHEET 1 OF 2)

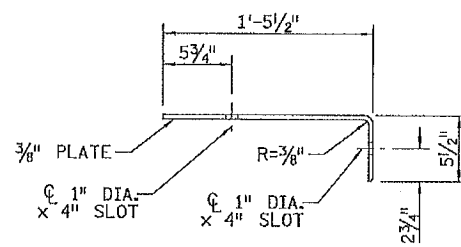
SHEET  
B26  
OF  
B42



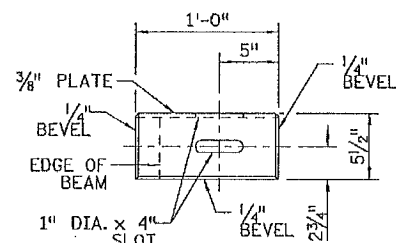
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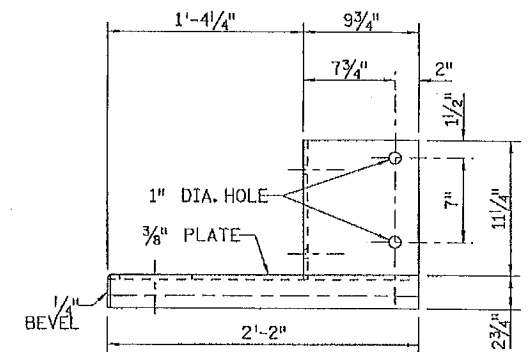
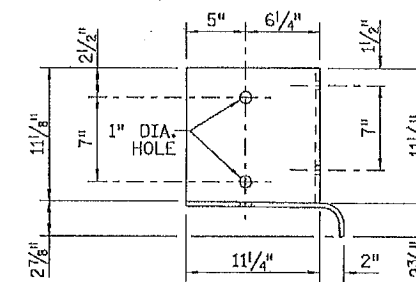
PLAN



ELEVATION



**COVER PLATE AT BEAM TOP FLANGE DETAILS**  
(COVER PLATES AT NE & SW CORNERS SHOWN, NW & SE CORNERS SIMILAR)



ELEVATION

**COVER PLATE AT CURB DETAILS**  
(COVER PLATES AT NE & SW CORNERS SHOWN, NW & SE CORNERS SIMILAR)

**GENERAL NOTES**

- PAYMENT FOR COVER PLATES TO BE CONSIDERED INCIDENTAL TO "EXPANSION JOINT DEVICES TYPE 4".

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 4/17/2013  
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*Casey E. Black*

Date: 4/1/13 License # 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

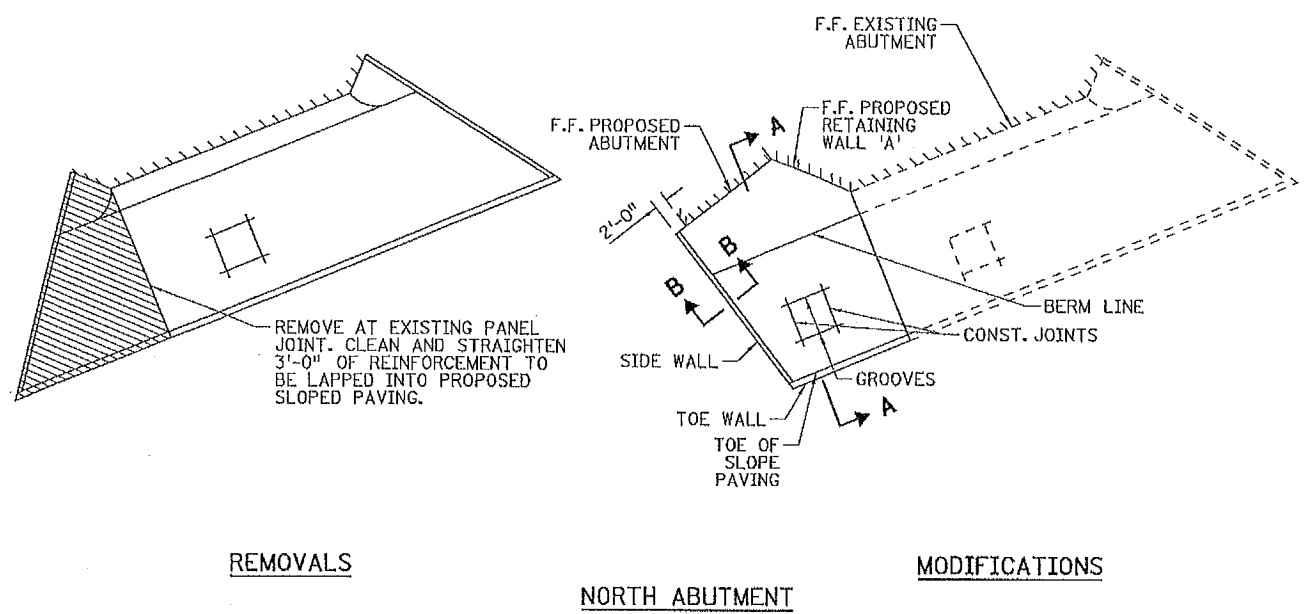
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 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
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ENGINEERS  
 PLANNERS  
 DESIGNERS

**ANOKA COUNTY**  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
**WATERPROOF EXPANSION DEVICE DETAILS**  
 (SHEET 2 OF 2)

SHEET  
 B27  
 OF  
 B42

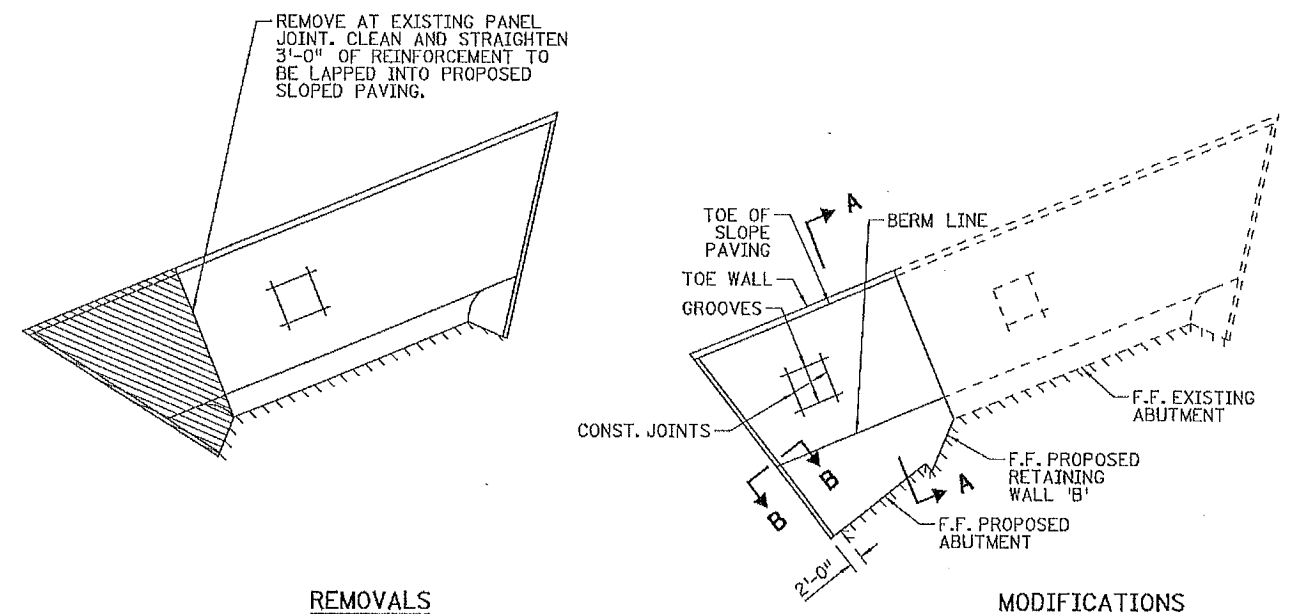


REMOVALS

NORTH ABUTMENT

MODIFICATIONS

▨ DENOTES REMOVAL

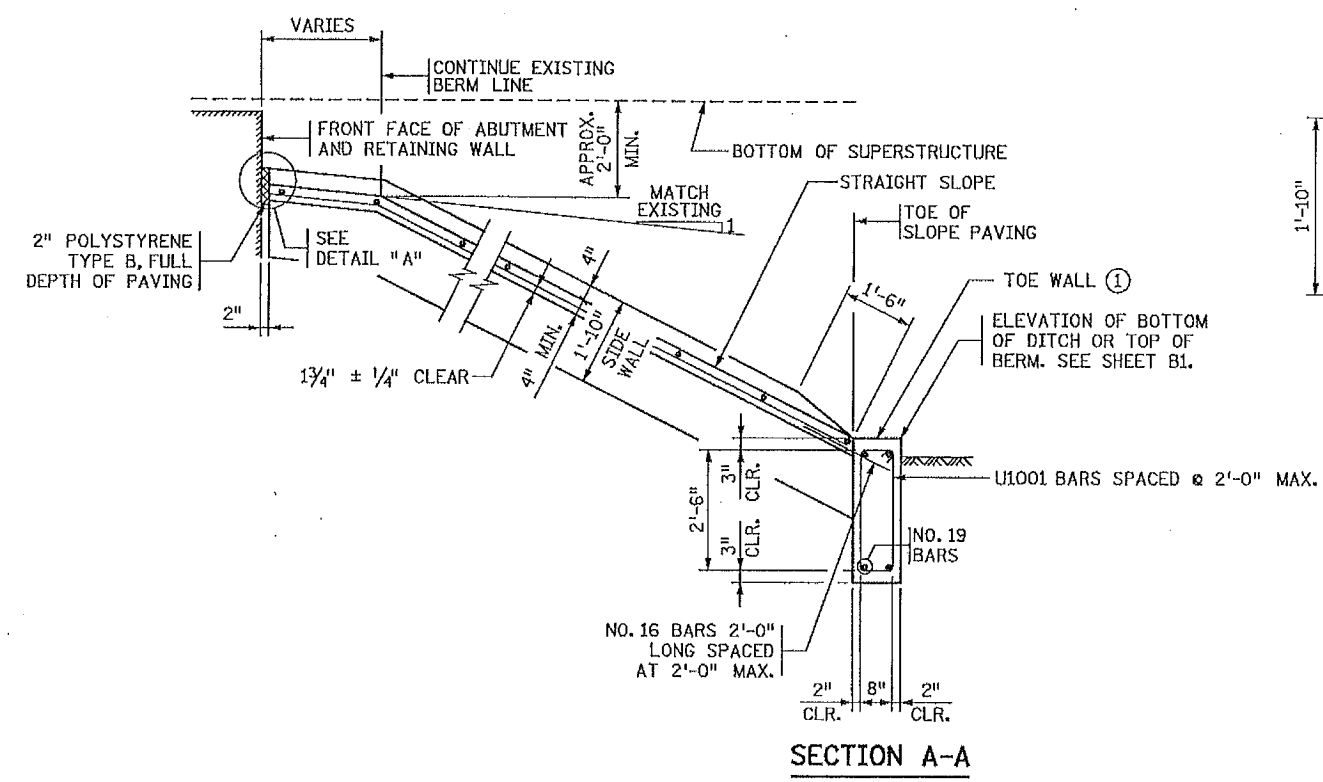


REMOVALS

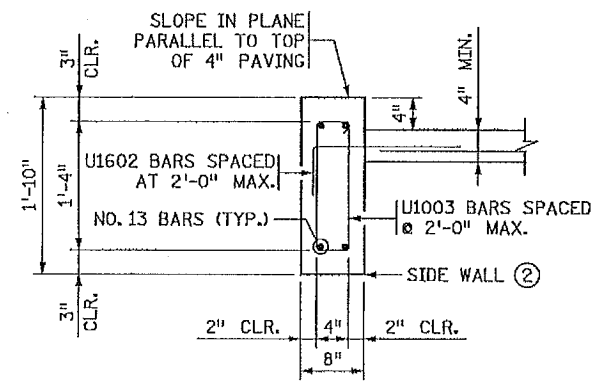
SOUTH ABUTMENT

MODIFICATIONS

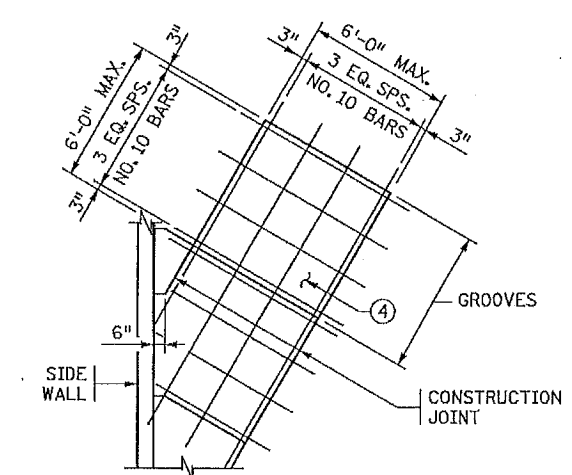
▨ DENOTES REMOVAL



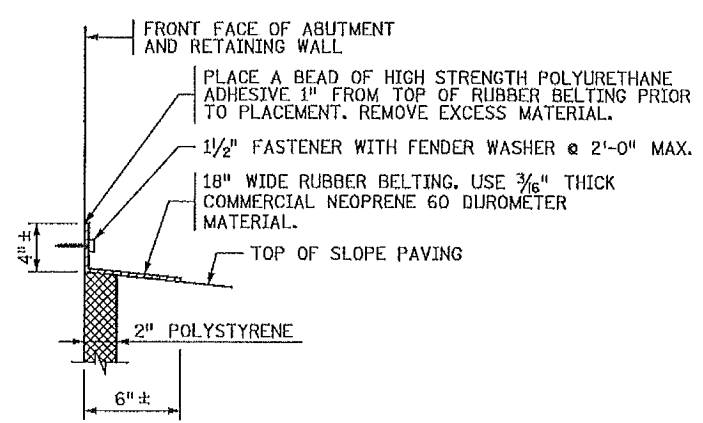
SECTION A-A



SECTION B-B  
NORMAL TO SLOPE



PAVING DETAIL



DETAIL "A"

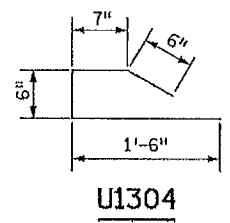
SLOPE PAVING AS PER Mn/DOT SPEC. 2514.

CONCRETE & REINFORCEMENT UNIT QUANTITIES

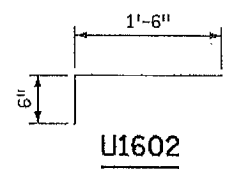
- ① 0.111 CU. YD. OF CONCRETE/LIN. FT.  
8.37 LBS. OF REINFORCEMENT/LIN. FT.
- ② 0.046 CU. YD. OF CONCRETE/LIN. FT.  
4.46 LBS. OF REINFORCEMENT/LIN. FT.
- ③ AT PANELS PLACED ADJACENT TO EXISTING PANELS, LAP 3'-0" OF EXISTING REINFORCEMENT WITH PROPOSED REINFORCEMENT
- ④ 0.111 CU. YD. OF CONCRETE/SQ. YD.  
4.50 LBS. OF REINFORCEMENT/SQ. YD.

GENERAL NOTE

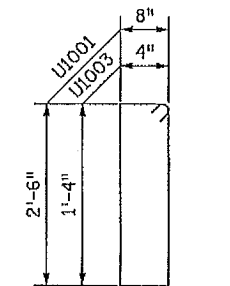
SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE: HORIZONTAL DISTANCE. CONSTRUCT TO MATCH EXISTING SLOPES



U1304



U1602



U1001 & U1003

8:00:29 AM 4/1/2013 R:\Projects\7781\BRN\Plans\Final\7781\_det07.dgn

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NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: **CASEY E. BLACK**  
*Casey E. Black*  
 Date: 4/1/13 License # 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

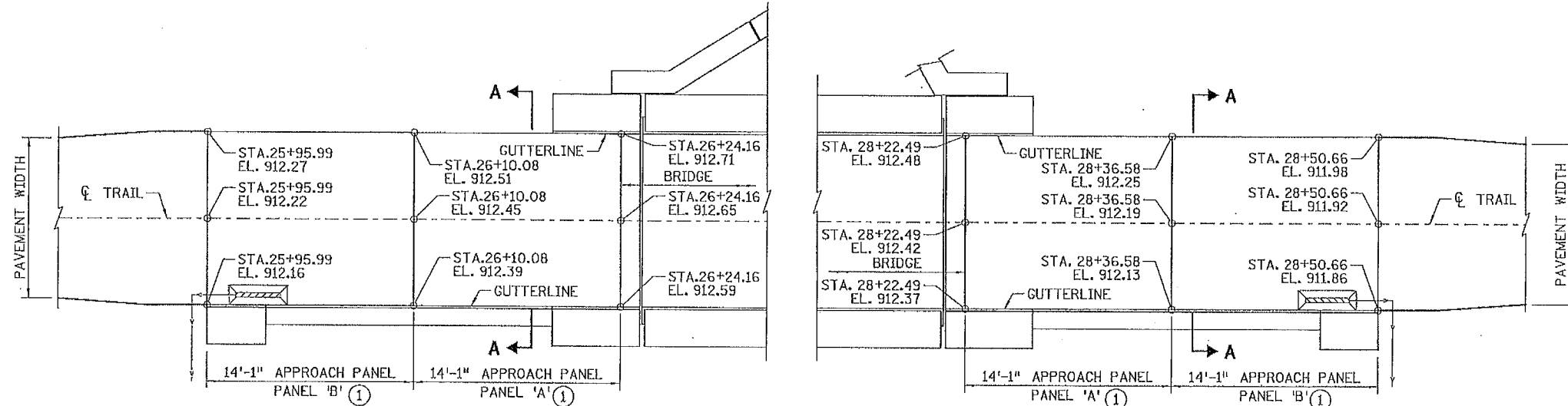
DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 CONCRETE SLOPE PAVING DETAILS

SHEET  
 B28  
 OF  
 B42



APPROACH PANEL PLAN

NOTES:

- ① PANEL SIZE AND REQUIREMENTS FOR TRANSVERSE AND LONGITUDINAL JOINTS ARE SHOWN ON STANDARD PLANS 5-297.228 AND 5-297.229.

GENERAL NOTES:

SECTION A-A IS SHOWN ON STANDARD 5-297.223 AND SHOW THE STATION AND ELEVATION AT END LOCATIONS ON THE APPROACH PANEL.

GENERAL DRAINAGE DETAILS ARE SHOWN ON BRIDGE APPROACH PANEL DRAINAGE DETAILS, STANDARD PLAN 5-297.231.

CONCRETE MIX SHALL BE 3A42 FOR APPROACH PANEL.

REFER TO MNDOT SPEC. 2406 FOR ADDITIONAL INFORMATION.

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... \BRN\ans\Final\7781_drf21.dgn					

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 Date: 4/1/13 License #: 49163

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 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006  
 DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



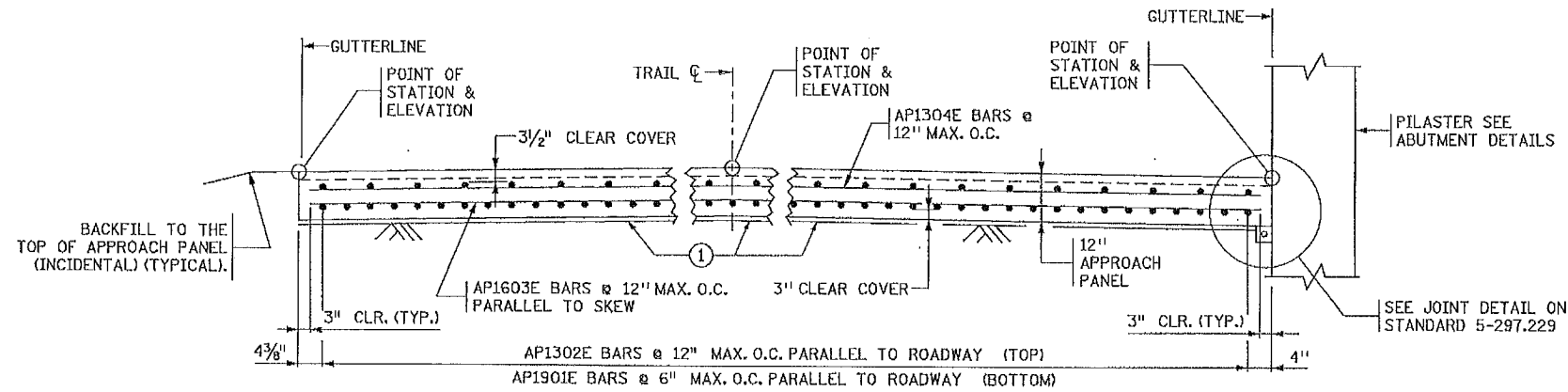
ENGINEERS  
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 DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 BRIDGE APPROACH PANEL  
 (SHEET 1 OF 7)

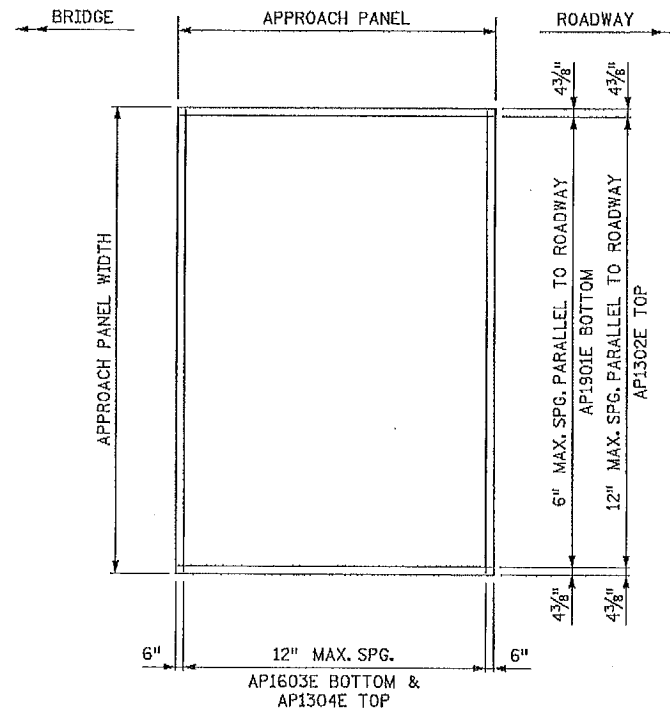
MODIFIED
STANDARD PLAN SHEET NO. 5-297.222
STANDARD APPROVED: MARCH 23, 2011

SHEET  
 B29  
 OF  
 B42

ESTIMATED REINFORCEMENT QUANTITY FOR BRIDGE APPROACH PANELS		
TYPE	LOCATION	ESTIMATED WEIGHT
PANEL (SQ. TO 10')	BRIDGE TO END OF APPROACH PANEL	48.5 LB./SQ. YD.



TRANSVERSE SECTION A-A  
FROM STANDARD PLAN 5-297.222



APPROACH PANEL REINFORCEMENT  
(PANELS 'A' & 'B')

BILL OF REINFORCEMENT FOR BRIDGE APPROACH PANELS				
CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.				
BAR	NO.	LENGTH	SHAPE	LOCATION
AP1901E				BOTTOM LONGITUDINAL
AP1302E				TOP LONGITUDINAL
AP1603E				BOTTOM TRANSVERSE
AP1304E				TOP TRANSVERSE
AP1605E	SER. OF	'- TO		BOTTOM TRANSVERSE
AP1306E	SER. OF	'- TO		TOP TRANSVERSE
AP1307E				TOP & BOTTOM EDGE
AP1608E		8'-0		TOP CORNER - FAN
AP1609E				BOTTOM TRANSVERSE
AP1310E				TOP TRANSVERSE
AP1611E	SER. OF	'- TO		BOTTOM TRANSVERSE
AP1312E	SER. OF	'- TO		TOP TRANSVERSE
AP1913E	SER. OF	'- TO		BOTTOM LONGITUDINAL
AP1314E	SER. OF	'- TO		TOP LONGITUDINAL
AP1315E				TOP & BOTTOM EDGE
AP1916E		5'-0		C2H-D JOINT

GENERAL NOTES:

AS PER MNDOT SPEC. 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS IN APPROACH PANEL, CONCRETE SILL AND CURB TRANSITION.

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR NUMBER, WHICH APPROXIMATES THE NOMINAL DIAMETER OF THE BAR IN MILLIMETERS (mm). BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH Mn/DOT SPEC. 3301.

MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS: NO. 13 BAR = 1'-8", NO. 16 BAR = 2'-1", NO. 19 BAR = 2'-6".

ALL LAP SPLICES SHALL BE STAGGERED SUCH THAT NO MORE THAN 50% OF REBAR IS SPLICED AT THE SAME LOCATION.

APPROACH PANELS 'A' & 'B' ARE SIMILAR.

① IF THE APPROACH PANEL IS TIED TO THE BRIDGE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR 2 LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM.

MODIFIED
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STANDARD APPROVED: DECEMBER 20, 2011

1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
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... \BRN\Plans\Ina\17781_def22.dgn					

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Print Name: CASEY E. BLACK  
Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035  
STATE PROJECT NO. 0280-71 (T.H. 35W)  
BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
DESIGNED BY C. BLACK  
CHECKED BY K. SWEHLA  
COMM. NO. 7781



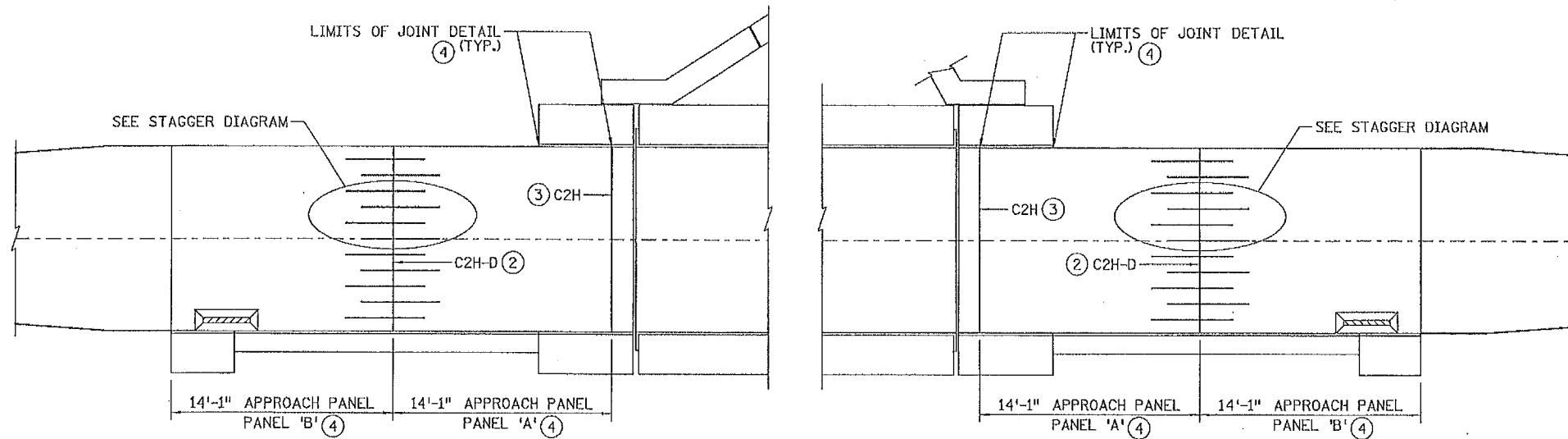
ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY  
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
BRIDGE APPROACH PANEL  
(SHEET 2 OF 7)

SHEET  
B30  
OF  
B42

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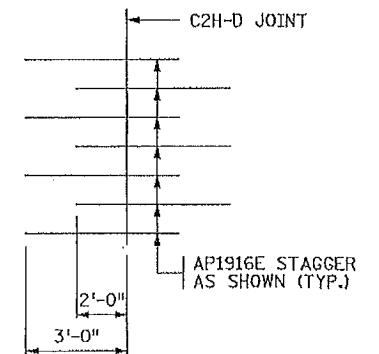




APPROACH PANELS - SQUARE TO 10° SKEWS ①

APPROACH PANEL JOINT LAYOUT NOTES:

- ① ALL JOINTS SHALL BE SAWCUT. SAWCUTS SHALL BE MADE WHILE THE CONCRETE IS STILL GREEN. WHEN A CONCRETE WEARING COURSE IS SPECIFIED, THE JOINTS SHALL BE SAWN THROUGH BOTH THE WEARING COURSE AND THE UNDERLYING APPROACH SLAB IN A SINGLE OPERATION.
- ② CONSTRUCTION JOINT. USE JOINT TYPE C2H-D WITH AP1916E BARS AT 12-INCH SPACING AT MID DEPTH OF THE SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP1916E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSIONS AS SHOWN ON THE PLAN. THE C2H-D JOINT AND AP1916E BARS ARE REQUIRED ON ALL PANELS WITH A SKEW OVER 10 DEGREES.
- ③ C2H CONTRACTION JOINT.
- ④ SEE STANDARD PLANS 5-297.229 FOR JOINT DETAIL.



STAGGER DIAGRAM

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 4/1/2013  
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1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

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*Casey E. Black*

Date: 4/1/13 License # 49163

STATE PROJECT NO. 002-614-035

STATE PROJECT NO. 0280-71 (T.H. 35W)

BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON

DESIGNED BY C. BLACK

CHECKED BY K. SWEHLA

COMM. NO. 7781



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ANOKA COUNTY

CSAH 14 PEDESTRIAN BRIDGE OVER I-35W

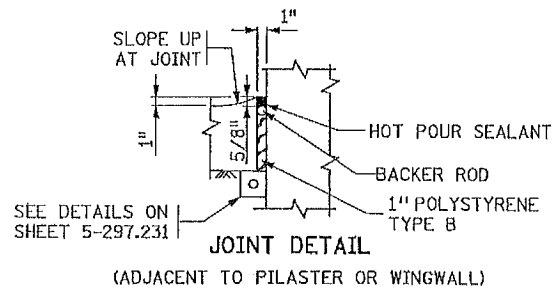
BRIDGE APPROACH PANEL

(SHEET 3 OF 7)

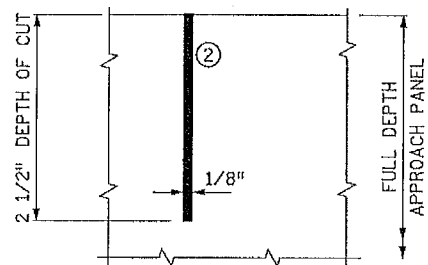
MODIFIED
STANDARD PLAN SHEET NO. 5-297.228
STANDARD APPROVED: MARCH 23, 2011

SHEET B31 OF B42

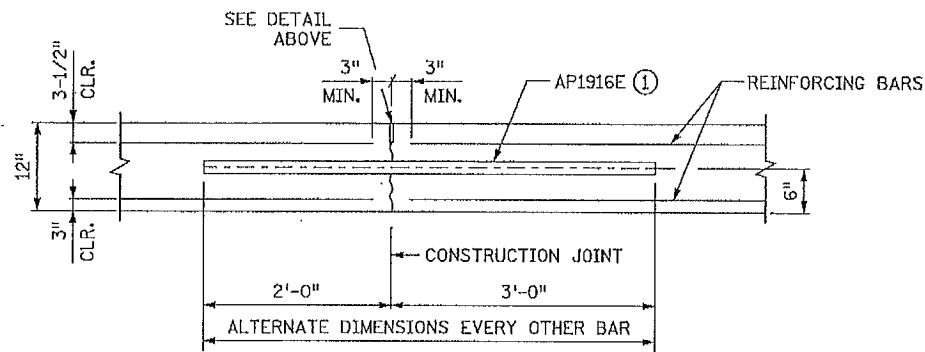
# EXPANSION JOINTS



# JOINT DETAILS



**C2H & LITH WITHOUT CONCRETE WEARING COURSE ②**  
(SAWED & SEALED PER SPEC. 3725)



**SECTION AT C2H-D JOINT ①**

### JOINT NOTES:

- ① CONSTRUCTION JOINT. AP1916E BARS AT 12-INCH SPACING AT MID DEPTH OF SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP1916E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSION AS SHOWN ON THE PLAN.
- ② CLEAN AND DRY FULLY CURED JOINT FACES BY SANDBLASTING PRIOR TO SEALING THE JOINT.

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STANDARD PLAN SHEET NO. 5-297.229
STANDARD APPROVED: DECEMBER 20, 2011

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NO	DATE	BY	CHKD	APPR	REVISION
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STATE PROJECT NO.  
0280-71 (T.H. 35W)

BRIDGE NUMBER  
**02006**

DRAWN BY  
**E. JOHNSON**

DESIGNED BY  
**C. BLACK**

CHECKED BY  
**K. SWEHLA**

COMM. NO. 7781

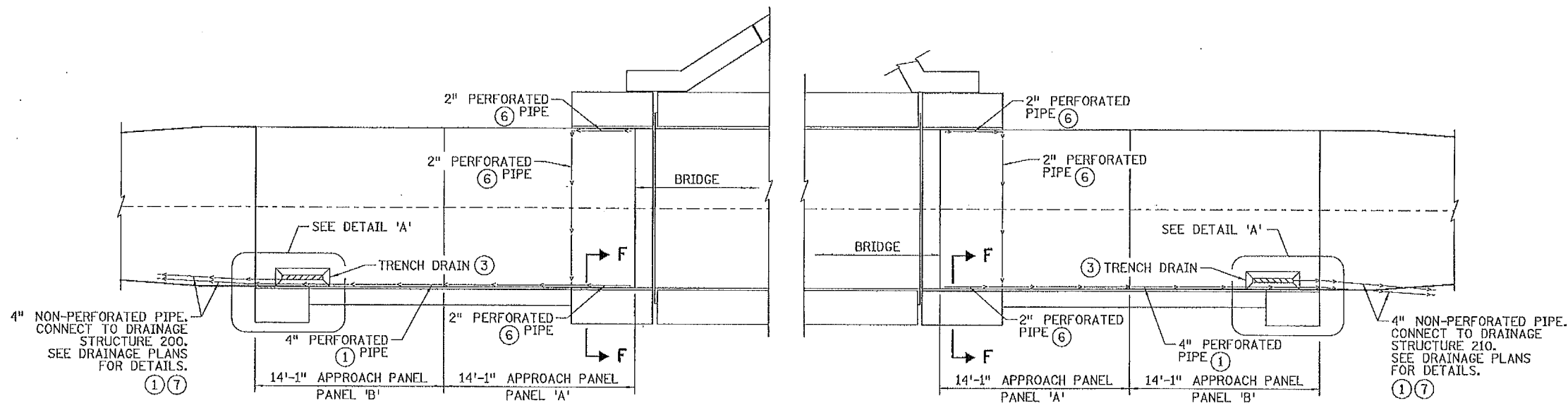


**ENGINEERS  
PLANNERS  
DESIGNERS**

**ANOKA COUNTY**

CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
**BRIDGE APPROACH PANEL**  
(SHEET 4 OF 7)

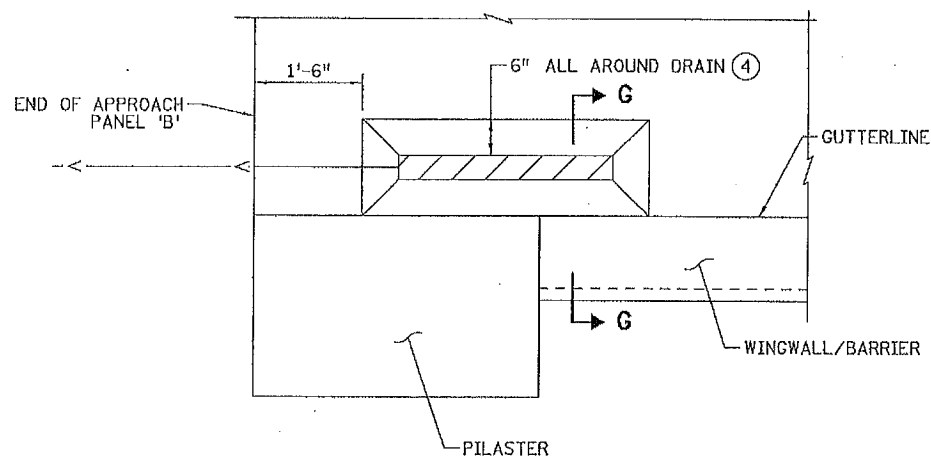
**SHEET  
B32  
OF  
B42**



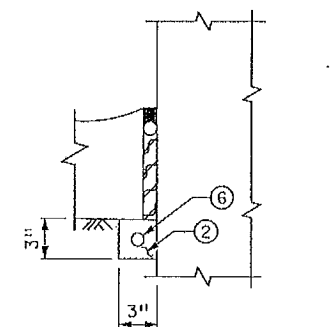
APPROACH PANEL DRAINAGE PLAN

NOTES:

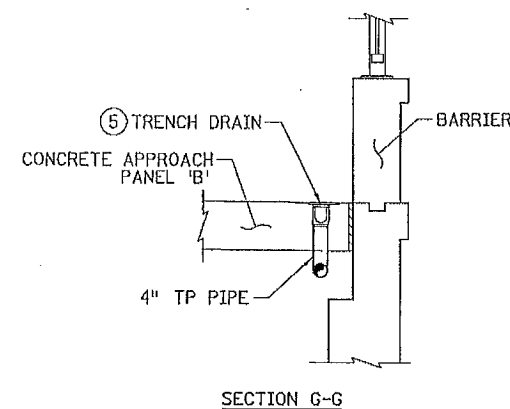
- ① 4-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM AND CONNECTION TO DRAINAGE STRUCTURE IS INCIDENTAL.
- ② BACKFILL WITH FINE AGGREGATE (MNDOT 3149) MODIFIED TO 0-3% PASSING A NO. 200 SIEVE (INCIDENTAL).
- ③ "TRENCH DRAIN" TO BE PAID FOR BY LENGTH OF TRENCH DRAIN UNITS.
- ④ DEPRESS CONCRETE TO 1/2" AT DRAIN FROM FINISHED GRADE.
- ⑤ TRENCH DRAIN REQUIREMENTS:  
LENGTH - MIN. 3'  
GRATE WIDTH - MIN. 4'  
FLOW CAPACITY - MIN. 0.40 CFS/FT.-MIN.  
BICYCLE SAFE  
ADA COMPLIANT
- ⑥ 2-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.
- ⑦ CONNECTION FOR DRAINAGE INTO DRAINAGE STRUCTURE SHALL BE CORE DRILLED TO PROVIDE A CLEAN, WATER-TIGHT FIT.



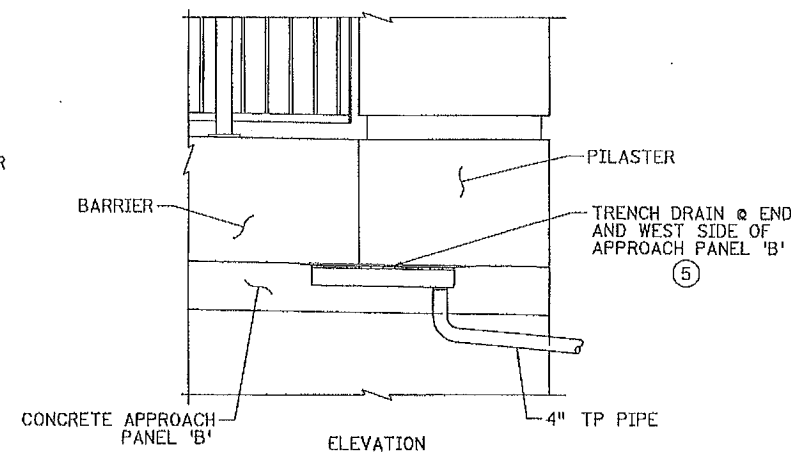
DETAIL 'A'



SECTION F-F  
DRAINAGE AT PANEL EDGE OF JOINT



SECTION G-G



TRENCH DRAIN DETAIL

MODIFIED
STANDARD PLAN SHEET NO. 5-297.231
STANDARD APPROVED: MARCH 23, 2011

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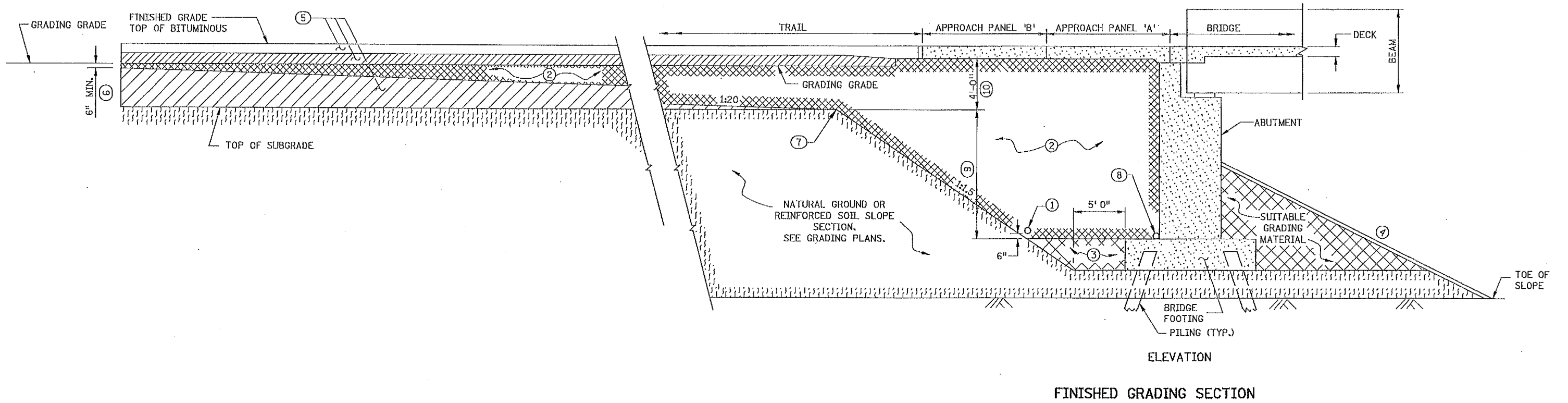
STATE PROJECT NO. 002-614-035  
STATE PROJECT NO. 0280-71 (T.H. 35W)  
BRIDGE NUMBER 02006  
DRAWN BY E. JOHNSON  
DESIGNED BY C. BLACK  
CHECKED BY K. SWEHLA  
COMM. NO. 7781



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DESIGNERS

ANOKA COUNTY  
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
BRIDGE APPROACH PANEL  
(SHEET 5 OF 7)

SHEET  
B33  
OF  
B42



ELEVATION  
FINISHED GRADING SECTION

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. SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE. IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS, ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
- ③ SUITABLE GRADING MATERIAL SHALL HAVE SUITABLE MOISTURE CONTENT DURING PLACEMENT AND SHALL BE COMPACTED PER SPEC. 2105. SELECT GRANULAR MATERIAL MODIFIED 10% MAY BE USED IN LIEU OF SUITABLE GRADING MATERIAL.
- ④ SEE CONCRETE SLOPE PAVING FOR PROTECTION.
- ⑤ SEE GRADING PLANS FOR TYPE OF MATERIAL.
- ⑥ GRADING TO BE SQUARED OFF ON SKEWED BRIDGES.
- ⑦ TOP OF 1:1.5 SLOPE (FORMS A LINE PARALLEL TO END OF BRIDGE).
- ⑧ SUBSURFACE PIPE DRAIN. FURNISH AND INSTALL AT TOP OF BRIDGE FOOTING. SEE BRIDGE DETAIL B910.
- ⑨ DEPTH OF PAY LIMIT FOR SELECT GRANULAR BORROW MODIFIED 10% IN BRIDGE PLANS.
- ⑩ DEPTH OF PAY LIMIT FOR SELECT GRANULAR BORROW MODIFIED 10% IN GRADING PLANS.

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STANDARD SHEET NO. 5-297.233 (1 OF 2)
STANDARD APPROVED: AUGUST 1, 2011

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*Casey E. Black*  
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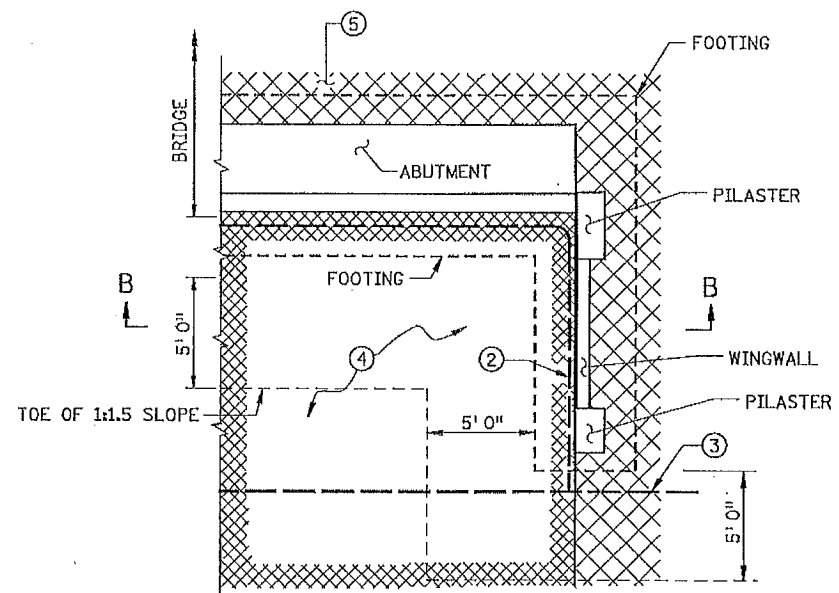
STATE PROJECT NO.  
002-614-035  
 STATE PROJECT NO.  
0280-71 (T.H. 35W)  
 BRIDGE NUMBER  
02006  
 DRAWN BY  
E. JOHNSON  
 DESIGNED BY  
C. BLACK  
 CHECKED BY  
K. SWEHLA  
 COMM. NO. 7781



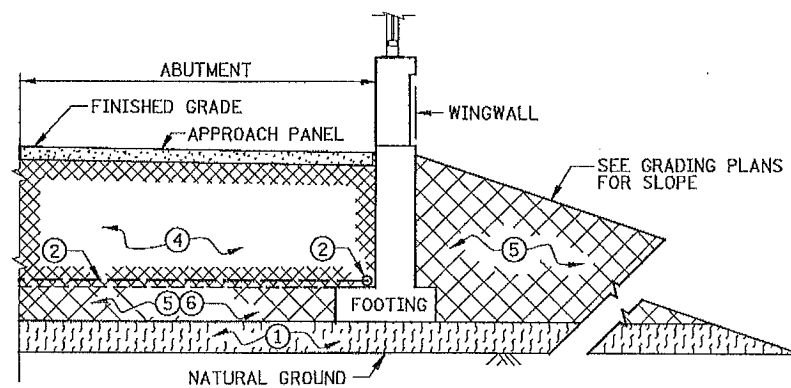
ENGINEERS  
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 DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 BRIDGE APPROACH PANEL  
 (SHEET 6 OF 7)

SHEET  
 B34  
 OF  
 B42



PARTIAL PLAN VIEW AT ABUTMENT  
(WINGWALL AT 90°) (FINISHED GRADING)



FINISHED GRADING SECTION B-B  
(FILL SECTION)

NOTES:

- ① NATURAL GROUND OR SUITABLE GRADING MATERIAL.
- ② SUBSURFACE PIPE DRAIN, FURNISH AND INSTALL AT TOP OF BRIDGE FOOTING. SEE BRIDGE DETAIL B910.
- 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. QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% IS BASED ON DIMENSIONS SHOWN ON SHEET B36, AND PAYMENT IS BASED ON THIS QUANTITY. IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS, ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
- ⑤ SUITABLE GRADING MATERIAL OR REINFORCED SOIL SLOPE SECTION. SEE GRADING PLANS.
- ⑥ MATERIAL SHALL HAVE SUITABLE MOISTURE CONTENT DURING PLACEMENT AND SHALL BE COMPACTED PER SPEC. 2105. SELECT GRANULAR MATERIAL MODIFIED 10% MAY BE USED IN LIEU OF SUITABLE GRADING MATERIAL.

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STANDARD SHEET NO. 5-297.233 (2 OF 2)
STANDARD APPROVED: AUGUST 1, 2011

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 4/1/2013  
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NO	DATE	BY	CKD	APPR	REVISION

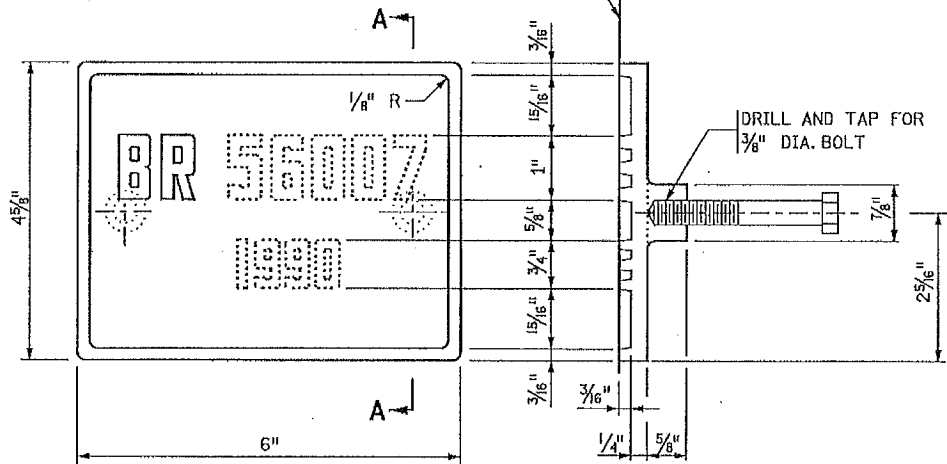
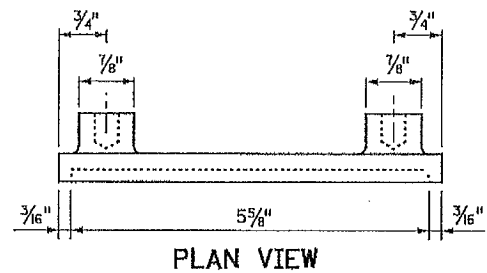
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 002-614-035  
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 BRIDGE NUMBER  
 02006

DRAWN BY  
 E. JOHNSON  
 DESIGNED BY  
 C. BLACK  
 CHECKED BY  
 K. SWEHLA  
 COMM. NO. 7781  
**SRH**  
 Consulting Group, Inc.

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 BRIDGE APPROACH PANEL  
 (SHEET 7 OF 7)

SHEET  
 B35  
 OF  
 B42

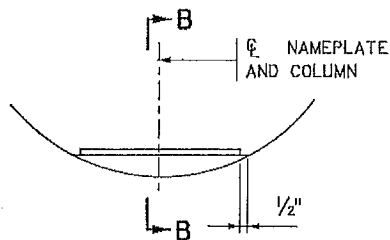


SET NAMEPLATE FLUSH WITH SURFACE OF CONCRETE EXCEPT AT ROUND COLUMNS FOR PIERS.

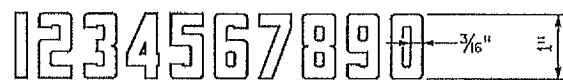
DRILL AND TAP FOR 3/8" DIA. BOLT

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

BRIDGE 02006  
YEAR 2013



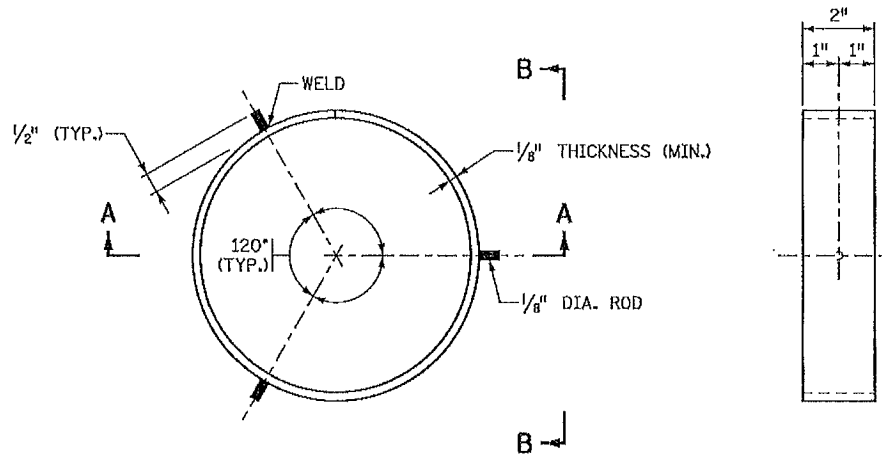
NAMEPLATE PLACEMENT  
(ROUND CONCRETE PIER COLUMNS)



NUMBERS FOR NAMEPLATE

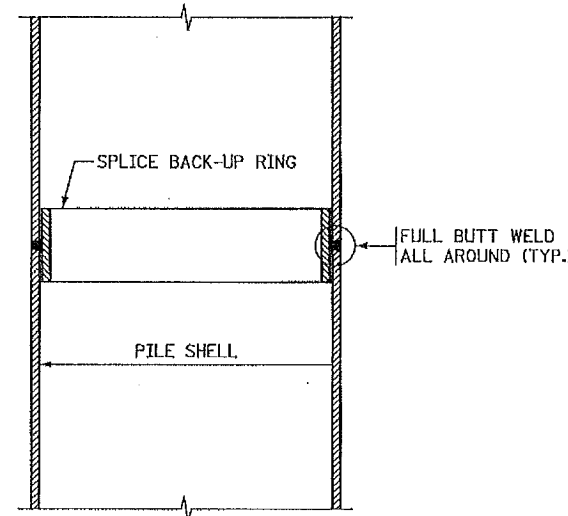
**NOTES:**

- 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.



PLAN VIEW SPLICE

SECTION B-B



SECTION A-A

**NOTES:**

- APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. BACK-UP RING SHALL HAVE A TIGHT FIT.
- WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.
- 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.

*Daniel J. Johnson*  
STATE BRIDGE ENGINEER

BRIDGE NAMEPLATE  
(FOR NEW BRIDGES)

B101

APPROVED: NOVEMBER 22, 2002

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

REVISION

DETAIL NO.

*Daniel J. Johnson*  
STATE BRIDGE ENGINEER

PILE SPLICE  
(CAST-IN-PLACE CONCRETE PILES)

B201

1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
Print Name: CASEY E. BLACK  
Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035  
STATE PROJECT NO. 0280-71 (T.H. 35W)  
BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
DESIGNED BY C. BLACK  
CHECKED BY K. SWEHLA  
COMM. NO. 7781



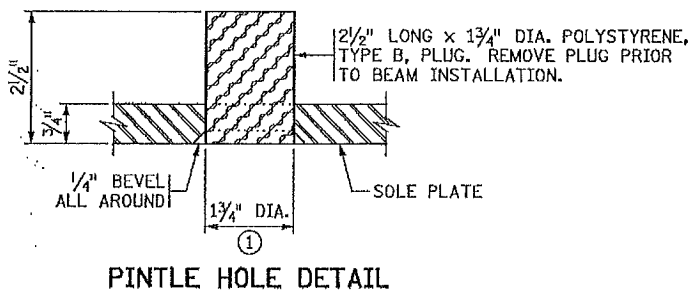
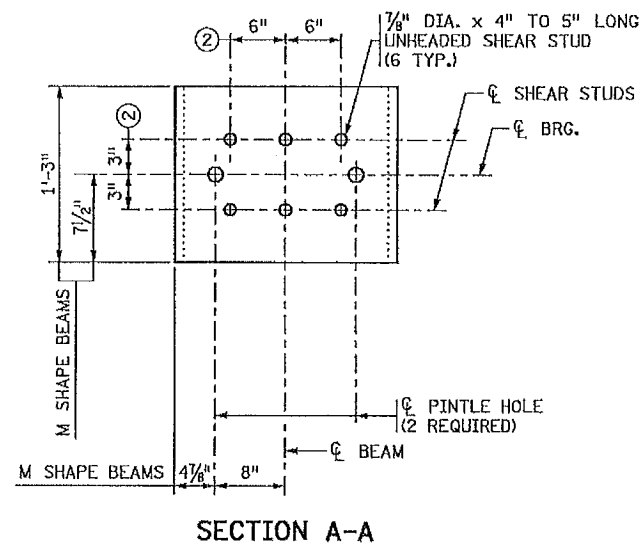
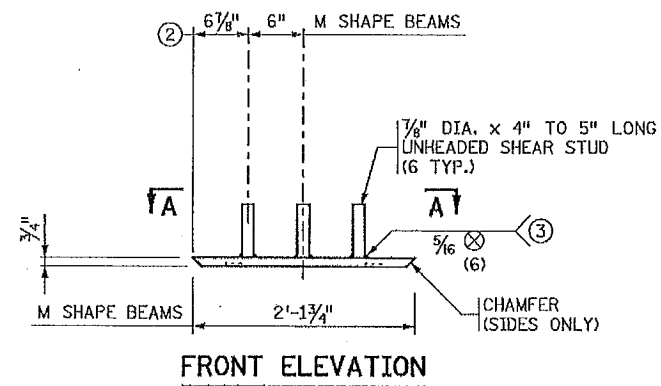
ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY  
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
BRIDGE DETAILS  
(SHEET 1 OF 3)

SHEET  
B36  
OF  
B42

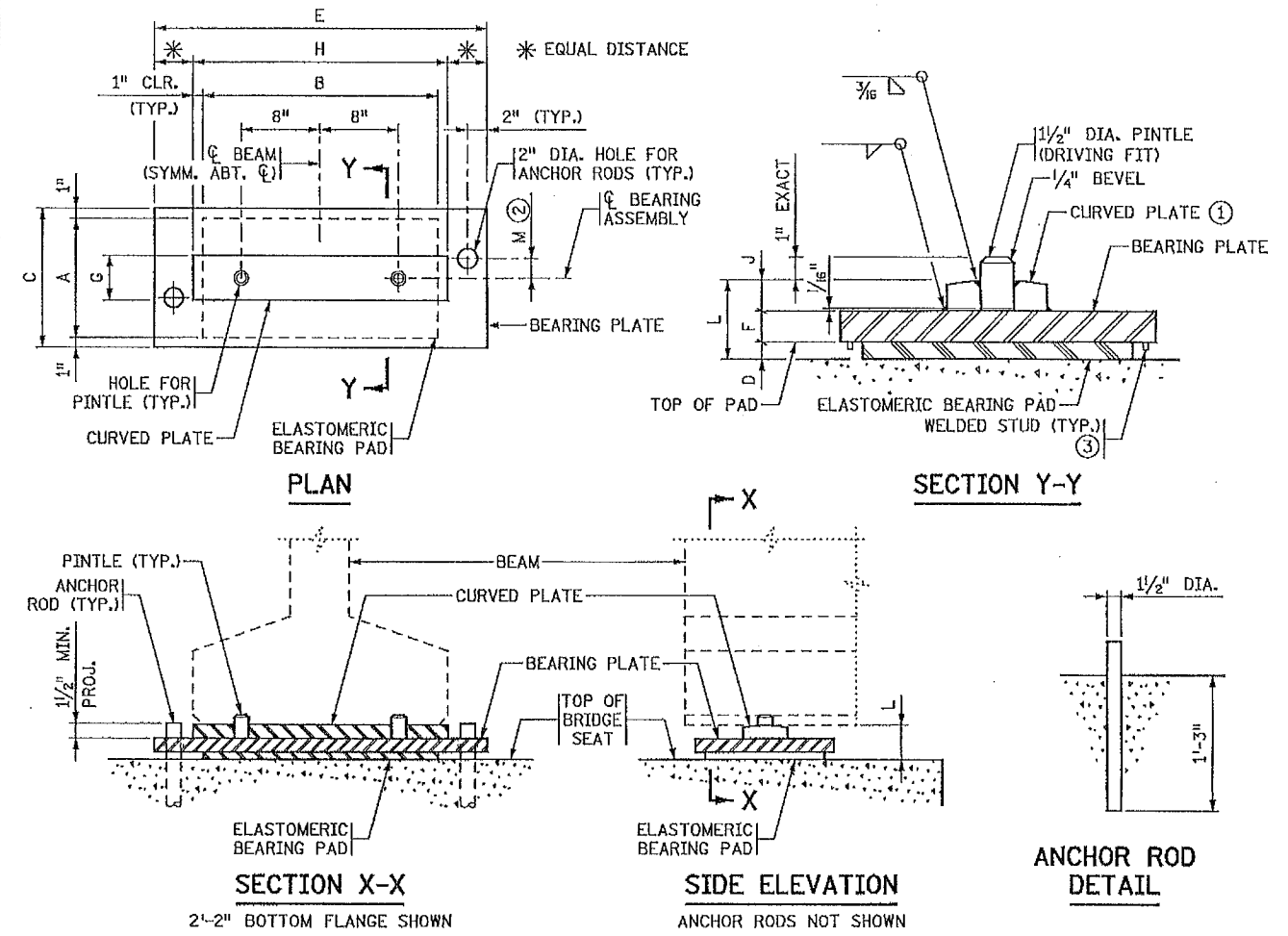
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**NOTES:**

- MATERIAL TO BE STRUCTURAL STEEL PER MnDOT SPEC. 3306.
- WELDED STUDS TO BE WELDABLE CARBON STEEL PER MnDOT SPEC. 3391.2D.
- SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER MnDOT 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 1/2" DIA. PINTLES.
- 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 D1.1.



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			ANCHOR ROD OFFSET		ASSY. HEIGHT	CURVED PLATE	
			A	B	D		C	E	F	G	H	J	+/- ②	M		L	R ①
F1	PIER	63M	12"	24"	1/2"	8.0	14"	34"	1 1/2"	4 1/2"	26"	1 1/4"	-	3"	3 1/4"	16"	

**NOTES:**

- ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH MnDOT SPEC. 3741.
- ALL STEEL PLATES SHALL COMPLY WITH MnDOT SPEC. 3306.
- ANCHOR RODS SHALL COMPLY WITH MnDOT SPEC. 3306. GALVANIZE PER MnDOT SPEC. 3394.
- PINTLES SHALL COMPLY WITH MnDOT SPEC. 3309.
- GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER MnDOT SPEC. 3394, EXCEPT AS NOTED.
- PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.
- ① THE MIN. RADIUS SHALL BE 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS SHALL BE 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.
- ② "+" DENOTES OFFSET AS SHOWN. "-" DENOTES OFFSET OPPOSITE OF SHOWN.
- ③ 5/16" DIA. x 3/8" KNOCK-OFF WELD STUDS INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. CENTERLINE STUD TO EDGE OF PAD DIMENSION = 1/2", MAX. STUD SPACING = 4", AND MAX. SPACING TO PAD CORNER = 2".

**DESIGN DATA:**  
MAXIMUM HORIZONTAL LOAD IS TO KIPS FOR 1/2" PINTLES.

APPROVED: SEPTEMBER 22, 2011

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

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

REVISED

DETAIL NO.  
B303

APPROVED: SEPTEMBER 22, 2011

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

CURVED PLATE BEARING ASSEMBLY  
(PRESTRESSED CONCRETE BEAMS)  
(FIXED)

REVISED

DETAIL NO.  
B310

1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO.	DATE	BY	CHKD	APPR	REVISION
... \BR\PIane\Final\7781_det09.dgn					

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
Print Name: CASEY E. BLACK  
Date: 4/1/13 License: 49163

STATE PROJECT NO. 002-614-D35  
STATE PROJECT NO. 0280-71 (T.H. 35W)  
BRIDGE NUMBER 02006

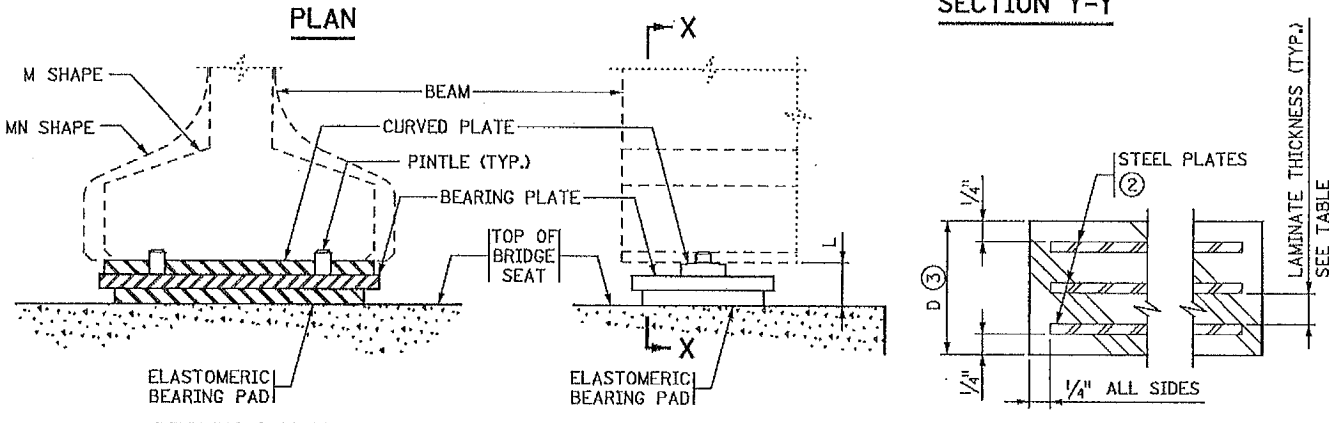
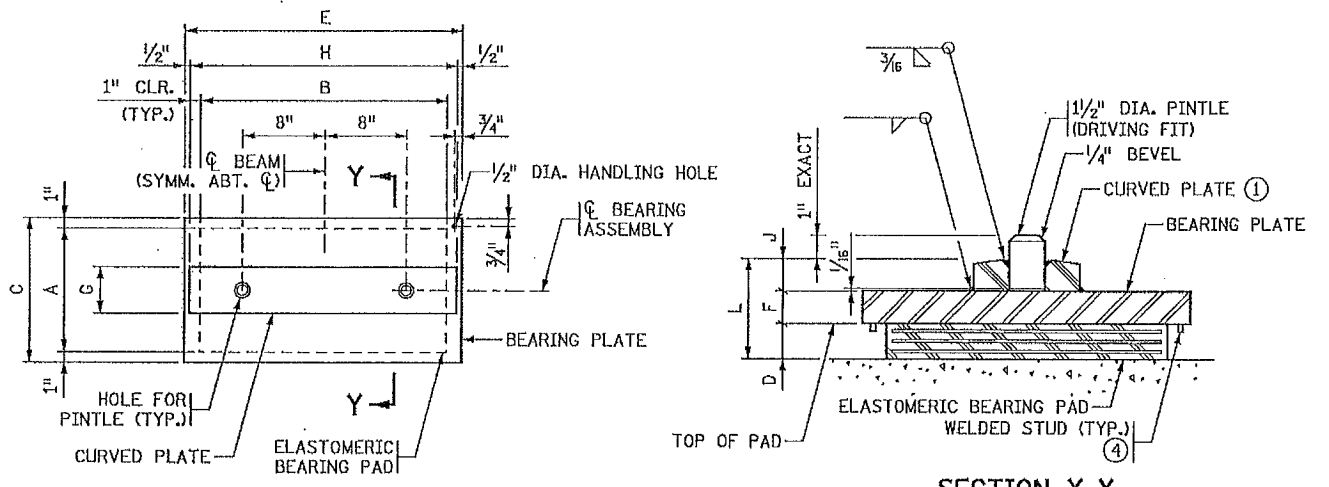
DRAWN BY E. JOHNSON  
DESIGNED BY C. BLACK  
CHECKED BY K. SWEHLA  
COMM. NO. 7781

**SRH** ENGINEERS PLANNERS DESIGNERS  
Consulting Group, Inc.

ANOKA COUNTY  
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
BRIDGE DETAILS  
(SHEET 2 OF 3)

SHEET B37 OF B42

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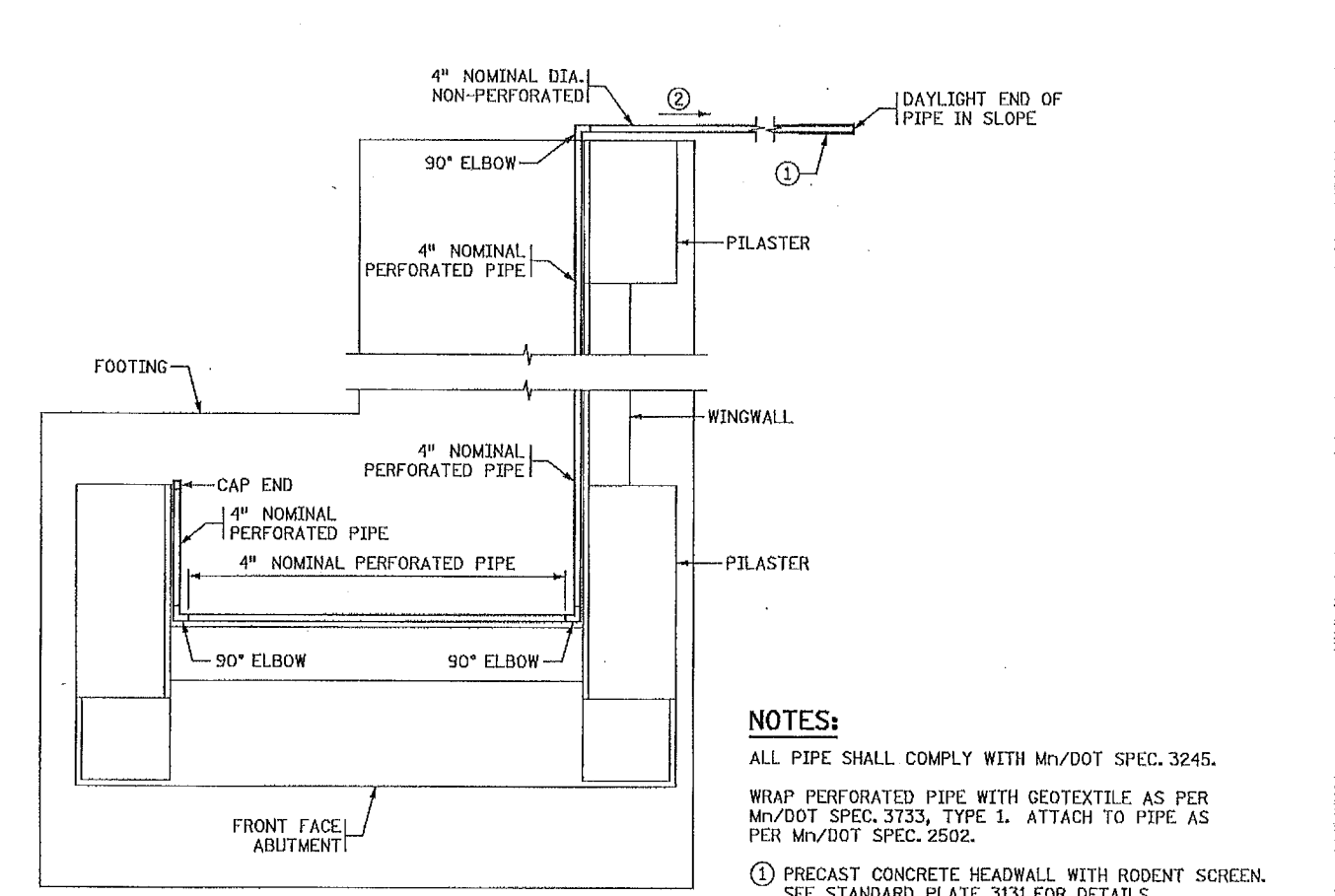
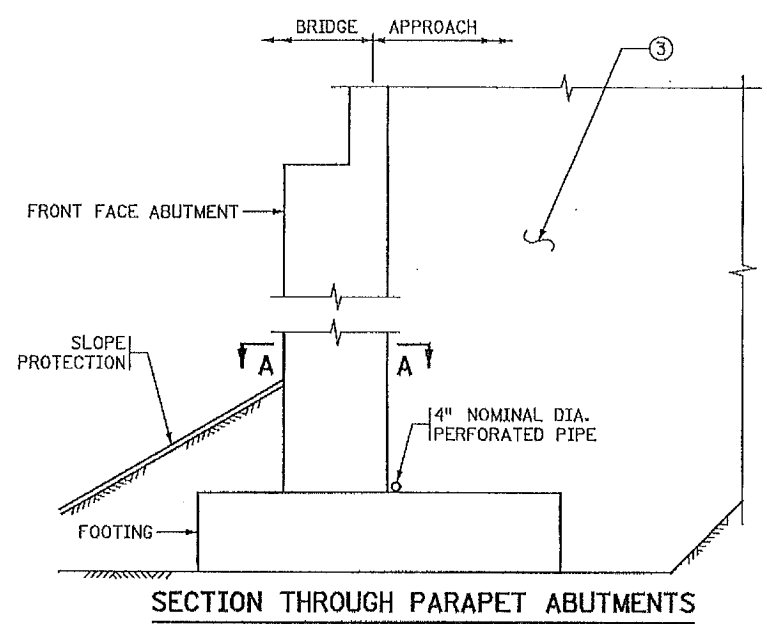
**TABLE**

ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			STEEL PLATES		LAMINATES		SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE	ASSY. HEIGHT	CURVED PLATE		
			A	B	D	NO.	THICK.	NO.	THICK.		C	E	F				G	H
E1	ABUTMENT	63M	12"	24"	1 7/8"	3	1/8"	2	1/2"	8.0	14"	27"	1 1/2"	4 1/2"	26"	1 1/4"	4 5/8"	16"

- NOTES:**
- ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH MnDOT SPEC. 3741.
  - ALL STEEL PLATES SHALL COMPLY WITH MnDOT SPEC. 3306.
  - PINTLES SHALL COMPLY WITH MnDOT SPEC. 3309.
  - GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER MnDOT SPEC. 3394, EXCEPT AS NOTED.
  - PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.
  - (1) THE MIN. RADIUS SHALL BE 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS SHALL BE 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.
  - (2) DO NOT GALVANIZE THESE PLATES.
  - (3) THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.
  - (4) 5/16" DIA. x 3/8" KNOCK-OFF WELD STUDS INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. CENTERLINE STUD TO EDGE OF PAD DIMENSION = 1/2", MAX. STUD SPACING = 4", AND MAX. SPACING TO PAD CORNER = 2".

**DESIGN DATA:**  
 MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1/2" PINTLES.

APPROVED: SEPTEMBER 22, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED	DETAIL NO.
<i>Nancy Dubenberger</i> STATE BRIDGE ENGINEER	<b>CURVED PLATE BEARING ASSEMBLY</b> (PRESTRESSED CONCRETE BEAMS) (EXPANSION)		<b>B311</b>



**SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM**

4" DIA. PERFORATED PIPE	80 LIN. FT.
4" DIA. NON-PERFORATED PIPE	60 LIN. FT.
90° ELBOW	6 EACH
4" DIA. END CAP	2 EACH
(1) PRECAST CONCRETE HEADWALL	2 EACH

THE SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM IS AS SHOWN ABOVE. ANY ADDITIONAL MINOR ITEMS OR SLIGHT CHANGES OF QUANTITIES REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.

PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR ITEM 2502.502 "DRAINAGE SYSTEM TYPE (B910)".

- NOTES:**
- ALL PIPE SHALL COMPLY WITH MnDOT SPEC. 3245.
  - WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER MnDOT SPEC. 3733, TYPE 1. ATTACH TO PIPE AS PER MnDOT SPEC. 2502.
  - (1) PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.
  - (2) 1/8" PER FT. MINIMUM SLOPE.
  - (3) MATERIAL SHALL COMPLY WITH MnDOT SPEC. 3149.2B SELECT GRANULAR BORROW, MODIFIED SO THAT NO MORE THAN 10% PASSES A NO. 200 SIEVE.

APPROVED: MARCH 26, 2009	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED	DETAIL NO.
<i>Daniel Johnson</i> STATE BRIDGE ENGINEER	<b>DRAINAGE SYSTEM</b>		<b>B910</b>

NO.	DATE	BY	CKD	APPR	REVISION		
1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION		

STATE PROJECT NO. 002-614-035	DRAWN BY E. JOHNSON	<b>SRE</b>	ENGINEERS PLANNERS DESIGNERS	ANOKA COUNTY	
STATE PROJECT NO. 0280-71 (T.H. 35W)	DESIGNED BY C. BLACK	<b>Consulting Group, Inc.</b>		CSAH 14 PEDESTRIAN BRIDGE OVER I-35W <b>BRIDGE DETAILS</b> (SHEET 3 OF 3)	
BRIDGE NUMBER 02006	CHECKED BY K. SWEHLA				
Print Name: <b>CASEY E. BLACK</b>	COMM. NO. 7781				
Date: <i>4/1/13</i>	License # 49163				

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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  
*David S. Messner*  
STATE BRIDGE ENGINEER

AS-BUILT DETAILS  
(AS NEEDED)

NO	DATE	BY	CKD	APPR	REVISION
1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION

STATE PROJECT NO. 002-614-035  
STATE PROJECT NO. 0280-71 (T.H. 35W)  
BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
DESIGNED BY C. BLACK  
CHECKED BY K. SWEHLA  
COMM. NO. 7781



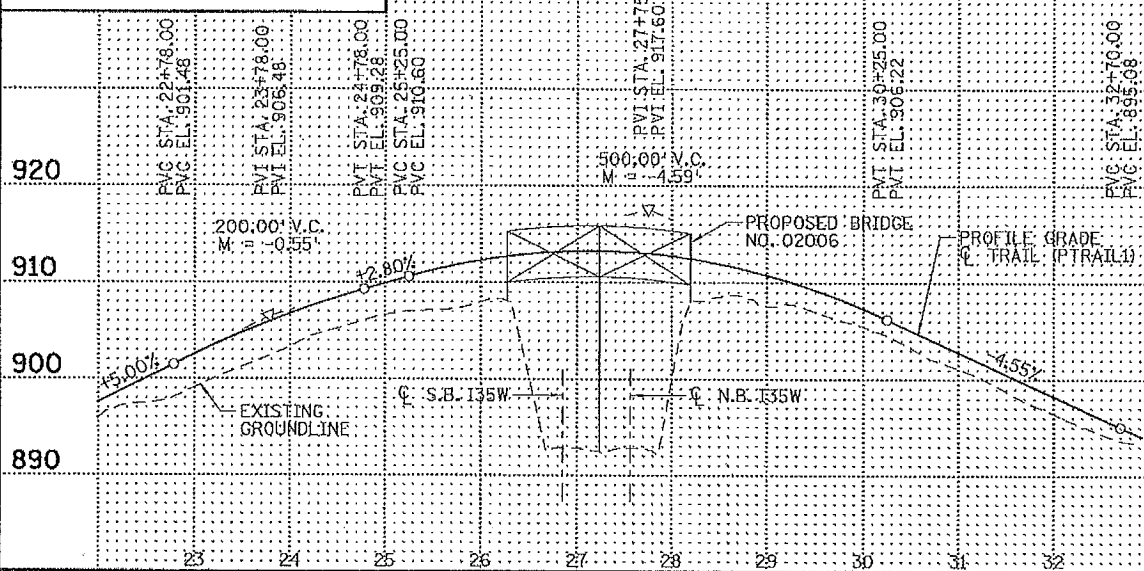
ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY  
CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
AS-BUILT BRIDGE DATA

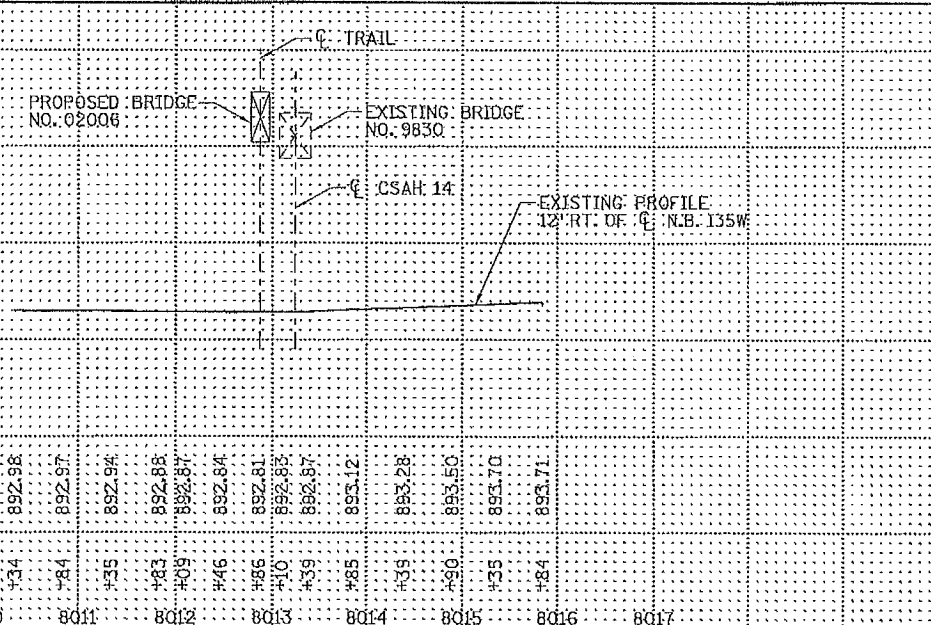
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B39  
OF  
B42

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4/1/2013  
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**CONTRACTED PROFILE**  
SCALE: 0 50' 100' 0 5' 10'  
HORIZONTAL VERTICAL



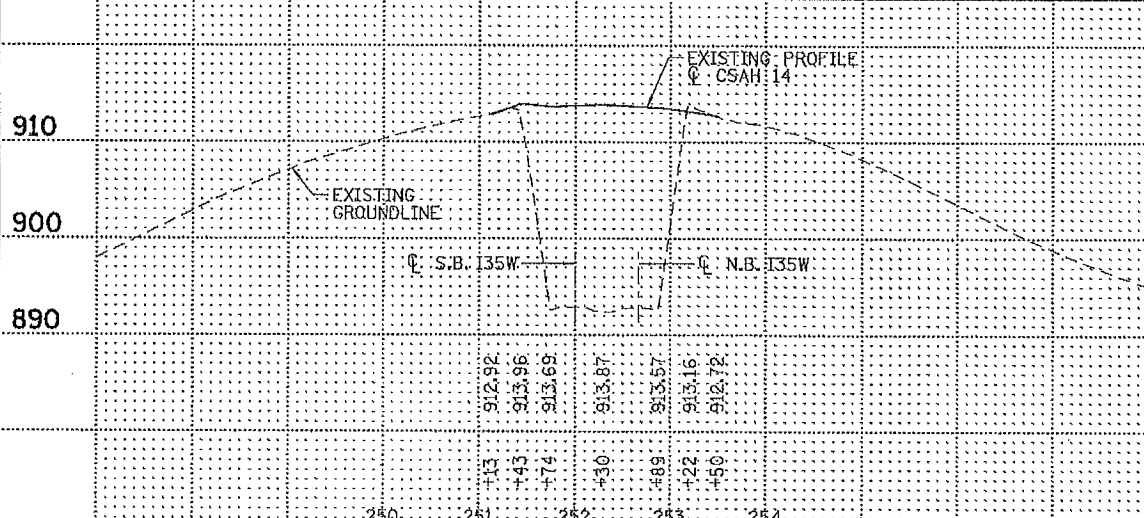
**12' RT. OF C N.B. I35W (X35NBRT)**



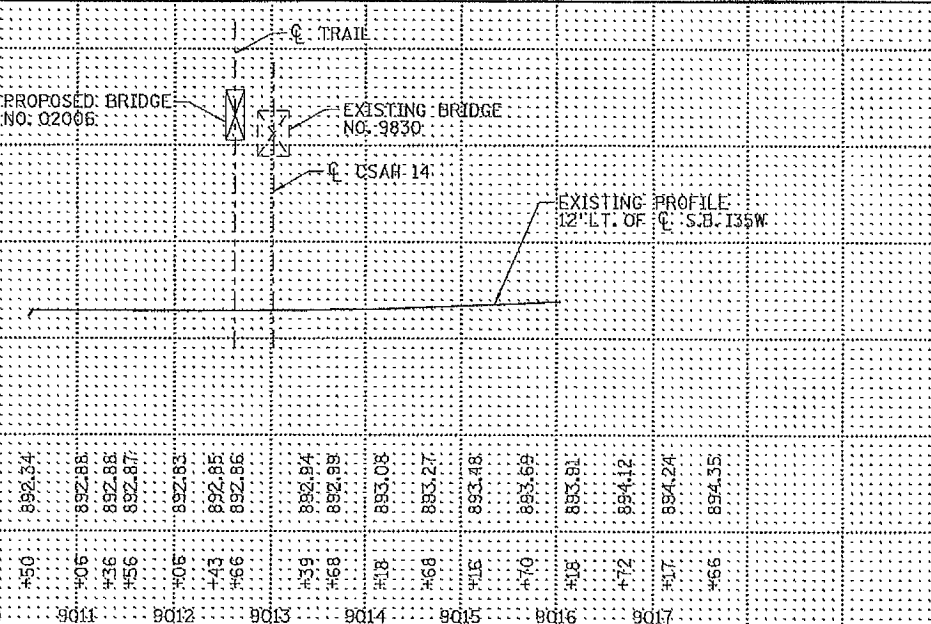
**LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE**

- 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 OBTAINED FROM:
- OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

**C EXISTING CSAH 14**



**12' LT. OF C S.B. I35W (X35SBLT)**



**HYDRAULIC ENGINEERS RECOMMENDATION**

DATE .....

STREAM OR DITCH DESIGNATION .....

DRAINAGE AREA .....

MAX. FLOOD ON RECORD .....

MAXIMUM OBSERVED HIGHWATER ELEVATION .....

DESIGN FLOOD ( YR. FREQ. ) .. C.F.S.

HEADWATER ELEVATION .. FT.

DESIGN MEAN VELOCITY THROUGH STRUCTURE .. F.P.S.

TOTAL STAGE INCREASE .. FT.

LOW MEMBER AT OR ABOVE ELEVATION .. FT.

WATERWAY AREA REQUIRED BELOW ELEVATION .. SQ.FT.

AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ. ) .. C.F.S.

HEADWATER ELEVATION .. FT.

TOTAL STAGE INCREASE .. FT.

MEAN VELOCITY THROUGH STRUCTURE .. F.P.S.

FLOWLINE ELEVATION .. SKEW ANGLE ..

ESTIMATED DEPTH OF PIER SCOUR = .. FT.

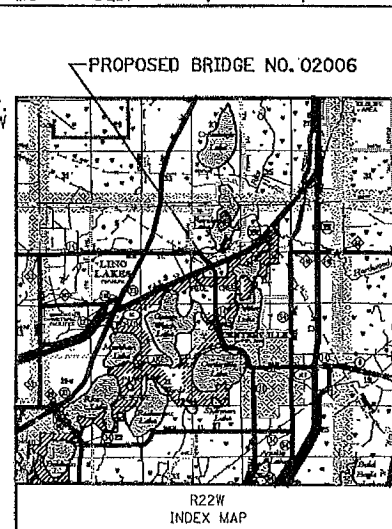
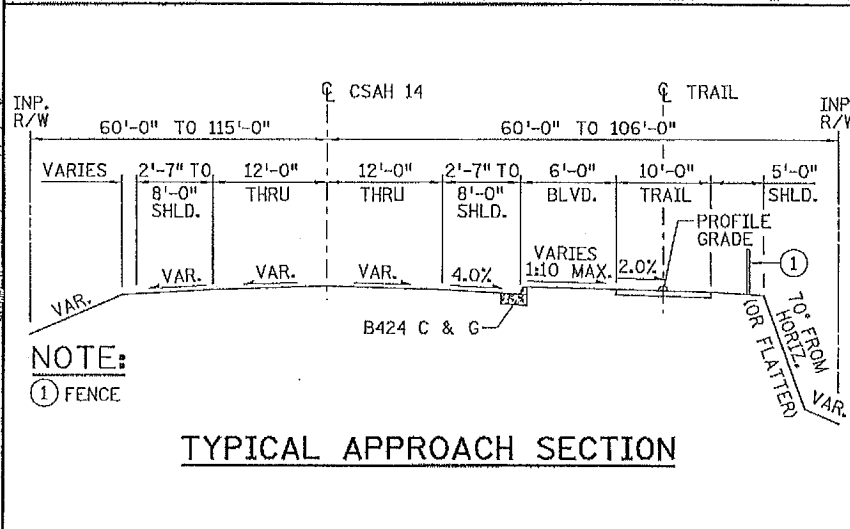
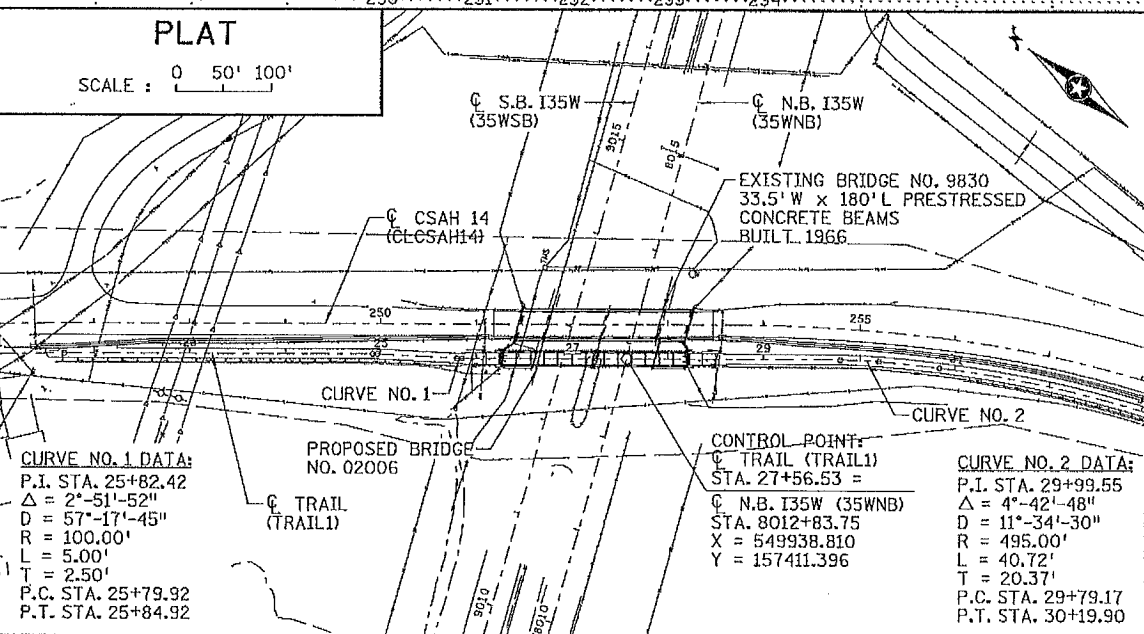
**SCOUR CONFIRMATION RECOMMENDATION**

DATE .....

TOTAL SCOUR AT PIER EL. (500 OR 01 YR. FREQ.) ..

SCOUR CODE = ..

BRIDGE SURVEY SHEETS MADE FROM : SURVEYS BY SRP CONSULTING GROUP INC.



BENCH MARK ELEVATION .. 913.58 (NAVD 88)

LOCATION .. DISC AT NE CORNER OF EXISTING CSAH 14 BRIDGE BR. NO. 9830

(NGS NAME 0280 M)

2nd BENCH MARK ELEVATION .. (NAVD 88)

LOCATION ..

ANOKA COUNTY

**BRIDGE SURVEY**

AT MILE POINT 38.7 ON T.H. N.B. I35W (T.H. CSAH 14, etc.)

PROPOSED BRIDGE LOCATED 2.2 MILES N.E. OF JCT. OF CSAH 23 & T.H. I35W

SEC. 10 TWP. T31N R. 22W

TOWNSHIP LINO LAKES COUNTY ANOKA

1	4/1/13	CEB	KLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: **CASEY E. BLACK**

Date: **4/1/13** License #: **49163**

STATE PROJECT NO. 002-614-035

STATE PROJECT NO. 0280-71 (T.H. 35W)

BRIDGE NUMBER **02006**

DRAWN BY **E. JOHNSON**

DESIGNED BY **C. BLACK**

CHECKED BY **K. SWEHLA**

COMM. NO. 7781



**ANOKA COUNTY**

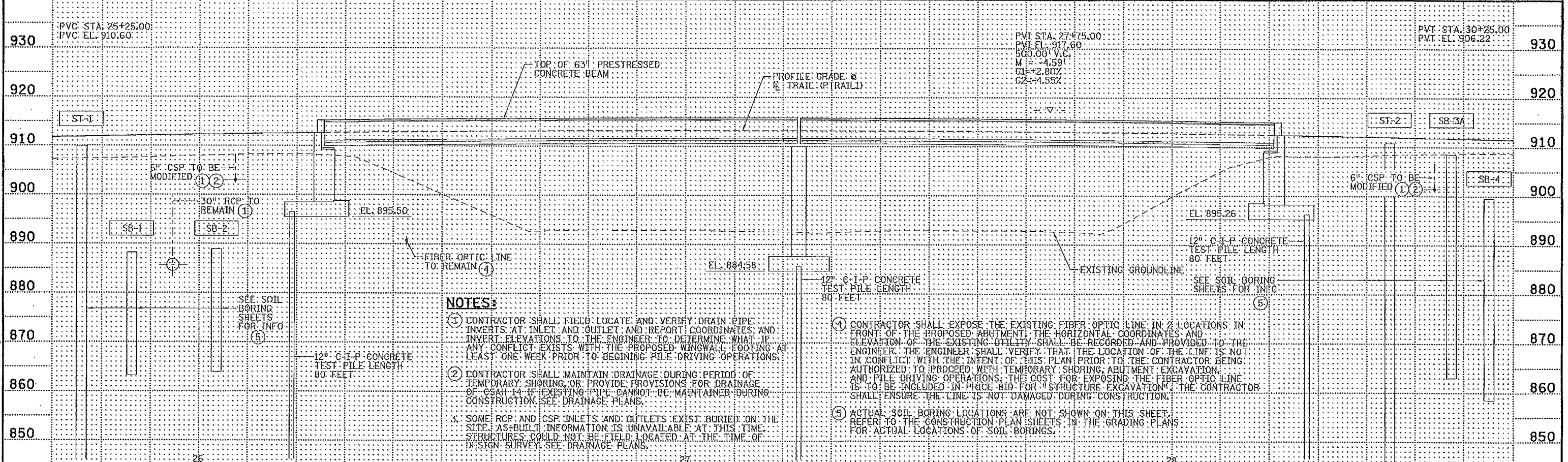
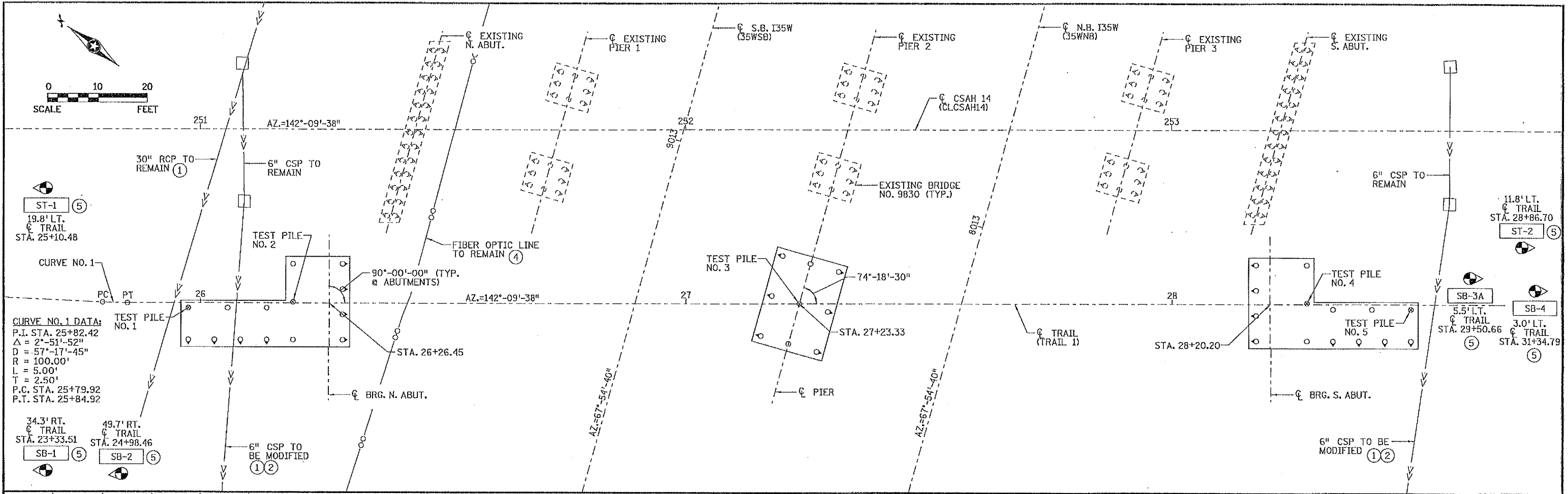
**BRIDGE SURVEY**

CSAH 14 PEDESTRIAN BRIDGE OVER I-35W

**SHEET B40 OF B42**

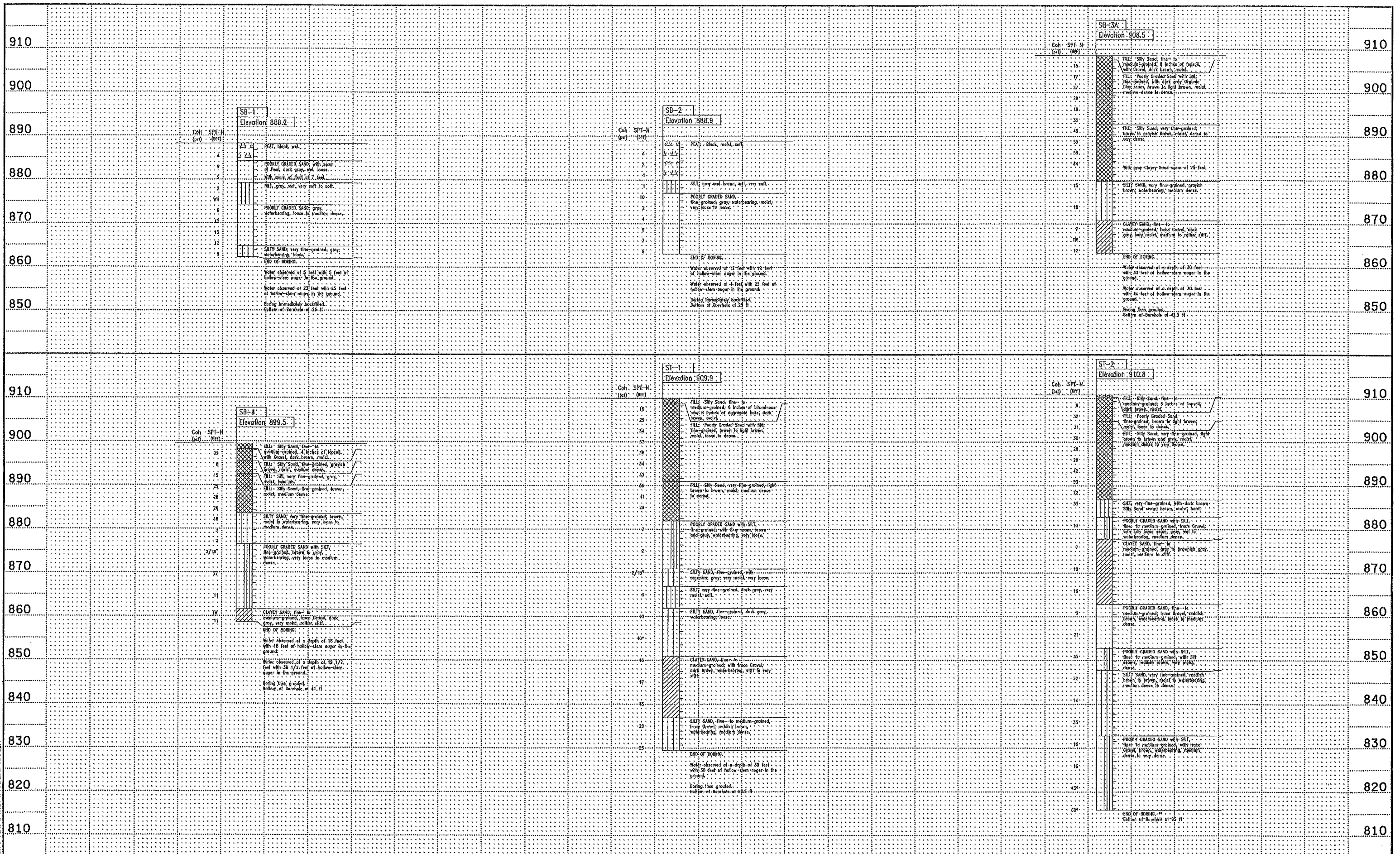
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1	4/1/13	CEB	CLS	CEB	RELEASED FOR CONSTRUCTION
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Pr Int Name: <b>CASEY E. BLACK</b> Date: <b>4/1/13</b> License # <b>49163</b>					
STATE PROJECT NO. 002-614-035		DRAWN BY E. JOHNSON		<b>SRH</b> CONSULTING GROUP, INC.	
STATE PROJECT NO. 0280-71 (T.H. 35W)		DESIGNED BY C. BLACK			
BRIDGE NUMBER 02006		CHECKED BY K. SWEHLA		<b>ENGINEERS PLANNERS DESIGNERS</b> <b>ANOKA COUNTY</b> <b>CSAH 14 PEDESTRIAN BRIDGE OVER I-35W</b> <b>BRIDGE SURVEY PLAN AND PROFILE</b>	
COMM. NO. 7781				<b>SHEET B41 OF B42</b>	

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 4/1/2013  
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1	4/1/13	CEB	CLS	CEB	RELEASED FOR CONSTRUCTION
NO	DATE	BY	CHKD	APPR	REVISION
... \BRVP\ans\Final\7781_sur-03.dgn					

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: CASEY E. BLACK  
 Date: 4/1/13 License #: 49163

STATE PROJECT NO. 002-614-035  
 STATE PROJECT NO. 0280-71 (T.H. 35W)  
 BRIDGE NUMBER 02006

DRAWN BY E. JOHNSON  
 DESIGNED BY C. BLACK  
 CHECKED BY K. SWEHLA  
 COMM. NO. 7781



ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 CSAH 14 PEDESTRIAN BRIDGE OVER I-35W  
 SOIL BORINGS

SHEET B42 OF B42

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**CONSTRUCTION / SOILS NOTES**

**GRADING, BASE AND SURFACE**

- 1 TOP OF THE GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 OR 6 AGGREGATE BASE.
- 2 SUITABLE GRADING MATERIAL ON THIS PROJECT, WHETHER OBTAINED LOCALLY OR FROM BORROW, SHALL CONSIST OF ALL SOILS EXCEPT TOPSOIL, DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSTABLE MATERIAL.
- 3 UNSUITABLE MATERIALS ARE TOPSOILS, DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSTABLE SOILS.
- 4 GRANULAR MATERIAL IS DEFINED AS MATERIAL MEETING THE REQUIREMENTS OF SPEC. 3149.2B1. SELECT GRANULAR MATERIAL IS DEFINED AS MATERIAL MEETING THE REQUIREMENTS OF SPEC. 3149.2B2. SELECT GRANULAR MATERIAL MODIFIED IS DEFINED AS MATERIAL MEETING THE REQUIREMENTS OF SPEC. 3149. 2B, MODIFIED TO 10 PERCENT OR LESS PASSING THE NUMBER 200 SIEVE.
- 5 STRIP SOD AND TOPSOIL FROM AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF TOPSOIL AVAILABLE IS CONSIDERED TO BE 6".
- 6 ALL TOPSOIL STRIPPING WILL BE CONSIDERED TO BE COMMON EXCAVATION.
- 7 OBTAIN COMPACTION ON THE GRADING PORTIONS OF PERMANENT CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY" METHOD REQUIREMENTS.
- 8 COMPACTION OF THE AGGREGATE BASE LAYER SHALL BE OBTAINED IN ACCORDANCE WITH THE "QUALITY COMPACTION" METHOD.
- 9 COMPACTION OF THE GRADING AND AGGREGATE ITEMS ON BYPASSES AND OTHER TEMPORARY WORK SHALL BE BY THE "SPECIFIED DENSITY" METHOD.
- 10 AS A PRECAUTIONARY MEASURE FROM A SOILS STANDPOINT, TRAFFIC LANES TO BE USED DURING CONSTRUCTION MUST BE DELINEATED TO KEEP VEHICLES A SAFE DISTANCE AWAY FROM THE ADJACENT EXCAVATION. THE DELINEATION SHOULD COINCIDE WITH POINTS ESTABLISHED BY PROJECTING A 1(V):2(H) OR GREATER (FLATTER) SLOPE BETWEEN THE EDGE OF THE TRAFFIC SURFACE AND THE BOTTOM OF THE EXCAVATION.
- 11 PROVIDE FOR A UNIFORM BITUMINOUS TACK COAT BETWEEN ALL BITUMINOUS COURSES. THE TACK COAT SHALL BE IN ACCORDANCE WITH MN/DOT SPECIFICATION 2357 WITH THE FOLLOWING MODIFICATIONS:
  - A. THE TACK COAT SHALL CONSIST OF EMULSIFIED ASPHALT (CSS-1 OR CSS-1H) AND SHALL BE APPLIED BETWEEN ALL BITUMINOUS COURSES.
  - B. THE TACK COAT SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GAL/SY BETWEEN BITUMINOUS LAYERS AND 0.07 TO 0.10 GAL/SY ON MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID.
- 12 PROVIDE A SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT.

**REMOVALS**

- 13 PROVIDE FOR THE REMOVAL AND DISPOSAL OF ANY INPLACE SURFACING, GUARDRAIL, OTHER STRUCTURES OR DEBRIS THAT WOULD INTERFERE WITH CONSTRUCTION. ALL SUCH MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED TO THE EXTENT ALLOWED OR DISPOSED OF OFF THE RIGHT OF WAY IN ACCORDANCE WITH SPEC. 2104.3C. PROVIDE FOR SAW CUTTING AS DEEMED NECESSARY BY THE ENGINEER.
- 14 THE CONTRACTOR SHALL INVESTIGATE AND MAKE THEIR OWN DETERMINATION OF EXISTING PAVEMENT DEPTHS.

**TURF ESTABLISHMENT**

- 15 PLACE A MINIMUM OF 6 INCHES OF TOPSOIL ON ALL AREAS SCHEDULED FOR PERMANENT TURF ESTABLISHMENT. PLACE A MINIMUM OF 6" OF PREMIUM TOPSOIL ON REINFORCED SOIL SLOPE (RSS), PREMIUM TOPSOIL BORROW SHALL MEET THE REQUIREMENTS OF MNDOT SPEC 3877.2C
- 16 SEED ALL AREAS DISTURBED BY CONSTRUCTION. PLACE SILT FENCE AT LIMITS OF AREAS DISTURBED BY CONSTRUCTION.
- 17
- 18 SEEDING REQUIREMENTS ON THIS PROJECT ARE AS FOLLOWS:
  - A. PROVIDE FERTILIZER TYPE 3, ANALYSIS 22-5-10 (350 LBS/ACRE), SLOW RELEASE TYPE, OR EQUIVALENT ON ALL AREAS TO BE SEEDED.
  - B. PLACE EROSION CONTROL BLANKET CATEGORY 3 ON ALL SEEDED AREAS. PLACE EROSION CONTROL BLANKET CATEGORY 4 ON RSS. ACCEPTABLE TYPES OF CATEGORY 3 BLANKET SHALL BE STRAW 2S OR WOOD FIBER 2S WITH NATURAL NETTING AND STICHING MATERIAL. ACCEPTABLE TYPE OF CATEGORY 4 BLANKET SHALL BE STRAW COCONUT 2S WITH NATURAL NETTING AND STITCHING MATERIAL. SEE MNDOT SPEC. 3885 FOR BLANKET CRITERIA.
  - C. APPLY SEED MIX 250 AT A RATE OF 70 LBS PER ACRE. APPLY SEED MIX TO RSS USING HYDRO SEEDING METHODS WITH 150 LBS OF TYPE 5 HYDRAULIC SOIL STABILIZER PER 1500 GALLONS OF WATER. HYDRO SEEDING AND TYPE 5 HYDRAULIC SOIL STABILIZER USED FOR PERMANENT TURF ESTABLISHMENT SHALL BE CONSIDERED INCIDENTAL.

**MISCELLANEOUS**

- 19 WHERE SEDIMENT DEPOSITS IN WATERS OF THE STATE THE MATERIAL MUST BE REMOVED IN 7 DAYS.
- 20 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.
- 21 THE CONTRACTOR IS HEREBY REMINDED OF HIS RESPONSIBILITY UNDER STATE LAW TO CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE AREA. CONTACT MUST BE MADE THROUGH GOPHER STATE ONE-CALL.

**TENSION CABLE GUARDRAIL**

- 22 CABLE SPLICES: IT IS IMPORTANT TO ENSURE THAT SPLICE HARDWARE PROVIDES FOR CONNECTIONS THAT ARE SUPERIOR IN STRENGTH TO THE CABLE ITSELF. MANUFACTURER'S RECOMMENDATIONS FROM THE MAKER OF THE SPLICE HARDWARE SHOULD BE FOLLOWED. TURNBUCKLES CANNOT BE LOCATED AT THE POSTS. PROVIDE SWAGED FITTINGS FOR ALL CABLE CONNECTIONS.
- 23 MODIFY POST SPACING TO AVOID HITTING UTILITIES. MAXIMUM POST SPACING IS 10 FEET.
- 24 LINE POSTS SHALL BE PLUMBED WITH THE SOCKETS AS PER MANUFACTURER'S SPECIFICATIONS.
- 25 TENSION CABLE GUARDRAIL CONSTRUCTION TO BE STAGED SUCH THAT CONTINUOUS PROTECTION IS PROVIDED. ANCHORAGE ASSEMBLIES TO BE INSTALLED WHILE EXISTING CABLE IS INTACT.

**STAGING**

- 26 STAGE 1
  - INSTALL SETTLEMENT PLATES.
  - CONSTRUCT ALL EMBANKMENTS AND REINFORCED SOIL SLOPES (RSS). CONTRACTOR MAY PLACE ALL EMBANKMENT MATERIAL EXCEPT FOR AGGREGATE BASE FOR TRAIL AND ROADWAY CONSTRUCTION.
- STAGE 2
  - CONTRACTOR SHALL WAIT, AND MONITOR SETTLEMENT PLATES, FOR A MINIMUM OF ONE (1) MONTH PRIOR TO PLACING AGGREGATE BASE FOR TRAIL OR ROADWAY CONSTRUCTION.
- STAGE 3
  - COMPLETE TRAIL AND ROAD WAY CONSTRUCTION.
- 27 BRIDGE AND STORM SEWER WORK MAY OCCUR CONCURRENTLY WITH STAGES 1 THROUGH 3.

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NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: **JEFFREY N TYKESON**

Date: 4/25/13 License # 42792

STATE PROJ. NO. 002-614-035  
STATE PROJ. NO. 0280-71 (T.H. 35W)

DRAWN BY S. YANG  
DESIGNED BY J. TYKESON  
CHECKED BY N. WILL  
COMM. NO. 7781



ENGINEERS  
PLANNERS  
DESIGNERS

**ANOKA COUNTY**  
CONSTRUCTION/SOIL NOTES  
CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
C1  
OF  
C44

A REMOVALS, SAWING AND MILLING					
ALIGNMENT	STATION TO STATION	REMOVE (SPEC. 2104)		(A) SAWING (SPEC. 2104)	
		BITUMINOUS PAVEMENT (SQ FT)	CURB & GUTTER (LIN FT)	BITUMINOUS PAVEMENT (LIN FT)	
CSAH 14 (NORTH OF PED. BRIDGE)	246+34 251+13	2443	5	489	
CSAH 14 (SOUTH OF PED BRIDGE)	253+53 259+16	2764	5	573	
<b>PROJECT TOTALS</b>		<b>5207</b>	<b>10</b>	<b>1062</b>	

NOTES:  
(A) ALL BITUMINOUS PAVEMENT SAWING IS FULL DEPTH.

C AGGREGATE AND BITUMINOUS SUMMARY					
ALIGNMENT	STATION TO STATION	2360 TYPE SP 12.5 WEAR (4,C)		(A) TACK (SPEC. 2357)	
		CLASS 5 (CU. YD.)	(TON)	(GAL.)	
CSAH 14 (NORTH OF PED. BRIDGE)	246+34 251+13	110	107	5	
CSAH 14 (SOUTH OF PED BRIDGE)	253+53 259+16	130	132	7	
<b>PROJECT TOTALS</b>		<b>240</b>	<b>239</b>	<b>12</b>	

(A) TACK COAT SHALL BE CONSIDERED INCIDENTAL.

D CURB & GUTTER AND WALK							
ALIGNMENT	STATION TO STATION	6" CONCRETE (SQ. FT.)		B424 (LIN. FT.)		TRUNCATED DOMES RAMP (SQ. FT.)	
		(SQ. FT.)	(LIN. FT.)	(SQ. FT.)			
CSAH 14 (NORTH OF PED. BRIDGE)	246+34 251+13	160	479	20			
CSAH 14 (SOUTH OF PED BRIDGE)	253+53 259+16		553				
<b>PROJECT TOTALS</b>		<b>160</b>	<b>1032</b>	<b>20</b>			

B EARTHWORK TABULATION							
STATION	EXCAVATION TOTALS (EV)		EMBANKMENT TOTALS (CV)				REINFORCED SOIL SLOPE (RSS) (SQ YD)
	COMMON (CU YD)	STRUCTURE CLASS U (CU YD)	COMMON EMBANKMENT		SELECT GRANULAR MOD. (CU YD)	PREMIUM TOPSOIL (CU YD)	
			SUITABLE GRADING (CU YD)	SLOPE DRESSING (CU YD)			
CSAH 14							
246+35.00							
246+50.00	10	0	21	7	0	0	0
246+60.00	5	1	13	3	4	1	3
247+00.00	16	6	22	5	34	5	21
247+50.00	24	12	36	9	60	7	30
248+00.00	26	20	47	12	97	9	39
248+50.00	27	23	52	12	115	10	43
249+00.00	27	25	52	13	118	10	43
249+50.00	28	26	51	14	113	10	42
250+00.00	30	20	56	14	98	9	39
250+50.00	32	19	70	17	105	10	41
250+92.09	32	30	84	19	147	10	44
251+12.00	21	10	81	14	53	4	17
251+24.27	14	0	67	10	5	1	3
251+74.27	23	0	129	17	0	0	0
<b>SUBTOTAL (A)</b>	<b>315</b>	<b>192</b>	<b>781</b>	<b>166</b>	<b>949</b>	<b>86</b>	<b>364</b>
253+00.00							
253+22.60	9	0	48	6	0	0	0
253+35.00	11	0	58	7	0	0	0
253+54.76	24	0	131	17	0	0	0
253+60.00	8	0	41	6	0	0	0
253+74.16	20	0	101	15	0	0	0
254+00.00	35	0	172	28	0	0	0
254+50.00	64	0	291	50	0	0	0
255+00.00	60	0	231	45	0	0	0
255+50.00	55	0	198	40	0	0	0
256+00.00	51	0	178	36	0	0	0
256+50.00	38	4	104	23	20	3	13
257+00.00	26	8	38	11	43	6	26
257+50.00	26	8	37	11	45	6	27
258+00.00	26	6	27	11	33	5	22
258+25.00	13	1	6	5	5	1	4
258+50.00	15	0	2	4	0	0	0
258+70.00	13	0	1	4	0	0	0
259+00.00	13	0	1	5	0	0	0
259+15.00	4	0	1	1	0	0	0
<b>SUBTOTAL (B)</b>	<b>511</b>	<b>27</b>	<b>1666</b>	<b>325</b>	<b>146</b>	<b>22</b>	<b>92</b>
<b>TOTAL</b>	<b>826</b>	<b>219</b>	<b>2447</b>	<b>491</b>	<b>1095</b>	<b>108</b>	<b>456</b>

F TURF ESTABLISHMENT / EROSION CONTROL (SPEC. 2573 & 2575)								
ALIGNMENT	STATION TO STATION	SILT FENCE MACHINE SLICED (LIN. FT.)	SEEDING (ACRE)	SEED MIX 250 (LB)	EROSION CONTROL		COMM. FERT. TYPE 3 (POUND)	
					BLANKET CATEGORY 3 (SQ. YD.)	BLANKET CATEGORY 4 (SQ. YD.)		
CSAH 14 (NORTH OF PED. BRIDGE)	246+34 251+13	560	0.45	31.5	1770	364	157.5	
CSAH 14 (SOUTH OF PED BRIDGE)	253+53 259+16	575	0.55	38.5	4180	92	192.5	
<b>PROJECT TOTALS</b>		<b>1135</b>	<b>1.0</b>	<b>70</b>	<b>5950</b>	<b>456</b>	<b>350</b>	

G FENCING (SPEC. 2557)						
ALIGNMENT	STATION TO STATION	WIRE FENCE (CHAIN LINK)				ELECTRICAL GROUND (EACH)
		SALVAGE (SPEC. 2104) (LIN FT)	REMOVE (SPEC. 2104) (LIN FT)	INSTALL (LIN FT)	F&I DESIGN 60V-9322 (LIN FT)	
CSAH 14 (NORTH OF PED. BRIDGE)	246+35 251+13	85	30	85	470	1
CSAH 14 (SOUTH OF PED BRIDGE)	253+53 259+16	50	25	50	520	1
<b>PROJECT TOTALS</b>		<b>135</b>	<b>55</b>	<b>135</b>	<b>990</b>	<b>2</b>

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: JEFFREY N TYKESON  
 Date: 04/01/2013 License #: 42792

STATE PROJ. NO. 002-614-035  
 STATE PROJ. NO. 0280-71 (T.H. 35W)

DRAWN BY S. YANG  
 DESIGNED BY J. TYKESON  
 CHECKED BY N. WILL  
 COMM. NO. 7781




ENGINEERS  
 PLANNERS  
 DESIGNERS

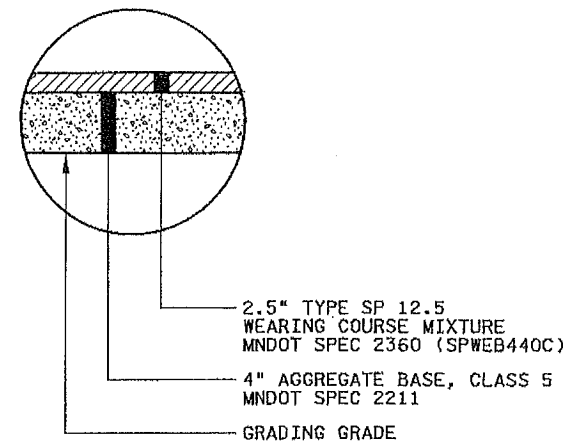
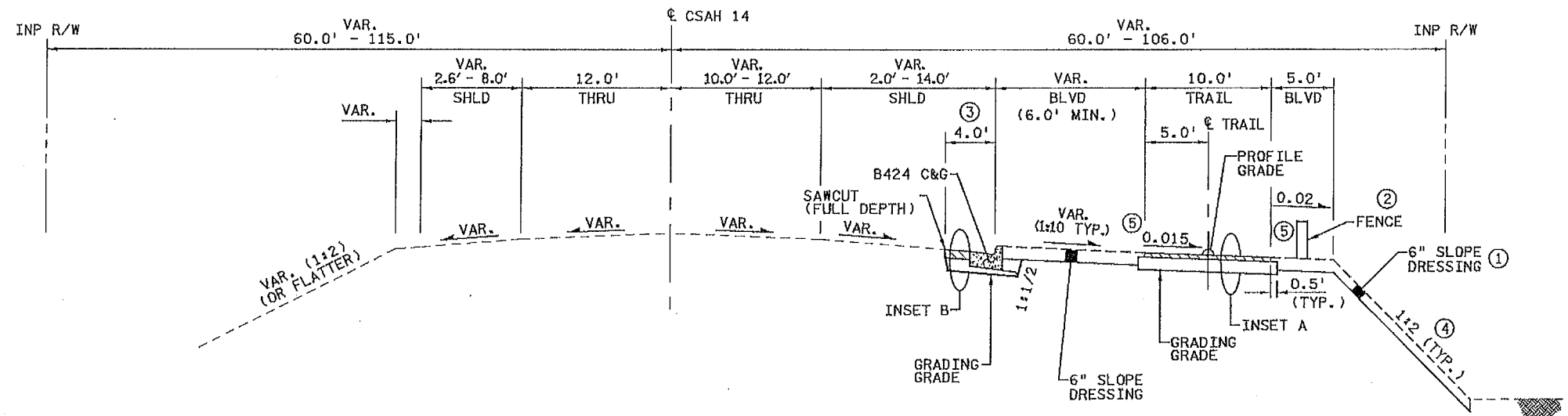
ANOKA COUNTY  
 EARTHWORK SUMMARY, BALANCE, TABULATIONS  
 CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
 C2  
 OF  
 C44

G		EXISTING PUBLIC UTILITIES		
ALIGNMENT	LOCATION STATION AND OFFSET	IN PLACE UTILITY	UTILITY OWNER	NOTES
CSAH 14	245+26, 45' RT - 245+61, 45' RT	4" GAS	CENTERPOINT ENERGY	LEAVE AS IS
CSAH 14	248+60, 76' RT - 250+67, 98' RT	4" GAS	CENTERPOINT ENERGY	LEAVE AS IS
CSAH 14	245+61, 45' RT - 248+60, 76' RT	4" GAS	CENTERPOINT ENERGY	LEAVE AS IS
CSAH 14	250+67, 98' RT - 255+69, 51' RT	4" GAS	CENTERPOINT ENERGY	LEAVE AS IS
CSAH 14	256+100, 47' RT - 257+74, 44' RT	4" GAS	CENTERPOINT ENERGY	LEAVE AS IS
CSAH 14	255+69, 51' RT - 256+10, 47' RT	4" GAS	CENTERPOINT ENERGY	LEAVE AS IS
CSAH 14	257+74, 44' RT - 258+53, 44' RT	4" GAS	CENTERPOINT ENERGY	LEAVE AS IS
CSAH 14	258+53, 44' RT - 258+72, 55' LT	4" GAS	CENTERPOINT ENERGY	LEAVE AS IS
CSAH 14	246+32, 52' LT - 255+81, 72' LT	TV FIBER	COMCAST	LEAVE AS IS
CSAH 14	255+81, 72' LT - 255+93, 83' LT	TV FIBER	COMCAST	LEAVE AS IS
CSAH 14	245+37, 53' LT - 246+32, 52' LT	TV FIBER	COMCAST	LEAVE AS IS
CSAH 14	246+49, 69' RT	GUY WIRE	CONNEXUS ENERGY	LEAVE AS IS
CSAH 14	245+40, 72' LT - 246+36, 50' RT	OH POWER	CONNEXUS ENERGY	LEAVE AS IS
CSAH 14	246+19, 78' RT - 246+36, 50' RT	OH POWER	CONNEXUS ENERGY	LEAVE AS IS
CSAH 14	246+36, 51' RT	POWER POLE	CONNEXUS ENERGY	LEAVE AS IS
CSAH 14	247+89, 77' RT	POWER POLE LARGE	GREAT RIVER ENERGY	LEAVE AS IS
CSAH 14	247+70, 72' RT	POWER POLE LARGE	GREAT RIVER ENERGY	LEAVE AS IS
CSAH 14	247+56, 80' RT - 247+59, 69' RT	TRANS LINE	GREAT RIVER ENERGY	LEAVE AS IS
CSAH 14	247+77, 81' RT - 247+79, 75' RT	TRANS LINE	GREAT RIVER ENERGY	LEAVE AS IS
CSAH 14	247+100, 82' RT - 248+59, 95' LT	TRANS LINE	GREAT RIVER ENERGY	LEAVE AS IS
CSAH 14	247+99, 84' RT - 247+100, 82' RT	TRANS LINE	GREAT RIVER ENERGY	LEAVE AS IS
CSAH 14	247+79, 75' RT - 248+36, 95' LT	TRANS LINE	GREAT RIVER ENERGY	LEAVE AS IS
CSAH 14	247+59, 69' RT - 248+15, 96' LT	TRANS LINE	GREAT RIVER ENERGY	LEAVE AS IS
CSAH 14	246+33, 30' RT - 247+26, 42' LT	UNKNOWN PETRO	KOCH PETROLEUM	LEAVE AS IS
CSAH 14	245+25, 53' RT - 245+30, 50' RT	UNKNOWN PETRO	KOCH PETROLEUM	LEAVE AS IS
CSAH 14	245+51, 74' RT - 246+33, 30' RT	UNKNOWN PETRO	KOCH PETROLEUM	LEAVE AS IS
CSAH 14	247+26, 42' LT - 247+87, 96' LT	UNKNOWN PETRO	KOCH PETROLEUM	LEAVE AS IS
CSAH 14	247+14, 71' LT - 247+41, 97' LT	UNKNOWN PETRO	KOCH PETROLEUM	LEAVE AS IS
CSAH 14	245+30, 50' RT - 247+14, 71' LT	UNKNOWN PETRO	KOCH PETROLEUM	LEAVE AS IS
CSAH 14	253+28, 59' LT - 253+52, 86' LT	TMS COMM	MnDOT	LEAVE AS IS
CSAH 14	251+74, 62' LT - 251+96, 90' LT	TMS COMM	MnDOT	LEAVE AS IS
CSAH 14	251+30, 77' RT - 251+70, 58' LT	TMS COMM	MnDOT	LEAVE AS IS
CSAH 14	251+75, 60' LT - 253+28, 59' LT	TMS COMM	MnDOT	LEAVE AS IS
CSAH 14	253+26, 55' LT - 253+28, 59' LT	TMS COMM	MnDOT	LEAVE AS IS
CSAH 14	250+93, 136' RT - 251+30, 77' RT	TMS COMM	MnDOT	LEAVE AS IS
CSAH 14	251+71, 59' LT	TMS HH	MnDOT	LEAVE AS IS
CSAH 14	245+25, 47' RT - 247+30, 72' LT	BURIED TEL	QWEST	LEAVE AS IS
CSAH 14	247+30, 72' LT - 247+39, 97' LT	BURIED TEL	QWEST	LEAVE AS IS
CSAH 14	246+37, 51' RT	TEL PED	QWEST	LEAVE AS IS

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: <b>JEFFREY N TYKESON</b> Date: <u>04/01/2013</u> License # <u>42792</u>					STATE PROJ. NO. 002-614-035 STATE PROJ. NO. 0280-71 (T.H. 35W)	DRAWN BY S. VANG DESIGNED BY J. TYKESON CHECKED BY N. WILL COMM. NO. 7781	 <b>SRH</b> Consulting Group, Inc.	<b>ENGINEERS PLANNERS DESIGNERS</b>	<b>ANOKA COUNTY</b> UTILITIES TABULATIONS CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W	<b>SHEET</b> C3 OF C44
REVISION NO. DATE BY CKD APPR										



**INSET A**  
BITUMINOUS TRAIL

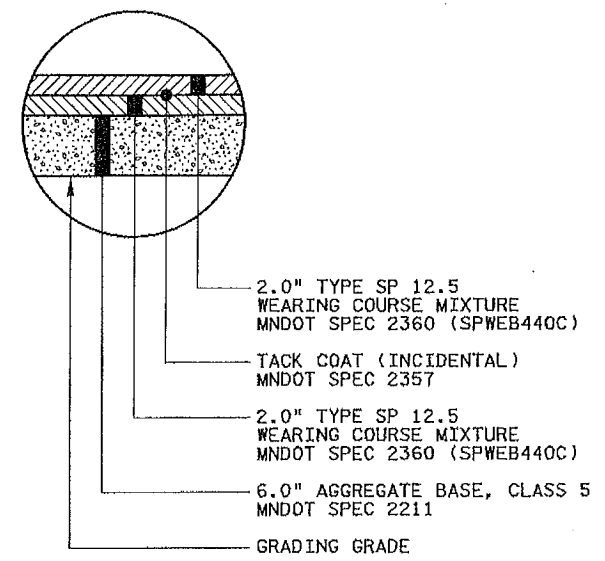
**PROPOSED CSAH 14**  
CSAH 14 STA. 246+34 TO STA. 250+96,  
STA. 253+53 TO STA. 258+95

**GENERAL NOTES:**

ALL SLOPES ARE IN FT. PER FT.

**NOTES:**

- ① PREMIUM TOPSOIL BORROW ON RSS SLOPE LOCATIONS.
- ② CHAIN LINK FENCE DESIGN 60V-9322 (VINYL COATED)
- ③ 8.0' FROM STA. 257+36 TO STA 257+52.
- ④ REINFORCED SOIL SLOPE (RSS) CASE II (70°). STA 246+60 TO STA 251+24 AND STA 256+15 TO STA 258+38
- ⑤ 2.0' TRAIL CLEAR ZONE



**INSET B**  
BITUMINOUS SHOULDER

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NO	DATE	BY	CHKD	APPR	REVISION

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Print Name: **JEFFREY N TYKESON**  
Date: *04/01/2013* License #: **42792**

STATE PROJ. NO. 002-614-035  
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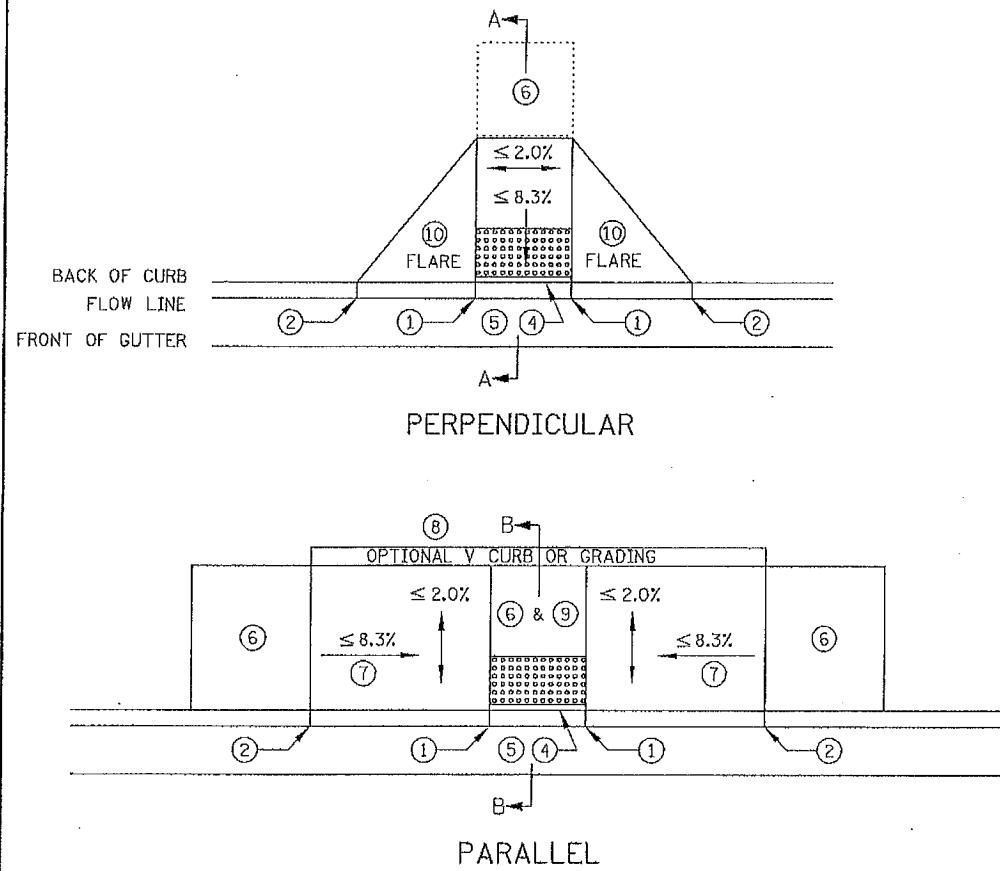
DRAWN BY S. VANG  
DESIGNED BY J. TYKESON  
CHECKED BY N. WILL  
CDMM. NO. 7781



ENGINEERS  
PLANNERS  
DESIGNERS

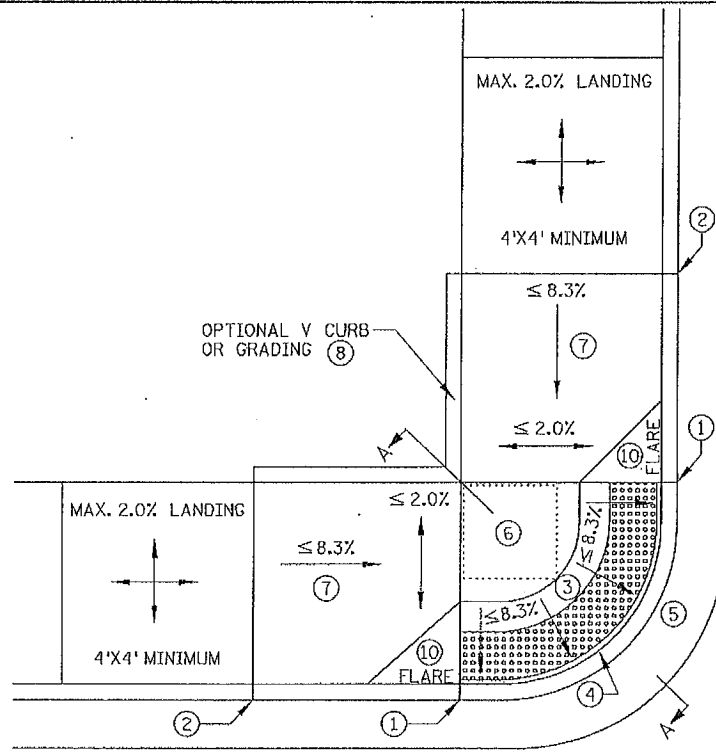
ANOKA COUNTY  
TYPICAL SECTIONS  
CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
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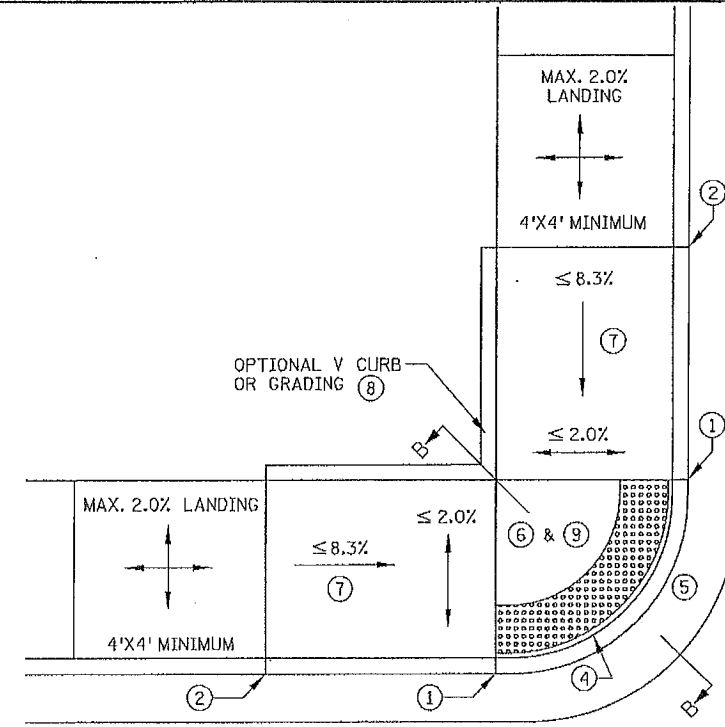


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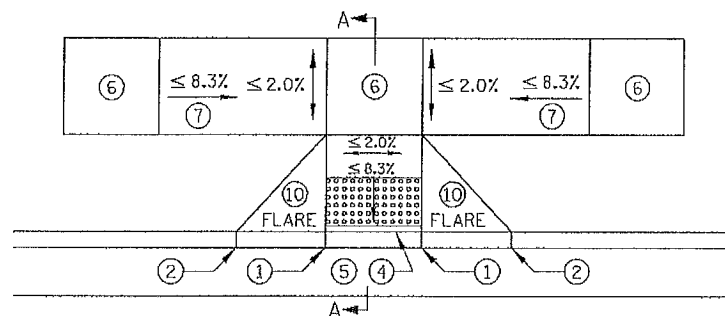
PARALLEL



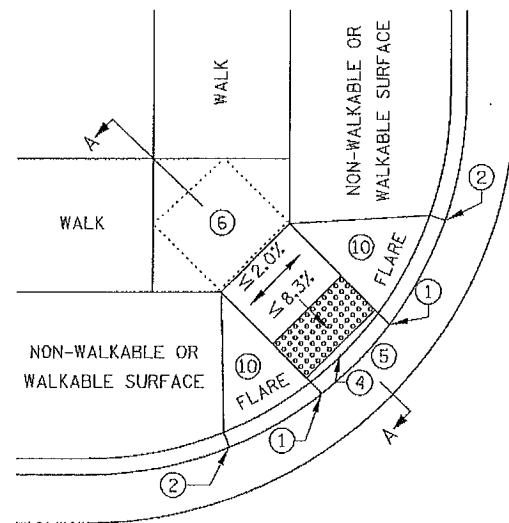
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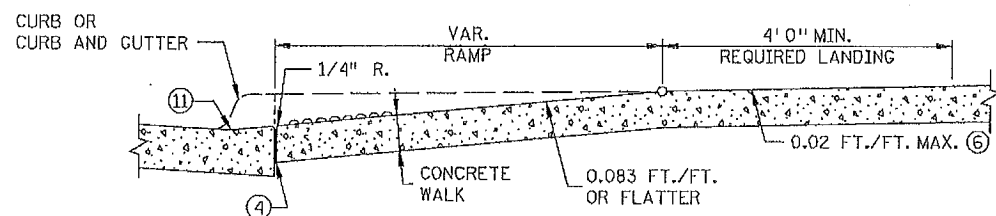
DEPRESSED CORNER



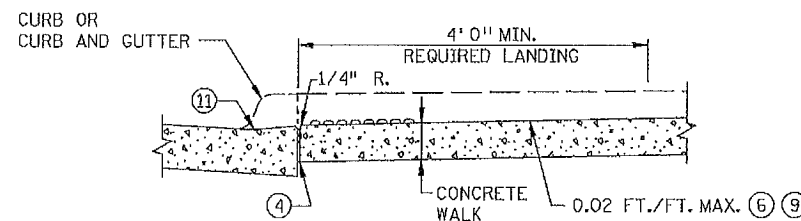
TIERED PERPENDICULAR



DIAGONAL (12)



SECTION A-A  
PERPENDICULAR/TIERED/DIAGONAL/FAN



SECTION B-B  
PARALLEL/DEPRESSED CORNER

NOTES:

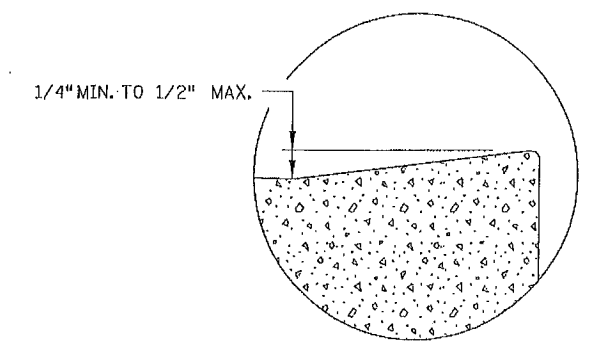
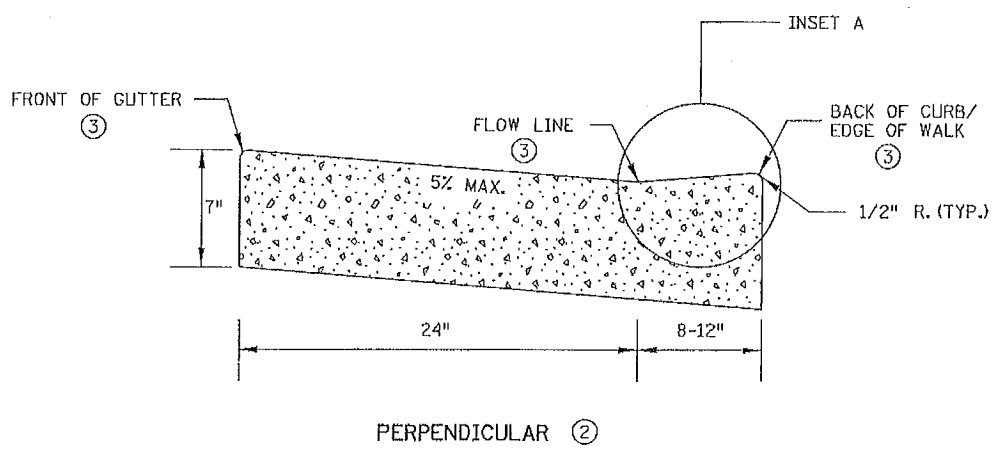
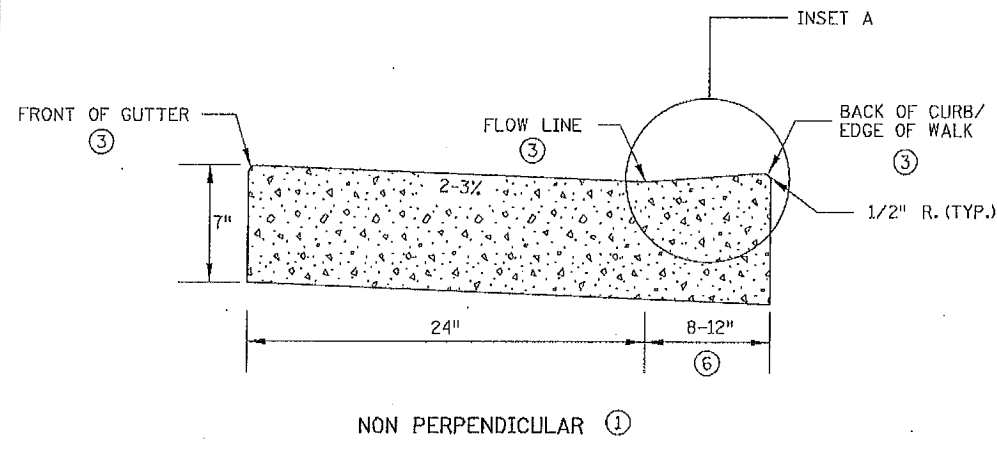
- SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR DETAILS ON DETECTABLE WARNING.
- SLOPES ARE DEFINED AS ABSOLUTE ELEVATION DIFFERENCE PER LENGTH OF RUN. (AS OPPOSED TO A RELATIVE SLOPE WITH RESPECT TO A CURB LINE OR CURB HEIGHT.)
- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AND AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5%.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS 5% OR GREATER.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL GRADE BREAKS.
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- USE 6" CONCRETE FOR ALL INITIAL RAMP AND LANDING AREAS.
- CONTRACTOR SHALL EMPLOY APPROPRIATE METHODS FOR INTERMEDIATE GRADE CONTROL TO ENSURE ALL GRADE BREAKS ARE CONSTRUCTED PROPERLY.
- ALL GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL/PEDESTRIAN ACCESS ROUTE.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ LESS THAN 5% PREFERRED, 5-8.3% SHOULD ONLY BE USED AFTER ALL OTHER SLOPES HAVE BEEN CONSIDERED AND DEEMED IMPRACTICAL.
- ④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SET BACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SET BACK 3"-6" FROM THE BACK OF CURB.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- ⑥ 4' BY 4' MIN. LANDING WITH MAX. 2% SLOPE IN ALL DIRECTIONS.
- ⑦ IF RUNNING SLOPE IS LESS THAN 5.0% NO SECONDARY LANDING IS REQUIRED.
- ⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.
- ⑨ DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- ⑩ SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- ⑪ SEE SHEET 3 OF 5 FOR FURTHER DETAIL.
- ⑫ DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN CONSIDERED AND DEEMED IMPRACTICAL.

STANDARD PLAN SHEET NO.  
5-297.250 (1 OF 5)  
STANDARD APPROVED:  
MAY 10, 2012

PEDESTRIAN CURB RAMP DETAILS

S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C50F C44 SHEETS

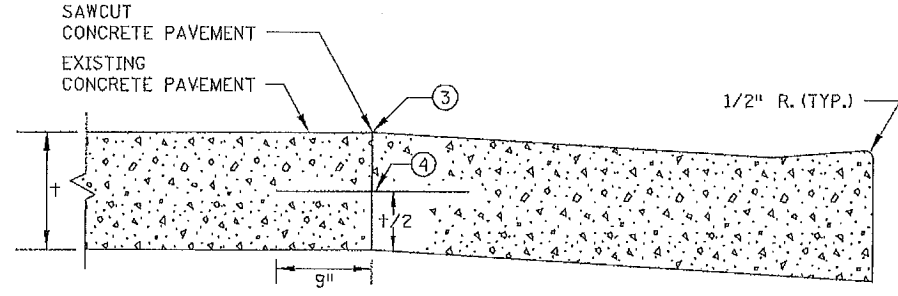
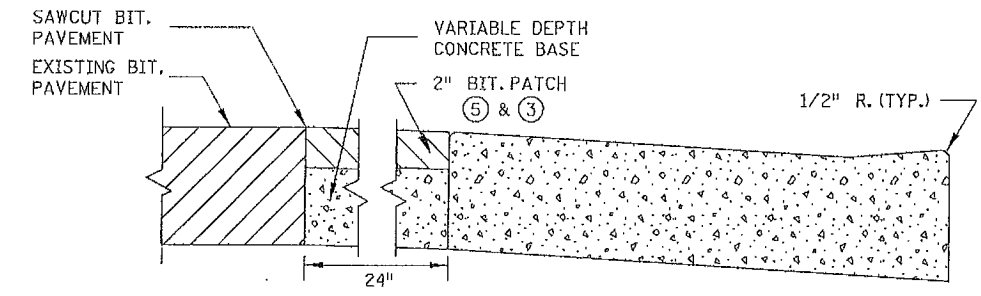
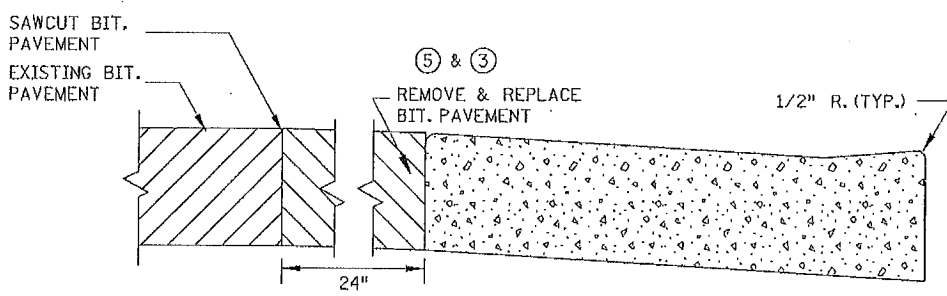
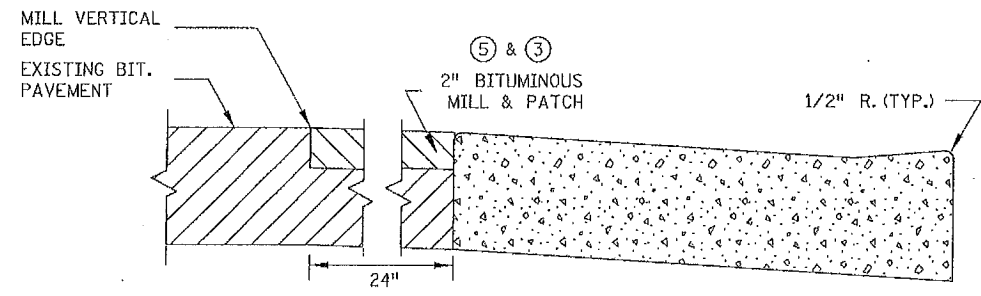


NON PERPENDICULAR ①

PERPENDICULAR ②

INSET A

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



- NOTES:**
- ADEQUATE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% ABSOLUTE MAXIMUM.
  - NO PONDING SHALL BE PRESENT IN THE PAR.
  - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE MAY NOT BE GREATER THAN 1/4 INCH.
  - ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.
  - ② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.
  - ③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4\".
  - ④ DRILL AND GROUT NO. 13 EPOXY-COATED 18\" LONG BARS AT 2' CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.
  - ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
  - ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

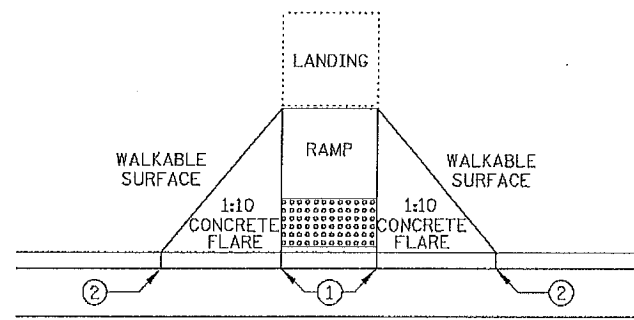
PAVEMENT TREATMENT OPTIONS  
IN FRONT OF CURB & GUTTER  
FOR USE ON CURB RAMP RETROFITS

STANDARD PLAN SHEET NO.  
5-297.250 (3 OF 5)  
STANDARD APPROVED:  
MAY 10, 2012

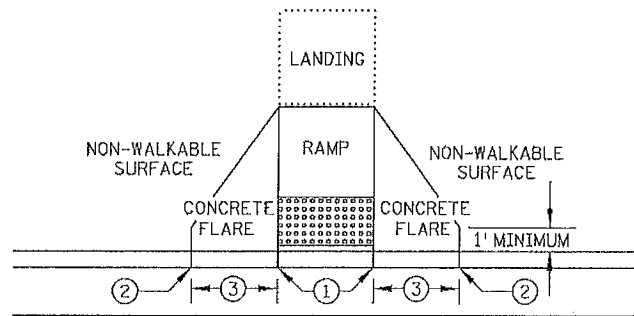
PEDESTRIAN CURB RAMP DETAILS

S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C6 OF C44 SHEETS

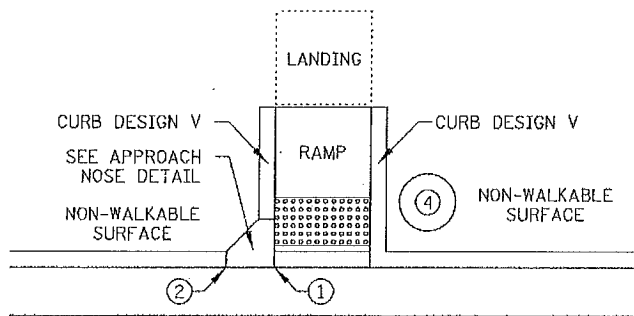
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PAVED FLARES  
ADJACENT TO WALKABLE SURFACE

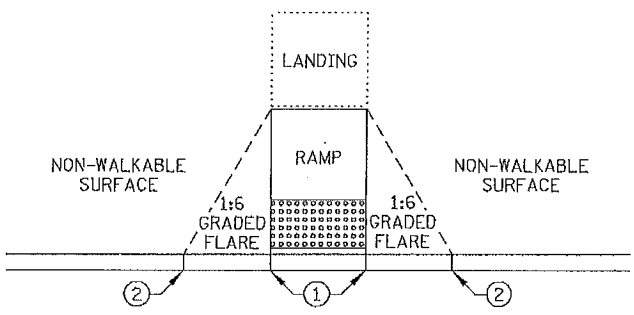


PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE



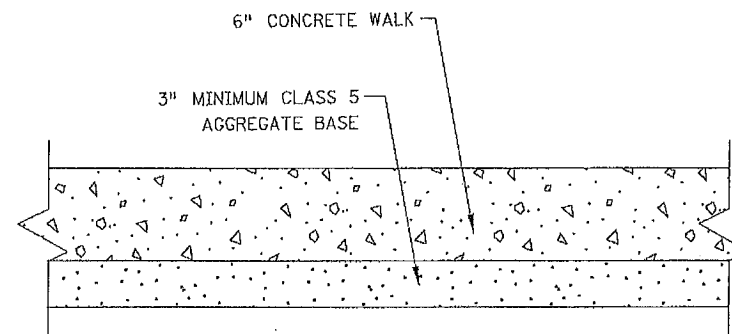
DIRECTION OF TRAFFIC

RETURNED CURB

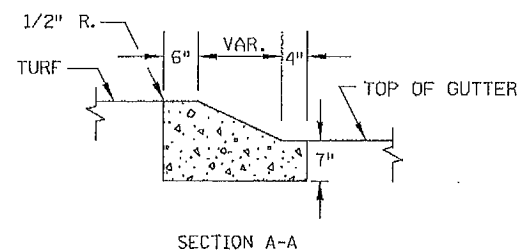
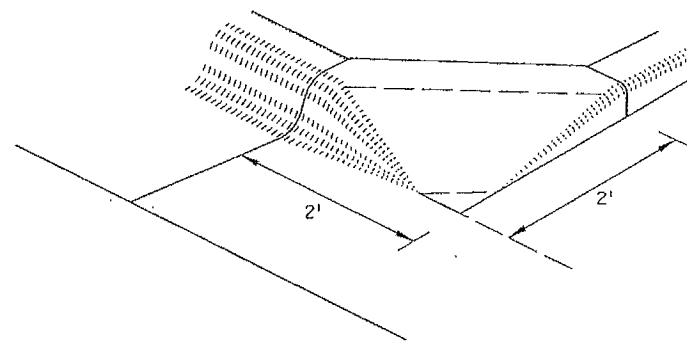


GRADED FLARES

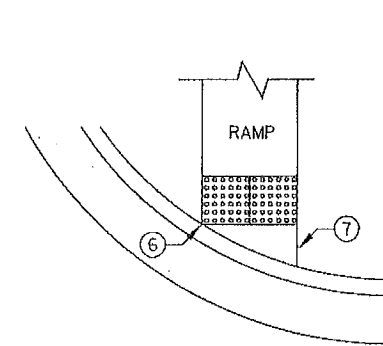
TYPICAL SIDE TREATMENT OPTIONS ⑤



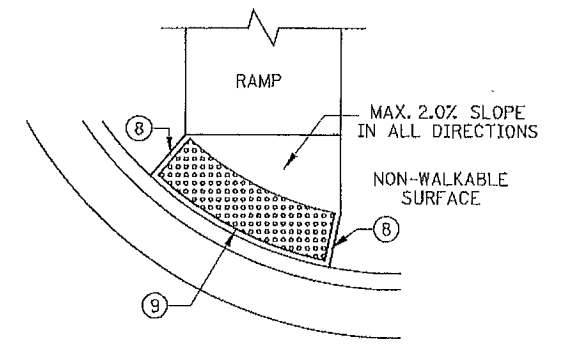
TYPICAL SIDEWALK SECTION  
WITHIN INTERSECTION CORNER



APPROACH NOSE DETAIL  
FOR DOWNSTREAM SIDE OF TRAFFIC



DETECTABLE WARNING  
SETBACK CRITERIA



RADIAL DETECTABLE  
WARNING AT RADIUS

DETECTABLE WARNING PLACEMENT

NOTES:

SEE STANDARD PLATE 7036 AND THIS SHEET FOR DETAILS ON DETECTABLE WARNING.  
USE 6" CONCRETE WALK UP TO EXISTING SIDEWALK GRADES FOR ALL RAMP AND LANDING AREAS.  
WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.  
FLARE LENGTHS SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

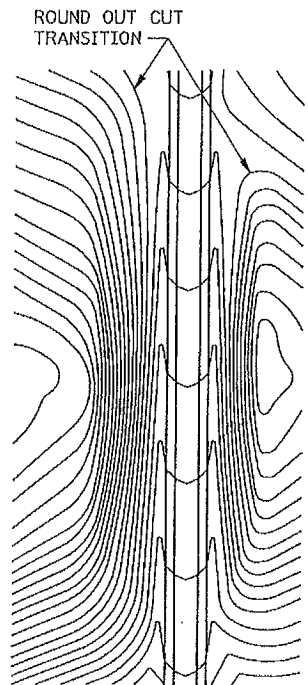
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 2' - 3' CONCRETE FLARE.
- ④ IMMOVABLE OBJECT OR OBSTRUCTION.
- ⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ⑥ DETECTABLE WARNING SHALL HAVE ONE CORNER 3" FROM THE BACK OF CURB.
- ⑦ SHALL BE 2' MAXIMUM OFFSET WHEN ADJACENT TO WALKABLE SURFACE AND 5' MAXIMUM OFFSET WHEN ADJACENT TO NON-WALKABLE SURFACE.
- ⑧ WHEN NO FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑨ DETECTABLE WARNING TO BE PLACED AT A UNIFORM OFFSET DISTANCE FROM 3" TO 6" FROM THE BACK OF CURB. IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNING SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE CONCRETE BORDER.

STANDARD PLAN SHEET NO.  
5-297,250 (4 OF 5)  
STANDARD APPROVED:  
MAY 10, 2012

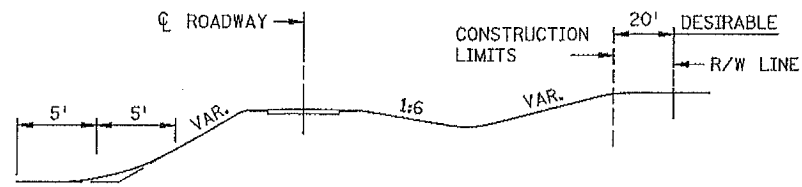
PEDESTRIAN CURB RAMP DETAILS

S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C7 OF C44 SHEETS

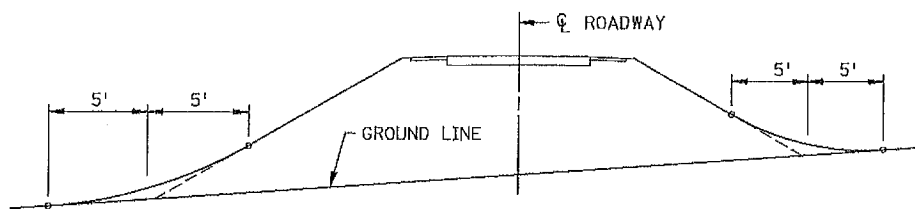




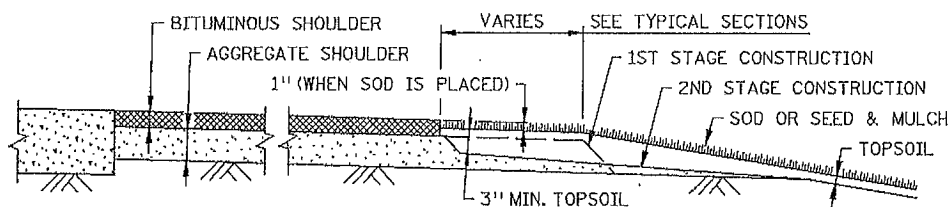
CONTOURING ROAD CUTS



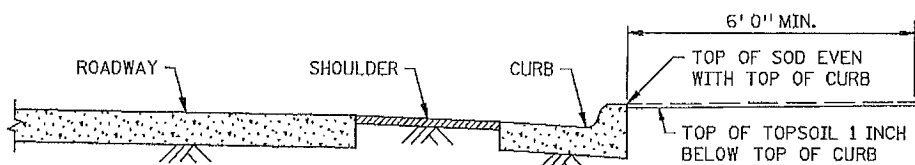
ROUNDING SHOULDERS AND BACKSLOPES



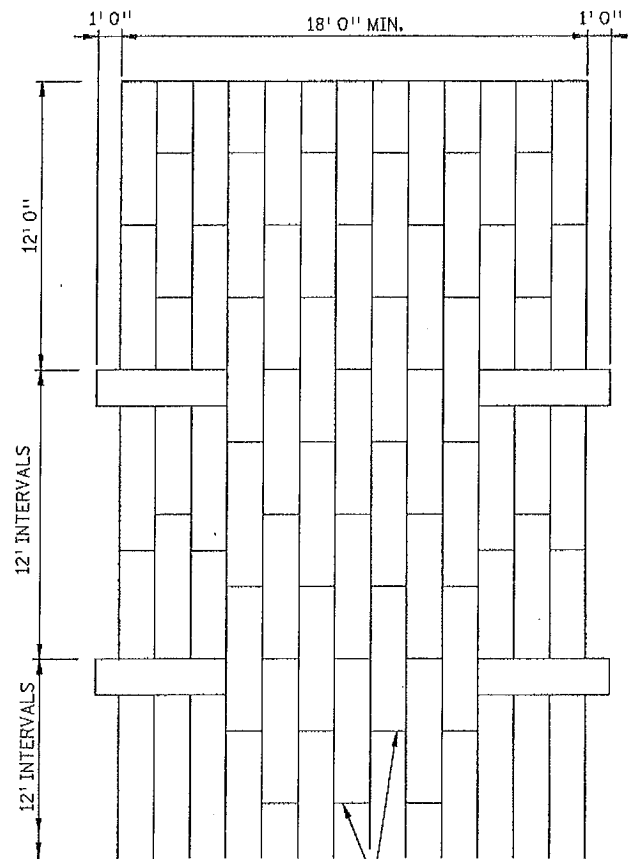
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



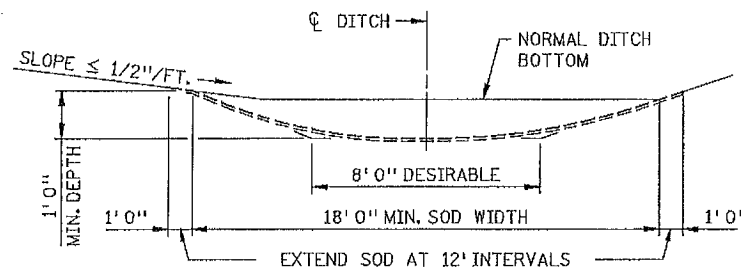
SHAPING AND TOPSOILING INSLOPES



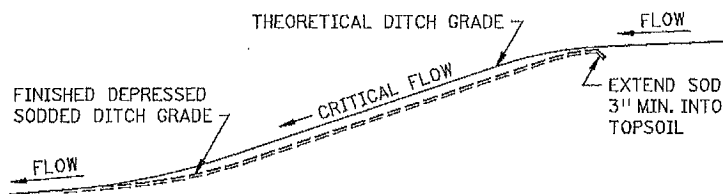
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



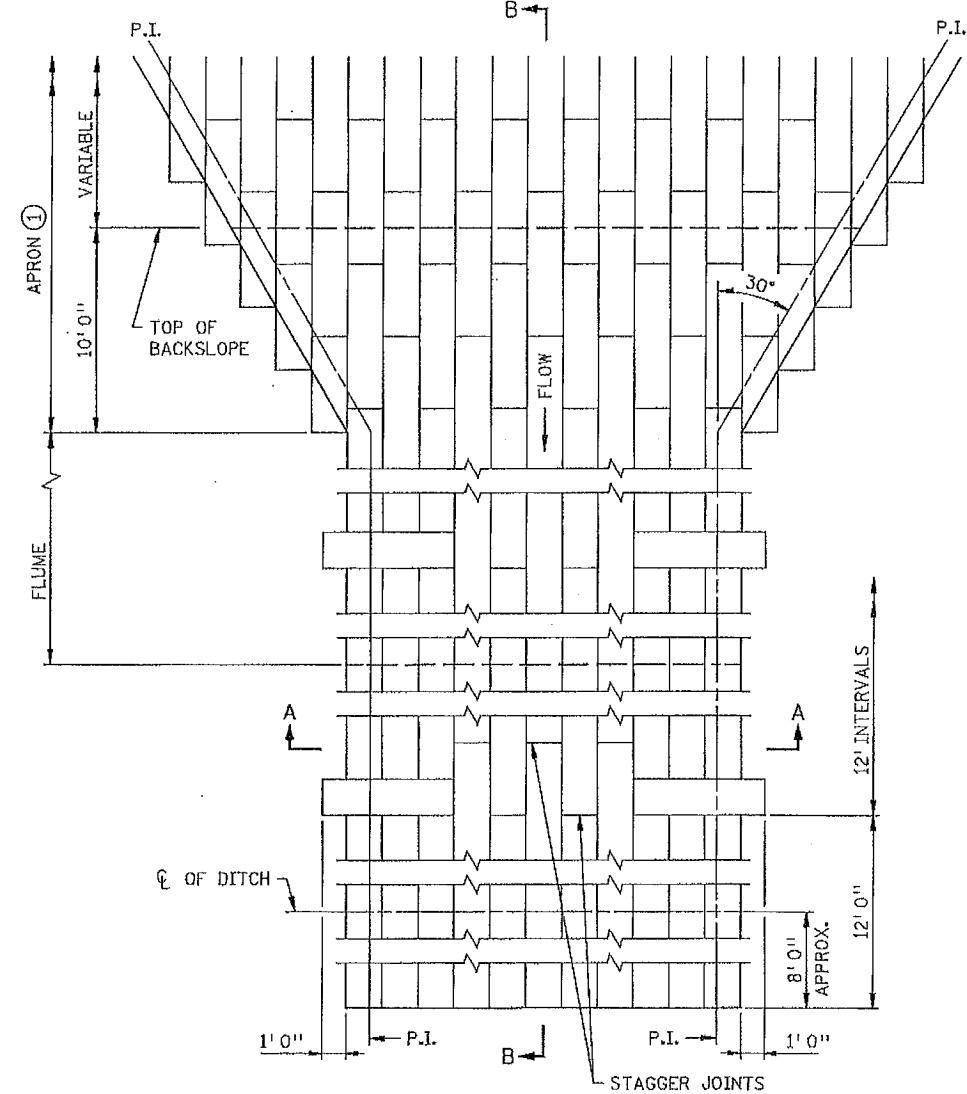
PLAN VIEW



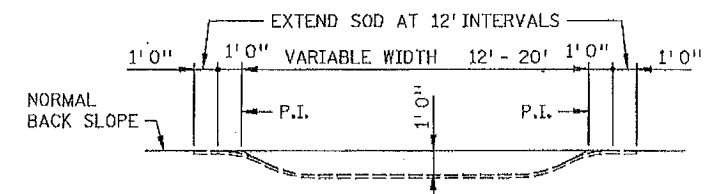
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.),  
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



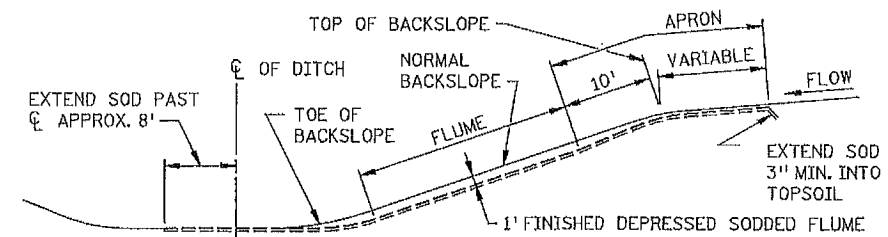
DITCH PROFILE  
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



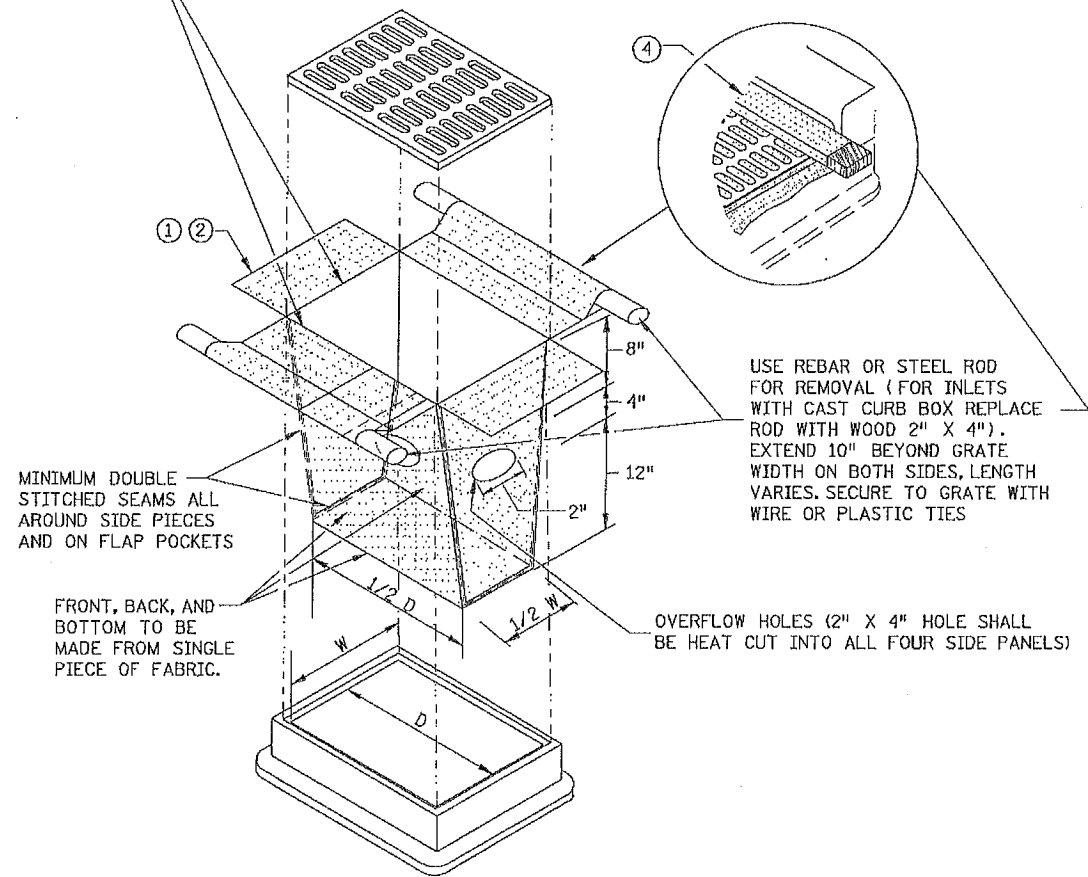
SECTION B-B  
SODDED FLUME DETAILS

NOTES:  
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: NOVEMBER 20, 2002	
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C8 OF C44 SHEETS	

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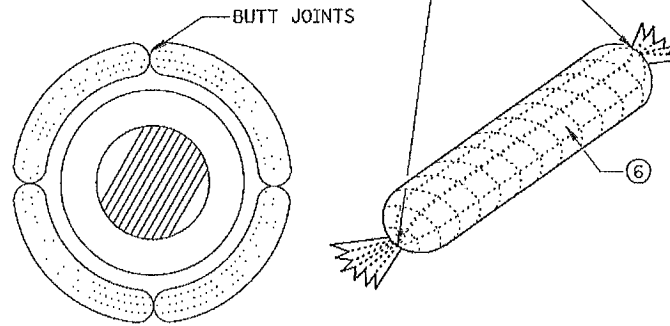
INLET SPECIFICATIONS AS PER THE PLAN  
DIMENSION LENGTH AND WIDTH TO MATCH  
FLAP POCKET



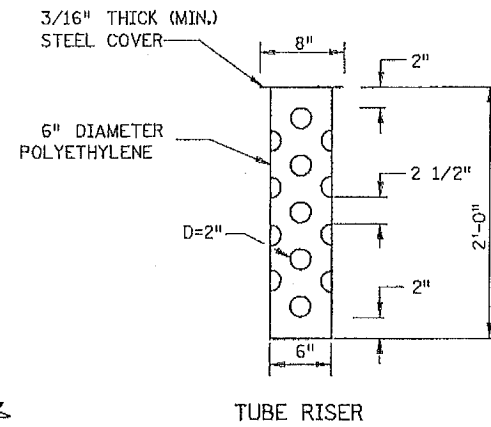
**FILTER BAG INSERT ③**

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

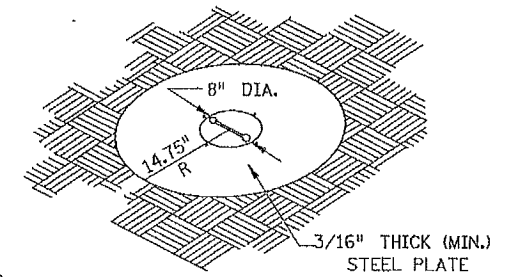
ENDS SECURELY CLOSED TO PREVENT LOSS OF OPEN GRADED AGGREGATE FILL. SECURED WITH 50 PSI ZIP TIE.



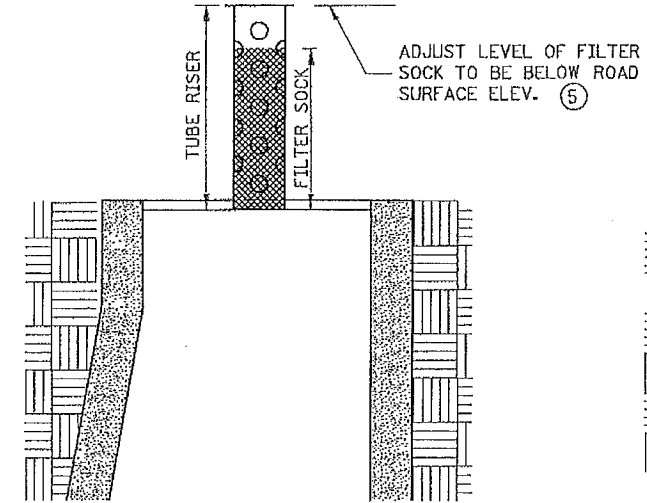
**ROCK LOG/COMPOST LOG**



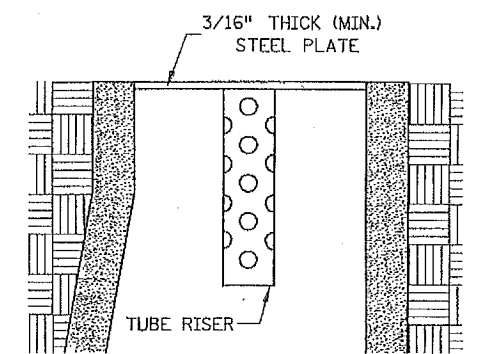
**TUBE RISER**



**PERSPECTIVE VIEW**

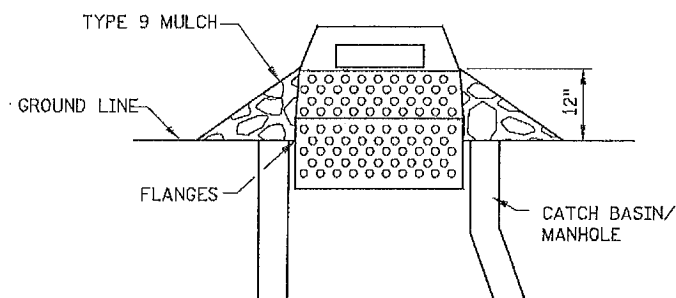


**SECTION (UP POSITION)**

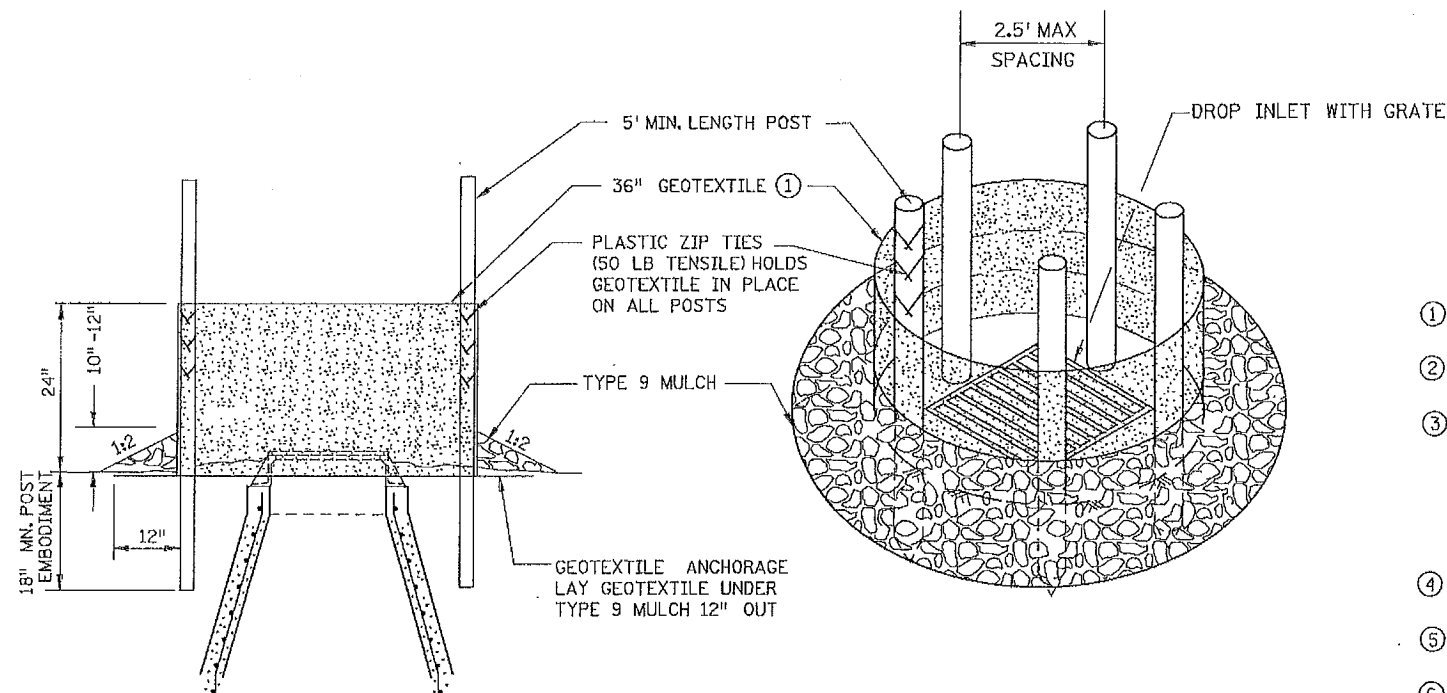


**SECTION (DOWN POSITION)**

**POP-UP HEAD**



**SEDIMENT CONTROL INLET HAT**



**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.

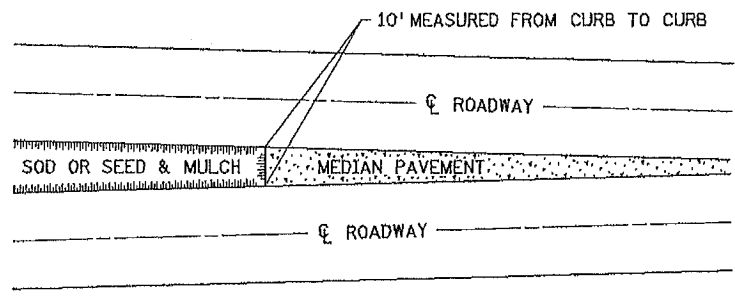
- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:  
DO NOT INSTALL FILTER 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 CLINGH 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.

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.

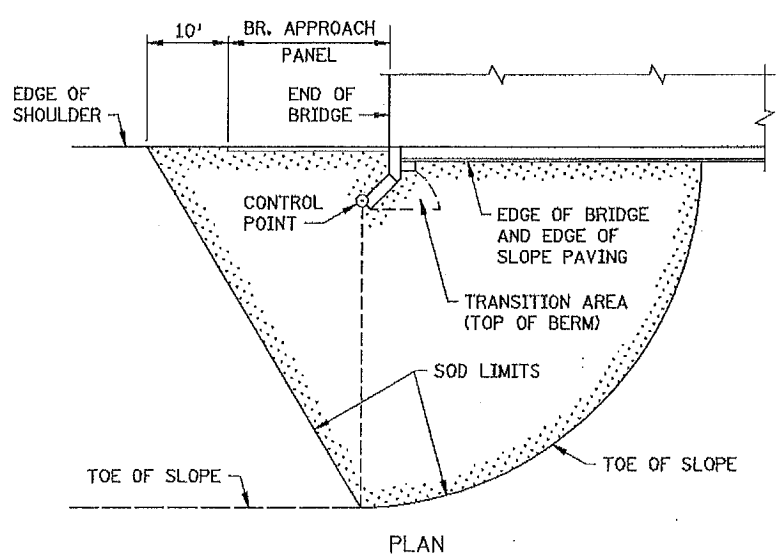
STANDARD SHEET NO.  
297.405 (4 OF 4)  
STANDARD APPROVED:  
MARCH 29, 2012

TITLE:  
**TEMPORARY SEDIMENT CONTROL  
STORM DRAIN INLET PROTECTION**

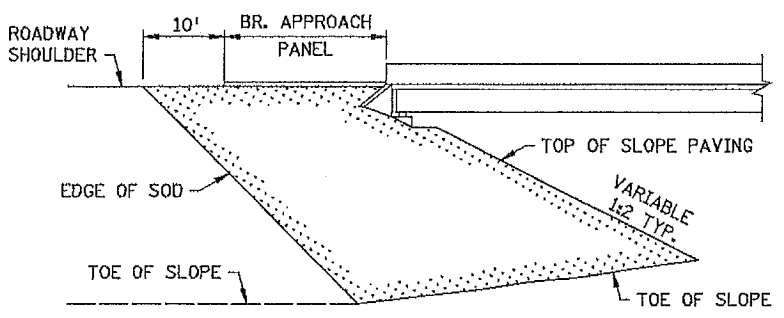
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C9 OF C44 SHEETS



SODDING LIMITS AT GORE AREA

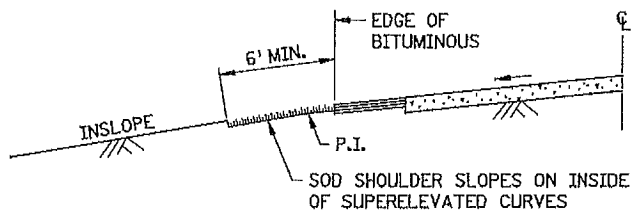


PLAN

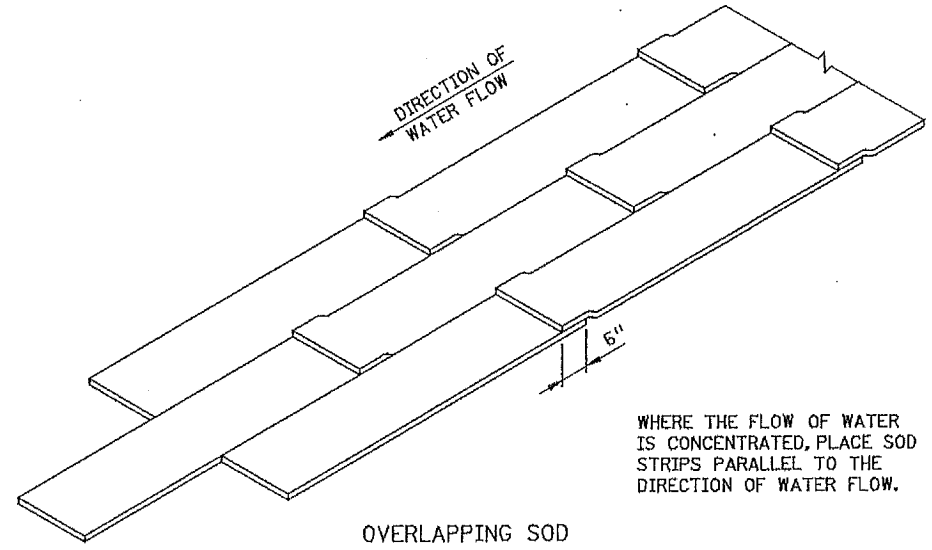


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

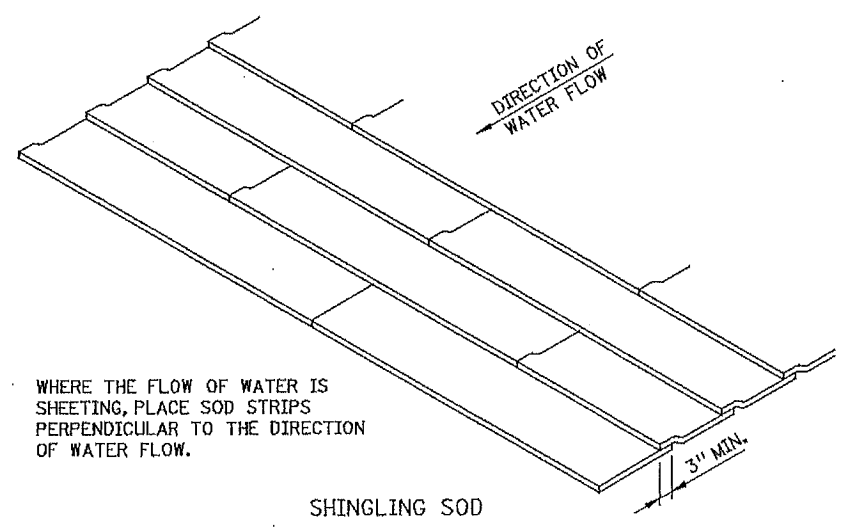


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

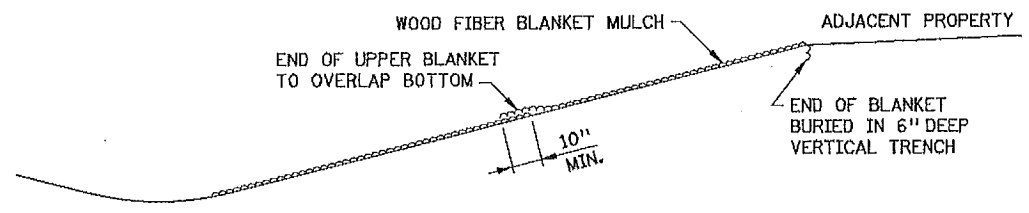
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



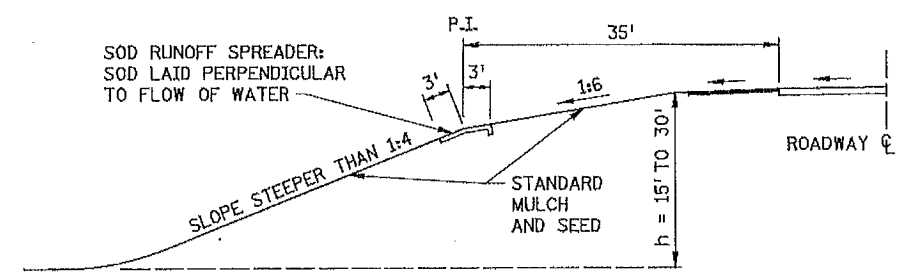
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

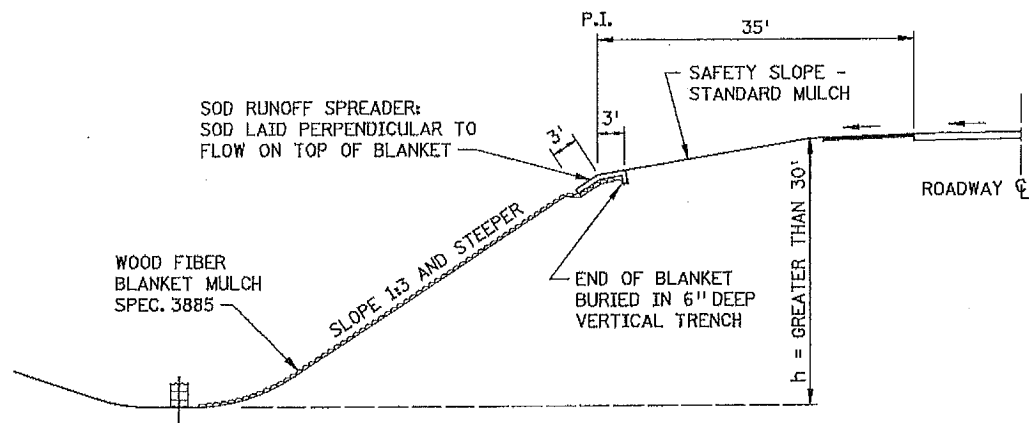
SPECIAL SOD PLACEMENT TECHNIQUES



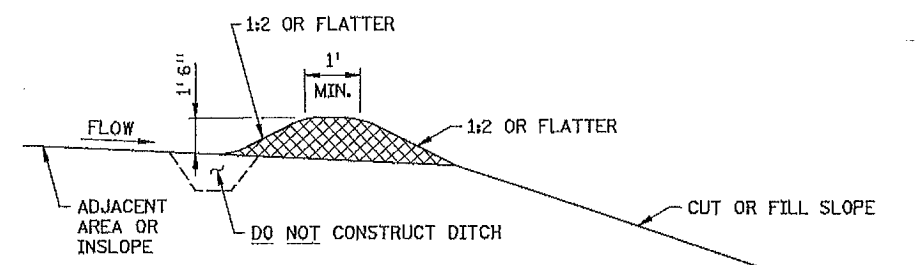
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)

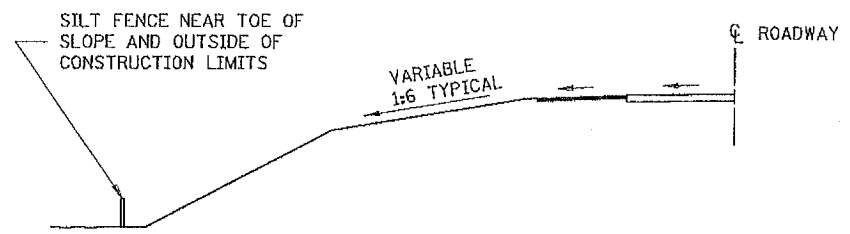


PERMANENT SLOPE PROTECTION DIKE

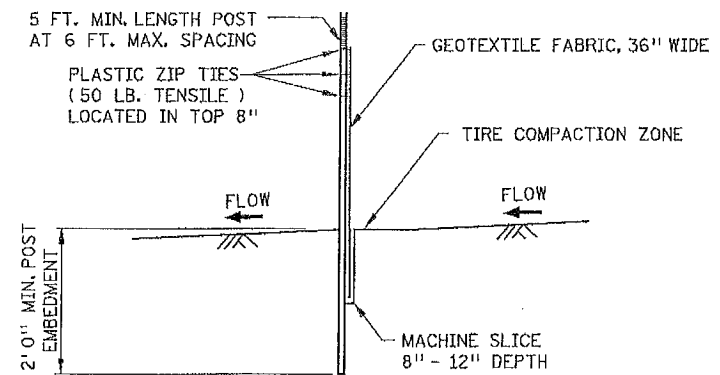
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STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD APPROVED: JANUARY 31, 1985	
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. 10 OF C44 SHEETS	

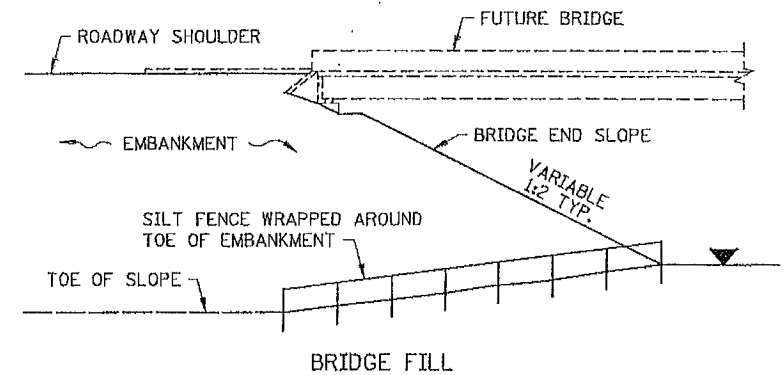
REVISION DATE  
10-26-2000



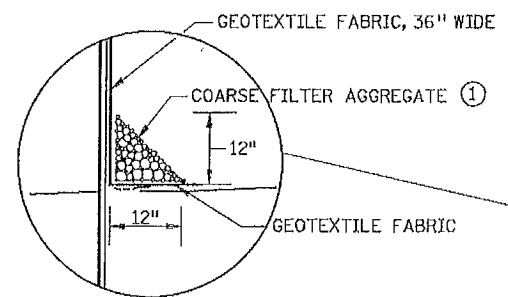
LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT



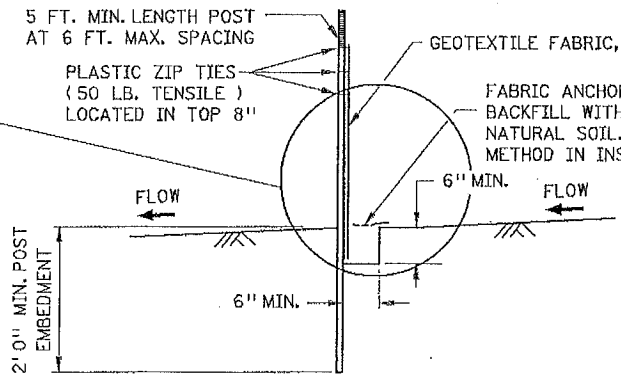
SILT FENCE, MACHINE SLICED  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



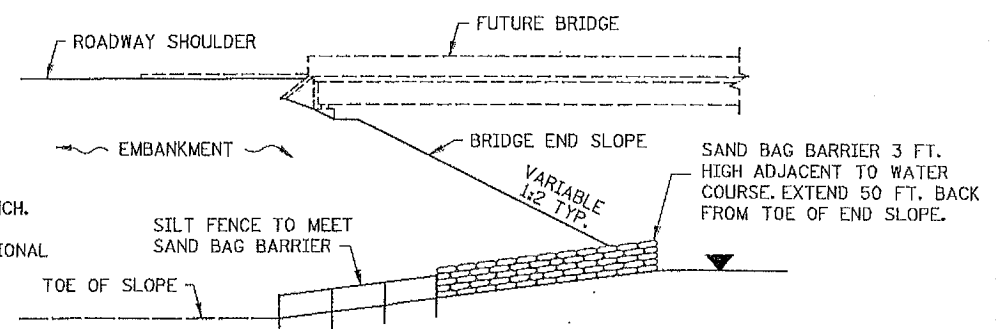
DESIGN GUIDELINES:  
WATER COURSE FLOW VELOCITY: STAGNANT  
CONTRIBUTING SLOPE AREA: 1/2 ACRE



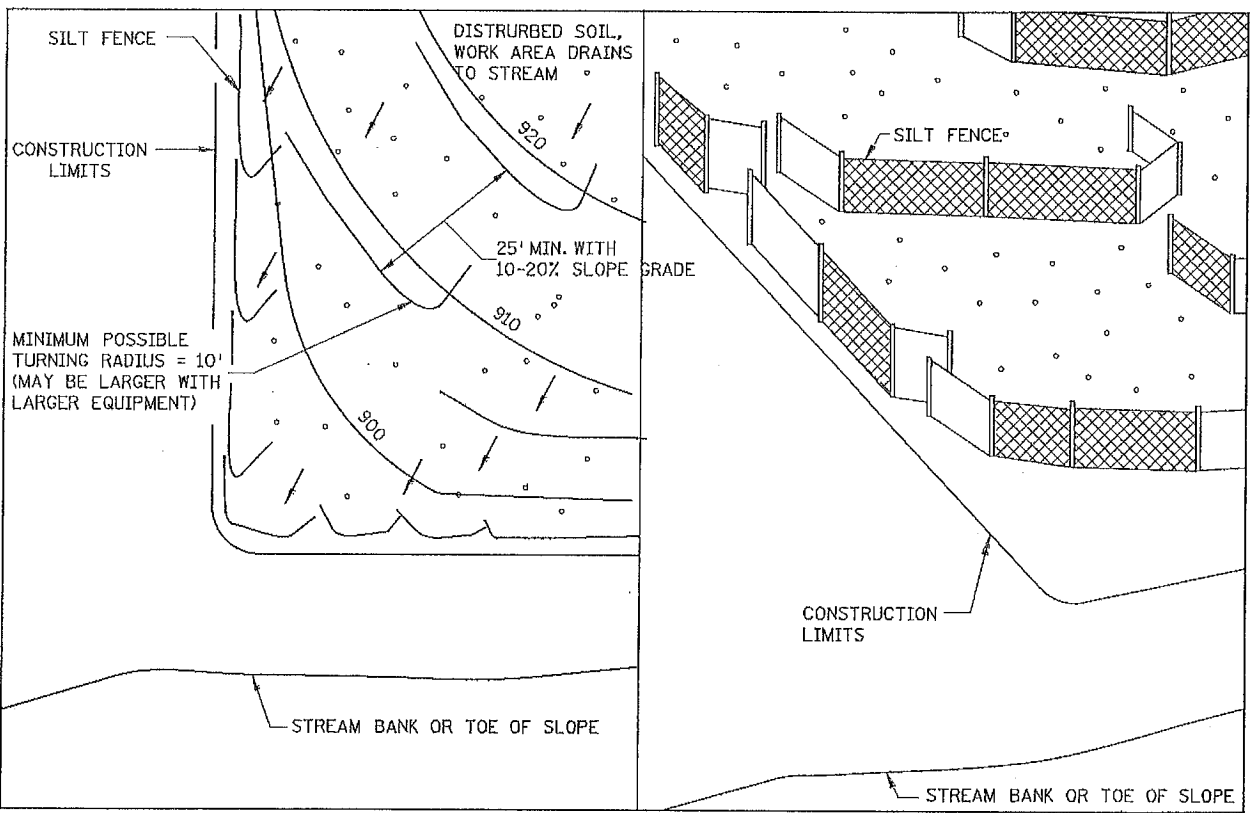
OPTIONAL METHOD FOR SILT FENCE, HEAVY DUTY



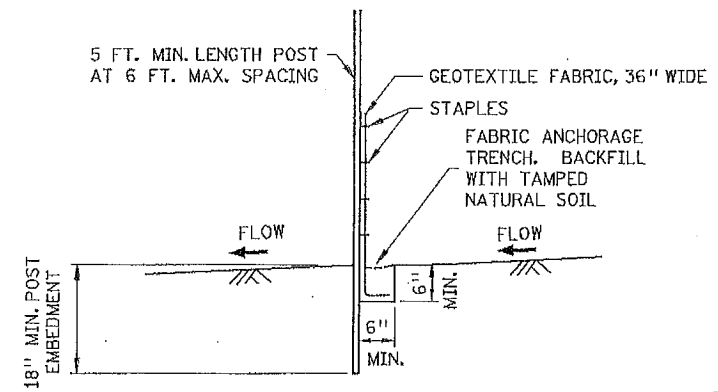
SILT FENCE, HEAVY DUTY (HAND INSTALLED)  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



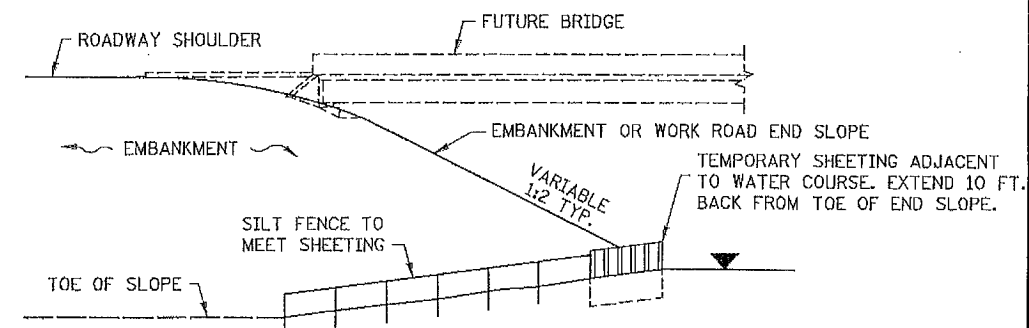
DESIGN GUIDELINES:  
WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.  
CONTRIBUTING SLOPE AREA: 1 ACRE



SILT FENCE, J-HOOK INSTALLATION



SILT FENCE, PREASSEMBLED  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



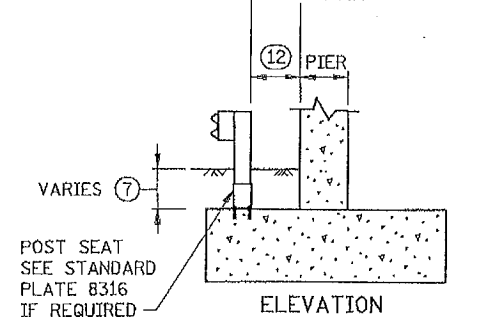
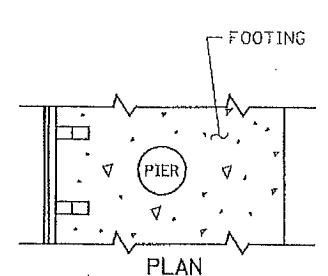
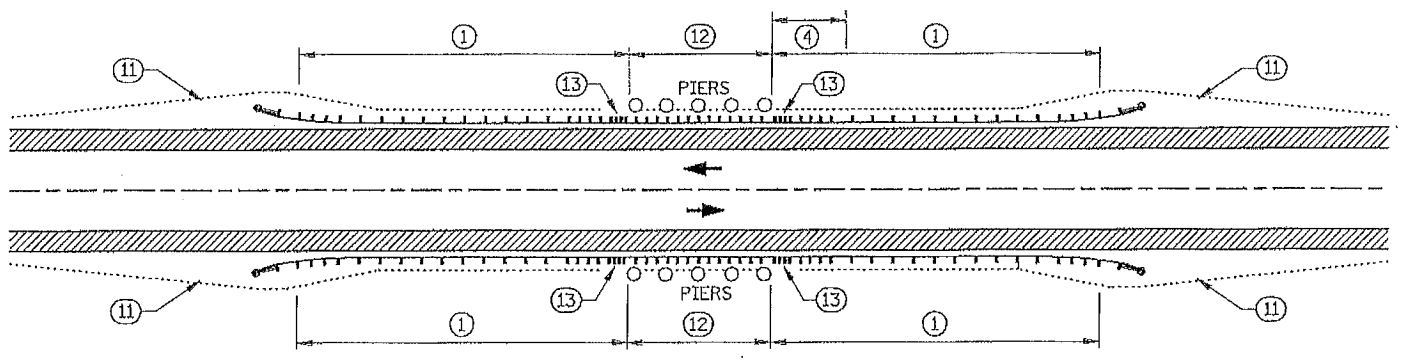
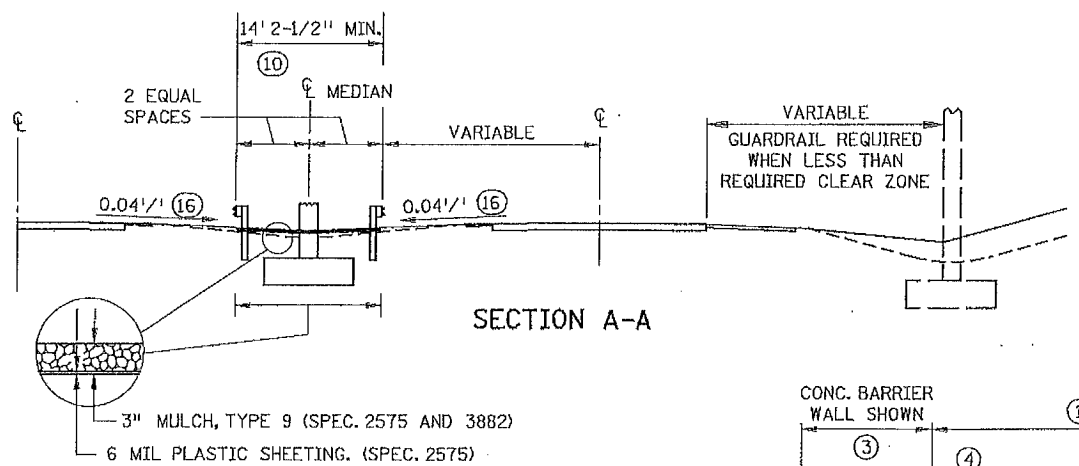
DESIGN GUIDELINES:  
WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.  
CONTRIBUTING SLOPE AREA: 3 ACRES

SILT FENCE AT BRIDGE EMBANKMENT ADJACENT TO WATER

NOTES:  
SEE SPECS. 2573, 3149 & 3886.  
① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

STANDARD SHEET NO. 5-297.408 (1 OF 2)	TITLE: TEMPORARY SEDIMENT CONTROL SILT FENCE
STANDARD APPROVED: SEPTEMBER 27, 2006	
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO.C11 OF C44 SHEETS	

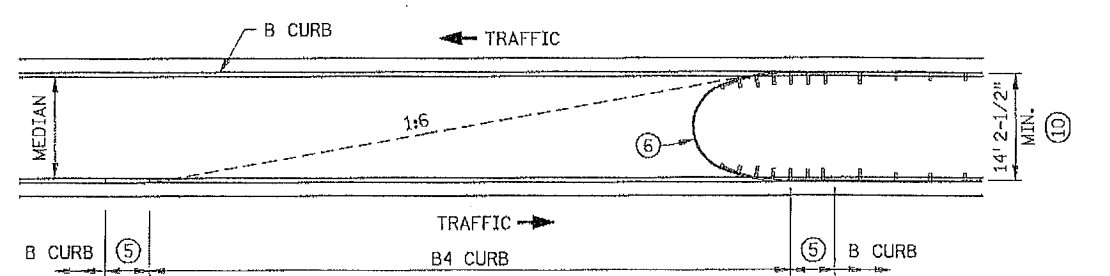
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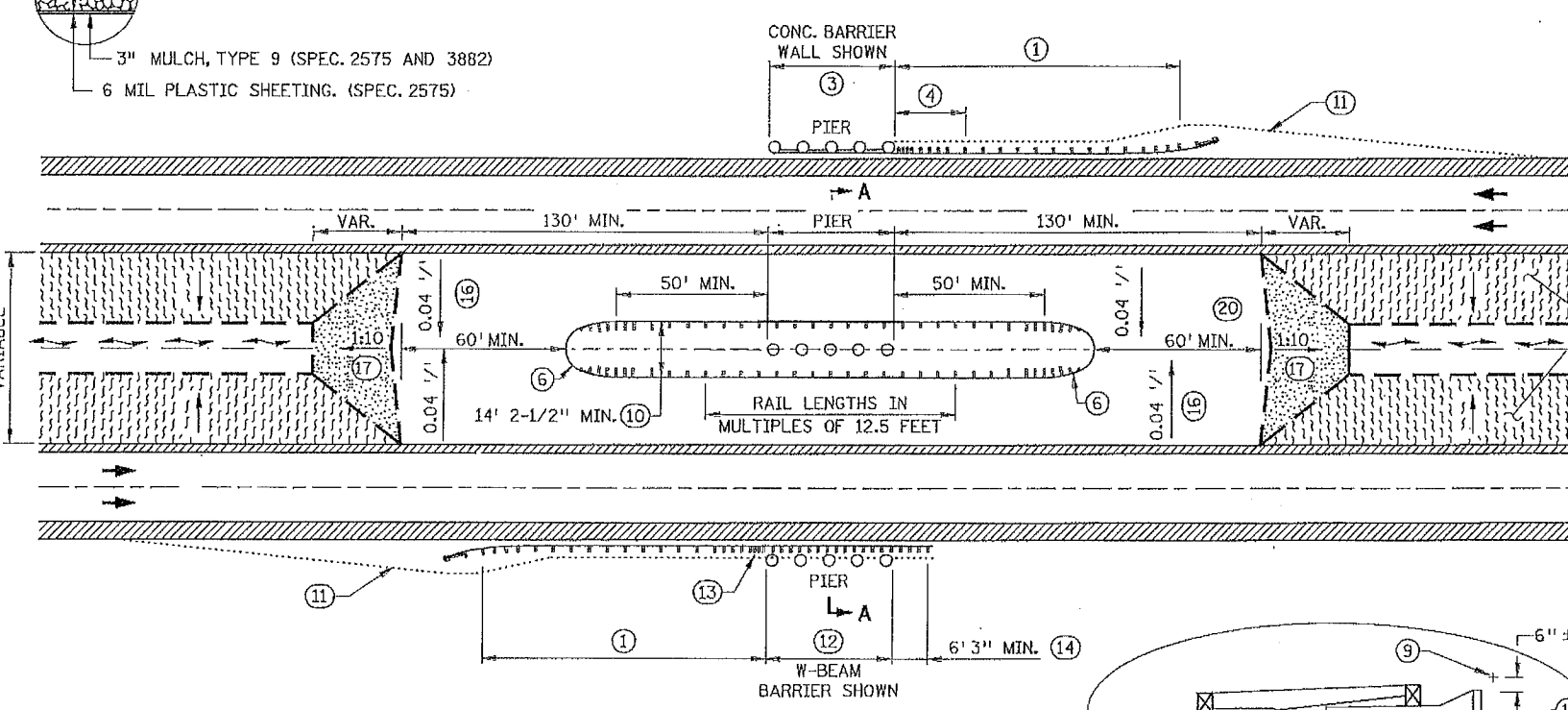
ESTIMATED DESIGN DEFLECTION TABLE FOR DESIGN B W-BEAM GUARDRAIL

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"

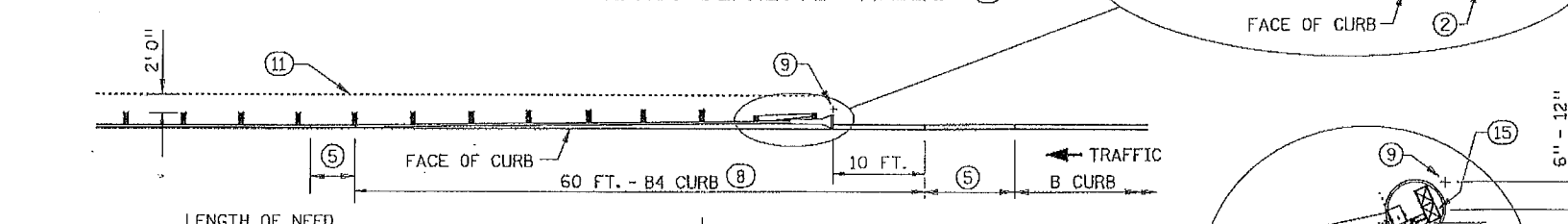
POST REQUIREMENTS AT PIERS



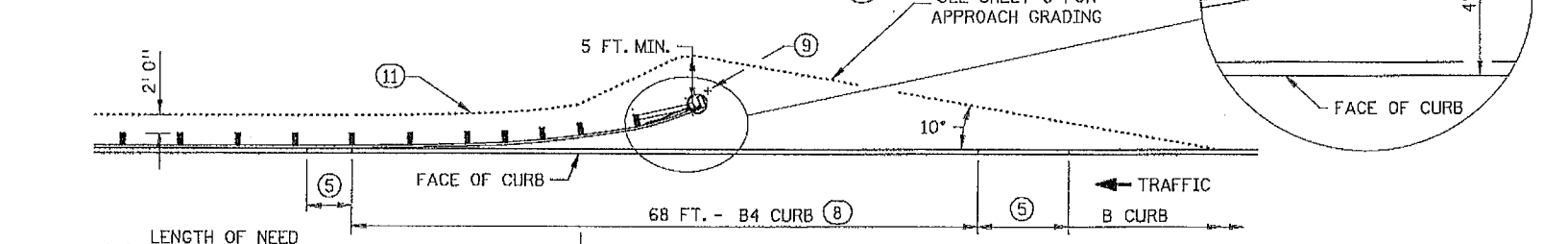
MODIFIED CURB AT RAISED MEDIAN



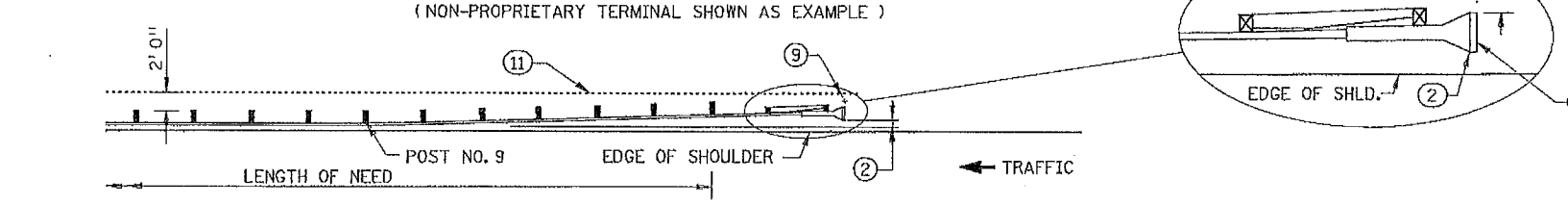
UNDERPASS-DEPRESSED MEDIAN



PLAN VIEW MODIFIED CURB



PLAN VIEW MODIFIED CURB AND SLOPE



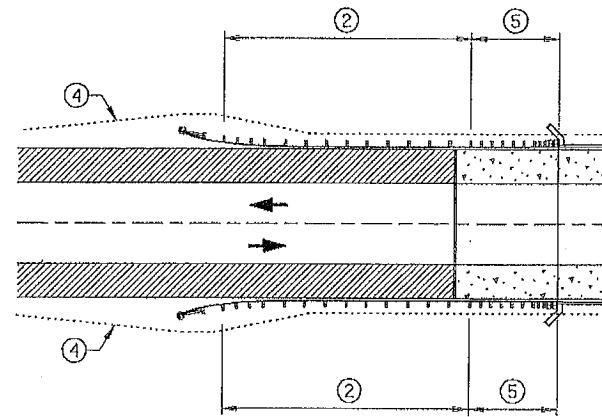
PLAN VIEW NO CURB

NOTES:

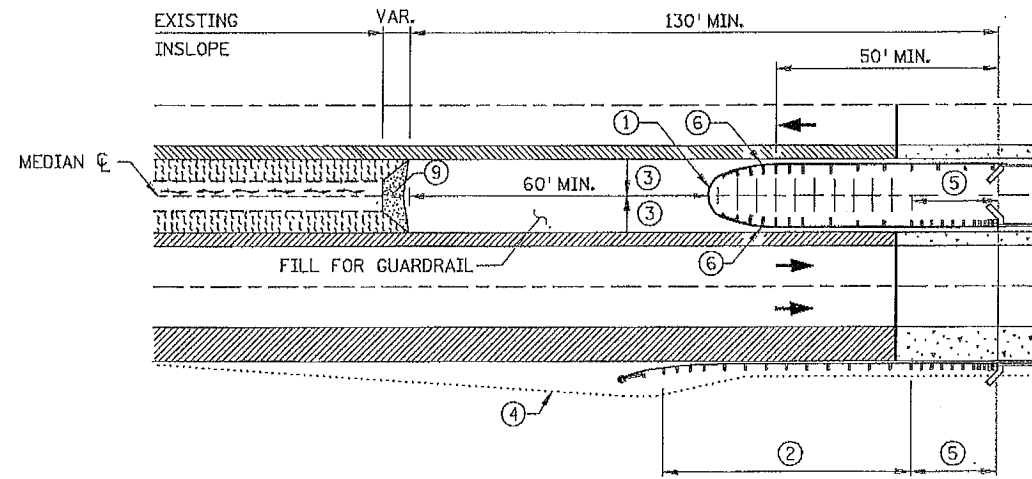
- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.
- 1 FOR REQUIRED LENGTH OF INSTALLATION SEE ROAD DESIGN MANUAL CHAPTER 10.
- 2 THE LAST 50 FT. OF TANGENT TERMINALS MAY BE FLARED AT 1:50 TAPER.
- 3 CONC. BARRIER WALL BETWEEN PIER COLUMNS MAY BE USED. IF USED, SEE BARRIER WALL DETAILS.
- 4 AN APPROVED TRANSITION MUST BE USED.
- 5 10 FT. CURB TRANSITION, USE IF ADJACENT CURB IS GREATER THAN 4 INCHES.
- 6 THRIE BEAM BULLNOSE. SEE SHEET NO. C15 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 THRIE-BEAM BULLNOSE ONLY.
- 20 DRAINAGE DETAILS SHOWN ON GRADING PLAN.

STANDARD SHEET NO. 5-297.601 (1 OF 3)	TITLE
STANDARD APPROVED: MARCH 23, 2011	GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS

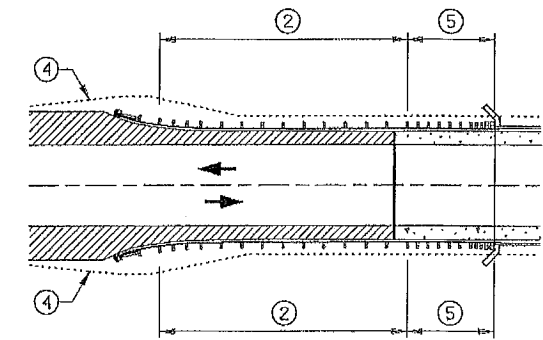
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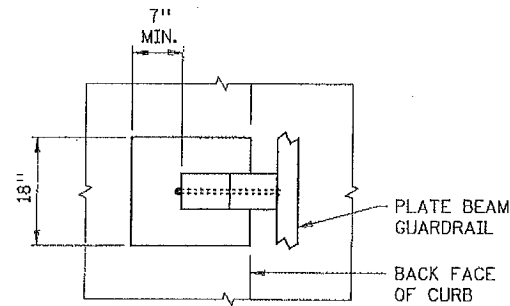
TWO - WAY BRIDGE  
WITH FULL SHOULDERS



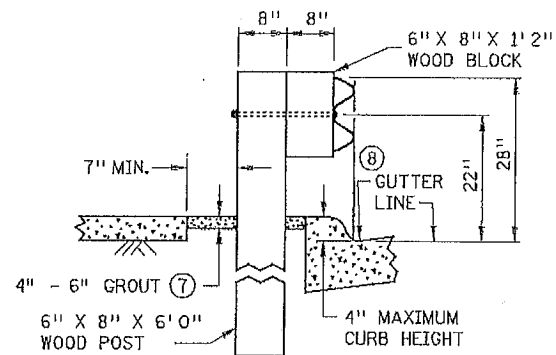
ONE - WAY BRIDGE  
WITH FULL RIGHT SHOULDER  
(FOR 14' 2-1/2" THRIE BEAM BULLNOSE)



TWO - WAY BRIDGE  
WITHOUT FULL SHOULDERS

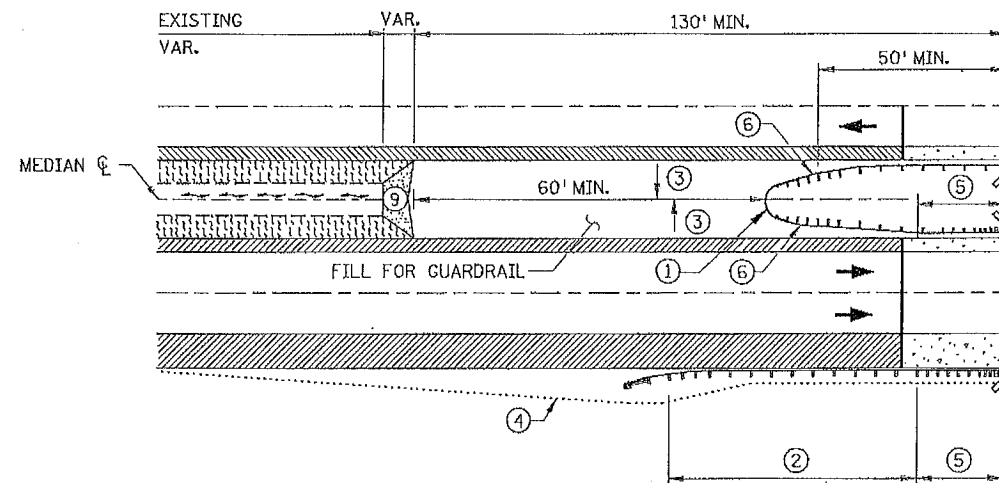


PLAN VIEW



ELEVATION

TYPICAL W-BEAM GUARDRAIL SECTION  
AT POST SET IN CONCRETE



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

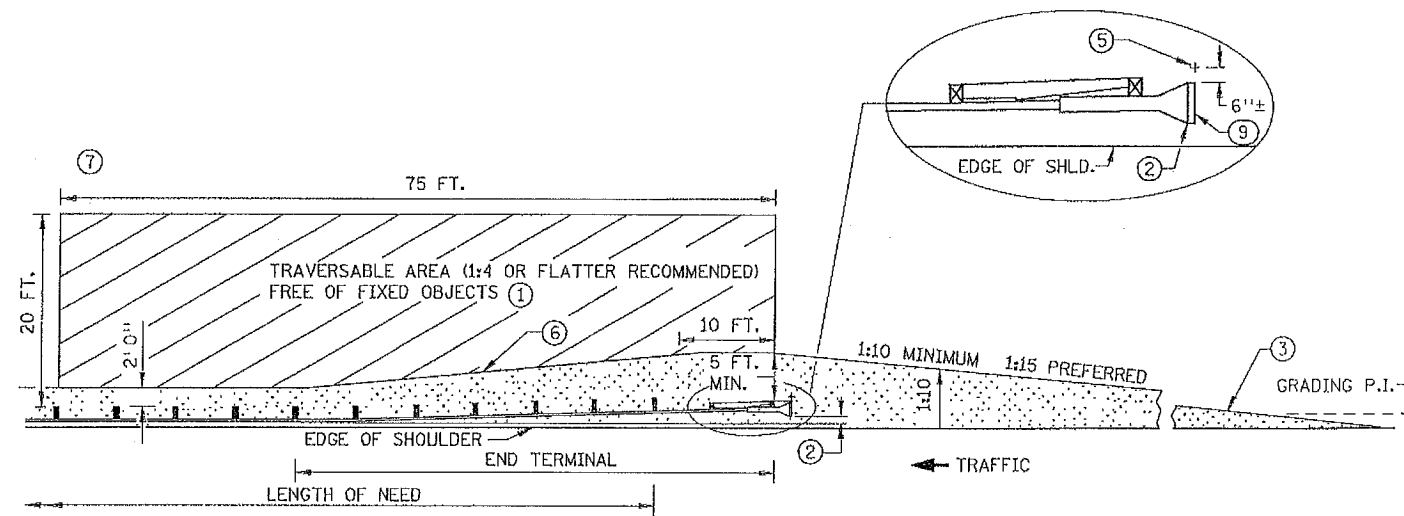
**NOTES:**

- 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. C15 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 GROUT MIX (BY VOLUME): 1 PART CEMENT (TYPE 1A), 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.

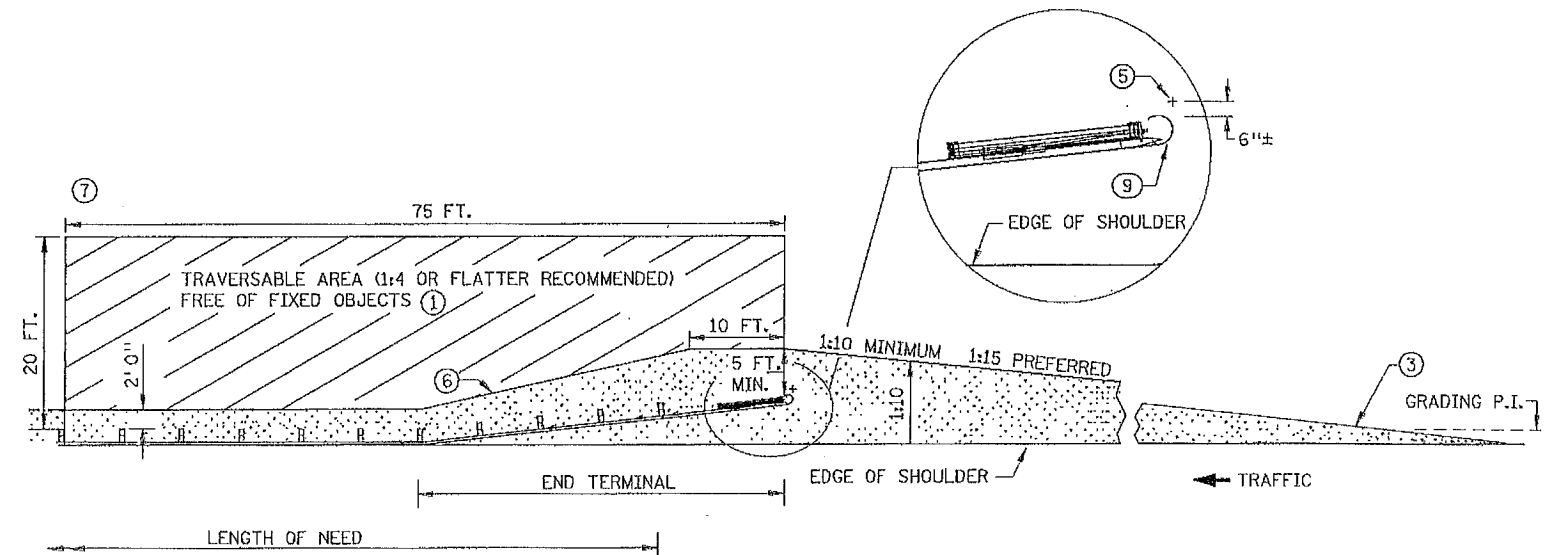
STANDARD SHEET NO.  
5-297.601 (2 OF 3 )  
STANDARD APPROVED:  
MARCH 23, 2011

TITLE:  
GUARDRAIL INSTALLATIONS AT MEDIANS  
AND END TREATMENTS

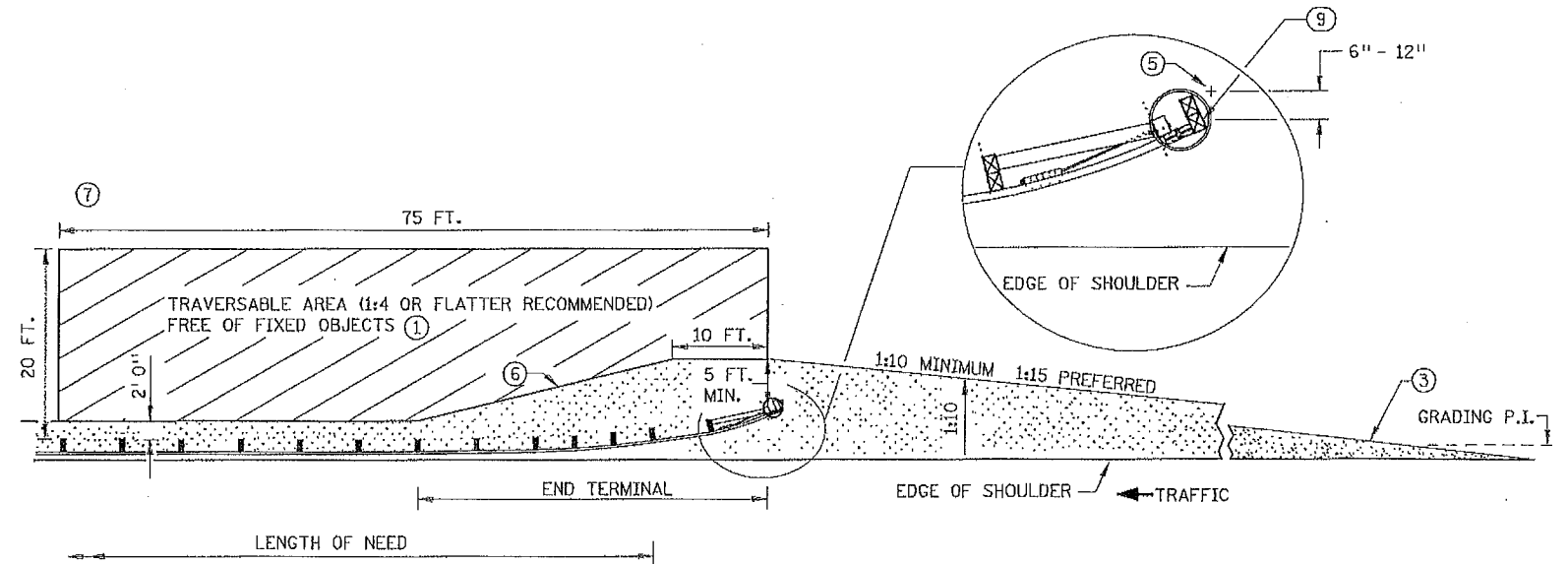
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C13 OF C44 SHEETS



PLAN VIEW  
(PROPRIETARY TANGENT TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ⑥  
(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.

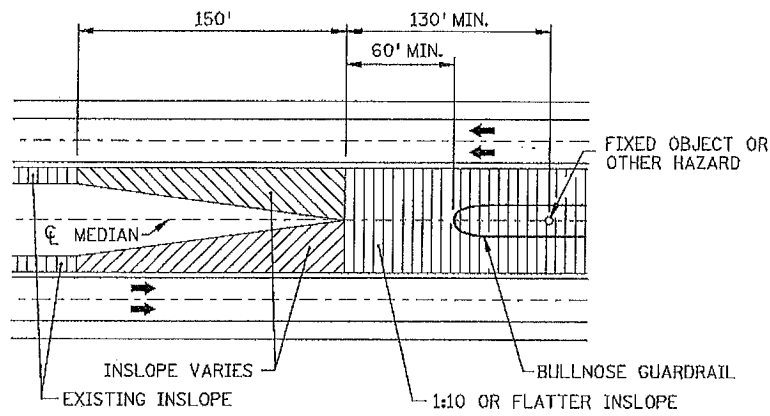
- ④ SEE STANDARD PLATE 8329.
- ⑤ SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND. EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE. MARK BOTH THE BEGINNING AND END OF PLATE BEAM GUARDRAIL INSTALLATION.
- 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.

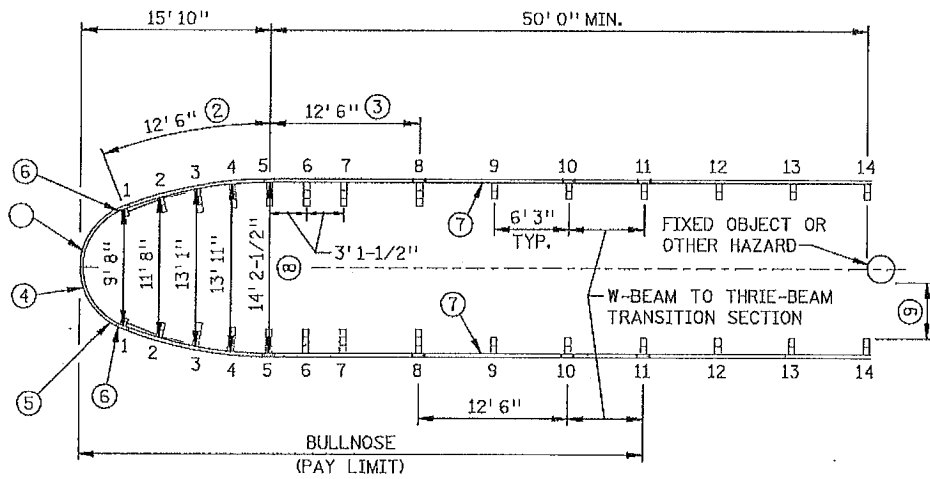
STANDARD SHEET NO. 5-297.601 (3 OF 3)	TITLE GUARDRAIL INSTALLATIONS AT MEDIANS & END TREATMENTS (FOR NEW CONSTRUCTION AND RETROFITS WITHOUT SITE RESTRICTIONS)
STANDARD APPROVED: MARCH 23, 2011	
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C14 OF C44 SHEETS	

12/18/11 PM  
12/18/11  
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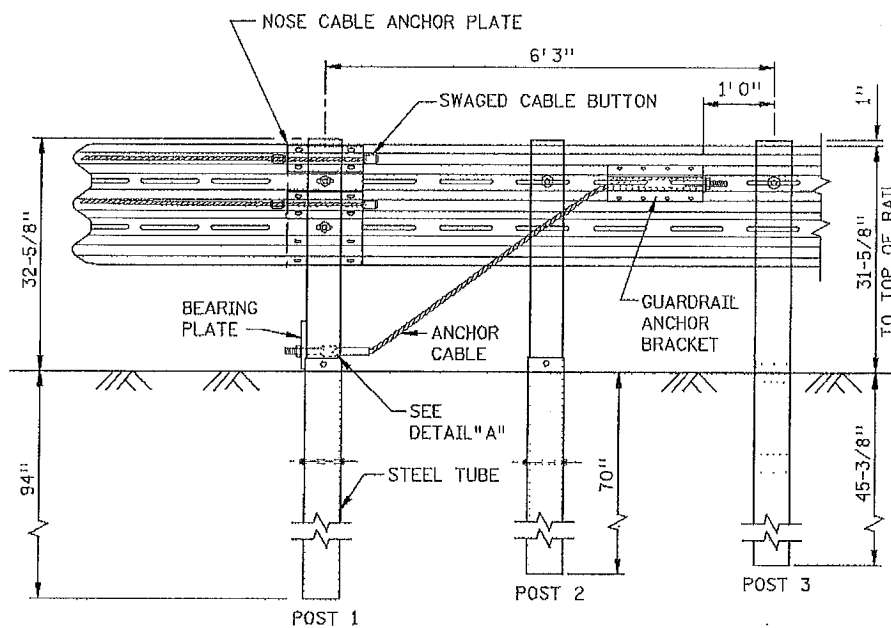




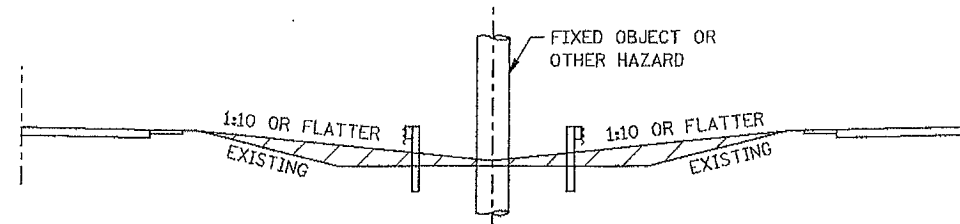
GRADING AT BULLNOSE  
(DEPRESSED MEDIAN)



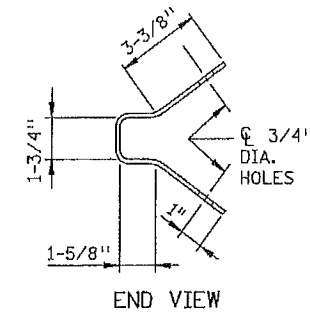
PLAN VIEW  
DETAILS OF BULLNOSE



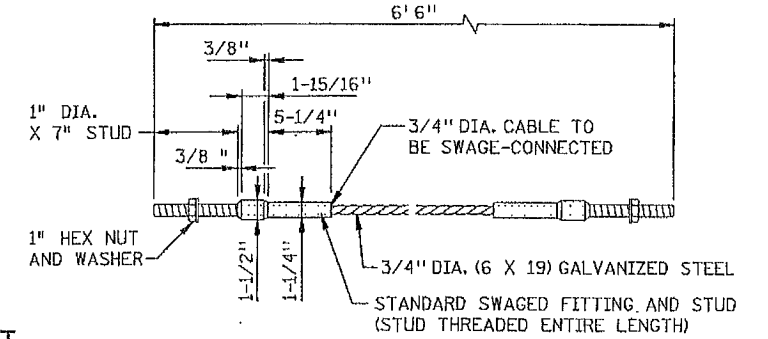
ELEVATION  
BULL NOSE ASSEMBLY



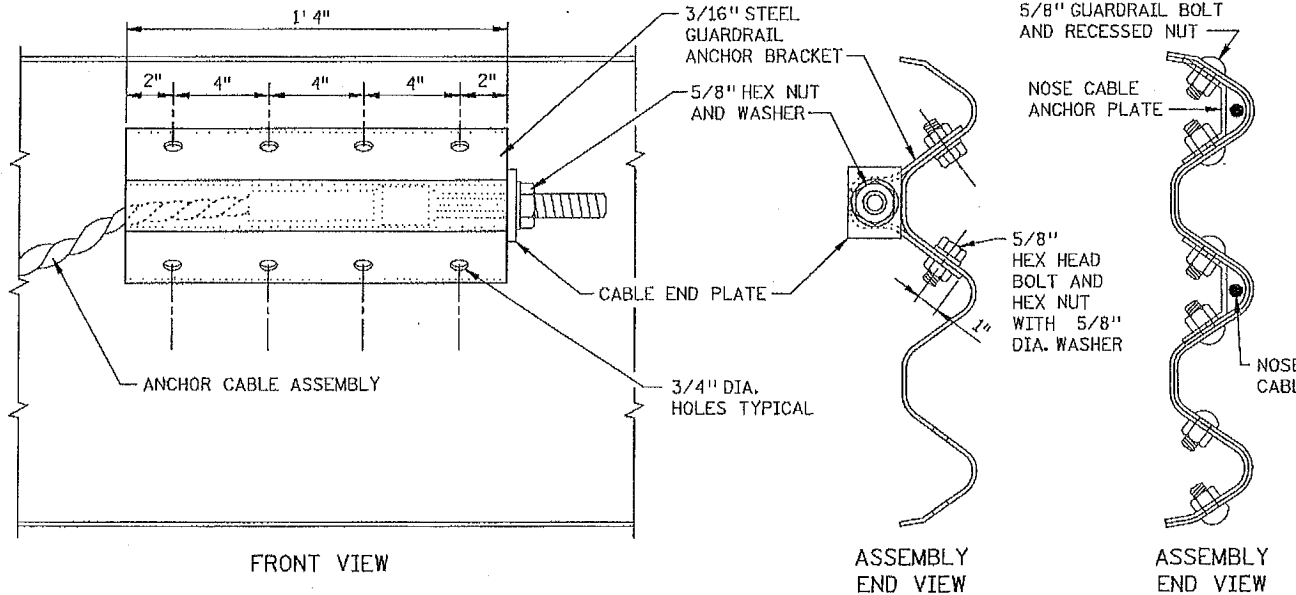
MEDIAN GRADING SECTION  
(AT FIXED OBJECT)



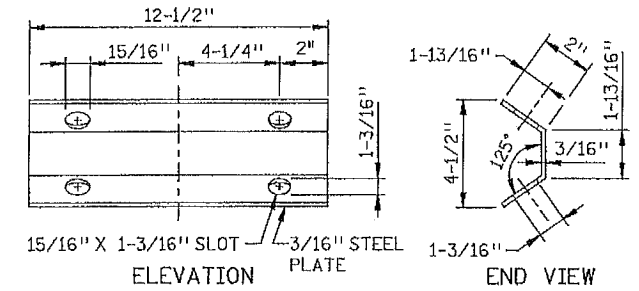
END VIEW  
GUARDRAIL ANCHOR BRACKET



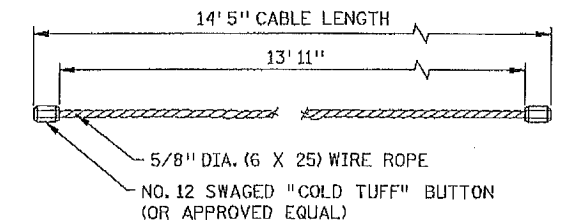
ANCHOR CABLE ASSEMBLY DETAILS



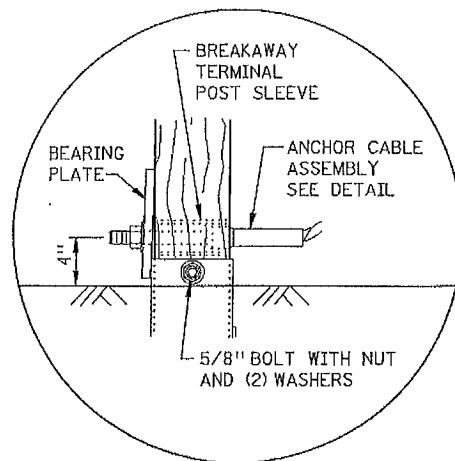
GUARDRAIL ANCHOR BRACKET DETAILS



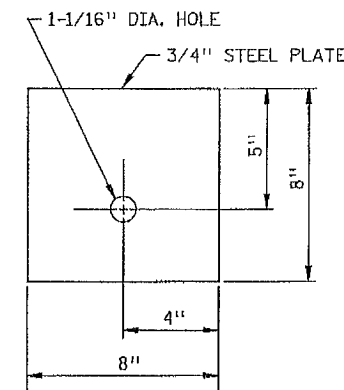
NOSE CABLE ANCHOR PLATE



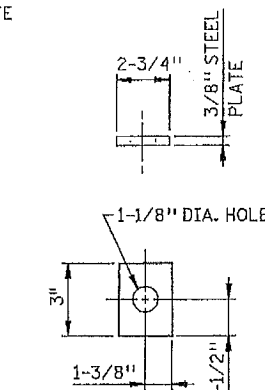
NOSE CABLE



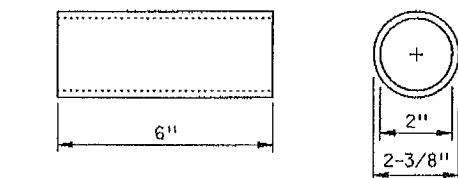
DETAIL "A"



BEARING PLATE



CABLE END PLATE



BREAKAWAY TERMINAL POST SLEEVE

NOTES:

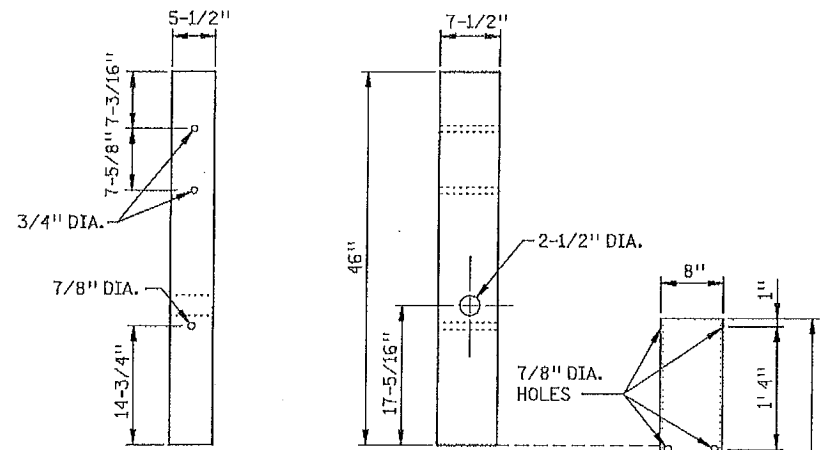
- OTHER ANCHOR CABLE ASSEMBLIES HAVING 40,000 LBS. MIN. BREAKING STRENGTH MAY BE USED.
- ALTERNATE HARDWARE DESIGNS WILL BE CONSIDERED FOR APPROVAL PROVIDED THEIR CONNECTION DETAILS, FOR THE PURPOSE OF MAINTENANCE SUBSTITUTIONS, ARE COMPATIBLE WITH THE DETAILS OF THIS STANDARD AND THEIR OPERATING CHARACTERISTICS ARE SIMILAR TO THOSE OF THE HARDWARE SHOWN IN THIS STANDARD.
- BOLTS AND ALL NECESSARY HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.
- SEE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE" FOR ADDITIONAL HARDWARE INFORMATION. THE MN/DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SHALL GOVERN.
- ① SLOTTED RAIL NO.1, 12' 6", SHOP BEND TO R=5' 3"
- ② SLOTTED RAIL NO.2, 12' 6", SHOP BEND TO R=34' 2"
- ③ SLOTTED RAIL NO.3, 12' 6", TANGENT
- ④ U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.
- ⑤ NOSE CABLE W/SWAGED END BUTTONS
- ⑥ NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).
- ⑦ THRIE-BEAM GUARDRAIL, 12' 6".
- ⑧ MEASUREMENTS ARE FROM BACK OF RAIL TO BACK OF RAIL. FOR GUARDRAIL LAPPING DETAIL, SEE SHEET 2 OF 2.
- ⑨ MINIMUM DESIGN DEFLECTION FOR BARRIER USED.

STANDARD SHEET NO.  
5-297.611 (1 OF 3)  
STANDARD APPROVED:  
AUGUST 20, 2001

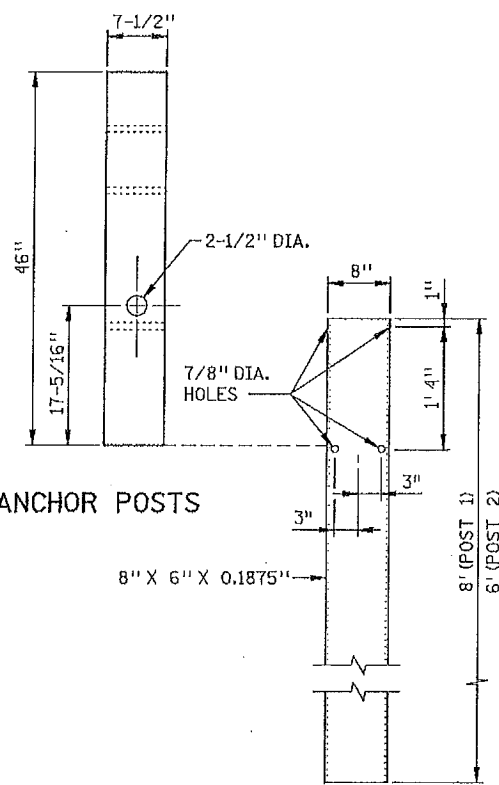
THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS  
(14' 2-1/2" WIDTH)

REVISION DATE  
7-11-02

S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO.15 OF C44 SHEETS

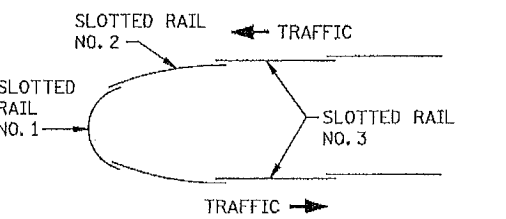


THRIE-BEAM BCT ANCHOR POSTS

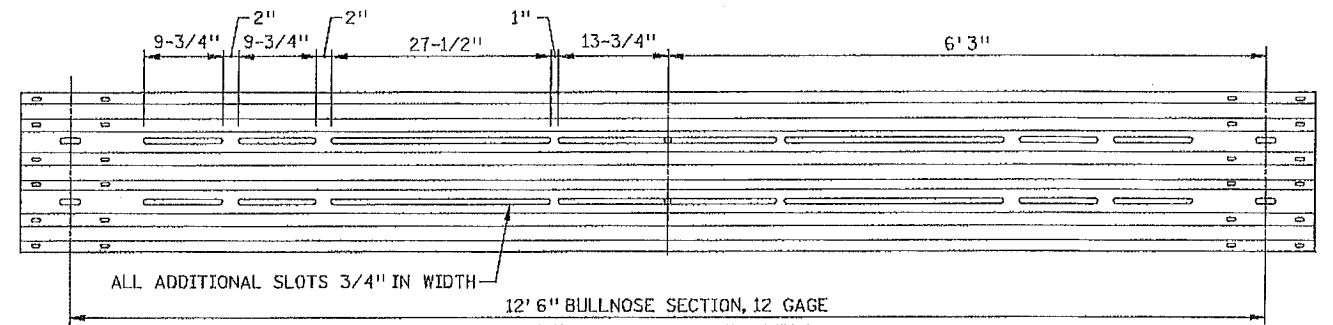


THRIE-BEAM CRT POSTS

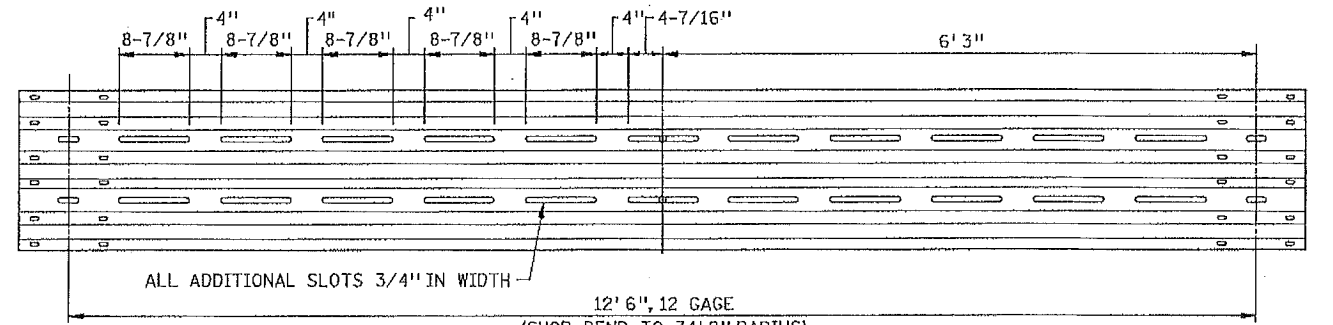
STEEL TUBE



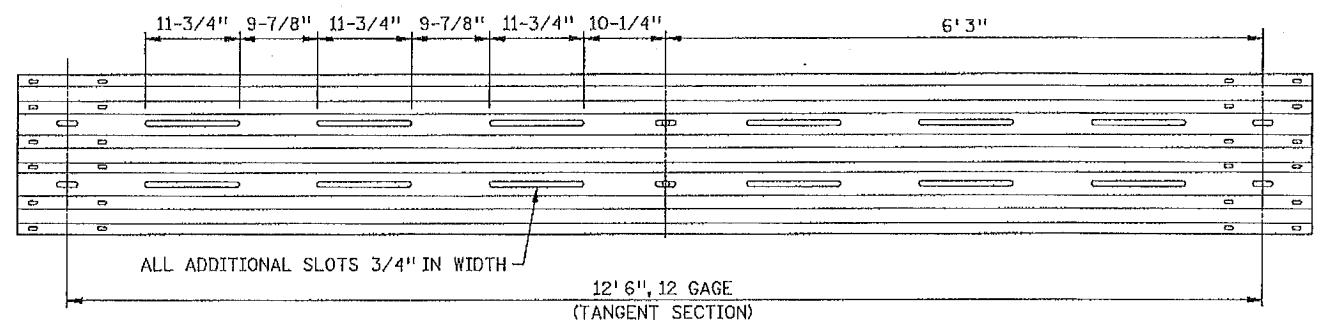
GUARDRAIL OVERLAPPING DETAIL



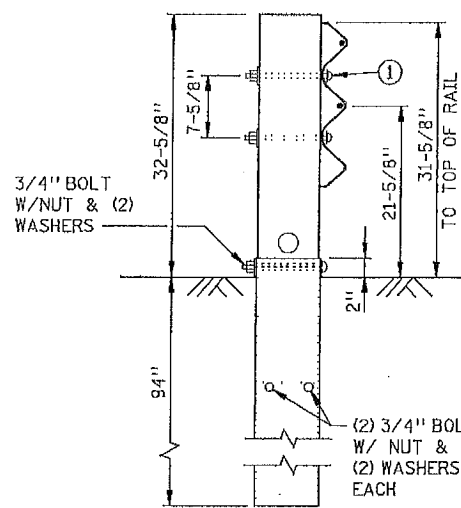
SLOTTED RAIL NO. 1



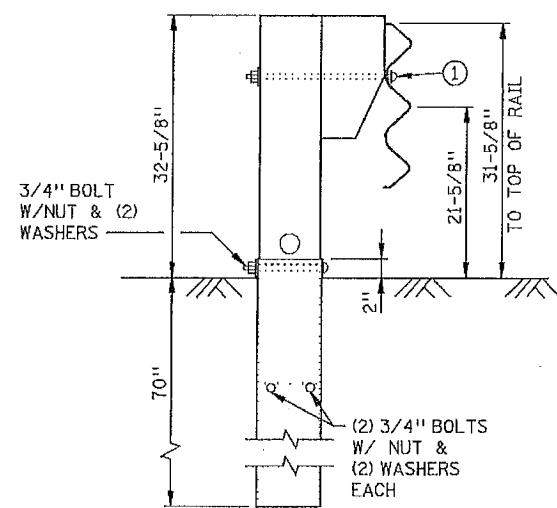
SLOTTED RAIL NO. 2



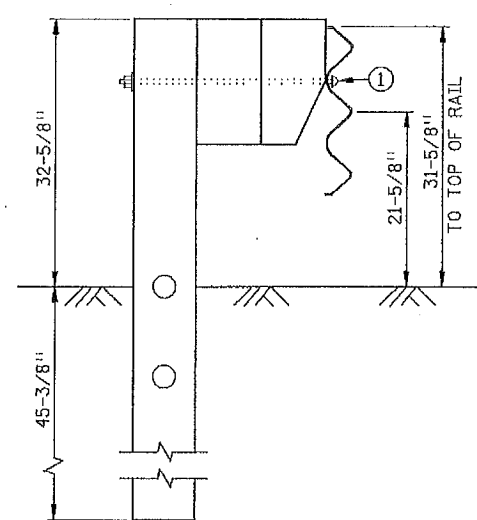
SLOTTED RAIL NO. 3



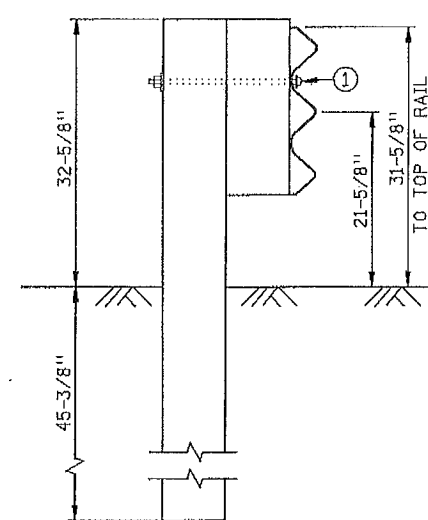
THRIE-BEAM BCT POST  
(WITH 96" STEEL TUBE)  
POST NO. 1



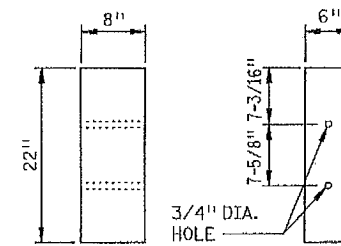
THRIE-BEAM BCT POST  
(WITH 72" STEEL TUBE  
AND 14" TAPERED BLOCK)  
POST NO. 2



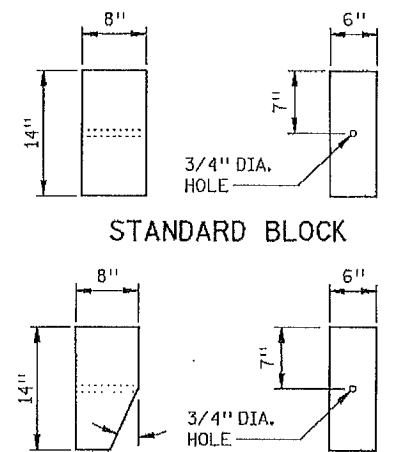
THRIE-BEAM CRT POST  
( 78" LONG WITH 14" BLOCK  
AND 14" TAPERED BLOCK )  
POST NO. 3, 4, 5, 6, 7, & 8



THRIE-BEAM POST  
( 6" X 8" X 78" LONG POST  
WITH 6" X 8" X 22" BLOCK )  
POST NO. 9 & 10



STANDARD  
22" LONG BLOCK



TAPERED BLOCK

NOTES:

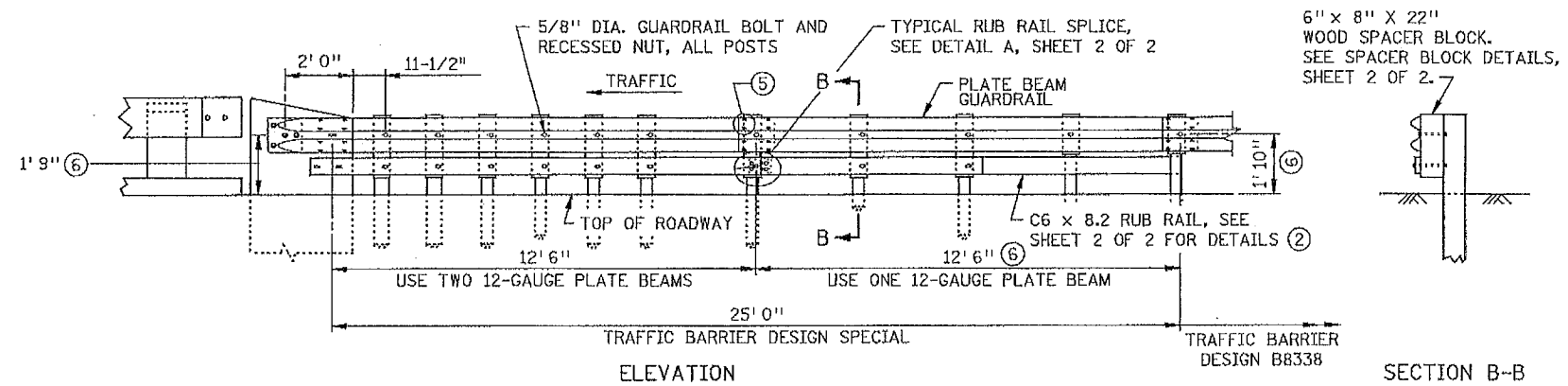
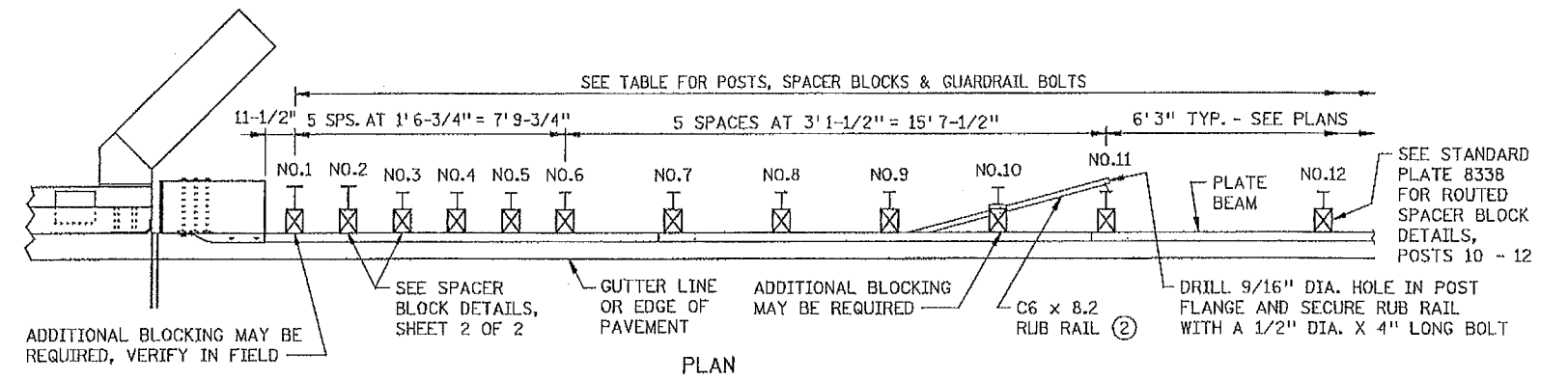
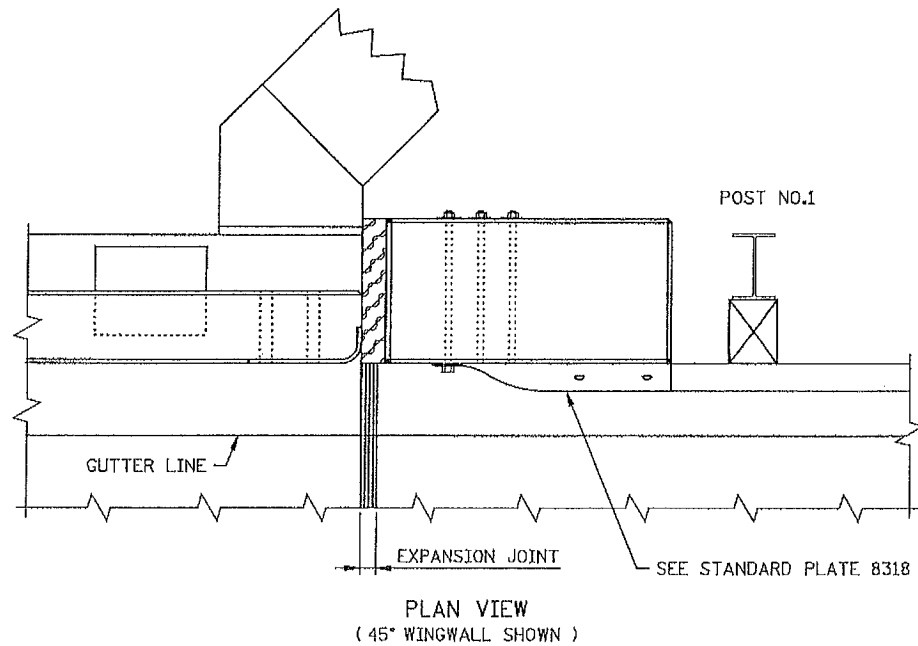
- ① 5/8" DIA. BUTTON HEAD BOLT X LENGTH AS REQUIRED, SECURED WITH WASHER AND HEX NUT.

STANDARD SHEET NO.  
5-297.611 ( 2 OF 3 )  
STANDARD APPROVED:  
AUGUST 20, 2001

TITLE: THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS  
( 14' 2-1/2" WIDTH )

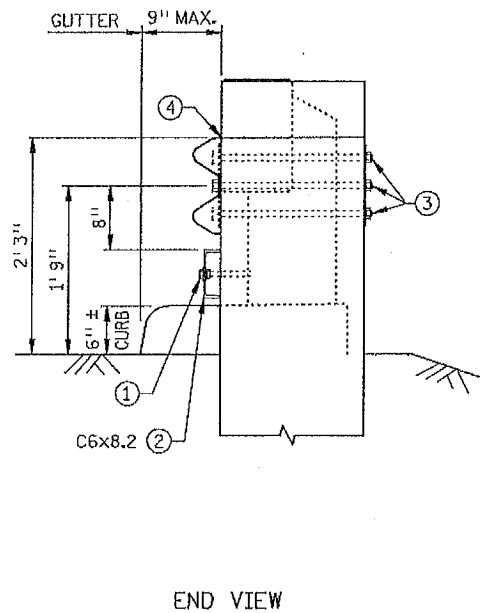
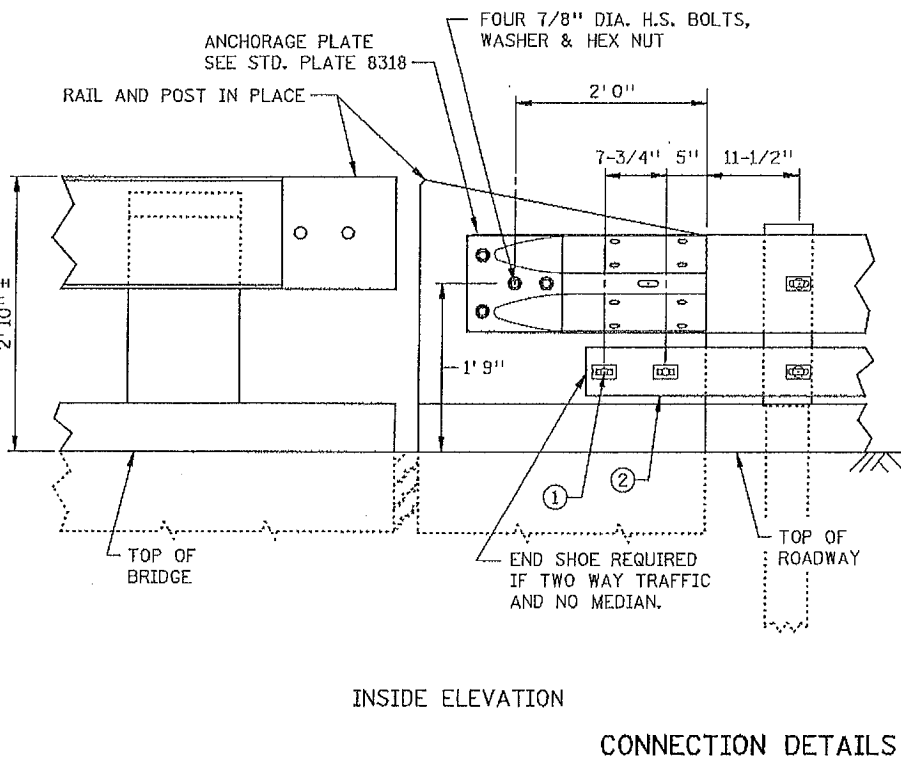
REVISION DATE  
7-11-2002

S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. 16 OF C44 SHEETS



SECTION B-B

GENERAL ASSEMBLY DETAILS



POST, SPACER BLOCK & BOLT TABLE

DESCRIPTION	POST NO.	SIZE
POST	1 & 2	W8 X 21 X 8' 0" MIN. LONG
	3 - 12	W6 X 9 X 6' 0" MIN. LONG
SPACER BLOCK	1 - 9	6" X 8" X 22"
	10 - 12	6" X 8" X 14"
GUARDRAIL BOLT & RECESSED NUT	1 - 12	5/8" DIA. X 10" - GUARDRAIL
	1 - 9	5/8" DIA. X 12" - RUB RAIL

NOTES:

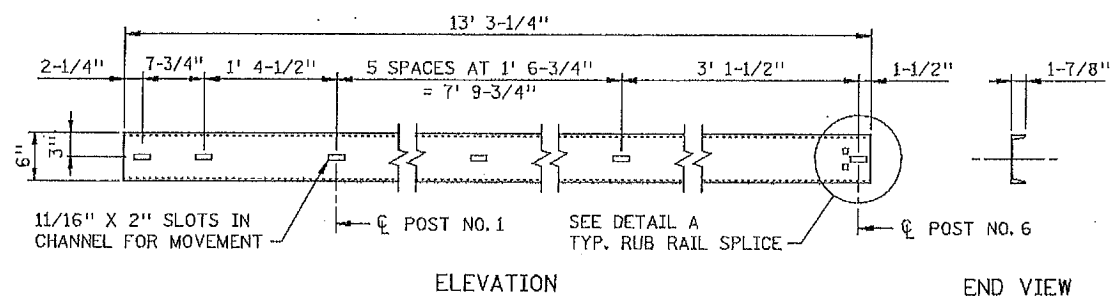
- SOIL COMPACTION AT END POST AS PER SPEC. 2451.
- GUARDRAIL CONNECTION SHALL BE THE SAME AS REQUIRED ON BRIDGE RAILINGS, SEE BRIDGE DETAILS MANUAL FOR ADDITIONAL INFORMATION.
- ① 5/8" DIA. BOLTS WITH APPROVED CONCRETE ANCHORS EMBEDDED 5" IN END POST. LOCATE CONCRETE ANCHORS TO MISS BRIDGE REINFORCEMENT
- ② RUB RAIL SHALL BE USED WHEN THERE IS NO CURBING ON APPROACH PANEL.
- ③ 7/8" DIA. H.S. BOLT OR EQUAL THREADED ROD, 3" X 2" X 1/4" PLATE WASHER AND HEX NUT (4 REQUIRED).
- ④ TIMBER BLOCKING MAY BE REQUIRED BEHIND GUARDRAIL CONNECTION AND RUB RAIL DEPENDING ON CURB WIDTH.
- ⑤ 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.
- ⑥ GUARDRAIL CENTERLINE HEIGHT IS 1'-9" FROM 0' TO 12'-6" FROM BRIDGE. HEIGHT TRANSITIONS FROM 1'-9" TO 1'-10" BETWEEN 12'-6" AND 25' FROM BRIDGE.

TRAFFIC BARRIER DESIGN SPECIAL

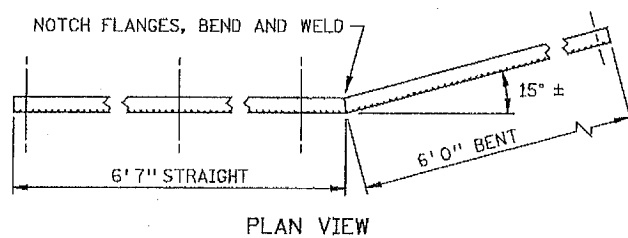
STANDARD SHEET NO.  
5-297.619 (1 OF 2 )  
STANDARD APPROVED:  
APRIL 2, 2012

W-BEAM TRANSITION TO CONCRETE END POST  
WITH OR WITHOUT APPROACH CURB  
(STEEL POST)

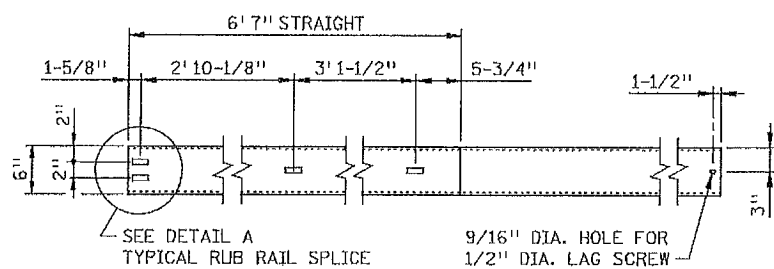
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C17 OF C44 SHEETS



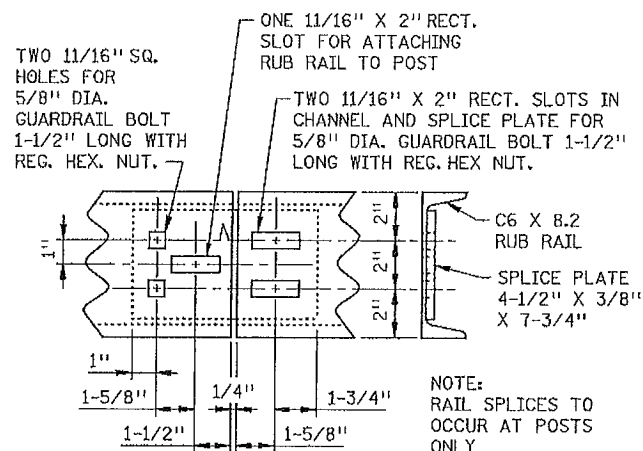
**RUB RAIL STRAIGHT SECTION**  
NON-STANDARD RUB RAIL LENGTH



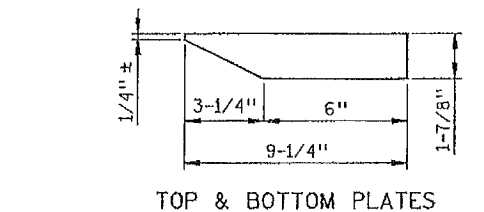
PLAN VIEW



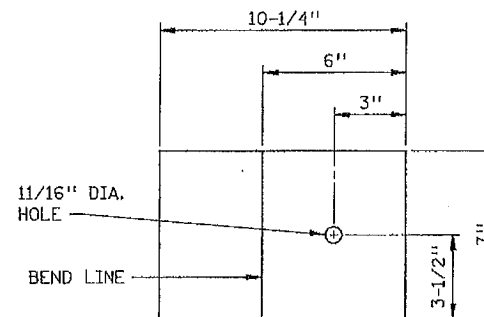
**RUB RAIL BENT SECTION**  
NON-STANDARD RUB RAIL LENGTH



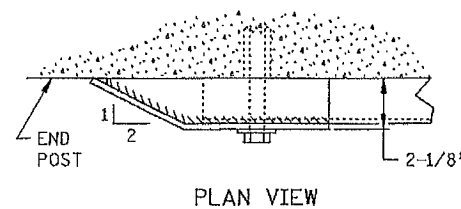
**DETAIL A**  
TYPICAL RUB RAIL SPLICE



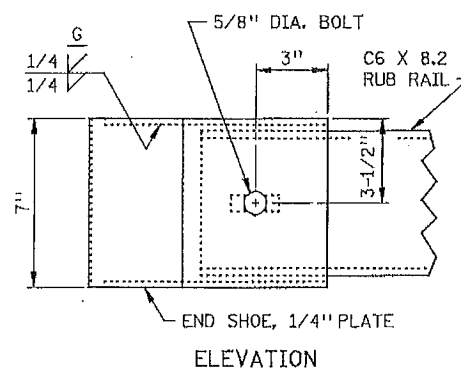
TOP & BOTTOM PLATES



FRONT PLATE  
**END SHOE PLATE DETAILS**  
(1/4" PLATE)

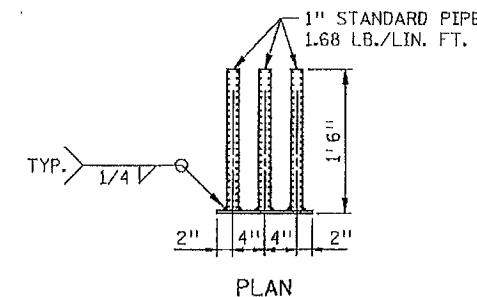


PLAN VIEW

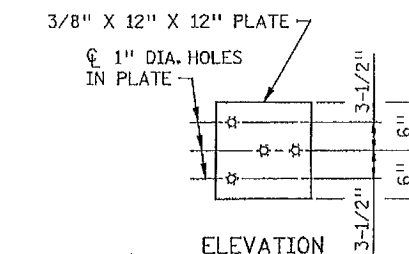


ELEVATION

**RUB RAIL END SHOE ASSEMBLY**  
(USE IF TWO WAY TRAFFIC WITH NO MEDIAN)

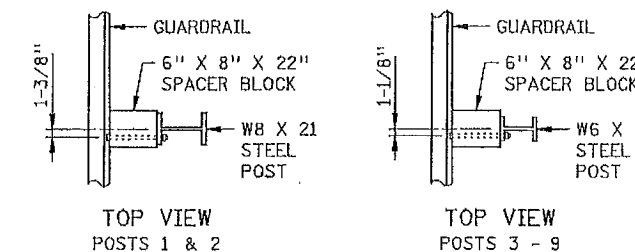


PLAN



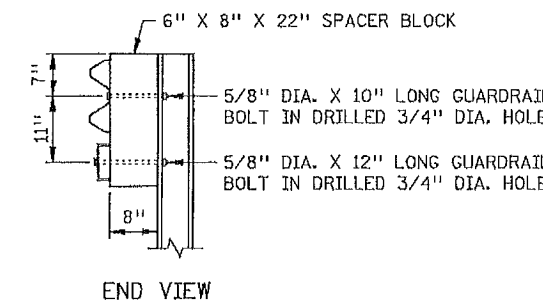
ELEVATION

**GUARDRAIL CONNECTION DETAIL**



TOP VIEW  
POSTS 1 & 2

TOP VIEW  
POSTS 3 - 9



END VIEW

**SPACER BLOCK DETAILS**  
POSTS 1 - 9

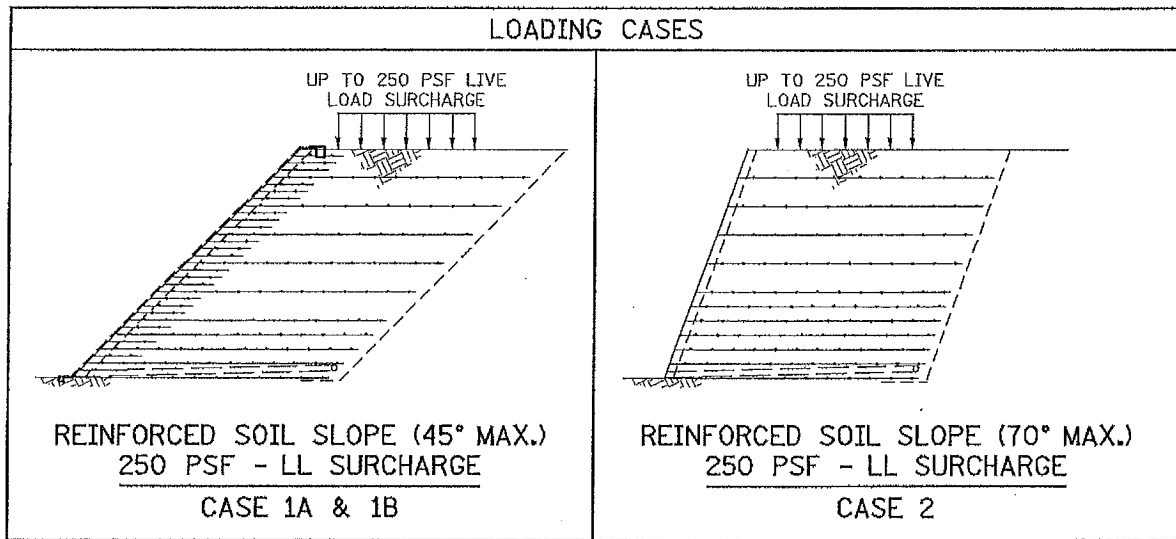
- NOTES:**
- GALVANIZE ALL HARDWARE PER SPEC. 3392.
  - USE END SHOE ON RUB RAIL IF TWO WAY TRAFFIC WITH NO MEDIAN. RUB RAIL IS C6 x 8.2
  - STRUCTURAL STEEL PER SPEC. 3306 UNLESS OTHERWISE NOTED.
  - ALL SLOTTED HOLES ARE 11/16" x 2".
  - ALL SQUARE HOLES ARE 11/16".
  - GALVANIZE STRUCTURAL SHAPES PER SPEC. 3394 AFTER FABRICATION UNLESS OTHERWISE NOTED.
  - ① VERIFY DIMENSION IN FIELD.

**TRAFFIC BARRIER DESIGN SPECIAL**

STANDARD SHEET NO.  
5-297.619 (2 OF 2)  
STANDARD APPROVED:  
APRIL 2, 2012

**W-BEAM TRANSITION TO CONCRETE END POST**  
WITH OR WITHOUT APPROACH CURB  
(STEEL POST)

S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C18 OF C44 SHEETS



**DESIGN CRITERIA**

THESE SHEETS ARE A GUIDE TO BE USED ON A CASE-BY-CASE BASIS BY Mn/DOT FOUNDATIONS UNIT. THE DESIGNS ARE BASED UPON THE FHWA MSEW AND RSS DESIGN AND CONSTRUCTION GUIDELINES (FHWA-SA-96-071) WITHOUT ANY DEVIATIONS.

MINIMUM FACTORS OF SAFETY  
SLIDING: 1.3  
INTERNAL: 1.3  
COMPOUND: 1.3  
EXTERNAL: 1.3

REINFORCED SLOPE FILL CHARACTERISTICS

A. GRANULAR BORROW:

1. GRANULAR BORROW PER SPEC. 3149.2B1.
2. INTERNAL ANGLE OF FRICTION ( $\phi_f$ ) = 30°
3. COHESION (C) = 0
4. MOIST UNIT WEIGHT ( $\gamma_f$ ) = 120 PCF

B. SELECT GRANULAR BORROW MODIFIED:

1. SELECT GRANULAR BORROW MODIFIED FOLLOWING SPEC. 3149.2B2. MODIFICATION: SELECT GRANULAR BORROW MODIFIED, FOR SPECIAL USE IN EMBANKMENT OR BACKFILL CONSTRUCTION OR OTHER SPECIFIED PURPOSES, MAY BE ANY PIT-RUN OR CRUSHER-RUN MATERIAL THAT IS GRADED FROM COARSE TO FINE THAT 100% OF THE MATERIAL MUST PASS THE 2" SIEVE, AND THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 10% BY MASS (THAT IS: #200/1" RATIO).
2. INTERNAL ANGLE OF FRICTION ( $\phi_f$ ) = 35°
3. COHESION (C) = 0
4. MOIST UNIT WEIGHT ( $\gamma_f$ ) = 125 PCF

RETAINED BACKFILL CHARACTERISTICS:

A. INTERNAL ANGLE OF FRICTION ( $\phi_b$ ) = 30°  
B. COHESION (C) = 0  
C. MOIST UNIT WEIGHT ( $\gamma_b$ ) = 120 PCF

FOUNDATION SOIL CHARACTERISTICS:

A. INTERNAL ANGLE OF FRICTION ( $\phi_f$ ) = 30°  
B. COHESION (C) = 0  
C. UNIT WEIGHT ( $\gamma_f$ ) = 120 PCF

SOIL REINFORCEMENT CHARACTERISTICS:

A. SPACING AND STRENGTH SHALL CONFORM TO MINIMUMS IN DESIGN TABLES, FOR APPLICABLE REINFORCED SOIL FILL TYPE AND MAXIMUM SLOPE ANGLE.  
B. REINFORCEMENT COVERAGE SHALL BE 100%.

**NOTES TO DESIGNER:**

REVIEW BY TURF AND EROSION PREVENTION UNIT AND THE OFFICE OF ENVIRONMENTAL SERVICES, SHALL BE PERFORMED FOR ALL RSS APPLICATIONS. TURF ESTABLISHMENT AND MAINTENANCE ITEMS, HYDROSEEDING OVER EROSION CONTROL BLANKET, USE OF TURF REINFORCEMENT MAT IN CHANNELIZED FLOW AREAS, MODIFICATION OF SEED MIX, TURF MAINTENANCE CONTRACT ITEMS, IN ADDITION TO THE DETAILS CONTAINED ON THESE DRAWINGS, SHOULD BE EVALUATED ON A PROJECT BASIS.

IN ADDITION TO THE STANDARD SHEETS, TYPICAL CROSS SECTIONS OF THE SOIL SLOPES SHALL BE INCLUDED IN THE PLANS AS WELL AS INCLUDING SOIL SLOPES ON THE PROJECT CROSS SECTIONS.

DETAIL TRANSITION OF RSS TO ADJACENT SLOPES OR STRUCTURES.

REFERENCE STANDARD PLATES AND PROVIDE DETAILS FOR TRAFFIC BARRIERS, CURB AND GUTTER, HANDRAILS AND FENCING AS REQUIRED BY PROJECT CONDITIONS. SEE AASHTO AND Mn/DOT DESIGN MANUALS, STANDARD PLATES, AND DETAILS FOR REQUIREMENTS.

DETAIL LINES AND GRADES OF THE INTERNAL DRAINAGE COLLECTION PIPE. DETAIL OR NOTE THE DESTINATION OF INTERNAL DRAINS AS WELL AS THE METHOD OF TERMINATION (DAYLIGHT END OF PIPE OR CONNECTION INTO ADJACENT HYDRAULIC STRUCTURE).

SURFACE DRAINAGE PATTERNS SHALL BE SHOWN IN THE PLAN VIEW. SURFACE WATER RUNOFF SHOULD BE COLLECTED ABOVE AND DIVERTED AROUND SLOPE FACE.

DEFINE REINFORCED SOIL SLOPE ANGLE AND DEFINE CONSTRUCTION LIMITS ON THE PLAN VIEW BASED ON THIS ANGLE. STANDARD SLOPE ANGLES ARE 45° AND 70°.

SOFT SOILS AND/OR HIGH WATER CONDITIONS (DEFINED AS GROUNDWATER WITHIN A DEPTH EQUAL TO THE SLOPE HEIGHT H) MAY NOT BE SUITABLE FOR APPLICATION OF STANDARD DESIGNS AND REQUIRES SPECIAL CONSIDERATION BY THE FOUNDATIONS UNIT.

STANDARD DESIGNS NOT APPLICABLE FOR PROJECTS WITH LARGE QUANTITY OF VERTICAL FACE AREA WHERE PROJECT SPECIFIC DESIGNS ARE RECOMMENDED, AS DEFINED IN Mn/DOT ROAD DESIGN MANUAL.

DESIGNS BASED ON LEVEL BACKFILL, ZERO TOE SLOPE AND TRAFFIC SURCHARGE. SLOPES ABOVE OR BELOW THE OVERSTEEPENED REINFORCED SLOPE ARE NOT SUITABLE FOR APPLICATION OF STANDARD DESIGNS AND REQUIRE SPECIAL CONSIDERATION BY THE FOUNDATIONS UNIT.

REFER TO CASE 1A AND 1B FOR SOIL SLOPES BETWEEN 1:2 (26.5°) AND 1:1 (45°) MAXIMUM. USE CASE 2 FOR SOIL SLOPES GREATER THAN 1:1 (45°) AND UP TO 2.75:1 (70°) MAXIMUM.

IF USING CONCRETE RAILING, INCLUDE STANDARD BRIDGE DETAIL "CONCRETE RAILING (TYPE F)" IN PLAN SET.

GEOTECHNICAL INVESTIGATION SHALL BE PERFORMED FOR ALL RSS APPLICATIONS.

**NOTES TO CONTRACTOR:**

APPROVED SOIL REINFORCEMENT PRODUCTS LIST, WITH TYPE NOTED, IS HELD AND MAINTAINED BY THE FOUNDATIONS UNIT, AND CURRENTLY POSTED AT [www.mnrr.dot.state.mn.us](http://www.mnrr.dot.state.mn.us), GEOTECHNICAL ENGINEERING SECTION, FOUNDATIONS UNIT. ONLY APPROVED PRODUCTS MAY BE USED IN STANDARD DESIGNS.

PROVIDE DETAILED DRAWINGS FOR CONSTRUCTION CONTAINING:

- ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, SOIL SLOPE LAYOUT, AND GEOMETRIC INFORMATION.
- CROSS SECTIONS DETAILING SLOPE FACE ANGLE, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND SLOPE FACE EROSION PROTECTION.
- DETAIL ALL REINFORCED FILL PENETRATIONS AND FACE PENETRATIONS. DETAIL REINFORCEMENT AND EROSION PROTECTION PLACEMENT AROUND PENETRATIONS.
- LIST INFORMATION ON APPROVED GEOSYNTHETIC REINFORCEMENT, INCLUDING Mn/DOT CLASSIFICATION CODE, PROPERTIES FOR FIELD IDENTIFICATION, AND INSTALLATION INSTRUCTIONS. LIST PRODUCT AND INSTALLATION INFORMATION ON WELDED WIRE MESH FACING FORMS IF UTILIZED.
- CERTIFICATION BY PROFESSIONAL ENGINEER THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND Mn/DOT RSS STANDARDS. DEVIATION FROM STANDARD DESIGN TABLES BY VALUE ENGINEERING SUBMITTAL ONLY ON SLOPES OVER 5000 SQUARE FEET.

DEFINITION OF TERMS	
RSS	REINFORCED SOIL SLOPE
LL	LIVE LOAD
WWM	WELDED WIRE MESH
H	SLOPE HEIGHT
S	VERTICAL REINFORCEMENT SPACING
PRIMARY REINFORCEMENT	REINFORCEMENT USED ACROSS WIDTH OF REINFORCED FILL
SECONDARY REINFORCEMENT	REINFORCEMENT AT FACE PLACED BETWEEN PRIMARY LAYERS
REINFORCEMENT COVERAGE RATIO	WIDTH OF SOIL REINFORCEMENTS TO HORIZONTAL SPACING (100% COVERAGE RATIO REQUIRED)
W.I.N.	WATER INSOLUBLE NITROGEN

SUMMARY OF ESTIMATED QUANTITIES FOR REINFORCED SOIL SLOPES		
	UNIT	QUANTITY
STRUCTURE EXCAVATION CLASS U	CU. YD.	219
PREMIUM TOPSOIL (CV)	CU. YD.	108
SELECT GRANULAR BORROW MODIFIED (CV)	CU. YD.	1095
① REINFORCED SOIL SLOPE	SQ. YD.	456

① VERTICAL FACE AREA OF SLOPE AS MEASURED FROM PLAN BOTTOM TO PLAN TOP OF SLOPE ELEVATION.

**GENERAL NOTES:**

- UTILITIES:**  
EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.
- EXCAVATION AND EARTHWORK:**  
ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO Mn/DOT 2451.
- CONSTRUCTION:**  
CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT 2411, EXCEPT AS NOTED.
- COMPACTION REQUIREMENTS:**  
COMPACT GRANULAR BORROW IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.
- COMPACT MODIFIED SELECT GRANULAR BORROW IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

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4/1/2013  
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REVISED: 4-8-03

APPROVED:  
*Keith J. Shannon*  
STATE MATERIALS ENGINEER

REVISION DATE  
4-8-03

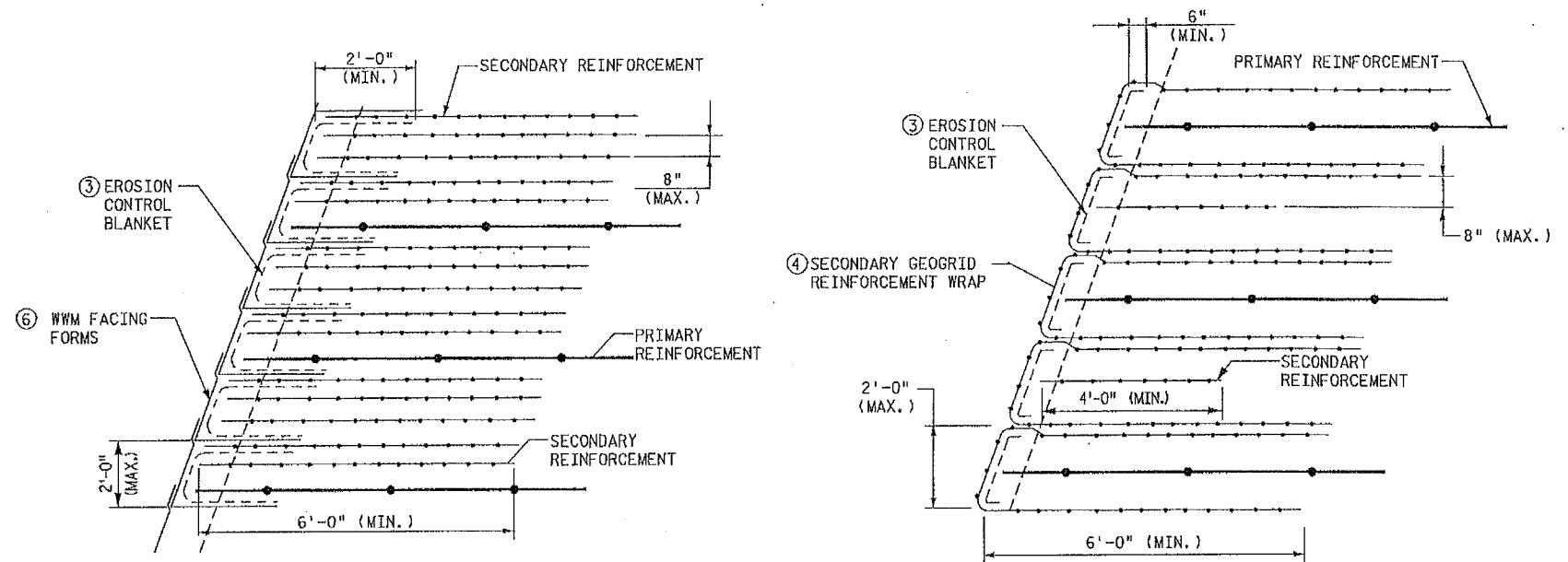
STANDARD SHEET NO. 5-297.646	TITLE <b>REINFORCED SOIL SLOPE GENERAL NOTES AND SUMMARY OF QUANTITIES</b>
STANDARD APPROVED: JULY 12, 2002	
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. 19 OF C44 SHEETS	

# REINFORCED SOIL SLOPE

## CASE 2 - 70° MAXIMUM SLOPE ANGLE, MODIFIED SELECT GRANULAR BORROW REINFORCED SOIL FILL

MAX. SLOPE ANGLE (DEGREES)	REINFORCED SOIL FILL FRICTION ANGLE (DEGREES)	MINIMUM REINFORCEMENT LENGTH, L (FT)	PRIMARY SOIL REINFORCEMENT ⑦		MAXIMUM SLOPE HEIGHT H (FT)	ZONE 1		ZONE 2	
			TYPE	LONG TERM STRENGTH (T <sub>q</sub> ) (PLF)		H1 (FT)	S1 <sub>MAX</sub> (IN)	H2 (FT)	S2 <sub>MAX</sub> (IN)
70	35	1.0 H	TYPE II	1050	21.3	13.1	40	8.2	20
					23.6	23.6	24	-	-
			TYPE III	1400	26.2	18.0	40	8.2	20
					26.2	13.8	48	12.4	24

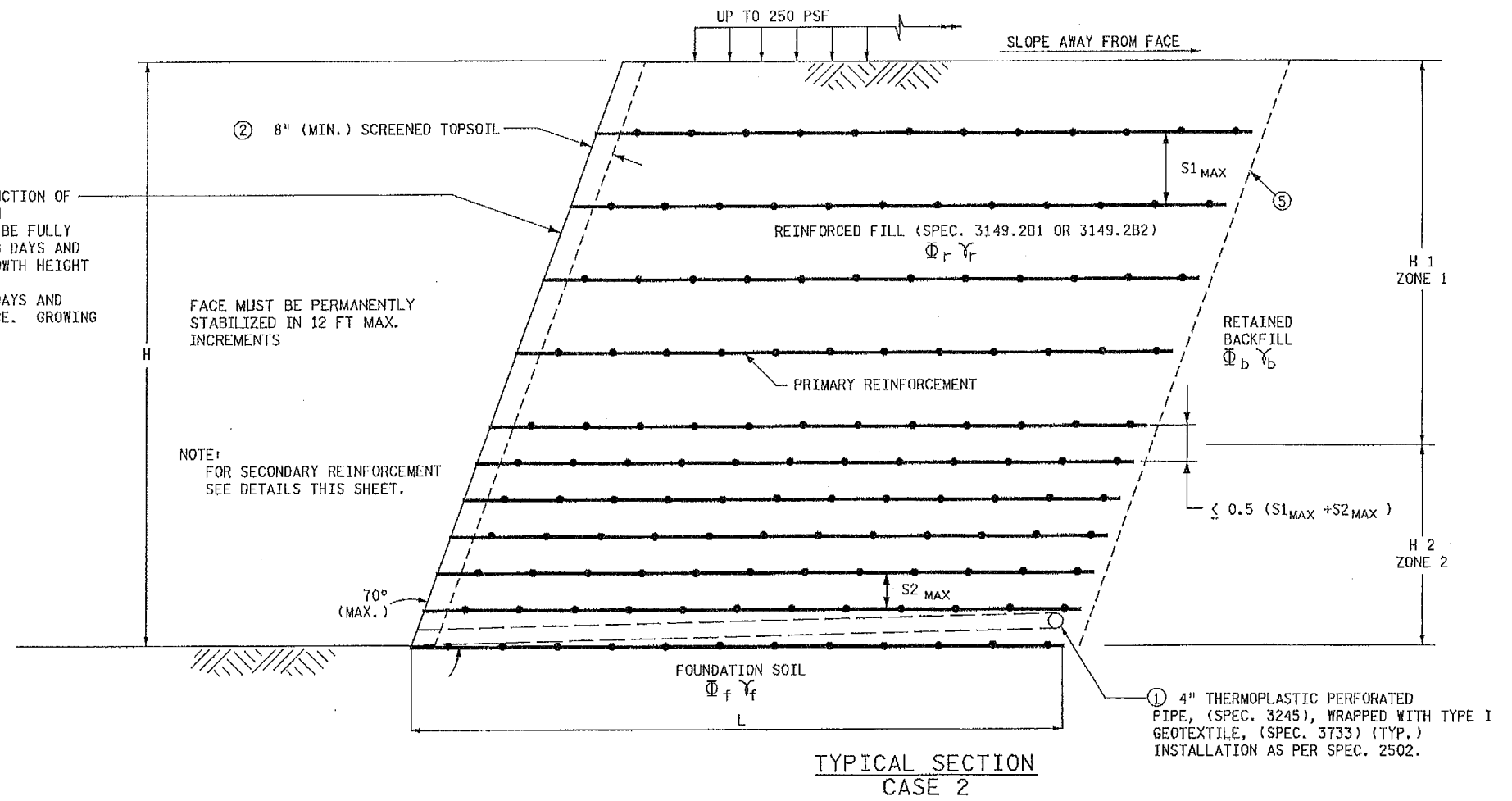
NOTES:  
SECONDARY REINFORCEMENT SHALL HAVE A MINIMUM LONG TERM STRENGTH OF 400 PLF.



70° SLOPE - WELDED WIRE MESH FACE FORM

70° SLOPE - WRAPPED FACE

MAINTENANCE IS REQUIRED AND IS INCIDENTAL TO THE CONSTRUCTION OF THE SLOPE. MAINTENANCE CONSISTS OF WATERING AND EROSION REPAIR RESTORATION SUCH THAT THE FACE OF THE SLOPE WILL BE FULLY VEGETATED. MAINTENANCE INCLUDES A MINIMUM OF 45 GROWING DAYS AND TERMINATES WHEN A VEGETAL DENSITY OF 80% AND A PLANT GROWTH HEIGHT OF 6" IS ACHIEVED. AREAS THAT SUCCEDE TO EROSION OR SEEDING FAILURE WILL BE RESTORED WITHIN THREE CALENDAR DAYS AND WILL REQUIRE AN ADDITIONAL 20 GROWING DAYS OF MAINTENANCE. GROWING DAYS ARE DEFINED AS PER STANDARD SPECIFICATION 2575.3L1.



TYPICAL SECTION  
CASE 2

**NOTES:**

- ① INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY THE ENGINEER.
- ② SCREENED TOPSOIL, WITH SEED AND FERTILIZER AS SPECIFIED IN PLANS. DEVELOP SITE SPECIFIC RECOMMENDATIONS FOR HIGHLY SHADED AREAS, HIGHLY VISIBLE URBAN APPLICATIONS OR IN SENSITIVE AREAS.
- ③ SPEC. 3885.2, CATEGORY 4, STRAW-COCONUT EROSION CONTROL BLANKET.
- ④ GEOSYNTHETIC WRAP SHALL BE A GEOGRID STABILIZED FOR LONG-TERM ULTRAVIOLET LIGHT EXPOSURE.
- ⑤ PAY LIMITS OF STRUCTURAL EXCAVATION. EQUAL TO ANGLE OF SLOPE FACE, 70° MAXIMUM ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS: EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.
- ⑥ WELDED WIRE MESH FACE FORM DESIGN BY CONTRACTOR. GALVANIZED STEEL NOT REQUIRED.
- ⑦ PRIMARY SOIL REINFORCEMENT TYPES I, II, AND III ARE FOUND ON THE APPROVED PRODUCTS LIST AT [www.mtr.dot.state.mn.us/](http://www.mtr.dot.state.mn.us/) PICK GEOTECHNICAL ENGINEERING SECTION, PICK FOUNDATIONS UNIT.

REVISED: 4-8-03

APPROVED:

*Keith J. Shannon*  
STATE MATERIALS ENGINEER

STANDARD SHEET NO.  
5-297.648

STANDARD APPROVED:  
JANUARY 30, 2003

REVISION DATE  
4-8-03

TITLE:

REINFORCED SOIL SLOPE  
(70° MAXIMUM SLOPE)

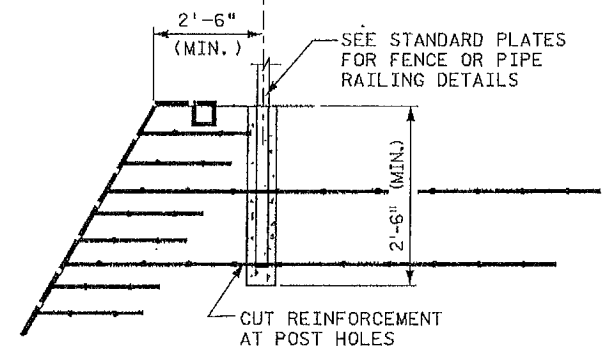
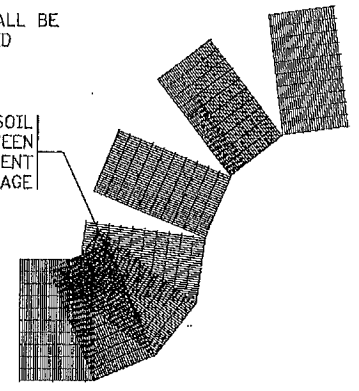
S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. 20 OF 44 SHEETS

NOTES:

CORRECT ORIENTATION OF GEOSYNTHETIC TO OBTAIN PROPER STRENGTH SHALL BE DETAILED ON CONTRACTOR DRAWINGS.

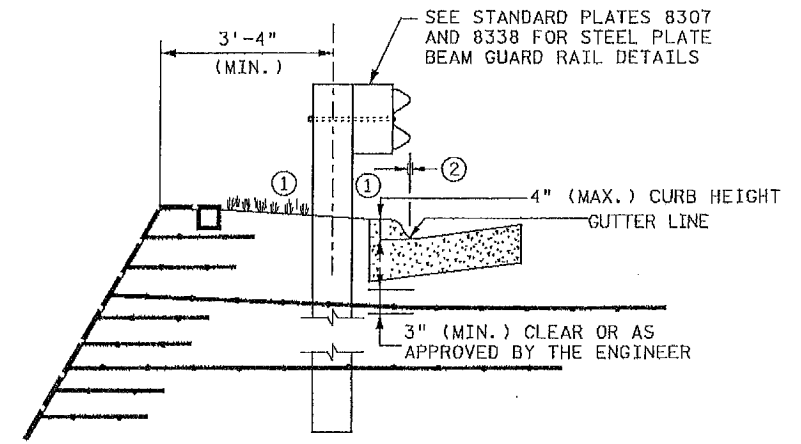
ADJACENT WIDTHS OF REINFORCEMENT SHALL BE EXTENDED AS NECESSARY AND NOT PLACED DIRECTLY ON TOP OF EACH OTHER.

MINIMUM OF 3" OF SOIL FILL IS REQUIRED BETWEEN OVERLAPPING REINFORCEMENT FOR PROPER ANCHORAGE



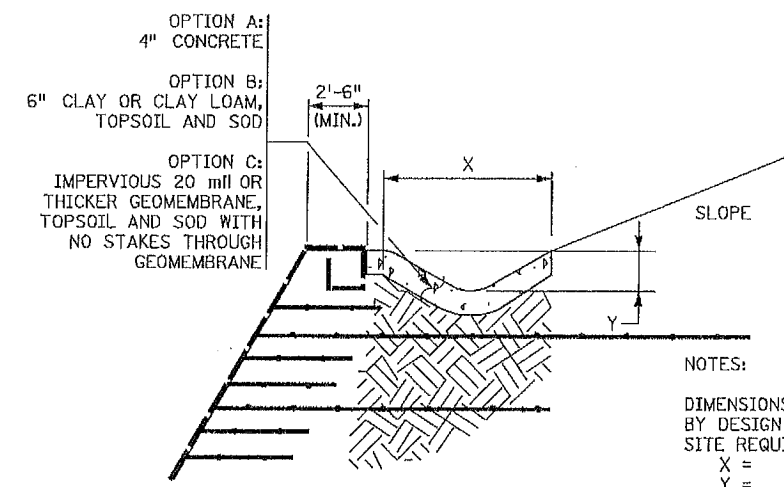
**POST DETAIL**

TYPICAL HANDRAIL AND/OR FENCE POST



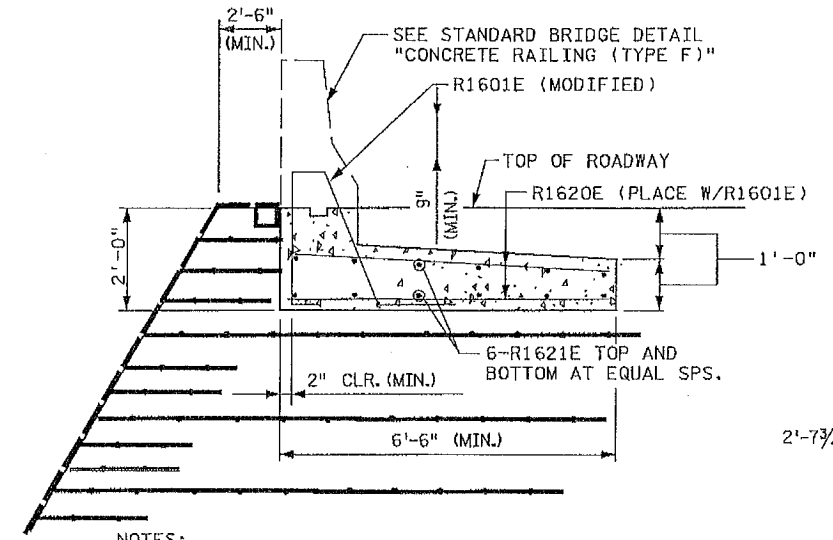
**STEEL PLATE BEAM GUARDRAIL DETAIL**

**REINFORCEMENT PLACEMENT AROUND CURVES AND CORNERS**



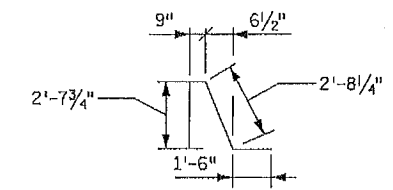
**TYPICAL DRAIN SWALE DETAIL**

NOTES:  
DIMENSIONS TO BE DETERMINED BY DESIGN ENGINEER BASED ON SITE REQUIREMENTS.  
X =  
Y =  
SEE PLAN VIEW FOR SURFACE DRAINAGE PATTERNS.



NOTES:  
NOMINAL SPACING OF CONCRETE CONTRACTION JOINTS SHALL BE 200 FT.  
WORK REINFORCEMENT SHOWN WITH CONCRETE RAILING DETAILS.  
ALL CONCRETE REINFORCEMENT SHALL BE EPOXY COATED.

**BARRIER FOOTING DETAIL**



R1601E (MODIFIED) AT 12" (MAX.) (SEE STANDARD BRIDGE DETAIL)

NOTES:

- ① ONCE RSS (REINFORCED SOIL SLOPE) BUILT TO GRADE, IMMEDIATELY SEED AND FERTILIZE. SEE PLANS FOR TOPSOIL, SEED AND FERTILIZER.
- ② USE CAUTION WHEN PLACING CURB WITH GUARDRAIL. CURBS ADVERSELY AFFECT THE PERFORMANCE OF THE GUARDRAIL. GENERALLY PLACE CURB DIRECTLY BELOW GUARDRAIL. SEE PLANS OR REFER TO STANDARD PLAN 5-297.601 (2), FOR CURB LOCATIONS ON NCHRP REPORT NO. 350 APPROVED BRIDGE TRANSITIONS, SEE STANDARD PLANS 5-297.603, 5-297.605, 5-297.606 ETC..

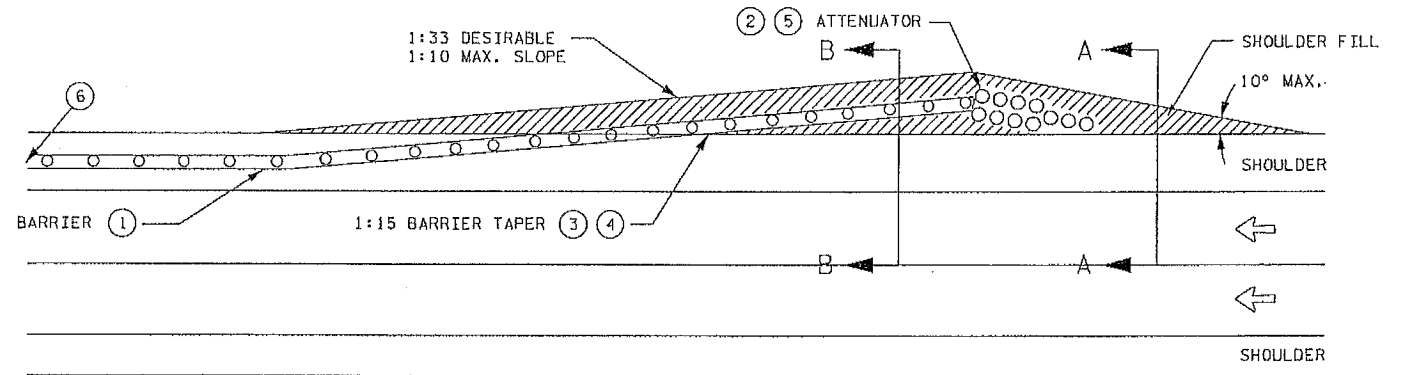
PLOTTED/REVISED: \$\$\$@DATE@\$\$\$

DISTRICT #: \$\$\$@DISTRICT\$\$\$  
USER NAME: \$\$\$@USER@\$\$\$  
PATH & FILENAME: \$\$\$@PATH@\$\$\$

REVISED: 4-8-03  
APPROVED:  
*Keith J. Skuman*  
STATE MATERIALS ENGINEER

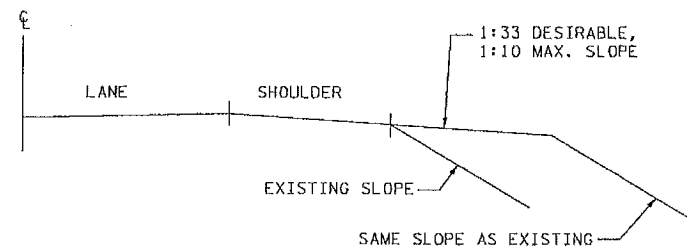
STANDARD SHEET NO. 5-297.649	TITLE: <b>REINFORCED SOIL SLOPE DETAILS</b>
STANDARD APPROVED: JANUARY 30, 2003	
REVISION DATE 4-8-03	S.P. NO. 002-614-035, 0280-71 (T.H. 35W) SHEET NO. C21 OF C44 SHEETS



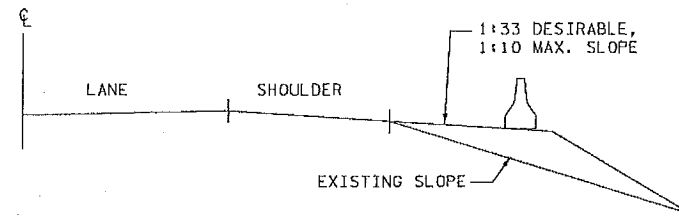


- ① IT IS DESIRABLE TO MAINTAIN FULL SHOULDER WIDTH WHENEVER POSSIBLE. IF NOT POSSIBLE, MINIMUM DESIRABLE LATERAL OFFSETS ARE BASED ON THE FOLLOWING POSTED SPEEDS:  
 70 MPH - 12.0 FEET  
 60 MPH - 8.0 FEET  
 50 MPH - 6.5 FEET  
 40 MPH - 5.0 FEET  
 FOR RESTRICTED CONDITIONS, LESSER OFFSETS MAY BE USED. THE OFFSETS SHOULD BE A MINIMUM OF 2 FEET UNLESS THE CONDITIONS ARE EXTREME. LATERAL OFFSETS ARE MEASURED TO THE BOTTOM OF THE BARRIER. BARRIER OFFSET FROM EDGE OF THRU LANE SHOULD NOT EXCEED 15 FEET.
- ② DESIRABLE TREATMENTS FOR EXPOSED BARRIER ENDS ARE; A CONNECTION TO EXISTING BARRIER; IMPACT ATTENUATOR; TAPER AWAY TO THE EDGE OF THE CLEAR ZONE; AND EXTENDING THROUGH A PLATE BEAM GUARDRAIL BY REMOVING A PANEL.
- ③ A 1:10 TAPER MAY BE USED WHEN POSTED SPEED LIMIT IS 35 MPH OR LESS.
- ④ IF THE BARRIER IS TO BE EXTENDED BEYOND THE SHOULDER, ADDITIONAL FILL WILL BE NEEDED IN ORDER TO PROVIDE A FLAT (1:33) APPROACH AREA TO THE BARRIER. FILL WILL BE INCIDENTAL TO BARRIER AND/OR IMPACT ATTENUATOR.
- ⑤ THE IMPACT ATTENUATOR SHOULD BE OFFSET A MINIMUM OF 2 FT. FROM THE EDGE OF THE THRU LANE (SEE SAND BARREL OFFSET DETAIL). THE IMPACT ATTENUATOR SHOULD BE ORIENTED TO ACCOMMODATE THE PROBABLE IMPACT ANGLE OF AN ENCROACHING VEHICLE. FOR MOST ROADSIDE CONDITIONS, AN ANGLE APPROXIMATELY 10 DEGREES, AS MEASURED BETWEEN THE HIGHWAY AND THE IMPACT ATTENUATOR LONGITUDINAL CENTERLINE, IS CONSIDERED APPROPRIATE.
- ⑥ FOR TWO LANE, TWO WAY TRAFFIC BOTH ENDS OF THE BARRIER SHOULD BE TREATED IN THE SAME MANNER AS DESCRIBED IN ②.

NOTE:  
 AT THE DIRECTION OF THE ENGINEER, OTHER APPROVED IMPACT ATTENUATORS CAN BE SUBSTITUTED IN LIEU OF THE SAND BARRELS ESPECIALLY WHERE REDIRECTION IS DESIRED OR AT WIDTH RESTRICTED AREAS.

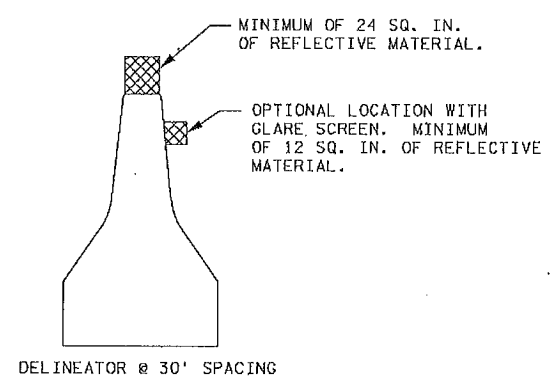


SECTION A-A

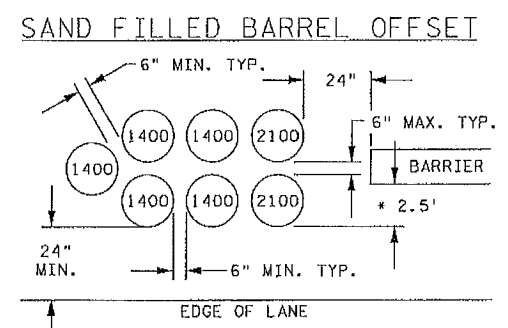


SECTION B-B

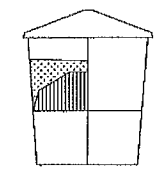
SEE LAYOUT 19A FOR BARREL ARRAY SET UP.



DELINEATOR @ 30' SPACING



NOTE:  
 \* DISTANCE MAY BE REDUCED TO MINIMUM OF 15 IN. THIS IS ACCEPTABLE ONLY WHERE A GREATER OFFSET WOULD CAUSE UNACCEPTABLE INTERFERENCE WITH TRAFFIC.



SEE MANUFACTURER INFORMATION FOR PROPER PROCEDURE TO FILL BARRELS WITH SAND.

PORTABLE CONCRETE BARRIER PLACEMENT AND END TREATMENT

1/23/08 LAYOUT 19.DGN

12:49:52 PM 1/23/2013 ...\\7781\HI-MUNPlan\7781-dd01.dgn

NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: **JEFFREY N TYKESON**  
 Date: *01/01/2013* License #: **42792**

STATE PROJ. NO. 002-614-035  
 STATE PROJ. NO. 0280-71 (T.H. 35W)

DRAWN BY S. VANG  
 DESIGNED BY J. TYKESON  
 CHECKED BY N. WILL  
 COMM. NO. 7781



ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 DETAILS  
 CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
 C22  
 OF  
 C44

**NOTES & GUIDELINES**

**GENERAL INFORMATION:**

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
3. ALL DISTANCES ARE APPROXIMATE.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MNMUTCD.
5. AN ANNUAL FALL REVIEW OF ALL TRAFFIC CONTROLS WILL BE MADE TO PREPARE FOR WINTER MAINTENANCE OF THE PROJECT. THIS MAY INCLUDE ADJUSTMENTS OR EXCHANGE OF ONE TRAFFIC CONTROL DEVICE FOR ANOTHER. READJUSTMENTS MAY AGAIN BE REQUIRED IN THE SPRING.
6. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.

**SIGNING:**

1. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTANT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE INSTALLED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS DETAILED IN THE MNMUTCD. IF THIS IS NOT POSSIBLE THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
4. ALL ORANGE WARNING AND ORANGE GUIDE SIGNS SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MN/DOT APPROVED PRODUCT LIST FOR "SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS".

BARRICADES SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MN/DOT APPROVED PRODUCT LIST FOR BARRICADE SHEETING. NOTE THAT ASTM TYPE VII SHEETING IS NOT ALLOWED ON BARRICADES AFTER JANUARY 1, 2010.

5. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
6. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE INSTALLED AS NEEDED, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS INSTALLED.

**PAVEMENT MARKING:**

1. OBLITERATE ANY CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
2. PAINT, POLYMER LANE TAPE AND/OR TRPM'S ARE ACCEPTABLE TEMPORARY STRIPING ALTERNATIVES ACCORDING TO ACTUAL CONDITIONS ENCOUNTERED AS DIRECTED BY THE ENGINEER. GENERALLY, ONLY PAINT WILL BE USED BEFORE MAY 1ST OR WHEN THE OTHER MANUFACTURERS' SPECIFICATIONS CAN NOT BE MET.
3. TRPM'S (TEMPORARY RAISED PAVEMENT MARKERS) SHOULD BE USED TO SUPPLEMENT THE LONG TERM (MORE THAN 3 DAYS) EDGELINES ON ALL TRANSITION AREAS WHEN THE CONDITIONS ARE WITHIN THE MANUFACTURERS' SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND INSTALLATION OF TEMPORARY AND FINAL STRIPING. MN/DOT TRAFFIC PERSONNEL WILL ASSIST IN THE SPOTTING OF TRANSITION AREAS, GORES AND TAPERS.

**BARRIER & DELINEATION:**

1. TOP MOUNTED BARRIER DELINEATORS WILL HAVE A MINIMUM OF 24 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 30' SPACES ON TOP OF THE BARRIER WHEN THE BARRIER IS WITHIN 10' OF TRAFFIC UNLESS OTHERWISE NOTED OR AS DIRECTED BY THE ENGINEER. IF THE TRAFFIC ENGINEER REQUIRES SIDE MOUNTED BARRIER DELINEATORS, THEY WILL HAVE A MINIMUM OF 12 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 30' SPACES. IF A SMALLER APPROVED BARRIER DELINEATOR IS USED IT SHALL BE AT ONE HALF THE SPACING AND ONE HALF THE BID PRICE.
2. SIDE MOUNTED DELINEATORS SHALL BE UTILIZED ON ALL BARRIER TAPERS. TOP MOUNTED DELINEATORS SHALL BE USED ON ALL OTHER BARRIER.

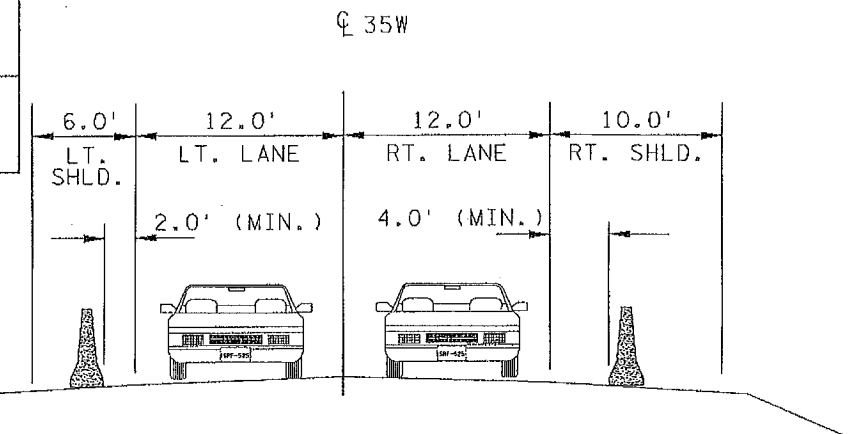
**TRAFFIC CONTROL TABULATION**

"W" SERIES			
SIGN	SIGN NO.	COLOR	SIZE
	W20-1	BLACK ON ORANGE	48" x 48"
	W21-X1	BLACK ON ORANGE	48" x 48"
	W20-X17	BLACK ON ORANGE	48" x 48"
	W20-3a	BLACK ON ORANGE	18" x 18"

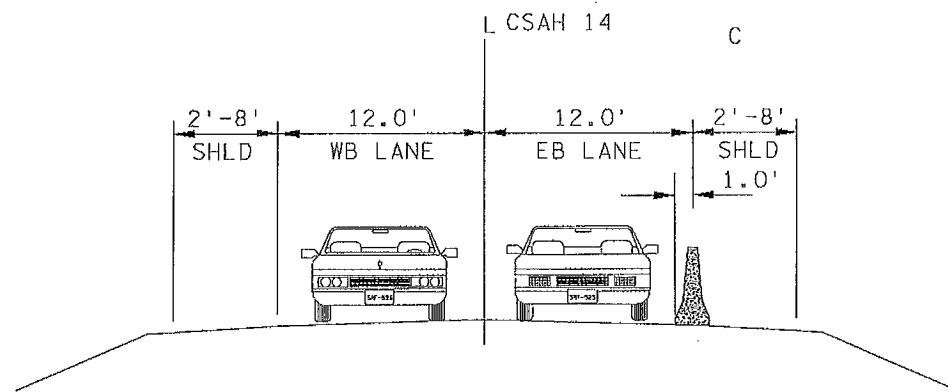
"R" SERIES			
SIGN	SIGN NO.	COLOR	SIZE
	R9-9a	BLACK ON WHITE	24X18

"G" SERIES			
SIGN	SIGN NO.	COLOR	SIZE
	G20-2A	BLACK ON ORANGE	48" X 24"

"X" SERIES			
SIGN	SIGN NO.	COLOR	SIZE
	X4-4	BLACK ON YELLOW	18" X 36"



35W TYPICAL SECTION  
NB & SB LANES



CSAH 14 TYPICAL SECTION

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NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: **JEFFREY N TYKESON**  
 Date: 04/01/2013 License # 42792

STATE PROJ. NO. 002-614-035  
 STATE PROJ. NO. 0280-71 (T.H. 35W)

DRAWN BY S. YANG  
 DESIGNED BY J. TYKESON  
 CHECKED BY N. WILL  
 COMM. NO. 7781

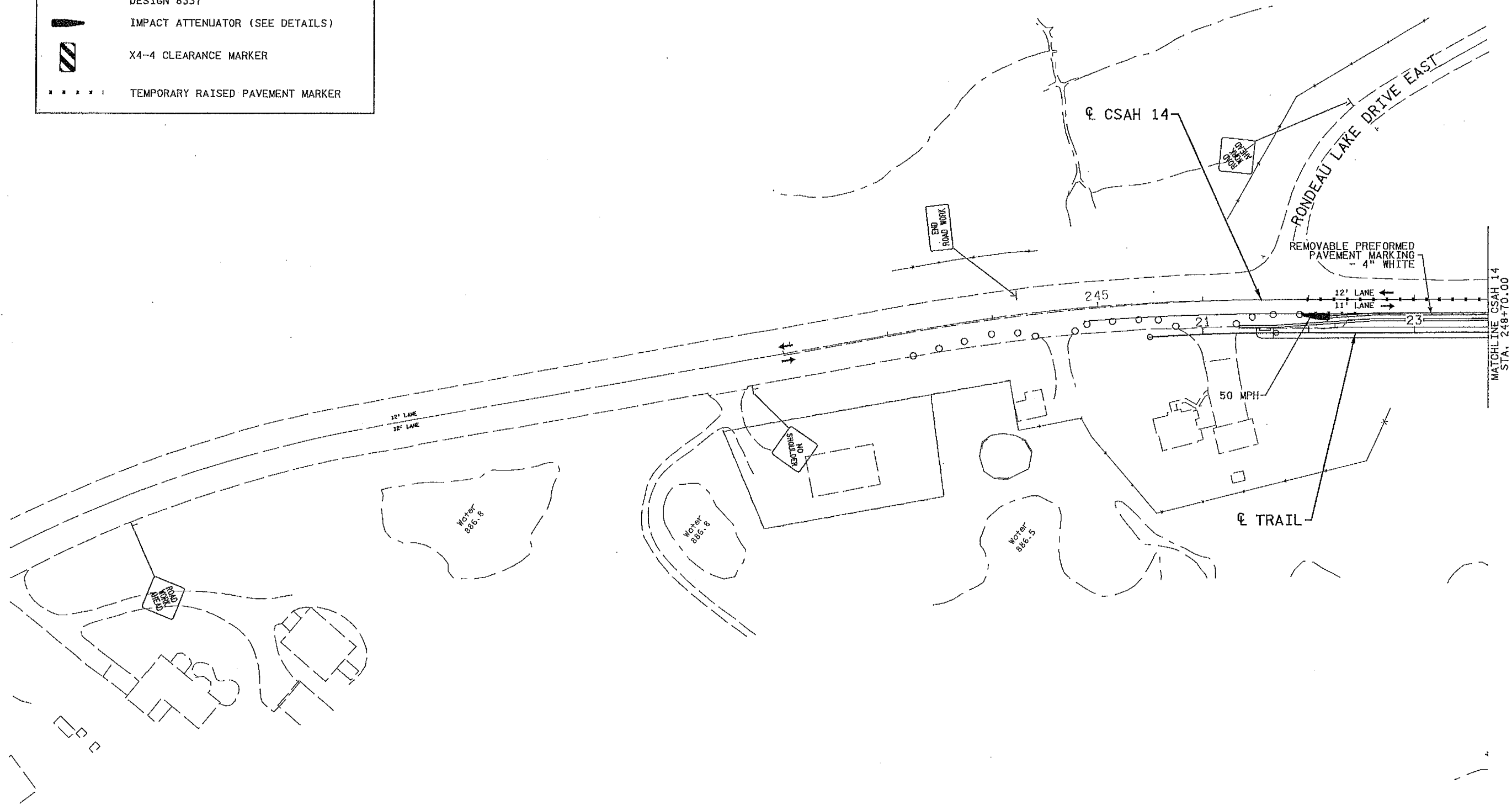
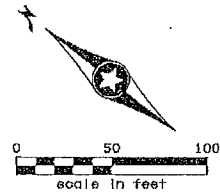


ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 TRAFFIC CONTROL TITLE SHEET  
 CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
 C23  
 OF  
 C44

LEGEND	
O	REFLECTIVE PLASTIC DRUM (50' SPACING UNLESS NOTED OTHERWISE)
T	TYPE "C" SIGN
H	TYPE III BARRICADE
↑	DIRECTION OF TRAFFIC LANE
▬▬▬▬	PORTABLE CONCRETE MEDIAN BARRIER DESIGN 8337
▬▬▬▬	IMPACT ATTENUATOR (SEE DETAILS)
▨	X4-4 CLEARANCE MARKER
⋯⋯⋯	TEMPORARY RAISED PAVEMENT MARKER



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002-614-035  
 STATE PROJ. NO.  
0280-71 (T.H. 35W)

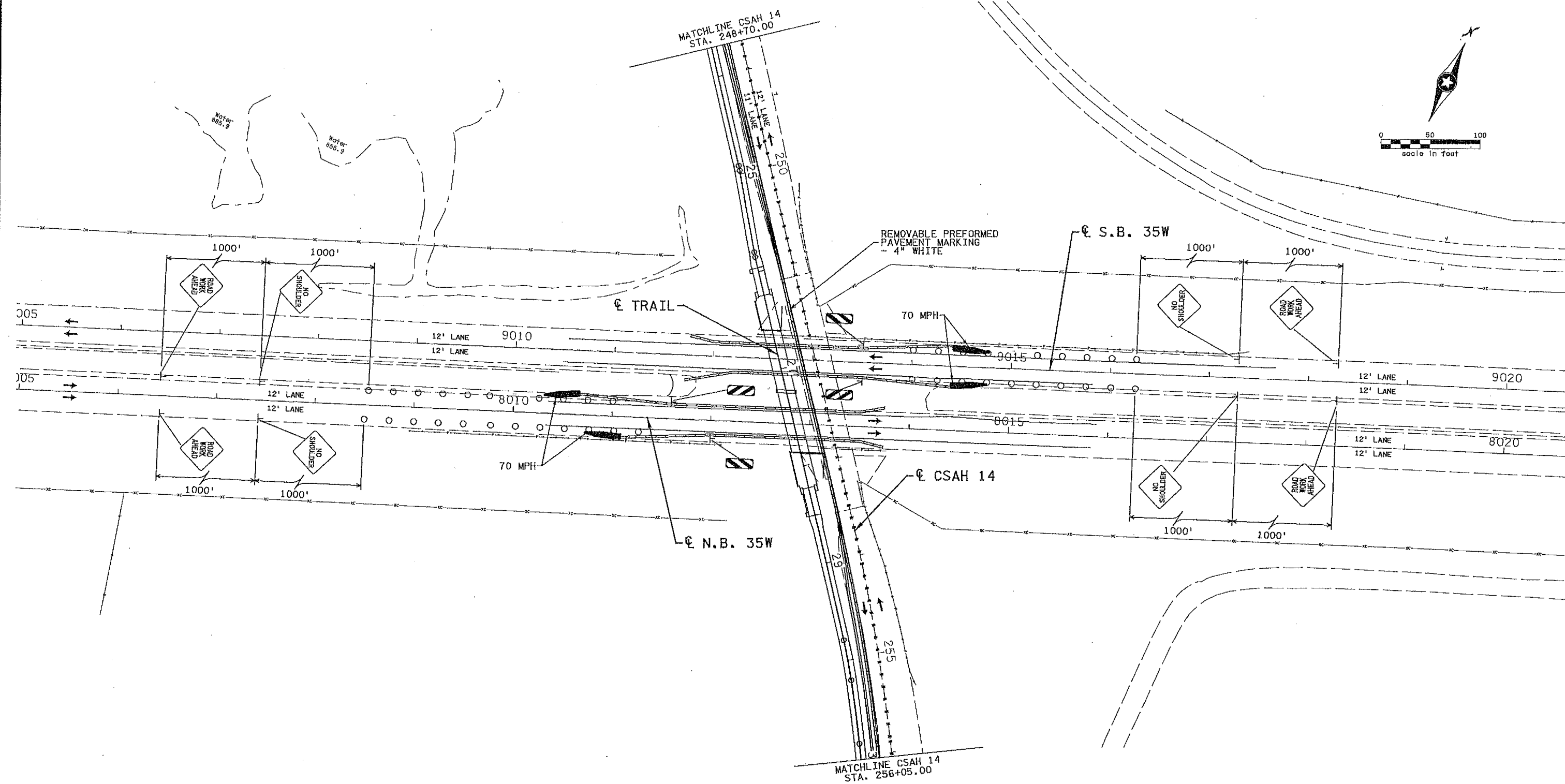
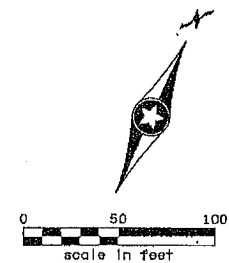
DRAWN BY  
**S. YANG**  
 DESIGNED BY  
**J. TYKESON**  
 CHECKED BY  
**N. WILL**  
 COMM. NO. **7781**



**ENGINEERS  
PLANNERS  
DESIGNERS**

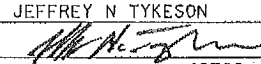
**ANOKA COUNTY**  
**TRAFFIC CONTROL PLAN**  
**CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W**

**SHEET**  
**C24**  
**OF**  
**C44**



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 Print Name: **JEFFREY N TYKESON**  
  
 Date: **04/01/2013** License # **42792**

STATE PROJ. NO.  
 002-614-035  
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 0280-71 (T.H. 35W)

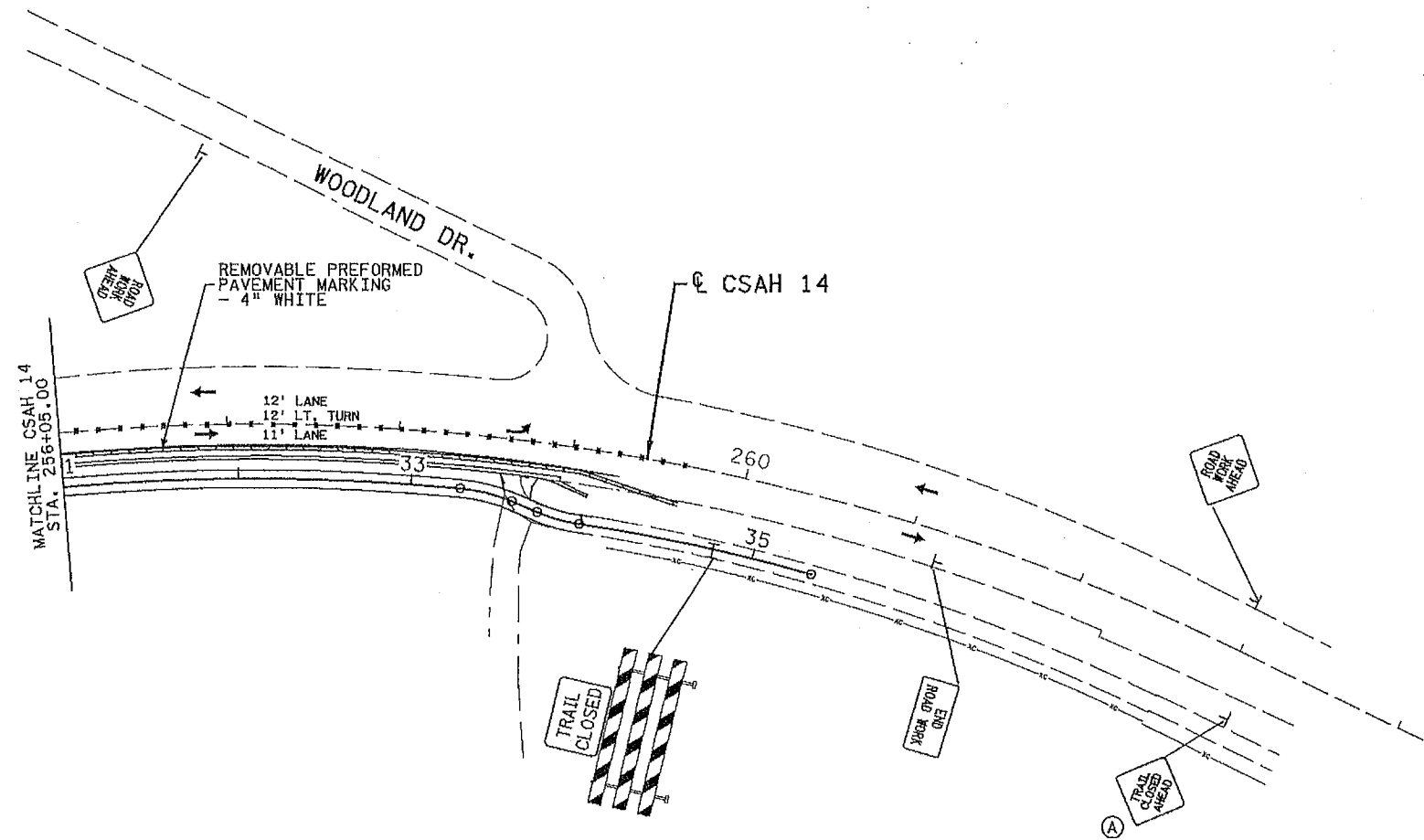
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 S. YANG  
 DESIGNED BY  
 J. TYKESON  
 CHECKED BY  
 N. WILL  
 COMM. NO. 7781



**ENGINEERS  
 PLANNERS  
 DESIGNERS**

**ANOKA COUNTY**  
**TRAFFIC CONTROL PLAN**  
**CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W**

**SHEET  
 C25  
 OF  
 C44**



NOTES:  
 (A) PLACE SIGN AT INTERSECTION OF G STREET AND CSAH 14.

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Print Name: **JEFFREY N TYKESON**

Date: 4/25/13 License # 42792

STATE PROJ. NO.  
002-614-035

STATE PROJ. NO.  
0280-11 (T.H. 35W)

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S. YANG

DESIGNED BY  
J. TYKESON

CHECKED BY  
N. WILL

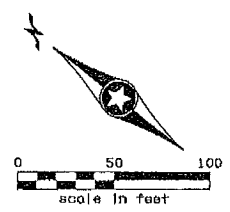
COMM. NO. 1781



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DESIGNERS

ANOKA COUNTY  
 TRAFFIC CONTROL PLAN  
 CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
C26  
OF  
C44



BEGIN S.P. 002-614-035  
CSAH 14  
STA. 246+34.00

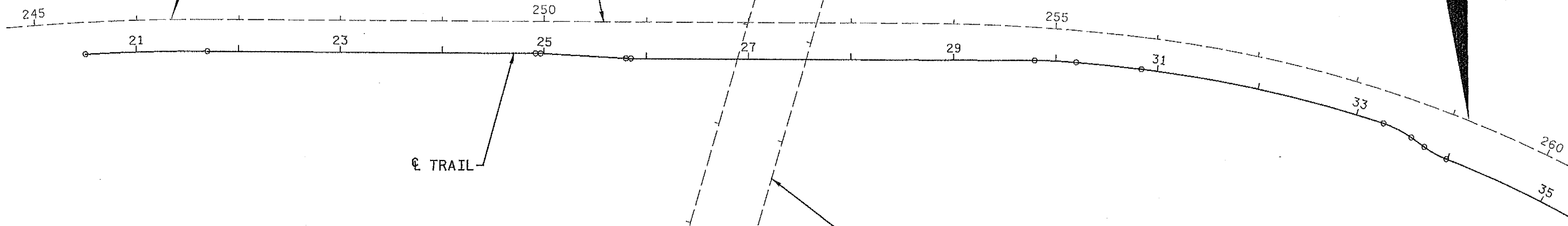
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CSAH 14  
STA. 259+15.88

☉ S.B. 35W

☉ CSAH 14

☉ TRAIL

☉ N.B. 35W



THE HORIZONTAL CONTROL FOR THIS PLAN IS  
NAD83 (1996 ADJUSTMENT) ANOKA COUNTY COORDINATES.  
FOR INFORMATION ON HORIZONTAL CONTROL POINTS  
CONTACT MNDOT'S OFFICE OF LAND MANAGEMENT  
OR THE METRO DISTRICT SURVEYS OFFICE

**HORIZONTAL DATUM**  
ANOKA COUNTY COORDINATES  
NAD '83, '86 ADJ.  
NON-HARN VALUES

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4/1/2013  
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NO	DATE	BY	CHKD	APPR	REVISION

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Print Name: **JEFFREY N TYKESON**  
*J. Tykeson*  
Date: **04/01/2013** License # **42792**

STATE PROJ. NO.  
002-614-035  
STATE PROJ. NO.  
0280-11 (T.H. 35W)

DRAWN BY  
S. YANG  
DESIGNED BY  
J. TYKESON  
CHECKED BY  
N. WILL  
COMM. NO. 7781



ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY  
ALIGNMENT PLAN  
CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
C27  
OF  
C44

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
			SPIRAL CURVE DATA							
ANGLE (Θs)		DEGREE	ST	LT	LS					

⊕ C.S.A.H. 14 <CLCSAH14>

⊕ C.S.A.H. 14											
242	POT	①	242+00.000					549,280.0410	158,233.0249		
	PC		243+11.707					549,363.1050	158,158.3335	131° 57' 42.93"	
CSAH14-1	PI		244+91.069	10° 11' 18.51" RT	2° 50' 51.73"	2,012.000'	179.362'	357.779'	549,496.4769	158,038.4053	PI
	CC							548,017.8082	156,662.2318		
	PT		246+69.486					549,606.5319	157,896.7766	142° 09' 01.43"	
	PC		253+70.323					550,036.5591	157,343.3788	142° 09' 01.43"	
CSAH14-2	PI		254+79.226	6° 44' 42.33" RT	3° 06' 01.52"	1,848.000'	108.903'	217.554'	550,103.3809	157,257.3865	PI
	CC							548,577.3338	156,209.4629		
	PCC		255+87.877					550,159.6402	157,164.1410	148° 53' 43.76"	
	PCC		255+87.877					550,159.6402	157,164.1410	148° 53' 43.76"	
CSAH14-3	PI		259+53.529	31° 50' 18.24" RT	4° 28' 09.30"	1,282.000'	365.652'	712.388'	550,348.5362	156,851.0603	PI
	CC							549,061.9579	156,501.8589		
	PT		263+00.265					550,343.8528	156,485.4385	180° 44' 02.00"	
243	POT	①	264+20.858					550,342.3081	156,364.8549		

⊕ N.B. 35W <35WNB>

8000	POT	①	8000+00.000					548,749.2840	156,928.6485	
8001	POT	①	8025+43.425					551,106.0260	157,885.0900	

⊕ S.B. 35W <35WSB>

9000	POT	①	9000+00.000					548,725.0291	156,988.4143	
9001	POT	①	9025+43.425					551,081.7711	157,944.8558	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
			SPIRAL CURVE DATA							
ANGLE (Θs)		DEGREE	ST	LT	LS					

⊕ TRAIL <TRAIL1>

⊕ TRAIL												
	PC		20+50.000							549,506.0787	157,969.6765	138° 42' 02.57"
TRAIL1-1	PI		21+09.654	3° 26' 58.86" RT	2° 53' 32.16"	1,981.000'	59.654'	119.273'	549,545.4502	157,924.8598		PI
	CC								548,017.8082	156,662.2318		
	PT		21+69.273						549,582.0536	157,877.7553		142° 09' 01.43"
	PC		24+91.800						549,779.9533	157,623.0801		142° 09' 01.43"
TRAIL1-2	PI		24+94.309	2° 52' 29.39" RT	57° 17' 44.81"	100.000'	2.509'	5.018'	549,781.4930	157,621.0987		PI
	CC								549,700.9909	157,561.7210		
	PT		24+96.817						549,782.9313	157,619.0426		145° 01' 30.82"
	PC		25+79.917						549,830.5656	157,550.9500		145° 01' 30.82"
TRAIL1-3	PI		25+82.418	2° 51' 52.38" LT	57° 17' 44.81"	100.000'	2.500'	5.000'	549,831.9988	157,548.9012		PI
	CC								549,912.5060	157,608.2716		
	PT		25+84.917						549,833.5326	157,546.9267		142° 09' 38.44"
	PC		29+79.174						550,075.3895	157,235.5681		142° 09' 38.44"
TRAIL1-4	PI		29+99.546	4° 42' 48.22" RT	11° 34' 29.66"	495.000'	20.372'	40.721'	550,087.8866	157,219.4798		PI
	CC								549,684.4711	156,931.9108		
	PCC		30+19.895						550,099.0195	157,202.4189		146° 52' 26.66"
	PCC		30+19.895						550,099.0195	157,202.4189		146° 52' 26.66"
TRAIL1-5	PI		30+51.951	2° 01' 17.10" RT	3° 09' 11.93"	1,817.002'	32.056'	64.105'	550,116.5372	157,175.5732		PI
	CC								548,577.3321	156,209.4618		
	PCC		30+84.000						550,133.0972	157,148.1264		148° 53' 43.76"
	PCC		30+84.000						550,133.0972	157,148.1264		148° 53' 43.76"
TRAIL1-6	PI		32+06.256	11° 09' 47.71" RT	4° 34' 48.00"	1,251.000'	122.257'	243.739'	550,196.2550	157,043.4471		PI
	CC								549,061.9582	156,501.8590		
	PCC		33+27.739						550,237.9514	156,928.5207		160° 03' 31.47"
	PCC		33+27.739						550,237.9514	156,928.5207		160° 03' 31.47"
TRAIL1-7	PI		33+43.085	17° 26' 58.94" RT	57° 17' 44.34"	100.000'	15.347'	30.456'	550,243.1855	156,914.0943		PI
	CC								550,143.9469	156,894.4150		
	PT		33+58.194						550,243.8526	156,898.7622		177° 30' 30.40"
	PC		33+74.063						550,244.5424	156,882.9088		177° 30' 30.40"
TRAIL1-8	PI		33+86.570	14° 15' 28.47" LT	57° 17' 44.81"	100.000'	12.507'	24.885'	550,245.0861	156,870.4136		PI
	CC								550,344.4479	156,887.2560		
	PRC		33+98.948						550,248.6905	156,858.4373		163° 15' 01.94"
	PRC		33+98.948						550,248.6905	156,858.4373		163° 15' 01.94"
TRAIL1-9	PI		34+67.030	7° 19' 23.32" RT	5° 23' 07.65"	1,063.898'	68.083'	135.980'	550,268.3111	156,793.2431		PI
	CC								549,229.9296	156,551.8355		
	PT		35+34.928						550,279.4616	156,726.0797		170° 34' 25.26"

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAMES.

① ALIGNMENT POINT IS BEYOND PROJECT LIMITS OR OMITTED FOR CLARITY AND WILL NOT SHOW UP ON ALIGNMENT PLAN.

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2/17/2023  
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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
Print Name: JEFFREY N TYKESON  
Date: 04/11/2023 License #: 42792

STATE PROJ. NO.  
002-614-035  
STATE PROJ. NO.  
0280-T1 (T.H. 35W)

DRAWN BY  
S. VANG  
DESIGNED BY  
J. TYKESON  
CHECKED BY  
N. WILL  
COMM. NO. 7781



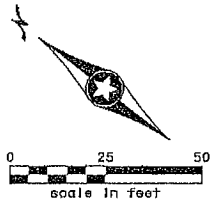
ENGINEERS  
PLANNERS  
DESIGNERS

ANOKA COUNTY  
ALIGNMENT TABULATION  
CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
C28  
OF  
C44

NO	DATE	BY	CHKD	APPR	REVISION



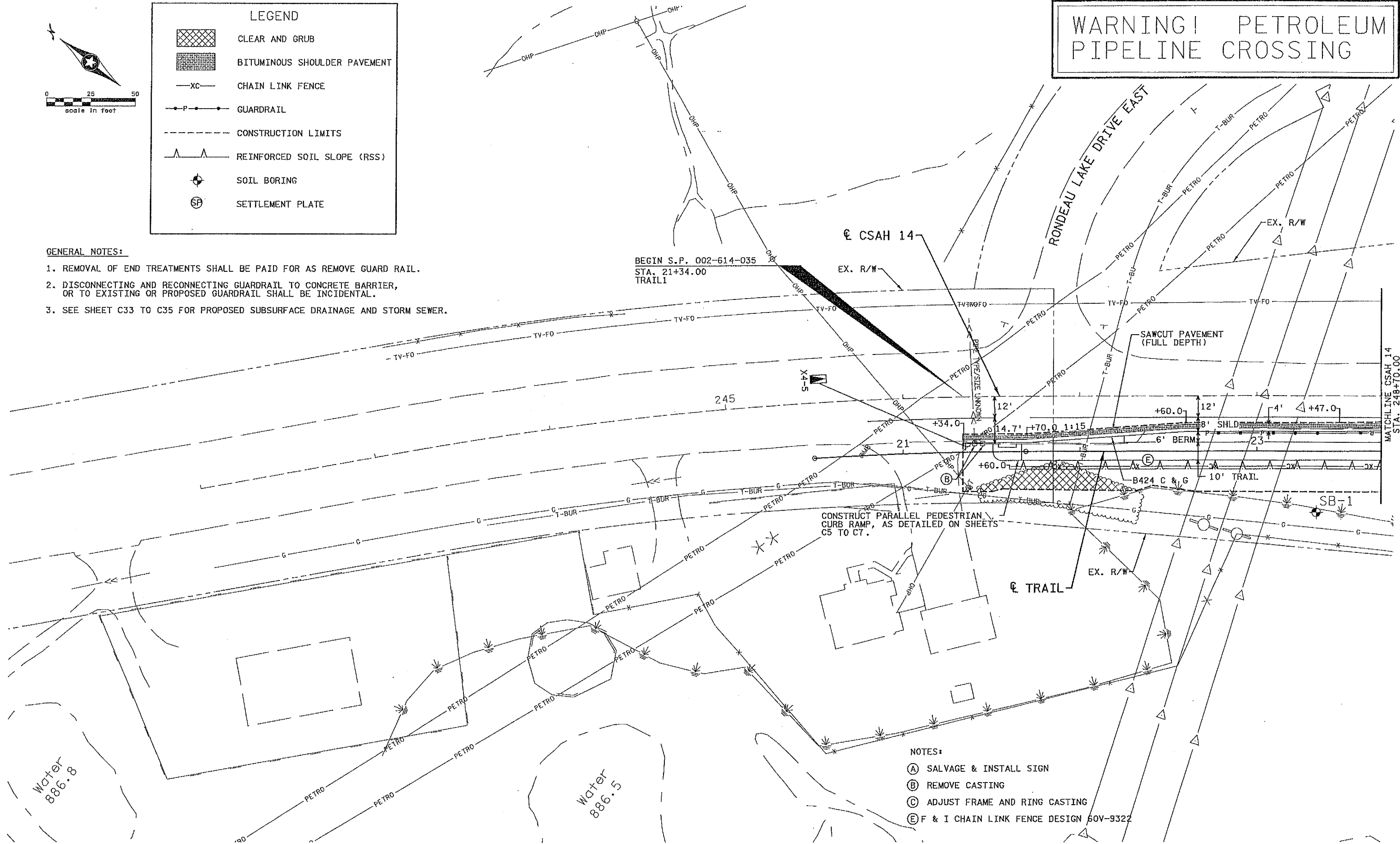


LEGEND	
	CLEAR AND GRUB
	BITUMINOUS SHOULDER PAVEMENT
	CHAIN LINK FENCE
	GUARDRAIL
	CONSTRUCTION LIMITS
	REINFORCED SOIL SLOPE (RSS)
	SOIL BORING
	SETTLEMENT PLATE

**GENERAL NOTES:**

1. REMOVAL OF END TREATMENTS SHALL BE PAID FOR AS REMOVE GUARD RAIL.
2. DISCONNECTING AND RECONNECTING GUARDRAIL TO CONCRETE BARRIER, OR TO EXISTING OR PROPOSED GUARDRAIL SHALL BE INCIDENTAL.
3. SEE SHEET C33 TO C35 FOR PROPOSED SUBSURFACE DRAINAGE AND STORM SEWER.

**WARNING! PETROLEUM PIPELINE CROSSING**



**NOTES:**

- (A) SALVAGE & INSTALL SIGN
- (B) REMOVE CASTING
- (C) ADJUST FRAME AND RING CASTING
- (E & I) CHAIN LINK FENCE DESIGN 60V-9322

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NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Pr Inf Name: **JEFFREY N TYKESON**  
 Date: 04/01/2013 License # 42792

STATE PROJ. NO. 002-614-035  
 STATE PROJ. NO. 0280-71 (T.H. 35W)

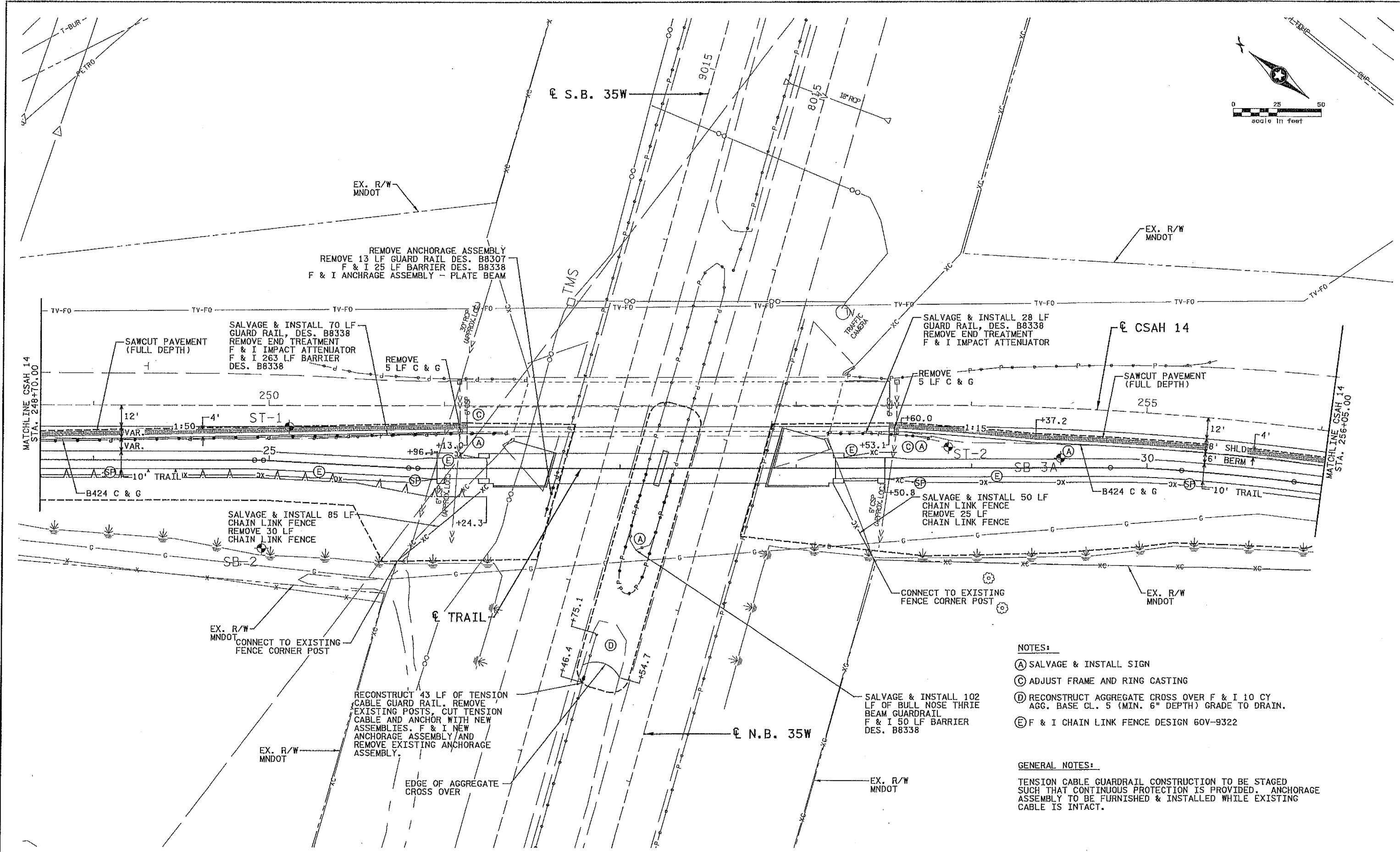
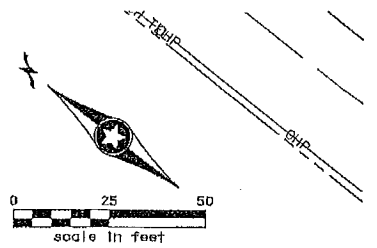
DRAWN BY S. YANG  
 DESIGNED BY J. TYKESON  
 CHECKED BY N. WILL  
 COMM. NO. 7781



ENGINEERS  
 PLANNERS  
 DESIGNERS

**ANOKA COUNTY**  
 CONSTRUCTION PLAN  
 CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

**SHEET**  
 C29  
 OF  
 C44



**NOTES:**

- (A) SALVAGE & INSTALL SIGN
- (C) ADJUST FRAME AND RING CASTING
- (D) RECONSTRUCT AGGREGATE CROSS OVER F & I 10 CY AGG. BASE CL. 5 (MIN. 6" DEPTH) GRADE TO DRAIN.
- (E) F & I CHAIN LINK FENCE DESIGN 60V-9322

**GENERAL NOTES:**

TENSION CABLE GUARDRAIL CONSTRUCTION TO BE STAGED SUCH THAT CONTINUOUS PROTECTION IS PROVIDED. ANCHORAGE ASSEMBLY TO BE FURNISHED & INSTALLED WHILE EXISTING CABLE IS INTACT.

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4/26/2013  
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NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Pr Int Name: **JEFFREY N TYKESON**  
 Date: **4/25/13** License # **42792**

STATE PROJ. NO. 002-614-035  
 STATE PROJ. NO. 0280-71 (T.H. 35W)

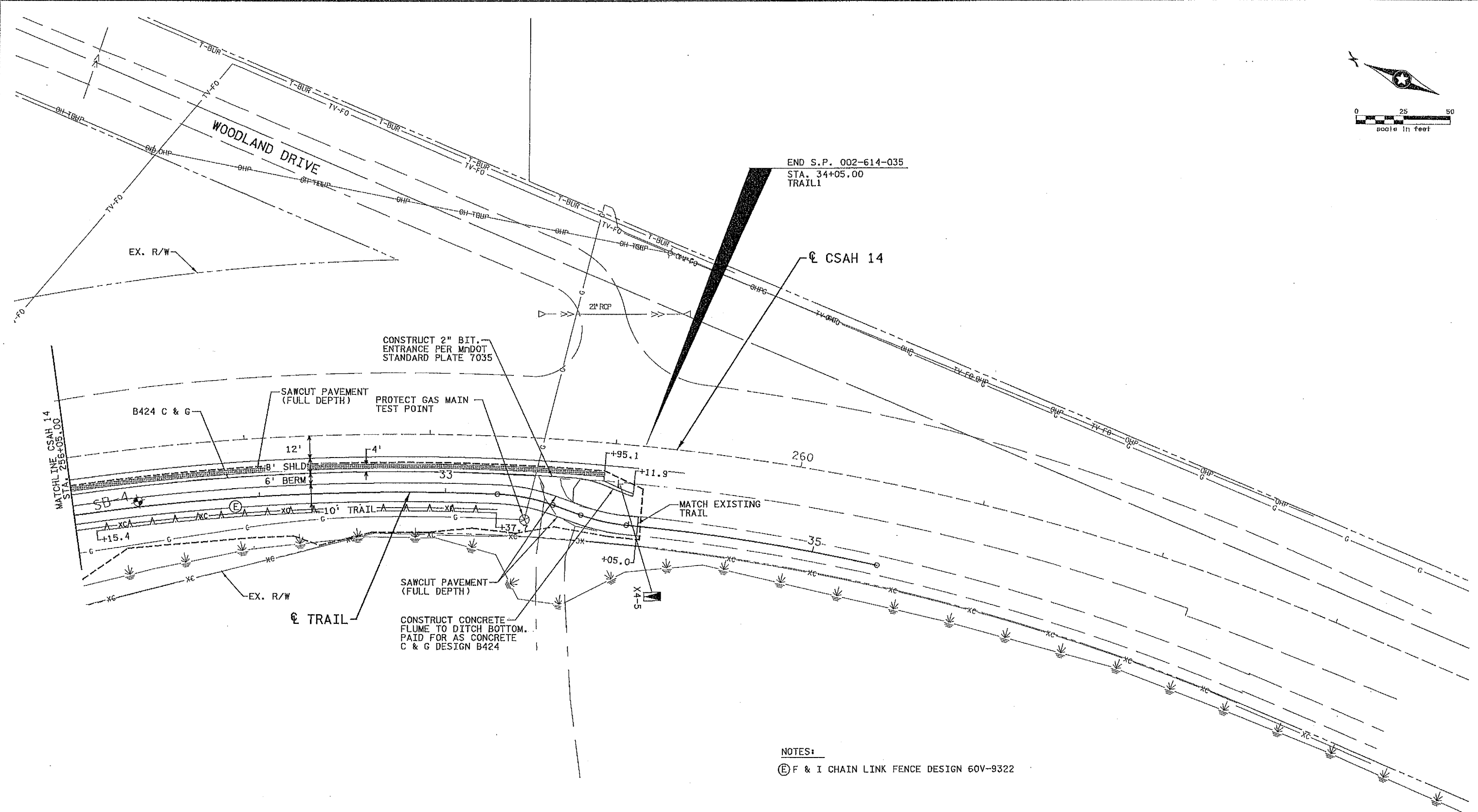
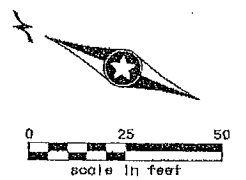
DRAWN BY S. VANG  
 DESIGNED BY J. TYKESON  
 CHECKED BY N. WILL  
 COMM. NO. 7781



ENGINEERS  
 PLANNERS  
 DESIGNERS

**ANOKA COUNTY**  
 CONSTRUCTION PLAN  
**CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W**

**SHEET**  
**C30**  
**OF**  
**C44**



NOTES:  
 (E) F & I CHAIN LINK FENCE DESIGN 60V-9322

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NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: JEFFREY N TYKESON  
 Date: 04/01/2013 License #: 42792

STATE PROJ. NO.  
002-614-035  
 STATE PROJ. NO.  
0280-71 (T.H. 35W)

DRAWN BY  
S. YANG  
 DESIGNED BY  
J. TYKESON  
 CHECKED BY  
N. WILL  
 COMM. NO. 7781

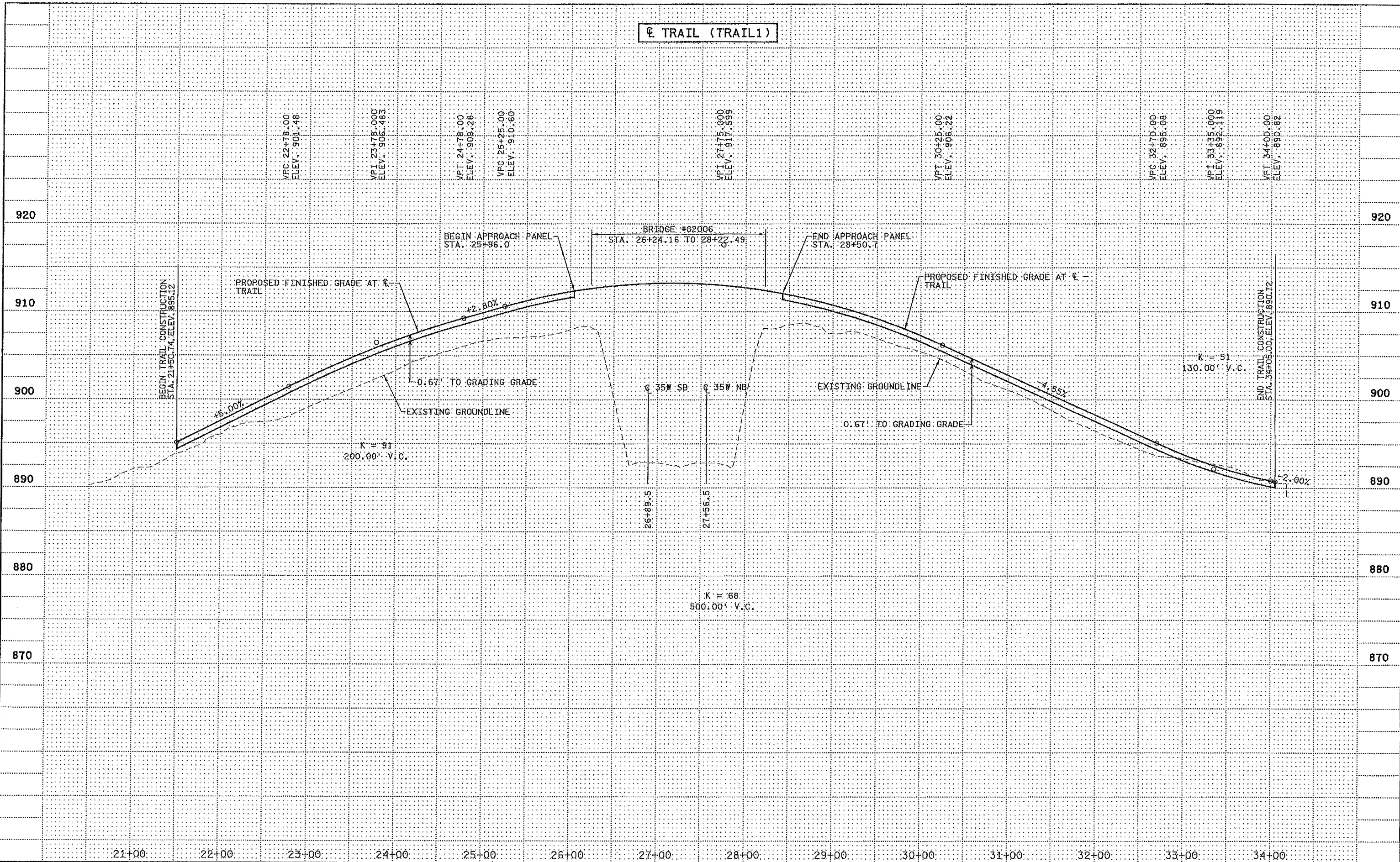


ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 CONSTRUCTION PLAN  
 CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
 C31  
 OF  
 C44

☐ TRAIL (TRAIL1)



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NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: JEFFREY N TYKESON  
 Date 04/01/2013 License # 42792

STATE PROJ. NO. 002-614-035  
 STATE PROJ. NO. 0280-71 (T.H. 35W)

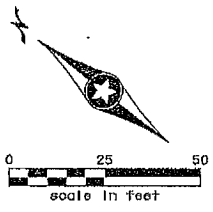
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 DESIGNED BY J. TYKESON  
 CHECKED BY N. WILL  
 COMM. NO. 7781


















ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 PROPOSED PROFILE  
 CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

SHEET  
 C32  
 OF  
 C44



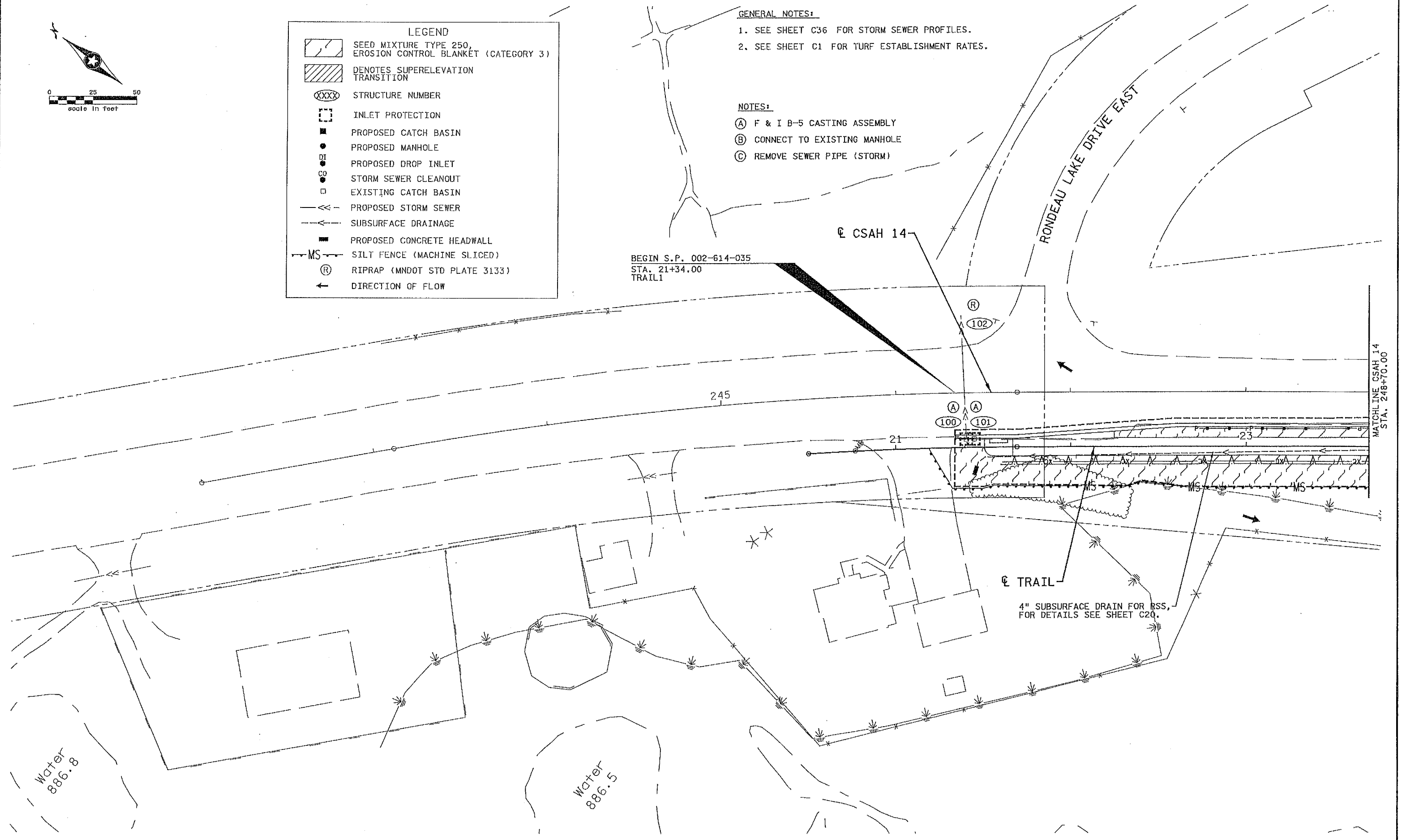
**LEGEND**

	SEED MIXTURE TYPE 250, EROSION CONTROL BLANKET (CATEGORY 3)
	DENOTES SUPERELEVATION TRANSITION
	STRUCTURE NUMBER
	INLET PROTECTION
	PROPOSED CATCH BASIN
	PROPOSED MANHOLE
	PROPOSED DROP INLET
	STORM SEWER CLEANOUT
	EXISTING CATCH BASIN
	PROPOSED STORM SEWER
	SUBSURFACE DRAINAGE
	PROPOSED CONCRETE HEADWALL
	SILT FENCE (MACHINE SLICED)
	RIPRAP (MNDOT STD PLATE 3133)
	DIRECTION OF FLOW

- GENERAL NOTES:**
- SEE SHEET C36 FOR STORM SEWER PROFILES.
  - SEE SHEET C1 FOR TURF ESTABLISHMENT RATES.

- NOTES:**
- (A) F & I B-5 CASTING ASSEMBLY
  - (B) CONNECT TO EXISTING MANHOLE
  - (C) REMOVE SEWER PIPE (STORM)

BEGIN S.P. 002-614-035  
STA. 21+34.00  
TRAIL



MATCHLINE CSAH 14  
STA. 248+70.00

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NO	DATE	BY	CHKD	APPR	REVISION

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Print Name: JEFFREY N TYKESON

*(Signature)*

Date: 04/01/2013 License # 42792

STATE PROJ. NO.  
002-614-035

STATE PROJ. NO.  
0280-71 (T.H. 35W)

DRAWN BY  
S. YANG

DESIGNED BY  
J. TYKESON

CHECKED BY  
N. WILL

COMM. NO. 7781



ENGINEERS  
PLANNERS  
DESIGNERS

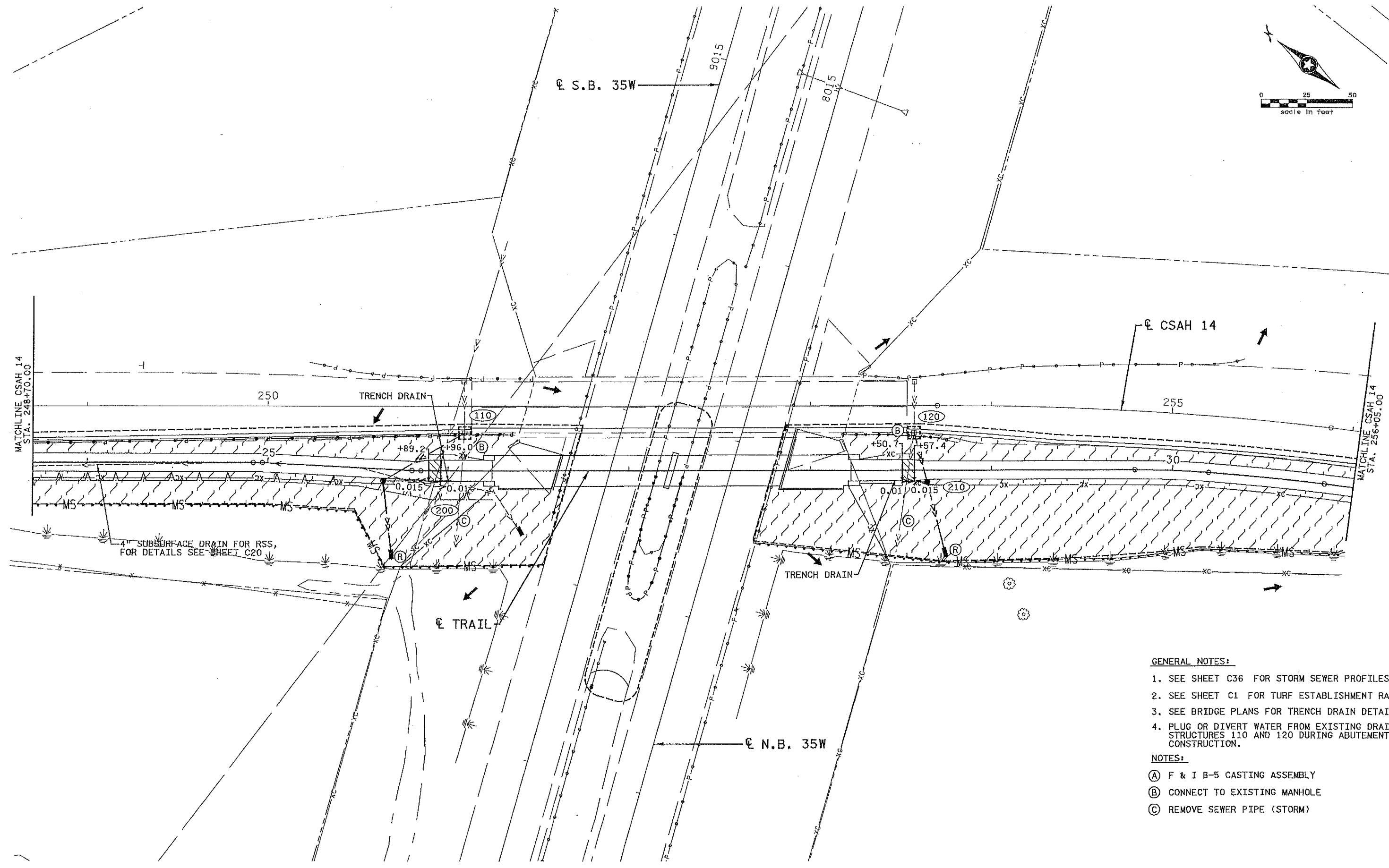
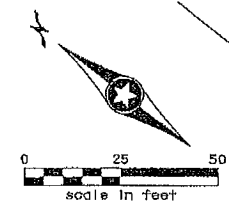
**ANOKA COUNTY**

DRAINAGE, EROSION CONTROL AND  
TURF ESTABLISHMENT PLAN

**CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W**

CSAH 14 STA. 246+34.00 TO STA. 23+70.00

SHEET  
C33  
OF  
C44



**GENERAL NOTES:**

1. SEE SHEET C36 FOR STORM SEWER PROFILES.
2. SEE SHEET C1 FOR TURF ESTABLISHMENT RATES.
3. SEE BRIDGE PLANS FOR TRENCH DRAIN DETAILS
4. PLUG OR DIVERT WATER FROM EXISTING DRAINAGE STRUCTURES 110 AND 120 DURING ABUTEMENT CONSTRUCTION.

**NOTES:**

- (A) F & I B-5 CASTING ASSEMBLY
- (B) CONNECT TO EXISTING MANHOLE
- (C) REMOVE SEWER PIPE (STORM)

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NO	DATE	BY	CHKD	APPR	REVISION

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Print Name: JEFFREY N TYKESON

Date: 04/01/2013 License: 42792

STATE PROJ. NO.  
002-614-035

STATE PROJ. NO.  
0280-11 (T.H. 35W)

DRAWN BY  
S. VANG

DESIGNED BY  
J. TYKESON

CHECKED BY  
N. WILL

COMM. NO. 7781

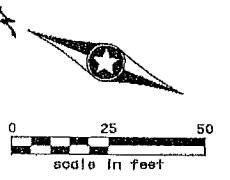


ENGINEERS  
PLANNERS  
DESIGNERS

**ANOKA COUNTY**  
 DRAINAGE, EROSION CONTROL AND  
 TURF ESTABLISHMENT PLAN  
**CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W**

SHEET  
C34  
OF  
C44



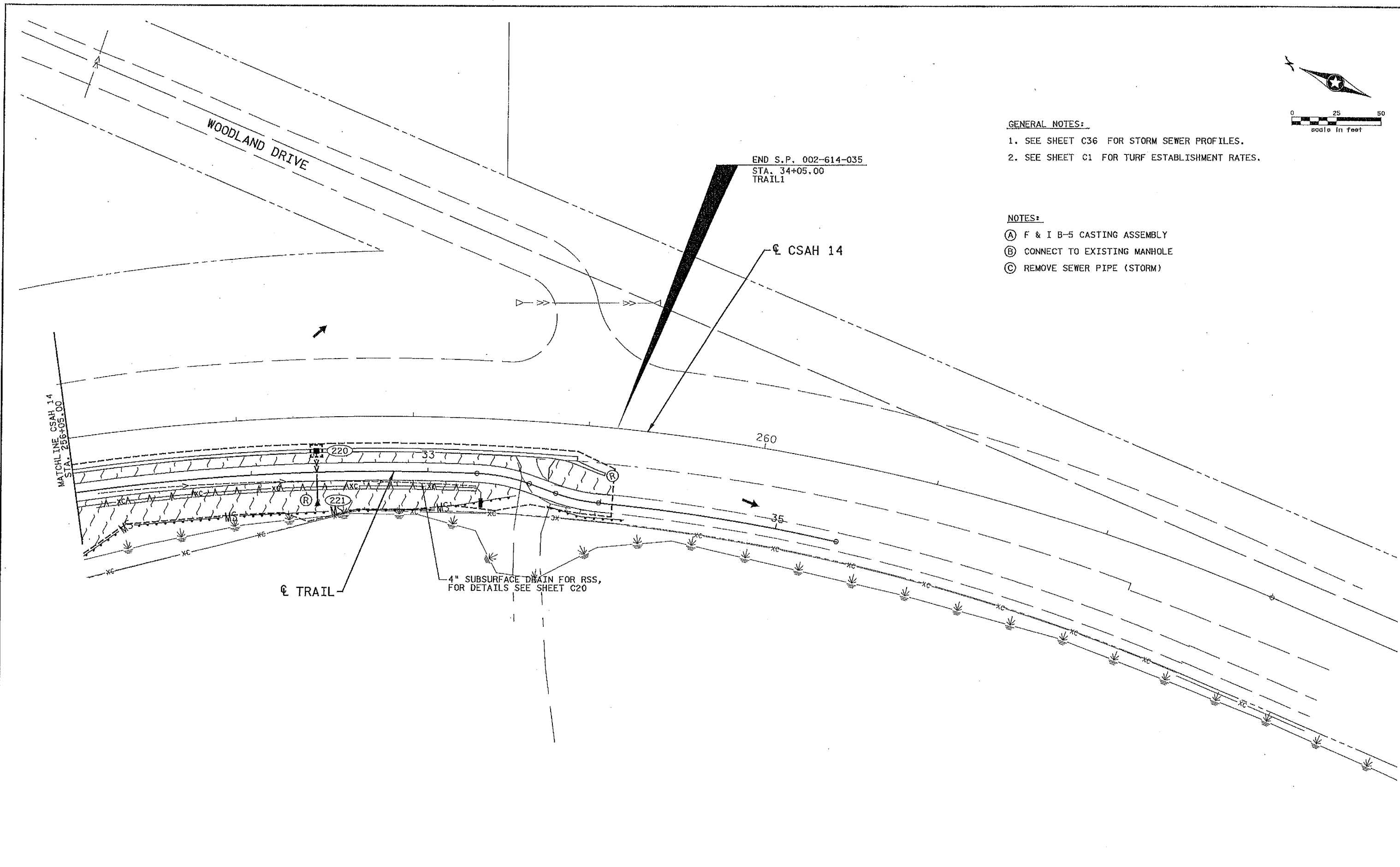


**GENERAL NOTES:**

1. SEE SHEET C36 FOR STORM SEWER PROFILES.
2. SEE SHEET C1 FOR TURF ESTABLISHMENT RATES.

**NOTES:**

- (A) F & I B-5 CASTING ASSEMBLY
- (B) CONNECT TO EXISTING MANHOLE
- (C) REMOVE SEWER PIPE (STORM)



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NO	DATE	BY	CHKD	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: **JEFFREY N TYKESON**

*[Signature]*

Date: **04/01/2013** License #: **42792**

STATE PROJ. NO.  
002-614-035

STATE PROJ. NO.  
0280-71 (T.H. 35W)

DRAWN BY  
S. VANG

DESIGNED BY  
J. TYKESON

CHECKED BY  
N. WILL

COMM. NO. 7781

**SRH** ENGINEERS  
PLANNERS  
DESIGNERS

Consulting Group, Inc.

**ANOKA COUNTY**

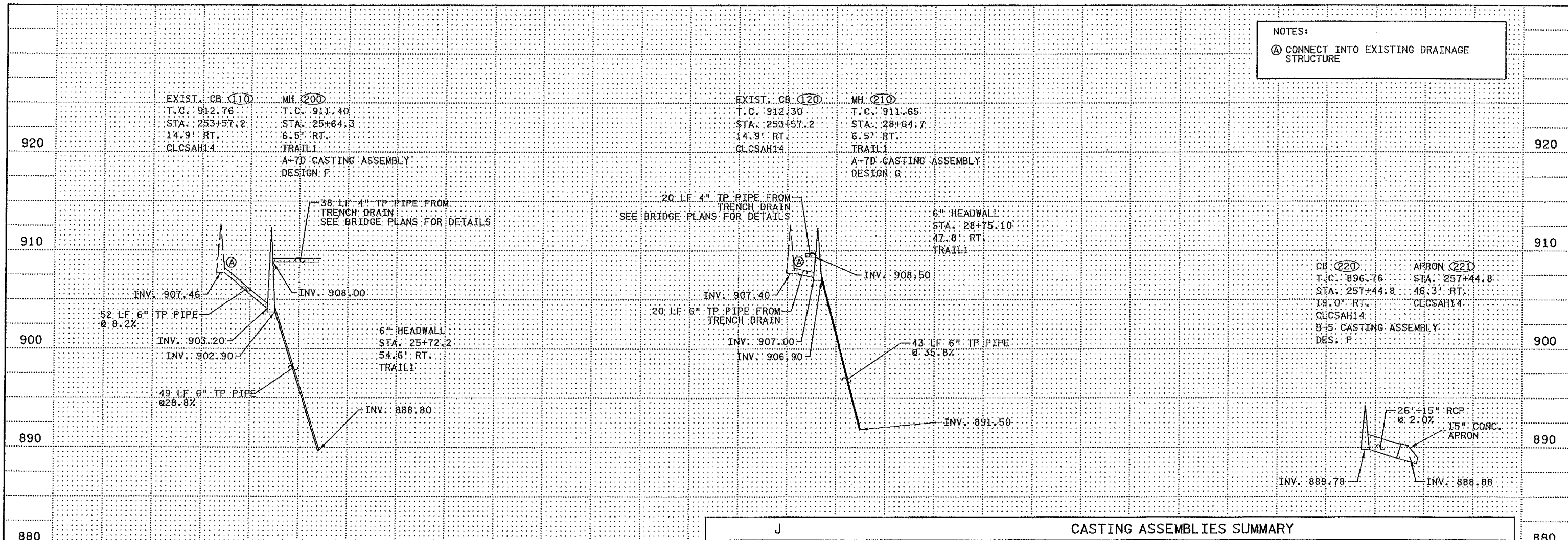
DRAINAGE, EROSION CONTROL AND  
TURF ESTABLISHMENT PLAN

**CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W**

SHEET  
C35  
OF  
C44



NOTES:  
 (A) CONNECT INTO EXISTING DRAINAGE STRUCTURE



J CASTING ASSEMBLIES SUMMARY						
ASSEMBLY	RING OR FRAME CASTING	(A) COVER OR GRATE CASTING	(B) CURB BOX	STANDARD PLATE NO.	QUANTITY	REMARKS
B - 5	802A	816		4129	3	CATCH BASIN (CB)
				4154		
				4160		
A - 7D	700-7	715		4101	2	MANHOLE (MH)
				4110		
				N/A		
<b>PROJECT TOTALS</b>					<b>5</b>	

NOTES:  
 A) USE BENT BOLT WITH #16 GRATES.  
 B) USE ELONGATED BOLT SLOTS ON CURB BOXES WITH 4 IN CURB.

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NO	DATE	BY	CHK	APPR	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: JEFFREY N TYKESON  
 Date: 04/01/2013 License #: 42792

STATE PROJ. NO. 002-614-035  
 STATE PROJ. NO. 0280-71 (T.H. 35W)

DRAWN BY S. YANG  
 DESIGNED BY J. TYKESON  
 CHECKED BY N. WILL  
 COMM. NO. 7781

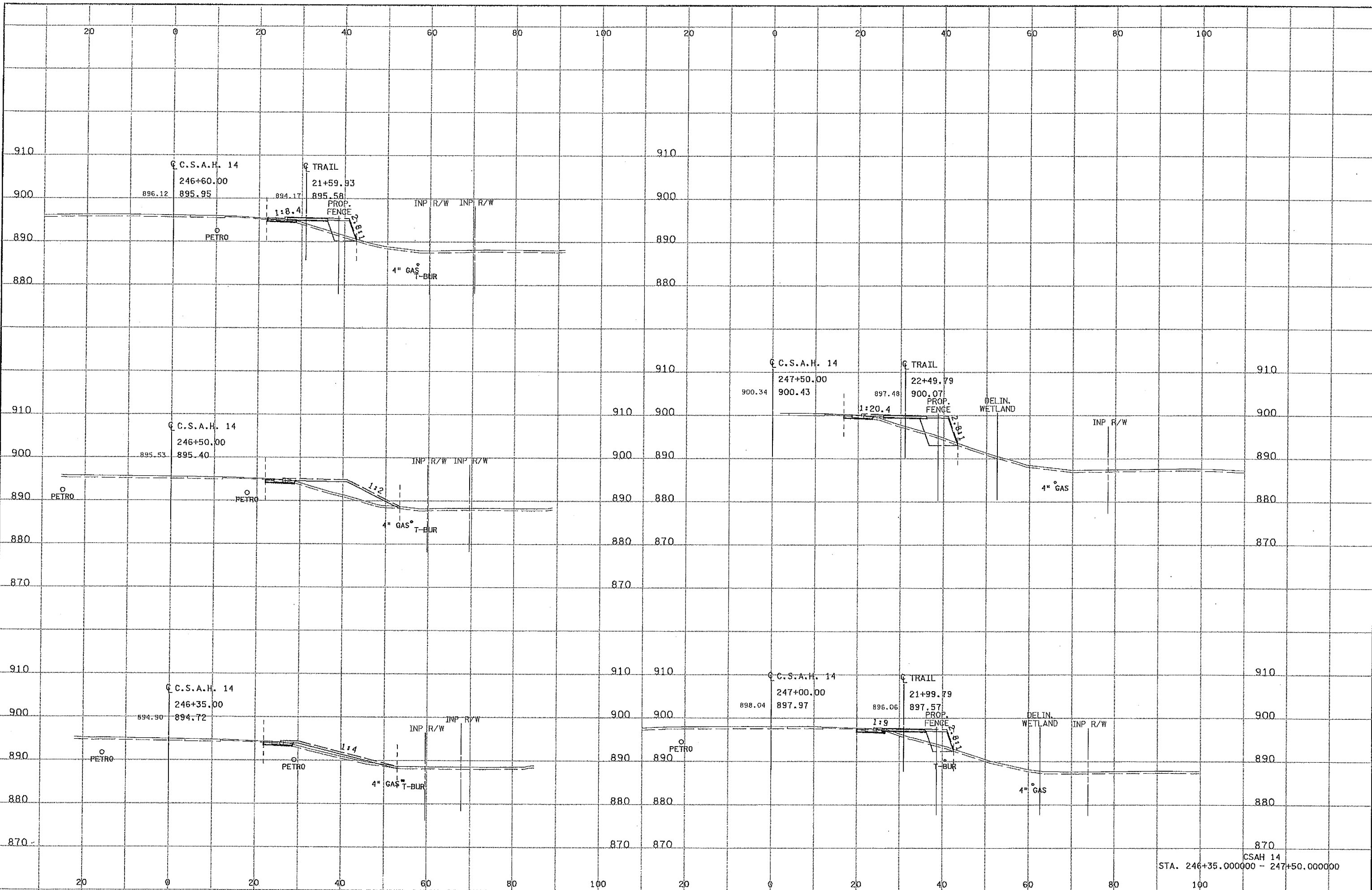


ENGINEERS  
 PLANNERS  
 DESIGNERS

ANOKA COUNTY  
 STORM SEWER PROFILES  
 CSAH 14 PEDESTRIAN BRIDGE OVER T.H. I-35W

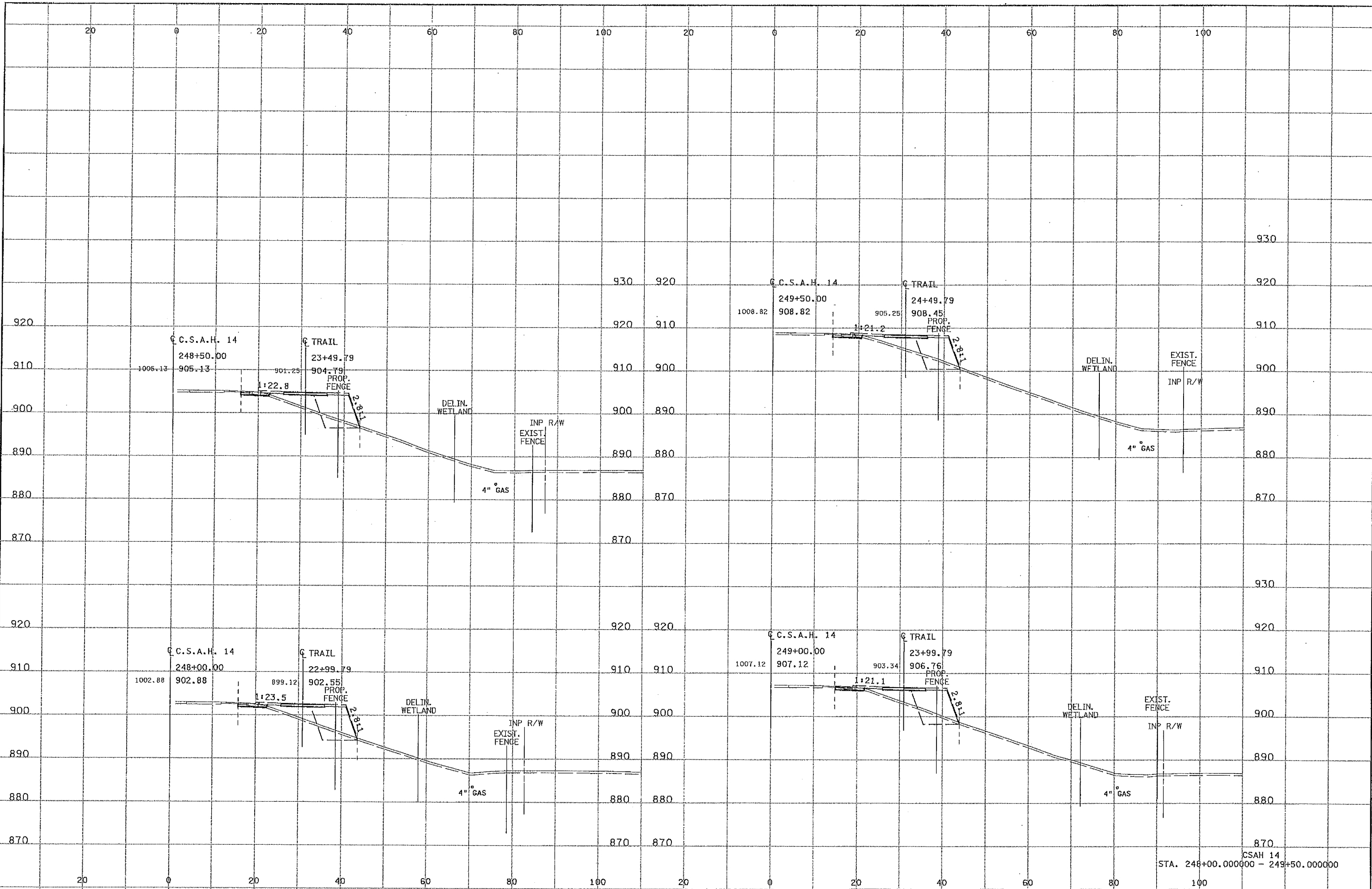
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 C36  
 OF  
 C44

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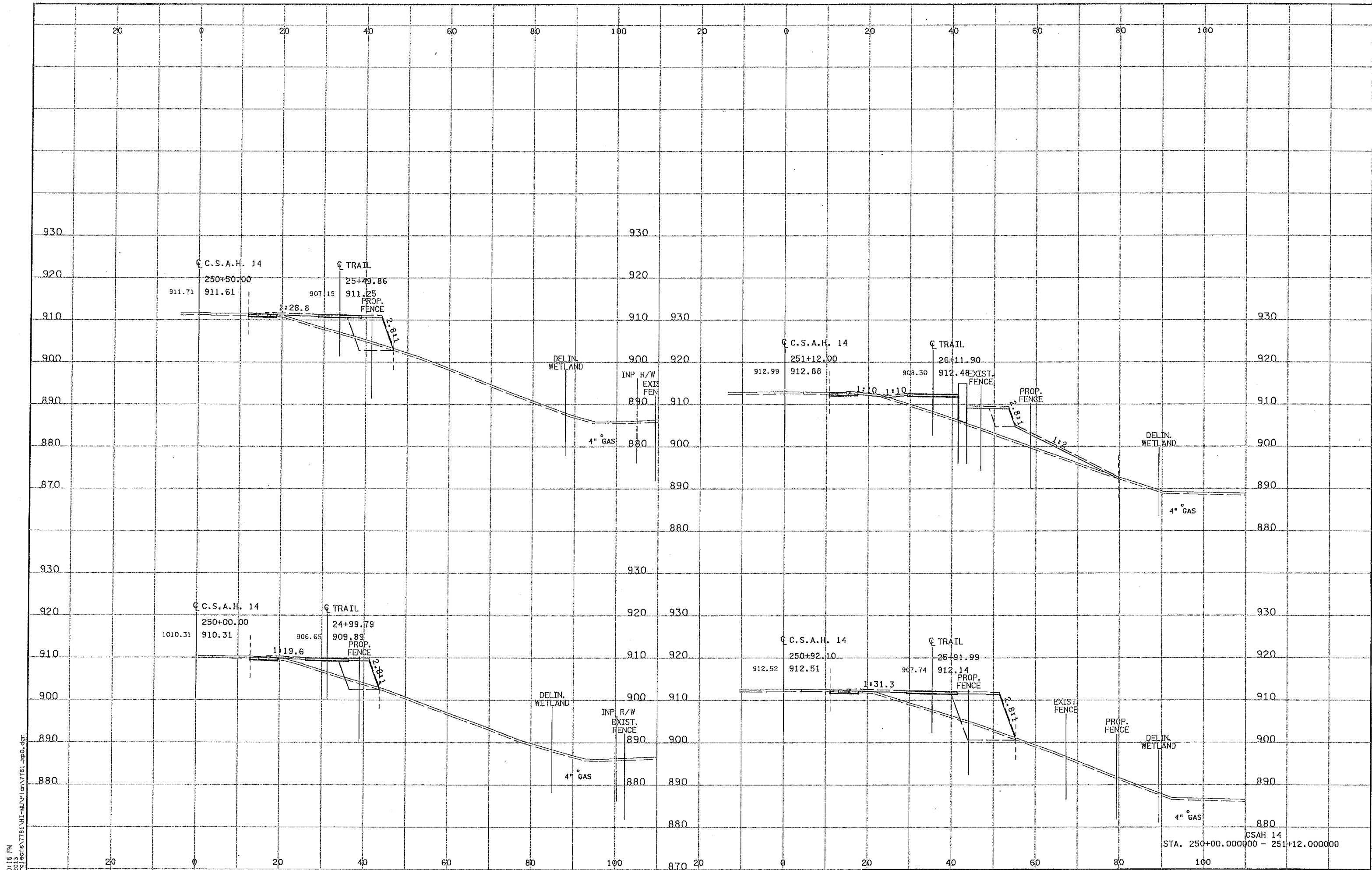


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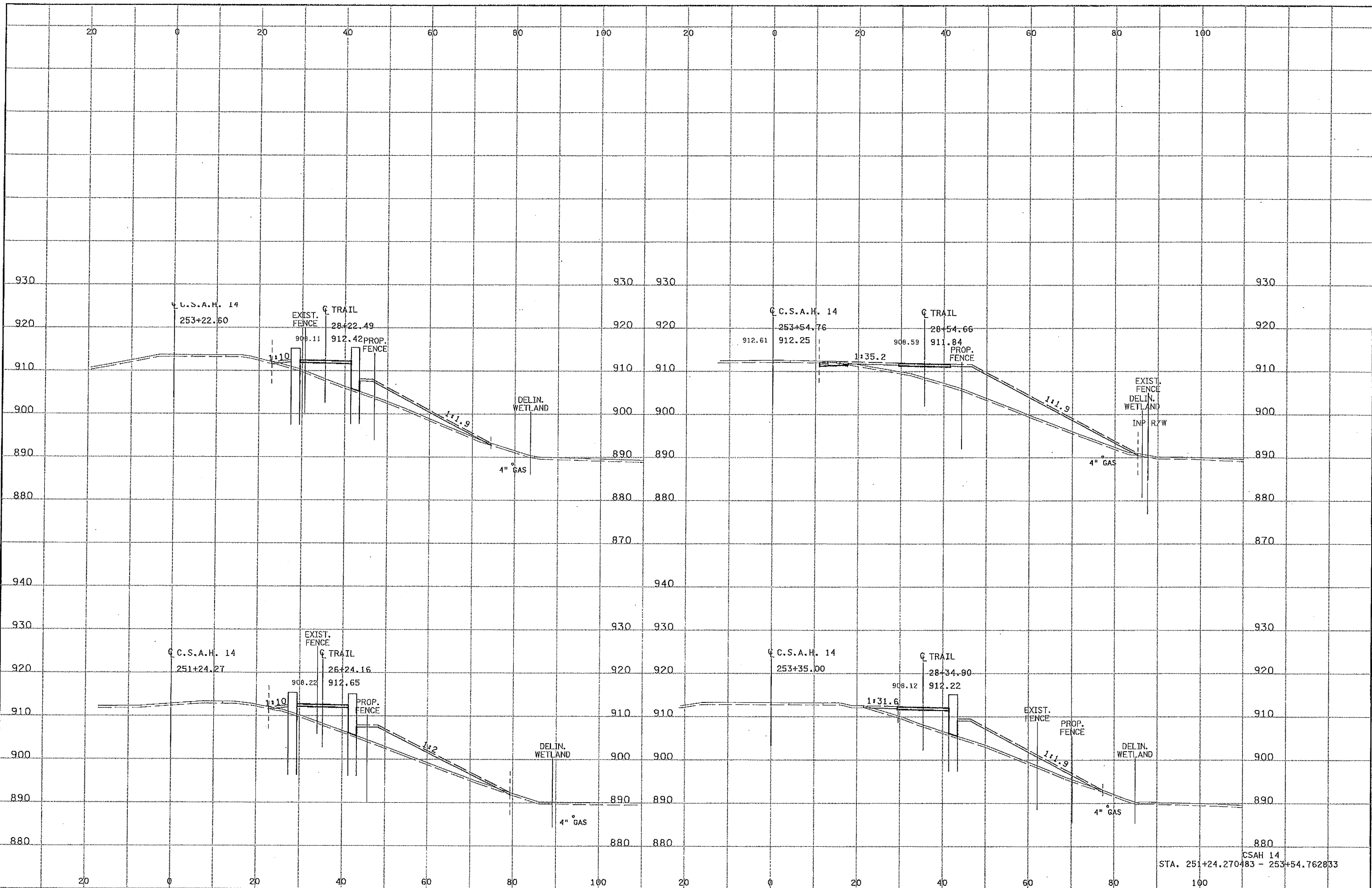
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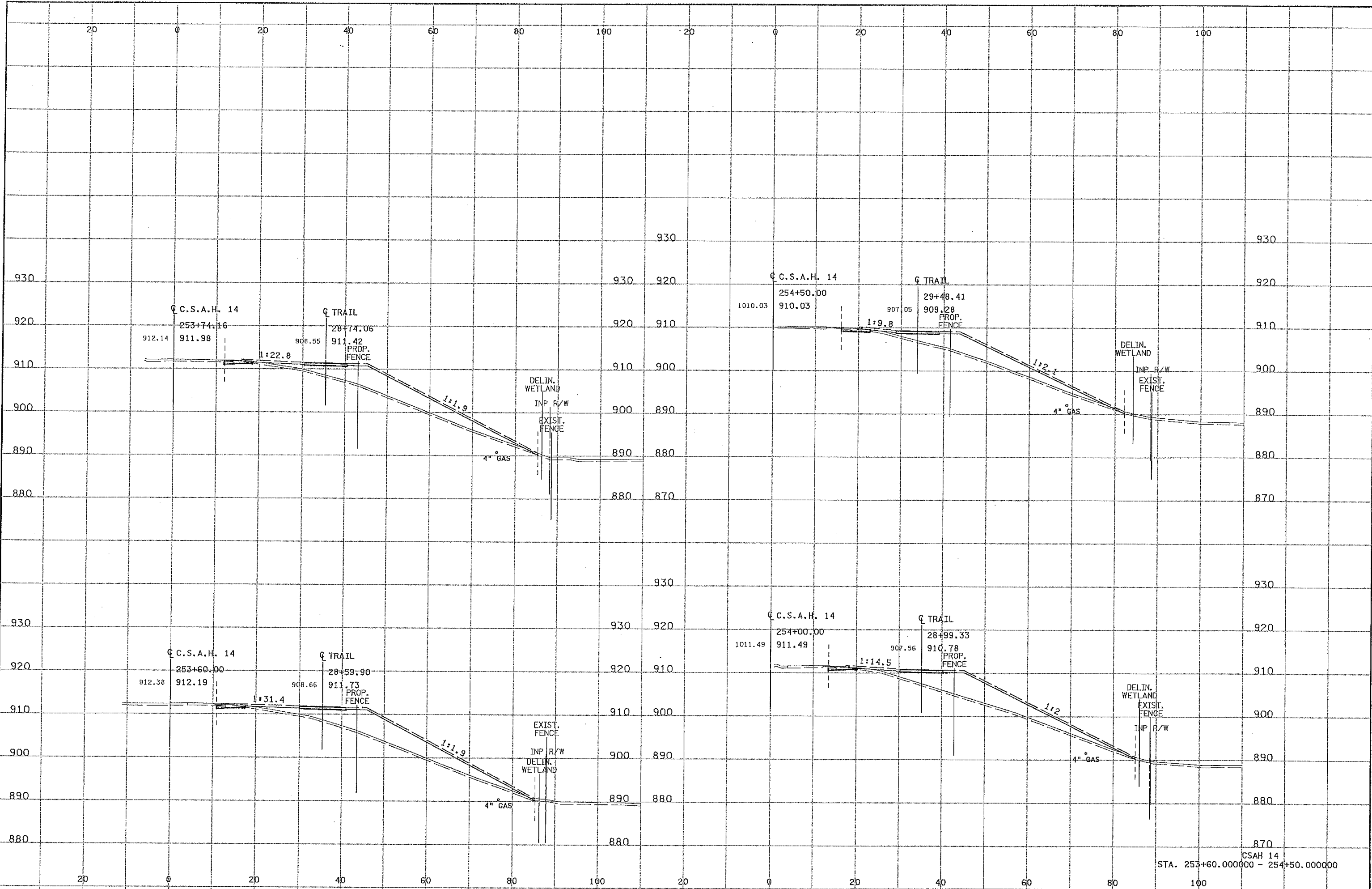
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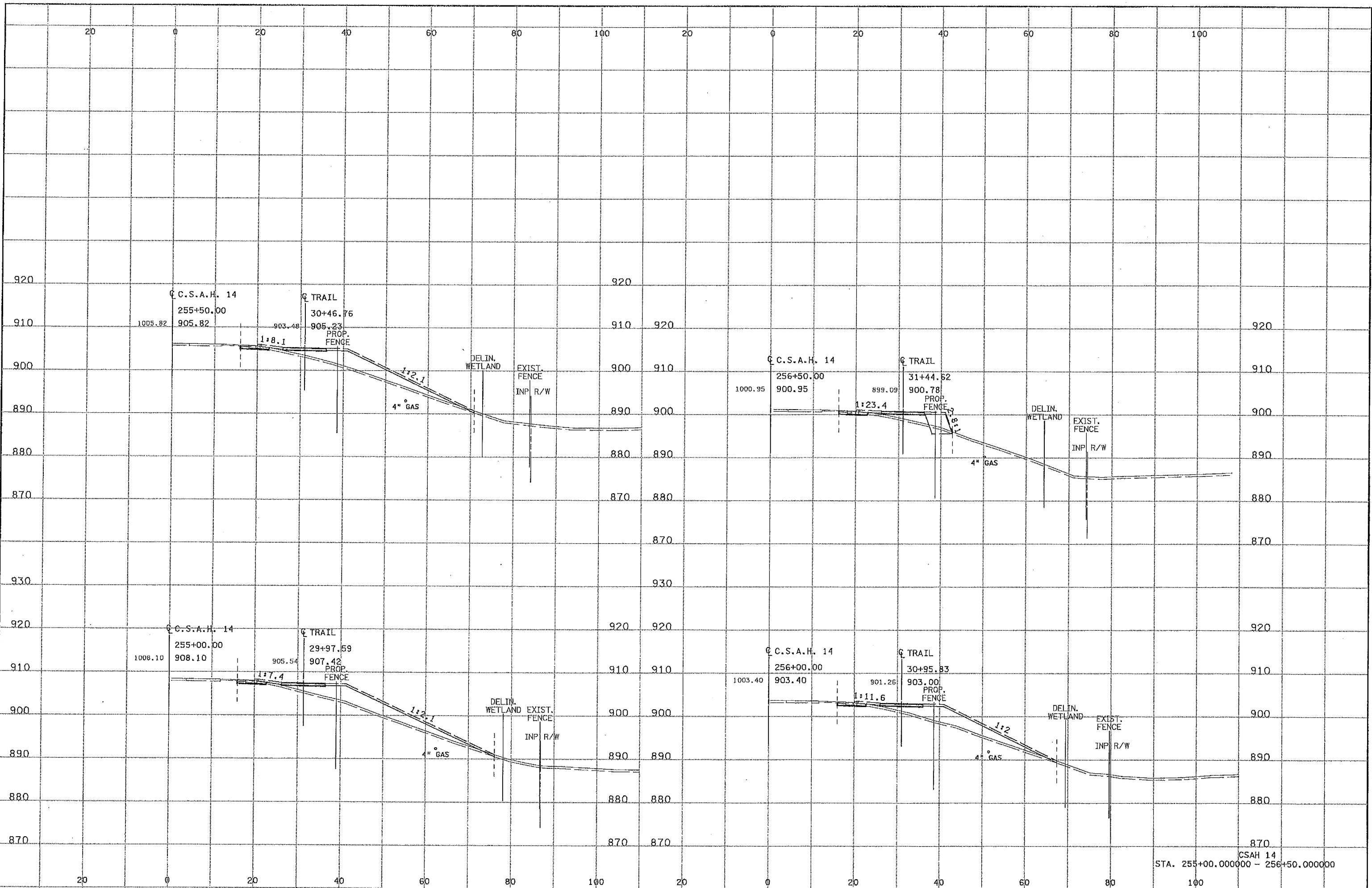
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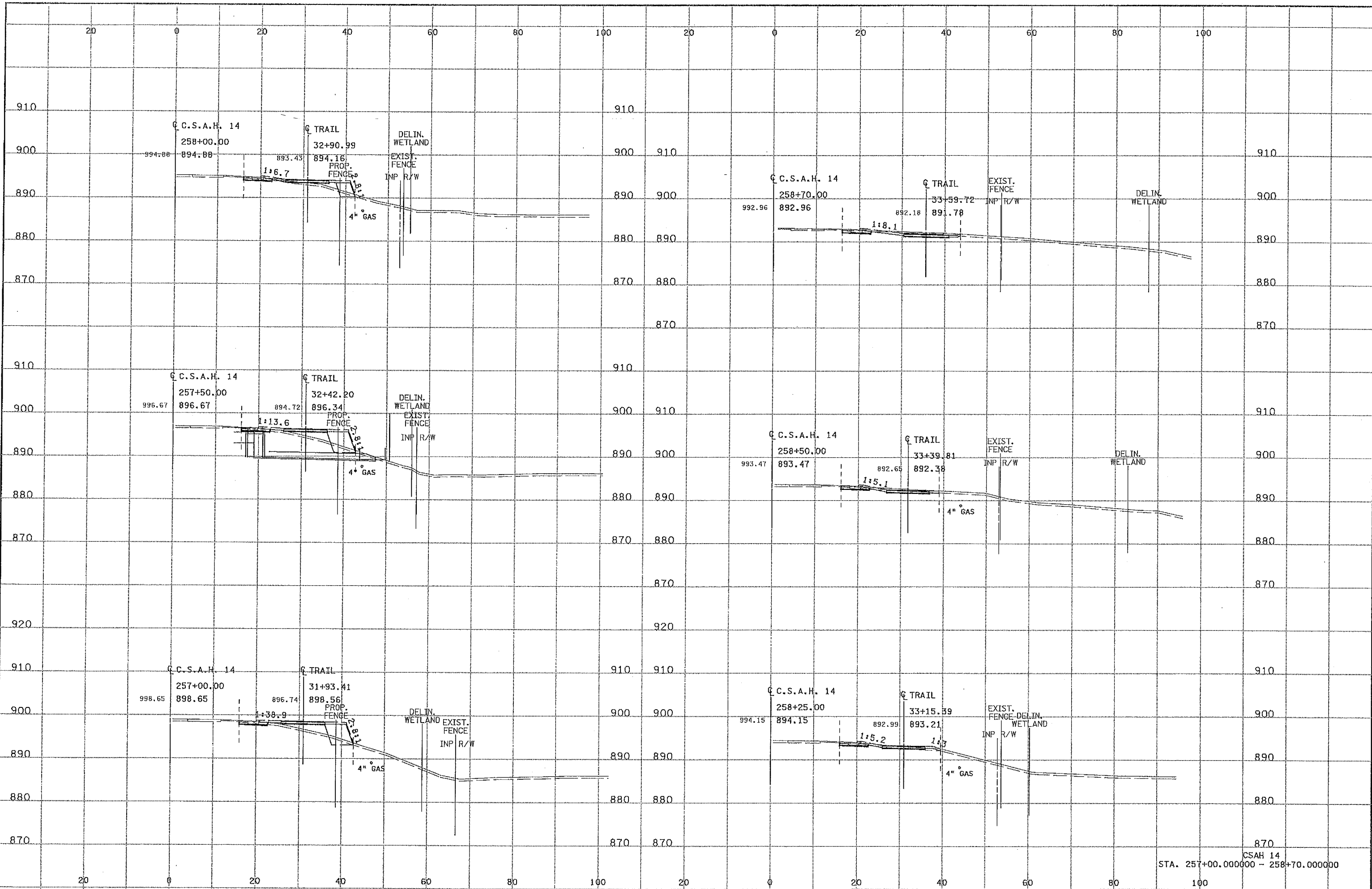
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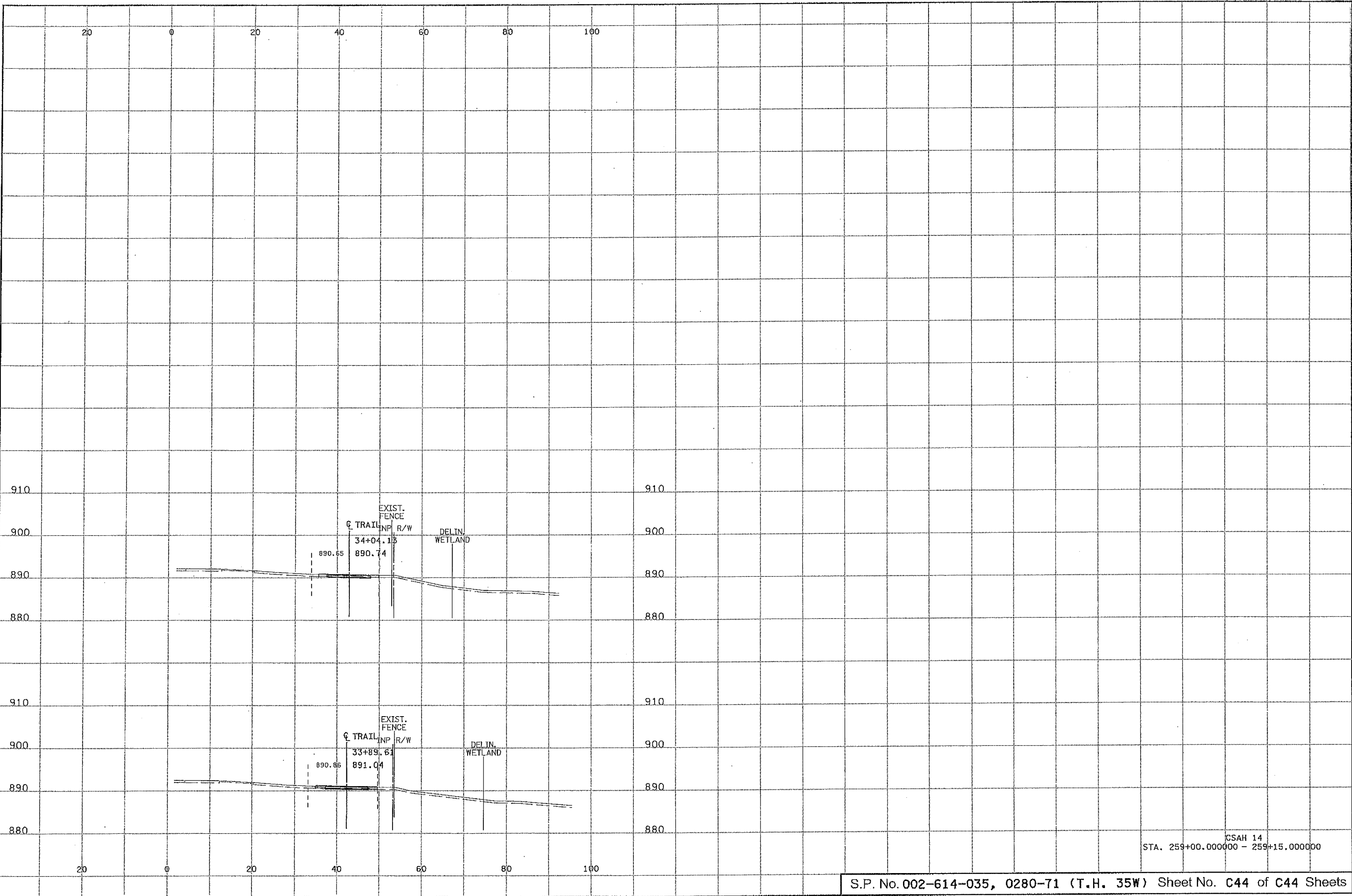


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CSAH 14  
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