

Anoka County

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Subject: **RFC: DP08 - CSAH 14 Bridge Over BNSF Railroad (BR#02583)**

From: **J. Helgestad**

To: **C. Cadenhead**

From Agency: **CSMCI**

To Agency: **ANOK**

Action By:

Logged By: **T1T**

Dist. Date: **10/05/2011**

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Distr To.: **File**

File No.: **11.02 Bridge / Structures / Walls**

Released for Construction (RFC)

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C.S. McCrossan

7461 CSAH 14 Design Build

Construction Document Distribution List

Document Name: DP 8 Bridge 02583

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COUNTY OF ANOKA

Public Services Division

HIGHWAY DEPARTMENT

1440 BUNKER LAKE BLVD. NW, ANDOVER, MINNESOTA 55304

(763) 862-4200 FAX (763) 862-4201

Charles Cadenhead, Jr., P.E.

County Construction Engineer

Phone (763) 862-4237

TO: Charles Cadenhead
CSAH 14 Project Manager

FROM: Barritt Lovelace
CSAH 14 Lead Structures Design Engineer

DATE: September 22, 2011

SUBJECT: DP 8 Bridge 02583

The Verification Team has reviewed DP 8 for conformance with the contract and overall suitability for the project. The contractor has addressed all of the comments as depicted in the attached comment sheet. We recommend this package be released for construction.

Please have the cover sheet signed by the Anoka County Engineer and return to me. The RFC boxes will be signed after the set is signed by the State Bridge Engineer.

RELEASED FOR CONSTRUCTION

Anoka County
All Design Review Responses to Comments

02-614-34 Main Street / 125th Avenue (CSAH 14)

Construction

2 DP08 - CSAH 14 Bridge Over BNSF Railroad for Approval

Cmt No.	Reference No.	Reviewer Responder	Status	Comment Response	Attachment QC Verif.
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GEN Overall General Comments 0

C001	CAD34	JIR	CMPL	The plans should have a note referencing the surcharge fill construction and removal to be completed prior to abutment construction.	
	RAD34	JIG/GRO	IP	Note # 4 was revised to explain that the surcharge fill construction and removal will be completed prior to abutment construction.	<input type="checkbox"/>
C002	CAD75	JIR	CMPL	The revised FADR has not yet been submitted. Comments generated during review of the revised FADR may impact DP08.	
	RAD75	JIG/GRO	IP	FADR has been processed. No changes.	<input type="checkbox"/>
C003	CAD76	JIR	CMPL	The two existing gas mains will experience differential settlements under the weight of the surcharge fill. An evaluation of the allowable differential settlements should be included in the revised FADR, which has not yet been submitted. Depending on the results of this analysis, DP08 may be impacted.	
	RAD76	JIG/GRO	IP	FADR has been processed. Northern Natural Gas has confirmed their understanding of the settlement and issued a letter to show they accepted the planned construction and surcharge. Letter/email is in TRACS. Center Point Energy is analyzing the shallower gas main. They will be issuing a letter to explain their findings.	<input type="checkbox"/>

BRI Overall Bridge Comments 0

	CAD85	BIL	CMPL	Please fill out the checked by boxes in the calculations.	
	RAD85	JIG/GRO	IP	"Checked by" boxes have been filled out.	<input type="checkbox"/>

08B01 General Plan & Elevation 1 CD0261434_gpe01.dgn

C001	CAD86	BIL	CMPL	Label the bottom of footing elevations.	
	RAD86	JIG/GRO	IP	Bottom of footings have been labeled.	<input type="checkbox"/>
C002	CAD87	BIL	CMPL	Change the fc number from 8500 psi to 8100 psi to match the beam sheet.	
	RAD87	JIG/GRO	IP	The fc number was changed to 8100 psi.	<input type="checkbox"/>
C003	CAD88	BIL	CMPL	The slope between the last two beams on the south side should not be labeled as VAR., it should be 2.18%. Please verify.	
	RAD88	JIG/GRO	IP	The slope was changed to 2.18%.	<input type="checkbox"/>

08B04 West Abutment Details (Sheet 1 of 6) 4 CD0261434_abt01.dgn

C001	CAD89	BIL	CMPL	The factored bearing resistance in the table does not match the calculations.	
	RAD89	JIG/GRO	IP	The calculations were corrected to reflect values in FADR.	<input type="checkbox"/>

08B05 West Abutment Details (Sheet 2 of 6) 5 CD0261434_abt02.dgn

C001	CAD90	BIL	CMPL	The second beam seat in from the south is incorrect at 916.13. We believe the correct elevation should be 916.10. Please verify and correct.	
	RAD90	JIG/GRO	IP	Change the beam seat elevation to 916.10.	<input type="checkbox"/>
C002	CAD91	BIL	CMPL	Please check the top of pilaster elevations on the north side of the abutment.	
	RAD91	JIG/GRO	IP	Increased the pilaster elevation by 2". Updated section A-A on Sht 08B20 so top of pilaster and back side of barrier were the same elevation.	<input type="checkbox"/>

08B06 West Abutment Details (Sheet 3 of 6) 6 CD0261434_abt03.dgn

Anoka County
All Design Review Responses to Comments

02-614-34 Main Street / 125th Avenue (CSAH 14)

Construction

DP08 - CSAH 14 Bridge Over BNSF Railroad for Approval

Cmt No.	Reference No.	Reviewer Responder	Status	Comment Response	Attachment QC Verif.
C001	CAD92	BIL	CMPL	The paving block should be a 1'-4" minimum thickness.	
	RAD92	J1G/GRO	IP	Changed to 1'-4".	<input type="checkbox"/>
C002	CAD93	BIL	CMPL	The west abutment is taller than the east abutment but has less toe length. Please verify.	
	RAD93	J1G/GRO	IP	Verified. The toe is shorter so the footing would not extend into the RR ROW.	<input type="checkbox"/>
C003	CAD94	BIL	CMPL	The keyway at the toe/stem interface should be 3 1/2" instead of 3".	
	RAD94	J1G/GRO	IP	Changed dimension to 3 1/2".	<input type="checkbox"/>
C004	CAD95	BIL	CMPL	Please check the two top of pilaster elevations for the NW Wingwall Elevation.	
	RAD95	J1G/GRO	IP	Changed pilaster elevation by 2". Changed Section AA on Sht 08B20 so elevations on top of pilaster and behind the barrier were the same.	<input type="checkbox"/>

08B08 West Abutment Details (Sheet 5 of 6) 8 CD0261434_abt05.dgn

C001	CAD96	BIL	CMPL	The A2905E bars do not match the spacing of the A2902E bars; the design moment is the same here.	
	RAD96	J1G/GRO	IP	No change. Calculations follow the bridge manual procedures for abutment design.	<input type="checkbox"/>
C002	CAD97	BIL	CMPL	Consider adding longitudinal bars and extending the A2905E bars for form a U shape at the shear key.	
	RAD97	J1G/GRO	IP	Extended A2905E into the shear key as noted.	<input type="checkbox"/>

9 West Abutment Details (Sheet 6 of 6) 9 CD0261434_abt06.dgn

C001	CAD98	BIL	CMPL	Verify the number of A1633E bars. We calculate 8 instead of 16.	
	RAD98	J1G/GRO	IP	Changed to 8 bars.	<input type="checkbox"/>

08B10 East Abutment Details (Sheet 1 of 6) 10 CD0261434_abt07.dgn

C001	CAD99	BIL	CMPL	The factored bearing resistance in the table does not match the calculations.	
	RAD99	J1G/GRO	IP	Calculations were revised to match recommended values from the FADR.	<input type="checkbox"/>

08B11 East Abutment Details (Sheet 2 of 6) 11 CD0261434_abt08.dgn

C001	CAE00	BIL	CMPL	Please check the elevations at the top of the pilaster on the north side of the abutment.	
	RAE00	J1G/GRO	IP	Pilaster elevations were increased by 2". Section AA on sheet 08B20 was changed to match pilaster elevation.	<input type="checkbox"/>
C002	CAE01	BIL	CMPL	The second beam seat elevation from the south side is incorrect, it should be 918.01. Please verify.	
	RAE01	J1G/GRO	IP	Changed elevation to 918.01.	<input type="checkbox"/>

08B12 East Abutment Details (Sheet 3 of 6) 12 CD0261434_abt12.dgn

C001	CAE02	BIL	CMPL	The paving block should be a 1'-4" minimum thickness.	
	RAE02	J1G/GRO	IP	Changed to 1'-4".	<input type="checkbox"/>
C002	CAE03	BIL	CMPL	The east abutment is shorter than the west abutment but has a longer toe length. Please verify.	
	RAE03	J1G/GRO	IP	Verified. We took advantage of the additional space to the RR ROW to lengthen toe and get a more conservative bearing pressure.	<input type="checkbox"/>
C003	CAE04	BIL	CMPL	The keyway at the toe/stem interface should be 3 1/2" instead of 3".	
	RAE04	J1G/GRO	IP	Changed to 3 1/2".	<input type="checkbox"/>
C004	CAE05	BIL	CMPL	Please check the two top of pilaster elevations for the NW Wingwall Elevation.	
	RAE05	J1G/GRO	IP	Pilaster elevations were revised.	<input type="checkbox"/>

Anoka County
All Design Review Responses to Comments

02-614-34 Main Street / 125th Avenue (CSAH 14)

Construction

2) DP08 - CSAH 14 Bridge Over BNSF Railroad for Approval

Cmt No.	Reference No.	Reviewer Responder	Status	Comment Response	Attachment QC Verif.
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08B14 East Abutment Details (Sheet 5 of 6) 14 CD0261434_abt11.dgn

C001	CAE06	BIL	CMPL	The A2905E bars do not match the spacing of the A2902E bars; the design moment is the same here.	
	RAE06	J1G/GRO	IP	No change. Calculations follow the bridge manual procedures for abutment design.	<input type="checkbox"/>
C002	CAE07	BIL	CMPL	Consider adding longitudinal bars and extending the B2905E bars for form a U shape at the shear key.	
	RAE07	J1G/GRO	IP	Extended the B2905E bars to form a U shape. Added longitudinal bars in the shear key.	<input type="checkbox"/>

08B15 East Abutment Details (Sheet 6 of 6) 15 CD0261434_abt12.dgn

C001	CAE08	BIL	CMPL	Verify the number of A1633E bars. We calculate 8 instead of 16.	
	RAE08	J1G/GRO	IP	Corrected the number of bars to 8.	<input type="checkbox"/>

08B18 Bridge Deck Details (Sheet 1 of 2) 18 CD0261434_sup03.dgn

C001	CAE09	BIL	CMPL	Add transverse dimensions between edge of bridge, sidewalks, lanes, medians etc.	
	RAE09	J1G/GRO	IP	Transverse dimensions were added.	<input type="checkbox"/>

08B19 Bridge Deck Details (Sheet 2 of 2) 19 CD0261434_sup04.dgn

C001	CAE10	BIL	CMPL	The F1604E bar labeled in the partial transverse section should be labeled F1605E.	
	RAE10	J1G/GRO	IP	Changed bar label to F1605E.	<input type="checkbox"/>
C002	CAE11	BIL	CMPL	The slope in detail 'A' should not vary but should be 2.18%. Please verify.	
	RAE11	J1G/GRO	IP	Changed slope to 2.18%.	<input type="checkbox"/>
C003	CAE12	BIL	CMPL	The paving block thickness in the longitudinal section should be 1'-4" instead of 1'-3".	
	RAE12	J1G/GRO	IP	Changed to 1'-4".	<input type="checkbox"/>

08B21 Concrete Parapet (Type P-1 Mod.) 21 CD0261434_ral02.dgn

C001	CAE13	BIL	CMPL	The dimensions for the reveals in section B-B do not add up correctly.	
	RAE13	J1G/GRO	IP	Changed the top reveal to 9 1/2" from 9 1/4".	<input type="checkbox"/>

08B22 Metal Railing (Type T-2 Mod.) (Sheet 1 of 2) 22 CD0261434_ral03.dgn

C001	CAE14	BIL	CMPL	Verify that the top anchor bar in the typical section thru railing is inside the reinforcement.	
	RAE14	J1G/GRO	IP	Moved baseplate down by 1". This moved the anchor within the reinforcement.	<input type="checkbox"/>

08B26 Conduit System 26 CD0261434_det03.dgn

C001	CAE15	BIL	CMPL	Why is the ends of the conduit capped? Where are the handholes located?	
	RAE15	J1G/GRO	IP	The caps are temporary. Handholes will be shown in DP-06, signal design.	<input type="checkbox"/>

08B27 Waterproof Expansion Device (W/Type F Barrier) 27 CD0261434_det04.dgn

C001	CAE16	BIL	CMPL	Consider using a 5" gland.	
	RAE16	J1G/GRO	IP	Gland now shown as 5".	<input type="checkbox"/>

08B31 Bridge Approach Panel Miscellaneous Details 31 CD0261434_appr03.dgn

C001	CAE17	BIL	CMPL	Consider adding 2 longitudinal bars to the concrete endblock to mitigate spalling and plow damage.	
	RAE17	J1G/GRO	IP	Added longitudinal bard to the endblock.	<input type="checkbox"/>

Resolution Meeting
Final Concurrence

Designer

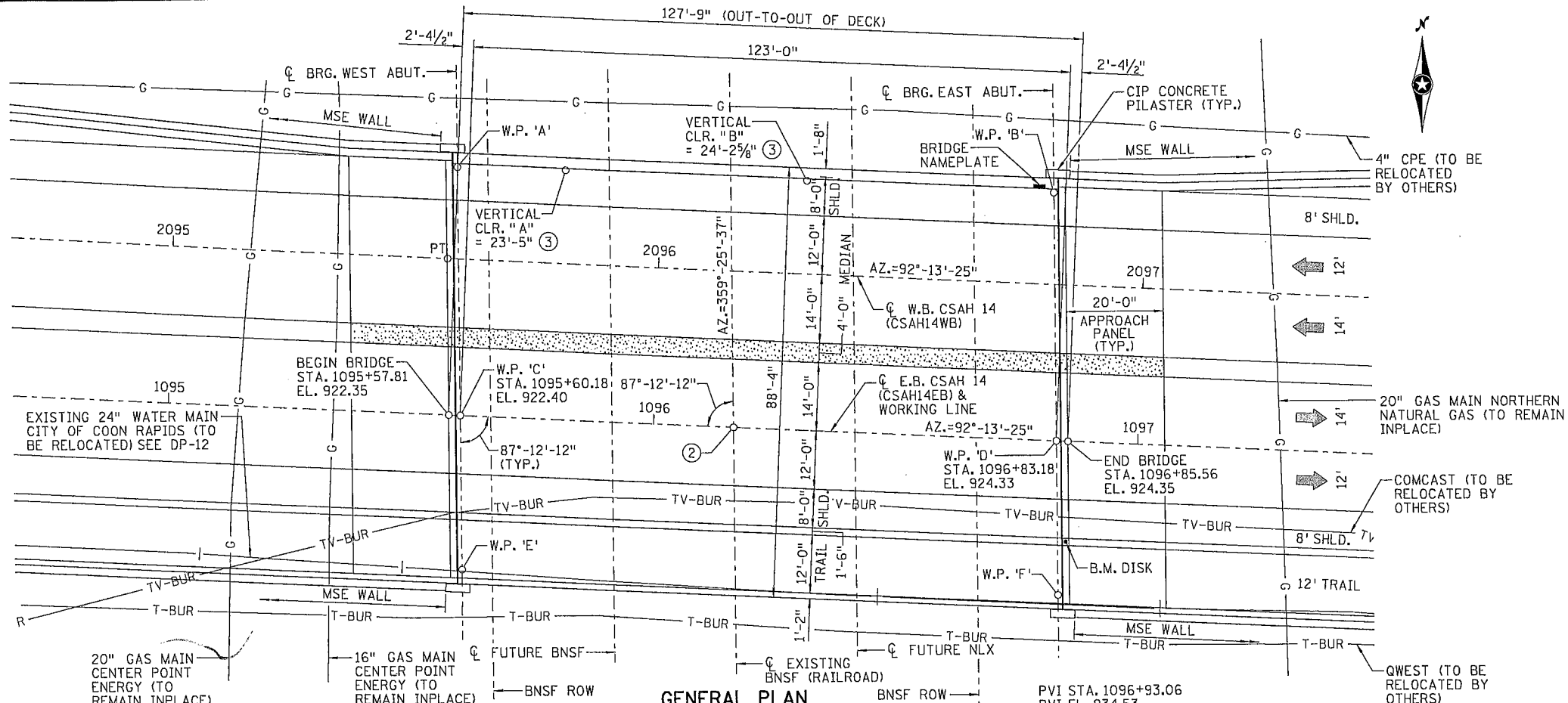
Sign & Date:

Janet E. [Signature]
9/16/11

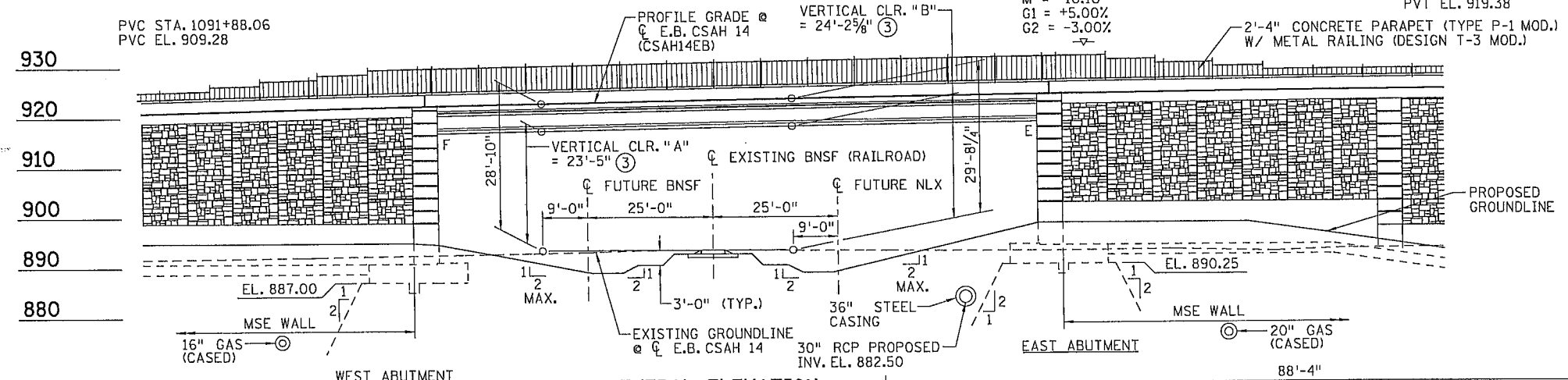
Reviewer

Sign & Date:

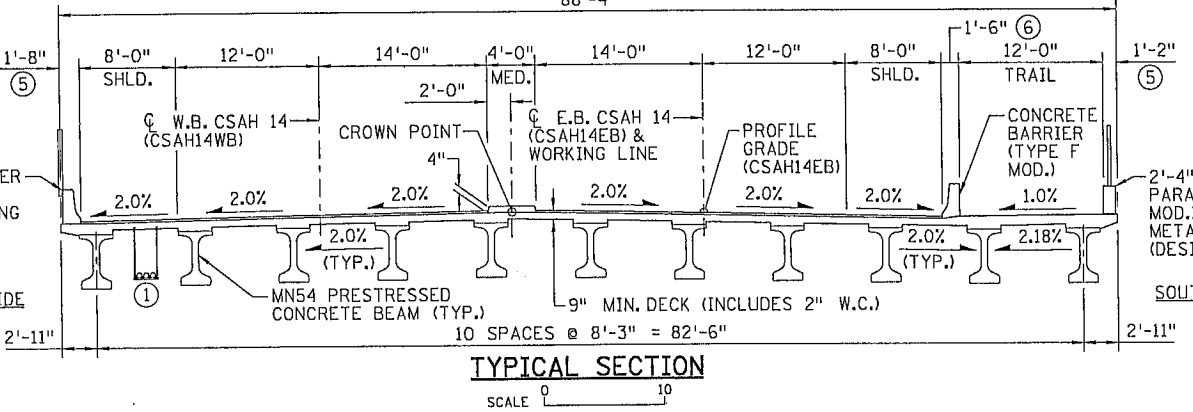
Barrett [Signature] 9/21/11



GENERAL PLAN
SCALE 0 10



GENERAL ELEVATION
SCALE 0 10



TYPICAL SECTION
SCALE 0 10

- NOTES:**
- 2-4" R.S.C. CONDUIT SYSTEM (FUTURE USE) AND 1-4" R.S.C. CONDUIT SYSTEM (SIGNAL INTERCONNECT).
 - CONTROL POINT: E.B. CSAH 14 (CSAH14EB) STA. 1096+16.50 = EXISTING BNSF (RAILROAD) STA. 203+00.00 X=492813.215 Y=158975.121
 - FUTURE BNSF & NLX RAIL PROFILE ASSUMED TO MATCH EXISTING PROFILE.
 - SEE "FADR BRIDGE 02583-2100" FOR DETAILS OF PRELOAD CONSOLIDATION OF SOILS. PRELOAD CONSTRUCTION AND REMOVAL TO BE COMPLETED PRIOR TO ABUTMENT CONSTRUCTION.
 - TOP OF DECK IS LEVEL BELOW CONCRETE BARRIER.
 - THE TOP OF THE CONCRETE OVERLAY IN THE ROADWAY SECTION AND THE TOP OF DECK AT THE TRAIL SECTION ARE AT THE SAME ELEVATION ON EACH SIDE OF THE BARRIER.
 - DEPTH OF GAS MAIN > 35' BELOW EXISTING GROUNDLINE.

RELEASED FOR CONSTRUCTION

DESIGN DATA

2010 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
LOAD AND RESISTANCE FACTOR DESIGN METHOD
HL 93 LIVE LOAD
DEAD LOAD INCLUDES 20 psf ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS
MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4000 psi n = 8
fy = 60000 psi REINFORCEMENT
PRESTRESSED CONCRETE:
f'c = 8100 psi n = 1
f'pu = 270000 psi LOW RELAXATION STRANDS
DESIGN SPEED:
OVER = 55 MPH
APPROXIMATE DECK AREA 11284 ft².
2030 PROJECTED TRAFFIC VOLUMES:
A.D.T. OVER = 27000
OPERATING RATING HS 43.0

CONSTRUCTION NOTES

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION", MODIFIED FOR DESIGN BUILD, 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 SIZE 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 SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY 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

08B01	GENERAL PLAN & ELEVATION
08B02	BRIDGE LAYOUT
08B03	VISUAL QUALITY DETAILS
08B04 - 08B15	ABUTMENT DETAILS
08B16	FRAMING PLAN
08B17	MN54 PRESTRESSED CONCRETE BEAMS
08B18 - 08B19	BRIDGE DECK DETAILS
08B20	CONCRETE BARRIER (TYPE F MOD.)
08B21	CONCRETE PARAPET (TYPE P-1 MOD.)
08B22 - 08B23	METAL RAILING (TYPE T-2 MOD.)
08B24 - 08B25	METAL RAILING (TYPE T-3 MOD.)
08B26	CONDUIT SYSTEM
08B27 - 08B28	WATERPROOF EXPANSION DEVICE
08B29 - 08B34	BRIDGE APPROACH PANEL
08B35 - 08B39	B-DETAILS
08B40	AS-BUILT BRIDGE DATA
08B41	BRIDGE SURVEY
08B42	BRIDGE SURVEY PLAN & PROFILE
08B43 - 08B44	SOIL BORINGS

ANOKA COUNTY

GENERAL PLAN & ELEVATION BRIDGE NO. 02583

CSAH 14 OVER BNSF RAILROAD
0.5 MILES E. OF JCT. OF HANSON BLVD. & CSAH 14
BRIDGE I.D. NO. 501
SEC. 11 TWP. 31 N. R. 24 W.
CITY OF COON RAPIDS
ANOKA COUNTY

APPROVED: *[Signature]* 9/26/11
ANOKA COUNTY ENGINEER DATE
APPROVED: *[Signature]* 9.30.11
STATE BRIDGE ENGINEER DATE

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: JANET ELIZABETH GRONERT
[Signature]
Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
[Signature]
Date: 10/4/11 ANOKA COUNTY

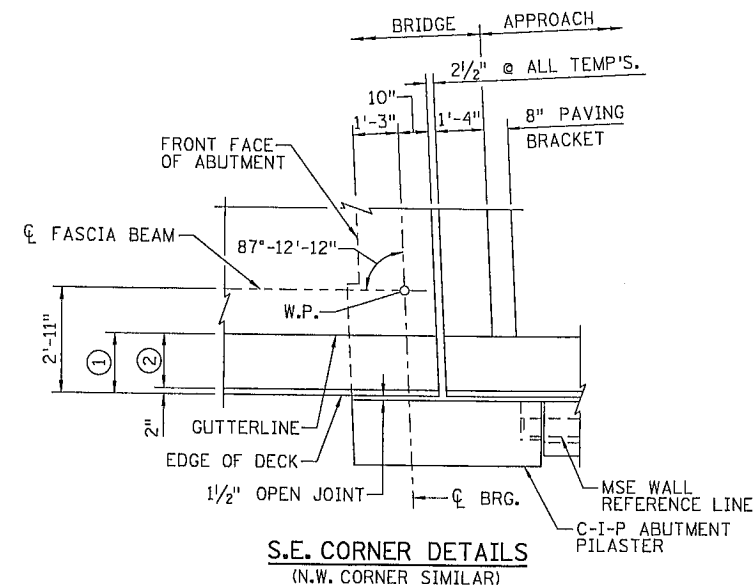
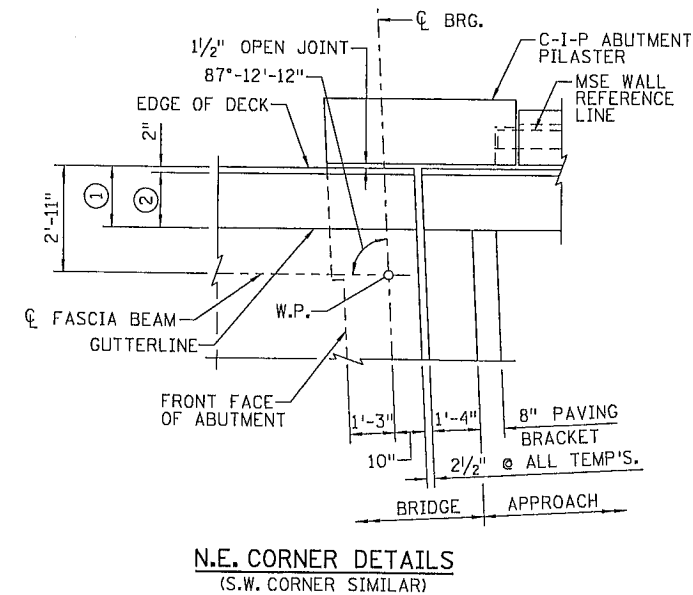
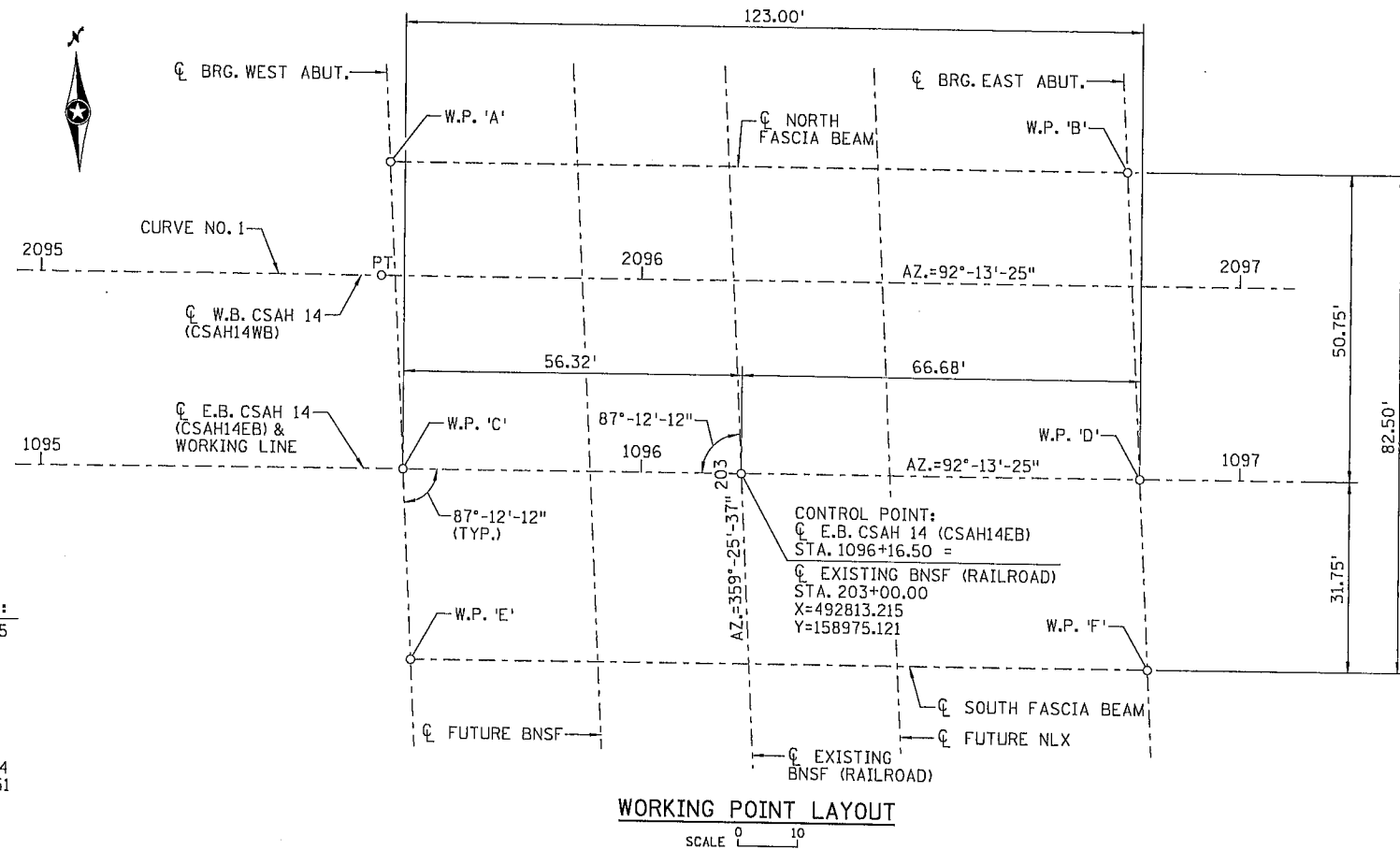
SRH C.S. McCrossan
Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
GENERAL PLAN & ELEVATION
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B1 OF 08B44

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NO	DATE	BY	CKD	APPR



TOP OF ROADWAY TO BRIDGE SEAT			
	W. ABUT.		E. ABUT.
BEARING TYPE	FIXED	EXPANSION	EXPANSION
SLAB THICKNESS	9"	9"	9"
STOOL HEIGHT	2"	2"	2"
BEAM HEIGHT	54"	54"	54"
BEARING HEIGHT	3 1/4"	5 1/4"	5 1/4"
TOTAL HEIGHT	5.69'	5.85'	5.85'

SCHEDULE OF TESTABLE QUANTITIES				
ITEM	UNIT	WEST ABUT	EAST ABUT.	TOTAL QUANTITY
STRUCTURAL CONCRETE (1A43)	CU. YD.	275	289	564
STRUCTURAL CONCRETE (3Y43)	CU. YD.	412	391	803
BRIDGE SLAB CONCRETE (3Y36)	CU. YD.			307
TYPE P-1 MOD PARAPET CONCRETE (3Y46)	CU. YD.			15
TYPE MOD F RAILING CONCRETE (3Y46)	CU. YD.			40
RAISED MEDIAN CONCRETE (3Y46)	CU. YD.			13
CONCRETE WEARING COURSE (3U17A)	CU. YD.			71

DIMENSIONS BETWEEN WORKING POINTS							COORDINATES		ELEVATION				
POINT	STATION	A	B	C	D	E	F	X	Y	TOP OF FIN. DECK	FIN. DECK TO BR. SEAT	BRIDGE SEAT	POINT
A	1095+57.71		123.00	50.81	135.35		151.47	492756.432	159028.115	921.97	5.85	918.12	A
B	1096+80.71				50.81	144.78		492879.340	159023.342	923.92	5.85	918.07	B
C	1095+80.18				123.00	31.79		492756.940	158977.307	922.40	-	-	C
D	1096+83.18						31.79	492879.848	158972.534	924.33	-	-	D
E	1095+61.74						123.00	492757.258	158945.520	922.13	5.85	916.28	E
F	1096+84.74							492880.165	158940.748	924.04	5.85	918.19	F

RELEASED FOR CONSTRUCTION

- NOTES:**
- 1'-8" ON NORTH SIDE
1'-2" ON SOUTH SIDE.
 - 1'-6" ON NORTH SIDE
1'-0" ON SOUTH SIDE.
 - BRIDGE GEOMETRY IS BASED ON E.B. CSAH 14 (CSAH14EB).

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: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

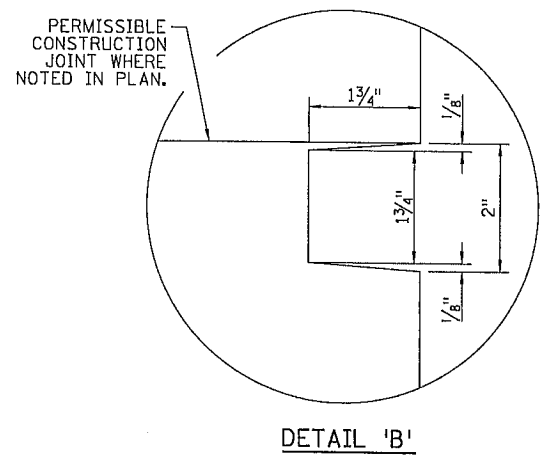
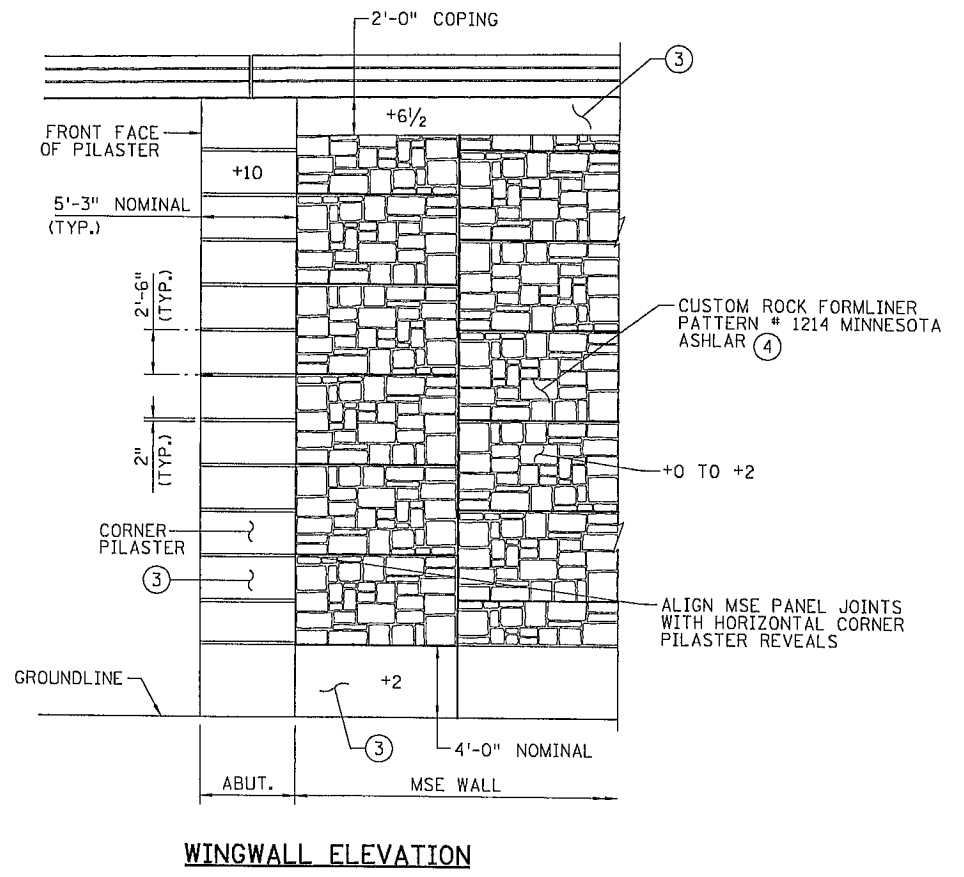
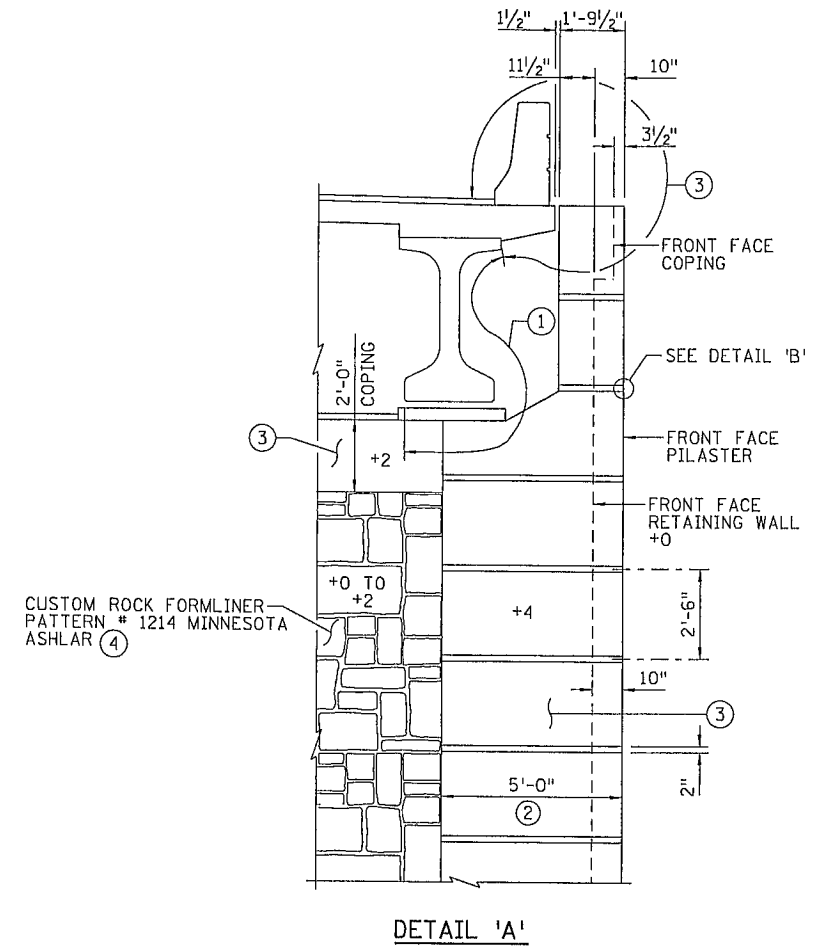
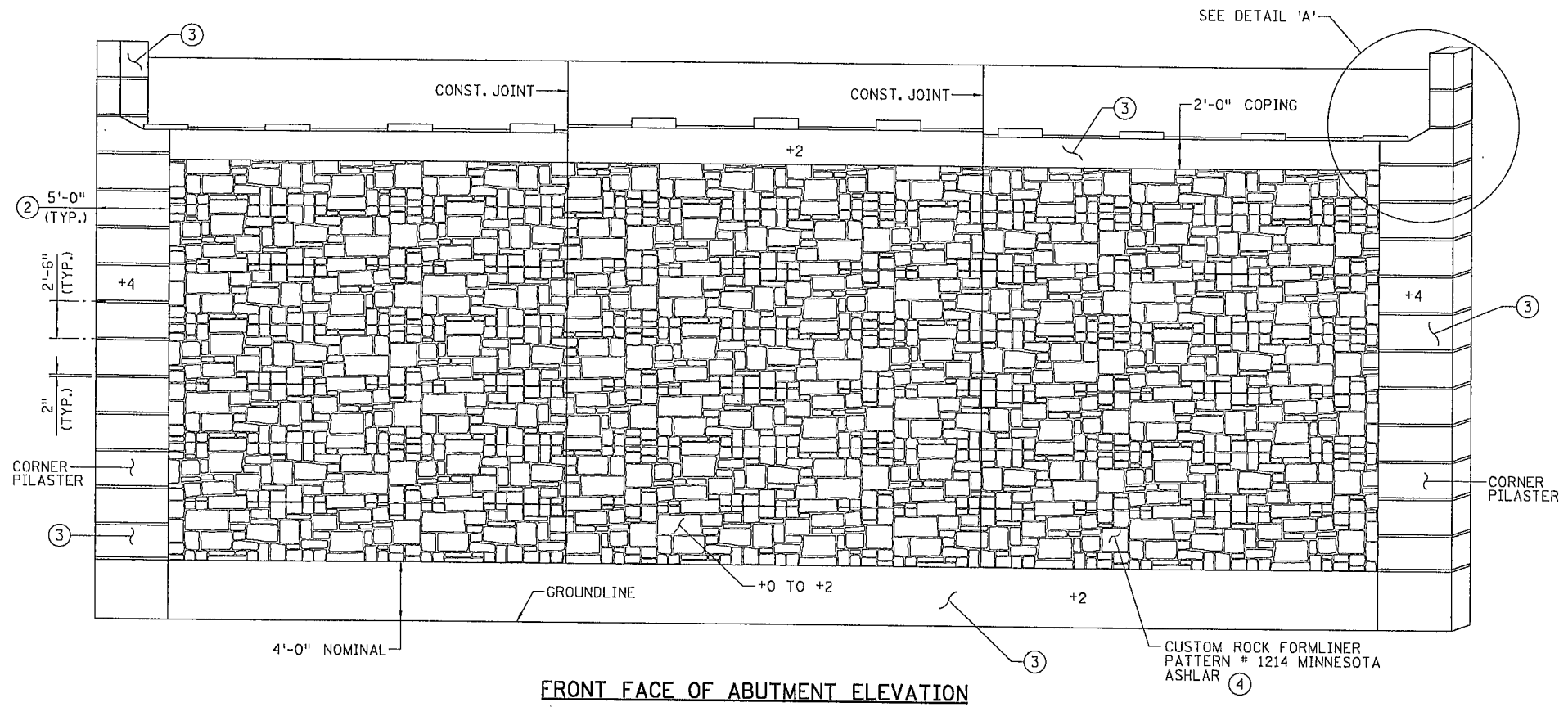
ANOKA COUNTY RELEASED FOR CONSTRUCTION
John Caple
 Date: 10/4/11 ANOKA COUNTY

SRE C.S. McCrossan
 Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034)
 BRIDGE LAYOUT
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET
 08B2
 OF
 08B44



RELEASED FOR CONSTRUCTION

- NOTES:**
- ① ARCHITECTURAL SURFACE FINISH FEDERAL STANDARD 595B NO. 30040 (DK. BROWN).
 - ② MEASURED ALONG FRONT FACE OF ABUTMENT.
 - ③ SPECIAL SURFACE COATING FEDERAL STANDARD 595B NO. 33522 (LIGHT SAND).
 - ④ ARCHITECTURAL SURFACE FINISH FEDERAL STANDARD 595B NO. 30372 (MED. SAND).

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NO	DATE	BY	CHKD	APPR

... \Plan\CD0261434_v1s01.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.

Pr. Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

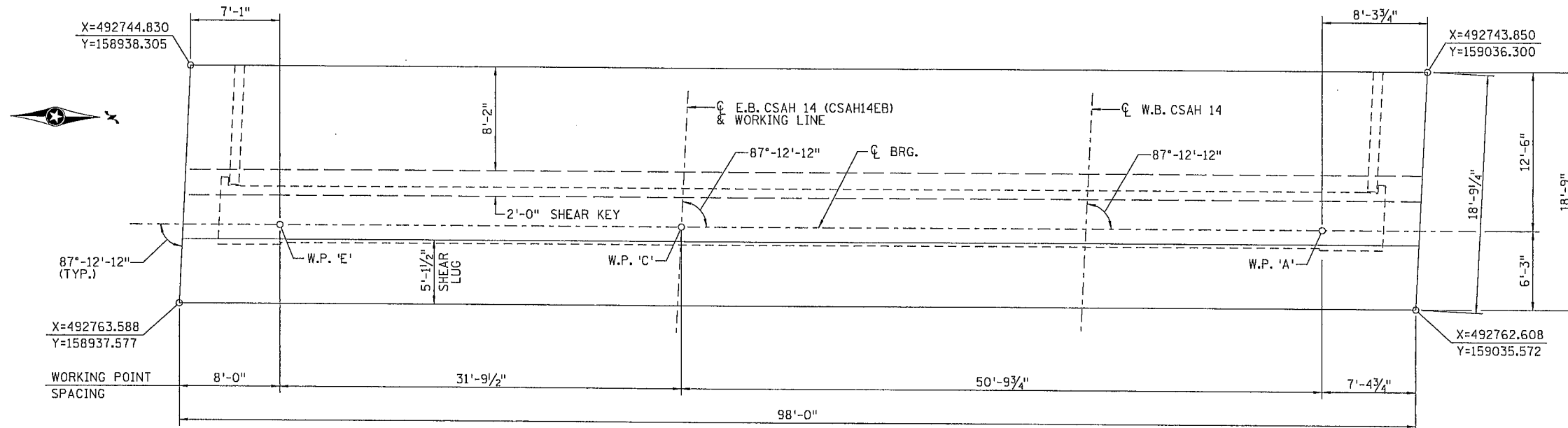
SRE C.S. McCrossan
 Consulting Group, Inc.

Date: 10/4/11 ANOKA COUNTY



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B3 OF 08B44

VISUAL QUALITY DETAILS
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)



FOOTING PLAN

WEST ABUTMENT SPREAD FOOTING LOAD DATA	
* FACTORED BEARING PRESSURE	2.79 TONS/SQ FT
EFFECTIVE WIDTH B'	14.8 FT
FACTORED BEARING RESISTANCE $\phi \cdot q_n$	3.00 TONS/SQ FT

* BASED ON SERVICE I LOAD COMBINATION

RELEASED FOR CONSTRUCTION

NOTES:

- SEE BRIDGE NO. 02583 "FOUNDATION ANALYSIS AND DESIGN REPORT" FOR PRELOAD INFORMATION.
- THE GEOTECHNICAL ENGINEER SHALL EVALUATE THE SOILS BENEATH THE FOOTING BEFORE CONSTRUCTING THE FOOTING.

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NO	DATE	BY	CHKD	APPR

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: JANET ELIZABETH GRONERT

Janet Elizabeth Gronert

Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Christi Coulter

Date: 10/4/11 ANOKA COUNTY

SRE C.S. McCrossan Consulting Group, Inc.



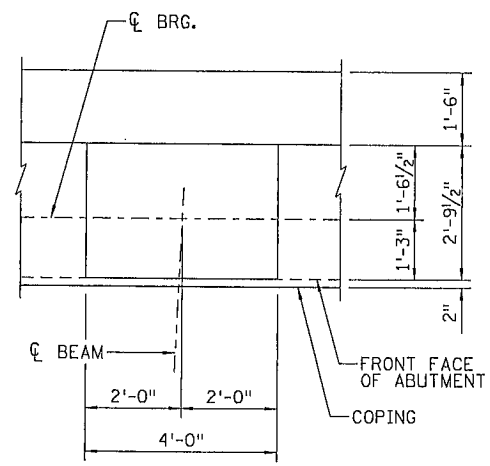
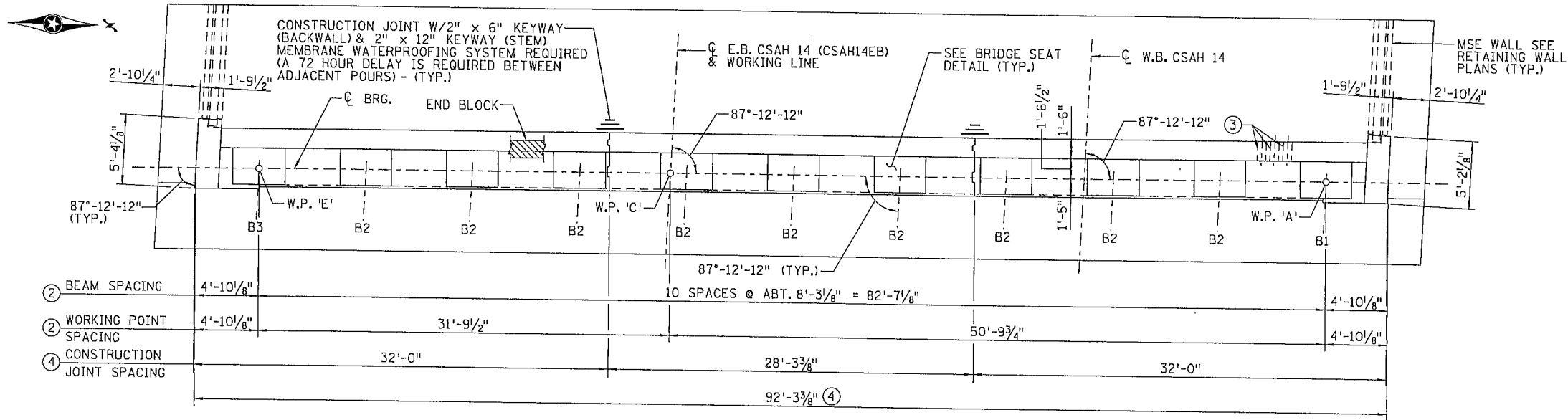
CSAH 14 DESIGN BUILD (SAP 002-614-034)

WEST ABUTMENT DETAILS (SHEET 1 OF 6)

C.S.A.H. 14

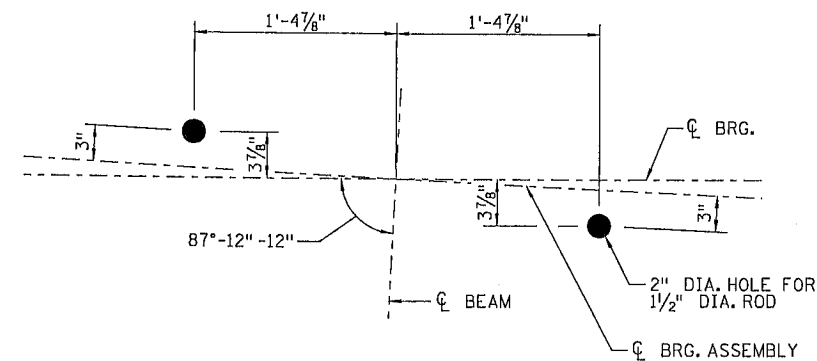
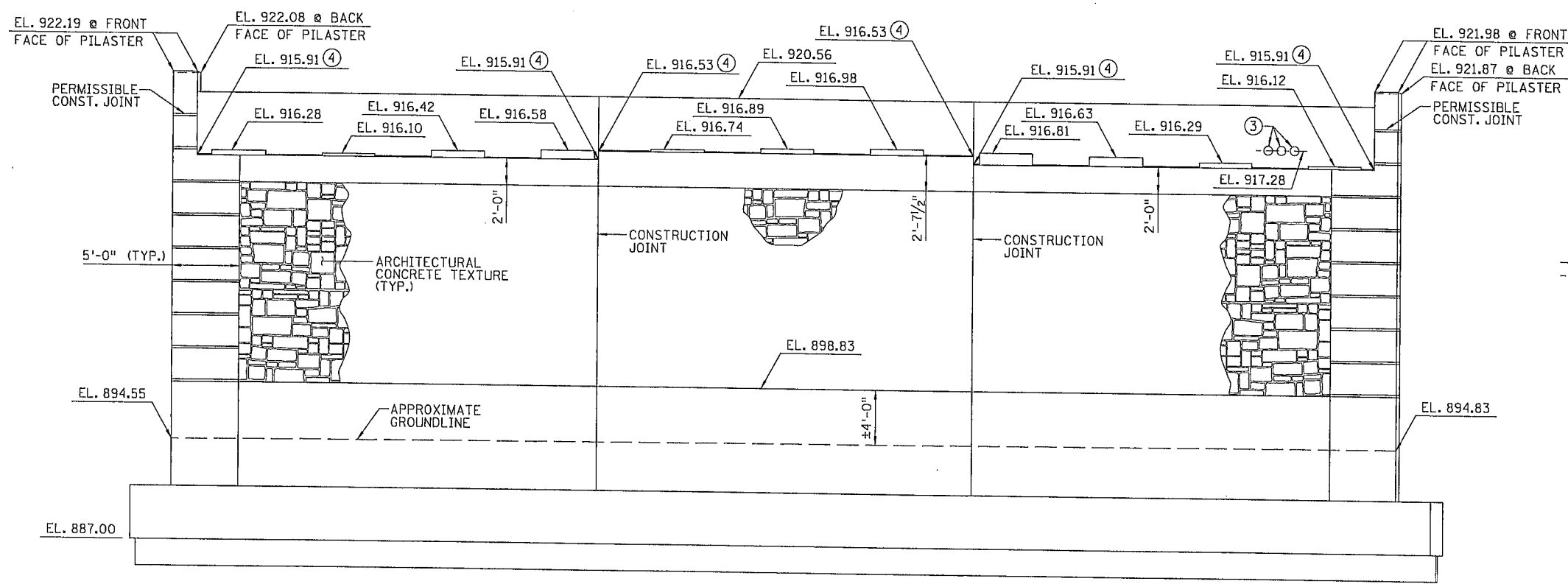
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET 08B4 OF 08B44



PLAN

BRIDGE SEAT DETAIL



ELEVATION

ANCHOR ROD LAYOUT

RELEASED FOR CONSTRUCTION

- NOTES:
1. SEE VISUAL QUALITY DETAILS FOR ABUTMENT AESTHETIC CONSIDERATIONS.
 2. MEASURED ALONG CENTERLINE OF BEARING.
 3. 8" DIAMETER FORMED HOLE AND PIPE SLEEVE FOR CONDUIT.
 4. MEASURED AT FRONT FACE OF ABUTMENT.

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NO	DATE	BY	CHKD	APPR

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Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

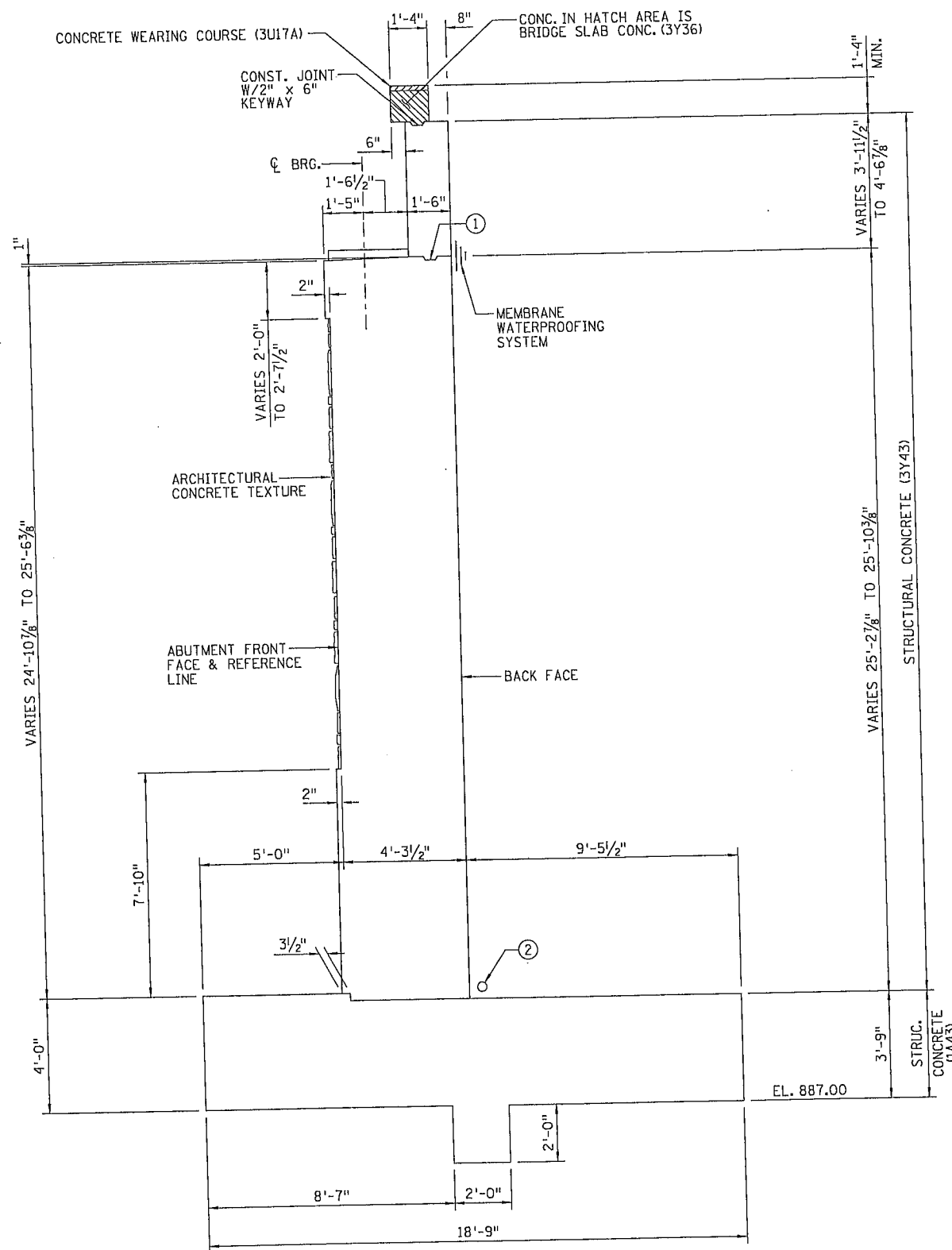
ANOKA COUNTY RELEASED FOR CONSTRUCTION

SRE C.S. McCrossan
 Consulting Group, Inc.

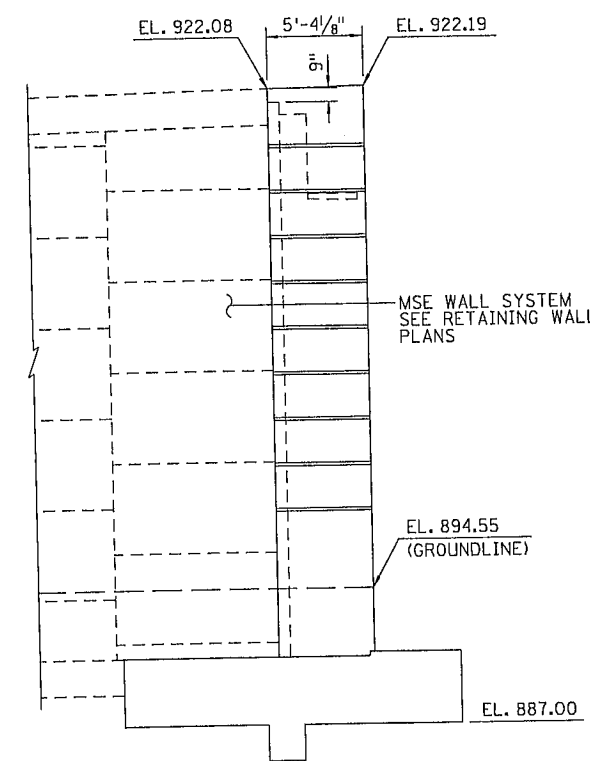
Date: 10/4/11 ANOKA COUNTY



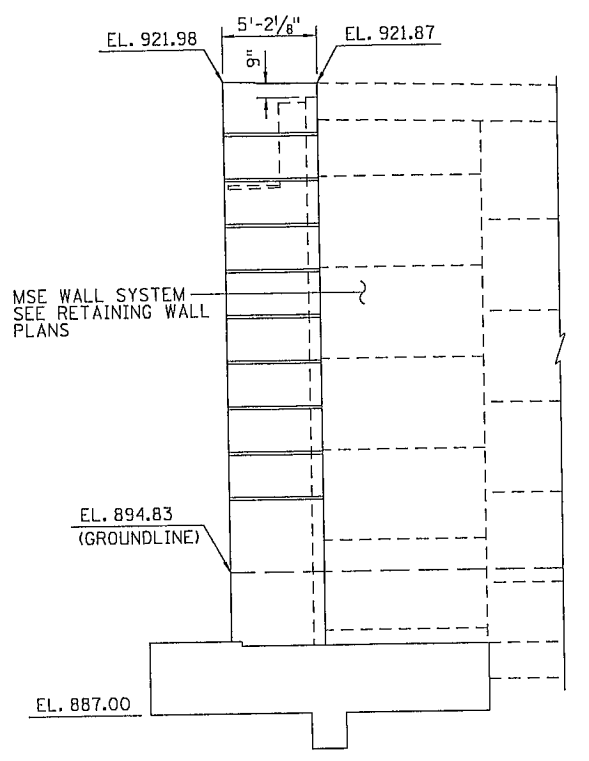
CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B5
 WEST ABUTMENT DETAILS (SHEET 2 OF 6) OF 08B44
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)



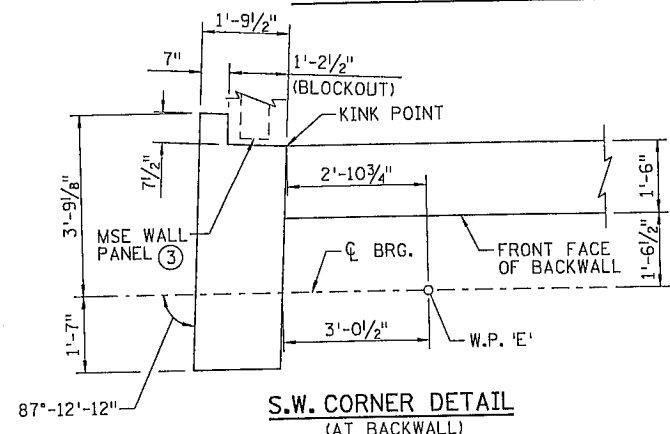
SECTION THRU ABUTMENT



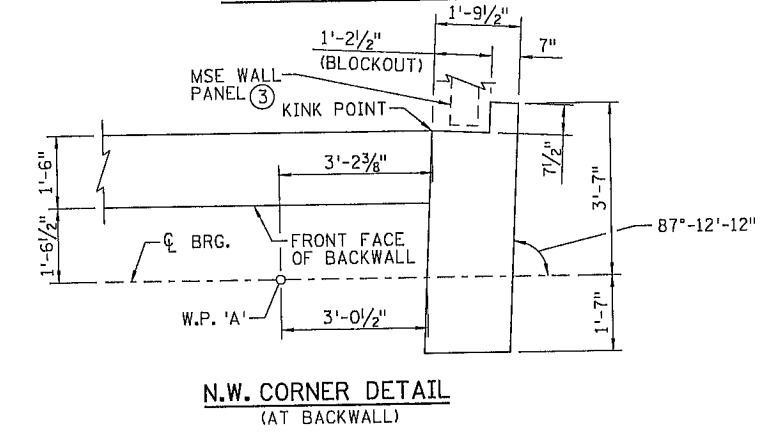
S.W. WINGWALL ELEVATION



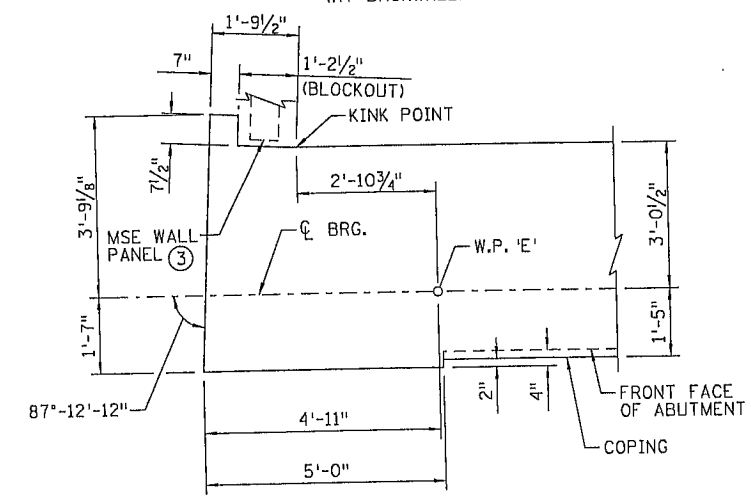
N.W. WINGWALL ELEVATION



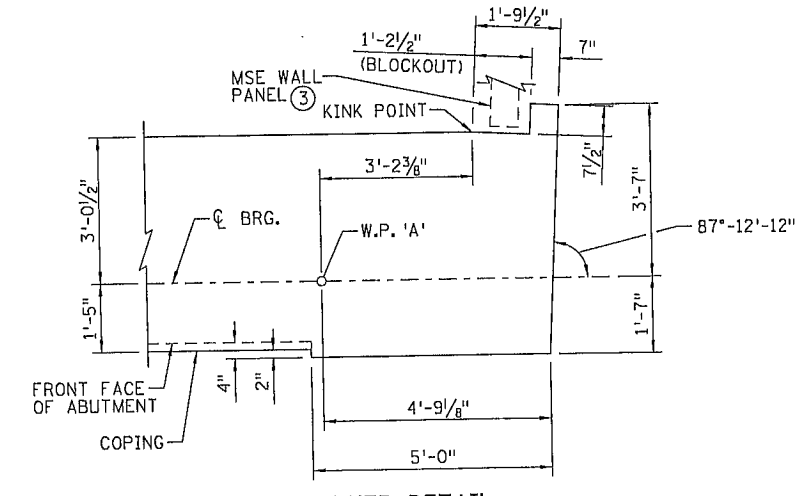
S.W. CORNER DETAIL (AT BACKWALL)



N.W. CORNER DETAIL (AT BACKWALL)



S.W. CORNER DETAIL (AT STEM)



N.W. CORNER DETAIL (AT STEM)

- NOTES:**
- PERMISSIBLE CONST. JOINT W/2" x 6" KEYWAY AND MEMBRANE WATERPROOFING SYSTEM REQ'D. IF JOINT IS USED.
 - 4" PERFORATED PIPE SEE DETAIL B910.
 - SEE RETAINING WALL PLANS FOR MEMBRANE WATERPROOFING, POLYSTYRENE.

RELEASED FOR CONSTRUCTION

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NO	DATE	BY	CKD	APPR

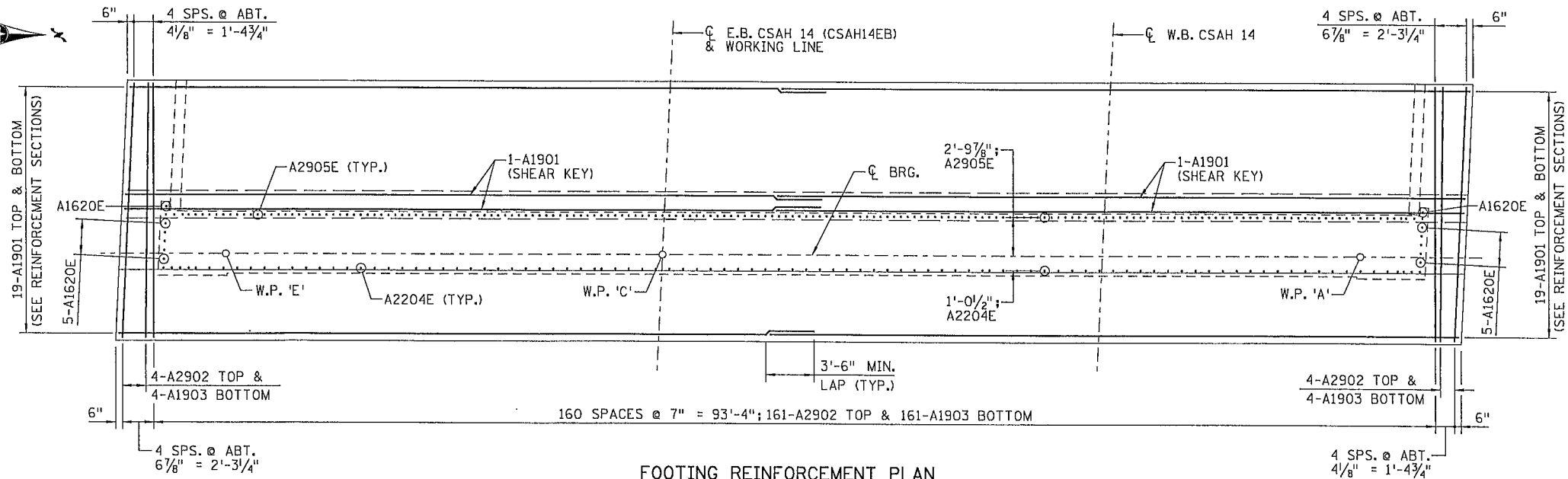
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
 Date: 10/2/11 ANOKA COUNTY

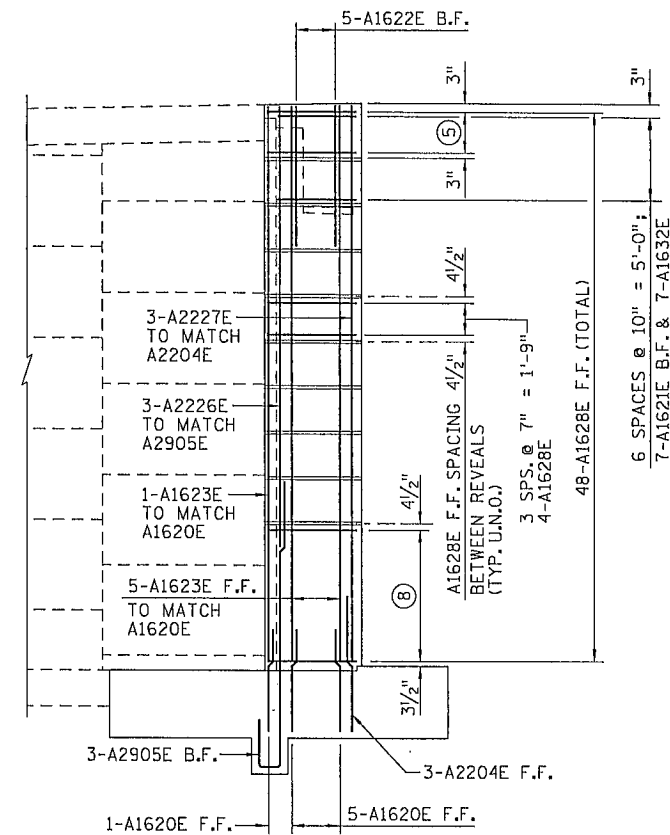


CSAH 14 DESIGN BUILD (SAP 002-614-034)
 WEST ABUTMENT DETAILS (SHEET 3 OF 6)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

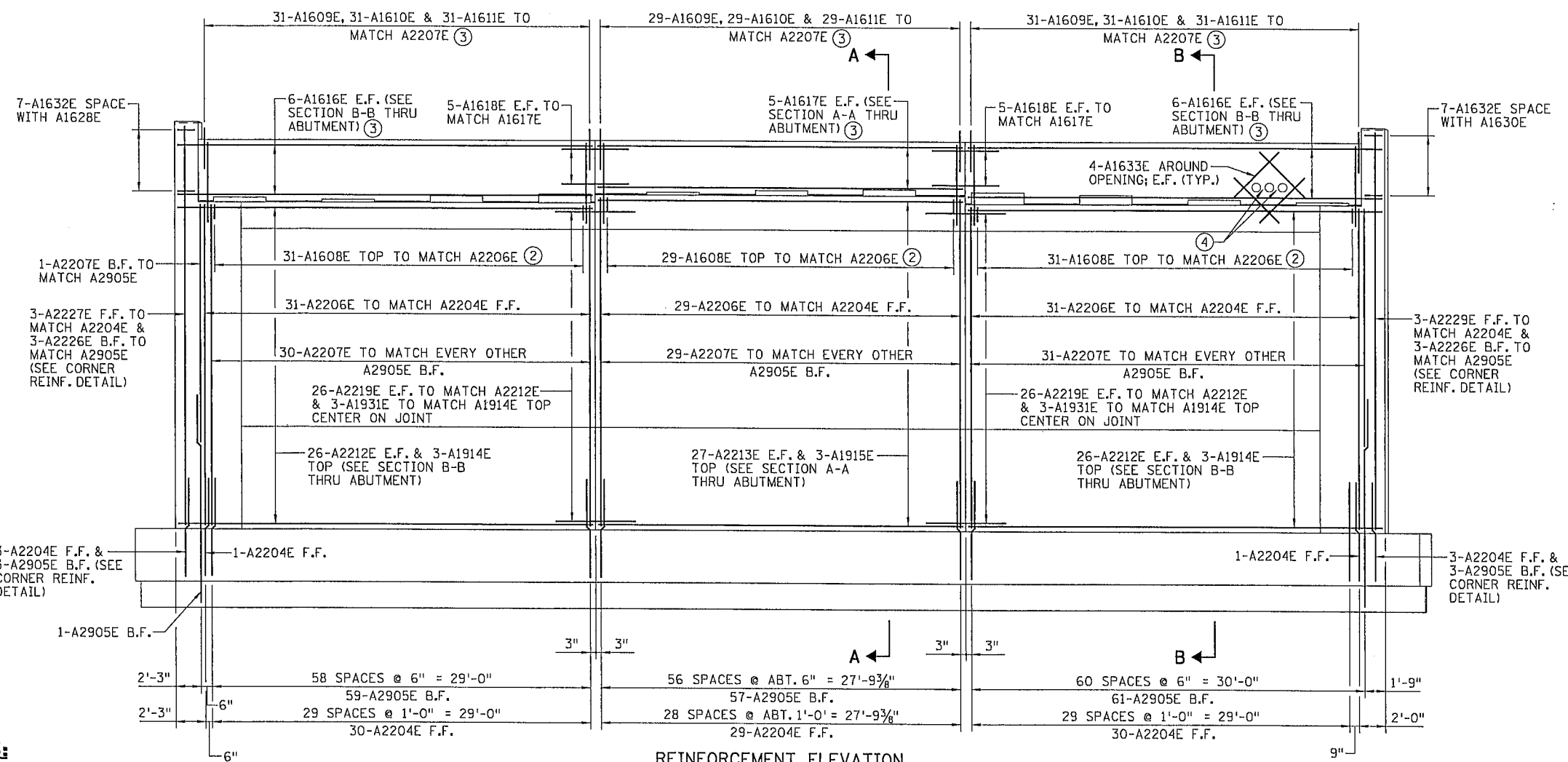
SHEET 08B6 OF 08B44



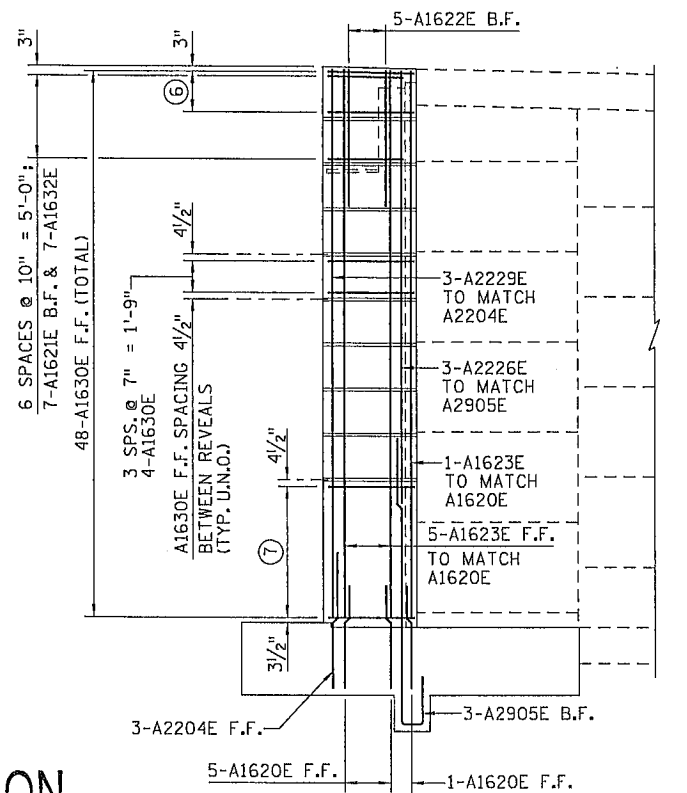
FOOTING REINFORCEMENT PLAN



S.W. WINGWALL REINFORCEMENT ELEVATION



REINFORCEMENT ELEVATION



N.W. WINGWALL REINFORCEMENT ELEVATION

NOTES:

- 1. U.N.O. DENOTES UNLESS NOTED OTHERWISE.
- 2. BAR SPACING SHALL BE ADJUSTED AS NEEDED TO PROVIDE 2" MIN. CLEARANCE TO ANCHOR RODS.
- 3. BAR SPACING SHALL BE ADJUSTED AS NEEDED TO ACCOMMODATE CONDUIT.
- 4. ADJUST REINFORCEMENT SUCH THAT VERTICAL BARS EXTEND THROUGH THE CONCRETE BETWEEN CONDUIT SLEEVES.
- 5. 3 EQUAL SPACES; 4-A1628E F.F.
- 6. 3 EQUAL SPACES; 4-A1630E F.F.
- 7. 11 EQUAL SPACES; 12-A1630E F.F.
- 8. 11 EQUAL SPACES; 12-A1628E F.F.

RELEASED FOR CONSTRUCTION

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NO.	DATE	BY	CHKD	APPR
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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: JANET ELIZABETH GRONERT
 Signature: Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

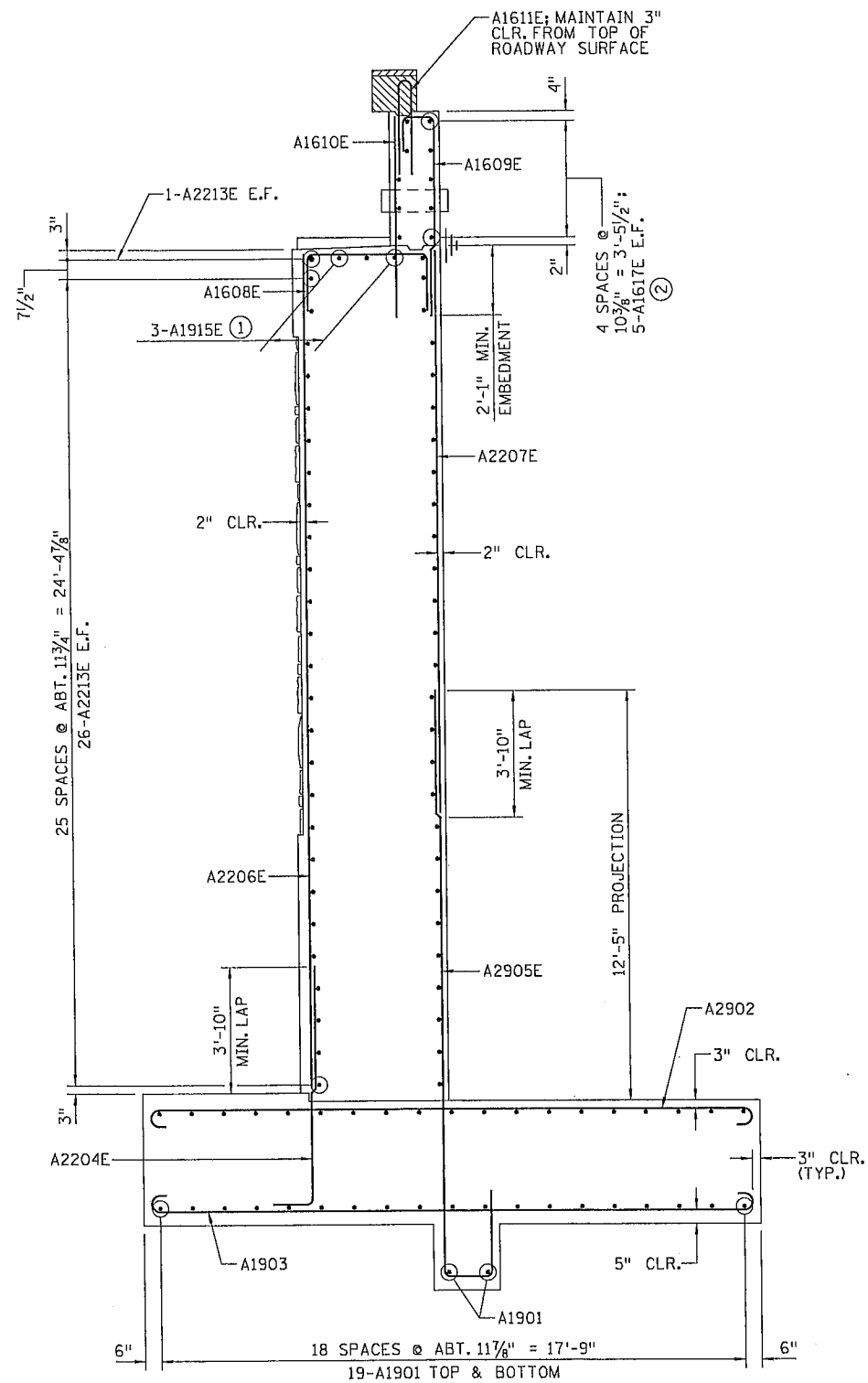
ANOKA COUNTY RELEASED FOR CONSTRUCTION
 Signature: [Signature]
 Date: 10/2/11 ANOKA COUNTY

SRI C.S. McCrossan
 Consulting Group, Inc.

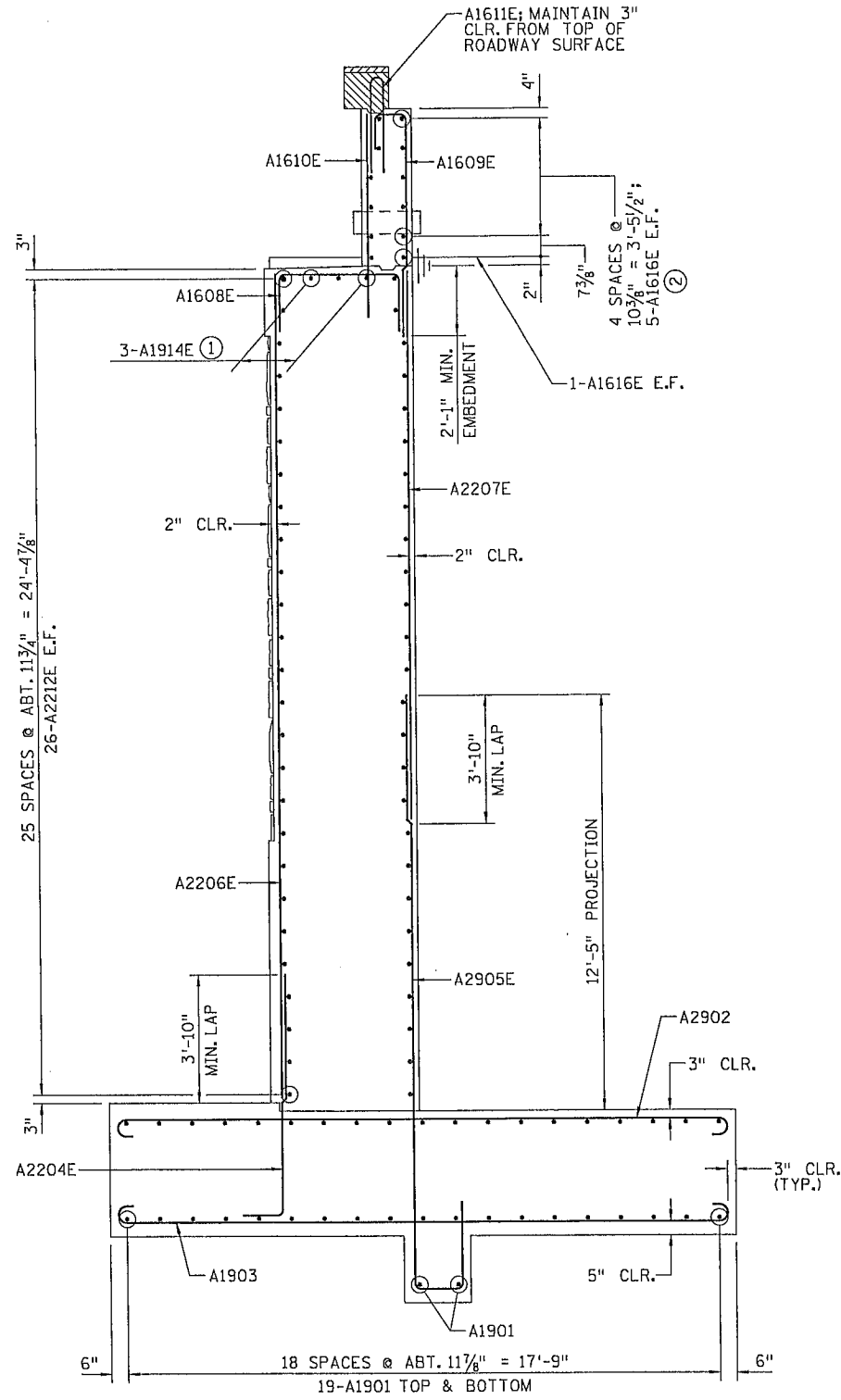


CSAH 14 DESIGN BUILD (SAP 002-614-034)
 WEST ABUTMENT DETAILS (SHEET 4 OF 6)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

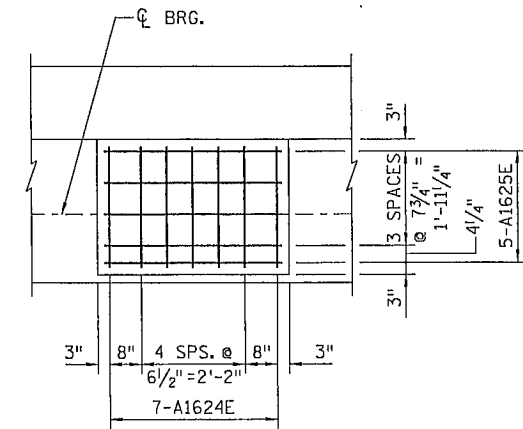
SHEET 08B7 OF 08B44



SECTION A-A THRU ABUTMENT REINFORCEMENT



SECTION B-B THRU ABUTMENT REINFORCEMENT



BRIDGE SEAT REINFORCEMENT DETAIL

RELEASED FOR CONSTRUCTION

NOTES:

- ① BAR SPACING SHALL BE ADJUSTED AS NEEDED TO PROVIDE 2" MIN. CLEARANCE TO ANCHOR RODS.
- ② BAR SPACING SHALL BE ADJUSTED AS NEEDED TO ACCOMMODATE CONDUIT.
3. ADJUST REINFORCEMENT SUCH THAT VERTICAL BARS EXTEND THROUGH THE CONCRETE BETWEEN CONDUIT SLEEVES.

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NO	DATE	BY	CKD	APPR

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Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Clara C. Cassidy
 Date: 10/4/11 ANOKA COUNTY

SRH C.S. McCrossan
 Consulting Group, Inc.



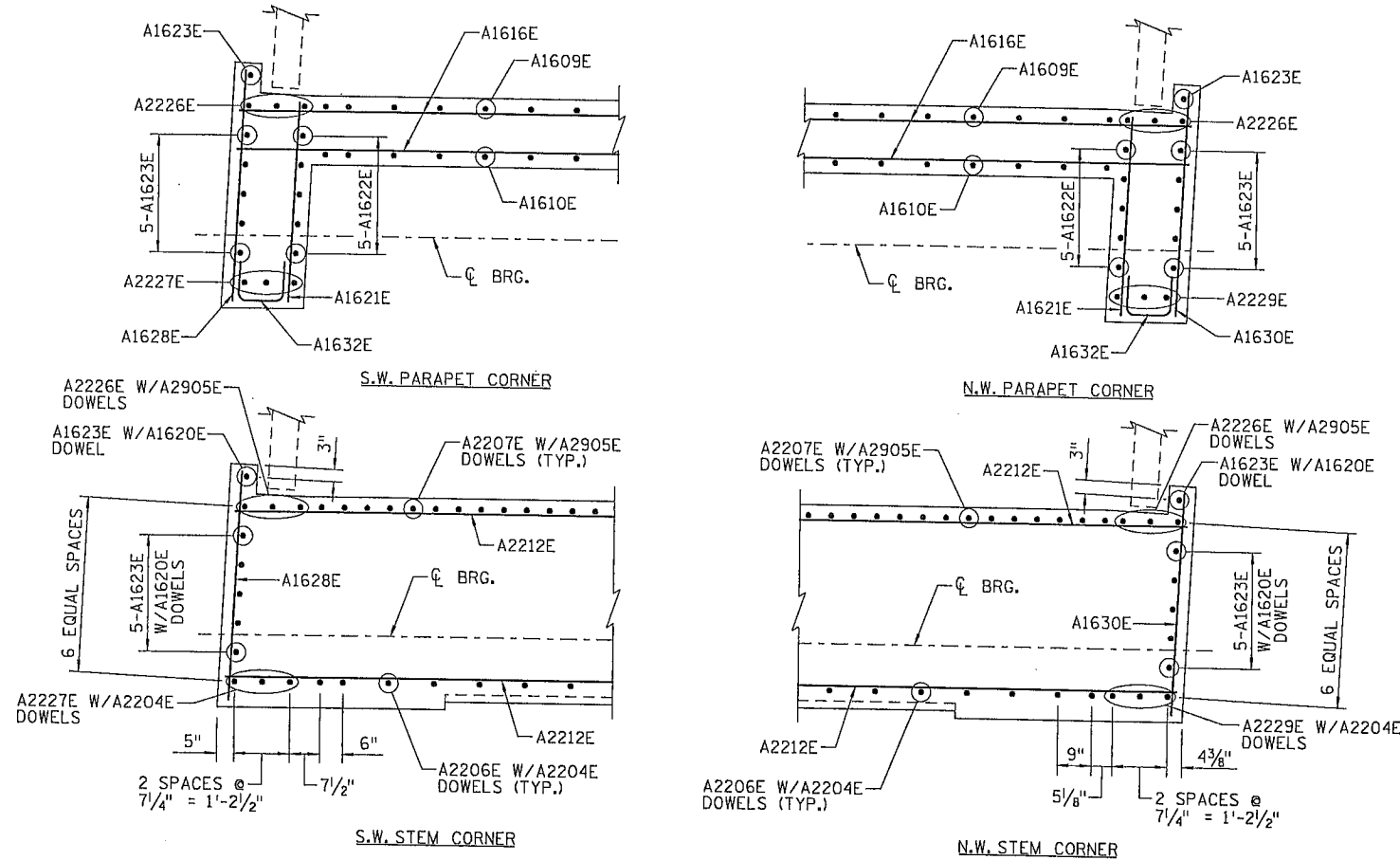
CSAH 14 DESIGN BUILD (SAP 002-614-034)

WEST ABUTMENT DETAILS (SHEET 5 OF 6)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

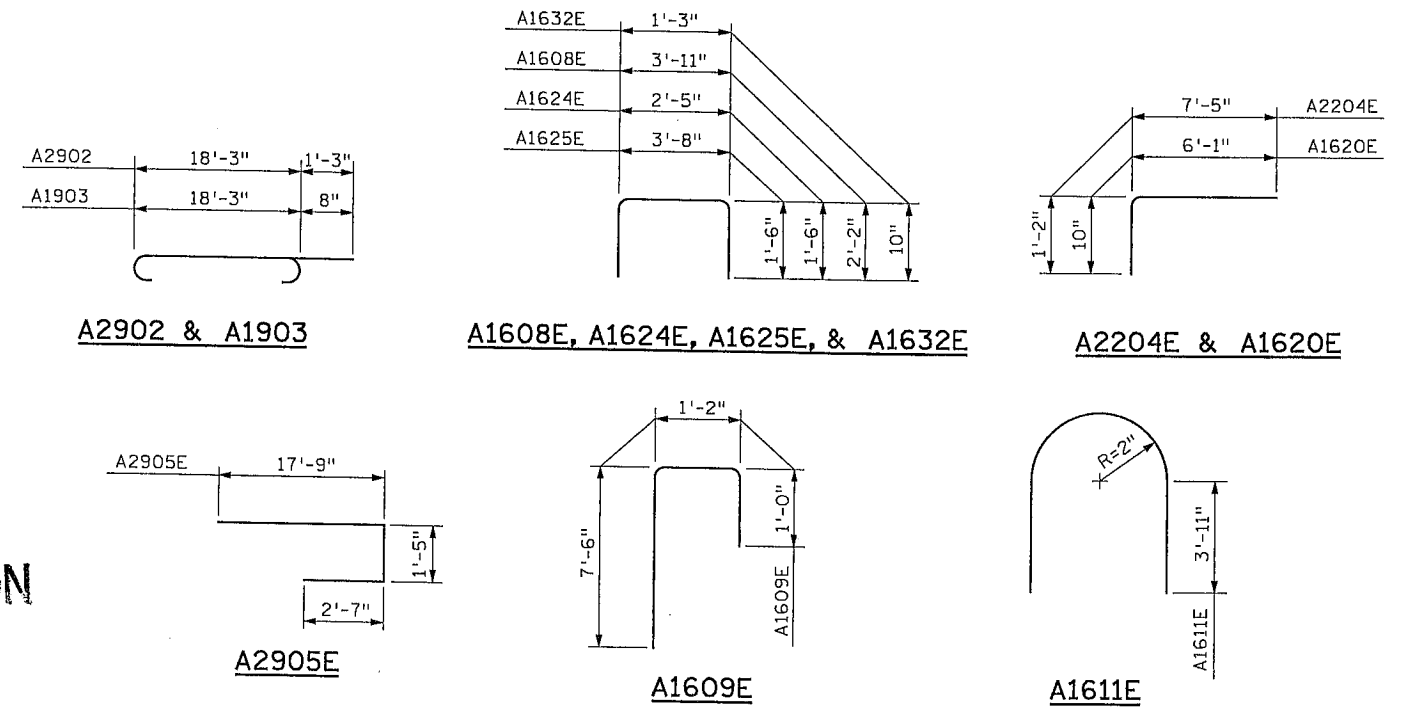
SHEET
 08B8
 OF
 08B44

**BILL OF REINFORCEMENT:
WEST ABUTMENT**

MARK	NO	LENGTH [FT - IN]	SHAPE	LOCATION
A1901	80	50 - 6	STR	FOOTING
A2902	169	20 - 9	BENT	FOOTING
A1903	169	19 - 7	BENT	FOOTING
A2204E	97	8 - 7	BENT	DOWEL
A2905E	184	21 - 9	BENT	DOWEL
A2206E	91	24 - 8	STR	STEM VERT.
A2207E	91	17 - 3	STR	STEM VERT.
A1608E	91	8 - 3	BENT	STEM TOP
A1609E	91	9 - 8	BENT	BACKWALL VERT.
A1610E	91	6 - 9	STR	BACKWALL VERT.
A1611E	91	8 - 4	BENT	END BLOCK
A2212E	104	31 - 3	STR	STEM HORIZ.
A2213E	54	27 - 11	STR	STEM HORIZ.
A1914E	6	31 - 3	STR	STEM HORIZ.
A1915E	3	27 - 11	STR	STEM HORIZ.
A1616E	24	31 - 3	STR	BACKWALL HORIZ.
A1617E	10	27 - 11	STR	BACKWALL HORIZ.
A1618E	20	5 - 4	STR	BACKWALL HORIZ.
A2219E	104	7 - 4	STR	STEM HORIZ.
A1620E	12	6 - 11	BENT	WW DOWEL
A1621E	14	4 - 1	STR	WW HORIZ.
A1622E	10	8 - 0	STR	WW VERT.
A1623E	12	30 - 9	STR	WW VERT.
A1624E	77	5 - 5	BENT	BRIDGE SEAT
A1625E	55	6 - 8	BENT	BRIDGE SEAT
A2226E	6	22 - 8	STR	WW VERT.
A2227E	3	31 - 0	STR	WW VERT.
A1628E	48	4 - 10	STR	WW HORIZ.
A2229E	3	30 - 9	STR	WW VERT.
A1630E	48	4 - 8	STR	WW HORIZ.
A1931E	6	6 - 0	STR	TOP HORIZ.
A1632E	14	2 - 11	BENT	WW HORIZ.
A1633E	8	5 - 0	STR	BACKWALL DIAG.



CORNER REINFORCEMENT DETAIL



RELEASED FOR CONSTRUCTION

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Print Name: JANET ELIZABETH GRONERT
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

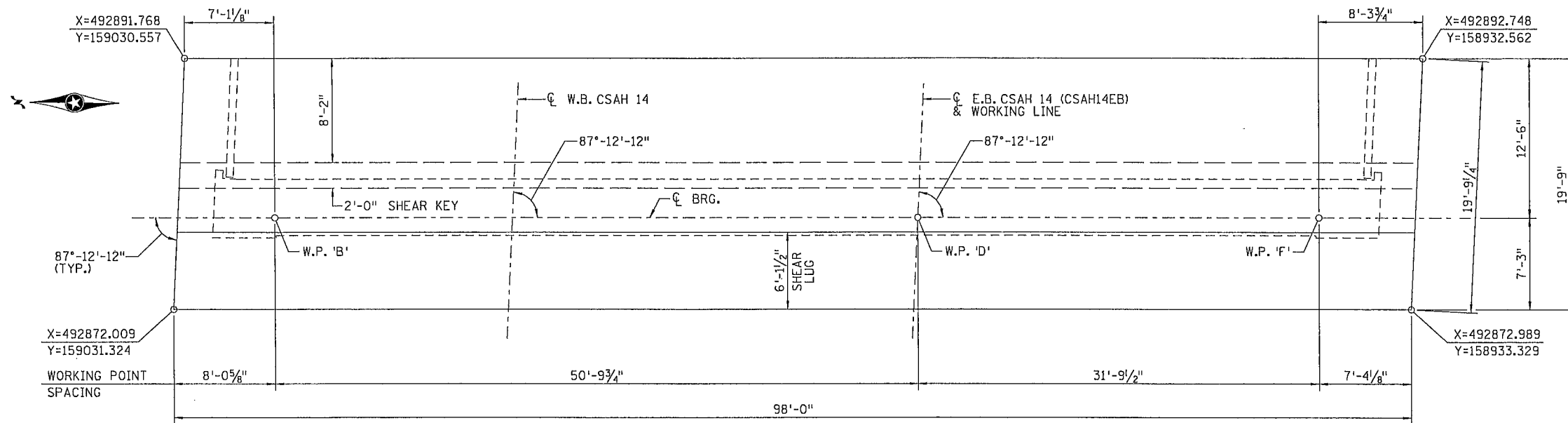
Date: 10/4/11 ANOKA COUNTY

SRE C.S. McCrossan Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034)
 WEST ABUTMENT DETAILS (SHEET 6 OF 6)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET 08B9 OF 08B44



FOOTING PLAN

RELEASED FOR CONSTRUCTION

EAST ABUTMENT SPREAD FOOTING LOAD DATA	
* FACTORED BEARING PRESSURE	2.4 TONS/SQ FT
EFFECTIVE WIDTH B'	17.0 FT
FACTORED BEARING RESISTANCE $\phi \cdot q_n$	3.00 TONS/SQ FT

* BASED ON SERVICE I LOAD COMBINATION

NOTES:

- SEE BRIDGE NO. 02583 "FOUNDATION ANALYSIS AND DESIGN REPORT" FOR PRELOAD INFORMATION.
- THE GEOTECHNICAL ENGINEER SHALL EVALUATE THE SOILS BENEATH THE FOOTING BEFORE CONSTRUCTING THE FOOTING.

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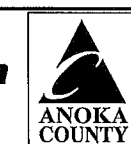
NO	DATE	BY	CKD	APPR

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Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License # 44325

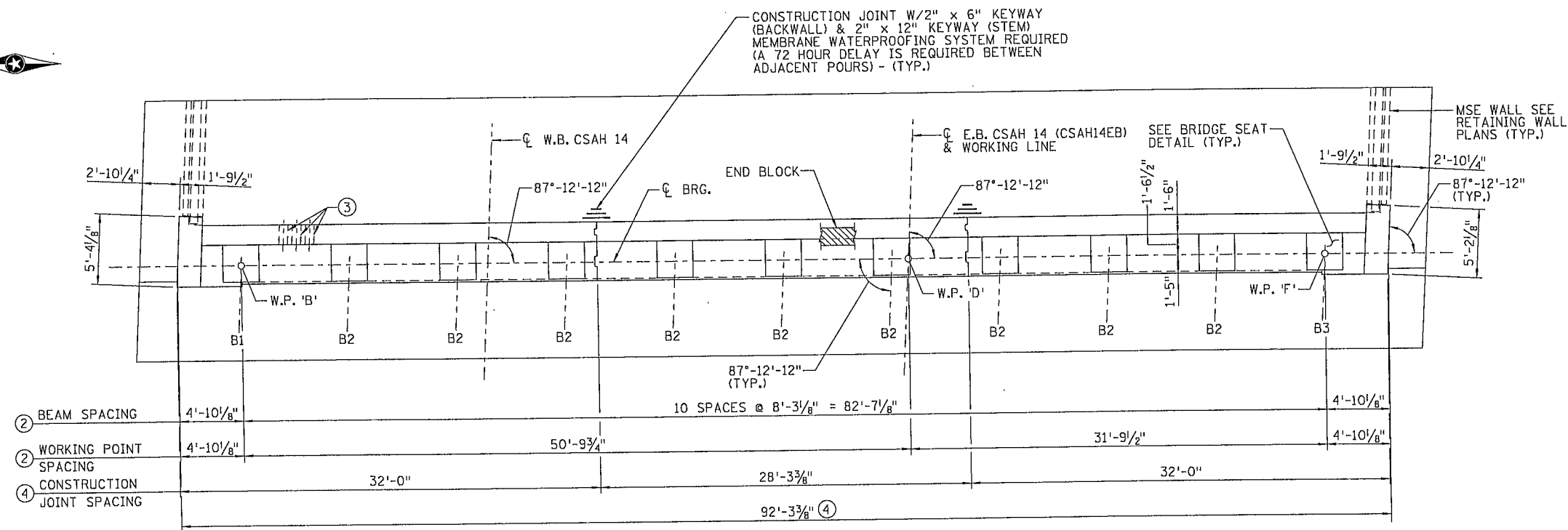
ANOKA COUNTY RELEASED FOR CONSTRUCTION

Chantel Conheady
 Date: 10/4/11 ANOKA COUNTY

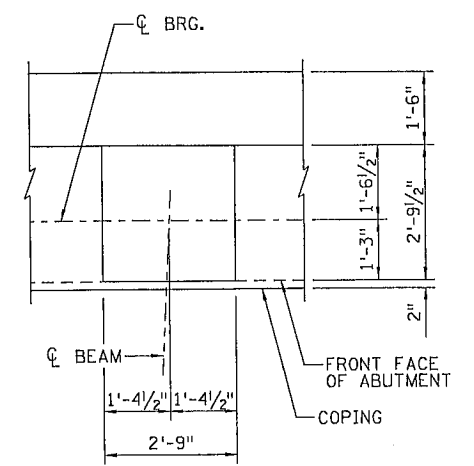


CSAH 14 DESIGN BUILD (SAP 002-614-034)
 EAST ABUTMENT DETAILS (SHEET 1 OF 5)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

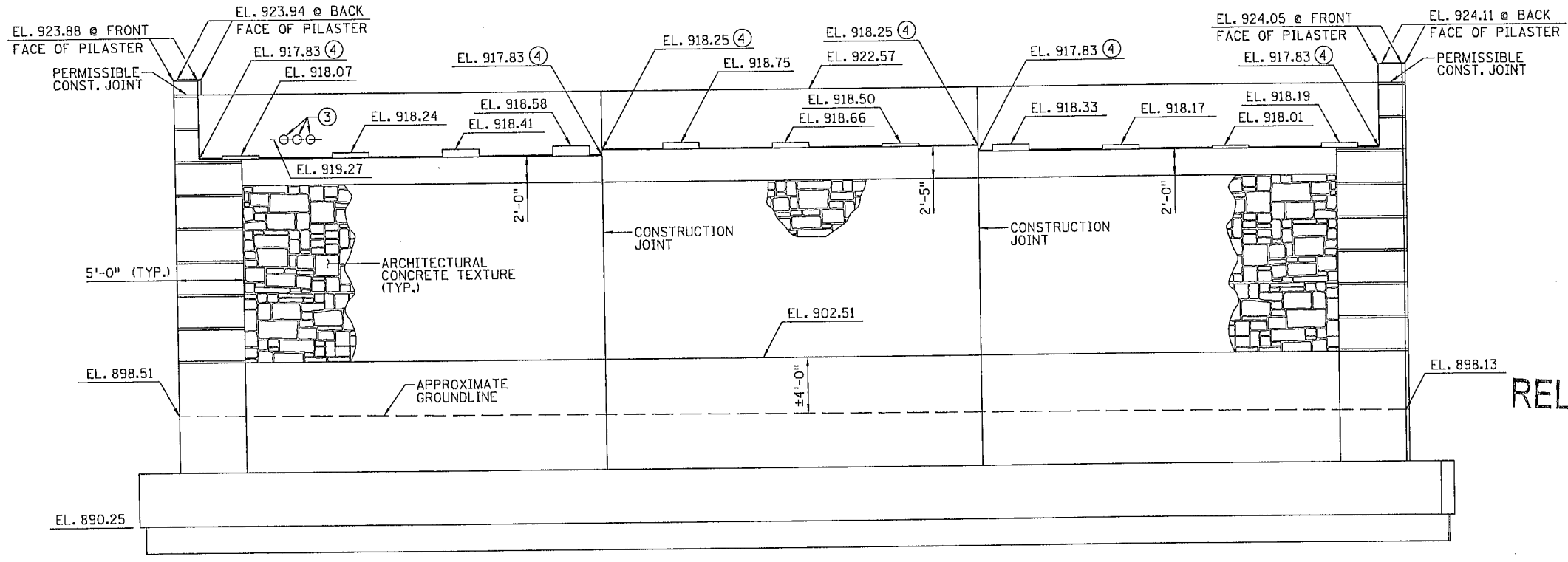
SHEET
 08B10
 OF
 08B44



② BEAM SPACING	4'-10 ¹ / ₈ "	10 SPACES @ 8'-3 ¹ / ₈ " = 82'-7 ¹ / ₈ "	4'-10 ¹ / ₈ "
② WORKING POINT SPACING	4'-10 ¹ / ₈ "	50'-9 ³ / ₄ "	31'-9 ¹ / ₂ "
④ CONSTRUCTION JOINT SPACING	32'-0"	28'-3 ³ / ₈ "	32'-0"
		92'-3 ³ / ₈ " ④	



PLAN



ELEVATION

RELEASED FOR CONSTRUCTION

- NOTES:**
- SEE VISUAL QUALITY DETAILS FOR ABUTMENT AESTHETIC CONSIDERATIONS.
 - MEASURED ALONG CENTERLINE OF BEARING.
 - 8" DIAMETER FORMED HOLE AND PIPE SLEEVE FOR CONDUIT.
 - MEASURED AT FRONT FACE OF ABUTMENT.

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NO	DATE	BY	CHKD	APPR

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

Name: JANET ELIZABETH GRONERT
 Date: 9/14/10 License # 44325

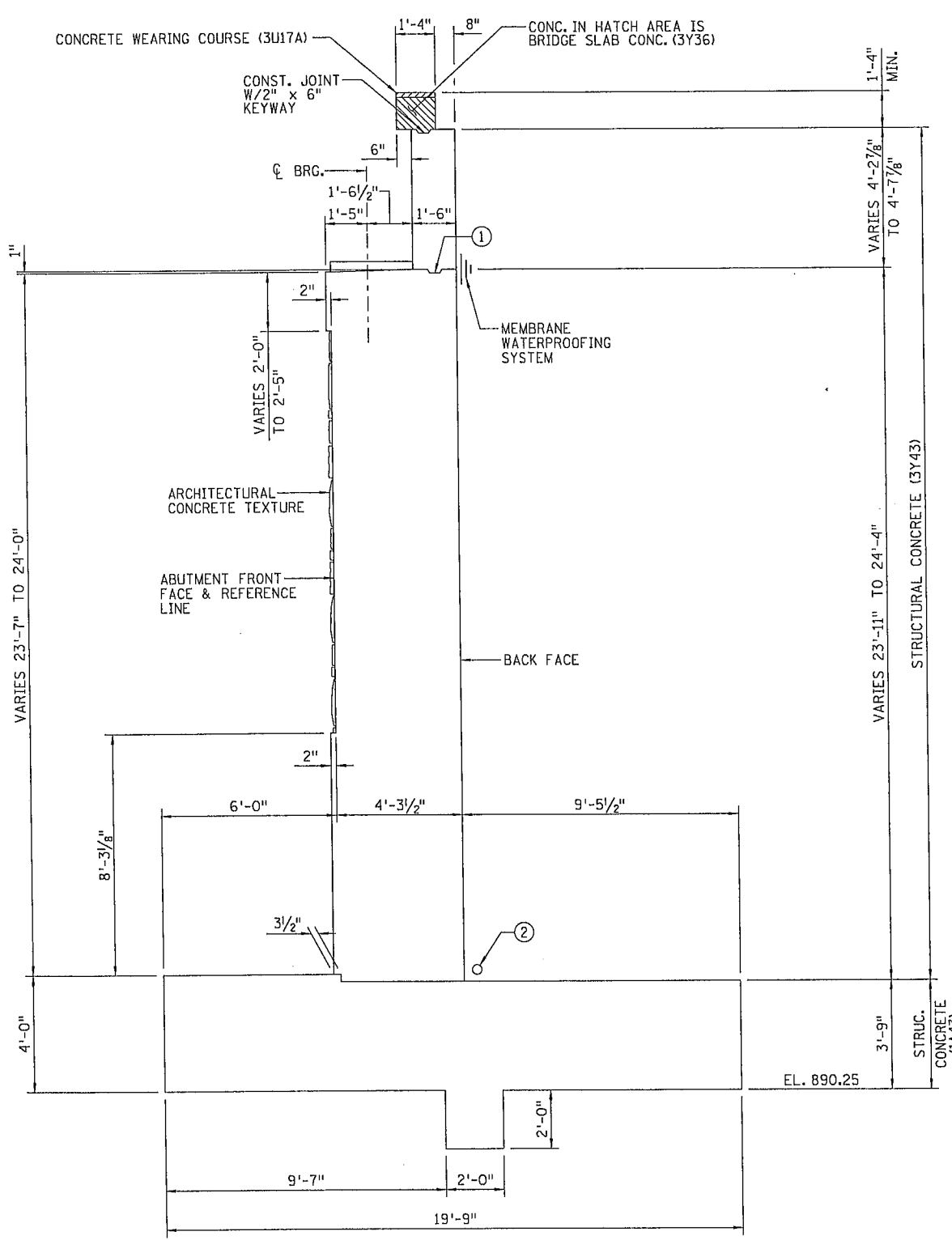
ANOKA COUNTY RELEASED FOR CONSTRUCTION

Charita Coulter
 Date: 10/1/10 ANOKA COUNTY

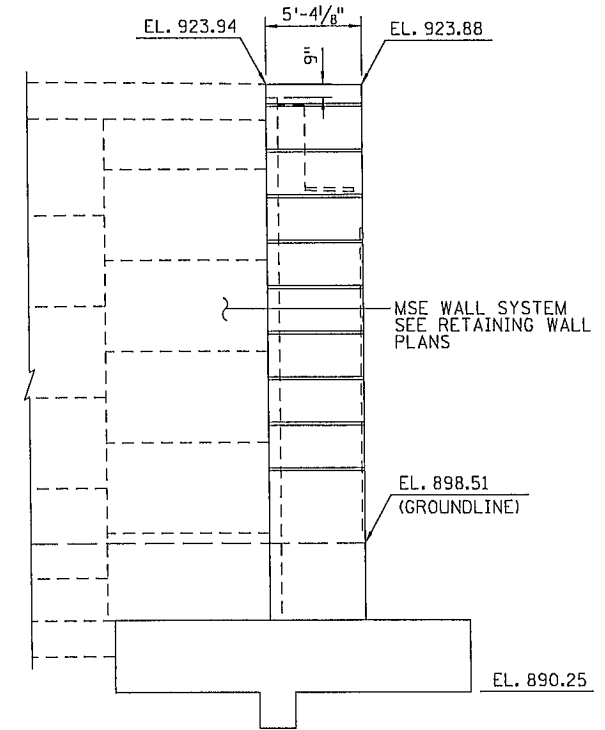
SRH C.S. McCrossan
 Consulting Group, Inc.



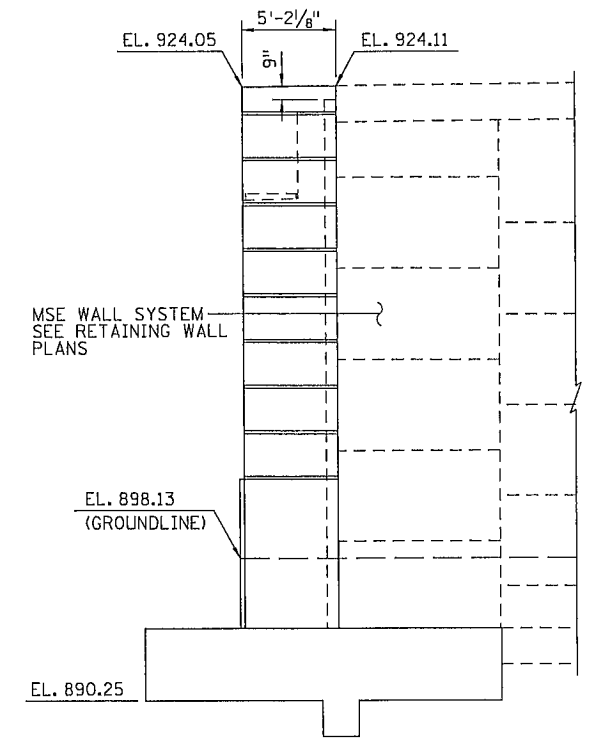
CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
 EAST ABUTMENT DETAILS (SHEET 2 OF 5) 08B11
 C.S.A.H. 14 OF
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44



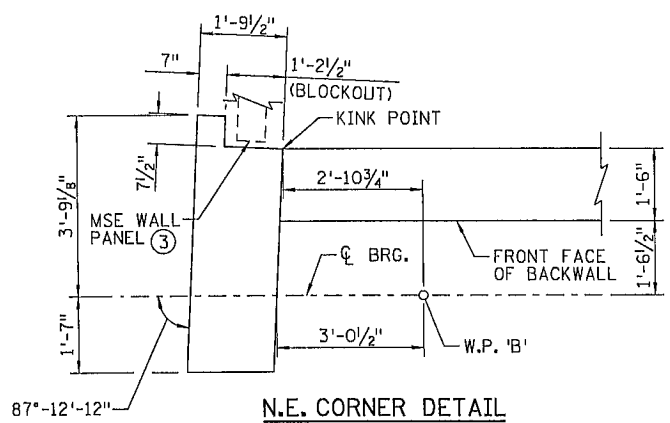
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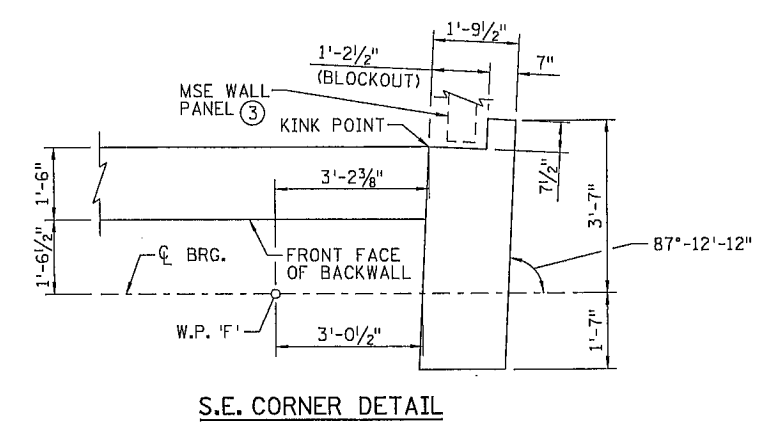
N.E. WINGWALL ELEVATION



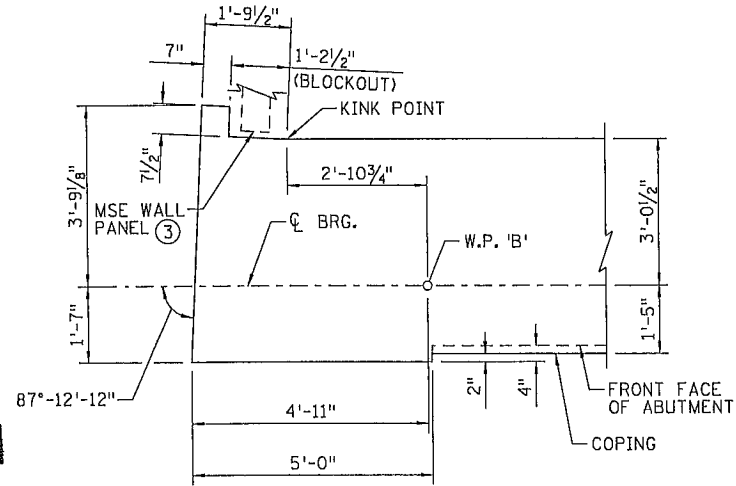
S.E. WINGWALL ELEVATION



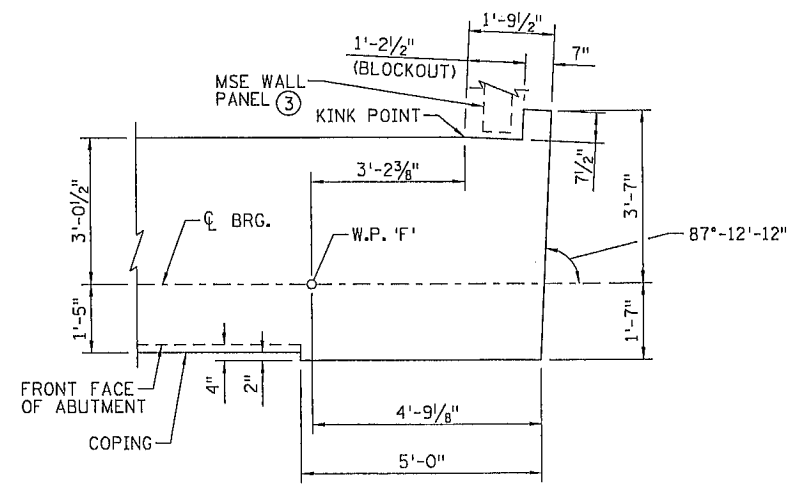
N.E. CORNER DETAIL (AT BACKWALL)



S.E. CORNER DETAIL (AT BACKWALL)



N.E. CORNER DETAIL (AT STEM)



S.E. CORNER DETAIL (AT STEM)

- NOTES:**
- PERMISSIBLE CONST. JOINT W/2" x 6" KEYWAY AND MEMBRANE WATERPROOFING SYSTEM REQ'D. IF JOINT IS USED.
 - 4" PERFORATED PIPE SEE DETAIL B910.
 - SEE RETAINING WALL PLANS FOR MEMBRANE WATERPROOFING, POLYSTYRENE.

RELEASED FOR CONSTRUCTION

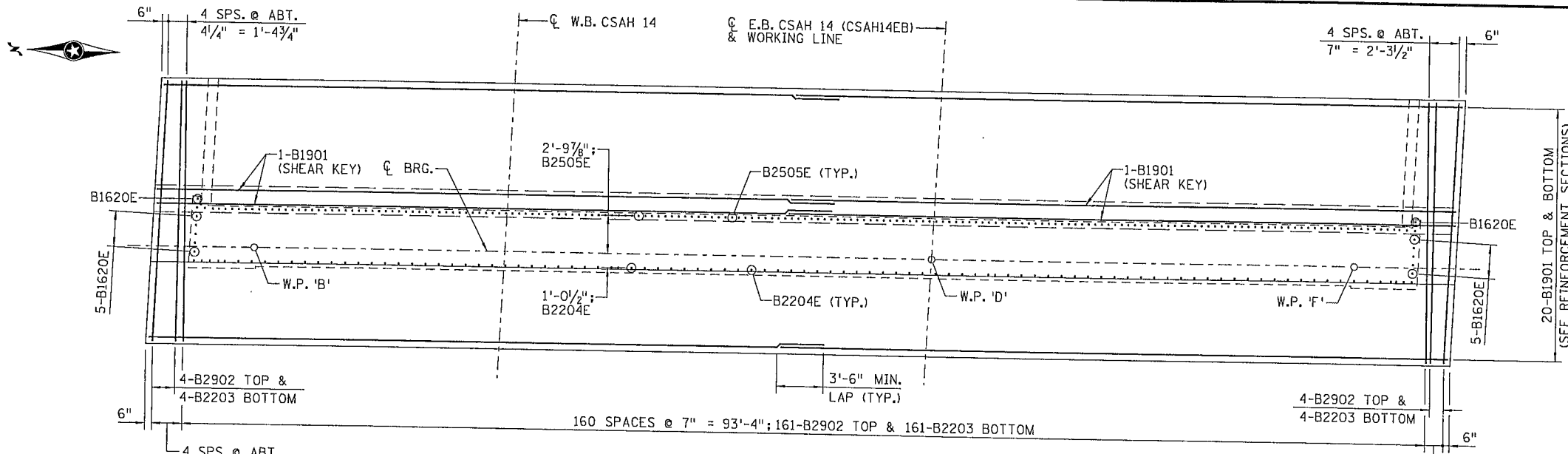
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Pr. Name: JANET ELIZABETH GRONERT
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
 Date: 10/4/11 ANOKA COUNTY

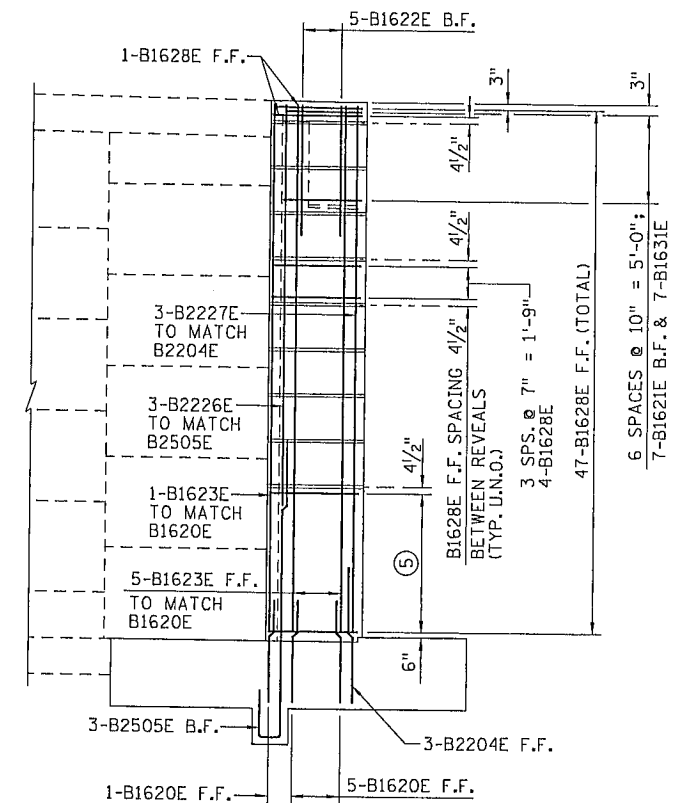


CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B12 OF 08B44
 EAST ABUTMENT DETAILS (SHEET 3 OF 5)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

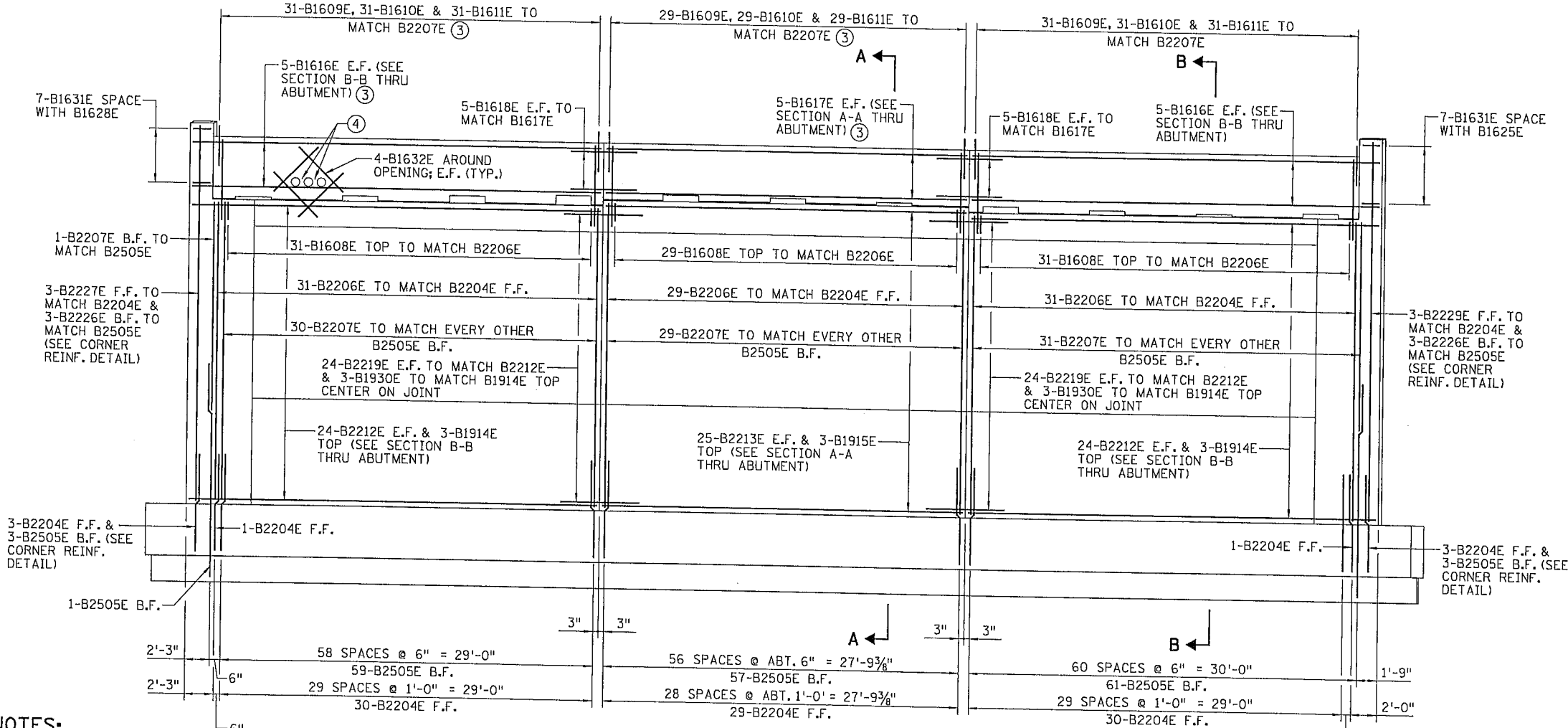
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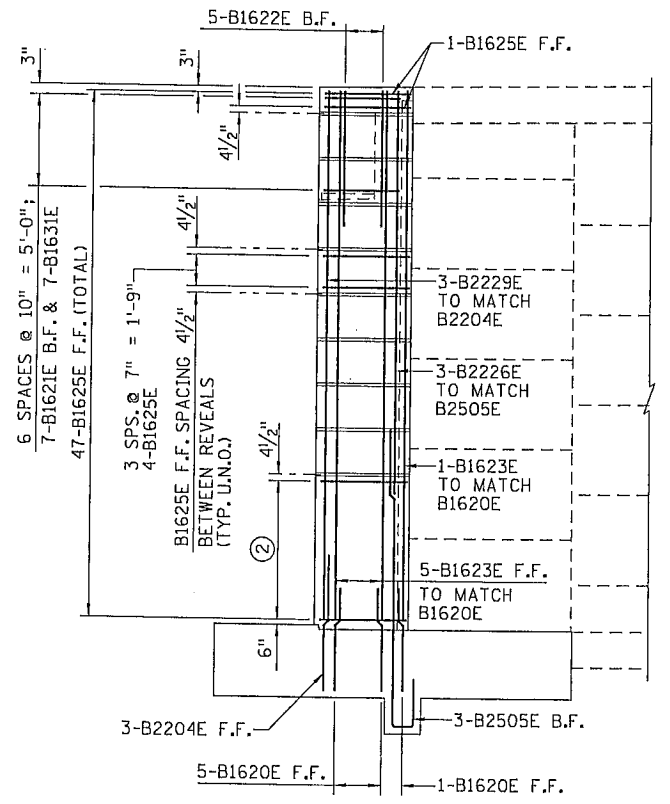
FOOTING REINFORCEMENT PLAN



N.E. WINGWALL REINFORCEMENT ELEVATION



REINFORCEMENT ELEVATION



S.E. WINGWALL REINFORCEMENT ELEVATION

- NOTES:**
- 1. U.N.O. DENOTES UNLESS NOTED OTHERWISE.
 - 2. 12 EQUAL SPACES; 13-B1625E F.F.
 - 3. BAR SPACING SHALL BE ADJUSTED AS NEEDED TO ACCOMMODATE CONDUIT.
 - 4. ADJUST REINFORCEMENT SUCH THAT VERTICAL BARS EXTEND THROUGH THE CONCRETE BETWEEN CONDUIT SLEEVES.
 - 5. 12 EQUAL SPACES; 13-B1628E F.F.

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Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

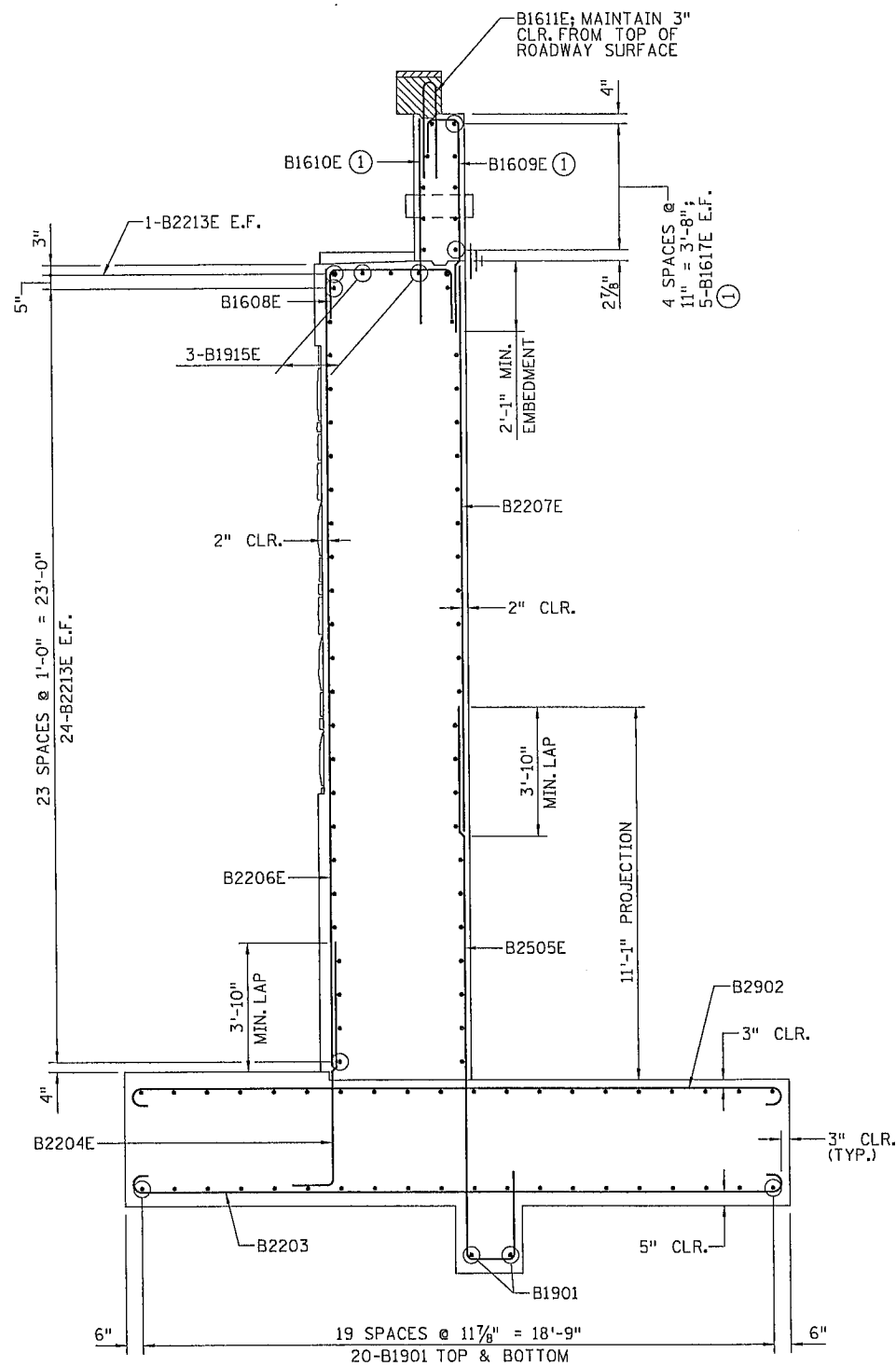
ANOKA COUNTY RELEASED FOR CONSTRUCTION

Charlotte Lundberg
 Date: 10/4/11 ANOKA COUNTY

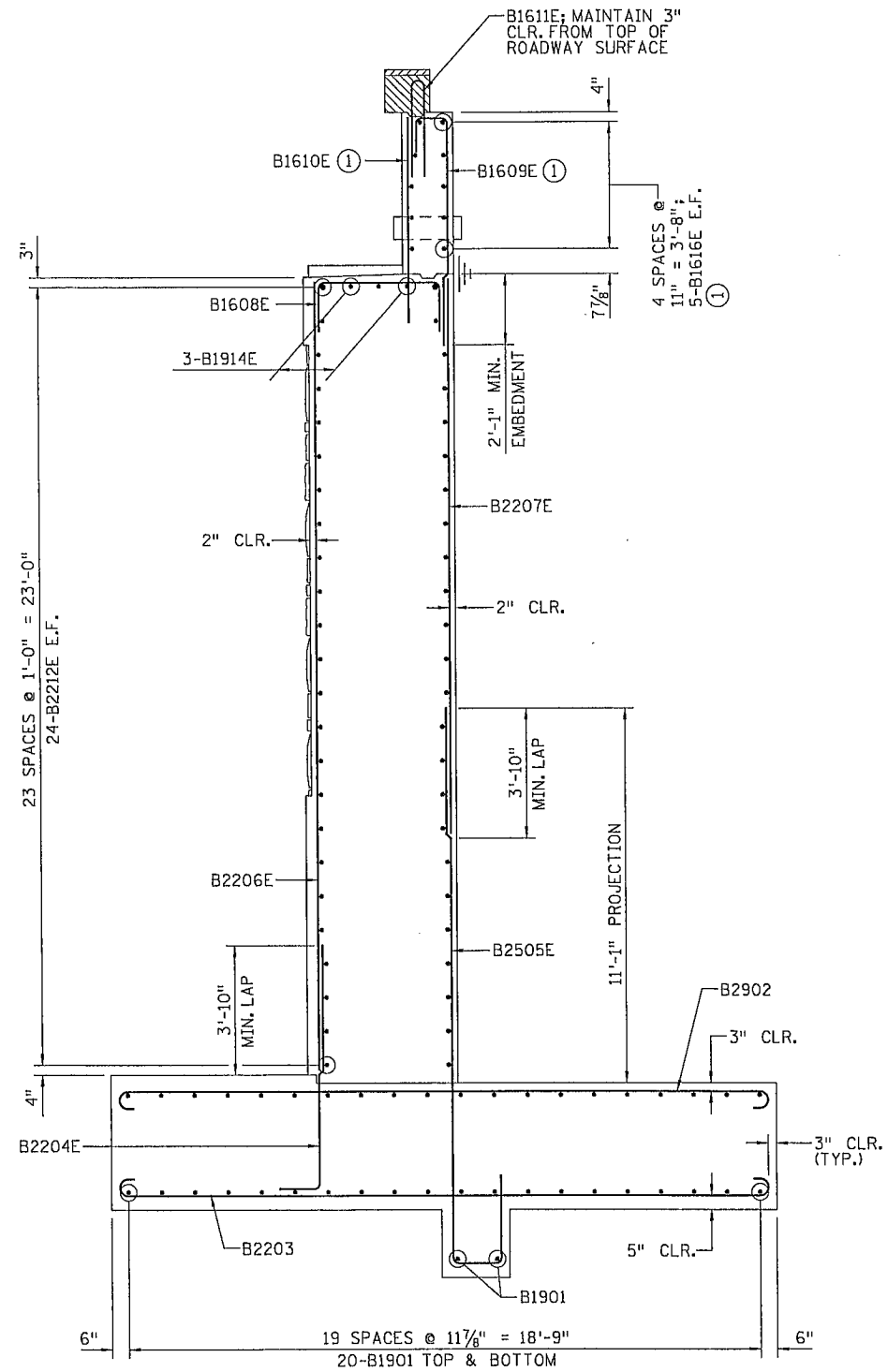
SRH C.S. McCrossan
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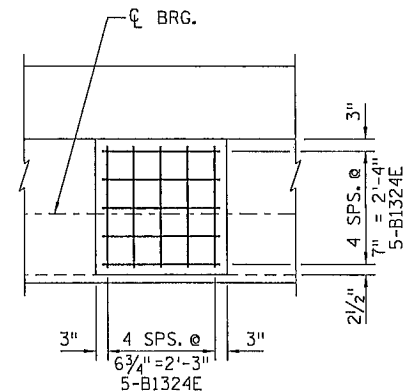
CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
 EAST ABUTMENT DETAILS (SHEET 4 OF 6) 08B13
 C.S.A.H. 14 OF
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44



SECTION A-A THRU ABUTMENT REINFORCEMENT



SECTION B-B THRU ABUTMENT REINFORCEMENT



BRIDGE SEAT REINFORCEMENT DETAIL

RELEASED FOR CONSTRUCTION

- NOTES:**
1. BAR SPACING SHALL BE ADJUSTED AS NEEDED TO ACCOMMODATE CONDUIT.
 2. ADJUST REINFORCEMENT SUCH THAT VERTICAL BARS EXTEND THROUGH THE CONCRETE BETWEEN CONDUIT SLEEVES.

2:55:17 PM
 H:\Projects\CD0261434\BRNF\Incl. Plans\Plan\CD0261434_abt11.dgn

NO	DATE	BY	CKD	APPR

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: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Chris Carls
 Date: 10/4/11 ANOKA COUNTY

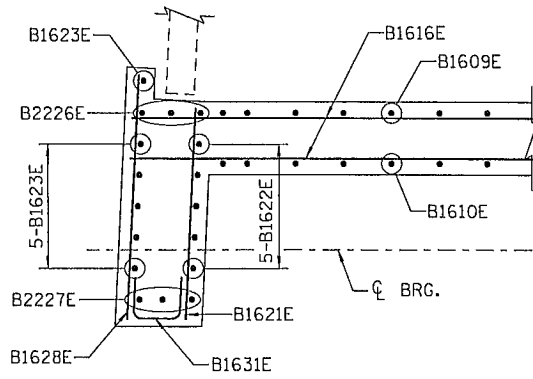


CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B14 OF 08B44
 EAST ABUTMENT DETAILS (SHEET 5 OF 6)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

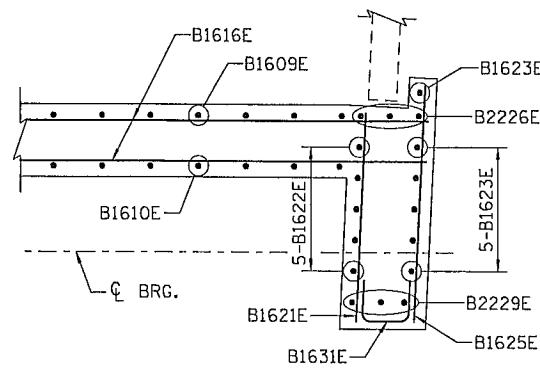
BILL OF REINFORCEMENT:

EAST ABUTMENT

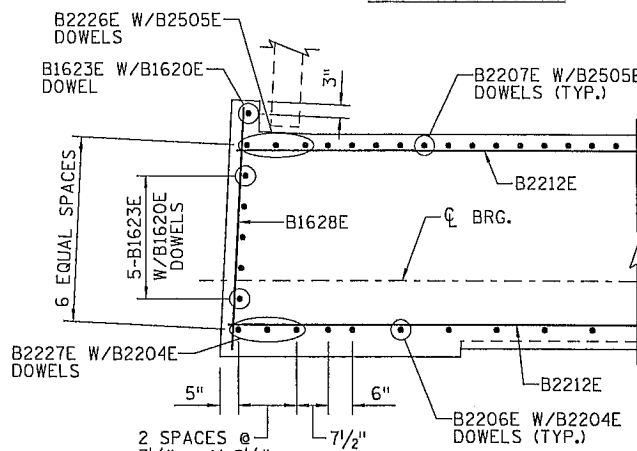
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B1901	84	50 - 6	STR	FOOTING
B2902	169	21 - 9	BENT	FOOTING
B2203	169	20 - 11	BENT	FOOTING
B2204E	97	8 - 7	BENT	DOWEL
B2505E	184	20 - 5	BENT	DOWEL
B2206E	91	23 - 5	STR	STEM VERT.
B2207E	91	16 - 11	STR	STEM VERT.
B1608E	91	7 - 11	BENT	STEM TOP
B1609E	91	9 - 1	BENT	BACKWALL VERT.
B1610E	91	6 - 2	STR	BACKWALL VERT.
B1611E	91	8 - 4	BENT	END BLOCK
B2212E	96	31 - 3	STR	STEM HORIZ.
B2213E	50	27 - 11	STR	STEM HORIZ.
B1914E	6	31 - 3	STR	STEM HORIZ.
B1915E	3	27 - 11	STR	STEM HORIZ.
B1616E	20	31 - 3	STR	BACKWALL HORIZ.
B1617E	10	27 - 11	STR	BACKWALL HORIZ.
B1618E	20	5 - 4	STR	BACKWALL HORIZ.
B2219E	96	7 - 4	STR	STEM HORIZ.
B1620E	12	6 - 11	BENT	WW DOWEL
B1621E	14	4 - 1	STR	WW HORIZ.
B1622E	10	8 - 3	STR	WW VERT.
B1623E	12	29 - 5	STR	WW VERT.
B1324E	110	5 - 5	BENT	BRIDGE SEAT
B1625E	47	4 - 8	STR	WW HORIZ.
B2228E	6	22 - 10	STR	WW VERT.
B2227E	3	29 - 5	STR	WW VERT.
B1628E	47	4 - 10	STR	WW HORIZ.
B2229E	3	29 - 7	STR	WW VERT.
B1930E	6	6 - 0	STR	TOP HORIZ.
B1631E	14	2 - 11	BENT	WW HORIZ.
B1632E	8	5 - 0	STR	BACKWALL DIAG.



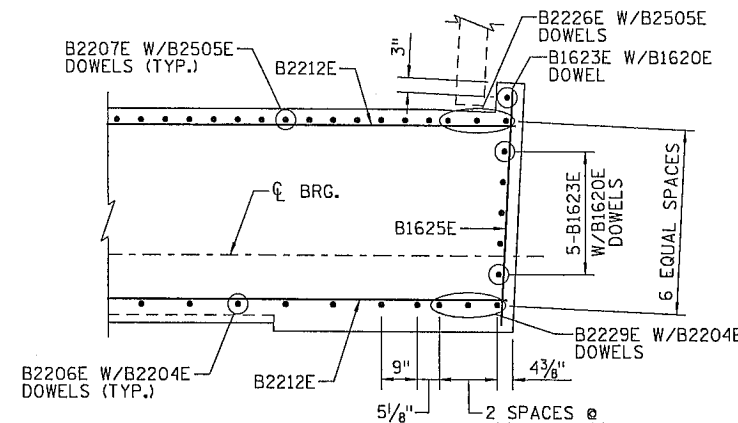
N.E. PARAPET CORNER



S.E. PARAPET CORNER

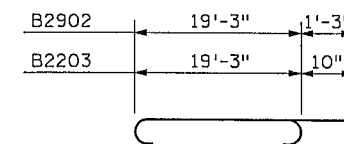


N.E. STEM CORNER

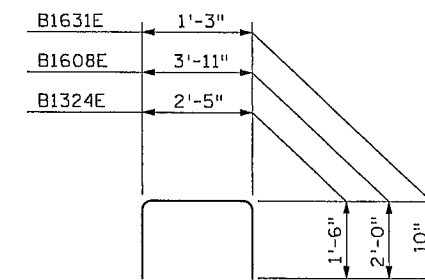


S.E. STEM CORNER

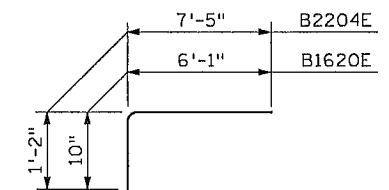
CORNER REINFORCEMENT DETAIL



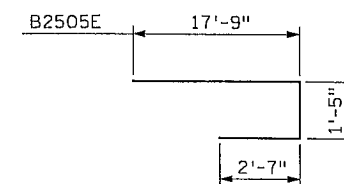
B2902 & B2203



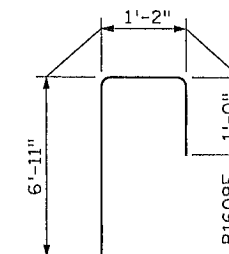
B1608E, B1324E, & B1631E



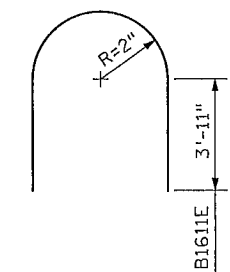
B2204E & B1620E



B2505E



B1609E



B1611E

RELEASED FOR CONSTRUCTION

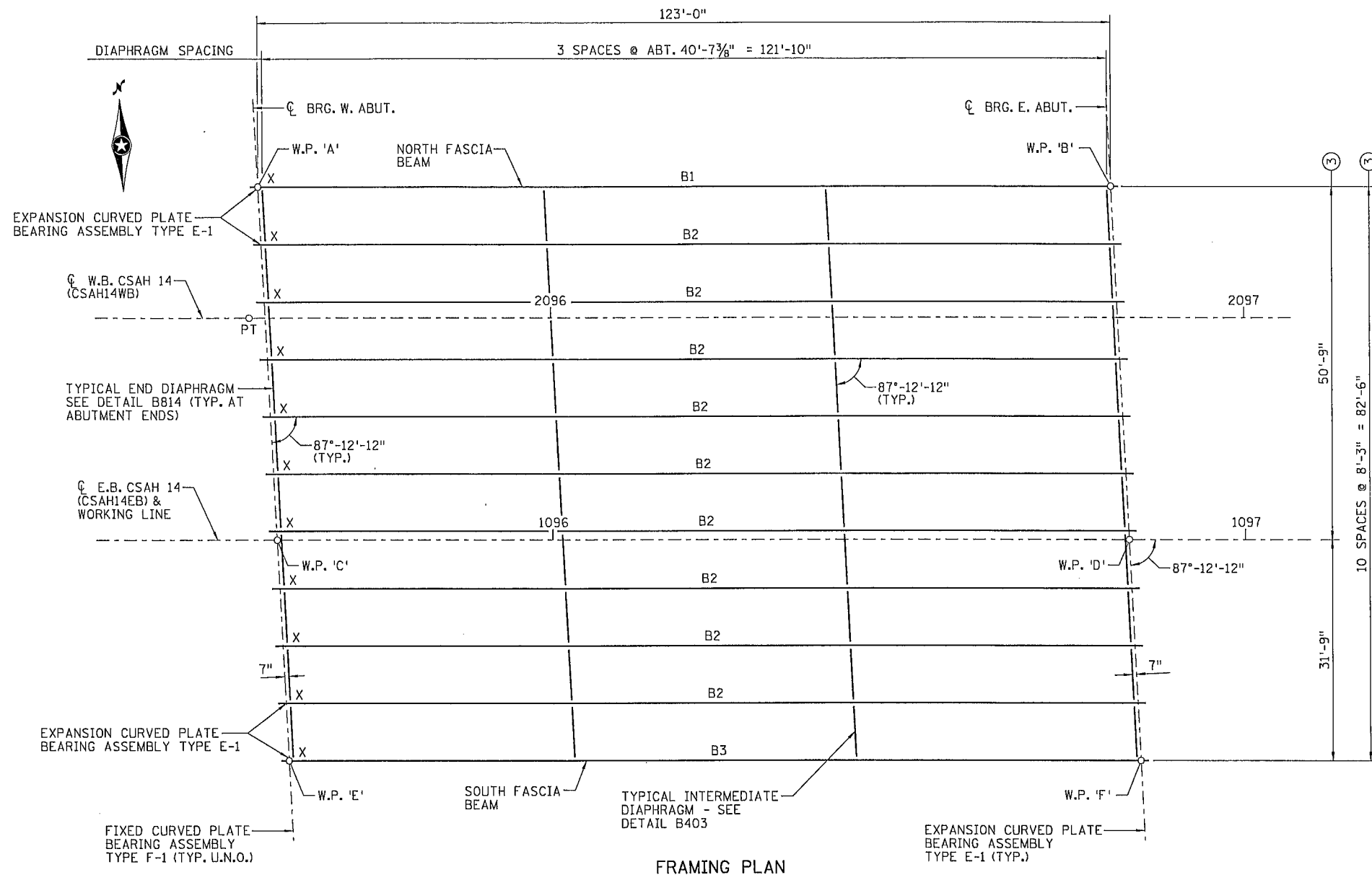
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Print Name: JANET ELIZABETH GRONERT
 Signature: *Janet Elizabeth Gronert*
 Date: 9/14/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
 Signature: *Charles C. ...*
 Date: 10/4/11 ANOKA COUNTY



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
 EAST ABUTMENT DETAILS (SHEET 6 OF 6) 08B15
 C.S.A.H. 14 OF
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44

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NOTES:

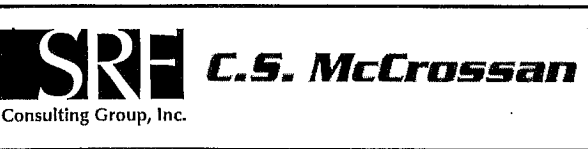
1. U.N.O. DENOTES UNLESS NOTED OTHERWISE.
2. X DENOTES WHICH END OF BEAM IS TO BE MARKED WITH AN "X".
3. DIMENSIONS ARE PERPENDICULAR TO C OF BEAMS AND WORKING LINE.

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NO	DATE	BY	CKD	APPR

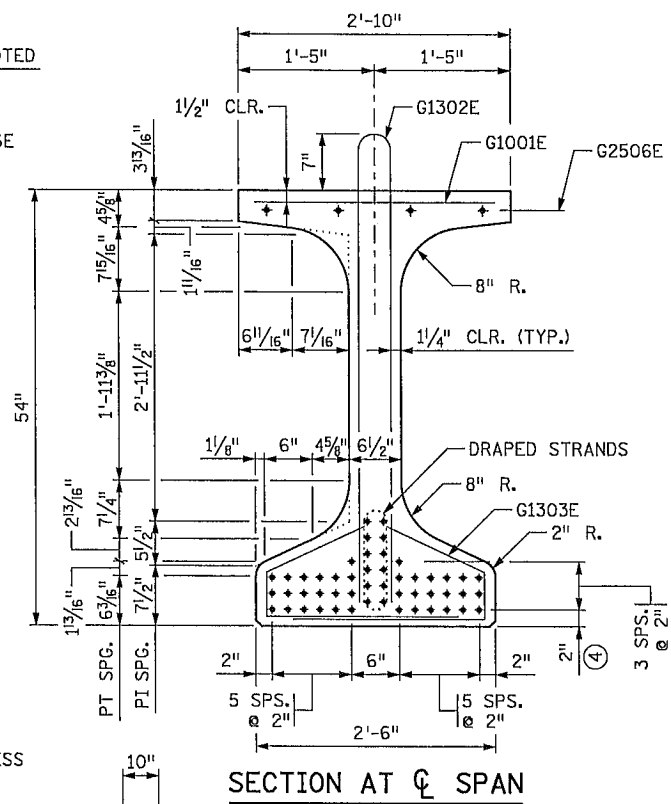
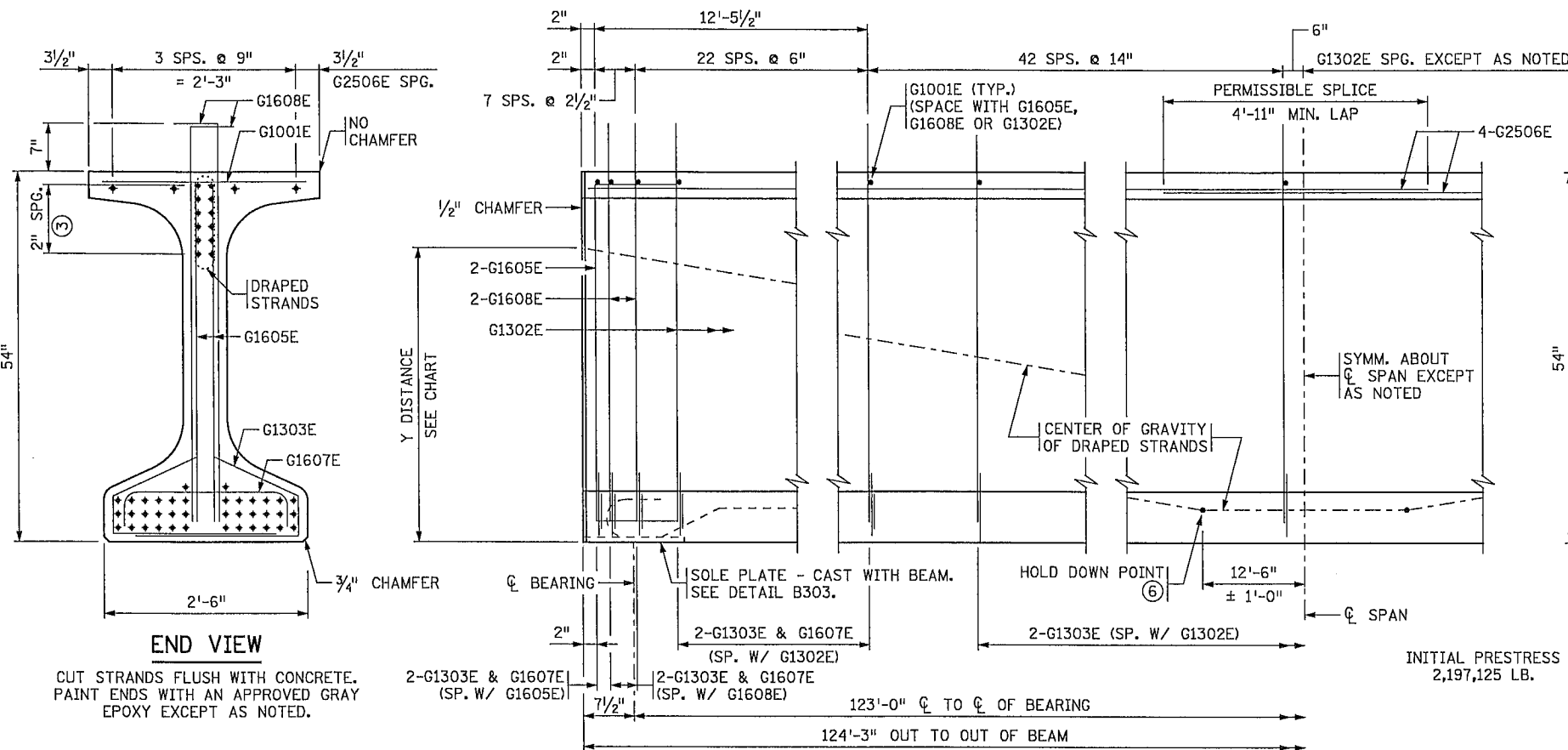
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Christina Coulbrey
 Date: 10/24/11 ANOKA COUNTY



CSAH 14 DESIGN BUILD (SAP 002-614-034)
 FRAMING PLAN
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

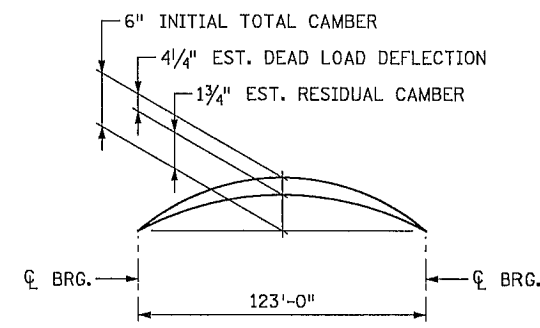
SHEET 08B16 OF 08B44



Y DISTANCES (IN INCHES)			
	NO.	CL SPAN	END
STRAIGHT STRANDS	38	4.21	
DRAPED STRANDS	12	8.00	46.00
TOTAL STRANDS	50	5.12	

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.

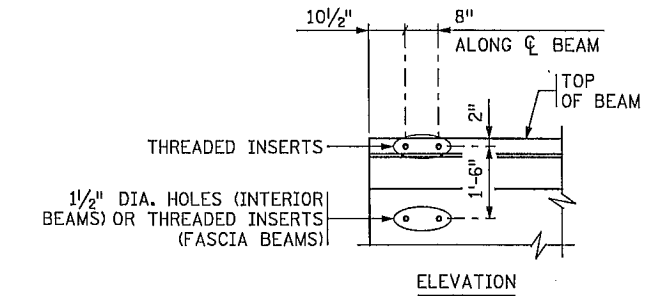
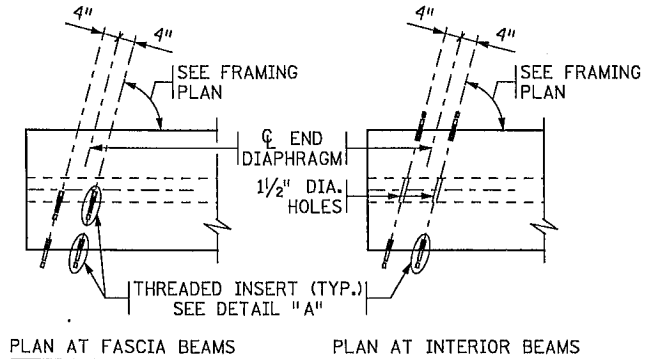
ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

BEAM ELEVATION

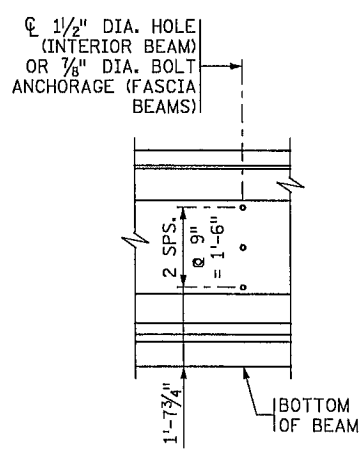
CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	24.7 KSI
LONG TERM LOSSES	26.0 KSI
TOTAL LOSSES	50.7 KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f'ci	② f'c
7.5 KSI	8.1 KSI

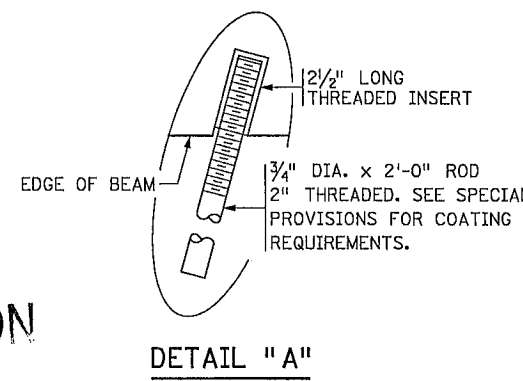
PRESTRESSING STRAND DIAMETER	
⑤ 1/2" □	
0.60" ☒	



CONCRETE END DIAPHRAGM
PARAPET ABUTMENT
(SEE DETAIL B814 FOR DIAPHRAGM DETAILS)



STEEL INTERMEDIATE DIAPHRAGM
(SEE DETAIL B403 FOR DIAPHRAGM DETAILS)



DETAIL "A"

GENERAL NOTES

- TOPS OF BEAMS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BOND.
- PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.
- EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.
- SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.
- APPROXIMATE WEIGHT OF BEAM IS 50.1 TONS.

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

- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.

RELEASED FOR CONSTRUCTION

REVISED: 10-22-2009
APPROVED: OCTOBER 26, 2005
STATE BRIDGE ENGINEER

BEAMS B1 - B3 FIG. 5-397.508

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name: JANET ELIZABETH GRONERT
Date: 9/14/11 License #: 44325

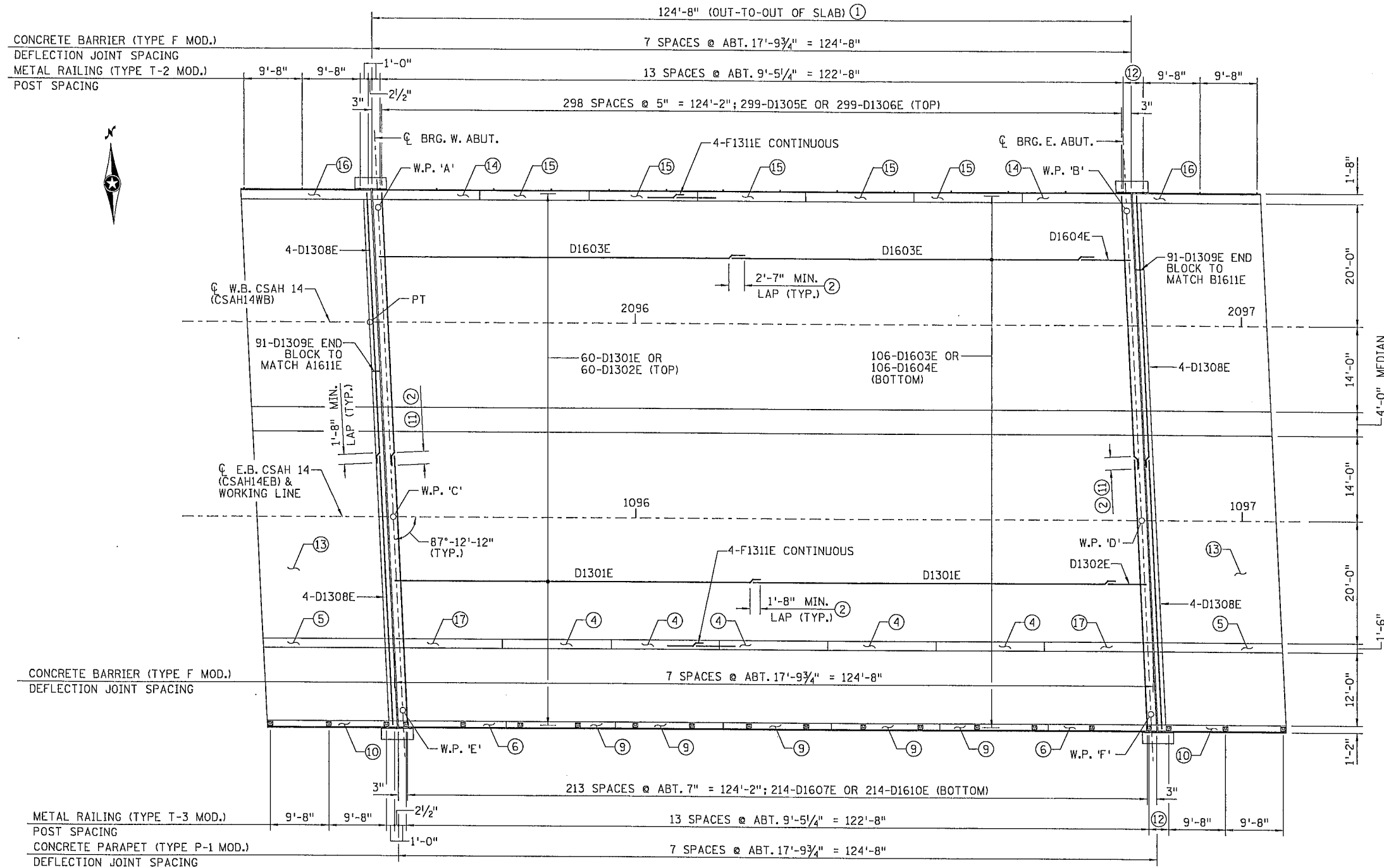
ANOKA COUNTY RELEASED FOR CONSTRUCTION
Date: 10/4/11 ANOKA COUNTY

SRH C.S. McCrossan
Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B17
MN54" P/S CONCRETE BEAM (PRETENSIONED) MN54-125 OF
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44

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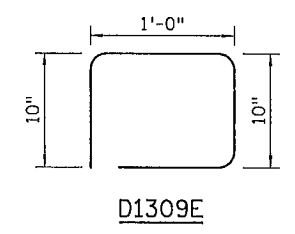


RELEASED FOR CONSTRUCTION

- NOTES:**
- ① DIMENSION MEASURED ALONG EDGE OF DECK.
 - ② STAGGER LAPS.
 3. BRIDGE SLAB CONCRETE (3Y36) VOLUME IS APPROXIMATELY 308 CU. YDS. USING AN AVERAGE STOOD HEIGHT OF 2" AND INCLUDES THE PAVING BLOCK AND END DIAPHRAGMS.
 - ④ 20-F1605E, 20-F1604E, & 4-F1307E.
 - ⑤ 24-F1604E, 1-F1603E, 24-F1606E, 4-F1309E, & 4-F1310E.
 - ⑥ 21-R1601E, 1-R1605E, 4-R1304E, & 2-R1306E.
 7. CONCRETE WEARING COURSE (3U17A) VOLUME IS APPROXIMATELY 71 CU. YDS. INCLUDES 2720 SQ. FT. WITH A VOLUME OF 17 CU. YDS. FOR APPROACH PANELS.
 8. COUNTY WILL FURNISH BENCHMARK DISK. BEND PRONGS OUTWARD TO ANCHOR IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE.
 - ⑨ 22-R1601E & 6-R1303E.
 - ⑩ 24-R1602E, 4-R1307E, 2-R1308E & 1-R1605E.
 - ⑪ 1'-8" MIN. LAP TOP BARS
2'-7" MIN. LAP BOTTOM BARS.
 - ⑫ 2'-2 1/2".
 - ⑬ SEE BRIDGE APPROACH PANEL DETAILS.
 - ⑭ 21-F1601E, 21-F1602E, 1-F1603E, & 4-F1308E.
 - ⑮ 20-F1601E, 20-F1602E, & 4-F1307E.
 - ⑯ 24-F1602E, 1-F1603E, 24-F1605E, 4-F1309E, & 4-F1310E.
 - ⑰ 21-F1605E, 1-F1603E, 21-F1604E, & 4-F1308E.
 18. RAISED MEDIAN CONCRETE (3Y46) VOLUME IS APPROXIMATELY 12 CU. YDS.

BILL OF REINFORCEMENT: DECK

MARK	NO	LENGTH [FT - IN]	SHAPE	LOCATION
D1301E	120	60 - 0	STR	TOP LONGIT.
D1302E	60	7 - 9	STR	TOP LONGIT.
D1603E	212	60 - 0	STR	BOT. LONGIT.
D1604E	106	9 - 6	STR	BOT. LONGIT.
D1305E	299	49 - 0	STR	TOP TRANS.
D1306E	299	40 - 10	STR	TOP TRANS.
D1607E	214	37 - 0	STR	BOT. TRANS.
D1308E	16	44 - 11	STR	END BLOCK
D1309E	182	3 - 4	BENT	END BLOCK
D1610E	214	53 - 5	STR	BOT. TRANS.



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: JANET ELIZABETH GRONERT
 Date: 9/14/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

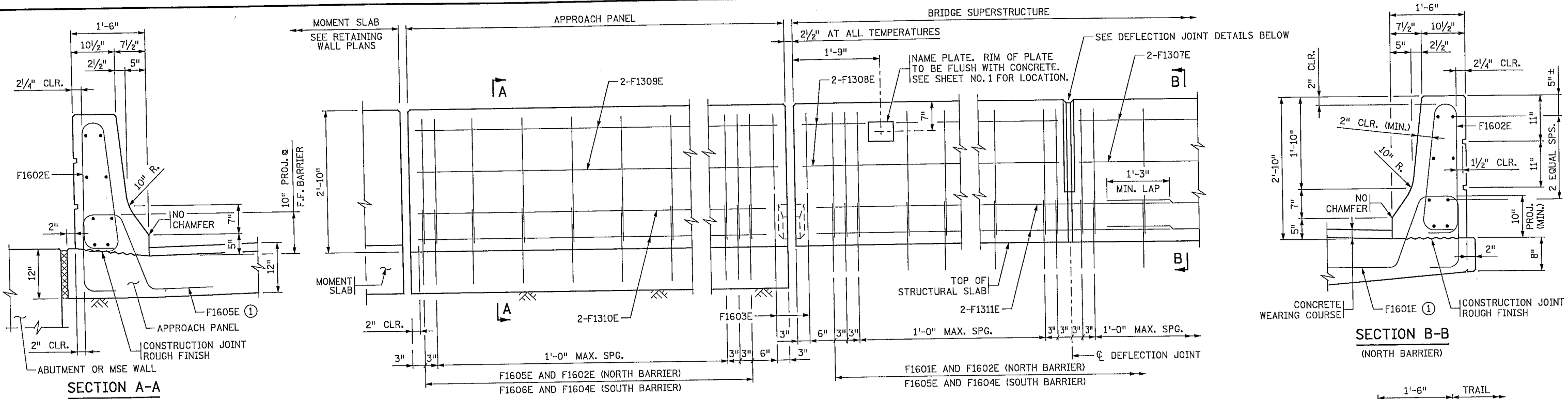
SRE C.S. McCrossan
 Consulting Group, Inc.

Date: 10/4/11 ANOKA COUNTY

CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B18 OF 08B44

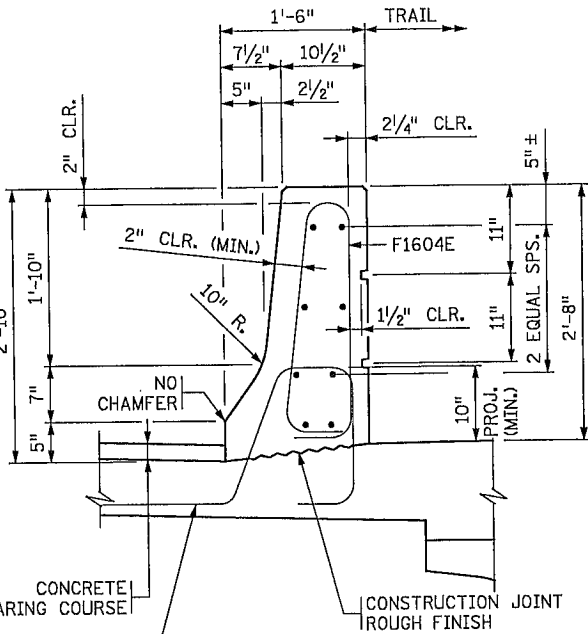
BRIDGE DECK DETAILS (SHEET 1 OF 2)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

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SECTION A-A
(NORTH BARRIER SHOWN)

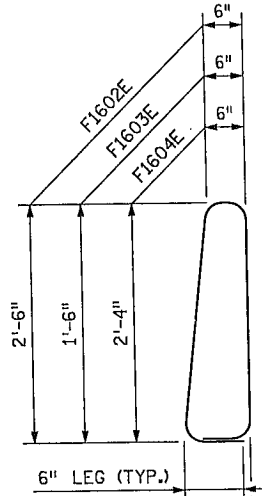
SECTION B-B
(NORTH BARRIER)



SECTION B-B
(SOUTH BARRIER SHOWN, SIMILAR @ APPROACH PANEL)

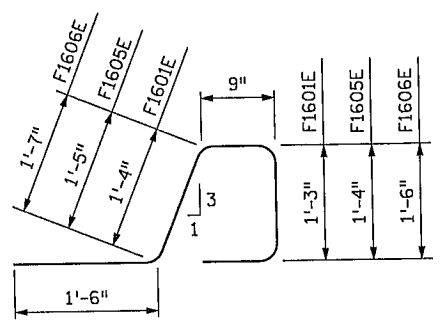
EXPANSION JOINT
(EXPANSION DEVICE NOT SHOWN)
INSIDE ELEVATION OF BARRIER
(CONCRETE WEARING COURSE NOT SHOWN)

BARRIER MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350

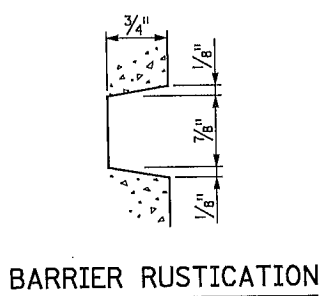


F1604E	9 1/2"
F1602E	9 1/2"
F1603E	8 1/2"

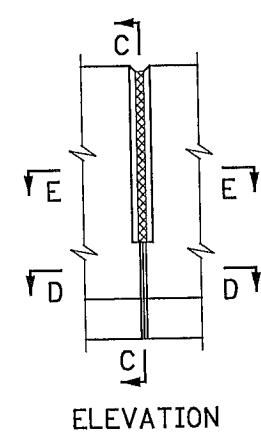
F1602E, F1603E & F1604E



F1601E, F1605E & F1606E



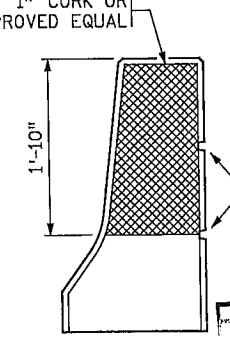
BARRIER RUSTICATION



ELEVATION

SECTION E-E

SECTION D-D



SECTION C-C

DEFLECTION JOINT DETAILS

GENERAL NOTES

- LENGTH OF "TYPE F (TL-4) RAILING CONCRETE (3Y46)" SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE BARRIER.
- CONCRETE BARRIER = 477 LBS./FT. (0.117 CU. YDS./FT.)
- FINISH ALL EDGES OF BARRIER WITH 1/2" VEE, EXCEPT WHERE OTHERWISE NOTED.
- MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.
- SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.
- ① PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT.

BILL OF REINFORCEMENT: TYPE F BARRIER

MARK	NO	LENGTH [FT - IN]	SHAPE	LOCATION
F1601E	142	5 - 5	BENT	DECK DOWEL
F1602E	190	6 - 7	BENT	VERTICAL
F1603E	8	4 - 7	BENT	VERTICAL
F1604E	190	6 - 3	BENT	PANEL/DECK
F1605E	190	5 - 7	BENT	PANEL DOWEL
F1606E	48	5 - 11	BENT	PANEL DOWEL
F1307E	40	17 - 5	STR	LONGITUDINAL
F1308E	16	17 - 4	STR	LONGITUDINAL
F1309E	16	21 - 0	STR	PANEL LONG.
F1310E	16	20 - 9	STR	PANEL LONG.
F1311E	32	32 - 0	STR	LONGITUDINAL

REVISED: 05-26-2006
APPROVED: DECEMBER 18, 2003
David S. Johnson
STATE BRIDGE ENGINEER

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. In Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
Date 9/14/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Charles Carlberg
Date 10/4/11 ANOKA COUNTY

SRI C.S. McCrossan
Consulting Group, Inc.

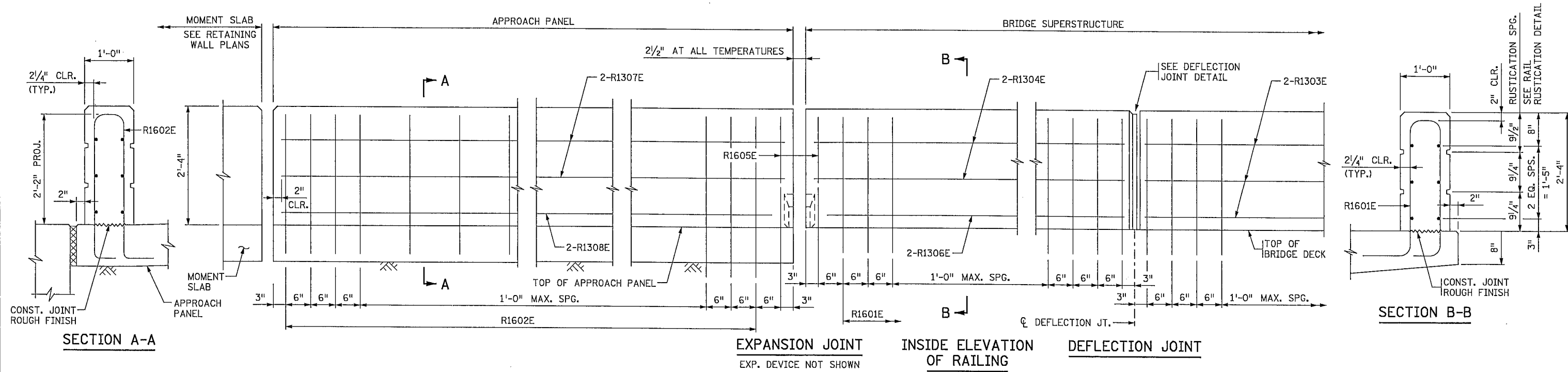


CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
CONCRETE BARRIER (TYPE F MOD.) 08B20
C.S.A.H. 14 OF
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44

RELEASED FOR CONSTRUCTION

MODIFIED
FIG. 5-397.117

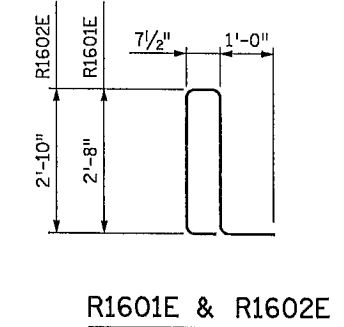
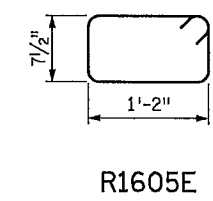
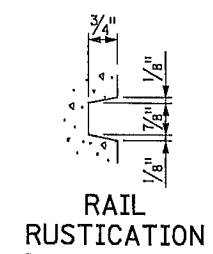
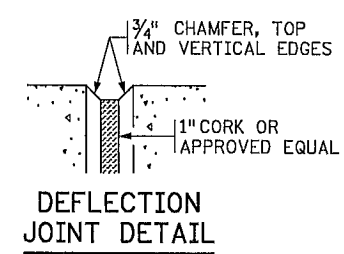
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RAIL MEETS TEST LEVEL 2
 REQUIREMENTS OF NCHRP REPORT 350.
 THE RAIL MUST BE USED NEXT TO WALKWAY.
 AN F-BARRIER MUST BE USED TO SEPARATE TRAFFIC
 FROM THIS RAIL IN THE 45 MPH (OR OVER) SPEED ZONE.

BILL OF REINFORCEMENT: TYPE P-1 MOD. PARAPET

MARK	NO	LENGTH [FT - IN]	SHAPE	LOCATION
R1601E	152	7 - 5	BENT	DECK DOWEL
R1602E	48	7 - 9	BENT	PANEL DOWEL
R1303E	30	17 - 5	STR	HORIZONTAL
R1304E	8	17 - 6	STR	HORIZONTAL
R1605E	4	4 - 6	BENT	VERTICAL
R1306E	4	17 - 3	STR	HORIZONTAL
R1307E	8	21 - 0	STR	HORIZONTAL
R1308E	4	20 - 9	STR	HORIZONTAL



GENERAL NOTES

LENGTH OF "TYPE P-1 RAILING CONCRETE (3Y46)" SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE RAILING.

CONCRETE PARAPET = 350 LBS./FT. (0.086 CU. YDS./FT.)

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

MAX. SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.

SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.

RELEASED FOR CONSTRUCTION

MODIFIED
 FIG. 5-397.154

REVISED:
 APPROVED: DECEMBER 18, 2003
Janet Elizabeth Gronert
 STATE BRIDGE ENGINEER

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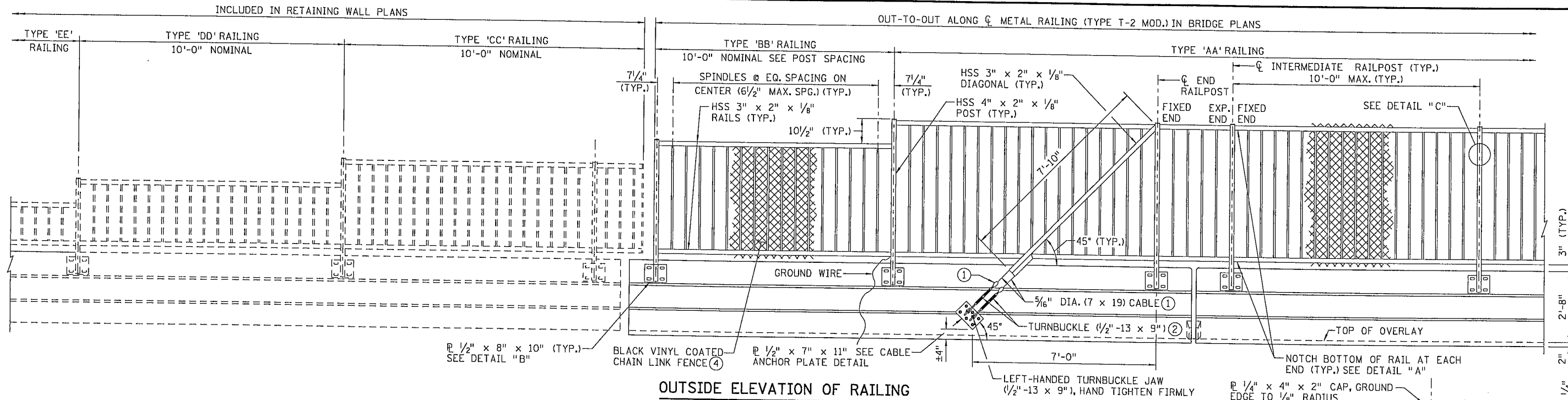
Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 11/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Charles Coleheady
SRE C.S. McCrossan
 Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
 CONCRETE PARAPET (TYPE P-1 MOD.) 08B21
 C.S.A.H. 14 OF
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44

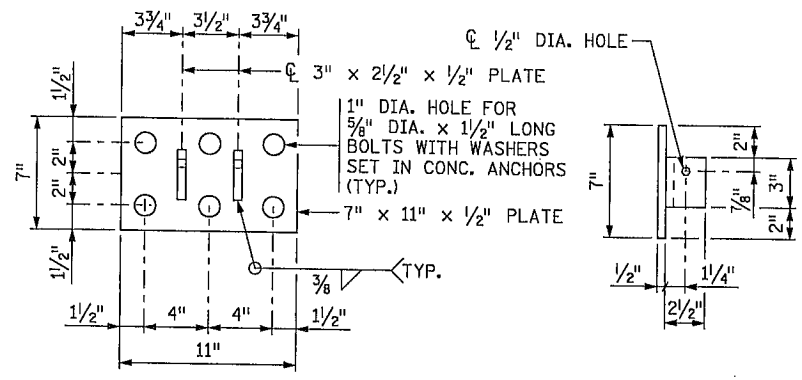
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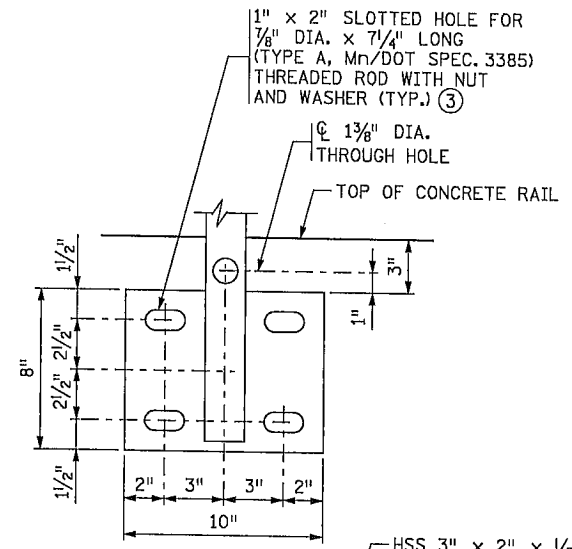
OUTSIDE ELEVATION OF RAILING

GENERAL NOTES

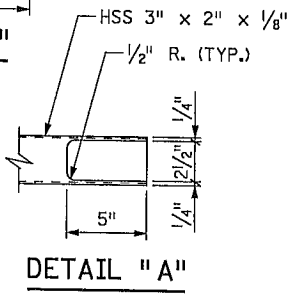
- U.N.O. DENOTES UNLESS NOTED OTHERWISE.
- SEE BRIDGE DECK DETAIL SHEET FOR RAILPOST SPACING.
- LENGTH OF "METAL RAILING (TYPE T-2 MOD.) SHALL BE MEASURED AS THE OUT TO OUT LENGTH ALONG THE CENTERLINE OF THE RAILING BETWEEN THE OUTSIDE ENDS.
- ALL STRUCTURAL STEEL TUBING (HSS) IN THE RAIL SHALL BE A500, GRADE B. MATERIAL SHALL CONFORM TO MnDOT SPEC. 3361. ALL OTHER STEEL SHALL CONFORM WITH MnDOT SPEC. 3306.
- RAILPOSTS AND SPINDLES SHALL BE SET VERTICAL.
- VENT HOLES SHALL BE DRILLED IN THE RAIL TUBES AS NECESSARY TO FACILITATE GALVANIZING.
- THE METAL RAILING SHALL BE CONTINUOUSLY GROUNDED PER MnDOT SPEC. 2557.
- GALVANIZE THREADED RODS, BOLTS, NUTS AND WASHERS PER MnDOT SPEC. 3392.
- GALVANIZE ALL OTHER STRUCTURAL STEEL PER MnDOT SPEC. 3394 AFTER FABRICATION.
- ALL RAILING MEMBERS SHALL BE STRAIGHT AFTER FABRICATION AND GALVANIZING TO WITHIN 1/8" IN 10 FT. BY MECHANICAL MEANS WITHOUT DAMAGE TO THE ZINC COATING.
- PAINT ALL STRUCTURAL STEEL AND EXPOSED BOLTS, NUTS AND WASHERS PER MnDOT 2478. PREPARATION OF GALVANIZED SURFACES FOR PAINTING SHALL BE IN ACCORDANCE WITH ASTM 6386. COLOR TO BE FEDERAL STANDARD 595B NO. 17038 (BLACK).
- CABLE WEDGE END FITTING FORGED SERIES -- STUD SOCKET ASSEMBLY. UNC 1/2" x 9" THREAD FOR 5/16" DIA. (7 x 19) CABLE. MAY BE HELPFUL TO USE SPECIAL ASSEMBLY KIT TOOLS.
 - IF ONLY ONE TURNBUCKLE IS USED PER CABLE, LOCATE ONE OF THESE SHOWN AT OTHER END OF WALL.
 - MINIMUM ULTIMATE PULLOUT STRENGTH OF 20,000 LBS. EACH.
 - BLACK VINYL COATED CHAIN LINK FENCE TO EXTEND OUTSIDE HORIZONTAL RAILING MEMBERS 2" MAXIMUM.
 - SHIM AND CAULK AS NEEDED FOR PROPER GRADE AND ALIGNMENT.
 - APPROVED MECHANICAL OR CHEMICAL ANCHOR.
 - CABLE SYSTEM REQUIRED FOR "METAL RAILING (TYPE T-2 MOD.) PANEL TYPE 'AA' ONLY.



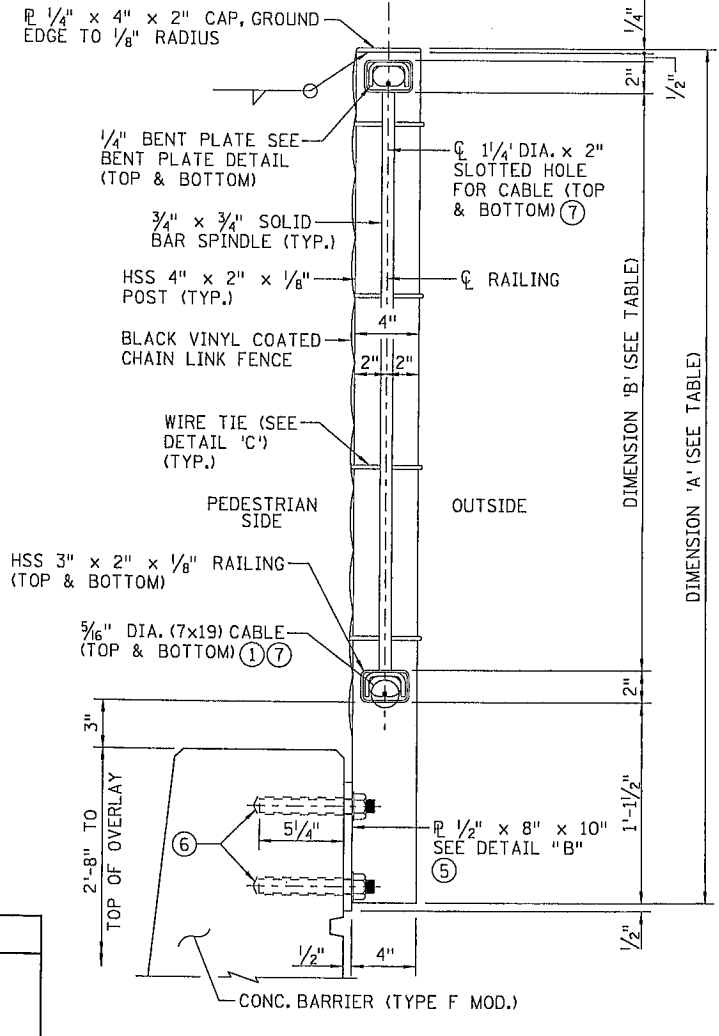
CABLE ANCHOR PLATE DETAIL



DETAIL "B"



DETAIL "A"



TYPICAL SECTION THRU RAILING

METAL RAILING (TYPE T-2 MOD.) PANEL TYPE GEOMETRY				
RAILING PANEL TYPE	DIMENSION A [FT - IN]	DIMENSION B [FT - IN]	HEIGHT FROM WALK TO TOP OF TOP RAIL [FT - IN]	LOCATION
TYPE 'AA'	6 - 3 1/4	4 - 9	8 - 0	BRIDGE / APP. PANEL
TYPE 'BB'	5 - 4 3/4	3 - 10 1/2	7 - 1 1/2	APPROACH PANEL
TYPE 'CC'	4 - 6 1/4	3 - 0	6 - 3	MOMENT SLAB
TYPE 'DD'	3 - 7 3/4	2 - 1 1/2	5 - 4 1/2	MOMENT SLAB
TYPE 'EE'	2 - 9 1/4	1 - 3	4 - 6	MOMENT SLAB

RELEASED FOR CONSTRUCTION

REVISED:

APPROVED: OCTOBER 29, 2004

Janet Elizabeth Gronert
STATE BRIDGE ENGINEER

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. Name: JANET ELIZABETH GRONERT

Janet Elizabeth Gronert

Date: 9/19/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Christina Carls

Date: 10/4/11 ANOKA COUNTY

SRE C.S. McCrossan Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B22

METAL RAILING (TYPE T-2 MOD.) (SHEET 1 OF 2) OF

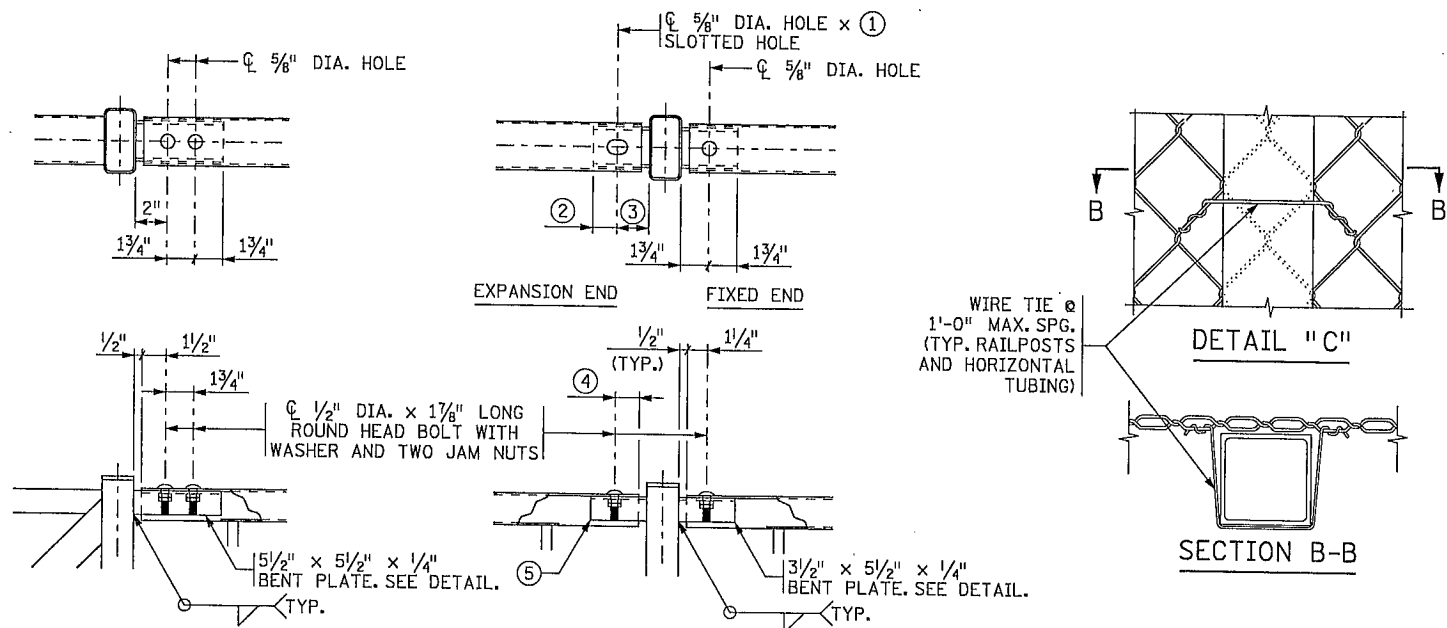
C.S.A.H. 14

CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44

MODIFIED

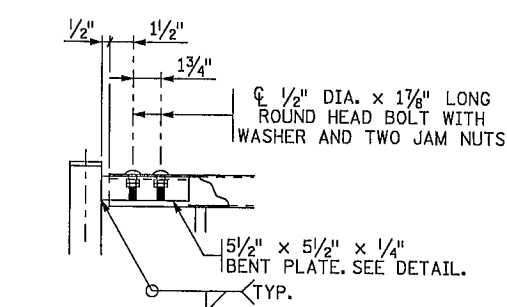
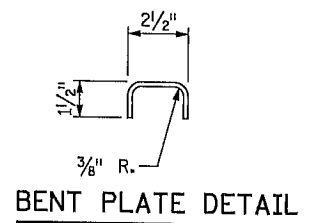
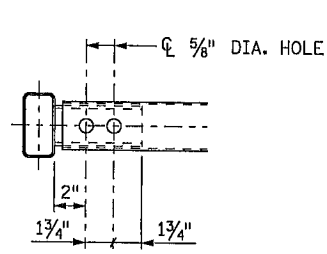
FIG. 5-397.158

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DIAGONAL RAILPOST DETAIL
TOP AND BOTTOM RAIL CONNECTIONS ARE SIMILAR (TYPE 'AA' RAILING)

INTERMEDIATE RAILPOST DETAIL
TOP AND BOTTOM RAIL CONNECTIONS ARE SIMILAR



END RAILPOST DETAIL
TOP AND BOTTOM RAIL CONNECTIONS ARE SIMILAR

RELEASED FOR CONSTRUCTION

- NOTES:**
- ① 1 1/4" (AT TYP. EXP. END) OR 3" (AT EXP. END AT EXPANSION JOINT)
 - ② 1 1/2" (AT TYP. EXP. END) OR 2 1/2" (AT EXP. END AT EXPANSION JOINT)
 - ③ 2" (AT TYP. EXP. END) OR 3" (AT EXP. END AT EXPANSION JOINT)
 - ④ 1 1/2" (AT TYP. EXP. END) OR 2 1/2" (AT EXP. END AT EXPANSION JOINT)
 - ⑤ 3 1/2" x 5 1/2" x 3/16" BENT PLATE (AT TYP. EXP. END)
5 1/2" x 5 1/2" x 3/16" BENT PLATE (AT EXP. END AT EXPANSION JOINT)
SEE DETAIL.

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REVISED:
 APPROVED: OCTOBER 29, 2004
Samuel Johnson
 STATE BRIDGE ENGINEER

NO	DATE	BY	CKD	APPR

... \Plan\CD0261434_rail04.dgn

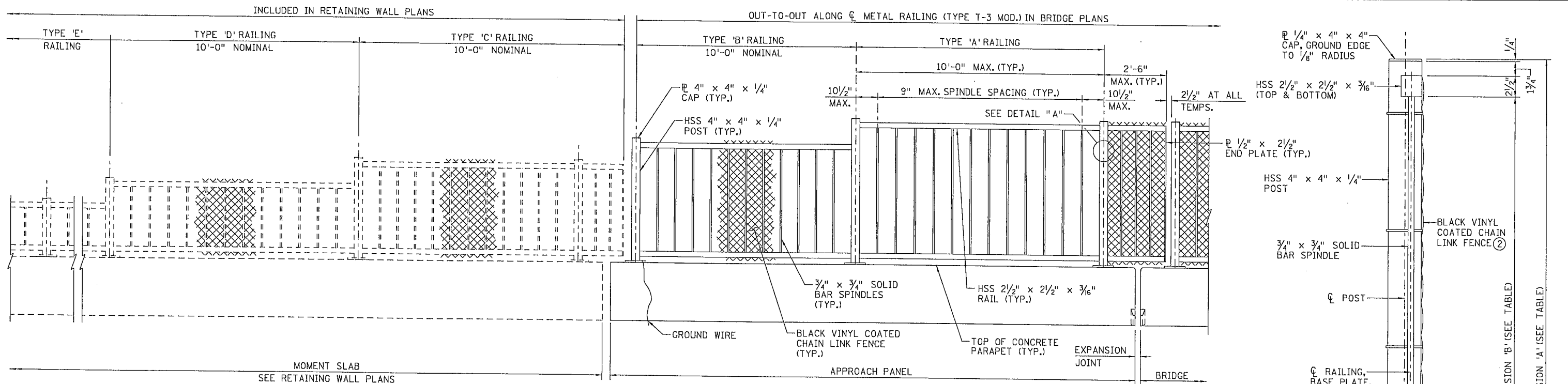
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Christina Colbeck
 Date: 10/4/11 ANOKA COUNTY



MODIFIED
 FIG. 5-397.158

CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
 METAL RAILING (TYPE T-2 MOD.) (SHEET 2 OF 2) 08B23
 C.S.A.H. 14 OF
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44



PARTIAL INSIDE ELEVATION OF METAL RAILING WITH FENCE (DESIGN T-3)

GENERAL NOTES:

THE METAL RAILING SHALL BE CONTINUOUSLY GROUNDED, PER MnDOT SPEC. 2557.

LENGTH OF "METAL RAILING (TYPE T-3 MOD.)" SHALL BE MEASURED AS THE OUT TO OUT LENGTH ALONG THE CENTERLINE OF THE RAILING BETWEEN THE OUTSIDE ENDS.

STRUCTURAL STEEL TUBING (HSS) IN THE RAIL SHALL BE A500, GRADE B. MATERIAL SHALL CONFORM TO MnDOT SPEC. 3361. ALL OTHER STEEL SHALL CONFORM TO MnDOT SPEC. 3306.

VENT HOLES SHALL BE DRILLED IN THE RAIL POST BASE AND THE RAIL TUBES AS NECESSARY TO FACILITATE GALVANIZING.

RAIL POSTS AND SPINDLES SHALL BE SET VERTICAL.

HORIZONTAL RAILS SHALL BE CURVED WHERE APPLICABLE AND PARALLEL TO THE EDGE OF SIDEWALK PROFILE.

PAINT THE RAILING, BASE PLATES, AND PROTRUDING PORTIONS OF BOLTS, NUTS AND WASHERS PER MnDOT SPEC. 2478. PREPARATION OF GALVANIZED SURFACES SHALL BE IN ACCORDANCE WITH ASTM 6386. COLOR TO BE FEDERAL STANDARD 595B NO. 17038 (BLACK).

SEE BRIDGE DECK DETAIL SHEET FOR POST SPACING.

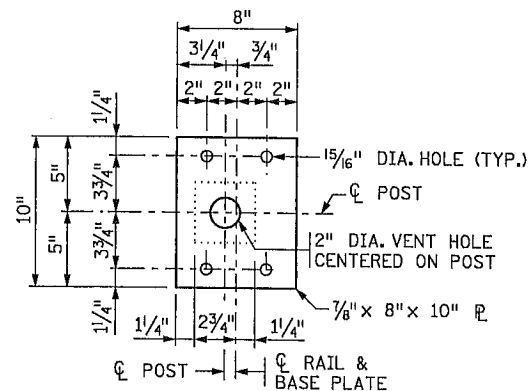
ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING.

MECHANICALLY GALVANIZE RODS, BOLTS, NUTS AND WASHERS PER MnDOT SPEC. 3392. GALVANIZE ALL OTHER STRUCTURAL STEEL PER MnDOT SPEC. 3394.

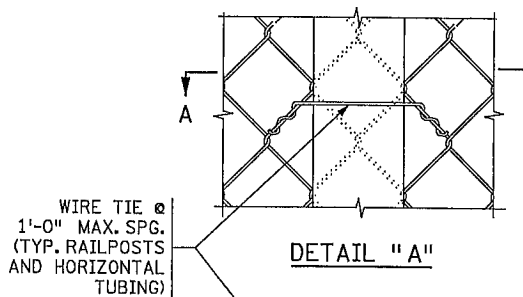
ALL RAILING MEMBERS SHALL BE FLAT AFTER FABRICATION AND GALVANIZING TO WITHIN 1/8" IN 10'-0" BY MECHANICAL MEANS WITHOUT DAMAGE TO THE ZINC COATING.

① ADHESIVE ANCHORAGE WITH 5/8" DIA. ANCHOR ROD MnDOT SPEC. 3385, TYPE A WITH HEX NUT AND WASHER. MINIMUM ULTIMATE PULL-OUT STRENGTH OF ADHESIVE SHALL BE 14.0 KIPS WITH A 5" MINIMUM EMBEDMENT.

② BLACK VINYL COATED CHAIN LINK FENCE TO EXTEND OUTSIDE HORIZONTAL RAILING MEMBER 2" MAXIMUM.

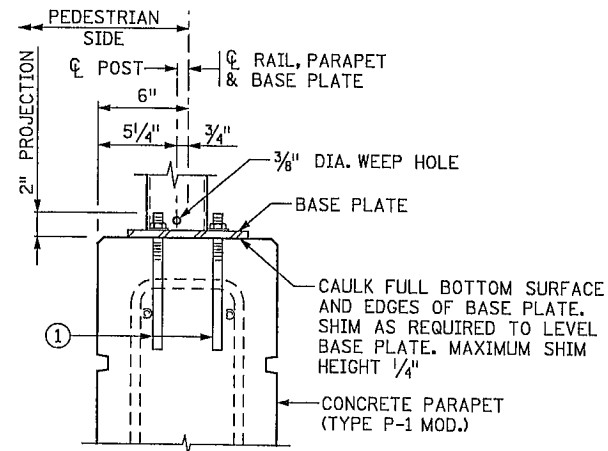


BASE PLATE

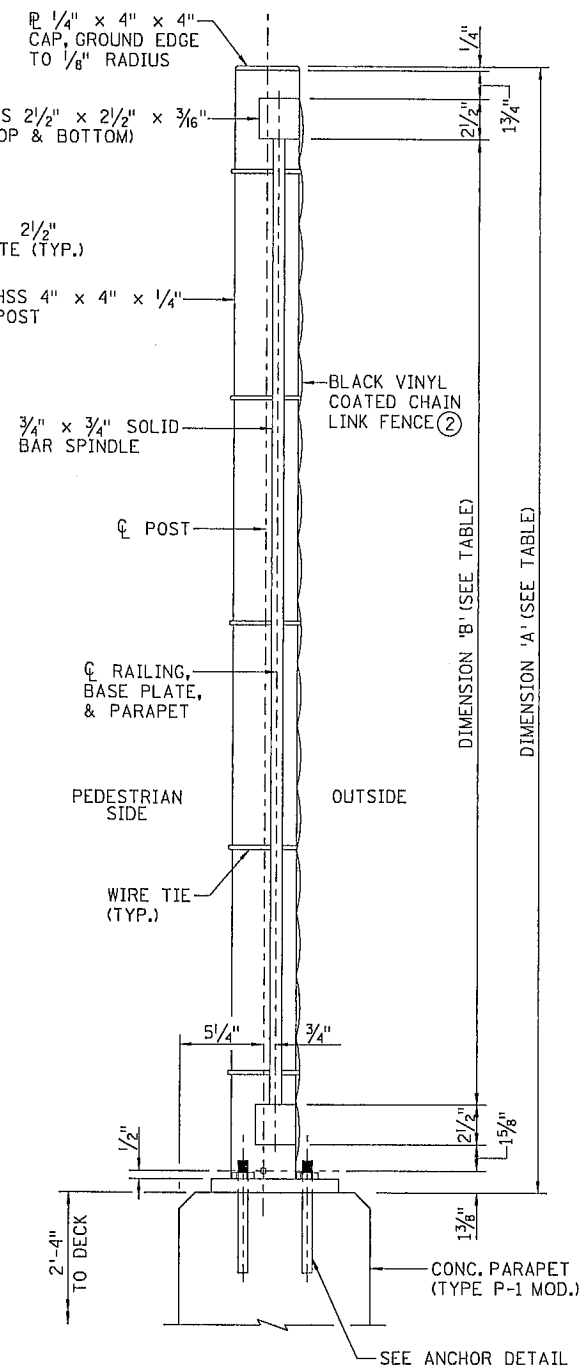


DETAIL "A"

SECTION A-A



ANCHOR DETAIL



TYPICAL SECTION THRU RAILING

METAL RAILING (TYPE T-3 MOD.) PANEL TYPE GEOMETRY				
RAILING PANEL TYPE	DIMENSION A [FT - IN]	DIMENSION B [FT - IN]	HEIGHT FROM WALK TO TOP OF TOP RAIL [FT - IN]	LOCATION
TYPE 'A'	5 - 10	5 - 0	8 - 0	BRIDGE / APP. PANEL
TYPE 'B'	4 - 11 1/2	4 - 1 1/2	7 - 1 1/2	APPROACH PANEL
TYPE 'C'	4 - 1	3 - 3	6 - 3	MOMENT SLAB
TYPE 'D'	3 - 2 1/2	2 - 4 1/2	5 - 4 1/2	MOMENT SLAB
TYPE 'E'	2 - 4	1 - 6	4 - 6	MOMENT SLAB

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: JANET ELIZABETH GRONERT
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
 Date: 10/4/11 ANOKA COUNTY

SRE C.S. McCrossan
 Consulting Group, Inc.

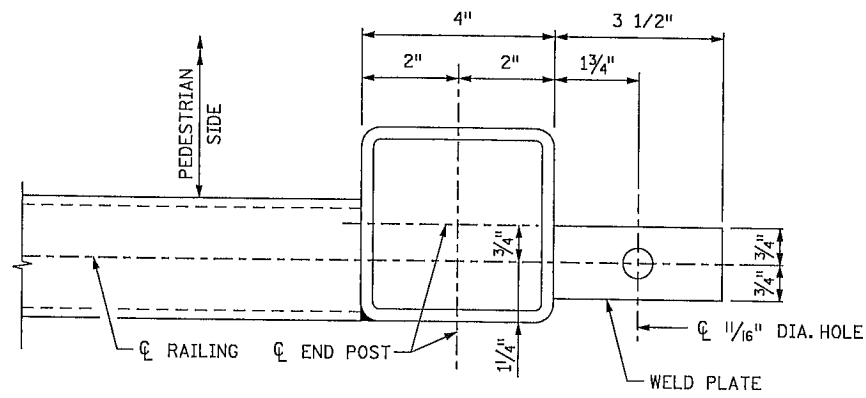


CSAH 14 DESIGN BUILD (SAP 002-614-034)
 METAL RAILING (TYPE T-3 MOD.) (SHEET 1 OF 2)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

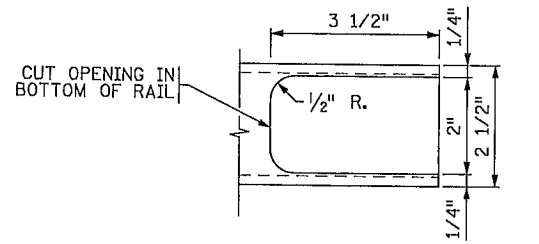
SHEET
 08B24
 OF
 08B44

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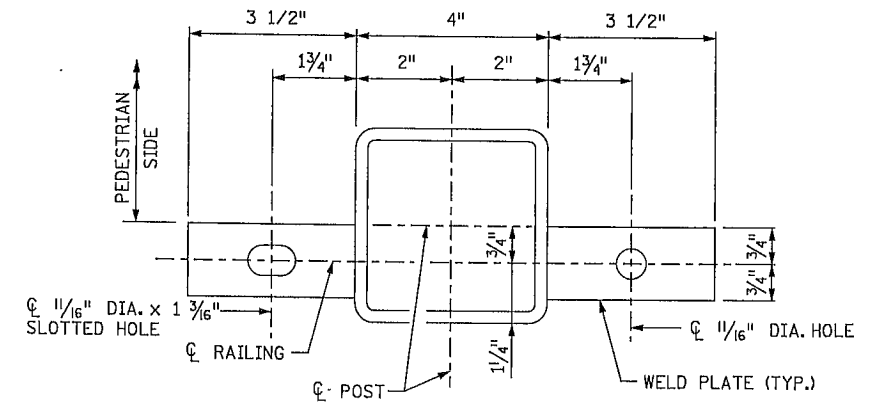
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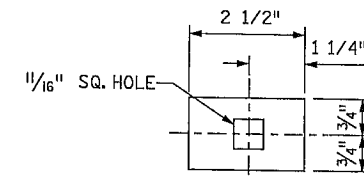
END POST CONNECTION TOP VIEW
(RAILING & CHAIN LINK NOT SHOWN)



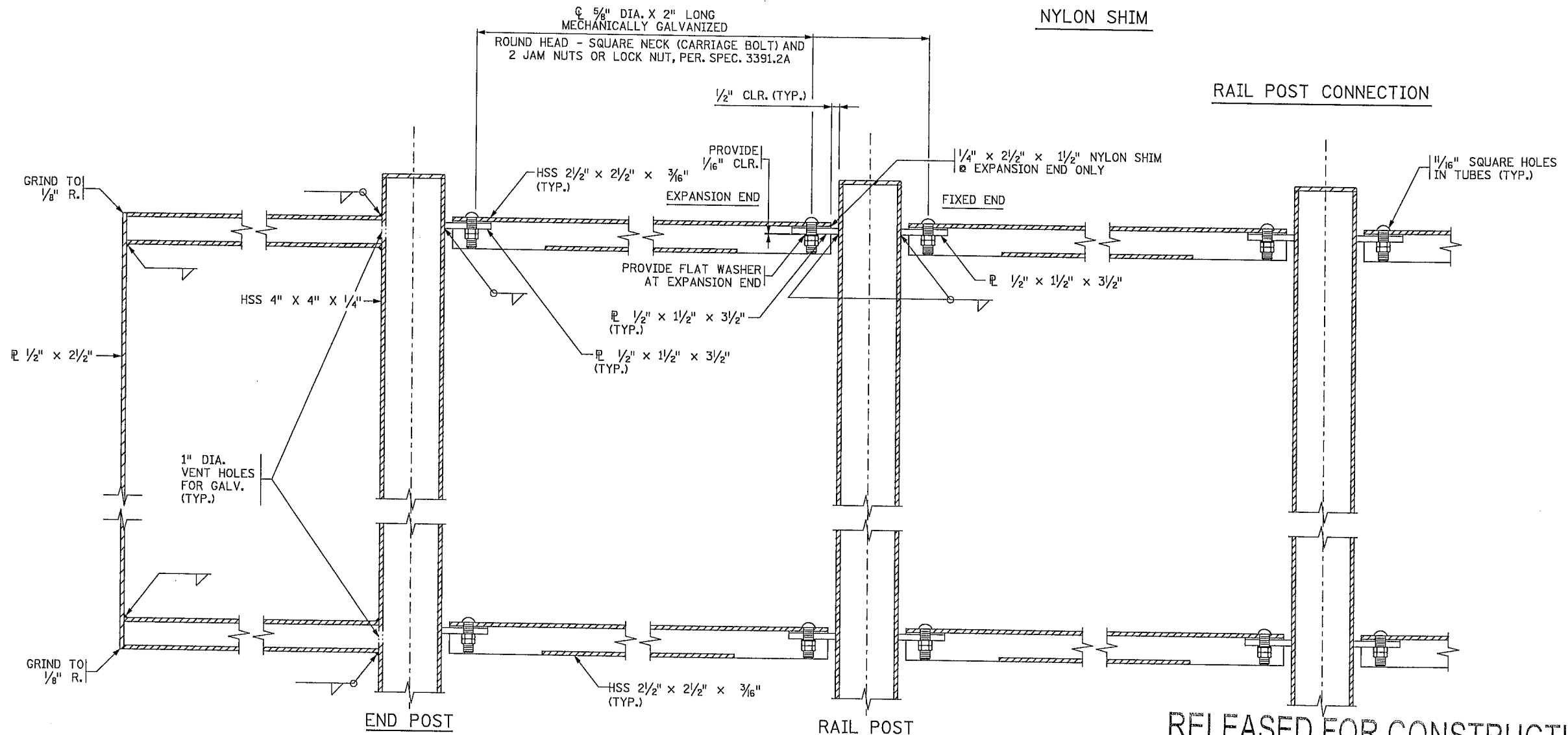
BOTTOM VIEW RAIL NOTCH



RAIL POST TOP VIEW
(RAILING & CHAIN LINK NOT SHOWN)



NYLON SHIM



SECTION ON C OF RAIL
(SPINDLES & CHAIN LINK NOT SHOWN)

RELEASED FOR CONSTRUCTION

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NO	DATE	BY	CHKD	APPR

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 In Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/10 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Charlotte Cochhead
 Date: 10/4/11 ANOKA COUNTY

SR C.S. McCrossan
 Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034)
 METAL RAILING (TYPE T-3 MOD.) (SHEET 2 OF 2)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

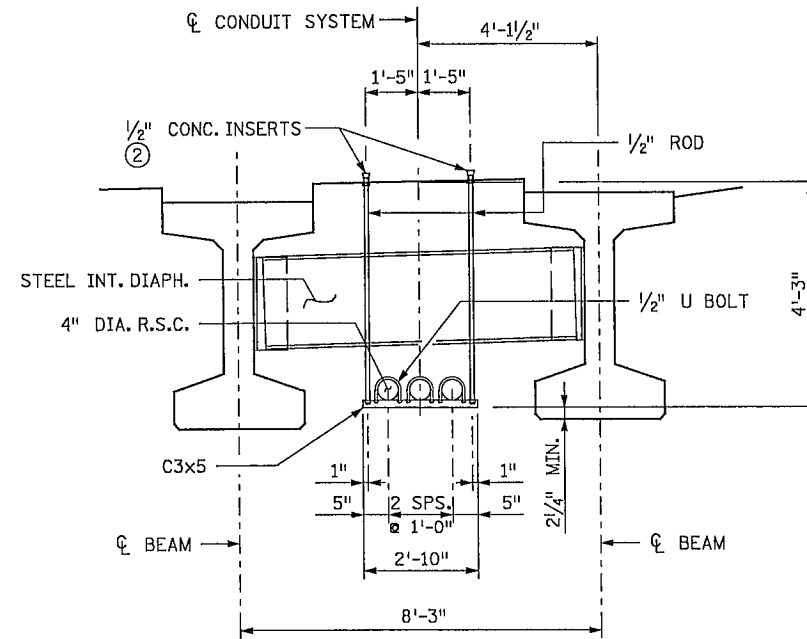
SHEET
 08B25
 OF
 08B44

**SUMMARY OF QUANTITIES :
CONDUIT SYSTEM (SIGNAL INTERCONNECT)**

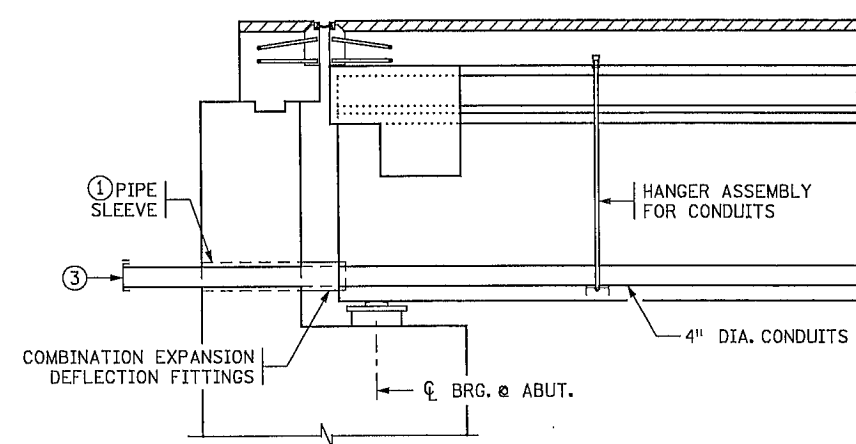
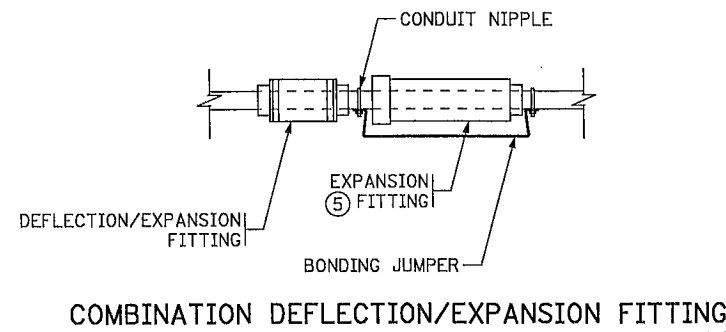
ITEM	UNIT	QUANTITY
PRECAST HAND HOLES (STD. PLATE 8117)	EACH	2
HANGER ASSEMBLY	EACH	12
CONDUIT CAP	EACH	2
COMBINATION EXPANSION/DEFLECTION FITTING	EACH	2
④ 4" RIGID STEEL CONDUIT (RSC)	LIN. FT.	190
① 8" SCH 40 PVC PIPE SLEEVE	EACH	2

**SUMMARY OF QUANTITIES :
CONDUIT SYSTEM (FUTURE)**

ITEM	UNIT	QUANTITY
PRECAST HAND HOLES (STD. PLATE 8117)	EACH	2
CONDUIT CAP	EACH	4
COMBINATION EXPANSION/DEFLECTION FITTING	EACH	4
④ 4" RIGID STEEL CONDUIT (RSC)	LIN. FT.	380
① 8" SCH 40 PVC PIPE SLEEVE	EACH	4



TRANSVERSE SECTION
CONDUIT SYSTEM (FUTURE) AND
CONDUIT SYSTEM (SIGNAL INTERCONNECT)
(LOOKING EAST)



LONGITUDINAL SECTION
CONDUIT SYSTEM (SIGNAL INTERCONNECT) &
CONDUIT SYSTEM (FUTURE)

GENERAL NOTES

- RODS, EYE BOLTS AND PIPE CLAMPS SHALL COMPLY WITH Mn/DOT SPEC. 3313, TYPE I.
- TURNBUCKLES AND EYE BOLTS SHALL COMPLY WITH A.S.T.M. A235 CLASS A MINIMUM REQUIREMENTS.
- ANCHORAGES SHALL COMPLY WITH Mn/DOT SPEC. 3306.
- CONCRETE INSERTS SHALL BE APPROVED TYPE MALLEABLE IRON. MATERIAL AS PER Mn/DOT SPEC. 3324, GRADE 35018. TAP AFTER GALVANIZING.
- GALVANIZE BOLTS, NUTS, WASHERS, RODS, AND INSERTS AS PER Mn/DOT SPEC. 3392. GALVANIZE OTHER MATERIAL AS PER Mn/DOT SPEC. 3394 AFTER FABRICATION.
- PIPE SLEEVES SHALL COMPLY WITH Mn/DOT SPEC. 3362.
- ① SEE ABUTMENT SHEETS FOR LOCATION AND DETAILS.
- ② SPACE INSERTS AT 10'-0" MAXIMUM CENTERS.
- ③ CAP ENDS.
- ④ LENGTH INCLUDES SECTION UNDER BRIDGE, UNDER APPROACH PANELS AND 10'-0" EXTENSION PAST THE APPROACH PANELS.
- ⑤ PROVIDE FOR 4" OF TOTAL MOVEMENT.

REVISION: 02-23-2011

APPROVED: SEPTEMBER 26, 2003

Samir Elgarnani
STATE BRIDGE ENGINEER

NO	DATE	BY	CHK	APPR

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: JANET ELIZABETH GRONERT
Janet Elgarnani
Date: 9/14/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Charlotte Coolbrady
Date: 10/4/11 ANOKA COUNTY

SRH C.S. McCrossan
Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034)

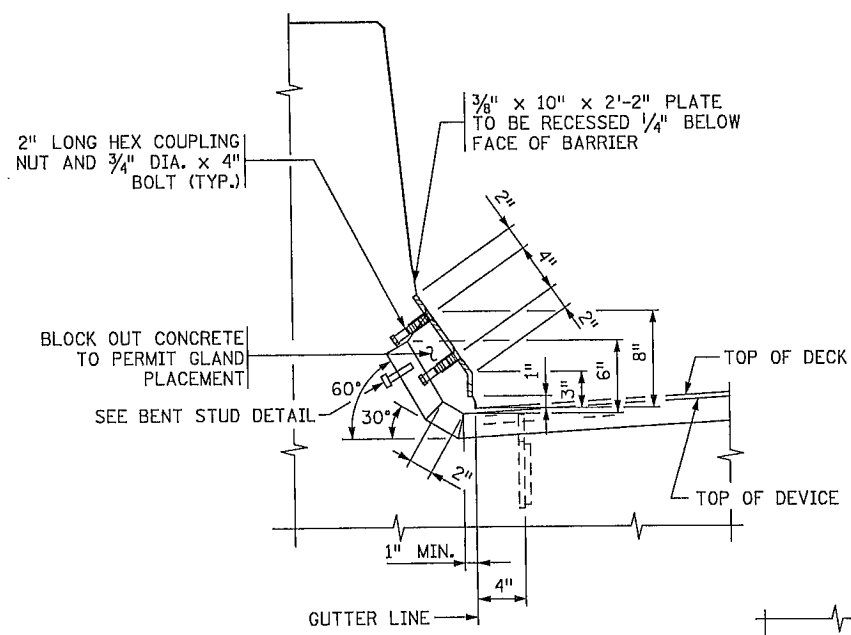
CONDUIT SYSTEM
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET
08B26
OF
08B44

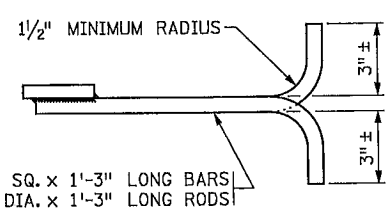
MODIFIED
FIG. 5-397.402

RELEASED FOR CONSTRUCTION

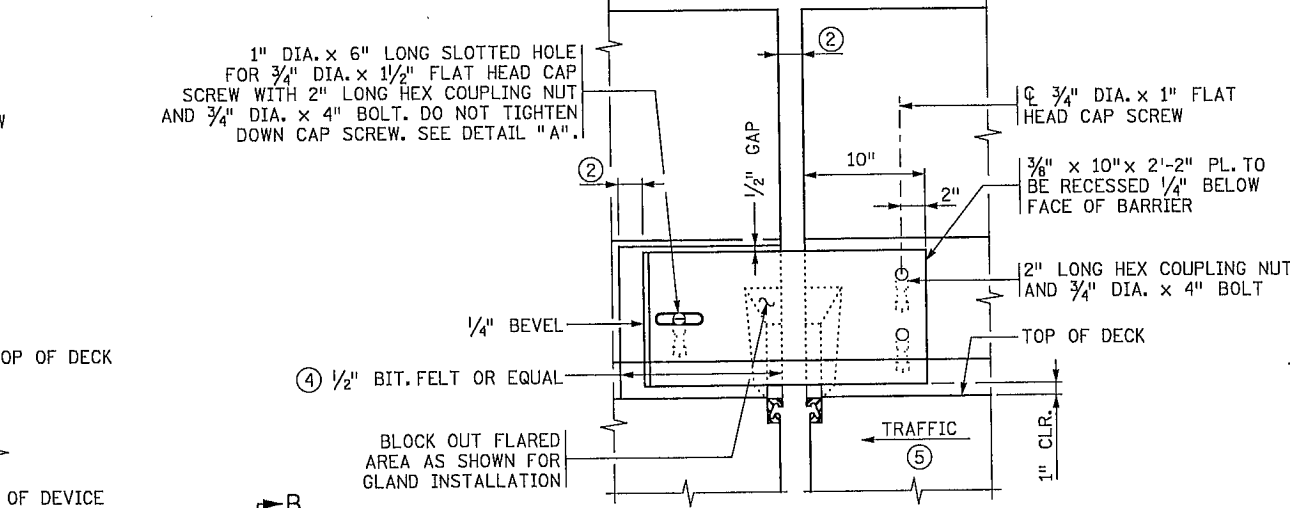
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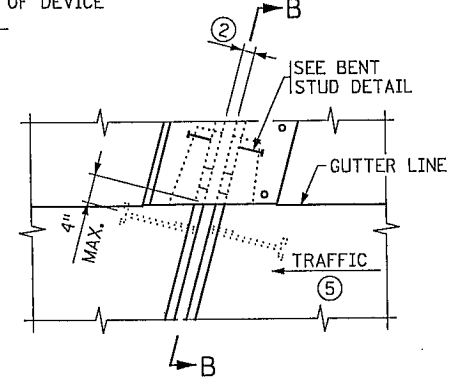
SECTION THROUGH RAILING
TYPE F RAILING



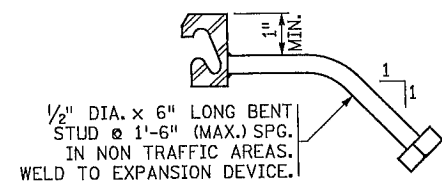
BAR-ROD DETAIL



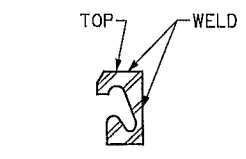
RAILING ELEVATION



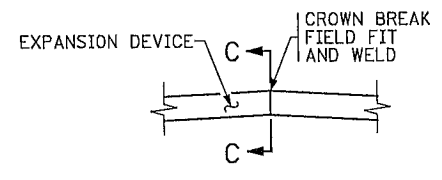
PLAN VIEW @ EXPANSION DEVICE
MEDIAN



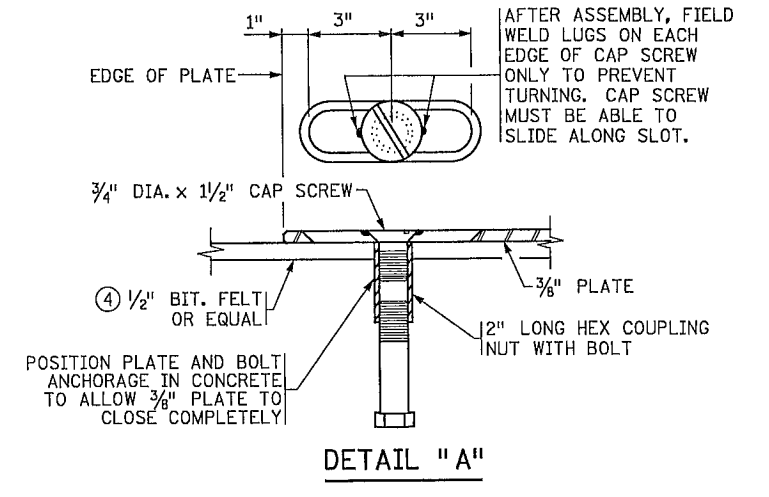
BENT STUD DETAIL



SECTION C-C



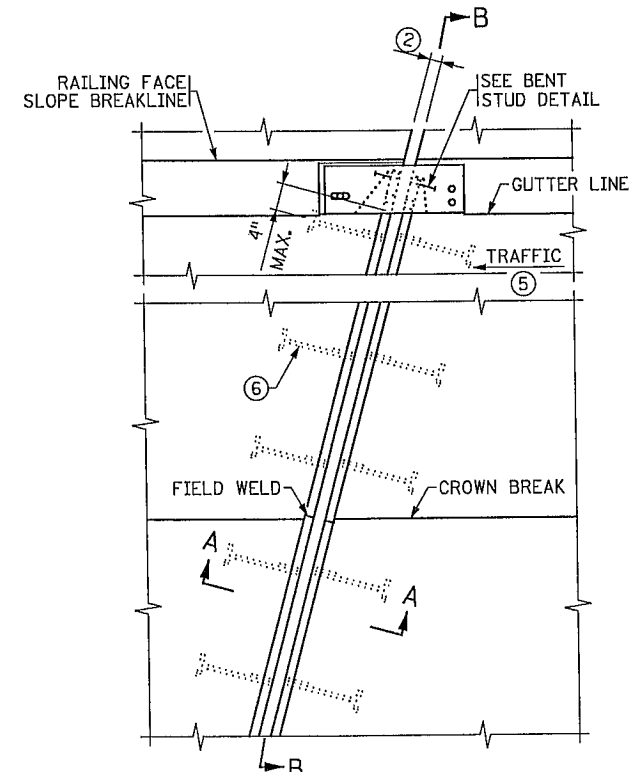
DETAIL "B"



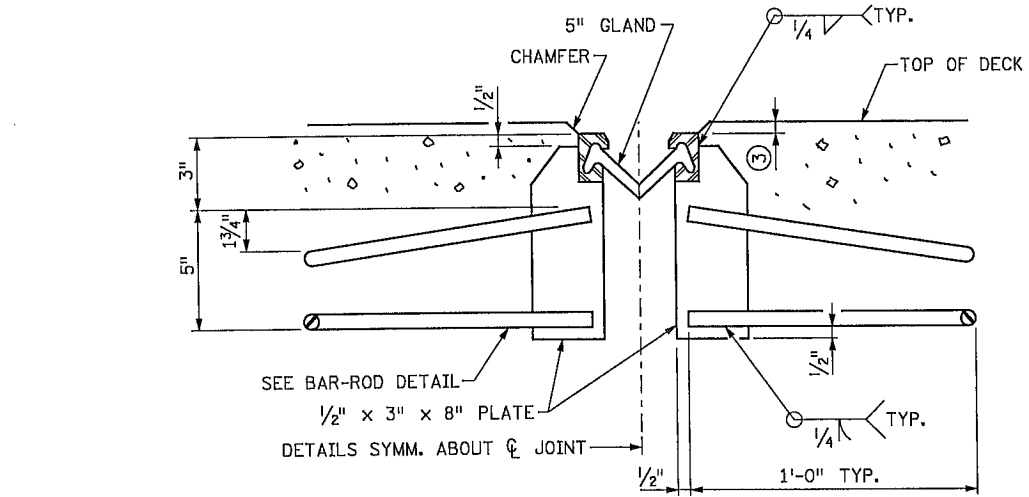
DETAIL "A"

GENERAL NOTES

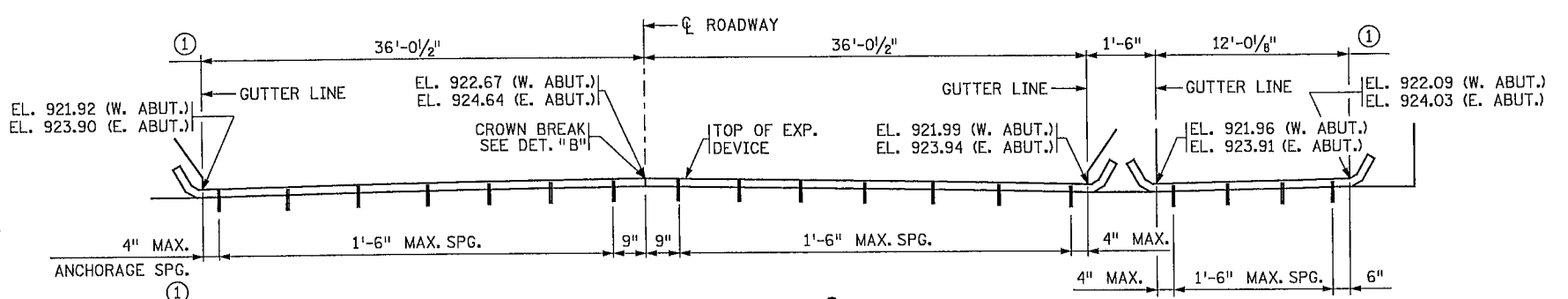
- GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER Mn/DOT SPEC. 3394. GALVANIZE FASTENERS AS PER Mn/DOT SPEC. 3392.
- JOINTS IN EXTRUSION SHALL BE LOCATED AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED. JOINTS SHALL BE CLOSE FIT AND WELDED. REPAIR AFTER WELDING AS PER Mn/DOT SPEC. 2471.3L.
- STRUCTURAL STEEL SHALL COMPLY WITH Mn/DOT SPEC. 3306 OR Mn/DOT SPEC. 3309.
- EXPANSION DEVICE SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/8" IN 10 FT.
- CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.
- LENGTH OF DEVICE IS FROM OUT TO OUT OF EXTRUSION ALONG CENTERLINE OF JOINT.
- ① DIMENSIONS ARE ALONG CENTERLINE OF JOINT.
- ② 2 1/2" AT ALL TEMPERATURES.
- ③ 1/8" (1/4" MAX.).
- ④ USE THE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.
- ⑤ SEE SHEET 08B1 FOR DIRECTION OF TRAFFIC.
- ⑥ PLACE BAR-ROD NORMAL TO JOINT.



PLAN VIEW @ EXPANSION DEVICE
WITH STRAIGHT DEVICE



SECTION A-A



SECTION B-B ~ ALONG Q JOINT

RELEASED FOR CONSTRUCTION

REVISION: 02-23-2011
APPROVED: NOVEMBER 6, 1995
D. Arnold L. Blumling
STATE BRIDGE ENGINEER

NO	DATE	BY	CHKD	APPR

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: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
Date: 9/14/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Charles C. Adkins
Date: 10/4/11 ANOKA COUNTY

SRH C.S. McCrossan
Consulting Group, Inc.

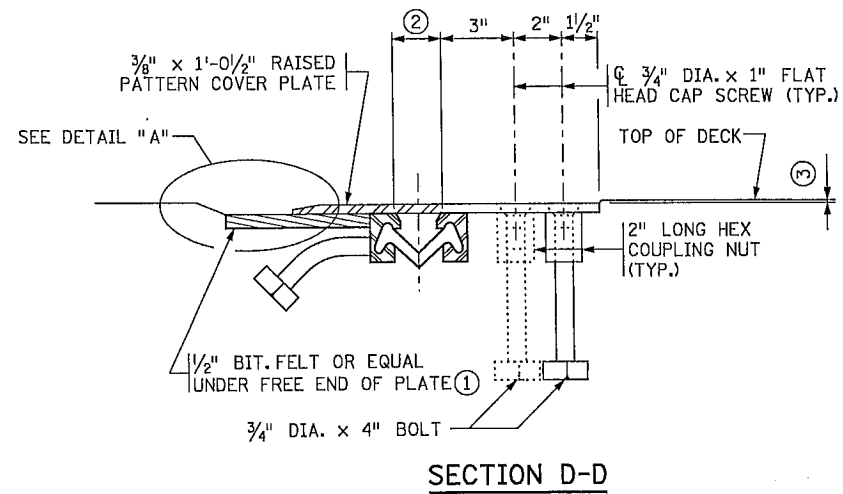


CSAH 14 DESIGN BUILD (SAP 002-614-034)
WATERPROOF EXPANSION DEVICE (W/ TYPE F BARRIER)
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

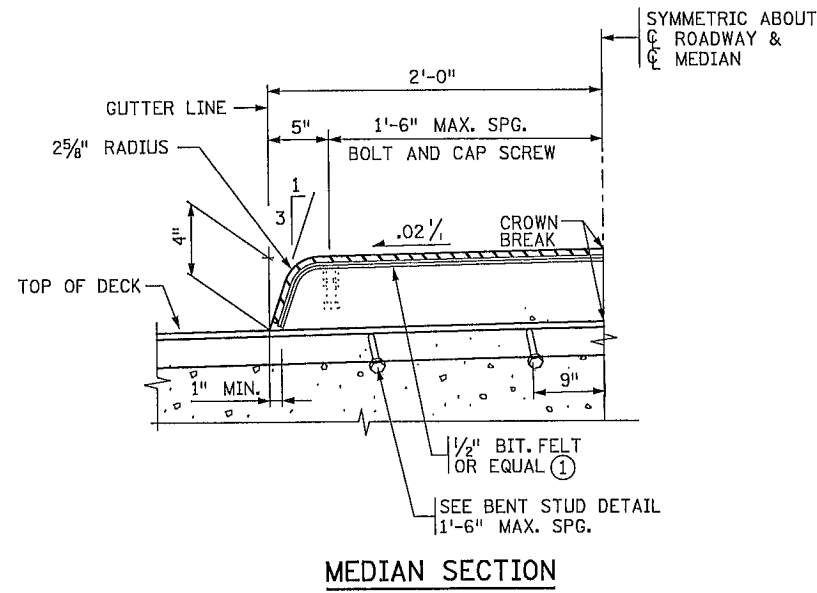
SHEET 08B27 OF 08B44

FIG. 5-397.627

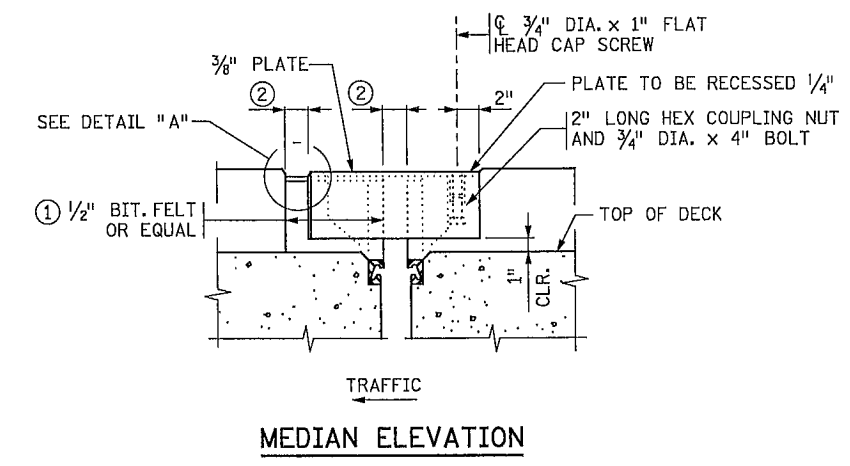
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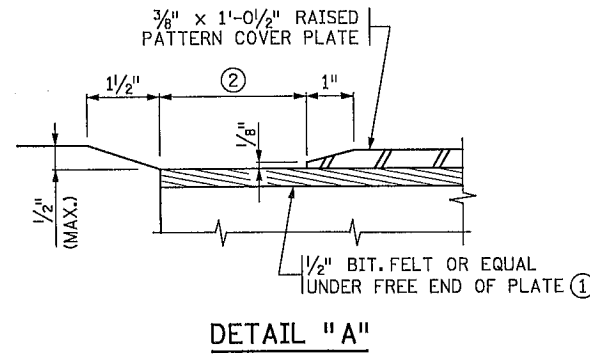
SECTION D-D



MEDIAN SECTION

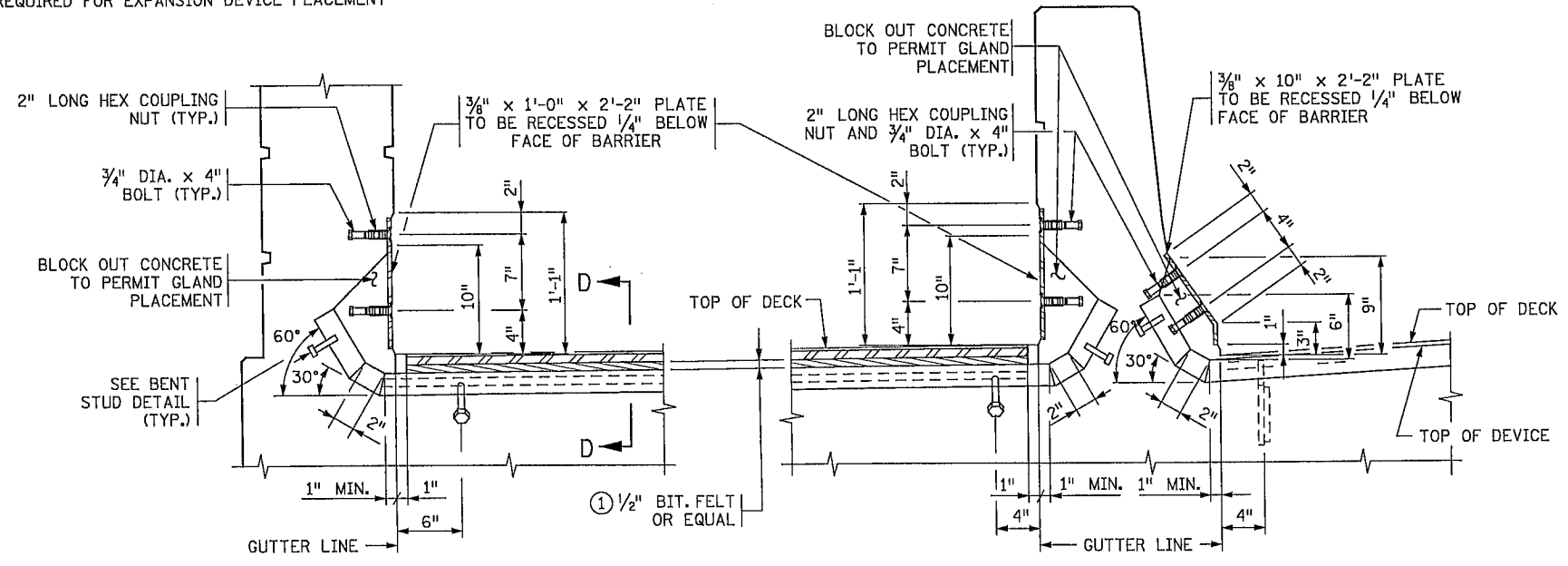


MEDIAN ELEVATION



DETAIL "A"

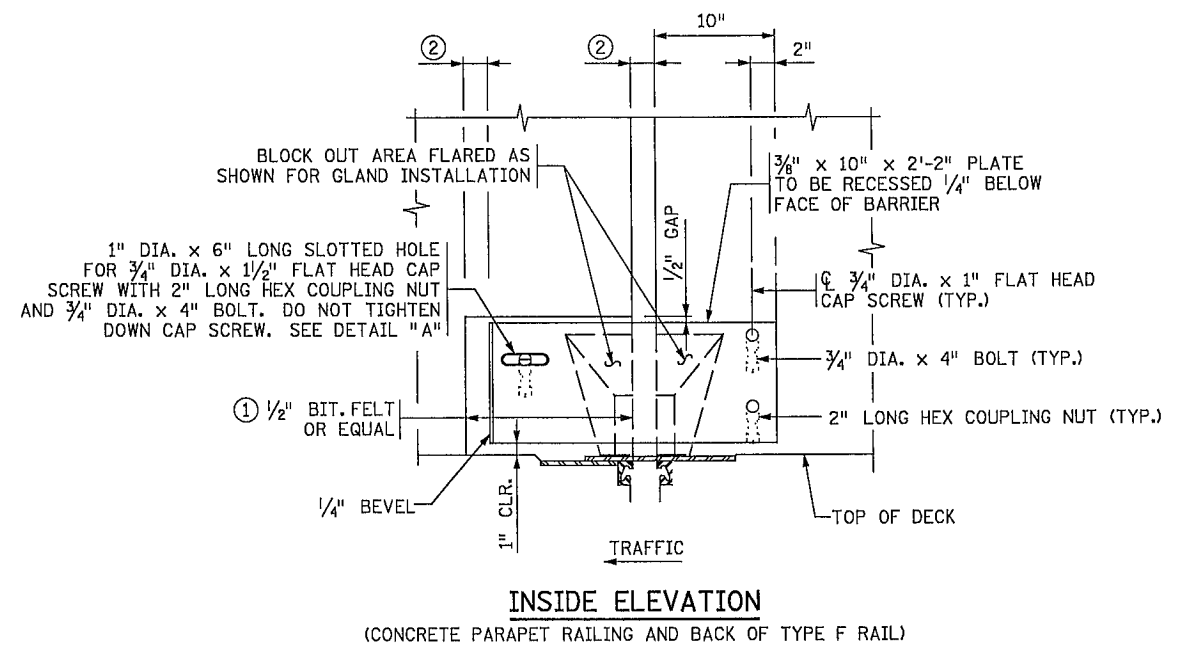
NOTE:
TRANSVERSE DECK REINFORCEMENT MAY BE SHIFTED THE MINIMUM DISTANCE REQUIRED FOR EXPANSION DEVICE PLACEMENT



CONCRETE PARAPET RAILING

TYPE F RAILING

SECTION THROUGH RAILINGS - INTEGRAL SIDEWALK



INSIDE ELEVATION

(CONCRETE PARAPET RAILING AND BACK OF TYPE F RAIL)

GENERAL NOTE

- SEE DETAIL 5-397.627 FOR ADDITIONAL DETAILS AND NOTES.
- ① USE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.
- ② 2 1/2" AT ALL TEMPERATURES.
- ③ 1/8" (1/4" MAX.).

RELEASED FOR CONSTRUCTION

REVISION: 02-23-2011
APPROVED: SEPTEMBER 26, 2003
Samuel E. Anderson
STATE BRIDGE ENGINEER

NO	DATE	BY	CKD	APPR

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. ID# Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
Date: 10/4/11 License # 44325

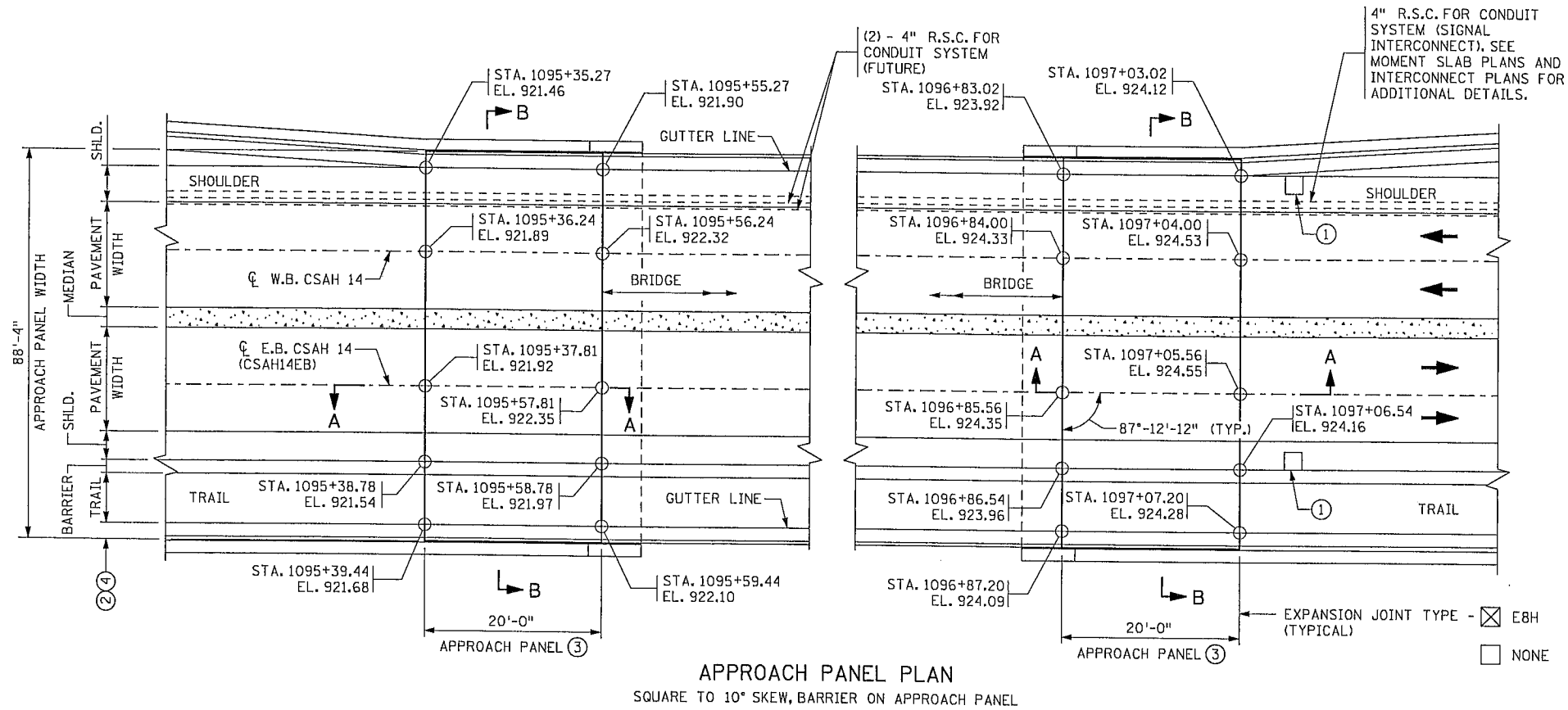
ANOKA COUNTY RELEASED FOR CONSTRUCTION
Charles C. Anderson
Date: 10/4/11 ANOKA COUNTY



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
WATERPROOF EXPANSION DEVICE (W/ RAISED MEDIAN) 08B28
C.S.A.H. 14 OF
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44

FIG. 5-397.630

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- NOTES:**
- SEE STANDARD PLAN 5-297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS. VERIFY CATCH BASIN LOCATIONS WITH DRAINAGE PLANS.
 - SEE RETAINING WALL PLANS FOR MOMENT SLAB WIDTHS AND CONFIGURATIONS.
 - PANEL SIZE AND REQUIREMENTS FOR TRANSVERSE AND LONGITUDINAL JOINTS ARE SHOWN ON STANDARD PLANS 5-297.228 AND 5-297.229.
 - SEE GRADING PLANS FOR PAVEMENT, TRAIL, AND SHOULDER WIDTHS AND CONFIGURATION.

GENERAL NOTES:

SECTION A-A IS SHOWN ON STANDARD PLAN 5-297.227.
 SECTION B-B IS SHOWN ON STANDARD PLAN 5-297.225 AND SHOWS THE STATION AND ELEVATION AT END LOCATIONS ON THE APPROACH PANEL.

A CONCRETE SILL IS REQUIRED BENEATH EXPANSION JOINT TYPE E8H. EXTEND THE EXPANSION JOINT AND THE SILL ALONG THE FULL WIDTH OF THE TRAFFIC LANES, SHOULDERS AND MOMENT SLABS.

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

CONCRETE MIX SHALL BE 3A42 FOR APPROACH PANEL AND SILL.

REFER TO MNDOT SPEC. 2406 FOR ADDITIONAL INFORMATION.

RELEASED FOR CONSTRUCTION

2/26/01 PM 9/14/2011
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NO	DATE	BY	CHKD	APPR

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: JANET ELIZABETH GRONERT
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Chris Cochran
 Date: 10/4/11 ANOKA COUNTY

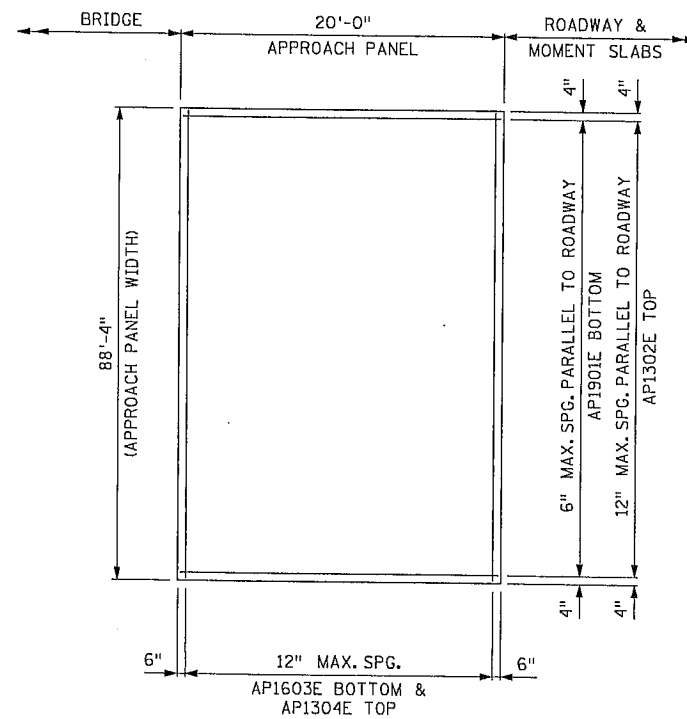
SRE C.S. McCrossan
 Consulting Group, Inc.

STANDARD PLAN SHEET NO. 5-297.224 (MODIFIED)	CSAH 14 DESIGN BUILD (SAP 002-614-034) BRIDGE APPROACH PANEL LAYOUT C.S.A.H. 14 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)	SHEET 08B29 OF 08B44
STANDARD APPROVED: MARCH 23, 2011		

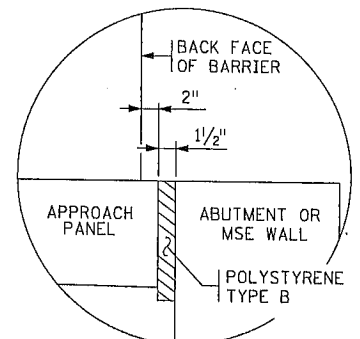
ESTIMATED REINFORCEMENT QUANTITY FOR BRIDGE APPROACH PANELS

TYPE	LOCATION	ESTIMATED WEIGHT
PANEL (SQ. TO 10')	BRIDGE TO END OF APPROACH PANEL	48.5 LB./SQ. YD.
SILL	SILL	14.0 LBS/LIN FT.

NOTES:
 TRANSVERSE BARS IN BOTH PANEL SEGMENTS ARE PERPENDICULAR TO ROADWAY CENTERLINE.
 LONGITUDINAL BARS IN BOTH PANEL SEGMENTS ARE PARALLEL TO ROADWAY CENTERLINE.



APPROACH PANEL REINFORCEMENT

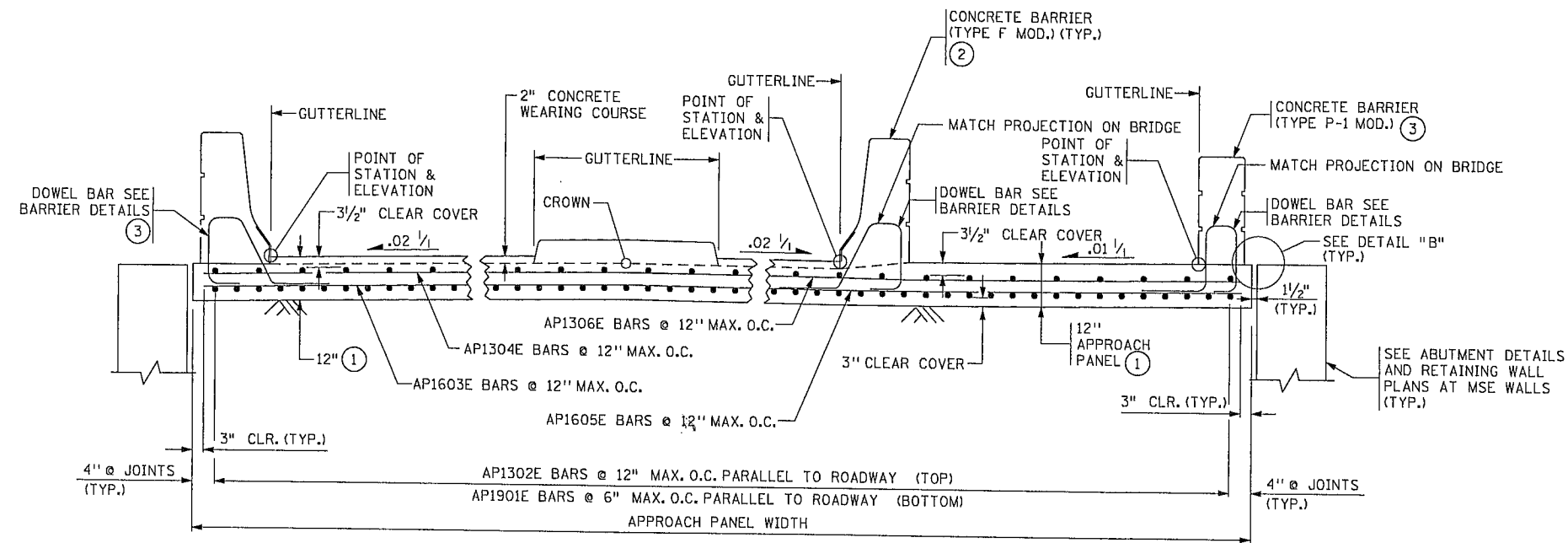


DETAIL "B"

BILL OF REINFORCEMENT FOR BRIDGE APPROACH PANELS

CONTRACTOR IS REQUIRED TO CONFIRM THE BILL OF REINFORCEMENT TABLE.

BAR	NO.	LENGTH	SHAPE	LOCATION
AP1901E	352	19'-6"	—	BOTTOM LONGITUDINAL
AP1302E	178	19'-6"	—	TOP LONGITUDINAL
AP1603E	42	60'-0"	—	BOTTOM TRANSVERSE
AP1304E	42	60'-0"	—	TOP TRANSVERSE
AP1605E	42	29'-11"	—	BOTTOM TRANSVERSE
AP1306E	42	29'-6"	—	TOP TRANSVERSE



TRANSVERSE SECTION B-B FROM STANDARD PLAN 5-297.224

GENERAL NOTES:

- AS PER MNDOT SPEC. 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS IN APPROACH PANEL AND CONCRETE SILL.
- 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.
- ① APPROACH SLAB THICKNESS SHOWN INCLUDES 2 INCH CONCRETE WEARING COURSE THROUGH THE ROADWAY SECTION. NO OVERLAY TO BE PLACED IN THE TRAIL SECTION.
- ② TOP OF OVERLAY AND TOP OF CONCRETE AT TRAIL ARE AT THE SAME ELEVATION.
- ③ APPROACH PANEL IS LEVEL UNDER BARRIER.

RELEASED FOR CONSTRUCTION

STANDARD PLAN SHEET NO. 5-297.225 (MODIFIED)
 STANDARD APPROVED: MARCH 23, 2011

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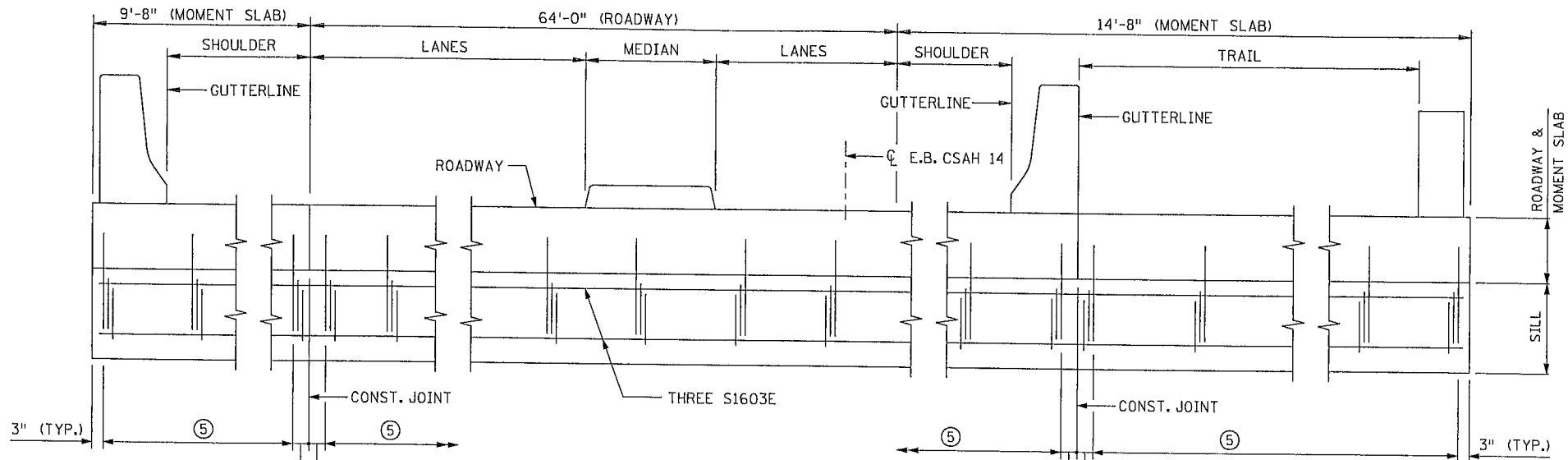
NO	DATE	BY	CHKD	APPR

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Name: JANE E. GRONERT
 Date: 9/14/11 License #: 44325
 ANOKA COUNTY RELEASED FOR CONSTRUCTION
 Date: 10/4/11 ANOKA COUNTY

SRE C.S. McCrossan Consulting Group, Inc.



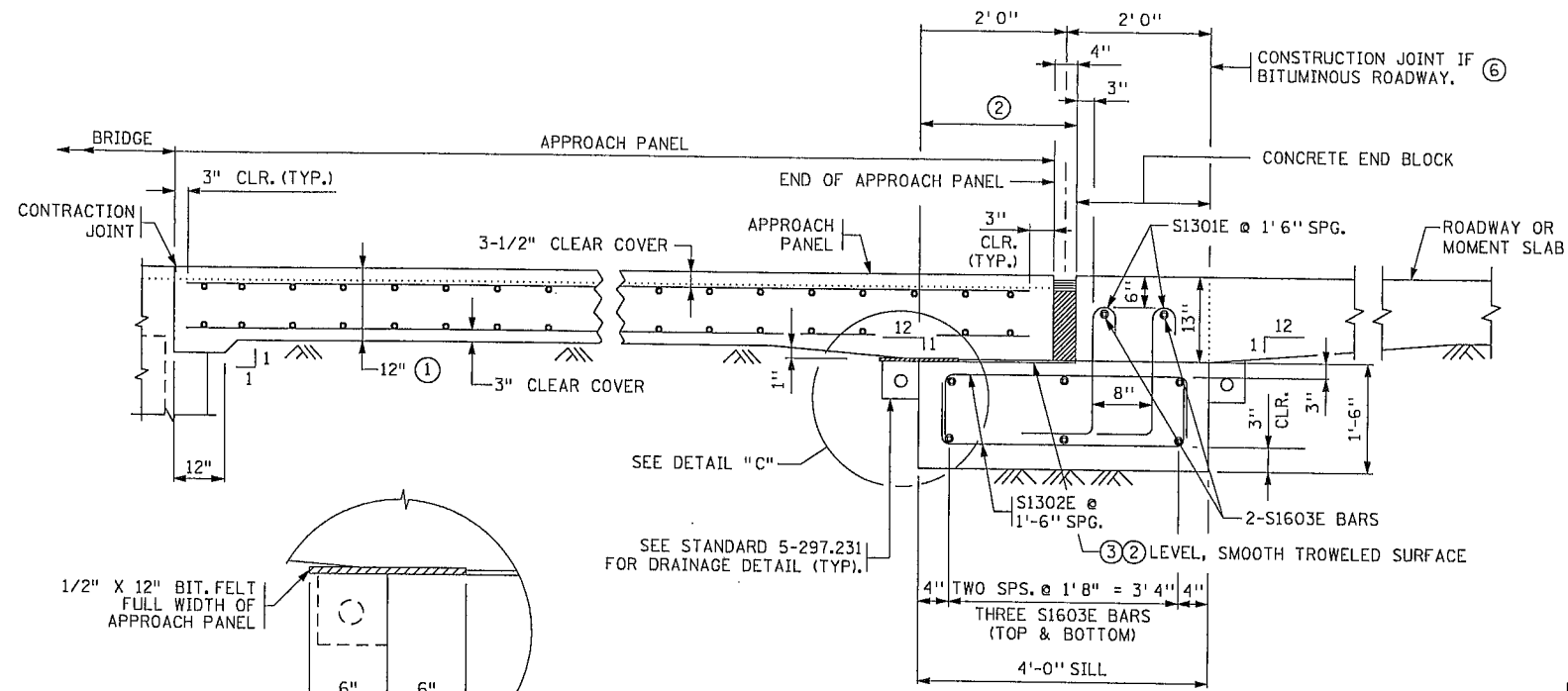
CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B30 OF 08B44
 BRIDGE APPROACH PANEL REINFORCEMENT DETAILS
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)



SILL ELEVATION
(REINFORCEMENT IN PAVEMENT NOT SHOWN)

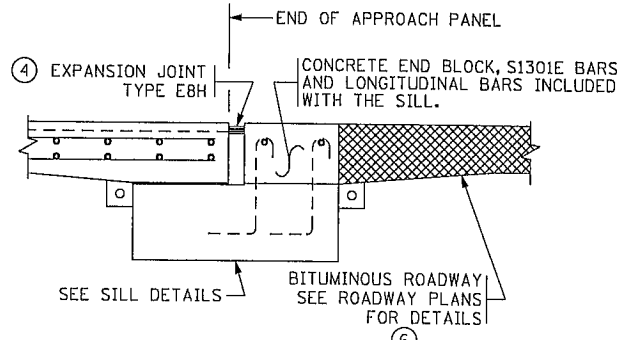
BILL OF REINFORCEMENT FOR CONCRETE SILL				
CONTRACTOR IS REQUIRED TO CONFIRM THE BILL OF REINFORCEMENT TABLE.				
BAR	NO.	LENGTH	SHAPE	LOCATION
S1301E	256	3'-2"	J	SILL VERTICAL
S1302E	256	5'-6"	□	SILL TIE
* S1603E	32	45'-0"	—	SILL & END BLOCK HORIZ.

* PROVIDE 2' 1" MINIMUM LAP



LONGITUDINAL SECTION A-A
SHEET 5-297.224

SILL DETAILS
(CONCRETE MAINLINE SHOWN)
(BITUMINOUS MAINLINE SIMILAR)



SILL & BITUMINOUS MAINLINE
END OF APPROACH PANEL

NOTES:

- AS PER MNDOT 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS.
- ① APPROACH SLAB THICKNESS SHOWN INCLUDES 2-INCH CONCRETE WEARING COURSE IN ROADWAY SECTION. NO OVERLAY TO BE PLACED IN TRAIL SECTION.
- ② PLACE PLASTIC SHEETING (MNDOT 3756) AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL.
- ③ REQUIRED CONSTRUCTION JOINT.
- ④ SEE STANDARD PLAN 5-297.224 FOR TYPE OF EXPANSION JOINT. DETAILS OF EXPANSION JOINT TYPE E8H ARE SHOWN ON STANDARD PLAN 5-297.229.
- ⑤ TWO S1301E & TWO S1302E @ 1'-6" MAX. SPACING (PLACED PARALLEL TO ϕ ROADWAY). TYPICAL BETWEEN CONSTRUCTION JOINTS.
- ⑥ CONCRETE MOMENT SLAB SIMILAR. NO CONSTRUCTION JOINT AT MOMENT SLAB.

RELEASED FOR CONSTRUCTION

STANDARD PLAN SHEET NO.
5-297.227 (MODIFIED)
STANDARD APPROVED:
MARCH 23, 2011

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NO.	DATE	BY	CHKD	APPR

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.
 Preparer Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 2/14/11 License #: 44325

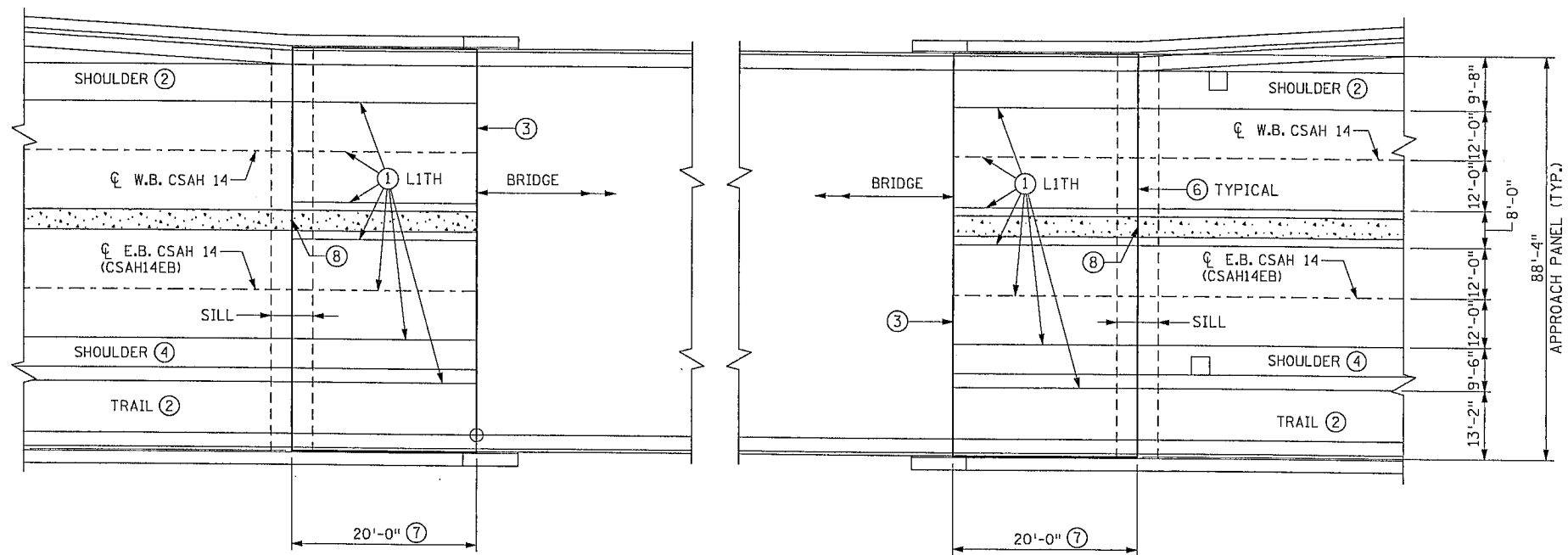
ANOKA COUNTY RELEASED FOR CONSTRUCTION
Christina Colwell
 Date: 10/4/11 ANOKA COUNTY

SRI C.S. McCrossan Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034)
 BRIDGE APPROACH PANEL MISCELLANEOUS DETAILS
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET
08B31
OF
08B44



APPROACH PANELS - SQUARE TO 10° SKEWS ⑤

APPROACH PANEL JOINT LAYOUT NOTES:

- ① L1TH LONGITUDINAL JOINT. SEE STANDARD PLAN 5-297.229 FOR REINFORCEMENT LAP LENGTH REQUIREMENTS FOR STAGED CONSTRUCTION.
- ② SEE RETAINING WALL PLANS FOR SHOULDER AND TRAIL WIDTHS AND CONFIGURATION AT MOMENT SLABS.
- ③ C2H JOINT.
- ④ SEE GRADING PLAN FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.
- ⑤ 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.
- ⑥ SEE STANDARD PLAN 5-297.224 FOR TYPE OF EXPANSION JOINT.
- ⑦ MEASURED PARALLEL TO CENTERLINE OF ROADWAY.
- ⑧ EBH JOINT REQUIRED THROUGH MEDIAN.

REFUSED FOR CONSTRUCTION

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

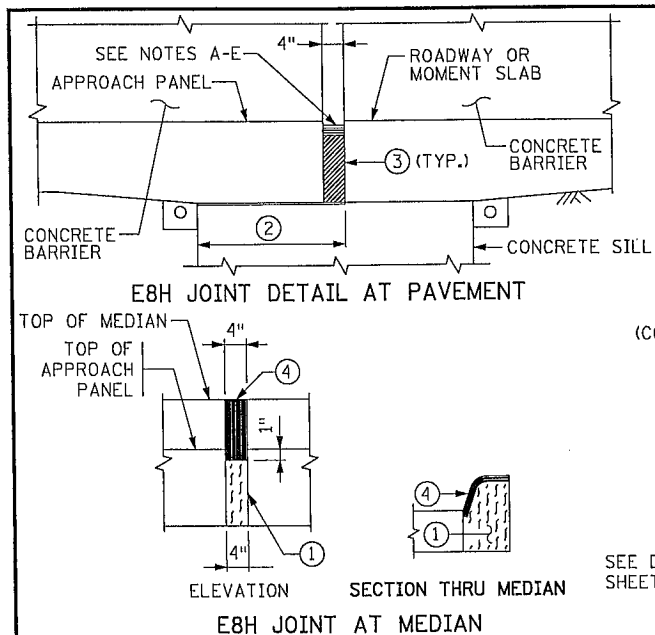
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: JANET ELIZABETH GRONERT
Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Date: 10/4/11 ANOKA COUNTY

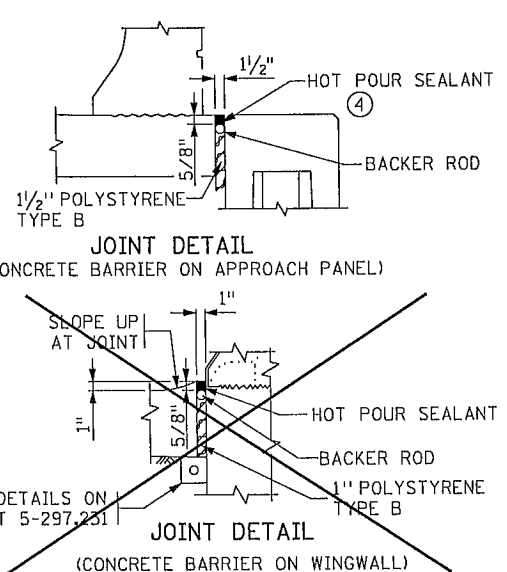
SRI C.S. McCrossan
Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET
BRIDGE APPROACH PANEL JOINT LAYOUT 08B32
C.S.A.H. 14 OF
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583) 08B44



EXPANSION JOINTS



E8H PRESSURE RELIEF JOINT MATERIAL INSTALLATION INSTRUCTIONS:
SEE MNDOT APPROVED/QUALIFIED PRODUCTS LIST.

FURNISH AND INSTALL JOINT MATERIAL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE FOLLOWING:

(A) EXPANSION JOINT FILLER MATERIALS USED FOR A 4 INCH PRESSURE RELIEF JOINT CONSISTS OF A PREFORMED FOAM PRODUCT HAVING MINIMUM DIMENSIONS OF 4.5 INCHES IN WIDTH (MAY BE LAMINATED) AND 8 INCHES IN DEPTH, AND A MINIMUM LENGTH OF 10 FEET. WHEN THE CONCRETE DEPTH IS GREATER THAN THE DEPTH OF THE PRESSURE RELIEF MATERIAL, FILL THE VOID BELOW THE MATERIAL WITH POLYSTYRENE. FURNISH AND INSTALL THE JOINT MATERIAL UNDER COMPRESSION WITH A LUBRICANT ADHESIVE APPLIED TO THE CONCRETE CONTACT SURFACES.

(B) SAW OR FORM THE JOINTS 4 INCHES WIDE BY THE FULL-DEPTH OF THE PANEL. INSPECT TO ASSURE THAT THE INSIDE WALLS OF THE JOINT HAVE BEEN SANDBLASTED, ARE DRY, SMOOTH AND FREE OF DEBRIS AND LOOSE PARTICLES. APPLY TAPE TO THE TOP 1 INCH OF THE INSIDE WALLS TO PREVENT THE LUBRICANT ADHESIVE FROM CONTAMINATING THE CONCRETE BONDING SURFACES OF THE SUBSEQUENTLY PLACED HOT POUR JOINT SEALER.

(C) PAINT THE INSIDE WALLS OF THE JOINT WITH LUBRICANT ADHESIVE AT THE RATE OF 1 GALLON PER 50 LINEAL FEET OF JOINT.

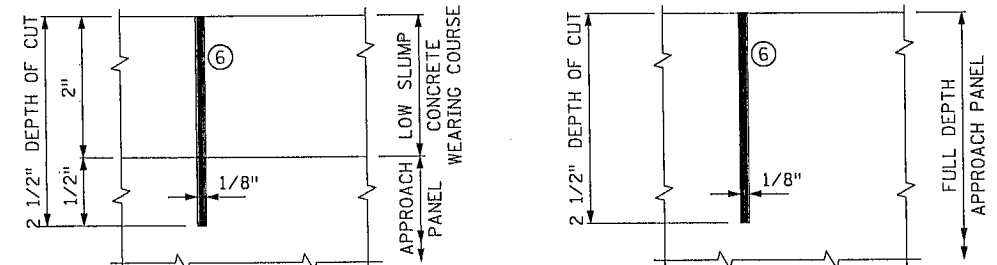
(D) PINCH THE BOTTOM OF THE MATERIAL TOGETHER AND PUSH IT DOWN INTO THE JOINT. WALK THE MATERIAL DOWN INTO THE JOINT; USE A SLEDGEHAMMER AND A 2 X 4 IF NECESSARY. APPLY LUBRICANT ADHESIVE TO THE ENDS OF THE PREFORMED FOAM MATERIAL WHEN BUTTING TWO PIECES TOGETHER.

(E) FURNISH AND INSTALL THE FOAM RELIEF JOINT MATERIAL TO A DEPTH OF APPROXIMATELY 7/8 INCH BELOW THE FINISHED CONCRETE SURFACE. AFTER INSTALLATION, REMOVE THE TAPE AND FILL THE VOID ON TOP OF THE FOAM MATERIAL WITH APPROXIMATELY 1/2 INCH OF HOT POUR JOINT SEALER (MNDOT 3723 OR 3725) TO A LEVEL OF 3/8 INCH +/- 1/4 INCH BELOW THE FINISHED CONCRETE SURFACE. THE HOT POUR JOINT SEALER SHOULD ONLY SLIGHTLY MELT INTO THE FOAM JOINT MATERIAL (TO PREVENT EXCESSIVE MELTING OF THE JOINT MATERIAL, PLACE THE HOT POUR SEALER AT THE LOWER END OF THE TEMPERATURE SPECIFICATION). CHECK FOR CORRECT TEMPERATURE BY PLACING HOT POUR SEALER ON A SAMPLE OF WASTE FOAM MATERIAL.

EXPANSION JOINT NOTES:

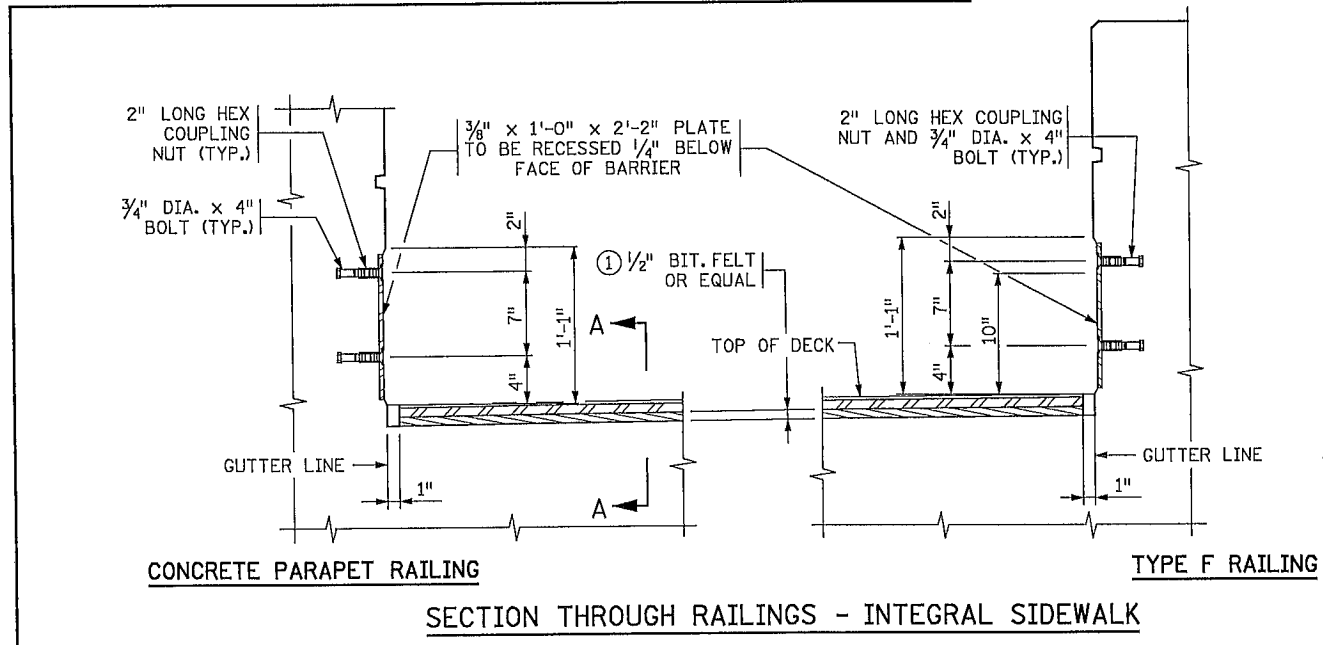
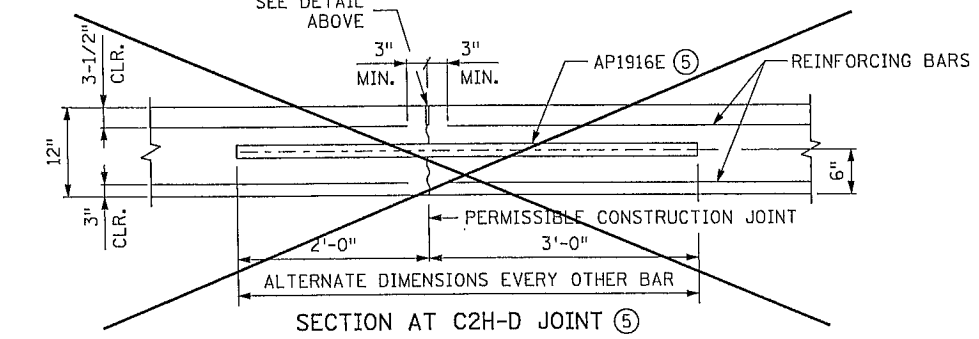
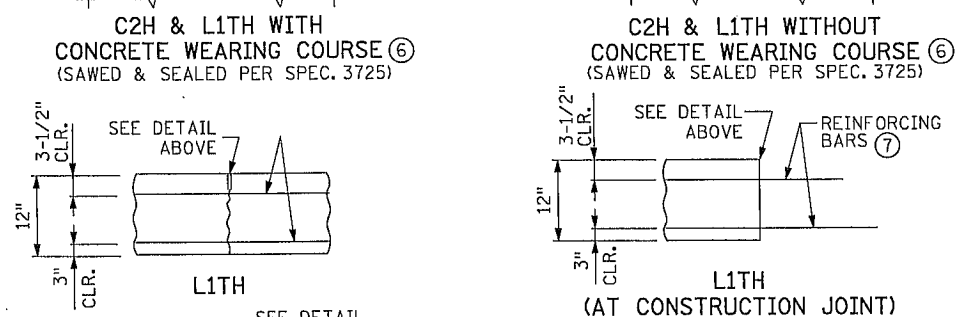
- ① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
- ② PLACE PLASTIC SHEETING SPEC. 3756 AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL. SEE SILL DETAILS ON STANDARD PLAN 5-297.227.
- ③ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING PRIOR TO SEALING THE JOINT.
- ④ HOT POUR JOINT SEALER SPEC. 3725. TOP OF SEALER FLUSH TO 1/8 INCH BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E8H JOINTS FLUSH WITH SURFACE (+ 1/8 INCH OR - 1/8 INCH).

JOINT DETAILS



JOINT NOTES:

- ⑤ PERMISSIBLE 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.
- ⑥ CLEAN AND DRY FULLY CURED JOINT FACES BY SANDBLASTING PRIOR TO SEALING THE JOINT.
- ⑦ WHEN CONSTRUCTING A L1TH JOINT UNDER STAGED CONSTRUCTION, EXTEND NO. 13 BARS 1'-8" AND NO. 16 BARS 2'-1" PAST THE EDGE OF THE FIRST CONCRETE POUR. CONSTRUCT L1TH JOINT ACCORDING TO DETAIL SHOWN AFTER ADJACENT POUR IS COMPLETE.



SIDEWALK COVER PLATE

GENERAL NOTES:

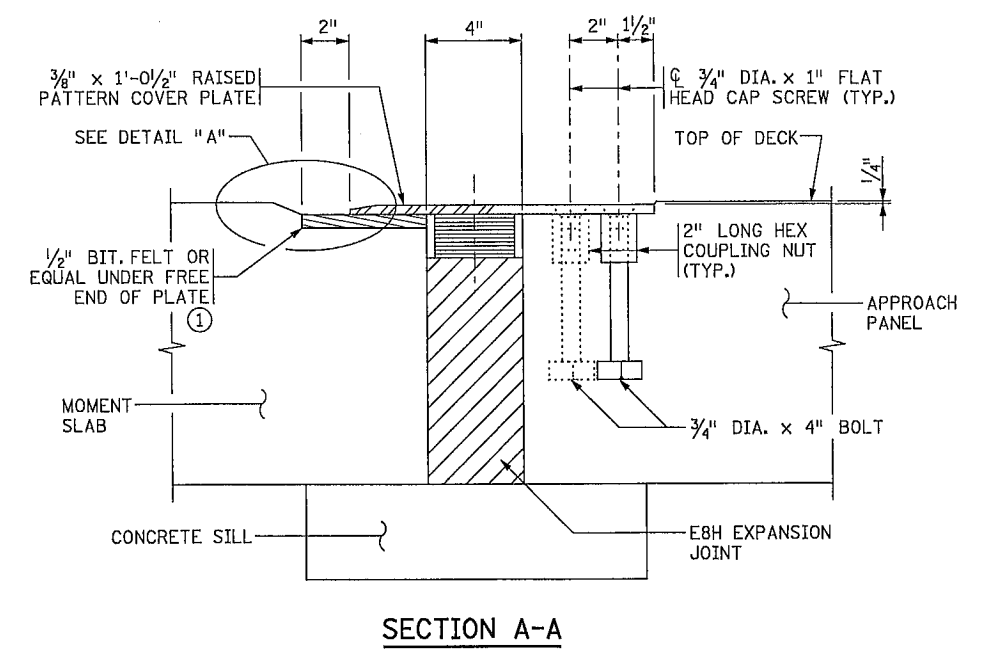
GALVANIZE STRUCTURAL STEEL AFTER FABRICATION PER Mn/DOT SPEC. 3394
GALVANIZE FASTENERS PER Mn/DOT SPEC. 3392.

STRUCTURAL STEEL SHALL COMPLY WITH Mn/DOT SPEC. 3306 OR Mn/DOT SPEC. 3309.

SHOP DRAWING SUBMITTALS REQUIRED PER Mn/DOT SPEC. 2471.

CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.

① USE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.



RELEASED FOR CONSTRUCTION

2/26/05 PM 9:47:20.11 P:\Projects\7461\BRV\F Inq1. P\ans\PIan\CD0261434_appr05.dgn

NO	DATE	BY	CKD	APPR

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: JANE ELIZABETH GRONERT
Signature: *Jane Elizabeth Gronert*
Date: 10/4/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

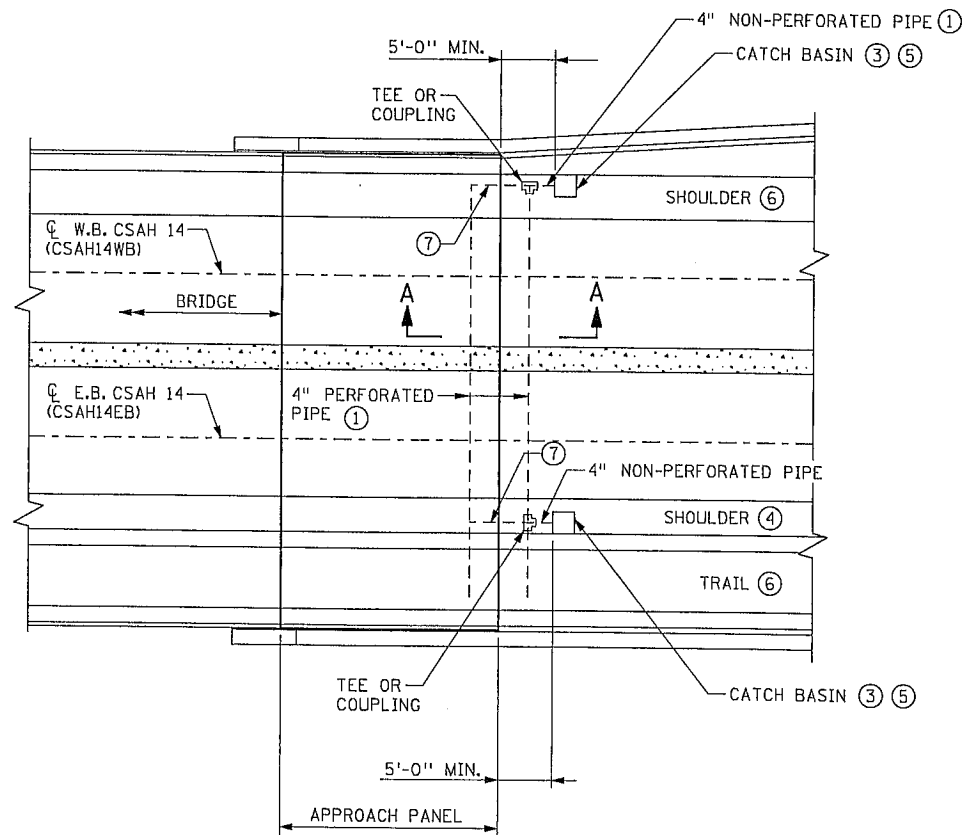
Signature: *Charles Coulter*
Date: 10/4/11 ANOKA COUNTY

SRE C.S. McCrossan Consulting Group, Inc.



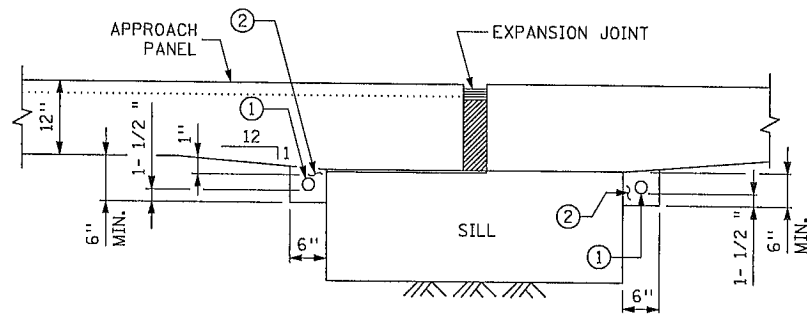
CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B33
BRIDGE APPROACH PANEL JOINT DETAILS OF 08B44
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

STANDARD PLAN SHEET NO. 5-297.229 (MODIFIED)
STANDARD APPROVED: MARCH 23, 2011



DIVIDED-URBAN ROADWAY PLAN
OVER 10° - SKEWS

- NOTES:
- ① 4-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO CATCH BASIN. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE.
 - ② BACKFILL WITH FINE AGGREGATE (MNDOT 3149) MODIFIED TO 0-3% PASSING A NO. 200 SIEVE.
 - ③ SEE ROADWAY PLAN FOR ADDITIONAL CATCH BASIN DETAILS, AND RETAINING WALL PLANS FOR CATCH BASINS IN MOMENT SLABS.
 - ④ SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.
 - ⑤ REFER TO THE DRAINAGE PLAN TO DETERMINE WHETHER A FLUME OR A CATCH BASIN REQUIRED.
 - ⑥ SEE RETAINING WALL PLANS FOR SHOULDER AND TRAIL WIDTHS AND CONFIGURATION AT MOMENT SLABS.
 - ⑦ DRAIN TO BE PLACED UNDER SILL, 6" CLR.



SECTION A-A
DRAINAGE AT EXPANSION JOINT DETAIL

RELEASED FOR CONSTRUCTION

2/25/08 PM
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NO	DATE	BY	CHK	APPR

...lan\CD0261434_appr06.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.

Pr Inv Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Charles C. Coakley
 Date: 10/4/11 ANOKA COUNTY

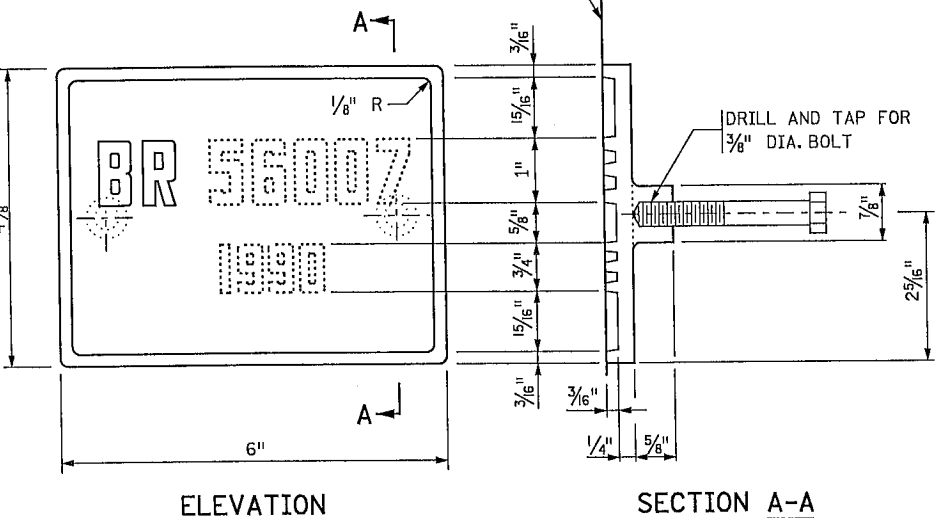
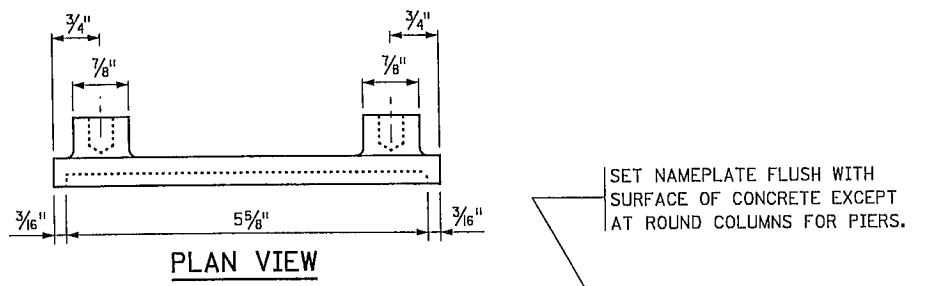
SRH C.S. McCrossan
 Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034)
 BRIDGE APPROACH PANEL DRAINAGE DETAILS
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

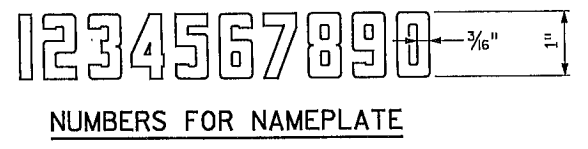
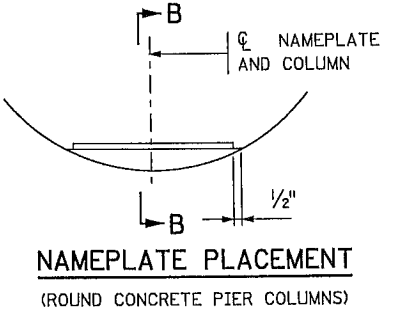
STANDARD PLAN SHEET NO.
 5-297.231 (MODIFIED)
 STANDARD APPROVED:
 MARCH 23, 2011

SHEET
 08B34
 OF
 08B44

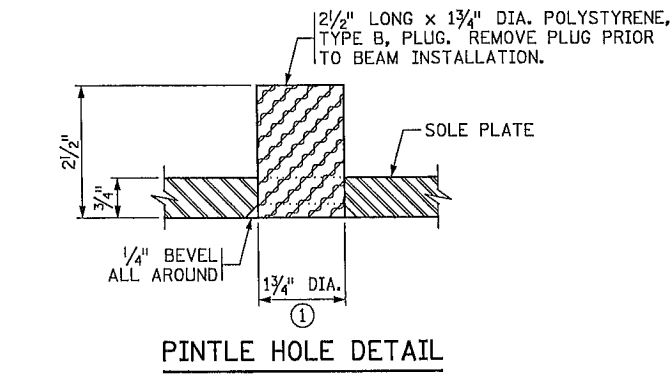
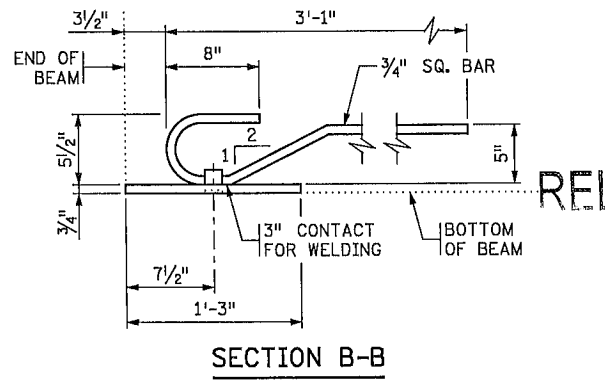
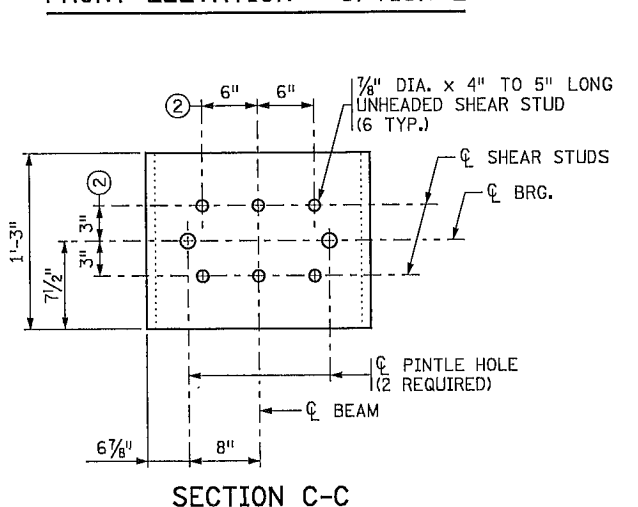
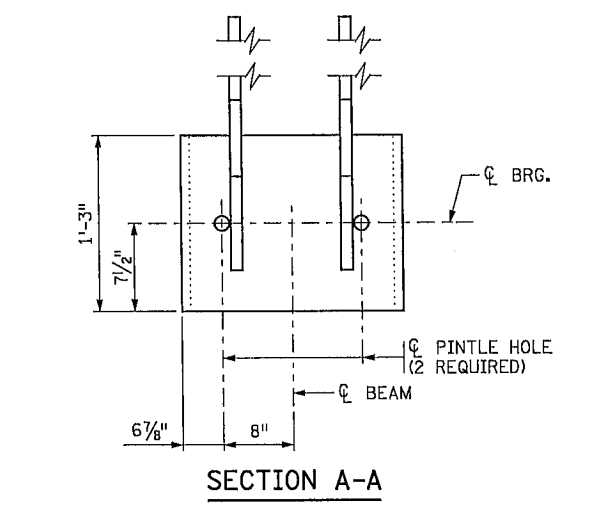
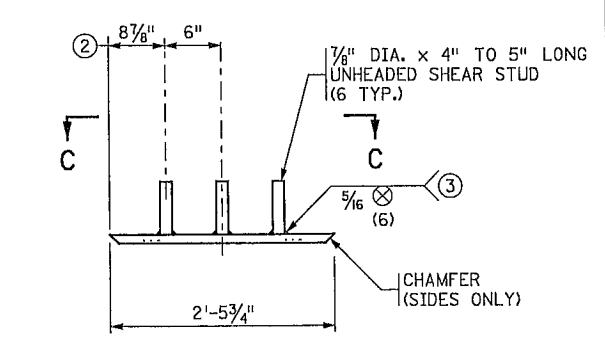
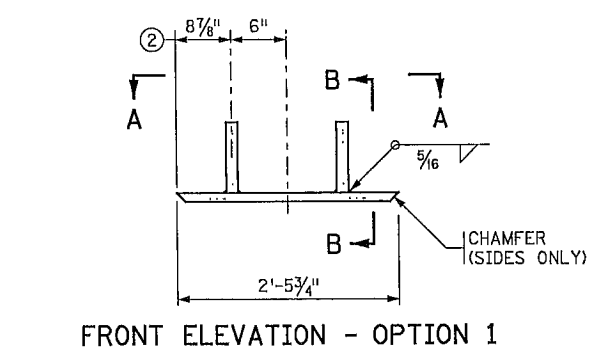
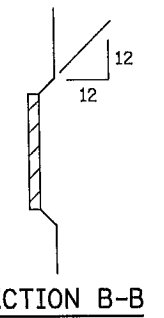


THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 02583
YEAR 2012



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.



RELEASED FOR CONSTRUCTION

NOTES:
MATERIAL TO BE STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.
WELDED STUDS TO BE WELDABLE CARBON STEEL PER Mn/DOT SPEC. 3391.2D.
SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER Mn/DOT SPEC. 3394 AFTER FABRICATION.
PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.
① FOR 1 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.

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

APPROVED: OCTOBER 26, 2005	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED	DETAIL NO.
<i>Daniel J. Horgan</i> STATE BRIDGE ENGINEER	SOLE PLATE (PRESTRESSED CONCRETE BEAMS) (FOR BEARINGS WITH PINTLES)	06-14-2006 10-28-2008 03-30-2010	B303

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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.

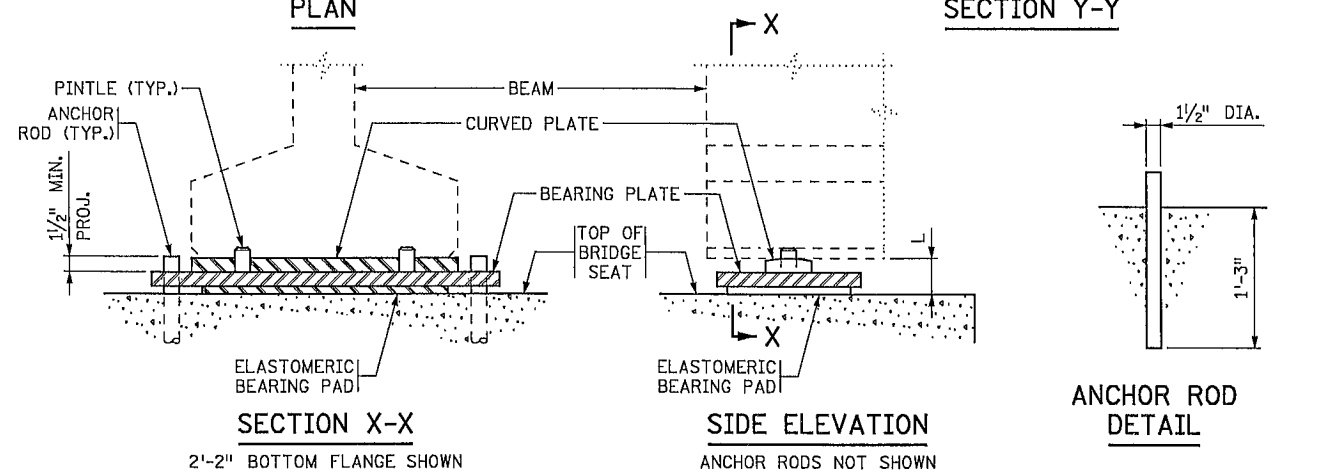
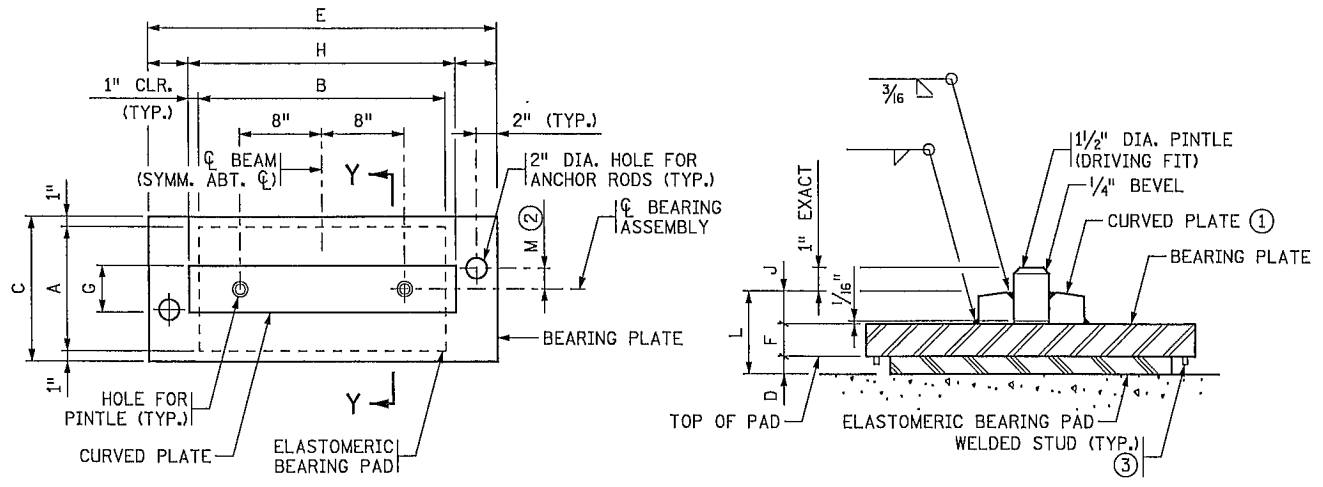
Print Name: JANET ELIZABETH GRONERT
Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Janet Elizabeth Gronert
Date: 10/11/11 ANOKA COUNTY

SRE C.S. McCrossan
Consulting Group, Inc.

ANOKA COUNTY

CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B35 OF 08B44
DETAILS (SHEET 1 OF 5)
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)



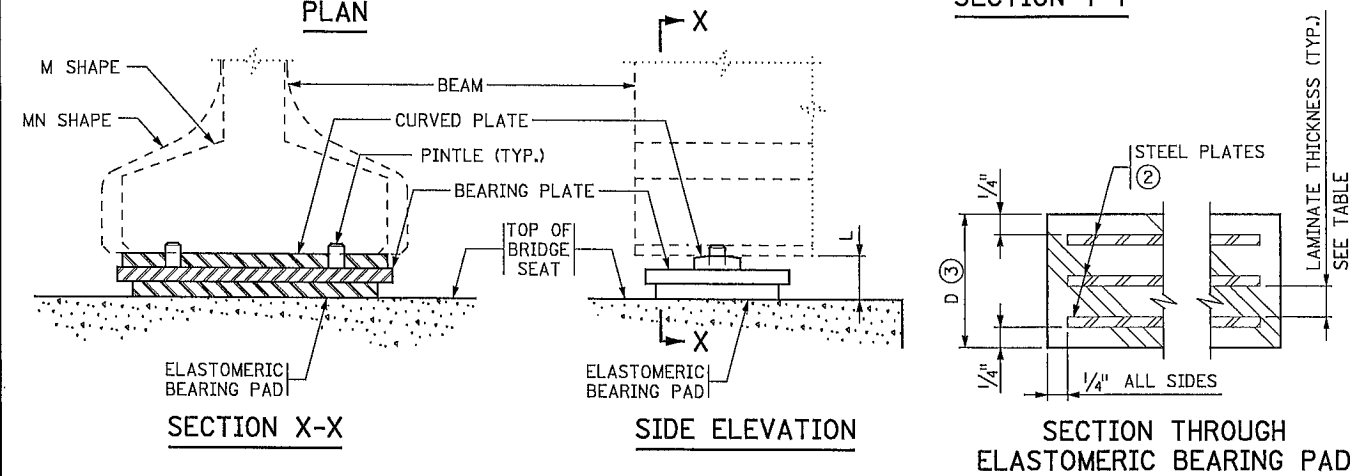
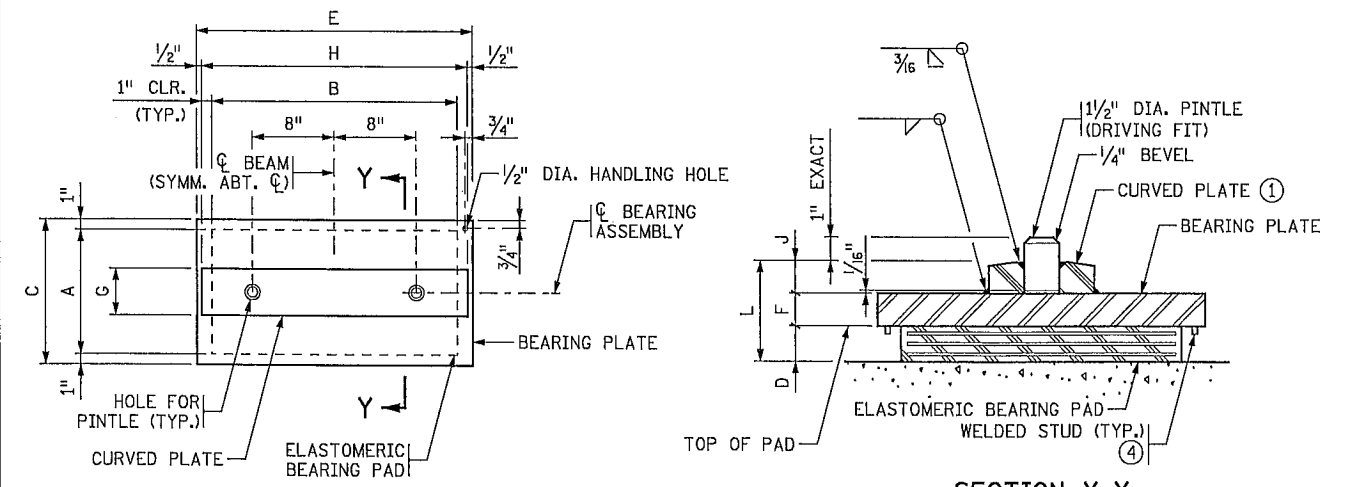
ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			ANCHOR ROD OFFSET		ASSY. HEIGHT	CURVED PLATE
			A	B	D		C	E	F	G	H	J	+/- (2)	M		
F-1	W. ABUT.	MN54	12"	24"	1/2"	8.0	14"	38"	1 1/2"	4 1/2"	26"	1 1/4"	-	3"	3 1/4"	16"

NOTES:
 ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH Mn/DOT SPEC. 3741.
 ALL STEEL PLATES SHALL COMPLY WITH Mn/DOT SPEC. 3306.
 ANCHOR RODS SHALL COMPLY WITH Mn/DOT SPEC. 3306. GALVANIZE PER Mn/DOT SPEC. 3394.
 PINTLES SHALL COMPLY WITH Mn/DOT SPEC. 3309.
 GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER Mn/DOT SPEC. 3394, EXCEPT AS NOTED.

- 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 70 KIPS FOR 1/2" PINTLES.

APPROVED: OCTOBER 26, 2005
 STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 CURVED PLATE BEARING ASSEMBLY
 (PRESTRESSED CONCRETE BEAMS)
 (FIXED)
 REVISED 08-10-2006 10-28-2008
 DETAIL NO. B310



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	J		
E-1	W. & E. ABUT.	MN54	12"	24"	2 1/2"	4	1/8"	3	1/2"	8.0	14"	27"	1 1/2"	4 1/2"	26"	1 1/4"	5 1/4"	16"

NOTES:
 ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH Mn/DOT SPEC. 3741.
 ALL STEEL PLATES SHALL COMPLY WITH Mn/DOT SPEC. 3306.
 PINTLES SHALL COMPLY WITH Mn/DOT SPEC. 3309.
 GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER Mn/DOT SPEC. 3394, EXCEPT AS NOTED.

- 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".

RELEASED FOR CONSTRUCTION

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

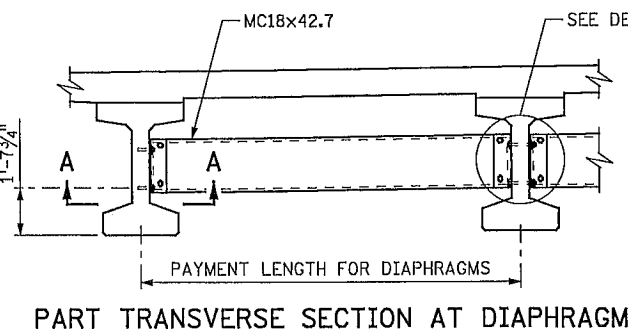
APPROVED: OCTOBER 26, 2005
 STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 CURVED PLATE BEARING ASSEMBLY
 (PRESTRESSED CONCRETE BEAMS)
 (EXPANSION)
 REVISED 08-10-2006 10-28-2008 03-30-2010
 DETAIL NO. B311

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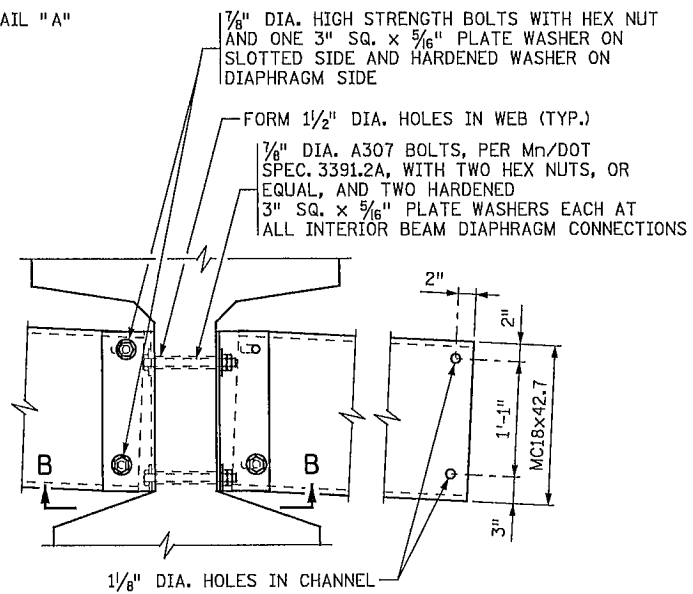
CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B36 OF 08B44
 DETAILS (SHEET 2 OF 5)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

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: JANET ELIZABETH GRONERT
 Date: 9/14/11 License #: 44325

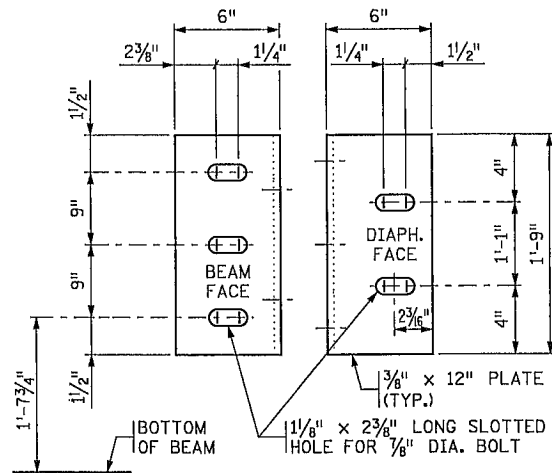
ANOKA COUNTY RELEASED FOR CONSTRUCTION
 SRH Consulting Group, Inc.
 Date: 10/4/11 ANOKA COUNTY



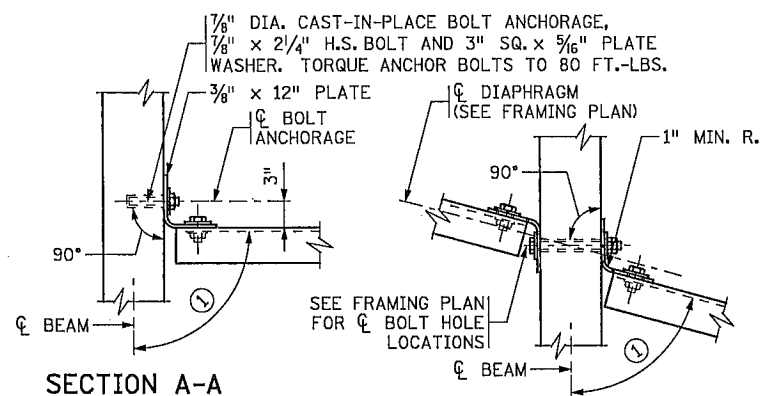
PART TRANSVERSE SECTION AT DIAPHRAGM



DETAIL "A"
INTERIOR BEAM WITH
CONTINUOUS LINE OF DIAPHRAGMS



DIAPHRAGM CONNECTION

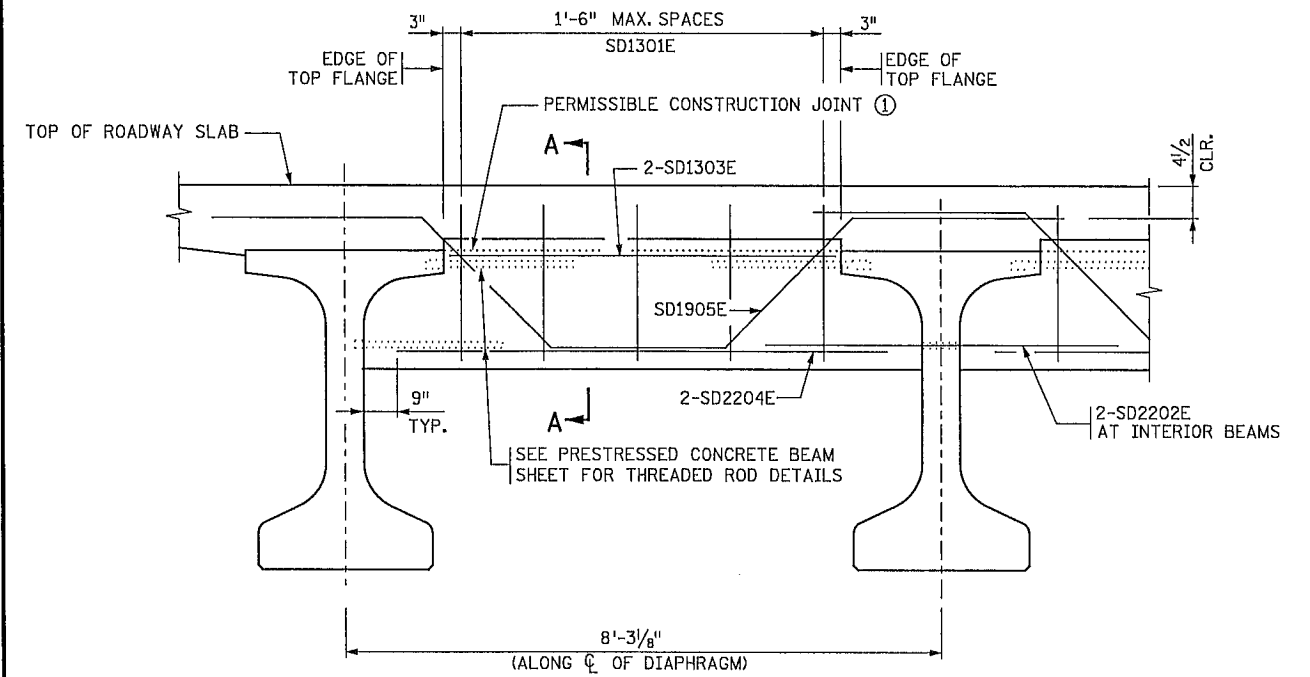


SECTION A-A
TYPICAL SECTION AT
ALL FASCIA BEAMS

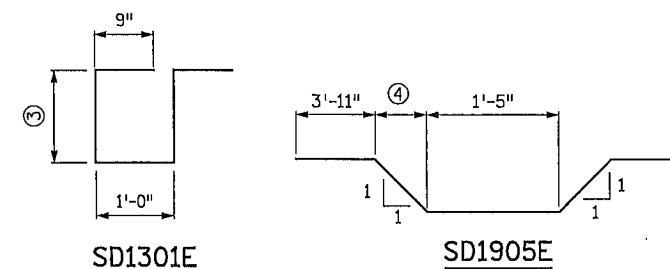
SECTION B-B
TYPICAL SECTION AT INTERIOR BEAM
WITH CONTINUOUS OR STAGGERED
INTERMEDIATE DIAPHRAGMS

NOTES:

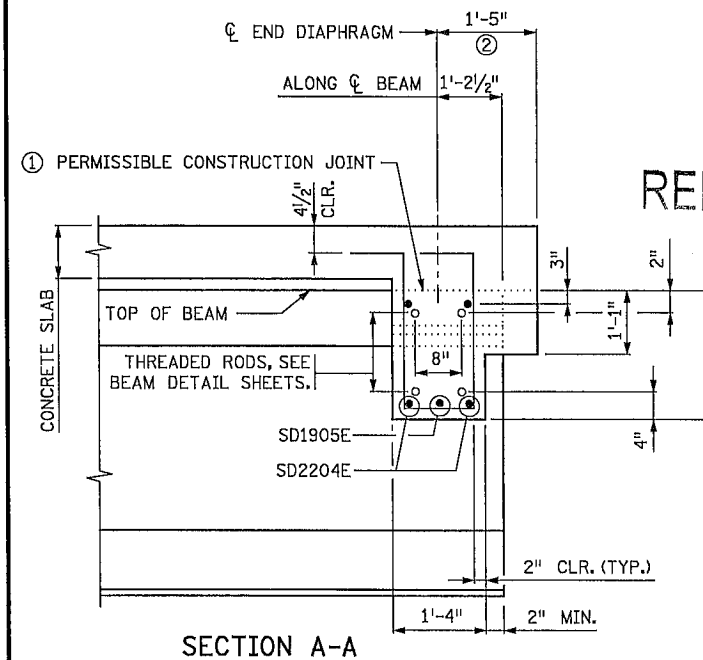
- ALL STEEL SHALL CONFORM TO Mn/DOT SPEC. 3306.
- INSTALLATION SHALL CONFORM TO Mn/DOT SPEC. 2405.3M.
- THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A 3/8" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.
- BENT PLATES MAY BE USED IN PLACE OF CHANNELS. THE BENT PLATES MUST BE THE SAME HEIGHT AS THE CHANNELS THEY REPLACE, BE 5/16" IN THICKNESS, AND HAVE LEGS 5" LONG.
- STEEL PLATES AND SHAPES SHALL BE GALVANIZED IN ACCORDANCE WITH Mn/DOT SPEC. 3394.
- GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.
- ① SEE FRAMING PLAN.



PART TRANSVERSE SECTION



BILL OF REINFORCEMENT FOR END DIAPHRAGM				
BAR	NO.	LENGTH	SHAPE	LOCATION
SD1301E	100	7'-2"		VERTICAL TIE
SD2202E	36	5'-0"		LONG. THRU BEAM
SD1303E	40	5'-1"		LONG. TOP
SD2204E	40	6'-3"		LONG. BOTTOM
SD1905E	20	15'-7"		LONGITUDINAL



SECTION A-A

RELEASED FOR CONSTRUCTION

NOTES:

- CONCRETE FOR END DIAPHRAGMS SHALL BE THE SAME MIX AS USED IN DECK.
- ① USE OF CONSTRUCTION JOINT REQUIRES CLEARANCE FOR EXPANSION DEVICE. WHEN CONSTRUCTION JOINT IS USED AT THIS LOCATION, DIAPHRAGM FALSEWORK SHALL REMAIN IN PLACE UNTIL COMPLETION OF SLAB CURING PERIOD.
- ② PERPENDICULAR TO CENTERLINE OF DIAPHRAGM.
- ③ 2'-4" BASED ON 2" STOOL AND 9" DECK.
- ④ 2'-3" BASED ON NOTE ③.

APPROVED: OCTOBER 26, 2005

Daniel J. Morgan
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

STEEL INTERMEDIATE DIAPHRAGM
(FOR MN54 PRESTRESSED CONCRETE BEAMS)

REVISED
06-14-2006
10-22-2009

DETAIL NO.

B403

APPROVED: OCTOBER 26, 2005

Daniel J. Morgan
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONCRETE END DIAPHRAGM
(MN54 PRESTRESSED CONCRETE BEAMS)
(PARAPET ABUTMENT)

REVISED
06-14-2006
04-02-2009

DETAIL NO.

B814

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
Date: 9/14/10 License # 44325

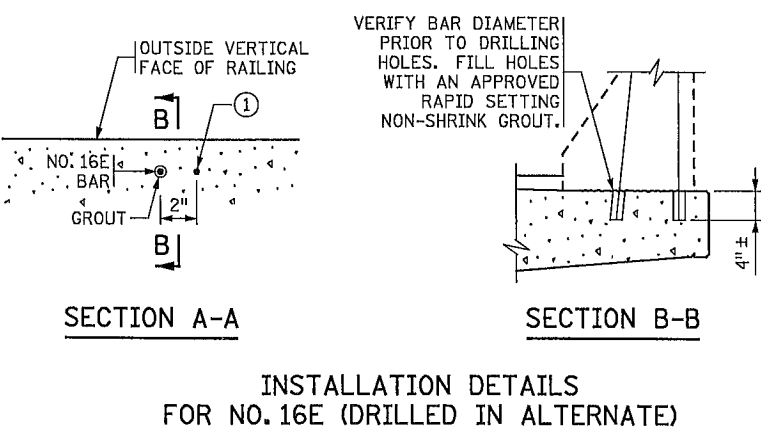
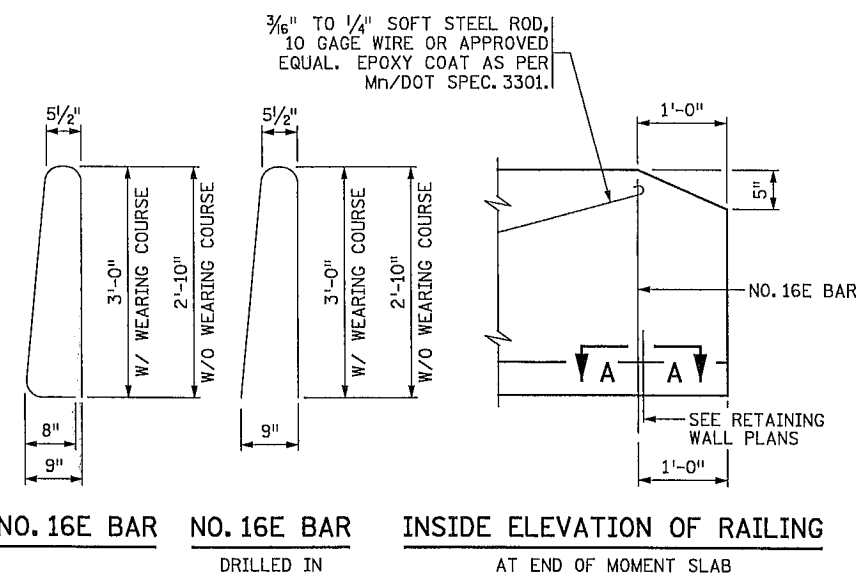
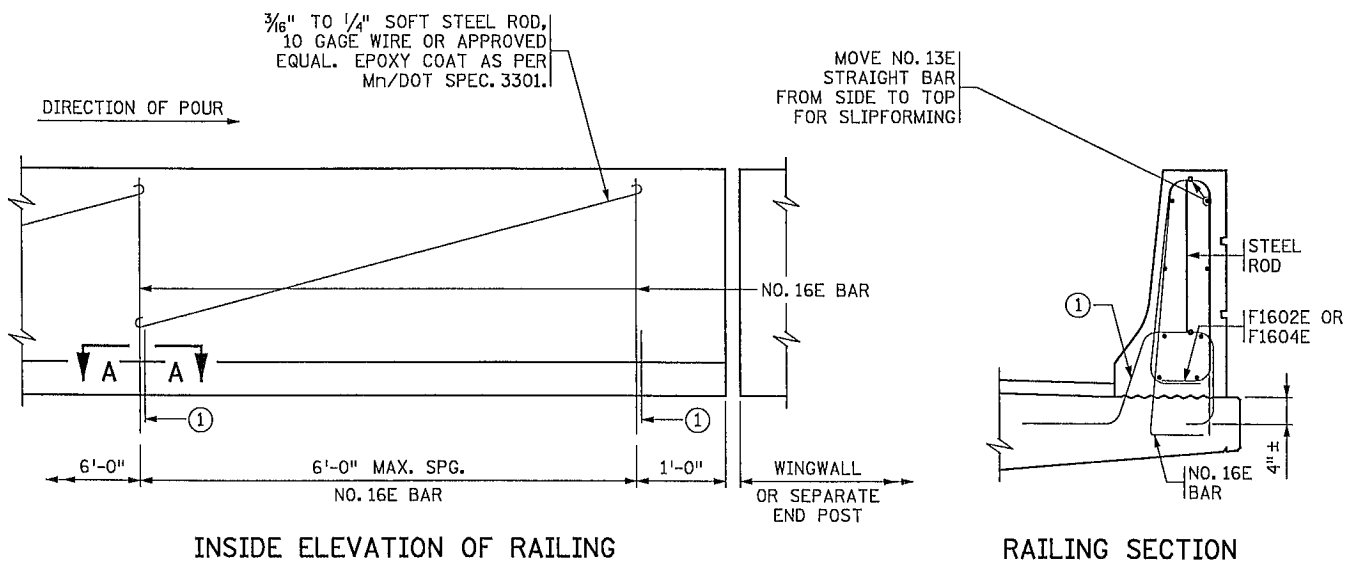
ANOKA COUNTY RELEASED FOR CONSTRUCTION
Christie Cochran
Date: 10/24/11 ANOKA COUNTY

SRE C.S. McCrossan
Consulting Group, Inc.

ANOKA COUNTY

CSAH 14 DESIGN BUILD (SAP 002-614-034)
DETAILS (SHEET 3 OF 5)
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET
08B37
OF
08B44



NOTES:

CONTRACTOR WILL TOOL V-GROOVE AT DEFLECTION JOINTS AT TIME RAIL IS CAST AND SHALL EXTEND V-GROOVE AROUND ENTIRE PERIMETER OF RAIL.

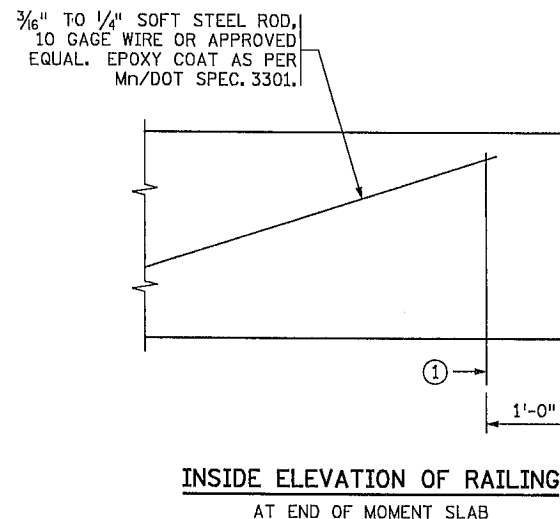
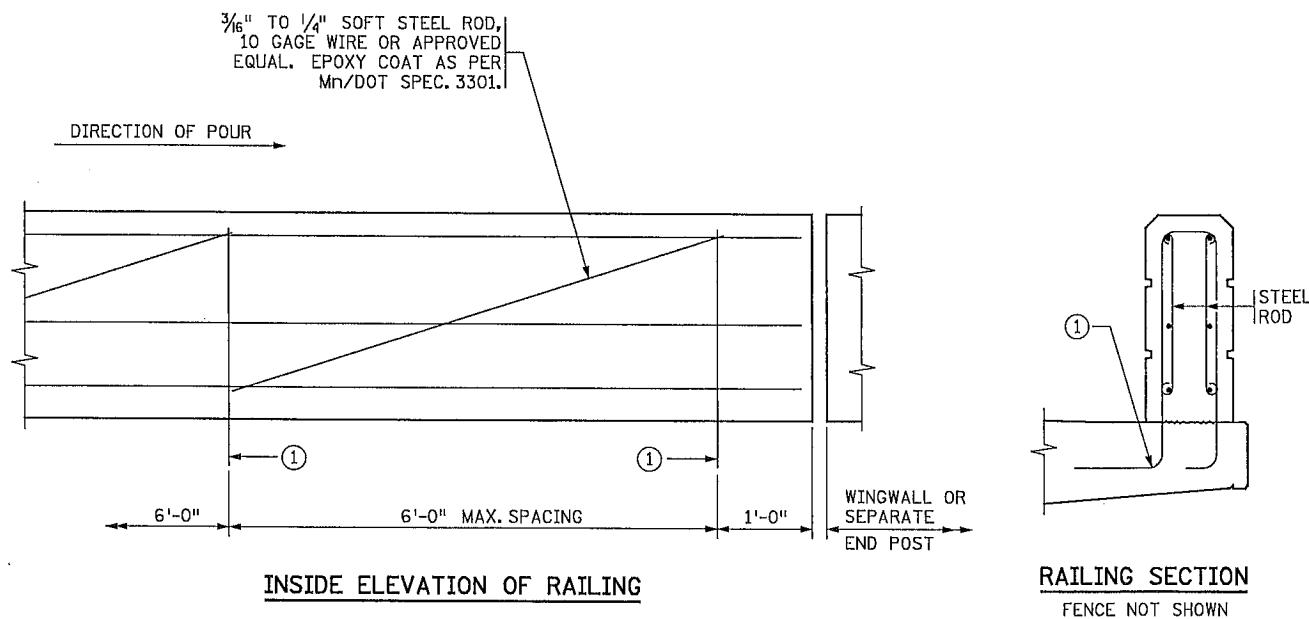
FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT AND NOTES SEE RAILING SHEET.

FORM RAIL FOR A MINIMUM OF 2' ON EACH SIDE OF EXPANSION DEVICES, LIGHT STANDARDS AND DECK DRAIN BOX OUTS.

USE A SIMILAR METHOD FOR TALLER RAILINGS OR MODIFIED VERSIONS OF THIS RAILING.

① F1601E, F1605E, OR F1606E AT BRIDGE AND APPROACH PANELS. SEE RETAINING WALL PLANS FOR DETAILS AT MOMENT SLABS.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Daniel J. Morgan</i> STATE BRIDGE ENGINEER	CONCRETE RAILING (TYPE F) (SLIPFORM ALTERNATE)		B830



RELEASED FOR CONSTRUCTION

NOTES:

CONTRACTOR WILL TOOL V-GROOVE AT DEFLECTION JOINTS AT TIME RAIL IS CAST AND SHALL EXTEND V-GROOVE AROUND ENTIRE PERIMETER OF RAIL.

FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT AND NOTES SEE RAILING SHEET.

FORM RAIL FOR A MINIMUM OF 2' ON EACH SIDE OF EXPANSION DEVICES, LIGHT STANDARDS AND DECK DRAIN BOX OUTS.

USE A SIMILAR METHOD FOR TALLER RAILINGS OR MODIFIED VERSIONS OF THIS RAILING.

① R1601E OR R1602E AT BRIDGE AND APPROACH PANELS. SEE RETAINING WALL PLANS FOR DETAILS AT MOMENT SLABS.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Daniel J. Morgan</i> STATE BRIDGE ENGINEER	CONCRETE PARAPET RAILING (SLIPFORM ALTERNATE)		B831

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: JANET ELIZABETH GRONERT

Janet Elizabeth Gronert

Date: 10/24/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Christine Cochran

Date: 10/24/11 ANOKA COUNTY

SRE C.S. McCrossan
Consulting Group, Inc.



CSAH 14 DESIGN BUILD (SAP 002-614-034)

DETAILS (SHEET 4 OF 5)

C.S.A.H. 14

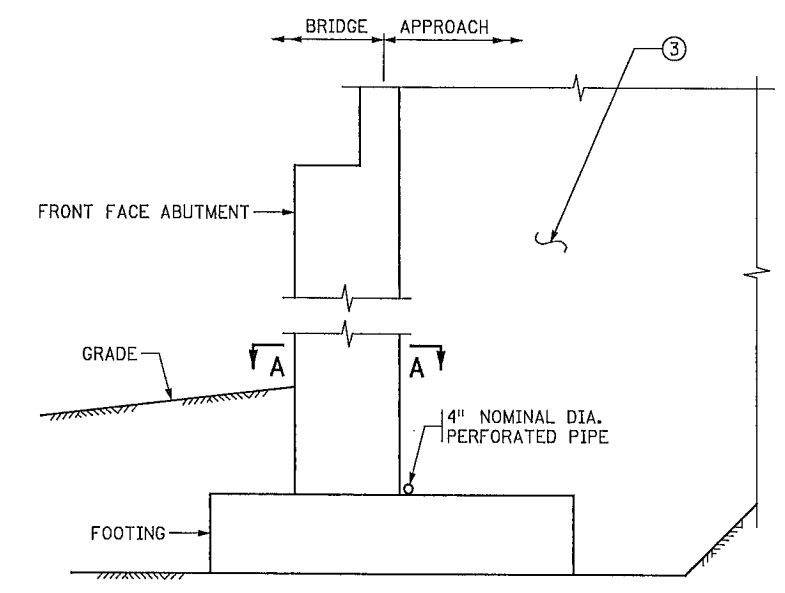
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET
08B38
OF
08B44

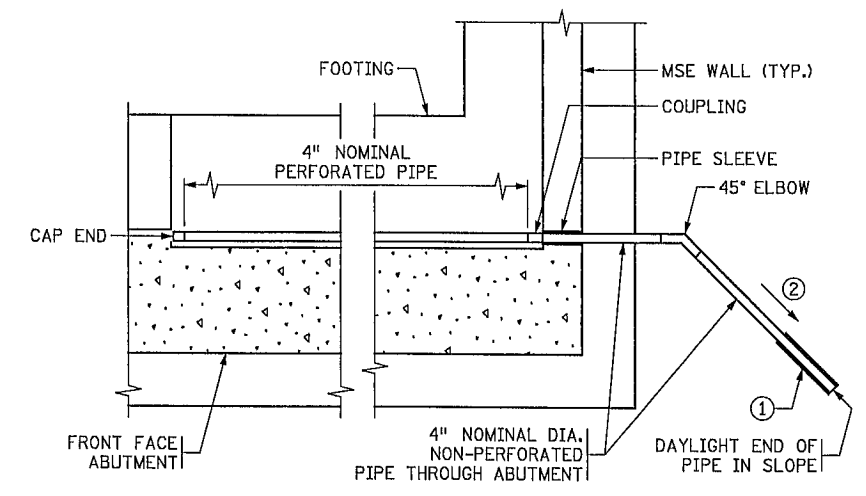
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SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM

4" DIA. PERFORATED PIPE	180 LIN. FT.
4" DIA. NON-PERFORATED PIPE	50 LIN. FT.
45° ELBOW	2 EACH
4" DIA. END CAP	2 EACH
4" DIA. COUPLING	2 EACH
PIPE SLEEVE	2 EACH
① PRECAST CONCRETE HEADWALL	2 EACH



SECTION THROUGH PARAPET ABUTMENTS



SECTION A-A

NOTES:

- ALL PIPE SHALL COMPLY WITH Mn/DOT SPEC. 3245.
- WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER Mn/DOT SPEC. 3733, TYPE 1. ATTACH TO PIPE AS PER Mn/DOT 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 Mn/DOT SPEC. 3149.2B SELECT GRANULAR BORROW, MODIFIED SO THAT NO MORE THAN 10% PASSES A NO. 200 SIEVE. (UNDER GRADING PORTION OF CONTRACT)

RELEASED FOR CONSTRUCTION

APPROVED: MARCH 26, 2009
Janet Elizabeth Gronert
 STATE BRIDGE ENGINEER

STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 10-22-2009	DETAIL NO. B910
DRAINAGE SYSTEM		

2:26:09 PM 9/14/2011 H:\Projects\7461.ABRV\Final P\ans\plan\CD0261.434_det01.dgn

NO	DATE	BY	CKD	APPR

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION
Charlotte Conley
 Date: 10/4/11 ANOKA COUNTY



CSAH 14 DESIGN BUILD (SAP 002-614-034)	SHEET 08B39 OF 08B44
DETAILS (SHEET 5 OF 5) C.S.A.H. 14 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)	

CONCRETE WEARING COURSE

LOW SLUMP
OTHER TYPE OR MANUFACTURER

EXPANSION JOINTS

JOINT MANUFACTURER
MANUFACTURER'S IDENTIFICATION
GLAND MANUFACTURER
SIZE OF GLAND
MANUFACTURER'S IDENTIFICATION

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

UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.
FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES NO

SUMMARY OF SIGNIFICANT AS-BUILT CHANGES

RELEASED FOR CONSTRUCTION

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
STATE BRIDGE ENGINEER

AS-BUILT DETAILS (AS NEEDED)

Table with 5 columns: NO, DATE, BY, CKD, APPR. Row 1: ...PI an\CD0261434_det06.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.
Name: JANET ELIZABETH GRONERT
Date: 10/4/11 License #: 44325

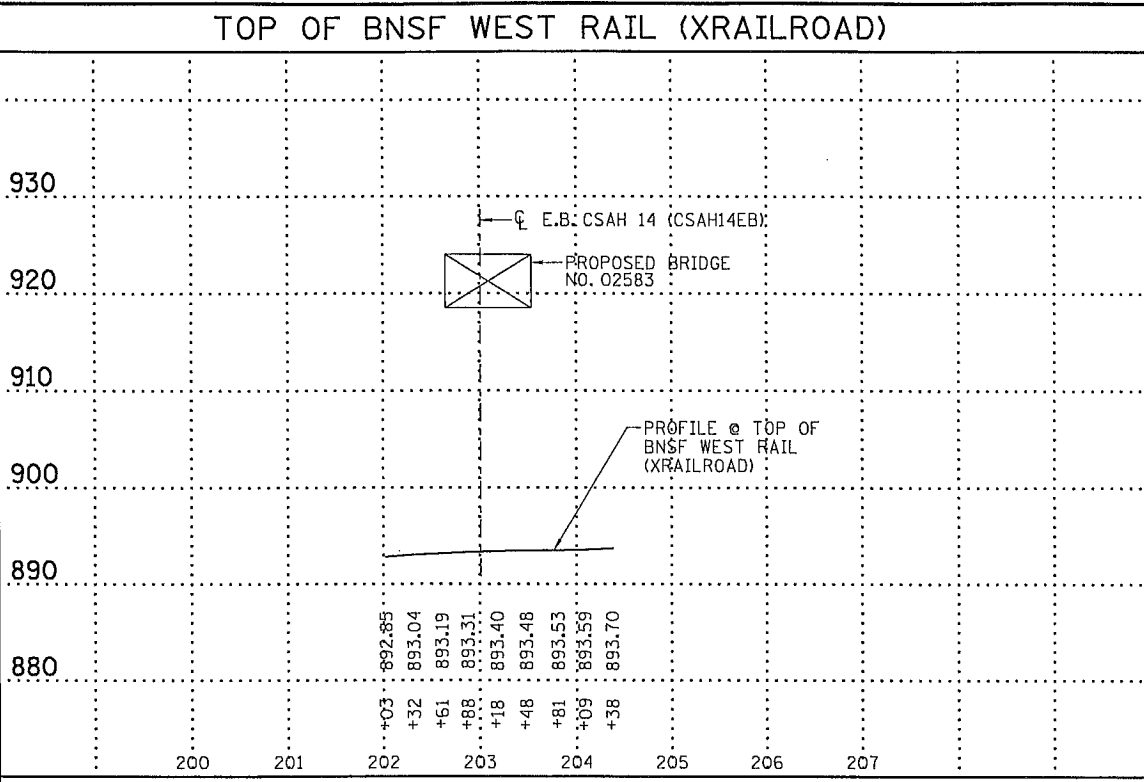
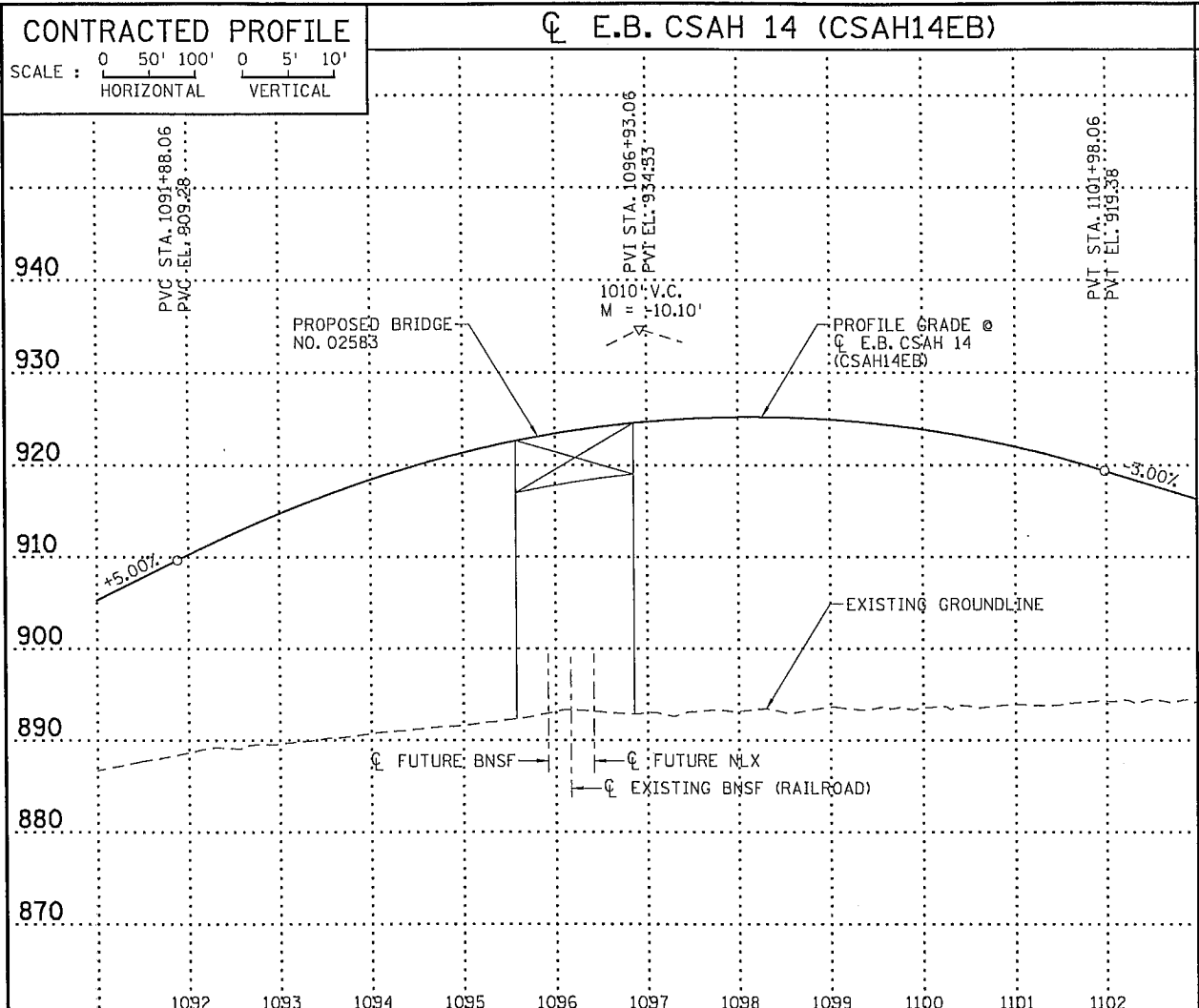
ANOKA COUNTY RELEASED FOR CONSTRUCTION
Date: 10/4/11 ANOKA COUNTY



CSAH 14 DESIGN BUILD (SAP 002-614-034)
AS-BUILT BRIDGE DATA
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET 08B40 OF 08B44

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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.

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.

DESIGN STAGE ELEVATION

DESIGN MEAN VELOCITY THROUGH STRUCTURE F.P.S.

TOTAL STAGE INCREASE .. FT.

LOW MEMBER AT OR ABOVE ELEVATION

FLOWLINE ELEVATION

SKREW ANGLE

WATERWAY AREA REQUIRED BELOW ELEVATION .. SQ.FT.

AT RIGHT ANGLES TO CHANNEL

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

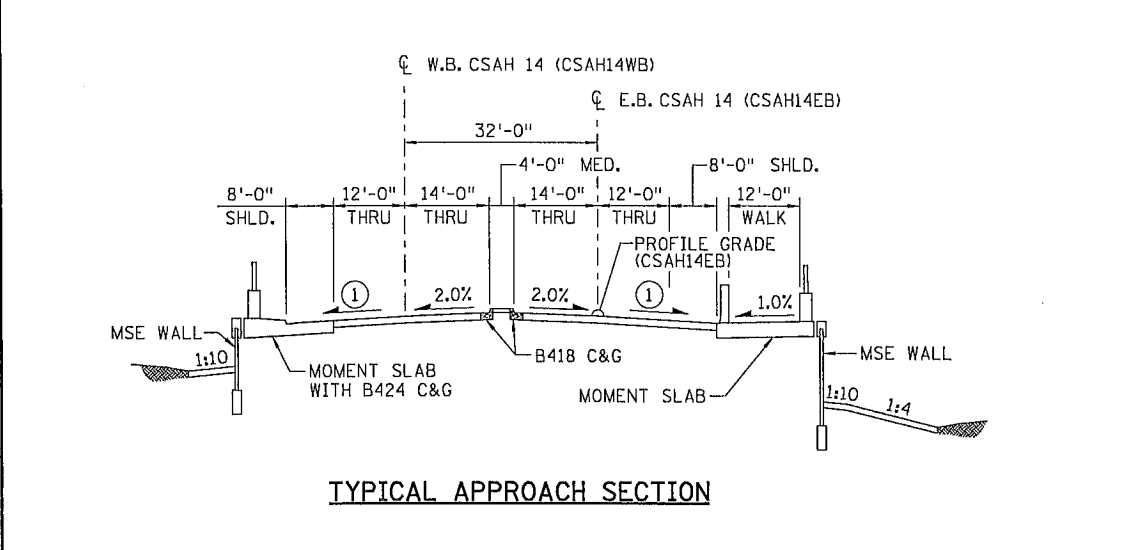
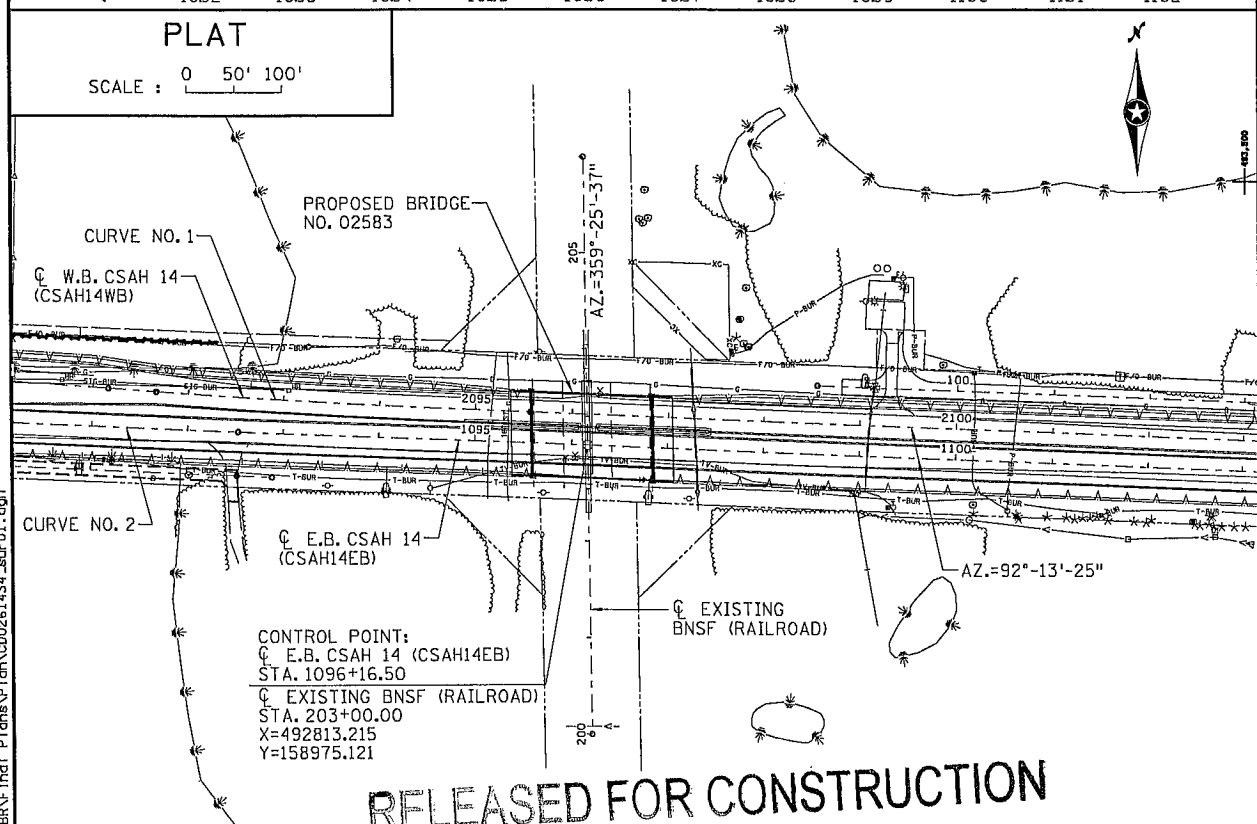
STAGE ELEVATION .. FT.

TOTAL STAGE INCREASE .. FT.

MEAN VELOCITY THROUGH STRUCTURE F.P.S.

ESTIMATED DEPTH OF PIER SCOUR = .. FT.

SCOUR CODE =

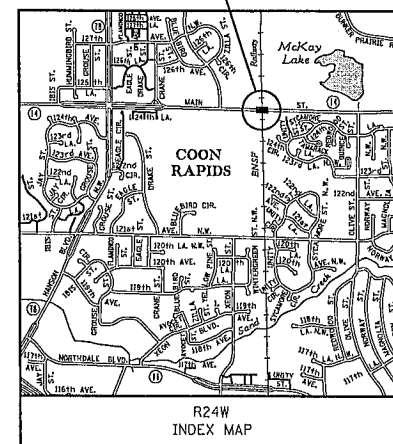


NOTE:

① CROSS SLOPE VARIES FROM 2.5% AT ROADWAY TO 2.0% AT BRIDGE APPROACH PANEL.

CURVE NO. 1 DATA:
P.I. STA. 2093+61.35
X=492559.296
Y=159017.005
Δ = 1°-57'-06.63"
D = 0°-30'-00.00"
T = 195.203'
L = 390.368'
R = 11459.156'
P.C. STA. 2091+66.14
P.T. STA. 2095+56.51

CURVE NO. 2 DATA:
P.I. STA. 1090+53.00
X=492250.135
Y=158996.985
Δ = 0°-30'-33.47"
D = 0°-07'-38.37"
T = 200.002'
L = 400.001'
R = 45000.000'
P.C. STA. 1088+53.00
P.T. STA. 1092+53.00



BRIDGE SURVEY SHEETS MADE FROM :

SURVEY DATA OBTAINED FROM SURVEYS PERFORMED BY SRF CONSULTING GROUP, INC.

BENCH MARK ELEVATION 880.992 PROJECT B.M. #1
LOCATION MN/DOT DISC 0212 G 1.0' NORTH OF WITNESS POST IN S.W. QUADRANT OF C.S.A.H. 14 AND C.S.A.H. 78 (HANSON BLVD.)

2nd BENCH MARK ELEVATION 900.238 PROJECT B.M. #2
LOCATION MN/DOT DISC 0212 M 1.0' SOUTH OF WITNESS POST IN N.E. QUADRANT OF C.S.A.H. 14 AND UNIVERSITY AVENUE

3rd BENCH MARK ELEVATION 909.339 PROJECT B.M. #3
LOCATION MN/DOT DISC 0212 P 525' EAST OF EXISTING POLK ST. CENTERLINE, 4.0' SOUTH OF EXISTING FENCE POST WITH WITNESS SIGN ALONG N. SIDE OF C.S.A.H. 14

ANOKA COUNTY

BRIDGE SURVEY

AT MILE POINT

PROPOSED BRIDGE LOCATED 0.5 MILES EAST OF JUNCTION OF HANSON BLVD. & CSAH 14

SEC. 11 TWP. T31N R. 24W

CITY COON RAPIDS COUNTY ANOKA

NO	DATE	BY	CKD	APPR

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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.

PP Title Name: JANET ELIZABETH GRONERT

Janet Elizabeth Gronert

Date 10/14/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Clara Caldwell

Date 10/14/11 ANOKA COUNTY

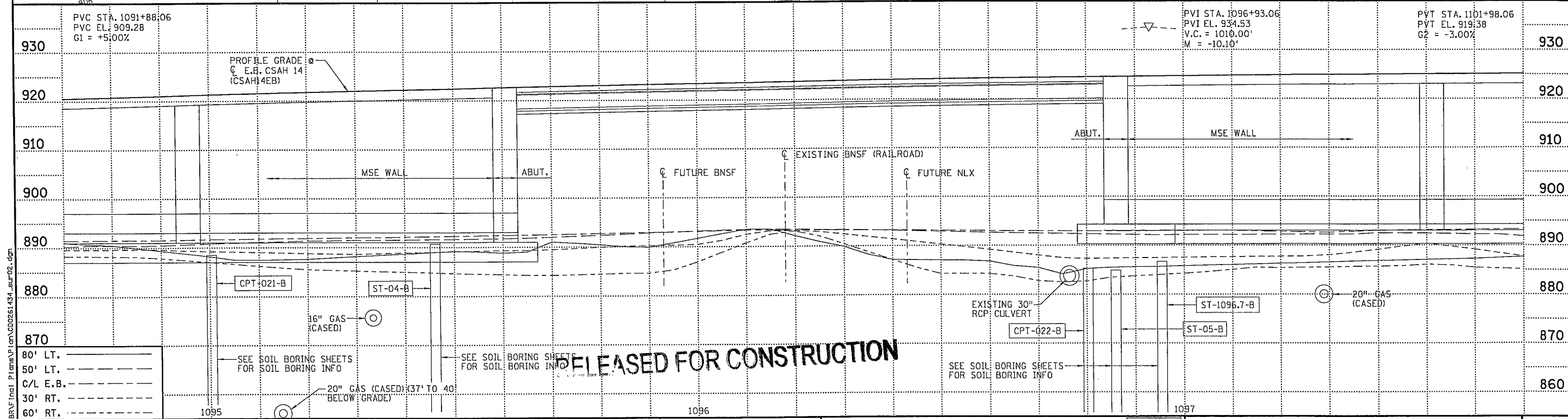
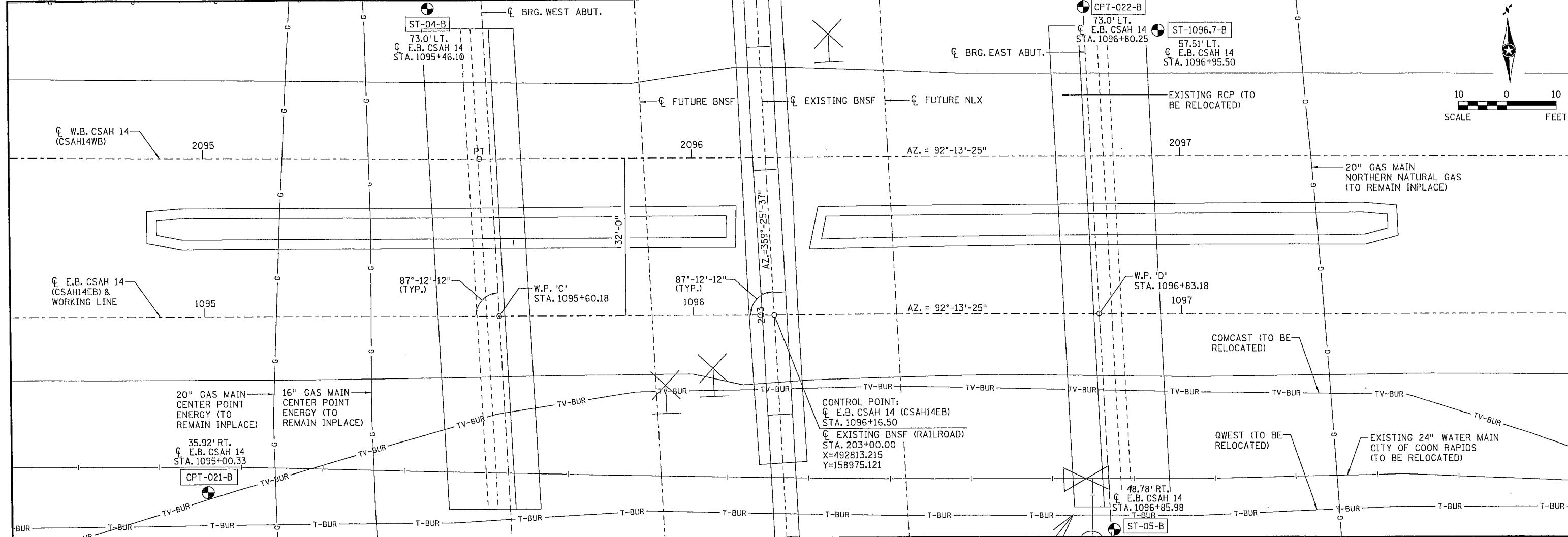
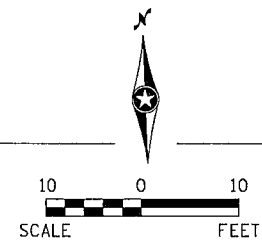
SRF C.S. McCrossan
Consulting Group, Inc.

ANOKA COUNTY

CSAH 14 DESIGN BUILD (SAP 002-614-034)

BRIDGE SURVEY
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET 08B41 OF 08B44



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80' LT.	---
50' LT.	---
C/L E.B.	---
30' RT.	---
60' RT.	---

SEE SOIL BORING SHEETS FOR SOIL BORING INFO

SEE SOIL BORING SHEETS FOR SOIL BORING INFO

SEE SOIL BORING SHEETS FOR SOIL BORING INFO

NO.	DATE	BY	CKD	APPR

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Print Name: JANET ELIZABETH GRONERT

Janet Elizabeth Gronert

Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Charles C. McCrossan

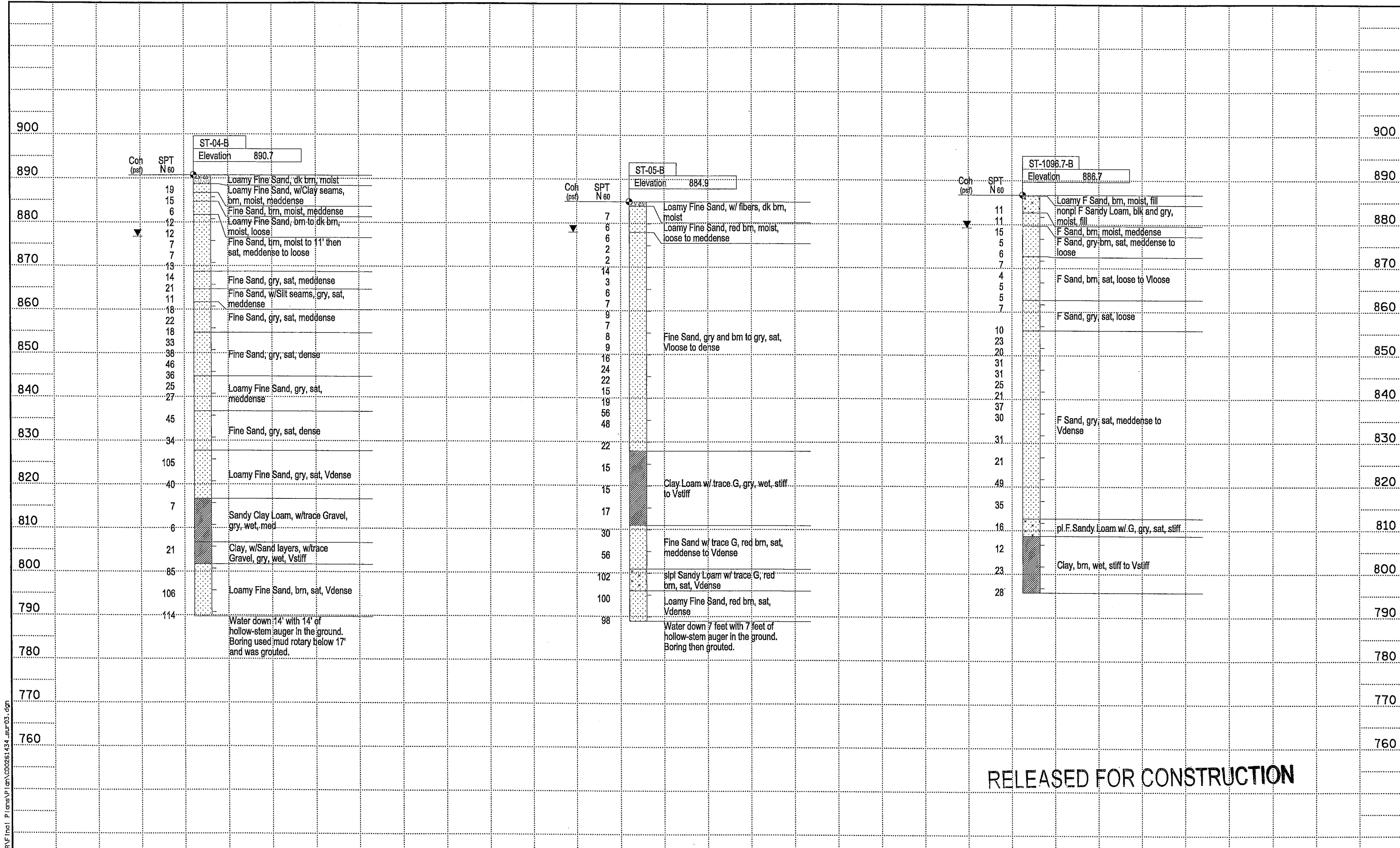
Date: 10/4/11 ANOKA COUNTY



CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B42 OF 08B44

BRIDGE SURVEY PLAN & PROFILE
C.S.A.H. 14
CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

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NO	DATE	BY	CKD	APPR

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Print Name: JANET ELIZABETH GRONERT
Janet Elizabeth Gronert
 Date: 10/11/11 License # 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

Cliff Caldwell
 Date: 10/11/11 ANOKA COUNTY

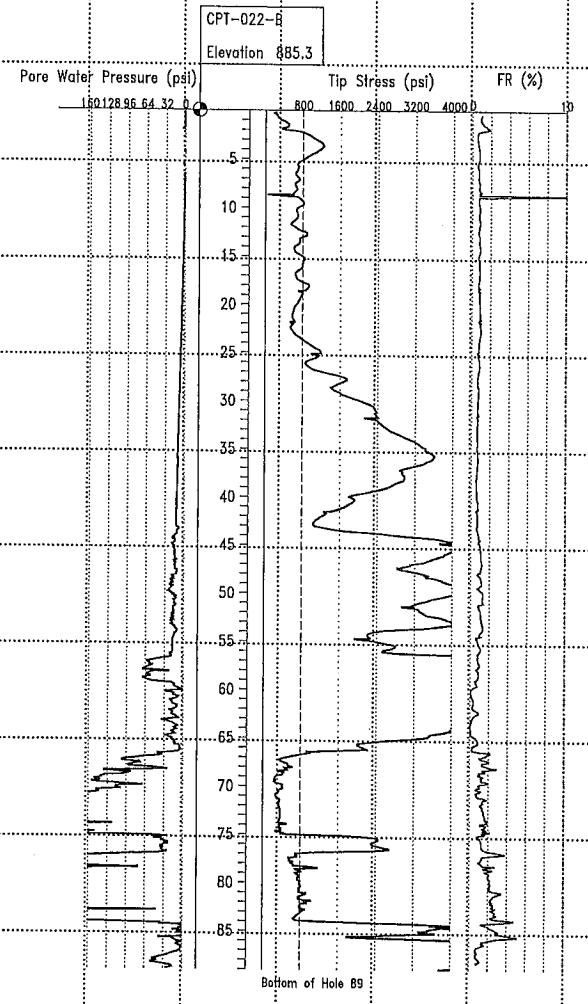
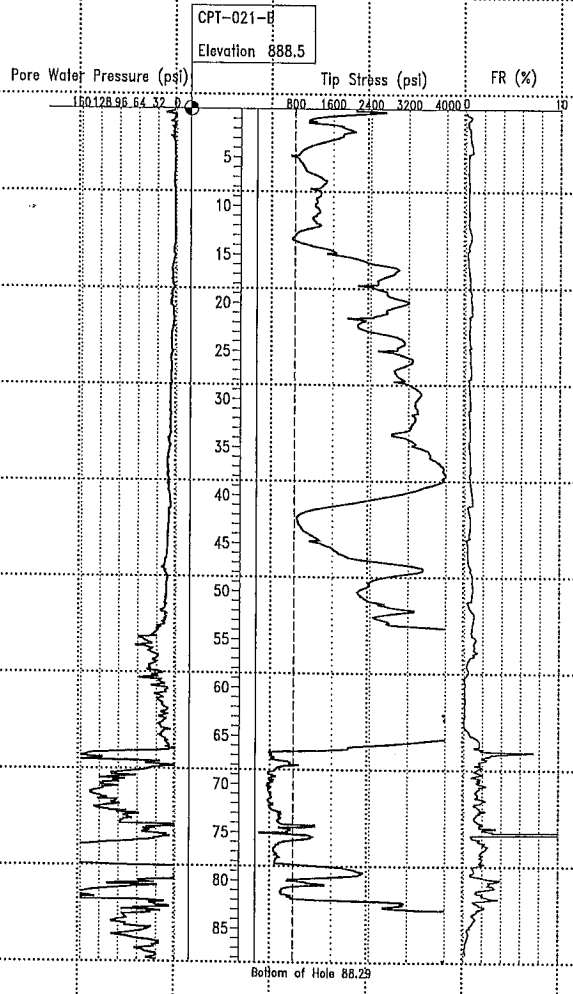


CSAH 14 DESIGN BUILD (SAP 002-614-034) SHEET 08B43 OF 08B44

SOIL BORINGS (SHEET 1 OF 2)
 C.S.A.H. 14
 CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

900
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750

900
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750



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NO	DATE	BY	CKD	APPR

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: JANET ELIZABETH GRONERT

Janet Elizabeth Gronert

Date: 9/14/11 License #: 44325

ANOKA COUNTY RELEASED FOR CONSTRUCTION

C. S. McCrossan

Date: 10/4/11 ANOKA COUNTY



CSAH 14 DESIGN BUILD (SAP 002-614-034)

SOIL BORINGS (SHEET 2 OF 2)

C.S.A.H. 14

CSAH 14 OVER BNSF RAILROAD (BR. NO. 02583)

SHEET
08B44
OF
08B44