MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR GRADING, BITUMINOUS AND CONCRETE PAVEMENT, SIGNAL SYSTEMS, LIGHTING, ADA IMPROVEMENTS, BRIDGE NO. 25033, 25034, & 25035, BOX CULVERT C-47-0057

LOCATED ON	TH 63	FROM	1076' EAST OF THE TH 58 AND TH 61 INTERSECTION	TO	1067' NORTH OF THE 825TH ST AND TH 63 INTERSECTION IN WISCONSIN
LOCATED ON	TH 61	FROM	2460' EAST OF THE TH 58 AND TH 61 INTERSECTION	TO	450' EAST OF THE TH 58 AND TH 61 INTESECTION

STATE PROJ. NO. 2515-21 (TH 63)

GROSS LENGTH	1798.14	FEET	0.341 MILES
BRIDGES-LENGTH	631.68	FEET	0.120 MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	1798.14	FEET	0.341 MILES
REF. POINT	091+00.208	TO REF. POINT	091+00.632

LENGTH AND DESCRIPTION BASED UPON TH 63

STATE PROJ. NO. 2513-91 (TH 61)

GROSS LENGTH	2010.19	FEET	0.381 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	2010.19	FEET	0.381 MILES
REF. POINT	090+00.583	TO REF. POINT	090+00.964

LENGTH AND DESCRIPTION BASED UPON TH 61

WISCONSIN PROJ. I.D. 7210-00-78 (TH 63)

GROSS LENGTH	2765.85	FEET	0.524 MILES
BRIDGES-LENGTH	1143.94	FEET	0.217 MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	2765.85	FEET	0.524 MILES
REF. POINT	001+00.000	TO REF. POINT	002+00.200

LENGTH AND DESCRIPTION BASED UPON TH 63

END WISCONSIN ID 7210-00-78 ℄ TH 63 STA 150+70.00

BOX CULVERT C-47-0057

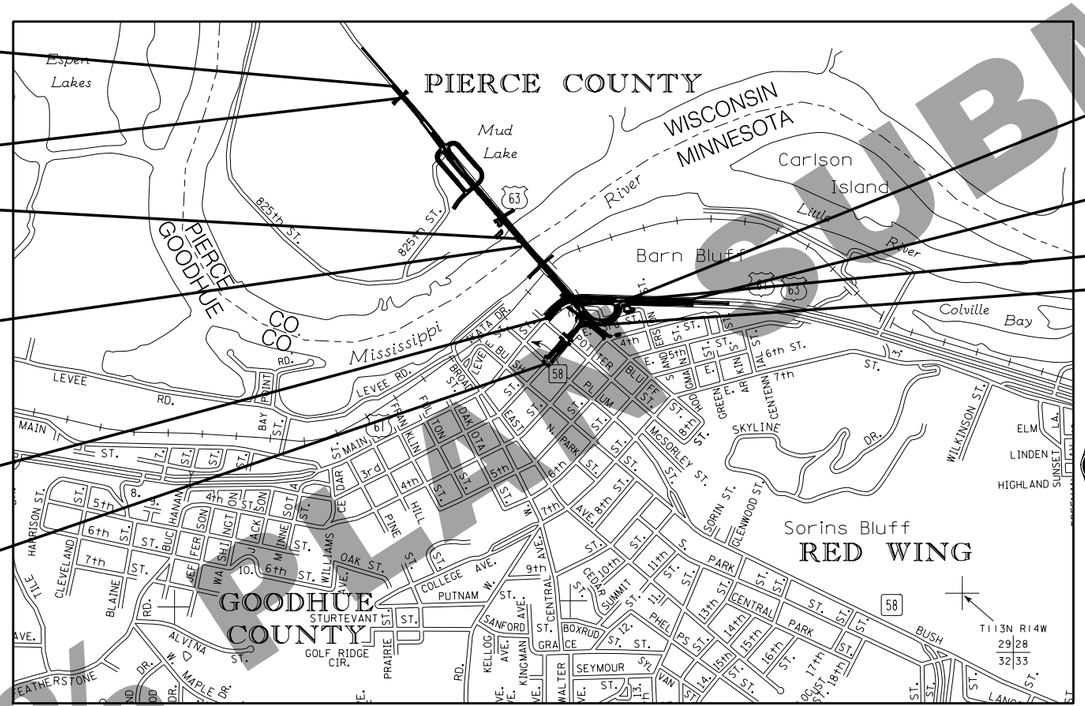
BRIDGE 25033

BEGIN WISCONSIN ID 7210-00-78 ℄ TH 63 STA 123+04.15

END SP 2515-21 ℄ TH 63 STA 123+04.15

END SP 2513-91 ℄ NB TH 61 STA 65+52.88

END SP 2515-21 ℄ 3RD ST STA 122+66.94



BEGIN SP 2515-21 ℄ TH 63 STA 105+06.01

BEGIN SP 2513-91 ℄ NB TH 61 STA 45+25.00

BRIDGE 25034

BRIDGE 25035

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

SCALE

INDEX MAP 2000'

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

STATE PROJ. NO.	CHARGE IDENTIFIER

PROJECT LOCATION
COUNTY :GOODHUE/PIERCE
DISTRICT :6/NW REGION

DESIGN DESIGNATION FOR:

	TH 63	TH 61
R-VALUE	11	11
ADT (Current Year) 2012 =	12,000	16,100
ADT (Future Year) 2042 =	15,600 (2042)	22,100 (2042)
PAVEMENT DESIGN	10 TON	10 TON
FUNCTIONAL CLASSIFICATION	PRINCIPAL ARTERIAL	PRINCIPAL ARTERIAL
NO. OF TRAFFIC LANES	2	4
NO. OF PARKING LANES	0	0
ESALS (20)	4,104,000 (20 YRS.)	3,836,000 (20 YRS.)
Design Speed	30 TO 55 MPH	30 TO 55 MPH
Based on Sight Distance	STOPPING	STOPPING
Height of eye / Height of Object	3.5' / 2.0'	3.5' / 2.0'
Design Speed not achieved at:	N.A.	N.A.

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

SIGNATURE _____

DATE _____ LIC. NO. _____ PRINT NAME _____

FED. PROJ. NO. .....

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

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2 - 3	GENERAL LAYOUT
4	STATEMENT OF ESTIMATED QUANTITIES
5	STANDARD PLATES / INDEX OF TABULATIONS
-	EARTHWORK TABULATIONS AND SUMMARY
6	CONSTRUCTION AND SOILS NOTES
-	TABULATIONS
7 - 17	INPLACE UTILITY TABULATIONS
18 - 23	WATERMAIN AND SANITARY SEWER PLAN AND PROFILE
24 - 33	TYPICAL SECTIONS
34 - 66	MISCELLANEOUS DETAILS
67 - 110	STANDARD PLANS
111 - 161	STAGING PLANS
162 - 217	TRAFFIC CONTROL PLANS
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240 - 249	TOPOGRAPHY AND UTILITY PLANS
250 - 259	REMOVAL PLANS
260 - 269	CONSTRUCTION PLANS
270 - 279	INTERSECTION AND SIDEWALK DETAILS
280 - 285	PROFILES
286	CONCRETE PAVEMENT PLANS AND DETAILS
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297 - 336	RETAINING WALL PLANS, PROFILES AND DETAILS
337	WATER RESOURCES NOTES
338 - 347	DRAINAGE PLANS
348 - 357	DRAINAGE PROFILES, TABULATIONS AND DETAILS
358 - 360	STORM WATER POLLUTION PREVENTION PLAN
361 - 370	EROSION CONTROL AND TURF ESTABLISHMENT PLANS
371 - 385	PAVEMENT MARKING PLANS AND DETAILS
386 - 439	SIGNING PLANS AND DETAILS
441 - 493	LIGHTING PLANS AND DETAILS
494 - 506	TRAFFIC SIGNAL PLANS AND DETAILS
507 - 511	CONTOUR PLANS
512 - 525	LANDSCAPING PLANS AND DETAILS
526 - 527	CROSS SECTION LAYOUT PLANS
528 - 688	CROSS SECTIONS

THIS PLAN CONTAINS 688 SHEETS

SRF Consulting Group, Inc.

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

SIGNATURE _____

DATE XX/XX/XX LIC. NO. XXXXXX PRINT NAME XXX

APPROVED ..... 20.....
CITY ENGINEER, CITY OF RED WING

RECOMMENDED FOR APPROVAL ..... 20.....
WISCONSIN DEPARTMENT OF TRANSPORTATION NORTHWEST REGION

RECOMMENDED FOR APPROVAL ..... 20.....
DISTRICT TRANSPORTATION ENGINEER

RECOMMENDED FOR APPROVAL ..... 20.....
DISTRICT MATERIALS ENGINEER

RECOMMENDED FOR APPROVAL ..... 20.....
DISTRICT WATER RESOURCES/HYDRAULICS ENGINEER

RECOMMENDED FOR APPROVAL ..... 20.....
DISTRICT TRAFFIC ENGINEER

RECOMMENDED FOR APPROVAL ..... 20.....
STATE PRE-LETTING ENGINEER

OFFICE OF LAND MANAGEMENT FOR APPROVAL ..... 20.....
DIRECTOR, LAND MANAGEMENT

APPROVED ..... 20.....
STATE DESIGN ENGINEER

..... 20.....
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AND/OR FEDERAL AID RULES/POLICY

..... 20.....
APPROVED FOR STATE AND/OR FEDERAL AID FUNDING: STATE AID ENGINEER

SUBMITTAL

60% PLANS

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

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

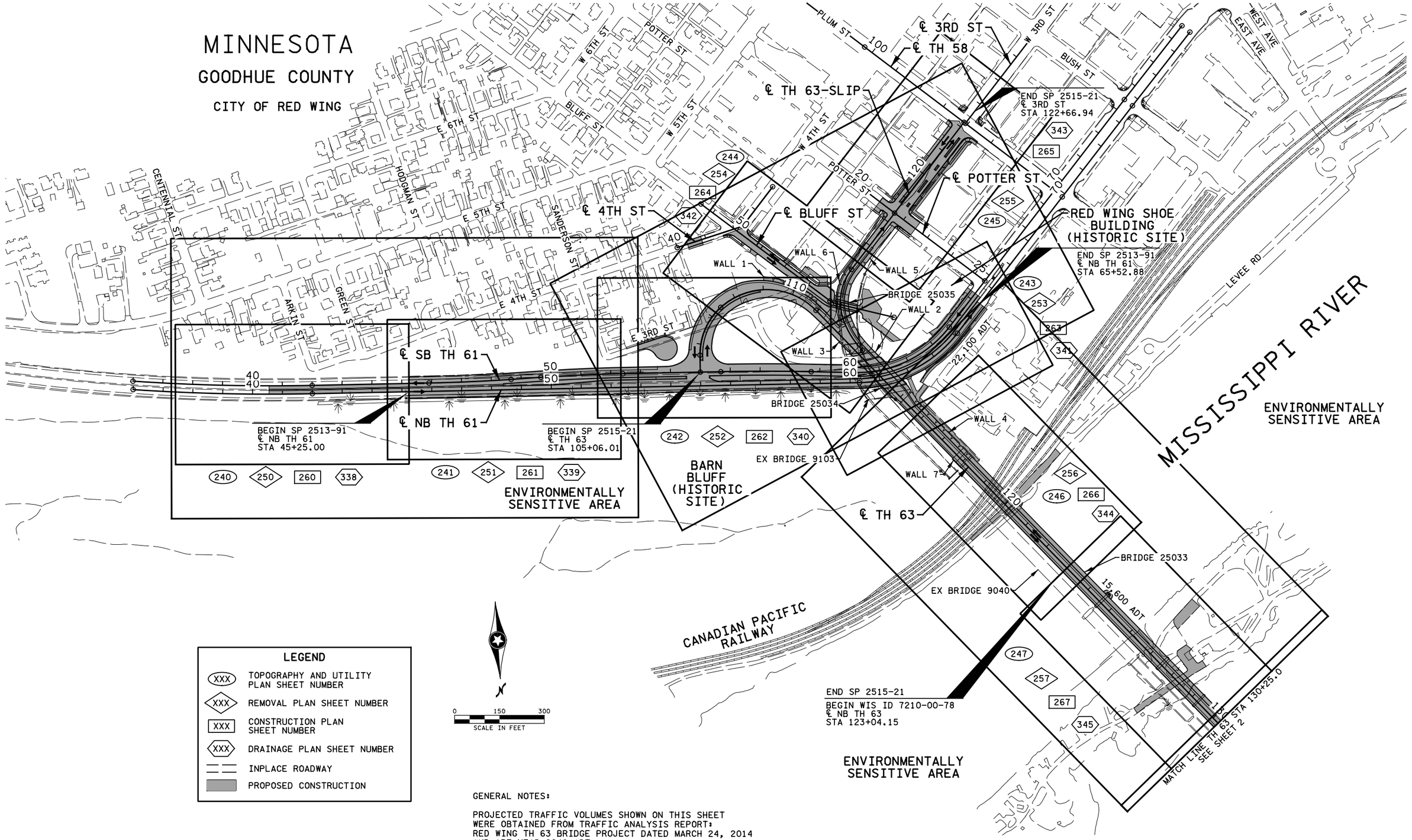
STATE PROJ. NO. 2513-91 (TH 61 = 003) WISCONSIN PROJ. I.D. 7210-00-78
STATE PROJ. NO. 2515-21 (TH 63 = 161) SHEET NO. 1 OF 688 SHEETS

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MINNESOTA

GOODHUE COUNTY

CITY OF RED WING



0 150 300
SCALE IN FEET

LEGEND

- XXX — TOPOGRAPHY AND UTILITY PLAN SHEET NUMBER
- XXX — REMOVAL PLAN SHEET NUMBER
- XXX — CONSTRUCTION PLAN SHEET NUMBER
- XXX — DRAINAGE PLAN SHEET NUMBER
- INPLACE ROADWAY
- PROPOSED CONSTRUCTION

GENERAL NOTES:

PROJECTED TRAFFIC VOLUMES SHOWN ON THIS SHEET WERE OBTAINED FROM TRAFFIC ANALYSIS REPORT: RED WING TH 63 BRIDGE PROJECT DATED MARCH 24, 2014 AND ARE YEAR 2042 ADT.

NO	DATE	BY	CKD	APPR	REVISION
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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21	
MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	

DRAWN BY	S. MARTINS
DESIGNED BY	A. EMERSON
CHECKED BY	C. HASS
COMM. NO.	0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

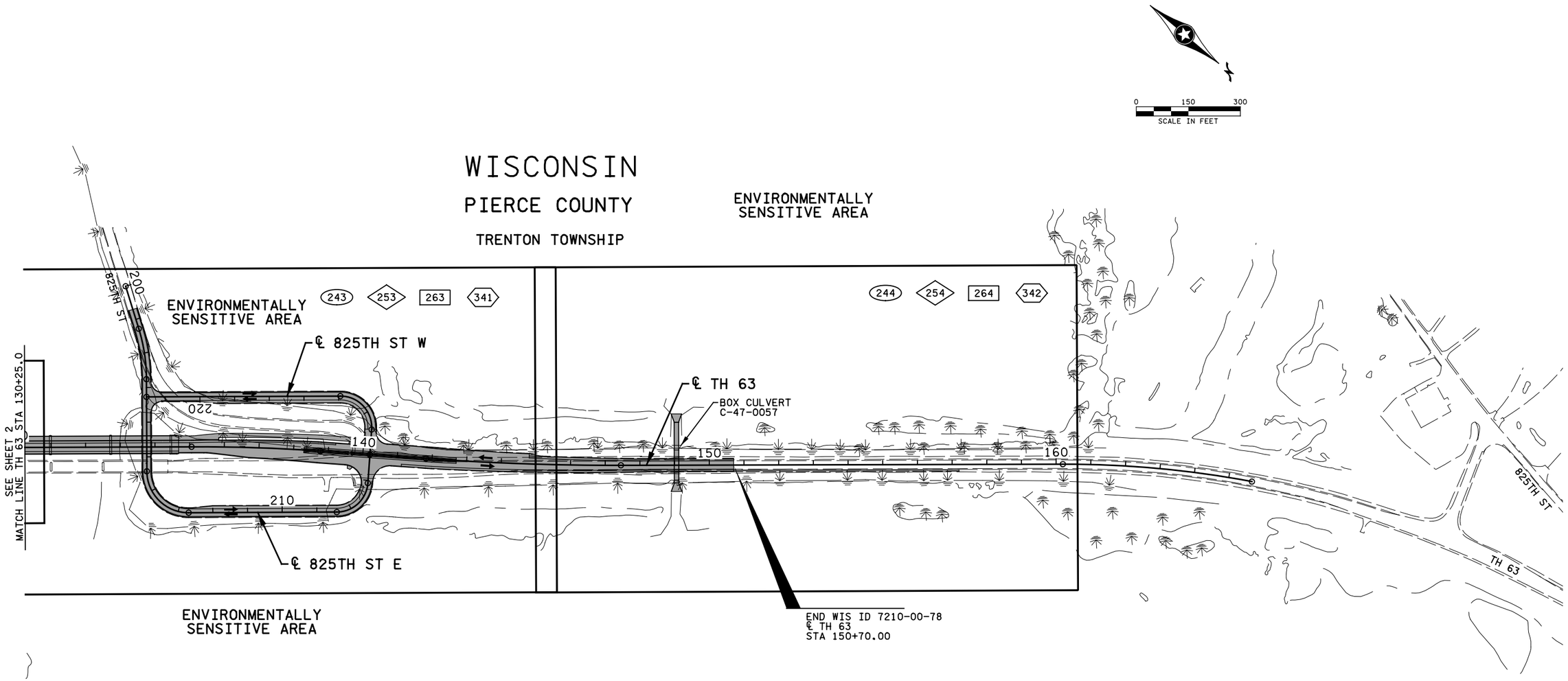
MINNESOTA DEPARTMENT OF TRANSPORTATION

GENERAL LAYOUT

SP 2515-21 (TH 63)

SHEET 2 OF 688

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LEGEND

- XXX — TOPOGRAPHY AND UTILITY PLAN SHEET NUMBER
- XXX — REMOVAL PLAN SHEET NUMBER
- XXX — CONSTRUCTION PLAN SHEET NUMBER
- XXX — DRAINAGE PLAN SHEET NUMBER
- INPLACE ROADWAY
- PROPOSED CONSTRUCTION

NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

GENERAL LAYOUT

SP 2515-21 (TH 63)

SHEET 3 OF 688

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NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc.

ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATEMENT OF ESTIMATED QUANTITIES

SP 2515-21 (TH 63)

SHEET 4 OF 688

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

STANDARD PLATES (FOR CONSTRUCTION IN MINNESOTA)

PLATE NO.	DESCRIPTION
1070 M	SUPPLEMENTAL PAVEMENT REINFORCEMENT
1103 K	TYPICAL DOWEL BAR ASSEMBLY (2 SHEETS)
1150 R	CONCRETE HEADER JOINTS (2 SHEETS)
3000 L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006 G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007 E	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3014 J	REINFORCED CONCRETE PIPE ARCH (2 SHEETS)
3022 C	PRECAST CONCRETE SAFETY APRON (3 SHEETS)
3040 F	CORRUGATED METAL PIPE CULVERT (STANDARD 2-2/3" X 1/2" CORRUGATION)
3041 D	CORRUGATED METAL PIPE (3" X 1" CORRUGATION)
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE - ARCH
3122 K	METAL APRON FOR C.M. PIPE-ARCH CULVERT
3123 J	METAL APRON FOR C.S. PIPE
3124 B	METAL APRON CONNECTION
3131 C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3133 D	RIPRAP AT RCP OUTLETS
3134 D	RIPRAP AT CSP OUTLETS
3145 G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND (3 SHEETS)
4005 M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006 L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4007 C	PRECAST MECHANICAL JOINT SEWER MANHOLE
4010 H	CONCRETE SHORT CONE & ADJUSTING RING (SECTIONAL CONCRETE)
4011 E	PRECAST CONCRETE BASE
4020 J	MANHOLE OR CATCH BASIN FOR USE WITH OR WITHOUT TRAFFIC LOADS (2 SHEETS)
4022 A	MANHOLE OR CATCH BASIN COVER 3' X 2' OPENING - FOR USE WITH OR WITHOUT TRAFFIC LOADS
4024 A	48" DIA. PRECAST SHALLOW DEPTH CATCH BASIN - DESIGN SD
4026 A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101 D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715 AND 716
4129 G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 802A
4132 F	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 805
4143 E	STOOL GRATE & CONCRETE FRAME (MEDIAN DRAINS) - CASTING NO. 731
4154 B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4160 D	CURB BOX CASTING FOR CATCH BASIN
4180 J	MANHOLE OR CATCH BASIN STEP
7020 K	CONCRETE CURB (DESIGN B,V,S,DR & BR) (2 SHEETS)
7035 N	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7038 A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7065 C	BITUMINOUS CURB
7100 H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7102 J	CONCRETE CURB AND GUTTER (DESIGN BR, D, S, B4, B5 AND D3) (2 SHEETS)
7105 C	CONCRETE MEDIAN (MOUNTABLE TYPE)
7111 J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB & GUTTER)
7113 A	CONCRETE APPROACH NOSE DETAIL
8000 J	CHANNELIZERS
8106 D	EQUIPMENT PAD B (3 SHEETS)
8112 I	PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)
8121 H	TRANSFORMER BASE AND POLE BASE PLATE (PA85, PA90 & PA100) (2 SHEETS)
8122 F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT) (2 SHEETS)
8123 G	POLE AND MAST ARM - LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY (FOR ALL POLE TYPES) (2 SHEETS)
8126 L	POLE FOUNDATION (PA90 AND PA100)
8127 E	LIGHT FOUNDATION - DESIGN E 40 FT. POLE OR LESS (2 SHEETS)
8129 A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)
8132 B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - LAYOUT DETAILS, LAYOUT NOTES, TYPICAL INSTALLATION (3 SHEETS)
8150 C	INSTALLATION OF CULVERT MARKERS
8308 B	REINFORCED CONCRETE MEDIAN BARRIER TYPE F (NON GLARE SCREEN TYPE) (3 SHEETS)
8318 C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES AND BCT'S
8337 C	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER (TYPE F) (3 SHEETS)
8338 D	W-BEAM GUARDRAIL & END ANCHORAGES (STEEL POSTS) (4 SHEETS)
8347 A	PORTABLE PRECAST CONCRETE BARRIER ANCHORS
8350 A	THRIE BEAM ANCHORAGE PLATE
9102 E	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)
9322 K	CHAIN LINK FENCE (2 SHEETS)

STANDARD DETAIL DRAWINGS (FOR CONSTRUCTION IN WISCONSIN)

SDD NO.	DESCRIPTION
8A5-19d	INLET COVER TYPE BW; MANHOLE COVERS, TYPE K, J, J-S, L & M
8D5-16a-e	CURB RAMPS
9E1-14f	POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS TYPE 17 (40 FEET)
9E1-14g	HARDWARE DETAILS FOR POLE MOUNTINGS
11B2	CONCRETE MEDIAN NOSE
14B28	GUARDRAIL MOW STRIP
14B42-2a-c	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44	MIDWEST GUARDRAIL SYSTEM (MGS) EAT
14B45-4d	MIDWEST GUARDRAIL SYSTEM (MGS) THRIE BEAM TRANSITION

NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLATES / INDEX OF TABULATIONS

SP 2515-21 (TH 63)

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CONSTRUCTION /SOILS NOTES

GRADING, BASE AND SURFACE

1. STRIP SOD AND TOPSOIL FROM AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE TOPSOIL. FOR ESTIMATING PURPOSES, THE DEPTH OF TOPSOIL AVAILABLE IS CONSIDERED TO BE 12". TOPSOIL STRIPPING IS INCLUDED IN THE EXCAVATION - COMMON QUANTITY.

2. PROVIDE FOR FULL DEPTH SAWCUTTING OF THE EXISTING PAVEMENT TO PROVIDE FOR AN ADEQUATE VERTICAL JOINT BETWEEN EXISTING AND NEW PAVEMENTS.

3. TEST ROLLING SHALL NOT BE REQUIRED ON THIS PROJECT.

4. WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING, WHICHEVER IS DEEPER, THEN 1V:2OH TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION, UNLESS OTHERWISE NOTED.

5. PROVIDE 1V:2OH LONGITUDINAL TAPERS BETWEEN CHANGES IN SUBGRADE AND SUBCUT DEPTHS.

6. DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.

REMOVALS

7. THE EXISTING PAVEMENT THICKNESSES ARE ASSUMED TO BE AS FOLLOWS:

TH 63 WISCONSIN SIDE - 6" BITUMINOUS PAVEMENT
TH 63 MINNESOTA SIDE - 7" BITUMINOUS PAVEMENT
TH 61 - 3" BITUMINOUS PAVEMENT OVER 10" CONCRETE PAVEMENT
TH 61 SHOULDERS -
NB TH 61 STA 45+20 TO STA 53+80 - 4" BITUMINOUS PAVEMENT (RURAL)
NB TH 61 STA 53+80 TO STA 65+55 - 4" BITUMINOUS PAVEMENT OVER 8" CONCRETE PAVEMENT (URBAN)
3RD STREET - 7" BITUMINOUS PAVEMENT
BLUFF STREET - 5" BITUMINOUS PAVEMENT
825TH STREET - 4" BITUMINOUS PAVEMENT

THE CONTRACTOR SHALL INVESTIGATE AND MAKE THEIR OWN DETERMINATION.

(DEPTH OF EXISTING PAVEMENTS IDENTIFIED ARE AVERAGE DEPTHS FROM THE PROJECT SOIL BORINGS AND/OR RECORD DRAWINGS. ACTUAL DEPTHS ENCOUNTERED MAY VARY.)

TURF ESTABLISHMENT

8. PLACE A MINIMUM OF 6 INCHES OF TOPSOIL ON ALL AREAS SCHEDULED FOR PERMANENT TURF ESTABLISHMENT.

9. SOD ALL AREAS ADJACENT TO RESIDENCES OR BUSINESSES AND AREAS OF HEAVY DRAINAGE RUNOFF, AS INDICATED IN THE TURF ESTABLISHMENT AND EROSION CONTROL PLANS AND DETAILS.

10. PERMANENT SEEDING REQUIREMENTS ON THIS PROJECT ARE AS FOLLOWS:

MINNESOTA

SEE EROSION CONTROL AND TURF ESTABLISHMENT PLANS FOR SEED TYPE LOCATIONS.

A. ON PERMANENT SLOPES 1:3 OR FLATTER USE SEED MIXTURE 25-121, FERTILIZER TYPE 3 @ 350 POUNDS PER ACRE AND MULCH MATERIAL TYPE 1 @ 2 TONS PER ACRE, WITH DISK ANCHOR.

B. ON PERMANENT SLOPES 1:3 OR FLATTER USE SEED MIXTURE 35-221, FERTILIZER TYPE 3 @ 200 POUNDS PER ACRE AND MULCH MATERIAL TYPE 3 @ 2 TONS PER ACRE, WITH DISK ANCHOR.

C. PROVIDE FERTILIZER TYPE 3, ANALYSIS 22-5-10, SLOW RELEASE TYPE, OR EQUIVALENT ON ALL AREAS TO BE SEEDED OR SODDED, UNLESS OTHERWISE NOTED.

CONSTRUCTION /SOILS NOTES

WISCONSIN

SEE EROSION CONTROL AND TURF ESTABLISHMENT PLANS FOR SEED TYPE LOCATIONS.

A. USE SEED MIXTURE 35-421 @ 11.0 POUNDS PER ACRE, FERTILIZER TYPE 4 @ 120 POUNDS PER ACRE AND MULCH MATERIAL TYPE 3 @ 2 TONS PER ACRE, WITH DISK ANCHOR.

11. MULCH MATERIAL SHALL BE WEED FREE.

TEMPORARY EROSION CONTROL

12. RAPID STABILIZATION REQUIREMENTS ON THIS PROJECT ARE AS FOLLOWS:

SEE STAGING PLANS FOR RAPID STABILIZATION METHOD AND LOCATIONS.

A. ON TEMPORARY SLOPES FLATTER THAN 1:3 USE RAPID STABILIZATION METHOD 2, USE SEED MIXTURE 32-421 @ 38 POUNDS PER ACRE IN ACCORDANCE WITH THE PROVISIONS OF SPEC. 2575.M.

B. ON TEMPORARY SLOPES STEEPER THAN 1:3 USE RAPID STABILIZATION METHOD 3 IN ACCORDANCE WITH THE PROVISIONS OF SPEC. 2575.M. MODIFIED TO INCLUDE HYDRAULIC REINFORCED FIBER MATRIX @ 3900 LBS/ACRE.

SEE SWPPP NOTES FOR ADDITIONAL REQUIREMENTS.

NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

SRF Consulting Group, Inc. | Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION AND SOILS NOTES
SP 2515-21 (TH 63)

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EXISTING UTILITIES (CENTURYLINK) — XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
3RD ST	122+19 TO 123+25	7' RT TO 5' RT	BURIED TEL	X			
3RD ST	122+42	7' RT	TEL MH	X			
NB TH 61	47+52 TO 48+76	113' LT TO 111' LT	BURIED TEL		X		
NB TH 61	62+30 TO 65+82	68' RT TO 22' RT	BURIED TEL			X	
NB TH 61	64+04 TO 64+05	25' RT TO 83' RT	BURIED TEL		X		
NB TH 61	65+76 TO 65+77	65' RT TO 33' RT	BURIED TEL	X			
NB TH 61	65+77 TO 65+82	33' RT TO 22' RT	BURIED TEL	X			
NB TH 61	65+82 TO 65+91	22' RT TO 18' RT	BURIED TEL			X	
NB TH 61	65+91 TO 66+18	18' RT TO 10' RT	BURIED TEL			X	
NB TH 61	66+18 TO 66+21	10' RT TO 8' RT	BURIED TEL			X	
NB TH 61	66+20	9' RT	TEL MH	X			
NB TH 61	66+20 TO 66+21	87' LT TO 65' RT	BURIED TEL	X			
TH 63	106+62 TO 107+83	157' LT TO 53' LT	BURIED TEL		X		
TH 63	109+36 TO 109+67	72' LT TO 137' LT	BURIED TEL		X		
TH 63	115+32 TO 118+07	87' LT TO 37' RT	BURIED TEL		X		
TH 63	118+07 TO 133+78	37' RT TO 38' RT	BURIED TEL		X		
TH 63-SLIP	118+53 TO 118+54	97' LT TO 158' RT	BURIED TEL		X		
TH 63-SLIP	118+55	10' RT	TEL MH		X		
TH 63-SLIP	118+56 TO 122+19	12' RT TO 13' RT	BURIED TEL		X		
TH 63-SLIP	118+58 TO 118+64	6' RT TO 94' LT	BURIED FIBER	X			
TH 63-SLIP	118+58 TO 118+72	6' RT TO 52' RT	BURIED FIBER	X			
TH 63-SLIP	118+71 TO 118+72	157' RT TO 52' RT	BURIED FIBER	X			
TH 63-SLIP	118+71 TO 118+73	157' RT TO 115' RT	BURIED TEL	X			

EXISTING UTILITIES (CHARTER COMMUNICATIONS) — XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
BLUFF ST	49+73 TO 50+74	16' LT TO 16' LT	OVERHEAD TV			X	
BLUFF ST	49+73 TO 49+80	16' LT TO 43' LT	OVERHEAD TV	X			
BLUFF ST	50+73 TO 51+54	23' RT TO 23' RT	OVERHEAD TV			X	
BLUFF ST	50+73 TO 50+74	23' RT TO 16' LT	OVERHEAD TV			X	
NB TH 61	51+73 TO 51+90	143' LT TO 95' LT	BURIED TV	X			
NB TH 61	52+72 TO 54+30	141' LT TO 192' LT	OVERHEAD TV			X	
TH 63	106+28 TO 106+85	84' LT TO 9' LT	OVERHEAD TV			X	
TH 63	109+18 TO 109+49	86' LT TO 61' LT	OVERHEAD TV			X	
TH 63	109+49 TO 109+78	61' LT TO 147' LT	OVERHEAD TV			X	
TH 63-SLIP	115+71 TO 118+95	183' LT TO 167' LT	OVERHEAD TV	X			
TH 63-SLIP	118+95 TO 119+26	168' LT TO 70' RT	BURIED TV		X		
TH 63-SLIP	119+12 TO 119+26	152' RT TO 70' RT	BURIED TV	X			

UTILITY OWNERS

THE FOLLOWING LIST SHOWS THE UTILITY COMPANIES INVOLVED WITH THIS PROJECT

CENTURYLINK
CHARTER COMMUNICATIONS
CITY OF RED WING
BEVCOMM
HIAWATHA BROADBAND COMMUNICATIONS INC
ISLAND CAMPGROUND & MARINA
MNDOT
ROGERS TELECOM INCORPORATED
WINDSTREAM COMMUNICATIONS
XCEL ENERGY

GENERAL NOTES:

ALL UTILITY WORK SHOWN ON THESE SHEETS SHALL BE DONE BY OTHERS UNLESS NOTED.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE WISCONSIN DIGGER'S HOTLINE AND/OR THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE,CHAPTER 216O FOR ALL UNDERGROUND UTILITY LOCATIONS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL C. 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".

THE REMARKS COLUMN IS BASED UPON THE BEST INFORMATION AVAILABLE AND MAY NOT REFLECT THE ACTUAL EFFECTS ON THE UTILITIES BY CONSTRUCTION. ACTUAL DETERMINATIONS WILL BE MADE IN THE FIELD DURING CONSTRUCTION.

NO	DATE	BY	CKD	APPR	REVISION

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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: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA

DESIGNED BY J. TSCHIDA

CHECKED BY M. ZMUDA

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS

SP 2515-21 (TH 63)

SHEET 7 OF 688

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EXISTING UTILITIES (CITY OF RED WING) (1) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			REMOVE			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	LIGHT BASE	SERVICE CABINET	LIGHTING UNIT	
3RD ST	122+48 TO 122+67	162' LT TO 31' LT	BURIED POWER		X					
3RD ST	122+49 TO 123+31	96' RT TO 29' RT	BURIED POWER		X					
3RD ST	122+49	89' RT	LIGHT POLE	X						
3RD ST	122+50	92' LT	LIGHT POLE	X						
3RD ST	122+68	31' LT	LIGHT POLE	X						
3RD ST	122+98	30' RT	LIGHT POLE	X						
BLUFF ST	48+92	16' LT	POWER POLE	X						
BLUFF ST	49+04	97' RT	POWER POLE	X						
BLUFF ST	49+38	15' LT	GUY WIRE	X						
BLUFF ST	49+58 TO 49+79	33' LT TO 40' LT	BURIED POWER	X						
BLUFF ST	49+73	16' LT	POWER POLE	X						
BLUFF ST	49+79	39' LT	POWER POLE	X						
BLUFF ST	50+54	23' RT	GUY WIRE		X					
BLUFF ST	50+74	16' LT	GUY POLE		X					
BLUFF ST	50+74	23' RT	GUY POLE		X					
BLUFF ST	50+96	16' LT	GUY WIRE		X					
BLUFF ST	51+00	15' LT	GUY WIRE		X					
BLUFF ST	51+03	24' RT	GUY POLE		X					
NB TH 61	51+95	92' LT	POWER POLE	X						
NB TH 61	52+72	141' LT	POWER POLE	X						
NB TH 61	54+09	185' LT	GUY POLE			X				
NB TH 61	64+29	57' LT	ELEC HH							REMOVE HH
NB TH 61	64+50	21' RT	LIGHT POLE						X	(5)
NB TH 61	64+84	22' RT	LIGHT POLE						X	(5)
NB TH 61	65+53	33' RT	LIGHT POLE	X						(4)
NB TH 61	65+59	57' LT	ELEC MH	X						(4)
NB TH 61	65+59 TO 65+66	22 RT TO 18 LT	BURIED POWER	X						(4)
NB TH 61	65+59 TO 65+83	22 RT TO 19 RT	BURIED POWER	X						(4)
NB TH 61	65+59 TO 65+66	57 LT TO 18 LT	BURIED POWER	X						(4)
NB TH 61	65+60	56' LT	LIGHT POLE	X						(4)
NB TH 61	65+83 TO 66+93	19 RT TO 24 RT	BURIED POWER	X						(4)
NB TH 61	65+86	32' RT	LIGHT POLE	X						(4)
NB TH 61	66+21	33' RT	LIGHT POLE	X						(4)
NB TH 61	66+32 TO 67+01	20' LT TO 23' RT	BURIED POWER	X						
NB TH 61	66+32 TO 66+36	10 LT TO 55 LT	BURIED POWER	X						(4)
NB TH 61	66+36 TO 67+00	55 LT TO 57 LT	BURIED POWER	X						(4)
NB TH 61	66+55	59' LT	LIGHT POLE	X						(4)
TH 63	106+85	9' LT	GUY POLE			X				
TH 63	106+92	3' LT	GUY WIRE			X				
TH 63	107+15	15' RT	GUY WIRE			X				
TH 63	107+24	19' RT	GUY WIRE			X				
TH 63	107+58	31' RT	GUY POLE			X				
TH 63	108+29	21' RT	GUY POLE			X				
TH 63	109+49	61' LT	GUY POLE			X				
TH 63	109+58	56' LT	GUY WIRE			X				
TH 63	109+61	54' LT	GUY WIRE			X				
TH 63	109+70	120' LT	GUY POLE	X						
TH 63	110+54 TO 116+32	26' LT TO 25' RT	BURIED POWER			X				
TH 63	110+54	26' LT	LIGHT			X				
TH 63	110+80 TO 113+44	168' LT TO 116' RT	BURIED POWER			X				
TH 63	111+19	34' LT	GUY POLE			X				
TH 63	111+42	22' RT	GUY POLE			X				
TH 63	111+66	27' LT	GUY POLE			X				
TH 63	112+89 TO 113+93	82' RT TO 78' LT	BURIED POWER			X				
TH 63	113+03	59' LT	GUY WIRE			X				
TH 63	113+44 TO 114+82	123' RT TO 93' LT	BURIED POWER			X				
TH 63	119+94 TO 120+06	143' LT TO 34' RT	BURIED FIBER			X				(2)
TH 63	120+09 TO 120+14	136' RT TO 38' LT	BURIED FIBER			X				(2)
TH 63	126+99	39' RT	LIGHT POLE						X	
TH 63	134+33	39' RT	LIGHT POLE						X	
TH 63	135+52	17' LT	POWER POLE			X				

EXISTING UTILITIES (CITY OF RED WING) (1) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			REMOVE			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	LIGHT BASE	SERVICE CABINET	LIGHTING UNIT	
TH 63-SLIP	115+79	182' LT	GUY POLE	X						
TH 63-SLIP	115+88 TO 117+95	13' LT TO 24' LT	BURIED POWER			X				
TH 63-SLIP	121+91 TO 121+91	144' LT TO 103' RT	BURIED POWER		X					
TH 63-SLIP	121+90	72' RT	LIGHT POLE	X		X				(6)
TH 63-SLIP	121+90	68' LT	LIGHT POLE	X						

EXISTING UTILITIES (MNDOT) (1) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			REMOVE			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	LIGHT BASE	SERVICE CABINET	LIGHTING UNIT	
3RD ST	122+19 TO 122+60	37' LT TO 50' RT	BUR SIG WIRE							(2)
3RD ST	122+19 TO 122+59	45' RT TO 45' RT	BUR SIG WIRE							(2)
3RD ST	122+23 TO 122+59	47' RT TO 46' RT	BUR SIG WIRE							(2)
3RD ST	122+49	38' LT	SIG MAST ARM							(2)
3RD ST	122+59	30' RT	SIG MAST ARM							(2)
3RD ST	122+59	32' LT	HANDHOLE							(2)
3RD ST	122+60	45' RT	HANDHOLE							(2)
3RD ST	122+61	51' RT	SIGNAL CABINET							(2)
NB TH 61	57+59	24' RT	LIGHT POLE				X		X	
NB TH 61	57+59 TO 58+56	24' RT TO 20' RT	BURIED POWER			X				
NB TH 61	58+57 TO 59+71	20' RT TO 20' RT	BURIED POWER			X				
NB TH 61	58+57 TO 59+63	20' RT TO 48' LT	BURIED POWER			X				
NB TH 61	58+69	51' LT	LIGHT POLE				X		X	
NB TH 61	61+73 TO 65+61	60' LT TO 57' LT	BURIED POWER			X				
NB TH 61	62+21 TO 66+20	18' RT TO 34' RT	BURIED POWER			X				
NB TH 61	62+46	18' RT	LIGHT POLE				X		X	
NB TH 61	62+77	65' LT	LIGHT POLE				X		X	
NB TH 61	63+87	22' RT	LIGHT POLE				X		X	
NB TH 61	64+27	56' LT	LIGHT POLE				X		X	
NB TH 61	65+49 TO 65+59	62 LT TO 25 RT	BUR SIG WIRE	X						(4)
NB TH 61	65+59 TO 66+14	25 RT TO 29 RT	BUR SIG WIRE	X						(4)
TH 63	111+65	27' LT	SERVICE CABINET				X	X		REMOVE HH
TH 63	111+95	13' LT	LIGHT POLE						X	
TH 63	113+51	109' RT	LIGHT POLE				X		X	
TH 63	113+65	41' LT	LIGHT POLE				X		X	
TH 63	114+46	5' LT	LIGHT POLE				X		X	
TH 63	114+95	19' RT	LIGHT POLE				X		X	
TH 63	116+32	23' RT	LIGHT POLE				X		X	
TH 63	117+97	72' RT	LIGHT POLE						X	
TH 63	119+58	35' RT	LIGHT POLE						X	
TH 63	121+06	74' RT	LIGHT POLE						X	
TH 63	122+59	35' RT	LIGHT POLE						X	
TH 63	124+03	74' RT	LIGHT POLE						X	
TH 63	125+53	36' RT	LIGHT POLE						X	
TH 63	126+97	74' RT	LIGHT POLE						X	
TH 63	128+55	37' RT	LIGHT POLE						X	
TH 63	130+73	74' RT	LIGHT POLE						X	
TH 63	132+37	37' RT	LIGHT POLE						X	
TH 63	133+87	75' RT	LIGHT POLE				X		X	
TH 63-SLIP	116+04	17' LT	LIGHT POLE						X	
TH 63-SLIP	117+96	24' LT	LIGHT POLE						X	
TH 63-SLIP	121+80	32' LT	SIG W/O MAST							(2)
TH 63-SLIP	121+80	48' RT	SIG MAST ARM							(2)
TH 63-SLIP	121+81 TO 122+19	32' LT TO 32' LT	BUR SIG WIRE							(2)
TH 63-SLIP	121+82 TO 122+19	49' RT TO 51' RT	BUR SIG WIRE							(2)
TH 63-SLIP	121+86	33' LT	HANDHOLE							(2)
TH 63-SLIP	121+86	50' RT	HANDHOLE							(2)

SPECIFIC NOTES:

(1) WORK TO BE DONE BY CONTRACTOR
(2) SEE SHEET 22 AND SPECS FOR MORE INFORMATION
(3) ABANDON IN PLACE
(4) UTILITY RELOCATIONS REVISED WITH SP 2514-122
(5) PILASTER MOUNTED
(6) SALVAGE AND INSTALL

NOTES:

SEE SHEET 7
FOR GENERAL NOTES

NO	DATE	BY	CKD	APPR	REVISION

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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: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA
DESIGNED BY J. TSCHIDA
CHECKED BY M. ZMUDA
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION
INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)

SHEET 8 OF 688

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EXISTING UTILITIES (HIAWATHA BROADBAND COMMS) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
NB TH 61	51+48 TO 51+60	140' LT TO 100' LT	BURIED TEL	X			
NB TH 61	51+60	100' LT	TEL PED	X			
NB TH 61	51+60 TO 54+13	100' LT TO 187' LT	BURIED TEL			X	
NB TH 61	52+65	141' LT	TEL PED	X			
NB TH 61	54+13	187' LT	TEL PED			X	
NB TH 61	65+80 TO 65+82	87' LT TO 50' RT	BURIED FIBER	X			
NB TH 61	65+82 TO 66+76	50' RT TO 64' RT	BURIED FIBER	X			
TH 63	109+66 TO 109+70	142' LT TO 139' LT	BURIED TEL	X			
TH 63	109+70 TO 109+73	139' LT TO 148' LT	BURIED TEL	X			
TH 63	109+70 TO 109+76	139' LT TO 137' LT	BURIED TEL	X			
TH 63-SLIP	115+71 TO 115+95	192' LT TO 186' LT	BURIED TEL	X			
TH 63-SLIP	118+09 TO 118+88	177' LT TO 175' LT	BURIED FIBER	X			
TH 63-SLIP	118+09 TO 118+12	177' LT TO 161' RT	BURIED FIBER		X		
TH 63-SLIP	118+88	175' LT	TEL PED	X			
TH 63-SLIP	118+88 TO 119+20	175' LT TO 60' RT	BURIED FIBER		X		
TH 63-SLIP	119+08 TO 119+20	153' RT TO 60' RT	BURIED FIBER	X			

EXISTING UTILITIES (ISLAND CAMPGROUND & MARINA) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
TH 63	125+32	4' RT	POWER POLE			X	
TH 63	125+72	5' RT	POWER POLE			X	
TH 63	125+96	12' RT	POWER POLE			X	
TH 63	126+49	47' LT	POWER POLE			X	
TH 63	126+60	88' LT	POWER POLE	X			
TH 63	126+60	129' LT	POWER POLE	X			
TH 63	126+70 TO 127+60	21' RT TO 120' RT	BURIED TEL			X	
TH 63	127+15	75' LT	POWER POLE			X	
TH 63	127+18	103' RT	POWER POLE			X	
TH 63	127+30	151' LT	POWER POLE	X			

EXISTING UTILITIES (HAGER TELECOM) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
3RD ST	122+26 TO 122+30	96' RT TO 169' LT	BURIED FIBER	X			
TH 63	123+83 TO 133+78	38' RT TO 38' RT	BURIED TEL	X		X	
TH 63	127+35 TO 127+36	120' RT TO 108' RT	OVERHEAD TEL			X	
TH 63	127+36 TO 127+68	107' RT TO 156' LT	OVERHEAD TEL			X	
TH 63	133+49 TO 141+55	435' LT TO 104' LT	BURIED FIBER			X	
TH 63	133+78 TO 164+19	38' RT TO 58' LT	BURIED TEL			X	
TH 63	138+61 TO 138+87	8' LT TO 99' LT	BURIED TEL			X	

EXISTING UTILITIES (ROGERS COMMUNICATIONS) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
TH 63	120+11 TO 120+15	136' RT TO 124' LT	TV FIBER			X	

EXISTING UTILITIES (WINDSTREAM COMMUNICATIONS) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
TH 63	120+11 TO 120+14	136' RT TO 128' LT	TV FIBER		X		

EXISTING UTILITIES (XCEL ENERGY - DISTRIBUTION) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
BLUFF ST	48+74 TO 50+74	11' LT TO 16' LT	BURIED POWER		X		
BLUFF ST	48+74 TO 50+74	16' LT TO 16' LT	OH POWER			X	
BLUFF ST	48+92 TO 48+92	16' LT TO 40' RT	OH POWER	X			
BLUFF ST	49+04 TO 49+73	97' RT TO 16' LT	OH POWER	X			
BLUFF ST	49+25 TO 51+54	29' RT TO 25' RT	BURIED POWER	X			
BLUFF ST	49+73 TO 49+77	15' LT TO 22' RT	BURIED POWER	X			
BLUFF ST	49+73 TO 50+73	16' LT TO 16' LT	OH POWER		X		
BLUFF ST	49+78	24' RT	ELEC MH	X			
BLUFF ST	50+59	25' RT	ELEC MH		X		
BLUFF ST	50+73 TO 50+74	16' LT TO 22' RT	OH POWER		X		
BLUFF ST	50+74 TO 51+54	16' LT TO 8' RT	OH POWER		X		
BLUFF ST	50+74 TO 51+54	22' RT TO 22' RT	OH POWER		X		
NB TH 61	51+81 TO 51+95	143' LT TO 92' LT	OH POWER	X			
NB TH 61	51+95 TO 52+72	92' LT TO 141' LT	OH POWER	X			
NB TH 61	52+72 TO 54+30	141' LT TO 192' LT	OH POWER		X		
NB TH 61	52+84 TO 52+85	145' LT TO 157' LT	OH POWER	X			
NB TH 61	53+01 TO 53+09	170' LT TO 153' LT	OH POWER		X		
NB TH 61	53+86 TO 54+09	187' LT TO 185' LT	OH POWER		X		
NB TH 61	53+99 TO 54+09	193' LT TO 185' LT	OH POWER		X		
NB TH 61	54+09 TO 54+12	185' LT TO 198' LT	OH POWER			X	
NB TH 61	62+45 TO 65+86	69' RT TO 28' RT	BURIED POWER	X			
NB TH 61	62+45 TO 62+67	69' RT TO 128' RT	BURIED POWER	X			
NB TH 61	62+45	68' RT	ELEC MH	X			
NB TH 61	65+88 TO 65+88	65' RT TO 31' RT	BURIED POWER	X			
NB TH 61	65+88 TO 65+88	65' RT TO 31' RT	BUR PWR IN COND	X			
NB TH 61	65+88	28' RT	ELEC MH	X			
NB TH 61	65+88 TO 65+92	31' RT TO 81' LT	BURIED POWER	X			
NB TH 61	65+88 TO 65+92	31' RT TO 81' LT	BUR PWR IN COND	X			
NB TH 61	65+92 TO 65+92	87' LT TO 81' LT	BURIED POWER	X			
NB TH 61	65+92 TO 65+92	87' LT TO 81' LT	BUR PWR IN COND	X			
NB TH 61	66+40	34' RT	ELEC MH	X			
NB TH 61	66+47 TO 66+73	34' RT TO 64' RT	BURIED POWER	X			
TH 63	106+28 TO 106+85	84' LT TO 9' LT	OH POWER			X	
TH 63	106+28 TO 106+47	103' LT TO 105' LT	OH POWER			X	
TH 63	106+64 TO 106+82	89' LT TO 174' LT	OH POWER			X	
TH 63	106+77 TO 107+21	182' LT TO 125' LT	OH POWER	X			
TH 63	106+79 TO 107+08	14' LT TO 34' LT	OH POWER			X	
TH 63	106+79 TO 106+80	14' LT TO 37' LT	OH POWER			X	
TH 63	107+58 TO 109+49	31' RT TO 61' LT	OH POWER			X	
TH 63	109+17 TO 109+71	84' LT TO 134' LT	BURIED POWER		X		

NOTES:

SEE SHEET 7
FOR GENERAL NOTES

NO	DATE	BY	CKD	APPR	REVISION

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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: _____

Date _____ License # _____

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA
DESIGNED BY J. TSCHIDA
CHECKED BY M. ZMUDA
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)

SHEET 9 OF 688

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EXISTING UTILITIES (XCEL ENERGY – DISTRIBUTION) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
TH 63	109+18 TO 117+39	86' LT TO 29' LT	OH POWER		X		
TH 63	109+24 TO 109+49	98' LT TO 61' LT	OH POWER			X	
TH 63	109+40	65' LT	ELEC MH		X		
TH 63	109+49 TO 110+54	61' LT TO 26' LT	BURIED POWER		X		
TH 63	109+49 TO 109+75	61' LT TO 148' LT	BURIED POWER		X		
TH 63	110+54	26' LT	GUY POLE			X	
TH 63	110+54 TO 110+74	26' LT TO 94' RT	BURIED POWER			X	
TH 63	110+54 TO 111+01	26' LT TO 22' RT	OH POWER			X	
TH 63	111+19 TO 111+42	34' LT TO 22' RT	OH POWER			X	
TH 63	112+75	57' LT	POWER POLE			X	
TH 63	112+75 TO 113+07	57' LT TO 224' LT	OH POWER			X	
TH 63	112+93	167' LT	POWER POLE		X		
TH 63	115+16	44' LT	POWER POLE			X	
TH 63	117+39	29' LT	POWER POLE			X	
TH 63	117+39 TO 118+17	29' LT TO 21' LT	BURIED POWER			X	
TH 63	118+08 TO 118+09	37' RT TO 30' RT	BURIED POWER			X	
TH 63	118+09 TO 118+36	30' RT TO 25' RT	BURIED POWER			X	
TH 63	118+17 TO 118+36	21' LT TO 25' RT	BURIED POWER			X	
TH 63	127+35 TO 127+55	106' RT TO 92' LT	BURIED POWER			X	
TH 63	127+36 TO 127+37	120' RT TO 108' RT	OH POWER			X	
TH 63	127+37	108' RT	POWER POLE			X	
TH 63	127+55	92' LT	POWER POLE			X	
TH 63	127+55 TO 127+69	92' LT TO 156' LT	OH POWER			X	
TH 63-SLIP	115+71 TO 118+43	188' LT TO 187' LT	BURIED POWER			X	
TH 63-SLIP	118+24 TO 118+43	52' LT TO 187' LT	BUR PWR IN COND			X	
TH 63-SLIP	118+24 TO 118+43	52' LT TO 187' LT	BURIED POWER			X	
TH 63-SLIP	118+24 TO 118+25	52' LT TO 160' RT	BUR PWR IN COND			X	
TH 63-SLIP	118+24 TO 118+25	52' LT TO 160' RT	BURIED POWER			X	
TH 63-SLIP	119+60 TO 119+82	143' RT TO 43' RT	OH POWER			X	
TH 63-SLIP	119+82	43' RT	LIGHT			X	

EXISTING UTILITIES (XCEL ENERGY – GAS) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
BLUFF ST	49+24 TO 51+55	7' LT TO 9' LT	8" GAS		X		
BLUFF ST	51+20 TO 51+21	51' LT TO 9' LT	UNKNOWN GAS		X		
NB TH 61	51+55 TO 54+79	140' LT TO 175' LT	2" GAS		X		
NB TH 61	51+59 TO 51+95	128' LT TO 138' LT	UNKNOWN GAS	X			
NB TH 61	52+82 TO 52+92	156' LT TO 118' LT	UNKNOWN GAS		X		
NB TH 61	53+48 TO 53+58	176' LT TO 138' LT	UNKNOWN GAS		X		
NB TH 61	53+98 TO 54+10	190' LT TO 154' LT	UNKNOWN GAS		X		
NB TH 61	54+76 TO 54+76	176' LT TO 174' LT	UNKNOWN GAS			X	
NB TH 61	63+93 TO 64+05	73' RT TO 55' RT	UNKNOWN GAS	X			
NB TH 61	64+00 TO 64+05	66' LT TO 30' RT	UNKNOWN GAS		X		
NB TH 61	64+05 TO 64+05	30' RT TO 55' RT	UNKNOWN GAS		X		
NB TH 61	64+05 TO 66+25	30' RT TO 37' RT	UNKNOWN GAS		X		
NB TH 61	64+05 TO 64+14	55' RT TO 75' RT	UNKNOWN GAS	X			
NB TH 61	66+16	38' RT	GAS VALVE	X			
NB TH 61	66+24 TO 66+25	87' LT TO 65' RT	4" GAS	X			
TH 63	106+27 TO 106+56	32' LT TO 6' RT	2" GAS		X		
TH 63	106+27 TO 106+53	35' LT TO 62' LT	UNKNOWN GAS			X	
TH 63	106+50 TO 106+73	1' LT TO 28' LT	UNKNOWN GAS			X	
TH 63	106+56 TO 106+92	6' RT TO 9' LT	UNKNOWN GAS			X	
TH 63	109+31 TO 110+50	112' LT TO 61' LT	8" GAS		X		
TH 63	109+37 TO 109+52	107' LT TO 152' LT	UNKNOWN GAS		X		
TH 63	109+77 TO 109+81	80' LT TO 96' LT	UNKNOWN GAS		X		
TH 63	110+50 TO 110+62	61' LT TO 83' LT	8" GAS		X		
TH 63	110+62 TO 110+67	83' LT TO 94' LT	8" GAS		X		
TH 63	110+67 TO 110+71	94' LT TO 115' LT	8" GAS		X		
TH 63	110+71 TO 110+74	115' LT TO 115' LT	8" GAS		X		
TH 63	110+71	115' LT	GAS VALVE		X		
TH 63	110+72 TO 110+73	167' LT TO 123' LT	8" GAS		X		
TH 63	110+73 TO 110+74	123' LT TO 115' LT	8" GAS		X		
TH 63	110+74	115' LT	GAS VALVE		X		
TH 63-SLIP	115+89 TO 118+69	27' LT TO 33' LT	8" GAS		X		
TH 63-SLIP	117+99 TO 118+51	65' LT TO 47' LT	UNKNOWN GAS		X		
TH 63-SLIP	118+51 TO 118+53	143' LT TO 158' RT	UNKNOWN GAS		X		
TH 63-SLIP	118+53 TO 118+77	128' RT TO 128' RT	UNKNOWN GAS		X		
TH 63-SLIP	118+58 TO 118+70	53' RT TO 53' RT	4" GAS		X		
TH 63-SLIP	118+58 TO 118+58	53' RT TO 87' RT	4" GAS		X		
TH 63-SLIP	118+58 TO 118+59	87' RT TO 124' RT	4" GAS		X		
TH 63-SLIP	118+59 TO 118+60	124' RT TO 158' RT	4" GAS		X		
TH 63-SLIP	118+69 TO 118+69	33' LT TO 3' RT	4" GAS		X		
TH 63-SLIP	118+69 TO 118+70	3' RT TO 53' RT	4" GAS		X		

EXISTING UTILITIES (XCEL ENERGY – TRANSMISSION) XX

ALIGNMENT	LOCATION		INPLACE ITEM	REMARKS			NOTES
	STATION	OFFSET		LEAVE AS IS	ADJUST	RELOCATE	
BLUFF ST	50+20 TO 51+55	59' LT TO 5' LT	BURIED POWER		X		69 KILOVOLT (kV)
BLUFF ST	50+60	5' LT	ELEC MH		X		
BLUFF ST	51+24	46' RT	MON. WELL				ABANDON & SEAL
NB TH 61	36+82 TO 54+86	73' LT TO 173' LT	BURIED POWER		X		69 KILOVOLT (kV)
NB TH 61	52+72 TO 54+30	141' LT TO 192' LT	OH POWER		X		
TH 63	106+26 TO 110+50	25' LT TO 26' LT	BURIED POWER			X	69 KILOVOLT (kV)
TH 63	106+28 TO 106+85	84' LT TO 9' LT	OH POWER			X	
TH 63	108+53	30' RT	MON. WELL				ABANDON & SEAL
TH 63	109+30 TO 110+50	109' LT TO 35' LT	BURIED POWER		X		69 KILOVOLT (kV)
TH 63	109+49 TO 109+77	61' LT TO 147' LT	OH POWER		X		
TH 63	110+17	51' RT	MON. WELL				ABANDON & SEAL
TH 63	110+23	47' RT	MON. WELL				ABANDON & SEAL
TH 63	110+50 TO 110+51	26 LT TO 35 LT	BURIED POWER		X		
TH 63	111+23	66' LT	MON. WELL				ABANDON & SEAL
TH 63-SLIP	115+71 TO 121+42	184' LT TO 180' LT	OH POWER	X			
TH 63-SLIP	116+69 TO 117+23	178' LT TO 39' LT	OH POWER	X			
TH 63-SLIP	120+70 TO 121+07	181' LT TO 85' LT	OH POWER	X			

NOTES:

SEE SHEET 7
FOR GENERAL NOTES

NO	DATE	BY	CKD	APPR	REVISION

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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: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA
DESIGNED BY J. TSCHIDA
CHECKED BY M. ZMUDA
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)

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EXISTING DRAINAGE ITEMS

XX

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE					SALVAGE		CLEAN PIPE CULVERT	ADJUST FRAME & RING CASTING	RECONSTRUCT DROP SHAFT	INSTALL CASTING	EXISTING TOP OF CASTING	PROPOSED TOP OF CASTING	NOTES
	STATION	OFFSET			PIPE CULVERTS	SEWER PIPE (STORM)	PIPE APRON	DRAINAGE STRUCTURE	LIFT STATION	PIPE APRON	CASTING							
					LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	LIN FT	EACH	EACH	EACH	ELEV.	ELEV.	
3RD ST	122+19 TO 122+22	74' LT TO 0' RT	STORM/SANITARY TUNNEL	X														
3RD ST	122+19 TO 122+21	30' RT TO 29' RT	STORM/SANITARY TUNNEL	X														
3RD ST	122+19 TO 122+22	2' LT TO 0' RT	15" VCP	X														
3RD ST	122+21 TO 122+54	29' RT TO 28' RT	STORM/SANITARY TUNNEL	X														
3RD ST	122+22	0' RT	STORM MANHOLE	X														
BLUFF ST	48+73 TO 51+54	4' RT TO 5' RT	STORM/SANITARY TUNNEL	X														
BLUFF ST	49+37	57' RT	CATCH BASIN	X														
BLUFF ST	49+37 TO 49+54	57' RT TO 69' RT	12" RCP	X														
BLUFF ST	49+54	69' RT	CATCH BASIN	X														
BLUFF ST	49+54 TO 50+03	69' RT TO 4' RT	15" RCP	X														
BLUFF ST	49+89 TO 50+24	39' LT TO 36' LT	12" RCP	X														
BLUFF ST	49+90	38' LT	CATCH BASIN	X														
BLUFF ST	50+03	4' RT	STORM/SANITARY DROP SHAFT	X														
BLUFF ST	50+03 TO 50+18	4' RT TO 19' RT	15" RCP			22												
BLUFF ST	50+18 TO 50+47	19' RT TO 13' LT	15" RCP			43												
BLUFF ST	50+19	18' RT	CATCH BASIN					1										
BLUFF ST	50+24	36' LT	CATCH BASIN					1										
BLUFF ST	50+24 TO 50+47	36' LT TO 13' LT	15" RCP			33												
BLUFF ST	50+47	13' LT	CATCH BASIN					1										
NB TH 61	54+18	63' LT	18" CSP APRON				1											
NB TH 61	54+18 TO 54+18	56' LT TO 27' RT	18" CSP			83												
NB TH 61	56+65	47' LT	CATCH BASIN					1										
NB TH 61	56+65	39' LT	CATCH BASIN					1										
NB TH 61	56+65	11' RT	CATCH BASIN					1										
NB TH 61	56+65 TO 56+65	47' LT TO 38' LT	12" RCP			9												
NB TH 61	56+65 TO 56+65	38' LT TO 10' RT	15" RCP			49												
NB TH 61	56+65 TO 56+66	10' RT TO 26' RT	15" RCP			15												
NB TH 61	58+86	14' RT	CATCH BASIN					1										
NB TH 61	58+86	42' LT	CATCH BASIN					1										
NB TH 61	58+86 TO 58+86	13' RT TO 42' LT	12" RCP			55												
NB TH 61	58+86 TO 58+98	42' LT TO 51' LT	15" RCP			15												
NB TH 61	58+87	64' LT	CATCH BASIN					1										
NB TH 61	58+87 TO 58+89	64' LT TO 87' LT	12" RCP			23												
NB TH 61	58+87 TO 58+98	64' LT TO 51' LT	15" RCP			17												
NB TH 61	58+89	87' LT	CATCH BASIN					1										
NB TH 61	58+98	51' LT	STORM MANHOLE					1										
NB TH 61	58+98 TO 59+47	51' LT TO 74' LT	18" RCP			55												
NB TH 61	59+38 TO 59+47	84' LT TO 74' LT	12" RCP			14												
NB TH 61	59+38 TO 59+47	61' LT TO 74' LT	12" RCP			16												
NB TH 61	59+39	84' LT	CATCH BASIN					1										
NB TH 61	59+39	60' LT	CATCH BASIN					1										
NB TH 61	59+47 TO 59+60	74' LT TO 74' LT	24" RCP			13												
NB TH 61	59+48	74' LT	STORM MANHOLE					1										
NB TH 61	61+69 TO 61+86	73' LT TO 73' LT	48" RCP			15												
NB TH 61	61+74 TO 61+86	92' LT TO 72' LT	STORM/SANITARY TUNNEL	X														
NB TH 61	61+86 TO 62+37	72' LT TO 20' RT	STORM/SANITARY TUNNEL	X														
NB TH 61	61+86	72' LT	STORM/SANITARY DROP SHAFT											1		707.94	708.94	
NB TH 61	61+86 TO 62+77	73' LT TO 53' LT	12" CSP			80												
NB TH 61	62+00 TO 63+47	109' LT TO 89' LT	8" PVC	X														
NB TH 61	62+10	14' LT	CATCH BASIN					1										
NB TH 61	62+10 TO 62+37	14' LT TO 20' RT	12" RCP			43												
NB TH 61	62+25 TO 62+37	30' RT TO 20' RT	18" RCP			17												
NB TH 61	62+37 TO 62+64	20' RT TO 135' RT	STORM/SANITARY TUNNEL	X														
NB TH 61	62+37	20' RT	STORM/SANITARY DROP SHAFT					1										
NB TH 61	62+37 TO 62+67	20' RT TO 46' RT	18" RCP	X														
NB TH 61	62+67	46' RT	STORM MANHOLE	X														
NB TH 61	62+69	56' LT	CATCH BASIN					1										
NB TH 61	62+77 TO 63+53	53' LT TO 53' LT	SUBSURFACE DRAINAGE			66												
NB TH 61	63+47 TO 63+69	89' LT TO 117' LT	8" PVC	X														
NB TH 61	63+47 TO 63+77	89' LT TO 72' LT	8" PVC	X														
NB TH 61	63+53 TO 64+57	53' LT TO 53' LT	SUBSURFACE DRAINAGE			97												
NB TH 61	64+57	53' LT	STORM MANHOLE					1										

NOTES:

SEE SHEET 7
FOR GENERAL NOTES

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA

DESIGNED BY J. TSCHIDA

CHECKED BY M. ZMUDA

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)
EXISTING DRAINAGE

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EXISTING DRAINAGE ITEMS

XX

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE					SALVAGE		CLEAN PIPE CULVERT	ADJUST FRAME & RING CASTING	RECONSTRUCT DROP SHAFT	INSTALL CASTING	EXISTING TOP OF CASTING	PROPOSED TOP OF CASTING	NOTES
	STATION	OFFSET			PIPE CULVERTS	SEWER PIPE (STORM)	PIPE APRON	DRAINAGE STRUCTURE	LIFT STATION	PIPE APRON	CASTING							
					LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	LIN FT	EACH	EACH	EACH	ELEV.	ELEV.	
NB TH 61	64+57 TO 65+81	53' LT TO 50' LT	SUBSURFACE DRAINAGE			79												
NB TH 61	65+35 TO 65+81	51' LT TO 50' LT	SUBSURFACE DRAINAGE	X														
NB TH 61	65+48	15' RT	CATCH BASIN	X														(2)
NB TH 61	65+48 TO 66+26	15' RT TO 16' RT	SUBSURFACE DRAINAGE	X														(2)
NB TH 61	65+48 TO 65+57	15' RT TO 50' LT	15" UNKNOWN	X														(2)
NB TH 61	65+57	50' LT	CATCH BASIN	X														(2)
NB TH 61	65+57 TO 66+05	50' LT TO 50' LT	18" UNKNOWN	X														(2)
NB TH 61	65+57 TO 65+76	50' LT TO 68' LT	SUBSURFACE DRAINAGE	X														(2)
NB TH 61	65+64	53' LT	CATCH BASIN	X														
NB TH 61	65+64	20' RT	CATCH BASIN	X														
NB TH 61	65+81	19' RT	STORM MANHOLE	X														
NB TH 61	65+81	69' LT	CATCH BASIN	X														
NB TH 61	65+82	53' LT	STORM MANHOLE	X														
NB TH 61	66+05 TO 66+10	50' LT TO 87' LT	STORM/SANITARY TUNNEL	X														
NB TH 61	66+05	50' LT	STORM/SANITARY DROP SHAFT	X														
NB TH 61	66+05 TO 66+31	50' LT TO 51' LT	15" RCP	X														
NB TH 61	66+06	25' RT	STORM/SANITARY DROP SHAFT	X														
NB TH 61	66+06 TO 66+20	25' RT TO 9' RT	15" RCP	X														
NB TH 61	66+20 TO 66+49	9' RT TO 22' RT	12" RCP	X														
NB TH 61	66+21	9' RT	STORM MANHOLE	X														
NB TH 61	66+30 TO 66+49	51' LT TO 56' LT	12" RCP	X														
NB TH 61	66+31	51' LT	STORM MANHOLE	X														
NB TH 61	66+31	68' LT	CATCH BASIN	X														
NB TH 61	66+31 TO 66+32	87' LT TO 69' LT	12" RCP	X														
NB TH 61	66+31 TO 66+32	51' LT TO 69' LT	12" RCP	X														
NB TH 61	66+48	56' LT	CATCH BASIN	X														
NB TH 61	66+49	22' RT	CATCH BASIN	X														
TH 63	109+26 TO 113+42	101' LT TO 89' LT	STORM/SANITARY TUNNEL	X														
TH 63	109+79	46' LT	CATCH BASIN					1										
TH 63	109+80 TO 110+45	46' LT TO 32' LT	12" RCP			77												
TH 63	109+86	9' RT	CATCH BASIN					1										
TH 63	109+86 TO 110+45	9' RT TO 32' LT	12" RCP			74												
TH 63	110+28	16' LT	CATCH BASIN					1										
TH 63	110+41	64' LT	CATCH BASIN					1										
TH 63	110+41 TO 110+79	64' LT TO 87' LT	12" RCP			56												
TH 63	110+45	31' LT	CATCH BASIN					1										
TH 63	110+45 TO 111+09	32' LT TO 36' LT	15" RCP			71												
TH 63	110+75 TO 110+79	167' LT TO 87' LT	24" RCP			80												
TH 63	110+79	87' LT	CATCH BASIN					1										
TH 63	110+79 TO 111+14	87' LT TO 51' LT	18" RCP			54												
TH 63	111+09 TO 111+14	36' LT TO 51' LT	15' RCP			16												
TH 63	111+10	36' LT	CATCH BASIN					1										
TH 63	111+14	51' LT	STORM/SANITARY DROP SHAFT					1										(1)
TH 63	111+31 TO 112+62	179' LT TO 34' LT	12" RCP			198												
TH 63	112+63	35' LT	CATCH BASIN					1										
TH 63	112+67 TO 112+86	66' RT TO 46' RT	24" RCP			27												
TH 63	112+86	46' RT	STORM MANHOLE					1										
TH 63	112+86 TO 113+58	46' RT TO 29' LT	48" RCP			104												
TH 63	112+86 TO 113+59	46' RT TO 119' RT	36" RCP			104												
TH 63	112+99	73' RT	CATCH BASIN					1										
TH 63	112+99 TO 113+01	74' RT TO 61' RT	12" RCP			13												
TH 63	113+23	97' RT	CATCH BASIN					1										
TH 63	113+23 TO 113+27	97' RT TO 87' RT	12" RCP			11												
TH 63	113+42 TO 113+64	89' LT TO 91' LT	STORM/SANITARY TUNNEL	X														
TH 63	113+43 TO 113+56	90' LT TO 116' LT	8" PVC	X														
TH 63	113+43	89' LT	STORM/SANITARY DROP SHAFT											1		708.40	710.40	
TH 63	113+57	28' LT	CATCH BASIN					1										
TH 63	113+58 TO 113+65	29' LT TO 20' LT	15" RCP			13												
TH 63	113+58 TO 113+80	29' LT TO 80' LT	48" RCP			56												
TH 63	113+64	20' LT	CATCH BASIN					1										
TH 63	113+64	124' RT	36" RCP APRON				1											
TH 63	113+65 TO 113+96	20' LT TO 11' RT	12" RCP			44												
TH 63	113+65 TO 113+68	240' LT TO 239' LT	8" PVC	X														

NOTES:

SEE SHEET 7
FOR GENERAL NOTES

SPECIFIC NOTES:

(1) SEE DRAINAGE PLANS FOR DETAILS
(2) UTILITY RELOCATIONS REVISED WITH SP 2514-122

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Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA
DESIGNED BY J. TSCHIDA
CHECKED BY M. ZMUDA
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)
EXISTING DRAINAGE

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EXISTING DRAINAGE ITEMS

XX

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE					SALVAGE		CLEAN PIPE CULVERT	ADJUST FRAME & RING CASTING	RECONSTRUCT DROP SHAFT	INSTALL CASTING	EXISTING TOP OF CASTING	PROPOSED TOP OF CASTING	NOTES
	STATION	OFFSET			PIPE CULVERTS	SEWER PIPE (STORM)	PIPE APRON	DRAINAGE STRUCTURE	LIFT STATION	PIPE APRON	CASTING							
					LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	LIN FT	EACH	EACH	EACH	ELEV.	ELEV.	
TH 63	113+96	11' RT	CATCH BASIN					1										
TH 63	114+63 TO 115+40	106' RT TO 5' RT	18" RCP			127												
TH 63	114+89	29' RT	CATCH BASIN					1										
TH 63	114+89 TO 115+22	29' RT TO 29' RT	12" RCP			32												
TH 63	114+95 TO 115+40	93' LT TO 5' RT	18" RCP			108												
TH 63	115+40	5' RT	CATCH BASIN					1										
TH 63	115+40 TO 115+52	5' RT TO 4' RT	18" CSP-A			12												
TH 63	116+08 TO 120+31	113' LT TO 130' LT	STORM/SANITARY TUNNEL	X														
TH 63	116+19	74' RT	CATCH BASIN					1										
TH 63	116+19 TO 116+19	73' RT TO 98' RT	12" RCP			25												
TH 63	118+75	123' LT	STORM/SANITARY DROP SHAFT	X														
TH 63	120+10	128' LT	STORM/SANITARY DROP SHAFT	X														
TH 63	136+62 TO 136+65	25' LT TO 40' RT	12" CSP			64												
TH 63	136+65	41' RT	CATCH BASIN					1										
TH 63	136+65 TO 136+66	40' RT TO 74' RT	12" CSP			35												
TH 63	136+66	73' RT	CATCH BASIN					1										
TH 63	138+98 TO 139+55	26' LT TO 11' RT	12" RCP			68												
TH 63	139+46 TO 139+55	12' RT TO 11' RT	12" RCP			8												
TH 63	139+47	14' RT	CATCH BASIN					1										
TH 63	139+50	61' RT	CATCH BASIN					1										
TH 63	139+50 TO 139+58	63' RT TO 62' RT	12" CSP			8												
TH 63	139+55 TO 139+58	11' RT TO 62' RT	12" CSP			51												
TH 63	139+56	13' RT	CATCH BASIN					1										
TH 63	139+58	60' RT	CATCH BASIN					1										
TH 63	149+06 TO 149+06	43' RT TO 43' LT	BOX CULVERT		87													
TH 63-SLIP	115+86 TO 115+97	50' RT TO 48' RT	12" RCP			8												
TH 63-SLIP	115+89 TO 116+24	22' LT TO 22' LT	24" RCP			36												
TH 63-SLIP	115+97 TO 116+63	48' RT TO 8' RT	15" RCP		77													
TH 63-SLIP	115+97	48' RT	CATCH BASIN					1										
TH 63-SLIP	116+24	22' LT	STORM MANHOLE					1										
TH 63-SLIP	116+24 TO 116+63	22' LT TO 8' RT	18" RCP			50												
TH 63-SLIP	116+63 TO 117+54	8' RT TO 21' LT	12" RCP			95												
TH 63-SLIP	116+63 TO 116+92	8' RT TO 30' RT	15" RCP			36												
TH 63-SLIP	116+93	30' RT	CATCH BASIN					1										
TH 63-SLIP	117+54 TO 118+18	21' LT TO 37' LT	12" RCP			66												
TH 63-SLIP	117+55	22' LT	CATCH BASIN					1										
TH 63-SLIP	118+18	37' LT	CATCH BASIN					1										
TH 63-SLIP	118+18 TO 118+60	37' LT TO 28' LT	12" RCP			43												
TH 63-SLIP	118+61	28' LT	CATCH BASIN					1										
TH 63-SLIP	121+88 TO 121+93	28' LT TO 23' LT	15" VCP			7												
TH 63-SLIP	121+89	27' LT	CATCH BASIN					1										
TH 63-SLIP	121+90 TO 122+19	37' RT TO 35' RT	BOX CULVERT	X														
TH 63-SLIP	121+90 TO 121+91	37' RT TO 47' RT	12" VCP			11												
TH 63-SLIP	121+91	48' RT	CATCH BASIN					1										
TH 63-SLIP	121+93 TO 122+19	23' LT TO 4' RT	15" VCP	X														
TH 63-SLIP	121+94	23' LT	STORM MANHOLE					1										
TH 63-SLIP	122+16 TO 122+19	167' LT TO 69' LT	BOX CULVERT	X														

NOTES:

SEE SHEET 7
FOR GENERAL NOTES

NO	DATE	BY	CKD	APPR	REVISION
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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: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA

DESIGNED BY J. TSCHIDA

CHECKED BY M. ZMUDA

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)
EXISTING DRAINAGE

SHEET 13 OF 688

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EXISTING SANITARY SEWER

XX

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE							PLUG FILL & ABANDON	ADJUST	RECONSTRUCTED	ELEVATIONS		NOTES
	STATION	OFFSET			MANHOLE	SEWER PIPE (SANITARY)	STEEL CASING	SEPTIC TANK	LIFT STATION	SANITARY CLEANOUT	FORCE MAIN	PIPE SEWER	FRAME & RING CASTING	MANHOLE	EXISTING RIM	PROPOSED RIM	
					EACH	LIN FT	LIN FT	EACH	EACH	EACH	LIN FT	LIN FT	EACH	LIN FT			
3RD ST	122+19 TO 122+59	74' LT TO 74' LT	UNKNOWN SAN	X													
3RD ST	122+19 TO 122+21	49' RT TO 49' RT	UNKNOWN SAN	X													ABANDONED
3RD ST	122+19 TO 122+22	2' LT TO 0' RT	12" PVC SAN	X													
3RD ST	122+20 TO 122+58	51' LT TO 52' LT	UNKNOWN SAN	X													
3RD ST	122+22 TO 122+67	85' RT TO 81' RT	UNKNOWN SAN	X													ABANDONED
BLUFF ST	48+73 TO 50+03	7' RT TO 4' RT	8" PVC SAN	X													
BLUFF ST	49+15 TO 49+51	111' RT TO 61' RT	12" RCP SAN	X													
BLUFF ST	49+51 TO 49+83	61' RT TO 15' RT	12" RCP SAN	X													
BLUFF ST	49+83 TO 50+03	15' RT TO 4' RT	8" VCP SAN	X													
BLUFF ST	49+83	15' RT	SAN MH	X													
BLUFF ST	50+03 TO 50+07	4' RT TO 6' RT	8" PVC SAN	X													
BLUFF ST	50+03	4' RT	SAN MH	X													
BLUFF ST	50+03 TO 50+04	4' RT TO 84' LT	8" PVC SAN	X													
BLUFF ST	50+07 TO 51+54	6' RT TO 8' RT	8" PVC SAN	X													
BLUFF ST	50+55 TO 50+58	3' RT TO 28' LT	UNKNOWN SAN	X													
BLUFF ST	50+97 TO 50+98	4' RT TO 27' LT	UNKNOWN SAN	X													
NB TH 61	51+72 TO 51+75	142' LT TO 134' LT	UNKNOWN SAN	X													
NB TH 61	51+75	134' LT	SAN MH	X													
NB TH 61	52+04	110' LT	SAN MH	X													
NB TH 61	52+04 TO 53+14	110' LT TO 143' LT	8" PVC SAN	X													
NB TH 61	52+91 TO 52+98	157' LT TO 138' LT	6" VCP SAN	X													
NB TH 61	53+14 TO 54+50	143' LT TO 185' LT	8" PVC SAN			142											
NB TH 61	53+16 TO 53+23	144' LT TO 119' LT	6" VCP SAN			26											
NB TH 61	53+33 TO 53+39	149' LT TO 123' LT	6" VCP SAN			27											
NB TH 61	53+53 TO 53+59	176' LT TO 157' LT	6" VCP SAN			20											
NB TH 61	53+82 TO 53+91	164' LT TO 129' LT	6" VCP SAN			36											
NB TH 61	53+96 TO 54+03	191' LT TO 171' LT	6" VCP SAN			22											
NB TH 61	53+96	169' LT	SAN MH		1												
NB TH 61	54+33 TO 54+36	191' LT TO 181' LT	6" VCP SAN			11											
NB TH 61	54+34 TO 54+37	191' LT TO 181' LT	6" VCP SAN			10											
NB TH 61	61+73 TO 62+37	89' LT TO 20' RT	15" PVC SAN	X													
NB TH 61	61+86	72' LT	SAN MH	X													
NB TH 61	62+34 TO 62+60	28' RT TO 137' RT	12" VCP SAN	X													
NB TH 61	62+37	20' RT	SAN MH	X													
NB TH 61	66+01 TO 66+02	46' LT TO 65' RT	8" VCP SAN	X													
NB TH 61	66+03 TO 66+05	87' LT TO 52' LT	8" VCP SAN	X													
NB TH 61	66+06	24' RT	SAN MH	X													
NB TH 61	66+06 TO 66+45	25' RT TO 19' LT	12" VCP SAN	X													
NB TH 61	66+45 TO 67+00	19' LT TO 19' LT	12" VCP SAN	X													
NB TH 61	66+46	19' LT	SAN MH	X													
TH 63	106+27 TO 110+43	62' LT TO 45' LT	8" PVC SAN			446											
TH 63	106+28 TO 106+37	79' LT TO 90' LT	6" VCP SAN			17											
TH 63	106+28 TO 106+37	81' LT TO 90' LT	6" VCP SAN			16											
TH 63	106+68 TO 106+81	20' RT TO 6' RT	6" VCP SAN			19											
TH 63	106+77	2' RT	SAN MH		1												
TH 63	107+66 TO 107+73	68' RT TO 50' RT	6" VCP SAN			19											
TH 63	108+56 TO 108+58	57' RT TO 73' RT	6" VCP SAN			17											
TH 63	108+86	53' RT	SAN MH		1												
TH 63	108+96 TO 109+03	52' RT TO 67' RT	6" VCP SAN			17											
TH 63	109+14 TO 109+21	47' RT TO 63' RT	6" VCP SAN			17											
TH 63	109+22 TO 109+31	22' RT TO 42' RT	6" VCP SAN			21											
TH 63	109+25 TO 111+14	98' LT TO 51' LT	15" PVC SAN	X													
TH 63	109+81 TO 109+89	63' LT TO 92' LT	UNKNOWN SAN	X													
TH 63	109+91 TO 110+03	11' RT TO 24' RT	6" VCP SAN			18											
TH 63	110+44	45' LT	STORM/SANITARY DROP SHAFT										1		707.49	705.49	
TH 63	110+66 TO 110+94	134' LT TO 140' LT	6" VCP SAN			45											
TH 63	110+86 TO 110+90	47' LT TO 8' LT	UNKNOWN SAN			40											
TH 63	110+92 TO 111+02	171' LT TO 82' LT	15" VCP SAN			90											
TH 63	110+96 TO 111+35	121' LT TO 122' LT	6" VCP SAN			38											
TH 63	111+01	82' LT	SAN MH		1												

NOTES:

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NO	DATE	BY	CKD	APPR	REVISION

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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: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA
DESIGNED BY J. TSCHIDA
CHECKED BY M. ZMUDA
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)
EXISTING SANITARY SEWER

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EXISTING SANITARY SEWER

XX

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE							PLUG FILL & ABANDON	ADJUST	RECONSTRUCTED	ELEVATIONS		NOTES
	STATION	OFFSET			MANHOLE	SEWER PIPE (SANITARY)	STEEL CASING	SEPTIC TANK	LIFT STATION	SANITARY CLEANOUT	FORCE MAIN	PIPE SEWER	FRAME & RING CASTING	MANHOLE	EXISTING RIM	PROPOSED RIM	
					EACH	LIN FT	LIN FT	EACH	EACH	EACH	LIN FT	LIN FT	EACH	LIN FT			
TH 63	111+02 TO 111+14	82' LT TO 51' LT	8" PVC SAN			33											
TH 63	111+15 TO 113+39	51' LT TO 85' LT	15" PVC SAN	X													
TH 63	113+37 TO 113+42	125' LT TO 89' LT	12" PVC SAN	X													
TH 63	113+43	89' LT	SAN MH	X													
TH 63	116+09 TO 120+03	107' LT TO 122' LT	12" VCP SAN	X													
TH 63	120+01 TO 120+04	143' LT TO 88' RT	16" CIP SAN			279											
TH 63	120+04 TO 120+10	122' LT TO 128' LT	12" VCP SAN	X													
TH 63	120+09 TO 120+09	143' LT TO 136' RT	16" DIP SAN			279											
TH 63	120+10	128' LT	SAN MH	X													
TH 63-SLIP	115+88 TO 118+37	7' RT TO 9' RT	15" VCP SAN			33											
TH 63-SLIP	116+08 TO 116+08	45' LT TO 8' RT	6" VCP SAN			53											
TH 63-SLIP	116+36 TO 116+38	44' RT TO 8' RT	6" VCP SAN			36											
TH 63-SLIP	116+63	8' RT	SAN MH		1												
TH 63-SLIP	116+81 TO 116+82	34' LT TO 8' RT	6" VCP SAN			42											
TH 63-SLIP	117+27 TO 117+29	44' RT TO 8' RT	6" VCP SAN			36											
TH 63-SLIP	117+32 TO 117+33	35' LT TO 8' RT	6" VCP SAN			43											
TH 63-SLIP	117+71 TO 117+71	44' RT TO 9' RT	6" VCP SAN			36											
TH 63-SLIP	118+29 TO 118+37	43' RT TO 9' RT	6" VCP SAN			34											
TH 63-SLIP	118+32 TO 118+32	110' RT TO 160' RT	12" VCP SAN	X													
TH 63-SLIP	118+32	110' RT	SAN MH	X													
TH 63-SLIP	118+37 TO 118+37	9' RT TO 63' LT	8" VCP SAN			72											
TH 63-SLIP	118+37 TO 118+37	63' RT TO 189' LT	8" VCP SAN	X													
TH 63-SLIP	118+37 TO 120+76	9' RT TO 3' RT	8" VCP SAN			240											
TH 63-SLIP	118+37	9' RT	SAN MH		1												
TH 63-SLIP	118+77	2' RT	SAN MH		1												
TH 63-SLIP	120+30 TO 120+30	3' RT TO 35' LT	6" VCP SAN			38											
TH 63-SLIP	120+52 TO 120+56	3' RT TO 35' LT	6" VCP SAN			38											
TH 63-SLIP	120+74 TO 120+76	39' RT TO 3' RT	6" VCP SAN			36											
TH 63-SLIP	120+76	4' RT	SAN MH		1												
TH 63-SLIP	121+79 TO 122+19	82' LT TO 81' LT	UNKNOWN SAN	X													
TH 63-SLIP	121+80 TO 122+19	56' RT TO 55' RT	UNKNOWN SAN	X													ABANDONED
TH 63-SLIP	122+13 TO 122+18	168' LT TO 102' RT	12" PVC SAN	X													
TH 63-SLIP	122+18 TO 122+19	102' RT TO 8' RT	12" PVC SAN	X													

NOTES:

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FOR GENERAL NOTES

NO	DATE	BY	CKD	APPR	REVISION

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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: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA

DESIGNED BY J. TSCHIDA

CHECKED BY M. ZMUDA

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)
EXISTING SANITARY SEWER

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EXISTING WATERMAIN

XX

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE					ADJUST	NOTES
					WATERMAIN	STEEL CASING	GATE VALVE & BOX	HYDRANT	CURB STOP & BOX	VALVE BOX	
	STATION	OFFSET			LIN FT	LIN FT	EACH	EACH	EACH	EACH	
3RD ST	122+19 TO 122+56	54' LT TO 53' LT	UNKNOWN DIP WM	X							
3RD ST	122+19 TO 123+30	12' RT TO 13' RT	8" CIP WM	X							
3RD ST	122+60	13' RT	WATERMAIN VALVE	X							
3RD ST	122+63 TO 122+64	13' RT TO 28' RT	UNKNOWN DIP WM	X							
3RD ST	122+63	29' RT	HYDRANT	X							
3RD ST	122+64	27' RT	WATERMAIN VALVE	X							
BLUFF ST	48+73 TO 50+26	8' RT TO 10' RT	6" CIP WM	X							
BLUFF ST	49+12 TO 49+83	108' RT TO 9' RT	UNKNOWN DIP WM	X							
BLUFF ST	49+44	18' RT	WATERMAIN VALVE	X							
BLUFF ST	49+44	22' RT	HYDRANT	X							
BLUFF ST	49+44 TO 49+44	22' RT TO 8' RT	UNKNOWN WM	X							
BLUFF ST	49+47	9' RT	WATERMAIN VALVE	X							
BLUFF ST	49+70	4' RT	WATERMAIN VALVE	X							
BLUFF ST	49+71	26' RT	WATERMAIN VALVE	X							
BLUFF ST	49+96 TO 50+02	2' LT TO 85' LT	UNKNOWN DIP WM	X							
BLUFF ST	50+02	30' LT	WATERMAIN VALVE	X							
BLUFF ST	50+26 TO 51+54	9' RT TO 10' RT	6" CIP WM		128						
BLUFF ST	50+45	9' RT	WATERMAIN VALVE				1				
BLUFF ST	50+96 TO 50+97	10' RT TO 28' LT	1" COPPER WM		38						
NB TH 61	51+65 TO 53+19	142' LT TO 135' LT	6" CIP WM	X							
NB TH 61	51+77	102' LT	WATERMAIN VALVE	X							
NB TH 61	52+05 TO 52+06	102' LT TO 93' LT	UNKNOWN DIP WM	X							
NB TH 61	52+05	99' LT	WATERMAIN VALVE	X							
NB TH 61	52+06	93' LT	HYDRANT	X							
NB TH 61	52+97 TO 53+06	161' LT TO 131' LT	UNKNOWN WM	X							
NB TH 61	53+19 TO 54+63	135' LT TO 181' LT	6" CIP WM		150						
NB TH 61	53+46 TO 53+54	174' LT TO 148' LT	UNKNOWN WM		27						
NB TH 61	53+89 TO 53+98	191' LT TO 161' LT	1" COPPER WM		31						
NB TH 61	54+36 TO 54+41	190' LT TO 174' LT	1" COPPER WM		17						
NB TH 61	61+83 TO 65+08	105' LT TO 5' RT	6" CIP WM		377						
NB TH 61	65+08 TO 67+00	5' RT TO 7' RT	6" CIP WM	X							
NB TH 61	62+06	74' LT	WATERMAIN VALVE				1				
NB TH 61	62+45	27' RT	HYDRANT					1			
NB TH 61	62+46 TO 62+75	27' RT TO 4' LT	UNKNOWN DIP WM		43						
NB TH 61	62+48	24' RT	WATERMAIN VALVE				1				
NB TH 61	63+06	19' RT	WATERMAIN VALVE				1				
NB TH 61	65+00 TO 65+85	7' RT TO 6' RT	UNKNOWN DIP WM	X							
NB TH 61	65+00 TO 65+00	7' RT TO 49' RT	UNKNOWN DIP WM	X							
NB TH 61	65+45 TO 65+46	4' RT TO 52' LT	UNKNOWN DIP WM	X							
NB TH 61	65+46	52' LT	WATERMAIN VALVE	X							
NB TH 61	65+60 TO 65+60	21' RT TO 4' RT	UNKNOWN DIP WM	X							
NB TH 61	65+60	19' RT	WATERMAIN VALVE	X							
NB TH 61	65+60	22' RT	HYDRANT	X							
NB TH 61	65+65	4' RT	WATERMAIN VALVE	X							
NB TH 61	65+84	6' RT	WATERMAIN VALVE	X							
NB TH 61	65+94	35' RT	WATERMAIN VALVE	X							
NB TH 61	65+94 TO 65+95	37' RT TO 4' RT	8" DIP WM	X							
NB TH 61	66+11 TO 66+12	87' LT TO 72' LT	10" CIP WM	X							
NB TH 61	66+12 TO 66+32	72' LT TO 72' LT	UNKNOWN DIP WM	X							
NB TH 61	66+12	68' LT	WATERMAIN VALVE	X							
NB TH 61	66+31	72' LT	WATERMAIN VALVE	X							
NB TH 61	66+33	72' LT	HYDRANT	X							
NB TH 61	66+45	5' RT	WATERMAIN VALVE	X							
NB TH 61	66+62 TO 66+63	6' RT TO 23' RT	UNKNOWN DIP WM	X							
NB TH 61	66+63	23' RT	WATERMAIN VALVE	X							
TH 63	106+27 TO 110+39	49' LT TO 39' LT	6" CIP WM		430						
TH 63	106+28 TO 106+39	78' LT TO 90' LT	1" COPPER WM		20						
TH 63	106+52 TO 106+71	13' LT TO 34' LT	1" COPPER WM		30						

NOTES:

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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: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA
DESIGNED BY J. TSCHIDA
CHECKED BY M. ZMUDA
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)
EXISTING WATER MAIN

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EXISTING WATERMAIN

XX

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE					ADJUST	NOTES
					WATERMAIN	STEEL CASING	GATE VALVE & BOX	HYDRANT	CURB STOP & BOX	VALVE BOX	
	STATION	OFFSET			LIN FT	LIN FT	EACH	EACH	EACH	EACH	
TH 63	107+84 TO 107+91	59' RT TO 37' RT	4" DIP WM		23						
TH 63	107+85	59' RT	WATERMAIN VALVE				1				
TH 63	109+23 TO 113+55	96' LT TO 103' LT	6" CIP WM		668						
TH 63	109+67	47' LT	HYDRANT					1			
TH 63	109+68 TO 109+73	48' LT TO 62' LT	UNKNOWN DIP WM		15						
TH 63	109+73	61' LT	WATERMAIN VALVE				1				
TH 63	109+74 TO 109+84	60' LT TO 97' LT	1" COPPER WM		39						
TH 63	110+21	4' LT	WATERMAIN VALVE				1				
TH 63	110+32	41' LT	WATERMAIN VALVE				1				
TH 63	110+87 TO 110+91	40' LT TO 8' LT	1" COPPER WM		32						
TH 63	110+94	169' LT	WATERMAIN VALVE				1				
TH 63	110+97 TO 110+98	173' LT TO 170' LT	6" CIP WM		3						
TH 63	111+05	170' LT	WATERMAIN VALVE				1				
TH 63	126+75 TO 127+65	19' RT TO 120' RT	1" PVC WM		168						OWNED BY ISLAND CAMPGROUND & MARINA
TH 63	127+61 TO 127+71	33' LT TO 120' RT	1" PVC WM		153						OWNED BY ISLAND CAMPGROUND & MARINA
TH 63	128+22 TO 128+49	109' RT TO 33' LT	2" PVC WM		146						OWNED BY ISLAND CAMPGROUND & MARINA
TH 63-SLIP	115+88 TO 118+76	16' RT TO 15' RT	6" CIP WM		287						
TH 63-SLIP	117+42 TO 117+44	35' LT TO 10' RT	2" UNKNOWN WM		45						
TH 63-SLIP	117+95	13' RT	WATERMAIN VALVE				1				
TH 63-SLIP	118+40 TO 118+44	84' RT TO 59' LT	10" CIP WM		143						
TH 63-SLIP	118+40 TO 118+41	84' RT TO 159' RT	10" CIP WM	X							
TH 63-SLIP	118+44 TO 118+45	59' LT TO 189' LT	10" CIP WM	X							
TH 63-SLIP	118+41	41' RT	WATERMAIN VALVE				1				
TH 63-SLIP	118+43	36' LT	WATERMAIN VALVE				1				
TH 63-SLIP	118+44 TO 118+60	39' LT TO 39' LT	UNKNOWN DIP WM		16						
TH 63-SLIP	118+57	39' LT	WATERMAIN VALVE				1				
TH 63-SLIP	118+61	39' LT	HYDRANT					1			
TH 63-SLIP	118+76	15' RT	WATERMAIN VALVE				1				
TH 63-SLIP	118+76 TO 121+80	15' RT TO 17' RT	8" CIP WM		304						
TH 63-SLIP	120+66 TO 120+66	16' RT TO 33' LT	6" CIP WM		50						
TH 63-SLIP	120+66 TO 121+28	1' LT TO 34' LT	1" COPPER WM		70						
TH 63-SLIP	120+66	23' LT	WATERMAIN VALVE				1				
TH 63-SLIP	121+80	17' RT	WATERMAIN VALVE				1				
TH 63-SLIP	121+73 TO 122+03	103' RT TO 98' RT	UNKNOWN WM	X							
TH 63-SLIP	121+80 TO 122+19	17' RT TO 18' RT	8" CIP WM	X							
TH 63-SLIP	121+90 TO 122+03	44' LT TO 32' LT	UNKNOWN DIP WM	X							
TH 63-SLIP	121+90	57' LT	WATERMAIN VALVE	X							
TH 63-SLIP	121+90	60' LT	HYDRANT	X							
TH 63-SLIP	121+91	35' LT	WATERMAIN VALVE	X							
TH 63-SLIP	121+94	97' RT	WATERMAIN VALVE	X							
TH 63-SLIP	122+03 TO 122+06	27' LT TO 170' LT	UNKNOWN DIP WM	X							
TH 63-SLIP	122+04 TO 122+19	48' LT TO 48' LT	UNKNOWN DIP WM	X							
TH 63-SLIP	122+04	56' RT	WATERMAIN VALVE	X							
TH 63-SLIP	122+04	32' LT	WATERMAIN VALVE	X							

NOTES:

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FOR GENERAL NOTES

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. TSCHIDA
DESIGNED BY J. TSCHIDA
CHECKED BY M. ZMUDA
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

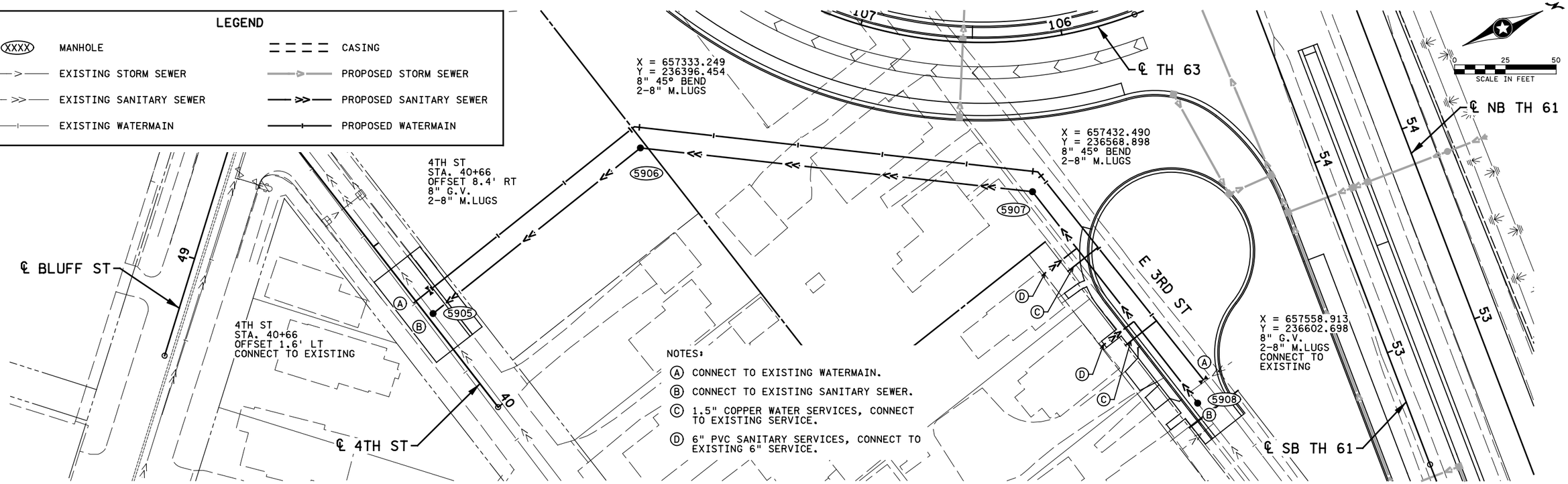
INPLACE UTILITY TABULATIONS
SP 2515-21 (TH 63)
EXISTING WATER MAIN

SHEET 17 OF 688

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6/2/2016
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LEGEND

(XXXX) MANHOLE	CASING
EXISTING STORM SEWER	PROPOSED STORM SEWER
EXISTING SANITARY SEWER	PROPOSED SANITARY SEWER
EXISTING WATERMAIN	PROPOSED WATERMAIN



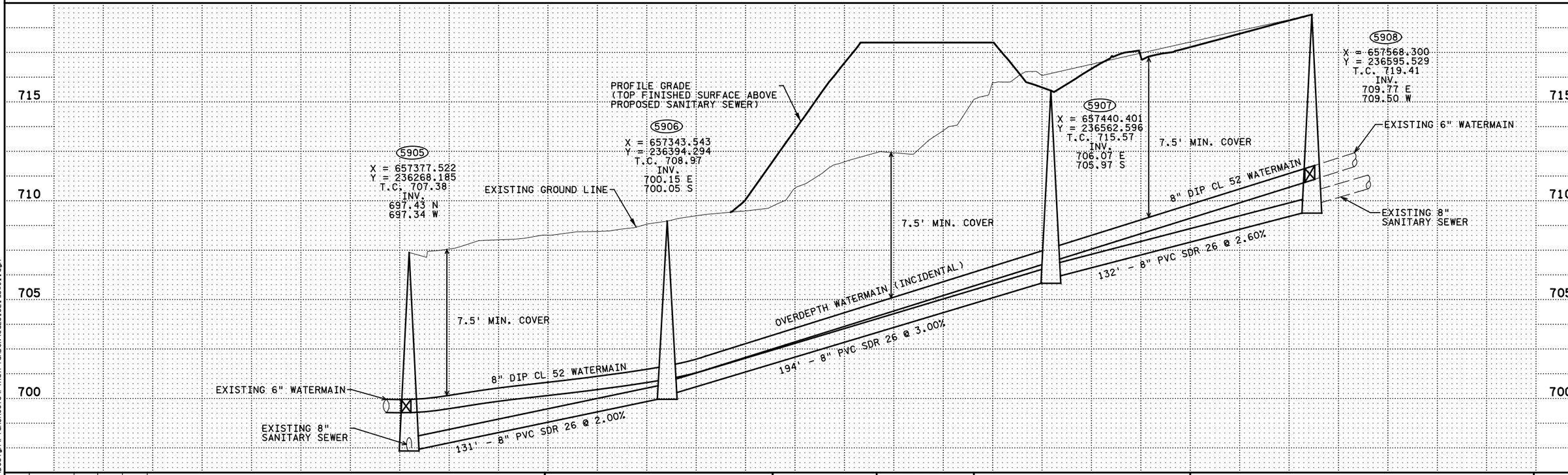
NOTES:

(A) CONNECT TO EXISTING WATERMAIN.

(B) CONNECT TO EXISTING SANITARY SEWER.

(C) 1.5" COPPER WATER SERVICES, CONNECT TO EXISTING SERVICE.

(D) 6" PVC SANITARY SERVICES, CONNECT TO EXISTING 6" SERVICE.



NO	DATE	BY	CKD	APPR	REVISION
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Print Name: STEVEN J. MILLER

Date _____ License # 41327

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. VAN BECK

DESIGNED BY F. BRODEEN

CHECKED BY S. MILLER

COMM. NO. 0158933

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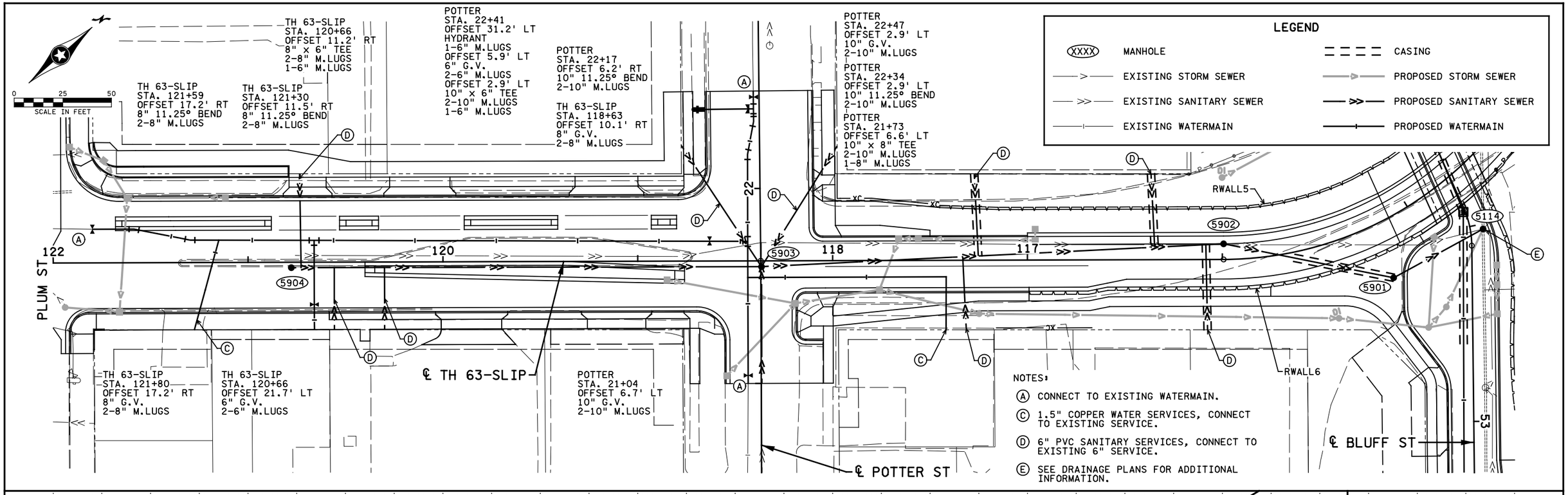
MINNESOTA DEPARTMENT OF TRANSPORTATION

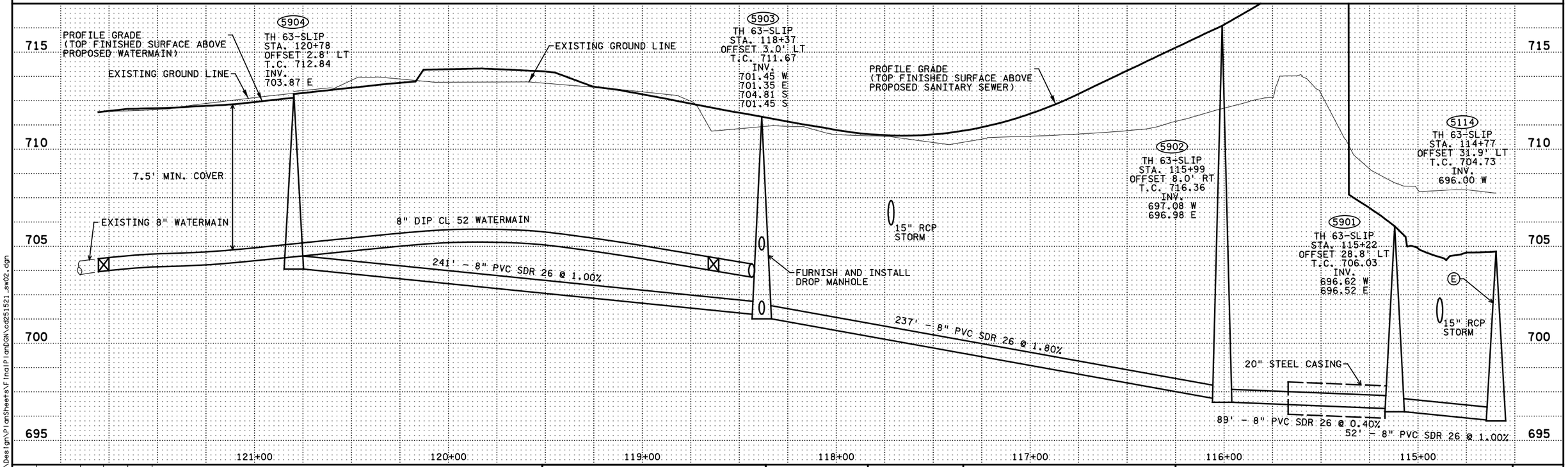
WATERMAIN AND SANITARY SEWER PLAN AND PROFILE

SP 2515-21 (TH 63)

SHEET 18 OF 688

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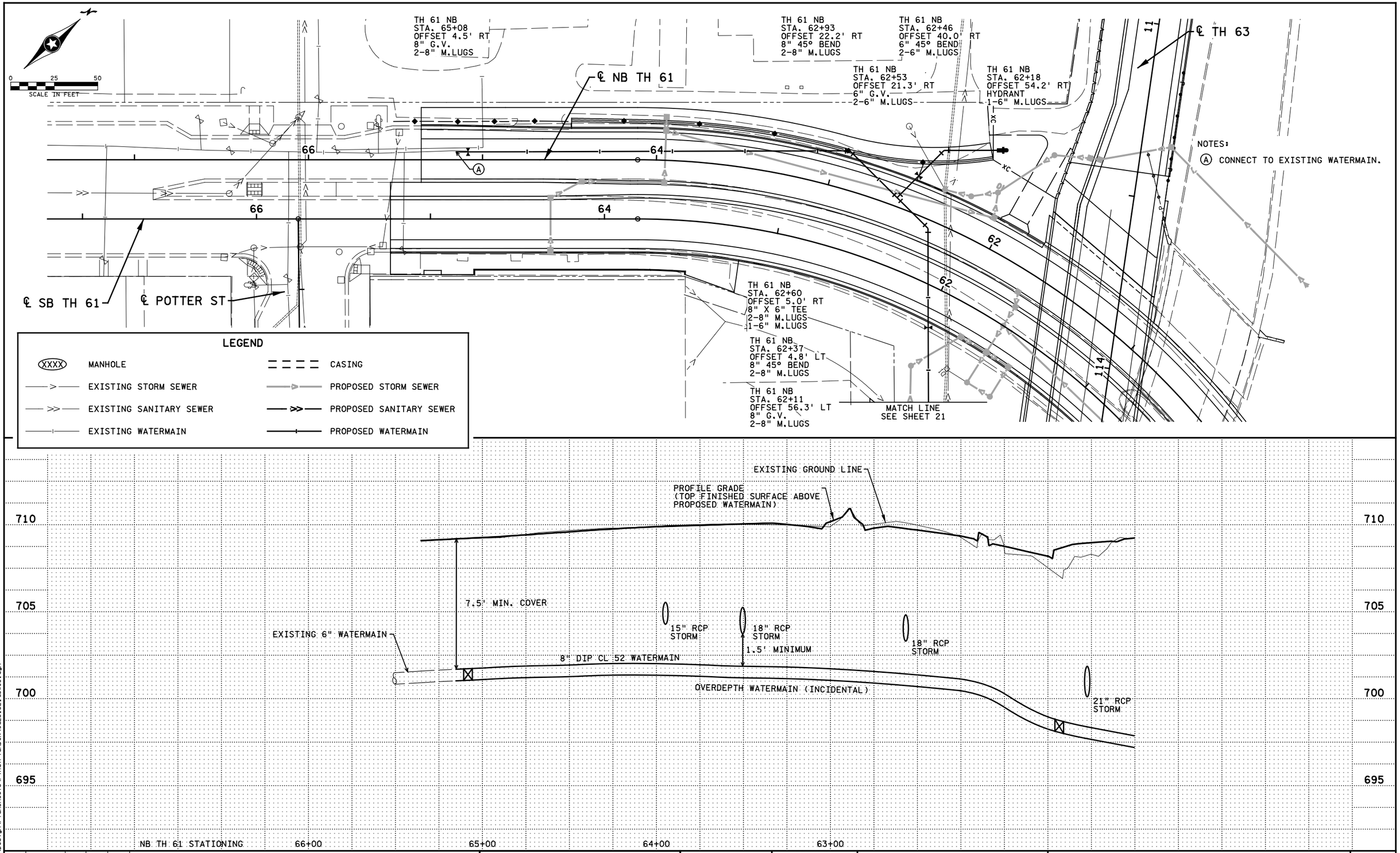
MINNESOTA DEPARTMENT OF TRANSPORTATION

WATERMAIN AND SANITARY SEWER PLAN AND PROFILE

SP 2515-21 (TH 63)

SHEET 19 OF 688

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. VAN BECK

DESIGNED BY F. BRODEEN

CHECKED BY S. MILLER

COMM. NO. 0158933

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WATERMAIN AND SANITARY SEWER PLAN AND PROFILE

SP 2515-21 (TH 63)

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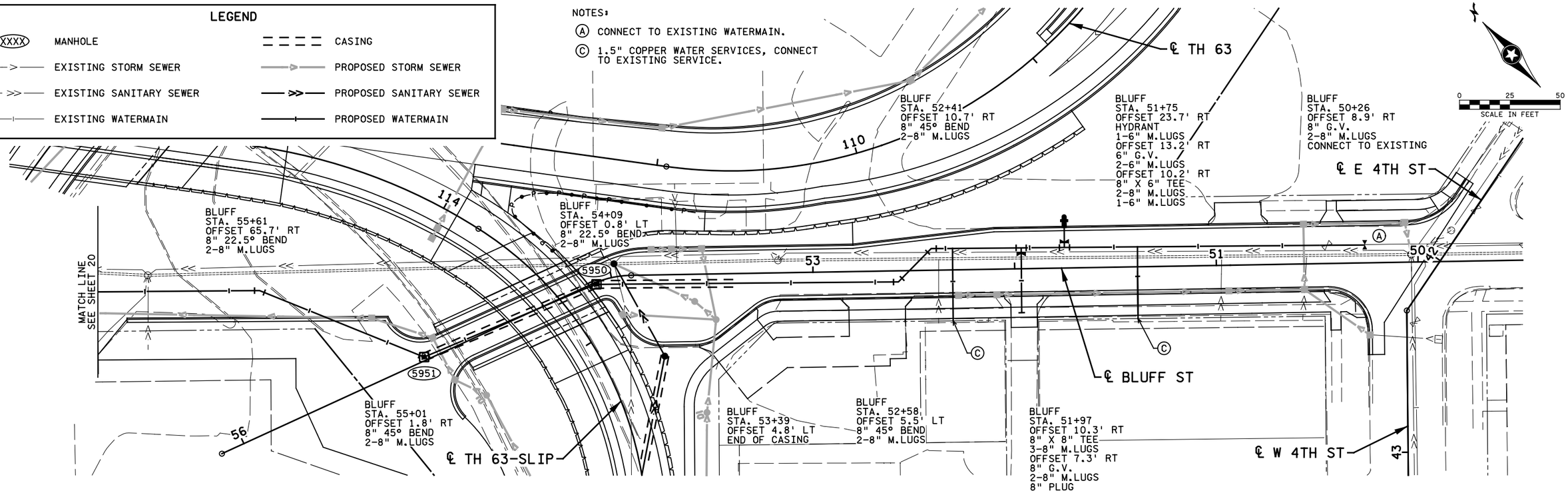
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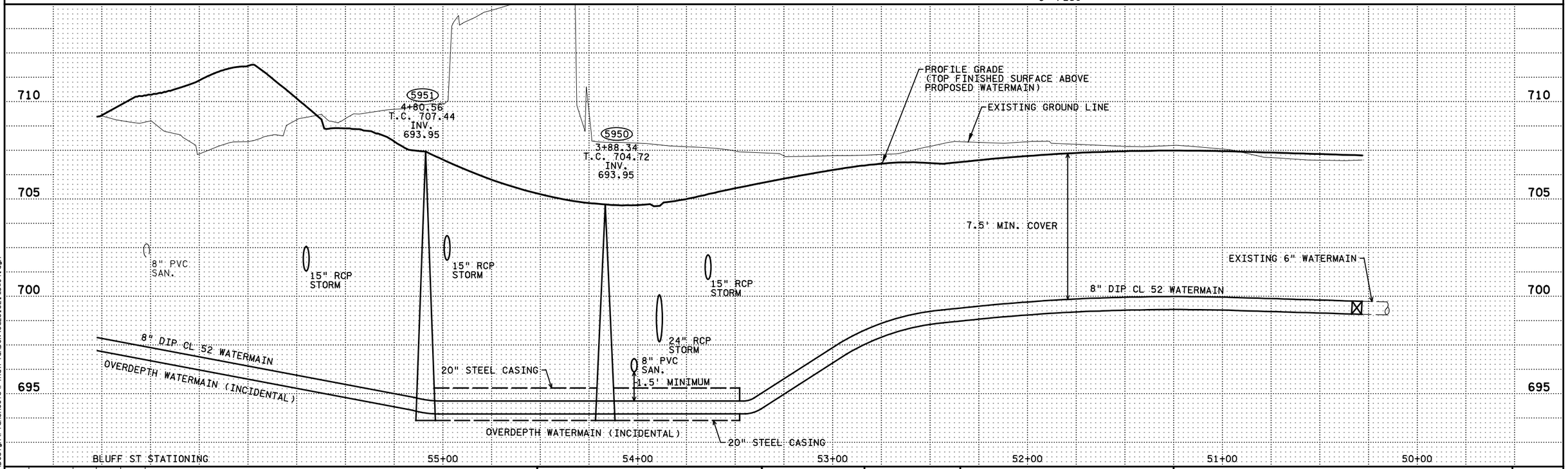
(XXXX) MANHOLE	CASING
EXISTING STORM SEWER	PROPOSED STORM SEWER
EXISTING SANITARY SEWER	PROPOSED SANITARY SEWER
EXISTING WATERMAIN	PROPOSED WATERMAIN

NOTES:

Ⓐ CONNECT TO EXISTING WATERMAIN.

Ⓒ 1.5" COPPER WATER SERVICES, CONNECT TO EXISTING SERVICE.





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Date _____ License # 41327

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. VAN BECK

DESIGNED BY F. BRODEEN

CHECKED BY S. MILLER

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

WATERMAIN AND SANITARY SEWER PLAN AND PROFILE

SP 2515-21 (TH 63)

SHEET 21 OF 688

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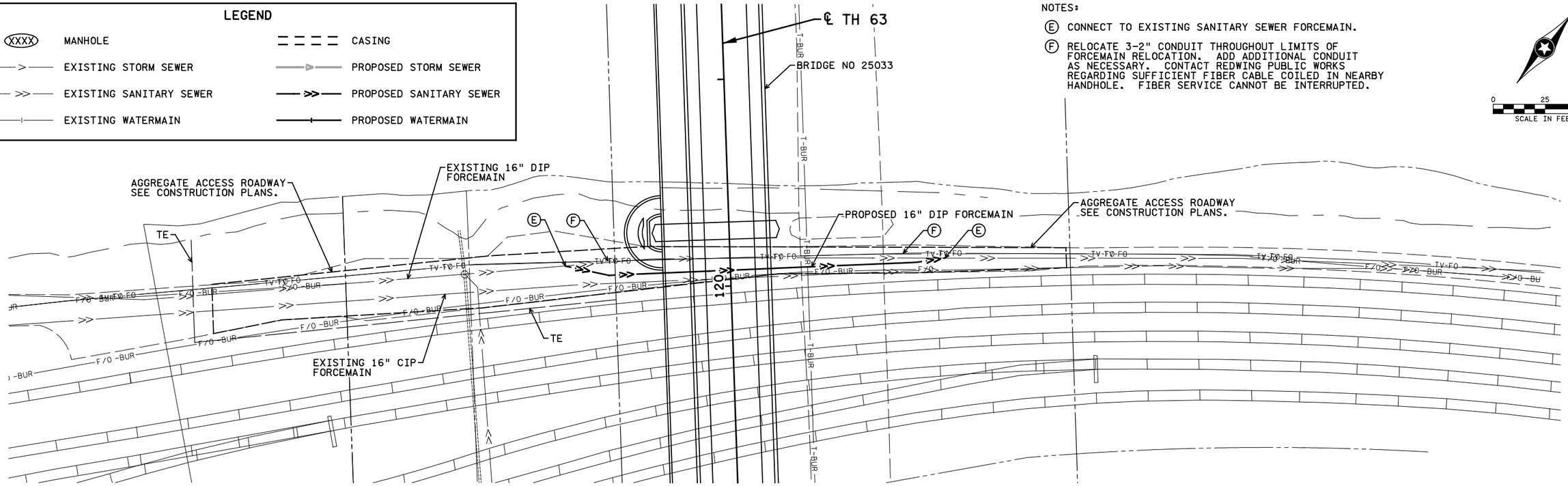
XXXX MANHOLE	CASING
EXISTING STORM SEWER	PROPOSED STORM SEWER
EXISTING SANITARY SEWER	PROPOSED SANITARY SEWER
EXISTING WATERMAIN	PROPOSED WATERMAIN

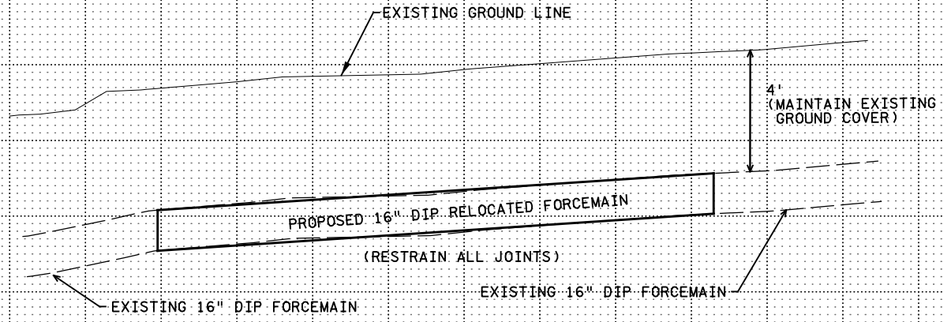
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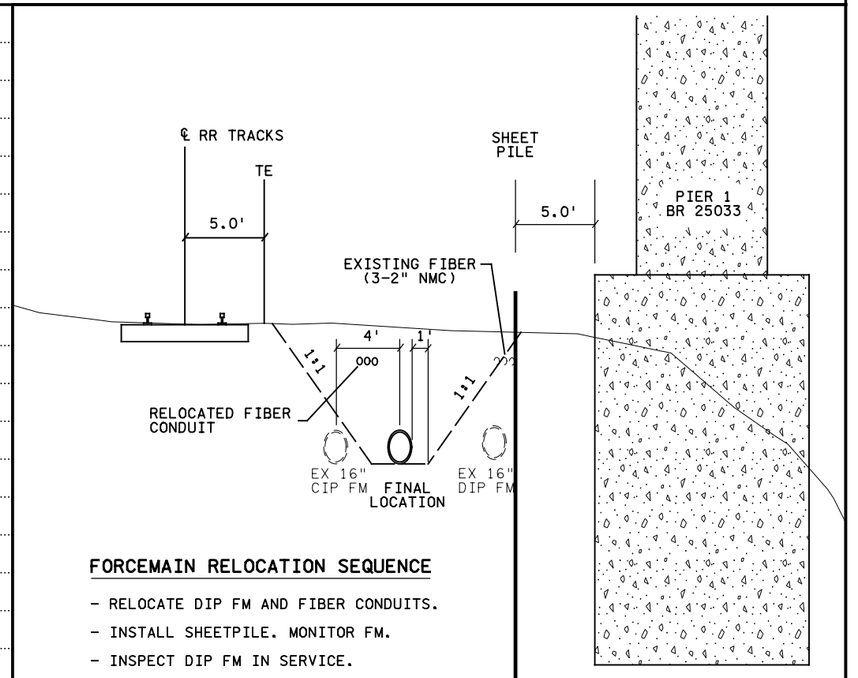
(E) CONNECT TO EXISTING SANITARY SEWER FORCEMAIN.

(F) RELOCATE 3-2" CONDUIT THROUGHOUT LIMITS OF FORCEMAIN RELOCATION. ADD ADDITIONAL CONDUIT AS NECESSARY. CONTACT REDWING PUBLIC WORKS REGARDING SUFFICIENT FIBER CABLE COILED IN NEARBY HANDHOLE. FIBER SERVICE CANNOT BE INTERRUPTED.

0 25 50
SCALE IN FEET







FORCEMAIN RELOCATION SEQUENCE

- RELOCATE DIP FM AND FIBER CONDUITS.
- INSTALL SHEETPILE. MONITOR FM.
- INSPECT DIP FM IN SERVICE.
- BACKFILL FM AND FIBER CONDUITS.

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: STEVEN J. MILLER

Date _____ License # 41327

MINNESOTA STATE PROJECT NO. 2515-21	
MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	
DRAWN BY J. VAN BECK	
DESIGNED BY F. BRODEEN	
CHECKED BY S. MILLER	
COMM. NO. 0158933	

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MINNESOTA DEPARTMENT OF TRANSPORTATION

WATERMAIN AND SANITARY SEWER PLAN AND PROFILE

SP 2515-21 (TH 63)

SHEET 22 OF 688

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6/2/2016
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LEGEND

XXXX MANHOLE	CASING
EXISTING STORM SEWER	PROPOSED STORM SEWER
EXISTING SANITARY SEWER	PROPOSED SANITARY SEWER
EXISTING WATERMAIN	PROPOSED WATERMAIN

℄ TH 63-SLIP

℄ POTTER ST

20 22 24

5903

118

NOTES:

Ⓐ CONNECT TO EXISTING WATERMAIN.

Ⓑ CONNECT TO EXISTING SANITARY SEWER.

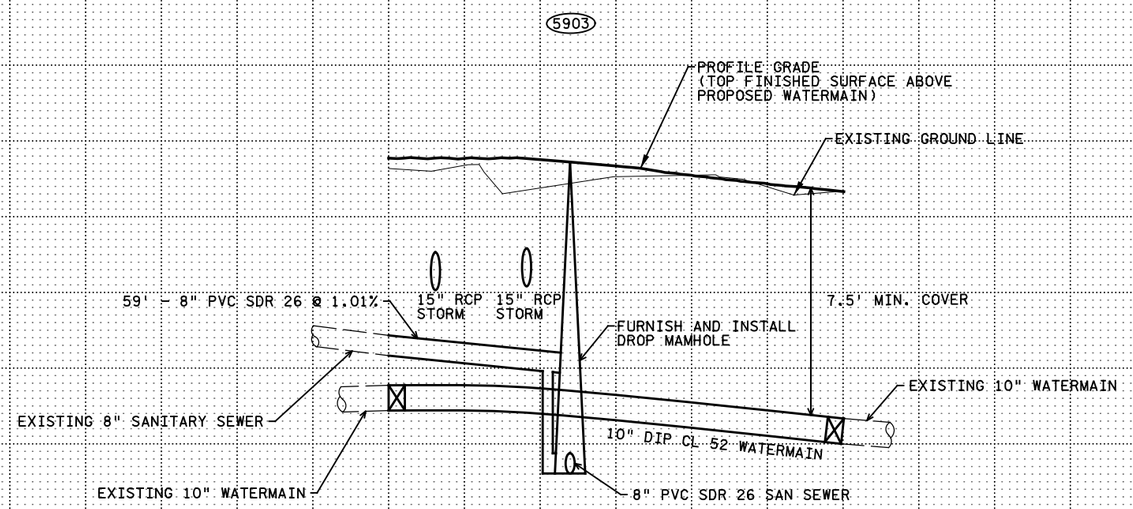
Ⓒ 1.5" COPPER WATER SERVICES, CONNECT TO EXISTING SERVICE.

Ⓓ 6" PVC SANITARY SERVICES, CONNECT TO EXISTING 6" SERVICE.

0 25 50
SCALE IN FEET

GENERAL NOTE:

SEE SHEET NO. 19 FOR WATERMAIN FITTING INFORMATION.



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Date _____ License # 41327

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY J. VAN BECK

DESIGNED BY F. BRODEEN

CHECKED BY S. MILLER

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

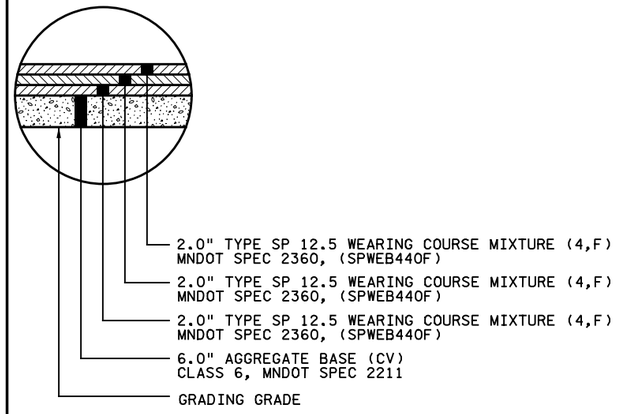
MINNESOTA DEPARTMENT OF TRANSPORTATION

WATERMAIN AND SANITARY SEWER PLAN AND PROFILE

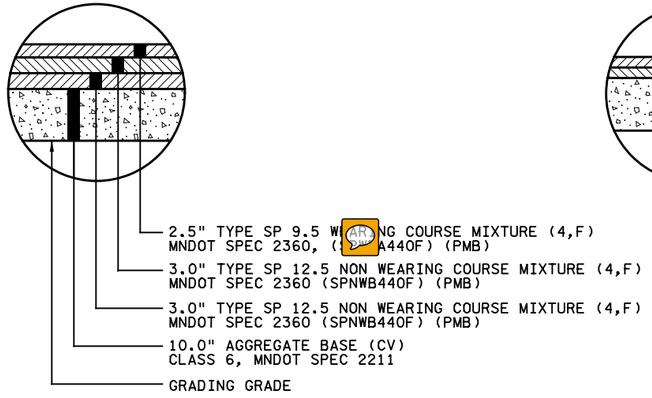
SP 2515-21 (TH 63)

SHEET 23 OF 688

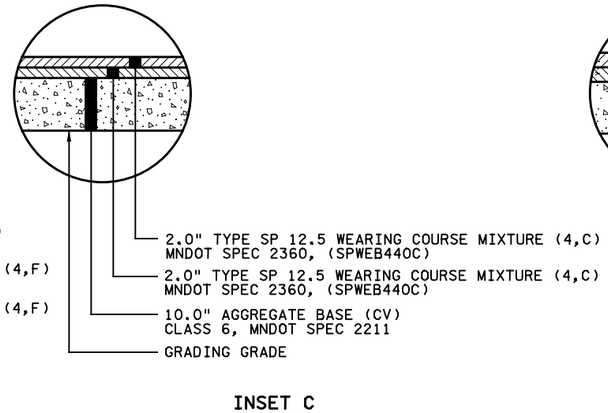
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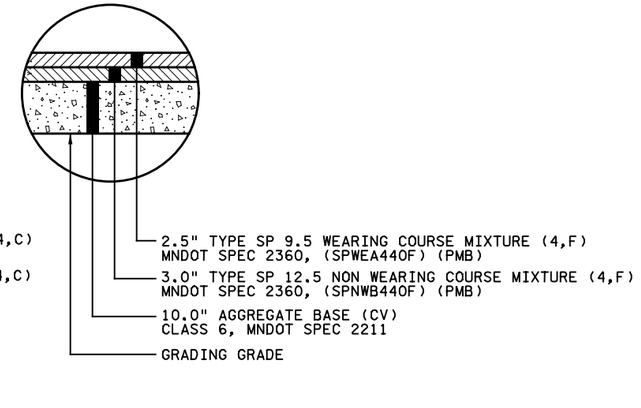
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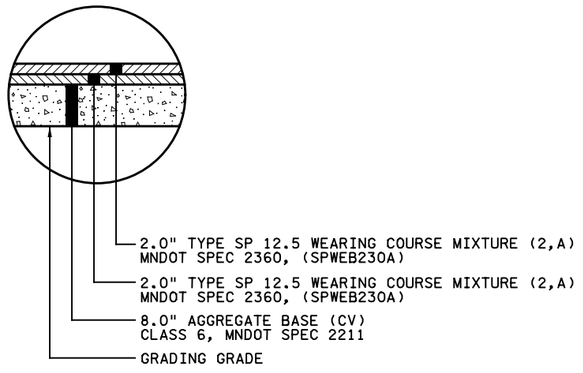
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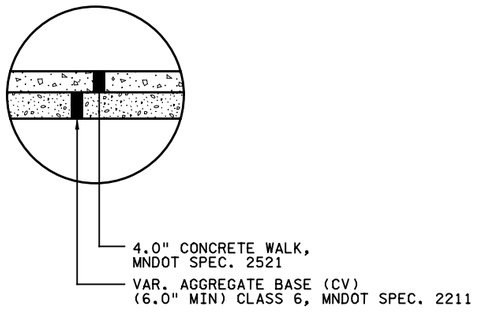
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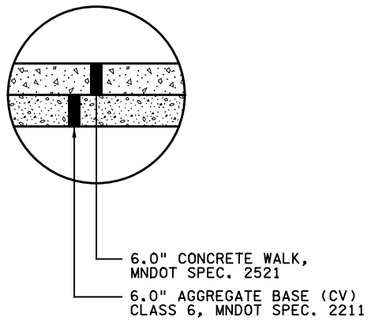
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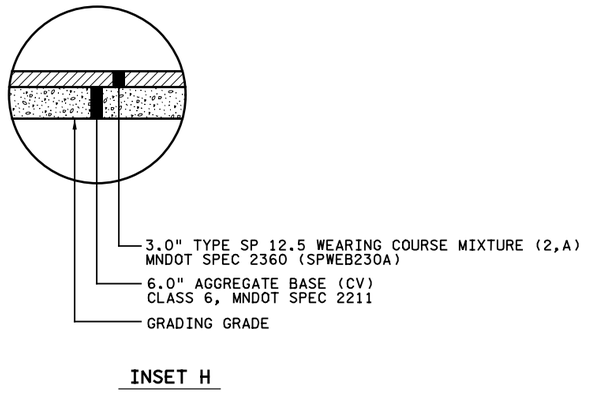
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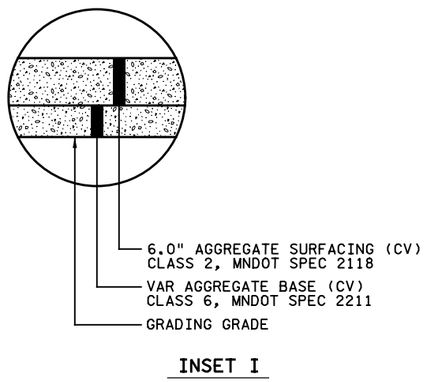
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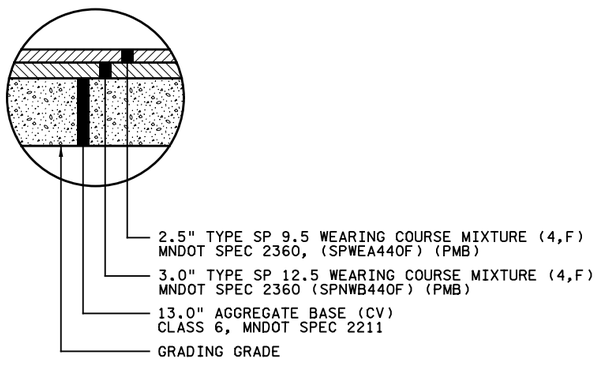
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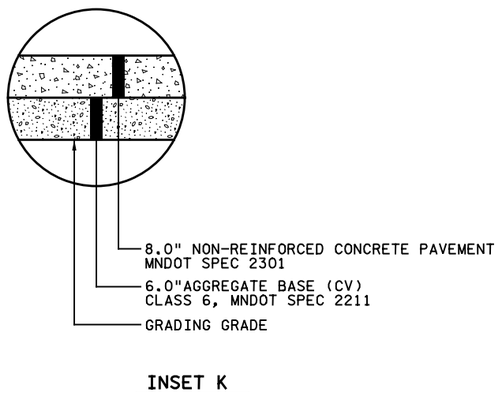
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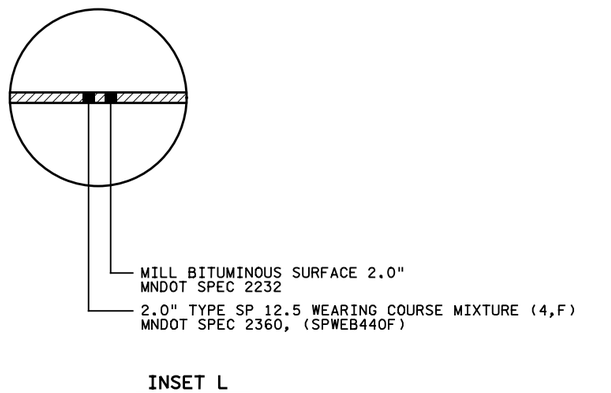
INSET I



INSET J



INSET K



INSET L

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY B. GONOWOLO
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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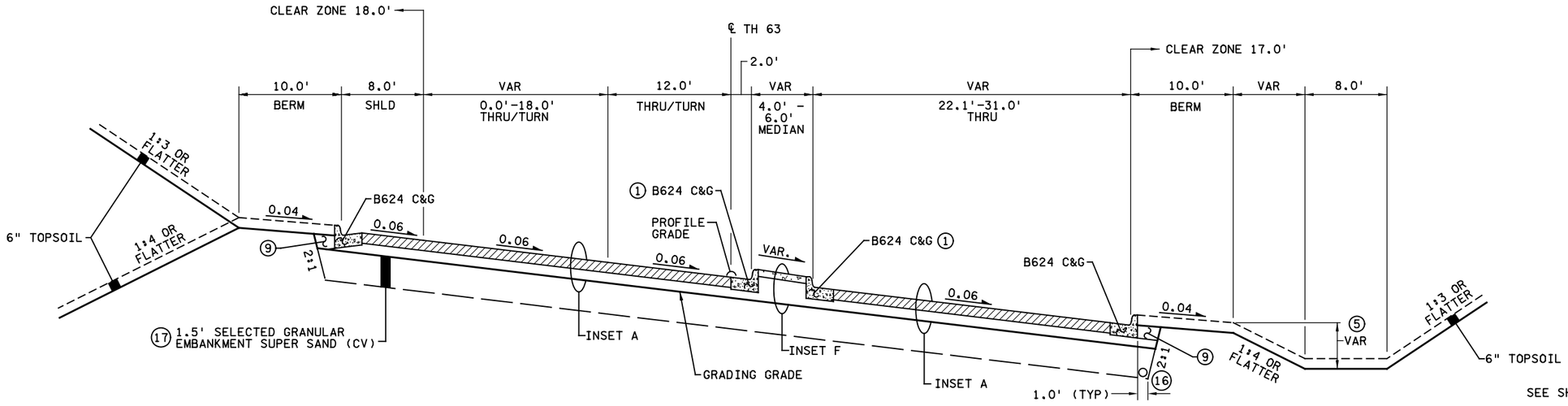
MINNESOTA DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS
SP 2515-21 (TH 63)

INSETS

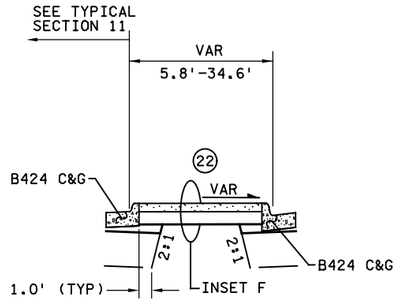
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TYPICAL SECTION 1 - TH 63

TH 63 STA 105+30.0 TO STA 108+90.0



TYPICAL SECTION 2 - DETAIL A

TH 63 STA 111+38.0 TO STA 111+89.4

SEE SHEET 24 FOR PAVEMENT INSETS

NOTES:

(1) GUTTER SLOPE SHALL MATCH PAVEMENT SLOPE.

(2) SEE RETAINING WALL PLANS AND DETAILS.

(5) SEE PROFILES AND CROSS SECTIONS FOR DITCH GRADES AND ELEVATIONS.

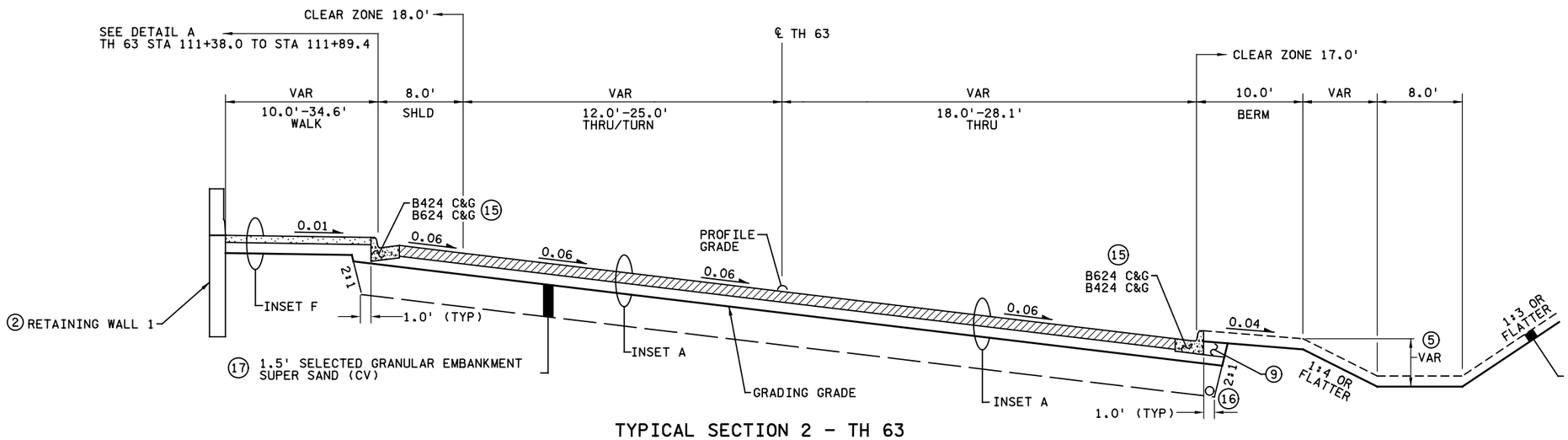
(9) BACKFILL WITH COMMON EMBANKMENT.

(15) SEE CONSTRUCTION PLANS FOR CURB TYPE TRANSITION LOCATIONS.

(16) 4" PERF TP PIPE DRAIN MNDOT SPEC 2502. SEE STANDARD PLANS FOR SUBSURFACE DRAINS. SEE DRAINAGE PLANS FOR LOCATIONS.

(17) EXCAVATION - SUBGRADE, CUT SECTION ONLY.

(22) SEE EROSION CONTROL AND TURF ESTABLISHMENT PLANS FOR AGGREGATE MULCH LIMITS IN THIS AREA.



TYPICAL SECTION 2 - TH 63

TH 63 STA 108+90.0 TO STA 111+89.4

GENERAL NOTES:

ALL CROSS SLOPES ARE IN FEET PER FOOT.

ALL SLOPES LISTED AS X:X ARE IN THE RISE TO RUN FORMAT.

MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 7%.

SEE SUPERELEVATION PLANS FOR SUPERELEVATION TRANSITIONS.

RETAINING WALLS SHOWN FOR GENERAL LOCATION PURPOSES ONLY. SEE CONSTRUCTION PLANS AND RETAINING WALL PLANS FOR ADDITIONAL DIMENSIONS AND DETAILS.

SEE CONSTRUCTION/SOILS NOTES FOR ADDITIONAL INFORMATION.

DIMENSIONS TO CURB AND GUTTER ARE TO THE CURB AND GUTTER FLOW LINE.

DITCH GRADES AND ELEVATIONS ARE TO THE BOTTOM OF TOPSOIL.

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DESIGNED BY A. EMERSON

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COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

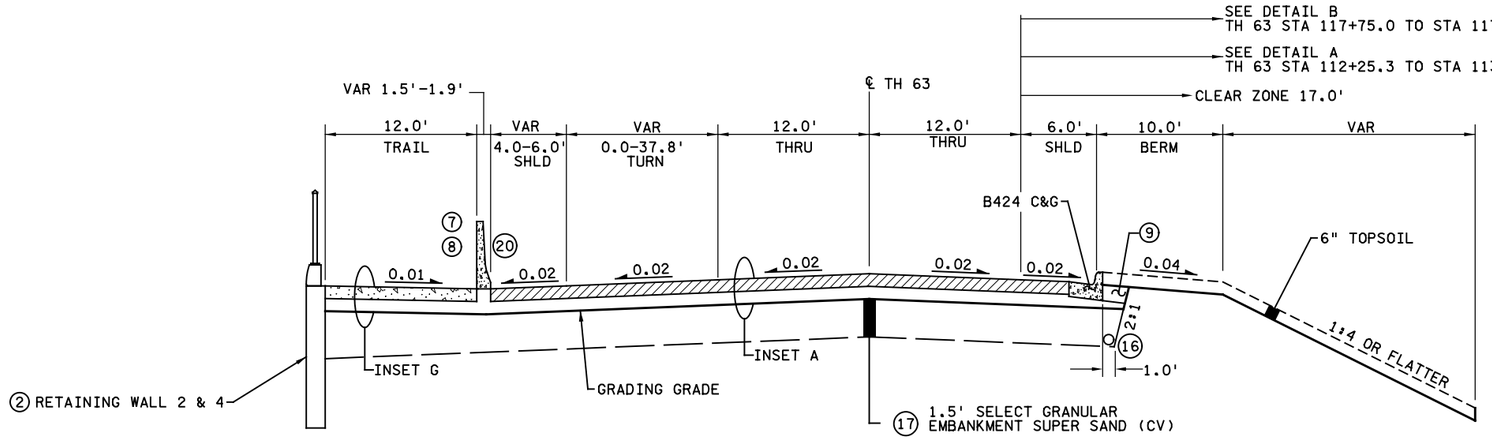
TYPICAL SECTIONS

SP 2515-21 (TH 63)

TH 63

SHEET 25 OF 688

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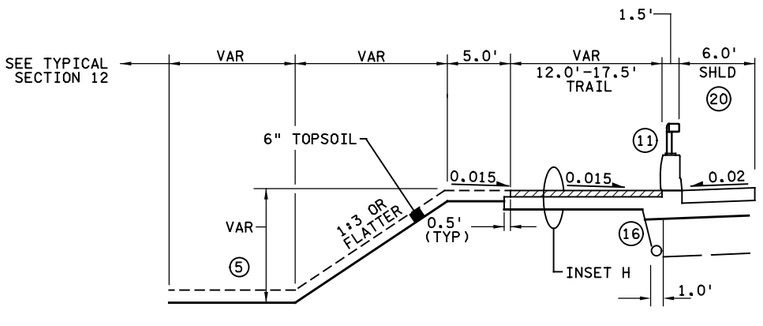
TYPICAL SECTION 3 - TH 63

TH 63 STA 111+89.4 TO STA 117+85.6

SEE SHEET 24 FOR PAVEMENT INSETS
SEE SHEET 25 FOR GENERAL NOTES

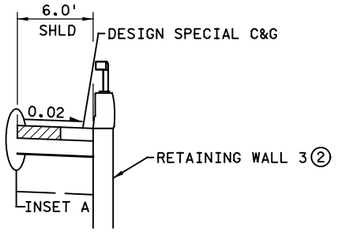
NOTES:

① GUTTER SLOPE SHALL MATCH PAVEMENT SLOPE.
② SEE RETAINING WALL PLANS AND DETAILS.
④ CONCRETE MEDIAN TH 63 STA 138+30.0 TO STA 142+70.0.
⑤ SEE PROFILES AND CROSS SECTIONS FOR DITCH GRADES AND ELEVATIONS.
⑦ CONCRETE MEDIAN BARRIER DESIGN SPECIAL SEE MISCELLANEOUS DETAILS TH 63 STA 113+00.0 TO STA 117+84.4.
⑧ REINFORCED CONCRETE MEDIAN BARIER NON-GLARE SCREEN TYPE F DESIGN 8308 (MNDOT STD PLATE 8308).
⑨ BACKFILL WITH COMMON EMBANKMENT.
⑪ CONCRETE MEDIAN BARRIER DESIGN SPECIAL SEE MISCELLANEOUS DETAILS TH63 STA 134+68.1 TO STA 135+83.3.
⑮ SEE CONSTRUCTION PLANS FOR CURB TYPE TRANSITION LOCATIONS.
⑯ 4" PERF TP PIPE DRAIN MNDOT SPEC 2502. SEE STANDARD PLANS FOR SUBSURFACE DRAINS. SEE DRAINAGE PLANS FOR LOCATIONS.
⑰ EXCAVATION - SUBGRADE, CUT SECTION ONLY.
⑳ CONCRETE MOMENT SLAB IN SHOULDER. SEE MISCELLANEOUS DETAILS.



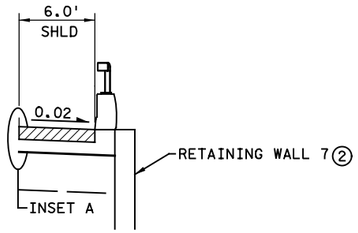
TYPICAL SECTION 4 - DETAIL A

TH 63 STA 134+68.1 TO STA 135+83.3



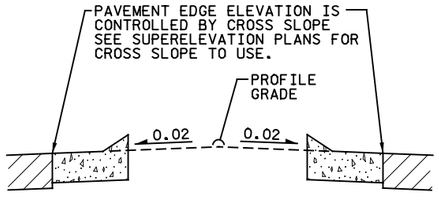
TYPICAL SECTION 3 - DETAIL A

TH 63 STA 112+25.3 TO STA 113+11.1

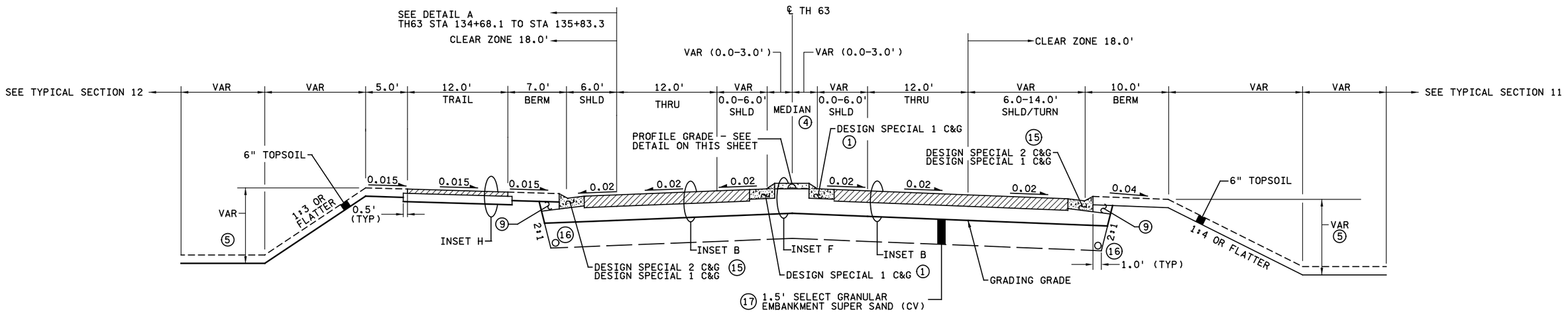


TYPICAL SECTION 3 - DETAIL B

TH 63 117+75.0 TO STA 117+85.6



PROFILE GRADE DETAIL



TYPICAL SECTION 4 - TH 63

TH 63 STA 134+68.1 TO STA 140+20.3

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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

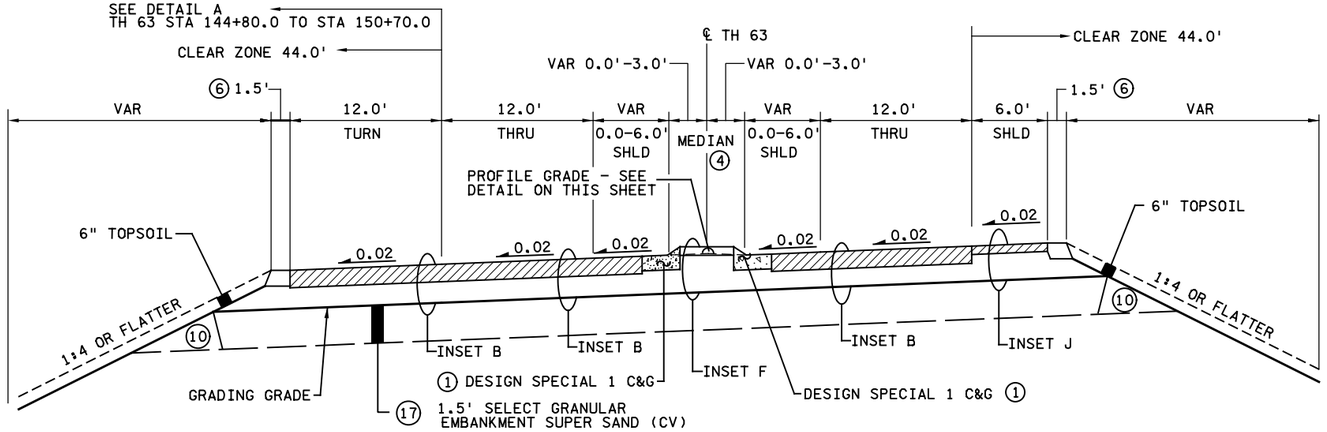
DRAWN BY B. GONOWOLO
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
TYPICAL SECTIONS
SP 2515-21 (TH 63)

TH 63
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TYPICAL SECTION 5 - TH 63

TH 63 STA 140+20.3 TO STA 150+70.0

SEE SHEET 24 FOR PAVEMENT INSETS
SEE SHEET 25 FOR GENERAL NOTES

NOTES:

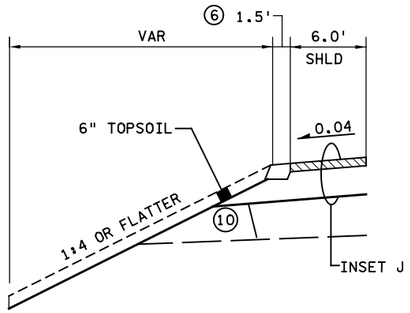
(1) GUTTER SLOPE SHALL MATCH PAVEMENT SLOPE.

(4) CONCRETE MEDIAN TH 63 STA 138+30.0 TO STA 142+70.0.

(6) SEE AGGREGATE SHOULDER DETAIL ON SHEET 27

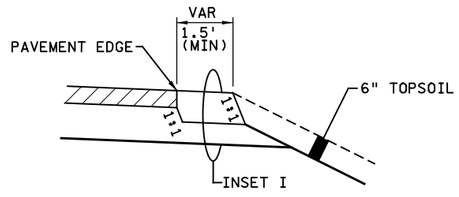
(10) EXTEND SELECT GRANULAR TO INSLOPE WHERE POSSIBLE OR USE 2:1 SLOPE FROM SHOULDER PI SEE CROSS SECTIONS FOR LOCATIONS.

(17) EXCAVATION - SUBGRADE, CUT SECTION ONLY.

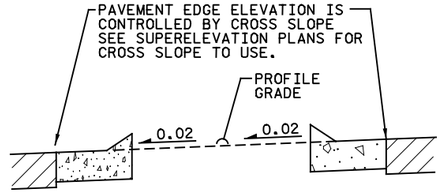


TYPICAL SECTION 5 - INSET A

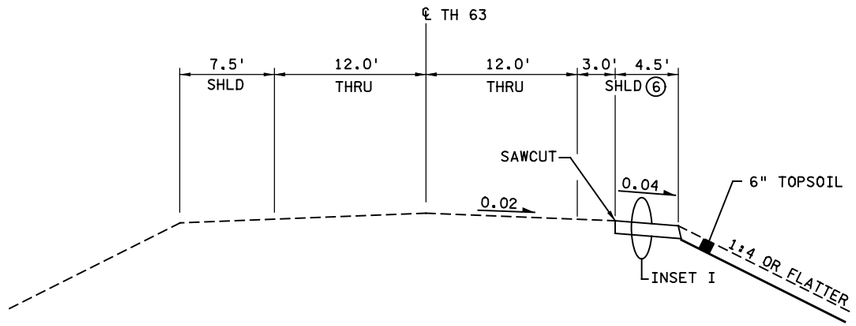
TH 63 STA 144+80.0 TO STA 150+70.0



AGGREGATE SHOULDER DETAIL



PROFILE GRADE DETAIL



TYPICAL SECTION 6 - TH 63

TH 63 150+70.0 TO STA 157+20.0

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DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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TYPICAL SECTIONS
SP 2515-21 (TH 63)

TH 63

SHEET 27 OF 688

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SEE SHEET 24 FOR PAVEMENT INSETS
SEE SHEET 25 FOR GENERAL NOTES

NOTES:

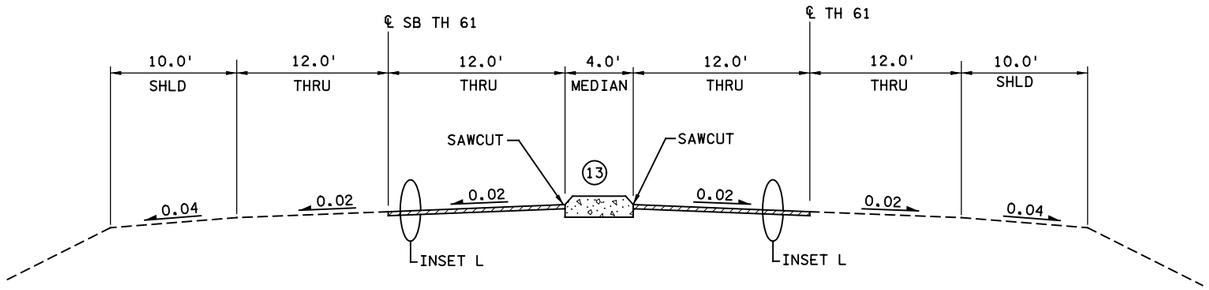
(5) SEE PROFILES AND CROSS SECTIONS FOR DITCH GRADES AND ELEVATIONS.

(6) SEE AGGREGATE SHOULDER DETAIL ON SHEET 27

(10) EXTEND SELECT GRANULAR TO INSLOPE WHERE POSSIBLE OR USE 2:1 SLOPE FROM SHOULDER PI SEE CROSS SECTIONS FOR LOCATIONS.

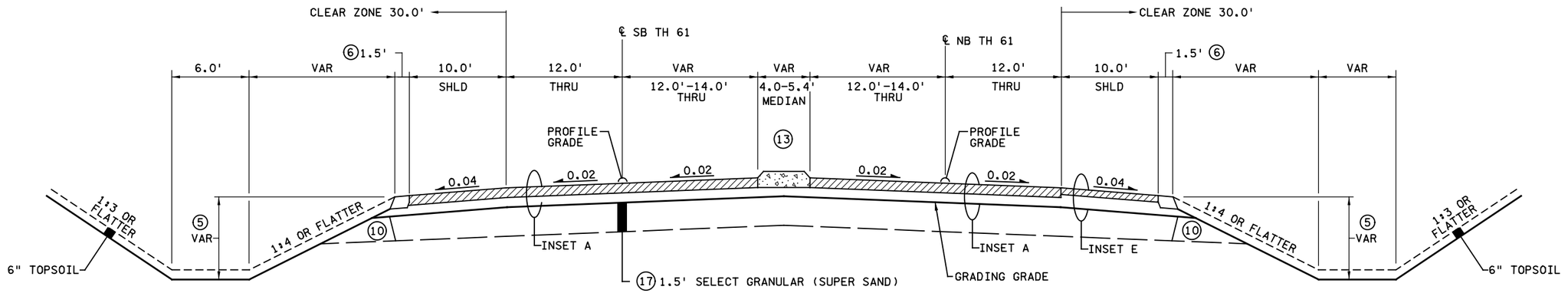
(13) CONCRETE MEDIAN (MNDOT STD PLATE 7105).

(17) EXCAVATION - SUBGRADE, CUT SECTION ONLY.



TYPICAL SECTION 7 - TH 61

NB TH 61 STA 40+55.0 TO STA 45+25.0



TYPICAL SECTION 8 - TH 61

NB TH 61 STA 45+25.0 TO STA 48+40.0

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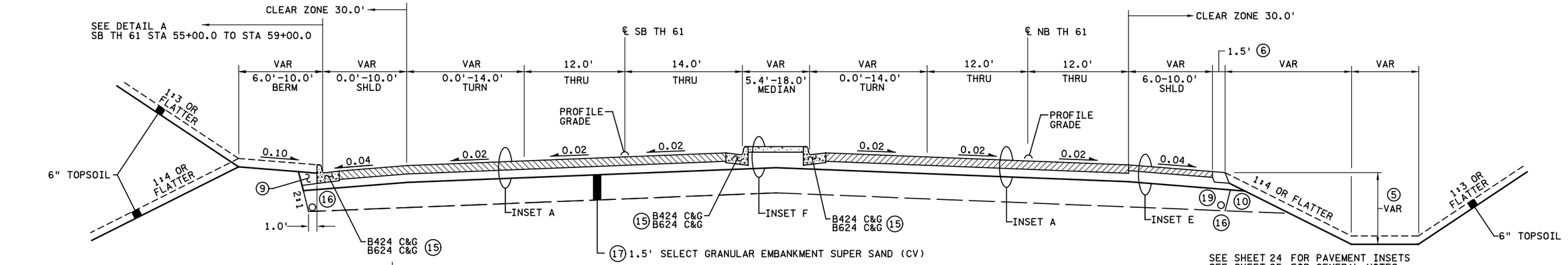
TYPICAL SECTIONS

SP 2515-21 (TH 63)

TH 61

SHEET 28 OF 688

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TYPICAL SECTION 9 - TH 61

NB TH 61 STA 48+40.0 TO STA 59+25.0

SEE SHEET 24 FOR PAVEMENT INSETS
SEE SHEET 25 FOR GENERAL NOTES

NOTES:

⑤ SEE PROFILES AND CROSS SECTIONS FOR DITCH GRADES AND ELEVATIONS.

⑥ SEE AGGREGATE SHOULDER DETAIL ON SHEET 27

⑧ REINFORCED CONCRETE MEDIAN BARIER NON-GLARE SCREEN TYPE F DESIGN 8308 (MNDOT STD PLATE 8308).

⑨ BACKFILL WITH COMMON EMBANKMENT.

⑩ EXTEND SELECT GRANULAR TO INSLOPE WHERE POSSIBLE OR USE 2:1 SLOPE FROM SHOULDER PI SEE CROSS SECTIONS FOR LOCATIONS.

⑫ WHEN CONCRETE WALK IS ADJACENT TO CURB AND GUTTER ADD CONCRETE SILL (SEE MISCELLANEOUS DETAILS).

⑮ SEE CONSTRUCTION PLANS FOR CURB TYPE TRANSITION LOCATIONS.

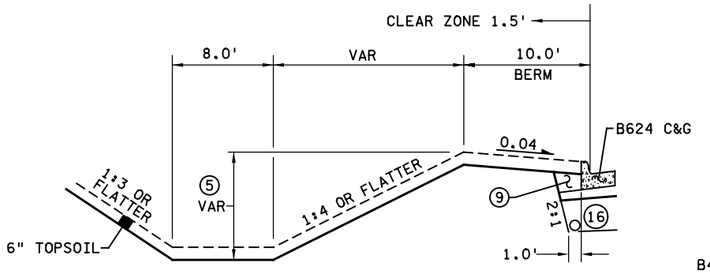
⑯ 4" PERF TP PIPE DRAIN MNDOT SPEC 2502. SEE STANDARD PLANS FOR SUBSURFACE DRAINS. SEE DRAINAGE PLANS FOR LOCATIONS.

⑰ EXCAVATION - SUBGRADE, CUT SECTION ONLY.

⑱ WALK SLOPE VARIES TYPICAL SLOPE IS 0.015 SEE INTERSECTION AND SIDEWALK DETAILS FOR MORE INFORMATION.

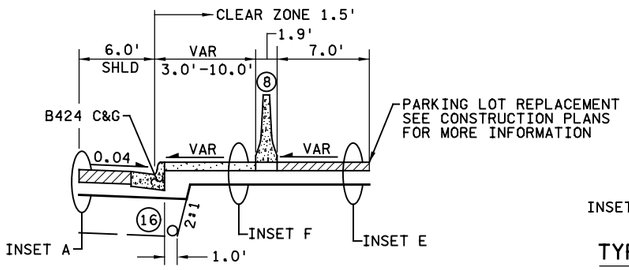
⑲ OMIT SUBDRAIN IF SELECT GRANULAR IS EXTENDED TO INSLOPE.

㉑ GUTTER SLOPE SHALL MATCH PAVEMENT SLOPE SB TH61 STA 64+40.0 TO STA 65+23.0 NB TH61 STA 64+50.0 TO STA 65+35.1



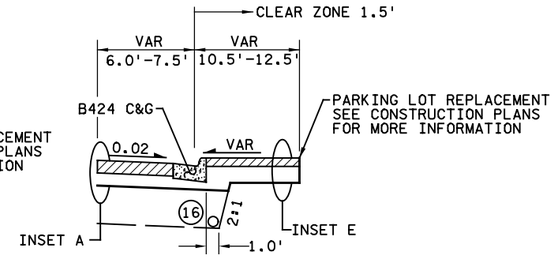
TYPICAL SECTION 9 - DETAIL A

SB TH 61 STA 55+00.0 TO STA 59+00.0



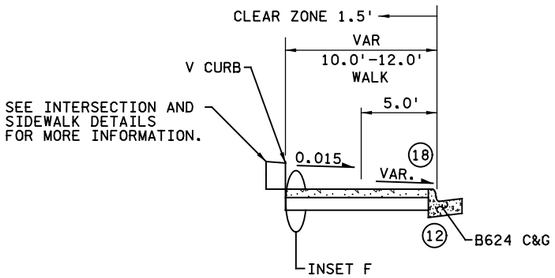
TYPICAL SECTION 10 - DETAIL C

NB TH 61 STA 62+53.2 TO STA 64+20.5



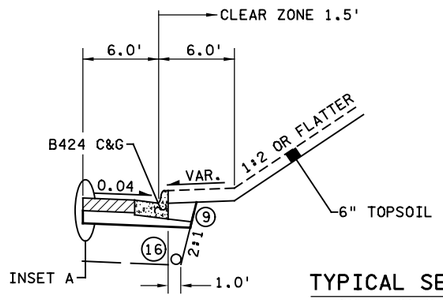
TYPICAL SECTION 10 - DETAIL D

NB TH 61 STA 64+20.5 TO STA 65+35.2



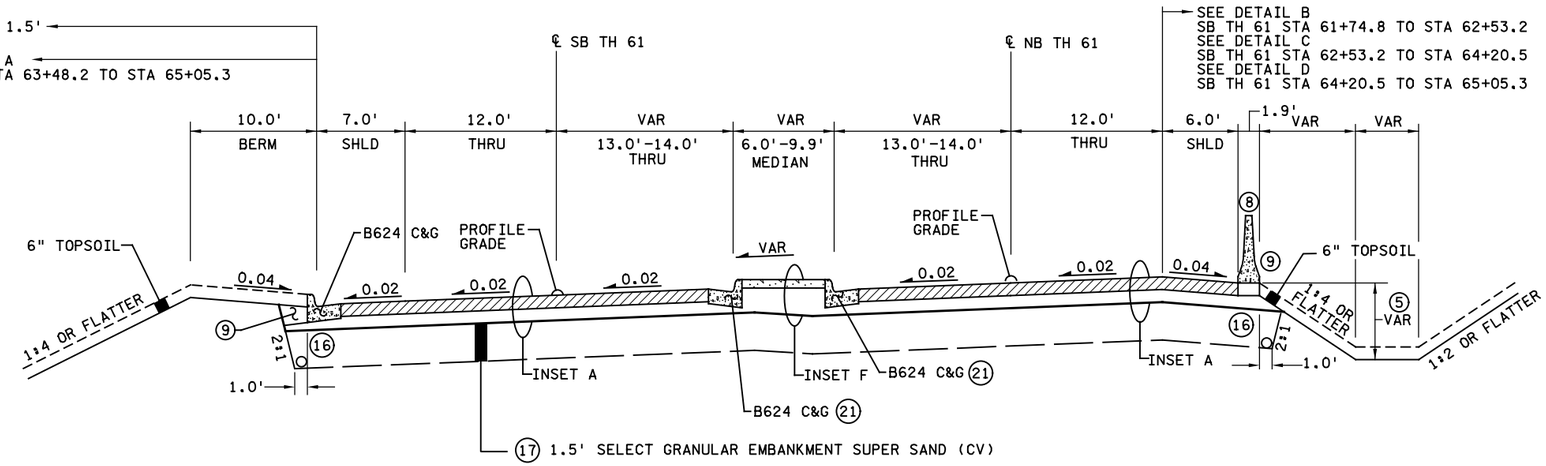
TYPICAL SECTION 10 - DETAIL A

SB TH 61 STA 63+48.2 TO STA 65+05.3



TYPICAL SECTION 10 - DETAIL B

NB TH 61 STA 61+74.8 TO STA 62+53.2



TYPICAL SECTION 10 - TH 61

NB TH 61 STA 59+25.0 TO STA 65+35.2

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DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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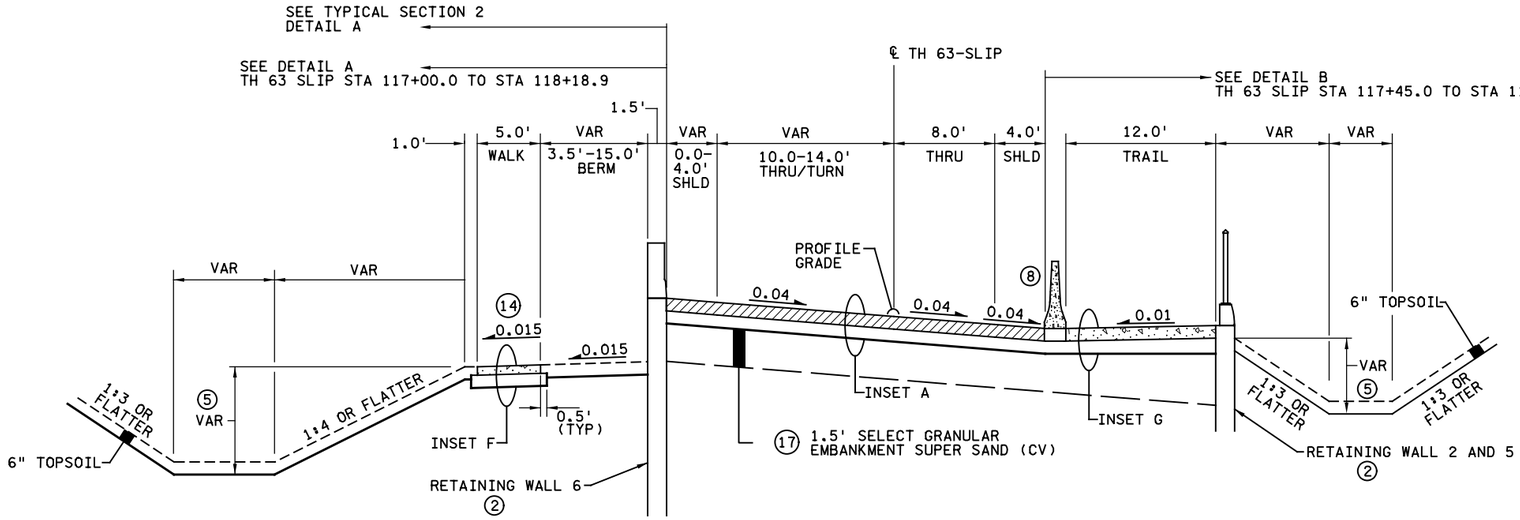
MINNESOTA DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS
SP 2515-21 (TH 63)

TH 61

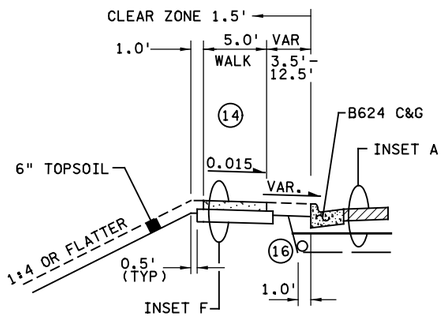
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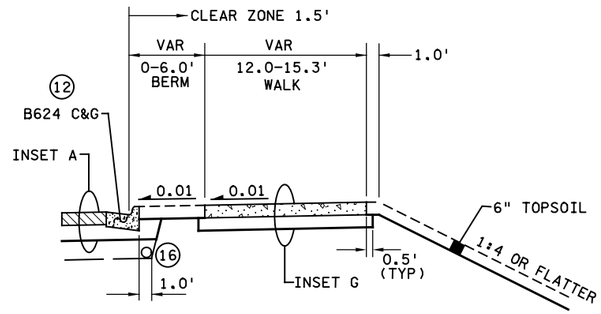
TYPICAL SECTION 11 - TH 63-SLIP

TH 63-SLIP STA 113+00.0 TO STA 118+35.0



TYPICAL SECTION 11 - DETAIL A

TH 63-SLIP STA 117+00.0 TO STA 118+18.9



TYPICAL SECTION 11 - DETAIL B

TH 63-SLIP STA 117+00.0 TO STA 118+10.0

SEE SHEET 24 FOR PAVEMENT INSETS
SEE SHEET 25 FOR GENERAL NOTES

NOTES:

(2) SEE RETAINING WALL PLANS AND DETAILS.

(5) SEE PROFILES AND CROSS SECTIONS FOR DITCH GRADES AND ELEVATIONS.

(8) REINFORCED CONCRETE MEDIAN BARRIER NON-GLARE SCREEN TYPE F DESIGN 8308 (MNDOT STD PLATE 8308).

(12) WHEN CONCRETE WALK IS ADJACENT TO CURB AND GUTTER ADD CONCRETE SILL (SEE MISCELLANEOUS DETAILS).

(14) SEE CONSTRUCTION PLANS FOR SIDEWALK ALIGNMENT LOCATION - PROFILE CARRIED AT ALIGNMENT LOCATION.

(16) 4" PERF TP PIPE DRAIN MNDOT SPEC 2502. SEE STANDARD PLANS FOR SUBSURFACE DRAINS. SEE DRAINAGE PLANS FOR LOCATIONS.

(17) EXCAVATION - SUBGRADE, CUT SECTION ONLY.

TH 63-SLIP RAMP

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DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

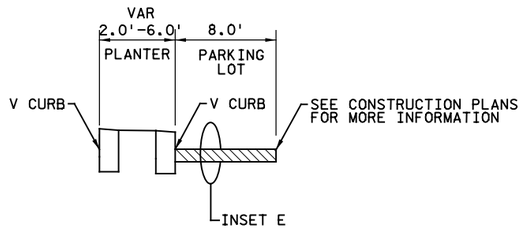
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TYPICAL SECTIONS
SP 2515-21 (TH 63)

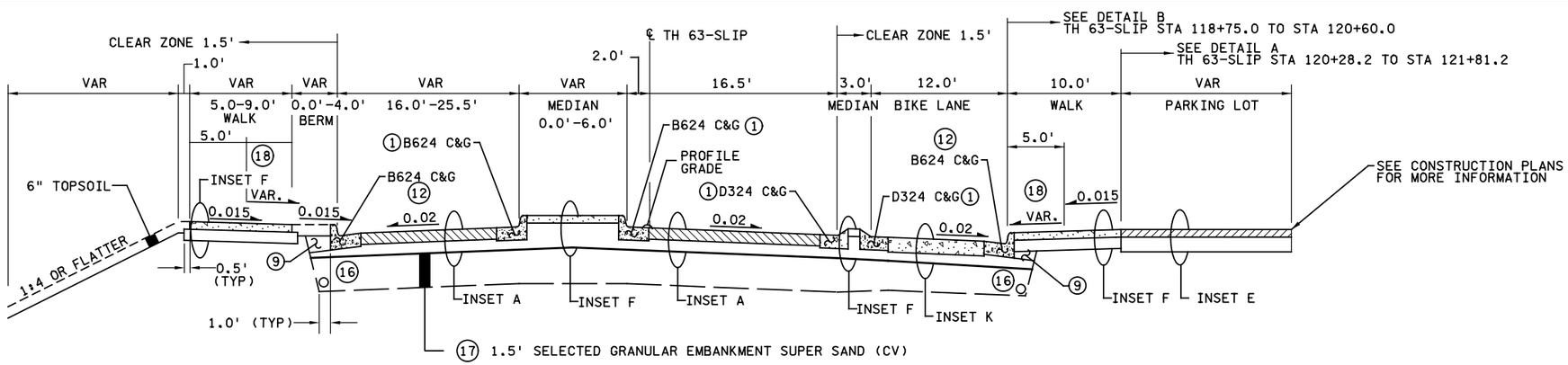
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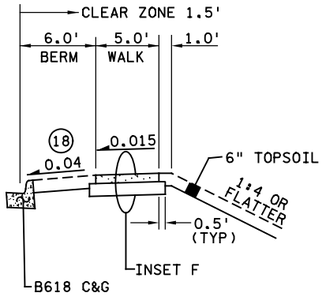
TYPICAL SECTION 12 - DETAIL A

TH 63-SLIP STA 120+28.2 TO STA 121+81.2



TYPICAL SECTION 12 - TH 63 SLIP

TH 63-SLIP STA 118+35.0 TO STA 121+96.0



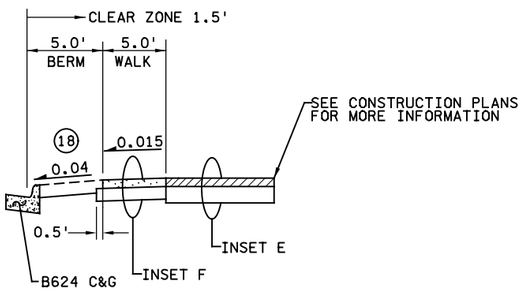
TYPICAL SECTION 13 - DETAIL A

BLUFF ST STA 49+97.5 TO STA 50+45.0

SEE SHEET 24 FOR PAVEMENT INSETS
SEE SHEET 25 FOR GENERAL NOTES

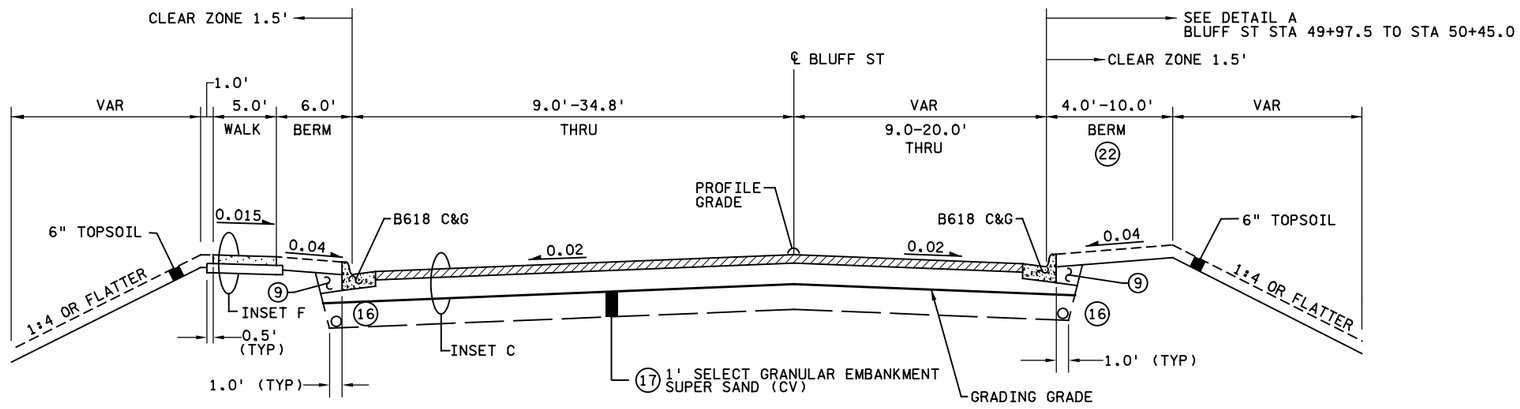
NOTES:

1. GUTTER SLOPE SHALL MATCH PAVEMENT SLOPE.
9. BACKFILL WITH COMMON EMBANKMENT.
12. WHEN CONCRETE WALK IS ADJACENT TO CURB AND GUTTER ADD CONCRETE SILL (SEE MISCELLANEOUS DETAILS).
16. 4" PERF TP PIPE DRAIN MNDOT SPEC 2502. SEE STANDARD PLANS FOR SUBSURFACE DRAINS. SEE DRAINAGE PLANS FOR LOCATIONS.
17. EXCAVATION - SUBGRADE, CUT SECTION ONLY.
18. WALK SLOPE VARIES TYPICAL SLOPE IS 0.015 SEE INTERSECTION AND SIDEWALK DETAILS FOR MORE INFORMATION.
22. SEE EROSION CONTROL AND TURF ESTABLISHMENT PLANS FOR AGGREGATE MULCH LIMITS IN THIS AREA.



TYPICAL SECTION 12 - DETAIL B

TH 63-SLIP 118+75.0 TO STA 120+60.0



TYPICAL SECTION 13 - BLUFF ST

BLUFF ST STA 49+97.5 TO STA 55+01.1

TH 63 - SLIP RAMP
BLUFF ST

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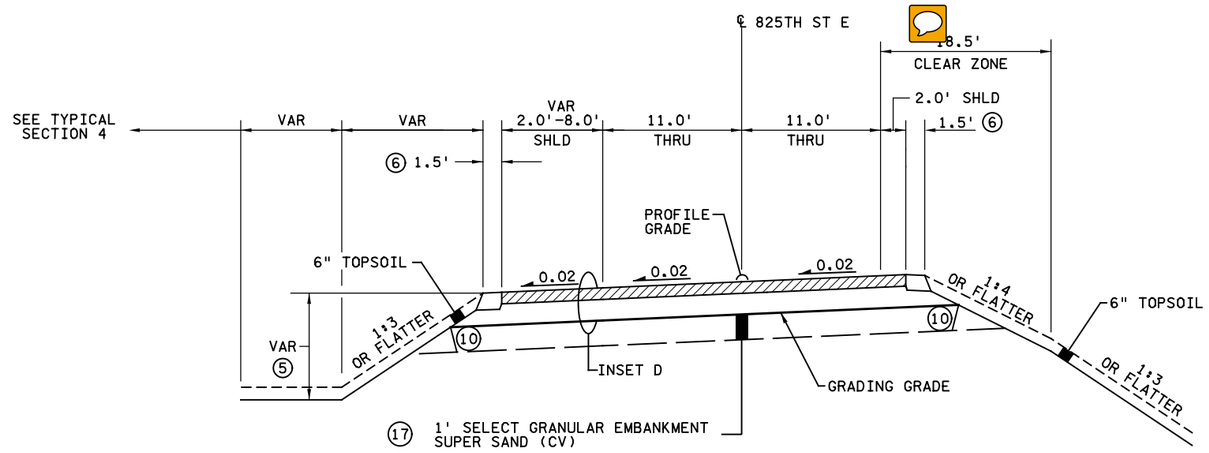
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DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
TYPICAL SECTIONS
SP 2515-21 (TH 63)

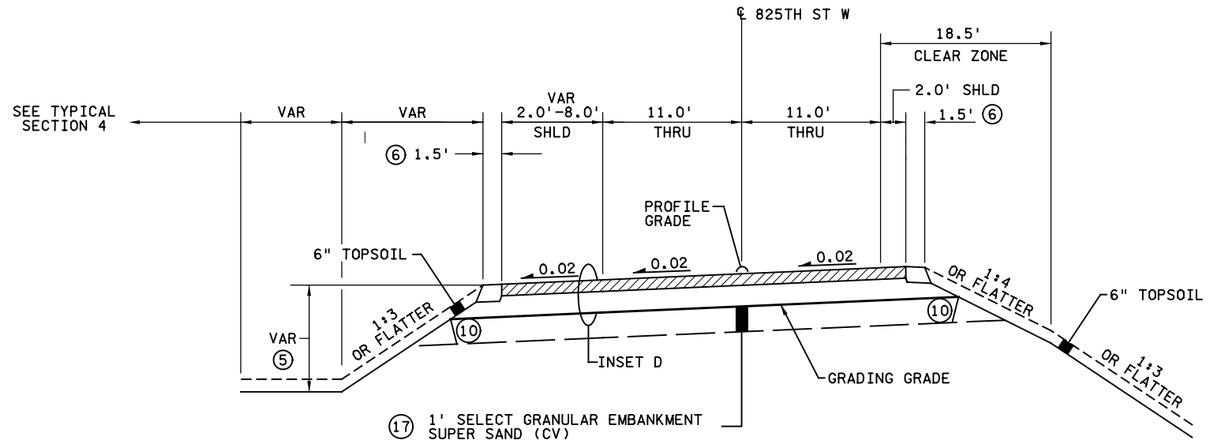
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TYPICAL SECTION 14 - 825TH ST E

825TH ST E STA 200+70.0 TO STA 213+74.3



TYPICAL SECTION 15 - 825TH ST W

825TH ST W STA 213+74.3 TO STA 221+54.0

SEE SHEET 24 FOR PAVEMENT INSETS
SEE SHEET 25 FOR GENERAL NOTES

NOTES:

⑤ SEE PROFILES AND CROSS SECTIONS FOR DITCH GADES AND ELEVATIONS.

⑥ SEE AGGREGATE SHOULDER DETAIL ON SHEET 27

⑨ BACKFILL WITH COMMON EMBANKMENT.

⑩ EXTEND SELECT GRANULAR TO INSLOPE WHERE POSSIBLE OR USE 2:1 SLOPE FROM SHOULDER PI SEE CROSS SECTIONS FOR LOCATIONS.

⑰ EXCAVATION - SUBGRADE, CUT SECTION ONLY.

825TH ST E
825TH ST W

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CHECKED BY C. HASS
COMM. NO. 0158933

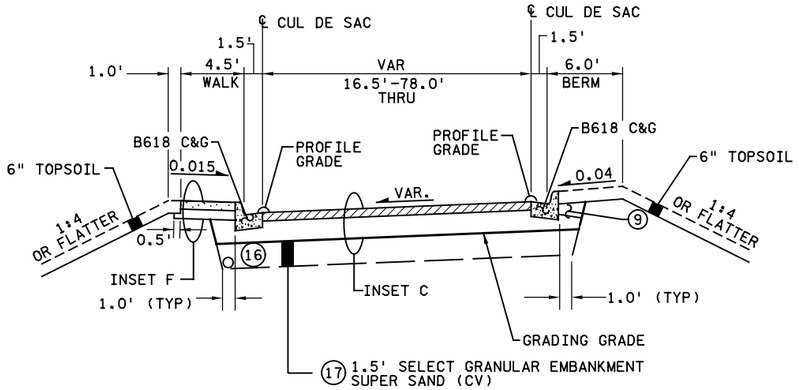
SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

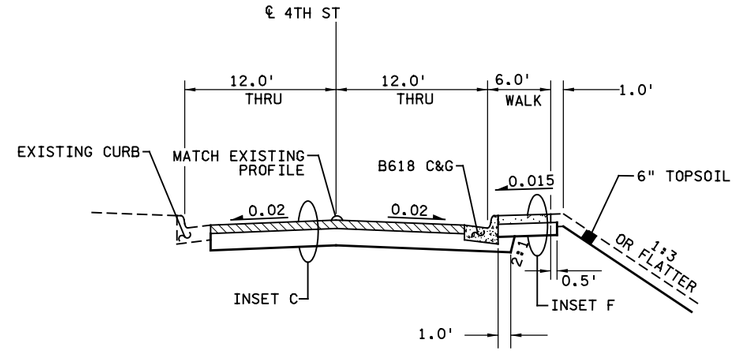
TYPICAL SECTIONS
SP 2515-21 (TH 63)

SHEET 32 OF 688

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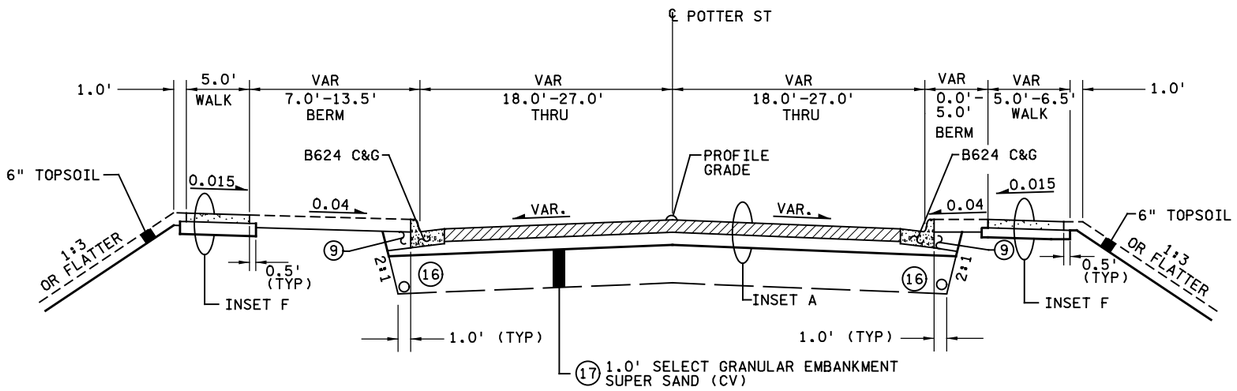


TYPICAL SECTION 16 - CUL DE SAC



TYPICAL SECTION 18 - 4TH ST

4TH ST STA 40+36.0 TO 40+86.0



TYPICAL SECTION 17 - POTTER ST

POTTER ST STA 21+00.0 TO 22+50.0

SEE SHEET 24 FOR PAVEMENT INSETS
SEE SHEET 25 FOR GENERAL NOTES

NOTES:

(9) BACKFILL WITH COMMON EMBANKMENT.

(16) 4" PERF TP PIPE DRAIN MNDOT SPEC 2502. SEE STANDARD PLANS FOR SUBSURFACE DRAINS. SEE DRAINAGE PLANS FOR LOCATIONS.

(17) EXCAVATION - SUBGRADE, CUT SECTION ONLY.

CUL DE SAC
POTTER ST
4TH ST

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_ts16.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY B. GONOWOLO
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

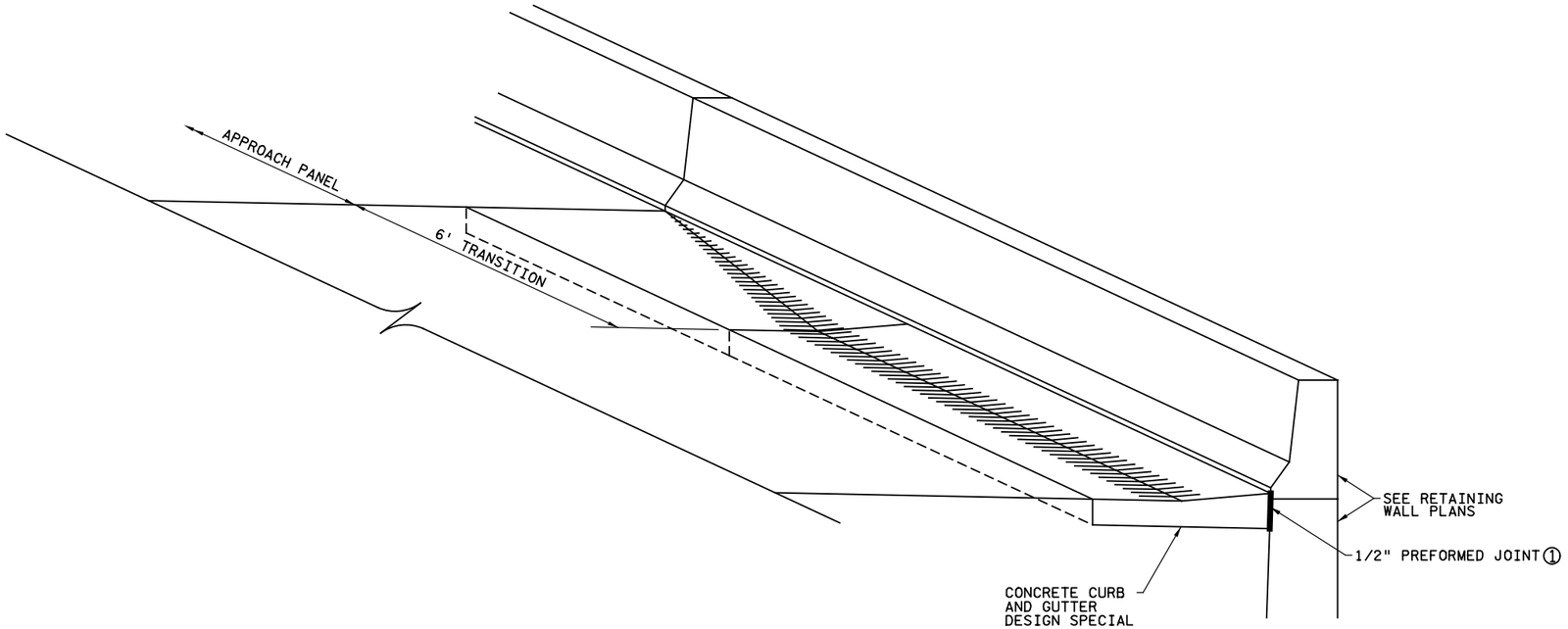
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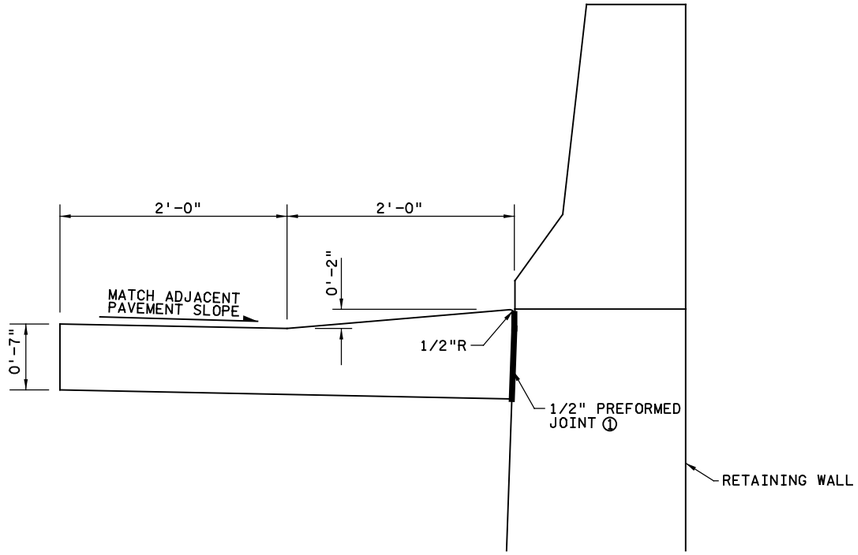
TYPICAL SECTIONS
SP 2515-21 (TH 63)

SHEET 33 OF 688

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PERSPECTIVE



SECTION

NOTES:

① PREFORMED JOINT FILLER MATERIAL, MNDOT SPEC 3702

JOINT FILLER MNDOT SPEC 3725, THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF CURB SURFACE. JOINT FILLER, JOINT SEALER AND JOINT SEALING SHALL BE CONSIDERED INCIDENTAL.

CONCRETE C & G DESIGN - SPECIAL

NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

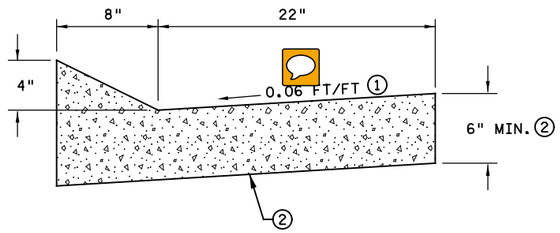
MISCELLANEOUS DETAILS

SP 2515-21 (TH 63)

SHEET 34 OF 688

CONCRETE C & G DESIGN - SPECIAL

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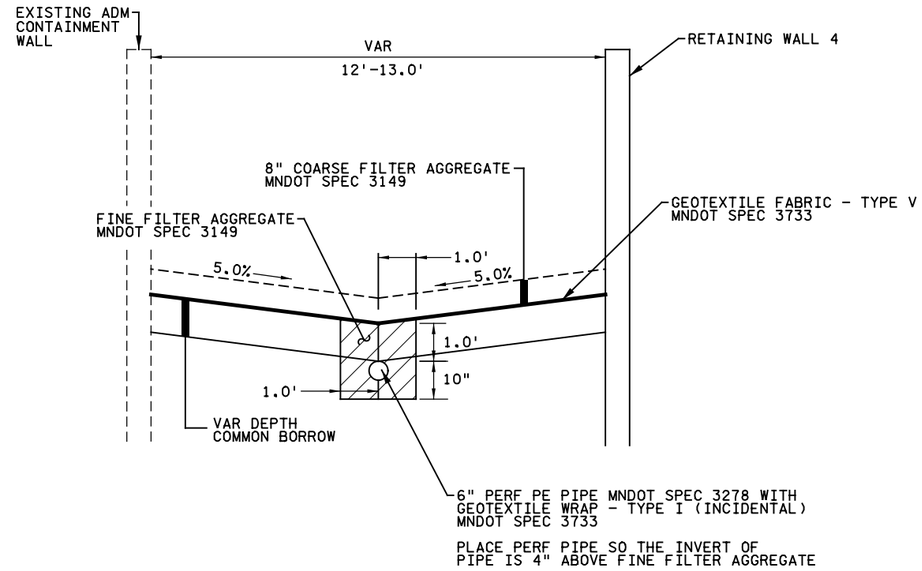


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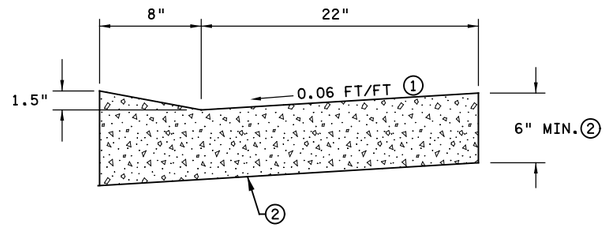
(1) SLOPE 0.06 FT/FT NORMAL, UNLESS OTHERWISE SPECIFIED IN THE PLAN. IF A DIFFERENT GUTTER SLOPE IS REQUIRED, THE FORM MAY BE TILTED.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUN GUTTER THICKNESS IS MAINTAINED.

CONCRETE C & G - DESIGN SPECIAL 1



AGGREGATE ACCESS ROADWAY

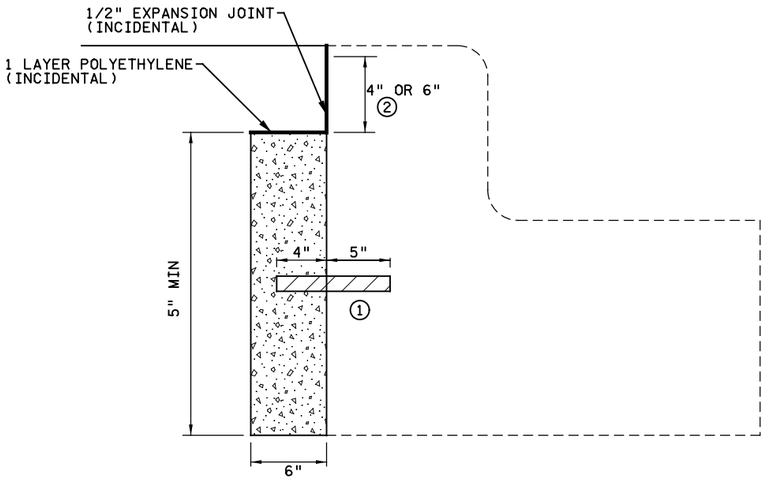


NOTES:

(1) SLOPE 0.06 FT/FT NORMAL, UNLESS OTHERWISE SPECIFIED IN THE PLAN. IF A DIFFERENT GUTTER SLOPE IS REQUIRED, THE FORM MAY BE TILTED.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUN GUTTER THICKNESS IS MAINTAINED.

CONCRETE C & G - DESIGN SPECIAL 2



CONCRETE SILL DETAIL

NOTES:

(1) TIE SILL AT 3' - 0" CENTERS WITH 9" X #4 REINFORCING BARS (INCIDENTAL) OR POUR INTEGRALLY WITH CURB.

(2) MATCH ADJACENT CONCRETE 4" TYPICAL DEPTH, 6" USED WALK DEPTH AT PED RAMP LOCATIONS.

CONCRETE C & G - DESIGN SPECIAL 1
CONCRETE C & G - DESIGN SPECIAL 2
CONCRETE SILL DETAIL
AGGREGATE ACCESS ROADWAY

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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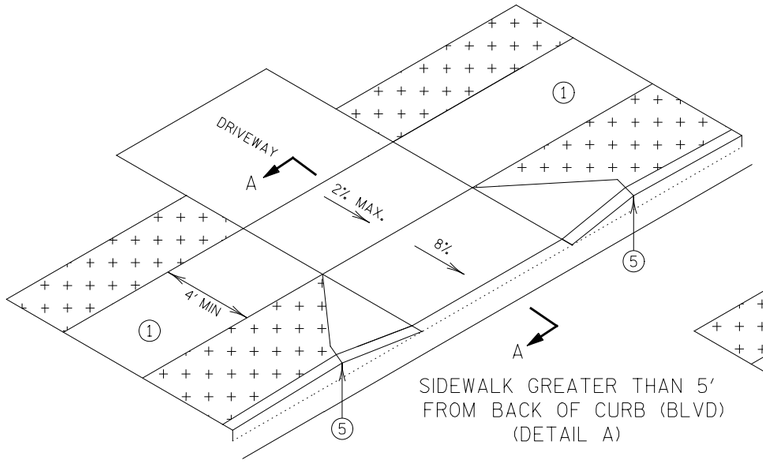
MINNESOTA DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS

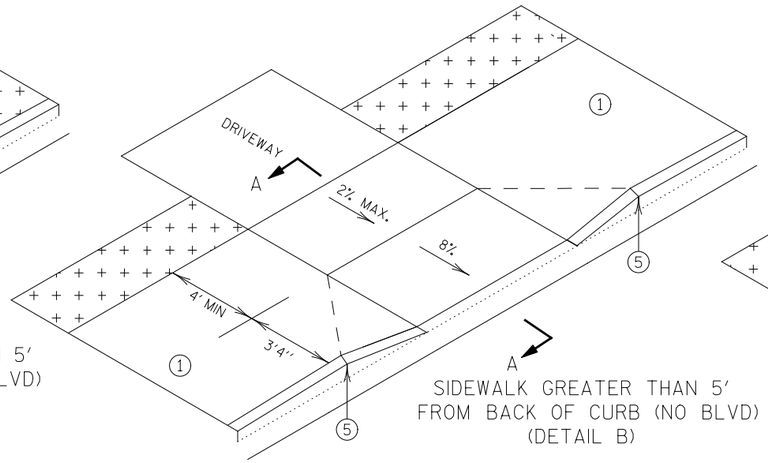
SP 2515-21 (TH 63)

SHEET 35 OF 688

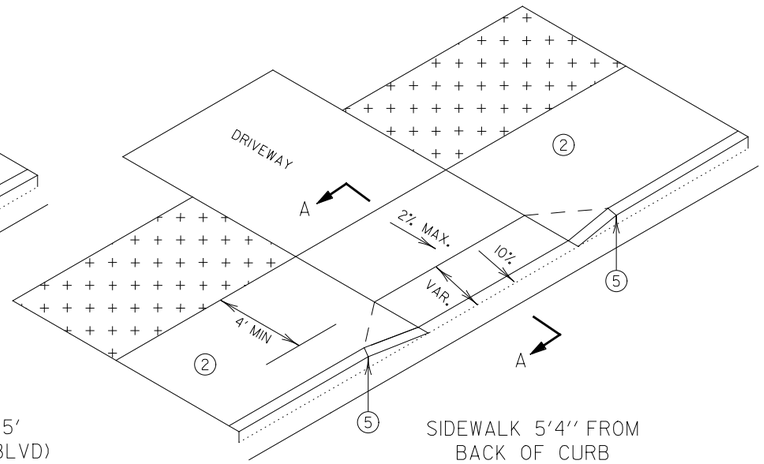
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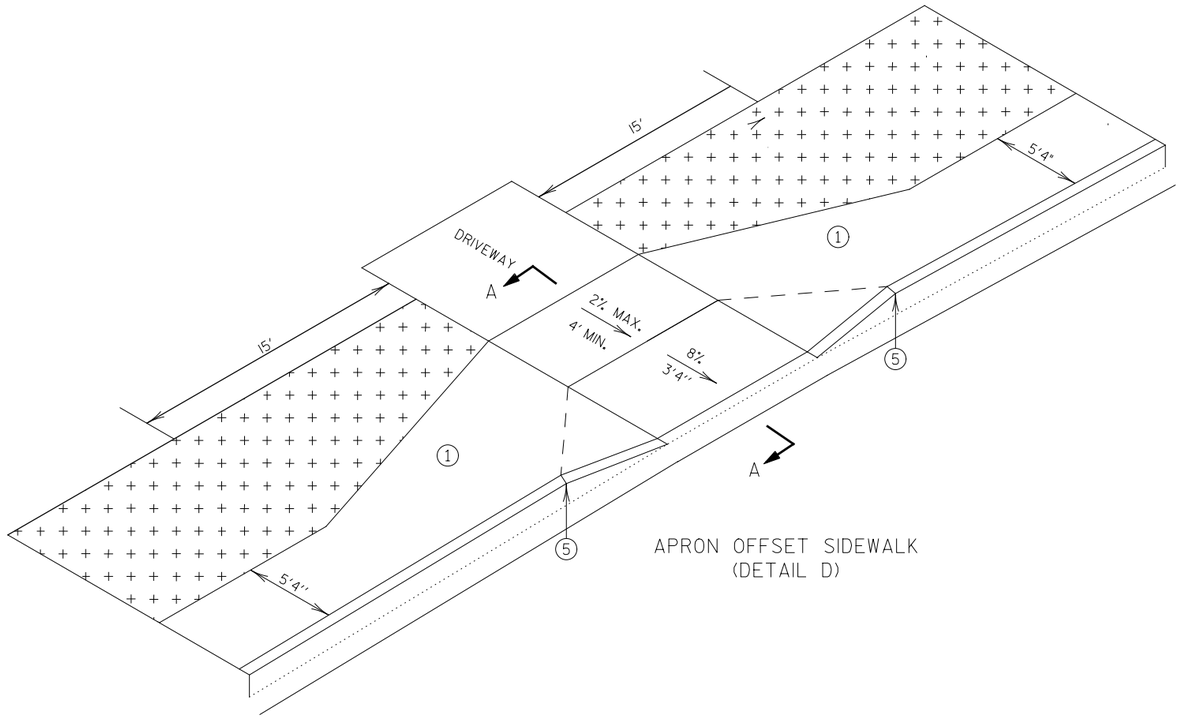
SIDEWALK GREATER THAN 5'
FROM BACK OF CURB (BLVD)
(DETAIL A)



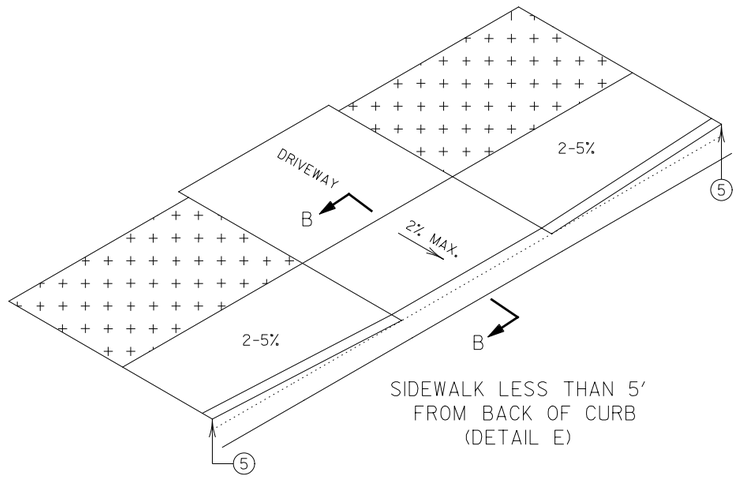
SIDEWALK GREATER THAN 5'
FROM BACK OF CURB (NO BLVD)
(DETAIL B)



SIDEWALK 5'4" FROM
BACK OF CURB
(DETAIL C)



APRON OFFSET SIDEWALK
(DETAIL D)



SIDEWALK LESS THAN 5'
FROM BACK OF CURB
(DETAIL E)

1. LESS THAN 5% RUNNING SLOPE WITH LESS THAN 2% CROSS SLOPE.
2. 5-8% RUNNING SLOPE WITH LESS THAN 2% CROSS SLOPE.
3. CONSTRUCT 1" LIP AT FLOWLINE.
4. 10% SLOPE WHEN APRON IS 2'LONG.
   8% SLOPE WHEN APRON IS 4'LONG.
5. 6" CURB HEIGHT.

— — — — GRADE BREAK, NO JOINT

SIDEWALK

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Print Name: MICHELLE M. GERRITY

Date _____ License # 43935

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY M. GERRITY

DESIGNED BY M. GERRITY

CHECKED BY A. DEBRUIN

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)

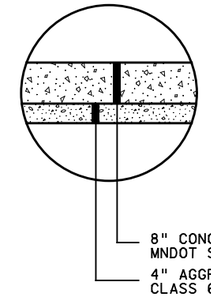
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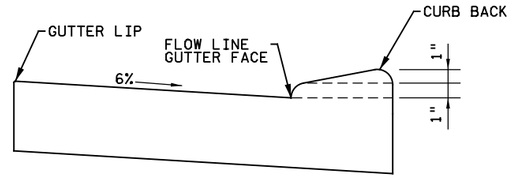
DRIVEWAY TABULATION

STATION	SIDE	CURB TYPE	E1	E2	L1 FT	S1 %	E3	L2 FT	S2 %	E4	L3 FT	S3 %	E5	DRIVEWAY TYPE	WIDTH (1) FT	NOTES
BLUFF ST																
50+88.91	RT	B618	707.2	707.3							10.3	2.8%	707.6	BIT	23.0	
51+95.68	LT	B618	707.1	707.3	5.3	8.0%	707.7	5.0	1.5%	707.8	5.0	5.3%	708.0	BIT	13.0	
52+68.48	LT	B618	706.8	707.0	5.3	8.0%	707.4	5.0	1.5%	707.5	23.0	3.7%	708.3	AGG	28.0	
BLUFF-TURN																
40+30.86	C/L	B618	706.0	706.1	4.3	6.4%	706.4	5.0	1.5%	706.5	23.0	5.6%	707.8	AGG	30.0	
CUL DE SAC																
150+32.29	LT	B618	718.9	719.1	3.8	1.5%	719.2				9.2	0.3%	719.2	CONC	8.6	
150+46.47	LT	B618	718.6	718.8	3.8	1.5%	718.8				9.2	-2.4%	718.6	CONC	15.0	
TH63-SLIP																
119+10.94	LT	B624	712.8	712.9	3.3	8.0%	713.2	5.0	1.5%	713.3	8.0	1.5%	713.4	AGG	30.0	
119+15.93	RT	B624	712.3	712.5	4.3	8.0%	712.8	5.0	1.5%	712.9	8.0	-0.9%	712.9	BIT	32.3	
119+85.39	LT	B624	713.0	713.2	3.3	10.0%	713.5	5.0	1.5%	713.6	8.0	2.0%	713.8	BIT	31.0	
120+11.74	RT	B624	712.8	713.0	4.3	10.0%	713.4	5.0	1.5%	713.5	8.0	3.1%	713.7	BIT	31.0	
120+69.33	RT	B624	712.2	712.4	4.3	10.0%	712.8	5.0	1.5%	712.9	12.2	4.9%	713.5	BIT	19.0	

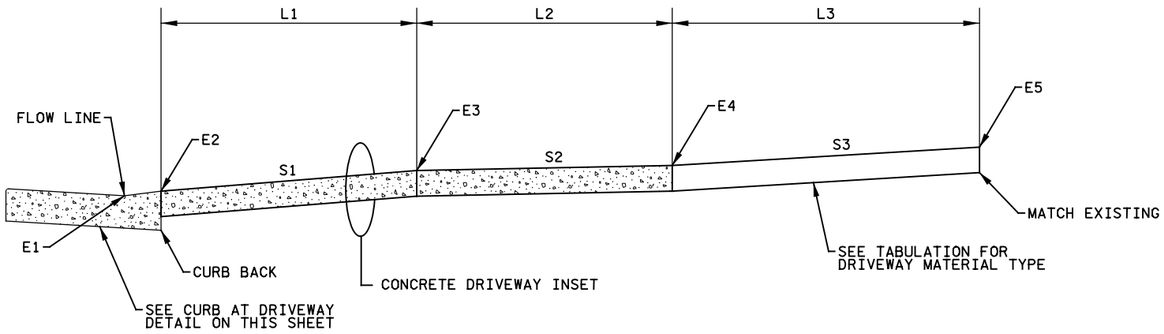
NOTES:
(1) WIDTH OF DRIVEWAY AT BACK OF SIDEWALK OR TIE POINT IF SIDEWALK DOES NOT EXIST.



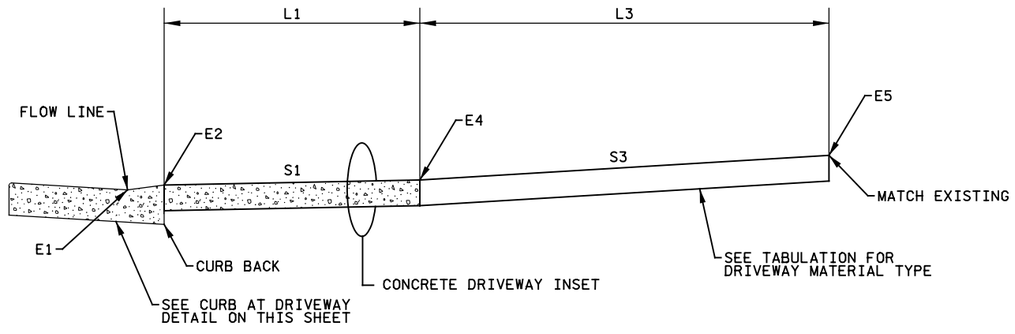
CONCRETE DRIVEWAY INSET



CURB AT DRIVEWAY DETAIL
PAID FOR AS THE CURB TYPE ADJACENT TO DRIVEWAY



DRIVEWAY PROFILE SECTION A-A
DRIVEWAY PROFILE
(AT CENTERLINE OF DRIVEWAY)



DRIVEWAY PROFILE SECTION B-B
DRIVEWAY PROFILE
(AT CENTERLINE OF DRIVEWAY)

CONCRETE DRIVEWAY APRON

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: MICHELLE M. GERRITY
Date _____ License # 43935

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

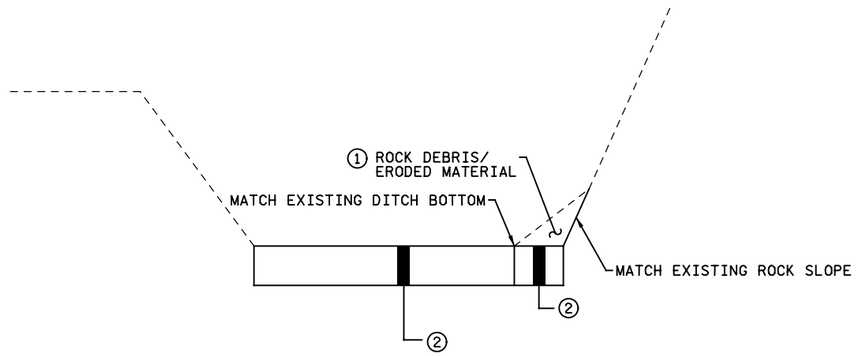
DRAWN BY M. GERRITY
DESIGNED BY M. GERRITY
CHECKED BY A. DEBRUIN
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)

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NOTES:

① EXCAVATION AND REMOVAL OF MATERIAL PAID FOR AS DITCH CLEANING.

② SEE STAGING PLANS FOR TEMPORARY SEEDING AND EROSION CONTROL MEASURES WHEN DITCH CLEANING TAKES PLACE DURING CONSTRUCTION.
SEE EROSION CONTROL AND TURF ESTABLISHMENT PLANS FOR SEEDING AND EROSION CONTROL MEASURES WHEN DITCH CLEANING TAKES PLACE ALONG PERMANENT ROADWAY SECTIONS.

DITCH CLEANOUT DETAIL

DITCH CLEANOUT DETAIL

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Date _____ License # 45039

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

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COMM. NO. 0158933

SRF Consulting Group, Inc.

ENGINEERS PLANNERS DESIGNERS

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MISCELLANEOUS DETAILS

SP 2515-21 (TH 63)

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GENERAL NOTES:

ALL ITEMS SHOWN ON THIS PLAN SHEET SHALL BE INCLUDED AS PART OF THE CONSTRUCT ACCESS FACILITIES PAY ITEM

SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION

CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL RIGHT OF WAY IMPACTS AND RESTORATION IF CONSTRUCTION OPERATIONS EXTEND OUTSIDE OF AREAS SHOWN ON THIS SHEET

NOTES:

1. ACCESS THRU CONSTRUCTION SITE MUST BE MAINTAINED FOR CAMPGROUND AND MARINA VISITORS AT ALL TIMES
2. CONTRACTOR TO PLACE CULVERTS AT DESIRED LOCATIONS TO MAINTAIN DRAINAGE THRU CAUSEWAY. PLACE PIPE INVERTS AT EXISTING GROUND
3. ADDITIONAL FILL MAY BE PLACED IN THIS AREA AS DESIRED BY THE CONTRACTOR
4. CONTRACTOR WILL BE RESPONSIBLE FOR ANY PERMIT REQUIREMENTS FROM PERMITTING AGENCIES FOR IMPACTS OUTSIDE OF THESE LIMITS
5. TEMPORARY GATE
6. LOW CLEARANCE ENVELOPE. CLEARANCE BETWEEN THE CAUSEWAY AND EXISTING BRIDGE IS LESS THAN 16.0'

0 50 100
SCALE IN FEET

MISSISSIPPI RIVER

10

TE

TEMPORARY FENCE

℄ CAUSEWAY DR ①

+20.0

10'

CONSTRUCTION LIMITS

2-36" CMP ② CULVERTS

BARGE ACCESS LOCATION ⑤

22'

130

PROP R/W

20'R

EX R/W

℄ CAUSEWAY 1

1:20

+00.0

125

135

140

TEMPORARY FENCE

BR 25033 ③

EX BR 9040

⑥

℄ TH 63

℄ 825TH ST E

℄ 825TH ST W

+93.3

220

+80.0

13'

+62.3

15

℄ CAUSEWAY 2

+20.0

+49.9

210

+07.3

SHEET 1 OF 3

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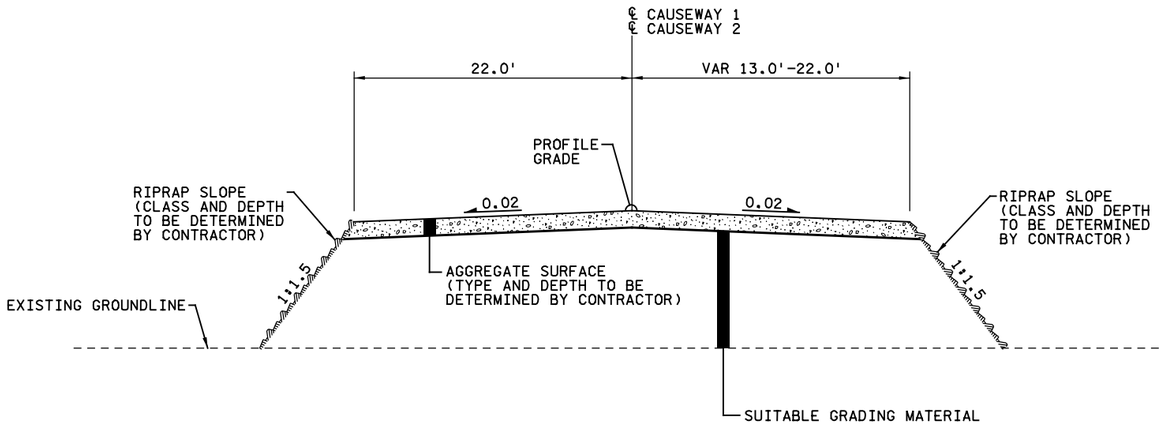
CONSTRUCT ACCESS FACILITIES - PLAN

SHEET 39 OF 688

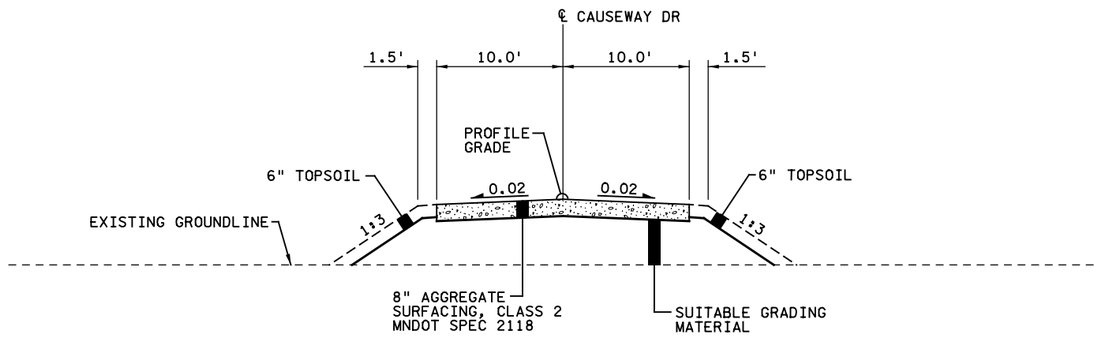
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GENERAL NOTES:

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TYPICAL SECTION CAUSEWAY 1 & 2



TYPICAL SECTION CAUSEWAY DR

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA: DELTA / SPIRAL CURVE DATA: ANGLE (~~Os~~)	DEGREE / DEGREE	RADIUS / ST	TANGENT / LT	LENGTH / LS	COORDINATES X	COORDINATES Y	AZIMUTH
℄ CAUSEWAY 1 <CAUSE1>										
A1000	POT	℄ CAUSEWAY 1 125+75.000						655,976.2838	237,605.7410	
A1001	PC	131+89.347						655,577.7967	238,073.3205	319° 33' 40.45"
A1002	PI	132+61.941	27° 12' 20.90" LT	19° 05' 54.94"	300.000'	72.594'	142.449'	655,530.7098	238,128.5716	PI
A1003	CC							655,349.4668	237,878.7300	
A1004	PT	133+31.797						655,463.5721	238,156.1827	292° 21' 19.55"
A1005	PC	133+50.838						655,445.9621	238,163.4249	
A1006	PI	134+23.431	27° 12' 20.90" RT	19° 05' 54.94"	300.000'	72.594'	142.449'	655,378.8244	238,191.0360	PI
A1007	CC							655,560.0675	238,440.8776	
A1008	PT	134+93.287						655,331.7376	238,246.2871	319° 33' 40.45"
A1009	POT	℄ CAUSEWAY 1 136+43.021						655,234.6149	238,360.2495	
℄ CAUSEWAY 2 <CAUSE2>										
A1100	POT	℄ CAUSEWAY 2 125+75.000						655,825.3092	237,782.8926	
A1101	PC	127+22.512						655,893.8089	237,913.5350	27° 40' 09.82"
A1102	PI	127+56.306	68° 06' 29.36" LT	114° 35' 29.61"	50.000'	33.794'	59.436'	655,909.5019	237,943.4645	PI
A1103	CC							655,849.5269	237,936.7534	
A1104	PT	127+81.947						655,887.5818	237,969.1852	319° 33' 40.45"
A1105	PC	130+00.107						655,746.0755	238,135.2268	
A1106	PI	130+75.740	17° 12' 12.21" RT	11° 27' 32.96"	500.000'	75.633'	150.128'	655,697.0173	238,192.7910	PI
A1107	CC							656,126.6254	238,459.5442	
A1108	PT	131+50.235						655,667.1794	238,262.2896	336° 45' 52.67"
A1109	PC	133+17.239						655,601.2948	238,415.7481	
A1110	PI	133+62.619	17° 12' 12.21" LT	19° 05' 54.94"	300.000'	45.380'	90.077'	655,583.3921	238,457.4472	PI
A1111	CC							655,325.6272	238,297.3953	
A1112	PT	134+07.316						655,553.9571	238,491.9858	319° 33' 40.45"
A1113	POT	℄ CAUSEWAY 2 138+07.435						655,294.4257	238,796.5165	
℄ CAUSEWAY DR <CAUS-DR>										
A1200	POT	℄ CAUSEWAY DR 10+00.000						655,694.9821	237,496.7134	
A1201	PC	10+96.392						655,768.8224	237,558.6730	49° 59' 59.67"
A1202	PI	10+99.787	3° 53' 20.24" LT	57° 17' 44.81"	100.000'	3.395'	6.788'	655,771.4232	237,560.8553	PI
A1203	CC							655,704.5435	237,635.2774	
A1204	PT	11+03.179						655,773.8700	237,563.2090	46° 06' 39.43"
A1205	PC	13+33.266						655,939.6900	237,722.7201	
A1206	PI	13+86.929	56° 26' 17.92" LT	57° 17' 44.81"	100.000'	53.663'	98.503'	655,978.3637	237,759.9225	PI
A1207	CC							655,870.3636	237,794.7885	
A1208	PT	14+31.770						655,968.7435	237,812.7157	349° 40' 21.51"
A1209	PC	14+58.744						655,963.9078	237,839.2528	
A1210	PI	15+18.221	70° 24' 56.19" RT	67° 58' 30.26"	84.289'	59.477'	103.590'	655,953.2453	237,897.7660	PI
A1211	CC							656,046.8317	237,854.3635	
A1212	PT	15+62.334						656,004.7995	237,927.4251	60° 05' 17.70"
A1213	POT	℄ CAUSEWAY DR 16+14.106						656,049.6745	237,953.2416	

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME.

NO	DATE	BY	CKD	APPR	REVISION
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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

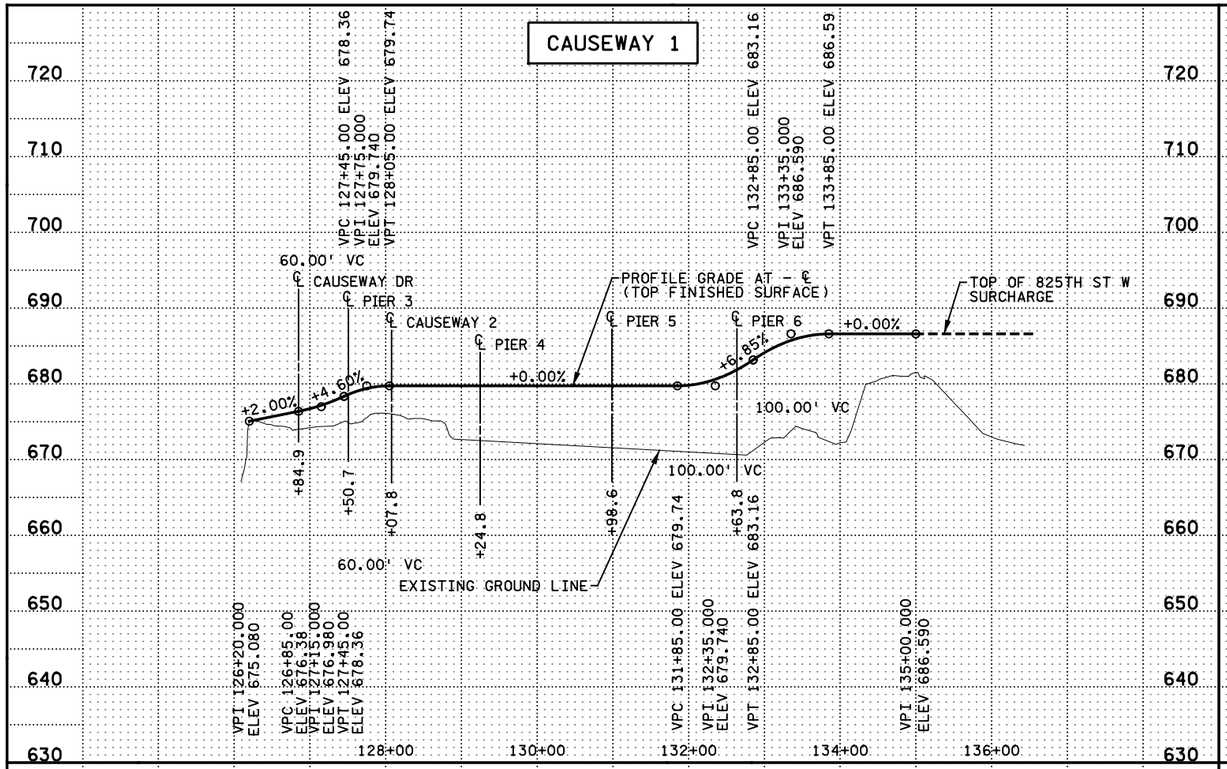
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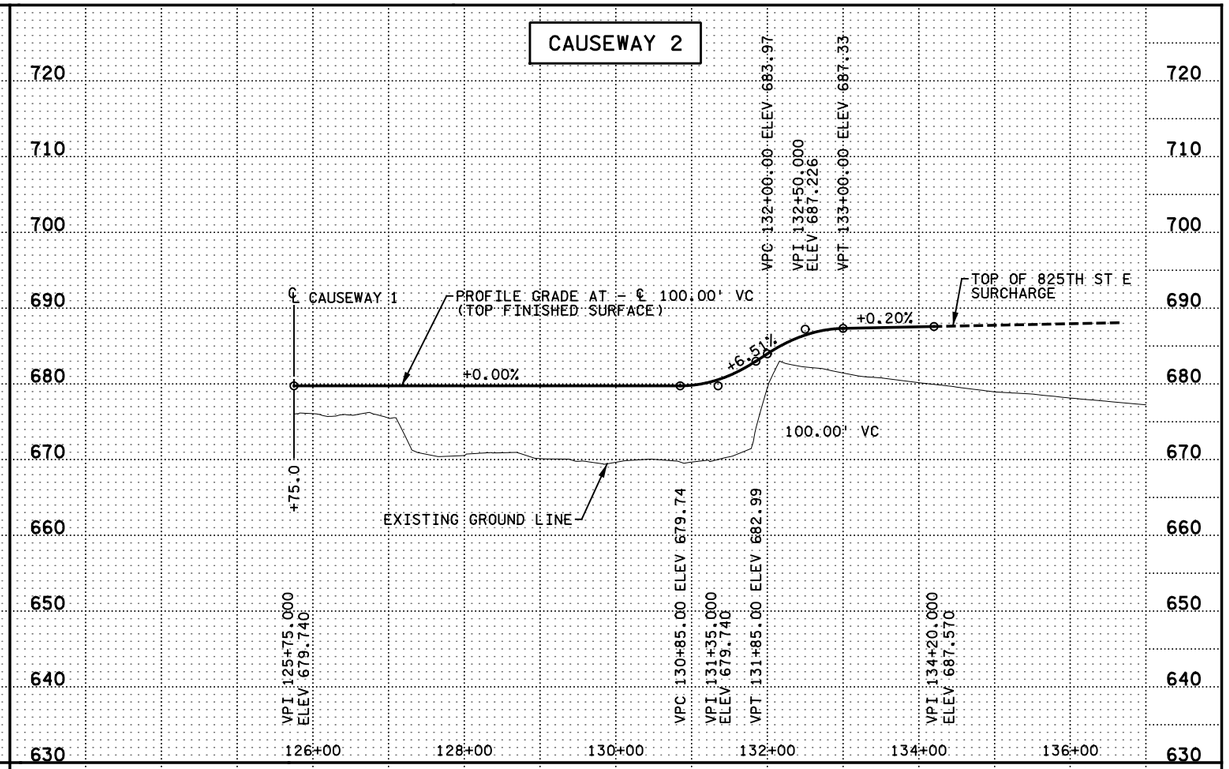
SP 2515-21 (TH 63)

CONSTRUCT ACCESS FACILITIES - TYPICALS

SHEET 40 OF 688

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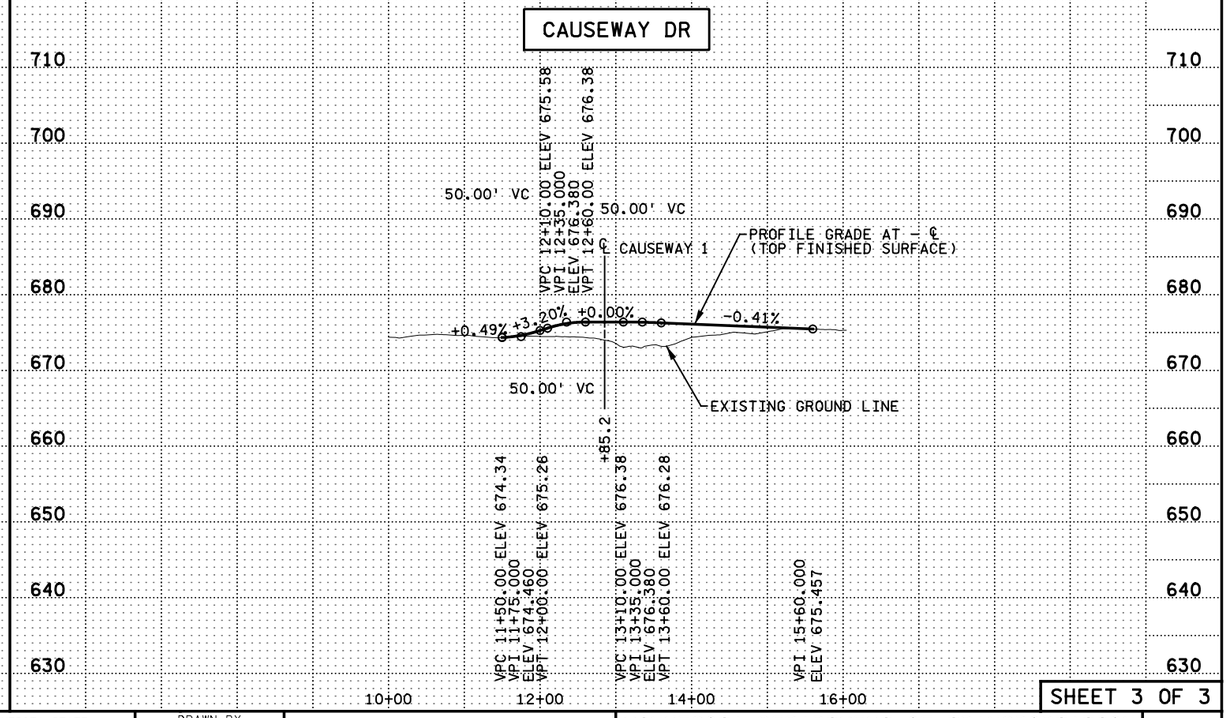
VERTICAL CONTROL

THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 6 SURVEYS.

VERTICAL CONTROL	
POINT NAME	ELEVATION
MNDOT BLUE	707.613
MNDOT 2515 B	738.171

LEGEND

SSD = STOPPING SIGHT DISTANCE
HSD = HEADLIGHT SIGHT DISTANCE
CS = COMFORT SAG



SHEET 3 OF 3

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

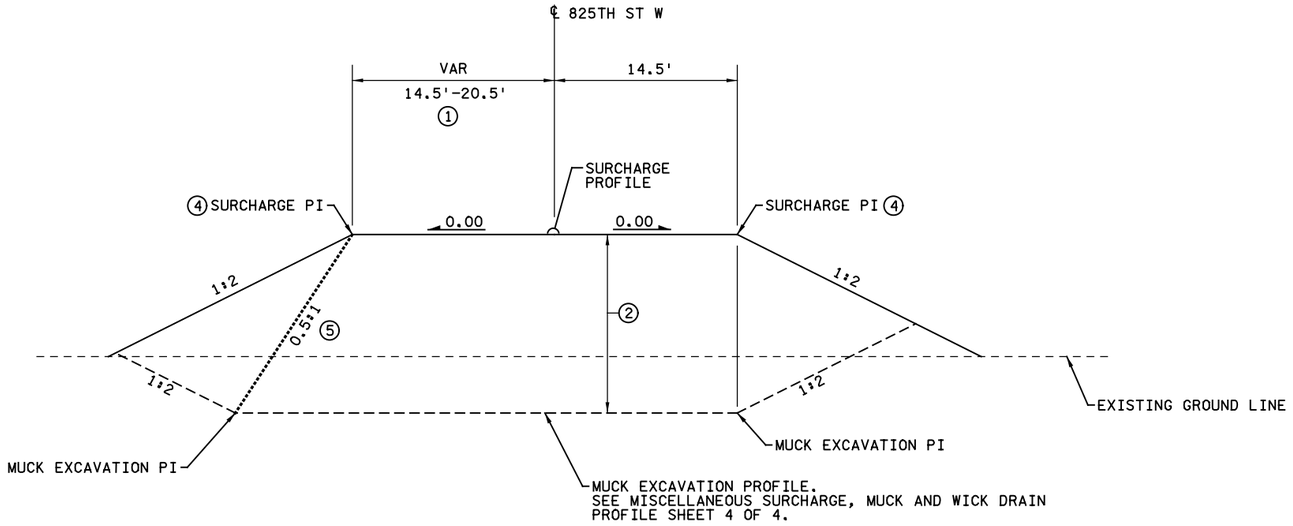
DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
CONSTRUCT ACCESS FACILITIES – PROFILES

SHEET 41 OF 688

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825TH ST W
SURCHARGE-MUCK EXCAVATION TYPICAL

825TH ST W STA 213+74.3 TO STA 221+54.0

NOTES:

① SEE MISCELLANEOUS DETAILS SURCHARGE, MUCK AND WICK DRAIN - PLAN FOR WIDTH TRANSITION LOCATIONS.

② BACKFILL WITH GRANULAR EMBANKMENT.

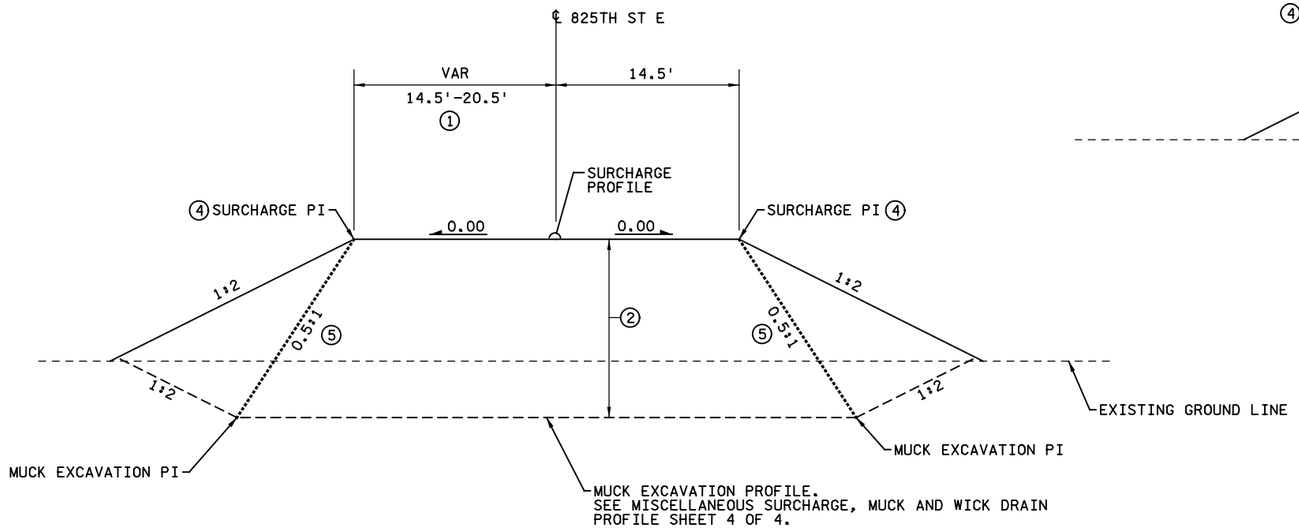
④ SEE MISCELLANEOUS DETAILS FOR SURCHARGE, MUCK AND WICK DRAIN - PLAN FOR SURCHARGE PI LOCATIONS.

⑤ SLOPE USED TO DEFINE MUCK EXCAVATION PI LOCATION.

GENERAL NOTES:

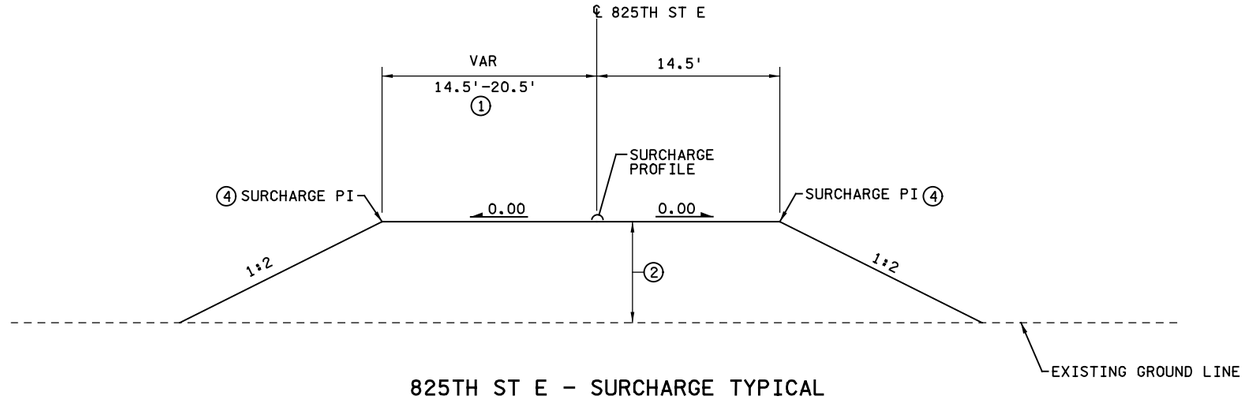
SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION.

ALL CROSS SLOPES ARE IN FEET PER FOOT.



825TH ST E
SURCHARGE-MUCK EXCAVATION TYPICAL

825TH ST E STA 202+60.0 TO STA 204+04.2



825TH ST E - SURCHARGE TYPICAL

825TH ST E STA 200+70.0 TO STA 202+60.0
825TH ST E STA 204+04.2 TO STA 204+65.0
825TH ST E STA 205+90.0 TO STA 213+10.0

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_ts13.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY B. GONOWOLO
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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SHEET 1 OF 6

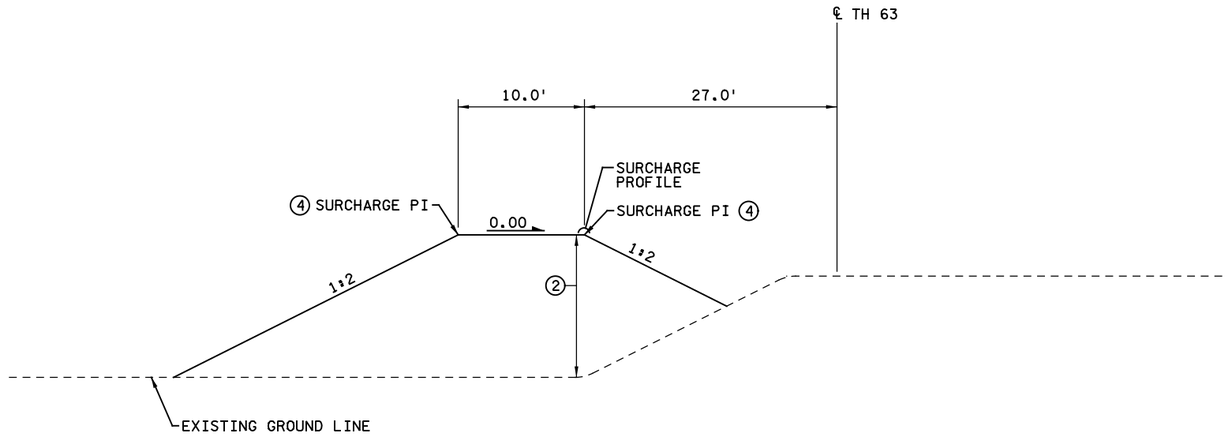
825TH ST E AND 825TH ST W
SURCHARGE & MUCK

MINNESOTA DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
SURCHARGE, MUCK AND WICK DRAIN - TYPICAL

SHEET 42 OF 688

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TH 63 – SURCHARGE TYPICAL

TH 63 STA 140+49.0 TO STA 146+00.0

NOTES:

① SEE MISCELLANEOUS DETAILS SURCHARGE, MUCK AND WICK DRAIN – PLAN FOR WIDTH TRANSITION LOCATIONS.

② BACKFILL WITH GRANULAR EMBANKMENT.

③ SEE MISCELLANEOUS DETAILS SURCHARGE, MUCK AND WICK DRAIN – PLAN FOR BLANKET AND SHORING LIMITS.

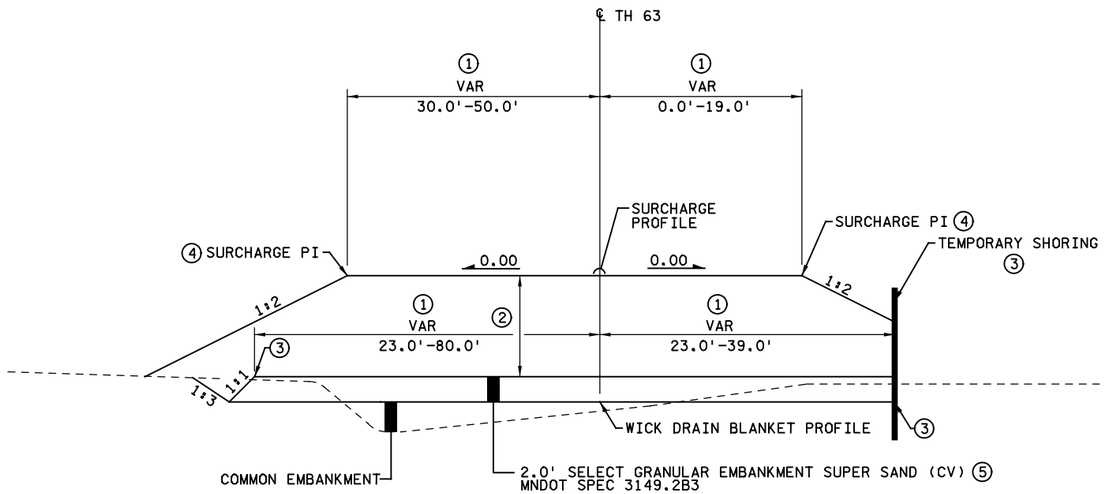
④ SEE MISCELLANEOUS DETAILS SURCHARGE, MUCK AND WICK DRAIN – PLAN FOR SURCHARGE PI LOCATIONS.

⑤ MUST MEET VIRGIN MATERIAL REQUIREMENTS

GENERAL NOTES:

SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION.

ALL CROSS SLOPES ARE IN FEET PER FOOT.



TH 63
WICK DRAIN – SURCHARGE TYPICAL

TH 63 STA 134+50.0 TO STA 139+50.0

SHEET 2 OF 6 | TH 63 SURCHARGE & WICK DRAIN

NO	DATE	BY	CKD	APPR	REVISION
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Date _____ License # 45039

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY B. GONOWOLO

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. | ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

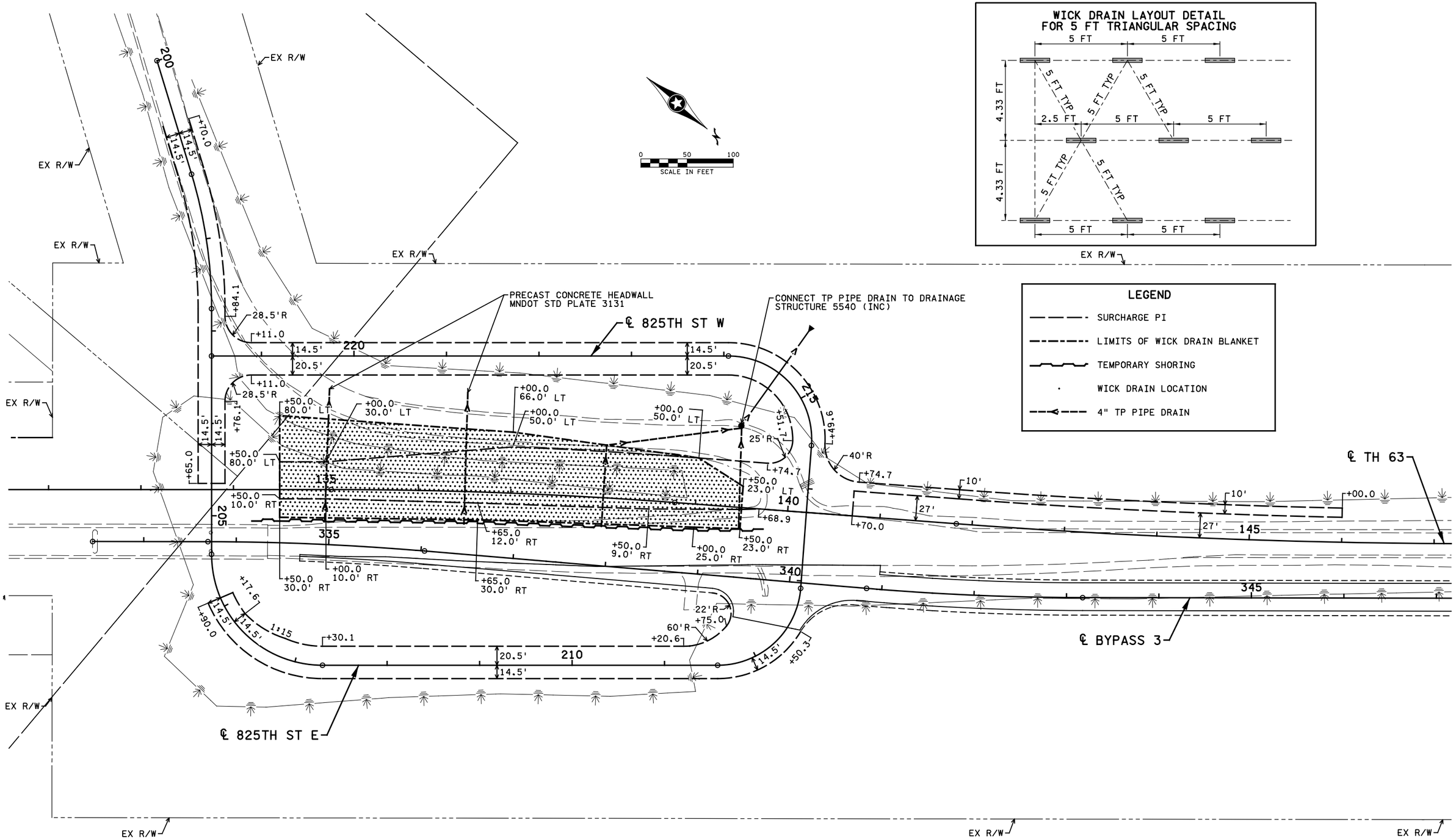
MISCELLANEOUS DETAILS

SP 2515-21 (TH 63)

SURCHARGE, MUCK AND WICK DRAIN - TYPICAL

SHEET 43 OF 688

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SHEET 3 OF 6

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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS

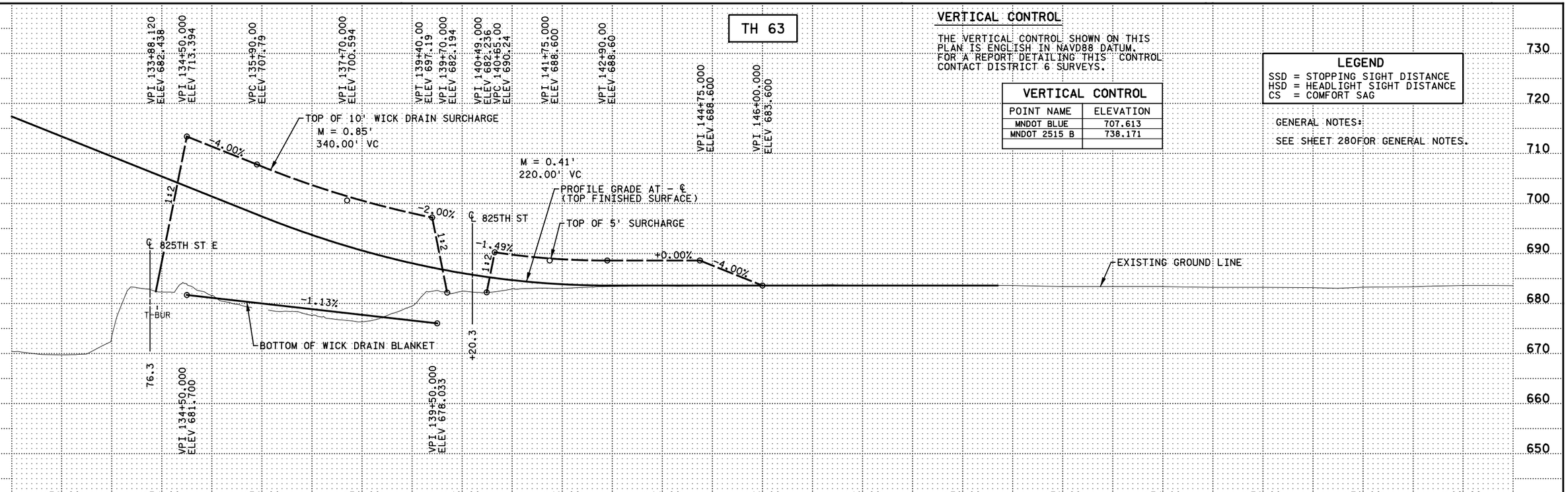
SP 2515-21 (TH 63)

SURCHARGE, MUCK AND WICK DRAIN - PLAN

SHEET 44 OF 688

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TH 63



VERTICAL CONTROL

THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 6 SURVEYS.

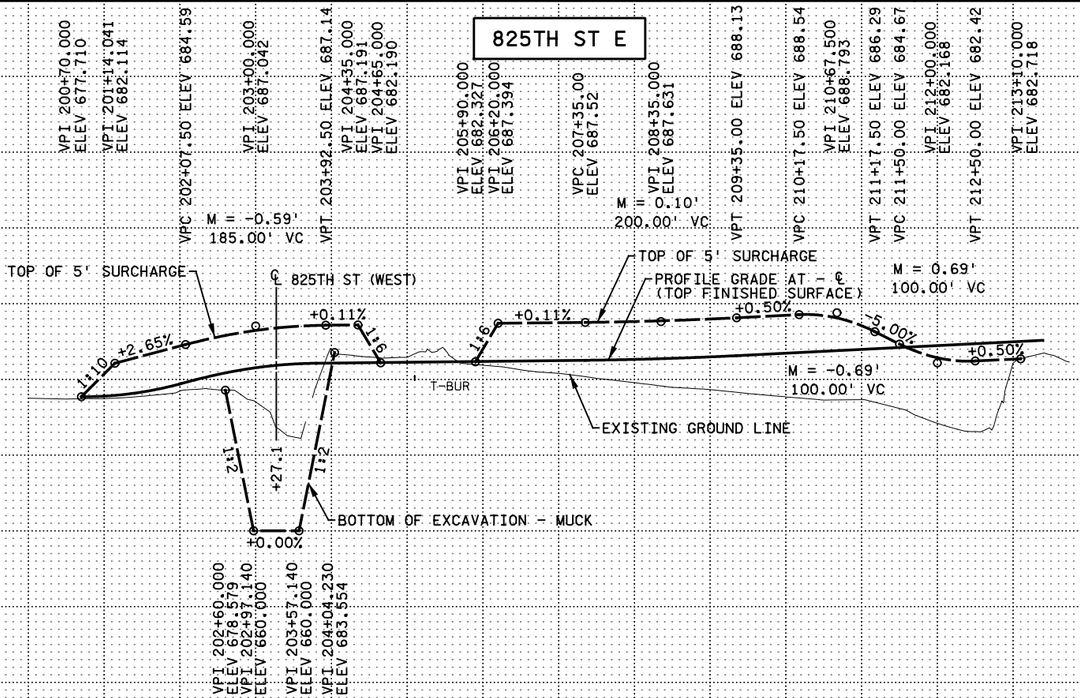
VERTICAL CONTROL	
POINT NAME	ELEVATION
MNDOT BLUE	707.613
MNDOT 2515 B	738.171

LEGEND
SSD = STOPPING SIGHT DISTANCE
HSD = HEADLIGHT SIGHT DISTANCE
CS = COMFORT SAG

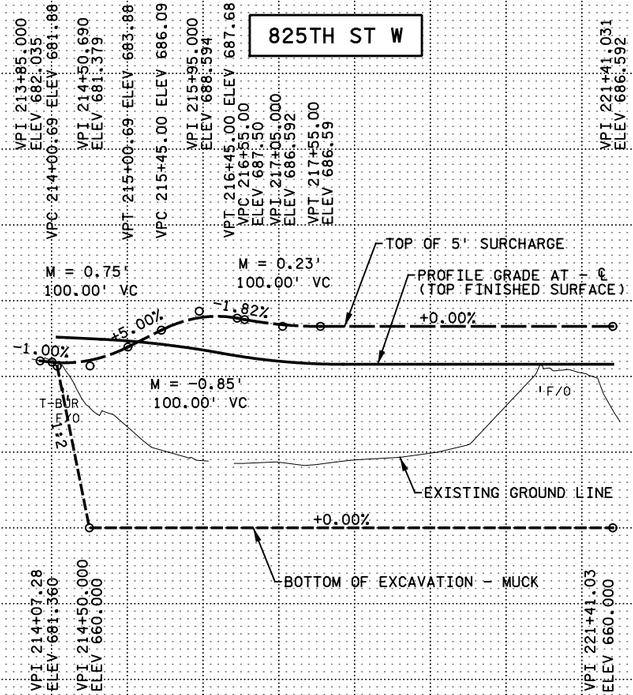
GENERAL NOTES:

SEE SHEET 280FOR GENERAL NOTES.

825TH ST E



825TH ST W



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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

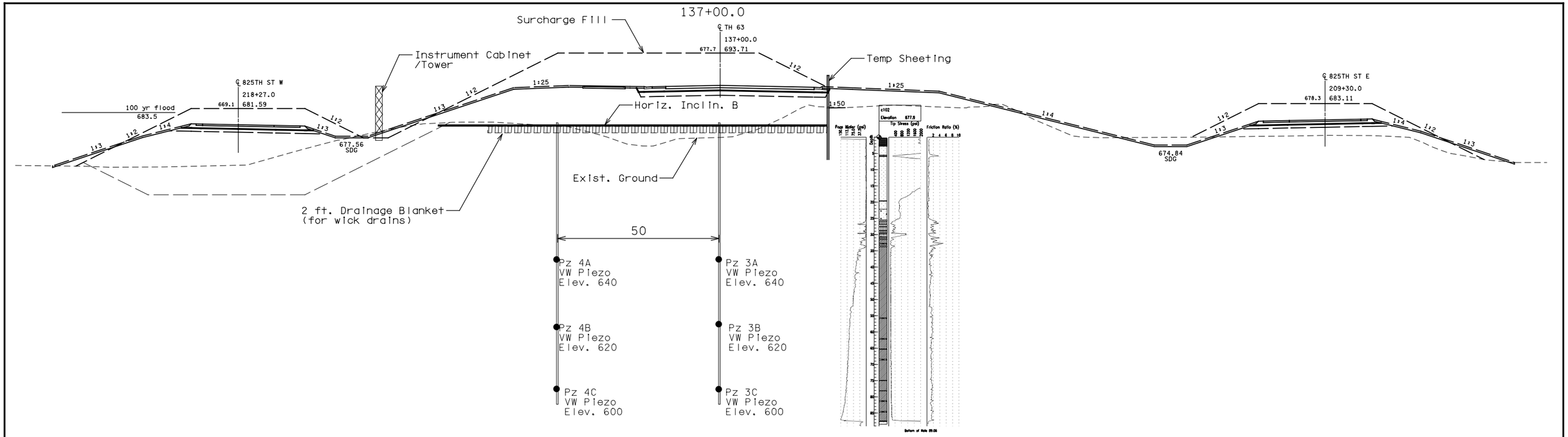
MINNESOTA DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
SURCHARGE, MUCK AND WICK DRAIN - PROFILE

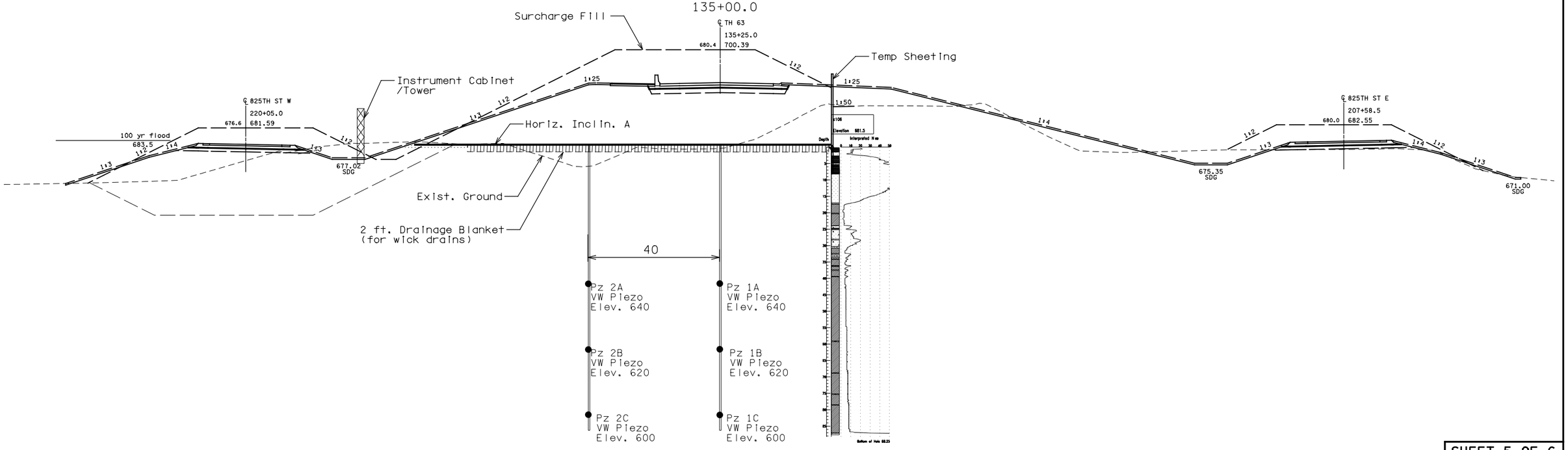
SHEET 45 OF 688

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137+00.0



135+00.0



SHEET 5 OF 6

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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY D. SYMANIETZ

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc.

ENGINEERS PLANNERS DESIGNERS

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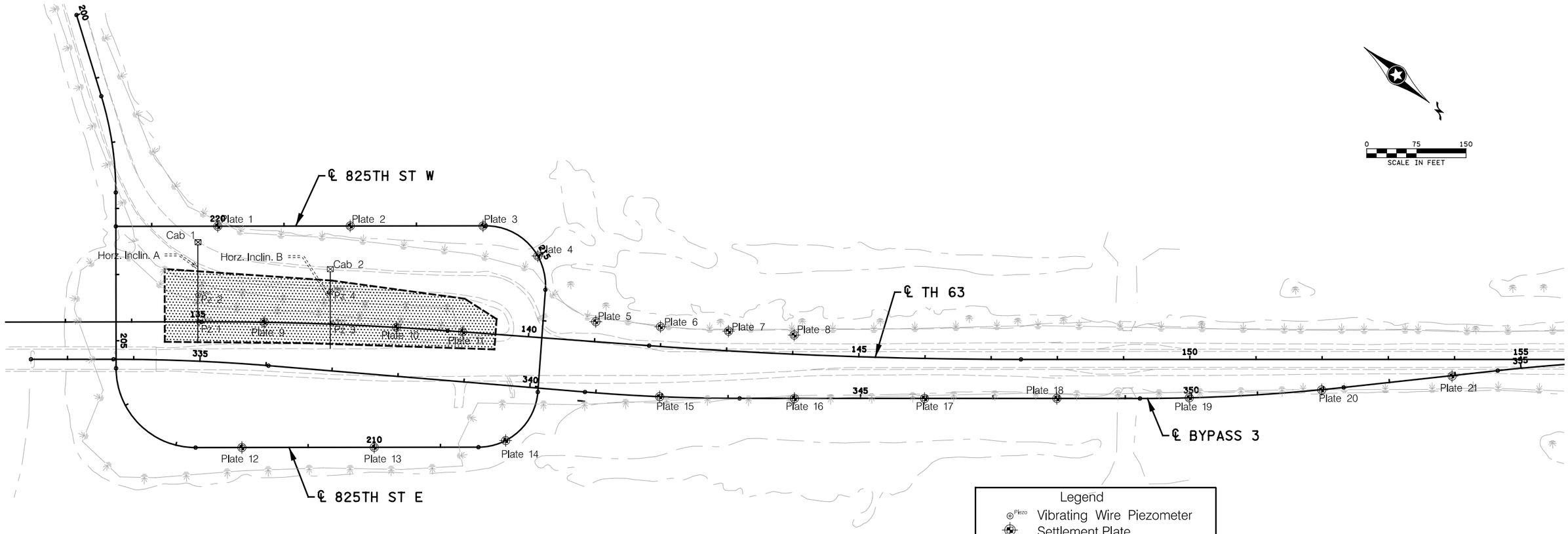
MISCELLANEOUS DETAILS

SP 2515-21 (TH 63)

SURCHARGE, MUCK AND WICK DRAIN - INSTRUMENTATION XS

SHEET 46 OF 688

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Gage ID	Location	Gage Type	Gage Elev.
Horz. Inclin. A	TH 63 135+00, 27 ft. RT to 90 ft. LT	Horizontal Inclinometer	Top of LTP
Horz. Inclin. B	TH 63 137+00, 32 ft. RT to 50 ft. LT	Horizontal Inclinometer	Top of LTP
Pz 1A	TH 63 135+00, Centerline	Vibrating Wire Piezometer	*640*
Pz 1B	TH 63 135+00, Centerline	Vibrating Wire Piezometer	*620*
Pz 1C	TH 63 135+00, Centerline	Vibrating Wire Piezometer	*600*
Pz 2A	TH 63 135+00 TH, 40 ft. LT	Vibrating Wire Piezometer	*640*
Pz 2B	TH 63 135+00 TH, 40 ft. LT	Vibrating Wire Piezometer	*620*
Pz 2C	TH 63 135+00 TH, 40 ft. LT	Vibrating Wire Piezometer	*600*
Pz 3A	TH 63 137+00, Centerline	Vibrating Wire Piezometer	*640*
Pz 3B	TH 63 137+00, Centerline	Vibrating Wire Piezometer	*620*
Pz 3C	TH 63 137+00, Centerline	Vibrating Wire Piezometer	*600*
Pz 3A	TH 63 137+00, 50 ft. LT	Vibrating Wire Piezometer	*640*
Pz 3B	TH 63 137+00, 50 ft. LT	Vibrating Wire Piezometer	*620*
Pz 3C	TH 63 137+00, 50 ft. LT	Vibrating Wire Piezometer	*600*

Gage ID	Location	Gage Type	Gage Elev.
Plate 1	825th St. W. 220+00, Centerline	Settlement Plate	in-place ground
Plate 2	825th St. W. 218+00, Centerline	Settlement Plate	in-place ground
Plate 3	825th St. W. 216+00, Centerline	Settlement Plate	in-place ground
Plate 4	825th St. W. 215+00, Centerline	Settlement Plate	in-place ground
Plate 5	TH 63 141+00, 30 ft. LT	Settlement Plate	in-place ground
Plate 6	TH 63 141+00, 30 ft. LT	Settlement Plate	in-place ground
Plate 7	TH 63 141+00, 30 ft. LT	Settlement Plate	in-place ground
Plate 8	TH 63 141+00, 30 ft. LT	Settlement Plate	in-place ground
Plate 9	TH 63 136+00, Centerline	Settlement Plate	in-place ground
Plate 10	TH 63 138+00, Centerline	Settlement Plate	in-place ground
Plate 11	TH 63 139+00, Centerline	Settlement Plate	in-place ground
Plate 12	825th St. E. 208+00, Centerline	Settlement Plate	in-place ground
Plate 13	825th St. E. 210+00, Centerline	Settlement Plate	in-place ground
Plate 14	825th St. E. 212+00, Centerline	Settlement Plate	in-place ground
Plate 15	Bypass 3 342+00, Centerline	Settlement Plate	in-place ground
Plate 16	Bypass 3 344+00, Centerline	Settlement Plate	in-place ground
Plate 17	Bypass 3 346+00, Centerline	Settlement Plate	in-place ground
Plate 18	Bypass 3 348+00, Centerline	Settlement Plate	in-place ground
Plate 19	Bypass 3 350+00, Centerline	Settlement Plate	in-place ground
Plate 20	Bypass 3 352+00, Centerline	Settlement Plate	in-place ground
Plate 21	Bypass 3 354+00, Centerline	Settlement Plate	in-place ground

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: CRAIG J. HASS

Date _____ License # 45039

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY D. SYMANIETZ

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

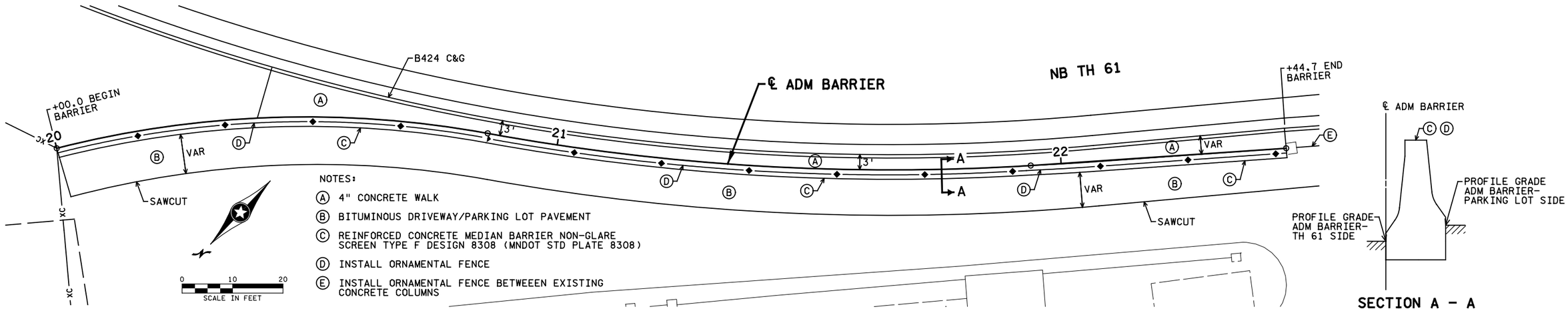
MISCELLANEOUS DETAILS

SP 2515-21 (TH 63)

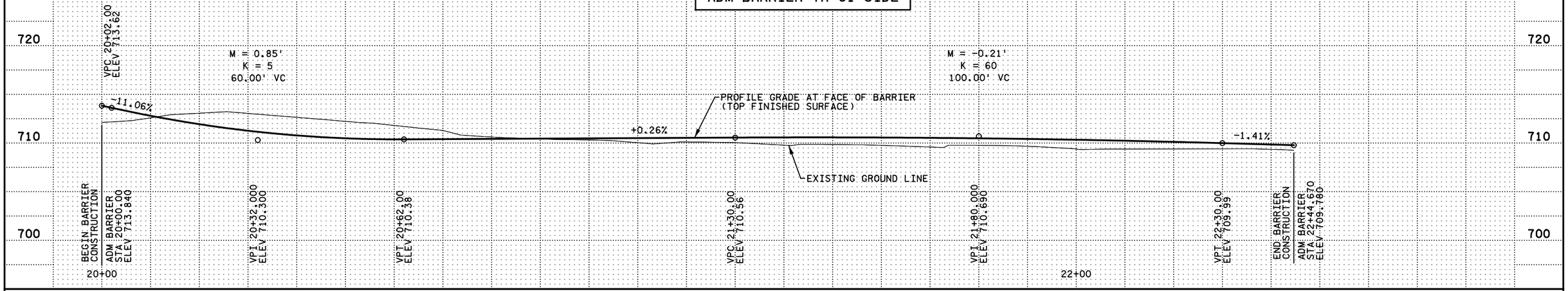
SURCHARGE, MUCK AND WICK DRAIN - INSTRUMENTATION PLAN

SHEET 47 OF 688

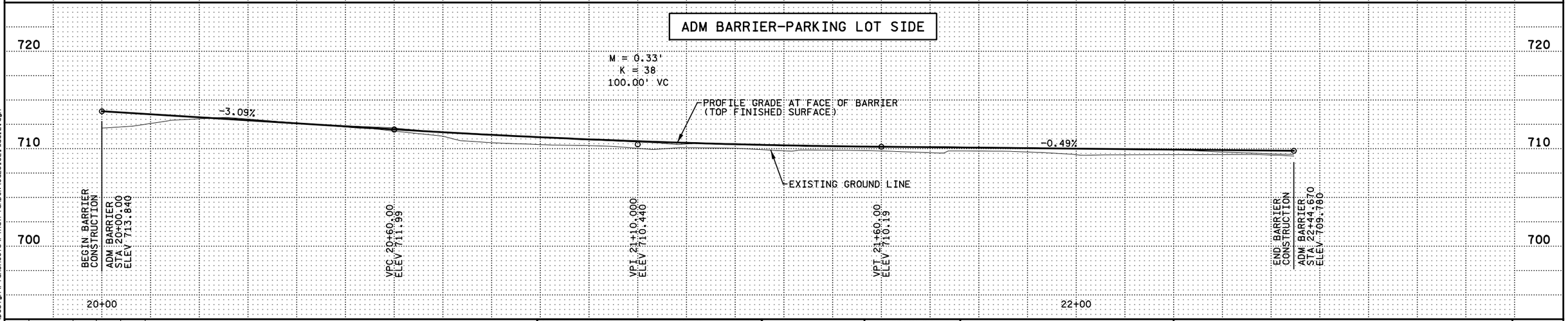
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ADM BARRIER-TH 61 SIDE



ADM BARRIER-PARKING LOT SIDE



NO	DATE	BY	CKD	APPR	REVISION

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS

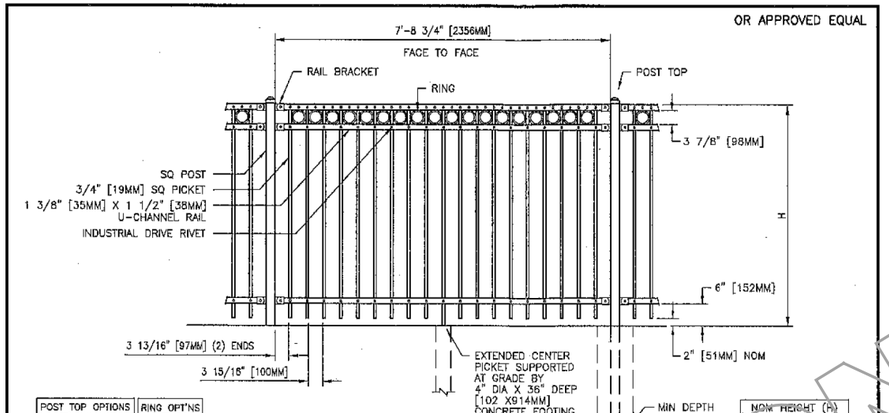
SP 2515-21 (TH 63)

ADM BARRIER

SHEET 48 OF 688

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OR APPROVED EQUAL



NOM HEIGHT (H)
3'-0" [914MM]
3'-6" [1067MM]
4'-0" [1219MM]
5'-0" [1524MM]
6'-0" [1829MM]
7'-0" [2134MM]
8'-0" [2438MM]

FENCE SECTION ELEVATION

NOTES:
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
2. SPECIFICATIONS SHOWN CAN BE CHANGED BY MASTER-HALCO ONLY.
3. FOOTING WIDTH TO BE (4)X POST WIDTH.

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MONUMENTAL IRON WORKS

IMPERIAL FENCE – STYLE D MOD

NOM 8' SECTION LENGTH
SOLID STEEL 3/4" PICKETS

BY:	JRR
DATE:	05-22-95
REV:	C
REV DATE:	02-14-00
DWG:	6-1130S
LAYER:	1
SCALE:	1/2" = 1'-0"

DEMOLITION NOTES

1.) PER MINNESOTA STATUTES 2002, SECTION 216D.04, SUBDIVISION 1A, THE EXISTING UNDERGROUND UTILITIES FOR THIS PROJECT SHALL BE CONSIDERED A "D" CLASSIFICATION.

2.) CONTRACTOR SHALL COORDINATE DISCONNECTION OF UTILITIES WITH RESPECTIVE UTILITY COMPANIES AND PERFORM DISCONNECTION OPERATIONS AND ABANDONMENTS IN ACCORDANCE WITH ALL STATE AND CITY OF RED WING STANDARDS SPECIFICATIONS.

3.) PRIOR TO ANY BUILDING OR STRUCTURE REMOVAL, CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF ALL HAZARDOUS MATERIALS IN COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS AND MUST BE APPROVED BY PROJECT MANAGER.

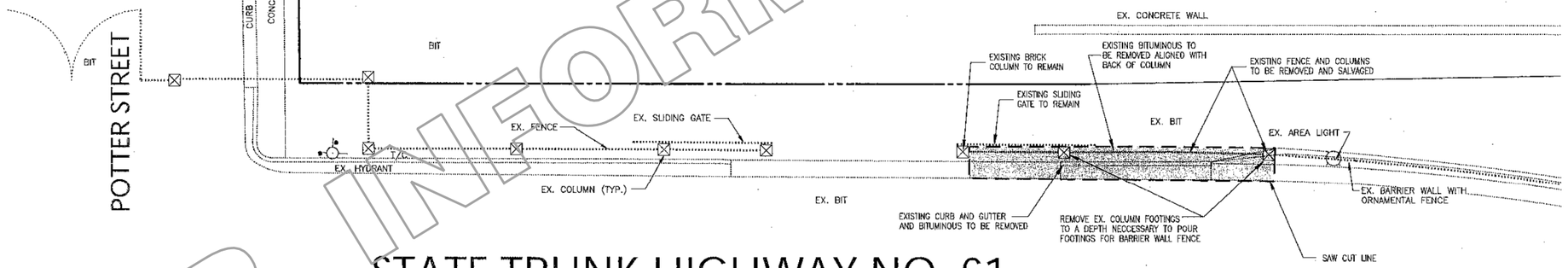
4.) ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL REGULATIONS SHALL BE COMPLIED WITH.

5.) ALL PERMITS, FEES AS REQUIRED BY GOVERNMENT AGENCIES, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

6.) ALL DEMOLITION DEBRIS TO BE LOADED INTO TRUCKS OR CONTAINERS SHALL BE APPROVED BY PROJECT MANAGER. DUMP, WASTE DISPOSAL, AND TRANSPORTATION COSTS TO BE PAID BY THE CONTRACTOR.

FOR INFORMATION ONLY

80



STATE TRUNK HIGHWAY NO. 61

SYMBOLS LEGEND

EXISTING FENCE AND COLUMNS TO BE REMOVED AND SALVAGED

SAW CUT LINE

EX. CONDITIONS AND DEMO PLAN

SCALE IN FEET 0 5 10 20

YAGGY COLBY ASSOCIATES
ENGINEERS • ARCHITECTS
SURVEYORS • PLANNERS
LANDSCAPE ARCHITECTS
717 THIRD AVENUE SOUTHEAST
ROCHESTER, MINNESOTA 55904
507-288-4464
FAX 507-288-4058
EMAIL INFO@YAGGY.COM

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MARK ROOT
25181 08-22-07
NUMBER DATE

ADM

ARCHER DANIELS MIDLAND CO.
STREET BARRIER AND FENCING
RED WING, MINNESOTA
EX. CONDITIONS AND DEMOL PLAN

PROJECT NUMBER	10187
DATE	08-22-07
DRAWN BY	JDW
CHECKED BY	MSR
REVISION HISTORY	

SHEET NUMBER
C1
OF TWO SHEETS

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

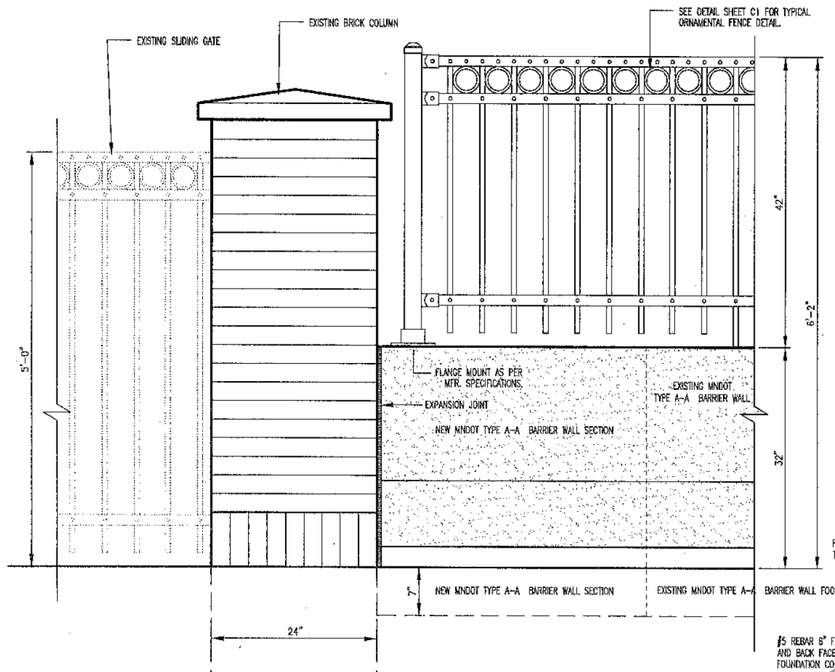
DRAWN BY
DESIGNED BY
CHECKED BY
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
ADM BARRIER – EXISTING ORNAMENTAL FENCE

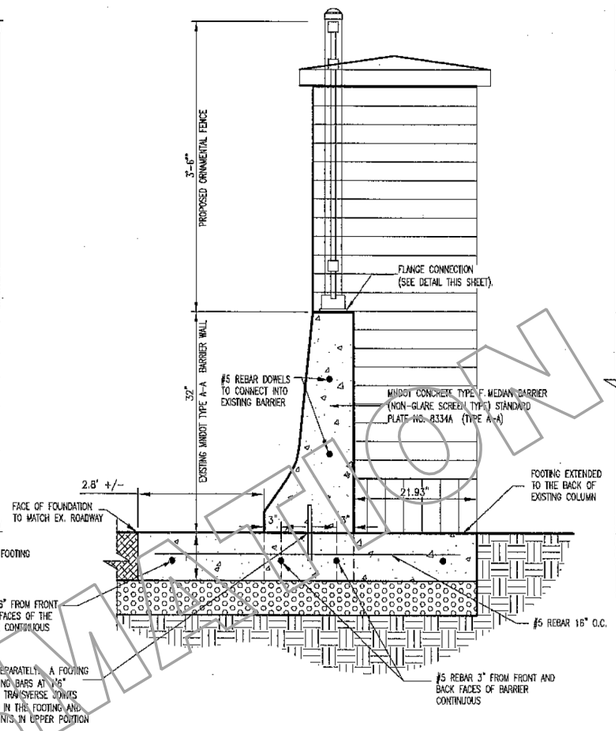
SHEET 49 OF 688

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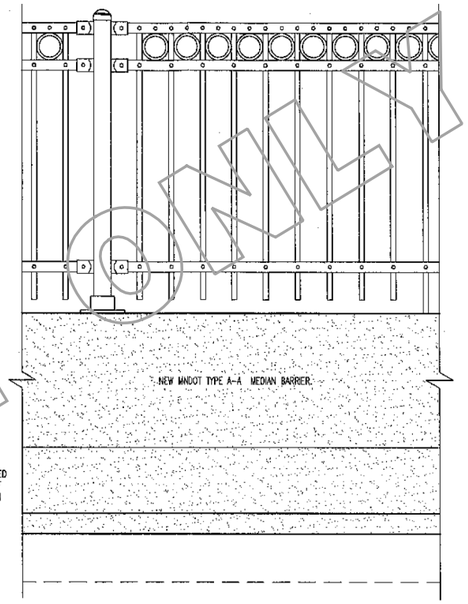
BRICK COLUMN AT BARRIER WALL ELEVATION

NOT TO SCALE



BARRIER WALL FENCE SECTION

NOT TO SCALE

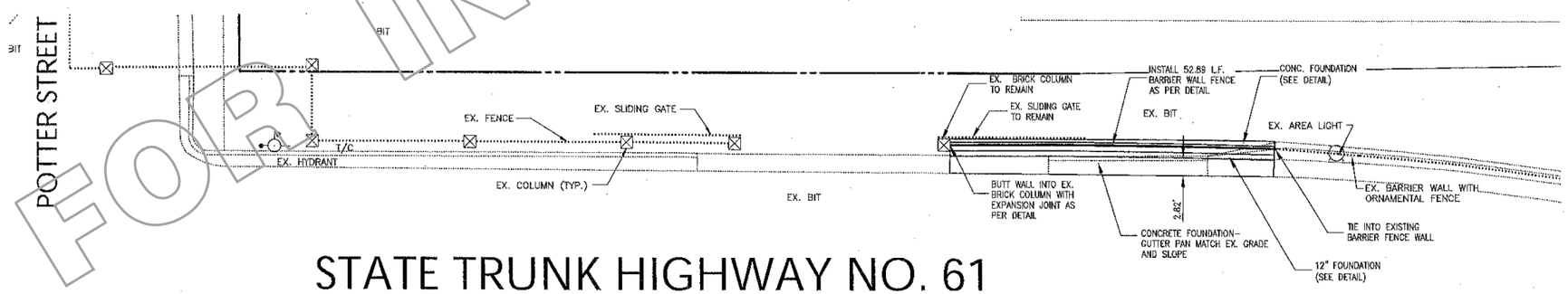


BARRIER WALL FENCE ELEVATION

NOT TO SCALE

SYMBOLS LEGEND

PROPOSED BARRIER WALL FENCE



STATE TRUNK HIGHWAY NO. 61



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SURVEYORS • PLANNERS
LANDSCAPE ARCHITECTS
717 THIRD AVENUE SOUTHEAST
ROCHESTER, MINNESOTA 55904
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FAX 507-288-9058
EMAIL INFO@YAGGY.COM

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MARK ROOT
25191 — NUMBER
08-22-07 — DATE

ADM

ARCHER DANIELS MIDLAND CO.
STREET BARRIER AND FENCING
RED WING, MINNESOTA
SITE PLAN

PROJECT NUMBER 10187
DATE 08-22-07
DRAWN BY JSW
CHECKED BY MSR
REVISION HISTORY

SHEET NUMBER
C2
OF TWO SHEETS

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

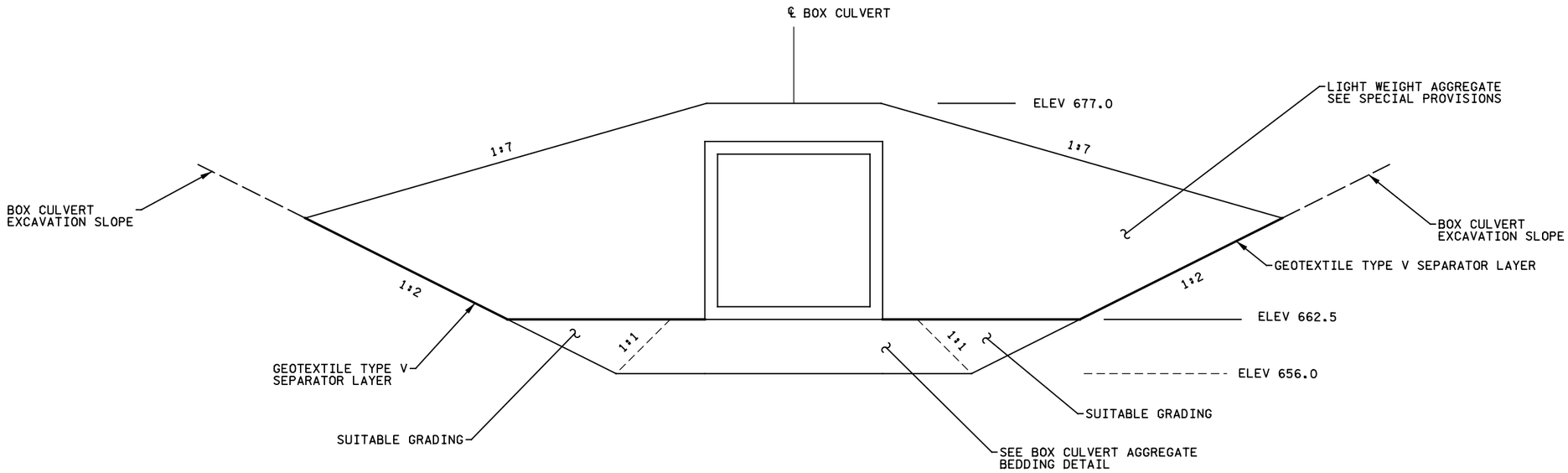
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DESIGNED BY
CHECKED BY
COMM. NO. 0158933

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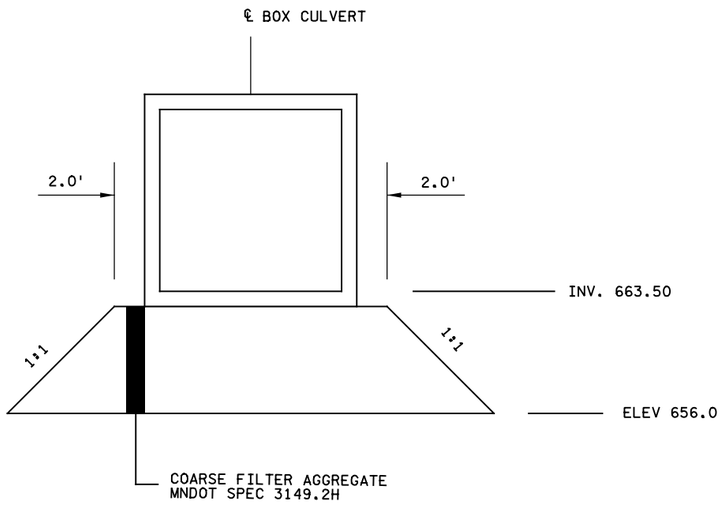
MINNESOTA DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
ADM BARRIER - EXISTING ORNAMENTAL FENCE

SHEET 50 OF 688

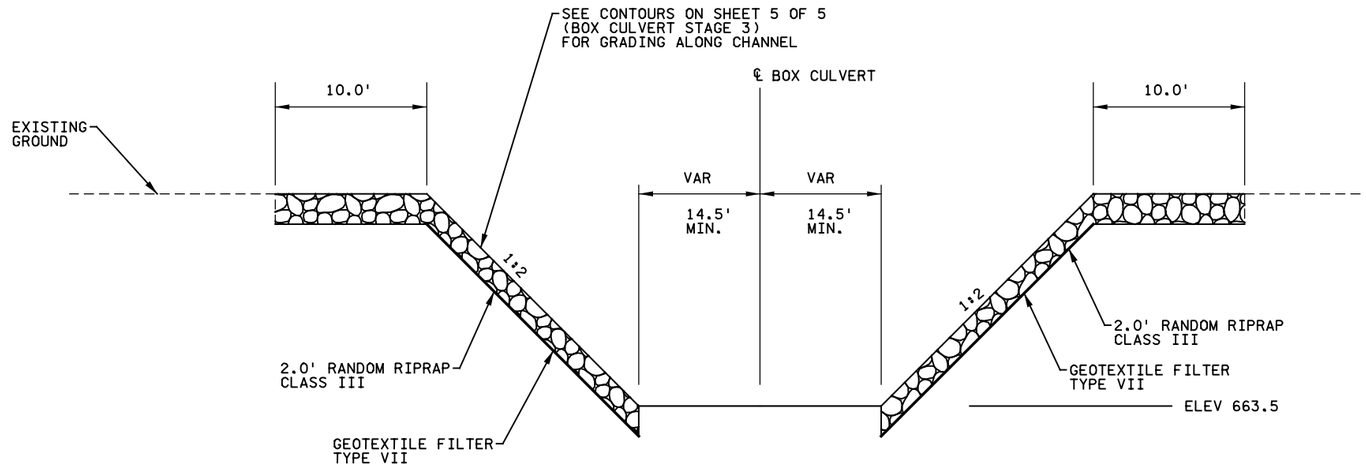
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BOX CULVERT - LIGHT WEIGHT FILL DETAIL



BOX CULVERT - AGGREGATE BEDDING DETAIL



BOX CULVERT - CHANNEL DETAIL

SHEET 1 OF 5

NO	DATE	BY	CKD	APPR	REVISION
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Date _____ License # 45039

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY D. SYMANIETZ

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

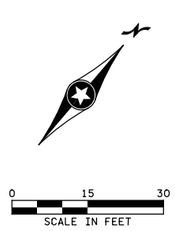
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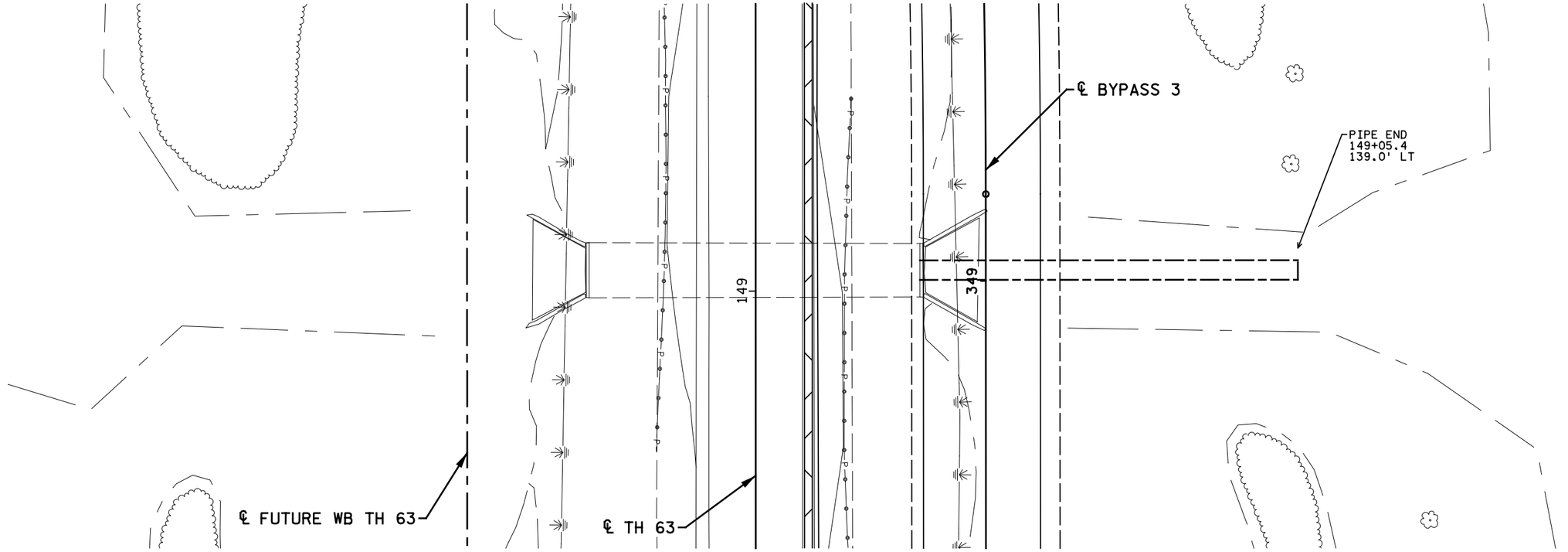
SP 2515-21 (TH 63)

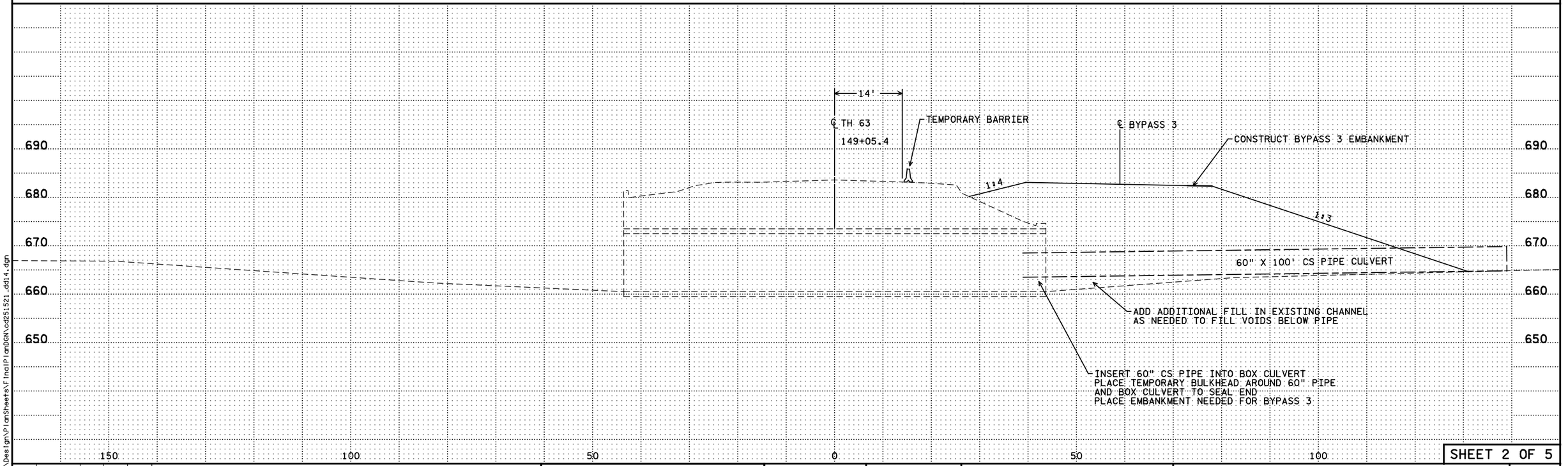
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SHEET 2 OF 5

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DESIGNED BY D. SYMANIETZ

CHECKED BY C. HASS

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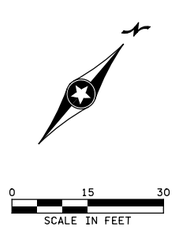
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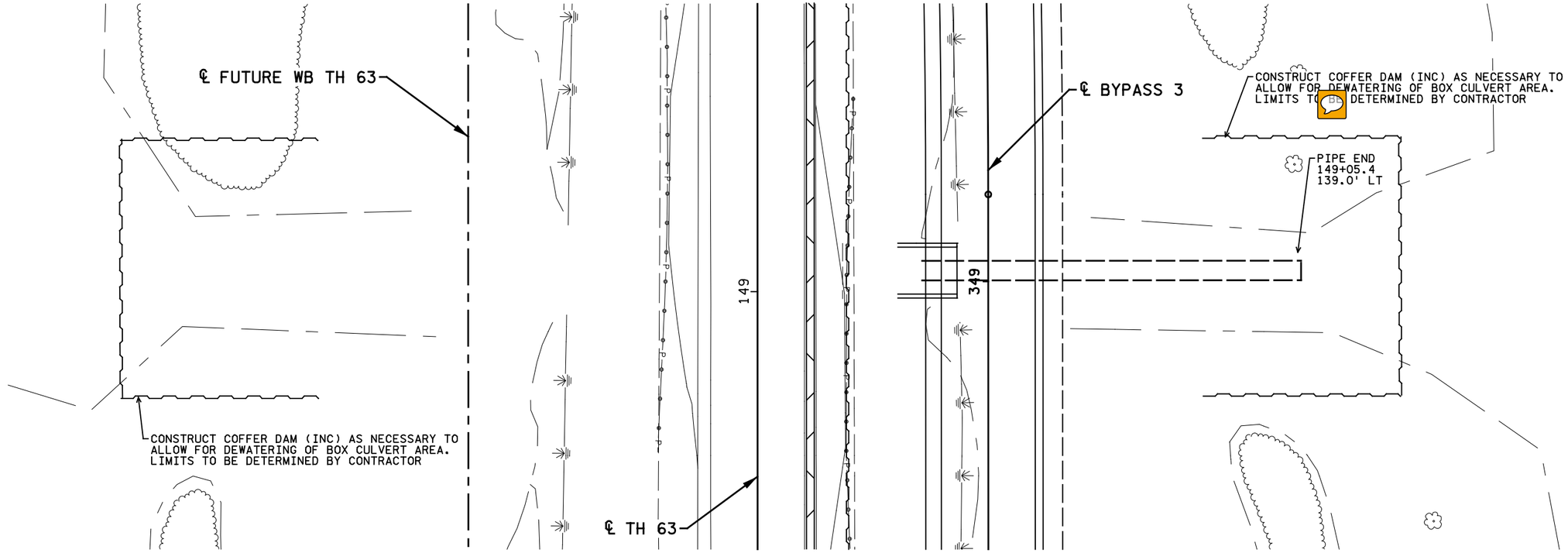
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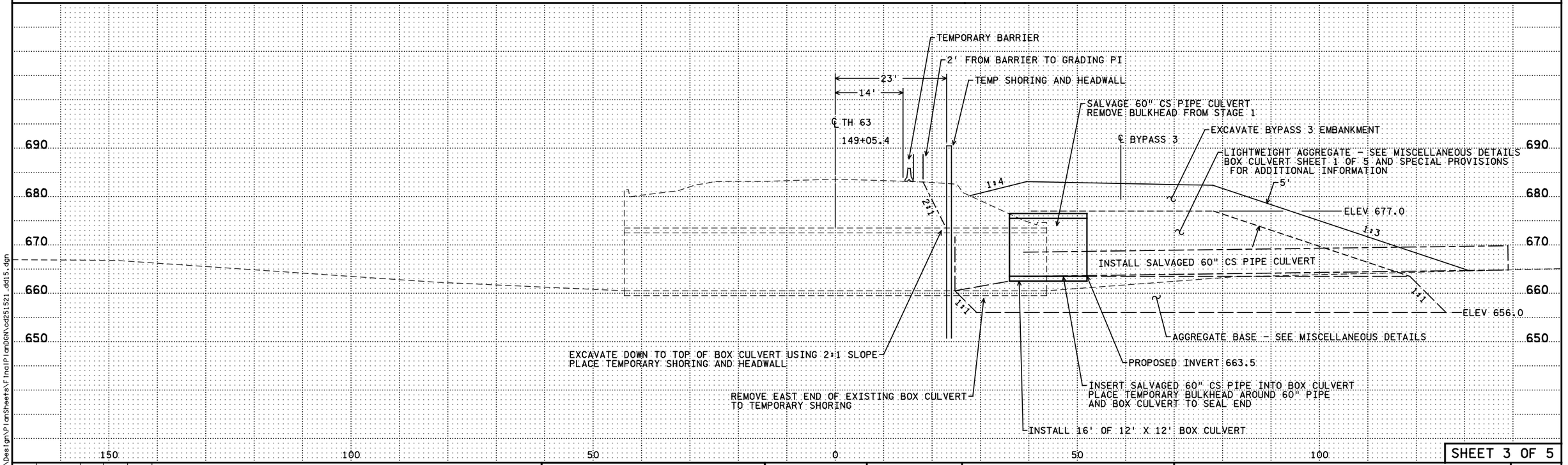
BOX CULVERT STAGE 1A

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SHEET 3 OF 5

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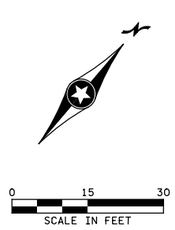
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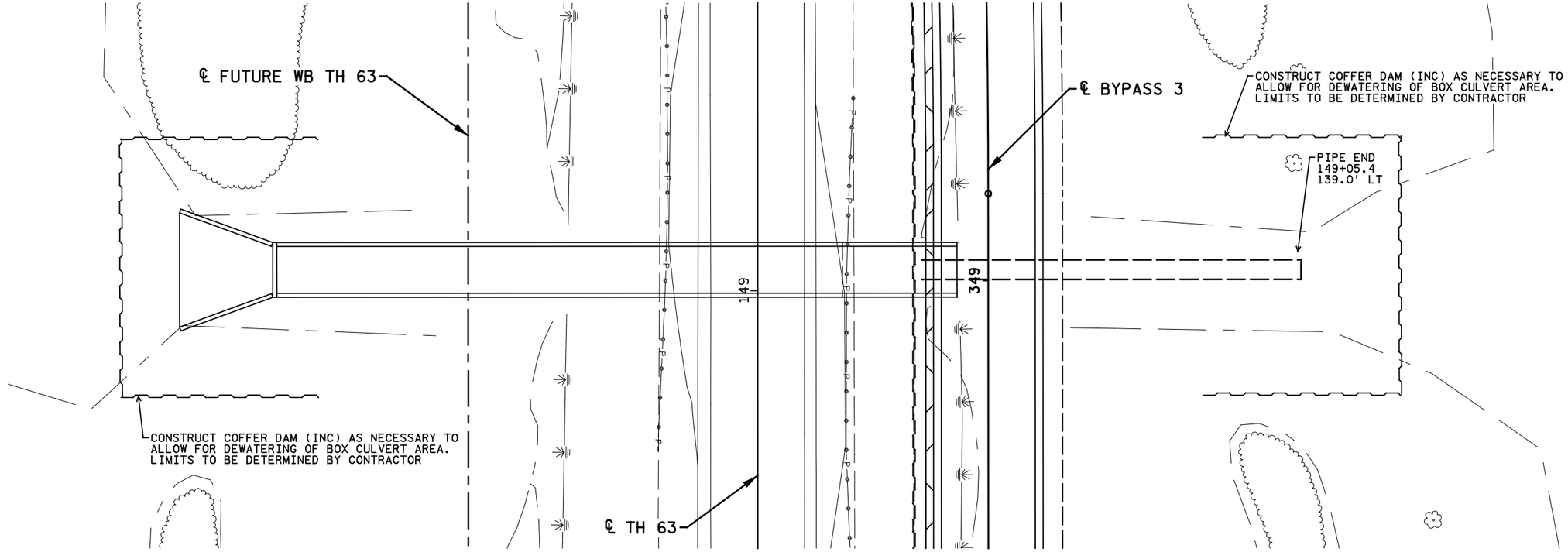
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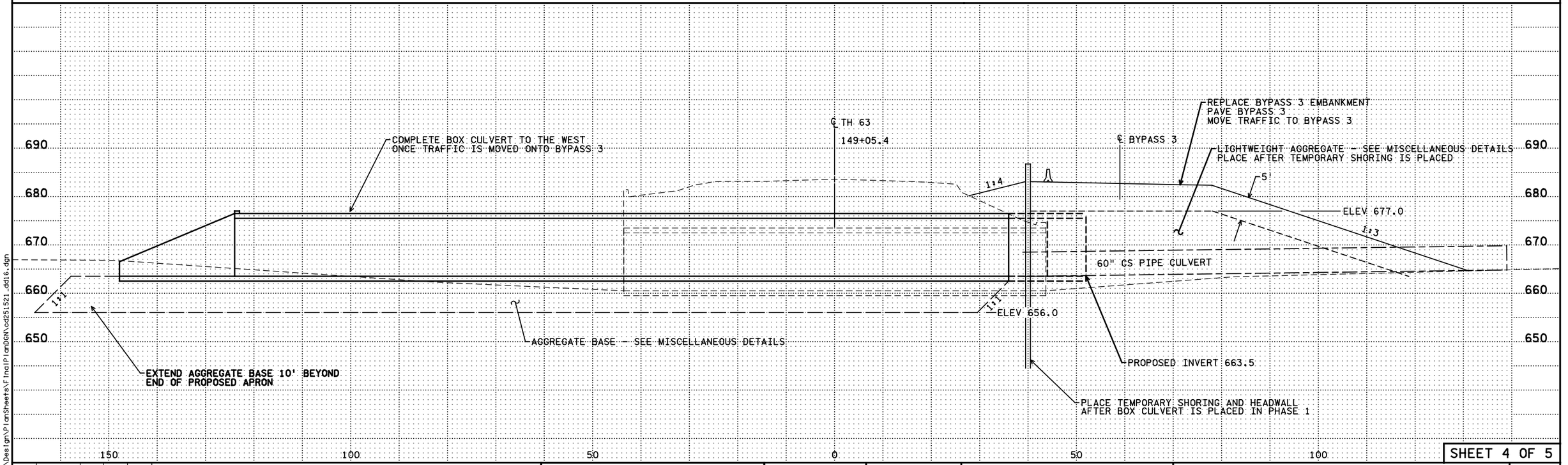
BOX CULVERT STAGE 2 - PHASE 1

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SHEET 4 OF 5

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY D. SYMANIETZ

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

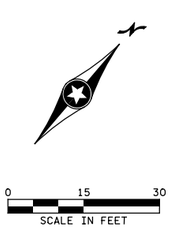
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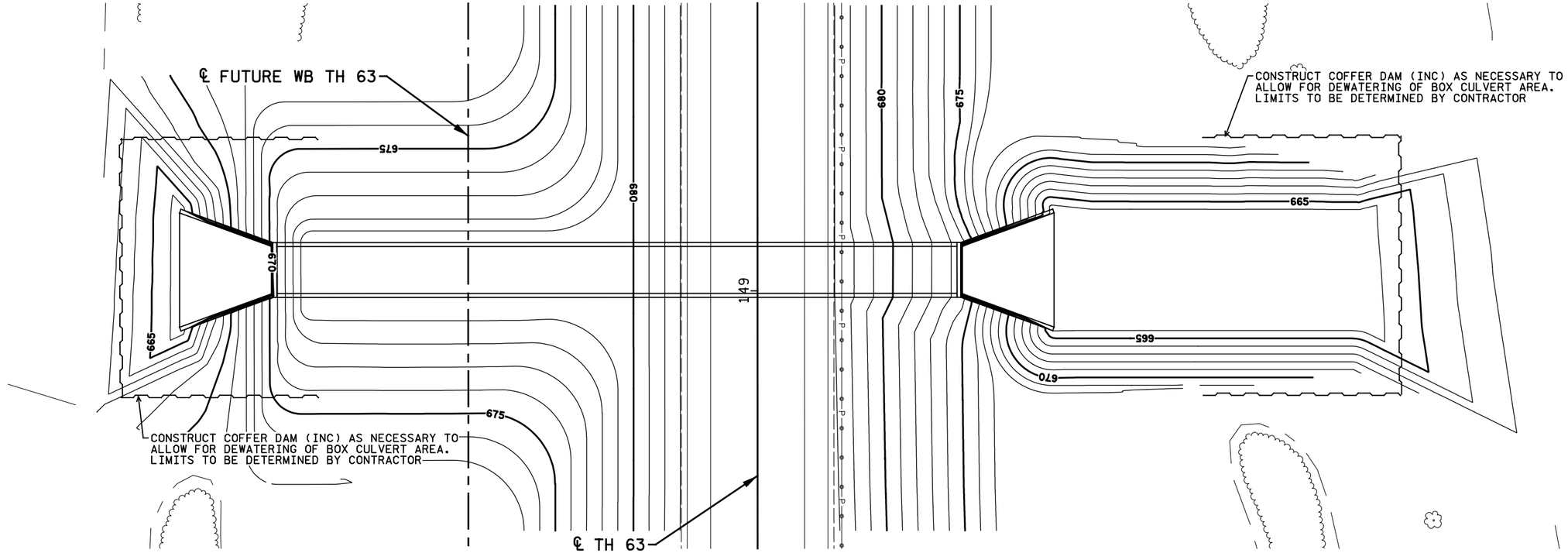
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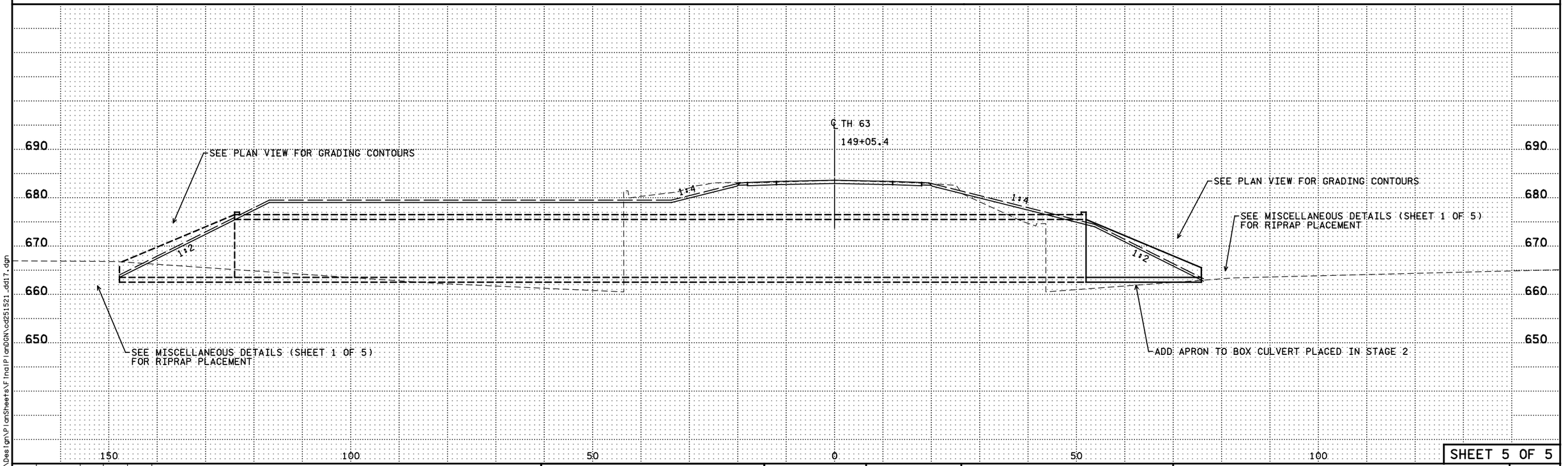
BOX CULVERT STAGE 2 - PHASE 2

SHEET 54 OF 688

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SHEET 5 OF 5

NO	DATE	BY	CKD	APPR	REVISION
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Date _____ License # 45039

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MINNESOTA STATE PROJECT NO. 2513-91

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DRAWN BY S. MARTINS

DESIGNED BY D. SYMANIETZ

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

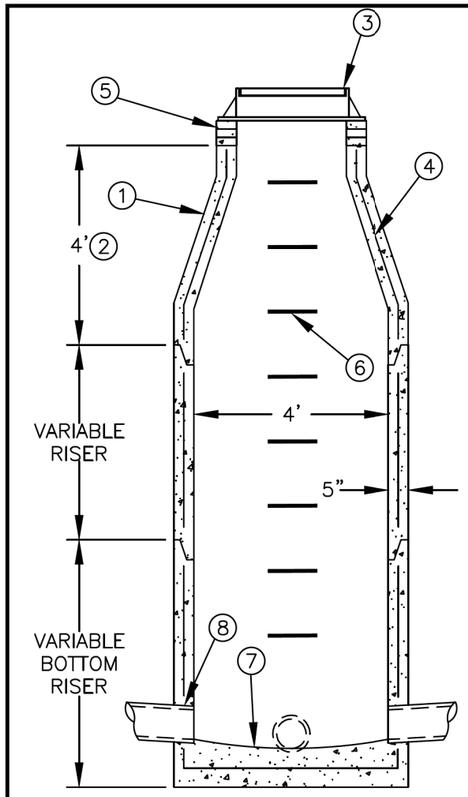
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SP 2515-21 (TH 63)

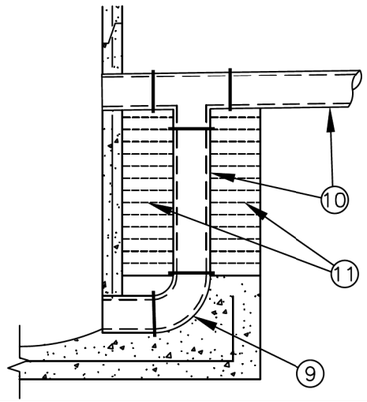
BOX CULVERT STAGE 3

SHEET 55 OF 688

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6/2/2016
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DROP DETAIL



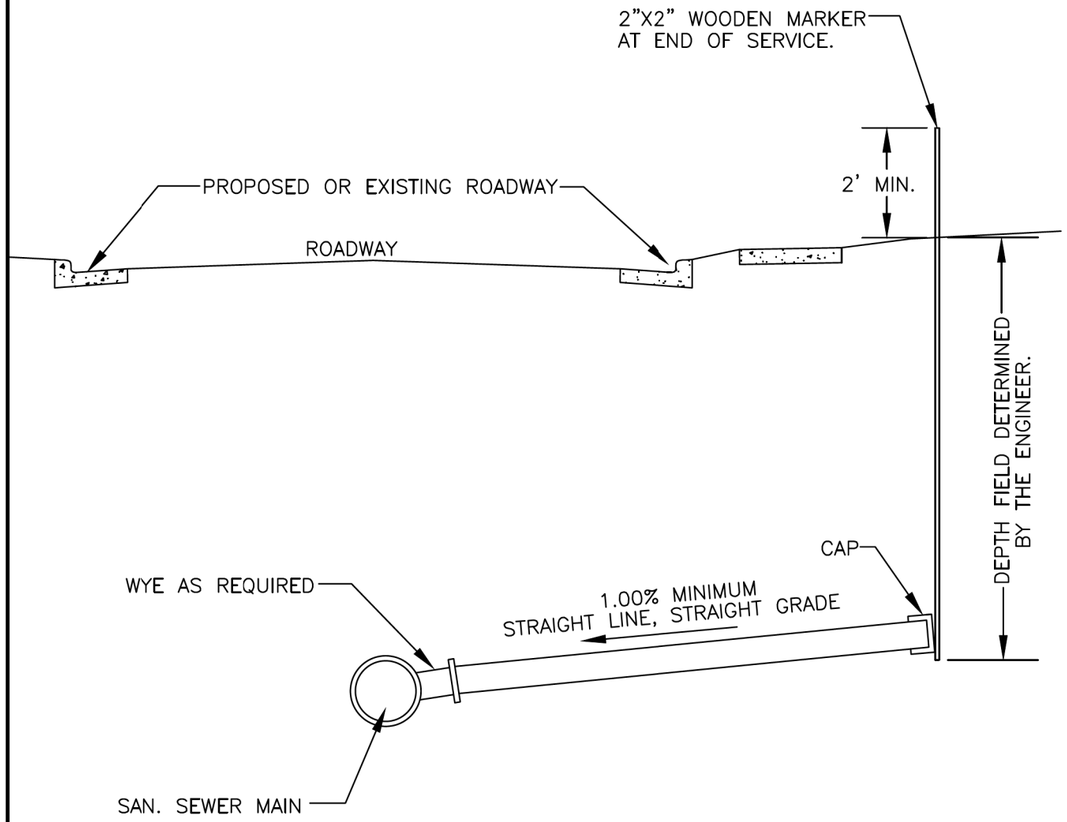
NOTES:

1. CONE SHALL BE ECCENTRIC. MnDOT PLATE NO. 4005 TYPE B CONE SECTION.
2. CONE SECTION HEIGHT MAY VARY AS REQUIRED FOR SPECIFIC MH.
3. REFER TO PLANS AND/OR SPECIAL PROVISIONS FOR FRAME AND LID TYPE.
4. REINFORCING SHALL BE A MINIMUM OF SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT IN EACH DIRECTION.
5. HIGH DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS STARTING ON A SOLID, CLEANED CONE SECTION OF THE INPLACE MANHOLE. THE OUTSIDE OF THE ENTIRE RING SECTION SHALL BE SEALED TO THE STRUCTURE WITH A UNI–BAND (RUBBER) SEALING SYSTEM.
6. STEPS, ORIENTED ON THE UPSTREAM SIDE OF THE MH, ARE SPACED 16" O.C. AND SHALL CONFORM TO MnDOT PLATE NO. 4180.
7. MONOLITHIC BASE AND INVERTS SUBJECT TO APPROVAL BY THE ENGINEER. FIELD POURED INVERTS AND/OR SEPARATE BASE SLAB MAY BR REQUIRED IN SOME INSTANCES. INVERT CHANNEL DEPTH SHALL NOT BE LESS THAN 1/2 THE PIPE SIZE.
8. WATER TIGHT SEAL SHALL CONFORM TO MnDOT PLATE NO. 4007.

DROP DETAIL NOTES:

9. 90° DUCTILE IRON PIPE BEND CL. 52 CAST MONOLITHICALLY WITH BOTTOM RISER SECTION.
10. DUCTILE IRON PIPE CL. 52–TO BE USED FOR DROP PIPE AND 20' OUT FROM MH.
11. DROP PIPE TO BE ENCASED WITH CONCRETE UTILIZING FORMWORK OR PRECAST CONCRETE HORSESHOES.

DATE REVISED		PLATE NO.
10/23/13	PRECAST CONCRETE SANITARY MANHOLE	1-04



1 ALL PVC PIPE & FITTINGS SHALL INCLUDE A MINIMUM OF 1 FOOT ENCASEMENT WITH SELECT GRANULAR BACKFILL.

2 ALL SERVICE LINE GRADES SHALL BE CONSTRUCTED AS DIRECTED BY THE ENGINEER.

DATE REVISED		PLATE NO.
03/01/08	TYPICAL SANITARY SERVICE	1-06

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_dd11.dgn

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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

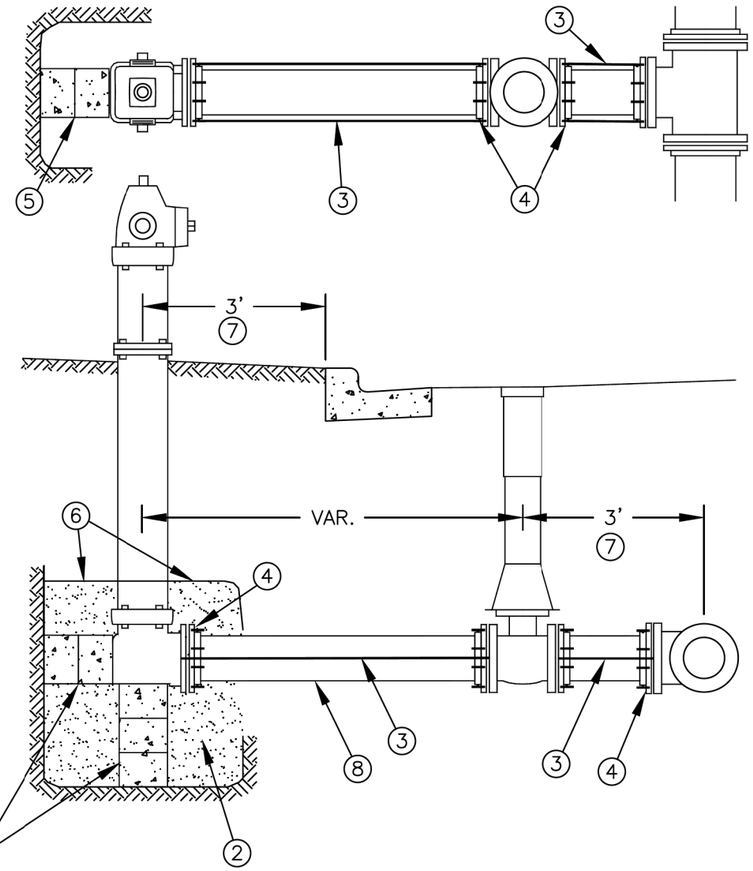
DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
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MINNESOTA DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
CITY OF RED WING STANDARD PLATES

SHEET 56 OF 688

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NOTES:

1 8.5' BURY HYDRANT UNLESS OTHERWISE SPECIFIED ON PLAN.

(2) 3/4" TO 1 1/2" WASHED AGGREGATE DRAINAGE PIT (2'X2'X3' DEEP)

(3) 3/4" THREADED RODS, HYDRANT TO VALVE AND VALVE TO MAIN TEE.

(4) RETAINER GLANDS ON ALL FITTINGS FROM MAIN TEE TO HYDRANT.

(5) BLOCKING SHALL BE SOLID CONCRETE BLOCKS.

(6) APPROVED GEOTEXTILE PLACED OVER DRAINAGE PIT.

(7) 3' TYPICAL UNLESS OTHERWISE SPECIFIED ON PLAN.

(8) RODDING NOT REQUIRED FROM HYDRANT TO VALVE IF OFFSET HYDRANT LEAD IS SPECIFIED.

DATE REVISED	STANDARD FIRE HYDRANT	PLATE NO.
03/11/16		2-02

NO	DATE	BY	CKD	APPR	REVISION

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Date _____ License # 45039

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DESIGNED BY A. EMERSON

CHECKED BY C. HASS

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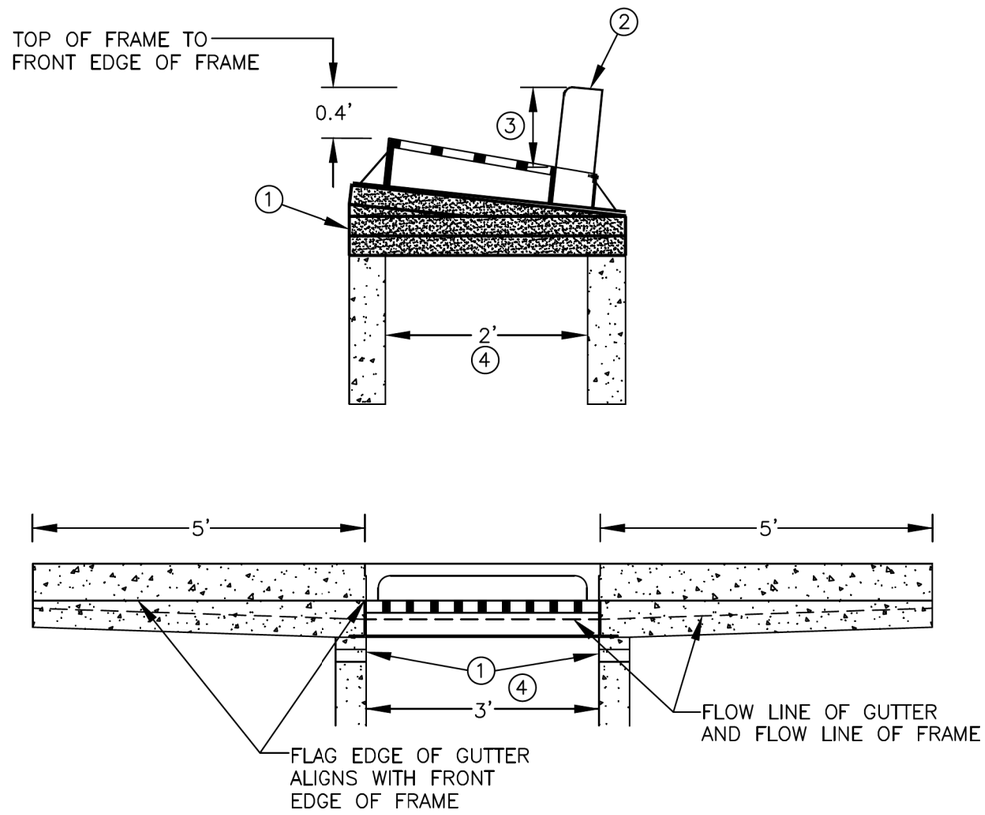
MISCELLANEOUS DETAILS

SP 2515-21 (TH 63)

CITY OF RED WING STANDARD PLATES

SHEET 57 OF 688

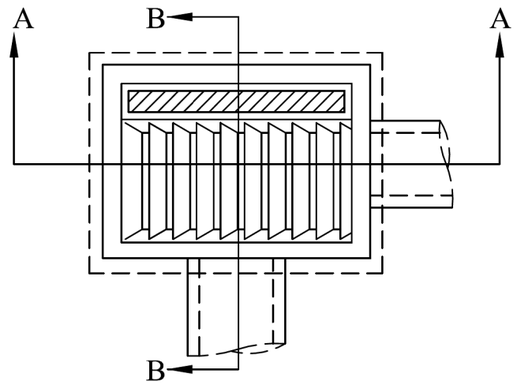
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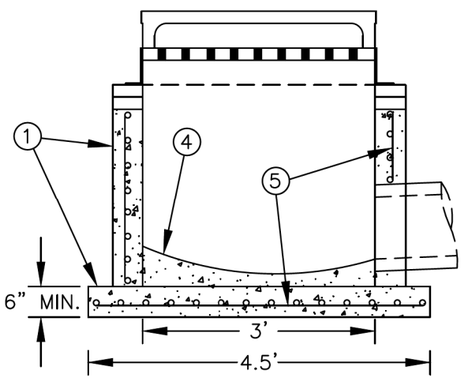
1. HIGH DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS STARTING ON A SOLID, CLEANED TOP SECTION OF THE INPLACE CATCH BASIN. THE CATCH BASIN FRAME & RING CASTING SHALL BE SEALED TO THE STRUCTURE WITH A UNI–BAND (RUBBER) SEALING SYSTEM.
2. REFER TO PLANS AND/OR SPECIAL PROVISIONS FOR FRAME AND GRATE TYPE.
3. 0.50' – DESIGN D4 MODIFIED C&G
   0.75' – DESIGN B618 OR B624 C&G
4. 2'x3' BOX OR 2'X3' OPENING IN COVER SLAB
5. FOR ADJUSTMENTS IN DESIGN B624 C&G 6" OF CONCRETE SHALL BE PLACED FRONTING THE FRONT EDGE OF THE FRAME.

DATE REVISED		PLATE NO.
07/25/14	2'x3' CB FRAME ADJUSTMENT	1-01

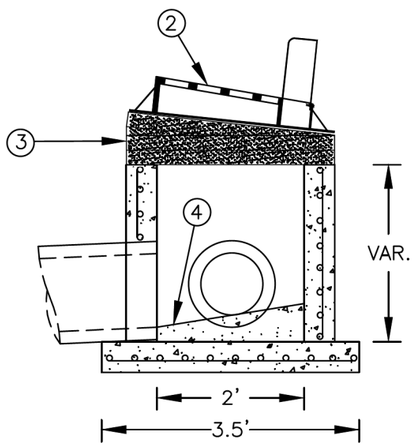


NOTES:

1. PRECAST CONCRETE 2'X3' CATCH BASIN BOX WITH 5" (MIN.) WALLS AND PRECAST CONCRETE 3.5'X4.5' BASE SLAB WITH 6" (MIN.) THICKNESS. PRECAST INTEGRAL BASE SUBJECT TO APPROVAL BY THE ENGINEER.
2. REFER TO PLANS AND/OR SPECIAL PROVISIONS FOR FRAME AND GRATE TYPE.
3. SEE PLATE NO. 1–01 FOR FRAME AND GRATE ADJUSTMENT.
4. ALL CONCRETE INVERTS SHALL HAVE A MINIMUM OF 2" CONCRETE DEPTH WITH A MINIMUM SLOPE OF 1/4" PER FOOT TO OUTLET. FLOW LINES SHALL BE FORMED TO APPROXIMATE SHAPE OF THE LOWER 4" OF THE OUTLET PIPE.
5. REINFORCING SHALL BE A MINIMUM OF SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT EACH DIRECTION.
6. BLOCK–BRICK CONSTRUCTION IS SUBJECT TO APPROVAL BY THE ENGINEER.



SECTION A-A



SECTION B-B

DATE REVISED		PLATE NO.
03/01/08	2'X3' STANDARD CB	1-02

NO	DATE	BY	CKD	APPR	REVISION
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Date _____ License # 45039

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WISCONSIN PROJECT I.D. 7210-00-78

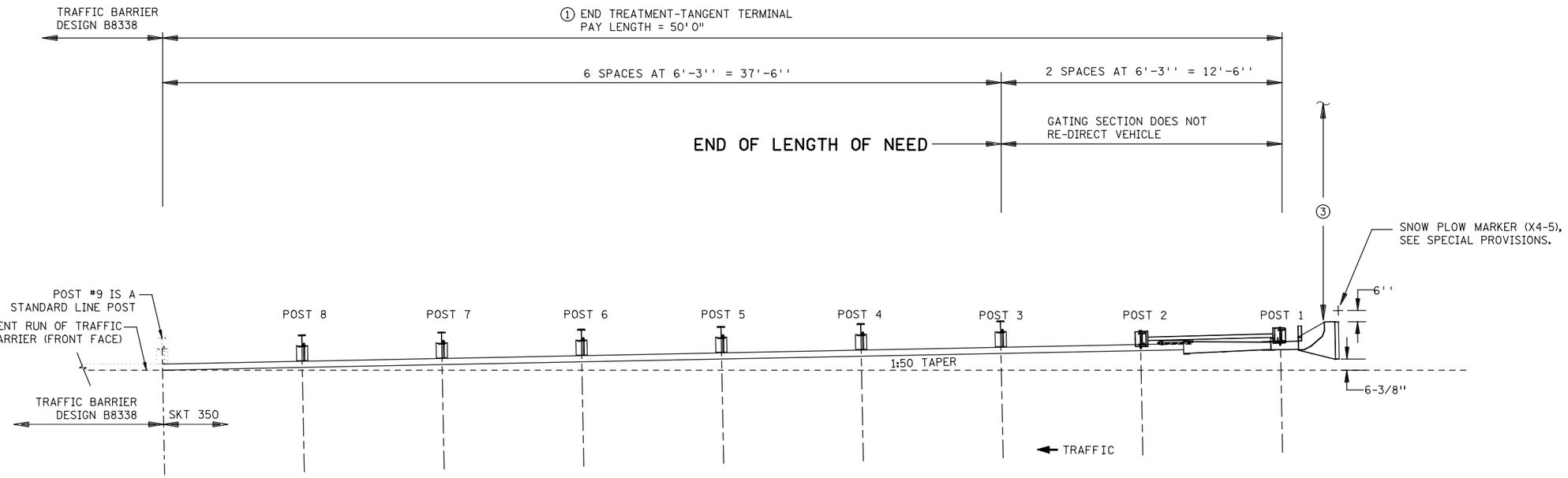
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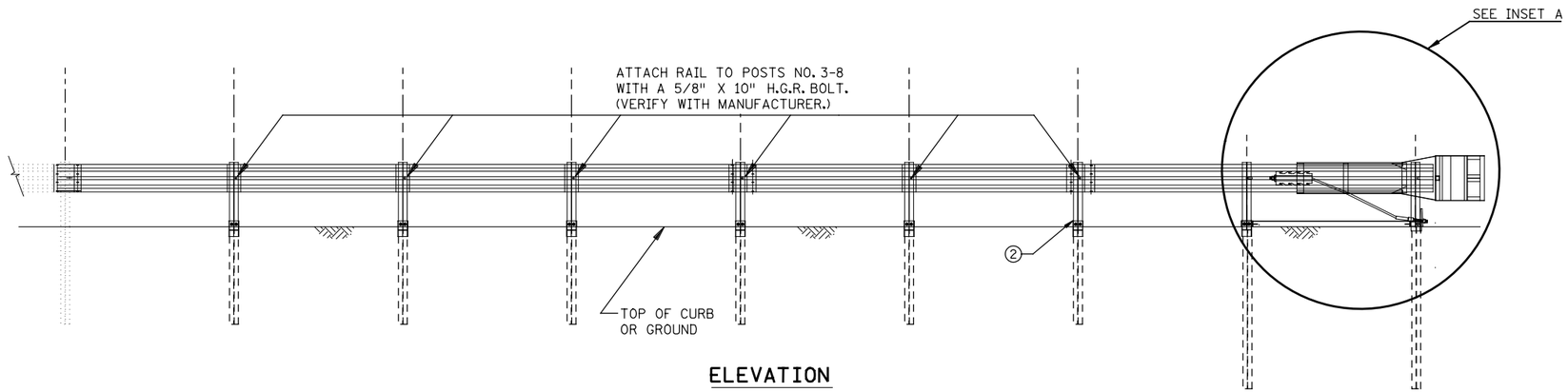
MINNESOTA DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
CITY OF RED WING STANDARD PLATES

SHEET 58 OF 688

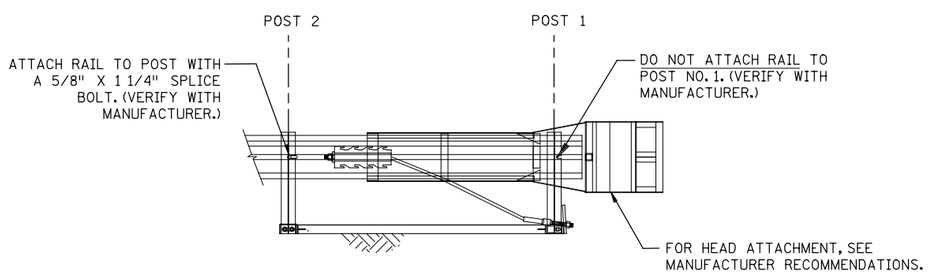
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PLAN



ELEVATION



INSET A

GENERAL NOTES:

ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.

THIS DRAWING IS FOR INFORMATION ONLY. CONTACT THE MANUFACTURER, ROAD SYSTEMS, INC., FOR CURRENT DETAILS AND INSTALLATION INSTRUCTIONS. REFER TO MN/DOT STANDARD PLANS FOR ADDITIONAL GUARDRAIL INSTALLATION INSTRUCTIONS.

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

NOTES:

① USE STEEL HINGED BREAKAWAY (HBA) POSTS OPTIONS ONLY ON POSTS 1-8.

② THE NON-BREAKAWAY SECTION OF THE HBA POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE THE FINISHED GROUND LINE.

③ THE TRAFFIC BARRIER IS DESIGNED TO EXIT THE TERMINAL HEAD ON THE BACK SIDE OF THE INSTALLATION. A SPECIAL SITE EVALUATION SHOULD BE CONSIDERED PRIOR TO USING THE SKT WHERE THERE IS LESS THAN 25' BETWEEN THE BACK SIDE OF THE SKT AND ANY ADJACENT DRIVING LANE.

METRO DESIGN DETAIL
REVISED DATE: 12/21/12

END TREATMENT – TANGENT TERMINAL
SKT-350 HBA POST OPTION

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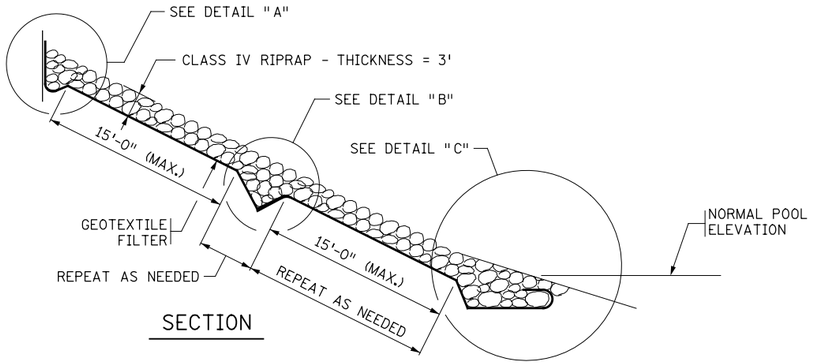
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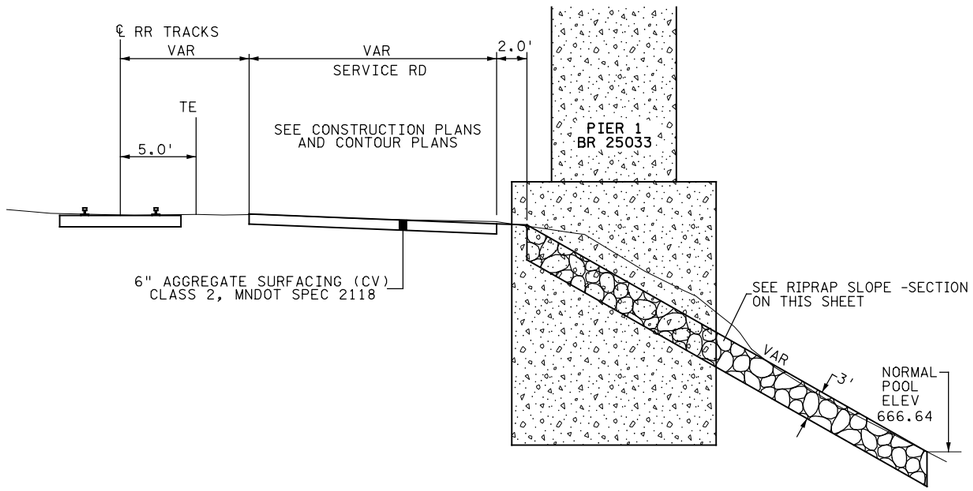
MINNESOTA DEPARTMENT OF TRANSPORTATION
MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
GUARDRAIL - END TREATMENT

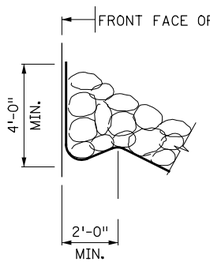
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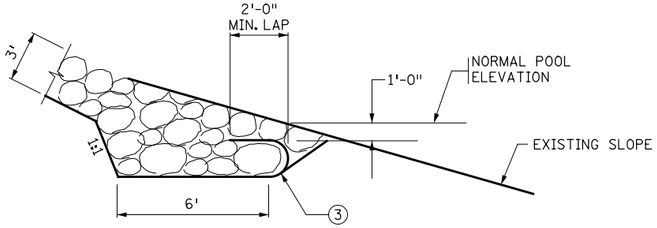


SECTION

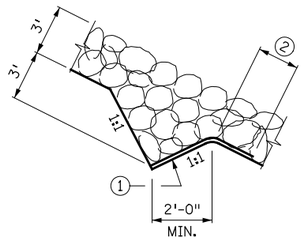




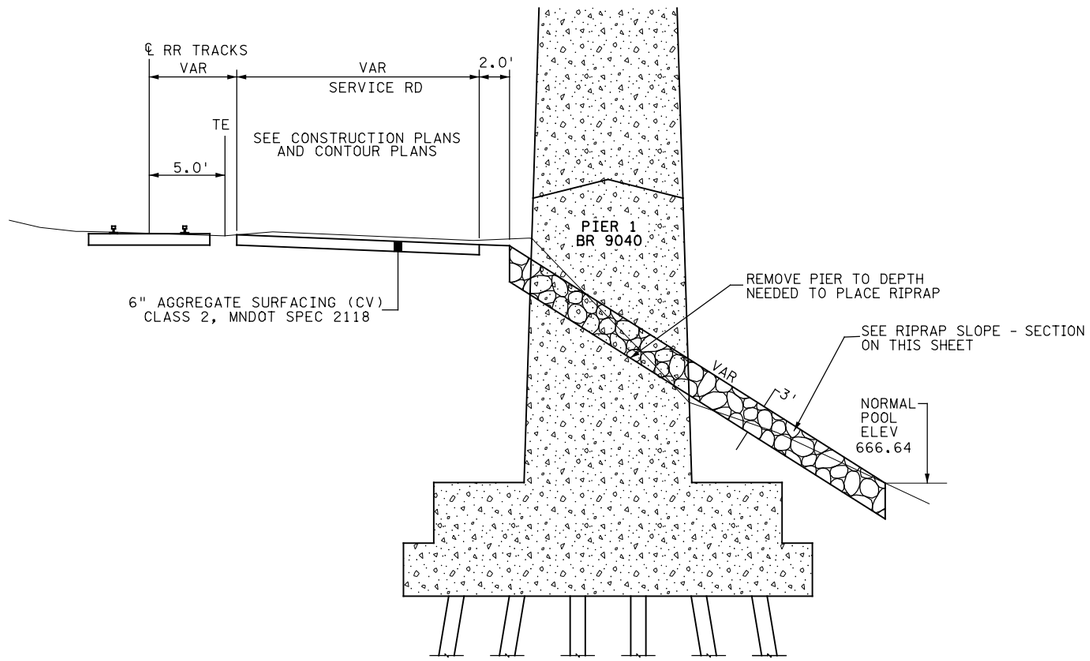
DETAIL "A"



DETAIL "C"



DETAIL "B"



GENERAL NOTES

SEE SPECIAL PROVISIONS FOR MATERIALS, PREPARATION AND PLACEMENT.

USE GEOTEXTILE FILTER MATERIAL AS PER MN/DOT SPECIAL PROVISION 2511.

PAYMENT WILL BE MADE UNDER ITEM 2511 GEOTEXTILE FILTER TYPE IV (MODIFIED) BY THE SQ. YD.

PAYMENT WILL BE MADE UNDER ITEM 2511 RANDOM RIPRAP CLASS IV BY THE CU. YD.

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

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

(2) OVERLAP GEOTEXTILE FILTER 2'-0" MINIMUM.

(3) WRAP GEOTEXTILE FILTER AROUND TOE, OVERHANG BETWEEN 1ST AND 2ND LAYER OF RIPRAP. USE HAND PLACEMENT OR SIMILAR METHODS TO ESTABLISH PROFILE AND PLACE FABRIC IF UNDER WATER.

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Date _____ License # _____

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DRAWN BY S. MARTINS
DESIGNED BY D. SYMANIETZ
CHECKED BY C. HASS
COMM. NO. 0158933

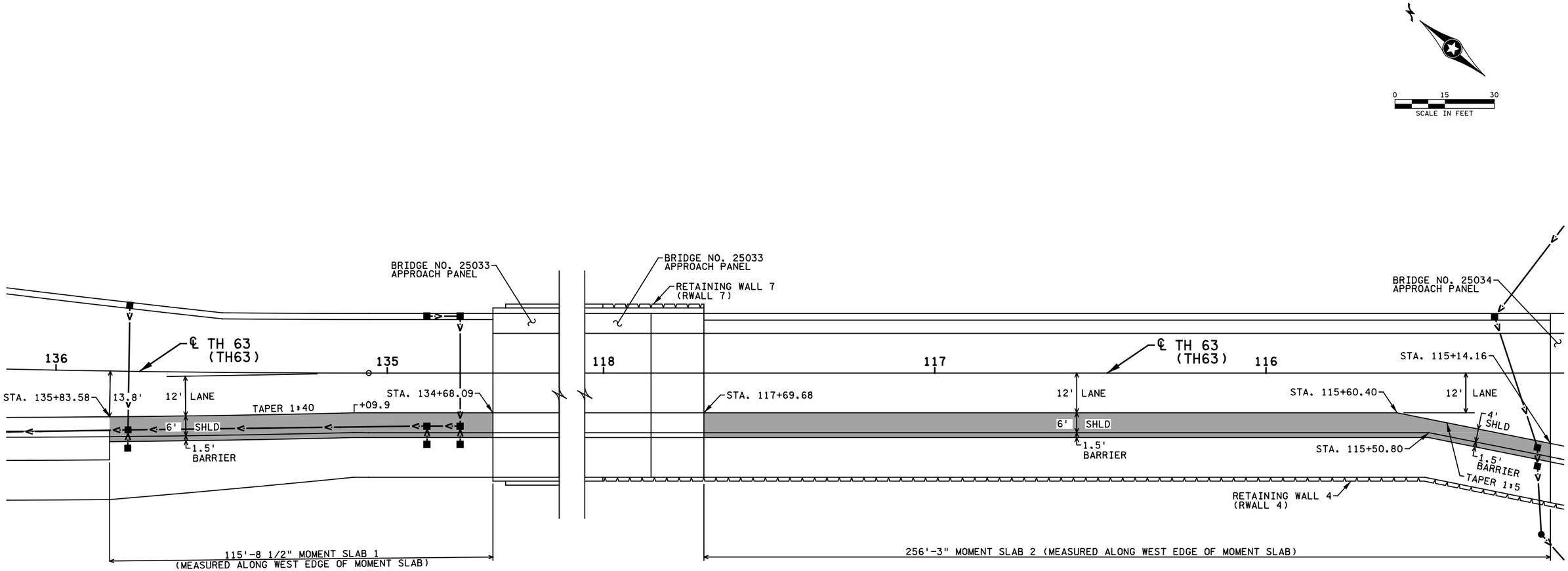
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MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
RIPRAP SLOPE WITH GEOTEXTILE FILTER

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SHEET 1 OF 6

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DESIGNED BY R. HOLSCHER

CHECKED BY L. RENSTROM

COMM. NO. 0158933

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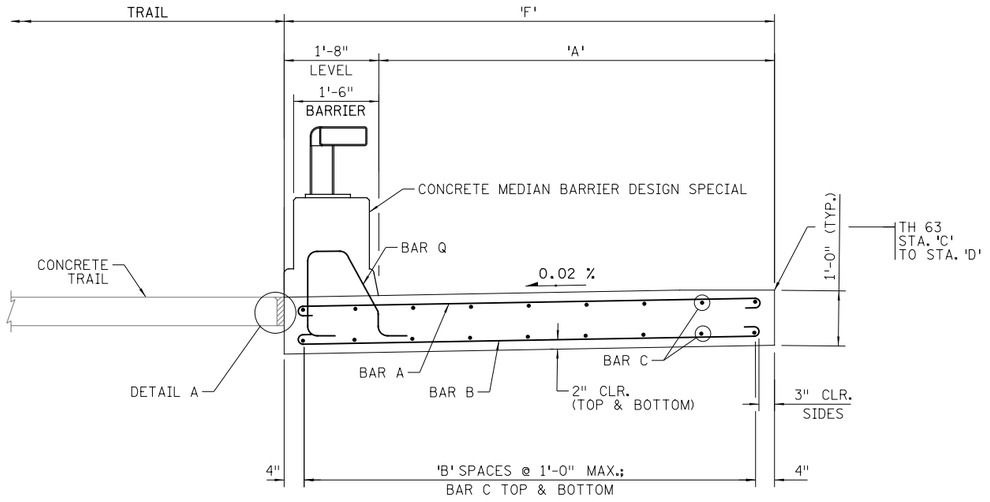
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SP 2515-21 (TH 63)

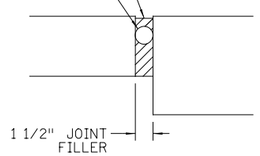
CONCRETE MEDIAN BARRIER DESIGN SPECIAL MOMENT SLAB

SHEET 61 OF 688

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SECTION



DETAIL A

MOMENT SLAB DIMENSIONS					
MOMENT SLAB	A'	B'	C'	D'	F'
1	6'-0"	7	135+83.58	134+68.09	7'-8"
2	6'-0"	7	117+69.68	115+60.40	7'-8"
2	VAR. 6'-0" TO 4'-0"	VAR. 7 TO 5	115+60.40	115+50.80	VAR. 7'-8" TO 5'-8"
2	4'-0"	5	115+50.80	115+14.16	5'-8"

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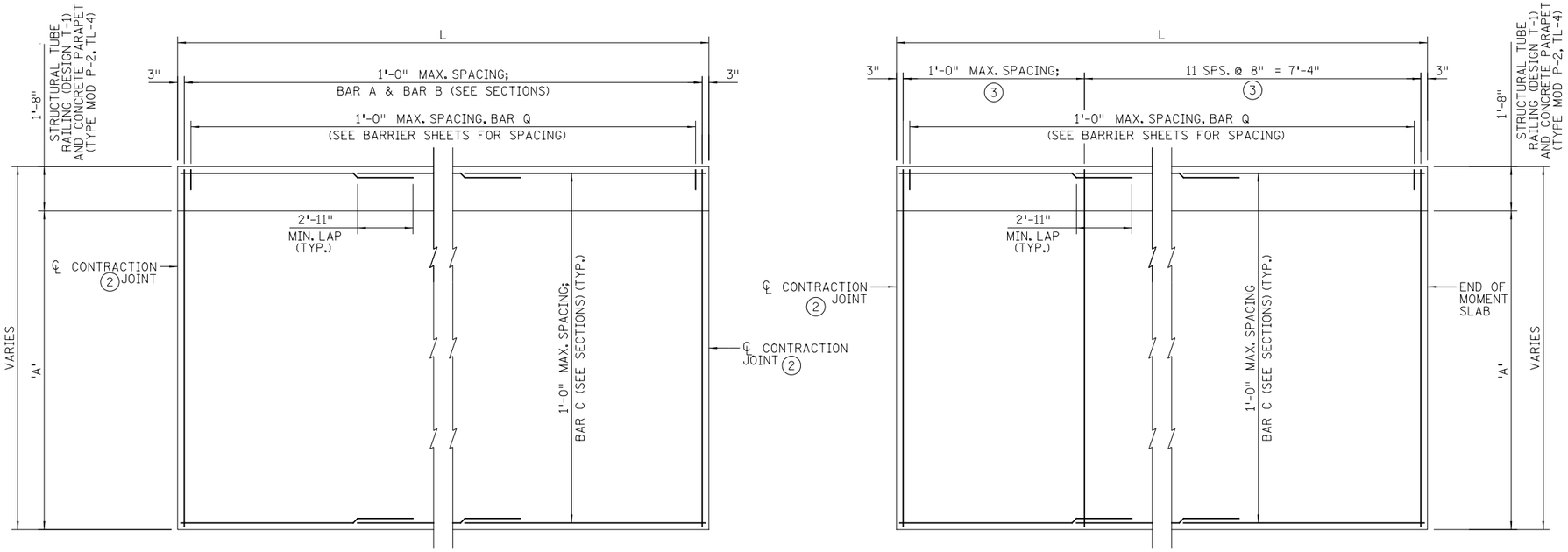
MISCELLANEOUS DETAILS

SP 2515-21 (TH 63)

CONCRETE MEDIAN BARRIER DESIGN SPECIAL MOMENT SLAB

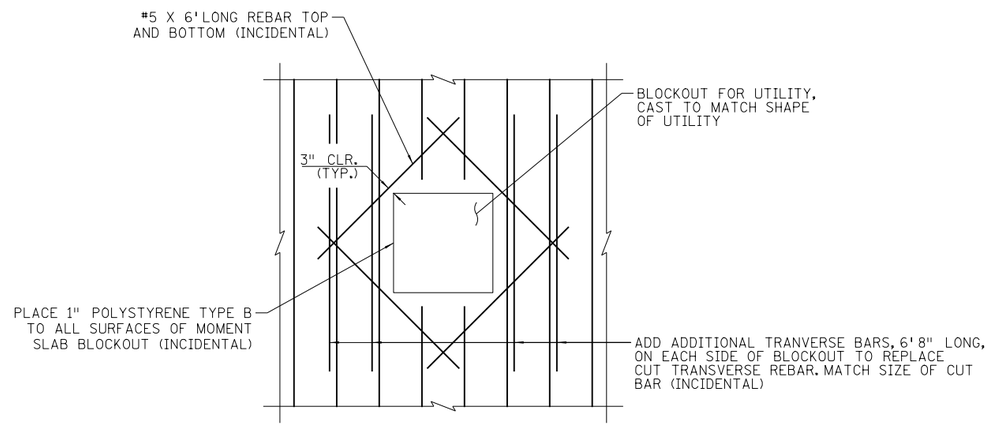
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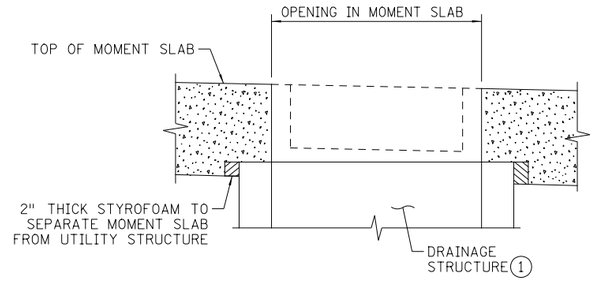


MOMENT SLAB TYPICAL PANEL PLAN

MOMENT SLAB END PANEL PLAN



UTILITY BLOCKOUT DETAIL (1)



MOMENT SLAB SECTION AT DRAINAGE STRUCTURE

NOTES:

(1) SEE DRAINAGE PLANS FOR DRAINAGE STRUCTURE LOCATIONS. SEE SIGNALS PLANS FOR HAND HOLE LOCATIONS.

(2) SEE MnDOT STANDARD PLATE 1103 FOR DETAILS. DOWEL BAR ASSEMBLIES ARE INCLUDED IN THE PAY ITEM FOR "STRUCTURAL CONCRETE (3B52)."

(3) BAR A & BAR B (SEE SECTIONS).

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SP 2515-21 (TH 63)

CONCRETE MEDIAN BARRIER DESIGN SPECIAL MOMENT SLAB

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BILL OF REINFORCEMENT: MOMENT SLAB 1

L = 115'-8 1/2"

BAR	MARK	NO	SIZE	LENGTH [FT - IN]	SHAPE	DIMENSION [FT-IN] A	B	C	LOCATION	WT.	QUANTITIES [LB.]
A											
B											
C											
Q											

BILL OF REINFORCEMENT: MOMENT SLAB 2

L = 272'-4 5/8"

BAR	MARK	NO	SIZE	LENGTH [FT - IN]	SHAPE	DIMENSION [FT-IN] A	B	C	LOCATION	WT.	QUANTITIES [LB.]
A											
B											
C											
Q											

NOTE:

1. QUANTITIES ARE PER PANEL.
2. MOMENT SLAB LENGTHS (L) ARE MEASURED ALONG THE WEST EDGE OF THE MOMENT SLAB.

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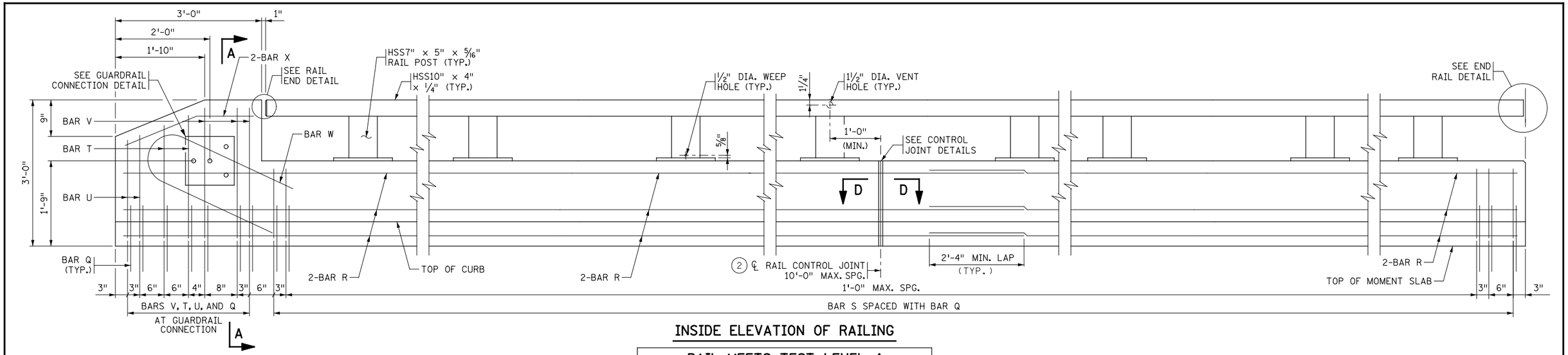
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SP 2515-21 (TH 63)

CONCRETE MEDIAN BARRIER DESIGN SPECIAL MOMENT SLAB

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INSIDE ELEVATION OF RAILING

RAIL MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350

GENERAL NOTES

FOR PAYMENT OF "CONCRETE MEDIAN BARRIER DESIGN SPECIAL" MEASURE LENGTH OF CONCRETE MEDIAN BARRIER BETWEEN END FACES. CONCRETE PARAPET = 371 LBS./FT. (0.092 CU. YDS./FT.)

FINISH ALL EDGES OF RAIL WITH 1/2" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.

MAX. SPACING OF CONCRETE CONTROL JOINTS SHALL BE 10 FT.

PROVIDE CORRECT ALIGNMENT FOR ANCHORAGES BY PLACING THEM ACCURATELY AND NORMAL TO GRADE. SEE SPECIAL PROVISIONS.

PROVIDE STRUCTURAL STEEL AND PLATE WASHERS PER MNDOT SPEC. 3310. PROVIDE STRUCTURAL TUBES PER A.S.T.M. A500, GRADE B AS SPECIFIED IN MNDOT SPEC. 3361.

GALVANIZE BOLTS, NUTS, AND WASHERS PER MNDOT SPEC. 3392.

GALVANIZE ALL OTHER STRUCTURAL STEEL PER MNDOT SPEC. 3394, AFTER FABRICATION.

PROVIDE GUARDRAIL CONNECTION STRUCTURAL STEEL PER MNDOT SPEC. 3306.

GUARDRAIL CONNECTION AND NAME PLATE IS INCIDENTAL TO "CONCRETE MEDIAN BARRIER DESIGN SPECIAL".

PRICE BID FOR "CONCRETE MEDIAN BARRIER DESIGN SPECIAL" INCLUDES ANCHORAGES AND ALL MATERIAL ABOVE TOP OF CONCRETE BARRIER.

ALL MATERIAL IN THE "CONCRETE MEDIAN BARRIER DESIGN SPECIAL" IS LISTED IN SUMMARY OF QUANTITIES FOR MOMENT SLAB.

SEE SPECIAL PROVISIONS FOR PAINT REQUIREMENTS.

CONTINUOUSLY GROUND THE METAL RAILING AS DIRECTED IN THE SPECIAL PROVISIONS. REFER TO THE ELECTRICAL PLANS AND ELECTRICAL SPECIAL PROVISIONS FOR DETAILS REGARDING BONDING MULTIPLE ELECTRICAL GROUNDING SYSTEMS.

FOR MOMENT SLAB REINFORCEMENT AND DETAILS SEE CONCRETE MEDIAN BARRIER MOMENT SLAB DETAIL SHEETS.

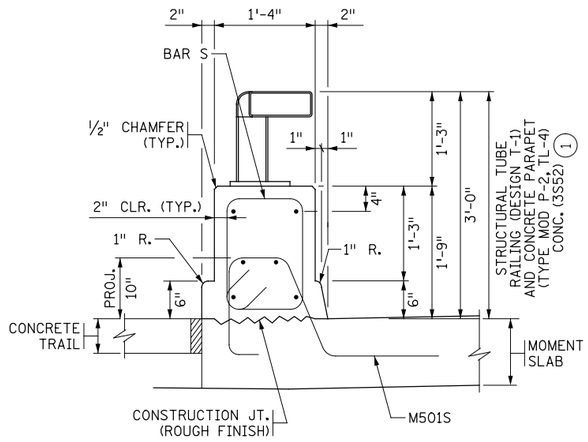
THE GUARDRAIL CONNECTION IS INCLUDED IN THE PRICE BID FOR "CONCRETE MEDIAN BARRIER DESIGN SPECIAL".

(1) REBAR AND CONCRETE ARE INCLUDED IN THE PAY ITEM "CONCRETE MEDIAN BARRIER DESIGN SPECIAL" BY LINEAR FEET FOR THE BARRIER.

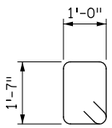
(2) RAIL CONTROL JOINTS TO MATCH MOMENT SLAB CONTRACTION JOINTS. SEE MOMENT SLAB DETAILS SHEETS FOR CONTRACTION JOINT SPACING. MAX. SPACING OF CONTROL JOINTS SHALL BE 10 FT.

BILL OF REINFORCEMENT

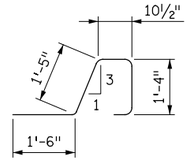
RAILING ON MOMENT SLAB 1; 115'-8 1/2"						RAILING ON MOMENT SLAB 2; 256'-3"					
BAR	MARK	NO.	LENGTH	SHAPE	LOCATION	BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	R501E					Q	R501E				
S	R502E					S	R502E				
T	R504E					T	R504E				
U	R505E					U	R505E				
V	R506E					V	R506E				
X	R507E					X	R507E				
W	R708E					W	R708E				
R	R509E					R	R509E				
CONC. (3S52)			REINFORCEMENT BARS (EPOXY)			CONC. (3S52)			REINFORCEMENT BARS (EPOXY)		
XXX CU YD			XXXX POUND			XXX CU YD			XXXX POUND		



SECTION A-A



BAR S



BAR Q

MODIFICATIONS:
- MODIFIED BARRIER ONTO MOMENT SLAB
- MODIFIED NOTES FOR BARRIER ON MOMENT SLAB

SHEET 5 OF 6

MODIFIED

FIG. 5-397.157

NO	DATE	BY	CKD	APPR	REVISION
...\FinalPlanDGN\cd251521_dd30.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: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY R. HOLSCHER

CHECKED BY L. RENSTROM

COMM. NO. 0158933

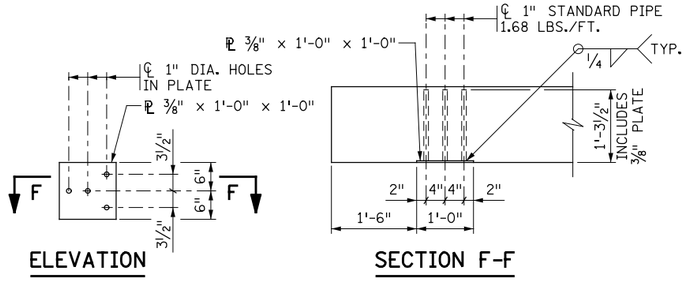
SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
CONCRETE MEDIAN BARRIER DESIGN SPECIAL

SHEET 65 OF 688

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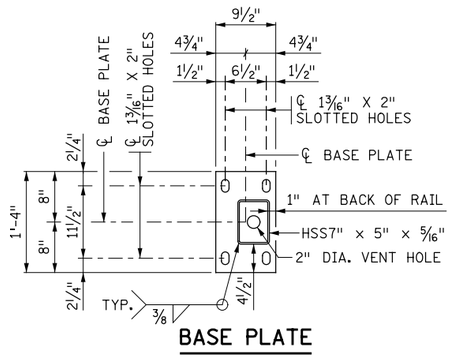


ELEVATION

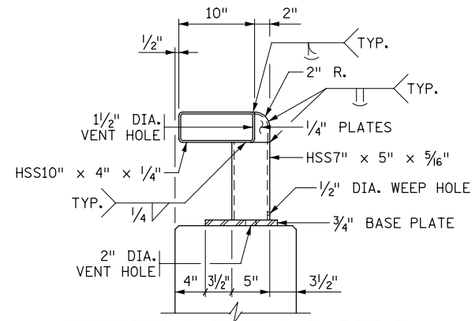
SECTION F-F

GUARDRAIL CONNECTION DETAIL

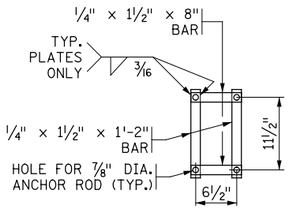
GALVANIZE AFTER FABRICATION PER MNDOT SPEC. 3394
ESTIMATED WEIGHT = 22 LBS.



BASE PLATE

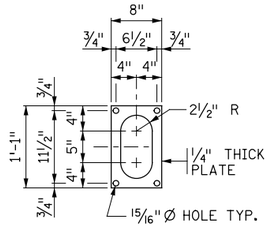


STRUCTURAL TUBE RAIL DETAIL



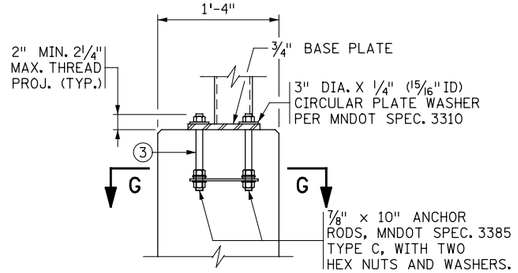
SECTION G-G

ANCHOR BAR ALTERNATE



SECTION G-G

ANCHOR PLATE ALTERNATE

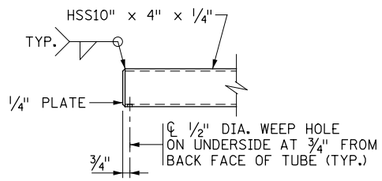


ANCHOR DETAIL

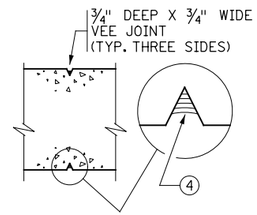
GENERAL NOTES

3. SUBSTITUTION OF CHEMICAL ANCHOR RODS FOR CAST-IN-PLACE ANCHORAGE IS NOT PERMITTED.

4. SEE SPECIAL PROVISIONS FOR JOINT SEALING REQUIREMENTS.



RAIL END DETAIL



SECTION D-D

CONTROL JOINT DETAILS

SHEET 6 OF 6

MODIFIED

FIG. 5-397.157

NO	DATE	BY	CKD	APPR	REVISION
...\FinalPlanDGN\cd251521_dd31.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: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

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MINNESOTA DEPARTMENT OF TRANSPORTATION

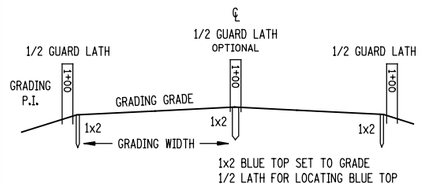
MISCELLANEOUS DETAILS
SP 2515-21 (TH 63)
CONCRETE MEDIAN BARRIER DESIGN SPECIAL

SHEET 66 OF 688

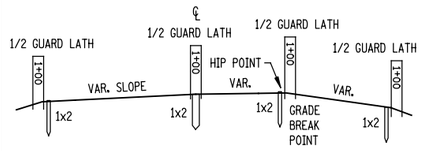
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BLUE TOPS

NORMAL SECTION

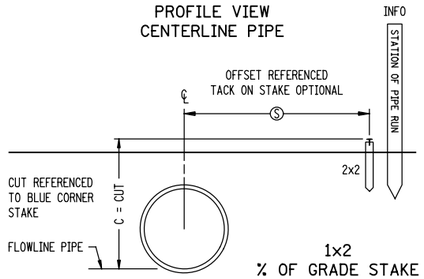


TRANSITION SECTION

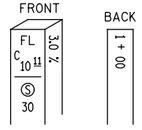


PIPE STAKING

PROFILE VIEW CENTERLINE PIPE

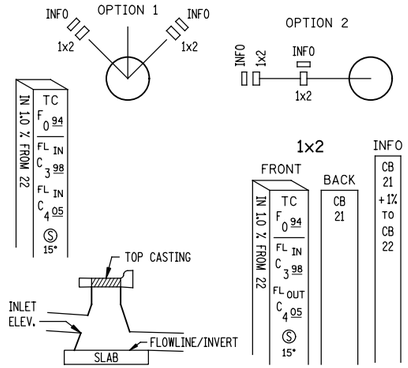


1x2 % OF GRADE STAKE



CATCH BASIN OR MANHOLE (CB/MH)

TOP VIEWS

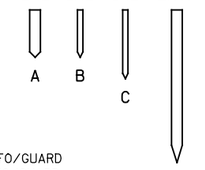


FLOWLINE/INVERT + 0.7'

STANDARD STAKES

TYPES:

REFERENCE (REF)
INFORMATIONAL (INFO)
VISIBILITY (VIS)
GUARD (GUARD)



SIZES:

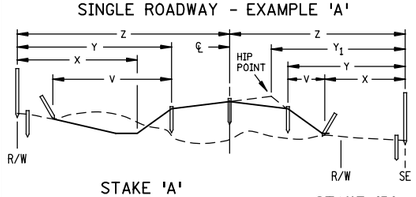
A = 2" X 2" X VAR. REF/INFO/GUARD
B = 1" X 2" X VAR. REF/INFO/GUARD
C = 1" X 2" X VAR. REF
D = LATH INFO/VIS/GUARD
1x2 OR LATH = INFO STAKES

ABBREVIATIONS

BBL = BARREL (PIPE)
B.C. = BACK CURB
C & G = CURB & GUTTER
C = CUT
CAP = CORR. ALUM. PIPE
CB = CATCH BASIN
℄ = CENTERLINE
CL & GR = CLEAR & GRUB
CMP = CORR. METAL PIPE
COR = CORNER
CR = CROWN
CSP = CORR. STEEL PIPE
D = DITCH CUT
D.E. = DRAINAGE EASEMENT
DI = DROP INLET
EB = EASTBOUND
E.M. = EDGE BITUMINOUS MAT
E.S. = EDGE CONCRETE SLAB
F = FILL
FF = FRONT FACE
FL = FLOW LINE
FL IN = FLOWLINE INLET
FL OUT = FLOWLINE OUTLET
GR = GRADE
GW = GRADING WIDTH
HH = HANDHOLE
HP = HIP POINT
LT = LEFT
MH = MANHOLE
NB = NORTHBOUND
Ⓢ = OFFSET
PAR = PARCEL
% = PERCENT GRADE
P.E. = PERM. EASEMENT
RAD = RADIUS POINT
RCP = REINF. CONC. PIPE
RP = REFERENCE POINT
RSC = REINF. SECT. CONC.
RT = RIGHT
R/W = RIGHT OF WAY
SB = SOUTHBOUND
SCP = SECT. CONC. PIPE
SH = SHOULDER
TC = TOP CASTING OR TOP CURB
T.E. = TEMP. EASEMENT
3 : 1 = SLOPE (EXAMPLE)
WB = WESTBOUND
WP = WORKING POINTS

SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'A'



STAKE 'A'

FULL LATH AND HUB-STATION
DIST. TO ℄ WITH CUT/FILL TO ℄ (Z)
DIST. TO SHLD. WITH CUT/FILL TO SHLD. (Y) (Y1)
DIST. TO TOE OF SLOPE, CUT/FILL FROM HUB (X)
OFFSET TO SAFTY SLOPE
OFFSET TO HIP POINT

STAKE 'B'

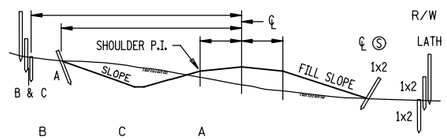
FULL LATH
DITCH CUT/SHLD. FILL
SLOPE RATED
DISTANCE TO INSLOPE TOE (V1) OR SHOULDER (AS APPLIES) (V)

NOTE:

BLUE TOPS REQUIRED ON ℄ AND BOTH SHOULDERS AT MINIMUM
ALL CULVERTS TO BE STAKED
MINIMUM DATA TO BE PROVIDED
STAKE TO BOTTOM OF TOPSOIL

SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'B'

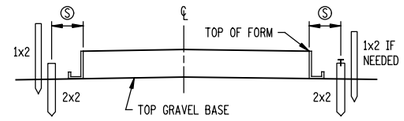


OPTION 2 OPTION 1

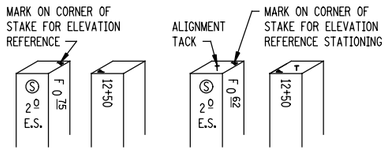
NOTES: ALL SLOPE STAKE REFERENCE DISTANCES GIVEN FROM ℄. STAKE TO BOTTOM OF TOP SOIL.

KEY STAKES: BLUE TOP SET AT R/W BOUNDARY LT. & RT. MAY BE EXCEPTIONS TO SETTING STAKE ON R/W.

CONCRETE PAVING STATIONARY FORM



OFFSET TO CONTRACTOR'S OPTION



NOTE INFORMATION ON STAKE IF NECESSARY

RECOMMENDED STAKING INTERVALS

FIGURE A

	SLOPE STAKES	SUB GRADE B.T.	CLASS MATERIAL B.T.	CONC PAVT	C & G	CL & GR LIMITS	MUCK EXC.	R/W	TEMP. EASE.
TANGENT	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
HORIZ. CURVE									
0 - 3°	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
OVER 3° -	100	50	50	25	25	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
VERT. CURVE									
'M' 100' CHORD 0 - .25	100	100	100	50	50				
'M' OVER .25	100	50	50	25	25				
TRAN.		50	50						

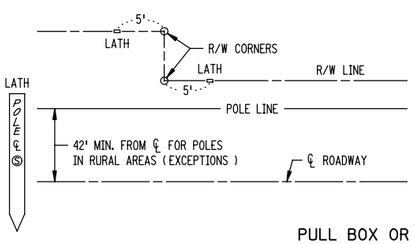
STAKING TOLERANCES (FEET)

	HORIZONTAL	VERTICAL
CONSTRUCTION LIMITS	± 1.5	
CLEARING & GRUBBING	2.0	
SLOPES STAKES	2.0	± 0.2
KEY STAKES	0.2	0.03
DRAINAGE STAKES	0.05	0.05
CURB & GUTTER	0.07	0.03
PAVING	0.05	0.03
ALIGNMENT	0.07	
UTILITY	0.10	0.05
STRUCTURAL	0.02	0.02
GUARD RAIL	0.5	
BUILDINGS	0.04	
O.H. SIGNS	0.05	0.05
MUCK EXCAVATION LIMITS	2.0	
R/W B-POINTS	0.10	
NOISE WALLS	1.0	0.5

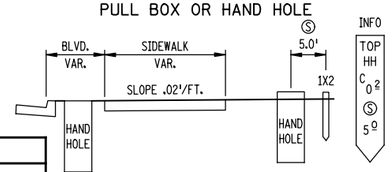
THE TOLERANCES ARE RELATIVE TO PROJECT DATUM

UTILITY (UTIL)

STAKE POLES MINIMUM OF 5 FT. FROM ANY R/W CORNER
EXAMPLE: POLE LINE = R/W LINE



PULL BOX OR HAND HOLE



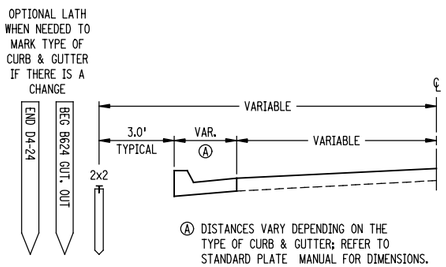
REVISION:

APPROVED: 8-6-2014

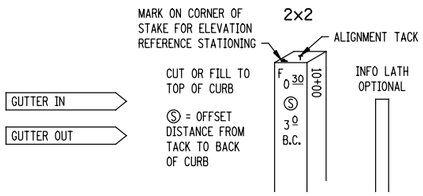
DIRECTOR, OFFICE OF LAND MANAGEMENT

CURB & GUTTER (CURB)

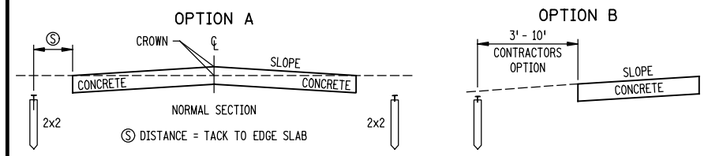
OPTIONAL LATH WHEN NEEDED TO MARK TYPE OF CURB & GUTTER IF THERE IS A CHANGE

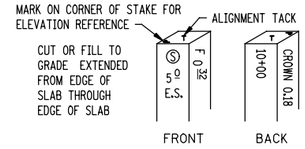


Ⓐ DISTANCES VARY DEPENDING ON THE TYPE OF CURB & GUTTER; REFER TO STANDARD PLATE MANUAL FOR DIMENSIONS.



CONCRETE PAVING - SLIP FORM





DISCLAIMER

THESE STAKING INFORMATION SHEETS ARE FOR INFORMATION PURPOSES ONLY. STAKING PROCEDURES VARY AND MAY BE SUBJECT TO CHANGE DURING CONSTRUCTION BY CIRCUMSTANCES AND/OR AGREEMENTS BETWEEN SURVEY CREW AND CONTRACTOR.

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

STAKING INFORMATION SHEET

STANDARD PLAN 5-297.115 | 1 OF 2

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY
DESIGNED BY
CHECKED BY
COMM. NO. 0158933

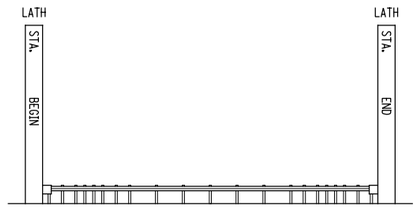
MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
SP 2515-21 (TH 63)

SHEET 67 OF 688

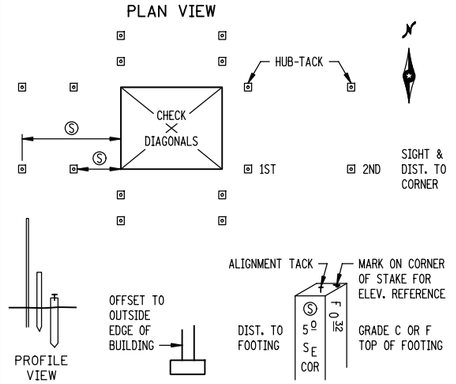
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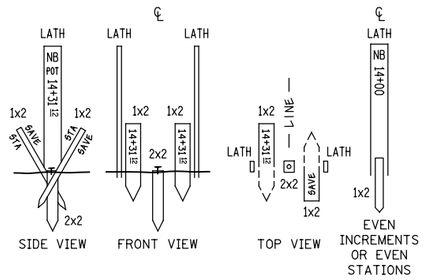
GUARDRAIL (GUARD)



BUILDING (BUILD) FOUNDATION / FOOTING



ALIGNMENT POINTS (ALIGN)



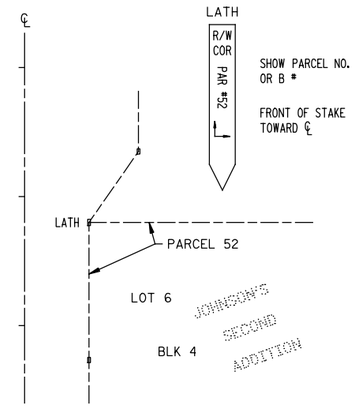
STAKE C = 2" X 2" HUB (LENGTH MAY VARY) SET AS TEMPORARY STAKE. MAY BE REPLACED BY MnDOT MARKER AFTER CONSTRUCTION IS COMPLETED.

SET AT GROUND LEVEL (TEMPORARY CONSTRUCTION STAKE).

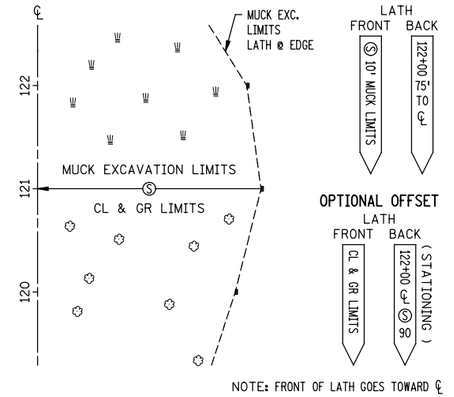
TACK SET AT ALIGNMENT POINTS.

STAKE A = GUARD STAKES SET AT ANGLE IN GROUND 6" EACH SIDE OF STAKE D, WITH STATIONING READ WHEN LOOKING UP STATION.

R/W & TEMP. EASEMENT (R/W)

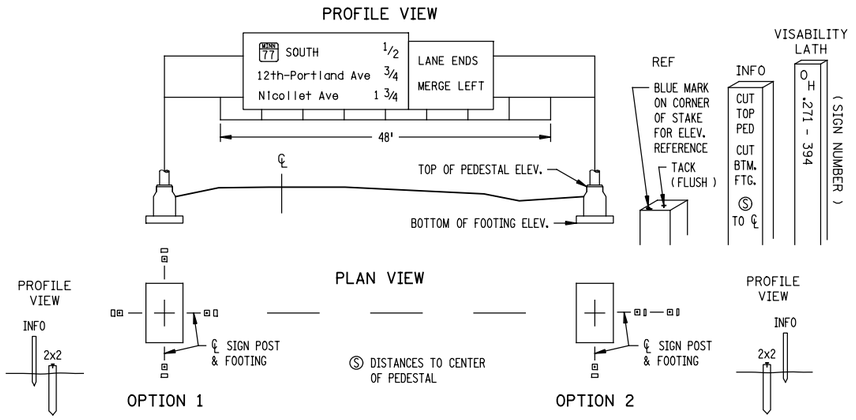


CLEAR & GRUBBING LIMITS (CLEAR) OR MUCK EXCAVATION LIMITS (MUCK)

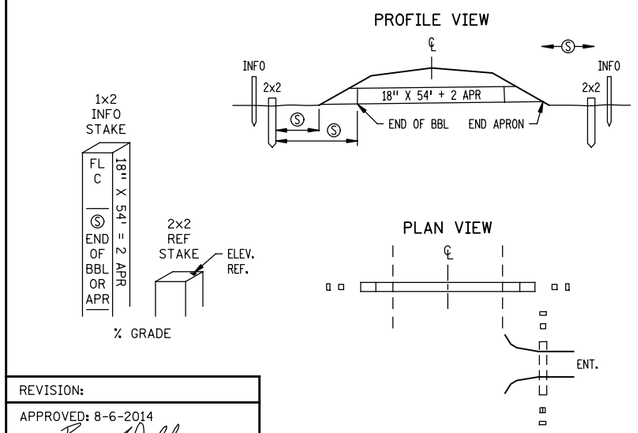


NOTE: FRONT OF LATH GOES TOWARD ℄

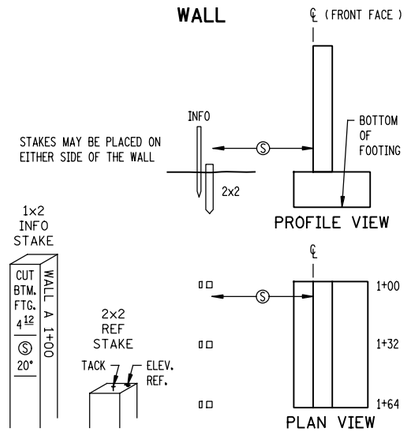
OVERHEAD SIGNS (SIGN)



CULVERT

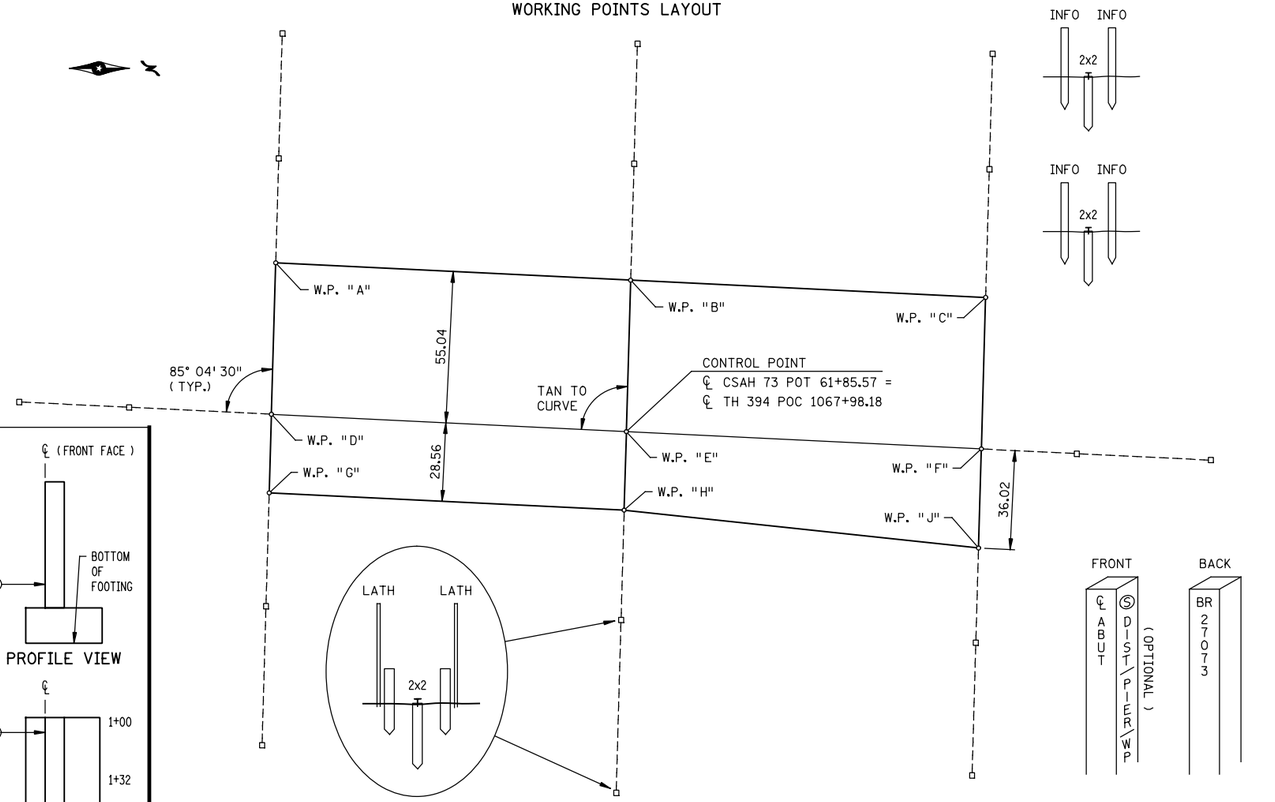


WALL



BRIDGESTAKING (BRIDGE)

WORKING POINTS LAYOUT



REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF LAND MANAGEMENT

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

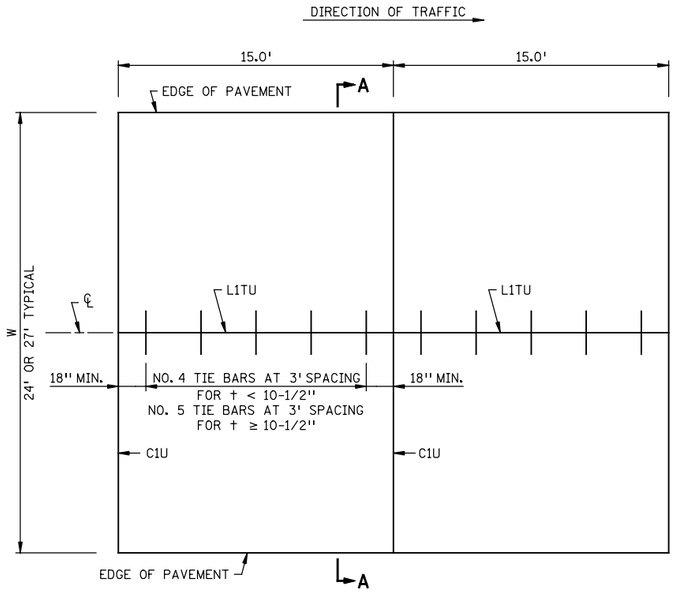
STAKING INFORMATION SHEET

STANDARD PLAN 5-297.115 | 2 OF 2

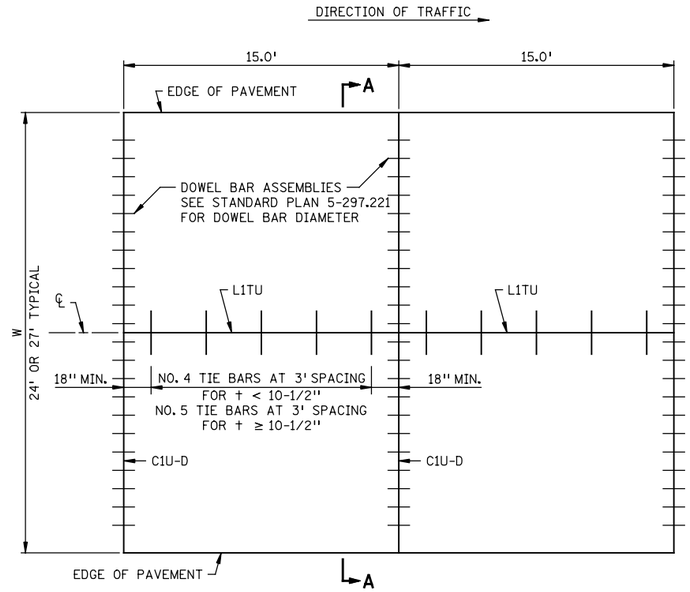
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 68 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
	COMM. NO. 0158933		

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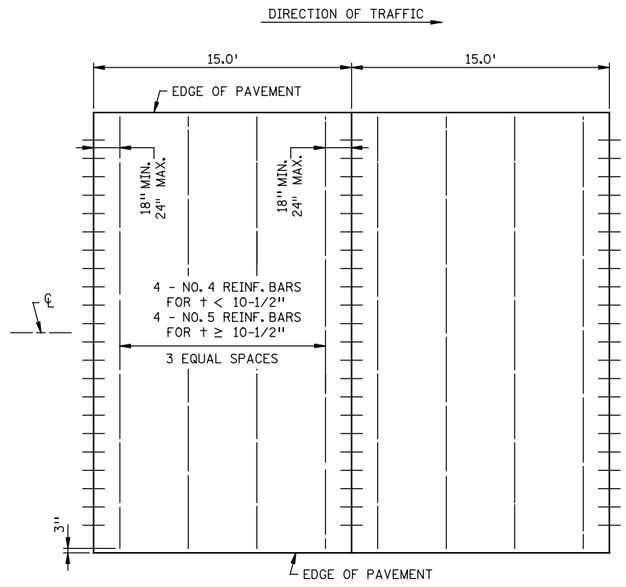
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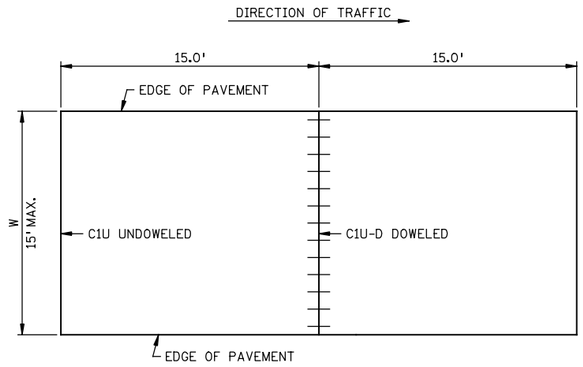
MAINLINE PAVEMENT
UNDOWELED



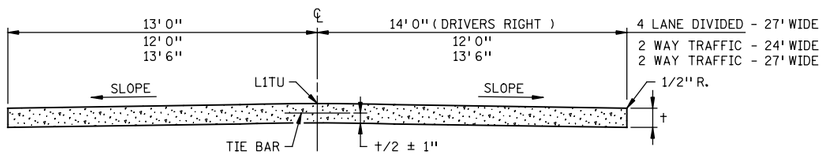
MAINLINE PAVEMENT
DOWELED



PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH
UNDOWELED OR DOWELED



SECTION A-A

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, †.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT, PLACEMENT DEPTH SHALL BE PLANNED †/2 ± 1". IT IS PREFERRED TO ADD A LONGITUDIDNAL JOINT RATHER THAN PAVE GREATER THAN 15' IN WIDTH.

REVISION:

APPROVED: FEBRUARY 16, 2016
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:

APPROVED:
2-16-2016
STATE DESIGN ENGINEER

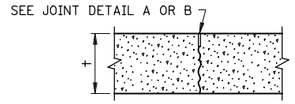
CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
RURAL

STANDARD PLAN 5-297.217 | 1 OF 2

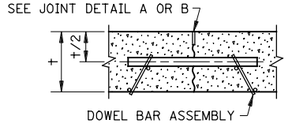
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
	COMM. NO. 0158933	SHEET 69 OF 688

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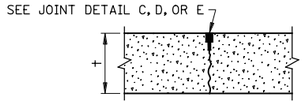
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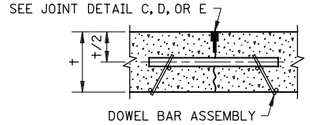
C1U & C2H



C1U-D & C2H-D



C3P, C4S, C5H



C3P-D, C4S-D, C5H-D

CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"
C4S	C4S-D	D	3722	3/8"
C5H	C5H-D	E	3725	3/8"

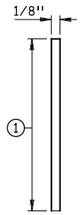
LEGEND — EXAMPLE

C = CONTRACTION JOINT
NO. = JOINT REFERENCE
U = UNSEALED
H = HOT POURED
P = PREFORMED
S = SILICONE
-D = DOWEL BARS

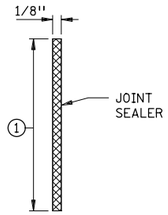
EXAMPLE: C2H-D

DOWEL BAR DIAMETER TABLE

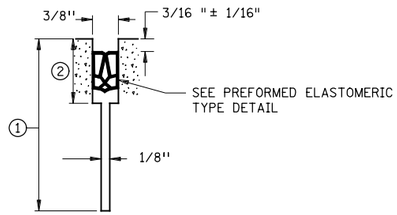
PAVEMENT THICKNESS t	DOWEL BAR DIAMETER
LESS THAN 6"	NONE
6" - 6 1/2"	1" OR NONE
7" - 7 1/2"	1"
8" - 10"	1 1/4"
10 1/2" AND GREATER	1 1/2"



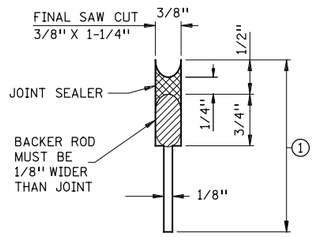
JOINT DETAIL A
SAWED & UNSEALED



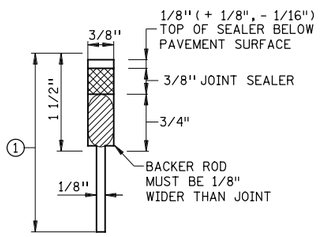
JOINT DETAIL B ③
SAWED & SEALED



JOINT DETAIL C ③
SAWED AND SEALED



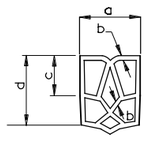
JOINT DETAIL D ③④
SAWED AND SEALED



JOINT DETAIL E ③⑤
SAWED AND SEALED

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16" USE IN ALL 3/8" JOINTS
a	0.69" + 0.13" - 0.05"
b	0.08" ± 0.02"
c	0.25" MIN.
d	0.63" MIN.



SPEC. REFERENCE 3721

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

PREFORMED ELASTOMERIC TYPE DETAIL

NOTES:

SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.

SEE STANDARD PLATE 1150 FOR CONSTRUCTION OF HEADER JOINTS.

JOINT WIDTH TOLERANCE IS + 1/16" TO - 1/32"

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SEE STANDARD PLANS 5-297.217 AND 5-297.219, FOR CONCRETE MAINLINE/RAMP PAVEMENT.

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

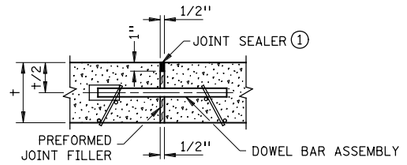
① JOINT DEPTH SHALL BE:
FOR CONCRETE OVERLAYS - 1/3 THE PAVEMENT THICKNESS
FOR CONCRETE PAVEMENT - 1/4 THE PAVEMENT THICKNESS

② SEE CONTRACTION JOINT SEALER DETAIL.
WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "c" DEPTH. SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET.

③ WHEN SEALING, THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.

④ PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEAL AND BEAD THICKNESS OF 1/4".

⑤ PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF PAVEMENT.



E1H-D (W/DOWELS) E1H (W/O DOWELS)

JOINT DETAIL A

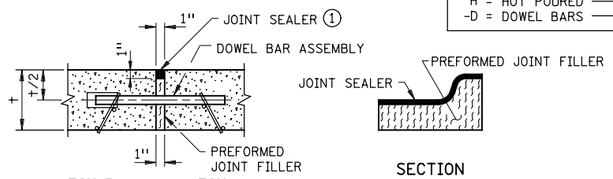
EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
E1H	E1H-D	A	3725	1/2"
E2H	E2H-D	B	3725	1"
E4H		C	3725	2"
	E4H-D	D	3725	2"
E8H		STANDARD PLAN 5-297.229	3725	4"

LEGEND — EXAMPLE

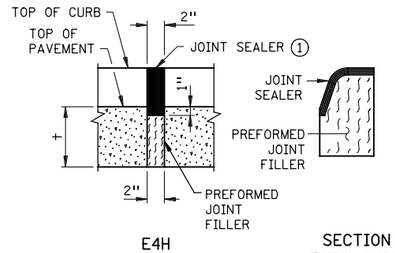
E = EXPANSION JOINT
NO. = JOINT REFERENCE
H = HOT POURED
-D = DOWEL BARS

EXAMPLE: E4H-D



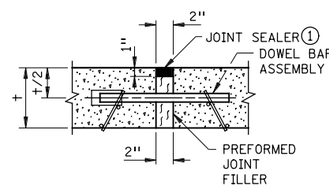
E2H-D (W/DOWELS) E2H (W/O DOWELS) SECTION THRU CURB

JOINT DETAIL B



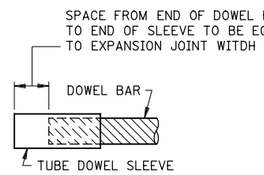
E4H (W/O DOWELS) SECTION THRU CURB

JOINT DETAIL C



E4H-D (W/DOWELS)

JOINT DETAIL D



DOWEL BAR SLEEVE DETAIL

NOTES:

PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

FOR DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.

① JOINT SEALER SPEC. 3725. THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION D JOINTS FLUSH WITH SURFACE ±1/8".

REVISION:

APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

CONTRACTION JOINTS
DESIGN C

REVISED:

APPROVED: 8-6-2014
STATE DESIGN ENGINEER

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

STANDARD PLAN 5-297.221 | 1 OF 2

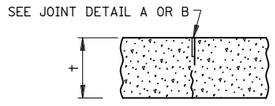
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MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	
	COMM. NO. 0158933	

MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD PLANS
SP 2515-21 (TH 63)

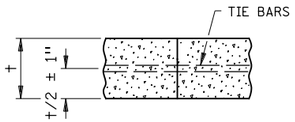
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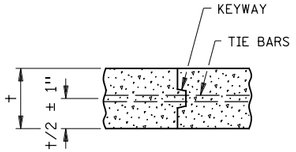
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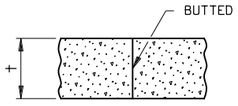
L1U & L1H ①



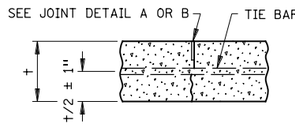
L2TU ②



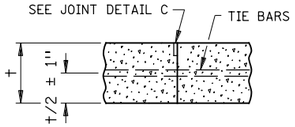
L2KTU ③



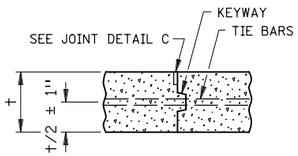
L3U



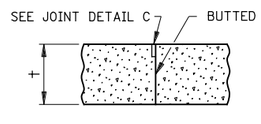
L1TU & L1TH ①



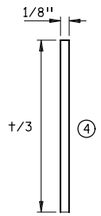
L2TH ②



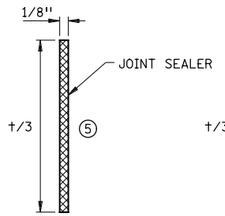
L2KTH ③



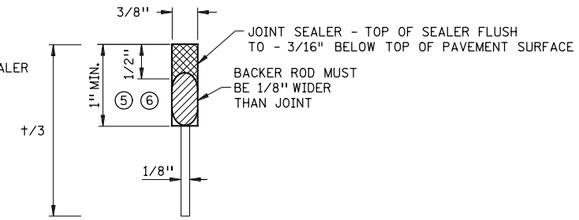
L3H



JOINT DETAIL A
SAWED & UNSEALED



JOINT DETAIL B
SAWED & SEALED



JOINT DETAIL C
SAWED & SEALED

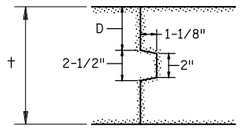
TIEBAR TABLE

PAVEMENT THICKNESS	TIEBAR SIZE	LENGTH
< 10-1/2"	NO. 4	30"
≥ 10-1/2"	NO. 5	36"
ALL THICKNESS WHEN TYING TO CURB AND GUTTER	NO. 4	30"

THE TIE BAR SPACING FOR ALL L2T AND L2KT JOINTS SHALL BE 3'-0" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2T AND L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 4 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.



PAVEMENT KEYWAY DETAIL

LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE

JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
	L2TH	L2KTH	C	3725	3/8"
L3U			NONE	UNSEALED	
L3H			C	3725	3/8"

LEGEND — EXAMPLE: L2KTH

- L = LONGITUDINAL JOINT
- NO. = JOINT REFERENCE
  - 1 = PAVED CONSTRUCTION JOINT
  - 2 = TIED/KEYED CONSTRUCTION JOINT
  - 3 = BUTTED CONSTRUCTION JOINT
- K = KEYWAY
- T = TIE BARS
- U = UNSEALED
- H = HOT POURED

NOTES:

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

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

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

TIED/KEYED AND BUTTED CONSTRUCTION JOINTS SHALL BE UNSEALED EXCEPT AS OTHERWISE NOTED IN THE PLAN OR REQUIRED BY THE ENGINEER.

SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.

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

WHEN CURB AND GUTTER IS PLACED ADJACENT TO CONCRETE MAINLINE, THE TIEBARS SHALL BE PLACED A MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.

① SEE THE LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE TO DETERMINE JOINT DETAIL.

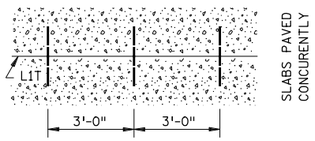
② CONCRETE PAVEMENTS LESS THAN 7" SHALL USE L2TU AND L2TH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.

③ CONCRETE PAVEMENTS GREATER THAN OR EQUAL TO 7" SHALL USE L2KTU AND L2KTH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.

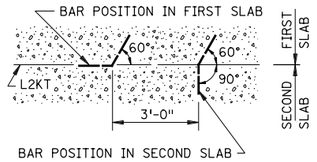
④ THE JOINT FACES SHALL BE CLEANED WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.

⑤ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.

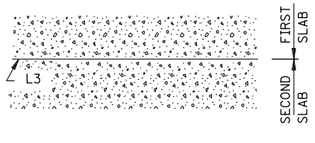
⑥ PRIOR TO SEALING THE JOINT, A 1/2" DIAMETER CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF THE PAVEMENT.



L1T PAVING DETAIL



L2T & L2KT TIE BAR BENDING AND PAVING DETAIL



L3 PAVING DETAIL

KEYWAY DIMENSION TABLE

† PAVEMENT THICKNESS	D (TOLERANCE ± 1/4")
< 7"	NO KEYWAY
7" TO 7-1/2"	3"
8" TO 10"	4"
≥ 10-1/2"	5"

KEYWAY (1-1/8" × 2" × 2-1/2") MAY BE FORMED WITH MOLD OR METAL FORM. OTHER APPROVED KEYWAY SHAPES GIVING EQUIVALENT CONSTRUCTION FEATURES MAY BE USED WITH APPROVAL OF THE ENGINEER.

REVISION:

APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:

APPROVED: 8-6-2014
STATE DESIGN ENGINEER

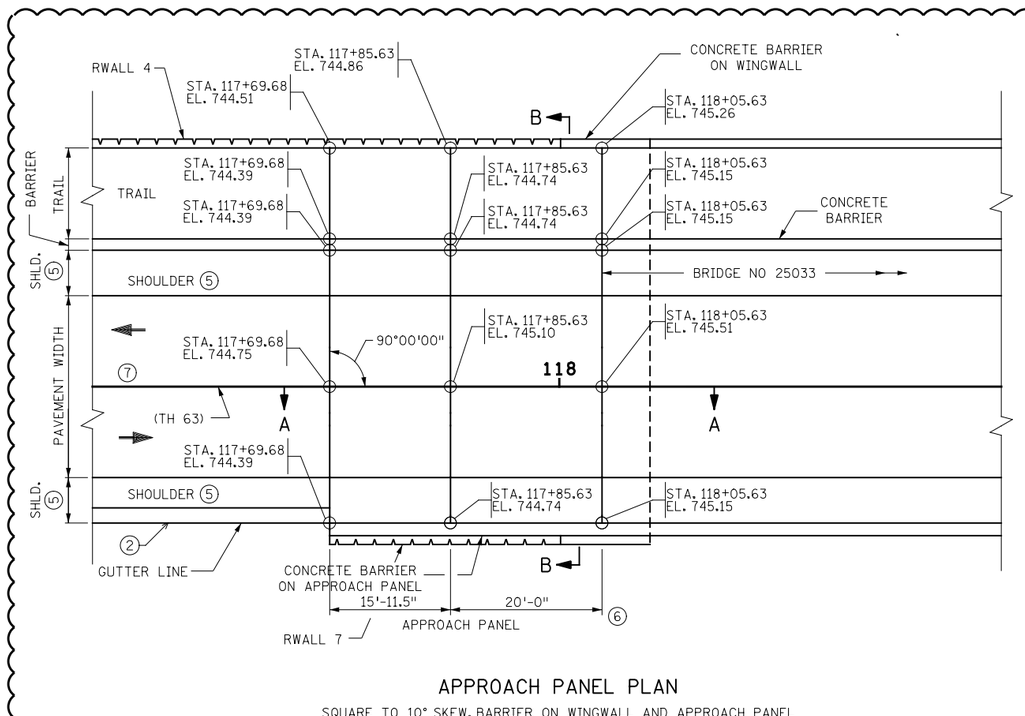
PAVEMENT JOINTS
LONGITUDINAL (DESIGN L)

STANDARD PLAN 5-297.221 | 2 OF 2

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 71 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)	
	COMM. NO. 0158933		

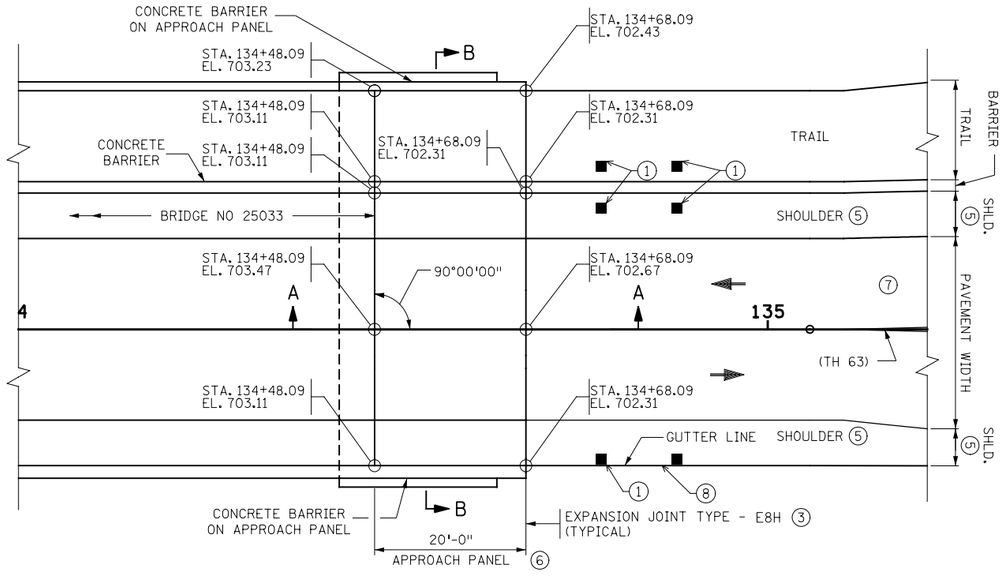
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APPROACH PANEL PLAN

SQUARE TO 10° SKEW, BARRIER ON WINGWALL AND APPROACH PANEL



APPROACH PANEL PLAN

SQUARE TO 10° SKEW, BARRIER ON APPROACH PANEL

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

NOTES:

1. SEE STANDARD PLAN 5-297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.
2. B4 CURB DESIGN SHOWN. SEE STANDARD PLATES FOR CURB DETAILS.
3. E8H QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.
* 4. ~~WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1' (TYP.).~~
5. SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.
6. PANEL SIZE AND REQUIREMENTS FOR TRANSVERSE AND LONGITUDINAL JOINTS ARE SHOWN ON STANDARD PLANS 5-297.228 AND 5-297.229.
7. FOR CONCRETE PAVEMENT, SEE STANDARD PLAN 5-297.227 FOR LUG REQUIREMENTS.
* 8. CURB AND GUTTER DESIGN SPECIAL 1 SHOWN. SEE MISCELLANEOUS DETAILS.

GENERAL NOTES:

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

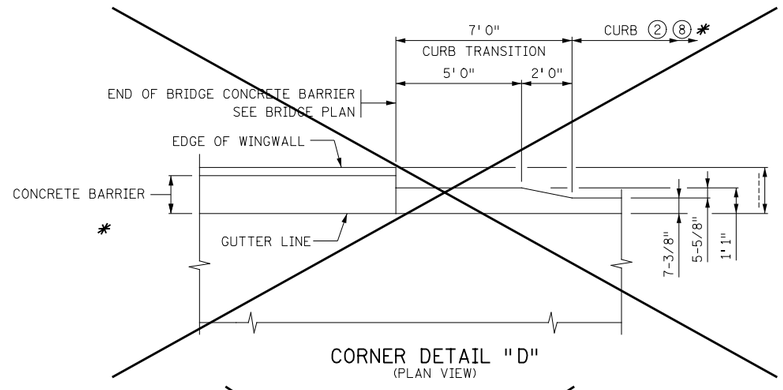
A CONCRETE SILL IS REQUIRED BENEATH EXPANSION JOINT TYPE E8H. EXTEND THE EXPANSION JOINT AND THE SILL ALONG THE FULL WIDTH OF THE TRAFFIC LANES, SHOULDERS AND CURB. ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT. CONCRETE SILL AND CURBING, IF REQUIRED, ARE INCLUDED IN THE APPROACH PANEL PAY ITEM.

* ~~AT THE END OF THE CONCRETE BARRIER, TRANSITION FACE OF 4 INCH CURB INTO PROFILE OF CONCRETE BARRIER. SEE CURB TRANSITION DETAILS ON STANDARD PLAN 5-297.227. IF THERE IS NO ROADWAY CURB AT THE END OF THE APPROACH PANEL, TRANSITION THE APPROACH PANEL CURB HEIGHT FROM 4 INCH TO 0 INCH IN THE LAST 3'-4" SECTION (1:10 OR FLATTER SLOPE).~~

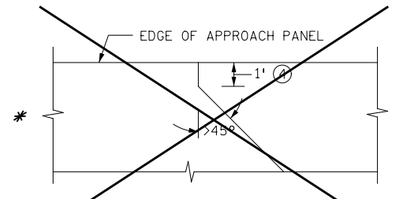
GENERAL DRAINAGE DETAILS ARE SHOWN ON BRIDGE APPROACH PANEL DRAINAGE DETAILS, STANDARD PLAN 5-297.231. ADDITIONAL CATCH BASIN DETAILS ARE SHOWN ON DRAINAGE PLAN SHEETS.

USE CONCRETE MIX 3S52 FOR APPROACH PANEL AND SILL.

REFER TO MNDOT SPEC. 2406 FOR ADDITIONAL INFORMATION.



CORNER DETAIL "D"
(PLAN VIEW)



SKEW DETAIL "E"
(PLAN VIEW)

BRIDGE NO. 25033

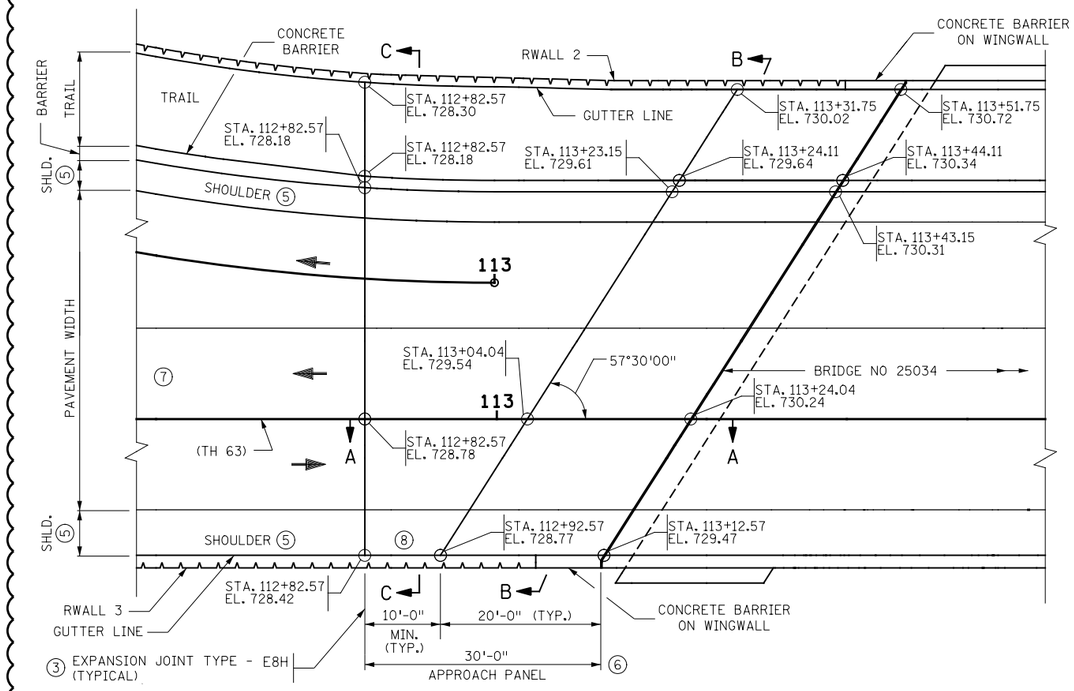
MODIFIED	
STANDARD PLAN SHEET NO.	5-297.222
STANDARD PLAN SHEET NO.	5-297.224
STANDARD APPROVED:	~~FEBRUARY 16, 2016~~

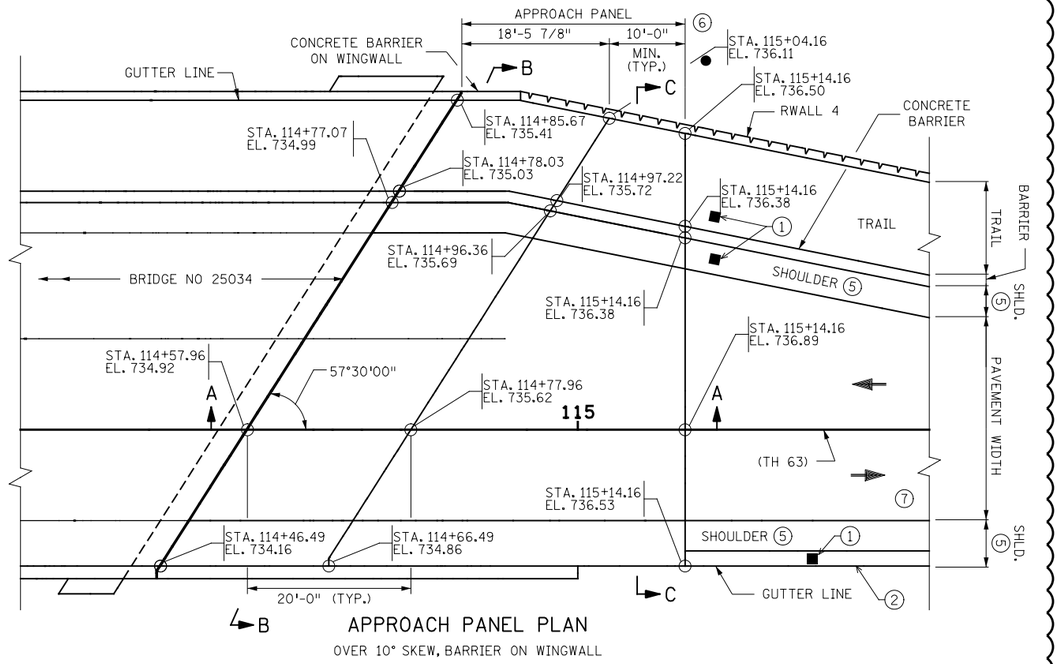
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: CRAIG J. HASS
Date _____ License # 45039

TITLE: **BRIDGE APPROACH PANEL LAYOUT**
(CONCRETE BARRIER ON WINGWALL AND APPROACH PANEL)

STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 72 OF 688 SHEETS

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APPROACH PANEL PLAN
OVER 10° SKEW, BARRIER ON WINGWALL

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

NOTES:

1. SEE STANDARD PLAN 5-297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.
2. B4 CURB DESIGN SHOWN. SEE STANDARD PLATES FOR CURB DETAILS.
3. E8H QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.
4. WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1' (TYP.).
5. SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.
6. PANEL SIZE AND REQUIREMENTS FOR TRANSVERSE AND LONGITUDINAL JOINTS ARE SHOWN ON STANDARD PLANS 5-297.228 AND 5-297.229.
7. FOR CONCRETE PAVEMENT, SEE STANDARD PLAN 5-297.227 FOR LUG REQUIREMENTS.
8. CONCRETE CURB AND GUTTER DESIGN SPECIAL SHOWN. SEE MISCELLANEOUS DETAILS.

GENERAL NOTES:

SECTION A-A IS SHOWN ON STANDARD PLAN 5-297.227. SECTIONS B-B AND C-C ARE SHOWN ON STANDARD 5-297.223 AND SHOW THE STATION AND ELEVATION AT END LOCATIONS ON THE APPROACH PANEL.

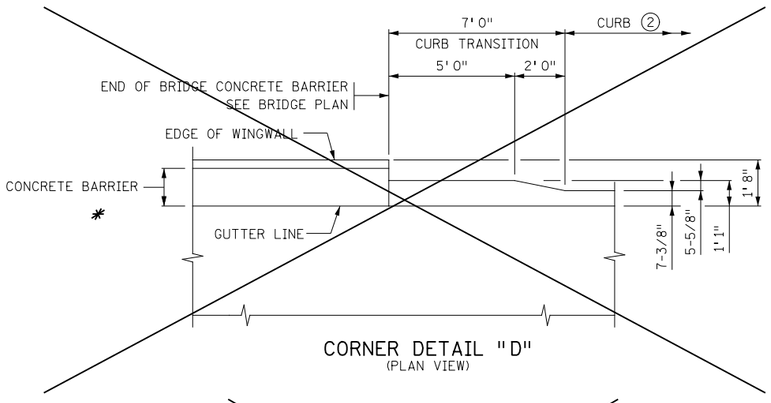
A CONCRETE SILL IS REQUIRED BENEATH EXPANSION JOINT TYPE E8H. EXTEND THE EXPANSION JOINT AND THE SILL ALONG THE FULL WIDTH OF THE TRAFFIC LANES, SHOULDERS AND CURB. ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT. CONCRETE SILL AND CURBING, IF REQUIRED, ARE INCLUDED IN THE APPROACH PANEL PAY ITEM.

* ~~AT THE END OF THE CONCRETE BARRIER, TRANSITION FACE OF 4 INCH CURB INTO PROFILE OF CONCRETE BARRIER. SEE CURB TRANSITION DETAILS ON STANDARD PLAN 5-297.227. IF THERE IS NO ROADWAY CURB AT THE END OF THE APPROACH PANEL, TRANSITION THE APPROACH PANEL CURB HEIGHT FROM 4 INCH TO 0 INCH IN THE LAST 3' 4" SECTION (1.10 OR FLATTER SLOPE).~~

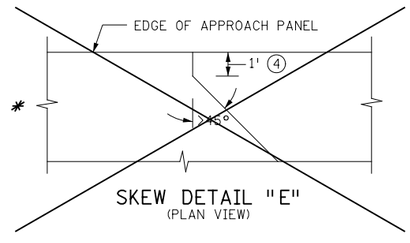
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USE CONCRETE MIX 3S52 FOR APPROACH PANEL AND SILL.

REFER TO MNDOT SPEC. 2406 FOR ADDITIONAL INFORMATION.



CORNER DETAIL "D"
(PLAN VIEW)



SKEW DETAIL "E"
(PLAN VIEW)

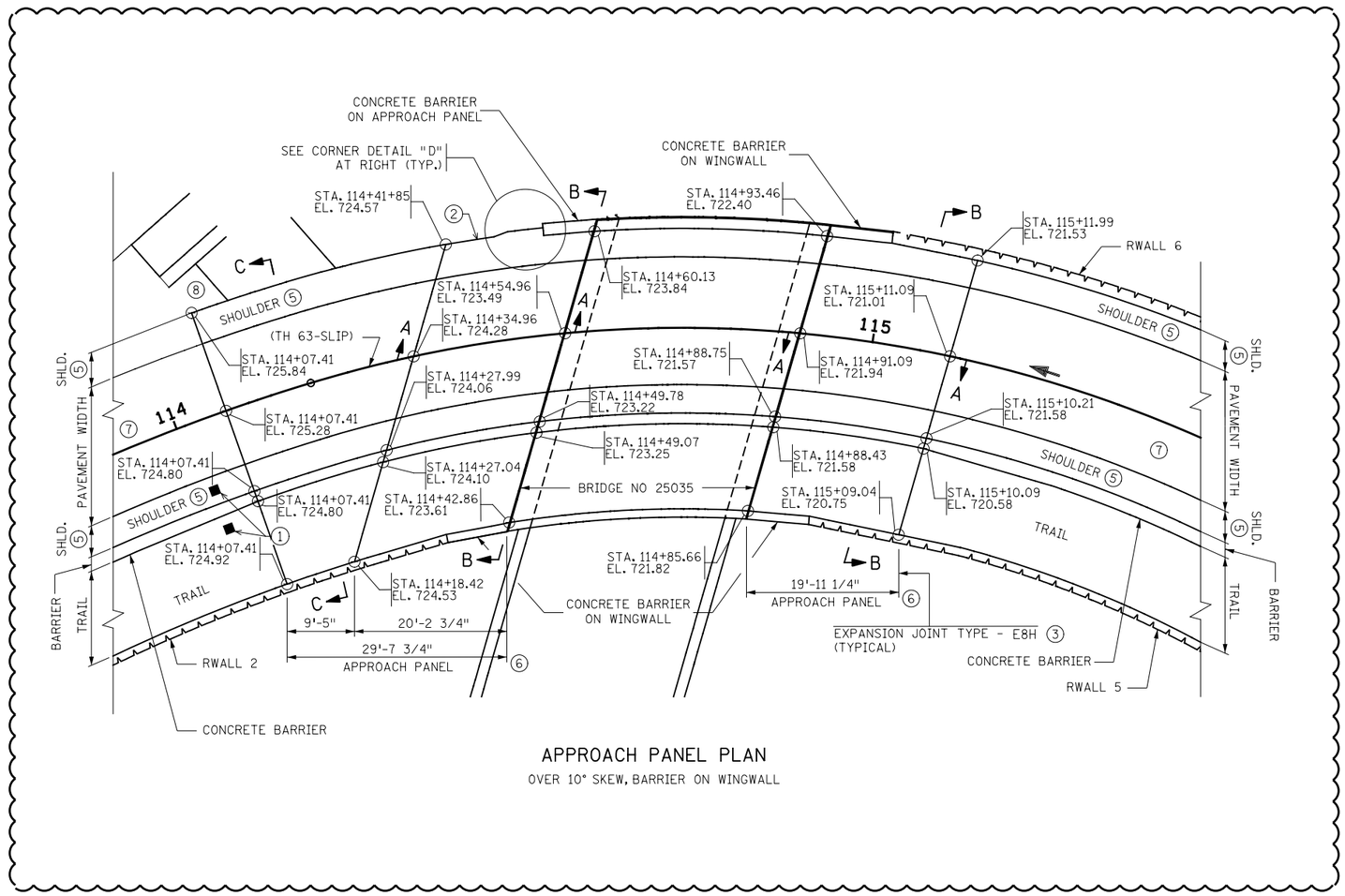
BRIDGE NO. 25034

MODIFIED	
STANDARD PLAN SHEET NO. 5-297.222	TITLE: BRIDGE APPROACH PANEL LAYOUT (CONCRETE BARRIER ON WINGWALL)
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: CRAIG J. HASS
Date _____ License # 45039

STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 73 OF 688 SHEETS

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APPROACH PANEL PLAN

OVER 10° SKEW, BARRIER ON WINGWALL

NOTES:

1. SEE STANDARD PLAN 5-297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.
2. B4 CURB DESIGN SHOWN. SEE STANDARD PLATES FOR CURB DETAILS.
3. E8H QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.
4. ~~WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1' (TYP.).~~
5. SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.
6. PANEL SIZE AND REQUIREMENTS FOR TRANSVERSE AND LONGITUDINAL JOINTS ARE SHOWN ON STANDARD PLANS 5-297.228 AND 5-297.229.
7. FOR CONCRETE PAVEMENT, SEE STANDARD PLAN 5-297.227 FOR LUG REQUIREMENTS.
8. MEDIAN NOSE TRANSITION, SEE STANDARD PLATE 7109C.

GENERAL NOTES:

SECTION A-A IS SHOWN ON STANDARD PLAN 5-297.227. SECTIONS B-B AND C-C ARE SHOWN ON STANDARD 5-297.223 AND SHOW THE STATION AND ELEVATION AT END LOCATIONS ON THE APPROACH PANEL.

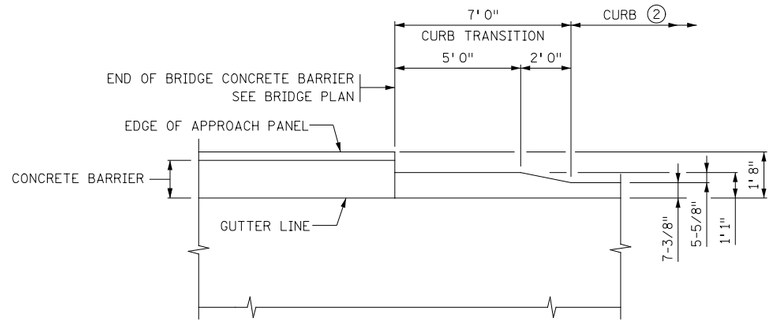
A CONCRETE SILL IS REQUIRED BENEATH EXPANSION JOINT TYPE E8H. EXTEND THE EXPANSION JOINT AND THE SILL ALONG THE FULL WIDTH OF THE TRAFFIC LANES, SHOULDERS AND CURB. ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT. CONCRETE SILL AND CURBING, IF REQUIRED, ARE INCLUDED IN THE APPROACH PANEL PAY ITEM.

* ~~AT THE END OF THE CONCRETE BARRIER, TRANSITION FACE OF 4-INCH CURB INTO PROFILE OF CONCRETE BARRIER. SEE CURB TRANSITION DETAILS ON STANDARD PLAN 5-297.227. IF THERE IS NO ROADWAY CURB AT THE END OF THE APPROACH PANEL, TRANSITION THE APPROACH PANEL CURB HEIGHT FROM 4 INCH TO 0 INCH IN THE LAST 3'-4" SECTION (1:10 OR FLATTER SLOPE).~~

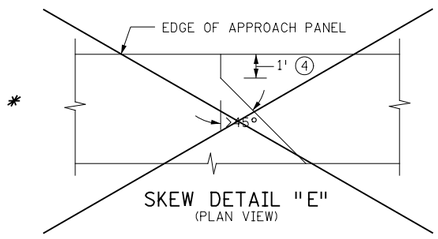
GENERAL DRAINAGE DETAILS ARE SHOWN ON BRIDGE APPROACH PANEL DRAINAGE DETAILS, STANDARD PLAN 5-297.231. ADDITIONAL CATCH BASIN DETAILS ARE SHOWN ON DRAINAGE PLAN SHEETS.

USE CONCRETE MIX 3S52 FOR APPROACH PANEL AND SILL.

REFER TO MNDOT SPEC. 2406 FOR ADDITIONAL INFORMATION.



CORNER DETAIL "D"
(PLAN VIEW)



SKEW DETAIL "E"
(PLAN VIEW)

BRIDGE NO. 25035

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

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: CRAIG J. HASS

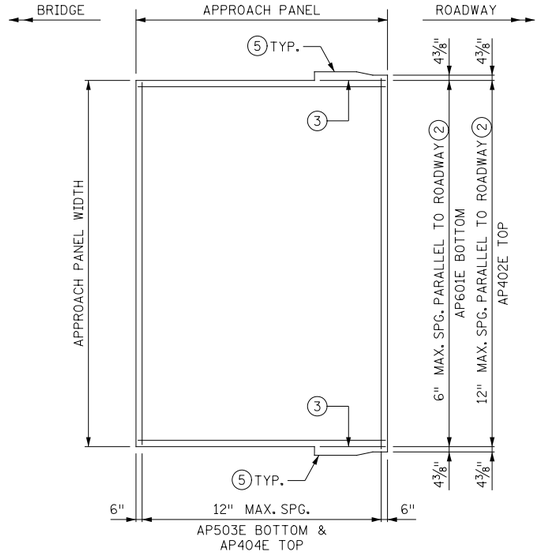
Date _____ License # 45039

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STANDARD PLAN SHEET NO.	5-297.222
STANDARD PLAN SHEET NO.	5-297.224
STANDARD APPROVED:	~~MARCH 23, 2011~~

TITLE: **BRIDGE APPROACH PANEL LAYOUT**
(CONCRETE BARRIER ON WINGWALL AND APPROACH PANEL)

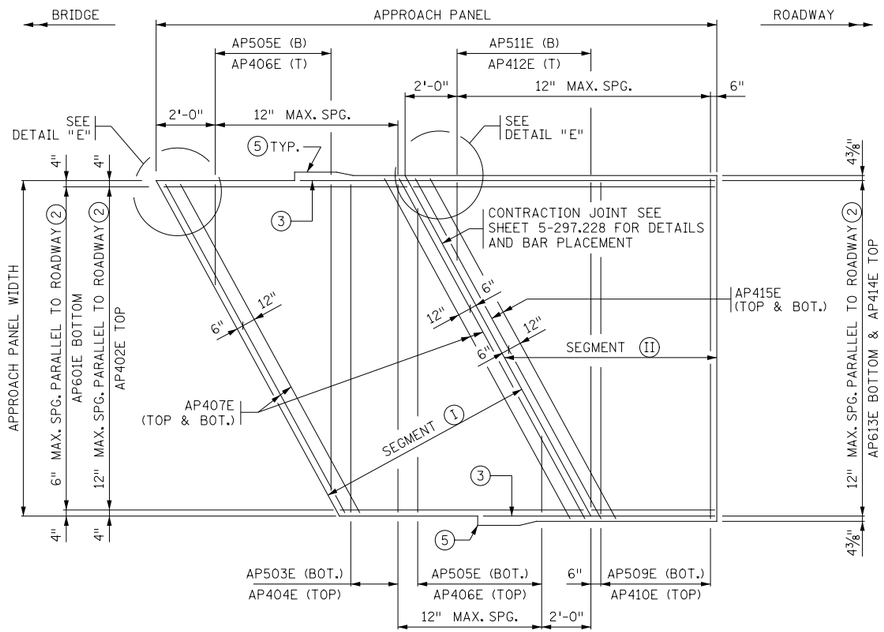
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APPROACH PANEL REINFORCEMENT

SQUARE TO 10° SKEWS



APPROACH PANEL REINFORCEMENT

OVER 10° SKEWS

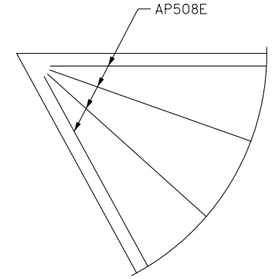
ESTIMATED REINFORCEMENT QUANTITY FOR BRIDGE APPROACH PANELS

TYPE	LOCATION	ESTIMATIED WEIGHT
PANEL (SQ. TO 10°)	BRIDGE TO END OF APPROACH PANEL	48.5 LB./SQ. YD.
PANEL SEGMENT (I) (OVER 10°)	BRIDGE TO CONTRACTION JOINT	48.5 LB./SQ. YD.
PANEL SEGMENT (II) (OVER 10°)	CONTRACTION JOINT TO END OF APPROACH PANEL	35.0 LBS/SQ. YD.
CURB	7.0 FT. CURB TRANSITION	19.0 LBS/EACH
SILL	SILL (IF REQUIRED)	14.0 LBS/LIN FT.

NOTES:

TRANSVERSE BARS IN BOTH PANEL SEGMENTS ARE PERPENDICULAR TO ROADWAY CENTERLINE EXCEPT AP407E ARE PARALLEL TO SKEW IN SEGMENT (I) AND AP415E ARE PARRALLEL TO SKEW IN SEGMENT (II).

LONGITUDINAL BARS IN BOTH PANEL SEGMENTS ARE PARALLEL TO ROADWAY CENTERLINE.



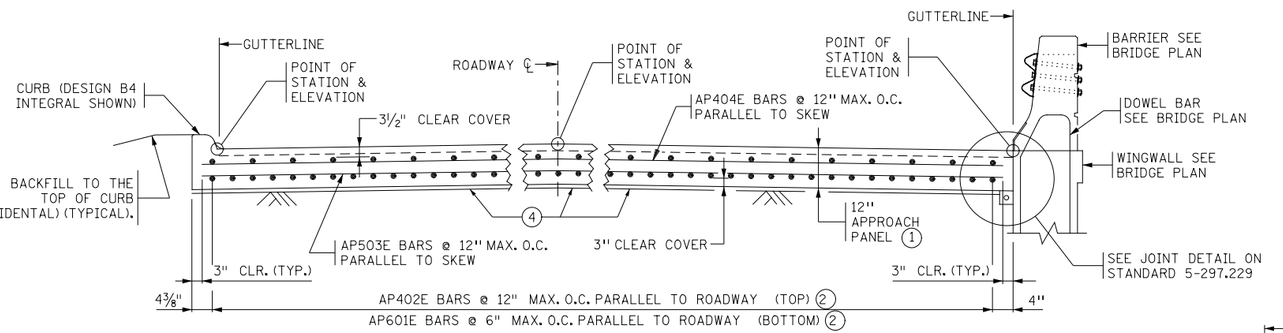
DETAIL "E"

FAN 4-AP508E BARS AS SHOWN IN ACUTE CORNERS FOR SKEWS OVER 30°.

BILL OF REINFORCEMENT FOR BRIDGE APPROACH PANELS

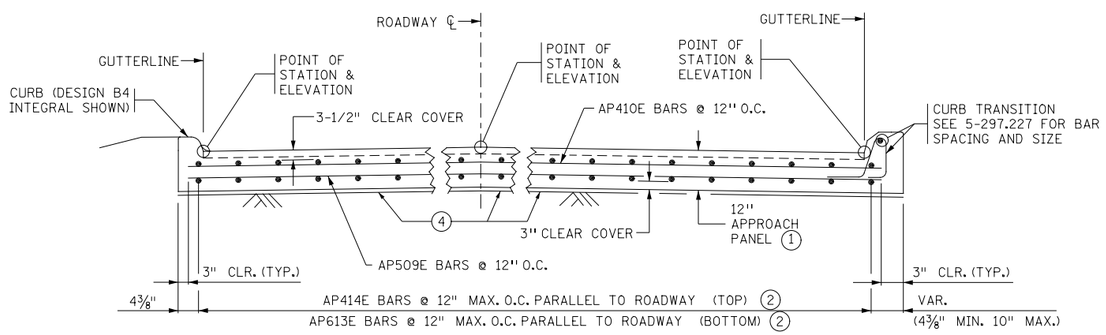
CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
AP601E		'-	———	BOTTOM LONGITUDINAL
AP402E		'-	———	TOP LONGITUDINAL
AP503E		'-	———	BOTTOM TRANSVERSE
AP404E		'-	———	TOP TRANSVERSE
AP505E	SER. OF	'- TO '-	———	BOTTOM TRANSVERSE
AP406E	SER. OF	'- TO '-	———	TOP TRANSVERSE
AP407E		'-	———	TOP & BOTTOM EDGE
AP508E		8'-0	———	TOP CORNER - FAN
AP509E		'-	———	BOTTOM TRANSVERSE
AP410E		'-	———	TOP TRANSVERSE
AP511E	SER. OF	'- TO '-	———	BOTTOM TRANSVERSE
AP412E	SER. OF	'- TO '-	———	TOP TRANSVERSE
AP613E	SER. OF	'- TO '-	———	BOTTOM LONGITUDINAL
AP414E	SER. OF	'- TO '-	———	TOP LONGITUDINAL
AP415E		'-	———	TOP & BOTTOM EDGE
AP616E		5'-0	———	C2H-D JOINT



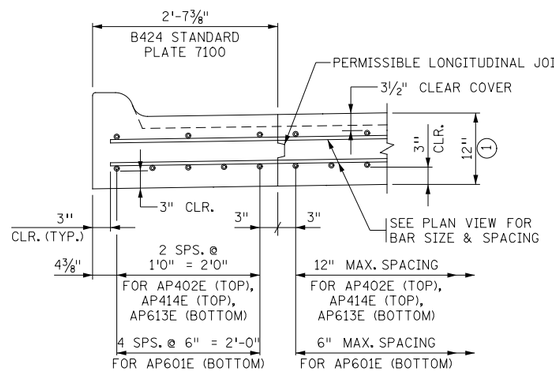
TRANSVERSE SECTION B-B

FROM STANDARD PLAN 5-297.222



TRANSVERSE SECTION C-C

FROM STANDARD PLAN 5-297.222



CURB DETAIL

(B424 CURB AND GUTTER SHOWN)

* DENOTES MODIFICATIONS FROM STANDARD PLAN

* SEE BRIDGE PLANS FOR BARRIER ON WINGWALL LOCATIONS.

GENERAL NOTES:

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

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH Mn/DOT SPEC. 3301.

FOR VARIABLE ROADWAY WIDTHS, VARY THE LAP LENGTH OF THE REINFORCEMENT.

MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS: NO. 4 BAR = 1'-8", NO. 5 BAR = 2'-1", NO. 6 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 IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.

(2) SPACING ONLY FOR B4 INTEGRANT CURB. SEE CURB DETAIL FOR SPACING FOR USING B424 CURB AND GUTTER.

(3) EXTEND AND/OR CUT REINFORCING AS NECESSARY TO ACCOMMODATE CURB TRANSITION IF PRESENT. REINFORCEMENT MUST EXTEND INTO CURB AS SHOWN IN TRANSVERSE SECTIONS B-B AND C-C.

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

(5) SEE STANDARD PLAN 5-297.222 FOR CURB TRANSITION LOCATION.

~~REVISION DATE~~
~~3-22-2013~~

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: CRAIG J. HASS

Date _____ License # 45039

MODIFIED

STANDARD PLAN SHEET NO. 5-297.223

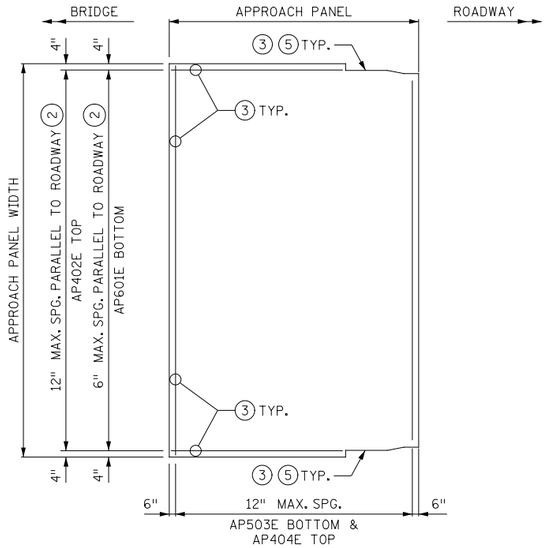
STANDARD APPROVED: ~~DECEMBER 20, 2011~~

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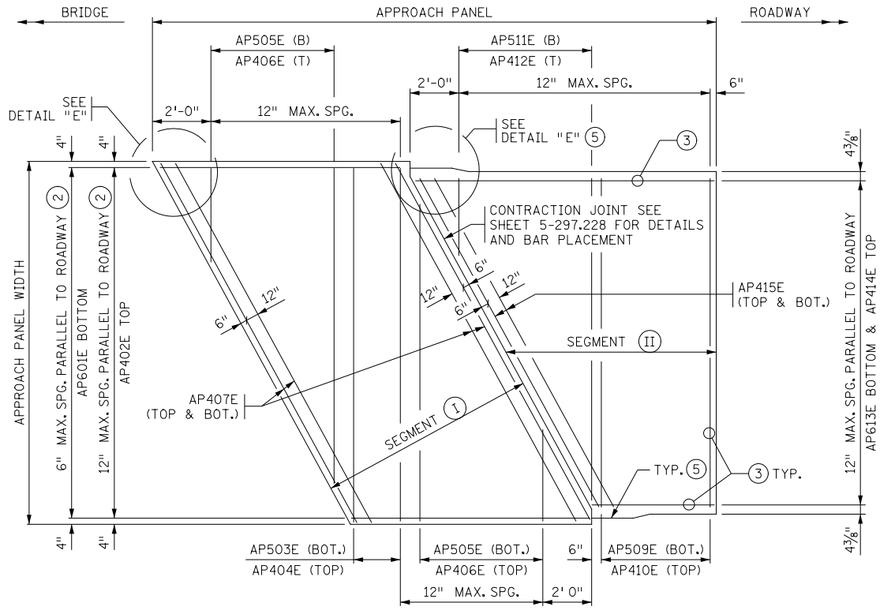
BRIDGE APPROACH PANEL
REINFORCEMENT DETAILS
(CONCRETE BARRIER ON WINGWALL)

STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 75 OF 688 SHEETS

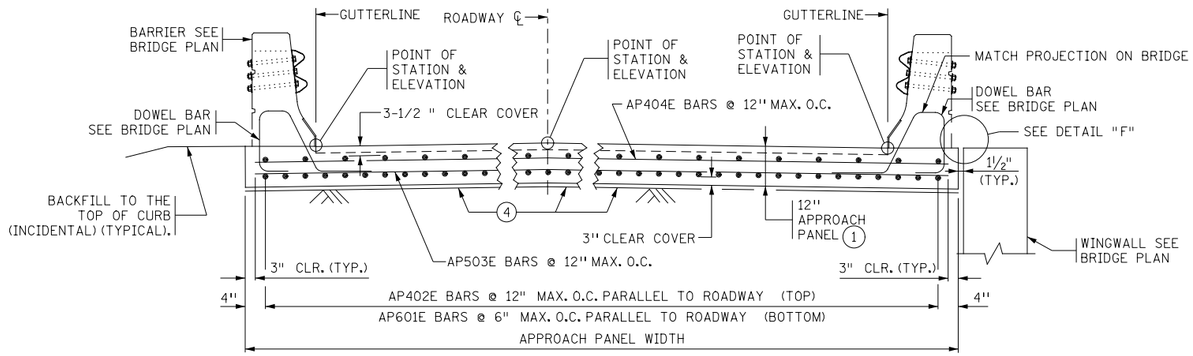
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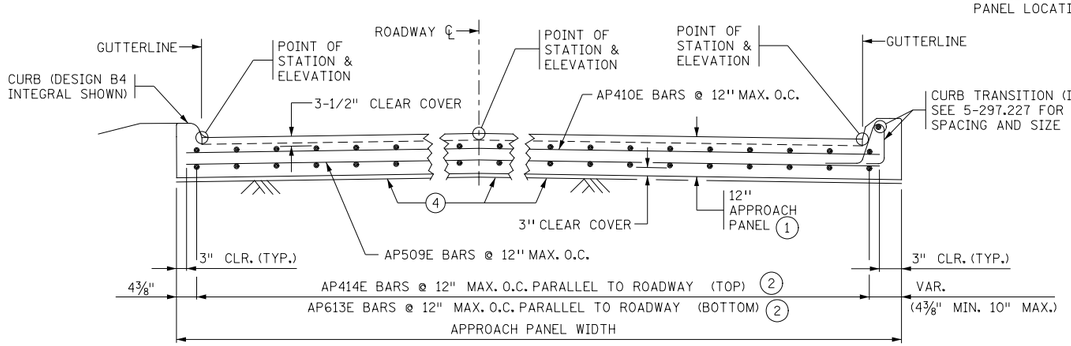
APPROACH PANEL REINFORCEMENT
SQUARE TO 10° SKEWS



APPROACH PANEL REINFORCEMENT
OVER 10° SKEWS



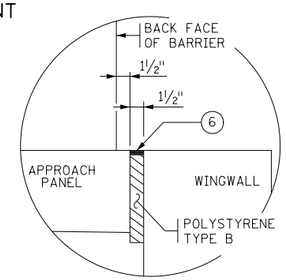
TRANSVERSE SECTION B-B
FROM STANDARD PLAN 5-297.224
CONCRETE BARRIERS ARE SHOWN, BUT MAY NOT BE PRESENT.
REFER TO BRIDGE PLANS FOR END OF BARRIER LOCATIONS.



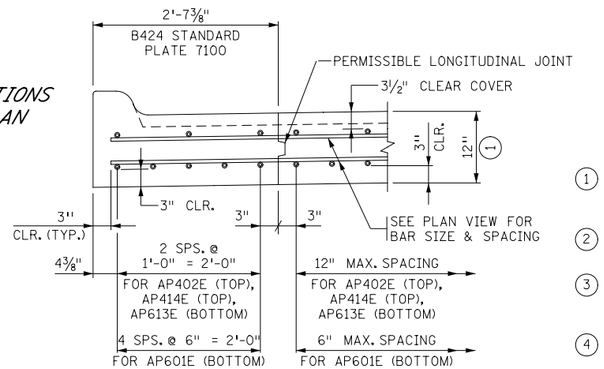
TRANSVERSE SECTION C-C
FROM STANDARD PLAN 5-297.224

** DENOTES MODIFICATIONS FROM STANDARD PLAN*

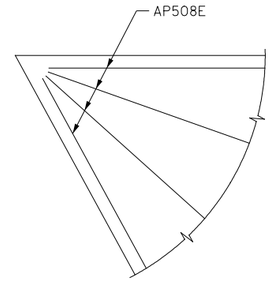
* SEE BRIDGE PLANS FOR BARRIER ON APPROACH PANEL LOCATIONS.



DETAIL "F"



CURB DETAIL
(B424 CURB AND GUTTER SHOWN)



DETAIL "E"
FAN 4-AP508E BARS AS SHOWN
IN ACUTE CORNERS FOR SKEWS OVER 30°.

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.
PANEL SEGMENT (I) (OVER 10°)	BRIDGE TO CONTRACTION JOINT	48.5 LB./SQ. YD.
PANEL SEGMENT (II) (OVER 10°)	CONTRACTION JOINT TO END OF APPROACH PANEL	35.0 LBS/SQ. YD
CURB	7.0 FT. CURB TRANSITION	19.0 LBS/EACH
SILL	SILL (IF REQUIRED)	14.0 LBS/LIN FT.

NOTES:

TRANSVERSE BARS IN BOTH PANEL SEGMENTS ARE PERPENDICULAR TO ROADWAY CENTERLINE EXCEPT AP407E ARE PARALLEL TO SKEW IN SEGMENT (I) AND AP415E ARE PARRALLEL TO SKEW IN SEGMENT (II).

LONGITUDINAL BARS IN BOTH PANEL SEGMENTS ARE PARALLEL TO ROADWAY CENTERLINE.

BILL OF REINFORCEMENT FOR BRIDGE APPROACH PANELS

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
AP601E		'-	———	BOTTOM LONGITUDINAL
AP402E		'-	———	TOP LONGITUDINAL
AP503E		'-	———	BOTTOM TRANSVERSE
AP404E		'-	———	TOP TRANSVERSE
AP505E	SER. OF	'- TO '-	———	BOTTOM TRANSVERSE
AP406E	SER. OF	'- TO '-	———	TOP TRANSVERSE
AP407E		'-	———	TOP & BOTTOM EDGE
AP508E		8'-0	———	TOP CORNER - FAN
AP509E		'-	———	BOTTOM TRANSVERSE
AP410E		'-	———	TOP TRANSVERSE
AP511E	SER. OF	'- TO '-	———	BOTTOM TRANSVERSE
AP412E	SER. OF	'- TO '-	———	TOP TRANSVERSE
AP613E	SER. OF	'- TO '-	———	BOTTOM LONGITUDINAL
AP414E	SER. OF	'- TO '-	———	TOP LONGITUDINAL
AP415E		'-	———	TOP & BOTTOM EDGE
AP616E		5'-0	———	C2H-D JOINT

GENERAL NOTES:

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

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH MnDOT SPEC. 3301.

FOR VARIABLE ROADWAY WIDTHS, VARY THE LAP LENGTH OF THE REINFORCEMENT.

MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS: NO. 4 BAR = 1'-8", NO. 5 BAR = 2'-1", NO. 6 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 IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.

(2) SPACING ONLY FOR B4 INTEGRANT CURB. SEE CURB DETAIL FOR SPACING FOR USING B424 CURB AND GUTTER.

(3) EXTEND AND/OR CUT REINFORCING AS NECESSARY TO ACCOMMODATE CURB TRANSITION IF PRESENT. REINFORCEMENT MUST EXTEND INTO CURB AS SHOWN IN TRANSVERSE SECTIONS B-B AND C-C.

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

(5) SEE STANDARD PLAN 5-297.224 FOR CURB TRANSITION LOCATION.

(6) SEAL WITH SELF-LEVELING SILICONE PER MNDOT 3722.

REVISION DATE
~~3-22-2013~~

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: CRAIG J. HASS

Date _____ License # 45039

MODIFIED

STANDARD PLAN SHEET NO. 5-297.225

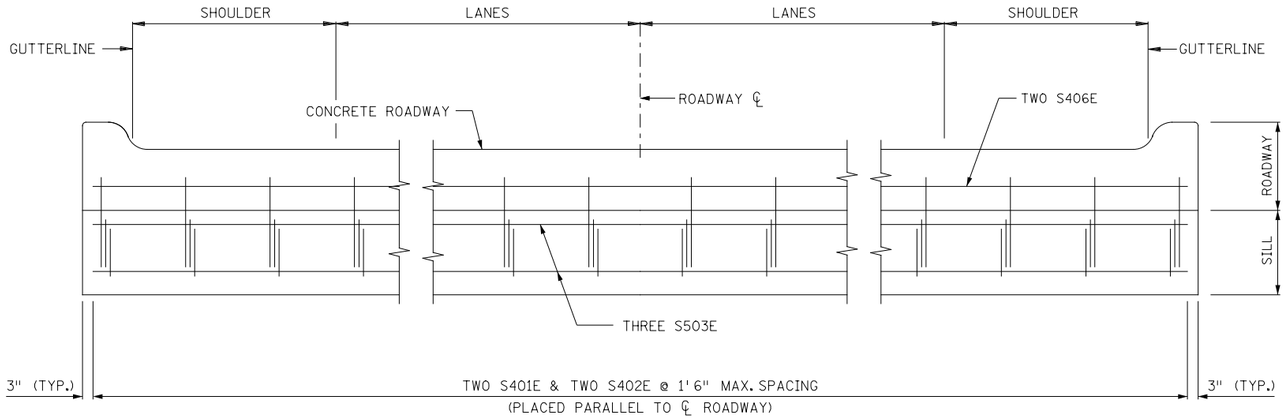
STANDARD APPROVED: ~~DECEMBER 20, 2011~~

TITLE:

BRIDGE APPROACH PANEL
REINFORCEMENT DETAILS
(CONCRETE BARRIER ON APPROACH PANEL)

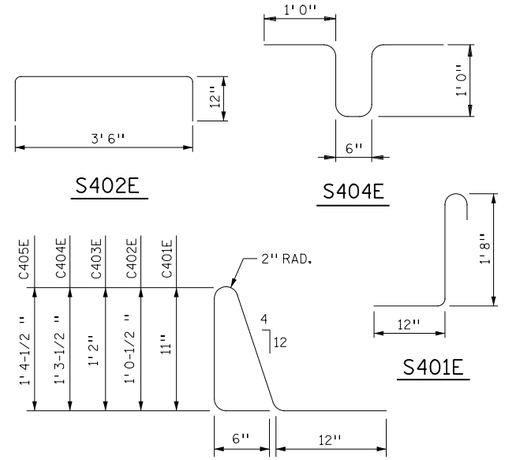
STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 76 OF 688 SHEETS

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SILL ELEVATION

(REINFORCEMENT IN PAVEMENT NOT SHOWN)



C401E - C405E

BILL OF REINFORCEMENT FOR CONCRETE SILL

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

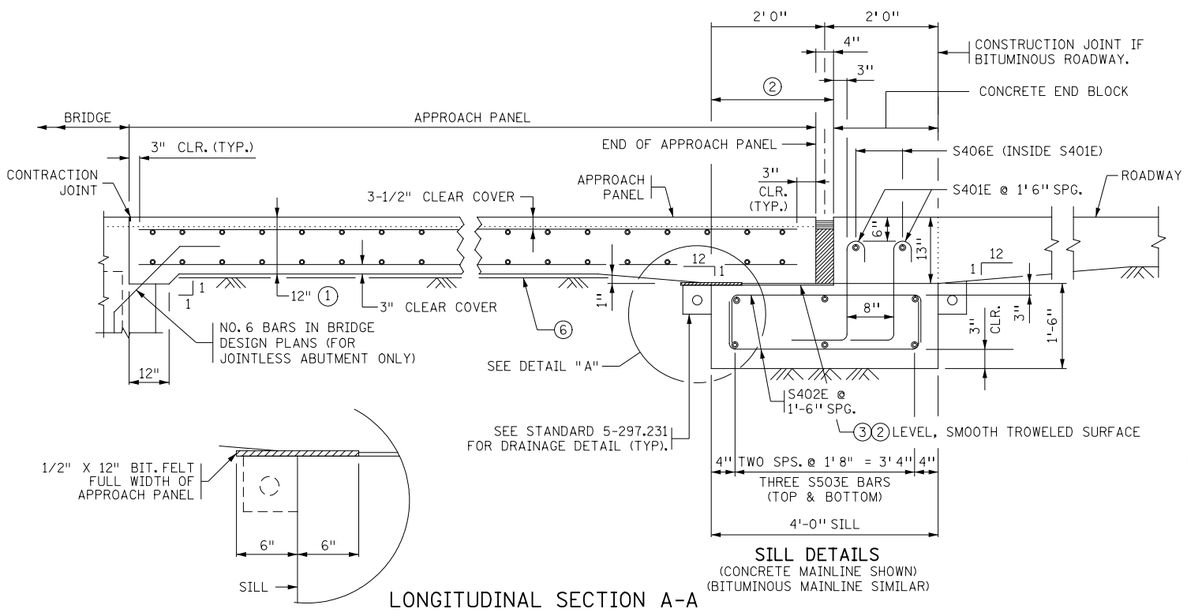
	BAR	NO.	LENGTH	SHAPE	LOCATION
	S401E		3' 2"		SILL VERTICAL
	S402E		5' 6"		SILL TIE
✳	S503E		'-		SILL HORIZONTAL
	S404E		4' 6"		KEY TIE
✳	S405E		' "		KEY HORIZONTAL
✳	S406E		' "		END BLOCK HORIZONTAL

✳ MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS: NO. 4 BAR = 1'-8", NO. 5 BAR = 2'-1".

BILL OF REINFORCEMENT FOR CURB TRANSITION

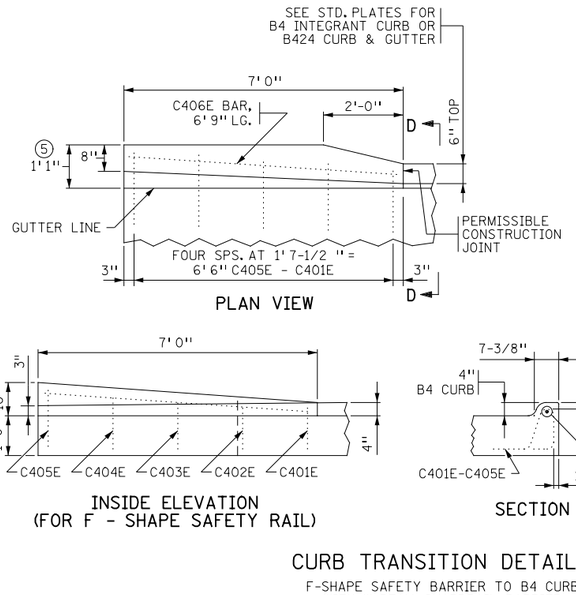
CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
C401E		3' 6"		CURB VERTICAL
C402E		3' 9"		CURB VERTICAL
C403E		4' 0"		CURB VERTICAL
C404E		4' 3"		CURB VERTICAL
C405E		4' 5"		CURB VERTICAL
C406E		6' 9"		CURB LONGITUDINAL



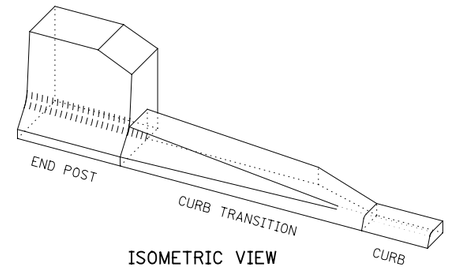
SILL DETAILS
(CONCRETE MAINLINE SHOWN)
(BITUMINOUS MAINLINE SIMILAR)

LONGITUDINAL SECTION A-A
FROM SHEET 5-297.222 & SHEET 5-297.224

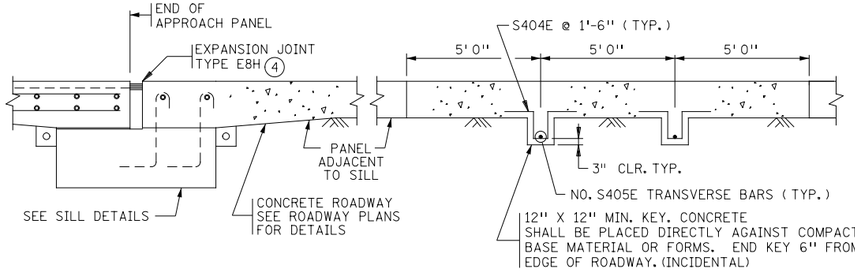


CURB TRANSITION DETAILS

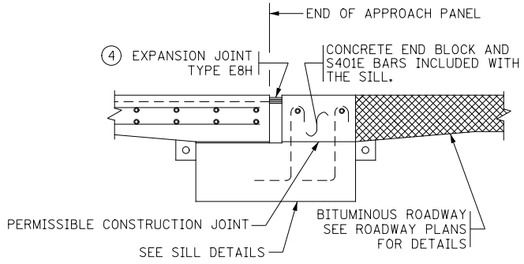
F-SHAPE SAFETY BARRIER TO B4 CURB WITH W-BEAM GUARDRAIL BARRIER



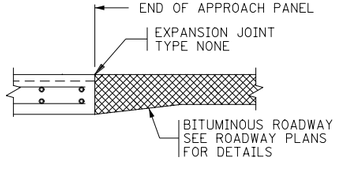
ISOMETRIC VIEW



SILL & CONCRETE MAINLINE



SILL & BITUMINOUS MAINLINE



BITUMINOUS MAINLINE WITHOUT SILL
(NON TRUNK HIGHWAY USE ONLY)

NOTES:

AS PER MNDOT 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS.

ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT.

① APPROACH SLAB THICKNESS IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.

② PLACE PLASTIC SHEETING (MNDOT 3756) AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL. (SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM).

③ REQUIRED CONSTRUCTION JOINT.

④ SEE STANDARD PLANS 5-297.222 & 5-297.224 FOR TYPE OF EXPANSION JOINT. DETAILS OF EXPANSION JOINT TYPE E8H ARE SHOWN ON STANDARD PLAN 5-297.229.

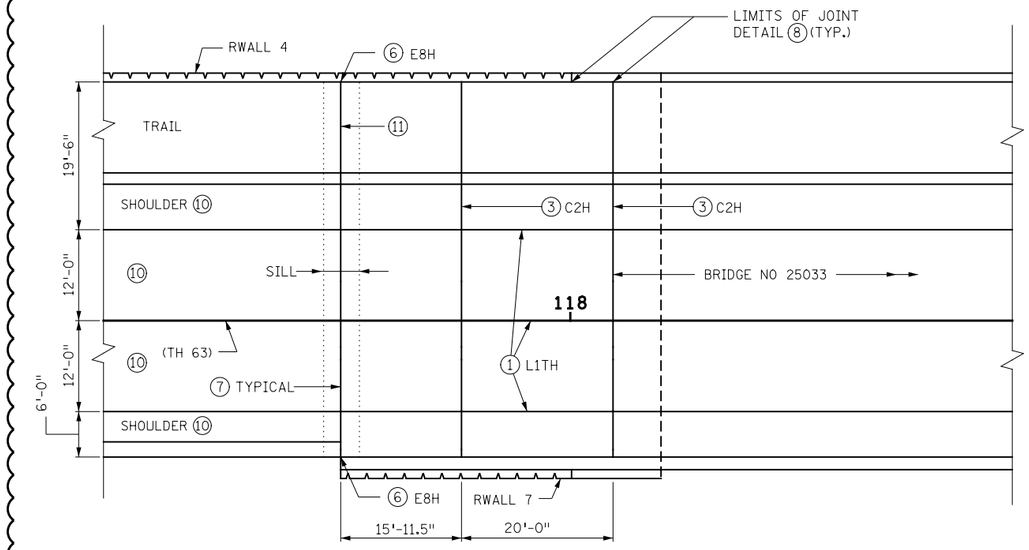
⑤ FROM BACK SIDE OF CURB TRANSITION TO GUTTERLINE.

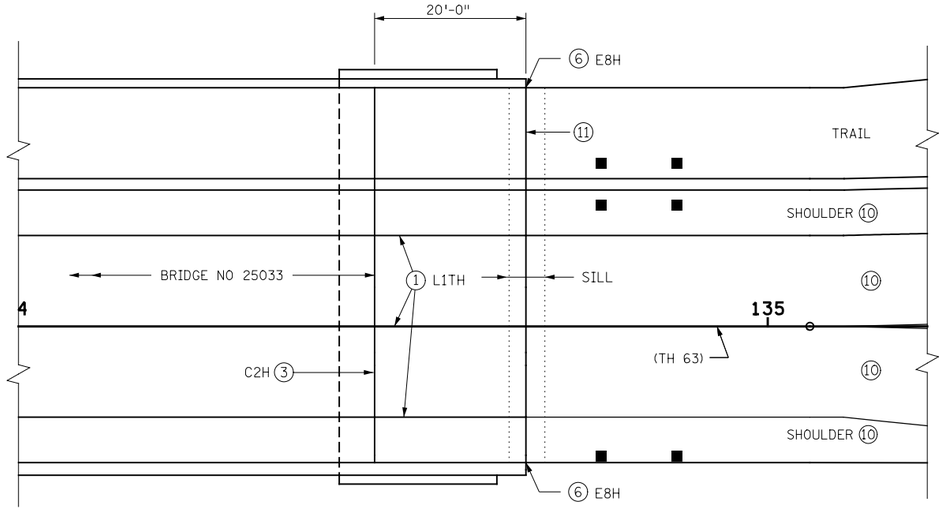
⑥ IF THE APPROACH PANEL IS TIED TO THE BRIDGE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR 2 LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM.

END OF APPROACH PANEL

STANDARD PLAN SHEET NO. 5-297.227	TITLE: BRIDGE APPROACH PANEL MISCELLANEOUS DETAILS
STANDARD APPROVED: DECEMBER 20, 2011	
REVISION DATE 3-22-2013	STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 77 OF 688 SHEETS

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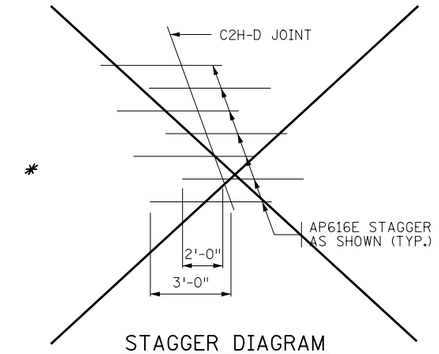




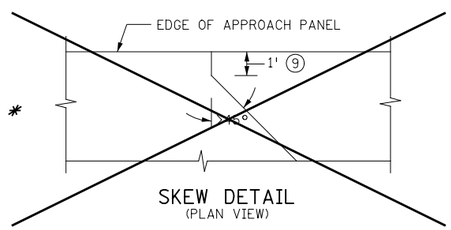
APPROACH PANELS - SQUARE TO 10° SKEWS ⑤

APPROACH PANEL JOINT LAYOUT NOTES:

1. L1TH LONGITUDINAL JOINT. SEE STANDARD PLAN 5-297.229 FOR REINFORCEMENT LAP LENGTH REQUIREMENTS FOR STAGED CONSTRUCTION.
2. ~~PERMISSIBLE CONSTRUCTION JOINT. USE JOINT TYPE C2H-D WITH AP616E BARS AT 12 INCH SPACING AT MID DEPTH OF THE SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP616E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSIONS AS SHOWN ON THE PLAN. THE C2H-D JOINT AND AP616E BARS ARE REQUIRED ON ALL PANELS WITH A SKEW OVER 10 DEGREES.~~
3. C2H CONTRACTION JOINT.
4. ~~MAXIMUM PANEL LENGTH OF 20'-0" FOR UP TO 40° SKEWS, 15'-0" FOR SKEWS OVER 40°.~~
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. E8H JOINT REQUIRED IN CURB ADJACENT TO E8H JOINT. E8H QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.
7. SEE STANDARD PLANS 5-297.222 OR 5-297.224 FOR TYPE OF EXPANSION JOINT.
8. SEE STANDARD PLANS 5-297.229 OR 5-297.231 FOR JOINT DETAIL FOR CONCRETE BARRIER ON WINGWALL.
9. ~~WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1' (TYP).~~
10. SEE GRADING PLAN FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.
11. SIDEWALK COVER PLATE.
12. SEE STANDARD PLAN 297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.



STAGGER DIAGRAM



SKEW DETAIL
(PLAN VIEW)

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

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: CRAIG J. HASS
Date _____ License # 45039

MODIFIED

STANDARD PLAN SHEET NO. 5-297.228

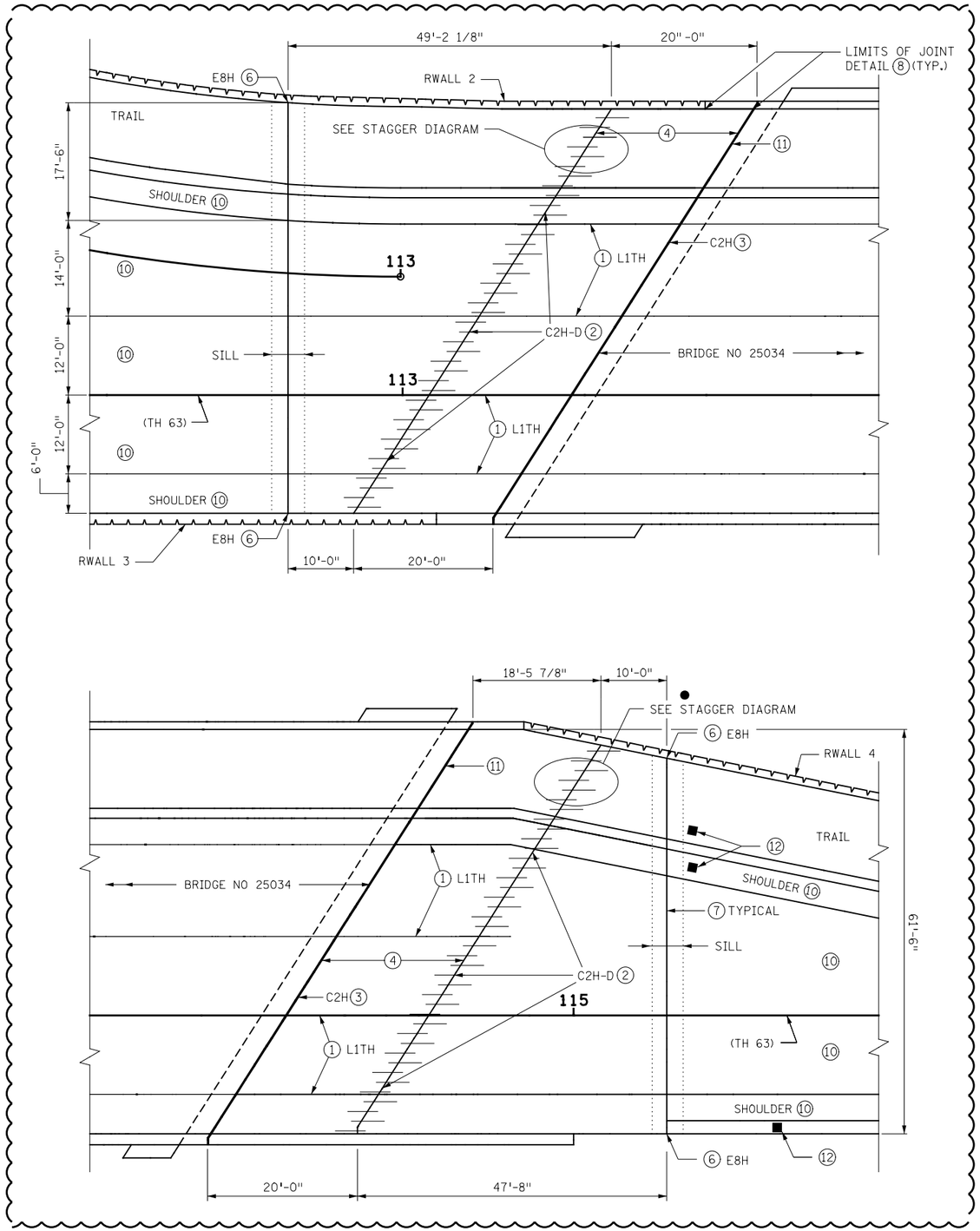
STANDARD APPROVED: ~~MARCH 23, 2011~~

TITLE: BRIDGE APPROACH PANEL JOINT LAYOUT

BRIDGE NO. 25033

STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 78 OF 688 SHEETS

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APPROACH PANELS - OVER 10° SKEWS (5)

** DENOTES MODIFICATIONS FROM STANDARD PLAN*

APPROACH PANEL JOINT LAYOUT NOTES:

(1) L1TH LONGITUDINAL JOINT. SEE STANDARD PLAN 5-297.229 FOR REINFORCEMENT LAP LENGTH REQUIREMENTS FOR STAGED CONSTRUCTION.

(2) PERMISSIBLE CONSTRUCTION JOINT. USE JOINT TYPE C2H-D WITH AP616E BARS AT 12-INCH SPACING AT MID DEPTH OF THE SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP616E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSIONS AS SHOWN ON THE PLAN. THE C2H-D JOINT AND AP616E BARS ARE REQUIRED ON ALL PANELS WITH A SKEW OVER 10 DEGREES.

(3) C2H CONTRACTION JOINT.

(4) MAXIMUM PANEL LENGTH OF 20'-0" FOR UP TO 40° SKEWS, 15'-0" FOR SKEWS OVER 40°.

(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) E8H JOINT REQUIRED IN CURB ADJACENT TO E8H JOINT. E8H QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.

(7) SEE STANDARD PLANS 5-297.222 OR 5-297.224 FOR TYPE OF EXPANSION JOINT.

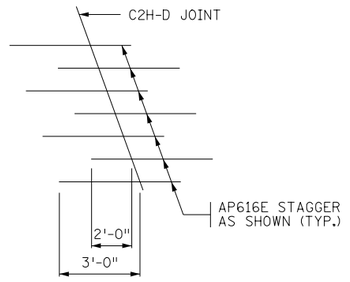
(8) SEE STANDARD PLANS 5-297.229 OR 5-297.231 FOR JOINT DETAIL FOR CONCRETE BARRIER ON WINGWALL.

* ~~(9) WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1' (TYP).~~

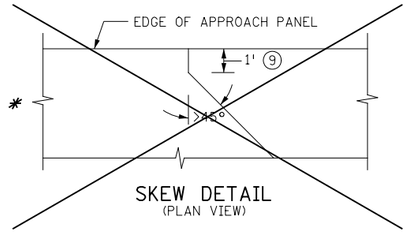
(10) SEE GRADING PLAN FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.

* (11) SIDEWALK COVER PLATE.

* (12) SEE STANDARD PLAN 297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.



STAGGER DIAGRAM



BRIDGE NO. 25034

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: CRAIG J. HASS

Date _____ License # 45039

MODIFIED

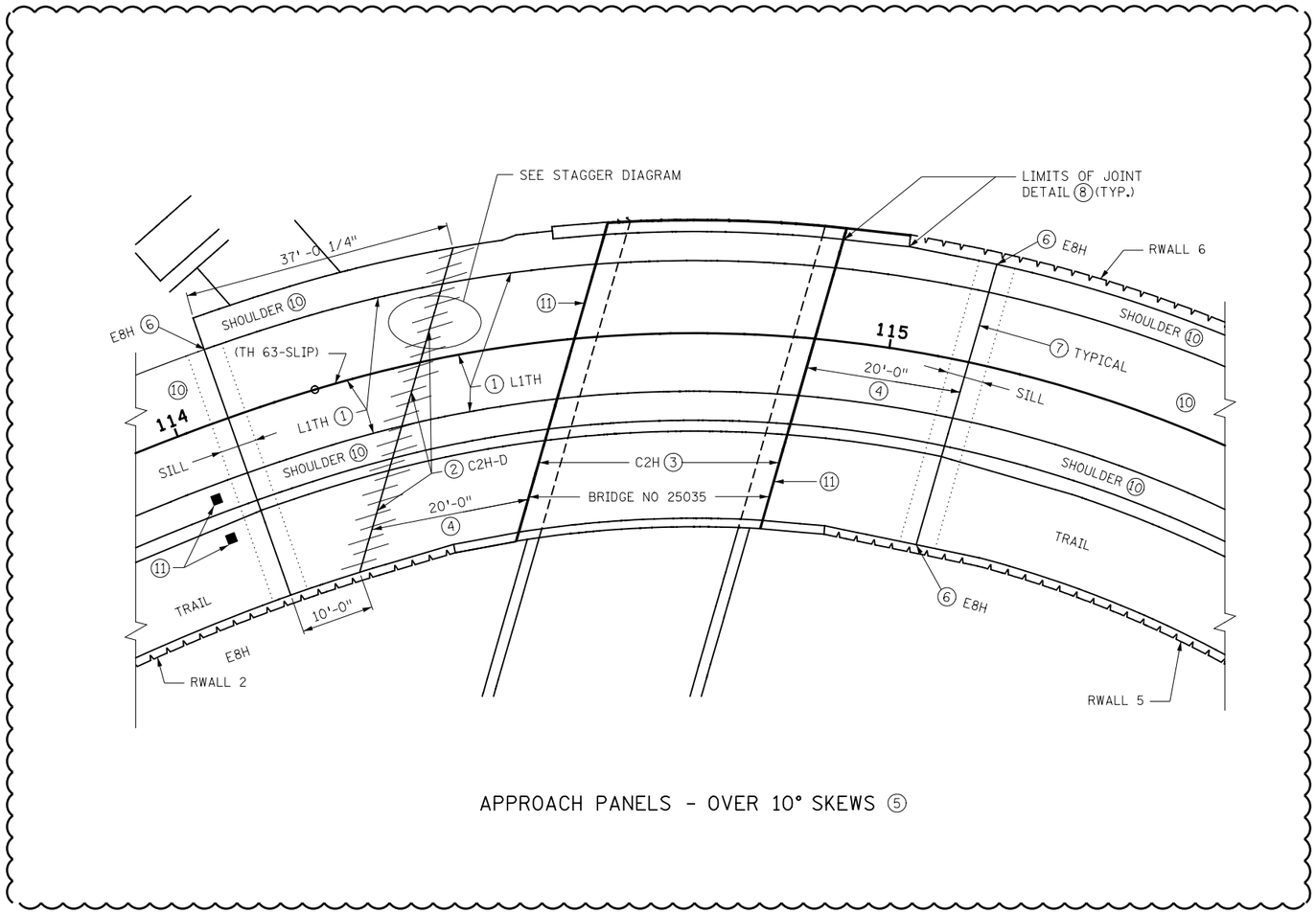
STANDARD PLAN SHEET NO. 5-297.228

STANDARD APPROVED: ~~MARCH 23, 2011~~

TITLE: BRIDGE APPROACH PANEL JOINT LAYOUT

STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 79 OF 688 SHEETS

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APPROACH PANELS - OVER 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) PERMISSIBLE CONSTRUCTION JOINT. USE JOINT TYPE C2H-D WITH AP616E BARS AT 12-INCH SPACING AT MID DEPTH OF THE SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP616E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSIONS AS SHOWN ON THE PLAN. THE C2H-D JOINT AND AP616E BARS ARE REQUIRED ON ALL PANELS WITH A SKEW OVER 10 DEGREES.

(3) C2H CONTRACTION JOINT.

(4) MAXIMUM PANEL LENGTH OF 20'-0" FOR UP TO 40° SKEWS, 15'-0" FOR SKEWS OVER 40°.

(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) E8H JOINT REQUIRED IN CURB ADJACENT TO E8H JOINT. E8H QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.

(7) SEE STANDARD PLANS 5-297.222 OR 5-297.224 FOR TYPE OF EXPANSION JOINT.

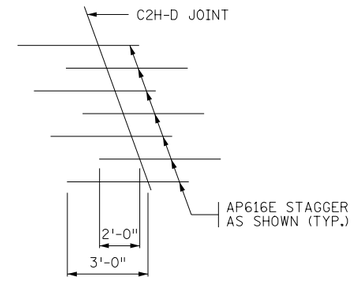
(8) SEE STANDARD PLANS 5-297.229 OR 5-297.231 FOR JOINT DETAIL FOR CONCRETE BARRIER ON WINGWALL.

* ~~(9) WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1' (TYP).~~

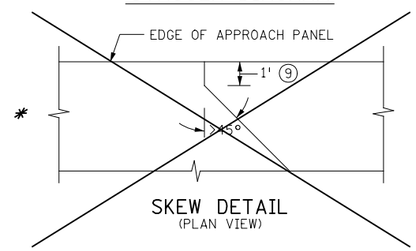
(10) SEE GRADING PLAN FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.

* (11) SIDEWALK COVER PLATE.

* (12) SEE STANDARD PLAN 297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.



STAGGER DIAGRAM



SKEW DETAIL
(PLAN VIEW)

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

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: CRAIG J. HASS
Date _____ License # 45039

MODIFIED

STANDARD PLAN SHEET NO. 5-297.228

STANDARD APPROVED: ~~MARCH 23, 2011~~

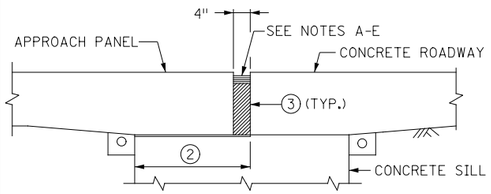
TITLE: BRIDGE APPROACH PANEL JOINT LAYOUT

BRIDGE NO. 25035

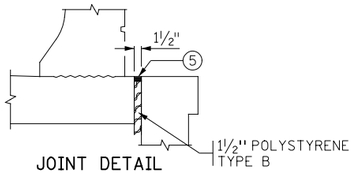
STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 80 OF 688 SHEETS

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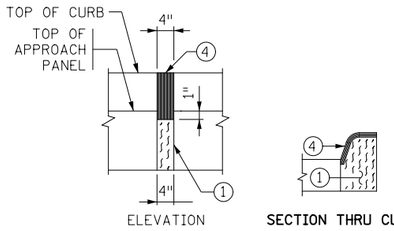
EXPANSION JOINTS



E8H JOINT DETAIL AT PAVEMENT

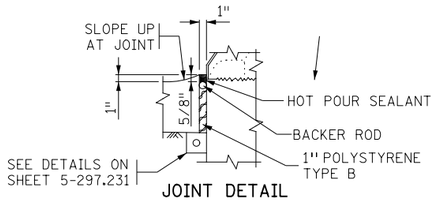


JOINT DETAIL
(CONCRETE BARRIER ON APPROACH PANEL)



SECTION THRU CURB

E8H JOINT AT CURB



JOINT DETAIL
(CONCRETE BARRIER ON WINGWALL)

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).
5. SEAL WITH SELF-LEVELING SILICONE PER MNDOT 3722.

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.

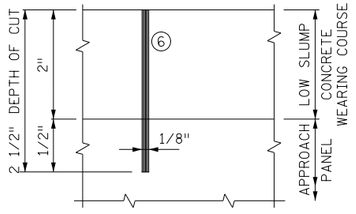
(B) SAW OR FORM THE JOINTS 4 INCHES WIDE BY THE FULL-DEPTH OF THE PANEL. INSPECT TO ASSURE THAT THE INSIDE WALLS OF THE JOINT HAVE BEEN SANDBLASTED, ARE DRY, SMOOTH AND FREE OF DEBRIS AND LOOSE PARTICLES. APPLY TAPE TO THE TOP 1 INCH OF THE INSIDE WALLS TO PREVENT THE LUBRICANT ADHESIVE FROM CONTAMINATING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

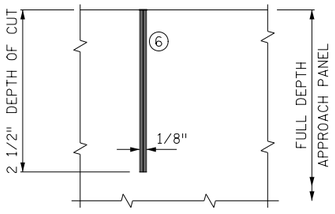
(D) PINCH THE BOTTOM OF THE MATERIAL TOGETHER AND PUSH IT DOWN INTO THE JOINT. WALK THE MATERIAL DOWN INTO THE JOINT; USE A SLEDGEHAMMER AND A 2 X 4 IF NECESSARY. APPLY LUBRICANT ADHESIVE TO THE ENDS OF THE PREFORMED FOAM MATERIAL WHEN BUTTING TWO PIECES TOGETHER.

(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.

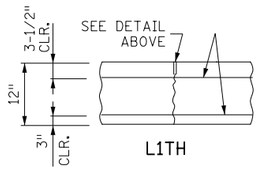
JOINT DETAILS



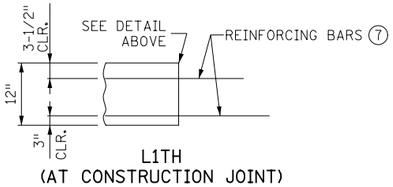
C2H & L1TH WITH CONCRETE WEARING COURSE 6
(SAWED & SEALED PER SPEC. 3725)



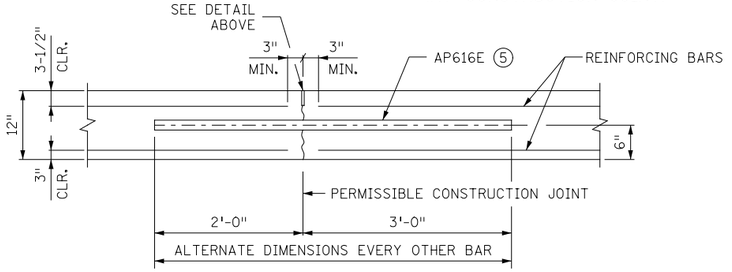
C2H & L1TH WITHOUT CONCRETE WEARING COURSE 6
(SAWED & SEALED PER SPEC. 3725)



L1TH



L1TH
(AT CONSTRUCTION JOINT)



SECTION AT C2H-D JOINT 5

JOINT NOTES:

5. PERMISSIBLE CONSTRUCTION JOINT. AP616E BARS AT 12-INCH SPACING AT MID DEPTH OF SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP616E 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. 4 BARS 1'-8" AND NO. 5 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.

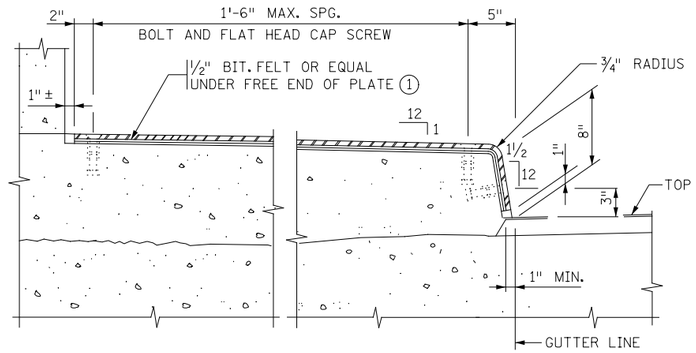
STRUCTURAL STEEL SHALL COMPLY WITH Mn/DOT SPEC. 3306 OR Mn/DOT SPEC. 3309.

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

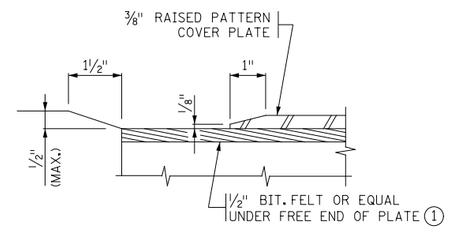
CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.

FURNISHING AND INSTALLING SIDEWALK COVER PLATE IS INCIDENTAL.

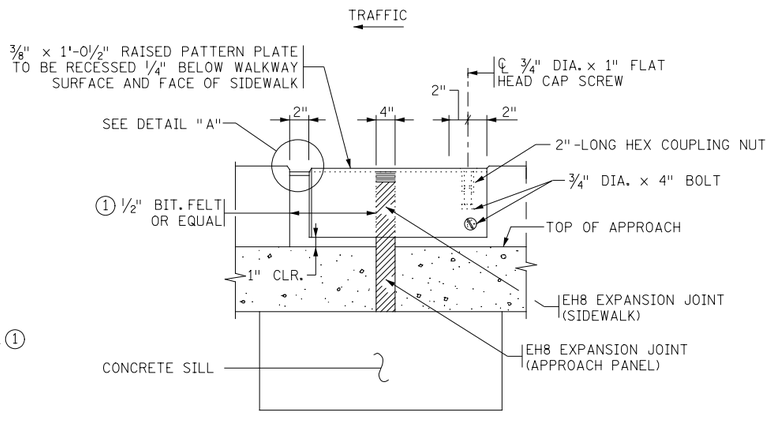
1. USE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.



SECTION THROUGH SIDEWALK



DETAIL "A"



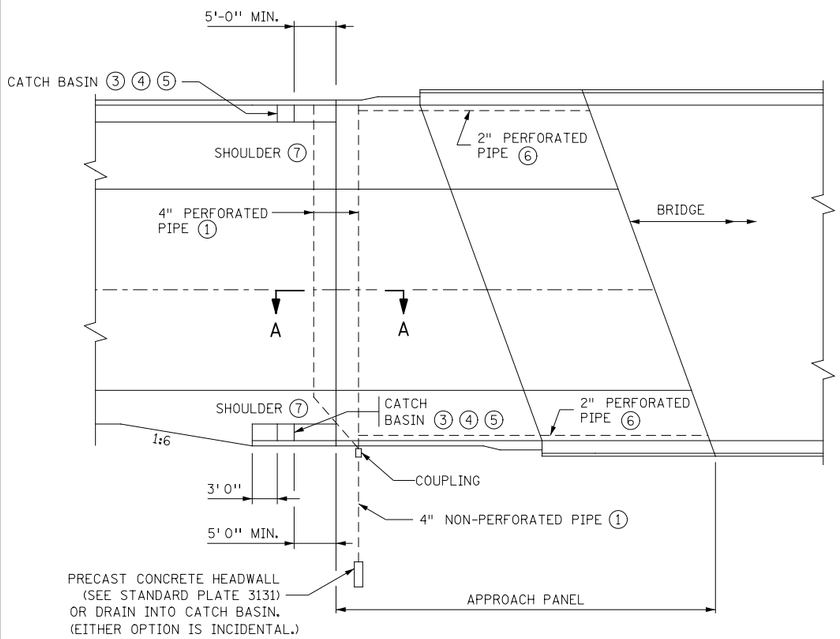
SIDEWALK ELEVATION

STANDARD PLAN SHEET NO. 5-297.229	TITLE: BRIDGE APPROACH PANEL JOINT DETAILS
STANDARD APPROVED: DECEMBER 20, 2011	
REVISION DATE 3-22-2013	STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 81 OF 688 SHEETS

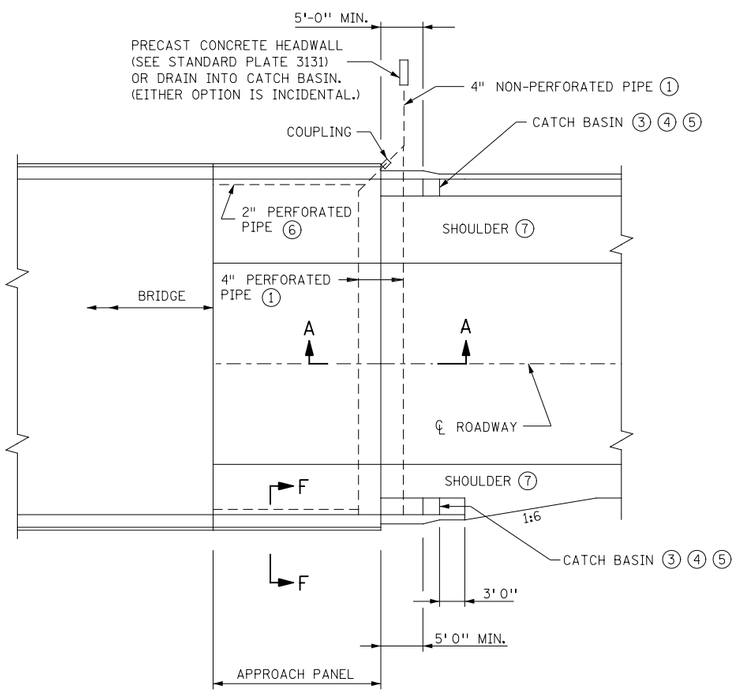
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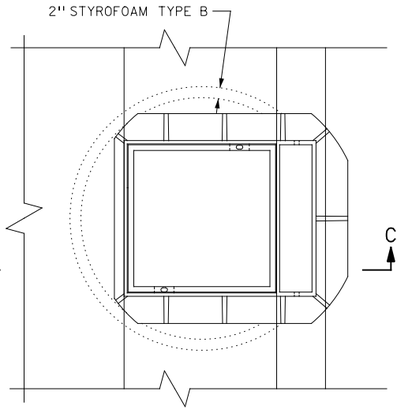
1. 4-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.
2. BACKFILL WITH FINE AGGREGATE (MNDOT 3149) MODIFIED TO 0-3% PASSING A NO. 200 SIEVE (INCIDENTAL).
3. SEE ROADWAY PLAN FOR ADDITIONAL CATCH BASIN DETAILS.
4. LOCATE BETWEEN GUARDRAIL POST OR AS DETERMINED BY THE DESIGNER.
5. REFER TO THE DRAINAGE PLAN TO DETERMINE WHETHER A FLUME OR A CATCH BASIN REQUIRED.
6. 2-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.
7. SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.



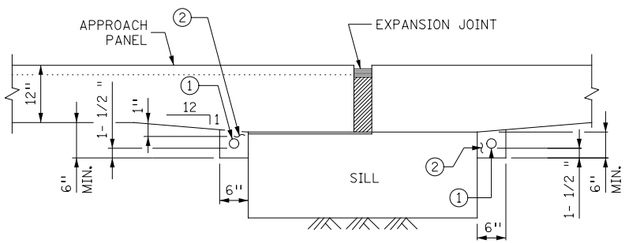
DIVIDED-URBAN ROADWAY PLAN
OVER 10° - SKEWS



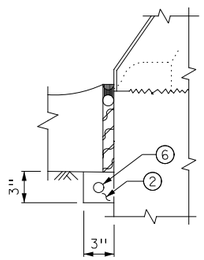
DIVIDED-URBAN ROADWAY PLAN
SQUARE TO 10° SKEWS



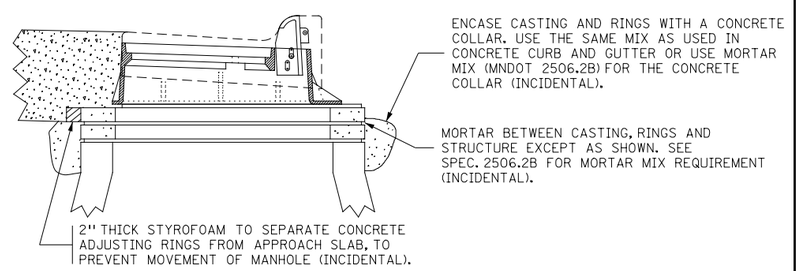
PLAN VIEW OF C.B. CASTING
(GRATE NOT SHOWN)



SECTION A-A
DRAINAGE AT EXPANSION JOINT DETAIL



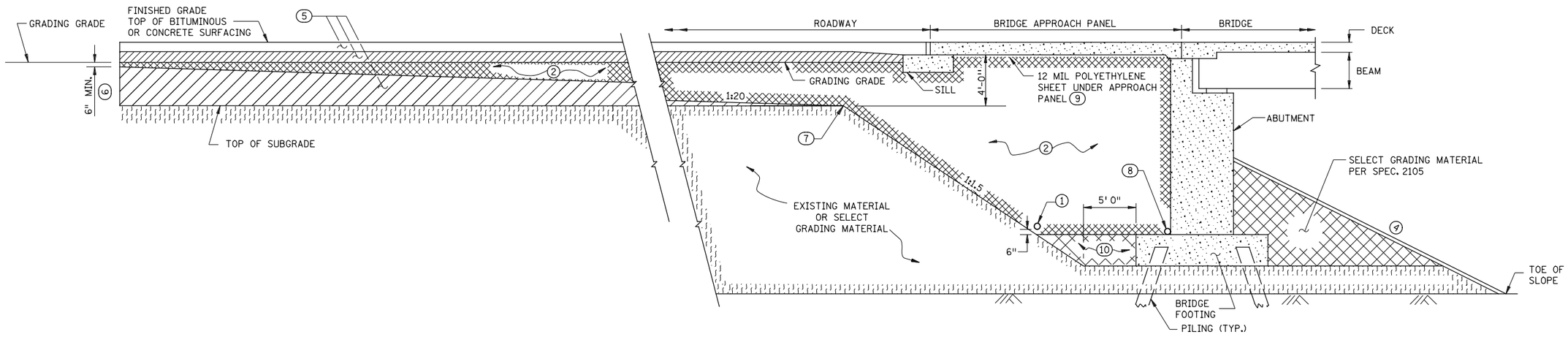
SECTION F-F
DRAINAGE AT PANEL EDGE OF JOINT
(THIS DETAIL IS USED IF THE CONCRETE BARRIER IS MOUNTED ON THE WINGWALL. DO NOT USE THIS DETAIL IF THE BARRIER IS MOUNTED ON THE APPROACH PANEL).



SECTION C-C

STANDARD PLAN SHEET NO. 5-297.231	TITLE: BRIDGE APPROACH PANEL DRAINAGE DETAILS
STANDARD APPROVED: MARCH 23, 2011	

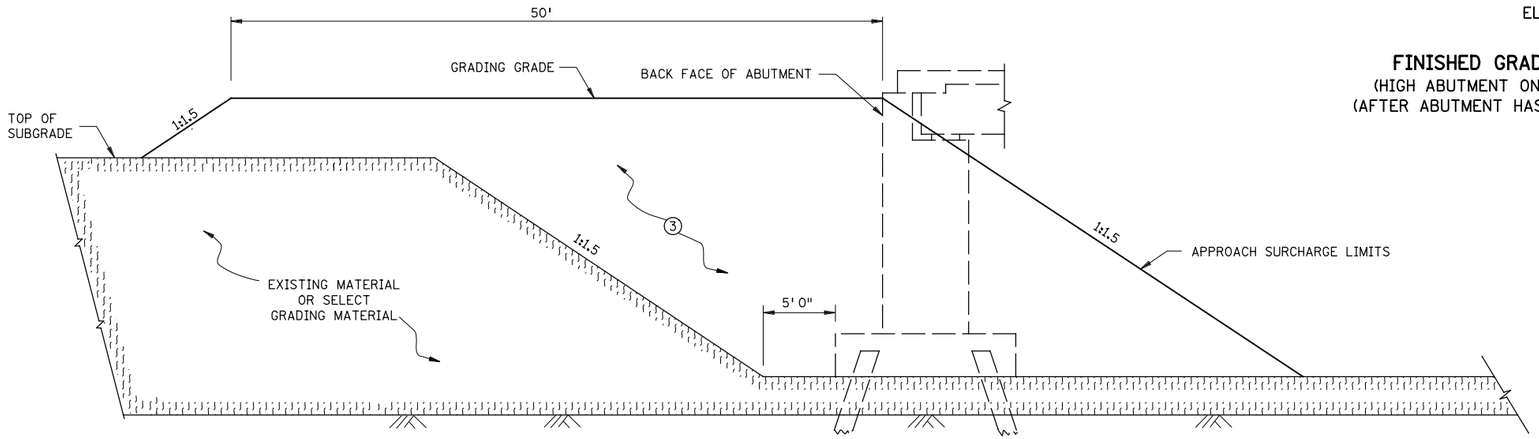
STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 82 OF 688 SHEETS



ELEVATION

FINISHED GRADING SECTION

(HIGH ABUTMENT ON PILING SHOWN)
(AFTER ABUTMENT HAS BEEN CONSTRUCTED)



ELEVATION

ROUGH GRADING SECTION

(PRIOR TO ABUTMENT CONSTRUCTION)

NOTES:

1. SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.
2. QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% (SPEC. 3149.2B4) IS BASED ON DIMENSIONS SHOWN, AND PAYMENT IS BASED ON THIS QUANTITY. SEE GRADING PLAN FOR QUANTITY. IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS, ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
3. PLACE ABUTMENT APPROACH SURCHARGE MATERIAL PRIOR TO ABUTMENT CONSTRUCTION. AFTER COMPLETION OF SURCHARGE WAITING PERIOD, REMOVE SURCHARGE AND EXISTING MATERIAL OR SELECT GRADING MATERIAL TO THE LIMITS SHOWN IN "ROUGH GRADING SECTION" ABOVE, PRIOR TO ABUTMENT CONSTRUCTION. SEE BRIDGE PLANS AND SPECIAL PROVISIONS FOR ABUTMENT APPROACH SURCHARGE REQUIREMENT AND PAYMENTS.
4. SEE BRIDGE PLANS FOR SLOPE AND SLOPE PROTECTION.
5. SEE GRADING PLANS FOR TYPE OF MATERIAL.
6. GRADING TO BE SQUARED OFF ON SKEWED BRIDGES.
7. TOP OF 1:1.5 SLOPE (FORMS A LINE PARALLEL TO END OF BRIDGE).
8. SUBSURFACE PIPE DRAIN. FURNISH AND INSTALL AT TOP OF BRIDGE FOOTING IF BRIDGE DETAIL B910 IS INCLUDED ON BRIDGE PLAN.
9. IF THE APPROACH PANEL IS TIED TO THE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR TWO LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCIDENTAL.
10. SELECT GRADING MATERIAL (SPEC. 2105) SHALL BE COMPACTED AND MEET THE MOISTURE REQUIREMENTS OF 2105. SELECT GRANULAR MATERIAL MODIFIED 10% (SPEC. 3149.2B4) MAY BE USED IN LIEU OF SELECT GRADING MATERIAL AS PER SPEC. 2105.

REVISION:
APPROVED: 7-15-2014 DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:

APPROVED: 7-15-2014
STATE DESIGN ENGINEER

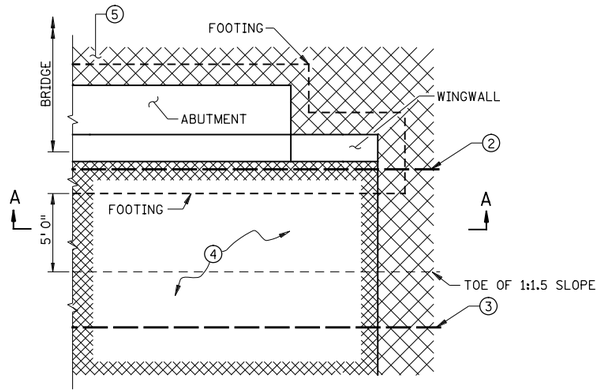
BRIDGE ABUTMENT APPROACH TREATMENT FOR ABUTMENT ON FOOTING

STANDARD PLAN 5-297.233 | 1 OF 2

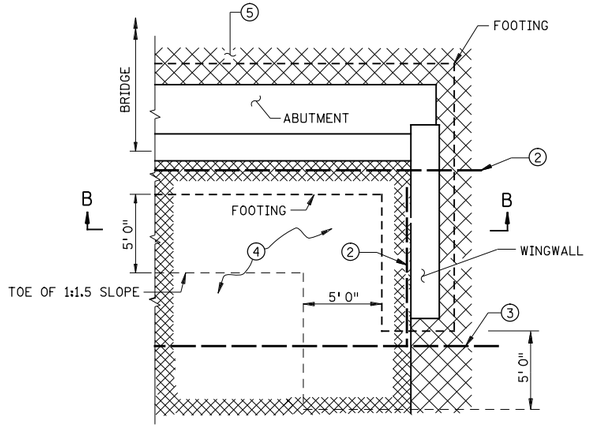
MINNESOTA STATE PROJECT NO. 2515-21 MINNESOTA STATE PROJECT NO. 2513-91 WISCONSIN PROJECT I.D. 7210-00-78	DRAWN BY DESIGNED BY CHECKED BY COMM. NO. 0158933	MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD PLANS SP 2515-21 (TH 63)	SHEET 83 OF 688

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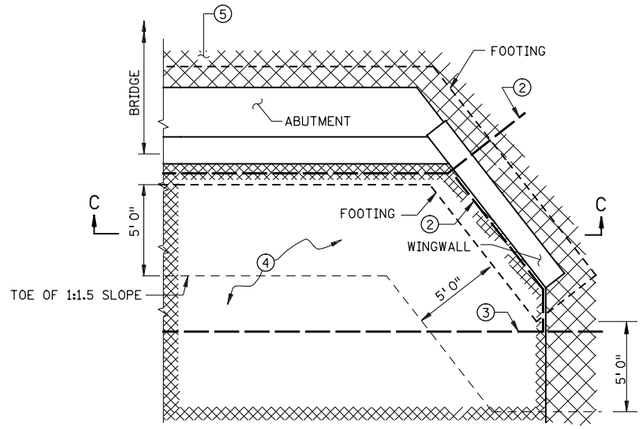
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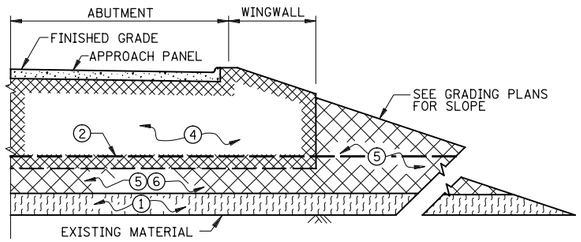
PARTIAL PLAN VIEW AT ABUTMENT
(WINGWALL AT 180°) (FINISHED GRADING)



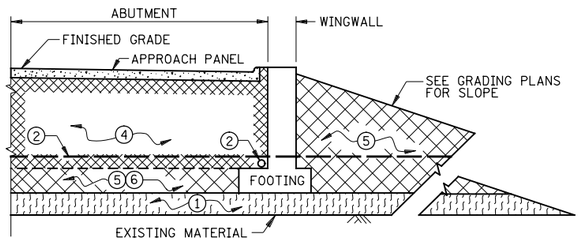
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(WINGWALL AT 90°) (FINISHED GRADING)



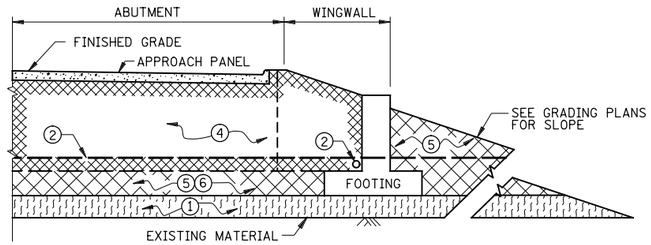
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(WINGWALL AT ANY OTHER ANGLE) (FINISHED GRADING)



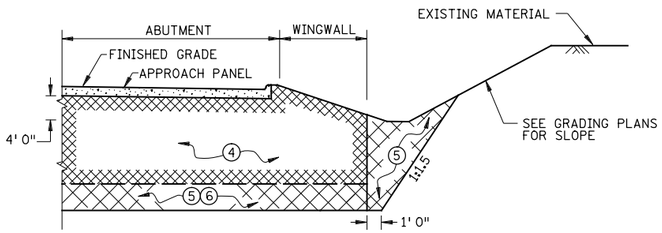
FINISHED GRADING SECTION A-A
(FILL SECTION)



FINISHED GRADING SECTION B-B
(FILL SECTION)



FINISHED GRADING SECTION C-C
(FILL SECTION)



FINISHED GRADING SECTION A-A
(CUT SECTION)
(BRIDGE DETAIL B910 DRAIN NOT SHOWN)

NOTES:

1. EXISTING MATERIAL OR SELECT GRADING MATERIAL (SPEC. 2105).
2. SUBSURFACE PIPE DRAIN, FURNISH AND INSTALL AT TOP OF BRIDGE FOOTING IF BRIDGE DETAIL B910 IS INCLUDED ON BRIDGE PLAN.
3. SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.
4. QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% (SPEC. 3149.2B4) IS BASED ON DIMENSIONS SHOWN, AND PAYMENT IS BASED ON THIS QUANTITY. SEE GRADING PLAN FOR QUANTITY. IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS, ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
5. SELECT GRADING MATERIAL (SPEC. 2105).
6. MATERIAL SHALL MEET THE COMPACTION AND MOISTURE CONTENT REQUIRMENTS OF SPEC. 2105. SELECT GRANULAR MATERIAL MODIFIED 10% (SPEC. 3149.2B4) MAY BE USED IN LIEU OF SELECT GRADING MATERIAL (SPEC. 2105).

REVISION:

APPROVED: 7-15-2014

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:

APPROVED: 7-15-2014

STATE DESIGN ENGINEER

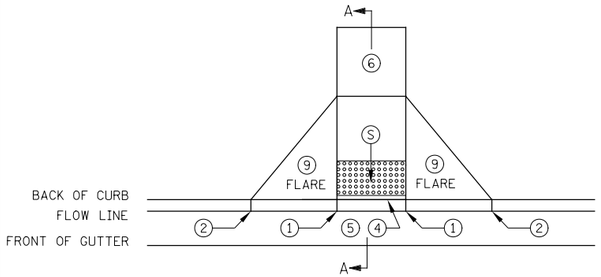
BRIDGE ABUTMENT APPROACH TREATMENT FOR ABUTMENT ON FOOTING

STANDARD PLAN 5-297.233 | 2 OF 2

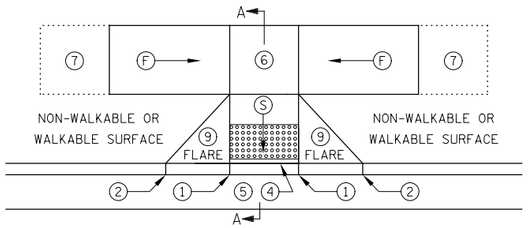
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MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
	COMM. NO. 0158933		

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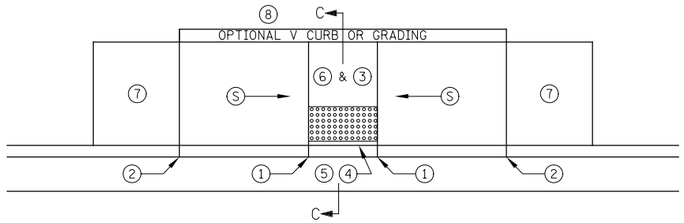
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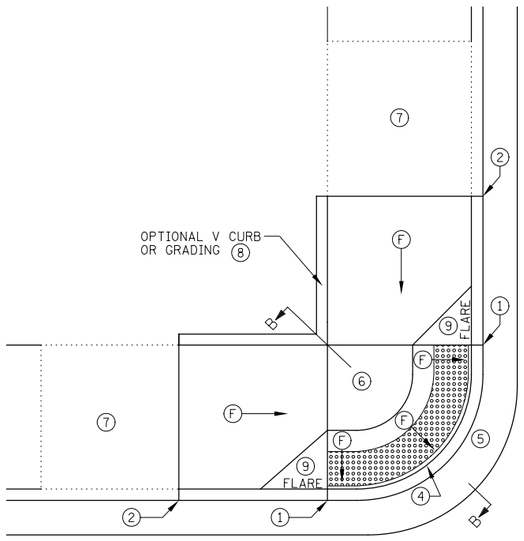
PERPENDICULAR



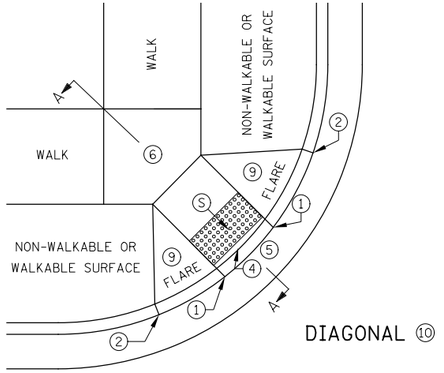
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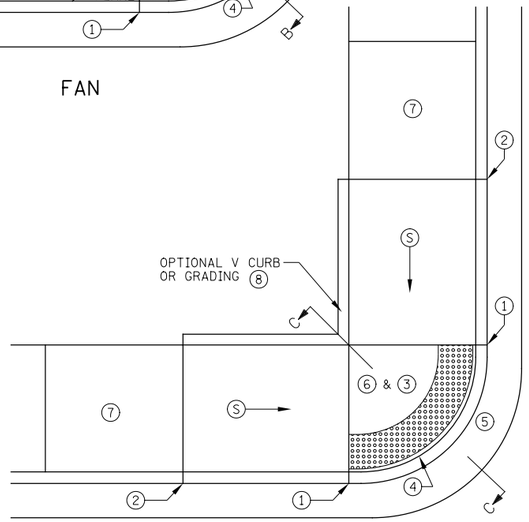
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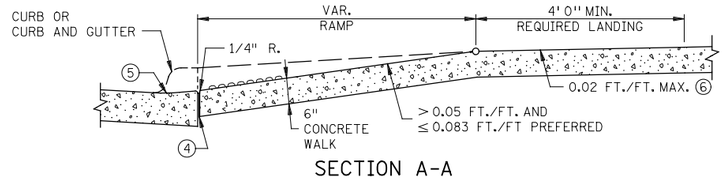
FAN



DIAGONAL (10)

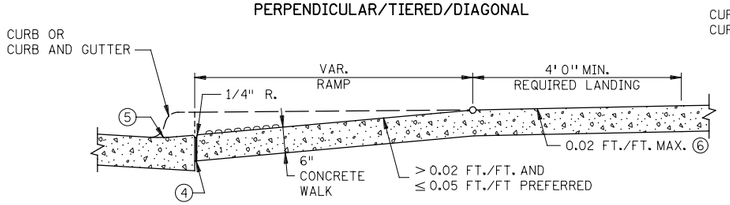


DEPRESSED CORNER



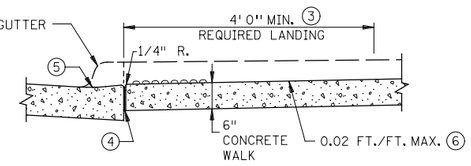
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



SECTION B-B

FAN



SECTION C-C

PARALLEL/DEPRESSED CORNER

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

(1) 0" CURB HEIGHT.

(2) FULL CURB HEIGHT.

(3) DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.

(4) 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

(5) SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.

(6) 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.

(7) IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.

(8) V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.

(9) SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

(10) DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

REVISION:

APPROVED: 8-6-2014

OPERATIONS ENGINEER

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 1 OF 5

	MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	
	MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	
	WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	
		COMM. NO. 0158933	

MINNESOTA DEPARTMENT OF TRANSPORTATION

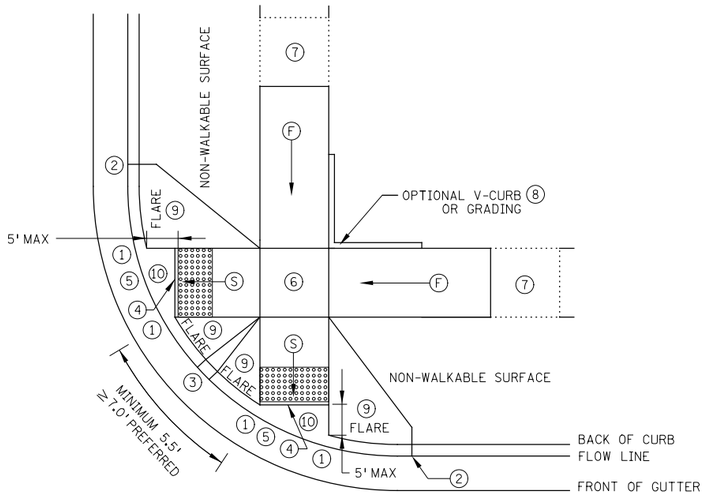
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SP 2515-21 (TH 63)

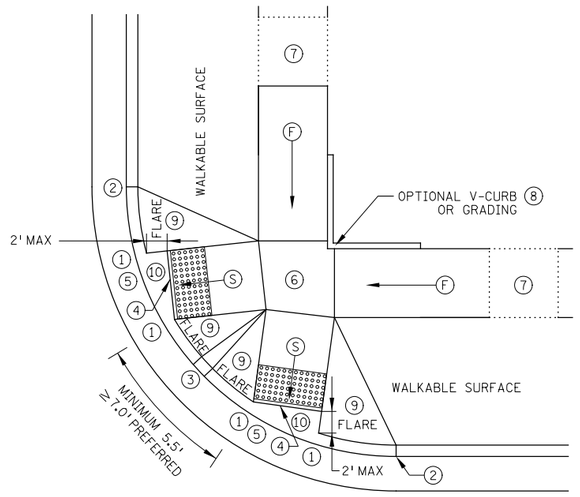
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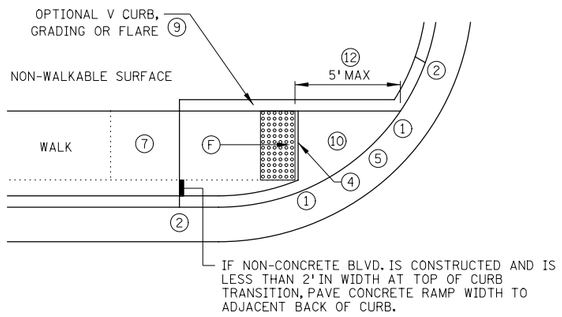


ADJACENT TO NON-WALKABLE SURFACE

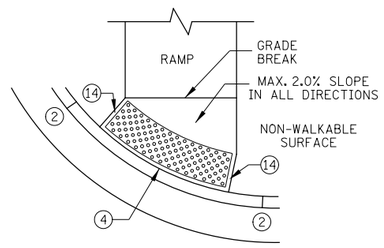


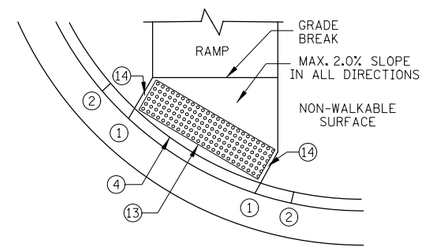
ADJACENT TO WALKABLE SURFACE

COMBINED DIRECTIONAL (15)

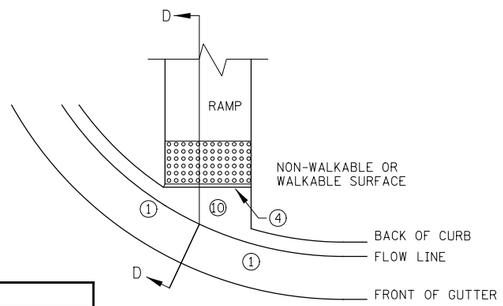


ONE-WAY DIRECTIONAL

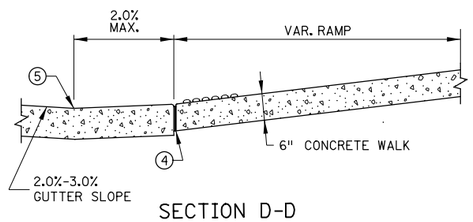




DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



CURB FOR DIRECTIONAL RAMPS (11)



SECTION D-D

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

(1) 0" CURB HEIGHT.

(2) FULL CURB HEIGHT.

(3) 3" MINIMUM CURB HEIGHT, 4" PREFERRED.

(4) 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MIN. TO 6" MAX. FROM THE BACK OF CURB.

(5) SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.

(6) 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.

(7) IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.

(8) V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

(9) SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

(10) MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

(11) TO BE USED FOR ALL DIRECTIONAL RAMPS.

(12) PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

(13) RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

(14) WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

(15) FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

REVISION:

APPROVED: 8-6-2014
OPERATIONS ENGINEER

REVISED:

APPROVED: 8-6-2014
STATE DESIGN ENGINEER

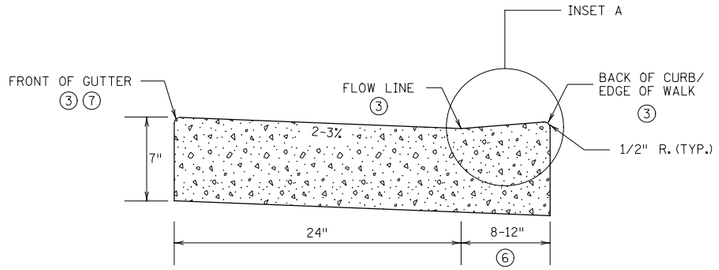
PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 2 OF 5

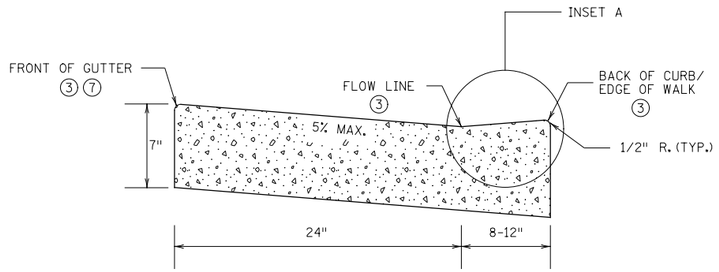
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MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)	
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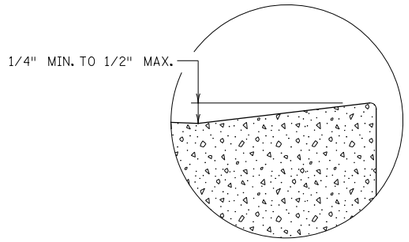
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NON PERPENDICULAR ①

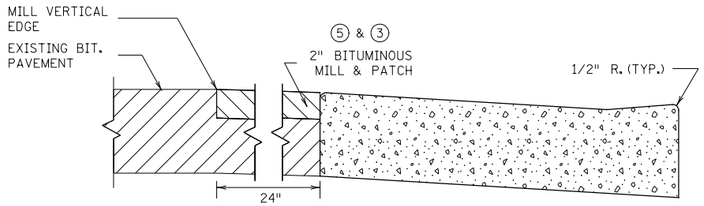


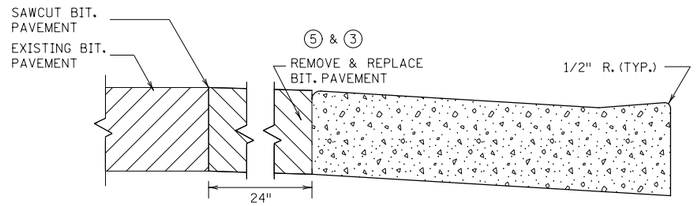
PERPENDICULAR ②

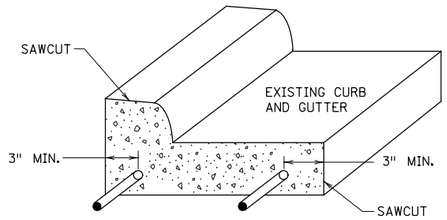


INSET A

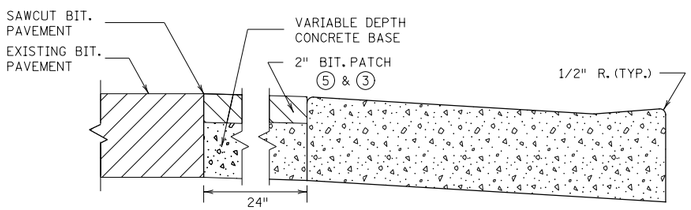
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

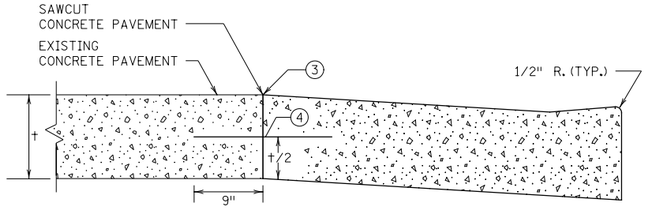






CURB AND GUTTER ⑧
REINFORCEMENT
FOR USE ON CURB RAMP RETROFITS





PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.

② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

④ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ WHERE PLAN SPECIFIES, DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED).

REVISION:

APPROVED: 8-6-2014

OPERATIONS ENGINEER

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 3 OF 5

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY

DESIGNED BY

CHECKED BY

COMM. NO. 0158933

MINNESOTA DEPARTMENT OF TRANSPORTATION

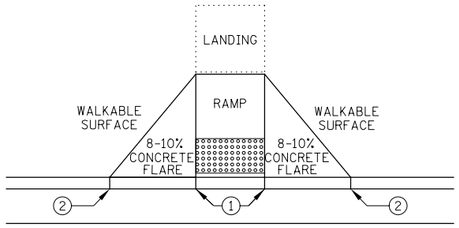
STANDARD PLANS

SP 2515-21 (TH 63)

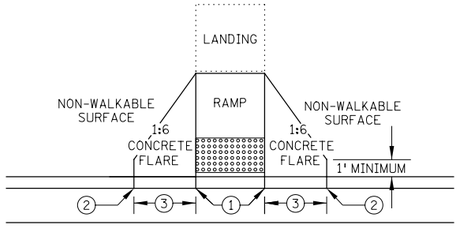
SHEET 87 OF 688

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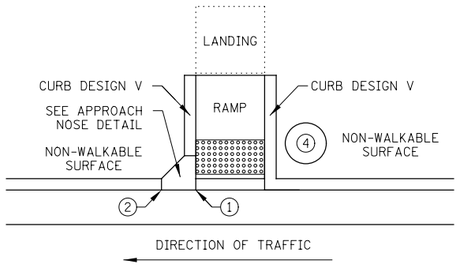
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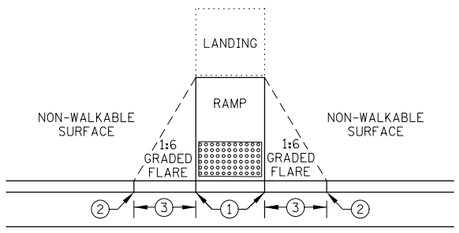
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

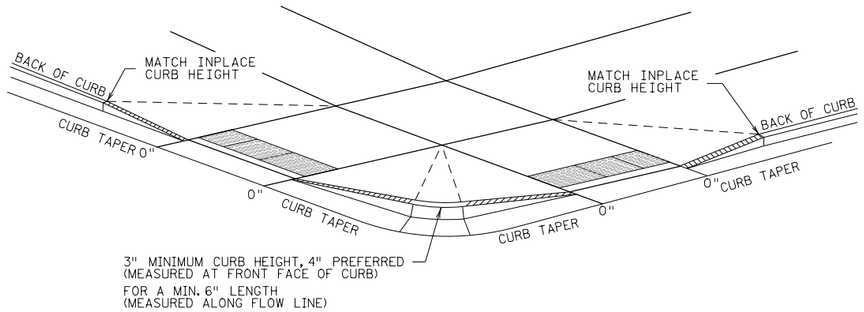


RETURNED CURB

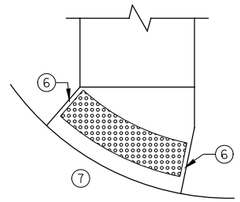


GRADED FLARES

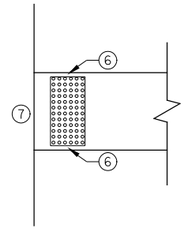
TYPICAL SIDE TREATMENT OPTIONS ⑤



DETECTABLE EDGE WITH
CURB AND GUTTER ⑧

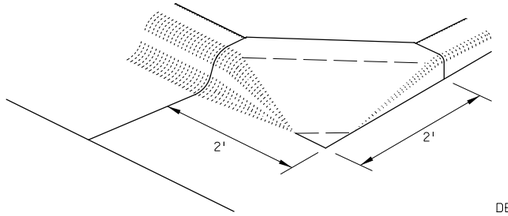


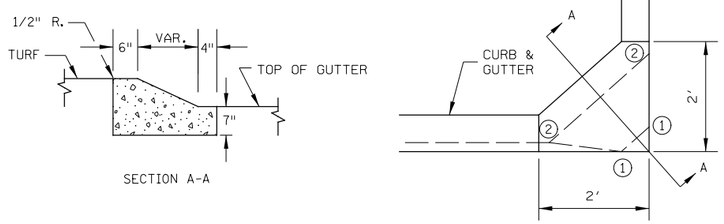
RADIAL DETECTABLE WARNING



RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER





APPROACH NOSE DETAIL
FOR DOWNSTREAM SIDE OF TRAFFIC

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT.
② FULL CURB HEIGHT.
③ 2' - 3' FLARE.
④ IMMOVABLE OBJECT OR OBSTRUCTION.
⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE VISUAL CONTRAST.
⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

REVISION:
APPROVED: 8-6-2014
OPERATIONS ENGINEER

REVISED:
APPROVED: 8-6-2014
STATE DESIGN ENGINEER

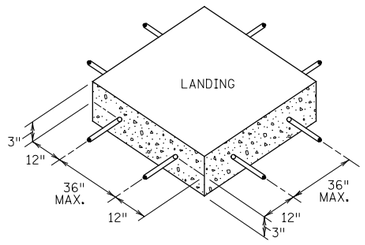
PEDESTRIAN CURB RAMP DETAILS

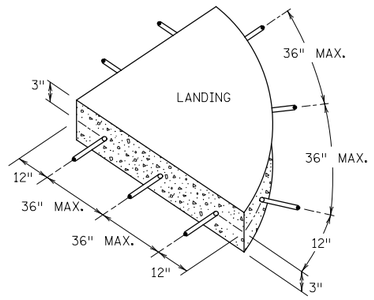
STANDARD PLAN 5-297.250 | 4 OF 5

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
	COMM. NO. 0158933	SHEET 88 OF 688

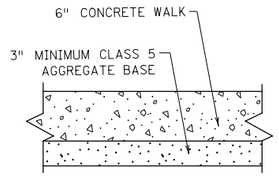
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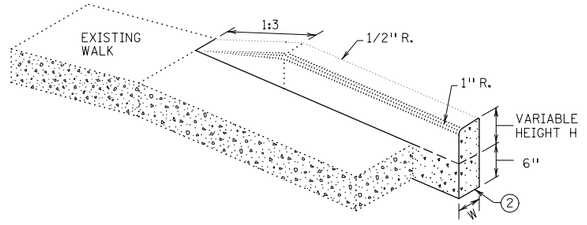




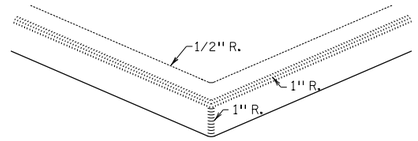
SIDEWALK REINFORCEMENT ⑥ ⑦



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

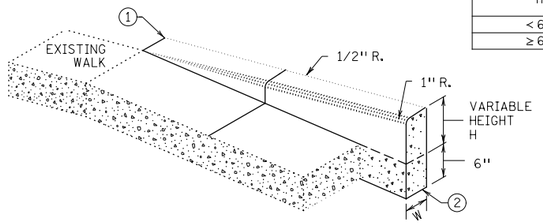


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

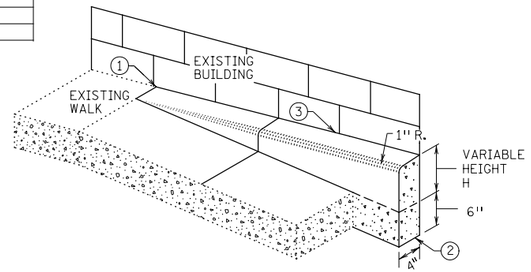


V CURB INTERSECTION

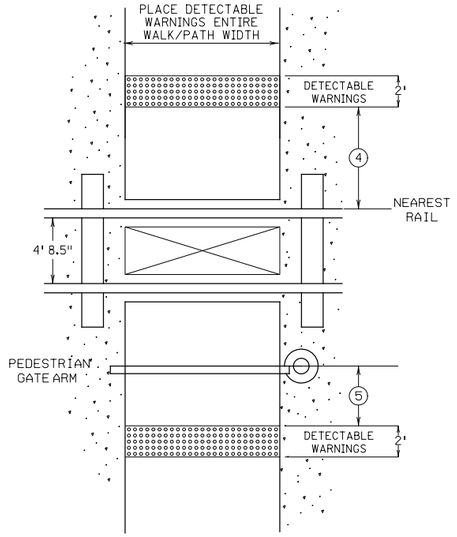
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



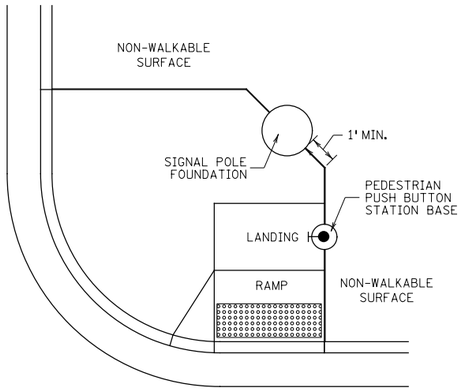
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



V CURB ADJACENT TO BUILDING OR BARRIER



RAILROAD CROSSING
PLAN VIEW



CONCRETE WALK EDGES ADJACENT
TO CONCRETE STRUCTURES

NOTES:

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.

④ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑤ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM.

⑥ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).

⑦ TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.

REVISION:

APPROVED: 2-9-2015
OPERATIONS ENGINEER

REVISED:

APPROVED: 2-9-2015
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

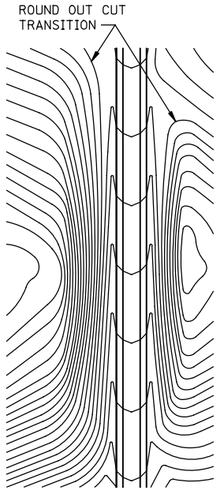
STANDARD PLAN 5-297.250 | 5 OF 5

	MINNESOTA STATE PROJECT NO. 2515-21 MINNESOTA STATE PROJECT NO. 2513-91 WISCONSIN PROJECT I.D. 7210-00-78	DRAWN BY DESIGNED BY CHECKED BY COMM. NO. 0158933	MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD PLANS SP 2515-21 (TH 63)

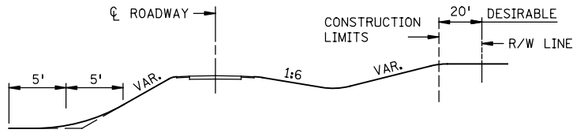
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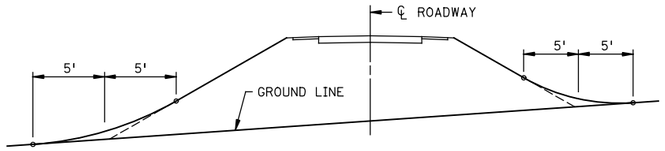
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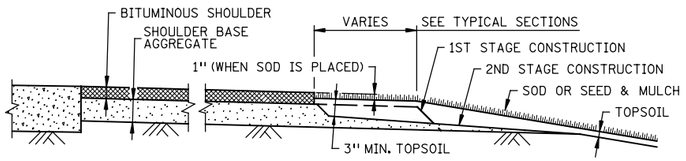
CONTOURING ROAD CUTS



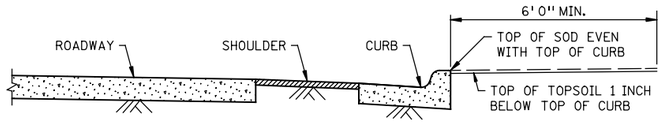
ROUNDING SHOULDERS AND BACKSLOPES



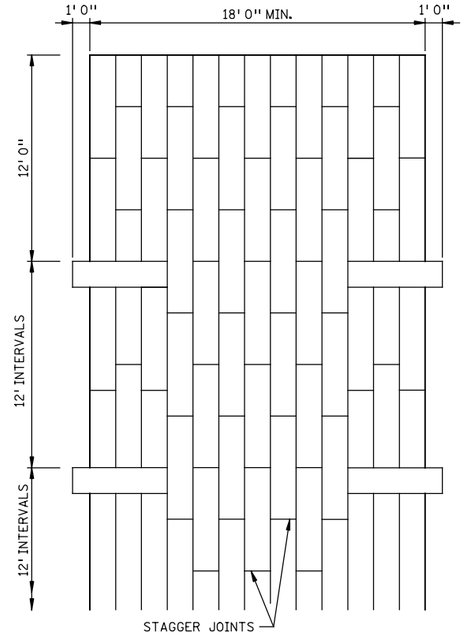
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



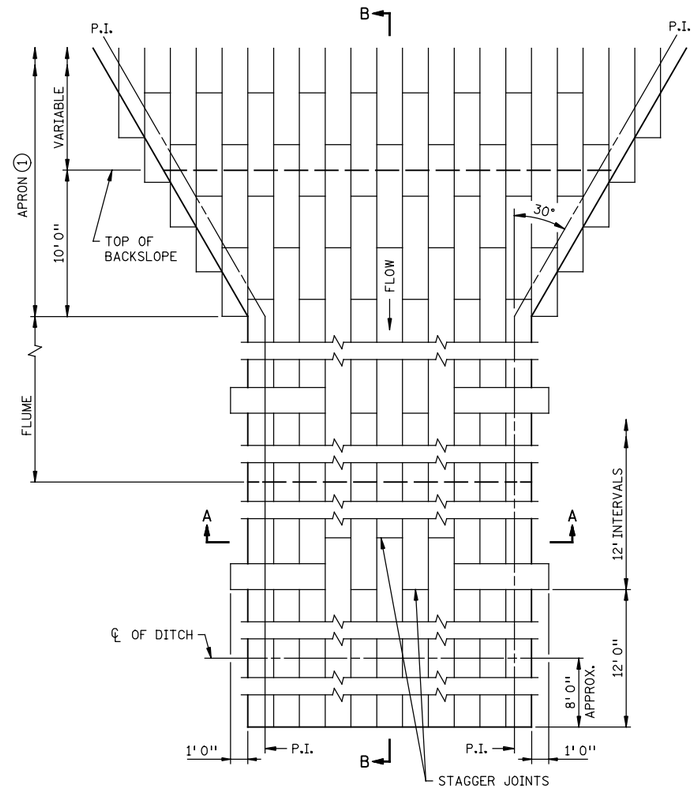
SHAPING AND TOPSOILING INSLOPES



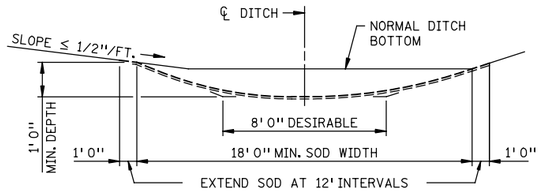
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



PLAN VIEW

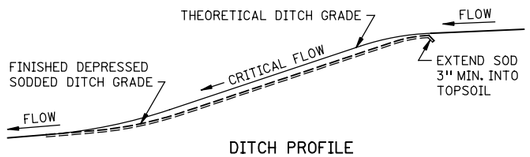


PLAN VIEW



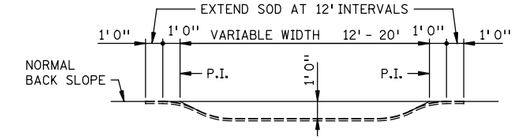
SODDED DITCH CROSS SECTION

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

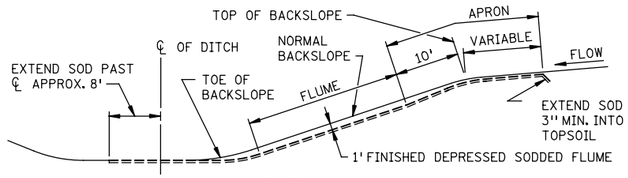


DITCH PROFILE

SODDED DITCH DETAILS



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:

APPROVED: 8-6-2014

CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL

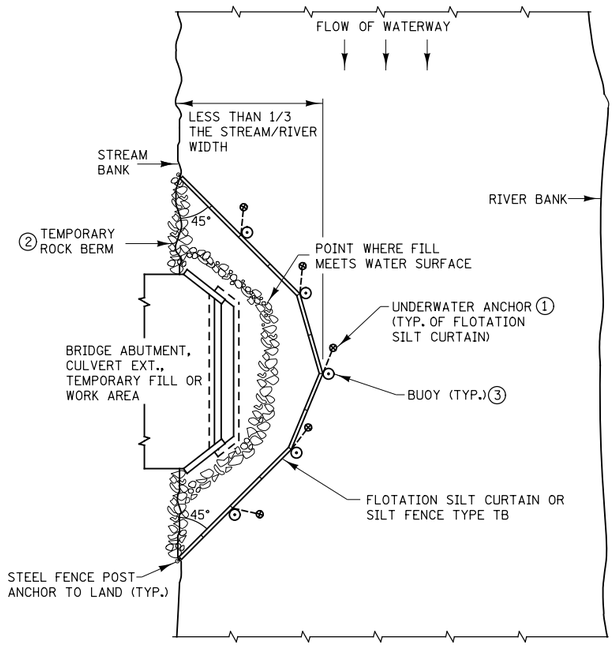
ALONG ROADWAYS, DITCHES AND FLUMES

STANDARD PLAN 5-297.404 | 1 OF 1

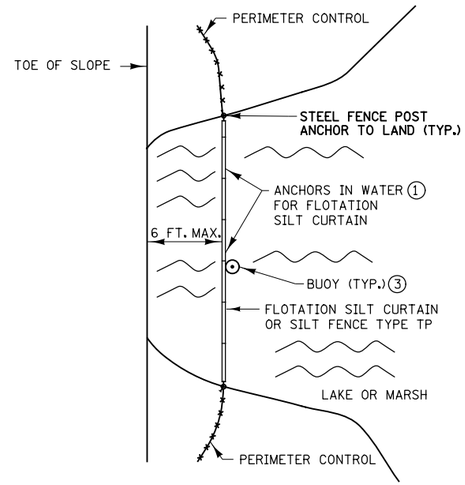
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 90 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
	COMM. NO. 0158933		

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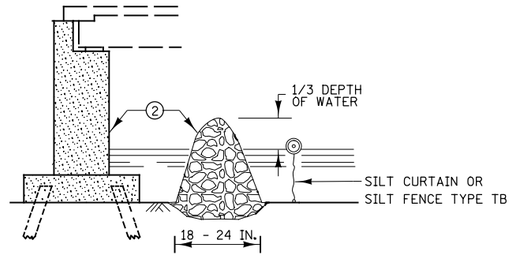
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PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤



TEMPORARY ROCK BERM
FOR SEDIMENT CONTROL

INSTALLATION GUIDELINES
SILT FENCE TYPE TB

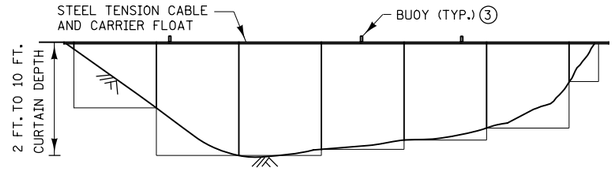
MINIMUM WATER DEPTH: 1 FT.
MAXIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: STILL WATER

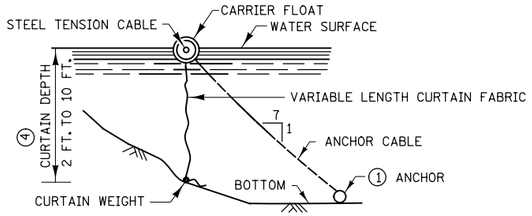
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 2 FT./SEC.
MAXIMUM WAVE HEIGHT: 1 FT

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: MOVING WATER

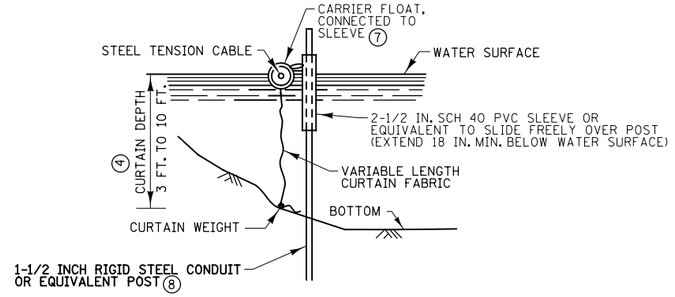
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.
MAXIMUM WAVE HEIGHT: 2 FT.



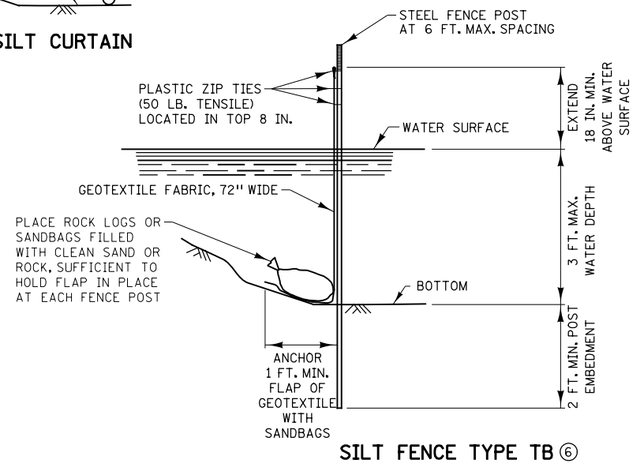
FRONT VIEW FOR FLOTATION SILT CURTAIN



FLOTATION SILT CURTAIN



ALTERNATE FLOTATION SILT CURTAIN



SILT FENCE TYPE TB ⑥

NOTES:

SEE SPECS. 2573, 3886, 3887 & 3893.

① FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.

② IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.

③ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.

④ MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.

⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.

⑥ EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.

⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.

⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

REVISION:

APPROVED: 8-6-2014
CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED: 8-6-2014
STATE DESIGN ENGINEER

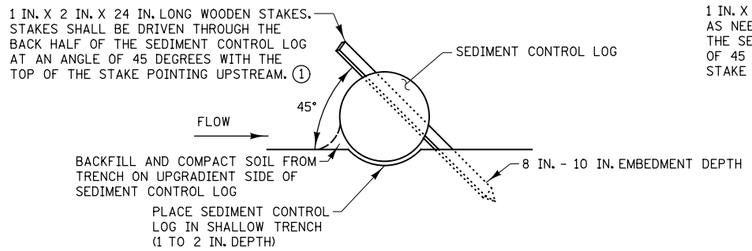
TEMPORARY SEDIMENT CONTROL
SILT CURTAIN OR SILT FENCE TYPE TB

STANDARD PLAN 5-297.405 | 1 OF 7

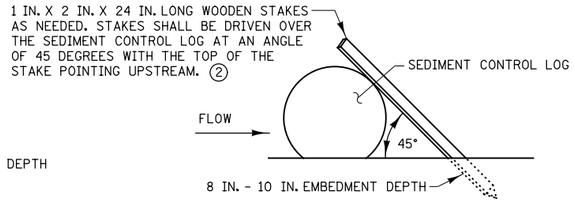
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
	COMM. NO. 0158933	SHEET 91 OF 688

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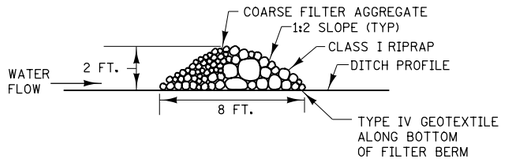


TYPES: STRAW, WOOD FIBER, OR COIR

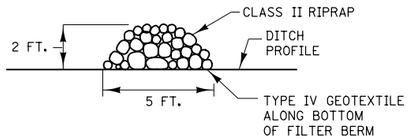


TYPES: WOOD CHIP, COMPOST, OR ROCK

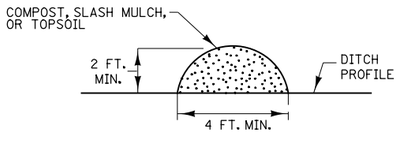
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

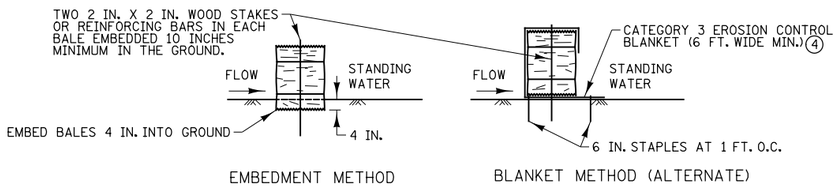


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

BLANKET METHOD (ALTERNATE)

BALE BARRIERS (3)

NOTES:

SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:
APPROVED: 8-6-2014
CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

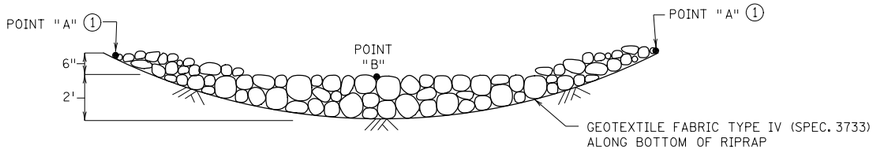
TEMPORARY SEDIMENT CONTROL
FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

STANDARD PLAN 5-297.405 | 2 OF 7

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
	COMM. NO. 0158933	SHEET 92 OF 688

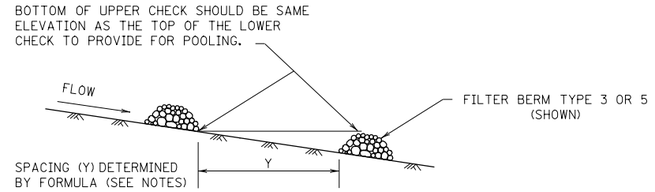
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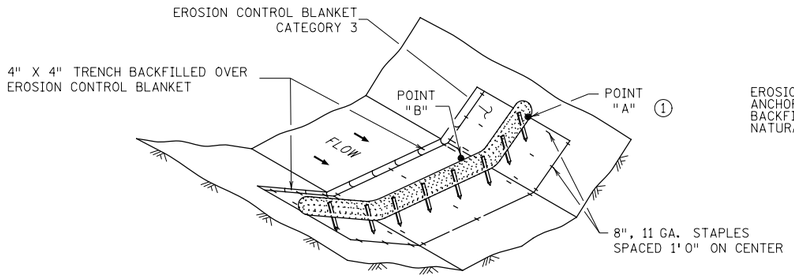
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③

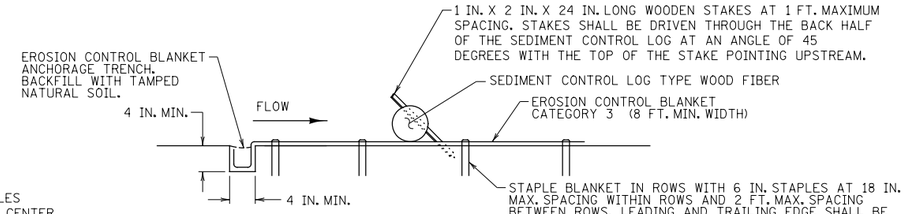
(FOR USE ON ROUGH GRADED AREAS)



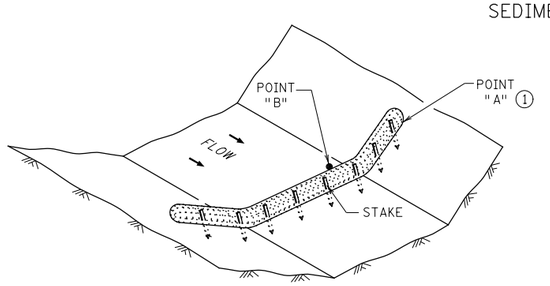
DITCH CHECK SPACING

(FOR ALL FILTER BERM TYPES)





SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤

(FOR USE ON ROUGH GRADED AREAS)

NOTES:

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

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

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

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

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

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

(3) DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..

(4) DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..

(5) DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

REVISION:

APPROVED: 8-6-2014
CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED: 8-6-2014
STATE DESIGN ENGINEER

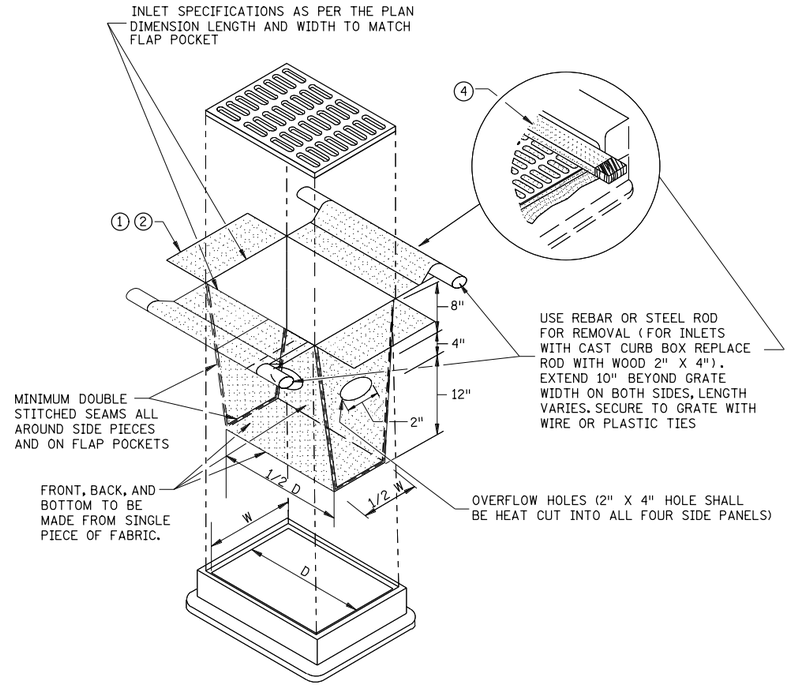
TEMPORARY SEDIMENT CONTROL
DITCH CHECK

STANDARD PLAN 5-297.405 | 3 OF 7

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION
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WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
	COMM. NO. 0158933	SHEET 93 OF 688

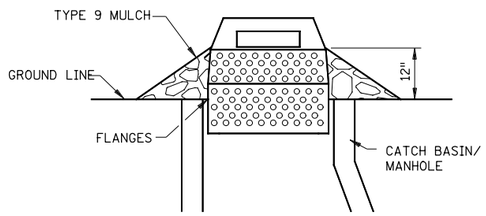
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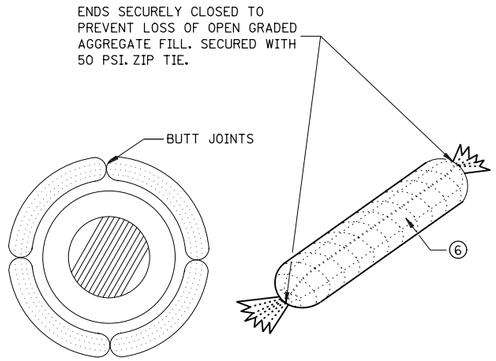
FILTER BAG INSERT ③

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

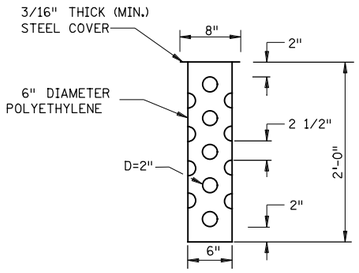


SEDIMENT CONTROL INLET HAT

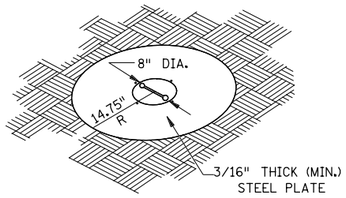
NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



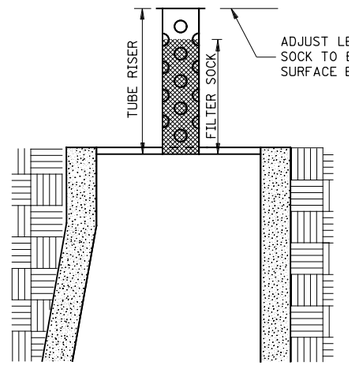
ROCK LOG/COMPOST LOG



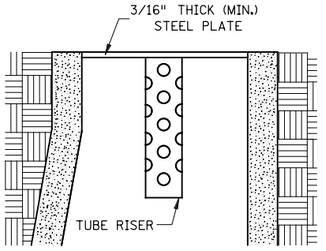
TUBE RISER



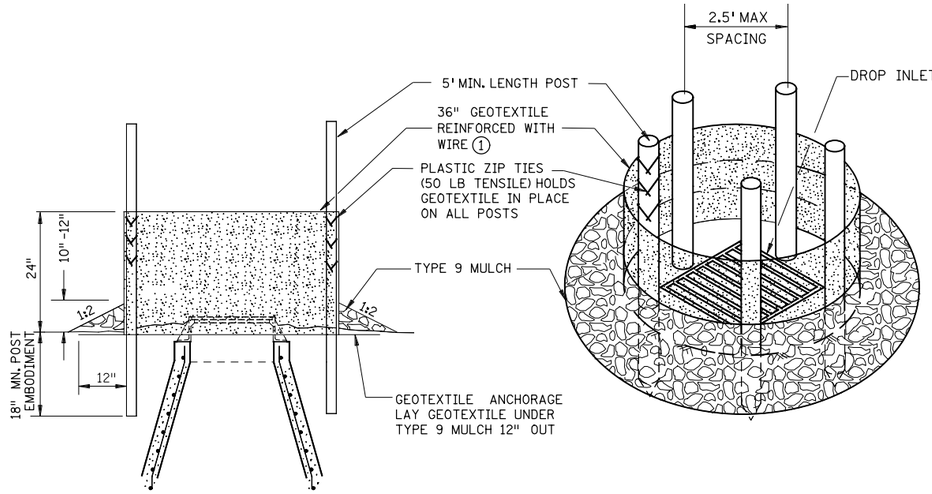
PERSPECTIVE VIEW



SECTION
(UP POSITION)



SECTION
(DOWN POSITION)



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

POP-UP HEAD

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

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

REVISION:

APPROVED: 8-6-2014

CHIEF ENVIRONMENTAL OFFICER

REVISED:

STATE DESIGN ENGINEER

APPROVED: 8-6-2014

TEMPORARY SEDIMENT CONTROL

STORM DRAIN INLET PROTECTION

STANDARD PLAN 5-297.405 | 4 OF 7

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY
	COMM. NO. 0158933

MINNESOTA DEPARTMENT OF TRANSPORTATION

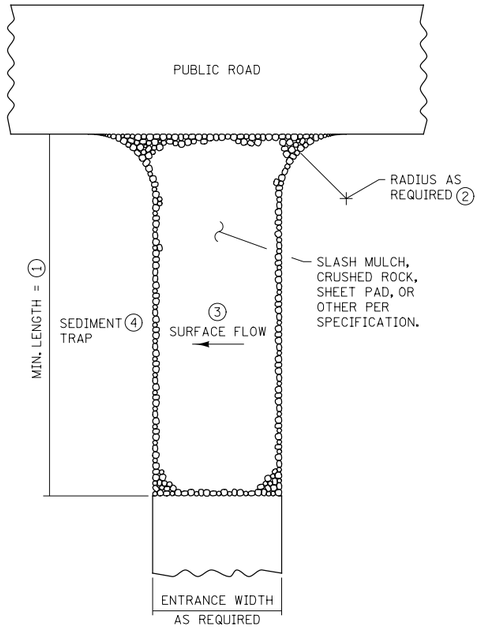
STANDARD PLANS

SP 2515-21 (TH 63)

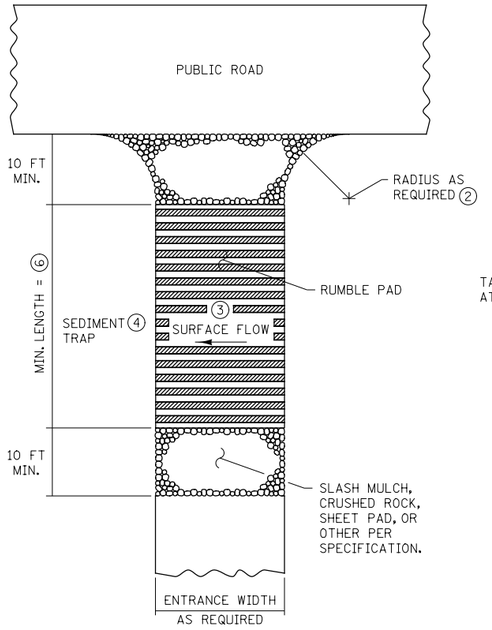
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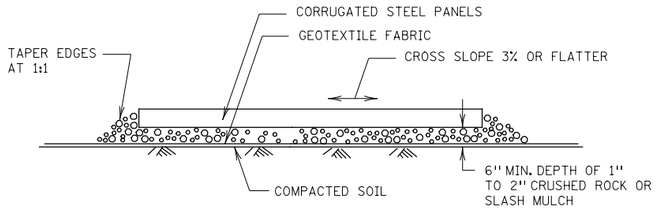
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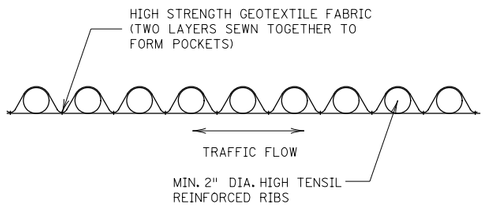
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



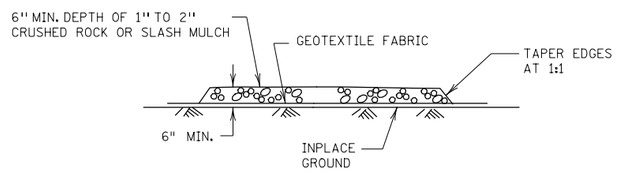
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

(1) MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

(2) PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

(3) IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

(4) IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

(5) IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

(6) MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

(7) MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

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CHIEF ENVIRONMENTAL OFFICER

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STATE DESIGN ENGINEER

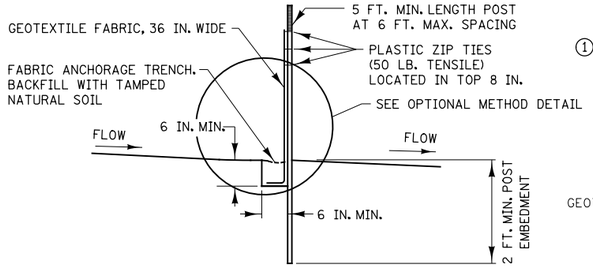
TEMPORARY SEDIMENT CONTROL
CONSTRUCTION EXITS

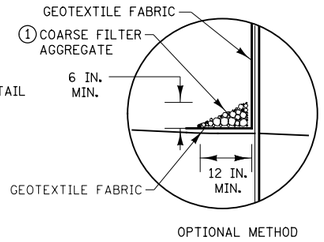
STANDARD PLAN 5-297.405 | 5 OF 7

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 95 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
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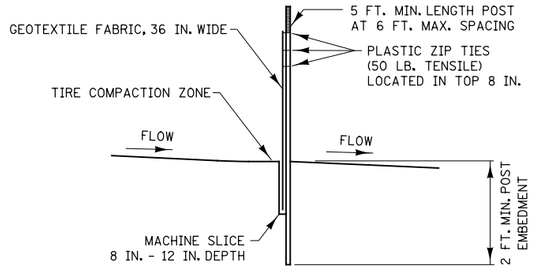
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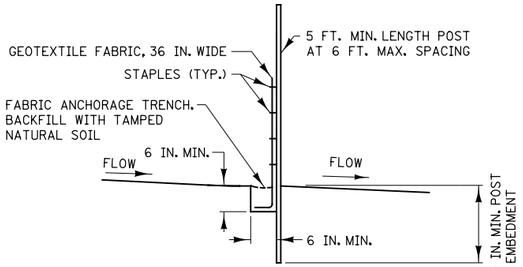


OPTIONAL METHOD

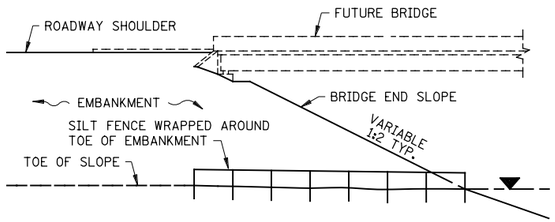
SILT FENCE TYPE HI ② (HAND INSTALLED)



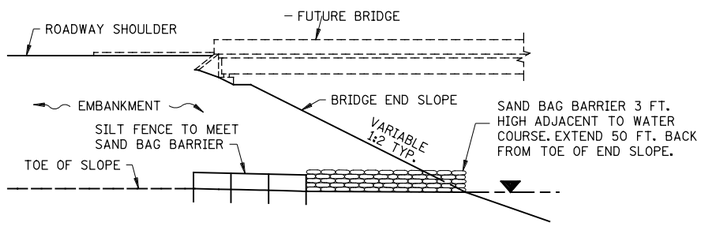
SILT FENCE TYPE MS ② (MACHINE SLICED)



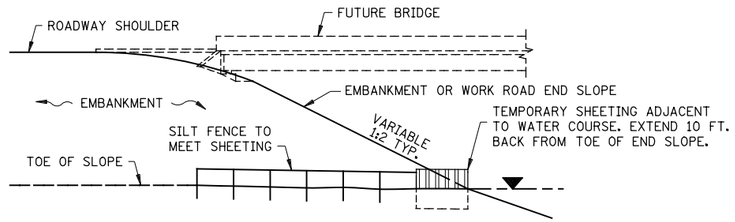
SILT FENCE TYPE PA ③ (PREASSEMBLED)



SILT FENCE ONLY ④

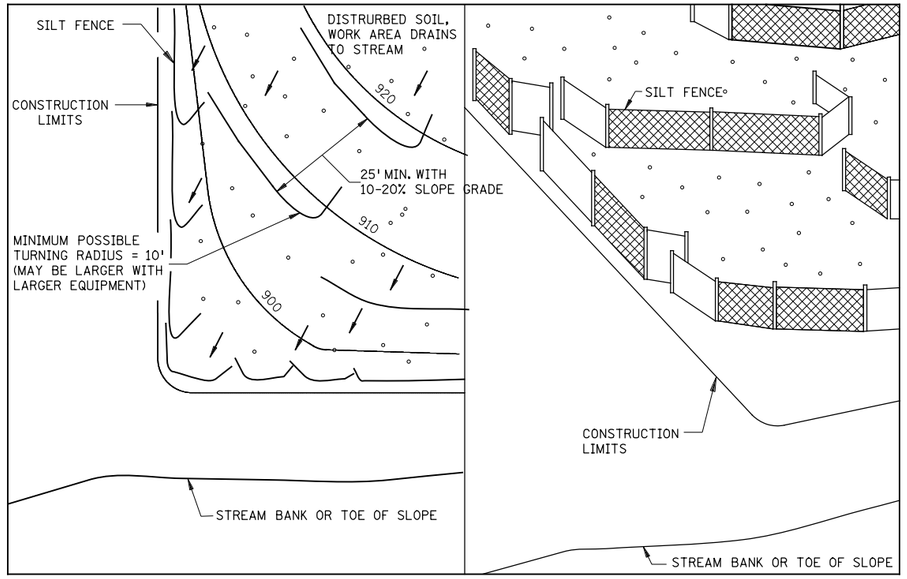


SILT FENCE WITH SAND BAGS ⑤



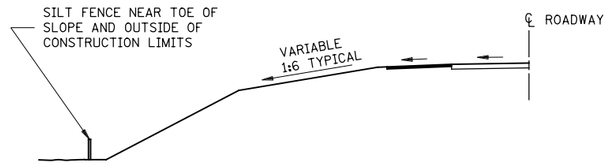
SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING.
CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 8-6-2014
CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED: 8-6-2014
STATE DESIGN ENGINEER

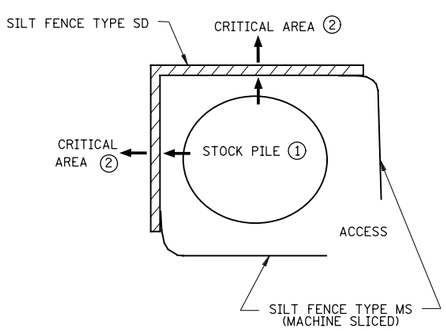
TEMPORARY SEDIMENT CONTROL
SILT FENCE

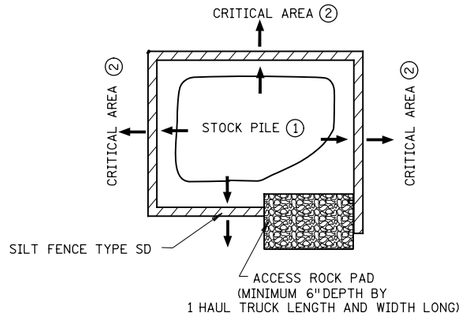
STANDARD PLAN 5-297.405 | 6 OF 7

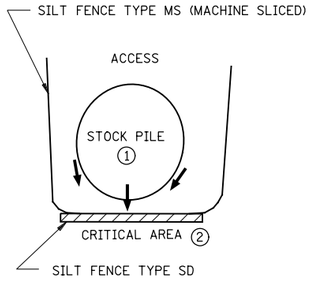
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MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
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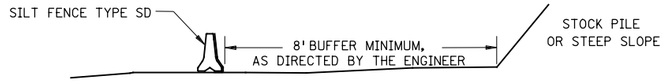
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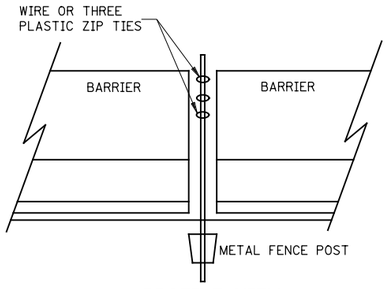




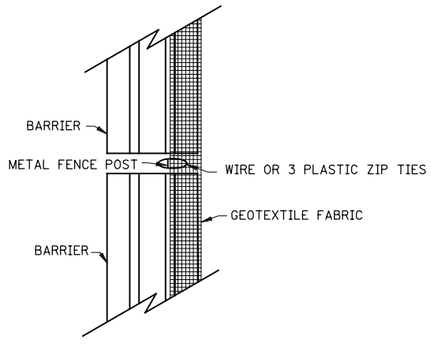
STOCK PILE CONTAINMENT



STOCKPILE SEDIMENT CONTROL

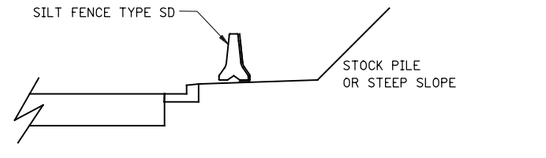


PROFILE VIEW

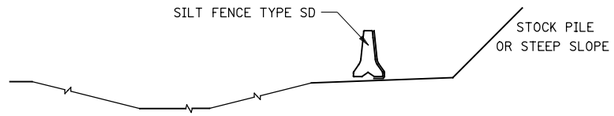


TOP VIEW

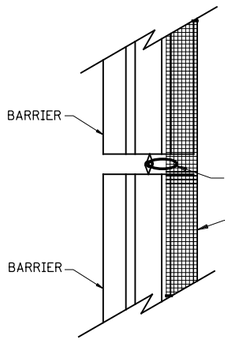
SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITHOUT LOOP BARS



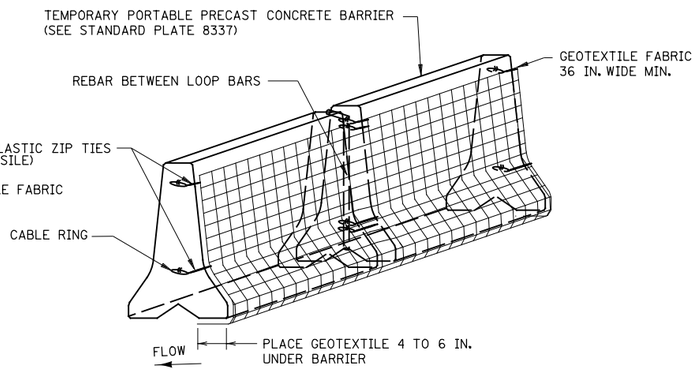
CURB AND GUTTER PROTECTION SYSTEM



DITCH PROTECTION SYSTEM



TOP VIEW



PERSPECTIVE VIEW

SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITH LOOP BARS

NOTES:

SEE SPECS. 2533, 2573 & 3886.

SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW, AND AREAS WHERE OTHER SILT FENCES CANNOT BE PLACED. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.

SILT FENCE TYPE SD CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.

(1) PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, PLACE SILT FENCE SD AS SHOWN OR AS DIRECTED BY THE ENGINEER.

(2) CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

REVISION:

APPROVED: 8-6-2014
CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED: 8-6-2014
STATE DESIGN ENGINEER

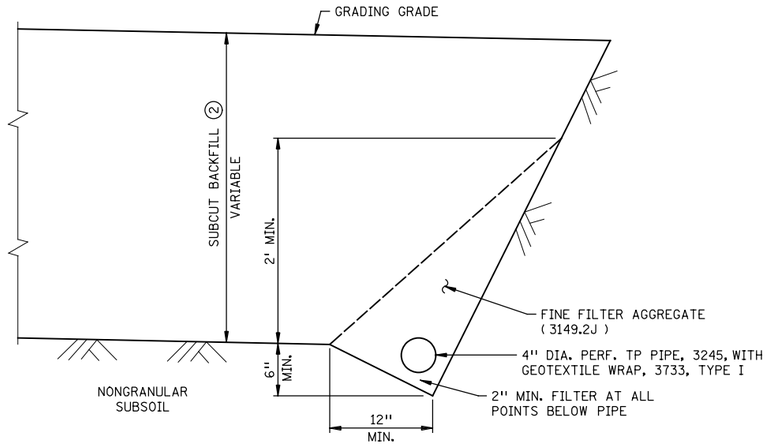
TEMPORARY SEDIMENT CONTROL
SUPER DUTY SILT FENCE

STANDARD PLAN 5-297.405 | 7 OF 7

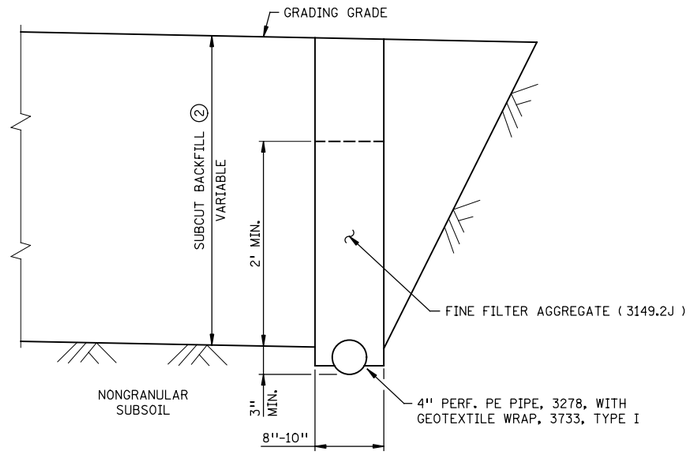
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	MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS
	WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
		COMM. NO. 0158933	SHEET 97 OF 688

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TYPICAL SECTION (OPTION NO. 1) ①



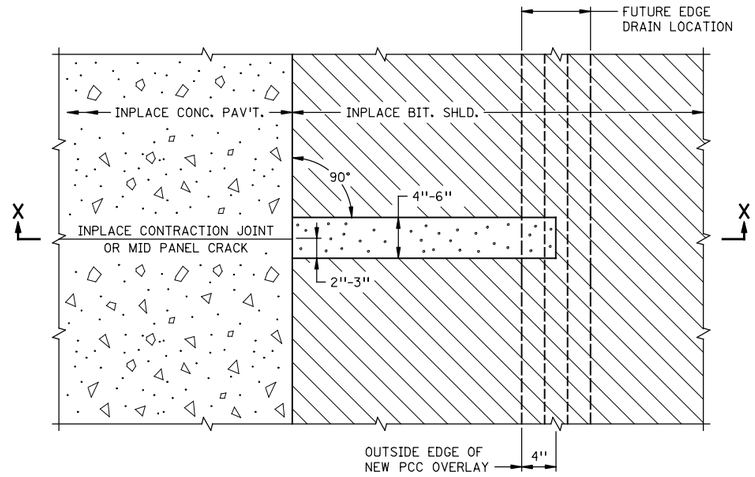
TYPICAL SECTION (OPTION NO. 2) ①

SUBSURFACE DRAIN, SUBCUT DRAIN TYPE

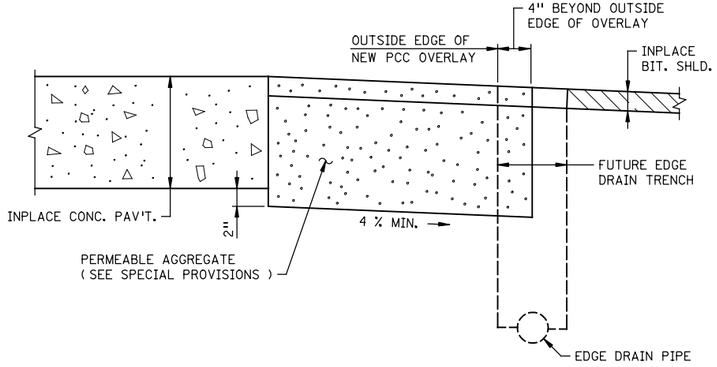
NOTES:

① MAY NEED TO BE MODIFIED FOR SPECIFIC PROJECTS. SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS. OPTION NO. 2 MAY ONLY BE USED WHEN PIPE IS TO BE PLACED BY MACHINE TRENCHER.

② GRANULAR, SELECT GRANULAR OR SELECT GRANULAR MODIFIED. (AS SHOWN IN DESIGN RECOMMENDATION LETTER).



PLAN VIEW



SECTION X-X

INTERCEPTOR DRAIN DETAIL ①

NOTE:

① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.

REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

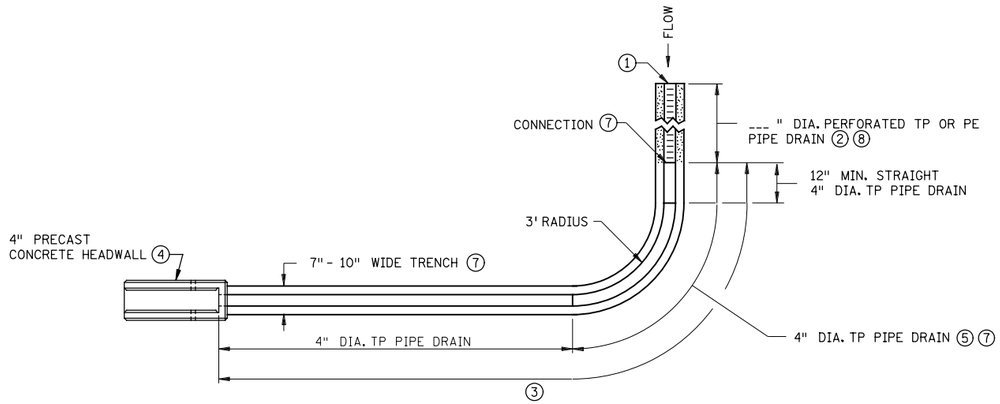
SUBSURFACE DRAINS

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MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 98 OF 688
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WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
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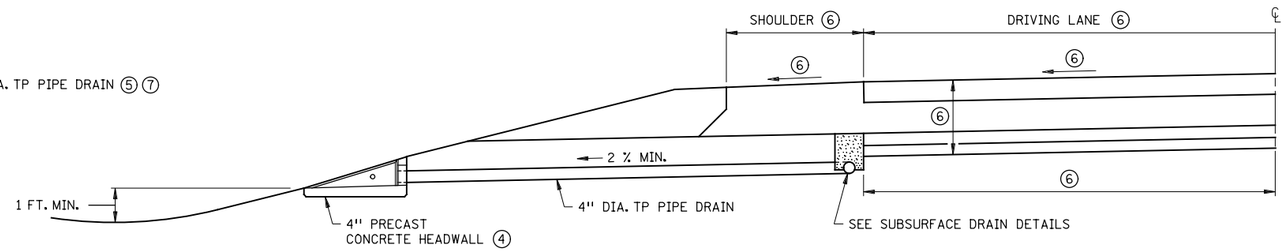
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TYPICAL PLAN VIEW (SINGLE DISCHARGE) 7

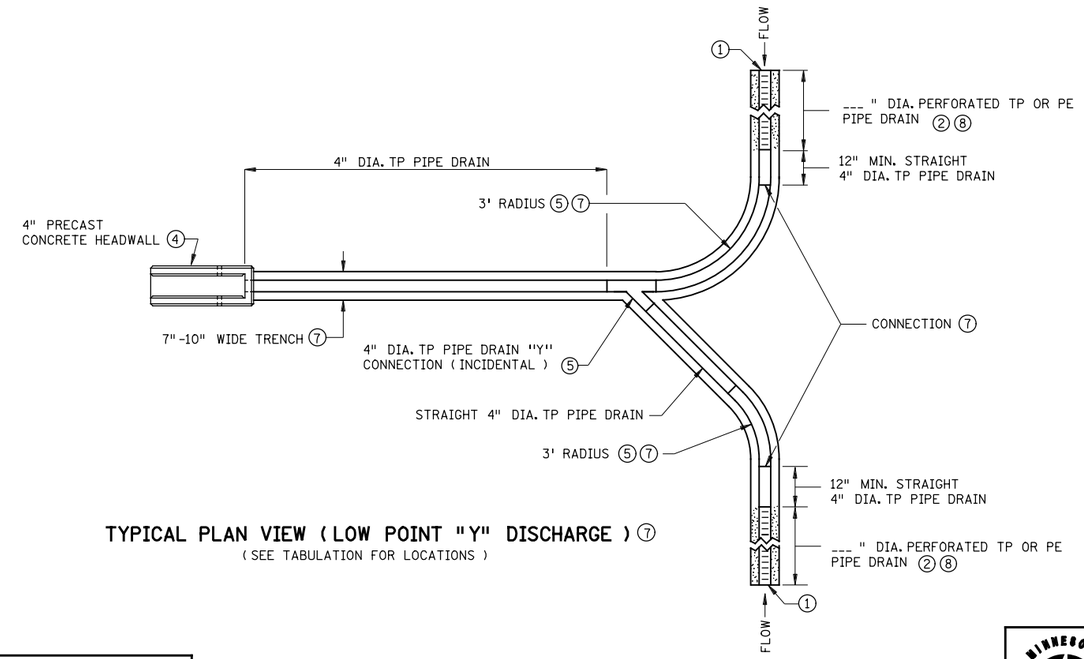
(SEE TABULATION FOR LOCATIONS)



SECTION VIEW

TYPICAL EDGE DRAIN AND DISCHARGE CROSS SECTION 7

(SEE TABULATION FOR LOCATIONS)



TYPICAL PLAN VIEW (LOW POINT "Y" DISCHARGE) 7

(SEE TABULATION FOR LOCATIONS)

NOTES:

1. THE UPSTREAM ENDS OF THE PERFORATED PIPE SHALL BE CAPPED AS APPROVED BY THE PROJECT ENGINEER, THE CAPS ARE INCIDENTAL. PLACE PERFORATED PIPE WITH THE PERFORATIONS DOWN.
2. MAXIMUM LENGTH 500 FT., EXCEPT 300 FT. MAXIMUM FOR GRADES LESS THAN 0.2% . LENGTH INCLUDED AND PAID FOR AS SPEC. 2502, __ INCH PERFORATED TP OR PE PIPE DRAIN.
3. LENGTH INCLUDED AND PAID FOR AS SPEC. 2502, 4 INCH DIA. TP PIPE DRAIN.
4. PRECAST CONCRETE HEADWALL STANDARD PLATE 3131 PAID FOR AS SPEC. 2502, 4 INCH PRECAST CONCRETE HEADWALL.
5. DETAILS OF CONNECTION AND COUPLING TO PIPE SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR " Y " AND EXTRA CONNECTION, 11 INCH TP PIPE AND COUPLING TO BE INCIDENTAL.
6. SEE ROADWAY TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
7. SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS.
8. 3 INCH OR 4 INCH DIAMETER.

REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

REVISED:

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

SUBSURFACE DRAINS

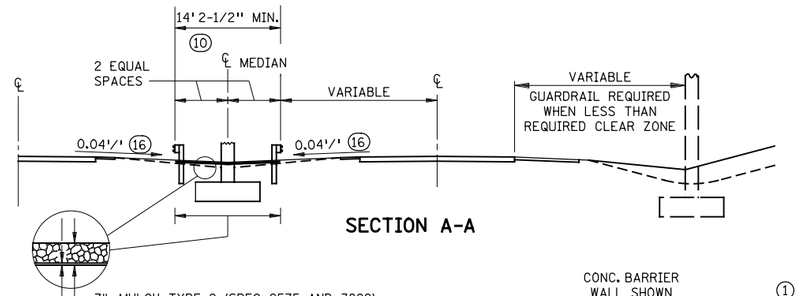
OUTLET PIPES FOR EDGE AND SUBCUT DRAINS

STANDARD PLAN 5-297.433 | 1 OF 1

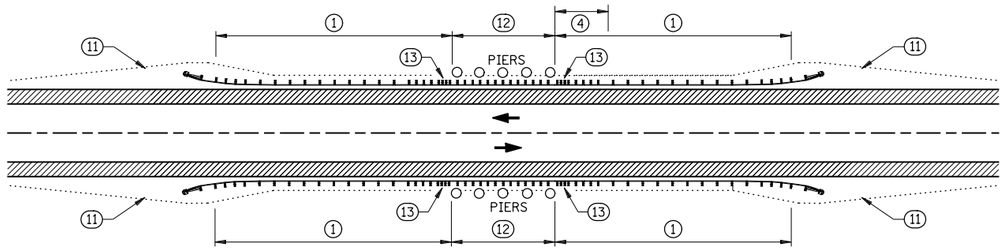
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MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS	
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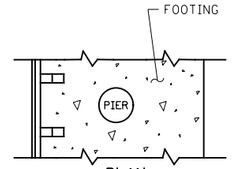
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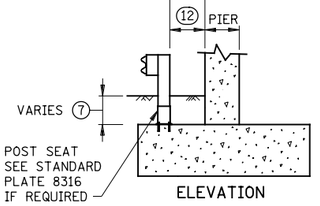
SECTION A-A



TWO-WAY UNDERPASS

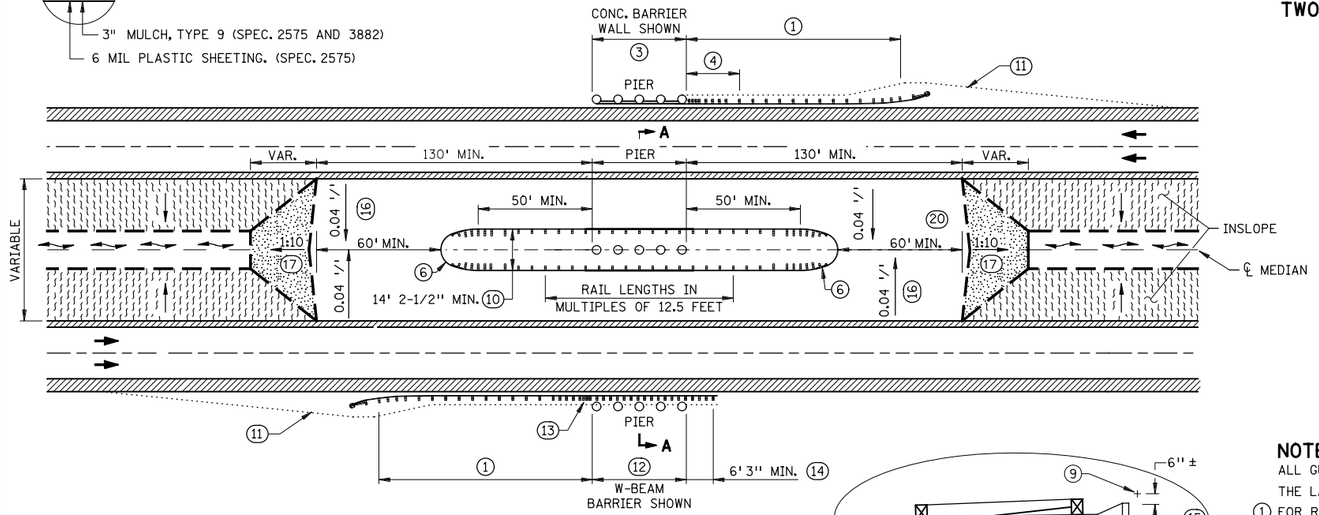


PLAN

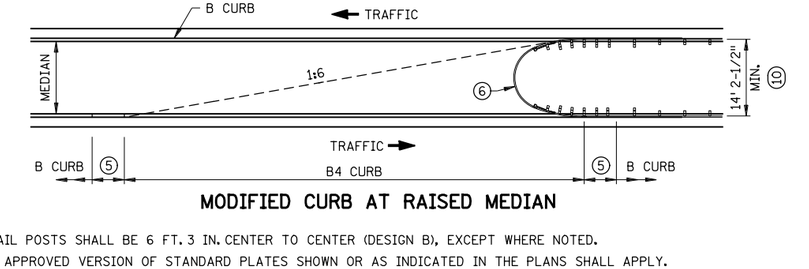


ELEVATION

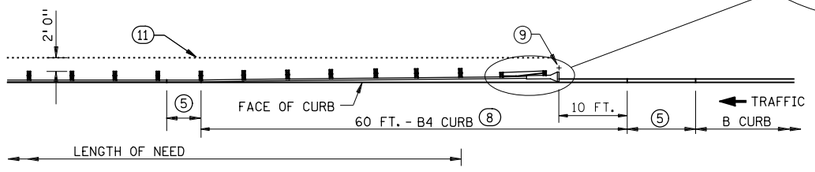
POST REQUIREMENTS AT PIERS



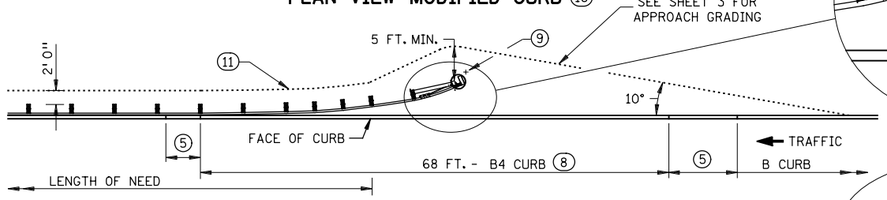
UNDERPASS-DEPRESSED MEDIAN 19



MODIFIED CURB AT RAISED MEDIAN

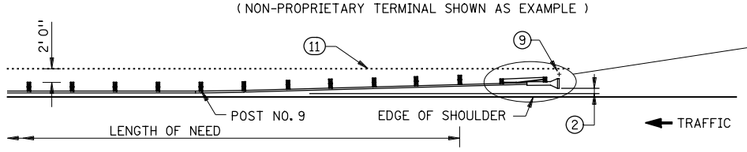


PLAN VIEW MODIFIED CURB 18

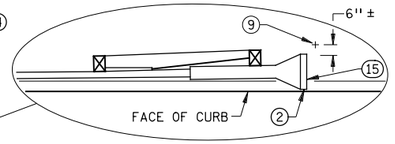


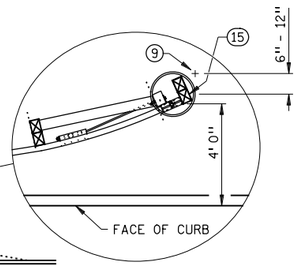
PLAN VIEW MODIFIED CURB AND SLOPE 18

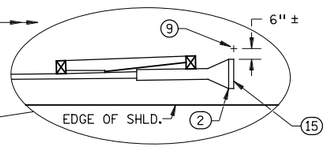
(NON-PROPRIETARY TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW NO CURB 18







ESTIMATED DESIGN DEFLECTION TABLE FOR DESIGN B W-BEAM GUARDRAIL

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

NOTES:

ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.

THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.

(1) FOR REQUIRED LENGTH OF INSTALLATION SEE ROAD DESIGN MANUAL CHAPTER 10.

(2) THE LAST 50 FT. OF TANGENT TERMINALS MAY BE FLARED AT 1:50 TAPER.

(3) CONC. BARRIER WALL BETWEEN PIER COLUMNS MAY BE USED. IF USED, SEE BARRIER WALL DETAILS.

(4) AN APPROVED TRANSITION MUST BE USED.

(5) 10 FT. CURB TRANSITION, USE IF ADJACENT CURB IS GREATER THAN 4 INCHES.

(6) THRIE BEAM BULLNOSE. SEE STANDARD PLAN 5-297.611 FOR DETAILS.

(7) IF EMBEDMENT IS GREATER THAN 3 FT. 0 IN., OR IF EMBEDMENT IS 2 FT. 6 IN. TO 3 FT. 0 IN. AND ADJACENT POSTS ARE EMBEDDED 3 FT. 0 IN. OR MORE, POST SEAT IS NOT REQUIRED.

(8) FOR CURB 6 IN. OR HIGHER, MILL TO 3 IN. HEIGHT.

(9) SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND. EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.

(10) MEASUREMENT IS FROM BACK OF RAIL TO BACK OF RAIL.

(11) 1:10 OR FLATTER SLOPE P.I.

(12) SEE ESTIMATED DESIGN DEFLECTION TABLE FOR DESIGN B W-BEAM GUARDRAIL.

(13) WHEN CLOSE POST SPACING OR DOUBLE NESTED RAIL IS USED, THIS POST SPACING SHOULD EXTEND A MINIMUM OF 12 FT. IN THE DIRECTION OF APPROACHING TRAFFIC.

(14) THE ANCHOR ASSEMBLY MUST BE LOCATED DOWNSTREAM OF THE HAZARD.

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

(16) 0.04 FT./FT. CROSS SLOPE TYPICAL. 0.10 FT./FT. CROSS SLOPE MAXIMUM.

(17) 1:10 SLOPE OR FLATTER.

(18) USE ONLY FOR RETROFITS WITH SITE RESTRICTIONS. FOR RETROFITS WITHOUT SITE RESTRICTIONS AND NEW CONSTRUCTION, SEE SHEET 3.

(19) MEDIAN GRADING DETAIL SHOWN APPLIES TO THRIE-BEAM BULLNOSE ONLY.

(20) DRAINAGE DETAILS SHOWN ON GRADING PLAN.

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

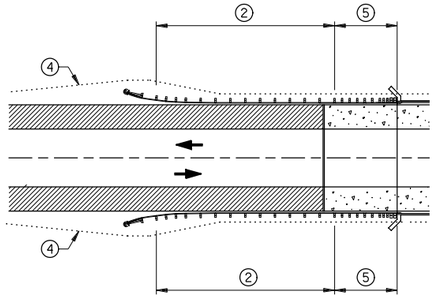
GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS

STANDARD PLAN 5-297.601 | 1 OF 3

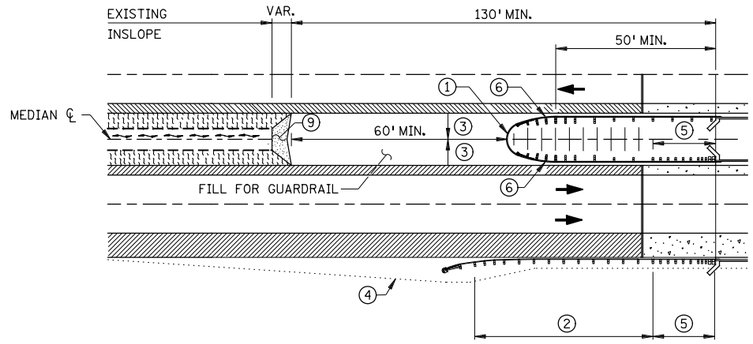
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS	100 OF 688
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)	
	COMM. NO. 0158933		

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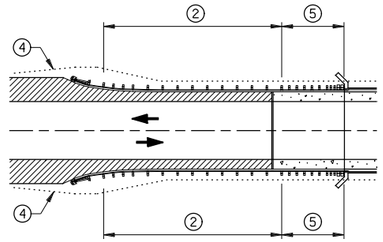
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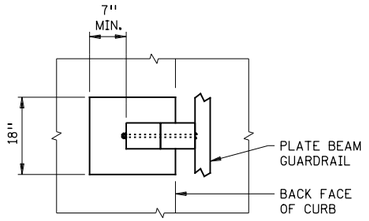
TWO - WAY BRIDGE
WITH FULL SHOULDERS



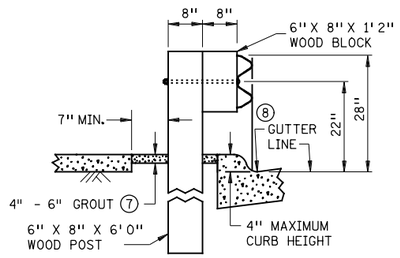
ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER
(FOR 14' 2-1/2" THRIE BEAM BULLNOSE)



TWO - WAY BRIDGE
WITHOUT FULL SHOULDERS

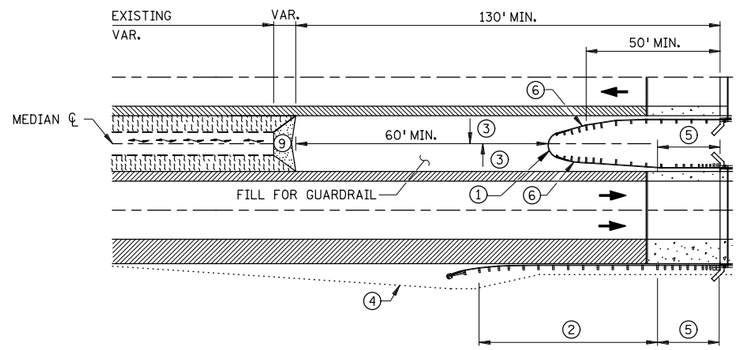


PLAN VIEW



ELEVATION

TYPICAL W-BEAM GUARDRAIL SECTION
AT POST SET IN CONCRETE



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

NOTES:

ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.

THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.

1. THRIE BEAM BULLNOSE, SEE STANDARD PLAN 5-297.611 FOR DETAILS.
2. FOR THE REQUIRED LENGTH SEE ROAD DESIGN MANUAL CHAPTER 10.
3. 0.04 FT./FT. CROSS SLOPE TYPICAL, 0.10 FT./FT. CROSS SLOPE MAXIMUM.
4. 1:10 OR FLATTER SLOPE P.I.. APPROACH GRADING VARIES WITH TERMINAL TYPE.
5. PLATE BEAM GUARDRAIL ATTACHMENTS TO FIXED OBJECTS REQUIRE AN APPROVED TRANSITION SECTION.
6. FOR MEDIANS WIDER THAN THE 14 FT. 2-1/2 IN., BEFORE TAPERING THE APPROACH SIDE, TAPER THE OPPOSING SIDE AS SHOWN ON THE BULLNOSE DESIGN DETAIL. APPROACH TAPER SHOULD NOT EXCEED 1:25 IF THE BARRIER IS WITHIN THE SHY LINE OR 1:15 IF IT IS OUTSIDE.
7. GROUT MIX (BY VOLUME: 1 PART CEMENT [TYPE 1A], 14 PARTS SAND, 5 PARTS WATER).
8. PLACE FRONT FACE OF W-BEAM DIRECTLY ABOVE FRONT FACE OF CURB.
9. 1:10 SLOPE OR FLATTER.

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

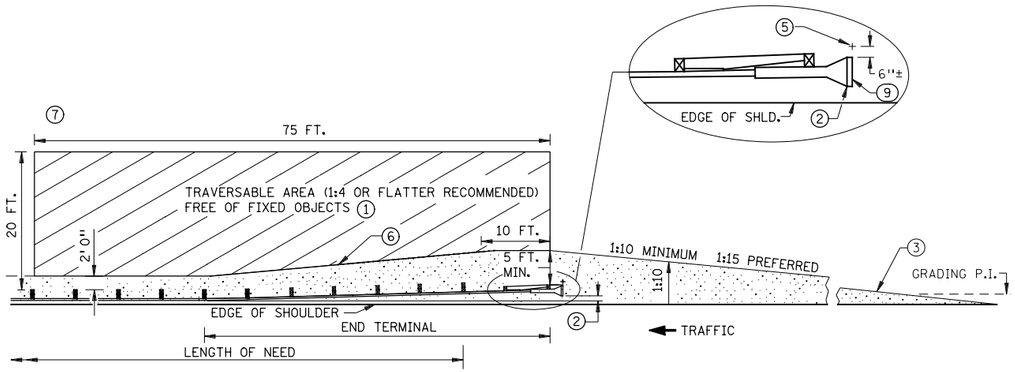
GUARDRAIL INSTALLATIONS AT MEDIANS
AND END TREATMENTS

STANDARD PLAN 5-297.601 | 2 OF 3

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 101 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
	COMM. NO. 0158933		

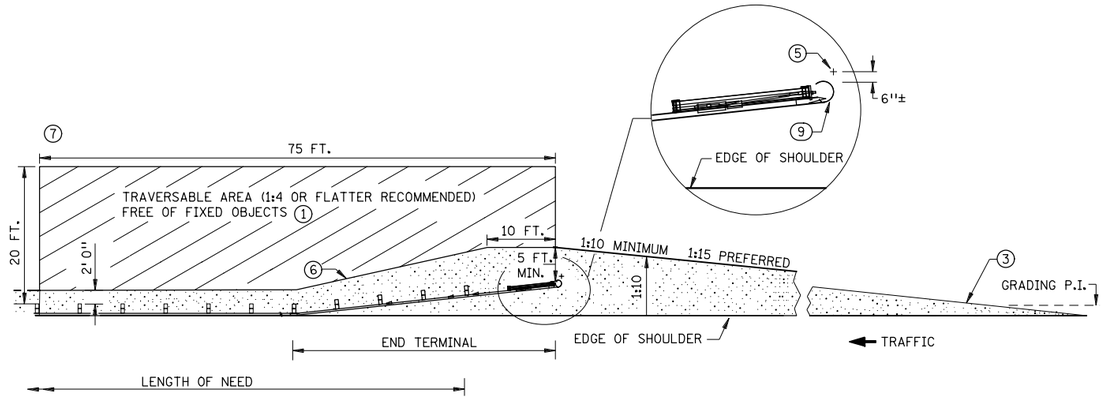
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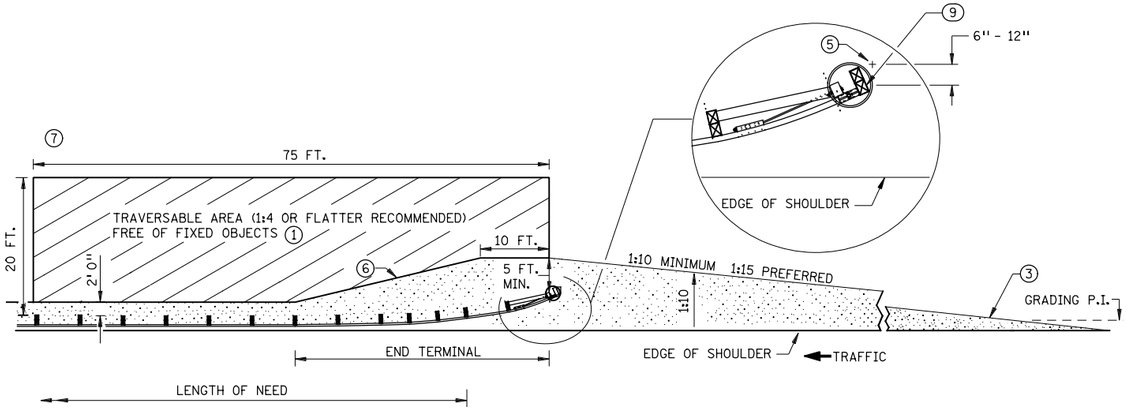
PLAN VIEW

(PROPRIETARY TANGENT TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ⑧

(PROPRIETARY FLARED TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ④ ⑧

(ELT)

NOTES:

ALL CROSS SLOPES ARE IN FOOT/FOOT UNLESS OTHERWISE NOTED.

ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.

CHANGES (TO SUBJECTS COVERED BY THIS SHEET) INDICATED IN THE PLANS OR ON PLATES WITH MORE RECENT APPROVAL DATES SHALL APPLY.

GRADING AND DRAINAGE HARDWARE ARE NOT INCIDENTAL TO GUARDRAIL INSTALLATION.

① SLOPES BETWEEN 1:3 AND 1:4 PERMITTED WHEN 1:4 OR FLATTER IS NOT POSSIBLE. FOR SLOPES STEEPER THAN 1:3 THE AREA IMMEDIATELY BEHIND AND BEYOND THE END TERMINAL SHOULD, AT LEAST, BE SIMILAR IN CROSS SECTION TO THE UNSHIELDED ROADSIDE AREA UPSTREAM OF THE END TERMINAL.

② THE LAST 50 FT. OF TANGENT TERMINALS CAN BE FLARED AT 1:50 TAPER.

③ WHEN GRADING PLATFORMS ARE BUILT, THEY MUST BE SMOOTHLY TRANSITIONED TO EXISTING SIDE SLOPE SO THE ENTIRE ROADSIDE APPROACH TO THE BARRIER REMAINS TRAVERSABLE, AS WELL AS THE AREA IMMEDIATELY BEHIND IT.

④ SEE STANDARD PLATE 8329.

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

⑥ 1:10 OR FLATTER SLOPE P.I.

⑦ GRADUALLY BLEND SLOPE FROM TRAVERSABLE AREA TO STEEP EXISTING SLOPE (WHEN SLOPE IS STEEPER THAN 1:6).

⑧ IF THE TERRAIN BEYOND THE TERMINAL END AND IMMEDIATELY BEHIND THE BARRIER IS NOT SAFELY TRAVERSABLE, A TANGENT (ENERGY- ABSORBING) TERMINAL SHALL BE USED.

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

REVISED:

STATE DESIGN ENGINEER

APPROVED: 5-27-2014

GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS

(FOR NEW CONSTRUCTION AND RETROFITS WITHOUT SITE RESTRICTIONS)

STANDARD PLAN 5-297.601 | 3 OF 3

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	
	COMM. NO. 0158933	

MINNESOTA DEPARTMENT OF TRANSPORTATION

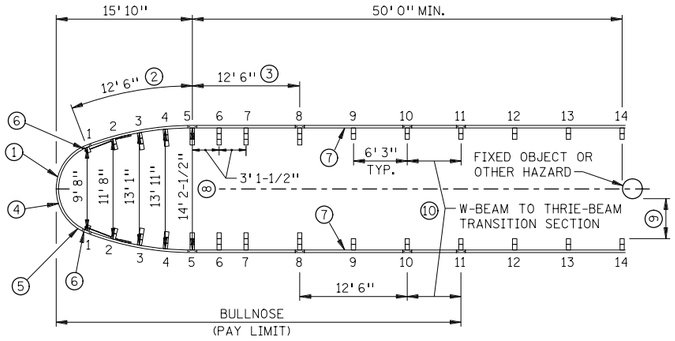
STANDARD PLANS

SP 2515-21 (TH 63)

SHEET 102 OF 688

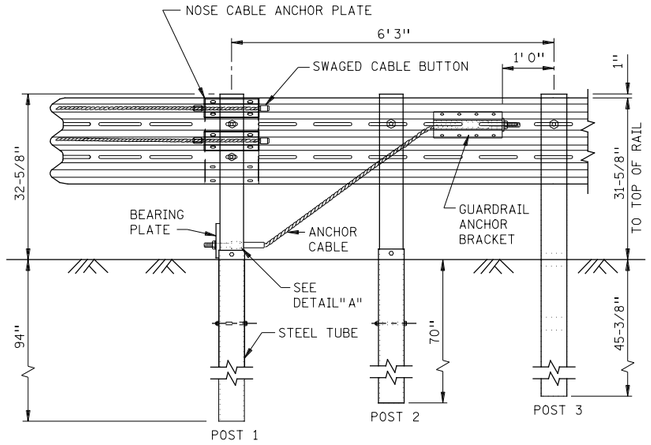
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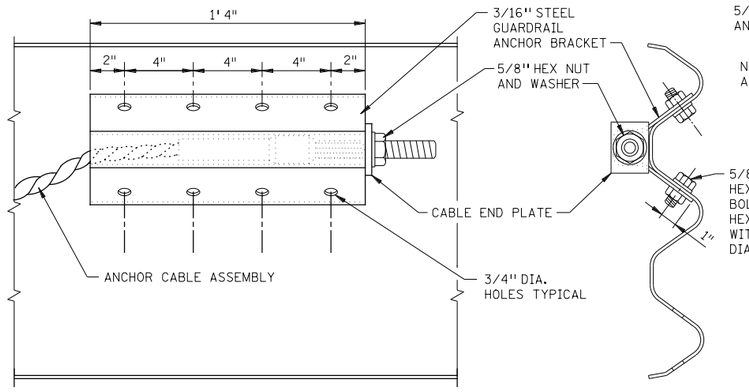
PLAN VIEW

DETAILS OF BULLNOSE



ELEVATION

BULL NOSE ASSEMBLY

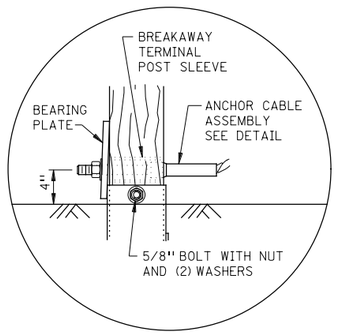


FRONT VIEW

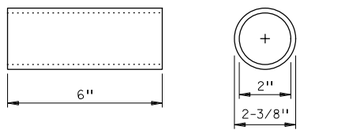
ASSEMBLY END VIEW

ASSEMBLY END VIEW

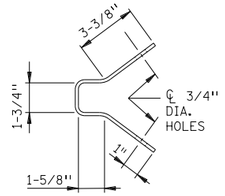
GUARDRAIL ANCHOR BRACKET DETAILS



DETAIL "A"

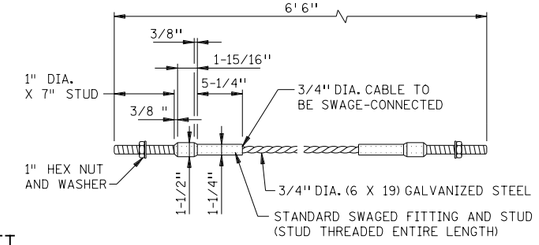


BREAKAWAY TERMINAL POST SLEEVE

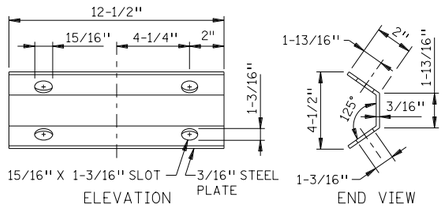


END VIEW

GUARDRAIL ANCHOR BRACKET



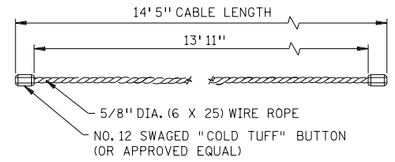
ANCHOR CABLE ASSEMBLY DETAILS



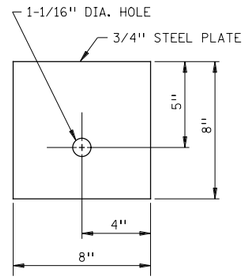
ELEVATION

END VIEW

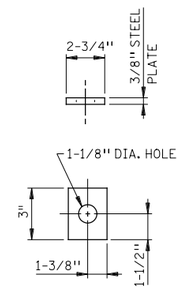
NOSE CABLE ANCHOR PLATE



NOSE CABLE



BEARING PLATE



CABLE END PLATE

NOSE CABLE ANCHOR PLATE DETAILS

NOTES:

OTHER ANCHOR CABLE ASSEMBLIES HAVING 40,000 LBS. MIN. BREAKING STRENGTH MAY BE USED.

ALTERNATE HARDWARE DESIGNS WILL BE CONSIDERED FOR APPROVAL PROVIDED THEIR CONNECTION DETAILS, FOR THE PURPOSE OF MAINTENANCE SUBSTITUTIONS, ARE COMPATIBLE WITH THE DETAILS OF THIS STANDARD AND THEIR OPERATING CHARACTERISTICS ARE SIMILAR TO THOSE OF THE HARDWARE SHOWN IN THIS STANDARD.

BOLTS AND ALL NECESSARY HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

SEE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE" FOR ADDITIONAL HARDWARE INFORMATION. THE MNDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SHALL GOVERN.

FOR GRADING DETAILS SEE STANDARD PLAN 5-297.601.

1. SLOTTED RAIL NO. 1, 12'6", SHOP BEND TO R=5'3"
2. SLOTTED RAIL NO. 2, 12'6", SHOP BEND TO R=34'2"
3. SLOTTED RAIL NO.3, 12'6", TANGENT
4. U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.
5. NOSE CABLE W/SWAGED END BUTTONS
6. NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).
7. THRIE-BEAM GUARDRAIL, 12'6".
8. MEASUREMENTS ARE FROM BACK OF RAIL TO BACK OF RAIL. FOR GUARDRAIL LAPPING DETAIL, SEE SHEET 2 OF 3.
9. MINIMUM DESIGN DEFLECTION FOR BARRIER USED.
10. SEE STANDARD PLAN 5-297.614.

MEETS CRASH TEST CRITERIA: NCHRP 350 (TL-3)

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS

(14'2-1/2" WIDTH)

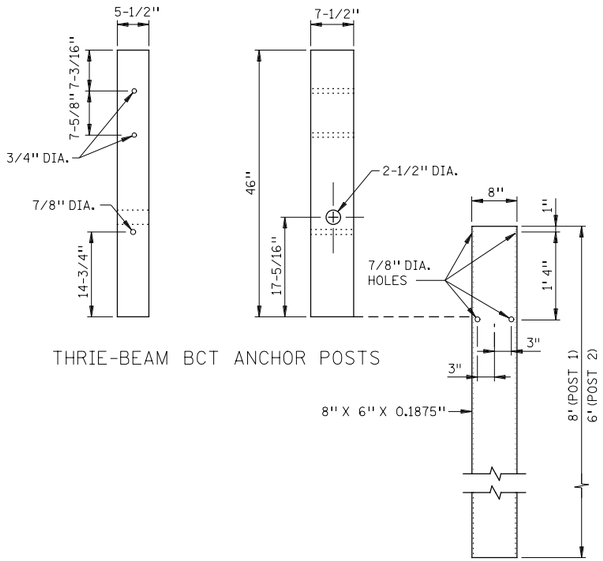
STANDARD PLAN 5-297.611

1 OF 3

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 103 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)	
	COMM. NO. 0158933		

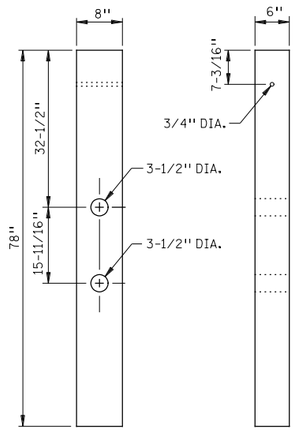
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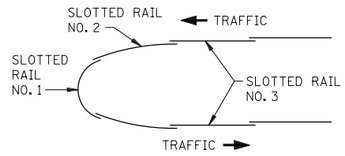


THRIE-BEAM BCT ANCHOR POSTS

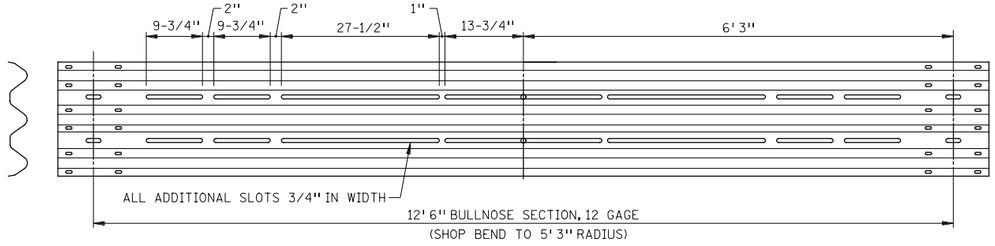
STEEL TUBE



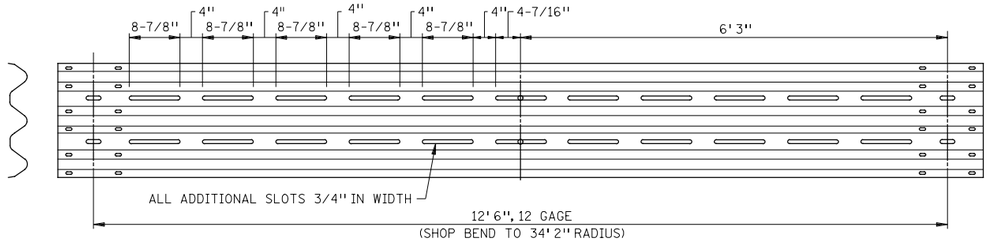
THRIE-BEAM CRT POSTS



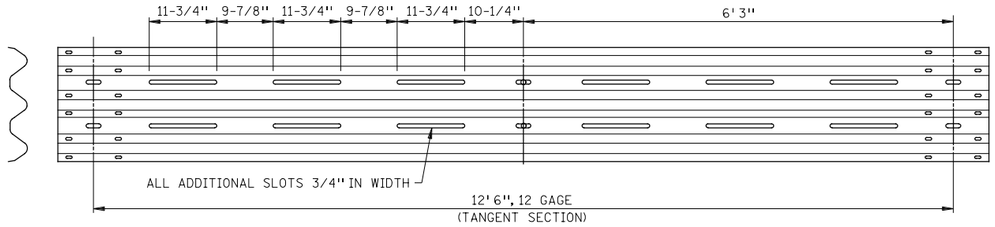
GUARDRAIL OVERLAPPING DETAIL



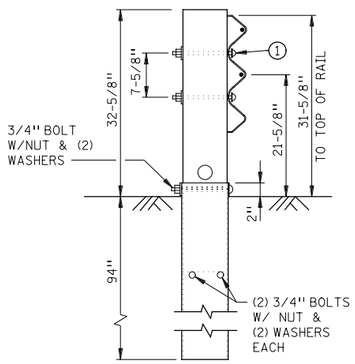
SLOTTED RAIL NO. 1



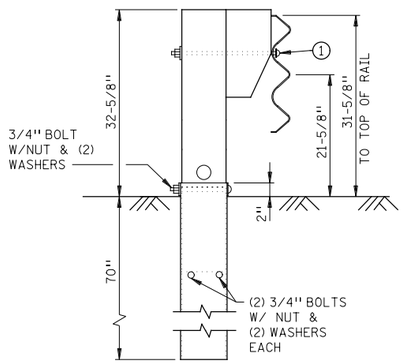
SLOTTED RAIL NO. 2



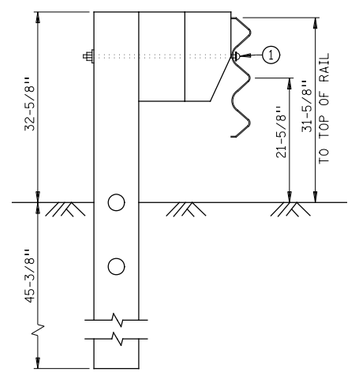
SLOTTED RAIL NO. 3



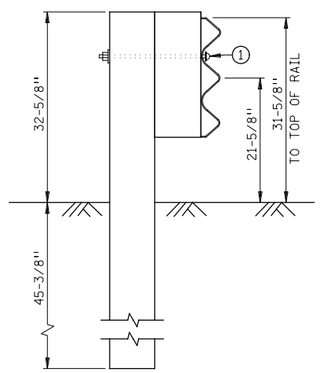
THRIE-BEAM BCT POST
(WITH 96" STEEL TUBE)
POST NO. 1



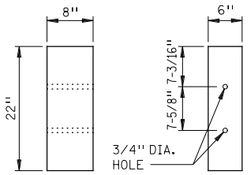
THRIE-BEAM BCT POST
(WITH 72" STEEL TUBE
AND 14" TAPERED BLOCK)
POST NO. 2



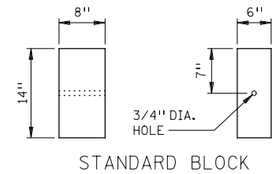
THRIE-BEAM CRT POST
(78" LONG WITH 14" BLOCK
AND 14" TAPERED BLOCK)
POST NO. 3, 4, 5, 6, 7, & 8



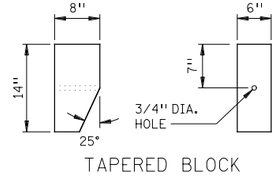
THRIE-BEAM POST
(6" X 8" X 78" LONG POST
WITH 6" X 8" X 22" BLOCK)
POST NO. 9 & 10



STANDARD
22" LONG BLOCK



STANDARD BLOCK



TAPERED BLOCK

NOTES:

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

MEETS CRASH TEST CRITERIA: NCHRP 350 (TL-3)

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS

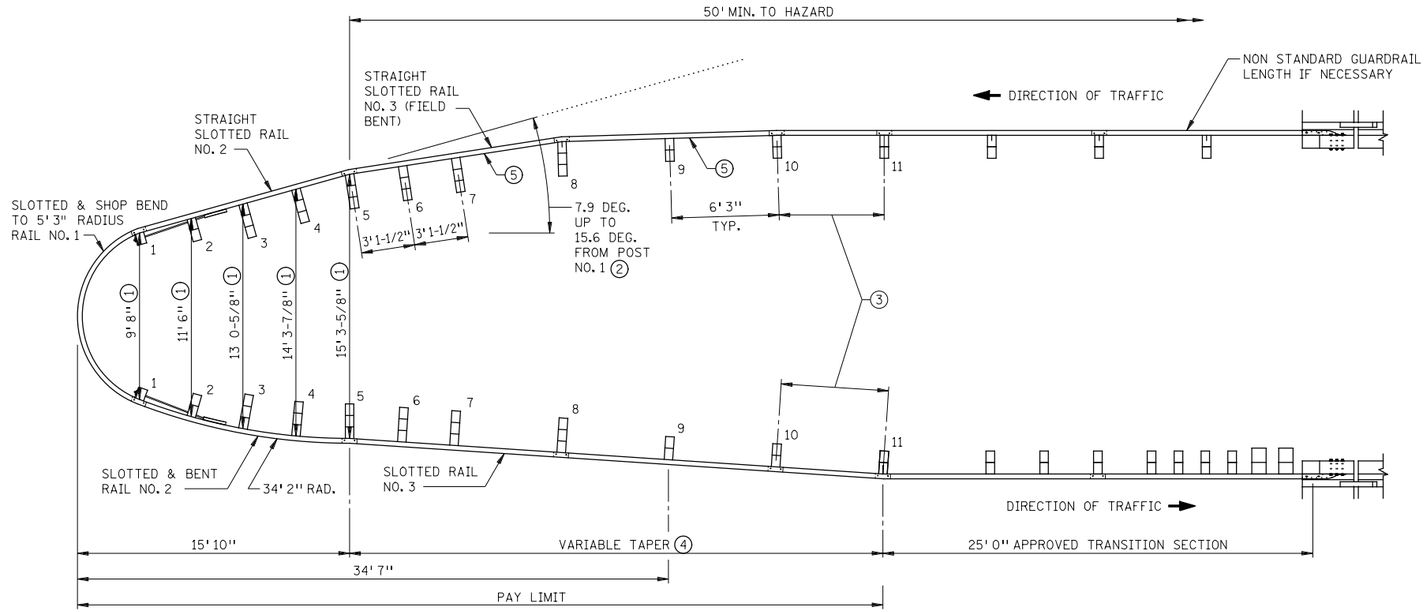
(14' 2-1/2" WIDTH)

STANDARD PLAN 5-297.611 | 2 OF 3

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 104 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
	COMM. NO. 0158933		

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PLAN VIEW

WIDENED BULLNOSE DESIGN

NOTES:

1. POST SPACINGS ACROSS THE BARRIER ARE MEASURED AS PERPENDICULAR DISTANCE ACROSS THE BARRIER FROM THE CENTER OF POST.
2. TAPER BEGINNING AT POST NO. 1 MUST CONTINUE TO POST NO. 5, PAST POST NO. 5, TAPER MAY END OR BE EXTENDED UP TO 15.6 DEGREES TO FIT VARIABLE MEDIAN WIDTHS.
3. W-BEAM TO THRIE-BEAM TRANSITION SECTION. SEE STD. PLAN 5-297.614.
4. FOR MEDIANS WIDER THAN 14' 2 1/2", BEFORE TAPERING THE APPROACH SIDE, TAPER THE OPPOSING SIDE AS SHOWN ON THE BULLNOSE DESIGN DETAIL. APPROACH TAPER SHOULD NOT EXCEED 1:25 IF THE BARRIER IS WITHIN THE SHY LINE OR 1:15 IF IT IS OUTSIDE.
5. THRIE BEAM MAY BE FIELD BENT UP TO 18" IN A 12' 6" LENGTH (APPROX. 6.9 DEG.). ADJUST BENDS TO FIT BULLNOSE TO SITE. SLOTTED RAIL NO. 2 ON OPPOSING SIDE MAY BE USED STRAIGHT OR NORMAL (SHOP BEND TO 34' 2" RAD.). SLOTTED RAIL NO. 3 ON OPPOSING SIDE DOES NOT HAVE TO BE SHOP BENT (BEND IN FIELD).

MEETS CRASH TEST CRITERIA: NCHRP 350 (TL-3)

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

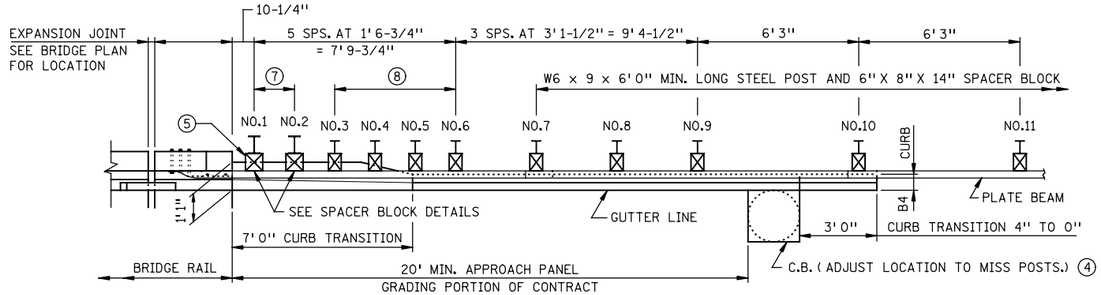
THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS
(WIDER THAN 14' 2-1/2")

STANDARD PLAN 5-297.611 | 3 OF 3

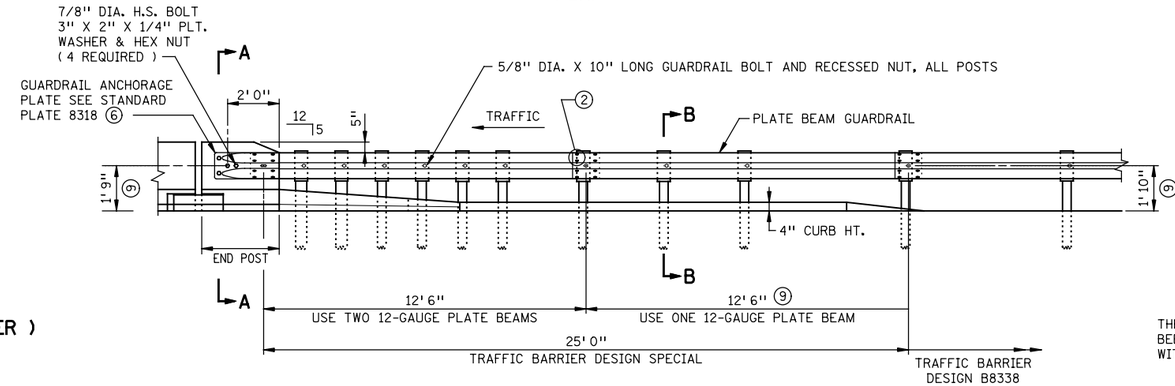
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 105 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)	
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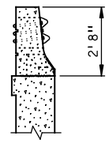
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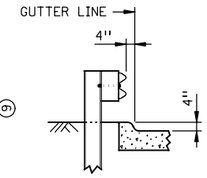
PLAN



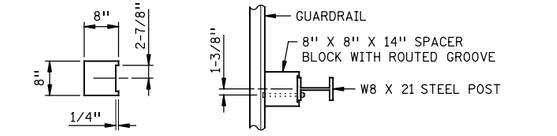
ELEVATION



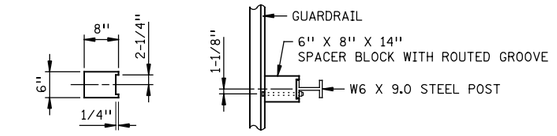
SECTION A - A
F SHAPE RAIL (F BARRIER)
(PARALLEL WINGWALL SHOWN)



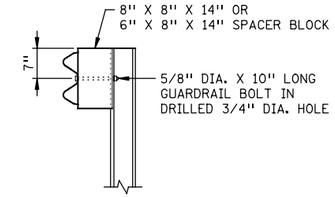
SECTION B-B
THE TRANSITION SECTION HAS
BEEN TESTED AND APPROVED
WITH THE CURB PLACED AS SHOWN



POSTS 1 AND 2

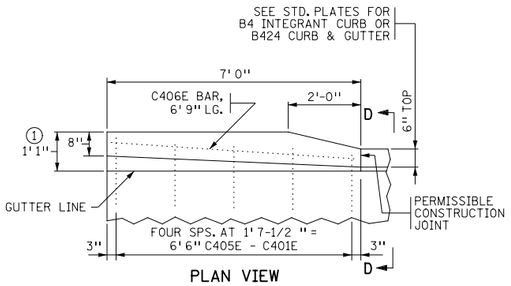


POSTS 3 - 11

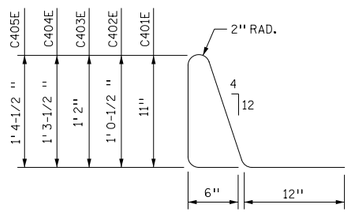


END VIEW

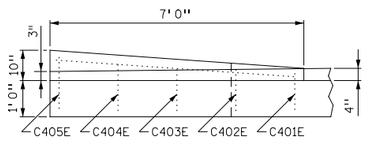
SPACER BLOCK DETAILS



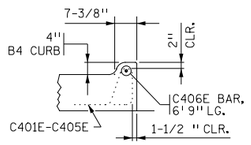
PLAN VIEW



C401E - C405E (3)

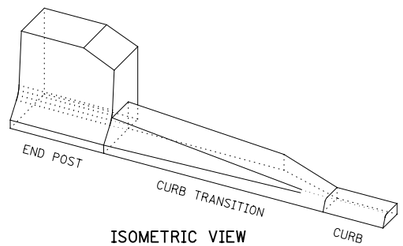


INSIDE ELEVATION
(FOR F - SHAPE SAFETY RAIL)



SECTION D-D

CURB TRANSITION DETAILS
F-SHAPE SAFETY BARRIER TO B4 CURB
WITH W-BEAM GUARDRAIL BARRIER



ISOMETRIC VIEW

NOTES:

1. FROM BACK SIDE OF CURB TRANSITION TO GUTTERLINE.
2. 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.
3. AS PER MNDOT 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS.
4. SEE ROAD PLANS TO VERIFY ACTUAL DIMENSION AND LOCATION.
5. ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE STRUCTURE. VERIFY IN FIELD.
6. SANDWICH ANCHOR PLATE BETWEEN RAIL BEAMS.
7. POSTS 1 AND 2 TO BE W8 x 21 X 8'0" MINIMUM LONG STEEL POST AND 8" X 8" X 14" SPACER BLOCK.
8. POSTS 3, 4, 5, AND 6 TO BE W6 x 9 X 6'0" MIN. LONG STEEL POST AND 6" X 8" X 14" SPACER BLOCK.
9. GUARDRAIL CENTERLINE HEIGHT IS 1'-9" FROM 0' TO 12'-6" FROM BRIDGE. HEIGHT TRANSITIONS FROM 1'-9" TO 1'-10" BETWEEN 12'-6" AND 25' FROM BRIDGE.

TRAFFIC BARRIER DESIGN SPECIAL

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

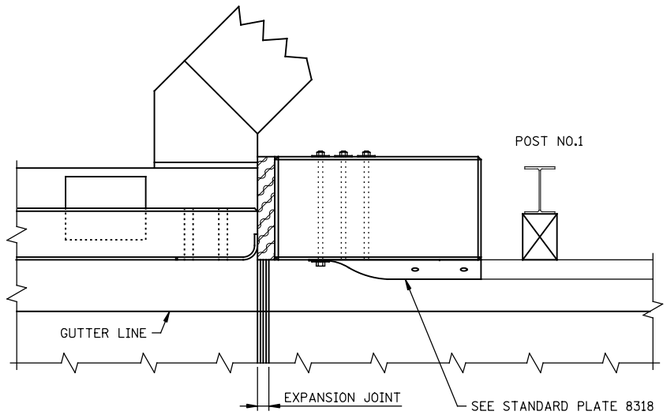
W-BEAM TRANSITION TO CONCRETE F-SHAPE
SAFETY RAIL WITH APPROACH CURB
(STEEL POST)

STANDARD PLAN 5-297.603 | 1 OF 1

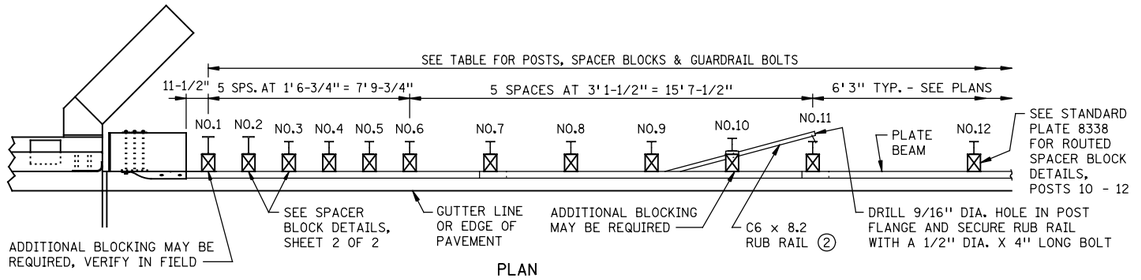
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 106 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
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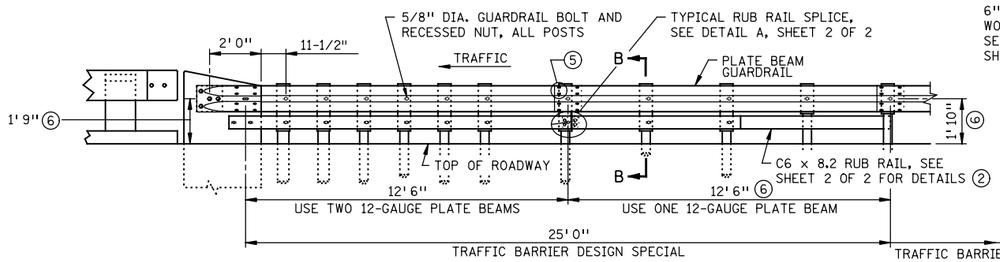
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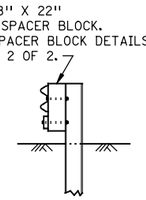
PLAN VIEW
(45° WINGWALL SHOWN)



PLAN

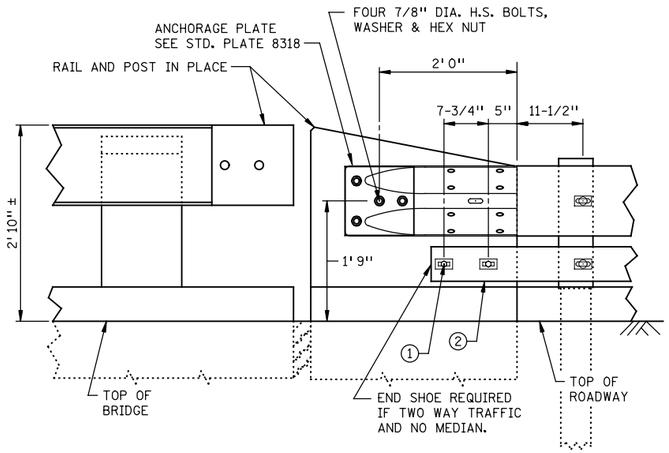


ELEVATION

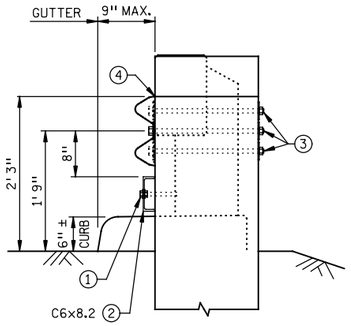


SECTION B-B

GENERAL ASSEMBLY DETAILS



INSIDE ELEVATION



END VIEW

CONNECTION DETAILS

POST, SPACER BLOCK & BOLT TABLE

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

NOTES:

SOIL COMPACTION AT END POST AS PER SPEC. 2451.

GUARDRAIL CONNECTION SHALL BE THE SAME AS REQUIRED ON BRIDGE RAILINGS, SEE BRIDGE DETAILS MANUAL FOR ADDITIONAL INFORMATION.

(1) 5/8" DIA. BOLTS WITH APPROVED CONCRETE ANCHORS EMBEDDED 5" IN END POST. LOCATE CONCRETE ANCHORS TO MISS BRIDGE REINFORCEMENT

(2) RUB RAIL SHALL BE USED WHEN THERE IS NO CURBING ON APPROACH PANEL.

(3) 7/8" DIA. H.S. BOLT OR EQUAL THREADED ROD, 3" X 2" X 1/4" PLATE WASHER AND HEX NUT (4 REQUIRED).

(4) TIMBER BLOCKING MAY BE REQUIRED BEHIND GUARDRAIL CONNECTION AND RUB RAIL DEPENDING ON CURB WIDTH.

(5) 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.

(6) GUARDRAIL CENTERLINE HEIGHT IS 1'-9" FROM 0' TO 12'-6" FROM BRIDGE. HEIGHT TRANSITIONS FROM 1'-9" TO 1'-10" BETWEEN 12'-6" AND 25' FROM BRIDGE.

TRAFFIC BARRIER DESIGN SPECIAL

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

STATE DESIGN ENGINEER

APPROVED: 5-27-2014

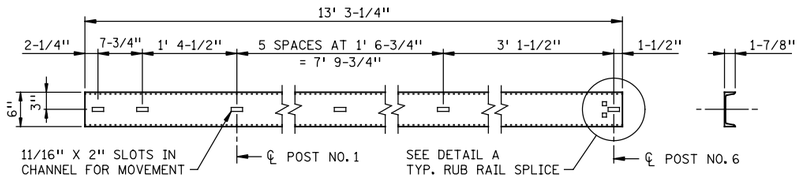
W-BEAM TRANSITION TO CONCRETE END POST
WITH OR WITHOUT APPROACH CURB
(STEEL POST)

STANDARD PLAN 5-297.619 | 1 OF 2

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 107 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
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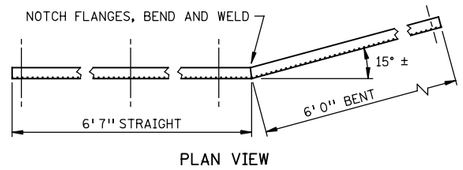


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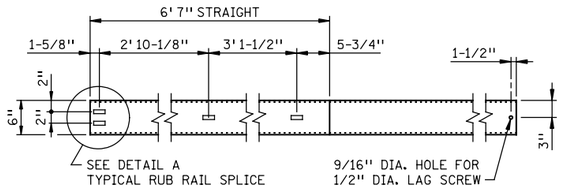
END VIEW

RUB RAIL STRAIGHT SECTION

NON-STANDARD RUB RAIL LENGTH



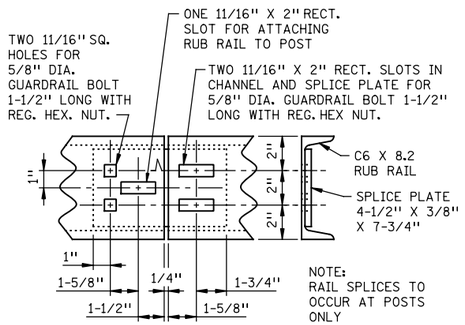
PLAN VIEW



ELEVATION

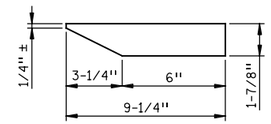
RUB RAIL BENT SECTION

NON-STANDARD RUB RAIL LENGTH

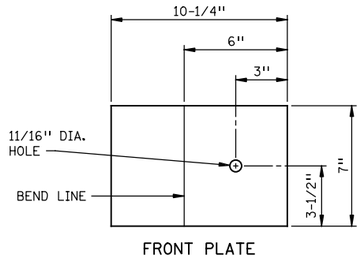


DETAIL A

TYPICAL RUB RAIL SPLICE



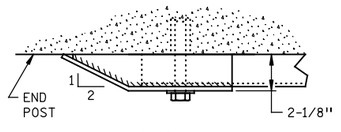
TOP & BOTTOM PLATES



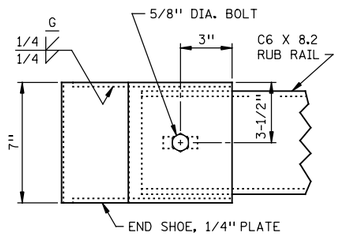
FRONT PLATE

END SHOE PLATE DETAILS

(1/4" PLATE)



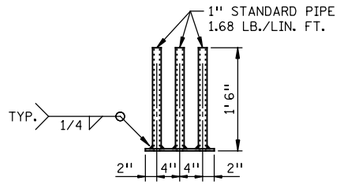
PLAN VIEW



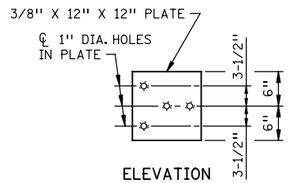
ELEVATION

RUB RAIL END SHOE ASSEMBLY

(USE IF TWO WAY TRAFFIC WITH NO MEDIAN)

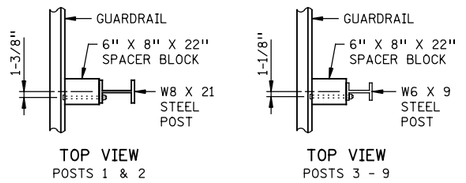


PLAN



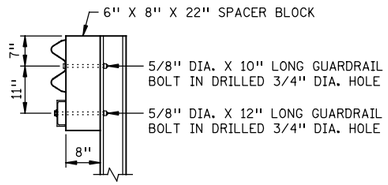
ELEVATION

GUARDRAIL CONNECTION DETAIL



TOP VIEW
POSTS 1 & 2

TOP VIEW
POSTS 3 - 9



END VIEW

SPACER BLOCK DETAILS

POSTS 1 - 9

NOTES:

GALVANIZE ALL HARDWARE PER SPEC. 3392.

USE END SHOE ON RUB RAIL IF TWO WAY TRAFFIC WITH NO MEDIAN.

RUB RAIL IS C6 x 8.2

STRUCTURAL STEEL PER SPEC. 3306 UNLESS OTHERWISE NOTED.

ALL SLOTTED HOLES ARE 11/16" x 2".

ALL SQUARE HOLES ARE 11/16".

GALVANIZE STRUCTURAL SHAPES PER SPEC. 3394 AFTER FABRICATION UNLESS OTHERWISE NOTED.

(1) VERIFY DIMENSION IN FIELD.

TRAFFIC BARRIER DESIGN SPECIAL

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

W-BEAM TRANSITION TO CONCRETE END POST

WITH OR WITHOUT APPROACH CURB

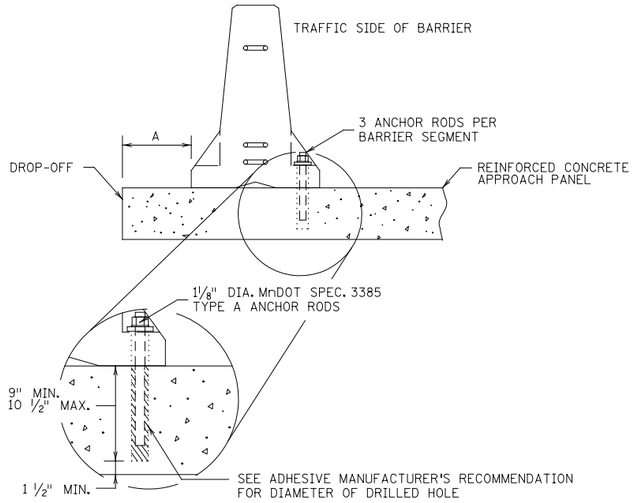
(STEEL POST)

STANDARD PLAN 5-297.619 | 2 OF 2

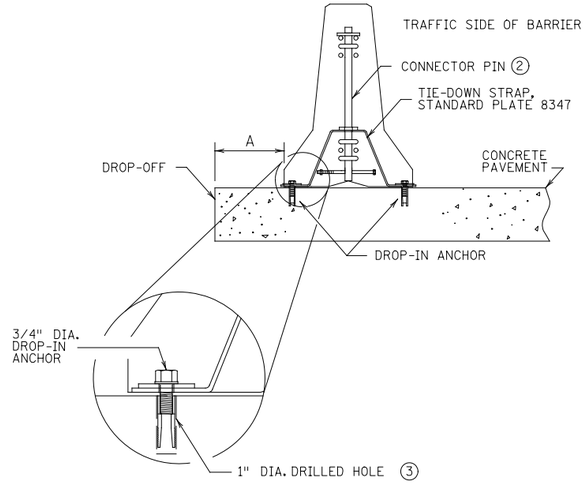
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
	COMM. NO. 0158933	SHEET 108 OF 688

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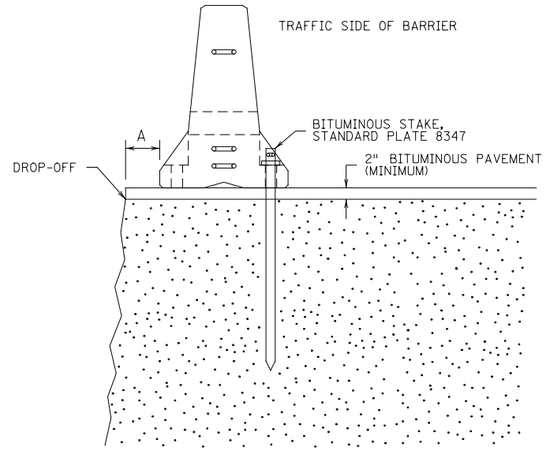
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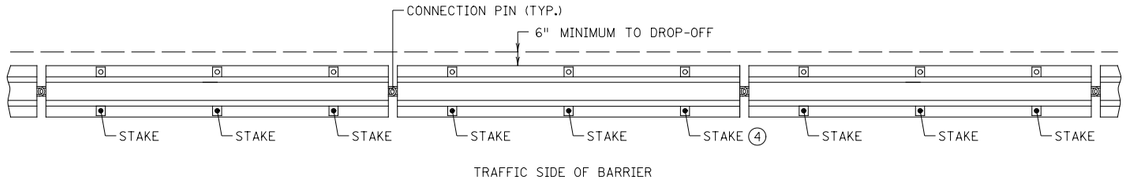
APPROACH PANEL BOLT-DOWN ANCHOR



TIE-DOWN STRAP ANCHOR

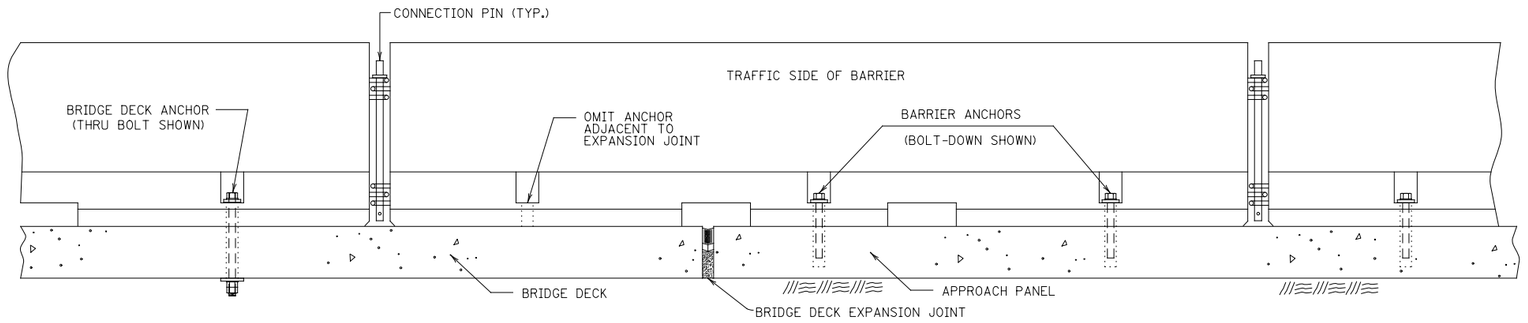


BITUMINOUS ANCHORAGE



BITUMINOUS ANCHORAGE AT VERTICAL CUT

PORTABLE CONCRETE BARRIER ANCHORAGES		
BARRIER OFFSET "A" (1)	PAVEMENT TYPE	ANCHORAGE TYPE
1" ≤ A < 2'	CONCRETE	3 BOLT-DOWN ANCHORS ON TRAFFIC FACE ON APPROACH PANEL
6" ≤ A < 2'	CONCRETE	TIE-DOWN STRAP ANCHOR
6" MINIMUM	BITUMINOUS	3 BITUMINOUS STAKES ON TRAFFIC SIDE
A ≥ 2'	CONCRETE	NO ANCHORAGE REQUIRED



ANCHOR TREATMENT AT BRIDGE DECK EXPANSION JOINT (5)
(EXPANSION LESS THAN 1-1/2")

NOTES:

BARRIER SECTIONS SHALL NOT BE PERMANENTLY INCORPORATED INTO CONSTRUCTION OR MAINTENANCE PROJECTS.

ALL BARRIERS ARE DESIGN 8337. SEE STANDARD PLATE 8337.

BARRIERS SHALL HAVE CONNECTION PINS.

(1) OFFSET DISTANCE TO DROP-OFF.

(2) RETAINER BOLT AND NUT REQUIRED.

(3) OR ANCHOR MANUFACTURER'S RECOMMENDED DIAMETER.

(4) 3 STAKES REQUIRED PER BARRIER SECTION, PLACED ON TRAFFIC SIDE OF BARRIER, WHEN ADJACENT TO DROP-OFF.

(5) REFER TO MnDOT BRIDGE STANDARD DETAIL B920 FOR ANCHORING BARRIER ONTO BRIDGE.

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

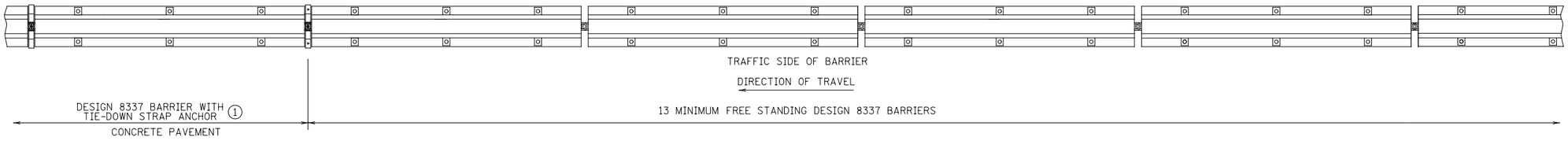
PORTABLE PRECAST CONCRETE BARRIER ANCHORING

STANDARD PLAN 5-297.680 | 1 OF 2

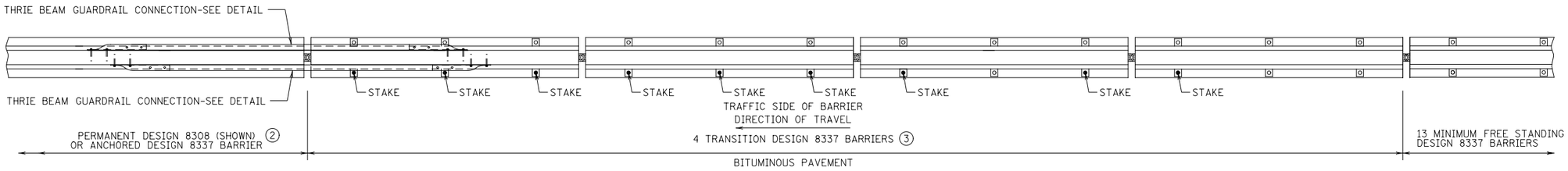
MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 109 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY		
	COMM. NO. 0158933		

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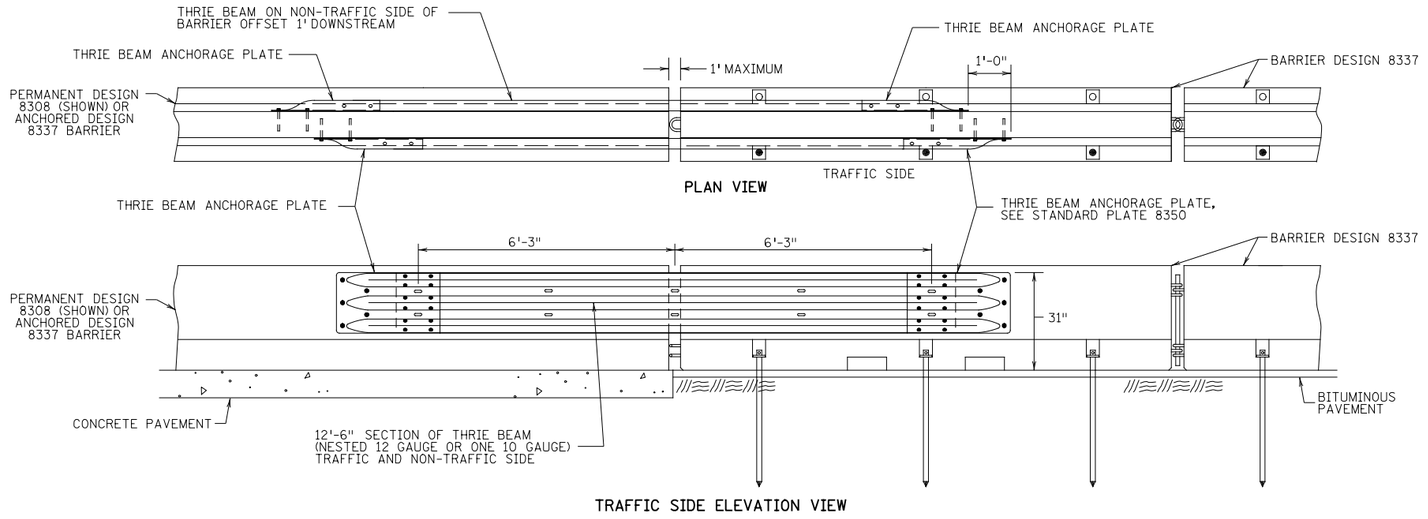
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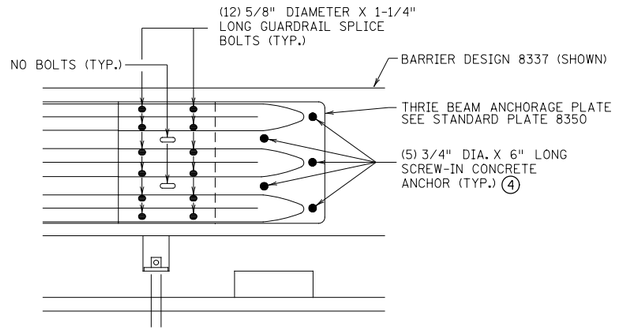
TRANSITION FROM FREE STANDING BARRIER TO TIE-DOWN STRAP ANCHORED BARRIER



TRANSITION FROM FREE STANDING BARRIER TO PERMANENT BARRIER OR ANCHORED PORTABLE BARRIER



THRIE BEAM GUARDRAIL CONNECTION DETAIL



THRIE BEAM ANCHORAGE PLATE HARDWARE DETAIL

NOTES:

BARRIER SECTIONS SHALL NOT BE PERMANENTLY INCORPORATED INTO CONSTRUCTION OR MAINTENANCE PROJECTS.

CONNECTION PINS REQUIRED WITH ALL DESIGN 8337 BARRIERS.

THRIE BEAM SHALL CONFORM TO AASHTO M 180.

(1) WHEN FREE STANDING BARRIERS CONNECT TO TIE-DOWN STRAP ANCHORED BARRIERS, TRANSITION BARRIERS AND THRIE BEAM CONNECTION NOT REQUIRED.

(2) THRIE BEAM GUARDRAIL CONNECTION REQUIRED BETWEEN TRANSITION BARRIERS AND PERMANENT OR RIGID BARRIERS.

(3) TRANSITION BARRIERS REQUIRED BETWEEN FREE STANDING DESIGN 8337 BARRIERS AND PERMANENT OR ANCHORED BARRIERS.

(4) REINFORCEMENT STEEL WITHIN BARRIER SHALL NOT BE DISTURBED WHEN ANCHORS ARE PLACED.

REVISED:

APPROVED: 5-27-2014

STATE DESIGN ENGINEER

PORTABLE PRECAST CONCRETE BARRIER ANCHORING
(TRANSITION SYSTEMS)

STANDARD PLAN 5-297.680 | 2 OF 2

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION	SHEET 110 OF 688
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	STANDARD PLANS SP 2515-21 (TH 63)	
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STAGING NARRATIVE

STAGE 1A – CONSTRUCTION

1. PLACE BYPASS 1.
2. PLACE BYPASS 5.
3. BEGIN CONSTRUCTION OF RIVER BRIDGE NO. 25033.
4. RECONSTRUCT NB TH 61 SHOULDER FOR BYPASS 4. THIS MUST BE DONE PRIOR TO THE CLOSURE OF SB TH 61.
5. CONSTRUCT MEDIAN TEMPORARY PAVEMENT ON TH 61 FOR BYPASS 4. THIS MUST BE DONE PRIOR TO THE CLOSURE OF SB TH 61.
6. BEGIN CONSTRUCTION OF BYPASS 2 AND TEMPORARY BRIDGE NO. 99205.
7. CONSTRUCT TH 63 FROM STA 110+50 TO TH 61 INTERSECTION.
8. CONSTRUCT RETAINING WALL 1 FROM STA 10+52 TO END OF WALL.
9. CONSTRUCT SB TH 61 FROM STA 45+25 TO STA 57+60 AND BYPASS 7.
10. CONSTRUCT E 3RD STREET CUL-DE-SAC UNDER TRAFFIC.
11. CONSTRUCT TH 63 WICK DRAIN AND SURCHARGE 825TH STREET E AND 825TH STREET W.
12. CONSTRUCT CAUSEWAY 1 AND 2.
13. CONSTRUCT EMBANKMENT FOR BYPASS 3.
14. CONSTRUCT TRAFFIC SIGNAL SYSTEM TH 61 / TH 63 INTERSECTION.
15. SEE BOX CULVERT STAGING NARRATIVE.

STAGE 1A – TRAFFIC

1. CONSTRUCT TH 61 MEDIAN AND SHOULDER TEMPORARY PAVEMENT USING LANE CLOSURES.
2. REDUCE NB TH 61 TRAFFIC TO SINGLE LANE AND SHIFT ONTO BYPASS 4.
3. CLOSE SB TH 61, REDUCE SB TRAFFIC TO SINGLE LANE AND SHIFT TRAFFIC USING BYPASS 4 ONTO NB TH 61.
4. SHIFT TH 63 SLIP RAMP TRAFFIC ONTO BYPASS 1.
5. CLOSE 825TH STREET AND UTILIZE DETOUR ROUTE.
6. SHIFT TH 63 TRAFFIC ONTO BYPASS 5.
7. CONSTRUCT E 3RD STREET CUL-DE-SAC UNDER TRAFFIC.

STAGE 1B – CONSTRUCTION

1. CONTINUE CONSTRUCTION OF RIVER BRIDGE NO. 25033.
2. CONTINUE CONSTRUCTION OF BYPASS 2 AND TEMPORARY BRIDGE NO. 99205.
3. CONSTRUCT NB TH 61 FROM STA 45+25 TO STA 57+20 AND BYPASS 4 TEMPORARY PAVEMENT.
4. CONSTRUCT TRAFFIC SIGNAL SYSTEM TH 61 / TH 63 INTERSECTION – ACTIVATE AT END OF STAGE.

STAGE 1B – TRAFFIC

1. CLOSE NB TH 61 AND SHIFT TRAFFIC USING BYPASS 6 AND BYPASS 7 ONTO SB TH 61 WITH A SINGLE LANE IN EACH DIRECTION.
2. DETOUR 825TH STREET E TRAFFIC.

STAGE 2 – CONSTRUCTION

1. CONTINUE CONSTRUCTION OF RIVER BRIDGE NO. 25033.
2. CONSTRUCT BRIDGE NO. 25034 AND BRIDGE NO. 25035.
3. CONSTRUCT TH 63 SLIP RAMP AND ACCESS ROAD.
4. CONSTRUCT RETAINING WALLS 2, 3, 4, 5, 6 AND 7.
5. CONSTRUCT BLUFF ST.
6. CONSTRUCT RETAINING WALL 1 FROM BEGINNING OF WALL TO STA 10+52.
7. CONSTRUCT BYPASS 3.
8. CONSTRUCT POTTER STREET UNDER TRAFFIC.
9. SEE BOX CULVERT STAGING NARRATIVE.

STAGE 2 – TRAFFIC

1. CLOSE TH 63 SLIP RAMP.
2. CLOSE BLUFF ST.
3. SHIFT TH 63 TRAFFIC ONTO BYPASS 2.
4. CONSTRUCT POTTER STREET UNDER TRAFFIC.
5. DETOUR 825TH STREET E TRAFFIC.

STAGING NARRATIVE

STAGE 3 – CONSTRUCTION

1. CONTINUE CONSTRUCTION OF RIVER BRIDGE NO. 25033.
2. REMOVE BYPASS 5.
3. CONSTRUCT TH 63 IN WISCONSIN.
4. CONSTRUCT 825TH STREET WEST.
5. SEE BOX CULVERT STAGING NARRATIVE.

STAGE 3 – TRAFFIC

1. SHIFT TH 63 TRAFFIC ONTO BYPASS 3.
2. DETOUR 825TH STREET E TRAFFIC.

STAGE 4A – CONSTRUCTION

1. REMOVE TEMPORARY PAVEMENT OF BYPASS 7 AND CONSTRUCT SB TH 61 FROM POTTER STREET TO STA 57+60.
2. REMOVE BYPASS 2 AND TEMPORARY BRIDGE NO. 99205.
3. REMOVE BYPASS 3.

STAGE 4A – TRAFFIC

1. SHIFT TH 63 TRAFFIC ONTO PROPOSED TH 63 ROADWAY.
2. REDUCE NB TH 61 AND SB TH 61 TO SINGLE LANES.
3. CLOSE SB TH 61 AND SHIFT SB TH 61 TRAFFIC USING BYPASS 8 AND BYPASS 9 ONTO NB TH 61.
4. DETOUR 825TH STREET E TRAFFIC.

STAGE 4B – CONSTRUCTION

1. REMOVE TEMPORARY PAVEMENT OF BYPASS 4 AND CONSTRUCT NB TH 61 FROM POTTER STREET TO STA 57+20.
2. CONSTRUCT ADM BARRIER.
3. CONSTRUCT ENTRANCE TO ACCESS ROAD.

STAGE 4B – TRAFFIC

1. REDUCE NB TH 61 AND SB TH 61 TO SINGLE LANES.
2. CLOSE NB TH 61 AND SHIFT NB TH 61 TRAFFIC USING BYPASS 10 AND BYPASS 11 ONTO SB TH 61.
3. DETOUR 825TH STREET E TRAFFIC.

STAGE 5 – CONSTRUCTION

1. CONSTRUCT 825TH STREET E.

STAGE 5 – TRAFFIC

1. DETOUR 825TH STREET E TRAFFIC.

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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

STAGING PLANS

SP 2515-21 (TH 63)

STAGING NARRATIVE

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BOX CULVERT STAGING NARRATIVE

STAGE 1A – CONSTRUCTION

1. PLACE TEMPORARY CULVERT INSIDE EXISTING BOX CULVERT.
2. CONSTRUCT EMBANKMENT FOR BYPASS 3.

STAGE 2 – CONSTRUCTION

1. CONSTRUCT COFFER DAMS AROUND BOX CULVERT AREA TO ALLOW FOR DEWATERING.
2. PLACE TEMPORARY SHORING ALONG EXISTING TH 63 AND PLACE TEMPORARY HEADWALL.
3. EXCAVATE – BYPASS 3 EMBANKMENT – SALVAGE TEMP CULVERT AND REMOVE 18 FEET OF EXISTING CULVERT AND THE EXISTING EAST SIDE APRON.
4. BEGIN DEWATERING AND FOUNDATION PREP.
5. PLACE BEDDING FOR NEW CULVERT INCLUDING APRON AREA.
6. INSTALL 16 FEET OF PROPOSED BOX CULVERT.
7. INSTALL SALVAGED TEMP CULVERT.
8. PLACE TEMPORARY SHORING AROUND NEW BOX CULVERT SECTIONS AND PLACE TEMPORARY HEADWALL.
9. REPLACE EMBANKMENT FOR BYPASS 3.
10. PAVE BYPASS 3 AND MOVE TRAFFIC TO BYPASS 3.
11. REMOVE REMAINING EXISTING BOX CULVERT AND CONSTRUCT REMAINING PROPOSED BOX CULVERT.
12. REMOVE THE ENDS OF THE COFFER DAM TO RESTORE WATER FLOW.

STAGE 3 – CONSTRUCTION

1. MOVE TRAFFIC OVER TO NEW TH 63 AFTER BRIDGE IS OPENED.
2. REPLACE COFFER DAMS AND DEWATER.
3. REMOVE BYPASS 3 EMBANKMENT AND TEMPORARY CULVERT.
4. INSTALL EAST SIDE BOX CULVERT APRON.
5. REMOVE COFFER DAMS AND REGRADE CHANNEL BOTTOM EAST AND WEST SIDES – PLACE RIPRAP AND FINAL EROSION CONTROL MEASURES.

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DRAWN BY S. MARTINS

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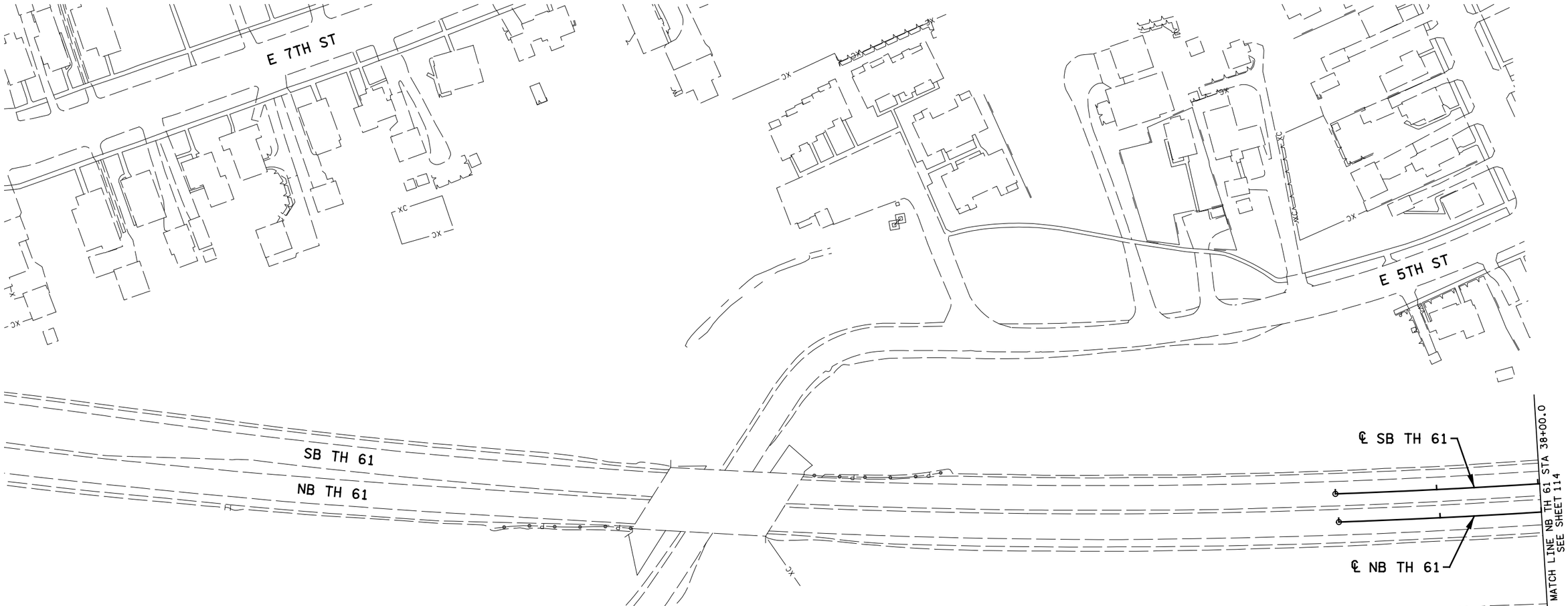
STAGING PLANS

SP 2515-21 (TH 63)

BOX CULVERT STAGING NARRATIVE

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LEGEND

- PERMANENT CONSTRUCTION
- TEMPORARY BYPASS CONSTRUCTION
- CONSTRUCT UNDER TRAFFIC
- GRADING ONLY
- TEMPORARY SHORING
- T • F — TEMPORARY FENCE
- FLOTATION SILT CURTAIN TYPE STILL WATER
- CP — CULVERT END CONTROLS
- STORM DRAIN INLET PROTECTION PLACED THIS STAGE
- RAPID STABILIZATION METHOD 2
- RAPID STABILIZATION METHOD 3 (A)
- MS — SILT FENCE (MACHINE SLICED)
- BR — SEDIMENT CONTROL LOG TYPE STRAW
- DI — PROPOSED STORM SEWER CONSTRUCTED THIS STAGE
- DI — PROPOSED STORM SEWER CONSTRUCTED IN PREVIOUS STAGES
- DI — EXISTING STORM SEWER
- PROPOSED WATERMAIN CONSTRUCTED THIS STAGE
- PROPOSED WATERMAIN CONSTRUCTED IN PREVIOUS STAGES
- EXISTING WATERMAIN
- PROPOSED SANITARY SEWER CONSTRUCTED THIS STAGE
- PROPOSED SANITARY SEWER CONSTRUCTED IN PREVIOUS STAGES
- EXISTING SANITARY SEWER

NOTES:

(A) RAPID STABILIZATION METHOD 3 MODIFIED TO INCLUDE HYDRAULIC REINFORCED FIBER MATRIX AT 3,900 LBS/ACRE.

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

0 50 100
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GENERAL NOTES:

ACCESS TO RESIDENCES SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE CONTRACT.

FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.

PLACE PERMANENT TURF ESTABLISHMENT AND EROSION CONTROL MEASURES ALONG THE PERMANENT CONSTRUCTION.

CONTRACTOR SHALL COORDINATE ALL EXCAVATION AND GRADING OPERATIONS WITH UTILITY COMPANIES.

RAPID STABILIZATION SHALL BE APPLIED IN AREAS NEEDED PER MNDOT SPEC. 2575.

SILT FENCE SHALL FOLLOW A SINGLE CONTOUR LINE AS CLOSE AS POSSIBLE WHEN PLACED.

ADDITIONAL EROSION CONTROL MEASURES MAY BE NEEDED AS CONDITIONS WARRANT. PLACE ADDITIONAL MEASURES AT THE DIRECTION OF THE ENGINEER.

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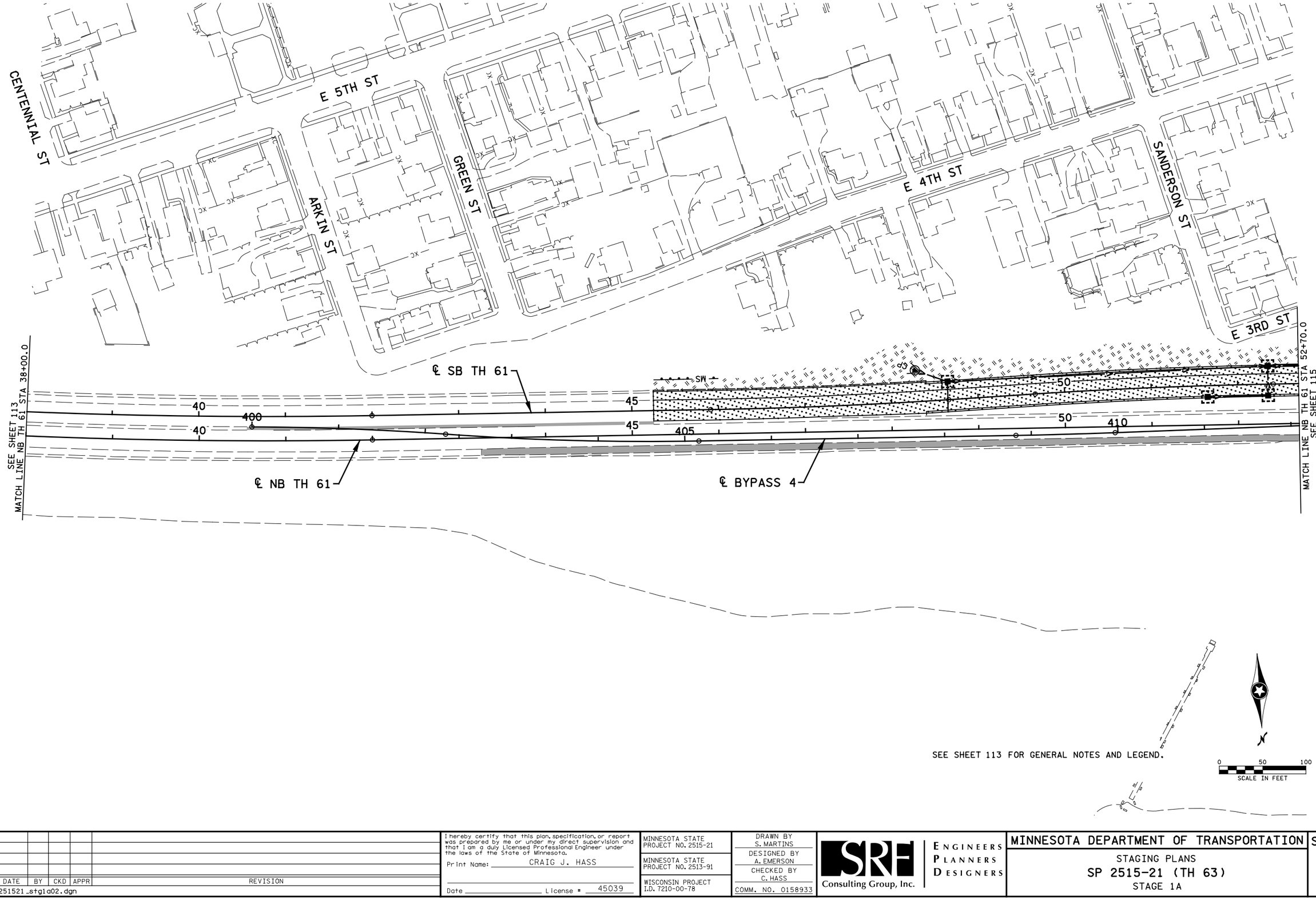
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STAGING PLANS
SP 2515-21 (TH 63)
STAGE 1A

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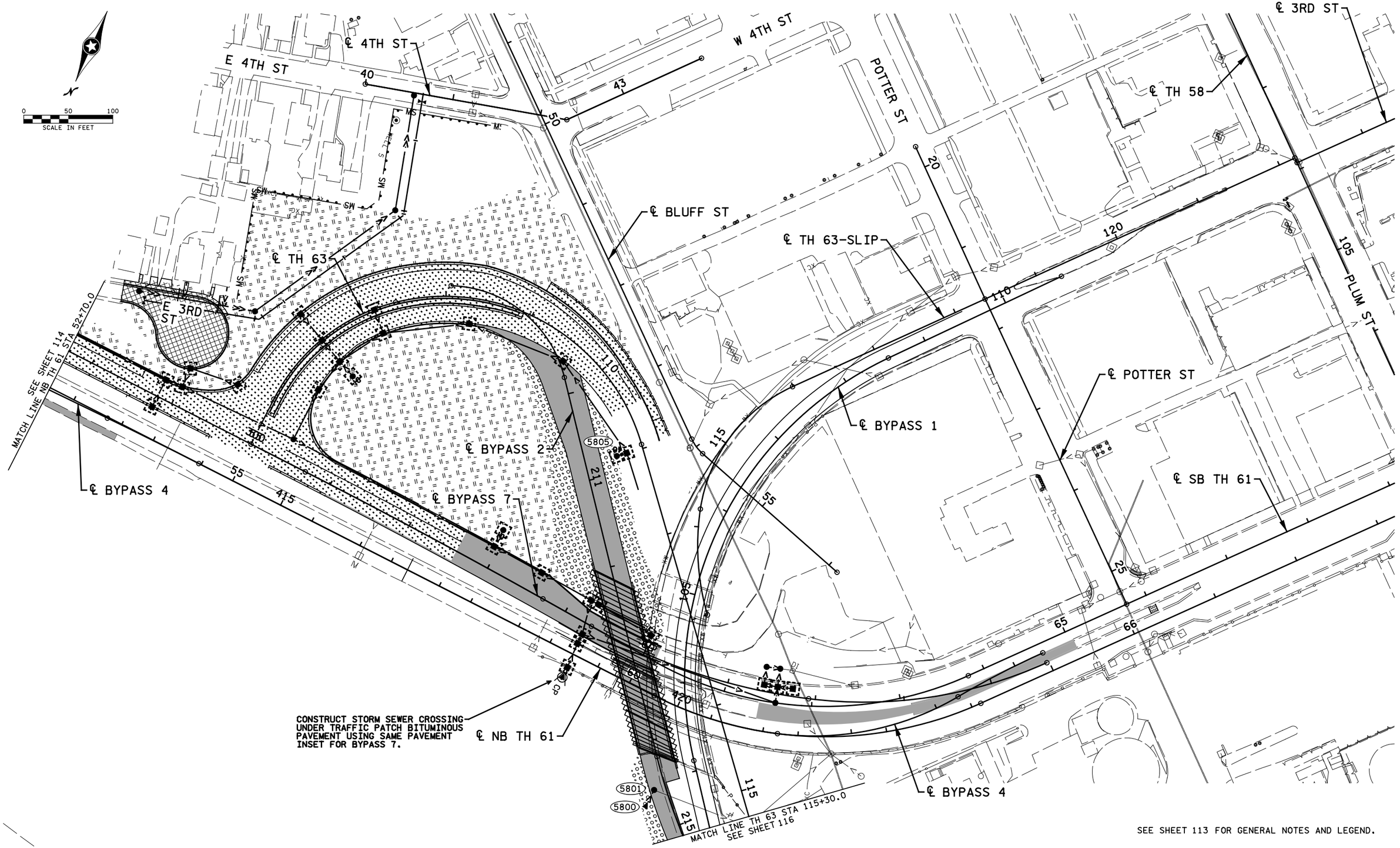
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STAGE 1A

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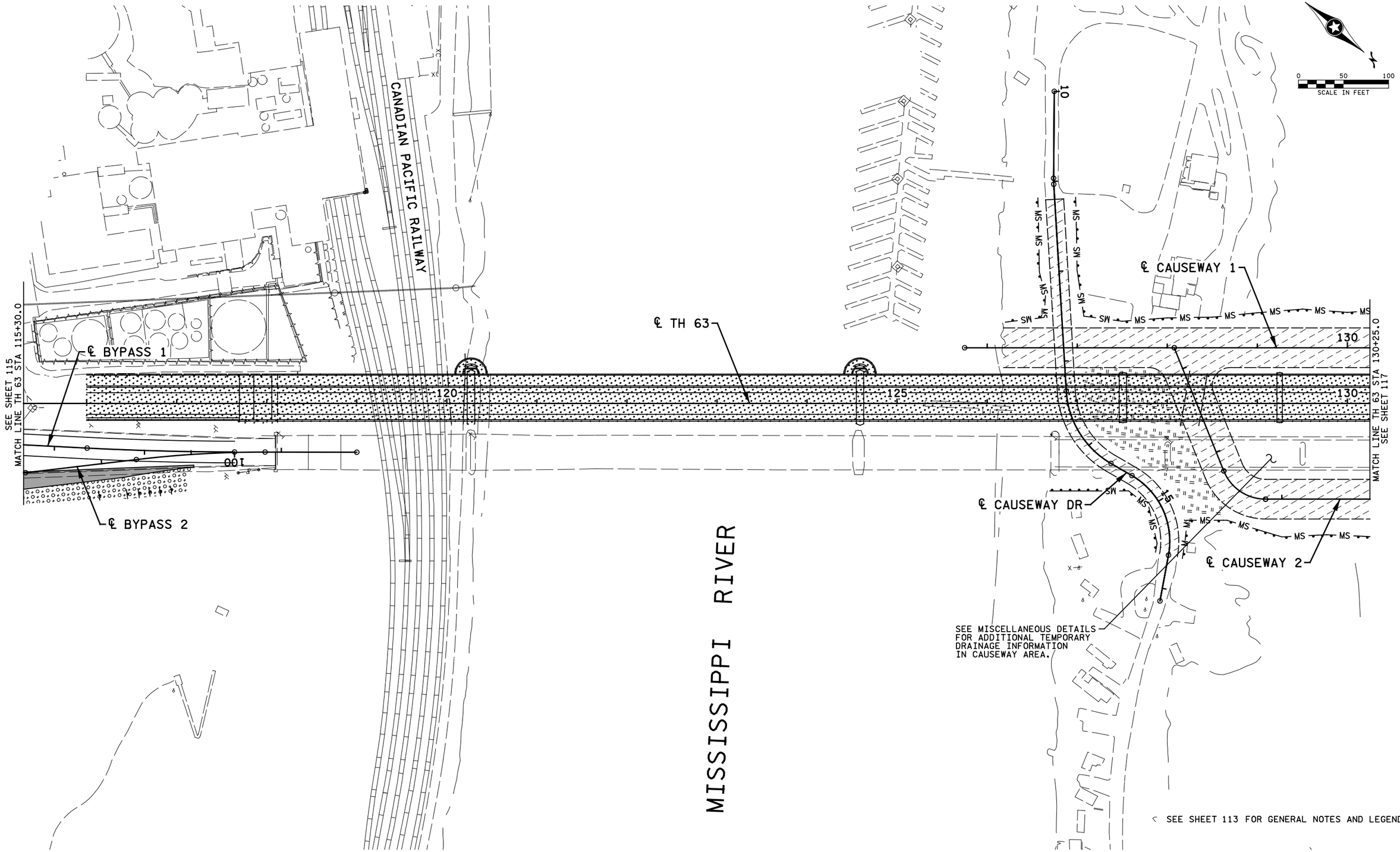
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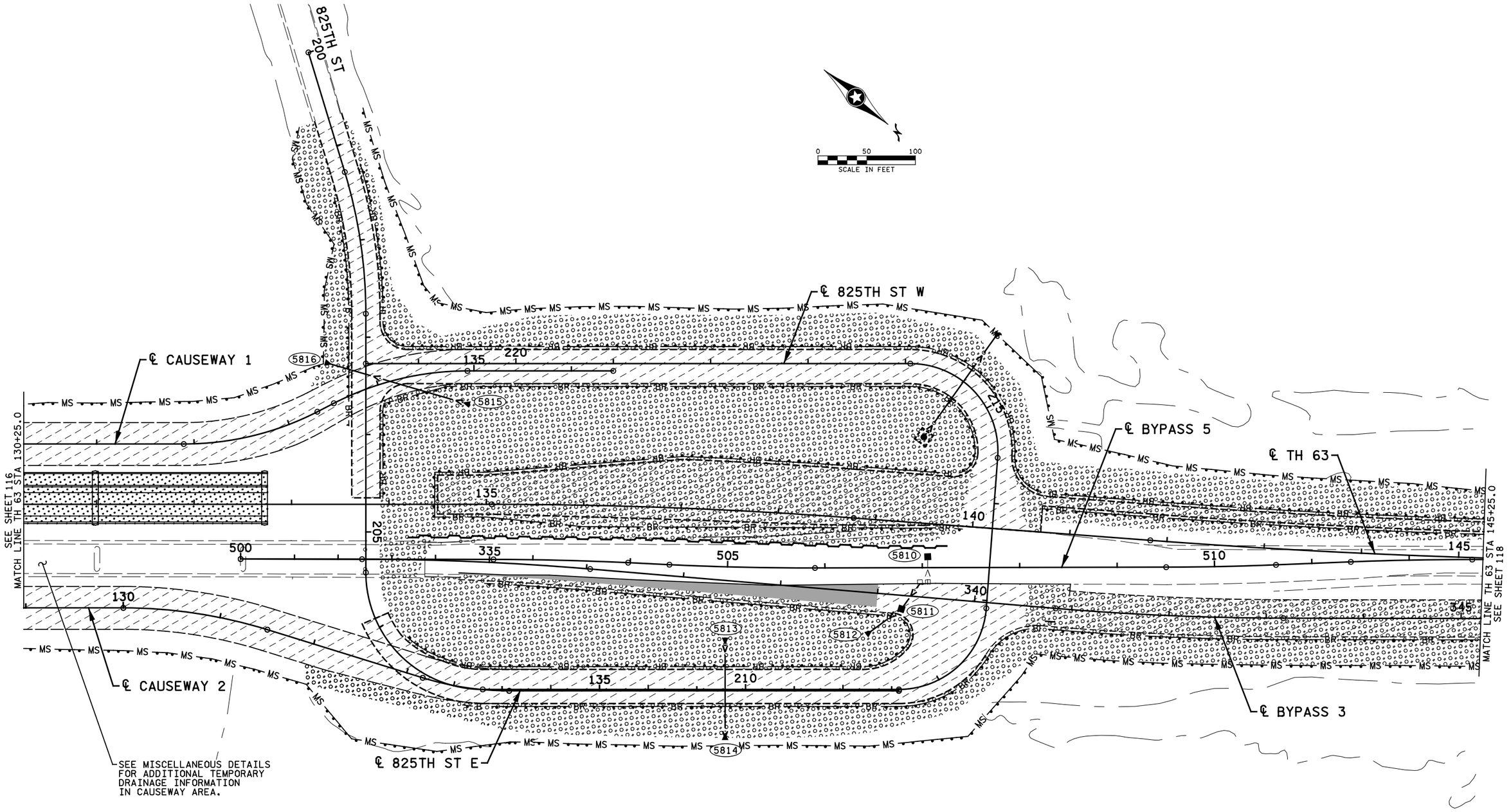
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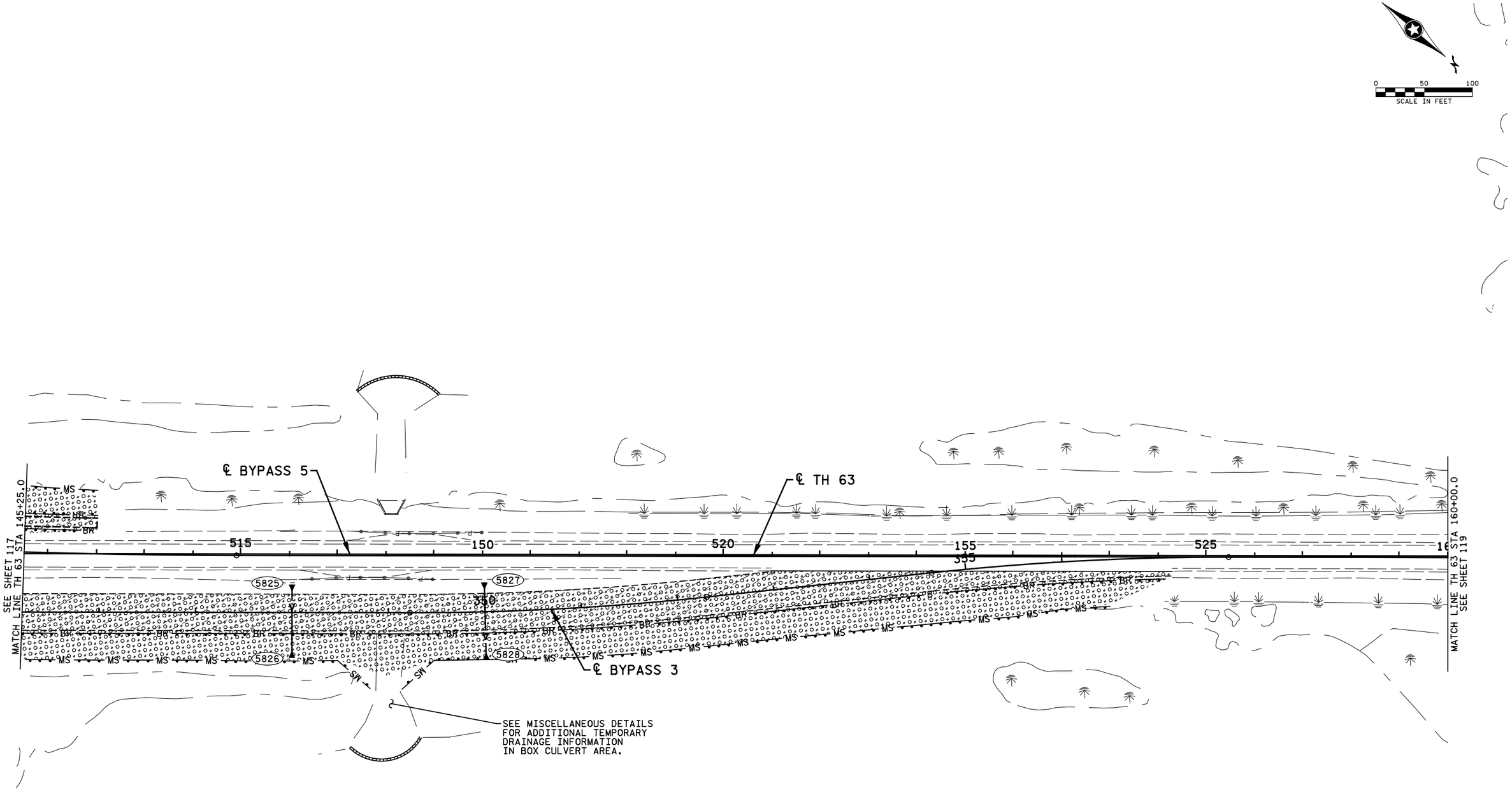
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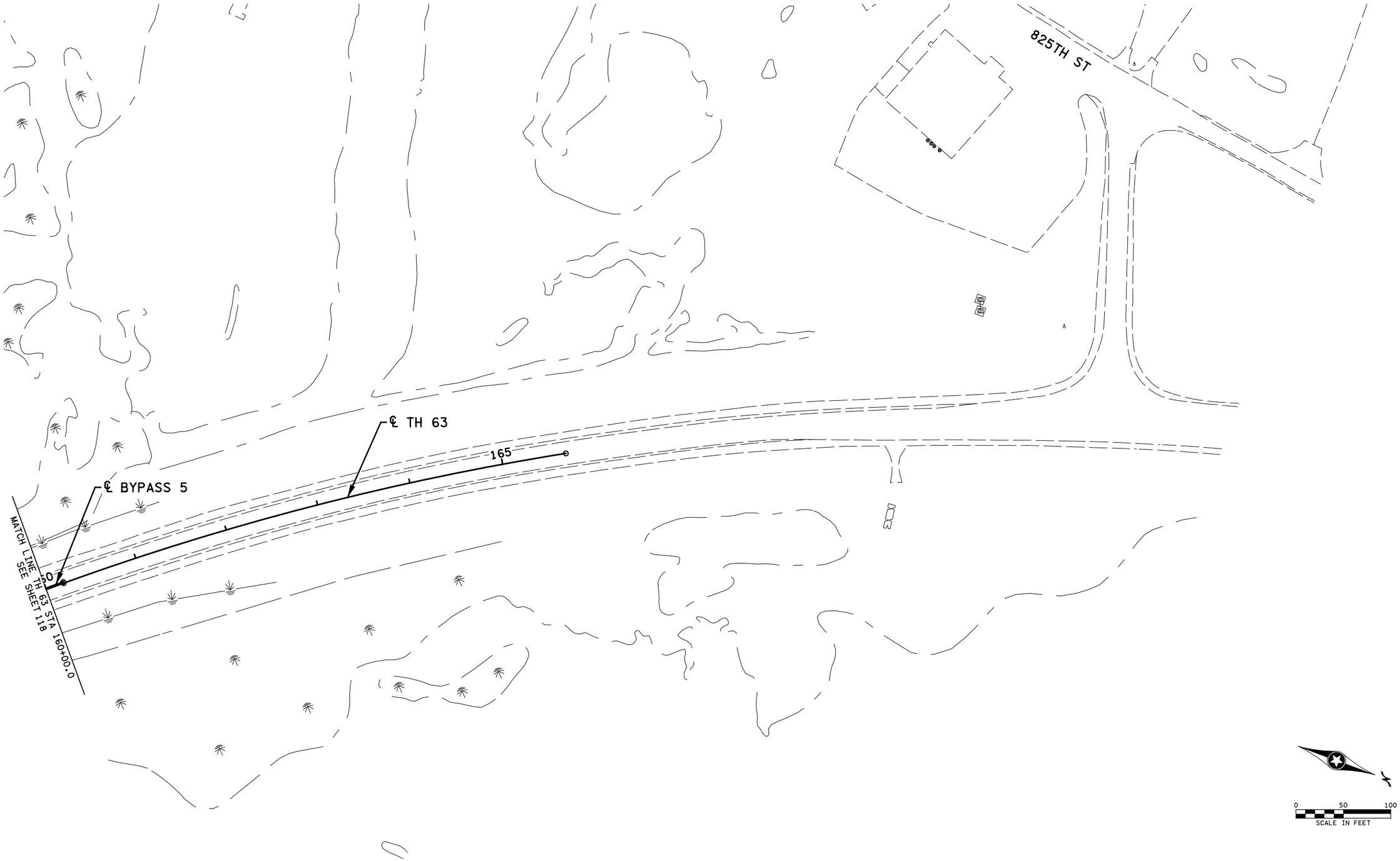
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SB TH 61

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MATCH LINE NB TH 61 STA 38+00.0
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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

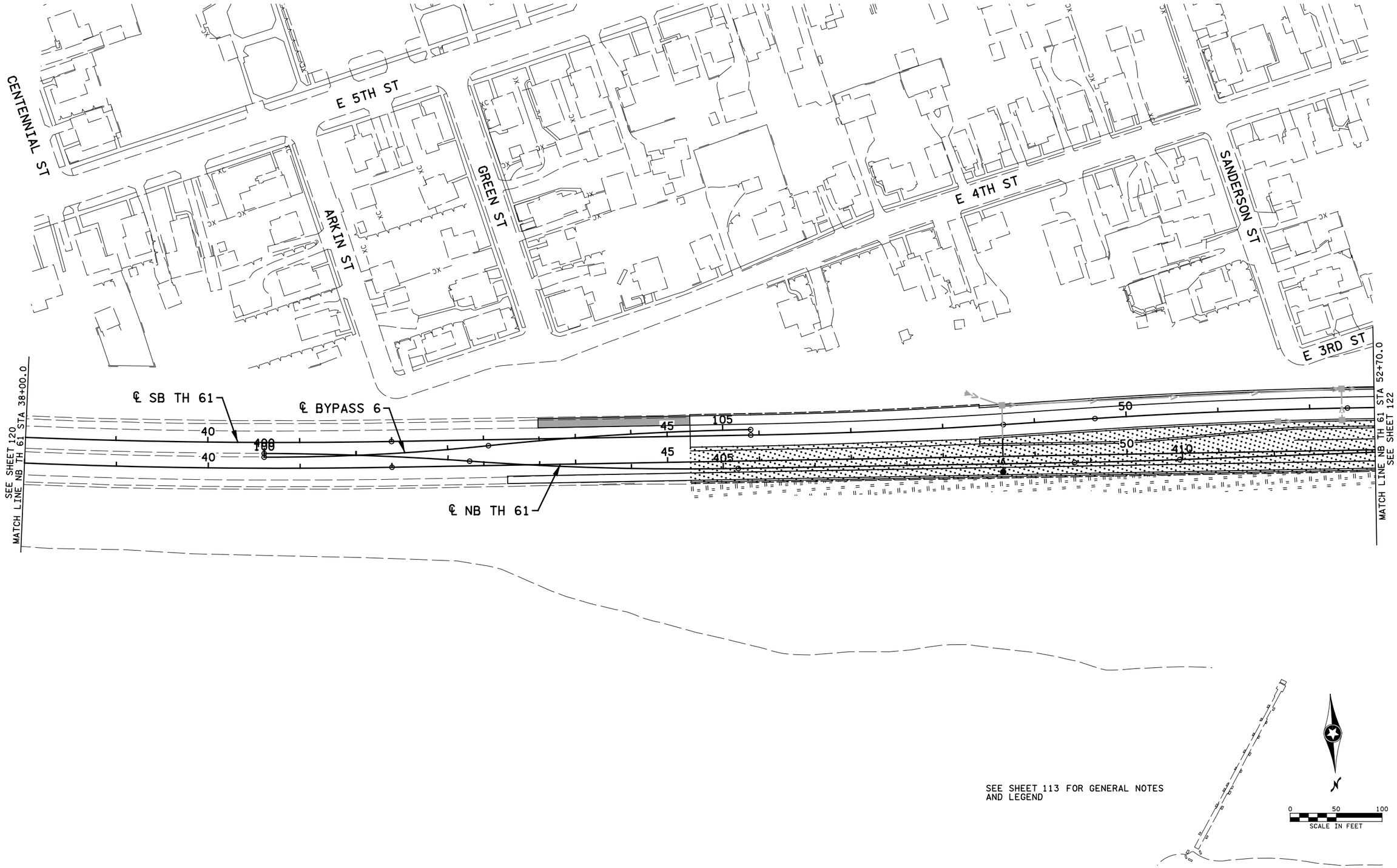
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SP 2515-21 (TH 63)

STAGE 1B

SHEET 120 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

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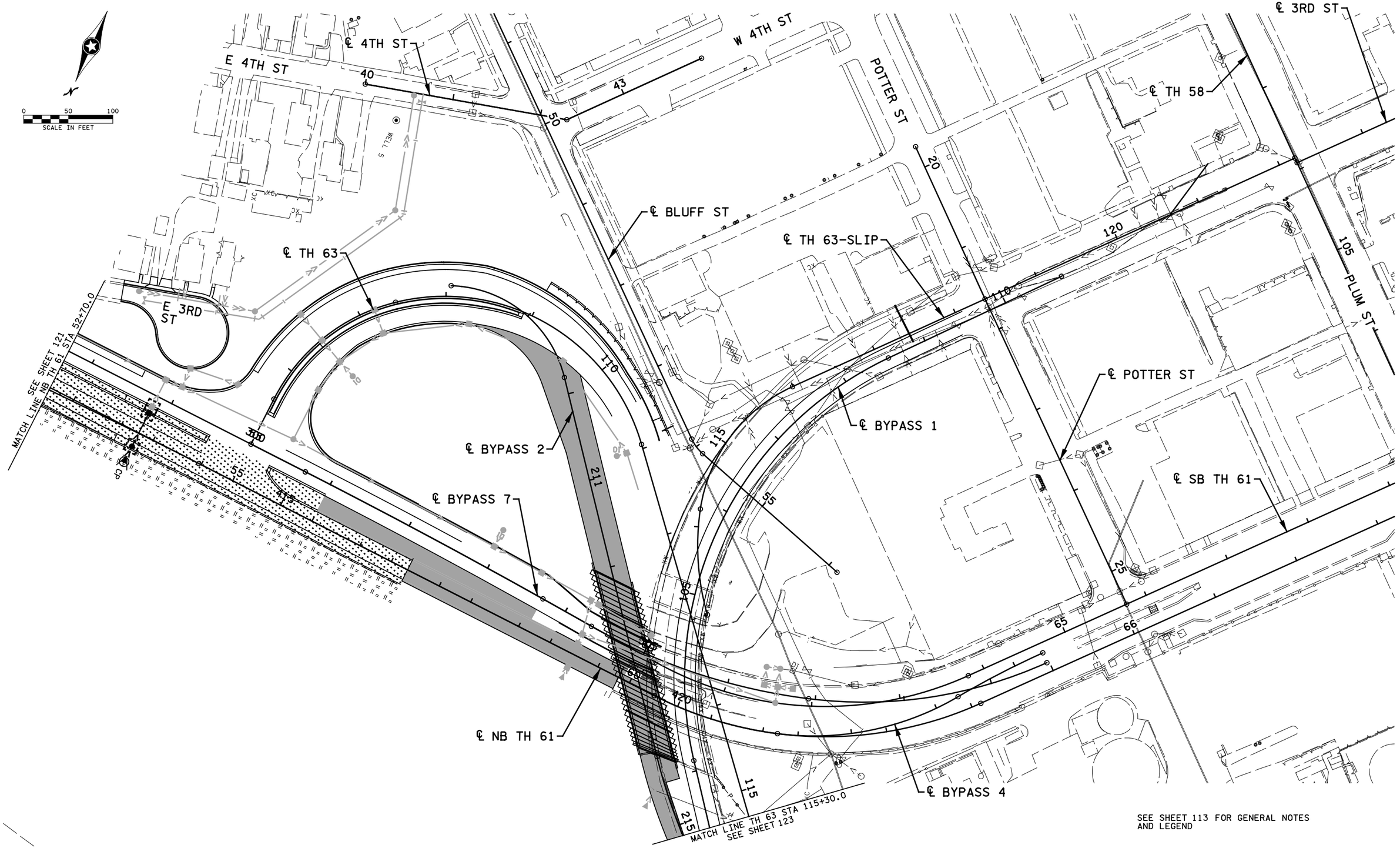
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SP 2515-21 (TH 63)

STAGE 1B

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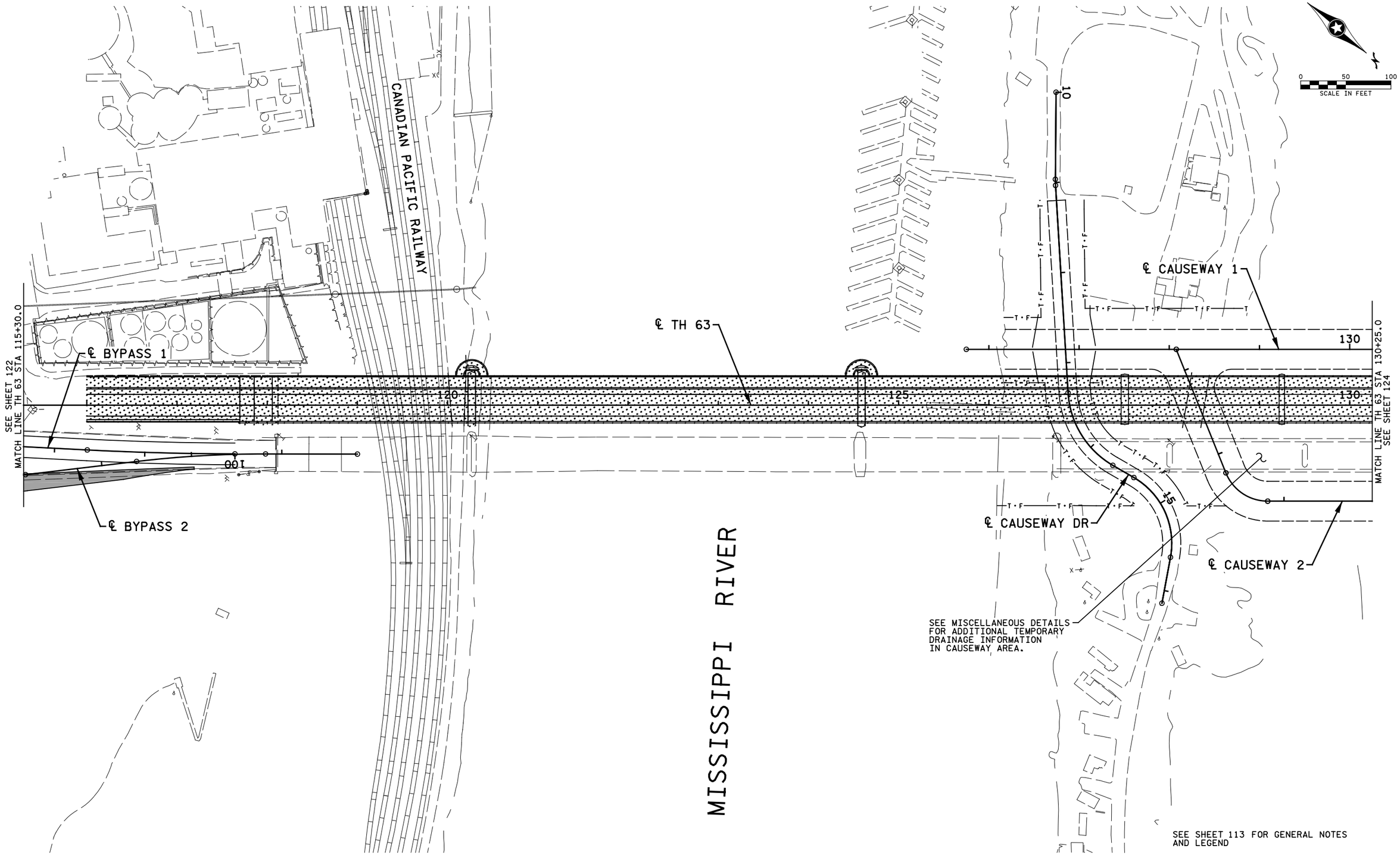
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SP 2515-21 (TH 63)

STAGE 1B

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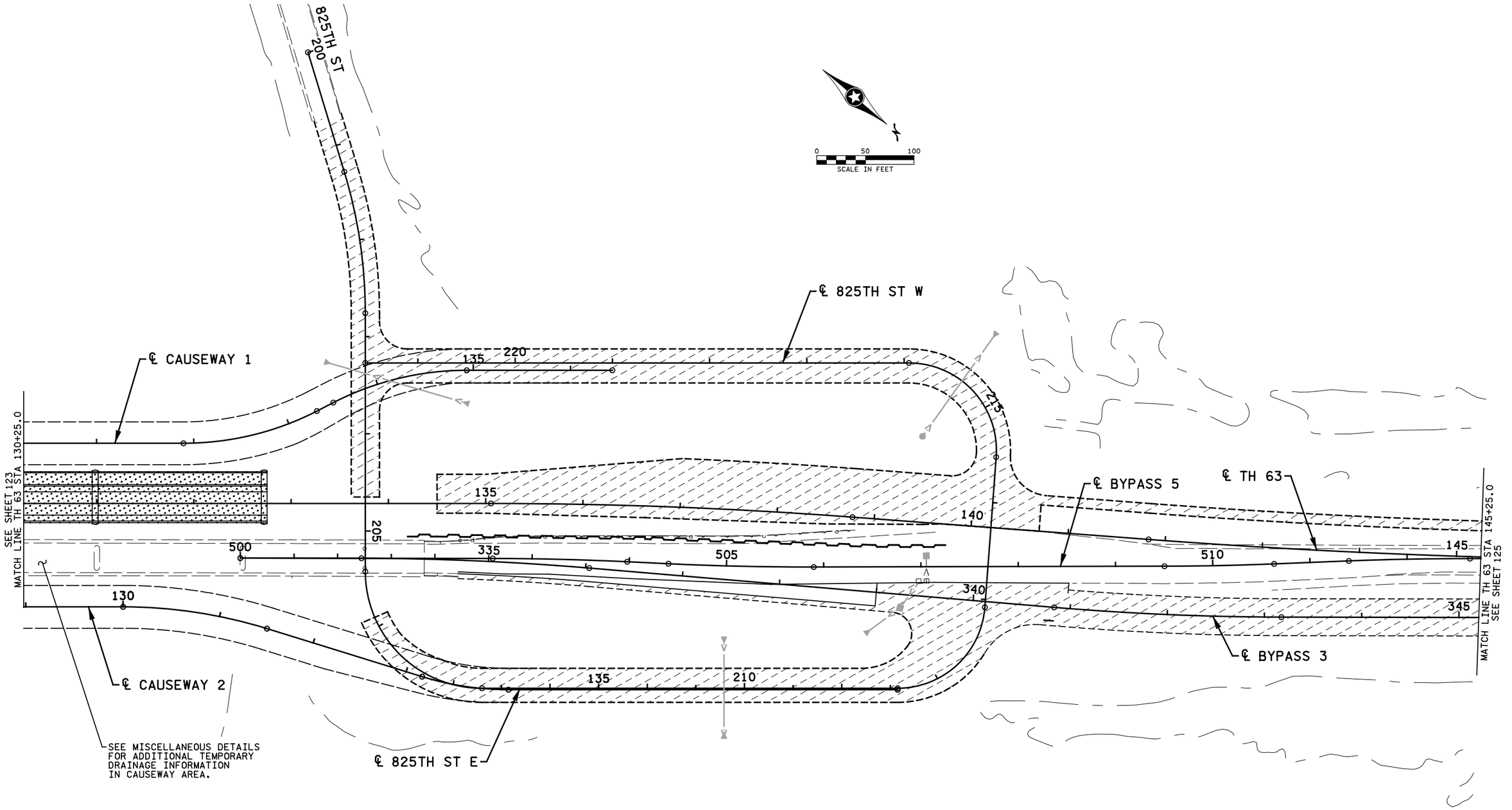
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SP 2515-21 (TH 63)

STAGE 1B

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MINNESOTA DEPARTMENT OF TRANSPORTATION

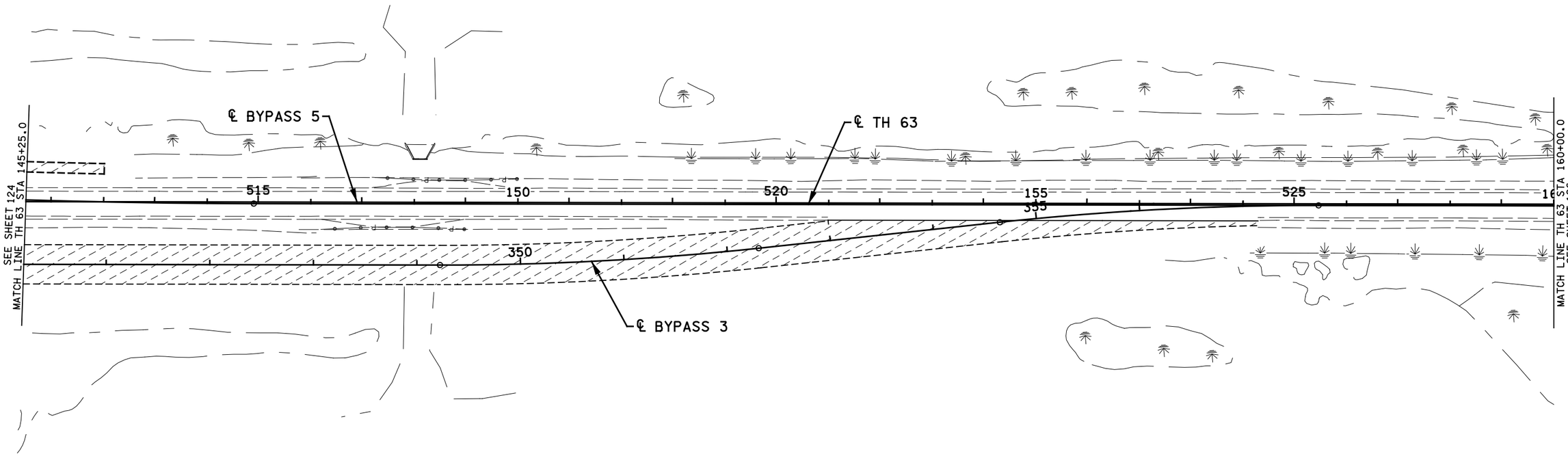
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SP 2515-21 (TH 63)

STAGE 1B

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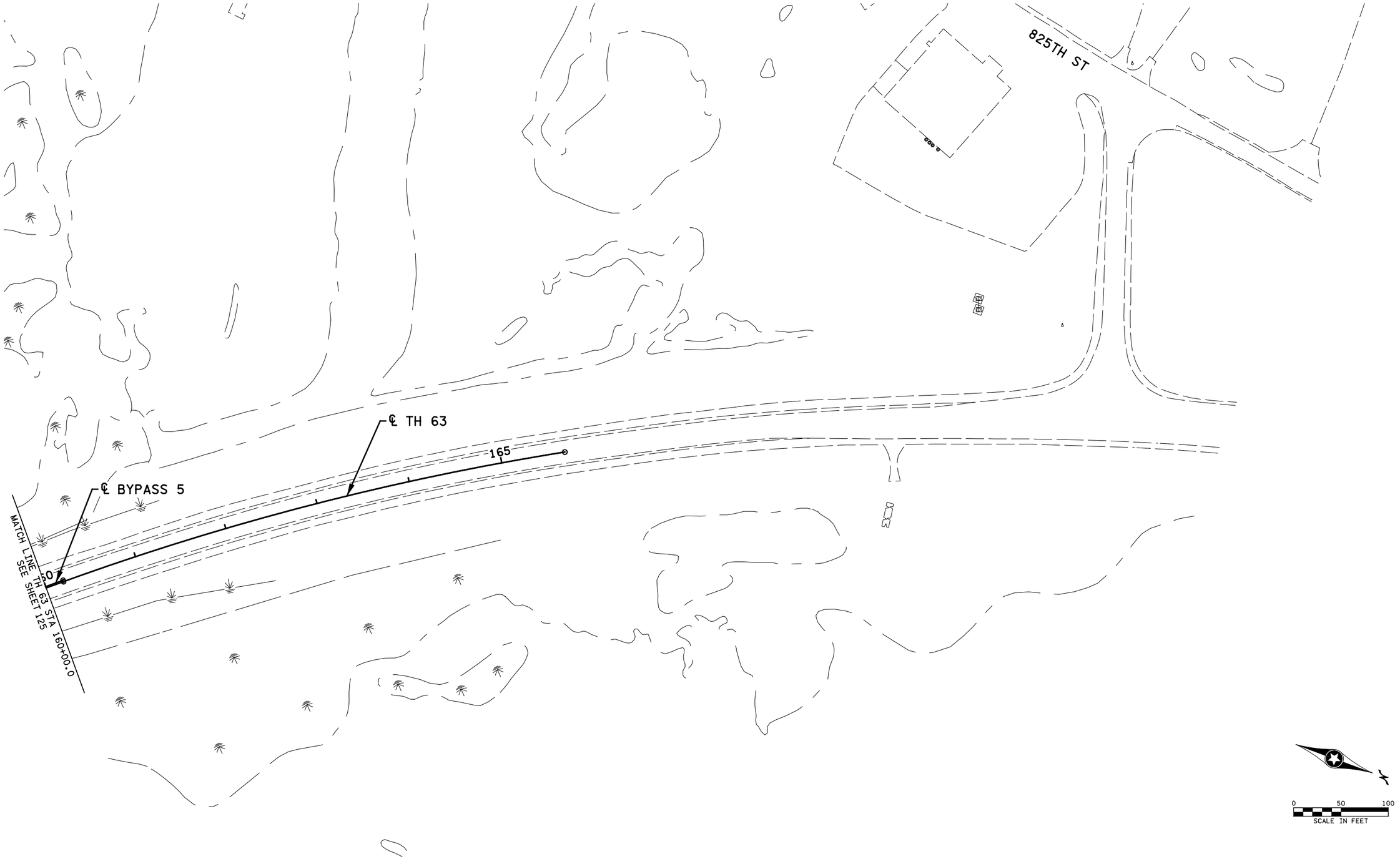
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SP 2515-21 (TH 63)

STAGE 1B

SHEET 125 OF 688

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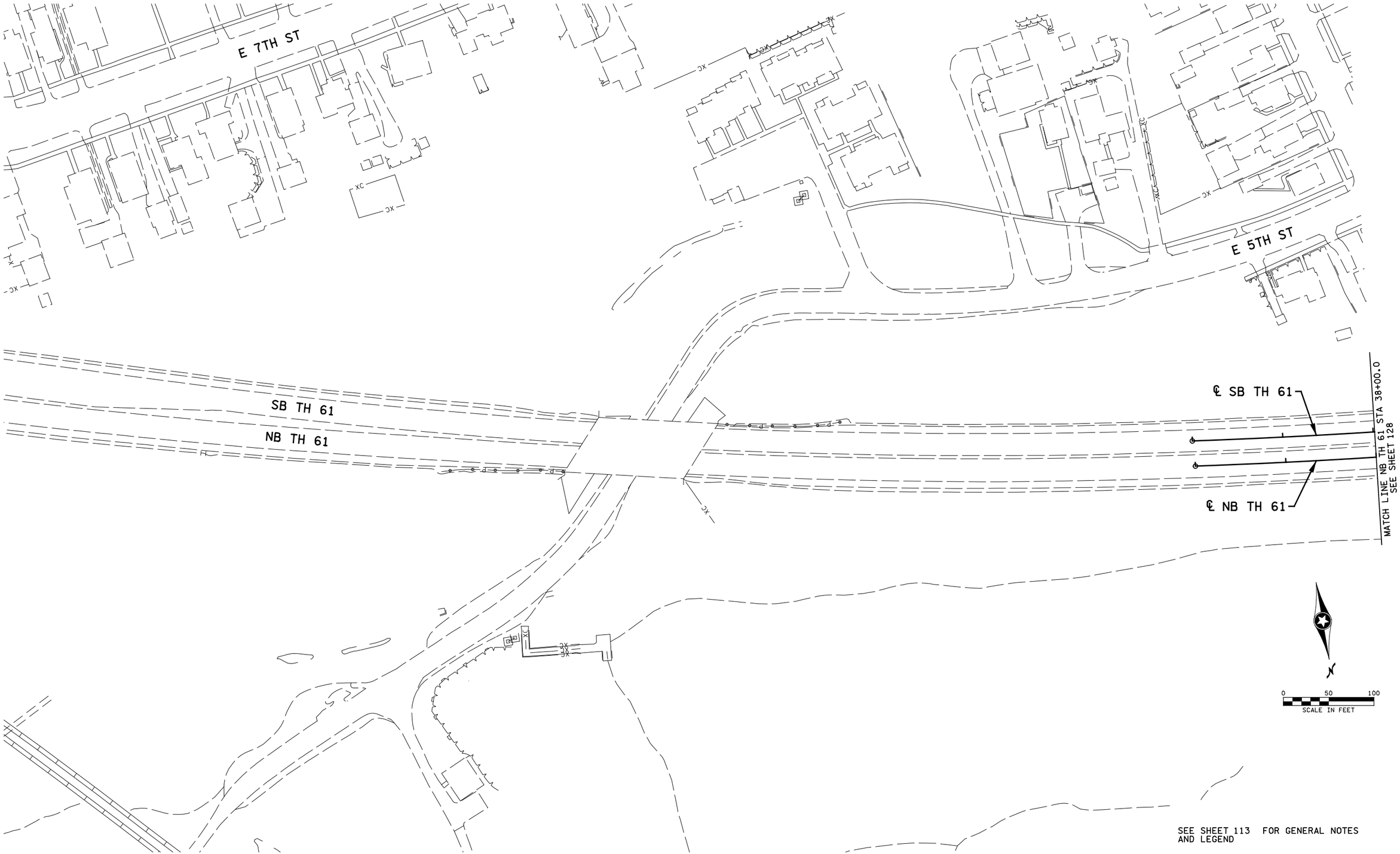
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SP 2515-21 (TH 63)

STAGE 1B

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NO	DATE	BY	CKD	APPR	REVISION

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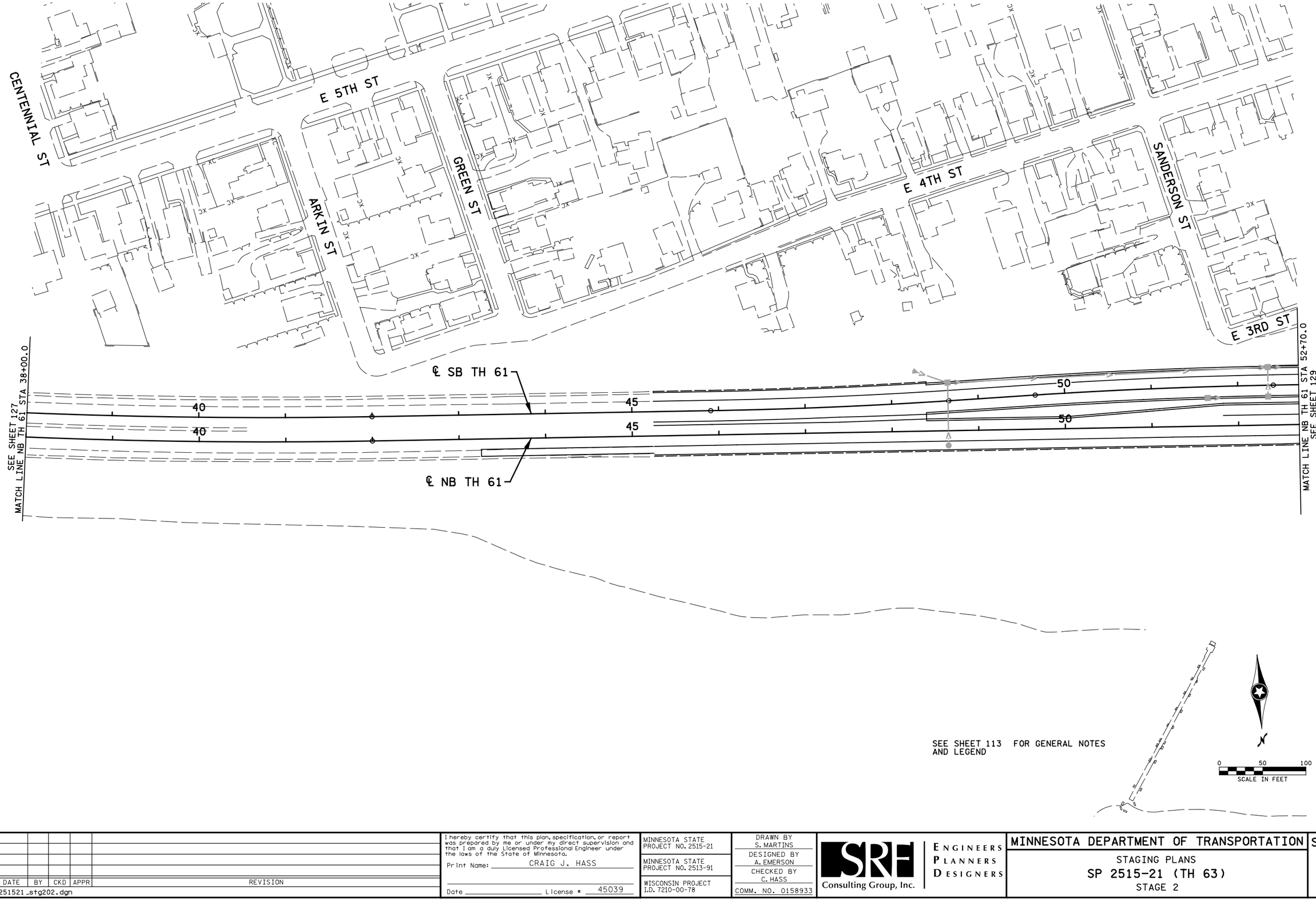
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SP 2515-21 (TH 63)

STAGE 2

SHEET 127 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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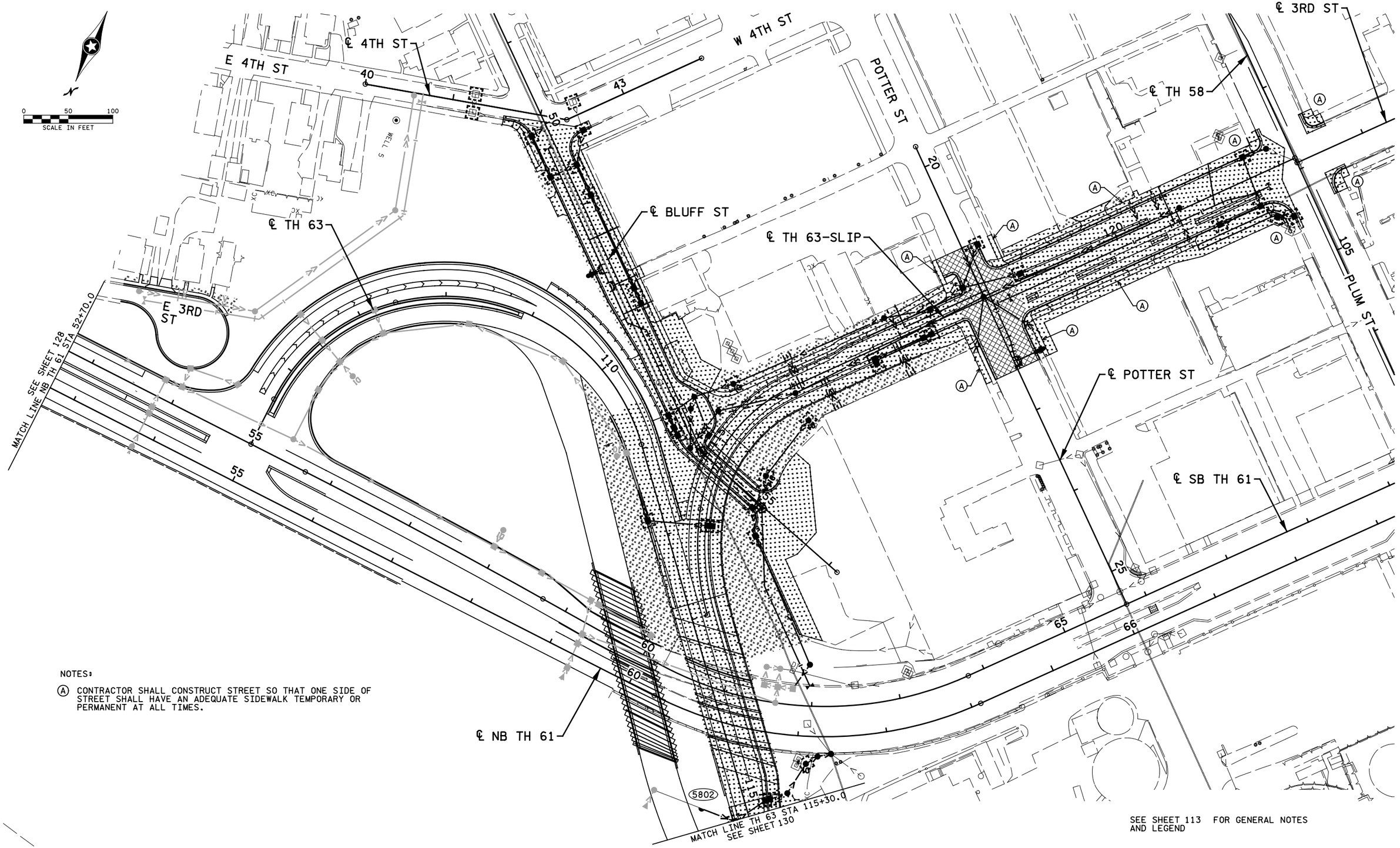
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 2

SHEET 128 OF 688

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6/2/2016
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NOTES:

(A) CONTRACTOR SHALL CONSTRUCT STREET SO THAT ONE SIDE OF STREET SHALL HAVE AN ADEQUATE SIDEWALK TEMPORARY OR PERMANENT AT ALL TIMES.

SEE SHEET 113 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA DEPARTMENT OF TRANSPORTATION

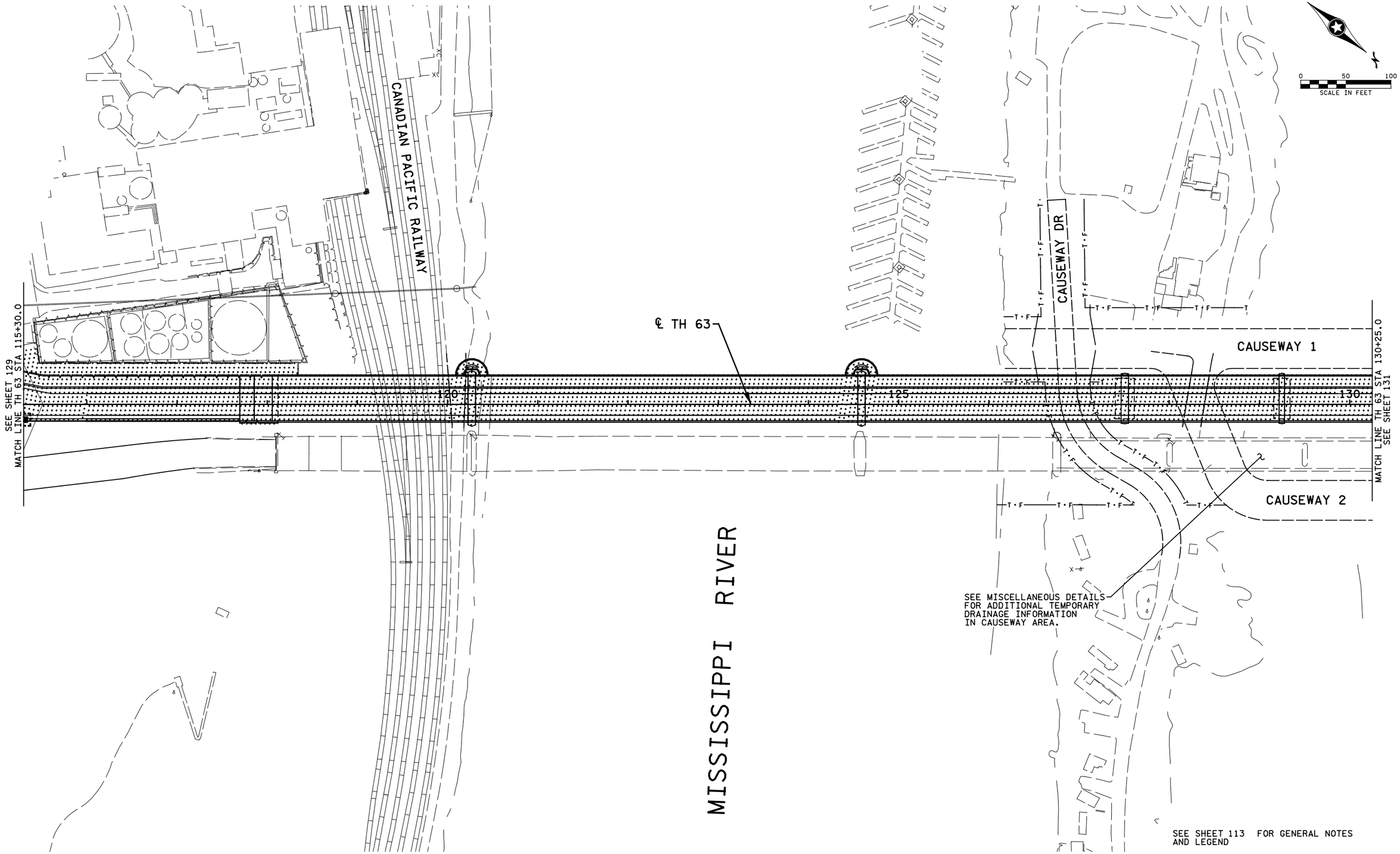
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 2

SHEET 129 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

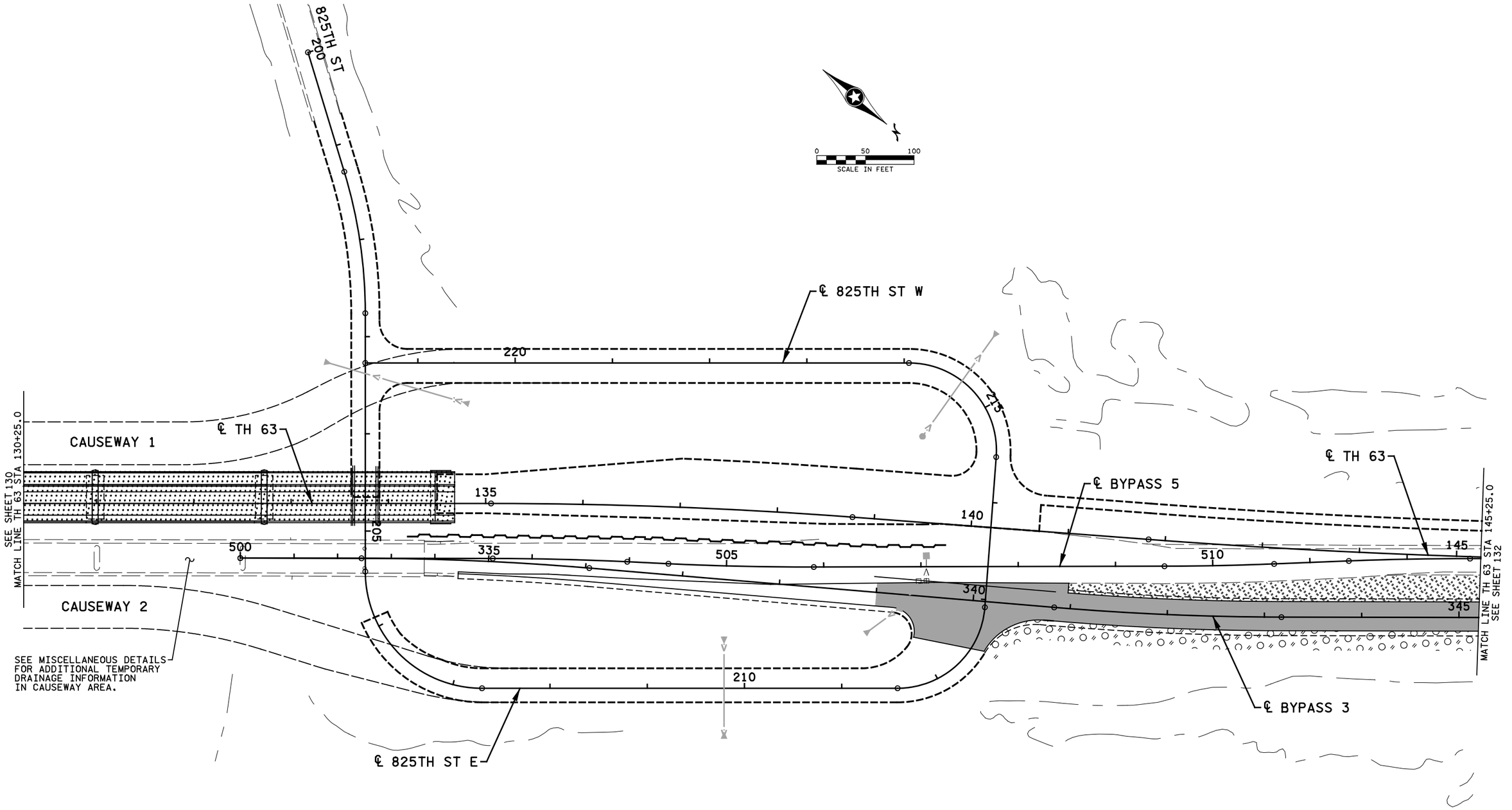
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 2

SHEET 130 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

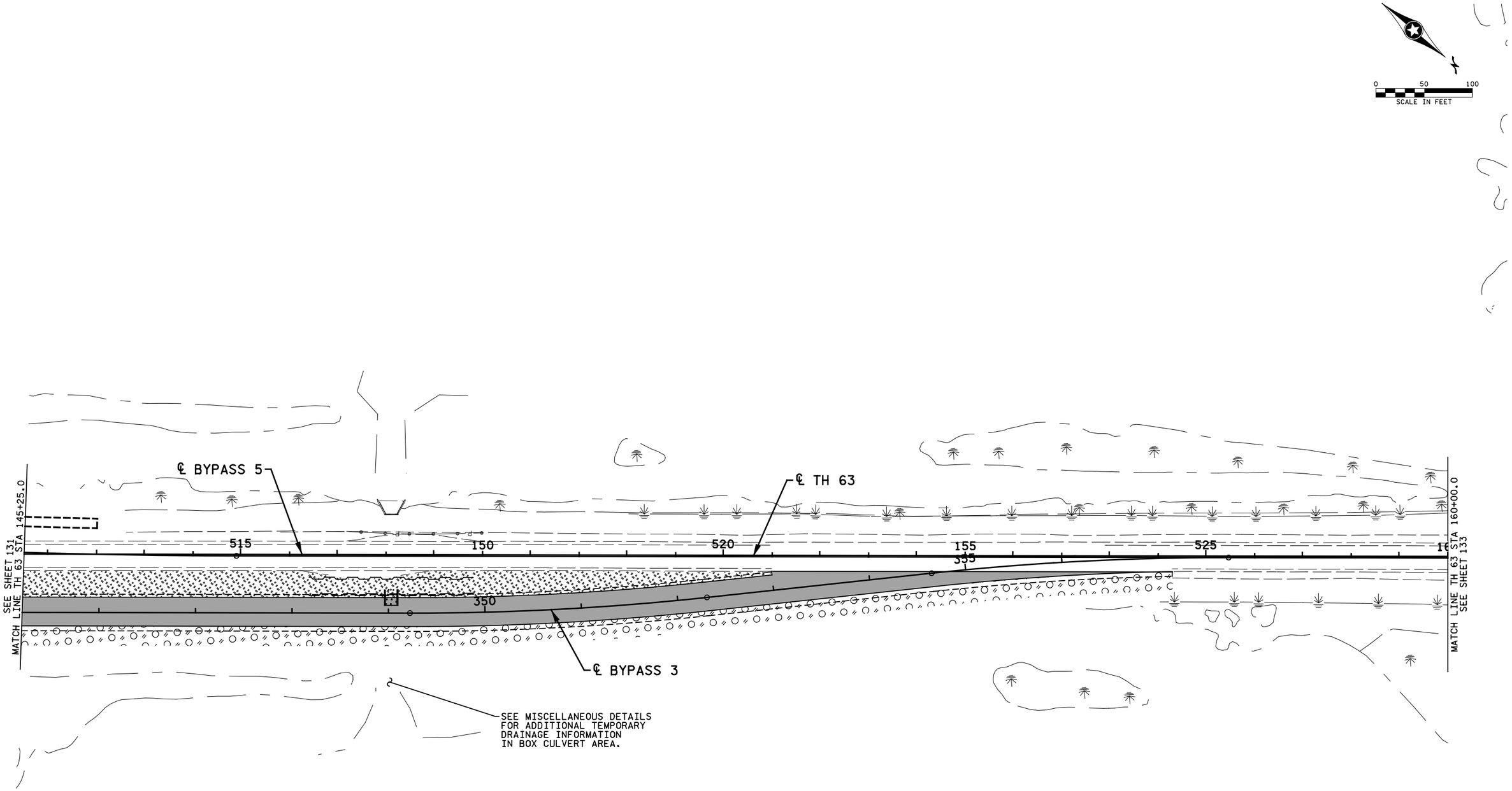
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SP 2515-21 (TH 63)

STAGE 2

SHEET 131 OF 688

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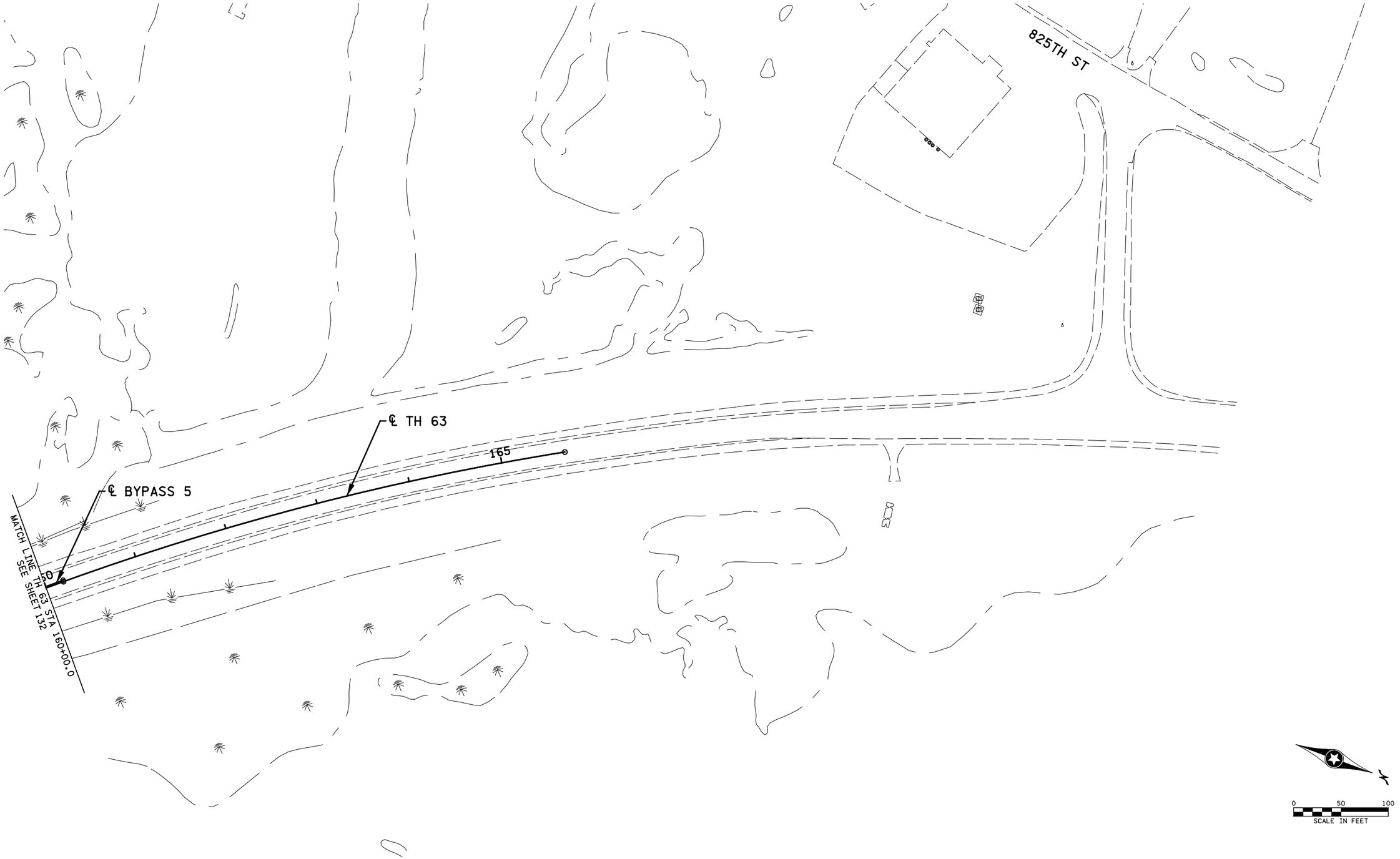
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SP 2515-21 (TH 63)

STAGE 2

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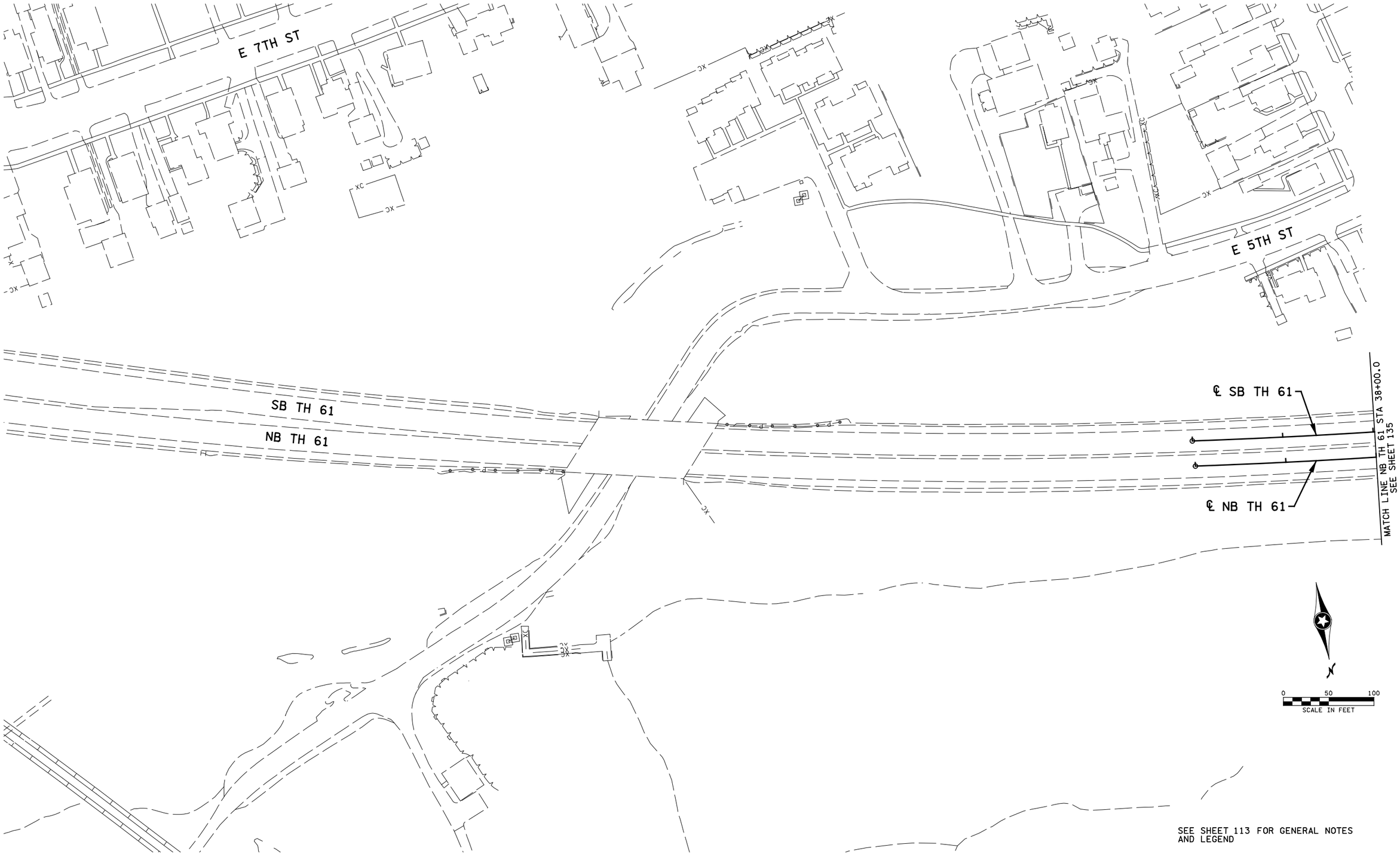
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SP 2515-21 (TH 63)

STAGE 2

SHEET 133 OF 688

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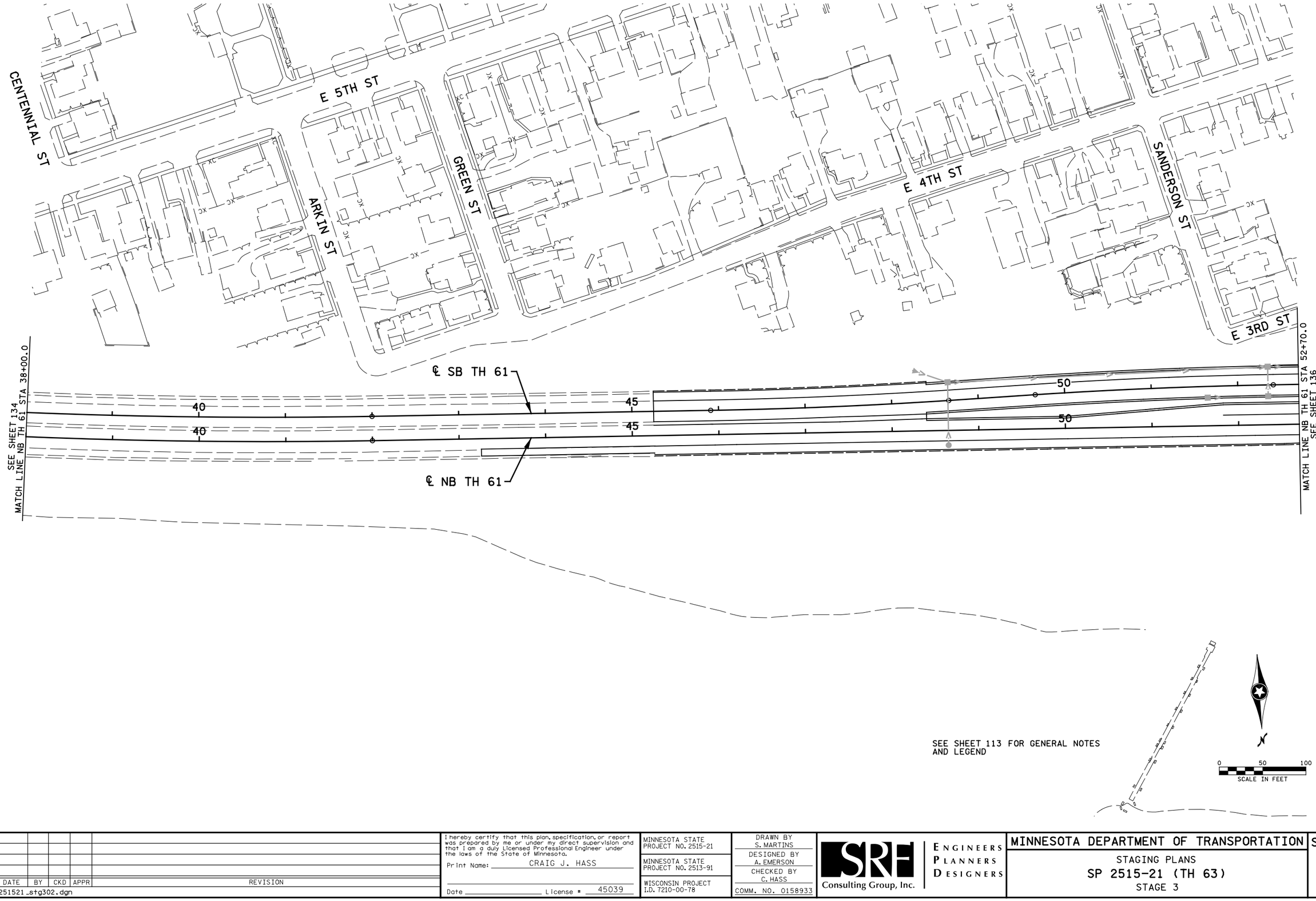
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SP 2515-21 (TH 63)

STAGE 3

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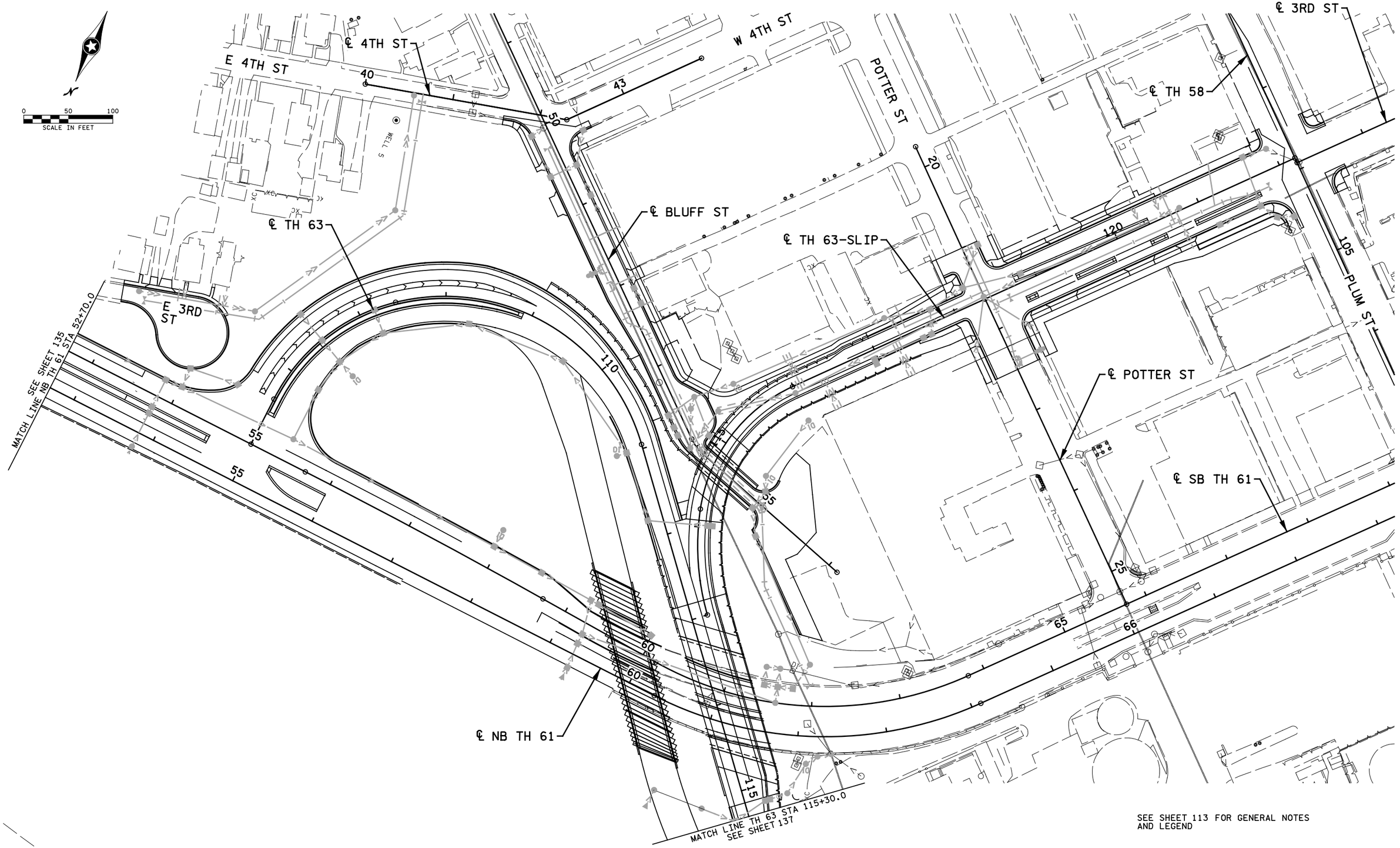
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SP 2515-21 (TH 63)

STAGE 3

SHEET 135 OF 688

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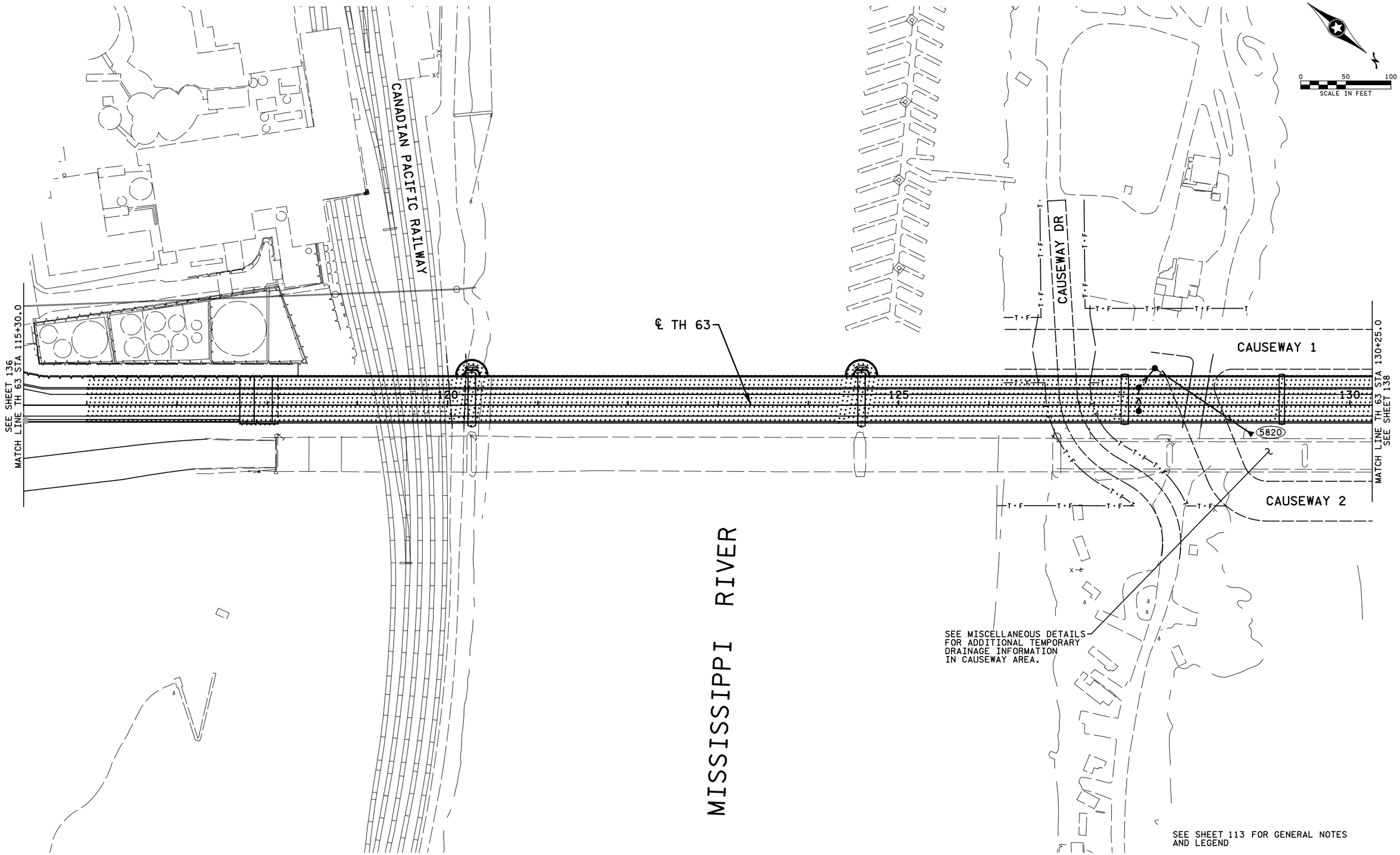
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SP 2515-21 (TH 63)

STAGE 3

SHEET 136 OF 688

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ENGINEERS PLANNERS DESIGNERS

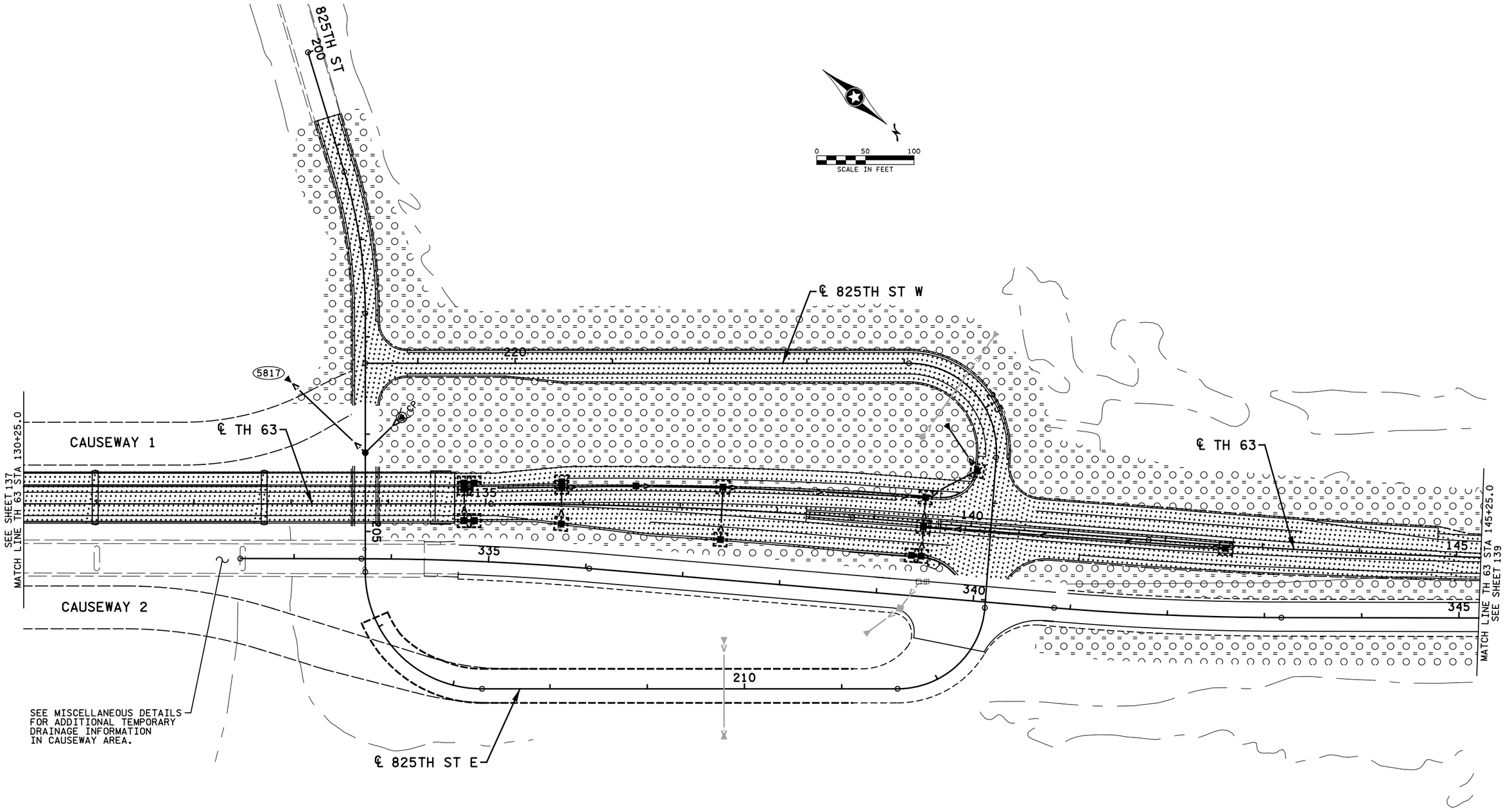
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STAGING PLANS

SP 2515-21 (TH 63)

STAGE 3

SHEET 137 OF 688



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AND LEGEND

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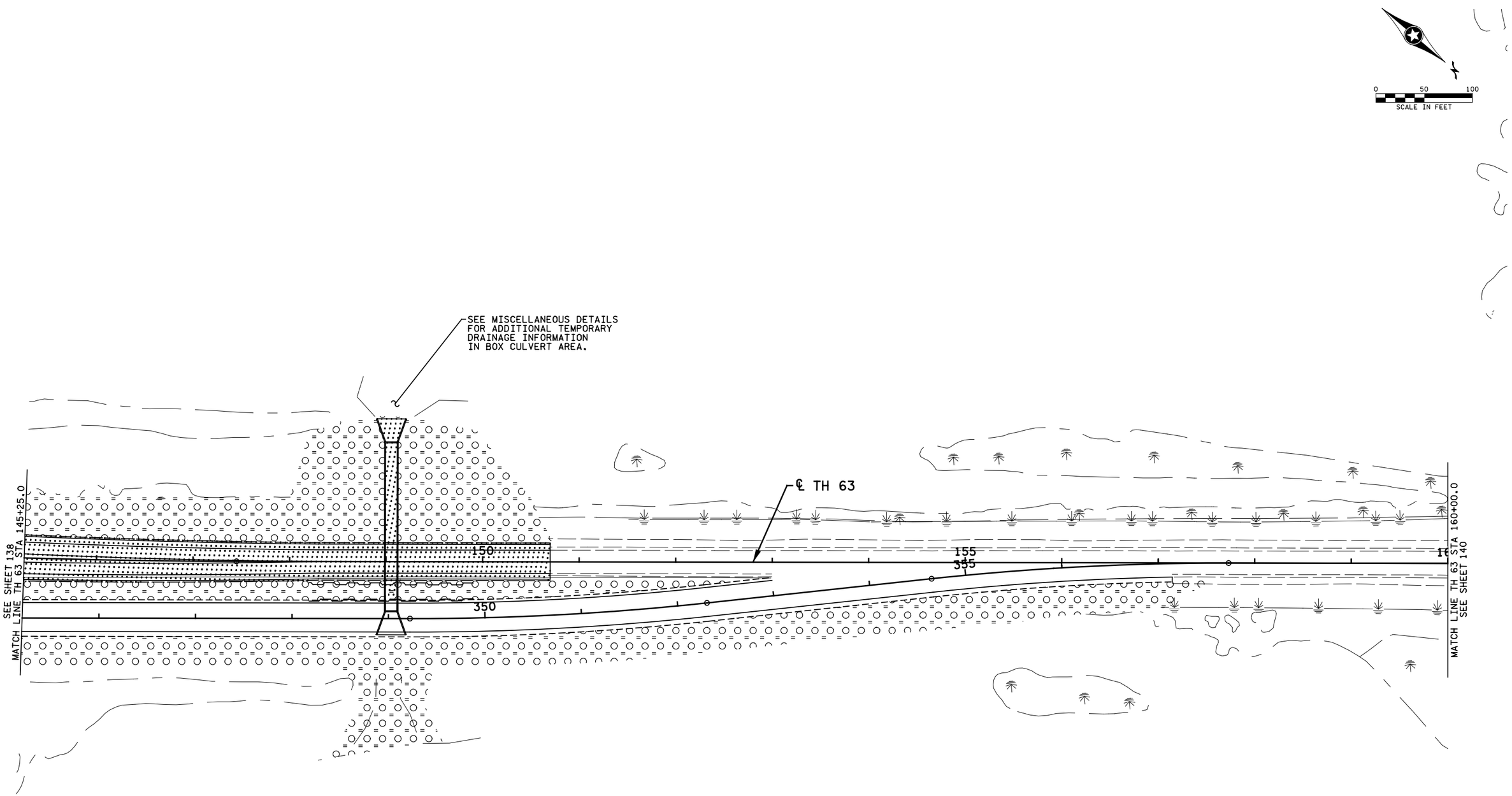
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 3

SHEET 138 OF 688

11:31:49 AM
6/22/2016
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SEE SHEET 113 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

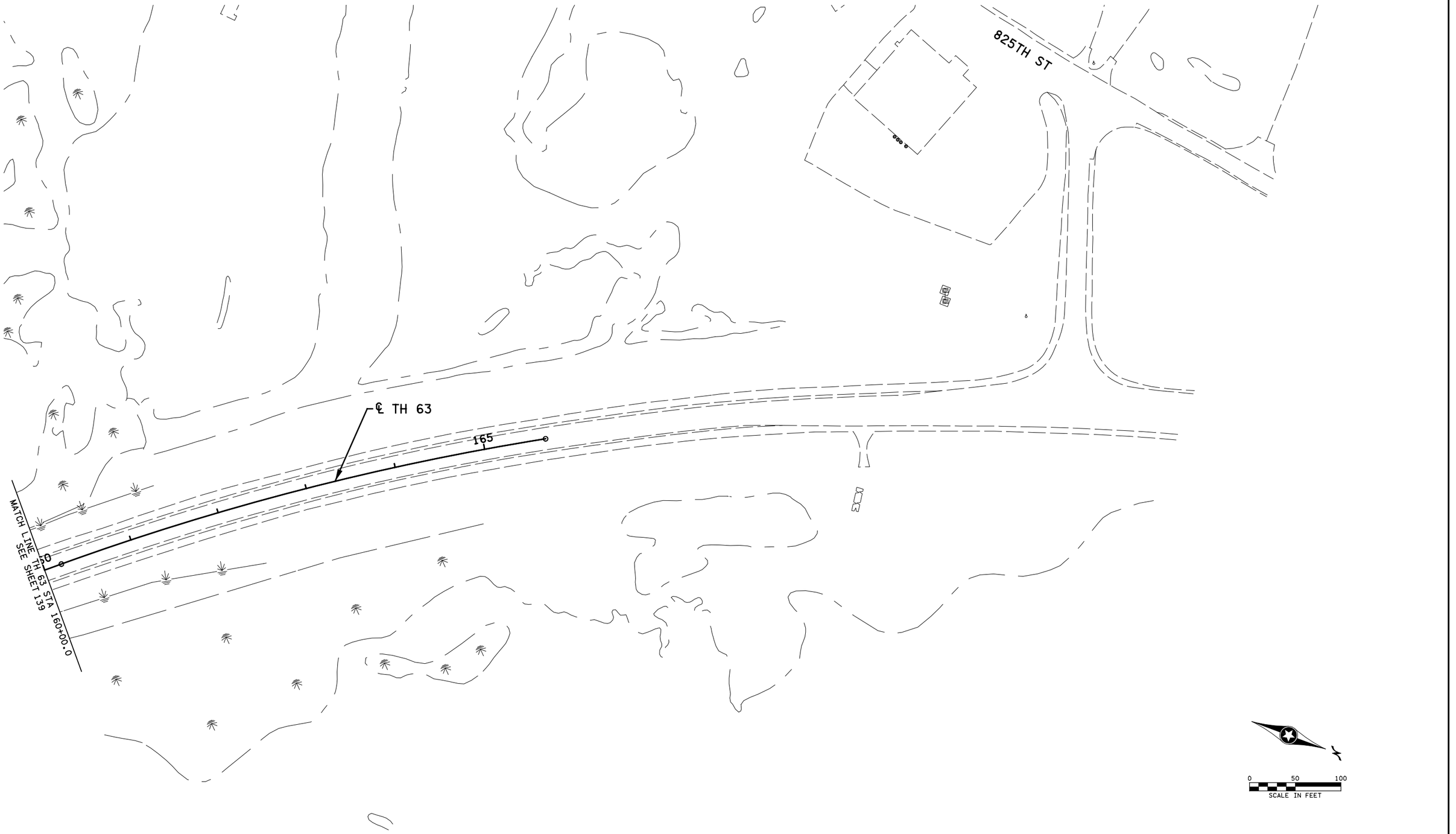
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 3

SHEET 139 OF 688

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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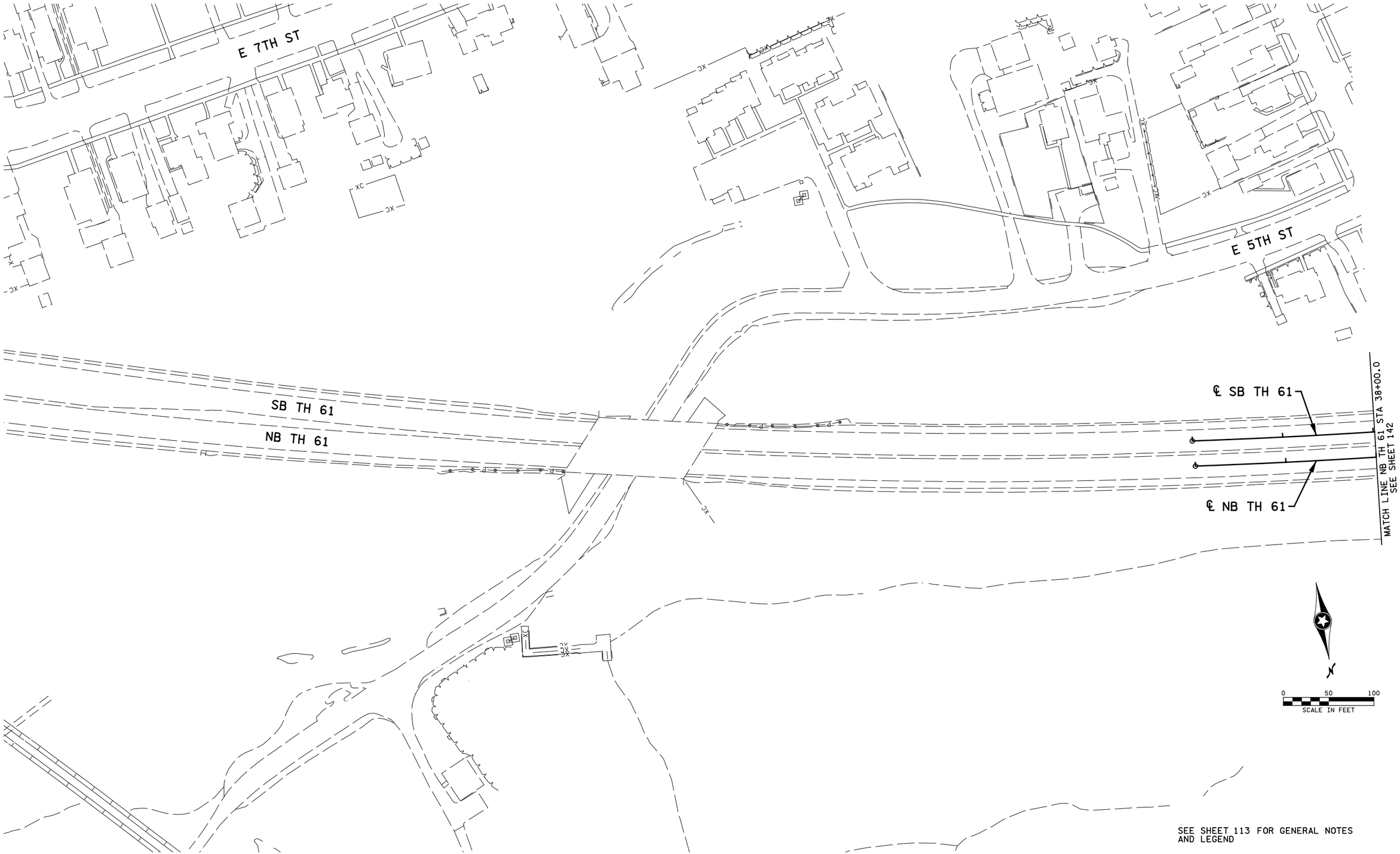
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SP 2515-21 (TH 63)

STAGE 3

SHEET 140 OF 688

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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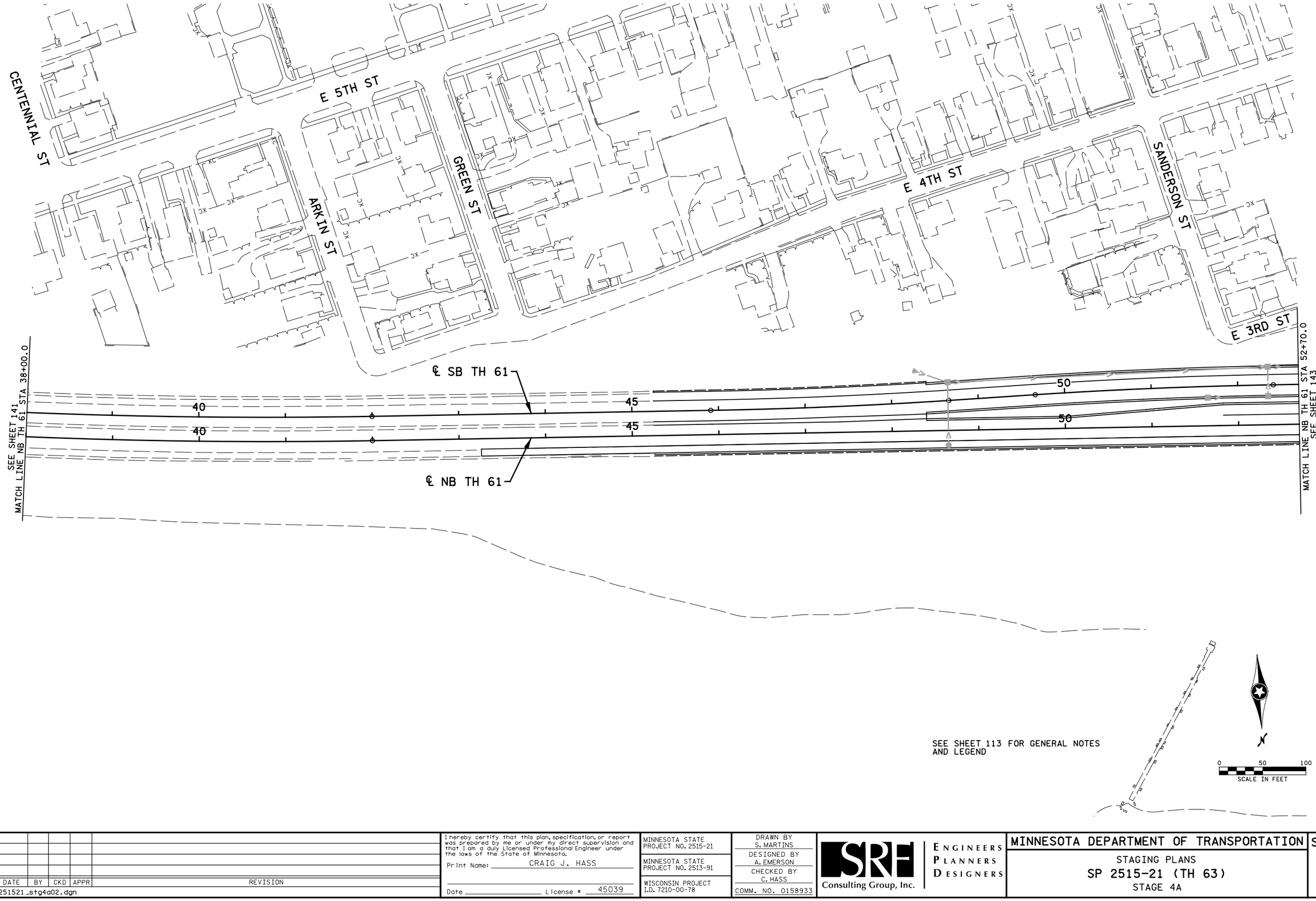
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SP 2515-21 (TH 63)

STAGE 4A

SHEET 141 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

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COMM. NO. 0158933

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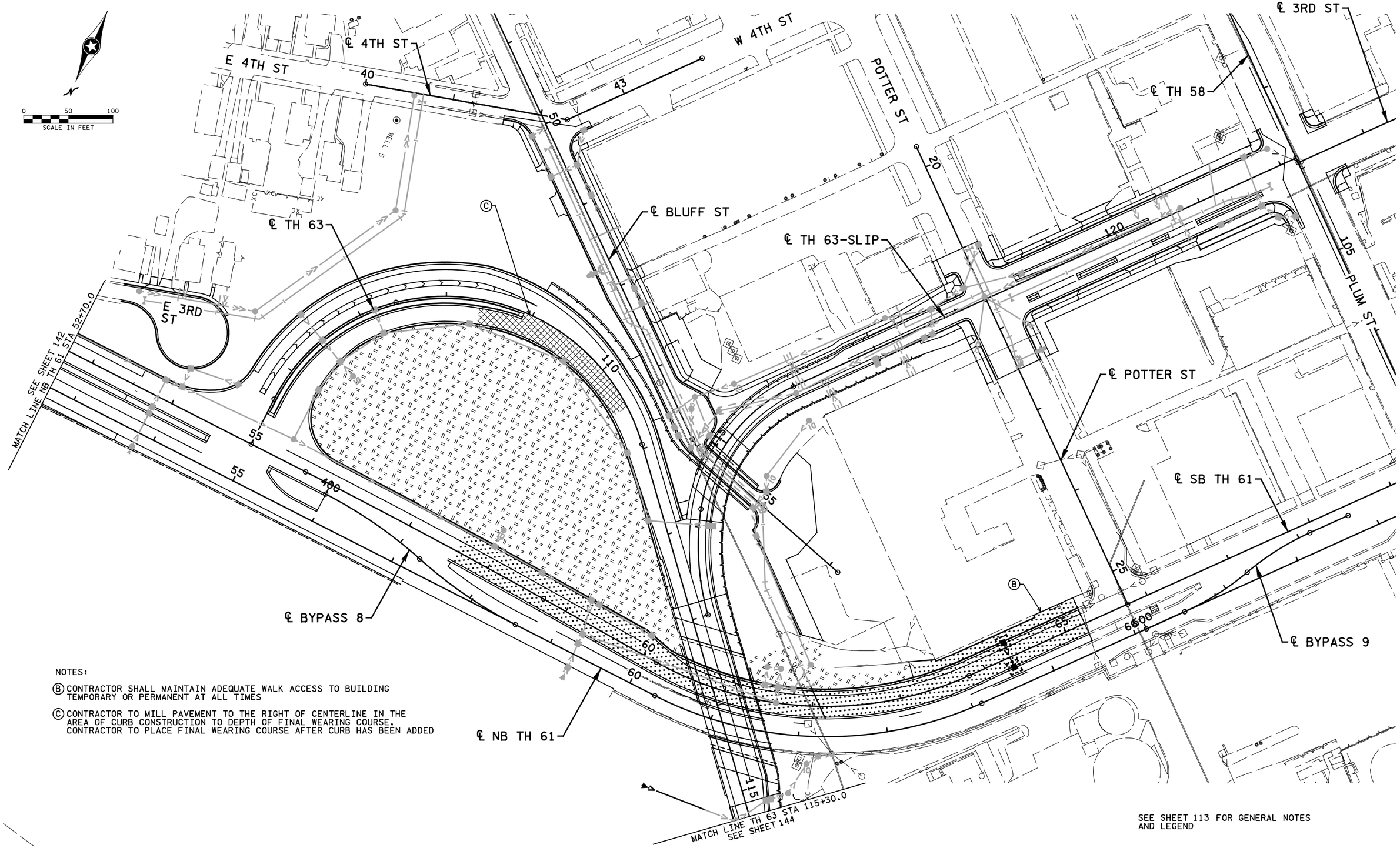
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SP 2515-21 (TH 63)

STAGE 4A

SHEET 142 OF 688

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6/2/2016
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NOTES:

Ⓑ CONTRACTOR SHALL MAINTAIN ADEQUATE WALK ACCESS TO BUILDING TEMPORARY OR PERMANENT AT ALL TIMES

Ⓒ CONTRACTOR TO MILL PAVEMENT TO THE RIGHT OF CENTERLINE IN THE AREA OF CURB CONSTRUCTION TO DEPTH OF FINAL WEARING COURSE. CONTRACTOR TO PLACE FINAL WEARING COURSE AFTER CURB HAS BEEN ADDED

SEE SHEET 113 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_stg4a03.dgn

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

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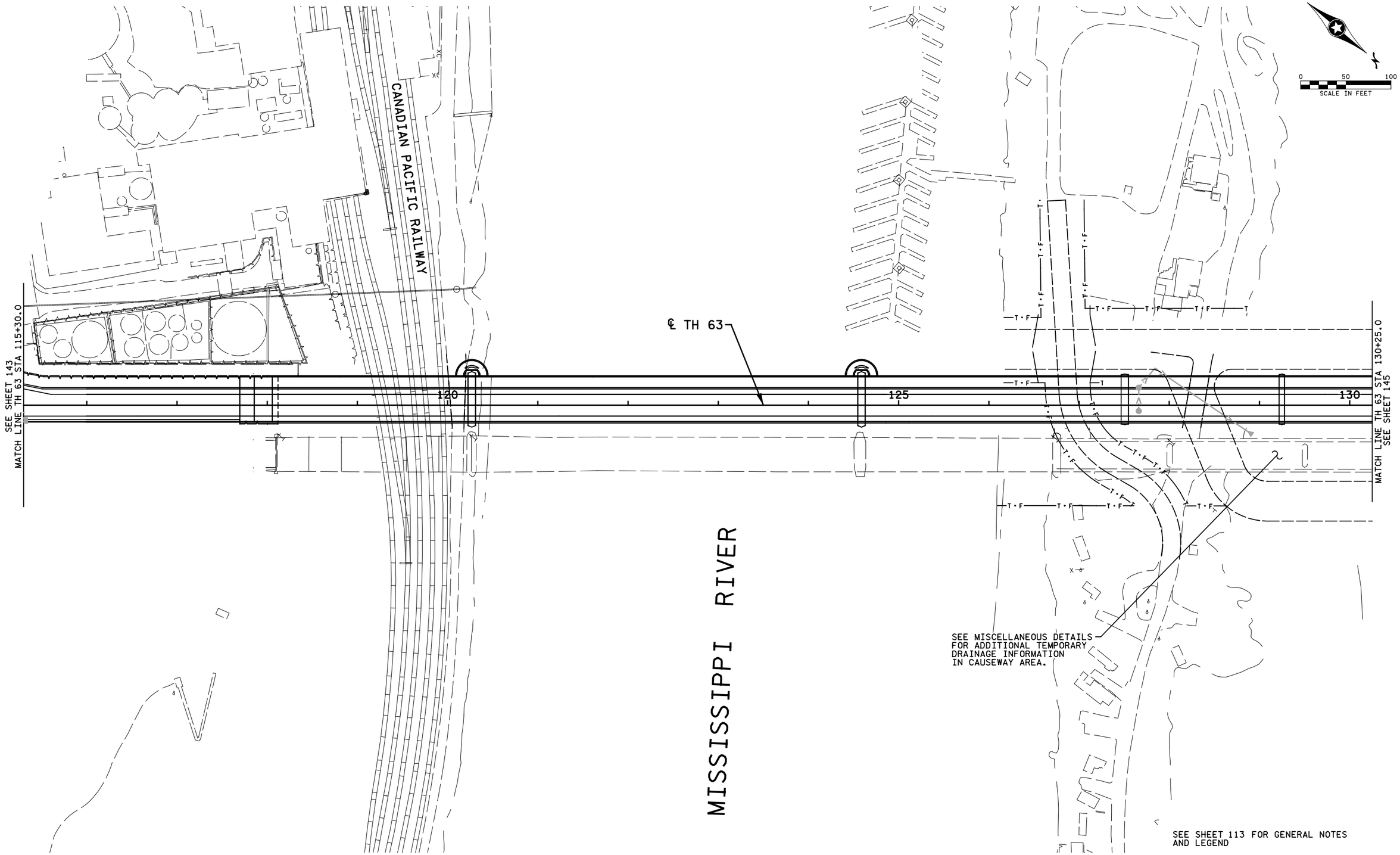
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SP 2515-21 (TH 63)

STAGE 4A

SHEET 143 OF 688

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DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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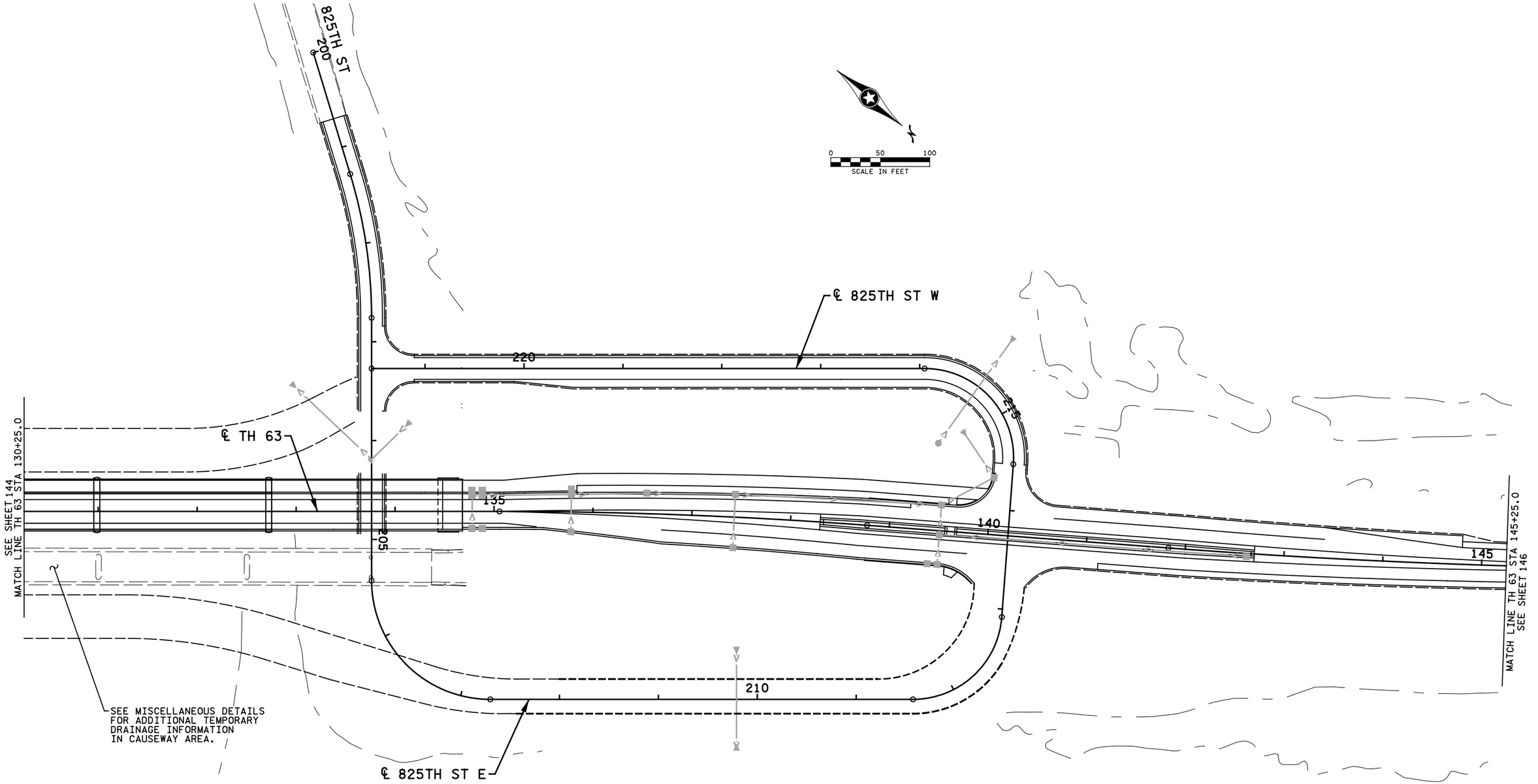
MINNESOTA DEPARTMENT OF TRANSPORTATION

STAGING PLANS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 144 OF 688



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NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2513-91

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DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

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STAGING PLANS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 145 OF 688

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0 50 100
SCALE IN FEET

SEE MISCELLANEOUS DETAILS FOR ADDITIONAL TEMPORARY DRAINAGE INFORMATION IN BOX CULVERT AREA.

℄ TH 63

SEE SHEET 145
MATCH LINE TH 63 STA 145+25.0

150

155

MATCH LINE TH 63 STA 160+00.0
SEE SHEET 147

SEE SHEET 113 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
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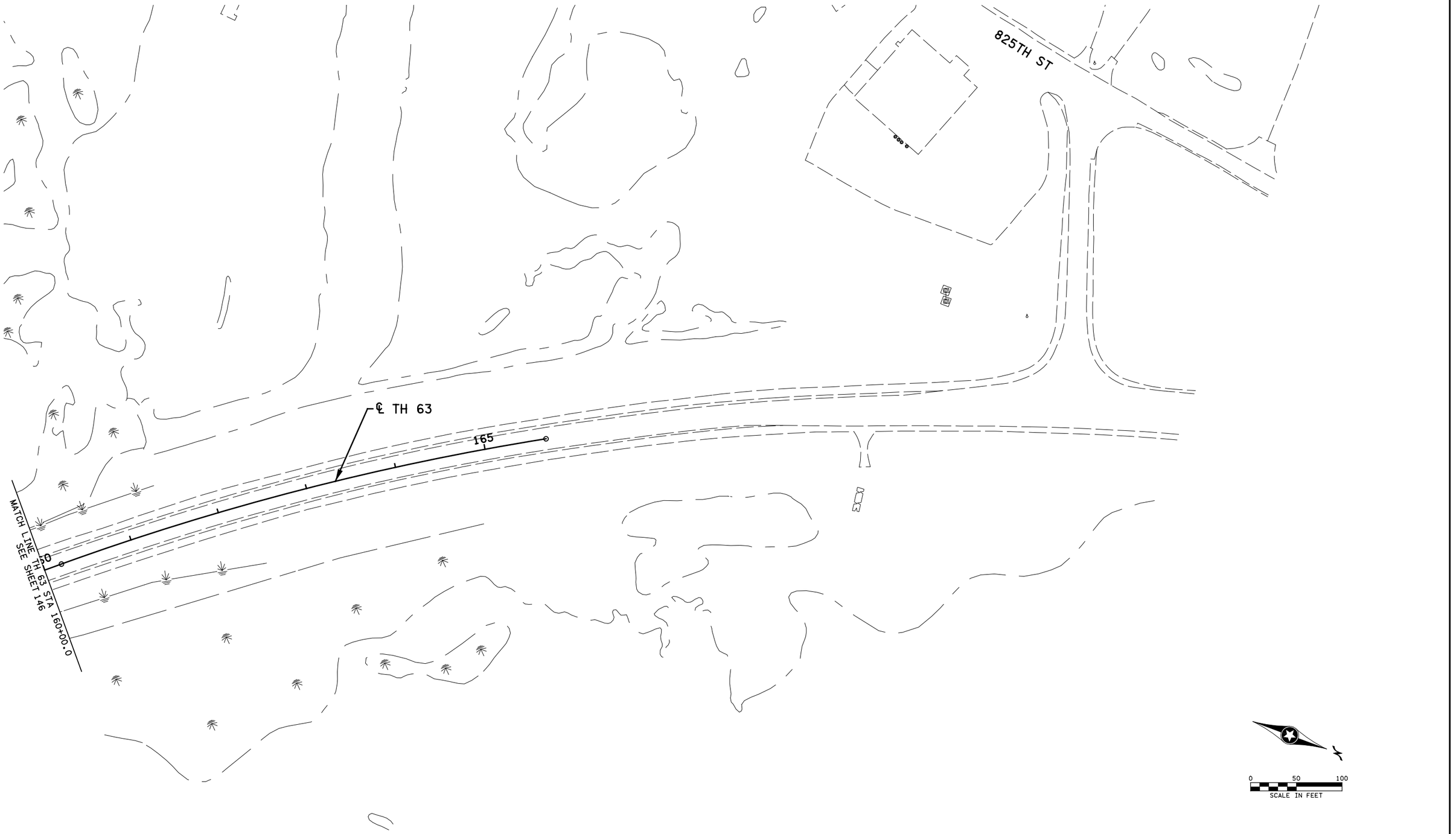
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STAGING PLANS
SP 2515-21 (TH 63)
STAGE 4A

SHEET 146 OF 688

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6/2/2016
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CHECKED BY C. HASS

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MINNESOTA DEPARTMENT OF TRANSPORTATION

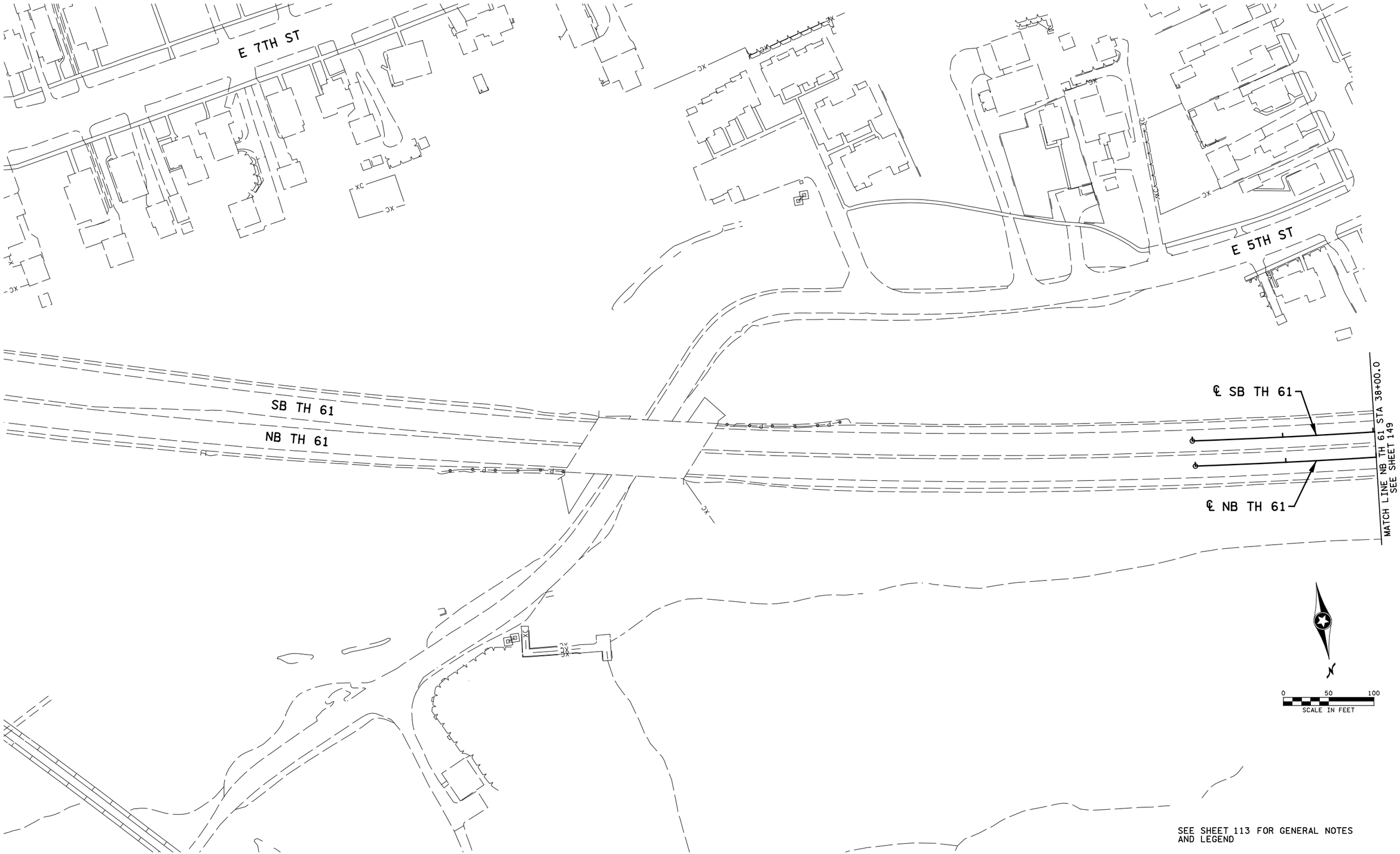
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SP 2515-21 (TH 63)

STAGE 4A

SHEET 147 OF 688

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6/22/2016
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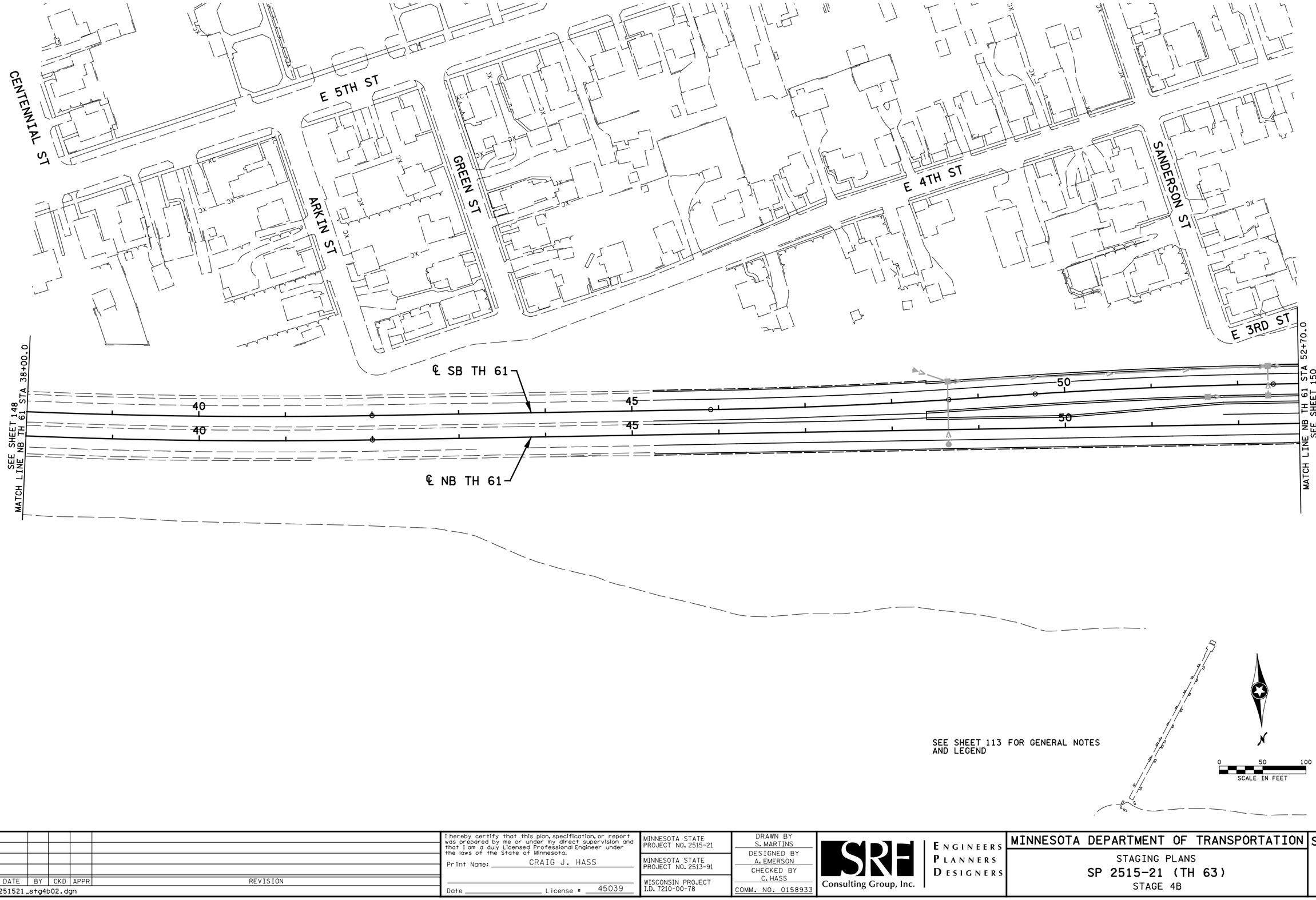
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 148 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA DEPARTMENT OF TRANSPORTATION

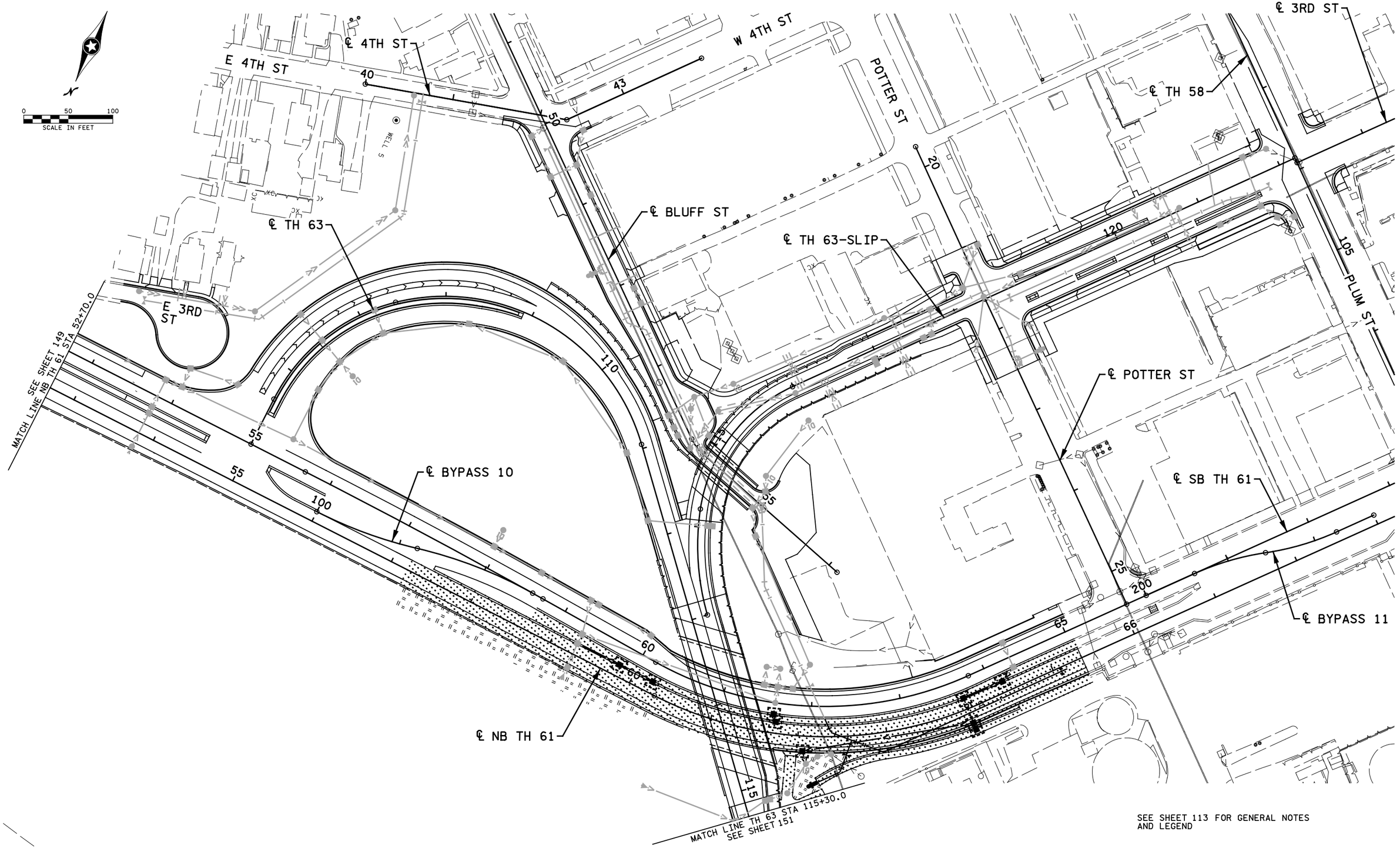
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SP 2515-21 (TH 63)

STAGE 4B

SHEET 149 OF 688

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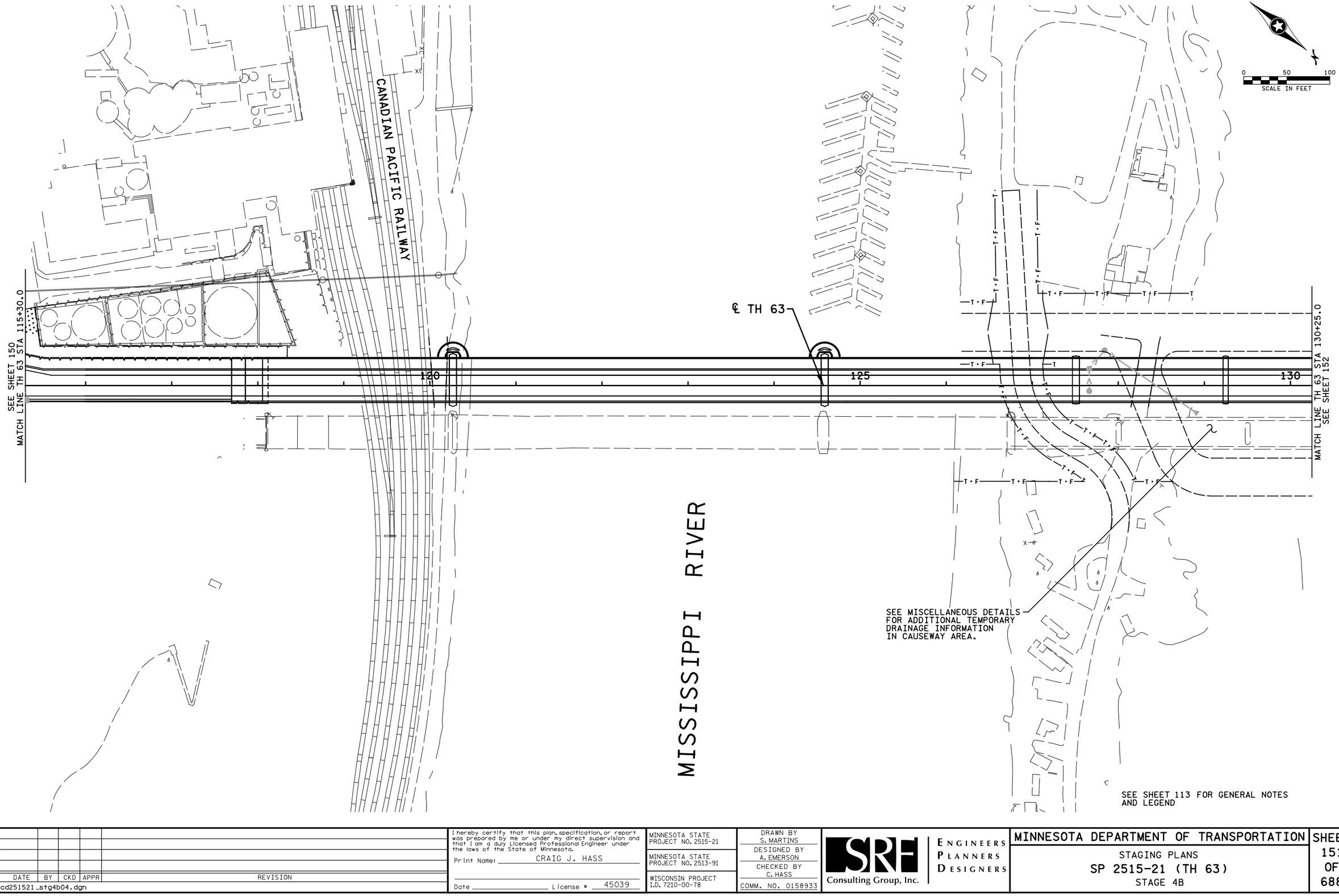
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SP 2515-21 (TH 63)

STAGE 4B

SHEET 150 OF 688

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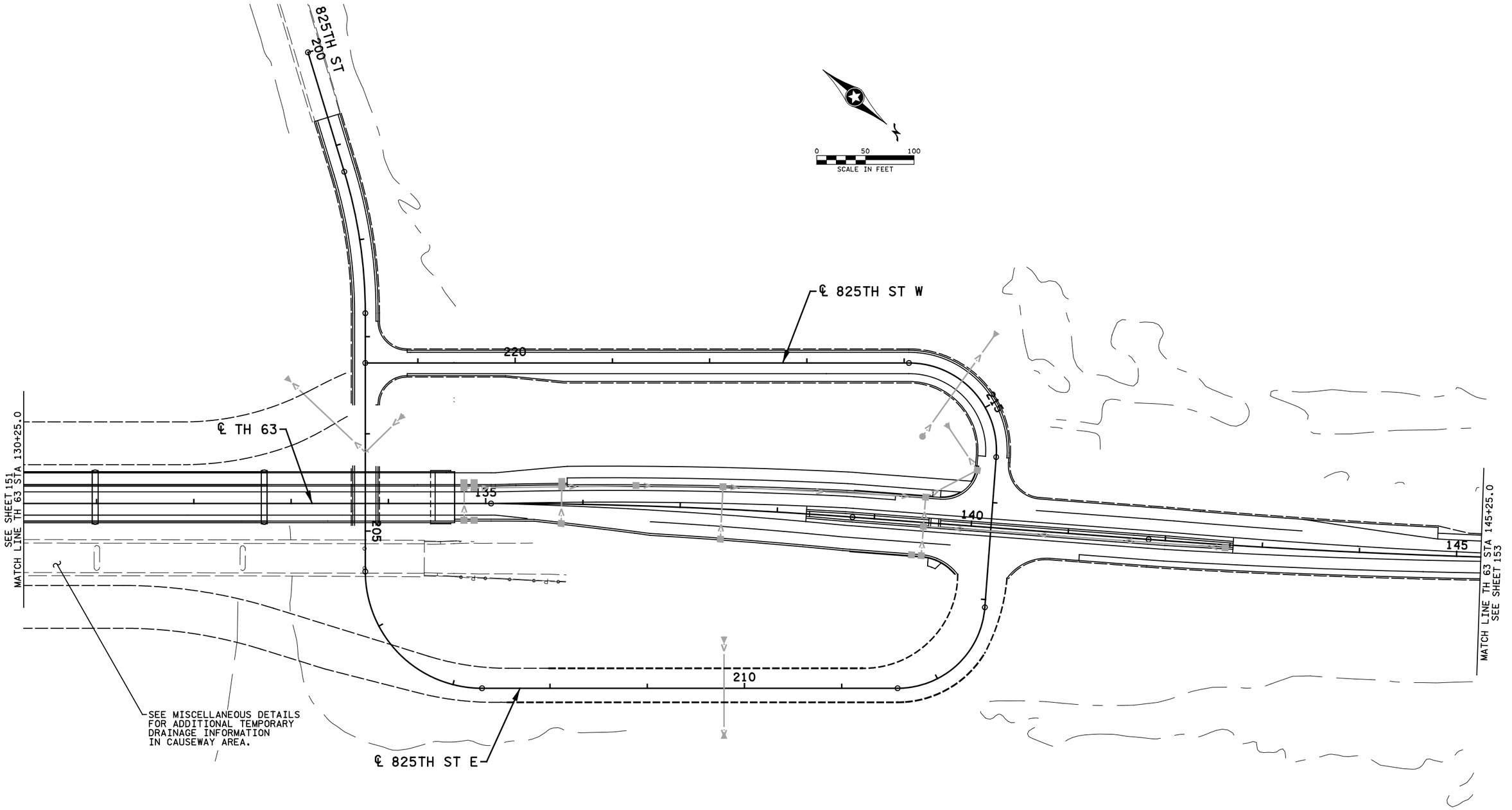
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 151 OF 688

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6/2/2016
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AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
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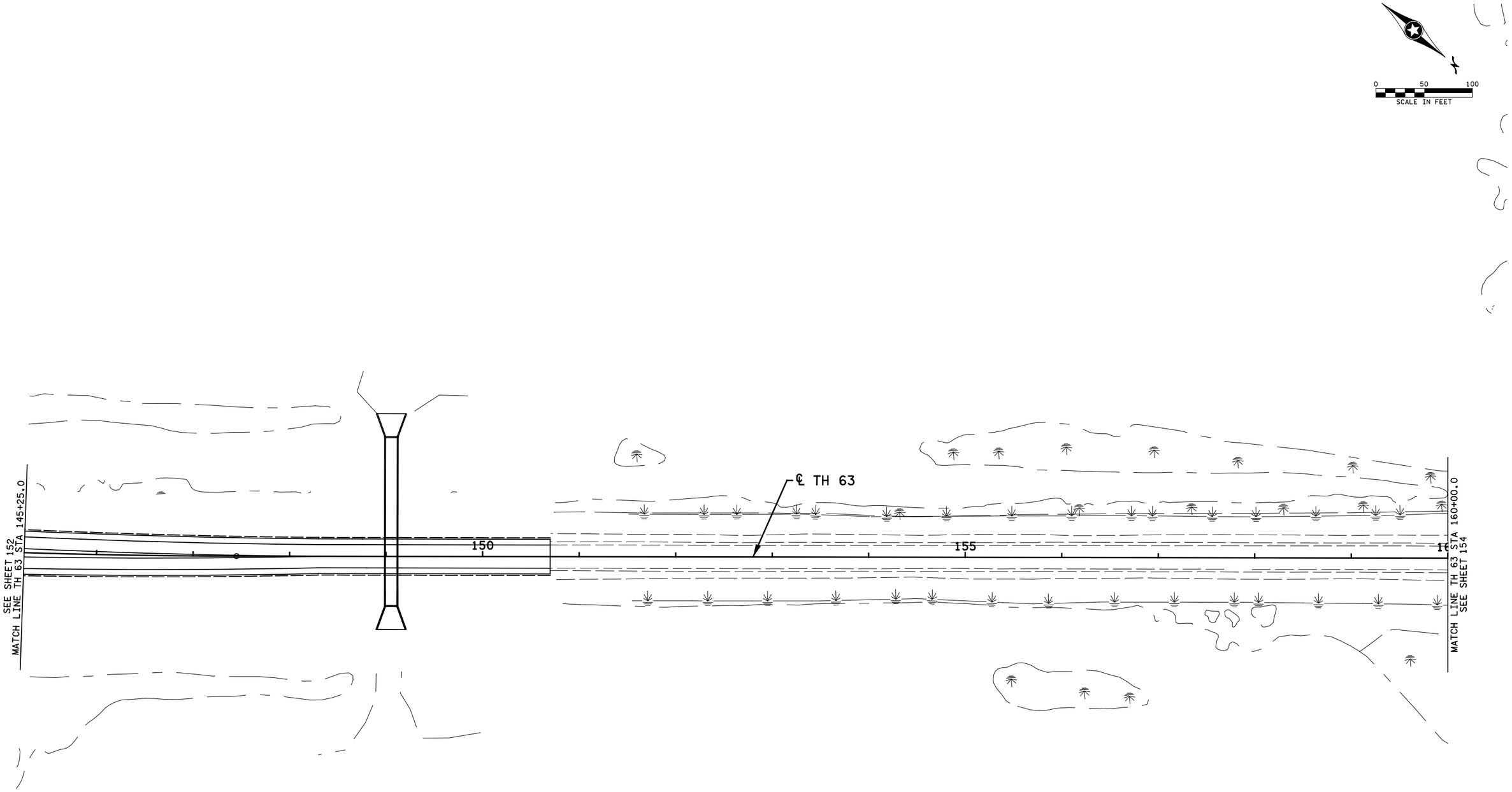
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SP 2515-21 (TH 63)

STAGE 4B

SHEET 152 OF 688

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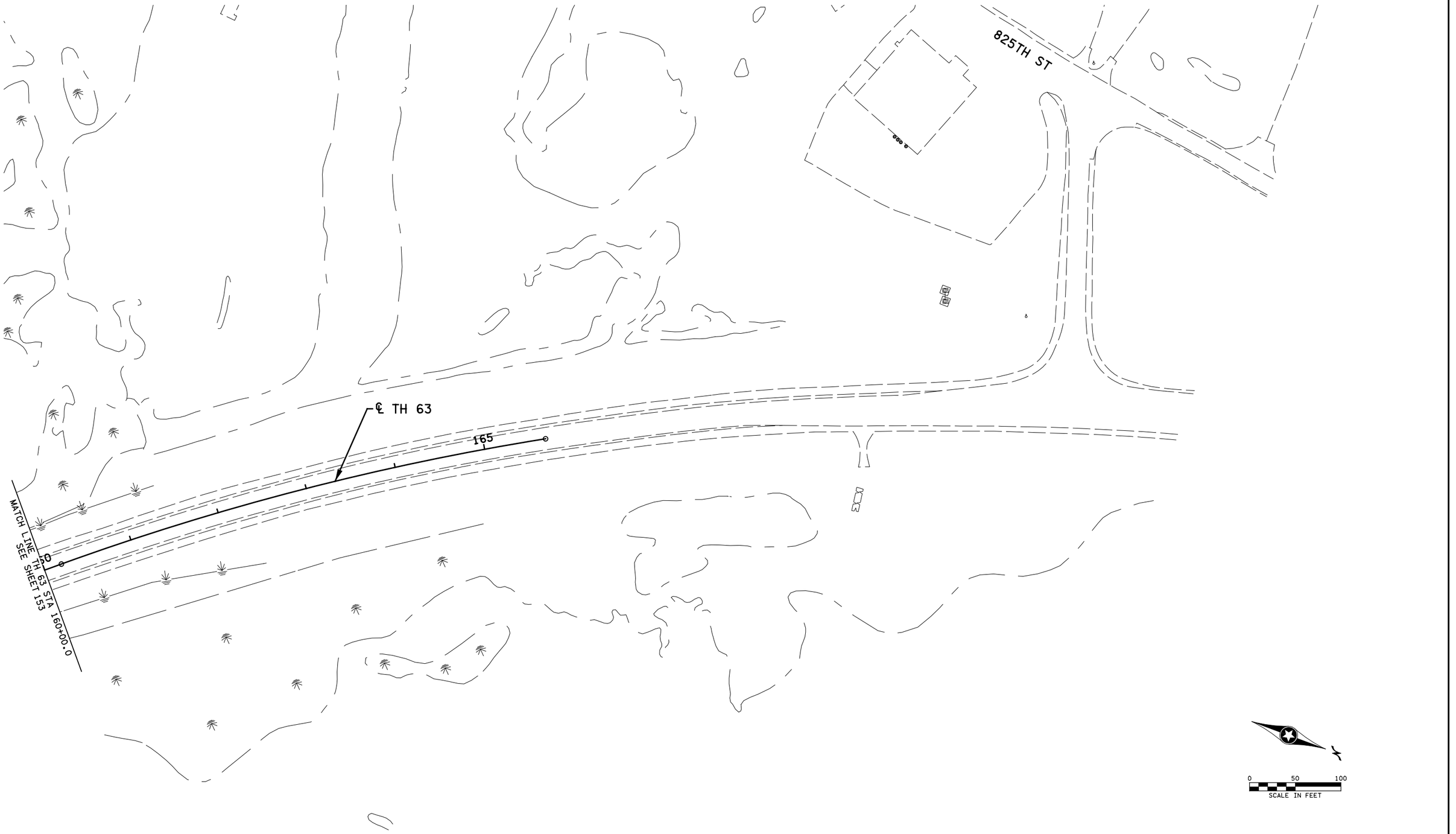
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SP 2515-21 (TH 63)

STAGE 4B

SHEET 153 OF 688

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STAGING PLANS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 154 OF 688

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E 7TH ST

E 5TH ST

SB TH 61

NB TH 61

℄ SB TH 61

℄ NB TH 61

MATCH LINE NB TH 61 STA 38+00.0
SEE SHEET 156

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SCALE IN FEET

SEE SHEET 113 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
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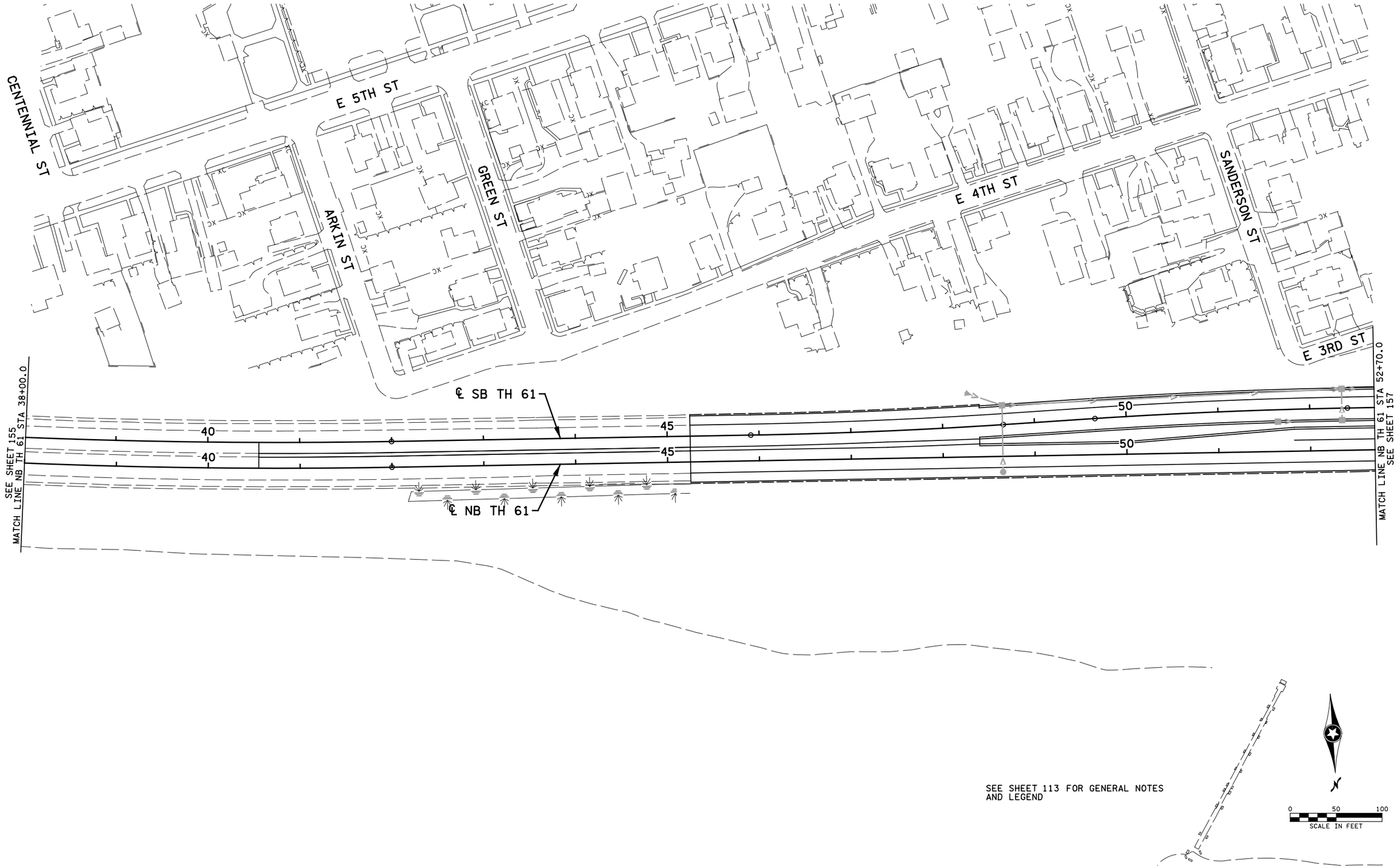
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 5

SHEET 155 OF 688

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6/22/2016
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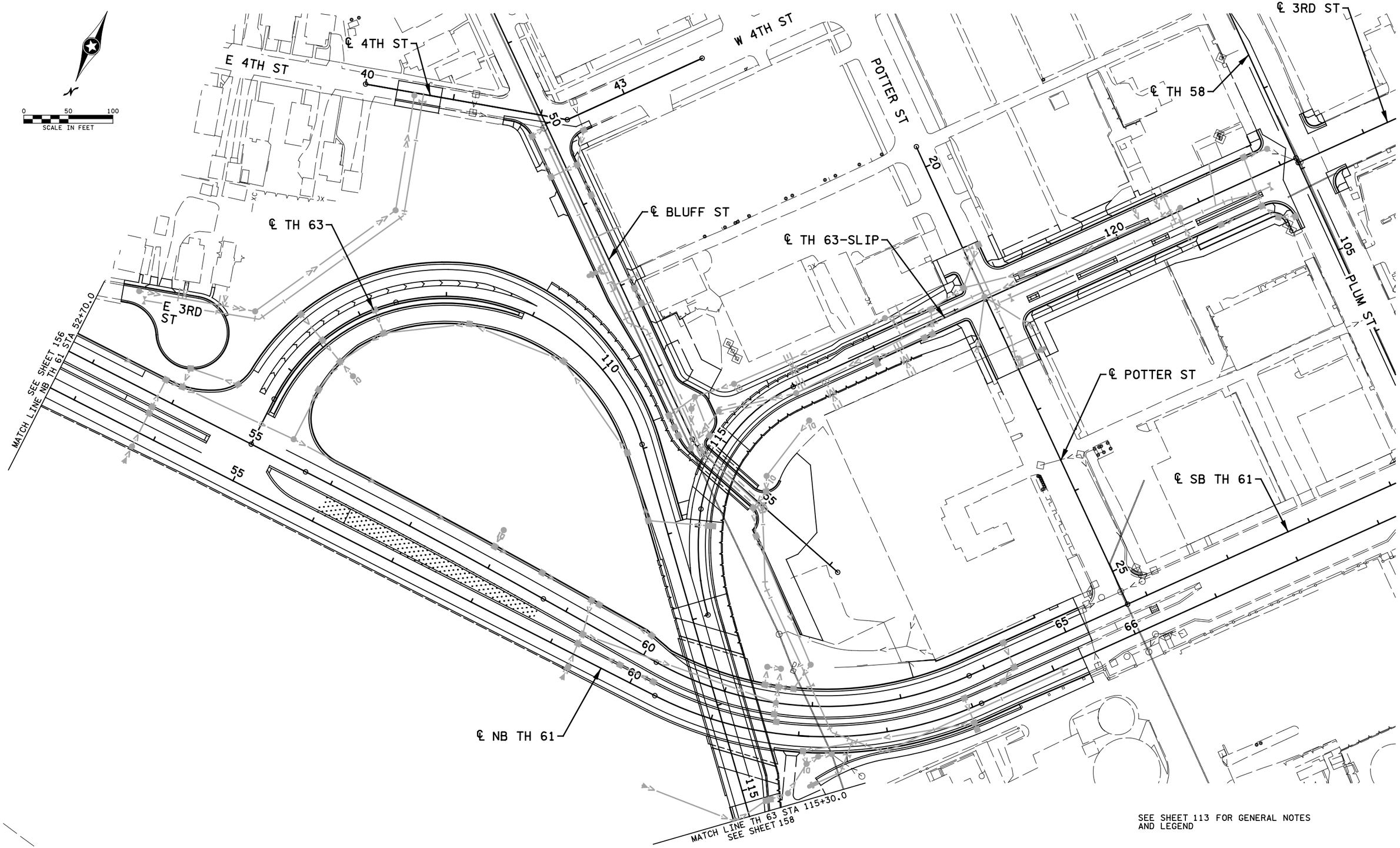
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SP 2515-21 (TH 63)

STAGE 5

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SEE SHEET 113 FOR GENERAL NOTES AND LEGEND

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

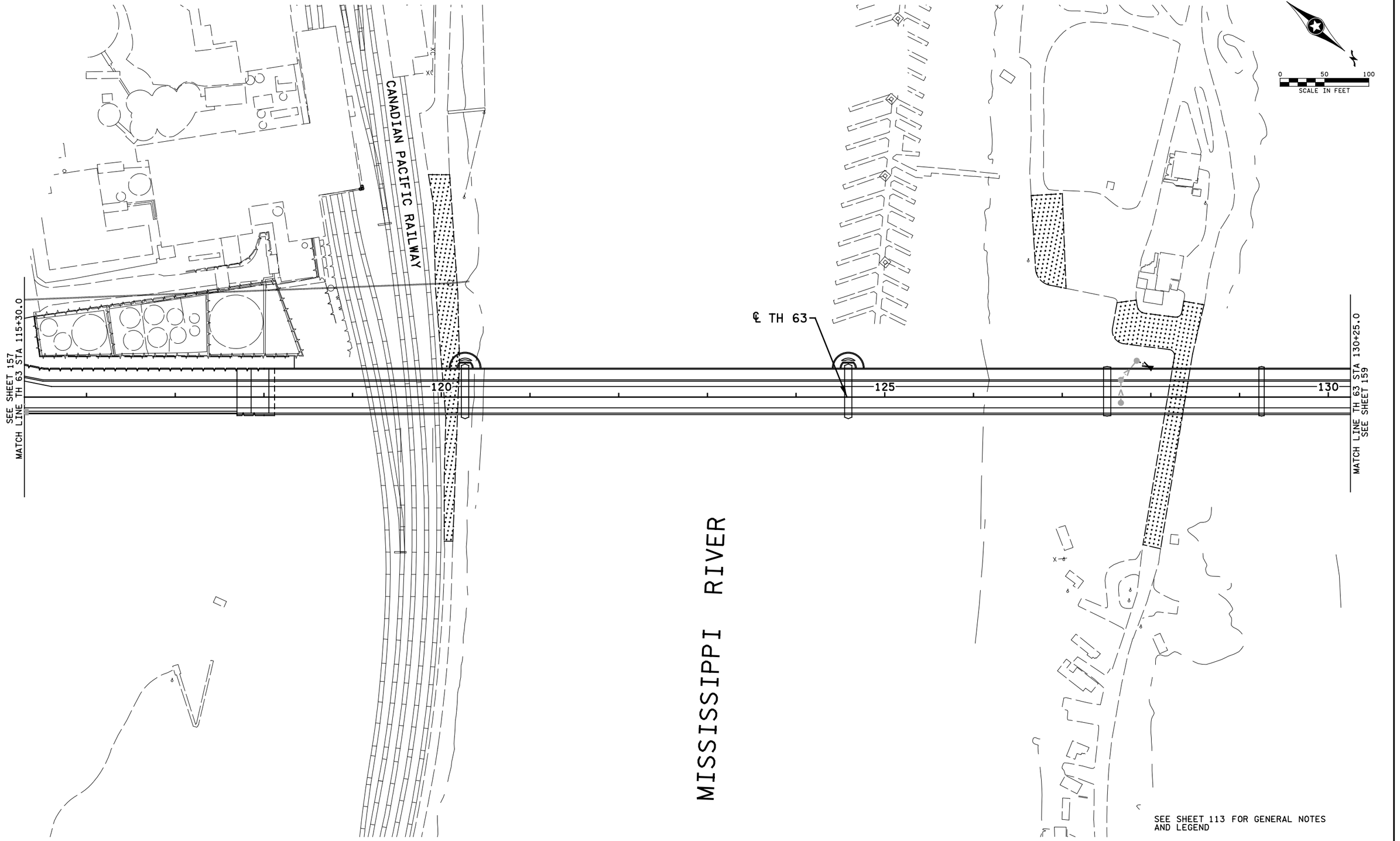
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 5

SHEET 157 OF 688

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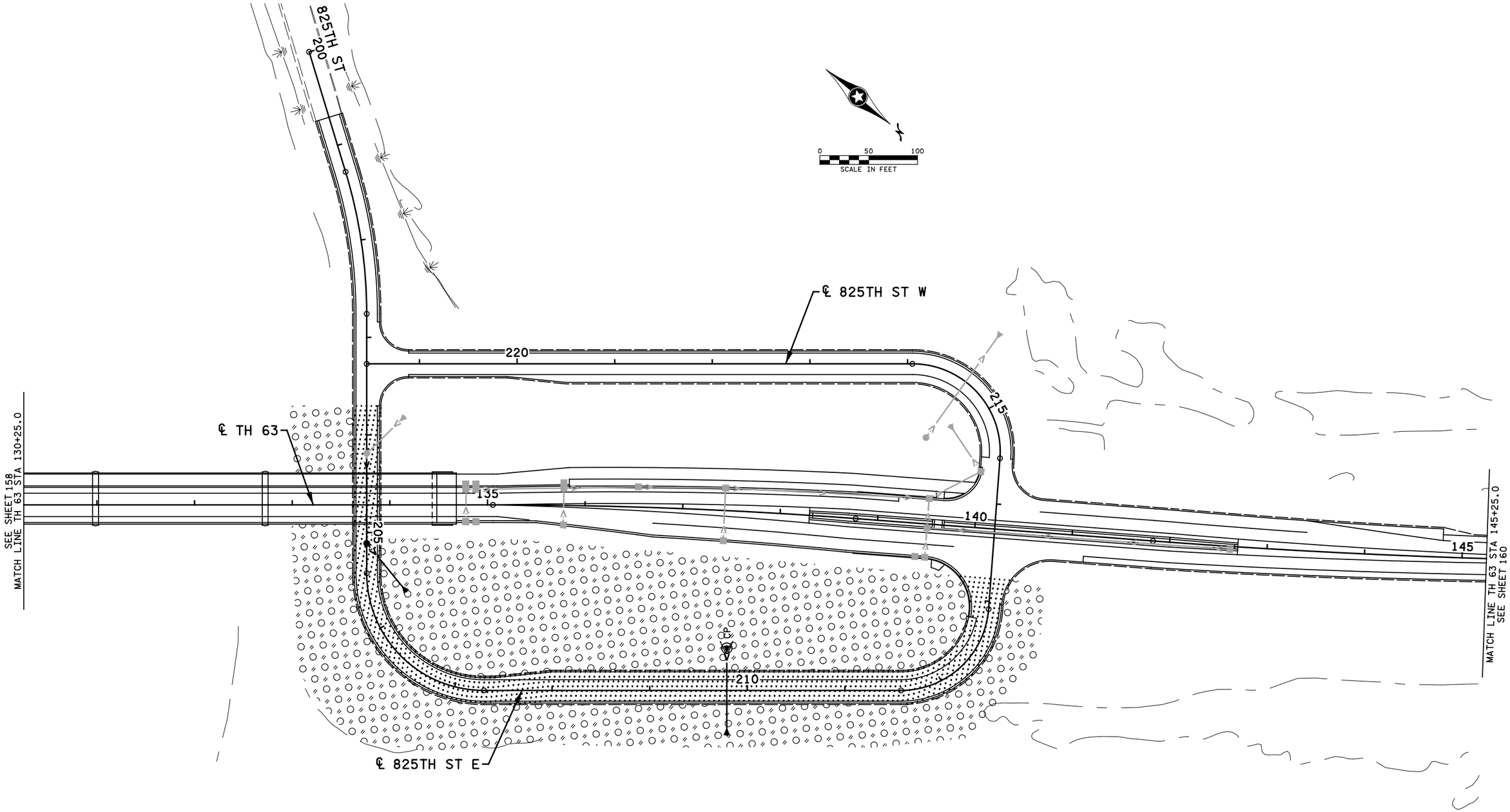
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 5

SHEET 158 OF 688

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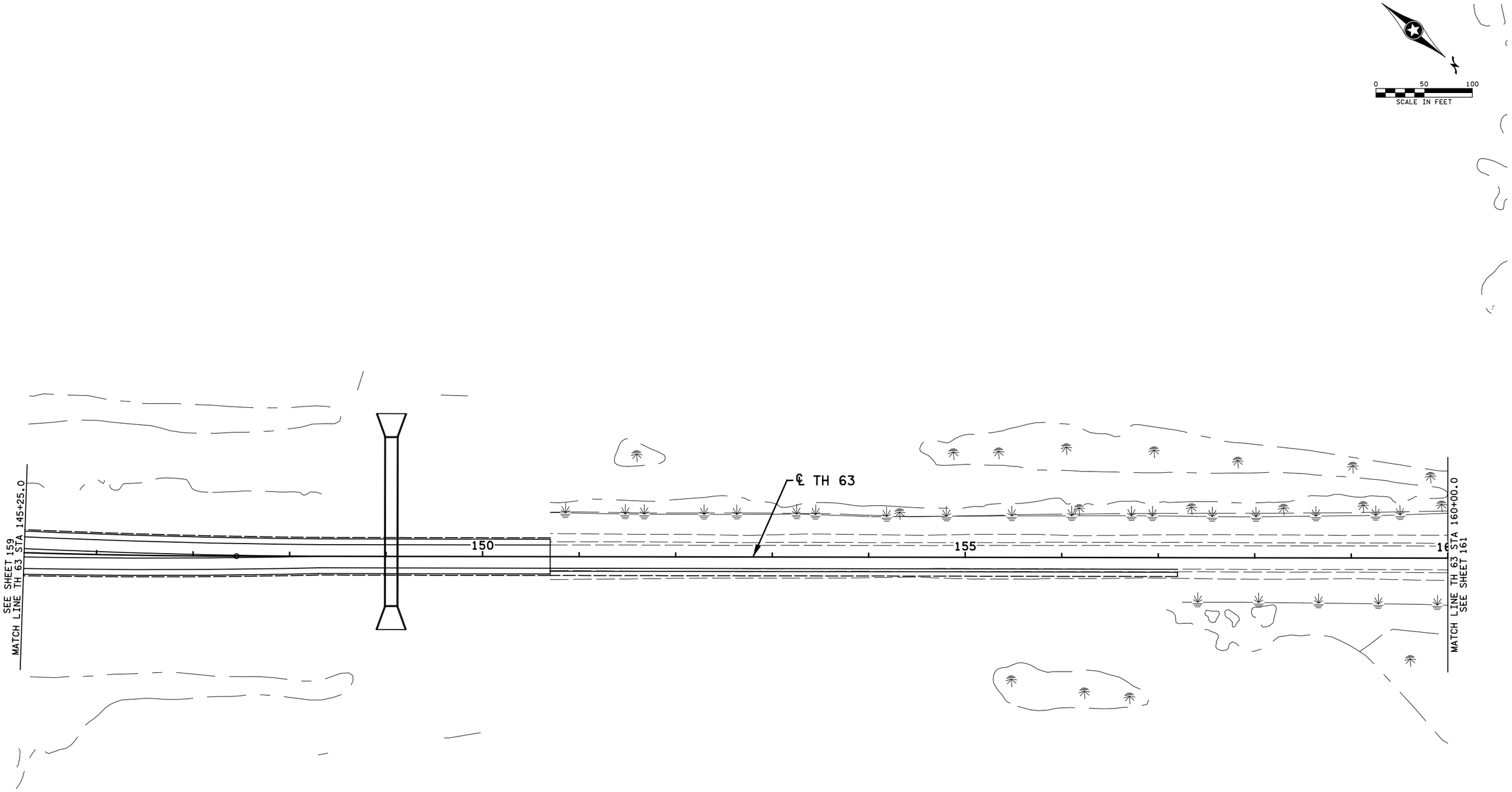
STAGING PLANS

SP 2515-21 (TH 63)

STAGE 5

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6/22/2016
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DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

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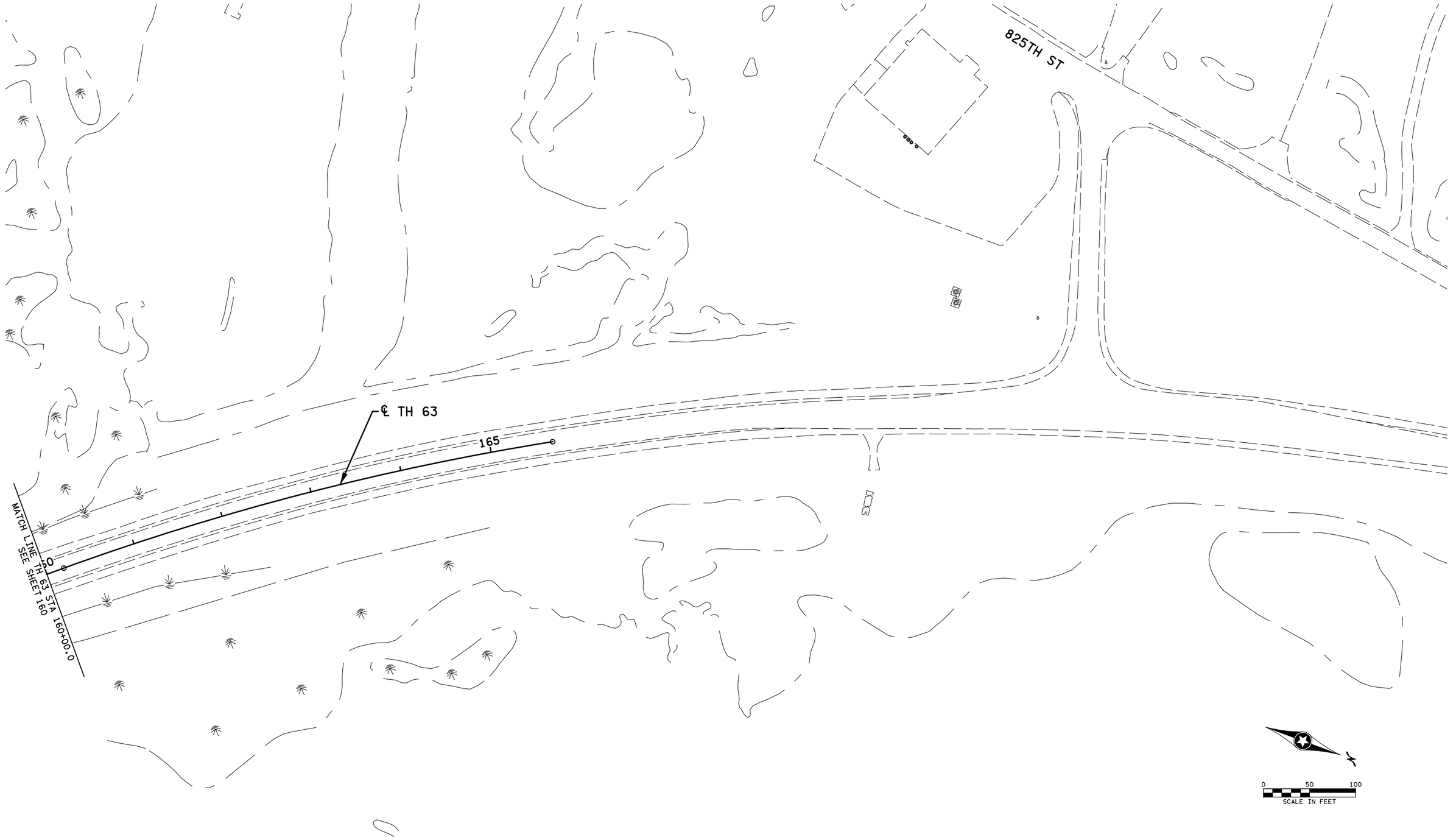
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SP 2515-21 (TH 63)

STAGE 5

SHEET 160 OF 688

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STAGING PLANS

SP 2515-21 (TH 63)

STAGE 5

SHEET 161 OF 688

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

NOTES & GUIDELINES

GENERAL INFORMATION:

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

SIGNING:

1. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS, ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE PLACED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS SHOWN IN THE "TYPICAL TEMPORARY SIGN FRAMING & INSTALLATION DETAILS" IN THE PLAN. IF THIS IS NOT POSSIBLE, THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
4. ALL ORANGE WARNING AND ORANGE GUIDE SIGNS SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MnDOT APPROVED PRODUCT LIST FOR "SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS, DELINEATORS, AND MARKERS".
5. BARRICADES SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MnDOT APPROVED PRODUCT LIST FOR "BARRICADE SHEETING",
6. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
7. THE CONTRACTOR SHALL COORDINATE THE PLACEMENT OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE PLACED AS NEEDED, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS PLACED.

PAVEMENT MARKING:

1. OBLITERATE ANY CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
2. TRANSITIONS AND TAPERS FOR TEMPORARY STRIPING SHALL BE WET REFLECTIVE OR SUPPLEMENTED WITH TEMPORARY RASIED PAVEMENT MARKERS AND SHOULD BE A MINIMUM OF 6" IN WIDTH.
3. INTERIM STRIPING SHALL CONSIST OF ALL CENTERLINE, NO PASSING ZONES, PAINTED ISLANDS, AND LANE LINES (INCLUDING TURN LANE LINES).
4. TRPM'S (TEMPORARY RAISED PAVEMENT MARKERS) SHOULD BE USED TO SUPPLEMENT THE LONG TERM (MORE THAN 3 DAYS) EDGELINES ON ALL TRANSITION AREAS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PLACEMENT OF TEMPORARY AND FINAL STRIPING. MnDOT TRAFFIC PERSONNEL WILL ASSIST IN THE SPOTTING OF TRANSITION AREAS, GORES AND TAPERS.

BARRIER & DELINEATION:

1. THE CONTRACTOR SHALL FURISH, INSTALL AND MAINTAIN TOP MOUNTED BARRIER DELINEATORS WITH A MINIMUM OF 24 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 25' SPACES ON TOP OF THE BARRIER WHEN THE BARRIER IS WITHIN 10' OF TRAFFIC UNLESS OTHERWISE NOTED OR AS DIRECTED BY THE ENGINEER. IF THE TRAFFIC ENGINEER REQUIRES SIDE MOUNTED BARRIER DELINEATORS, THEY WILL HAVE A MINIMUM OF 12 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 12.5' SPACES. IF A SMALLER APPROVED BARRIER DELINEATOR IS USED IT SHALL BE AT ONE HALF THE SPACING AND ONE HALF THE BID PRICE.

CONSTRUCTION INFORMATION SIGNING:

1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN AND WHICH ARE TO BE USED AS FOLLOWS:

   G20-X1 CLOSURE NOTICE SIGNS PAIRED WITH G20-X3 WORK ENDS SIGNS TO DISPLAY THE CORRECT START DATE AND AN ESTIMATED FINISH DATE AS APPROVED BY THE PROJECT ENGINEER.

   G20-X2 WORK ZONE ADVANCE NOTICE SIGNS WITH THE CORRECT STARTING DATE DISPLAYED BEFORE WORK BEGINS. ONCE WORK BEGINS, THE START DATE LEGEND SHALL BE COVERED BY THE SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SUGGESTED OR IF DIRECTED BY THE PROJECT ENGINEER, THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON SHALL BE DISPLAYED.

   CONSTRUCTION INFORMATION SIGNING NOT VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS WILL BE MOVED BY THE CONTRACTOR TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS DIRECTED BY THE PLAN OR PROJECT ENGINEER.

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL DESCRIPTION

- AREA CLOSED TO TRAFFIC / WORK AREA
- TRAFFIC CONTROL SIGN
- TYPE C BARRICADE =
- DRUM-LIKE CHANNELIZER (TYPE B) =
- TUBE DELINEATOR
- TYPE A FLASHING WARNING LIGHT
- FLASHING ARROW BOARD TYPE C = (4' X 8' UNLESS OTHERWISE NOTED).
- SOLID LINE PAVEMENT MARKING WITH TEMPORARY RAISED PAVEMENT MARKERS AT 10' SPACES
- CONCRETE BARRIER WITH DELINEATORS AT 30' SPACES
- IMPACT ATTENUATOR
- IMPACT ATTENUATOR BARRELS
- PAVEMENT MESSAGE (LEFT ARROW SHOWN)
- TRAFFIC FLOW ARROW

STRIPING KEY

- CIRCLE - EPOXY
- TRIANGLE - PAINT
- HEXAGON - REMOVABLE PREFORMED PLASTIC MARKING

1ST DIGIT WIDTH	2ND DIGIT PATTERN	3RD DIGIT COLOR
4", 6" OR 8"	S - SOLID B - BROKEN T - DOTTED D - DOUBLE K - DOUBLE BROKEN H - DOUBLE DOTTED	W - WHITE Y - YELLOW B - BLACK

EXAMPLE: (4SW) = 4" SOLID LINE WHITE - EPOXY

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Print Name: AMBER NORD

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY A.DEBRUIN
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY A.DEBRUIN
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY A.NORD
	COMM. NO. 0158933

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TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

SHEET 162 OF 688

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TRAFFIC CONTROL TABULATION

ITEM	UNIT	STAGE 1A	STAGE 1B	STAGE 2	STAGE 3	STAGE 4A	STAGE 4B	STAGE 5	TOTAL

TRAFFIC CONTROL TABULATION SHEET

"R" SERIES

SIGN	SIGN NO.	COLOR	SIZE

"W" SERIES

SIGN	SIGN NO.	COLOR	SIZE

"G" SERIES

SIGN	SIGN NO.	COLOR	SIZE

"M" SERIES

DEVICES

ITEM	SIGN NO.	COLOR	SIZE

MISCELLANEOUS

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CHECKED BY A.NORD

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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

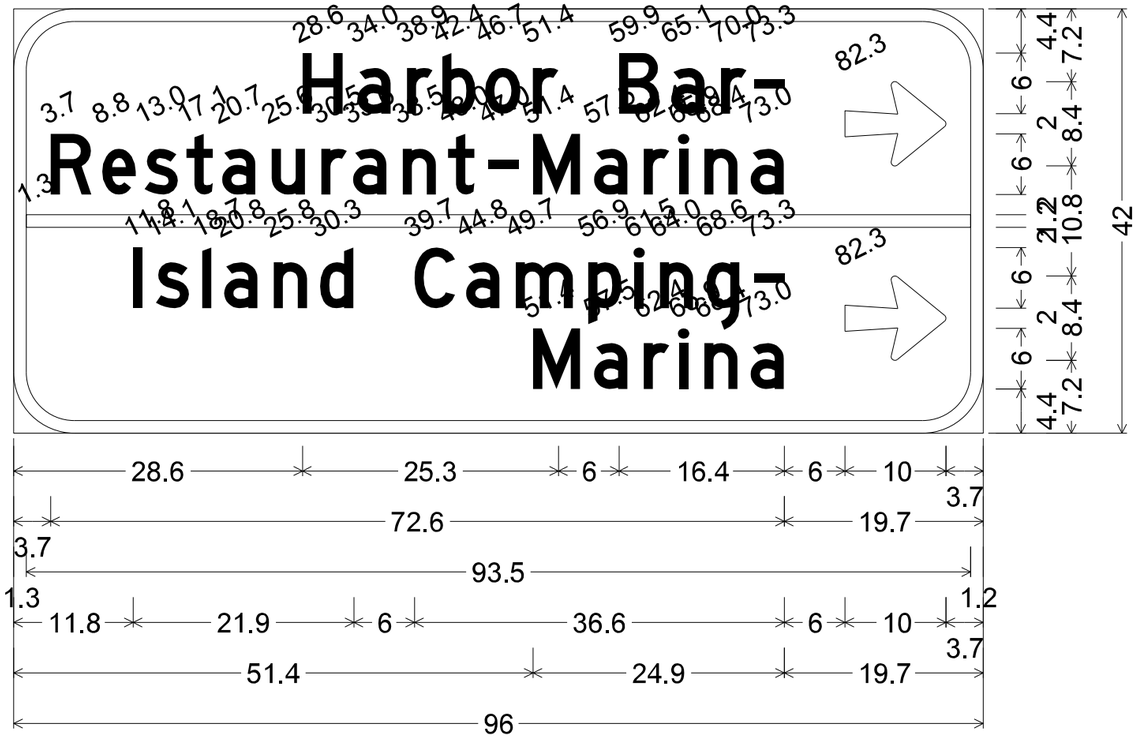
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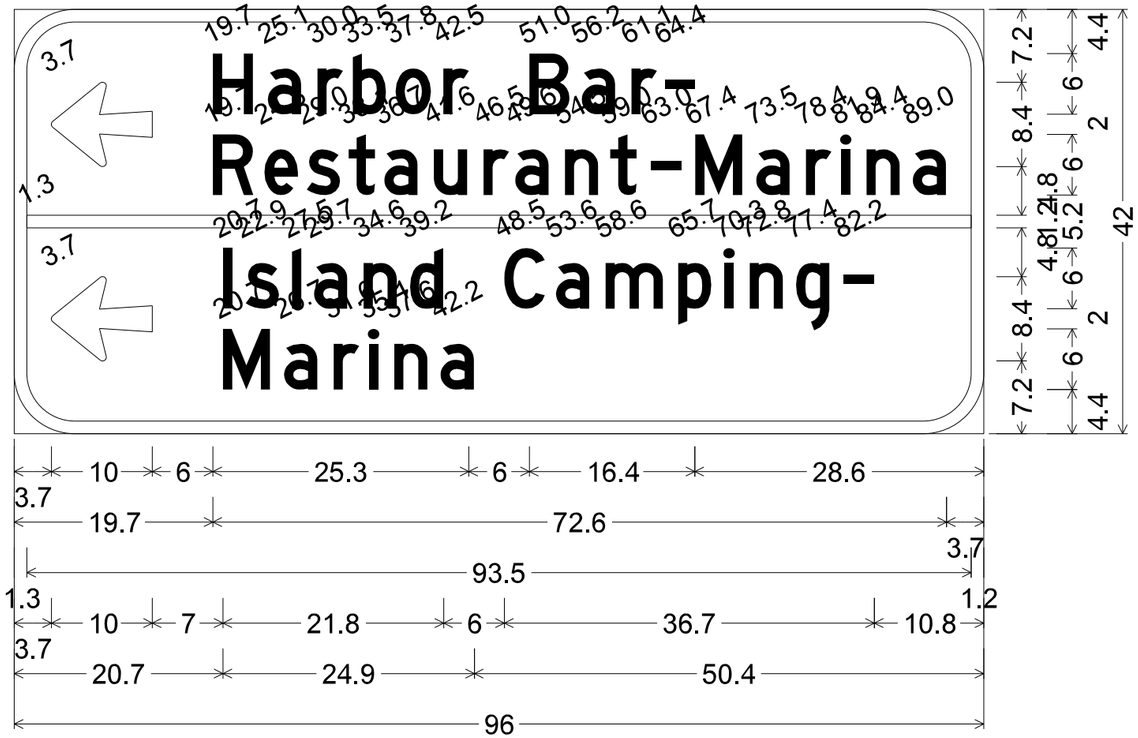
SPECIAL SIGN DETAILS



3.0" Radius, 1.0" Border, Black on Orange;
[825TH ST] C;



6.0" Radius, 1.3" Border, Black on Orange;
[Harbor Bar-] D; [Restaurant-Marina] D; Arrow 3 - 10.0" 0°;
[Island Camping-] D; [Marina] D; Arrow 3 - 10.0" 0°;



6.0" Radius, 1.3" Border, Black on Orange;
Arrow 3 - 10.0" 180°; [Harbor Bar-] D; [Restaurant-Marina] D;
Arrow 3 - 10.0" 180°; [Island Camping-] D; [Marina] D;

NO	DATE	BY	CKD	APPR	REVISION
					...\ttcsampleplan.dgn

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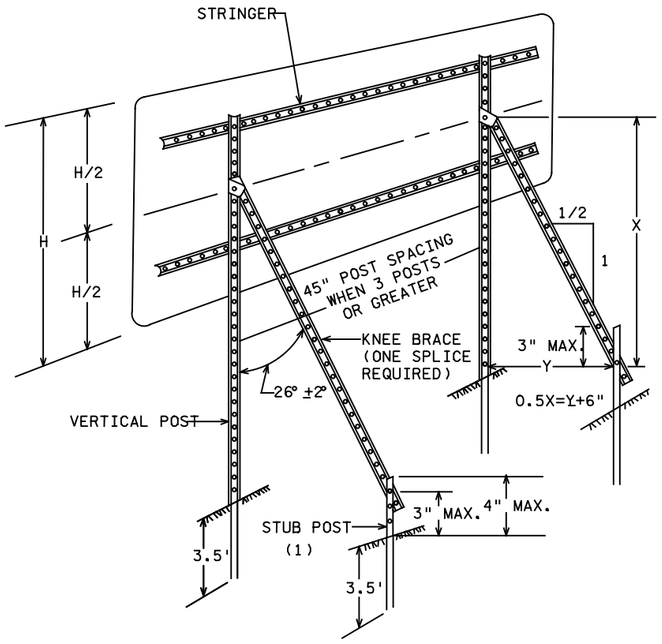
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)

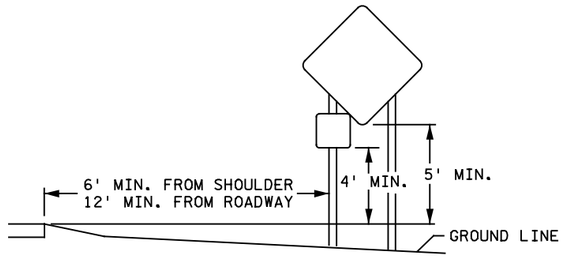
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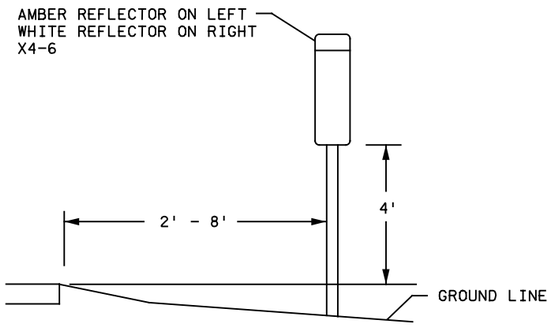
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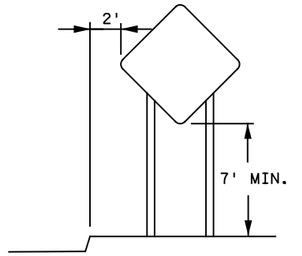
TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS



TYPICAL RURAL DESIGN



DELINEATION MOUNTING



TYPICAL URBAN DESIGN

SIGN DATA

SIGNS TO BE PLACED ON DRIVEN U-POSTS, SHALL BE PLACED IN ACCORDANCE WITH TABLE 1 OR TABLE 2 BELOW. IF THE TTC PLAN PLACES TTC DEVICES ADJACENT TO EXISTING STRUCTURES, THEN THEY SHOULD BE PLACED SLIGHTLY BEYOND THAT STRUCTURE, SO AS TO NOT COMPROMISE THAT STRUCTURE AND THE NEW DEVICE'S CRASHWORTHINESS (NO MORE THAN TWO U-POSTS WITHIN 84 INCHES, ALIGNED IN THE SAME PLANE). SIGN PANELS SHALL BE PLACED ON SIGN STRUCTURES TO MEET THE 5' MIN DEPICTED ON THE TYPICAL RURAL DESIGN DETAIL, THE 7' MIN DEPICTED ON THE TYPICAL URBAN DESIGN DETAIL, OR 7' MIN AND 9' MIN DEPICTED ON THE TYPICAL MOUNTING DETAIL ON THIS SHEET.

TABLE 1

STANDARD CONSTRUCTION SIGNS IN MN/DOT STANDARD SIGNS AND MARKINGS MANUAL

PANEL SIZE (IN.)	POSTS			
	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
24 x 24	2-U	18		13
30 x 24	2-U	18		13
36 x 30	2-U	24		13
36 x 36	2-U	18		14
42 x 36	2-U	30		14
48 x 48	2-U	30		15
60 x 60	2-U	42	1	16
72 x 72	2-U	42	2	17
96 x 54	2-U	54	2	16
168 x 132	4-U	48	4	20

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE MN/DOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING HOLES.

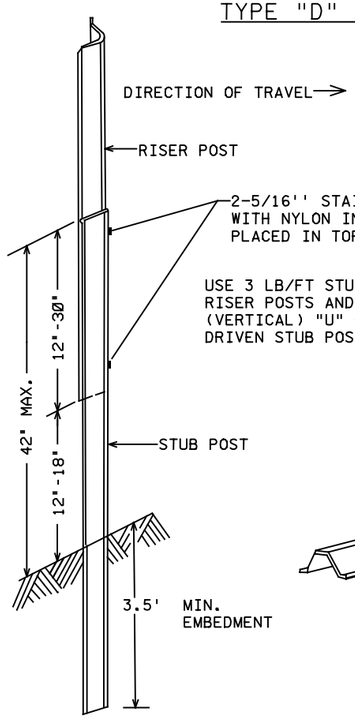
TABLE 2

SPECIAL DESIGN CONSTRUCTION SIGNS

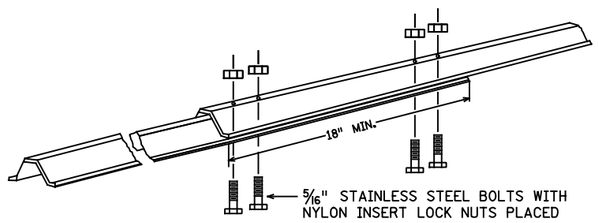
PANEL SIZE		POSTS			
LENGTH (IN.)	HEIGHT (IN.)	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
54 - 96	78	2-U	42	2	20
102 - 138	78	3-U	45	3	20
144 - 180	78	4-U	45	4	20

DESIGNER NOTE:

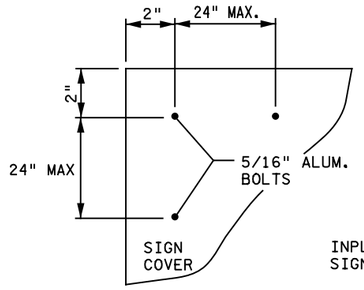
INCLUDE SPECIAL SIGN DETAILS IN THE TRAFFIC CONTROL PLAN IN TABLE TWO.

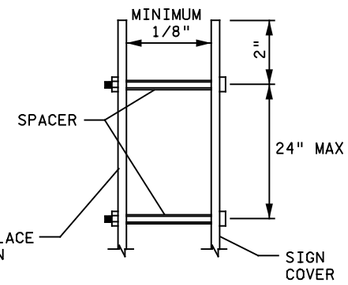


"U" POST BREAKAWAY SPLICE



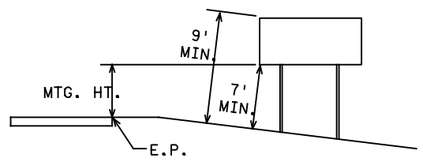
KNEE BRACE STRUCTURAL SPLICE





SPACER SHALL BE A MATERIAL THAT DOES NOT HARM THE SIGN SHEETING FACE (SUCH AS PLASTIC OR RUBBER).
REFER TO TRAFFIC ENGINEERING MANUAL CHAPTER 8 FOR MORE INFORMATION ON COVERING SIGNS

SIGN PANEL OVERLAY



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST.

NOTES:

FOR TEMPORARY CONSTRUCTION SIGN FRAMING, THE CONTRACTOR MAY USE GRADE 5 ZINC PLATED BOLTS FOR ALL BOLTED CONNECTIONS, EXCEPT FOR THE KNEE BRACE CONNECTION TO THE REAR STUB POST, WHICH SHALL UTILIZE A 5/16 INCH STAINLESS STEEL BOLT AND NYLON INSERT LOCK NUT. ADDITIONAL SIGN FRAMING DETAILS CAN BE FOUND IN THE TRAFFIC ENGINEERING MANUAL PART 6.

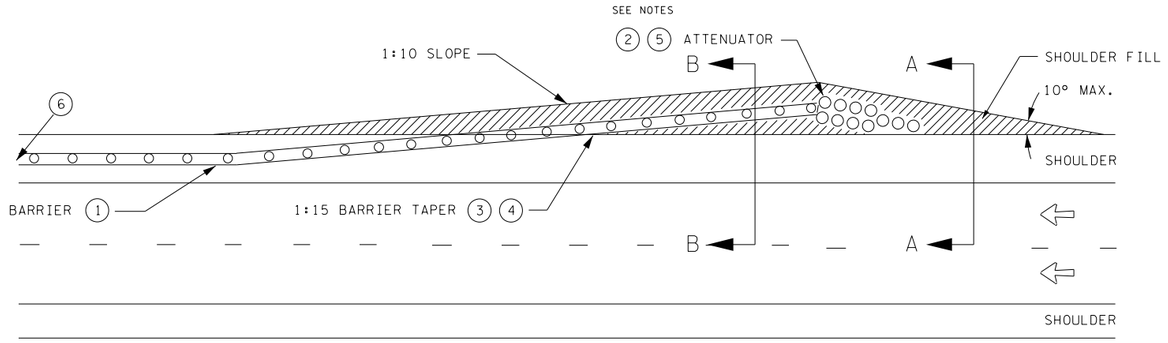
IF THE CONTRACTOR ELECTS TO USE SOME OTHER TYPE OF SIGN SUPPORT (OTHER THAN U-CHANNEL SIGN POSTS) FOR MOUNTING CONSTRUCTION SIGNS, DETAILS OF THE PROPOSED SIGN STRUCTURE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE SIGN STRUCTURE COMPONENTS. ANY SIGN STRUCTURE TO BE SUBMITTED TO THE ENGINEER SHALL BE AN FHWA ACCEPTED BREAKAWAY SIGN SUPPORT. SIGN STRUCTURE SHALL ALSO BE APPROVED FOR 90 MPH WIND LOAD.

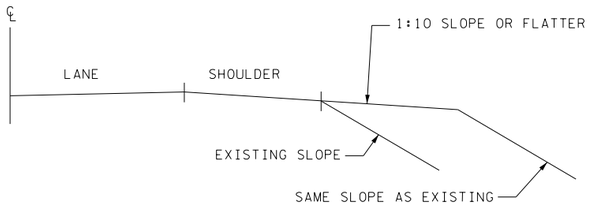
GUIDE SIGNS SHOWN TO BE COVERED SHALL BE COVERED WITH THE SAME COLOR AS THE SIGN BACKGROUND. THE CONTRACTOR SHALL PLACE COVERS OR ADDITIONAL SIGNS USING A MINIMUM 1/8" PLASTIC SPACER BETWEEN THE INPLACE SIGN AND THE COVERING MATERIAL. HOLES WILL BE DRILLED IN THE COVER AND THE INPLACE SIGN AND SHALL BE PLACED IN ACCORDANCE TO THE SIGN PANEL DETAIL. SPACERS ARE REQUIRED. MID-PANEL SPACING SHALL BE NO GREATER THAN 24".

TYPICAL TEMPORARY SIGN FRAMING AND INSTALLATION DETAILS

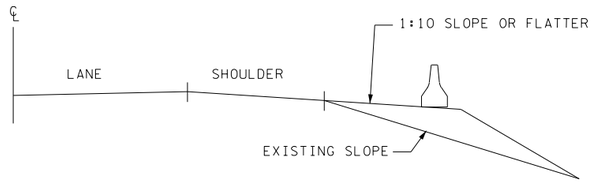
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IPLOT NAME: $$@IPLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$

REVISED: 2-3-16





SECTION A-A



SECTION B-B

DESIGNER NOTES (REMOVE FROM LAYOUT BEFORE INSERTING IN PLAN):

1. IT IS DESIRABLE TO MAINTAIN FULL SHOULDER WIDTH WHENEVER POSSIBLE. IF THAT IS NOT POSSIBLE, THE MINIMUM DESIRABLE LATERAL OFFSETS ARE BASED ON THE FOLLOWING POSTED SPEED LIMITS:

   70 MPH - 12.0 FEET
   60 MPH - 8.0 FEET
   50 MPH - 6.5 FEET
   40 MPH - 5.0 FEET

   FOR RESTRICTED CONDITIONS, LESSER OFFSETS MAY BE USED. THE OFFSETS SHOULD BE A MINIMUM OF 2 FEET UNLESS THE CONDITIONS ARE EXTREME. LATERAL OFFSETS ARE MEASURED TO THE BOTTOM OF THE BARRIER. BARRIER OFFSET FROM THE EDGE OF THE THRU LANE SHOULD NOT EXCEED 15 FEET.

2. DESIRABLE TREATMENTS FOR EXPOSED BARRIER ENDS ARE; A CONNECTION TO EXISTING BARRIER; IMPACT ATTENUATOR; TAPER AWAY TO THE EDGE OF THE CLEAR ZONE; AND EXTENDING THROUGH A PLATE BEAM GUARDRAIL BY REMOVING A PANEL.

   FOR POSTED SPEED LIMITS OF 30 MPH OR LESS, THE TAPERING AWAY FROM THE TRAFFIC IS DESIRABLE AND THE USE OF AN IMPACT ATTENUATOR IS OPTIONAL.

3. A 1:8 TAPER MAY BE USED WHEN THE POSTED SPEED LIMIT IS 35 MPH OR LESS.

   A 1:12 TAPER MAY BE USED WHEN THE POSTED SPEED LIMIT IS 45 MPH OR LESS.

4. IF THE BARRIER IS TO BE EXTENDED BEYOND THE SHOULDER, ADDITIONAL FILL WILL BE NEEDED IN ORDER TO PROVIDE A FLAT (1:10) APPROACH AREA TO THE BARRIER. (SEE SHOULDER FILL DETAIL).

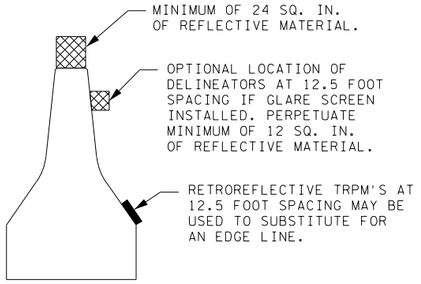
5. THE IMPACT ATTENUATOR SHOULD BE OFFSET A MINIMUM OF 2 FEET FROM THE EDGE OF THE THRU LANE (SEE SAND BARREL OFFSET DETAIL). THE IMPACT ATTENUATOR SHOULD BE ORIENTED TO ACCOMMODATE THE PROBABLE IMPACT ANGLE OF AN ENCROACHING VEHICLE. FOR MOST ROADSIDE CONDITIONS, AN ANGLE OF APPROXIMATELY 10 DEGREES, AS MEASURED BETWEEN THE HIGHWAY AND THE IMPACT ATTENUATOR LONGITUDINAL CENTERLINE, IS CONSIDERED APPROPRIATE. (SEE SHOULDER FILL DETAIL). FOR SAND BARREL ARRANGEMENT, SEE SAND FILLED BARREL OFFSET DETAIL.

6. FOR TWO-LANE, TWO-WAY TRAFFIC, BOTH ENDS OF THE BARRIER SHOULD BE TREATED IN THE SAME MANNER AS DESCRIBED IN (2).

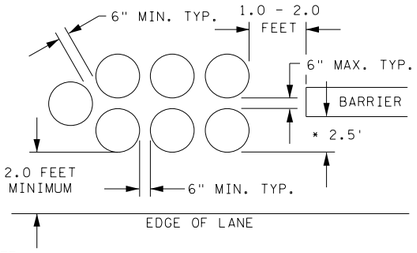
SEE MANUFACTURERS SPECIFICATIONS FOR BARREL ARRAY SET UP.

DELINEATION OPTIONS FOR BARRIER

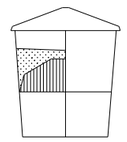
(7) DELINEATOR @ 25' SPACING



SAND FILLED BARREL OFFSET



NOTE:
* DISTANCE MAY BE REDUCED TO MINIMUM OF 1.25 FEET THIS IS ACCEPTABLE ONLY WHERE A GREATER OFFSET WOULD CAUSE UNACCEPTABLE INTERFERENCE WITH TRAFFIC.



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

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

10/22/14 LAYOUT 19

PORTABLE CONCRETE BARRIER PLACEMENT AND END TREATMENT

NO	DATE	BY	CKD	APPR	REVISION

...\layout 19.dgn

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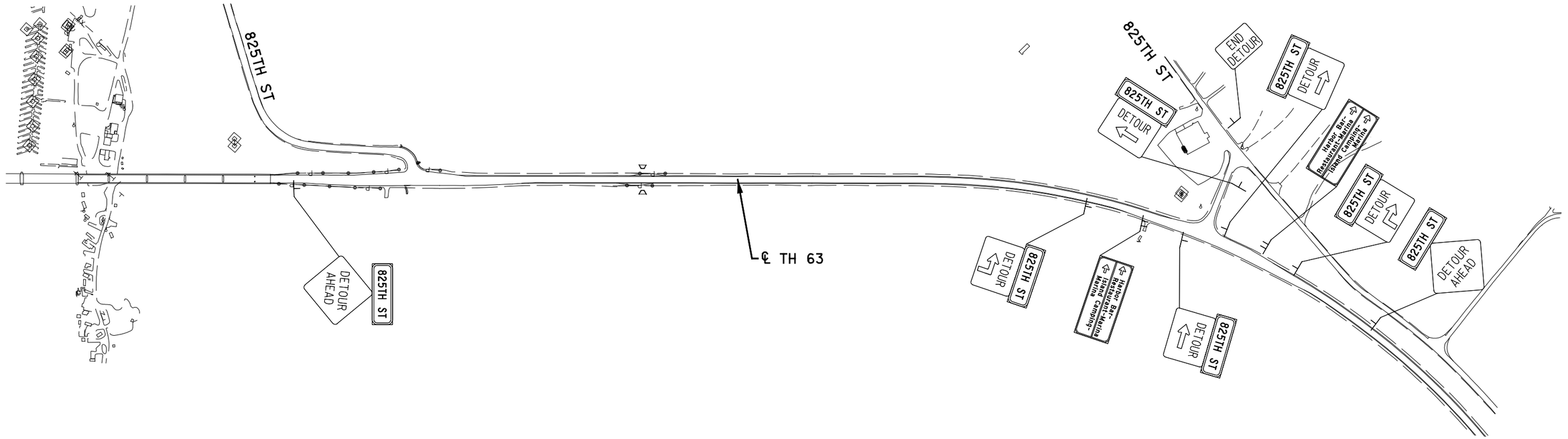
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DESIGNED BY A.DEBRUIN
CHECKED BY A.NORD
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
IMPACT ATTENUATOR BARREL DETAILS

SHEET 167 OF 688

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6/22/2016
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0 200 400
SCALE IN FEET

STAGES 1 - 5

NO	DATE	BY	CKD	APPR	REVISION

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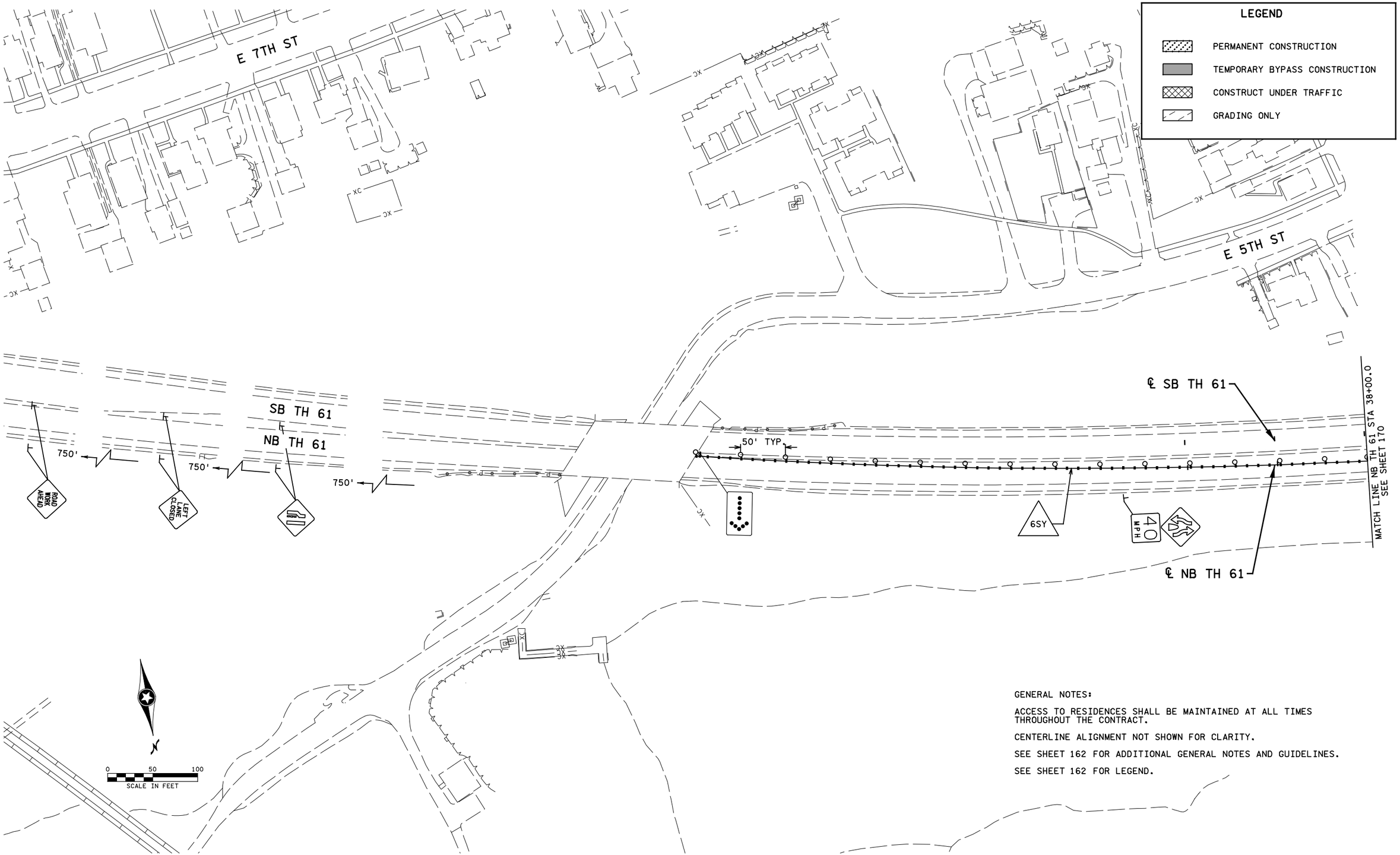
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

825TH ST DETOUR

SHEET 168 OF 688

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6/2/2016
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GENERAL NOTES:

ACCESS TO RESIDENCES SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE CONTRACT.

CENTERLINE ALIGNMENT NOT SHOWN FOR CLARITY.

SEE SHEET 162 FOR ADDITIONAL GENERAL NOTES AND GUIDELINES.

SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_tc1a01.dgn

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TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 1A

SHEET 169 OF 688

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CENTENNIAL ST
E 5TH ST
ARKIN ST
GREEN ST
E 4TH ST
SANDERSON ST
E 3RD ST
ROAD MARK AHEAD
ROAD CLOSED
ROAD CLOSED
℄ SB TH 61
TL3 IMPACT ATTENUATOR BARRELS
6SW
4SW
NO PASSING ZONE
50' TYP.
100' TYP.
40
40
400
45
45
405
50
50
410
12' LANE
12' LANE
25' TYP.
100' TYP.
6SY
6SY
4SW
4DY
DO NOT ENTER
DO NOT PASS
SEE SHEET 169 MATCH LINE NB TH 61 STA 38+00.0
MATCH LINE NB TH 61 STA 52+70.0 SEE SHEET 171
℄ NB TH 61
℄ BYPASS 4

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

0 50 100
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION
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DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 1A

SHEET 170 OF 688

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6/2/2016
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SCALE IN FEET
0 50 100

℄ 4TH ST
E 4TH ST
W 4TH ST
POTTER ST
℄ 3RD ST
℄ TH 58
℄ BLUFF ST
℄ TH 63
E 3RD ST
℄ TH 63-SLIP
℄ BYPASS 1
℄ POTTER ST
℄ BYPASS 2
℄ BYPASS 4
℄ SB TH 61
℄ NB TH 61
PLUM ST
SEE SHEET 170
TH 61 STA 52+70.0
MATCH LINE NB
ROAD WORK AHEAD
ROAD CLOSED
SIDEWALK CLOSED
TL2 IMPACT ATTENUATOR ASSEMBLY
40 MPH
30 MPH
SPEED LIMIT 30
NO PASSING ZONE
4DY
DO NOT PASS
4SW
6SW
6SY
12' LANE
25' TYP.
ONLY
DO NOT ENTER
ANCHORED BARRIER
MATCH LINE TH 63 STA 115+30.0
SEE SHEET 172

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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WISCONSIN PROJECT I.D. 7210-00-78

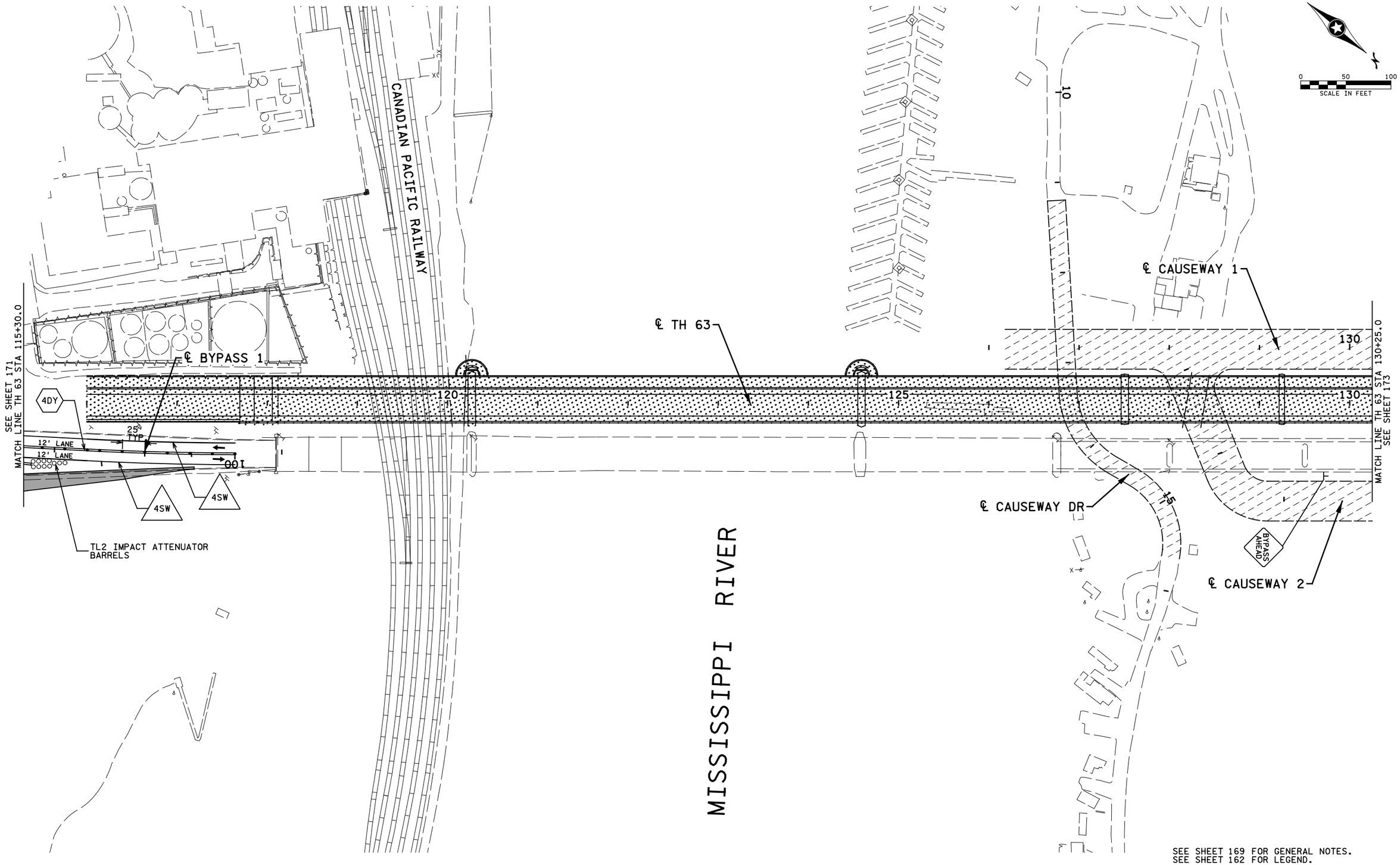
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DESIGNED BY A.DEBRUIN
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SP 2515-21 (TH 63)
STAGE 1A

SHEET 171 OF 688

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SEE SHEET 162 FOR LEGEND.

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TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 1A

SHEET 172 OF 688

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6/22/2016
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825TH ST

200

ROAD CLOSED

0 50 100
SCALE IN FEET

℄ 825TH ST W

℄ CAUSEWAY 1

220

135

215

4SW

ROAD CLOSED

℄ BYPASS 5

℄ TH 63

4SW

SEE SHEET 172
MATCH LINE TH 63 STA 130+25.0

4DY

205

135

140

500

11' LANE

11' LANE

335

305

310

145

MATCH LINE TH 63 STA 145+25.0
SEE SHEET 174

130

100' TYP.

340

345

LANES NARROW

ROAD WORK AHEAD

135

210

4SW

℄ BYPASS 3

TL3 IMPACT ATTENTUATOR ASSEMBLIES

℄ CAUSEWAY 2

℄ 825TH ST E

ROAD CLOSED

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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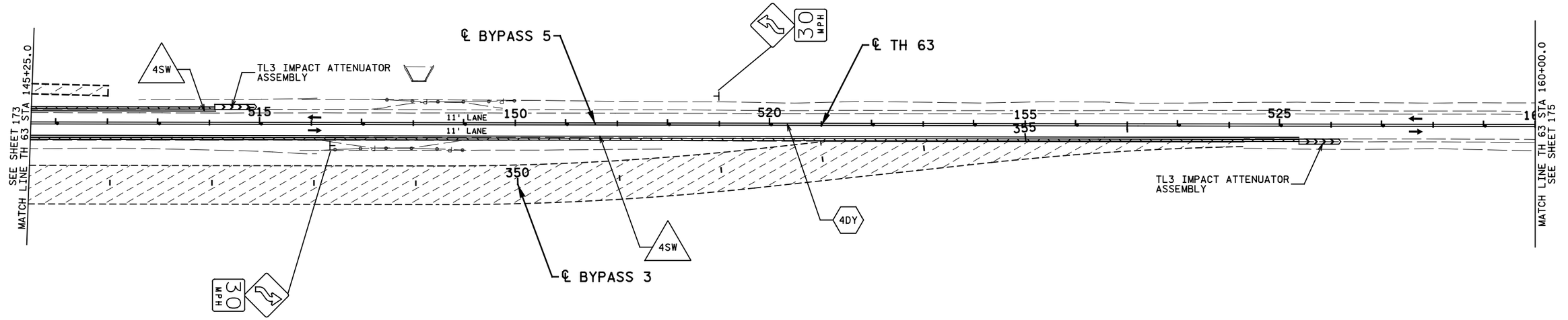
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 1A

SHEET 173 OF 688

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SEE SHEET 162 FOR LEGEND.

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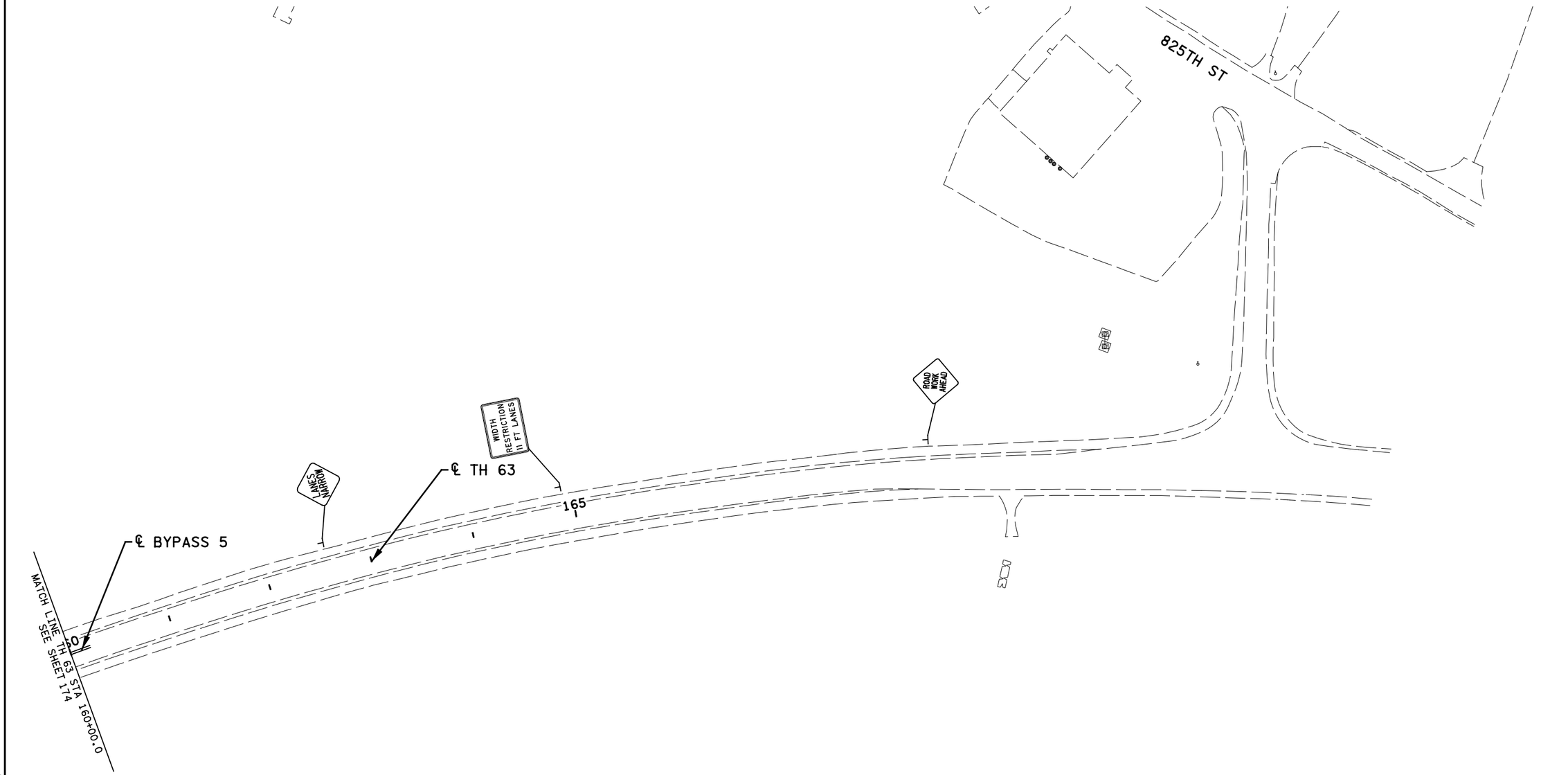
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 1A

SHEET 174 OF 688

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SP 2515-21 (TH 63)

STAGE 1A

SHEET 175 OF 688

11:32:25 AM
6/2/2016
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E 7TH ST

E 5TH ST

SB TH 61

NB TH 61

℄ SB TH 61

℄ NB TH 61

750'

750'

750'

50' TYP

100' TYP.

ROAD WORK AHEAD

RIGHT LANE CLOSED

1/2 MILE

40 MPH

6SY

MATCH LINE NB TH 61 STA 38+00.0
SEE SHEET 177

0 50 100
SCALE IN FEET

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_tc1b01.dgn

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TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 1B

SHEET 176 OF 688

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6/2/2016
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CENTENNIAL ST
E 5TH ST
ARKIN ST
GREEN ST
E 4TH ST
SANDERSON ST
E 3RD ST

℄ BYPASS 6
℄ SB TH 61
℄ NB TH 61

6SW
6SW
4SW
4SW
4DY

50' TYP
50' TYP

40
40
100
45
45
105
50
50

NO PASSING ZONE
DO NOT ENTER
DO NOT ENTER
DO NOT PASS
ROAD CLOSED

TL3 IMPACT ATTENUATOR BARRELS
TL3 IMPACT ATTENUATOR ASSEMBLY

MATCH LINE NB TH 61 STA 38+00.0
SEE SHEET 176
MATCH LINE NB TH 61 STA 52+70.0
SEE SHEET 178

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

0 50 100
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 1B

SHEET 177 OF 688

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℄ 4TH ST
E 4TH ST
W 4TH ST
℄ 3RD ST
POTTER ST
℄ TH 58
℄ BLUFF ST
℄ TH 63
E 3RD ST
℄ TH 63-SLIP
℄ POTTER ST
℄ BYPASS 1
℄ BYPASS 2
℄ SB TH 61
PLUM ST
ROAD CLOSED
ROAD WORK AHEAD
SIDEWALK CLOSED
BYPASS AHEAD
30 MPH
SPEED LIMIT 30
DOT PASS
4SW
4DY
6SW
6SY
ONLY
12' LANE
NO PASSING ZONE
TL3 IMPACT ATTENUATOR ASSEMBLY
TL2 IMPACT ATTENUATOR ASSEMBLY
TL2 IMPACT ATTENUATOR BARRELS
25' TYP
SEE SHEET 177
MATCH LINE NB TH 61 STA 52+70.0
MATCH LINE TH 63 STA 115+30.0
SEE SHEET 179
SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.
0 50 100
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION
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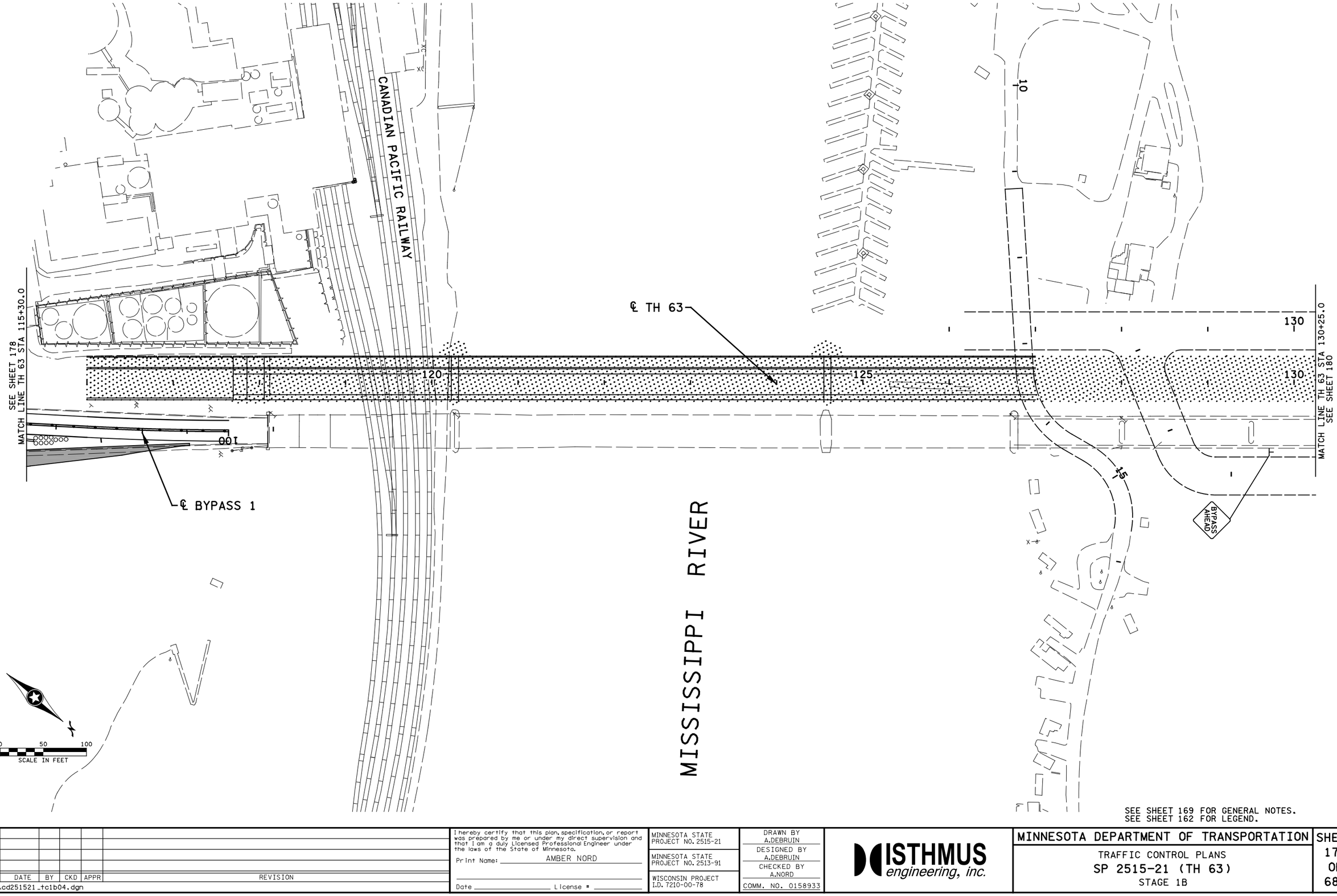
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SP 2515-21 (TH 63)
STAGE 1B

SHEET 178 OF 688

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SEE SHEET 162 FOR LEGEND.

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DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 1B

SHEET 179 OF 688

11:32:30 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_tc1b04.dgn

825TH ST

200

ROAD CLOSED

℄ 825TH ST W

220

135

215

ROAD CLOSED

℄ BYPASS 5

℄ TH 63

135

140

205

500

335

305

310

145

SEE SHEET 179
MATCH LINE TH 63 STA 130+25.0

130

340

345

MATCH LINE TH 63 STA 145+25.0
SEE SHEET 181

LANES NARROW

ROAD WORK AHEAD

℄ BYPASS 3

135

210

℄ 825TH ST E

ROAD CLOSED

0 50 100
SCALE IN FEET

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_tc1b05.dgn

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A.DEBRUIN
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COMM. NO. 0158933

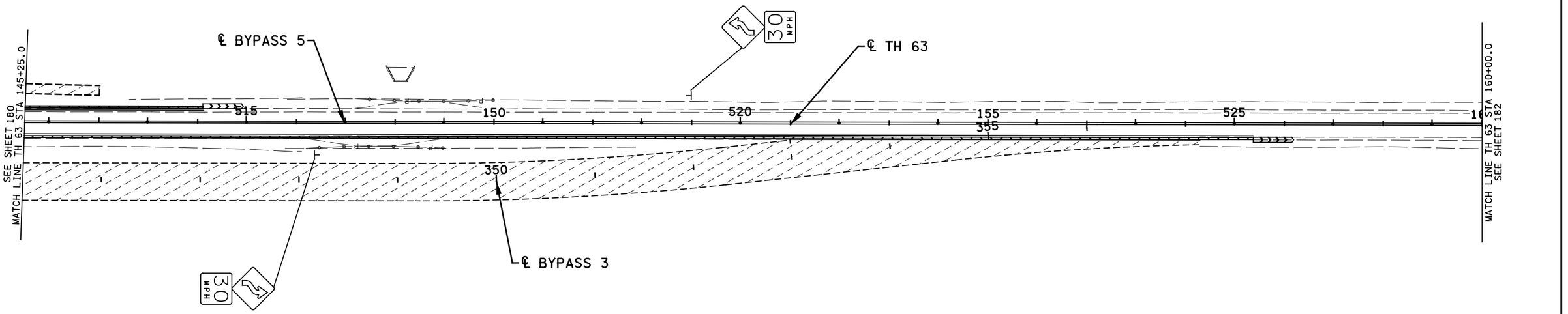
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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 1B

SHEET 180 OF 688

11:32:31 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_tc1b05.dgn



SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_tc1b06.dgn					

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

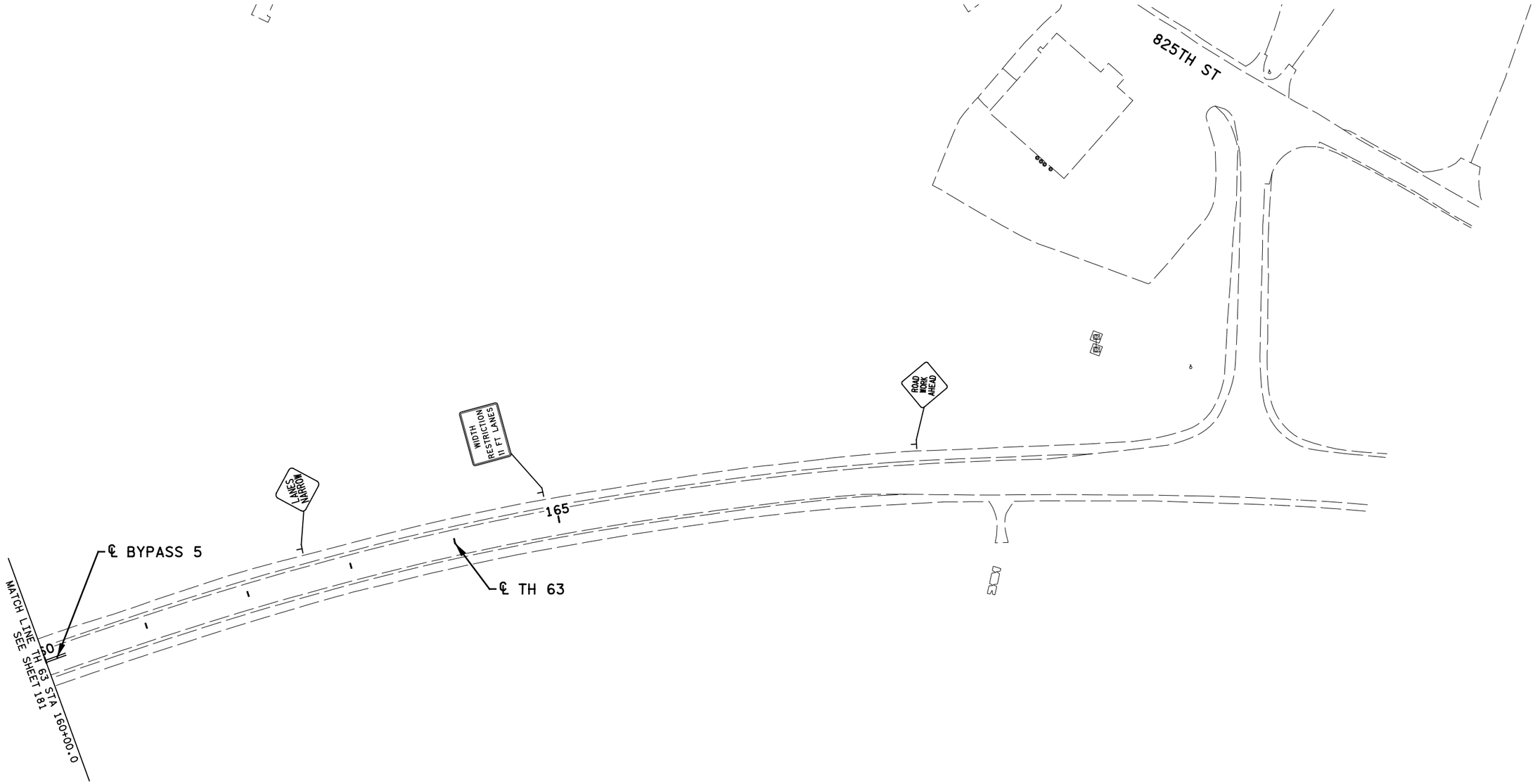
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MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 1B

SHEET 181 OF 688

11:32:32 AM
6/2/2016
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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_tc1b07.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

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DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

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TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 1B

SHEET 182 OF 688

11:32:33 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FInalPlanDGN\cd251521_tc1b07.dgn

E 7TH ST

E 5TH ST

SB TH 61

NB TH 61

ROAD WORK AHEAD

FINAL PAVEMENT MARKINGS
SEE PAVEMENT MARKING PLANS

℄ SB TH 61

℄ NB TH 61

MATCH LINE NB TH 61 STA 38+00.0
SEE SHEET 184

N

0 50 100
SCALE IN FEET

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_tc201.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 2

SHEET 183 OF 688

11:32:34 AM
6/22/2016
H:\Projects\8933\Design\PlanSheets\FinalPlan\DGN\cd251521_tc201.dgn

CENTENNIAL ST

E 5TH ST

ARKIN ST

GREEN ST

E 4TH ST

SANDERSON ST

E 3RD ST

℄ SB TH 61

℄ NB TH 61

40

40

45

45

50

50

SEE SHEET 183
MATCH LINE NB TH 61 STA 38+00.0

FINAL PAVEMENT MARKINGS
SEE PAVEMENT MARKING PLANS

MATCH LINE NB TH 61 STA 52+70.0
SEE SHEET 185

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

0 50 100
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_tc202.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 2

SHEET 184 OF 688

11:32:41 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_tc202.dgn

E 4TH ST
W 4TH ST
℄ 4TH ST
℄ BLUFF ST
POTTER ST
℄ TH 58
℄ 3RD ST
PLUM ST
℄ TH 63-SLIP
E 3RD ST
FINAL PAVEMENT MARKINGS SEE PAVEMENT MARKING PLANS
℄ TH 63
℄ BYPASS 2
SEE SHEET 184 TH 61 STA 52+70.0
MATCH LINE NB TH 61 STA 52+70.0
SIGNAL SYSTEM
4SW
4DY
4BW
ROAD WORK AHEAD
SIDEWALK CLOSED
ROAD CLOSED
ALTERNATE SIDEWALK CLOSURES
SIDEWALK CLOSED USE OTHER SIDE OF STREET
℄ POTTER ST
℄ SB TH 61
TL2 IMPACT ATTENUATOR ASSEMBLY
℄ NB TH 61
MATCH LINE TH 63 STA 115+30.0 SEE SHEET 186
0 50 100
SCALE IN FEET

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_tc203.dgn

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WISCONSIN PROJECT I.D. 7210-00-78

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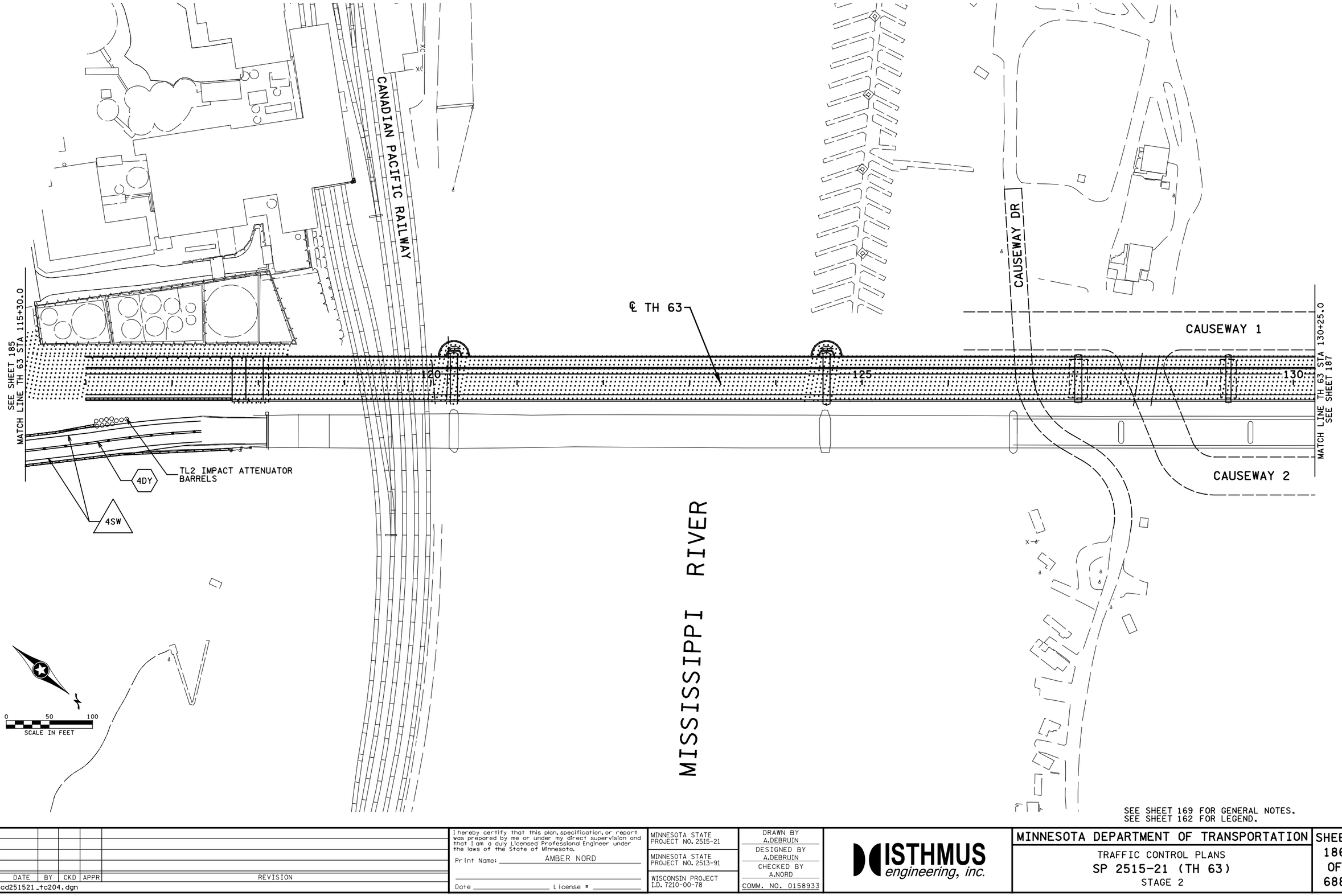
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 2

SHEET 185 OF 688

11:32:42 AM
6/22/2016
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SEE SHEET 169 FOR GENERAL NOTES.
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NO	DATE	BY	CKD	APPR	REVISION
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WISCONSIN PROJECT I.D. 7210-00-78

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TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 2

SHEET 186 OF 688

11:32:44 AM
6/22/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_tc204.dgn

825TH ST

200

ROAD CLOSED

℄ 825TH ST W

220

215

CAUSEWAY 1

℄ TH 63

SEE SHEET 186
MATCH LINE TH 63 STA 130+25.0

135

205

140

ROAD CLOSED

℄ BYPASS 5

℄ TH 63

500

335

505

510

145

MATCH LINE TH 63 STA 145+25.0
SEE SHEET 188

340

345

CAUSEWAY 2

LANES NARROW

ROAD WORK AHEAD

℄ BYPASS 3

210

℄ 825TH ST E

ROAD CLOSED

0 50 100
SCALE IN FEET

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_tc205.dgn

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DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

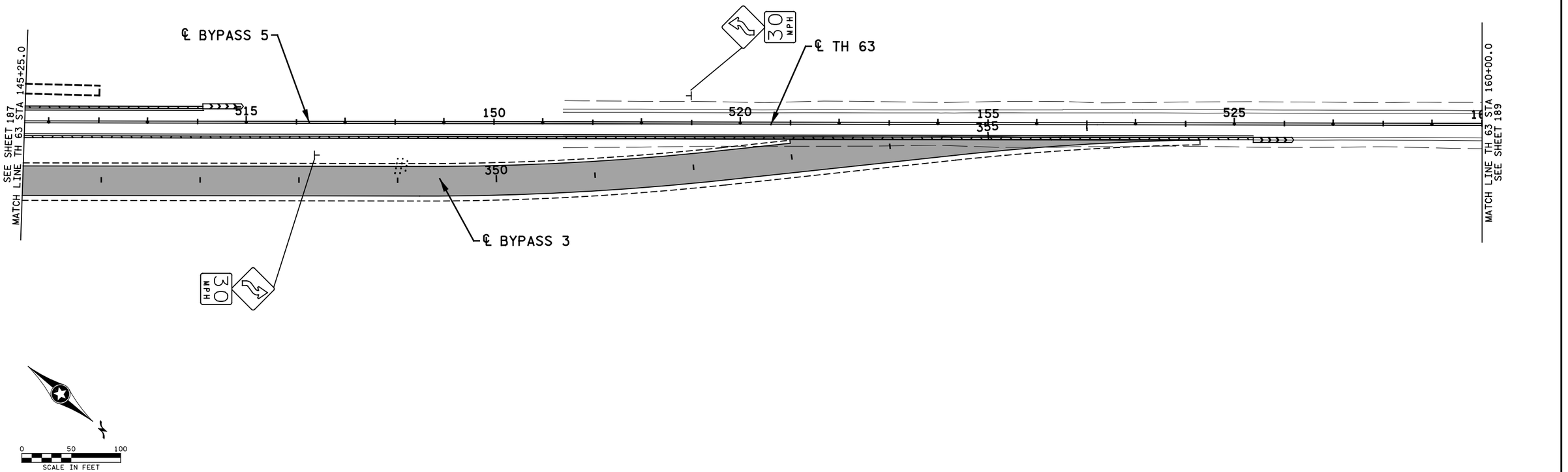
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 2

SHEET 187 OF 688

11:32:45 AM
6/22/2016
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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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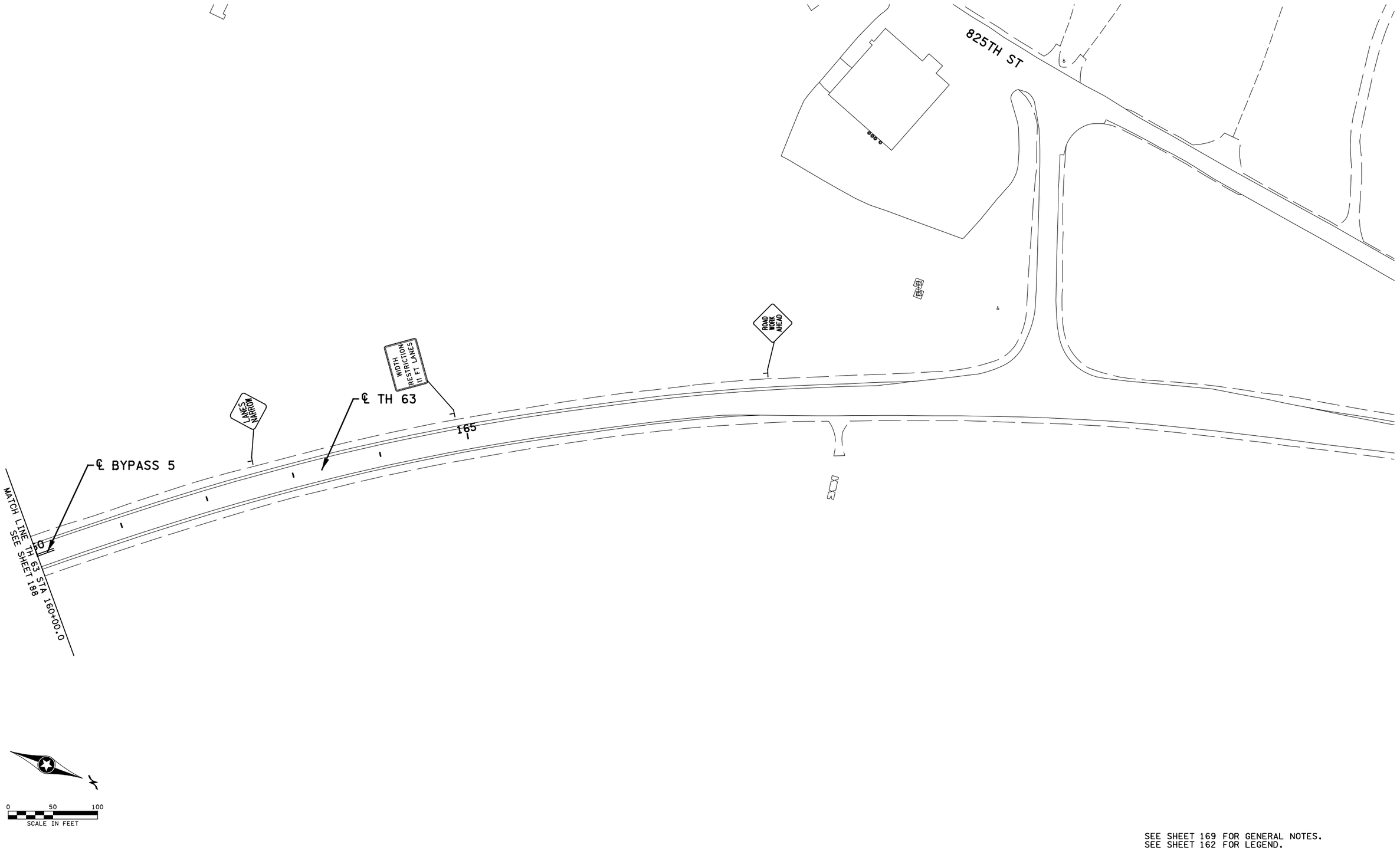
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 2

SHEET 188 OF 688

11:32:46 AM
6/2/2016
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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

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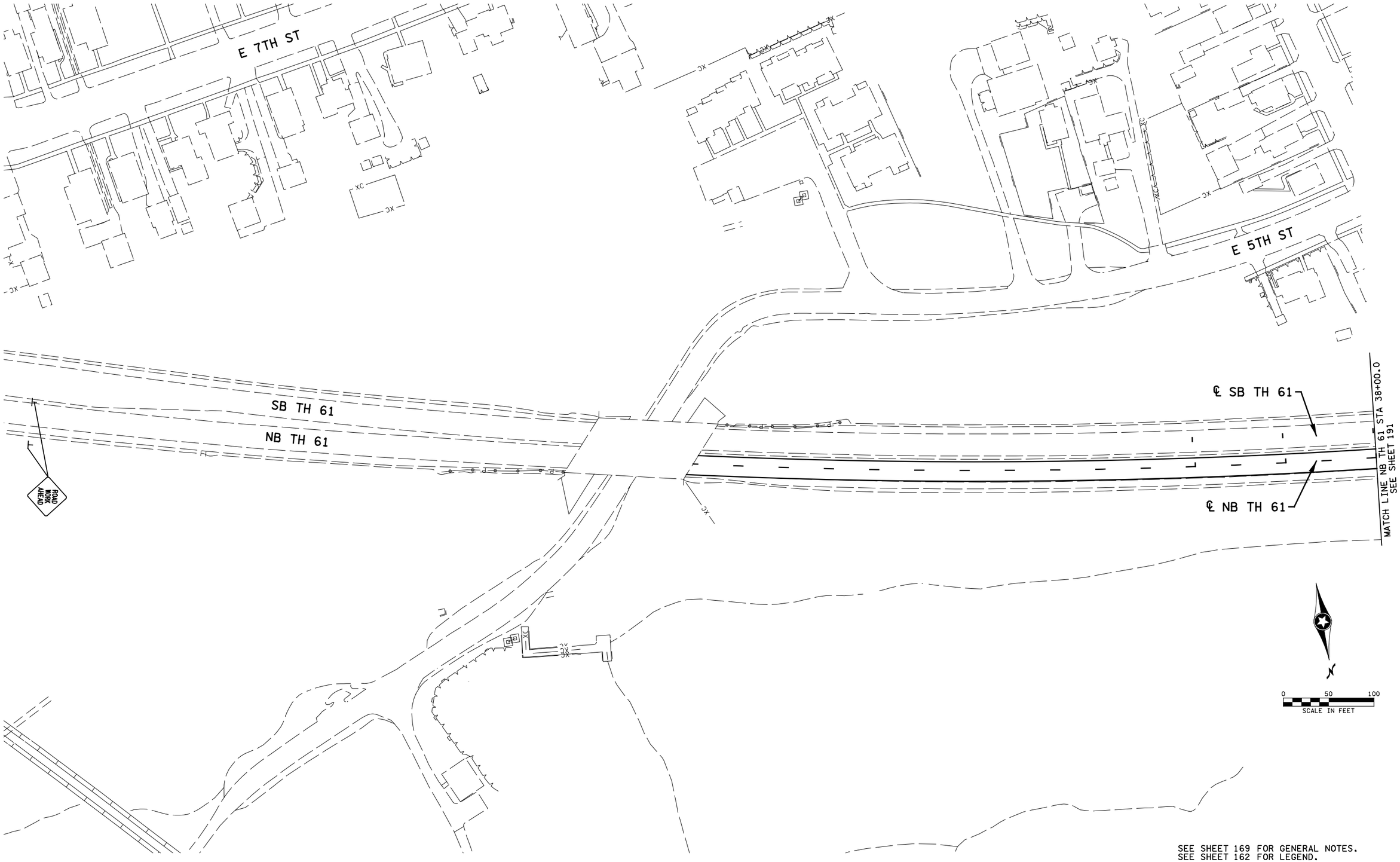
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 2

SHEET 189 OF 688

11:32:47 AM
6/2/2016
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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_tc301.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

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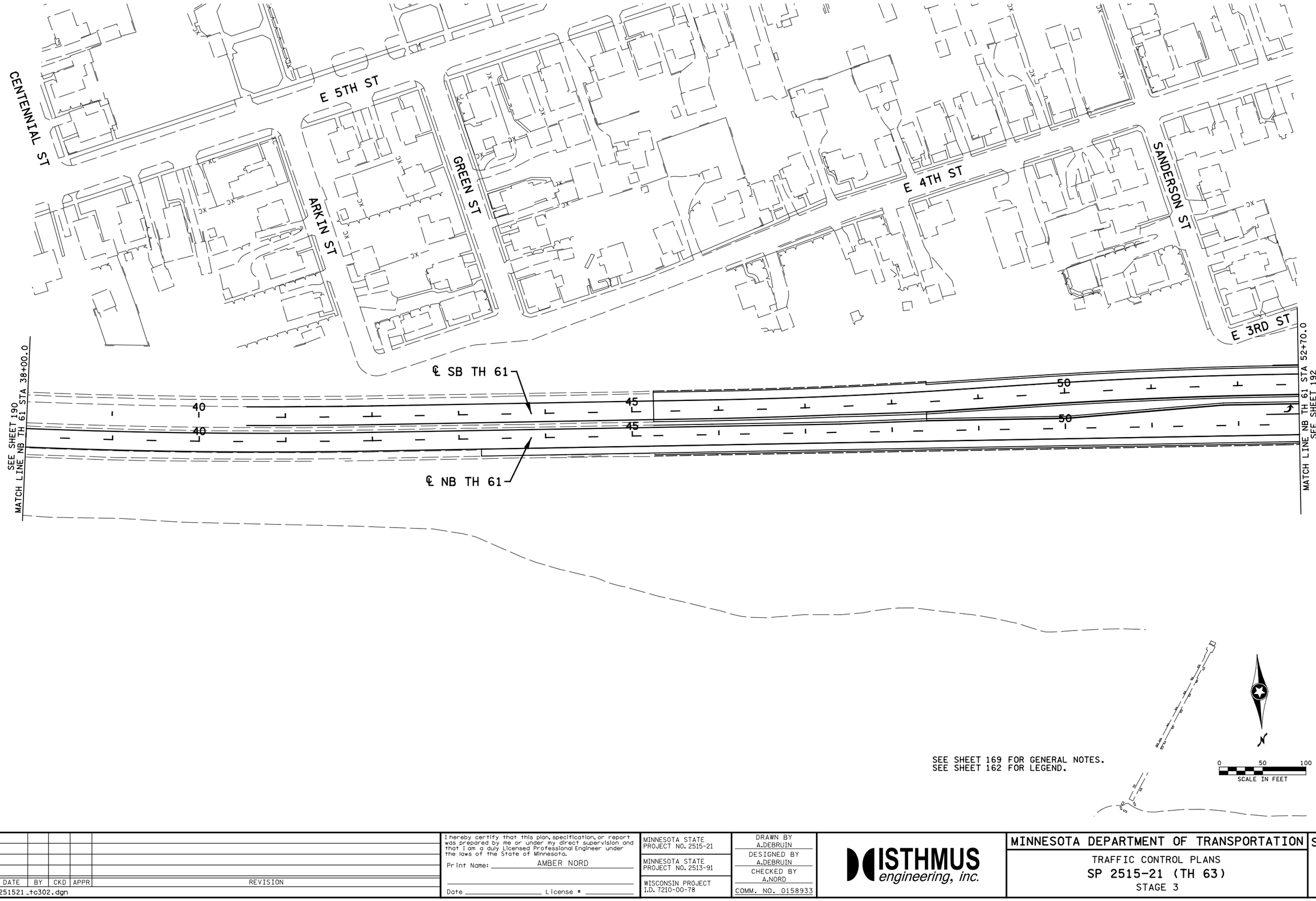
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 3

SHEET 190 OF 688

11:32:48 AM
6/22/2016
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NO	DATE	BY	CKD	APPR	REVISION
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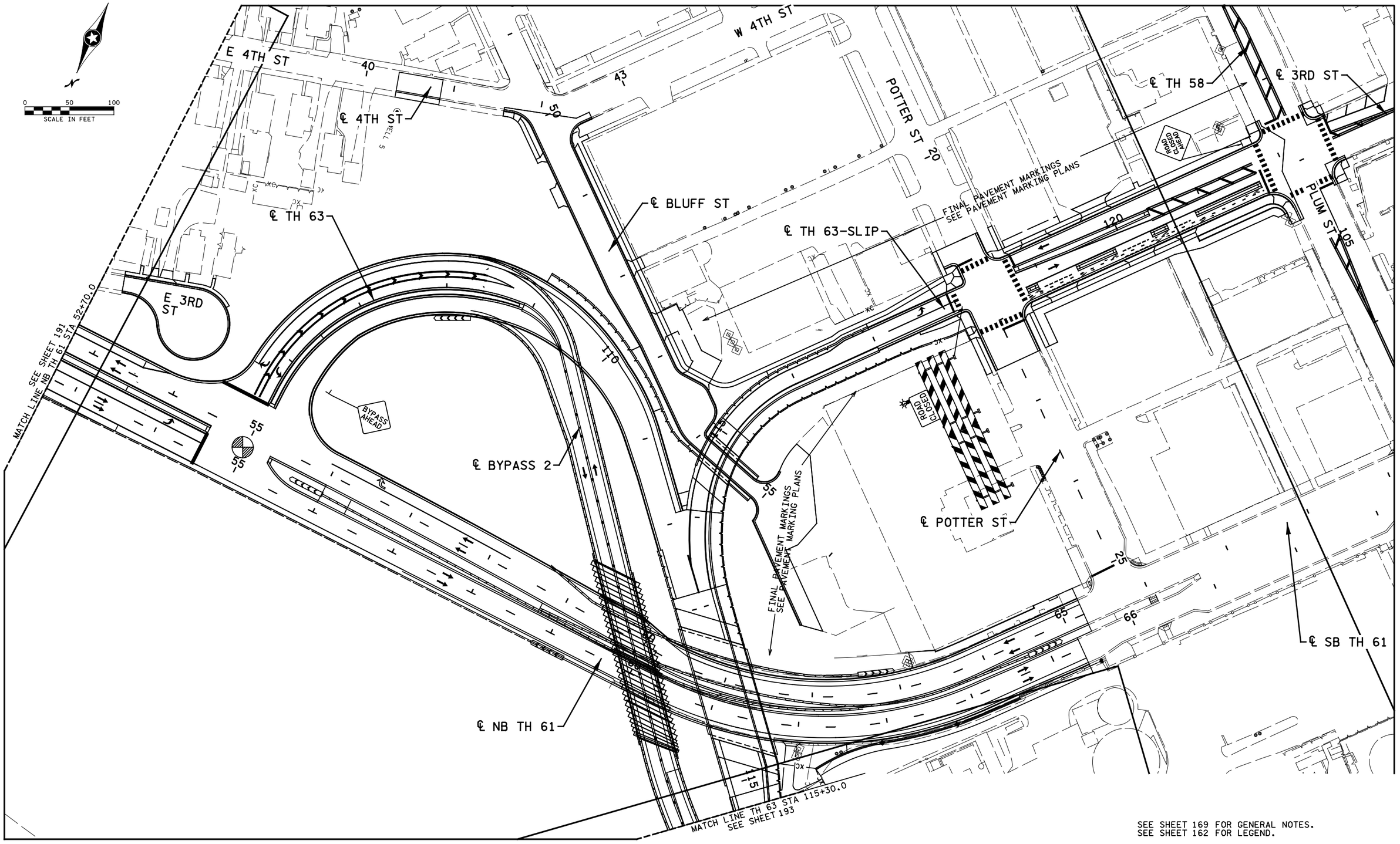
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 3

SHEET 191 OF 688

11:32:49 AM
6/2/2016
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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_tc303.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A.DEBRUIN
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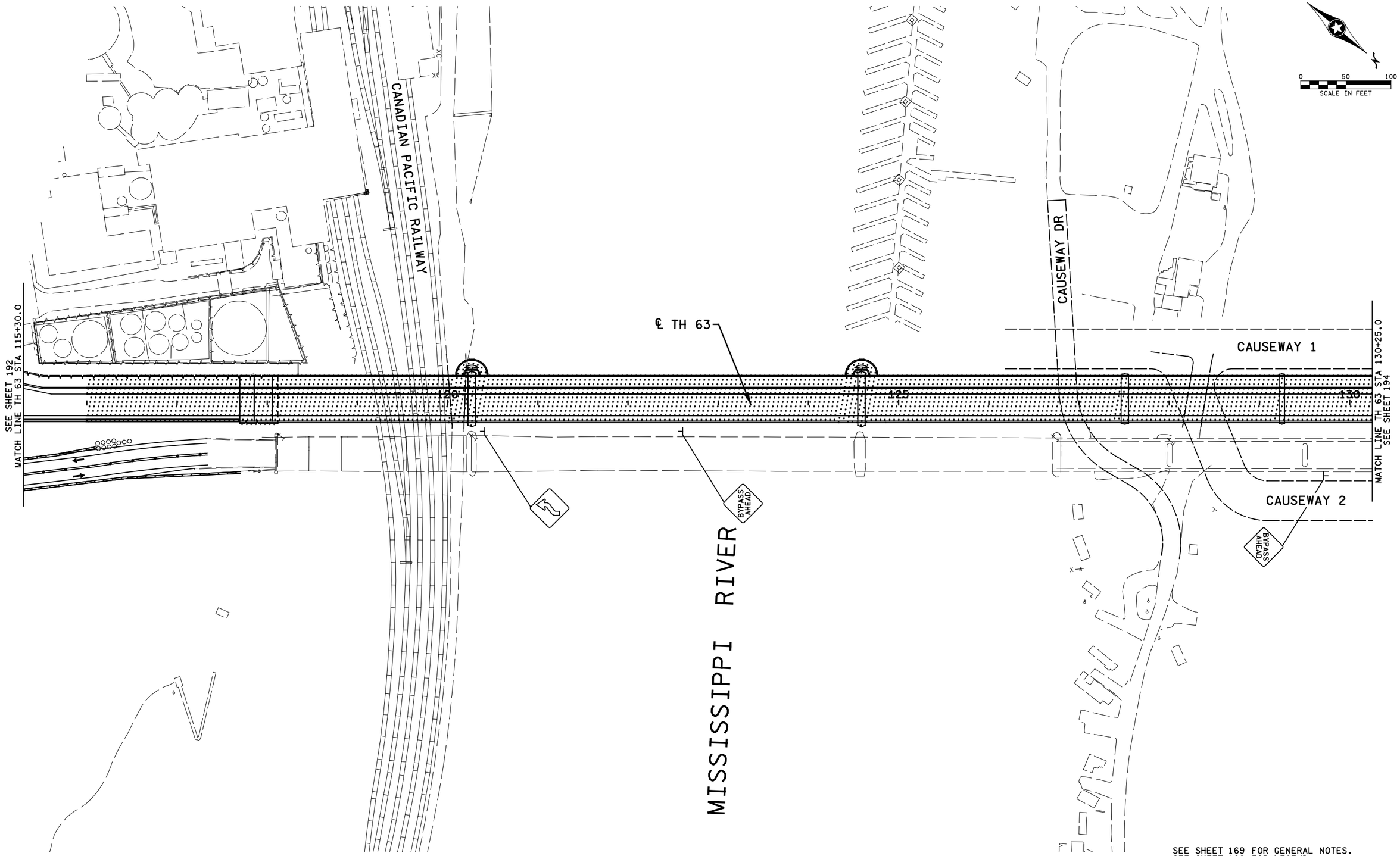
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 3

SHEET 192 OF 688

11:32:50 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_tc303.dgn



SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A.DEBRUIN

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TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 3

SHEET 193 OF 688

11:32:51 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_tc304.dgn

825TH ST
200

ROAD CLOSED

0 50 100
SCALE IN FEET

℄ 825TH ST W

220

CAUSEWAY 1

℄ TH 63

SEE SHEET 193
MATCH LINE TH 63 STA 130+25.0

135

105

11' LANE
11' LANE

100' TYP.

CAUSEWAY 2

LANES NARROW

TL3 IMPACT ATTENTUATOR ASSEMBLY

210

℄ 825TH ST E

ROAD CLOSED

140

℄ TH 63

145

TL3 IMPACT ATTENTUATOR ASSEMBLIES

4SW

4DY

MATCH LINE TH 63 STA 145+25.0
SEE SHEET 195

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_tc305.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

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DESIGNED BY A.DEBRUIN
CHECKED BY A.NORD
COMM. NO. 0158933

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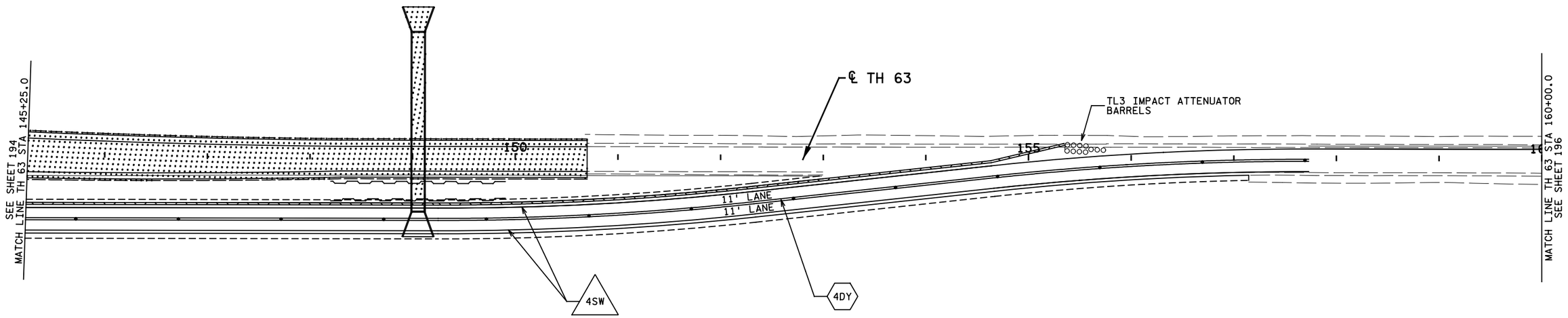
MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 3

SHEET 194 OF 688

11:32:52 AM
6/22/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_tc305.dgn

0 50 100
SCALE IN FEET



SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_tc306.dgn

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

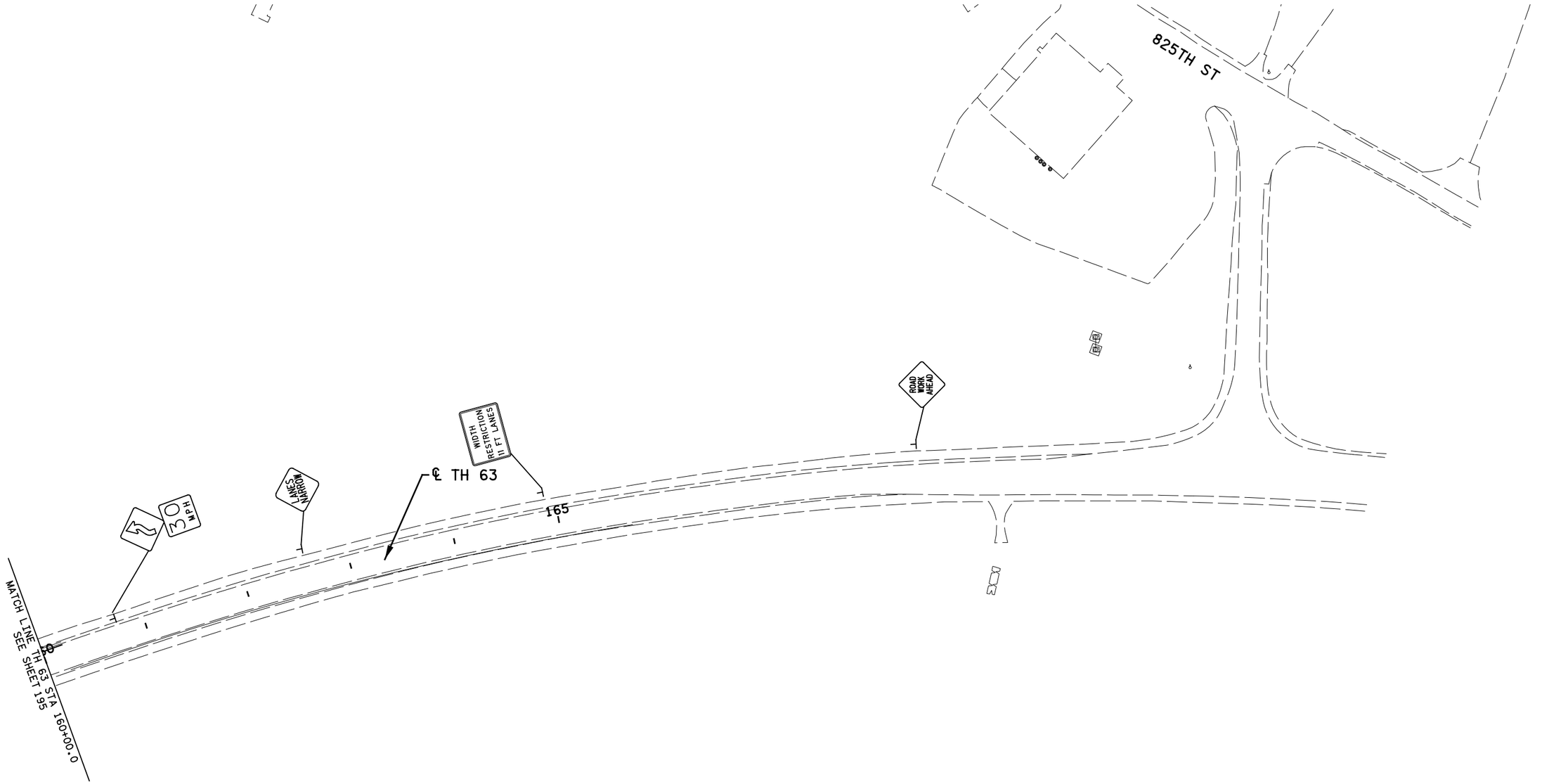
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 3

SHEET 195 OF 688

11:32:53 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_tc306.dgn



0 50 100
SCALE IN FEET

SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_tc307.dgn					

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

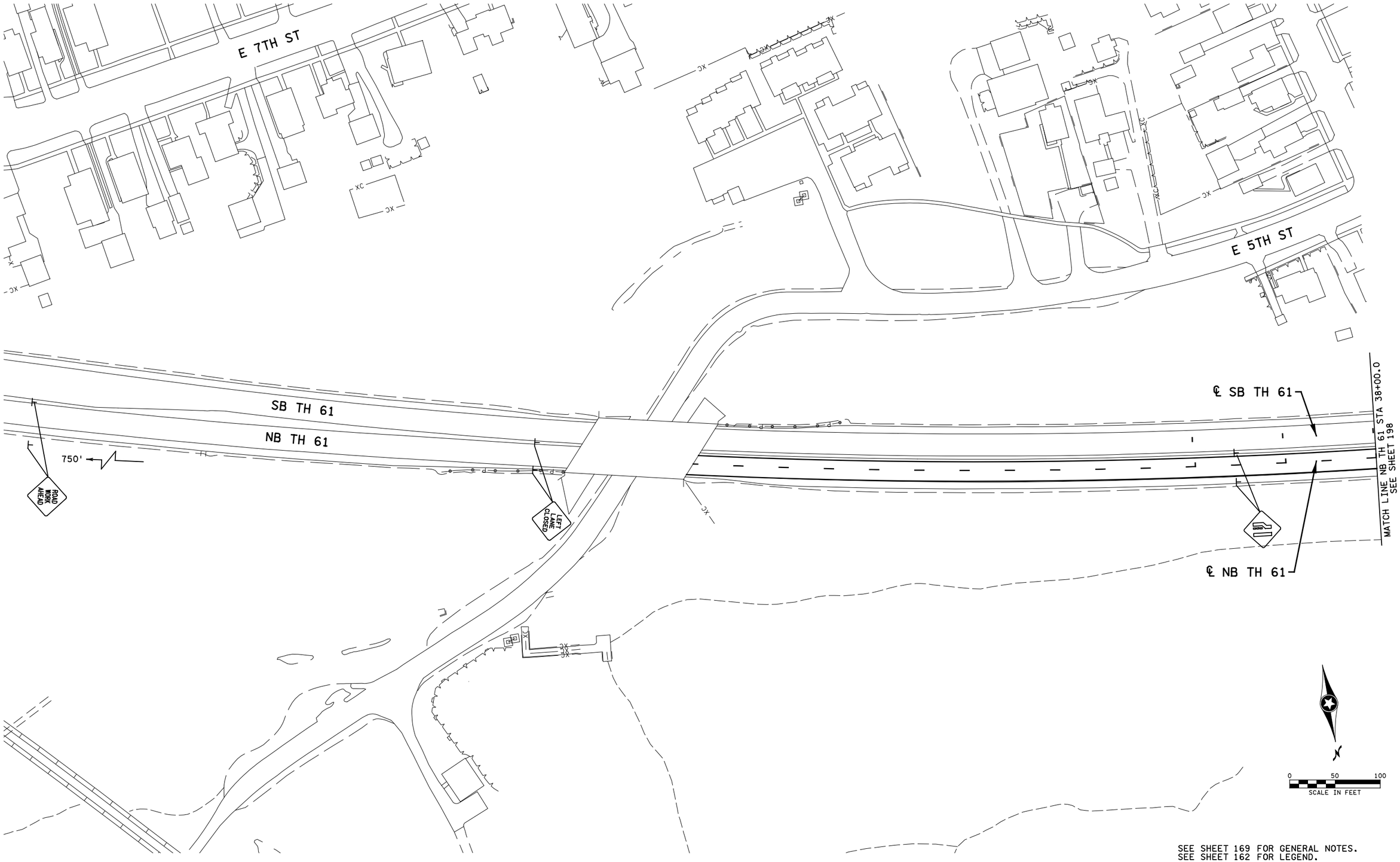
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 3

SHEET 196 OF 688

11:32:54 AM
6/2/2016
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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_tc4a01.dgn

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

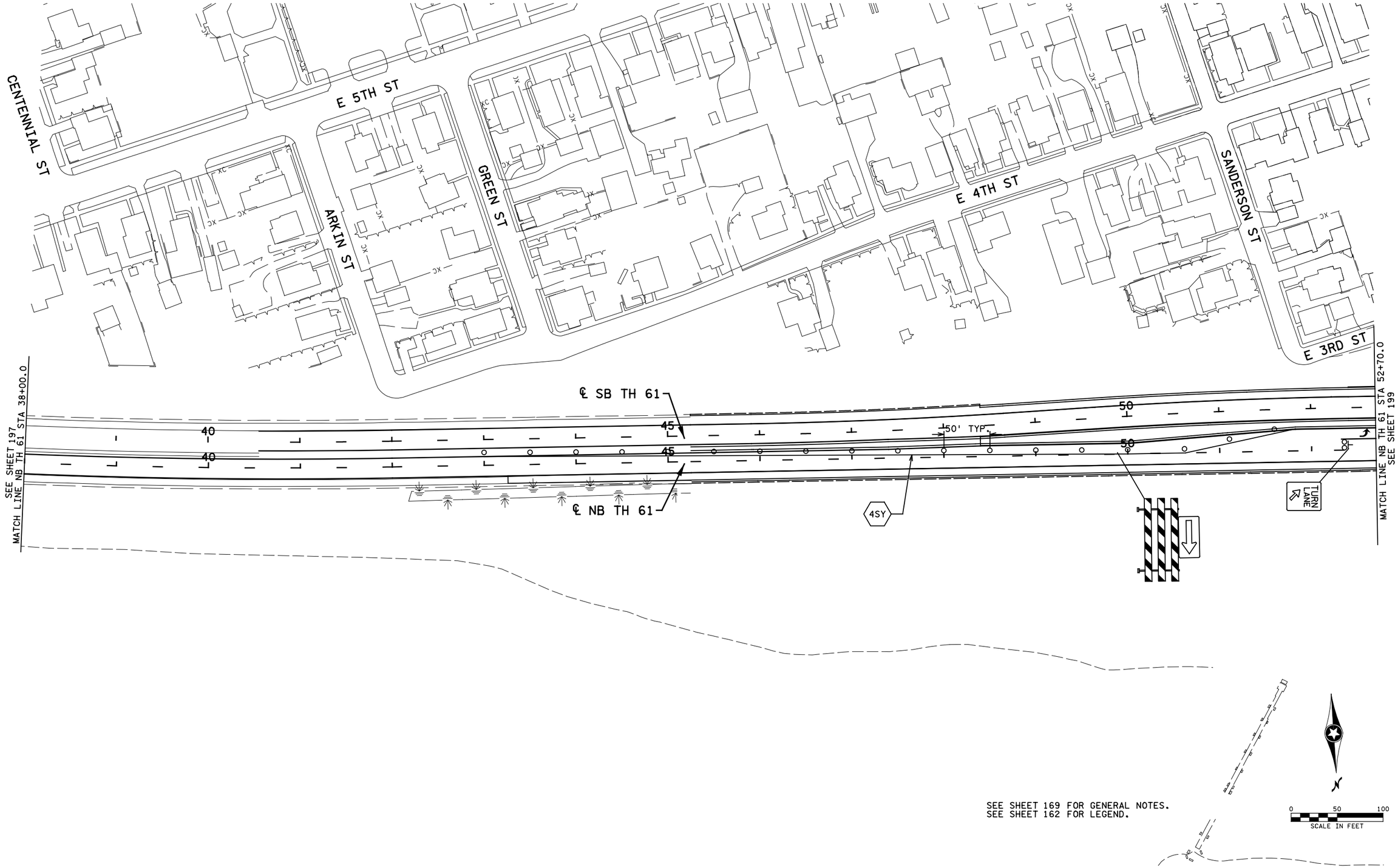
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 197 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION

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Print Name: AMBER NORD

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21	
MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	

DRAWN BY	A.DEBRUIN
DESIGNED BY	A.DEBRUIN
CHECKED BY	A.NORD
COMM. NO.	0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

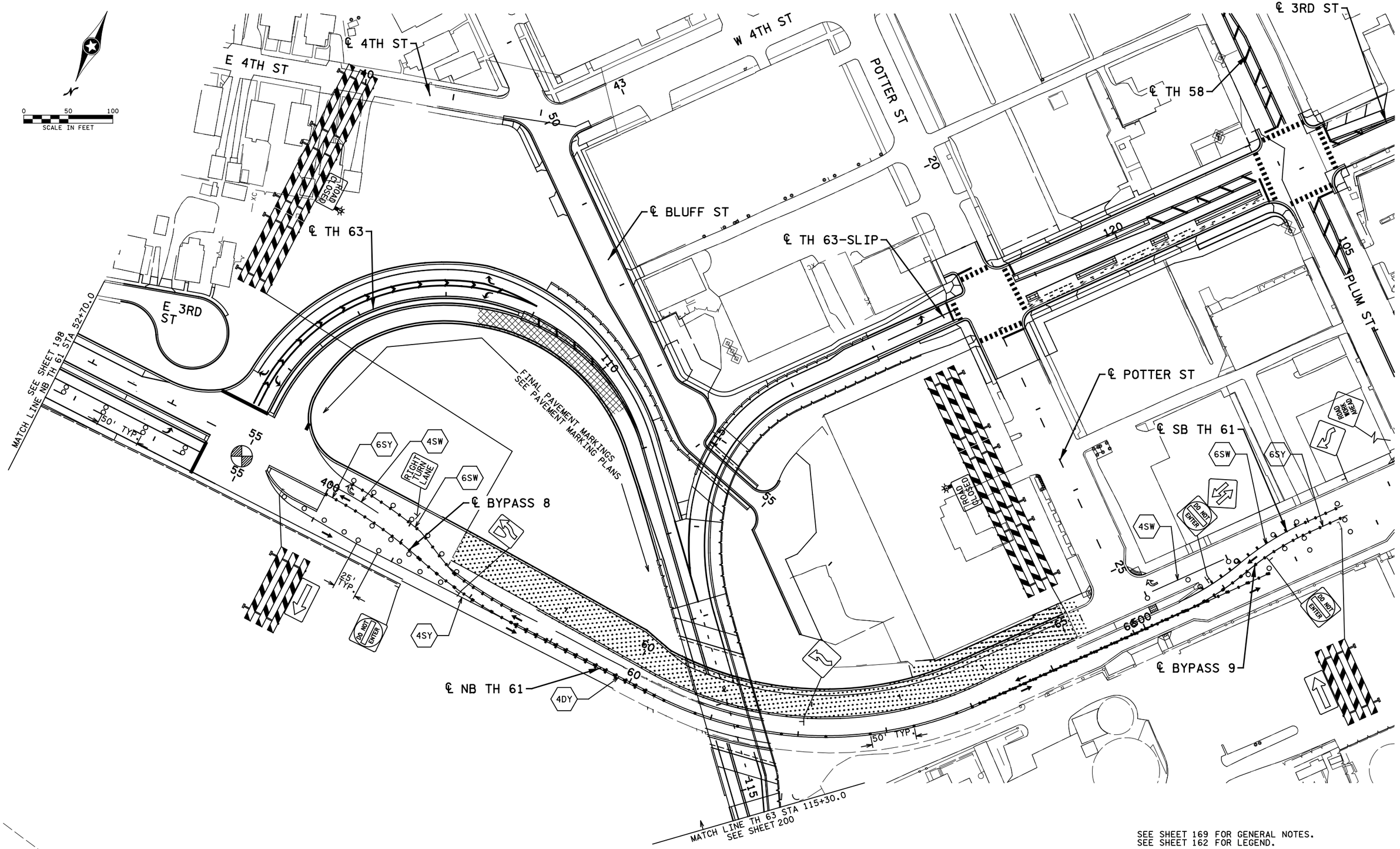
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 198 OF 688

11:32:56 AM
6/22/2016
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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN
DESIGNED BY A.DEBRUIN
CHECKED BY A.NORD
COMM. NO. 0158933

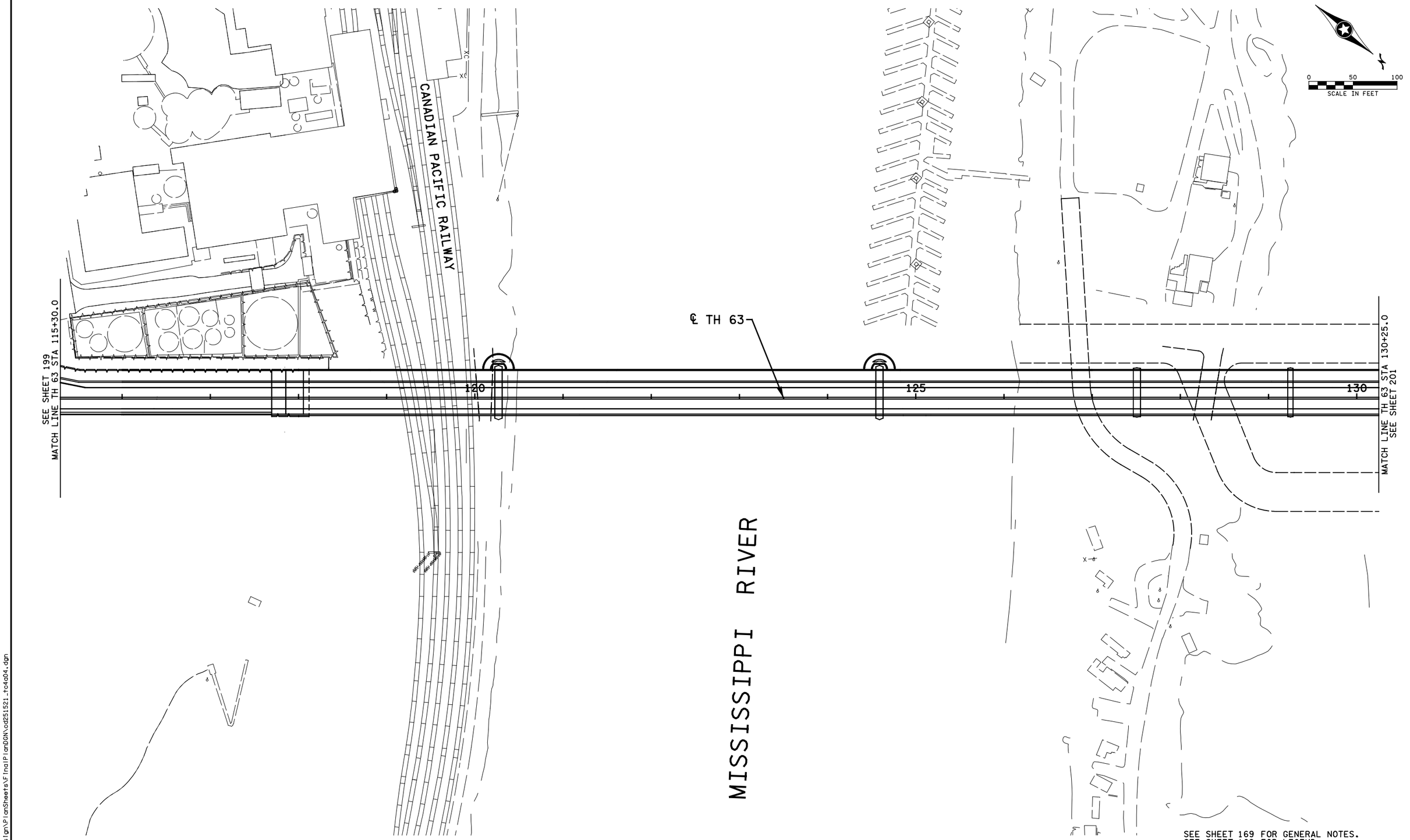
ISTHMUS engineering, inc.

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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 4A

SHEET 199 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_tc4a04.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

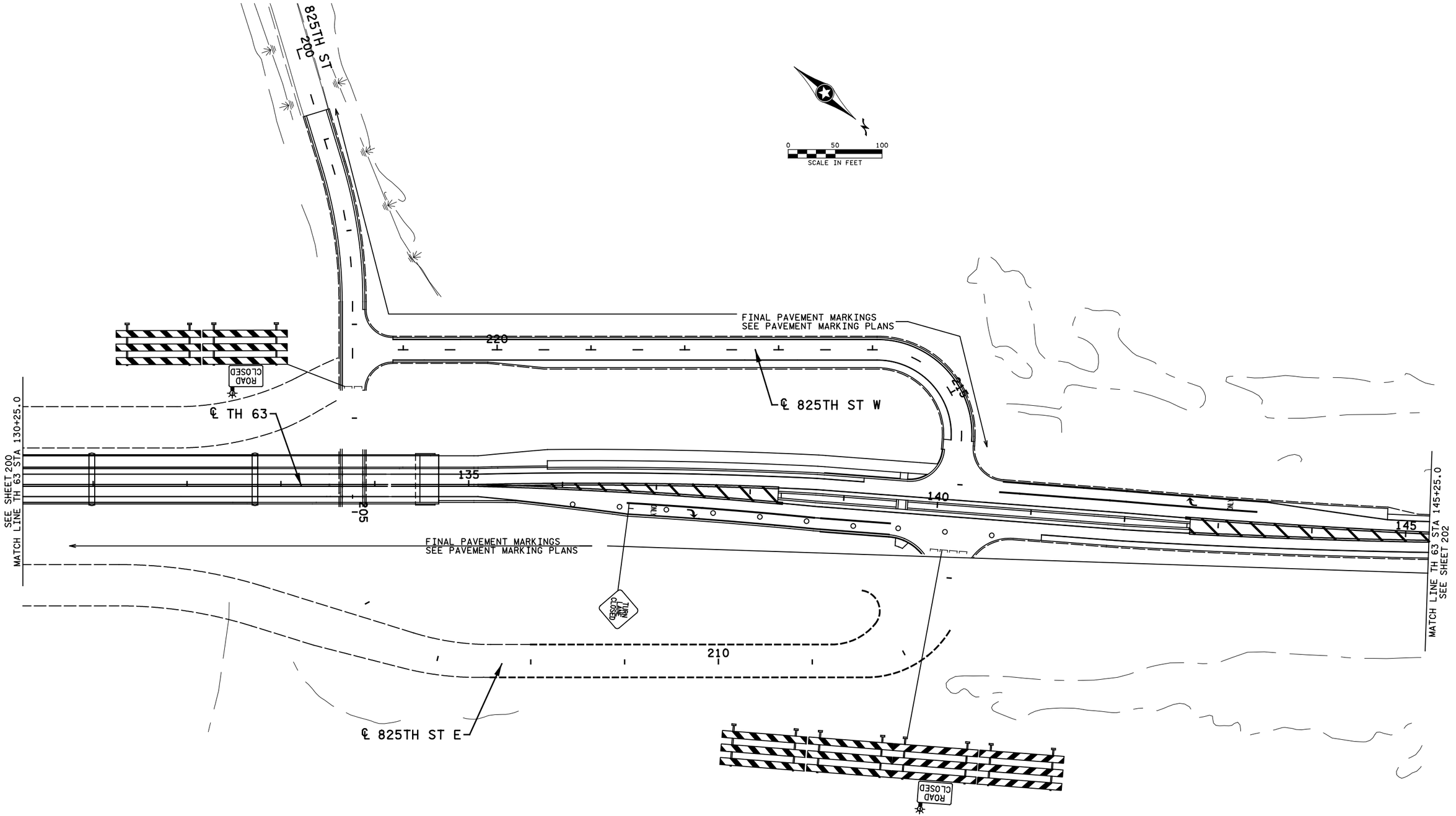
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 200 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

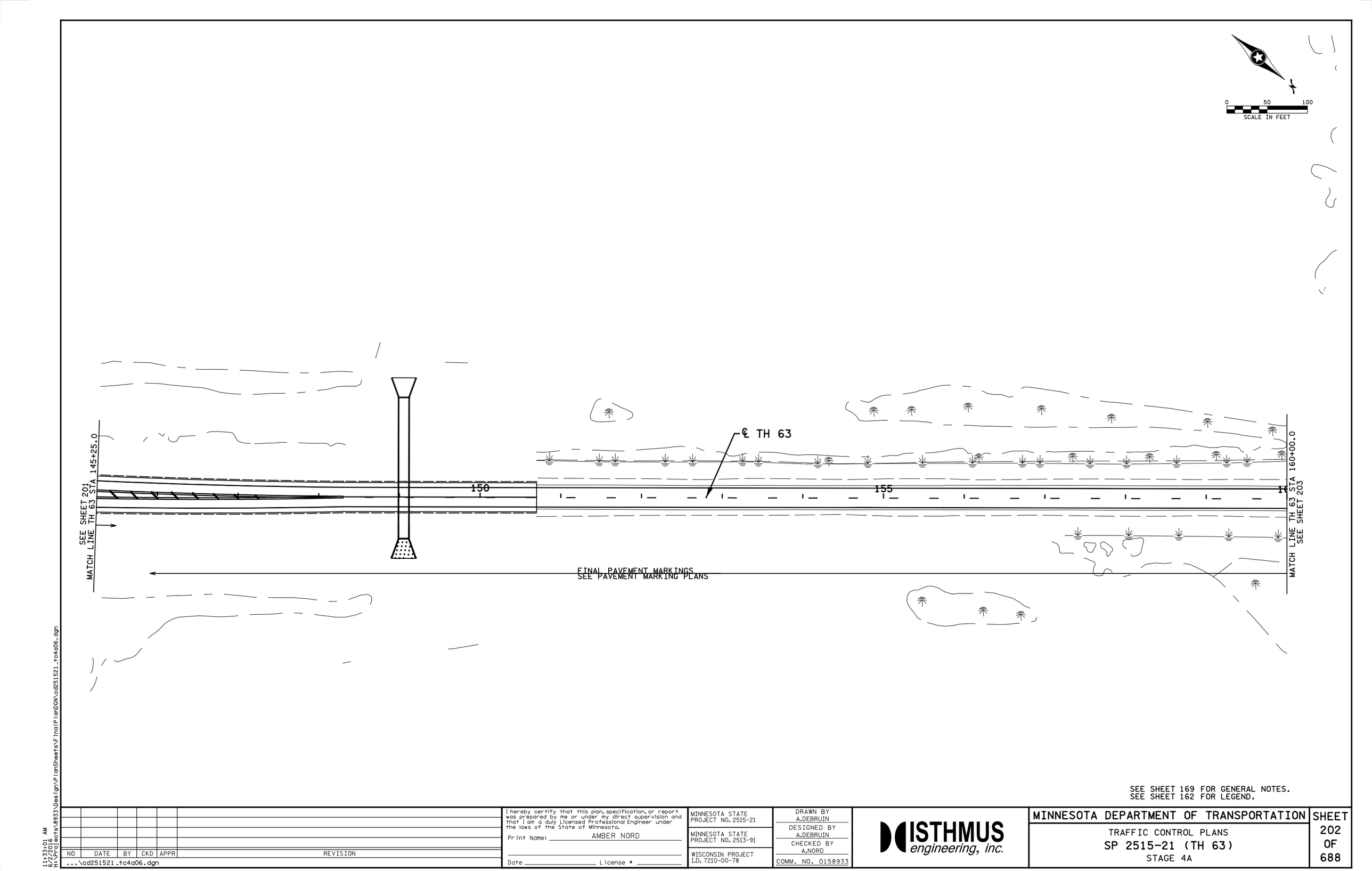
ISTHMUS engineering, inc.

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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 4A

SHEET 201 OF 688

11:33:00 AM
6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_tc4a06.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

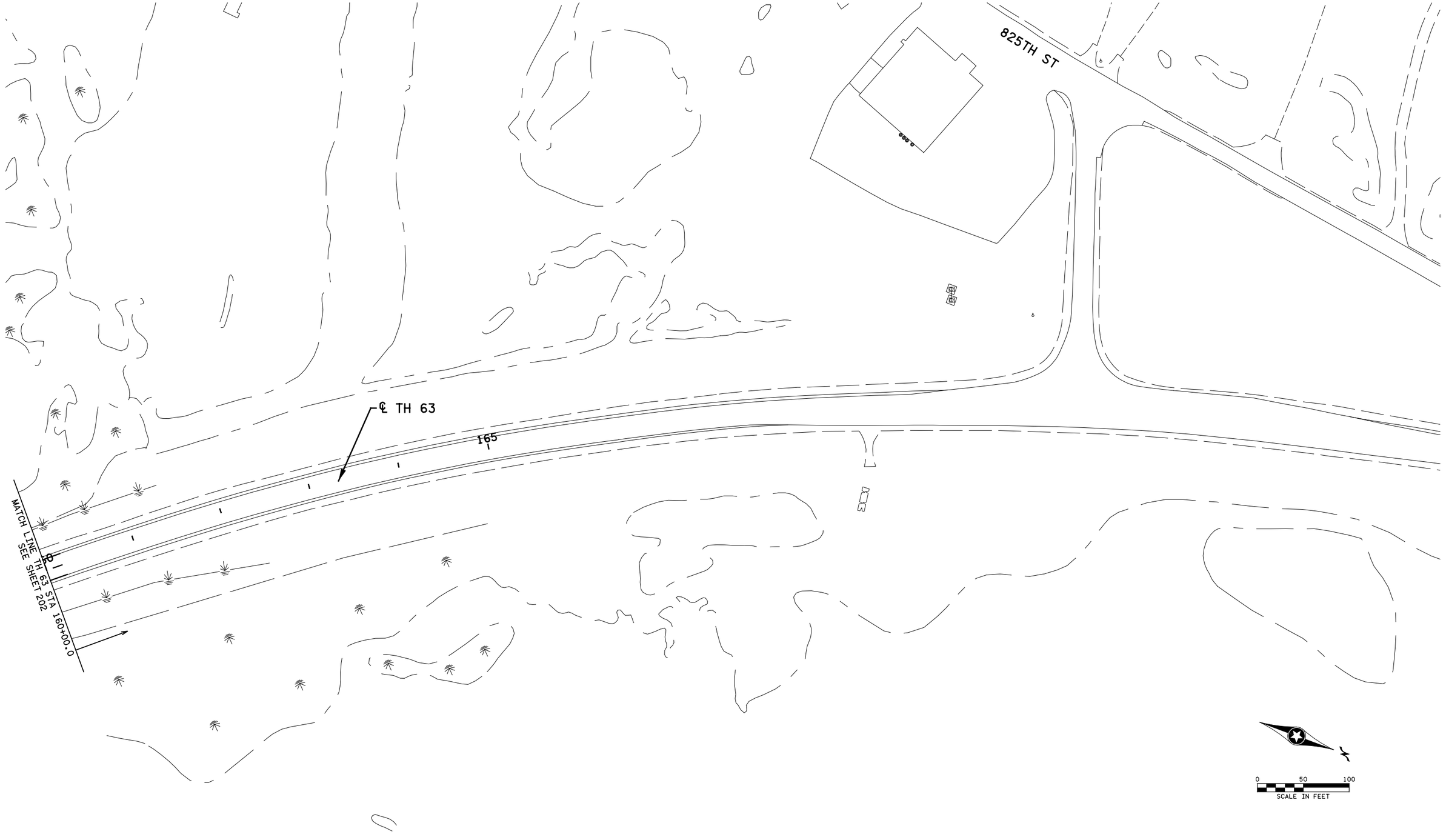
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 202 OF 688

11:33:01 AM
6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2513-91

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DRAWN BY A.DEBRUIN
DESIGNED BY A.DEBRUIN
CHECKED BY A.NORD
COMM. NO. 0158933

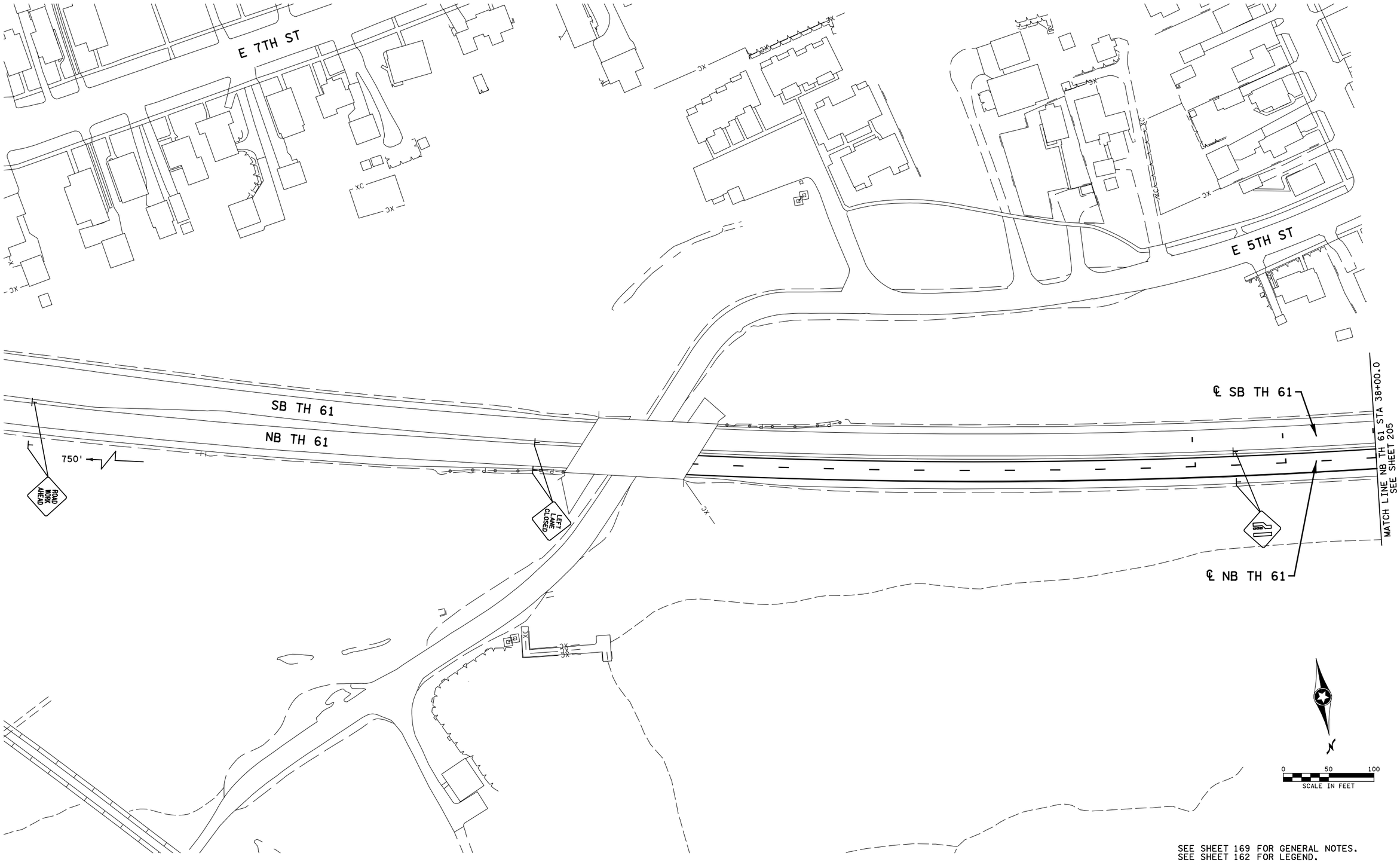
ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 4A

SHEET 203 OF 688

11:33:02 AM
6/2/2016
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SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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MINNESOTA DEPARTMENT OF TRANSPORTATION

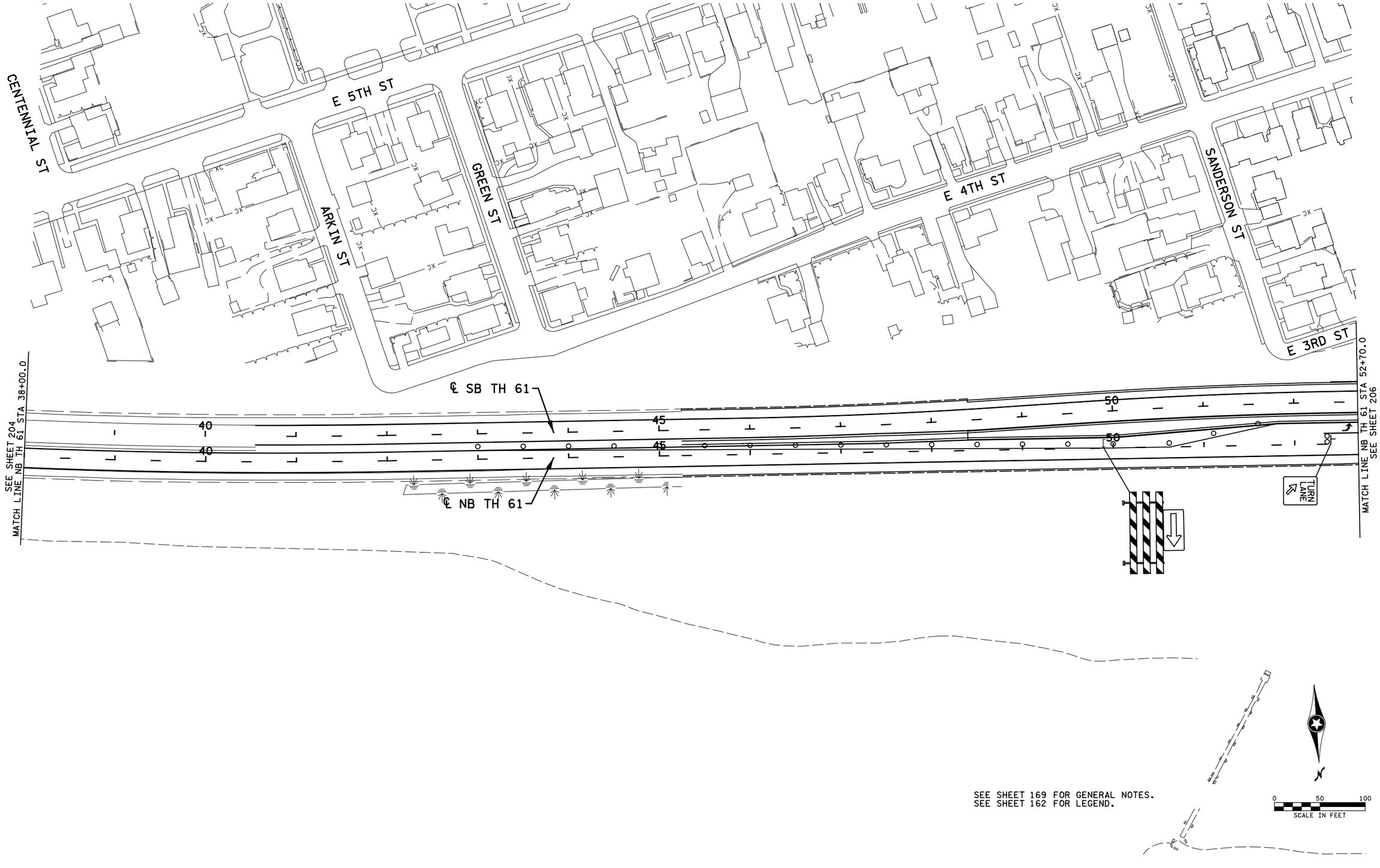
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 204 OF 688

11:33:03 AM
6/22/2016
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SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

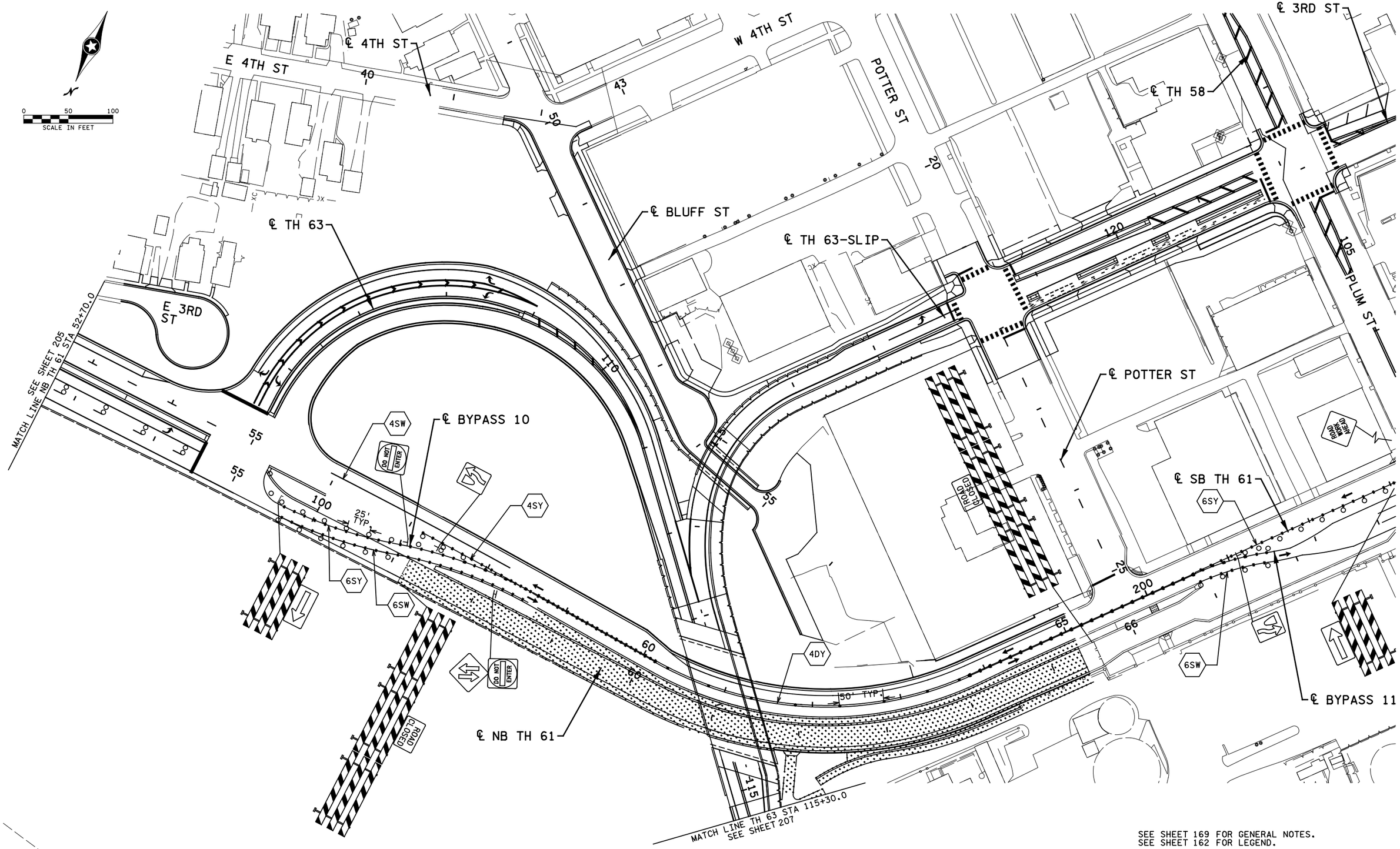
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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 4B

SHEET 205 OF 688

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6/2/2016
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SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN
DESIGNED BY A.DEBRUIN
CHECKED BY A.NORD
COMM. NO. 0158933

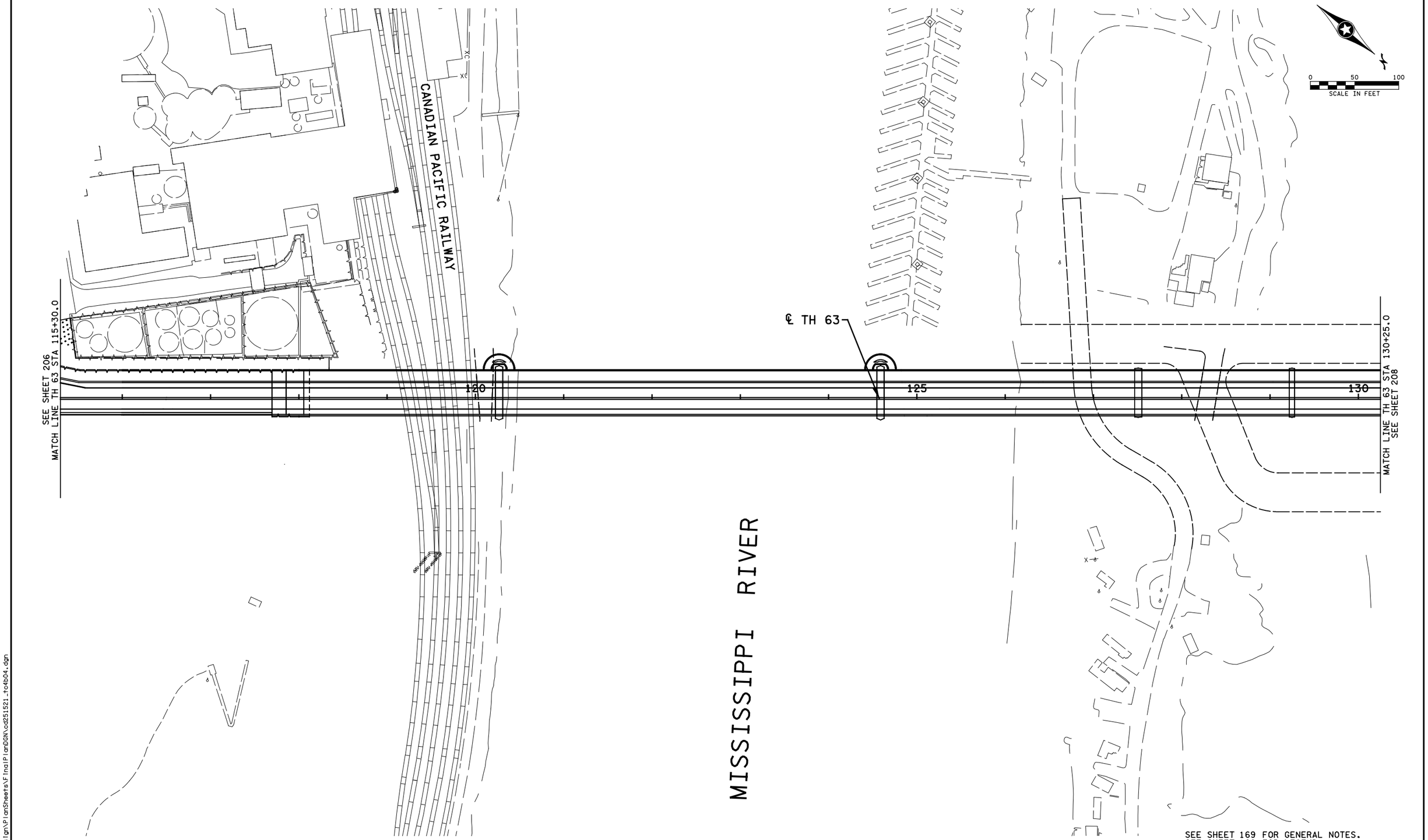
ISTHMUS engineering, inc.

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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 4B

SHEET 206 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

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ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

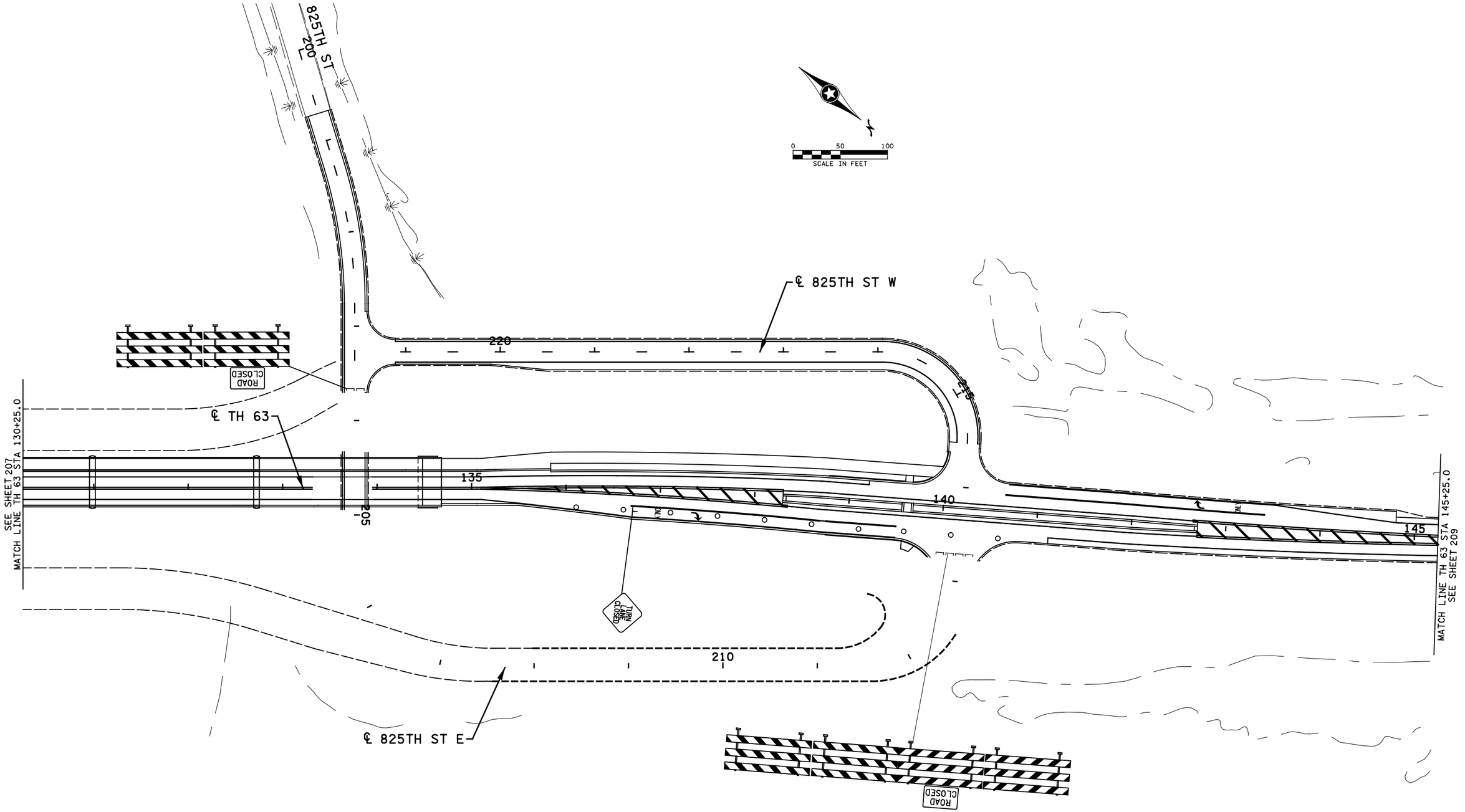
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 207 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

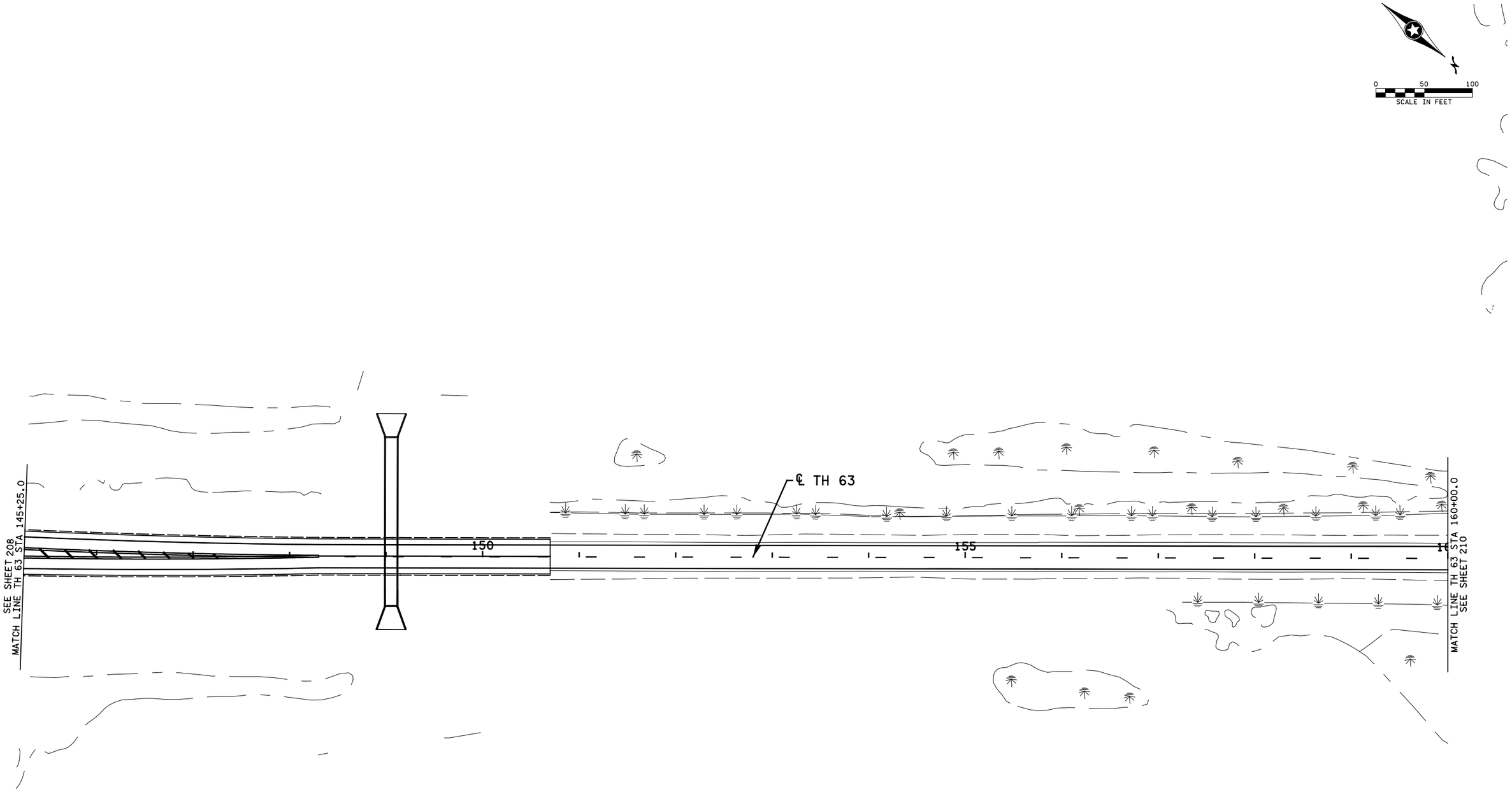
DRAWN BY A.DEBRUIN
DESIGNED BY A.DEBRUIN
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COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 4B

SHEET 208 OF 688

11:33:07 AM
6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
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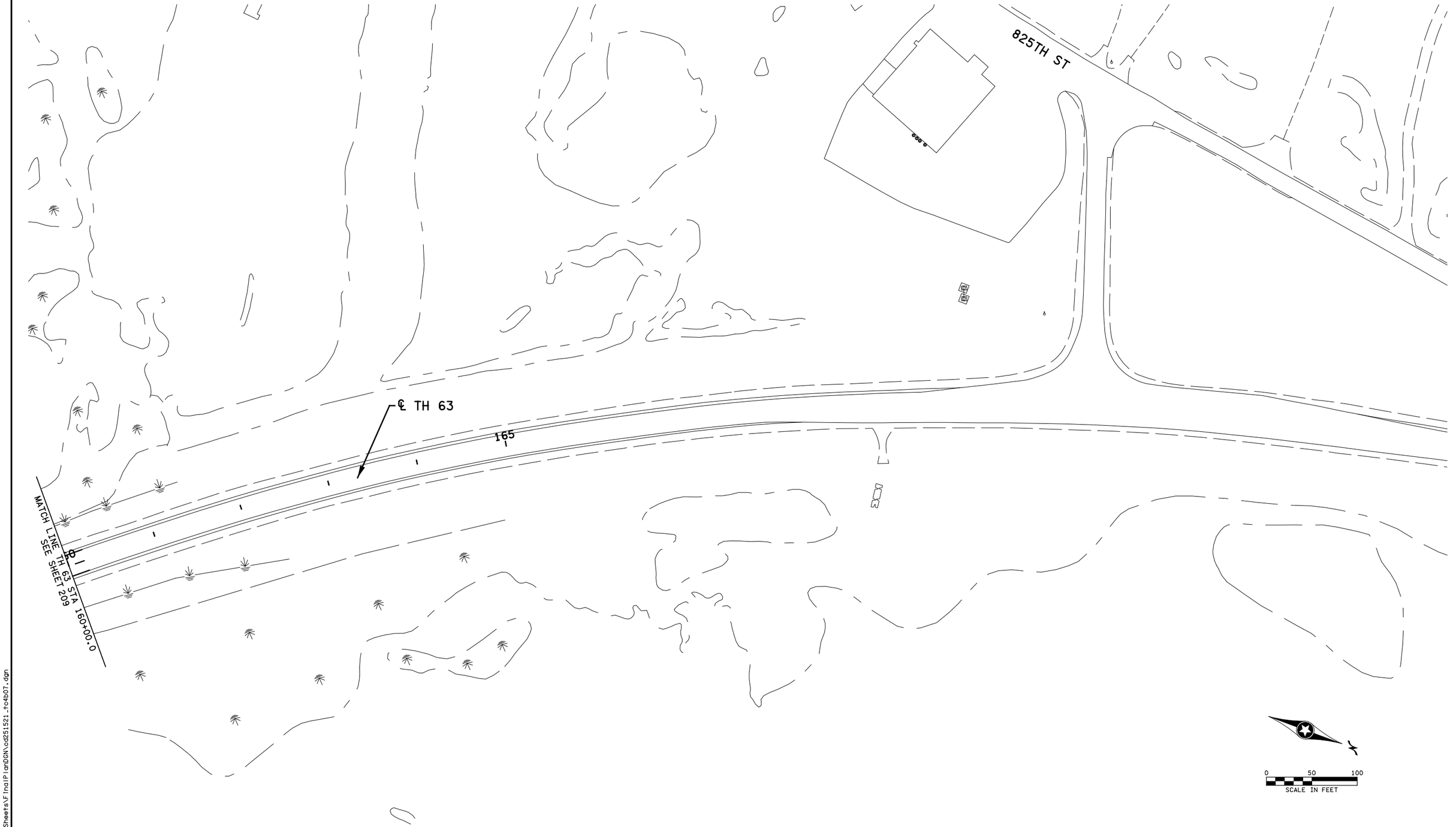
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 209 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN
DESIGNED BY A.DEBRUIN
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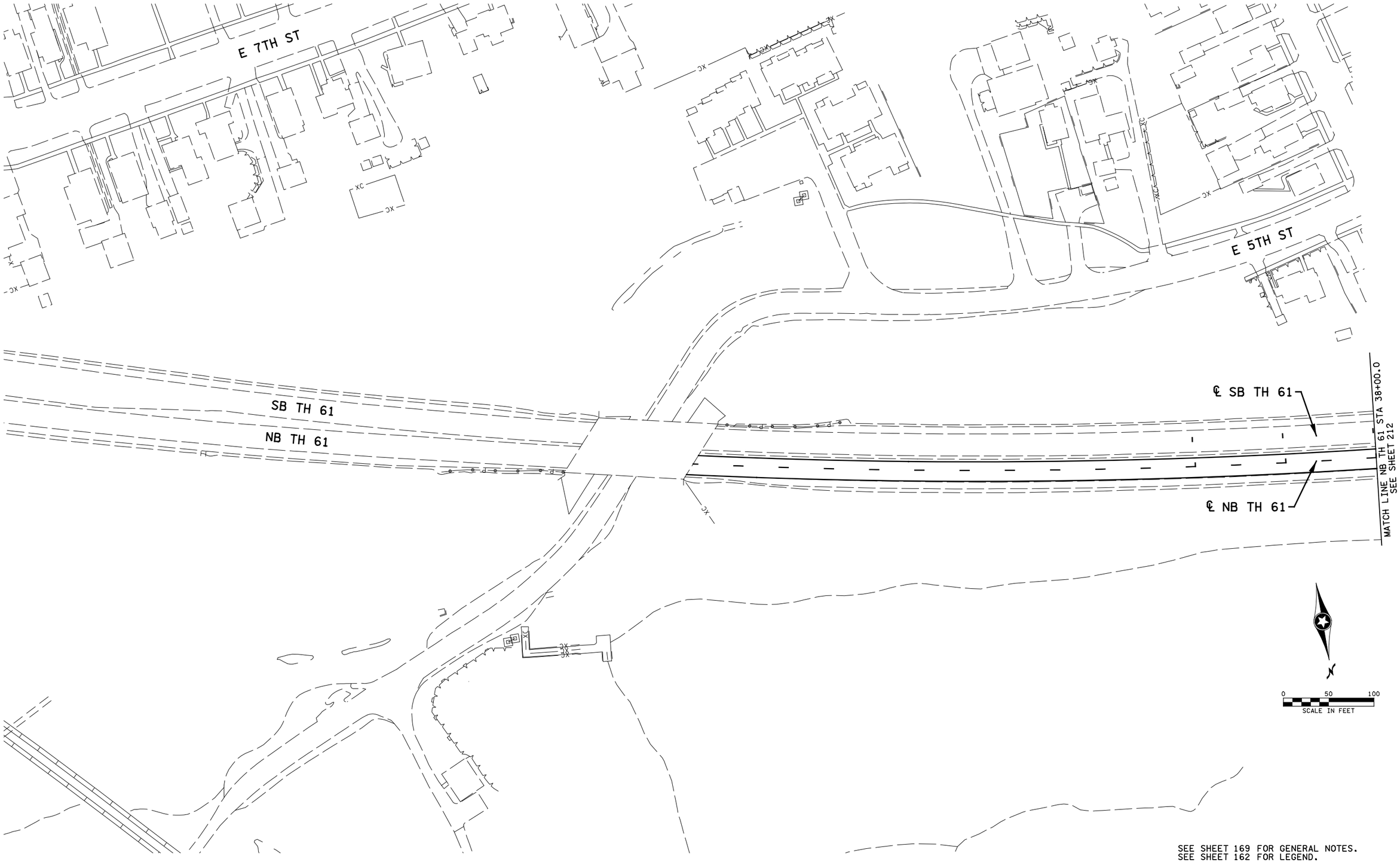
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 4B

SHEET 210 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION

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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A.DEBRUIN

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COMM. NO. 0158933

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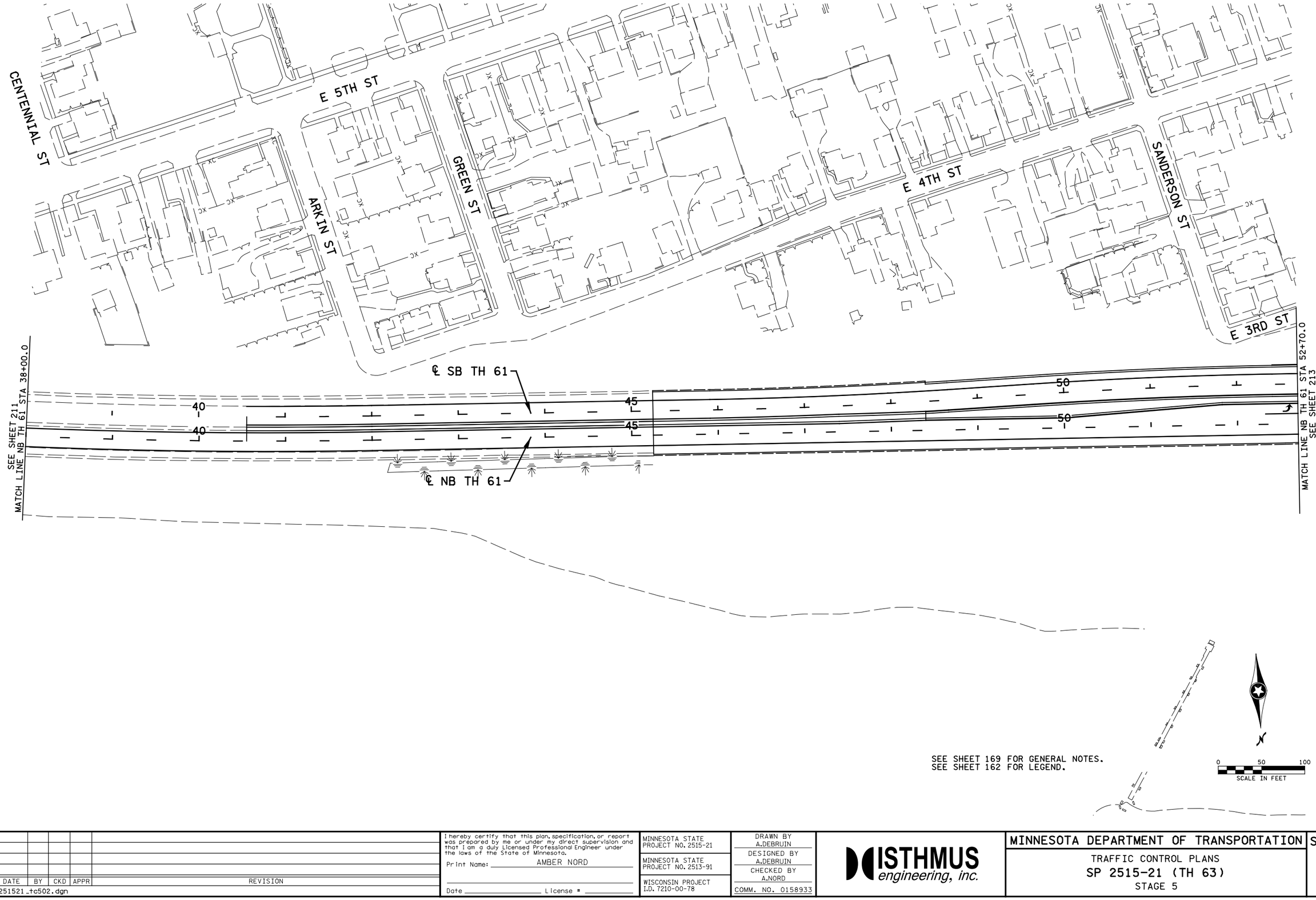
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 5

SHEET 211 OF 688

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6/22/2016
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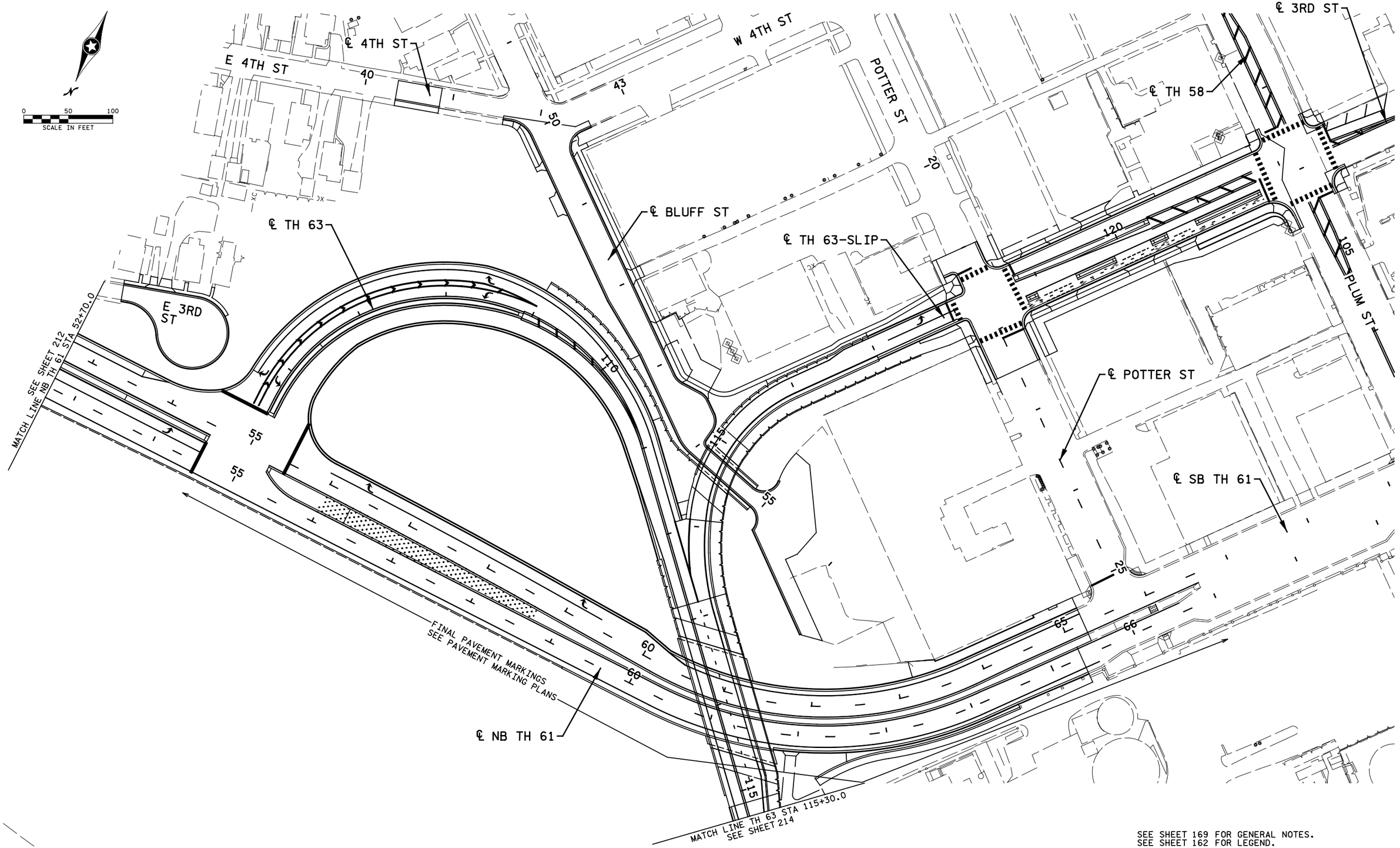
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 5

SHEET 212 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION

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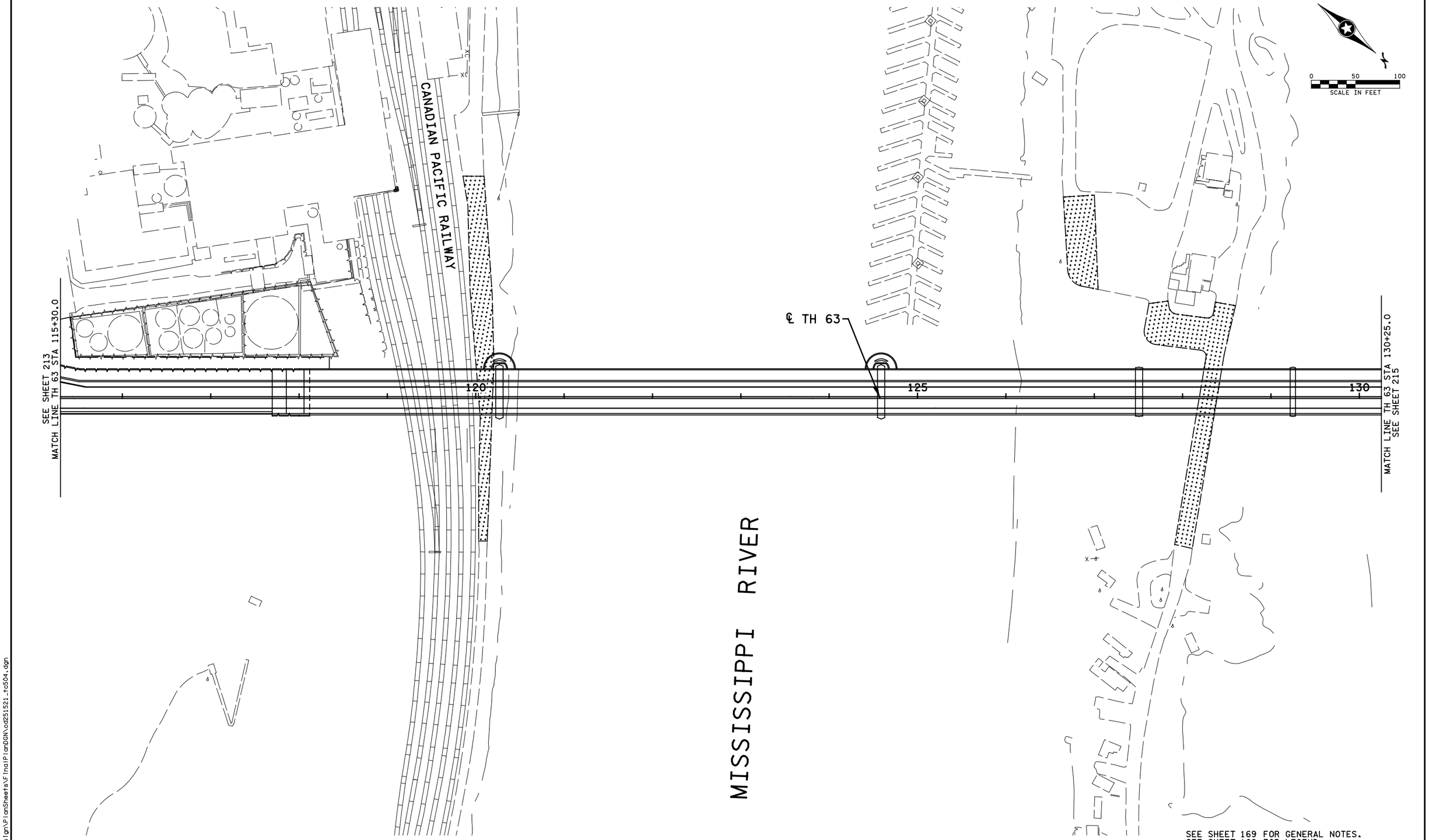
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 5

SHEET 213 OF 688

11:33:16 AM
6/2/2016
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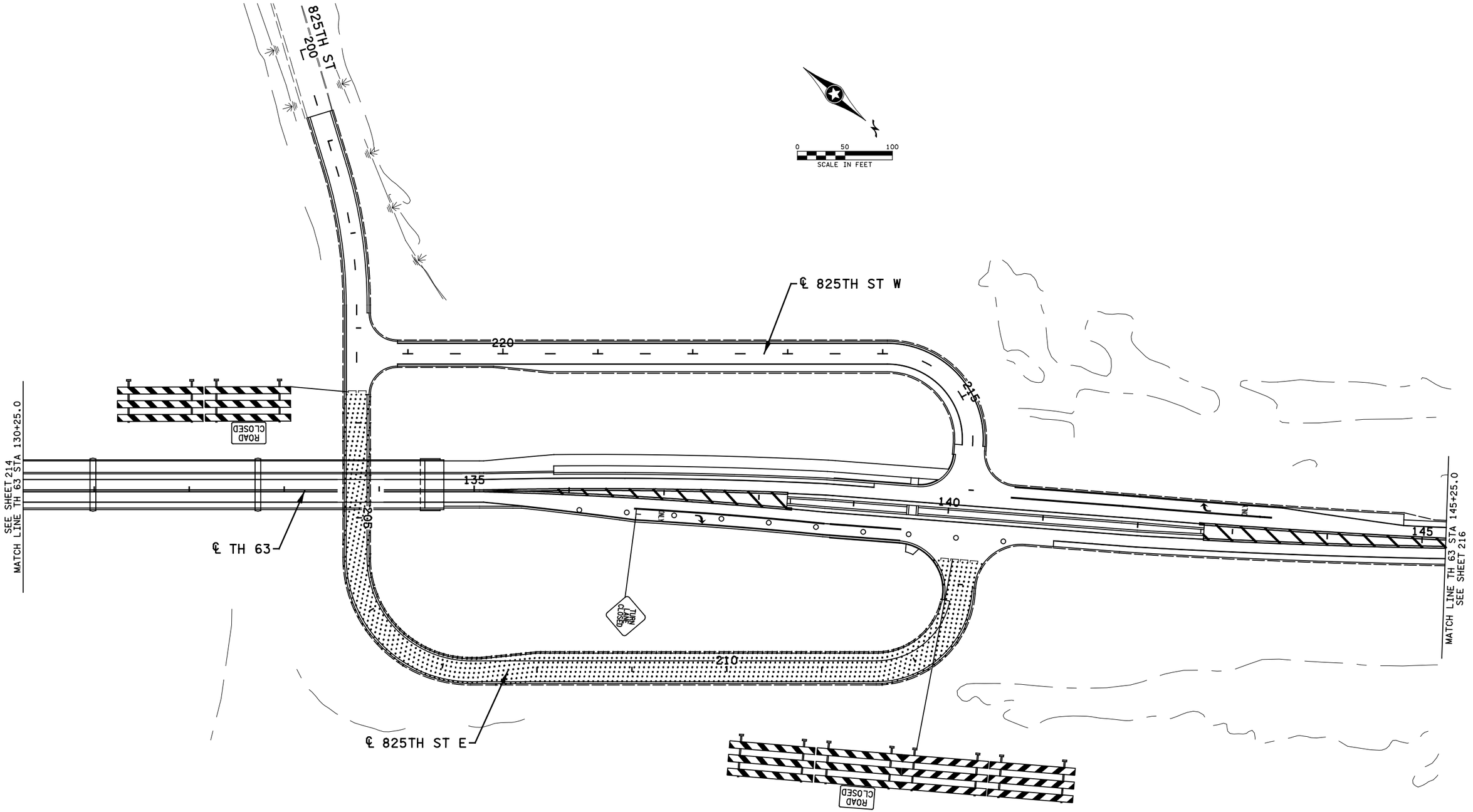
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TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 5

SHEET 214 OF 688

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6/2/2016
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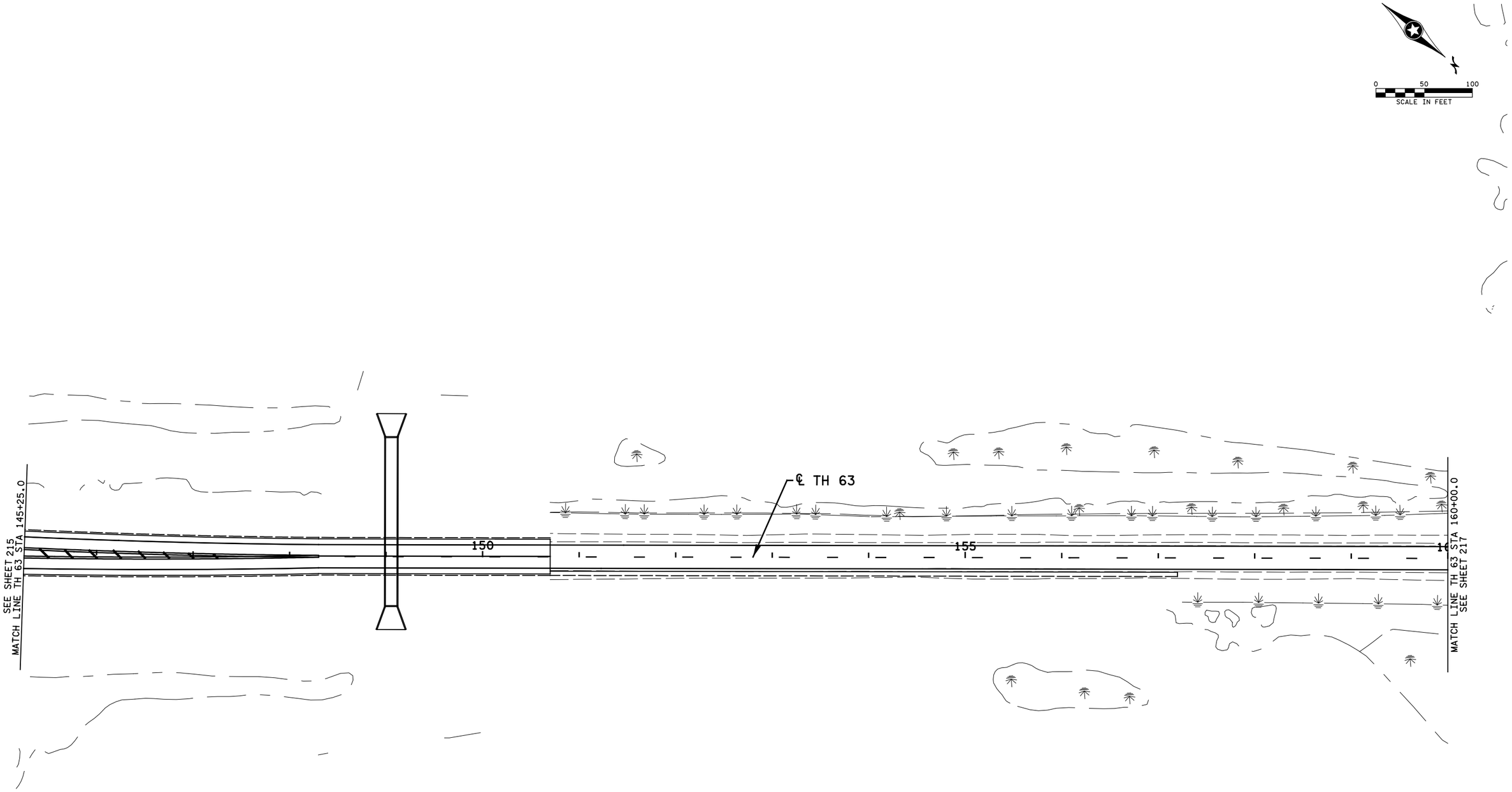
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 5

SHEET 215 OF 688

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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: AMBER NORD

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

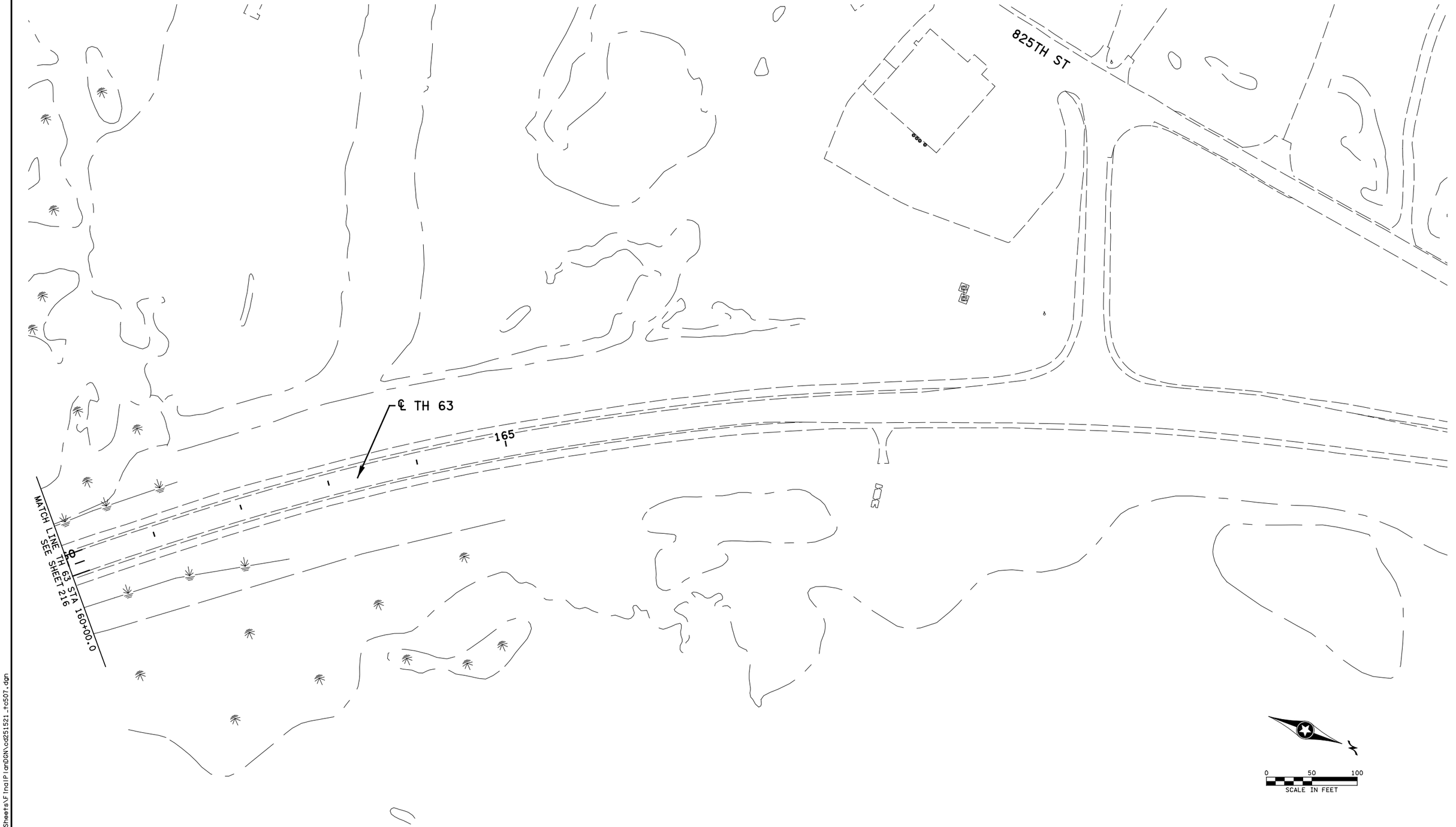
TRAFFIC CONTROL PLANS

SP 2515-21 (TH 63)

STAGE 5

SHEET 216 OF 688

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SEE SHEET 169 FOR GENERAL NOTES.
SEE SHEET 162 FOR LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY A.DEBRUIN
DESIGNED BY A.DEBRUIN
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COMM. NO. 0158933

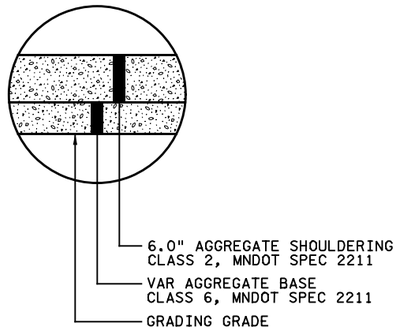
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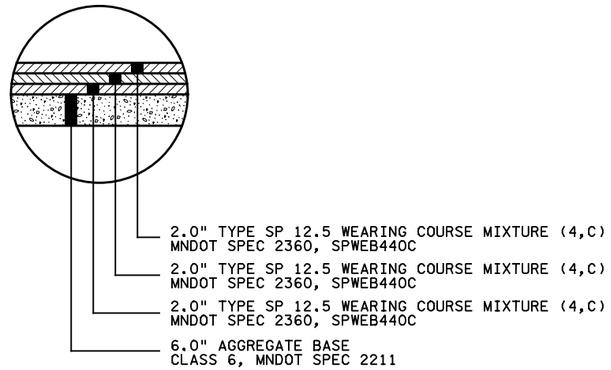
TRAFFIC CONTROL PLANS
SP 2515-21 (TH 63)
STAGE 5

SHEET 217 OF 688

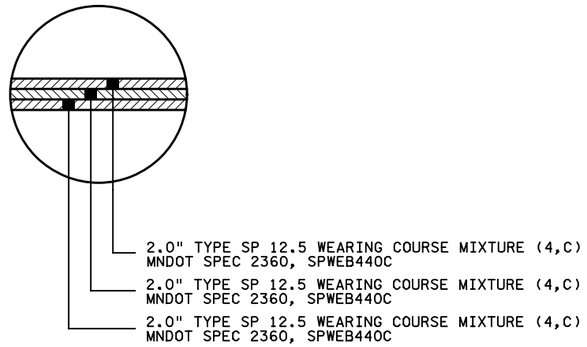
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INSET I



INSET M



INSET N

BYPASS INSETS

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY B. GONOWOLO

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

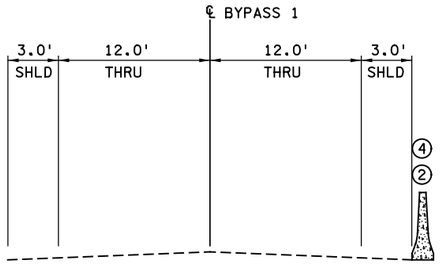
BYPASS PLANS

SP 2515-21 (TH 63)

TEMPORARY PAVEMENT TYPICAL SECTIONS

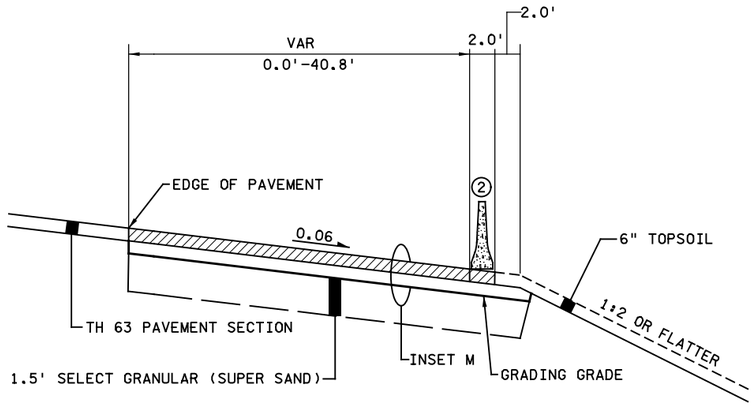
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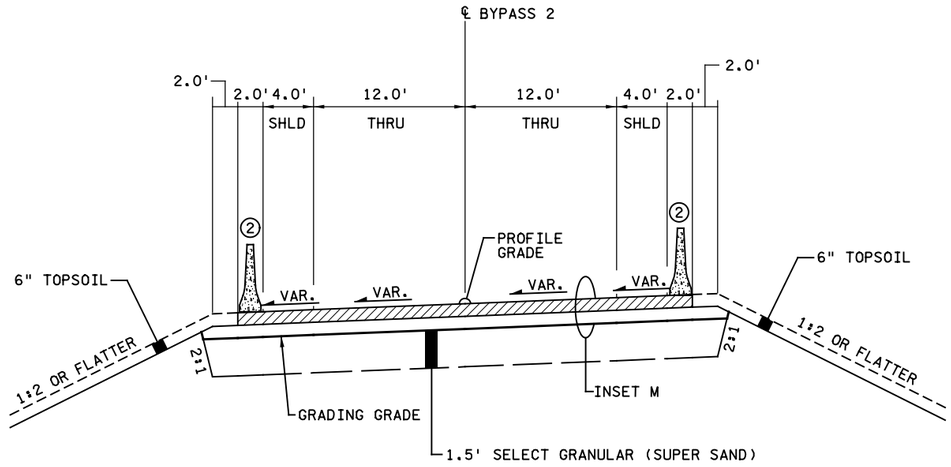
TYPICAL SECTION 19 - BYPASS 1

BYPASS 1 STA 100+00.0 TO STA 109+50.0



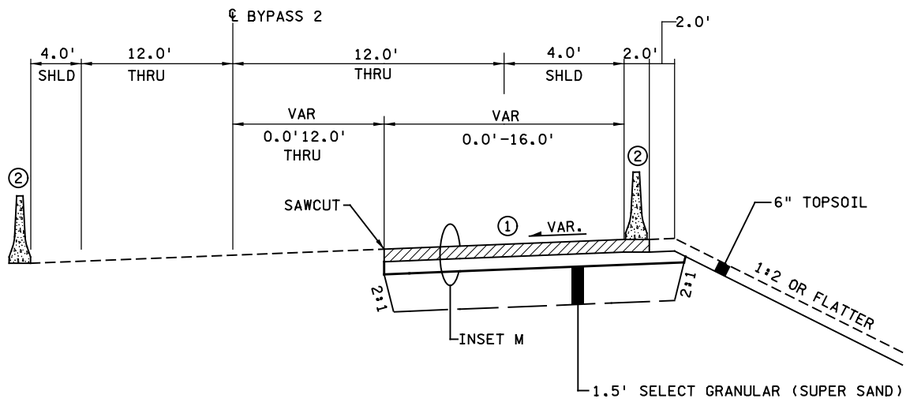
TYPICAL SECTION 20 - BYPASS 2 (TH 63 WIDENING)

BYPASS 2 STA 208+37.9 TO STA 209+82.7



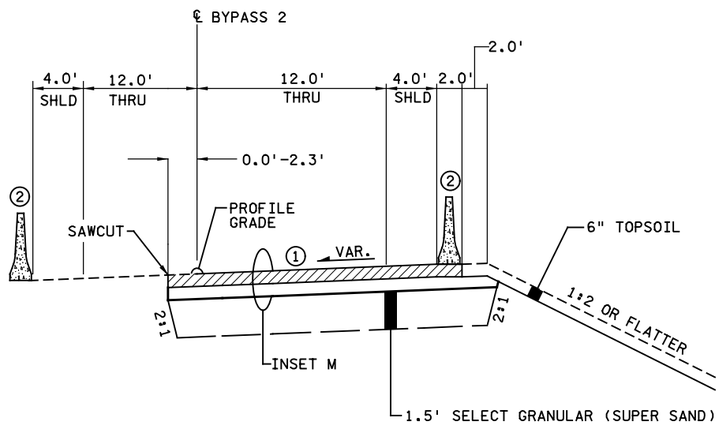
TYPICAL SECTION 21 - BYPASS 2

BYPASS 2 STA 209+82.7 TO STA 212+15.4
BYPASS 2 STA 214+07.4 TO STA 214+50.0



TYPICAL SECTION 22 - BYPASS 2 (WIDENING)

BYPASS 2 STA 215+25.4 TO STA 217+02.0



TYPICAL SECTION 23 - BYPASS 2 (WIDENING)

BYPASS 2 STA 215+25.4 TO STA 215+25.4

SEE SHEET 218 FOR TEMPORARY PAVEMENT INSETS

NOTES:

1. MATCH PAVEMENT CROSS SLOPE.
2. PORTABLE PRECAST CONCRETE BARRIER (MNDOT STD PLATE 8337). - SEE TRAFFIC CONTROL PLANS FOR LOCATIONS.
4. PIN BARRIER TO EXISTING PAVEMENT OR BRIDGE DECK BYPASS 1 STA 102+70.0 TO STA 105+50.0

GENERAL NOTES:

ALL CROSS SLOPES ARE IN FEET PER FOOT.

MAXIMUM SHOULDER SUPERELEVATION ROLLOVER SHALL BE 7%.

SEE SUPERELEVATION PLANS FOR SUPERELEVATION TRANSITIONS.

RETAINING WALLS SHOWN FOR GENERAL LOCATION PURPOSES ONLY. SEE CONSTRUCTION PLANS AND RETAINING WALL PLANS FOR ADDITIONAL DIMENSIONS AND DETAILS.

SEE CONSTRUCTION/SOILS NOTES FOR ADDITIONAL INFORMATION.

DIMENSIONS TO CURB AND GUTTER ARE TO THE CURB AND GUTTER FLOW LINE.

DITCH GRADES AND ELEVATIONS ARE TO THE BOTTOM OF TOPSOIL.

BYPASS 1
BYPASS 2

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY B. GONOWOLO
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

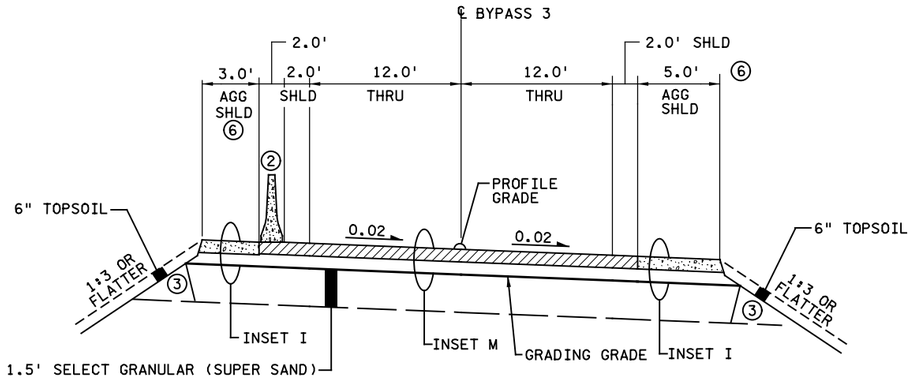
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MINNESOTA DEPARTMENT OF TRANSPORTATION

BYPASS PLANS
SP 2515-21 (TH 63)
TEMPORARY PAVEMENT TYPICAL SECTIONS

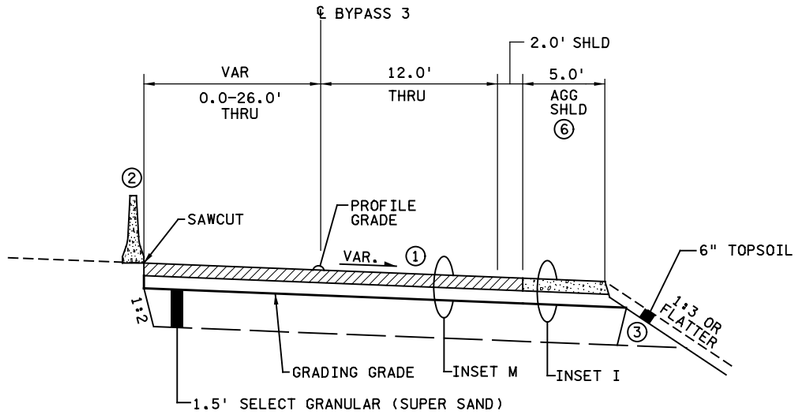
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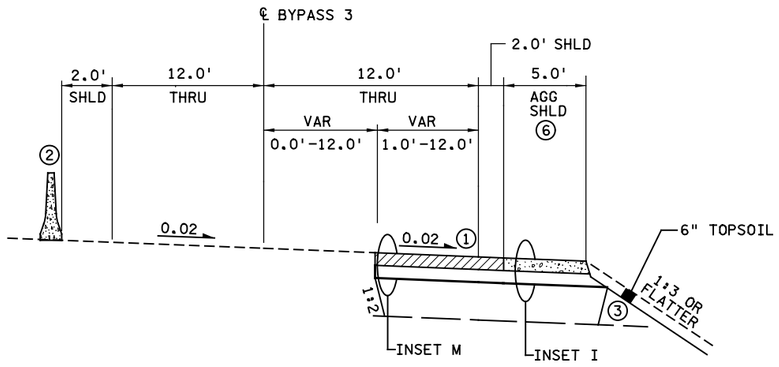
TYPICAL SECTION 24 - BYPASS 3

BYPASS 3 STA 340+96.6 TO STA 353+00.0



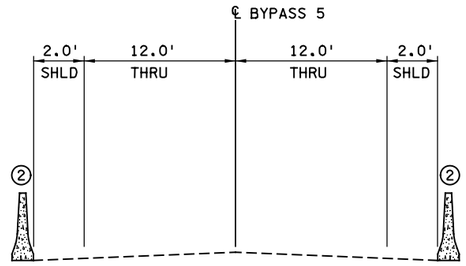
TYPICAL SECTION 25 - BYPASS 3 (WIDENING)

BYPASS 3 STA 338+00.0 TO STA 340+96.6
BYPASS 3 STA 353+00.0 TO STA 355+12.2



TYPICAL SECTION 26 - BYPASS 3 (WIDENING)

BYPASS 3 STA 334+69.2 TO STA 338+00.0
BYPASS 3 STA 355+12.2 TO STA 357+14.2



TYPICAL SECTION 27 - BYPASS 5

BYPASS 5 STA 502+00.0 TO STA 515+00.0

SEE SHEET 219 FOR TEMPORARY PAVEMENT INSETS
SEE SHEET 220 FOR GENERAL NOTES

NOTES:

① MATCH PAVEMENT CROSS SLOPE.

② PORTABLE PRECAST CONCRETE BARIER (MNDOT STD PLATE 8337). - SEE TRAFFIC CONTROL PLANS FOR LOCATIONS.

③ EXTEND SELECT GRANULAR TO INSLOPE WHERE POSSIBLE OR USE 2:1 SLOPE FROM SHOULDER PI. SEE CROSS SECTIONS FOR LOCATIONS. 27

⑥ SEE AGGREGATE SHOULDER DETAIL ON SHEET

BYPASS 3
BYPASS 5

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY B. GONOWOLO
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

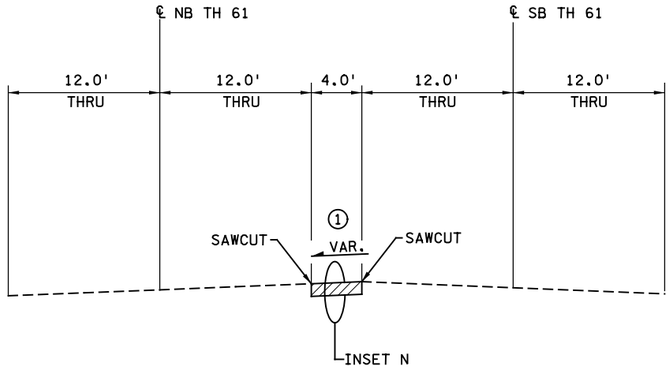
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MINNESOTA DEPARTMENT OF TRANSPORTATION

BYPASS PLANS
SP 2515-21 (TH 63)
TEMPORARY PAVEMENT TYPICAL SECTIONS

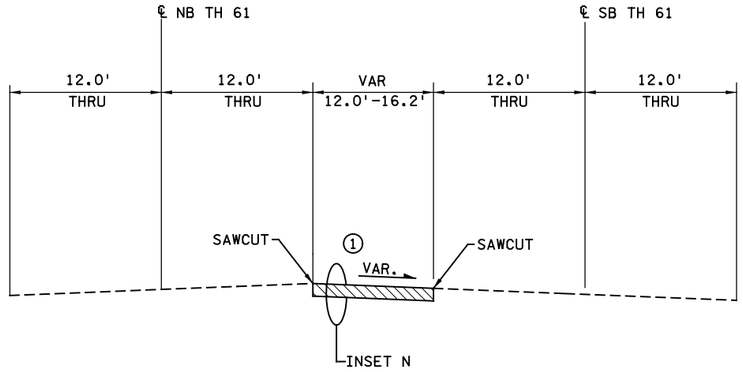
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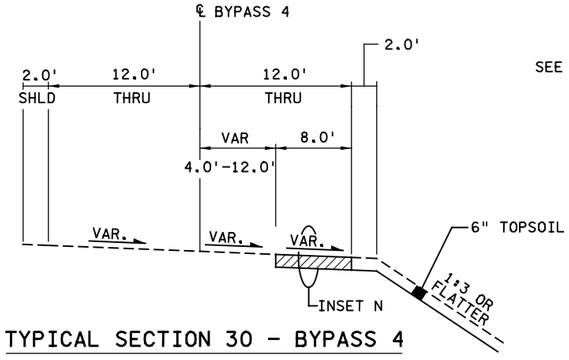
TYPICAL SECTION 28 - BYPASS 4 (REMOVE MEDIAN)

NB TH 61 STA 40+55.0 TO STA 45+25.0



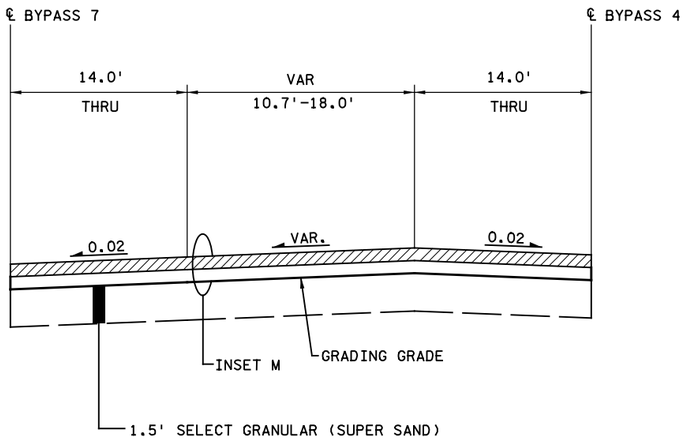
TYPICAL SECTION 29 - BYPASS 4 (REMOVE MEDIAN)

NB TH 61 STA 61+50.0 TO STA 65+35.2



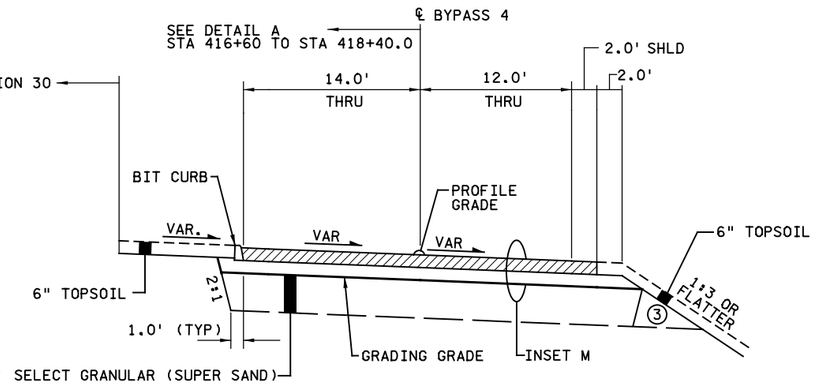
TYPICAL SECTION 30 - BYPASS 4

BYPASS 4 STA 402+66.0 TO STA 413+00.0



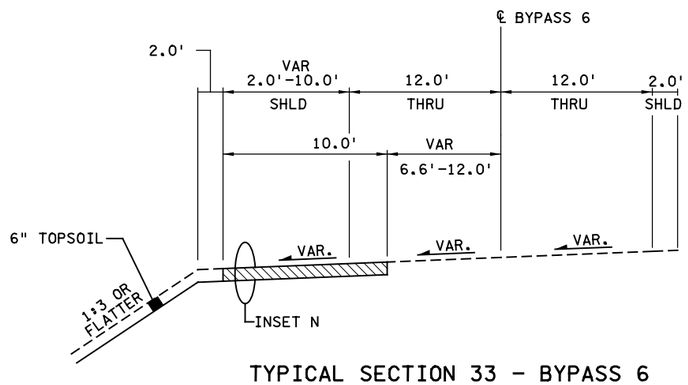
TYPICAL SECTION 31 AND 32 - DETAIL A

BYPASS 4 STA 416+60.0 TO STA 418+40.0
BYPASS 7 STA 302+00.0 TO STA 304+00.0



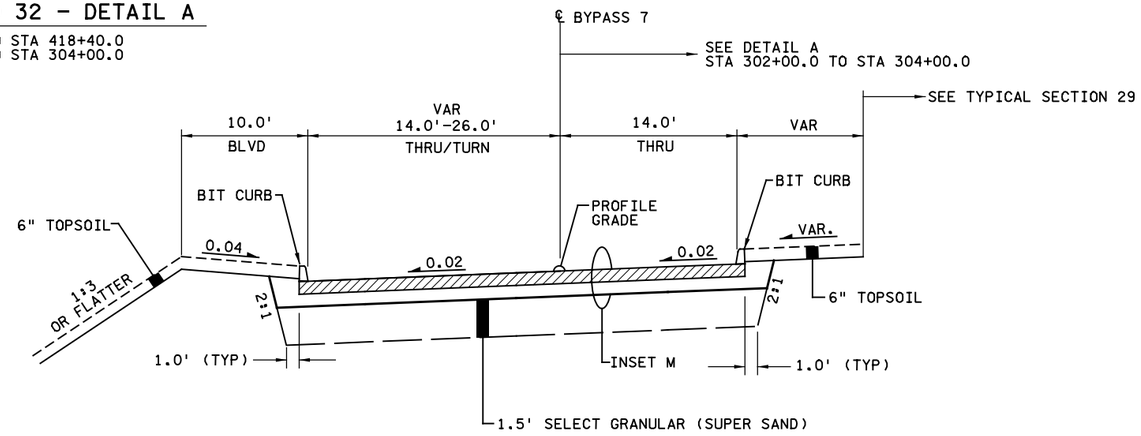
TYPICAL SECTION 31 - BYPASS 4

BYPASS 4 STA 416+60.0 TO STA 419+26.0



TYPICAL SECTION 33 - BYPASS 6

BYPASS 6 STA 103+00.0 TO STA 104+65.0



TYPICAL SECTION 32 - BYPASS 7

BYPASS 7 STA 302+00.0 TO STA 305+15.0

SEE SHEET 218 FOR TEMPORARY PAVEMENT INSETS
SEE SHEET 219 FOR GENERAL NOTES

NOTES:

1. MATCH PAVEMENT CROSS SLOPE.
3. EXTEND SELECT GRANULAR TO INSLOPE WHERE POSSIBLE OR USE 2:1 SLOPE FROM SHOULDER PI. SEE CROSS SECTIONS FOR LOCATIONS.
6. SEE AGGREGATE SHOULDER DETAIL ON SHEET 27

BYPASS 4
BYPASS 6
BYPASS 7

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Date _____ License # 45039

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY B. GONOWOLO
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

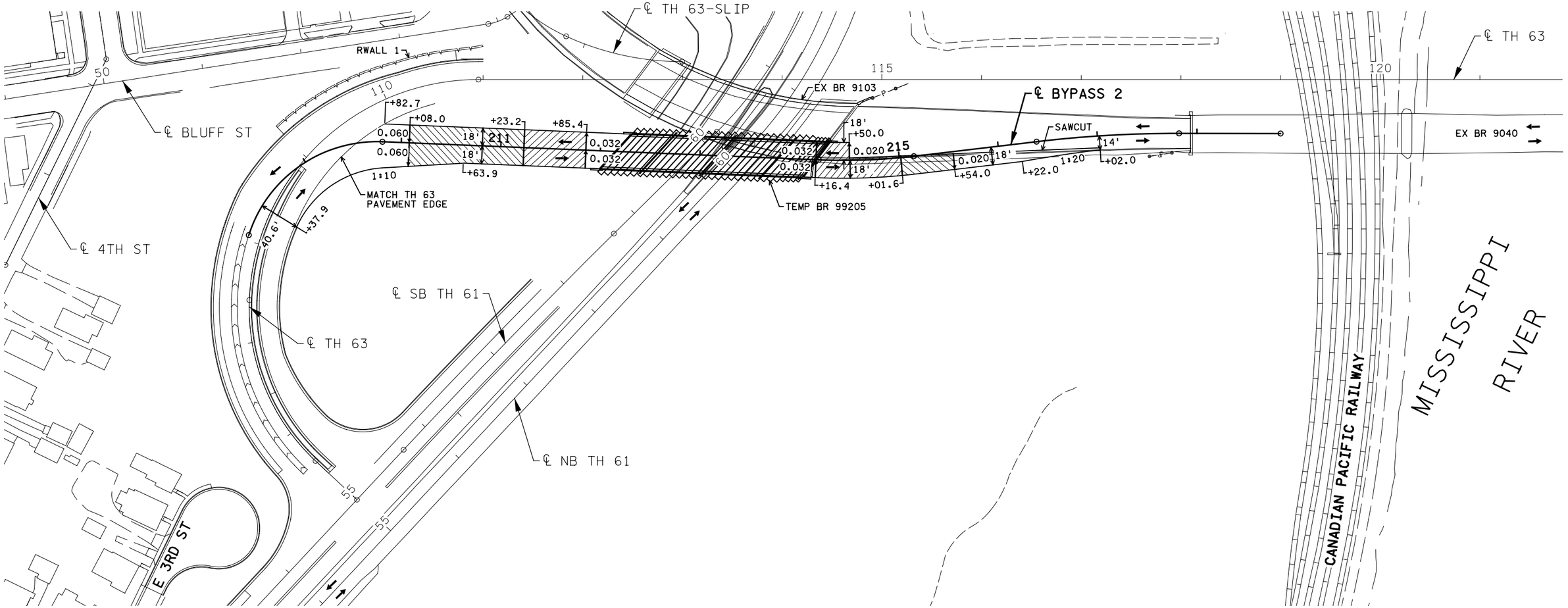
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BYPASS PLANS
SP 2515-21 (TH 63)
TEMPORARY PAVEMENT TYPICAL SECTIONS

SHEET 221 OF 688

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0 50 100
SCALE IN FEET

LEGEND

SUPERELEVATION TRANSITION

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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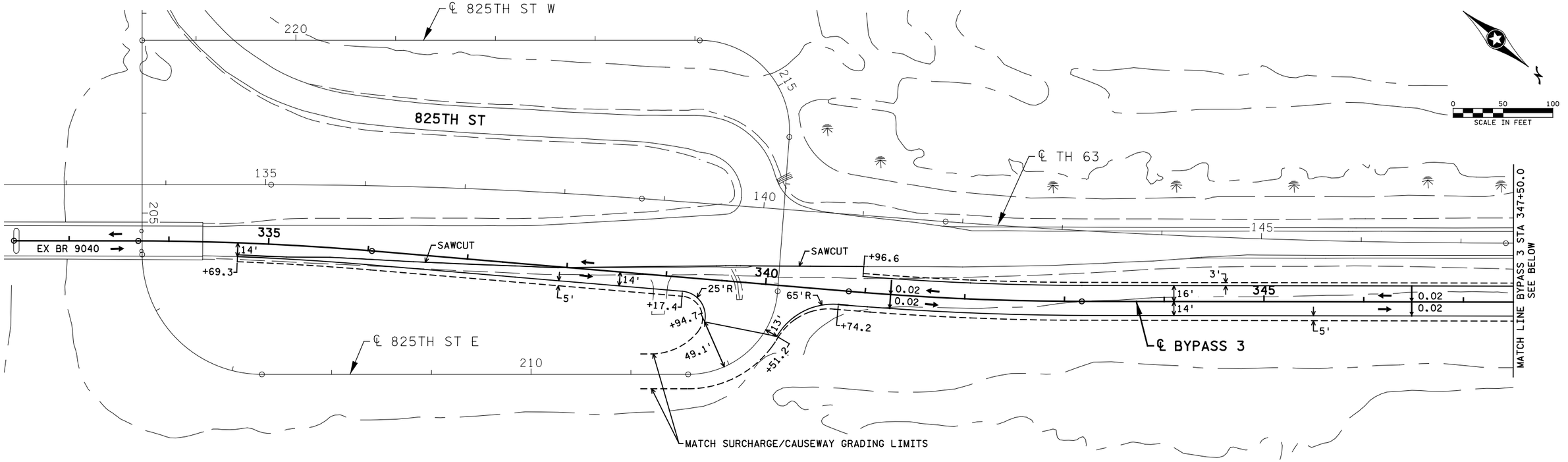
BYPASS PLANS

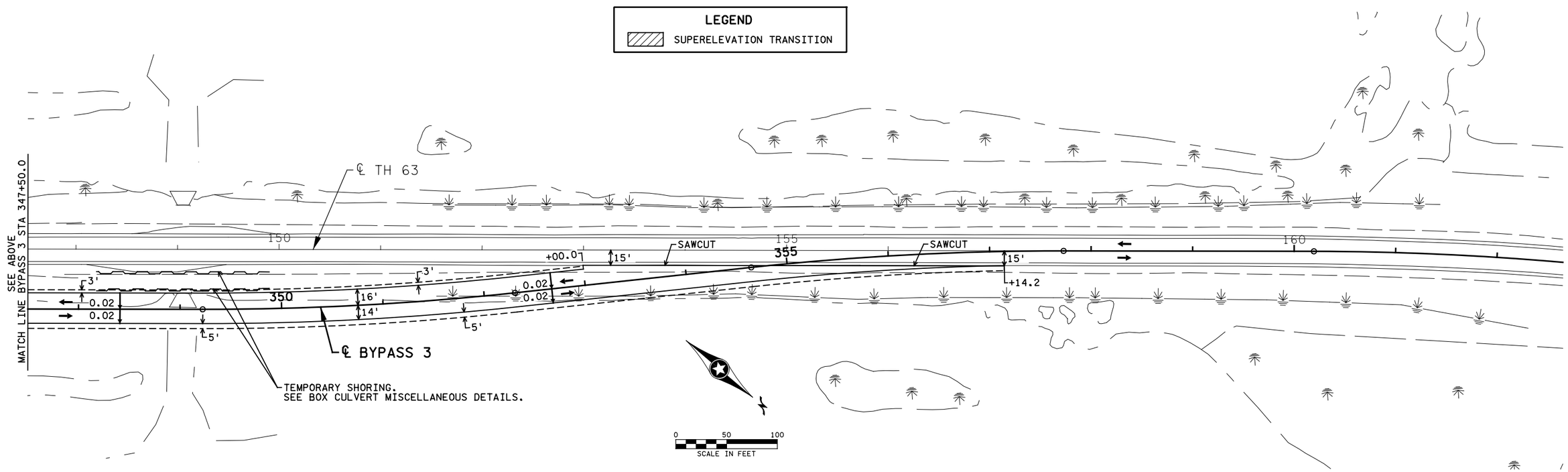
SP 2515-21 (TH 63)

BYPASS 2

SHEET 222 OF 688

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DESIGNED BY A. EMERSON

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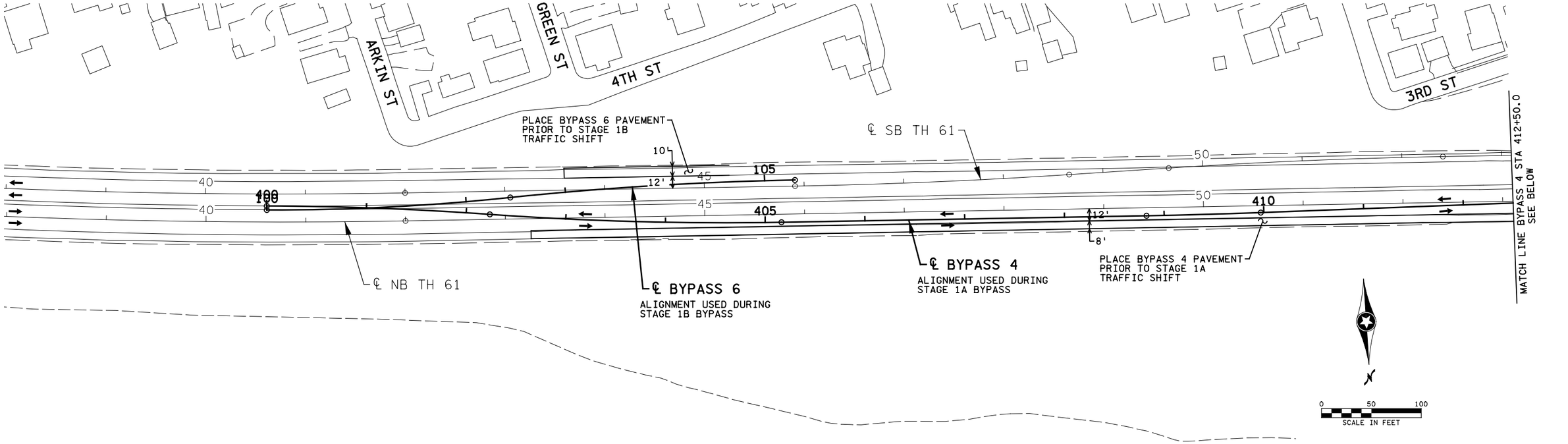
BYPASS PLANS

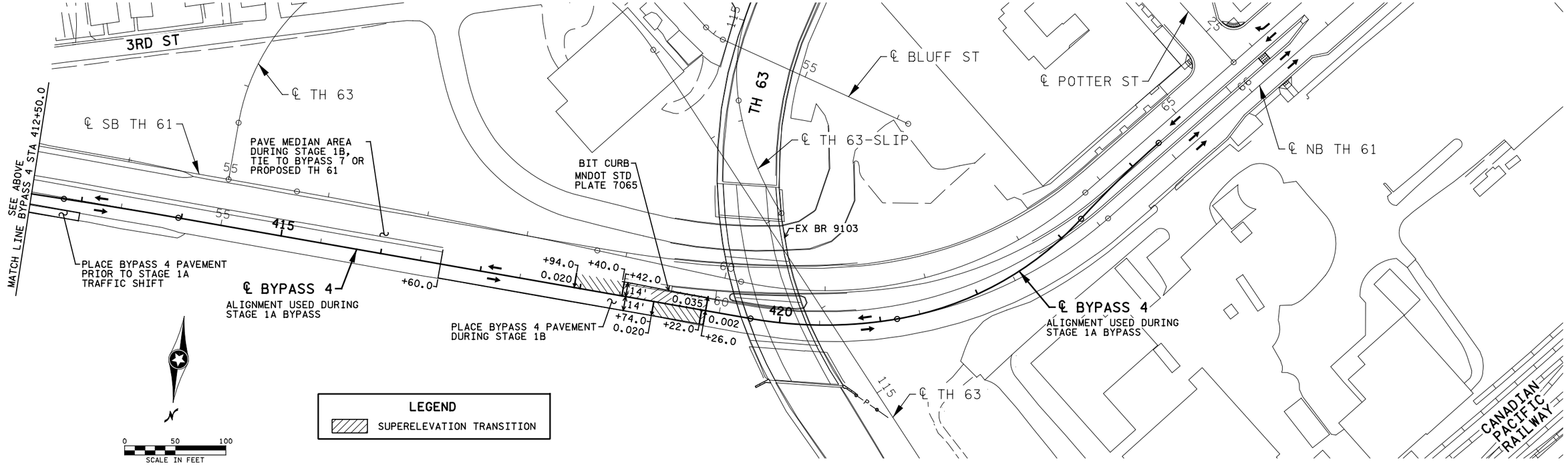
SP 2515-21 (TH 63)

BYPASS 3

SHEET 223 OF 688

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MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	
DRAWN BY	S. MARTINS
DESIGNED BY	A. EMERSON
CHECKED BY	C. HASS
COMM. NO.	0158933

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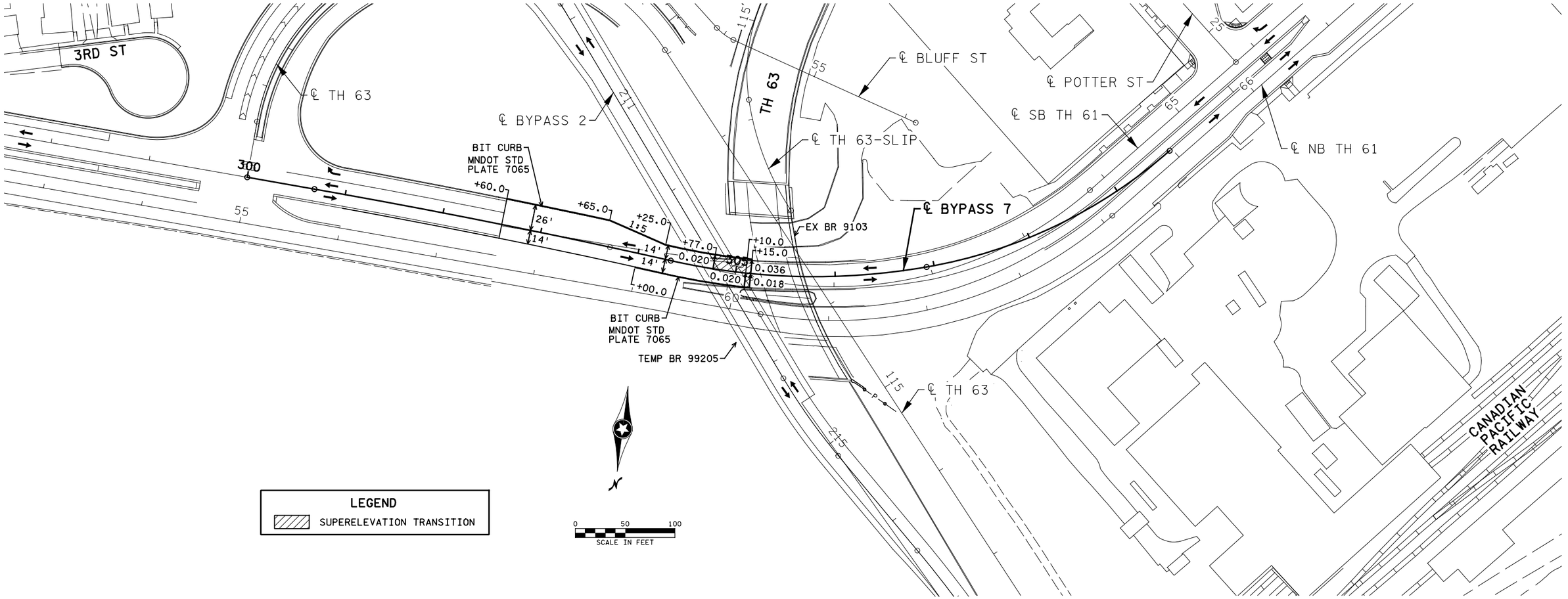
BYPASS PLANS

SP 2515-21 (TH 63)

BYPASS 4 AND BYPASS 6

SHEET 224 OF 688

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MINNESOTA DEPARTMENT OF TRANSPORTATION

BYPASS PLANS

SP 2515-21 (TH 63)

BYPASS 7

SHEET 225 OF 688

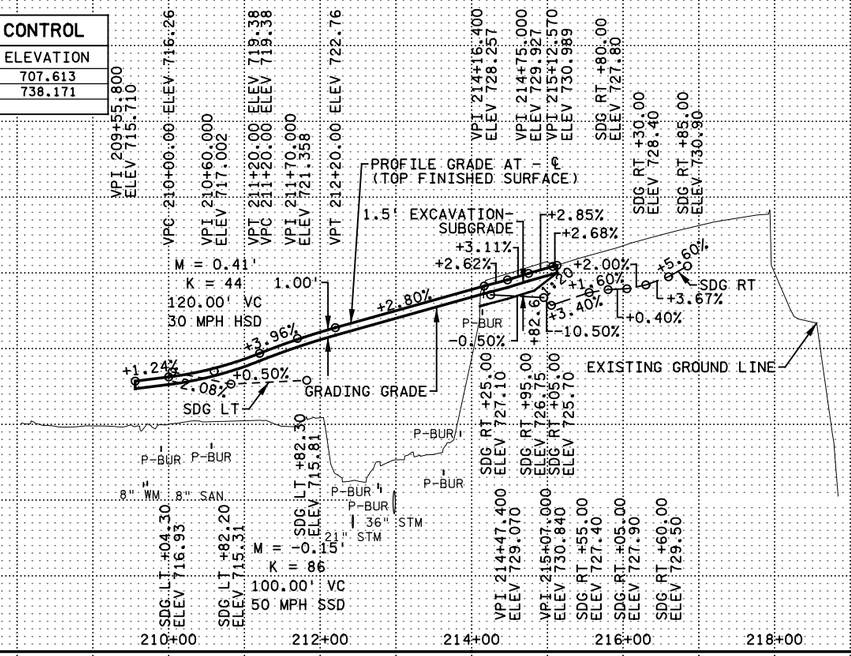
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VERTICAL CONTROL

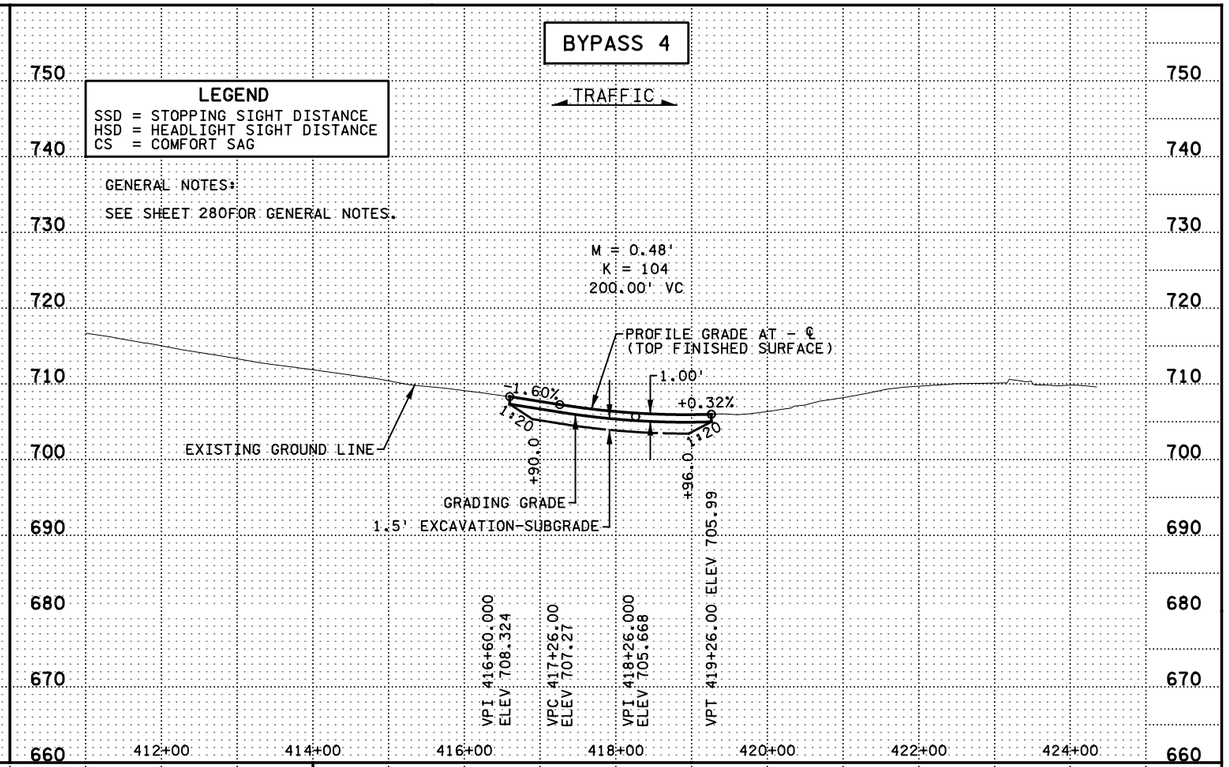
THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 6 SURVEYS.

VERTICAL CONTROL	
POINT NAME	ELEVATION
MNDOT BLUE	707.613
MNDOT 2515 B	738.171

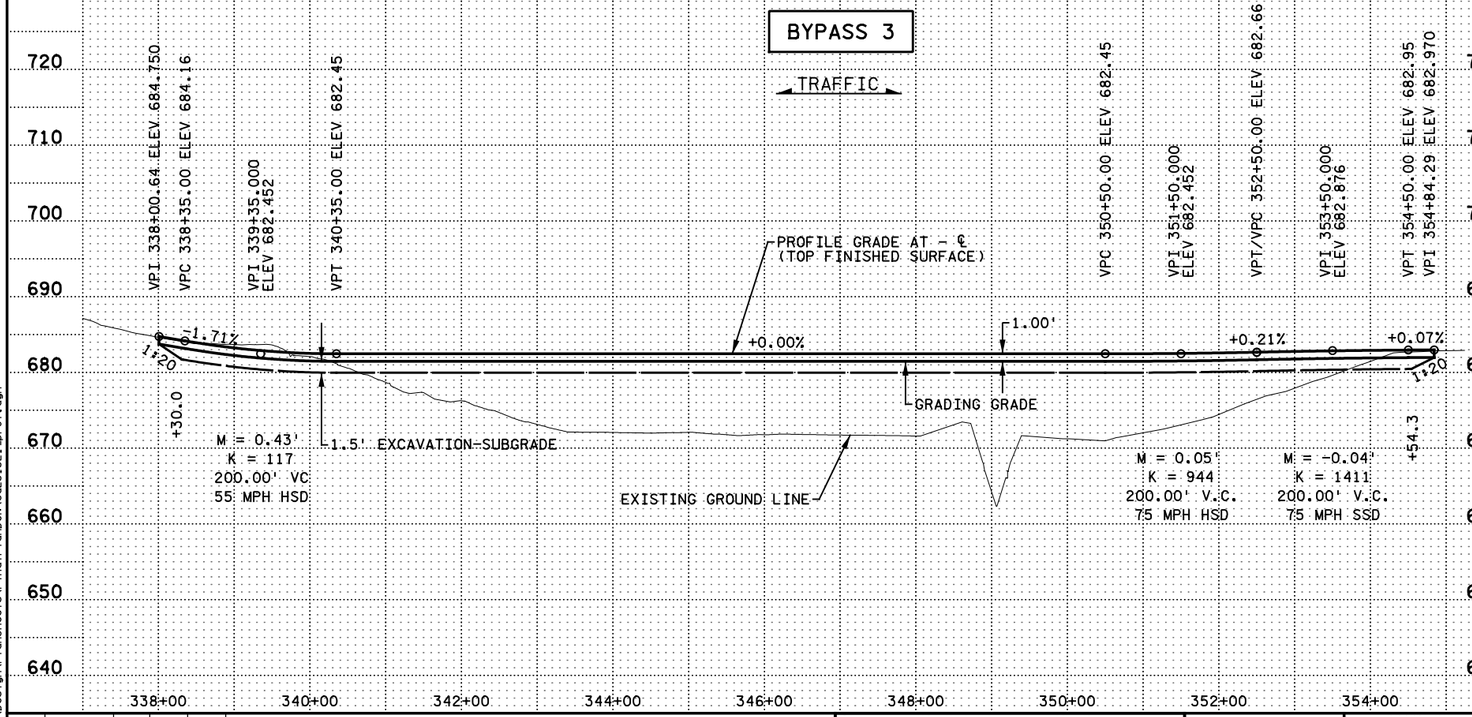
BYPASS 2



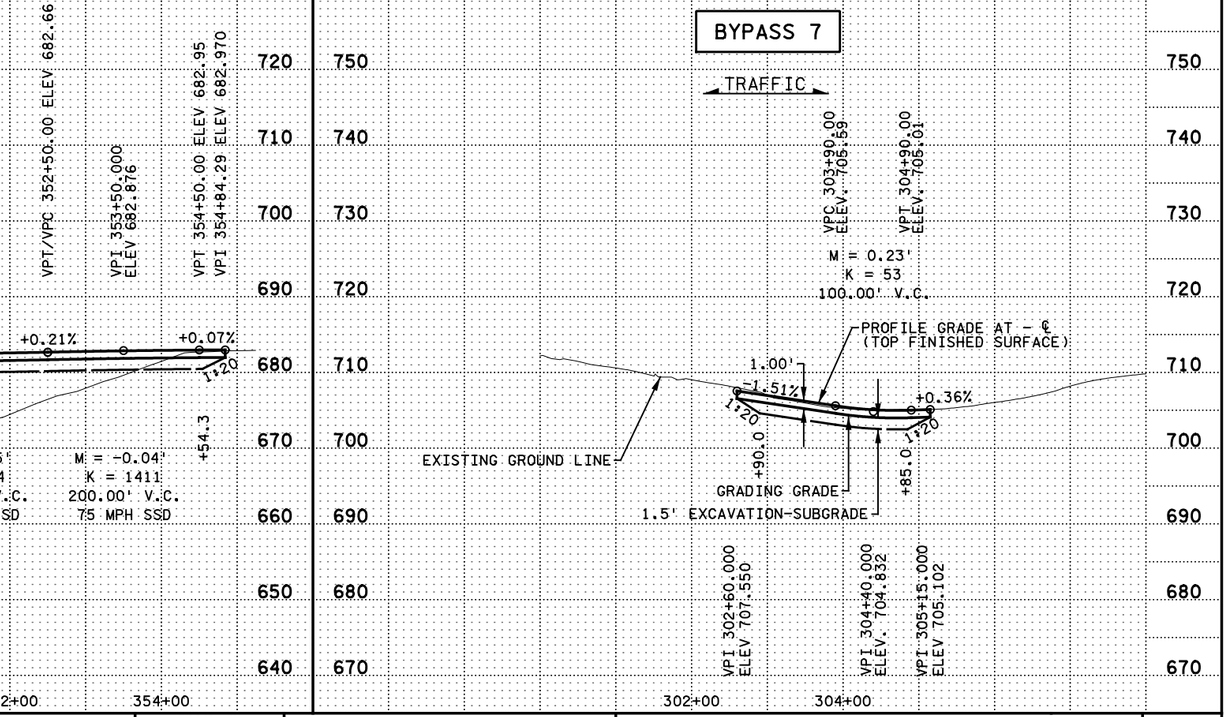
BYPASS 4



BYPASS 3



BYPASS 7



NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_pr07.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

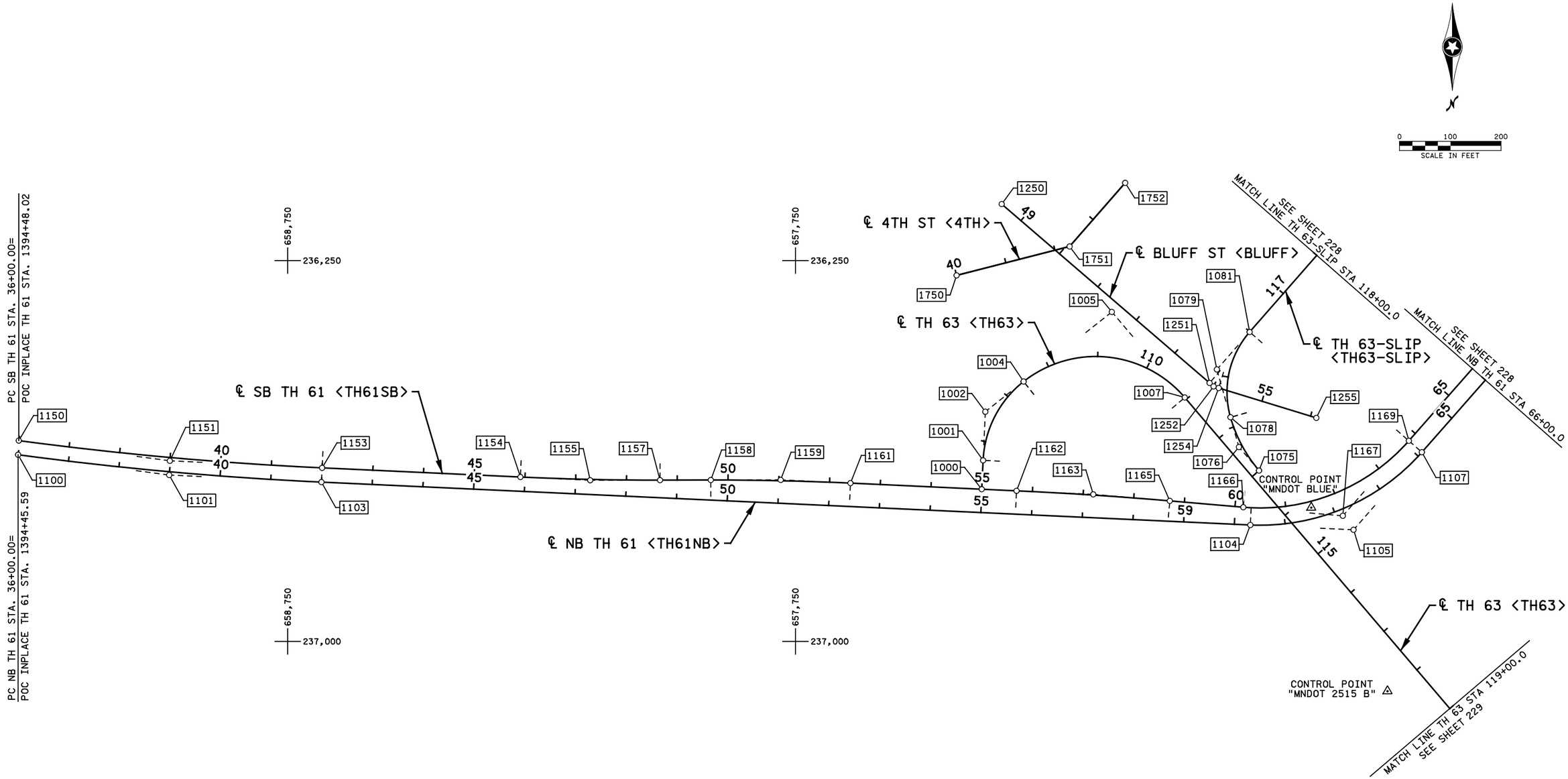
MINNESOTA DEPARTMENT OF TRANSPORTATION

BYPASS PROFILES

SP 2515-21 (TH 63)

SHEET 226 OF 688

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6/2/2016
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HORIZONTAL CONTROL

THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (1996 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, GOODHUE COUNTY COORDINATES. FOR A REPORT DETAILING THIS CONTROL CONTACT MNDOT DISTRICT 6 SURVEYS.

HORIZONTAL CONTROL				
POINT NAME	Y	X	Z	
MNDOT BLUE	236,736.590	656,734.009	707.613	
MNDOT 2515 B	237,098.098	656,583.916	738.171	
MNDOT KHAMSAI	236,539.782	659,525.172	719.027	(NOT SHOWN ON PLAN)
MNDOT F 35	234,458.111	656,097.282	750.248	(NOT SHOWN ON PLAN)

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_al01.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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

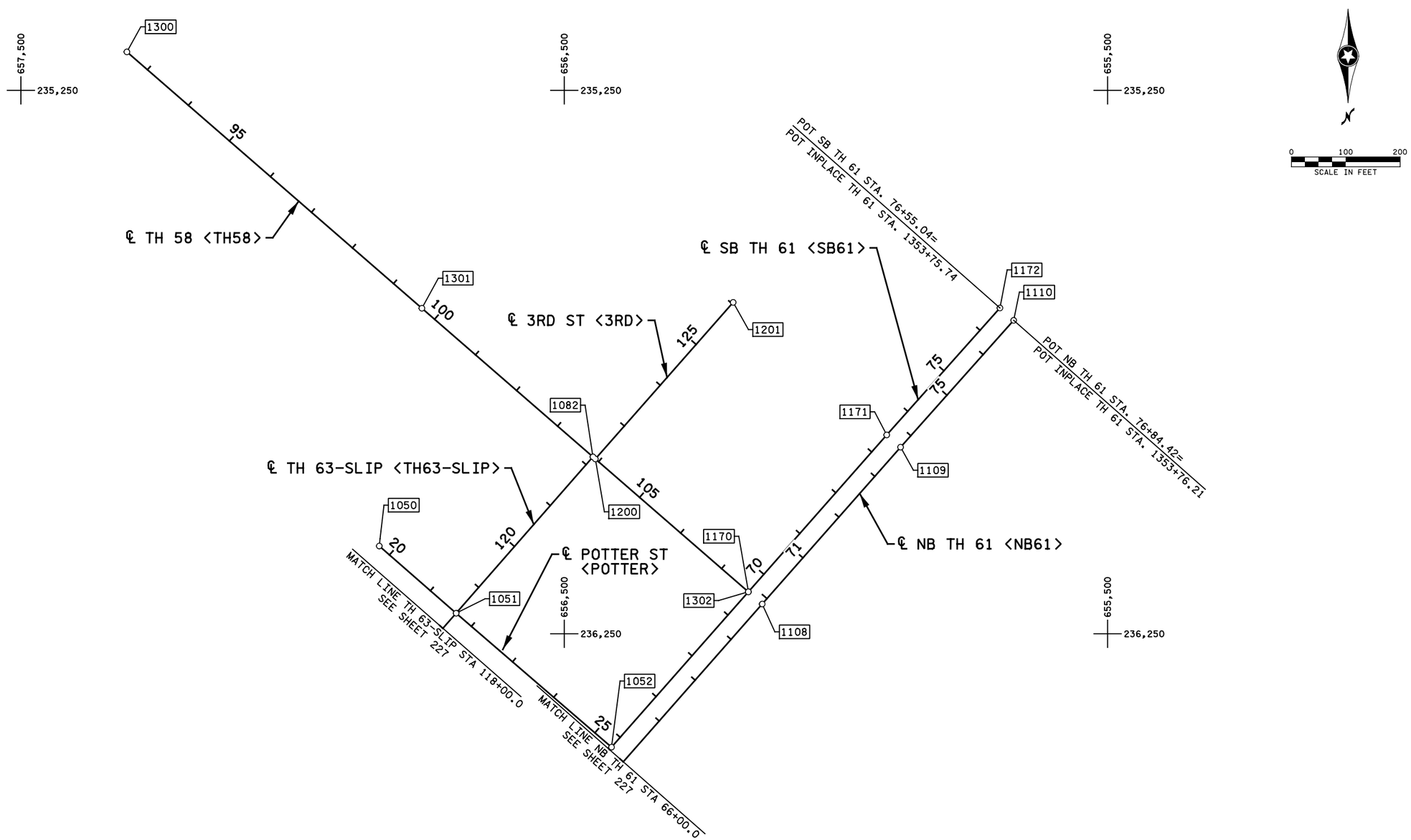
MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT PLANS

SP 2515-21 (TH 63)

SHEET 227 OF 688

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6/2/2016
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HORIZONTAL CONTROL

THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (1996 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, GOODHUE COUNTY COORDINATES. FOR A REPORT DETAILING THIS CONTROL CONTACT MNDOT DISTRICT 6 SURVEYS.

HORIZONTAL CONTROL				
POINT NAME	Y	X	Z	
MNDOT BLUE	236,736.590	656,734.009	707.613	
MNDOT 2515 B	237,098.098	656,583.916	738.171	
MNDOT KHAMSAI	236,539.782	659,525.172	719.027	(NOT SHOWN ON PLAN)
MNDOT F 35	234,458.111	656,097.282	750.248	(NOT SHOWN ON PLAN)

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_al02.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

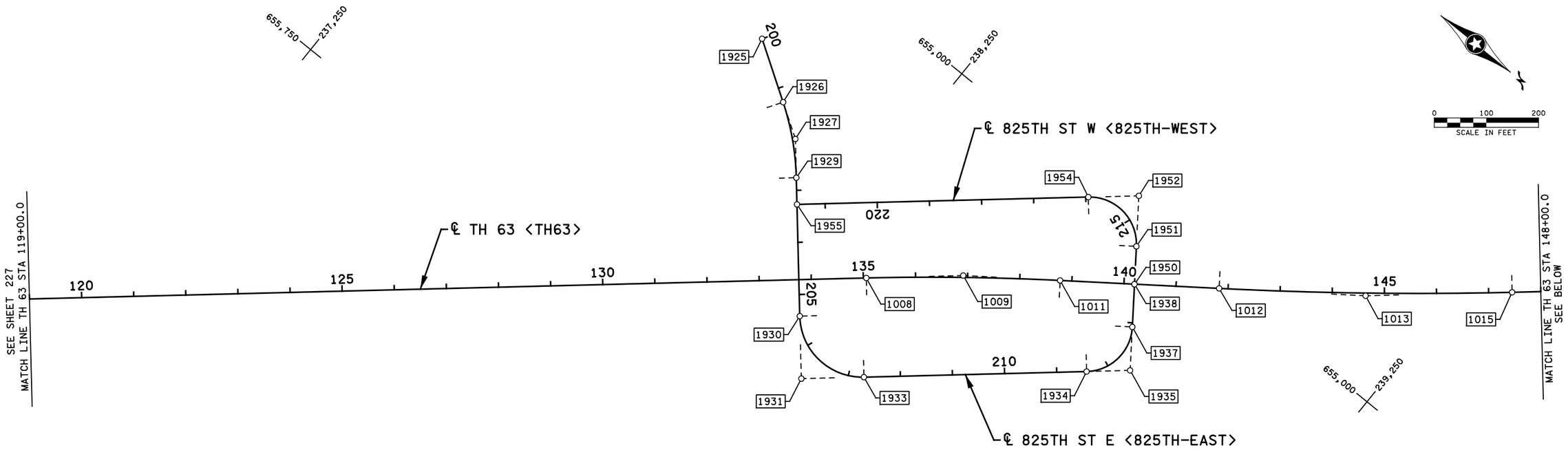
MINNESOTA DEPARTMENT OF TRANSPORTATION

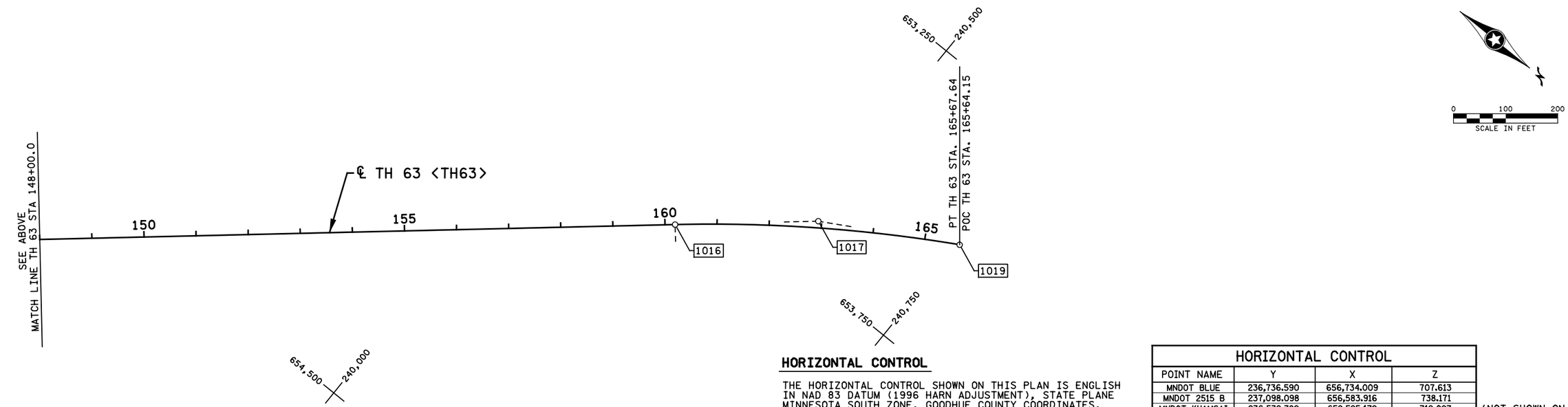
ALIGNMENT PLANS

SP 2515-21 (TH 63)

SHEET 228 OF 688

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HORIZONTAL CONTROL

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HORIZONTAL CONTROL				
POINT NAME	Y	X	Z	
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MNDOT 2515 B	237,098.098	656,583.916	738.171	
MNDOT KHAMSAI	236,539.782	659,525.172	719.027	(NOT SHOWN ON PLAN)
MNDOT F 35	234,458.111	656,097.282	750.248	(NOT SHOWN ON PLAN)

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME

NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT PLANS

SP 2515-21 (TH 63)

SHEET 229 OF 688

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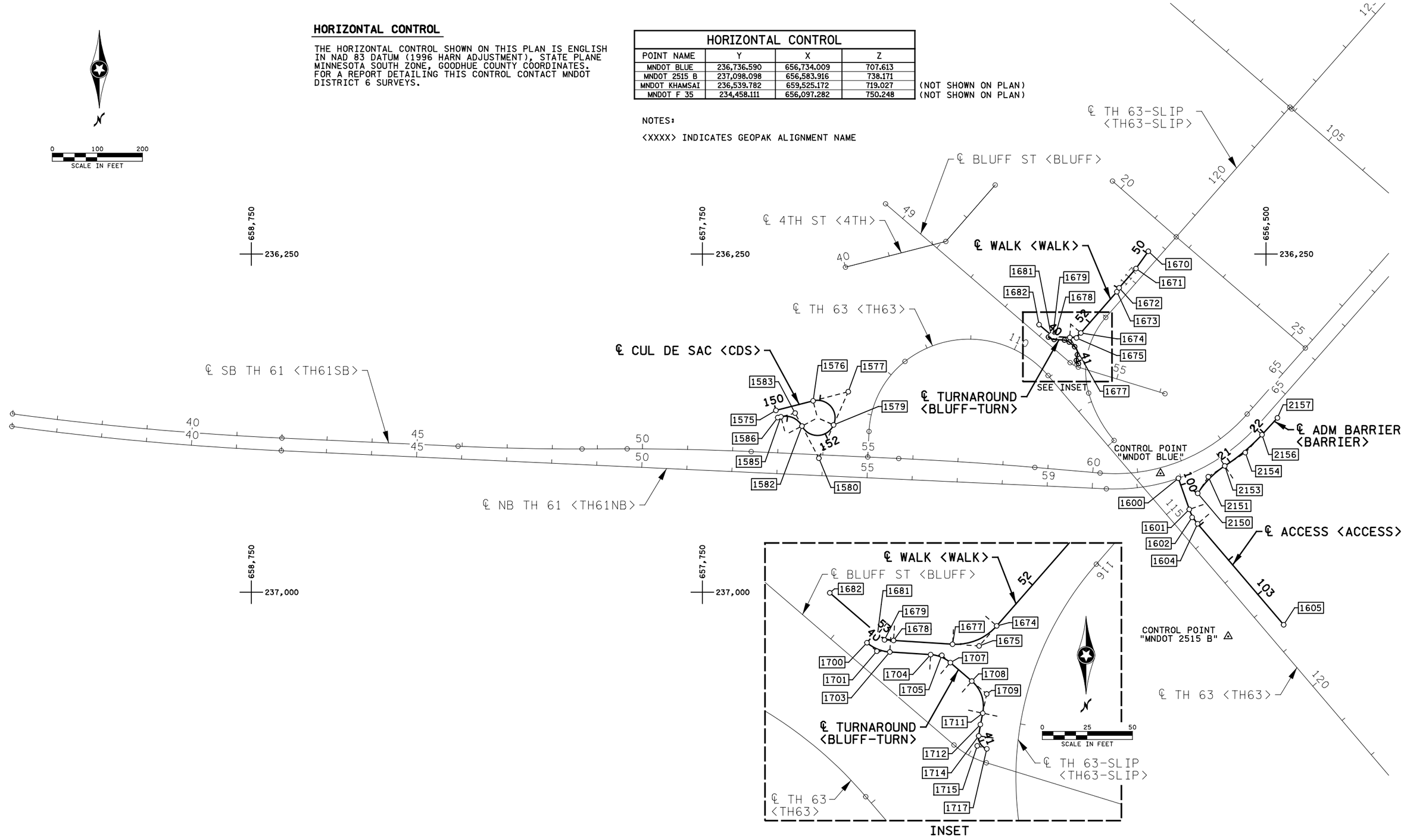
HORIZONTAL CONTROL

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HORIZONTAL CONTROL				
POINT NAME	Y	X	Z	
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MNDOT F 35	234,458.111	656,097.282	750.248	(NOT SHOWN ON PLAN)

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME



NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_al04.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

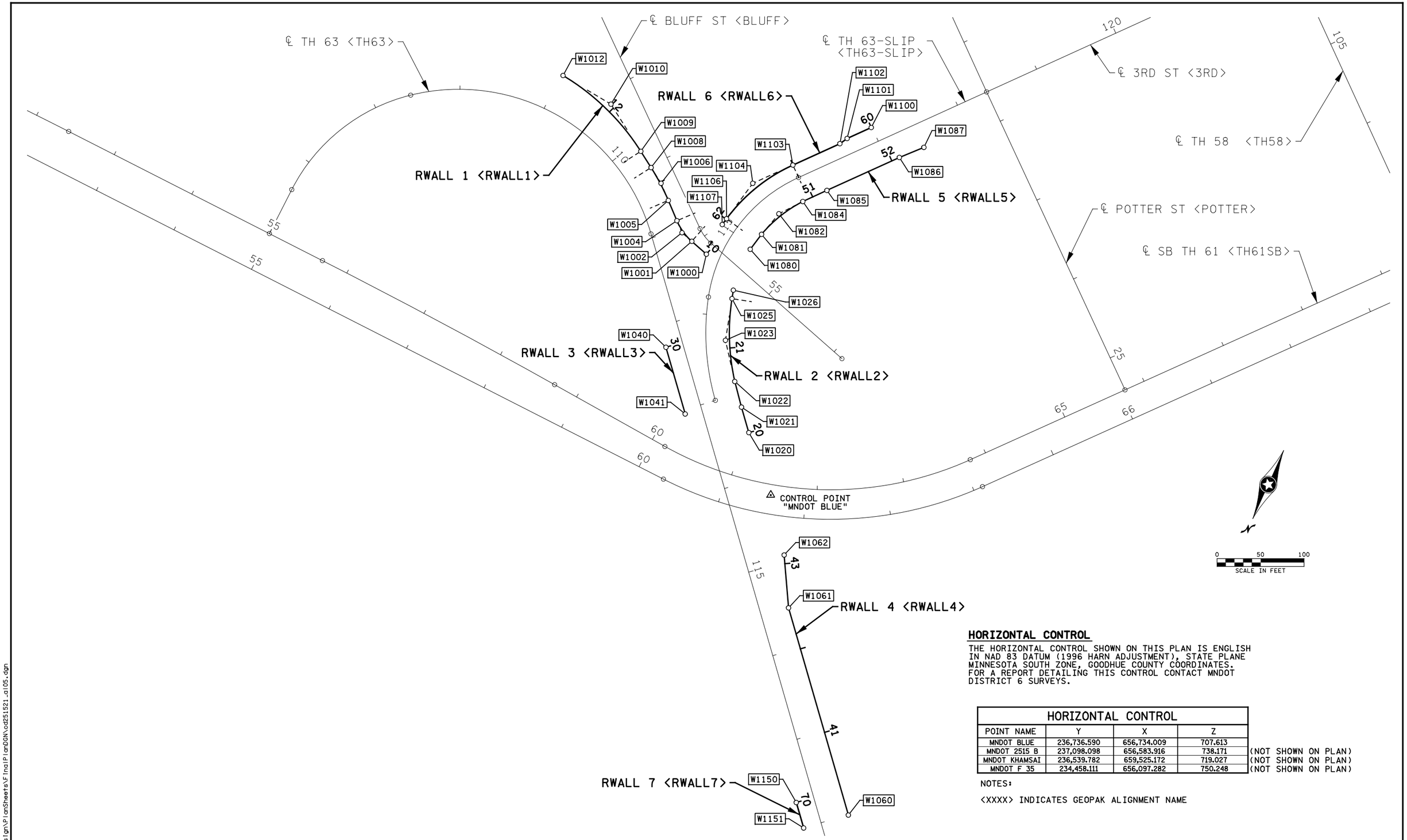
ALIGNMENT PLANS

SP 2515-21 (TH 63)

ACCESS ROAD, CURB AND WALK ALIGNMENTS

SHEET 230 OF 688

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HORIZONTAL CONTROL

THE HORIZONTAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAD 83 DATUM (1996 HARN ADJUSTMENT), STATE PLANE MINNESOTA SOUTH ZONE, GOODHUE COUNTY COORDINATES. FOR A REPORT DETAILING THIS CONTROL CONTACT MNDOT DISTRICT 6 SURVEYS.

HORIZONTAL CONTROL				
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MNDOT F 35	234,458.111	656,097.282	750.248	(NOT SHOWN ON PLAN)

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_al05.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc.

ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

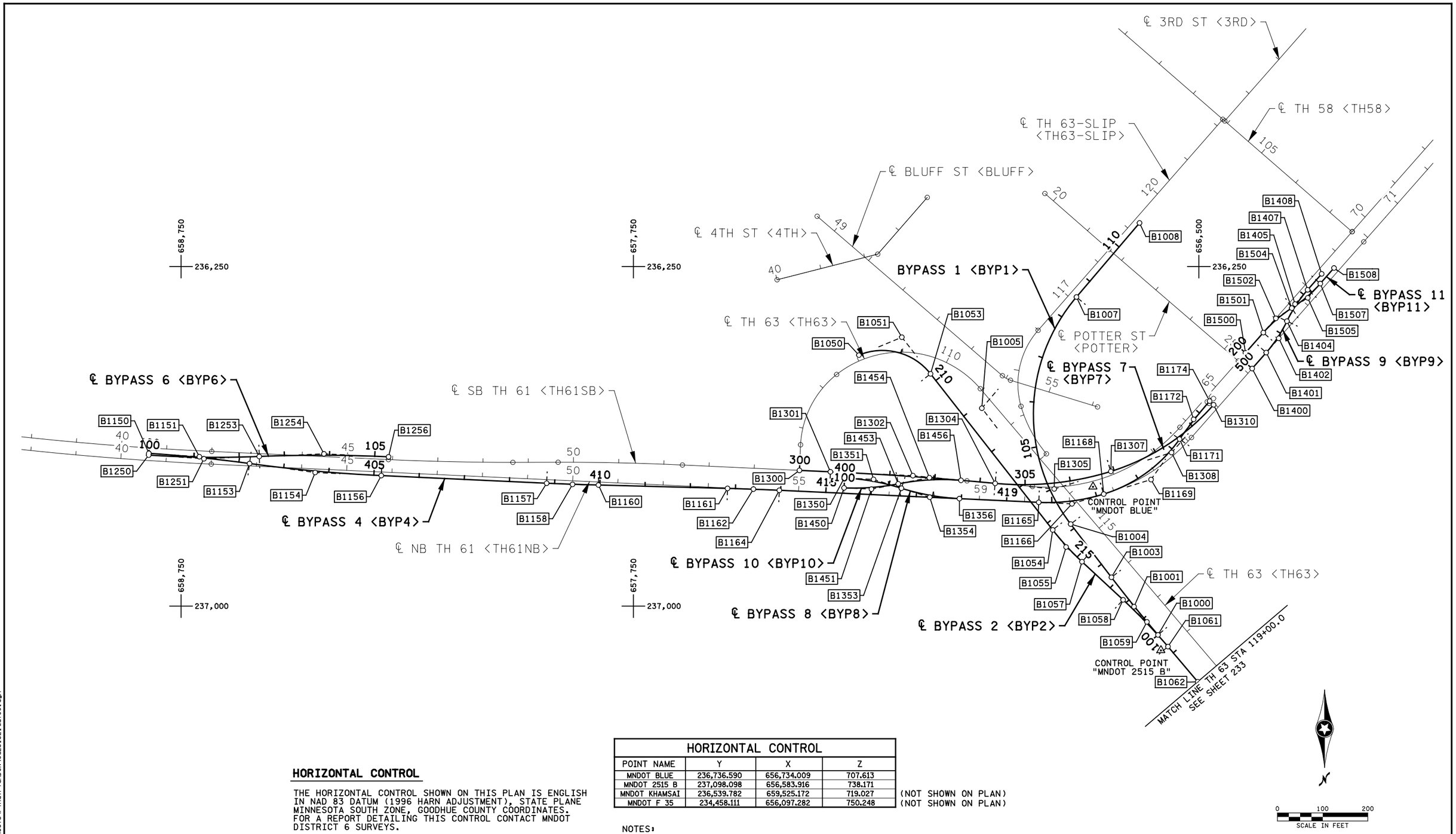
ALIGNMENT PLANS

SP 2515-21 (TH 63)

RETAINING WALL ALIGNMENTS

SHEET 231 OF 688

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6/2/2016
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HORIZONTAL CONTROL

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HORIZONTAL CONTROL				
POINT NAME	Y	X	Z	
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MNDOT F 35	234,458.111	656,097.282	750.248	(NOT SHOWN ON PLAN)

NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

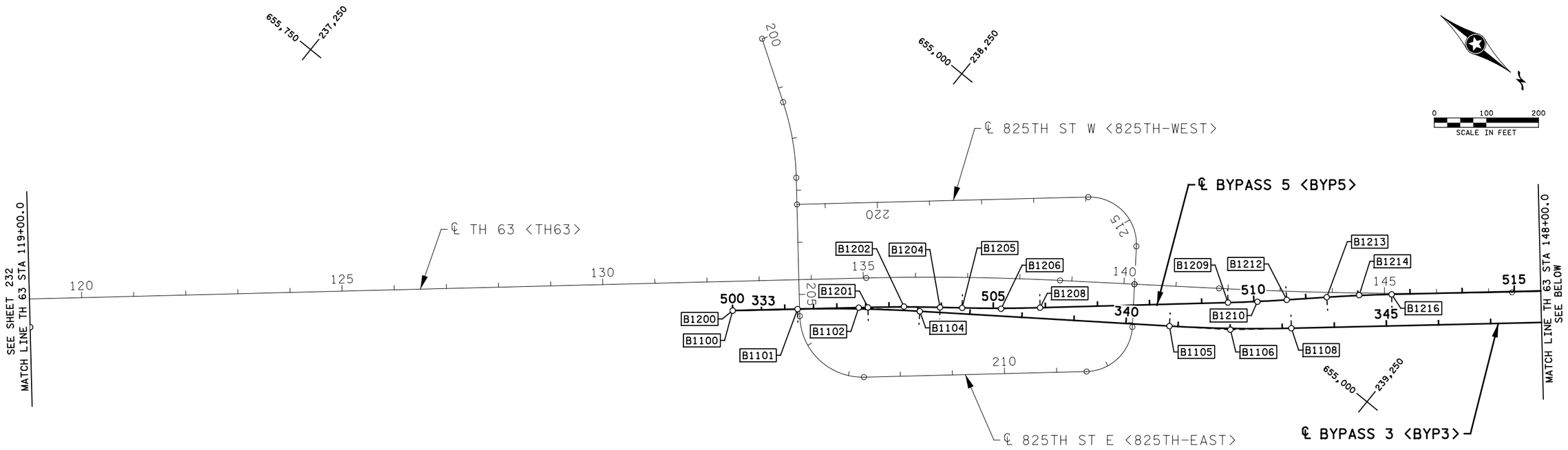
ALIGNMENT PLANS

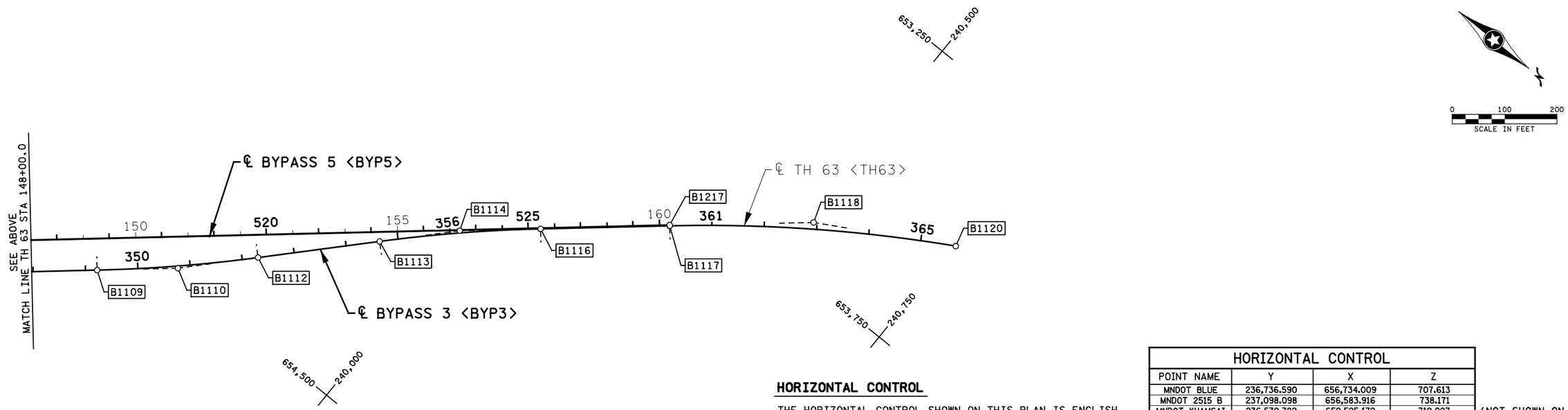
SP 2515-21 (TH 63)

BYPASS ALIGNMENTS

SHEET 232 OF 688

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HORIZONTAL CONTROL

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NOTES:

<XXXX> INDICATES GEOPAK ALIGNMENT NAME

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_a107.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. | ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT PLANS

SP 2515-21 (TH 63)

BYPASS ALIGNMENTS

SHEET 233 OF 688

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6/2/2016
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ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~Os~~)	DEGREE	RADIUS	TANGENT	LENGTH	DEGREE ST	LT	LS	COORDINATES X	Y	AZIMUTH
℄ NB TH 61 <TH61NB>													
1100	PC	℄ NB TH 61 36+00.000									659,280.8297	236,632.4946	277° 38' 27.72"
1101	PI	39+00.190	4° 59' 49.79" LT	0° 49' 58.30"	6,879.395'	300.190'	600.000'				658,983.3049	236,672.4098	PI
1102	CC	(1)									658,366.1023	229,814.1844	
1103	PT	42+00.000									658,683.4342	236,686.2569	272° 38' 37.93"
1104	PC	60+31.383									656,854.0006	236,770.7347	
1105	PI	62+34.853	51° 16' 15.75" LT	13° 30' 47.36"	424.000'	203.470'	379.416'				656,650.7471	236,780.1204	PI
1106	CC	(1)									656,834.4424	236,347.1861	
1107	PT	64+10.799									656,516.2623	236,627.4314	221° 22' 22.18"
1108	POT	69+86.836									656,135.5269	236,195.1587	221° 24' 15.07"
1109	POT	73+71.713									655,880.9821	235,906.4769	221° 45' 02.13"
1110	POT	℄ NB TH 61 76+84.423									655,672.7520	235,673.1797	
℄ SB TH 61 <TH61SB>													
1150	PC	℄ SB TH 61 36+00.000									659,279.5382	236,604.5244	277° 38' 27.72"
1151	PI	39+00.190	4° 59' 49.79" LT	0° 49' 58.30"	6,879.395'	300.190'	600.000'				658,982.0134	236,644.4396	PI
1152	CC	(1)									658,364.8107	229,786.2142	
1153	PT	42+00.000									658,682.1426	236,658.2868	272° 38' 37.93"
1154	PC	45+90.978									658,291.5811	236,676.3217	
1155	PI	47+28.535	2° 45' 01.49" LT	0° 59' 59.73"	5,730.000'	137.557'	275.062'				658,154.1703	236,682.6669	PI
1156	CC	(1)									658,027.2684	230,952.4211	
1157	PT	48+66.039									658,016.6132	236,682.4112	269° 53' 36.44"
1158	PC	49+66.039									657,916.6134	236,682.2252	
1159	PI	51+03.597	2° 45' 01.49" RT	0° 59' 59.73"	5,730.000'	137.557'	275.062'				657,779.0564	236,681.9694	PI
1160	CC	(1)									657,905.9583	242,412.2153	
1161	PT	52+41.101									657,641.6456	236,688.3146	272° 38' 37.93"
1162	PC	55+68.565									657,314.5306	236,703.4198	
1163	PI	57+19.841	2° 16' 08.30" RT	0° 45' 00.15"	7,639.000'	151.276'	302.512'				657,163.4156	236,710.3979	PI
1164	CC	(1)									657,666.9014	244,334.2884	
1165	PT	58+71.077									657,012.6954	236,723.3532	274° 54' 46.24"
1166	PC	60+16.423									656,867.8838	236,735.8006	
1167	PI	62+13.170	53° 32' 24.06" LT	14° 41' 28.41"	390.000'	196.747'	364.435'				656,671.8596	236,752.6501	PI
1168	CC	(1)									656,834.4841	236,347.2334	
1169	PT	63+80.858									656,541.8185	236,605.0063	221° 22' 22.18"
1170	POT	69+56.968									656,161.0351	236,172.6793	221° 24' 15.07"
1171	POT	73+41.957									655,906.4163	235,883.9134	221° 45' 02.13"
1172	POT	℄ SB TH 61 76+55.036									655,697.9405	235,650.3409	
℄ POTTER ST <POTTER>													
1050	POT	℄ POTTER ST 19+75.000									656,840.4436	236,088.4241	311° 08' 49.47"
1051	POT	21+62.885									656,698.9616	236,212.0516	310° 44' 37.26"
1052	POT	℄ POTTER ST 25+40.558									656,412.8228	236,458.5495	
℄ TH 58 <TH58>													
1300	POT	℄ TH 58 92+50.000									657,304.9217	235,179.1591	310° 58' 53.97"
1301	POT	99+69.281									656,761.9225	235,650.8761	
1302	POT	℄ TH 58 107+65.109									656,161.1362	236,172.7940	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~Os~~)	DEGREE	RADIUS	TANGENT	LENGTH	DEGREE ST	LT	LS	COORDINATES X	Y	AZIMUTH
℄ TH 63 <TH63>													
A PT ON ℄ SB TH 61 POT		55+00.000=											
1000	POT	℄ TH 63 105+06.006									657,383.0222	236,700.2571	
1001	PC	105+62.825									657,380.4012	236,643.4980	182° 38' 37.93"
1002	PI	106+58.773	49° 06' 38.41" RT	27° 17' 01.34"	210.000'	95.948'	180.000'				657,375.9754	236,547.6526	PI
1003	CC	(1)									657,170.6248	236,653.1849	
1004	PCC	107+42.825									657,300.6214	236,488.2580	231° 45' 16.34"
1005	PI	109+64.185	87° 48' 24.11" RT	24° 54' 40.35"	230.000'	221.360'	352.479'				657,126.7729	236,351.2292	PI
1006	CC	(1)									657,158.2441	236,668.8922	
1007	PT	110+95.304									656,983.1912	236,519.7061	319° 33' 40.45"
1008	PC	135+05.573									655,419.8061	238,354.1615	
1009	PI	136+91.637	4° 18' 50.49" RT	1° 09' 35.40"	4,940.000'	186.064'	371.952'				655,299.1185	238,495.7747	PI
1010	CC	(1)									659,179.6383	241,558.4182	
1011	PT	138+77.526									655,189.4254	238,646.0652	323° 52' 30.94"
1012	PC	141+82.855									655,009.4198	238,892.6907	
1013	PI	144+64.068	4° 12' 58.62" LT	0° 45' 00.00"	7,639.437'	281.213'	562.171'				654,843.6323	239,119.8360	PI
1014	CC	(1)									648,838.7757	234,388.8974	
1015	PT	147+45.026									654,661.5934	239,334.1776	319° 39' 32.32"
1016	PC	160+19.473									653,836.5987	240,305.5672	
1017	PI	162+94.374	10° 48' 55.29" RT	1° 58' 22.78"	2,904.000'	274.902'	548.170'				653,658.6451	240,515.0985	PI
1018	CC	(1)									656,050.0422	242,185.4300	
1019	PT	℄ TH 63 165+67.642									653,523.1700	240,754.3000	330° 28' 27.61"
℄ TH 63-SLIP <TH63-SLIP>													
A PT 18.00' LT OF ℄ TH 63 POT		112+99.694=											
1075	PC	℄ TH 63-SLIP 113+00.000									656,836.9169	236,663.5919	139° 33' 40.45"
1076	PI	113+60.936	24° 33' 19.20" RT	20° 27' 46.00"	280.000'	60.936'	120.000'				656,876.4418	236,617.2138	PI
1077	CC	(1)									656,623.8090	236,481.9741	
1078	PCC	114+20.000									656,893.1188	236,558.6048	164° 06' 59.66"
1079	PI	115+17.902	57° 05' 00.95" RT	31° 49' 51.56"	180.000'	97.902'	179.333'				656,919.9127	236,464.4405	PI
1080	CC	(1)									656,719.9911	236,509.3422	
1081	PT	115+99.333									656,855.4254	236,390.7777	221° 12' 00.61"
1082	POT	℄ TH 63-SLIP 122+19.225									656,447.1080	235,924.3633	
℄ BLUFF ST <BLUFF>													
1250	POT	℄ BLUFF ST 48+50.000									657,343.7561	236,138.7669	
1251	PC	53+90.141									656,934.2872	236,491.0280	310° 42' 18.03"
1252	PI	54+00.605	23° 38' 22.08" LT	114° 35' 29.61"	50.000'	10.464'	20.629'				656,926.3551	236,497.8520	PI
1253	CC	(1)									656,901.6790	236,453.1242	
1254	PT	54+10.771									656,916.3523	236,500.9227	287° 03' 55.95"
1255	POT	℄ BLUFF ST 56+11.947									656,724.0338	236,559.9610	

NOTES:

(1) ALIGNMENT POINT IS NOT SHOW ON ALIGNMENT PLAN VIEW.

<XXXX> INDICATES GEOPAK ALIGNMENT NAME.

NO	DATE	BY	CKD	APPR	REVISION
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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT TABULATIONS

SP 2515-21 (TH 63)

SHEET 234 OF 688

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ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~θs~~)	DEGREE	RADIUS / ST	TANGENT / LT	LENGTH / LS	COORDINATES X	COORDINATES Y	AZIMUTH
℄ 3RD ST <3RD>										
1200	POT	℄ 3RD ST 122+19.225						656,442.7278	235,928.1685	221° 22' 22.18"
1201	POT	℄ 3RD ST 126+03.118						656,188.9911	235,640.0854	
℄ 4TH ST <4TH>										
1750	POT	℄ 4TH ST 40+00.000						657,432.5548	236,279.1427	255° 41' 04.02"
1751	POT	42+29.791						657,209.8987	236,222.3240	221° 08' 14.61"
1752	POT	℄ 4TH ST 43+96.166						657,100.4466	236,097.0220	
℄ 825TH ST W <825TH-WEST>										
A PT ON ℄ TH 63 POT 140+20.265=										
1950	POT	℄ 825TH ST W 213+74.280						655,105.2739	238,761.3610	
1951	PC	214+46.950						655,046.5763	238,718.5191	233° 52' 30.94"
1952	PI	215+43.995	94° 18' 50.49" LT	63° 39' 43.12"	90.000'	97.045'	148.148'	654,968.1896	238,661.3067	PI
1953	CC	(1)						655,099.6354	238,645.8229	
1954	PT	215+95.098						655,031.1364	238,587.4458	139° 33' 40.45"
1955	POT	℄ 825TH ST W 221+54.029=						655,393.6784	238,162.0438	
A PT ON ℄ 825TH ST E POT 203+27.144										
℄ 825TH ST E <825TH-EAST>										
1925	POT	℄ 825TH ST E 200+00.000						655,188.7937	237,909.9480	
1926	PC	201+28.313						655,258.0081	238,017.9925	32° 38' 38.53"
1927	PI	202+02.669	16° 55' 01.92" RT	11° 27' 32.96"	500.000'	74.356'	147.630'	655,298.1172	238,080.6032	PI
1928	CC	(1)						655,679.0271	237,748.2834	
1929	PT	202+75.943						655,354.7097	238,128.8332	49° 33' 40.45"
1930	PC	205+41.644						655,556.9343	238,301.1760	
1931	PI	206+61.644	90° 00' 00.00" LT	47° 44' 47.34"	120.000'	120.000'	188.496'	655,648.2663	238,379.0122	PI
1932	CC	(1)						655,479.0981	238,392.5079	
1933	PT	207+30.140						655,570.4301	238,470.3441	319° 33' 40.45"
1934	PC	211+57.415						655,293.2841	238,795.5436	
1935	PI	212+40.882	85° 41' 09.51" LT	63° 39' 43.12"	90.000'	83.466'	134.595'	655,239.1448	238,859.0698	PI
1936	CC	(1)						655,224.7851	238,737.1664	
1937	PT	212+92.011						655,171.7260	238,809.8626	233° 52' 30.94"
1938	POT	℄ 825TH ST E 213+74.280=						655,105.2739	238,761.3610	
A PT ON ℄ TH 63 POT 140+20.265										

NOTES:

(1) ALIGNMENT POINT IS NOT SHOW ON ALIGNMENT PLAN VIEW.

<XXXX> INDICATES GEOPAK ALIGNMENT NAME.

NO	DATE	BY	CKD	APPR	REVISION
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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. | ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT TABULATIONS

SP 2515-21 (TH 63)

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ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	Y	AZIMUTH
			SPIRAL CURVE DATA ANGLE (~~θs~~)	DEGREE	ST	LT	LS			
℄ CUL DE SAC <CDS>										
1575	POT	℄ CUL DE SAC 150+00.000						657,586.7634	236,596.7792	
1576	PC	150+85.052						657,504.3852	236,575.6209	255° 27' 35.50"
1577	PI	151+65.696	128° 22' 56.59" RT	146° 54' 44.12"	39.000'	80.644'	87.387'	657,426.3243	236,555.3747	PI
1578	CC	(1)						657,494.5939	236,613.3718	
1579	PCC	151+72.439						657,458.9221	236,629.1364	23° 50' 32.09"
1580	PI	152+53.083	128° 22' 56.30" RT	146° 54' 44.12"	39.000'	80.644'	87.387'	657,491.5199	236,702.8980	PI
1581	CC	(1)						657,494.5939	236,613.3718	
1582	PRC	152+59.826						657,529.1004	236,631.5461	152° 13' 28.39"
1583	PI	152+92.223	76° 37' 45.28" LT	139° 44' 44.89"	41.000'	32.397'	54.835'	657,544.1975	236,602.8820	PI
1584	CC	(1)						657,565.3764	236,650.6524	
1585	PT	153+14.661						657,575.5759	236,610.9414	75° 35' 43.11"
1586	POT	℄ CUL DE SAC 153+21.974						657,582.6587	236,612.7605	
℄ ACCESS <ACCESS>										
1600	POT	℄ ACCESS 99+84.010						656,694.2429	236,747.3362	
1601	PC	100+57.187						656,670.0461	236,816.3976	340° 41' 28.40"
1602	PI	100+75.839	21° 07' 47.94" LT	57° 17' 44.81"	100.000'	18.651'	36.879'	656,663.8789	236,833.9997	PI
1603	CC	(1)						656,575.6711	236,783.3317	
1604	PT	100+94.066						656,651.7810	236,848.1952	319° 33' 40.45"
1605	POT	℄ ACCESS 103+88.327						656,460.9129	237,072.1573	
℄ WALK <WALK>										
1670	POT	℄ WALK 49+95.000						656,761.0815	236,244.0304	35° 29' 22.47"
1671	POT	50+41.989						656,788.3614	236,282.2902	41° 12' 00.61"
1672	POT	50+98.710						656,825.7227	236,324.9674	29° 53' 24.85"
1673	POT	51+08.908						656,830.8048	236,333.8089	41° 12' 00.61"
1674	PC	52+30.114						656,910.6424	236,425.0062	
1675	PI	52+44.880	52° 24' 43.57" RT	190° 59' 09.35"	30.000'	14.766'	27.443'	656,920.3685	236,436.1161	PI
1676	CC	(1)						656,933.2148	236,405.2454	
1677	PT	52+57.557						656,935.1050	236,435.1858	93° 36' 44.18"
1678	PC	52+90.328						656,967.8107	236,433.1211	
1679	PI	52+95.360	37° 05' 33.85" RT	381° 58' 18.71"	15.000'	5.032'	9.711'	656,972.8331	236,432.8041	PI
1680	CC	(1)						656,966.8656	236,418.1509	
1681	PT	53+00.039						656,976.6481	236,429.5221	130° 42' 18.03"
1682	POT	℄ WALK 53+15.000						656,987.9898	236,419.7650	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA	DEGREE	RADIUS	TANGENT	LENGTH	COORDINATES X	Y	AZIMUTH
			SPIRAL CURVE DATA ANGLE (~~θs~~)	DEGREE	ST	LT	LS			
℄ TURNAROUND <BLUFF-TURN>										
1700	PC	℄ TURNAROUND 40+00.000						656,982.5420	236,434.3451	310° 42' 18.03"
1701	PI	40+07.213	37° 05' 33.85" LT	266° 29' 31.19"	21.500'	7.213'	13.919'	656,977.0738	236,439.0493	PI
1702	CC	(1)						656,968.5204	236,418.0465	
1703	PT	40+13.919						656,969.8750	236,439.5037	273° 36' 44.18"
1704	PC	40+36.615						656,947.2237	236,440.9337	
1705	PI	40+42.822	37° 05' 33.85" RT	309° 42' 24.90"	18.500'	6.207'	11.977'	656,941.0294	236,441.3248	PI
1706	CC	(1)						656,948.3893	236,459.3970	
1707	PT	40+48.592						656,936.3242	236,445.3725	310° 42' 18.03"
1708	PC	40+64.299						656,924.4172	236,455.6160	
1709	PI	40+75.214	61° 04' 46.72" RT	309° 42' 24.90"	18.500'	10.915'	19.722'	656,916.1430	236,462.7342	PI
1710	CC	(1)						656,936.4822	236,469.6404	
1711	PRC	40+84.021						656,918.3722	236,473.4188	11° 47' 04.75"
1712	PI	40+90.417	3° 29' 20.64" LT	27° 17' 01.34"	210.000'	6.396'	12.788'	656,919.6785	236,479.6800	PI
1713	CC	(1)						656,712.7985	236,516.3079	
1714	PCC	40+96.809						656,920.6013	236,486.0091	8° 17' 44.11"
1715	PI	41+02.384	81° 13' 48.16" LT	881° 18' 31.04"	6.501'	5.575'	9.217'	656,921.4057	236,491.5259	PI
1716	CC	(1)						656,914.1681	236,486.9471	
1717	PT	℄ TURNAROUND 41+06.026						656,916.0760	236,493.1620	287° 03' 55.95"
℄ ADM BARRIER <BARRIER>										
2150	PC	℄ ADM BARRIER 20+00.000						656,651.4108	236,780.8091	212° 15' 43.22"
2151	PI	20+43.692	24° 38' 47.70" RT	28° 38' 52.40"	200.000'	43.692'	86.033'	656,628.0882	236,743.8623	PI
2152	CC	(1)						656,482.2876	236,887.5674	
2153	PRC	20+86.033						656,591.4829	236,720.0073	236° 54' 30.92"
2154	PI	21+40.275	13° 53' 57.74" LT	12° 52' 31.64"	445.000'	54.243'	107.952'	656,546.0385	236,690.3922	PI
2155	CC	(1)						656,834.4424	236,347.1861	
2156	PT	21+93.985						656,509.0388	236,650.7277	223° 00' 33.18"
2157	POT	℄ ADM BARRIER 22+44.671						656,474.6606	236,613.4824	

NOTES:

(1) ALIGNMENT POINT IS NOT SHOW ON ALIGNMENT PLAN VIEW.

<XXXX> INDICATES GEOPAK ALIGNMENT NAME.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_atb03.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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT TABULATIONS

SP 2515-21 (TH 63)

ACCESS ROAD, CURB AND WALK ALIGNMENTS

SHEET 236 OF 688

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ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~Os~~)	DEGREE / DEGREE	RADIUS / ST	TANGENT / LT	LENGTH / LS	COORDINATES X	COORDINATES Y	AZIMUTH
RWALL 1 <RWALL1>										
W1000	POT	RWALL 1 10+00.000						656,915.5828	236,514.7576	
W1001	PC	10+22.329						656,936.9284	236,508.2049	107° 03' 55.95"
W1002	PI	10+37.323	25° 35' 53.91" RT	86° 48' 42.43"	66.000'	14.994'	29.487'	656,951.2621	236,503.8047	PI
W1003	CC	(1)						656,917.5597	236,445.1109	
W1004	PT	10+51.816						656,962.2876	236,493.6435	132° 39' 49.86"
W1005	PC	10+77.146						656,980.9137	236,476.4776	
W1006	PI	10+98.540	9° 20' 54.49" LT	21° 53' 47.31"	261.667'	21.394'	42.694'	656,996.6460	236,461.9787	PI
W1007	CC	(1)						657,158.2441	236,668.8922	
W1008	PT	11+19.840						657,014.5245	236,450.2278	123° 18' 55.37"
W1009	PC	11+41.940						657,032.9925	236,438.0895	
W1010	PI	12+06.105	26° 45' 55.85" LT	21° 14' 39.59"	269.699'	64.166'	125.989'	657,086.6132	236,402.8467	PI
W1011	CC	(1)						657,181.1240	236,663.4663	
W1012	PT	RWALL 1 12+67.929						657,150.3600	236,395.5275	96° 32' 59.51"
RWALL 2 <RWALL2>										
W1020	POT	RWALL 2 20+00.000						656,786.5758	236,681.5494	139° 33' 40.45"
W1021	POT	20+30.500						656,806.3592	236,658.3359	141° 03' 55.93"
W1022	PC	20+61.000						656,825.5264	236,634.6110	142° 53' 08.43"
W1023	PI	21+09.507	21° 42' 37.99" RT	22° 39' 01.02"	252.958'	48.507'	95.851'	656,854.7961	236,595.9296	PI
W1024	CC	(1)						656,623.8090	236,481.9741	
W1025	PT	21+56.851						656,867.6806	236,549.1648	164° 35' 46.42"
W1026	POT	RWALL 2 21+66.681						656,870.2916	236,539.6879	
RWALL 3 <RWALL3>										
W1040	POT	RWALL 3 30+00.000						656,913.8245	236,631.4202	319° 33' 40.45"
W1041	POT	RWALL 3 30+79.831						656,862.0431	236,692.1799	
RWALL 4 <RWALL4>										
W1060	POT	RWALL 4 40+01.073						656,501.1245	237,034.9946	139° 33' 40.45"
W1061	POT	42+49.000						656,661.9384	236,846.2977	150° 54' 23.52"
W1062	POT	RWALL 4 43+10.000						656,691.5988	236,792.9942	
RWALL 5 <RWALL5>										
W1080	POT	RWALL 5 50+04.930						656,871.9493	236,488.8531	192° 42' 37.43"
W1081	PC	50+26.500						656,867.2035	236,467.8120	195° 45' 15.54"
W1082	PI	50+57.411	22° 50' 58.70" RT	37° 27' 30.32"	152.958'	30.911'	61.000'	656,858.8108	236,438.0624	PI
W1083	CC	(1)						656,719.9911	236,509.3422	218° 36' 14.23"
W1084	PT	50+87.500						656,839.5245	236,413.9063	220° 54' 18.83"
W1085	POT	51+18.000						656,819.5528	236,390.8546	221° 12' 00.61"
W1086	POT	52+09.500						656,759.2826	236,322.0089	223° 18' 11.28"
W1087	POT	RWALL 5 52+40.000						656,738.3639	236,299.8129	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~Os~~)	DEGREE / DEGREE	RADIUS / ST	TANGENT / LT	LENGTH / LS	COORDINATES X	COORDINATES Y	AZIMUTH
RWALL 6 <RWALL6>										
W1100	POT	RWALL 6 60+00.000						656,802.9072	236,303.9661	41° 12' 00.61"
W1101	POT	60+30.500						656,822.9973	236,326.9147	29° 53' 24.85"
W1102	POT	60+40.698						656,828.0793	236,335.7562	41° 12' 00.61"
W1103	PC	61+00.110						656,867.2132	236,380.4582	
W1104	PI	61+50.750	29° 01' 14.64" LT	29° 16' 56.43"	195.667'	50.641'	99.107'	656,900.5697	236,418.5608	PI
W1105	CC	(1)						656,719.9911	236,509.3422	
W1106	PT	61+99.216						656,911.2536	236,468.0616	12° 10' 45.97"
W1107	POT	RWALL 6 62+07.536						656,913.0088	236,476.1939	
RWALL 7 <RWALL7>										
W1150	POT	RWALL 7 70+00.000						656,561.6267	237,046.4830	319° 33' 40.45"
W1151	POT	RWALL 7 70+30.500						656,541.8434	237,069.6965	

NOTES:

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<XXXX> INDICATES GEOPAK ALIGNMENT NAME.

NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. | ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT TABULATIONS

SP 2515-21 (TH 63)

RETAINING WALL ALIGNMENTS

SHEET 237 OF 688

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W1150 POT

W1151 POT

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~Θs~~)	DEGREE / DEGREE	RADIUS / ST	TANGENT / LT	LENGTH / LS	COORDINATES X	COORDINATES Y	AZIMUTH
℄ BYPASS 1 <BYP1>										
B1000	PC	℄ BYPASS 1 100+00.000						656,590.3471	237,063.8005	139° 38' 48.88"
B1001	PI	100+81.907	2° 51' 58.23" RT	1° 45' 00.09"	3,274.000'	81.907'	163.779'	656,643.3814	237,001.3820	PI
B1002	CC	(1)						654,095.3342	234,943.8981	
B1003	PT	101+63.779						656,693.2282	236,936.3897	142° 30' 47.11"
B1004	PC	103+11.847						656,783.3391	236,818.8993	
B1005	PI	106+34.571	77° 53' 44.06" RT	14° 20' 59.78"	399.275'	322.725'	542.829'	656,979.7430	236,562.8196	PI
B1006	CC	(1)						656,466.5171	236,575.9082	
B1007	PT	108+54.675						656,770.5415	236,317.0839	220° 24' 31.17"
B1008	POT	℄ BYPASS 1 110+69.601						656,631.2194	236,153.4311	
℄ BYPASS 2 <BYP2>										
B1050	PC	℄ BYPASS 2 208+05.426						657,251.4418	236,445.5579	247° 20' 56.99"
B1051	PI	209+08.235	74° 34' 55.37" RT	42° 26' 28.75"	135.000'	102.809'	175.730'	657,156.5625	236,405.9647	PI
B1052	CC	(1)						657,199.4514	236,570.1452	
B1053	PT	209+81.156						657,093.1698	236,486.9033	321° 55' 52.36"
B1054	PC	214+19.259						656,823.0320	236,831.8094	
B1055	PI	214+67.148	9° 07' 35.98" LT	9° 32' 57.47"	600.000'	47.888'	95.574'	656,793.5037	236,869.5106	PI
B1056	CC	(1)						656,350.6694	236,461.8452	
B1057	PT	215+14.833						656,758.3692	236,902.0507	312° 48' 16.38"
B1058	PC	216+38.767						656,667.4423	236,986.2634	
B1059	PI	217+10.505	6° 50' 32.50" RT	4° 46' 28.73"	1,200.000'	71.738'	143.306'	656,614.8096	237,035.0095	PI
B1060	CC	(1)						657,482.8418	237,866.6744	
B1061	PT	217+82.073						656,568.3593	237,089.6790	319° 38' 48.88"
B1062	POT	℄ BYPASS 2 218+83.889						656,502.4341	237,167.2695	
℄ BYPASS 3 <BYP3>										
B1100	POT	℄ BYPASS 3 332+44.740						655,629.7647	238,194.3551	
B1101	PC	333+69.345						655,549.0833	238,289.3129	319° 38' 48.88"
B1102	PI	334+86.666	4° 44' 52.07" RT	2° 01' 28.51"	2,830.000'	117.321'	234.507'	655,473.1186	238,378.7193	PI
B1103	CC	(1)						657,705.7378	240,121.7271	
B1104	PT	336+03.852						655,404.8147	238,474.1066	324° 23' 40.95"
B1105	PC	340+83.578						655,125.5189	238,864.1468	
B1106	PI	342+00.601	4° 44' 08.63" LT	2° 01' 28.51"	2,830.000'	117.022'	233.911'	655,057.3888	238,959.2913	PI
B1107	CC	(1)						652,824.5959	237,216.5263	
B1108	PT	343+17.490						654,981.6362	239,048.4862	319° 39' 32.32"
B1109	PC	349+22.243						654,590.1579	239,509.4321	
B1110	PI	350+76.536	6° 14' 29.13" LT	2° 01' 28.51"	2,830.000'	154.293'	308.282'	654,490.2783	239,627.0353	PI
B1111	CC	(1)						652,433.1176	237,677.4722	
B1112	PT	352+30.524						654,378.2051	239,733.0827	313° 25' 03.19"
B1113	PC	354+64.625						654,208.1625	239,893.9827	
B1114	PI	356+18.919	6° 14' 29.13" RT	2° 01' 28.51"	2,830.000'	154.293'	308.282'	654,096.0893	240,000.0301	PI
B1115	CC	(1)						656,153.2500	241,949.5932	
B1116	PT	357+72.907						653,996.2097	240,117.6333	319° 39' 32.32"
B1117	PC	360+19.473						653,836.5987	240,305.5672	
B1118	PI	362+94.374	10° 48' 55.29" RT	1° 58' 22.78"	2,904.000'	274.902'	548.170'	653,658.6452	240,515.0985	PI
B1119	CC	(1)						656,050.0422	242,185.4299	
B1120	PT	℄ BYPASS 3 365+67.642						653,523.1700	240,754.3000	330° 28' 27.61"

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~Θs~~)	DEGREE / DEGREE	RADIUS / ST	TANGENT / LT	LENGTH / LS	COORDINATES X	COORDINATES Y	AZIMUTH
℄ BYPASS 4 <BYP4>										
B1150	PC	℄ BYPASS 4 400+00.000						658,821.2881	236,662.4747	273° 50' 48.50"
B1151	PI	401+11.938	3° 54' 58.92" RT	1° 45' 00.09"	3,274.000'	111.938'	223.789'	658,709.6020	236,669.9845	PI
B1152	CC	(1)						659,040.9375	239,929.0984	
B1153	PRC	402+23.789						658,598.6897	236,685.1050	277° 45' 47.42"
B1154	PI	403+70.151	5° 07' 09.49" LT	1° 45' 00.09"	3,274.000'	146.361'	292.528'	658,453.6699	236,704.8753	PI
B1155	CC	(1)						658,156.4418	233,441.1117	
B1156	PT	405+16.317						658,307.4645	236,711.6266	272° 38' 37.93"
B1157	PC	408+82.283						657,941.8880	236,728.5079	
B1158	PI	409+39.577	1° 08' 44.75" LT	0° 59' 59.73"	5,730.000'	57.294'	114.585'	657,884.6548	236,731.1507	PI
B1159	CC	(1)						657,677.5753	231,004.6072	
B1160	PT	409+96.868						657,827.3801	236,732.6486	271° 29' 53.19"
B1161	PC	412+82.359						657,541.9862	236,740.1125	
B1162	PI	413+39.653	1° 08' 44.75" RT	0° 59' 59.73"	5,730.000'	57.294'	114.585'	657,484.7115	236,741.6104	PI
B1163	CC	(1)						657,691.7909	242,468.1539	
B1164	PT	413+96.944						657,427.4782	236,744.2533	272° 38' 37.93"
B1165	PC	419+71.033						656,854.0006	236,770.7347	
B1166	PI	420+44.545	19° 40' 19.95" LT	13° 30' 47.36"	424.000'	73.513'	145.578'	656,780.5661	236,774.1257	PI
B1167	CC	(1)						656,834.4424	236,347.1861	
B1168	PCC	421+16.611						656,710.2762	236,752.5979	252° 58' 17.98"
B1169	PI	422+25.991	37° 44' 32.29" LT	17° 54' 17.75"	320.000'	109.381'	210.793'	656,605.6909	236,720.5664	PI
B1170	CC	(1)						656,803.9865	236,446.6267	
B1171	PRC	423+27.404						656,542.5947	236,631.2190	215° 13' 45.69"
B1172	PI	423+81.067	6° 08' 36.49" RT	5° 43' 46.48"	1,000.000'	53.663'	107.224'	656,511.6390	236,587.3842	PI
B1173	CC	(1)						655,725.7453	237,208.0700	
B1174	PT	℄ BYPASS 4 424+34.627						656,476.1699	236,547.1139	221° 22' 22.18"
℄ BYPASS 5 <BYP5>										
B1200	POT	℄ BYPASS 5 500+00.000						655,629.7647	238,194.3551	
B1201	PC	502+59.572						655,461.6927	238,392.1670	319° 38' 48.88"
B1202	PI	503+28.721	2° 38' 26.91" RT	1° 54' 35.49"	3,000.000'	69.148'	138.272'	655,416.9194	238,444.8629	PI
B1203	CC	(1)						657,747.8988	240,334.6555	
B1204	PT	503+97.845						655,374.6215	238,499.5656	322° 17' 15.79"
B1205	PC	504+40.278						655,348.6650	238,533.1346	
B1206	PI	505+15.063	2° 51' 21.55" LT	1° 54' 35.49"	3,000.000'	74.785'	149.539'	655,302.9193	238,592.2964	PI
B1207	CC	(1)						652,975.3877	236,698.0447	
B1208	PT	505+89.817						655,254.2826	238,649.1055	319° 25' 54.24"
B1209	PC	509+50.396						655,019.7790	238,923.0124	
B1210	PI	510+06.782	2° 09' 12.71" LT	1° 54' 35.49"	3,000.000'	56.386'	112.759'	654,983.1082	238,965.8450	PI
B1211	CC	(1)						652,740.8841	236,971.9516	
B1212	PT	510+63.155						654,944.8537	239,007.2693	317° 16' 41.53"
B1213	PC	511+40.031						654,892.6974	239,063.7474	
B1214	PI	512+02.369	2° 22' 50.79" RT	1° 54' 35.49"	3,000.000'	62.338'	124.657'	654,850.4052	239,109.5441	PI
B1215	CC	(1)						657,096.6670	241,099.0651	
B1216	PT	512+64.689						654,810.0519	239,157.0581	319° 39' 32.32"
B1217	POT	℄ BYPASS 5 527+70.239						653,835.4554	240,304.5962	

NOTES:

(1) ALIGNMENT POINT IS NOT SHOW ON ALIGNMENT PLAN VIEW.

<XXXX> INDICATES GEOPAK ALIGNMENT NAME.

NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT TABULATIONS

SP 2515-21 (TH 63)

BYPASS ALIGNMENTS

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ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~Θs~~)	DEGREE / DEGREE	RADIUS / ST	TANGENT / LT	LENGTH / LS	COORDINATES X	COORDINATES Y	AZIMUTH
℄ BYPASS 6 <BYP6>										
B1250	PC	℄ BYPASS 6 100+00.000						658,821.5527	236,666.4602	273° 48' 09.67"
B1251	PI	101+22.379	6° 08' 41.27" LT	2° 30' 46.70"	2,280.000'	122.379'	244.523'	658,699.4433	236,674.5765	PI
B1252	CC	(1)						658,670.3415	234,391.4800	
B1253	PRC	102+44.523						658,577.1667	236,669.5753	267° 39' 28.40"
B1254	PI	103+87.590	4° 59' 09.53" RT	1° 44' 37.08"	3,286.000'	143.067'	285.954'	658,434.2191	236,663.7287	PI
B1255	CC	(1)						658,442.8805	239,952.8303	
B1256	PT	℄ BYPASS 6 105+30.477						658,291.3043	236,670.3281	272° 38' 37.93"
℄ BYPASS 7 <BYP7>										
B1300	POT	℄ BYPASS 7 300+00.000						657,383.0222	236,700.2571	
B1301	PC	300+68.565						657,314.5306	236,703.4198	272° 38' 37.93"
B1302	PI	302+51.157	2° 44' 18.69" RT	0° 45' 00.15"	7,639.000'	182.593'	365.116'	657,132.1322	236,711.8424	PI
B1303	CC	(1)						657,666.9014	244,334.2884	
B1304	PRC	304+33.680						656,950.3446	236,728.9701	275° 22' 56.63"
B1305	PI	306+18.901	31° 32' 12.70" LT	8° 44' 05.90"	655.936'	185.221'	361.041'	656,765.9405	236,746.3442	PI
B1306	CC	(1)						656,888.8163	236,075.9267	
B1307	PCC	307+94.722						656,599.6847	236,664.7003	243° 50' 43.93"
B1308	PI	308+94.054	22° 28' 21.75" LT	11° 27' 32.96"	500.000'	99.332'	196.111'	656,510.5231	236,620.9153	PI
B1309	CC	(1)						656,820.0810	236,215.8958	
B1310	PT	℄ BYPASS 7 309+90.833						656,444.8687	236,546.3738	221° 22' 22.18"
℄ BYPASS 8 <BYP8>										
B1350	PC	℄ BYPASS 8 400+00.000						657,283.7346	236,716.9193	272° 52' 46.74"
B1351	PI	400+64.648	14° 44' 03.89" RT	11° 27' 32.96"	500.000'	64.648'	128.582'	657,219.1685	236,720.1671	PI
B1352	CC	(1)						657,308.8537	237,216.2880	
B1353	PRC	401+28.582						657,157.5518	236,739.7297	287° 36' 50.63"
B1354	PI	401+94.276	14° 58' 12.69" LT	11° 27' 32.96"	500.000'	65.694'	130.640'	657,094.9378	236,759.6090	PI
B1355	CC	(1)						657,006.2498	236,263.1715	
B1356	PT	℄ BYPASS 8 402+59.222						657,029.3138	236,762.6393	272° 38' 37.93"
℄ BYPASS 9 <BYP9>										
B1400	POT	℄ BYPASS 9 500+00.000						656,382.1371	236,475.1508	
B1401	PC	500+47.035						656,351.0489	236,439.8544	221° 22' 22.18"
B1402	PI	500+88.972	15° 54' 56.17" LT	19° 05' 54.94"	300.000'	41.937'	83.334'	656,323.3305	236,408.3839	PI
B1403	CC	(1)						656,576.1763	236,241.5676	
B1404	PRC	501+30.369						656,305.3044	236,370.5187	205° 27' 26.01"
B1405	PI	501+72.306	15° 54' 56.17" RT	19° 05' 54.94"	300.000'	41.937'	83.334'	656,287.2783	236,332.6536	PI
B1406	CC	(1)						656,034.4325	236,499.4699	
B1407	PT	502+13.703						656,259.5598	236,301.1830	221° 22' 22.18"
B1408	POT	℄ BYPASS 9 502+60.738						656,228.4716	236,265.8867	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA DELTA / SPIRAL CURVE DATA ANGLE (~~Θs~~)	DEGREE / DEGREE	RADIUS / ST	TANGENT / LT	LENGTH / LS	COORDINATES X	COORDINATES Y	AZIMUTH
℄ BYPASS 10 <BYP10>										
B1450	PC	℄ BYPASS 10 100+00.000						657,284.3709	236,738.8487	272° 38' 37.93"
B1451	PI	100+60.521	13° 48' 11.62" LT	11° 27' 32.96"	500.000'	60.521'	120.456'	657,223.9144	236,741.6404	PI
B1452	CC	(1)						657,261.3069	236,239.3810	
B1453	PRC	101+20.456						657,164.5377	236,729.9273	258° 50' 26.31"
B1454	PI	101+90.608	15° 58' 24.62" RT	11° 27' 32.96"	500.000'	70.153'	139.395'	657,095.7116	236,716.3501	PI
B1455	CC	(1)						657,067.7685	237,220.4737	
B1456	PT	℄ BYPASS 10 102+59.851						657,025.8065	236,722.2376	274° 48' 50.94"
℄ BYPASS 11 <BYP11>										
B1500	POT	℄ BYPASS 11 200+00.000						656,396.9752	236,440.5567	
B1501	PC	200+59.694						656,357.5199	236,395.7606	221° 22' 22.18"
B1502	PI	201+01.631	15° 54' 56.17" RT	19° 05' 54.94"	300.000'	41.937'	83.334'	656,329.8014	236,364.2901	PI
B1503	CC	(1)						656,132.3925	236,594.0474	
B1504	PRC	201+43.028						656,294.5155	236,341.6269	237° 17' 18.35"
B1505	PI	201+84.965	15° 54' 56.17" LT	19° 05' 54.94"	300.000'	41.937'	83.334'	656,259.2297	236,318.9638	PI
B1506	CC	(1)						656,456.6386	236,089.2064	
B1507	PT	202+26.362						656,231.5112	236,287.4932	221° 22' 22.18"
B1508	POT	℄ BYPASS 11 202+72.257						656,201.1765	236,253.0523	

NOTES:

(1) ALIGNMENT POINT IS NOT SHOW ON ALIGNMENT PLAN VIEW.

<XXXX> INDICATES GEOPAK ALIGNMENT NAME.

NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

ALIGNMENT TABULATIONS

SP 2515-21 (TH 63)

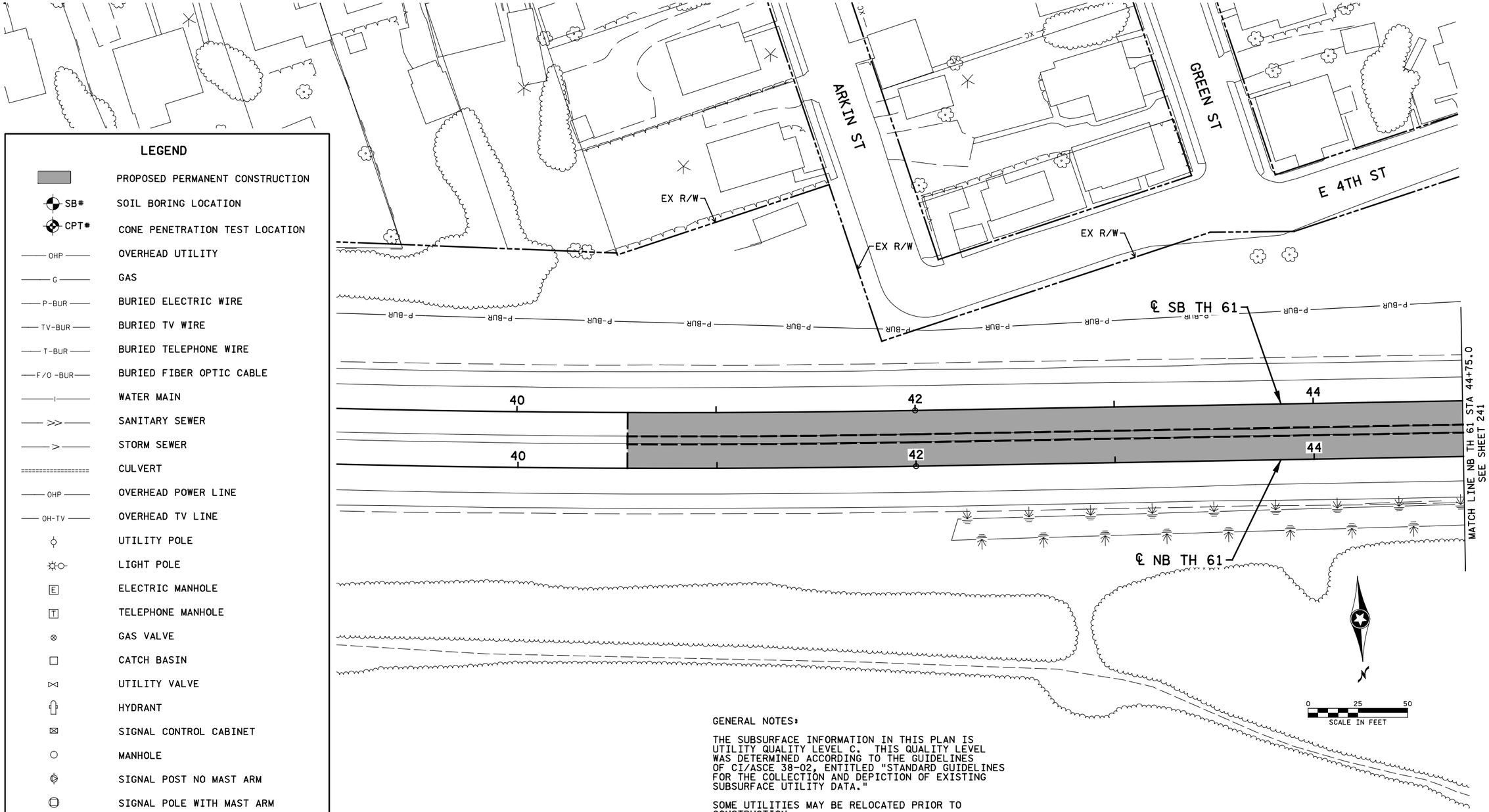
BYPASS ALIGNMENTS

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LEGEND

- PROPOSED PERMANENT CONSTRUCTION
- SB# SOIL BORING LOCATION
- CPT# CONE PENETRATION TEST LOCATION
- OHP OVERHEAD UTILITY
- G GAS
- P-BUR BURIED ELECTRIC WIRE
- TV-BUR BURIED TV WIRE
- T-BUR BURIED TELEPHONE WIRE
- F/O -BUR BURIED FIBER OPTIC CABLE
- W WATER MAIN
- SS SANITARY SEWER
- ST STORM SEWER
- CULVERT
- OHP OVERHEAD POWER LINE
- OH-TV OVERHEAD TV LINE
- UTILITY POLE
- LIGHT POLE
- E ELECTRIC MANHOLE
- T TELEPHONE MANHOLE
- GAS VALVE
- CATCH BASIN
- UTILITY VALVE
- HYDRANT
- SIGNAL CONTROL CABINET
- MANHOLE
- SIGNAL POST NO MAST ARM
- SIGNAL POLE WITH MAST ARM
- HH HANDHOLE
- GP GUY POLE



GENERAL NOTES:

THE SUBSURFACE INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL C. THIS 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."

SOME UTILITIES MAY BE RELOCATED PRIOR TO CONSTRUCTION.

NO	DATE	BY	CKD	APPR	REVISION

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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

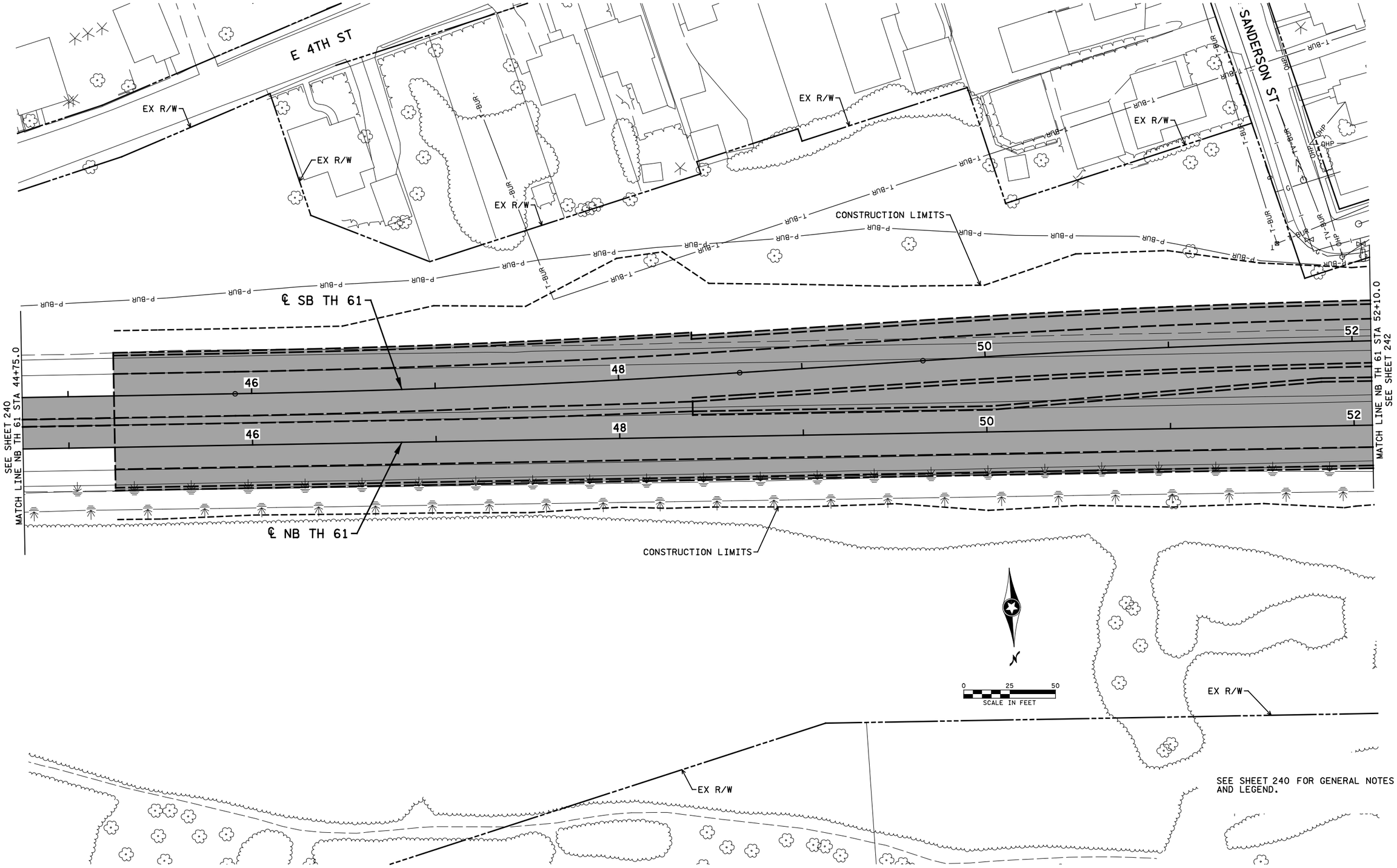
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MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS
SP 2515-21 (TH 63)

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

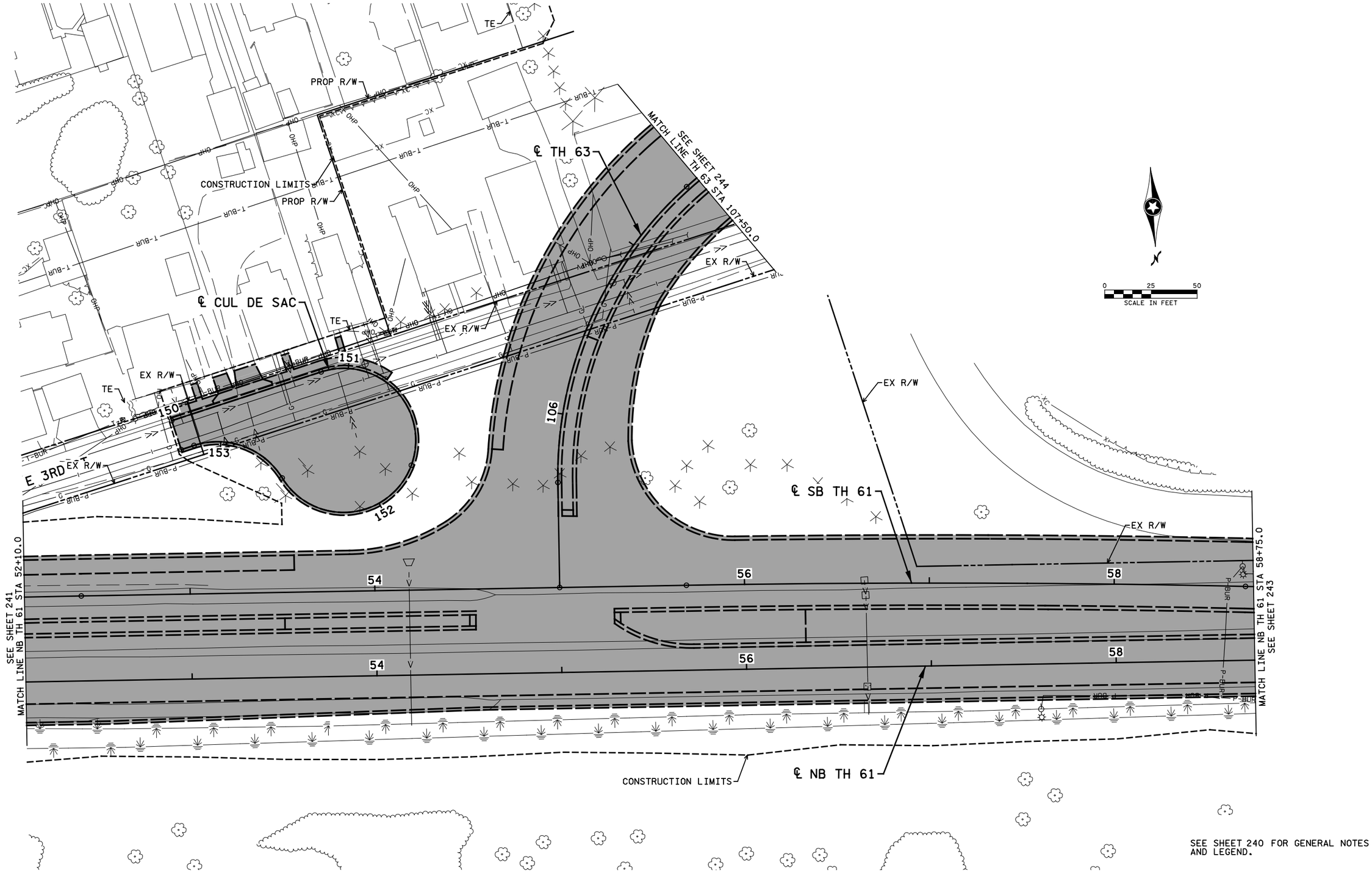
MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS

SP 2515-21 (TH 63)

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SEE SHEET 240 FOR GENERAL NOTES AND LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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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: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

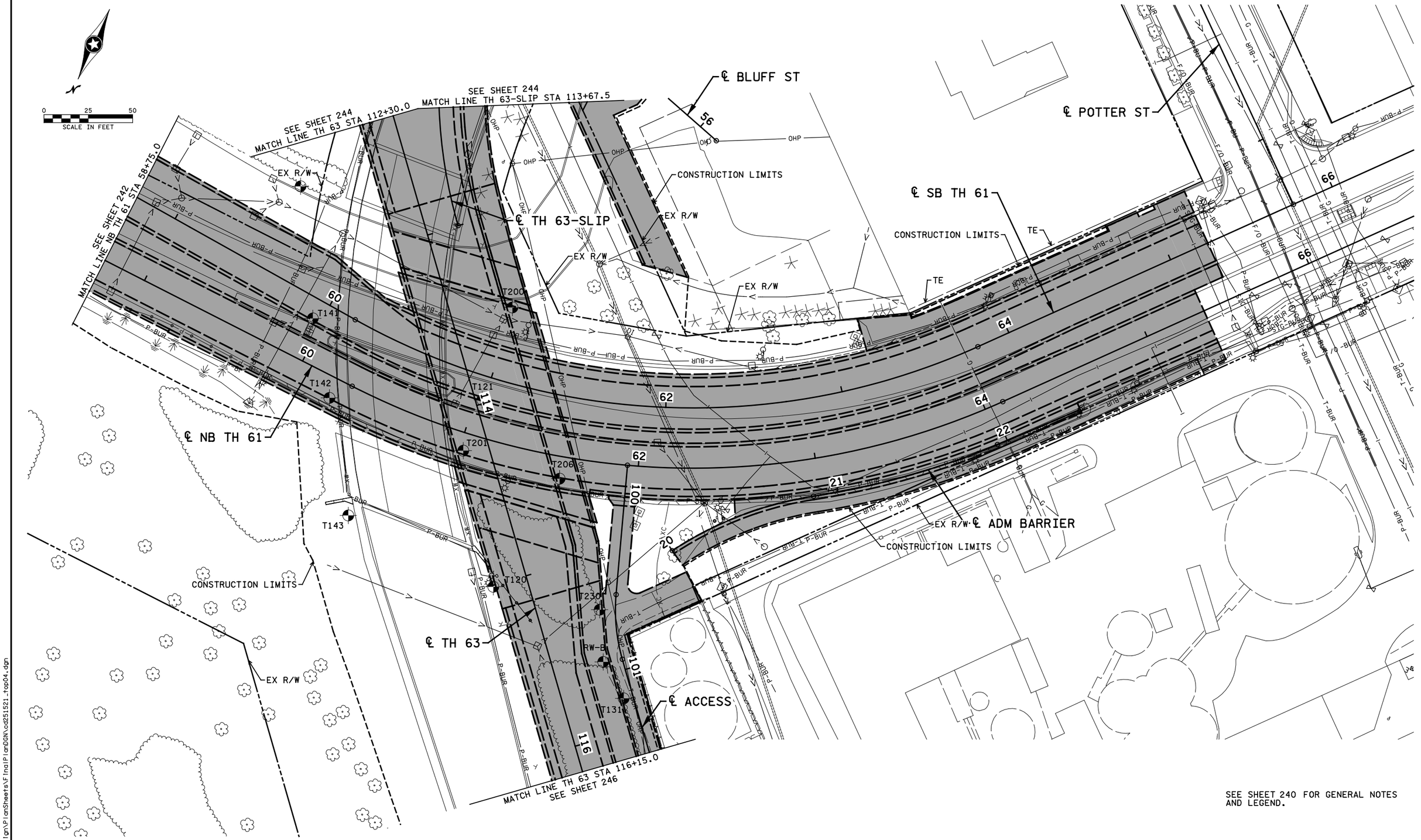
SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS
SP 2515-21 (TH 63)

SHEET 242 OF 688

11:33:37 AM
6/2/2016
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SEE SHEET 240 FOR GENERAL NOTES AND LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS

Date _____ License # 45039

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MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS

SP 2515-21 (TH 63)

SHEET 243 OF 688

11:33:38 AM
6/2/2016
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SEE SHEET 245
MATCH LINE TH 63-SLIP STA 116+40.0

℄ 4TH ST

℄ TH 63-SLIP

EX R/W

CONSTRUCTION LIMITS

℄ WALK

℄ BLUFF ST

℄ TURNAROUND

PROP R/W

RWALL 1

RWALL 2

RWALL 5

RWALL 6

BRIDGE 25035

T122 T123 T124 T125 T126 T202 T203 T204 T205

WELL 4 WELL 5 WELL 13 WELL 14

108 110 112 114 116

MATCH LINE TH 63 STA 107+50.0
SEE SHEET 242

MATCH LINE TH 63 STA 112+30.0
SEE SHEET 243

MATCH LINE TH 63-SLIP STA 113+67.5
SEE SHEET 243

SEE SHEET 240 FOR GENERAL NOTES AND LEGEND.

0 25 50
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_top05.dgn					

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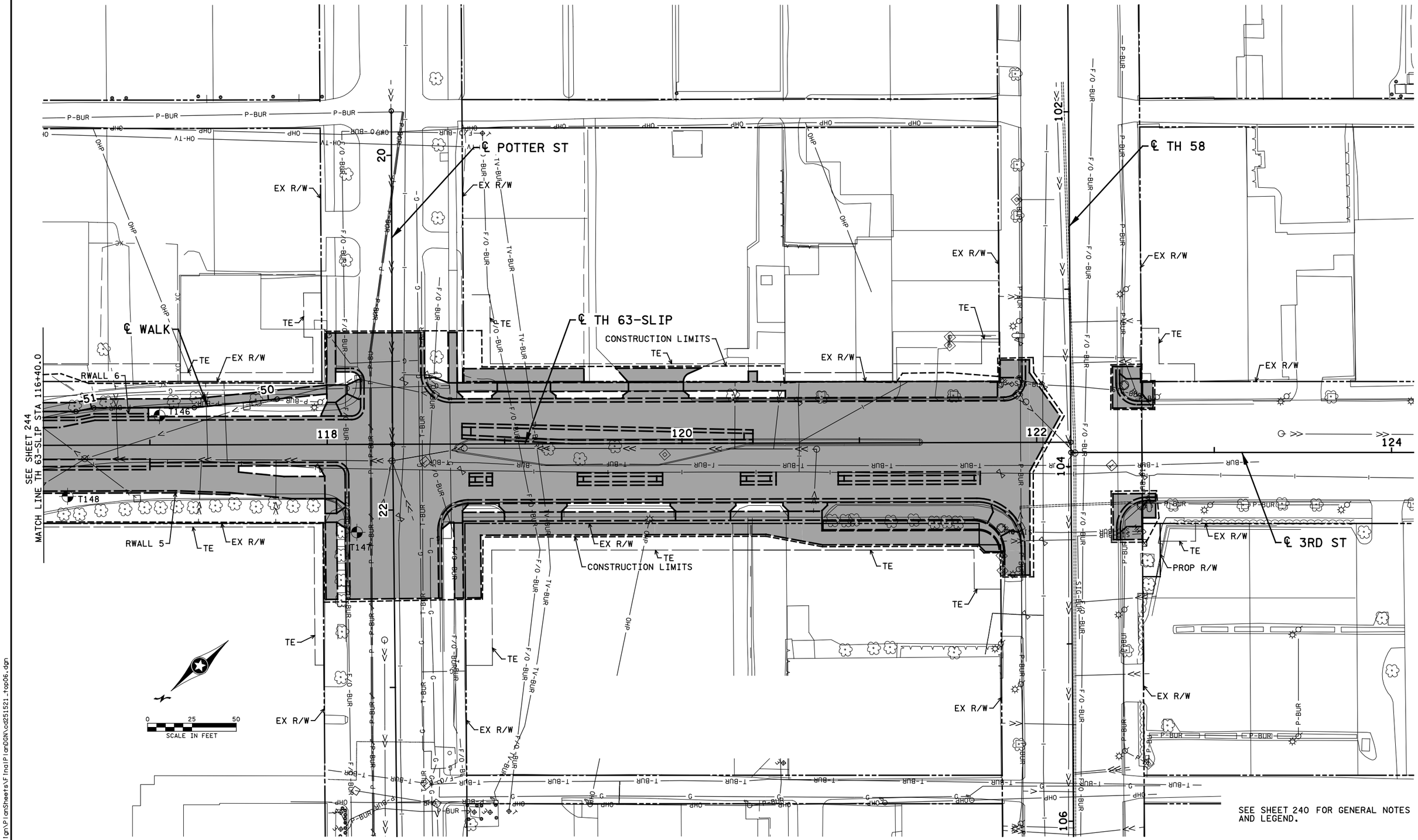
SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS
SP 2515-21 (TH 63)

SHEET 244 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

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MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS

SP 2515-21 (TH 63)

SHEET 245 OF 688

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6/22/2016
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SEE SHEET 240 FOR GENERAL NOTES AND LEGEND.

CANADIAN PACIFIC RAILWAY

MISSISSIPPI RIVER

RR R/W

EX R/W

CONSTRUCTION LIMITS

℄ ACCESS

℄ TH 63

SCALE IN FEET 0 25 50

SEE SHEET 243
MATCH LINE TH 63 STA 116+15.0

MATCH LINE TH 63 STA 123+25.0
SEE SHEET 247

T211 T132 T213 T214 T215 T210 T212 T133 T100A T100 T119

102 103 118 120 122

F/O BUR T-BUR P-BUR TV-FIBER

NO | DATE | BY | CKD | APPR | REVISION
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Print Name: CRAIG J. HASS
Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
TOPOGRAPHY AND UTILITY PLANS
SP 2515-21 (TH 63)

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6/2/2016
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MISSISSIPPI RIVER

TE

CONSTRUCTION LIMITS

PROP R/W

℄ TH 63

EX R/W

T101 T102 T103 T104 T105 T106 T115 T116 T119A T130

124 126 128 130

T-BUR

OHP

OHTEL

SEE SHEET 246
MATCH LINE TH 63 STA 123+25.0

MATCH LINE TH 63 STA 130+25.0
SEE SHEET 248

0 25 50
SCALE IN FEET

SEE SHEET 240 FOR GENERAL NOTES AND LEGEND.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_top08.dgn

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COMM. NO. 0158933

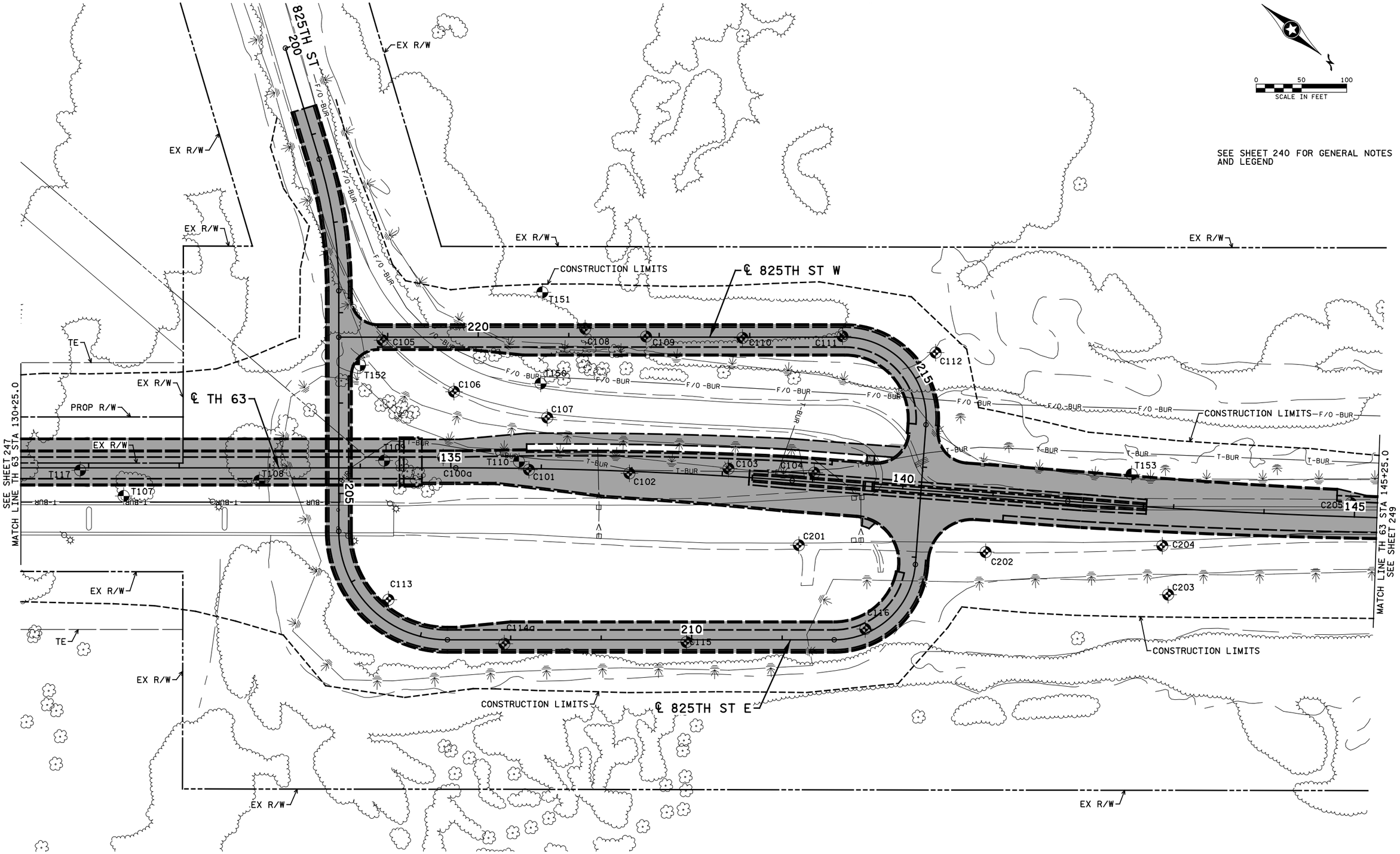
SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS
SP 2515-21 (TH 63)

SHEET 247 OF 688

11:33:41 AM
6/2/2016
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SEE SHEET 240 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_top09.dgn					

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MINNESOTA STATE PROJECT NO. 2513-91

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DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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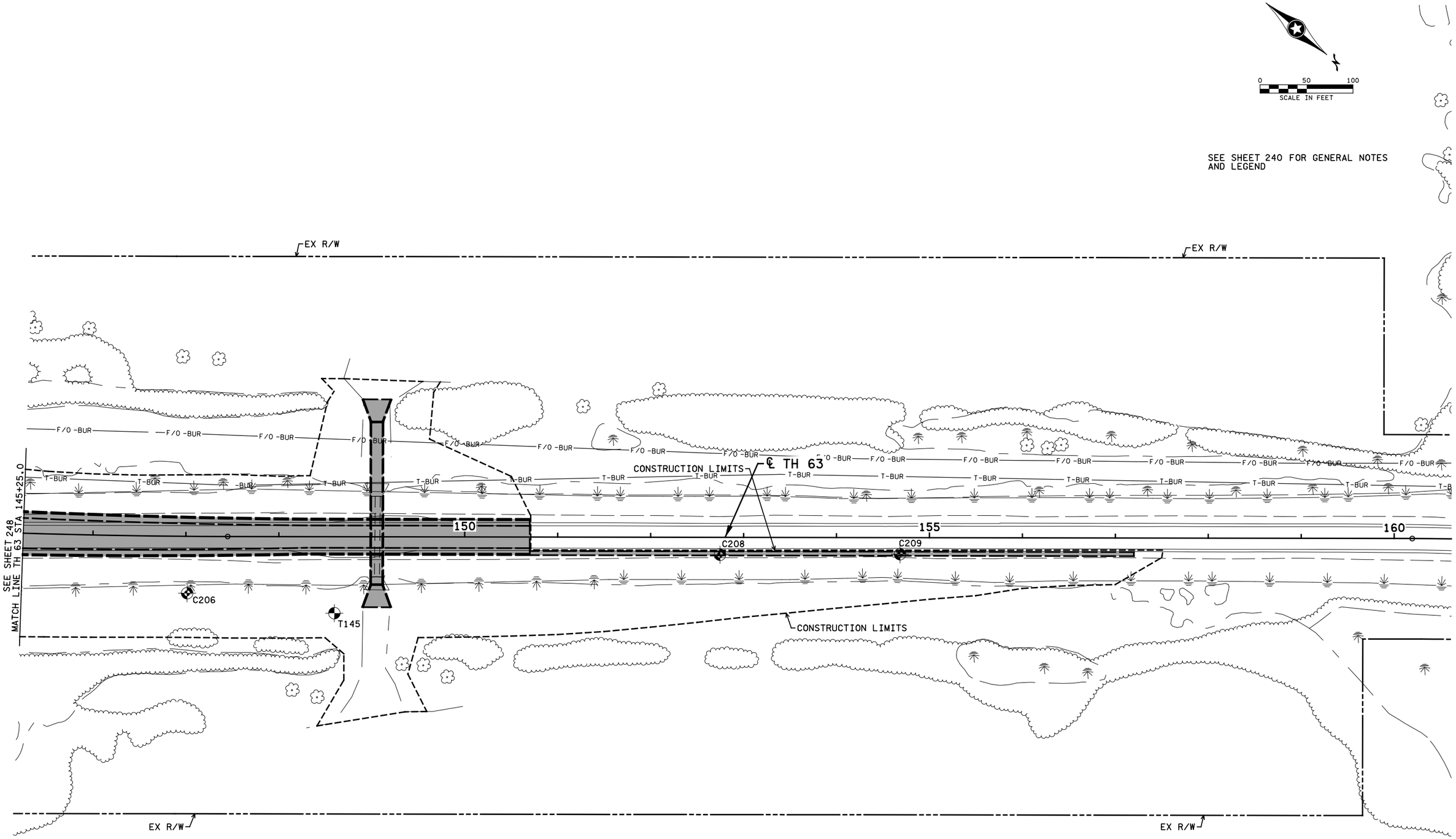
MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS

SP 2515-21 (TH 63)

SHEET 248 OF 688

11:33:41 AM
6/22/2016
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NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_top10.dgn					

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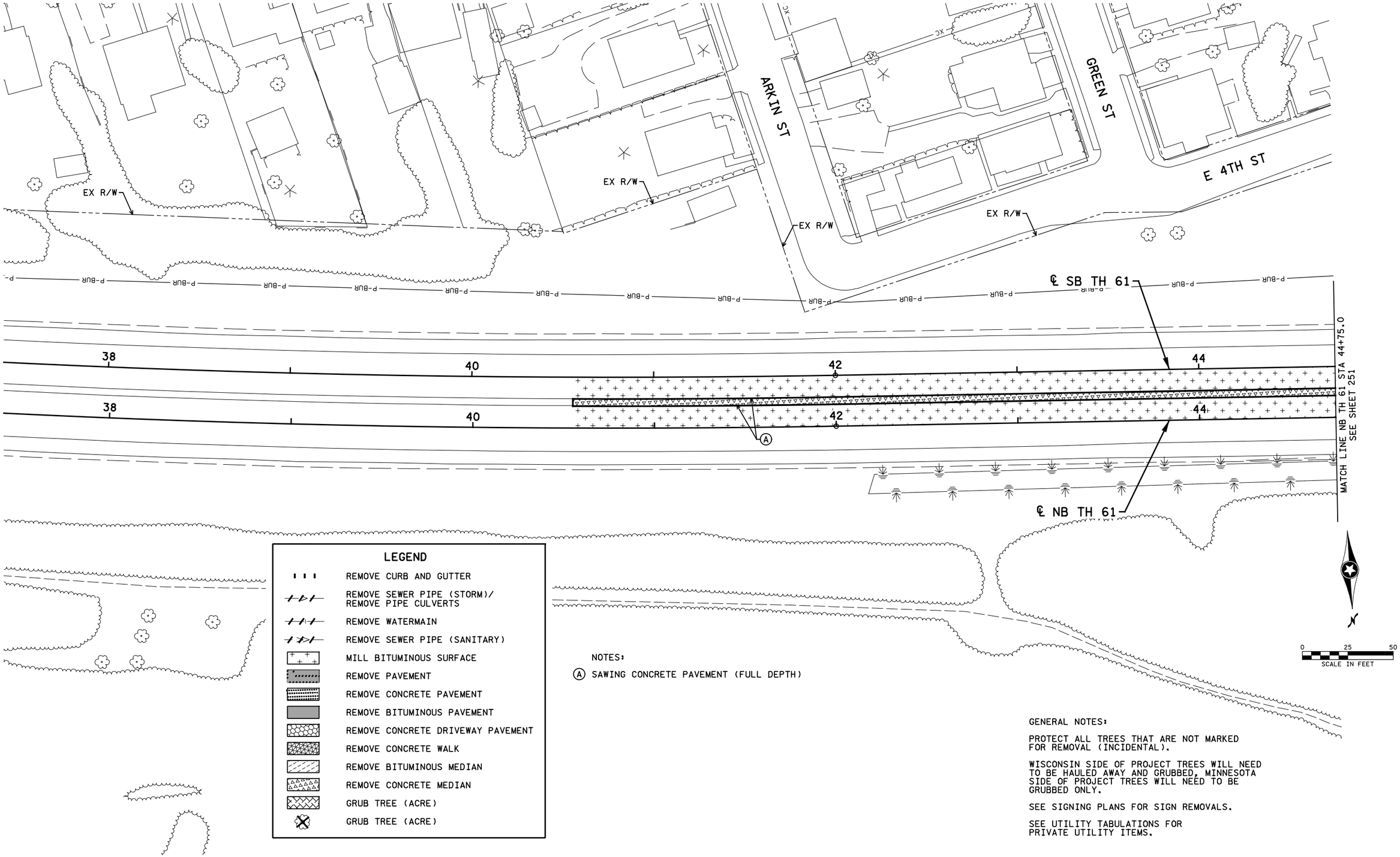
MINNESOTA DEPARTMENT OF TRANSPORTATION

TOPOGRAPHY AND UTILITY PLANS

SP 2515-21 (TH 63)

SHEET 249 OF 688

11:33:42 AM
6/2/2016
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LEGEND

- REMOVE CURB AND GUTTER
- REMOVE SEWER PIPE (STORM)/ REMOVE PIPE CULVERTS
- REMOVE WATERMAIN
- REMOVE SEWER PIPE (SANITARY)
- MILL BITUMINOUS SURFACE
- REMOVE PAVEMENT
- REMOVE CONCRETE PAVEMENT
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE DRIVEWAY PAVEMENT
- REMOVE CONCRETE WALK
- REMOVE BITUMINOUS MEDIAN
- REMOVE CONCRETE MEDIAN
- GRUB TREE (ACRE)
- GRUB TREE (ACRE)

NOTES:

Ⓐ SAWING CONCRETE PAVEMENT (FULL DEPTH)

GENERAL NOTES:

PROTECT ALL TREES THAT ARE NOT MARKED FOR REMOVAL (INCIDENTAL).

WISCONSIN SIDE OF PROJECT TREES WILL NEED TO BE HAULED AWAY AND GRUBBED, MINNESOTA SIDE OF PROJECT TREES WILL NEED TO BE GRUBBED ONLY.

SEE SIGNING PLANS FOR SIGN REMOVALS.

SEE UTILITY TABULATIONS FOR PRIVATE UTILITY ITEMS.

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_rem01.dgn

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DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

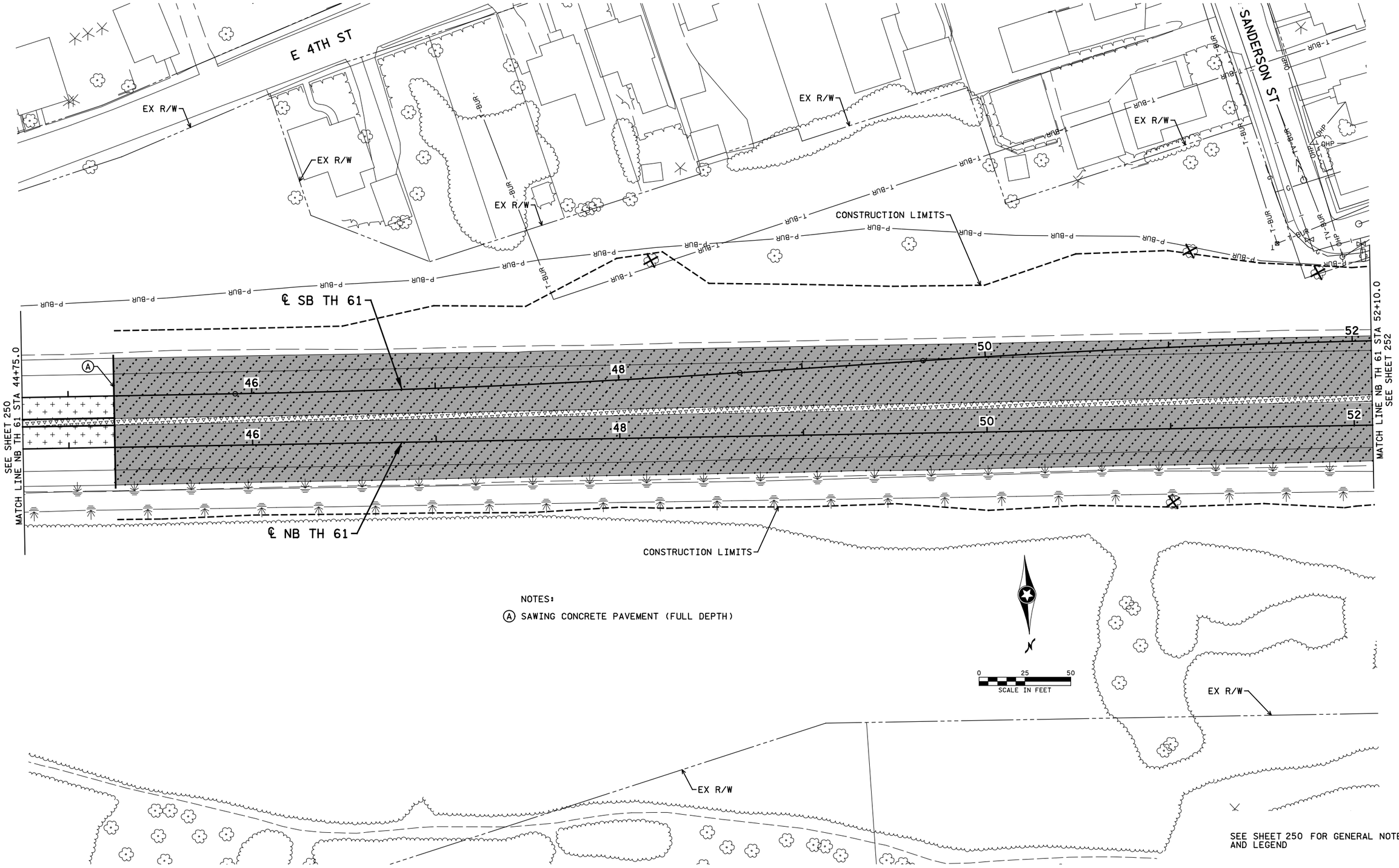
MINNESOTA DEPARTMENT OF TRANSPORTATION

REMOVAL PLANS

SP 2515-21 (TH 63)

SHEET 250 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

REMOVAL PLANS

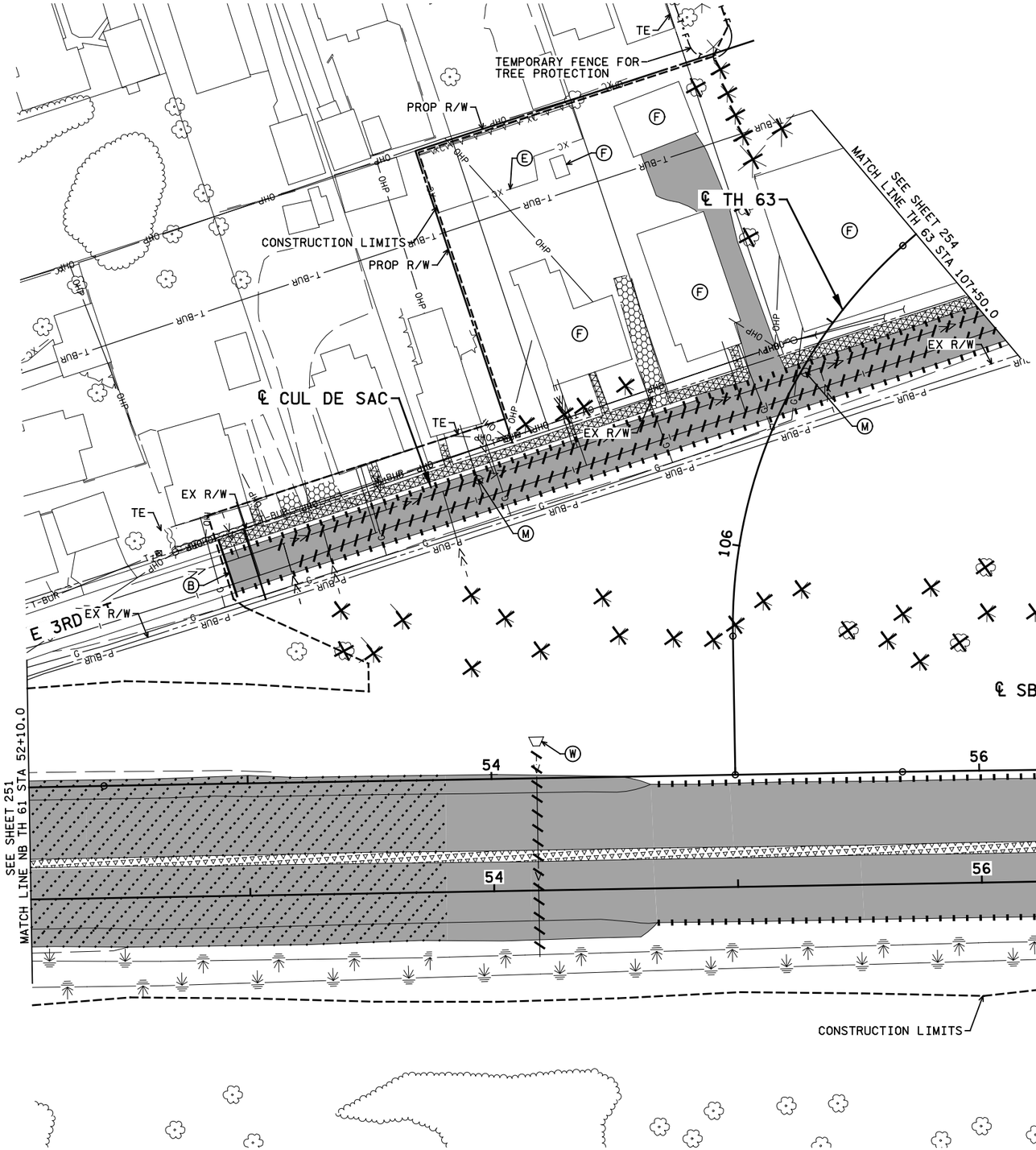
SP 2515-21 (TH 63)

SHEET 251 OF 688

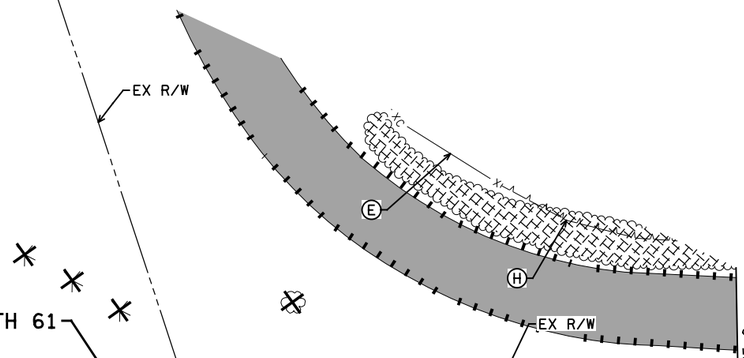
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6/22/2016
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NOTES:

(B) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
(E) REMOVE FENCE
(F) BUILDING REMOVAL (SEE REMOVAL TAB)
(H) REMOVE WOOD RETAINING WALL
(M) REMOVE MANHOLE (ALL SANITARY STRUCTURES)
(O) REMOVE DRAINAGE STRUCTURE (ALL STORM STRUCTURES)
(W) REMOVE PIPE APRON







SEE SHEET 250 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_rem03.dgn

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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

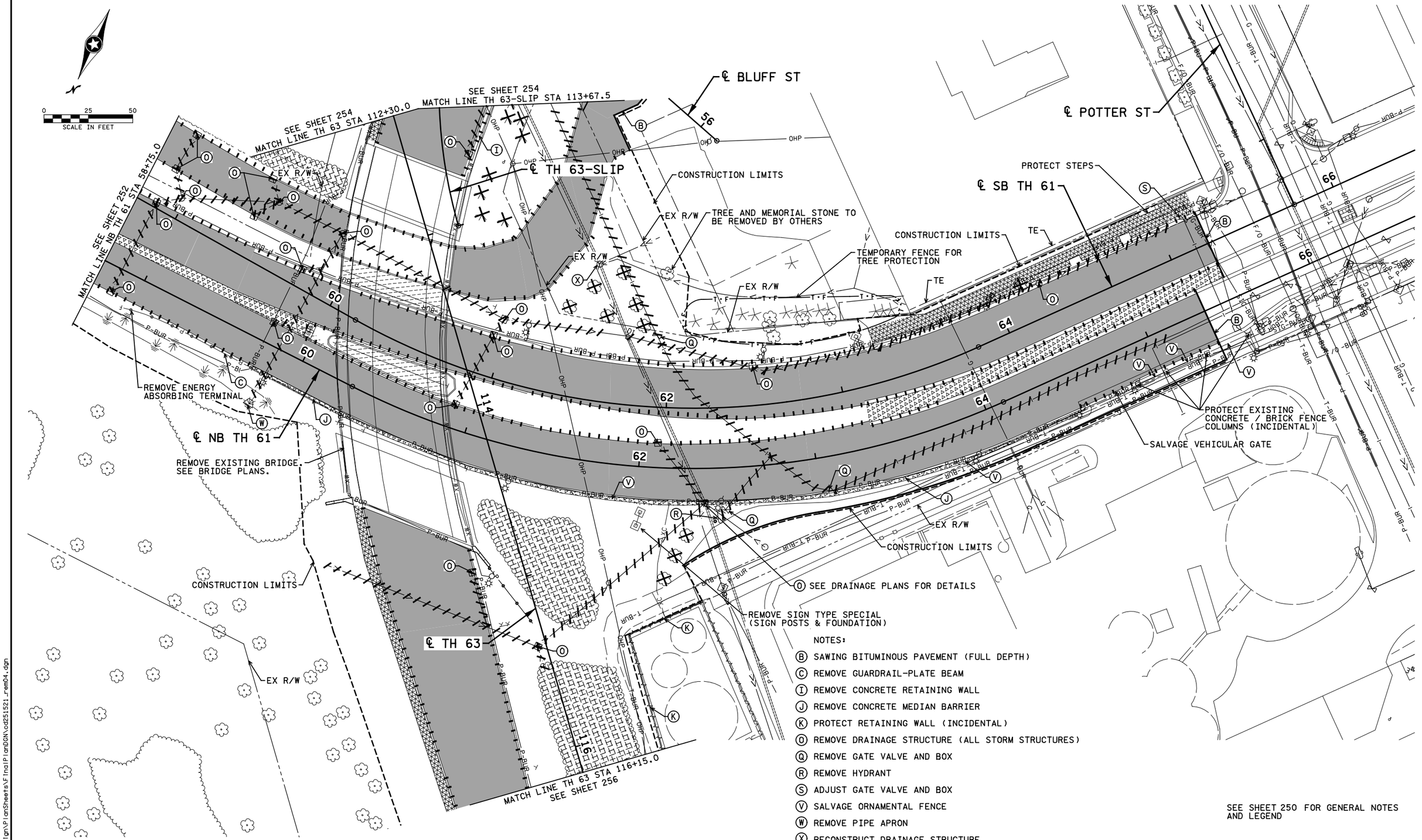
DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
REMOVAL PLANS
SP 2515-21 (TH 63)

SHEET 252 OF 688

11:33:45 AM
6/22/2016
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NOTES:

(B) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
(C) REMOVE GUARDRAIL-PLATE BEAM
(I) REMOVE CONCRETE RETAINING WALL
(J) REMOVE CONCRETE MEDIAN BARRIER
(K) PROTECT RETAINING WALL (INCIDENTAL)
(O) REMOVE DRAINAGE STRUCTURE (ALL STORM STRUCTURES)
(Q) REMOVE GATE VALVE AND BOX
(R) REMOVE HYDRANT
(S) ADJUST GATE VALVE AND BOX
(V) SALVAGE ORNAMENTAL FENCE
(W) REMOVE PIPE APRON
(X) RECONSTRUCT DRAINAGE STRUCTURE

SEE SHEET 250 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_rem04.dgn					

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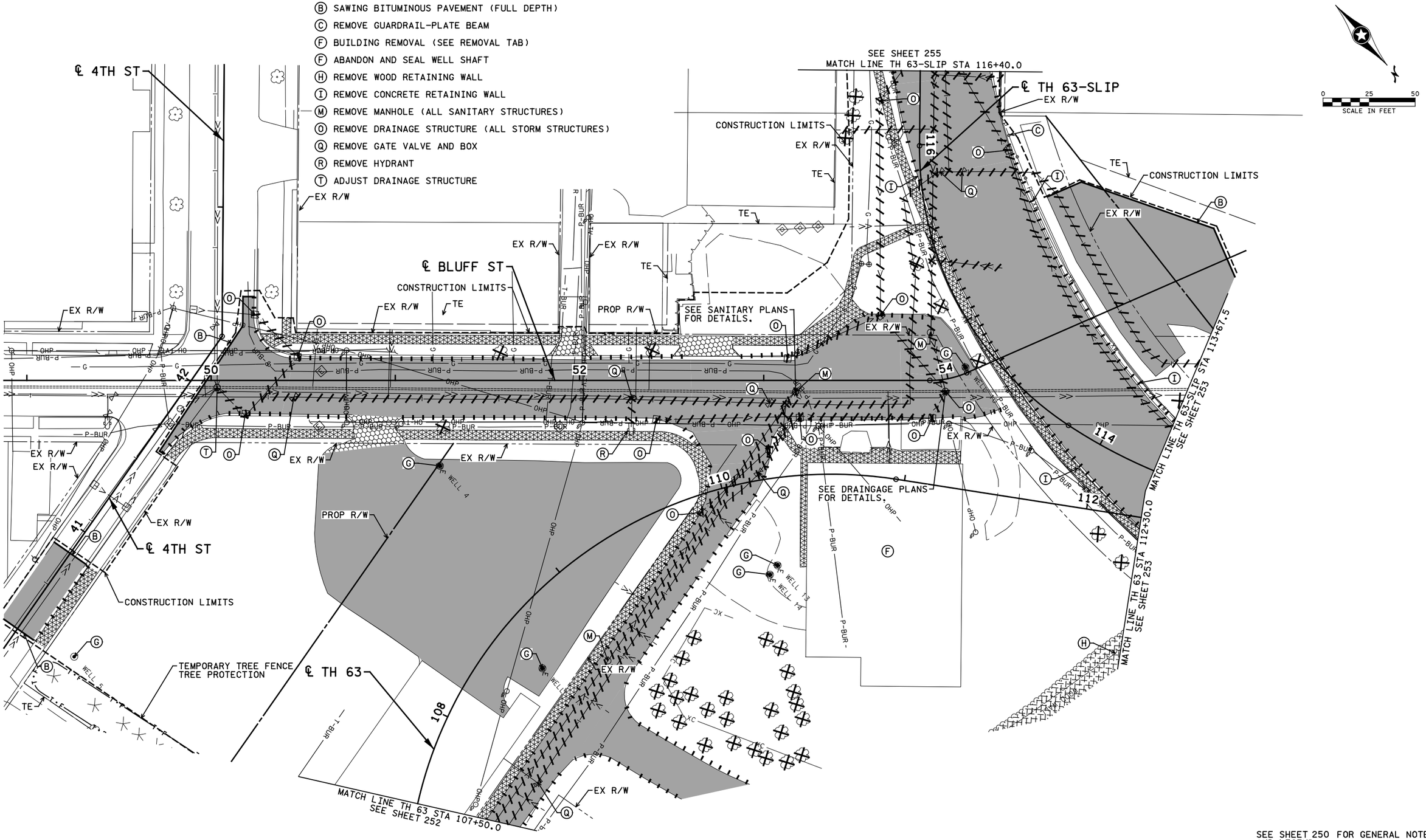
REMOVAL PLANS
SP 2515-21 (TH 63)

SHEET 253 OF 688

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6/2/2016
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NOTES:

- (B) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- (C) REMOVE GUARDRAIL-PLATE BEAM
- (F) BUILDING REMOVAL (SEE REMOVAL TAB)
- (F) ABANDON AND SEAL WELL SHAFT
- (H) REMOVE WOOD RETAINING WALL
- (I) REMOVE CONCRETE RETAINING WALL
- (M) REMOVE MANHOLE (ALL SANITARY STRUCTURES)
- (O) REMOVE DRAINAGE STRUCTURE (ALL STORM STRUCTURES)
- (Q) REMOVE GATE VALVE AND BOX
- (R) REMOVE HYDRANT
- (T) ADJUST DRAINAGE STRUCTURE



SEE SHEET 250 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_rem05.dgn

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MINNESOTA DEPARTMENT OF TRANSPORTATION

REMOVAL PLANS

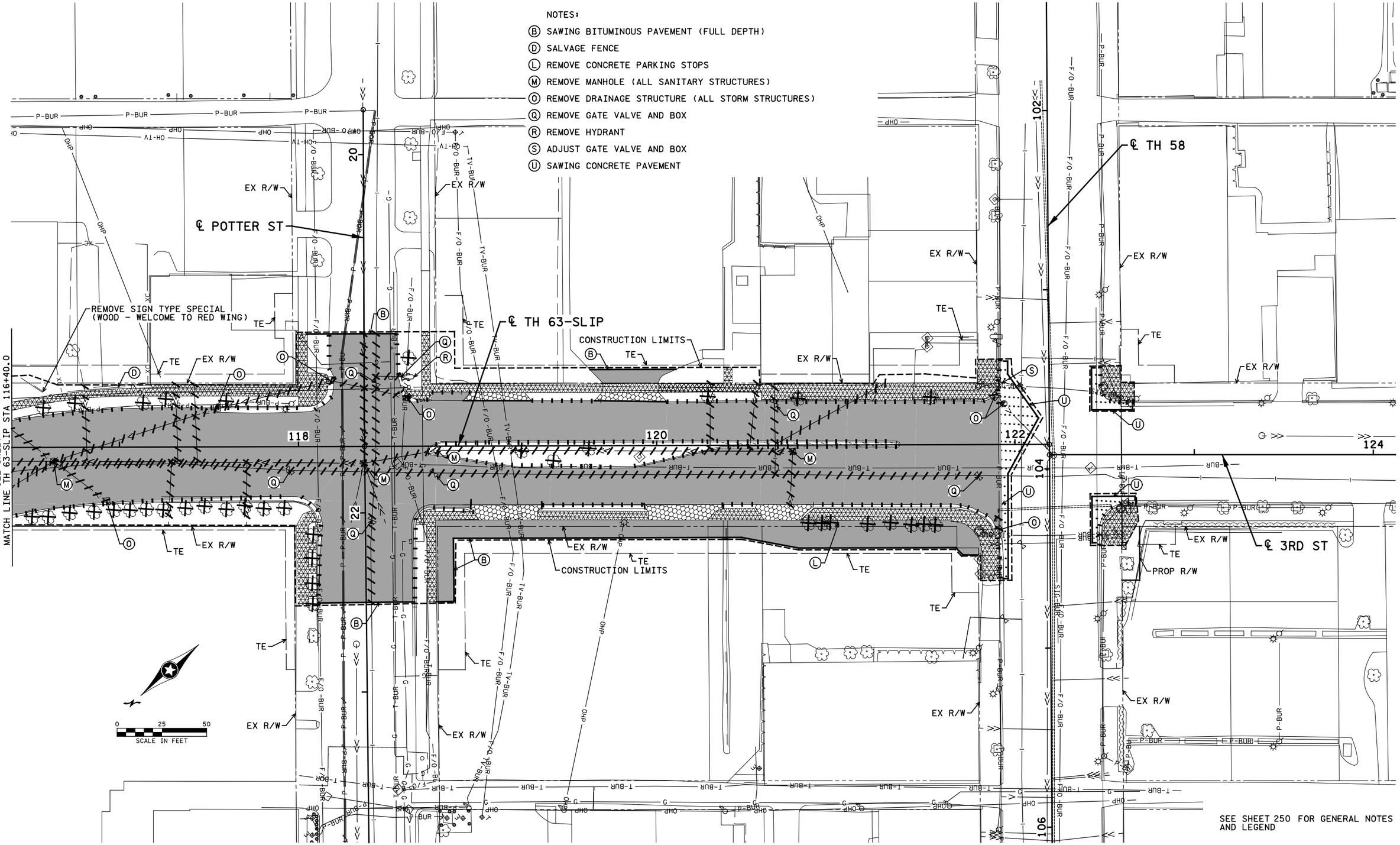
SP 2515-21 (TH 63)

SHEET 254 OF 688

11:33:46 AM
6/2/2016
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NOTES:

- (B) SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
- (D) SALVAGE FENCE
- (L) REMOVE CONCRETE PARKING STOPS
- (M) REMOVE MANHOLE (ALL SANITARY STRUCTURES)
- (O) REMOVE DRAINAGE STRUCTURE (ALL STORM STRUCTURES)
- (Q) REMOVE GATE VALVE AND BOX
- (R) REMOVE HYDRANT
- (S) ADJUST GATE VALVE AND BOX
- (U) SAWING CONCRETE PAVEMENT



SEE SHEET 250 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION
					...\cd251521_rem06.dgn

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REMOVAL PLANS

SP 2515-21 (TH 63)

SHEET 255 OF 688

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NOTES:

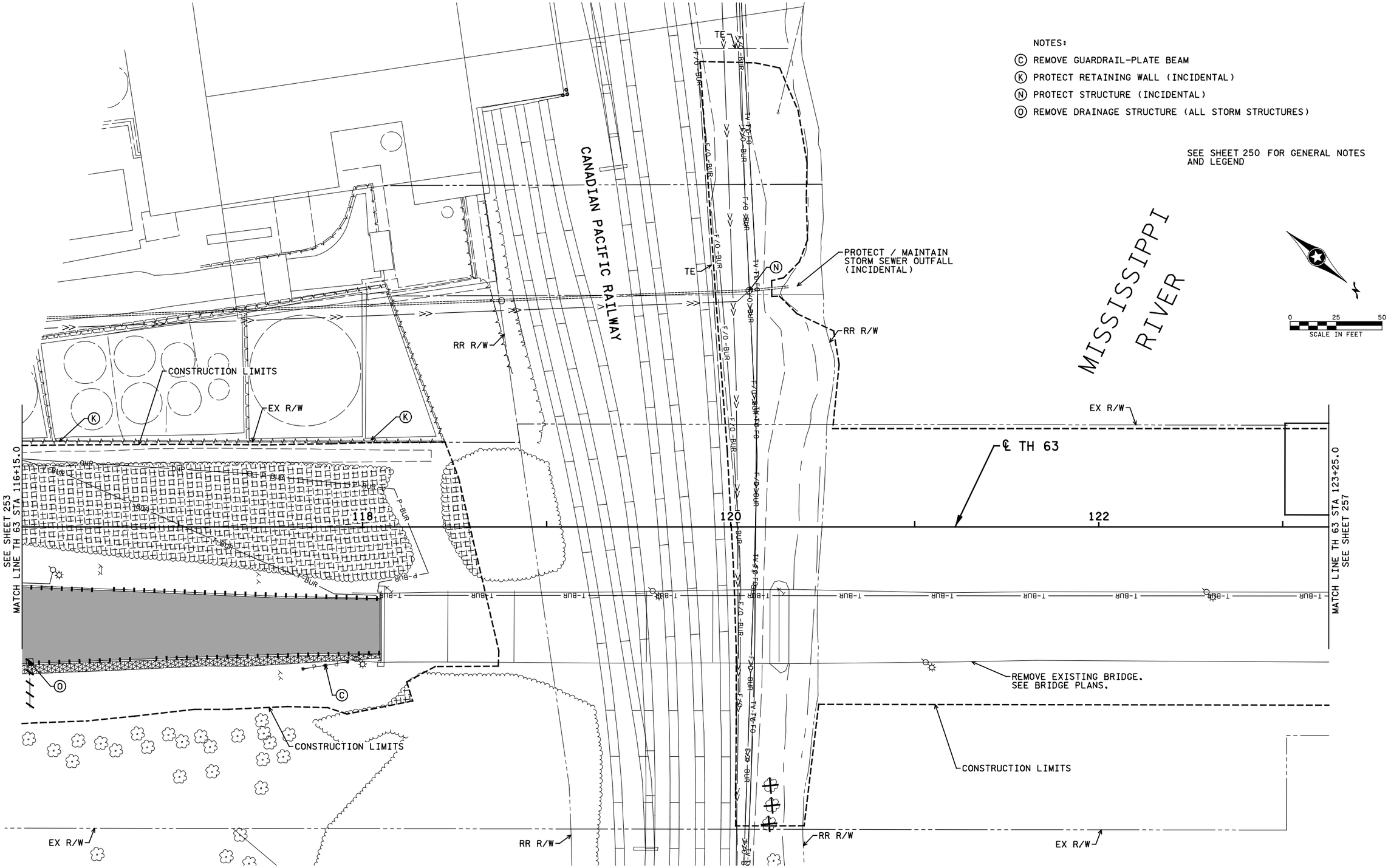
Ⓒ REMOVE GUARDRAIL-PLATE BEAM

Ⓚ PROTECT RETAINING WALL (INCIDENTAL)

Ⓝ PROTECT STRUCTURE (INCIDENTAL)

Ⓞ REMOVE DRAINAGE STRUCTURE (ALL STORM STRUCTURES)

SEE SHEET 250 FOR GENERAL NOTES AND LEGEND



NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_rem07.dgn					

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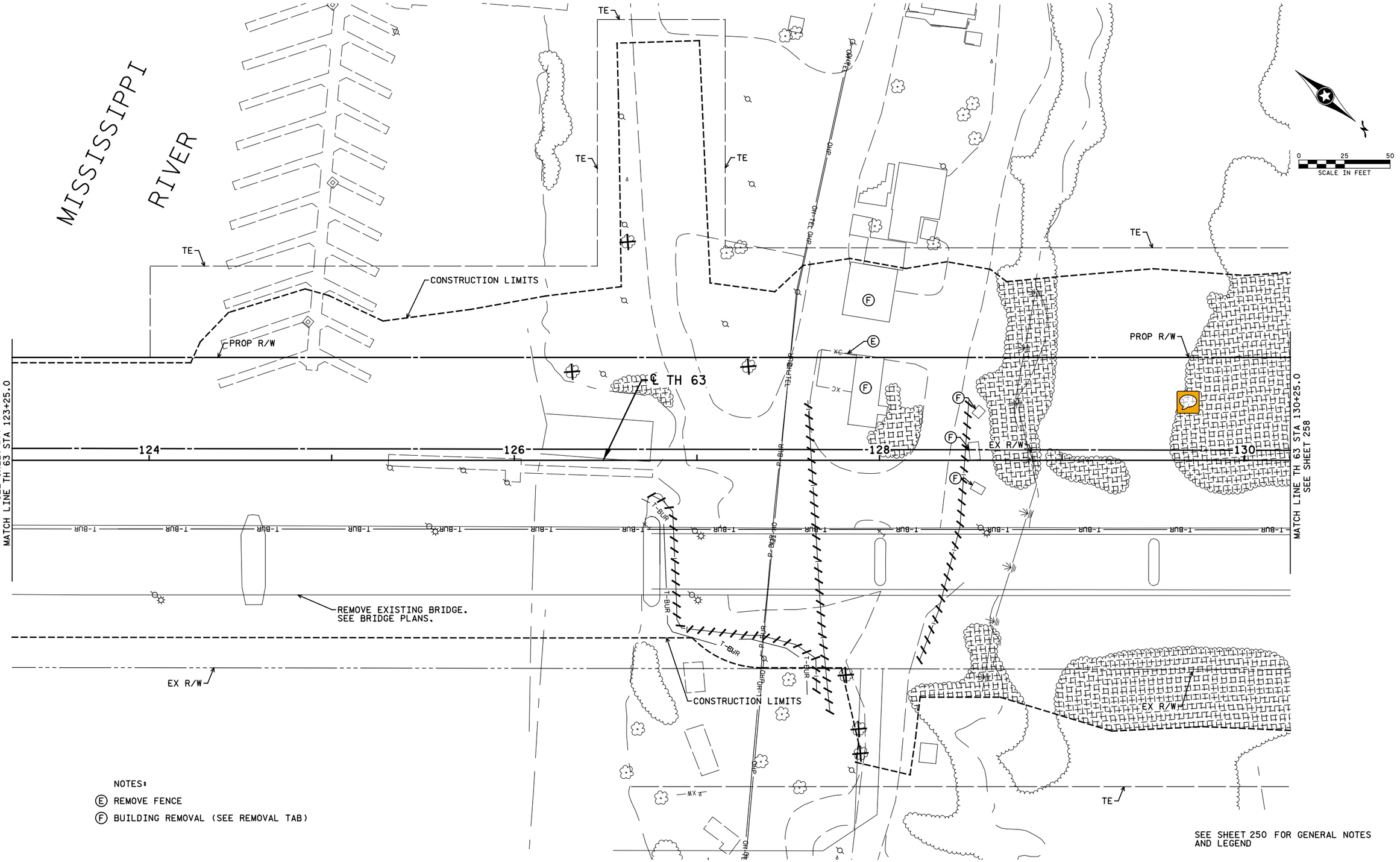
MINNESOTA DEPARTMENT OF TRANSPORTATION

REMOVAL PLANS

SP 2515-21 (TH 63)

SHEET 256 OF 688

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6/2/2016
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NOTES:

(E) REMOVE FENCE

(F) BUILDING REMOVAL (SEE REMOVAL TAB)

SEE SHEET 250 FOR GENERAL NOTES AND LEGEND

NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_rem08.dgn

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SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

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REMOVAL PLANS
SP 2515-21 (TH 63)

SHEET 257 OF 688

11:33:49 AM
6/2/2016
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NOTES:

Ⓑ SAWING BITUMINOUS PAVEMENT (FULL DEPTH)

Ⓒ REMOVE GUARDRAIL - PLATE BEAM

Ⓞ REMOVE DRAINAGE STRUCTURE (ALL STORM STRUCTURES)

0 50 100
SCALE IN FEET

SEE SHEET 250 FOR GENERAL NOTES AND LEGEND

825TH ST

200

EX R/W

REMOVE SIGN TYPE SPECIAL (WOOD SIGN - WOOD POSTS)

CONSTRUCTION LIMITS

℄ 825TH ST W

220

215

TE

PROP R/W

℄ TH 63

135

205

140

145

REMOVE ENERGY ABSORBING TERMINAL

CONSTRUCTION LIMITS

REMOVE EXISTING BRIDGE. SEE BRIDGE PLANS.

210

℄ 825TH ST E

F/O -BUR

T-BUR

1-BUR

P

d

MATCH LINE TH 63 STA 130+25.0 SEE SHEET #REM8

MATCH LINE TH 63 STA 145+25.0 SEE SHEET 259

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

REMOVAL PLANS

SP 2515-21 (TH 63)

SHEET 258 OF 688

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6/22/2016
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NOTES:

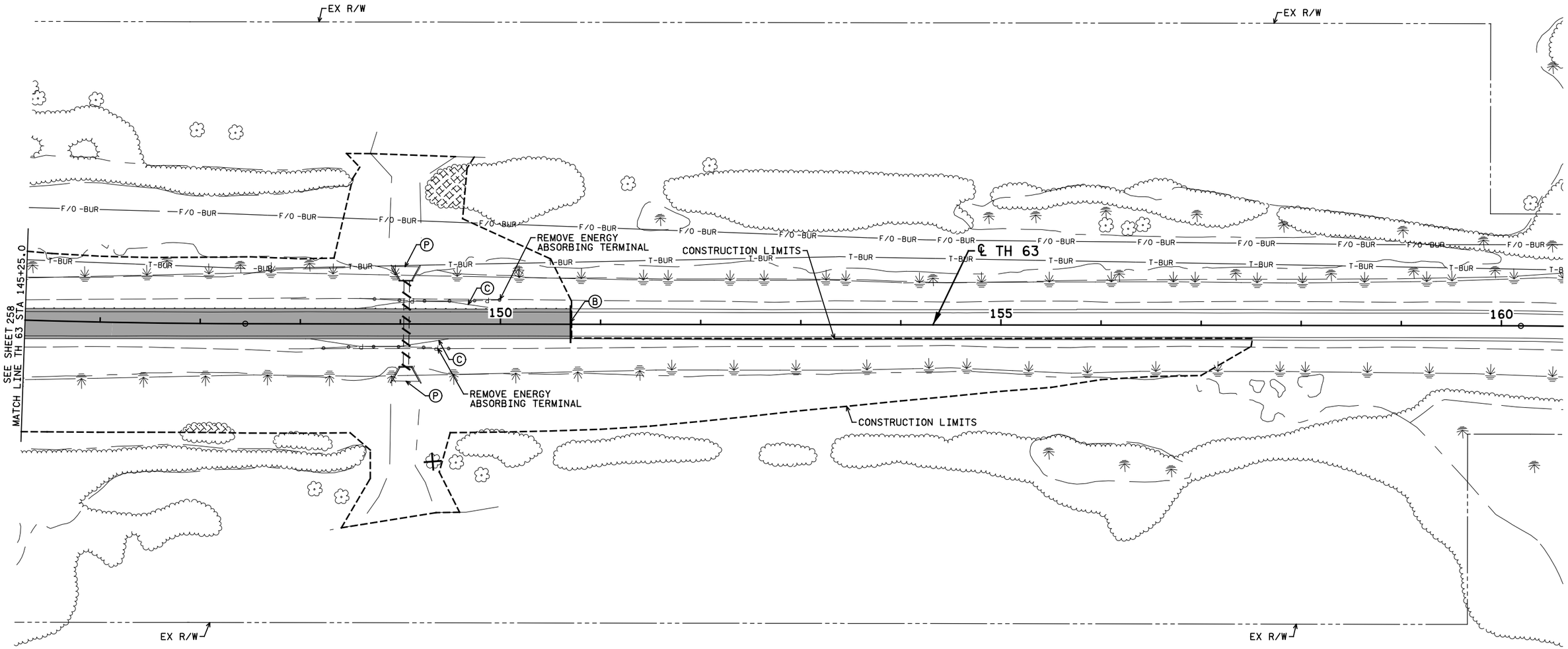
Ⓑ SAWING BITUMINOUS PAVEMENT (FULL DEPTH)

Ⓒ REMOVE GUARDRAIL - PLATE BEAM

Ⓟ REMOVE BOX CULVERT AND CONCRETE BOX CULVERT END SECTION

0 50 100
SCALE IN FEET

SEE SHEET 250 FOR GENERAL NOTES AND LEGEND



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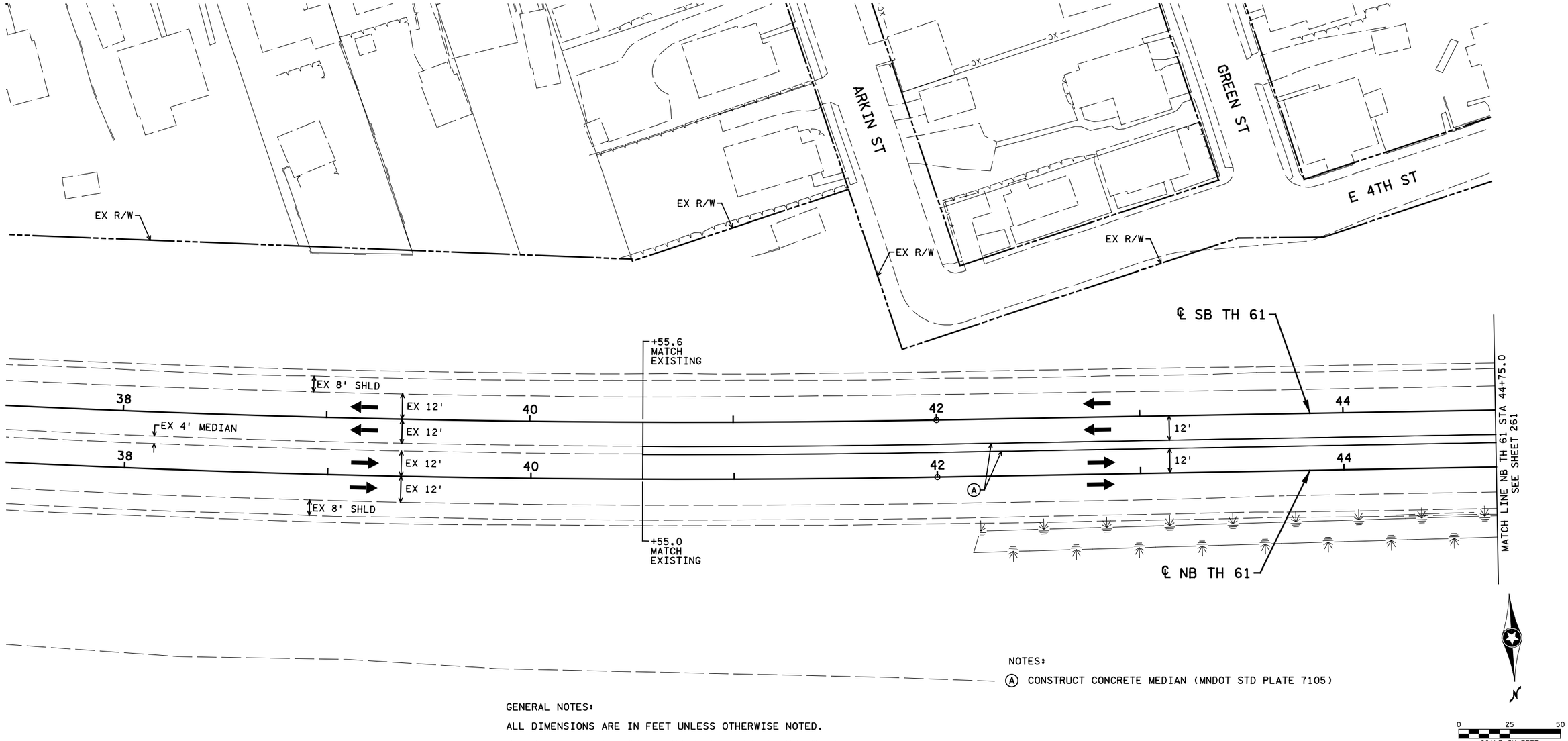
MINNESOTA DEPARTMENT OF TRANSPORTATION

REMOVAL PLANS

SP 2515-21 (TH 63)

SHEET 259 OF 688

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6/22/2016
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NOTES:

(A) CONSTRUCT CONCRETE MEDIAN (MNDOT STD PLATE 7105)

GENERAL NOTES:

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

SEE CONTOUR PLANS FOR PROPOSED AND EXISTING CONTOURS WHERE PROVIDED.

SEE INTERSECTION AND SIDEWALK DETAILS FOR INFORMATION NOT SHOWN ON THE CONSTRUCTION PLANS.

SEE TRAFFIC BARRIER TABULATIONS FOR EXACT LOCATIONS AND QUANTITIES.

FOR SUPERELEVATION TRANSITIONS SEE SUPERELEVATION PLANS.

ALL DIMENSIONS TO CURB & GUTTER ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.

LEGEND

- EXISTING ROADWAYS
- PROPOSED CONSTRUCTION
- DIRECTION OF TRAFFIC

NO	DATE	BY	CKD	APPR	REVISION

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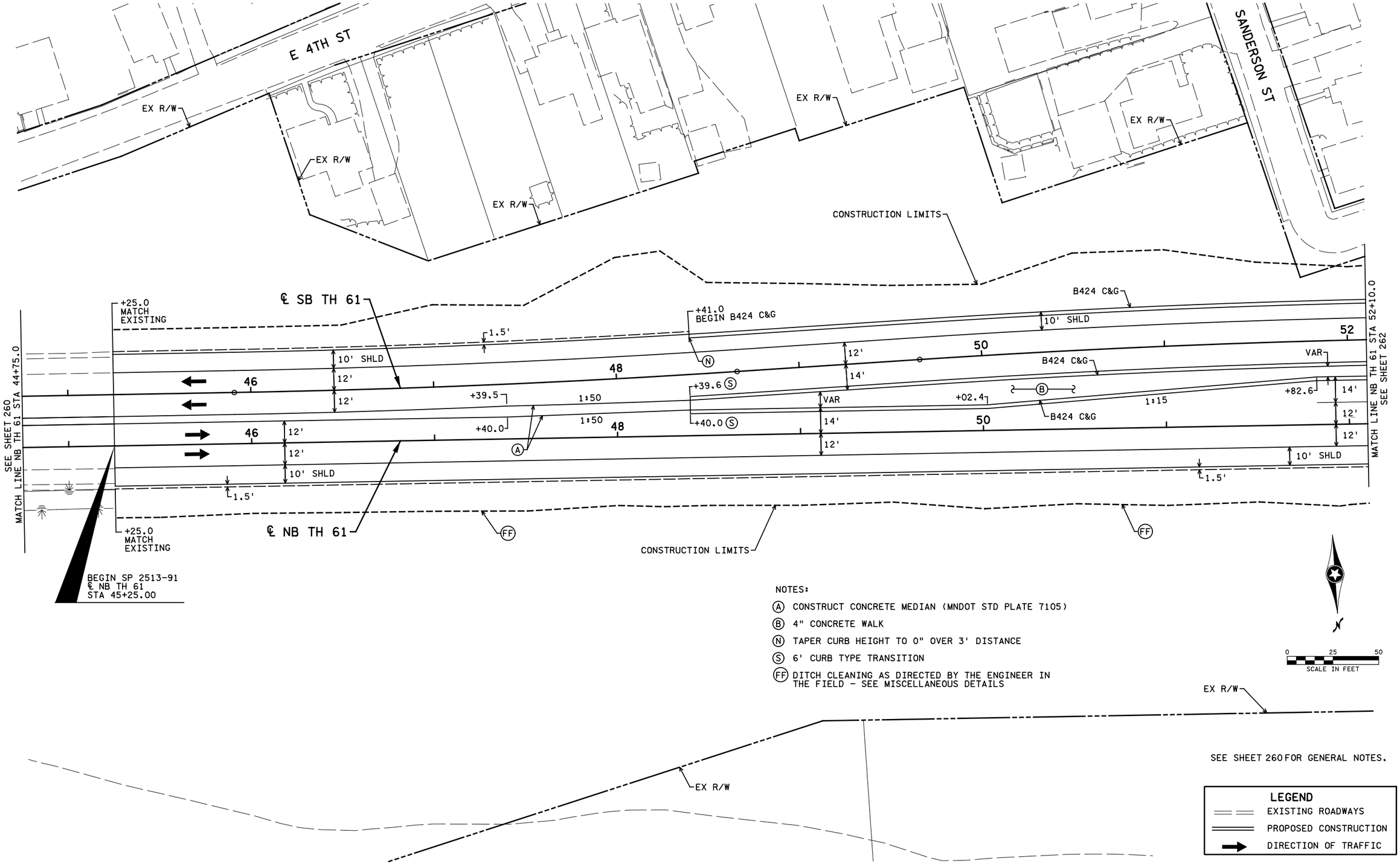
MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLANS

SP 2515-21 (TH 63)

SHEET 260 OF 688

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DESIGNED BY A. EMERSON

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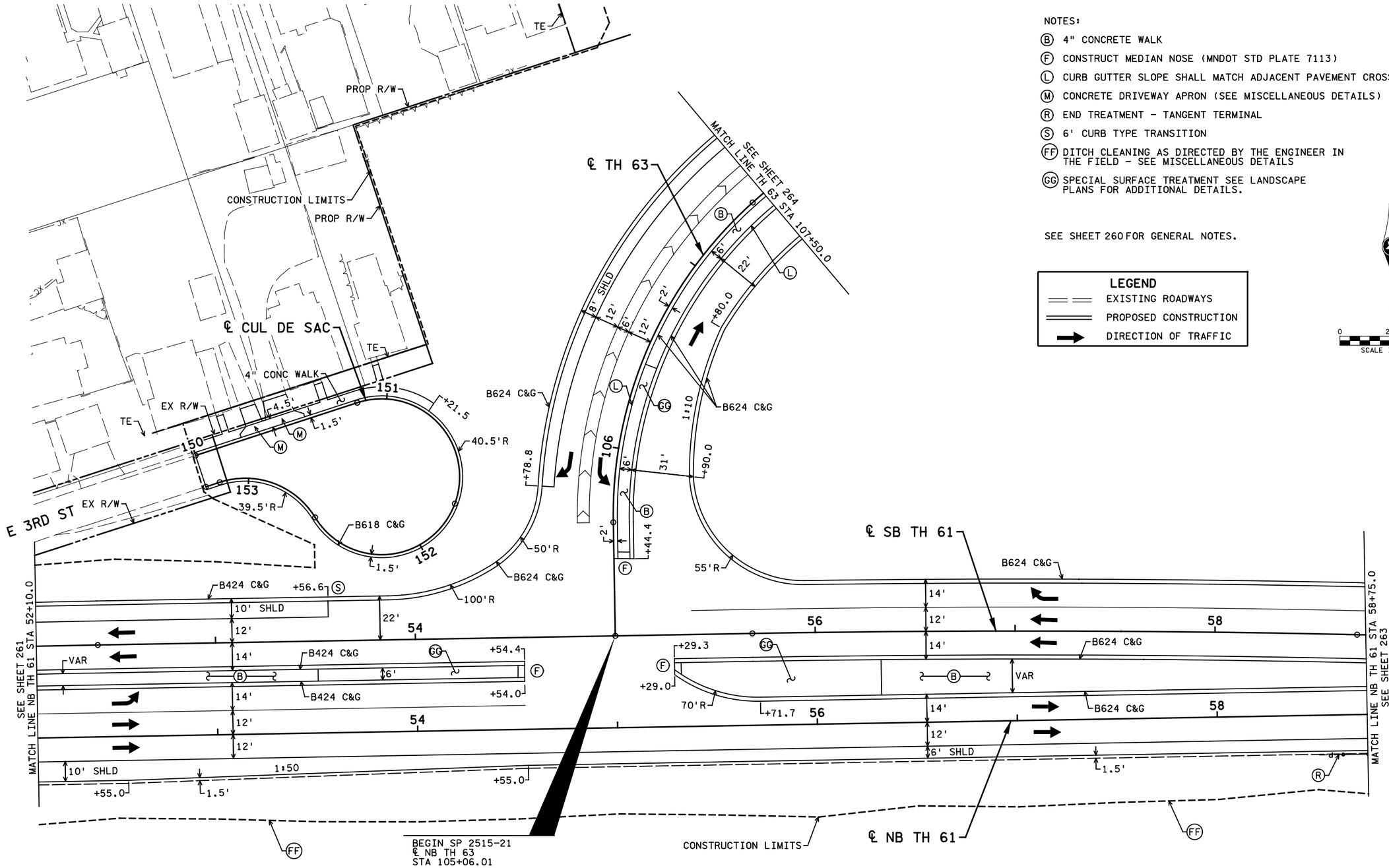
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CONSTRUCTION PLANS

SP 2515-21 (TH 63)

SHEET 261 OF 688

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6/2/2016
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NOTES:

- (B) 4" CONCRETE WALK
- (F) CONSTRUCT MEDIAN NOSE (MNDOT STD PLATE 7113)
- (L) CURB GUTTER SLOPE SHALL MATCH ADJACENT PAVEMENT CROSS SLOPE
- (M) CONCRETE DRIVEWAY APRON (SEE MISCELLANEOUS DETAILS)
- (R) END TREATMENT - TANGENT TERMINAL
- (S) 6' CURB TYPE TRANSITION
- (FF) DITCH CLEANING AS DIRECTED BY THE ENGINEER IN THE FIELD - SEE MISCELLANEOUS DETAILS
- (GG) SPECIAL SURFACE TREATMENT SEE LANDSCAPE PLANS FOR ADDITIONAL DETAILS.

SEE SHEET 260 FOR GENERAL NOTES.

LEGEND

- EXISTING ROADWAYS
- PROPOSED CONSTRUCTION
- DIRECTION OF TRAFFIC

0 25 50
SCALE IN FEET

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

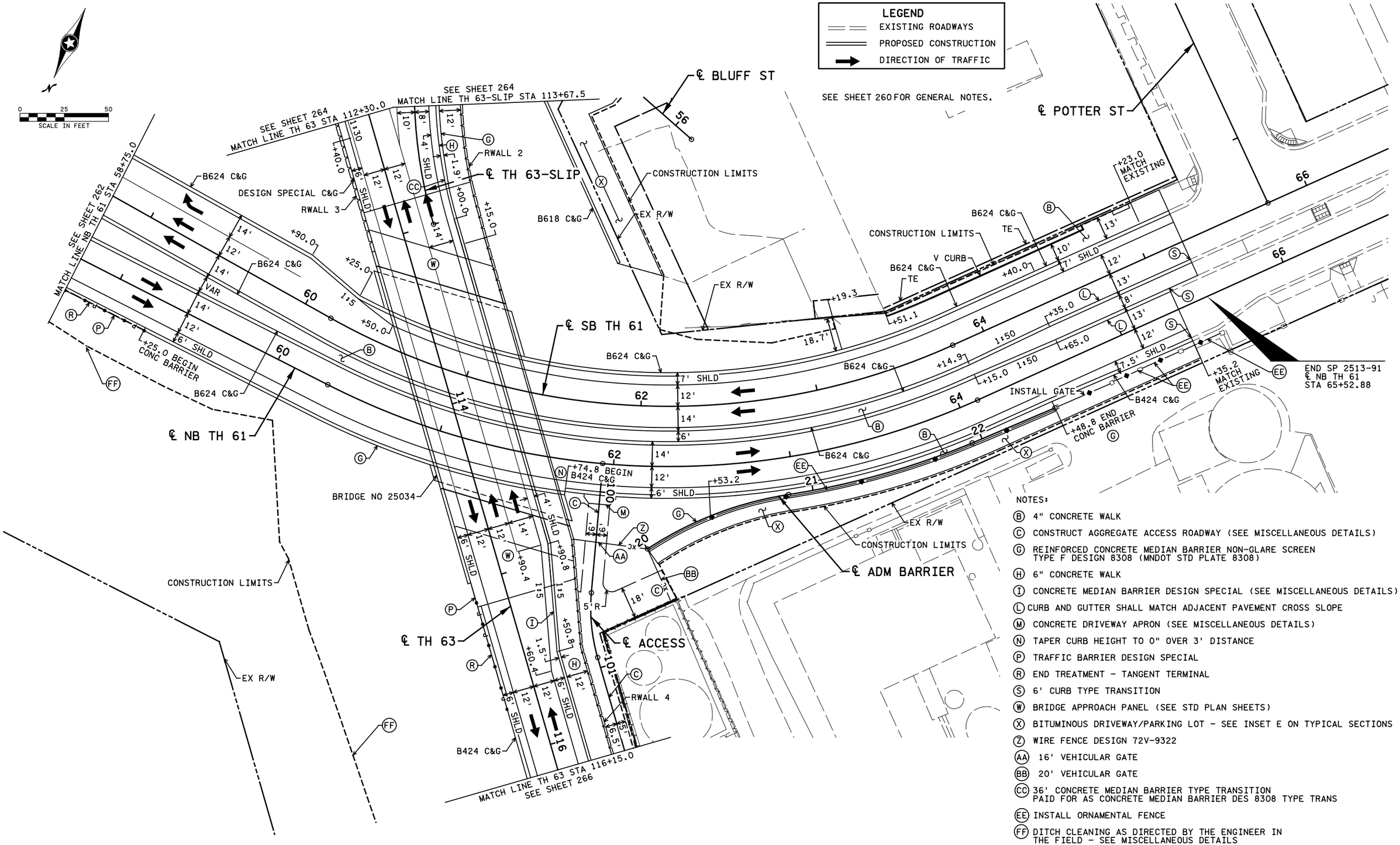
DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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ENGINEERS PLANNERS DESIGNERS

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CONSTRUCTION PLANS
SP 2515-21 (TH 63)

SHEET 262 OF 688

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DRAWN BY	S. MARTINS
DESIGNED BY	A. EMERSON
CHECKED BY	C. HASS
COMM. NO.	0158933

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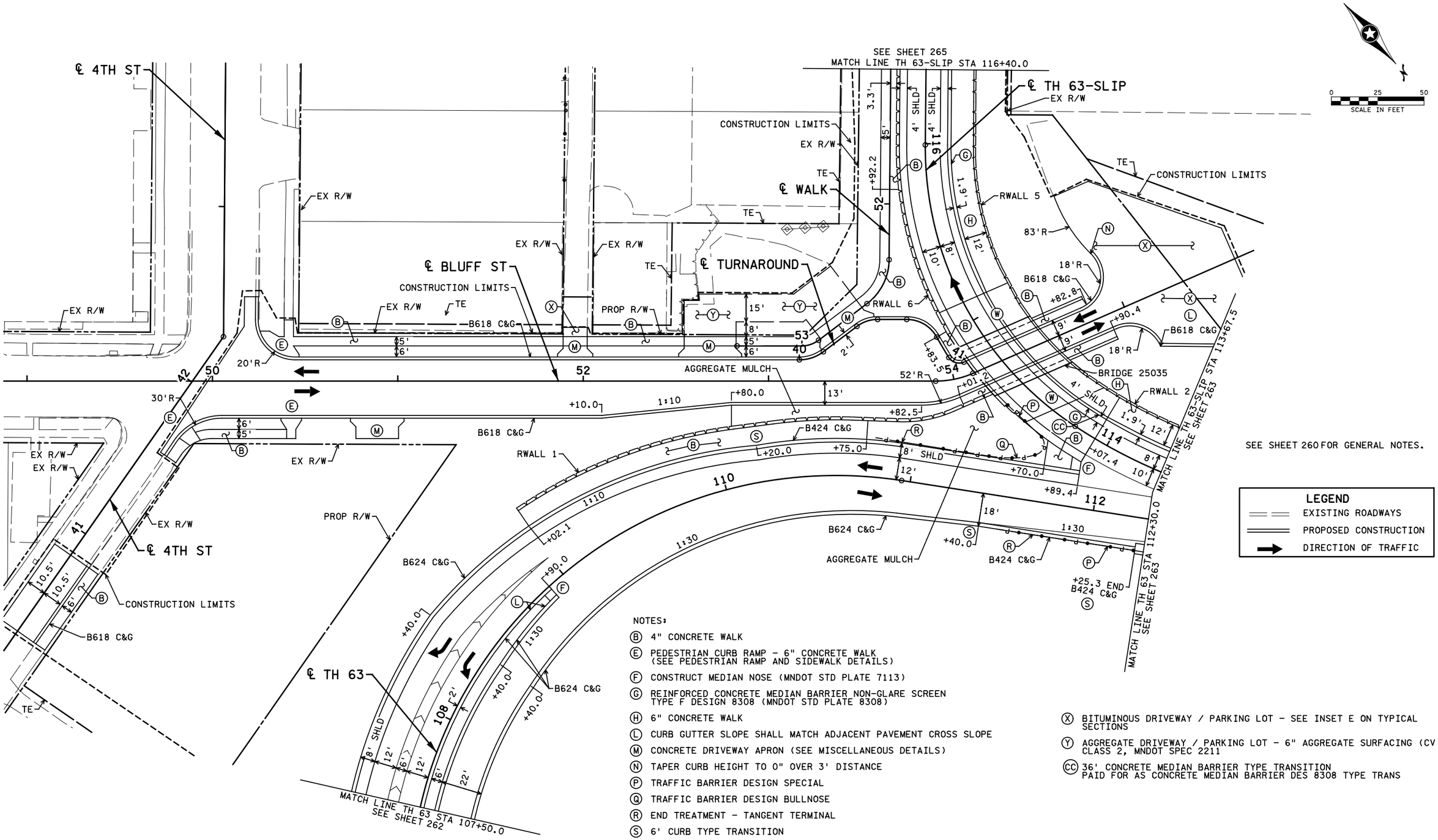
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CONSTRUCTION PLANS

SP 2515-21 (TH 63)

SHEET 263 OF 688

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SEE SHEET 260 FOR GENERAL NOTES.

LEGEND

- EXISTING ROADWAYS
- PROPOSED CONSTRUCTION
- DIRECTION OF TRAFFIC

NOTES:

- (B) 4" CONCRETE WALK
- (E) PEDESTRIAN CURB RAMP - 6" CONCRETE WALK (SEE PEDESTRIAN RAMP AND SIDEWALK DETAILS)
- (F) CONSTRUCT MEDIAN NOSE (MNDOT STD PLATE 7113)
- (G) REINFORCED CONCRETE MEDIAN BARRIER NON-GLARE SCREEN TYPE F DESIGN 8308 (MNDOT STD PLATE 8308)
- (H) 6" CONCRETE WALK
- (L) CURB GUTTER SLOPE SHALL MATCH ADJACENT PAVEMENT CROSS SLOPE
- (M) CONCRETE DRIVEWAY APRON (SEE MISCELLANEOUS DETAILS)
- (N) TAPER CURB HEIGHT TO 0" OVER 3' DISTANCE
- (P) TRAFFIC BARRIER DESIGN SPECIAL
- (Q) TRAFFIC BARRIER DESIGN BULLNOSE
- (R) END TREATMENT - TANGENT TERMINAL
- (S) 6' CURB TYPE TRANSITION
- (W) BRIDGE APPROACH PANEL (SEE STD PLAN SHEETS)
- (X) BITUMINOUS DRIVEWAY / PARKING LOT - SEE INSET E ON TYPICAL SECTIONS
- (Y) AGGREGATE DRIVEWAY / PARKING LOT - 6" AGGREGATE SURFACING (CV) CLASS 2, MNDOT SPEC 2211
- (CC) 36' CONCRETE MEDIAN BARRIER TYPE TRANSITION PAID FOR AS CONCRETE MEDIAN BARRIER DES 8308 TYPE TRANS

NO	DATE	BY	CKD	APPR	REVISION
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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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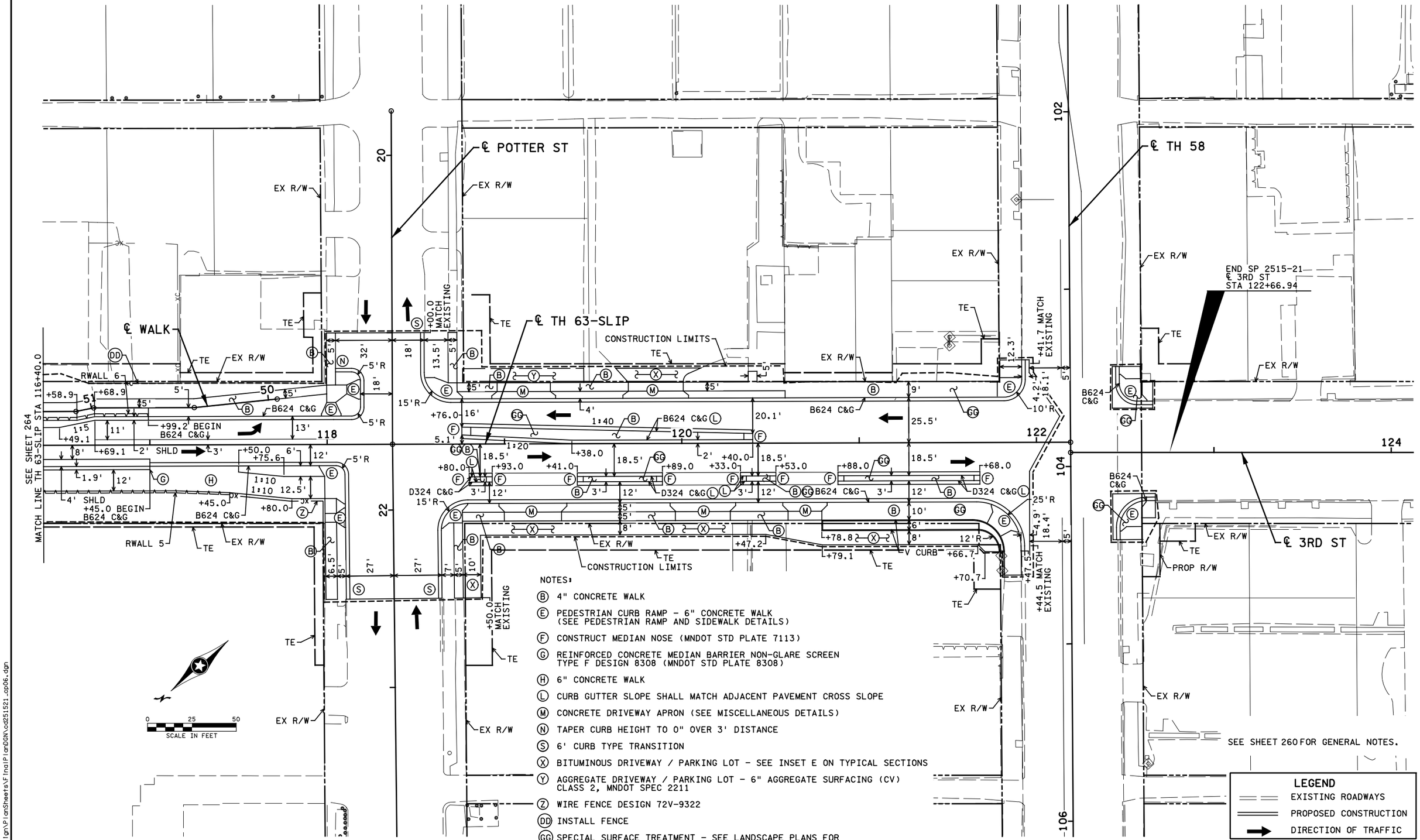
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CONSTRUCTION PLANS

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SHEET 264 OF 688

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6/2/2016
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NOTES:

- (B) 4" CONCRETE WALK
- (E) PEDESTRIAN CURB RAMP - 6" CONCRETE WALK (SEE PEDESTRIAN RAMP AND SIDEWALK DETAILS)
- (F) CONSTRUCT MEDIAN NOSE (MNDOT STD PLATE 7113)
- (G) REINFORCED CONCRETE MEDIAN BARRIER NON-GLARE SCREEN TYPE F DESIGN 8308 (MNDOT STD PLATE 8308)
- (H) 6" CONCRETE WALK
- (L) CURB GUTTER SLOPE SHALL MATCH ADJACENT PAVEMENT CROSS SLOPE
- (M) CONCRETE DRIVEWAY APRON (SEE MISCELLANEOUS DETAILS)
- (N) TAPER CURB HEIGHT TO 0" OVER 3' DISTANCE
- (S) 6' CURB TYPE TRANSITION
- (X) BITUMINOUS DRIVEWAY / PARKING LOT - SEE INSET E ON TYPICAL SECTIONS
- (Y) AGGREGATE DRIVEWAY / PARKING LOT - 6" AGGREGATE SURFACING (CV) CLASS 2, MNDOT SPEC 2211
- (Z) WIRE FENCE DESIGN 72V-9322
- (DD) INSTALL FENCE
- (GG) SPECIAL SURFACE TREATMENT - SEE LANDSCAPE PLANS FOR ADDITIONAL DETAILS

LEGEND
- EXISTING ROADWAYS
- PROPOSED CONSTRUCTION
- DIRECTION OF TRAFFIC

NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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CONSTRUCTION PLANS
SP 2515-21 (TH 63)

SHEET 265 OF 688

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6/2/2016
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NOTES:

Ⓒ CONSTRUCT AGGREGATE ACCESS ROADWAY (SEE MISCELLANEOUS DETAILS)
Ⓗ 6" CONCRETE WALK
Ⓘ CONCRETE MEDIAN BARRIER DESIGN SPECIAL (SEE MISCELLANEOUS DETAILS)
Ⓟ TRAFFIC BARRIER DESIGN SPECIAL
Ⓡ END TREATMENT - TANGENT TERMINAL
Ⓦ BRIDGE APPROACH PANEL (SEE STD PLAN SHEETS)
ⒻⒻ DITCH CLEANING AS DIRECTED BY THE ENGINEER IN THE FIELD - SEE MISCELLANEOUS DETAILS

SCALE IN FEET 0 25 50

SEE SHEET 260 FOR GENERAL NOTES.

LEGEND
EXISTING ROADWAYS
PROPOSED CONSTRUCTION
DIRECTION OF TRAFFIC

CANADIAN PACIFIC RAILWAY
MISSISSIPPI RIVER
TE
RR R/W
EX R/W
CONSTRUCTION LIMITS
℄ ACCESS
℄ TH 63
RESTORE AGGREGATE ACCESS ROADWAY. SEE CONTOUR PLANS AND MISCELLANEOUS DETAILS. RESTORE WITH 6" AGGREGATE SURFACING (CV) CLASS 2, MNDOT SPEC 2211,
PROTECT / MAINTAIN STORM SEWER OUTFALL (INCIDENTAL)
+68.0
102
103
118
120
122
RWALL 4
RWALL 7
B424 C&G
BRIDGE NO 25033
12'
6' SHLD
1.5'
6'
END SP 2515-21
BEGIN WIS ID 7210-00-78
℄ TH 63
STA 123+04.15
SEE SHEET 263
MATCH LINE TH 63 STA 116+15.0
MATCH LINE TH 63 STA 123+25.0
SEE SHEET 267

NO	DATE	BY	CKD	APPR	REVISION
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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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CONSTRUCTION PLANS
SP 2515-21 (TH 63)

SHEET 266 OF 688

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SEE SHEET 260 FOR GENERAL NOTES.

LEGEND
- EXISTING ROADWAYS
- PROPOSED CONSTRUCTION
- DIRECTION OF TRAFFIC

0 25 50
SCALE IN FEET

MISSISSIPPI RIVER

TE

RESTORE AGGREGATE PARKING LOT.
SEE CONTOUR PLANS FOR MORE INFORMATION.
RESTORE WITH 6" AGGREAGE SURFACING (CV)
CLASS 2, MNDOT SPEC 2211,

CONSTRUCTION LIMITS

RESTORE AGGREGATE ROADWAY.
SEE CONTOUR PLANS FOR MORE INFORMATION.
RESTORE WITH 6" AGGREAGE SURFACING (CV)
CLASS 2, MNDOT SPEC 2211,

PROP R/W

℄ TH 63

12' 6' 12' 12' 6' 1.5'

124 126 128 130

BRIDGE NO 25033

SEE SHEET 266
MATCH LINE TH 63 STA 123+25.0

MATCH LINE TH 63 STA 130+25.0
SEE SHEET 268

RESTORE AGGREGATE ROADWAY.
SEE CONTOUR PLANS FOR MORE INFORMATION.
RESTORE WITH 6" AGGREAGE SURFACING (CV)
CLASS 2, MNDOT SPEC 2211,

EX R/W

CONSTRUCTION LIMITS

EX R/W

MX

TE

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

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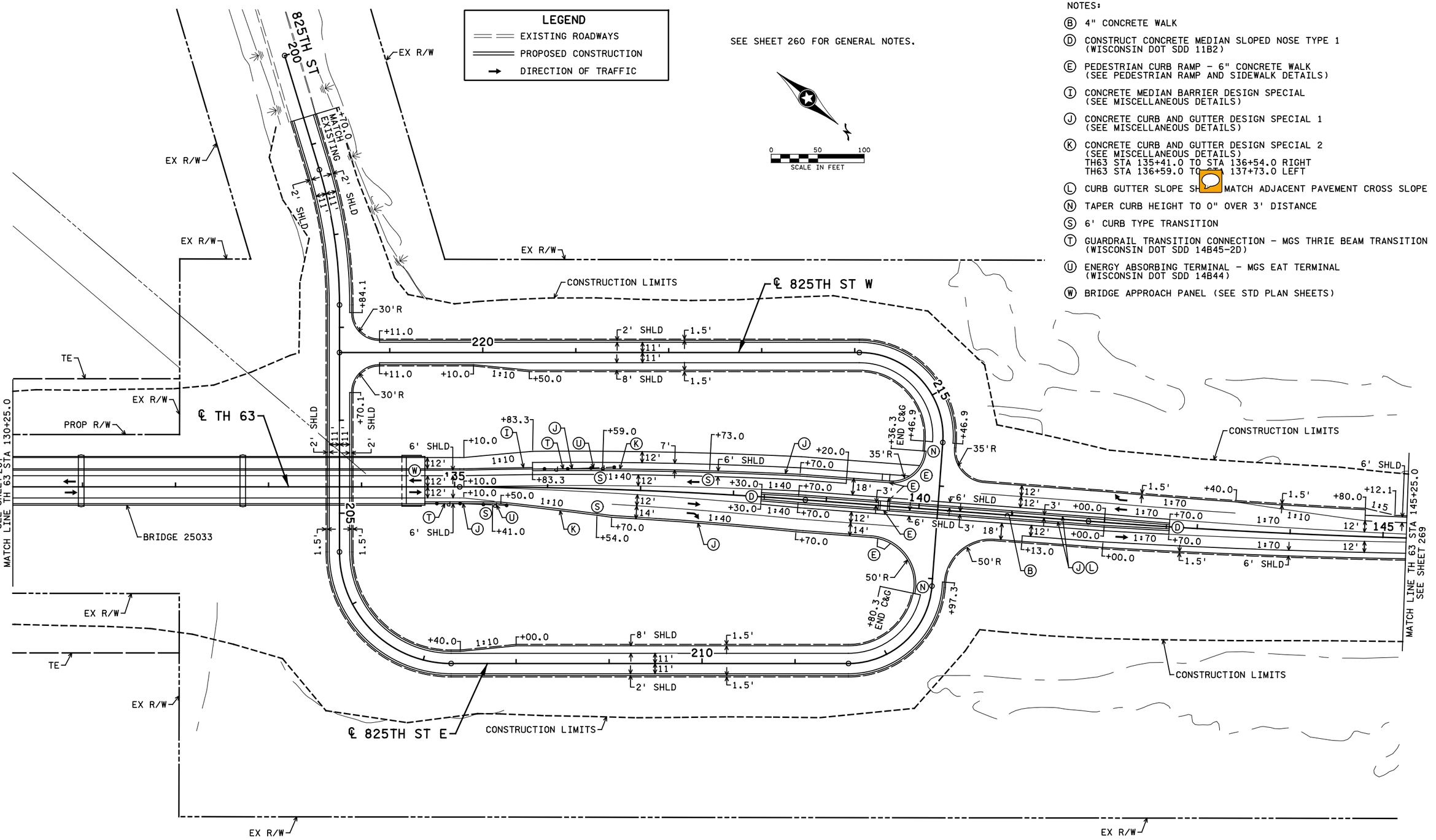
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CONSTRUCTION PLANS
SP 2515-21 (TH 63)

SHEET 267 OF 688

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6/2/2016
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NOTES:

- (B) 4" CONCRETE WALK
- (D) CONSTRUCT CONCRETE MEDIAN SLOPED NOSE TYPE 1 (WISCONSIN DOT SDD 11B2)
- (E) PEDESTRIAN CURB RAMP - 6" CONCRETE WALK (SEE PEDESTRIAN RAMP AND SIDEWALK DETAILS)
- (I) CONCRETE MEDIAN BARRIER DESIGN SPECIAL (SEE MISCELLANEOUS DETAILS)
- (J) CONCRETE CURB AND GUTTER DESIGN SPECIAL 1 (SEE MISCELLANEOUS DETAILS)
- (K) CONCRETE CURB AND GUTTER DESIGN SPECIAL 2 (SEE MISCELLANEOUS DETAILS) TH63 STA 135+41.0 TO STA 136+54.0 RIGHT TH63 STA 136+59.0 TO STA 137+73.0 LEFT
- (L) CURB GUTTER SLOPE SHALL MATCH ADJACENT PAVEMENT CROSS SLOPE
- (N) TAPER CURB HEIGHT TO 0" OVER 3' DISTANCE
- (S) 6' CURB TYPE TRANSITION
- (T) GUARDRAIL TRANSITION CONNECTION - MGS THRIE BEAM TRANSITION (WISCONSIN DOT SDD 14B45-2D)
- (U) ENERGY ABSORBING TERMINAL - MGS EAT TERMINAL (WISCONSIN DOT SDD 14B44)
- (W) BRIDGE APPROACH PANEL (SEE STD PLAN SHEETS)

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SP 2515-21 (TH 63)

SHEET 268 OF 688

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LEGEND

EXISTING ROADWAYS

PROPOSED CONSTRUCTION

DIRECTION OF TRAFFIC

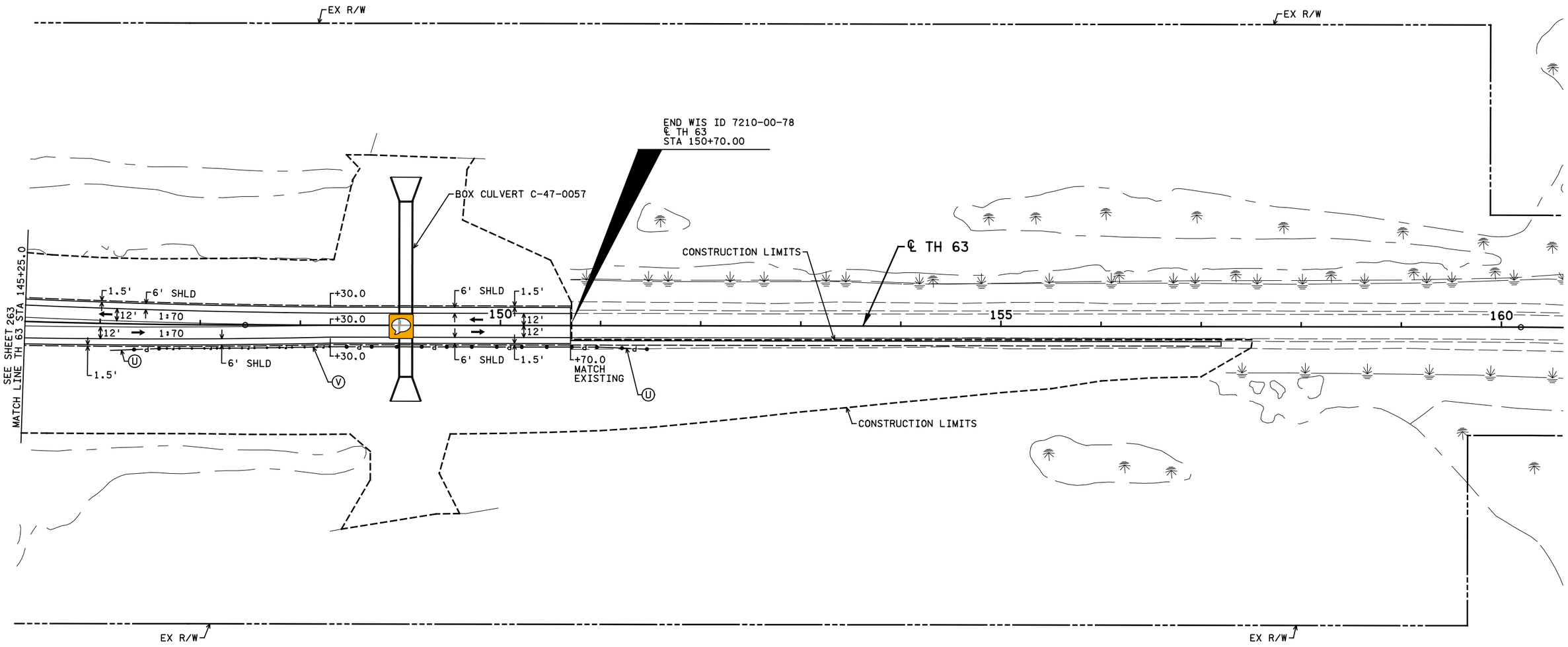
SEE SHEET 260 FOR GENERAL NOTES.

NOTES:

(U) ENERGY ABSORBING TERMINAL - MGS EAT TERMINAL (WISCONSIN DOT SDD 14B44)

(V) PLATE BEAM GUARDRAIL - MGS GUARDRAIL (WISCONSIN DOT SDD 14B42)

0 50 100
SCALE IN FEET



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CONSTRUCTION PLANS

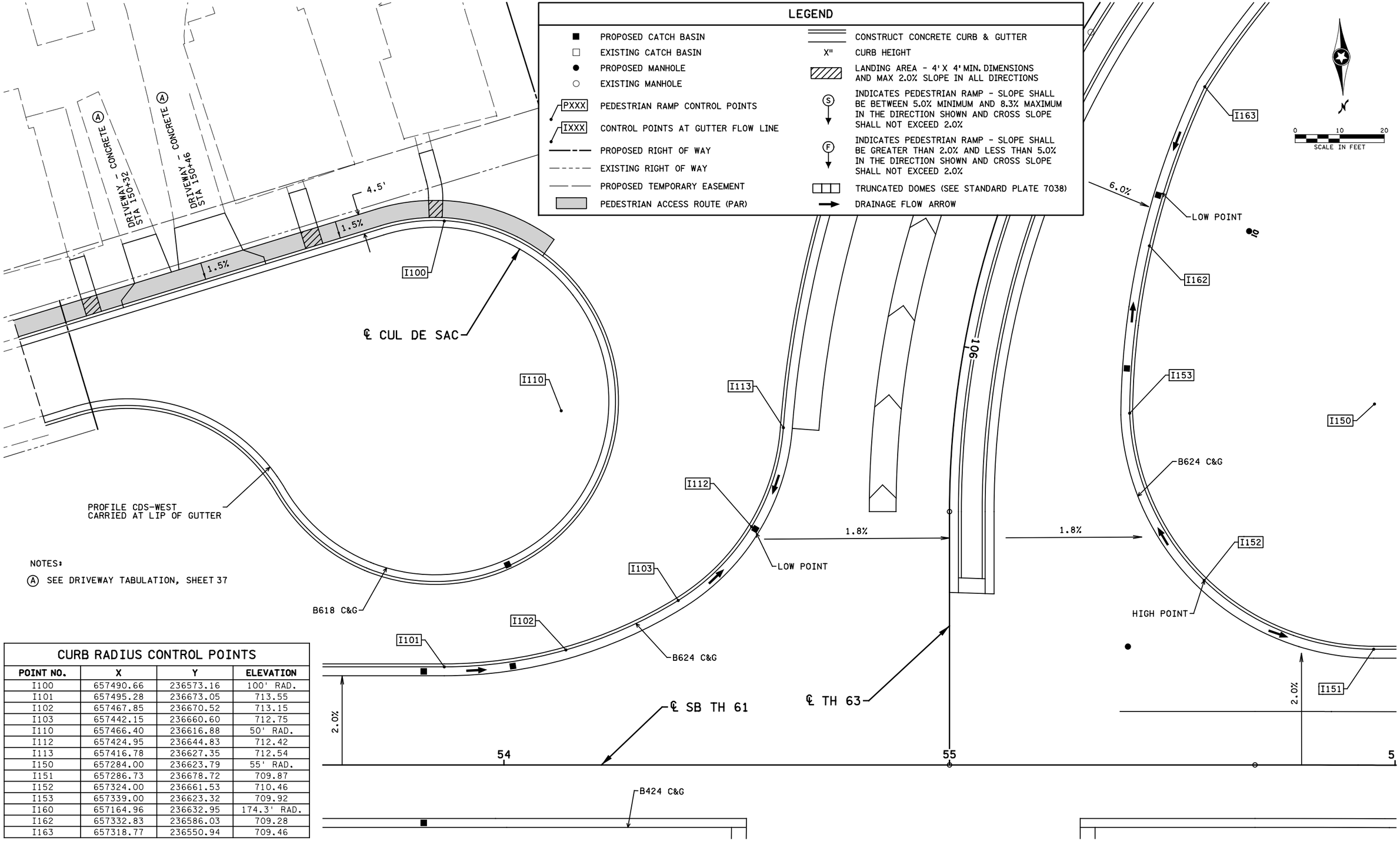
SP 2515-21 (TH 63)

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LEGEND

- PROPOSED CATCH BASIN
- EXISTING CATCH BASIN
- PROPOSED MANHOLE
- EXISTING MANHOLE
- PXXX — PEDESTRIAN RAMP CONTROL POINTS
- IXXX — CONTROL POINTS AT GUTTER FLOW LINE
- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- PROPOSED TEMPORARY EASEMENT
- PEDESTRIAN ACCESS ROUTE (PAR)
- CONSTRUCT CONCRETE CURB & GUTTER
- X" — CURB HEIGHT
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- DRAINAGE FLOW ARROW



NOTES:

(A) SEE DRIVEWAY TABULATION, SHEET 37

CURB RADIUS CONTROL POINTS

POINT NO.	X	Y	ELEVATION
I100	657490.66	236573.16	100' RAD.
I101	657495.28	236673.05	713.55
I102	657467.85	236670.52	713.15
I103	657442.15	236660.60	712.75
I110	657466.40	236616.88	50' RAD.
I112	657424.95	236644.83	712.42
I113	657416.78	236627.35	712.54
I150	657284.00	236623.79	55' RAD.
I151	657286.73	236678.72	709.87
I152	657324.00	236661.53	710.46
I153	657339.00	236623.32	709.92
I160	657164.96	236632.95	174.3' RAD.
I162	657332.83	236586.03	709.28
I163	657318.77	236550.94	709.46

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_pd01.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 Electrical Engineer under the laws of the State of Minnesota.

Print Name: MICHELLE M. GERRITY

Date _____ License # 43935

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY M. GERRITY
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY M. GERRITY
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY A. DEBRUIN
	COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

INTERSECTION AND SIDEWALK DETAILS
SP 2515-21 (TH 63)

SHEET 270 OF 688

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CURB RADIUS CONTROL POINTS			
POINT NO.	X	Y	ELEVATION
I200	657275.19	236251.30	707.18
I201	657258.72	236277.88	30' RAD.
I202	657266.69	236248.96	707.11
I203	657252.15	236248.61	707.00
I204	657238.17	236254.00	706.89
I210	657175.08	236240.34	20' RAD.
I211	657188.13	236255.50	707.60
I212	657195.04	236241.63	707.80
I213	657189.97	236226.99	708.01
I214	657182.69	236217.31	708.17

PEDESTRIAN RAMP CONTROL POINTS			
POINT NO.	X	Y	ELEVATION
P205	657263.41	236248.93	707.09
P206	657254.69	236248.83	707.03
P207	657213.36	236278.53	707.10
P215	657187.38	236254.01	707.65
P216	657184.53	236250.69	707.95
P217	657190.61	236238.85	707.86
P218	657187.20	236241.79	708.08

NOTES:

FOR LEGEND AND GENERAL NOTES, SEE SHEET 270

(A) SEE DRIVEWAY TABULATION, SHEET 37

0 10 20
SCALE IN FEET

℄ 4TH ST

I214
I213
I212
P217
P218
I210
P216
P215
PROFILE WALKBLLT
SEE SHEET 285
5.0' WALK
B618 C&G
1.5%
1.5%
6"
0"
1.3%
0"
4"
4"
0"
1.3%
0"
9"
RELOCATE CATCH BASIN
LOW POINT
6.0' BLVD
2.0%

49
50
51

℄ BLUFF ST

I204
LOW POINT
2.0%
I203
9"
0"
0"
9"
P206
0"
0.75%
0"
9"
2.0%
1.5%
P207
B618 C&G
P205
I202
9"
5.0' WALK
I200
I201
DRIVEWAY - BITUMINOUS
STA 50+89

SEE SHEET 272

NO	DATE	BY	CKD	APPR	REVISION

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Date _____ License # 43935

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MINNESOTA STATE PROJECT NO. 2513-91

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DESIGNED BY M. GERRITY
CHECKED BY A. DEBRUIN
COMM. NO. 0158933

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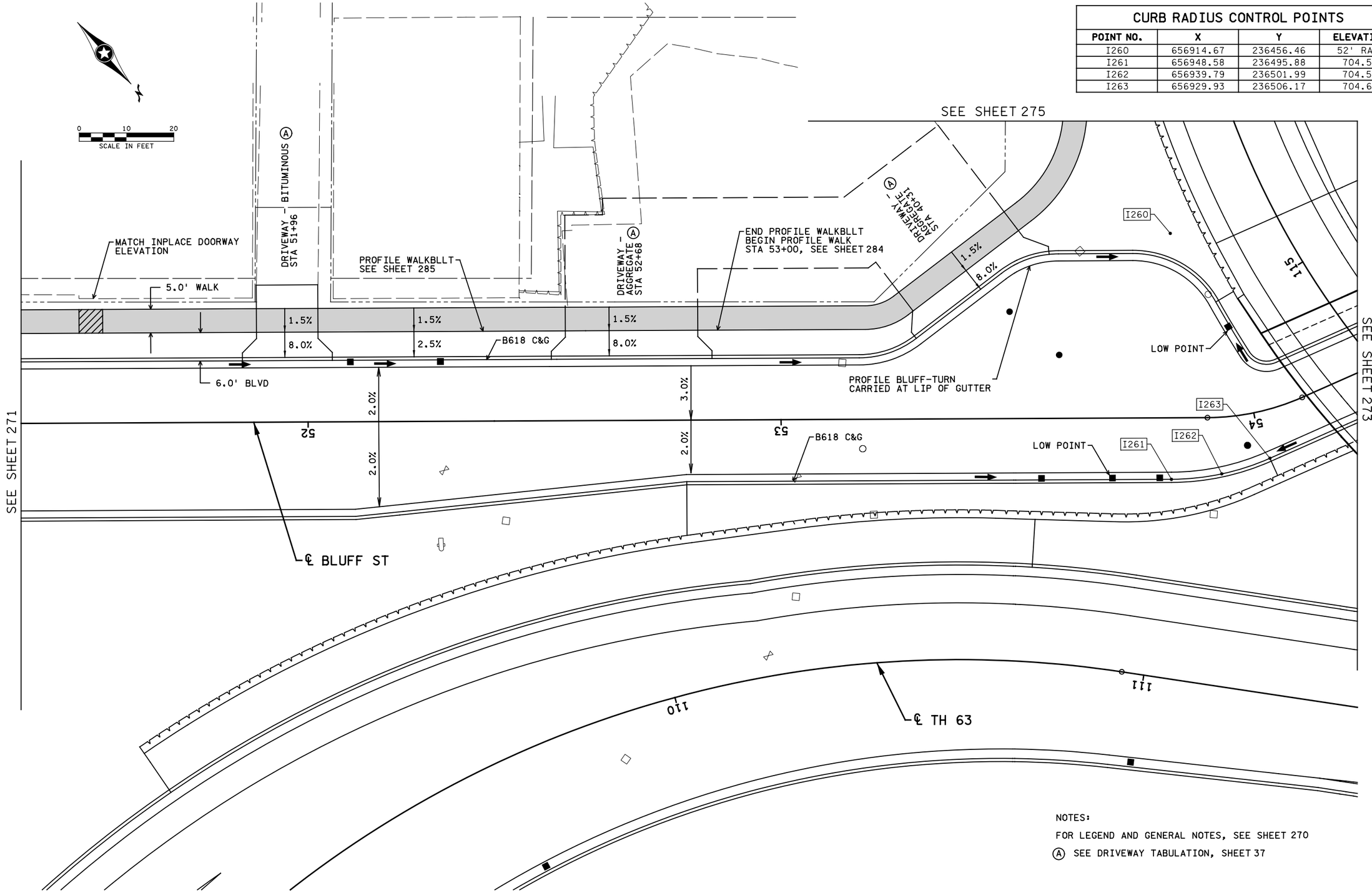
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INTERSECTION AND SIDEWALK DETAILS
SP 2515-21 (TH 63)

SHEET 271 OF 688

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CURB RADIUS CONTROL POINTS			
POINT NO.	X	Y	ELEVATION
I260	656914.67	236456.46	52' RAD.
I261	656948.58	236495.88	704.55
I262	656939.79	236501.99	704.56
I263	656929.93	236506.17	704.64



NOTES:

FOR LEGEND AND GENERAL NOTES, SEE SHEET 270

Ⓐ SEE DRIVEWAY TABULATION, SHEET 37

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Print Name: MICHELLE M. GERRITY

Date _____ License # 43935

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY M. GERRITY

DESIGNED BY M. GERRITY

CHECKED BY A. DEBRUIN

COMM. NO. 0158933

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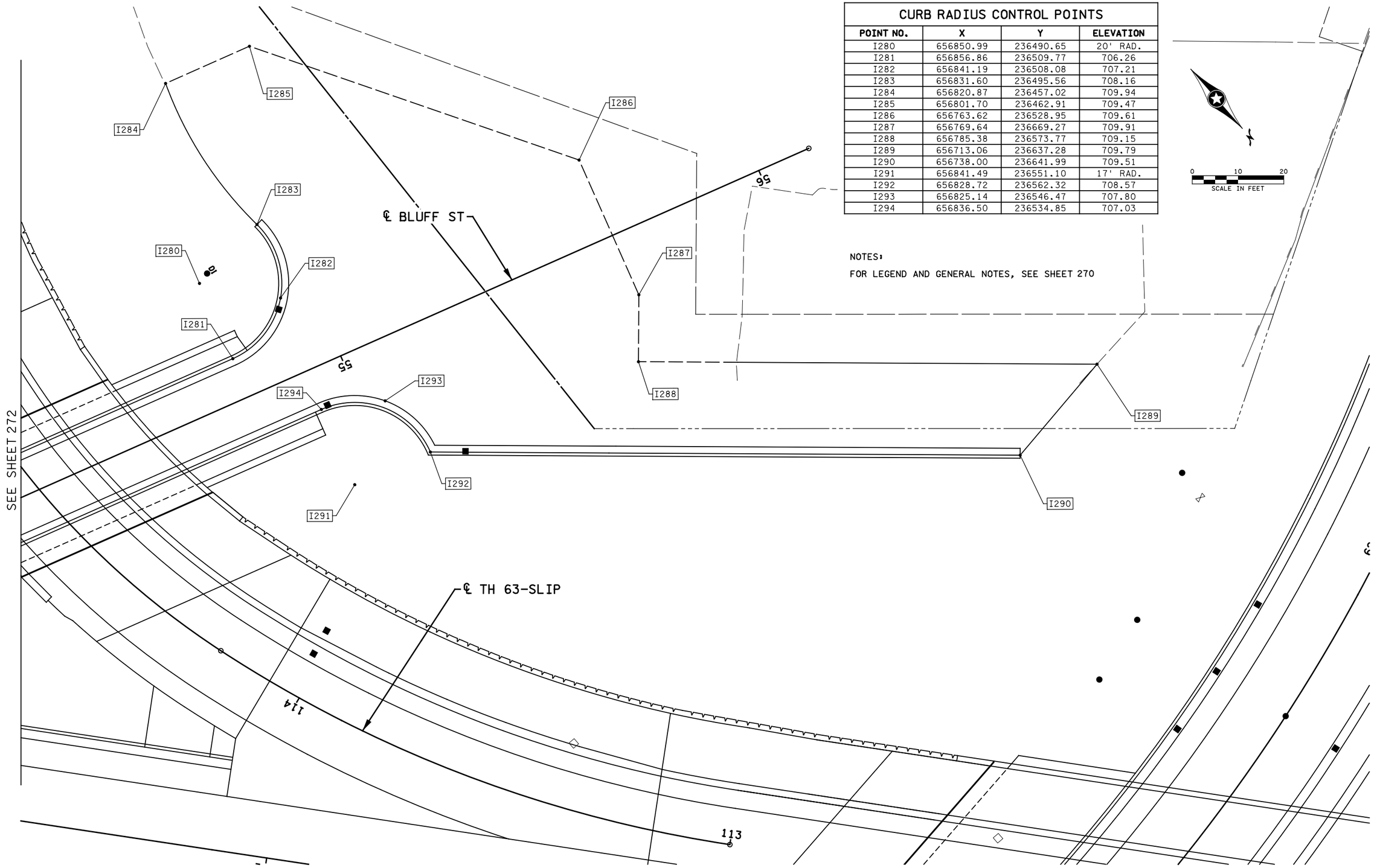
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INTERSECTION AND SIDEWALK DETAILS

SP 2515-21 (TH 63)

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CURB RADIUS CONTROL POINTS			
POINT NO.	X	Y	ELEVATION
I280	656850.99	236490.65	20' RAD.
I281	656856.86	236509.77	706.26
I282	656841.19	236508.08	707.21
I283	656831.60	236495.56	708.16
I284	656820.87	236457.02	709.94
I285	656801.70	236462.91	709.47
I286	656763.62	236528.95	709.61
I287	656769.64	236669.27	709.91
I288	656785.38	236573.77	709.15
I289	656713.06	236637.28	709.79
I290	656738.00	236641.99	709.51
I291	656841.49	236551.10	17' RAD.
I292	656828.72	236562.32	708.57
I293	656825.14	236546.47	707.80
I294	656836.50	236534.85	707.03

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SCALE IN FEET

NOTES:

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Date _____ License # 43935

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DESIGNED BY M. GERRITY

CHECKED BY A. DEBRUIN

COMM. NO. 0158933

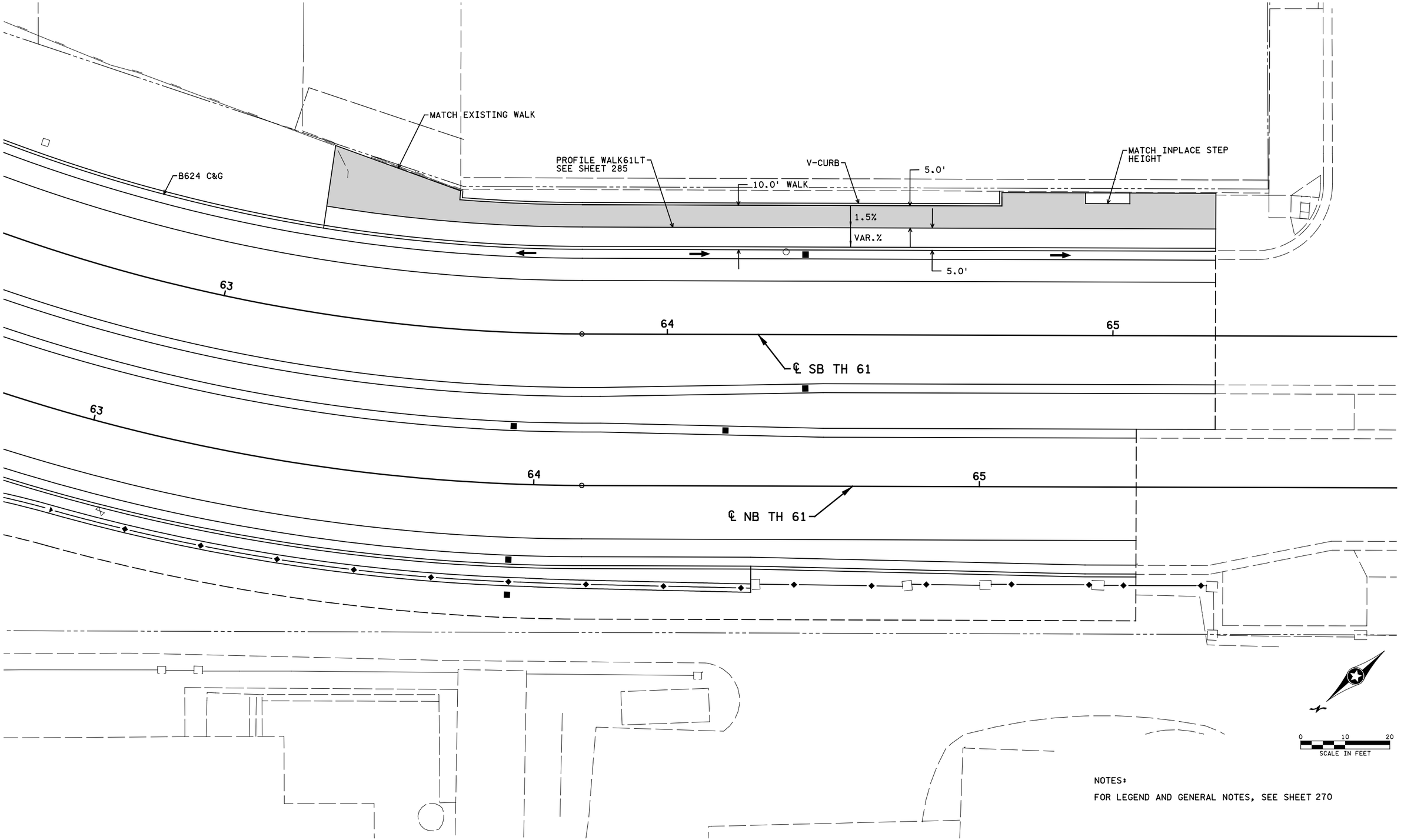
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INTERSECTION AND SIDEWALK DETAILS
SP 2515-21 (TH 63)

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NOTES:

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DESIGNED BY M. GERRITY

CHECKED BY A. DEBRUIN

COMM. NO. 0158933

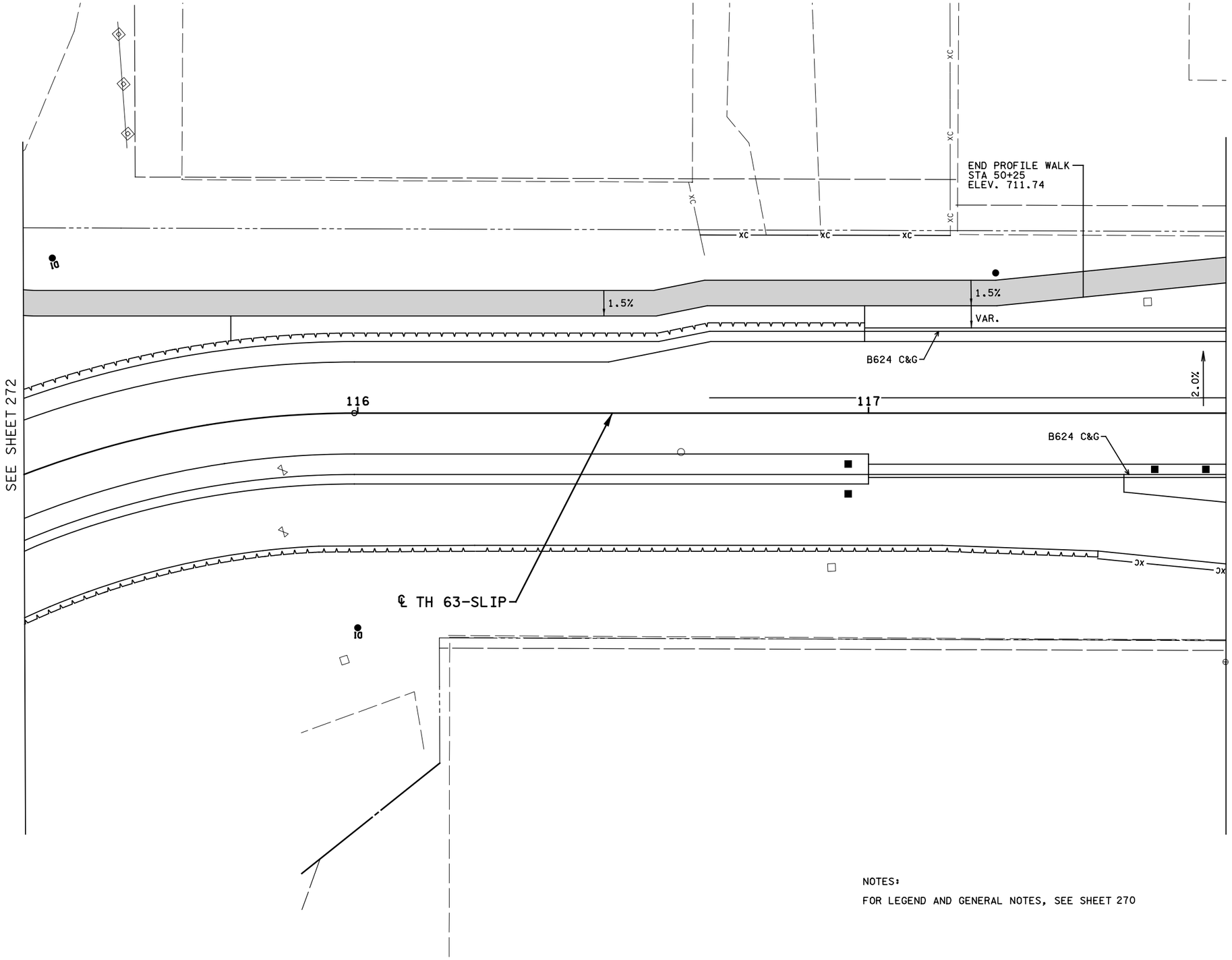
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INTERSECTION AND SIDEWALK DETAILS
SP 2515-21 (TH 63)

SHEET 274 OF 688

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NOTES:

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...\FinalPlanDGN\cd251521_pd06.dgn

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Date _____ License # 43935

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY M. GERRITY
DESIGNED BY M. GERRITY
CHECKED BY A. DEBRUIN
COMM. NO. 0158933

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INTERSECTION AND SIDEWALK DETAILS
SP 2515-21 (TH 63)

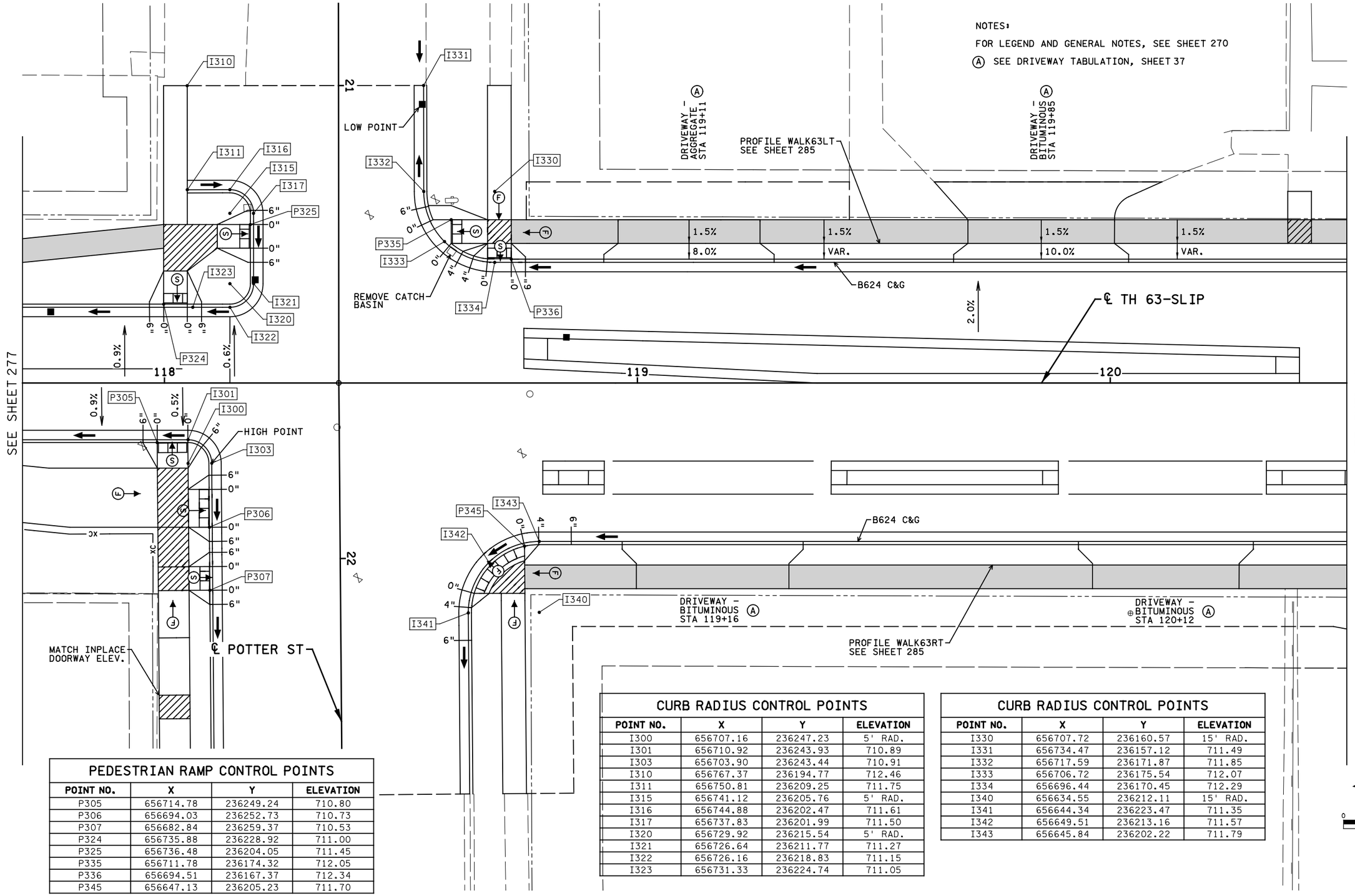
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NOTES:

FOR LEGEND AND GENERAL NOTES, SEE SHEET 270

(A) SEE DRIVEWAY TABULATION, SHEET 37



PEDESTRIAN RAMP CONTROL POINTS

POINT NO.	X	Y	ELEVATION
P305	656714.78	236249.24	710.80
P306	656694.03	236252.73	710.73
P307	656682.84	236259.37	710.53
P324	656735.88	236228.92	711.00
P325	656736.48	236204.05	711.45
P335	656711.78	236174.32	712.05
P336	656694.51	236167.37	712.34
P345	656647.13	236205.23	711.70

CURB RADIUS CONTROL POINTS

POINT NO.	X	Y	ELEVATION
I300	656707.16	236247.23	5' RAD.
I301	656710.92	236243.93	710.89
I303	656703.90	236243.44	710.91
I310	656767.37	236194.77	712.46
I311	656750.81	236209.25	711.75
I315	656741.12	236205.76	5' RAD.
I316	656744.88	236202.47	711.61
I317	656737.83	236201.99	711.50
I320	656729.92	236215.54	5' RAD.
I321	656726.64	236211.77	711.27
I322	656726.16	236218.83	711.15
I323	656731.33	236224.74	711.05

CURB RADIUS CONTROL POINTS

POINT NO.	X	Y	ELEVATION
I330	656707.72	236160.57	15' RAD.
I331	656734.47	236157.12	711.49
I332	656717.59	236171.87	711.85
I333	656706.72	236175.54	712.07
I334	656696.44	236170.45	712.29
I340	656634.55	236212.11	15' RAD.
I341	656644.34	236223.47	711.35
I342	656649.51	236213.16	711.57
I343	656645.84	236202.22	711.79

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SCALE IN FEET

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					...\FinalPlanDGN\cd251521_pd07.dgn

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Date _____ License # 43935

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY M. GERRITY

DESIGNED BY M. GERRITY

CHECKED BY A. DEBRUIN

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

INTERSECTION AND SIDEWALK DETAILS
SP 2515-21 (TH 63)

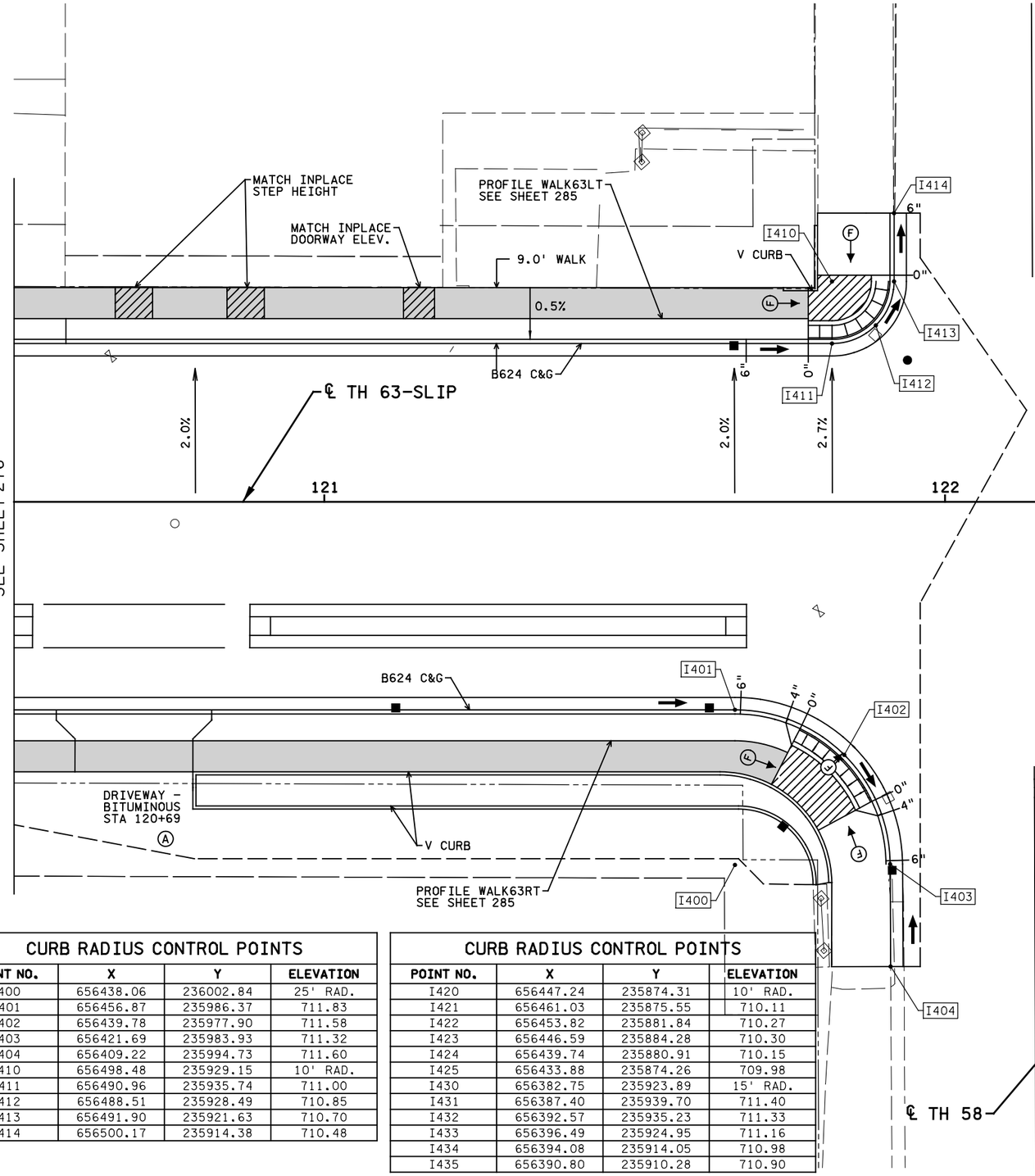
SHEET 276 OF 688

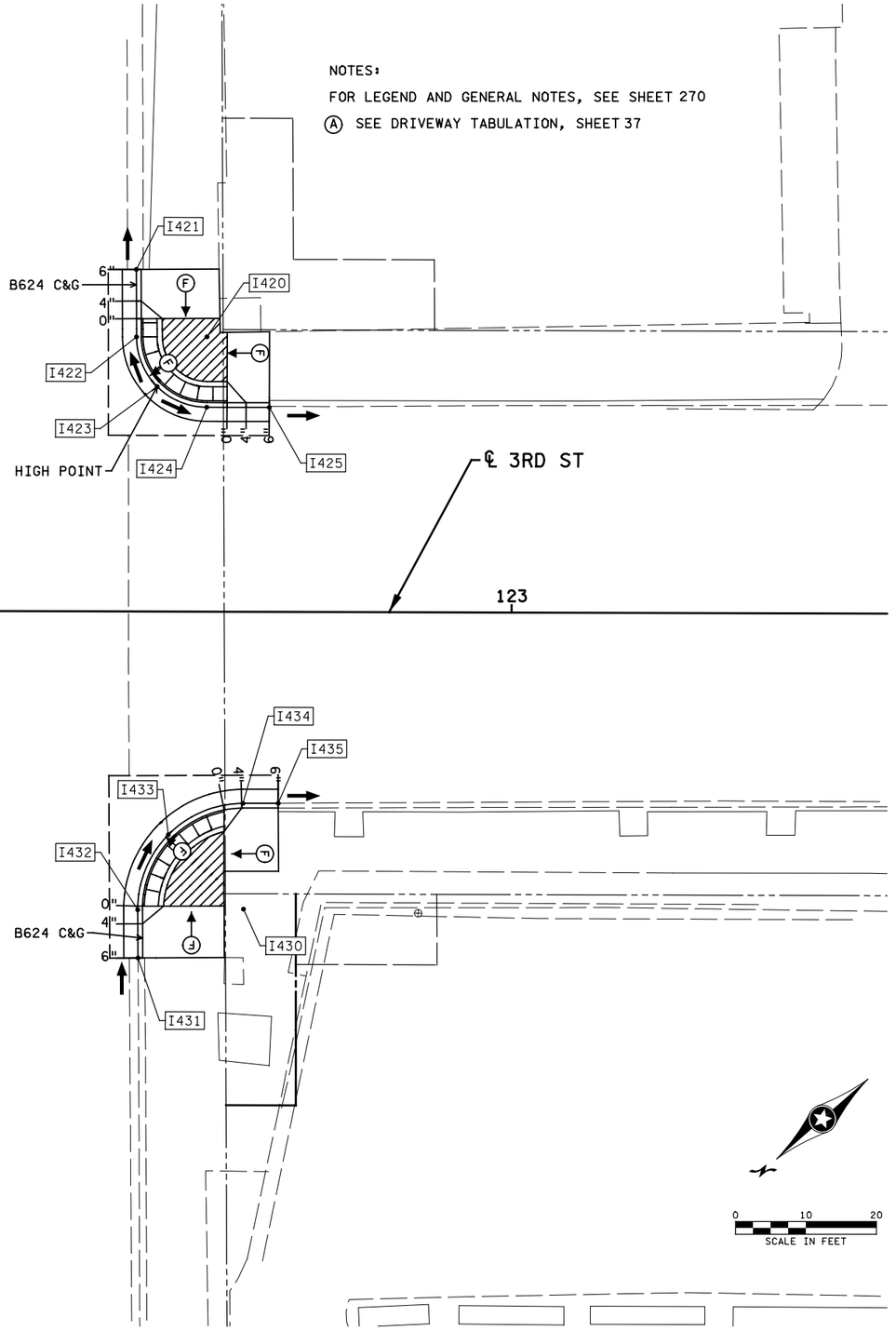
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NOTES:

FOR LEGEND AND GENERAL NOTES, SEE SHEET 270

(A) SEE DRIVEWAY TABULATION, SHEET 37





CURB RADIUS CONTROL POINTS

POINT NO.	X	Y	ELEVATION
I400	656438.06	236002.84	25' RAD.
I401	656456.87	235986.37	711.83
I402	656439.78	235977.90	711.58
I403	656421.69	235983.93	711.32
I404	656409.22	235994.73	711.60
I410	656498.48	235929.15	10' RAD.
I411	656490.96	235935.74	711.00
I412	656488.51	235928.49	710.85
I413	656491.90	235921.63	710.70
I414	656500.17	235914.38	710.48

CURB RADIUS CONTROL POINTS

POINT NO.	X	Y	ELEVATION
I420	656447.24	235874.31	10' RAD.
I421	656461.03	235875.55	710.11
I422	656453.82	235881.84	710.27
I423	656446.59	235884.28	710.30
I424	656439.74	235880.91	710.15
I425	656433.88	235874.26	709.98
I430	656382.75	235923.89	15' RAD.
I431	656387.40	235939.70	711.40
I432	656392.57	235935.23	711.33
I433	656396.49	235924.95	711.16
I434	656394.08	235914.05	710.98
I435	656390.80	235910.28	710.90

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Date _____ License # 43935

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY M. GERRITY

DESIGNED BY M. GERRITY

CHECKED BY A. DEBRUIN

COMM. NO. 0158933

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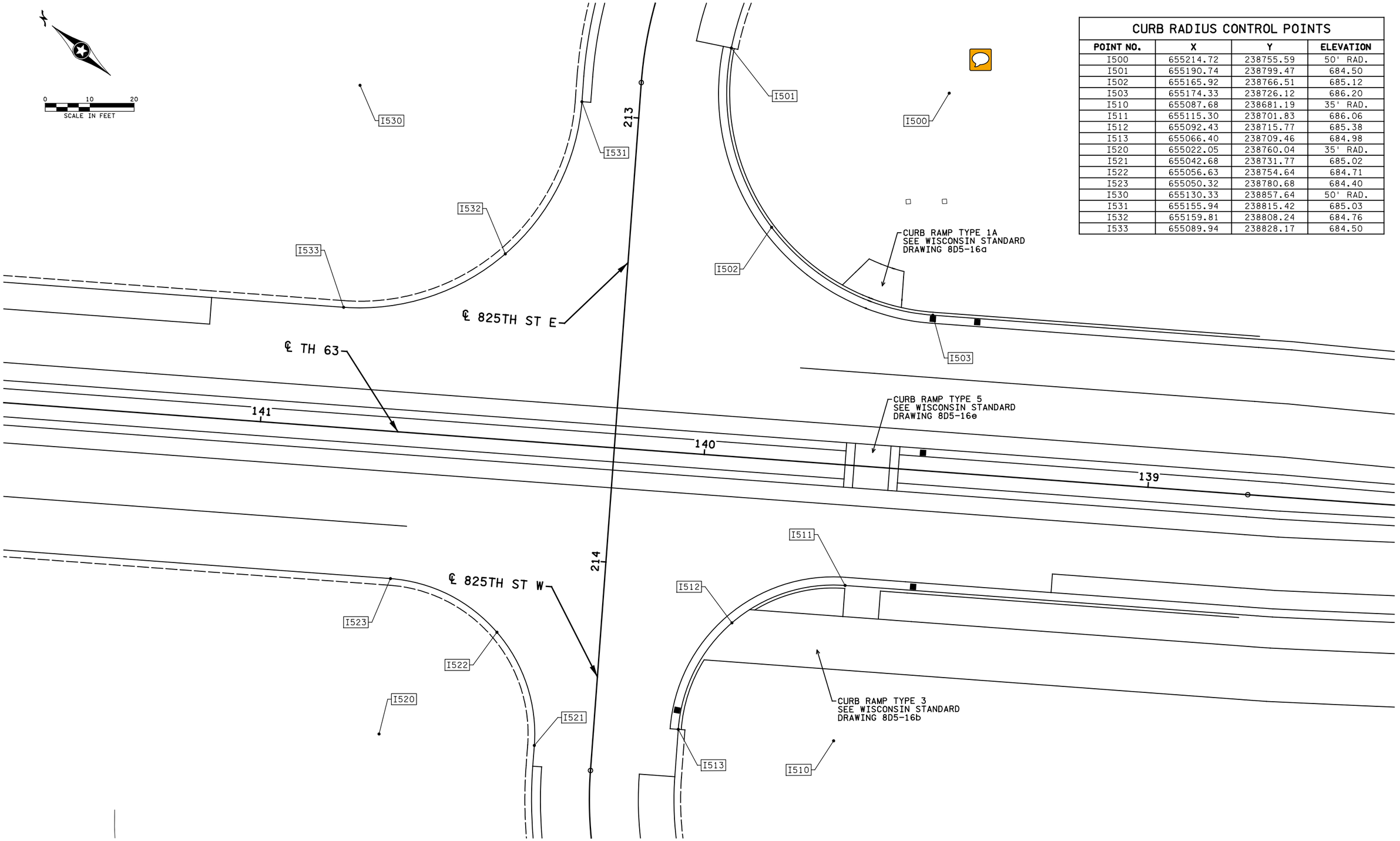
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INTERSECTION AND SIDEWALK DETAILS

SP 2515-21 (TH 63)

SHEET 277 OF 688

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CURB RADIUS CONTROL POINTS

POINT NO.	X	Y	ELEVATION
I500	655214.72	238755.59	50' RAD.
I501	655190.74	238799.47	684.50
I502	655165.92	238766.51	685.12
I503	655174.33	238726.12	686.20
I510	655087.68	238681.19	35' RAD.
I511	655115.30	238701.83	686.06
I512	655092.43	238715.77	685.38
I513	655066.40	238709.46	684.98
I520	655022.05	238760.04	35' RAD.
I521	655042.68	238731.77	685.02
I522	655056.63	238754.64	684.71
I523	655050.32	238780.68	684.40
I530	655130.33	238857.64	50' RAD.
I531	655155.94	238815.42	685.03
I532	655159.81	238808.24	684.76
I533	655089.94	238828.17	684.50

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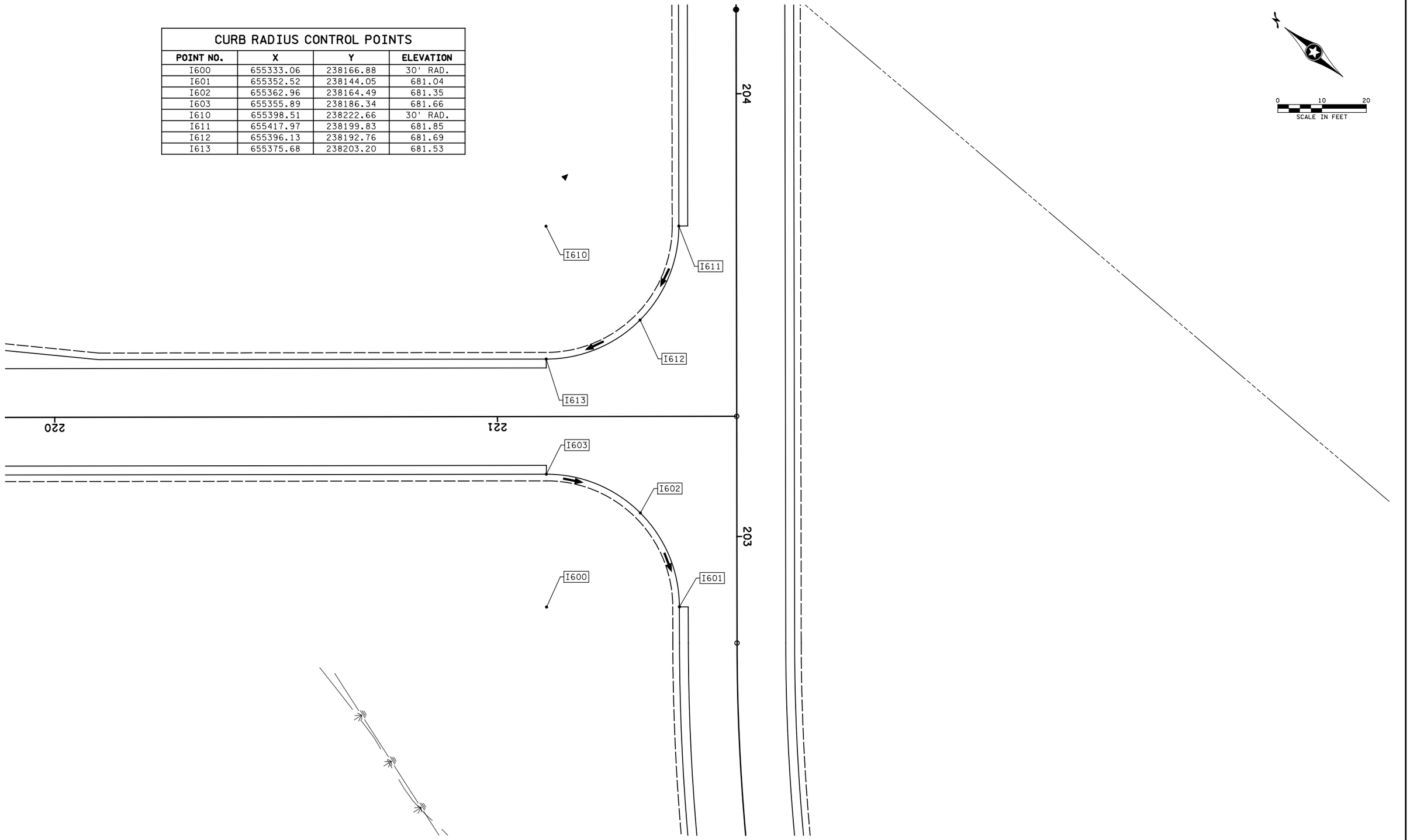
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INTERSECTION AND SIDEWALK DETAILS
SP 2515-21 (TH 63)

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CURB RADIUS CONTROL POINTS			
POINT NO.	**X**	**Y**	**ELEVATION**
I600	655333.06	238166.88	30' RAD.
I601	655352.52	238144.05	681.04
I602	655362.96	238164.49	681.35
I603	655355.89	238186.34	681.66
I610	655398.51	238222.66	30' RAD.
I611	655417.97	238199.83	681.85
I612	655396.13	238192.76	681.69
I613	655375.68	238203.20	681.53



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Date _____ License # 43935

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DESIGNED BY M. GERRITY

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COMM. NO. 0158933

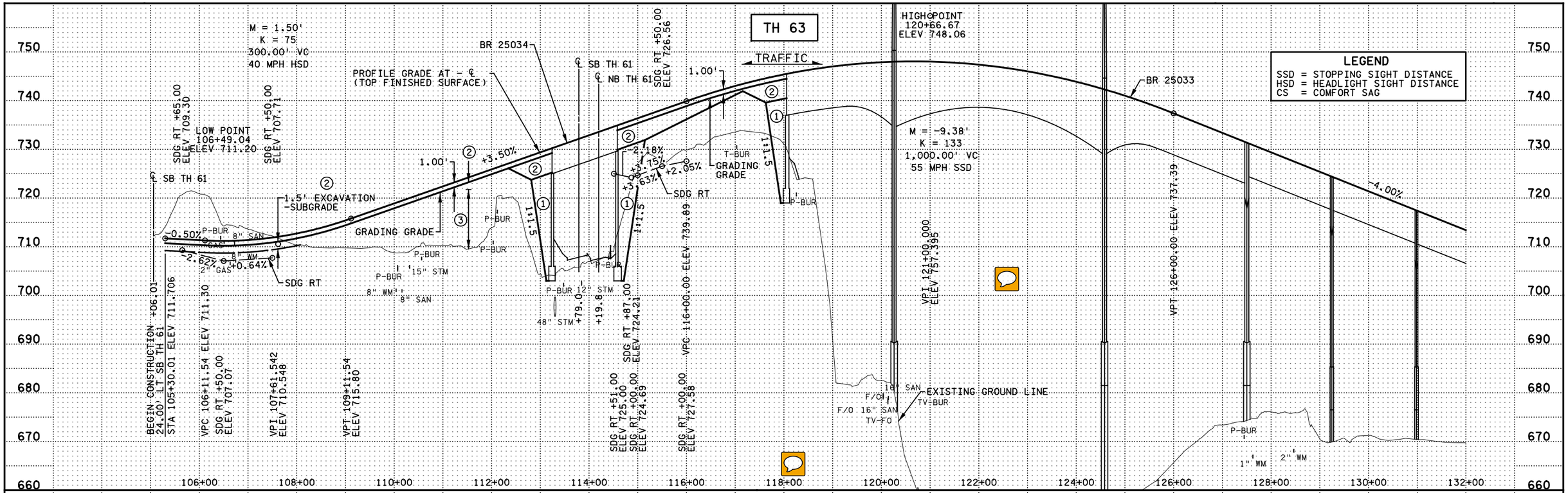
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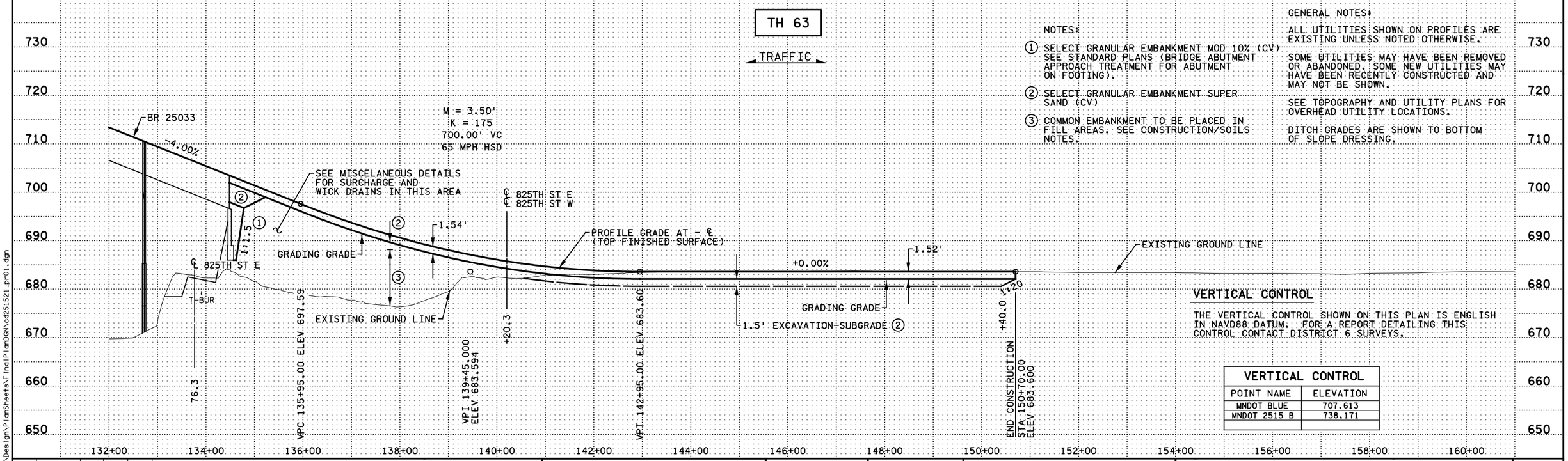
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SP 2515-21 (TH 63)

SHEET 279 OF 688

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NOTES:

① SELECT GRANULAR EMBANKMENT MOD 10% (CV) SEE STANDARD PLANS (BRIDGE ABUTMENT APPROACH TREATMENT FOR ABUTMENT ON FOOTING).

② SELECT GRANULAR EMBANKMENT SUPER SAND (CV)

③ COMMON EMBANKMENT TO BE PLACED IN FILL AREAS. SEE CONSTRUCTION/SOILS NOTES.

GENERAL NOTES:

ALL UTILITIES SHOWN ON PROFILES ARE EXISTING UNLESS NOTED OTHERWISE.

SOME UTILITIES MAY HAVE BEEN REMOVED OR ABANDONED. SOME NEW UTILITIES MAY HAVE BEEN RECENTLY CONSTRUCTED AND MAY NOT BE SHOWN.

SEE TOPOGRAPHY AND UTILITY PLANS FOR OVERHEAD UTILITY LOCATIONS.

DITCH GRADES ARE SHOWN TO BOTTOM OF SLOPE DRESSING.

VERTICAL CONTROL

THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 6 SURVEYS.

VERTICAL CONTROL	
POINT NAME	ELEVATION
MNDOT BLUE	707.613
MNDOT 2515 B	738.171

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

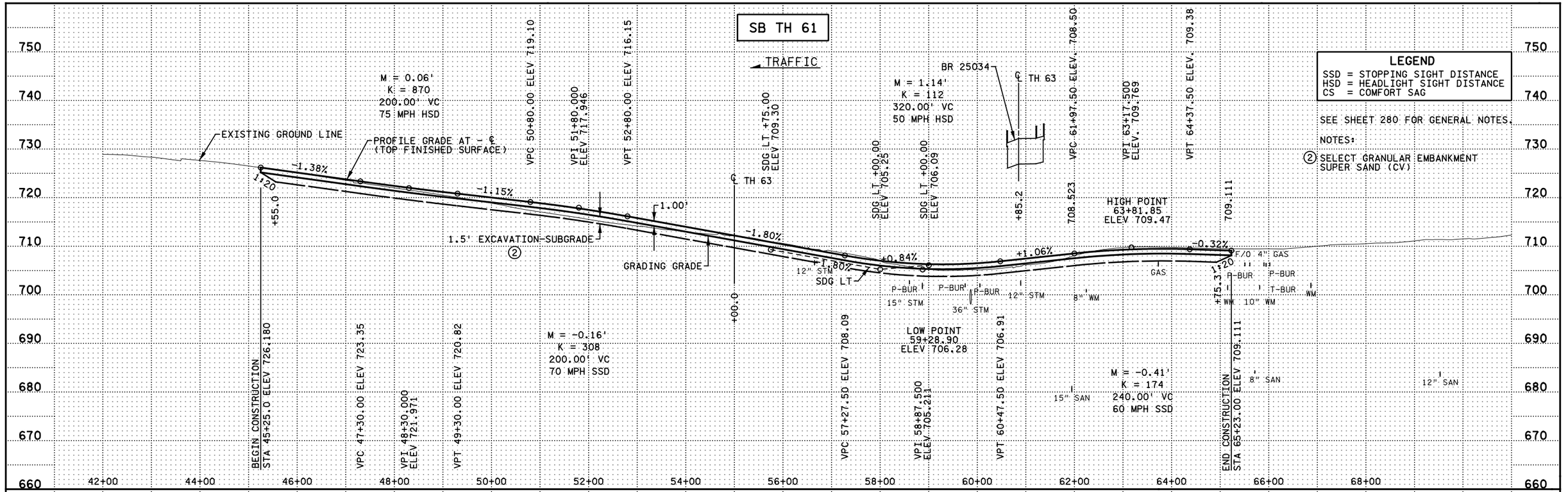
MINNESOTA DEPARTMENT OF TRANSPORTATION

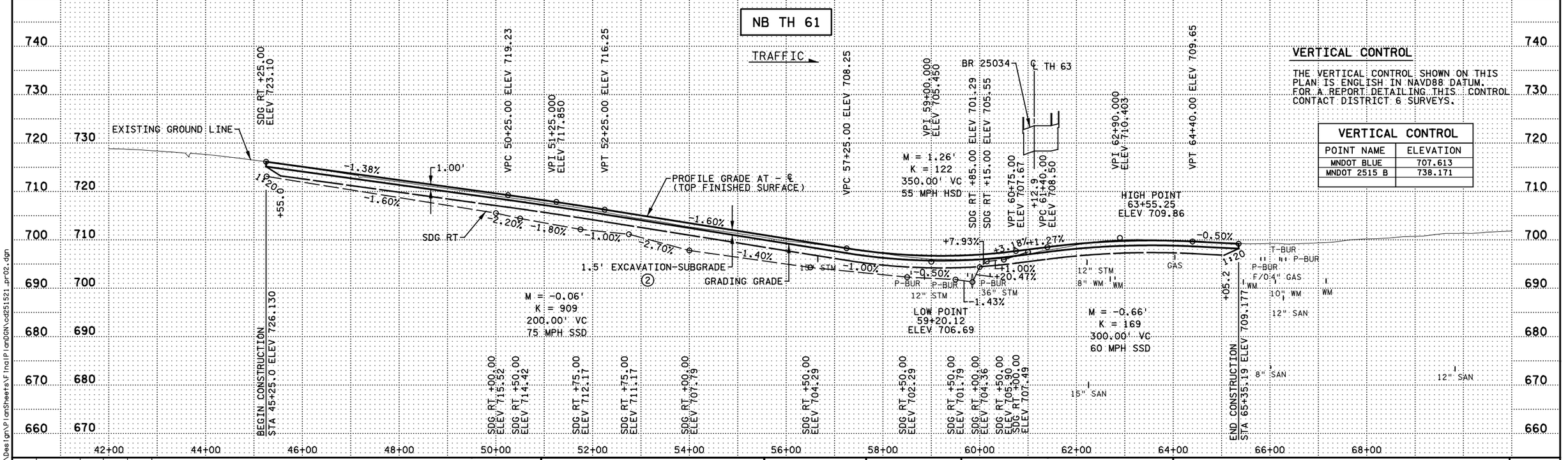
PROFILES

SP 2515-21 (TH 63)

SHEET 280 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

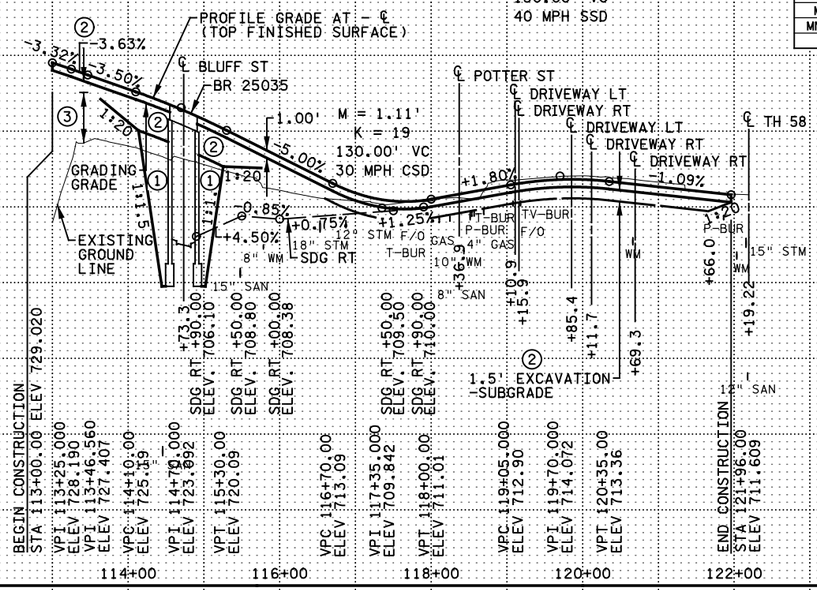
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SP 2515-21 (TH 63)

SHEET 281 OF 688

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TH 63-SLIP



VERTICAL CONTROL

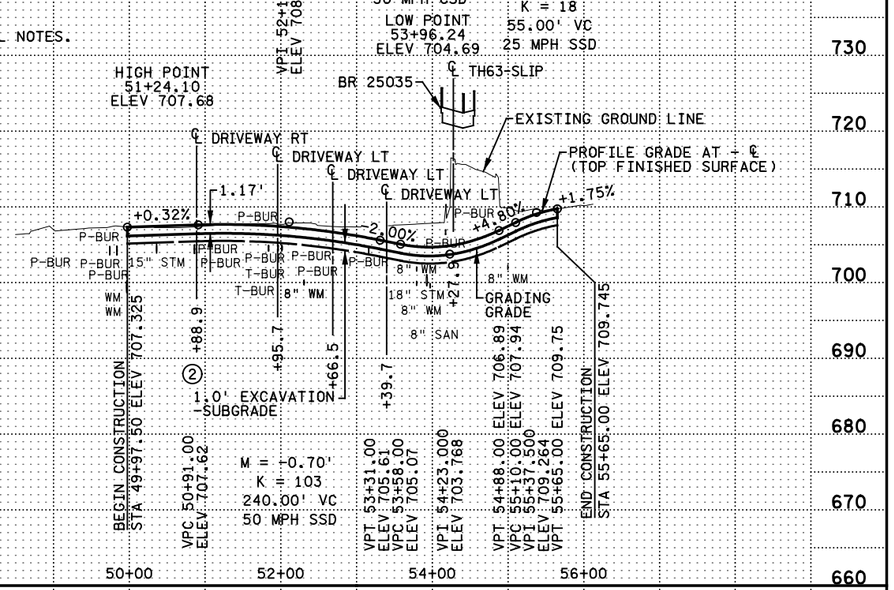
THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 6 SURVEYS.

VERTICAL CONTROL	
POINT NAME	ELEVATION
MNDOT BLUE	707.613
MNDOT 2515 B	738.171

BLUFF ST

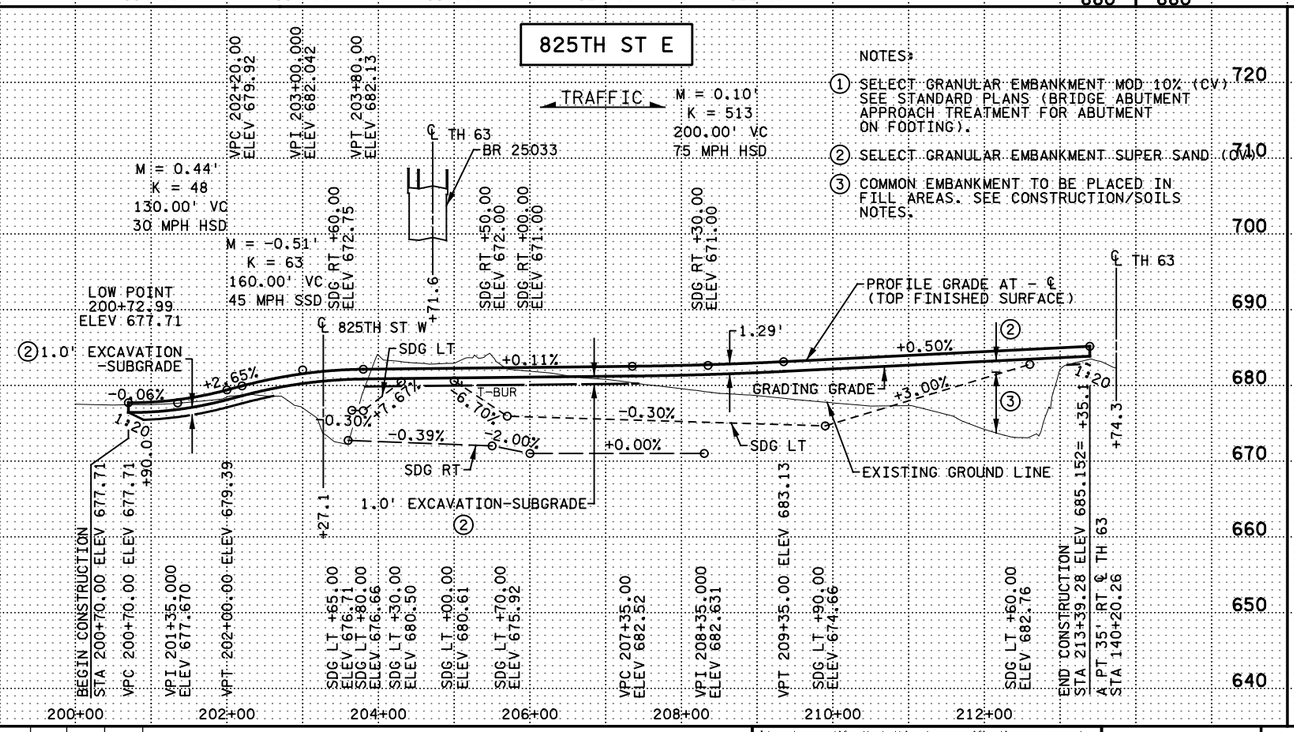
LEGEND
SSD = STOPPING SIGHT DISTANCE
HSD = HEADLIGHT SIGHT DISTANCE
CS = COMFORT SAG

SEE SHEET 280 FOR GENERAL NOTES.

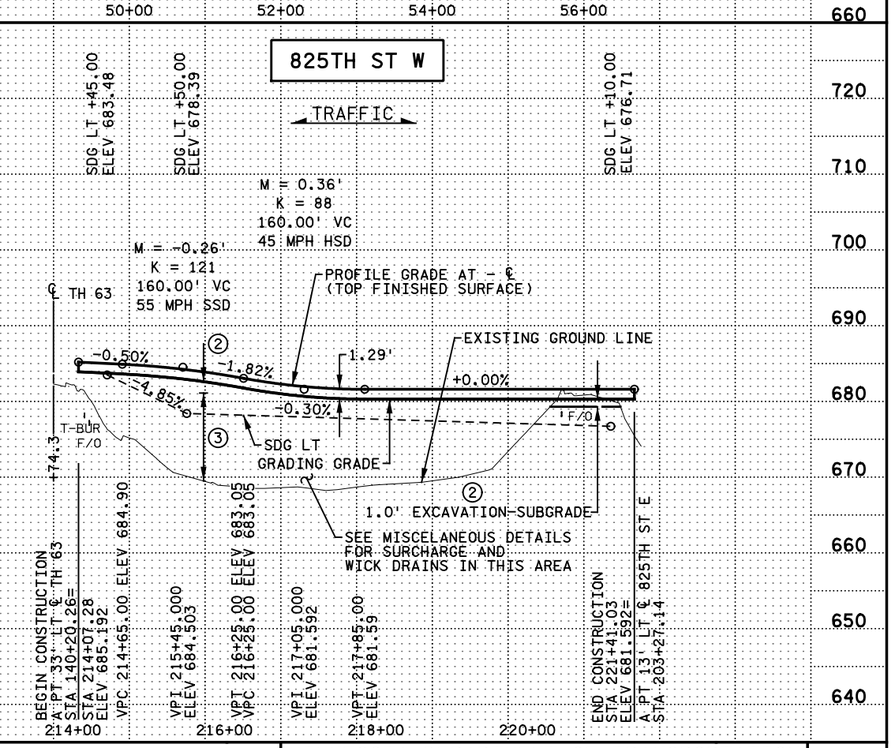


825TH ST E

NOTES:
① SELECT GRANULAR EMBANKMENT MOD 10% (CV) SEE STANDARD PLANS (BRIDGE ABUTMENT APPROACH TREATMENT FOR ABUTMENT ON FOOTING).
② SELECT GRANULAR EMBANKMENT SUPER SAND (CV).
③ COMMON EMBANKMENT TO BE PLACED IN FILL AREAS. SEE CONSTRUCTION/SOILS NOTES.



825TH ST W



NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS
Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

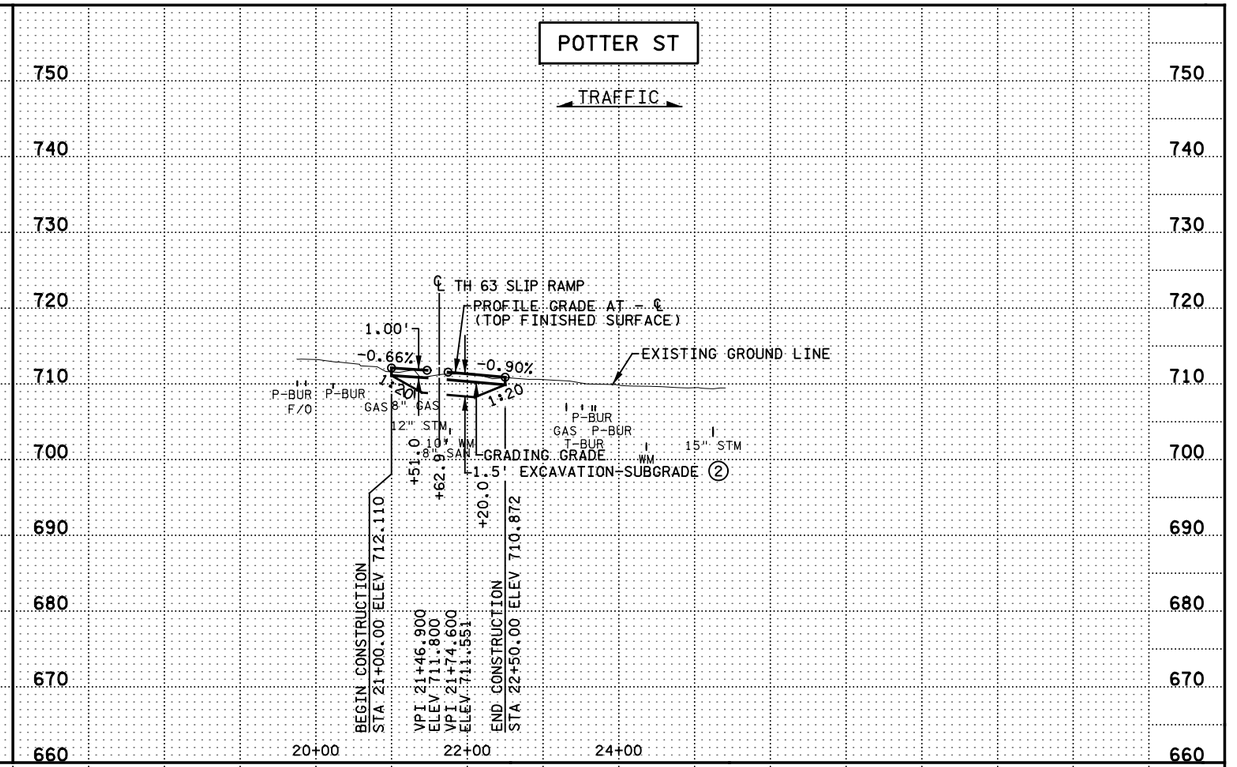
DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
PROFILES
SP 2515-21 (TH 63)

SHEET 282 OF 688

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6/2/2016
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VERTICAL CONTROL

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VERTICAL CONTROL	
POINT NAME	ELEVATION
MNDOT BLUE	707.613
MNDOT 2515 B	738.171

LEGEND
SSD = STOPPING SIGHT DISTANCE
HSD = HEADLIGHT SIGHT DISTANCE
CS = COMFORT SAG

SEE SHEET 280 FOR GENERAL NOTES.

NOTES:

(2) SELECT GRANULAR EMBANKMENT SUPER SAND (CV)

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_pr04.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

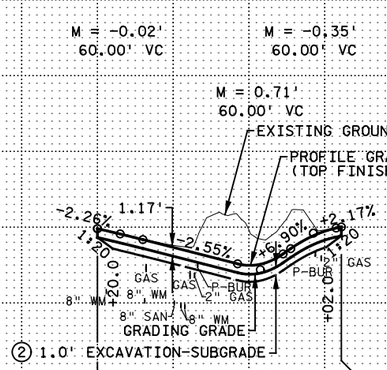
PROFILES

SP 2515-21 (TH 63)

SHEET 283 OF 688

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CUL DE SAC

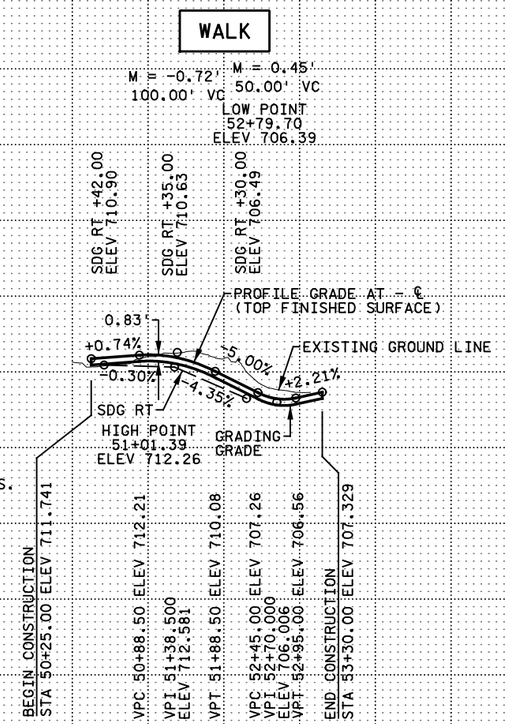


VERTICAL CONTROL

THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 6 SURVEYS.

VERTICAL CONTROL	
POINT NAME	ELEVATION
MNDOT BLUE	707.613
MNDOT 2515 B	738.171

WALK



LEGEND

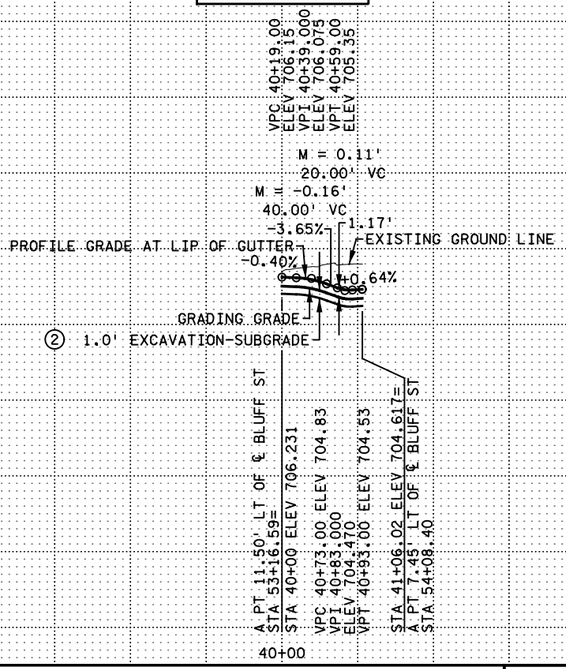
SSD = STOPPING SIGHT DISTANCE
HSD = HEADLIGHT SIGHT DISTANCE
CS = COMFORT SAG

SEE SHEET 280 FOR GENERAL NOTES.

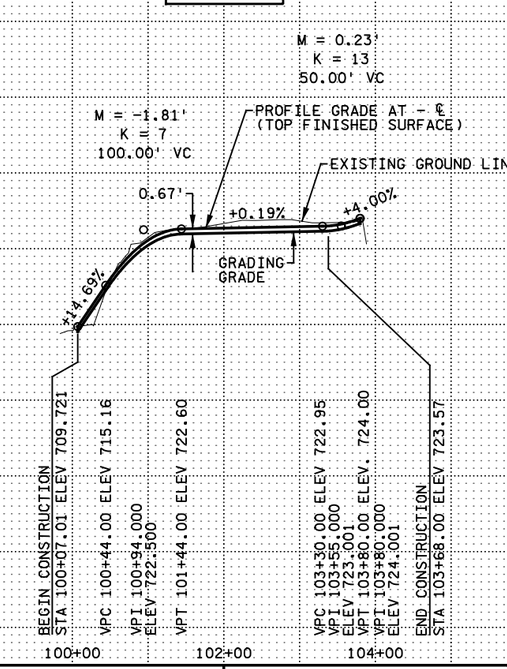
NOTES:

② SELECT GRANULAR EMBANKMENT SUPER SAND (CV)

TURNAROUND



ACCESS



NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_pr05.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

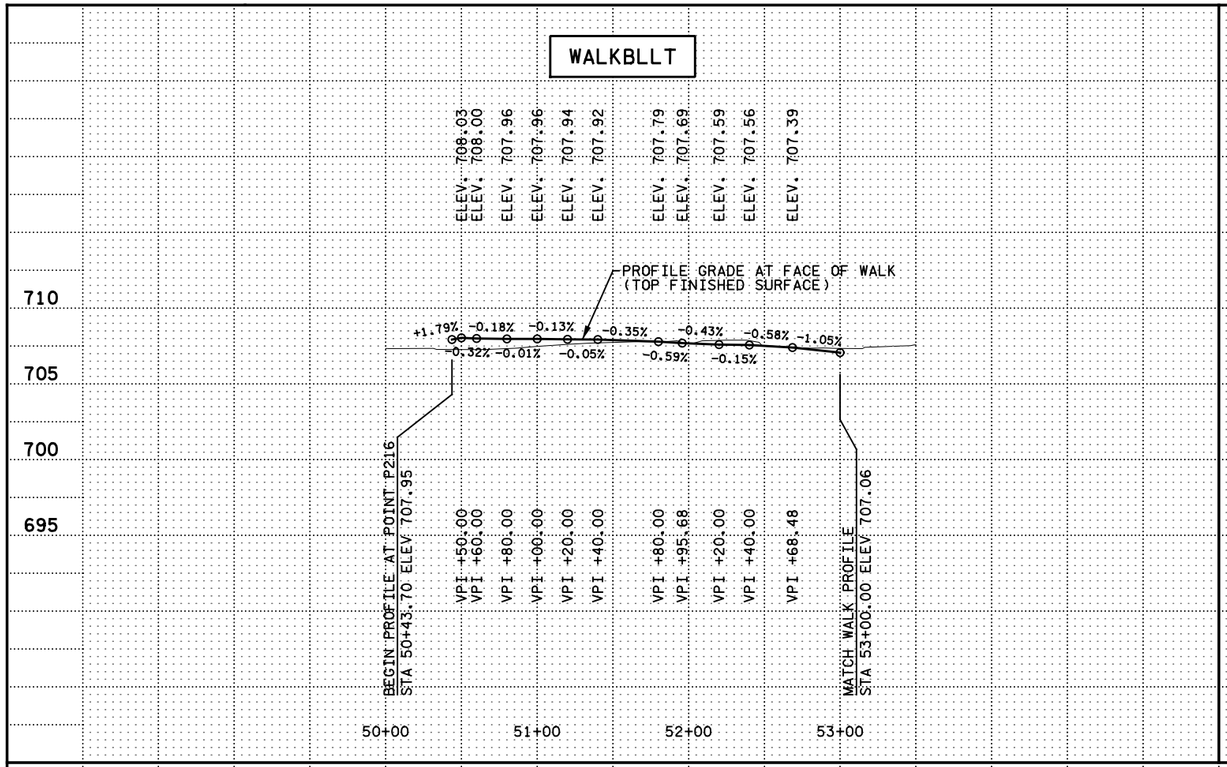
PROFILES

SP 2515-21 (TH 63)

CUL DE SAC, TURNAROUND, WALK & ACCESS PROFILES

SHEET 284 OF 688

11:34:20 AM
6/2/2016
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VERTICAL CONTROL

THE VERTICAL CONTROL SHOWN ON THIS PLAN IS ENGLISH IN NAVD88 DATUM. FOR A REPORT DETAILING THIS CONTROL CONTACT DISTRICT 6 SURVEYS.

VERTICAL CONTROL	
POINT NAME	ELEVATION
MNDOT BLUE	707.613
MNDOT 2515 B	738.171

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

PROFILES

SP 2515-21 (TH 63)

SIDEWALK PROFILES

SHEET 285 OF 688

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6/2/2016
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℄ POTTER ST

℄ TH 58

℄ TH 63-SLIP

℄ 3RD ST

118

120

122

124

20

22

102

104

106

D324 C&G

D324 C&G

D324 C&G

12' TYP. JOINT SPACING

D324 C&G

C2H-D

B624 C&G

L2KTH

L2KTH

L2KTH

L2KTH

8" NON-REINFORCED CONCRETE PAVEMENT
1.25" DOWELS

CONCRETE PAVEMENT(SPECIAL)

GENERAL NOTES:

SEE CONSTRUCTION PLANS FOR DIMENSIONS AND ADDITIONAL INFORMATION.

PROPOSED JOINTS MAY BE CHANGED AS APPROVED BY THE ENGINEER.

0 25 50
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION

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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: AMY DEBRUIN

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY

COMM. NO. 0158933

ISTHMUS engineering, inc.

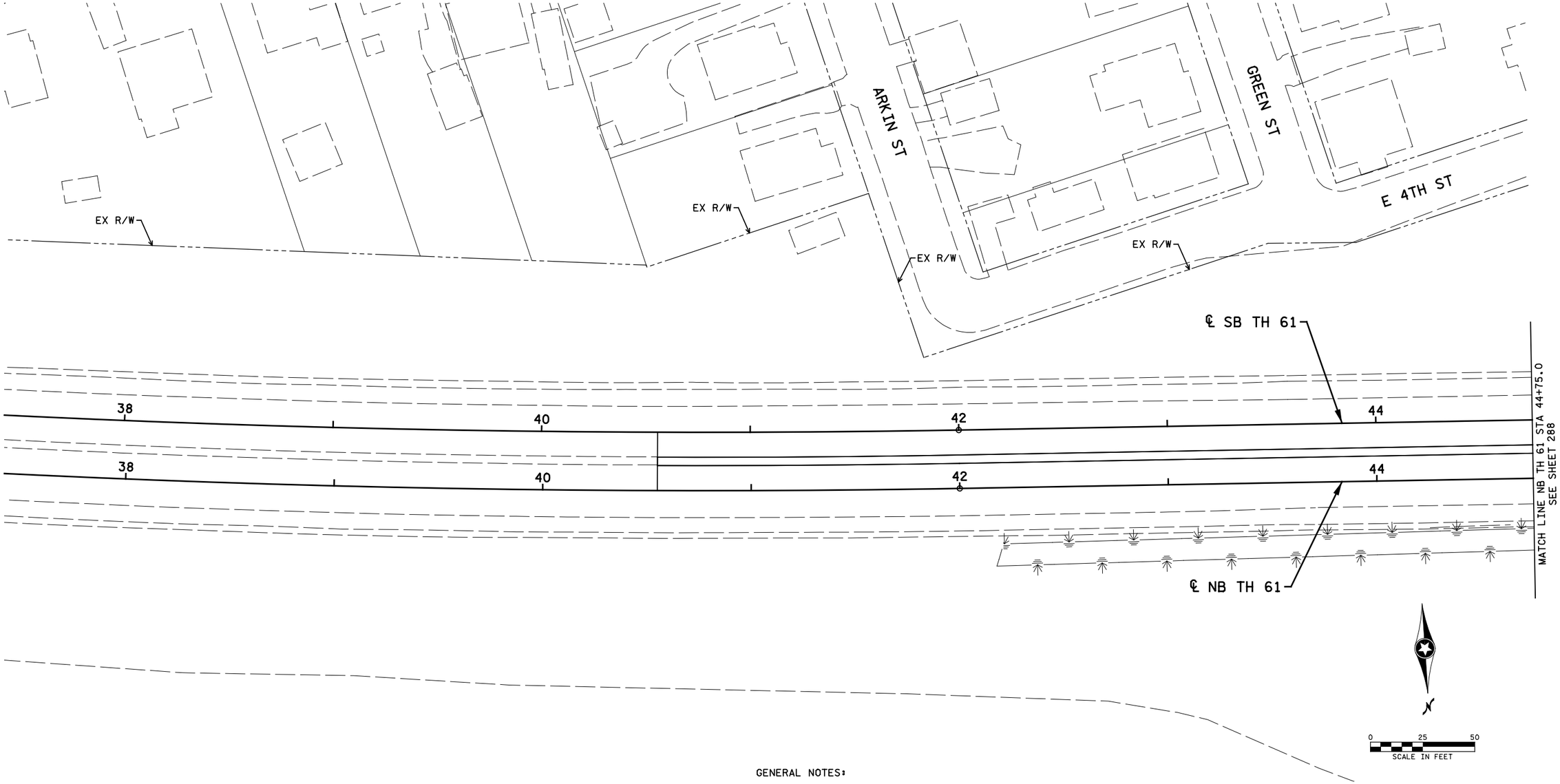
MINNESOTA DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT PLAN

SP 2515-21 (TH 63)

SHEET 286 OF 688

11:34:23 AM
6/2/2016
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GENERAL NOTES:

ALL CROSS SLOPES ARE IN FEET PER FOOT.

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

SEE CONSTRUCTION PLANS FOR DIMENSIONS AND ADDITIONAL INFORMATION NOT SHOWN ON THE SUPERELEVATION PLANS.

ALL DIMENSIONS TO CURB & GUTTER ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.

LEGEND

SUPERELEVATION TRANSITION

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_se01.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

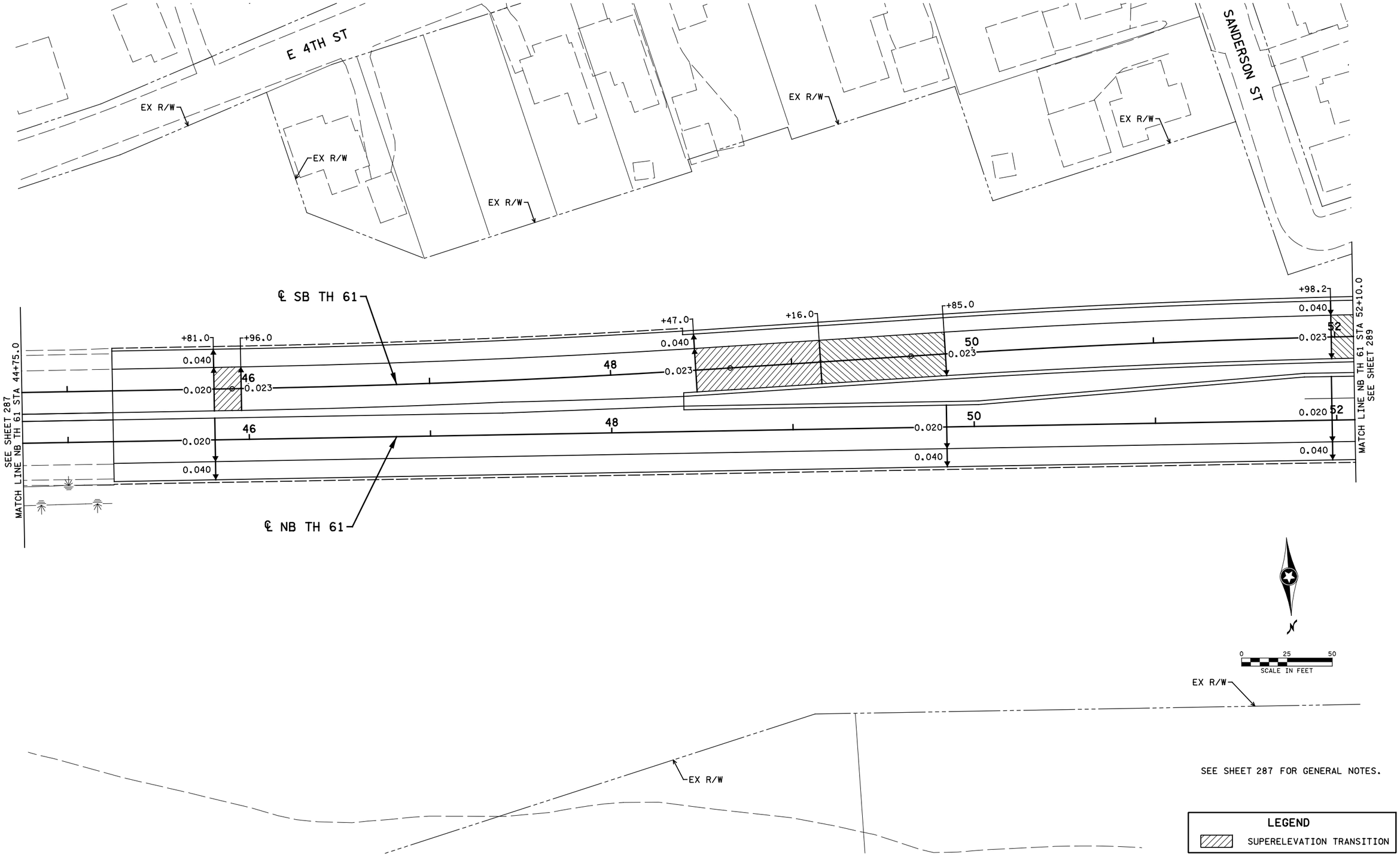
MINNESOTA DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLANS

SP 2515-21 (TH 63)

SHEET 287 OF 688

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SEE SHEET 287 FOR GENERAL NOTES.

LEGEND

SUPERELEVATION TRANSITION

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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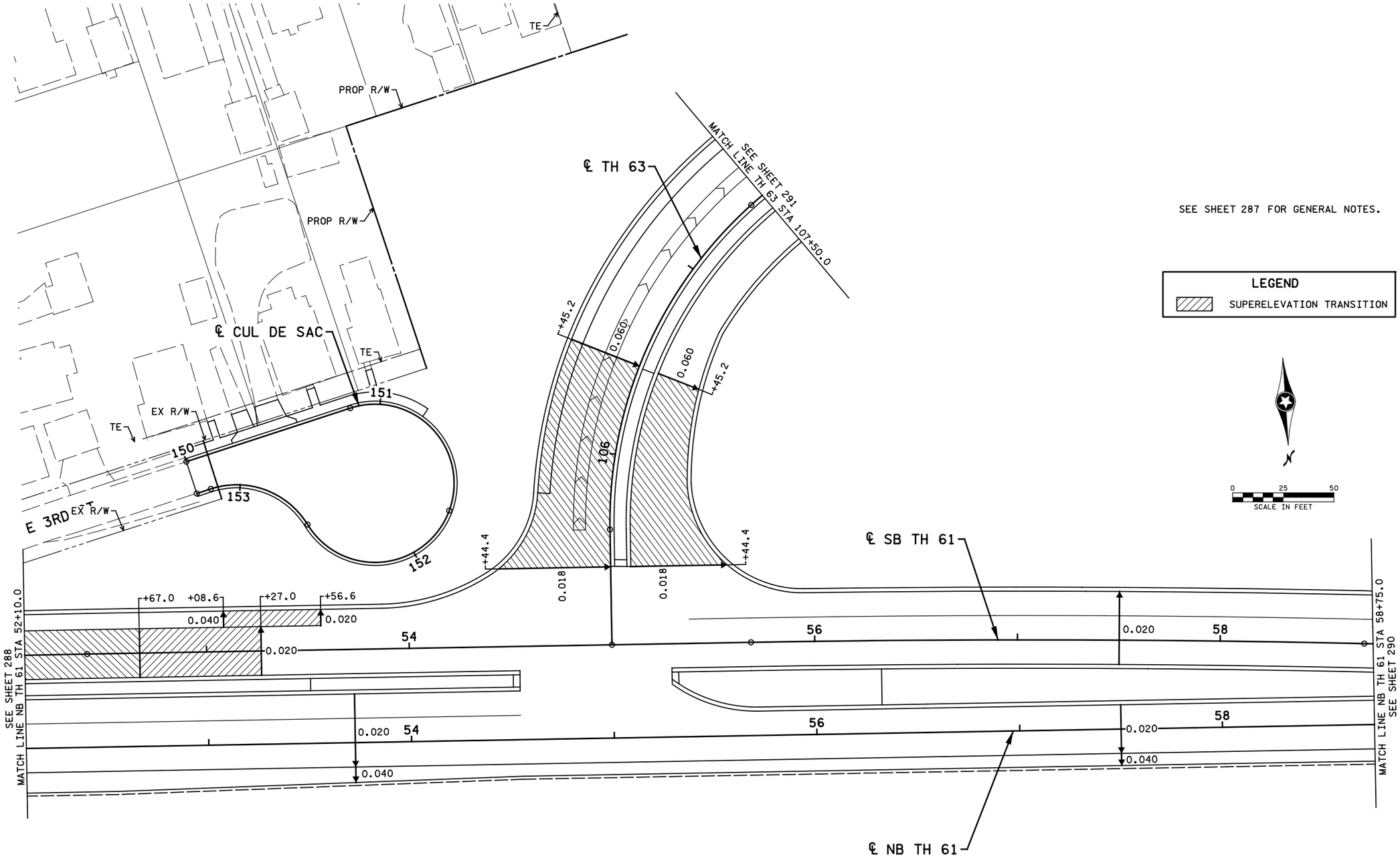
MINNESOTA DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLANS

SP 2515-21 (TH 63)

SHEET 288 OF 688

11:34:25 AM
6/22/2016
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SEE SHEET 287 FOR GENERAL NOTES.

LEGEND

SUPERELEVATION TRANSITION

0 25 50
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_se03.dgn

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

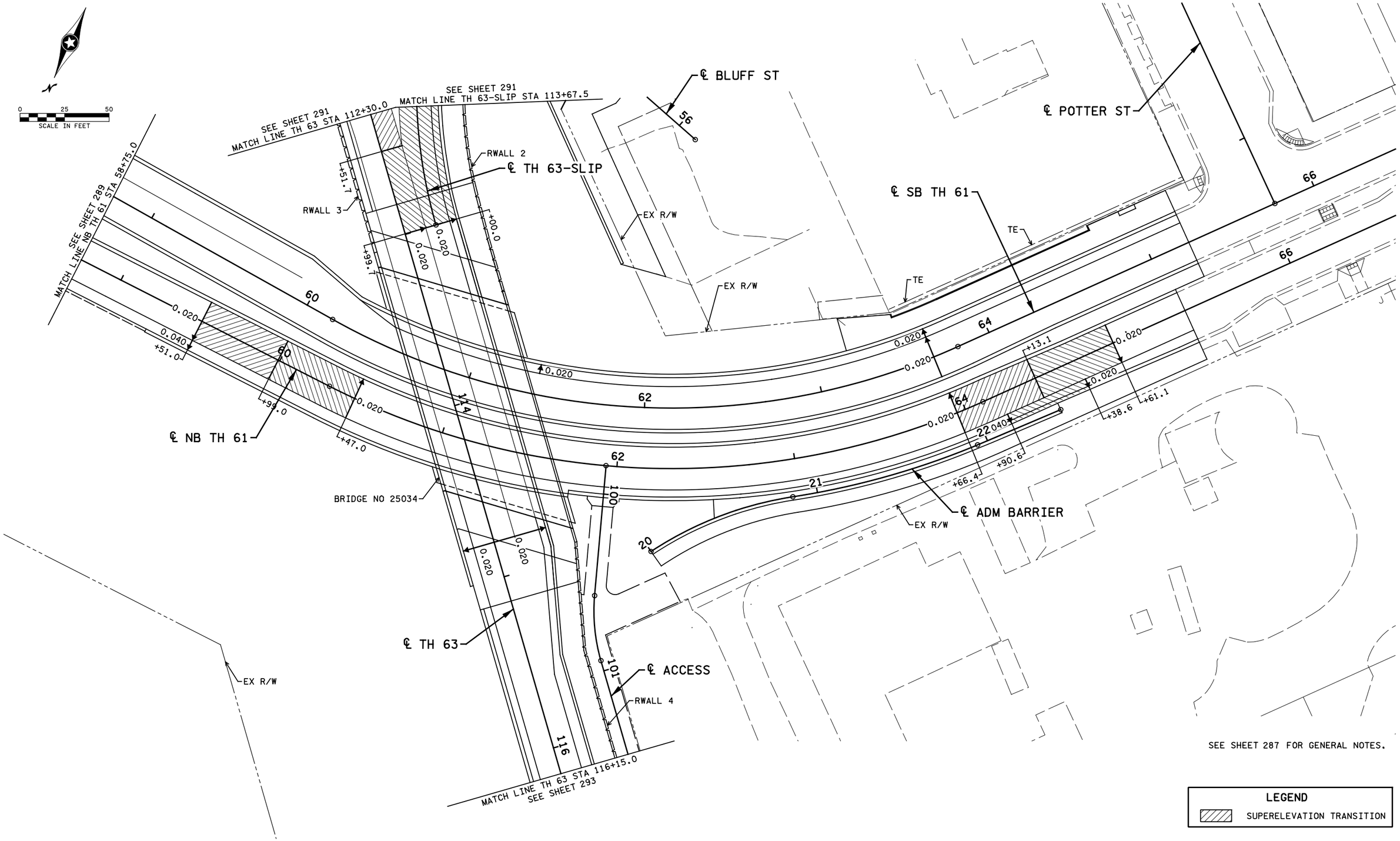
SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLANS
SP 2515-21 (TH 63)

SHEET 289 OF 688

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6/2/2016
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SEE SHEET 287 FOR GENERAL NOTES.

LEGEND

▨ SUPERELEVATION TRANSITION

NO	DATE	BY	CKD	APPR	REVISION
...\FinalPlanDGN\cd251521_se04.dgn					

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLANS

SP 2515-21 (TH 63)

SHEET 290 OF 688

11:34:26 AM
6/2/2016
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SEE SHEET 292
MATCH LINE TH 63-SLIP STA 116+40.0

℄ 4TH ST

℄ BLUFF ST

℄ WALK

℄ TURNAROUND

℄ TH 63-SLIP

℄ TH 63

EX R/W

TE

PROP R/W

RWALL 1

RWALL 5

RWALL 6

RWALL 2

BRIDGE 25035

0 25 50
SCALE IN FEET

MATCH LINE TH 63 STA 107+50.0
SEE SHEET 289

MATCH LINE TH 63 STA 112+30.0
SEE SHEET 290

MATCH LINE TH 63-SLIP STA 113+67.5
SEE SHEET 290

SEE SHEET 287 FOR GENERAL NOTES.

LEGEND
SUPERELEVATION TRANSITION

NO	DATE	BY	CKD	APPR	REVISION
...\FinalPlanDGN\cd251521_se05.dgn					

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Print Name: CRAIG J. HASS
Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

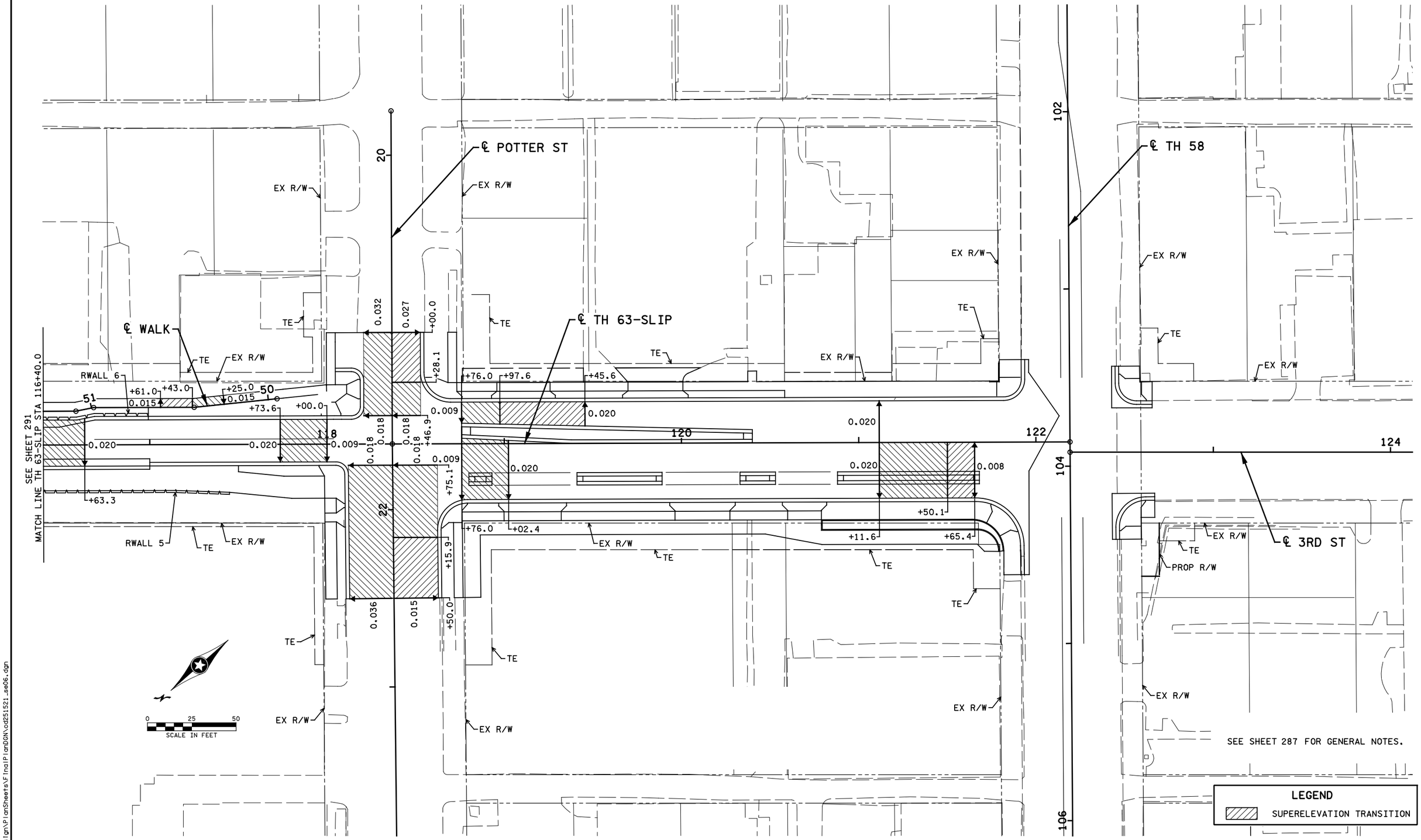
DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
SUPERELEVATION PLANS
SP 2515-21 (TH 63)

SHEET 291 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLANS

SP 2515-21 (TH 63)

SHEET 292 OF 688

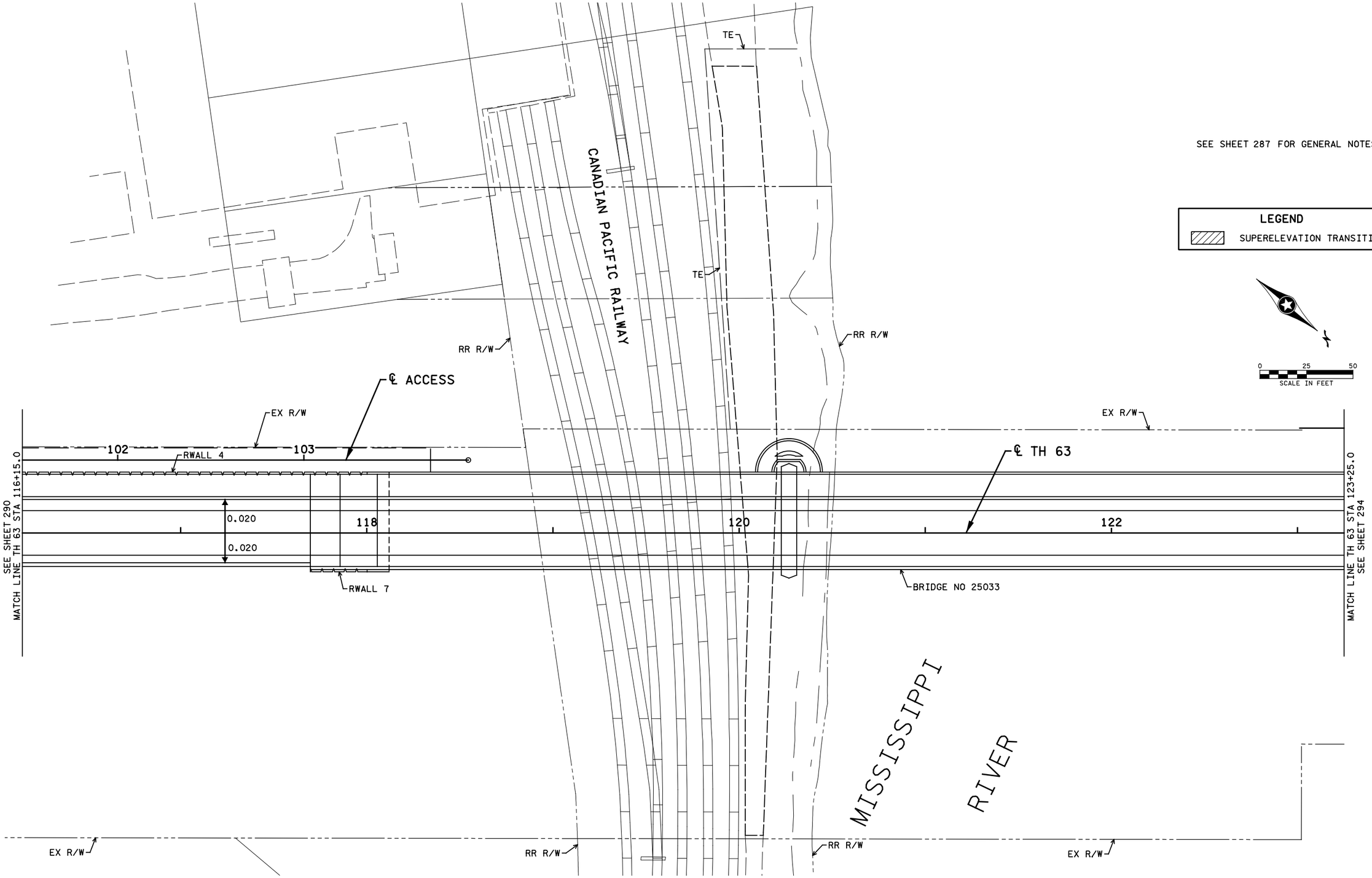
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SEE SHEET 287 FOR GENERAL NOTES.

LEGEND

SUPERELEVATION TRANSITION

0 25 50
SCALE IN FEET



NO	DATE	BY	CKD	APPR	REVISION

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

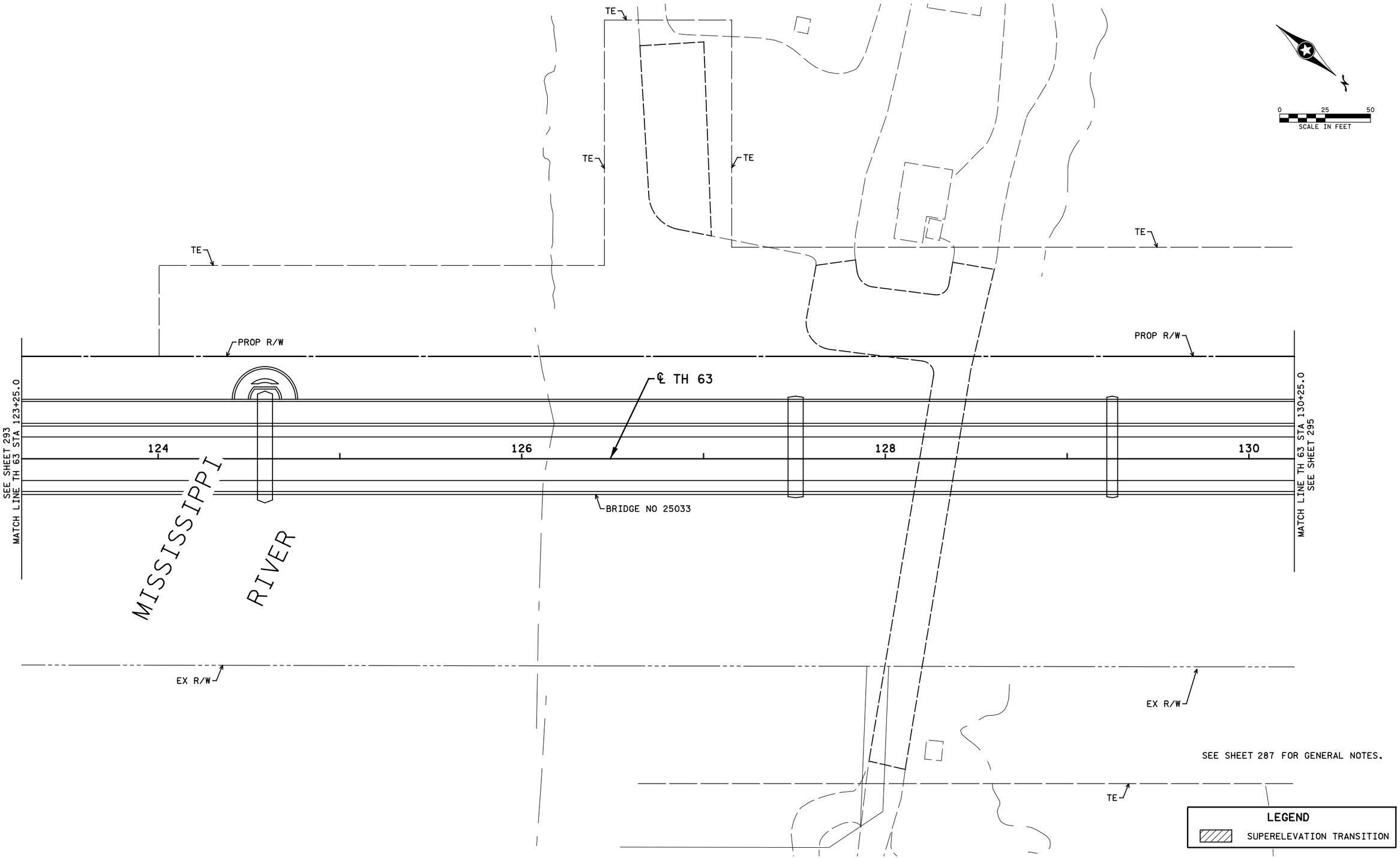
MINNESOTA DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLANS

SP 2515-21 (TH 63)

SHEET 293 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_se08.dgn

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Date _____ License # 45039

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MINNESOTA STATE PROJECT NO. 2513-91

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DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

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MINNESOTA DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLANS

SP 2515-21 (TH 63)

SHEET 294 OF 688

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LEGEND
SUPERELEVATION TRANSITION

0 50 100
SCALE IN FEET

SEE SHEET 287 FOR GENERAL NOTES.

825TH ST
200
EX R/W
EX R/W
EX R/W
EX R/W
EX R/W
℄ 825TH ST W
220
TE
EX R/W
PROP R/W
℄ TH 63
SEE SHEET 294
MATCH LINE TH 63 STA 130+25.0
135
602
210
EX R/W
TE
EX R/W
℄ 825TH ST E
EX R/W
EX R/W
MATCH LINE TH 63 STA 145+25.0
SEE SHEET 296
145

+42.0 +38.0 +20.2 +43.0 +72.2 +90.7 +42.7 +04.5 +80.0 +53.9 +49.9 +45.9 +44.1 +05.9 +57.9

0.020 0.010 0.016

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS
Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

SRF Consulting Group, Inc.
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
SUPERELEVATION PLANS
SP 2515-21 (TH 63)

SHEET 295 OF 688

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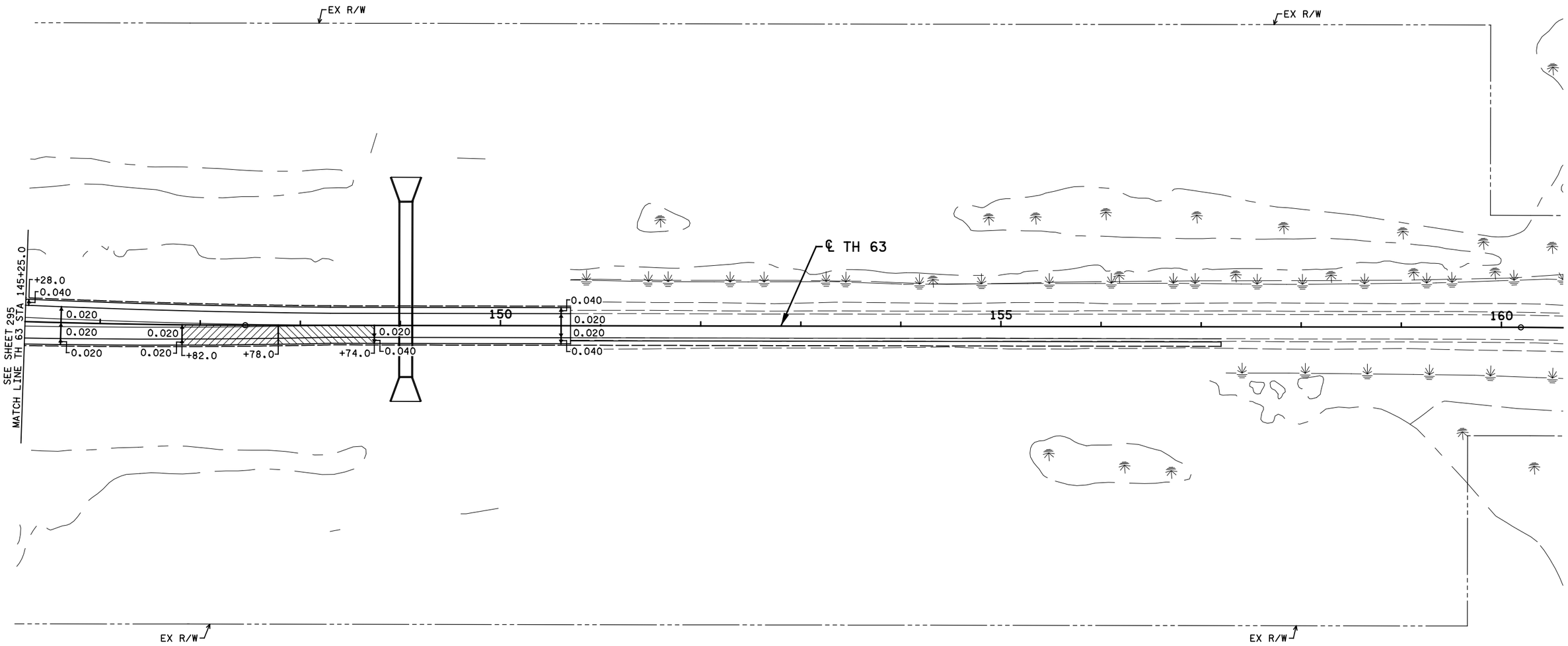
LEGEND

SUPERELEVATION TRANSITION

0 50 100

SCALE IN FEET

SEE SHEET 287 FOR GENERAL NOTES.



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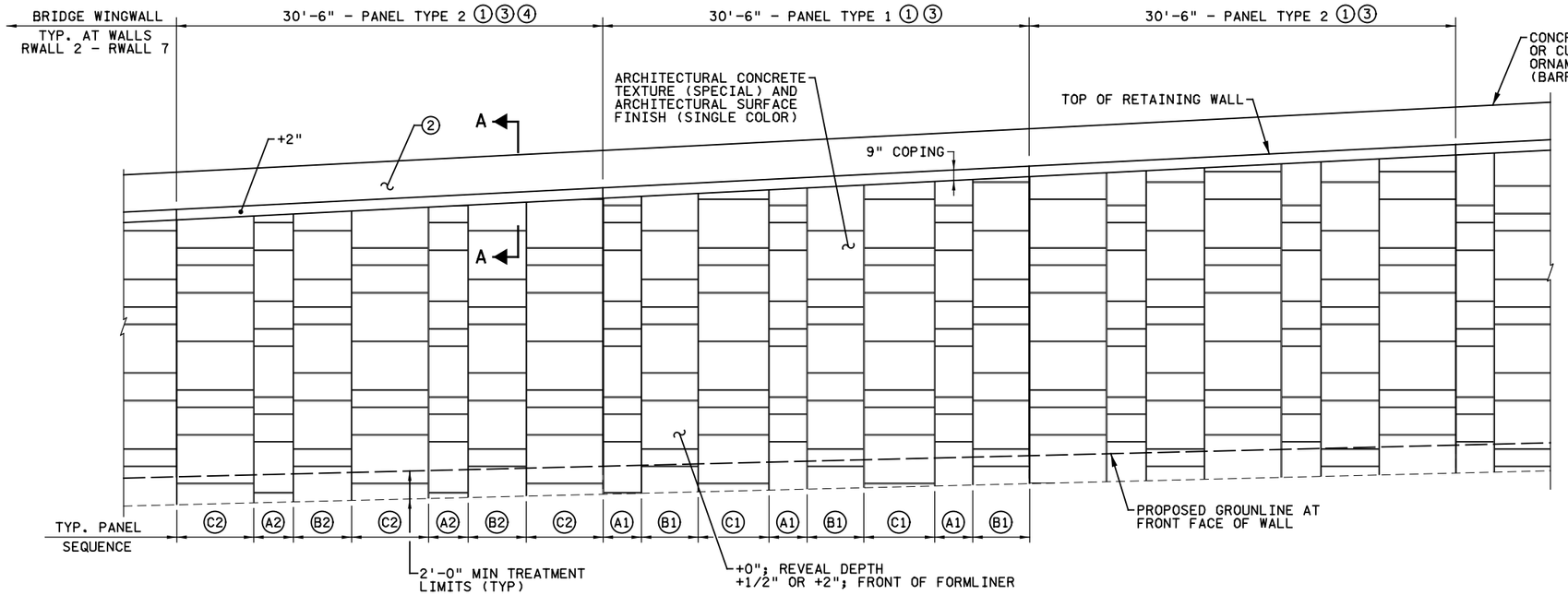
MINNESOTA DEPARTMENT OF TRANSPORTATION

SUPERELEVATION PLANS

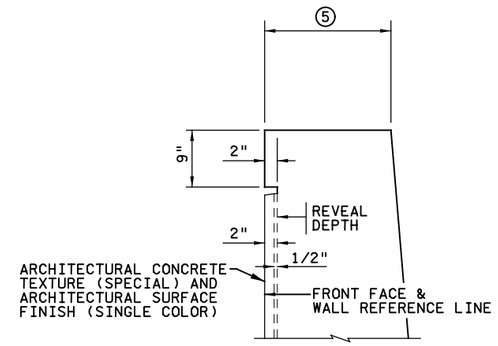
SP 2515-21 (TH 63)

SHEET 296 OF 688

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ARCHITECTURAL ELEVATION
(NOT TO SCALE)



SECTION A-A
(NOT TO SCALE)

NOTES:

① TYPICAL JOINT SPACING UNLESS NOTED OTHERWISE. SEE PROFILES FOR JOINT TYPES.

② SEE INDIVIDUAL WALL GEOMETRIC SHEETS FOR WALL SPECIFIC BARRIERS OR RAILINGS AT TOP OF WALL.

③ ALTERNATE PANEL TYPE 1 AND 2.

④ RETAINING WALL PANELS ADJACENT TO BRIDGE WINGWALLS SHALL START WITH PANEL TYPE 2.

⑤ 1'-2" RETAINING WALL 2, 4, AND 5
1'-1" RETAINING WALL 7
1'-8" RETAINING WALLS 1, 3, AND 6

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Date _____ License # 51351

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

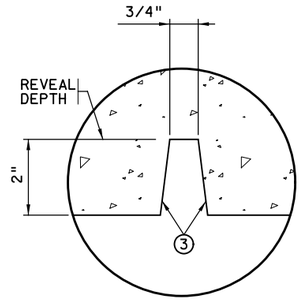
DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

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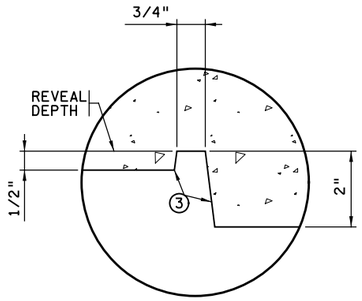
MINNESOTA DEPARTMENT OF TRANSPORTATION
CIP RETAINING WALL PLANS
SP 2515-21 (TH 63)
ARCHITECTURAL DETAILS (1 OF 3)

CIP
SHEET 297 OF 688

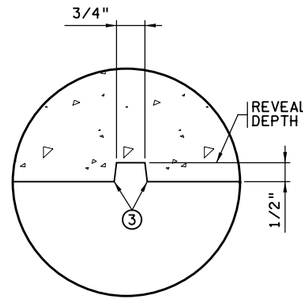
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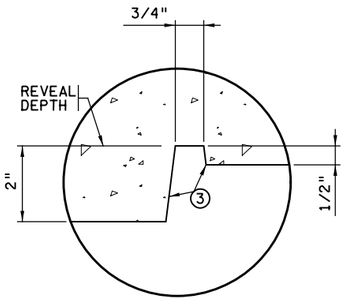
SECTION A-A



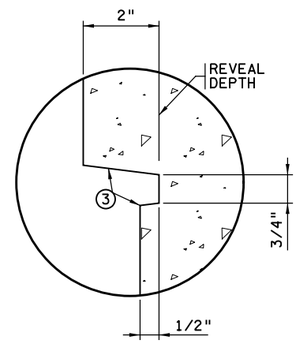
SECTION B-B



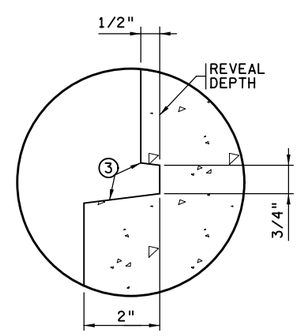
SECTION C-C



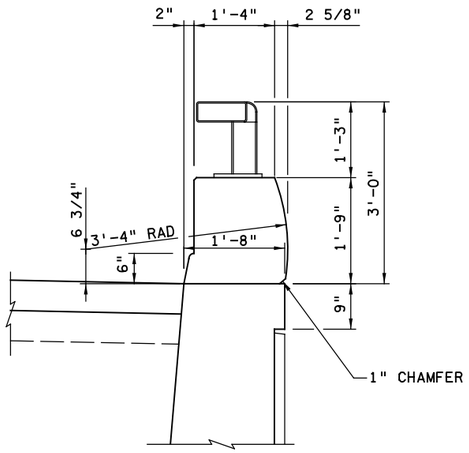
SECTION D-D



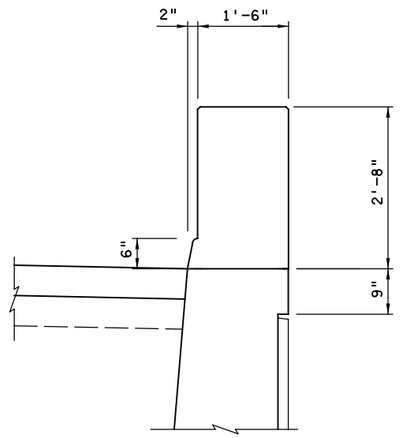
SECTION E-E



SECTION F-F



SECTION THRU TYPE MOD P-2 BARRIER
(RETAINING WALL RWALL 3)



SECTION THRU P-4 BARRIER
(RETAINING WALLS RWALL 1 AND RWALL 6)

NOTES:

FOR ADDITIONAL AESTHETIC DETAILS INCLUDING COLORS AND TREATMENTS, SEE THE SPECIAL PROVISIONS.

ALL REVEAL BASE LINE DEPTHS SHALL BE 0".

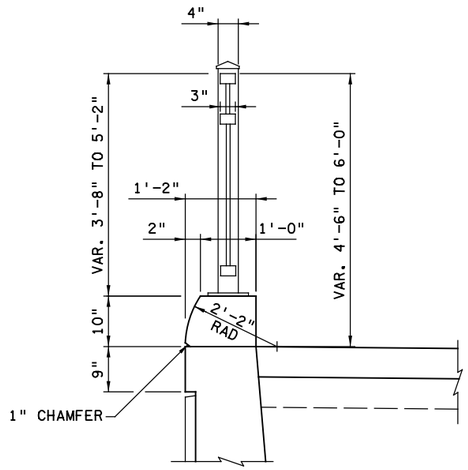
(1) DENOTES +1/2" FROM REVEAL DEPTH

(2) DENOTES +2" FROM REVEAL DEPTH

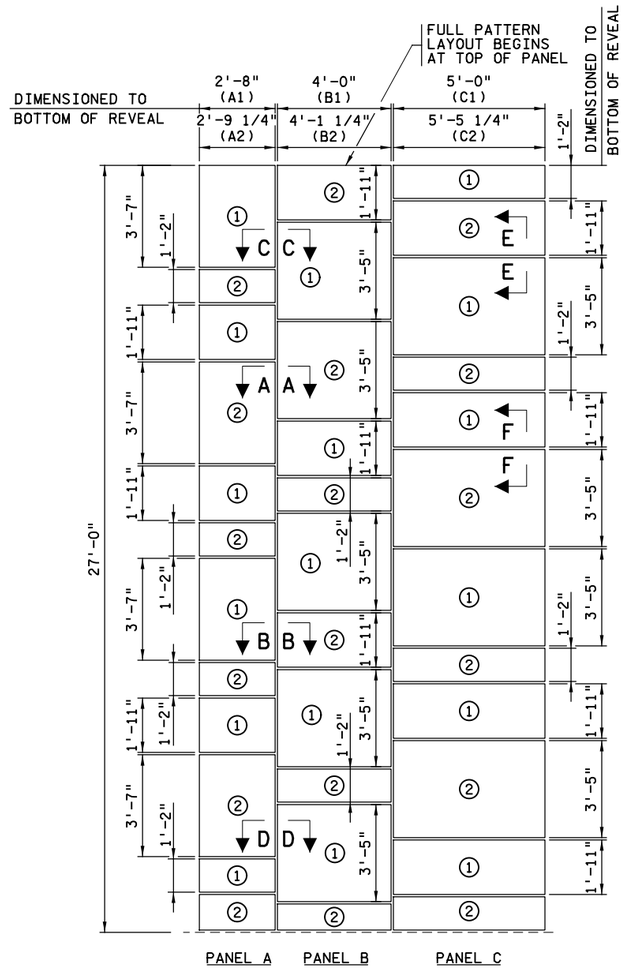
(3) ALL REVEALS SLOPE 1:8

SEE AESTHETIC DETAILS SHEET 1 OF 3 FOR ADDITIONAL NOTES AND PANEL DETAILS.

FOR ADDITIONAL ORNAMENTAL METAL RAILING DETAILS SEE SEE AESTHETIC DETAILS SHEET 3 OF 3.



SECTION THRU CURB AND ORNAMENTAL METAL RAILING
(RETAINING WALLS RWALL2, RWALL 4 AND RWALL 5)



PANEL DETAILS

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Date _____ License # 51351

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

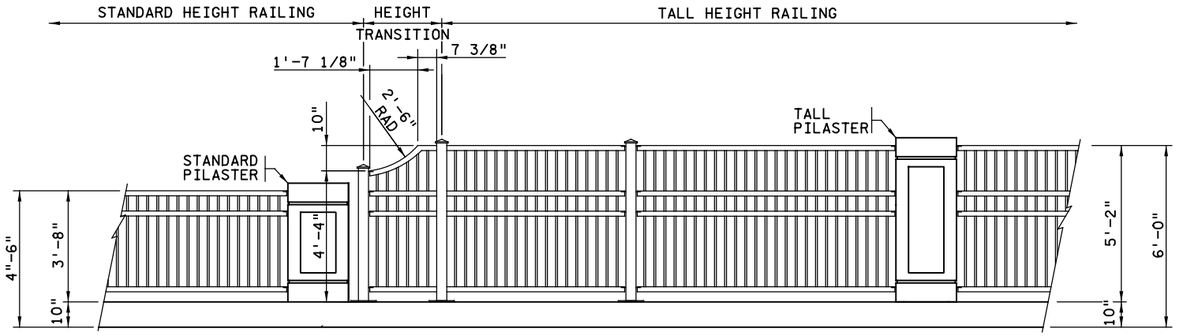
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MINNESOTA DEPARTMENT OF TRANSPORTATION

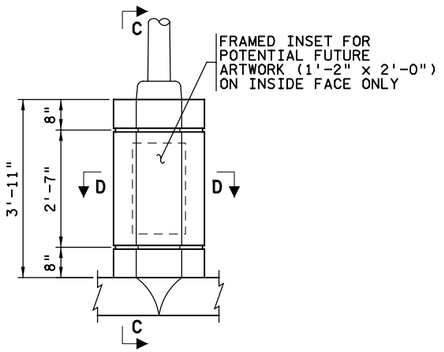
CIP RETAINING WALL PLANS
SP 2515-21 (TH 63)
ARCHITECTURAL DETAILS (2 OF 3)

CIP SHEET 298 OF 688

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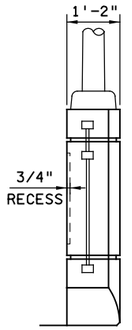


ORNAMENTAL METAL RAILING ELEVATION

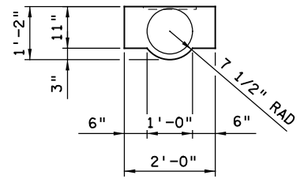


PILASTER WITH LIGHT

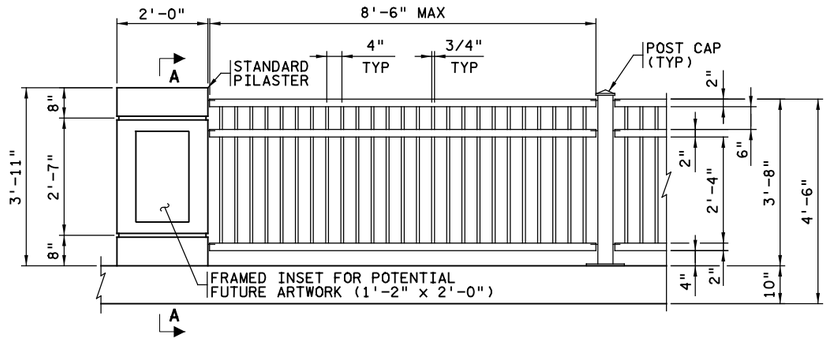
OUTSIDE VIEW



SECTION C-C

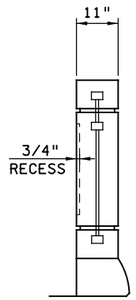


SECTION D-D

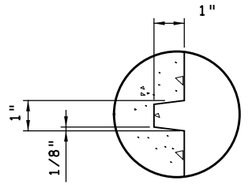


ORNAMENTAL METAL RAILING PANEL

INSIDE VIEW (STANDARD HEIGHT)

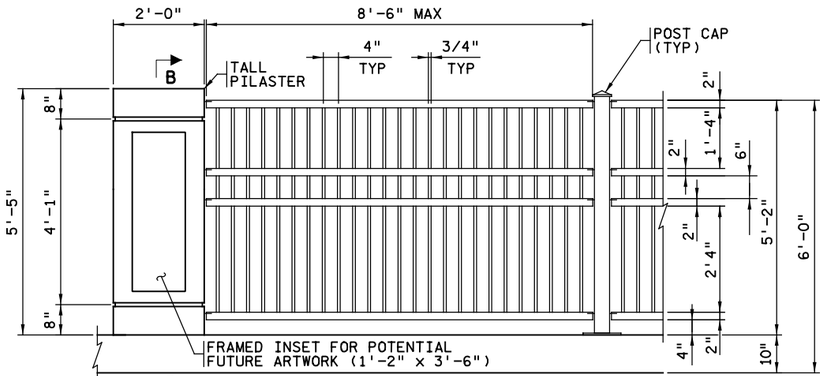


SECTION A-A



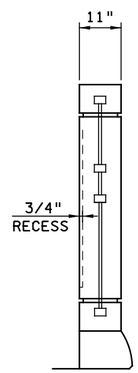
REVEAL DETAIL

TYPICAL ALL PILASTERS



ORNAMENTAL METAL RAILING PANEL

INSIDE VIEW (TALL HEIGHT)



SECTION B-B

NOTES:

FOR ADDITIONAL AESTHETIC DETAILS INCLUDING LOGO, COLORS, TEXTURES AND TREATMENTS SEE THE VISUAL QUALITY MANUAL.

SEE LIGHTING PLANS AND RETAINING WALL PLAN AND PROFILE SHEETS FOR LIGHT STANDARD LOCATIONS AND DETAILS. (PILASTERS TO BE LOCATED AT ALL LIGHT STANDARDS)

NO	DATE	BY	CKD	APPR	REVISION
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DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

ARCHITECTURAL DETAILS (3 OF 3)

CIP SHEET 299 OF 688

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MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL PLANS

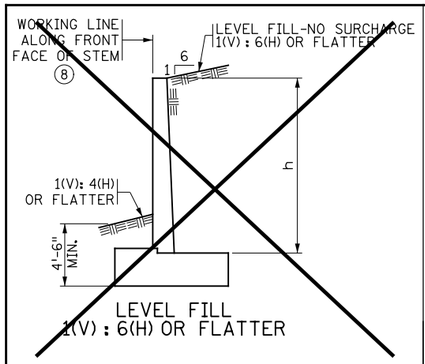
SP 2515-21 (TH 63)

SUMMARY OF QUANTITIES

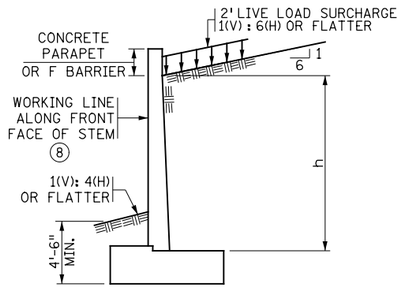
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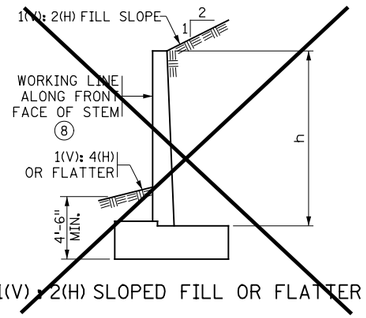
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LEVEL FILL
1(V) : 6(H) OR FLATTER



LIVE LOAD SURCHARGE



1(V) : 2(H) SLOPED FILL OR FLATTER

h = STEM HEIGHT. DEFINED AS DISTANCE BETWEEN TOP OF FOOTING TO TOP OF WALL, NOT INCLUDING PARAPET OR BARRIER.

LOAD CASES

DESIGN CRITERIA

THESE LRFD CIP RETAINING WALL STANDARDS HAVE BEEN DEVELOPED BASED ON THE FIFTH EDITION WITH 2010 INTERIMS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND MnDOT DESIGN POLICIES AS STATED IN THE MnDOT LRFD BRIDGE DESIGN MANUAL.

f'c = 4 ksi
fy = 60 ksi
n = 8

REFER TO STANDARD FIGURE 5-297.639 FOR ADDITIONAL DESIGN CRITERIA.

BAR LAP

BAR SIZE	PLAIN	EPOXY
5	2'-5"	2'-1"
6	2'-11"	3'-1"
7	3'-7"	3'-10"
8	4'-9"	5'-1"
9	6'-0"	6'-5"
10	7'-7"	8'-2"
11	9'-4"	10'-0"

SUMMARY OF QUANTITIES FOR RETAINING WALLS

PANEL	STRUCTURAL CONCRETE		REINFORCEMENT BARS		STRUCTURE EXCAVATION		STRUCTURAL BACKFILL (CV)①	AGGREGATE BACKFILL (CV)②⑥	ARCHI-TECTURAL CONCRETE TEXTURE
	FOOTING	STEM	PLAIN ⑦	EPOXY ⑤	CLASS__	CLASS__			
	1A43 ⑦	3Y43							
	CU YD	CU YD	POUND	POUND	CU YD	CU YD	CU YD	CU YD	SQ FT

NOTES:

① STRUCTURAL BACKFILL SPEC. 3149.2D2.

② COMPACT TO 100% DENSITY IN ACCORDANCE WITH SPEC. ~~2105.3F1~~ (2106.3F1) * UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

③ LIMITING CRITERIA.

④ CURVED FORMS MAY BE USED FOR ANY WALL WITH A RADIUS, BUT MUST BE USED ON WALLS WITH RADIUS LESS THAN 23 FEET.

⑤ DOES NOT INCLUDE DOWELED JOINT/CONSTRUCTION JOINT QUANTITIES, WHICH ARE INCIDENTAL. DOWELED JOINT/CONSTRUCTION JOINT DETAILS ARE SHOWN ON STANDARD PLAN 5-297.624 (3 OF 6).

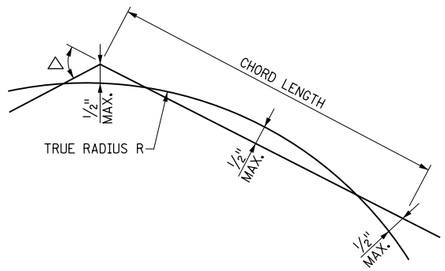
⑥ QUANTITIES FOR THE FOUNDATION WITH AGGREGATE BACKFILL OPTION ONLY.

⑦ DOES NOT INCLUDE ADDITIONAL REINFORCING BARS AND STRUCTURAL CONCRETE (1A43) REQUIRED FOR STEPPED FOOTINGS, WHICH IS INCIDENTAL.

⑧ FOR RETAINING WALLS THAT ABUT A BRIDGE OR BRIDGE WING WALL, NOTE THAT THE DESIGNATION OF "FRONT FACE" MAY VARY FROM THE BRIDGE PLANS TO THE RETAINING WALL PLANS.

CURVED RETAINING WALLS ALLOWABLE CHORD LENGTH ④

MAXIMUM DEGREE OF CURVE	RADIUS	ALLOWABLE CHORD LENGTH	DEVIATION FROM TRUE RADIUS	MAXIMUM DEFLECTION ANGLE △
4°-00'	1432'	30'-6"	± 1/2" ③	1°-15'
8°-00'	716'	21'-10"	± 1/2" ③	1°-45'
16°-30'	347'	15'-3"	± 1/2" ③	2°-30'
23°-00'	249'	12'-11"	± 1/2" ③	2°-57'
65°-30'	87'	7'-7 1/2"	± 1/2"	5°-00' ③
114°-30'	50'	4'-4 5/16"	± 1/4"	5°-00' ③
250°-00'	23'	2'-0"	± 1/8"	5°-00' ③



SHEET INDEX

NO.	TITLE
	GENERAL NOTES & SUMMARY OF QUANTITIES
	GENERAL LAYOUT
	GENERAL PLAN & ELEVATION
	WALL REINFORCEMENT
	PANEL TABULATIONS
	MISCELLANEOUS DETAILS

GENERAL NOTES:

UTILITIES:
EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. PRIOR TO EXCAVATIION VERIFY THE LOCATION OF EXISTING FACILITIES AND EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK:
ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO SPEC. 2451.

CONCRETE:
ALL CONCRETE SHALL CONFORM TO SPEC. 2461.

TRANSVERSE CONSTRUCTION JOINTS IN FOOTING ARE PERMISSIBLE. KEYWAYS AND CONTINUOUS REINFORCEMENT ARE REQUIRED THROUGH THESE JOINTS.

THE THICKNESS OF THE ARCHITECTURAL CONCRETE TEXTURE VARIES WITH THE TEXTURE RELIEF PATTERN. THE STRUCTURAL CONCRETE 3Y43 QUANTITIES DO NOT INCLUDE THE MATERIAL WITHIN THE ARCHITECTURAL CONCRETE TEXTURE. CONCRETE NEEDED FOR THE TEXTURING IS INCIDENTAL.

POURING SEQUENCE:
THE POURING SEQUENCE SHALL BE AT THE CONTRACTOR'S OPTION. SUBMIT SEQUENCE (WITHIN 7 CALENDAR DAYS) TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING THE FIRST POUR.

CONSTRUCTION:
CONSTRUCT IN ACCORDANCE WITH SPEC. 2411, EXCEPT AS NOTED.

REFER TO STANDARD PLAN 5-297.624 (2 OF 6) FOR WALL CORNER DETAILS AND STEPPED FOOTING DETAILS.

REFER TO STANDARD PLAN 5-297.625 FOR WALL SHEAR LUG DETAILS.

APPLY MEMBRANE WATERPROOFING SYSTEM PER SPEC. 2481 TO BACK SIDE OF WALL TO COVER ALL THRU-BOLT FORM HOLES.

REINFORCING STEEL:
USE REINFORCEMENT BARS CONFORMING TO SPEC. 3301, GRADE 60.

BARS MARKED WITH THE SUFFIX "E" TO BE EPOXY COATED. ALL BARS WHICH EXTEND OUT OF THE FOOTING AND ALL BARS WHICH ARE ABOVE THE FOOTING TO BE EPOXY COATED.

ALL BENT BAR DIMENSIONS ARE GIVEN OUT-TO-OUT.

MAINTAIN CLEAR DISTANCE BETWEEN REINFORCEMENT BARS AND FACE OF CONCRETE OF 3 INCHES IN FOOTINGS, 5 INCHES IN BOTTOM OF SPREAD FOOTINGS, AND 2 INCHES ELSEWHERE UNLESS OTHERWISE NOTED. REFER TO STANDARD PLAN 5-297.624 (1 OF 6) DETAIL "C" FOR COVER REQUIREMENTS ON WALLS WITH ARCHITECTURAL CONCRETE TEXTURE OR RUSTICATION.

THE CONTRACTOR HAS THE OPTION OF SUBSTITUTING 60'-0" LONG BARS FOR THE LONGITUDINAL FOOTING STEEL SHOWN. CHANGES IN THE BILL OF REINFORCEMENT ARE THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT WILL BE BASED ON QUANTITIES SHOWN.

THE CONSTRUCTION JOINT FOR CONCRETE PARAPET OR BARRIER MAY BE LOCATED AT TOP OR BOTTOM OF COPING, AT THE CONTRACTOR'S OPTION. PAYMENT WILL BE BASED ON QUANTITIES SHOWN, WHICH IS BASED ON CONSTRUCTION JOINT ABOVE COPING.

FOR VARIABLE STEM HEIGHTS, VARY THE LAP LENGTH OF THE VERTICAL REINFORCEMENT. MINIMUM LAP LENGTHS ARE GIVEN IN THE TABLE ON THIS SHEET. SMALLER BAR GOVERNS LAP LENGTH.

DOWEL BAR ASSEMBLIES:
DOWELED JOINTS/CONSTRUCTION JOINTS ARE SHOWN ON STANDARD PLAN 5-297.624 (3 OF 6). THESE JOINTS ARE INCIDENTAL.

AT THE CONTRACTOR'S OPTION, CONSTRUCTION JOINTS MAY BE SUBSTITUTED IN LIEU OF CORK AND DOWEL JOINTS. REINFORCEMENT QUANTITIES WERE COMPUTED ASSUMING A CORK AND DOWEL JOINT BETWEEN EVERY PANEL. CHANGES IN THE BILL OF REINFORCEMENT ARE THE RESPONSIBILITY OF THE CONTRACTOR, AND NO ADDITIONAL PAYMENT WILL BE MADE. AT A MINIMUM, PLACE CORK AND DOWEL JOINTS EVERY 91'-6". PLACE A CORK AND DOWEL JOINT AT ALL VERTICAL FOOTING STEPS.

GEOMETRICS AND GRADES:
DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE IS ALONG FRONT FACE OF WALL. ⑧

ON UP TO 10% SLOPES, THE CONTRACTOR HAS THE OPTION OF POURING FOOTINGS SLOPED OR STEPPED. ADDITIONAL CONCRETE VOLUMES AND CHANGES TO THE BILL OF REINFORCEMENT WHICH MAY RESULT FROM CONTRACTOR REQUESTED OPTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE.

QUANTITIES ARE BASED ON ASSUMED TOP OF ROCK ELEVATION. ACTUAL TOP OF ROCK TO BE DETERMINED BY ENGINEER. SEE SHEET 5-297.624 (4 OF 6) FOR PAY LIMITS.

PILE LOADS:
THE PILE LOADS SHOWN IN THE PLANS AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCES (Rn) WERE COMPUTED USING LRFD METHODOLOGY.

* DENOTES MODIFICATIONS FROM STANDARD PLAN

MODIFIED

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

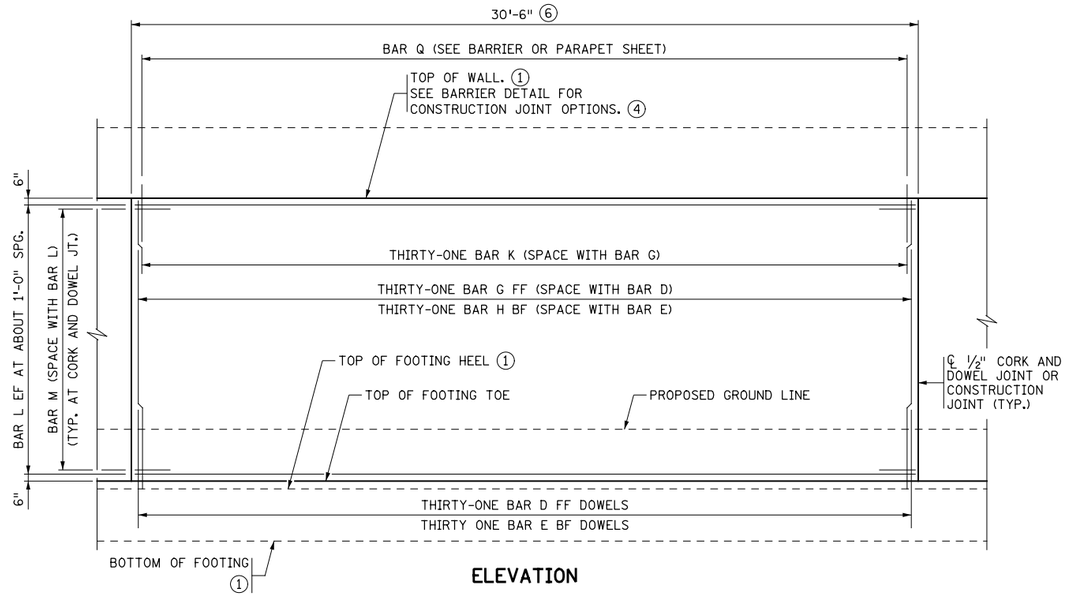
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: LINDSEY B. RENSTROM
Date _____ License # 51351

STANDARD SHEET NO. 5-297.620
STANDARD APPROVED: AUGUST 27, 2014

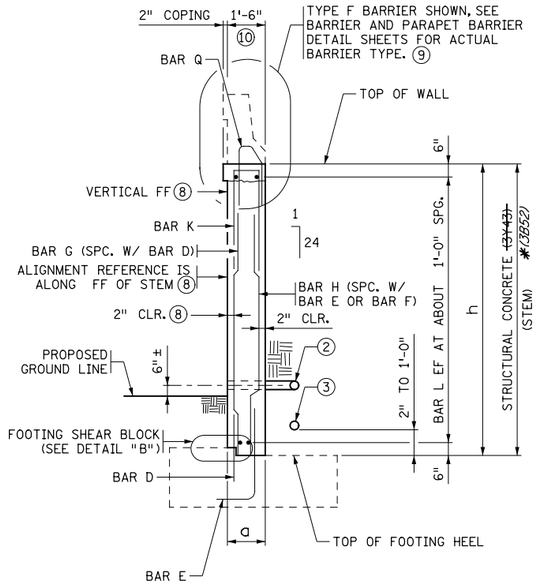
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STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 301 OF 688 SHEETS

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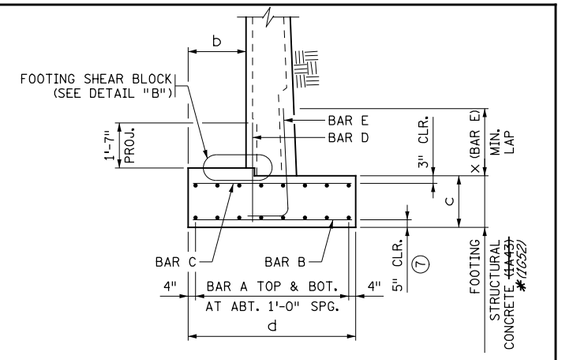


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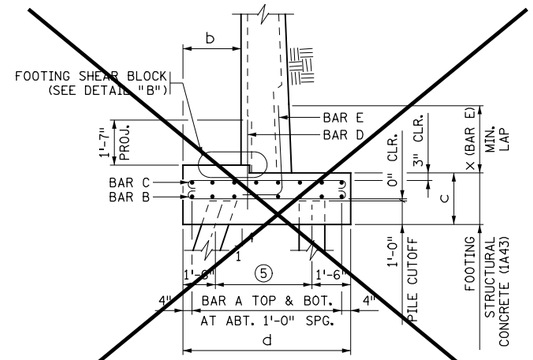


WALL SECTION

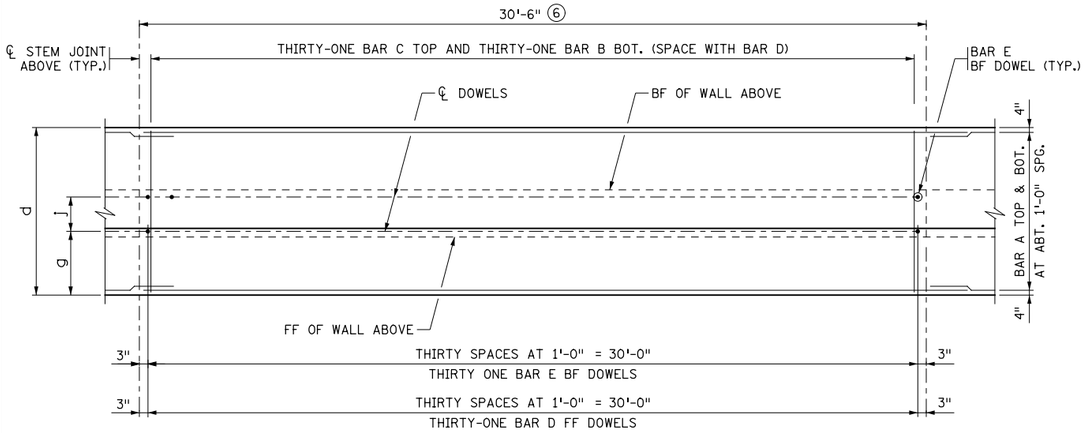
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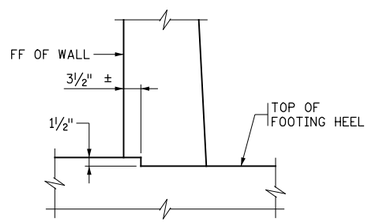
TYPICAL SECTION THROUGH SPREAD FOOTING



TYPICAL SECTION THROUGH PILE FOOTING



FOOTING PLAN ~ REINFORCEMENT



DETAIL "B"

NOTES:

REFER TO RETAINING WALL PANEL TABULATIONS FOR DIMENSIONS "a" THROUGH "x".

STEM REINFORCEMENT IS TO BE SYMMETRICALLY/EQUALLY SPACED BETWEEN STEM JOINTS.

FOOTING REINFORCEMENT SYMMETRICAL ABOUT STEM JOINT ABOVE UNLESS OTHERWISE NOTED. SEE RETAINING WALL TABLES FOR PILE SPACING AND LAYOUT.

BF DENOTES BACK FACE.
FF DENOTES FRONT FACE.
EF DENOTES EACH FACE.

(1) STRAIGHT LINE BETWEEN ELEVATIONS SHOWN ON WALL ELEVATION (EXCEPT FOR STEPPED CONDITIONS). IF A BARRIER IS NOT USED, TOPS OF RETAINING WALL COULD BE USED.

(2) TYPE I DRAINAGE. SEE SECTION A-A ON STANDARD PLAN 5-297.624 (5 OF 6).

(3) TYPE II DRAINAGE. SEE SECTION B-B ON STANDARD PLAN 5-297.624 (5 OF 6).

(4) SEE STANDARD PLAN 5-297.624 (1 OF 6).

* ~~(5) SEE GENERAL PLAN FOR PILE SPACING.~~

(6) AT THE CONTRACTOR'S OPTION, PANEL LENGTH MAY VARY UP TO ± 1'-0". BAR CUTTING LISTS SHALL BE REVISED ACCORDINGLY BY THE CONTRACTOR.

(7) 5" BOTTOM OF FOOTING CLEARANCE FOR ALL BARS EXCEPT BAR D. BAR D BOTTOM OF FOOTING CLEARANCE VARIES.

(8) REFER TO DETAIL "C" AND NOTES ON STANDARD PLAN 5-297.624 (1 OF 6).

(9) REBAR AND CONCRETE ARE INCLUDED IN THE PAY ITEM BY LINEAR FEET FOR THE BARRIER OR PARAPET.

(10) WALL THICKNESS AT TOP OF STEM, NOT INCLUDING COPING.

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED

REVISION:
APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

MODIFIED	
DATE	DESCRIPTION
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC

REVISED:

STATE DESIGN ENGINEER

APPROVED: 8-27-2014

RETAINING WALL REINFORCEMENT DETAILS (SHORT WALLS)

STANDARD PLAN 5-297.621 | 1 OF 1

NO	DATE	BY	CKD	APPR	REVISION
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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: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

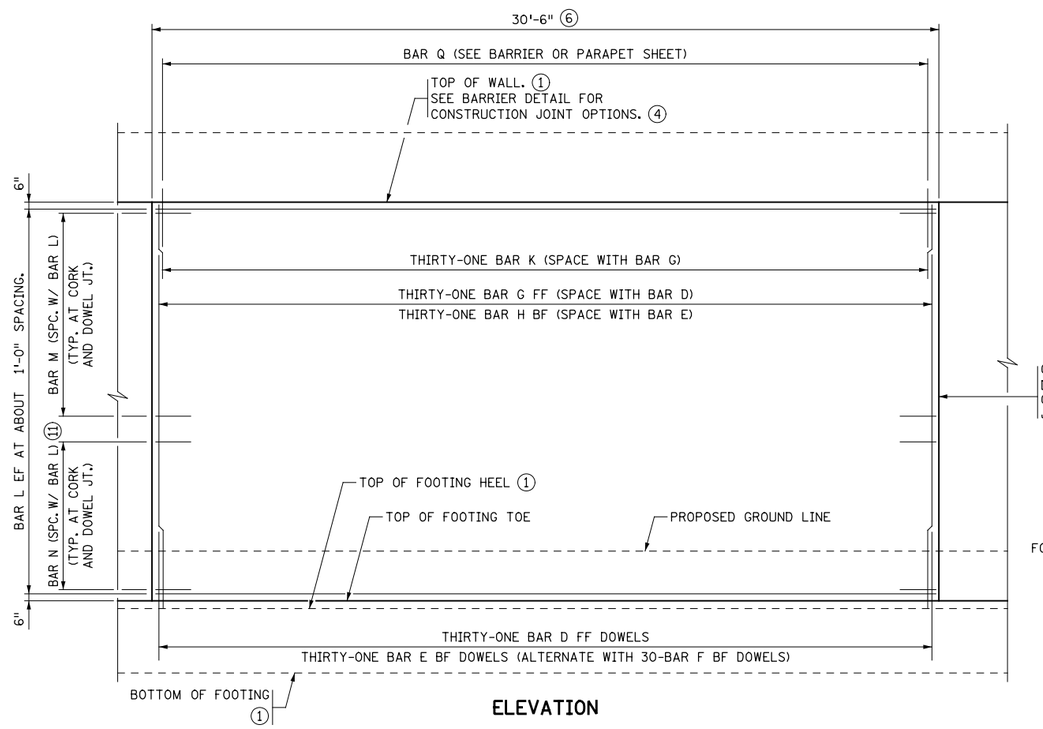
SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

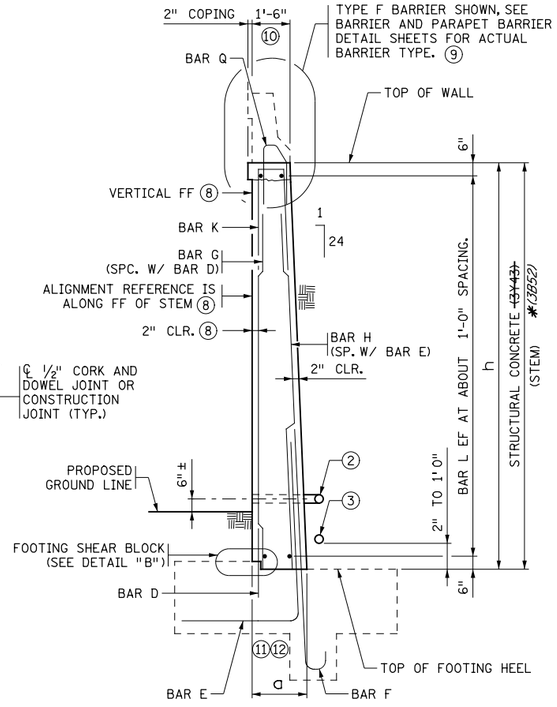
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SP 2515-21 (TH 63)
CIP WALL PANEL DETAILS

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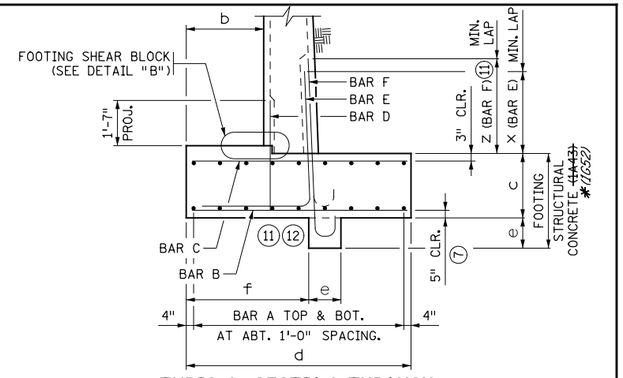


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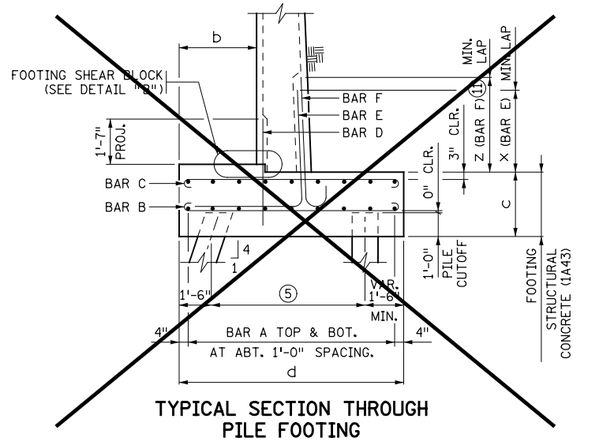


WALL SECTION

(F BARRIER AND 2" COPING OPTION SHOWN)

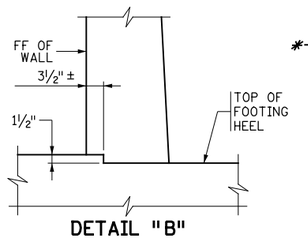


TYPICAL SECTION THROUGH SPREAD FOOTING



TYPICAL SECTION THROUGH PILE FOOTING

FOOTING PLAN ~ REINFORCEMENT



DETAIL "B"

NOTES:

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(3) TYPE II DRAINAGE. SEE SECTION B-B ON STANDARD PLAN 5-297.624 (5 OF 6).

(4) SEE STANDARD PLAN 5-297.624 (1 OF 6).

* ~~(5) SEE GENERAL PLAN FOR PILE SPACING.~~

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(11) THIS FEATURE MAY NOT BE PRESENT ON ALL MEDIUM HEIGHT WALLS.

(12) CONTRACTOR MAY CONSTRUCT KEYWAY WITHOUT FORMS, AS APPROVED BY THE ENGINEER.

MODIFIED

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

MODIFIED	
DATE	DESCRIPTION
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC

REVISED:

APPROVED: 8-27-2014
Christopher Ry
STATE DESIGN ENGINEER

RETAINING WALL REINFORCEMENT DETAILS (MEDIUM WALLS)

STANDARD PLAN 5-297.622 | 1 OF 1

NO	DATE	BY	CKD	APPR	REVISION

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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: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

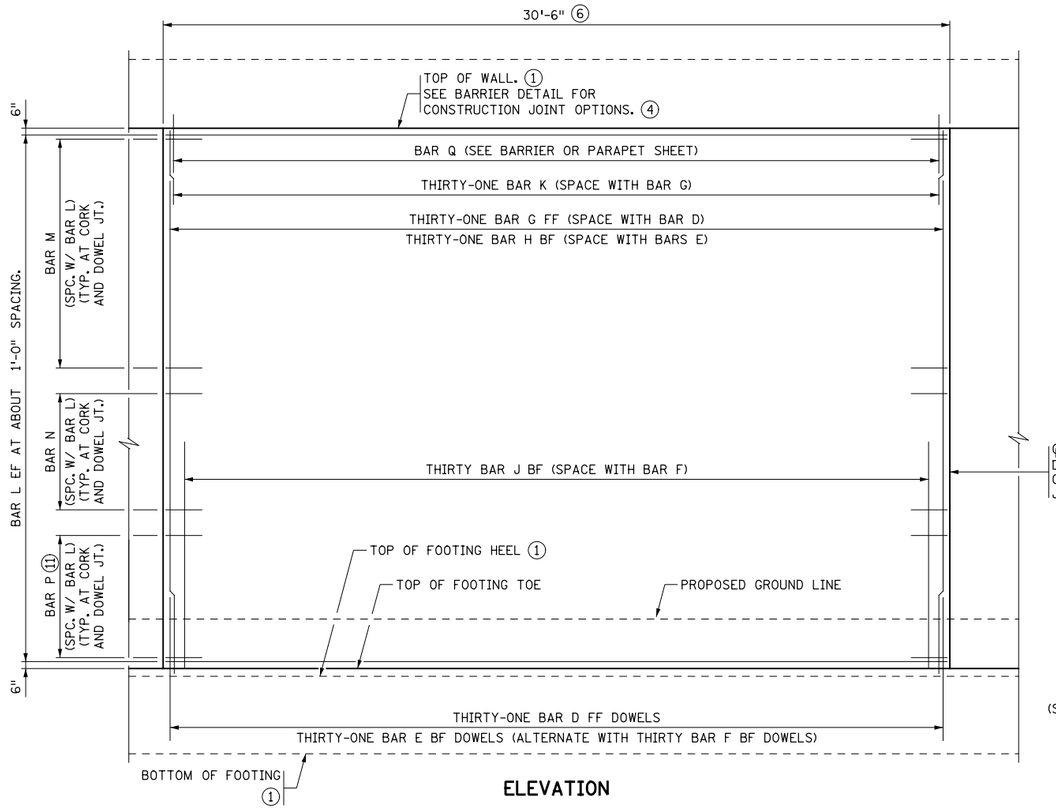
DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

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ENGINEERS PLANNERS DESIGNERS

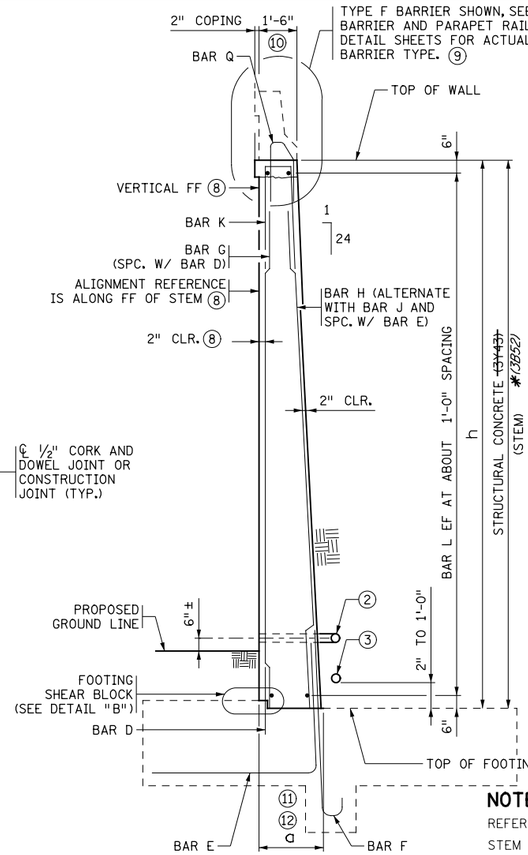
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CIP RETAINING WALL DETAILS
SP 2515-21 (TH 63)
CIP WALL PANEL DETAILS

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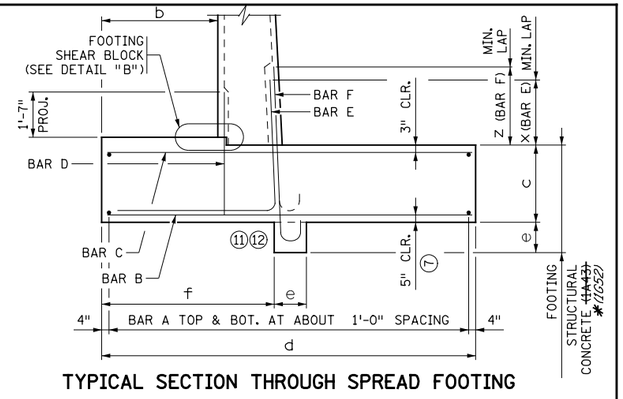


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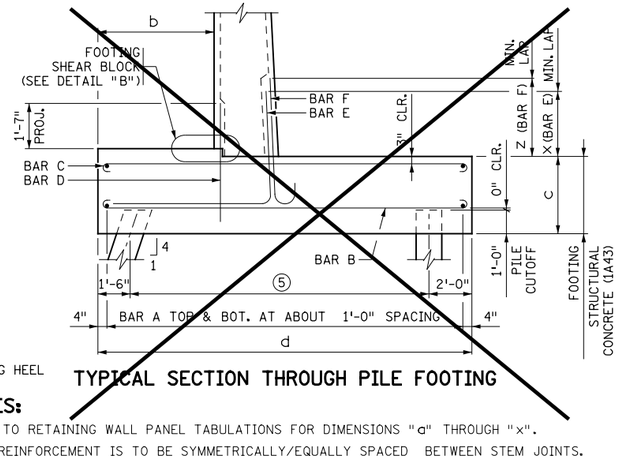


WALL SECTION

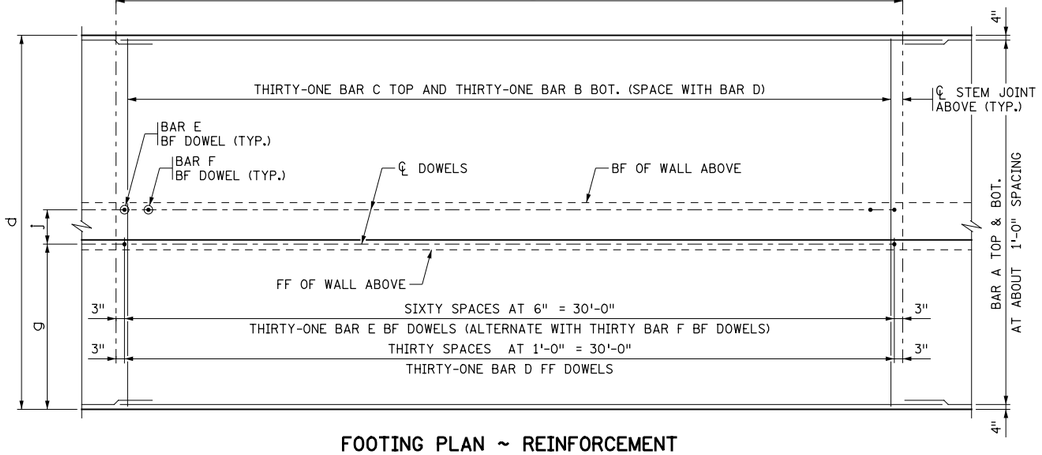
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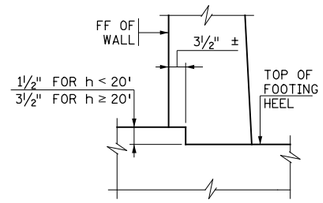
TYPICAL SECTION THROUGH SPREAD FOOTING



TYPICAL SECTION THROUGH PILE FOOTING



FOOTING PLAN ~ REINFORCEMENT



DETAIL "B"

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

NOTES:

REFER TO RETAINING WALL PANEL TABULATIONS FOR DIMENSIONS "a" THROUGH "x".

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MODIFIED

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

MODIFIED	
DATE	DESCRIPTION
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC

REVISED:

APPROVED: 8-27-2014
Christopher Ry
STATE DESIGN ENGINEER

RETAINING WALL REINFORCEMENT DETAILS (TALL WALLS)

STANDARD PLAN 5-297.623

1 OF 1

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_wr14.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: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

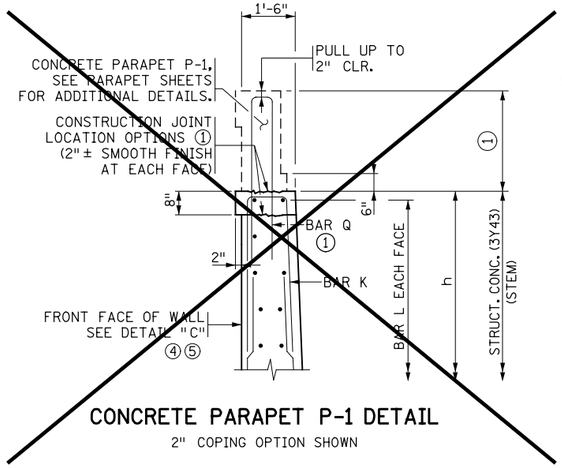
SRF Consulting Group, Inc.
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL DETAILS
SP 2515-21 (TH 63)
CIP WALL PANEL DETAILS

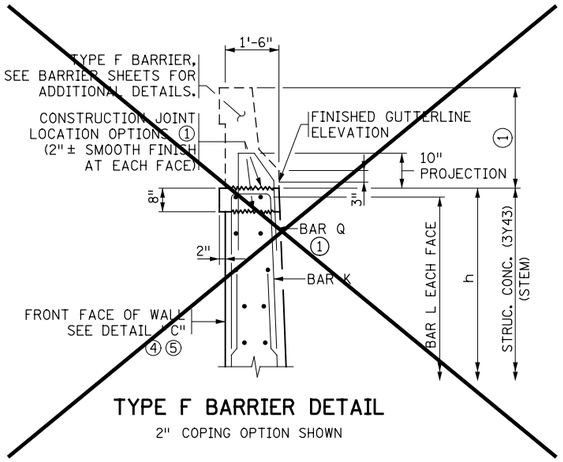
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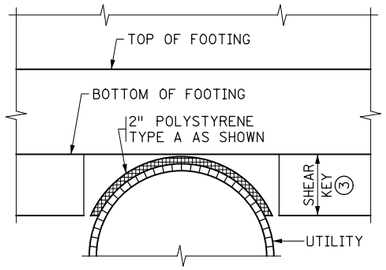
CONCRETE PARAPET P-1 DETAIL

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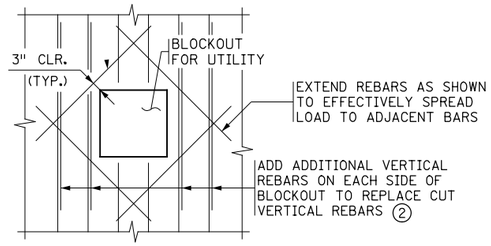


TYPE F BARRIER DETAIL

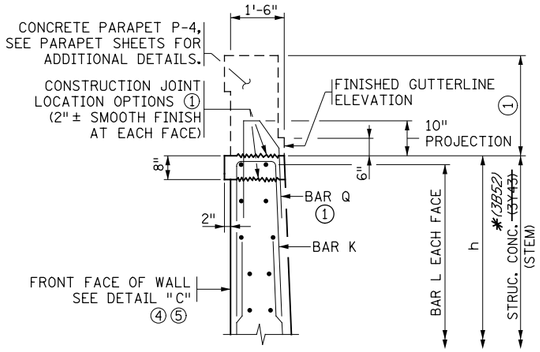
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PIPE UNDER SPREAD FOOTING (THROUGH SHEAR KEY)

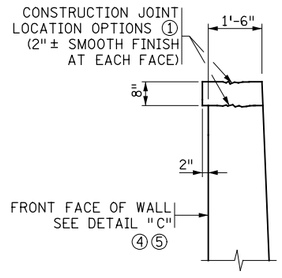


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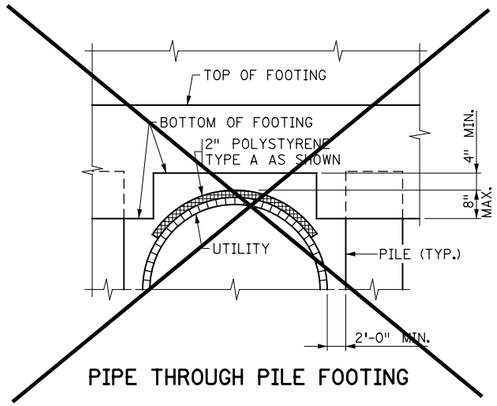


CONCRETE PARAPET P-4 DETAIL

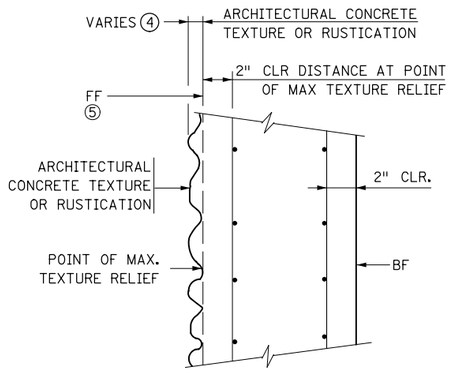
2" COPING OPTION SHOWN



COPING DETAIL



PIPE THROUGH PILE FOOTING



DETAIL "C"

NOTES:

ARCHITECTURAL TREATMENT OPTION ON FRONT FACE OF RETAINING WALL, INCLUDING COPING OR HORIZONTAL REVEL OPTION TO BE DETERMINED BY MnDOT.

① REFER TO PARAPET OR BARRIER SHEETS FOR ADDITIONAL INFORMATION INCLUDING Q BAR PLACEMENT DETAILS, AND PAYMENT.

② FIELD CUT/ADJUST VERTICAL AND HORIZONTAL REINFORCEMENT AS NECESSARY TO CLEAR BLOCKOUT. PLACE REINFORCEMENT AS SHOWN.

③ MODIFY AS NEEDED FOR INTERRUPTION.

*④ THE THICKNESS OF THE ARCHITECTURAL CONCRETE TEXTURE VARIES WITH THE TEXTURE RELIEF. THE STRUCTURAL CONCRETE ~~3Y43~~ *(3852)* QUANTITIES DO NOT INCLUDE THE MATERIAL WITHIN THE ARCHITECTURAL CONCRETE TEXTURE. MATERIAL NEEDED FOR THE TEXTURING SHALL BE INCIDENTAL. SEE SPECIAL PROVISIONS 2411. TEXTURE RELIEF TO ADHERE TO FHWA CRASH BARRIER GUIDANCE WHENEVER THE WALL FACE IS INSIDE OR NEAR THE CLEAR ZONE.

⑤ FOR RETAINING WALLS THAT ABUT A BRIDGE OR BRIDGE WING WALL, NOTE THAT THE DESIGNATION OF "FRONT FACE" MAY VARY FROM THE BRIDGE PLANS TO THE RETAINING WALL PLANS.

** DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED

REVISION:
APPROVED: AUGUST 27, 2014
Nancy Daubenberger, STATE BRIDGE ENGINEER

MODIFIED	
DATE	DESCRIPTION
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC

STANDARD SHEET NO. 5-297.624 (1 OF 6)	TITLE: RETAINING WALL MISCELLANEOUS DETAILS
STANDARD APPROVED: AUGUST 27, 2014	
STATE PROJ. NO. 2515-21 (TH 63)	SHEET NO. 305 OF 688 SHEETS

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BILL OF REINFORCEMENT FOR STEPPED FOOTING DETAILS ①②

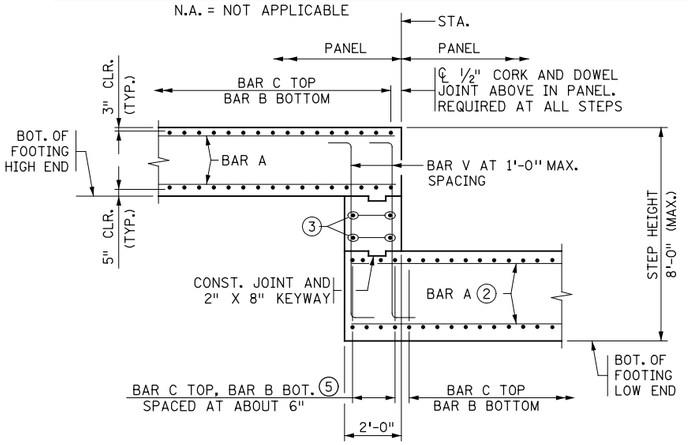
WALL #	STATION	STEP TYPE (VAR. OF MIN.)	JOINT	BOT. OF FOOTING EL. LOW END	BOT. OF FOOTING EL. HIGH END	BAR (B, C, V)	MARK	NO.	LENGTH	A- DIMENSION
RWALL 1	12+13.5	1	8	700.50	706.00	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
RWALL 2	20+30.5	1	2	703.00	709.25	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
	21+22.0	2	5	706.68	709.25	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
	21+52.5	1	6	700.00	706.68	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
RWALL 3	30+55.17	1	3	703.00	709.25	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
RWALL 4	40+18.29	2	2	715.36	718.07	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
	42+18.5	2	9	712.18	715.36	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
	42+79.5	1	11	707.72	712.18	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
	43+10.0	1	12	704.00	707.72	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
RWALL 5	50+26.5	1	2	699.50	706.00	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
	50+87.5	1	4	703.25	706.00	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
	51+79.0	2	7	705.00	703.25	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				
RWALL 6	61+22.0	1	5	699.50	705.00	B (8)				N.A.
						C (8)		4		N.A.
						V (7)				

N.A. = NOT APPLICABLE

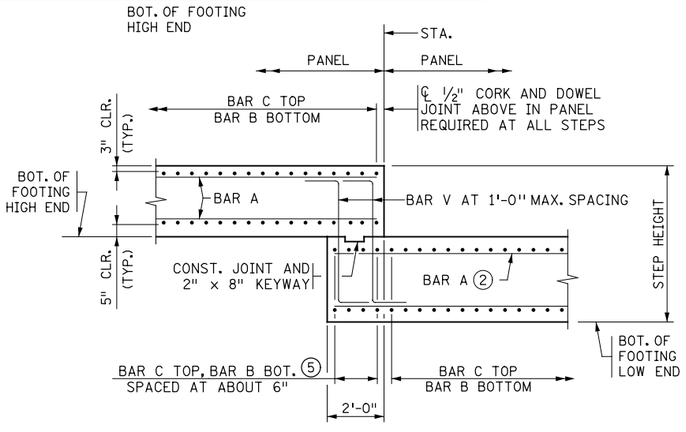
BILL OF REINFORCEMENT FOR CORNER DETAILS ①

STATION	JOINT	INSIDE OR OUTSIDE CORNER	BAR	MARK	NO.	LENGTH	SHAPE	A- DIMENSION
			U	C4 E		8'-8"	⌐	N.A.
			W	C4 E		6'-4"	⌐	N.A.
			Y	C4 E		4'-11"	⌞	2'-11"
			Y	C4 E		5'-9"	⌞	3'-9"
			Y	C4 E		7'-5"	⌞	5'-5"
			U	C4 E		8'-8"	⌐	N.A.
			W	C4 E		6'-4"	⌐	N.A.
			Y	C4 E		4'-11"	⌞	2'-11"
			Y	C4 E		5'-9"	⌞	3'-9"
			Y	C4 E		7'-5"	⌞	5'-5"
			U	C4 E		8'-8"	⌐	N.A.
			W	C4 E		6'-4"	⌐	N.A.
			Y	C4 E		4'-11"	⌞	2'-11"
			Y	C4 E		5'-9"	⌞	3'-9"
			Y	C4 E		7'-5"	⌞	5'-5"
			U	C4 E		8'-8"	⌐	N.A.
			W	C4 E		6'-4"	⌐	N.A.
			Y	C4 E		4'-11"	⌞	2'-11"
			Y	C4 E		5'-9"	⌞	3'-9"
			Y	C4 E		7'-5"	⌞	5'-5"

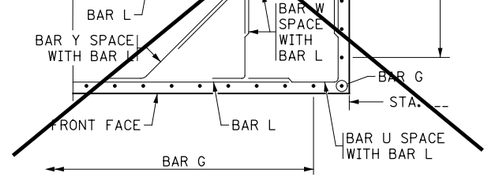
N.A. = NOT APPLICABLE



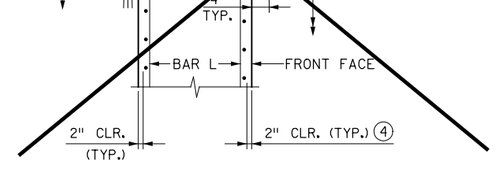
STEPPED FOOTING DETAIL - LONGIT. SECTION ①②



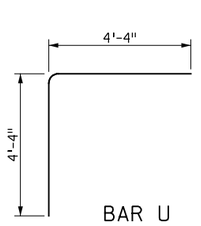
STEPPED FOOTING DETAIL - LONGIT. SECTION ①②



OUTSIDE CORNER DETAIL - PLAN VIEW ①



INSIDE CORNER DETAIL - PLAN VIEW ①



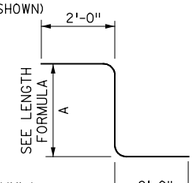
BAR U

NOTES:

ADDITIONAL REINFORCING BARS, STRUCTURAL CONCRETE, AND OTHER COMPONENTS REQUIRED TO CONSTRUCT CORNERS AND STEPPED FOOTINGS ARE INCIDENTAL.

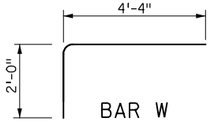
1. CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND SUBMIT TO PROJECT ENGINEER AT LEAST 3 WEEKS PRIOR TO REBAR FABRICATION.
2. FOR THE LOWER OF THE TWO FOOTINGS AT A STEP, THE CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE LENGTH OF BAR A TO EXTEND BENEATH THE STEP OR USE SPLICED BARS.
3. 6 INCH MAX. SPACING. BARS TO BE SAME TYPE AS BAR B OF THE LOWER FOOTING.
4. REFER TO DETAIL "C" AND NOTES ON STANDARD PLAN 5-297.624 (1 OF 6).
5. REFER TO TABLE LABELED "BILL OF REINFORCEMENT FOR STEPPED FOOTING DETAILS" FOR ADDITIONAL B AND C BARS IN LOWER FOOTING.
6. USE THE BAR Y LEG DIMENSION FOR THE PORTION OF STEM LOCATION INDICATED IN THE BAR BEND IN DETAIL. (0'-0" REPRESENTS TOP OF THE STEM).
7. BAR V SIZE TO MATCH BAR B. SEE PANEL TABULATIONS FOR SIZE.
8. SEE PANEL TABULATIONS FOR BAR SIZE AND LENGTH.

(SPREAD FOOTING SHOWN)



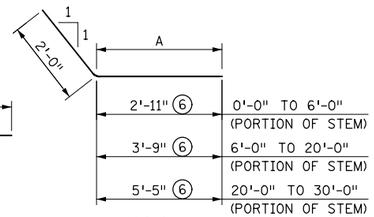
BAR V LENGTH FORMULA = STEP HEIGHT MINUS 10" (A-DIMENSION)

BAR V ⑦



BAR W

TYPE 2 - MINIMUM STEP HEIGHT
(SPREAD FOOTING SHOWN)



BAR Y

MODIFIED

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

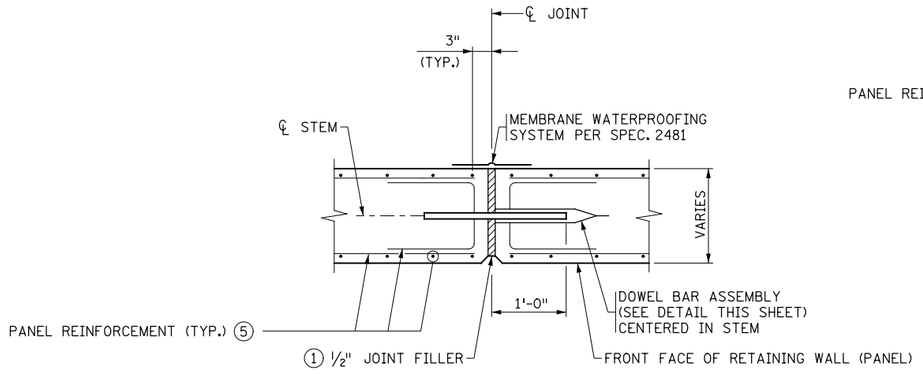
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: LINDSEY B. RENSTROM
Date _____ License # 51351

STANDARD SHEET NO. 5-297.624 (2 OF 6)
STANDARD APPROVED: AUGUST 27, 2014

TITLE: RETAINING WALL MISCELLANEOUS DETAILS

STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 306 OF 688 SHEETS

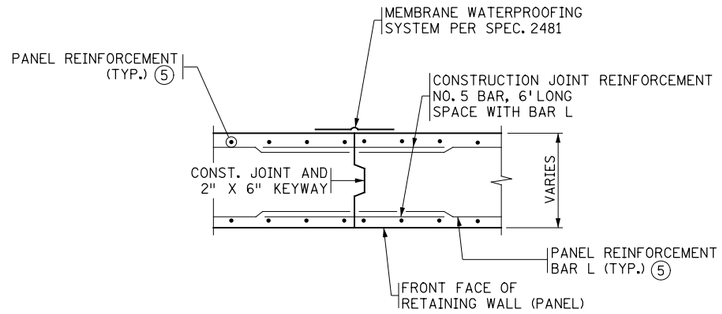
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CORK AND DOWELED JOINT DETAIL

(TYPICAL SECTION THROUGH JOINT)

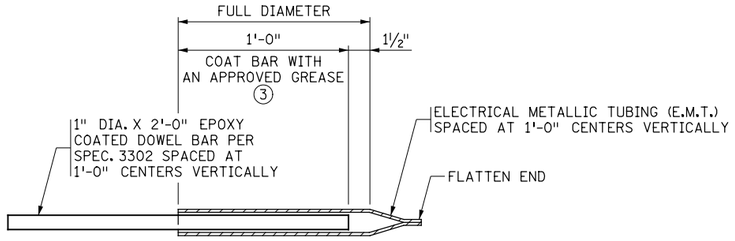
②④



CONSTRUCTION JOINT DETAIL

(TYPICAL SECTION THROUGH JOINT)

②④



DOWEL BAR ASSEMBLY

NOTES:

THE MATERIALS AND PLACEMENT OF THE CORK AND DOWEL JOINT/ CONSTRUCTION JOINT (DOWEL BAR ASSEMBLIES, NO. 5 REINFORCING BARS, JOINT FILLER, AND JOINT WATERPROOFING) ARE INCIDENTAL.

THE CONTRACTOR SHALL ASSIGN TO THE REINFORCING BAR SUPPLIER THE RESPONSIBILITY OF SUPPLYING THE NECESSARY MATERIALS ASSOCIATED WITH THE DETAILS SHOWN ON THIS SHEET.

① JOINT FILLER SHALL BE CORK SPEC. 2401.3E3.

② AT THE CONTRACTOR'S OPTION, CONSTRUCTION JOINTS MAY BE SUBSTITUTED IN LIEU OF CORK AND DOWEL JOINTS. REINFORCEMENT QUANTITIES WERE COMPUTED ASSUMING A CORK AND DOWEL JOINT BETWEEN EVERY PANEL. CHANGES IN THE BILL OF REINFORCEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND NO ADDITIONAL PAYMENT WILL BE MADE. AT A MINIMUM, PLACE CORK AND DOWEL JOINTS EVERY 91'-6". A CORK AND DOWEL JOINT IS REQUIRED AT ALL VERTICAL FOOTING STEPS.

③ GREASE SHALL BE AN APPROVED HIGH PRESSURE TYPE THAT IS EFFECTIVE OVER THE FULL RANGE OF EXPECTED TEMPERATURES AND RESISTANT TO CHEMICAL ACTION.

④ DOWEL BAR ASSEMBLY MUST BE PLACED PERPENDICULAR TO JOINT AND PARALLEL TO THE WALL FACE, AND TO EACH OTHER.

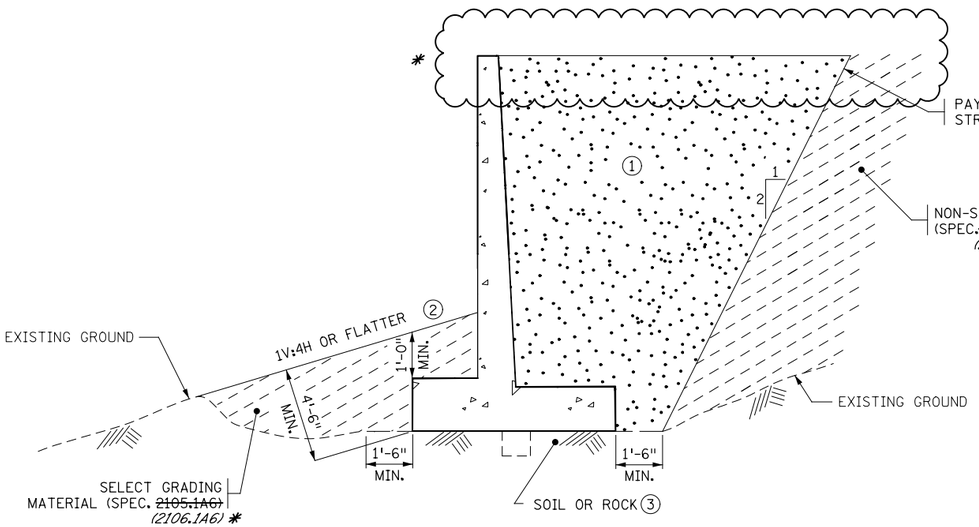
⑤ SEE PANEL SHEETS FOR REINFORCING DETAILS.

REVISION:
APPROVED: AUGUST 27, 2014 Nancy Daubenberger STATE BRIDGE ENGINEER

STANDARD SHEET NO.	TITLE:
5-297.624 (3 OF 6)	RETAINING WALL MISCELLANEOUS DETAILS
STANDARD APPROVED: AUGUST 27, 2014	

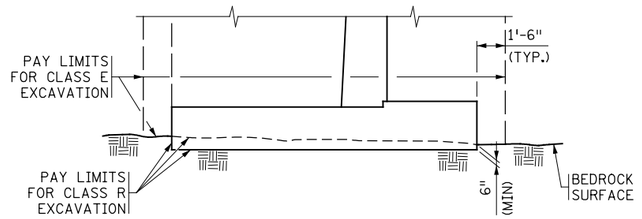
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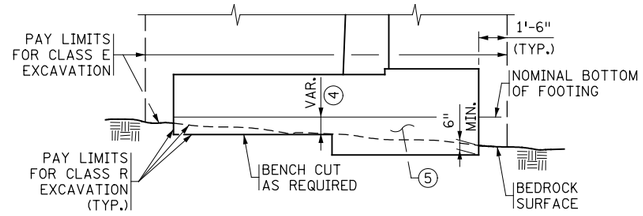


SPREAD FOOTING ON SOIL/ROCK

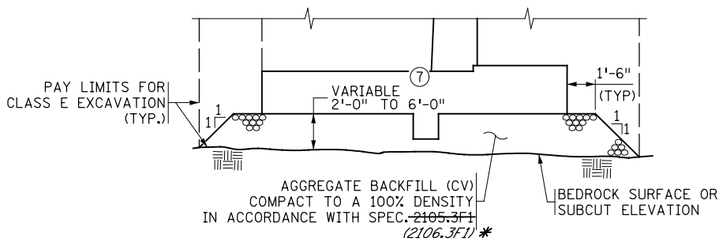
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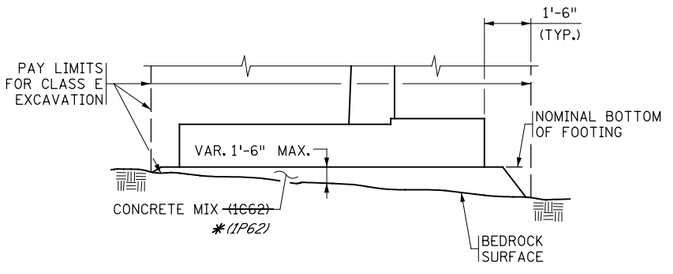
ROCK EXCAVATION OPTION



ROCK SUBCUT WITH CONCRETE BACKFILL OPTION



AGGREGATE BACKFILL OPTION



DOWEL AND LEAN CONCRETE BACKFILL OPTION

ROCK FOUNDATION OPTIONS

1. STRUCTURAL BACKFILL (SPEC. 3149.2D2) COMPACT BACKFILL TO SPECIFIED DENSITY METHOD SPEC. ~~2105.3F1~~ *(2106.3F1)* *
2. PROVIDE SLOPE OF 1V:24H TO 1V:4H FOR PROPER DRAINAGE.
3. LEVEL FOUNDATION SURFACE AND CLEAR SURFACE OF LOOSE DEBRIS BEFORE PLACING FOUNDATION DIRECTLY ON SOIL OR ROCK.
4. SEE SPECIAL PROVISIONS FOR PAYMENT OF ADDITIONAL CONCRETE.
5. STRUCTURAL CONCRETE ~~(1A43)~~ *(1G52)* OR LEAN CONCRETE BACKFILL ~~(1C62)~~ *(1P62)*, AS APPROVED BY ENGINEER.
6. ~~DRILL HOLES FOR ANCHORS TO KEY FOOTING IN ROCK.~~ *
7. MINIMUM DEPTH 1 FT. 6 INCH OR SHEAR KEY DEPTH.

** DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED

MODIFIED	
DATE	DESCRIPTION
4-27-16	-SPREAD FOOTING ON SOIL/ROCK DETAIL TO MATCH PROJECT GEOMETRY
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC
6-02-16	-REPLACE MNDOT SPEC 2105 WITH SPEC 2106

REVISION:

APPROVED: AUGUST 27, 2014

Nancy Daubenberger

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.

Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

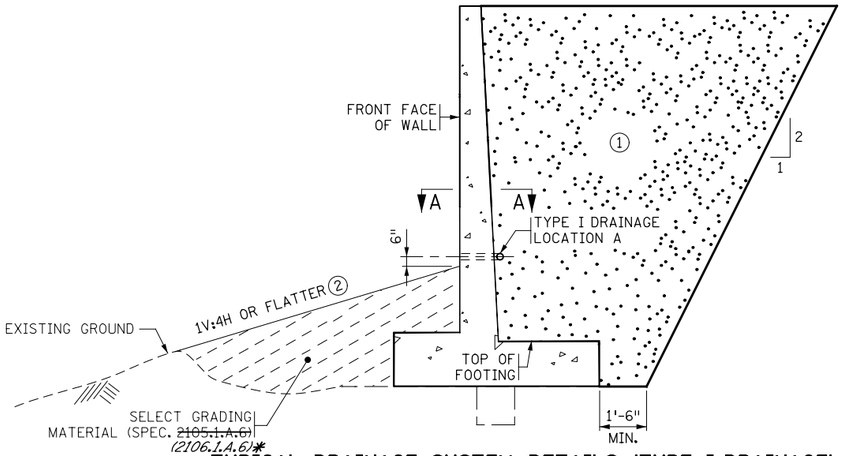
STANDARD SHEET NO. 5-297.624 (4 OF 6)

STANDARD APPROVED: AUGUST 27, 2014

TITLE: RETAINING WALL MISCELLANEOUS DETAILS (GEOTECHNICAL DETAILS)

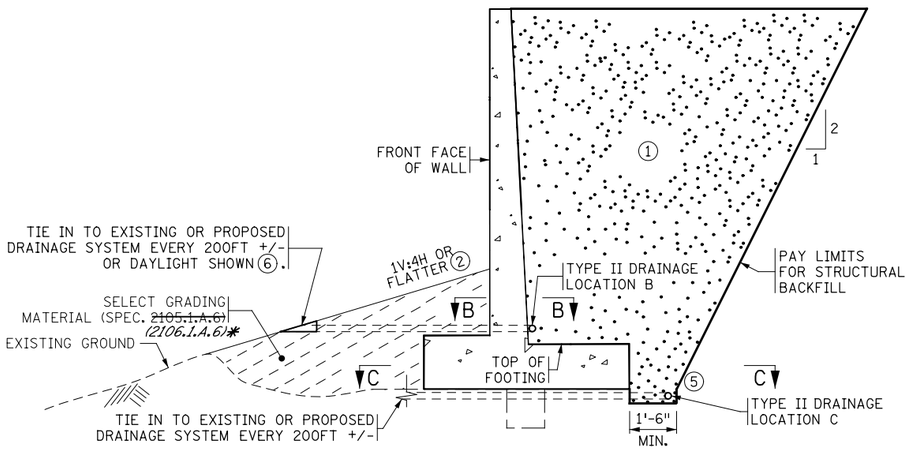
STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 308 OF 688 SHEETS

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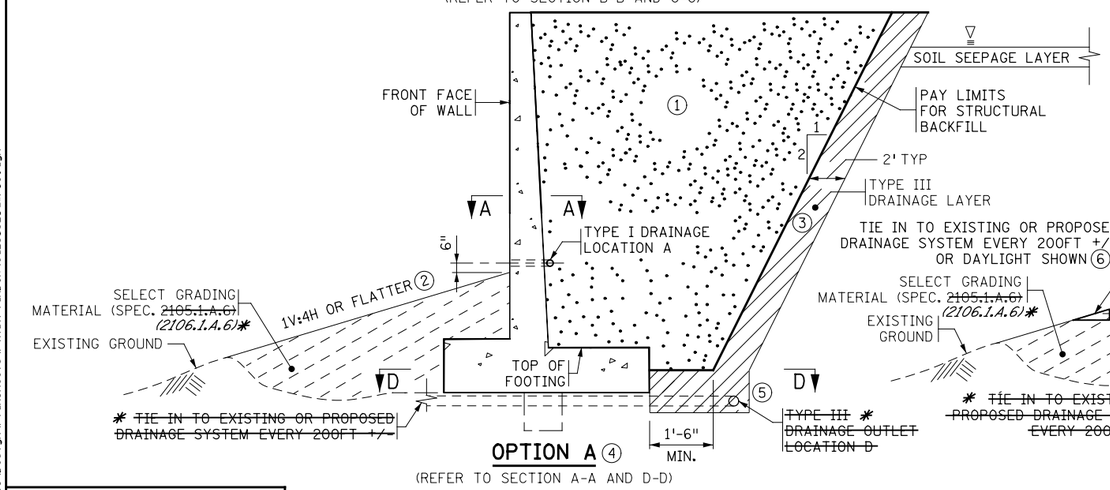
TYPICAL DRAINAGE SYSTEM DETAILS (TYPE I DRAINAGE) ④

(REFER TO SECTION A-A)



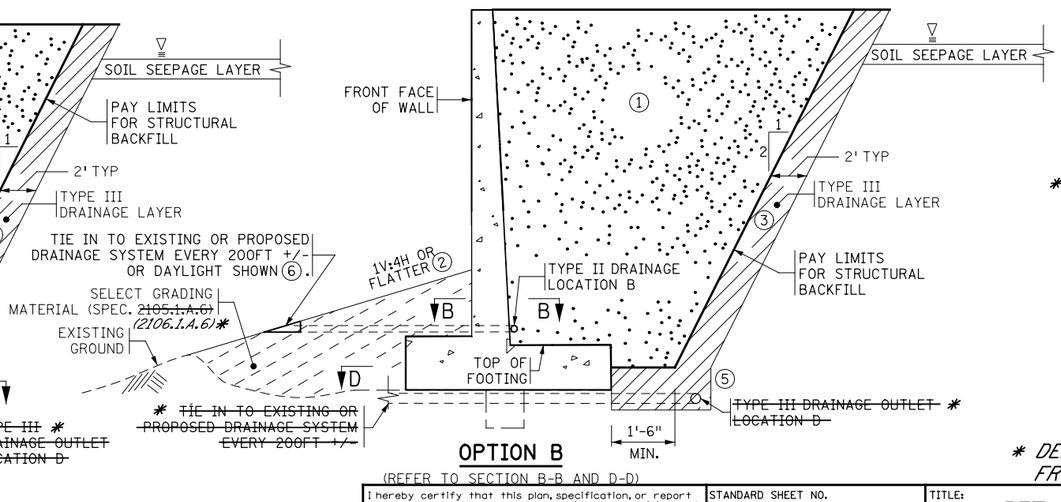
TYPICAL DRAINAGE SYSTEM DETAILS (TYPE II DRAINAGE)

(REFER TO SECTION B-B AND C-C)



OPTION A ④

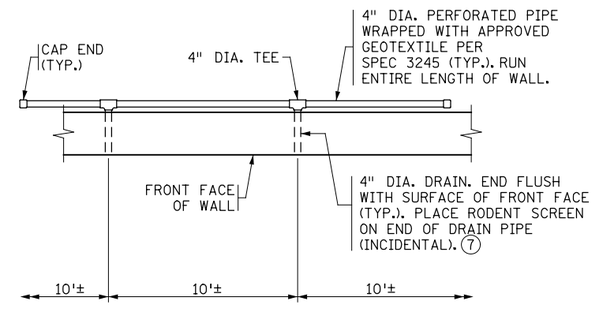
(REFER TO SECTION A-A AND D-D)



OPTION B

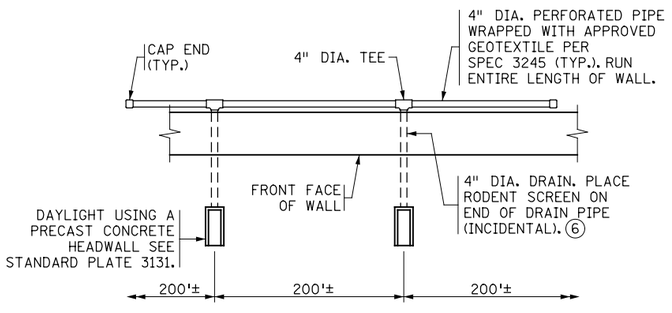
(REFER TO SECTION B-B AND D-D)

TYPICAL DRAINAGE SYSTEM DETAILS (TYPE III DRAINAGE)



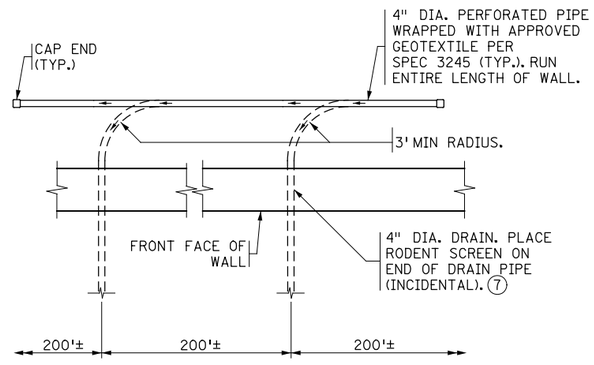
SECTION A-A

TYPE I DRAINAGE DETAIL, LOCATION A



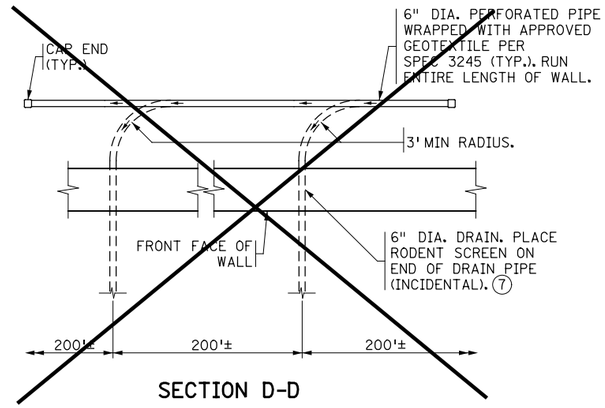
SECTION B-B

TYPE II DRAINAGE DETAIL, LOCATION B



SECTION C-C

TYPE II DRAINAGE DETAIL, LOCATION C



SECTION D-D

TYPE III DRAINAGE DETAIL, LOCATION D

NOTES:

BACKFILL MATERIAL SHALL COMPLETELY SURROUND PIPE AT ALL TIMES.

SLOPE PIPE TO ENSURE PROPER DRAINAGE AT ALL TIMES.

DRAINAGE SYSTEM PAID BY LUMP SUM PER SPEC. 2502.

① STRUCTURAL BACKFILL. SEE SHEET 5-297.620. COMPACT BACKFILL TO SPECIFIED DENSITY METHOD SPEC. ~~2105.3.F.1.~~ (2106.3.F.1)*

② PROVIDE SLOPE OF 1V:24H TO 1V:4H FOR PROPER DRAINAGE.

③ * ~~TYPE III DRAINAGE LAYER TO BE FINE FILTER AGGREGATE PER SPEC. 3149.2.J.2. FINE FILTER AGGREGATE MAY BE REPLACED WITH TYPE VI DRAINAGE GEOCOMPOSITE MATERIAL.~~

④ DRAINAGE SYSTEMS INSTALLED AT LOCATION A SHALL NOT BE USED WHEN A SIDEWALK, TRAIL, OR ROADWAY IS LOCATED ADJACENT TO THE FRONT FACE OF THE WALL TO PREVENT PONDING OR ICE ACCUMULATION.

⑤ EXTEND STRUCTURAL BACKFILL OR FINE FILTER AGGREGATE 8" BELOW BOTTOM OF FOOTING.

⑥ TYPE II LOCATION B DRAINAGE MAY DAYLIGHT DIRECTLY USING PRECAST CONCRETE HEADWALLS OR BE TIED INTO DRAINAGE SYSTEM.

⑦ THE RODENT SCREEN SHALL BE FABRICATED FROM CARBON STEEL FLATTENED EXPANDED METAL, STYLE ½" NO. 4F. IT SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED

REVISION:

APPROVED: AUGUST 27, 2014

Nancy Daubenberger
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.

Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

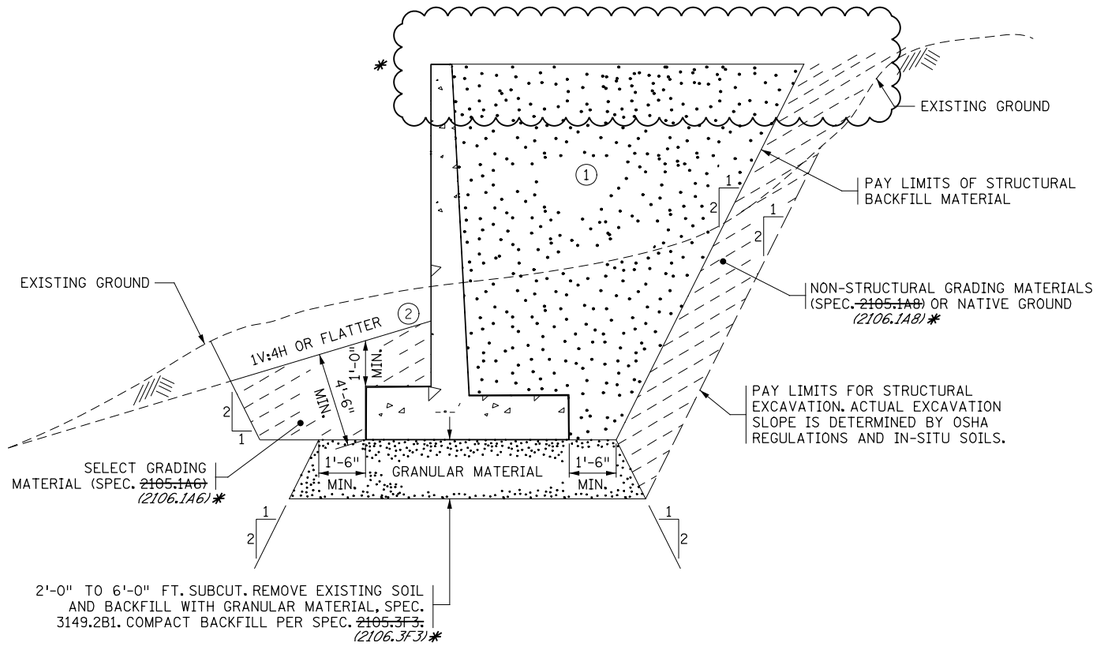
STANDARD SHEET NO. 5-297.624 (5 OF 6)

STANDARD APPROVED: AUGUST 27, 2014

TITLE: RETAINING WALL MISCELLANEOUS DETAILS (GEOTECHNICAL DETAILS)

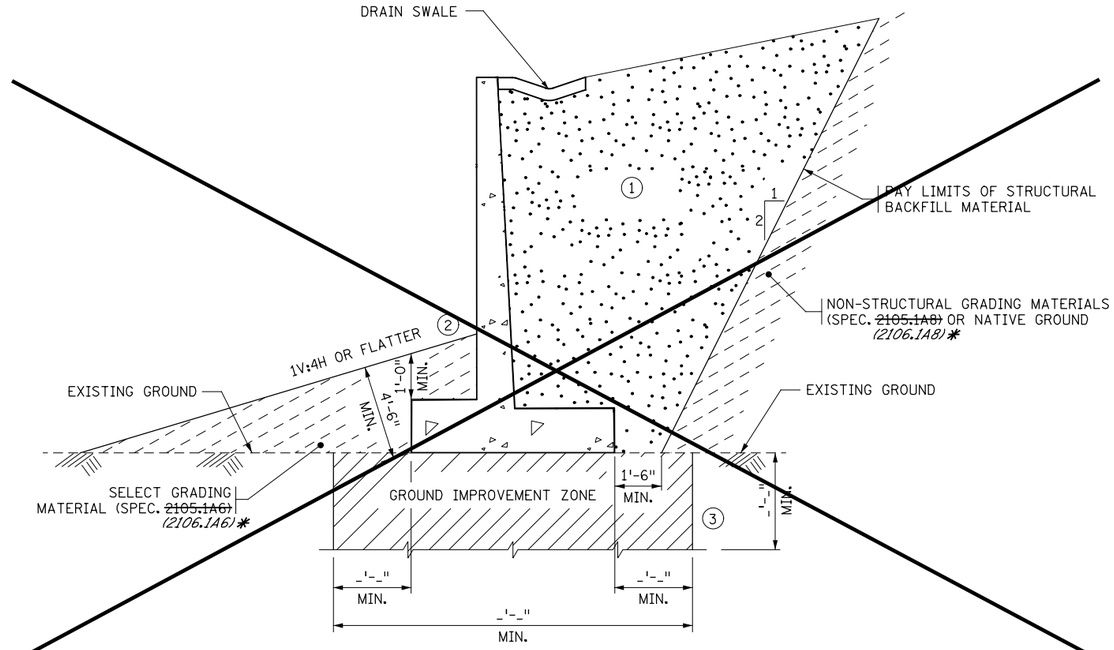
STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 309 OF 688 SHEETS

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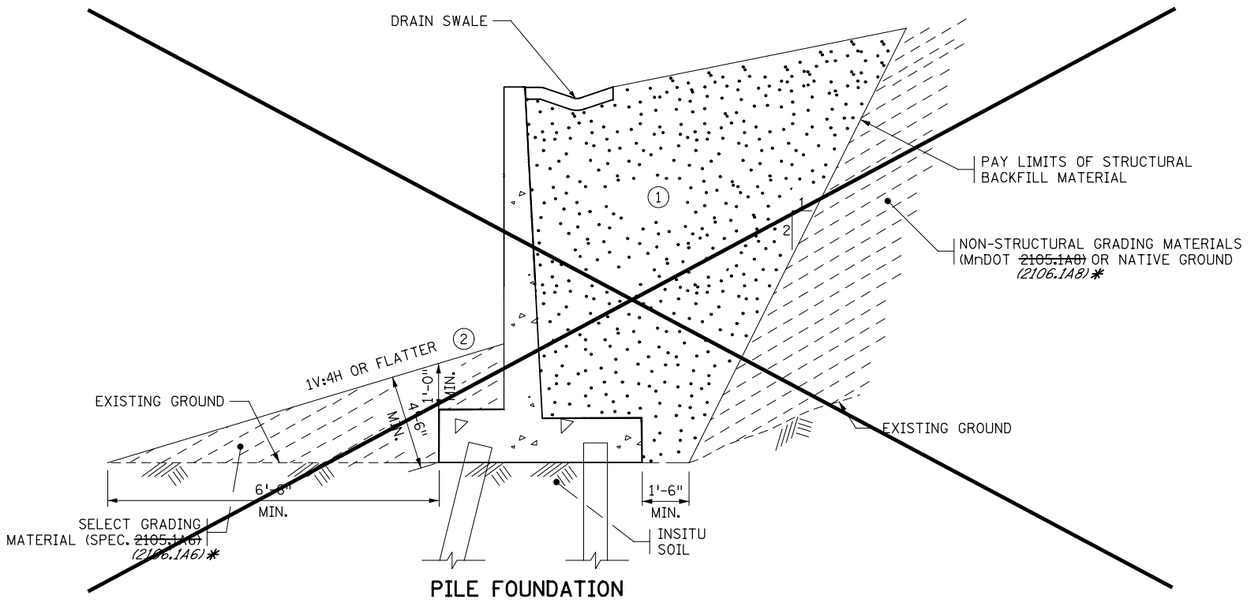
SPREAD FOOTING WITH SOIL SUBCUT

(NOT DRAWN TO SCALE)



SPREAD FOOTING PLACED OVER GROUND IMPROVEMENT

(NOT DRAWN TO SCALE)



PILE FOUNDATION

2-PILE SYSTEM SHOWN, OTHER SIMILAR
(NOT DRAWN TO SCALE)

1. BACKFILL WITH STRUCTURAL BACKFILL SPEC. 3149.2D2 COMPACT BACKFILL PER SPEC. ~~2105.3F3.~~ (2106.3F3)*
2. PROVIDE SLOPE OF 1V:24H TO 1V:4H FOR PROPER DRAINAGE.
3. PROVIDE SUFFICIENT COVERAGE AREA AND TREATMENT VOLUME TO GIVE GENERALLY UNIFORM SUPPORT TO THE FOUNDATION. IMPROVED GROUND OR SURFACE PREPARATIONS PLACED TO IMPROVE GROUND SUPPORT ARE TO BE IN IMMEDIATE CONTACT WITH THE FOOTING AND FOUNDATION MATERIAL.

** DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED

MODIFIED	
DATE	DESCRIPTION
4-27-16	-SECTION GEOMETRY
6-02-16	-REPLACE MNDOT SPEC 2105 WITH SPEC 2106

REVISION:

APPROVED: AUGUST 27, 2014

Nancy Daubenberger
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.

Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

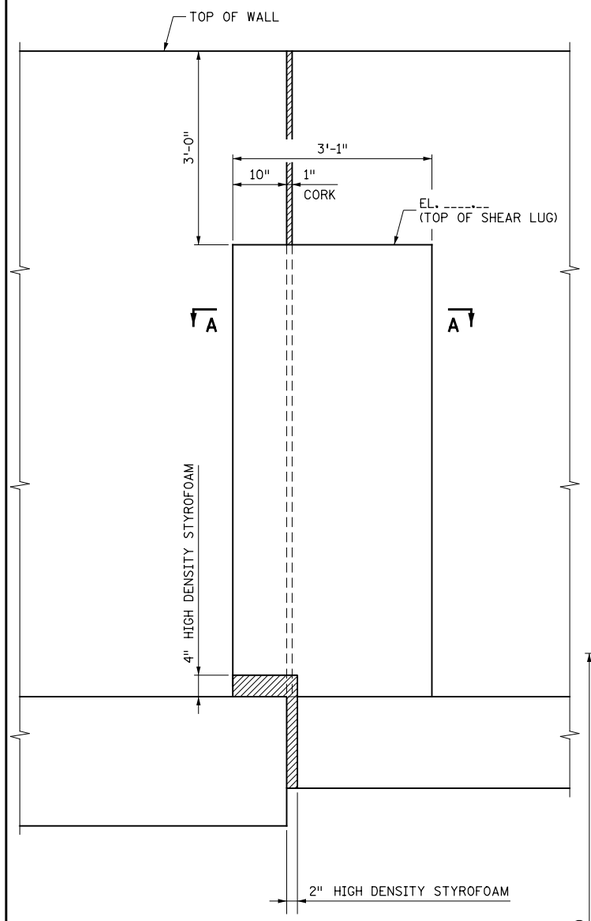
STANDARD SHEET NO. 5-297.624 (6 OF 6)

STANDARD APPROVED: AUGUST 27, 2014

TITLE: RETAINING WALL MISCELLANEOUS DETAILS (GEOTECHNICAL DETAILS)

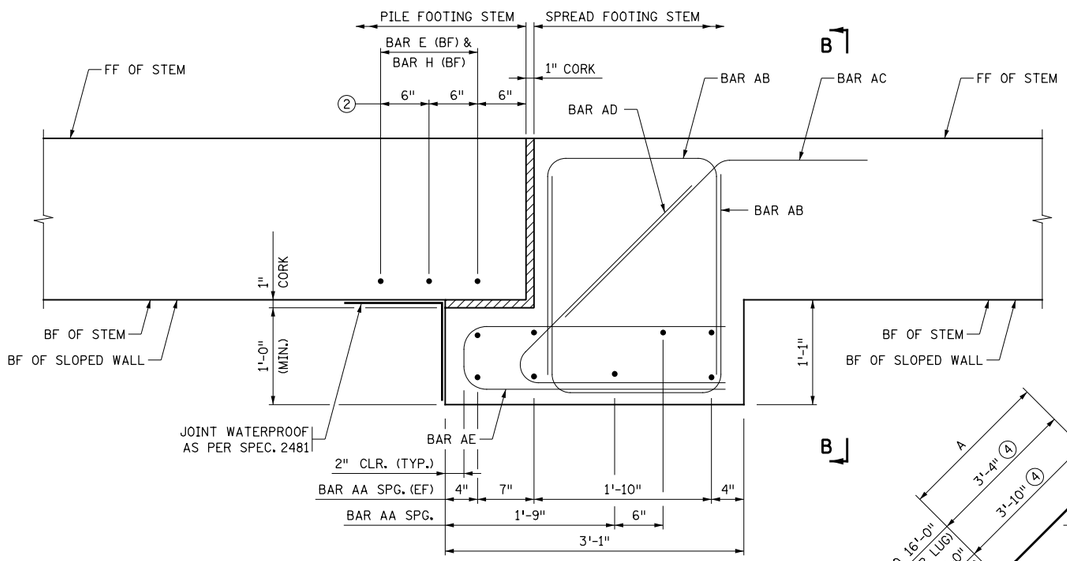
STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 310 OF 688 SHEETS

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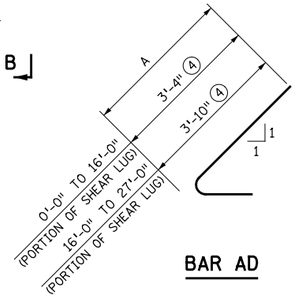
* ELEVATION

BF SHOWN

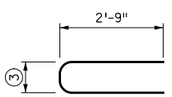


SECTION A-A

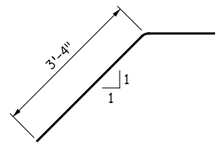
FOOTINGS NOT SHOWN
(ONLY SHEAR LUG REINFORCEMENT SHOWN. SEE WALL REINFORCEMENT PANEL SHEETS FOR OTHER REINFORCEMENT.)



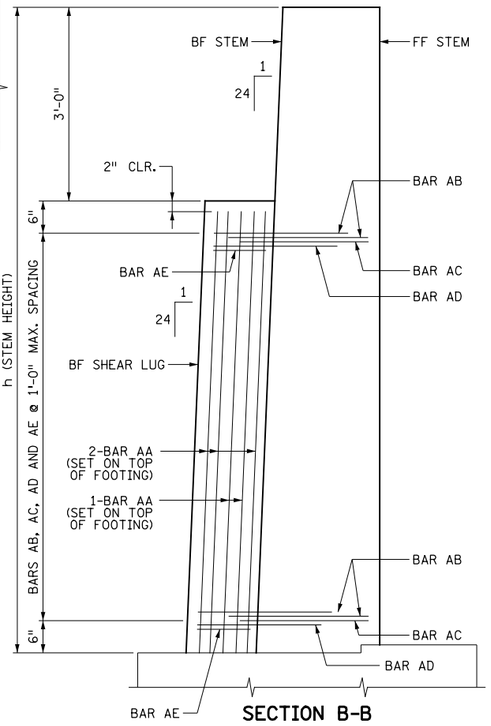
BAR AD



BAR AE

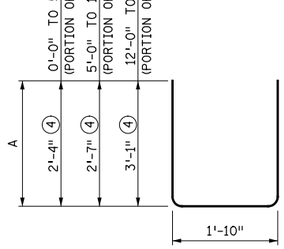


BAR AC



SECTION B-B

ONLY SHEAR LUG REINFORCEMENT SHOWN
(BF OF SLOPED WALL SHOWN)



BAR AB

BILL OF REINFORCEMENT ① FOR SHEAR LUG

	BAR	MARK	NO.	LENGTH	SHAPE	A - DIMENSION
②	E	F__05E	3	'- "	②	N.A.
②	H	S__02E	3	'- "	——	N.A.
	AA	S503E	8	'- "	——	N.A.
④	AB	S504E	___	6'-6"	⊔	2'-4"
④	AB	S505E	___	7'-0"	⊔	2'-7"
④	AB	S506E	___	8'-0"	⊔	3'-1"
	AC	S407E	___	4'-10"	⌐	N.A.
④	AD	S408E	___	4'-10"	⌐	3'-4"
④	AD	S409E	___	5'-4"	⌐	3'-10"
	AE	S410E	___	6'-2"	⌐⌐	N.A.

N.A. = NOT APPLICABLE

NOTES:

USE THIS DETAIL AT A RETAINING WALL JOINT WHEN THE WALL OR BRIDGE IS SUPPORTED ON PILE FOUNDATION ON ONE SIDE OF THE JOINT AND SPREAD FOOTING ON THE OTHER SIDE.

THE SHEAR LUG SHALL BE PROVIDED ON THE SPREAD FOOTING WALL AS SHOWN.

SHEAR LUG IS NOT REQUIRED IF:

WALL HEIGHT FROM TOP OF FOOTING TO TOP OF WALL IS LESS THAN 14 FEET WITHOUT A NOISE BARRIER

THE COMBINED HEIGHT OF RETAINING WALL AND NOISE BARRIER IS LESS THAN 23 FEET AND WALL HEIGHT FROM TOP OF FOOTING TO GRADE IS LESS THAN 13 FEET.

ADDITIONAL REINFORCING BARS, STRUCTURAL CONCRETE, SHOP DRAWINGS, AND ALL OTHER COMPONENTS REQUIRED TO CONSTRUCT SHEAR LUGS ARE INCIDENTAL.

BF DENOTES BACK FACE.
FF DENOTES FRONT FACE.
EF DENOTES EACH FACE.

① CONTRACTOR IS REQUIRED TO FILL THE BILL OF REINFORCEMENT TABLE AND SUBMIT IT TO THE PROJECT ENGINEER AT LEAST 3 WEEKS PRIOR TO REBAR FABRICATION.

② SEE PANEL TABULATIONS FOR BAR SIZE AND LENGTH. THESE BARS ARE IN ADDITION TO TYPICAL WALL REINFORCEMENT.

③ 8" WHEN BACK FACE OF WALL ON PILE FOOTING AND SHEAR LUG HAVE UNIFORM SLOPE. VARIES (8" MININMUM) WHEN BACK FACE OF WALL ON PILE FOOTING AND SHEAR LUG HAVE NON-UNIFORM SLOPE.

④ USE THE BAR LEG DIMENSION FOR THE PORTION OF SHEAR LUG LOCATION INDICATED IN THE BAR BEND IN DETAIL. (0'-0" REPRESENTS TOP OF THE SHEAR LUG).

*DENOTES MODIFICATIONS FROM STANDARD PLAN

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

REVISED:

APPROVED:
Christopher Ry
STATE DESIGN ENGINEER
8-27-2014

RETAINING WALL SHEAR LUG DETAILS

STANDARD PLAN 5-297.625 | 1 OF 1

NO	DATE	BY	CKD	APPR	REVISION

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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: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

SRF Consulting Group, Inc.
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
CIP RETAINING WALL DETAILS
SP 2515-21 (TH 63)
CIP WALL PANEL DETAILS

SHEET 311 OF 688

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h = 5' PANELS: — PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	18	32'-11"	STR.	LONG T & B	618
B	F502	31	8'-0"	STR.	TRANS BOT	259
C	F503	31	8'-0"	STR.	TRANS TOP	259
PILE FOUNDATION REINFORCEMENT						
~~A~~	~~F701~~	~~18~~	~~34'-2"~~	~~STR.~~	~~LONG T & B~~	~~1257~~
~~B~~	~~F602~~	~~31~~	~~8'-10"~~	~~7'-6"~~	~~TRANS BOT~~	~~411~~
~~C~~	~~F503~~	~~31~~	~~8'-8"~~	~~7'-6"~~	~~TRANS TOP~~	~~280~~
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F505E	31	4'-4"	10"	DOWEL BF	140
F	F506E	----	----	----	DOWEL BF	-----
G	S401E	31	3'-11"	STR.	VERT FF	81
H	S502E	31	3'-11"	STR.	VERT BF	127
J	S503E	----	----	STR.	VERT BF	-----
K	S504E	31	7'-2"	3'-0"	TIE	232
L	S405E	10	30'-0"	STR.	HORIZ EF	200
M	S506E	10	7'-4"	1'-4"	EXP JT TIE	76
N	S507E	----	7'-9"	1'-9"	EXP JT TIE	-----
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	2'-7"	e	----	
c	1'-5"	f	----	
d	8'-6"	g	2'-9¼"	
PILE FOUNDATION				
b	2'-9"	d	8'-0"	
c	2'-0"	g	2'-11¼"	
STEM				
a	1'-8½"	x	2'-1"	
j	1'-3⅞"	z	----	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	14.0		CU YD	
~~PILE~~	~~18.5~~		~~CU YD~~	
(STEM) * (3B52)				
STRUCTURAL CONCRETE ~~(3Y43)~~				
9.0			CU YD	
REINFORCEMENT (PLAIN)				
SPREAD	1135		LB	
~~PILE~~	~~1949~~		~~LB~~	
REINFORCEMENT (EPOXY)				
953			LB	

h = 6' PANELS: — PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	18	32'-11"	STR.	LONG T & B	618
B	F502	31	8'-0"	STR.	TRANS BOT	259
C	F503	31	8'-0"	STR.	TRANS TOP	259
PILE FOUNDATION REINFORCEMENT						
~~A~~	~~F701~~	~~18~~	~~34'-2"~~	~~STR.~~	~~LONG T & B~~	~~1257~~
~~B~~	~~F602~~	~~31~~	~~8'-10"~~	~~7'-6"~~	~~TRANS BOT~~	~~411~~
~~C~~	~~F503~~	~~31~~	~~8'-8"~~	~~7'-6"~~	~~TRANS TOP~~	~~280~~
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F505E	31	4'-4"	10"	DOWEL BF	140
F	F506E	----	----	----	DOWEL BF	-----
G	S401E	31	4'-11"	STR.	VERT FF	102
H	S502E	31	4'-11"	STR.	VERT BF	159
J	S503E	----	----	STR.	VERT BF	-----
K	S504E	31	7'-2"	3'-0"	TIE	232
L	S405E	12	30'-0"	STR.	HORIZ EF	240
M	S506E	12	7'-4"	1'-4"	EXP JT TIE	92
N	S507E	----	7'-9"	1'-9"	EXP JT TIE	-----
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	2'-7"	e	----	
c	1'-5"	f	----	
d	8'-6"	g	2'-9¼"	
PILE FOUNDATION				
b	2'-9"	d	8'-0"	
c	2'-0"	g	2'-11¼"	
STEM				
a	1'-9"	x	2'-1"	
j	1'-4⅜"	z	----	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	14.0		CU YD	
~~PILE~~	~~18.5~~		~~CU YD~~	
(STEM) * (3B52)				
STRUCTURAL CONCRETE ~~(3Y43)~~				
11.0			CU YD	
REINFORCEMENT (PLAIN)				
SPREAD	1135		LB	
~~PILE~~	~~1949~~		~~LB~~	
REINFORCEMENT (EPOXY)				
1062			LB	

h = 7' PANELS: — PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	18	32'-11"	STR.	LONG T & B	618
B	F502	31	8'-0"	STR.	TRANS BOT	259
C	F503	31	8'-0"	STR.	TRANS TOP	259
PILE FOUNDATION REINFORCEMENT						
A	F801	18	35'-4"	STR.	LONG T & B	1698
B	F602	31	8'-10"	7'-6"	TRANS BOT	411
C	F503	31	8'-8"	7'-6"	TRANS TOP	280
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F505E	31	4'-4"	10"	DOWEL BF	140
F	F506E	----	----	----	DOWEL BF	-----
G	S401E	31	4'-2"	STR.	VERT FF	86
H	S502E	31	4'-2"	STR.	VERT BF	135
J	S503E	----	----	STR.	VERT BF	-----
K	S504E	31	10'-4"	4'-9"	TIE	345
L	S405E	14	30'-0"	STR.	HORIZ EF	281
M	S506E	14	7'-4"	1'-4"	EXP JT TIE	107
N	S507E	----	7'-9"	1'-9"	EXP JT TIE	-----
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	2'-7"	e	----	
c	1'-5"	f	----	
d	8'-6"	g	2'-9¼"	
PILE FOUNDATION				
b	2'-9"	d	8'-0"	
c	2'-0"	g	2'-11¼"	
STEM				
a	1'-9½"	x	2'-1"	
j	1'-4⅞"	z	----	
QUANTITIES				
STRUCTURAL CONCRETE (1A43)				
(FOOTING)				
SPREAD	14.0		CU YD	
PILE	18.5		CU YD	
STRUCTURAL CONCRETE (3Y43)				
(STEM) * (3B52)				
13.0			CU YD	
REINFORCEMENT (PLAIN)				
SPREAD	1135		LB	
PILE	2390		LB	
REINFORCEMENT (EPOXY)				
1191			LB	

h = 8' PANELS: — PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	18	32'-11"	STR.	LONG T & B	618
B	F502	31	8'-0"	STR.	TRANS BOT	259
C	F503	31	8'-0"	STR.	TRANS TOP	259
PILE FOUNDATION REINFORCEMENT						
~~A~~	~~F801~~	~~18~~	~~35'-4"~~	~~STR.~~	~~LONG T & B~~	~~1698~~
~~B~~	~~F602~~	~~31~~	~~8'-10"~~	~~7'-6"~~	~~TRANS BOT~~	~~411~~
~~C~~	~~F503~~	~~31~~	~~8'-8"~~	~~7'-6"~~	~~TRANS TOP~~	~~280~~
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F505E	31	4'-4"	10"	DOWEL BF	140
F	F506E	----	----	----	DOWEL BF	-----
G	S401E	31	5'-2"	STR.	VERT FF	107
H	S502E	31	5'-2"	STR.	VERT BF	167
J	S503E	----	----	STR.	VERT BF	-----
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	16	30'-0"	STR.	HORIZ EF	321
M	S506E	16	7'-4"	1'-4"	EXP JT TIE	122
N	S507E	----	7'-9"	1'-9"	EXP JT TIE	-----
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	2'-7"	e	----	
c	1'-5"	f	----	
d	8'-6"	g	2'-9¼"	
PILE FOUNDATION				
b	2'-9"	d	8'-0"	
c	2'-0"	g	2'-11¼"	
STEM				
a	1'-10"	x	2'-1"	
j	1'-5⅜"	z	----	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	14.0		CU YD	
~~PILE~~	~~18.5~~		~~CU YD~~	
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3B52)				
15.0			CU YD	
REINFORCEMENT (PLAIN)				
SPREAD	1135		LB	
~~PILE~~	~~2390~~		~~LB~~	
REINFORCEMENT (EPOXY)				
1299			LB	

h = 9' PANELS: — PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	18	32'-11"	STR.	LONG T & B	618
B	F502	31	8'-0"	STR.	TRANS BOT	259
C	F503	31	8'-0"	STR.	TRANS TOP	259
PILE FOUNDATION REINFORCEMENT						
~~A~~	~~F801~~	~~18~~	~~35'-4"~~	~~STR.~~	~~LONG T & B~~	~~1698~~
~~B~~	~~F602~~	~~31~~	~~8'-10"~~	~~7'-6"~~	~~TRANS BOT~~	~~411~~
~~C~~	~~F503~~	~~31~~	~~8'-8"~~	~~7'-6"~~	~~TRANS TOP~~	~~280~~
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F505E	31	7'-9"	4'-1"	DOWEL BF	251
F	F506E	----	----	----	DOWEL BF	-----
G	S401E	31	6'-2"	STR.	VERT FF	128
H	S502E	31	6'-2"	STR.	VERT BF	199
J	S503E	----	----	STR.	VERT BF	-----
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	18	30'-0"	STR.	HORIZ EF	361
M	S506E	18	7'-4"	1'-4"	EXP JT TIE	138
N	S507E	----	7'-9"	1'-9"	EXP JT TIE	-----
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	2'-7"	e	----	
c	1'-5"	f	----	
d	8'-6"	g	2'-9¼"	
PILE FOUNDATION				
b	2'-9"	d	8'-0"	
c	2'-0"	g	2'-11¼"	
STEM				
a	1'-10½"	x	2'-1"	
j	1'-5⅞"	z	----	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	14.0		CU YD	
~~PILE~~	~~18.5~~		~~CU YD~~	
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3B52)				
17.1			CU YD	
REINFORCEMENT (PLAIN)				
SPREAD	1135		LB	
~~PILE~~	~~2390~~		~~LB~~	
REINFORCEMENT (EPOXY)				
1518			LB	

h = 10' PANELS: — PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	18	32'-11"	STR.	LONG T & B	618
B	F502	31	8'-0"	STR.	TRANS BOT	259
C	F503	31	8'-0"	STR.	TRANS TOP	259
PILE FOUNDATION REINFORCEMENT						
~~A~~	~~F901~~	~~18~~	~~36'-7"~~	~~STR.~~	~~LONG T & B~~	~~2239~~
~~B~~	~~F602~~	~~31~~	~~8'-10"~~	~~7'-6"~~	~~TRANS BOT~~	~~411~~
~~C~~	~~F503~~	~~31~~	~~8'-8"~~	~~7'-6"~~	~~TRANS TOP~~	~~280~~
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F505E	31	7'-9"	4'-1"	DOWEL BF	251
F	F506E	30	4'-1"	3'-0"	DOWEL BF	128
G	S401E	31	7'-2"	STR.	VERT FF	148
H	S502E	31	7'-2"	STR.	VERT BF	232
J	S503E	----	----	STR.	VERT BF	-----
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	20	30'-0"	STR.	HORIZ EF	401
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	----	7'-9"	1'-9"	EXP JT TIE	-----
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	2'-7"	e	----	
c	1'-5"	f	----	
d	8'-6"	g	2'-9¼"	
PILE FOUNDATION				
b	2'-9"	d	8'-0"	
c	2'-0"	g	2'-11¼"	
STEM				
a	1'-11"	x	2'-1"	
j	1'-6⅜"	z	2'-1"	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	14.0		CU YD	
~~PILE~~	~~18.5~~		~~CU YD~~	
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3B52)				
19.3			CU YD	
REINFORCEMENT (PLAIN)				
SPREAD	1135		LB	
~~PILE~~	~~2930~~		~~LB~~	
REINFORCEMENT (EPOXY)				
1754			LB	

h = 11' PANELS: — PANEL LENGTH = 30'-6"

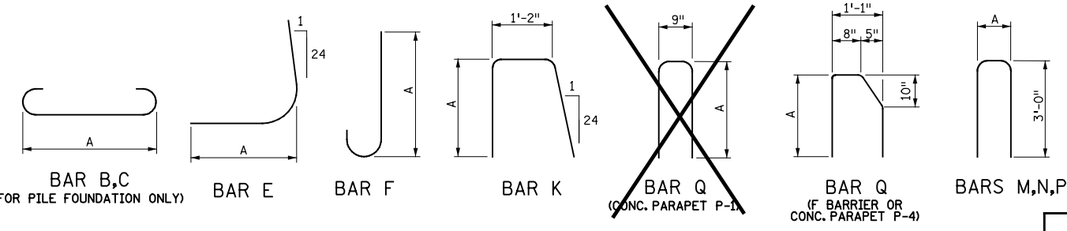
BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	18	32'-11"	STR.	LONG T & B	618
B	F502	31	8'-0"	STR.	TRANS BOT	259
C	F503	31	8'-0"	STR.	TRANS TOP	259
PILE FOUNDATION REINFORCEMENT						
~~A~~	~~F901~~	~~18~~	~~36'-7"~~	~~STR.~~	~~LONG T & B~~	~~2239~~
~~B~~	~~F602~~	~~31~~	~~8'-10"~~	~~7'-6"~~	~~TRANS BOT~~	~~411~~
~~C~~	~~F503~~	~~31~~	~~8'-8"~~	~~7'-6"~~	~~TRANS TOP~~	~~280~~
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F505E	31	7'-10"	4'-1"	DOWEL BF	253
F	F506E	30	4'-3"	3'-2"	DOWEL BF	133
G	S401E	31	8'-2"	STR.	VERT FF	169
H	S502E	31	8'-2"	STR.	VERT BF	264
J	S503E	----	----	STR.	VERT BF	-----
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	22	30'-0"	STR.	HORIZ EF	441
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	2	7'-9"	1'-9"	EXP JT TIE	16
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	2'-7"	e	----	
c	1'-5"	f	----	
d	8'-6"	g	2'-9¼"	
PILE FOUNDATION				
b	2'-9"	d	8'-0"	
c	2'-0"	g	2'-11¼"	
STEM				
a	1'-11½"	x	2'-1"	
j	1'-6⅞"	z	2'-3"	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	14.0		CU YD	
~~PILE~~	~~18.5~~		~~CU YD~~	
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3B52)				
21.4			CU YD	
REINFORCEMENT (PLAIN)				
SPREAD	1135		LB	
~~PILE~~	~~2930~~		~~LB~~	
REINFORCEMENT (EPOXY)				
1871			LB	

h = 12' PANELS: — PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	18	32'-11"	STR.	LONG T & B	618
B	F502	31	8'-0"	STR.	TRANS BOT	259
C	F603	31	8'-0"	STR.	TRANS TOP	372
PILE FOUNDATION REINFORCEMENT						
~~A~~	~~F701~~	~~18~~	~~34'-2"~~	~~STR.~~	~~LONG T & B~~	~~1257~~
~~B~~	~~F602~~	~~31~~	~~8'-10"~~	~~7'-6"~~	~~TRANS BOT~~	~~411~~
~~C~~	~~F503~~	~~31~~	~~8'-8"~~	~~7'-6"~~	~~TRANS TOP~~	~~280~~
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F505E	31	8'-1"	4'-2"	DOWEL BF	261
F	F506E	30	4'-3"	3'-2"	DOWEL BF	133
G	S401E	31	9'-2"	STR.	VERT FF	190
H	S502E	31	9'-2"	STR.	VERT BF	296
J	S503E	----	----	STR.	VERT BF	-----
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	24	30'-0"	STR.	HORIZ EF	481
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	4	7'-9"	1'-9"	EXP JT TIE	32
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	2'-7"	e	----	
c	1'-5"	f	----	
d	8'-6"	g	2'-9¼"	
PILE FOUNDATION				
b	2'-9"	d	8'-0"	
c	2'-3"	g	2'-11¼"	
STEM				
a	2'-0"	x	2'-1"	
j	1'-7⅜"	z	2'-3"	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	14.0		CU YD	
~~PILE~~	~~20.8~~		~~CU YD~~	
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3B52)				
23.7			CU YD	
REINFORCEMENT (PLAIN)				
SPREAD	1249		LB	
~~PILE~~	~~1949~~		~~LB~~	
REINFORCEMENT (EPOXY)				
1989			LB	



BAR B,C (FOR PILE FOUNDATION ONLY) — BAR E — BAR F — BAR K — ~~BAR Q (CONC. PARAPET P-1)~~ — BAR Q (F BARRIER OR CONC. PARAPET P-4) — BARS M,N,P

* DENOTES MODIFICATIONS FROM STANDARD PLAN

NOTES:

L = DENOTES PANEL LENGTH.
FF = DENOTES FRONT FACE.
BF = DENOTES BACK FACE.
EF = DENOTES EACH FACE.
DWL = DENOTES DOWEL.
BARS MARKED WITH THE SUFFIX "E" ARE EPOXY COATED.
x = PROJECTION OF BAR E INTO STEM.
z = PROJECTION OF BAR F INTO STEM.

MODIFIED

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

MODIFIED	
DATE	DESCRIPTION
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC

REVISED:

APPROVED: 8-27-2014
STATE DESIGN ENGINEER

RETAINING WALL PANEL TABULATIONS (LIVE LOAD SURCHARGE)

STANDARD PLAN 5-297.628 | 1 OF 3

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_wr21.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: LINDSEY B. RENSTROM
Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

SRF Consulting Group, Inc. — ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
CIP RETAINING WALL DETAILS
SP 2515-21 (TH 63)
WALL 1-7 PANEL TABULATIONS

SHEET 312 OF 688

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6/2/2016
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h = 13' PANELS: — PANEL LENGTH = 30'-6"

SPREAD FOOTING REINFORCEMENT							DIMENSIONS				
A	F501	18	32'-11"	STR.	LONG T & B	618	SPREAD FOOTING				
B	F502	31	8'-0"	STR.	TRANS BOT	259	b	2'-7"	e	----
C	F603	31	8'-0"	STR.	TRANS TOP	372	c	1'-5"	f	----
							d	8'-6"	g	2'-9¼"

PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION				
~~A~~	~~F701~~	~~18~~	~~34'-2"~~	~~STR.~~	~~LONG T & B~~	~~1257~~	b	2'-9"	d	8'-0"
~~B~~	~~F602~~	~~31~~	~~8'-10"~~	~~7'-6"~~	~~TRANS BOT~~	~~411~~	c	2'-3"	g	2'-11¼"
~~C~~	~~F503~~	~~31~~	~~8'-8"~~	~~7'-6"~~	~~TRANS TOP~~	~~280~~				

STEM				
a	2'-0½"	x	2'-1"	
j	1'-7⅞"	z	3'-3"	

FOOTING	DOWELS & STEM REINFORCEMENT						QUANTITIES		
D	F504E	31	3'-0"	STR.	DOWEL FF	97	~~STRUCTURAL CONCRETE (1A43)~~		
E	F505E	31	8'-1"	4'-2"	DOWEL BF	261	(FOOTING) ✱ (1G52)		
F	F506E	30	5'-3"	4'-2"	DOWEL BF	164	SPREAD	14.0	CU YD
G	S401E	31	10'-2"	STR.	VERT FF	211	~~PILE~~	~~20.8~~	~~CU YD~~
H	S502E	31	10'-2"	STR.	VERT BF	329	~~STRUCTURAL CONCRETE (3Y43)~~		
J	S503E	----	----	STR.	VERT BF	-----	(STEM) ✱ (3B52)		
K	S504E	31	10'-8"	4'-9"	TIE	345	26.0		CU YD
L	S405E	26	30'-0"	STR.	HORIZ EF	521	REINFORCEMENT (PLAIN)		
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1249	LB
N	S507E	6	7'-9"	1'-9"	EXP JT TIE	48	~~PILE~~	~~1949~~	~~LB~~
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----	REINFORCEMENT (EPOXY)		
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340	2129		LB
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245			

h = 14' PANELS: — PANEL LENGTH = 30'-6"

SPREAD FOOTING REINFORCEMENT							DIMENSIONS				
A	F501	18	32'-11"	STR.	LONG T & B	618	SPREAD FOOTING				
B	F502	31	8'-0"	STR.	TRANS BOT	259	b	2'-7"	e	----
C	F603	31	9'-0"	STR.	TRANS TOP	372	c	1'-7"	f	----
							d	8'-6"	g	2'-9¼"

PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION				
A	F701	18	34'-2"	STR.	LONG T & B	1257	b	2'-9"	d	8'-0"
B	F602	31	8'-10"	7'-6"	TRANS BOT	411	c	2'-3"	g	2'-11¼"
C	F503	31	8'-8"	7'-6"	TRANS TOP	280				

STEM				
a	2'-1"	x	2'-1"	
j	1'-8⅜"	z	4'-4"	

FOOTING	DOWELS & STEM REINFORCEMENT						QUANTITIES		
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (1A43)		
E	F505E	31	8'-2"	4'-3"	DOWEL BF	264	(FOOTING)		
F	F606E	30	6'-7"	5'-5"	DOWEL BF	297	SPREAD	15.6	CU YD
G	S401E	31	11'-2"	STR.	VERT FF	231	PILE	20.8	CU YD
H	S502E	31	11'-2"	STR.	VERT BF	361	STRUCTURAL CONCRETE (3Y43)		
J	S503E	----	----	STR.	VERT BF	-----	(STEM)		
K	S504E	31	10'-8"	4'-9"	TIE	345	28.3		CU YD
L	S405E	28	30'-0"	STR.	HORIZ EF	561	REINFORCEMENT (PLAIN)		
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1849	LB
N	S507E	8	7'-9"	1'-9"	EXP JT TIE	65	PILE	1945	LB
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----	REINFORCEMENT (EPOXY)		
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340	2374		LB
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245			

h = 15' PANELS: — PANEL LENGTH = 30'-6"

SPREAD FOOTING REINFORCEMENT							DIMENSIONS				
A	F501	18	32'-11"	STR.	LONG T & B	618	SPREAD FOOTING				
B	F502	31	8'-0"	STR.	TRANS BOT	259	b	2'-7"	e	----
C	F703	31	9'-0"	STR.	TRANS TOP	507	c	1'-7"	f	----
							d	8'-6"	g	2'-9¼"

PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION				
A	F701	18	34'-2"	STR.	LONG T & B	1257	b	2'-9"	d	8'-0"
B	F602	31	8'-10"	7'-6"	TRANS BOT	411	c	2'-3"	g	2'-11¼"
C	F503	31	8'-8"	7'-6"	TRANS TOP	280				

STEM				
a	2'-1½"	x	2'-4"	
j	1'-8¾"	z	5'-10"	

FOOTING	DOWELS & STEM REINFORCEMENT						QUANTITIES		
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (1A43)		
E	F605E	31	8'-5"	4'-3"	DOWEL BF	392	(FOOTING)		
F	F606E	30	8'-1"	6'-11"	DOWEL BF	364	SPREAD	15.6	CU YD
G	S401E	31	12'-2"	STR.	VERT FF	252	PILE	20.8	CU YD
H	S502E	31	12'-2"	STR.	VERT BF	393	STRUCTURAL CONCRETE (3Y43)		
J	S503E	----	----	STR.	VERT BF	-----	(STEM)		
K	S504E	31	10'-8"	4'-9"	TIE	345	30.7		CU YD
L	S405E	30	30'-0"	STR.	HORIZ EF	601	REINFORCEMENT (PLAIN)		
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1984	LB
N	S507E	10	7'-9"	1'-9"	EXP JT TIE	81	PILE	1945	LB
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----	REINFORCEMENT (EPOXY)		
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340	2678		LB
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245			

h = 16' PANELS: — PANEL LENGTH = 30'-6"

SPREAD FOOTING REINFORCEMENT							DIMENSIONS				
A	F501	18	32'-11"	STR.	LONG T & B	618	SPREAD FOOTING				
B	F502	31	8'-0"	STR.	TRANS BOT	259	b	2'-7"	e	----
C	F703	31	9'-0"	STR.	TRANS TOP	507	c	1'-9"	f	----
							d	8'-6"	g	2'-9¼"

PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION				
A	F601	22	33'-5"	STR.	LONG T & B	1104	b	4'-0"	d	10'-6"
B	F702	31	11'-8"	10'-0"	TRANS BOT	739	c	2'-6"	g	4'-2⅜"
C	F603	31	11'-4"	10'-0"	TRANS TOP	528				

STEM				
a	2'-2"	x	2'-1"	
j	1'-9¼"	z	6'-9"	

FOOTING	DOWELS & STEM REINFORCEMENT						QUANTITIES		
D	F504E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURAL CONCRETE (1A43)		
E	F605E	31	9'-9"	4'-4"	DOWEL BF	454	(FOOTING)		
F	F706E	30	9'-4"	8'-0"	DOWEL BF	572	SPREAD	17.2	CU YD
G	S401E	31	13'-2"	STR.	VERT FF	273	PILE	30.3	CU YD
H	S502E	31	13'-2"	STR.	VERT BF	426	STRUCTURAL CONCRETE (3Y43)		
J	S503E	----	----	STR.	VERT BF	-----	(STEM)		
K	S504E	31	10'-8"	4'-9"	TIE	345	33.1		CU YD
L	S405E	32	30'-0"	STR.	HORIZ EF	641	REINFORCEMENT (PLAIN)		
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1384	LB
N	S507E	12	7'-9"	1'-9"	EXP JT TIE	97	PILE	2371	LB
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----	REINFORCEMENT (EPOXY)		
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340	3058		LB
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245			

h = 17' PANELS: — PANEL LENGTH = 30'-6"

SPREAD FOOTING REINFORCEMENT							DIMENSIONS				
A	F501	20	32'-11"	STR.	LONG T & B	687	SPREAD FOOTING				
B	F502	31	8'-6"	STR.	TRANS BOT	275	b	2'-9"	e	----
C	F803	31	8'-6"	STR.	TRANS TOP	704	c	1'-9"	f	----
							d	9'-0"	g	2'-11¼"

PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION				
A	F601	22	33'-5"	STR.	LONG T & B	1104	b	4'-0"	d	10'-6"
B	F702	31	11'-8"	10'-0"	TRANS BOT	739	c	2'-6"	g	4'-2⅞"
C	F603	31	11'-4"	10'-0"	TRANS TOP	528				

STEM				
a	2'-2½"	x	3'-1"	
j	1'-9⅞"	z	5'-2"	

FOOTING	DOWELS & STEM REINFORCEMENT						QUANTITIES		
D	F504E	31	3'-0"	STR.	DOWEL FF	97	~~STRUCTURAL CONCRETE (1A43)~~		
E	F605E	31	10'-9"	4'-6"	DOWEL BF	501	(FOOTING) ✱ (1G52)		
F	F706E	30	7'-9"	6'-5"	DOWEL BF	475	SPREAD	18.2	CU YD
G	S401E	31	14'-2"	STR.	VERT FF	293	~~PILE~~	~~30.3~~	~~CU YD~~
H	S502E	31	14'-2"	STR.	VERT BF	458	STRUCTURAL CONCRETE ~~(3Y43)~~		
J	S503E	30	8'-9"	STR.	VERT BF	274	(STEM) ✱ (3B52)		
K	S504E	31	10'-8"	4'-9"	TIE	345	35.6		CU YD
L	S405E	34	30'-0"	STR.	HORIZ EF	681	REINFORCEMENT (PLAIN)		
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1665	LB
N	S507E	14	7'-9"	1'-9"	EXP JT TIE	113	~~PILE~~	~~2371~~	~~LB~~
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----	REINFORCEMENT (EPOXY)		
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340	3390		LB
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245			

h = 18' PANELS: — PANEL LENGTH = 30'-6"

SPREAD FOOTING REINFORCEMENT							DIMENSIONS				
A	F501	20	32'-11"	STR.	LONG T & B	687	SPREAD FOOTING				
B	F502	31	9'-0"	STR.	TRANS BOT	291	b	3'-0"	e	----
C	F803	31	9'-0"	STR.	TRANS TOP	745	c	1'-9"	f	----
							d	9'-6"	g	3'-2¼"

PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION				
A	F601	22	33'-5"	STR.	LONG T & B	1104	b	4'-0"	d	10'-6"
B	F702	31	11'-8"	10'-0"	TRANS BOT	739	c	2'-6"	g	4'-2⅞"
C	F603	31	11'-4"	10'-0"	TRANS TOP	528				

STEM				
a	2'-3"	x	4'-4"	
j	1'-10⅜"	z	6'-2"	

FOOTING	DOWELS & STEM REINFORCEMENT						QUANTITIES		
D	F504E	31	3'-0"	STR.	DOWEL FF	97	~~STRUCTURAL CONCRETE (1A43)~~		
E	F605E	31	12'-1"	4'-10"	DOWEL BF	563	(FOOTING) ✱ (1G52)		
F	F706E	30	8'-9"	7'-5"	DOWEL BF	537	SPREAD	19.2	CU YD
G	S401E	31	15'-2"	STR.	VERT FF	314	~~PILE~~	~~30.3~~	~~CU YD~~
H	S502E	31	15'-2"	STR.	VERT BF	490	~~STRUCTURAL CONCRETE (3Y43)~~		
J	S503E	30	9'-9"	STR.	VERT BF	305	(STEM) ✱ (3B52)		
K	S504E	31	10'-8"	4'-9"	TIE	345	38.1		CU YD
L	S405E	36	30'-0"	STR.	HORIZ EF	721	REINFORCEMENT (PLAIN)		
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	1723	LB
N	S507E	16	7'-9"	1'-9"	EXP JT TIE	129	~~PILE~~	~~2371~~	~~LB~~
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----	REINFORCEMENT (EPOXY)		
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340	3654		LB
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245			

h = 19' PANELS: — PANEL LENGTH = 30'-6"

SPREAD FOOTING REINFORCEMENT							DIMENSIONS				
A	F501	22	32'-11"	STR.	LONG T & B	755	SPREAD FOOTING				
B	F502	31	9'-6"	STR.	TRANS BOT	307	b	3'-2"	e	----
C	F903	31	9'-6"	STR.	TRANS TOP	1001	c	1'-9"	f	----
							d	10'-0"	g	3'-4¼"

PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION				
A	F601	22	33'-5"	STR.	LONG T & B	1104	b	4'-0"	d	10'-6"
B	F702	31	11'-8"	10'-0"	TRANS BOT	739	c	2'-6"	g	4'-2⅞"
C	F603	31	11'-4"	10'-0"	TRANS TOP	528				

STEM				
a	2'-3½"	x	6'-9"	
j	1'-10¾"	z	3'-3"	

FOOTING	DOWELS & STEM REINFORCEMENT						QUANTITIES		
D	F504E	31	3'-0"	STR.	DOWEL FF	97	~~STRUCTURAL CONCRETE (1A43)~~		
E	F705E	31	14'-6"	5'-0"	DOWEL BF	919	(FOOTING) ✱ (1G52)		
F	F706E	30	5'-10"	4'-6"	DOWEL BF	358	SPREAD	20.3	CU YD
G	S401E	31	16'-2"	STR.	VERT FF	335	~~PILE~~	~~30.3~~	~~CU YD~~
H	S502E	31	16'-2"	STR.	VERT BF	523	STRUCTURAL CONCRETE ~~(3Y43)~~		
J	S603E	30	10'-4"	STR.	VERT BF	417	(STEM) ✱ (3B52)		
K	S504E	31	10'-8"	4'-9"	TIE	345	40.6		CU YD
L	S405E	38	30'-0"	STR.	HORIZ EF	762	REINFORCEMENT (PLAIN)		
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	2064	LB
N	S507E	18	7'-9"	1'-9"	EXP JT TIE	145	~~PILE~~	~~2371~~	~~LB~~
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----	REINFORCEMENT (EPOXY)		
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340	4053		LB
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245			

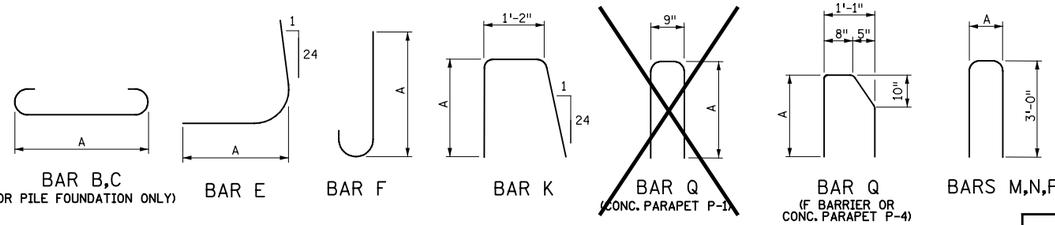
h = 20' PANELS: — PANEL LENGTH = 30'-6"

SPREAD FOOTING REINFORCEMENT							DIMENSIONS				
A	F501	22	32'-11"	STR.	LONG T & B	755	SPREAD FOOTING				
B	F502	31	10'-1"	STR.	TRANS BOT	326	b	3'-4"	e	----
C	F903	31	10'-1"	STR.	TRANS TOP	1063	c	1'-11"	f	----
							d	10'-7"	g	3'-6¼"

PILE FOUNDATION REINFORCEMENT							PILE FOUNDATION				
A	F601	22	33'-5"	STR.	LONG T & B	1104	b	4'-0"	d	10'-6"
B	F702	31	11'-8"	10'-0"	TRANS BOT	739	c	2'-6"	g	4'-2⅞"
C	F603	31	11'-4"	10'-0"	TRANS TOP	528				

STEM				
a	2'-4"	x	3'-3"	
j	1'-11¼"	z	7'-9"	

FOOTING	DOWELS & STEM REINFORCEMENT						QUANTITIES		
D	F504E	31	3'-0"	STR.	DOWEL FF	97	~~STRUCTURAL CONCRETE (1A43)~~		
E	F705E	31	11'-1"	5'-3"	DOWEL BF	702	(FOOTING) ✱ (1G52)		
F	F806E	30	10'-7"	9'-2"	DOWEL BF	848	SPREAD	24.1	CU YD
G	S401E	31	17'-2"	STR.	VERT FF	355	~~PILE~~	~~31.1~~	~~CU YD~~
H	S502E	31	17'-2"	STR.	VERT BF	555	STRUCTURAL CONCRETE ~~(3Y43)~~		
J	S603E	30	10'-4"	STR.	VERT BF	466	(STEM) ✱ (3B52)		
K	S504E	31	10'-8"	4'-9"	TIE	345	43.2		CU YD
L	S405E	40	30'-0"	STR.	HORIZ EF	802	REINFORCEMENT (PLAIN)		
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	2144	LB
N	S507E	20	7'-9"	1'-9"	EXP JT TIE	162	~~PILE~~	~~2371~~	~~LB~~
P	S508E	----	8'-2"	2'-2"	EXP JT TIE	-----	REINFORCEMENT (EPOXY)		
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340	4484		LB
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245			



BAR B,C (FOR PILE FOUNDATION ONLY) — BAR E — BAR F — BAR K — ~~BAR Q (CONC. PARAPET P-1)~~ — BAR Q (F BARRIER OR CONC. PARAPET P-4) — BARS M,N,P

NOTES:
- L = DENOTES PANEL LENGTH.
- FF = DENOTES FRONT FACE.
- BF = DENOTES BACK FACE.
- EF = DENOTES EACH FACE.
- DWL = DENOTES DOWEL.
- BARS MARKED WITH THE SUFFIX "E" ARE EPOXY COATED.
- x = PROJECTION OF BAR E INTO STEM.
- z = PROJECTION OF BAR F INTO STEM.

✱ DENOTES MODIFICATIONS FROM STANDARD PLAN

MODIFIED

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

MODIFIED	
DATE	DESCRIPTION
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC

REVISED:

STATE DESIGN ENGINEER

APPROVED: 8-27-2014

RETAINING WALL PANEL TABULATIONS (LIVE LOAD SURCHARGE)

STANDARD PLAN 5-297.628 — 2 OF 3

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_wr22.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: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

SRF Consulting Group, Inc.

ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL DETAILS
SP 2515-21 (TH 63)
WALL 1-7 PANEL TABULATIONS

SHEET 313 OF 688

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6/2/2016
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h = 21' PANELS: PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	24	32'-11"	STR.	LONG T & B	824
B	F502	31	10'-6"	STR.	TRANS BOT	339
C	F903	31	10'-6"	STR.	TRANS TOP	1107
PILE FOUNDATION REINFORCEMENT						
A	F601	22	33'-5"	STR.	LONG T & B	1104
B	F702	31	11'-8"	10'-0"	TRANS BOT	739
C	F603	31	11'-4"	10'-0"	TRANS TOP	528
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F805E	31	11'-11"	5'-6"	DOWEL BF	986
F	F806E	30	10'-7"	9'-2"	DOWEL BF	848
G	S401E	31	18'-2"	STR.	VERT FF	376
H	S602E	31	18'-2"	STR.	VERT BF	846
J	S603E	30	9'-10"	STR.	VERT BF	443
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	42	30'-0"	STR.	HORIZ EF	842
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	20	7'-9"	1'-9"	EXP JT TIE	162
P	S508E	2	8'-2"	2'-2"	EXP JT TIE	17
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	3'-6"	e	----	
c	1'-11"	f	----	
d	11'-0"	g	3'-8¼"	
PILE FOUNDATION				
b	4'-0"	d	10'-6"	
c	2'-6"	g	4'-2⅞"	
STEM				
a	2'-4½"	x	4'-0"	
j	1'-11¼"	z	7'-9"	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	25.1	CU YD		
~~PILE~~	~~31.1~~	~~CU YD~~		
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3852)				
45.9	CU YD			
REINFORCEMENT (PLAIN)				
SPREAD	2270	LB		
~~PILE~~	~~2371~~	~~LB~~		
REINFORCEMENT (EPOXY)				
5114	LB			

h = 22' PANELS: PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	24	32'-11"	STR.	LONG T & B	824
B	F502	31	11'-1"	STR.	TRANS BOT	358
C	F903	31	11'-1"	STR.	TRANS TOP	1168
PILE FOUNDATION REINFORCEMENT						
A	F501	28	32'-11"	STR.	LONG T & B	961
B	F802	31	14'-10"	13'-0"	TRANS BOT	1228
C	F803	31	14'-10"	13'-0"	TRANS TOP	1228
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F805E	31	12'-9"	5'-8"	DOWEL BF	1055
F	F906E	30	9'-7"	7'-10"	DOWEL BF	978
G	S401E	31	19'-2"	STR.	VERT FF	397
H	S602E	31	19'-2"	STR.	VERT BF	892
J	S703E	30	11'-3"	STR.	VERT BF	690
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	44	30'-0"	STR.	HORIZ EF	882
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	20	7'-9"	1'-9"	EXP JT TIE	162
P	S508E	4	8'-2"	2'-2"	EXP JT TIE	34
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	3'-8"	e	----	
c	2'-1"	f	----	
d	11'-7"	g	3'-10¼"	
PILE FOUNDATION				
b	5'-6"	d	13'-6"	
c	2'-9"	g	5'-8¼"	
STEM				
a	2'-5"	x	3'-1"	
j	2'-0¼"	z	6'-3"	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	28.6	CU YD		
~~PILE~~	~~43.8~~	~~CU YD~~		
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3852)				
48.6	CU YD			
REINFORCEMENT (PLAIN)				
SPREAD	2350	LB		
~~PILE~~	~~3417~~	~~LB~~		
REINFORCEMENT (EPOXY)				
5684	LB			

h = 23' PANELS: PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	26	32'-11"	STR.	LONG T & B	893
B	F502	31	11'-7"	STR.	TRANS BOT	375
C	F903	31	11'-7"	STR.	TRANS TOP	1221
PILE FOUNDATION REINFORCEMENT						
A	F501	28	32'-11"	STR.	LONG T & B	961
B	F802	31	14'-10"	13'-0"	TRANS BOT	1228
C	F803	31	14'-10"	13'-0"	TRANS TOP	1228
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F905E	31	14'-5"	5'-10"	DOWEL BF	1520
F	F906E	30	9'-7"	7'-10"	DOWEL BF	978
G	S401E	31	20'-2"	STR.	VERT FF	418
H	S702E	31	20'-2"	STR.	VERT BF	1278
J	S703E	30	10'-3"	STR.	VERT BF	629
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	46	30'-0"	STR.	HORIZ EF	922
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	20	7'-9"	1'-9"	EXP JT TIE	162
P	S508E	6	8'-2"	2'-2"	EXP JT TIE	51
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	3'-10"	e	----	
c	2'-1"	f	----	
d	12'-1"	g	4'-0¼"	
PILE FOUNDATION				
b	5'-6"	d	13'-6"	
c	2'-9"	g	5'-8¼"	
STEM				
a	2'-5½"	x	4'-9"	
j	2'-0⅝"	z	6'-3"	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	29.8	CU YD		
~~PILE~~	~~43.8~~	~~CU YD~~		
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3852)				
51.3	CU YD			
REINFORCEMENT (PLAIN)				
SPREAD	2488	LB		
~~PILE~~	~~3417~~	~~LB~~		
REINFORCEMENT (EPOXY)				
6550	LB			

h = 24' PANELS: PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	26	32'-11"	STR.	LONG T & B	893
B	F502	31	12'-1"	STR.	TRANS BOT	391
C	F1003	31	12'-1"	STR.	TRANS TOP	1612
PILE FOUNDATION REINFORCEMENT						
A	F501	28	32'-11"	STR.	LONG T & B	961
B	F802	31	14'-10"	13'-0"	TRANS BOT	1228
C	F803	31	14'-10"	13'-0"	TRANS TOP	1228
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F905E	31	16'-1"	6'-1"	DOWEL BF	1695
F	F1006E	30	9'-6"	7'-7"	DOWEL BF	1226
G	S401E	31	21'-2"	STR.	VERT FF	438
H	S702E	31	21'-2"	STR.	VERT BF	1341
J	S803E	30	12'-0"	STR.	VERT BF	961
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	48	30'-0"	STR.	HORIZ EF	962
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	20	7'-9"	1'-9"	EXP JT TIE	162
P	S508E	8	8'-2"	2'-2"	EXP JT TIE	68
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	4'-0"	e	----	
c	2'-3"	f	----	
d	12'-7"	g	4'-2⅜"	
PILE FOUNDATION				
b	5'-6"	d	13'-6"	
c	2'-9"	g	5'-8¼"	
STEM				
a	2'-6"	x	6'-3"	
j	2'-1⅛"	z	5'-10"	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	33.4	CU YD		
~~PILE~~	~~43.8~~	~~CU YD~~		
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3852)				
54.1	CU YD			
REINFORCEMENT (PLAIN)				
SPREAD	2895	LB		
~~PILE~~	~~3417~~	~~LB~~		
REINFORCEMENT (EPOXY)				
7449	LB			

h = 25' PANELS: PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	28	32'-11"	STR.	LONG T & B	961
B	F502	31	12'-7"	STR.	TRANS BOT	407
C	F1003	31	12'-7"	STR.	TRANS TOP	1678
PILE FOUNDATION REINFORCEMENT						
A	F501	28	32'-11"	STR.	LONG T & B	961
B	F802	31	14'-10"	13'-0"	TRANS BOT	1228
C	F803	31	14'-10"	13'-0"	TRANS TOP	1228
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F905E	31	17'-2"	6'-3"	DOWEL BF	1803
F	F1006E	30	9'-6"	7'-7"	DOWEL BF	1226
G	S401E	31	22'-2"	STR.	VERT FF	459
H	S702E	31	22'-2"	STR.	VERT BF	1405
J	S803E	30	13'-0"	STR.	VERT BF	1041
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	50	30'-0"	STR.	HORIZ EF	1002
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	20	7'-9"	1'-9"	EXP JT TIE	162
P	S508E	10	8'-2"	2'-2"	EXP JT TIE	85
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	4'-2"	e	----	
c	2'-3"	f	----	
d	13'-1"	g	4'-4¼"	
PILE FOUNDATION				
b	5'-6"	d	13'-6"	
c	2'-9"	g	5'-8¼"	
STEM				
a	2'-6½"	x	7'-3"	
j	2'-1⅝"	z	5'-10"	
QUANTITIES				
STRUCTURAL CONCRETE (1A43)				
(FOOTING)				
SPREAD	34.7	CU YD		
PILE	43.8	CU YD		
STRUCTURAL CONCRETE (3Y43)				
(STEM)				
57.0	CU YD			
REINFORCEMENT (PLAIN)				
SPREAD	3047	LB		
PILE	3417	LB		
REINFORCEMENT (EPOXY)				
7784	LB			

h = 26' PANELS: PANEL LENGTH = 30'-6"

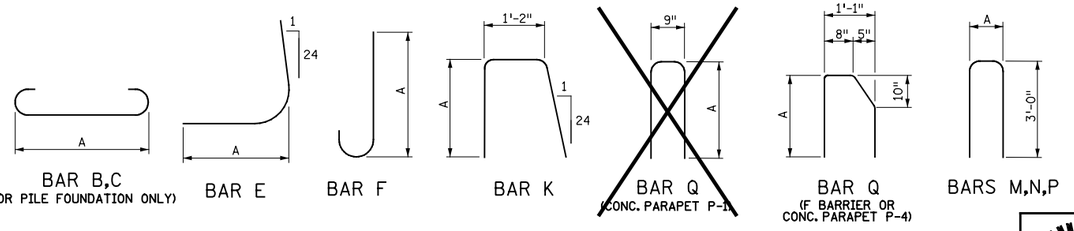
BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	28	32'-11"	STR.	LONG T & B	961
B	F502	31	13'-1"	STR.	TRANS BOT	423
C	F1003	31	13'-1"	STR.	TRANS TOP	1745
PILE FOUNDATION REINFORCEMENT						
A	F501	28	32'-11"	STR.	LONG T & B	961
B	F802	31	14'-10"	13'-0"	TRANS BOT	1228
C	F803	31	15'-6"	13'-0"	TRANS TOP	1634
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F1005E	31	17'-9"	6'-6"	DOWEL BF	2368
F	F1006E	30	9'-6"	7'-7"	DOWEL BF	1226
G	S401E	31	23'-2"	STR.	VERT FF	480
H	S802E	31	23'-2"	STR.	VERT BF	1917
J	S803E	30	12'-6"	STR.	VERT BF	1001
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	52	30'-0"	STR.	HORIZ EF	1042
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	20	7'-9"	1'-9"	EXP JT TIE	162
P	S508E	12	8'-2"	2'-2"	EXP JT TIE	102
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	4'-4"	e	----	
c	2'-3"	f	----	
d	13'-7"	g	4'-6¼"	
PILE FOUNDATION				
b	5'-6"	d	13'-6"	
c	2'-9"	g	5'-8¼"	
STEM				
a	2'-7"	x	7'-10"	
j	2'-2"	z	5'-10"	
QUANTITIES				
STRUCTURAL CONCRETE ~~(1A43)~~				
(FOOTING) * (1652)				
SPREAD	36.0	CU YD		
~~PILE~~	~~43.8~~	~~CU YD~~		
STRUCTURAL CONCRETE ~~(3Y43)~~				
(STEM) * (3852)				
59.9	CU YD			
REINFORCEMENT (PLAIN)				
SPREAD	3129	LB		
~~PILE~~	~~3823~~	~~LB~~		
REINFORCEMENT (EPOXY)				
8893	LB			

h = 27' PANELS: PANEL LENGTH = 30'-6"

BAR	MARK	NO.	LENGTH	A	LOCATION	WT-LBS
SPREAD FOOTING REINFORCEMENT						
A	F501	30	32'-11"	STR.	LONG T & B	1030
B	F502	31	13'-7"	STR.	TRANS BOT	439
C	F1103	31	13'-7"	STR.	TRANS TOP	2237
PILE FOUNDATION REINFORCEMENT						
A	F501	28	32'-11"	STR.	LONG T & B	961
B	F902	31	15'-6"	13'-0"	TRANS BOT	1634
C	F903	31	15'-6"	13'-0"	TRANS TOP	1634
FOOTING DOWELS & STEM REINFORCEMENT						
D	F504E	31	3'-0"	STR.	DOWEL FF	97
E	F1005E	31	18'-0"	6'-8"	DOWEL BF	2401
F	F1106E	30	10'-11"	8'-10"	DOWEL BF	1740
G	S401E	31	24'-2"	STR.	VERT FF	500
H	S802E	31	24'-2"	STR.	VERT BF	2000
J	S903E	30	12'-9"	STR.	VERT BF	1301
K	S504E	31	10'-8"	4'-9"	TIE	345
L	S405E	54	30'-0"	STR.	HORIZ EF	1082
M	S506E	20	7'-4"	1'-4"	EXP JT TIE	153
N	S507E	20	7'-9"	1'-9"	EXP JT TIE	162
P	S508E	14	8'-2"	2'-2"	EXP JT TIE	119
Q	S509E	34	9'-7"	4'-5"	PARAPET DWL	340
Q	S509E	34	6'-11"	3'-1"	F/P4 BAR. DWL	245

DIMENSIONS AND QUANTITIES				
SPREAD FOOTING				
b	4'-6"	e	----	
c	2'-5"	f	----	
d	14'-1"	g	4'-8⅜"	
PILE FOUNDATION				
b	5'-6"	d	13'-6"	
c	2'-9"	g	5'-8¼"	
STEM				
a	2'-7½"	x	7'-10"	
j	2'-2½"	z	6'-11"	
QUANTITIES				
STRUCTURAL CONCRETE (1A43)				
(FOOTING)				
SPREAD	40.0	CU YD		
PILE	43.8	CU YD		
STRUCTURAL CONCRETE (3Y43)				
(STEM)				
62.8	CU YD			
REINFORCEMENT (PLAIN)				
SPREAD	3706	LB		
PILE	4229	LB		
REINFORCEMENT (EPOXY)				
9900	LB			



BAR B,C (FOR PILE FOUNDATION ONLY) | BAR E | BAR F | BAR K | ~~BAR Q (CONC. PARAPET P-1)~~ | BAR Q (F BARRIER OR CONC. PARAPET P-4) | BARS M,N,P

* DENOTES MODIFICATIONS FROM STANDARD PLAN

NOTES:
L = DENOTES PANEL LENGTH.
FF = DENOTES FRONT FACE.
BF = DENOTES BACK FACE.
EF = DENOTES EACH FACE.
DWL = DENOTES DOWEL.
BARS MARKED WITH THE SUFFIX "E" ARE EPOXY COATED.
x = PROJECTION OF BAR E INTO STEM.
z = PROJECTION OF BAR F INTO STEM.

MODIFIED

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

MODIFIED	
DATE	DESCRIPTION
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC

REVISED:

APPROVED: 8-27-2014
STATE DESIGN ENGINEER

RETAINING WALL PANEL TABULATIONS (LIVE LOAD SURCHARGE)

STANDARD PLAN 5-297.628 | 3 OF 3

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_wr23.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: LINDSEY B. RENSTROM
Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

SRF Consulting Group, Inc.
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
CIP RETAINING WALL DETAILS
SP 2515-21 (TH 63)
WALL 1-7 PANEL TABULATIONS

SHEET 314 OF 688

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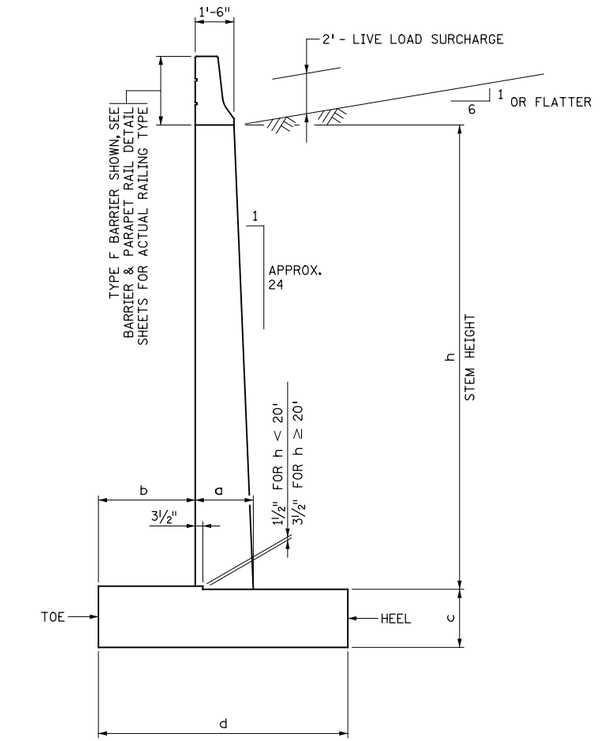
WALL LOADING CASE:
LIVE LOAD SURCHARGE

SHORT WALL (5'-8')
MEDIUM WALL (9'-16')
TALL WALL (17'-27')

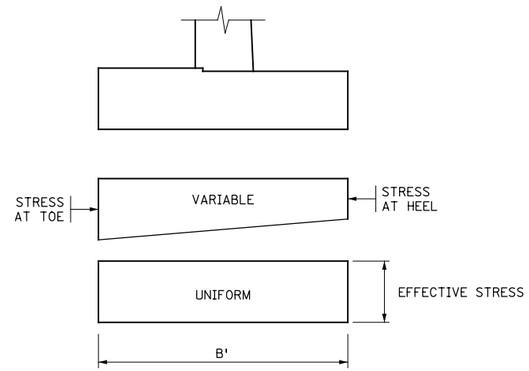
WALL GEOMETRICS AND DATA - SPREAD FOOTING					QUANTITIES PER FOOT - SPREAD FOOTING					EQUIVALENT UNIFORM BEARING STRESS				EQUIVALENT VARIABLE (TRAPEZOIDAL) BEARING STRESS	
					STRUCTURAL CONCRETE		REINFORCEMENT			SERVICE		STRENGTH 1		STRENGTH	
STEM HEIGHT DIM. h	STEM WIDTH DIM. a	TOE WIDTH DIM. b	FOOTING THICKNESS DIM. c	FOOTING WIDTH DIM. d	~~1652 1A43~~ *1652 FOOTING (CU. YD.)	~~3Y43~~ *3852 STEM (CU. YD.)	PLAIN (POUND)	EPOXY (POUND)	WALL DETAILING SCHEME	EFFECTIVE WIDTH B'	EFFECTIVE STRESS KSF	EFFECTIVE WIDTH B'	EFFECTIVE STRESS KSF	STRESS AT TOE KSF	STRESS AT HEEL KSF
5	1'-8½"	2'-7"	1'-5"	8'-6"	0.46	0.30	37	40	SHORT	7'-10⅞"	1.10	7'-9⅝"	1.53	1.06	1.75
6	1'-9"	2'-7"	1'-5"	8'-6"	0.46	0.36	37	43	SHORT	7'-11⅜"	1.21	7'-10⅝"	1.67	1.21	1.88
~~7~~	~~1'-9½"~~	~~2'-7"~~	~~1'-5"~~	~~8'-6"~~	~~0.46~~	~~0.43~~	~~37~~	~~48~~	~~SHORT~~	~~8'-0⅜"~~	~~1.31~~	~~8'-0"~~	~~1.79~~	~~1.39~~	~~1.98~~
8	1'-10"	2'-7"	1'-5"	8'-6"	0.46	0.49	37	51	SHORT	8'-1⅞"	1.40	8'-2"	1.91	1.61	2.05
9	1'-10½"	2'-7"	1'-5"	8'-6"	0.46	0.56	37	58	MEDIUM	8'-3⅝"	1.48	8'-4¼"	2.01	1.88	2.08
10	1'-11"	2'-7"	1'-5"	8'-6"	0.46	0.63	37	66	MEDIUM	8'-5⅞"	1.56	8'-5"	2.14	2.18	2.06
11	1'-11½"	2'-7"	1'-5"	8'-6"	0.46	0.70	37	70	MEDIUM	8'-3⅝"	1.71	8'-2"	2.37	2.54	2.01
12	2'-0"	2'-7"	1'-5"	8'-6"	0.46	0.78	41	74	MEDIUM	8'-0¾"	1.88	7'-10⅝"	2.62	2.96	1.90
13	2'-0½"	2'-7"	1'-5"	8'-6"	0.46	0.85	41	78	MEDIUM	7'-9⅝"	2.07	7'-6⅞"	2.90	3.43	1.74
~~14~~	~~2'-1"~~	~~2'-7"~~	~~1'-7"~~	~~8'-6"~~	~~0.51~~	~~0.93~~	~~41~~	~~86~~	~~MEDIUM~~	~~7'-5¾"~~	~~2.32~~	~~7'-2¼"~~	~~3.28~~	~~4.05~~	~~1.49~~
~~15~~	~~2'-1½"~~	~~2'-7"~~	~~1'-7"~~	~~8'-6"~~	~~0.51~~	~~1.01~~	~~45~~	~~96~~	~~MEDIUM~~	~~7'-2"~~	~~2.56~~	~~6'-10"~~	~~3.65~~	~~4.66~~	~~1.21~~
~~16~~	~~2'-2"~~	~~2'-7"~~	~~1'-9"~~	~~8'-6"~~	~~0.57~~	~~1.09~~	~~45~~	~~109~~	~~MEDIUM~~	~~6'-9⅜"~~	~~2.88~~	~~6'-4⅝"~~	~~4.16~~	~~5.46~~	~~0.80~~
17	2'-2½"	2'-9"	1'-9"	9'-0"	0.60	1.17	55	120	TALL	7'-2⅞"	2.98	6'-10"	4.30	5.62	0.90
18	2'-3"	3'-0"	1'-9"	9'-6"	0.63	1.25	56	128	TALL	7'-8⅝"	3.05	7'-3½"	4.39	5.72	1.02
19	2'-3½"	3'-2"	1'-9"	10'-0"	0.67	1.33	68	141	TALL	8'-2⅛"	3.15	7'-8¾"	4.53	5.89	1.12
20	2'-4"	3'-4"	1'-11"	10'-7"	0.79	1.42	70	156	TALL	8'-8½"	3.28	8'-3"	4.72	6.11	1.24
21	2'-4½"	3'-6"	1'-11"	11'-0"	0.82	1.50	74	176	TALL	9'-0½"	3.40	8'-6⅝"	4.89	6.34	1.27
22	2'-5"	3'-8"	2'-1"	11'-7"	0.94	1.59	77	195	TALL	9'-7"	3.53	9'-0⅞"	5.07	6.55	1.39
23	2'-5½"	3'-10"	2'-1"	12'-1"	0.98	1.68	82	223	TALL	10'-0½"	3.63	9'-6¼"	5.21	6.72	1.49
24	2'-6"	4'-0"	2'-3"	12'-7"	1.10	1.77	95	253	TALL	10'-5⅜"	3.78	9'-10⅞"	5.43	7.00	1.54
~~25~~	~~2'-6½"~~	~~4'-2"~~	~~2'-3"~~	~~13'-1"~~	~~1.14~~	~~1.87~~	~~100~~	~~264~~	~~TALL~~	~~10'-11"~~	~~3.88~~	~~10'-4¼"~~	~~5.57~~	~~7.16~~	~~1.64~~
26	2'-7"	4'-4"	2'-3"	13'-7"	1.18	1.96	103	300	TALL	11'-4⅝"	3.98	10'-9⅝"	5.71	7.33	1.75
~~27~~	~~2'-7½"~~	~~4'-6"~~	~~2'-5"~~	~~14'-1"~~	~~1.31~~	~~2.06~~	~~122~~	~~333~~	~~TALL~~	~~11'-9½"~~	~~4.13~~	~~11'-2⅛"~~	~~5.92~~	~~7.61~~	~~1.80~~

REINFORCEMENT - SPREAD FOOTING				
	STEM	FOOTING		
STEM HEIGHT h	DOWEL SIZE AND SPACING	TOE (BOTTOM TRANSVERSE)	HEEL (TOP TRANSVERSE)	LONGITUDINAL (TOP AND BOT.)
		BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.
5	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
6	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
~~7~~	~~5 @ 12"~~	~~5 @ 12"~~	~~5 @ 12"~~	~~5 @ 12"~~
8	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
9	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
10	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
11	5 @ 12"	5 @ 12"	5 @ 12"	5 @ 12"
12	5 @ 12"	5 @ 12"	6 @ 12"	5 @ 12"
13	5 @ 12"	5 @ 12"	6 @ 12"	5 @ 12"
~~14~~	~~5 @ 12"~~	~~5 @ 12"~~	~~6 @ 12"~~	~~5 @ 12"~~
~~15~~	~~6 @ 12"~~	~~5 @ 12"~~	~~7 @ 12"~~	~~5 @ 12"~~
~~16~~	~~6 @ 12"~~	~~5 @ 12"~~	~~7 @ 12"~~	~~5 @ 12"~~
17	6 @ 12"	5 @ 12"	8 @ 12"	5 @ 12"
18	6 @ 12"	5 @ 12"	8 @ 12"	5 @ 12"
19	7 @ 12"	5 @ 12"	9 @ 12"	5 @ 12"
20	7 @ 12"	5 @ 12"	9 @ 12"	5 @ 12"
21	8 @ 12"	5 @ 12"	9 @ 12"	5 @ 12"
22	8 @ 12"	5 @ 12"	9 @ 12"	5 @ 12"
23	9 @ 12"	5 @ 12"	9 @ 12"	5 @ 12"
24	9 @ 12"	5 @ 12"	10 @ 12"	5 @ 12"
~~25~~	~~9 @ 12"~~	~~5 @ 12"~~	~~10 @ 12"~~	~~5 @ 12"~~
26	10 @ 12"	5 @ 12"	10 @ 12"	5 @ 12"
~~27~~	~~10 @ 12"~~	~~5 @ 12"~~	~~11 @ 12"~~	~~5 @ 12"~~

NOTE:
EPOXY REINFORCEMENT QUANTITY ASSUMES A CORK AND DOWEL JOINT IS USED ON BOTH PANEL ENDS. THE QUANTITY MUST BE ADJUSTED WHEN CONSTRUCTION JOINTS ARE USED. QUANTITIES ON THIS SHEET DO NOT INCLUDE BARRIER OR PARAPET. SEE BARRIER OR PARAPET SHEETS FOR REINFORCEMENT (EPOXY) AND CONCRETE ~~(3Y46).~~ *(3B52)



TYPICAL SECTION



BEARING STRESS
(SEE TABLE ABOVE)

* DENOTES MODIFICATIONS FROM STANDARD PLAN

MODIFIED

REVISION:

APPROVED: AUGUST 27, 2014
Nancy Daubenberger
STATE BRIDGE ENGINEER

MODIFIED	
DATE	DESCRIPTION
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC

REVISED:
APPROVED: 8-27-2014
STATE DESIGN ENGINEER

RETAINING WALL (LIVE LOAD SURCHARGE)
SPREAD FOOTING GEOMETRY AND DATA

STANDARD PLAN 5-297.632 | 1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

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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: LINDSEY B. RENSTROM
Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

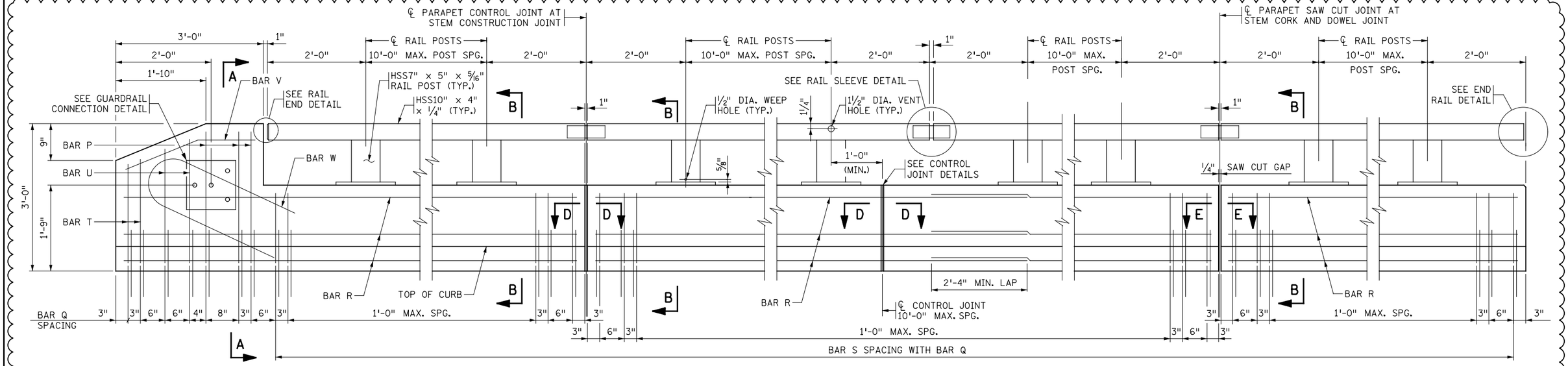
DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

SRF Consulting Group, Inc.
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
CIP RETAINING WALL DETAILS
SP 2515-21 (TH 63)
WALL 1-7 PANEL TABULATIONS

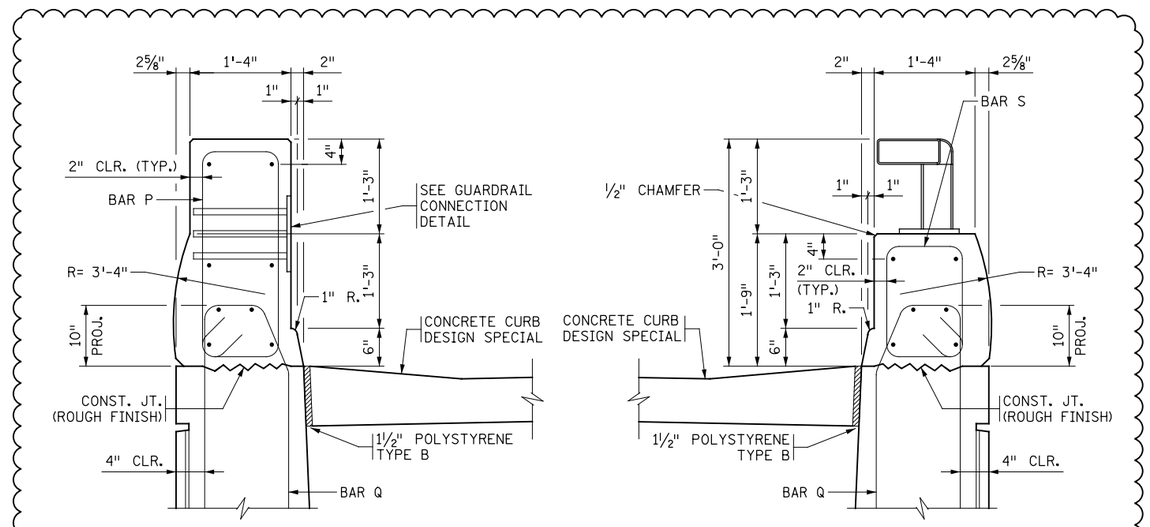
SHEET 315 OF 688

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INSIDE ELEVATION OF RAILING

RAIL MEETS TEST LEVEL 4
REQUIREMENTS OF NCHRP REPORT 350



SECTION A-A

SECTION B-B

GENERAL NOTES

* FOR PAYMENT OF "TYPE MOD P-2 (TL-4) BARRIER CONCRETE (3S52)" MEASURE LENGTH OF CONCRETE BARRIER BETWEEN END FACES. CONCRETE PARAPET = 401 LBS./FT. (0.099 CU. YDS./FT.)

FOR PAYMENT OF "STRUCTURAL TUBE RAILING DESIGN T-1" MEASURE LENGTH OF RAIL FROM END TO END OF TUBING. DO NOT DEDUCT FOR JOINTS.

FINISH ALL EDGES OF RAIL WITH 1/2" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.

PROVIDE CORRECT ALIGNMENT FOR ANCHORAGES BY PLACING THEM ACCURATELY AND NORMAL TO GRADE. SEE SPECIAL PROVISIONS.

PROVIDE STRUCTURAL STEEL AND PLATE WASHERS PER MNDOT SPEC. 3310. PROVIDE STRUCTURAL TUBES PER A.S.T.M. A500, GRADE B AS SPECIFIED IN MNDOT SPEC. 3361.

GALVANIZE BOLTS, NUTS, AND WASHERS PER MNDOT SPEC. 3392.

GALVANIZE ALL OTHER STRUCTURAL STEEL PER MNDOT SPEC. 3394, AFTER FABRICATION.

PROVIDE GUARDRAIL CONNECTION STRUCTURAL STEEL PER MNDOT SPEC. 3306.

GUARDRAIL CONNECTION AND NAME PLATE IS INCIDENTAL TO "TYPE MOD P-2 (TL-4) BARRIER CONCRETE (3S52)".

PRICE BID FOR "STRUCTURAL TUBE RAILING DESIGN T-1" INCLUDES ANCHORAGES AND ALL MATERIAL ABOVE TOP OF CONCRETE BARRIER.

ALL MATERIAL IN THE CONCRETE BARRIER IS LISTED IN SUMMARY OF QUANTITIES FOR RETAINING WALLS.

SEE SPECIAL PROVISIONS FOR PAINT REQUIREMENTS.

CONTINUOUSLY GROUND THE METAL RAILING AS DIRECTED IN THE SPECIAL PROVISIONS. REFER TO THE ELECTRICAL PLANS AND ELECTRICAL SPECIAL PROVISIONS FOR DETAILS REGARDING BONDING MULTIPLE ELECTRICAL GROUNDING SYSTEMS.

* MATCH PARAPET SAW CUT JOINTS WITH RETAINING WALL STEM CORK AND DOWEL JOINTS.

* MATCH PARAPET CONTROL JOINTS WITH RETAINING WALL STEM CONSTRUCTION JOINTS. PLACE INTERMEDIATE PARAPET CONTROL JOINTS AT 10'-0" MAXIMUM SPACING.

* REINFORCEMENT QUANTITIES WERE COMPUTED ASSUMING SAW CUT JOINTS BETWEEN EVERY PANEL. CHANGES IN THE BILL OF REINFORCEMENT ARE THE RESPONSIBILITY OF THE CONTRACTOR, AND NO ADDITIONAL PAYMENT WILL BE MADE.

* BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

* FOR TYPICAL RETAINING WALL REINFORCEMENT AND DETAILS, SEE STANDARD RETAINING WALL SHEETS.

(1) SUBSTITUTION OF CHEMICAL ANCHOR RODS FOR CAST-IN-PLACE ANCHORAGE IS NOT PERMITTED.

(2) SEE SPECIAL PROVISIONS FOR JOINT SEALING REQUIREMENTS.

* (3) BAR Q SPACING AND CLEARANCES ARE SHOWN ON THIS SHEET. BAR Q QUANTITIES ARE INCLUDED IN WALL PANEL TABULATIONS, EXCEPT FOR A SMALL QUANTITY OF ADDED BARS AT A GUARDRAIL CONNECTION.

DENOTES MODIFICATIONS FROM STANDARD PLAN

* NOTES

SEE SHEET 2 OF 2 FOR BAR DETAILS, STRUCTURAL TUBE RAILING DETAILS & GUARDRAIL CONNECTION DETAILS.

MODIFIED

MODIFIED	
DESCRIPTION	
5-13-16	-MODIFIED SHAPE OF PARAPET FOR RADIUS
5-13-16	-ADDED SHEET 2 OF 2 FOR DETAILS AND BILL OF REINFORCEMENT
5-13-16	-MODIFIED JOINTS FOR CIP RETAINING WALLS
5-13-16	-MODIFIED GENERAL NOTES

REVISED: 04-17-2013

APPROVED: MARCH 30, 2010

Daniel L. Morgan
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.

Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

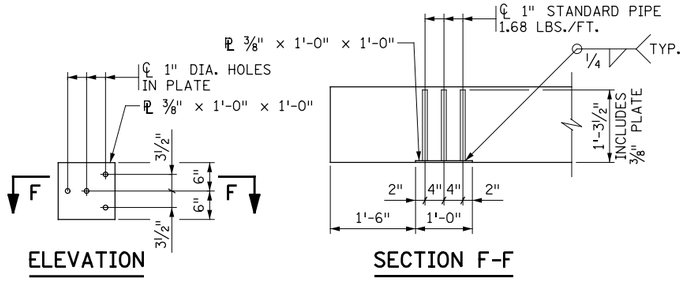
STANDARD SHEET NO. FIG. 5-397.157

STANDARD APPROVED: MARCH 30, 2010

TITLE: STRUCTURAL TUBE RAILING (DESIGN T-1) AND CONCRETE PARAPET (TYPE P-2, TL-4) (SHEET 1 OF 2)

STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 316 OF 688 SHEETS

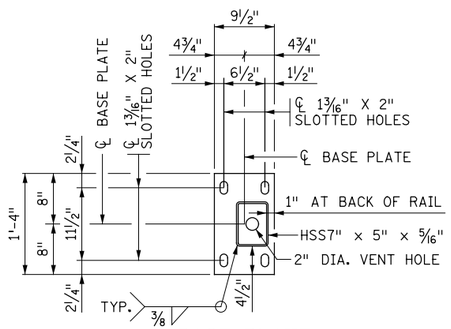
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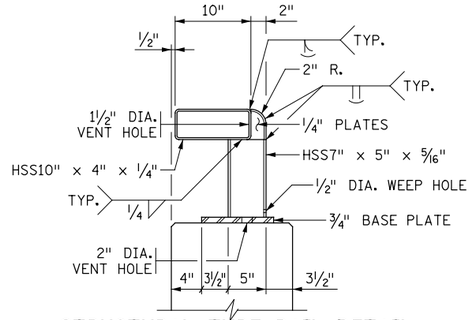
ELEVATION SECTION F-F

GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER MNDOT SPEC. 3394
ESTIMATED WEIGHT = 22 LBS.



BASE PLATE



STRUCTURAL TUBE RAIL DETAIL

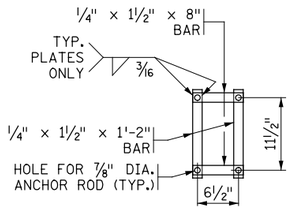
BILL OF REINFORCEMENT

TYPICAL PARAPET ON RETAINING WALL 3
24'-8" PANEL LENGTH, PANELS: 2 & 3

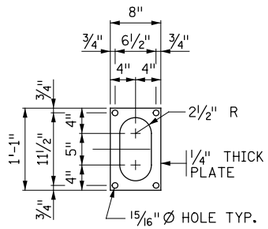
BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
R	R508E	6	24'-2"	STR	PARAPET - HORIZONTAL
S	R502E	27	6'-1"	BENT	PARAPET - VERTICAL
PARAPET BARRIER CONC. (3S52) 2.4 CU YD				REINFORCEMENT BARS (EPOXY) 323 POUND	

30'-6" PANEL LENGTH
WITH GUARDRAIL CONNECTION

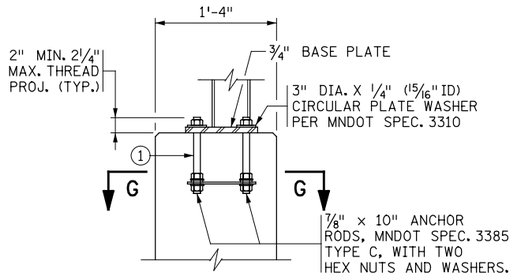
BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	R501E	2	5'-7"	BENT	PARAPET - VERTICAL
S	R502E	28	6'-1"	BENT	PARAPET - VERTICAL
P	R503E	3	8'-7"	BENT	PARAPET - VERTICAL
U	R504E	1 SERIES	7'-11"	BENT	PARAPET - VERTICAL
		OF 2	8'-3"		
T	R505E	1 SERIES	7'-3"	BENT	PARAPET - VERTICAL
		OF 2	7'-5"		
W	R506E	1	6'-7"	BENT	PARAPET - END
V	R507E	2	2'-9"	BENT	PARAPET - END LONGITUDINAL
R	R508E	6	30'-0"	STR	PARAPET - LONGITUDINAL
PARAPET BARRIER CONC. (3S52) 3.2 CU YD				REINFORCEMENT BARS (EPOXY) 417 POUND	



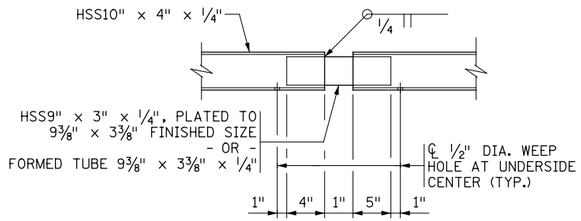
SECTION G-G
ANCHOR BAR ALTERNATE



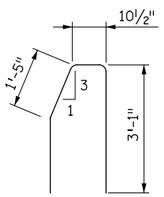
SECTION G-G
ANCHOR PLATE ALTERNATE



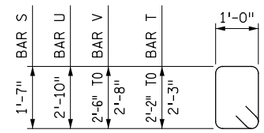
ANCHOR DETAIL



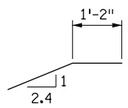
RAIL SLEEVE DETAIL



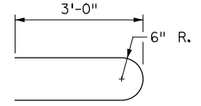
BAR Q



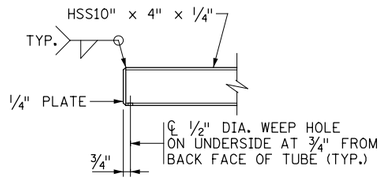
BAR S, BAR U,
BAR V & BAR T



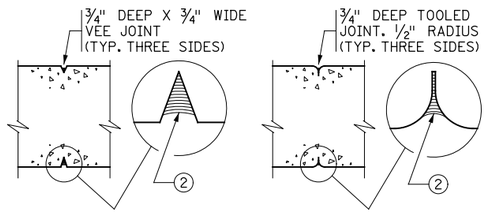
BAR V



BAR W



RAIL END DETAIL

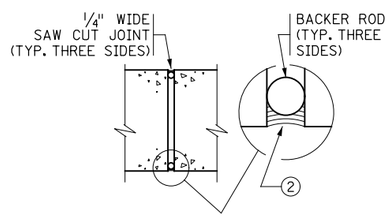


SECTION D-D
CONTRACTOR OPTION 1

SECTION D-D
CONTRACTOR OPTION 2

CONTROL JOINT DETAILS

WHEN USING SLIP FORM METHOD TO PLACE THE CONCRETE, CUT JOINT 3 INCHES DEEP USING MARGIN TROWEL OR SIMILAR MEANS IMMEDIATELY AFTER CONCRETE PLACEMENT (TYP. THREE SIDES)



SECTION E-E

PARAPET SAW CUT JOINT

MATCH PARAPET SAW CUT JOINTS WITH RETAINING WALL STEM CORK AND DOWEL JOINTS.

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED	
	DESCRIPTION
5-13-16	-MODIFIED SHAPE OF PARAPET FOR RADIUS
5-13-16	-ADDED SHEET 2 OF 2 FOR DETAILS AND BILL OF REINFORCEMENT
5-13-16	-MODIFIED JOINTS FOR CIP RETAINING WALLS
5-13-16	-MODIFIED GENERAL NOTES

REVISED: 04-17-2013

APPROVED: MARCH 30, 2010
Daniel L Thorson
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.
Print Name: LINDSEY B. RENSTROM
Date _____ License # 51351

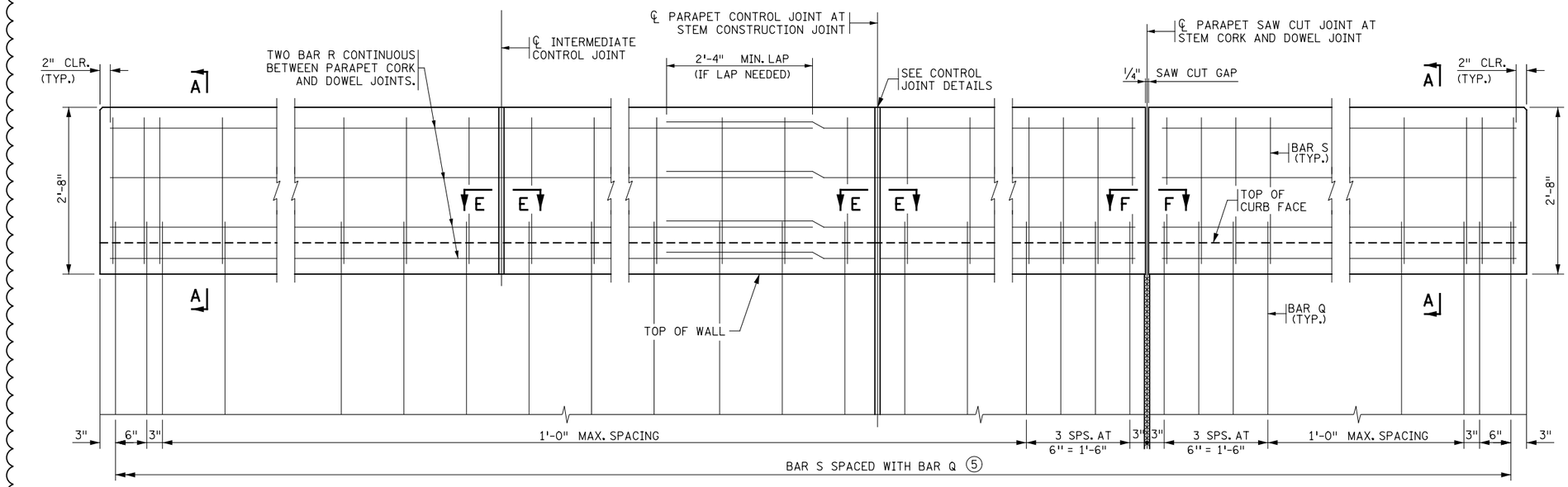
STANDARD SHEET NO. FIG. 5-397.157
STANDARD APPROVED: MARCH 30, 2010

TITLE: STRUCTURAL TUBE RAILING (DESIGN T-1) AND CONCRETE PARAPET (TYPE P-2, TL-4) (SHEET 2 OF 2)

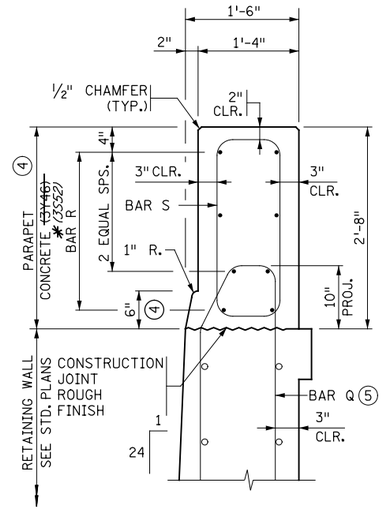
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STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 317 OF 688 SHEETS

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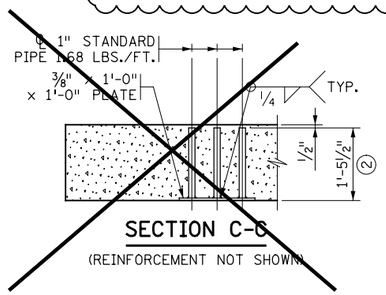


INSIDE ELEVATION OF PARAPET



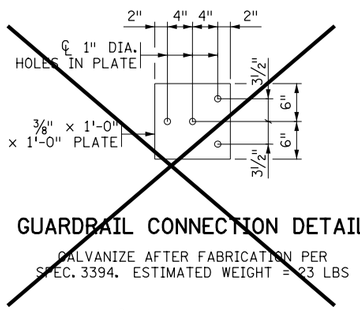
SECTION A-A

BARRIER MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350



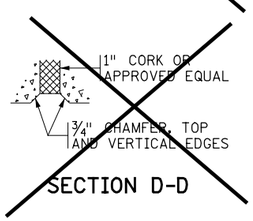
SECTION C-C

(REINFORCEMENT NOT SHOWN)

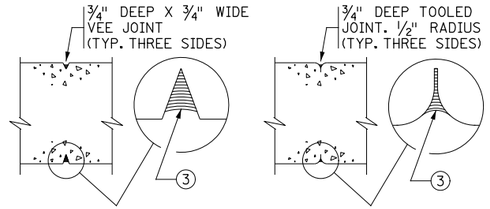


GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER SPEC. 3394. ESTIMATED WEIGHT = 23 LBS



SECTION D-D



SECTION E-E

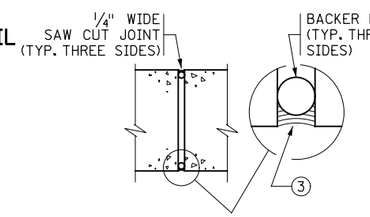
CONTRACTOR OPTION 1

SECTION E-E

CONTRACTOR OPTION 2

CONTROL JOINT DETAILS

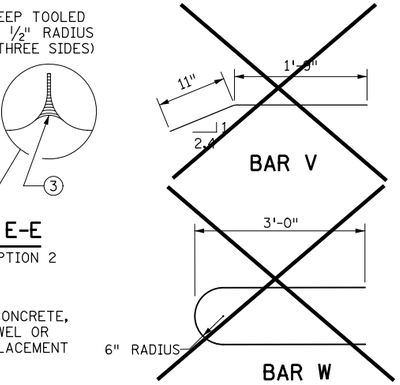
WHEN USING SLIP FORM METHOD TO PLACE THE CONCRETE, CUT JOINT 3 INCHES DEEP USING MARGIN TROWEL OR SIMILAR MEANS IMMEDIATELY AFTER CONCRETE PLACEMENT (TYP. THREE SIDES)

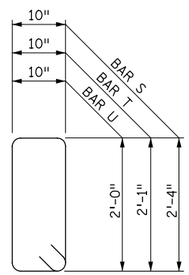


SECTION F-F

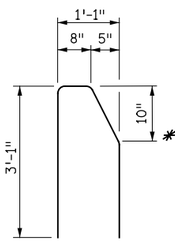
PARAPET SAW CUT JOINT

MATCH PARAPET SAW CUT JOINTS WITH RETAINING WALL STEM CORK AND DOWEL JOINTS.





BAR S, T, U



BAR Q

NOTES:

MATCH PARAPET SAW CUT JOINTS WITH RETAINING WALL STEM CORK AND DOWEL JOINTS.

MATCH PARAPET CONTROL JOINTS WITH RETAINING WALL STEM CONSTRUCTION JOINTS. PLACE INTERMEDIATE PARAPET CONTROL JOINTS AT 10'-0" MAXIMUM SPACING.

REINFORCEMENT QUANTITIES WERE COMPUTED ASSUMING A SAW CUT JOINT BETWEEN EVERY PANEL. CHANGES IN THE BILL OF REINFORCEMENT ARE THE RESPONSIBILITY OF THE CONTRACTOR, AND NO ADDITIONAL PAYMENT WILL BE MADE.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

~~* THE GUARDRAIL CONNECTION IS INCLUDED IN THE PRICE BID FOR PARAPET CONCRETE (3Y46).~~

~~* GUARDRAIL CONNECTION SHALL BE STRUCTURAL STEEL, SPEC. 3306 AND GALVANIZED AFTER FABRICATION PER SPEC. 3394.~~

FOR TYPICAL RETAINING WALL REINFORCEMENT AND DETAILS, SEE STANDARD RETAINING WALL SHEETS.

CONCRETE PARAPET: 570 LBS/FT (0.141 CU YD/FT) 2'-8" HEIGHT
608 LBS/FT (0.150 CU YD/FT) 2'-10" HEIGHT

CONCRETE PARAPET SHALL BE PAID FOR ON A LINEAL FOOT BASIS.

(1) REBAR AND CONCRETE ARE INCLUDED IN THE PAY ITEM BY LINEAR FEET FOR THE PARAPET (TYPE P-4, TL-4, 2'-8" PARAPET HEIGHT).

(2) DIMENSION INCLUDES 3/8" PLATE.

(3) JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCT LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.

~~* (4) USE 2'-10" PARAPET HEIGHT WHEN RETAINING WALL IS ADJACENT TO A BRIDGE WITH LOW SLUMP WEARING COURSE, 6" DIMENSION BECOMES 8".~~

(5) BAR Q SPACING AND CLEARANCES ARE SHOWN ON THIS SHEET. BAR Q QUANTITIES ARE INCLUDED IN THE WALL PANEL TABULATIONS, EXCEPT FOR A SMALL QUANTITY OF ADDED BARS NEEDED AT A GUARDRAIL CONNECTION

** DENOTES MODIFICATIONS FROM STANDARD PLAN*

BILL OF REINFORCEMENT

TYPICAL PARAPET ON RETAINING WALL
30'-6" PANEL LENGTH, PANELS:_____

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
R	R401E	8	30'-2"	——	PARAPET - HORIZONTAL
S	R502E	34	7'-2"		PARAPET - VERTICAL

PARAPET BARRIER CONC. ~~(3Y46)~~ *(3552) 4.3 CU YD (1) — REINFORCEMENT BARS (EPOXY) 415 POUND (1)

30'-6" PANEL LENGTH
WITH GUARDRAIL CONNECTION

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	S509E	2	6'-11"		PARAPET - VERTICAL (5)
R	R401E	8	30'-2"	——	PARAPET - HORIZONTAL
S	R502E	34	7'-2"		PARAPET - VERTICAL
T	R503E	1	6'-8"		PARAPET - VERTICAL
U	R504E	1	6'-6"		PARAPET - VERTICAL
V	R401E	2	2'-8"		PARAPET END
W	R705E	1	6'-7"		PARAPET - VERTICAL

PARAPET BARRIER CONC. ~~(3Y46)~~ *(3552) 4.3 CU YD (1) — REINFORCEMENT BARS (EPOXY) 461 POUND (1)

TYPICAL PARAPET ON RETAINING WALL
_____ PANEL LENGTH, PANEL: _____

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
R	R401E			——	PARAPET - HORIZONTAL
S	R502E				PARAPET - VERTICAL

PARAPET BARRIER CONC. ~~(3Y46)~~ *(3552) __ CU YD (1) — REINFORCEMENT BARS (EPOXY) __ POUND (1)

MODIFIED

REVISION:	
APPROVED: AUGUST 27, 2014	Nancy Daubenberger, STATE BRIDGE ENGINEER

MODIFIED	
DESCRIPTION	
4-27-16	-UPDATE CONCRETE MIX TO 2016 SPEC
5-16-16	-MODIFIED INSIDE ELEVATION OF PARAPET AND DETAILS
5-16-16	-MODIFIED NOTES

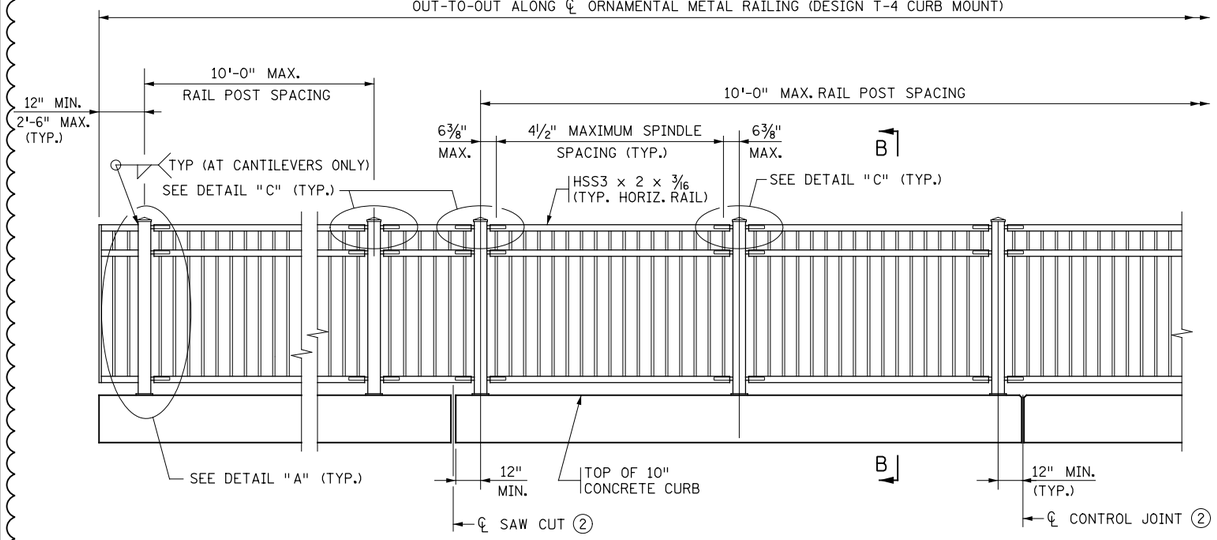
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: LINDSEY B. RENSTROM
Date _____ License # 51351

STANDARD SHEET NO. 5-297.634
STANDARD APPROVED: AUGUST 27, 2014

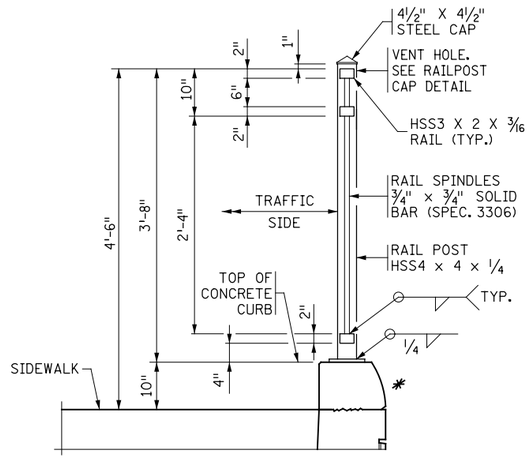
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STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 318 OF 688 SHEETS

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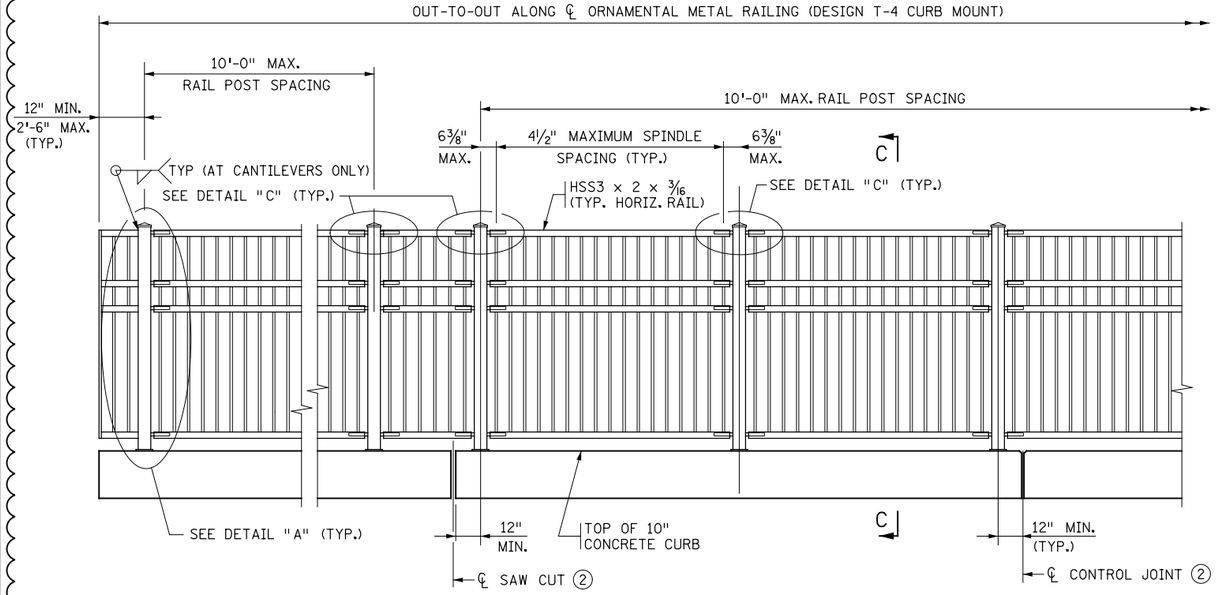


* INSIDE ELEVATION OF STANDARD RAILING

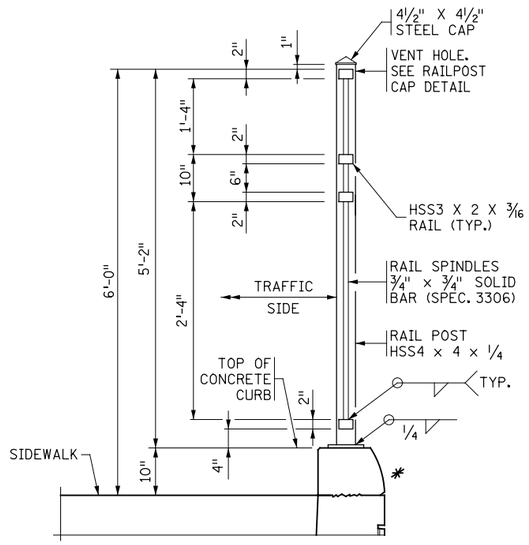


* SECTION B-B

(4'-6" STANDARD OPTION SHOWN)



* INSIDE ELEVATION OF TALL RAILING



* SECTION C-C

(6'-0" TALL OPTION SHOWN)

GENERAL NOTES

CONTINUOUSLY GROUND ALL METAL RAILINGS; SEE THE SPECIAL PROVISIONS. REFER TO THE ELECTRICAL PLANS AND ELECTRICAL SPECIAL PROVISIONS FOR DETAILS REGARDING BONDING MULTIPLE ELECTRICAL GROUNDING SYSTEMS.

PAYMENT LENGTH SHALL BE MEASURED AS THE OUT TO OUT LENGTH ALONG THE CENTERLINE OF THE RAILING BETWEEN THE OUTSIDE ENDS, WITH DEDUCTIONS FOR THE LENGTH OF CONCRETE POSTS, IF PRESENT.

USE A500, GRADE B STRUCTURAL STEEL TUBING (HSS) IN THE RAIL CONFORMING TO SPEC. 3361. FINIAL CAPS SHALL BE SPEC. 3322. ALL OTHER STEEL SHALL CONFORM TO SPEC. 3306.

GALVANIZE BOLTS, NUTS, WASHERS AND ANCHORS PER SPEC. 3392. GALVANIZE ALL OTHER STRUCTURAL STEEL PER SPEC. 3394, AFTER FABRICATION.

COAT THE GALVANIZED RAILING, BASE PLATES, AND PROTRUDING PORTIONS OF BOLTS, NUTS, ANCHORS, AND WASHERS.

INSTALL RAIL POSTS AND SPINDLES PLUMB.

CURVE HORIZONTAL RAILS WHERE APPLICABLE AND PLACE RAILS PARALLEL TO THE EDGE OF SIDEWALK PROFILE.

SEE SPECIAL PROVISIONS FOR REQUIREMENTS NOT INCLUDED ON THIS SHEET.

DRILL ½" DIA. MAX. VENT HOLES ON THE UNDERSIDE OF RAIL TUBES AS NECESSARY TO FACILITATE GALVANIZING.

(1) DRILL VENT HOLE IN THE RAIL POST WITHIN 2" OF THE UNDERSIDE OF THE CAP, ON THE NON-TRAFFIC SIDE OF THE POST AS NECESSARY TO FACILITATE GALVANIZING. MAXIMUM HOLE SIZE IS ½" DIA.

* (2) SEE RETAINING WALL SHEETS AND STANDARD FIGURE 5-397.167 FOR CONTROL JOINT AND SAW CUT SPACING AND DETAILS.

(3) PROVIDE A PYRAMID TOP STYLE STEEL CAP WELDED TO TOP OF POST WITH A SURFACE FINISH OF 1000 MICRO-INCH, OR SMOOTHER, PRIOR TO GALVANIZING.

(4) ADHESIVE ANCHORAGE WITH ⅝" DIA. ANCHOR ROD PER SPEC. 3385, TYPE A WITH HEX NUT AND WASHER. PROVIDE AN ADHESIVE WITH A MINIMUM CHARACTERISTIC BOND STRENGTH IN UNCRACKED CONCRETE OF 1.5 KSI. EMBED THE ANCHORAGE NO LESS THAN 8" REGARDLESS OF CHARACTERISTIC BOND STRENGTH. DRILL THROUGH REINFORCEMENT (IF ENCOUNTERED) TO ACHIEVE MINIMUM EMBEDMENT. ENSURE HEX NUT IS IN CONTACT WITH THE ADJACENT SURFACE AND TORQUE TO 60 FT-LBS UNLESS A HIGHER TORQUE IS RECOMMENDED BY THE MANUFACTURER. PROOF LOAD TO 9.6 KIPS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.

* NOTES

SEE SHEET 2 OF 2 FOR ORNAMENTAL METAL RAILING DETAILS

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED	
DATE	DESCRIPTION
5-13-16	-MODIFIED SHAPE OF PARAPET FOR RADIUS
5-13-16	-ADDED SHEET 2 OF 2 FOR ORNAMENTAL METAL RAILING DETAILS
5-13-16	-ADDED INSIDE ELEVATION OF TALL RAILING AND SECTION C-C

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: LINDSEY B. RENSTROM

Date _____ License # 51351

REVISION: 11-20-2014

APPROVED: NOVEMBER 6, 2013

Nancy Daubenberger

STATE BRIDGE ENGINEER

STANDARD SHEET NO. FIG. 5-397.163

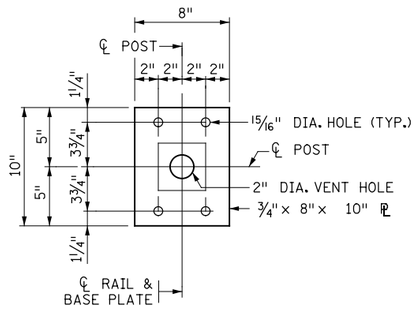
STANDARD APPROVED: NOVEMBER 6, 2013

TITLE: ORNAMENTAL METAL RAILING (DESIGN T-4 CURB MOUNT) (SHEET 1 OF 2)

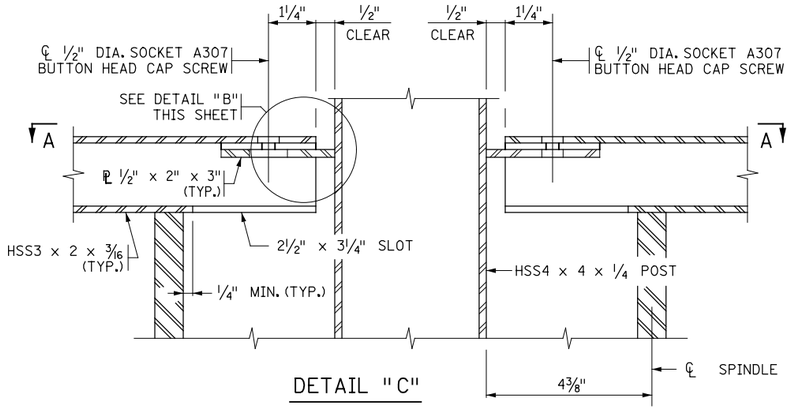
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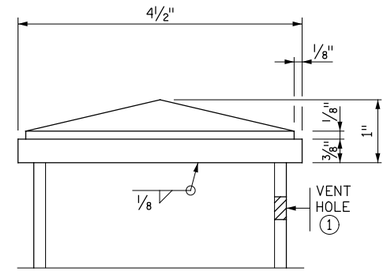
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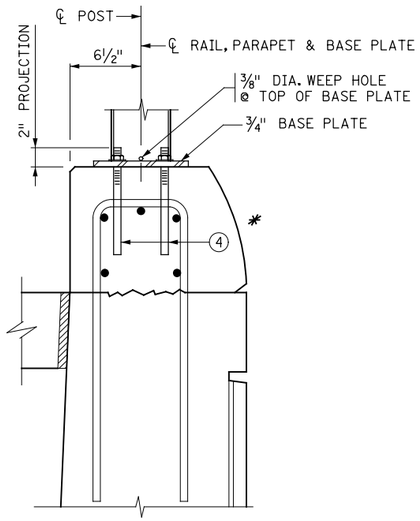
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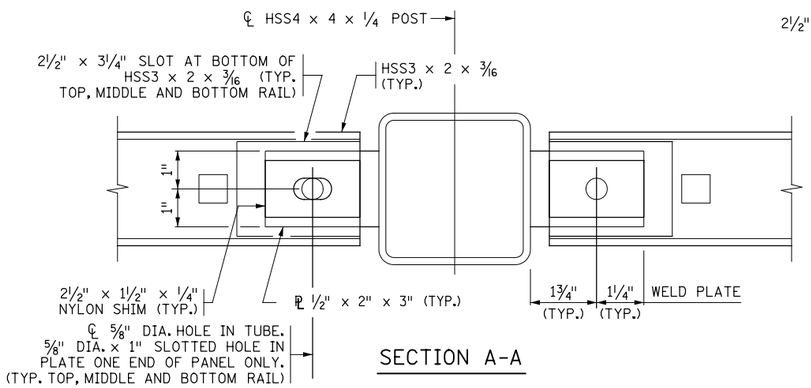
DETAIL "C"



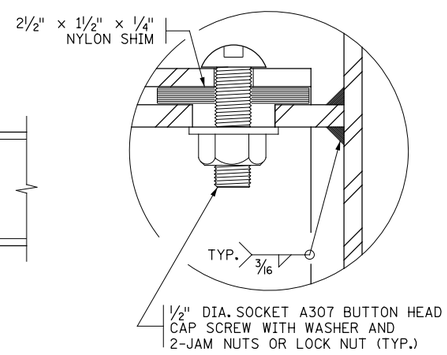
RAILPOST CAP DETAIL ③



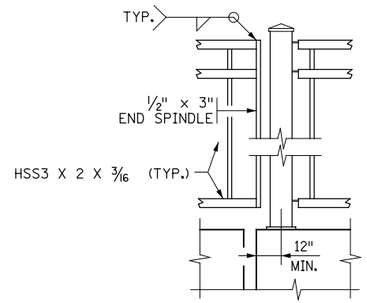
ANCHOR DETAIL



SECTION A-A



DETAIL "B"



DETAIL "A"

* *DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED	
	DESCRIPTION
5-13-16	-MODIFIED SHAPE OF PARAPET FOR RADIUS
5-13-16	-ADDED SHEET 2 OF 2 FOR ORNAMENTAL METAL RAILING DETAILS

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: LINDSEY B. RENSTROM

Date _____ License # 51351

REVISION: 11-20-2014

APPROVED: NOVEMBER 6, 2013

Nancy Daubenberger

STATE BRIDGE ENGINEER

STANDARD SHEET NO. FIG. 5-397.163

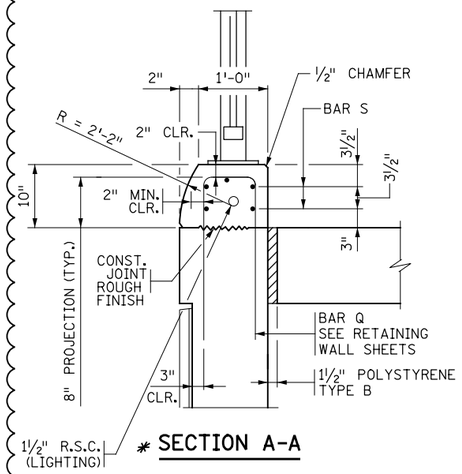
STANDARD APPROVED: NOVEMBER 6, 2013

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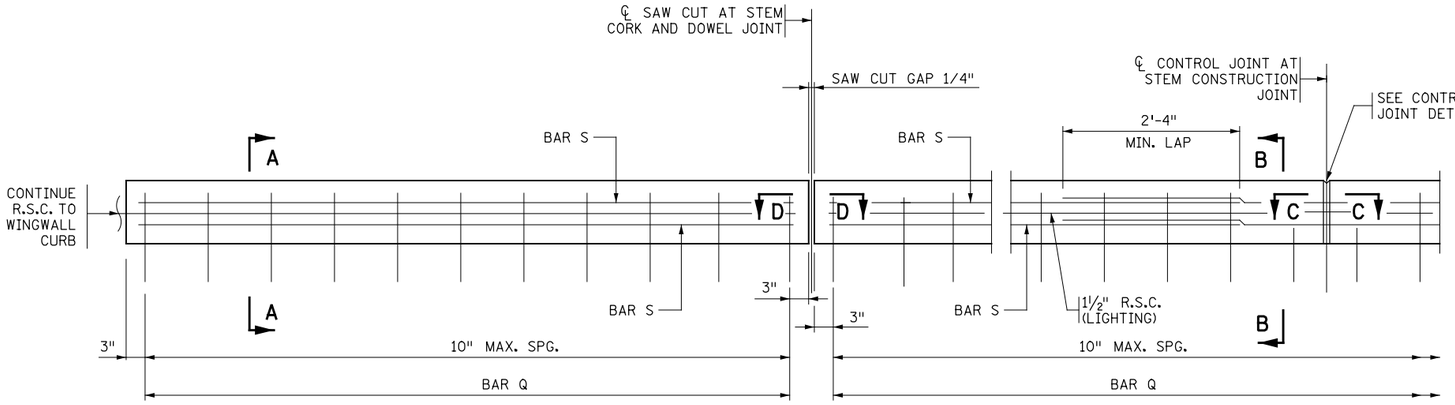
TITLE: ORNAMENTAL METAL RAILING (DESIGN T-4 CURB MOUNT) (SHEET 2 OF 2)

STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 320 OF 688 SHEETS

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* SECTION A-A

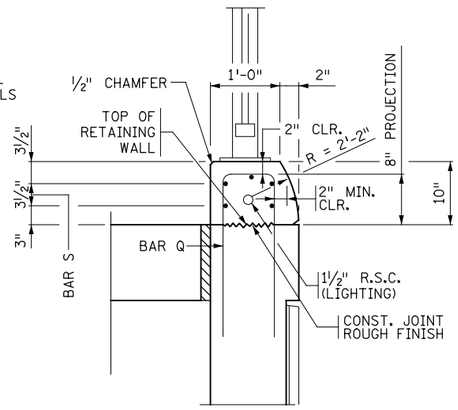


* SAW CUT JOINT

(AT STEM CORK AND DOWEL JOINT)

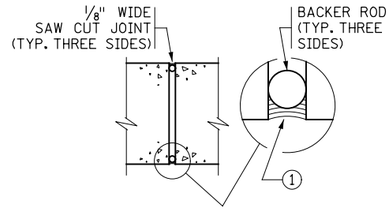
CONTROL JOINT

(AT STEM CONSTRUCTION JOINT)

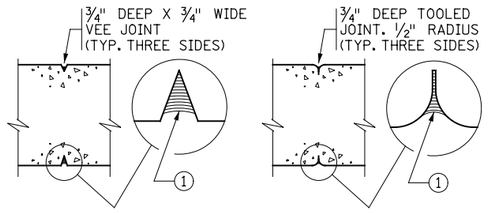


* SECTION B-B

* INSIDE ELEVATION OF CONCRETE CURB



SECTION D-D



SECTION C-C

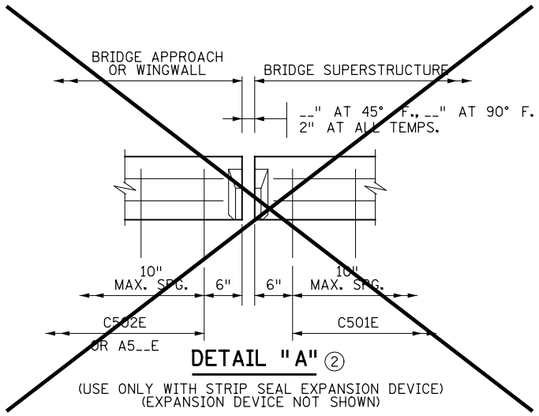
CONTRACTOR OPTION 1

SECTION C-C

CONTRACTOR OPTION 2

CONTROL JOINT DETAILS

WHEN USING SLIP FORM METHOD TO PLACE THE CONCRETE, CUT JOINT 3 INCHES DEEP USING MARGIN TROWEL OR SIMILAR MEANS IMMEDIATELY AFTER CONCRETE PLACEMENT (TYP. THREE SIDES)



DETAIL "A" ②

(USE ONLY WITH STRIP SEAL EXPANSION DEVICE)
(EXPANSION DEVICE NOT SHOWN)

CURB DOES NOT MEET CRASH TEST REQUIREMENTS OF NCHRP REPORT 350

GENERAL NOTES

CONTINUOUSLY GROUND ALL METAL RAILINGS; SEE THE SPECIAL PROVISIONS. REFER TO THE ELECTRICAL PLANS AND ELECTRICAL SPECIAL PROVISIONS FOR DETAILS REGARDING BONDING MULTIPLE ELECTRICAL GROUNDING SYSTEMS.

PAYMENT LENGTH SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE CURB.

* CONCRETE CURB = 139 LBS./FT. (0.034 CU. YDS./FT.)

FINISH ALL EDGES OF CURB WITH ½" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.

* ~~MAXIMUM SPACING OF CONTROL JOINTS ON RETAINING WALL SHALL BE 10 FT. SEE RETAINING WALL SHEET FOR JOINT SPACING.~~

* CONCRETE CURB QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR RETAINING WALL.

* MATCH CURB SAW CUT JOINTS WITH RETAINING WALL STEM CORK AND DOWEL JOINTS.

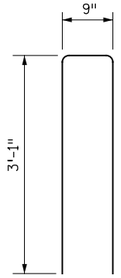
* MATCH CURB CONTROL JOINTS WITH RETAINING WALL STEM CONSTRUCTION JOINTS. PLACE INTERMEDIATE CURB CONTROL JOINTS AT 10'-0" MAXIMUM SPACING.

* BAR Q SPACING AND CLEARANCES ARE SHOWN ON THIS SHEET. BAR Q QUANTITIES ARE INCLUDED IN WALL PANEL TABULATIONS.

* BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

* FOR TYPICAL RETAINING WALL REINFORCEMENT AND DETAILS, SEE STANDARD RETAINING WALL SHEETS.

* REINFORCEMENT QUANTITIES WERE COPUTED ASSUMING SAW CUT JOINTS BETWEEN EVERY PANEL. CHANGES IN THE BILL OF REINFORCEMENT ARE THE RESPONSIBILITY OF THE CONTRACTOR, NO ADDITIONAL PAYMENT WILL BE MADE.



BAR Q

BILL OF REINFORCEMENT

TYPICAL PARAPET ON RETAINING WALLS 2 & 4
30'-6" PANEL LENGTH, PANELS:

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
S	R402E	5	30'-0"	STR	CURB - LONGITUDINAL

PARAPET BARRIER CONC. (3S52)	REINFORCEMENT BARS (EPOXY)
1.0 CU YD	100 POUND

TYPICAL PARAPET ON RETAINING WALL 2
14'-2 1/4" PANEL LENGTH, PANELS:

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
S	R402E	5	13'-8"	STR	CURB - LONGITUDINAL

PARAPET BARRIER CONC. (3S52)	REINFORCEMENT BARS (EPOXY)
0.5 CU YD	46 POUND

TYPICAL PARAPET ON RETAINING WALL 4
17'-2 5/8" PANEL LENGTH, PANELS:

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
S	R402E	5	16'-8"	STR	CURB - LONGITUDINAL

PARAPET BARRIER CONC. (3S52)	REINFORCEMENT BARS (EPOXY)
0.6 CU YD	100 POUND

① JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.

* ~~② REFER TO STANDARD FIGURE 5-397.632 FOR COVER PLATE DETAILS.~~

** DENOTES MODIFICATIONS FROM STANDARD PLAN*

MODIFIED	
	DESCRIPTION
5-19-16	-MODIFIED GEOMETRY OF CURB
5-19-16	-MODIFIED INSIDE ELEVATION OF CONCRETE CURB
5-19-16	-MODIFIED NOTES
5-19-16	-MODIFIED SECTION A-A AND B-B FOR CURB ON RETAINING WALL

REVISION:

APPROVED: NOVEMBER 6, 2013
Nancy Daubenberger
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.
Print Name: LINDSEY B. RENSTROM
Date _____ License # 51351

STANDARD SHEET NO. 5-397.167
STANDARD APPROVED: NOVEMBER 6, 2013

TITLE: CONCRETE CURB FOR USE WITH ORNAMENTAL RAILING

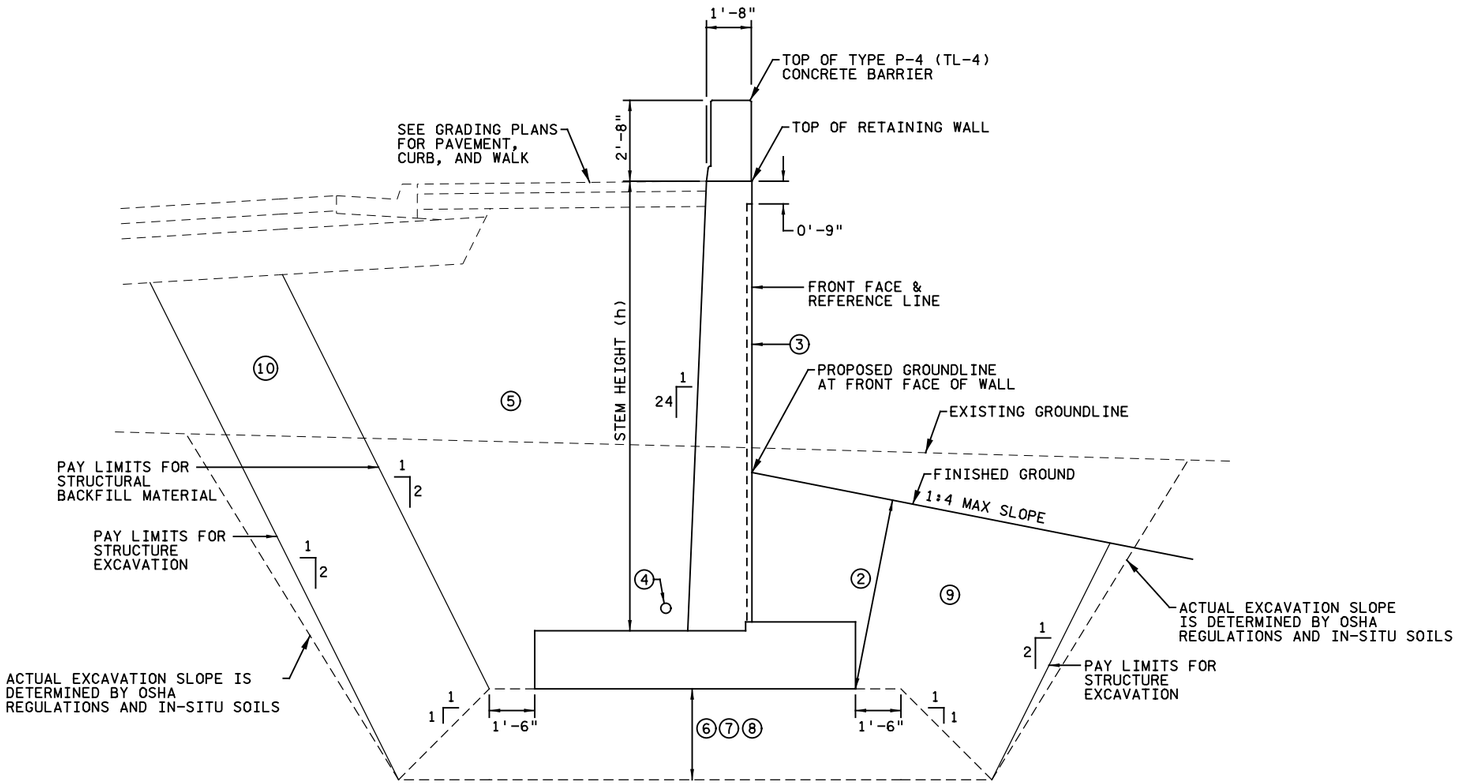
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STATE PROJ. NO. 2515-21 (TH 63) SHEET NO. 321 OF 688 SHEETS

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GEOMETRICS FOR RETAINING WALL RWALL 1

JOINT NUMBER	WALL STATION	COORDINATES (1) X	COORDINATES (1) Y	FRONT FACE GROUND ELEVATION	TOP OF WALL ELEVATION	STEM HEIGHT (h) DOWNSTATION (FT)	STEM HEIGHT (h) UPSTATION (FT)	TOP OF FOOTING HEEL ELEVATION DOWNSTATION	TOP OF FOOTING HEEL ELEVATION UPSTATION	BOTTOM OF FOOTING ELEVATION DOWNSTATION	BOTTOM OF FOOTING ELEVATION UPSTATION	PANEL LENGTH (FT)	PANEL NUMBER	REMARKS
1	10+00.00	656915.583	236514.758	705.47	723.90	--	22.31	--	701.58	--	699.50	30.50	1	
2	10+30.50	656944.572	236505.330	705.30	723.83	22.25	22.25	701.58	701.58	699.50	699.50	30.50	2	
3	10+61.00	656969.041	236487.420	705.43	723.02	21.43	21.43	701.58	701.58	699.50	699.50	30.50	3	
4	10+91.50	656991.730	236467.044	706.01	722.37	20.79	20.96	701.58	701.42	699.50	699.50	30.50	4	
5	11+22.00	657016.330	236449.041	706.67	721.43	20.02	20.02	701.42	701.42	699.50	699.50	30.50	5	
6	11+52.50	657041.929	236432.463	707.25	720.61	19.19	19.19	701.42	701.42	699.50	699.50	30.50	6	
7	11+83.00	657068.886	236418.231	708.91	719.84	18.42	18.59	701.42	701.25	699.50	699.50	30.50	7	
8	12+13.50	657097.277	236407.132	710.94	719.09	17.84	12.17	701.25	706.92	699.50	705.50	30.50	8	
9	12+44.00	657126.740	236399.307	714.41	718.34	11.42	11.42	706.92	706.92	705.50	705.50	23.93	9	
10	12+67.93	657150.360	236395.527	717.64	717.76	10.84	--	706.92	--	705.50	--			



TYPICAL WALL SECTION
NOT TO SCALE

NOTES:

1. COORDINATES ARE LOCATED AT REFERENCE LINE WHICH IS FRONT FACE OF RETAINING WALL.
2. MINIMUM EMBEDMENT IS 4'-6".
3. FOR ARCHITECTURAL TREATMENTS, SEE PLAN AND PROFILE SHEET AND ARCHITECTURAL DETAILS SHEETS.
4. 4" TP PERFORATED PIPE, MNDOT SPEC 3245. WRAP WITH APPROVED GEOTEXTILE.
5. STRUCTURAL BACKFILL, MNDOT SPEC 3149.2D2. COMPACTION SHALL BE IN ACCORDANCE WITH SPEC 2106.
6. AGGREGATE BACKFILL (CV).
7. 2' SUBCUT PANELS 3-7.
   4' SUBCUT PANELS 1-2.
   6' SUBCUT PANELS 8-9.
8. COMPACT TO 100% DENSITY IN ACCORDANCE WITH MNDOT SPEC 2106.3F1 UNLESS RECOMMENDED OTHERWISE BY SOILS ENGINEER.
9. SELECT GRADING MATERIAL PER MNDOT SPEC 2106.
10. NON-STRUCTURAL GRADING MATERIALS PER MNDOT SPEC 2106.1A8 OR NATIVE GROUND.

NO	DATE	BY	CKD	APPR	REVISION
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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: LINDSEY B. RENSTROM
Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION
CIP RETAINING WALL PLANS
SP 2515-21 (TH 63)
RWALL 1 GEOMETRICS AND SECTION

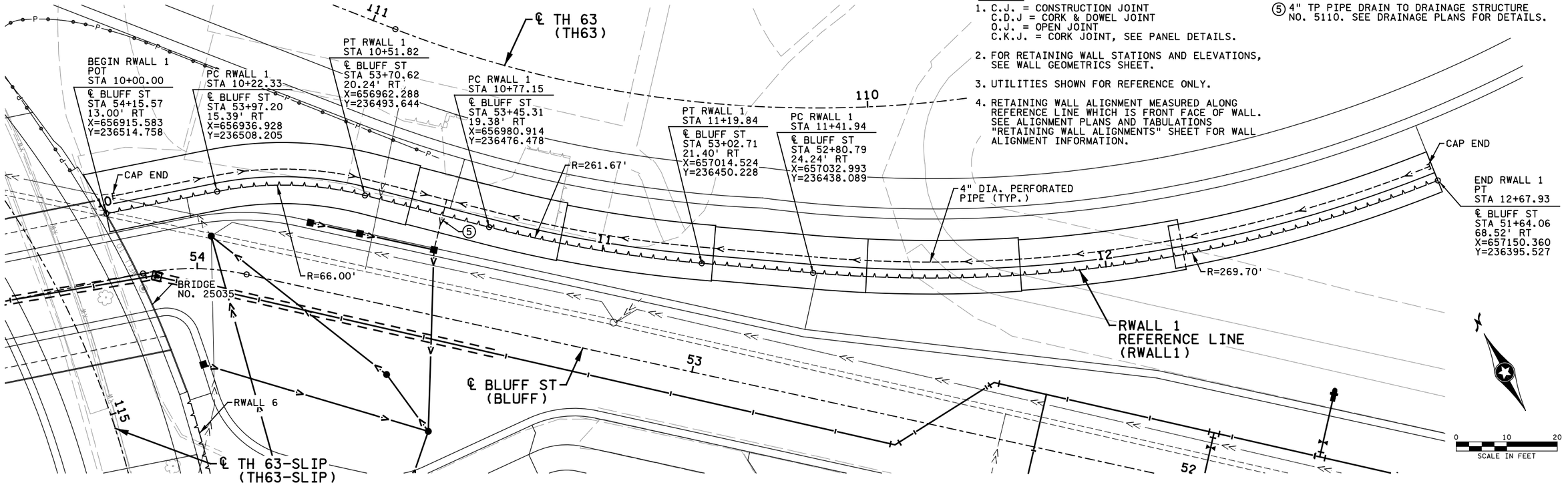
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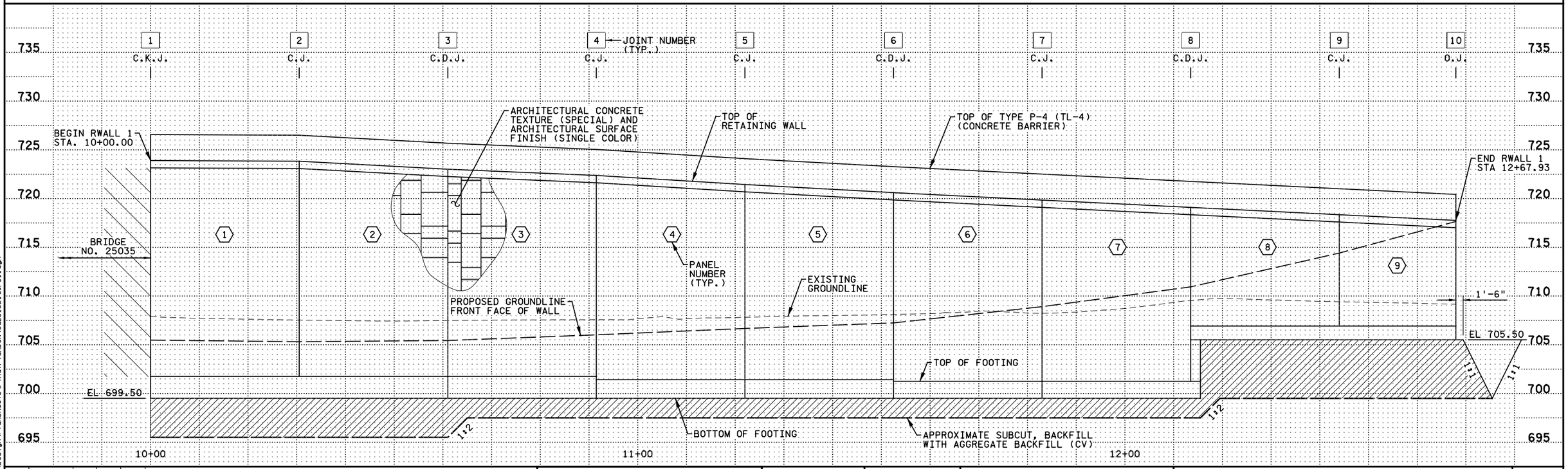
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NOTES:

1. C.J. = CONSTRUCTION JOINT
   C.D.J = CORK & DOWEL JOINT
   O.J. = OPEN JOINT
   C.K.J. = CORK JOINT, SEE PANEL DETAILS.
2. FOR RETAINING WALL STATIONS AND ELEVATIONS, SEE WALL GEOMETRICS SHEET.
3. UTILITIES SHOWN FOR REFERENCE ONLY.
4. RETAINING WALL ALIGNMENT MEASURED ALONG REFERENCE LINE WHICH IS FRONT FACE OF WALL. SEE ALIGNMENT PLANS AND TABULATIONS "RETAINING WALL ALIGNMENTS" SHEET FOR WALL ALIGNMENT INFORMATION.

⑤ 4" TP PIPE DRAIN TO DRAINAGE STRUCTURE NO. 5110. SEE DRAINAGE PLANS FOR DETAILS.





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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21	
MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	
DRAWN BY	S. MARTINS
DESIGNED BY	A. BEHNKE
CHECKED BY	L. RENSTROM
COMM. NO.	0158933

SRF Consulting Group, Inc. — ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

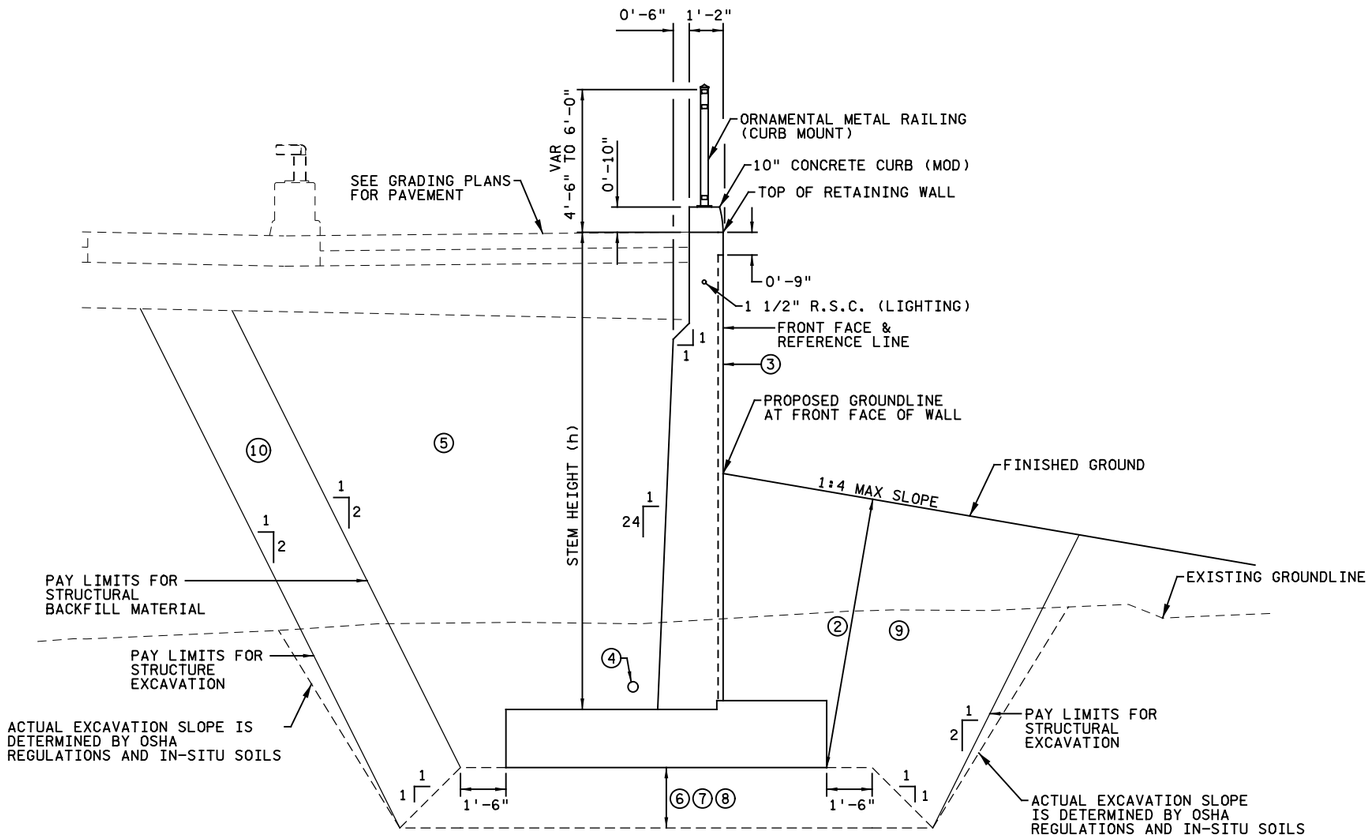
PLAN AND PROFILE - RWALL 1

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GEOMETRICS FOR RETAINING WALL RWALL 2

JOINT NUMBER	WALL STATION	COORDINATES (1) X	COORDINATES (1) Y	FRONT FACE GROUND ELEVATION	TOP OF WALL ELEVATION	STEM HEIGHT (h) DOWNSTATION (FT)	STEM HEIGHT (h) UPSTATION (FT)	TOP OF FOOTING HEEL ELEVATION DOWNSTATION	TOP OF FOOTING HEEL ELEVATION UPSTATION	BOTTOM OF FOOTING ELEVATION DOWNSTATION	BOTTOM OF FOOTING ELEVATION UPSTATION	PANEL LENGTH (FT)	PANEL NUMBER	REMARKS
1	20+00.00	656786.576	236681.549	712.70	730.53	--	25.28	–	705.25	–	703.00	30.50	1	
2	20+30.50	656806.359	236658.336	717.78	729.46	24.21	18.46	705.25	711.00	703.00	709.25	30.50	2	
3	20+61.00	656825.526	236634.611	720.50	728.32	17.32	17.32	711.00	711.00	709.25	709.25	30.50	3	
4	20+91.50	656842.421	236609.240	720.50	727.04	16.04	16.04	711.00	711.00	709.25	709.25	30.50	4	
5	21+22.00	656856.142	236582.021	716.50	725.78	14.78	18.28	711.00	707.50	709.25	705.75	30.50	5	
6	21+52.50	656866.489	236553.349	714.50	724.57	17.07	22.98	707.50	701.58	705.75	699.50	14.18	6	
7	21+66.68	656870.292	236539.688	712.50	723.95	22.37	–	701.58	--	699.50	--			



TYPICAL WALL SECTION

NOT TO SCALE

NOTES:

1. COORDINATES ARE LOCATED AT REFERENCE LINE WHICH IS FRONT FACE OF RETAINING WALL.
2. MINIMUM EMBEDMENT IS 4'-6".
3. FOR ARCHITECTURAL TREATMENTS, SEE PLAN AND PROFILE SHEET AND ARCHITECTURAL DETAILS SHEETS.
4. 4" TP PERFORATED PIPE, MNDOT SPEC 3245. WRAP WITH APPROVED GEOTEXTILE.
5. STRUCTURAL BACKFILL, MNDOT SPEC 3149.2D2. COMPACTION SHALL BE IN ACCORDANCE WITH SPEC 2106.
6. AGGREGATE BACKFILL (CV).
7. 2' SUBCUT.
8. COMPACT TO 100% DENSITY IN ACCORDANCE WITH MNDOT SPEC 2106.3F1 UNLESS RECOMMENDED OTHERWISE BY SOILS ENGINEER.
9. SELECT GRADING MATERIAL PER MNDOT SPEC 2106.
10. NON-STRUCTURAL GRADING MATERIALS PER MNDOT SPEC 2106.1A8 OR NATIVE GROUND.

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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

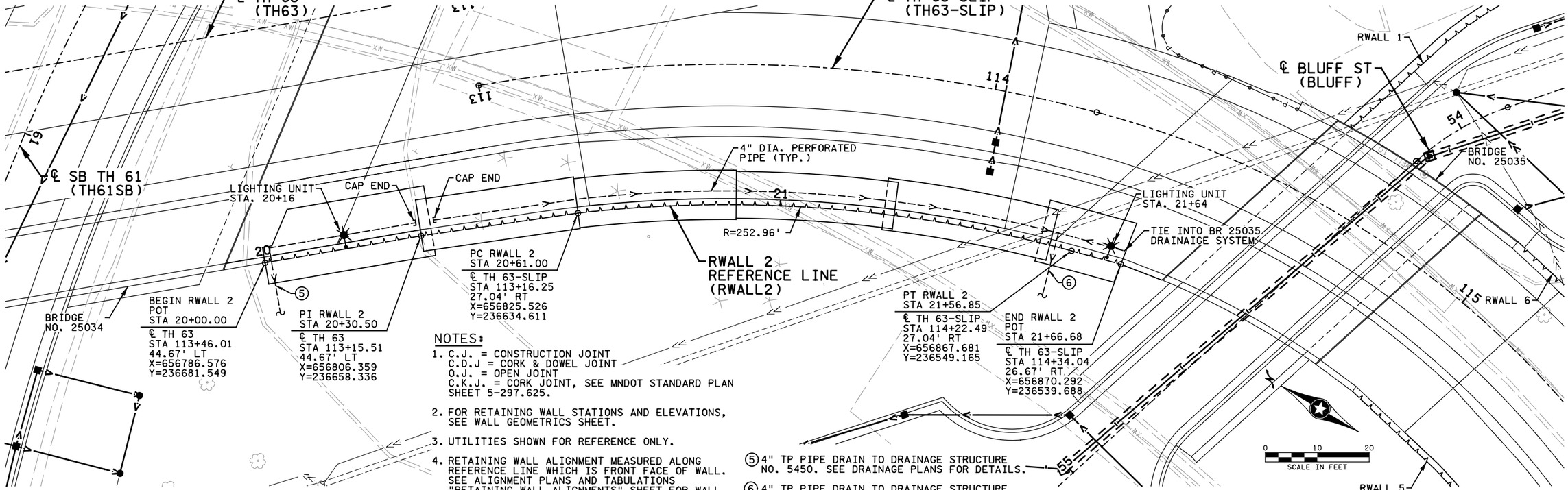
CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

RWALL 2 GEOMETRICS AND SECTION

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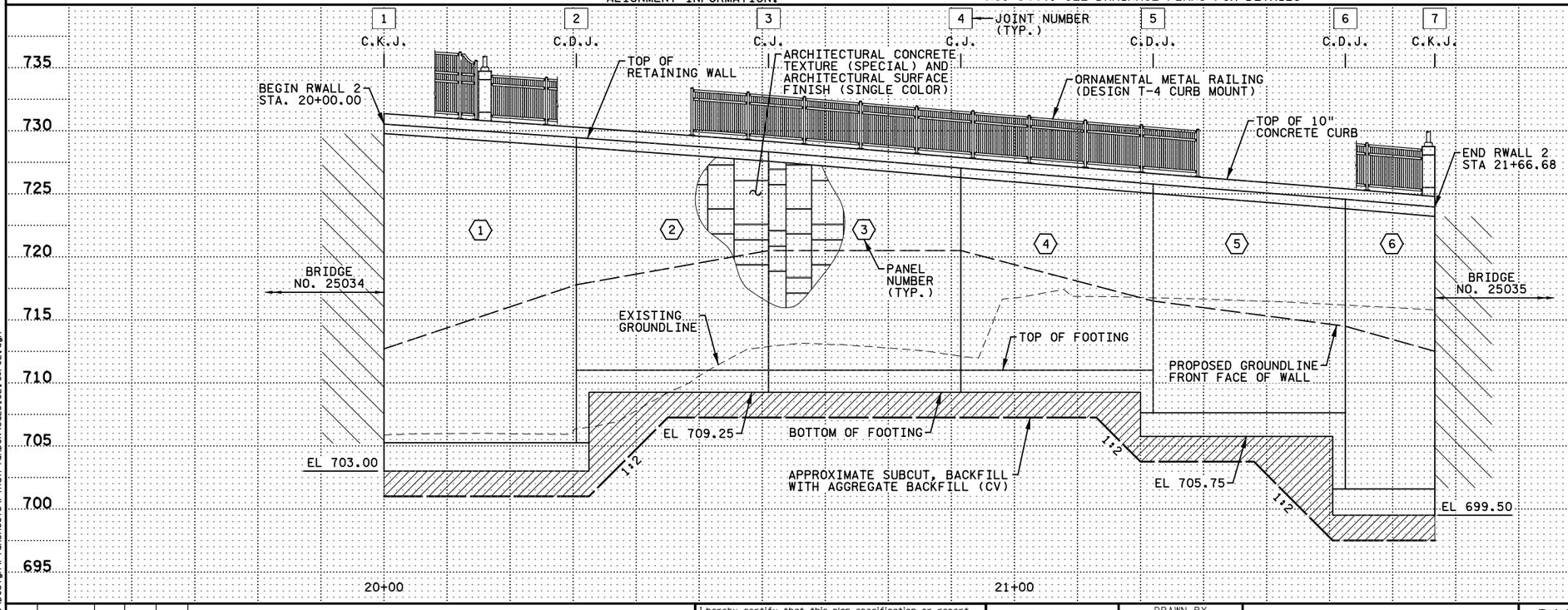


NOTES:

1. C.J. = CONSTRUCTION JOINT
   C.D.J = CORK & DOWEL JOINT
   O.J. = OPEN JOINT
   C.K.J. = CORK JOINT, SEE MNDOT STANDARD PLAN SHEET 5-297.625.
2. FOR RETAINING WALL STATIONS AND ELEVATIONS, SEE WALL GEOMETRICS SHEET.
3. UTILITIES SHOWN FOR REFERENCE ONLY.
4. RETAINING WALL ALIGNMENT MEASURED ALONG REFERENCE LINE WHICH IS FRONT FACE OF WALL. SEE ALIGNMENT PLANS AND TABULATIONS "RETAINING WALL ALIGNMENTS" SHEET FOR WALL ALIGNMENT INFORMATION.

⑤ 4" TP PIPE DRAIN TO DRAINAGE STRUCTURE NO. 5450. SEE DRAINAGE PLANS FOR DETAILS.

⑥ 4" TP PIPE DRAIN TO DRAINAGE STRUCTURE NO. 5444. SEE DRAINAGE PLANS FOR DETAILS



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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

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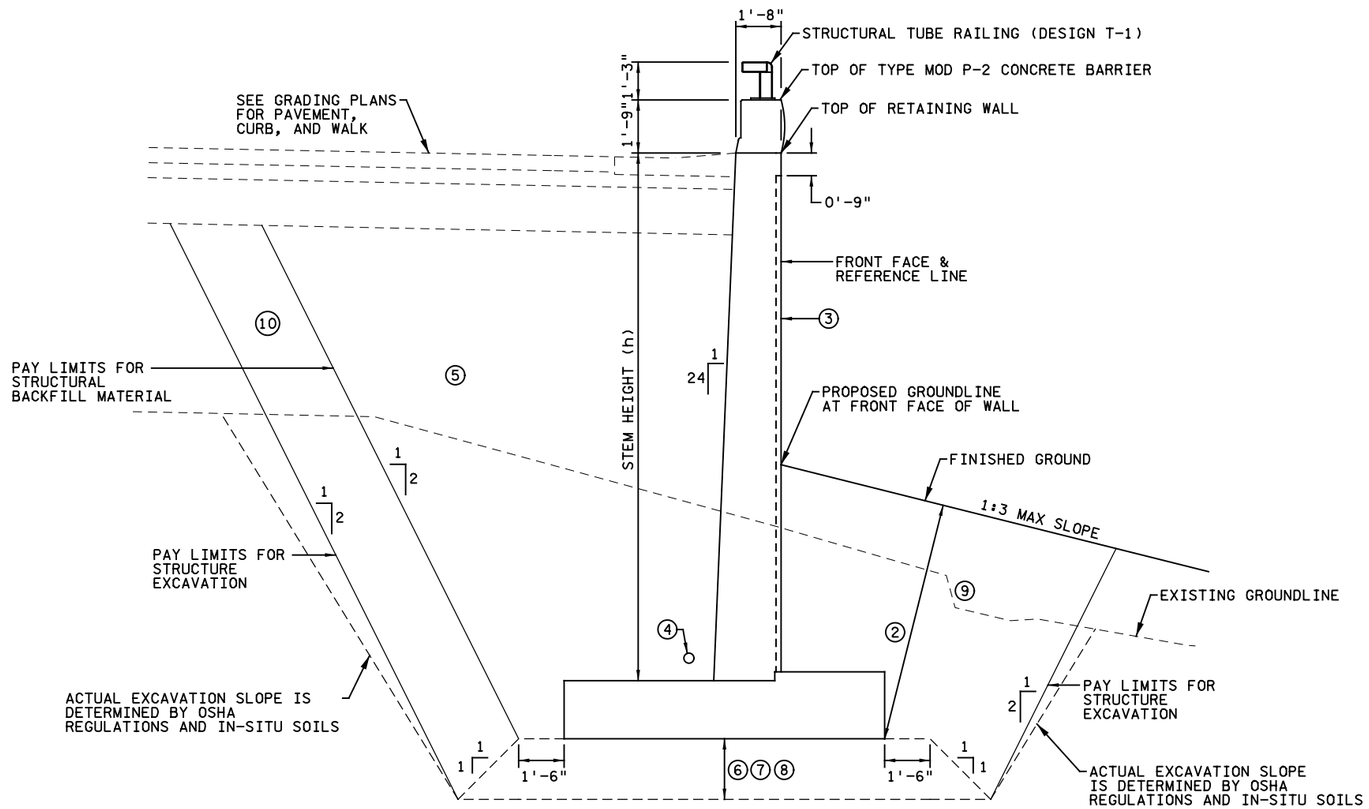
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SP 2515-21 (TH 63)
PLAN AND PROFILE - RWALL 2

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GEOMETRICS FOR RETAINING WALL RWALL 3

JOINT NUMBER	WALL STATION	COORDINATES (1) X	COORDINATES (1) Y	FRONT FACE GROUND ELEVATION	TOP OF WALL ELEVATION	STEM HEIGHT (h) DOWNSTATION (FT)	STEM HEIGHT (h) UPSTATION (FT)	TOP OF FOOTING HEEL ELEVATION DOWNSTATION	TOP OF FOOTING HEEL ELEVATION UPSTATION	BOTTOM OF FOOTING ELEVATION DOWNSTATION	BOTTOM OF FOOTING ELEVATION UPSTATION	PANEL LENGTH (FT)	PANEL NUMBER	REMARKS
1	30+00.00	656913.824	236631.420	726.63	726.71	--	15.71	--	711.00	–	709.25	30.50	1	
2	30+30.50	656894.041	236654.634	720.15	727.78	16.78	16.78	711.00	711.00	709.25	709.25	24.67	2	
3	30+55.17	656878.041	236673.408	714.90	728.41	17.41	23.16	711.00	705.25	709.25	703.00	24.66	3	
4	30+79.83	656862.043	236692.180	709.65	729.22	23.97	--	705.25	–	703.00	–			



NOTES:

1. COORDINATES ARE LOCATED AT REFERENCE LINE WHICH IS FRONT FACE OF RETAINING WALL.
2. MINIMUM EMBEDMENT IS 4'-6".
3. FOR ARCHITECTURAL TREATMENTS, SEE PLAN AND PROFILE SHEET AND ARCHITECTURAL DETAILS SHEETS.
4. 4" TP PERFORATED PIPE, MNDOT SPEC 3245. WRAP WITH APPROVED GEOTEXTILE.
5. STRUCTURAL BACKFILL, MNDOT SPEC 3149.2D2. COMPACTION SHALL BE IN ACCORDANCE WITH SPEC 2106.
6. AGGREGATE BACKFILL (CV).
7. 2' SUBCUT.
8. COMPACT TO 100% DENSITY IN ACCORDANCE WITH MNDOT SPEC 2106.3F1 UNLESS RECOMMENDED OTHERWISE BY SOILS ENGINEER.
9. SELECT GRADING MATERIAL PER MNDOT SPEC 2106.
10. NON-STRUCTURAL GRADING MATERIALS PER MNDOT SPEC 2106.1A8 OR NATIVE GROUND.

TYPICAL WALL SECTION

NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

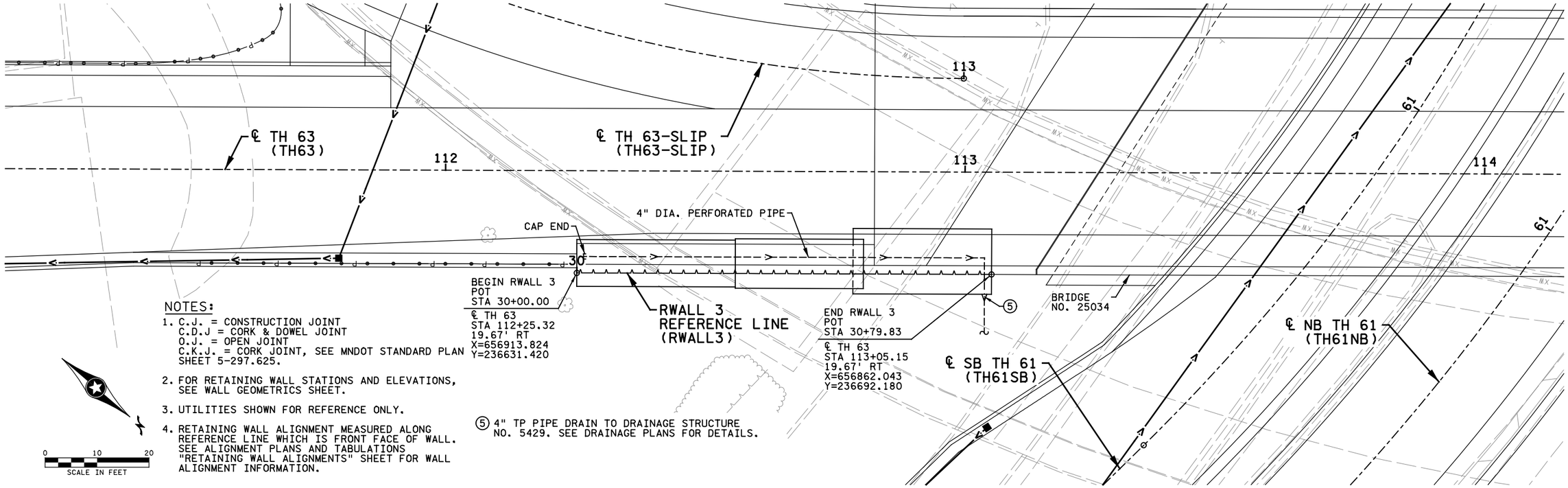
CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

RWALL 3 GEOMETRICS AND SECTION

CIP SHEET 326 OF 688

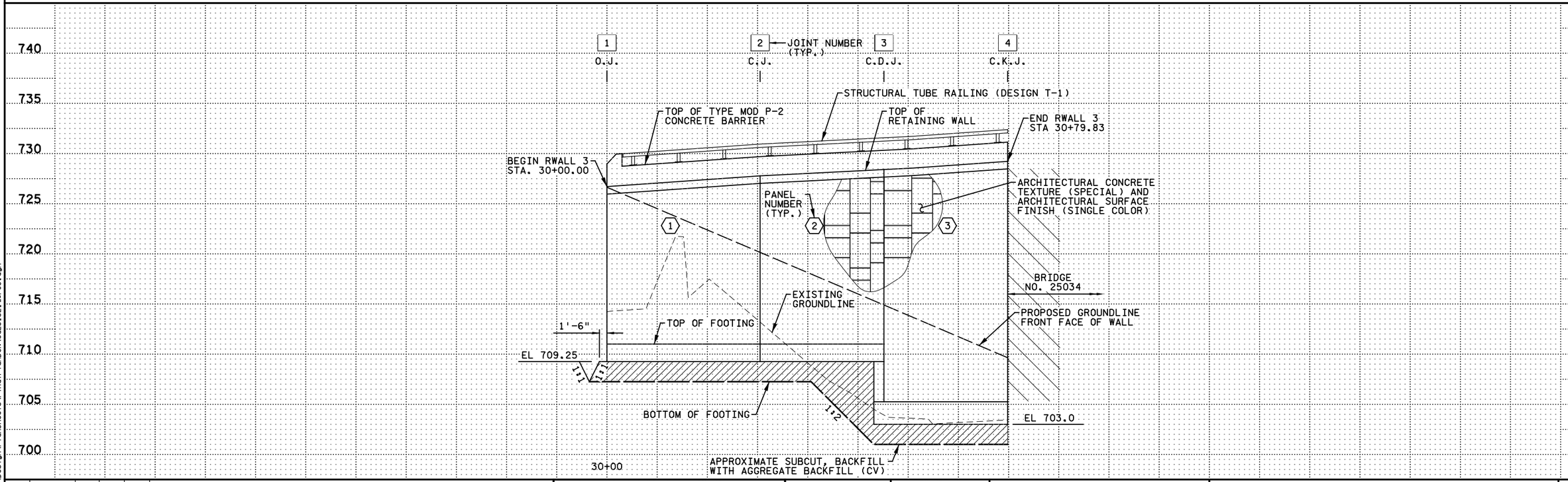
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NOTES:

1. C.J. = CONSTRUCTION JOINT
   C.D.J = CORK & DOWEL JOINT
   O.J. = OPEN JOINT
   C.K.J. = CORK JOINT, SEE MNDOT STANDARD PLAN SHEET 5-297.625.
2. FOR RETAINING WALL STATIONS AND ELEVATIONS, SEE WALL GEOMETRICS SHEET.
3. UTILITIES SHOWN FOR REFERENCE ONLY.
4. RETAINING WALL ALIGNMENT MEASURED ALONG REFERENCE LINE WHICH IS FRONT FACE OF WALL. SEE ALIGNMENT PLANS AND TABULATIONS "RETAINING WALL ALIGNMENTS" SHEET FOR WALL ALIGNMENT INFORMATION.

⑤ 4" TP PIPE DRAIN TO DRAINAGE STRUCTURE NO. 5429. SEE DRAINAGE PLANS FOR DETAILS.



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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

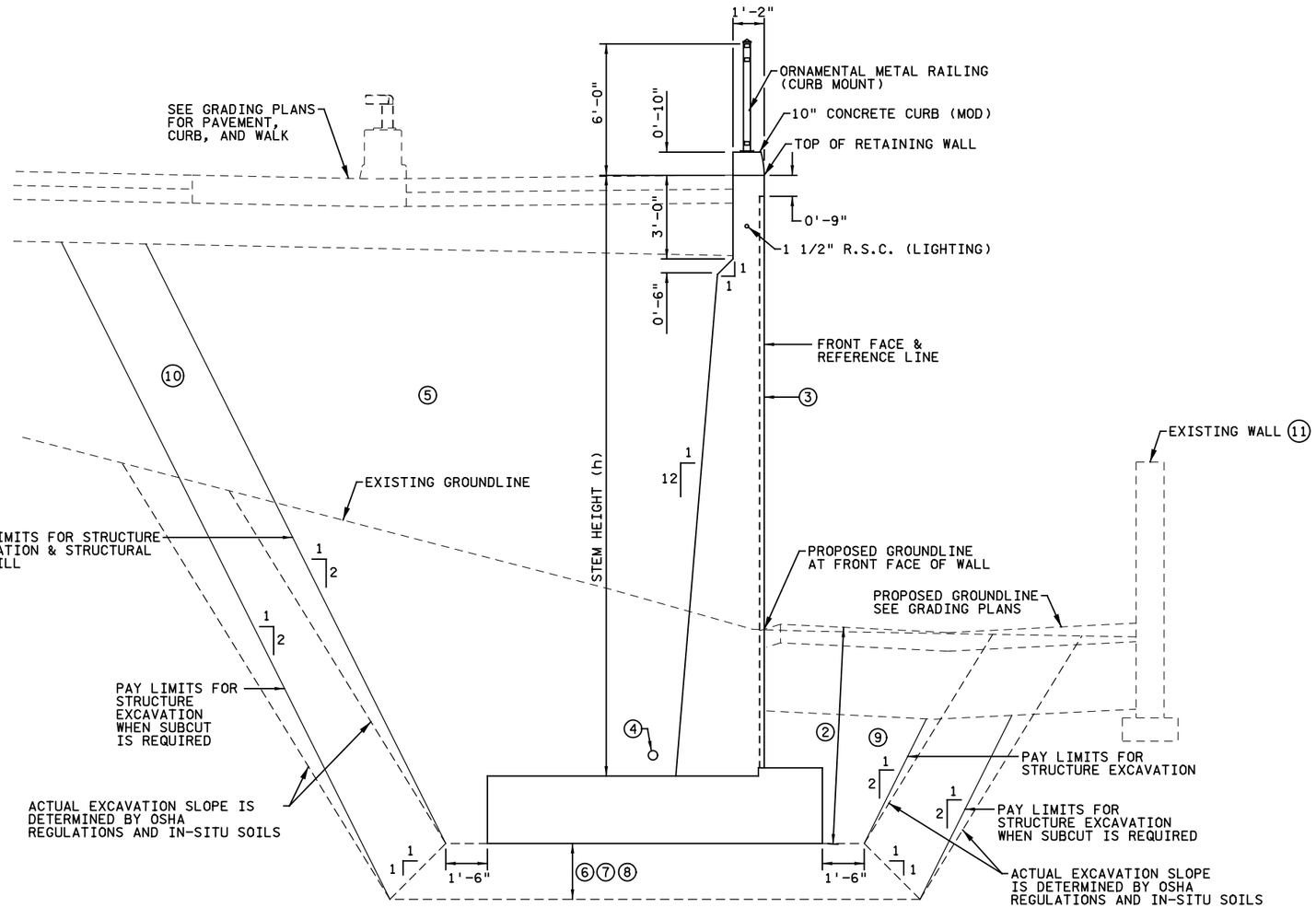
PLAN AND PROFILE - RWALL 3

SHEET 327 OF 688

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GEOMETRICS FOR RETAINING WALL RWALL 4

JOINT NUMBER	WALL STATION	COORDINATES (1) X	COORDINATES (1) Y	FRONT FACE GROUND ELEVATION	TOP OF WALL ELEVATION	STEM HEIGHT (h) DOWNSTATION (FT)	STEM HEIGHT (h) UPSTATION (FT)	TOP OF FOOTING HEEL ELEVATION DOWNSTATION	TOP OF FOOTING HEEL ELEVATION UPSTATION	BOTTOM OF FOOTING ELEVATION DOWNSTATION	BOTTOM OF FOOTING ELEVATION UPSTATION	PANEL LENGTH (FT)	PANEL NUMBER	REMARKS
1	40+01.07	656501.125	237034.995	723.27	745.16	--	25.24	--	719.92	–	717.50	17.22	1	
2	40+18.29	656512.290	237021.894	723.23	744.80	24.88	24.88	719.92	719.92	717.50	717.50	17.21	2	
3	40+35.50	656523.455	237008.792	723.20	744.43	24.51	24.51	719.92	719.92	717.50	717.50	30.50	3	
4	40+66.00	656543.238	236985.579	723.14	743.70	23.78	23.78	719.92	719.92	717.50	717.50	30.50	4	
5	40+96.50	656563.022	236962.365	723.08	742.91	22.99	22.99	719.92	719.92	717.50	717.50	30.50	5	
6	41+27.00	656582.805	236939.152	723.02	742.05	22.13	22.13	719.92	719.92	717.50	717.50	30.50	6	
7	41+57.50	656602.588	236915.938	722.97	741.11	21.19	21.19	719.92	719.92	717.50	717.50	30.50	7	
8	41+88.00	656622.372	236892.725	722.91	740.11	20.19	20.19	719.92	719.92	717.50	717.50	30.50	8	
9	42+18.50	656642.155	236869.511	722.30	739.05	19.13	24.45	719.92	714.60	717.50	712.18	30.50	9	
10	42+49.00	656661.938	236846.298	720.29	737.98	23.38	23.38	714.60	714.60	712.18	712.18	30.50	10	
11	42+79.50	656676.769	236819.646	717.10	736.83	22.23	26.69	714.60	710.14	712.18	707.72	30.50	11	
12	43+10.00	656691.599	236792.994	713.05	735.66	25.52	--	710.14	--	707.72	–			



TYPICAL WALL SECTION

NOT TO SCALE

NOTES:

1. COORDINATES ARE LOCATED AT REFERENCE LINE WHICH IS FRONT FACE OF RETAINING WALL.
2. MINIMUM EMBEDMENT IS 4'-6".
3. FOR ARCHITECTURAL TREATMENTS, SEE PLAN AND PROFILE SHEET AND ARCHITECTURAL DETAILS SHEETS.
4. 4" TP PERFORATED PIPE, MNDOT SPEC 3245. WRAP WITH APPROVED GEOTEXTILE.
5. STRUCTURAL BACKFILL, MNDOT SPEC 3149.2D2. COMPACTION SHALL BE IN ACCORDANCE WITH SPEC 2106.
6. AGGREGATE BACKFILL (CV) WHEN SUBCUT IS REQUIRED.
7. 2' SUBCUT PANELS 1-3, 7-11. PANELS 4-6 TO BE PLACED DIRECTLY ON EXISTING BEDROCK.
8. COMPACT TO 100% DENSITY IN ACCORDANCE WITH MNDOT SPEC 2106.3F1 UNLESS RECOMMENDED OTHERWISE BY SOILS ENGINEER (WHEN SUBCUT IS REQUIRED).
9. SELECT GRADING MATERIAL PER MNDOT SPEC 2106.
10. NON-STRUCTURAL GRADING MATERIALS PER MNDOT SPEC 2106.1A8 OR NATIVE GROUND.
11. EXISTING RETAINING WALL MAY PREVENT STANDARD EXCAVATION. CONTRACTOR TO PROVIDE TEMPORARY SUPPORT FOR EXISTING WALL AS APPROVED BT ENGINEER. SEE SPECIAL PROVISIONS.

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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

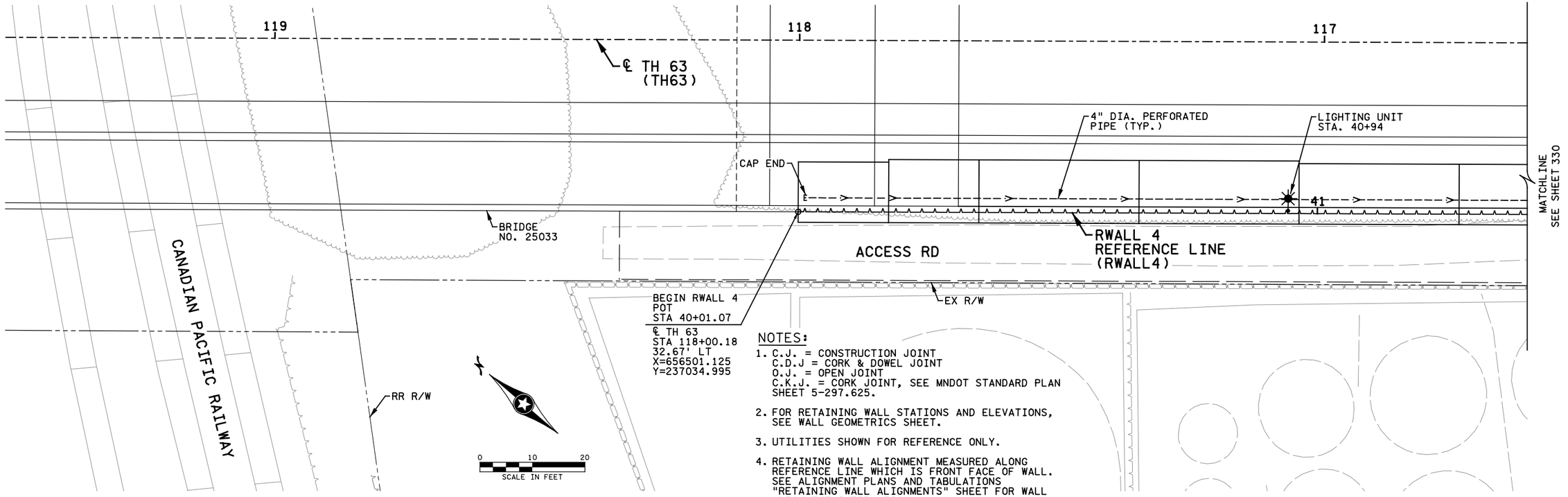
CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

RWALL 4 GEOMETRICS AND SECTION

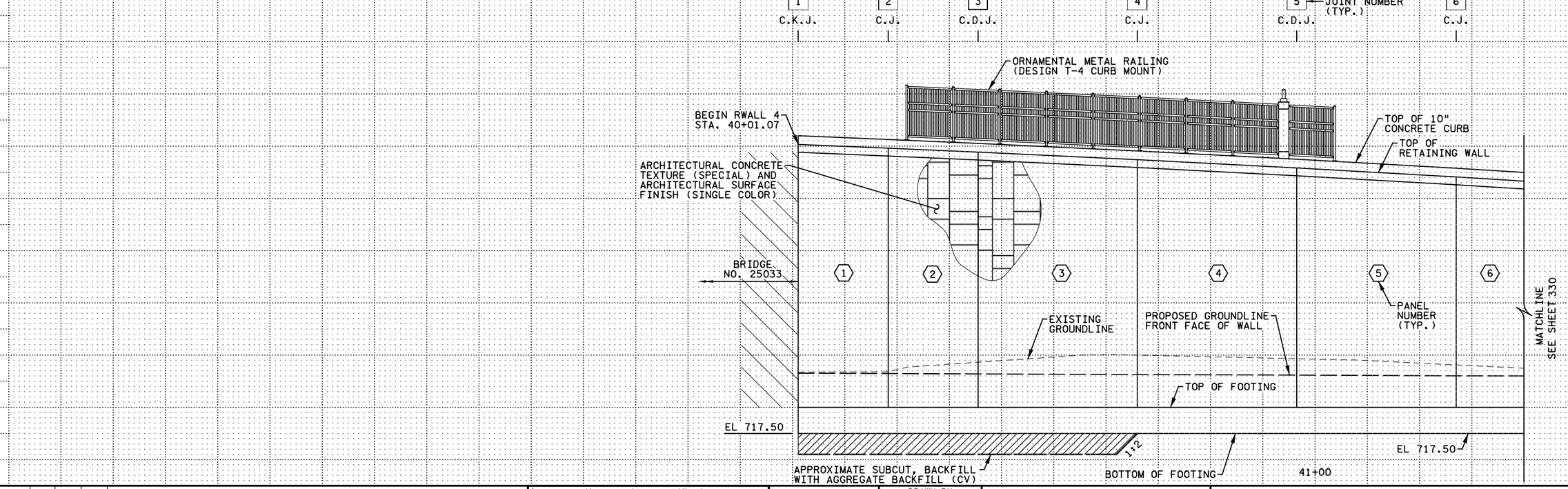
CIP SHEET 328 OF 688

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NOTES:

1. C.J. = CONSTRUCTION JOINT
   C.D.J = CORK & DOWEL JOINT
   O.J. = OPEN JOINT
   C.K.J. = CORK JOINT, SEE MNDOT STANDARD PLAN SHEET 5-297.625.
2. FOR RETAINING WALL STATIONS AND ELEVATIONS, SEE WALL GEOMETRICS SHEET.
3. UTILITIES SHOWN FOR REFERENCE ONLY.
4. RETAINING WALL ALIGNMENT MEASURED ALONG REFERENCE LINE WHICH IS FRONT FACE OF WALL. SEE ALIGNMENT PLANS AND TABULATIONS "RETAINING WALL ALIGNMENTS" SHEET FOR WALL ALIGNMENT INFORMATION.



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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21	
MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	
DRAWN BY	S. MARTINS
DESIGNED BY	A. BEHNKE
CHECKED BY	L. RENSTROM
COMM. NO.	0158933

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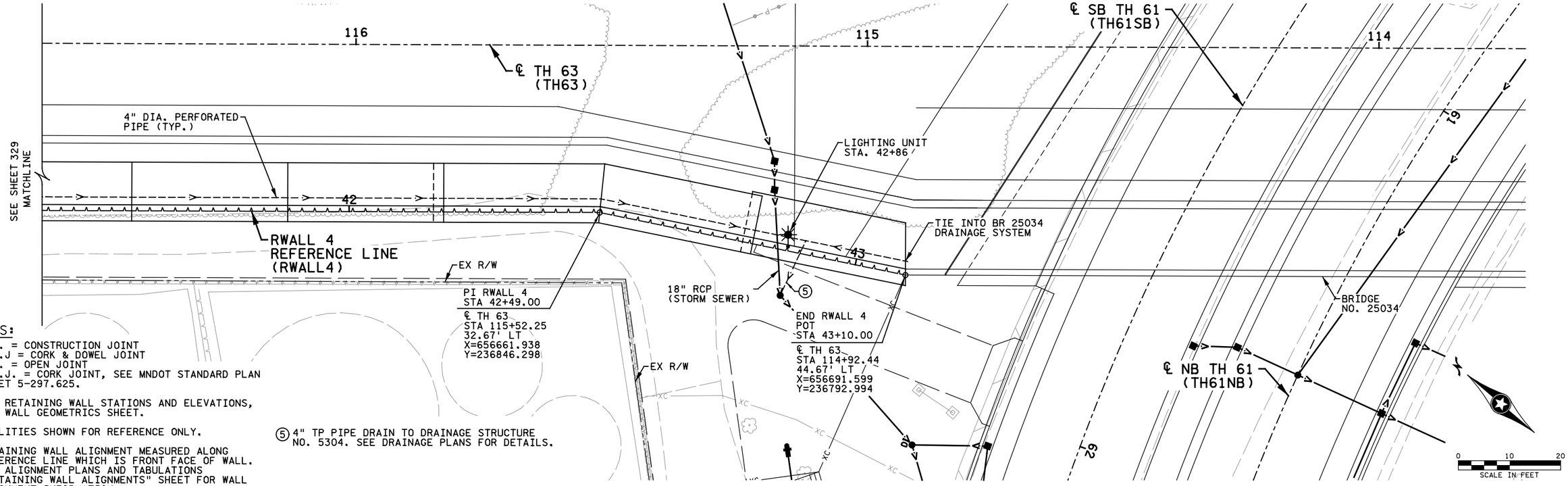
CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

PLAN AND PROFILE - RWALL 4 (1 OF 2)

SHEET 329 OF 688

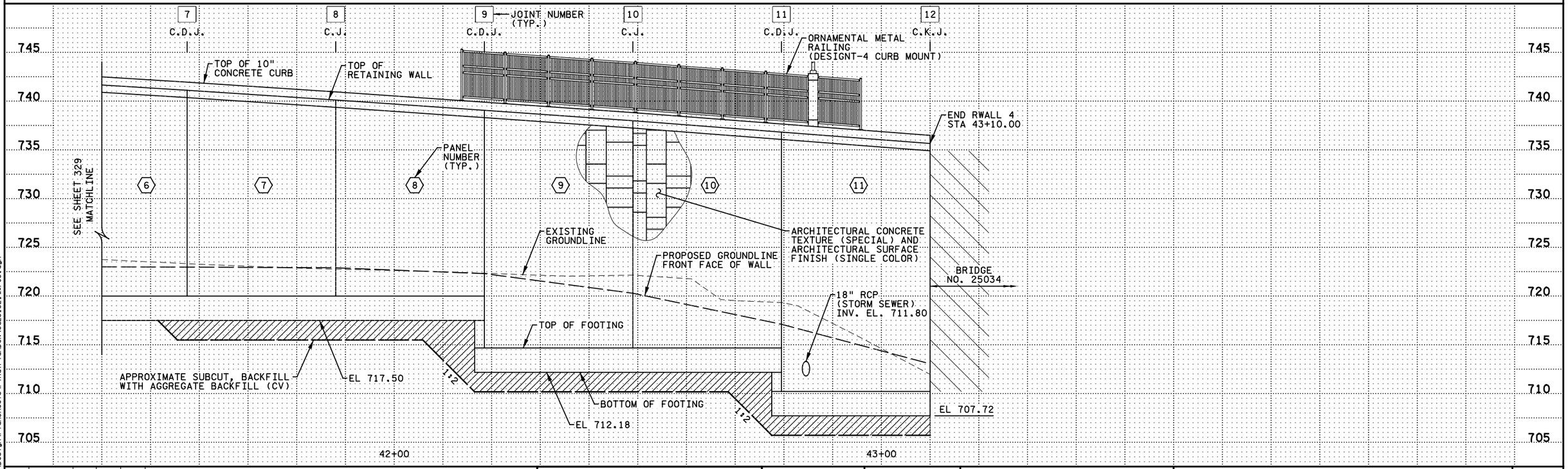
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3. UTILITIES SHOWN FOR REFERENCE ONLY.
4. RETAINING WALL ALIGNMENT MEASURED ALONG REFERENCE LINE WHICH IS FRONT FACE OF WALL. SEE ALIGNMENT PLANS AND TABULATIONS "RETAINING WALL ALIGNMENTS" SHEET FOR WALL ALIGNMENT INFORMATION.

⑤ 4" TP PIPE DRAIN TO DRAINAGE STRUCTURE NO. 5304. SEE DRAINAGE PLANS FOR DETAILS.



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Date _____ License # 51351

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MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY A. BEHNKE
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY L. RENSTROM
	COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

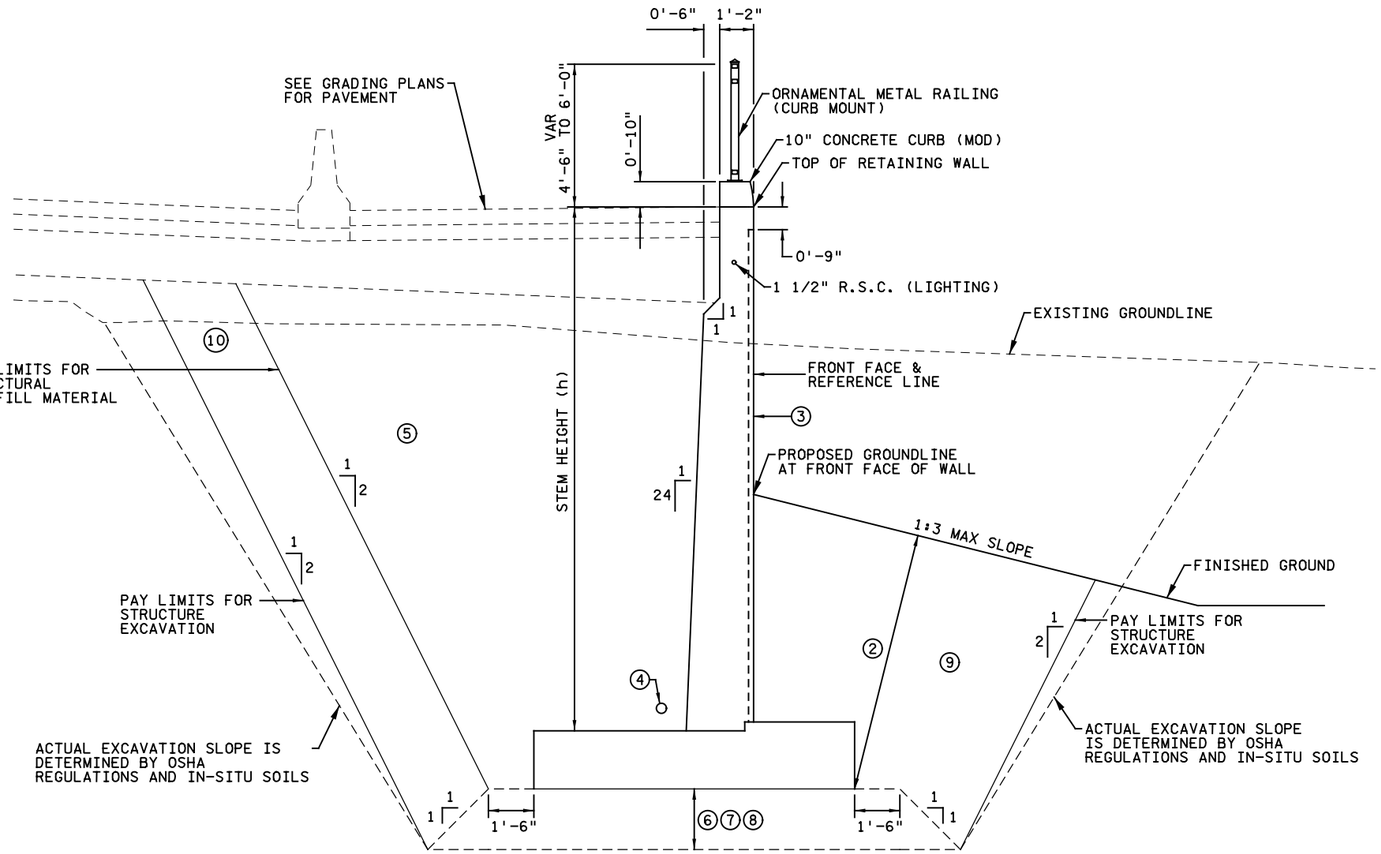
PLAN AND PROFILE - RWALL 4 (2 OF 2)

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GEOMETRICS FOR RETAINING WALL RWALL 5

JOINT NUMBER	WALL STATION	COORDINATES (1) X	COORDINATES (1) Y	FRONT FACE GROUND ELEVATION	TOP OF WALL ELEVATION	STEM HEIGHT (h) DOWNSTATION (FT)	STEM HEIGHT (h) UPSTATION (FT)	TOP OF FOOTING HEEL ELEVATION DOWNSTATION	TOP OF FOOTING HEEL ELEVATION UPSTATION	BOTTOM OF FOOTING ELEVATION DOWNSTATION	BOTTOM OF FOOTING ELEVATION UPSTATION	PANEL LENGTH (FT)	PANEL NUMBER	REMARKS
1	50+04.93	656871.949	236488.853	712.50	721.45	--	20.03	--	701.42	--	699.50	21.57	1	
2	50+26.50	656867.203	236467.812	714.13	720.26	18.84	12.84	701.42	707.42	699.50	706.00	30.50	2	
3	50+57.00	656856.060	236439.475	715.42	718.47	11.05	11.05	707.42	707.42	706.00	706.00	30.50	3	
4	50+87.50	656839.525	236413.906	712.37	716.73	9.31	12.06	707.42	704.67	706.00	703.25	30.50	4	
5	51+18.00	656819.553	236390.855	708.95	715.23	10.56	10.56	704.67	704.67	703.25	703.25	30.50	5	
6	51+48.50	656799.463	236367.906	709.88	713.78	9.11	9.11	704.67	704.67	703.25	703.25	30.50	6	
7	51+79.00	656779.373	236344.957	710.42	712.33	7.66	5.91	704.67	706.42	703.25	705.00	30.50	7	
8	52+09.50	656759.283	236322.009	710.78	711.70	5.28	5.28	706.42	706.42	705.00	705.00	30.50	8	
9	52+40.00	656738.364	236299.813	710.78	711.14	4.72	--	706.42	--	705.00	--			



TYPICAL WALL SECTION
NOT TO SCALE

NOTES:

1. COORDINATES ARE LOCATED AT REFERENCE LINE WHICH IS FRONT FACE OF RETAINING WALL.
2. MINIMUM EMBEDMENT IS 4'-6".
3. FOR ARCHITECTURAL TREATMENTS, SEE PLAN AND PROFILE SHEET AND ARCHITECTURAL DETAILS SHEETS.
4. 4" TP PERFORATED PIPE, MNDOT SPEC 3245. WRAP WITH APPROVED GEOTEXTILE.
5. STRUCTURAL BACKFILL, MNDOT SPEC 3149.2D2. COMPACTION SHALL BE IN ACCORDANCE WITH SPEC 2106.
6. AGGREGATE BACKFILL (CV).
7. 2' SUBCUT.
8. COMPACT TO 100% DENSITY IN ACCORDANCE WITH MNDOT SPEC 2106.3F1 UNLESS RECOMMENDED OTHERWISE BY SOILS ENGINEER.
9. SELECT GRADING MATERIAL PER MNDOT SPEC 2106.
10. NON-STRUCTURAL GRADING MATERIALS PER MNDOT SPEC 2106.1A8 OR NATIVE GROUND.

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

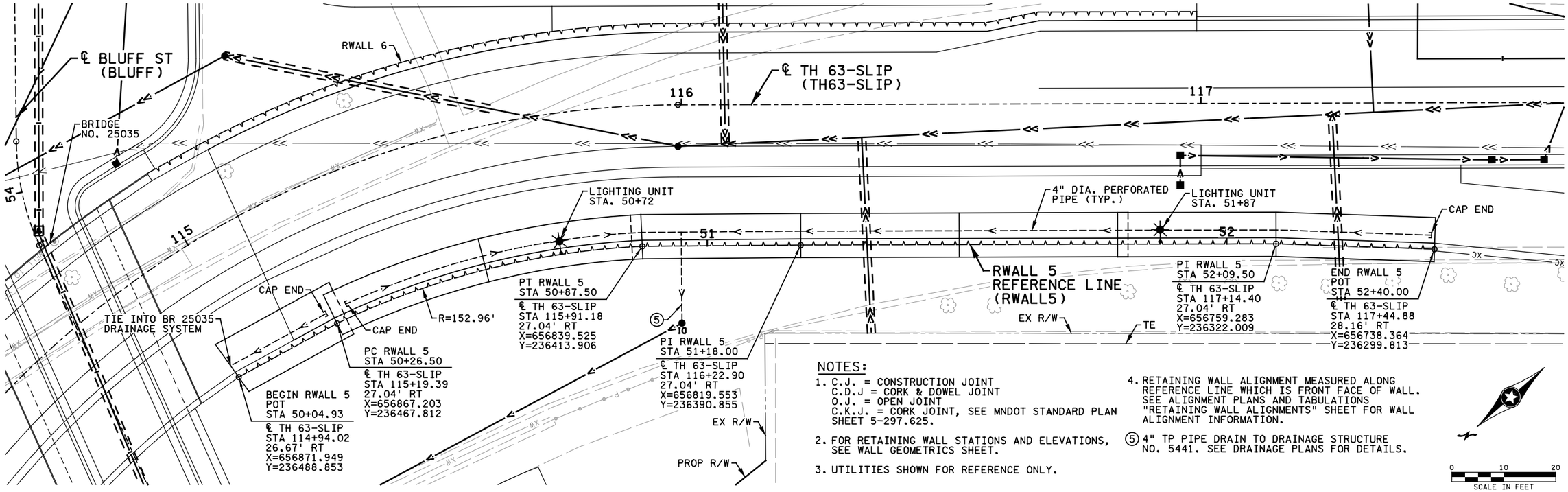
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DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

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ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
CIP RETAINING WALL PLANS
SP 2515-21 (TH 63)
RWALL 5 GEOMETRICS AND SECTION

CIP SHEET 331 OF 688

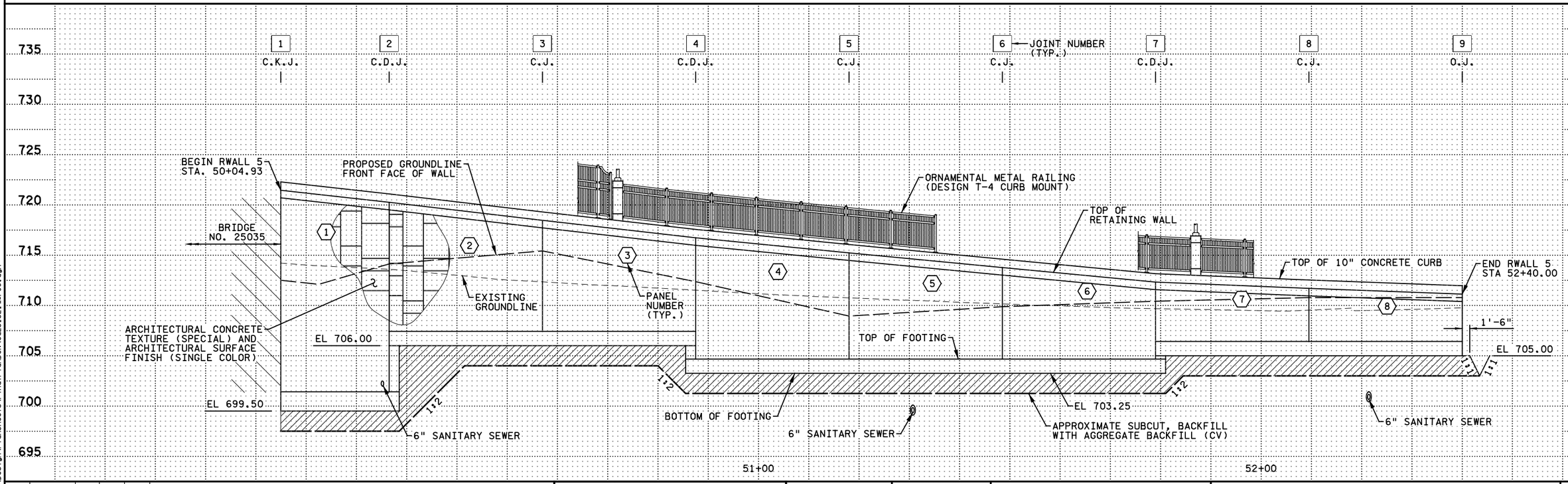
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NOTES:

1. C.J. = CONSTRUCTION JOINT
   C.D.J = CORK & DOWEL JOINT
   O.J. = OPEN JOINT
   C.K.J. = CORK JOINT, SEE MNDOT STANDARD PLAN SHEET 5-297.625.
2. FOR RETAINING WALL STATIONS AND ELEVATIONS, SEE WALL GEOMETRICS SHEET.
3. UTILITIES SHOWN FOR REFERENCE ONLY.
4. RETAINING WALL ALIGNMENT MEASURED ALONG REFERENCE LINE WHICH IS FRONT FACE OF WALL. SEE ALIGNMENT PLANS AND TABULATIONS "RETAINING WALL ALIGNMENTS" SHEET FOR WALL ALIGNMENT INFORMATION.

⑤ 4" TP PIPE DRAIN TO DRAINAGE STRUCTURE NO. 5441. SEE DRAINAGE PLANS FOR DETAILS.



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Date _____ License # 51351

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MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	
DRAWN BY	S. MARTINS
DESIGNED BY	A. BEHNKE
CHECKED BY	L. RENSTROM
COMM. NO.	0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

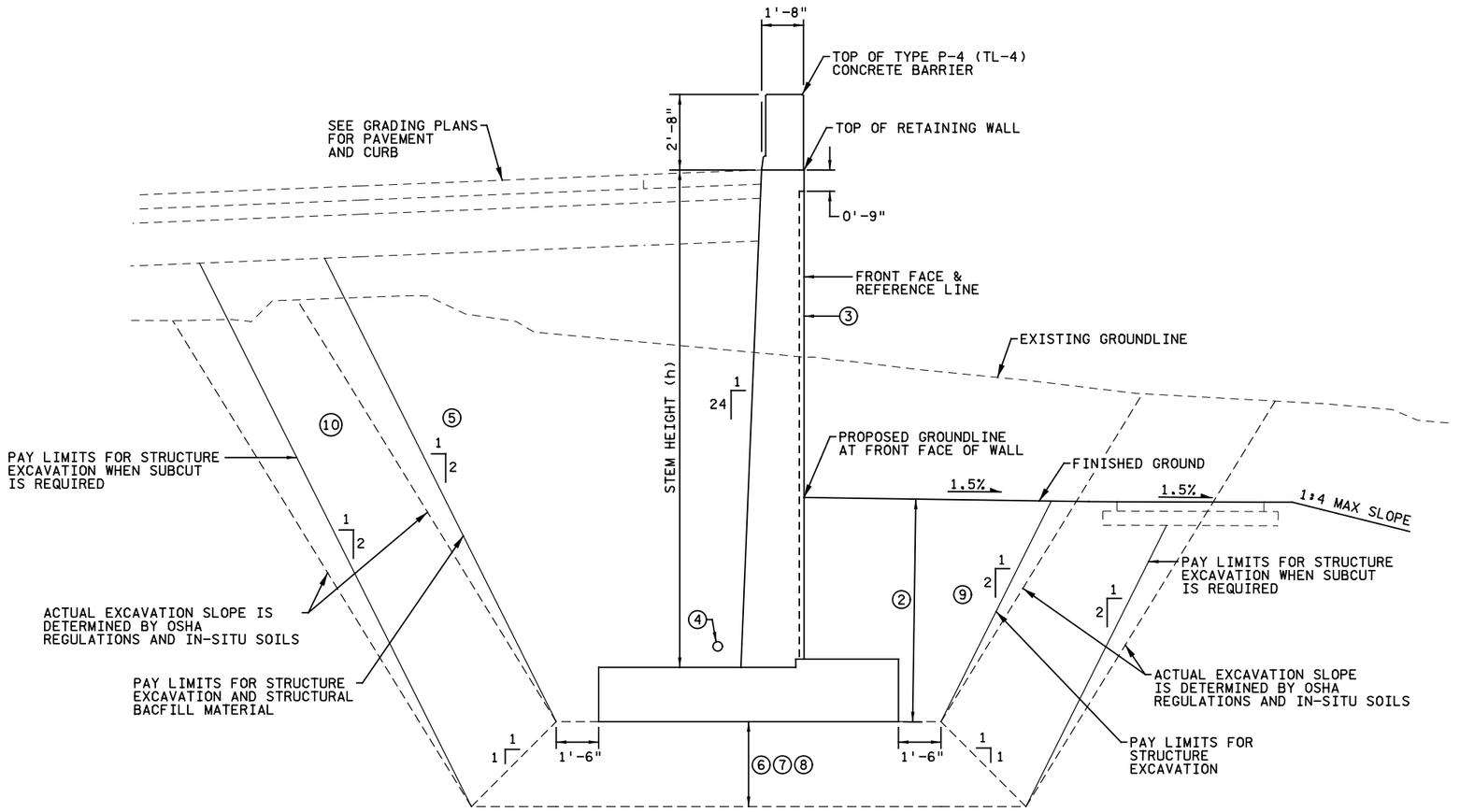
CIP RETAINING WALL PLANS
SP 2515-21 (TH 63)
PLAN AND PROFILE - RWALL 5

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GEOMETRICS FOR RETAINING WALL RWALL 6

JOINT NUMBER	WALL STATION	COORDINATES (1) X	COORDINATES (1) Y	FRONT FACE GROUND ELEVATION	TOP OF WALL ELEVATION	STEM HEIGHT (h) DOWNSTATION (FT)	STEM HEIGHT (h) UPSTATION (FT)	TOP OF FOOTING HEEL ELEVATION DOWNSTATION	TOP OF FOOTING HEEL ELEVATION UPSTATION	BOTTOM OF FOOTING ELEVATION DOWNSTATION	BOTTOM OF FOOTING ELEVATION UPSTATION	PANEL LENGTH (FT)	PANEL NUMBER	REMARKS
1	60+00.00	656802.907	236303.966	712.11	712.17	--	5.76	–	706.42	--	705.00	30.50	1	
2	60+30.50	656822.997	236326.915	712.31	713.47	7.05	7.05	706.42	706.42	705.00	705.00	30.50	2	
3	60+61.00	656841.452	236351.032	712.09	715.02	8.60	8.60	706.42	706.42	705.00	705.00	30.50	3	
4	60+91.50	656861.542	236373.980	711.34	716.64	10.22	10.22	706.42	706.42	705.00	705.00	30.50	4	
5	61+22.00	656880.682	236397.700	710.06	718.16	11.74	16.91	706.42	701.25	705.00	699.50	30.50	5	
6	61+52.50	656896.066	236424.001	708.54	719.60	18.35	18.18	701.25	701.42	699.50	699.50	30.50	6	
7	61+83.00	656907.180	236452.370	706.45	721.00	19.58	19.58	701.42	701.42	699.50	699.50	24.54	7	
8	62+07.54	656913.009	236476.194	704.78	722.07	20.65	–	701.42	--	699.50	--			



TYPICAL WALL SECTION

NOT TO SCALE

NOTES:

1. COORDINATES ARE LOCATED AT REFERENCE LINE WHICH IS FRONT FACE OF RETAINING WALL.
2. MINIMUM EMBEDMENT IS 4'-6".
3. FOR ARCHITECTURAL TREATMENTS, SEE PLAN AND PROFILE SHEET AND ARCHITECTURAL DETAILS SHEETS.
4. 4" TP PERFORATED PIPE, MNDOT SPEC 3245. WRAP WITH APPROVED GEOTEXTILE.
5. STRUCTURAL BACKFILL, MNDOT SPEC 3149.2D2. COMPACTION SHALL BE IN ACCORDANCE WITH SPEC 2106.
6. AGGREGATE BACKFILL (CV) WHEN SUBCUT IS REQUIRED.
7. 2' SUBCUT PANELS 1-4, & 7. PANELS 5-6 TO BE PLACED DIRECTLY ON EXISTING BEDROCK.
8. COMPACT TO 100% DENSITY IN ACCORDANCE WITH MNDOT SPEC 2106.3F1 UNLESS RECOMMENDED OTHERWISE BY SOILS ENGINEER. (WHEN SUBCUT IS REQUIRED).
9. SELECT GRADING MATERIAL PER MNDOT SPEC 2106.
10. NON-STRUCTURAL GRADING MATERIALS PER MNDOT SPEC 2106.1A8 OR NATIVE GROUND.

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

RWALL 6 GEOMETRICS AND SECTION

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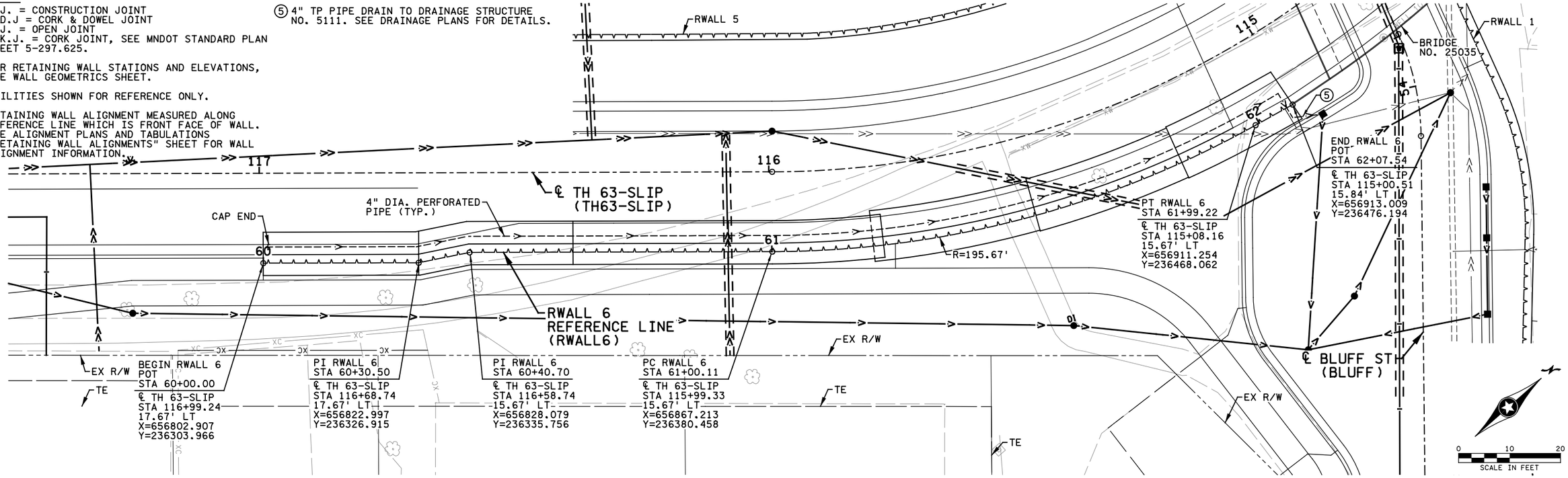
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   O.J. = OPEN JOINT
   C.K.J. = CORK JOINT, SEE MNDOT STANDARD PLAN SHEET 5-297.625.

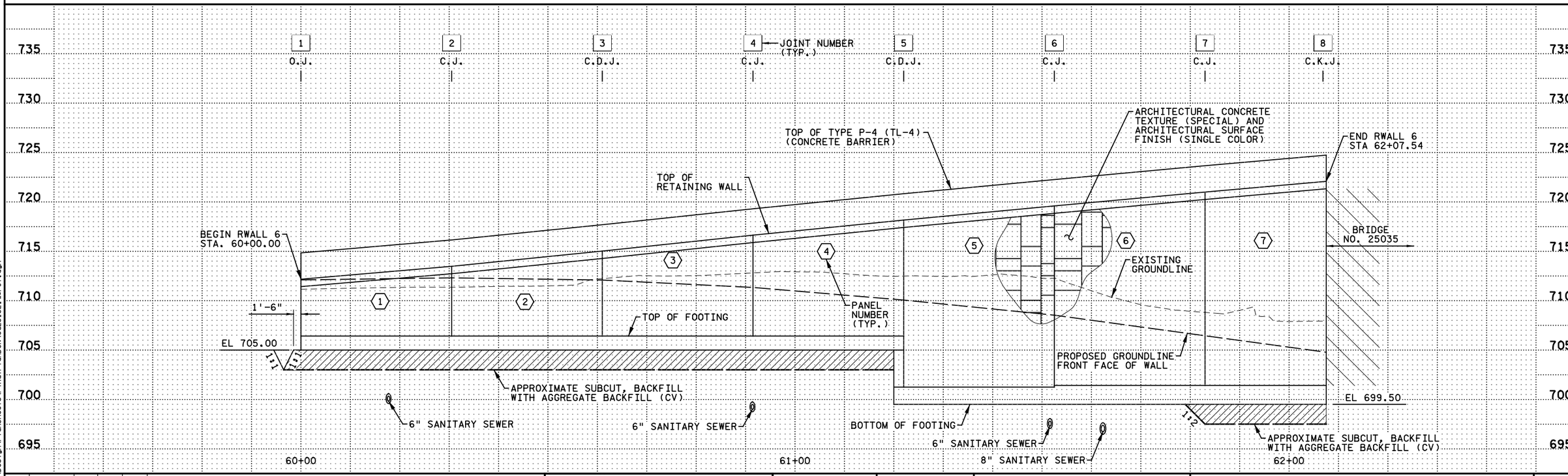
2. FOR RETAINING WALL STATIONS AND ELEVATIONS, SEE WALL GEOMETRICS SHEET.

3. UTILITIES SHOWN FOR REFERENCE ONLY.

4. RETAINING WALL ALIGNMENT MEASURED ALONG REFERENCE LINE WHICH IS FRONT FACE OF WALL. SEE ALIGNMENT PLANS AND TABULATIONS "RETAINING WALL ALIGNMENTS" SHEET FOR WALL ALIGNMENT INFORMATION.

⑤ 4" TP PIPE DRAIN TO DRAINAGE STRUCTURE NO. 5111. SEE DRAINAGE PLANS FOR DETAILS.





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DESIGNED BY A. BEHNKE
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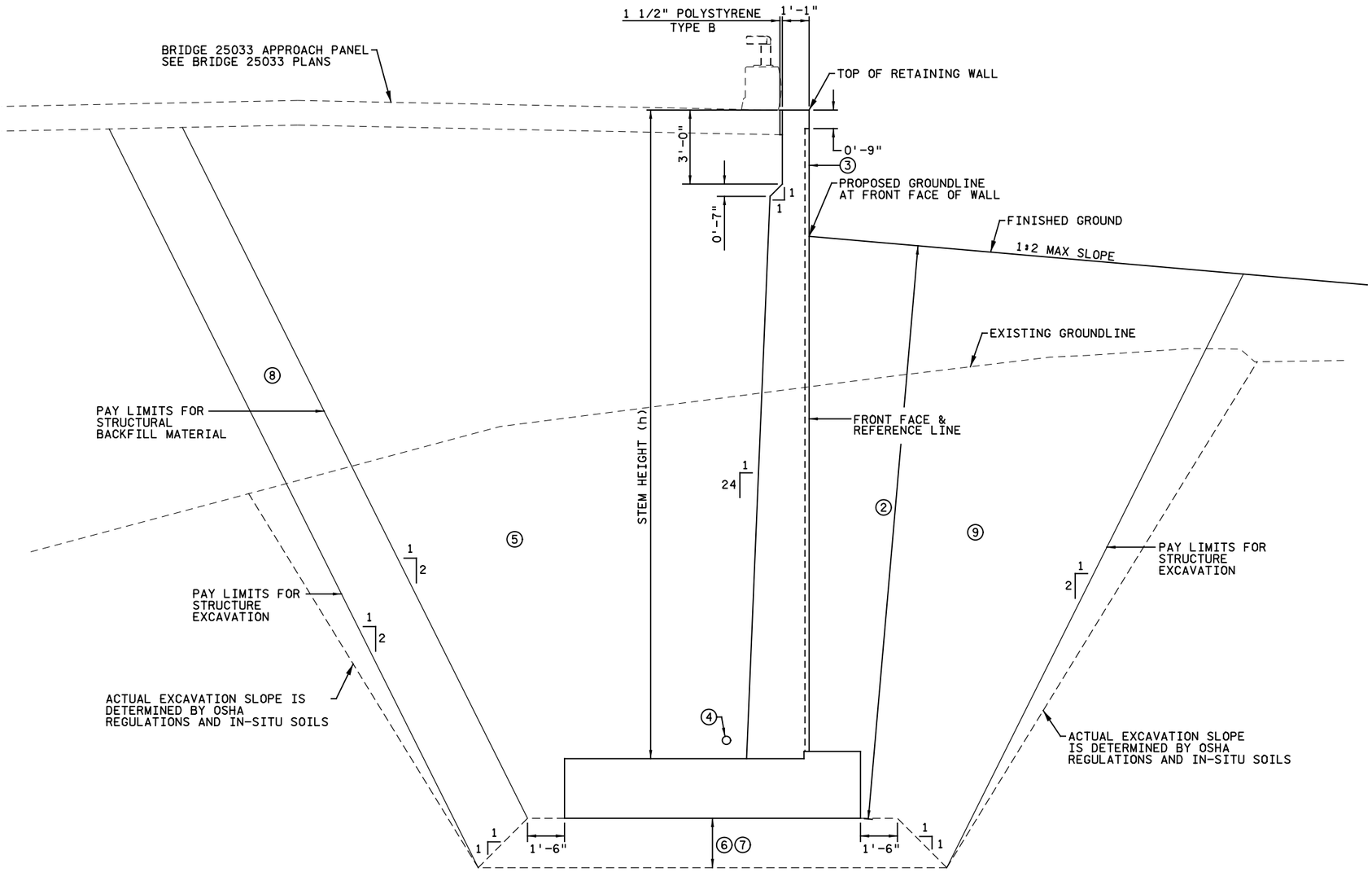
CIP RETAINING WALL PLANS
SP 2515-21 (TH 63)
PLAN AND PROFILE - RWALL 6

SHEET 334 OF 688

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GEOMETRICS FOR RETAINING WALL 7

JOINT NUMBER	WALL STATION	COORDINATES (1) X	COORDINATES (1) Y	FRONT FACE GROUND ELEVATION	TOP OF WALL ELEVATION	STEM HEIGHT (h) DOWNSTATION (FT)	STEM HEIGHT (h) UPSTATION (FT)	TOP OF FOOTING HEEL ELEVATION DOWNSTATION	TOP OF FOOTING HEEL ELEVATION UPSTATION	BOTTOM OF FOOTING ELEVATION DOWNSTATION	BOTTOM OF FOOTING ELEVATION UPSTATION	PANEL LENGTH (FT)	PANEL NUMBER	REMARKS
1	70+00.00	656561.627	237046.483	744.39	744.39	--	23.14	–	721.25	--	719.00	30.50	1	
2	70+30.50	656541.843	237069.697	733.75	745.04	23.79	–	721.25	--	719.00	--			



TYPICAL WALL SECTION

NOT TO SCALE

NOTES:

1. COORDINATES ARE LOCATED AT REFERENCE LINE WHICH IS FRONT FACE OF RETAINING WALL.
2. MINIMUM EMBEDMENT IS 4'-6".
3. FOR ARCHITECTURAL TREATMENTS, SEE PLAN AND PROFILE SHEET AND ARCHITECTURAL DETAILS SHEETS.
4. 4" TP PERFORATED PIPE, MNDOT SPEC 3245. WRAP WITH APPROVED GEOTEXTILE.
5. STRUCTURAL BACKFILL, MNDOT SPEC 3149.2D2. COMPACTION SHALL BE IN ACCORDANCE WITH SPEC 2106.
6. CONCRETE FILL (1C62) UNLESS POURED DIRECTLY ON LEVEL BEDROCK.
7. SUBCUT TO TOP OF BEDROCK.
8. NON-STRUCTURAL GRADING MATERIALS PER MNDOT SPEC 2106.1A8 OR NATIVE GROUND.
9. SELECT GRADING MATERIAL PER MNDOT SPEC 2106.

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Print Name: LINDSEY B. RENSTROM

Date _____ License # 51351

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. BEHNKE

CHECKED BY L. RENSTROM

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

CIP RETAINING WALL PLANS

SP 2515-21 (TH 63)

RWALL 7 GEOMETRICS AND SECTION

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117

℄ TH 63
(TH63)

118

119

4" DIA. PERFORATED
PIPE (TYP.)

CAP END

70L

BEGIN RWALL 7
POT
STA 70+00.00

℄ TH 63
STA 117+69.68
20.83' RT
X=656561.627
Y=237046.483

RWALL 7
REFERENCE LINE
(RWALL7)

END RWALL 7
POT
STA 70+30.50

℄ TH 63
STA 118+00.18
20.83' RT
X=656541.843
Y=237069.697

⑤

BRIDGE
NO. 25033

RR R/W

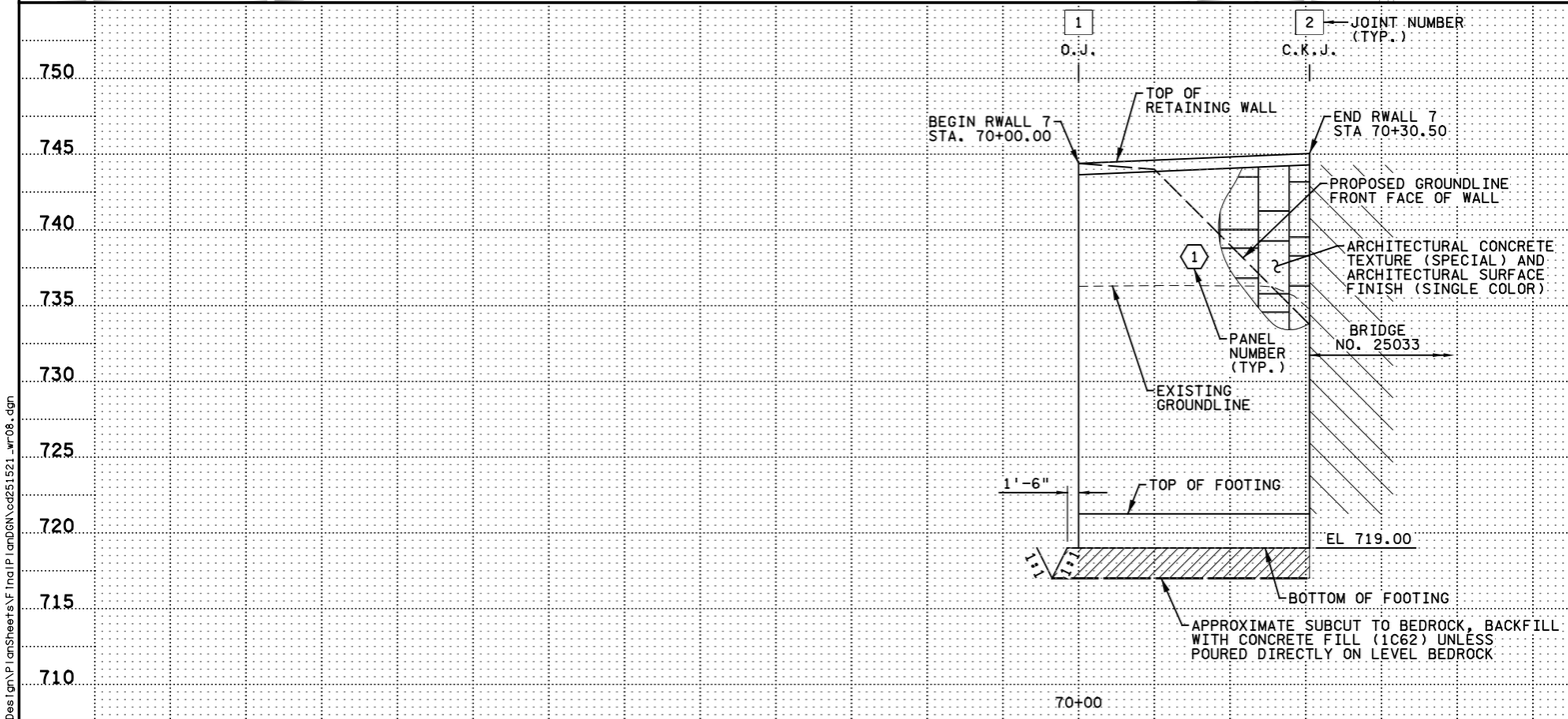
CANADIAN PACIFIC RAILWAY

NOTES:

1. C.J. = CONSTRUCTION JOINT
   C.D.J = CORK & DOWEL JOINT
   O.J. = OPEN JOINT
   C.K.J. = CORK JOINT, SEE MNDOT STANDARD PLAN SHEET 5-297.625.
2. FOR RETAINING WALL STATIONS AND ELEVATIONS, SEE WALL GEOMETRICS SHEET.
3. UTILITIES SHOWN FOR REFERENCE ONLY.
4. RETAINING WALL ALIGNMENT MEASURED ALONG REFERENCE LINE WHICH IS FRONT FACE OF WALL. SEE ALIGNMENT PLANS AND TABULATIONS "RETAINING WALL ALIGNMENTS" SHEET FOR WALL ALIGNMENT INFORMATION.

⑤ 4" TP PIPE DRAIN TO PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE MnDOT STANDARD PLATE 3131 FOR DETAILS.

0 10 20
SCALE IN FEET



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DESIGNED BY A. BEHNKE
CHECKED BY L. RENSTROM
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
CIP RETAINING WALL PLANS
SP 2515-21 (TH 63)
PLAN AND PROFILE - RWALL 7

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WATER RESOURCES NOTES

THE FOLLOWING NOTES GIVE INFORMATION ABOUT CRITICAL FEATURES AND ELEVATIONS FOR THE DRAINAGE ON THIS PROJECT:

1. CHANGING THE FLOW DIRECTION SHOWN ON THE PLANS COULD HAVE ADVERSE EFFECTS OFF THE PROJECT CORRIDOR. DIRECTION CHANGES SHOULD BE REVIEWED WITH THE WATER RESOURCES ENGINEER. SEE SWPPP SHEETS FOR CONTACT INFORMATION.

2. STRUCTURE DESIGNS

DRAINAGE STRUCTURES SHALL BE PER MNDOT STANDARD STRUCTURE DESIGNS UNLESS NOTED OTHERWISE.
DRAINAGE CASTINGS IN MINNESOTA SHALL BE MNDOT STANDARD ASSEMBLIES OR CITY OF REDWING STANDARD CASTINGS.
DRAINAGE CASTINGS IN WISCONSIN SHALL BE WISDOT STANDARD ASSEMBLIES.

SPECIAL STRUCTURES

WATER QUALITY MANHOLES - WATER QUALITY MANHOLES HAVE BEEN INCLUDED TO PROVIDE REMOVAL OF SEDIMENT AND FLOATABLES PRIOR TO DISCHARGING TO THE EXISTING STORM TUNNEL OR THE RIVER. WATER QUALITY MANHOLES CONSIST OF A MANHOLE OR CATCH BASIN WITH A SUMP BELOW THE OUTLET PIPE, A BAFFLE OR BAFFLES TO ENHANCE SEDIMENT CAPTURE AND A SKIMMING BAFFLE TO TRAP FLOATABLES IN THE MANHOLE. SEE PLANS FOR STRUCTURE SIZES AND SUMP DEPTHS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

3. ENVIRONMENTALLY SENSITIVE AREAS

AREAS MARKED "ENVIRONMENTALLY SENSITIVE AREAS" IN THIS PLAN ARE TO BE TREATED AS SUCH. BEST MANAGEMENT PRACTICES ARE TO BE USED FOR EROSION AND SEDIMENT CONTROL THROUGHOUT THE JOB SITE. SEE SWPPP NOTES FOR ADDITIONAL REQUIREMENTS.

4. EXISTING STORM SEWER REMOVAL

IT IS THE INTENT OF THE DRAINAGE DESIGN TO FACILITATE REMOVAL OF THE MAJORITY OF EXISTING STORM SEWER UNDER NEW PAVEMENT AS SHOWN IN THE EXISTING DRAINAGE TABULATION.

X CASTING ASSEMBLIES SUMMARY

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING (A)	CURB BOX	STANDARD PLATE NO.	QUANTITY (EACH)	REMARKS
A - 7D	700-7			4101	0	MANHOLE
		715		4110		
			N/A			
B - 5	802A			4129	0	LOW POINT CATCH BASIN
		816		4154		
			823A	4160		
B - 9	805			4132	0	CATCH BASIN
		816		4154		
			N/A			
D - 4	805			4132	0	CATCH BASIN
		816		4154		
			N/A			
M - 11	ROUND CONC			4143	0	DROP INLET
		731		4143		
			N/A			
C - 1	(B)			(B)	0	CITY OF RED WING CATCH BASIN
		(B)		(B)		
			(B)	(B)		
C - 2	(C)			(C)	0	TRAIL CATCH BASIN
		(C)		(C)		
			N/A			
BW	(D)			(D)	0	WISDOT CATCH BASIN
		(D)		(D)		
			N/A			
J	(E)			(E)	0	WISDOT MANHOLE
		(E)		(E)		
			N/A			
PROJECT TOTALS:					0	

NOTES:
(A) USE BENT BOLT WITH 816 GRATE
(B) NEENAH CASTING NO. R-3067-V OR APPROVED EQUAL PER CITY OF RED WING STANDARDS.
(C) NEENAH CASTING NO. R-3210-Q OR APPROVED EQUAL (ADA COMPLIANT GRATE).
(D) CASTING TYPE BW PER WISDOT STANDARD DETAIL DRAWING 8A5-19d.
(E) CASTING TYPE J PER WISDOT STANDARD DETAIL DRAWING 8A5-19d.

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Print Name: JEREMY L. NIELSEN
Date _____ License # 45047

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MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

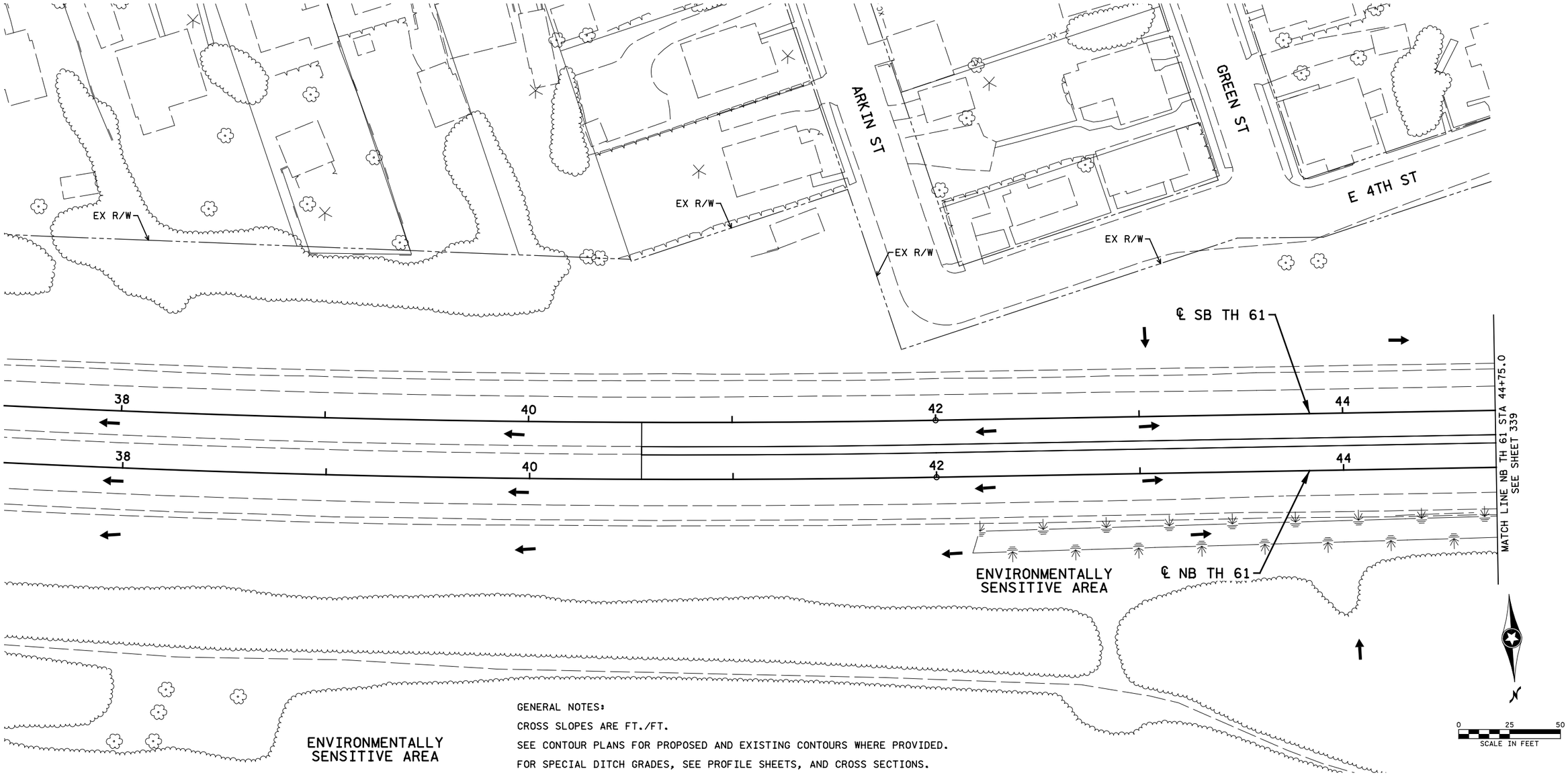
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DESIGNED BY Z. THELEN
CHECKED BY J. NIELSEN
COMM. NO. 0158933

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WATER RESOURCES NOTES
SP 2515-21 (TH 63)

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GENERAL NOTES:

CROSS SLOPES ARE FT./FT.

SEE CONTOUR PLANS FOR PROPOSED AND EXISTING CONTOURS WHERE PROVIDED.

FOR SPECIAL DITCH GRADES, SEE PROFILE SHEETS, AND CROSS SECTIONS.

DITCH BLOCK ELEVATIONS ARE SHOWN TO BOTTOM OF SLOPE DRESSING (SEE DRAINAGE DETAILS).

SUBSURFACE DRAINS AS SHOWN ON DRAINAGE PLANS INDICATE EXTENTS OF SUBSURFACE DRAINS AND OUTLET OR CONNECTION LOCATIONS. ALL PROPOSED SUBSURFACE DRAINS SHALL BE 4" PERF. TP PIPE DRAIN UNLESS NOTED OTHERWISE. SEE TYPICAL SECTIONS AND STANDARD PLAN SHEETS FOR PLACEMENT OF SUBSURFACE DRAINS IN ROADWAY SECTIONS.

COORDINATE SUBSURFACE DRAIN INSTALLATION WITH TRAFFIC BARRIER INSTALLATION TO AVOID CONFLICTS. SEE CONSTRUCTION PLANS.

SEE RETAINING WALL AND BRIDGE PLANS FOR LOCATIONS WHERE WALL OR BRIDGE DRAINAGE SYSTEMS CONNECT TO DRAINAGE STRUCTURES.

OPENINGS IN DRAINAGE STRUCTURES FOR CONNECTIONS TO SUBSURFACE DRAINS, WALL DRAINAGE SYSTEMS OR BRIDGE DRAINAGE SYSTEMS SHALL BE PRECAST OR CORE DRILLED TO PROVIDE A CLEAN, WATER-TIGHT FIT. CONNECTIONS SHALL BE INCIDENTAL UNLESS OTHERWISE INDICATED.

LEGEND

PROPOSED STORM SEWER	SURFACE FLOW
EXISTING STORM SEWER	STORM SEWER STRUCTURE NO. (XXXX)
EXISTING STORM/SAN TUNNEL	SOD AT APRON INLET (S)
EXISTING/PROPOSED CATCH BASIN	RIPRAP (R)
EXISTING/PROPOSED APRON	DITCH CHECK
EXISTING/PROPOSED MANHOLE	DITCH FLOW LINE
EXISTING/PROPOSED DROP INLET	SUBSURFACE DRAIN

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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY Z. THELEN

CHECKED BY P. ENGELMEYER

COMM. NO. 0158933

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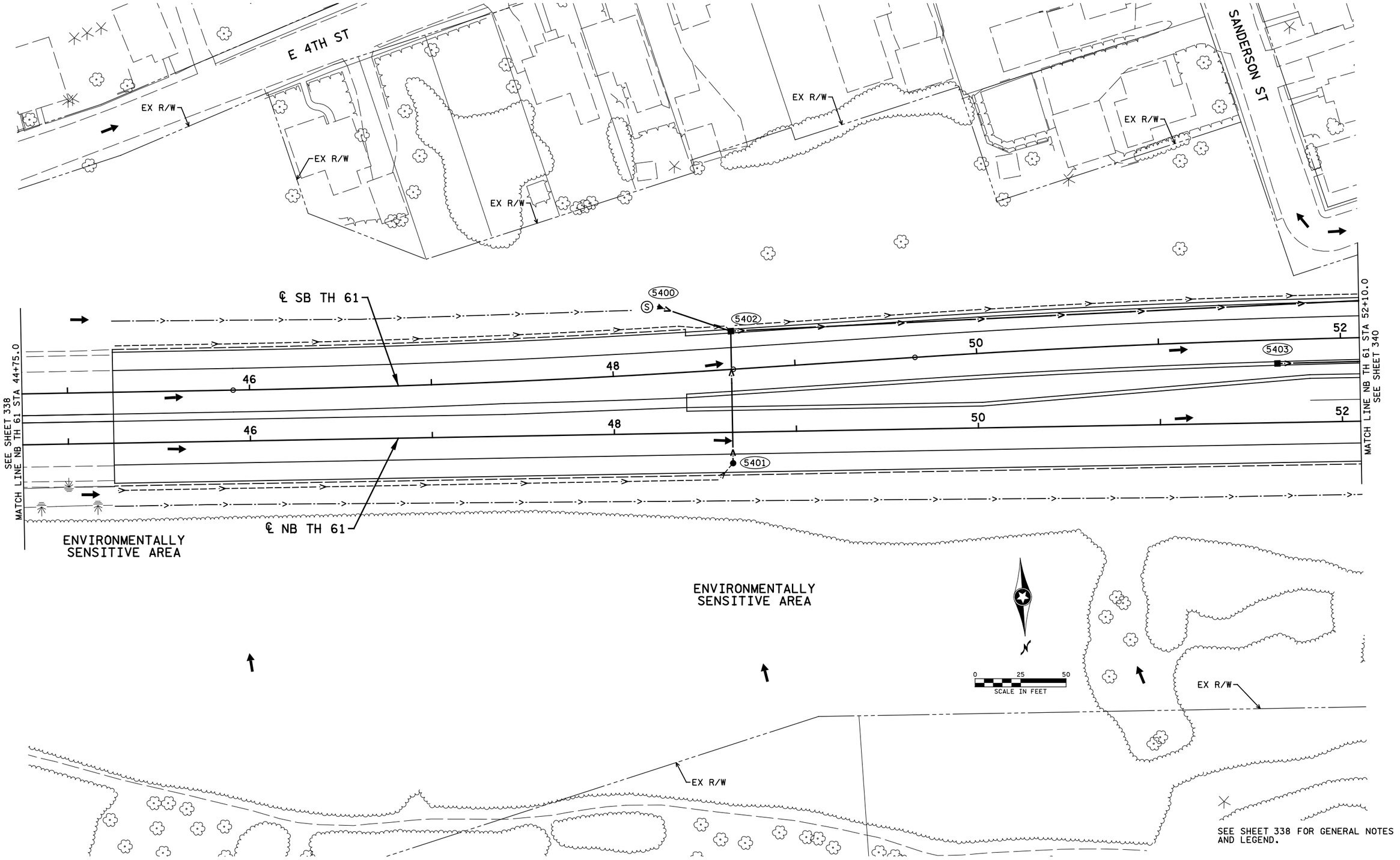
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DRAINAGE PLANS

SP 2515-21 (TH 63)

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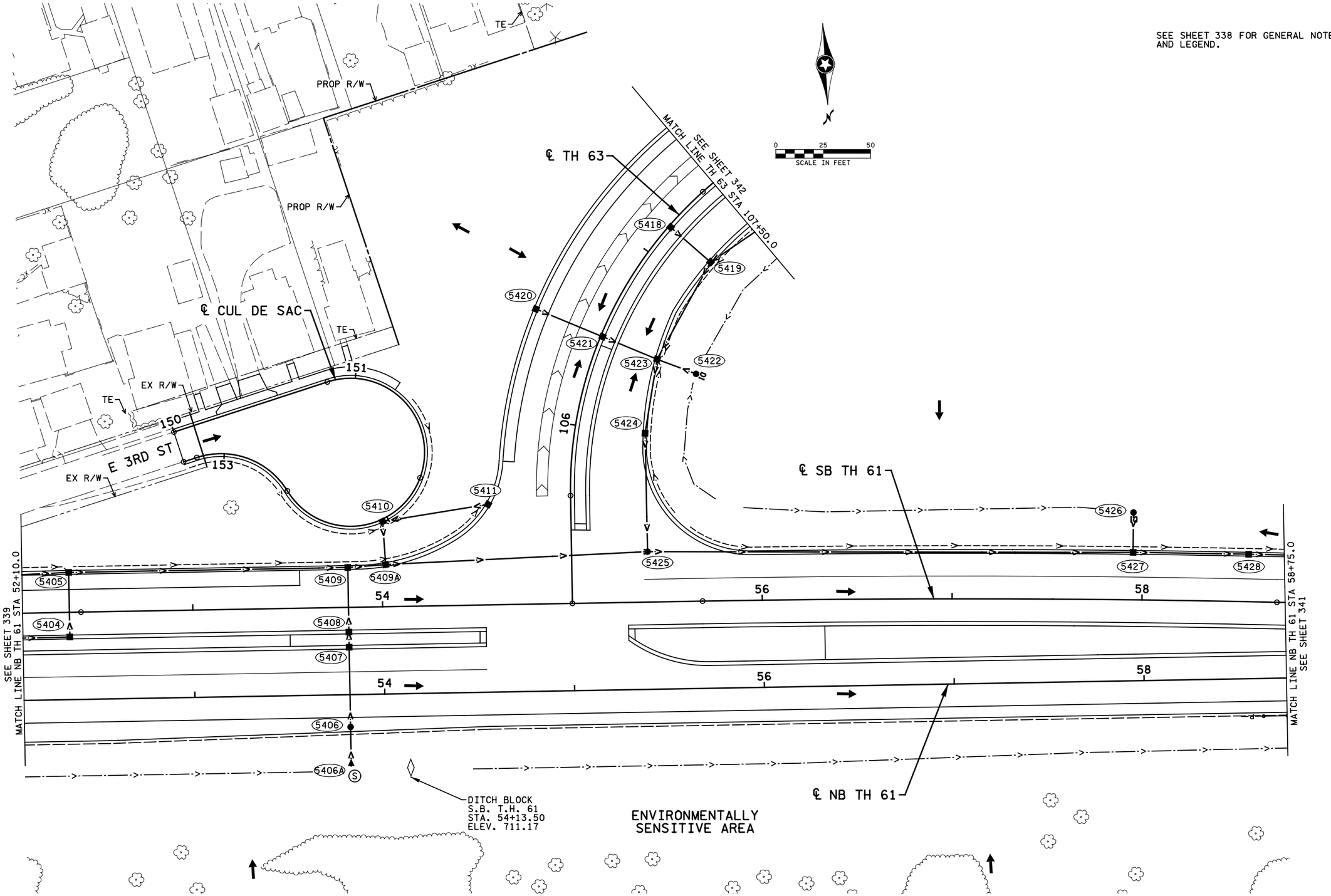
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DRAINAGE PLANS

SP 2515-21 (TH 63)

SHEET 339 OF 688

SEE SHEET 338 FOR GENERAL NOTES AND LEGEND.



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DESIGNED BY	Z. THELEN
CHECKED BY	P. ENGELMEYER
COMM. NO.	0158933

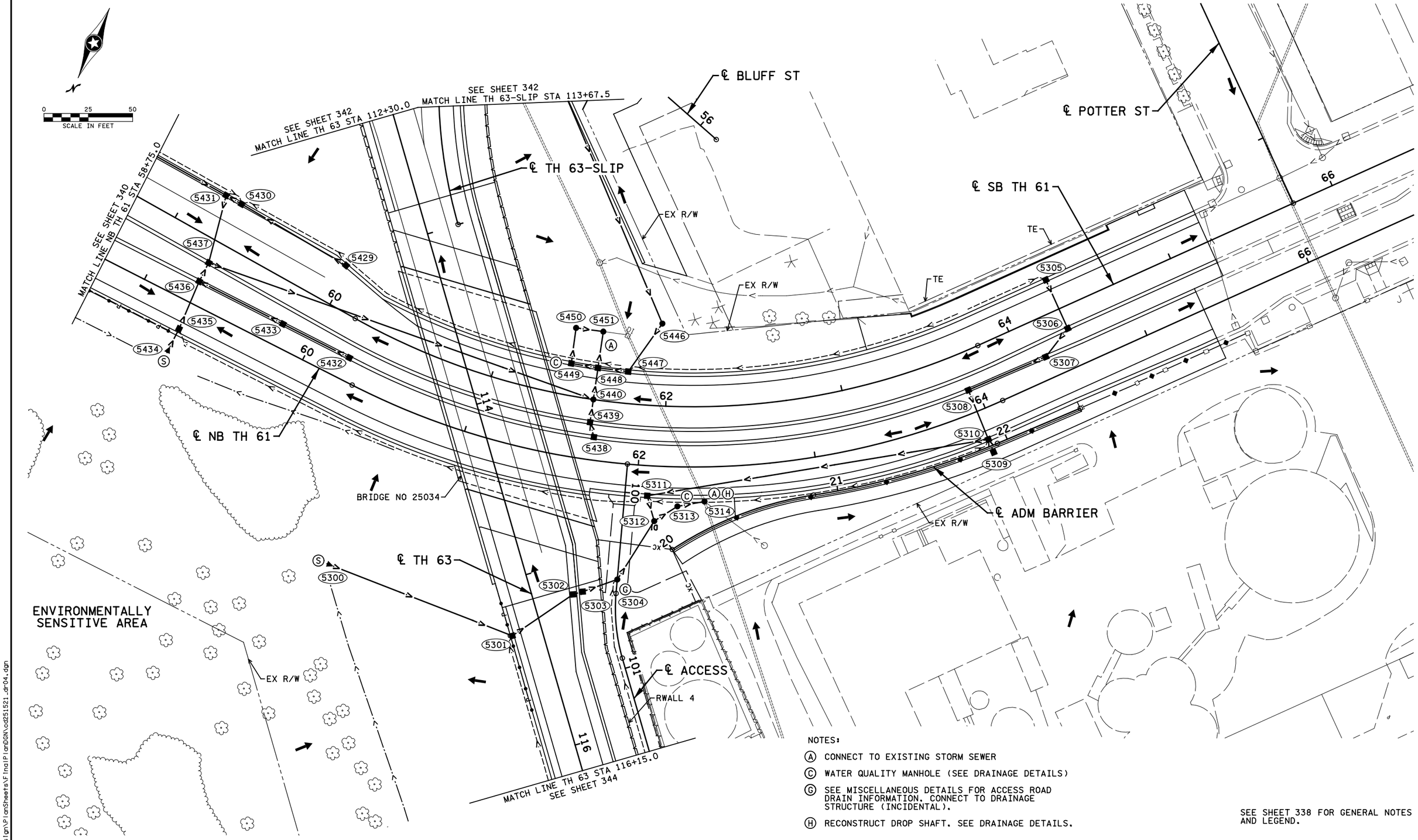
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DRAINAGE PLANS
SP 2515-21 (TH 63)

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NOTES:

(A) CONNECT TO EXISTING STORM SEWER

(C) WATER QUALITY MANHOLE (SEE DRAINAGE DETAILS)

(G) SEE MISCELLANEOUS DETAILS FOR ACCESS ROAD DRAIN INFORMATION. CONNECT TO DRAINAGE STRUCTURE (INCIDENTAL).

(H) RECONSTRUCT DROP SHAFT. SEE DRAINAGE DETAILS.

SEE SHEET 338 FOR GENERAL NOTES AND LEGEND.

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Print Name: JEREMY L. NIELSEN

Date _____ License # 45047

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY Z. THELEN

CHECKED BY P. ENGELMEYER

COMM. NO. 0158933

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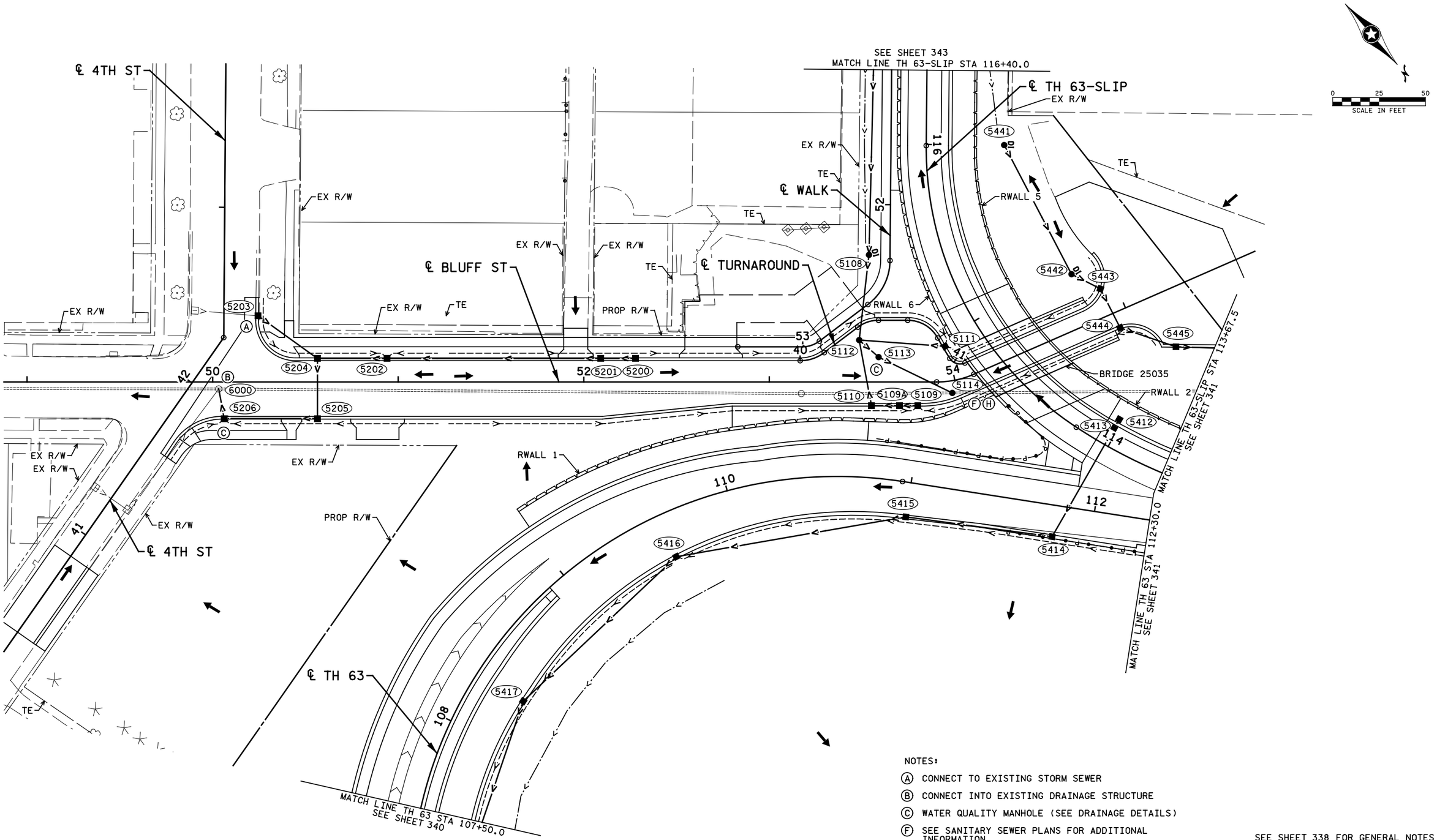
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DRAINAGE PLANS

SP 2515-21 (TH 63)

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NOTES:

(A) CONNECT TO EXISTING STORM SEWER

(B) CONNECT INTO EXISTING DRAINAGE STRUCTURE

(C) WATER QUALITY MANHOLE (SEE DRAINAGE DETAILS)

(F) SEE SANITARY SEWER PLANS FOR ADDITIONAL INFORMATION

(H) RECONSTRUCT DROP SHAFT. SEE DRAINAGE DETAILS

SEE SHEET 338 FOR GENERAL NOTES AND LEGEND.

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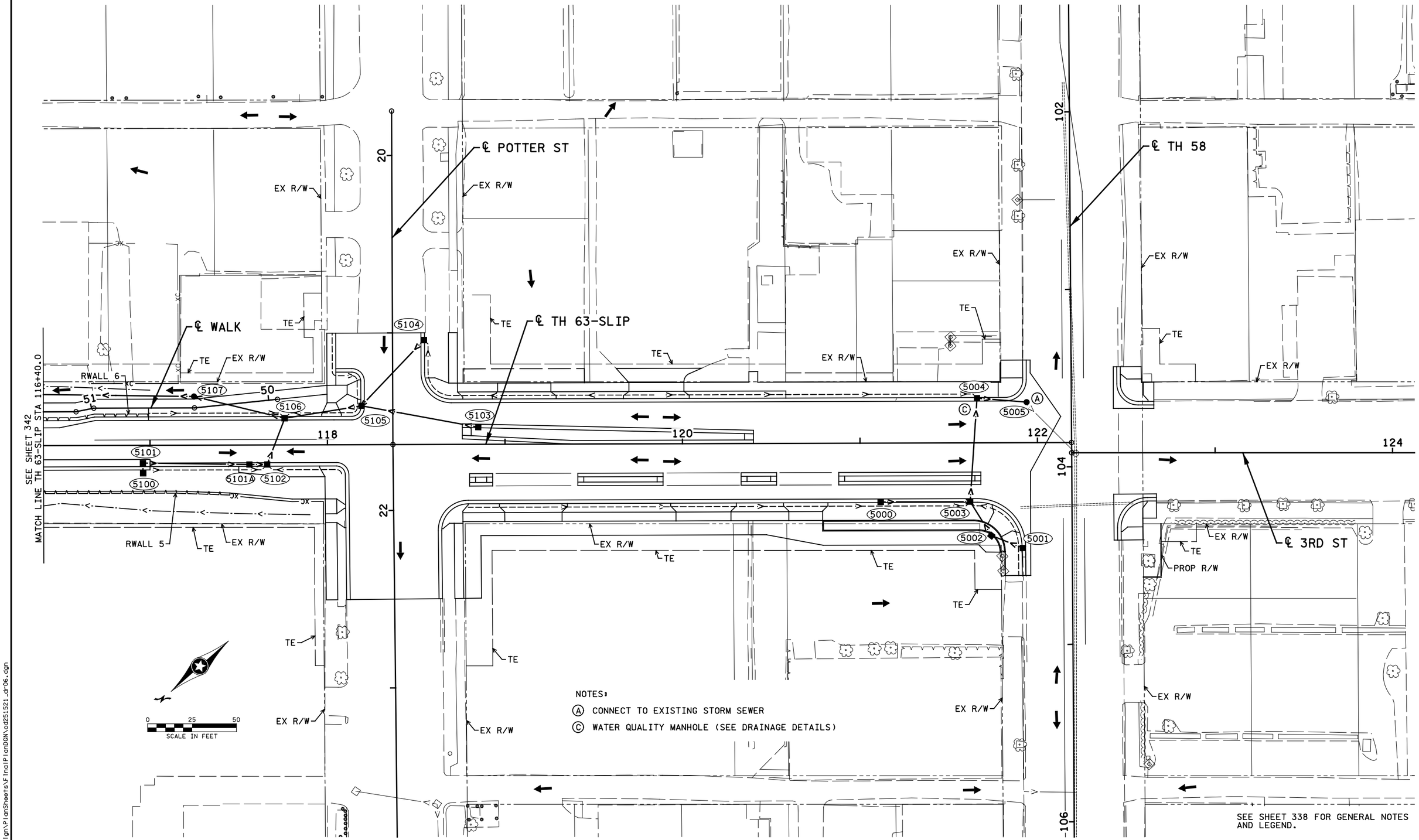
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DRAINAGE PLANS

SP 2515-21 (TH 63)

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DRAINAGE PLANS

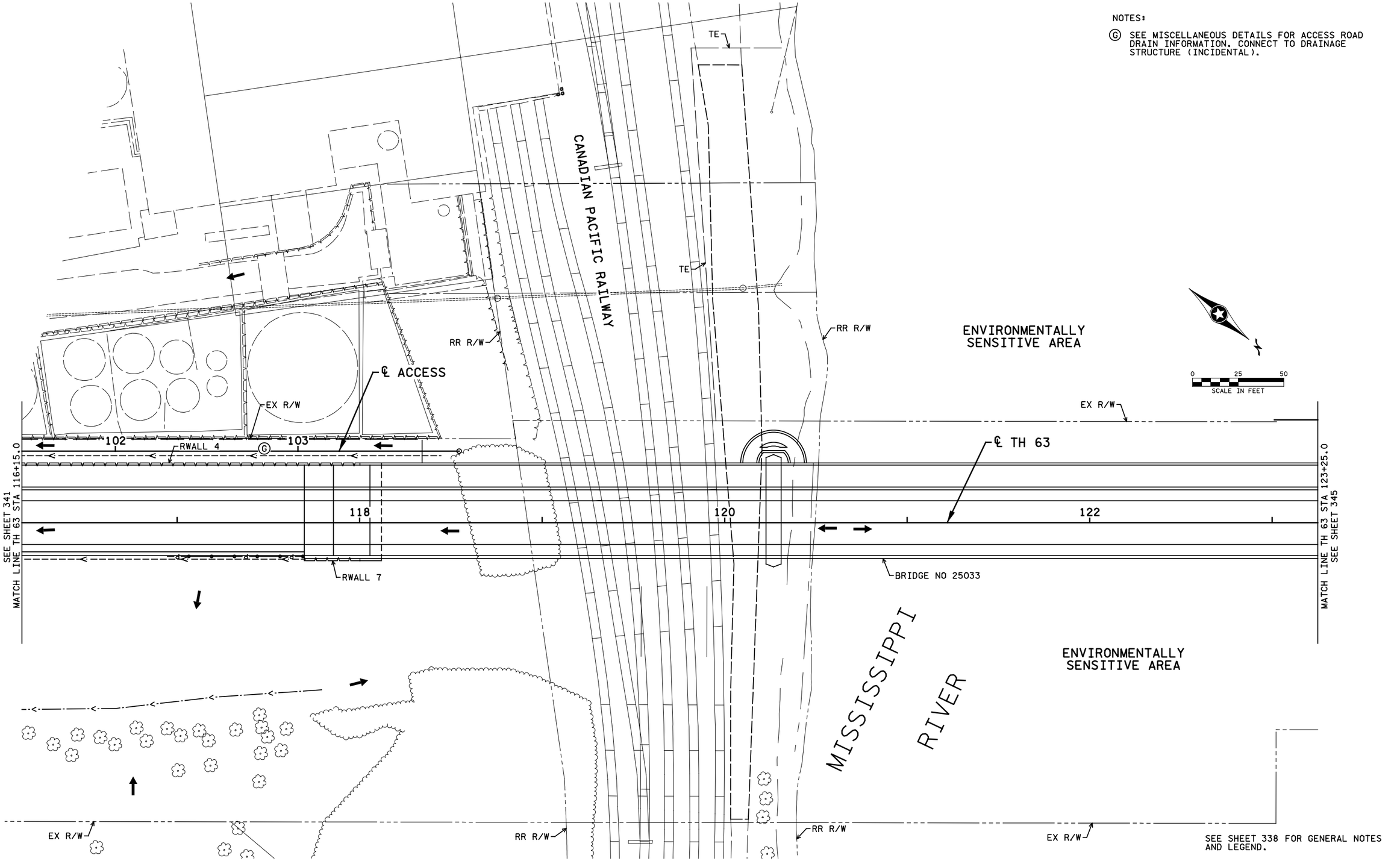
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NOTES:

Ⓖ SEE MISCELLANEOUS DETAILS FOR ACCESS ROAD DRAIN INFORMATION. CONNECT TO DRAINAGE STRUCTURE (INCIDENTAL).



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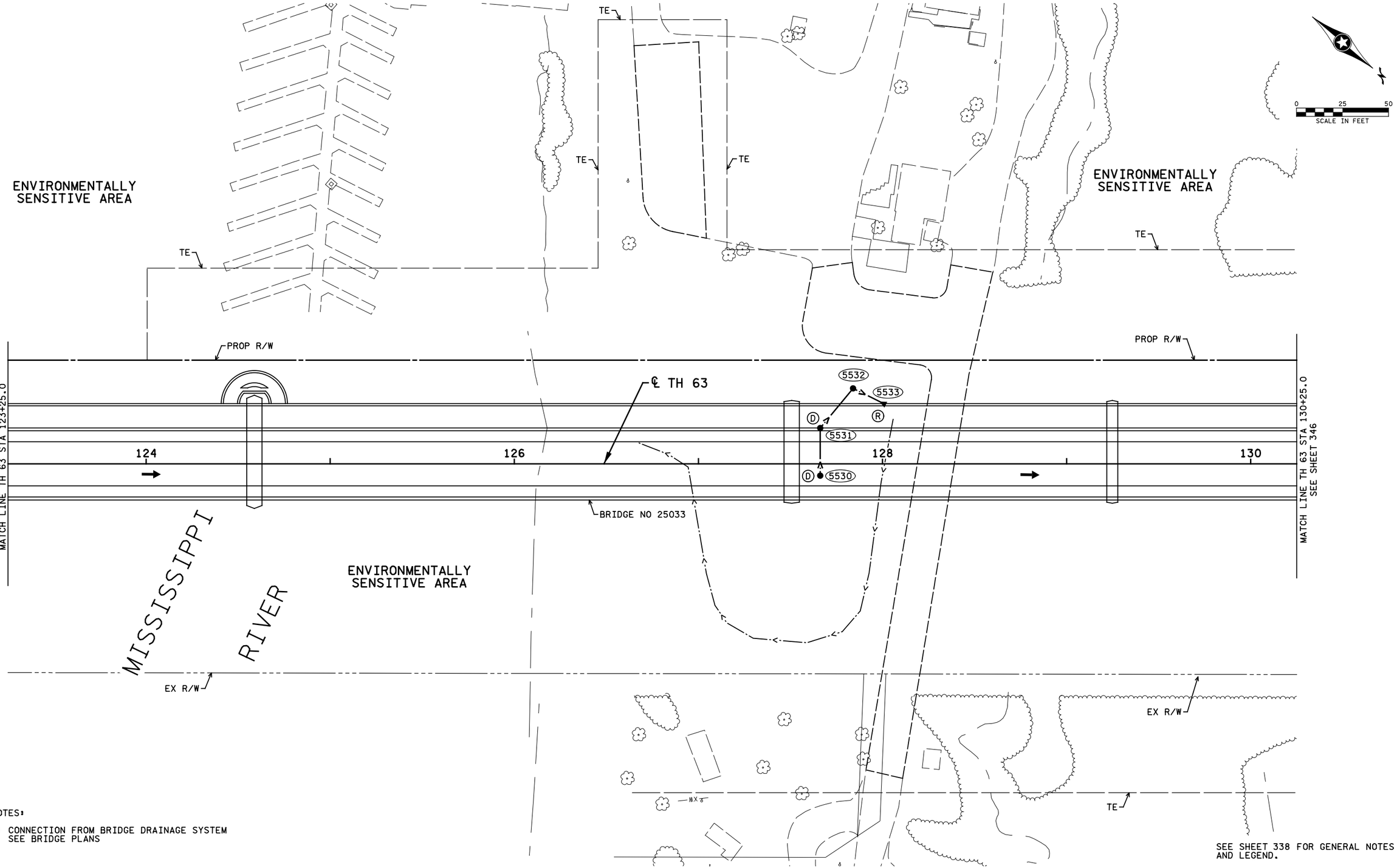
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DRAINAGE PLANS

SP 2515-21 (TH 63)

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SEE SHEET 338 FOR GENERAL NOTES AND LEGEND.

NOTES:

Ⓓ CONNECTION FROM BRIDGE DRAINAGE SYSTEM SEE BRIDGE PLANS

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DRAINAGE PLANS

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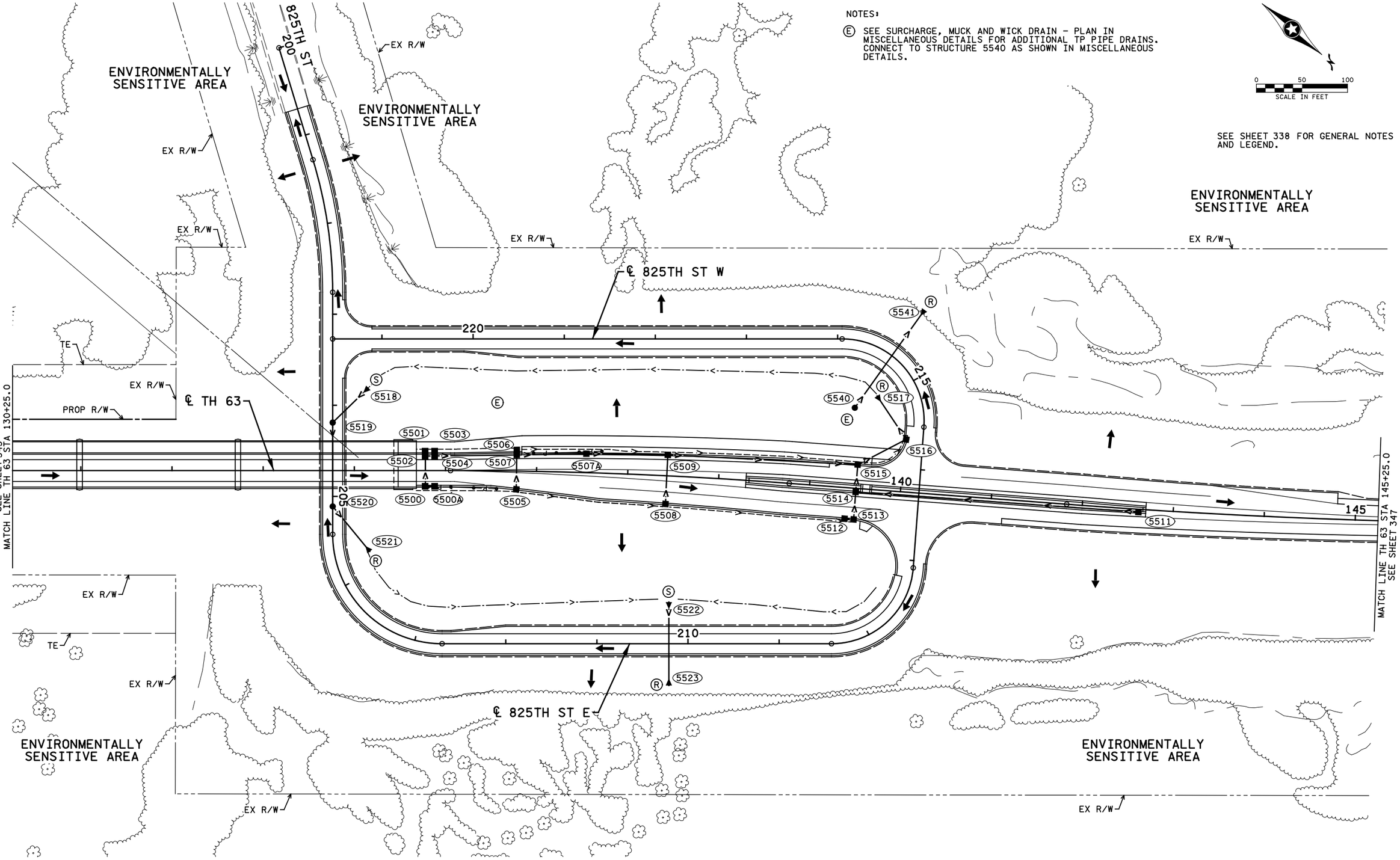
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NOTES:

(E) SEE SURCHARGE, MUCK AND WICK DRAIN - PLAN IN MISCELLANEOUS DETAILS FOR ADDITIONAL TP PIPE DRAINS. CONNECT TO STRUCTURE 5540 AS SHOWN IN MISCELLANEOUS DETAILS.

0 50 100
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MINNESOTA STATE PROJECT NO. 2515-21	
MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	

DRAWN BY	S. MARTINS
DESIGNED BY	Z. THELEN
CHECKED BY	P. ENGELMEYER
COMM. NO.	0158933

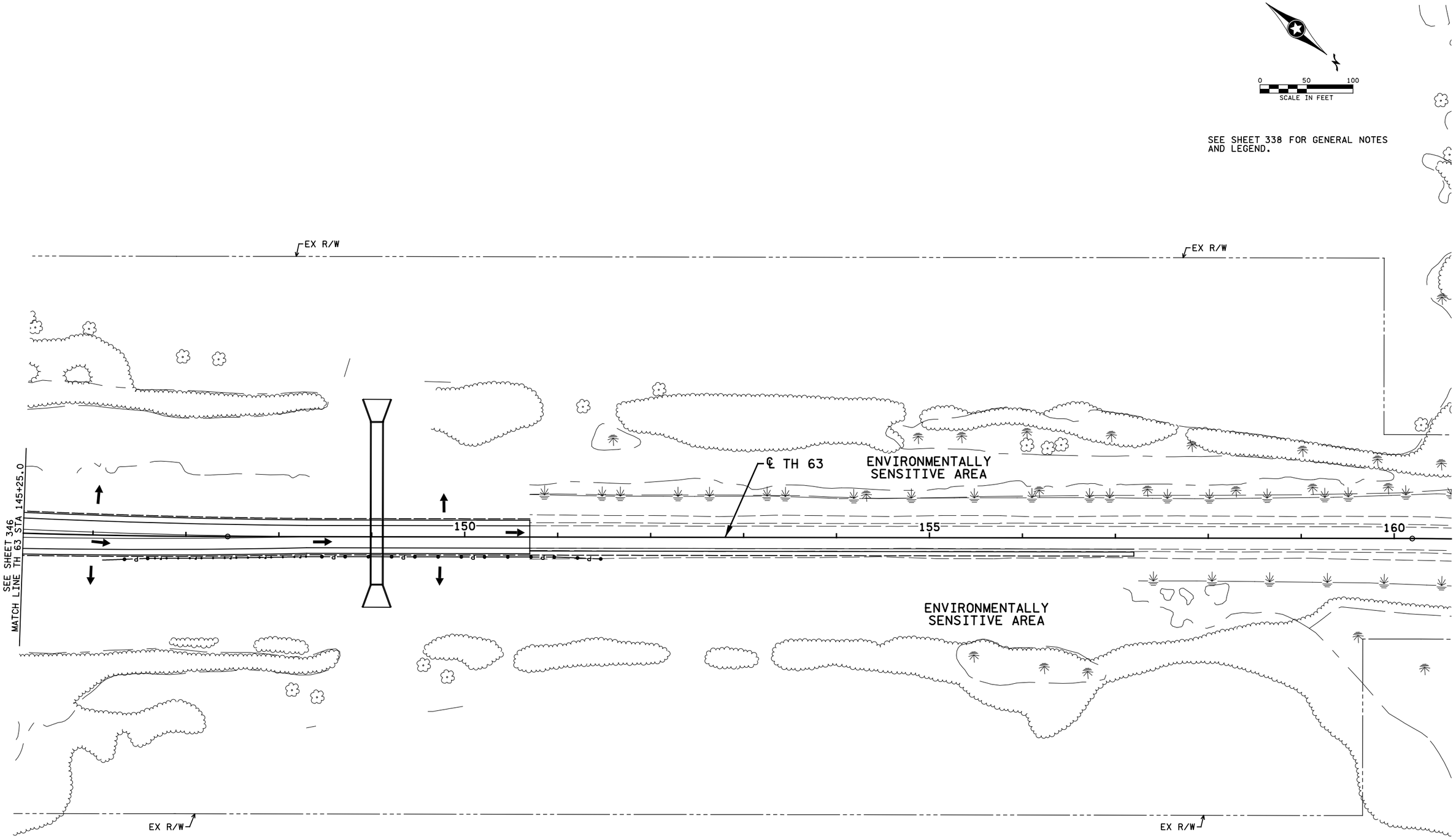
SRF Consulting Group, Inc.
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE PLANS
SP 2515-21 (TH 63)

SHEET 346 OF 688

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Print Name: JEREMY L. NIELSEN

Date _____ License # 45047

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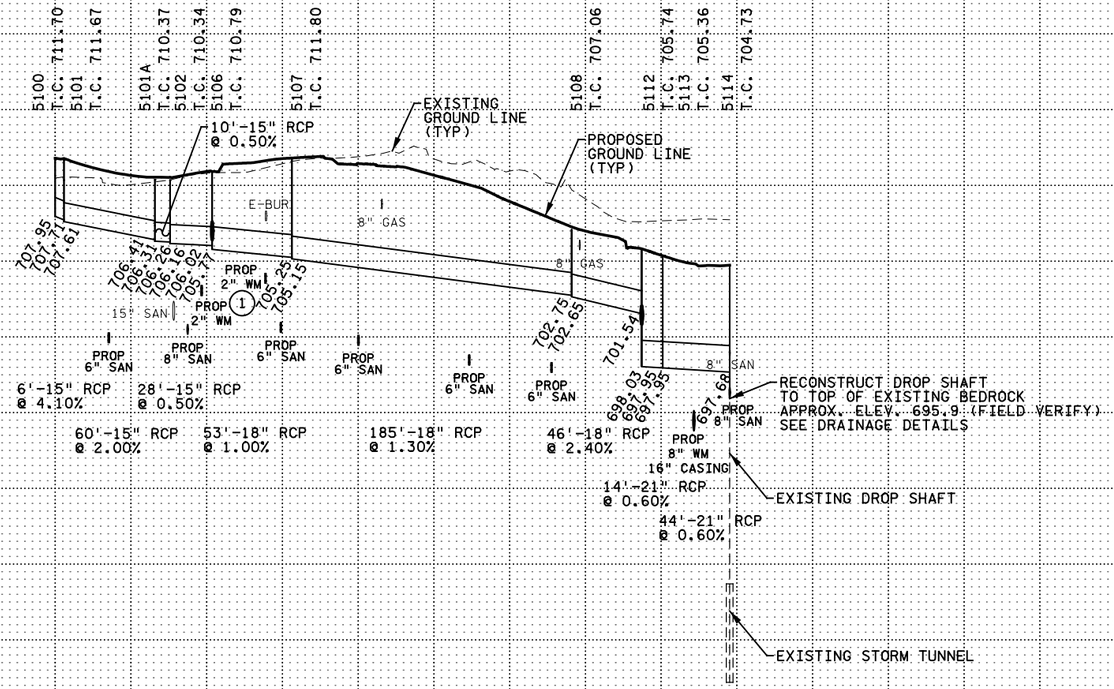
MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE PLANS

SP 2515-21 (TH 63)

SHEET 347 OF 688

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6/2/2016
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NOTES:

(1) INSULATE CROSSING WITH 8 FT X 8 FT X 4 IN POLYSTYRENE

GENERAL NOTES:

ALL RC PIPES 12" - 15" ARE CL V.
ALL RC PIPES 18" - 54" ARE CL II UNLESS NOTED OTHERWISE.

- INVERT ELEVATIONS ARE GIVEN TO CENTER OF STRUCTURE OR END OF APRON (END OF PIPE IF NO APRON).
- TOP OF CASTING ELEVATIONS ARE TO CENTER OF CASTING ASSEMBLY.
- APRON LENGTH INCLUDED IN LENGTH OF PIPE IN PROFILES (SEE DRAINAGE TABULATION FOR PAY LENGTH OF PIPE).
- SEE WATERMAIN AND SANITARY SEWER PLAN AND PROFILE FOR ADDITIONAL INFORMATION

STRUCTURES ON THIS SHEET

5100	5108
5101	5112
5102	5113
5106	5114
5107	

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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY Z. THELEN

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COMM. NO. 0158933

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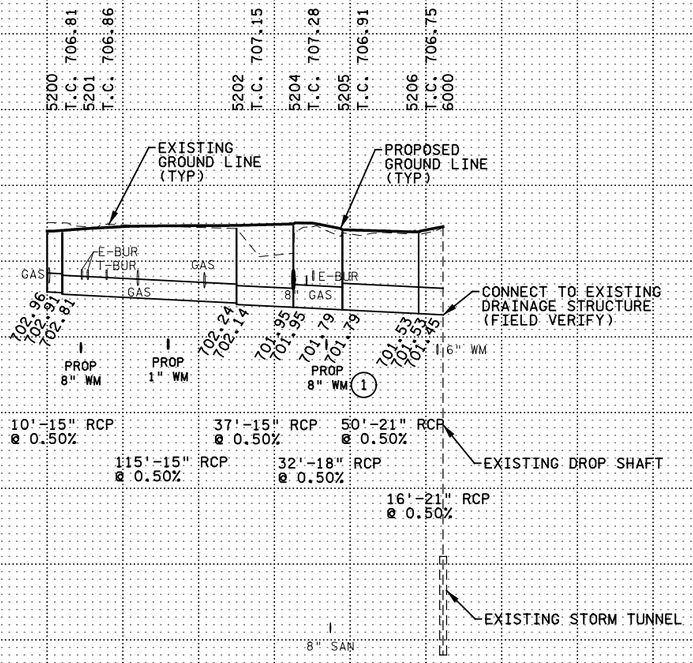
MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE PROFILES

SP 2515-21 (TH 63)

SHEET 348 OF 688

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NOTES:

(1) INSULATE CROSSING WITH 8 FT X 8 FT X 4 IN POLYSTYRENE

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STRUCTURES ON THIS SHEET
5200 5206
5201 6000
5202
5204
5205

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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY Z. THELEN
CHECKED BY P. ENGELMEYER
COMM. NO. 0158933

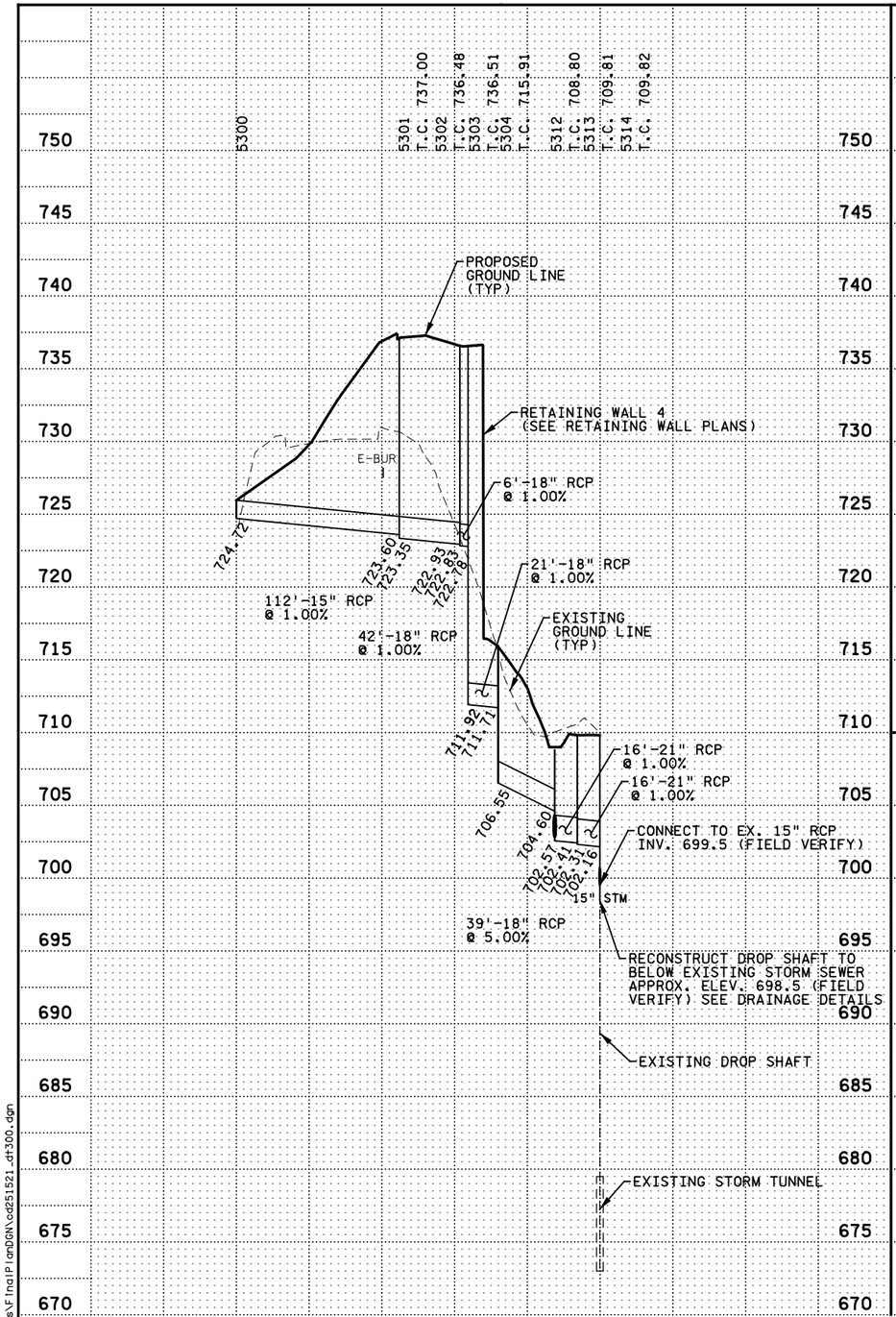
SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

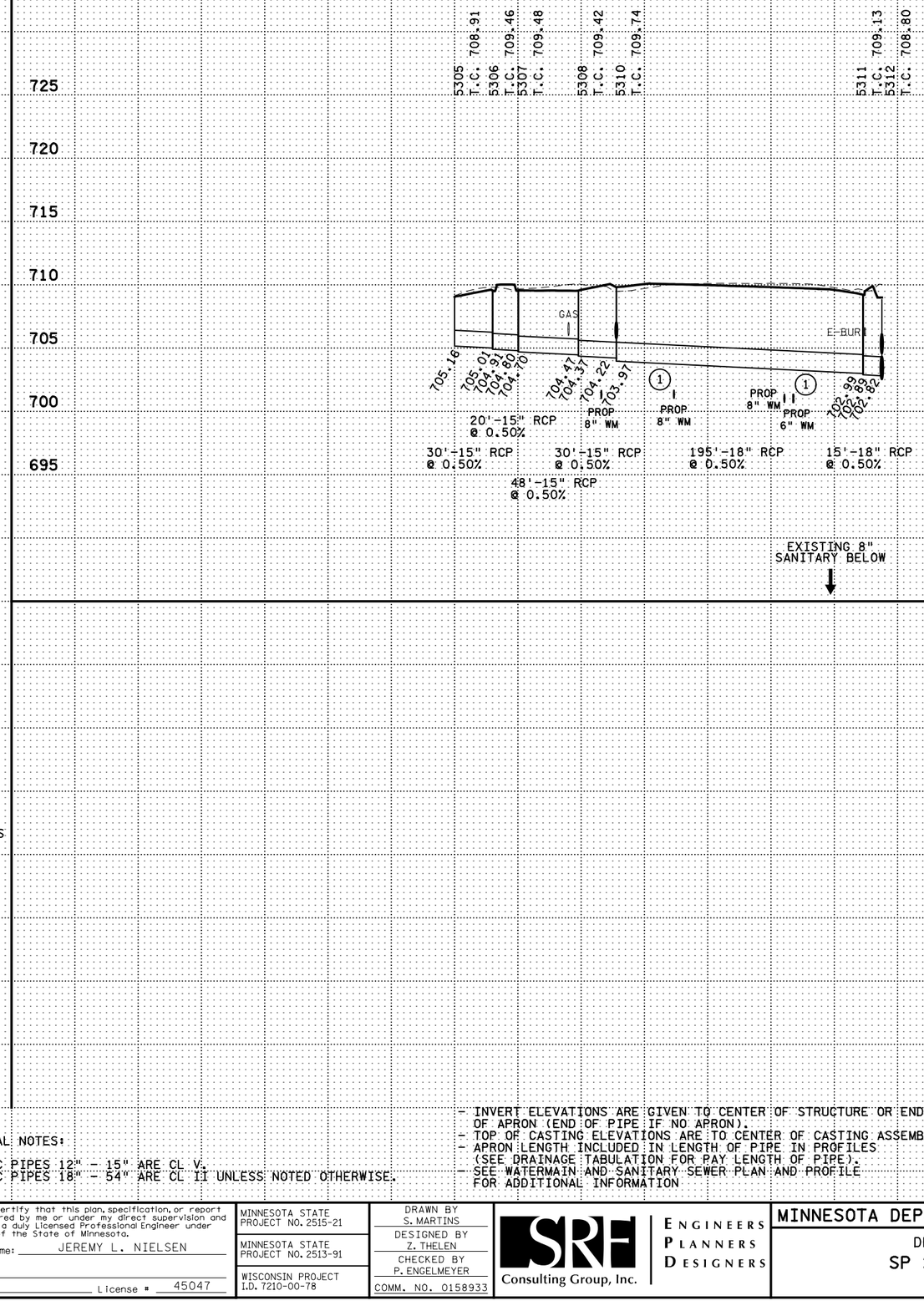
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DRAINAGE PROFILES
SP 2515-21 (TH 63)

SHEET 349 OF 688

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NOTES:

(1) INSULATE CROSSING WITH 8 FT X 8 FT X 4 IN POLYSTYRENE

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STRUCTURES ON THIS SHEET		
5300	5305	5311
5301	5306	5312
5302	5307	5313
5303	5308	5314
5304	5310	

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY Z. THELEN

CHECKED BY P. ENGELMEYER

COMM. NO. 0158933

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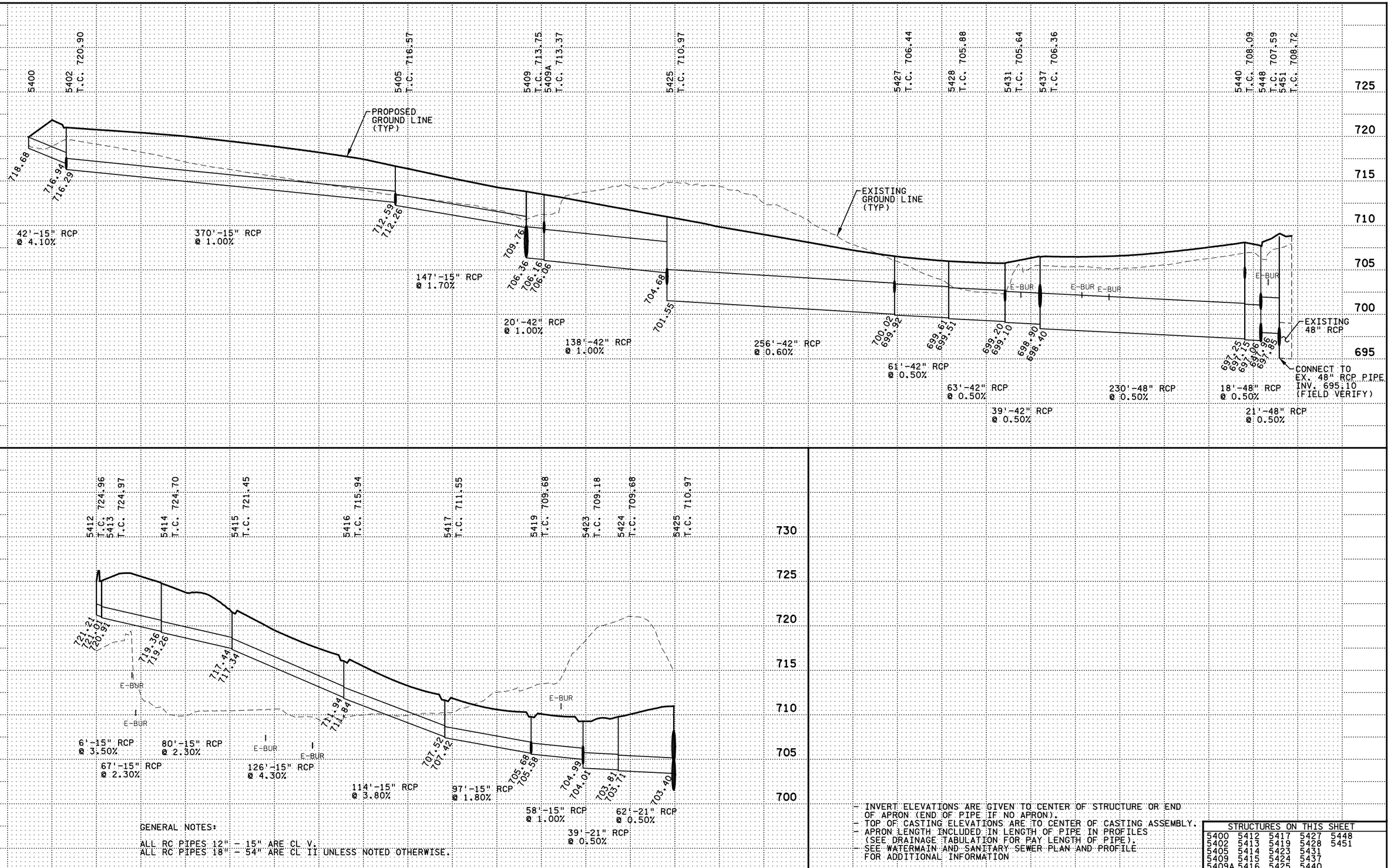
MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE PROFILES

SP 2515-21 (TH 63)

SHEET 350 OF 688

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STRUCTURES ON THIS SHEET				
5400	5412	5417	5427	5448
5402	5413	5419	5428	5451
5405	5414	5423	5431	
5409	5415	5424	5437	
5409A	5416	5425	5440	

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

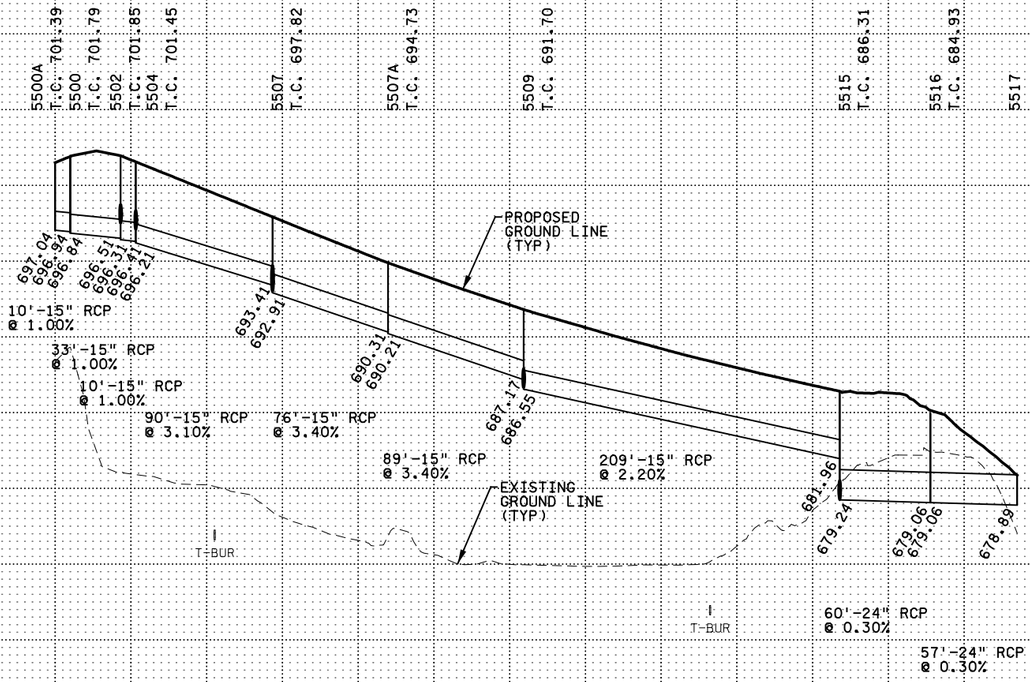
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CHECKED BY P. ENGELMEYER
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MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE PROFILES
SP 2515-21 (TH 63)

SHEET 351 OF 688



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STRUCTURES ON THIS SHEET	
5500A	5507A
5500	5509
5502	5515
5504	5516
5507	5517

NO	DATE	BY	CKD	APPR	REVISION
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DESIGNED BY Z. THELEN

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MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE PROFILES

SP 2515-21 (TH 63)

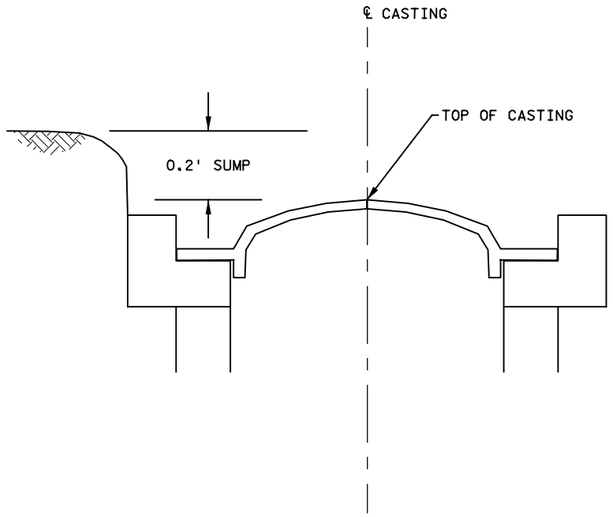
SHEET 352 OF 688

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DRAINAGE TABULATION

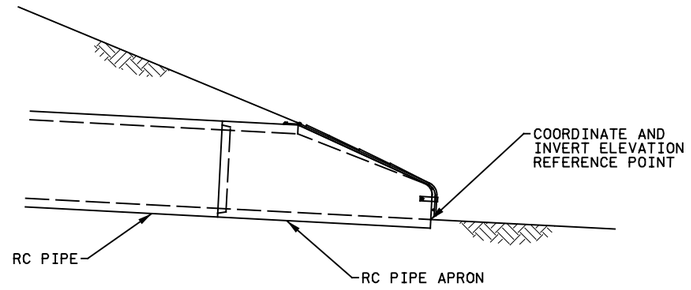
X

FLOWS FROM STR. OR APRON INLET POINT NO.	STRUCTURE LOCATION ALIGNMENT NAME	STATION	OFFSET FT	FLOWS TO STR. OR APRON OUTLET POINT NO.	NEW STRUCTURE CONSTRUCTION DESIGN (A)	PAY HEIGHT LIN FT	CASTING ASSEMBLY TYPE	STEPS REQ'D (B)	RC PIPE SEWER (DESIGN 3006) 15" CLV L.F.	15" CLV APR	18" CLII L.F.	18" CLII APR	21" CLV L.F.	21" CLV APR	24" CLII L.F.	24" CLII APR									FINE AGG. BEDDING CU YD	SODDING TYPE LAWN SQ YD	RANDOM RIPRAP (C) CLASS III CU YD	RANDOM RIPRAP (C) CLASS IV CU YD	GEO TEXTILE FILTER TYPE IV SQ YD	GUIDE POST TYPE B EACH	NOTES



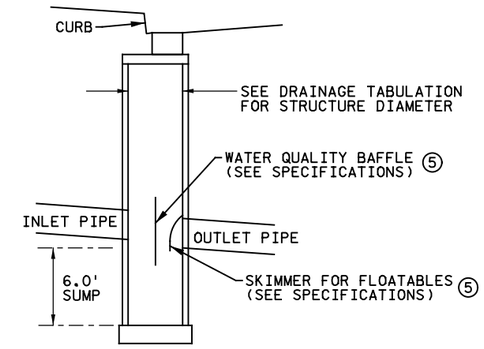
STAKING DETAIL: CASTING ASSEMBLY M-11

NOT TO SCALE



STAKING DETAIL: PIPE APRONS

NOT TO SCALE

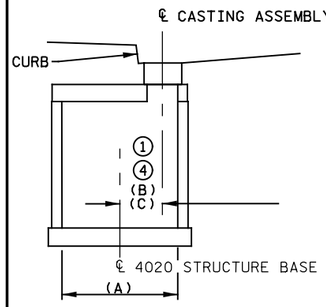


NOTES:

⑤ WATER QUALITY BAFFLE AND SKIMMER SHALL BE PAID FOR AS DESIGN SPECIAL 2. DRAINAGE STRUCTURE, CASTING AND PIPE SHALL BE PAID FOR UNDER OTHER ITEMS. SEE SPECIFICATIONS.

DESIGN SPECIAL 2: WATER QUALITY MANHOLE

NOT TO SCALE



(A)	(B)	(C)
4020 DIAMETER (IN.)	OFFSET FOR 27-IN. OPENING (FT.)	OFFSET FOR 24-IN. x 24-IN., 30-IN. OR 36-IN. OPENING (FT.)
48	0.79	0.25
54	1.08	0.54
60	1.29	0.83
66	1.58	1.13
72	1.79	1.42
78	2.08	1.71
84	2.29	2.00
90	2.58	2.29
96	2.87	2.58
102	3.16	2.88
108	3.29	3.08
120	3.79	3.67

STAKING DETAIL: DESIGN XX-4020 OR SD-XX STRUCTURE

NOT TO SCALE

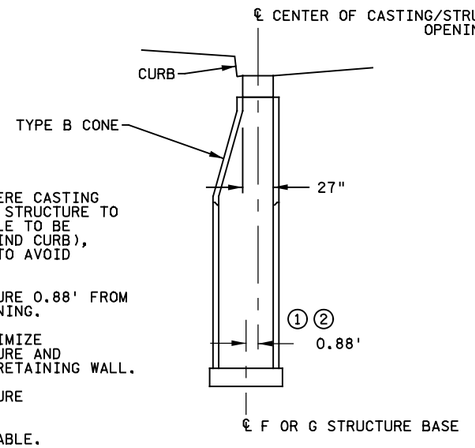
NOTES:

① IN TYPICAL LOCATIONS WHERE CASTING IS IN CURB LINE, ROTATE STRUCTURE TO ALLOW AS MUCH AS POSSIBLE TO BE OUTSIDE OF ROADWAY (BEHIND CURB), OR ROTATE AS NECESSARY TO AVOID CONFLICTS.

② LOCATE CENTER OF STRUCTURE 0.88' FROM CENTER OF STRUCTURE OPENING.

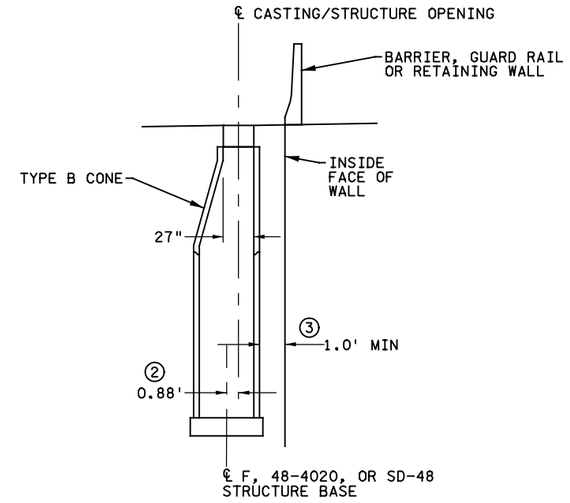
③ ROTATE STRUCTURE TO MAXIMIZE DISTANCE BETWEEN STRUCTURE AND BARRIER, GUARDRAIL, OR RETAINING WALL.

④ LOCATE CENTER OF STRUCTURE OFFSET FROM CENTER OF STRUCTURE OPENING BY DISTANCE INDICATED IN TABLE.



STAKING DETAIL: F OR G STRUCTURE AT CURB AND GUTTER

NOT TO SCALE



STAKING DETAIL: F, 48-4020, OR SD-48 STRUCTURE AT BARRIERS, GUARD RAILS OR RETAINING WALLS

NOT TO SCALE

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A. GARFIELD

DESIGNED BY Z. THELEN

CHECKED BY J. NIELSEN

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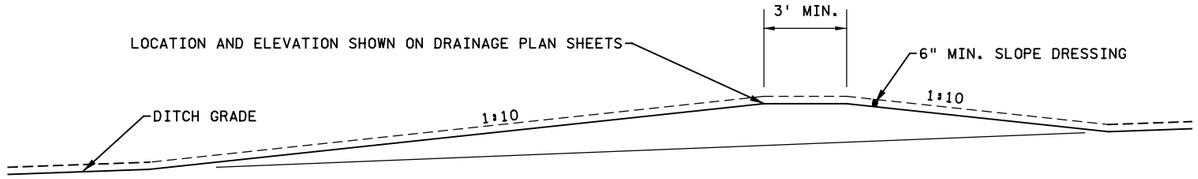
DRAINAGE DETAILS

SP 2515-21 (TH 63)

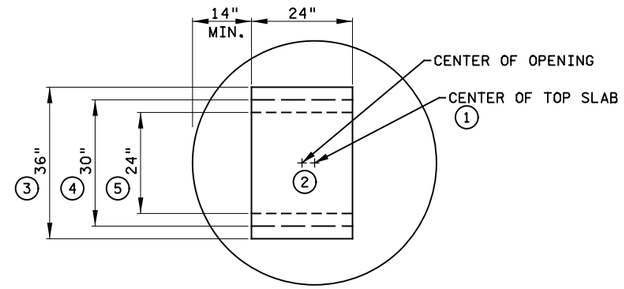
STAKING DETAILS/DESIGN SPECIAL 2

SHEET 354 OF 688

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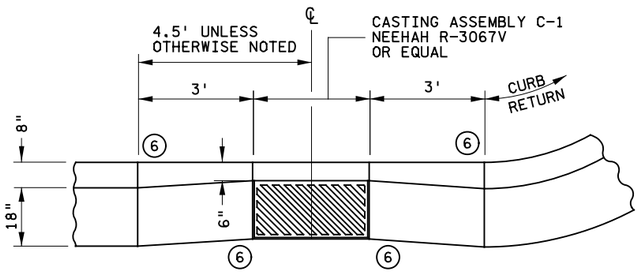


DITCH BLOCK
NOT TO SCALE



PLAN

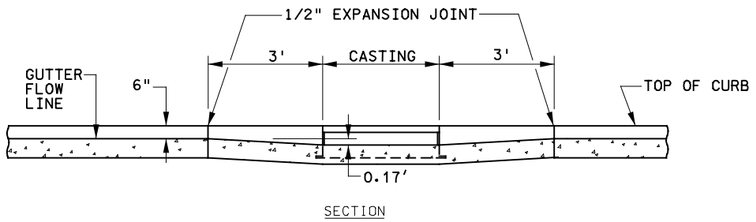
MODIFIED MANHOLE OR CATCH BASIN COVER
NOT TO SCALE



PLAN

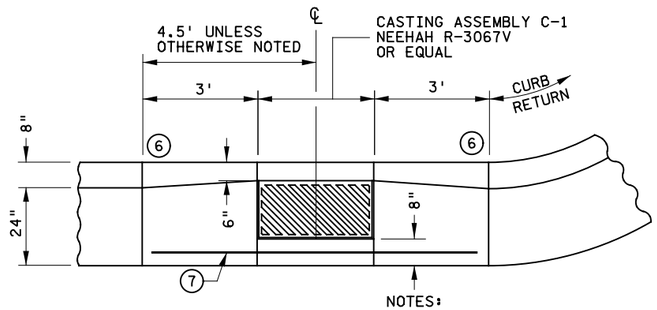
NOTES:

(6) TAPER CONC. CURB & GUTTER TO MATCH CASTING.



SECTION

CATCH BASIN INSTALLATION FOR B618 C&G
NOT TO SCALE

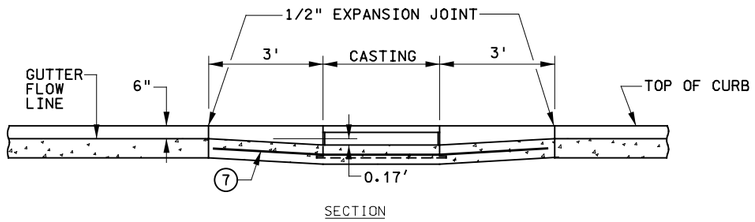


NOTES:

PLAN

(6) TAPER CONC. CURB & GUTTER TO MATCH CASTING.

(7) #4 EPOXY COATED REBAR, MAINTAIN 3" MINIMUM CLEARANCE ON SIDES AND ENDS. (REBAR IS INCIDENTAL)



SECTION

CATCH BASIN INSTALLATION FOR B624 C&G
NOT TO SCALE

NOTES:

(1) TOP SLAB SHALL BE CONSTRUCTED PER MNDOT STANDARD PLATE 4020, EXCEPT AS MODIFIED BY MNDOT STANDARD PLATE 4022 AND THIS DETAIL.

(2) OFFSET BETWEEN CENTER OF OPENING AND CENTER OF TOP SLAB SHALL BE AS INDICATED IN STAKING DETAILS.

(3) FOR CASTING ASSEMBLY C-1, USE 24-IN x 36-IN STANDARD OPENING PER MNDOT STANDARD PLATE 4022.

(4) FOR CASTING ASSEMBLY BW MODIFY TOP SLAB OPENING SIZE TO 24-IN x 30-IN. EXTEND REINFORCEMENT PATTERN INTO ADDED SLAB AREA AROUND OPENING.

(5) FOR CASTING ASSEMBLY C-2, MODIFY TOP SLAB OPENING SIZE TO 24-IN x 24-IN. EXTEND REINFORCEMENT PATTERN INTO ADDED SLAB AREA AROUND OPENING.

NO	DATE	BY	CKD	APPR	REVISION
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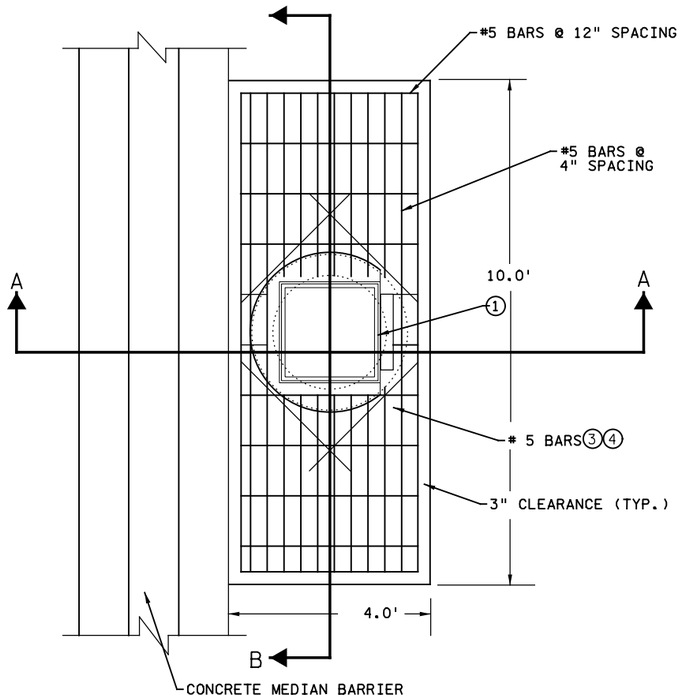
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE DETAILS
SP 2515-21 (TH 63)
DITCH BLOCK/MODIFIED COVER/CB INSTALLATION

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NOTES:

(1) CENTER CASTING ON 27 IN HOLE, USE 3 IN x 18 IN STEEL PLATE (INCIDENTAL)TO COVER GAP WHILE FORMING PAD AND COLLAR.

(2) DETAIL APPLIES TO DESIGN G, F, AND 4020 STRUCTURES AT THE MEDIAN BARRIER.

(3) ALL REBAR SIZES ARE ENGLISH UNLESS OTHERWISE DESIGNATED.

(4) EPOXY COATED.

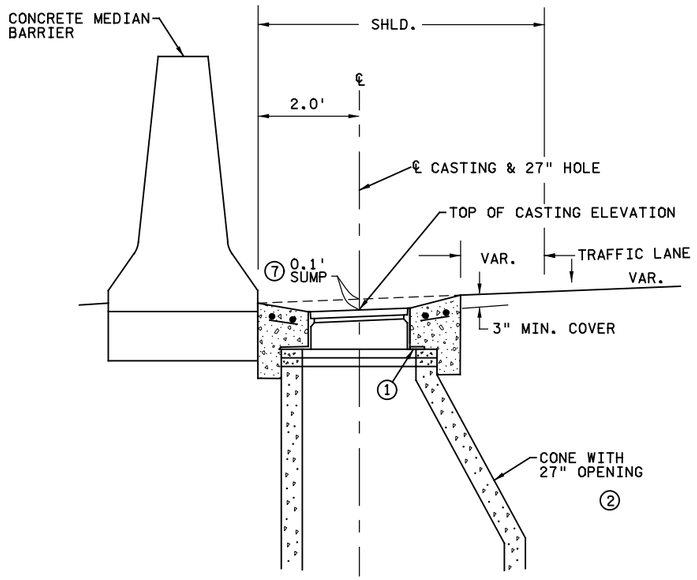
(5) REINFORCED CONCRETE MIX (3S52).

(6) PAYMENT FOR CONCRETE INLET PAD PER EACH WILL INCLUDE ALL MATERIALS, DETAILS AND WORK REQUIRED TO CONSTRUCT THE INLET PAD AS DETAILED ON THIS SHEET, EXCEPT THE DRAINAGE STRUCTURES, CASTINGS, AND MEDIAN BARRIER, WHICH WILL BE PAID FOR SEPARATELY.

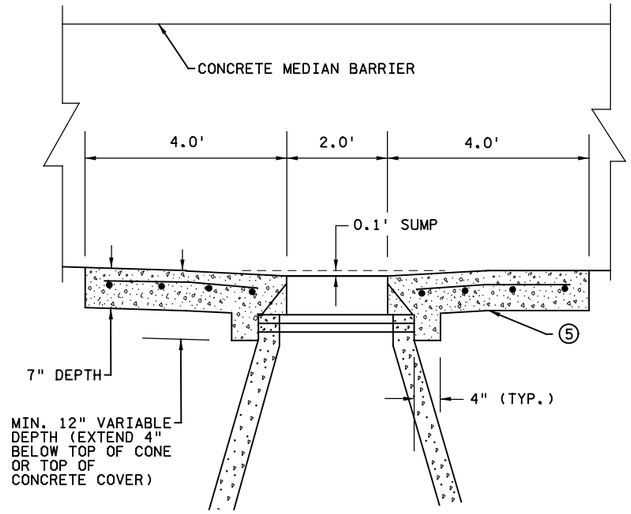
(7) SUMP SHALL BE 0.05 FT IN TRAIL LOCATIONS

CONCRETE PAD QUANTITIES

CONCRETE			REINFORCEMENT
DIMENSIONS	7 IN	MIX 3S52	NO 5 BARS (EPOXY COATED)(3) WEIGHT LB.
L X W	$FT.^2$	$YD.^3$	
10.0 x 4.0	36.0	0.96	172.0



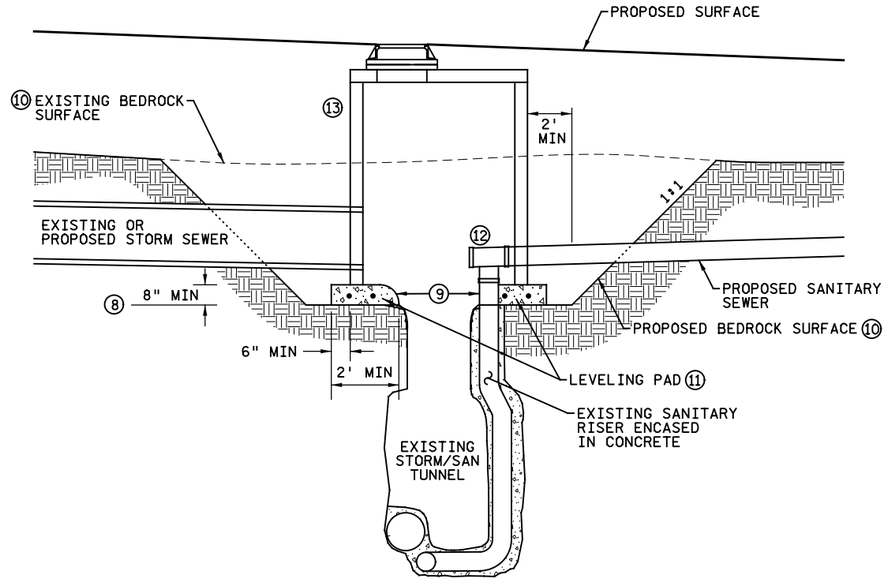
SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

MANHOLE OR CATCH BASIN STRUCTURE WITH CONCRETE INLET PAD (6)

NOT TO SCALE



NOTES:

(8) REMOVE EXISTING STRUCTURE TO BOTTOM OF EXISTING PRECAST STRUCTURE OR TO 1' MINIMUM BELOW LOWEST PIPE INVERT. BEDROCK EXCAVATION MAY BE REQUIRED (INCIDENTAL).

(9) HOLE IN LEVELING PAD/BASE SHALL MATCH EXISTING SIZE OF HOLE IN BEDROCK

(10) EXCAVATE BEDROCK TO MINIMUM DIMENSIONS SHOWN (IF REQUIRED). TOP OF BEDROCK SHALL BE AS LEVEL AND SMOOTH AS POSSIBLE IN LEVELING PAD LOCATION.

(11) CAST IN PLACE BASE/LEVELING PAD. REINFORCE AS INDICATED IN STANDARD PLATE 4011. EXISTING BASE/LEVELING PAD MAY BE UTILIZED IF AT THE CORRECT ELEVATION, UNDAMAGED BY STRUCTURE REMOVAL AND APPROVED BY THE ENGINEER.

(12) SEE SANITARY SEWER PLANS FOR ADDITIONAL OPENINGS IN STRUCTURE. CONNECT SANITARY SEWER TO EXISTING PVC SANITARY RISER USING A TEE. PLACE REMOVABLE CAP ON HORIZONTAL END OF TEE.

(13) RECONSTRUCTION OF DROP SHAFT SHALL BE PAID FOR BY THE LINEAR FEET OF THE STRUCTURE DESIGN INDICATED IN THE DRAINAGE TAB AND DRAINAGE CASTING. SEE EXISTING UTILITIES TAB FOR REMOVAL OF EXISTING STRUCTURE. ROCK EXCAVATION IS INCIDENTAL. LEVELING PAD(IF REQUIRED) SHALL BE PAID FOR BY THE LINEAR FOOT AS PART OF THE STRUCTURE PAY HEIGHT.

DROP SHAFT RECONSTRUCTION

NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION
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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: JEREMY L. NIELSEN

Date _____ License # 45047

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A. GARFIELD
DESIGNED BY Z. THELEN
CHECKED BY J. NIELSEN
COMM. NO. 0158933

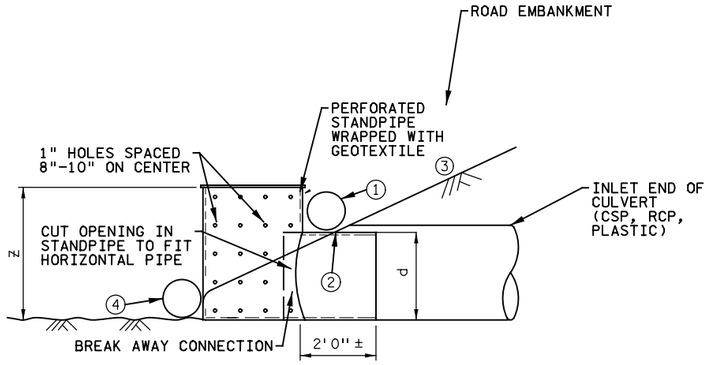
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MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE DETAILS
SP 2515-21 (TH 63)
INLET PAD/DROP SHAFT RECONSTRUCTION

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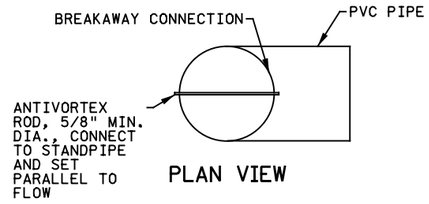


ELEVATION VIEW OF CULVERT INSTALLATION

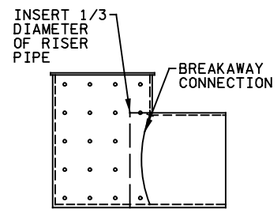
d = O.D. DIAMETER OF STANDPIPE TO FIT INTO I.D. DIAMETER OF PLAN CULVERT
Z = LENGTH OF PERFORATED STANDPIPE (MIN d+12")

CULVERT STANDPIPE PROTECTION (D-RISER)

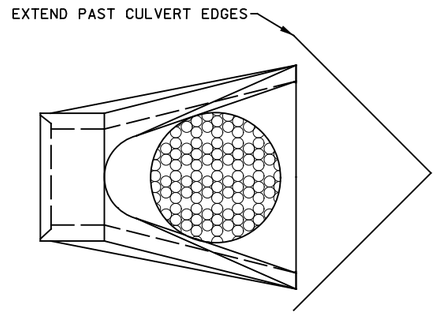
CULVERT SIZE: 12" - 36"



PLAN VIEW

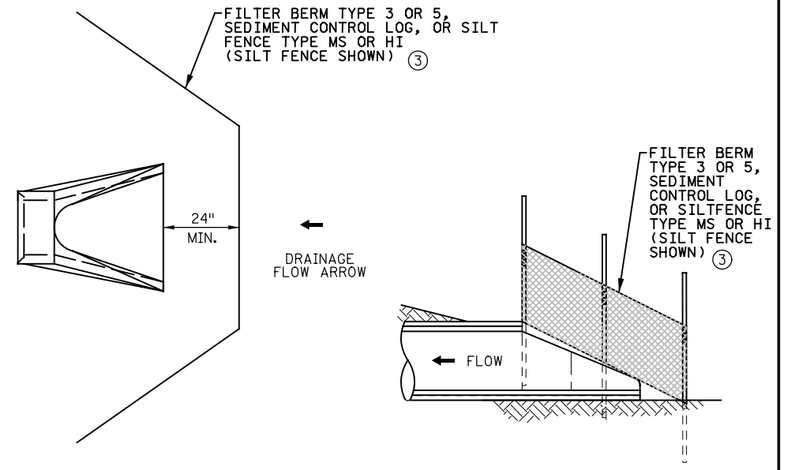


CULVERT STANDPIPE



TOP VIEW

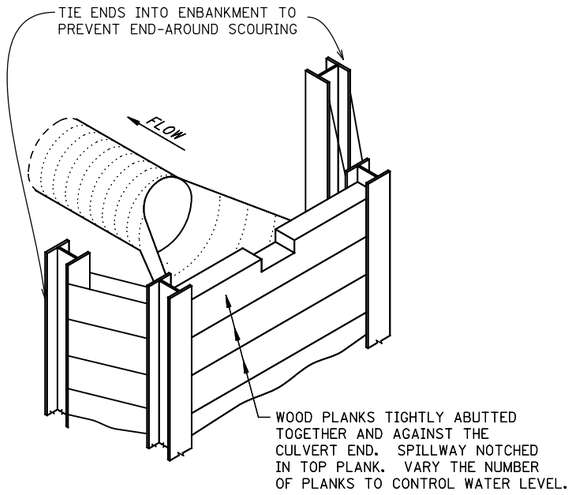
NOTE: GABION BASKET USED TO HOLD FILTER ROCK IN PLACE



PLAN ELEVATION

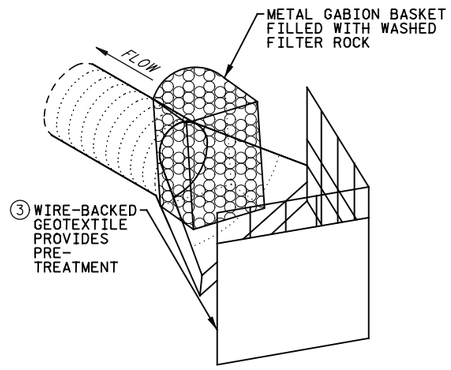
FILTER BERM, SEDIMENT CONTROL LOG OR SILT FENCE

NOT TO SCALE



WOOD PLANK WEIR FOR SEDIMENT CONTROL AT CULVERT INLETS

NOT TO SCALE



PERSPECTIVE

METAL GABION BASKET FOR SEDIMENT CONTROL AT CULVERT INLETS

NOT TO SCALE

NOTES:

SEE SPECS. 2573, 3891 & 3893.

MANUFACTURED ALTERNATIVES LISTED ON MNDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.

TEMPORARY CULVERT PROTECTION PAID FOR AS 2573 CULVERT END CONTROLS.

DETAILS NOT TO SCALE

1. ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.
2. PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT. AFTER VEGETATION IS ESTABLISHED REMOVE TEMPORARY STANDPIPE.
3. ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.
4. ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.

NO	DATE	BY	CKD	APPR	REVISION

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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: JEREMY L. NIELSEN

Date _____ License # 45047

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A. GARFIELD

DESIGNED BY Z. THELEN

CHECKED BY J. NIELSEN

COMM. NO. 0158933

SRF Consulting Group, Inc. | Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

DRAINAGE DETAILS

SP 2515-21 (TH 63)

CULVERT END CONTROLS

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STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (SHEET 1 OF 3)

PROJECT DESCRIPTION/LOCATION AND SCOPE
SEE COVER SHEET FOR LOCATION MAP, PROJECT NUMBERS AND DESCRIPTION OF PROJECT SCOPE.
PERMANENT STORMWATER BEST MANAGEMENT PRACTICES (BMPS) UTILIZED ON THE PROJECT INCLUDE WATER QUALITY MANHOLES AND VEGETATED SWALES.

SPECIAL AND IMPAIRED WATERS
THE FOLLOWING SPECIAL/IMPAIRED WATERS ARE LOCATED WITHIN ONE MILE OF THE PROJECT LIMITS AND RECEIVE RUNOFF FROM THE PROJECT SITE.
THE MISSISSIPPI RIVER IN THIS AREA IS IMPAIRED FOR MERCURY AND PCB IN FISH TISSUE, FOR MERCURY IN THE WATER COLUMN AND FOR TURBIDITY.

ENVIRONMENTALLY SENSITIVE AREAS
ALL ENVIRONMENTALLY SENSITIVE AREAS, INCLUDING WETLANDS, ARE LABELED AS "ENVIRONMENTALLY SENSITIVE AREAS" IN THE PLANS.

LONG TERM MAINTENANCE AND OPERATION
MAINTENANCE STAFF FROM MNDOT, WISDOT AND THE CITY OF RED WING ARE RESPONSIBLE FOR THE LONG TERM MAINTENANCE AND OPERATION OF THE PERMANENT STORMWATER SYSTEMS DIVIDED ACCORDING TO THE OWNERSHIP OF THE RIGHT OF WAY, WITH THE EXCEPTION THAT THE CITY OF RED WING WILL MAINTAIN ALL OF THE WATER QUALITY MANHOLES WITHIN MINNESOTA. MNDOT DISTRICT 6 AND THE CITY OF RED WING EACH HAVE AN MS4 SWPPP THAT IS AVAILABLE ONLINE OR UPON REQUEST.

SWPPP DEVELOPMENT AND MAINTENANCE
THIS SWPPP WAS PREPARED BY PERSONNEL WHO ARE CERTIFIED IN THE DESIGN OF CONSTRUCTION SWPPPS. COPIES OF THE CERTIFICATIONS ARE AVAILABLE UPON REQUEST.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A CERTIFIED EROSION AND SEDIMENT CONTROL SUPERVISOR WHO SHALL BE RESPONSIBLE FOR FINALIZING, CERTIFYING, AND MAINTAINING THE SWPPP DOCUMENT AND OVERSEEING THE IMPLEMENTATION OF THE SWPPP. SEE PAGE 2 OF THE SWPPP NARRATIVE FOR ADDITIONAL REQUIREMENTS.

SWPPP AMENDMENTS
THE SWPPP SHALL BE AMENDED WHEN:
A. THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE, WEATHER OR SEASON HAVING A SIGNIFICANT EFFECT ON DISCHARGE OF POLLUTANTS.
B. INSPECTIONS INDICATE THE SWPPP IS NOT EFFECTIVE.
C. A WATER QUALITY STANDARD CHANGES AND THE MPCA DETERMINES THE SWPPP SHALL BE AMENDED TO COMPLY.
A DESCRIPTION OF ANY CHANGE TO THE SWPPP, ALONG WITH THE DATE AND NAME OF THE REVISION SHALL BE RECORDED AND INCLUDED WITH THE SWPPP AND RETAINED ON SITE. THE OWNER SHALL RETAIN ALL RECORDS AFTER COMPLETION OF THE PROJECT.

SITE PLANS
THE CONTRACTOR SHALL PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, DEWATERING AREAS, AREAS IDENTIFIED AS "SITE MANAGEMENT PLAN AREAS" AND AS REQUESTED BY THE PROJECT ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS IN WRITING AND ALLOW A MINIMUM OF 7 DAYS FOR REVIEW BY THE PROJECT ENGINEER. WORK SHALL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE PROJECT ENGINEER.

ENVIRONMENTAL REVIEW
THE REQUIREMENTS OF THE CITY OF RED WING AND THE WISCONSIN DNR ARE SATISFIED BY THE PERMANENT BMPS LISTED ABOVE AND THE TEMPORARY MEASURES INCLUDED. THERE ARE NO ADDITIONAL STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHAEOLOGICAL OR AGENCY REVIEW.

DRINKING WATER SOURCE MANAGEMENT AREA (DWSMA) AND KARST REGIONS
THE PROJECT IS NOT LOCATED IN A DWSMA OR KNOWN KARST AREA.

SOIL TYPES
SOIL BORINGS INDICATE A VARIETY OF SOILS RANGING FROM SAND TO CLAY. THE DEPTH TO BEDROCK IS SHALLOW IN SOME AREAS, AND BEDROCK IS LIKELY TO BE ENCOUNTERED WITHIN PROJECT EXCAVATIONS. CONTAMINATED SOIL, GROUNDWATER AND BEDROCK MAY ALSO BE ENCOUNTERED, PARTICULARLY IN THE AREA SOUTH AND EAST OF THE TH 63 BRIDGE OVER TH 61.

LAND FEATURE CHANGES WITHIN MINNESOTA
TOTAL DISTURBED AREA: 15.0 ACRES
TOTAL EXISTING IMPERVIOUS SURFACE AREA: 8.0 ACRES
TOTAL PROPOSED IMPERVIOUS SURFACE AREA: 8.4 ACRES
TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA: 0.4 ACRES

LAND FEATURE CHANGES WITHIN WISCONSIN
TOTAL DISTURBED AREA: 19.7 ACRES
TOTAL EXISTING IMPERVIOUS SURFACE AREA: 3.9 ACRES
TOTAL PROPOSED IMPERVIOUS SURFACE AREA: 5.2 ACRES
TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA: 1.3 ACRES

SWPPP APPLICABILITY AND WISCONSIN REQUIREMENTS
FOR THE WISCONSIN PORTION OF THE PROJECT, THE CONTRACTOR SHALL PREPARE AND SUBMIT AN EROSION CONTROL IMPLEMENTATION PLAN (ECIP) USING THE WS 1073 WORKSHEET, FOLLOWING THE REQUIREMENTS OF TRANS 401 AND GUIDANCE PROVIDED IN CHAPTER 10 OF THE WISDOT FACILITIES DEVELOPMENT MANUAL (FDM).
FOR DOCUMENTATION PURPOSES, THE ECIP TAKES THE PLACE OF THE SWPPP FOR THE WISCONSIN PORTION OF THE PROJECT. THEREFORE, SWPPP AMENDMENT AND DOCUMENTATION REQUIREMENTS APPLY ONLY TO THE MINNESOTA PORTION OF THE PROJECT WHILE ECIP AMENDMENT AND DOCUMENTATION REQUIREMENTS APPLY ONLY FOR THE WISCONSIN PORTION OF THE PROJECT.
ALL OTHER REQUIREMENTS OF THE SWPPP SHALL APPLY EQUALLY IN BOTH STATES, UNLESS SPECIFICALLY SUPERSEDED BY THE ECIP IN WISCONSIN OR A SWPPP AMENDMENT IN MINNESOTA.

PROJECT CONTACTS
THE OWNER AND CONTRACTOR ARE RESPONSIBLE FOR THE IMPLEMENTATION OF THE SWPPP AND INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION HAS BEEN FILED.

ORGANIZATION	CONTACT NAME	PHONE
MNDOT RESIDENT CONSTRUCTION ENGINEER	TERRY WARD	507-286-7688
MNDOT DISTRICT 6 DESIGN	CHAD HANSON	507-286-7637
MNDOT DISTRICT 6 HYDRAULICS	KRISTOFFER LANGLIE	507-286-7718
MNDOT OFFICE OF ENVIRONMENTAL STEWARDSHIP	LORI BELZ	651-366-3607
WISDOT DESIGN	DAVID [illegible]	715-563-8402
WISDOT HYDRAULICS	DAVID L[illegible]N	715-836-2067
MINNESOTA DEPARTMENT OF NATURAL RESOURCES	PETER LEETE	651-366-3634
WISCONSIN DEPARTMENT OF NATURAL RESOURCES	CHRISTOPHER WILLGER	715-839-1609
ARMY CORPS OF ENGINEERS	SARAH WINGERT	651-290-5358
US COAST GUARD	RODNEY WURGLER	314-269-2379
MINNESOTA POLLUTION CONTROL AGENCY	JIM BRIST	651-757-2245
MPCA COMPLIANCE	DAVE BODOVINITZ	507-206-2654
CITY OF RED WING	JAY OWENS	651-385-3625
SRF HYDRAULICS	JEREMY NIELSEN	763-475-0010

MPCA DUTY OFFICER 24 HOUR EMERGENCY NOTIFICATION: 651-649-5451
800-422-0798

LOCATION OF SWPPP REQUIREMENTS
THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET AS WELL AS IN THE SPECIAL PROVISIONS, MNDOT SPEC BOOK (2016 EDITION), CONSTRUCTION DIARIES OR ON FILE WITH THE PROJECT OWNER. THE NOTES AND TABLE BELOW ARE INTENDED TO BE A QUICK REFERENCE FOR THE CONTRACTOR AND PROJECT ENGINEER TO USE IN THE FIELD. THERE MAY BE ADDITIONAL REQUIRED SWPPP ELEMENTS INCLUDED ON THE PROJECT THAT ARE NOT LISTED ON THIS SHEET. IN ADDITION, THE MINNESOTA NPDES/SDS CONSTRUCTION STORMWATER PERMIT SHOULD BE REVIEWED AND CONSULTED BY THE EROSION AND SEDIMENT CONTROL SUPERVISOR.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	LOCATION
TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND STAGING	SHEET NOS. 111 TO 161
PERMANENT EROSION AND SEDIMENT CONTROL MEASURES	SHEET NOS. 361 TO 370
SOILS AND CONSTRUCTION NOTES	SHEET NOS. 6 TO 5
DRAINAGE STRUCTURES AND DIRECTION OF FLOW	SHEET NOS. 338 TO 347
STORM SEWER PROFILE SHEETS	SHEET NOS. 348 TO 352
STORM SEWER TABULATION	SHEET NOS. 353
EROSION AND SEDIMENT CONTROL DETAILS	SHEET NOS. 87 TO 94
EROSION CONTROL TABULATION	SHEET NOS.
TURF ESTABLISHMENT TABULATION	SHEET NOS.
STATEMENT OF ESTIMATED QUANTITIES	SHEET NOS. 4
WATER RESOURCES NOTES	SHEET NOS. 337

SITE MAPS AND DESIGN CALCULATIONS
IN ADDITION TO WHAT IS LOCATED WITHIN THIS PLAN, SITE MAPS AND BMP DESIGN CALCULATIONS ARE AVAILABLE UPON REQUEST. PLEASE CONTACT THE PROJECT ENGINEER WITH ANY QUESTIONS REGARDING THE SITE MAPS OR CALCULATIONS.

NO	DATE	BY	CKD	APPR	REVISION

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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: JEREMY L. NIELSEN
Date _____ License # 45047

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY P. ENGELMEYER
CHECKED BY J. NIELSEN
COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
STORM WATER POLLUTION PREVENTION PLAN
SP 2515-21 (TH 63)

SHEET 358 OF 688

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STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (SHEET 2 OF 3)

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY

1. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION STORMWATER PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA (FORM IS AVAILABLE FROM MPCA WEBSITE). THE CONTRACTOR SHALL DEVELOP A CHAIN OF COMMAND WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP SHALL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

2. THE CONTRACTOR SHALL PREPARE A WRITTEN, NOT ORAL, WEEKLY SCHEDULE OF PROPOSED EROSION CONTROL ACTIVITIES FOR THE PROJECT ENGINEER'S APPROVAL AS PER MNDOT SPEC. 1717.2C.

3. BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN PROJECT BOUNDARY.

4. THE CONTRACTOR SHALL PLACE STABILIZED CONSTRUCTION EXITS, AS NECESSARY, TO PREVENT TRACKING OF SEDIMENT ONTO PAVED SURFACES AND IN COMPLIANCE WITH PART IV.C. OF THE NPDES PERMIT. STABILIZED CONSTRUCTION EXITS SHALL BE SUFFICIENTLY SIZED AND MAINTAINED TO PREVENT TRACK OUT. STABILIZED CONSTRUCTION EXITS SHALL BE INCIDENTAL.

5. ALL TOPSOIL IN DISTURBED AREAS SHALL BE REMOVED AND STOCKPILED FOR LATER PLACEMENT. AVOID COMPACTION AS MUCH AS IS FEASIBLE IN ALL AREAS WHERE COMPACTION IS NOT REQUIRED FOR CONSTRUCTION. COMPACTION SHALL BE AVOIDED IN ALL AREAS DESIGNATED FOR INFILTRATION.

6. DO NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. IF IT BECOMES NECESSARY TO DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS OBTAIN WRITTEN PERMISSION PRIOR TO PROCEEDING. PRESERVE ALL BUFFERS (IF ANY) SHOWN ON THE PLANS.

7. DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS AND ROUTE STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER POSSIBLE. PROVIDE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION AND NUISANCE CONDITIONS.

8. PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.

9. TEMPORARY DEWATERING ACTIVITIES MAY BE REQUIRED. THEREFORE, IT IS POSSIBLE THAT A PERMIT FOR THE TEMPORARY APPROPRIATION OF WATERS OF THE STATE FROM MNDNR SHALL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THIS PERMIT (FORMS ARE AVAILABLE FROM THE MNDNR WEBSITE). ALL TEMPORARY DEWATERING SHALL BE DISCHARGED TO AN APPROVED LOCATION FOR TREATMENT PRIOR TO DISCHARGE TO THE RECEIVING WATER. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT SITE MANAGEMENT PLANS TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK ACCORDING TO SPEC 1717.2D. TEMPORARY DEWATERING SHALL BE INCIDENTAL.

10. BASIN DRAINING ACTIVITIES OF TURBID OR SEDIMENT LADEN WATER SHALL BE DISCHARGED TO TEMPORARY SEDIMENT BASINS WHENEVER POSSIBLE. IN THE EVENT THAT IT IS NOT POSSIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN THE WATER SHALL BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS.

11. IT IS NOT ANTICIPATED THAT POLYMERS, FLOCCULANTS OR OTHER SEDIMENTATION TREATMENT CHEMICALS SHALL BE USED. HOWEVER, IF THE USE OF SUCH CHEMICALS BECOMES NECESSARY TO COMPLY WITH PERMIT REQUIREMENTS, IT SHALL BE IN ACCORDANCE WITH PART IV.C.10. OF THE CONSTRUCTION GENERAL PERMIT.

POLLUTION PREVENTION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS REGARDING POLLUTION PREVENTION MANAGEMENT DURING CONSTRUCTION, WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO, PROVIDING THE FOLLOWING (ITEMS LISTED ARE INCIDENTAL):
   - A. WASHOUT AREAS FOR CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS FOR USE BY ALL SUBCONTRACTORS AND MATERIAL TESTING PERSONNEL. LOCATION OF WASHOUT AREAS SHALL BE IDENTIFIED BY SIGNAGE AND SHALL BE AT LEAST 200 FT FROM SITE MANAGEMENT PLAN REQUIREMENT AREAS (IF APPLICABLE) OR ENVIRONMENTALLY SENSITIVE AREAS, AND UTILIZE A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER THAT PREVENTS RUNOFF ONTO ADJACENT SOILS. AN ENGINEERED COLLECTION SYSTEM CAN ALSO BE USED IF IT IS APPROVED BY THE PROJECT ENGINEER.
   - B. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE PROJECT ENGINEER FOR A CHEMICAL STORAGE AREA AND SHALL DESIGNATE AN AREA FOR FUELING AND MINOR MAINTENANCE OF CONSTRUCTION VEHICLES (INCLUDING WASHING) WITH MEANS TO CAPTURE ANY FUEL SPILLS. RUNOFF SHALL BE CONTAINED IN A TEMPORARY SEDIMENT BASIN OR OTHER EFFECTIVE CONTROL AND ALL WASTE GENERATED SHALL BE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE.
   - C. SOLID WASTE COLLECTION AND REMOVAL
   - D. SECONDARY CONTAINMENT FOR STORAGE OF HAZARDOUS MATERIALS
   - E. SECURED HAZARDOUS WASTE STORAGE CONTAINERS
   - F. CHEMICAL SPILL KITS (SHALL BE PROVIDED AT EACH LOCATION WHERE CHEMICALS ARE USED OR STORED AND ANY LOCATION WHERE VEHICLES ARE FUELED OR MAINTAINED).
   - G. PORTABLE RESTROOM FACILITIES THAT ARE ANCHORED TO PREVENT TIPPING

2. CHEMICALS SHALL BE KEPT IN A SECURE STORAGE AREA WITH RESTRICTED ACCESS IN SEALED CONTAINERS WHEN NOT IN USE. RETURN ALL CHEMICALS TO THE DESIGNATED STORAGE AREA BY THE END OF THE DAY UNLESS INFEASIBLE. CHEMICAL STORAGE CONTAINERS SHALL HAVE SECONDARY CONTAINMENT WHEN BEING USED OR STORED ON THE PROJECT SITE, AND PRODUCTS OR CHEMICALS THAT MAY LEACH POLLUTANTS SHALL BE UNDER COVER (PLASTIC SHEETING OR TEMPORARY ROOF). CHEMICAL SPILLS OF ANY KIND (OIL, FUEL, FERTILIZER, ETC.) SHALL BE CLEANED UP AND REMOVED FROM THE SITE IMMEDIATELY. THE CONTRACTOR SHALL HAVE A SPILL KIT ON SITE AT ALL TIMES.

POLLUTION PREVENTION NOTES (CONT.)

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CREATING AND FOLLOWING A WRITTEN DISPOSAL PLAN FOR ALL HAZARDOUS WASTE MATERIALS. THE PLAN SHALL INCLUDE HOW THE MATERIAL SHALL BE DISPOSED OF AND THE LOCATION OF THE DISPOSAL SITE AND SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO WORK ON SITE. LEAKS, SPILLS, OR OTHER RELEASES SHALL BE RESPONDED TO IN ACCORDANCE WITH MPCA SPILL CONTAINMENT AND REMEDIAL ACTION PROCEDURES.

4. THE CONTRACTOR SHALL USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS, AND ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.

5. THE CONTRACTOR SHALL USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, PARTICLES, SAW CUT SLURRY, PLANING WASTE AND OTHER CONCRETE WASTES FROM LEAVING PUBLIC RIGHT OF WAY, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS OR ENTERING STORMWATER CONVEYANCE SYSTEM INCLUDING INLETS AND CURB FLOW LINES. ONSITE RELEASE OF CONCRETE SLURRY IS PERMISSIBLE IF MINNESOTA POLLUTION CONTROL GUIDANCE FOR ROAD CONSTRUCTION CONCRETE SLURRY AND THE REQUIREMENTS OF THE SPECIAL PROVISIONS ARE FOLLOWED.

EROSION AND SEDIMENT CONTROL SUPERVISOR, INSPECTIONS AND MAINTENANCE NOTES

1. IN ACCORDANCE WITH SPEC. 2573.3 A1, THE CONTRACTOR SHALL PROVIDE A CERTIFIED EROSION AND SEDIMENT CONTROL SUPERVISOR IN GOOD STANDING WHO IS KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS. PROVIDE PROOF OF CERTIFICATION (UNIVERSITY OF MINNESOTA - CONSTRUCTION SITE MANAGEMENT) AT THE PRECONSTRUCTION MEETING. WORK SHALL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED. THE EROSION AND SEDIMENT CONTROL SUPERVISOR IS INCIDENTAL.

2. THE EROSION AND SEDIMENT CONTROL SUPERVISOR SHALL WORK WITH THE PROJECT ENGINEER TO OVERSEE THE IMPLEMENTATION OF THE SWPPP AND ECIP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA.

3. THE EROSION AND SEDIMENT CONTROL SUPERVISOR IS RESPONSIBLE FOR COMPLYING WITH ALL THE INSPECTION AND MAINTENANCE REQUIREMENTS STATED IN THE NPDES PERMIT PART IV. E. INSPECTIONS OF THE ENTIRE CONSTRUCTION SITE SHALL OCCUR A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS (IN NO CASE SHALL THE TIME BETWEEN INSPECTIONS EXCEED 7 DAYS). RAINFALL AMOUNTS SHALL BE OBTAINED USING A PROPERLY MAINTAINED RAIN GAUGE ONSITE OR BY A WEATHER STATION THAT IS WITHIN ONE MILE. THE EROSION AND SEDIMENT CONTROL SUPERVISOR SHALL THOROUGHLY INSPECT ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS TO ENSURE INTEGRITY AND EFFECTIVENESS OF EACH BMP.

4. ALL INSPECTIONS AND MAINTENANCE CONDUCTED DURING CONSTRUCTION SHALL BE RECORDED IN WRITING WITHIN 24 HOURS AND THESE RECORDS SHALL BE RETAINED WITH THE SWPPP. INSPECTION REPORTS SHALL BE SUBMITTED TO THE PROJECT ENGINEER AND SWPPP DESIGNER IN A FORMAT APPROVED BY THE ENGINEER. INSPECTION RECORDS SHALL INCLUDE:
   - A. DATE AND TIME OF INSPECTIONS;
   - B. NAME OF PERSONS CONDUCTING INSPECTIONS;
   - C. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS;
   - D. CORRECTIVE ACTIONS TAKEN INCLUDING DATES, TIMES, AND THE PARTY COMPLETING MAINTENANCE ACTIVITIES;
   - E. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCH IN 24 HOURS;
   - F. LOCATION, DESCRIPTION AND PHOTO OF ANY DISCHARGES OFF THE PROJECT SITE.
   - G. DOCUMENTS AND CHANGES MADE TO THE SWPPP.

5. THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS (INSPECTIONS MAY BE REDUCED UNDER CERTAIN CONDITIONS AS COVER IS ESTABLISHED AND CONDITIONS CHANGE AS DESCRIBED IN PART IV. E OF THE NPDES PERMIT):
   - A. SILT FENCE SHALL BE REPAIRED, REPLACED OR SUPPLEMENTED WHEN IT BECOMES NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE SILT FENCE. REPAIRS SHALL BE MADE WITHIN 24 HOURS OF DISCOVERY.
   - B. INLET PROTECTION DEVICES SHOULD BE REPAIRED WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
   - C. TEMPORARY SEDIMENT BASINS, IF REQUIRED, SHALL HAVE THE SEDIMENT REMOVED ONCE THE SEDIMENT HAS REACHED 1/2 THE STORAGE VOLUME WITHIN 72 HOURS OF DISCOVERY.
   - D. REMOVE ANY SEDIMENT DEPOSITED IN SURFACE WATERS. SEDIMENT SHALL BE REMOVED AND ANY AREA DISTURBED BY THE REMOVAL RESTABILIZED WITHIN 7 DAYS OF DISCOVERY. A SITE MANAGEMENT PLAN IS REQUIRED FOR WORK IN ANY SURFACE WATER AND APPROPRIATE AUTHORITIES SHALL BE CONTACTED PRIOR TO COMMENCING WORK.
   - E. TRACKED SEDIMENT SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OF TRACKING ONTO PAVED SURFACES.
   - F. ALL OTHER NONFUNCTIONAL BMPS SHALL BE REPAIRED, REPLACED, OR SUPPLEMENTED WITHIN 24 HOURS OF DISCOVERY.
   - G. REINSTALL AS QUICKLY AS POSSIBLE ANY BMP REMOVED TO ACCOMMODATE SHORT TERM ACTIVITIES.
   - H. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION, AND THE NOTICE OF TERMINATION HAS BEEN SUBMITTED TO THE MPCA IN ACCORDANCE WITH PART II.C OF THE CONSTRUCTION GENERAL PERMIT. SEDIMENT REMOVAL AND MAINTENANCE OF BMPS IS INCIDENTAL.

6. CLEAN OUT ALL PERMANENT STORMWATER BASINS REGARDLESS OF WHETHER USED AS A TEMPORARY SEDIMENT BASIN OR SEDIMENT TRAP TO THE DESIGN CAPACITY AFTER ALL UPGRADIENT LAND DISTURBING ACTIVITY IS COMPLETED.

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY P. ENGELMEYER

CHECKED BY J. NIELSEN

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN

SP 2515-21 (TH 63)

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STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (SHEET 3 OF 3)

STABILIZATION AND SEDIMENT CONTROL NOTES

1. THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE PLACED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ONSITE. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY REMOVAL WORK AND/OR GROUND DISTURBING ACTIVITIES AND SHALL BE MAINTAINED UNTIL THE POTENTIAL FOR EROSION HAS BEEN ELIMINATED. IF SEDIMENT CONTROLS ARE OVERLOADED (BASED ON FREQUENT FAILURE OR EXCESSIVE MAINTENANCE), ADDITIONAL UPGRADIENT OR REDUNDANT BMPS SHALL BE PLACED.

2. SEDIMENT CONTROL DEVICES SHALL BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. SEDIMENT CONTROL DEVICES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   A. PERIMETER CONTROL SHALL BE LOCATED ON THE CONTOUR TO CAPTURE OVERLAND, LOW-VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS. THE BMP SHALL BE J-HOOKED AT A MAXIMUM OF 100 FOOT INTERVALS AND EACH SECTION SHALL CONTAIN NO MORE THAN 1/4 ACRE OF DRAINAGE AREA.
   B. SEDIMENT DAMAGE FROM STOCKPILES SHALL BE MINIMIZED BY PLACING A ROW OF SUPER DUTY SILT FENCE A MINIMUM 5 FEET FROM THE TOE. IF THERE IS NOT ADEQUATE PROJECT AREA TO PLACE THE SILT FENCE MORE THAN 5 FEET FROM THE TOE OF THE SLOPE, THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE TO THE PROJECT ENGINEER FOR APPROVAL.
   C. DITCH CHECKS (IF REQUIRED) SHALL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION.
      1. TEMPORARY DITCH CHECKS (IF REQUIRED) SHALL CONSIST OF USING ROCK DITCH CHECKS, BIOLOGS AND ROCK WEEPERS IN FRONT OF CULVERT INLETS. IN LIEU OF REMOVING TEMPORARY DITCH CHECKS, THE ROCK MAY BE PUSHED INTO THE GROUND.
      2. FILTER LOGS (IF REQUIRED) SHALL BE PLACED DURING PERMANENT TURF ESTABLISHMENT AT THE INTERVALS IDENTIFIED IN THE PLAN.
   D. FLOTATION SILT CURTAIN MAY BE USED AS PERIMETER CONTROL BUT ONLY FOR WORK ON THE SHORELINE OR BELOW THE WATERLINE. IMMEDIATELY AFTER THE CONSTRUCTION IN THE AREA IS COMPLETE, AN UPLAND BMP SHALL BE PLACED IF EXPOSED SOILS CONTINUE TO DRAIN TO THE SURFACE WATER.
   E. TEMPORARY SEDIMENT BASINS ARE REQUIRED WHERE TEN OR MORE ACRES DRAIN TO A COMMON LOCATION (FIVE IF DRAINING TO A SPECIAL OR IMPAIRED WATER).
      1. BASIN VOLUME SHALL BE A MINIMUM OF 1,800 CUBIC FEET PER ACRE OF DRAINAGE AREA TO THE BASIN (3,600 CUBIC FEET PER ACRE IF NO CALCULATIONS ARE PERFORMED)
      2. OUTLET SHALL ALLOW COMPLETE DRAWDOWN FOR MAINTENANCE AND A STABILIZED OVERFLOW. THE OUTLET SHALL WITHDRAW WATER FROM THE SURFACE EXCEPT DURING FROZEN CONDITIONS.
      3. IF A TEMPORARY BASIN OF THE REQUIRED SIZE IS INFEASIBLE THE REASONS SHALL BE DOCUMENTED IN THE SWPPP AND ALTERNATE BMPS SHALL BE PLACED.

3. PRESERVE A NATURAL BUFFER OF AT LEAST 50 FEET (100 FEET IF WITHIN 1 MILE OF AND DRAINS TO A SPECIAL OR IMPAIRED WATER) BETWEEN DISTURBED AREAS AND FLOWS TO A SURFACE WATER (NOT REQUIRED AT DITCHES OR STORMWATER CONVEYANCE CHANNELS, STORM DRAIN INLETS OR SEDIMENT BASINS). IF A BUFFER IS INFEASIBLE, PROVIDE AS LARGE A BUFFER AS POSSIBLE AND REDUNDANT SEDIMENT CONTROLS.

4. STORM SEWER INLETS SHALL BE PROTECTED AT ALL TIMES WITH THE APPROPRIATE INLET PROTECTION FOR EACH SPECIFIC PHASE OF CONSTRUCTION. PROVIDE INLET PROTECTION DEVICES WITH EMERGENCY OVERFLOW CAPABILITIES. SILT FENCE PLACED IN THE INLET GRATE IS NOT AN ACCEPTABLE INLET PROTECTION BMP FOR GRADING OPERATIONS (THIS BMP SHALL BE ACCEPTED ONLY FOR SHORT INTERVALS DURING MILLING OR PAVING OPERATIONS). INLET PROTECTION DEVICES MAY NEED TO BE PLACED MULTIPLE TIMES IN THE SAME LOCATION OVER THE LIFE OF THE CONTRACT. INLET PROTECTION DEVICES SHALL BE PAID FOR ONCE PER INLET REGARDLESS OF THE NUMBER OF TIMES THE BMP IS PLACED. ALL STORM SEWER INLET PROTECTION DEVICES SHALL BE KEPT IN GOOD FUNCTIONAL CONDITION AT ALL TIMES. IF THE PROJECT ENGINEER DEEMS AN INLET PROTECTION DEVICE TO BE NONFUNCTIONAL, IN POOR CONDITION, INEFFECTIVE OR NOT APPROPRIATE FOR THE CURRENT CONSTRUCTION ACTIVITIES IT SHALL BE REPLACED WITH A SUITABLE ALTERNATIVE AT NO COST TO THE OWNER. FAILURE TO PERFORM SHALL RESULT IN DEDUCT.

STABILIZATION AND SEDIMENT CONTROL NOTES (CONT.)

5. PAVEMENT SURFACES SHALL BE SWEPT WITHIN 24 HOURS OF DISCOVERY OF SEDIMENT OR TRACKING ONTO PAVEMENT THAT DRAINS TO CURB, INLETS, DITCHES OR PONDS. PAVEMENT SHALL BE LIGHTLY WETTED PRIOR TO SWEEPING. THIS WORK IS INCIDENTAL.

6. OUTLETS INTO SURFACE WATERS SHALL BE STABILIZED WITH ENERGY DISSIPATION WITHIN 24 HOURS OF BEING CONSTRUCTED.

7. DITCHES AND EXPOSED SOILS SHALL BE KEPT IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES AND BLANKETS.

8. INITIATE STABILIZATION OF ALL EXPOSED SOIL AND STOCKPILE AREAS IMMEDIATELY AFTER CONSTRUCTION ACTIVITY ON THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY OR PERMANENT STABILIZATION SHALL BE COMPLETED WITHIN NO MORE THAN 14 DAYS (7 DAYS IF IT IS WITHIN 1 MILE OF AND DRAINS TO A SPECIAL OR IMPAIRED WATER). ALL EXPOSED SOIL WITHIN 200 LINEAL FEET OF AND DRAINING TO A PUBLIC WATER WITH "WORK IN WATER RESTRICTIONS" AND DURING SPECIFIED FISH SPAWNING TIME FRAMES, SHALL BE STABILIZED WITHIN 24 HOURS. IN MANY INSTANCES, THIS SHALL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING ROUGH GRADING. RAPID STABILIZATION METHOD 3 SHALL BE USED TO PROVIDE TEMPORARY COVER IN THESE AREAS AS APPROPRIATE. SUBSTITUTE SEED MIXTURE 21-112 OR 21-111 FOR THE SPECIFIED SEED MIXTURE AS APPROPRIATE FOR THE SEASON. SEE PERMIT SECTION IV.B. FOR EXCEPTIONS.

9. THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE CONSTRUCTION SITE, SHALL BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE OR POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION SHALL OCCUR WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, EXISTING GUTTER, STORM SEWER INLET, DRAINAGE DITCH, OR OTHER STORMWATER CONVEYANCE SYSTEM ACCORDING TO SPEC 1717.2. RAPID STABILIZATION METHOD 4 SHALL BE USED TO STABILIZE THESE AREAS (SUBSTITUTE SEED MIXTURE 21-112 OR 21-111 FOR THE SPECIFIED SEED MIXTURE AS APPROPRIATE FOR THE SEASON). THE REMAINDER OF THE DITCH SHALL BE STABILIZED WITHIN 14 DAYS (7 DAYS IF IT IS WITHIN 1 MILE OF AND DRAINS TO A SPECIAL OR IMPAIRED WATER)OF CONNECTING TO THE SURFACE WATER. PERMANENT EROSION CONTROL BLANKET OR RAPID STABILIZATION METHOD 4 (SUBSTITUTE SEED MIXTURE 21-112 OR 21-111 FOR THE SPECIFIED SEED MIXTURE AS APPROPRIATE FOR THE SEASON) SHALL BE USED TO STABILIZE THESE AREAS. DISC ANCHORED MULCH AND HYDRAULIC SOIL STABILIZERS ARE NOT ALLOWED TO BE USED FOR DITCH STABILIZATION.

10. ALL EXPOSED SOIL AREAS SHALL BE STABILIZED PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED SHALL BE SNOW MULCHED, SEEDED, OR BLANKETED WITHIN THE TIME FRAMES LISTED IN THE MPCAS GENERAL NPDES CONSTRUCTION STORMWATER PERMIT.

11. ALL TOPSOIL BERMS SHALL BE STABILIZED AS FOLLOWS:
    A. BETWEEN APRIL 1 - AUGUST 31, SEED WITH SEED MIXTURE 21-111
    B. BETWEEN SEPTEMBER 1 AND MARCH 31, SEED WITH SEED MIXTURE 21-112 AND TOP WITH RAPID STABILIZATION 2.

12. TILLING FOR BEDS OR TREE HOLES SHALL BE PLANTED AND MULCHED WITH WOODCHIP WITHIN 7 DAYS OR STRAW MULCHED UNTIL PLANTING OPERATIONS CAN BE COMPLETED. FILTER LOGS SHALL BE PLACED, AS NEEDED, TO TRAP SEDIMENT ON THE LOWER EDGE OF BEDS OR TREE HOLES. FILTER LOGS SHALL BE LEFT TO PHOTO DEGRADE.

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY P. ENGELMEYER

CHECKED BY J. NIELSEN

COMM. NO. 0158933

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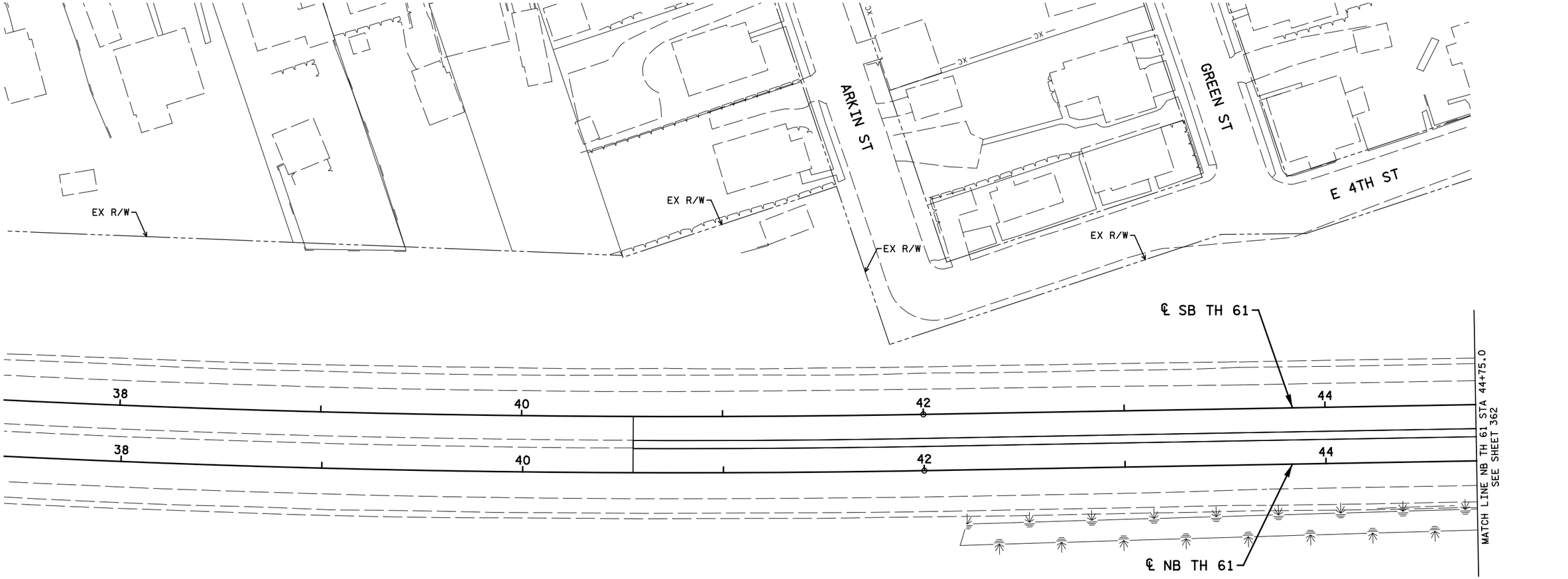
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STORM WATER POLLUTION PREVENTION PLAN

SP 2515-21 (TH 63)

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LEGEND

- SEED MIXTURE 35-221
- SEED MIXTURE 25-121
- SEED MIXTURE 35-421
- RIP RAP
- SOD TYPE SALT RESISTANT
- (3) EROSION CONTROL BLANKET (CATEGORY 3N)
- MULCH MATERIAL (TYPE 9)
- BR SEDIMENT CONTROL LOG TYPE WOOD FIBER
- DIRECTION OF FLOW

GENERAL NOTES:

SEE STAGING PLANS FOR ADDITIONAL EROSION CONTROL AND TEMPOTARY TURF ESTABLISHMENT MEASURES

SEE CONSTRUCTION/SOILS NOTES FOR TYPES OF SEEDING, MULCH AND FERTILIZER.

SEE DRAINAGE PLANS FOR PERMANENT EROSION PROTECTION AT ENDS OF PIPE APRONS AND HEADWALLS.

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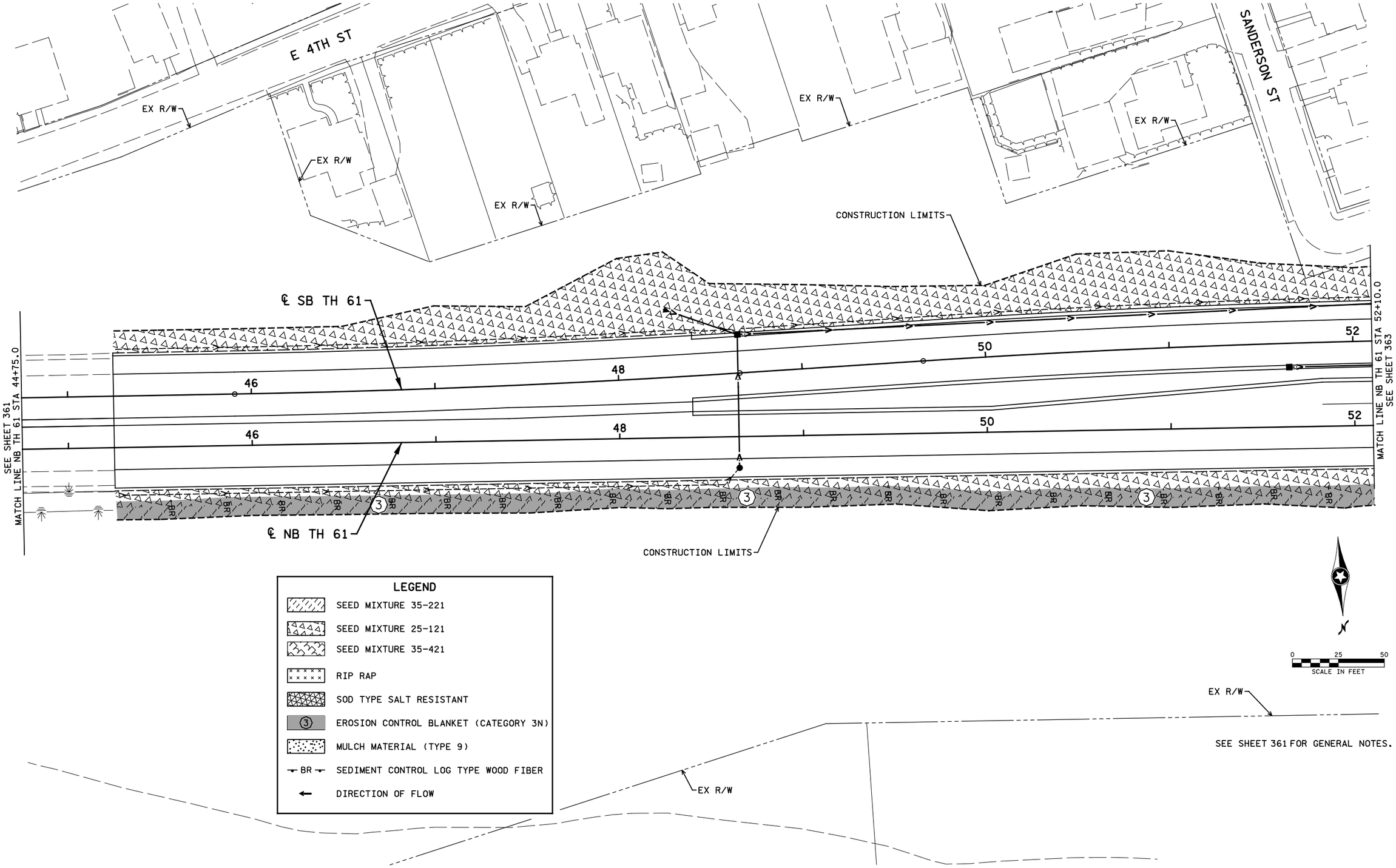
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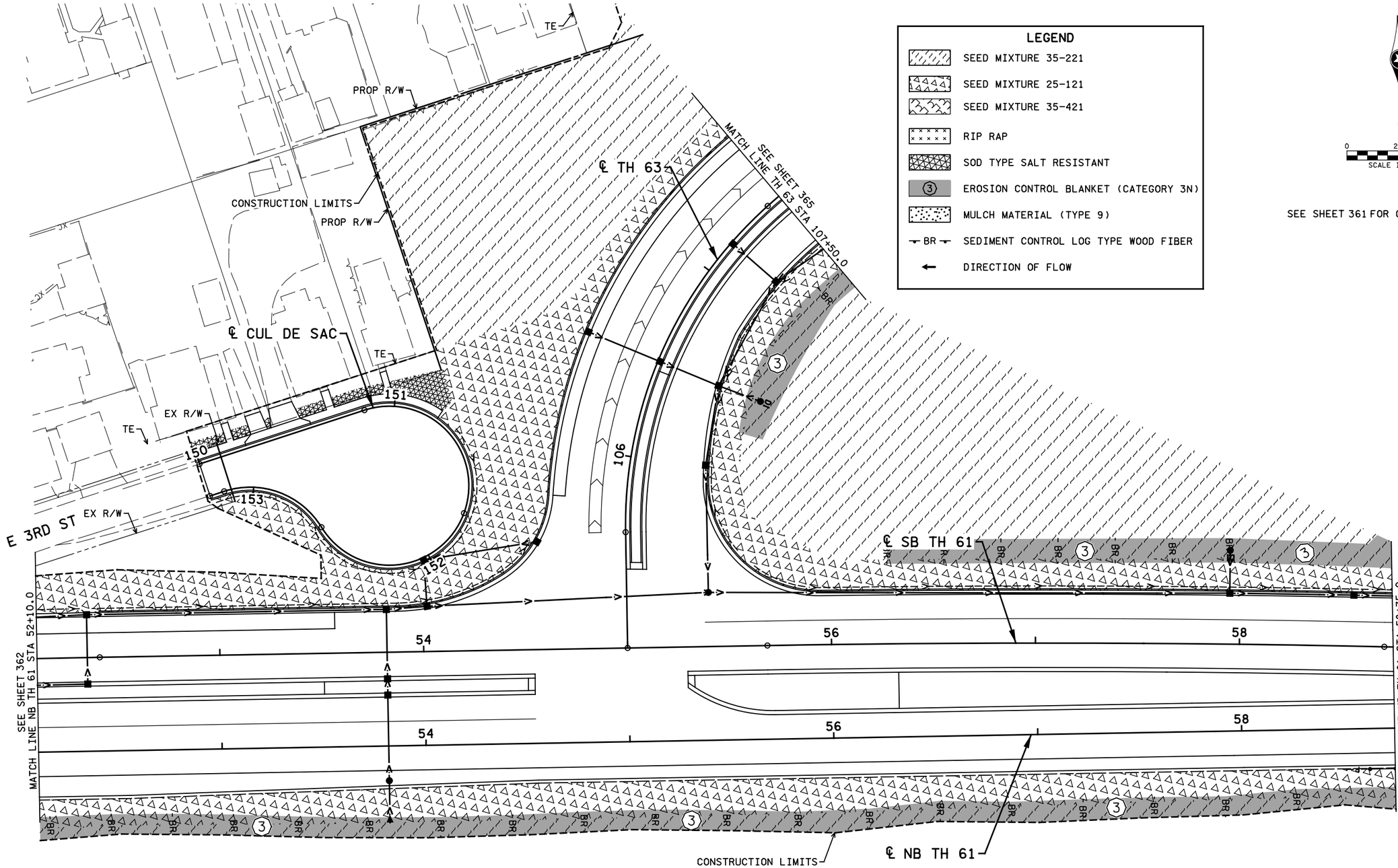
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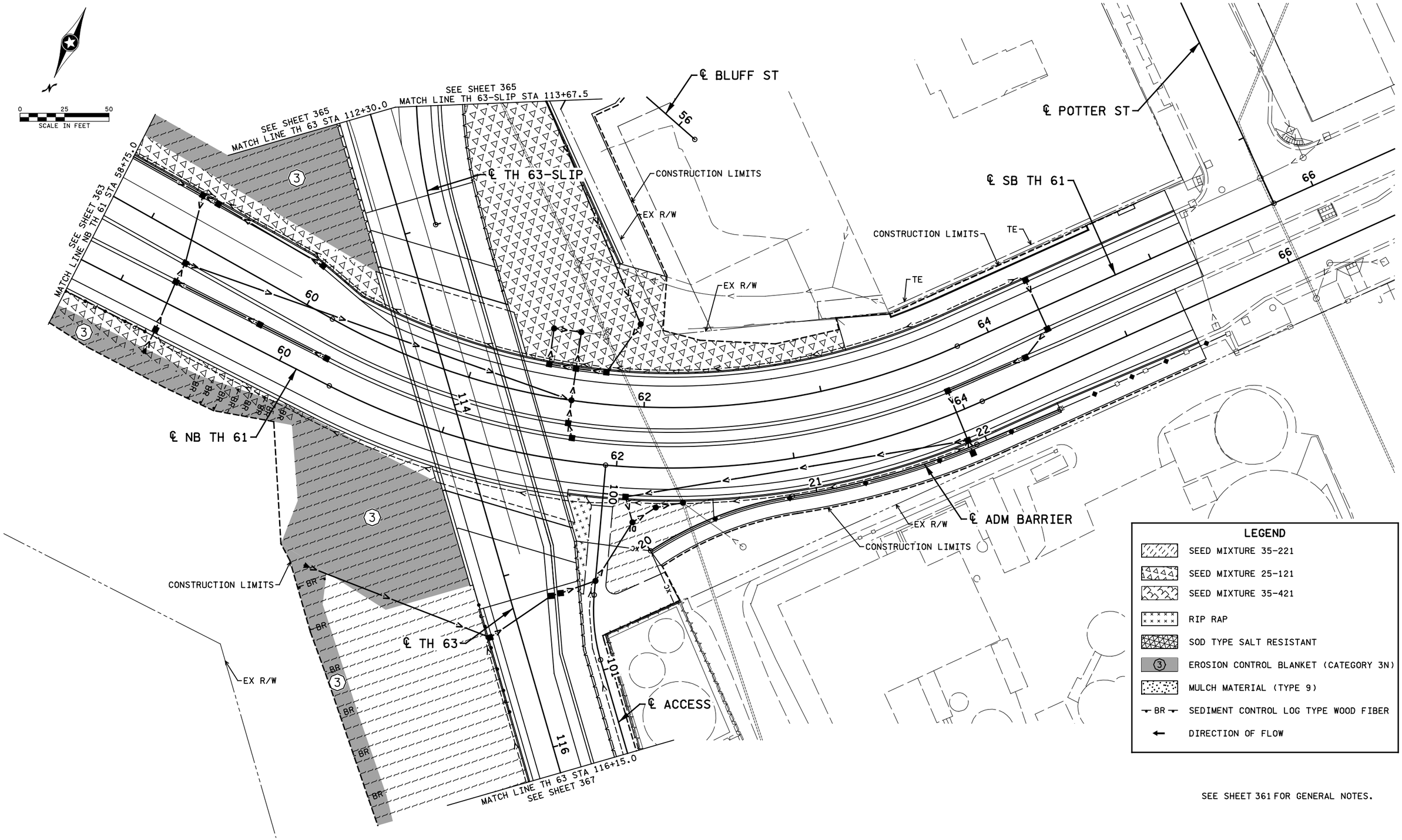
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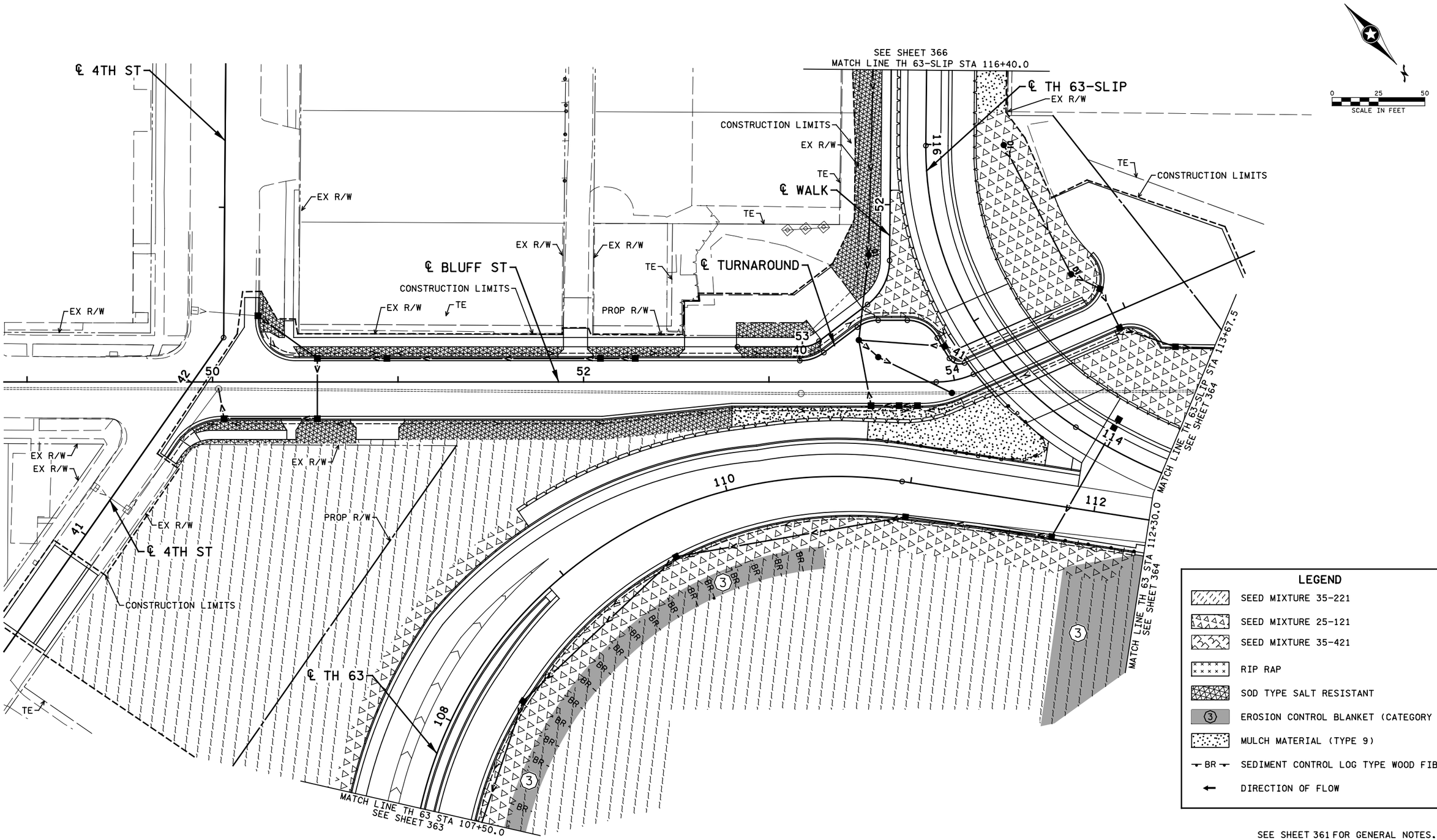
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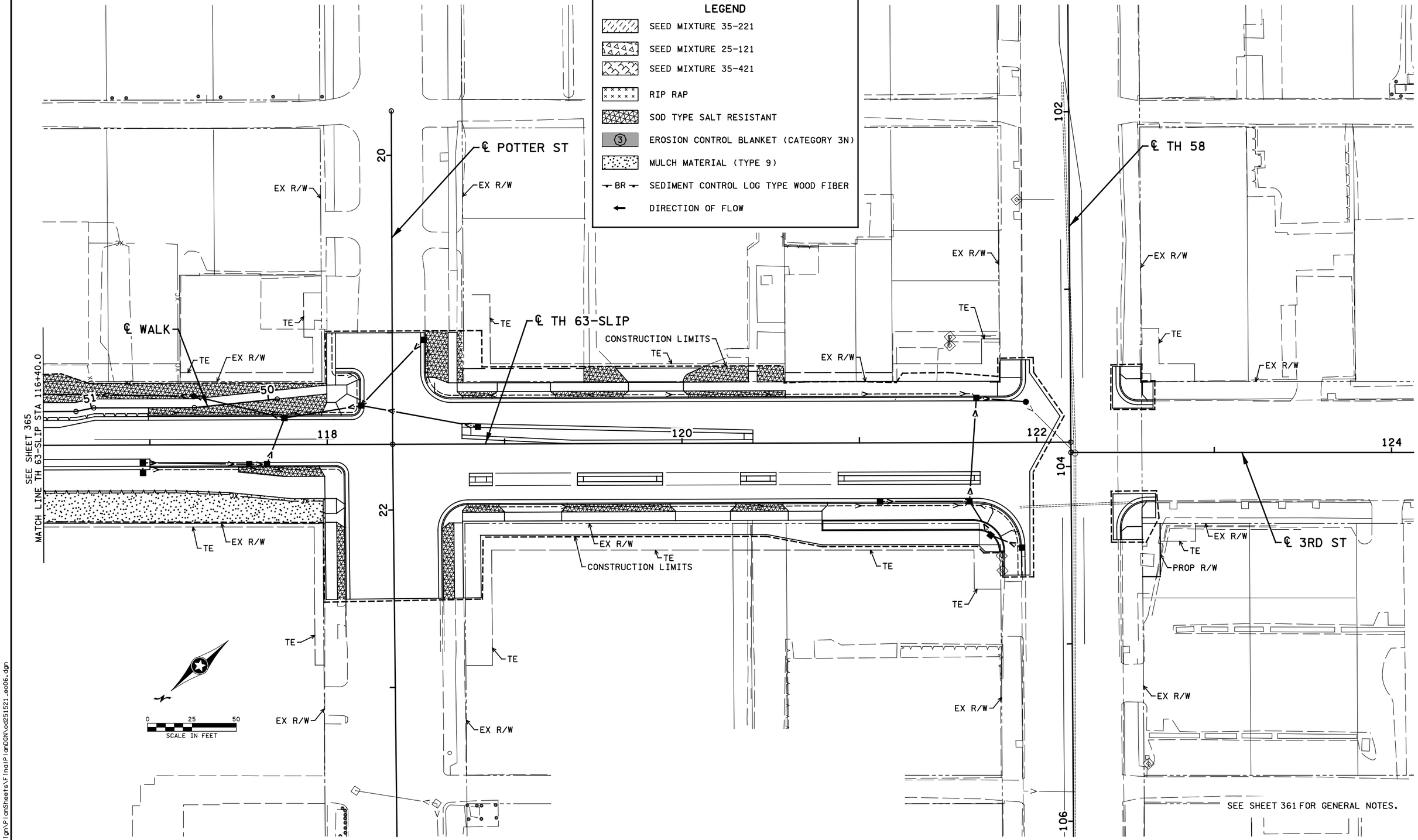
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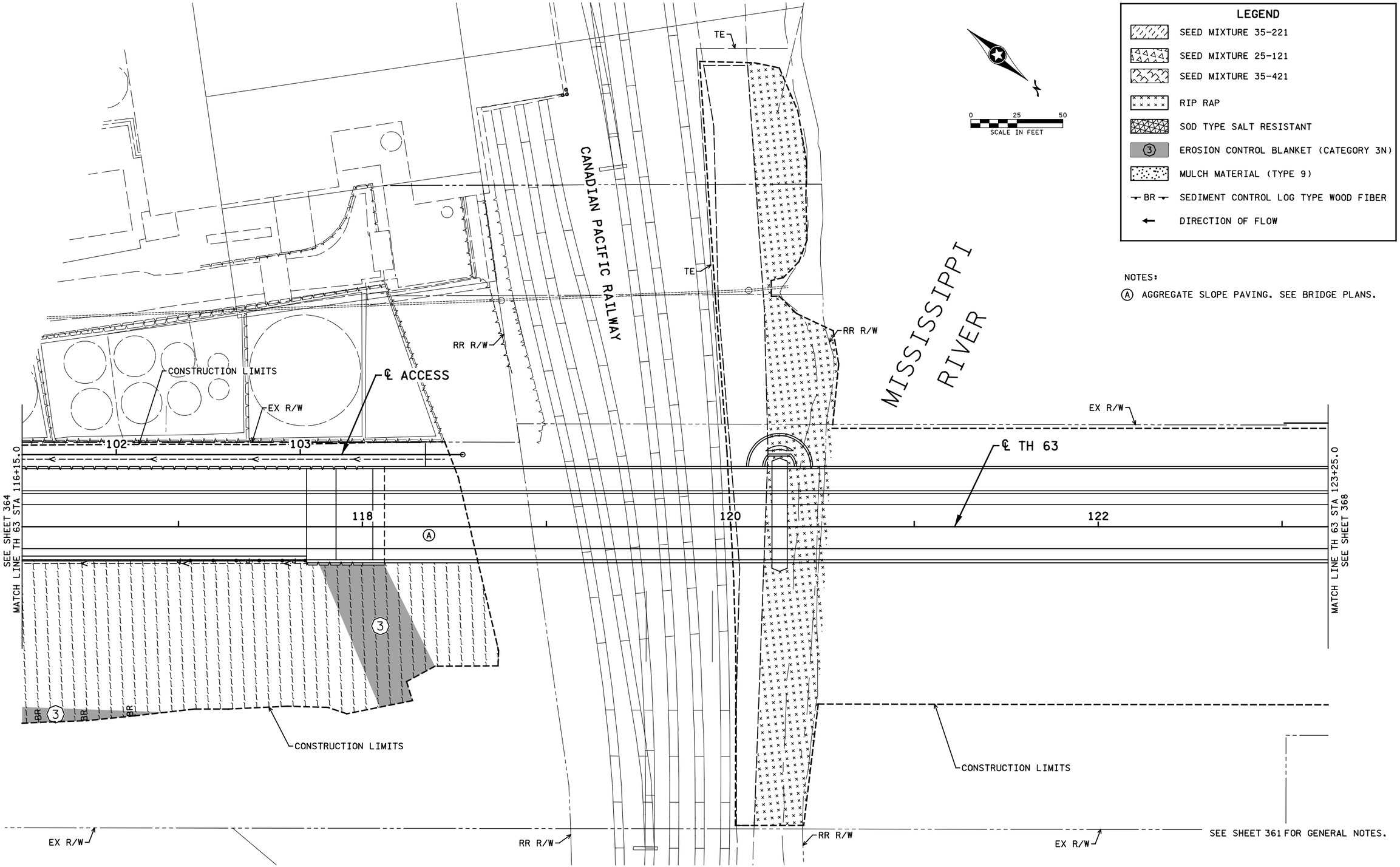
SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND TURF ESTABLISHMENT PLANS
SP 2515-21 (TH 63)

SHEET 366 OF 688

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

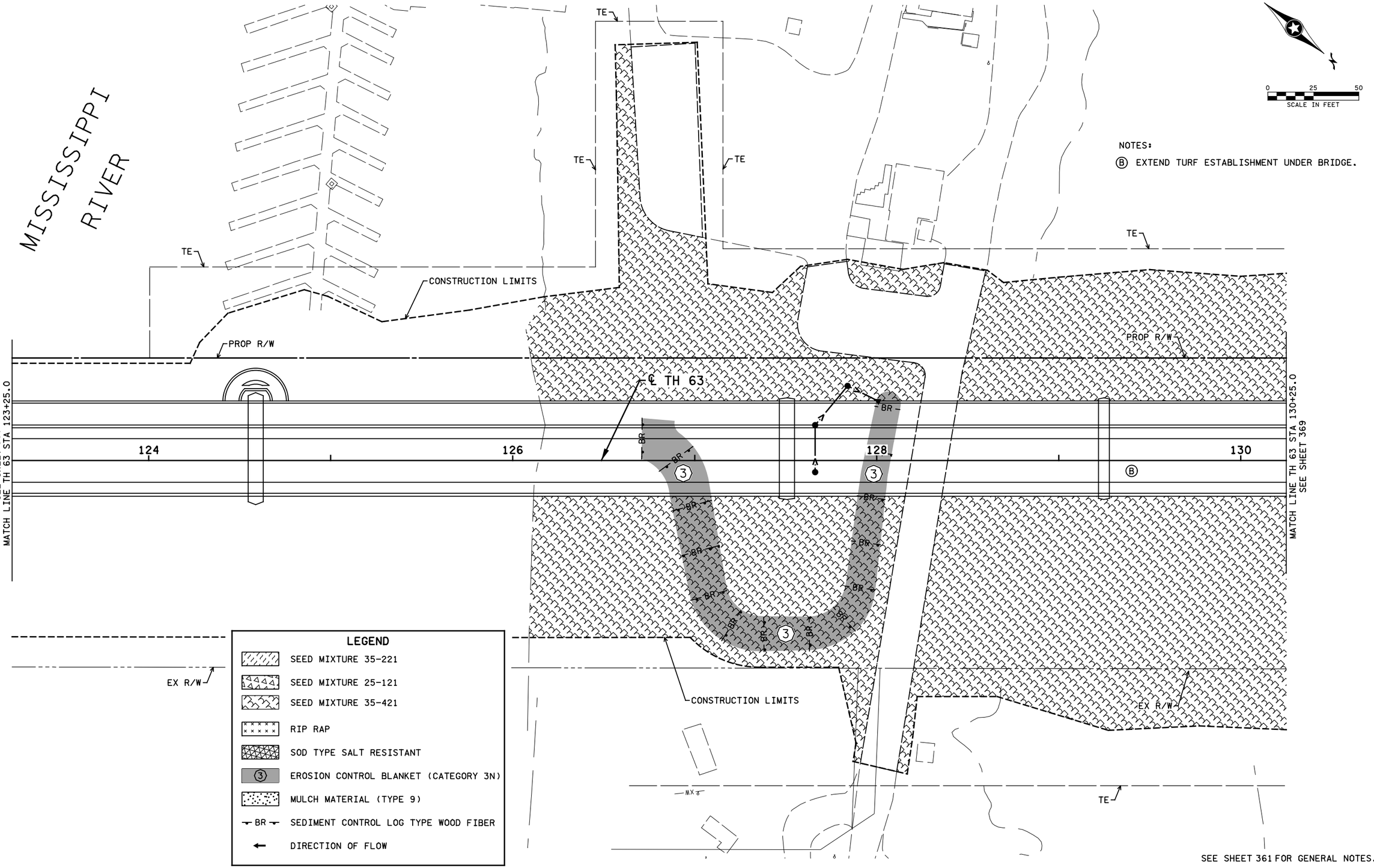
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MINNESOTA DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND TURF ESTABLISHMENT PLANS
SP 2515-21 (TH 63)

SHEET 367 OF 688

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SEE SHEET 361 FOR GENERAL NOTES.

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Date _____ License # 45039

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

SRF Consulting Group, Inc. ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND TURF ESTABLISHMENT PLANS
SP 2515-21 (TH 63)

SHEET 368 OF 688

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NOTES:

(A) AGGREGATE SLOPE PAVING. SEE BRIDGE PLANS.

(B) EXTEND TURF ESTABLISHMENT UNDER BRIDGE.

LEGEND

- SEED MIXTURE 35-221
- SEED MIXTURE 25-121
- SEED MIXTURE 35-421
- RIP RAP
- SOD TYPE SALT RESISTANT
- SOD TYPE LAWN
- (3) EROSION CONTROL BLANKET (CATEGORY 3)
- MULCH MATERIAL (TYPE 9)
- BR SEDIMENT CONTROL LOG TYPE WOOD FIBER
- DIRECTION OF FLOW

SEE SHEET 361 FOR GENERAL NOTES.

0 50 100
SCALE IN FEET

825TH ST

EX R/W

CONSTRUCTION LIMITS

℄ 825TH ST W

℄ TH 63

PROP R/W

TE

15'

℄ 825TH ST E

SEE SHEET 368
MATCH LINE TH 63 STA 130+25.0

MATCH LINE TH 63 STA 145+25.0
SEE SHEET 370

200 220 225 135 140 145 210 215

NO	DATE	BY	CKD	APPR	REVISION
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DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
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COMM. NO. 0158933

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ENGINEERS PLANNERS DESIGNERS

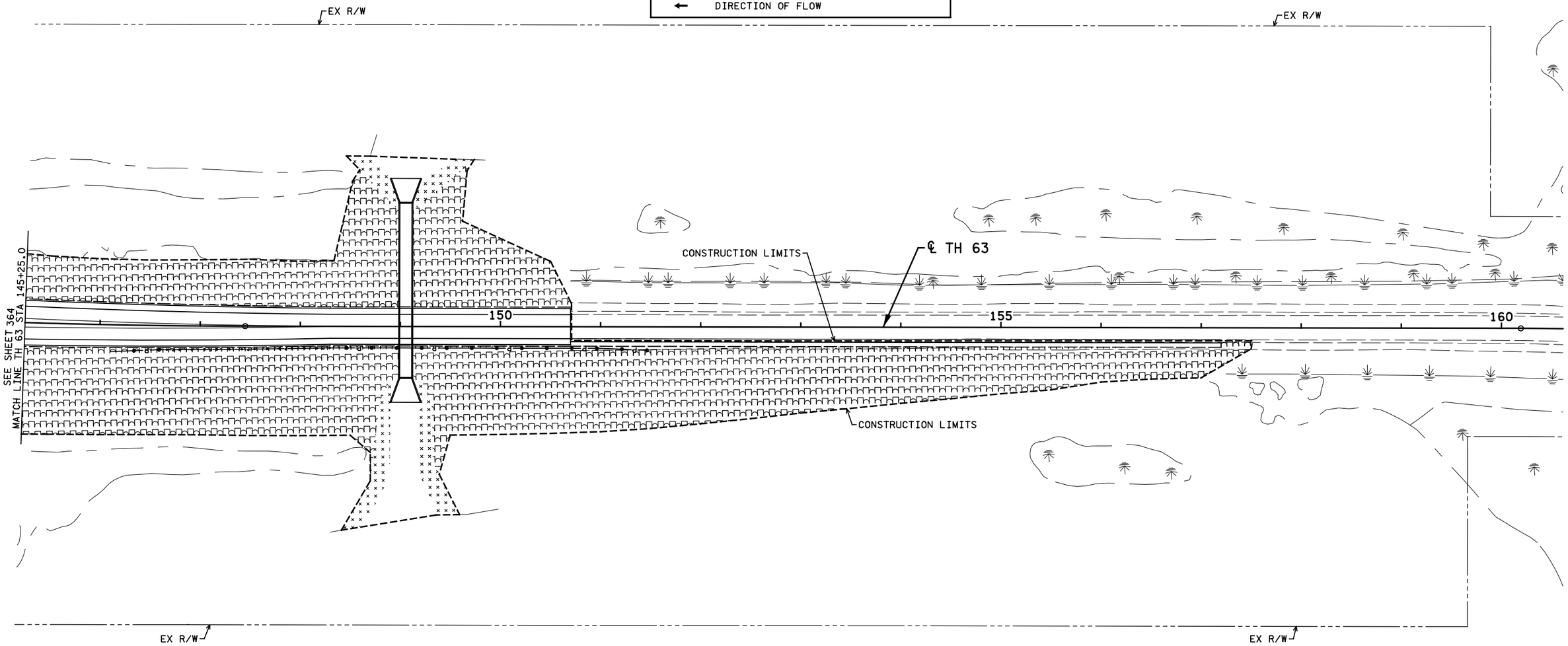
MINNESOTA DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND TURF ESTABLISHMENT PLANS
SP 2515-21 (TH 63)

LEGEND

- SEED MIXTURE 35-221
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- BR SEDIMENT CONTROL LOG TYPE WOOD FIBER
- DIRECTION OF FLOW

0 50 100
SCALE IN FEET



SEE SHEET 361 FOR GENERAL NOTES.

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MINNESOTA STATE PROJECT NO. 2515-21

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc.

ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

EROSION CONTROL AND TURF ESTABLISHMENT PLANS
SP 2515-21 (TH 63)

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PERMANENT PAVEMENT MARKING PLAN
NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A AGENCY PLACED YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 3 INCHES FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

JUST PRIOR TO THE PLACEMENT OF PAVEMENT MARKINGS THE ROAD SURFACE SHALL BE CLEANED AND FREE OF CONTAMINATION AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

APPLY ALL PAVEMENT MARKINGS AS RECOMMENDED BY THE MATERIAL MANUFACTURER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

CONTRAST MARKINGS:

STANDARD LINEAR PAVEMENT MARKINGS, CROSSWALK MARKINGS AND PAVEMENT MESSAGES WITH 1.5 INCH NON REFLECTIVE BLACK BORDERS.

PAINT:

GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 8 LBS/GAL. IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES IS 50°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

EPOXY:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE.

APPLY EPOXY MARKINGS WITH A MINIMUM THICKNESS OF 20 MILS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES ARE 40°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

PREFORMED MARKINGS:

MANUFACTURER CERTIFICATIONS ARE REQUIRED FOR INSTALLERS.

DO NOT USE LINE MATERIAL TO PIECE TOGETHER WIDER LINES, LETTERS, SYMBOLS, OR CROSSWALK BLOCKS

PREFORMED MARKINGS GROUND IN APPLICATION:

CONCRETE PAVEMENT SURFACES AND BITUMINOUS PAVEMENT SURFACES WHERE PAVEMENT MARKINGS CANNOT BE INLAID IN THE HOT MAT, SHALL HAVE A RECESS GROUND IN FOR THE PLACEMENT OF DURABLE REFLECTORIZED PAVEMENT MARKINGS. SEE CONSTRUCTION SPECIFICATIONS.

PREFORM TAPE INLAY APPLICATION:

MAT TEMPERATURE SHALL BE CHECKED USING A THERMOMETER TO MAKE SURE THE INLAY IS BEING DONE IN THE PROPER TEMPERATURE RANGE. THE TEMPERATURE SHOULD MEASURE BETWEEN 150° F (ASPHALT FIRM ENOUGH TO WALK ON) AND 120° F. APPLICATION BELOW 120° F MAY NOT GET A PROPER INLAY. INLAYS ARE NOT RECOMMENDED AFTER SEPTEMBER 15th AS THE ASPHALT COOLS TOO FAST AT THIS TIME OF THE YEAR.

NO PRIMERS ARE USED FOR INLAY APPLICATION. DO NOT PLACE LANE LINES ON AN ASPHALT SEAM. ROLLING OF ALL THE MARKINGS SHOULD BE LENGTHWISE IN THE DIRECTION THEY WERE LAID. FOR CROSSWALKS AND STOP BARS, INITIAL TAMPING WITH THE TAMPING CART IS RECOMMENDED USING ONLY 100 LBS. OF WEIGHT.

USE COMPACTION ROLLER TO EMBED (INLAY) MARKINGS INTO PAVEMENT SURFACE. USE MINIMUM SPEED AND WATER ON ROLLER. DO NOT USE VIBRATOR. IF MARKING BUCKLES OR DISTORTS SEVERELY IN FRONT OF ROLLER, MAT TEMPERATURE OR ROLLER SPEED MAY BE TOO HIGH.

DESIGNER'S NOTES:

REMOVE ALL UNNECESSARY MATERIAL NOTES FROM TITLE SHEET.

THIS SPACE MAY BE USED FOR PERMANENT PAVEMENT MARKING TABULATIONS SHEET.

DISTRICT #: $@DISTRICT@$
PLOT NAME: $$@PLOT$NAME@$$$
PATH & FILENAME: $$$@PATHFILENAME@$$$$

PERMANENT PAVEMENT MARKING PLAN INDEX

0	PERM PAVEMENT MARKING TITLE AND TABULATION
0-0	DETAILS
0-0	TYPICALS

SYMBOLS & MATERIALS LEGEND

CROSSWALK BLOCK

PAVEMENT MESSAGE (LEFT ARROW)

STRIPING KEY

CIRCLE-EPOXY

SQUARE-PREF TAPE

TRIANGLE-PAINT

OCTAGON-PREF THERMO

1ST DIGIT WIDTH	2ND DIGIT PATTERN	3RD DIGIT COLOR
4", 8", ETC.	S - SOLID B - BROKEN T - DOTTED D - DOUBLE K - DOUBLE BROKEN H - DOUBLE DOTTED	W - WHITE Y - YELLOW B - BLACK

G=GROUND IN C=CONTRAST

W=WET REFLECTIVE E=ENHANCED SKID RESISTANCE

EXAMPLE: 4SW GCW = 4" SOLID LINE WHITE PREF THERMO GROUND IN, CONTRAST, WET REFLECTIVE

I HEREBY CERTIFY THAT SHEETS 000 THROUGH 000 OF THIS PLAN WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: ENGR NAME HERE LICENSE #

DATE: $IDATE!$ SIGNATURE: .....

DESIGNER TECH NAME HERE

TITLE:

PERMANENT PAVEMENT MARKING TITLE SHEET

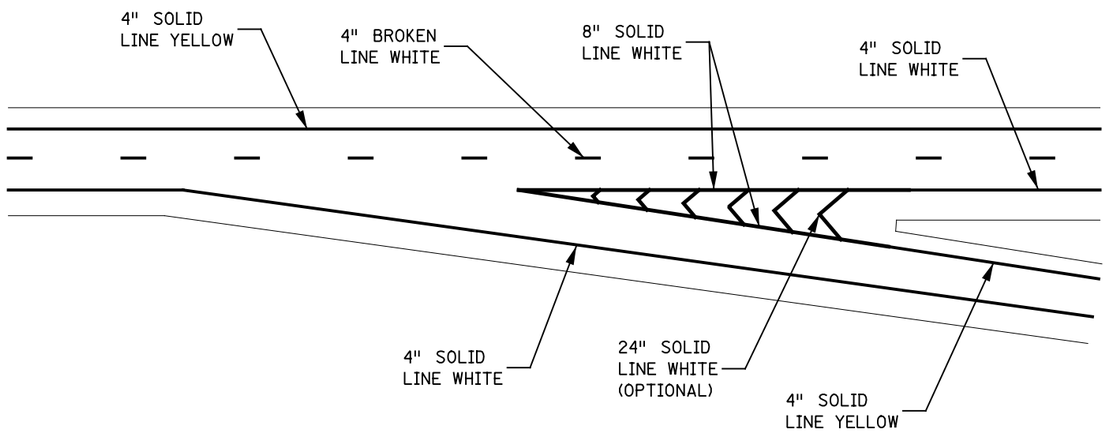
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PATH & FILENAME: $$$@PATHFILENAME@$$$

PAVEMENT MARKING TABULATION

ITEM	UNIT	QUANTITY

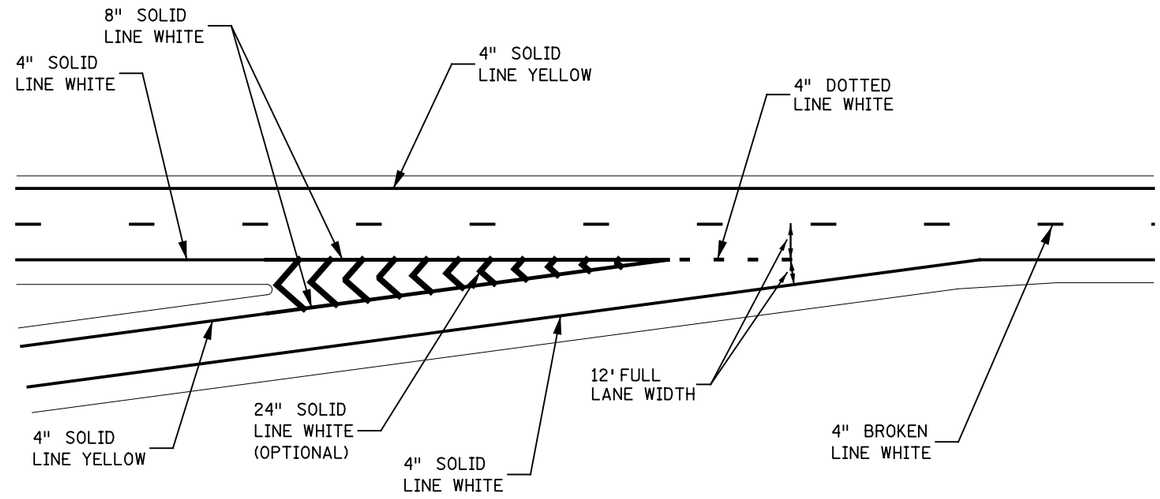
PLOTTED/REVISED: $$$$@DATE@$$$$

DOTTED AND CHANNELIZING LINE APPLICATIONS FOR EXIT RAMP WITH TAPERED DECELERATION LANE

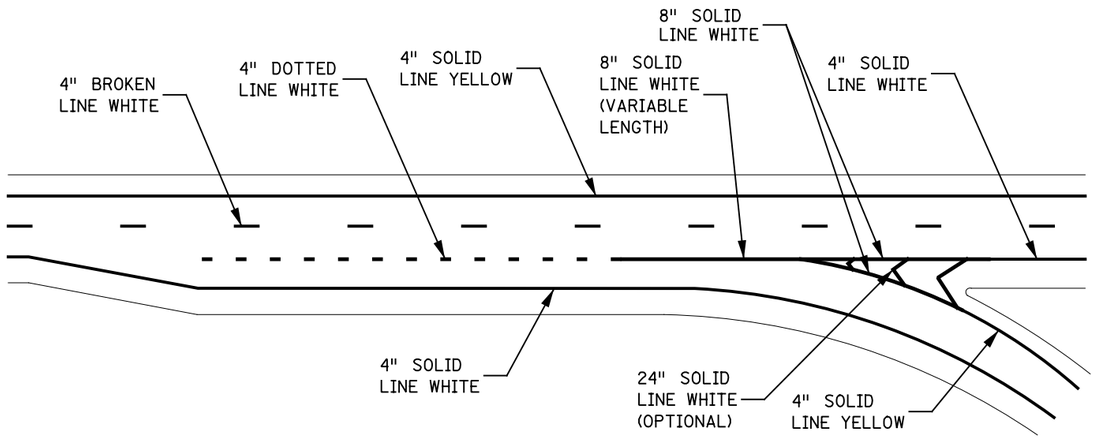


DESIGNER'S NOTE: 4" DOTTED WHITE LANE LINE IS OPTIONAL IN THE DECELERATION LANE TAPER.

DOTTED AND CHANNELIZING LINE APPLICATIONS FOR ENTRANCE RAMP WITH TAPERED ACCELERATION LANE

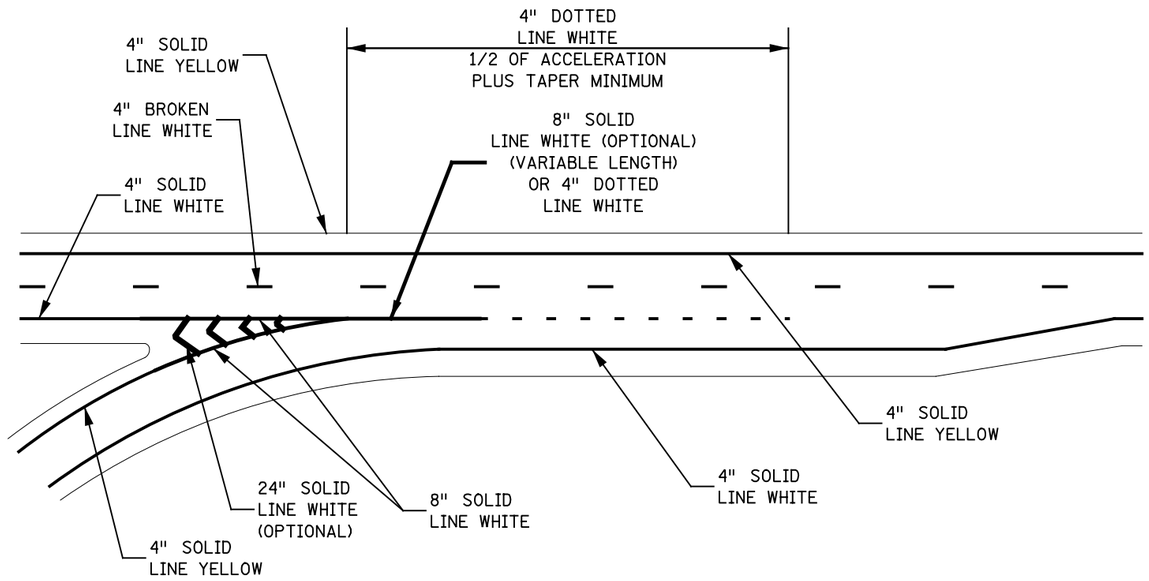


DOTTED AND CHANNELIZING LINE APPLICATIONS FOR EXIT RAMP WITH PARALLEL DECELERATION LANE



DESIGNER'S NOTE: 4" DOTTED WHITE LANE LINE IS OPTIONAL IN THE DECELERATION LANE TAPER.

DOTTED AND CHANNELIZING LINE APPLICATIONS FOR ENTRANCE RAMP WITH PARALLEL ACCELERATION LANE



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PATH & FILENAME: $$$@PATHFILENAME@$$$

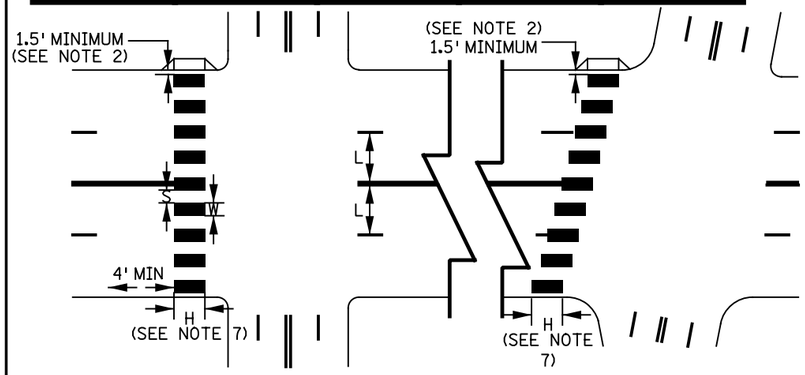
PAVEMENT MARKING TYPICALS

DRAWN BY: XXX	CHECKED BY: XXX	CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER LIC. NO. _____ DATE 06/20/2004	STATE PROJ. NO. 2515-21 (TH 63)	SHEET NO. 373 OF 688 SHEETS

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

MARKINGS FOR PEDESTRIAN CROSSWALKS

(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE	ALTERNATE (W) WIDTH OF PAINTED AREA	ALTERNATE (S) WIDTH OF SPACE
9′	2.0′	2.5′	—	—
10′	2.5′	2.5′	2.0′	3.0′
11′	2.5′	3.0′	2.0′	3.5′
12′	3.0′	3.0′	2.5′	3.5′
13′	3.0′	3.5′	—	—



DESIGNER'S NOTES:

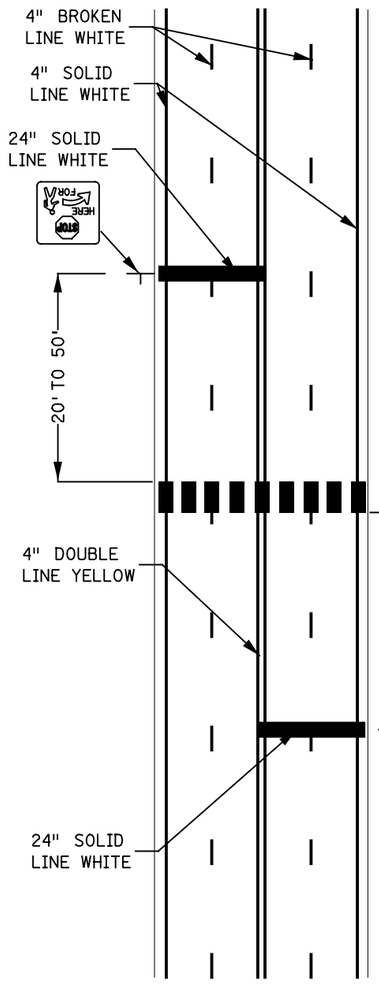
1. PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
2. A MINIMUM OF 1.5 FT. CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE. IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
3. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11 FT. INSIDE LANE.
4. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
5. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.
6. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
7. THE BLOCKS SHALL BE A MINIMUM OF 6' LONG AND AT LEAST AS LONG AS THE TRUNCATED DOMES, FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED USE PATH.
8. THE ALTERNATE (W) AND (S) MAY BE USED WHEN BLOCKS LONGER THAN 6' (H) ARE USED.

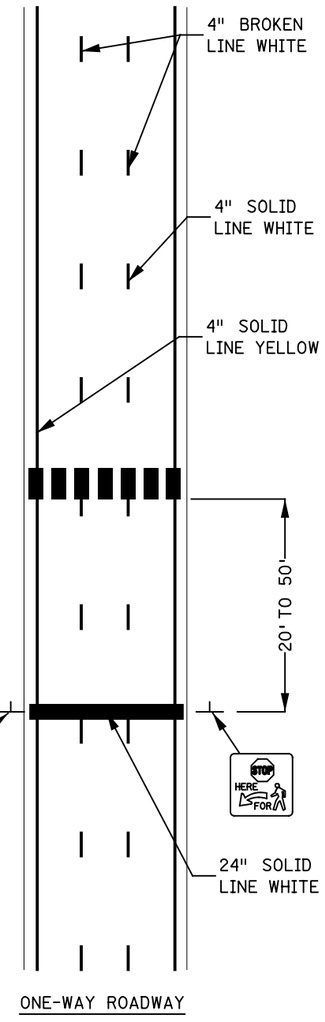
STOP LINE AT UNSIGNALIZED MID BLOCK CROSSWALKS

NOTE:
SIGN LOCATION FOR REFERENCE ONLY.

DESIGNER'S NOTES:
SEE "MARKINGS FOR PEDESTRIAN CROSSWALKS" TYPICAL FOR PLACEMENT AND DIMENSIONS OF CROSSWALKS.

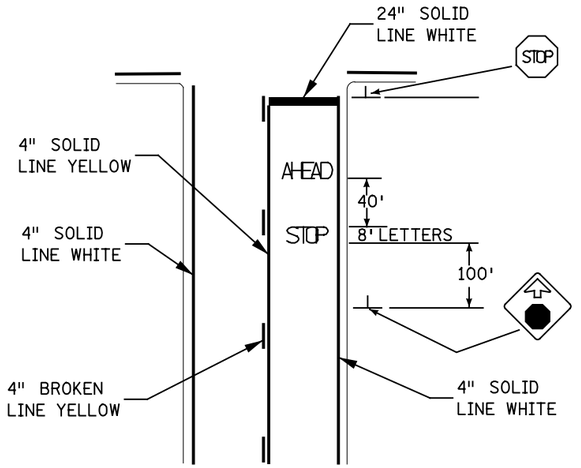
TWO-WAY ROADWAY





ONE-WAY ROADWAY

STOP LINE AND "STOP AHEAD"



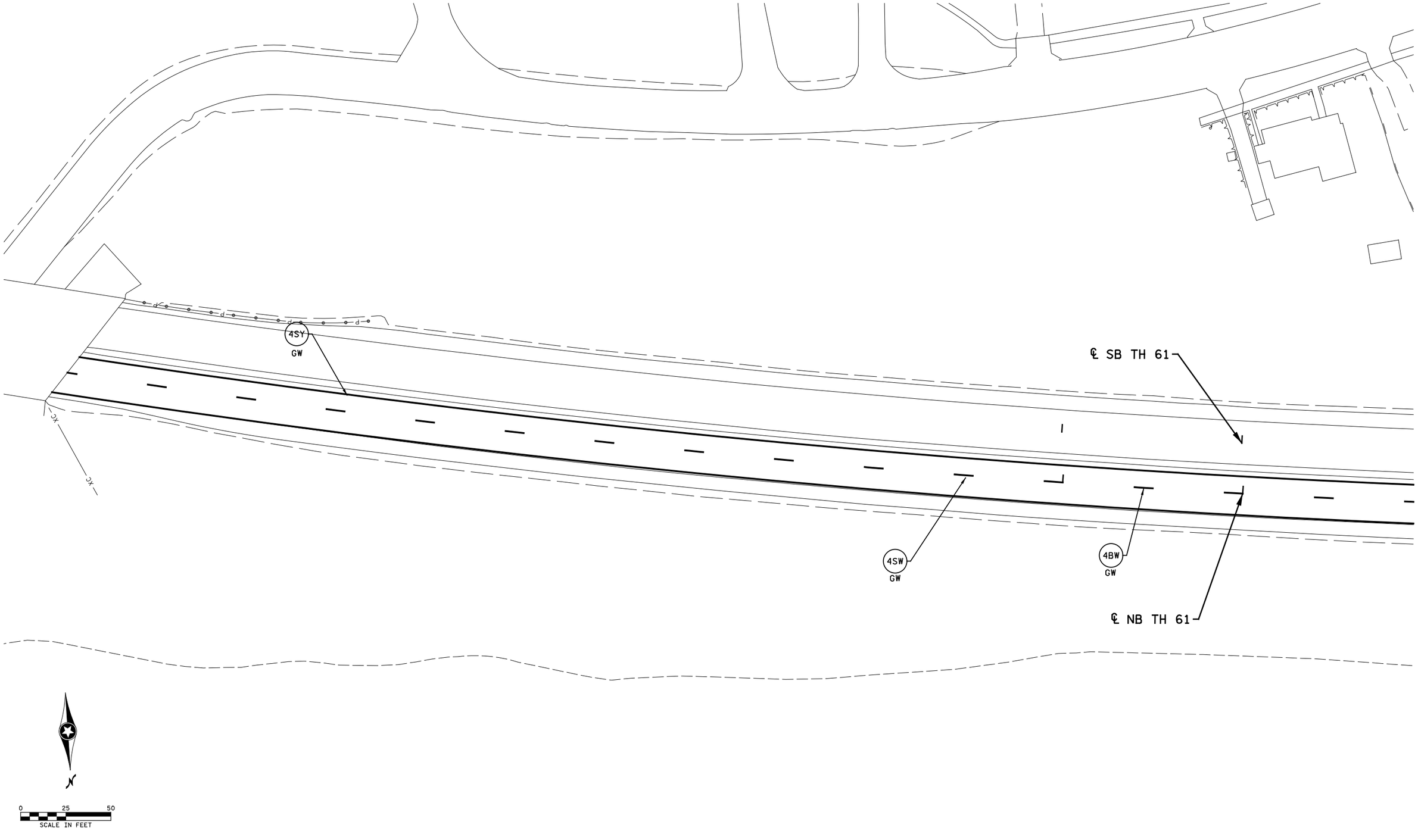
NOTES:

1. DO NOT PLACE A STOP AHEAD PAVEMENT MESSAGE IF THE INTERSECTION HAS ADEQUATE LIGHTING.
2. PLACE ONLY ONE SET OF STOP AHEAD PAVEMENT MESSAGES. IF A STOP AHEAD SIGN NEEDS TO BE PLACED MORE THAN 1000 FT FROM THE STOP SIGN, CONTACT THE DISTRICT TRAFFIC ENGINEER TO DETERMINE IF, WHERE, A SECOND SET OF "STOP AHEAD" PAVEMENT MESSAGES SHOULD BE PLACED.
3. THE STOP LINE SHOULD ORDINARILY BE PLACED 4 FT IN ADVANCE OF AND PERPENDICULAR TO THE NEAREST CROSSWALK LINE. IN THE ABSENCE OF A MARKED CROSSWALK, THE STOP LINE SHOULD BE PLACED AT THE DESIRED STOPPING POINT, AND IN NO CASE NO MORE THAN 30 FT OR LESS THEN 4 FT FROM THE NEAREST EDGE OF THE INTERSECTING CURB LINE OR THE NEAR EDGE OF THE THRU LANE.
4. IF A STOP LINE IS USED IN CONJUNCTION WITH A STOP SIGN, IT SHOULD ORDINARILY BE PLACED IN LINE WITH THE STOP SIGN. HOWEVER, IF THE SIGN CANNOT BE LOCATED EXACTLY WHERE VEHICLES ARE EXPECTED TO STOP. THE STOP LINE SHOULD BE PLACED AT THE STOPPING POINT.
5. IF THE DISTANCE BETWEEN THE BEGINNING OF THE SOLID LINE YELLOW IS LESS THAN THE DISTANCES IN CHART 7.5 IN THE (TEM) FROM THE END OF A PROCEEDING SOLID LINE YELLOW IN THE SAME LANE, THE SOLID LINE SHALL BE EXTENDED BETWEEN THEM.
6. USE TABLE 7.4 IN THE (TEM) TO DETERMINE THE MINIMUM LENGTH OF A NO PASSING ZONE IN ADVANCE OF A STOP CONDITION.
7. SIGN LOCATION FOR REFERENCE ONLY.

DISTRICT #: $@DISTRICT@$
IPLOT NAME: $$@IPLOT$NAME@$$
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PAVEMENT MARKING TYPICALS

DRAWN BY: XXX	CHECKED BY: XXX	CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER	LIC. NO. _____	DATE 06/20/2004	STATE PROJ. NO. 2515-21 (TH 63)	SHEET NO. 374 OF 688 SHEETS



NO	DATE	BY	CKD	APPR	REVISION
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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: AMY DEBRUIN

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

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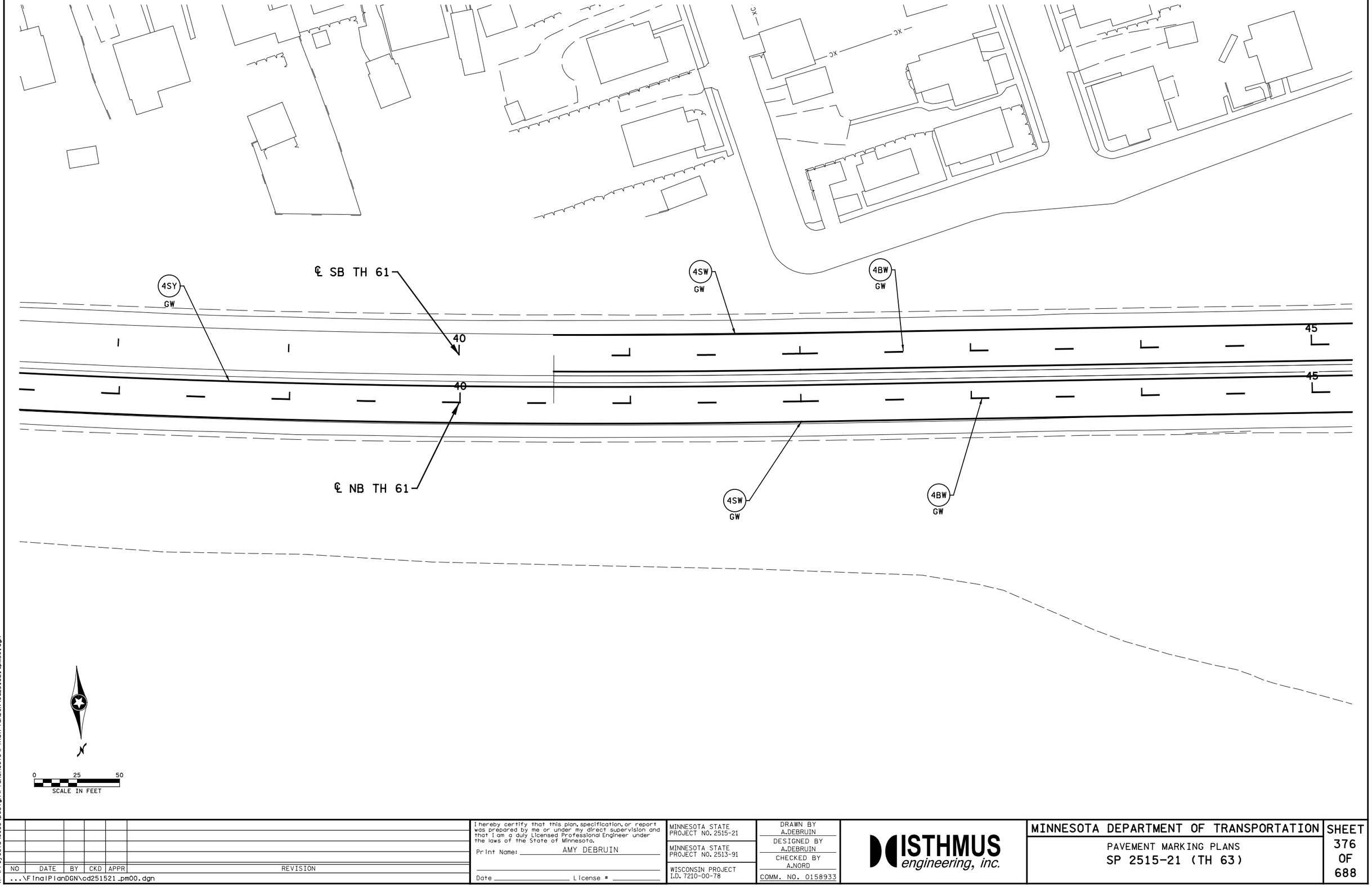
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PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

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Print Name: AMY DEBRUIN

Date _____ License # _____

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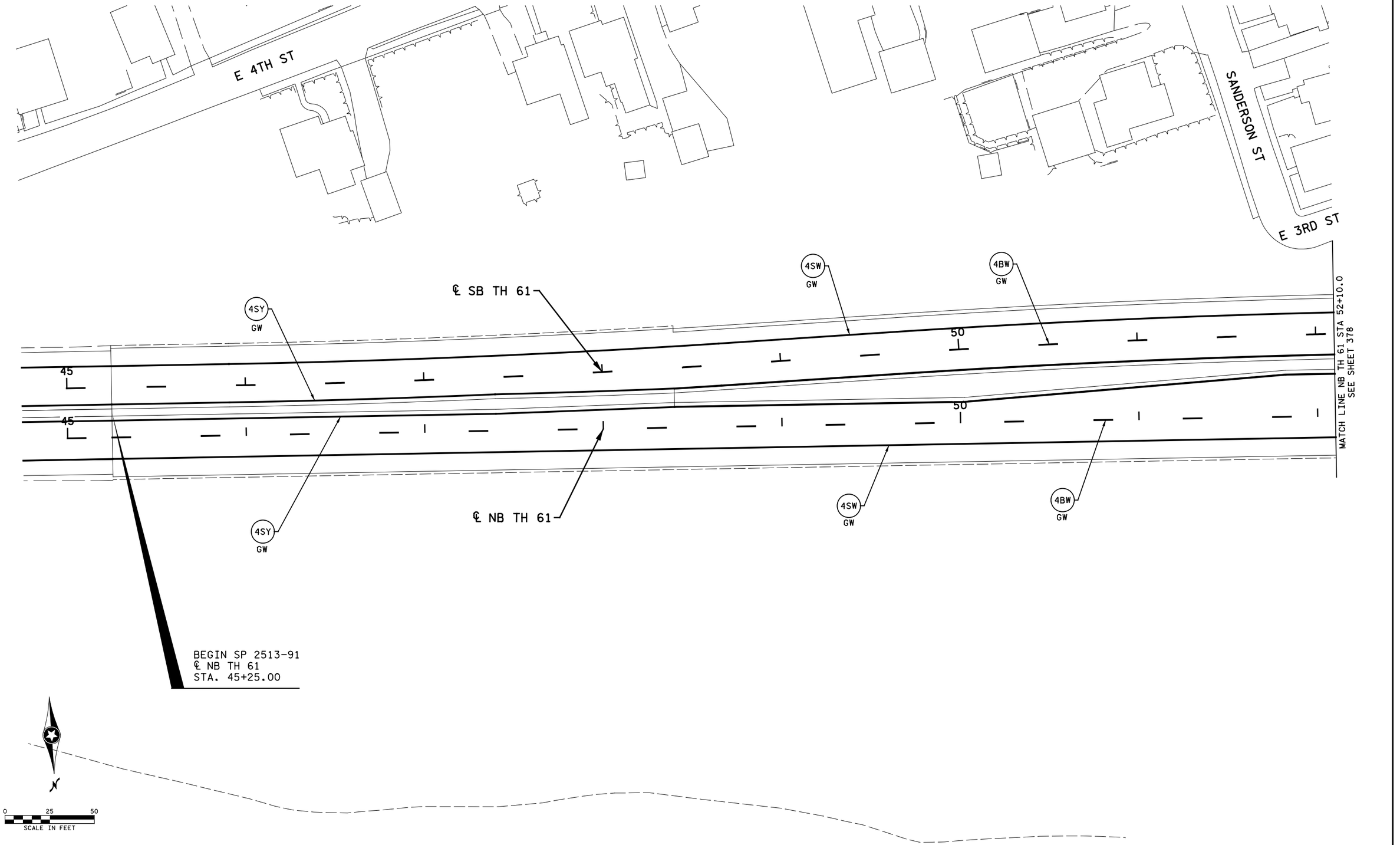
MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

SHEET 376 OF 688

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NO	DATE	BY	CKD	APPR	REVISION

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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: AMY DEBRUIN

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

COMM. NO. 0158933

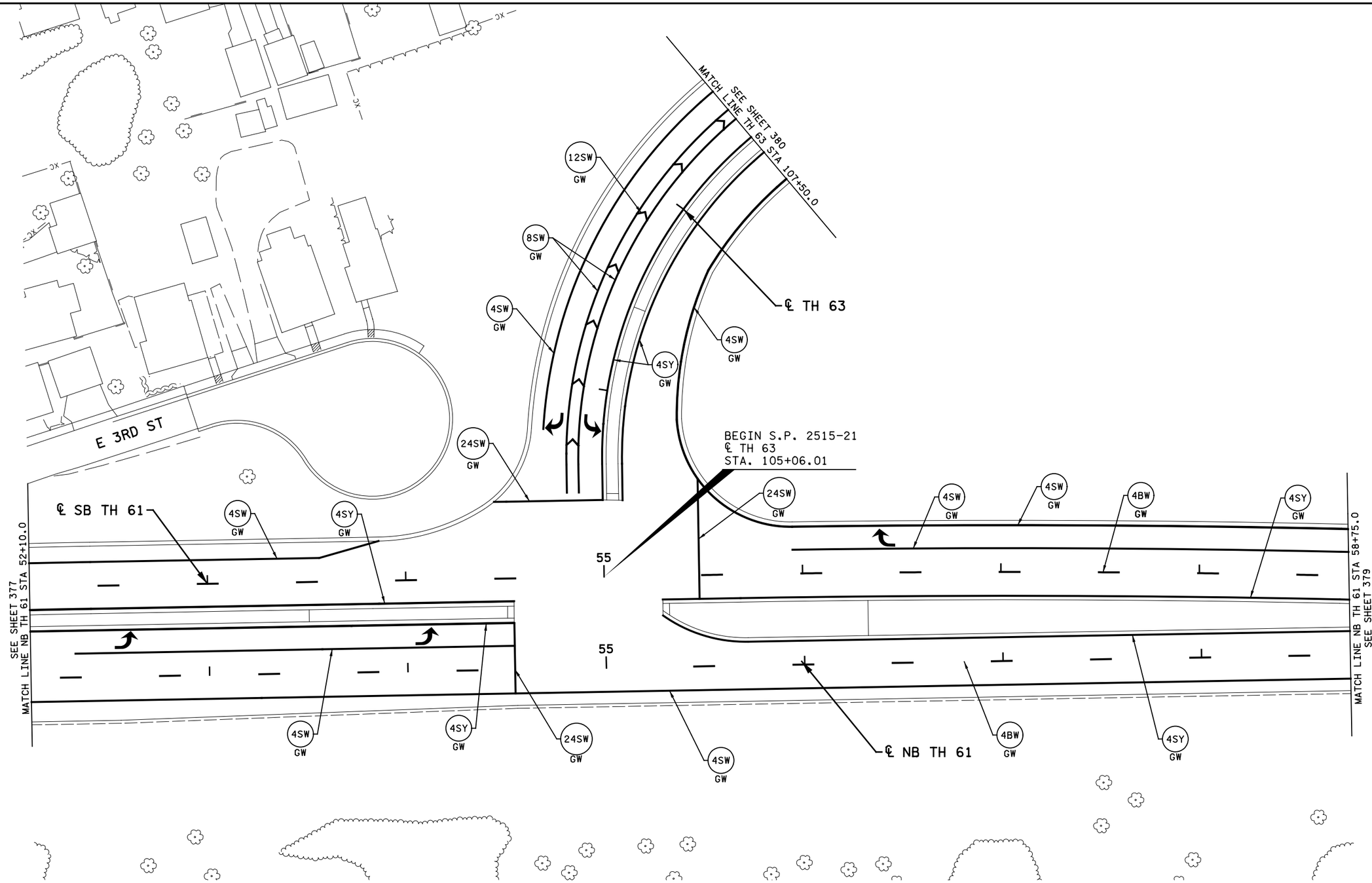
ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS
SP 2515-21 (TH 63)

SHEET 377 OF 688

11:35:45 AM
6/22/2016
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...\FinalPlanDGN\cd251521_pm02.dgn					

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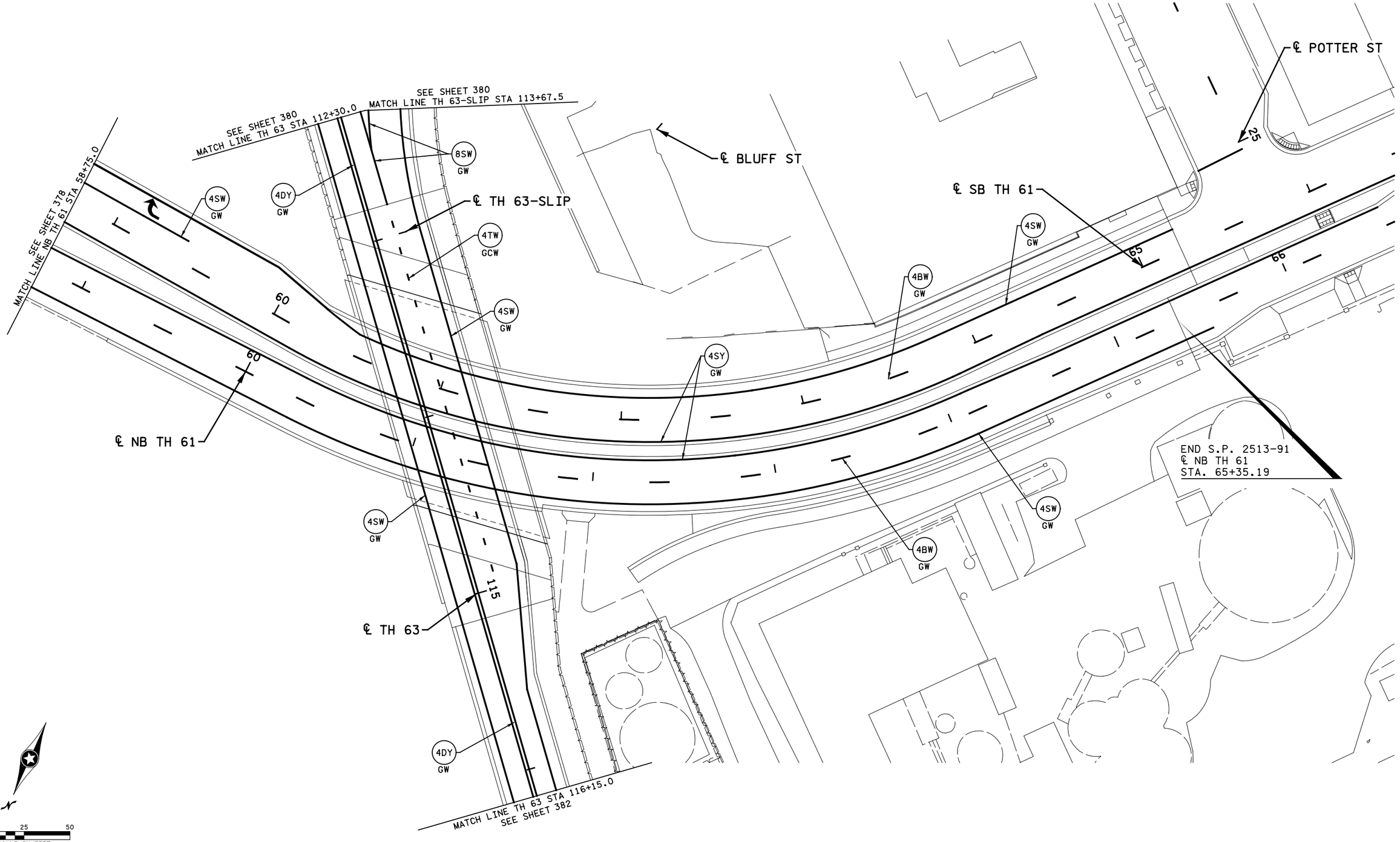
MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

SHEET 378 OF 688

11:35:45 AM
6/2/2016
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...\FinalPlanDGN\cd251521_pm03.dgn

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MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

SHEET 379 OF 688

11:35:46 AM
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SEE SHEET 381
MATCH LINE TH 63-SLIP STA 116+40.0

℄ TH 63-SLIP

℄ 4TH ST

43

50

℄ BLUFF ST

55

57

110

4SW GW

8SW GW

4SY GW

12SY GW

4DY GW

12SW GW

MATCH LINE TH 63-SLIP STA 113+67.5
SEE SHEET 379

MATCH LINE TH 63 STA 112+30.0
SEE SHEET 379

℄ 4TH ST

℄ TH 63

MATCH LINE TH 63 STA 107+50.0
SEE SHEET 378

0 25 50
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_pm04.dgn

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Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

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DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

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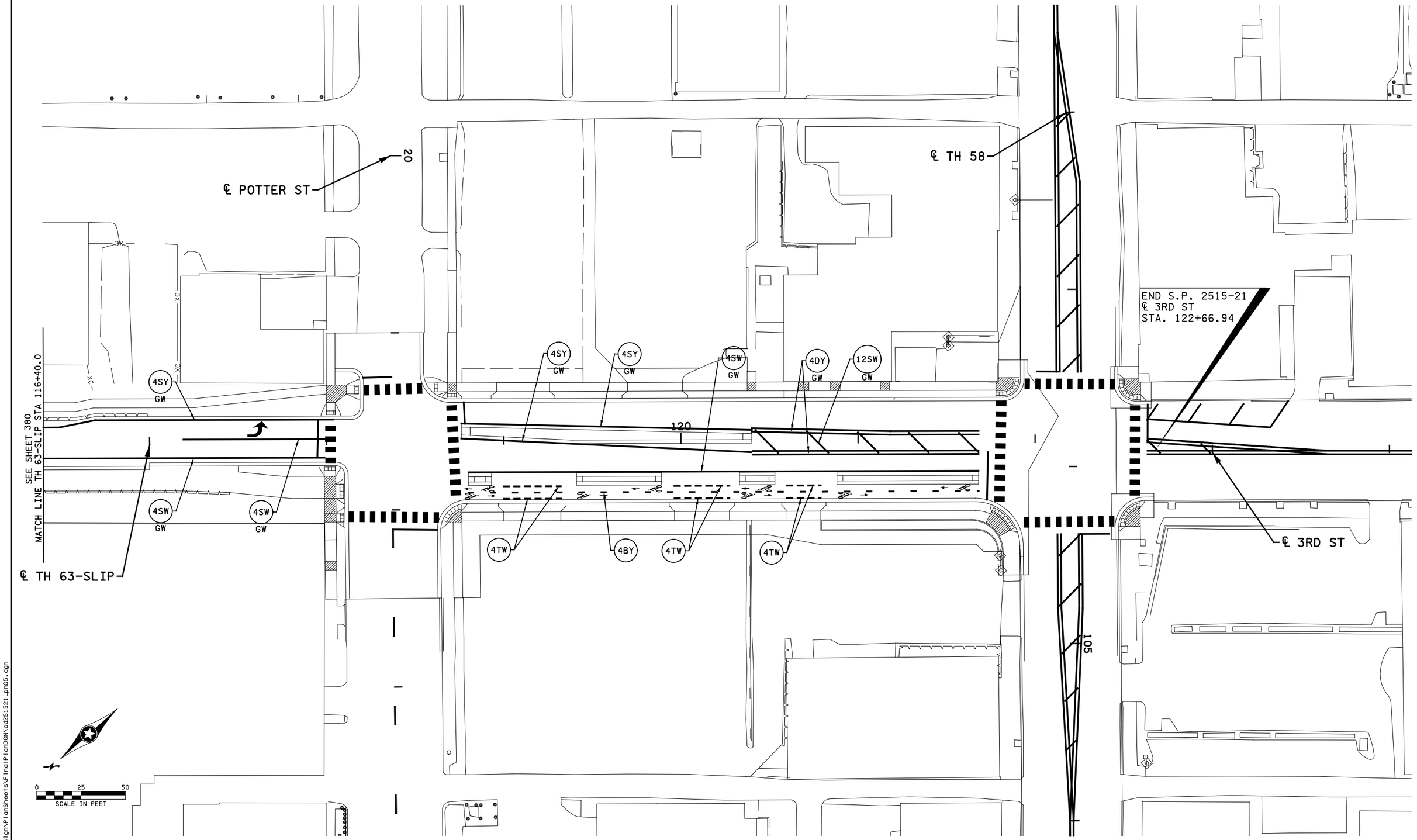
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MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS
SP 2515-21 (TH 63)

SHEET 380 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
...\FinalPlanDGN\cd251521_pm05.dgn					

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Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY A.DEBRUIN
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY A.DEBRUIN
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY A.NORD
	COMM. NO. 0158933

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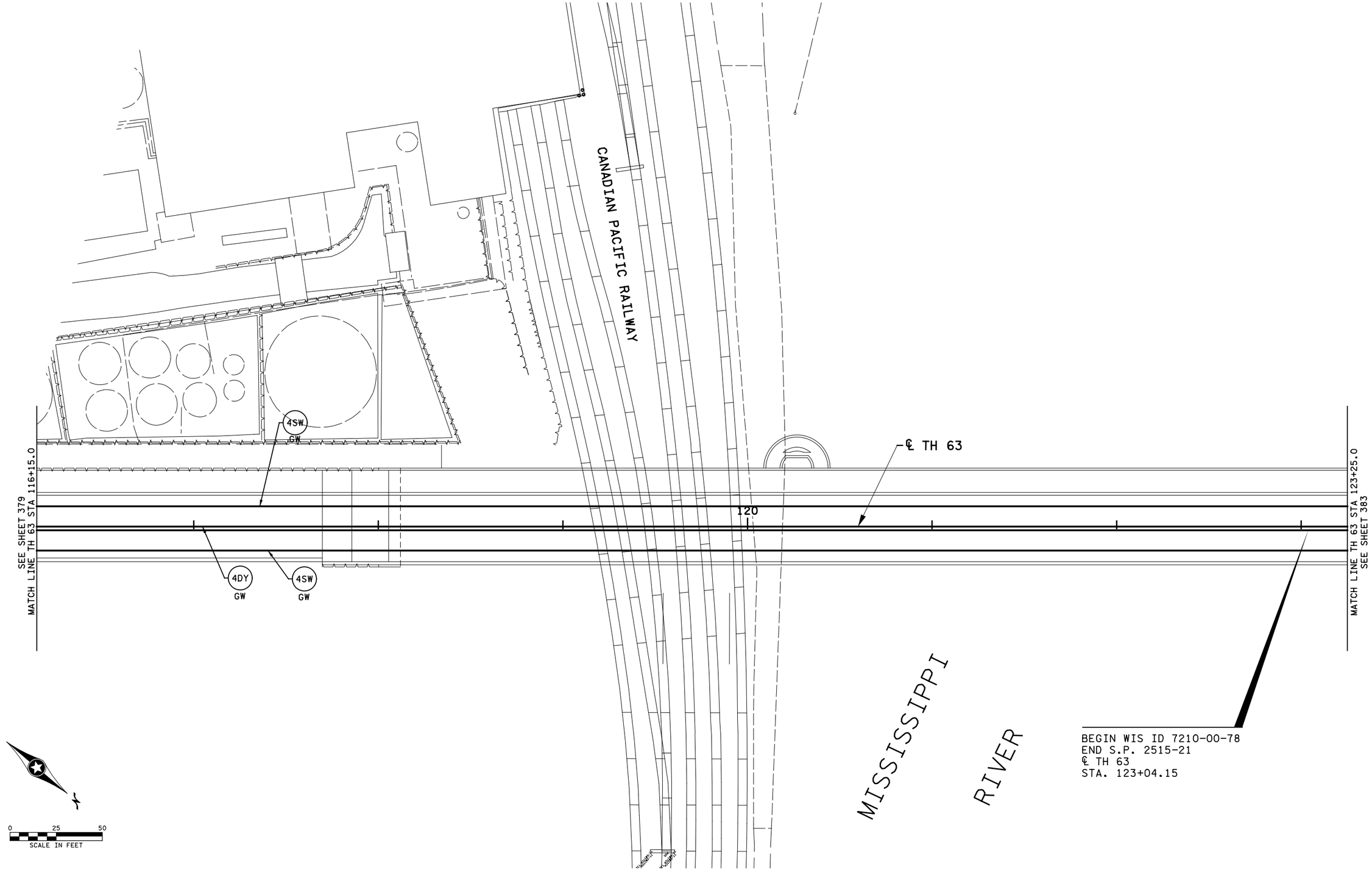
MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

SHEET 381 OF 688

11:35:47 AM
6/22/2016
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MINNESOTA STATE PROJECT NO. 2515-21	
MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	

DRAWN BY	A.DEBRUIN
DESIGNED BY	A.DEBRUIN
CHECKED BY	A.NORD
COMM. NO.	0158933

ISTHMUS engineering, inc.

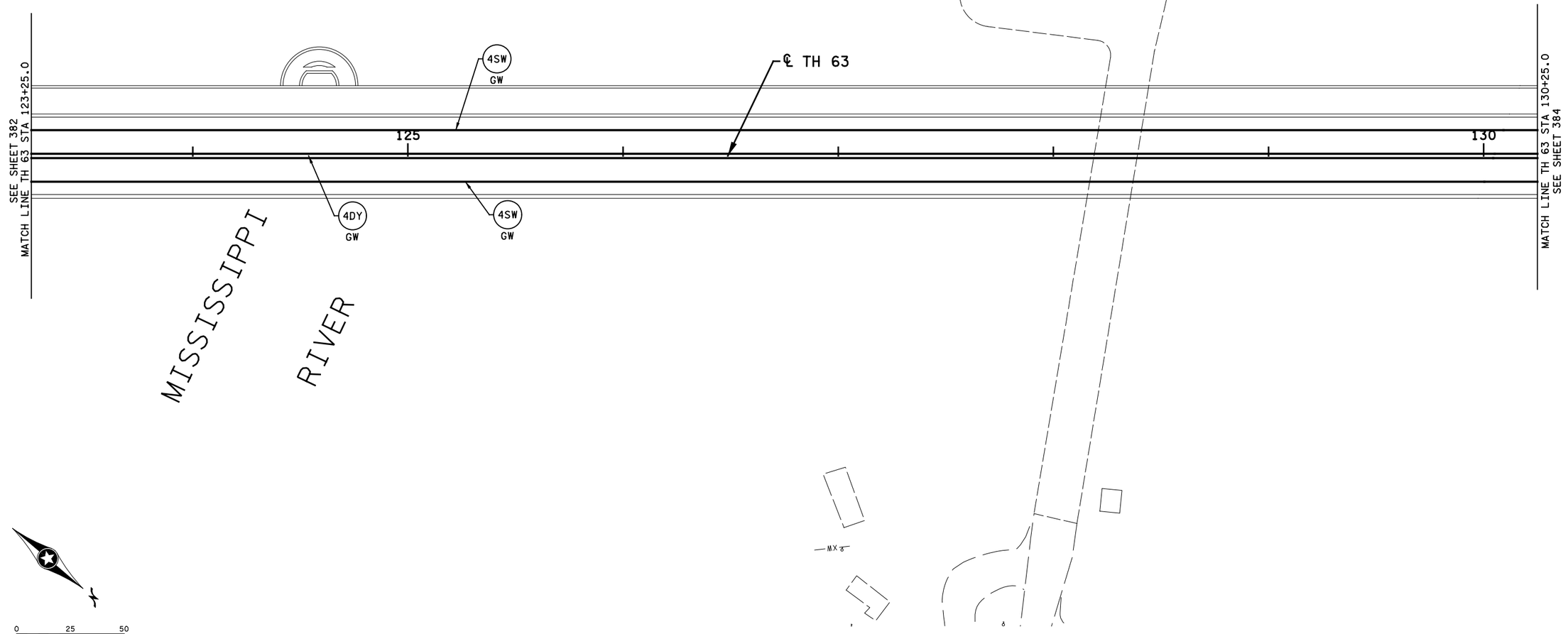
MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

SHEET 382 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
...\FinalPlanDGN\cd251521_pm07.dgn					

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY A.DEBRUIN

DESIGNED BY A.DEBRUIN

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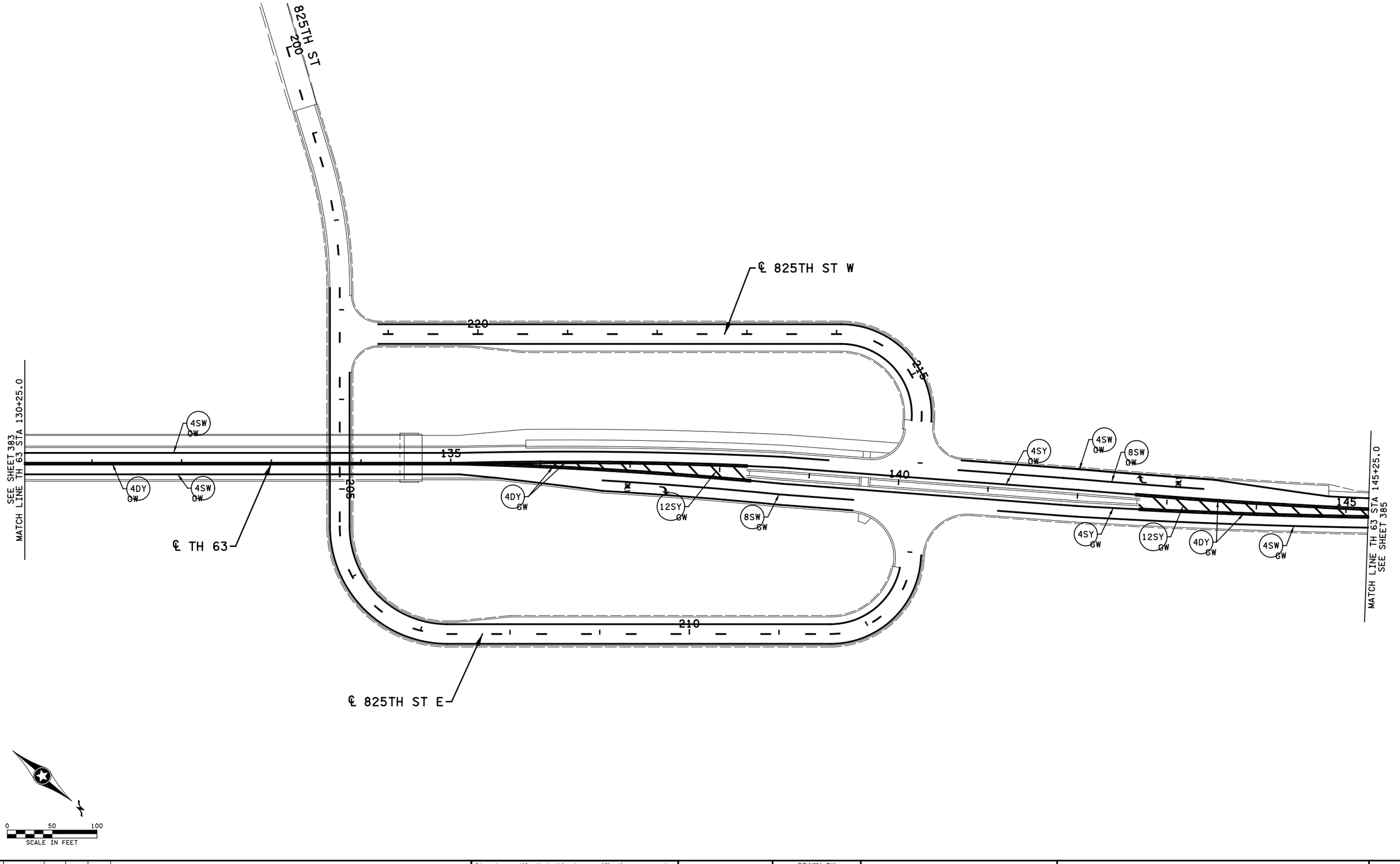
MINNESOTA DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

SHEET 383 OF 688

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6/2/2016
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					...\FinalPlanDGN\cd251521_pm08.dgn

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Date _____ License # _____

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WISCONSIN PROJECT I.D. 7210-00-78

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COMM. NO. 0158933

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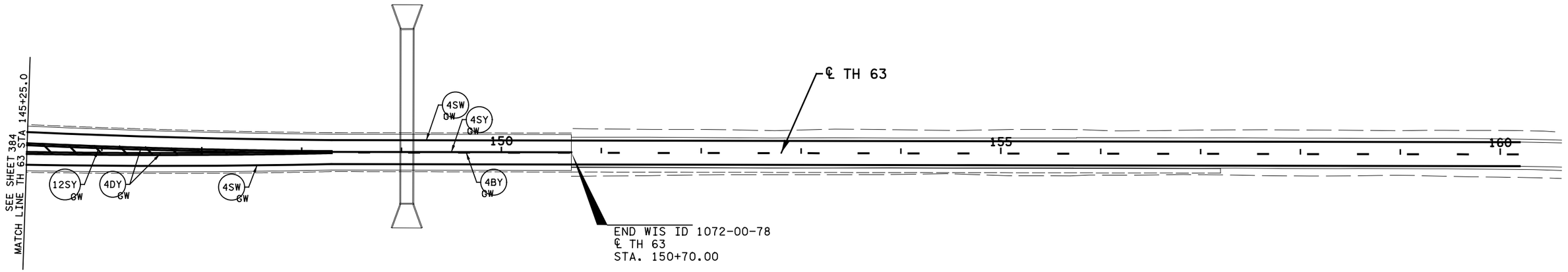
MINNESOTA DEPARTMENT OF TRANSPORTATION

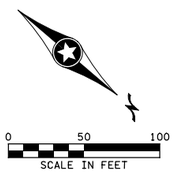
PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

SHEET 384 OF 688

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6/22/2016
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Date _____ License # _____

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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY A.DEBRUIN

CHECKED BY A.NORD

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PAVEMENT MARKING PLANS

SP 2515-21 (TH 63)

SHEET 385 OF 688

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6/2/2016
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Sign Quantity Summary

NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_signtb01.dgn

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN

DESIGNED BY E.LEWEN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGN TABULATIONS

SP 2515-21 (TH 63)

11:35:55 AM
6/2/2016
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XXX — SIGN PANELS TYPE C

	SIGN NO	MN S.P. 2515-21	WISC. I.D. 7210-00-78	PROJECT TOTAL	POSTS NO & TYPE	POSTS KNEE BRACES QTY	POSTS LENGTH FEET	MTG HT (1)(2) FEET	PANEL SIZE INCH	PANEL AREA SQ FT	PANEL TOTAL AREA SQ FT	CODE NO	PANEL LEGEND	
	C-1				2-U	1	16	7	30 x 30	6.25	0.00	W8-14	FALLEN ROCKS	
	C-2				2-U	1	16	7	30 x 30	6.25	0.00	W3-3	SIGNAL AHEAD	
	C-3				2-U		15	7	24 x 30	5.00	0.00	R2-1	SPEED LIMIT 55	
	C-4				2-U	1	17	7	24 x 12	2.00	0.00	M3-1	NORTH	
									24 x 24	4.00	0.00	M1-4	US 63	
									21 x 15	2.19	0.00	M5-1L	LEFT ADVANCE TURN ARROW	
	C-5				2-U	1	14	7	30 x 30	6.25	0.00	W14-2	NO OUTLET	
	C-6				1-U		10	4	18 x 24	3.00	0.00	W1-8	CHEVRON	
(4)	C-7				2-U		13	7	30 x 30	6.25	0.00	R3-7R	LEFT LANE MUST TURN LEFT	
	C-8				2-U	1	20	7	24 x 12	2.00	0.00	M3-3	SOUTH	
									24 x 24	4.00	0.00	M1-4	US 61	
									24 x 24	4.00	0.00	M1-4	US 63	
									24 x 24	4.00	0.00	M1-X1	GREAT RIVER ROAD MINNESOTA	
(4)	C-9				2-U	1	11	7	18 x 30	3.75	0.00	R4-7c	KEEP RIGHT	
									18 x 18			X4-2	TYPE 1 OBJECT MARKER (YELLOW ON YELLOW)	(7)
	C-10				2-U	1	15	7	48 x 24	8.00	0.00	W1-7	TWO DIRECTION LARGE ARROW	
(3)	C-11				1-U		12	4	18 x 24	3.00	0.00	W1-8	CHEVRON	
									18 x 24	3.00	0.00	W1-8	CHEVRON	
(4)	C-12				2-U		11	7	30 x 30	6.25	0.00	R5-1	DO NOT ENTER	
	C-13				2-U		16	7	24 x 12	2.00	0.00	M3-1	NORTH	
									24 x 24	4.00	0.00	M1-4	US 61	
	C-14				2-U		15	7	24 x 30	5.00	0.00	R2-1	SPEED LIMIT 30	
(4)	C-15				2-U		11	7	24 x 30	5.00	0.00	R2-1	SPEED LIMIT 30	
	C-16				2-U	1	16	7	30 x 30	6.25	0.00	W1-2L	LEFT CURVE	
	C-17				2-U		15	7	30 x 30	6.25	0.00	R3-7R	RIGHT LANE MUST TURN RIGHT	
	C-18				2-U	1	17	7	24 x 12	2.00	0.00	M3-3	NORTH	
									24 x 24	4.00	0.00	M1-4	US 63	
									21 x 15	2.19	0.00	M6-3	STRAIGHT ARROW	
									24 x 12	2.00		M3-1	NORTH	
									24 x 24	4.00		M1-4	US 63	
									21 x 15	2.19		M6-1	RIGHT ARROW	
	C-19								30 x 30	6.25	0.00	R3-7R	RIGHT LANE MUST TURN RIGHT	
	C-20				2-U		16	7	21 x 15	2.19	0.00	M2-1	JCT	
									24 x 24	4.00	0.00	M1-4	US 63	
(4)	C-21				2-U		10	7	24 x 24	4.00	0.00	R8-3	NO PARKING	
	C-22				2-U		13	7	30 x 30	6.25	0.00	R1-1	STOP	
	C-23				2-U	1	14	7	30 x 30	6.25	0.00	W14-1	DEAD END	
	C-24				2-U		16	7	24 x 12	2.00	0.00	M3-1	NORTH	
									24 x 24	4.00	0.00	M1-4	US 63	
	C-25				1-U		12	4	18 x 24	3.00	0.00	W1-8	CHEVRON	
(4)	C-26				2-U	1	13	7	24 x 24	4.00	0.00	M1-4	US 61	
									21 x 15	2.19	0.00	M6-4	DOUBLE HEADED ARROW	
									24 x 12	2.00	0.00	M3-3	SOUTH	
									24 x 24	4.00	0.00	M1-4	US 63	
									21 x 15	2.19	0.00	M6-1R	RIGHT ARROW	
(4)	C-27				2-U		11	7	36 x 30	7.50	0.00	R3-8AA	LEFT ONLY RIGHT ONLY	
	C-28				1-U		10	4	18 x 24	3.00	0.00	W1-8	CHEVRON	
(4)	C-29				2-U	2	12	7	30 x 30	6.25	0.00	W12-1	DOUBLE ARROW	
									12 x 36			X4-4C	TYPE 3 OBJECT MARKER CENTER	(8)
	C-30				2-U		13	7	30 x 30	6.25	0.00	R3-7L	LEFT LANE MUST TURN LEFT	
	C-31				2-U		13	7	30 x 30	6.25	0.00	R5-1	DO NOT ENTER	
(4)	C-32				2-U		10	7	24 x 24	4.00	0.00	R5-3	NO MOTOR VEHICLES	

NOTES:

SEE SHEET 389 FOR NOTES

NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_signtb02.dgn					

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN

DESIGNED BY E.LEWEN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGN TABULATIONS

SP 2515-21 (TH 63)

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XXX

SIGN PANELS TYPE C

	SIGN NO	MN S.P. 2515-21	WISC. I.D. 7210-00-78	PROJECT TOTAL	POSTS NO & TYPE	POSTS KNEE BRACES QTY	POSTS LENGTH FEET	MTG HT (1)(2) FEET	PANEL SIZE INCH	PANEL AREA SQ FT	PANEL TOTAL AREA SQ FT	CODE NO	PANEL LEGEND	
(10)	C-33				2-U	1	16	7	36 x 12	3.00		R6-1L	ONE WAY	
									36 x 12	3.00		R6-1R	ONE WAY	
									30 x 30	6.25	0.00	R1-1	STOP	
									24 x 24	4.00	0.00	R3-1	NO RIGHT TURN	
	C-34				2-U	1	16	7	36 x 12	3.00		R6-1R	ONE WAY	
									36 x 12	3.00		R6-1L	ONE WAY	
									30 x 30	6.25	0.00	R1-1	STOP	
									24 x 24	4.00	0.00	R3-2	NO LEFT TURN	
	C-35				2-U		13	7	24 x 24	4.00	0.00	R3-27	NO STRAIGHT	
	C-36				2-U	1	15	7	30 x 30	6.25	0.00	R5-1	DO NOT ENTER	
									30 x 24	5.00	0.00		EXCEPT BICYCLES	
	C-37				2-U		13	7	36 x 30	7.50	0.00	R3-8AA	LEFT ONLY RIGHT ONLY	
(4)	C-38				2-U	1	13	7	24 x 18	3.00	0.00	R3-17	BIKE LANE	
									24 x 8	1.33	0.00	R3-17BP	ENDS	
									24 x 30	5.00	0.00		TRUCKS NO RIGHT TURN	
(6)	C-39				MAST ARM MOUNT				48 x 24	8.00	0.00	D9-2B	H TO RIGHT	
	C-40								72 x 36	18.00	0.00	R16-X11	STATE LAW SEAT BELT USE REQUIRED	
	C-41				2-U		13	7	24 x 24	4.00	0.00	R16-X13	VEHICLE NOISE LAWS ENFORCED	
(3)(4)	C-42				1-U		7	4	18 x 24	3.00	0.00	W1-8	CHEVRON	
									18 x 24	3.00	0.00	W1-8	CHEVRON	
	C-43				1-W		15	6.25	48 x 57	19.00	0.00	J2-2	TURN ASSEMBLY	
									24 x 12	2.00	0.00	M3-3	SOUTH	
									24 x 24	4.00	0.00	M1-4	US 63	
									21 x 15	2.19	0.00	M6-1L	LEFT ARROW	
									24 x 12	2.00	0.00	M3-1	NORTH	
									24 x 24	4.00	0.00	M1-4	US 63	
									21 x 15	2.19	0.00	M6-3	STRAIGHT ARROW	
	C-44				1-W		12	5.25	48 x 24	8.00	0.00	W1-7	LARGE DOUBLE ARROW	
									18 x 18			W5-54	TYPE 1 OBJECT MARKER (YELLOW ON YELLOW)	(9)
									18 x 18			W5-54	TYPE 1 OBJECT MARKER (YELLOW ON YELLOW)	(9)
	C-45				1-W		16	5.25	36 x 36	9.00	0.00	W1-1L	LEFT TURN WARNING	
									18 x 18	2.25	0.00	W13-1P	20 MPH SPEED ADVISORY	
	C-46				1-W		13	6.25	24 x 30	5.00	0.00	R2-1	SPEED LIMIT 35	
	C-47				1-W		13	6.25	24 x 36	6.00	0.00	J4-1	REASSURANCE ASSEMBLY	
									24 x 12	2.00	0.00	M3-3	SOUTH	
									24 x 24	4.00	0.00	M1-4	US 63	
	C-48				1-W		14	6.25	36 x 36	9.00	0.00	W3-1	STOP AHEAD	
	C-49				1-W		16	5.25	36 x 36	9.00	0.00	W1-1R	RIGHT TURN WARNING	
									18 x 18	2.25	0.00	W13-1P	20 MPH SPEED ADVISORY	
(3)(4)	C-50				1-W		12	6.25	36 x 12	3.00	0.00	R6-1R	ONE WAY	
									36 x 12	3.00	0.00	R6-1R	ONE WAY	
	C-51				1-W		14	6.25	24 x 36	6.00	0.00	J4-1	REASSURANCE ASSEMBLY	
									24 x 12	2.00	0.00	M3-1	NORTH	
									24 x 24	4.00	0.00	M1-4	US 63	
	C-52				1-W		14	6.25	48 x 36	12.00	0.00	W14-3	NO PASSING ZONE	
	C-53				1-W		10	4	18 x 24	3.00	0.00	W1-8	CHEVRON	
	C-54				1-W		13	6.25	30 x 30	6.25	0.00	R1-1	STOP	
	C-55				1-W		13	6.25	30 x 30	6.25	0.00	R3-7R	RIGHT LANE MUST TURN RIGHT	

NOTES:

SEE SHEET 389 FOR NOTES

NO	DATE	BY	CKD	APPR	REVISION
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DRAWN BY E.LEWEN

DESIGNED BY E.LEWEN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGN TABULATIONS

SP 2515-21 (TH 63)

SHEET 388 OF 688

11:35:56 AM
6/2/2016
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XXX — SIGN PANELS TYPE C

	SIGN NO	MN S.P. 2515-21	WISC. I.D. 7210-00-78	PROJECT TOTAL	POSTS NO & TYPE	POSTS KNEE BRACES QTY	POSTS LENGTH FEET	MTG HT (1)(2) FEET	PANEL SIZE INCH	PANEL AREA SQ FT	PANEL TOTAL AREA SQ FT	CODE NO	PANEL LEGEND
(4)	C-56				1-W		14	5.25	24 x 24	4.00	0.00	R4-7	KEEP RIGHT
									24 x 30			W5-54	TYPE 1 OBJECT MARKER (YELLOW ON YELLOW) (9)
	C-57				1-W		13	6.25	24 x 30	5.00	0.00	R2-1	SPEED LIMIT 30
(4)	C-58				1-W		13	6.25	30 x 30	6.25	0.00	R5-1	DO NOT ENTER
	C-59				1-W		13	6.25	24 x 30	5.00	0.00	R2-1	SPEED LIMIT 55
	C-60				2-U		13	7	36 x 24	6.00		R5-1a	WRONG WAY
	C-61				2-U		13	7	24 x 30	5.00		R6-7	END ONE WAY
(3)(4)	C-62				2-U		9	7	36 x 12	3.00	0.00	R6-1R	ONE WAY
									36 x 12	3.00		R6-1L	ONE WAY
(4)	C- 63				2-U	1	15	7	24 x 12	2.00		M4-5	TO
									24 x 24	4.00		M1-4	US 61
									24 x 24	4.00		M1-4	US 63
									21 x 15	2.19		M6-3	STRAIGHT ARROW
(4)(10)	C-64				2-U	1	12	7	36 x 12	3.00		R6-1L	ONE WAY
									36 x 12	3.00		R6-1R	ONE WAY
								7	30 x 30	6.25		R1-1	STOP
									18 x 6	0.75		R1-3P	ALL WAY
(4)	C-65				2-U		11	7	30 x 30	6.25		R1-1	STOP
									18 x 6	0.75		R1-3P	ALL WAY
	C-66				2-U	1	15	7	36 x 12	3.00		R6-1R	ONE WAY
									36 x 12	3.00		R6-1L	ONE WAY
									30 x 30	6.25		R1-1	STOP
									18 x 6	0.75		R1-3P	ALL WAY
(3)	C-67				1-W		10	4	18 x 24	3.00		W1-8	CHEVRON
									18 x 24	3.00		W1-8	CHEVRON
									x	0.00			
									x	0.00	0.00		
	TOTAL										0.00		

SPECIFIC NOTES:
(1) MINNESOTA MOUNTING HEIGHT IS MINIMUM (WITH A + 6 INCH TOLERANCE) SEE SHEET NO. XX FOR TYPICAL MOUNTING.
(2) WISCONSIN MOUNTING HEIGHT IS MINIMUM (WITH A +/- 3 INCH TOLERANCE) SEE SHEET NO. XX FOR TYPICAL MOUNTING.
(3) MOUNT BACK TO BACK.
(4) MOUNT IN CONCRETE, SEE SHEET NO. XX.
(5) MOUNT ON WALL, SEE SHEET NO. XX.
(6) MOUNT ON MAST ARM
(7) SEE TAB ___ FOR TYPE 1 OBJECT MARKER (MINNESOTA).
(8) SEE TAB ___ FOR TYPE 3 OBJECT MARKER (MINNESOTA).
(9) SEE TAB ___ FOR TYPE 1 OBJECT MARKER (WISCONSIN).
(10) MOUNT ONE WAY SIGNS BACK TO BACK.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEETS XXX TO XX FOR STRUCTURAL DETAILS.
3. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN
DESIGNED BY E.LEWEN
CHECKED BY A.NORD
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION
SIGN TABULATIONS
SP 2515-21 (TH 63)

SHEET 389 OF 688

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XXX SIGN PANEL TYPE SPECIAL

SIGN NO	MN S.P. 2515-21	WISC. I.D. 7210-00-78	QTY	POSTS			MTG HT (1)	PANEL	PANEL LEGEND
			EACH	NO & TYPE	KNEE BRACES QTY	LENGTH FEET	FEET	SIZE INCH	
S-1	1		1	2-U		12	7	24 x 18	PRIVATE DRIVE
TOTAL			1						

SPECIFIC NOTES:
(1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE).
SEE SHEET XX FOR TYPICAL MOUNTING.
(2) FOR PUNCHING AND MOUNTING DETAILS, SEE SHEET NO. XX.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEETS XX TO XX FOR STRUCTURAL DETAILS.

XXX SALVAGE & INSTALL SIGN TYPE SPECIAL

	SIGN NO	MN S.P. 2515-21	WISC. I.D. 7210-00-78	Project Total	POSTS			MTG HT	PANEL	PANEL LEGEND	
					NO & TYPE	KNEE BRACES QTY	LENGTH FEET	FEET	SIZE INCH		
	S-201	1		1	1-O			7	NO INFORMATION ON EXISTING SIGN SIZES	Sanderson St	
										E Third St	
(1)	S-202	1		1						POTTER ST	
(1)	S-203	1		1						MAIN ST	
	S-204	1		1	1-O			7		Bluff St	
										<-- W Fourth St E -->	
	S-205	1		1	2-W					Community Service Signs	(2)
(1)	S-206	1		1						Plum St	(2)
(1)	S-207	1		1						W Third St	(2)
	S-208		1	1	1-O					Sth 63	
										825th St	
	TOTAL			7							

(1) MOUNTED ON MAST ARM POLE
(2) SALVAGE SIGN ONLY AND DELIVER TO CITY OF RED WING PUBLIC WORKS.

XXX OBJECT MARKER

	CODE NO	SIZE INCH	COLOR	TOTAL EACH
	MN S.P. 2515-21			
(2)(5)	X4-2	18 x 18	BLACK ON YELLOW	5
(1)(5)	X4-4(L)	12 x 36	BLACK ON YELLOW	1
(1)(3)	X4-4(C)	12 x 36	BLACK ON YELLOW	1
(1)	X4-4(R)	12 x 36	BLACK ON YELLOW	1
(1)	X4-11	18 x 18	RED ON BLACK	2

TOTAL QUANTITIES

CODE NO	QUANTITY EACH
X4-2	5
X4-4	3
X4-11	2

SPECIFIC NOTES:
(1) MOUNT ON 3LB/FT POST (MNDOT 3401).
(2) XX ARE MOUNTED BELOW TYPE C SIGNS. XX ARE MOUNTED ON 3 LB POSTS.
(3) XX ARE MOUNTED BELOW TYPE C SIGNS. XX ARE MOUNTED ON 3 LB POSTS.
(4) XX ARE MOUNTED BELOW TYPE C SIGNS. XX ARE MOUNTED ON 3 LB POSTS.
(5) MOUNTED IN CONCRETE.

GENERAL NOTES:
1. FOR MARKER PLACEMENT, SEE SHEET NO. XX.
2. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR MARKER DETAIL.

XXX OBJECT MARKER

	CODE NO	SIZE INCH	COLOR	TOTAL EACH
	WISC. I.D. 7210-00-78			
(1)	W5-54	18 x 18	BLACK ON YELLOW	2
(1)(2)	W5-54	6 x 12	BLACK ON YELLOW	2

TOTAL QUANTITIES

CODE NO	QUANTITY EACH
X4-2	2
X4-3	2

SPECIFIC NOTES:
(1) XX ARE MOUNTED BELOW TYPE C SIGNS.
(2) MOUNTED IN CONCRETE.

GENERAL NOTES:
1. FOR MARKER PLACEMENT, SEE SHEET NO. XX.

NO	DATE	BY	CKD	APPR	REVISION

...\cd251521_signtb05.dgn

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Print Name: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN
DESIGNED BY E.LEWEN
CHECKED BY A.NORD
COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGN TABULATIONS
SP 2515-21 (TH 63)

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XXX SIGN PANELS TYPE D

	SIGN NO	MN S.P. 2515-21	WISC. I.D. 7210-00-78	QTY	POSTS NO & TYPE	POSTS KNEE BRACES QTY	POSTS LENGTH FEET	POSTS SPACING INCH	MTG HT (1) FEET	PANEL SIZE INCH	PANEL AREA SQ FT	PANEL TOTAL AREA SQ FT	PANEL LEGEND
	D-1	1		1	2-U	2	17	42	7	72 x 48	24.00	24.00	TO Wisconsin <--
	D-2	1		1	2-U	2	17	42	7	72 x 48	24.00	24.00	TO Wisconsin -->
	D-3	1		1	2-U	2	16	42	7	66 X 42	19.25	19.25	WELCOME TO MINNESOTA
(3)	D-4	1		1						120 x 60	50.00	50.00	SOUTH TO △ SOUTH US 61 US 63△ MN 58 ° △ -->
(3)	D-5	1		1						84 x 60	35.00	35.00	△ TO US 61 △ US 63 <--> △ -->
(3)	D-6(L)	1		1						42 X 60	17.50	17.50	SOUTH MN 58 <--
	D-6(R)	1		1						42 X 60	17.50	17.50	NORTH US 61 °
	D-7		NOT USED	0						X	0.00	0.00	
	D-8		NOT USED	0						X	0.00	0.00	
	D-9		NOT USED	0						X	0.00	0.00	
	D-10	1		1	2-U	1	15	36	7	60 X 24	10.00	10.00	MISSISSIPPI RIVER
	D-11		1	1	2-W				7	78 x 30	16.25	16.25	<-- RED WING ° HAGER CITY
	D-12		1	1	2-W				6	63 x 15	6.56	6.56	Pierce Co.

SPECIFIC NOTES:

(1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE).
SEE SHEET XX FOR TYPICAL MOUNTING.

(2) SEE STANDARD SIGNS MANUAL (E5-1).

(3) MAST ARM MOUNTED, SEE DETAIL SHEET XX.

(4) 2-1/2" x 2-1/2" 10 GAUGE PRE-PUNCHED GALVANIZED STEEL SQUARE TUBE POST WITH A 2-3/16" x 2-3/16" 10 GAUGE PRE-PUNCHED GALVANIZED STEEL SQUARE TUBE INTERNAL POST. THIS ASSEMBLY REQUIRES STRINGERS AND SLIP BASES. PLACE PER MANUFACTURER'S DETAIL.

GENERAL NOTES:

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEETS ST23 TO ST25 FOR STRUCTURAL DETAILS.
3. SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR TYPE D STRINGER AND PANEL JOINT DETAILS.

NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN

DESIGNED BY E.LEWEN

CHECKED BY A.NORD

COMM. NO. 0158933

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XXX	SIGN PANELS TYPE OH					
MN S.P. 2515-21						
SIGN NO	LOCATION	PANEL SIZE (IN)	PANEL AREA (SQ FT)	PANEL SIZE (IN)	PANEL AREA (SQ FT)	TOTAL AREA (SQ FT)
OH US63-016	112+49 SB	96 x 78	52.00		0.00	52.00
OH US63-017	112+49 SB	96 x 66	44.00		0.00	44.00
			0.00			0.00
TOTAL						**96.00**

GENERAL NOTE:
1. SEE SHEET XX FOR SIGN PANELS

XXX	REMOVE SIGN TYPE OH					
MN S.P. 2515-21						
SIGN NO	LOCATION	TYPE	POST TYPE	SPAN	REMARKS	
OH MN58-XX	102+49 NB	CANTILEVER	MONO	Unknown		
OH US63-XX	119+90 SB	CANTILEVER	MONO	Unknown	CONTAINS 2 PANELS	
TOTAL	2					

XXX	REMOVE SIGN TYPE D						
				POSTS		PANEL	
SIGN NO	MN S.P. 2515-21	WISC. I.D. 7210-00-78	Project Total	NO & TYPE	KNEE BRACES QTY	SIZE (1) INCH	PANEL LEGEND
D-101	1		1	2-U	2	Unknown	To Wisconsin FOLLOW US 63 NORTH LEFT LANE
D-102	NOT USED						
(2) D-103	1		1			Unknown	SOUTH US 61 US 63 °
						Unknown	NORTH SOUTH US 63 MN 58 -->
(2) D-104	1		1			Unknown	NORTH US 61 <--
						Unknown	SOUTH US 61 US 63 -->
(2) D-105	1		1			Unknown	NORTH SOUTH US 63 MN 58 <--
(2) D-106	1		1			Unknown	NORTH US 61 °
(2) D-107	1		1			Unknown	MN State College SE Terminal <-- 3 mi
(2) D-108	1		1			Unknown	<-- Zumbrota Lake City -->
(2) D-109	1		1			90 x 66	US 63 NORTH WISCONSIN -->
(2) D-110	1		1			90 x 96	SOUTH TO US 63 US 61 °
(2) D-111	1		1			138 x 66	US 63 NORTH WISCONSIN <--
						144 x 66	SOUTH MN 58 °
(2) D-112	1		1			Unknown	SOUTH MN 58 <--
							TO SOUTH US 61 △ US 63 -->
D-113	1		1	2-U		66 x 24	MISSISSIPPI RIVER
D-114		1	1	2-W		54 x 15	Pierce Co
TOTAL			**13**				

XXX	REMOVE SIGN TYPE SPECIAL						
				POSTS		PANEL	
SIGN NO	MN S.P. 2515-21	WISC. I.D. 7210-00-78	Project Total	NO & TYPE	KNEE BRACES QTY	SIZE INCH	PANEL LEGEND
S-101	1		1	1-O		Unknown	Bluff St
							E Third St -->
S-102		2	2	2-W		Unknown	ISLAND CAMPING & MARINA
TOTAL			**3**				

SPECIFIC NOTE:
(1) SIZES ARE APPROXIMATE
(2) MOUNTED ON MAST ARM

NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN
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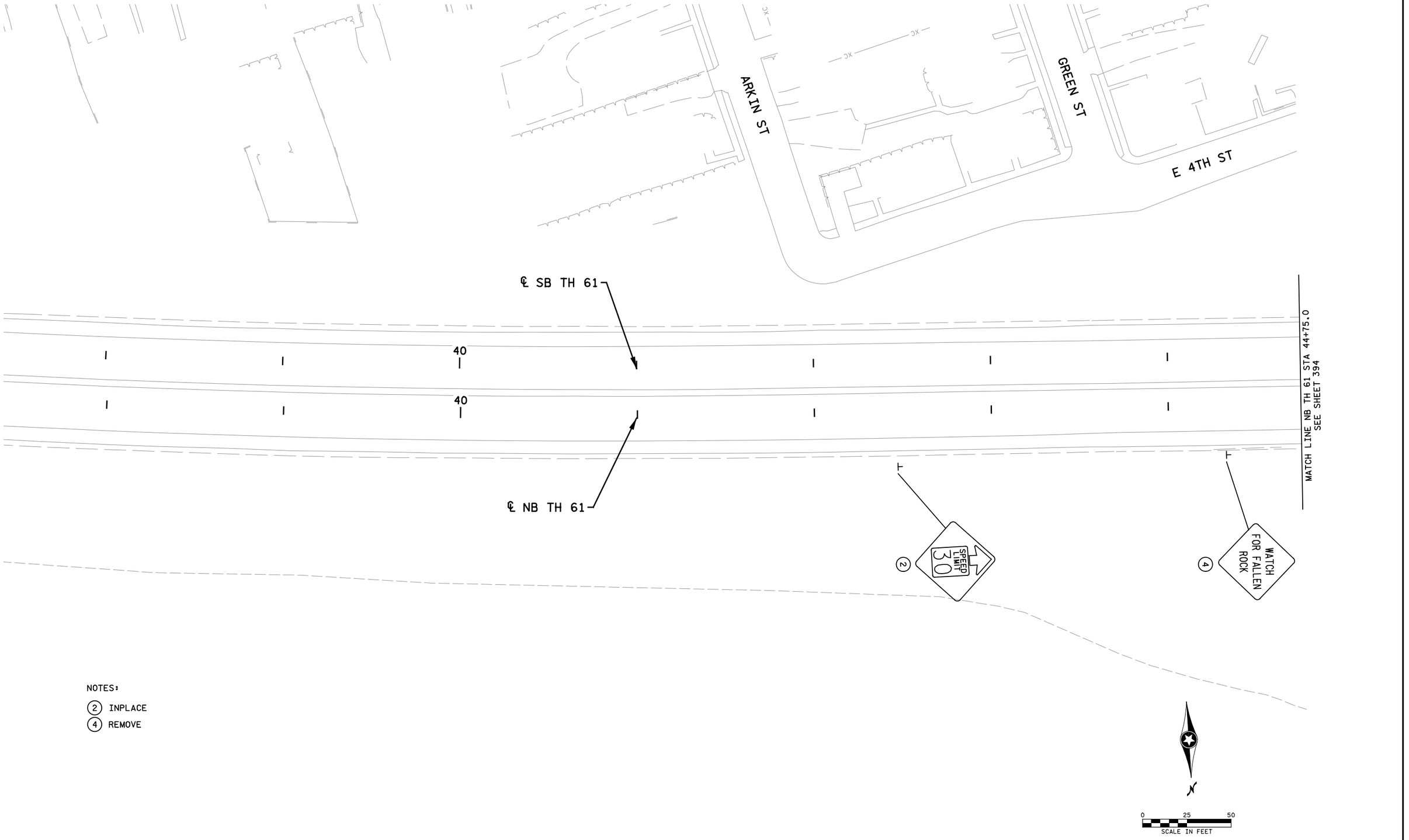
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SIGN TABULATIONS
SP 2515-21 (TH 63)

SHEET 392 OF 688

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NOTES:

(2) INPLACE

(4) REMOVE

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN

DESIGNED BY E.LEWEN

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COMM. NO. 0158933

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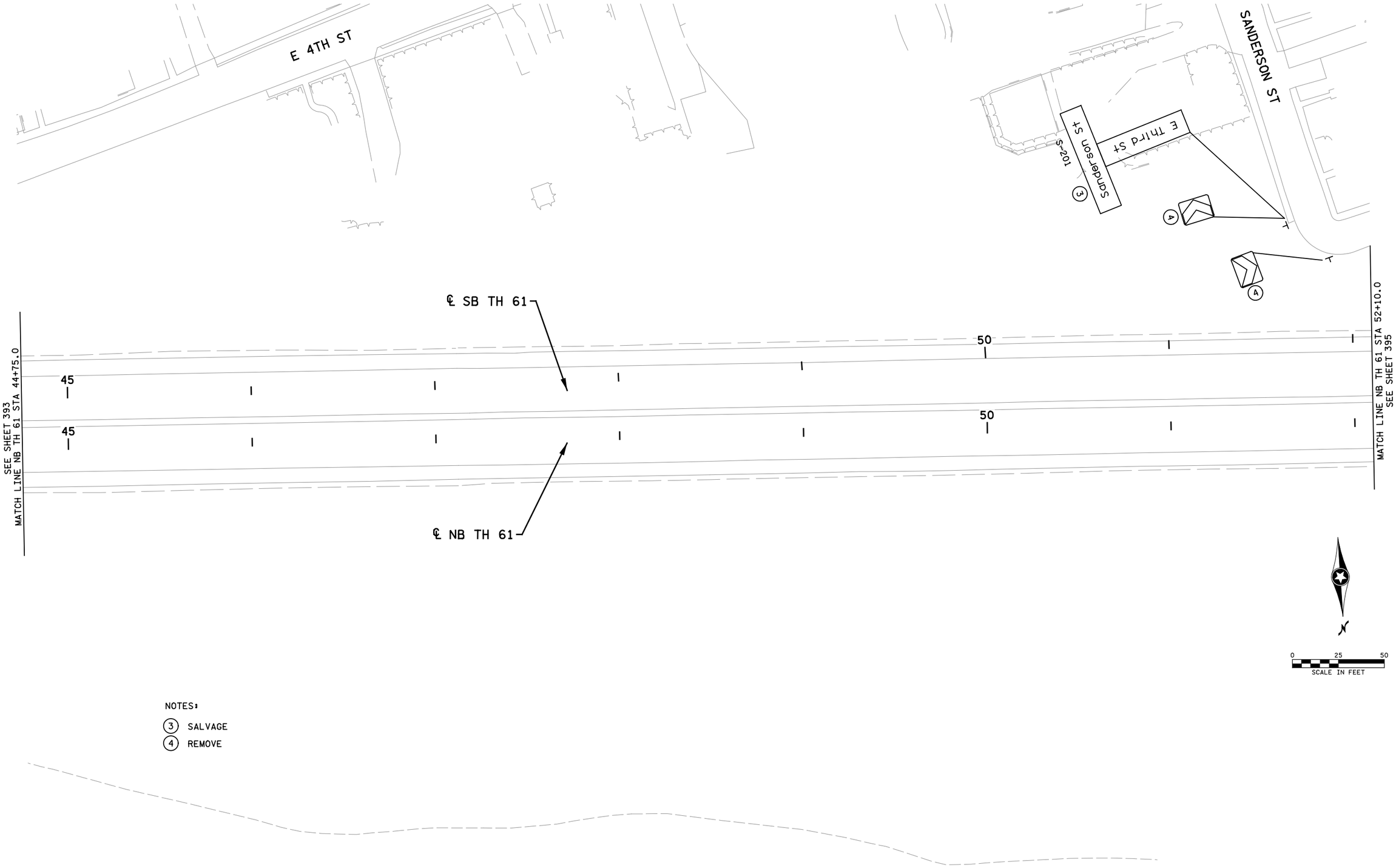
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EXISTING SIGNING PLANS

SP 2515-21 (TH 63)

SHEET 393 OF 688

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NOTES:

(3) SALVAGE

(4) REMOVE

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Date _____ License # _____

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN

DESIGNED BY E.LEWEN

CHECKED BY A.NORD

COMM. NO. 0158933

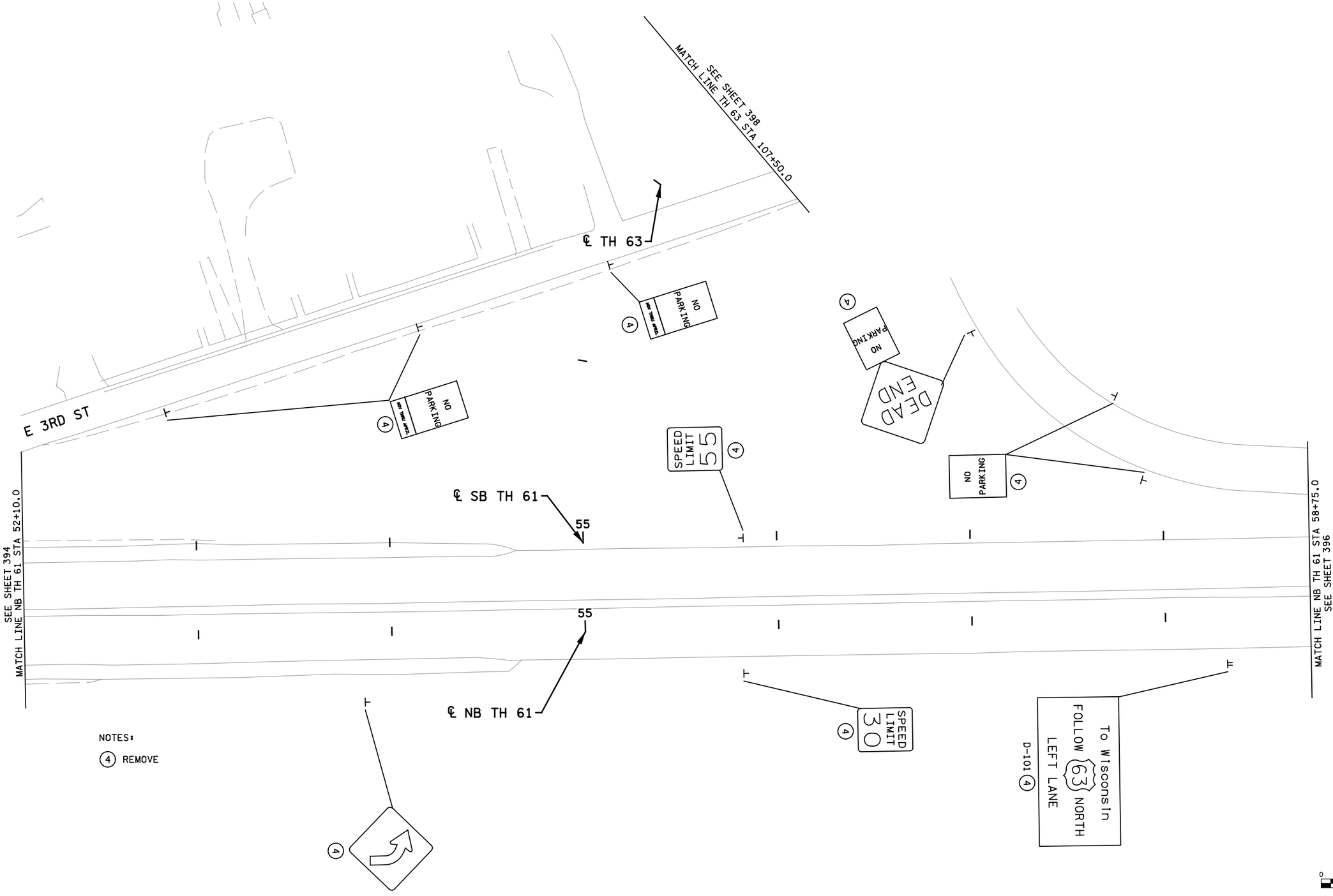
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SP 2515-21 (TH 63)

SHEET 394 OF 688

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NOTES:

(4) REMOVE

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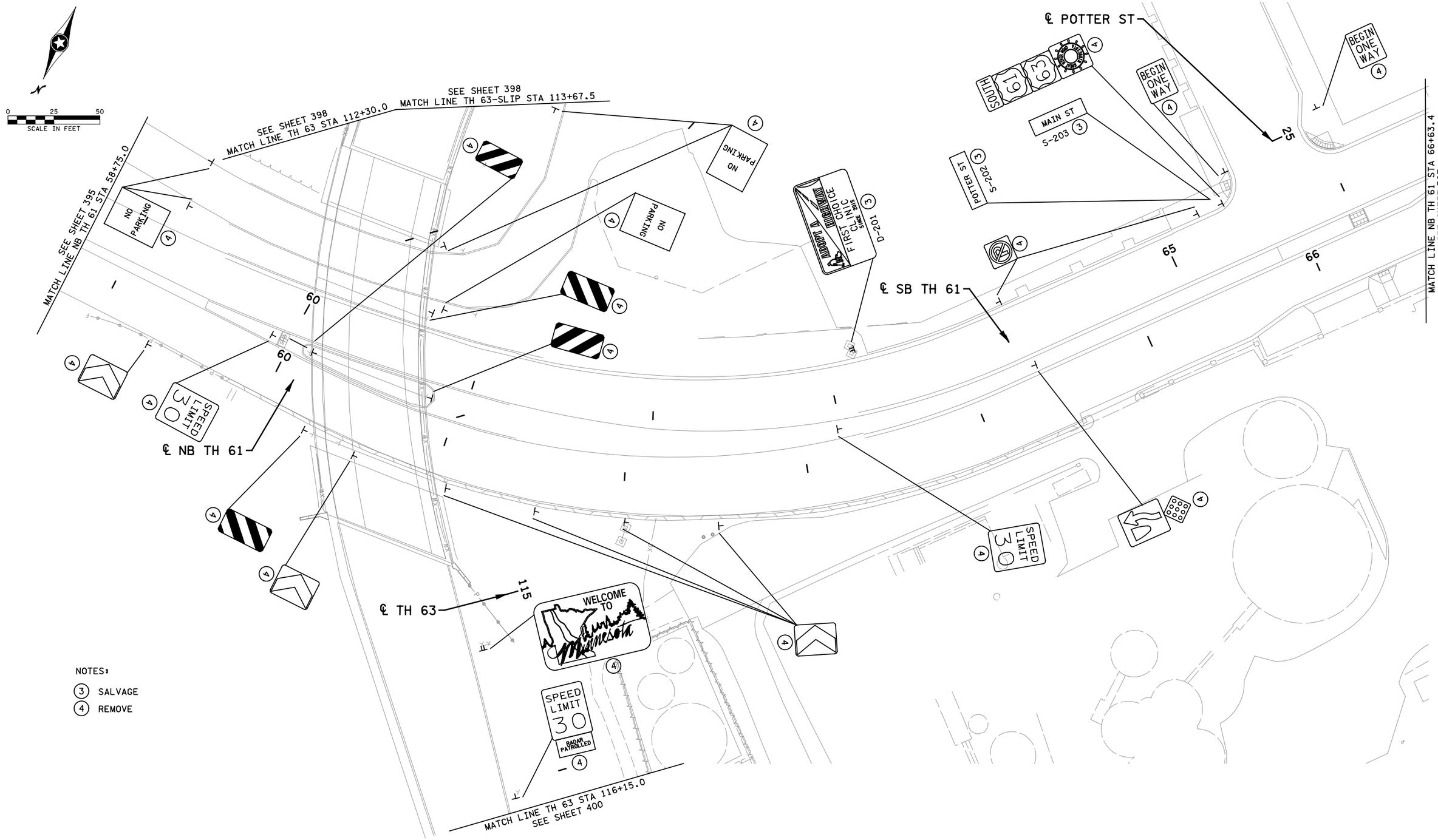
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SP 2515-21 (TH 63)

SHEET 395 OF 688

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6/2/2016
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NOTES:

(3) SALVAGE

(4) REMOVE

NO	DATE	BY	CKD	APPR	REVISION

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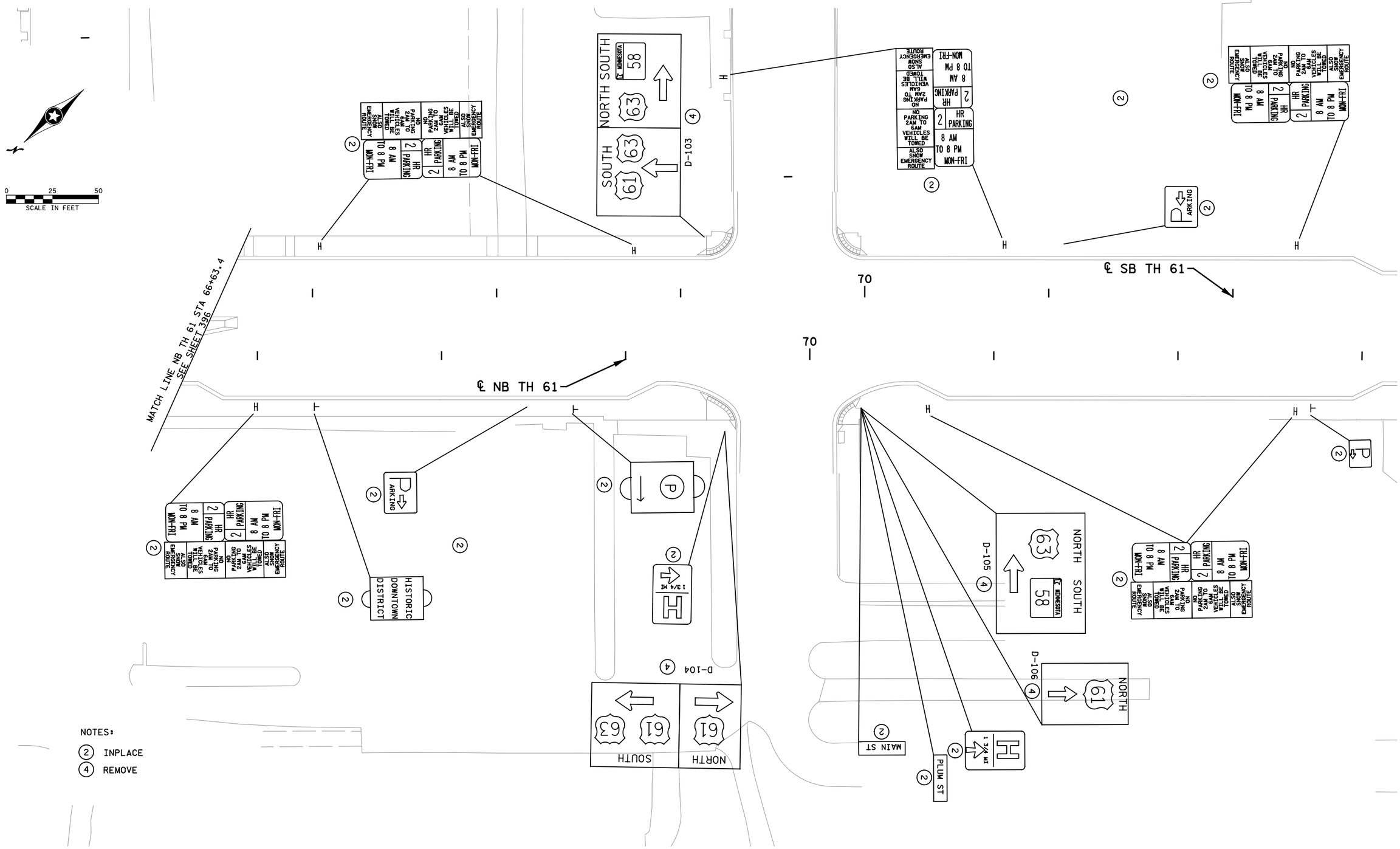
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SP 2515-21 (TH 63)

SHEET 396 OF 688

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WISCONSIN PROJECT I.D. 7210-00-78

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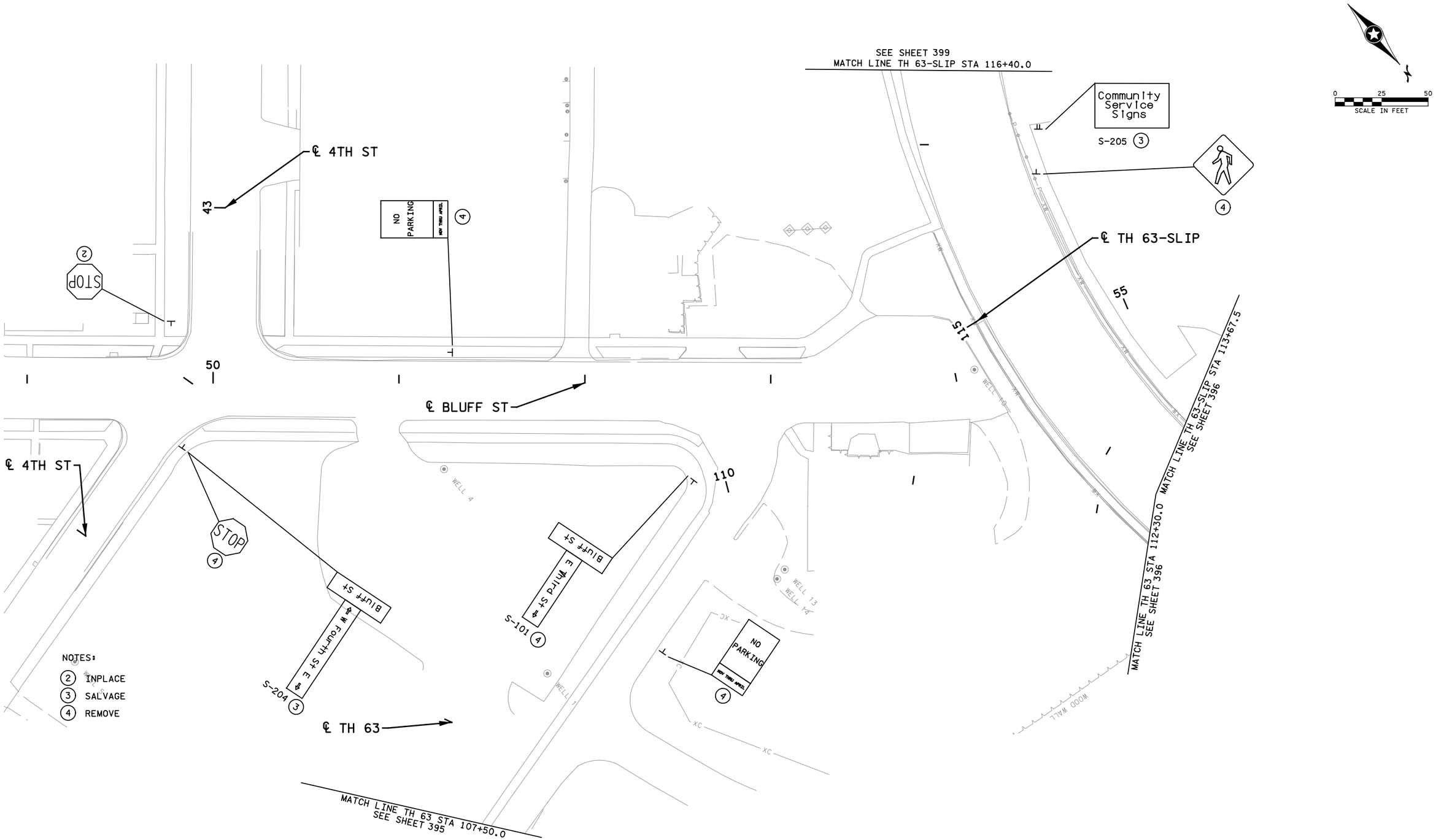
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SP 2515-21 (TH 63)

SHEET 397 OF 688

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NOTES:

(2) INPLACE
(3) SALVAGE
(4) REMOVE

NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_sgn06.dgn					

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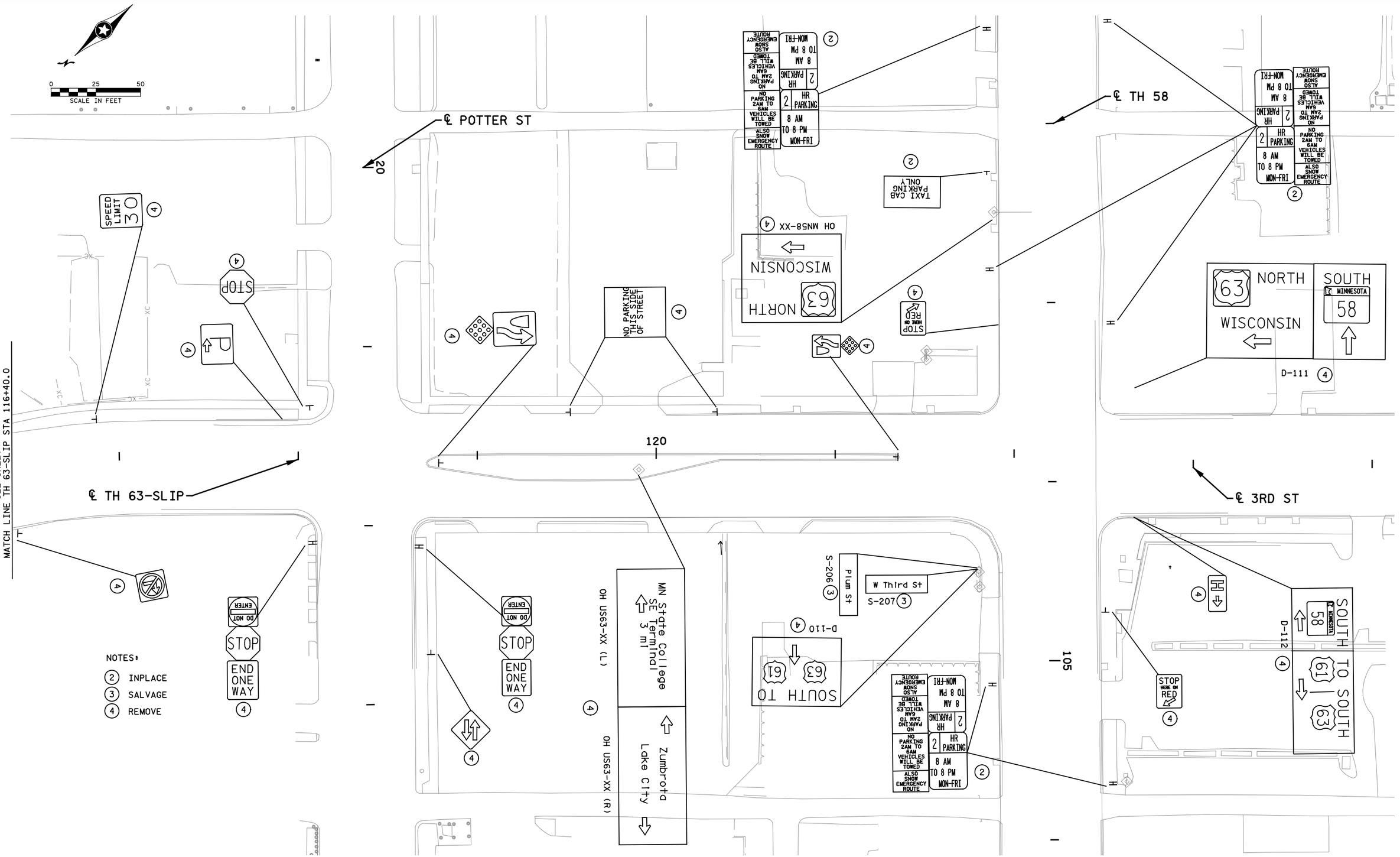
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SP 2515-21 (TH 63)

SHEET 398 OF 688

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MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY E.LEWEN
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY E.LEWEN
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY A.NORD
	COMM. NO. 0158933

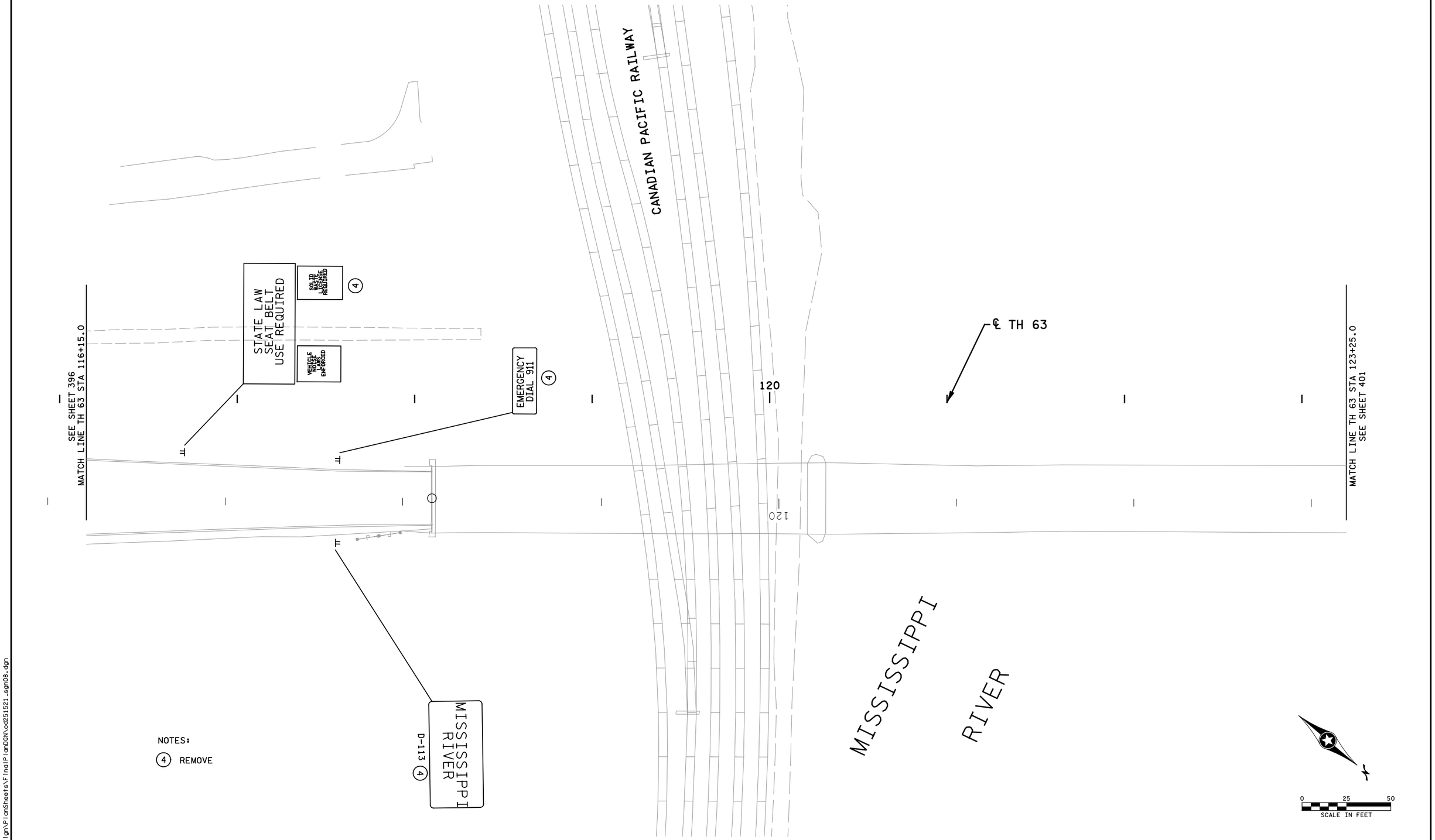
ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

EXISTING SIGNING PLANS
SP 2515-21 (TH 63)

SHEET 399 OF 688

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN

DESIGNED BY E.LEWEN

CHECKED BY A.NORD

COMM. NO. 0158933

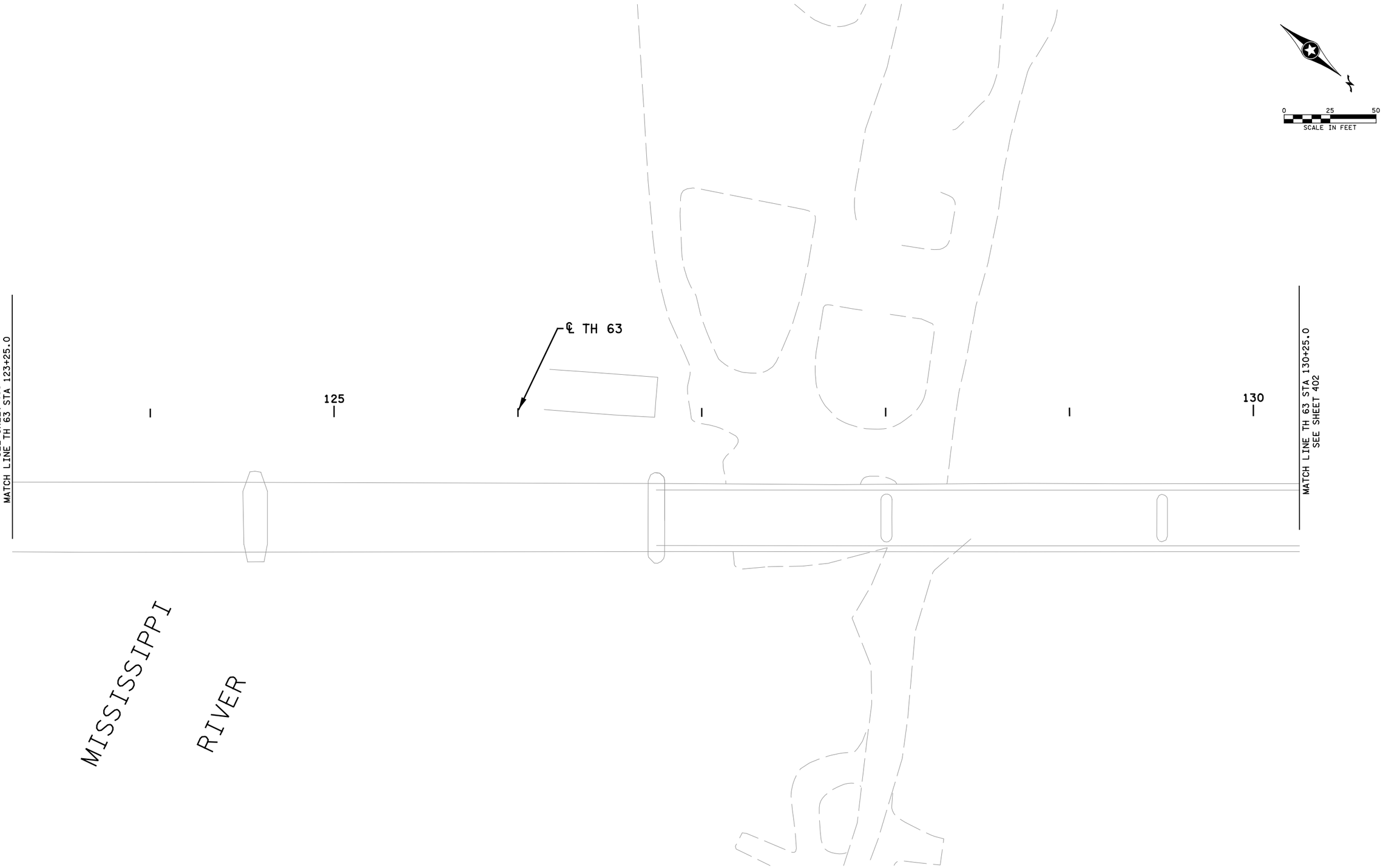
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SP 2515-21 (TH 63)

SHEET 400 OF 688

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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY E.LEWEN

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COMM. NO. 0158933

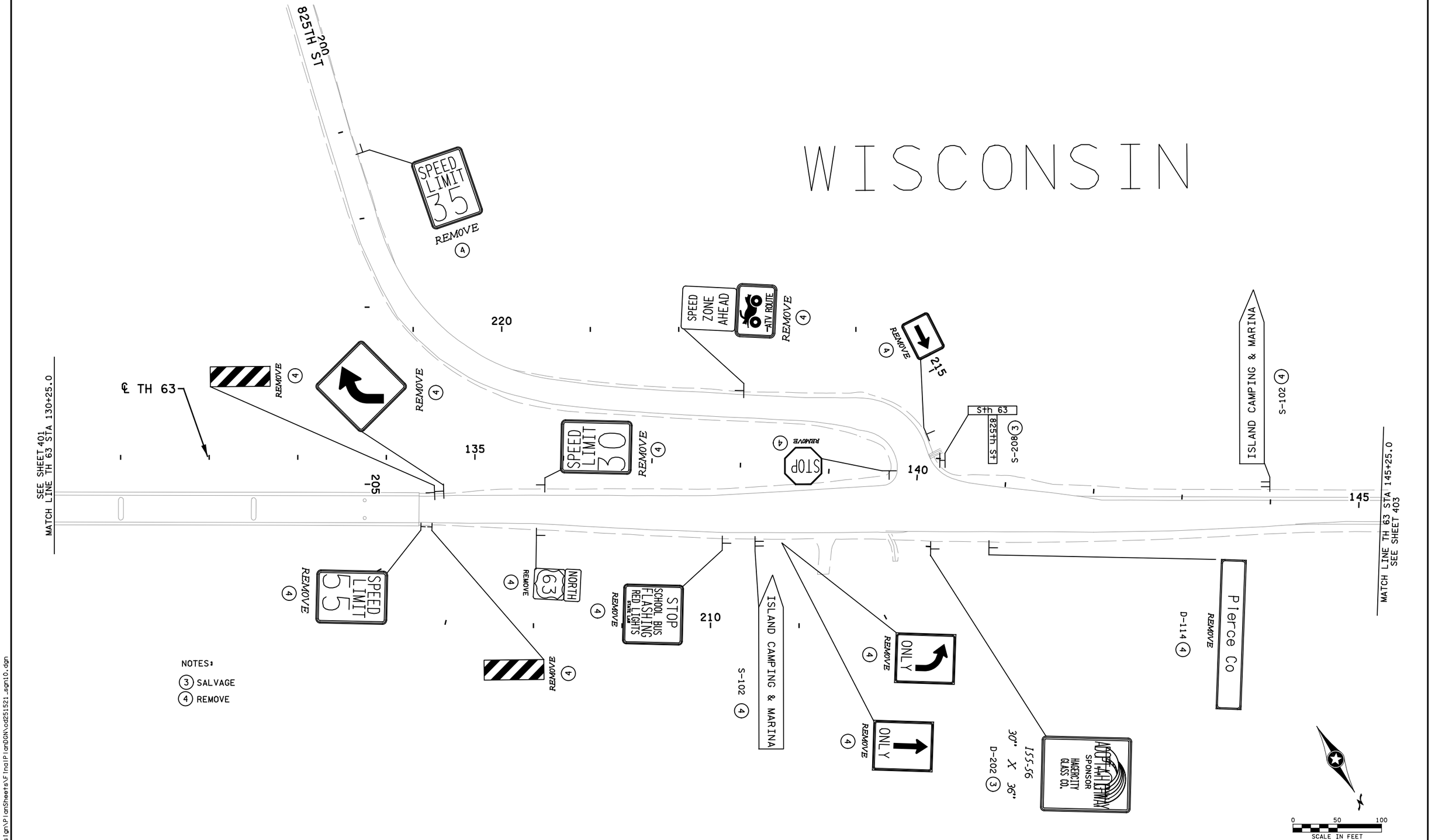
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SP 2515-21 (TH 63)

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WISCONSIN PROJECT I.D. 7210-00-78	

DRAWN BY	E.LEWEN
DESIGNED BY	E.LEWEN
CHECKED BY	A.NORD
COMM. NO.	0158933

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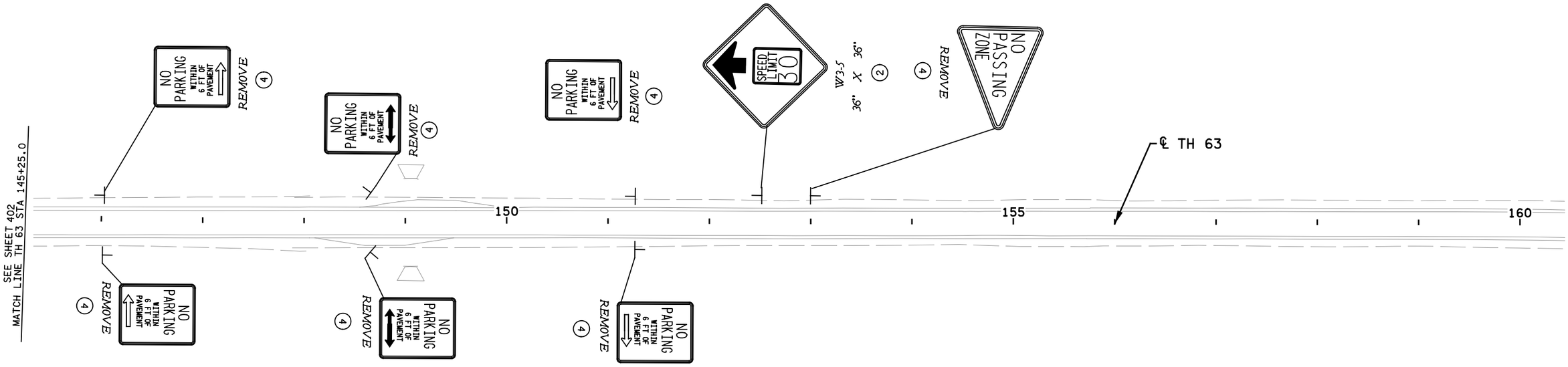
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EXISTING SIGNING PLANS
SP 2515-21 (TH 63)

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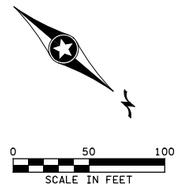
WISCONSIN



NOTES:

(2) INPLACE

(4) REMOVE



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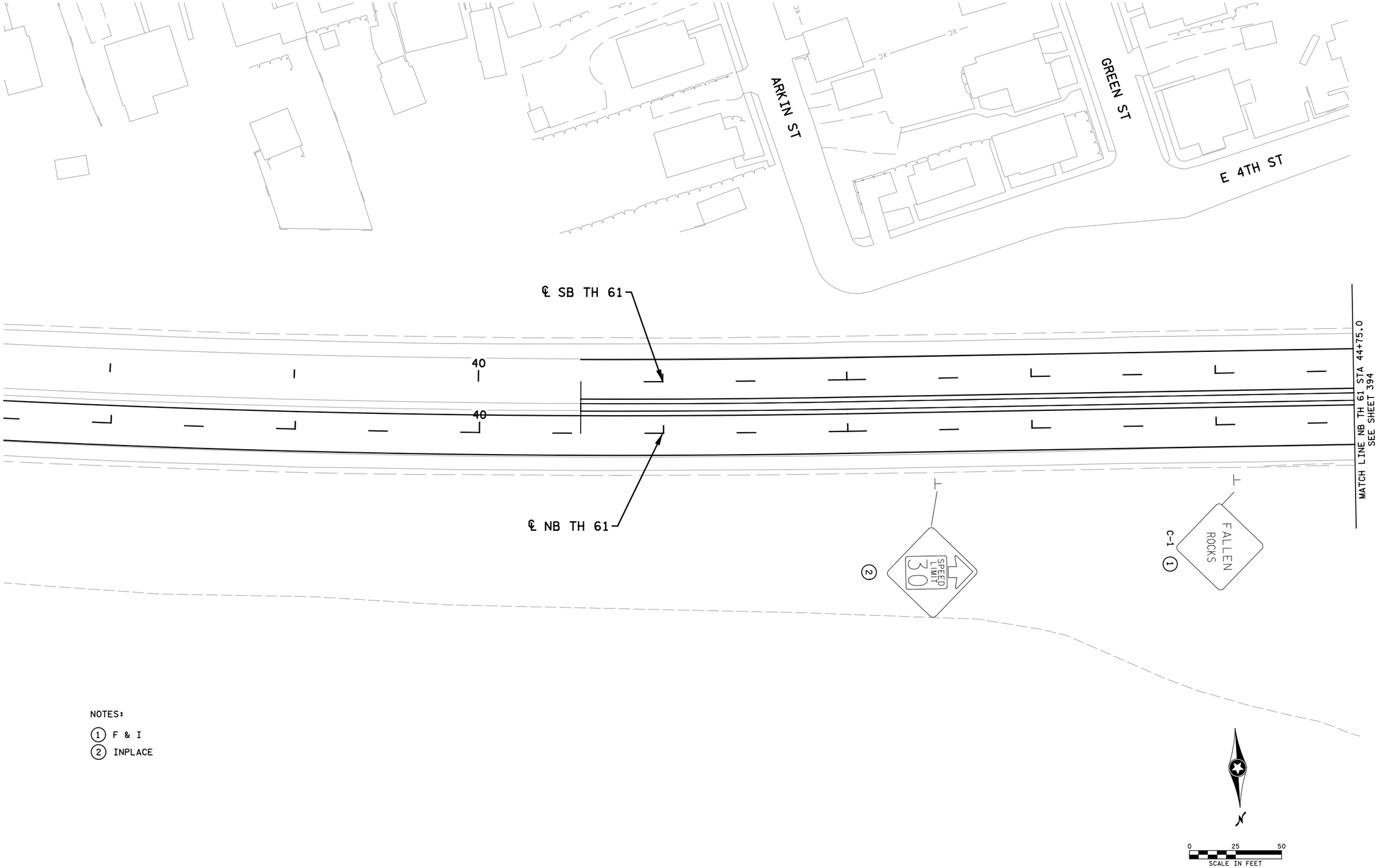
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SP 2515-21 (TH 63)

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NOTES:

1. F & I
2. INPLACE

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WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY A.NORD
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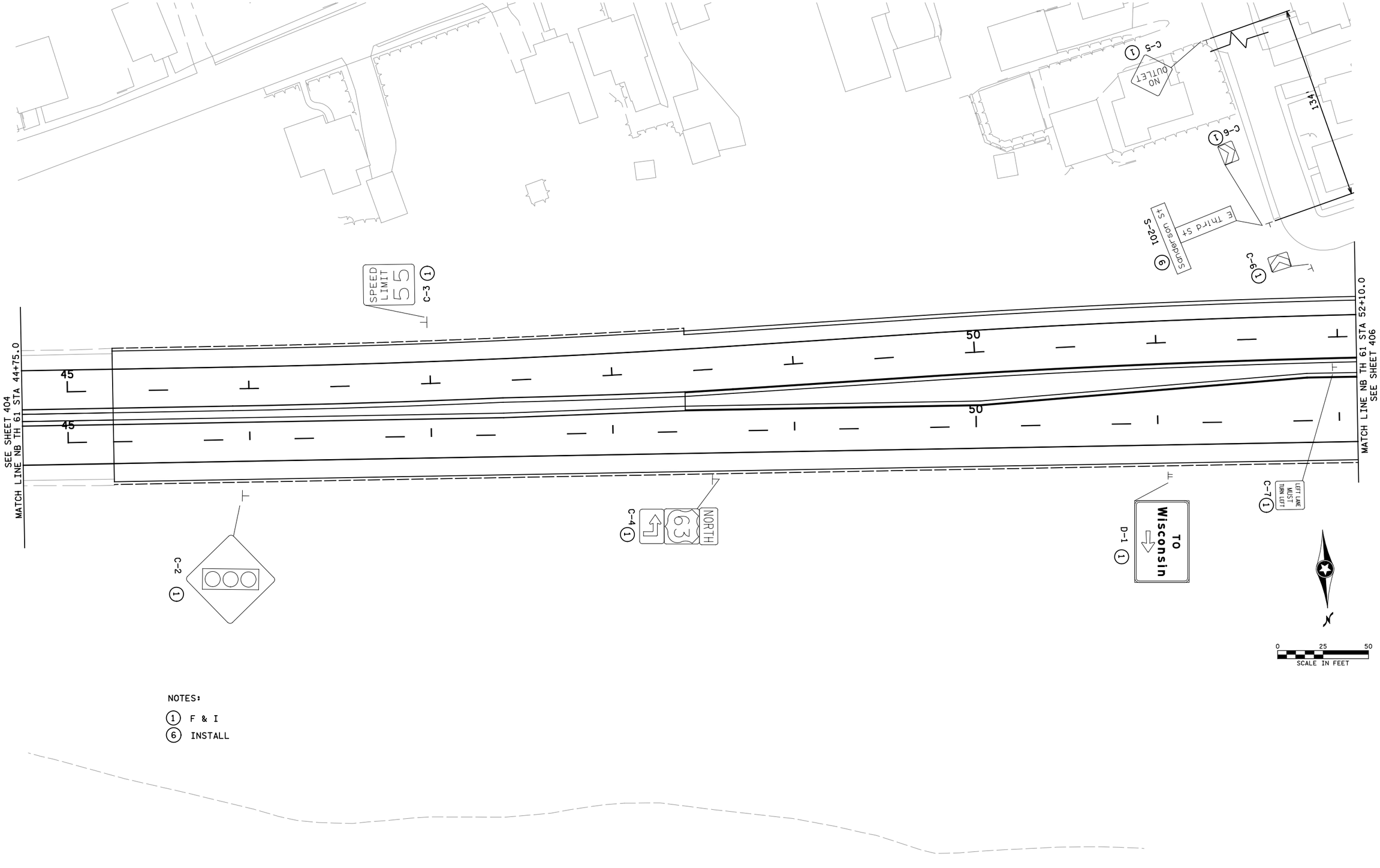
MINNESOTA DEPARTMENT OF TRANSPORTATION

PERMANENT SIGNING PLANS

SP 2515-21 (TH 63)

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NOTES:

(1) F & I

(6) INSTALL

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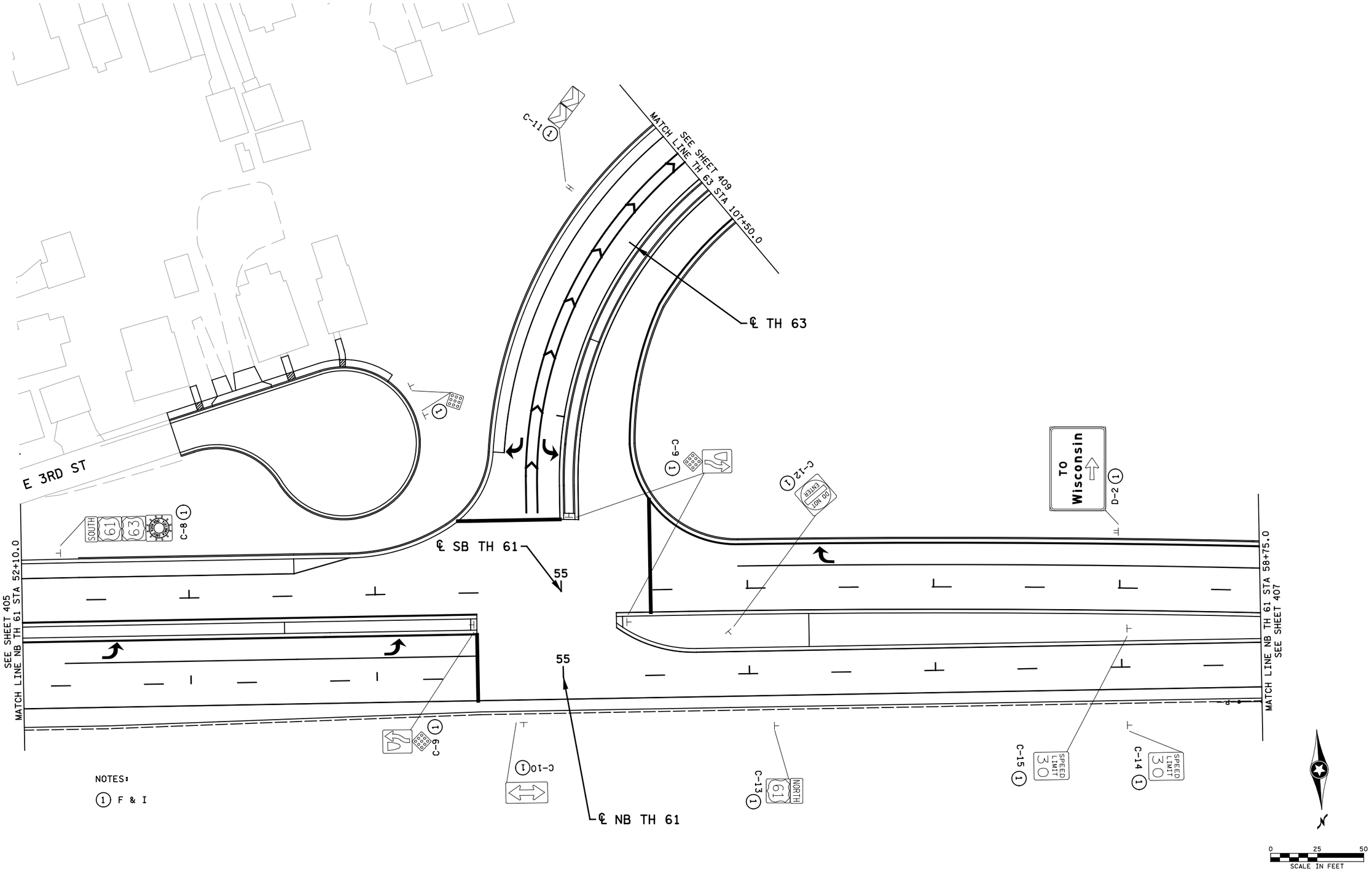
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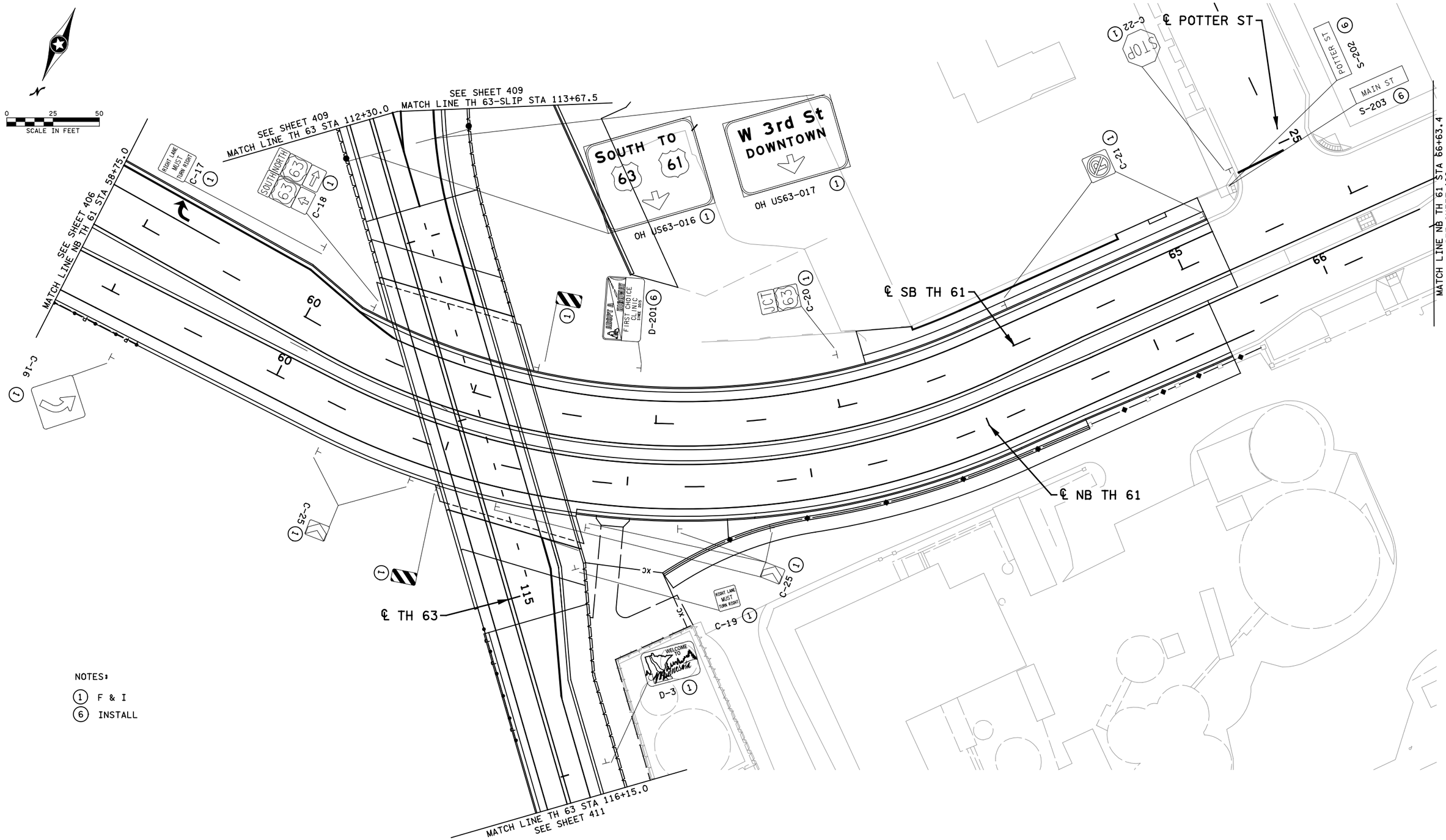
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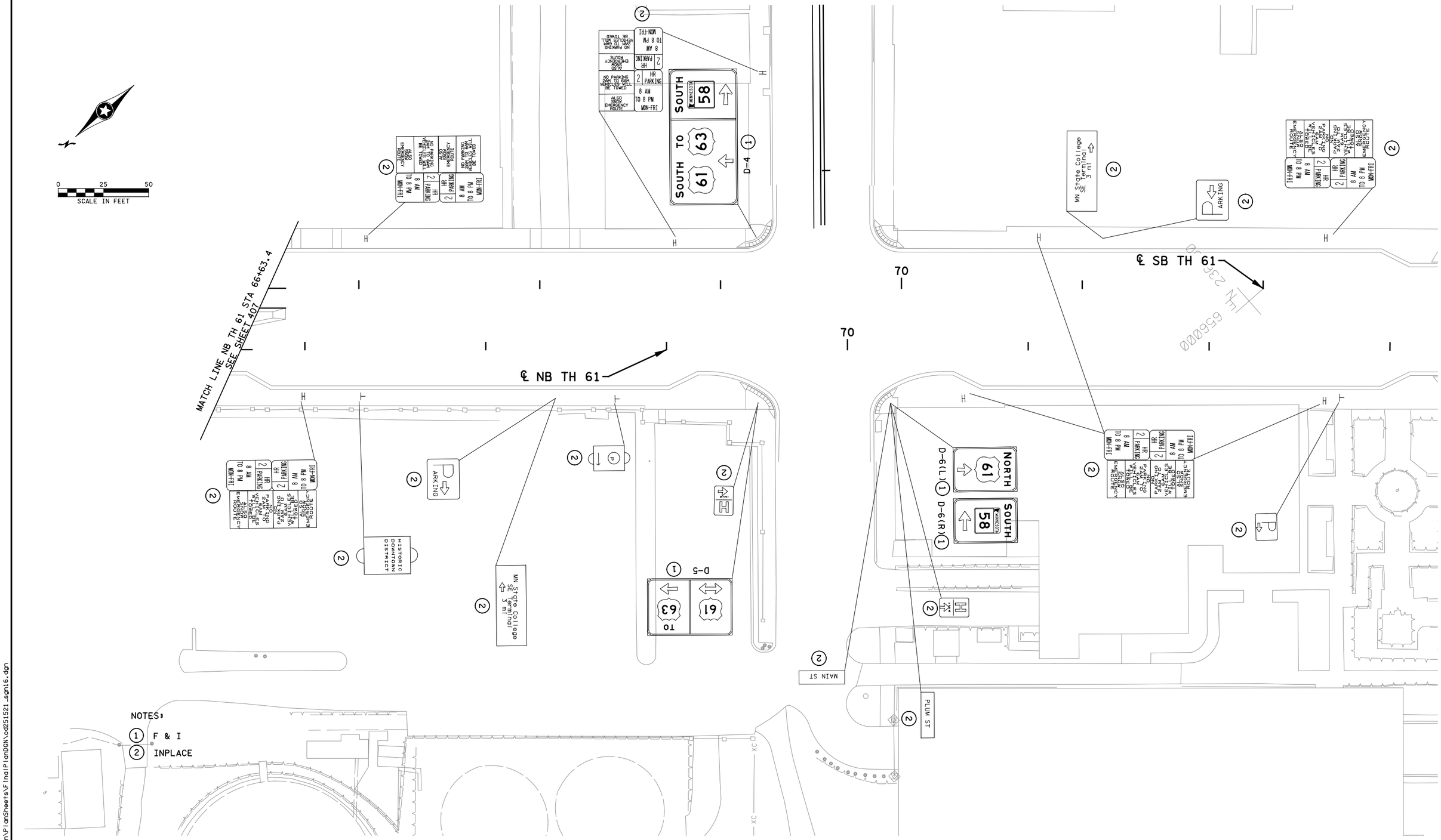
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SP 2515-21 (TH 63)

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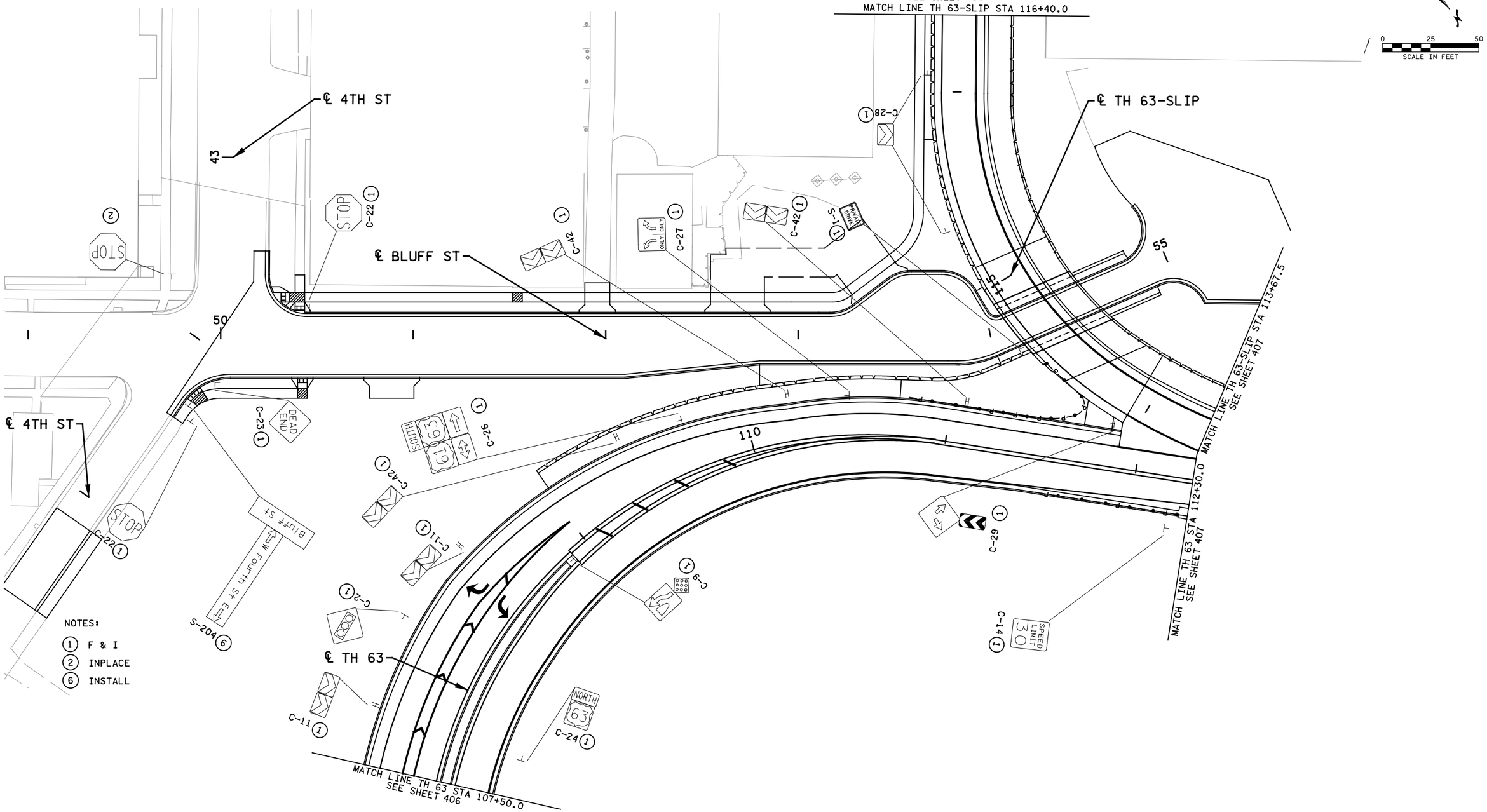
MINNESOTA DEPARTMENT OF TRANSPORTATION

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SP 2515-21 (TH 63)

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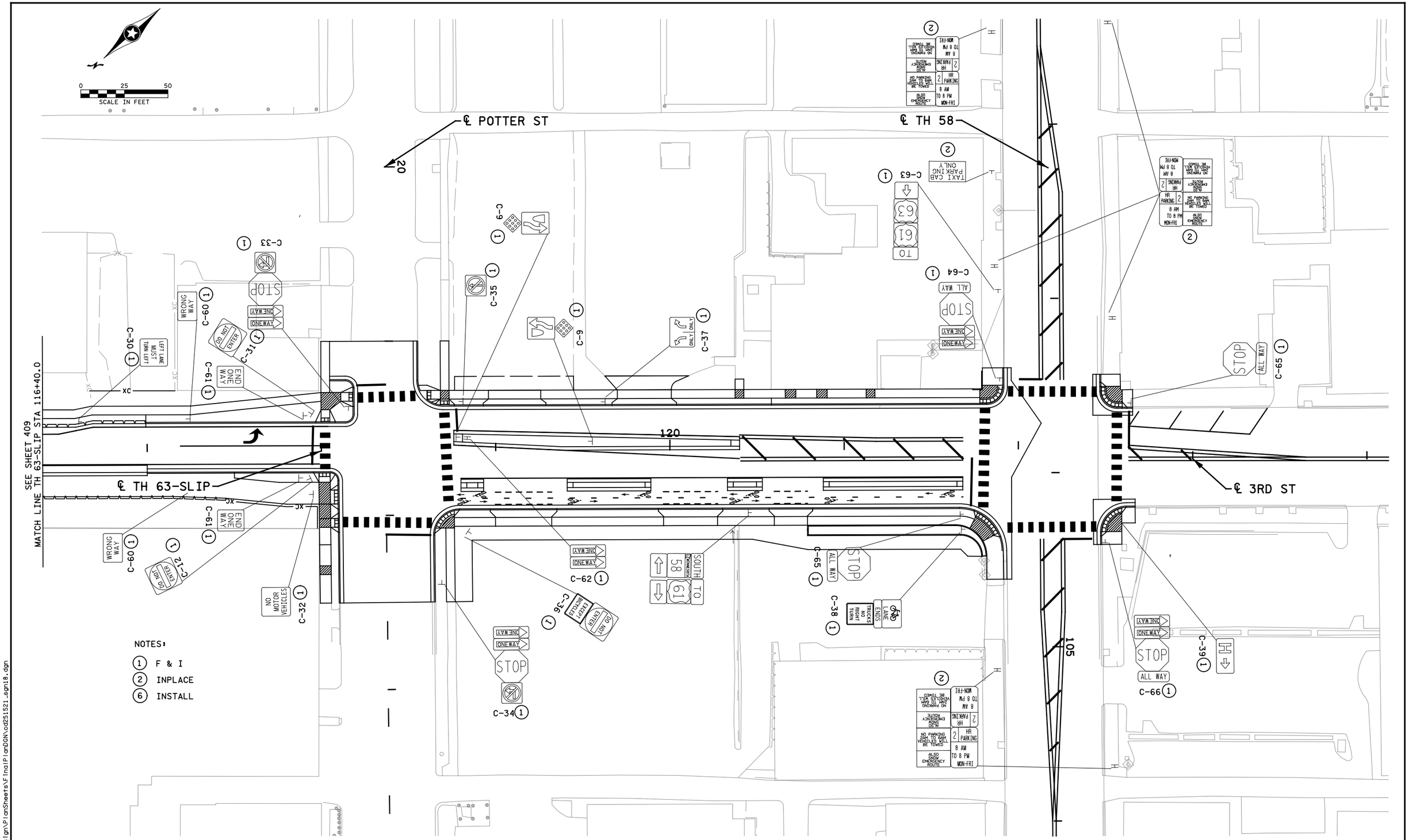
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SP 2515-21 (TH 63)

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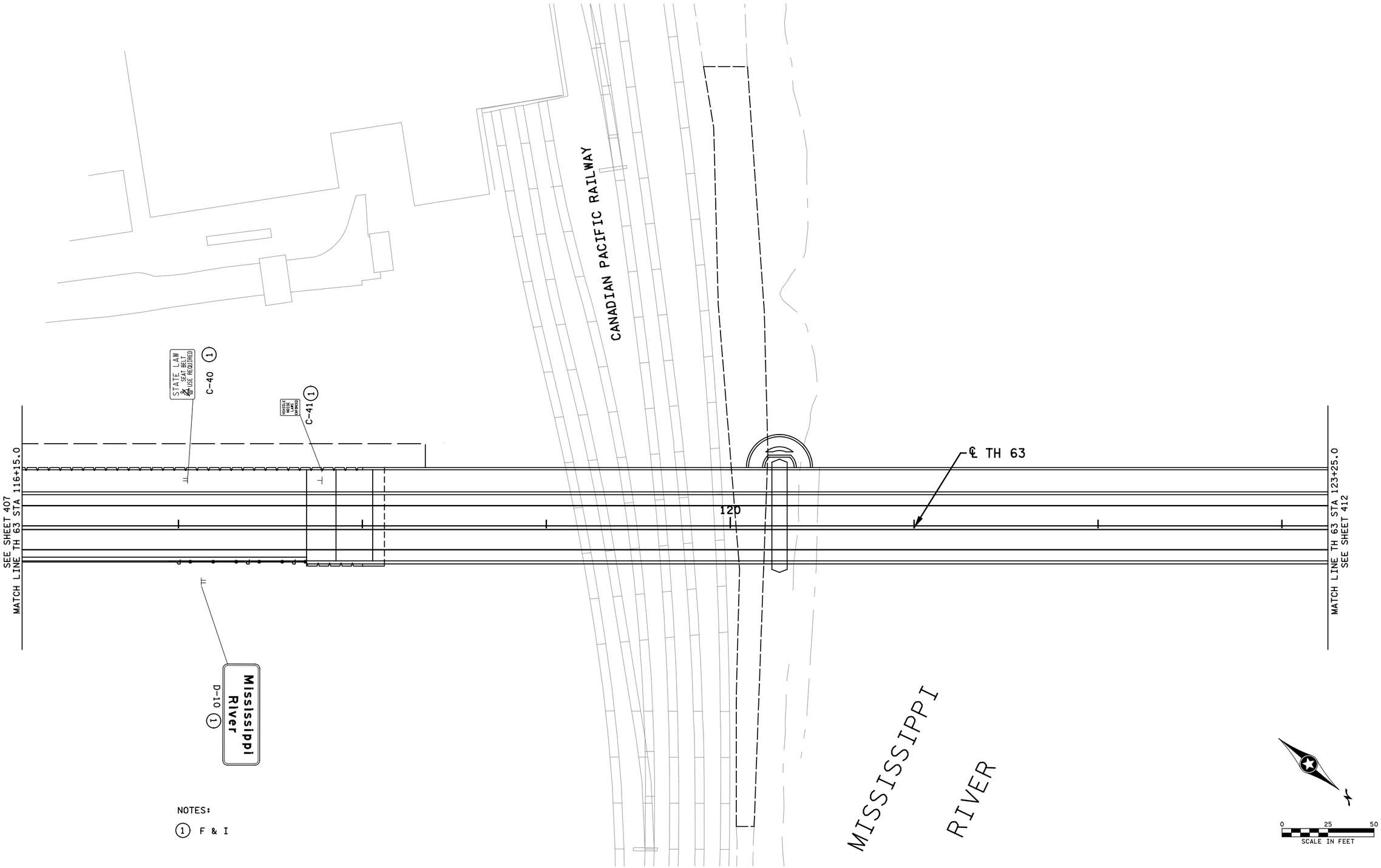
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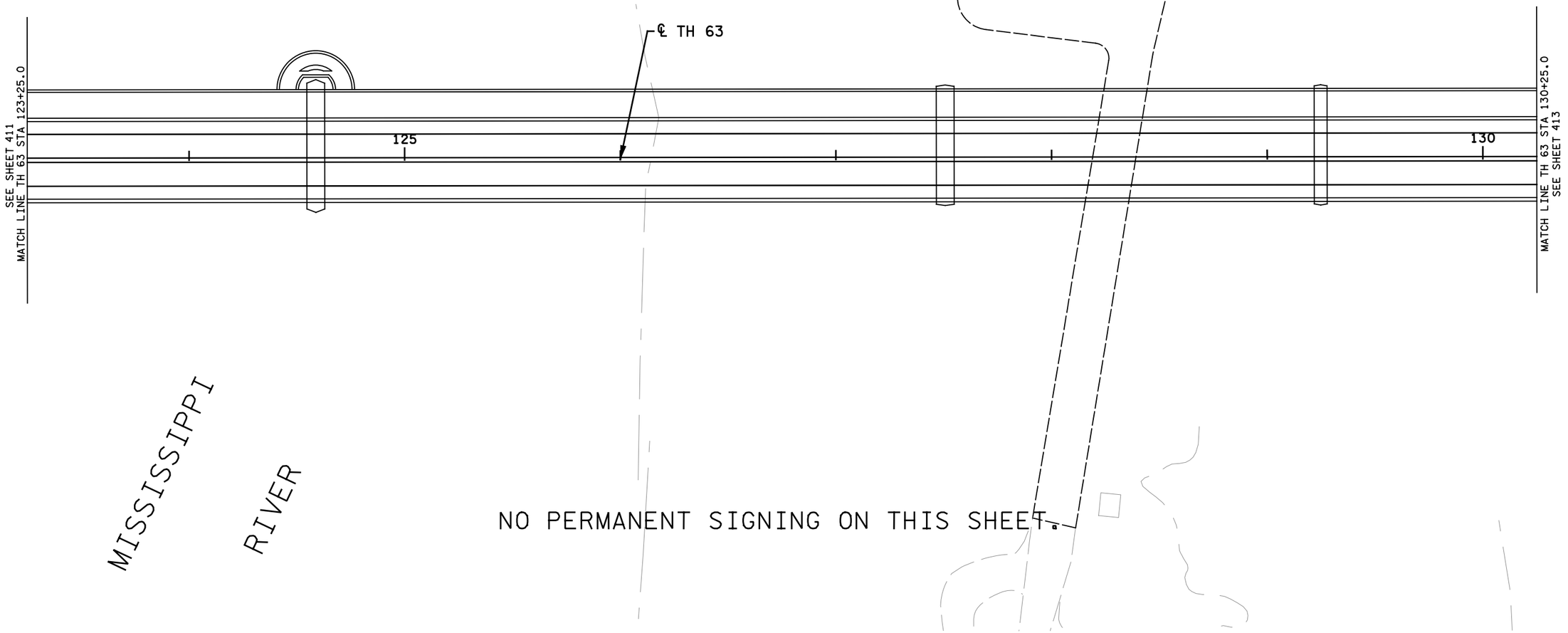
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SP 2515-21 (TH 63)

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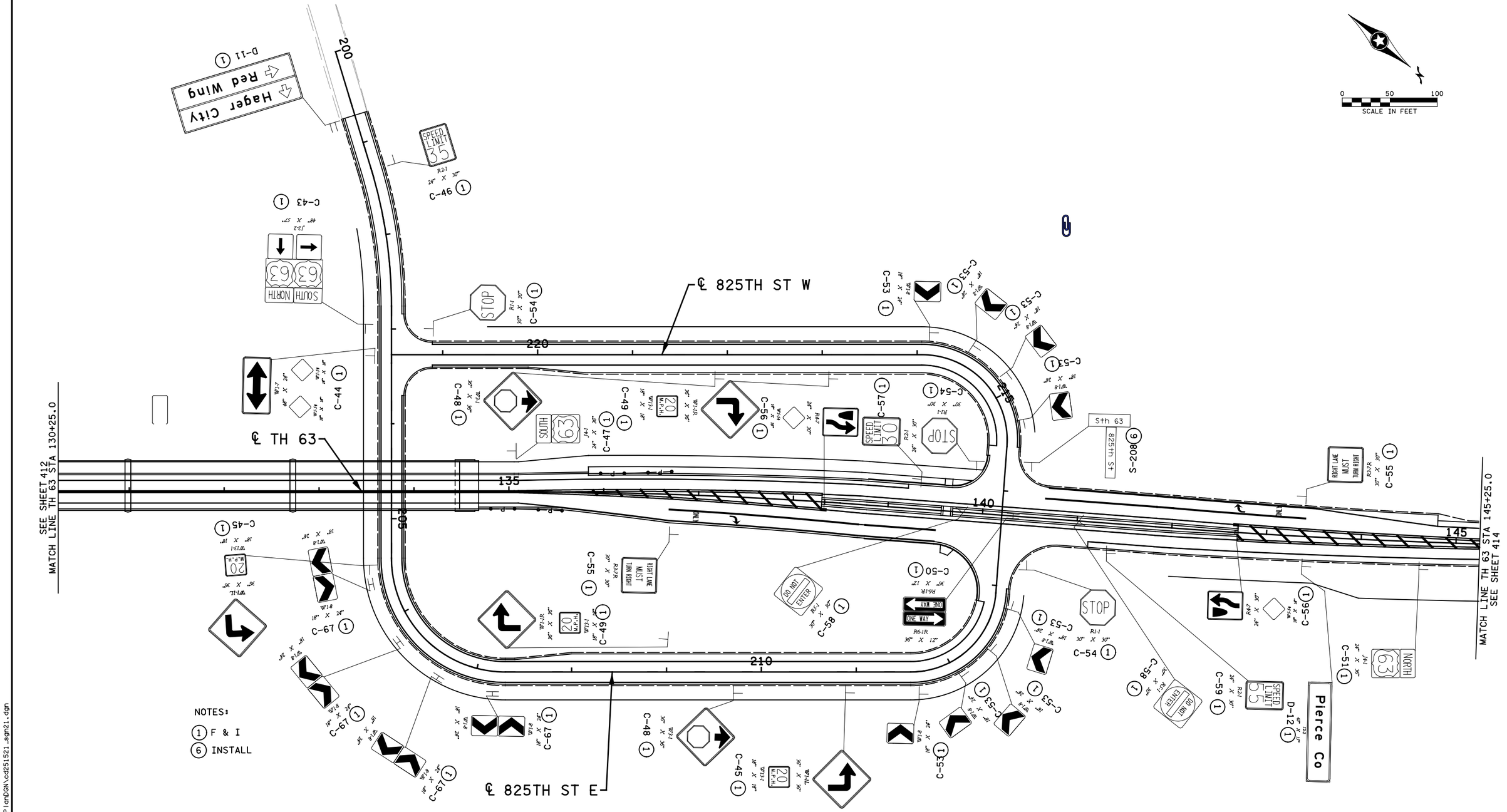
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SP 2515-21 (TH 63)

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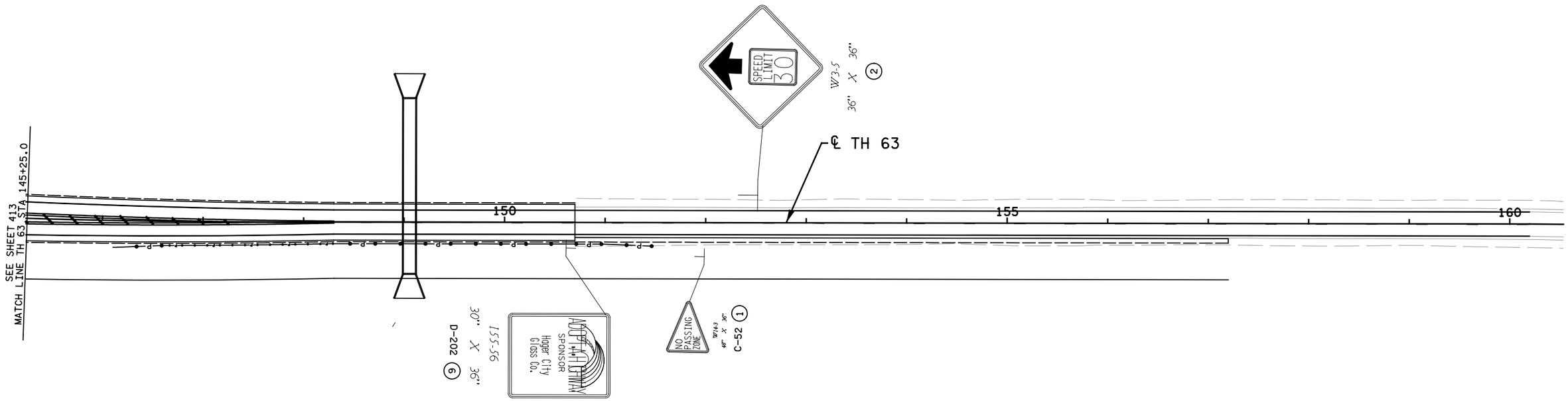
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SP 2515-21 (TH 63)

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WISCONSIN



NOTES:

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NO	DATE	BY	CKD	APPR	REVISION
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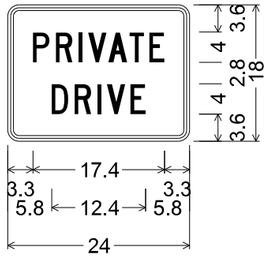
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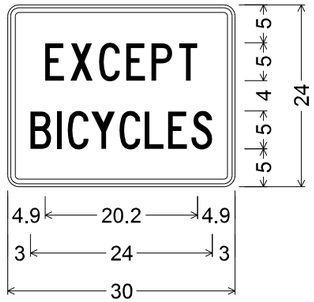
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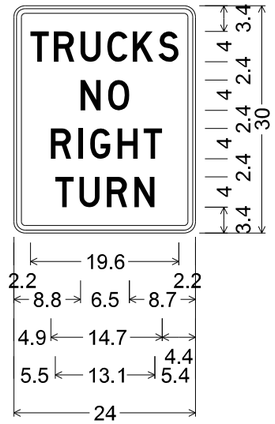


S-1;
1.5" Radius, 0.4" Border, 0.4" Indent, Black on White;
[PRIVATE] C;
[DRIVE] C;

TYPE SPECIAL SIGN PANELS



C-36;
1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;
[EXCEPT] C;
[BICYCLES] C specified length;



C-38;
1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;
[TRUCKS] D specified length;
[NO] D;
[RIGHT] D;
[TURN] D;

TYPE C SIGN PANELS

NO	DATE	BY	CKD	APPR	REVISION

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WISCONSIN PROJECT I.D. 7210-00-78

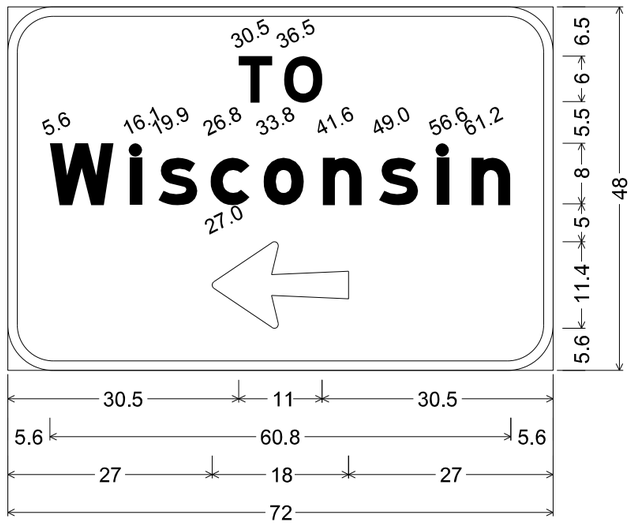
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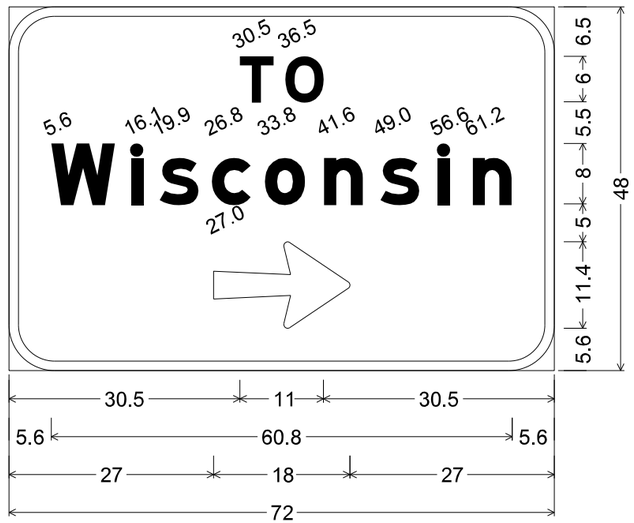
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SIGNING PLAN
SP 2515-21 (TH 63)

SHEET 415 OF 688

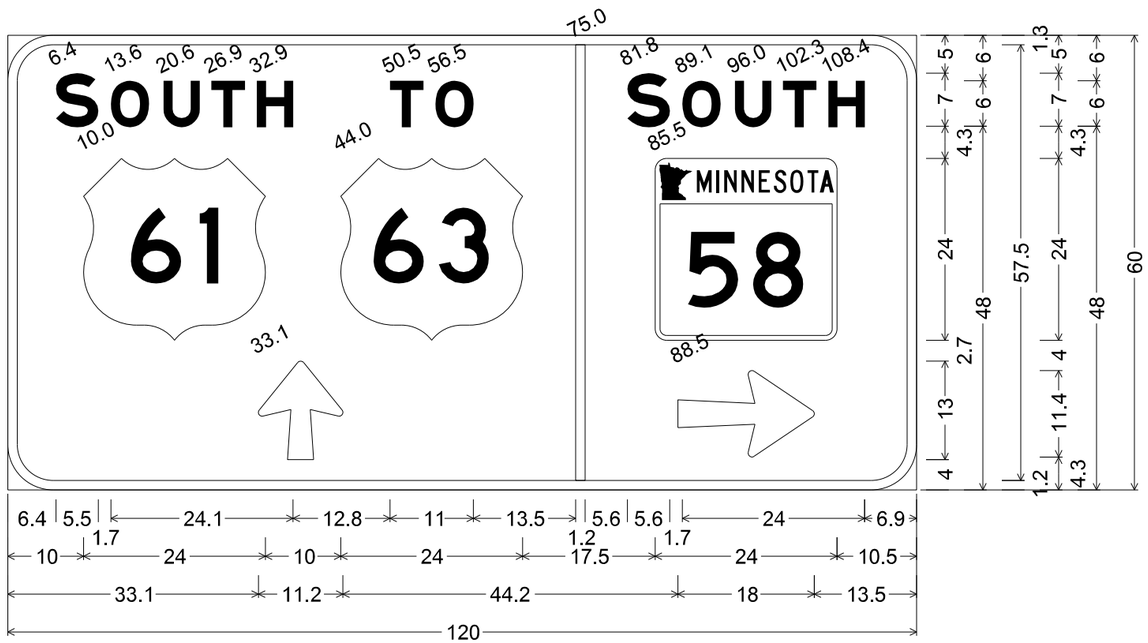
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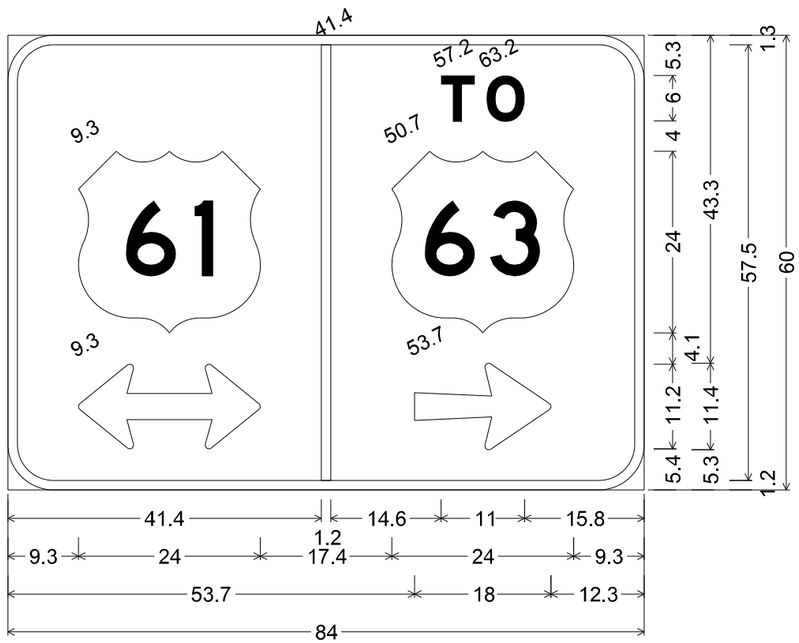
D-1; 6.0" Radius, 1.3" Border, White on Green;
[TO] E Mod; [Wisconsin] E Mod;
Arrow 14 - 18.0" 180°;



D-2; 6.0" Radius, 1.3" Border, White on Green;
[TO] E Mod; [Wisconsin] E Mod;
Arrow 14 - 18.0" 0°;



D-4; 6.0" Radius, 1.3" Border, White on Green;
[SOUTH] E Mod; [TO] E Mod; Arrow 5 - 13.0" 90°; [SOUTH] E Mod;
Arrow 14 - 18.0" 0°;



D-5; 6.0" Radius, 1.3" Border, White on Green;
[TO] E Mod; Double Headed Arrow 5 - 24.0" 0°;
Arrow 14 - 18.0" 0°;

TYPE D SIGN PANELS

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_sp02.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: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

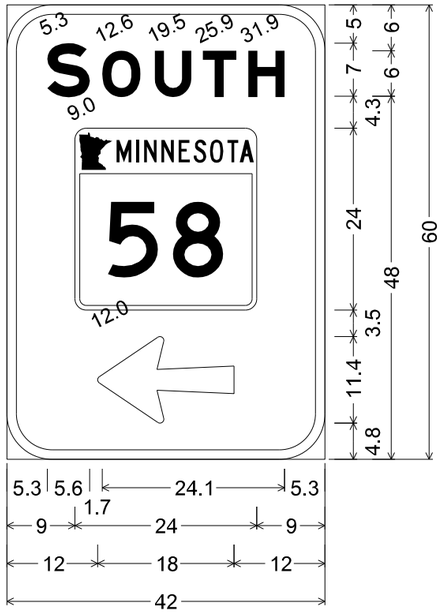
DRAWN BY E.LEWEN
DESIGNED BY E.LEWEN
CHECKED BY A.NORD
COMM. NO. 0158933

ISTHMUS engineering, inc.

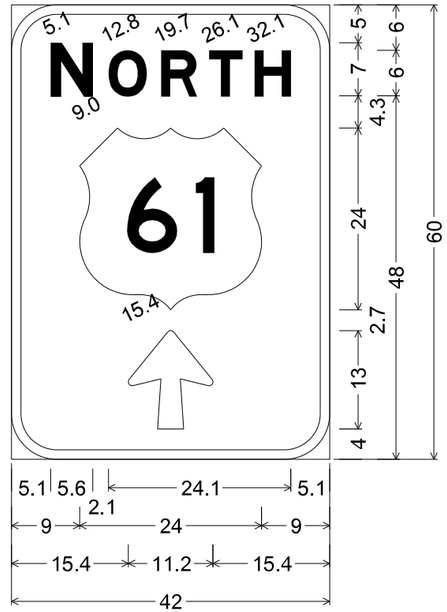
MINNESOTA DEPARTMENT OF TRANSPORTATION
SIGNING PLAN
SP 2515-21 (TH 63)

SHEET 416 OF 688

11:36:19 AM
6/22/2016
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D-6(L);
6.0" Radius, 1.3" Border, White on Green;
[SOUTH] E Mod;
Arrow 14 - 18.0" 180°;



D-6(R);
6.0" Radius, 1.3" Border, White on Green;
[NORTH] E Mod;
Arrow 5 - 13.0" 90°;

TYPE D SIGN PANELS

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_sp03.dgn

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN
DESIGNED BY E.LEWEN
CHECKED BY A.NORD
COMM. NO. 0158933

ISTHMUS engineering, inc.

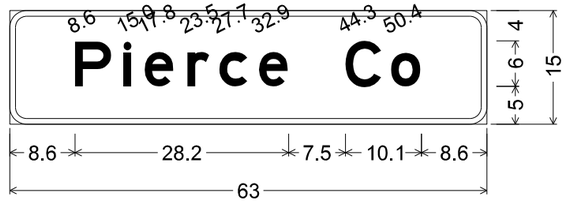
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SP 2515-21 (TH 63)

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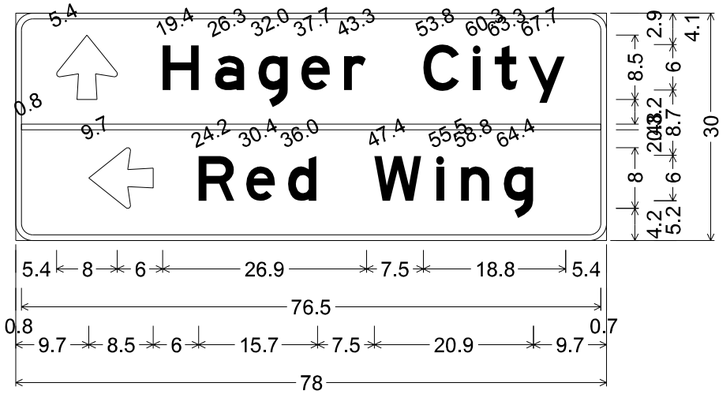
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D-10; 3.0" Radius, 1.0" Border, White on Green;
[Mississippi] E Mod; [River] E Mod;



D-12;
2.3" Radius, 0.8" Border, White on Green;
[Pierce Co] E;



D-11; 2.3" Radius, 0.8" Border, White on Green;
Arrow D-4.5D&E - 8.5" 90°; [Hager City] E;
Arrow D-4.5D&E - 8.5" 180°; [Red Wing] E;

TYPE D SIGN PANELS

TYPE D SIGN PANELS
WISCONSIN

NO	DATE	BY	CKD	APPR	REVISION

...\FinalPlanDGN\cd251521_sp04.dgn

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Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

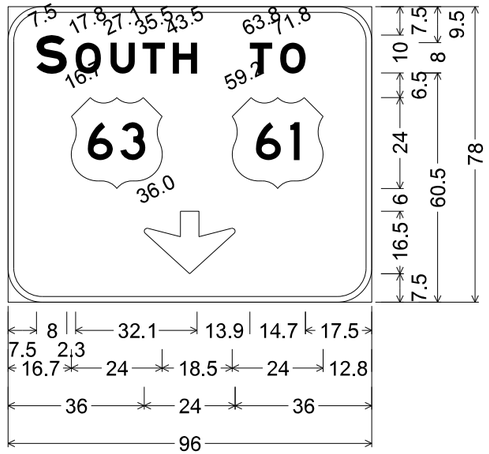
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DESIGNED BY E.LEWEN
CHECKED BY A.NORD
COMM. NO. 0158933

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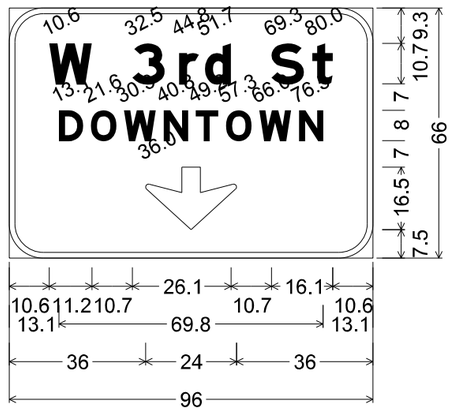
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SHEET 418 OF 688

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OH US63-016(L);
9.0" Radius, 1.5" Border, White on Green;
[SOUTH] E Mod; [TO] E Mod;
Down Arrow 16.0" 270°;



OH US63-016(R);
9.0" Radius, 1.5" Border, White on Green;
[W 3rd St] E Mod;
[DOWNTOWN] E Mod;
Down Arrow 16.0" 270°;

TYPE OH SIGN PANELS

NO	DATE	BY	CKD	APPR	REVISION
...\FinalPlanDGN\cd251521_sp05.dgn					

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Print Name: _____

Date _____ License # _____

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY E.LEWEN

DESIGNED BY E.LEWEN

CHECKED BY A.NORD

COMM. NO. 0158933

ISTHMUS engineering, inc.

MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGNING PLAN

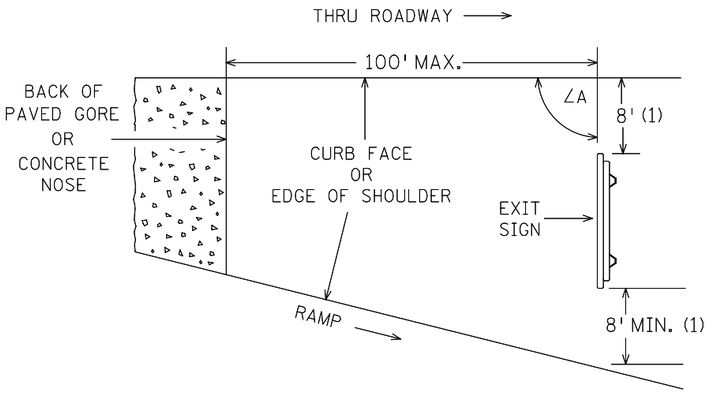
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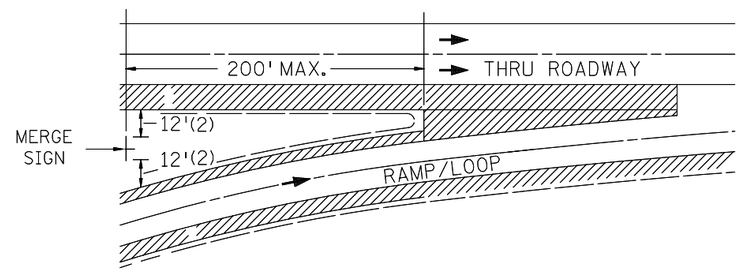
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6/2/2016
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PLOTTED/REVISED: $$$$@DATE@$$$$

GORE PLACEMENT



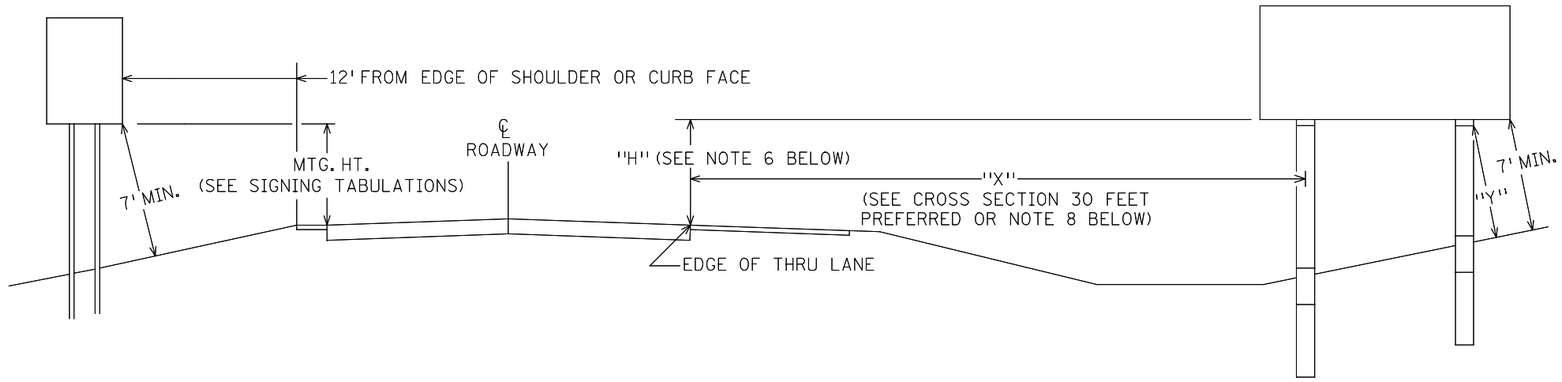


SPECIFIC NOTES:

(1) EXIT SIGNS
IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

(2) MERGE SIGNS
IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

ROADSIDE PLACEMENT



ROUTE MARKER, REGULATORY & WARNING SIGNS - TYPE C
GUIDE SIGNS - TYPE D

GUIDE SIGN - TYPE A

NOTES:

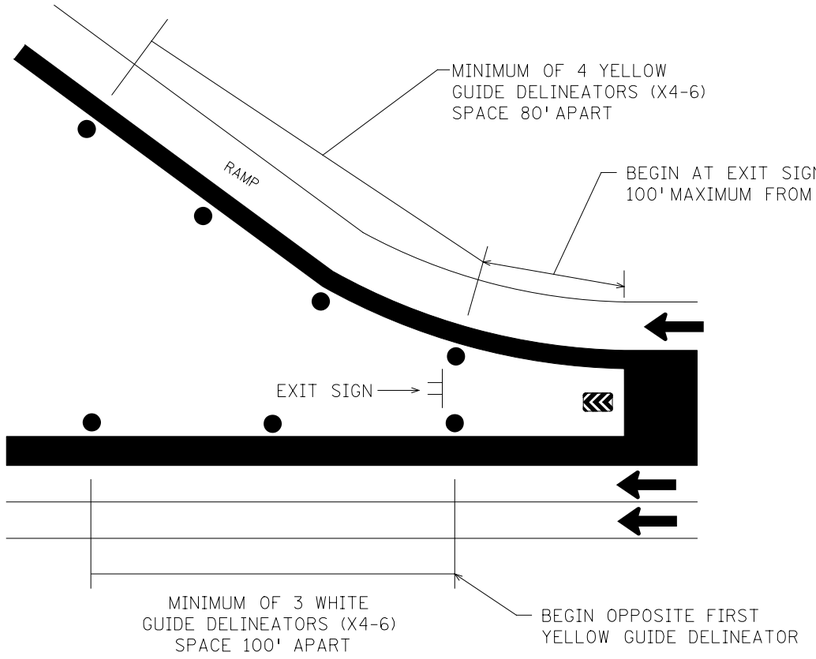
1. ALL TYPE C AND D MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF PAVEMENT IN RURAL AREAS OR TO THE TOP OF THE CURB OR IN THE ABSCENCE OF CURB, TO THE NEAR EDGE OF THE TRAVELED WAY.
2. SIGN FACES SHALL BE VERTICAL.
3. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
4. TO AVOID SPECULAR GLARE, ∠A SHALL BE APPROXIMATELY 93° FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
5. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
6. WHERE "X" IS LESS THAN 30', "H" SHALL BE 7'. WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
7. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
8. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 8 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

SIGN PLACEMENT

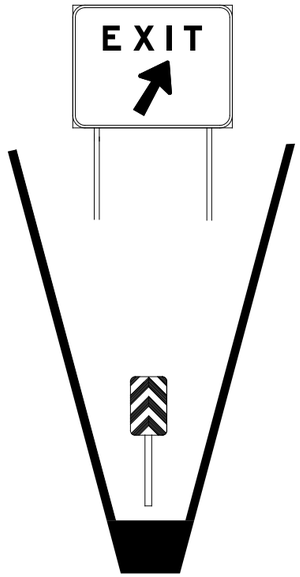
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REVISED: 7-23-15

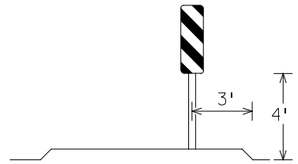
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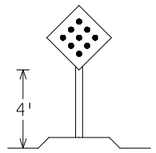
PLAN A
RAMP DELINEATION



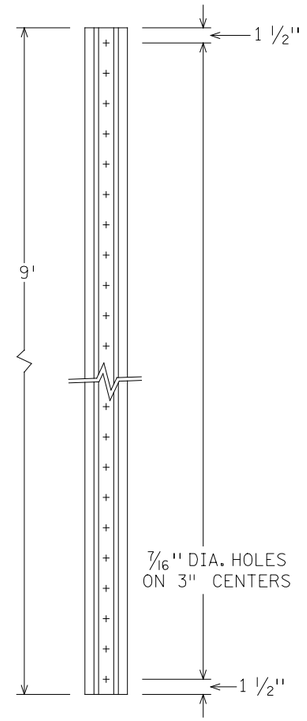
TYPE 3 OBJECT MARKER
12" X 24" (X4-4C)



RAISED ISLAND
TYPE 3 OBJECT MARKER
(X4-4)

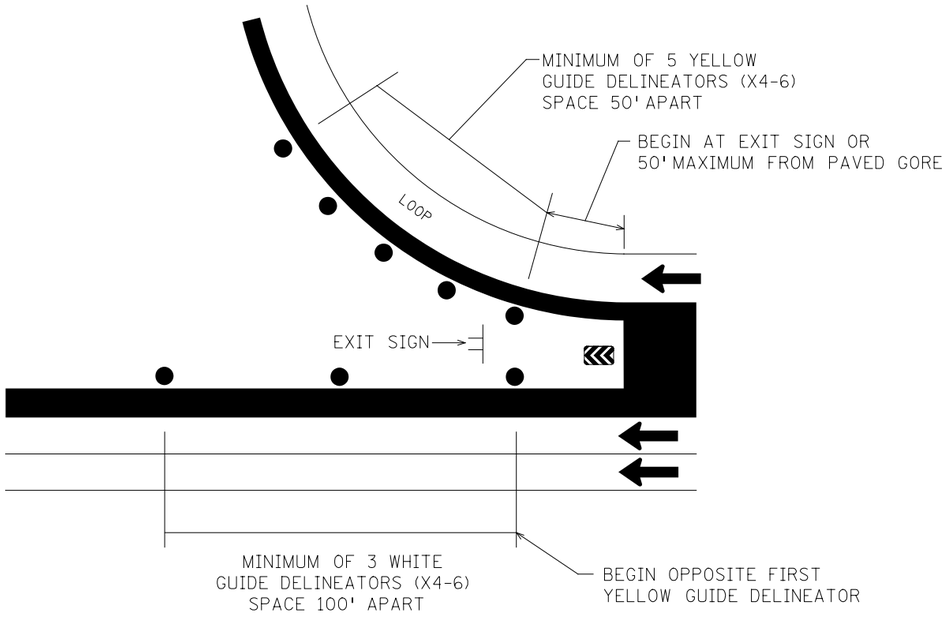


RAISED ISLAND
TYPE 2 OBJECT MARKER
(X4-2)

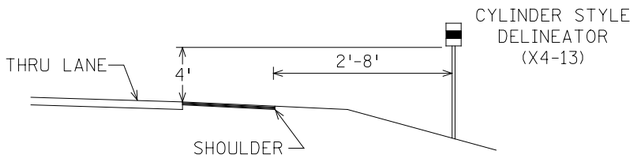


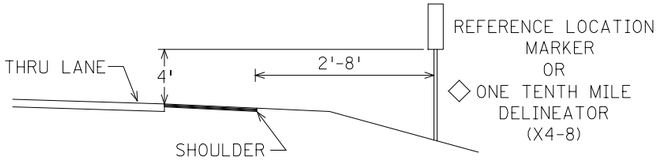
MNDOT 3401
NORMAL WEIGHT= 2 LB./FT.

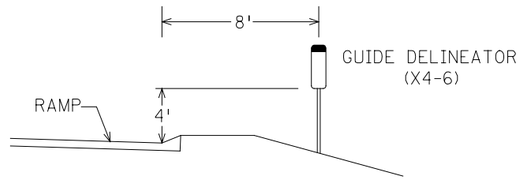
DELINEATOR POST



PLAN B
LOOP DELINEATION







TYPICAL PLACEMENT

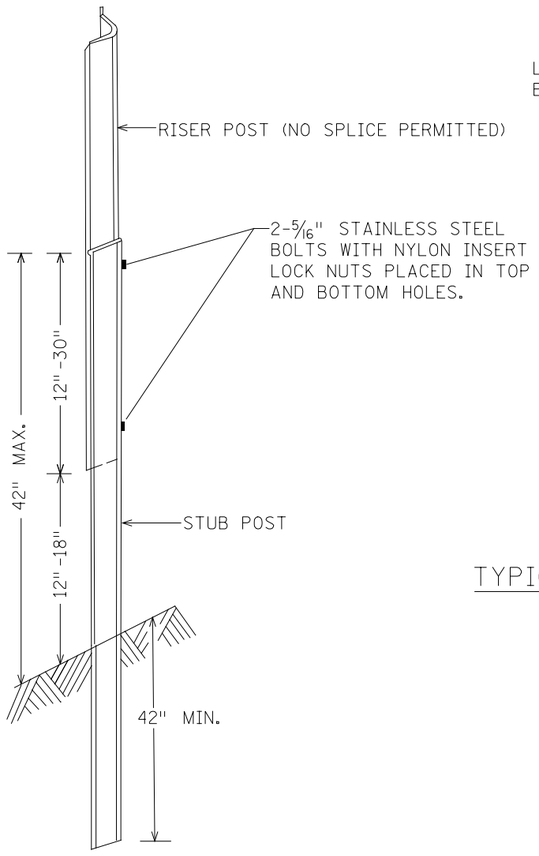
DELINEATORS AND MARKERS

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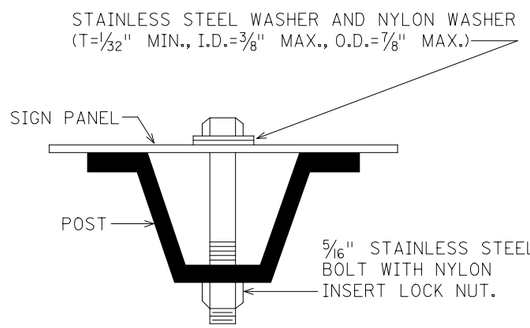
REVISED: 10-2-2013

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

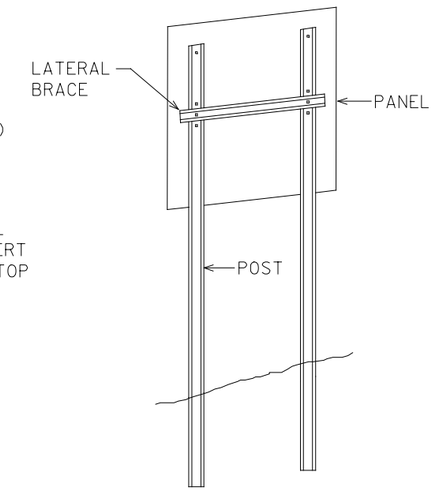
TYPE C & D POST



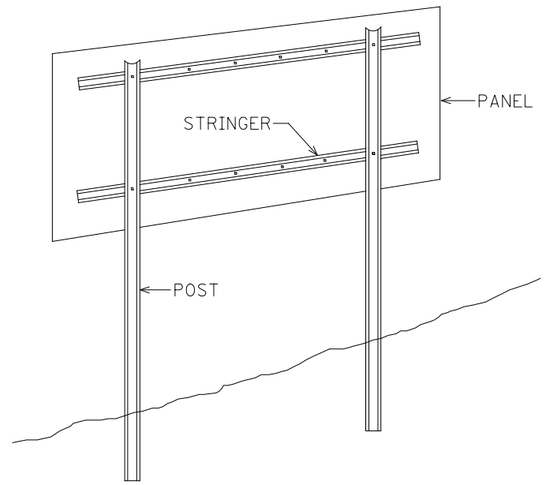
U POST BREAKAWAY SPLICE



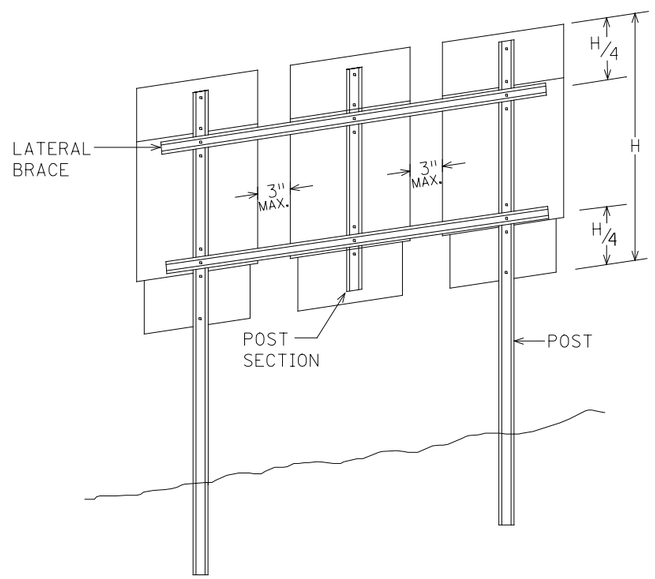
U POST MOUNTING
TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



MODIFIED TYPE C INSTALLATION

NOTES:

1. USE 3 LB/FT STUB POSTS. SHALL CONFORM TO MNDOT 3401.
2. USE 2.5 LB/FT RISER POSTS, STRINGERS, KNEE BRACES AND LATERAL BRACES. ALL SHALL CONFORM TO MNDOT 3401.
3. SEE SIGN DATA SHEETS FOR NUMBER OF POSTS, KNEE BRACES, POST LENGTHS AND SPACINGS, AS DETERMINED FROM TEM CHARTS 6.3 AND 6.4.
4. IF MORE THAN TWO POSTS ARE NEEDED, THE MINIMUM SPACING SHALL BE 45" BETWEEN POSTS.
5. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL).
6. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL UNLESS OTHERWISE SPECIFIED.
7. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
8. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
9. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
10. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 42".
11. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
12. COLLARS SHALL BE USED TO SHIM OVERLAYS AND LEGEND COMPONENTS AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A6.
13. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
14. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
15. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

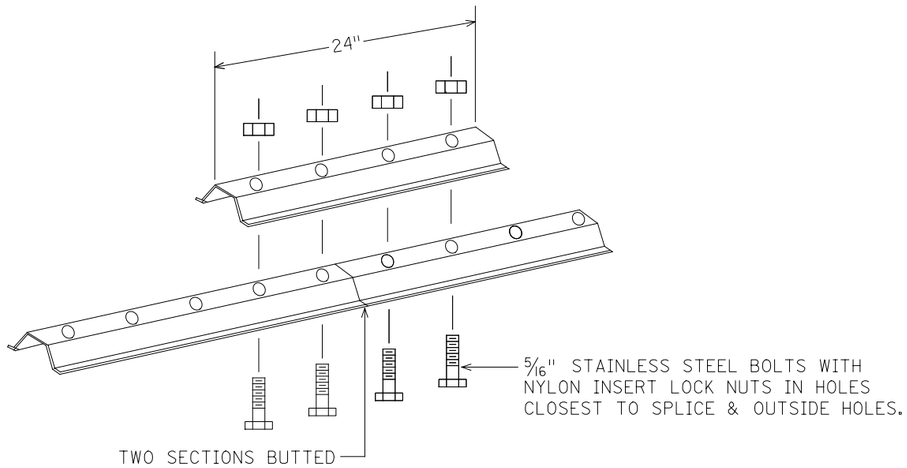
TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 1 of 3

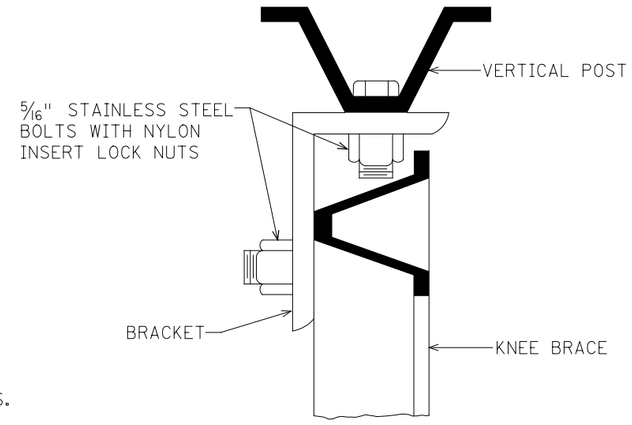
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REVISED: 1-25-2016

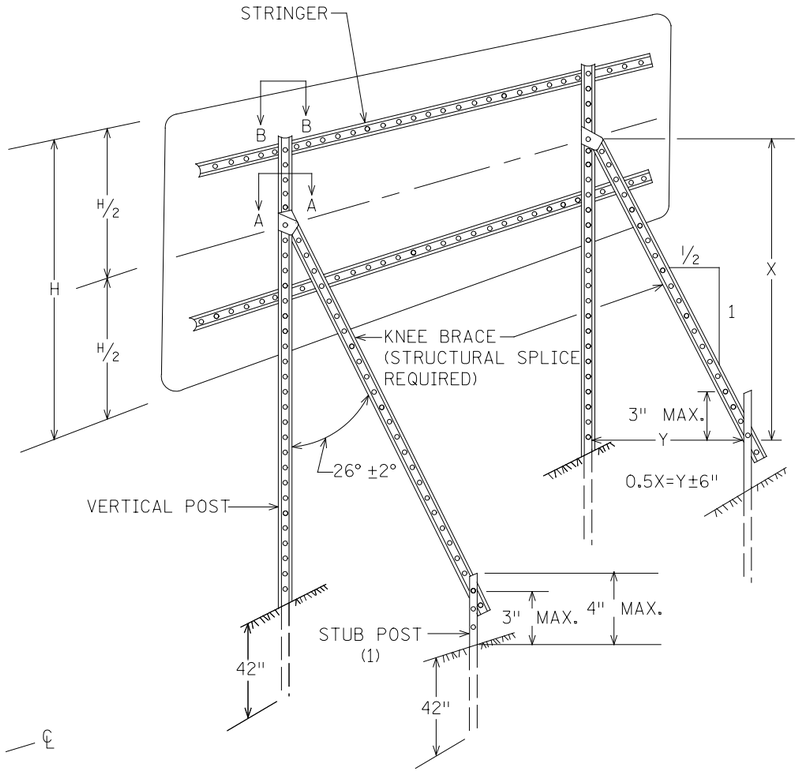
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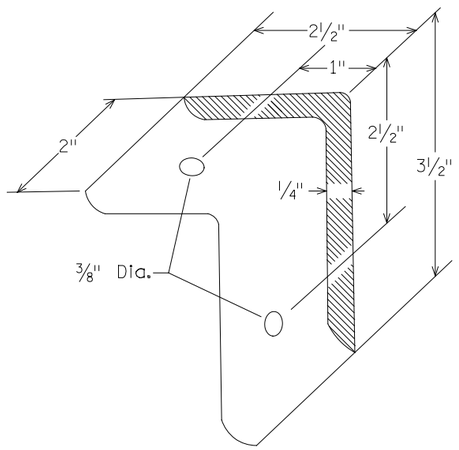
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

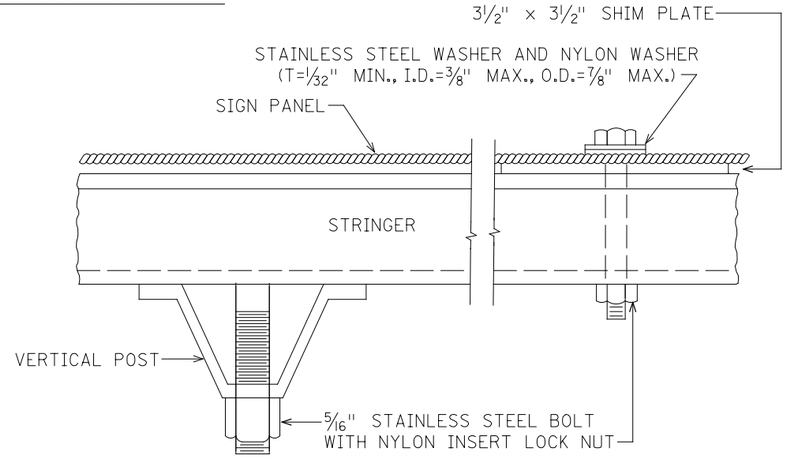


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

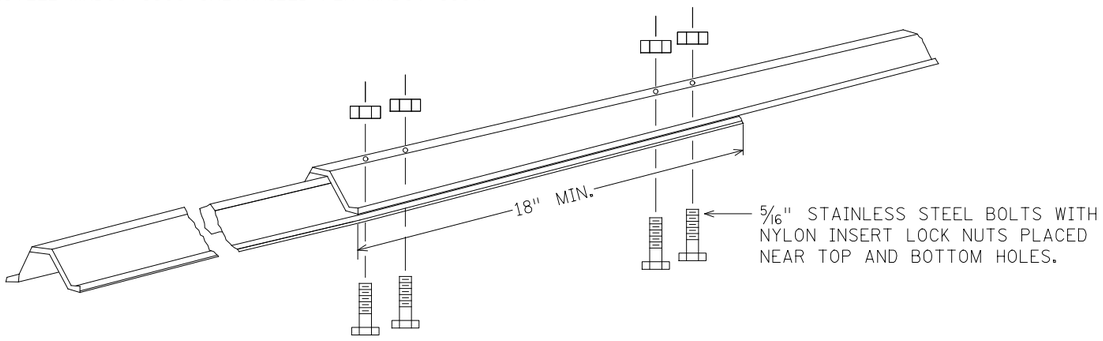


A-FRAME BRACKET

(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)

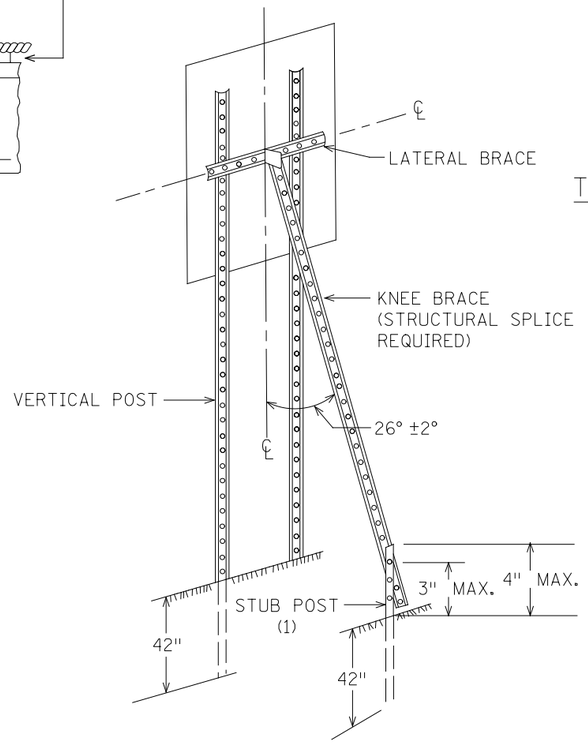


SECTION B-B

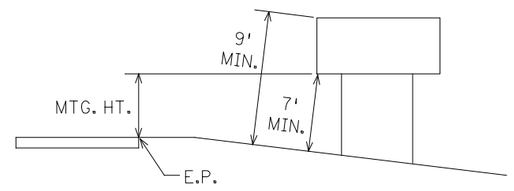


STRUCTURAL SPLICE

(USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)



TYPICAL "A-FRAME" INSTALLATION TYPE "C" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.

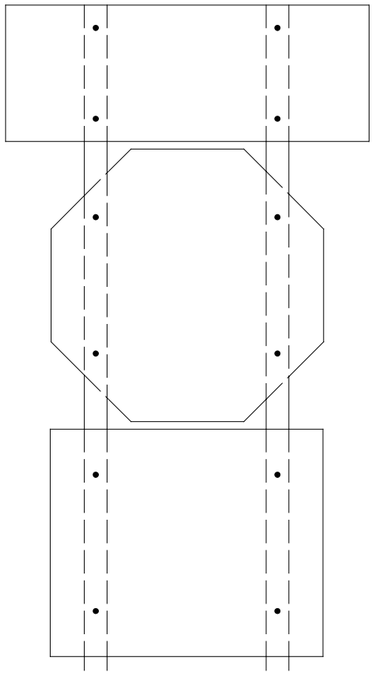
TYPE C & D SIGN STRUCTURAL DETAILS

Sheet 2 of 3

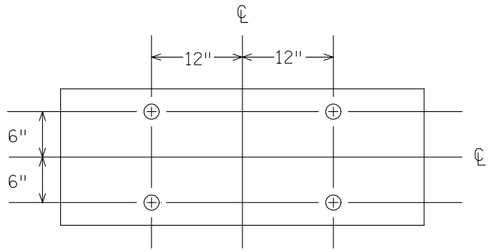
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REVISED: 12-4-2013

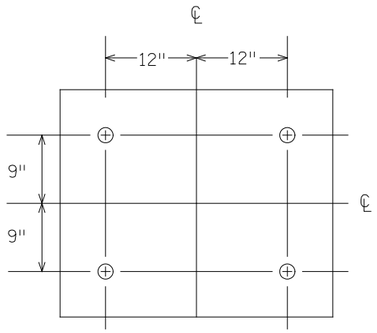
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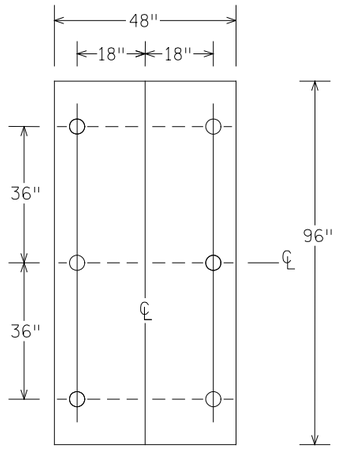
R6-1, R1-1 & (R6-3 OR R6-3a)
MOUNTING



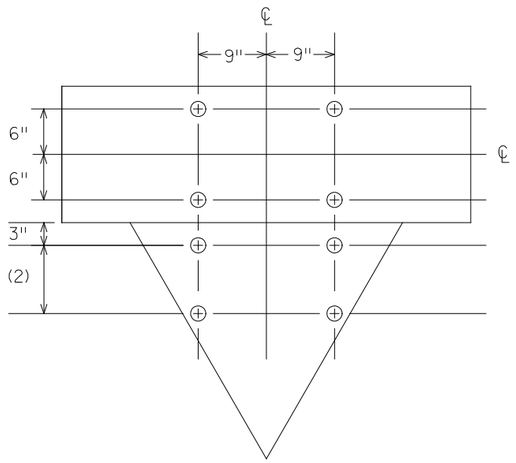
PUNCHING FOR R6-1 (54"×18")



PUNCHING FOR R6-3 OR R6-3a (36"×30")

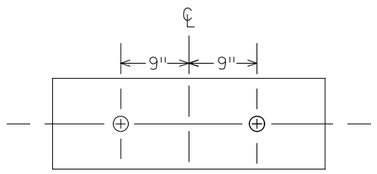


PUNCHING FOR R2-4b
SPEED LIMIT

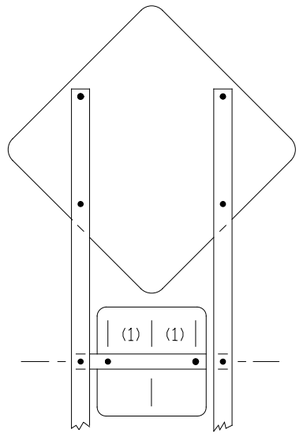


PUNCHING FOR R6-1 (54"×18") AND
R1-2 (36"×36"×36" OR 48"×48"×48")

(2) 9" FOR 36"×36"×36"
18" FOR 48"×48"×48"

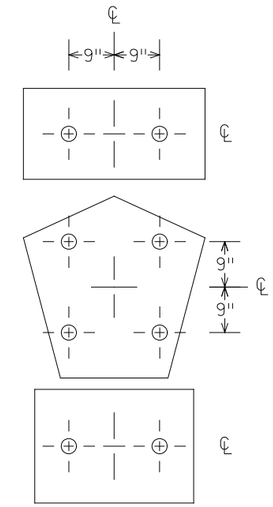


PUNCHING FOR R6-1 (36"×12")



WARNING SIGN [30"×30 OR 48"X48"] AND
WARNING PLAQUE [18"×18" OR 30"×30"]
PUNCHING AND MOUNTING

(1) 6" FOR WARNING PLAQUE (18"×18")
12" FOR WARNING PLAQUE (30"×30")



(M3-1A, M3-2A, M3-3A OR M3-4A) [36"×18"] AND
M1-6 [36"×36"] AND
(M5-1A, M5-2A, M6-1A, M6-2A, M6-3A M6-4A, M6-5A OR M6-6A) [30"×24"]
PUNCHING

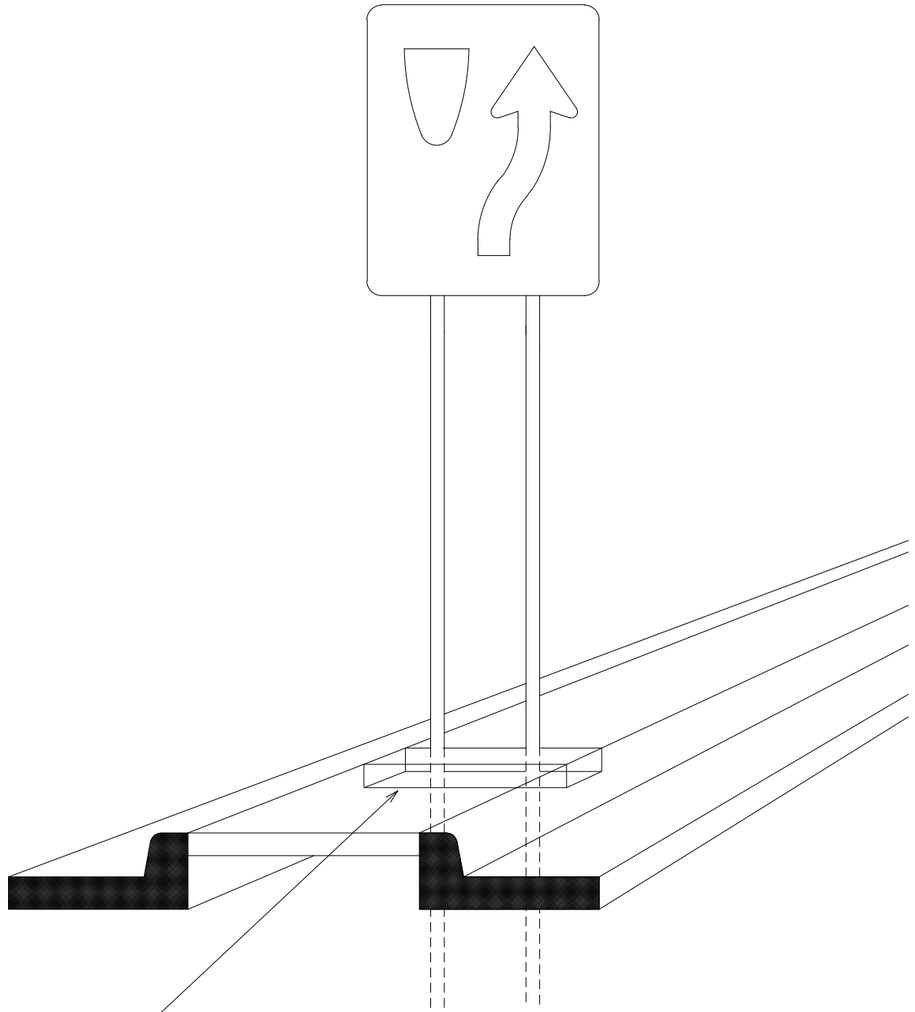
TYPE C & D SIGN

STRUCTURAL DETAILS

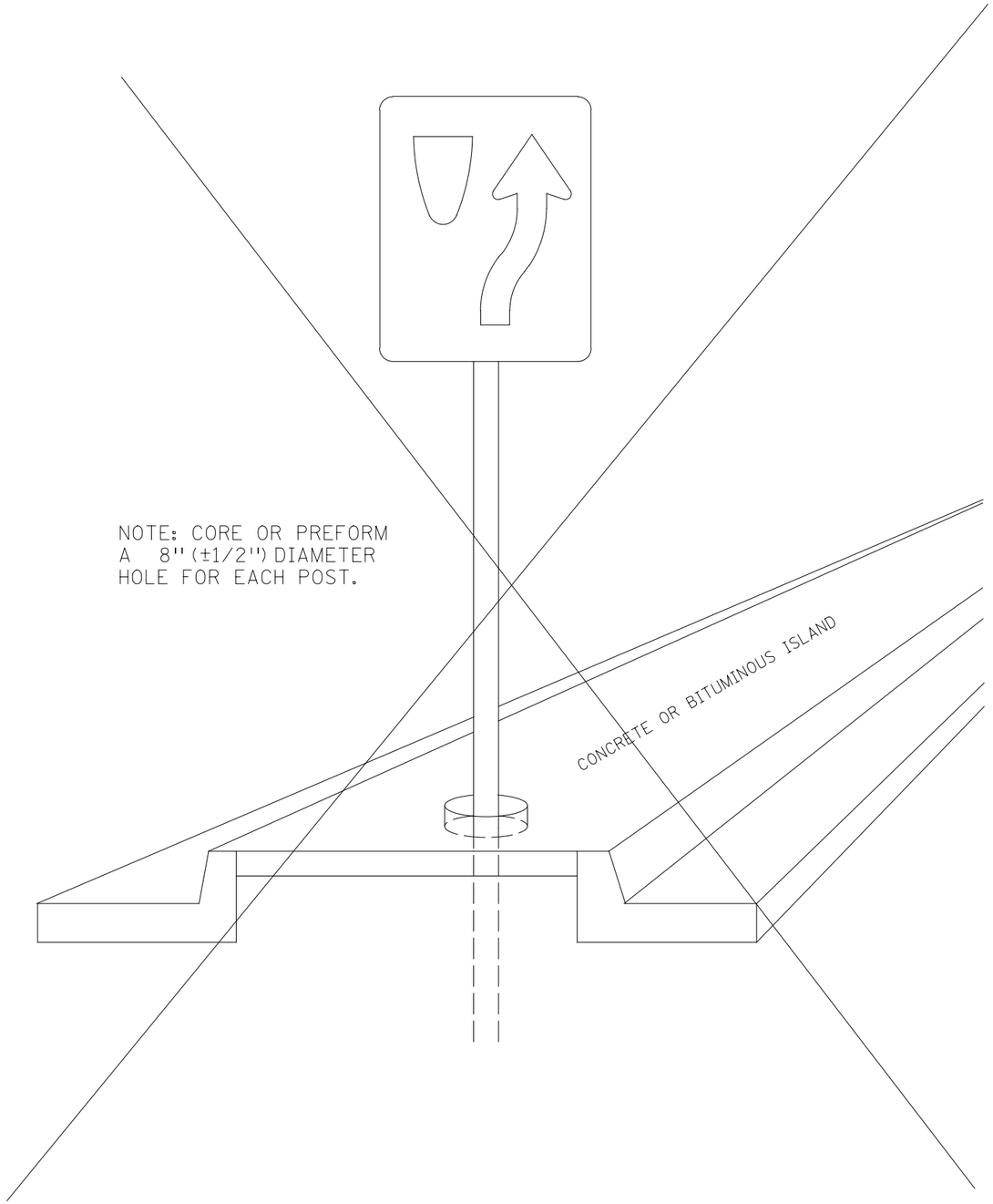
Sheet 3 of 3

REVISED: 2-13-2015

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



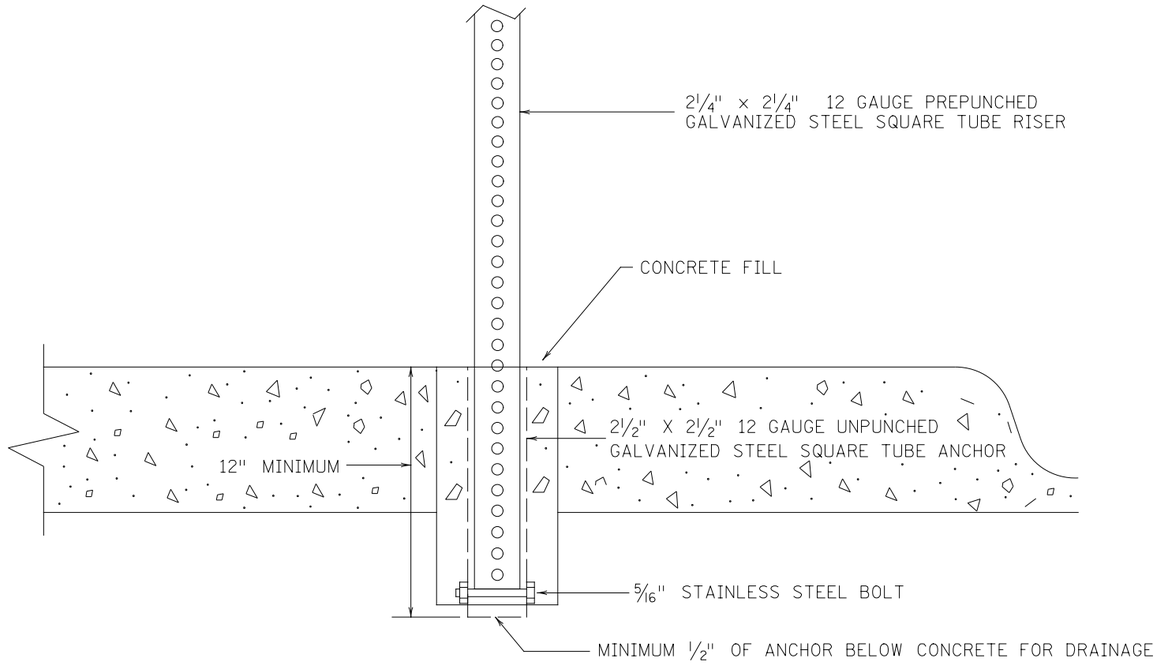
NOTE:
-ALL MATERIALS AND WORK ASSOCIATED WITH FURNISHING AND INSTALLING
 HIGH DENSITY RIGID FOAM BLOCKS FOR SIGN POST INSERTS ARE CONSIDERED INCIDENTAL.
-FOAM BLOCK DIMENSIONS; THICKNESS = CONCRETE DEPTH, WIDTH = 12 INCHES,
 LENGTH = SIGN LENGTH PLUS 12 INCHES.
-POSITION AND STAKE THE FOAM BLOCK TO PROPER SIGN ALIGNMENT,
 FINISH AND JOINT THE CONRETE AS NEEDED TO PROVIDE A SURFACE
 PROFILE THAT HAS THE FOAM BLOCK FLUSH TO THE FINAL CONCRETE.
-LEAVE THE HIGH DENSITY RIGID FOAM BLOCK INPLACE.
-CONTACT THE DISTRICT SIGNSHOP FOR SIGN LOCATION ASSISTANCE.



FLANGED U-CHANNEL POST MOUNTED THROUGH CONCRETE MEDIAN OR SIDEWALK

DISTRICT #: $@DISTRICT@$
IPLOT NAME: $$@IPLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$

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



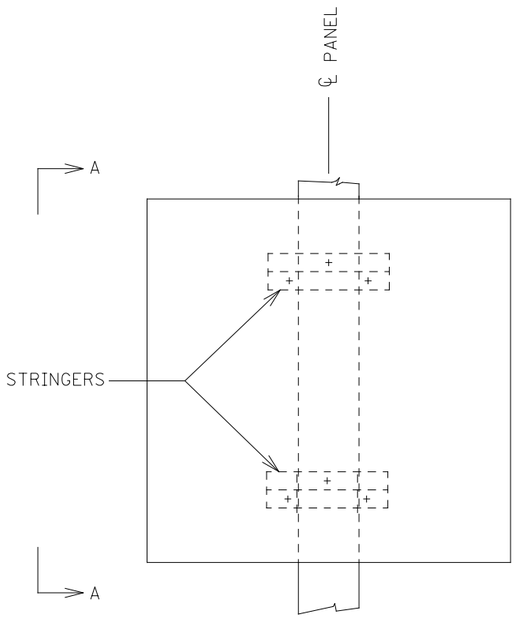
NOTES;

1. DRILL AN 8" DIAMETER HOLE THE FULL DEPTH OF THE ANCHOR.
2. DRILL ⅜" HOLES ON OPPOSITE SIDES OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR APPROX. 1" FROM THE BOTTOM OF THE ANCHOR. INSERT A 5/16" STAINLESS STEEL BOLT THROUGH THE HOLES AND SECURE WITH A STAINLESS STEEL LOCK NUT WITH NYLON INSERT. THE PREPUNCHED GALVANIZED STEEL SQUARE TUBE RISER (TO BE INSERTED INSIDE THE UNPUNCHED GALVANIZED SQUARE TUBE ANCHOR) WILL REST ON BOLT.
3. INSERT THE ANCHOR IN THE HOLE.
4. AFTER INSTALLATION OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR, FILL THE HOLE WITH A CONCRETE MIX APPROVED BY THE ENGINEER AND LEVEL OFF THE TOP OF CONCRETE.
5. MAXIMUM SIGN PANEL SIZE IS 42" WIDE X 48" HIGH.
6. SIGN PANEL TO BE MOUNTED 7 FT ABOVE THE GROUND.

DISTRICT *: $@DISTRICT@$
IPLOT NAME: $$@IPLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$$

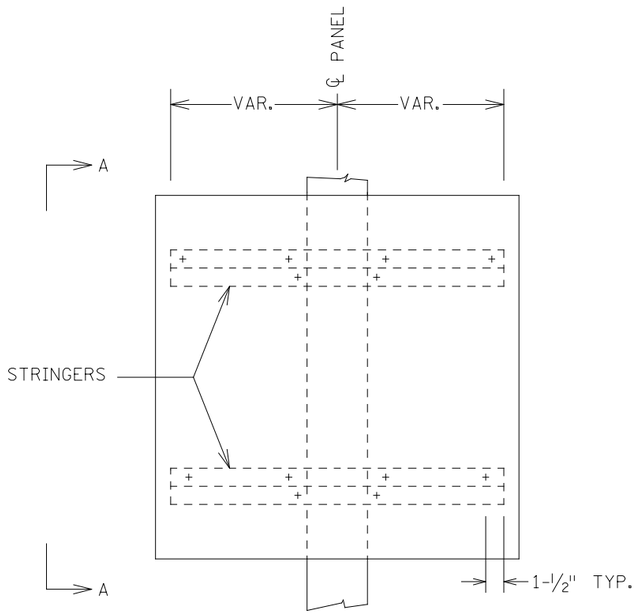
TYPE C SIGNS, DELINEATORS & MARKERS IN CONCRETE

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



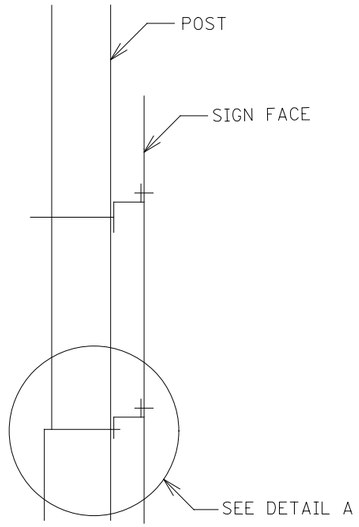
SINGLE POST PUNCHING

ELEVATION

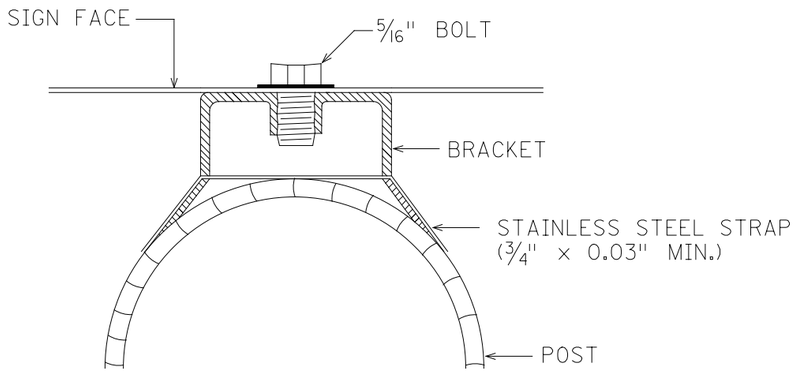


2-POST PUNCHING

ELEVATION

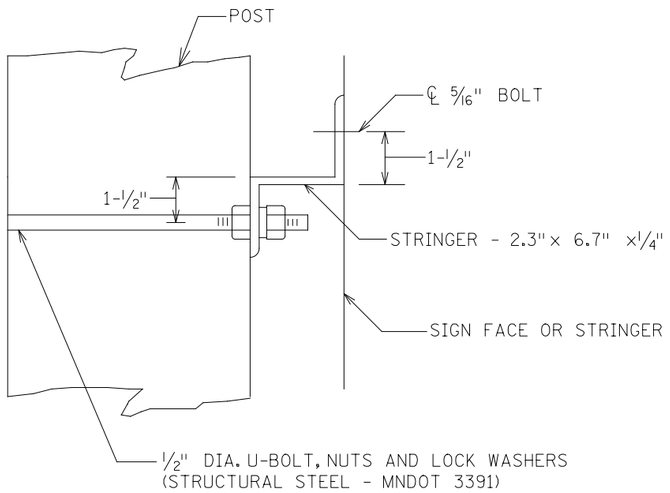


VIEW A-A

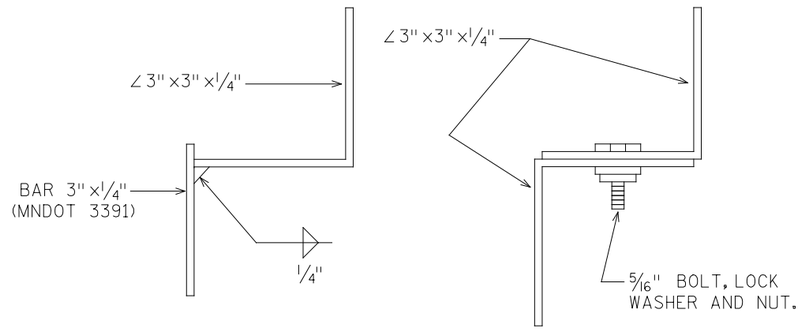


GALVANIZED OR STAINLESS STEEL BRACKET, BOLT AND WASHER.

STRAP MOUNTING DETAIL FOR OVERHEAD IDENTIFICATION AND LIGHTING SYSTEM IDENTIFICATION PLATES



DETAIL A



DETAIL A STRINGER ALTERNATES

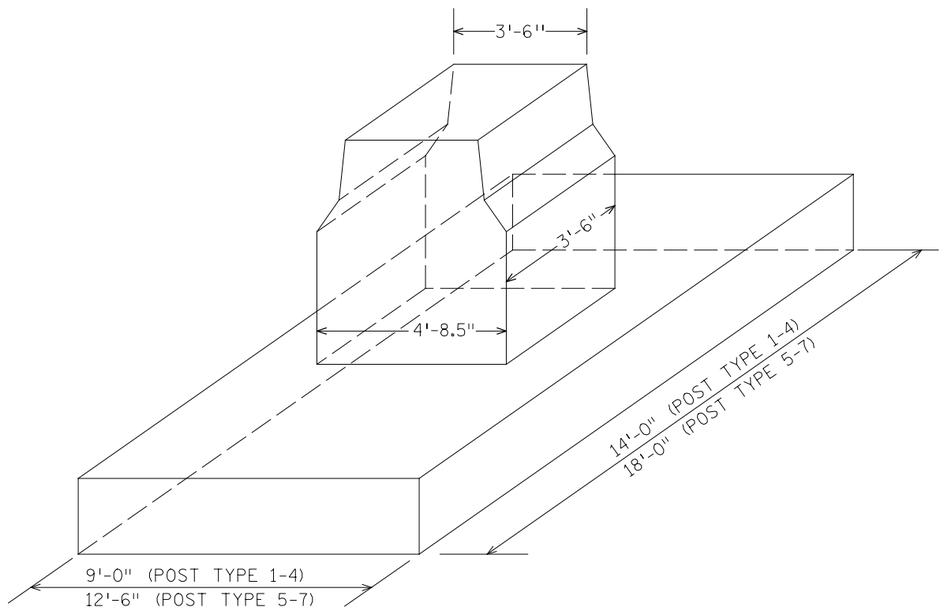
NOTES:
1. FOR DETAILS AND NOTES NOT SHOWN SEE "C" & "D" SIGN DETAILS.
2. FOR BACK TO BACK MOUNTINGS, ROTATE STRINGERS FOR ONE PANEL 180° FROM WHAT IS SHOWN SUCH THAT PANELS CAN BE MOUNTED AT SAME ELEVATION.
3. DETAIL A STRINGER MAY BE ONE OF THE THREE DESIGNS DETAILED OR AN APPROVED EQUAL. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394. FASTENERS SHALL BE IN ACCORDANCE WITH MNDOT 3391.2B AND SHALL BE GALVANIZED EITHER BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153, OR BY THE MECHANICAL PROCESS IN ACCORDANCE WITH ASTM B695, CLASS 50 OR GREATER.

SIGN TYPE C AND D STRUCTURAL STEEL MOUNTING SYSTEM FOR ROUND SUPPORTS

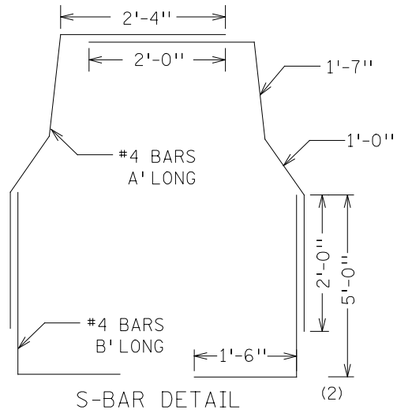
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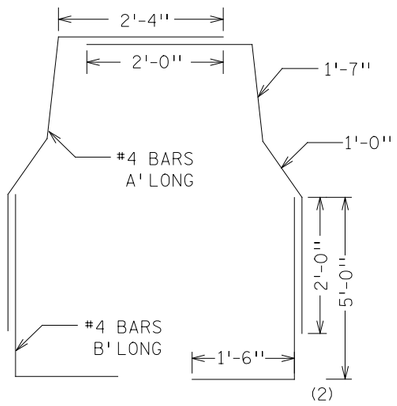
QUANTITIES (3)						
ADDITIONAL REINFORCEMENT	NO. OF BARS	LENGTH (FT.)	WEIGHT (LBS.)	BAR SPACING	CONCRETE (CU.YD.)	POST STEEL
#4 BARS A' LONG	8	6.92	37	3 SPACES @12"=3'-0"		
#4 BARS B' LONG	8	6.50	35	3 SPACES @12"=3'-0"		
TOTAL			72			



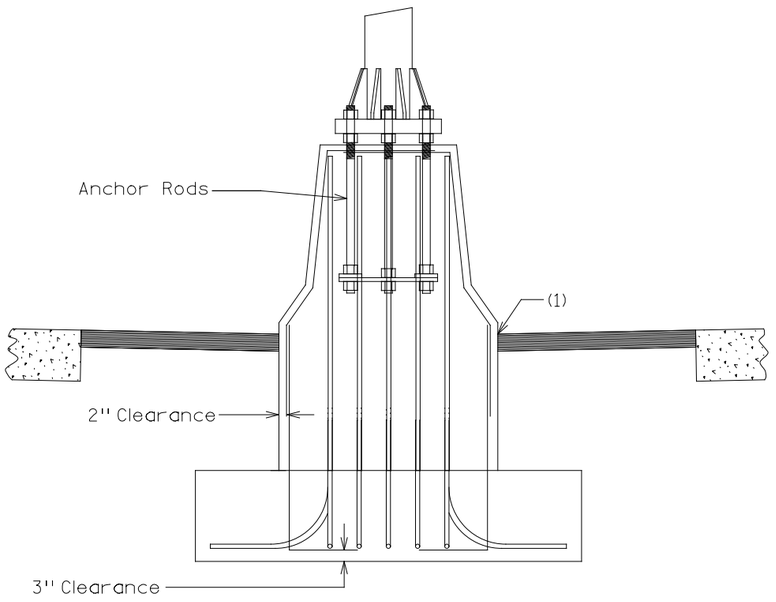
ISO-VIEW



S-BAR DETAIL
Post Type 1-4



S-BAR DETAIL
Post Type 5-7



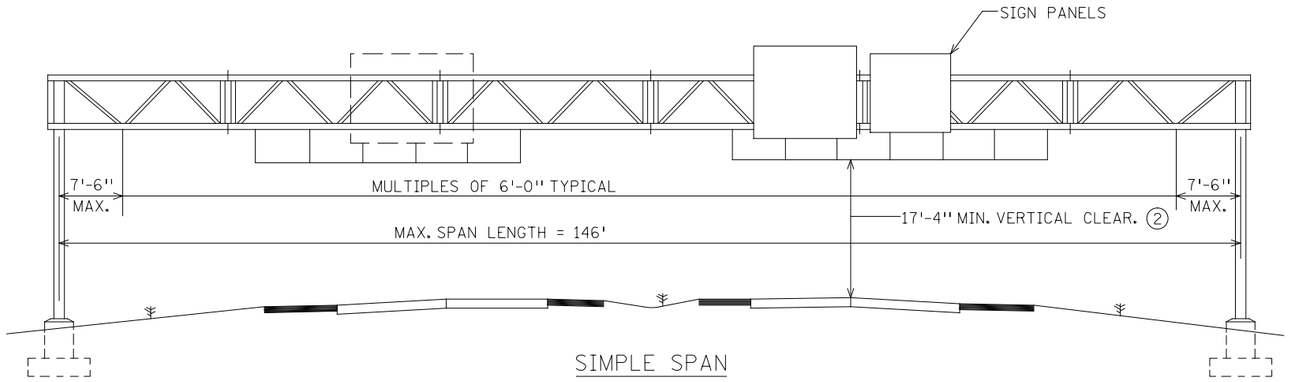
ELEVATION VIEW

GENERAL NOTE:
1. FOR DETAILS AND REINFORCEMENTS NOT SHOWN SEE STANDARD SIGN SHEET ST-3.

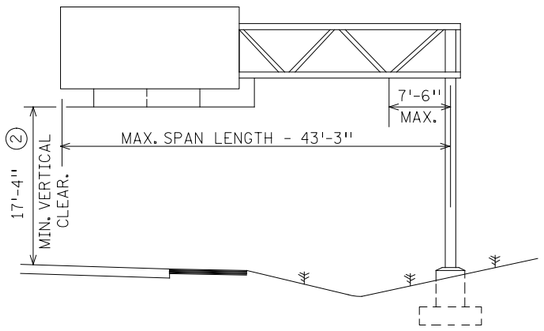
SPECIFIC NOTES:
(1) ½" BITUMINOUS FELT JOINT IF ADJACENT PAVEMENT IS CONCRETE.
(2) #4 S-BARS PLACED SYMMETRICAL ABOUT THE CENTERLINE OF THE POST, BEND IN THE FIELD TO FIT.
(3) ALL QUANTITIES DEPEND UPON FIELD VERIFICATION OF FOOTING ELEVATIONS.

TYPE F
MEDIAN BARRIER FOOTING
(SPREAD)

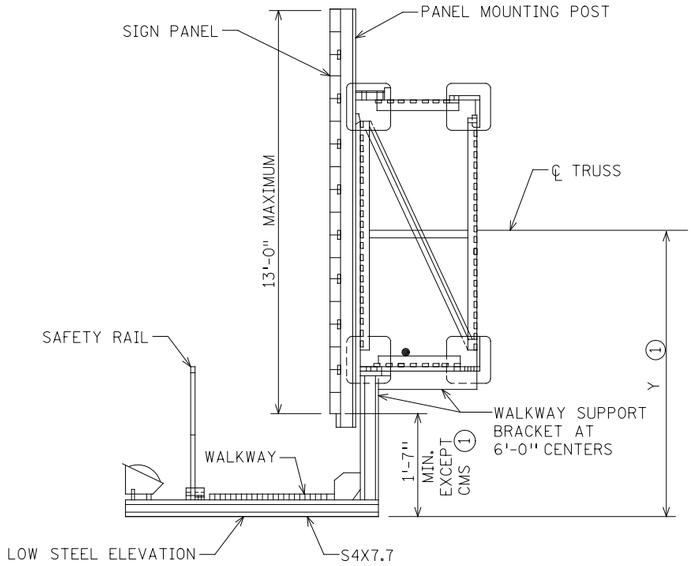
REVISED: 5-22-14



SIMPLE SPAN



CANTILEVER



SECTION

INDEX OF STANDARD SIGN DRAWINGS

DRAWING	TITLE
ST-1	GENERAL ELEVATION AND NOTES
ST-2	CAMBER, POST IDENTIFICATION AND ESTIMATED QUANTITIES
ST-3	FOUNDATIONS AND ANCHOR RODS
ST-4	TRUSS/POST CONNECTION & BASEPLATE
ST-5	SIGN TRUSS DETAILS - TYPE A
ST-6	SIGN TRUSS DETAILS - TYPE B
ST-7	SIGN TRUSS DETAILS - TYPE C
ST-8	WALKWAY DETAILS
ST-9	FOLDING HANDRAIL
ST-10	SIGN PANEL AND PANEL MOUNTING POST DETAILS
ST-11	ELECTRICAL DETAILS
ST-12	ELECTRICAL DETAILS
ST-13	ELECTRICAL DETAILS (CMS SIGNS)

SIGN HEIGHT	Y ①
6'-6"	4'-4"
7'-0"	4'-7"
7'-6"	4'-10"
8'-0"	5'-1"
8'-6"	5'-4"
9'-0"	5'-7"
9'-6"	5'-10"
10'-0"	6'-1"
10'-6"	6'-4"
11'-0"	6'-7"
11'-6"	6'-10"
12'-0"	7'-1"
12'-6"	7'-4"
13'-0"	7'-7"

CMS

SPECIFIC NOTES:
① DIMENSION Y IS CONSTANT AND BASED ON THE DEEPEST SIGN PANEL ABOVE THAT WALKWAY. WHEN STANDARD SIGN PANEL(S) AND CMS ARE MOUNTED ON THE SAME SPAN, DIMENSION Y SHALL BE GOVERNED BY THE CMS.
② MINIMUM CLEARANCE WILL BE MEASURED FROM THE HIGHEST ELEVATION OF PAVEMENT, SHOULDERS, AND MOUNTABLE CURBS, OR IF INSURMOUNTABLE CURBS ARE USED, THE HIGHEST ELEVATION BETWEEN CURB LINES.

GENERAL NOTES:

DESIGN SPECIFICATIONS:

TRUSS, POST, & HARDWARE:
AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS DATED 1999.

LOADING:

WIND LOAD 90 M.P.H. NORMAL TO SIGN FACE IN COMBINATION WITH OTHER LOADS OUTLINED IN THE DESIGN SPECIFICATIONS.

UNIT STRESSES:

CONCRETE---------- Fc = 1,600 PSI
REINFORCEMENT STEEL---------- Fs = 24,000 PSI
FOOTING SOIL PRESSURE---------- 1-1/4 TONS PER SQ. FT.

MATERIALS:

STRUCTURAL STEEL (EXCEPT POST, TUBES)- MNDOT 3306
POST STEEL---------- VARIES
HIGH STRENGTH BOLTS--------- MNDOT 3391.2B
ANCHOR RODS---------- MNDOT 3385
CASTINGS---------- MNDOT 3322
REINFORCEMENT
BARS---------- MNDOT 3301
SPIRAL---------- MNDOT 3305 NO SPLICES
WALKWAY GRATING---------- FEDERAL SPECIFICATIONS RR-G-661b, TYPE 1, STEEL
CONCRETE---------- MNDOT 2461 (MIX 3G52)

FINISH:

ALL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION EXCEPT REINFORCEMENT BARS, LOWER PORTION OF ANCHOR RODS, ALUMINUM, AND OTHER NON FERROUS INCIDENTALS. GALVANIZING SHALL CONFORM TO MNDOT 3392 OR MNDOT 3394 AS APPLICABLE.
BEARING SURFACES MUST BE SMOOTH.

FABRICATION:

FABRICATION OF STRUCTURAL METALS SHALL BE IN ACCORDANCE WITH MNDOT 2471, MNDOT 2564 AND THE APPLICABLE SPECIAL PROVISIONS. ALL WELDING TO BE CONTINUOUS. ALL CONTACT SURFACES MUST BE COMPLETELY SEALED.

INSPECTION:

INSPECTION BEFORE AND AFTER GALVANIZING PER MNDOT 1511 AND MNDOT 2471.

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

GENERAL ELEVATIONS AND NOTES

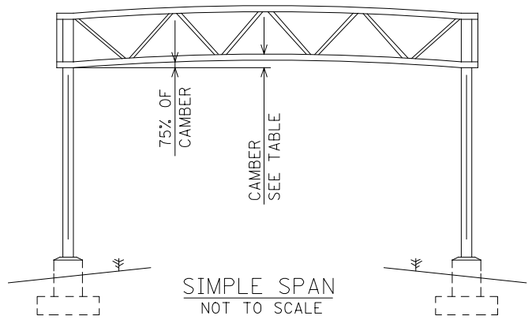
DRAWING ST-1

PLOTTED/REVISED: $$$$@DATE@$$$$
DISTRICT *: $@DISTRICT@$
IPLOT NAME: $$@IPLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$
REV. 10-28-2015

SIMPLE SPAN

SIMPLE SPAN TRUSS CAMBER												
SPAN	40	50	60	70	80	90	100	110	120	130	140	150
CAMBER	1/4	7/16	5/8	13/16	1 1/16	1 3/8	1 11/16	2	2 3/8	2 13/16	3 1/4	3 3/4
DL DEFLECTION	0	1/16	1/16	1/8	1/4	3/8	9/16	13/16	1 1/8	1 1/2	2 1/16	2 11/16
RESIDUAL CAMBER	1/4	3/8	9/16	11/16	13/16	1	1 1/8	1 3/16	1 1/4	1 5/16	1 3/16	1 1/16

NOTE:
CAMBER AND DEFLECTIONS SHOWN ARE AT ℄ SPAN. THE DEFLECTIONS AND CAMBER AT THE QUARTER POINTS SHALL BE APPROXIMATELY 75% OF THESE VALUES.



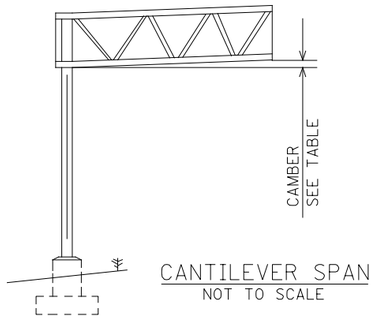
SIMPLE SPAN
NOT TO SCALE

CANTILEVER SPAN

CANTILEVER SPAN TRUSS CAMBER					
SPAN	15'	20'	30'	40'	45'
CAMBER	1/8	1/4	5/8	1 1/16	1 1/4
DL DEFLECTION	0	0	1/16	3/16	1/4
RESIDUAL CAMBER	1/8	1/4	9/16	7/8	1

NOTE:
CAMBER AND DEFLECTIONS SHOWN ARE SHOWN AT END OF CANTILEVER.

WHEN ERECTING CANTILEVER TRUSSES, THE POSTS SHALL BE SET 1/8" PER FOOT OUT OF PLUMB TO COMPENSATE FOR THE BENDING OF THE POSTS.



CANTILEVER SPAN
NOT TO SCALE

TRUSS QUANTITIES		
USE LENGTH FROM ℄ POST WHEN CALCULATING TOTAL WEIGHTS.		
TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE C
123 LBS./FT.	168 LBS./FT.	196 LBS./FT.

PANEL MOUNTING POST QUANTITIES INCLUDES MOUNTING ANGLES	
PANEL HEIGHT	WEIGHT/POST
6'-6"	70
7'-0"	74
7'-6"	78
8'-0"	82
8'-6"	86
9'-0"	90
9'-6"	93
10'-0"	97
10'-6"	101
11'-0"	105
11'-6"	160
12'-0"	166
12'-6"	172
13'-0"	178

TABLE 1 - POST IDENTIFICATION					
POST IDENTIFICATION NUMBER	BASEPLATE DESIGN	PERMISSIBLE PIPE SECTIONS			
		MIN. YIELD=35 KSI		MIN. YIELD=42 KSI	
		OUTSIDE DIAMETER (INCH)	WALL THICKNESS (INCH)	OUTSIDE DIAMETER (INCH)	WALL THICKNESS (INCH)
1	A	N.A.	N.A.	18	0.250
2	A	18	0.375	18	0.312
3	A	18	0.500	18	0.375
4	A	18	0.562	18	0.500
5	B	18	0.938	18	0.750
6	B	20	0.594	20	0.500
7	B	N.A.	N.A.	20	0.812
WALL THICKNESS IS MINIMUM, THINNER WALLS WILL NOT BE APPROVED					

POST IDENTIFICATION NOTES:

POST MATERIAL SHALL CONFORM TO ONE OF THE FOLLOWING SPECIFICATIONS:
ASTM A709, GRADE 36
ASTM A53, GRADE B
API 5L, GRADES B, X42, X46, X52, X56, X60, X65

CONTRACTOR SHALL DEMONSTRATE THAT THE POST MATERIAL MEETS THE REQUIREMENTS OF ONE OF THE ABOVE CITED SPECIFICATIONS AND THE MINIMUM YIELD STRENGTH.

NO SPLICES OF ANY KIND WILL BE PERMITTED IN POSTS INTENDED FOR USE IN CANTILEVER TYPE STRUCTURES (BRIDGE TYPE BC).

ONE OF TWO POSTS FOR SIMPLE SPAN STRUCTURES (BRIDGE TYPE S) MAY INCORPORATE ONE WELDED CIRCUMFERENTIAL BUTT SPLICE CONFORMING TO AWS D1.1 DETAIL B-U2 IN THE UPPER 1/3 OF ITS LENGTH. BACK UP RINGS FOR THESE WELDED SPLICES SHALL BE COMMERCIAL PRODUCTS. BUTT WELDS REQUIRE RADIOGRAPHIC INSPECTION (MNDOT 2471.3).

ALL RADIOGRAPHIC INSPECTIONS AND MAGNETIC PARTICLE TESTING REPORTS AND RADIOGRAPHIC FILMS SHALL BECOME THE PROPERTY OF THE DEPARTMENT.

SEE DRAWING ST-4 FOR BASEPLATE DETAILS.

FOR FOUNDATION QUANTITIES SEE DRAWING ST-3

WALKWAY WEIGHTS:

1. USE 3'-4 3/4" WIDE GRATING @ 44 LBS/FT.
2. WEIGHT INCLUDES HANDRAIL (12 LBS/FT.) AND FIXTURE MOUNTING CHANNELS (4 LBS/FT.).

WALKWAY SUPPORT QUANTITIES			
USE MAXIMUM PANEL HEIGHT ON SPAN TO CALCULATE QUANTITIES. WHEN CONVENTIONAL SIGN PANEL(S) AND CMS ARE MOUNTED ON THE SAME SPAN, QUANTITIES SHALL BE GOVERNED BY THE CMS.			
	PANEL HEIGHT	TRUSS TYPE (WEIGHT/SUPPORT)		
		A	B	C
CMS(NEW LED)	6'-6"	99	105	113
	7'-0"	101	107	115
	7'-6"	103	109	117
CMS(LED)	8'-0"	105	111	119
	8'-6"	107	113	121
CMS(DRUM)	9'-0"	109	115	123
	9'-6"	111	117	125
	10'-0"	113	119	127
	10'-6"	115	121	129
	11'-0"	135	142	151
	11'-6"	138	144	153
	12'-0"	141	147	156
	12'-6"	143	150	159
	13'-0"	146	153	162

POST QUANTITIES					
QUANTITIES INCLUDE ANCHORAGE ASSEMBLY AND TRUSS CONNECTION PLATES. PAY LENGTH OF POSTS IS FROM THE BOTTOM OF THE BASE PLATE (ELEV. A) TO THE TOP OF THE TRUSS. POST QUANTITIES ARE BASED ON GRADE 42 STEEL. NO ADJUSTMENTS WILL BE MADE IN THE QUANTITIES FOR THE USE OF GRADE 35 STEEL POSTS.					
	CANTILEVER		SIMPLE SPAN		
POST TYPE	TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE C
1	1880+47 LBS/FT	1910+47 LBS/FT	1870+47 LBS/FT	1890+47 LBS/FT	1915+47 LBS/FT
2	1880+59 LBS/FT	1910+59 LBS/FT	1870+59 LBS/FT	1890+59 LBS/FT	1915+59 LBS/FT
3	1880+71 LBS/FT	1910+71 LBS/FT	1870+71 LBS/FT	1890+71 LBS/FT	1915+71 LBS/FT
4	1880+94 LBS/FT	1910+94 LBS/FT	1870+94 LBS/FT	1890+94 LBS/FT	1915+94 LBS/FT
5	2470+138 LBS/FT	2500+138 LBS/FT	2460+138 LBS/FT	2480+138 LBS/FT	2505+138 LBS/FT
6	N/A	2500+104 LBS/FT	N/A	2545+104 LBS/FT	2570+104 LBS/FT
7	N/A	2500+167 LBS/FT	N/A	2545+167 LBS/FT	2570+167 LBS/FT

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

CAMBER, POST IDENTIFICATION AND ESTIMATED QUANTITIES

DRAWING ST-2

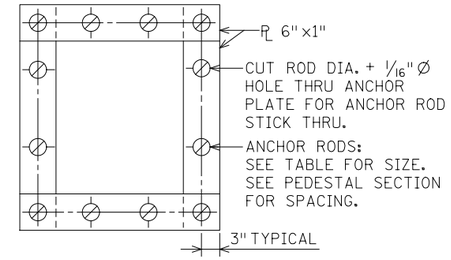
STATE PROJ. NO. 2515-21 (TH 63) **SHEET NO. 430 OF 688 SHEETS**

REV. 10-2-2013

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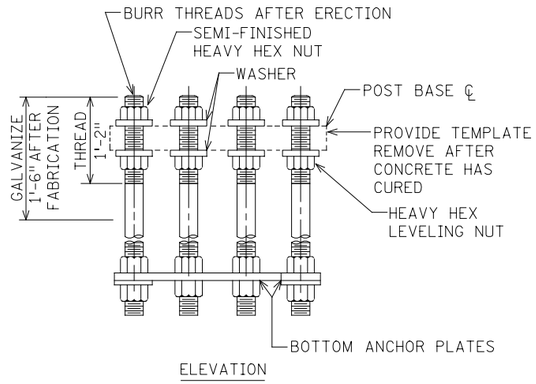
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ANCHOR ROD DETAILS

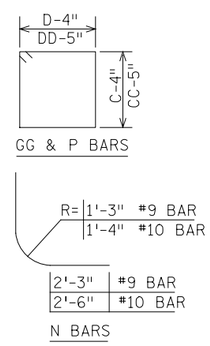


NOTE: ANCHOR PLATES SHOWN TYPICAL FOR ALL ANCHOR ROD SPACING.

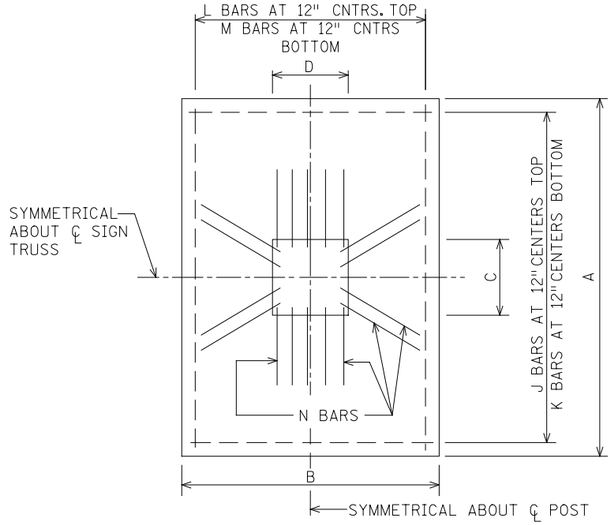
ANCHOR PLATE PLAN



ELEVATION



J, K, L, M, FF AND HH ARE STRAIGHT BARS
BAR BENDING DIAGRAMS



PLAN

SPECIFIC NOTES:

1. G IS IN FEET. ROUND UP TO WHOLE NUMBER. E.G. G=4.10/2G=8.2 NO. REQ'D=9.
2. G AND R ARE IN FEET.
3. BEND AS REQUIRED TO FORM A CLOSED LOOP.
4. FOR STRUCTURE STEEL SEE SPREAD FOOTING.
5. MUST BE FORMED A MIN. OF 6" BELOW THE GROUND SURFACE. THE SOIL EXCAVATED FOR FORMING SHALL BE BACKFILLED AND TAMPED TO EQUIVALENT COMPACTION AS SURROUNDING MATERAL.
6. SPECIAL LARGE RADIUS BENDS ARE REQUIRED. SEE "BAR BENDING DIAGRAMS" FOR SIZES OF RADII.

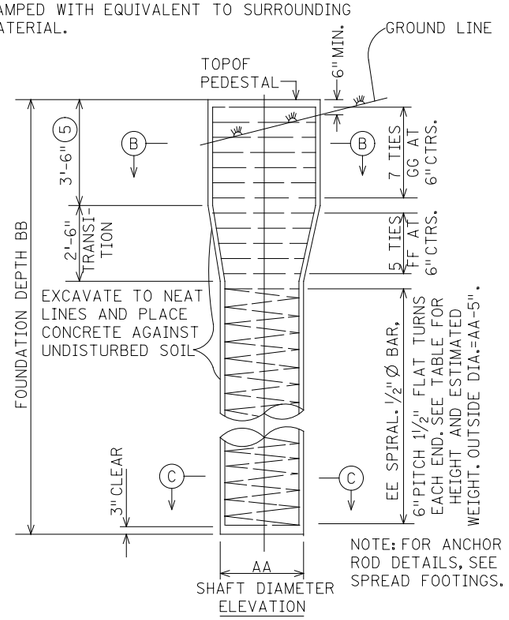
GENERAL NOTES:

1. SEE THE FORMAT SHEET FOR FOOTING LOCATIONS. POST DESIGNATIONS, TOP OF PEDESTAL ELEVATIONS AND BOTTOM OF FOOTING ELEVATIONS.
2. ALL CONCRETE SHALL CONFORM TO CONCRETE MIX 3Y43 (MNDOT 2461).
3. ALL BAR DIMENSIONS ARE OUT TO OUT OF BARS.
4. ALL SPREAD FOOTINGS HAVE AN ALLOWABLE DESIGN BEARING PRESSURE OF 1 1/4 T PER SQUARE FOOT.
5. DRILLED SHAFTS SHALL BE USED ONLY WHEN SPECIFIED IN THE CONTRACT PLANS.
6. THE DRILLED SHAFTS HAVE AN ALLOWABLE DESIGN LATERAL BEARING PRESSURE OF 250 LBS. PER SQ. FT. PER FOOT OF DEPTH.
7. UNLESS OTHERWISE NOTED, ALL REINFORCEMENT BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH MNDOT3301. SPIRAL BARS AND J, K, L, & M BARS NEED NOT BE EPOXY COATED.
8. THE FOLLOWING TORQUE VALUES SHALL BE USED WHEN INSTALLING ALL ANCHOR NUTS FOR OVERHEAD SIGN STRUCTURES:

ANCHOR BOLT DIAMETER	TORQUE (FT./LBS.)
2 1/4"	375
2 1/2"	450

THE CONTRACTOR SHALL BURR THE THREADS OF THE ANCHOR BOLTS IN ACCORDANCE WITH MNDOT 2402.3H AFTER TORQUEING NUTS.

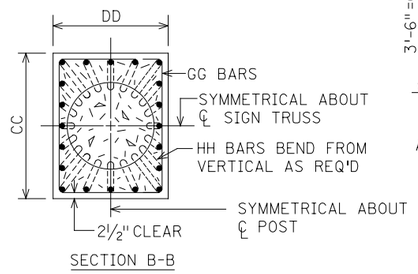
NOTE (5): MUST BE FORMED A MINIMUM OF 6" BELOW THE GROUND SURFACE. THE EXCAVATED AREA FOR FORMING SHALL BE BACKFILLED AND TAMPED WITH EQUIVALENT TO SURROUNDING MATERIAL.



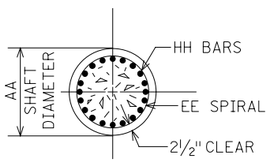
NOTE: FOR ANCHOR ROD DETAILS, SEE SPREAD FOOTINGS.

ELEVATION

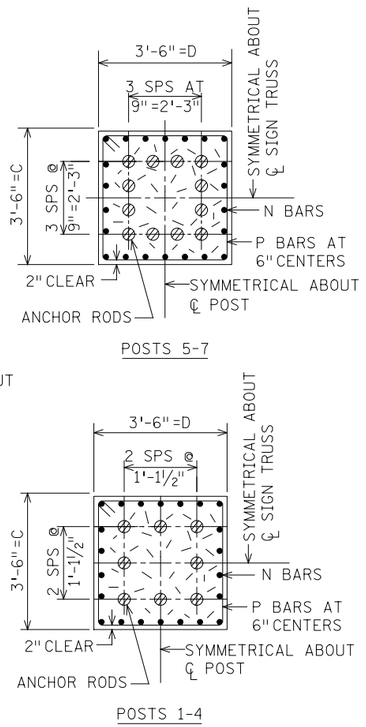
DRILLED SHAFT



SECTION B-B



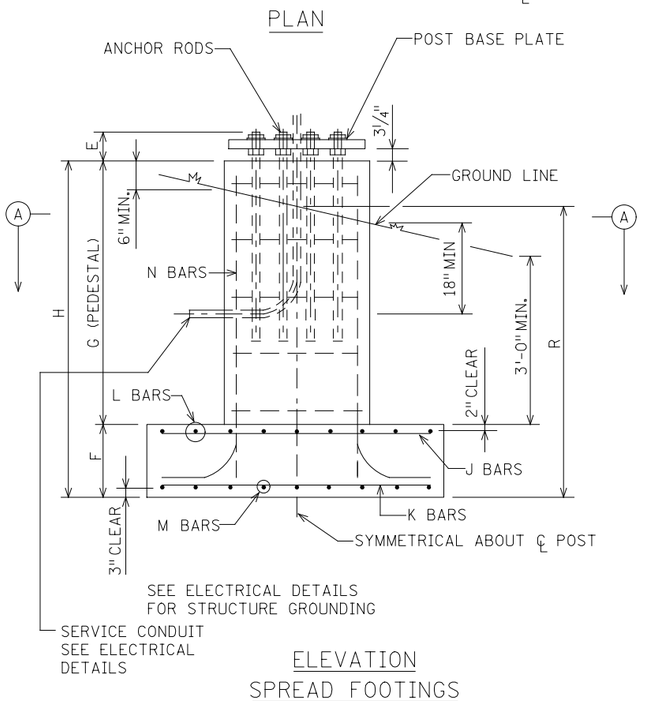
SECTION C-C



POSTS 5-7

POSTS 1-4

PEDESTAL CROSS SECTIONS A-A



ELEVATION
SPREAD FOOTINGS

DRILLED SHAFT											SPREAD FOOTINGS			
POST	DIMENSIONS				REINFORCING BARS				ESTIMATED QUANTITIES (4)		SUMMARY OF ESTIMATED QUANTITIES			
NO.	AA	BB	CC	DD	EE	FF (3)	GG	HH	CONCRETE CY	REIN. STEEL LBS.	CONCRETE CY (2)	REIN. STEEL LBS. (2)	ANCH. ASSM. LBS	ST. EXC. C.Y. (2)
1-4	3'-0" Ø	23'-0"	3'-6"	3'-6"	16'-6" x 197 LBS.	5 #5x 14'-1"	7 #5x 14'-1"	20 #9x 22'-7"	6.9	1910	9.3 + 0.46 G	945 + 98G	781	7.4 R
5-7	4'-0" Ø	29'-0"	4'-0"	4'-0"	22'-6" x 362 LBS.	5 #5x 16'-1"	7 #5x 16'-1"	24 #10x 28'-7"	14.1	3490	16.7 + 0.46 G	2333 + 133G	1320	12.1 R

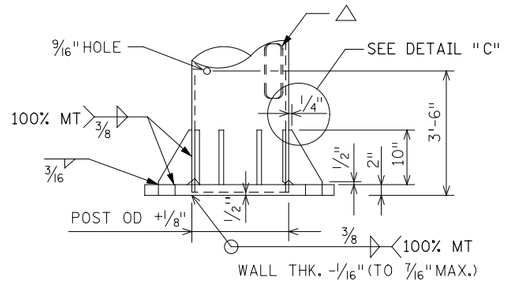
SPREAD FOOTINGS																										
POST							ANCHOR RODS			J REIN. BARS			K REIN. BARS			L REIN. BARS			M REIN. BARS			(6) N REIN. BARS			P REIN. BARS (1)		
NO.	A	B	C	D	E	F	NO. REQ'D	DIA.	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH
1-4	14'-0"	9'-0"	3'-6"	3'-6"	8 1/2"	2'-0"	8	2 1/4"	3'-10 1/2"	14	#4	8'-6"	14	#6	8'-6"	10	#5	13'-6"	10	#7	13'-6"	20	#9	H + 2'-6"	26	#5	14'-3"
5-7	18'-0"	12'-6"	3'-6"	3'-6"	9"	2'-0"	12	2 1/2"	4'-0"	19	#4	12'-0"	19	#6	12'-0"	13	#6	17'-6"	13	#10	17'-6"	24	#10	H + 2'-9"	26	#5	14'-3"

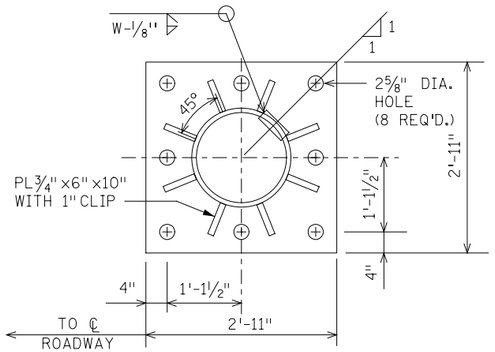
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

FOUNDATIONS AND ANCHOR RODS

DRAWING ST-3

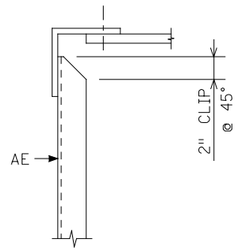
REV. 10-2-2013



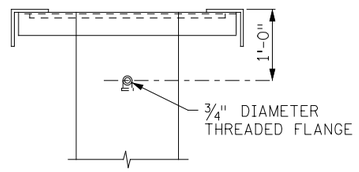


PLAN & ELEVATION - BASEPLATE TYPE A

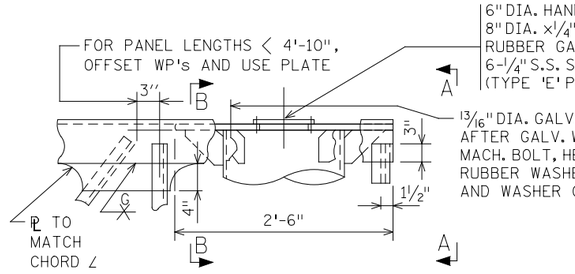
POST NO. 1 THRU 4

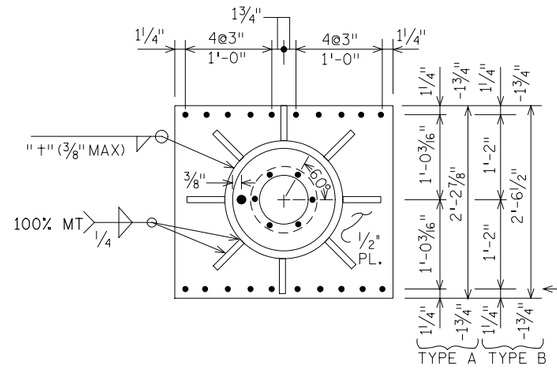


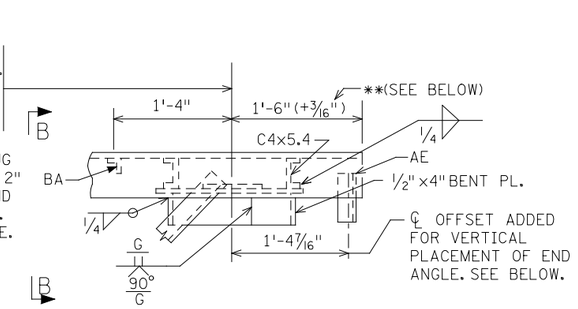
VIEW A-A

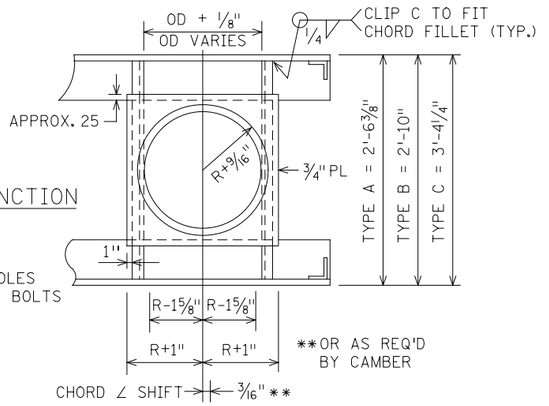


VIEW B-B
(TYPE 'E' POSTS)

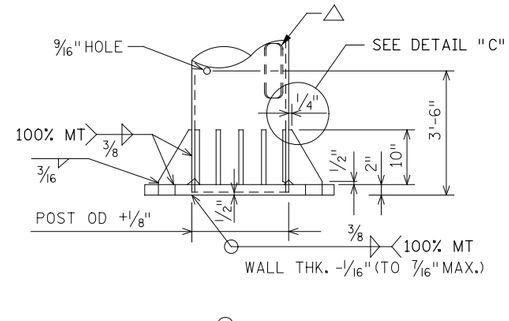


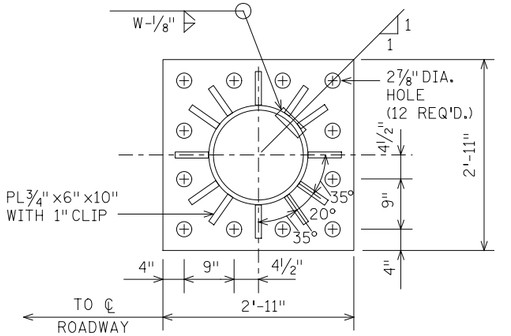






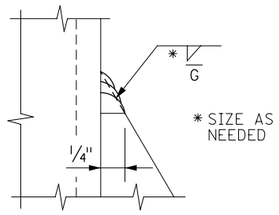
UPPER JUNCTION



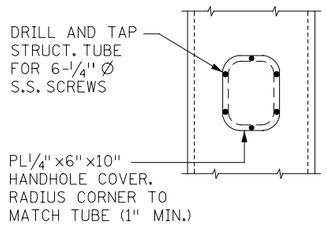


PLAN & ELEVATION - BASEPLATE TYPE B

POST NO. 5 THRU 7

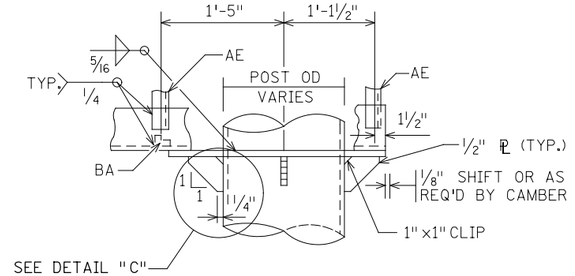


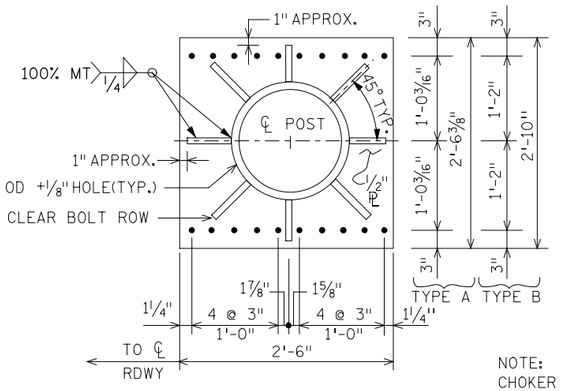
DETAIL "C"



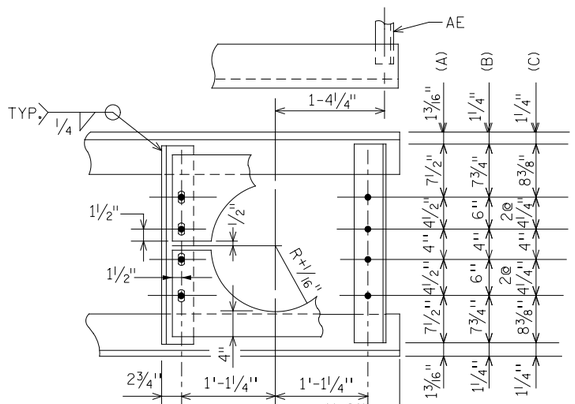
HANDHOLE & COVER PLATE DETAIL
(TYPE 'E' POSTS)

△ = FOR TYPE 'E' POST ONLY: LOCATE 45° AWAY FROM TRAFFIC. 10" x 6" x 1/2" x 0'-2" STRUCTURAL TUBE OR EQUAL W/ 1/4" RUBBER GASKET.





CANTILEVER TRUSS



LOWER JUNCTION

13/16" DIA. HOLES IN 4" x 4" x 1/4" ANGLES
13/16" x 1 1/4" SLOTS IN 1/2" CHOKER PLATES
FOR 3/4" DIA. BOLTS.

SIMPLE TRUSS

NOTE:
CHOKER PLATES AND HANDHOLE COVERS SHALL BE GALVANIZED SEPARATELY.

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

TRUSS/POST CONNECTION
&
BASEPLATES

DRAWING ST-4

STATE PROJ. NO. 2515-21 (TH 63) **SHEET NO. 432 OF 688 SHEETS**

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REV. 10-2-2013

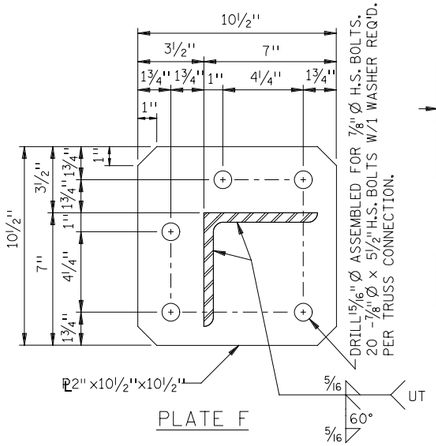
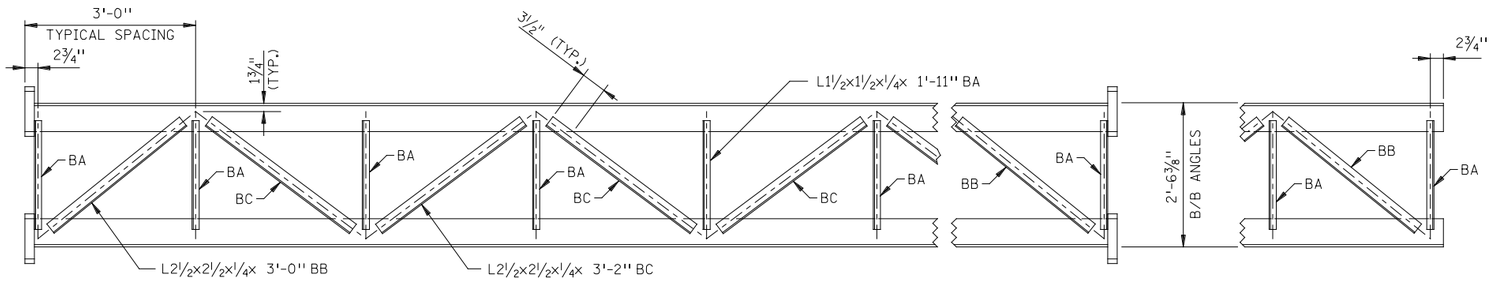
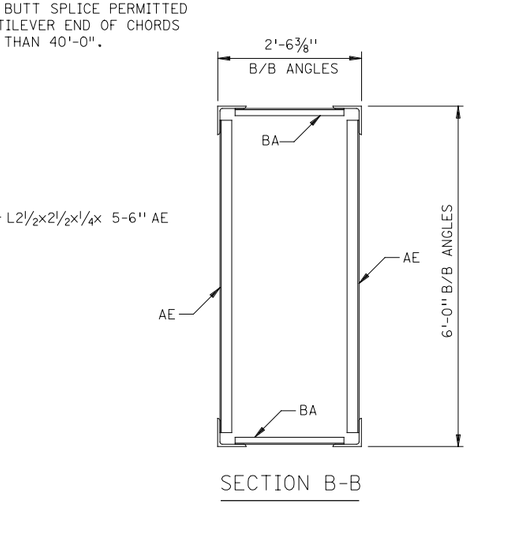


PLATE F

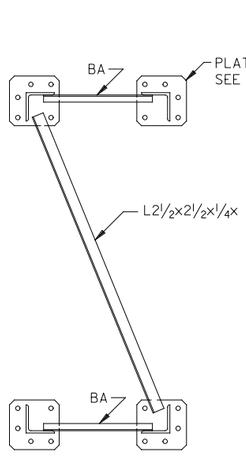


TOP VIEW

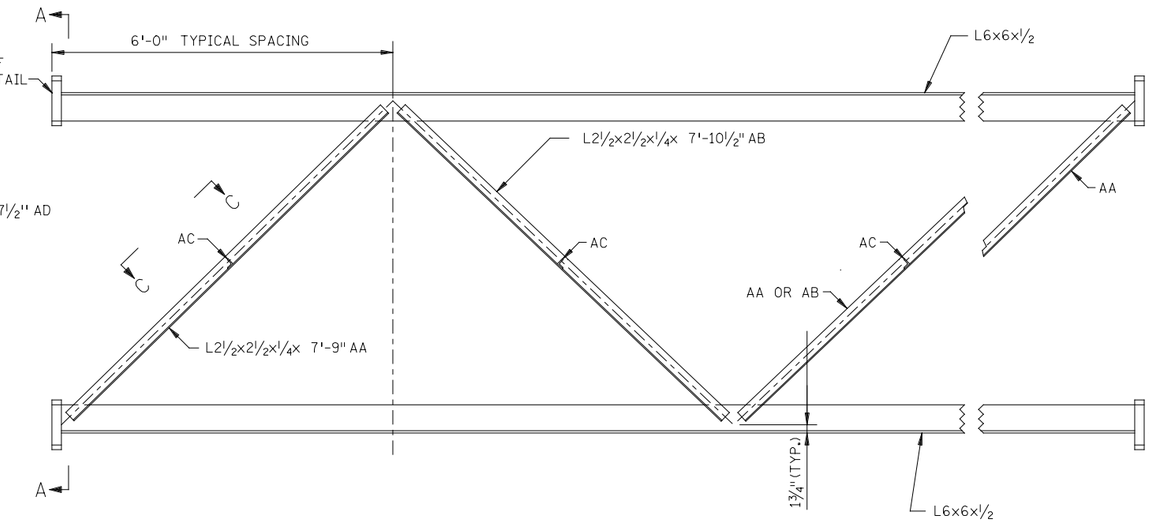


TOP VIEW

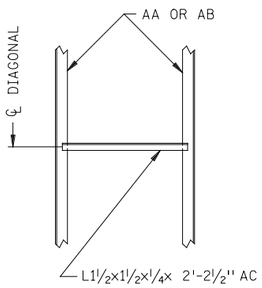
SECTION B-B



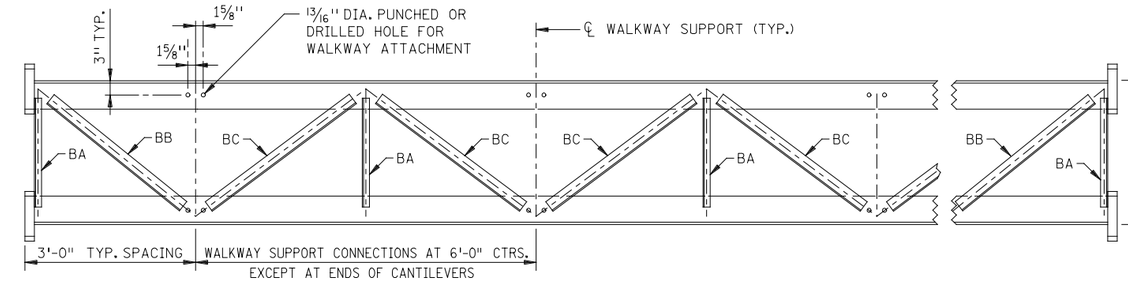
SECTION A-A



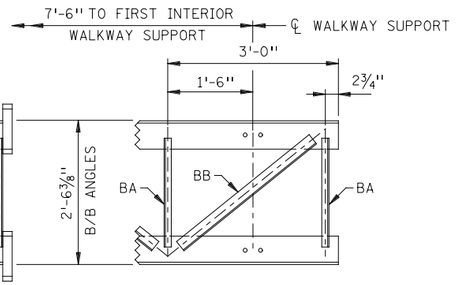
ELEVATION



SECTION C-C



BOTTOM VIEW
SIMPLE SPAN



BOTTOM VIEW
CANTILEVER END

NOTES:

TRUSS SECTIONS SHALL BE MADE IN MULTIPLES OF 6'-0", EXCEPT THAT THE BRACING PANEL NEAREST EACH POST MAY VARY TO MAKE UP THE NEEDED SECTION LENGTH. WELDED CHORD SPLICES ARE NOT PERMITTED EXCEPT IN CANTILEVER TRUSSES AS NOTED BELOW.

CANTILEVER TRUSSES SHALL BE SUPPLIED AS A SINGLE UNIT WHENEVER POSSIBLE. WHEN CANTILEVER TRUSS LENGTH EXCEEDS 40'-0" CHORDS MAY BE SPLICED, AS SHOWN, IN THE END BRACING PANEL ONLY. CHORD SPLICE WELD SHALL BE COMPLETE PENETRATION, WITH 100% UT AND MT TESTING PER 2471.3M.

UNLESS OTHERWISE SHOWN, ALL WELDS SHALL BE ¼" FILLET WELDS ALL AROUND.

BOLTED SPLICES SHALL NOT BE LOCATED BEHIND CMS SIGNS.

PROVIDE 2- 1/16" BRASS, STAINLESS STEEL OR GALVANIZED STEEL SHIMS AT EACH FLANGE TO BRING TRUSS INTO CORRECT CAMBER AND ALIGNMENT.

TRUSSES SHALL BE SHOP ASSEMBLED AND MATCH MARKED.

ALL VIEWS OF THE TRUSSES ARE DRAWN FROM THE INSIDE OF THE TRUSS LOOKING OUT.

SEE DRAWING ST-4 FOR POST CONNECTION DETAILS.

NOTE:
THE BOTTOM VIEW IS DETAILED TO PROVIDE FOR WALKWAY ATTACHMENT. WHERE THE WALKWAY IS OMITTED, PROVIDE STRUT BA AS INDICATED IN THE TOP VIEW.

DETAILS SHOWN ARE FOR THE FREE ENDS OF THE CANTILEVER SPANS. ALL OTHER DETAILS FOR CANTILEVER TRUSSES SHALL BE AS SHOWN FOR THE SIMPLE SPANS.

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

SIGN TRUSS DETAILS
TRUSS TYPE A

DRAWING ST-5

STATE PROJ. NO. 2515-21 (TH 63)

SHEET NO. 433 OF 688 SHEETS

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

DISTRICT #: $$@DISTRICT@$
IPLOT NAME: $$@IPLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$

REV. 10-2-2013

PLOTTED/REVISED: $$$$@DATE@$$$$
DISTRICT #: $@DISTRICT@$
IPLOT NAME: $$@IPLOT$NAME@$$$
PATH & FILENAME: $$$@PATHFILENAME@$$$

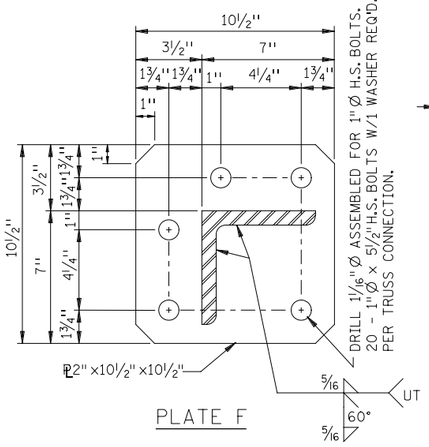
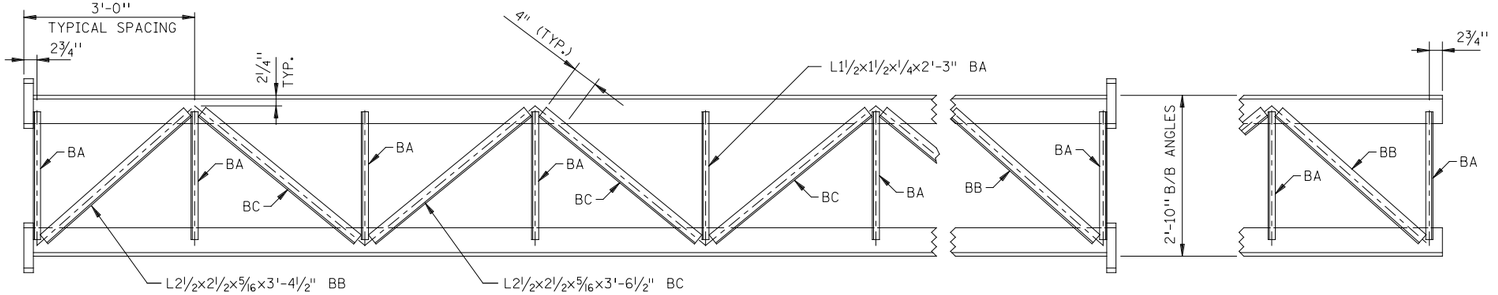


PLATE F



TOP VIEW

TOP VIEW

NOTES:

TRUSS SECTIONS SHALL BE MADE IN MULTIPLES OF 6'-0", EXCEPT THAT THE BRACING PANEL NEAREST EACH POST MAY VARY TO MAKE UP THE NEEDED SECTION LENGTH. WELDED CHORD SPLICES ARE NOT PERMITTED EXCEPT IN CANTILEVER TRUSSES AS NOTED BELOW.

CANTILEVER TRUSSES SHALL BE SUPPLIED AS A SINGLE UNIT WHENEVER POSSIBLE. WHEN CANTILEVER TRUSS LENGTH EXCEEDS 40'-0" CHORDS MAY BE SPLICED, AS SHOWN, IN THE END BRACING PANEL ONLY. CHORD SPLICE WELD SHALL BE COMPLETE PENETRATION, WITH 100% UT AND MT TESTING PER 2471.3M.

UNLESS OTHERWISE SHOWN, ALL WELDS SHALL BE ¼" FILLET WELDS ALL AROUND.

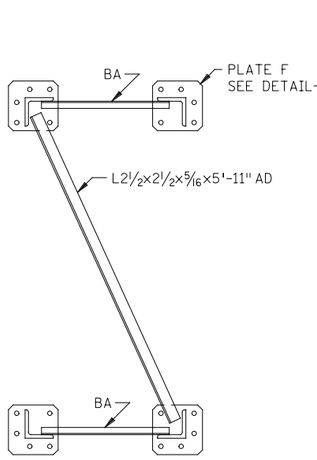
BOLTED SPLICES SHALL NOT BE LOCATED BEHIND CMS SIGNS.

PROVIDE 2- 1/16" BRASS, STAINLESS STEEL OR GALVANIZED STEEL SHIMS AT EACH FLANGE TO BRING TRUSS INTO CORRECT CAMBER AND ALIGNMENT.

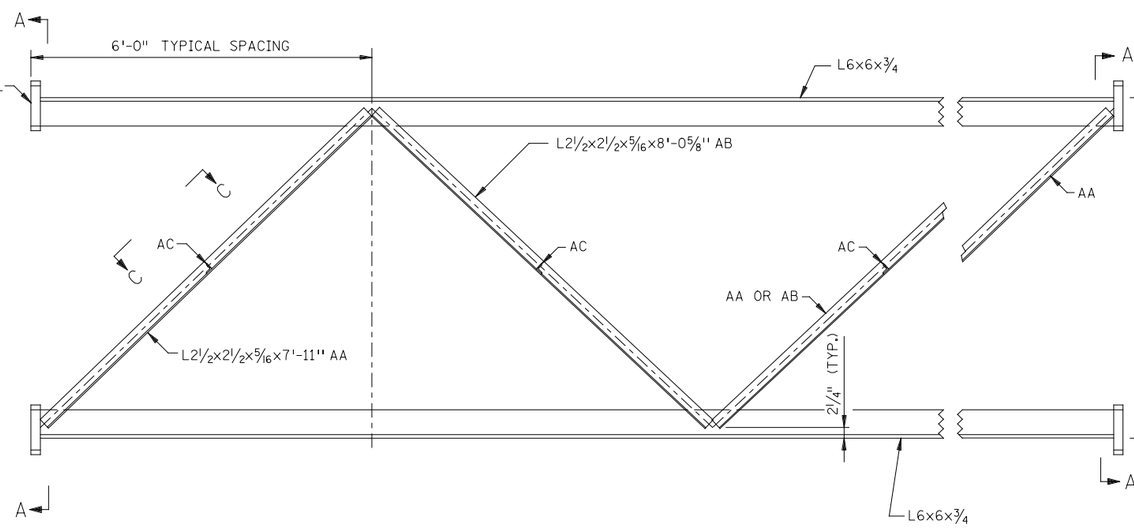
TRUSSES SHALL BE SHOP ASSEMBLED AND MATCH MARKED.

ALL VIEWS OF THE TRUSSES ARE DRAWN FROM THE INSIDE OF THE TRUSS LOOKING OUT.

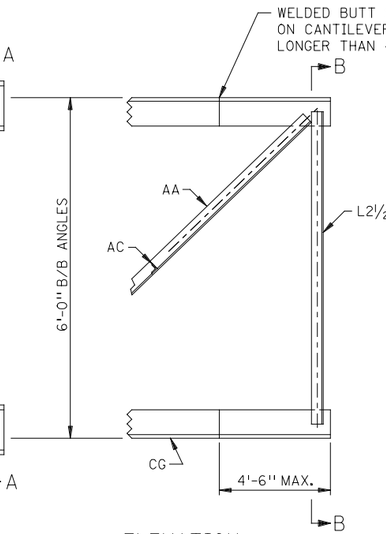
SEE DRAWING ST-4 FOR POST CONNECTION DETAILS.



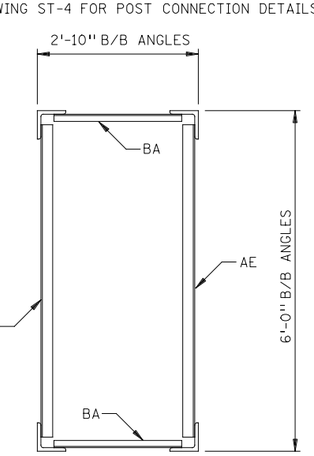
SECTION A-A



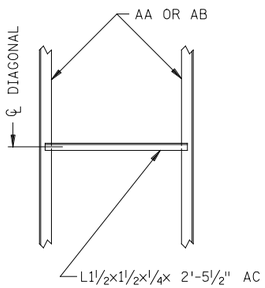
ELEVATION



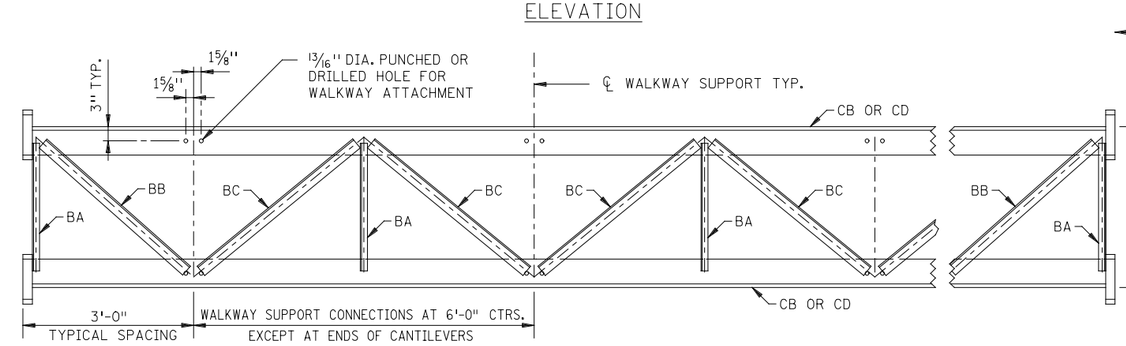
ELEVATION



SECTION B-B



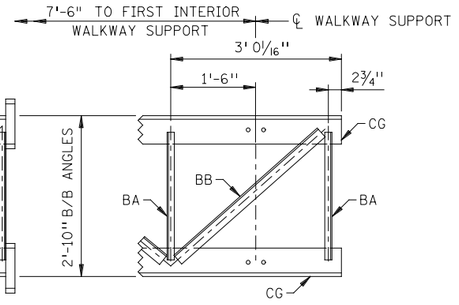
SECTION C-C



BOTTOM VIEW

SIMPLE SPAN

NOTE:
THE BOTTOM VIEW IS DETAILED TO PROVIDE FOR WALKWAY ATTACHMENT. WHERE THE WALKWAY IS OMITTED, PROVIDE STRUT BA AS INDICATED IN THE TOP VIEW.



BOTTOM VIEW

CANTILEVER END

DETAILS SHOWN ARE FOR THE FREE ENDS OF THE CANTILEVER SPANS. ALL OTHER DETAILS FOR CANTILEVER TRUSSES SHALL BE AS SHOWN FOR THE SIMPLE SPANS.

REV. 10-2-2013

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

SIGN TRUSS DETAILS
TRUSS TYPE B

DRAWING ST-6

PLOTTED/REVISED: $$$$@DATE@$$$$
DISTRICT #: $@DISTRICT@$
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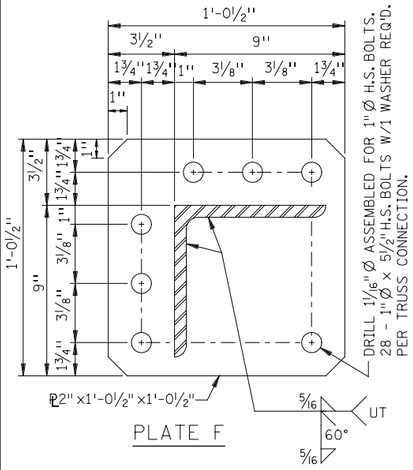
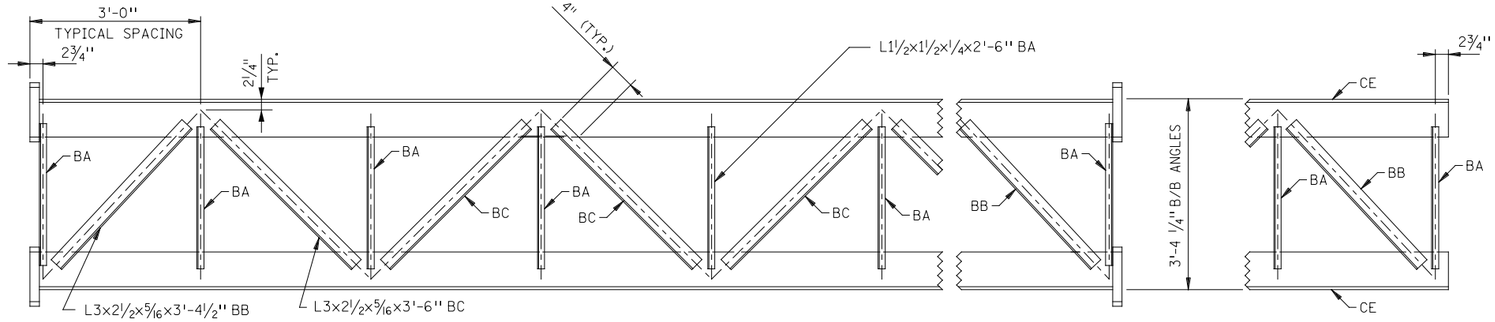


PLATE F



TOP VIEW

TOP VIEW

NOTES:

TRUSS SECTIONS SHALL BE MADE IN MULTIPLES OF 6'-0", EXCEPT THAT THE BRACING PANEL NEAREST EACH POST MAY VARY TO MAKE UP THE NEEDED SECTION LENGTH. WELDED CHORD SPLICES ARE NOT PERMITTED EXCEPT IN CANTILEVER TRUSSES AS NOTED BELOW.

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UNLESS OTHERWISE SHOWN, ALL WELDS SHALL BE ¼" FILLET WELDS ALL AROUND.

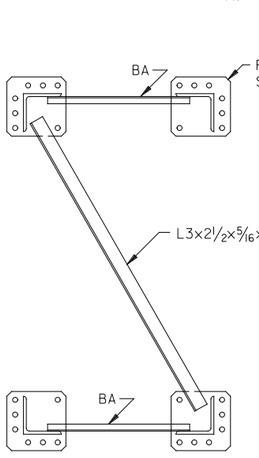
BOLTED SPLICES SHALL NOT BE LOCATED BEHIND CMS SIGNS.

PROVIDE 2- 1/16" BRASS, STAINLESS STEEL OR GALVANIZED STEEL SHIMS AT EACH FLANGE TO BRING TRUSS INTO CORRECT CAMBER AND ALIGNMENT.

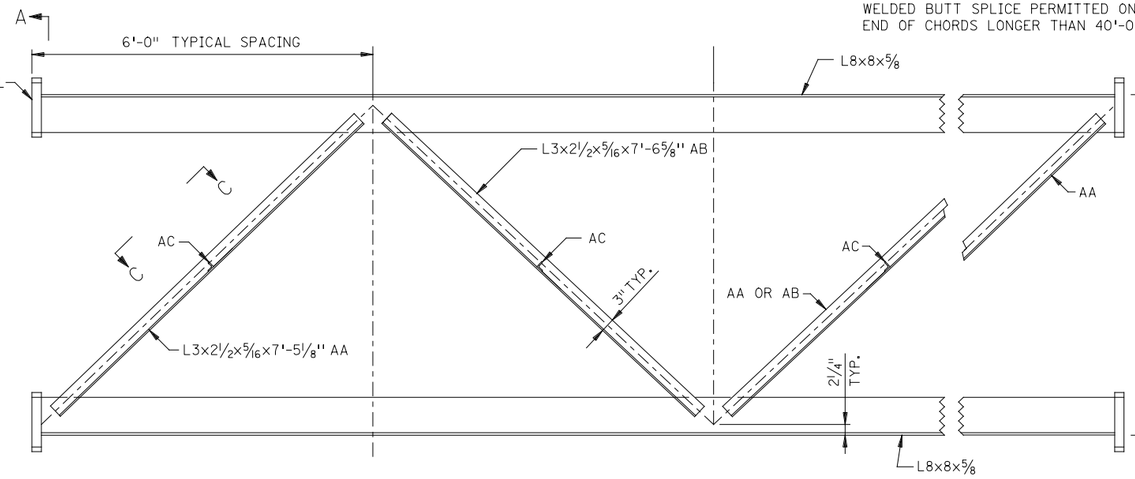
TRUSSES SHALL BE SHOP ASSEMBLED AND MATCH MARKED.

ALL VIEWS OF THE TRUSSES ARE DRAWN FROM THE INSIDE OF THE TRUSS LOOKING OUT.

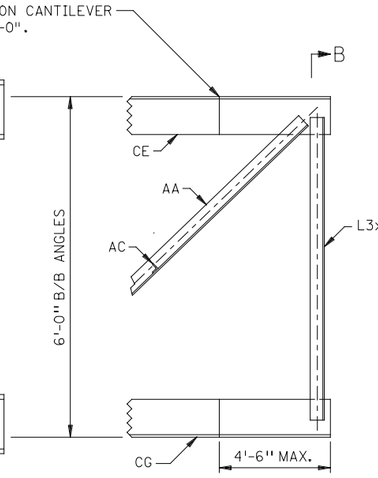
SEE DRAWING ST-4 FOR POST CONNECTION DETAILS.



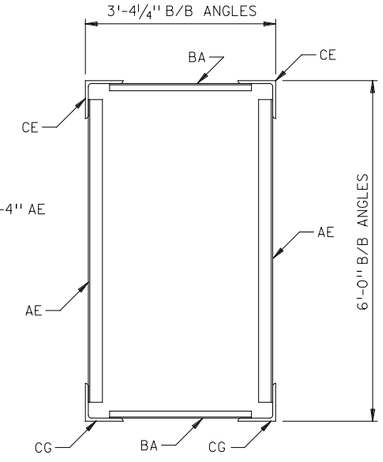
SECTION A-A



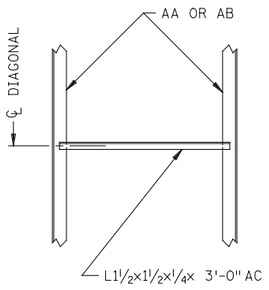
ELEVATION



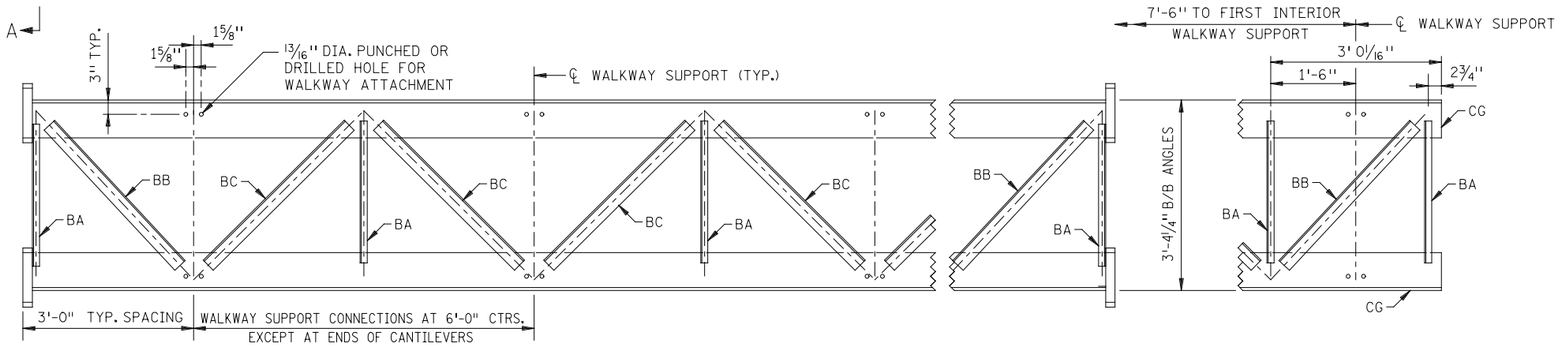
ELEVATION



SECTION B-B



SECTION C-C



NOTE:
THE BOTTOM VIEW IS DETAILED TO PROVIDE FOR WALKWAY ATTACHMENT. WHERE THE WALKWAY IS OMITTED, PROVIDE STRUT BA AS INDICATED IN THE TOP VIEW.

BOTTOM VIEW
SIMPLE SPAN

BOTTOM VIEW
CANTILEVER END

DETAILS SHOWN ARE FOR THE FREE ENDS OF THE CANTILEVER SPANS. ALL OTHER DETAILS FOR CANTILEVER TRUSSES SHALL BE AS SHOWN FOR THE SIMPLE SPANS.

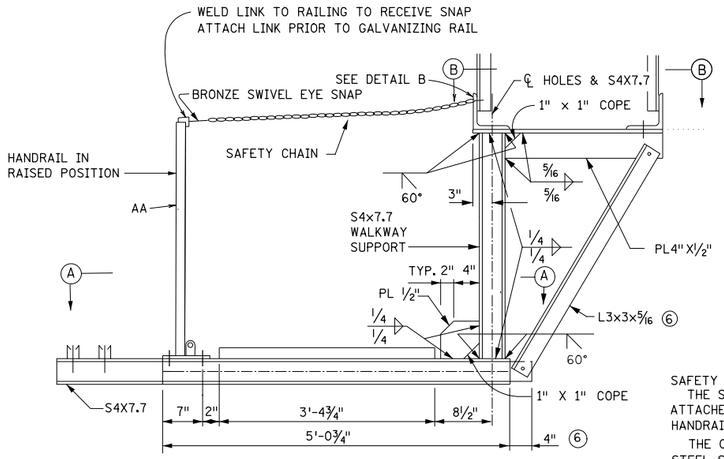
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

SIGN TRUSS DETAILS
TRUSS TYPE C

DRAWING ST-7

REV. 10-2-2013

PLOTTED/REVISED: $$$$@DATE@$$$$
DISTRICT #: $@DISTRICT@$
IPLOT NAME: $$@IPLOT$NAME@$$
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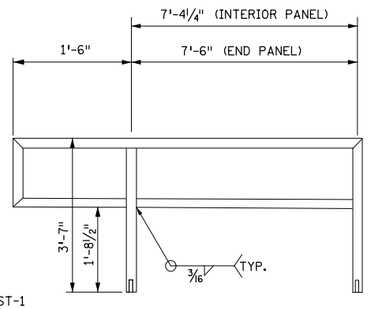


TYPICAL WALKWAY DETAILS

SIGN HEIGHT	X ①
6'-6"	1'-0" ⑤
7'-0"	1'-3"
7'-6"	1'-6"
8'-0"	1'-9" ③
8'-6"	2'-0"
9'-0"	2'-3" ④
9'-6"	2'-6"
10'-0"	2'-9"
10'-6"	3'-0"
11'-0"	3'-3"
11'-6"	3'-6"
12'-0"	3'-9"
12'-6"	4'-0"
13'-0"	4'-3"

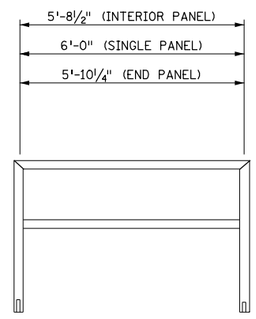
① SEE NOTE 1 ON DRAWING ST-1

SAFETY CHAIN NOTES:
THE SAFETY CHAIN SHALL BE ATTACHED AT EACH END OF THE HANDRAIL.
THE CHAIN SHALL BE 3/16" STAINLESS STEEL STRAIGHT LENGTH CHAIN WITH APPROXIMATELY 12 LINKS PER FOOT.
THE CHAIN AND ITS CONNECTIONS SHALL HAVE A MINIMUM RATED WORK LOAD OF 700 LBS.



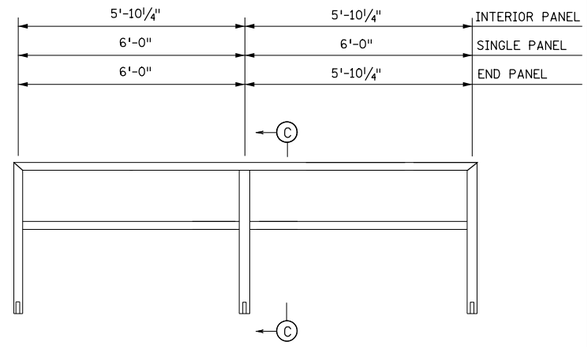
STRUCTURAL TUBING 1 1/2 X 1 1/2 X 3/16 (TYP.)

RAILING ELEVATION AT END OF CANTILEVER



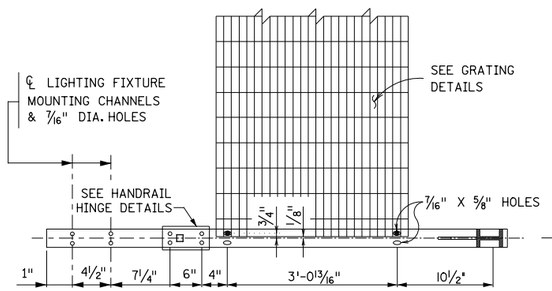
STRUCTURAL TUBING 1 1/2 X 1 1/2 X 3/16 (TYP.)

RAILING ELEVATION 6' PANEL

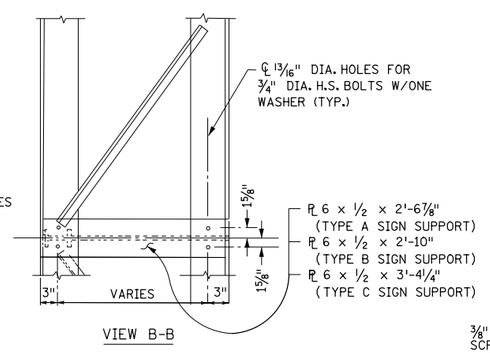


STRUCTURAL TUBING 1 1/2 X 1 1/2 X 3/16 (TYP.)

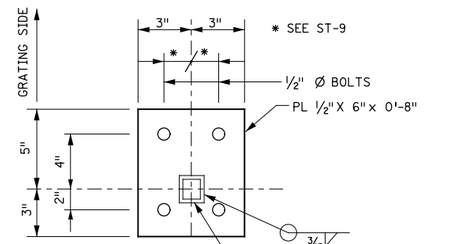
RAILING ELEVATION 12' PANEL



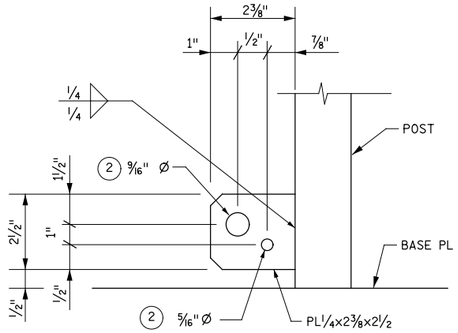
VIEW A-A



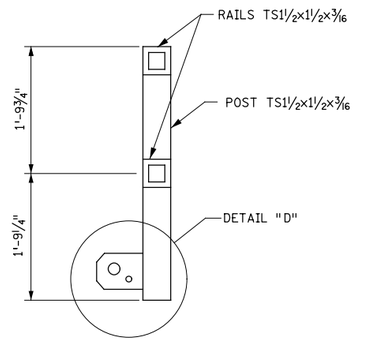
VIEW B-B



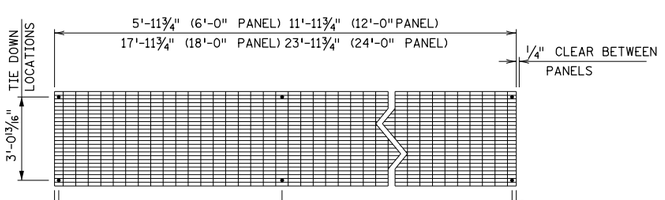
VIEW G-G
BASE PLATE
FIXED HANDRAIL POST



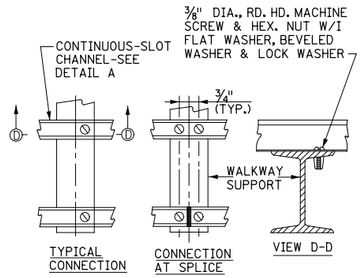
DETAIL "D"



VIEW C-C
FOLDING HANDRAIL POST

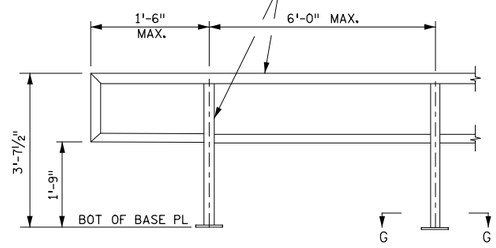


GRATING PLAN - 6'-0", 12'-0", 18'-0", OR 24'-0" PANELS

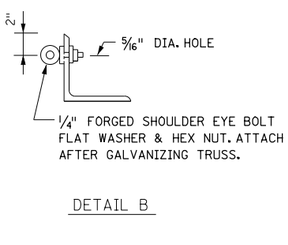


DETAIL A

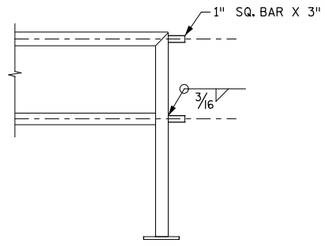
FIXTURE MOUNTING DETAILS



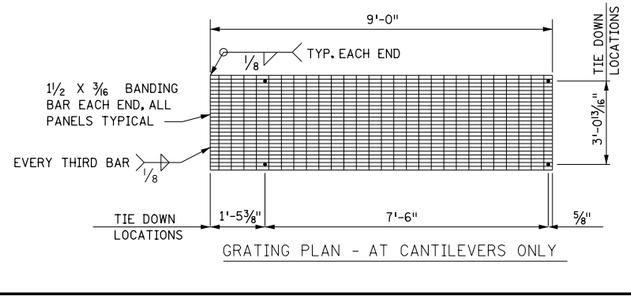
FIXED HANDRAIL FOR OH SIGN



DETAIL B



FIXED RAIL SPLICE DETAIL



GRATING PLAN - AT CANTILEVERS ONLY

NOTE:
ALL GRATING SHALL BE 3'-4 3/4" WIDE AND SHALL BE 1 1/2" x 3/16" SERRATED BEARING BARS AT 1 3/16" CENTERS WITH CROSS BARS AT 4" CENTERS. ATTACH GRATING AT EACH TIE DOWN LOCATION WITH A STAINLESS STEEL SADDLE ANCHOR DESIGNED FOR THIS SPECIFIC USE.

FIXTURE MOUNTING CHANNEL NOTES:
FIXTURE MOUNTING CHANNELS SHALL EXTEND THE FULL LENGTH OF THE WALKWAY AND SHALL BE CONTINUOUS OVER AS MANY WALKWAY SUPPORT SPANS AS PRACTICABLE CONSISTENT WITH EASE OF HANDLING AND ASSEMBLING.
JOINTS IN THE CHANNELS SHALL BE CENTERED ON THE WALKWAY SUPPORTS WITH A MAX 1/8" GAP BETWEEN SECTIONS.
CHANNELS SHALL HAVE A 1/4" DRAIN HOLE IN EACH WALKWAY SUPPORT SPAN.

GENERAL NOTES:
WALKWAY DETAILS SHOWN ARE TYPICAL FOR CANTILEVER AND SIMPLE SPAN SIGNS
WHEN THE FORMAT SHEET INDICATES THAT THE WALKWAY IS CONTINUOUS FROM ONE SPAN TO ANOTHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE SPECIAL LENGTH GRATING AND HANDRAIL PANELS REQUIRED.
FOLDING HANDRAIL PANELS ARE TO BE CONTINUOUS OVER A MAX. OF TWO WALKWAY SUPPORT SPANS.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LENGTH OF GRATING AND HANDRAIL PANELS REQUIRED FOR BRIDGE MOUNTED SIGNS AND CANTILEVERS WHERE THE SPECIFIED LENGTH DOES NOT AGREE WITH THE DETAILS.
PROVIDE ADEQUATE WEEP HOLES FOR HOT-DIP GALVANIZING.

SPECIFIC NOTES:
① SEE NOTE 1 ON DRAWING ST-1
② REAM RAILING SUPPORT BOLT AND LOCKING PIN HOLES AFTER GALVANIZING TO ENSURE BOLT AND PIN FIT.
③ LED CMS
④ DRUM CMS
⑤ NEW LED CMS
⑥ USE FOR SIGN HEIGHTS OF 11'-0" OR GREATER. EXTEND S4x7.7 BY 4" AND COPE FLANGES.

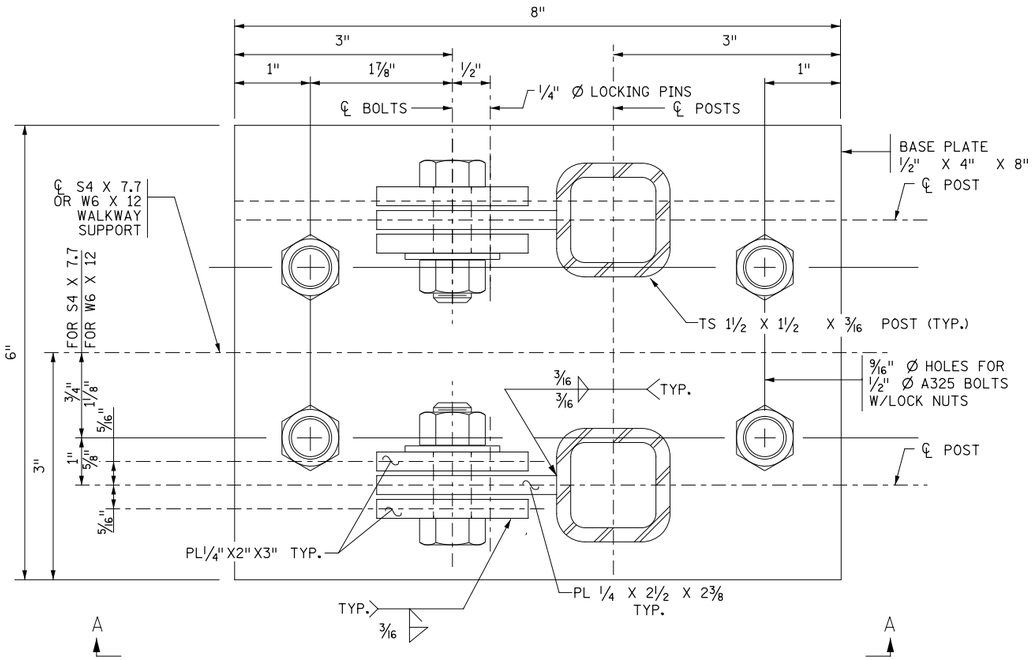
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

WALKWAY DETAILS

DRAWING ST-8

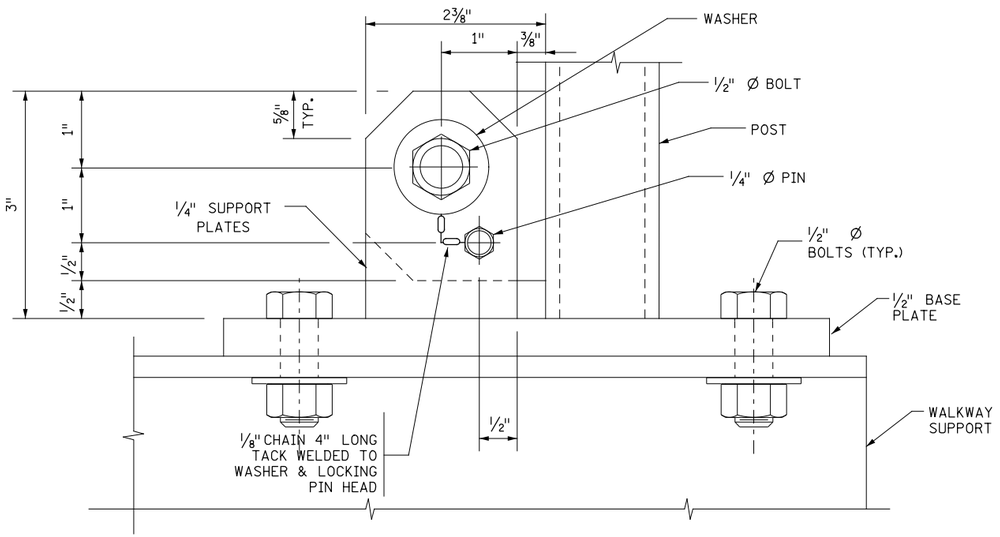
REV. 10-2-2013

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



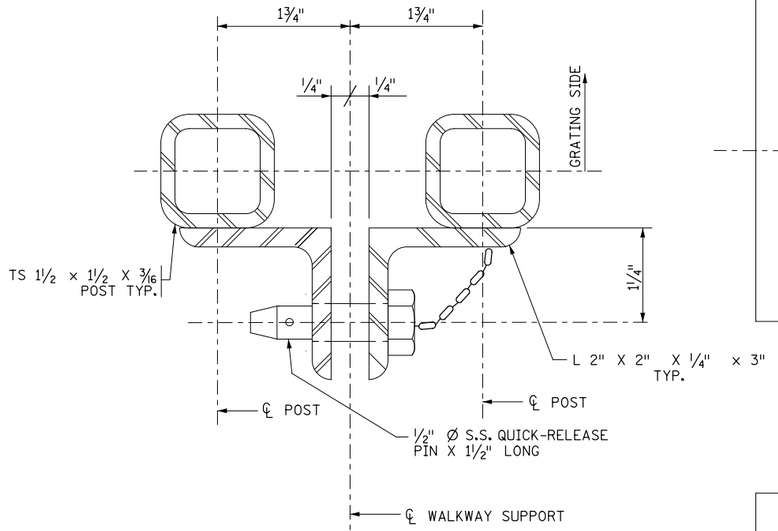
DETAIL 1

BASE PLATE & HINGE ASSEMBLY
FOR FOLDING HANDRAIL



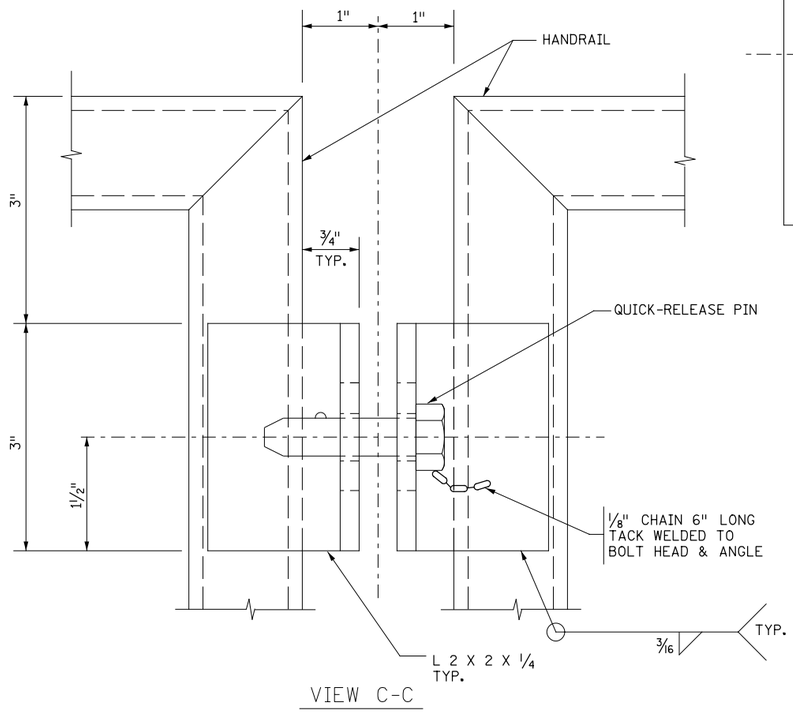
VIEW A-A

BASE PL. & HINGE FOR FOLDING HANDRAIL

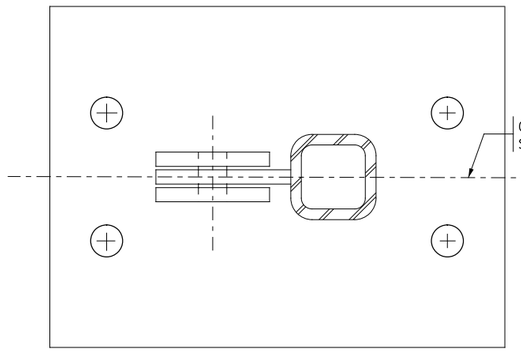


TOP RAIL JOINT

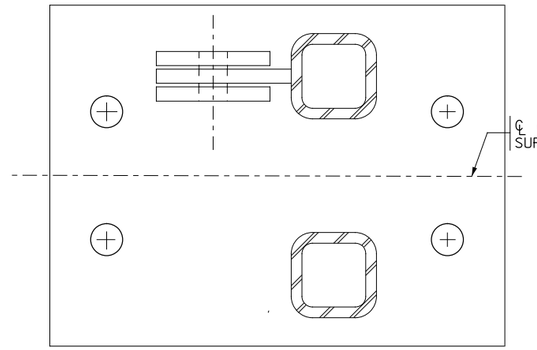
FOLDING HANDRAILS



VIEW C-C



BASEPLATE AND HINGE FOR
FOLDING RAIL END POST



BASEPLATE AND HINGE FOR
FIXED TO FOLDING TRANSITION

(MAY BE OPPOSITE HAND)

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

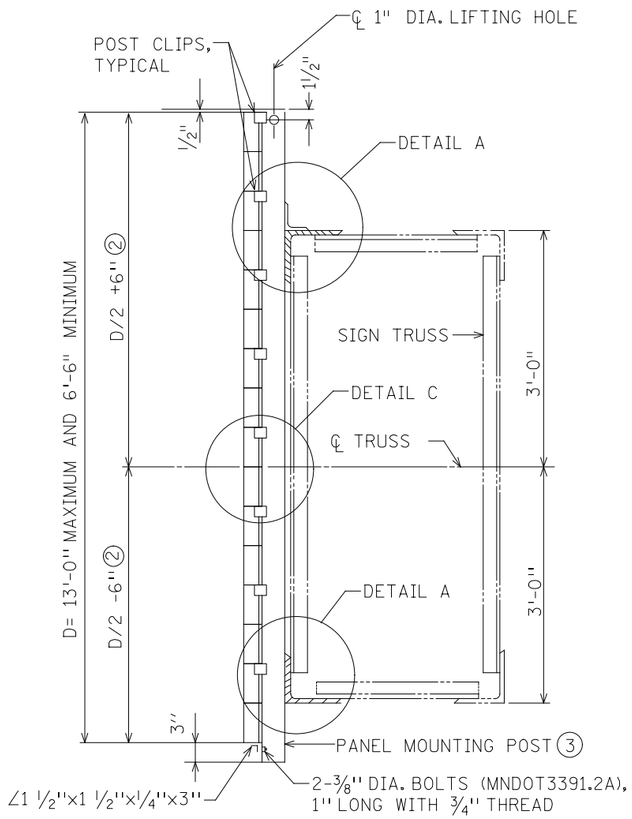
FOLDING HANDRAIL

DRAWING ST-9

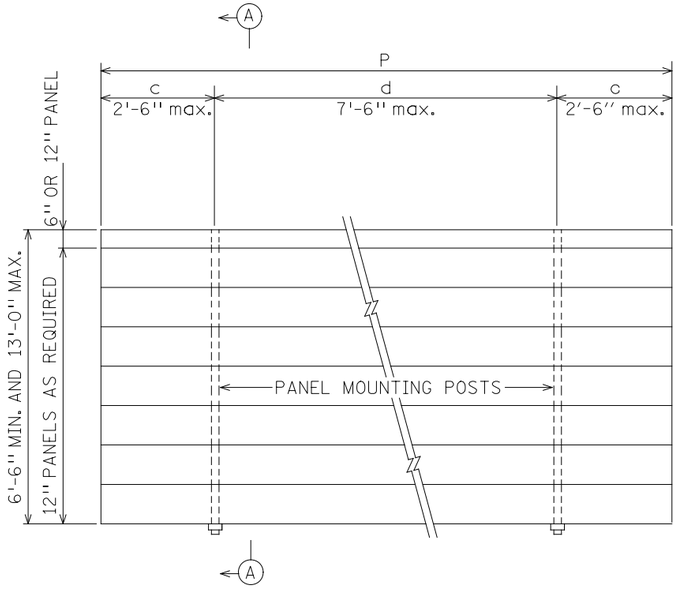
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REV. 10-2-2013

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

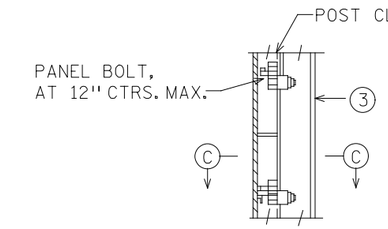


SECTION A-A

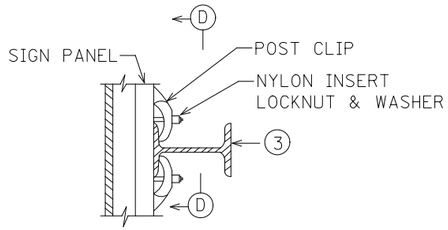


PANEL MOUNTING POST	
NO. OF POSTS	
2	P=144" OR LESS, c=.207P, d=.586P
3	P=150" THRU 204", c=.145P, d=.355P
4	P=210" THRU 276", c=.107P, d=.262P
5	P=282" THRU 348", c=.084P, d=.208P
6	P=354" THRU 420", c=.070P, d=.172P
7	P=426" THRU 492", c=.059P, d=.147P
POST SPACING MAY BE ADJUSTED AS REQUIRED IF CONFLICT WITH TRUSS DETAILS IS ENCOUNTERED.	

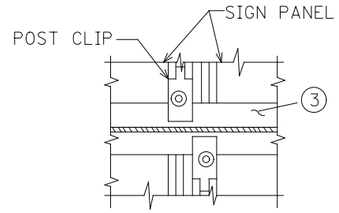
SIGN PANEL ELEVATION



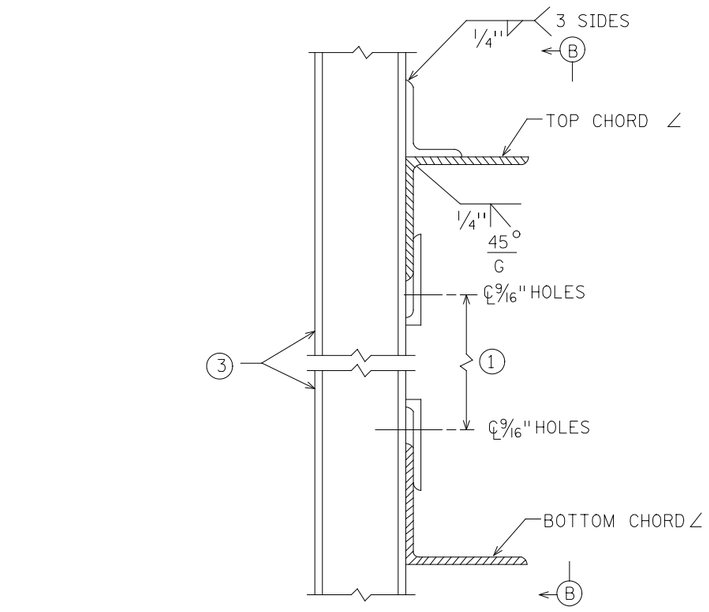
DETAIL C



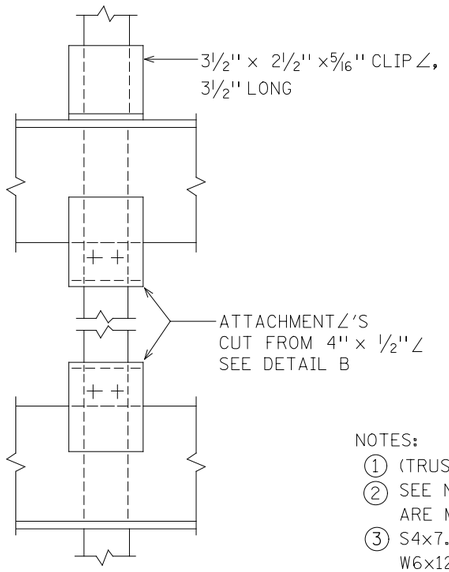
SECTION C



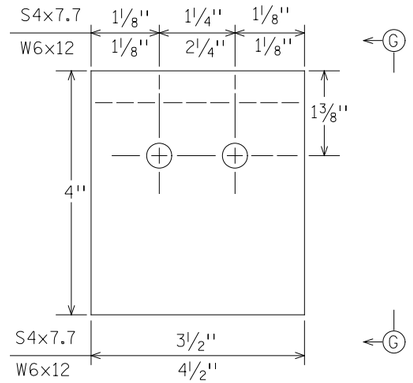
SECTION D-D



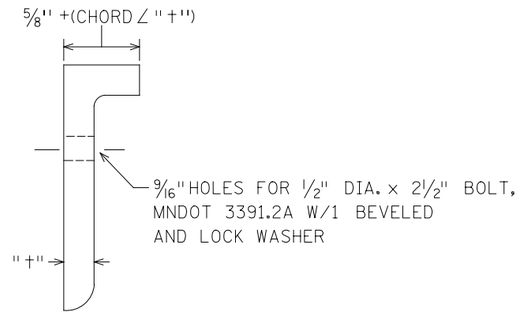
DETAIL A



VIEW B-B



DETAIL B



VIEW G-G

NOTES:
1. (TRUSS DEPTH)-(TOP & BOTTOM CHORD ∠ LEGS)-1¼"
2. SEE NOTE 1 ON ST-1 WHEN STANDARD PANELS AND CMS ARE MOUNTED ON THE SAME SPAN
3. S4x7.7 FOR SIGN HEIGHTS ≤ 11'-0"
   W6x12 FOR SIGN HEIGHTS OVER 11'-0"

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

SIGN PANEL AND PANEL MOUNTING POST DETAILS

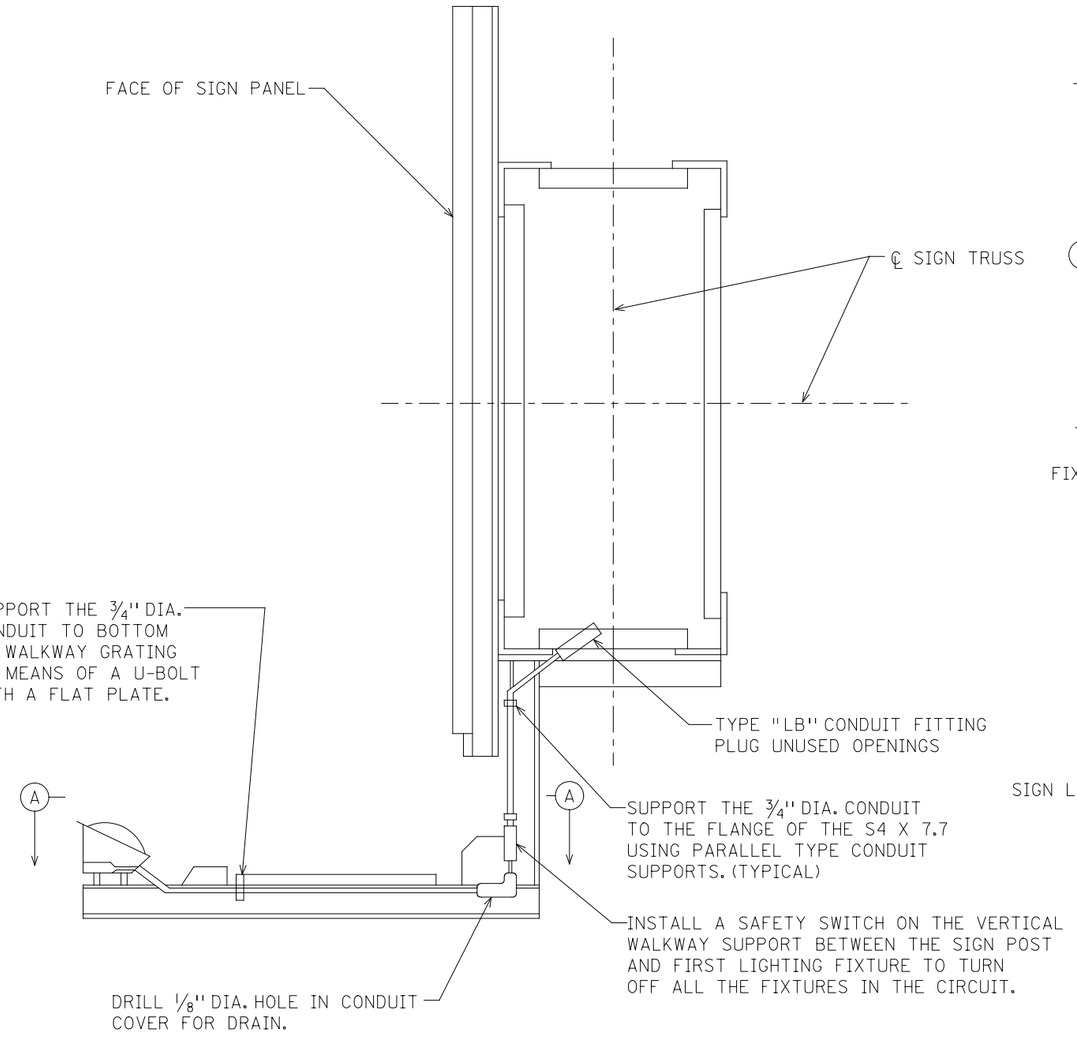
DRAWING ST-10

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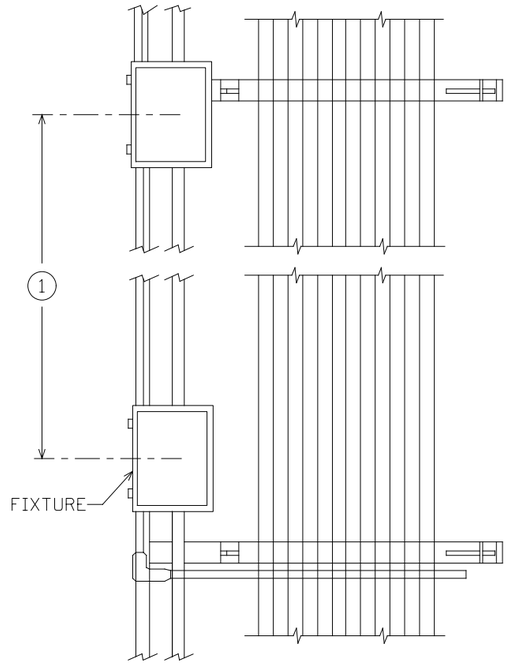
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MOUNTING DETAILS FOR SIGN LIGHTING



SIDE VIEW

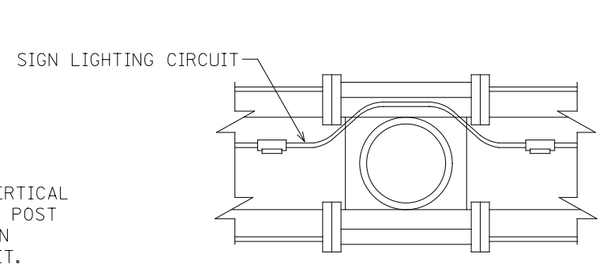


(1) SEE FIXTURE SPACING CHART

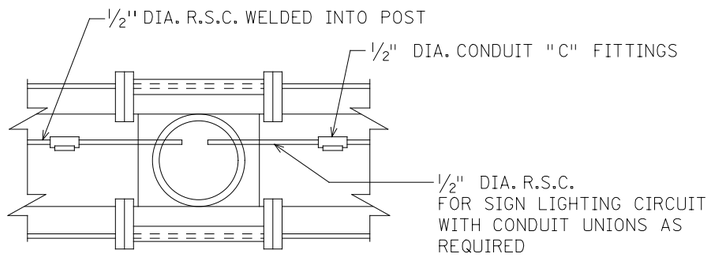
SECTION A-A

FIXTURE SPACING CHART		
W (PANEL WIDTH)	NUMBER OF FIXTURES	FIXTURE SPACING
9.5′ OR LESS	1	
10.0′ TO 16.5′	2	W/2
17.0′ TO 24.5′	3	W/3
25.0′ TO 32.5′	4	W/4
33.0′ TO 40.5′	5	W/5
41.0′ TO 48.5′	6	W/6
49.0′ TO 56.5′	7	W/7
57.0′ TO 64.5′	8	W/8
65.0′ TO 72.5′	9	W/9
73.0′ TO 80.0′	10	W/10

FIXTURES SHALL BE SYMMETRICALLY PLACED WITH RESPECT TO THE SIGN PANEL. SIGN PANELS WHICH ABUT EACH OTHER SHALL BE TREATED AS A SINGLE SIGN PANEL FOR LIGHTING FIXTURE SPACING.



POST WITHOUT HANDHOLES



POST WITH HANDHOLES

ELECTRICAL SERVICE CONNECTION FROM POST TO TRUSS

NOTES:
1. SEE SPECIAL PROVISIONS FOR SIGN LIGHTING FIXTURE REQUIREMENTS.
2. HIGH IMPACT RESISTANT POLYCARBONATE SHIELD SHALL BE PROVIDED FOR ALL SIGN LIGHTING FIXTURES INSTALLED ON TYPE OH SIGNS (BRIDGE MOUNTED).
3. WIRING BETWEEN THE SIGN POST AND THE SAFETY SWITCH SHALL BE RUN IN ¾" R.S.C.

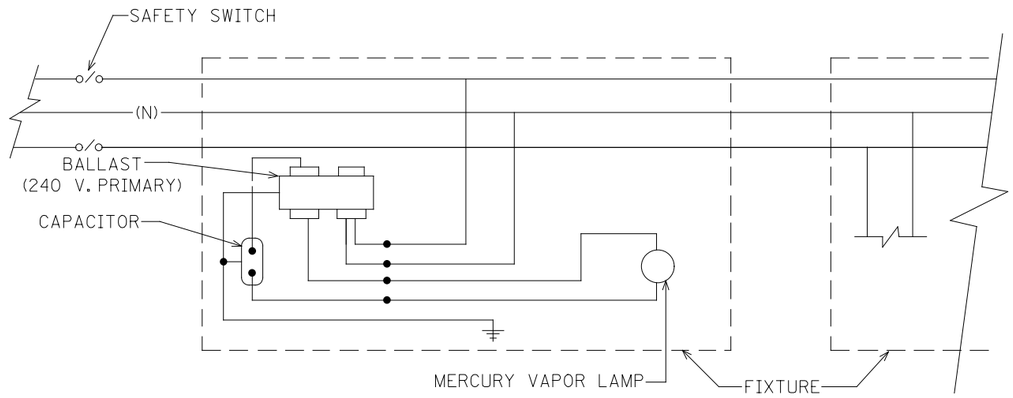
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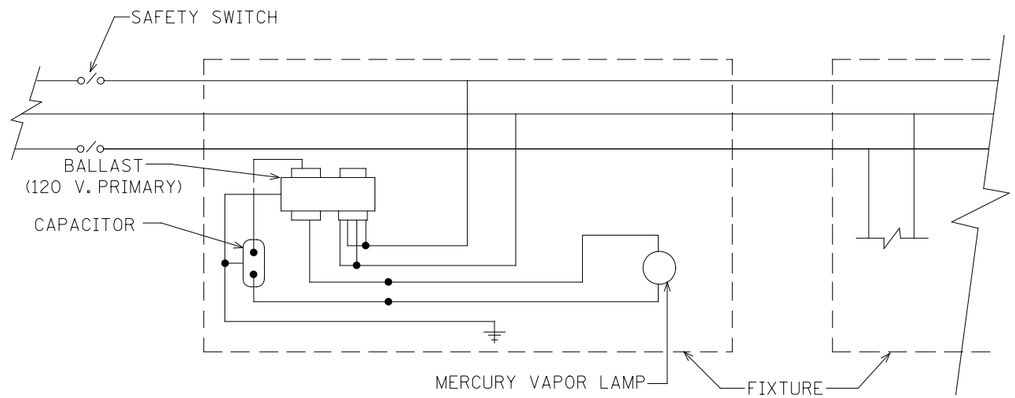
STANDARD OVERHEAD SIGN SUPPORTS INTERIM DESIGN B

ELECTRICAL DETAILS

DRAWING ST-11

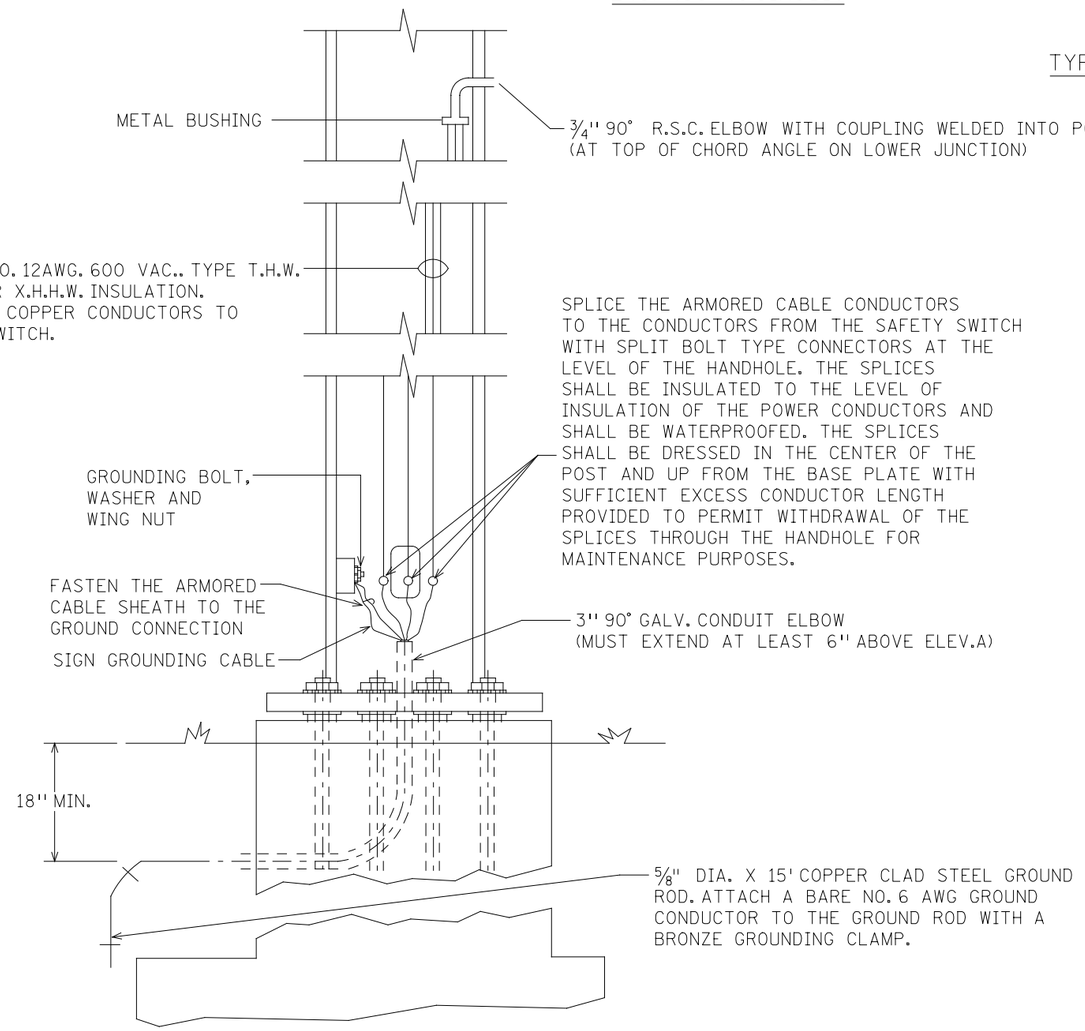


240/480 V. CIRCUIT



120/240 V. CIRCUIT

TYPICAL CIRCUIT DIAGRAMS



SIGN BASE DETAIL

ELECTRICAL NOTES:

1. WHEN SIGN LIGHTING SYSTEMS HAVE BEEN COMPLETED, THE CONTRACTOR SHALL, WITHOUT FURTHER COMPENSATION, CONDUCT BURNING AND RESISTANCE TESTS FOR FINAL ACCEPTANCE. THE RESISTANCE TO GROUND OF EACH UNGROUNDED CONDUCTOR SHALL BE NOT LESS THAN 8 MEGOHMS.
2. ALL FITTINGS, HUBS, UNIONS, BUSHINGS, ETC. SHALL BE SUPPLIED AS PART OF CONDUIT, CONDUIT ENTERING SIGN POSTS SHALL HAVE INSULATED GROUNDING BUSHINGS INSTALLED BEFORE PULLING WIRE.
3. CONDUIT ON STRUCTURE SHALL BE SURFACED MOUNTED, STRAPPED AT EVERY ANGLE BRACE WITH U-BOLT TYPE CLAMPS.
4. SUCCESSIVE LIGHTING FIXTURES SHALL BE CONNECTED ON ALTERNATE SIDES OF THE 3-WIRE CIRCUIT.
5. THE CABLE SHEATH SHALL EXTEND AT LEAST 4" ABOVE THE TOP OF THE CONDUIT END AND THE TAPE ARMOR OF ARMORED CABLE SHALL BE CONNECTED TO THE GROUNDING BOLT IN THE SIGN POSTS.
6. WIRING FROM THE SAFETY SWITCH TO LIGHTING FIXTURES SHALL BE 1/C NO. 12 AWG AND SHALL BE RUN IN ¾" R.S.C. ALL SPLICING SHALL BE ACCOMPLISHED WITH A WIRE NUT AND WATERPROOF COATING. ALL CONDUIT CONNECTIONS SHALL BE RAIN TIGHT.

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

ELECTRICAL DETAILS

DRAWING ST-12

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DISTRICT #: $@DISTRICT@$
PLOT NAME: $$@PLOT$NAME@$$
PATH & FILENAME: $$$@PATHFILENAME@$$$

LEGEND

- LIGHTING UNIT TYPES 9-40 AND 6B-40
- LIGHTING UNIT TYPE - SPECIAL 1
- LIGHTING UNIT TYPE - SPECIAL 2
- UNDERPASS LIGHTING UNIT
- BANNER POLE
- SOURCE OF POWER
- SERVICE CABINET
- HANDHOLE
- 2" NON-METALLIC CONDUIT (UNLESS OTHERWISE NOTED)
- SALVAGED LIGHTING UNIT - CITY OF RED WING
- EXISTING LIGHTING UNIT - CITY OF RED WING
- EXISTING LIGHTING UNIT - MNDOT
- EXISTING LIGHITNG UNIT - CITY OF RED WING
- EXISTING LIGHITNG UNIT - CITY OF RED WING
- EXISTING SOURCE OF POWER
- EXISTING SERVICE CABINET
- EXISTING HANDHOLE
- CONDUIT INSTALLED BY OTHERS OR EXISTING

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: STEVE MCHENRY

Date _____ License # 46710

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

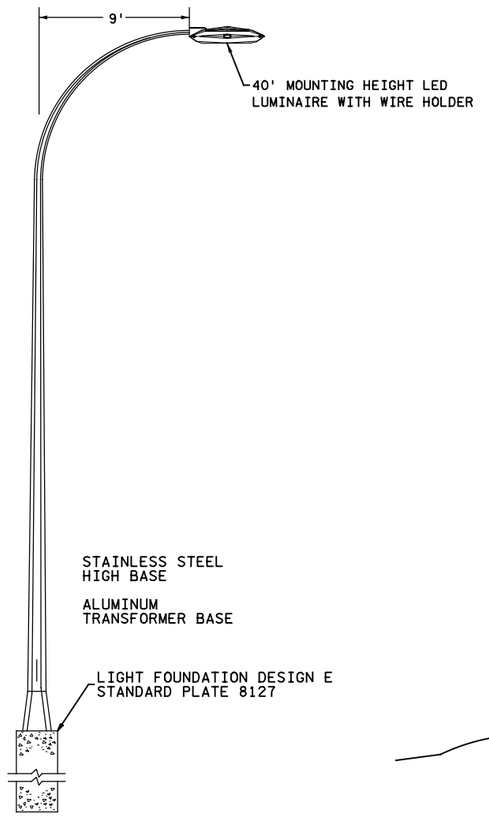
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

TABULATION AND WIRING DIAGRAM

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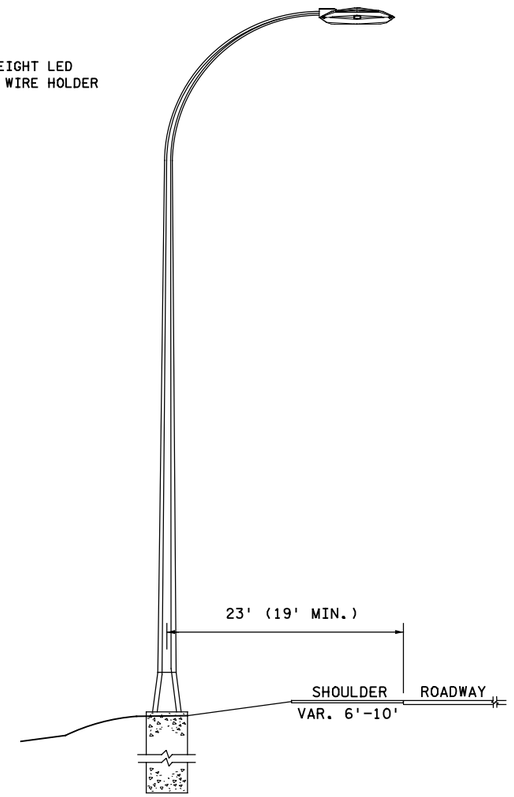


LIGHTING UNIT TYPE 9-40

(BREAKAWAY, NOT TO SCALE)

RADIUS CHART (ENGLISH)

MAST ARM LENGTH	RADIUS
6	5
9	8
12	10

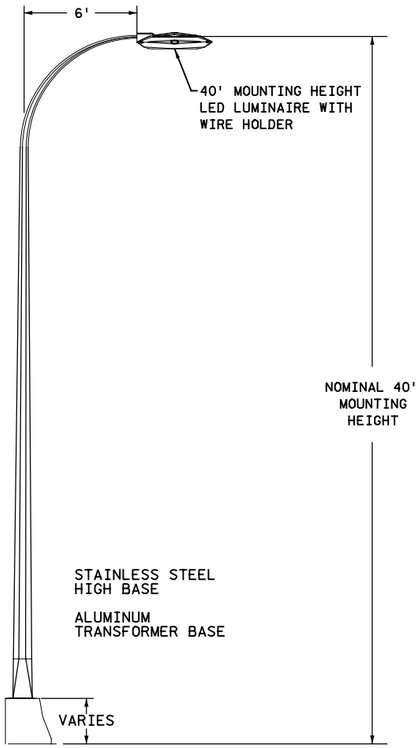


PLACEMENT OF LIGHTING UNIT TYPE 9-40

(NOT TO SCALE)

NOTES:

1. USE THE MAXIMUM DISTANCE WHENEVER POSSIBLE, IF THE MINIMUM DISTANCE CANNOT BE OBTAINED CONTACT THE DISTRICT/DIVISION TRAFFIC ENGINEER.
2. LIGHT BASES SHALL BE PLACED IN ACCORDANCE WITH 2545.3F2.
3. DISTANCES SHALL BE MEASURED FROM THE EDGE OF DRIVING LANE OR TURN LANE.



LIGHTING UNIT TYPE 6B-40

(NOT TO SCALE)

NOTES:

1. REFER TO BRIDGE PLANS FOR BOLT CLUSTER DETAIL.
2. LIGHTING UNIT WILL BE MOUNTED ON SEVERAL DIFFERENT TYPES OF STRUCTURES INCLUDING BUT NOT LIMITED TO RETAINING WALLS AND BRIDGE PILASTERS.

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: STEVE MCHENRY

Date _____ License # 46710

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

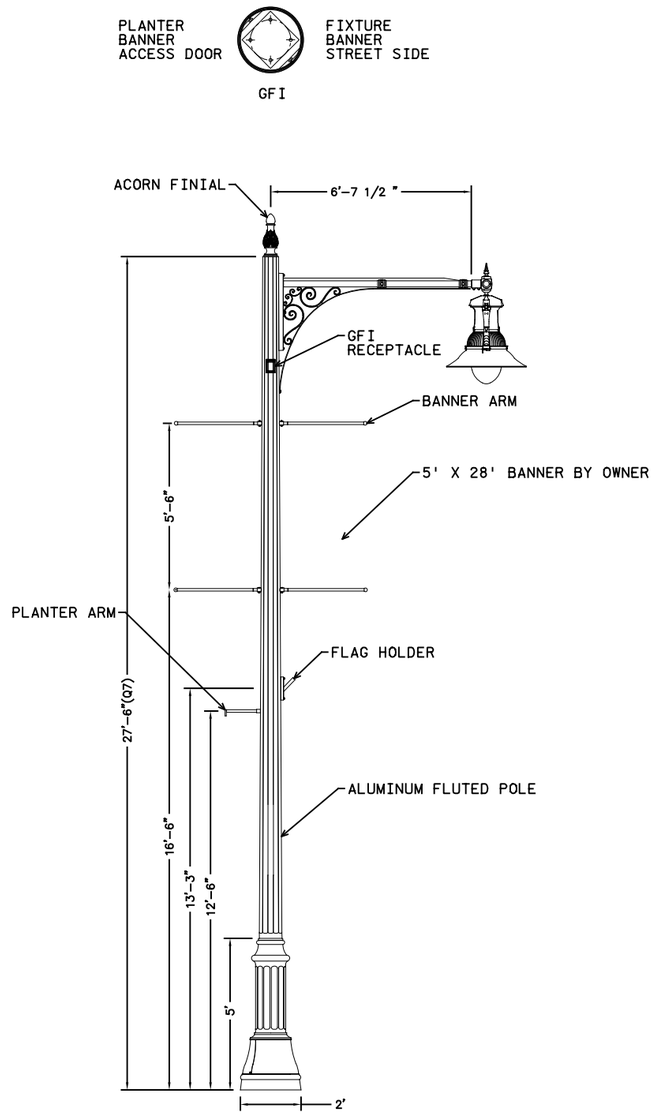
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

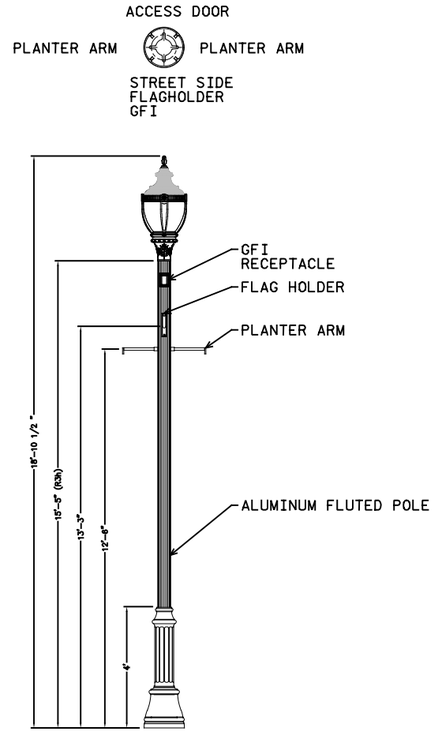
LIGHTING DETAILS

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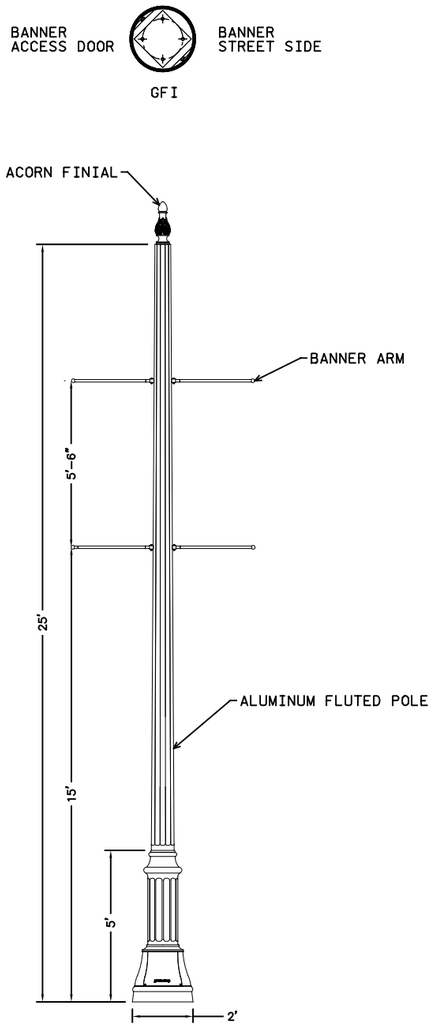
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LIGHTING UNIT TYPE - SPECIAL 1
(NOT TO SCALE)
MOUNTED ON LIGHT FOUNDATION DESIGN E MODIFIED



LIGHTING UNIT TYPE - SPECIAL 2
(NOT TO SCALE)
MOUNTED ON LIGHT FOUNDATION DESIGN P MODIFIED



BANNER POLE
(LIGHTING UNIT TYPE - SPECIAL)
MOUNTED ON LIGHT FOUNDATION DESIGN E MODIFIED

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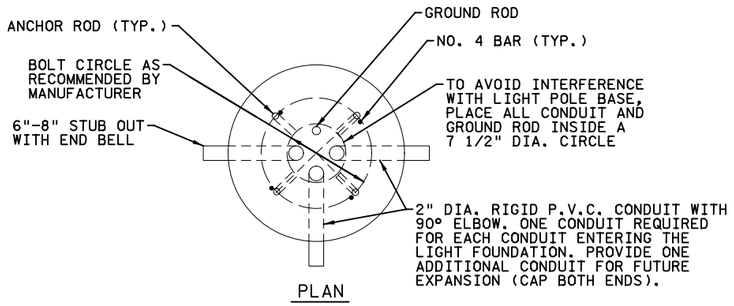
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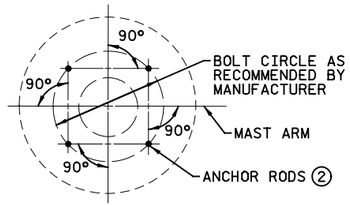
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SP 2515-21 (TH 63)
LIGHTING DETAILS

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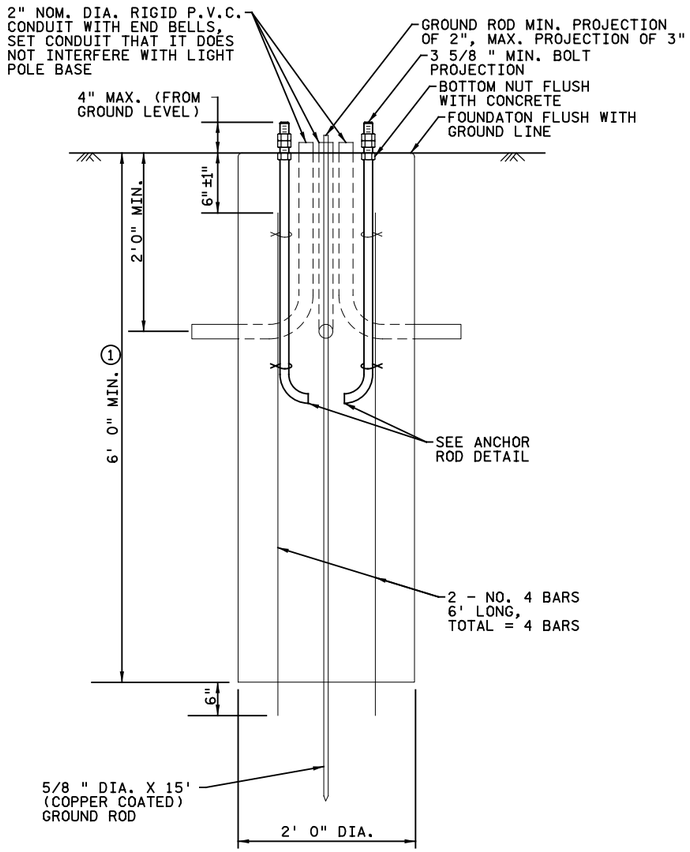
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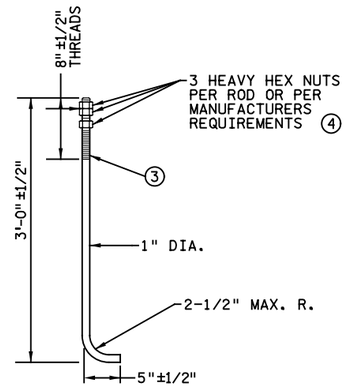
PLAN



ANCHOR ROD PLACEMENT



ELEVATION



ANCHOR ROD DETAIL

4 REQUIRED (2)

LIGHT FOUNDATION DESIGN E MODIFIED

CAST IN PLACE
(NOT TO SCALE)

LIGHT FOUNDATION TO BE MODIFIED AS FOLLOWS:

1. BOLT CIRCLE MODIFIED TO MATCH POLE MANUFACTURERS SPECIFICATIONS.
2. VERIFY ANCHOR ROD REQUIREMENTS WITH POLE MANUFACTURER BEFORE POURING FOUNDATION. ANCHOR BOLTS SHALL BE PER MANUFACTURER SPECIFICATIONS.
3. CONCRETE FOR ALL FOUNDATIONS (LIGHT FOUNDATIONS) SHALL BE SMOOTH FLAT AND LEVEL. NO MORE THAN 0.25 INCHES OF VARIABILITY COMPENSATED BY STAINLESS STEEL SHIM WASHERS WILL BE ALLOWED.

NOTES:

CONCRETE SHALL BE MIX NO. 3G52.

FOUNDATIONS MAY BE CONSTRUCTED IN AUGURED HOLES UNLESS THE NATURAL SOILS WILL NOT STAND OPEN, IN WHICH CASE FORMING WILL BE REQUIRED. FORMING MAY BE INDICATED IN PLANS OR AS DIRECTED BY FIELD ENGINEER.

OPEN END OF CONDUITS SHALL BE SEALED WITH AN APPROVED SEALING COMPOUND.

RIGID P.V.C. CONDUIT PER SPEC. 3803 WITH BELL ENDS SHALL BE PROJECTED A MINIMUM 1/4" TO A MAXIMUM 1" ABOVE THE FOUNDATION BEFORE MORTAR IS PLACED AND SHALL BE THE SIZE AND NUMBER SHOWN IN THE PLAN.

A RIGID TEMPLATE SHALL BE PROVIDED FOR ANCHOR ROD AND CONDUIT PLACEMENT AND SHALL BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET.

ANTI-SEIZE COMPOUND THAT MEETS MIL-PRF-907E SPEC. SHALL BE APPLIED WITH A BRUSH TO ALL THREADS.

WHEN ROCK IS ENCOUNTERED, SEE PLAN DETAILS.

ALL BACK FILLING AND EXCAVATION AROUND FOUNDATION MUST BE IN ACCORDANCE WITH 2451 AND 2545.3.

AN ALTERNATE PRECAST FOUNDATION MAY BE USED WITH THE ENGINEERS APPROVAL.

(1) THE DEPTH OF THE FOUNDATION MAY VARY IN THE PLANS OR SPECIAL PROVISIONS.

(2) ANCHOR RODS, NUTS AND WASHERS PER SPEC. 3385, TYPE B, SHALL BE PLACED AT RIGHT ANGLES TO THE DIRECTION OF THE MAST ARM. GALVANIZE THE TOP 1 FT. OF THE ANCHOR ROD AND NUTS PER SPEC. 3392, AND PER POLE MANUFACTURERS REQUIREMENTS.

(3) WRAP THREADS OF ANCHOR RODS ABOVE THE BOTTOM NUT WITH VINYL ELECTRICAL TAPE TO AVOID CONTAMINATION DURING CONCRETE POURING. WRAP THREADS OF ANCHOR RODS WITH 3 LAYERS OF VINYL ELECTRICAL TAPE 2" BELOW THE BOTTOM NUTS.

(4) USE 1 HOLD DOWN WASHER AND 2 HEAVY HEX NUTS PER ROD FOR ALUMINUM POLE INSTALLATION.

NO	DATE	BY	CKD	APPR	REVISION

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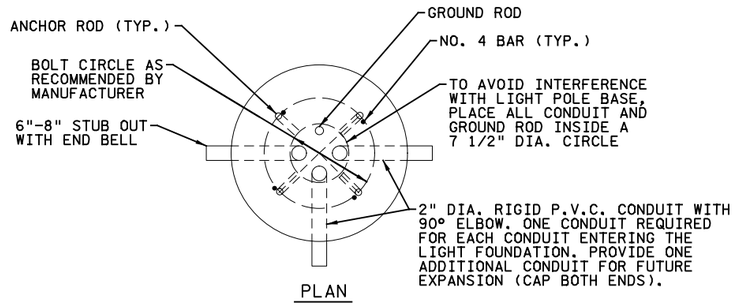
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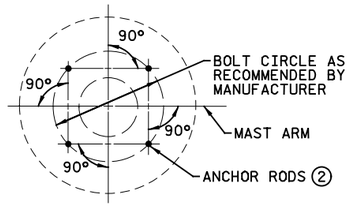
LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
LIGHTING DETAILS

SHEET 444 OF 688

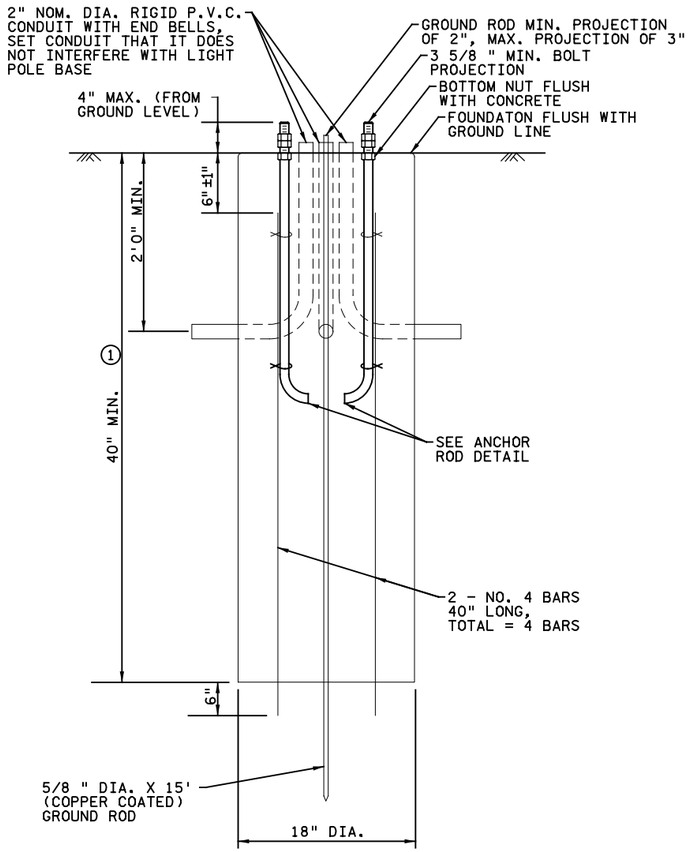
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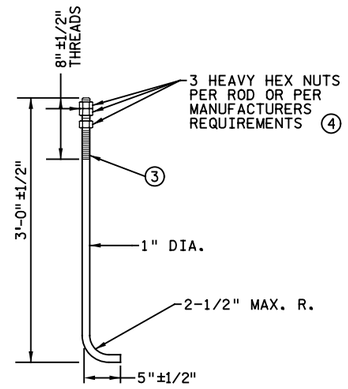
PLAN



ANCHOR ROD PLACEMENT



ELEVATION



ANCHOR ROD DETAIL

4 REQUIRED (2)

LIGHT FOUNDATION DESIGN P MODIFIED

CAST IN PLACE
(NOT TO SCALE)

LIGHT FOUNDATION TO BE MODIFIED AS FOLLOWS:

1. BOLT CIRCLE MODIFIED TO MATCH POLE MANUFACTURERS SPECIFICATIONS.
2. VERIFY ANCHOR ROD REQUIREMENTS WITH POLE MANUFACTURER BEFORE POURING FOUNDATION. ANCHOR BOLTS SHALL BE PER MANUFACTURER SPECIFICATIONS.
3. CONCRETE FOR ALL FOUNDATIONS (LIGHT FOUNDATIONS) SHALL BE SMOOTH FLAT AND LEVEL. NO MORE THAN 0.25 INCHES OF VARIABILITY COMPENSATED BY STAINLESS STEEL SHIM WASHERS WILL BE ALLOWED.

NOTES:

CONCRETE SHALL BE MIX NO. 3G52.

FOUNDATIONS MAY BE CONSTRUCTED IN AUGURED HOLES UNLESS THE NATURAL SOILS WILL NOT STAND OPEN, IN WHICH CASE FORMING WILL BE REQUIRED. FORMING MAY BE INDICATED IN PLANS OR AS DIRECTED BY FIELD ENGINEER.

OPEN END OF CONDUITS SHALL BE SEALED WITH AN APPROVED SEALING COMPOUND.

RIGID P.V.C. CONDUIT PER SPEC. 3803 WITH BELL ENDS SHALL BE PROJECTED A MINIMUM 1/4" TO A MAXIMUM 1" ABOVE THE FOUNDATION BEFORE MORTAR IS PLACED AND SHALL BE THE SIZE AND NUMBER SHOWN IN THE PLAN.

A RIGID TEMPLATE SHALL BE PROVIDED FOR ANCHOR ROD AND CONDUIT PLACEMENT AND SHALL BE LEFT IN PLACE UNTIL THE CONCRETE HAS SET.

ANTI-SEIZE COMPOUND THAT MEETS MIL-PRF-907E SPEC. SHALL BE APPLIED WITH A BRUSH TO ALL THREADS.

WHEN ROCK IS ENCOUNTERED, SEE PLAN DETAILS.

ALL BACK FILLING AND EXCAVATION AROUND FOUNDATION MUST BE IN ACCORDANCE WITH 2451 AND 2545.3.

AN ALTERNATE PRECAST FOUNDATION MAY BE USED WITH THE ENGINEERS APPROVAL.

(1) THE DEPTH OF THE FOUNDATION MAY VARY IN THE PLANS OR SPECIAL PROVISIONS.

(2) ANCHOR RODS, NUTS AND WASHERS PER SPEC. 3385, TYPE B, SHALL BE PLACED AT RIGHT ANGLES TO THE DIRECTION OF THE MAST ARM. GALVANIZE THE TOP 1 FT. OF THE ANCHOR ROD AND NUTS PER SPEC. 3392, AND PER POLE MANUFACTURERS REQUIREMENTS.

(3) WRAP THREADS OF ANCHOR RODS ABOVE THE BOTTOM NUT WITH VINYL ELECTRICAL TAPE TO AVOID CONTAMINATION DURING CONCRETE POURING. WRAP THREADS OF ANCHOR RODS WITH 3 LAYERS OF VINYL ELECTRICAL TAPE 2" BELOW THE BOTTOM NUTS.

(4) USE 1 HOLD DOWN WASHER AND 2 HEAVY HEX NUTS PER ROD FOR ALUMINUM POLE INSTALLATION.

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Print Name: STEVE MCHENRY

Date _____ License # 46710

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

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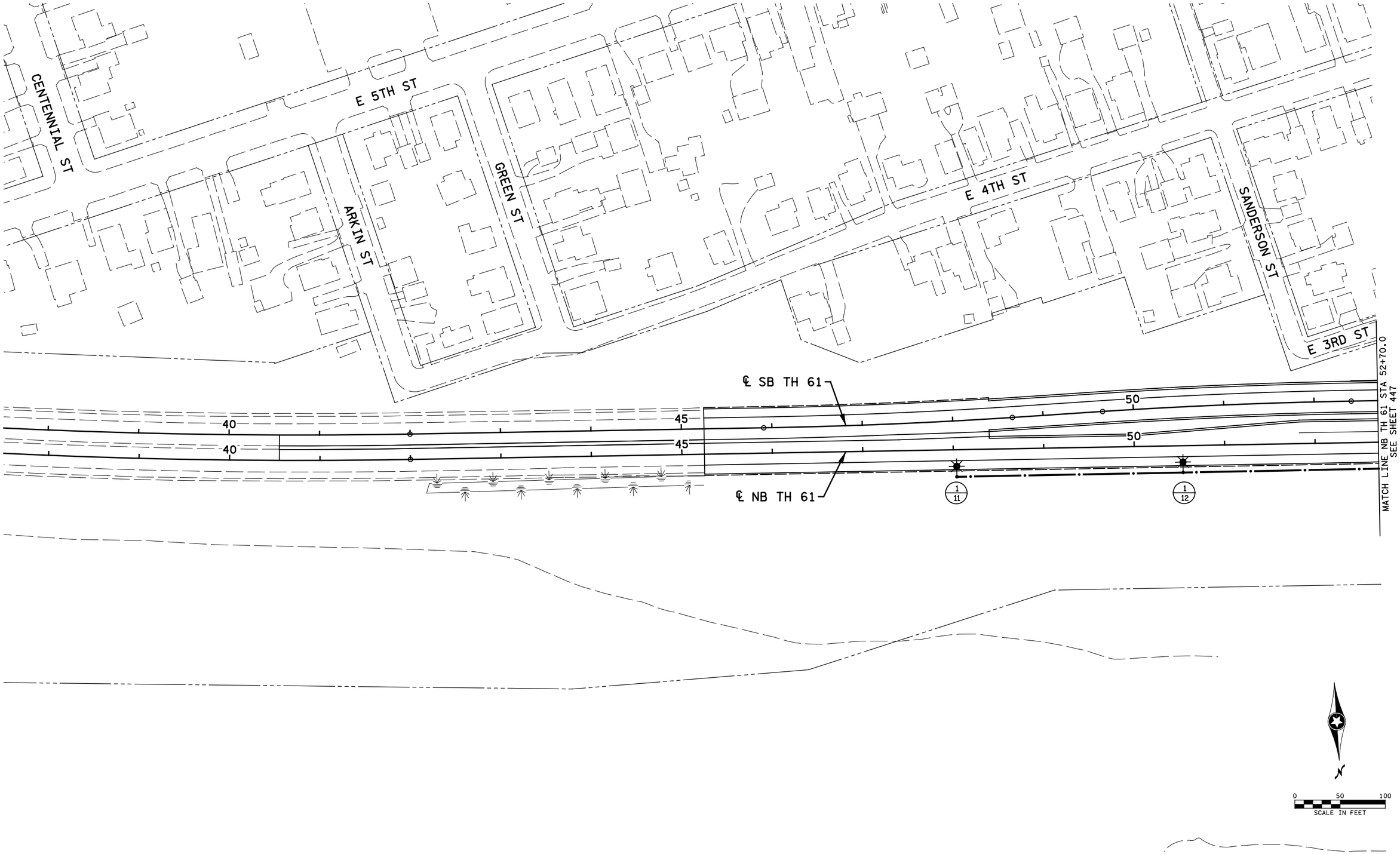
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

LIGHTING DETAILS

SHEET 445 OF 688

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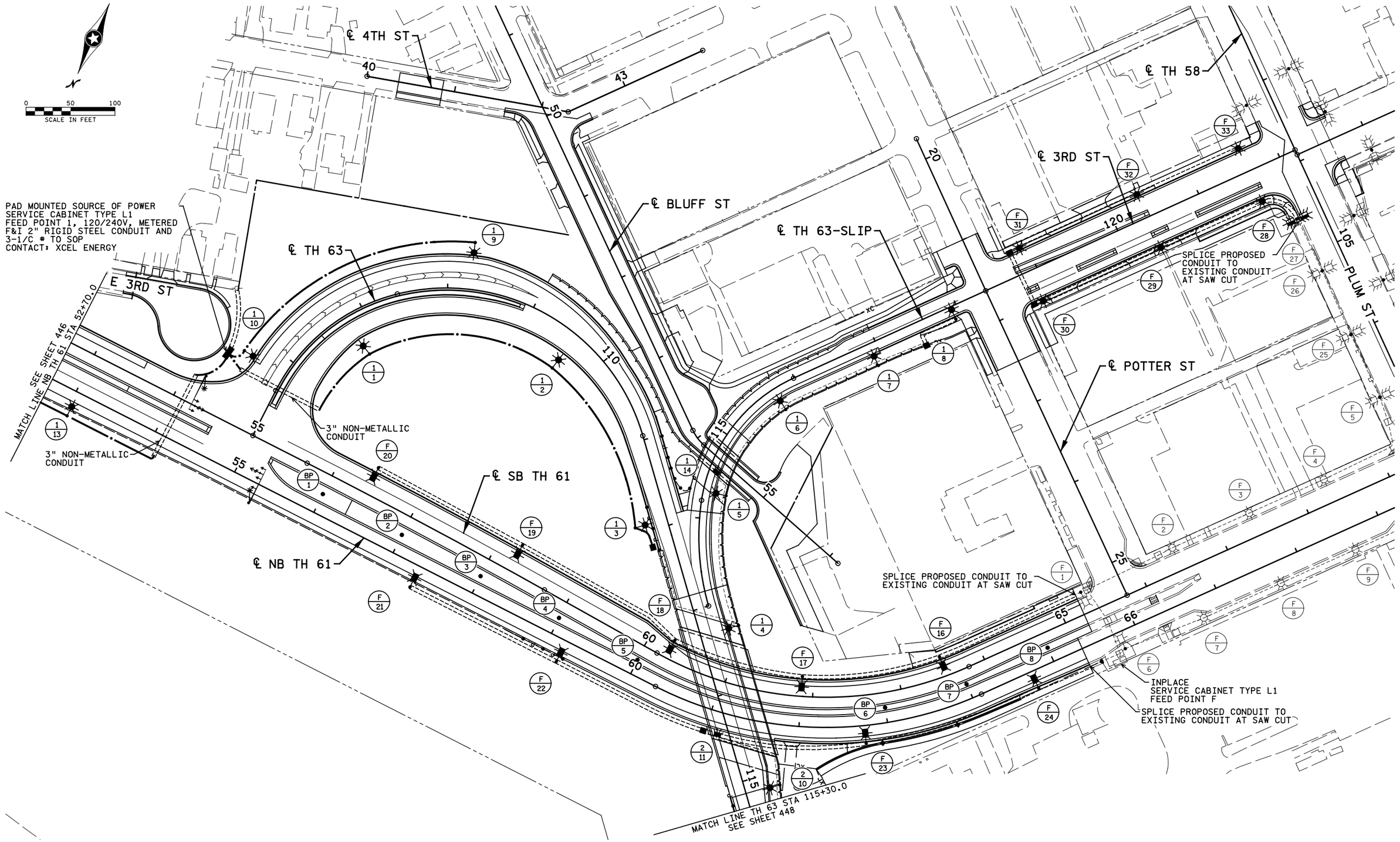
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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
LIGHTING LAYOUT

SHEET 446 OF 688

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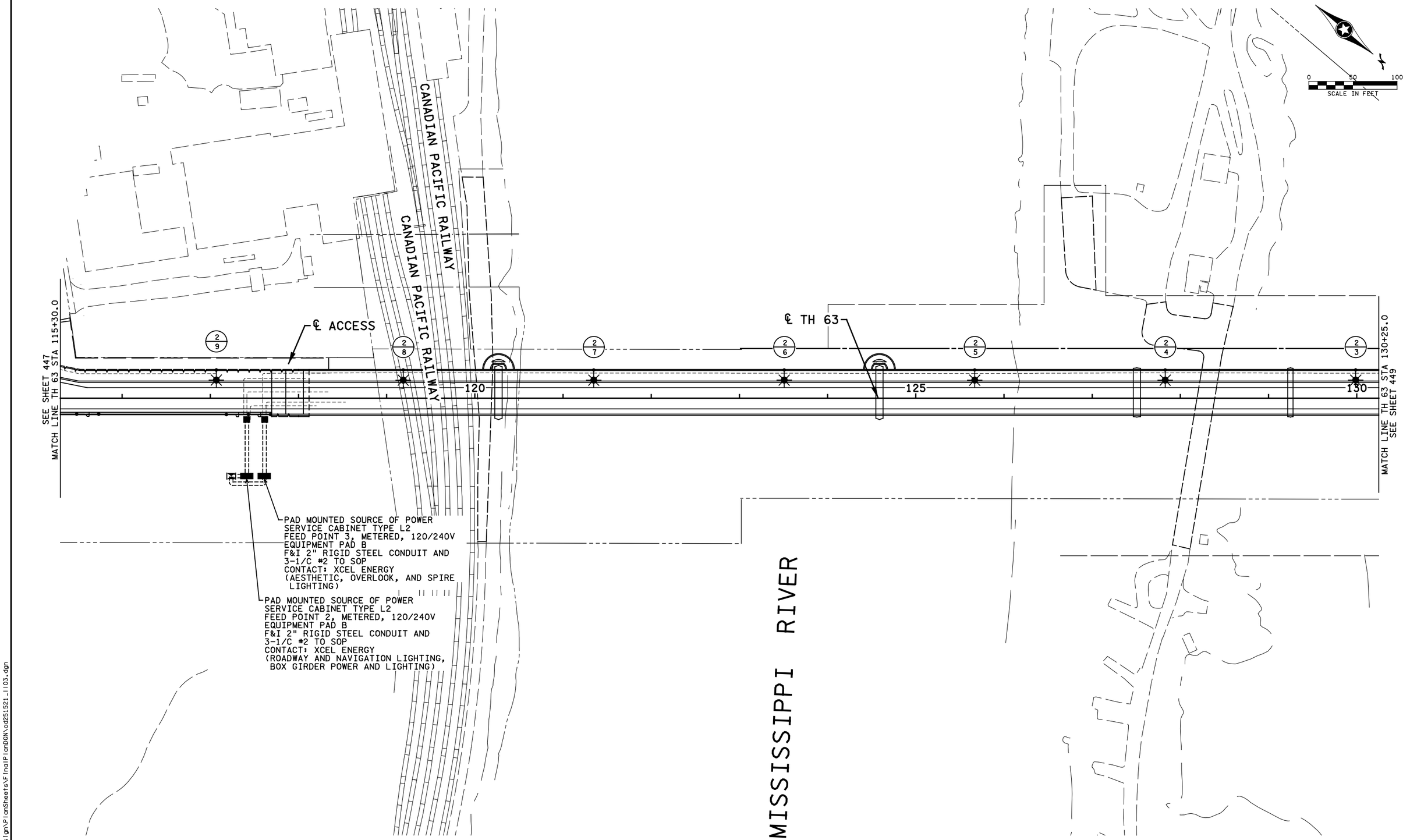
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SP 2515-21 (TH 63)
LIGHTING LAYOUT

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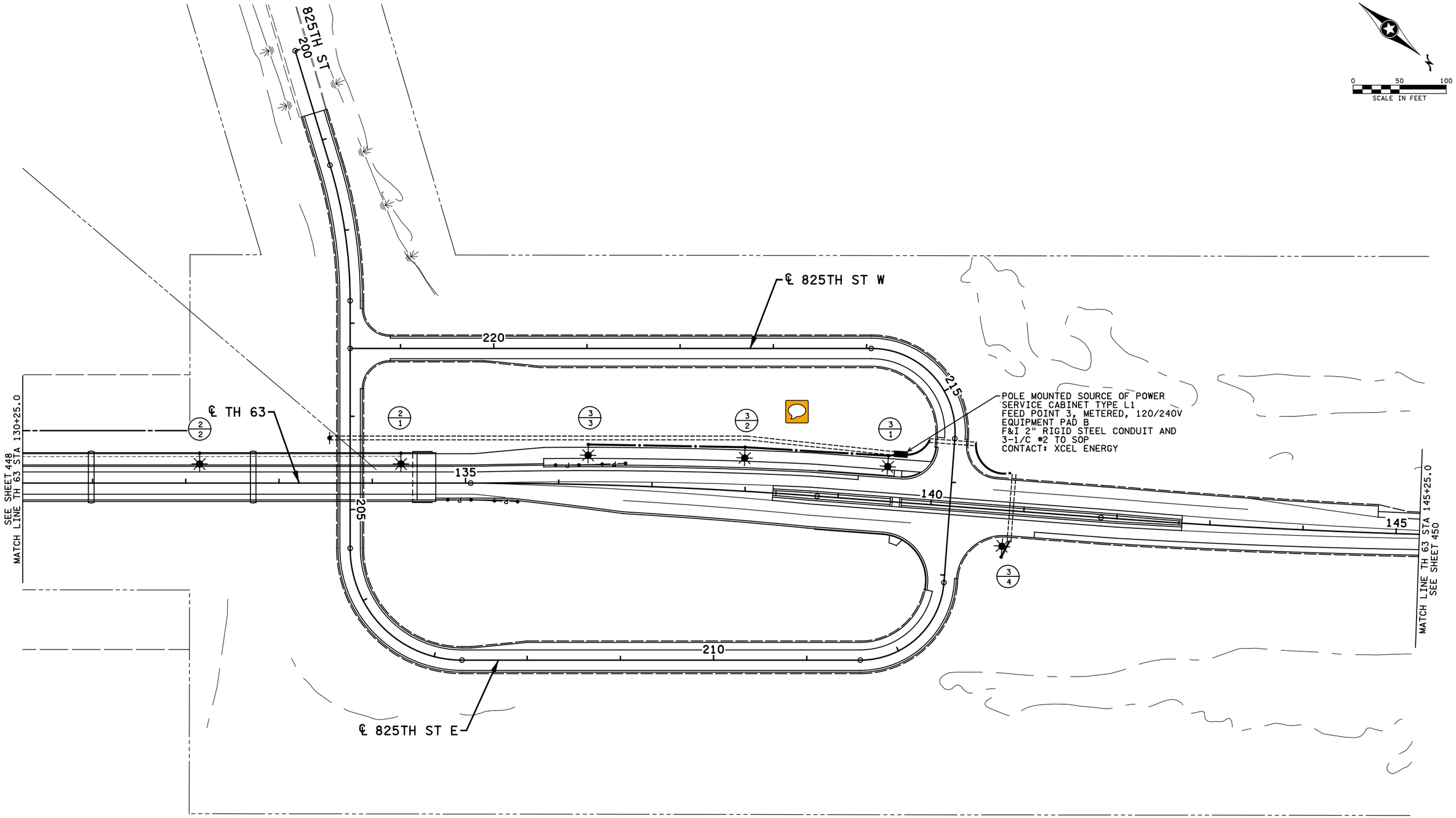
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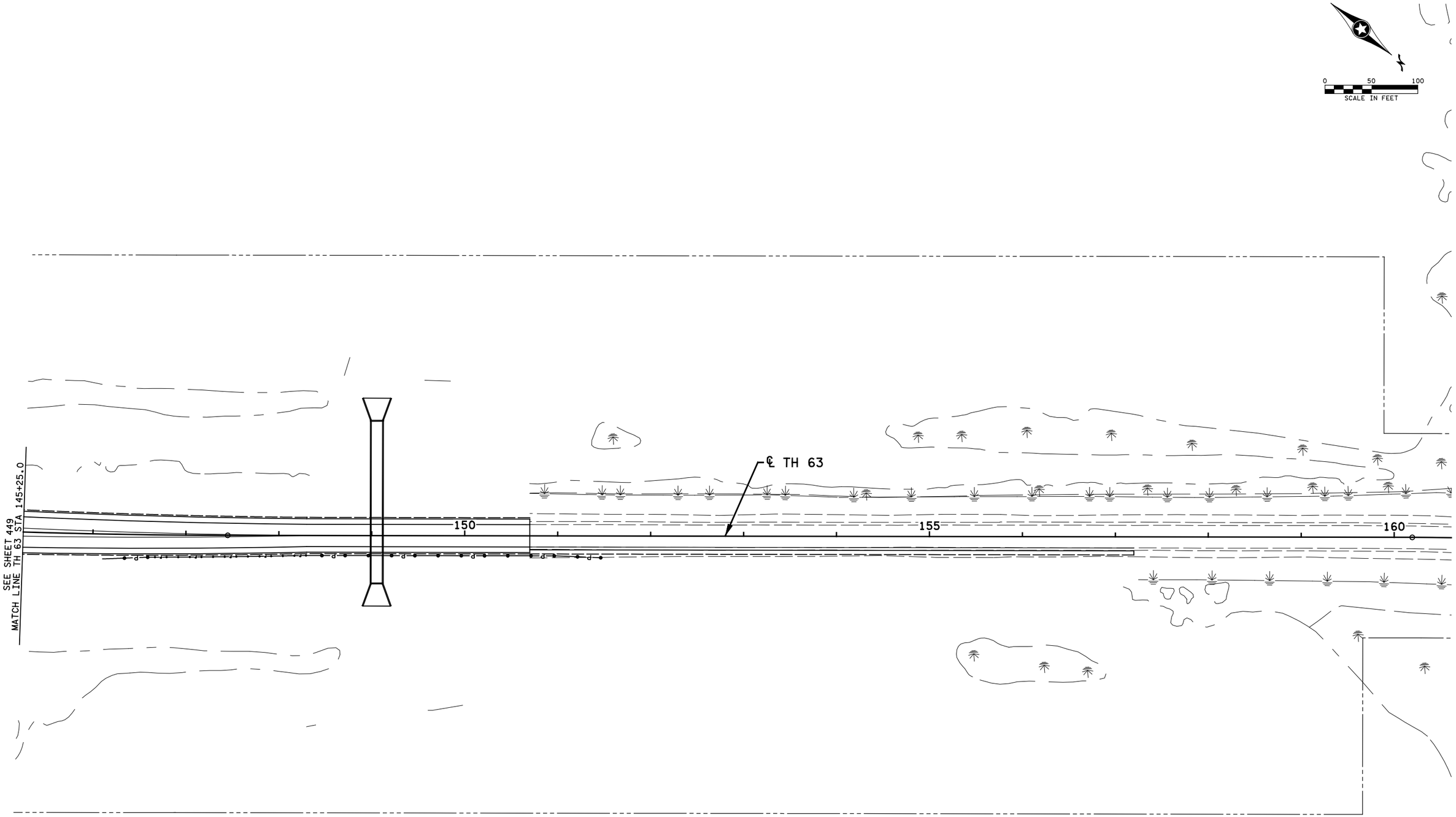
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SP 2515-21 (TH 63)

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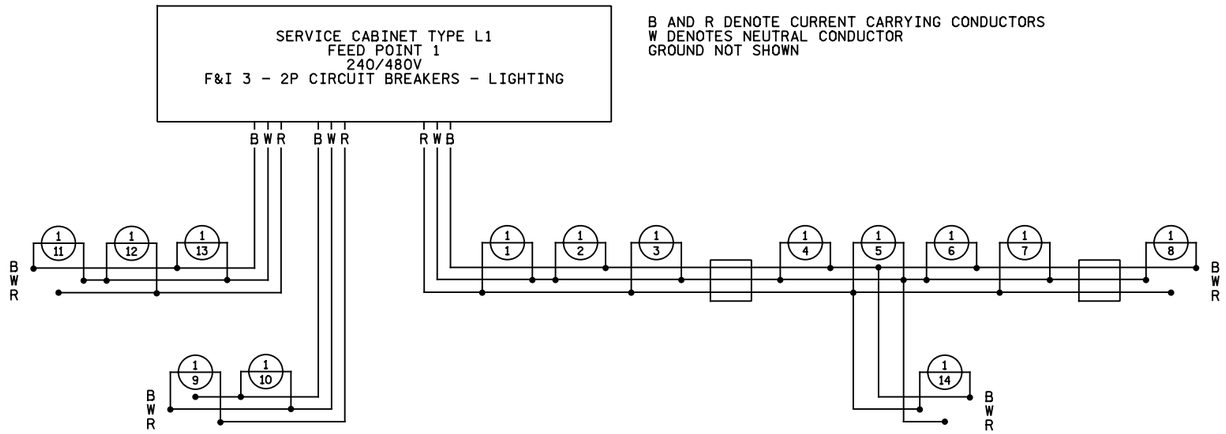
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SP 2515-21 (TH 63)
LIGHTING LAYOUT

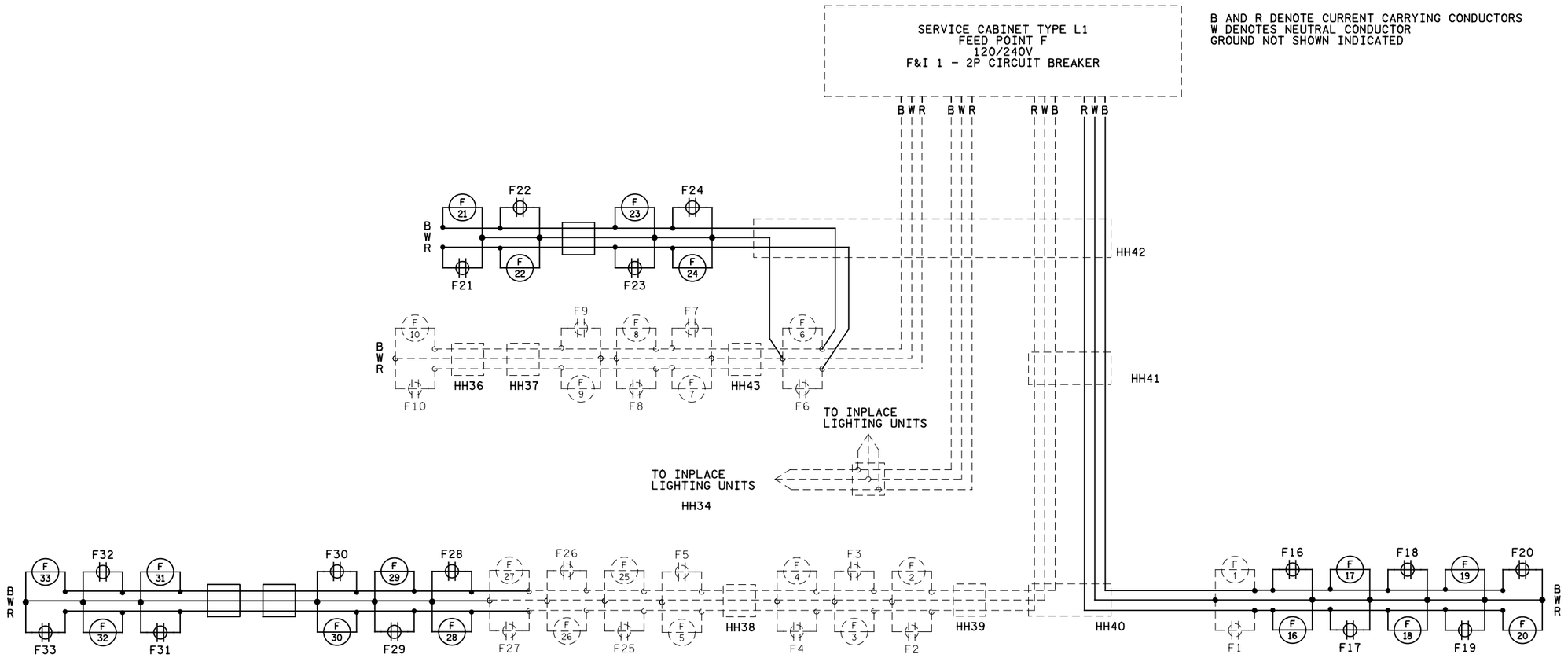
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LEGEND

PROPOSED LIGHTING UNIT	X / XX	EXISTING LIGHTING UNIT	X / XX
PROPOSED RECEPTACLE		EXISTING RECEPTACLE	
PROPOSED CIRCUITRY	———	EXISTING CIRCUITRY	- - - - - -
PROPOSED SPLICE	•	EXISTING SPLICE	○
PROPOSED HANDHOLE	□	EXISTING HANDHOLE	□





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DESIGNED BY T.RICHARDSON

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MINNESOTA DEPARTMENT OF TRANSPORTATION

LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

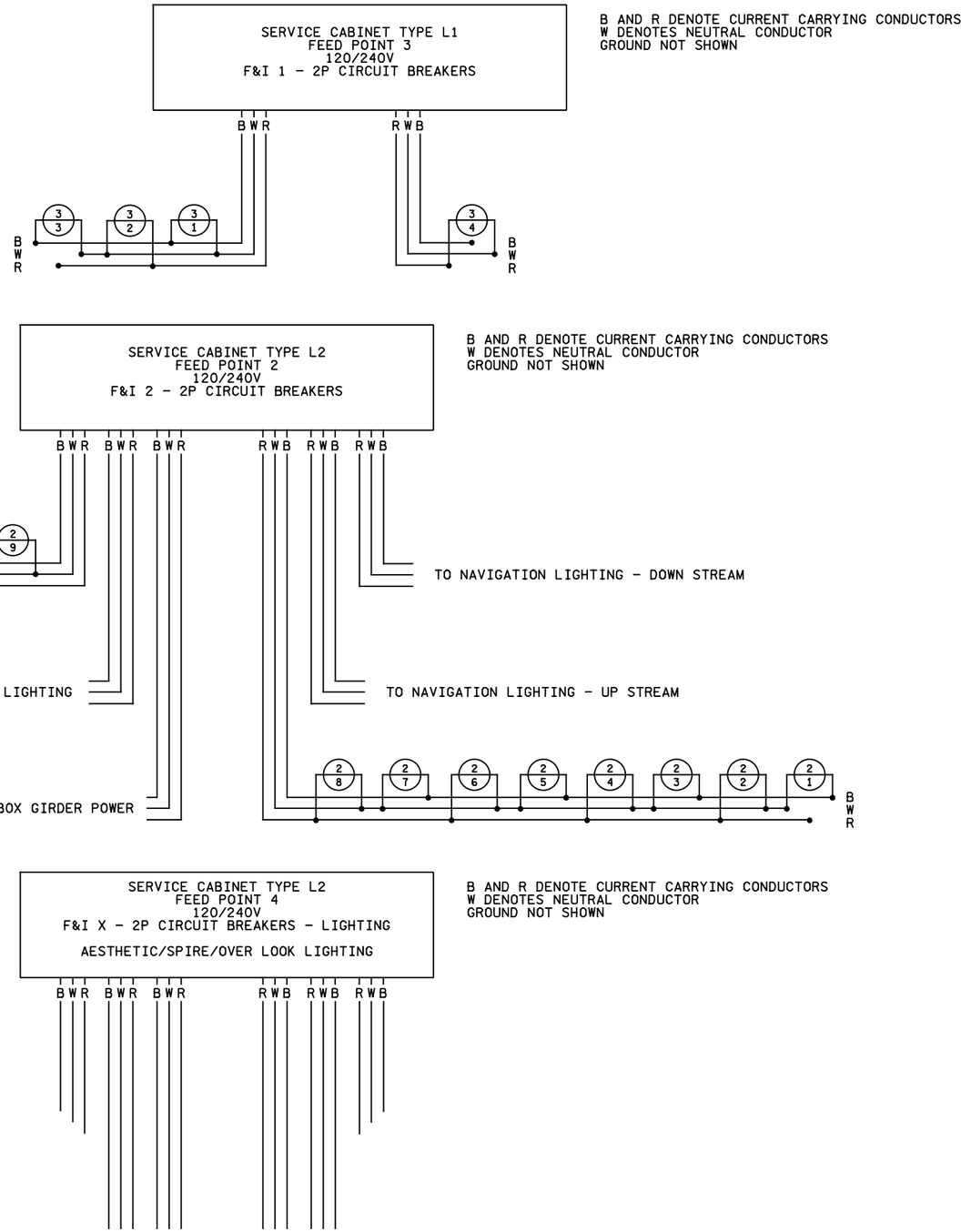
WIRING DIAGRAM

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LEGEND

PROPOSED LIGHTING UNIT	X / XX	EXISTING LIGHTING UNIT	X / XX
PROPOSED RECEPTACLE		EXISTING RECEPTACLE	
PROPOSED CIRCUITRY	———	EXISTING CIRCUITRY	- - - - - -
PROPOSED SPLICE	•	EXISTING SPLICE	○
PROPOSED HANDHOLE	□	EXISTING HANDHOLE	□



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LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

WIRING DIAGRAM

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FEED POINT 1						
NO.	STATION	L	R	LOCATION	TYPE	FOUNDATION
1	106+80		X	TH 63	9-40	E
2	109+61		X	TH 63	9-40	E
3	111+93		X	TH 63	9-40	E
4	113+30	X		TH 63	6B-40	BARRIER
5	114+31		X	TH 63-SLIP	6B-40	BARRIER
6	115+73		X	TH 63-SLIP	6B-40	BARRIER
7	116+92		X	TH 63-SLIP	6B-40	BARRIER
8	117+93		X	TH 63-SLIP	6B-40	BARRIER
9	108+25	X		TH 63	9-40	E
10	105+82	X		TH 63	9-40	E
11	48+04		X	NB TH 61	9-40	E
12	50+54		X	NB TH 61	9-40	E
13	53+03		X	NB TH 61	9-40	E

FEED POINT 2						
NO.	STATION	L	R	LOCATION	TYPE	FOUNDATION
1	134+31	X		TH 63	6B-40	BARRIER
2	132+15	X		TH 63	6B-40	BARRIER
3	129+99	X		TH 63	6B-40	BARRIER
4	127+83	X		TH 63	6B-40	BARRIER
5	125+67	X		TH 63	6B-40	BARRIER
6	123+51	X		TH 63	6B-40	BARRIER
7	121+35	X		TH 63	6B-40	BARRIER
8	119+19	X		TH 63	6B-40	BARRIER
9	117+07	X		TH 63	6B-40	BARRIER
10	115+15	X		TH 63	6B-40	BARRIER
11	61+14		X	NB TH 61	UNDERPASS	SEE BRIDGE PLANS

FEED POINT 3						
NO.	STATION	L	R	LOCATION	TYPE	FOUNDATION
1	139+51	X		TH 63	NOTE 1	
2	137+97	X		TH 63	NOTE 1	
3	136+31	X		TH 63	NOTE 1	
4	140+79		X	TH 63	NOTE 1	

NOTE 1 - SEE WIsDOT STANDARD DETAIL DRAWING S.D.D. 9 E 1-14f

FEED POINT F						
NO.	STATION	L	R	LOCATION	TYPE	FOUNDATION
1	65+30	X		SB TH 61	EXISTING	EXISTING
5	106+79		X	TH 58	EXISTING	EXISTING
6	65+49		X	SB TH 61	EXISTING	EXISTING
16	63+53	X		SB TH 61	SPECIAL 1	E MODIFIED
17	61+87	X		SB TH 61	SPECIAL 1	E MODIFIED
18	60+28	X		SB TH 61	SPECIAL 1	E MODIFIED
19	58+25	X		SB TH 61	SPECIAL 1	E MODIFIED
20	56+42	X		SB TH 61	SPECIAL 1	E MODIFIED
21	57+34		X	NB TH 61	SPECIAL 1	E MODIFIED
22	59+19		X	NB TH 61	SPECIAL 1	E MODIFIED
23	62+74		X	NB TH 61	SPECIAL 1	E MODIFIED
24	64+72		X	NB TH 61	SPECIAL 1	E MODIFIED
25	106+01		X	TH 58	EXISTING	EXISTING
26	105+23		X	TH 58	EXISTING	EXISTING
27	104+58		X	TH 58	EXISTING	EXISTING
28	121+62		X	TH 63-SLIP	SPECIAL 2	P MODIFIED
29	120+36		X	TH 63-SLIP	SPECIAL 2	P MODIFIED
30	118+91		X	TH 63-SLIP	SPECIAL 2	P MODIFIED
31	118+91	X		TH 63-SLIP	SPECIAL 2	P MODIFIED
32	120+36	X		TH 63-SLIP	SPECIAL 2	P MODIFIED
33	121+62	X		TH 63-SLIP	SPECIAL 2	P MODIFIED

BANNER POLES BP						
NO.	STATION	L	R	LOCATION	TYPE	FOUNDATION
1	56+00	X		NB TH 61	BANNER	E MODIFIED
2	57+00	X		NB TH 61	BANNER	E MODIFIED
3	58+00	X		NB TH 61	BANNER	E MODIFIED
4	59+00	X		NB TH 61	BANNER	E MODIFIED
5	60+00	X		NB TH 61	BANNER	E MODIFIED
6	63+00	X		NB TH 61	BANNER	E MODIFIED
7	64+00	X		NB TH 61	BANNER	E MODIFIED
8	65+00	X		NB TH 61	BANNER	E MODIFIED

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LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

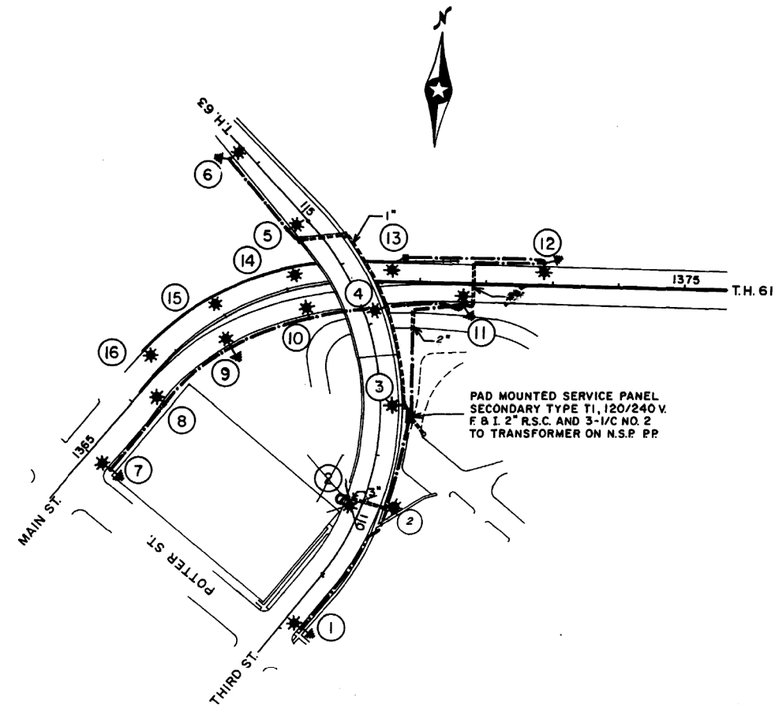
STATION TABLES

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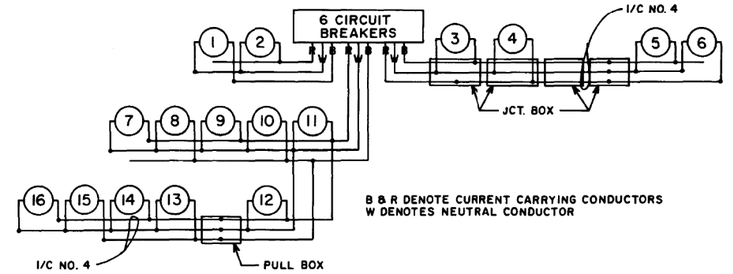
- PAD MOUNTED SOURCE OF POWER 120/240 V.
- 200 WATT HIGH PRESSURE SODIUM LIGHTING UNIT
- RIGID STEEL CONDUIT (SIZE AS INDICATED ON PLAN)
- PULL BOX
- JUNCTION BOX
- DIRECT BURIED POWER CABLE 3 CONDUCTOR NO. 4 A.W.G. ARMORED CABLE, SPEC NO. 3804 & 3805
- PERMANENT GROUND ROD (25 OHMS OR LESS)



LIGHTING STANDARDS & BASES					
NO.	STATION	LT.	RT.	LOCATION	TYPE
1	108 + 20		-	T.H. 63	8-30
2	110 + ~~15~~ 00	X	-	↑	8-30
(1) 3	INPLACE				
(1) 4	INPLACE				
5	114 + 90	-		↓	8-30
6	116 + 30	-		T.H. 63	↑
7	1365 + 00		-	T.H. 61	
8	1366 + 30		-	↑	
9	1367 + 80		-		
10	1369 + 25		-		
11	1371 + 75		-		↓
12	1372 + 85	-			8-30
13	1370 + ~~65~~ 60	-			4BP-30
14	1369 + 20	-			↑
15	1367 + 95	-		↓	↓
16	1366 + ~~70~~ 75	-		T.H. 61	4BP-30

PLACE LIGHTING UNITS 9' BEHIND CURB OR BIT. SHOULDER OR AS DIRECTED BY THE ENGINEER

(1) F & I. 200 WATT HIGH PRESSURE SODIUM LUMINAIRE



LIGHT PLAN

State Proj. No. 2513-73 (T.H. 61) **Sheet No.** 8 **of** 12 **Sheets**

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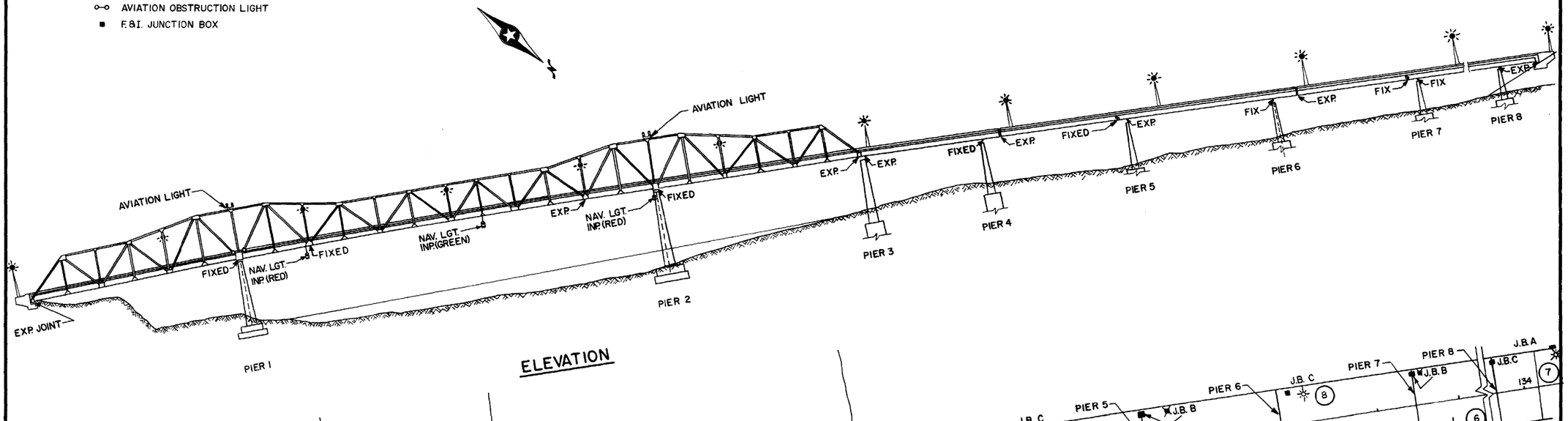
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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
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SHEET 454 OF 688

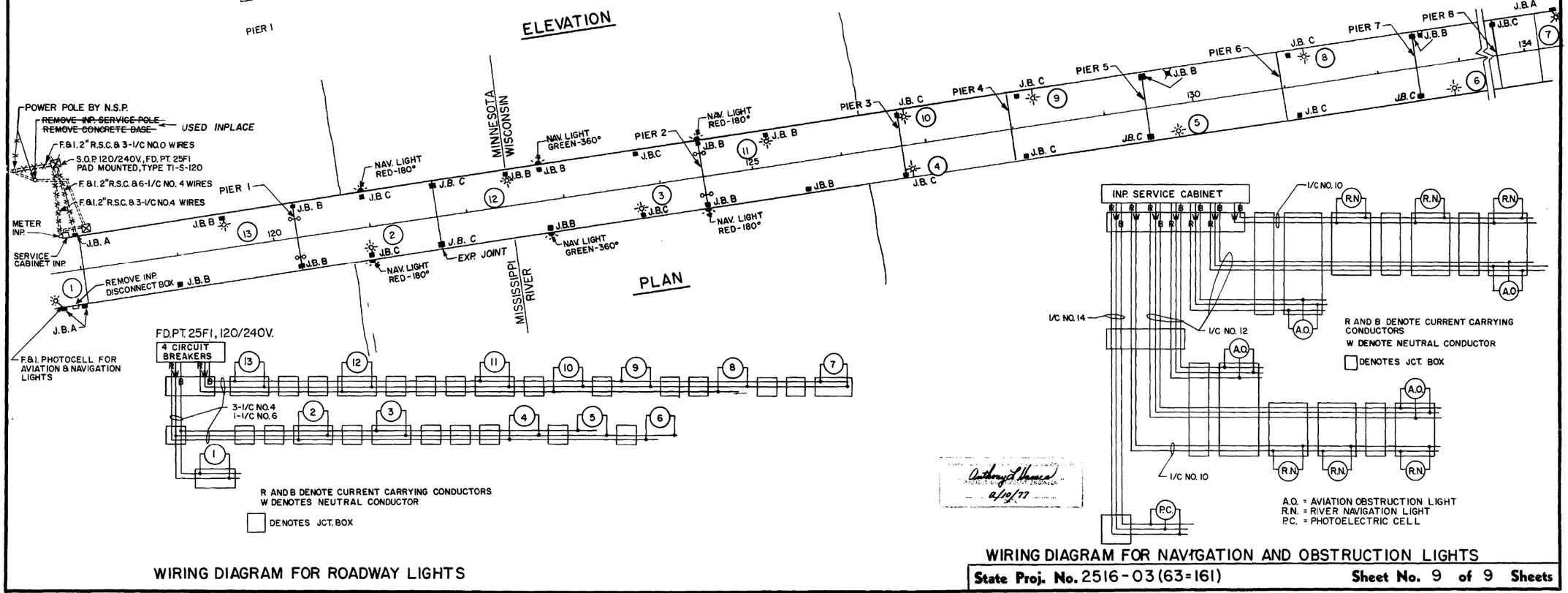
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LEGEND

- SOURCE OF POWER (PAD MOUNTED)
- F.&I. RIGID STEEL CONDUIT
- MERCURY VAPOR LIGHTING UNIT INP.
- RIVER NAVIGATION LIGHT INP.
- AVIATION OBSTRUCTION LIGHT
- F.&I. JUNCTION BOX



ELEVATION



PLAN

WIRING DIAGRAM FOR ROADWAY LIGHTS

Anthony L. Hanna
PROJECT DEVELOPMENT ENGINEER
6/10/77

WIRING DIAGRAM FOR NAVIGATION AND OBSTRUCTION LIGHTS

State Proj. No. 2516-03(63=161) **Sheet No.** 9 **of** 9 **Sheets**

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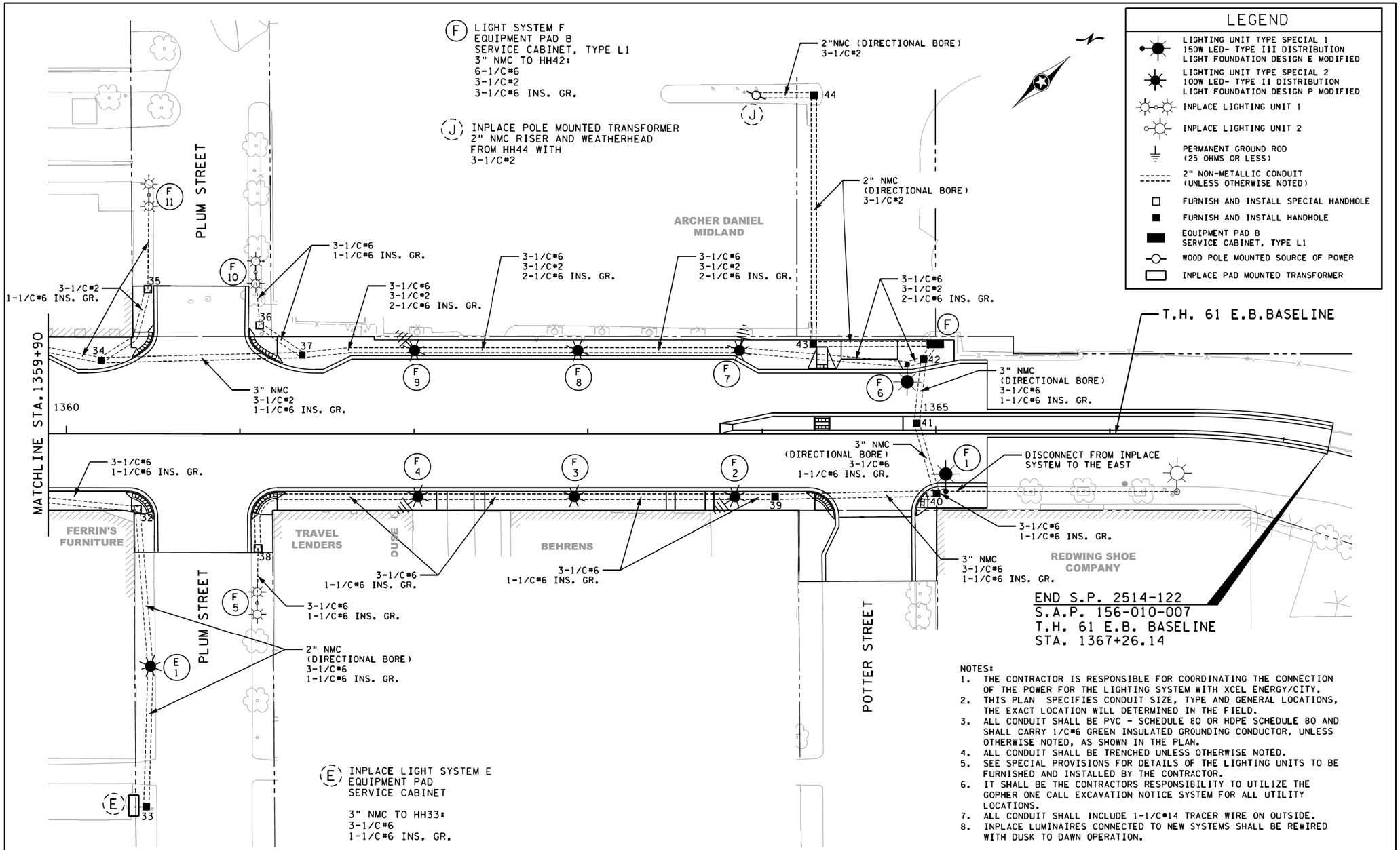
MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

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MINNESOTA DEPARTMENT OF TRANSPORTATION
LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
FOR INNFORMATION ONLY

SHEET 455 OF 688

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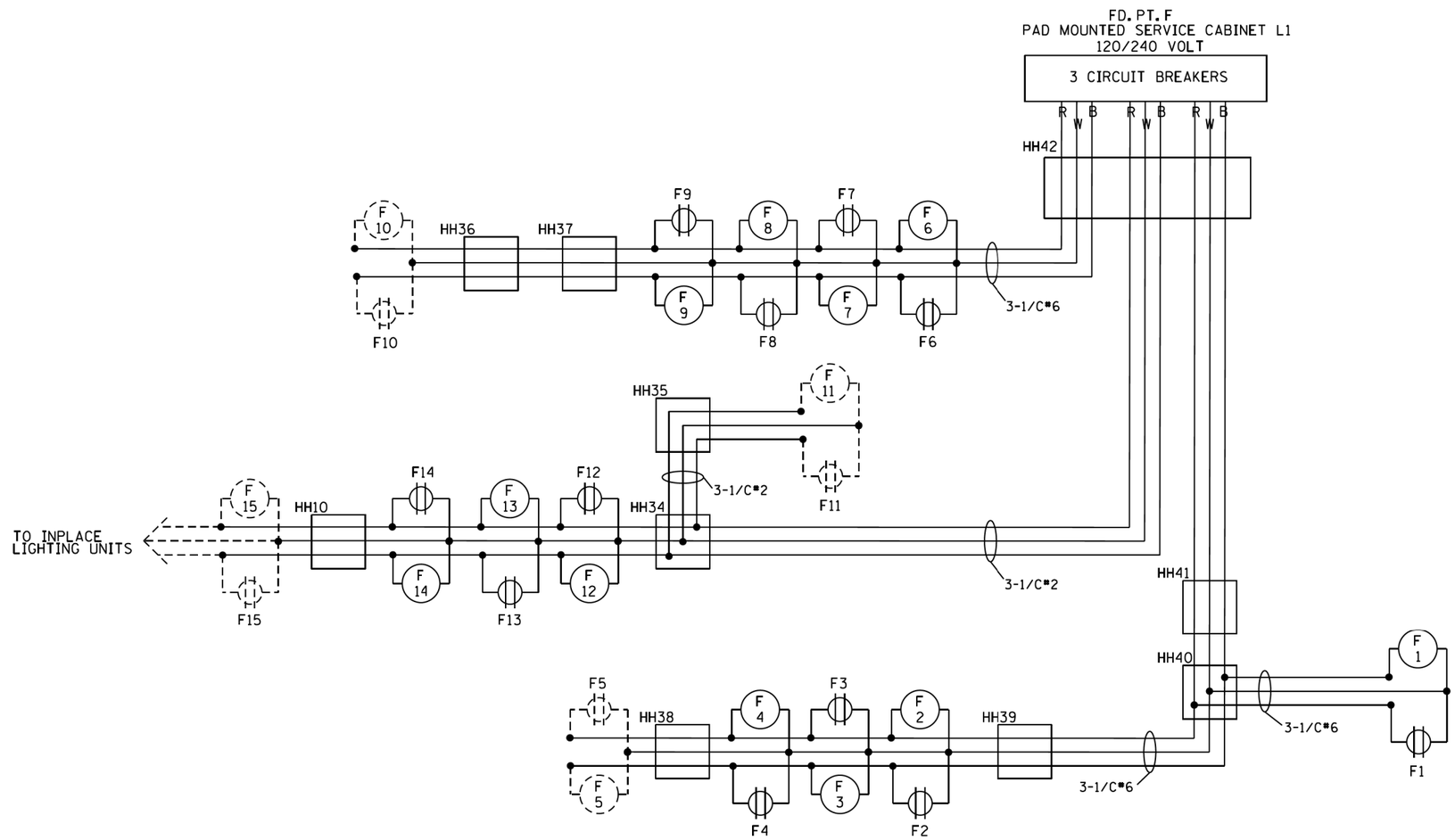
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MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

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LIGHTING PLANS AND DETAILS
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SHEET 456 OF 688

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6/22/2016
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B AND R DENOTE CURRENT CARRYING CONDUCTORS
W DENOTES NEUTRAL CONDUCTOR

LIGHT SYSTEM F

H:\RDWG\T42107112\CAD\plans\Lighting\cd2514122_wd006.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.

BRYAN T. NEMETH
LIC. NO. [redacted] DATE 11-20-2014

DESIGNED CGJ
DRAWN CGJ
CHECKED BTN

BOLTON & MENK, INC.
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN WILLMAR, MN
CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN
AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

REV.	BY	DATE

S.P. 2514-122, S.A.P. 156-010-007
T.H. 61 RECONSTRUCTION
LIGHTING PLAN

SHEET 188 OF 376

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MINNESOTA STATE PROJECT NO. 2515-21
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WISCONSIN PROJECT I.D. 7210-00-78

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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
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LEGEND

- PERMANENT CONSTRUCTION
- TEMPORARY BYPASS CONSTRUCTION
- CONSTRUCT UNDER TRAFFIC
- GRADING ONLY
- TEMPORARY SHORING
- T · F — TEMPORARY FENCE
- FLOTATION SILT CURTAIN TYPE STILL WATER
- CP CULVERT END CONTROLS
- STORM DRAIN INLET PROTECTION PLACED THIS STAGE
- RAPID STABILIZATION METHOD 2
- RAPID STABILIZATION METHOD 3 (A)
- MS SILT FENCE (MACHINE SLICED)
- BR SEDIMENT CONTROL LOG TYPE STRAW
- PROPOSED STORM SEWER CONSTRUCTED THIS STAGE
- PROPOSED STORM SEWER CONSTRUCTED IN PREVIOUS STAGES
- EXISTING STORM SEWER
- PROPOSED WATERMAIN CONSTRUCTED THIS STAGE
- PROPOSED WATERMAIN CONSTRUCTED IN PREVIOUS STAGES
- EXISTING WATERMAIN
- PROPOSED SANITARY SEWER CONSTRUCTED THIS STAGE
- PROPOSED SANITARY SEWER CONSTRUCTED IN PREVIOUS STAGES
- EXISTING SANITARY SEWER

LEGEND

- LIGHTING UNIT TYPE 9-40
- LIGHTING UNIT TYPE - SPECIAL 1
- LIGHTING UNIT TYPE - SPECIAL 2
- UNDERPASS LIGHTING UNIT
- BANNER POLE
- SERVICE CABINET
- HANDHOLE
- 2" NON-METALLIC CONDUIT (UNLESS OTHERWISE NOTED)
- DIRECT BURIED LIGHTING CABLE 4 COND NO 4
- LIGHTING UNIT INSTALLED IN A PREVIOUS STAGE
- LIGHTING UNIT INSTALLED IN A PREVIOUS STAGE
- LIGHTING UNIT INSTALLED IN A PREVIOUS STAGE
- UNDERPASS LIGHTING UNIT INSTALLED IN A PREVIOUS STAGE
- BANNER POLE INSTALLED IN A PREVIOUS STAGE
- EXISTING LIGHTING UNIT - MNDOT
- EXISTING LIGHITNG UNIT - CITY OF RED WING
- EXISTING LIGHITNG UNIT - CITY OF RED WING
- EXISTING SERVICE CABINET
- EXISTING HANDHOLE
- CONDUIT INSTALLED BY OTHERS OR EXISTING
- TEMPORARY 40' WOOD POLE, ARM, AND LUMINAIRE
- OHP TEMPORARY OVERHEAD LIGHT CABLE 4 COND NO 4
- TEMPORARY WOOD POLE, ARM, AND LUMINAIRE INSTALLED IN A PREVIOUS STAGE
- OHP TEMPORARY OVERHEAD LIGHT CABLE INSTALLED IN A PREVIOUS STAGE
- CONDUIT INSTALLED IN A PREVIOUS STAGE
- DIRECT BURIED LIGHTING CABLE INSTALLED IN A PREVIOUS STAGE

NO	DATE	BY	CKD	APPR	REVISION

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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: STEVE MCHENRY

Date _____ License # 46710

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

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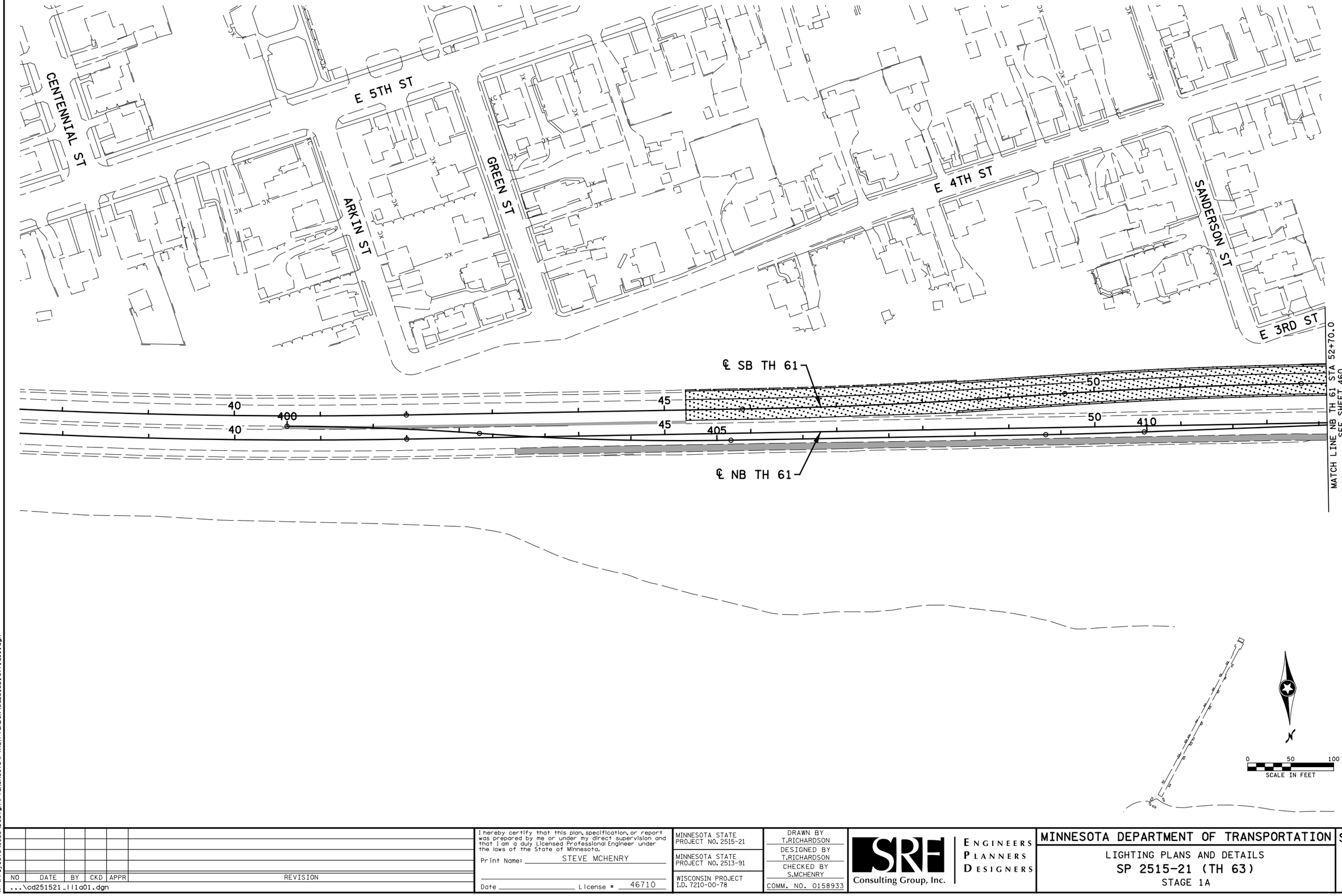
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGING TABULATION AND LEGEND

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Date _____ License # 46710

MINNESOTA STATE PROJECT NO. 2515-21

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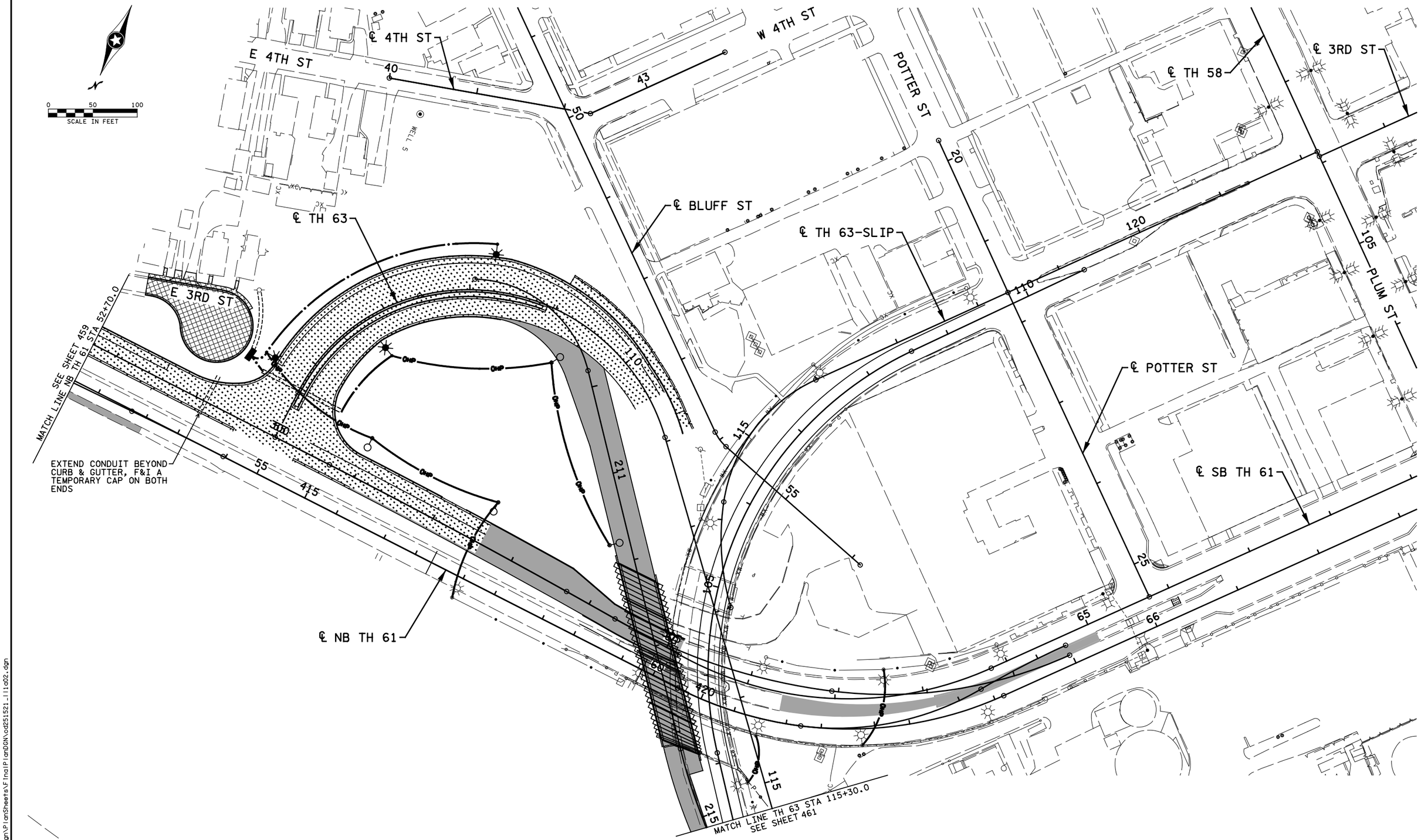
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 1A

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

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CHECKED BY S.MCHENRY

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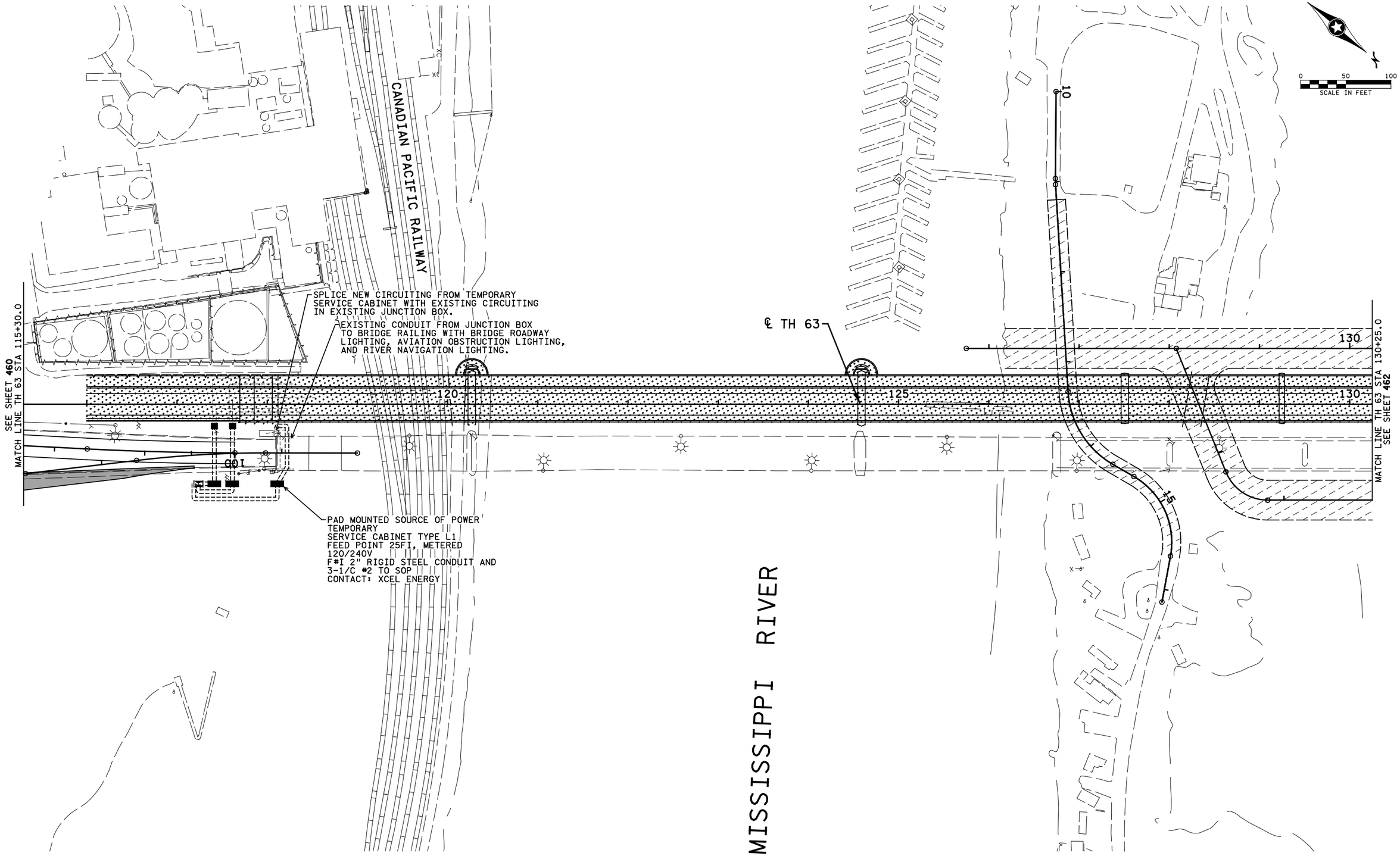
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 1A

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Date _____ License # 46710

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

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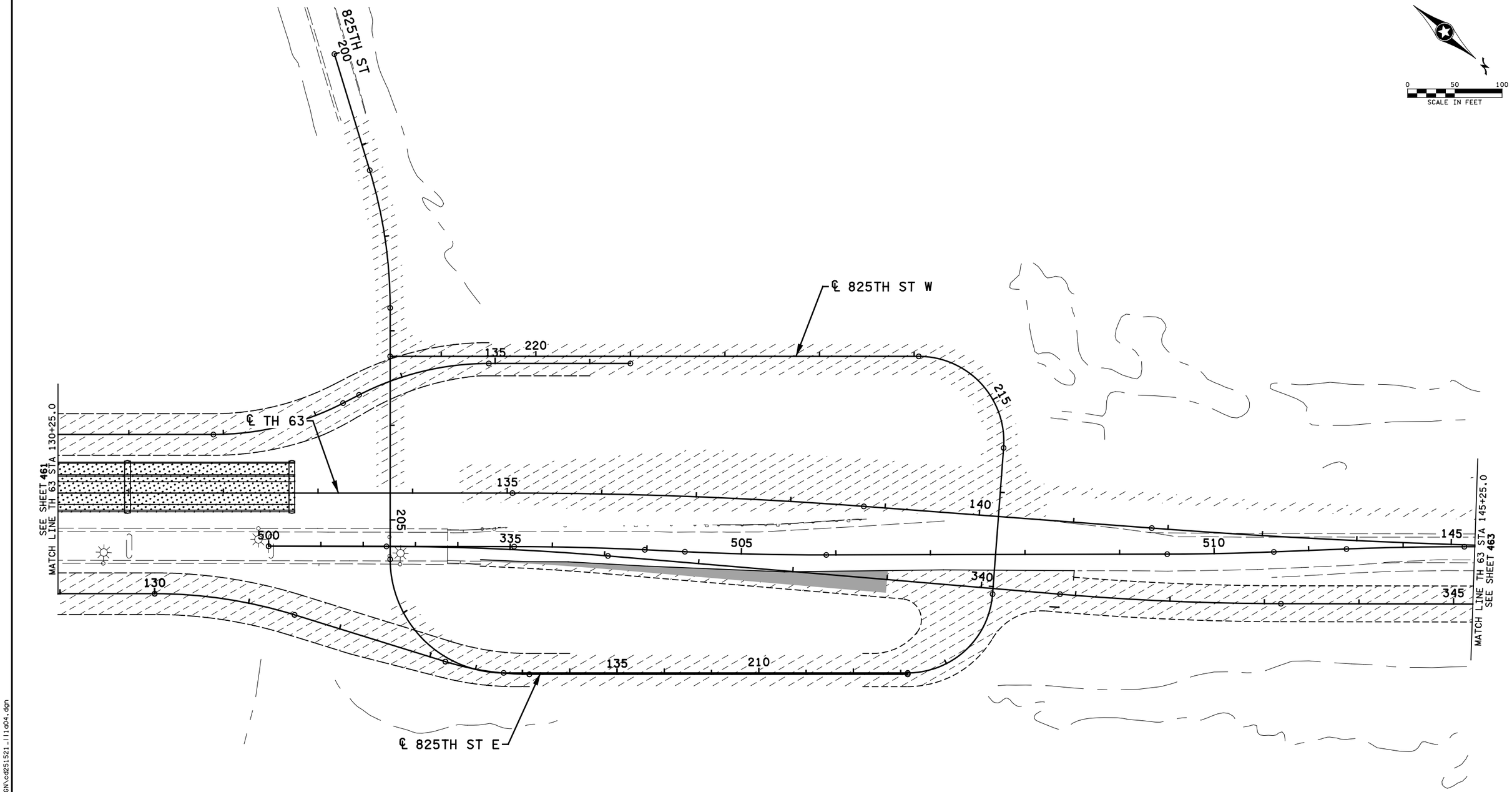
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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 1A

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MINNESOTA STATE PROJECT NO. 2515-21

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

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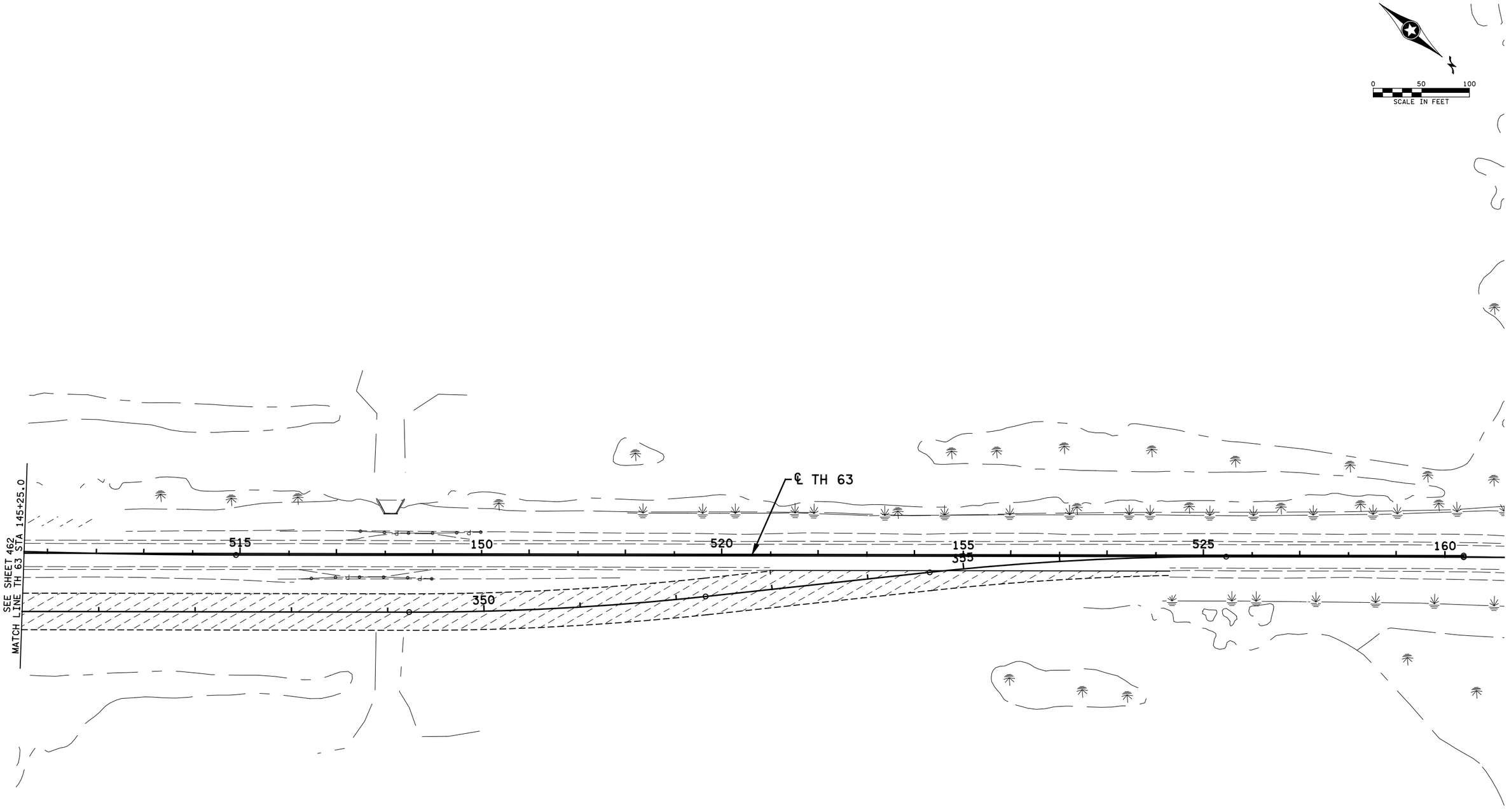
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SP 2515-21 (TH 63)

STAGE 1A

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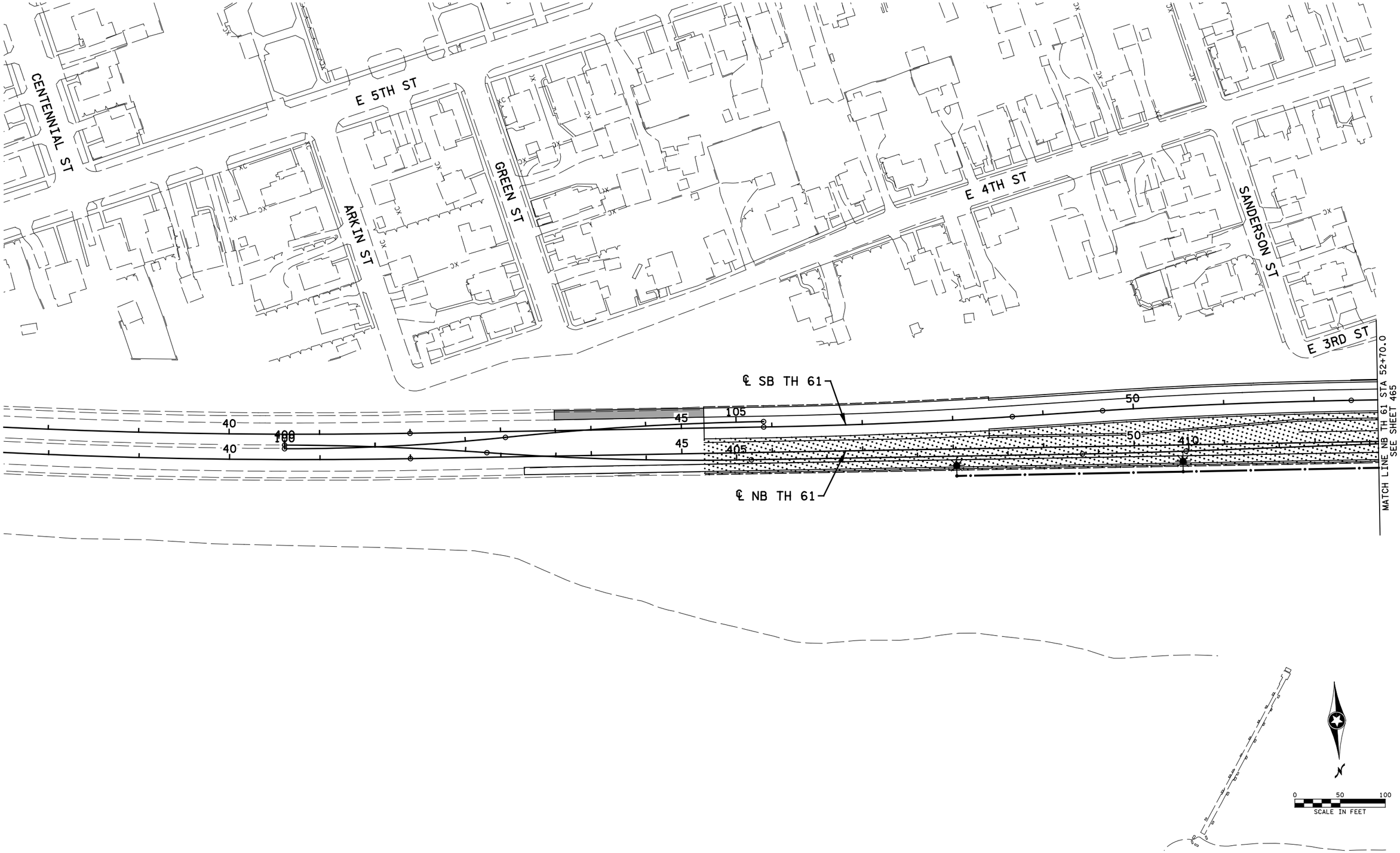
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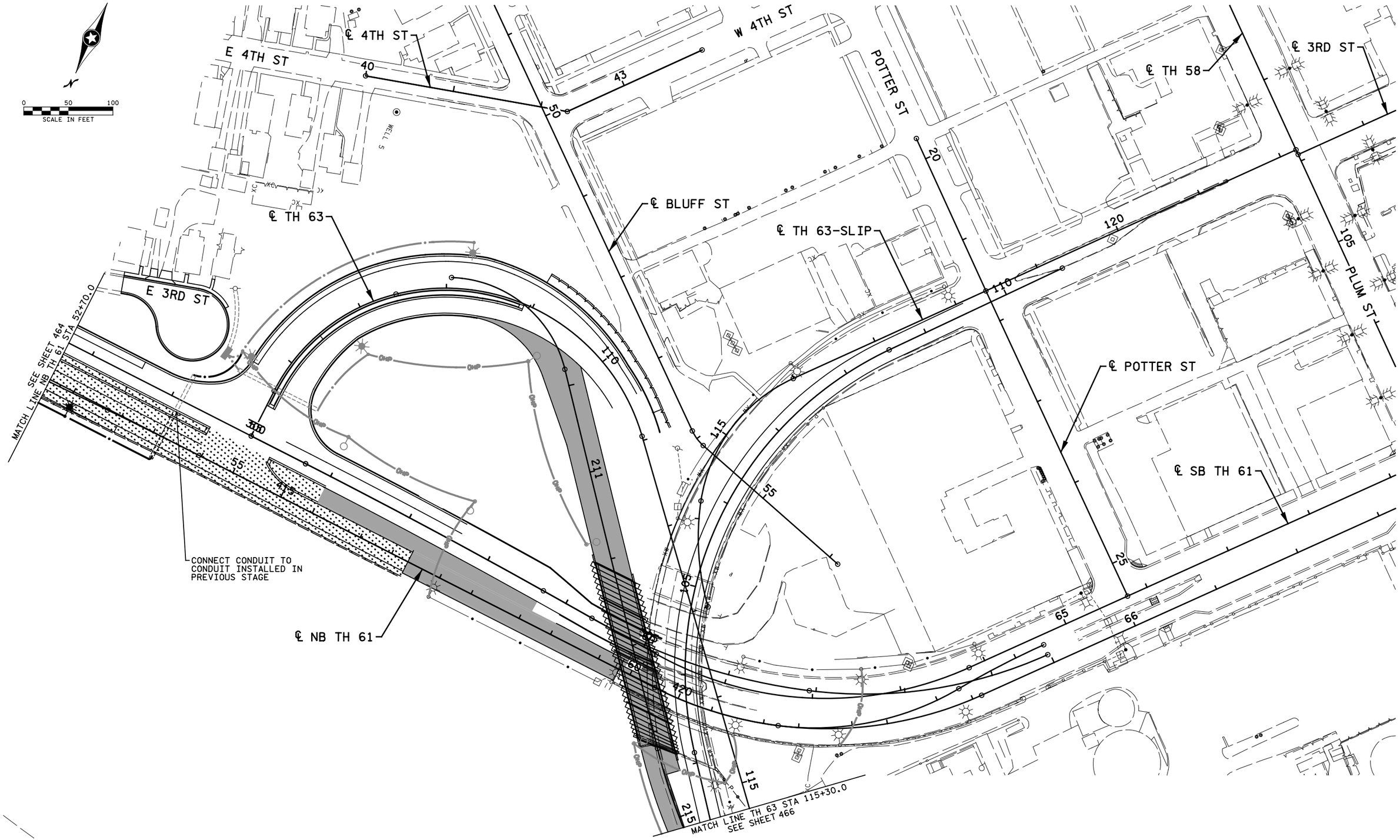
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SP 2515-21 (TH 63)

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DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

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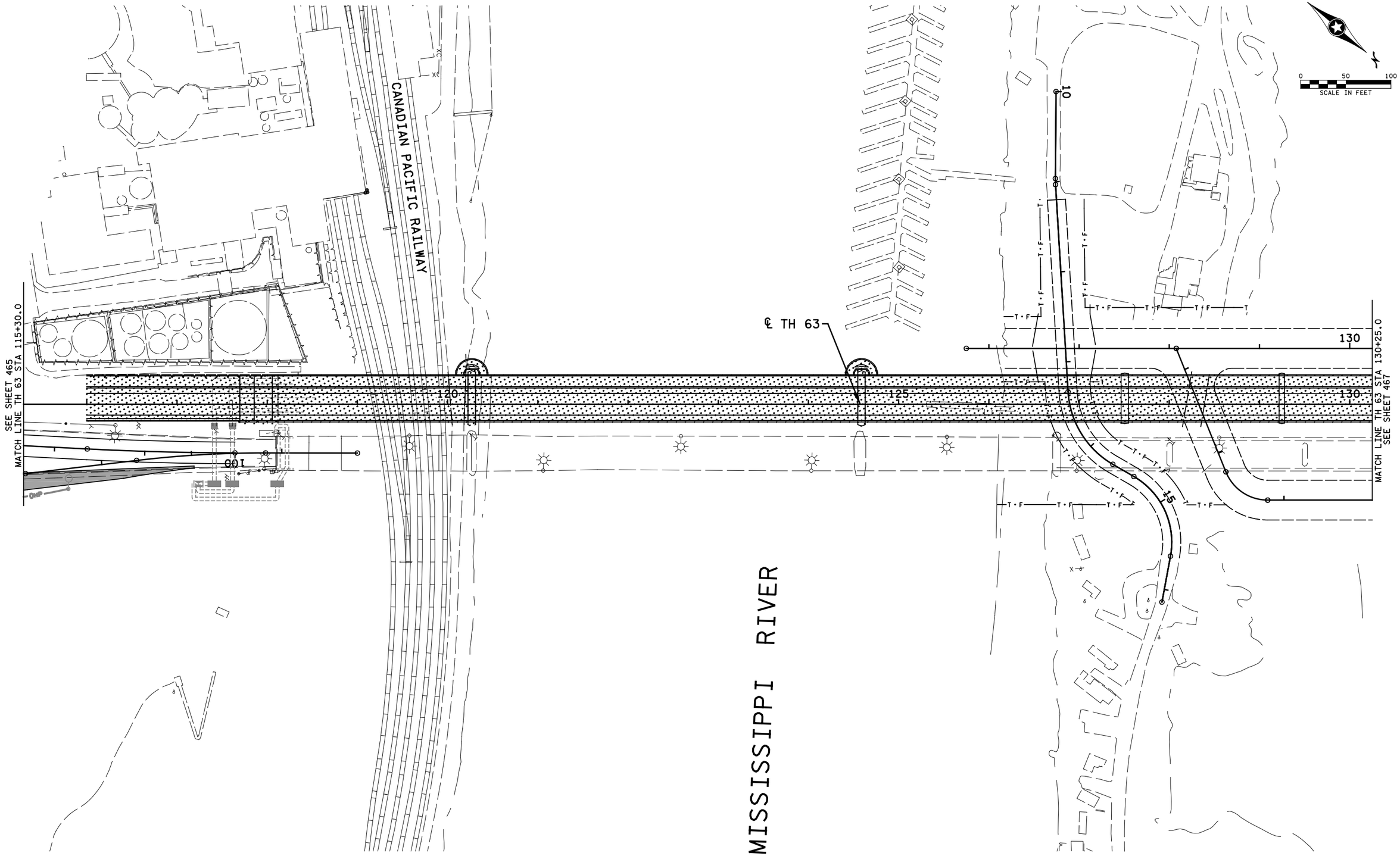
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SP 2515-21 (TH 63)

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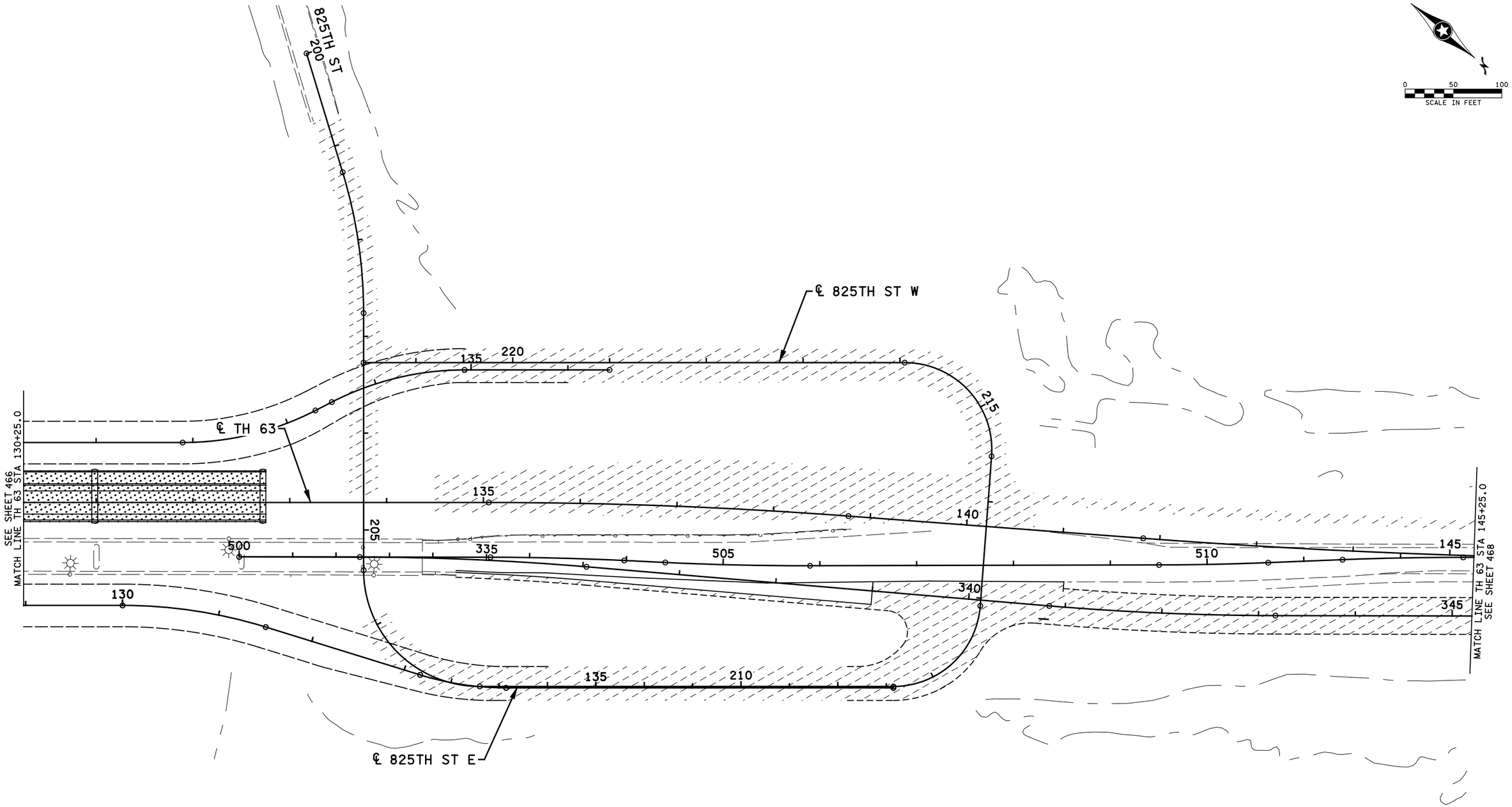
ENGINEERS PLANNERS DESIGNERS

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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 1B

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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

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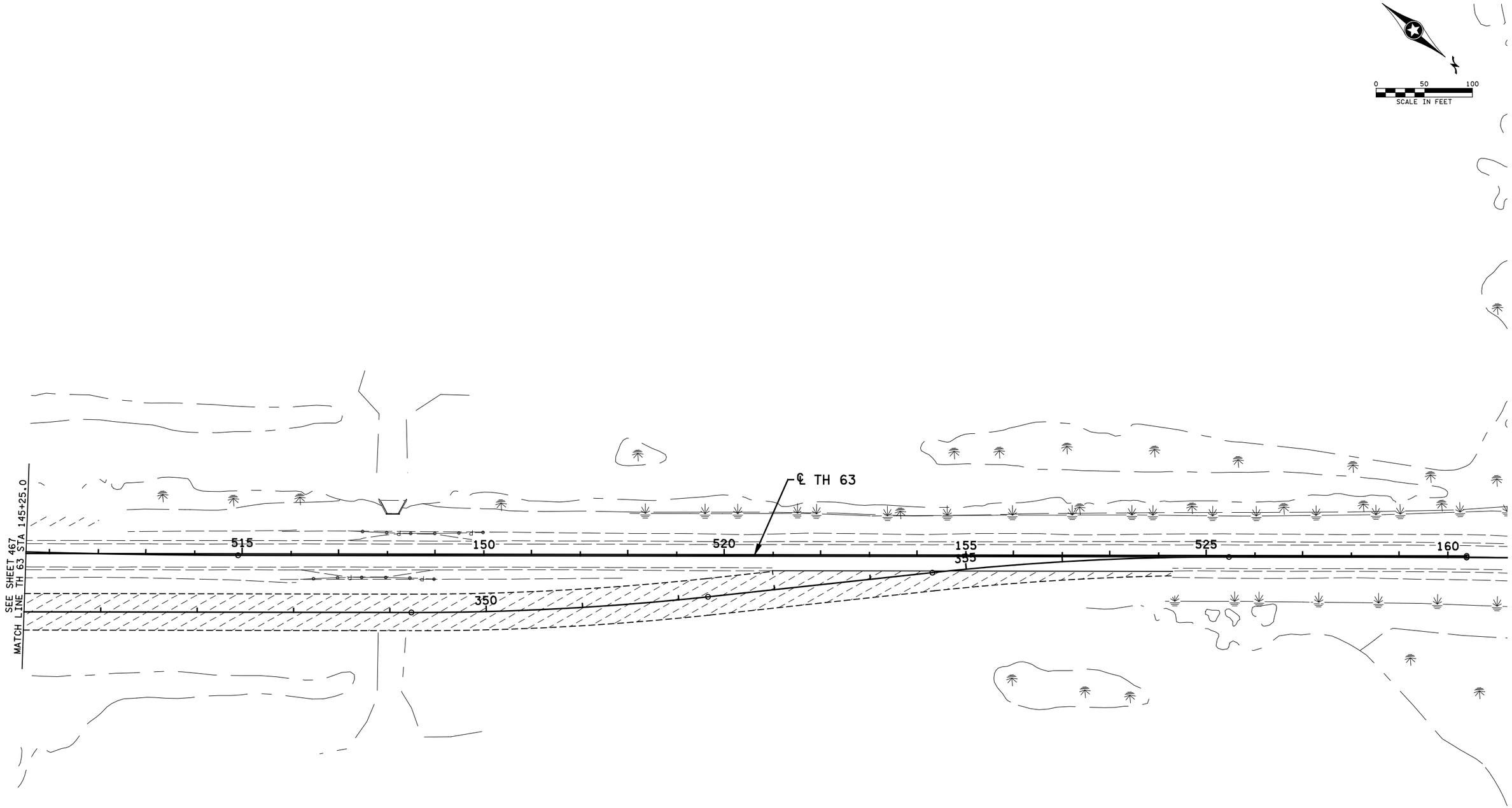
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SP 2515-21 (TH 63)

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Date _____ License # 46710

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

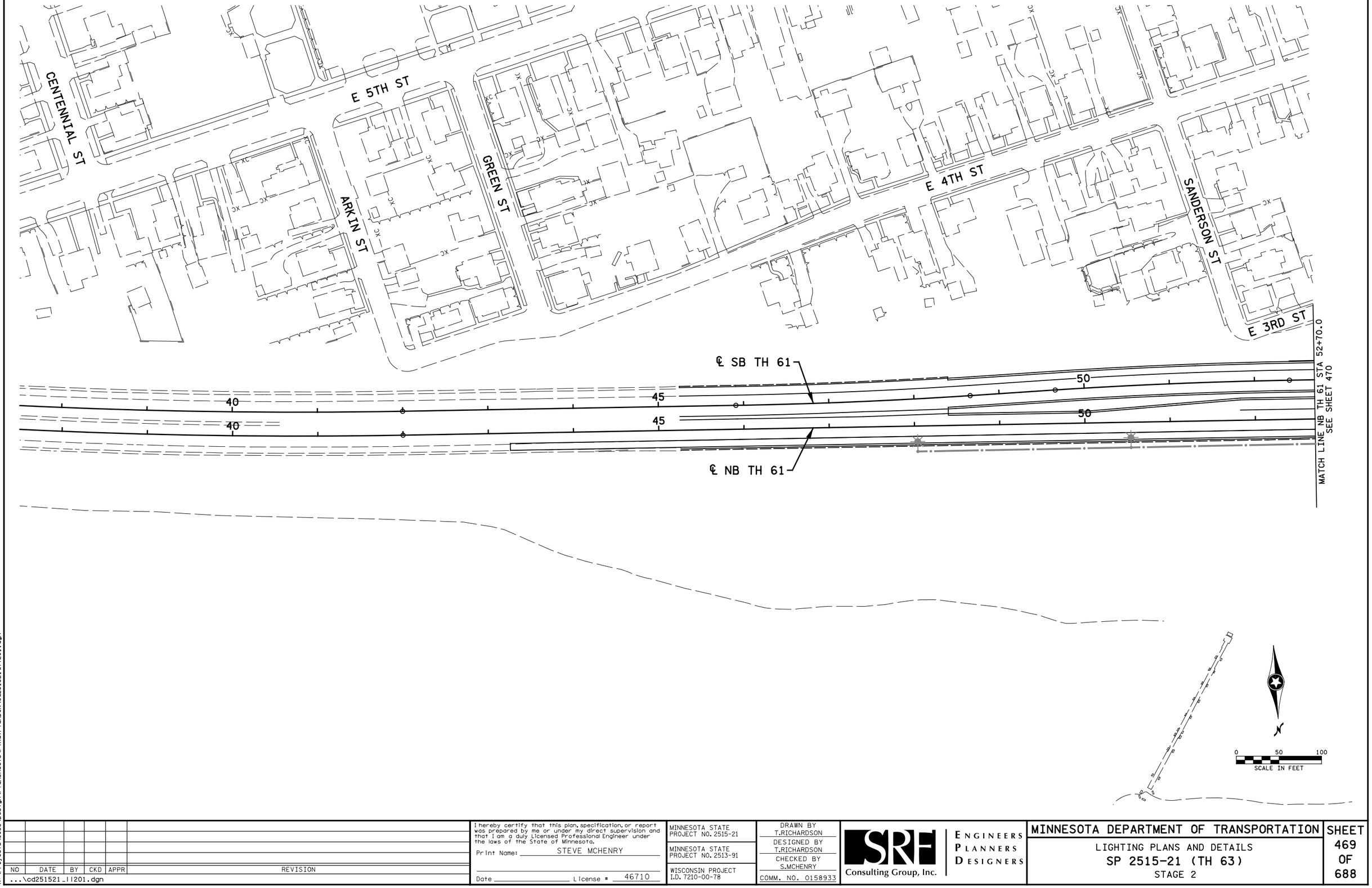
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 1B

SHEET 468 OF 688

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6/22/2016
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Date _____ License # 46710

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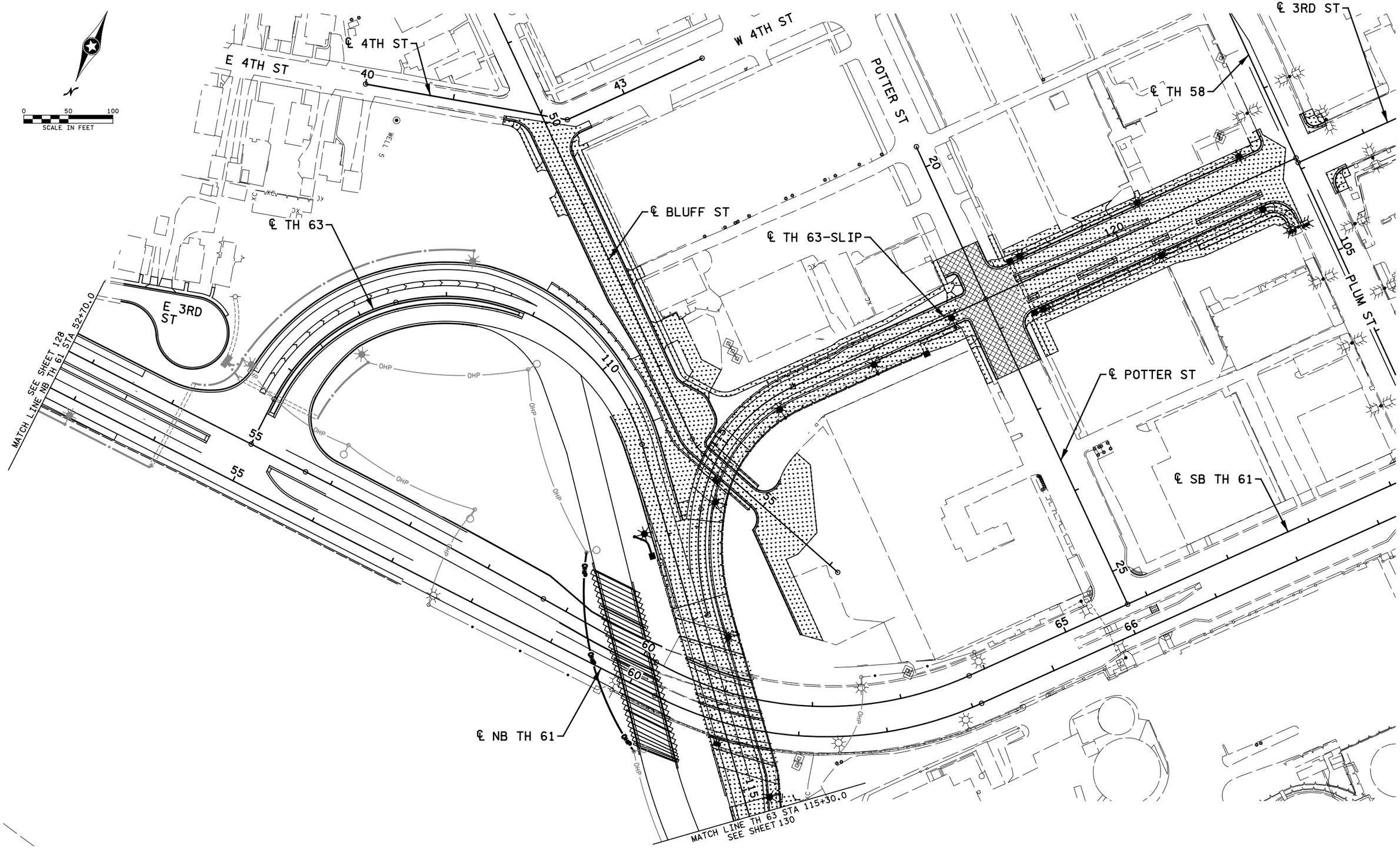
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 2

SHEET 469 OF 688

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6/2/2016
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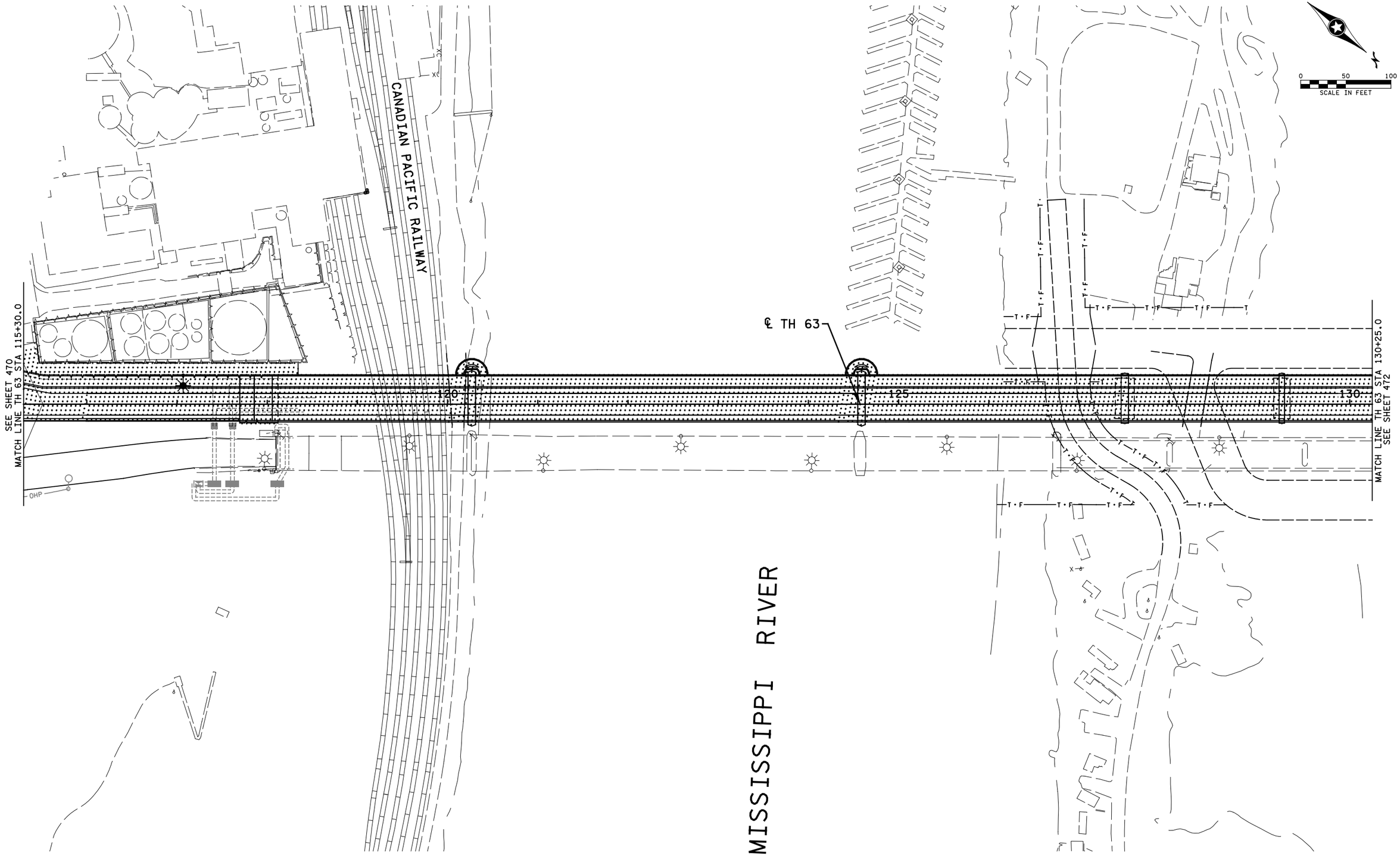
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 2

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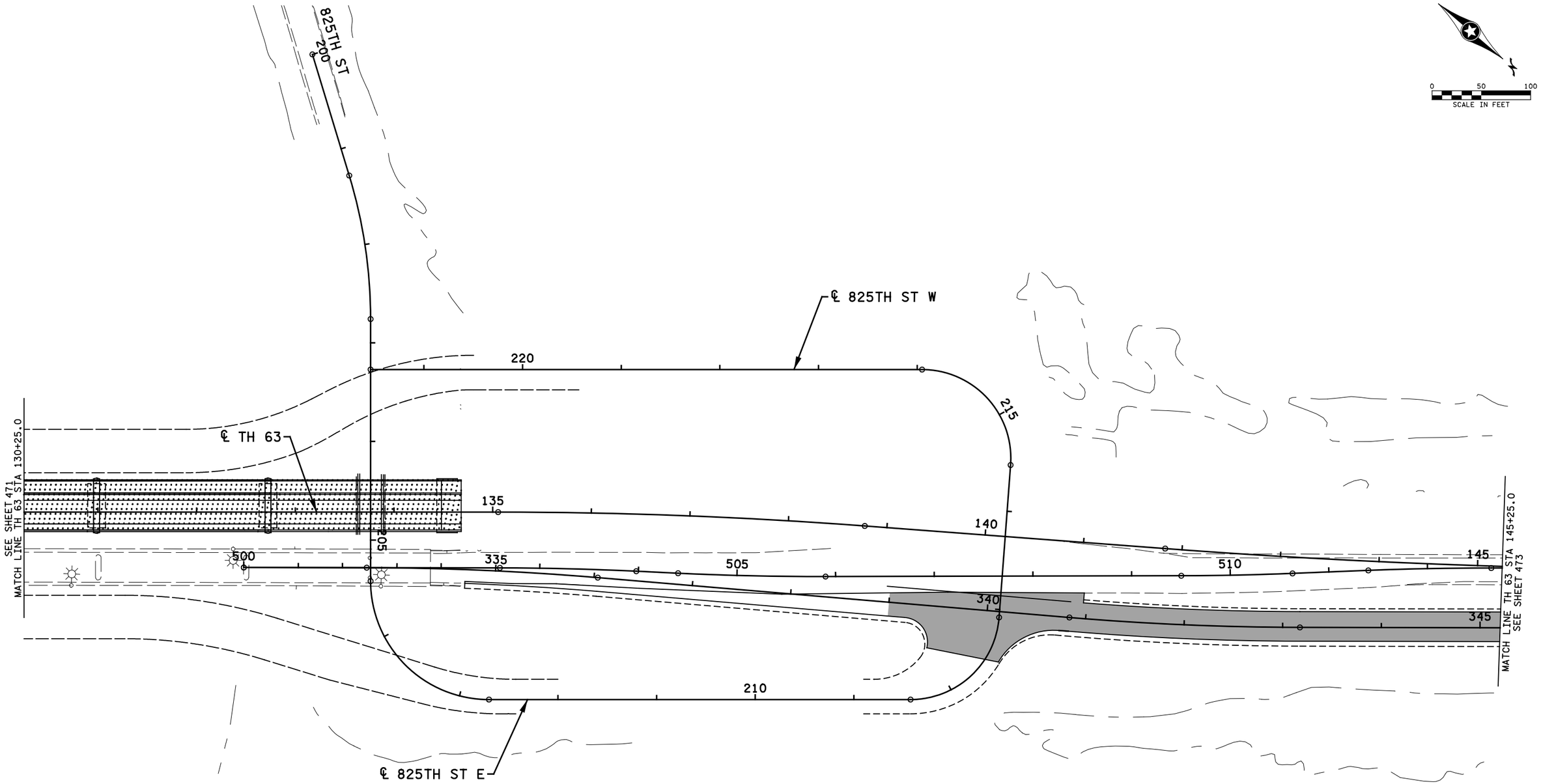
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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 2

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NO	DATE	BY	CKD	APPR	REVISION
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Date _____ License # 46710

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 2

SHEET 472 OF 688

11:37:47 AM
6/2/2016
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0 50 100
SCALE IN FEET

℄ TH 63

SEE SHEET 472
MATCH LINE TH 63 STA 145+25.0

515 150 520 155 525 160

350 355

DO WE NEED TEMP LTG
AT THIS AREA?

NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

SRF Consulting Group, Inc.

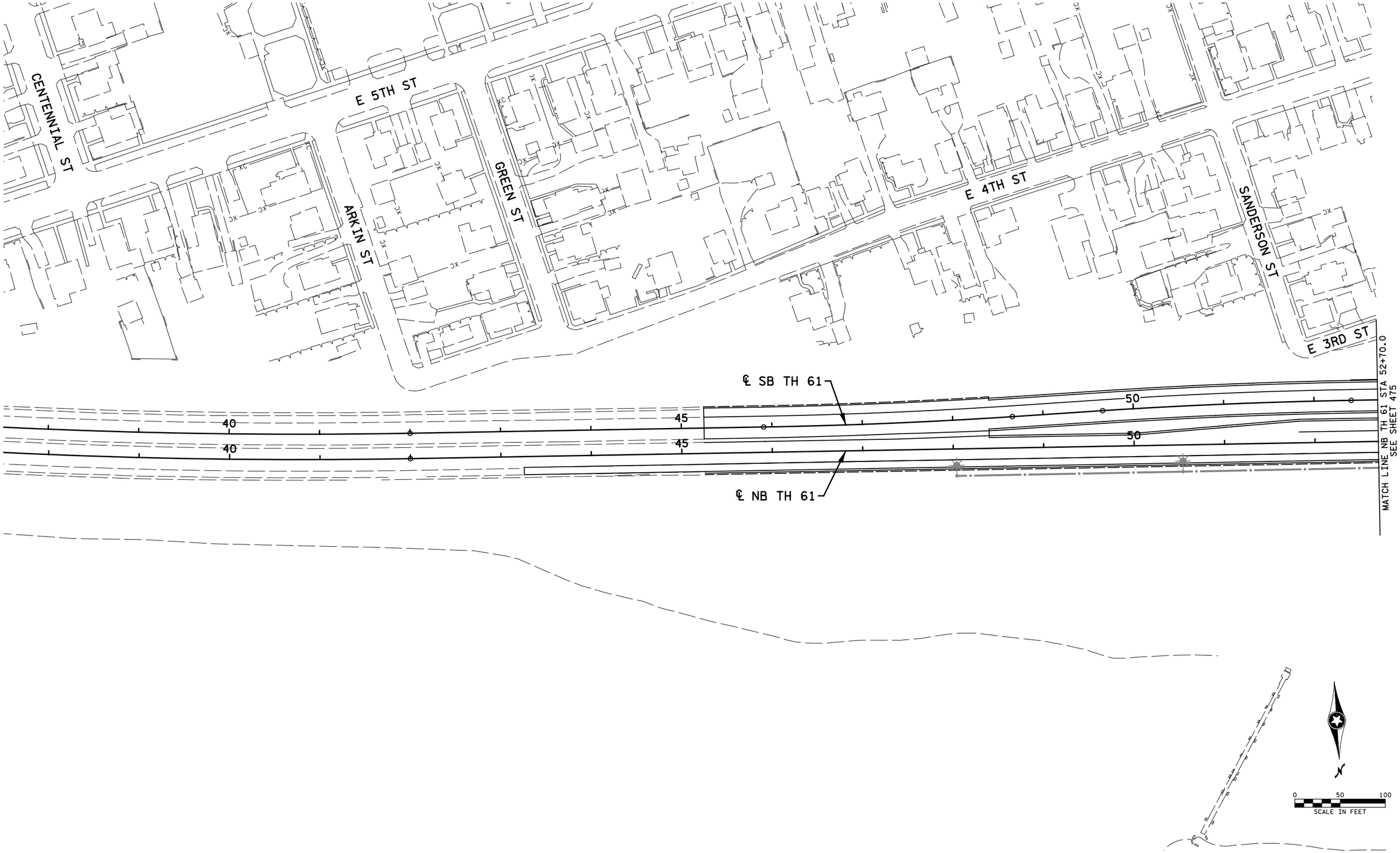
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 2

SHEET 473 OF 688

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6/22/2016
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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

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CHECKED BY S.MCHENRY

COMM. NO. 0158933

SRF Consulting Group, Inc. | ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

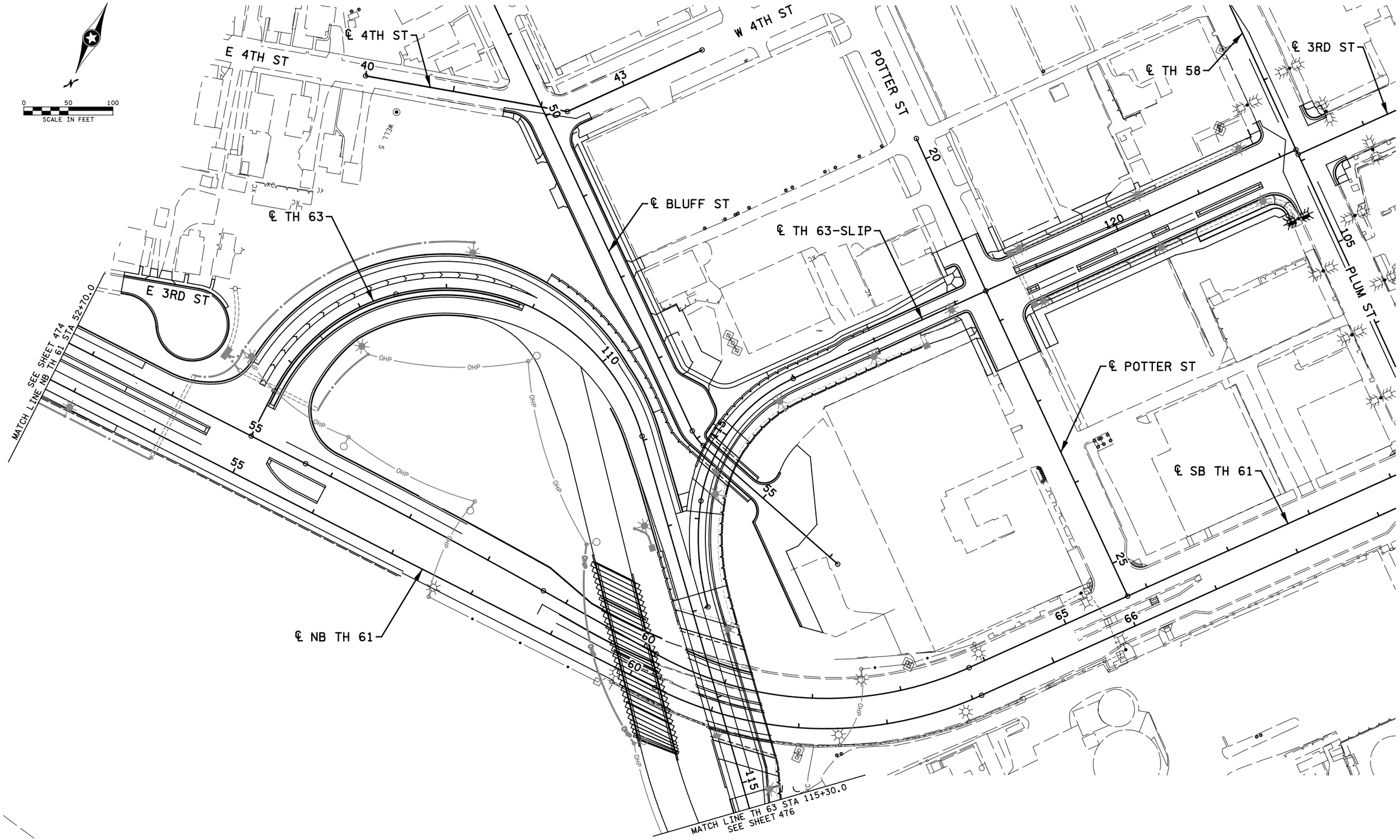
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 3

SHEET 474 OF 688

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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 3

SHEET 475 OF 688

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6/2/2016
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SEE SHEET 475
MATCH LINE TH 63 STA 115+30.0

CANADIAN PACIFIC RAILWAY

℄ TH 63

110 216 216 216 216

120 125 130

MATCH LINE TH 63 STA 130+25.0
SEE SHEET 477

OHP

MISSISSIPPI RIVER

0 50 100
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON
DESIGNED BY T.RICHARDSON
CHECKED BY S.MCHENRY
COMM. NO. 0158933

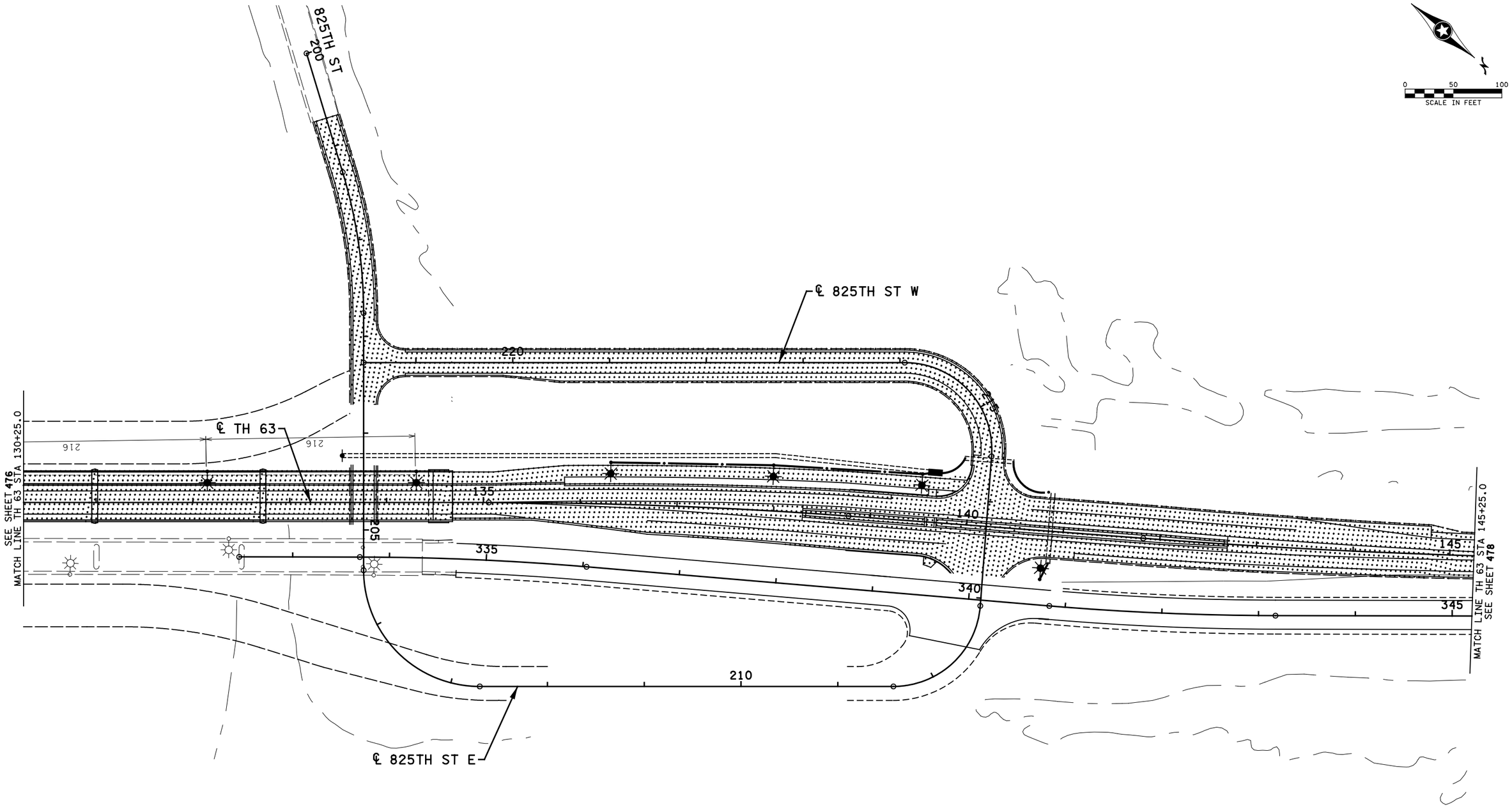
SRF Consulting Group, Inc.
ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 3

SHEET 476 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

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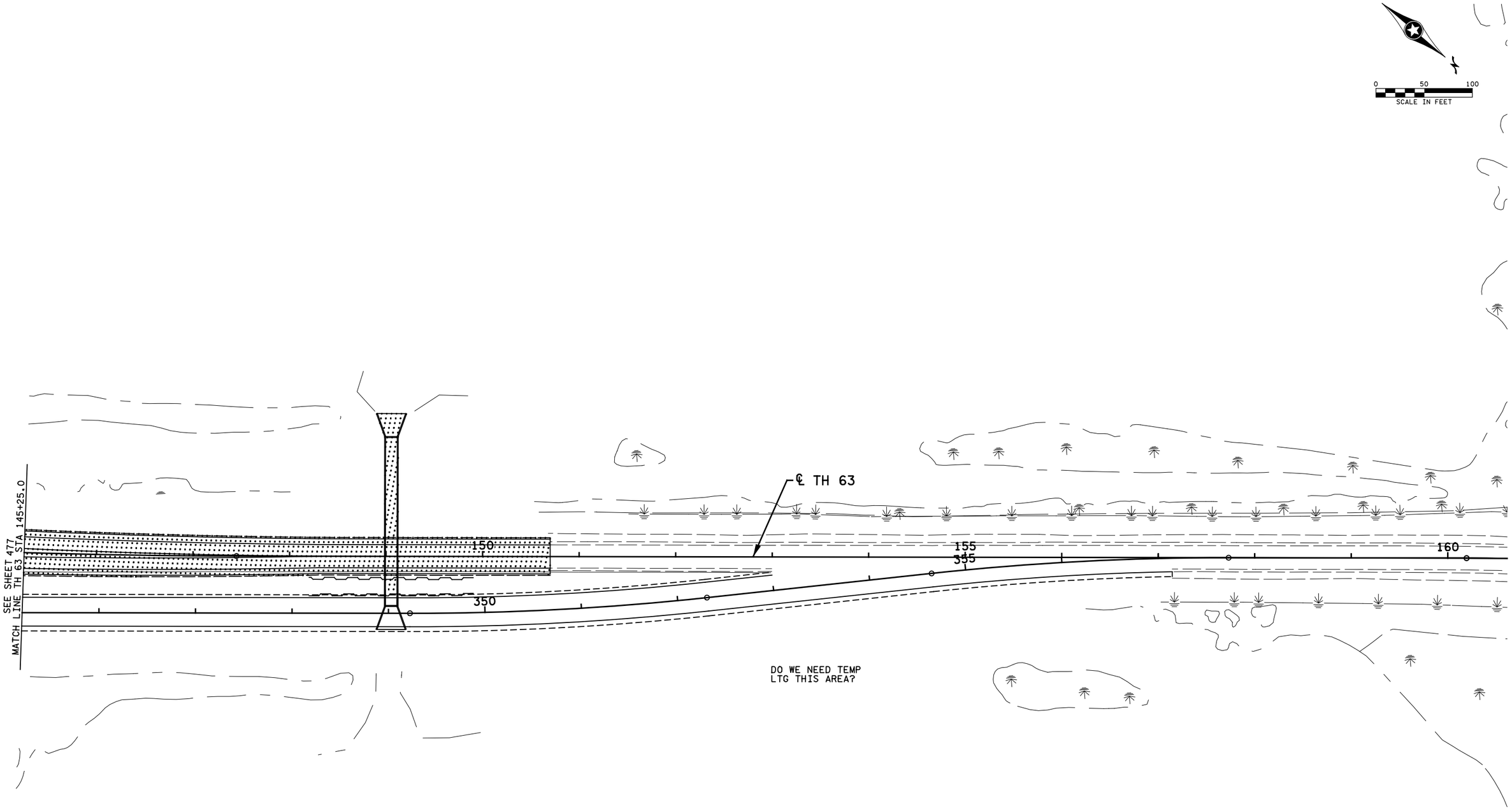
CONSTRUCTION PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 3

SHEET 477 OF 688

11:37:52 AM
6/2/2016
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WISCONSIN PROJECT I.D. 7210-00-78

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COMM. NO. 0158933

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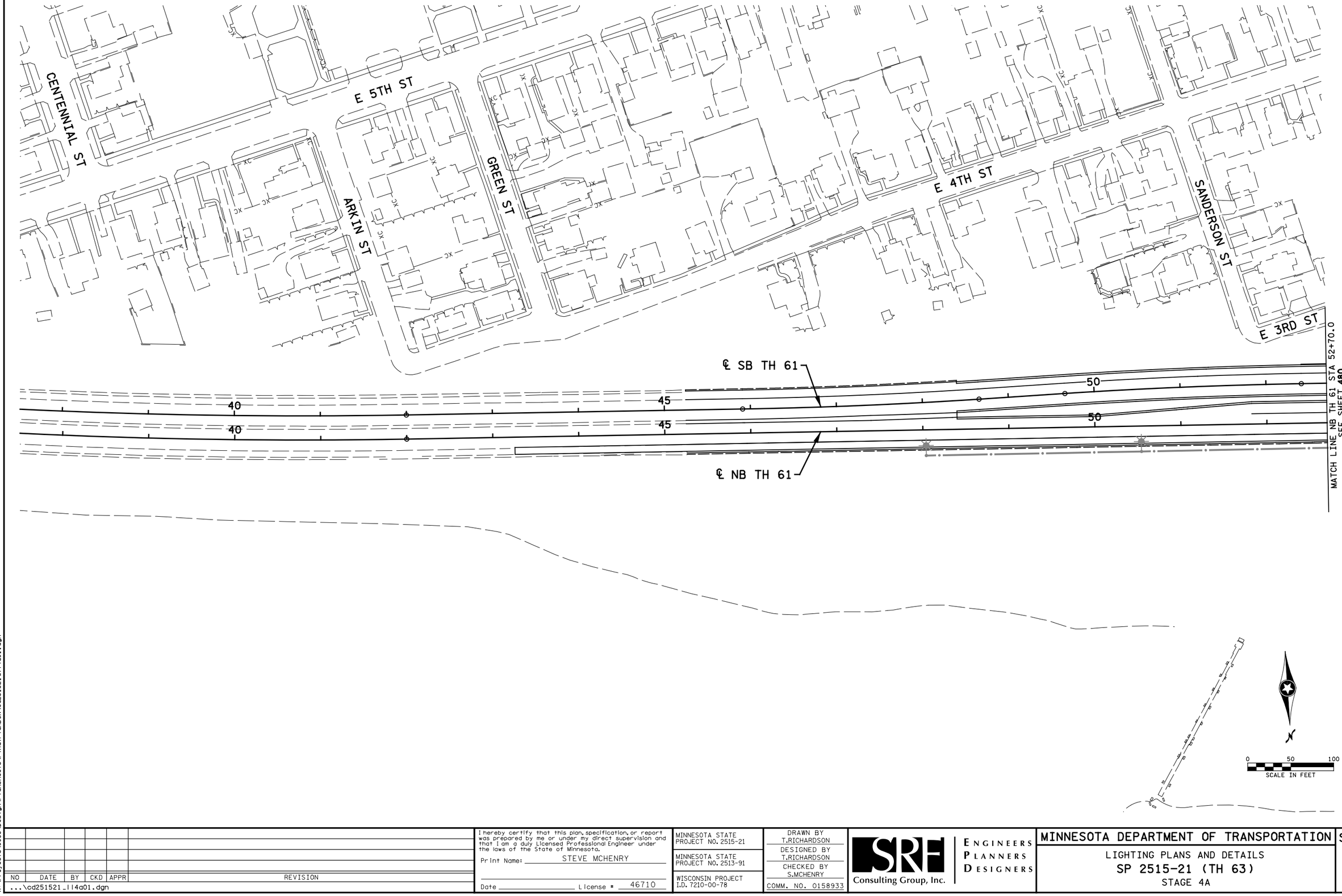
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SP 2515-21 (TH 63)

STAGE 3

SHEET 478 OF 688

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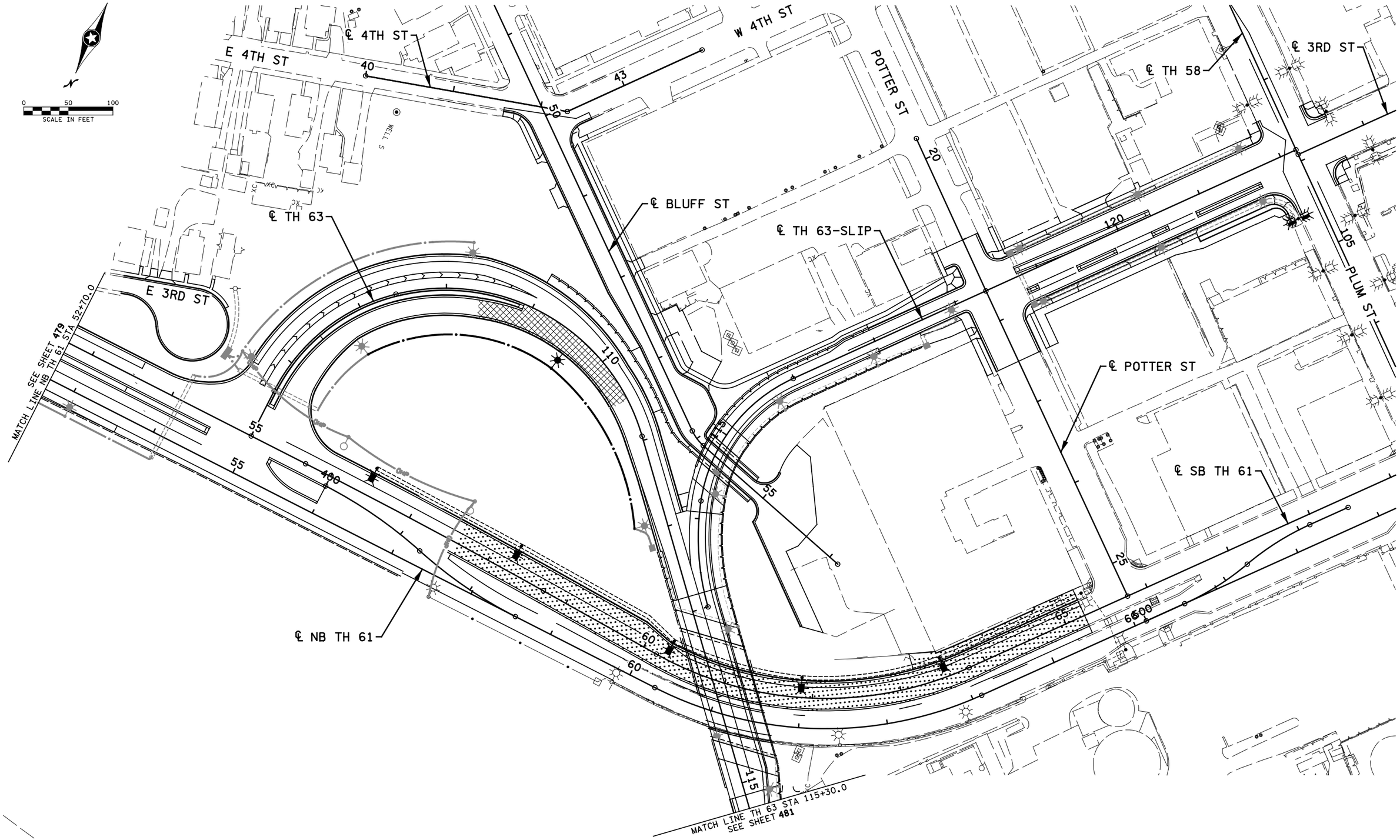
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 479 OF 688

11:37:54 AM
6/2/2016
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					...\cd251521_114a02.dgn

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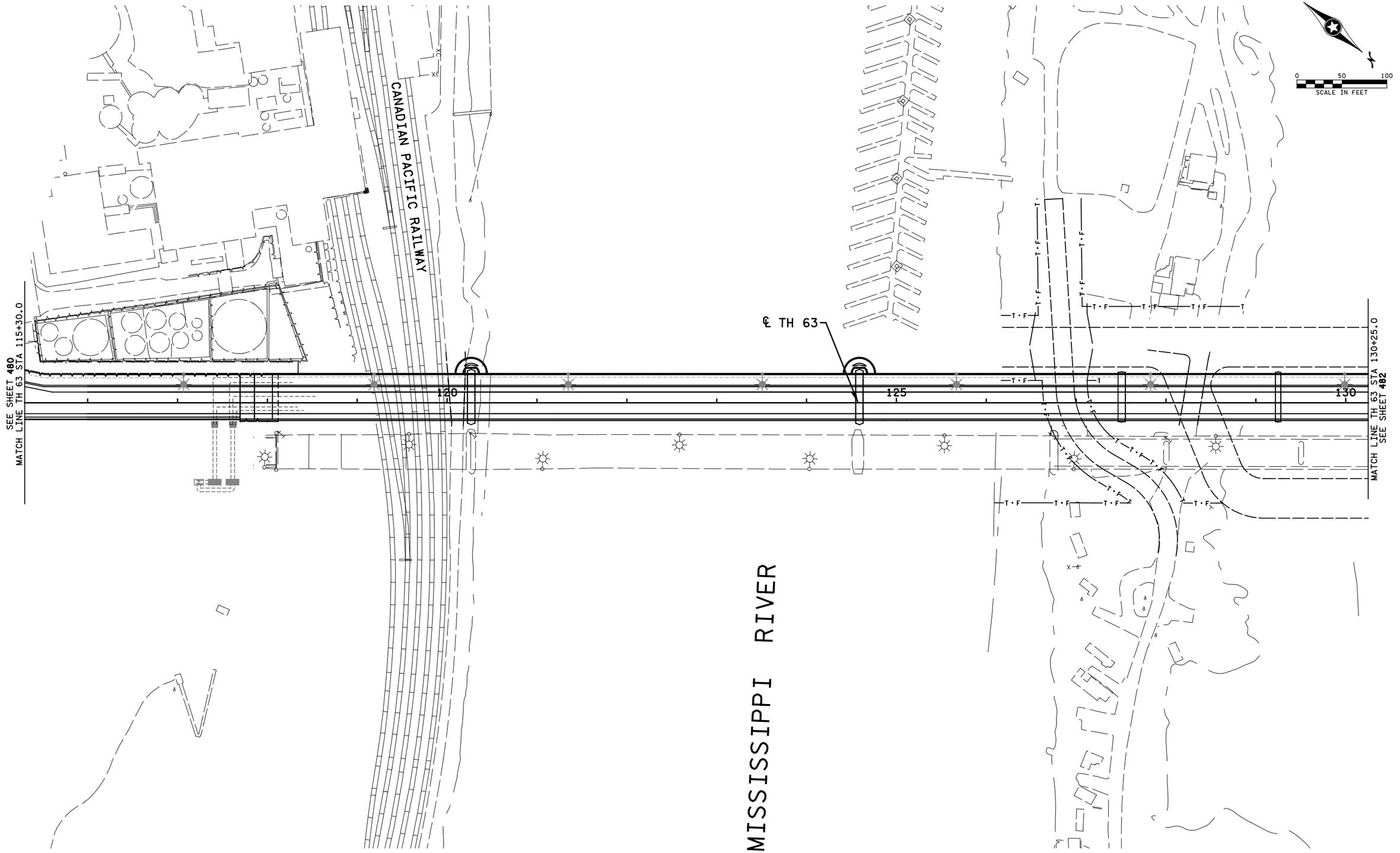
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 480 OF 688

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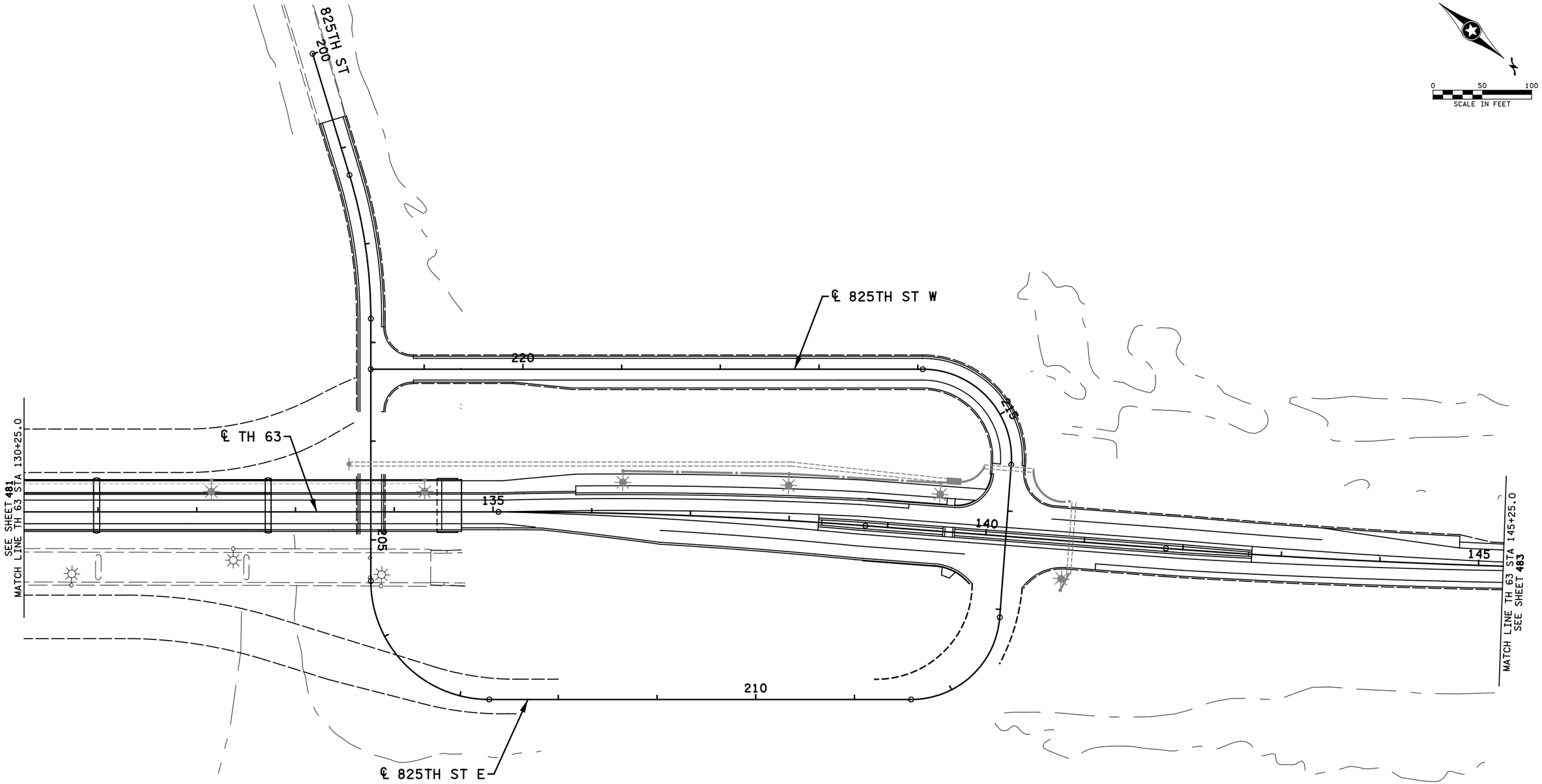
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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 4A

SHEET 481 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
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WISCONSIN PROJECT I.D. 7210-00-78

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CHECKED BY S.MCHENRY

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

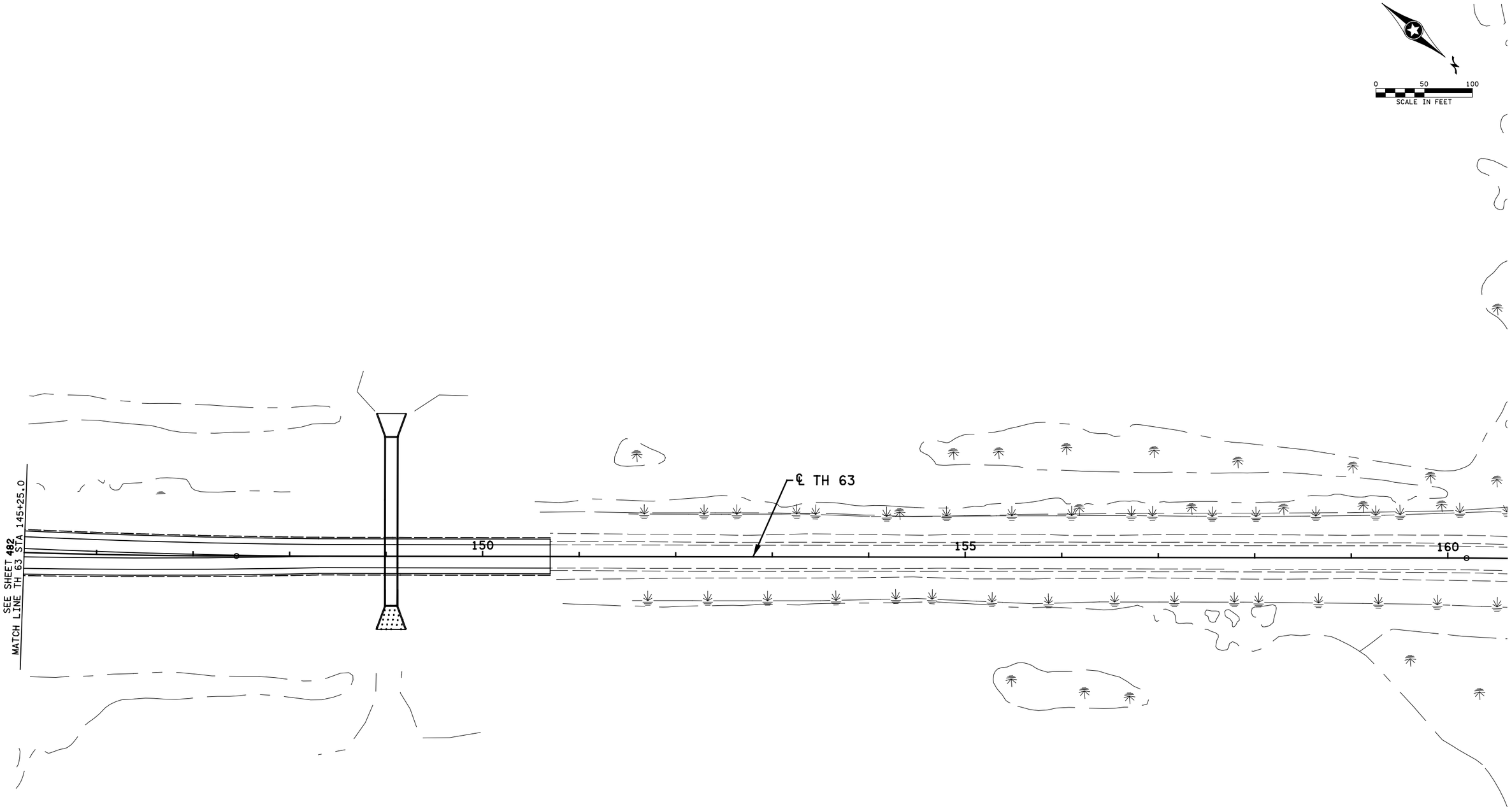
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 482 OF 688

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CHECKED BY S.MCHENRY

COMM. NO. 0158933

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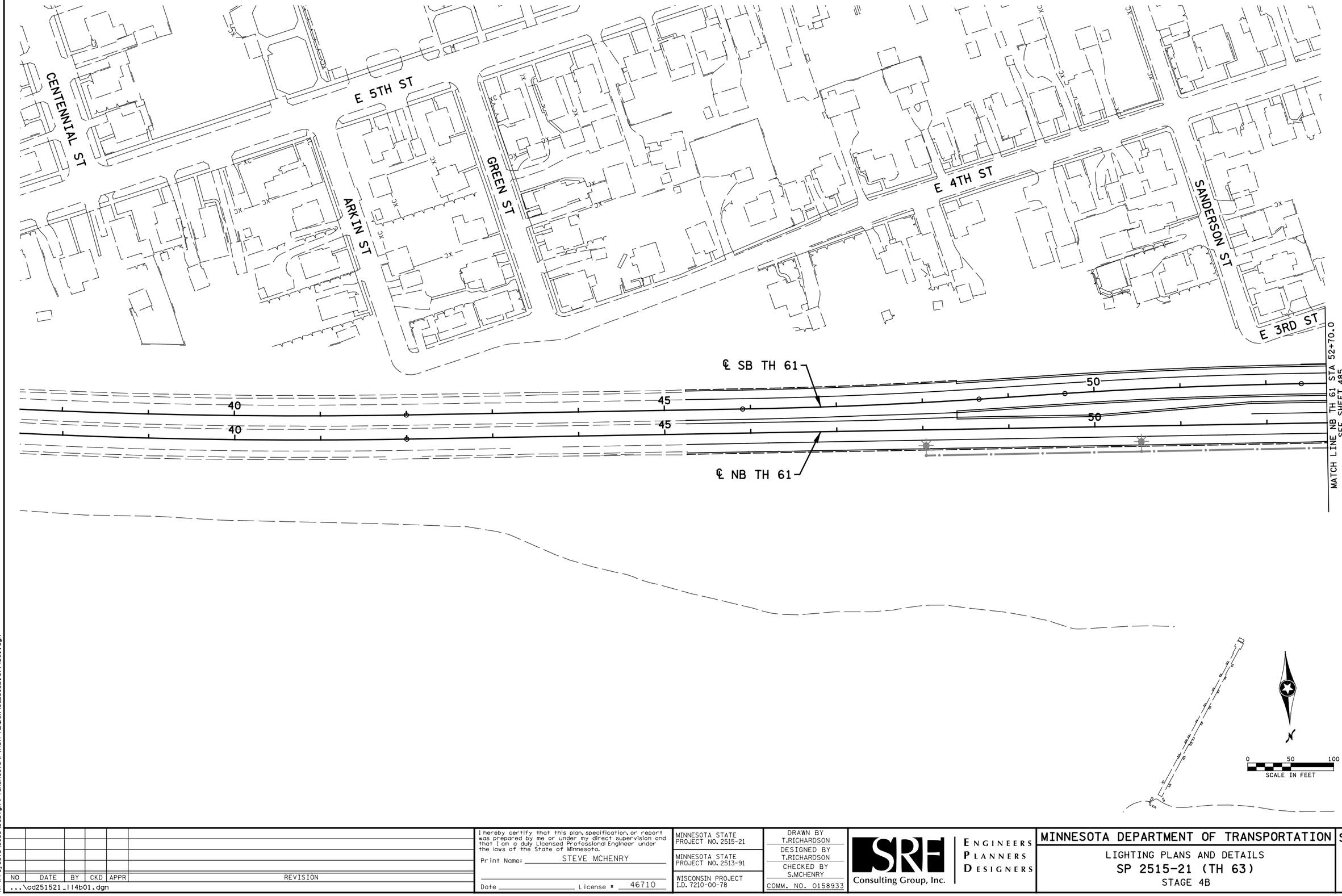
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 4A

SHEET 483 OF 688

11:37:59 AM
6/22/2016
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WISCONSIN PROJECT I.D. 7210-00-78

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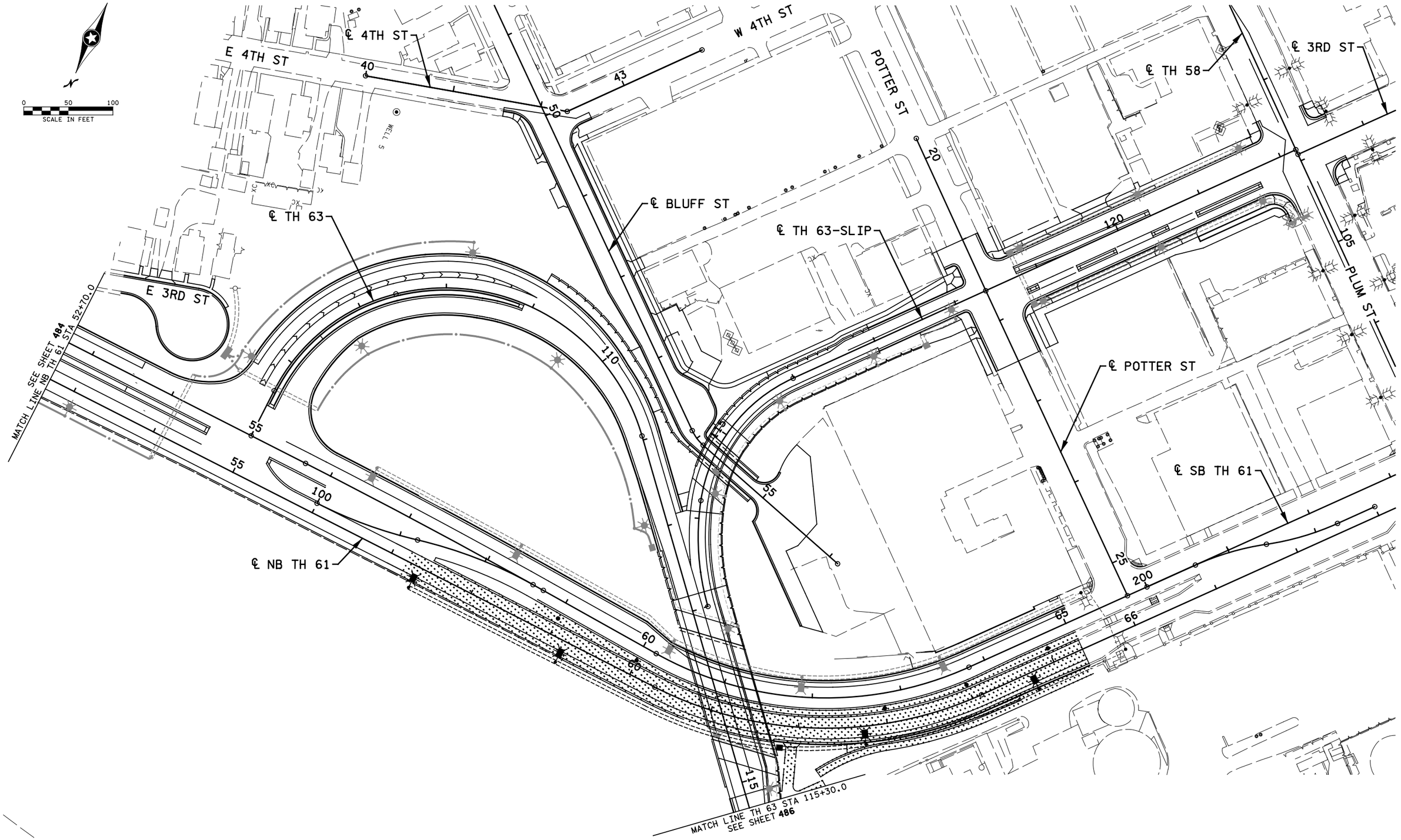
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 484 OF 688

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6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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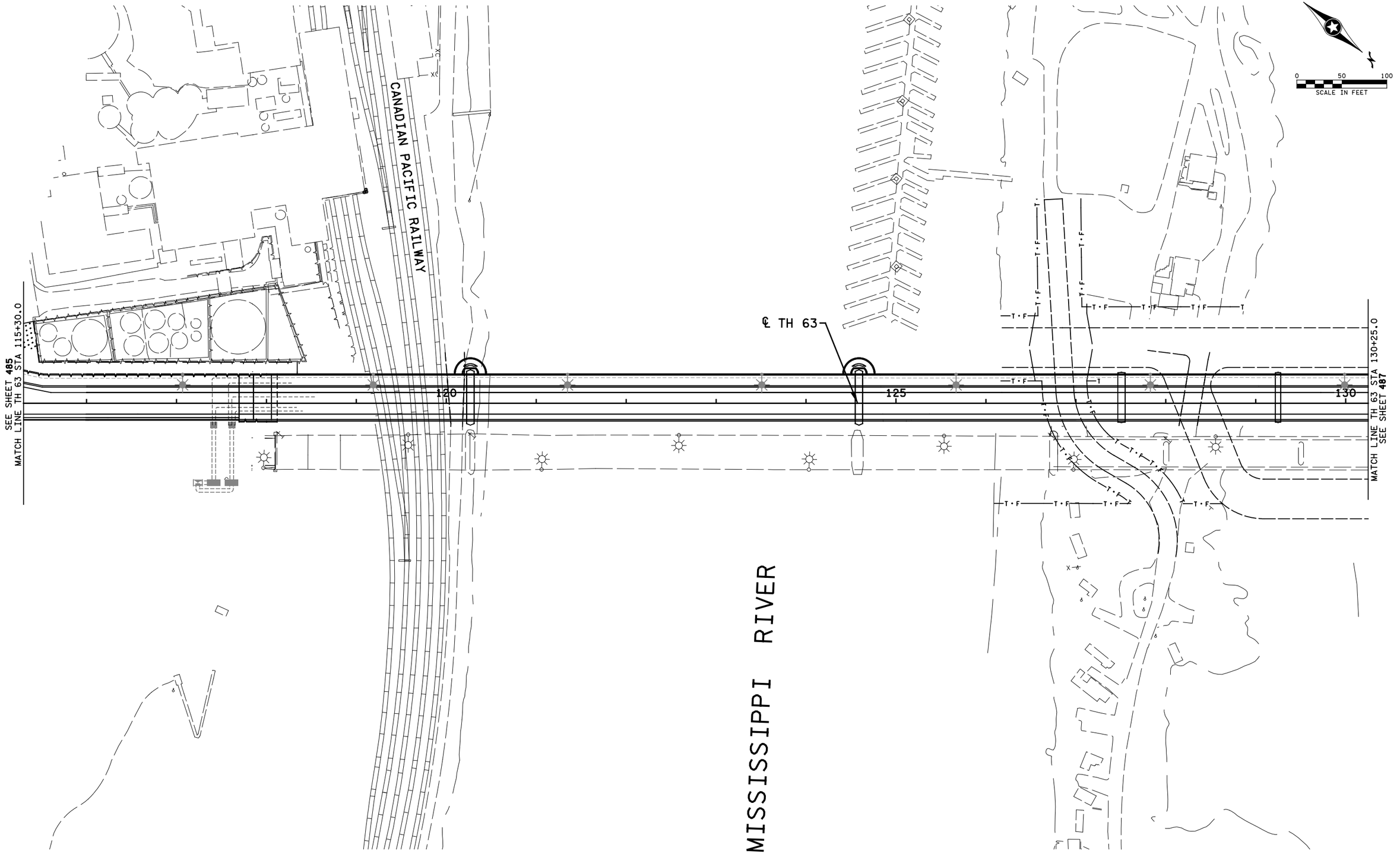
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 485 OF 688

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6/22/2016
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WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

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CHECKED BY S.MCHENRY

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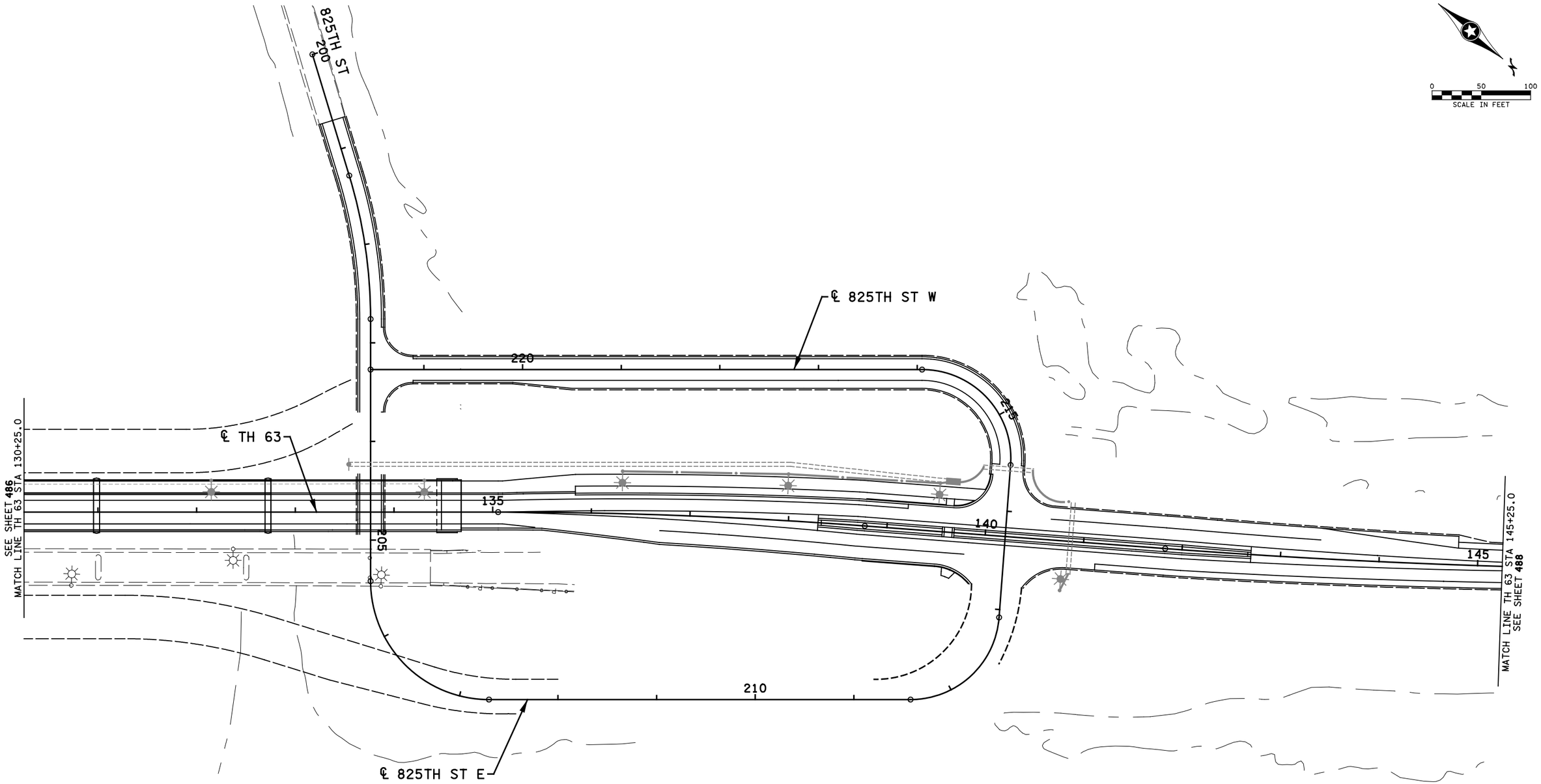
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MINNESOTA DEPARTMENT OF TRANSPORTATION

LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 4B

SHEET 486 OF 688

11:38:02 AM
6/2/2016
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NO	DATE	BY	CKD	APPR	REVISION
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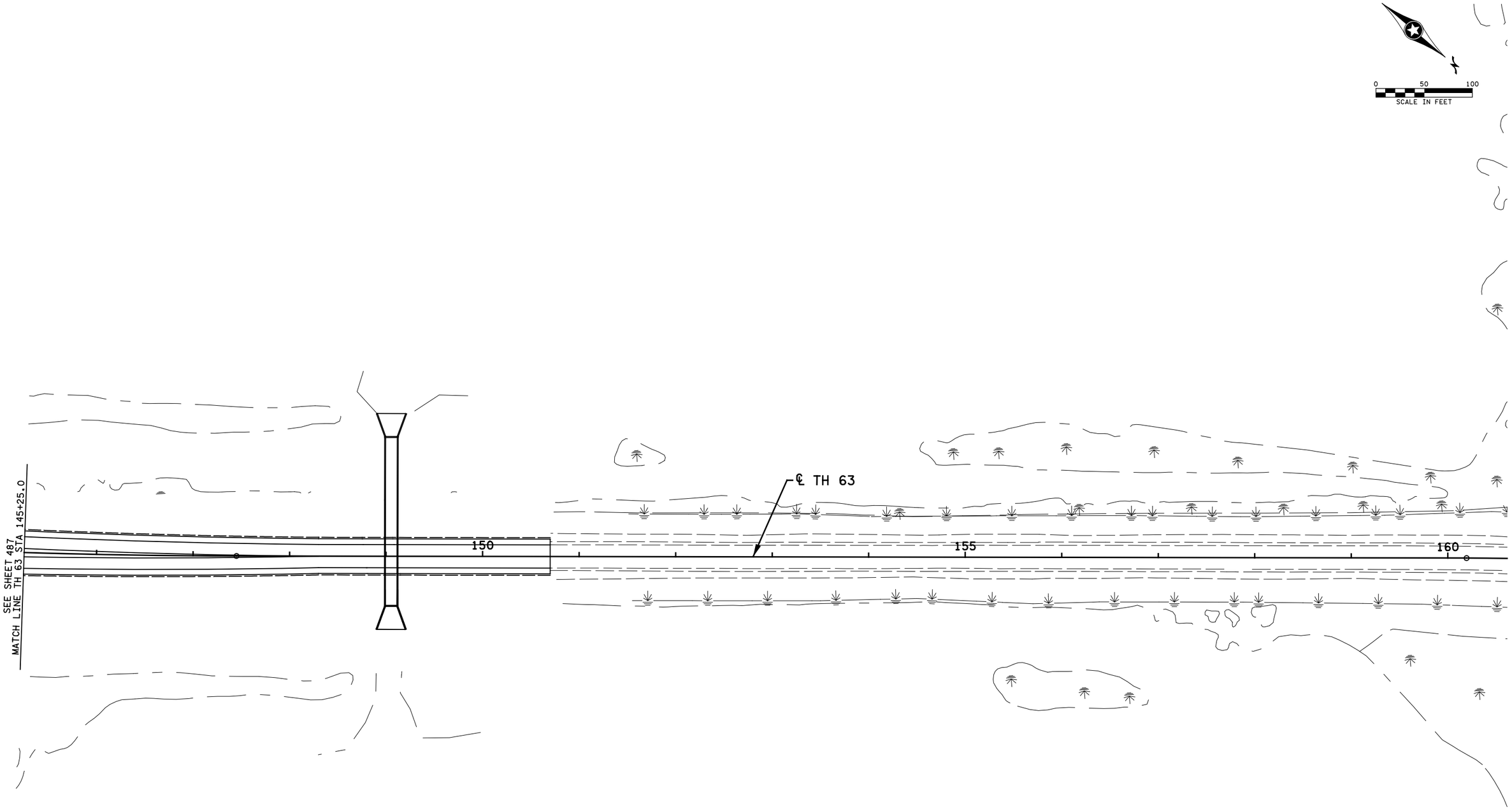
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 487 OF 688

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6/2/2016
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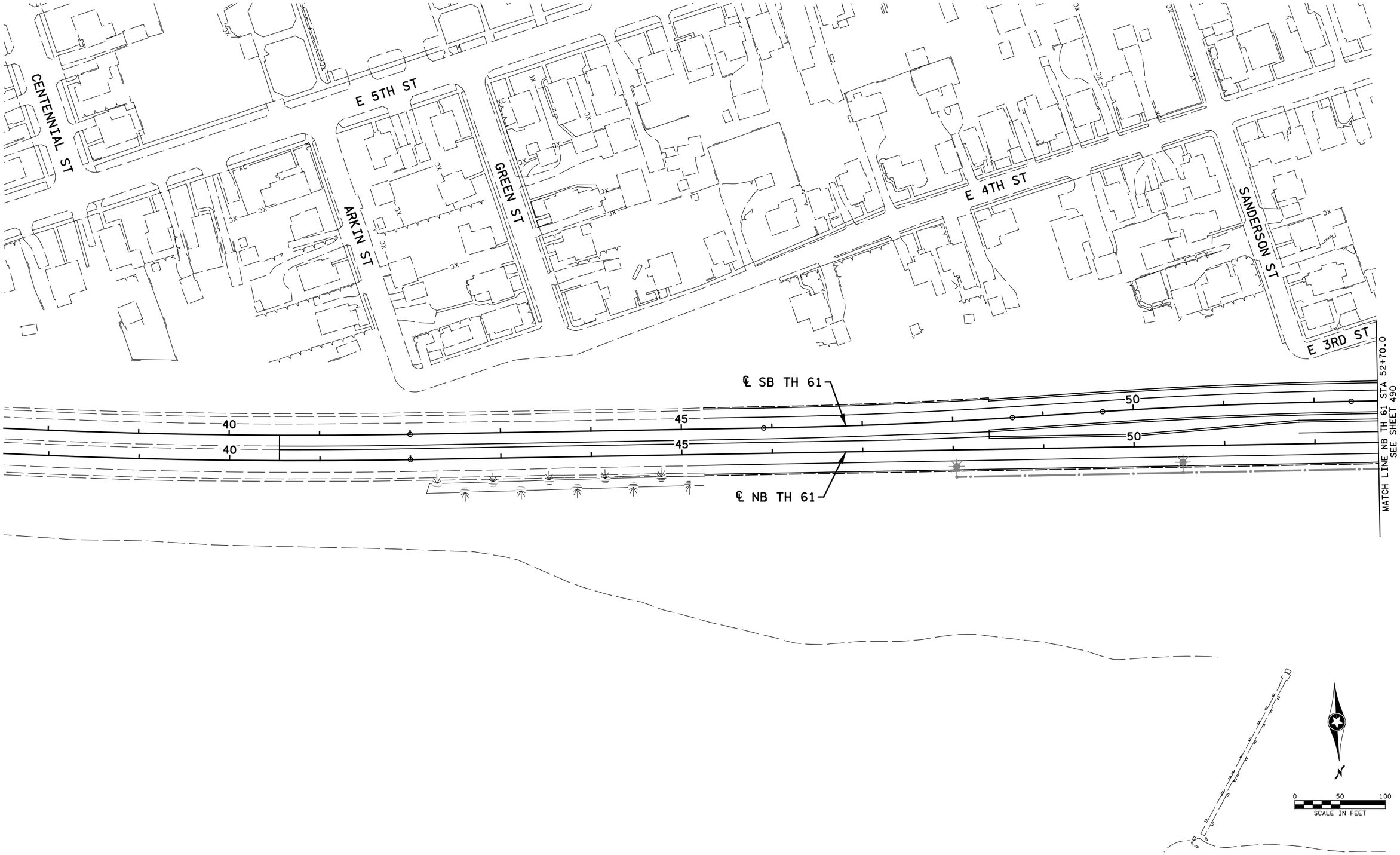
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 4B

SHEET 488 OF 688

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DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

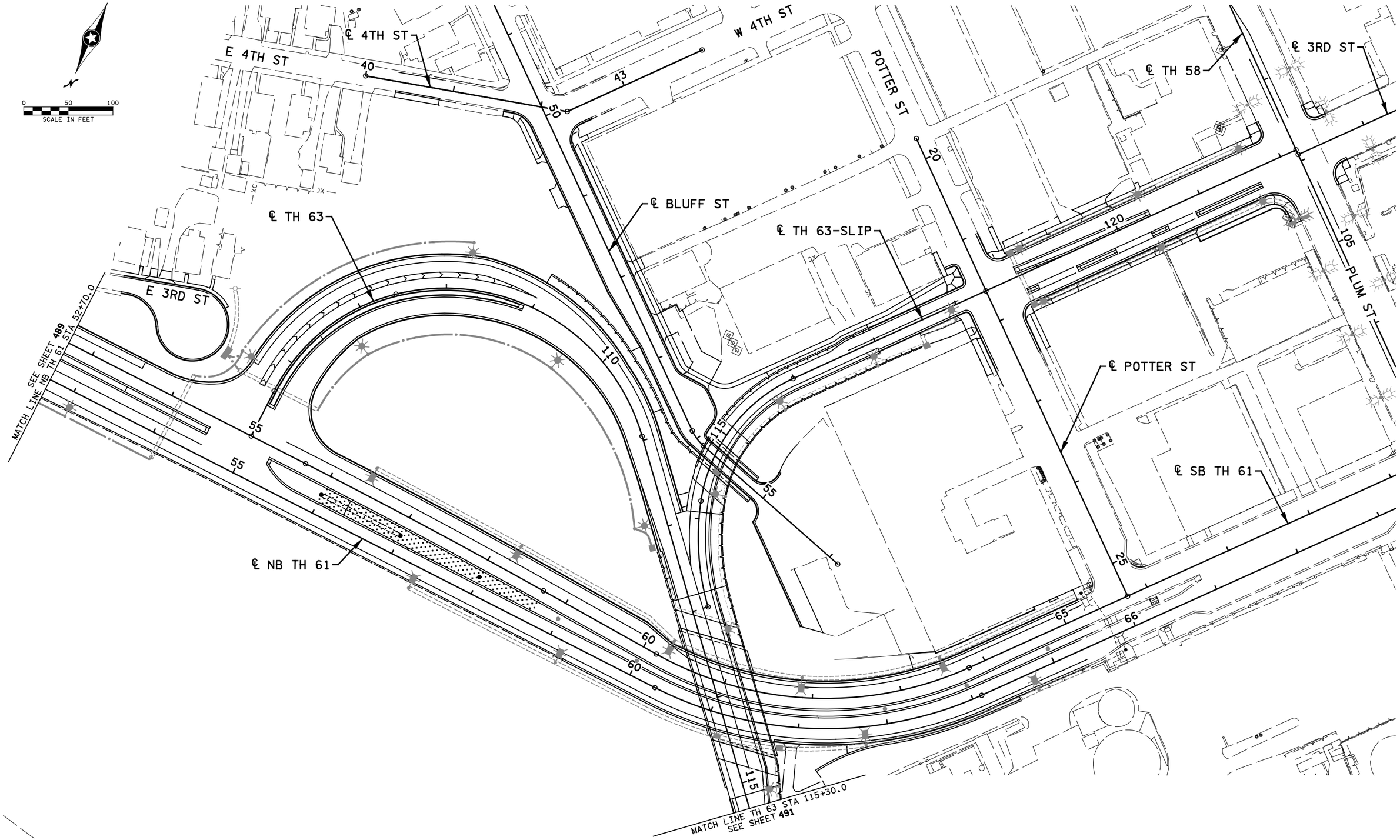
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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 5

SHEET 489 OF 688

11:38:10 AM
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DESIGNED BY T.RICHARDSON

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MINNESOTA DEPARTMENT OF TRANSPORTATION

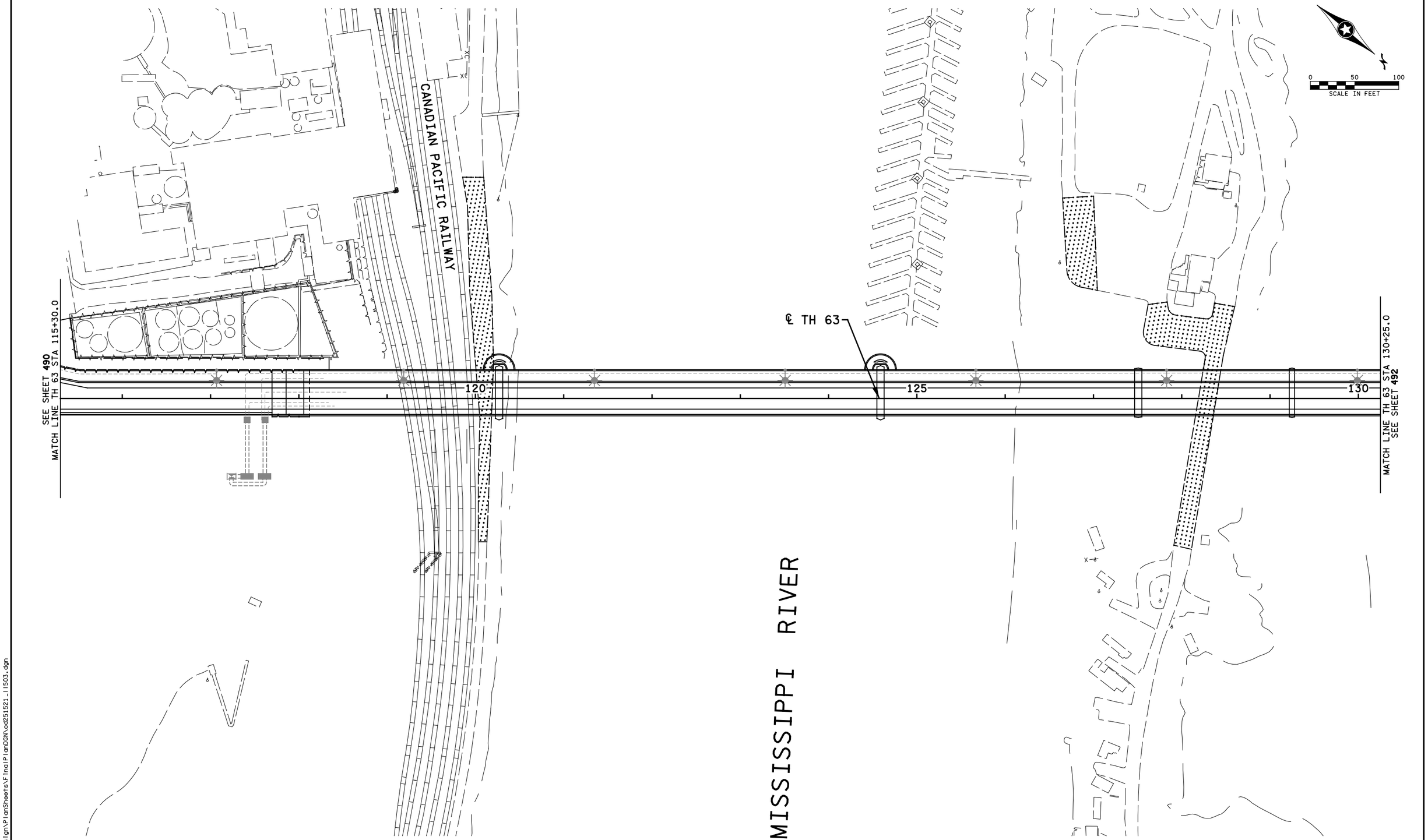
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 5

SHEET 490 OF 688

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Print Name: STEVE MCHENRY

Date _____ License # 46710

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY T.RICHARDSON

DESIGNED BY T.RICHARDSON

CHECKED BY S.MCHENRY

COMM. NO. 0158933

SRF Consulting Group, Inc.

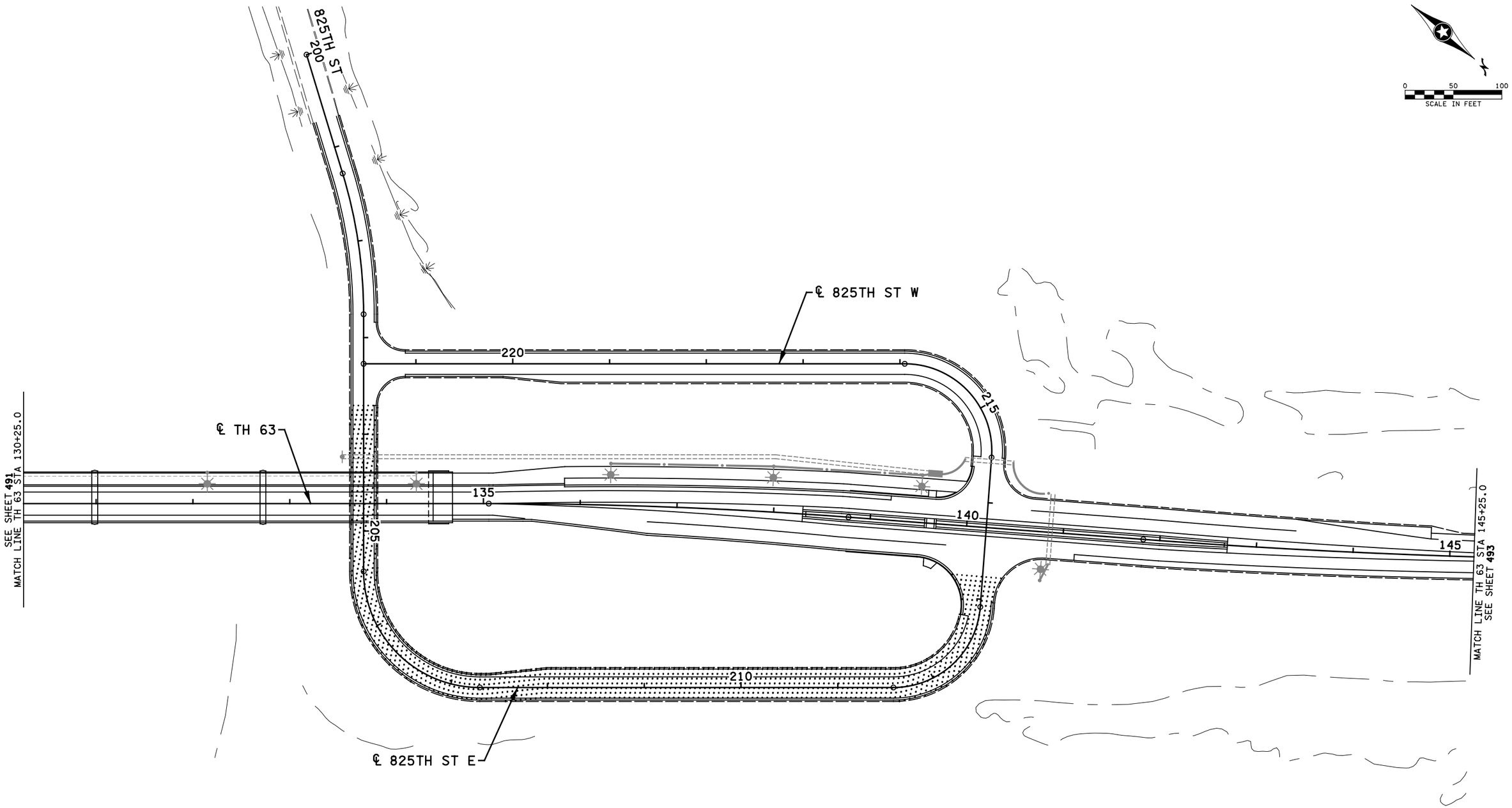
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LIGHTING PLANS AND DETAILS
SP 2515-21 (TH 63)
STAGE 5

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MINNESOTA DEPARTMENT OF TRANSPORTATION

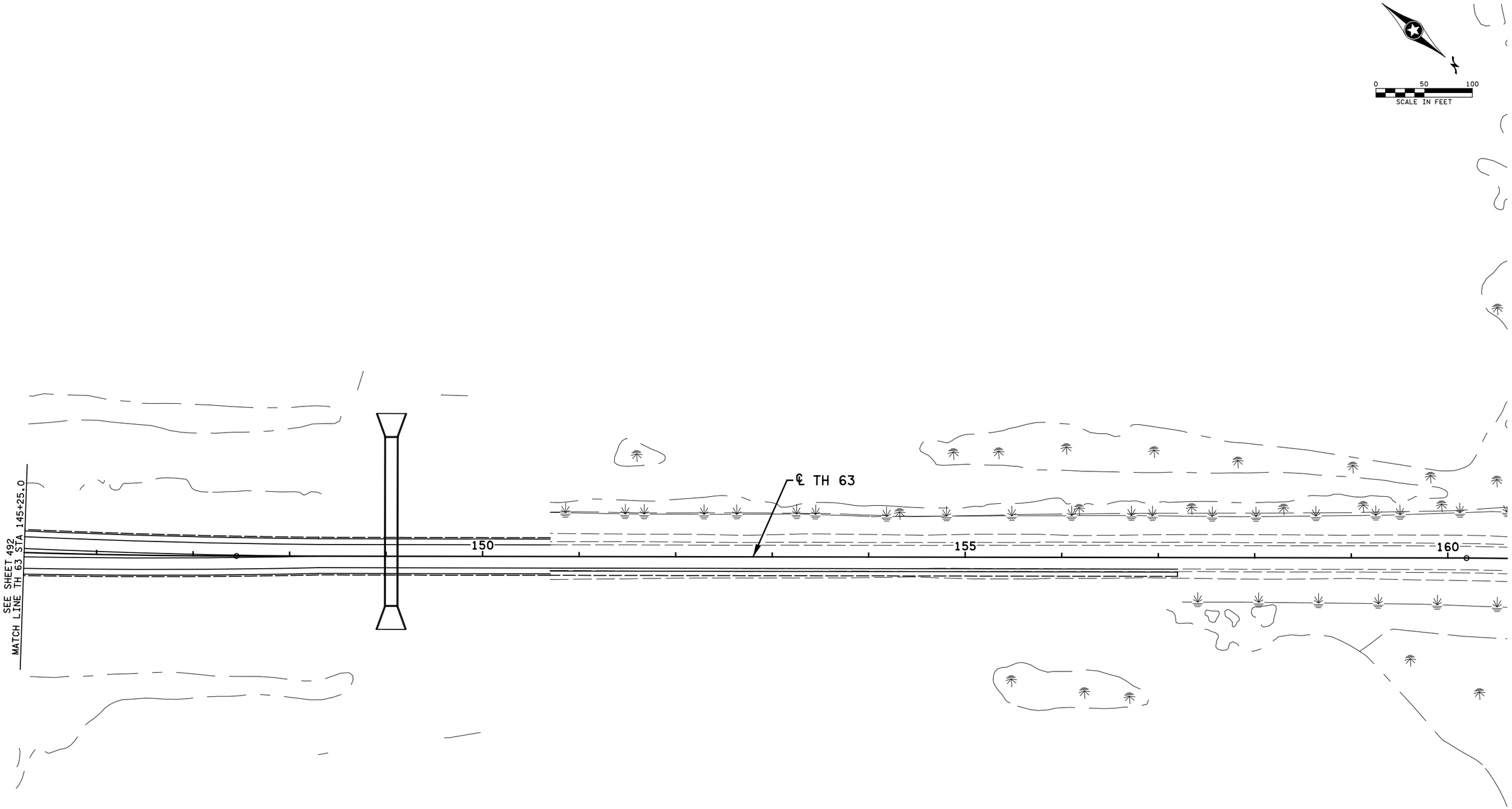
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

STAGE 5

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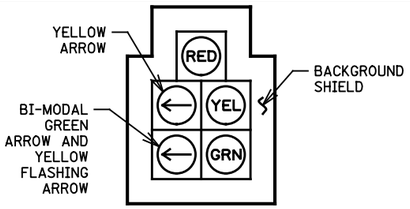
LIGHTING PLANS AND DETAILS

SP 2515-21 (TH 63)

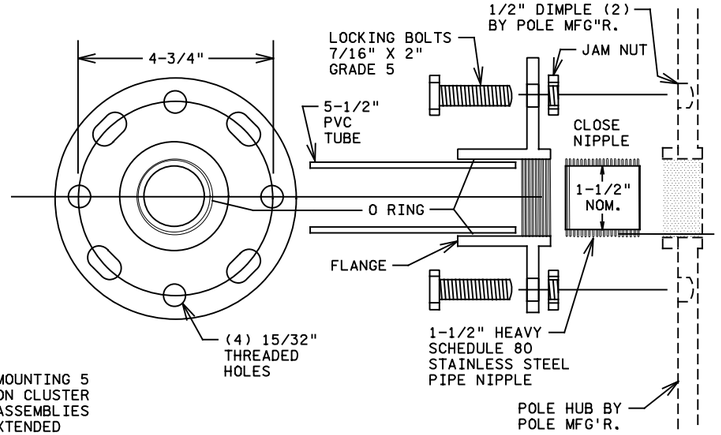
STAGE 5

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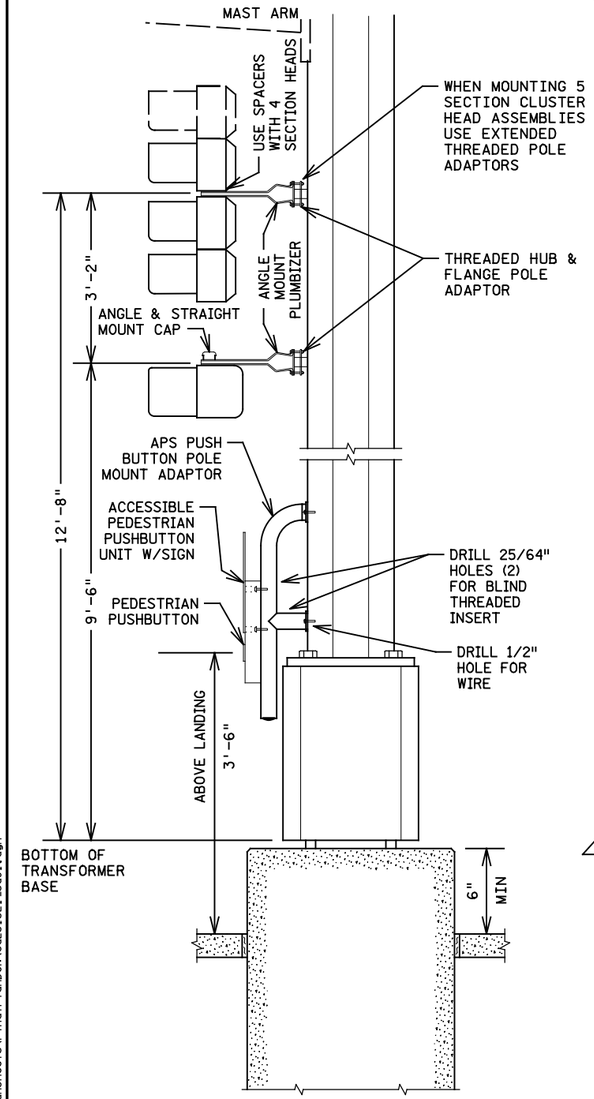


5 SECTION FYA CLUSTER HEAD DETAIL



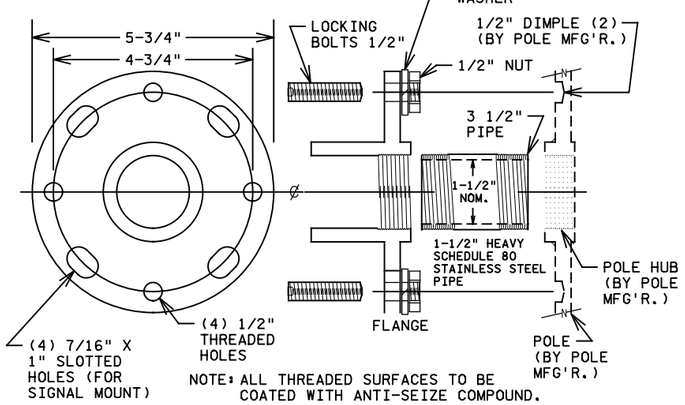
THREADED HUB AND FLANGE POLE ADAPTOR





TYPICAL SIGNAL POLE MOUNTING

NOT TO SCALE

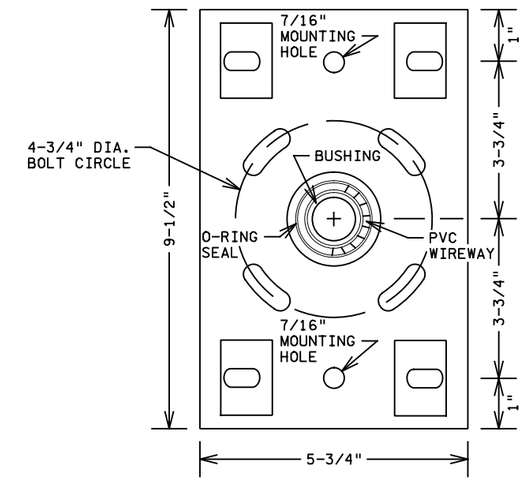


NOTE: ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.

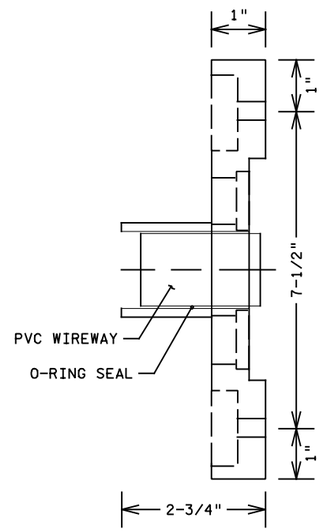
EXTENDED THREADED POLE ADAPTER

NOTES:

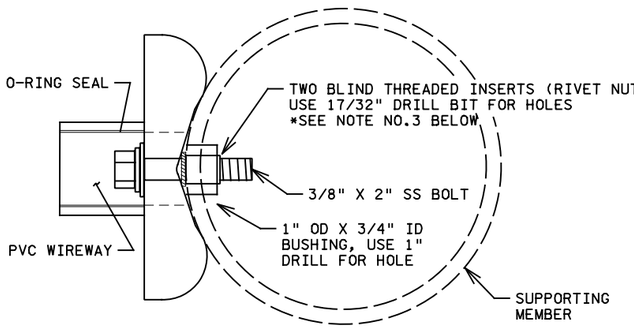
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



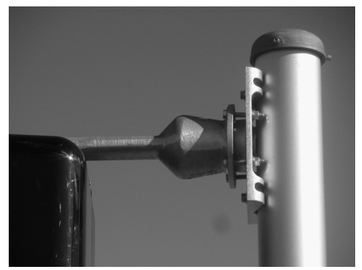
BOLT ON HUB & FLANGE



SIDE VIEW

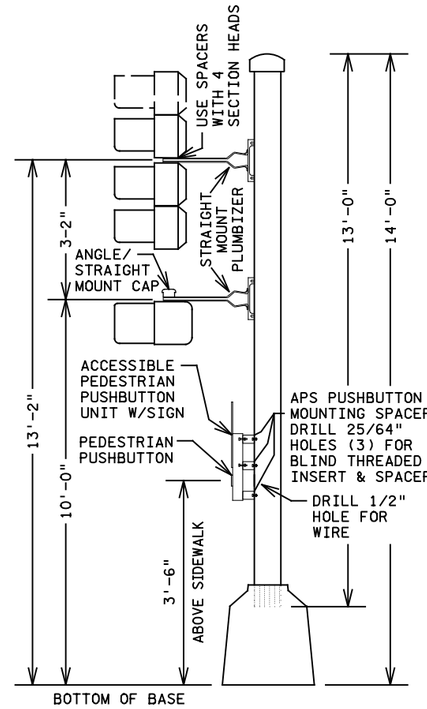


TOP VIEW



NOTES:

1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



TYPICAL PEDESTAL MOUNTING

NOT TO SCALE

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Print Name: ADRIAN S. POTTER

Date _____ License # 42785

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MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY M. BRESSLER
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY A. POTTER
	COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL PLANS

SP 2515-21 (TH 63)

POLE MOUNT DETAILS

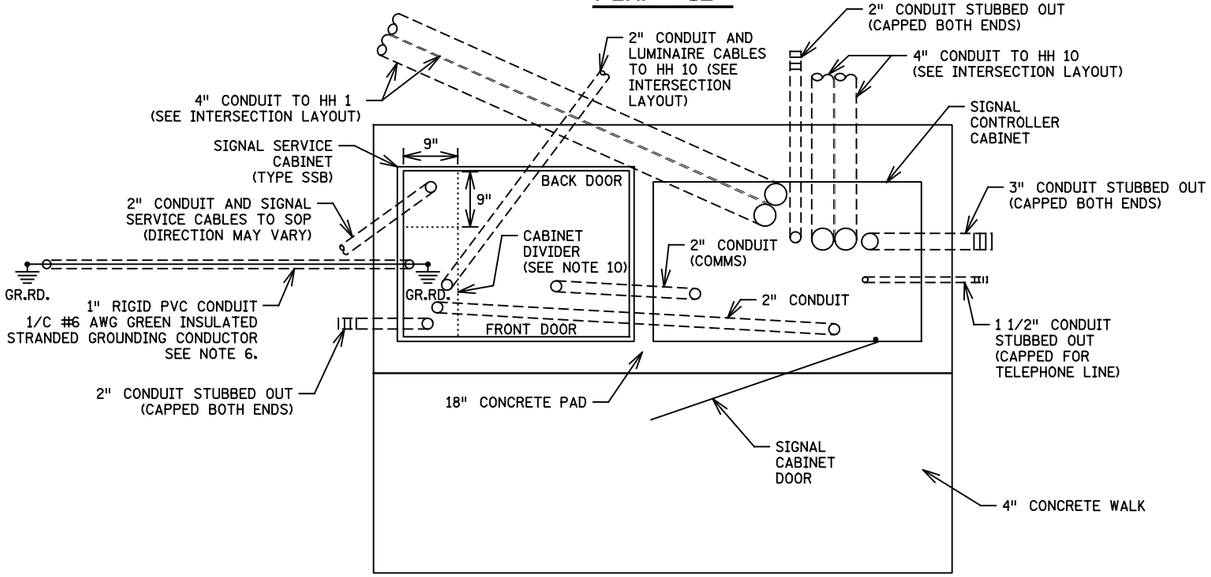
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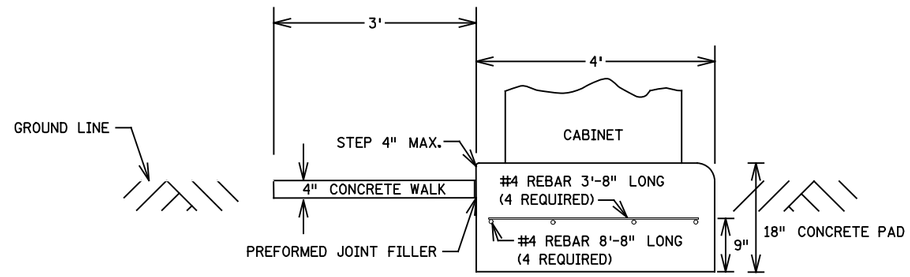
TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

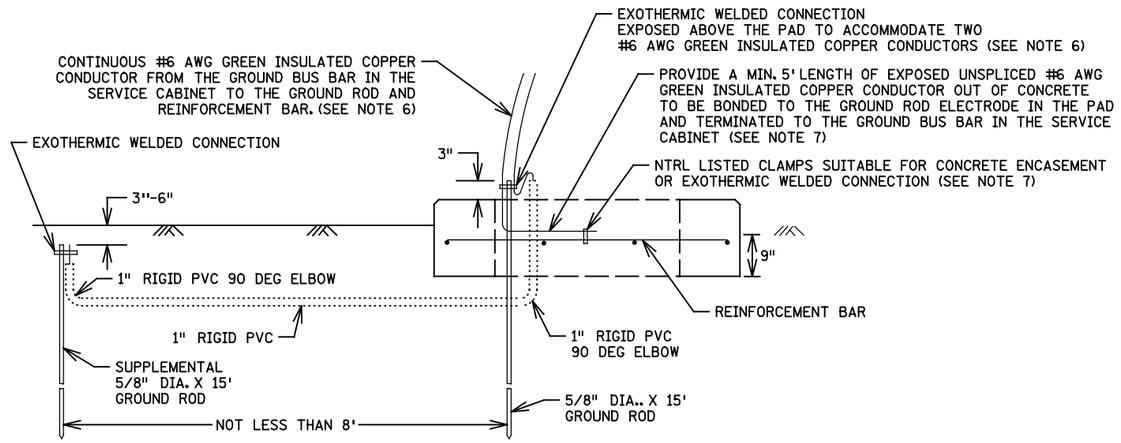
PLAN VIEW



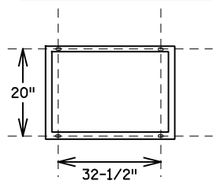
SIDE VIEW



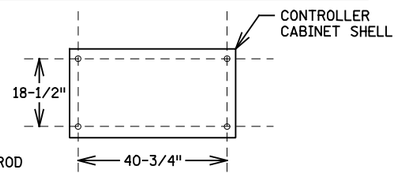
GROUNDING ELECTRODE SYSTEM



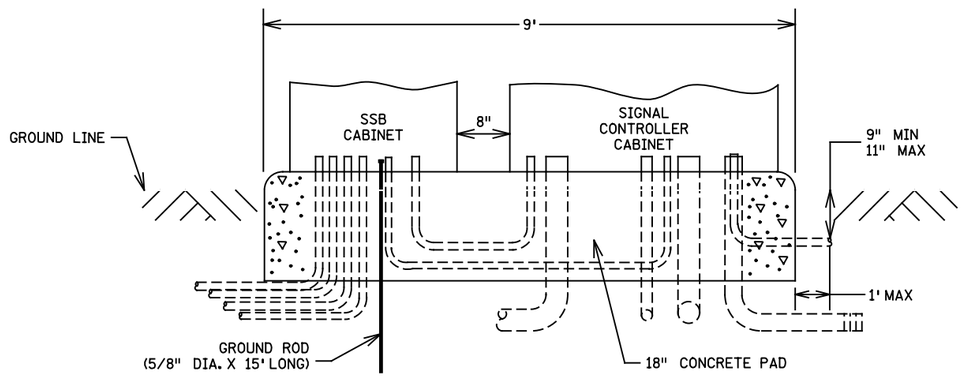
S.S.B. SERVICE CABINET BOLT PATTERN



CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



FRONT VIEW



NOTES:

1. THE ANCHOR RODS, NUTS, WASHERS AND RUBBER GASKET FOR THE CONTROLLER CABINET SHALL BE FURNISHED BY MNDOT.
2. THE OUTER EDGE OF THE ENTIRE EQUIPMENT PAD AND CONCRETE WALK SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE CAPPED UNTIL CABLES ARE PULLED IN.
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3F52 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
6. SUPPLY TWO 15 FOOT GROUND ROD ELECTRODES IN ACCORDANCE WITH 2545.3R. PROVIDE ONE GROUND ROD IN THE EQUIPMENT PAD IN ACCORDANCE WITH 2545.3 F.3 AND THE OTHER OUTSIDE OF THE PAD WITH A MINIMUM OF 8 FEET OF SEPARATION BETWEEN ELECTRODES. BOND THE TWO GROUND RODS TOGETHER WITH ONE CONTINUOUS LENGTH UNSPLICED CONDUCTOR FROM THE OUTER MOST GROUND ROD TO THE GROUND BUS BAR IN THE CABINET. EXOTHERMICALLY WELD THE 6 AWG STRANDED GREEN INSULATED CONDUCTOR TO THE GROUND RODS. PLACE THE BONDING CONNECTION TO THE EQUIPMENT PAD GROUND ROD ABOVE THE CONCRETE. APPLY DE-OX COMPOUND TO THE GROUNDING CONNECTIONS AFTER FINAL ASSEMBLY.
7. BOND A #6 AWG GREEN INSULATED GROUNDING CONDUCTOR TO THE REBAR GRID PRIOR TO CONCRETE POURING OPERATIONS. ENSURE THE CONDUCTOR IS PLACED IN THE LOAD SIDE OF THE CABINET. TERMINATE THE GREEN INSULATED 6 AWG GROUND CONDUCTOR ON THE GROUND BUS IN THE SERVICE CABINET WITHOUT SPLICES.
8. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE PLACED BELOW THE CONCRETE.
9. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
10. CORRECT PLACEMENT OF CONDUIT TO THE LEFT OF THE CABINET DIVIDER IS CRITICAL.
11. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
12. CABINETS TO BE CENTERED (LEFT & RIGHT) ON THE PAD.
13. BRUSH ON ANTI-SEIZE LUBRICANT MUST BE APPLIED TO ALL ANCHOR ROD THREADS PROTRUDING ABOVE THE CONCRETE PAD BEFORE THE CABINET IS SET.
14. CENTER THE 8', 8" X 3', 8" #4 REINFORCEMENT REBAR GRID IN THE 9' X 4' X 18" CONCRETE PAD.

NO	DATE	BY	CKD	APPR	REVISION

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Date _____ License # 42785

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MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY M. BRESSLER
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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL PLANS

SP 2515-21 (TH 63)

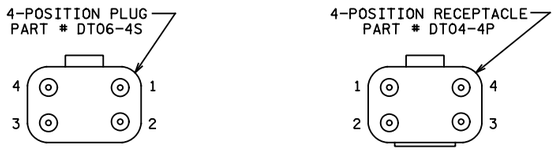
EQUIPMENT PAD DETAIL (TYPE SSB SERVICE CABINET)

SHEET 495 OF 688

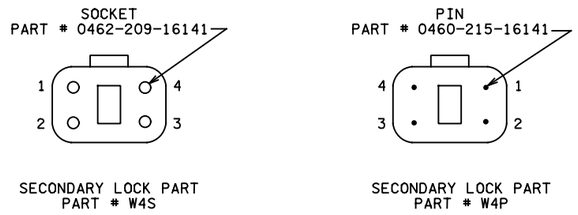
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4-POSITION CONNECTOR

(BACK VIEW)

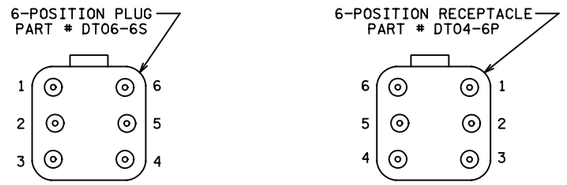


(FRONT VIEW)

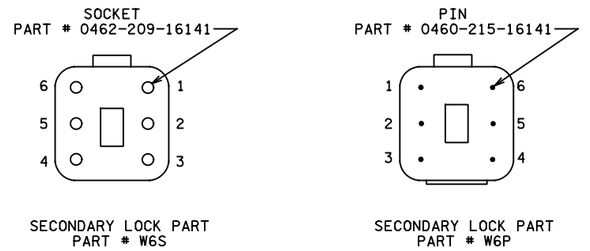


6-POSITION CONNECTOR

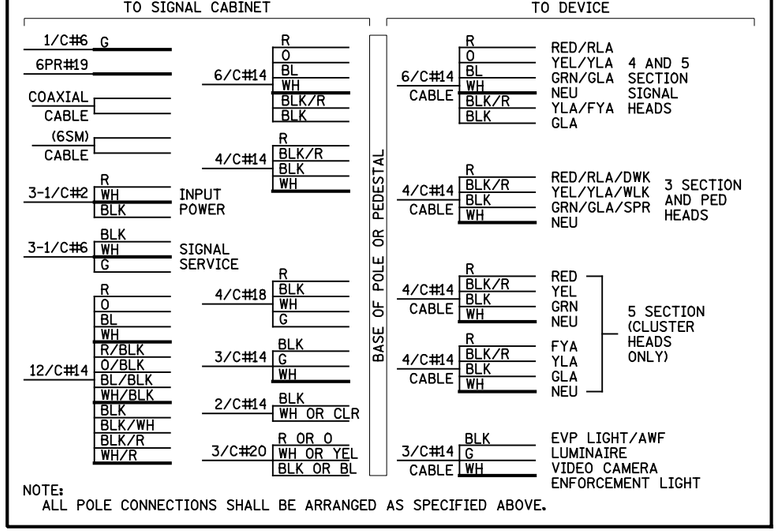
(BACK VIEW)



(FRONT VIEW)



CONDUCTOR COLOR CODE (14 GAUGE)



NOTE:
ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

4 Position DT Connector (3 Section Head/DWK/WLK)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R or R/BLK or BLK	1	R	RED or DWK
O or O/BLK or BLK/WH or BLK	2	BLK/R	YEL or WLK
BL or BL/BLK or BLK/R or BLK	3	BLK	GRN or SPR
WH or WH/BLK or WH/R	4	WH	NEU

4 Position DT Connector (Used with 3 Conductor Cable Only)

(EVP LHT/LUM/AWF/ VID CAM/ENF LHT)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
BLK	1	BLK	EVP LHT or LUM or RED or YEL or VID CAM or ENF LHT or AWF
(Not Used)	2	(Not Used)	(Not Used) (See Note #8)
G	3	G	EQ.G
WH	4	WH	NEU

4 Position DT Connectors

(Use Two Connectors for 5 Section FYA Cluster Heads)

12 Conductor Wire to Control Cabinet	Connector pin #	4 Conductor to Signal Indication	Signal Indication
R	1	R	RED
O	2	BLK/R	YEL
BL	3	BLK	GRN
WH	4	WH	NEU
R/BLK	1	R	FYA
O/BLK	2	BLK/R	YLA
BL/BLK	3	BLK	GLA
WH/BLK	4	WH	NEU

6 Position DT Connector (4 and 5 Section Heads)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R	1	R	RED
O	2	O	YEL
BL	3	BL	GRN
WH	4	WH	NEU
O/BLK or BLK/R (6/C)	5	BLK/R	YLA or FYLA
BL/BLK or BLK (6/C)	6	BLK	GLA

WIRE COLOR CODE KEY

R	Red
O	Orange
BL	Blue
WH	White
BLK	Black
BRN	Brown
CL	Clear
G	Green
R/BLK	Red with Black Stripe
O/BLK	Orange with Black Stripe
BL/BLK	Blue with Black Stripe
WH/BLK	White with Black Stripe
WH/R	White with Red Stripe
BLK/WH	Black with White Stripe
BLK/R	Black with Red Stripe

WIRE SPECIFICATION CHART

Type	Name	Specification Number
1/C#2	Power Conductors	3815.2B.1
1/C#6	Power Conductors	3815.2B.1
1/C#6 INS.GR.	Grounding Conductors	3815.2B.5
2/C#14	Loop Detector Lead-In Cable	3815.2C.4
3/C#14	Signal Control Cable	3815.2C.3
4/C#14	Signal Control Cable	3815.2C.3
6/C#14	Signal Control Cable	3815.2C.3
12/C#14	Signal Control Cable	3815.2C.3
6PR#19	Telephone Cables Outdoor	3815.2C.6.b
3/C#20	EVP Detector Cable	3815.2C.5

NOTES:

1. DT04-P RECEPTACLE SHALL BE TERMINATED TO THE WIRING HARNESS RUNNING FROM THE BASE/JUNCTION BOX OF THE POLE TO SIGNAL INDICATIONS.
2. DT06-_S PLUG SHALL BE TERMINATED TO THE CABLES RUNNING FROM THE TRAFFIC SIGNAL CABINET TO THE BASE/JUNCTION BOX OF THE POLE.
3. THERE SHALL BE A MINIMUM OF 24 INCHES OF SLACK ON EACH CABLE IN EVERY POLE BASE /JUNCTION BOX.
4. STRIP A MAXIMUM OF 6 INCHES OF THE OUTER JACKET OF EACH SIGNAL CABLE.
5. STRIP .250 INCHES OF INSULATION FROM EACH INDIVIDUAL CONDUCTOR.
6. CRIMP PINS OR SOCKETS USING RATCHETING TYPE CRIMPING TOOL HDT-48-00. NO OTHER CRIMPING TOOL WILL BE ALLOWED.
7. WIRES MUST BE TERMINATED AS DETAILED IN TABLES DEPENDING ON WIRE COUNT.
8. ANY UNUSED PIN MUST HAVE A SEALING PLUG PLACED IN BOTH THE PLUG & RECEPTACLE (PART # 114017).
9. LABEL EACH HALF OF THE CONNECTOR (PLUG AND RECEPTACLE) WITH THE DEVICE DESIGNATION (AS INDICATED IN THE WIRING DIAGRAM) USING A PERMANENT BLACK MARKER.

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: ADRIAN S. POTTER

Date _____ License # 42785

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY M. BRESSLER
DESIGNED BY M. BRESSLER
CHECKED BY A. POTTER
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL PLANS
SP 2515-21 (TH 63)
TRAFFIC SIGNAL POLE
WIRING CONNECTOR DETAIL

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SIGNAL HEAD CHART

FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	●	●		●
6-1, 6-2, 6-3	●	●		●
8-1, 8-2	→	→		→
8-3, 8-4	←	←		←

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
-FYA DENOTES FLASHING YELLOW ARROW

LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION
D1-1	2-6x6	20 & 50
D1-2	2-6x6	5 & 35
D2-1, D2-2	6x6	120
D6-1, D6-2	6x6	475
D8-1, D8-2	6x6	120
D8-3	2-6x6	0 & 15
D8-4	2-6x6	5 & 20

-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

N

0 20 40
SCALE IN FEET

4" CONDUIT
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM.)
*1-3/C #20
1-1/C #6 INS.GR.

4" CONDUIT
5-12/C #14
*2-3/C #14
1-3/C #14 (LUM.)
2-2/C #14
*2-3/C #20
1-1/C #6 INS.GR.

2" CONDUIT
2-2/C #14

MATCH LINE "B"
SEE SHEET 499

TH 61 NB
(30 M.P.H.)

TH 61 SB
(30 M.P.H.)

TH 61/63 NB
(55 M.P.H.)

TH 61/63 SB
(55 M.P.H.)

MATCH LINE "A"
SEE SHEET 498

*Ø8 EVP

Ø1+Ø6 EVP*

*Ø2 EVP

D1-2 D1-1

D2-2 D2-1

2" CONDUIT
1-6PR #19

2" CONDUIT
2-2/C #14
**1-6PR #19

4" CONDUIT
1-12/C #14
2-2/C #14
**1-6PR #19
1-1/C #6 INS.GR.

4" CONDUIT
5-12/C #14
*2-3/C #14
1-3/C #14 (LUM.)
4-2/C #14
*2-3/C #20
1-1/C #6 INS.GR.

4" CONDUIT
1-12/C #14
3-2/C #14
**1-6PR #19
1-1/C #6 INS.GR.

2" CONDUIT
2-2/C #14
*1-3/C #20
1-1/C #6 INS.GR.

TH 63 NB

TH 63 SB

D8-1 D8-2 D8-3 D8-4

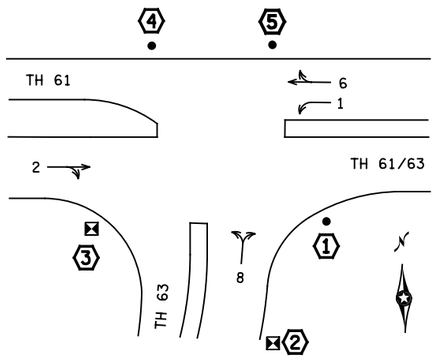
31' 106 107

12' 12'

E. 3RD ST.

Ø8 EVP DETECTOR*

CONTROLLER PHASING



SYSTEM ID NO:
TE NO:
METER ADDRESS:

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE, WITH PHASES 1 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NOTES:
1. SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
2. THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS, EQUIPMENT PAD, AND PEDESTRIAN CURB RAMPS SHALL BE VERIFIED IN THE FIELD BY MNDOT TRAFFIC OFFICE PERSONNEL.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
4. FOR TYPE D SIGNS, SEE DETAIL SHEET. ALL SIGNS INSTALLED ON SIGNAL EQUIPMENT REQUIRED ARE INCIDENTAL.
5. FOR PAVEMENT MARKINGS, SEE SIGNING AND STRIPING PLANS.
6. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
7. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
8. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
9. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTRECONNECT PAY ITEM.
10. SEE SHEET 498 FOR INTERSECTION NOTES.

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: ADRIAN S. POTTER

Date _____ License # 42785

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

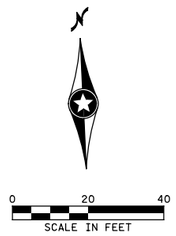
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY M. BRESSLER
DESIGNED BY M. BRESSLER
CHECKED BY A. POTTER
COMM. NO. 0158933

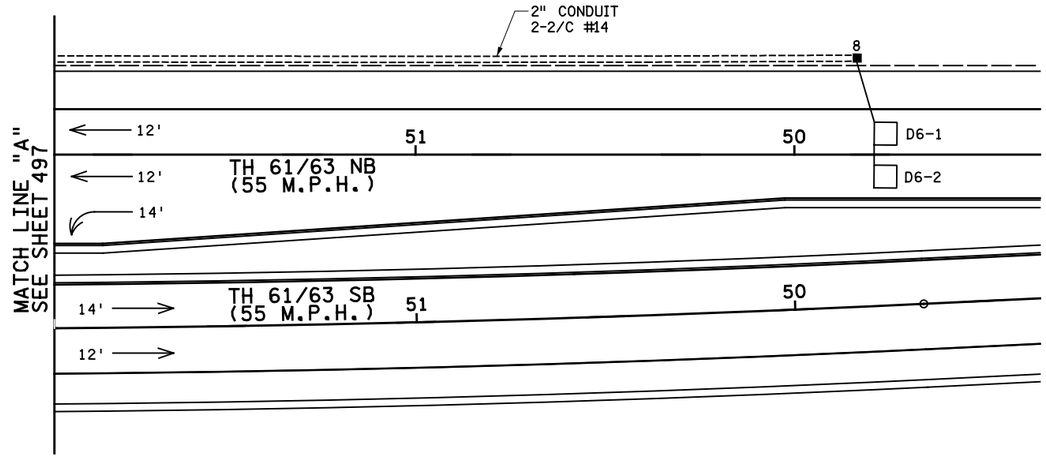
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ENGINEERS PLANNERS DESIGNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL PLANS
SP 2515-21 (TH 63)
INTERSECTION LAYOUT

SHEET 497 OF 688



NOTES:
1. SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
2. THE EXACT LOCATION OF HANDHOLES AND LOOP DETECTORS SHALL BE VERIFIED IN THE FIELD BY MNDOT TRAFFIC OFFICE PERSONNEL.
3. FOR PAVEMENT MARKINGS, SEE SIGNING AND STRIPING PLANS.
4. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
5. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
6. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
7. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTRECONNECT PAY ITEM.



INTERSECTION NOTES

(1) PA100 POLE FOUNDATION
TYPE PA100-A-40-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'
1-ANGLE MOUNT SIGNAL AT 180 DEG
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2)
LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
1-TYPE D SIGN (D-3) (SEE SIGN DETAILS)
2-R9-3 SIGNS FACING POLE 5 AND PEDESTAL 3
3" CONDUIT TO HH 1:
2-12/C #14
* 1-3/C #14
1-3/C #14 (LUM)
* 1-3/C #20
1-1/C #6 INS. GR.

(2) PEDESTAL FOUNDATION
13' PEDESTAL POLE PLUS BASE
* 1-ONE WAY EVP DETECTOR (PHASE 8)
3" CONDUIT TO HH 2:
* 1-3/C #20
1-1/C #6 INS. GR.

(3) PEDESTAL FOUNDATION
13' PEDESTAL POLE PLUS BASE
1-STRAIGHT MOUNT SIGNAL AT 180 DEG
2-R9-3 SIGNS FACING POLE 1 AND POLE 4
3" CONDUIT TO HH 4:
1-12/C #14
1-1/C #6 INS. GR.

(A) EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET (SSB)
INSTALL-CONTROLLER AND CABINET (STATE FURNISHED)
4" CONDUIT TO HH 10:
3-12/C #14
* 1-3/C #14
* 1-3/C #20
1-1/C #6 INS.GR.
4" CONDUIT TO HH 1:
1-12/C #14
5-2/C #14
* 1-3/C #20
** 1-6PR #19

4" CONDUIT TO HH 10:
2-12/C #14
* 1-3/C #14
4-2/C #14
* 1-3/C #20
4" CONDUIT TO HH 1:
2-12/C #14
* 1-3/C #14
1-2/C #14
* 1-3/C #20
1-1/C #6 INS. GR.

GROUND WIRE AND GROUND ROD - MIN 8' OUT FROM PAD
2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS
1 1/2" CONDUIT STUBBED OUT (FOR TELEPHONE LINE/FIBER)
CONTROLLER CABINET TO SERVICE CABINET:
2" CONDUIT
2-1/C #6
1-1/C #6 INS. GR.
CONTROLLER CABINET TO SERVICE CABINET (COMMS):
2" CONDUIT
1-6PR #19
SERVICE CABINET TO HH-11 TO WOOD POLE:
2" CONDUIT
3-1/C #2
SERVICE CABINET TO HH 10:
2" CONDUIT
2-3/C #14 (LUM)
SERVICE CABINET TO EXTERNAL GR. RD.:
1" CONDUIT
1-1/C #6 INS. GR.
(SEE EQUIPMENT PAD LAYOUT)
HH 10 TO HH 1:
2" CONDUIT
1-3/C #14 (LUM)

(4) PA100 POLE FOUNDATION
TYPE PA100-A-40-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23'
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)
LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
1-R10-X12 SIGN ADJACENT TO HEAD (1-1)
1-TYPE D SIGN (D-2) (SEE SIGN DETAILS)
1-R9-3 SIGN FACING PEDESTAL 3
3" CONDUIT TO HH 6:
3-12/C #14
* 1-3/C #14
1-3/C #14 (LUM)
* 1-3/C #20
1-1/C #6 INS. GR.

(5) PA90 POLE FOUNDATION
TYPE PA90-A-30
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 17'
1-ANGLE MOUNT SIGNAL AT 180 DEG
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 8)
1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
1-R9-3 SIGN FACING POLE 1
3" CONDUIT TO HH 7:
2-12/C #14
* 1-3/C #14
* 1-3/C #20
1-1/C #6 INS. GR.

(B) SOP-WOOD POLE
2" CONDUIT INTO HH-11 INTO SERVICE CABINET:
3-1/C #2

SYSTEM ID NO:
TE NO:
METER ADDRESS:

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: ADRIAN S. POTTER
Date _____ License # 42785

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MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

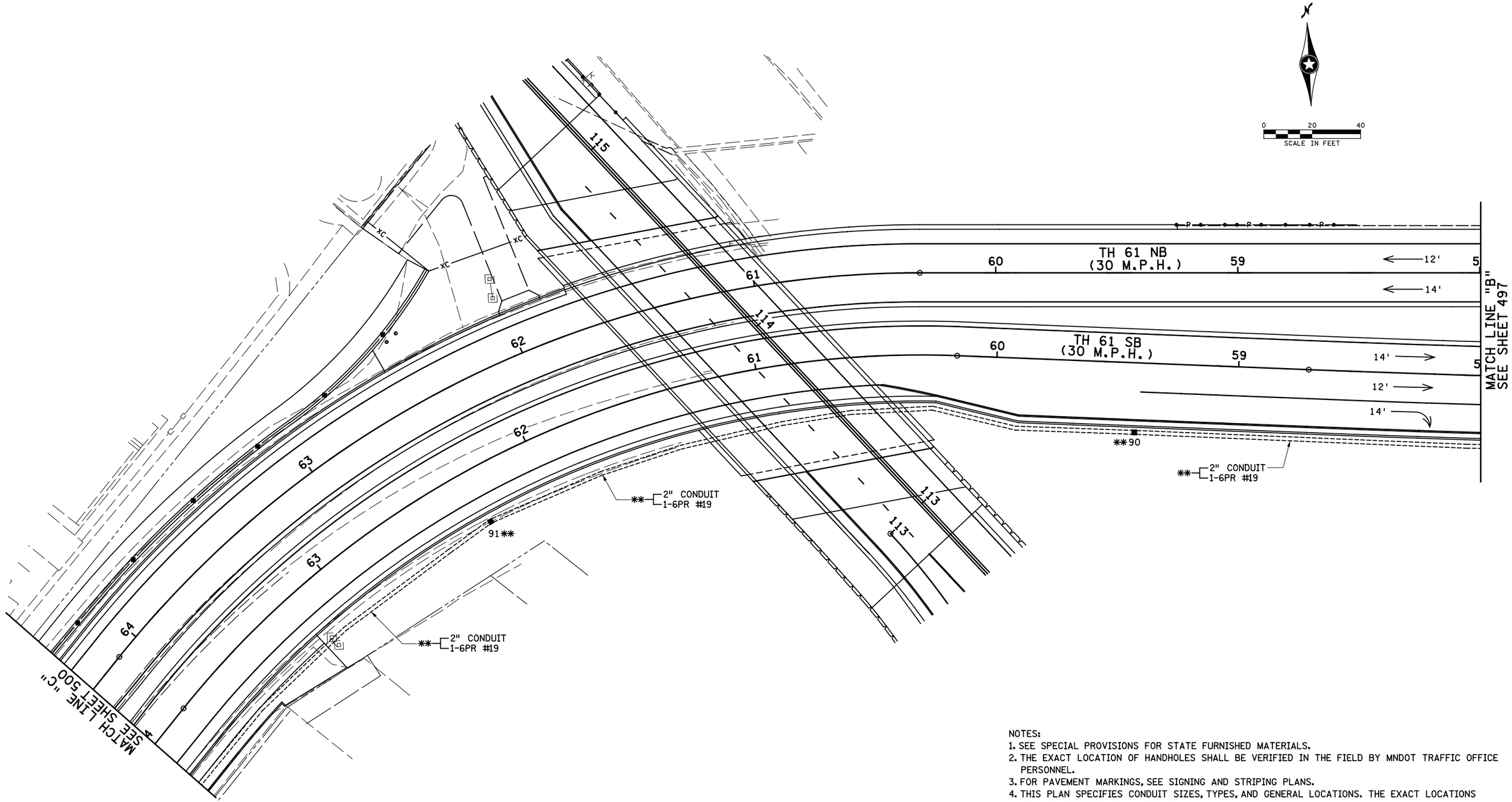
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DESIGNED BY M. BRESSLER
CHECKED BY A. POTTER
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL PLANS
SP 2515-21 (TH 63)
MATCH LINE LAYOUT/INTERSECTION NOTES

SHEET 498 OF 688

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NOTES:
1. SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
2. THE EXACT LOCATION OF HANDHOLES SHALL BE VERIFIED IN THE FIELD BY MNDOT TRAFFIC OFFICE PERSONNEL.
3. FOR PAVEMENT MARKINGS, SEE SIGNING AND STRIPING PLANS.
4. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
5. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
6. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTRECONNECT PAY ITEM.

NO	DATE	BY	CKD	APPR	REVISION
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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY M. BRESSLER

CHECKED BY A. POTTER

COMM. NO. 0158933

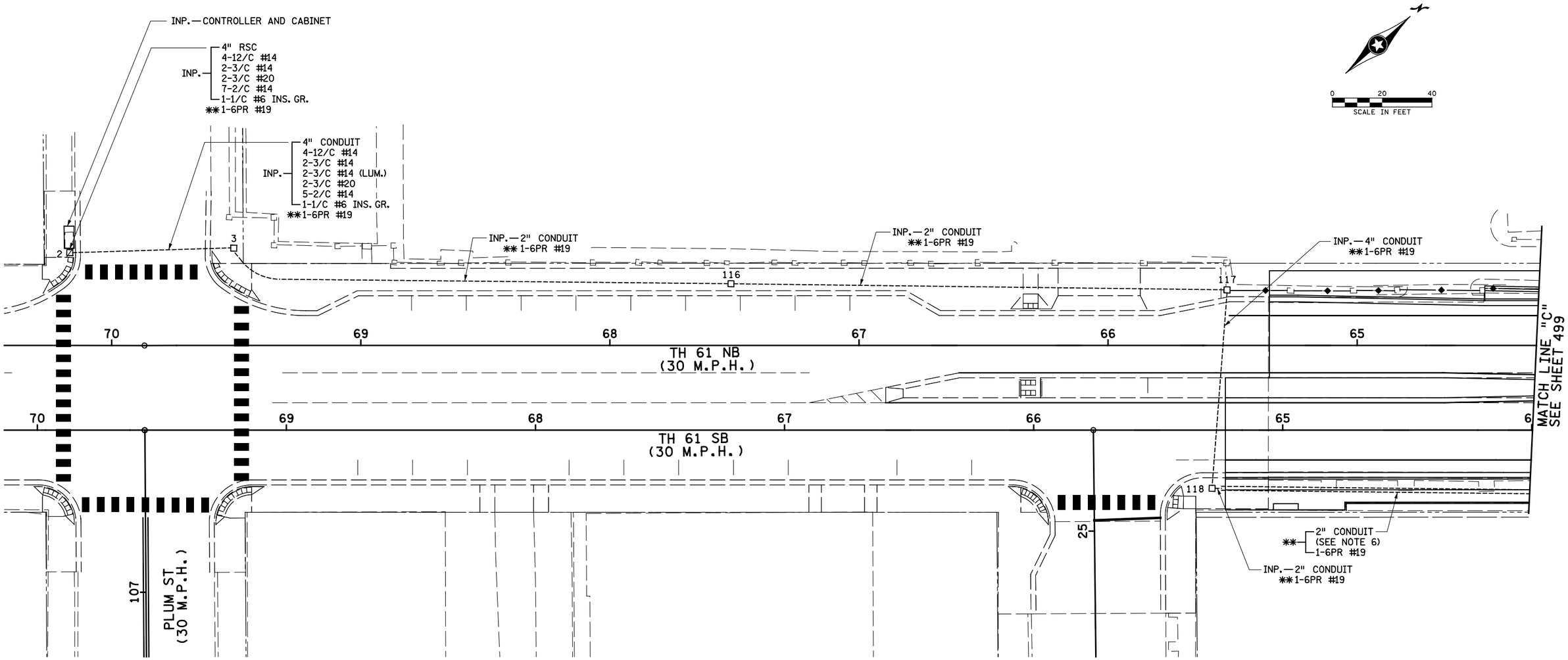
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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL PLANS
SP 2515-21 (TH 63)
INTERCONNECT LAYOUT

SHEET 499 OF 688

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NOTES:
1. SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
2. FOR PAVEMENT MARKINGS, SEE SIGNING AND STRIPING PLANS.
3. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
4. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
5. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTRECONNECT PAY ITEM.
6. EXTEND 2" CONDUIT INTO EXISTING 2" CONDUIT STUB OUT.

NO	DATE	BY	CKD	APPR	REVISION
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DESIGNED BY M. BRESSLER

CHECKED BY A. POTTER

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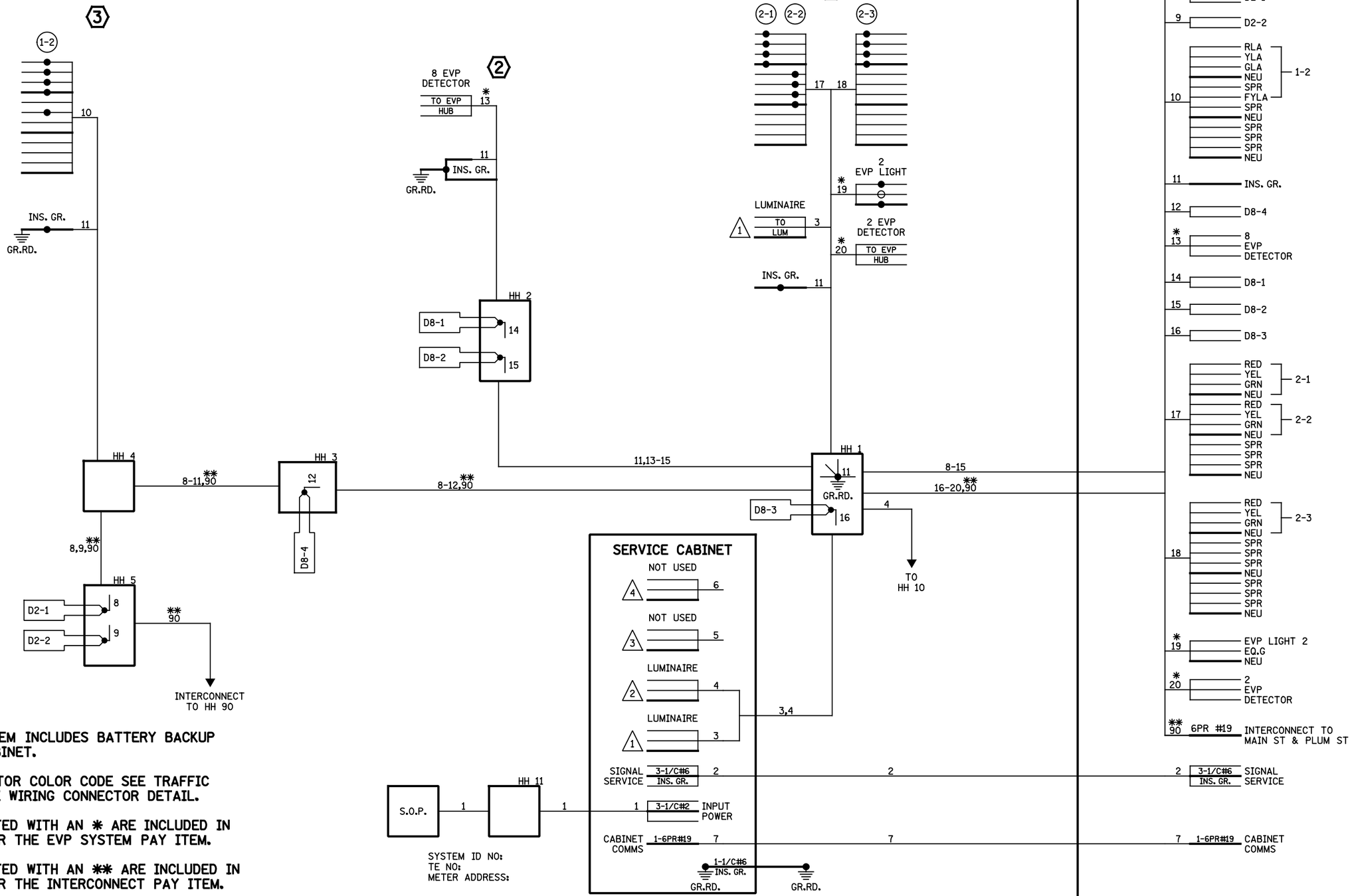
TRAFFIC SIGNAL PLANS

SP 2515-21 (TH 63)

INTERCONNECT LAYOUT

SHEET 500 OF 688

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NOTES:

1. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET.
2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
3. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
4. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT PAY ITEM.

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DESIGNED BY M. BRESSLER

CHECKED BY A. POTTER

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TRAFFIC SIGNAL PLANS

SP 2515-21 (TH 63)

FIELD WIRING DIAGRAM (1 OF 2)

SHEET 501 OF 688

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CONTROLLER CABINET

6-1: RED, YEL, GRN, NEU
6-2: RED, YEL, GRN, NEU, SPR, SPR, SPR, NEU → 21
1-1: RLA, YLA, GLA, NEU, SPR, FYLA, SPR, NEU → 22
6-3: RED, YEL, GRN, NEU
8-4: RLA, YLA, GLA, NEU, SPR, SPR, SPR, SPR, NEU, SPR, SPR, SPR, NEU → 23
1+6 EVP LIGHT, EQ.G, NEU → * 24
1+6 EVP DETECTOR → * 25
INS. GR. → 26
8-1: RRA, YRA, GRA, NEU
8-2: RRA, YRA, GRA, NEU, SPR, SPR, SPR, NEU → 27
8-3: RLA, YLA, GLA, NEU, SPR, SPR, SPR, NEU, SPR, SPR, SPR, NEU → 28
8 EVP LIGHT, EQ.G, NEU → * 29
8 EVP DETECTOR → * 30
D6-1 → 31
D6-2 → 32
D1-1 → 33
D1-2 → 34

21-26
27-34

HH 10
4
FROM HH 1

4,21-34

HH 9
33, 34
D1-1
D1-2

4,21-32

HH 7
26
GR.RD.
27, 28
8-1, 8-2, 5, 8-3
8 EVP LIGHT * 29
8 EVP DETECTOR * 30
TO EVP HUB
INS. GR. 26
31,32

HH 8
31, 32
D6-1
D6-2

4,21-26

HH 6
26
GR.RD.
6-1, 6-2, 4, 1-1, 6-3
21, 22
8-4
1+6 EVP LIGHT * 24
1+6 EVP DETECTOR * 25
TO EVP HUB
23
LUMINAIRE
2 TO LUM 4
INS. GR. 26

SYSTEM ID NO:
TE NO:
METER ADDRESS:

NOTES:

1. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET.
2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
3. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.

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WISCONSIN PROJECT I.D. 7210-00-78

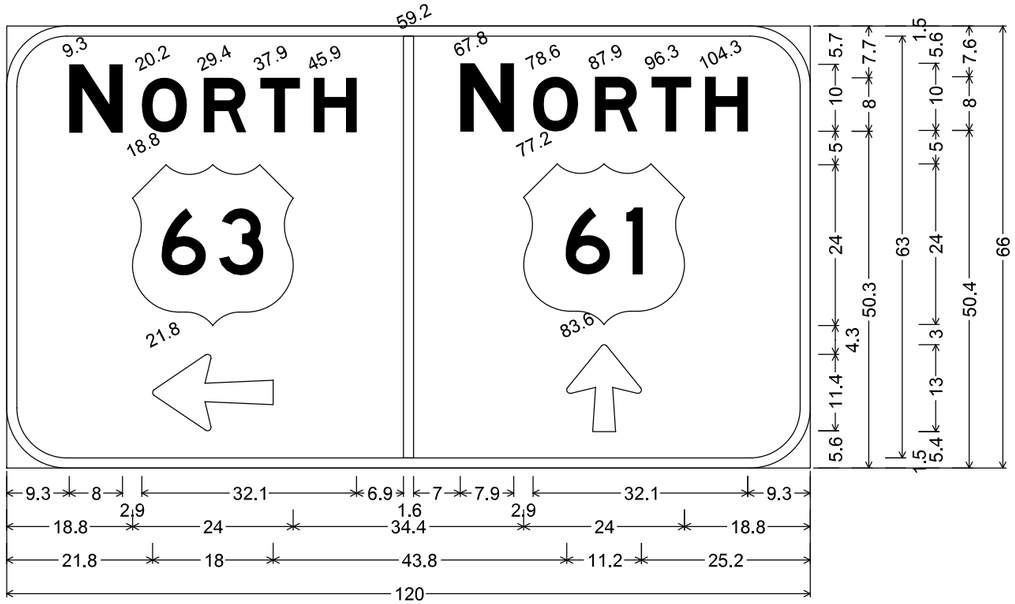
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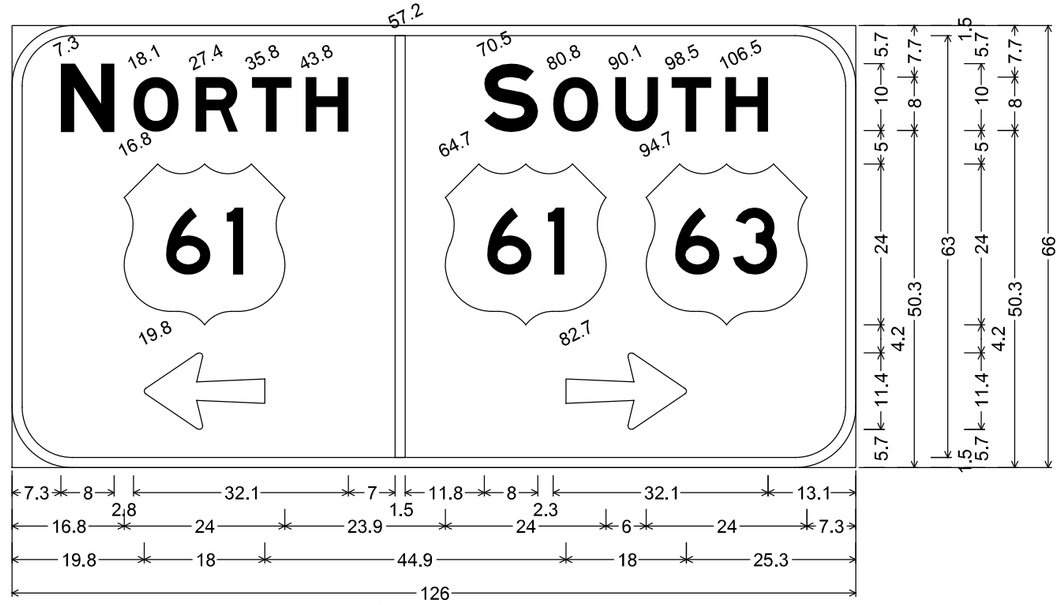
MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL PLANS
SP 2515-21 (TH 63)
FIELD WIRING DIAGRAM (2 OF 2)

SHEET 502 OF 688

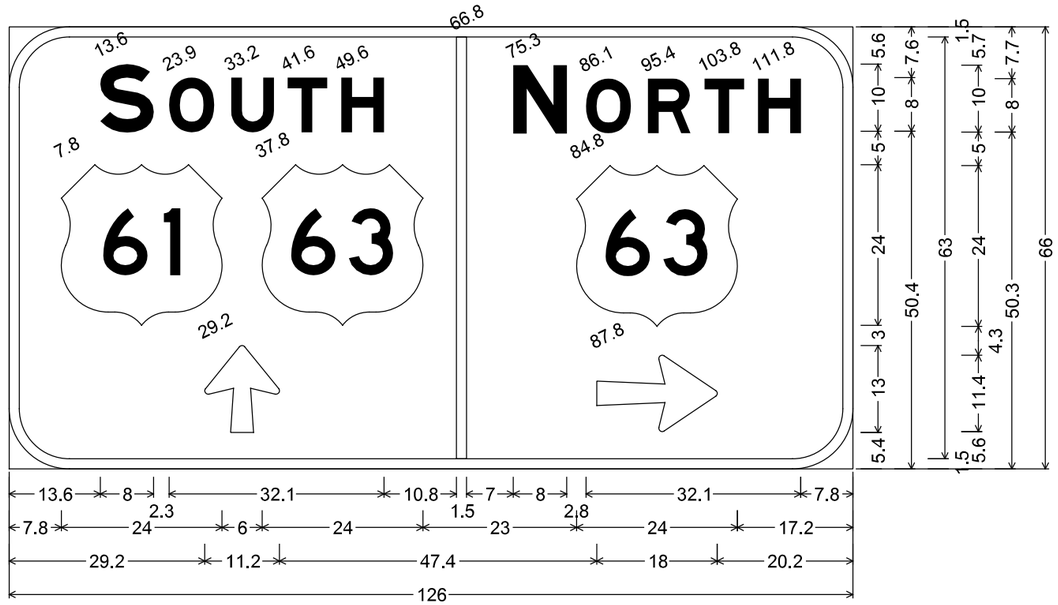
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D-1; 9.0" Radius, 1.5" Border, White on Green;
[NORTH] E Mod; Arrow 14 - 18.0" 180°; [NORTH] E Mod; Arrow 5 - 13.0" 90°;



D-2; 9.0" Radius, 1.5" Border, White on Green;
[NORTH] E Mod; Arrow 14 - 18.0" 180°; [SOUTH] E Mod; Arrow 14 - 18.0" 0°;



D-3; 9.0" Radius, 1.5" Border, White on Green;
[SOUTH] E Mod; Arrow 5 - 13.0" 90°; [NORTH] E Mod; Arrow 14 - 18.0" 0°;

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WISCONSIN PROJECT I.D. 7210-00-78

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DESIGNED BY M. BRESSLER

CHECKED BY A. POTTER

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL PLANS

SP 2515-21 (TH 63)

MAST ARM SIGN DETAILS (1 OF 2)

SHEET 503 OF 688

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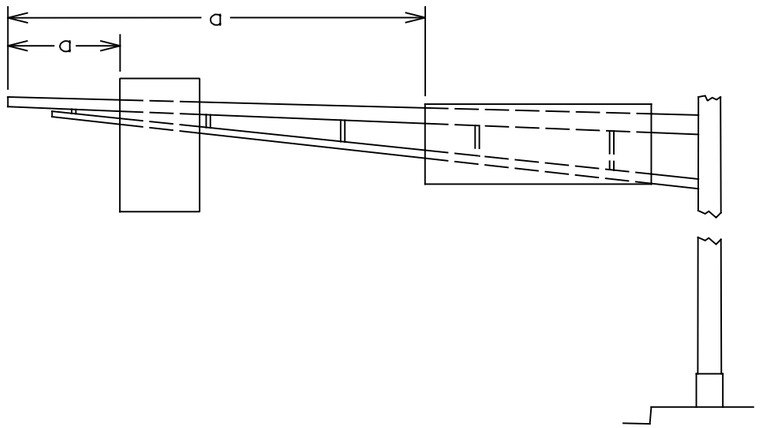
MAST ARM MOUNTED SIGNS

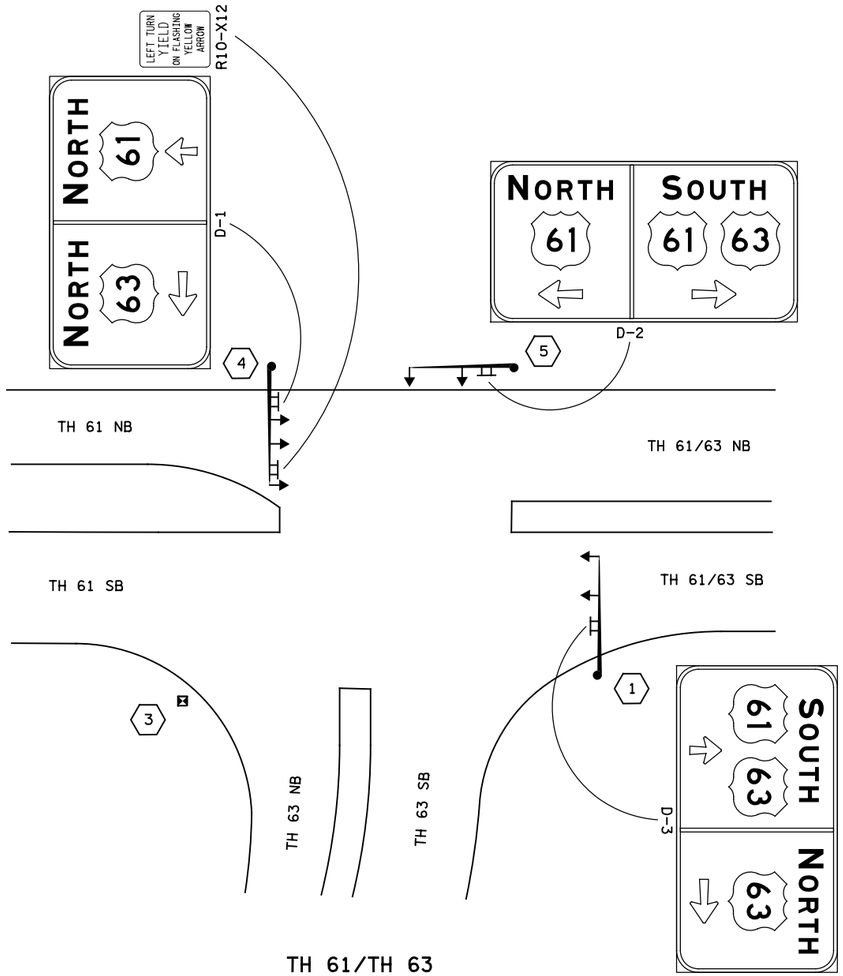
SIGN NO	POLE NO	QTY	a	PANEL SIZE	PANEL AREA	PANEL TOTAL AREA	MOUNTING NUMBER	MOUNTING SPACING (1)	PANEL LEGEND
			FEET	INCH	SQ FT	SQ FT			
D-1	4	1	28	120 x 66	55.00	55.00	5	24	NORTH US 63 LEFT ARROW/ NORTH US 61 UP ARROW
D-2	5	1	18	126 x 66	57.75	57.75	5	24	NORTH US 61 LEFT ARROW/ SOUTH US 61/US 63 RIGHT ARROW
D-3	1	1	18	126 x 66	57.75	57.75	5	24	SOUTH US 61/US 63 UP ARROW/ NORTH US 63 RIGHT ARROW
R10-X12	4	1	2	42 x 48	14.00	14.00	2	24	LEFT TURN YIELD ON FLASHING YELLOW ARROW

SPECIFIC NOTES:
(1) SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED.
SEE STANDARD SIGNS MANUAL, PAGE 105A FOR BRACKET SPACING REQUIREMENTS.

GENERAL NOTES:
1. CORNERS OF STANDARD SIGN PANELS WITH MARGINS SHALL BE TRIMMED.
2. TYPE D SIGN PANELS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
3. FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS SEE STANDARD SIGNS MANUAL, PAGE 105A.
4. FOR TYPE D STRINGER AND PANEL JOINT DETAILS SEE STANDARD SIGNS MANUAL, PAGE 105.
5. THE MAST ARM MOUNTED SIGNS ARE INCIDENTAL.
6. AT INTERSECTIONS WITH MEDIAN WIDTHS LESS THAN 30', ONE WAY (R6-1) SIGNS SHALL NOT BE PLACED AS PART OF THE SIGNALS PLAN.

MAST ARM SIGN LOCATION





TH 61/TH 63
SIGN LAYOUT

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: ADRIAN S. POTTER
Date _____ License # 42785

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY M. BRESSLER
DESIGNED BY M. BRESSLER
CHECKED BY A. POTTER
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL PLANS
SP 2515-21 (TH 63)
MAST ARM SIGN DETAILS (2 OF 2)

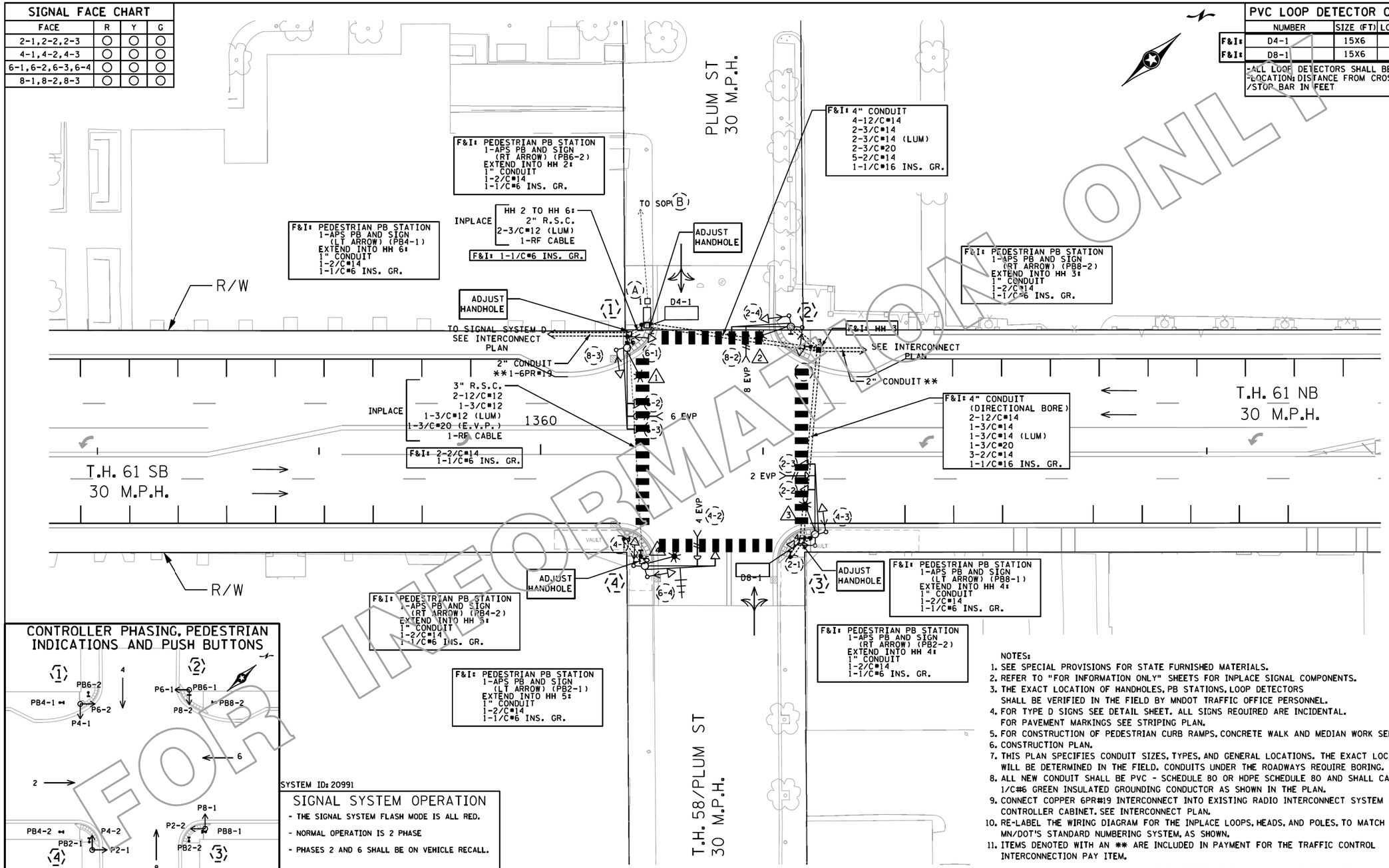
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SIGNAL FACE CHART			
FACE	R	Y	G
2-1,2-2,2-3	○	○	○
4-1,4-2,4-3	○	○	○
6-1,6-2,6-3,6-4	○	○	○
8-1,8-2,8-3	○	○	○

PVC LOOP DETECTOR CHART			
	NUMBER	SIZE (FT)	LOCATION
F&I:	D4-1	15X6	5
F&I:	D8-1	15X6	5

-ALL LOOP DETECTORS SHALL BE PVC
-LOCATION: DISTANCE FROM CROSSWALK /STOP BAR IN FEET



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SYSTEM ID: 20991

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 2 PHASE
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NOTES:
1. SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
2. REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
3. THE EXACT LOCATION OF HANDHOLES, PB STATIONS, LOOP DETECTORS SHALL BE VERIFIED IN THE FIELD BY MNDOT TRAFFIC OFFICE PERSONNEL.
4. FOR TYPE D SIGNS SEE DETAIL SHEET. ALL SIGNS REQUIRED ARE INCIDENTAL. FOR PAVEMENT MARKINGS SEE STRIPING PLAN.
5. FOR CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK SEE
6. CONSTRUCTION PLAN.
7. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
8. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
9. CONNECT COPPER 6PR#19 INTERCONNECT INTO EXISTING RADIO INTERCONNECT SYSTEM IN CONTROLLER CABINET. SEE INTERCONNECT PLAN.
10. RE-LABEL THE WIRING DIAGRAM FOR THE INPLACE LOOPS, HEADS, AND POLES, TO MATCH MN/DOT'S STANDARD NUMBERING SYSTEM, AS SHOWN.
11. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.

FOR INFORMATION ONLY

SCALE 0 20 40 FEET

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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.
ROSS B. TILLMAN
LIC. NO. 51632 DATE 11-20-2014

DESIGNED JMM
DRAWN JMM
CHECKED BTN

BOLTON & MENK, INC.
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN WILLMAR, MN CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

REV.	BY	DATE

REVISE SIGNAL SYSTEM E
~~S.P. 2514-122, S.A.P. 156-010-007~~
T.H. 61 RECONSTRUCTION
~~SIGNAL PLAN~~

SHEET 246 OF 376

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MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

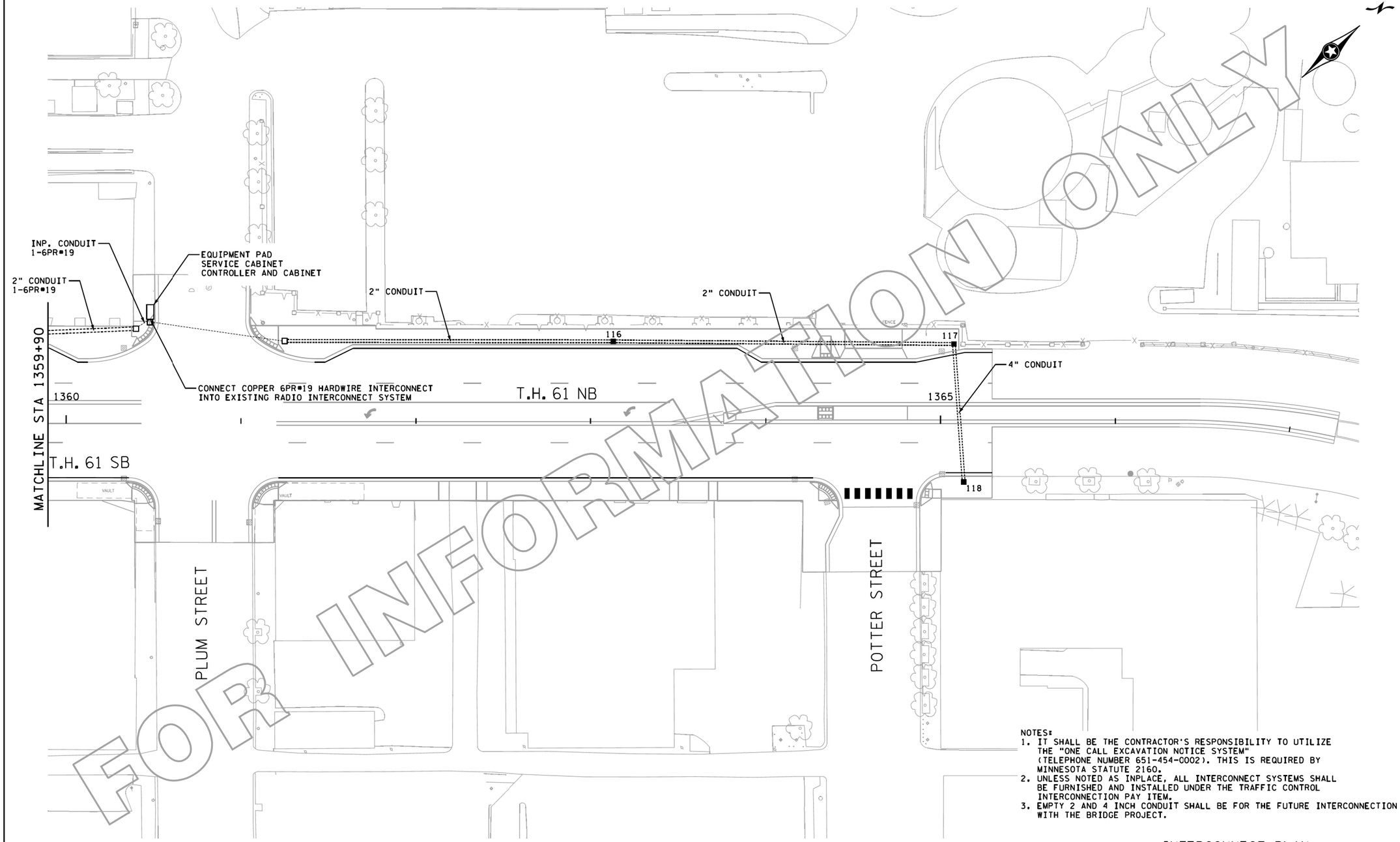
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MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL PLANS
SP 2515-21 (TH 63)
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SHEET 505 OF 688

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FOR INFORMATION ONLY

NOTES:
1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002). THIS IS REQUIRED BY MINNESOTA STATUTE 216D.
2. UNLESS NOTED AS INPLACE, ALL INTERCONNECT SYSTEMS SHALL BE FURNISHED AND INSTALLED UNDER THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
3. EMPTY 2 AND 4 INCH CONDUIT SHALL BE FOR THE FUTURE INTERCONNECTION WITH THE BRIDGE PROJECT.

INTERCONNECT PLAN

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ROSS B. TILLMAN
LIC. NO. 51692 DATE 11-20-2014

DESIGNED JMM
DRAWN JMM
CHECKED BTN

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CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN
AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

REV.	BY	DATE

S.P. 2514-122, S.A.P. 156-010-007
T.H. 61 RECONSTRUCTION
SIGNAL PLAN

SHEET 257 OF 376

NO	DATE	BY	CKD	APPR	REVISION

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MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY
DESIGNED BY
CHECKED BY
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL PLANS
SP 2515-21 (TH 63)
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SHEET 506 OF 688

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LEGEND

■	PROPOSED CATCH BASIN	——>——	PROPOSED STORM SEWER/CULVERT
□	EXISTING CATCH BASIN	——>——	EXISTING STORM SEWER/CULVERT
◄	PROPOSED APRON	———	PROPOSED CONTOUR
DI ●	PROPOSED DROP INLET	— — — —	EXISTING CONTOUR
●	PROPOSED MANHOLE	X 839	SPOT ELEVATION
➡	DIRECTION OF FLOW		

0 25 50
SCALE IN FEET

NOTES:

Ⓐ SEE CROSS SECTIONS FOR GRADING ADJACENT TO PROPOSED ROADWAYS AND BRIDGES.

GENERAL NOTES:

SEE SHEET 508 FOR GENERAL NOTES.

E 4TH ST
SANDERSON ST
℄ 4TH ST
℄ BLUFF ST
℄ CUL DE SAC
E 3RD ST
℄ TH 63
EX R/W
TE
PROP R/W
RWALL 1

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION
CONTOUR PLANS
SP 2515-21 (TH 63)

SHEET 507 OF 688

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GENERAL NOTES:

CONTOURS SHOWN ARE TO FINISHED GRADE. (TOP OF SLOPE DRESSING)

NOTES:

(A) SEE CROSS SECTIONS FOR GRADING ADJACENT TO PROPOSED ROADWAYS AND BRIDGES.

℄ TH 63

℄ TH 63-SLIP

℄ BLUFF ST

PROP R/W

℄ SB TH 61

℄ NB TH 61

BRIDGE 25035

BRIDGE NO 25034

℄ ACCESS

RWALL 1

RWALL 5

RWALL 6

TE

EX R/W

EX R/W

EX R/W

EX R/W

LEGEND

■	PROPOSED CATCH BASIN	——>——	PROPOSED STORM SEWER/CULVERT
□	EXISTING CATCH BASIN	——>——	EXISTING STORM SEWER/CULVERT
◄	PROPOSED APRON	———	PROPOSED CONTOUR
DI ●	PROPOSED DROP INLET	— — — —	EXISTING CONTOUR
●	PROPOSED MANHOLE	X 839	SPOT ELEVATION
➡	DIRECTION OF FLOW		

0 25 50
SCALE IN FEET

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Print Name: CRAIG J. HASS

Date _____ License # 45039

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MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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ENGINEERS PLANNERS DESIGNERS

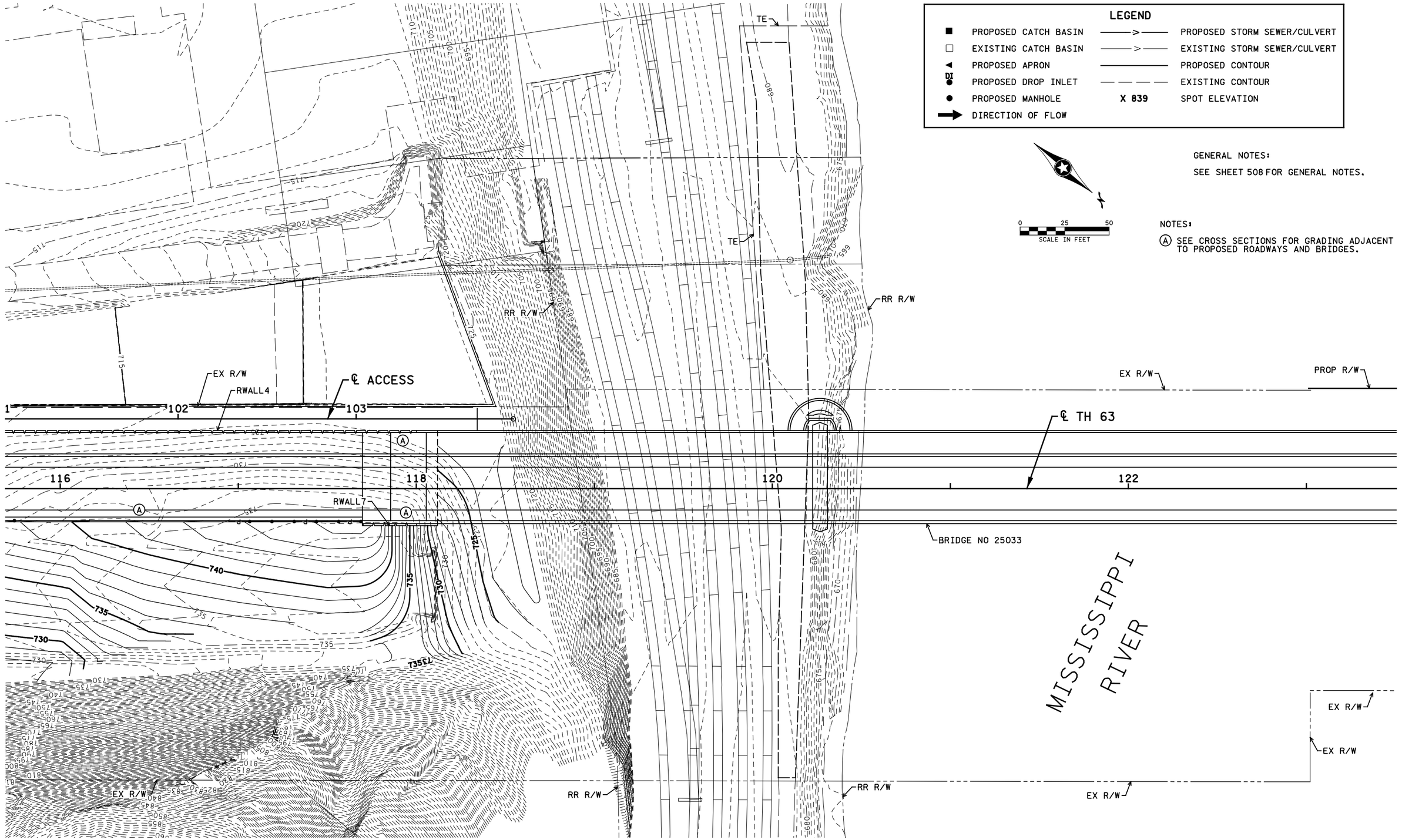
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CONTOUR PLANS

SP 2515-21 (TH 63)

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

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CONTOUR PLANS

SP 2515-21 (TH 63)

SHEET 509 OF 688

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GENERAL NOTES:

SEE SHEET 508 FOR GENERAL NOTES.

LEGEND

■	PROPOSED CATCH BASIN	——>——	PROPOSED STORM SEWER/CULVERT
□	EXISTING CATCH BASIN	——>——	EXISTING STORM SEWER/CULVERT
◄	PROPOSED APRON	———	PROPOSED CONTOUR
DI ●	PROPOSED DROP INLET	— — — —	EXISTING CONTOUR
●	PROPOSED MANHOLE	X 839	SPOT ELEVATION
➡	DIRECTION OF FLOW		

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SCALE IN FEET

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BRIDGE NO 25033
EX R/W
EX R/W
TE
TE
MISSISSIPPI RIVER
675
670
680

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS
DESIGNED BY A. EMERSON
CHECKED BY C. HASS
COMM. NO. 0158933

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CONTOUR PLANS
SP 2515-21 (TH 63)

SHEET 510 OF 688

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NOTES:

(A) SEE CROSS SECTIONS FOR GRADING ADJACENT TO PROPOSED ROADWAYS AND BRIDGES.

GENERAL NOTES:

SEE SHEET 508 FOR GENERAL NOTES.

0 25 50
SCALE IN FEET

℄ 825TH ST W

℄ TH 63

℄ 825TH ST E

BRIDGE NO 25033

LEGEND

■	PROPOSED CATCH BASIN	——>——	PROPOSED STORM SEWER/CULVERT
□	EXISTING CATCH BASIN	——>——	EXISTING STORM SEWER/CULVERT
◄	PROPOSED APRON	———	PROPOSED CONTOUR
DI ●	PROPOSED DROP INLET	— — —	EXISTING CONTOUR
●	PROPOSED MANHOLE	X 839	SPOT ELEVATION
➡	DIRECTION OF FLOW		

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Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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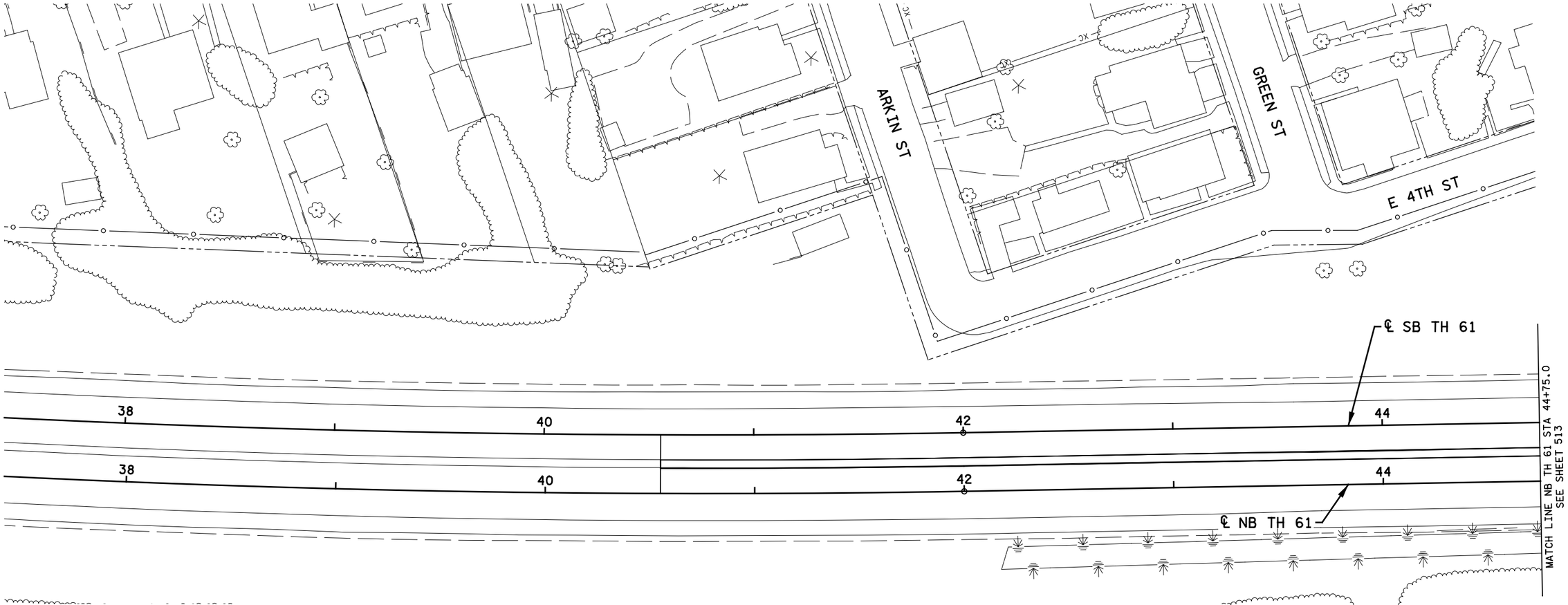
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CONTOUR PLANS

SP 2515-21 (TH 63)

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PLANT SCHEDULE

*FINAL LOCATION AND QUANTITY OF EACH SPECIES TO BE DETERMINED.

SYMBOL	QUANTITY	BOTANICAL NAME	SIZE	ROOT	NOTES
DECIDUOUS TREES (165)					
AG		*Aesculus glabra* **OHIO BUCKEYE**	2" CAL.	B&B	SINGLE STRAIGHT LEADER
CO		*Celtis occidentalis* **COMMON HACKBERRY**	2" CAL.	B&B	SINGLE STRAIGHT LEADER
QM		*Quercus macrocarpa* **BUR OAK**	2" CAL.	B&B	SINGLE STRAIGHT LEADER
QR		*Quercus rubra* **NORTHERN RED OAK**	2" CAL.	B&B	SINGLE STRAIGHT LEADER
UL		*Ulmus americana 'Lewis & Clark'* **PRAIRIE EXPEDITION ELM**	2" CAL.	B&B	SINGLE STRAIGHT LEADER
UN		*Ulmus americana 'New Harmony'* **NEW HARMONY ELM**	2" CAL.	B&B	SINGLE STRAIGHT LEADER
UP		*Ulmus americana 'princeton'* **PRINCETON ELM**	2" CAL.	B&B	SINGLE STRAIGHT LEADER
CONIFEROUS TREES (197)					
PG		*Picea glauca* **BLACK HILLS SPRUCE**	8' HT.	B&B	SINGLE STRAIGHT LEADER
PN		*Pinus resinosa* **RED PINE**	8' HT.	B&B	SINGLE STRAIGHT LEADER

PLANT SCHEDULE (cont.)

*FINAL LOCATION AND QUANTITY OF EACH SPECIES TO BE DETERMINED.

SYMBOL	QUANTITY	BOTANICAL NAME	SIZE	ROOT	NOTES
ORNAMENTAL TREES (29)					
MA		*Malus 'Adams'* **ADAMS CRABAPPLE**	1.5" CAL.	B&B	SINGLE STRAIGHT LEADER
MP		*Malus 'Prairifire'* **FLOWERING CRABAPPLE**	1.5" CAL.	B&B	SINGLE STRAIGHT LEADER
SHRUBS (110)					
CS		*Cornus sericea* **RED OSIER DOGWOOD**	#5 GAL.	CONT.	PLANT 4' O.C.
RA		*Rhus aromatica 'Gro-Low'* **GRO-LOW FRAGRANT SUMAC**	#5 GAL.	CONT.	PLANT 4' O.C.
VL		*Viburnum lentago* **NANNYBERRY**	#5 GAL.	CONT.	PLANT 6' O.C.
DL		*Diervilla lonicera* **DWARF BUSH HONEYSUCKLE**	#5 GAL.	CONT.	PLANT 4' O.C.
AM		*Aronia melanocarpa* **BLACK CHOKEBERRY**	#5 GAL.	CONT.	PLANT 4' O.C.
RT		*Rhus typhina* **STAGHORN SUMAC**	#5 GAL.	CONT.	PLANT 4' O.C.
VINES					
PQ		*Parthenocissus quinquefolia 'engelmannii'* **ENGLEMAN'S IVY**	#5 GAL.	CONT.	PLANT 5' O.C.

NOTE: NO LANDSCAPING CURRENTLY INCLUDED ON THIS SHEET

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SCALE IN FEET

LEGEND

- CONIFEROUS TREE
- DECIDUOUS TREE
- ORNAMENTAL TREE
- DECIDUOUS SHRUB
- TREE GRATE
- STRUCTURAL SOIL (350 CU. FT. PER TREE)
- VINE
- SPECIAL SURFACE TREATMENT (COLORED CONC.)

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: MICHAEL JISCHKE

Date _____ License # 42191

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY R. BURAND
DESIGNED BY R. BURAND
CHECKED BY M. JISCHKE
COMM. NO. 0158933

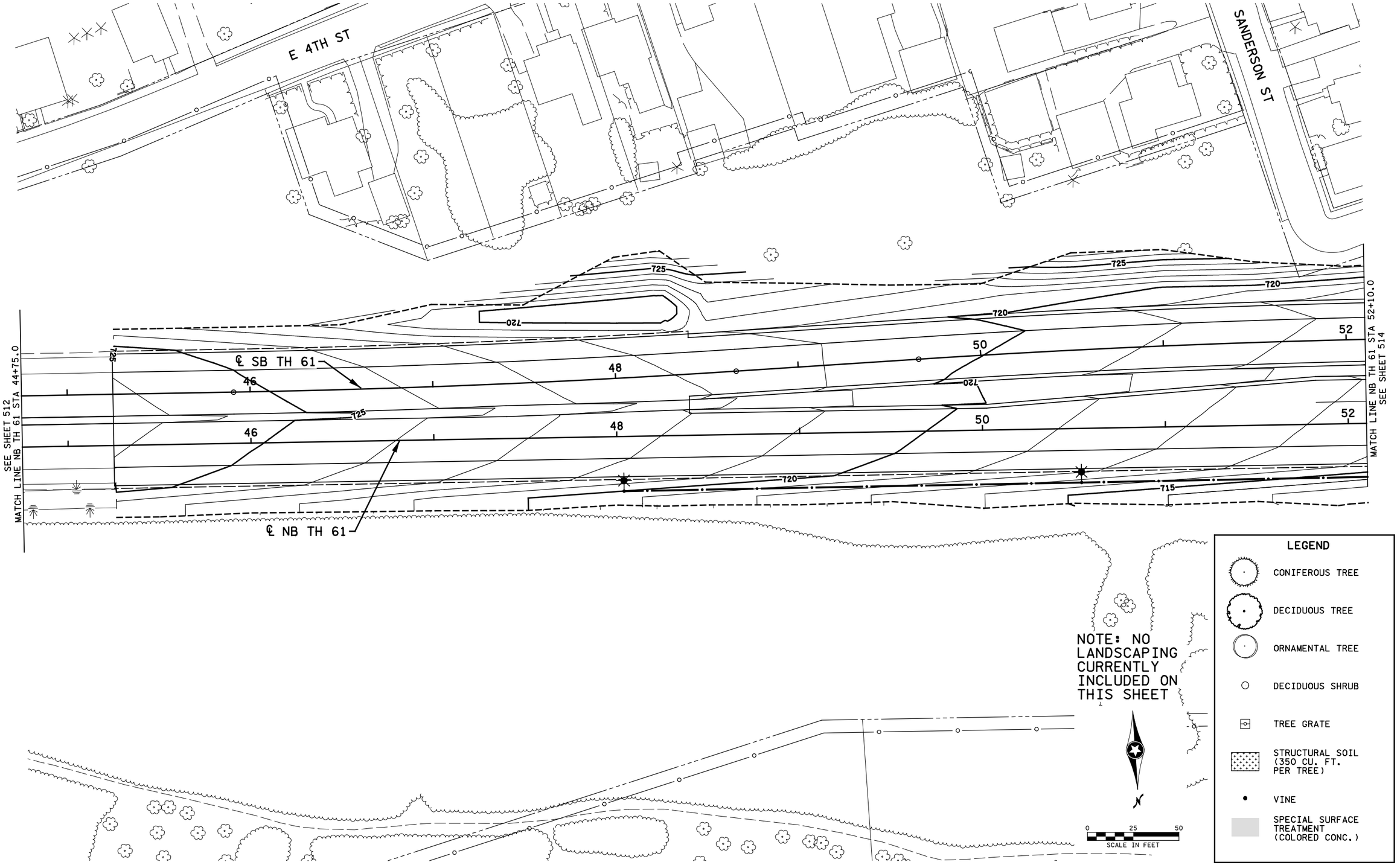
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LANDSCAPE PLANS
SP 2515-21 (TH 63)

SHEET 512 OF 688

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Print Name: MICHAEL JISCHKE

Date _____ License # 42191

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DRAWN BY R. BURAND

DESIGNED BY R. BURAND

CHECKED BY M. JISCHKE

COMM. NO. 0158933

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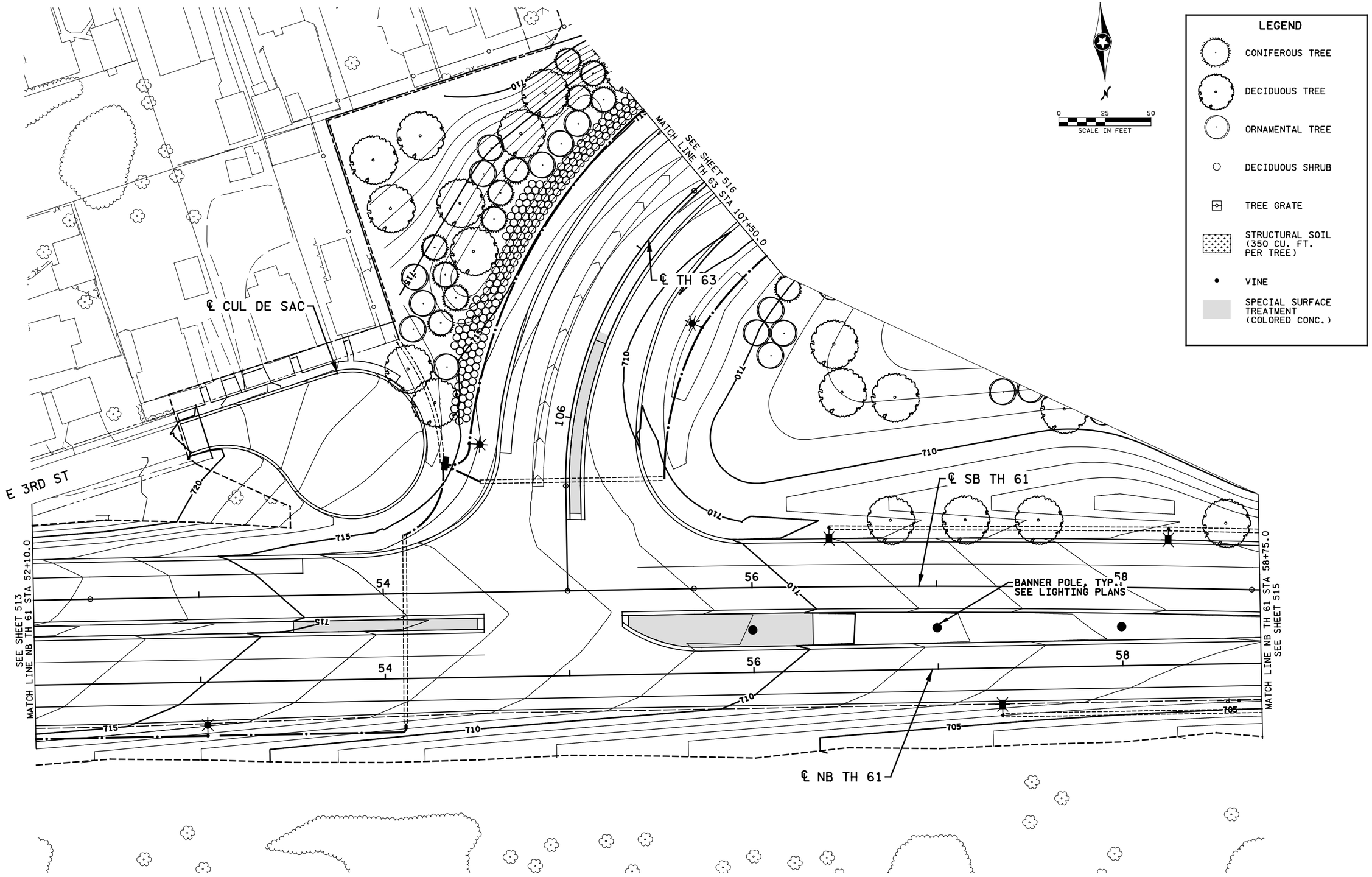
MINNESOTA DEPARTMENT OF TRANSPORTATION

LANDSCAPE PLANS

SP 2515-21 (TH 63)

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Print Name: MICHAEL JISCHKE

Date _____ License # 42191

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DRAWN BY R. BURAND

DESIGNED BY R. BURAND

CHECKED BY M. JISCHKE

COMM. NO. 0158933

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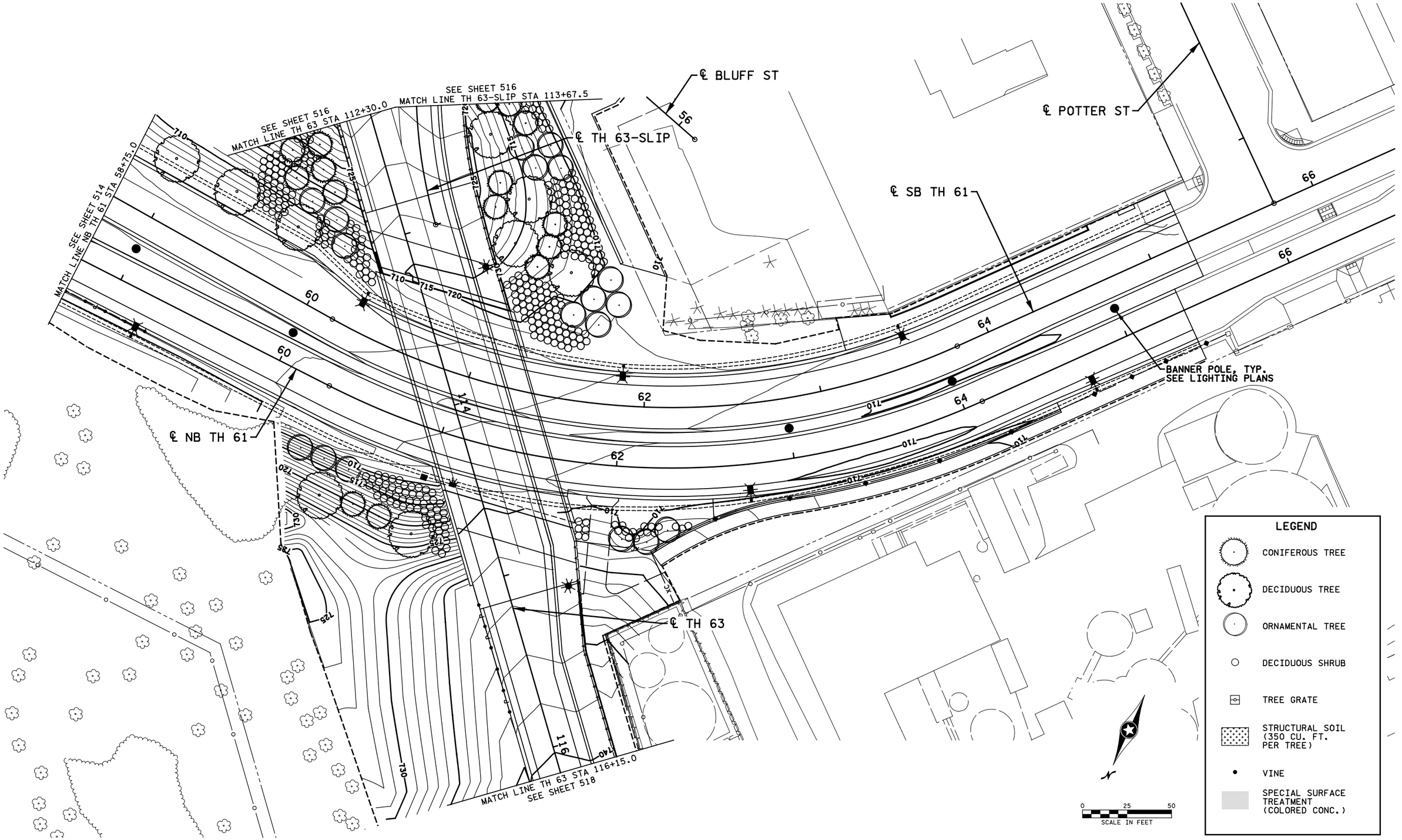
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LANDSCAPE PLANS

SP 2515-21 (TH 63)

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Date _____ License # 42191

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MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	
DRAWN BY	R. BURAND
DESIGNED BY	R. BURAND
CHECKED BY	M. JISCHKE
COMM. NO.	0158933

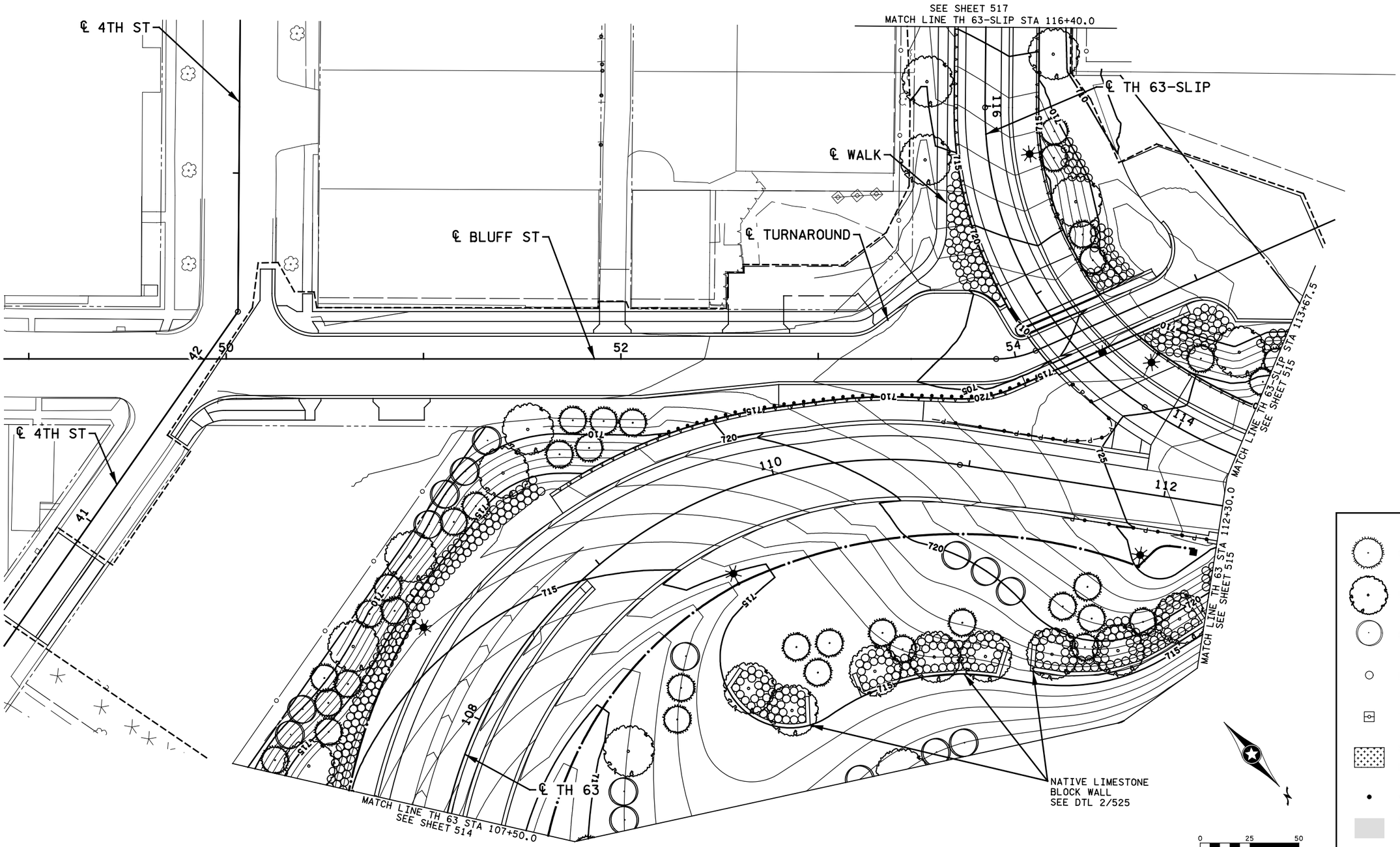
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LANDSCAPE PLANS
SP 2515-21 (TH 63)

SHEET 515 OF 688

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LEGEND

- CONIFEROUS TREE
- DECIDUOUS TREE
- ORNAMENTAL TREE
- DECIDUOUS SHRUB
- TREE GRATE
- STRUCTURAL SOIL (350 CU. FT. PER TREE)
- VINE
- SPECIAL SURFACE TREATMENT (COLORED CONC.)

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: MICHAEL JISCHKE

Date _____ License # 42191

MINNESOTA STATE PROJECT NO. 2515-21	
MINNESOTA STATE PROJECT NO. 2513-91	
WISCONSIN PROJECT I.D. 7210-00-78	
DRAWN BY R. BURAND	
DESIGNED BY R. BURAND	
CHECKED BY M. JISCHKE	
COMM. NO. 0158933	

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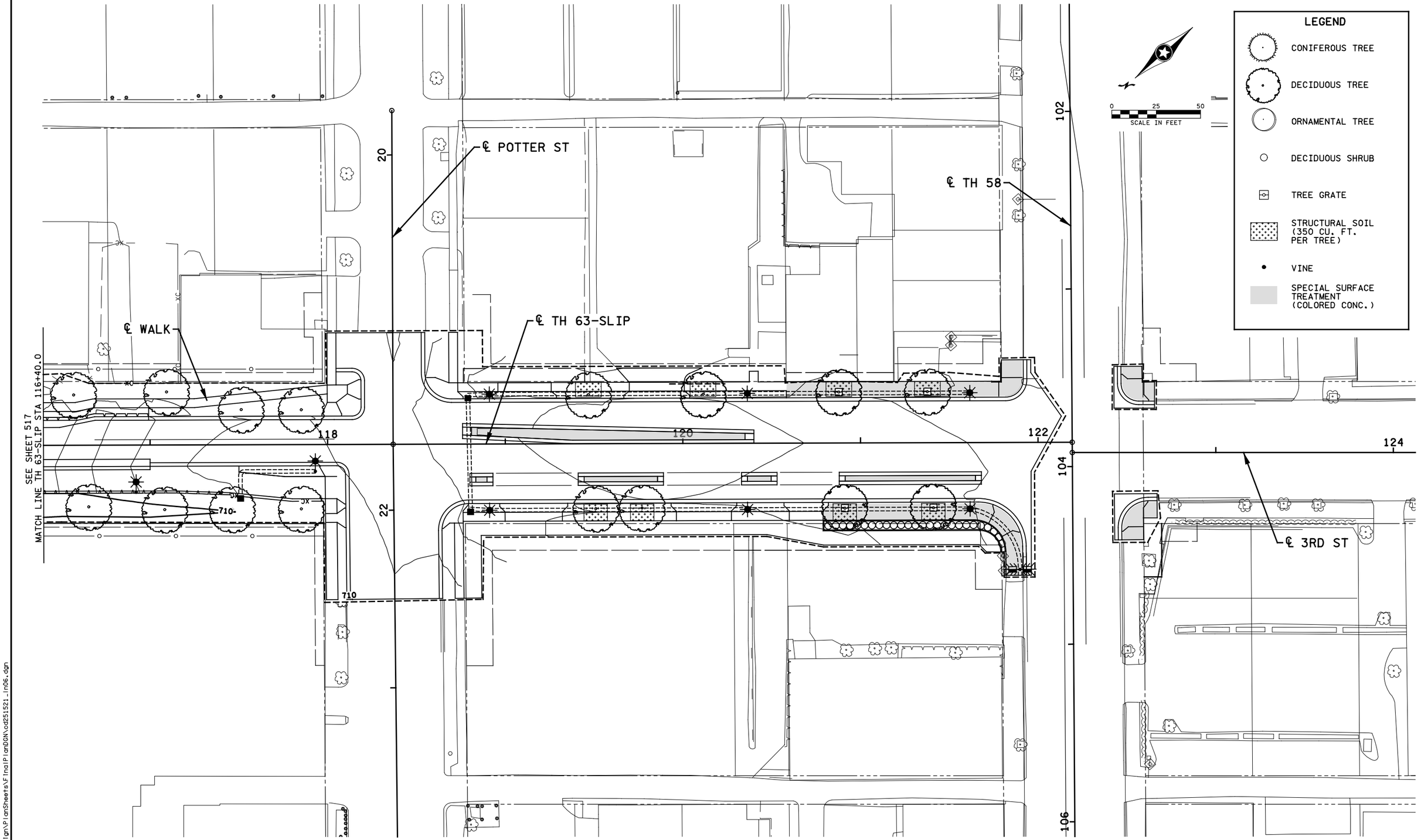
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LANDSCAPE PLANS

SP 2515-21 (TH 63)

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CHECKED BY M. JISCHKE

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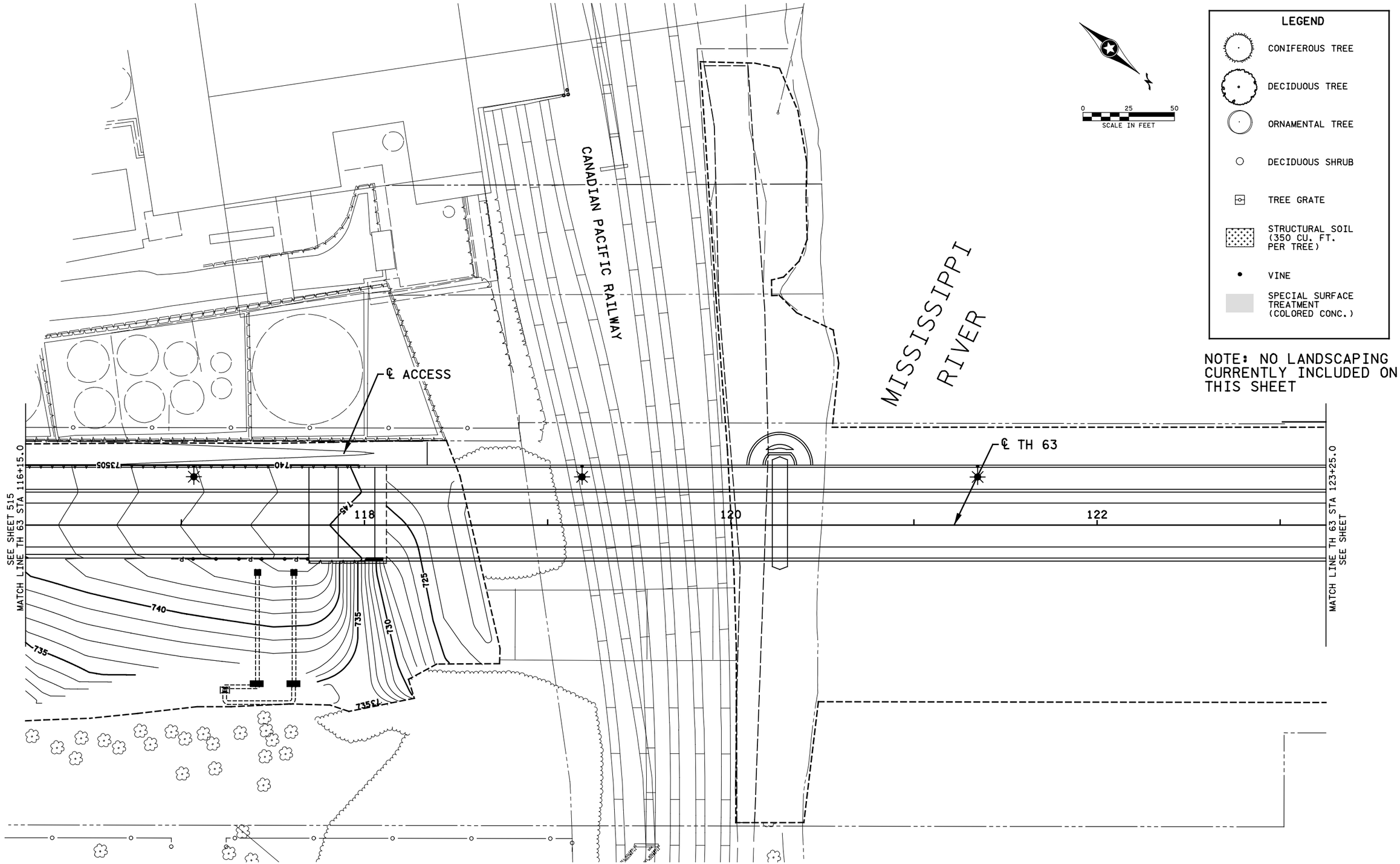
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LANDSCAPE PLANS

SP 2515-21 (TH 63)

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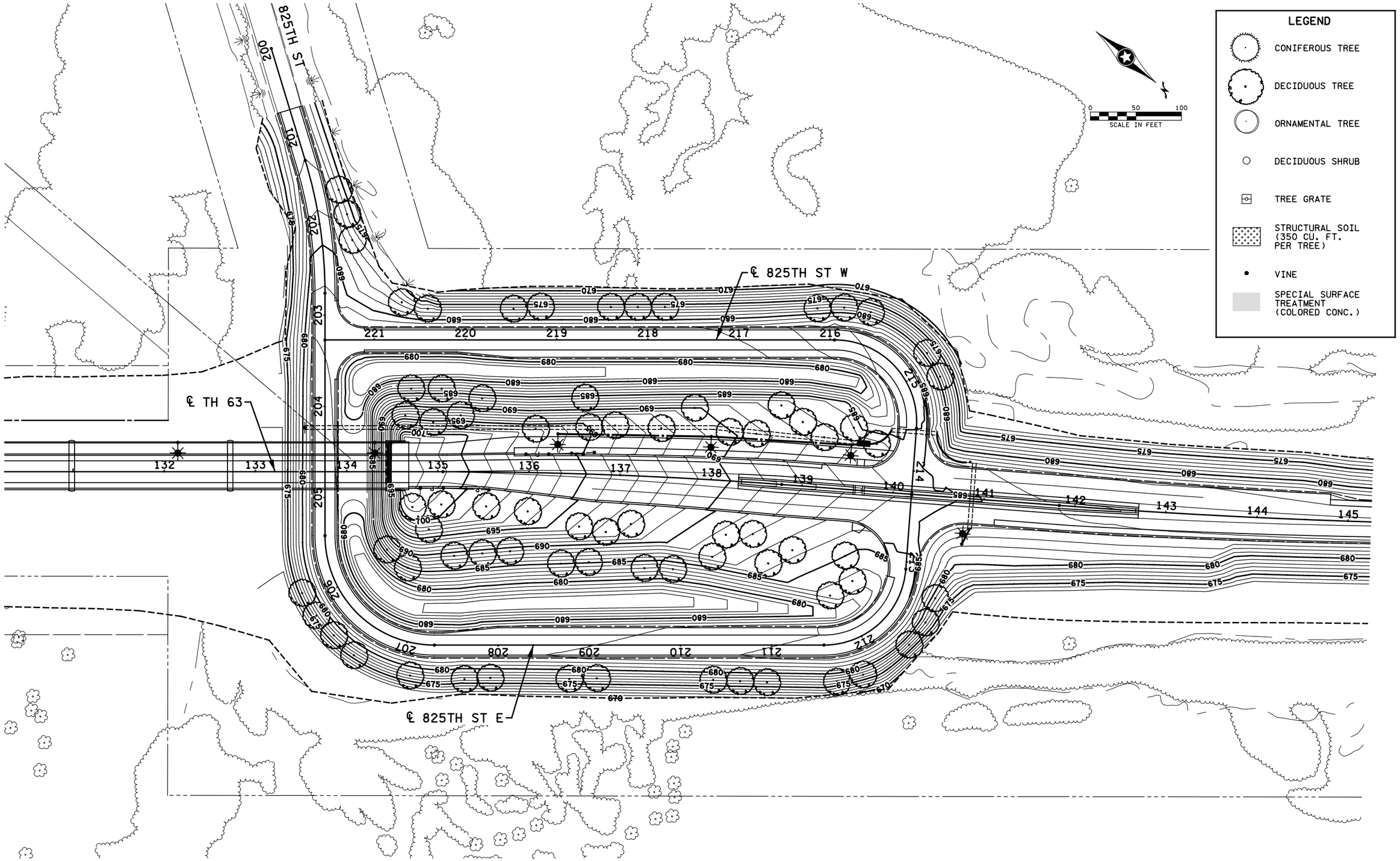
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LANDSCAPE PLANS

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LANDSCAPE PLANS

SP 2515-21 (TH 63)

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GENERAL NOTES

SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS.

REFER TO MnDOT SPECIFICATIONS 2571, 2572, 3861, FOR GENERAL REQUIREMENTS.

COMPLETE PREPARATORY WORK BEFORE STARTING INITIAL PLANTING OPERATIONS.

ACCEPT ALL PLANT STOCK IN ACCORDANCE WITH (MnDOT 3861) PRIOR TO PLANTING.

THE CONTRACTOR WILL DEMONSTRATE COMPETENCY FOR SOIL CULTIVATION OPERATIONS IN ACCORDANCE WITH (MnDOT 2571.3D.2)

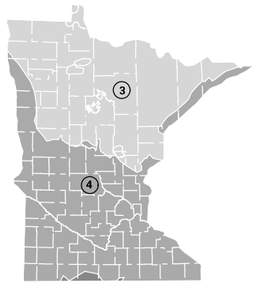
THE CONTRACTOR WILL DEMONSTRATE COMPETENCY FOR ALL PLANT INSTALLATION OPERATIONS IN ACCORDANCE WITH (MnDOT 2571.3F1)

RODENT PROTECTION	SEE SPECIAL PROVISIONS AND STANDARD PLANTING DETAILS (3 OF 3)
FERTILIZER	SEE SPECIAL PROVISIONS
COMPOST	MnDOT 3890 COMPOST GRADE 2 UNLESS OTHERWISE SPECIFIED.
MULCH MATERIAL	MnDOT 3882 MULCH MATERIAL TYPE 6 UNLESS OTHERWISE SPECIFIED.
MASS PLANTING BEDS	PREPARE MASS PLANTING BEDS FOR PLANTS PLACED AT 15′ OR LESS, UNLESS OTHERWISE SPECIFIED ON SHEETS. PLANT BEDS IN STAGGERED ROWS ON THE PERIMETER FIRST, THEN UNIFORMLY FILL IN WITH REMAINING PLANTS. USE TRIANGULAR SPACING, UNLESS SPECIFIED OTHERWISE. PROVIDE 5′ RADIUS CLEAR OF SHRUBS AROUND EACH DECIDUOUS TREE AND 8′ CLEAR RADIUS AROUND EACH CONIFER TREE. RADIUS WILL BE MEASURED FROM THE CENTER OF THE TREE TO THE CENTER OF THE SHRUB. NOTIFY ENGINEER OF GROSS PLANT QUANTITY SURPLUS OR DEFICIENCY IMMEDIATELY. MULCH ENTIRE MASS PLANTING BED. SEE STANDARD PLANTING DETAILS (3 OF 3)
TREE PAINTING (FROST CRACK PREVENTION)	PAINT OAK, LINDEN, LOCUST, MAPLE, CRABAPPLE AND MOUNTAIN ASH. ONLY UNDILUTED EXTERIOR WHITE LATEX PAINT IS ACCEPTABLE. PAINT TREE CIRCUMFERENCE FROM GROUND LINE TO FIRST MAJOR BRANCH.
PLANTING PLAN DIMENSIONS	STATED DIMENSIONS SUPERCEDE SCALING FROM PLAN.

WATERING GUIDELINES (MnDOT 2571.3G)

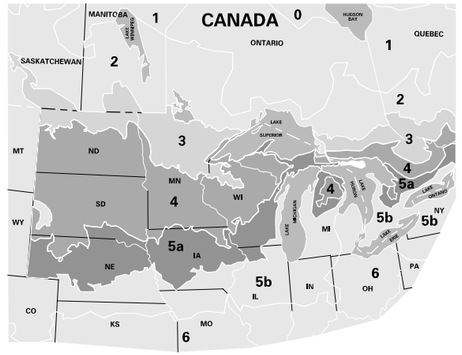
PLANT TYPE	AVERAGE GALLONS OF WATER PER APPLICATION
MACHINE TRANSPLANTED TREES	50–100
BALLED AND BURLAPPED TREES	20
BARE ROOT AND CONTAINER TREES	15
BALLED AND BURLAPPED SHRUBS	10
BARE ROOT AND CONTAINER SHRUBS	7
WOODY SEEDLINGS	4
PERENNIALS AND VINES	3

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR AND MAINTAIN SOIL MOISTURE AT ADEQUATE BUT NOT EXCESSIVE LEVELS. THE AMOUNTS LISTED ABOVE ARE GUIDELINES, NOT REQUIREMENTS.



1. BARE ROOT PERENNIALS MUST BE PLACED IN THE SPRING NO LATER THAN JUNE 1ST OR FOLLOW THE FALL DECIDUOUS PLANTING DATES.
2. ACTUAL DATES MAY CHANGE DEPENDING UPON SEASONAL CONDITIONS, AS DETERMINED BY THE ENGINEER.
3. FALL PLANTING IS NOT ALLOWED FOR BARE ROOT FORM OF THE FOLLOWING SPECIES: HAWTHORN, DOGWOOD, POPLAR, HACKBERRY, LINDEN, IRONWOOD, HONEYLOCUST, BIRCH, MOUNTAIN ASH, MAPLE, WILLOW, CRABAPPLE, PLUM/CHERRY, OAKS, AND SUMAC.
4. ALL REPLACEMENT PLANTS MUST BE PLACED DURING THE MONTH OF MAY (SPRING PLANTING) AND SEPTEMBER (FALL PLANTING) DURING THE FIRST YEAR OF THE PLANT ESTABLISHMENT PERIOD.
5. MACHINE MOVED PLANTING DATES WILL BE SPECIFIED IN THE SPECIAL PROVISIONS.

PLANT INSTALLATION PERIOD



PLANTING DATES BY ZONE

			3	4
SPRING	DECIDUOUS	BARE ROOT	APRIL 21 TO JUNE 1	APRIL 7 TO JUNE 1
		CONTAINER B&B	APRIL 21 TO JUNE 30	APRIL 7 TO JUNE 30
	CONIFEROUS		APRIL 21 TO JUNE 1	APRIL 7 TO MAY 17
	PERENNIALS		MAY 1 TO JUNE 30	MAY 1 TO JUNE 30
	SEEDLINGS		APRIL 21 TO JUNE 1	APRIL 7 TO JUNE 1
FALL	DECIDUOUS	BARE ROOT	OCT. 1 TO NOV. 1	OCT. 10 TO NOV. 15
		CONTAINER B&B	AUG. 25 TO OCT. 15	AUG. 25 TO NOV. 1
	CONIFEROUS		AUG. 25 TO SEPT. 15	AUG. 25 TO SEPT. 15
	PERENNIALS		AUG. 25 TO SEPT. 15	AUG. 25 TO SEPT. 15

ACCEPTABLE ZONES		
ZONES	LEGEND	MIN. TEMP.
3		–34.4° TO –40 F
4		–28.9° TO –34.4 F
5a		–26.1° TO –28.9 F

UNACCEPTABLE ZONES	
ZONES	LEGEND
0, 1, 2, 5b and 6	

FOR ALL PLANT STOCK, DOCUMENT ACCEPTABILITY FOR HARDINESS IN THE MINNESOTA ZONE WHERE THE PROJECT SITE IS LOCATED, AS FOLLOWS:

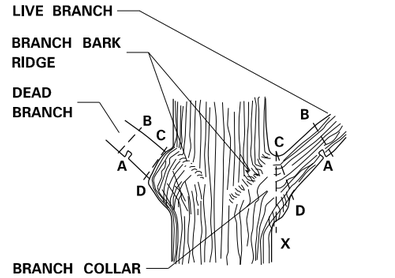
A. PLANT STOCK CONTINUOUSLY GROWN FOR AT LEAST THE LAST TWO YEARS WITHIN THE ACCEPTABLE LIMITS SHOWN.

OR

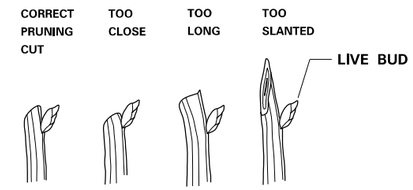
B. PLANT STOCK, GROWN OUTSIDE THE ACCEPTABLE GROWING RANGE LIMITS, HAVING SEED SOURCE OR ROOT AND GRAFT STOCK ORIGINATING FROM THE ACCEPTABLE LIMITS SHOWN.

ACCEPTABLE PLANT STOCK GROWING RANGE LIMITS

SOURCE: USDA PLANT HARDINESS ZONE MAP (MnDOT 3861.2C)



BRANCHES PRUNED AT TRUNK
(SHIGO METHOD)



BRANCHES PRUNED TO LIVE BUD

STEPS TO PRUNING WITH PRUNING SAW:
1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

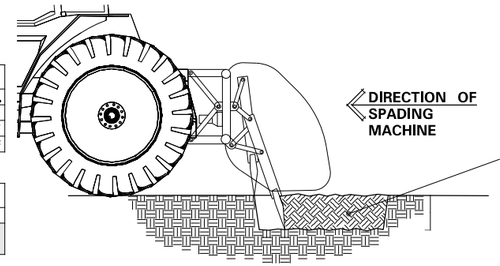
INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

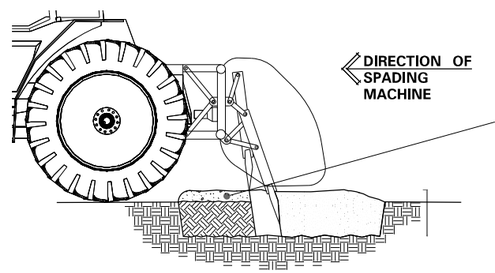
PRUNING NOTES:
1. PRUNE USING CLEAN AND SHARP SCISSOR–TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

(MnDOT 2571.3E.1 and 2571.3K.2.a(9))

PRUNING



PRIMARY TILLAGE – PASS 1



INCORPORATION TILLAGE – PASS 2

PLANTING SOIL

(MnDOT 2571.3D)

REVISION:

APPROVED: DECEMBER 11, 2015
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

APPROVED: 12-11-2015
STATE DESIGN ENGINEER

STANDARD PLANTING DETAILS

STANDARD PLAN 5-297.301 | 1 OF 3

MINNESOTA STATE PROJECT NO. 2515-21
MINNESOTA STATE PROJECT NO. 2513-91
WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY
DESIGNED BY
CHECKED BY
COMM. NO. 0158933

MINNESOTA DEPARTMENT OF TRANSPORTATION
LANDSCAPING DETAILS
SP 2515-21 (TH 63)
STANDARD PLANTING DETAILS

SHEET 520 OF 688

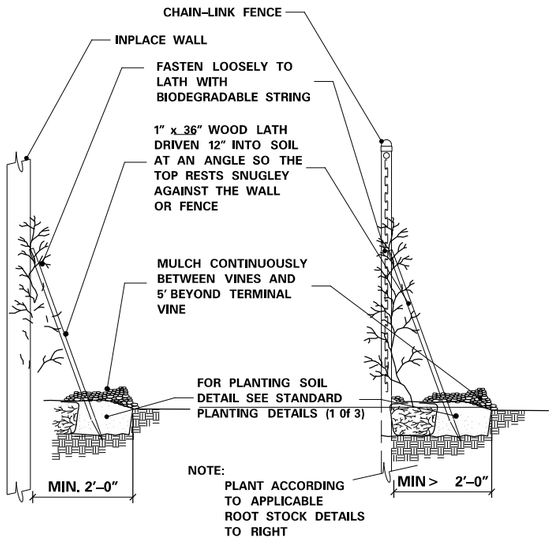
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PLANTING HOLE DIMENSIONS

HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL.

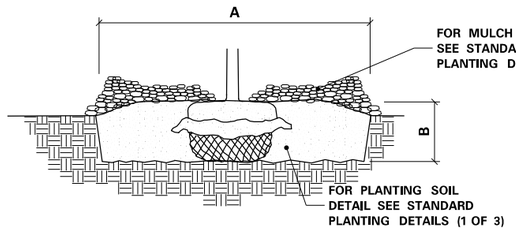
PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
DECIDUOUS & ORNAMENTAL TREES	3' B.R.	46"	13"
	4' B.R	46"	14"
	5' B.R.	48"	14"
	6' B.R.	54"	15"
	7' B.R	60"	16"
	8' B.R.	66"	19"
	0.75" B.R.	48'	12"
	1" B.R.	54"	14"
	1.25" B.R.	60"	14"
	1.5 B.R.	66"	15"
	1.75" B.R	72"	16"
	2" B.R.	84"	19"
	4' B.B.	42"	11"
	5' B.B.	48"	12"
	6' B.B.	52"	14"
	8' B.B.	66"	16"
	10' B.B.	66"	16"
	12' B.B.	48"	16"
	1" B.B.	54"	14"
	1.25" B.B.	56"	15"
	1.5" B.B.	61"	15"
	1.75" B.B.	66"	16"
	2" B.B.	72"	16"
	2.5" B.B.	84"	19"
	3" B.B.	96"	20"
	3.5" B.B.	114"	23"
	4" B.B.	126"	25"
DECIDUOUS SHRUBS, ROSES AND PERENNIALS	12" B.R.	24"	7"
	15" B.R.	28"	8"
	18" B.R.	30"	8"
	2' B.R.	33"	9"
	3' B.R.	42"	11"
	4' B.B.	48"	12"
	5' B.R.	54"	14"
	6' B.R.	60"	14"
PERENNIAL HOLE DEPTH AND WIDTH SHALL BE BASED UPON ON-CENTER SPACING IN A CONTINUOUS TRENCH.	18" B.B.	27"	7"
	2' B.B.	30"	8"
	3' B.B.	36"	9"
	4' B.B.	42"	11"
	5' B.B.	48"	12"
	6' B.B.	54"	14"



WALL INSTALLATION

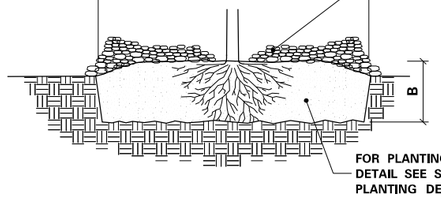
FENCE INSTALLATION

INSTALLATION OF VINES



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING.
3. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. PLACE PLANT SO THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE WITH BURLAP AND WIRE BASKET, (IF USED), INTACT.
4. SLIT REMAINING TREATED BURLAP AT 6" INTERVALS.
5. BACKFILL TO WITHIN APPROXIMATELY 12" OF THE TOP OF THE ROOTBALL, THEN WATER PLANT.
6. REMOVE THE TOP 1/3 OF THE BASKET OR THE TOP TWO HORIZONTAL RINGS WHICHEVER IS GREATER. REMOVE ALL BURLAP AND NAILS FROM THE TOP 1/3 OF THE BALL. REMOVE ALL TWINE. REMOVE OR CORRECT STEM GIRDLING ROOTS.
7. PLUMB AND BACKFILL WITH PLANTING SOIL.
8. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
9. BACK FILL VOIDS AND WATER A SECOND TIME.
10. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

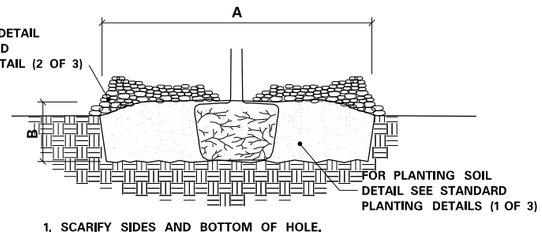
BALLED & BURLAPPED STOCK



1. SOAK ROOTS IN WATER FOR AT LEAST ONE HOUR BUT NOT MORE THAN 24 HOURS PRIOR TO PLANTING.
2. SCARIFY SIDES AND BOTTOM OF HOLE.
3. PROCEED WITH CORRECTIVE PRUNING OF THE TOP AND ROOTS.
4. TRANSFER PLANT DIRECTLY FROM WATER TO HOLE. SET PLANT SO THE ROOT FLARE IS AT THE FINISHED SOIL ELEVATION. SPREAD ROOTS OUT EVENLY. PLUMB AND IMMEDIATELY BACKFILL WITH PLANTING SOIL.
5. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
6. BACK FILL VOIDS AND WATER A SECOND TIME.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

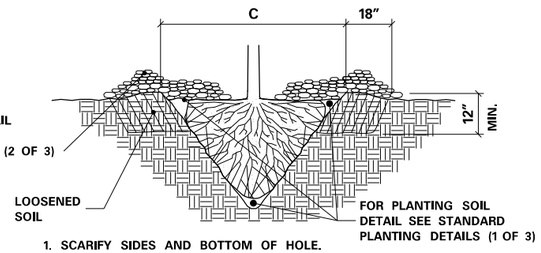
BARE ROOT STOCK

INSTALLATION OF PLANTS



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING OF TOP AND ROOT.
3. REMOVE CONTAINER AND SCORE OUTSIDE OF SOIL MASS TO REDIRECT AND PREVENT CIRCLING FIBROUS ROOTS. REMOVE OR CORRECT STEM GIRDLING ROOTS.
4. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. INSTALL PLANT SO THE TOP OF THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE.
5. PLUMB AND BACKFILL WITH PLANTING SOIL.
6. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANT AND FILL VOIDS.
7. BACK FILL VOIDS AND WATER A SECOND TIME.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

CONTAINER STOCK



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING OF TOP AND ROOT.
3. SET PLANT ON NATIVE SOIL AT SAME DEPTH AS IT WAS PREVIOUSLY GROWN.
4. PLUMB AND BACKFILL WITH PLANTING SOIL.
5. AFTER PLANTING, LOOSEN THE SOIL IMMEDIATELY ADJACENT TO THE ROOT BALL TO A MINIMUM DISTANCE OF 18" AND A MINIMUM DEPTH OF 12".
6. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANT AND FILL VOIDS.
7. BACK FILL VOIDS AND WATER A SECOND TIME.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

MINIMUM TREE SPADE SIZE REQUIREMENTS

(C) SPADE DIAMETER SIZE	OAK TREE, CALIPER	DECIDUOUS / ORNAMENTAL TREE,CALIPER	CONIFEROUS TREE, HEIGHT
42"	1" to 1.5"	2" to 3"	5' to 7'
60"	1.5" to 2.5"	3" to 4"	7' to 9'
78"	2.5" to 3.5"	4" to 6"	9' to 14'
85"	3.5" to 5"	6" to 8"	14' to 18'

MACHINE MOVED STOCK

PLANTING HOLE DIMENSIONS

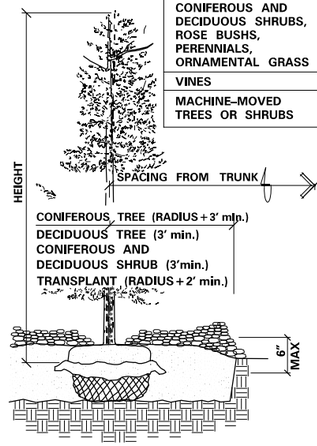
HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL.

PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
CONIFEROUS TREES AT LEAST 2/3 OF ALL CONIFER BRANCHES WILL CONTAIN TERMINAL BUDS	2' B.B	36"	10"
	3' B.B	42"	11"
	4' B.B	51"	13"
	5' B.B	60"	13"
	6' B.B	66"	15"
	7' B.B	72"	16"
	8' B.B	81"	18"
	9' B.B	90"	20"
	10' B.B	102"	21"
	12' B.B	114"	24"
CONIFEROUS SHRUBS (UPRIGHT)	18" B.B.	24"	7"
	3' B.B.	48"	12"
CONIFEROUS SHRUBS (SPREADING)	18" SPR B.B.	30"	8"
	2' SPR B.B.	36"	9"
CONTAINER GROWN PLANTS	CELLPACKS / PLUGS	6"	2.5"
	2.25" CONT.	7"	3"
	3.5" CONT.	10"	3"
	4" CONT.	11"	4"
	4.5" CONT.	13"	4"
	6"/1 QT CONT.	15"	5.5"
	1# CONT.	18"	6"
	2# CONT.	23"	7.5"
	3# CONT.	29"	8.5"
	5# CONT.	30"	11"
	7# CONT.	37"	11"
	15# CONT.	44"	14"
	10# CONT.	45"	15"
	20# CONT.	60"	16"
	25# CONT.	72"	17"
SEEDLINGS	6" SEEDLING	15"	14"
	9" SEEDLING	18"	14"
	12" SEEDLING	23"	16"
	18" SEEDLING	30"	16"
	2' SEEDLING	36"	18"
VINES	1 YR. MED B.R.	15"	11"
	1 YR. NO. 1 B.R.	17"	14'
	2 YR. MED. B.R.	33"	12"
	2 YR. NO. 1 B.R.	42"	15"

MULCH AREA CALCULATOR

TYPE OF PLANT	SQ. FT. PER PLANT
CONIFEROUS TREES	$\left[\left(\frac{3/5 \times \text{HEIGHT}}{2}\right)+3\right]^2 \times \pi$
DECIDUOUS AND ORNAMENTAL TREES	$3^2 \times \pi$
CONIFEROUS AND DECIDUOUS SHRUBS, ROSE BUSHS, PERENNIALS, ORNAMENTAL GRASS	SPACING x SPACING
VINES	SPACING x 2
MACHINE-MOVED TREES OR SHRUBS	$\left[\left(\frac{\text{SPADE DIAMETER}}{2}\right)+1\right]^2 \times \pi$

π = 3.1416



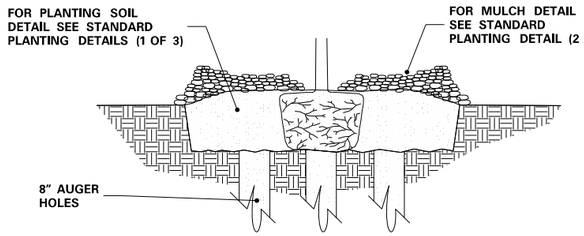
1. PULL MULCH BACK NO LESS THAN 3" AND NO MORE THAN 6" FROM TREES AND SHRUBS AT THE TRUNK OR MAIN STEM.
2. SUBSIDING OR DETERIORATING MULCH IS ACCEPTABLE THROUGHOUT THE ESTABLISHED PERIOD IF THE MULCH DEPTH IS MAINTAINED AT A MINIMUM 3" DEPTH.
3. ADD MULCH WHEN BELOW THE 3" MINIMUM DEPTH; DO NOT EXCEED THE 6" MAXIMUM DEPTH.
4. MULCH CONTAMINATED WITH SOIL MUST BE REMOVED AND REPLACED.

MULCH

(MnDOT 2571.3F)

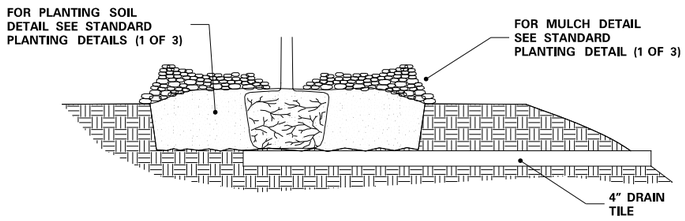
(MnDOT 2571.3F)

(MnDOT 2571.3F)



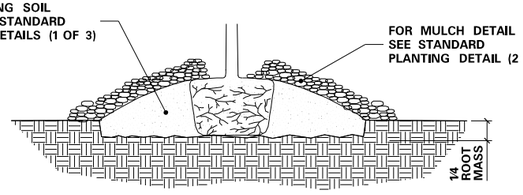
1. EXCAVATE HOLE OR BED TO ALLOW PLACING THE TOP OF ROOT MASS 1"–3" HIGHER THAN FINISHED GRADE.
2. AUGER 8" DIAMETER HOLES ENTIRELY THROUGH IMPERVIOUS OR POORLY DRAINED HARD PAN SOIL LAYER TO ADEQUATELY DRAIN SUBSOIL.
3. TEST FOR POSITIVE DRAINAGE. RE–AUGER AN ADDITIONAL 8" IF NECESSARY FOR POSITIVE DRAINAGE.
4. THOROUGHLY BACKFILL AUGER HOLES WITH A UNIFORM INCORPORATED MIXTURE OF 50% SAND AND 50% INPLACE SOIL.
5. COMPLETE PLANTING ACCORDING TO ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

GRANULAR FILTER



1. EXCAVATE HOLE OR BED TO ALLOW PLACING THE TOP OF THE ROOT MASS 1"–3" HIGHER THAN FINISHED GRADE.
2. INSTALL 4" MINIMUM DIAMETER DRAIN TILE DAYLIGHTING AT A LOWER GRADE.
3. COMPLETE PLANTING ACCORDING TO ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

TILE DRAINAGE



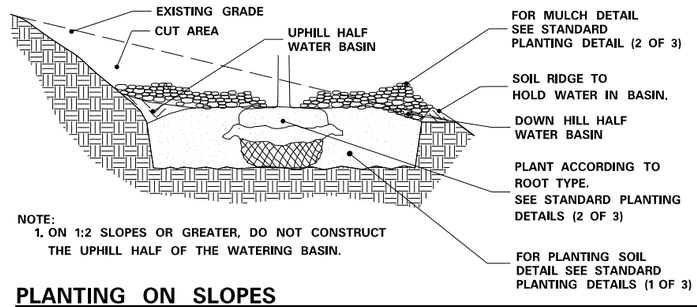
1. EXCAVATE HOLE OR BED ¼ THE DEPTH OF THE ROOT MASS.
2. SET ROOT MASS IN HOLE.
3. CONSTRUCT BERM WITH PLANTING SOIL. EXTEND THE BERM BASE TO A WIDTH OF 3 TIMES THE BERM HEIGHT.
4. COMPLETE PLANTING ACCORDING ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

MINI–BERM

NOTE:
1. THE NEED FOR USING PLANTING DETAILS FOR POORLY DRAINED SOILS AND WHICH TYPE TO USE ARE DETERMINED BY THE CONTRACTOR, SUBJECT TO ENGINEER APPROVAL.

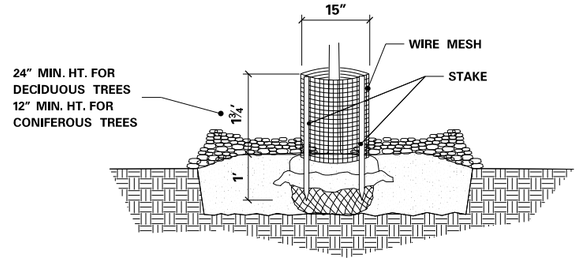
PLANTING DETAIL FOR POORLY DRAINED SOILS

(MnDOT 2571.3D.2(8))



NOTE:
1. ON 1:2 SLOPES OR GREATER, DO NOT CONSTRUCT THE UPHILL HALF OF THE WATERING BASIN.

PLANTING ON SLOPES

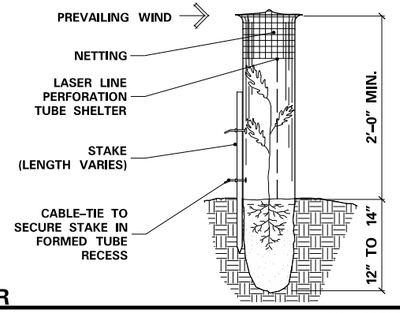


1. FORM A DOUBLE–LAYERED CYLINDER USING 0.25" GRID GALVANIZED WELDED WIRE MESH (HARDWARE CLOTH). OVERLAP THE CUT END 2".
2. DRIVE TWO 1" x 1" OPPOSING HEARTWOOD WHITE OAK STAKES INTO THE GROUND, 7" FROM THE CENTER OF THE TREE STEM.
3. SECURE THE MESH CYLINDER TO THE OUTSIDE OF THE STAKES USING EITHER, SCREWS AND WASHERS OR CABLE–TIES ALONG THE OVERLAP. SPACE APPROXIMATELY 4" ON CENTER ALONG THE OVERLAP.
   a. SCREWS SHALL BE ROUND HEAD GALVANIZED 1⅛" DIA. x ¾" LONG WITH WASHERS.
   OR
   b. CABLE–TIES SHALL BE NYLON, AT LEAST 8" LONG AND BETWEEN 75LB TO 120LB TENSILE STRENGTH.
4. EMBED THE LOWER EDGE OF THE MESH CYLINDER 1" BELOW THE SOIL SURFACE WITHOUT DISTURBING THE TREE ROOTS.
5. CUT EDGES WILL NOT BE PERMITTED AT THE TOP OF THE CYLINDER. STAKE WILL BE FLUSH WITH THE TOP OF THE CYLINDER.
6. MULCH WITHIN THE CYLINDER SHALL NOT EXCEED 3" DEPTH AND SHALL BE PULLED BACK FROM THE TRUNK AS SPECIFIED IN MULCH PLACEMENT DETAIL.
7. THE BOTTOM WHORL OF PINE AND LARCH BRANCHES MAY HAVE TO BE REMOVED TO PERMIT INSTALLATION OF 12" MIN. HEIGHT RODENT GUARDS.
8. INSTALL ON ALL DECIDUOUS, PINE AND LARCH TREES, DO NOT PLACE ON SPRUCE TREES.

RODENT PROTECTION

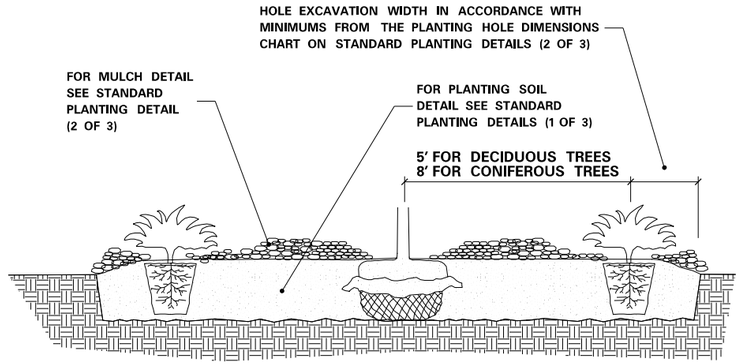
(MnDOT 2571.3I.2)

1. USE SEAMLESS, EXTRUDED, TWIN–WALL, RIGID AND SEMI TRANSLUCENT POLYPROPYLENE TUBES WITH A LASER LINE PERFORATION AND AN OUTWARD–FLARED TOP RIM.
2. SECURE SHELTER WITH NYLON CABLE–TIES ATTACHED TO A 1" x 1" WHITE OAK STAKE TO PREVENT DISLODGING OR TWISTING.
3. EMBED THE BOTTOM OF THE TUBE A MINIMUM OF 1" BELOW THE SOIL SURFACE WITHOUT DISTURBING THE TREE ROOTS.
4. PLACE A PLASTIC PHOTODEGRADABLE NETTING COVER AND SLEEVE OVER THE TOP OF THE TUBE. PULL NETTING DOWN AS SHOWN.

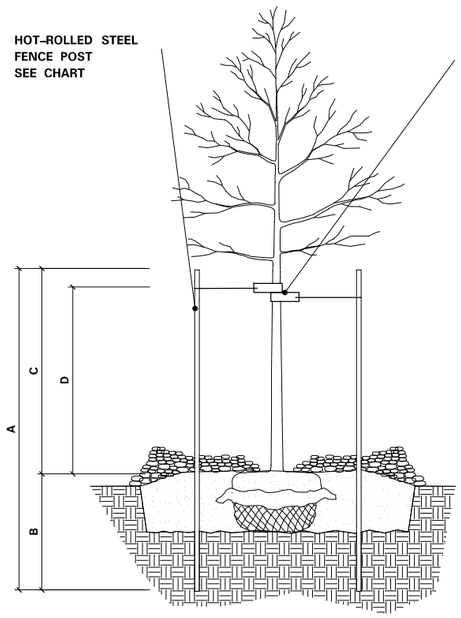


SEEDLING TREE SHELTER

(MnDOT 2571.3I.4)



PLANT SPACING IN MASS BEDS



1. STEEL POSTS TO BE NOTCHED OR DRILLED TO RETAIN GUY WIRES. PLACE OUTSIDE OF ROOT BALL. DRIVE PLUMB REGARDLESS OF GROUND SLOPE.
2. REQUESTS TO SUBSTITUTE RUBBER HOSE AND WIRE GUYING SYSTEMS WILL NOT BE APPROVED.
3. TREE STAKING IS NOT REQUIRED UNLESS SPECIFIED OR NECESSARY TO MAINTAIN TREES IN A PLUMB CONDITION WHERE VANDALISM, SOIL, OR WIND CONDITIONS ARE A PROBLEM, OR AS DIRECTED BY THE ENGINEER.
4. REMOVE WITHIN ONE YEAR.

STEEL POST SIZING

CALIPER	STEEL POST TYPE	A	B	C	D
LESS THAN 4 INCHES	HOT–ROLLED STEEL FENCE POST (MnDOT 3403) OR APPROVED EQUAL.	7'–0"	3'–0" MIN.	4'–0"	3'–0"
GREATER THAN 4 INCHES	10', 2.2 LB. FLANGED CHANNEL SIGN POST (MnDOT 3401) OR APPROVED EQUAL.	10'–0"	4'–0" MIN.	6'–0"	5'–0"

STAKING AND GUYING

(MnDOT 2571.3I.1)

REVISION:

APPROVED: DECEMBER 11, 2015
CHIEF ENVIRONMENTAL OFFICER

REVISED:

APPROVED:
12-11-2015
STATE DESIGN ENGINEER

STANDARD PLANTING DETAILS

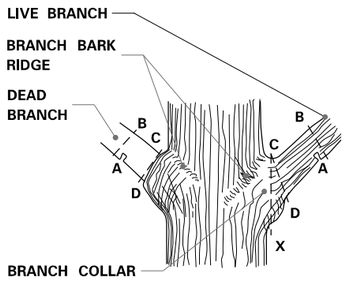
STANDARD PLAN 5-297.301 | 3 OF 3

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	LANDSCAPING DETAILS
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
	COMM. NO. 0158933	STANDARD PLANTING DETAILS

SHEET 522 OF 688

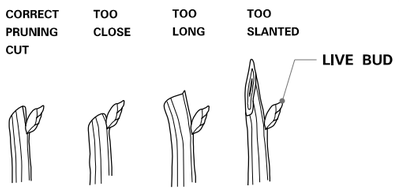
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BRANCHES PRUNED AT TRUNK

(SHIGO METHOD)



BRANCHES PRUNED TO LIVE BUD

STEPS TO PRUNING WITH PRUNING SAW:

1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

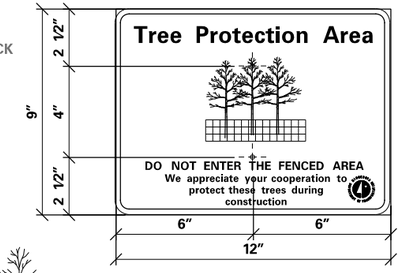
PRUNING NOTES:

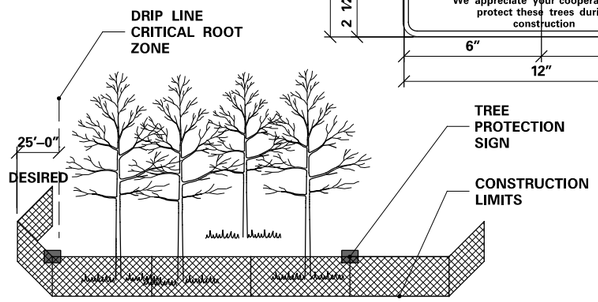
1. PRUNE USING CLEAN AND SHARP SCISSOR-TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

PRUNING

(MnDOT 2571.3E.1 and 2571.3K.2.a(9))

1. FABRICATE 12" X 9" X 3/8" SIGN WITH 0.75" RADIUS CORNERS.
2. SIGN SHALL BE WHITE WITH BLACK LETTERING.
3. ATTACH SIGN TO POST USING 1" LENGTH WOOD SCREWS.

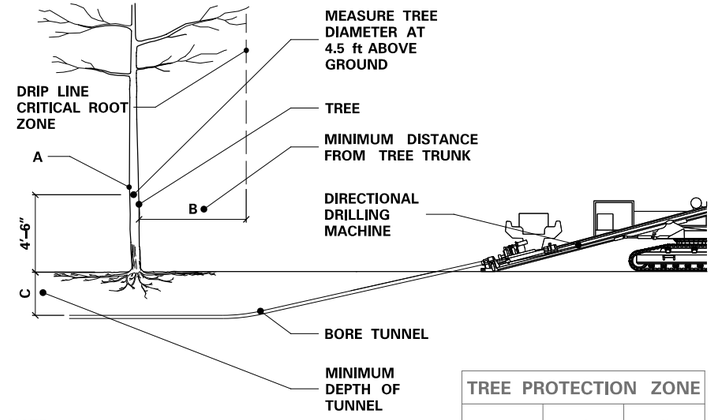




1. FURNISH AND INSTALL TEMPORARY FENCE AT THE TREE'S DRIPLINE OR CONSTRUCTION LIMITS AS SPECIFIED, PRIOR TO ANY CONSTRUCTION.
2. WHEN POSSIBLE PLACE FENCE 25 FEET BEYOND THE DRIP LINE.
3. PLACE TREE PROTECTION SIGNS ALONG FENCE AT 50' INTERVALS.

TEMPORARY FENCE

(MnDOT 2572.3A.1)



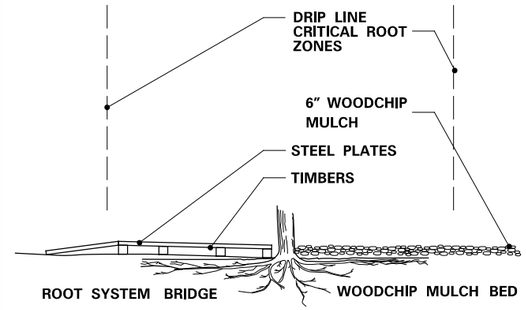
NOTE:

1. (A) IS THE DIAMETER OF TREES MEASURED 4'-6" FEET ABOVE THE GROUND AND IS TERMED THE "DIAMETER AT BREAST HEIGHT," (DBH).
2. USING A TREE DIAMETER TAPE, WRAP THE TAPE AROUND THE GIRTH OF THE TREE, AT THE DBH, BEING CAREFUL NOT TO TWIST THE TAPE.

TREE PROTECTION ZONE		
A	B	C
< 2"	2'	2'
2–4"	4'	2.5'
> 4–9"	6'	2.5'
> 9–14"	10'	3'
> 14–19"	12'	3.25'
> 19"	15'	4'

UTILITY CONSTRUCTION

(MnDOT 2572.3A.5)



IF CONSTRUCTION VEHICLES MUST PASS OVER ROOT ZONES, THE CONTRACTOR MUST EITHER:

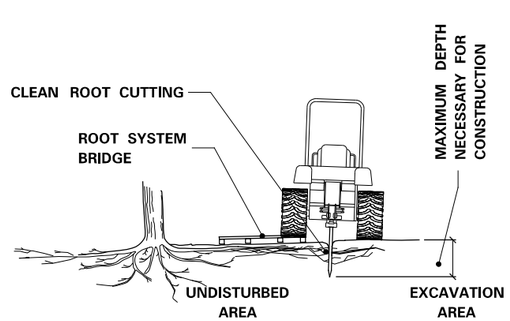
1. CONSTRUCT ROOT SYSTEM BRIDGES WITH STEEL PLATE SUPPORTED ON WOOD TIMBERS PLACED RADIALLY TO THE TREE TRUNK.

OR

2. PLACE A 6 INCH LAYER OF WOODCHIP MULCH OVER A TYPE III GEOTEXTILE (MnDOT 3733).

OTHER VEGETATION PROTECTION MEASURES

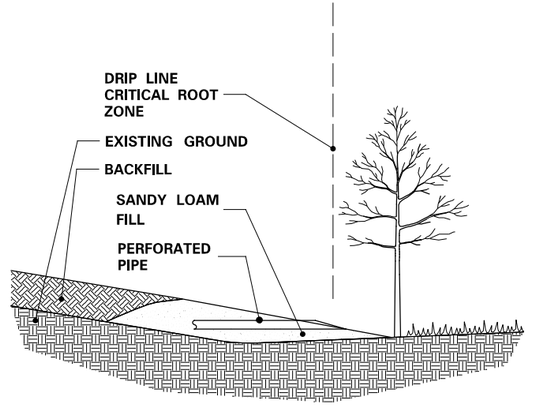
(MnDOT 2572.3A.12)



1. WHEN DESIGNATED IN THE PLAN OR DIRECTED BY THE ENGINEER, PRIOR TO EXCAVATION, ALL TREE ROOTS WILL BE CLEANLY CUT BY A VIBRATORY PLOW OR OTHER APPROVED ROOT CUTTER.
2. THE TREE ROOTS WILL BE CUT CLEANLY TO THE MINIMUM DEPTH NECESSARY FOR CONSTRUCTION.
3. IMMEDIATELY, AND CLEANLY CUT DAMAGED AND EXPOSED ROOTS.
4. ROOT ENDS EXPOSED BY EXCAVATION ACTIVITIES SHALL BE IMMEDIATELY COVERED WITH A 6" LAYER OF ADJACENT SOIL.
5. EXPOSED CUT OAK ROOTS SHALL BE IMMEDIATELY (WITHIN 5 MINUTES) TREATED WITH A WOUND DRESSING MATERIAL CONSISTING OF LATEX PAINT OR SHELLAC.

CLEAN ROOT CUTTING

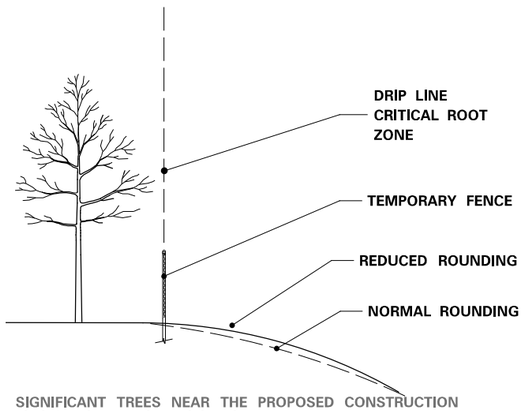
(MnDOT 2572.3A.2)



1. ANY FILL REQUIRED WITHIN THE DRIP LINE OF TREES, IS UNCOMPACTED ROOTING TOPSOIL BORROW.
2. EXCESSIVE FILL MAY REQUIRE PLACING PERFORATED PIPE WITH AT LEAST ONE DAYLIGHTED END OPENING AS AN AERATION SYSTEM.

ROOTING TOPSOIL BORROW

(MnDOT 2572.3A.4)



SIGNIFICANT TREES NEAR THE PROPOSED CONSTRUCTION LIMITS WILL BE IDENTIFIED IN THE PLAN OR BY THE ENGINEER AND WILL BE PRESERVED BY THE CONTRACTOR.

1. PLACE THE TEMPORARY FENCE.
2. REDUCE SLOPE ROUNDING WHERE ROOT ZONES ARE DISTURBED BY NORMAL SLOPE ROUNDING.
3. VARY BACKSLOPE STEEPNESS TO AVOID TREE LOSS OR UNNECESSARY ROOT DAMAGE.

SLOPE ROUNDING

REVISION:

APPROVED: DECEMBER 11, 2015

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

APPROVED: 12-11-2015

STATE DESIGN ENGINEER

PROTECTION AND RESTORATION OF VEGETATION

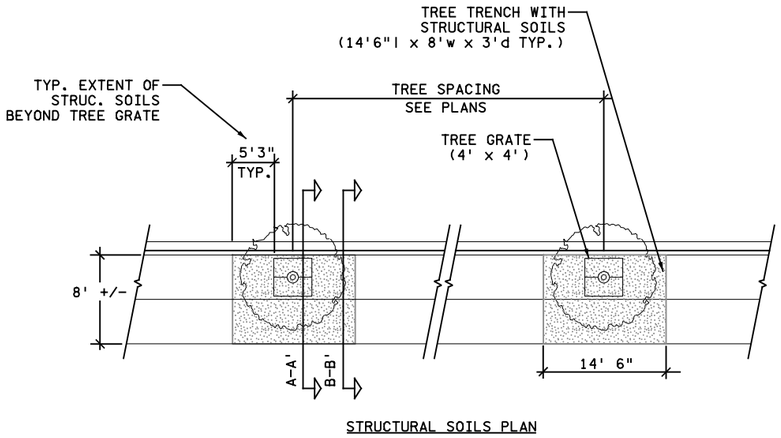
STANDARD PLAN 5-297.302 | 1 OF 1

MINNESOTA STATE PROJECT NO. 2515-21	DRAWN BY	MINNESOTA DEPARTMENT OF TRANSPORTATION
MINNESOTA STATE PROJECT NO. 2513-91	DESIGNED BY	LANDSCAPING DETAILS
WISCONSIN PROJECT I.D. 7210-00-78	CHECKED BY	SP 2515-21 (TH 63)
	COMM. NO. 0158933	STANDARD PLANTING DETAILS

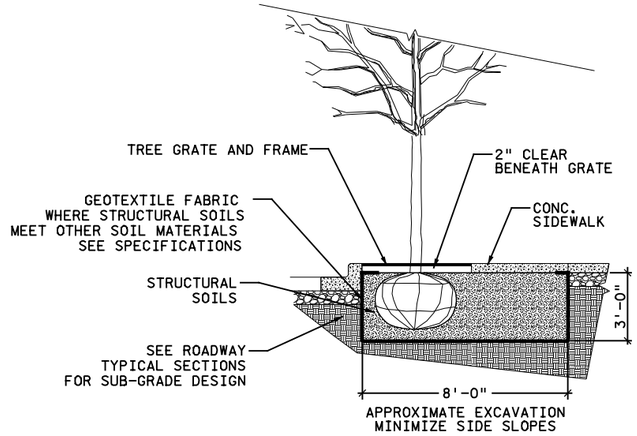
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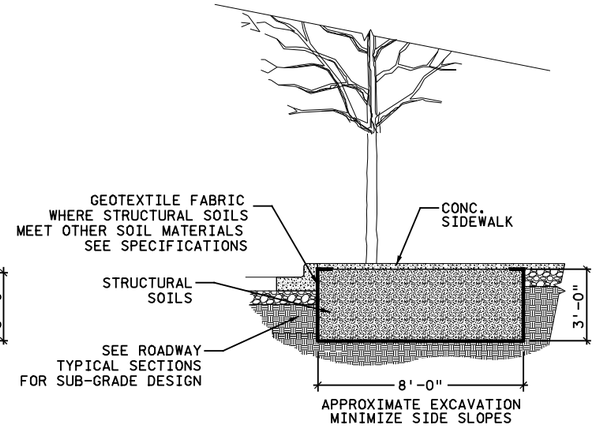
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STRUCTURAL SOILS PLAN



SECTION A-A'
AT TREE GRATE



SECTION B-B'

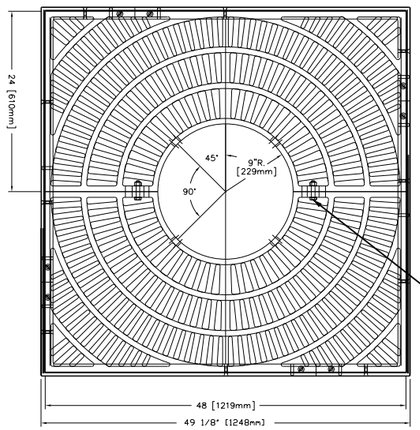
NOTES:

1. MEASURE DEPTH OF ROOT BALL PRIOR TO PLANTING TO DETERMINE WHETHER DEPTH OF STRUCTURAL SOILS TRENCH IS ADEQUATE. EXCAVATE ADDITIONAL DEPTH INTO SUBGRADE IF NECESSARY TO SET TREE AT PROPER ELEVATION.

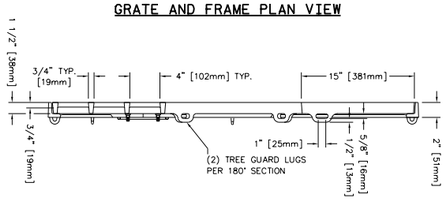
2. DO NOT UNDERMINE STRUCTURAL SOILS AND PAVEMENT BEYOND THE TREE GRATE FRAME DURING PLANTING HOLE EXCAVATION.

1/524 TREE PLANTING STRUCTURAL SOILS DETAIL

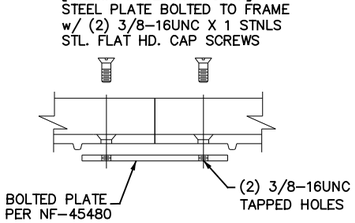
NOT TO SCALE



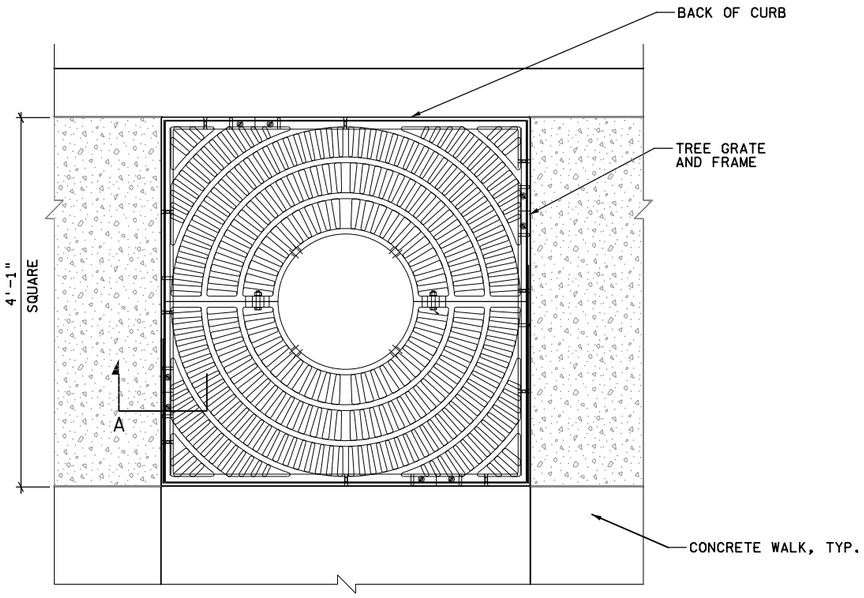
GRATE AND FRAME PLAN VIEW



GRATE AND FRAME SECTION VIEW



ASSEMBLY DETAIL



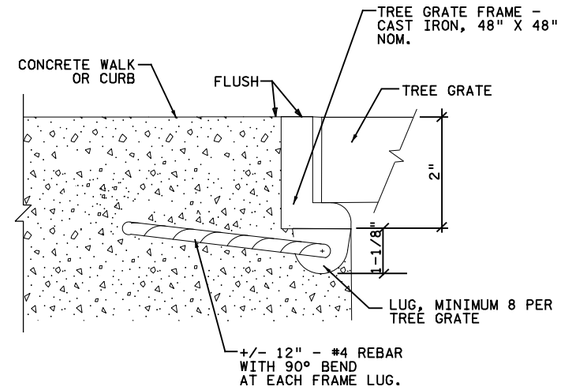
TYP. TREE GRATE INSTALLATION - PLAN

NOTES:

1. INSTALL GRATE AND FRAME AS PER MANUFACTURERS SPECIFICATIONS

2. SET GRATE OR TEMPLATE IN FRAME WHEN CONCRETE SURROUND IS POURED

3. TREE GRATE AND SEAT FOR TREE GRATE SHALL BE CLEANED PRIOR TO SETTING



SECTION "A-A" - FRAME EMBEDMENT DETAIL

2/524 TREE GRATE INSTALLATION DETAIL

NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION
					...\FinalPlanDGN\cd251521_ln13.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: MICHAEL JISCHKE

Date _____ License # 42191

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY R. BURAND

DESIGNED BY R. BURAND

CHECKED BY M. JISCHKE

COMM. NO. 0158933

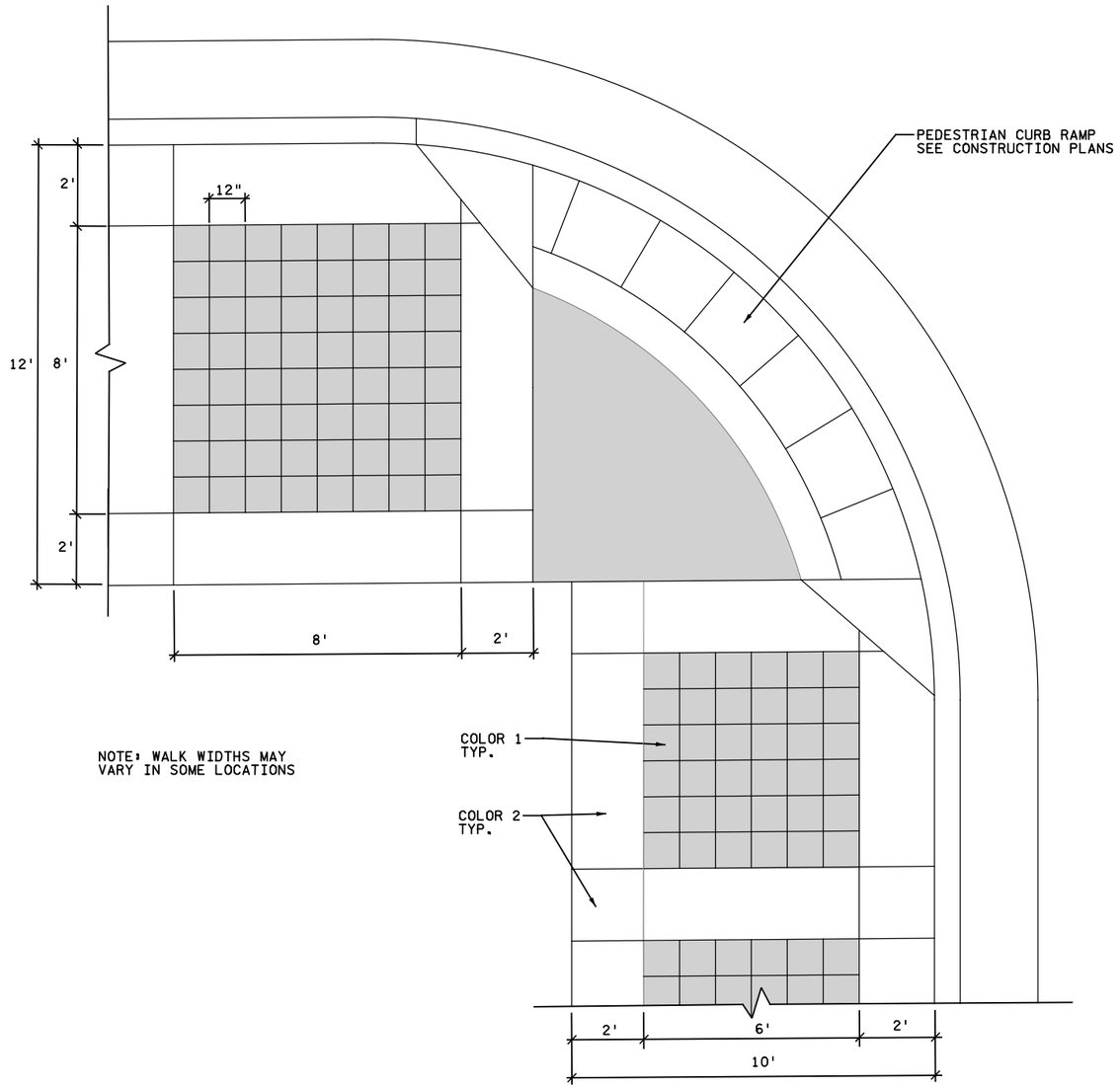
SRF Consulting Group, Inc. — Engineers Planners Designers

MINNESOTA DEPARTMENT OF TRANSPORTATION

LANDSCAPE DETAILS
SP 2515-21 (TH 63)

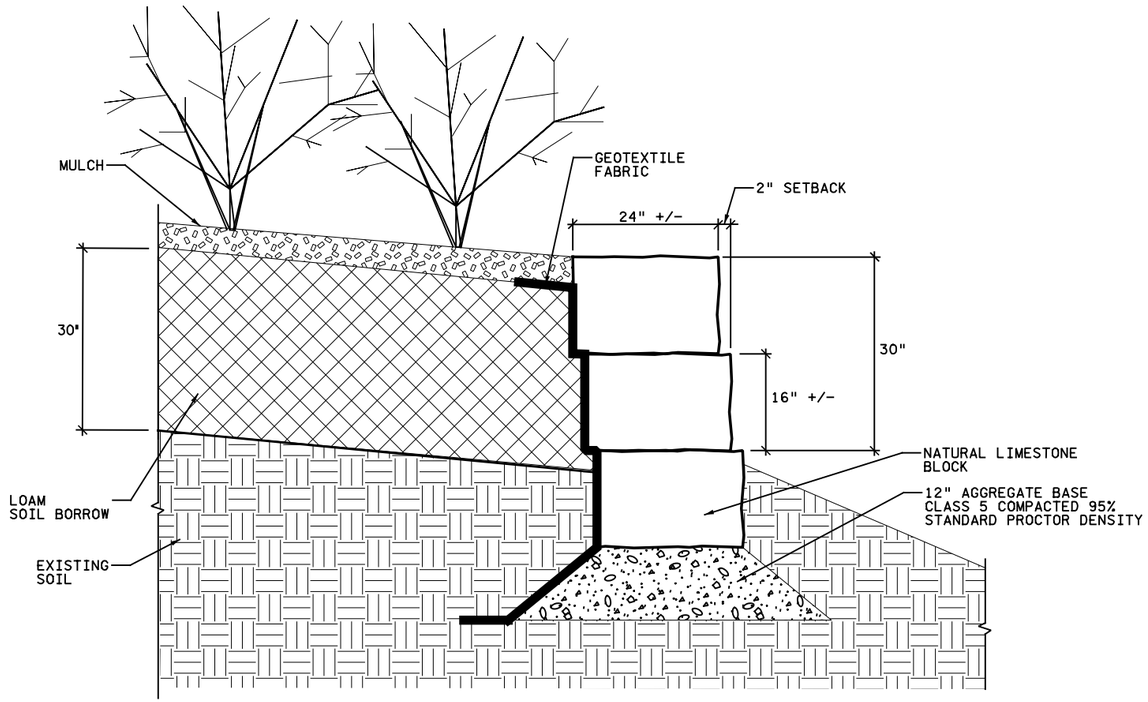
SHEET 524 OF 688

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1 525 TYPICAL DOWNTOWN SIDEWALK FINISH DETAIL

NOT TO SCALE



2 525 NATURAL LIMESTONE PLANTER WALL DETAIL

NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION

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Print Name: MICHAEL JISCHKE

Date _____ License # 42191

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY R. BURAND

DESIGNED BY R. BURAND

CHECKED BY M. JISCHKE

COMM. NO. 0158933

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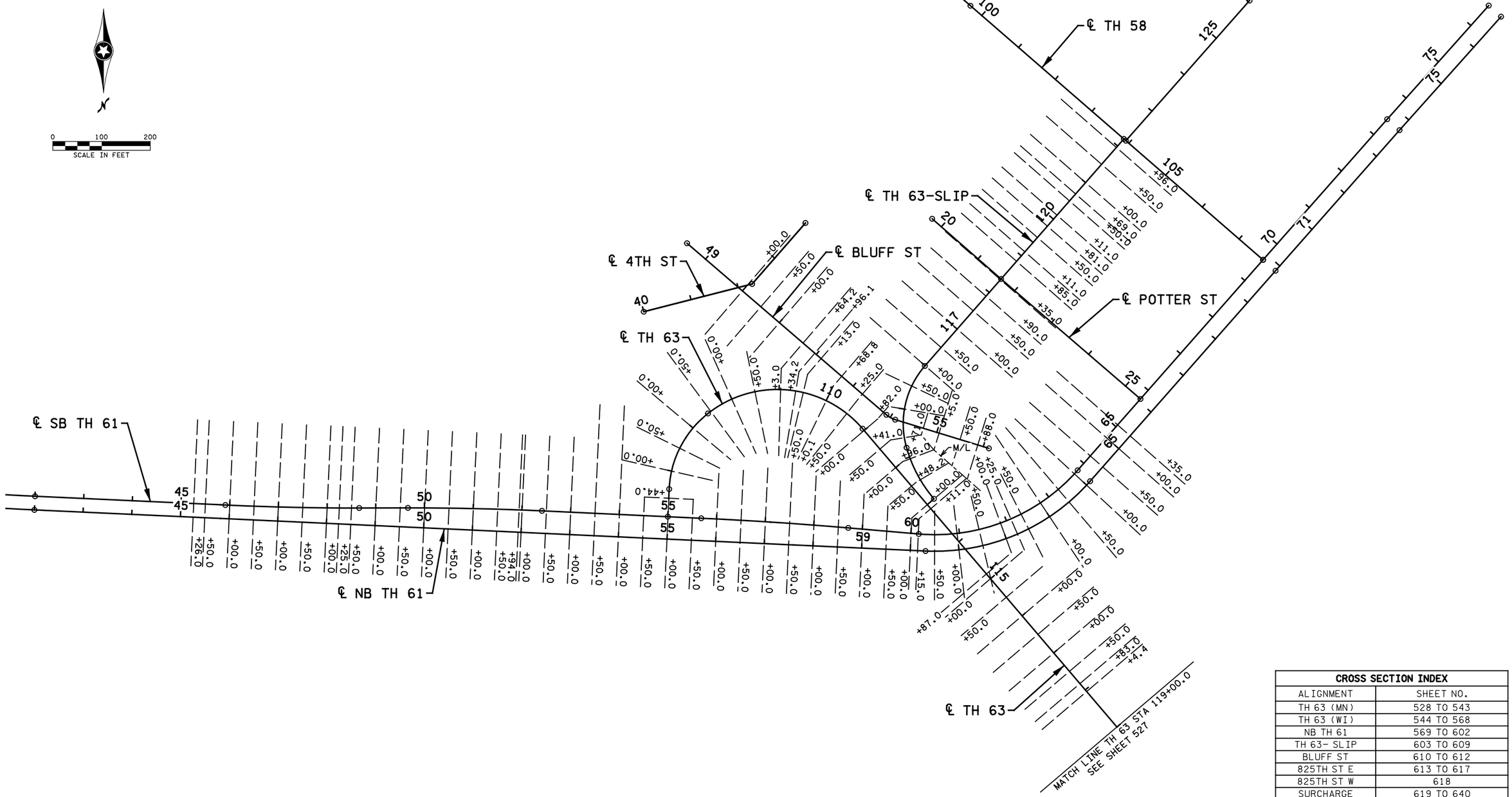
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LANDSCAPE DETAILS

SP 2515-21 (TH 63)

SHEET 525 OF 688

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CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
TH 63 (MN)	528 TO 543
TH 63 (WI)	544 TO 568
NB TH 61	569 TO 602
TH 63- SLIP	603 TO 609
BLUFF ST	610 TO 612
825TH ST E	613 TO 617
825TH ST W	618
SURCHARGE	619 TO 640
BYPASS 2	641 TO 651
BYPASS 3	652 TO 667
BYPASS 4 AND 7	668 TO 688

NO	DATE	BY	CKD	APPR	REVISION
...\cd251521_xs101.dgn					

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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

SRF Consulting Group, Inc. — Engineers Planners Designers

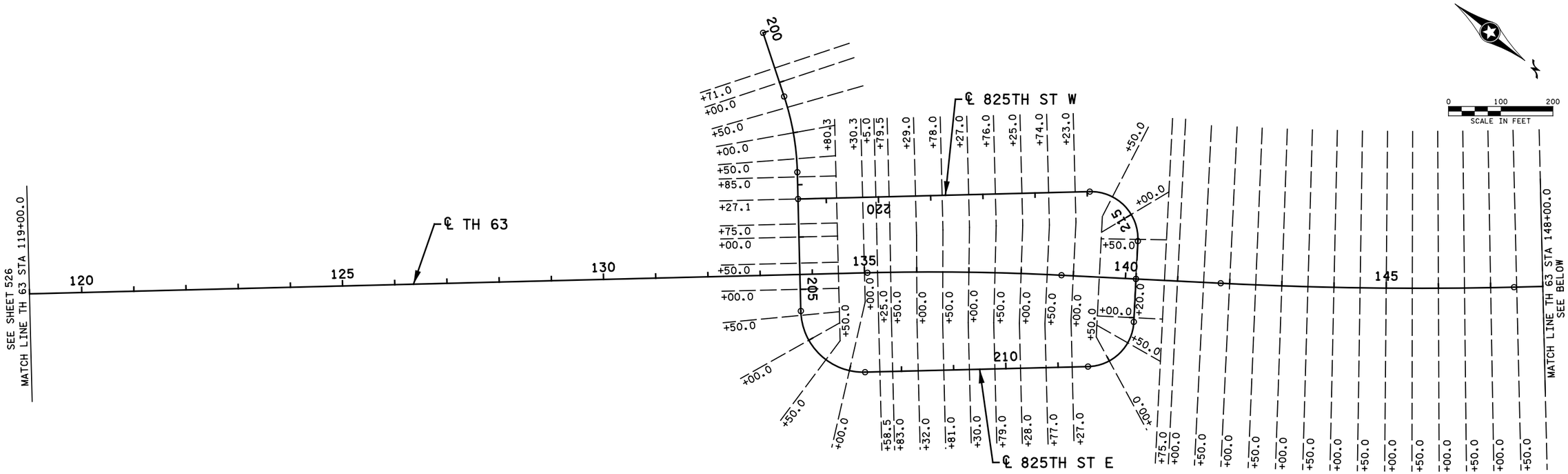
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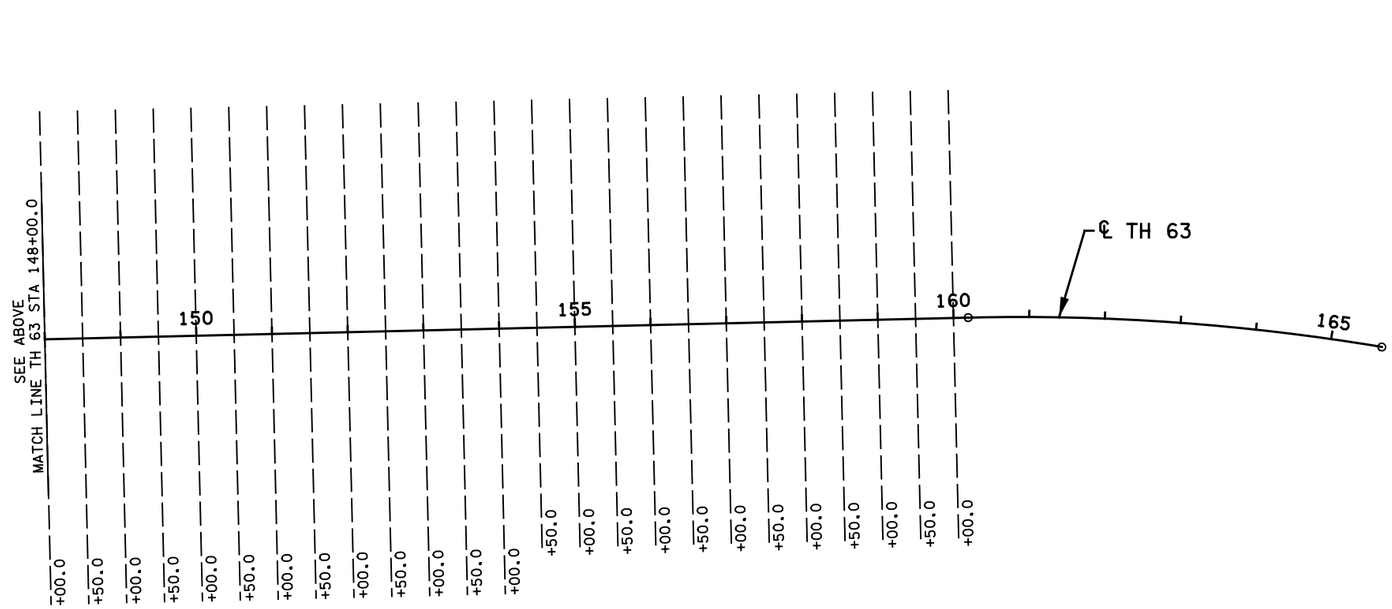
CROSS SECTION LAYOUT PLANS

SP 2515-21 (TH 63)

SHEET 526 OF 688

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CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
TH 63 (MN)	528 TO 543
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SURCHARGE	619 TO 640
BYPASS 2	641 TO 651
BYPASS 3	652 TO 667
BYPASS 4 AND 7	668 TO 688

NO	DATE	BY	CKD	APPR	REVISION
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Print Name: CRAIG J. HASS

Date _____ License # 45039

MINNESOTA STATE PROJECT NO. 2515-21

MINNESOTA STATE PROJECT NO. 2513-91

WISCONSIN PROJECT I.D. 7210-00-78

DRAWN BY S. MARTINS

DESIGNED BY A. EMERSON

CHECKED BY C. HASS

COMM. NO. 0158933

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MINNESOTA DEPARTMENT OF TRANSPORTATION

CROSS SECTION LAYOUT PLANS
SP 2515-21 (TH 63)

SHEET 527 OF 688

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GENERAL CROSS SECTION NOTES:

-SPECIAL DITCH GRADES ARE IDENTIFIED ON THE CROSS SECTIONS AND PROFILES.

-DITCH GRADES AND TOP OF DITCH BLOCK ELEVATIONS ARE TO THE BOTTOM OF SLOPE DRESSING.

-FOR ADDITIONAL SLOPE OR DITCH DETAILS, SEE TYPICAL SECTIONS.

-UTILITY AND DRAINAGE STRUCTURES SHOWN ON THE CROSS SECTIONS ARE INPLACE UNLESS NOTED OTHERWISE.

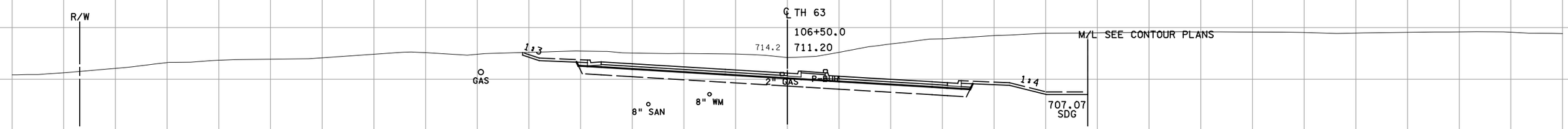
-SOME UTILITIES MAY HAVE BEEN REMOVED OR ABANDONED. SOME NEW UTILITIES MAY HAVE BEEN RECENTLY CONSTRUCTED AND MAY NOT BE SHOWN.

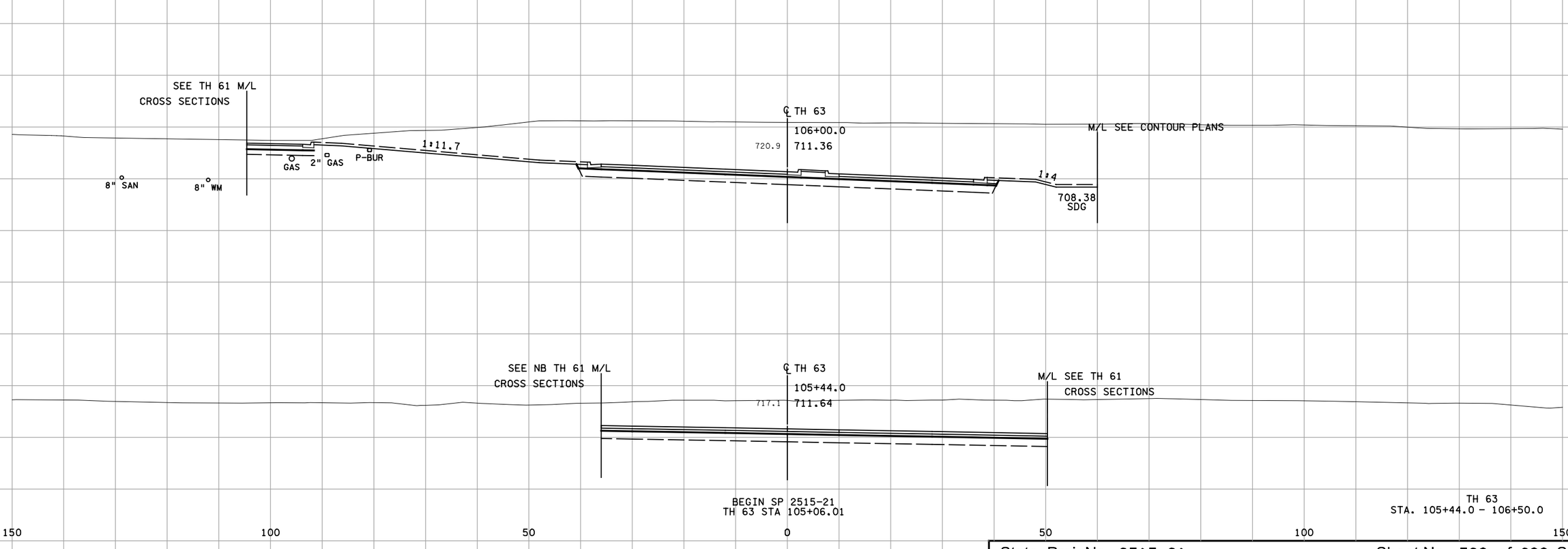
-SEE INPLACE TOPOGRAPHY AND UTILITY PLANS FOR OVERHEAD UTILITY LOCATIONS.

-SEE CONTOUR PLANS FOR ADDITIONAL GRADING NOT SHOWN ON CROSS SECTIONS.

-PROFILE GRADE IS NOT ALWAYS CARRIED ON CENTERLINE. SEE PROFILES AND TYPICAL SECTIONS FOR PROFILE GRADE LOCATIONS.

-SEE RETAINING WALL PLANS FOR RETAINING WALL DETAILS, DIMENSIONS AND BARRIER TYPES.





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150 100 50 0 50 100 150

730 720 710 700 690

℄ TH 63
108+00.0
710.4 712.72

R/W

1:4

1:4

M/L SEE CONTOUR PLANS
708.55

P-BUR

8" SAN

8" WM

℄ TH 63
107+50.0
712.2 711.88

R/W

T-BUR

1:4

1:4

M/L SEE CONTOUR PLANS
707.71
SDG

P-BUR

8" SAN

8" WM

℄ TH 63
107+00.0
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R/W

T-BUR

1:4

1:4

M/L SEE CONTOUR PLANS
707.39
SDG

P-BUR

8" SAN

8" WM

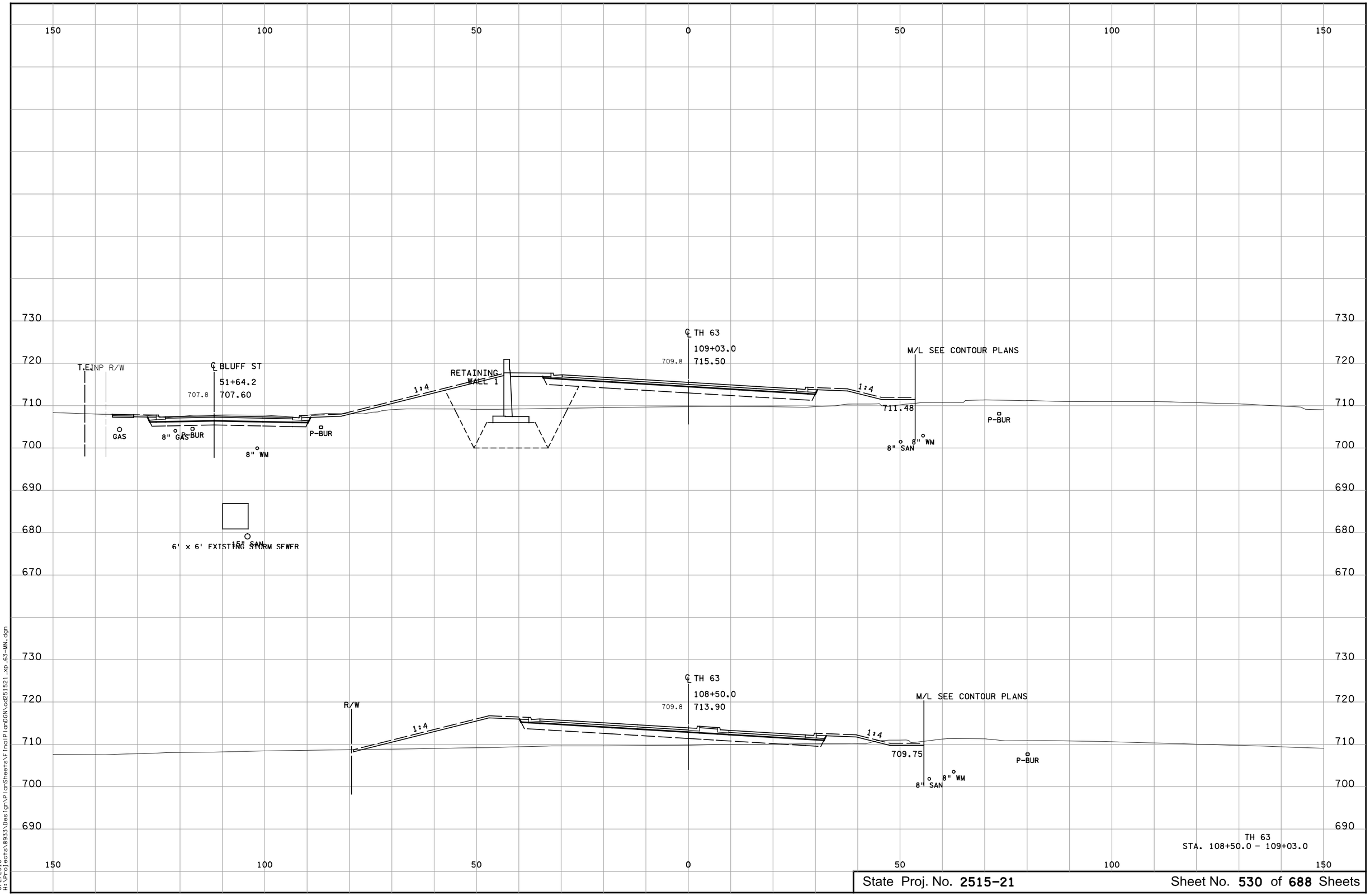
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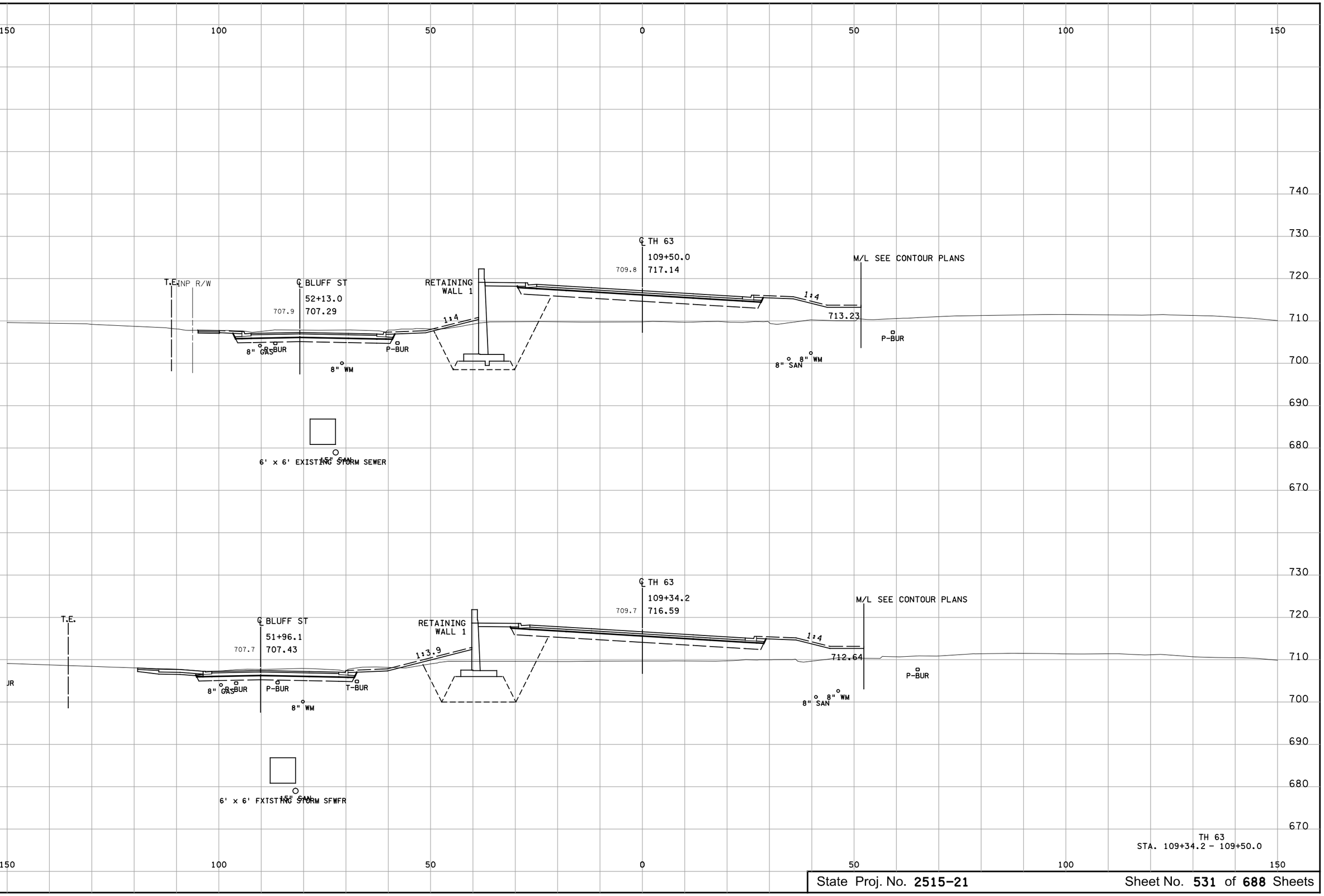
State Proj. No. **2515-21**

Sheet No. **529** of **688** Sheets

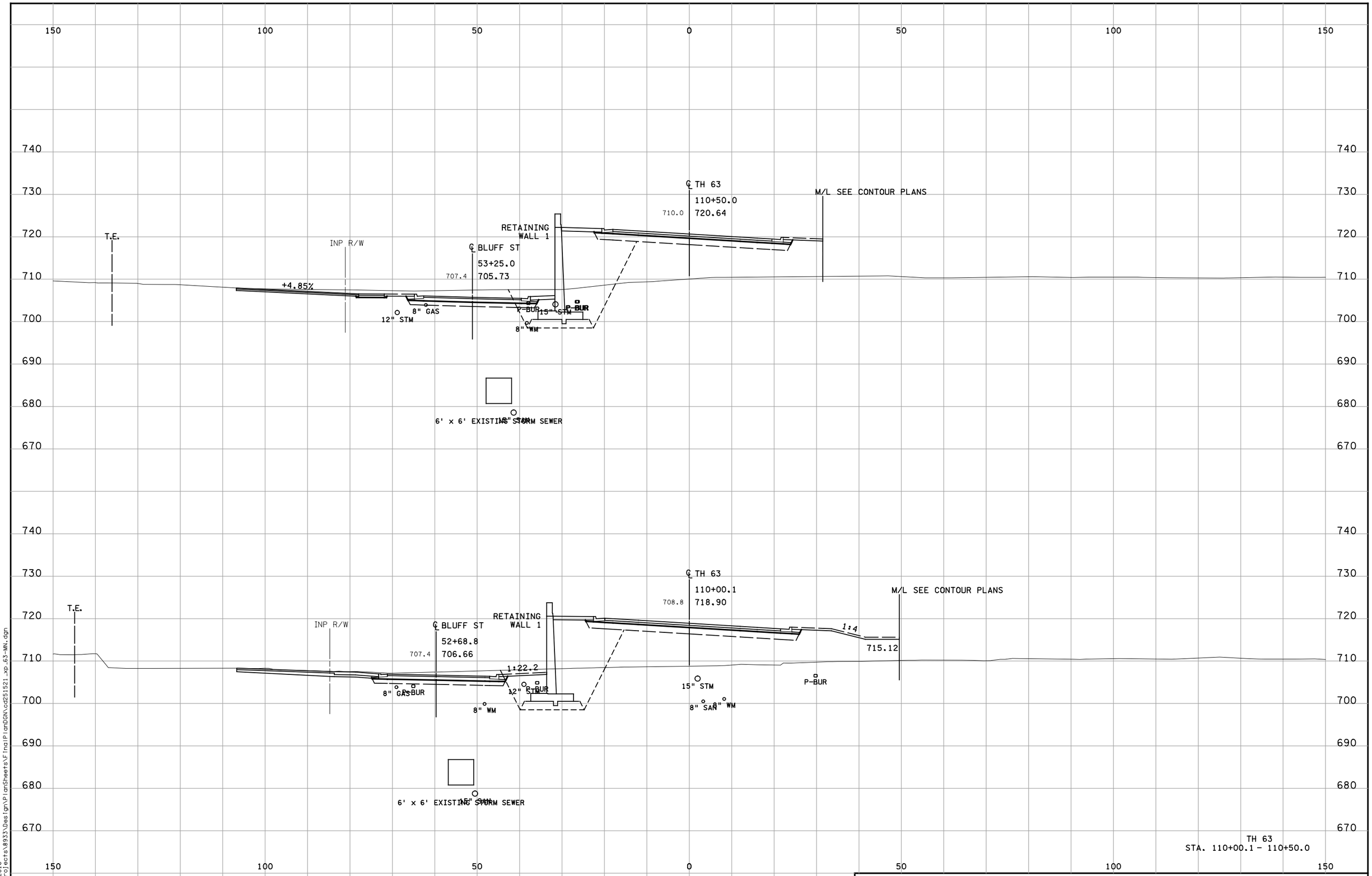
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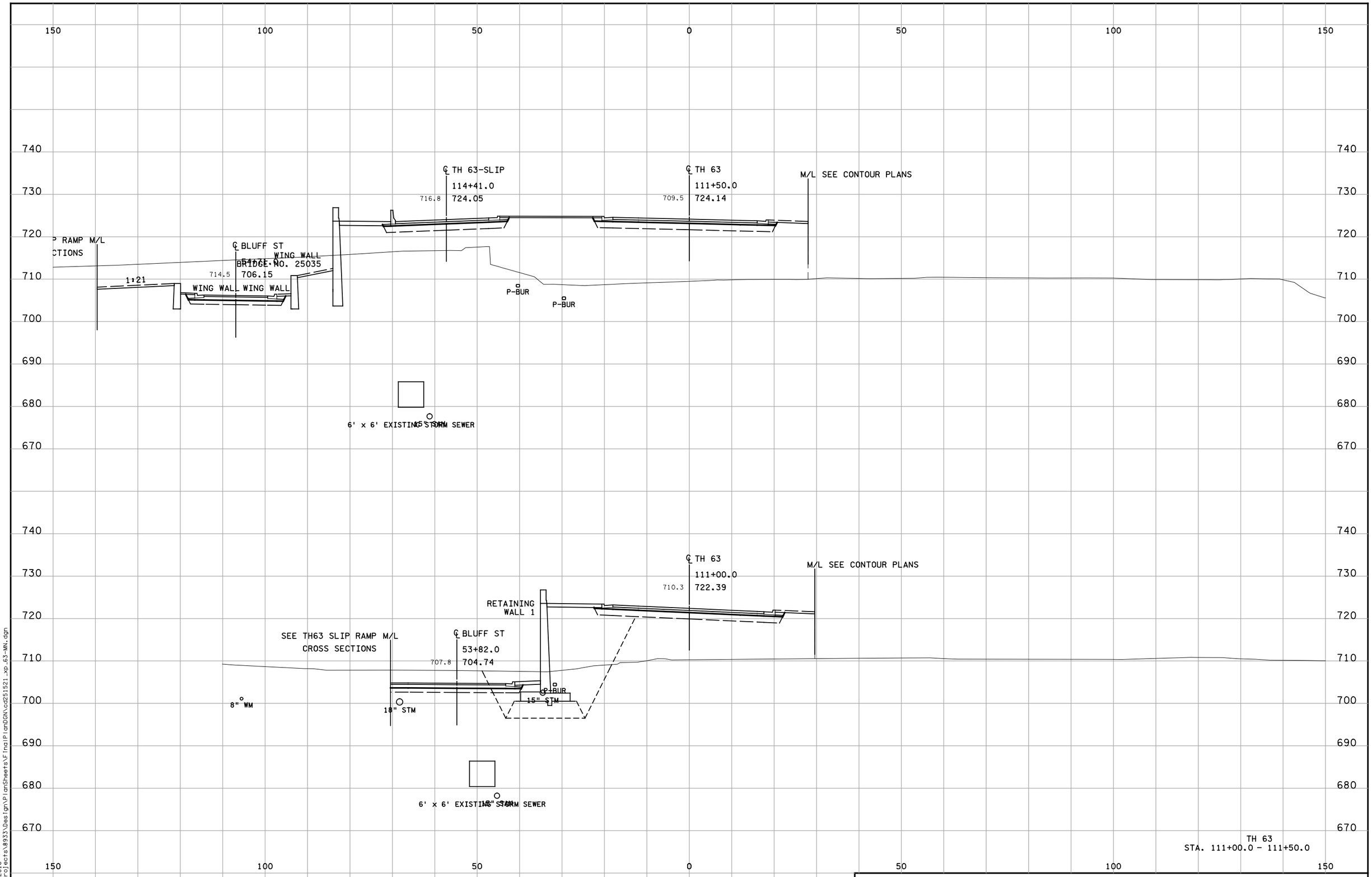


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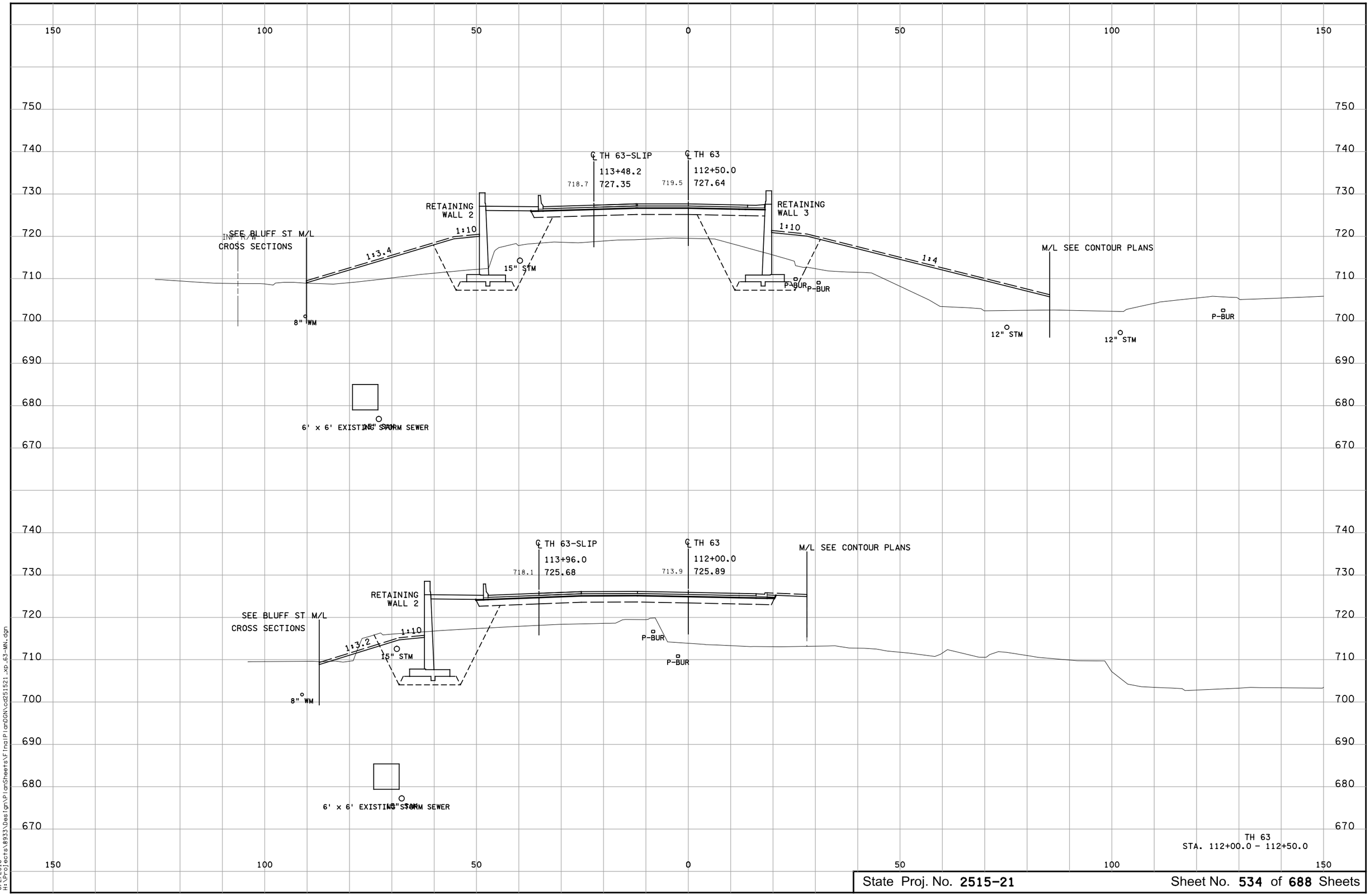


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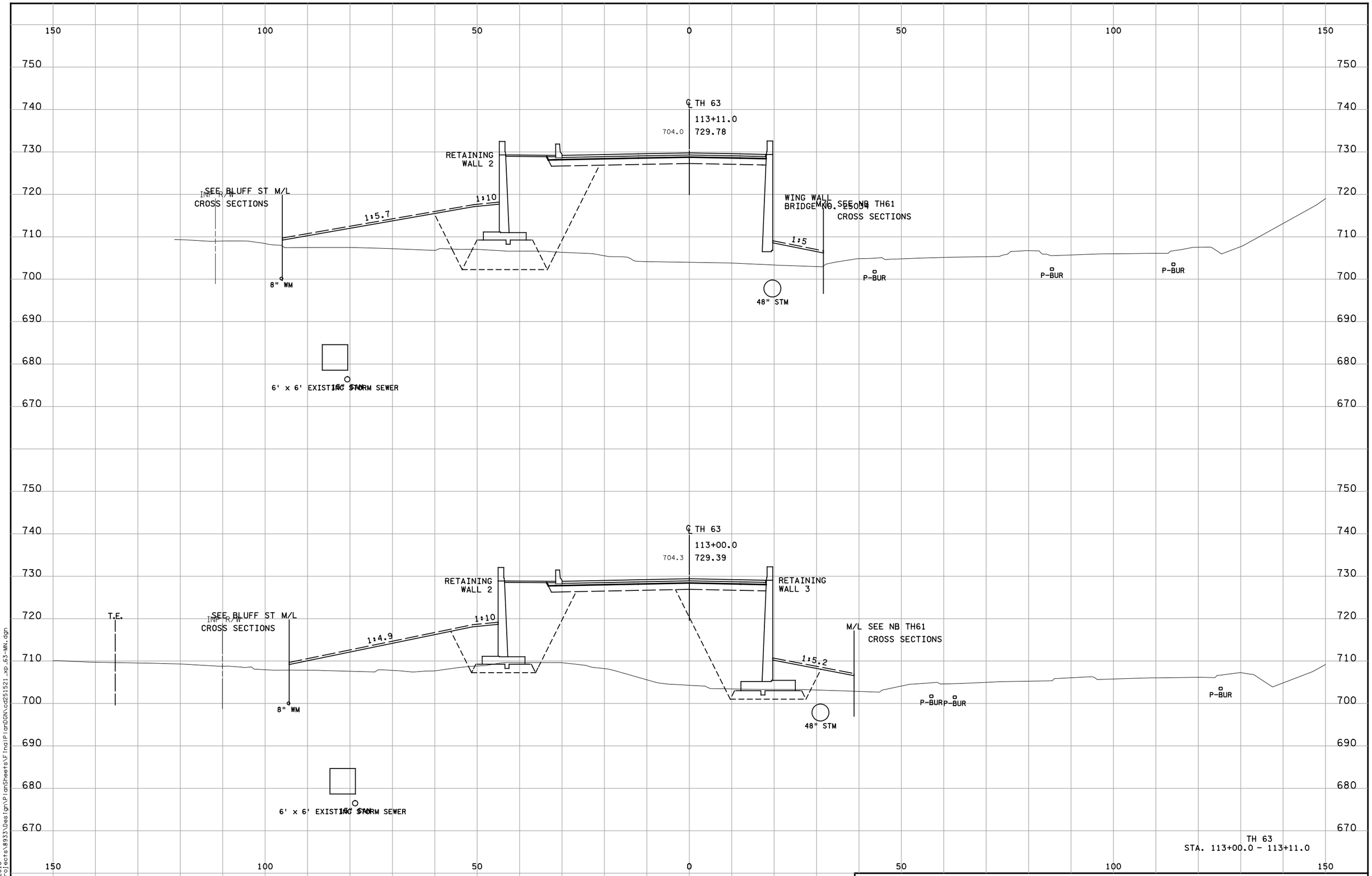
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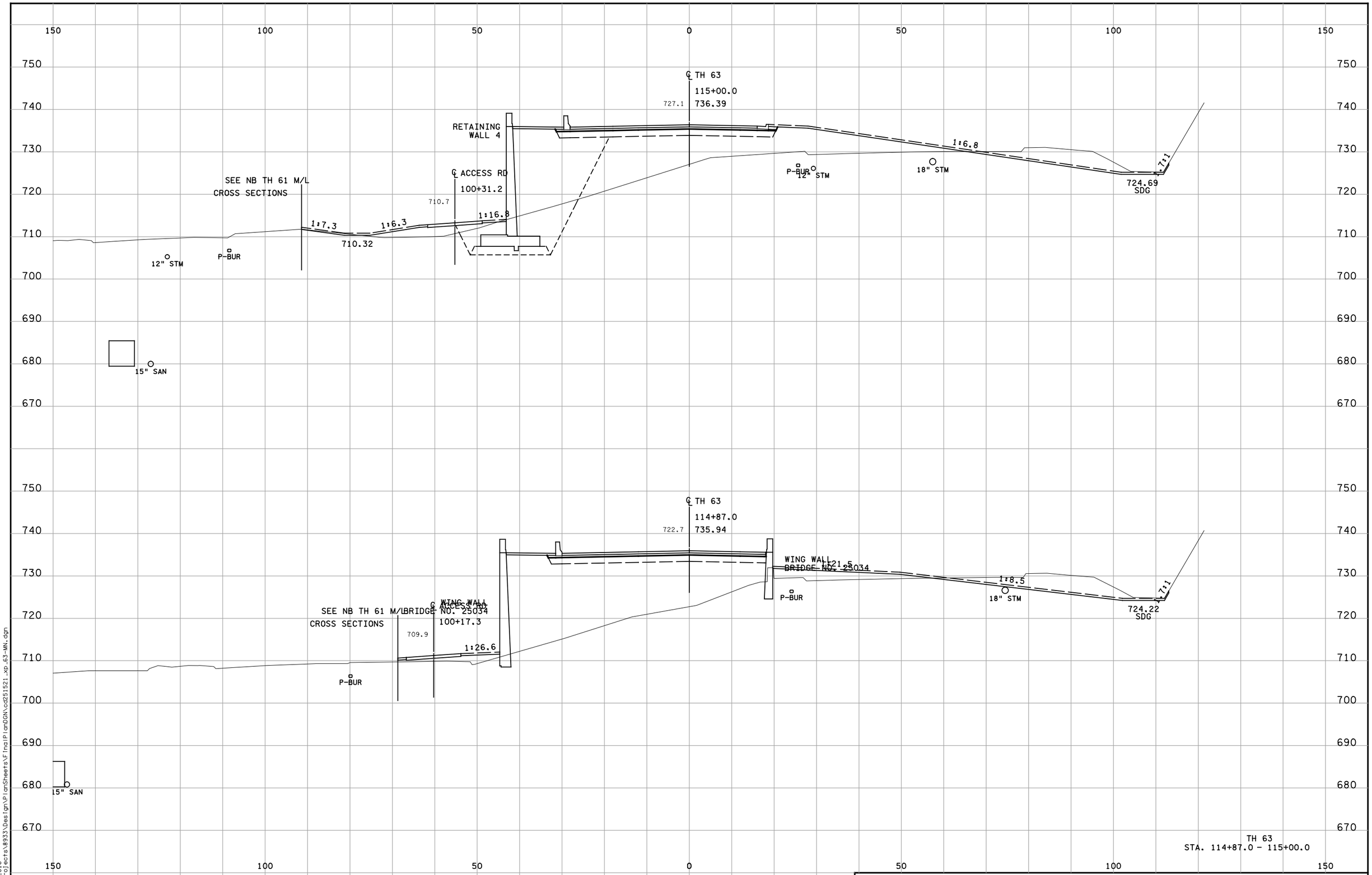
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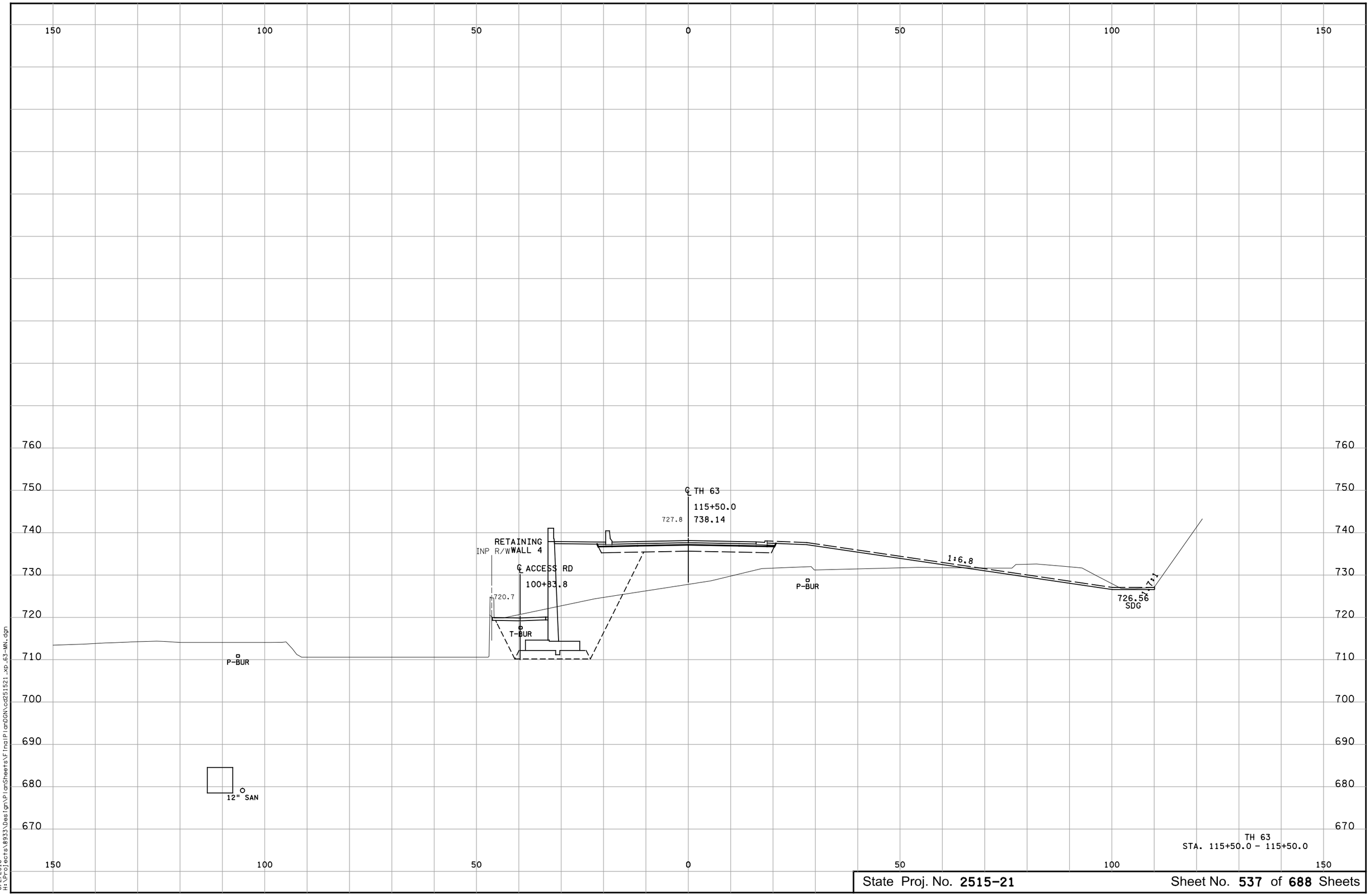
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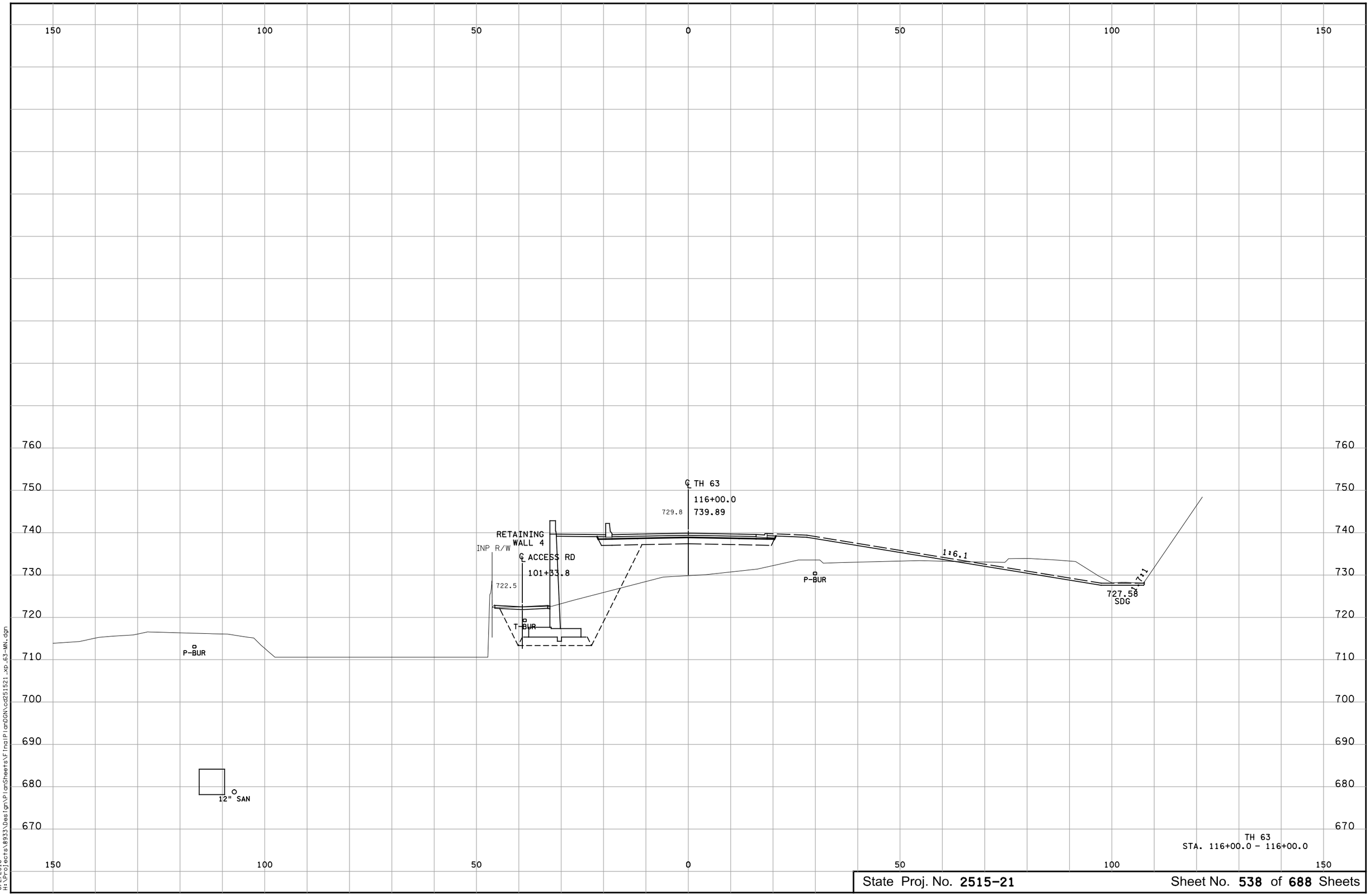
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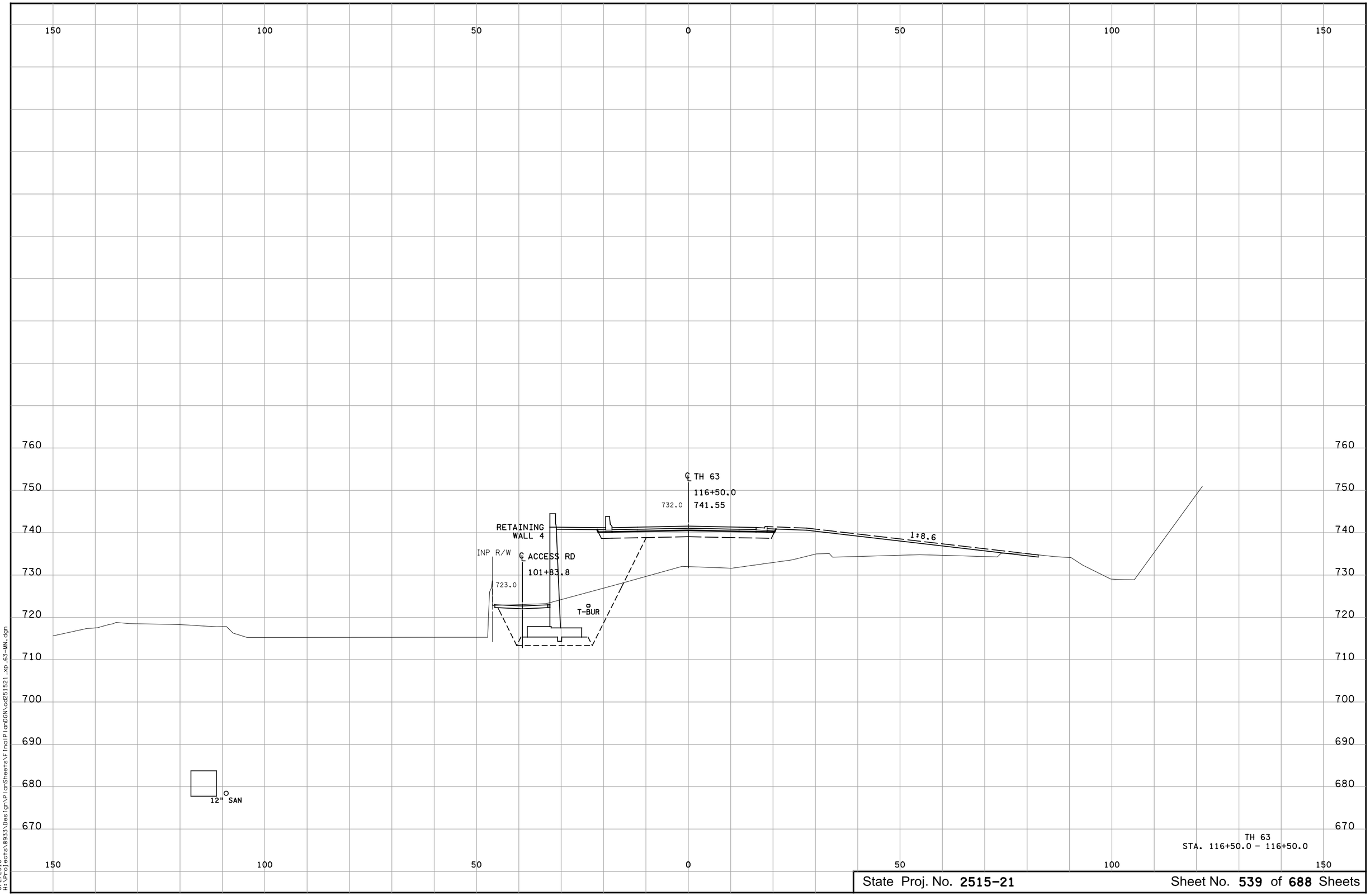
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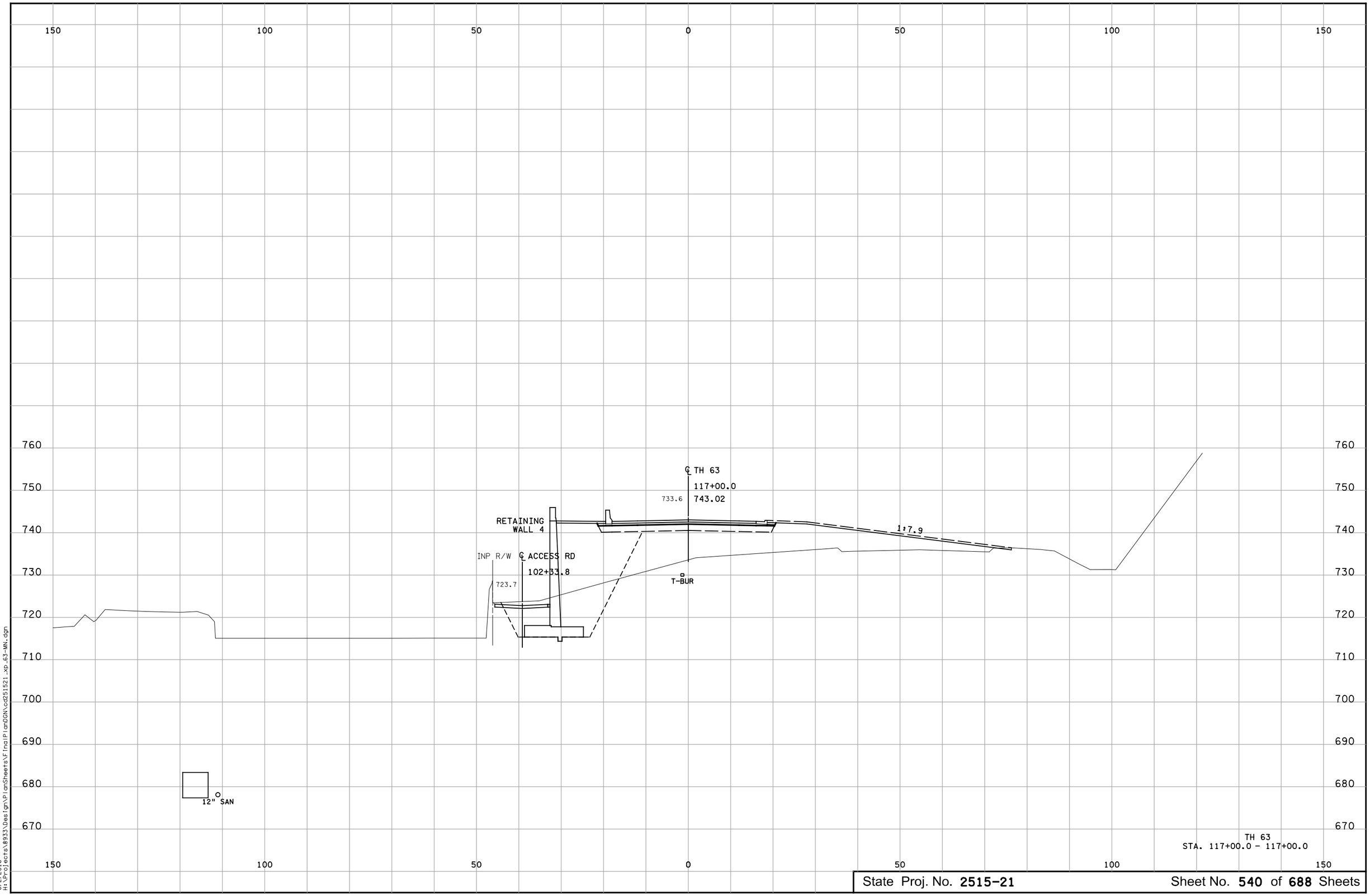
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TH 63
STA. 117+00.0 - 117+00.0

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760 750 740 730 720 710 700 690 680 670

℄ TH 63
117+50.0
733.4 744.30

RETAINING WALL 4

INP R/W ℄ ACCESS RD
102+83.8
723.8

P-BUR

T-BUR

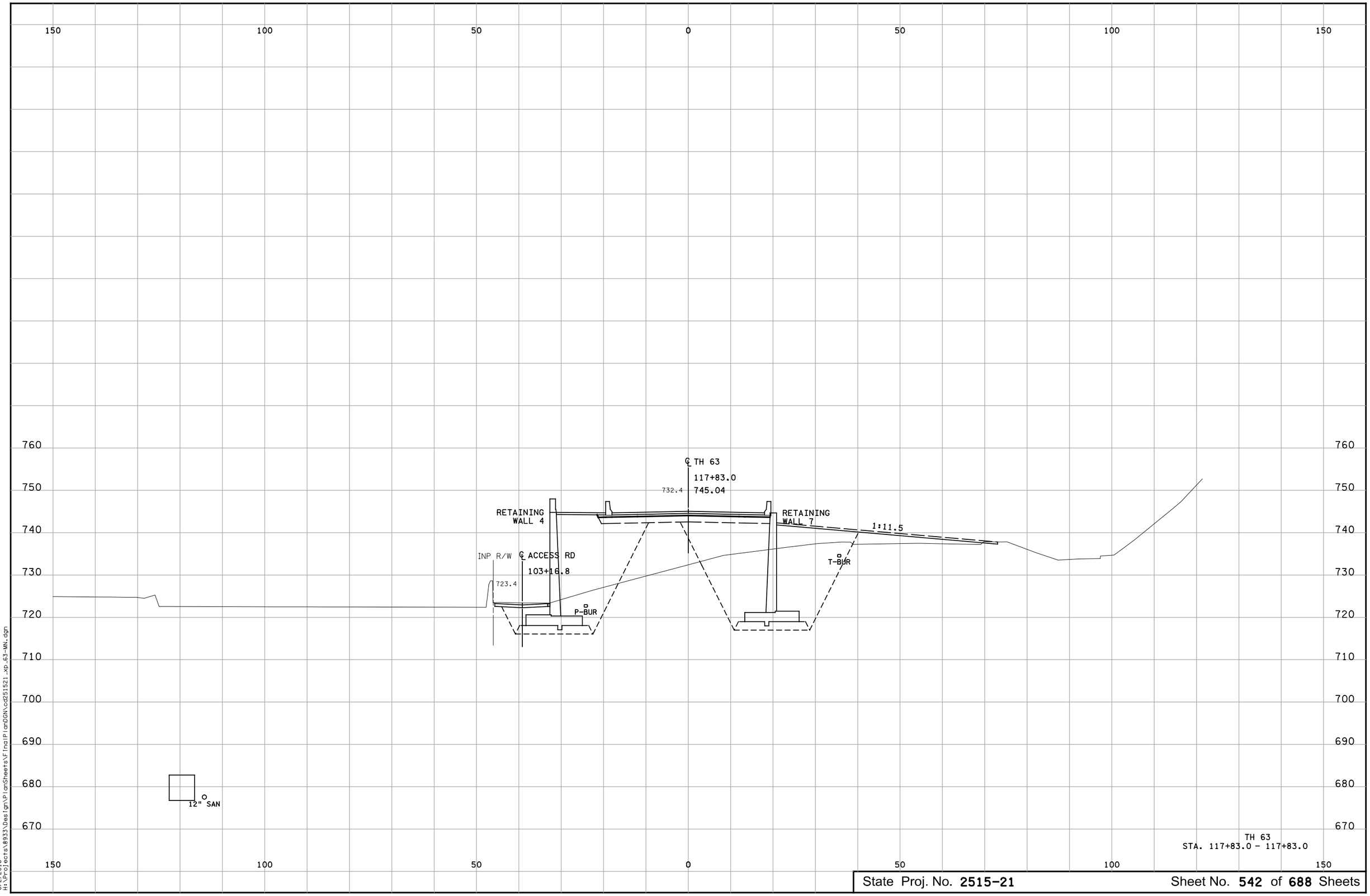
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12" SAN

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STA. 117+50.0 - 117+50.0

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END SP 2515-21
BEGIN WISCONSIN ID 7210-00-78
TH 63 STA 123+04.15

℄ TH 63
118+04.4
745.48

730.6

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WING WALL
BRIDGE NO. 25033
103+38.2

723.4

P-BUR

WING WALL
BRIDGE NO. 25033

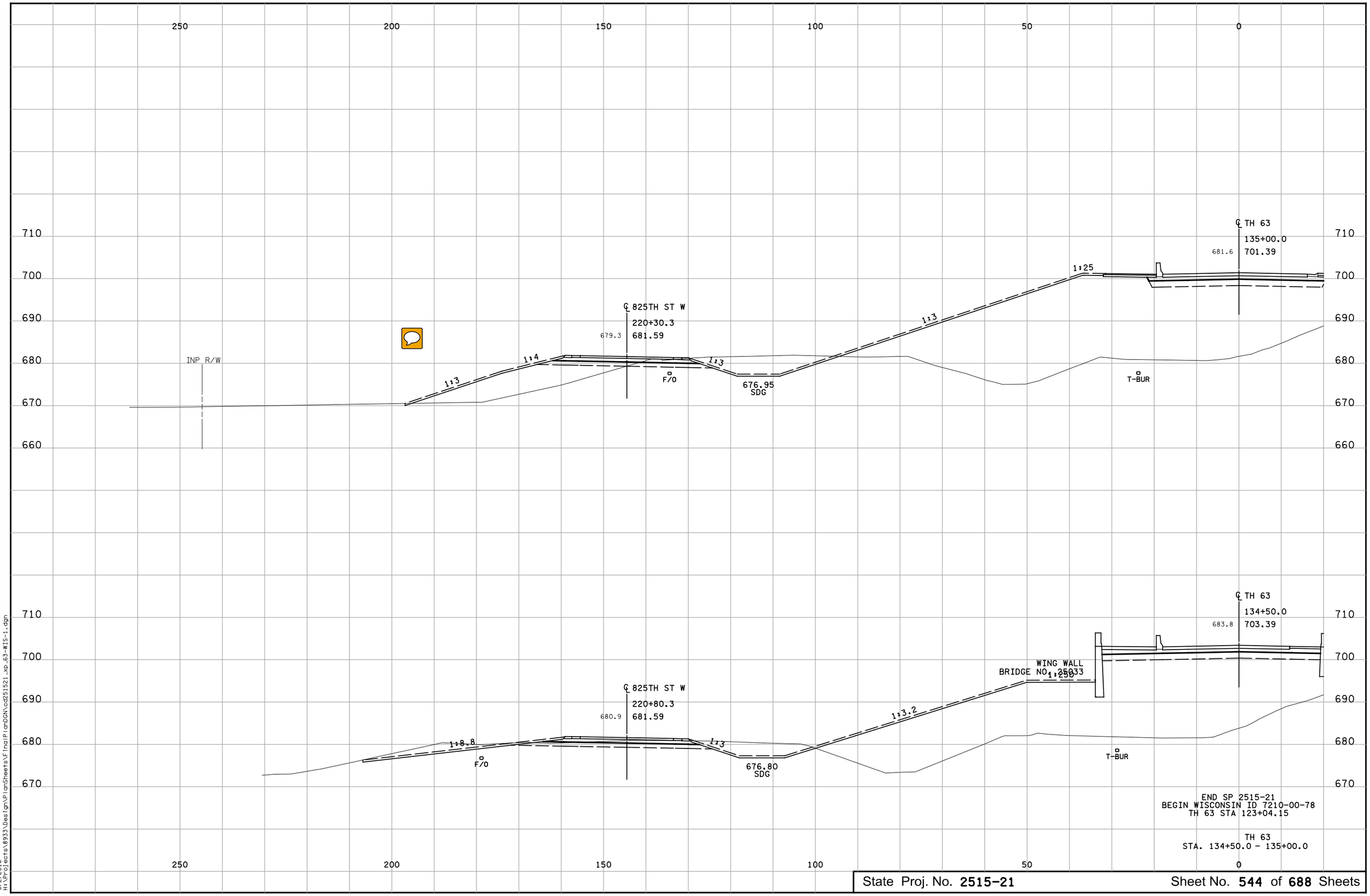
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T-BUR

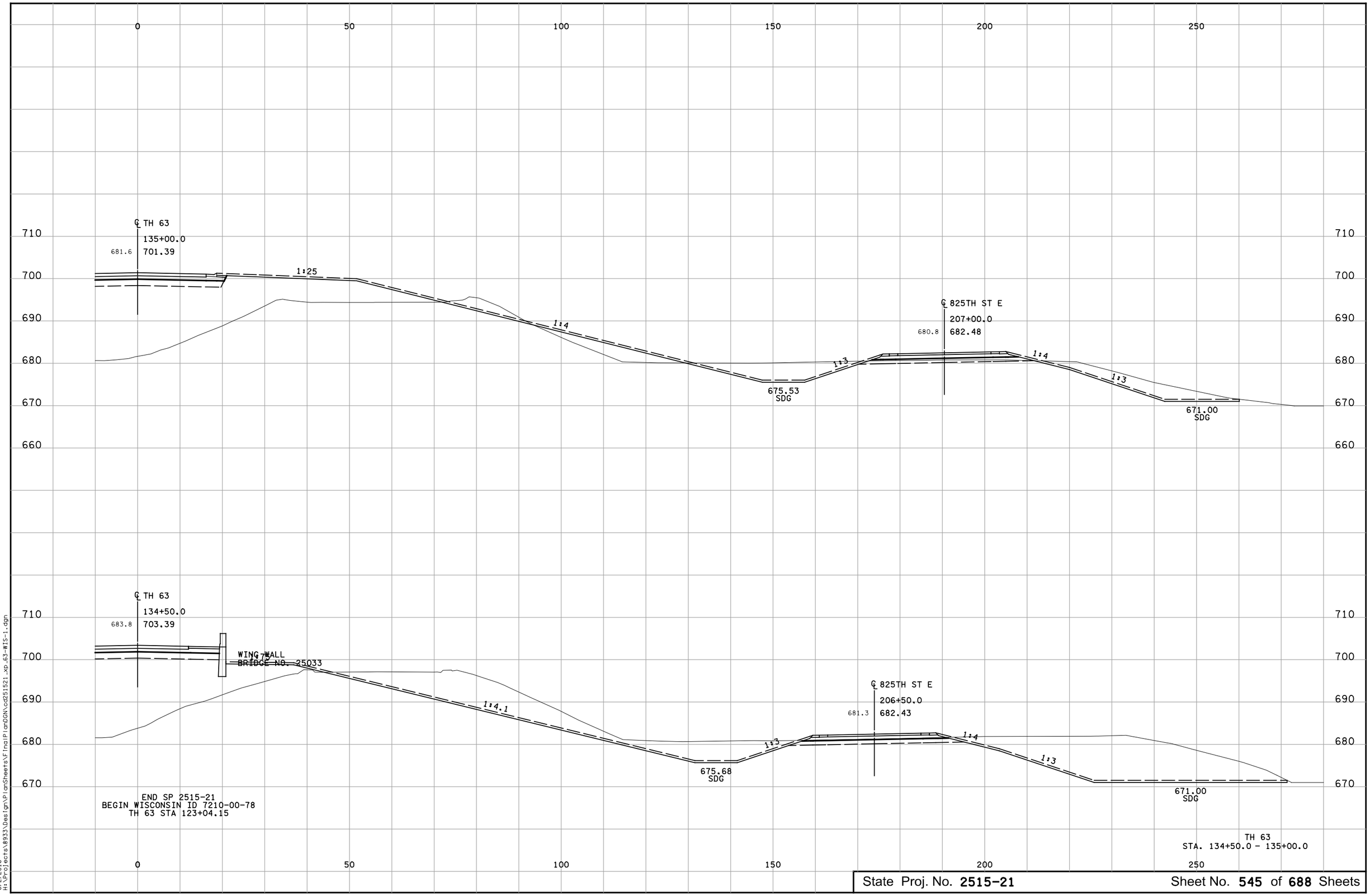
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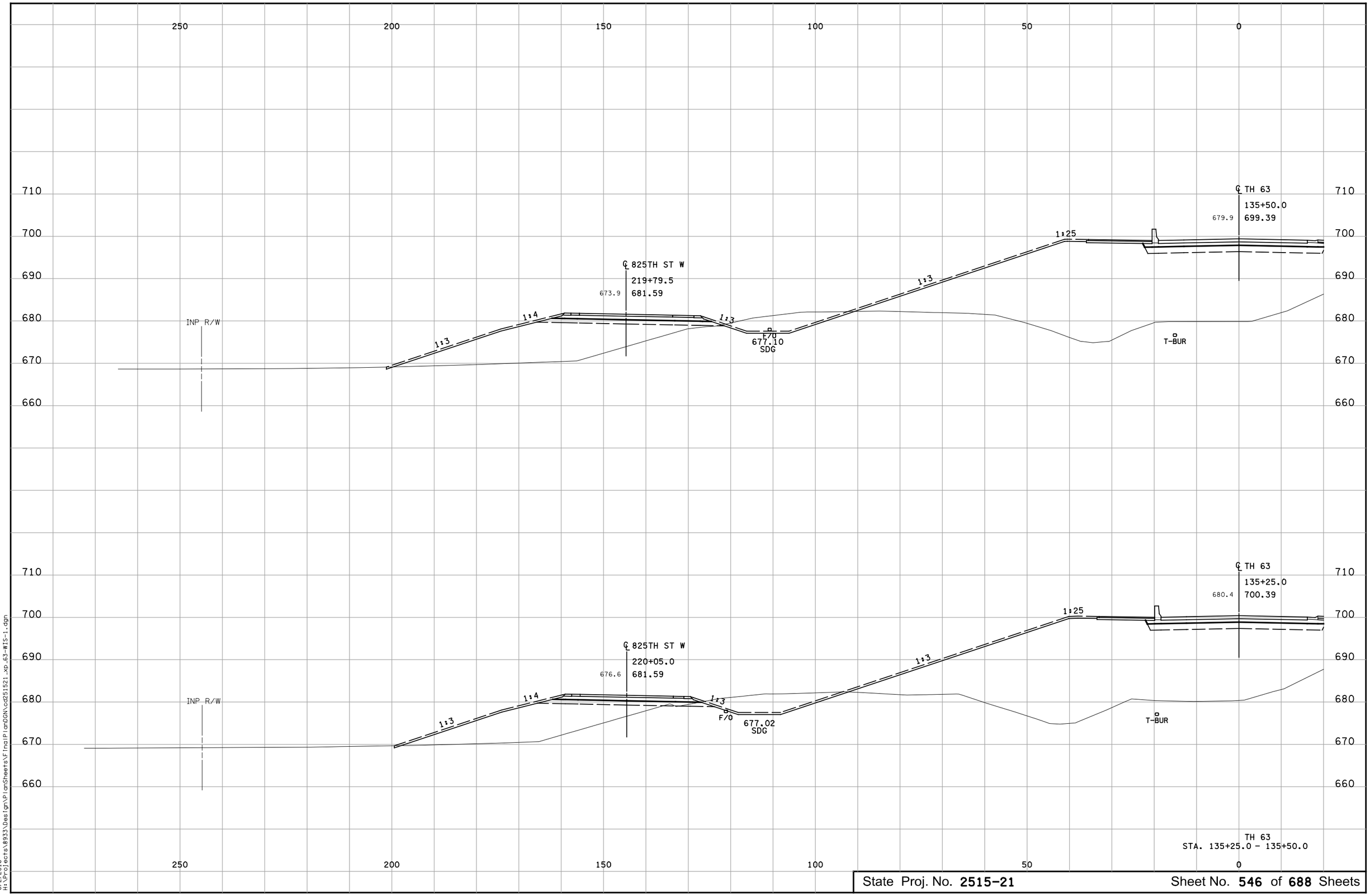
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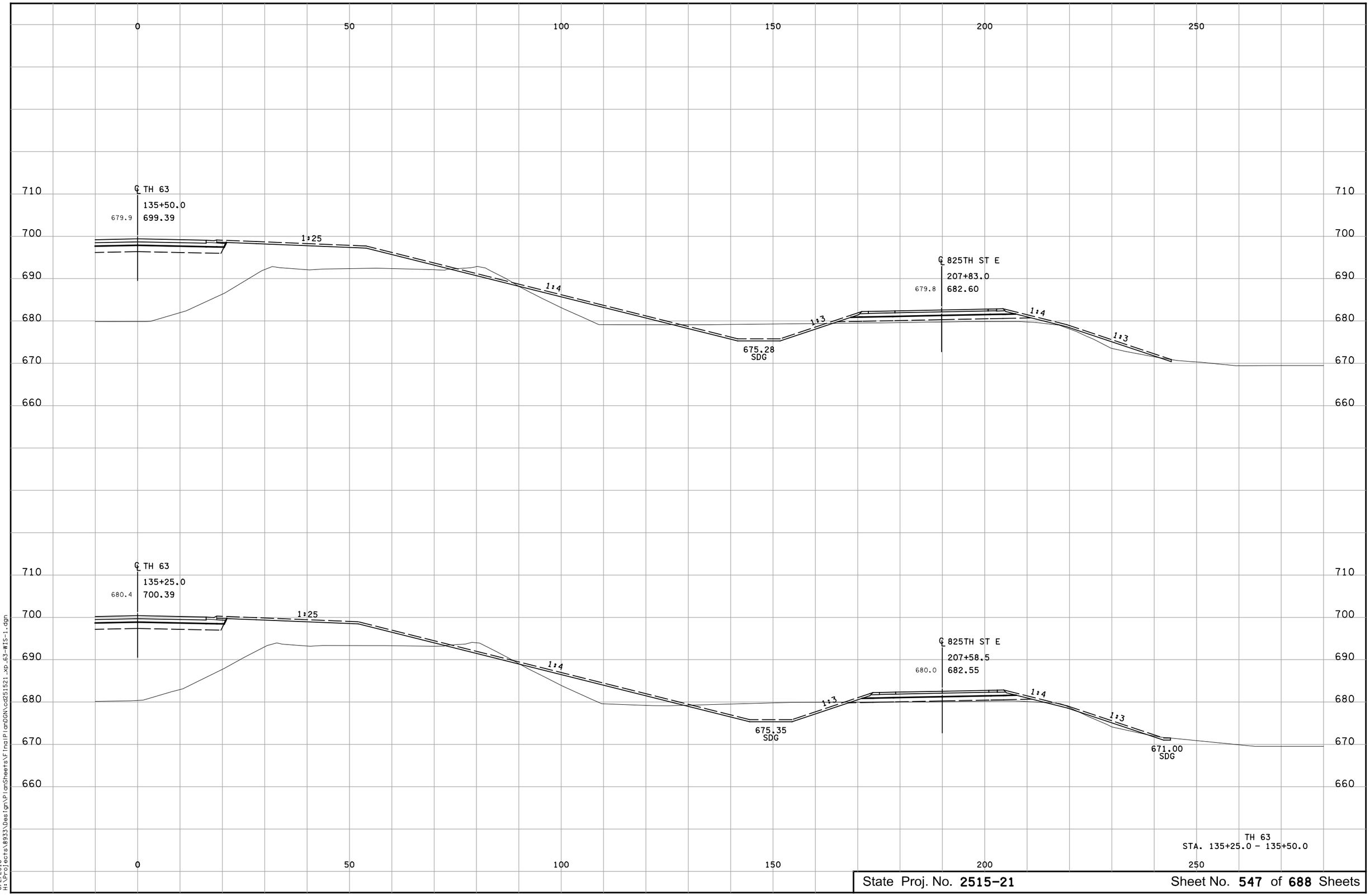


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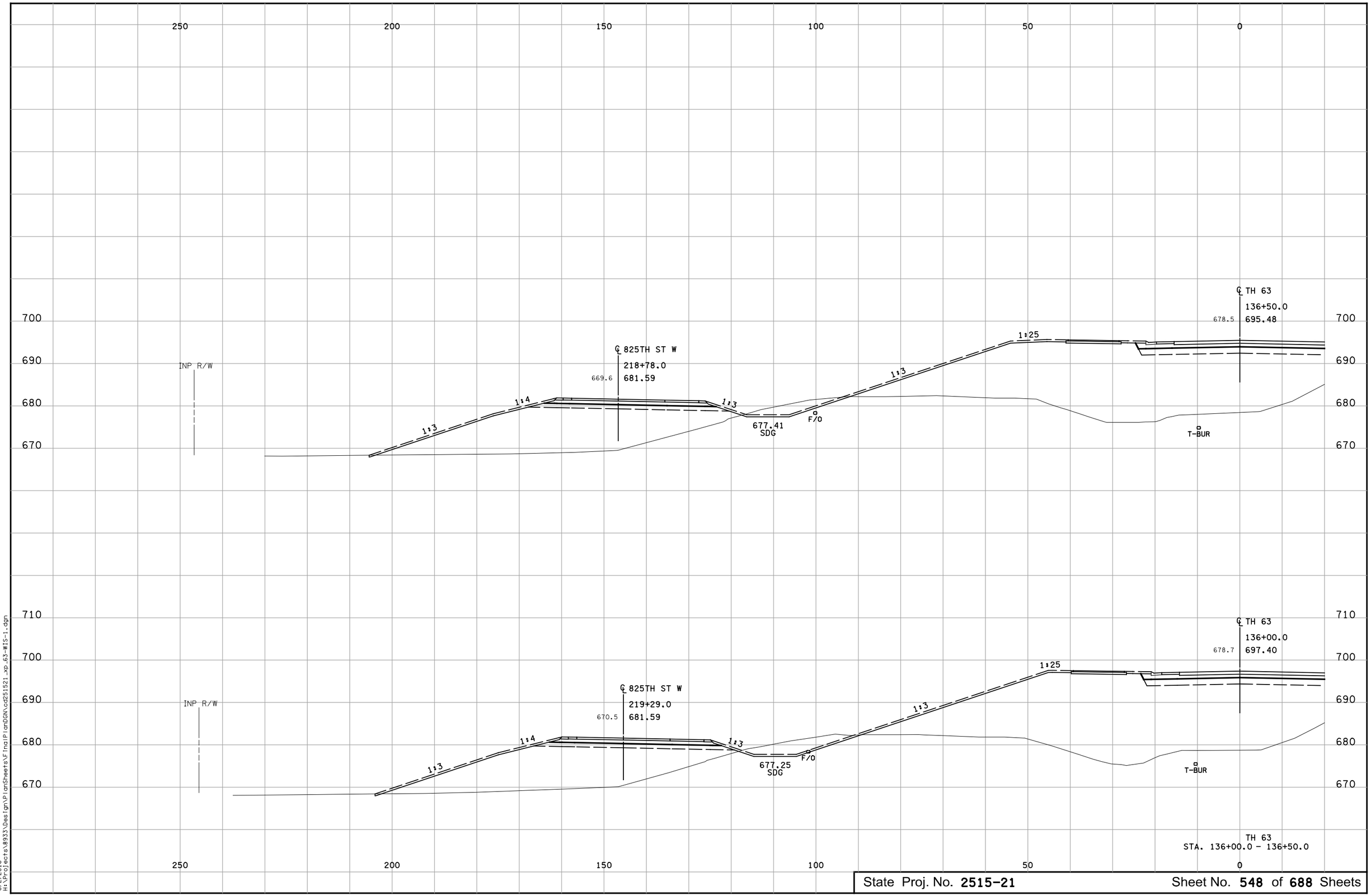


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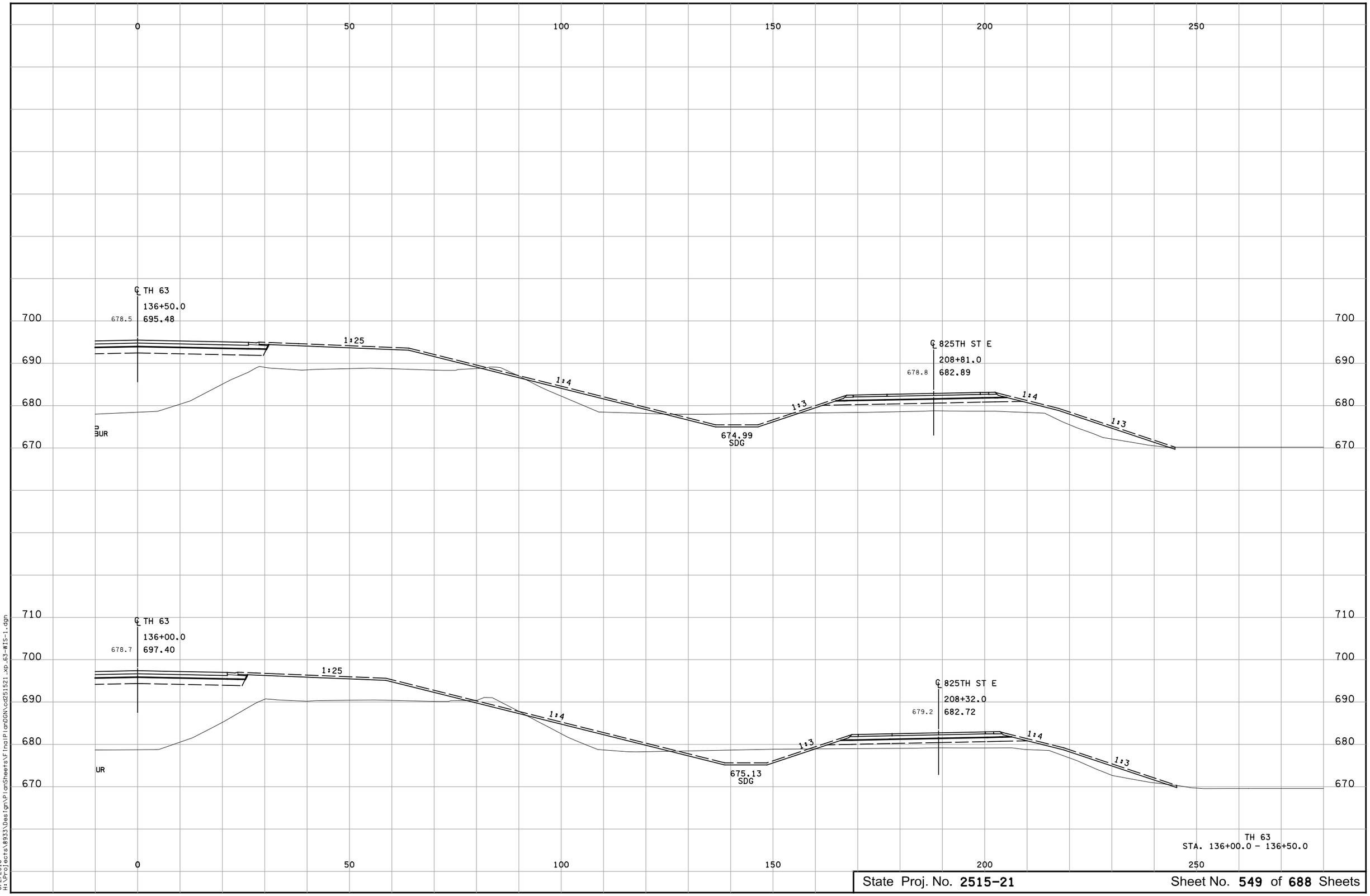

250
200
150
100
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710
700
690
680
670
660
INP R/W
1:3
1:4
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1:3
1:25
℄ 825TH ST W
219+79.5
673.9
681.59
F/O
677.10
SDG
℄ TH 63
135+50.0
679.9
699.39
T-BUR
℄ 825TH ST W
220+05.0
676.6
681.59
F/O
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T-BUR
TH 63
STA. 135+25.0 - 135+50.0



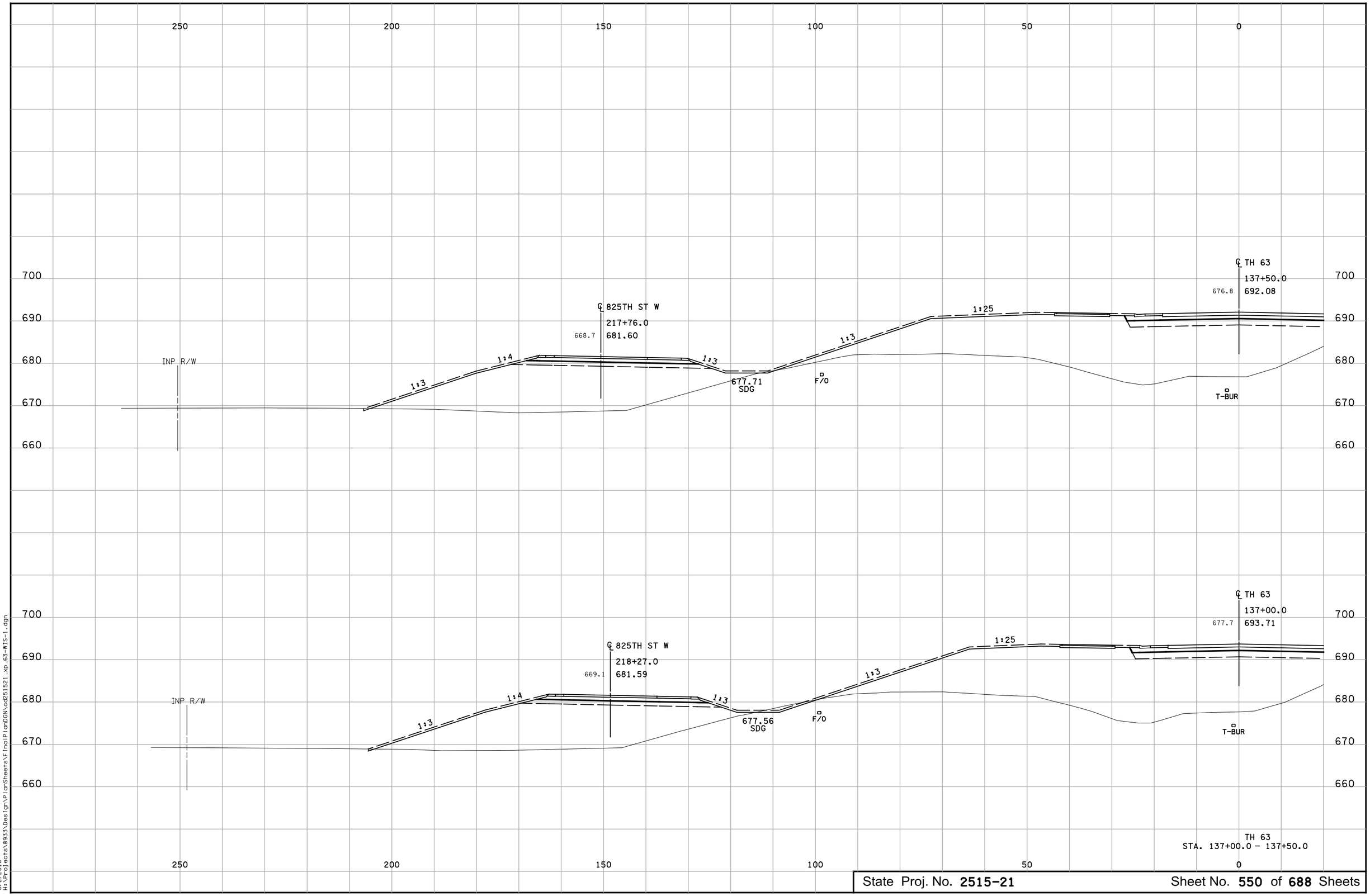
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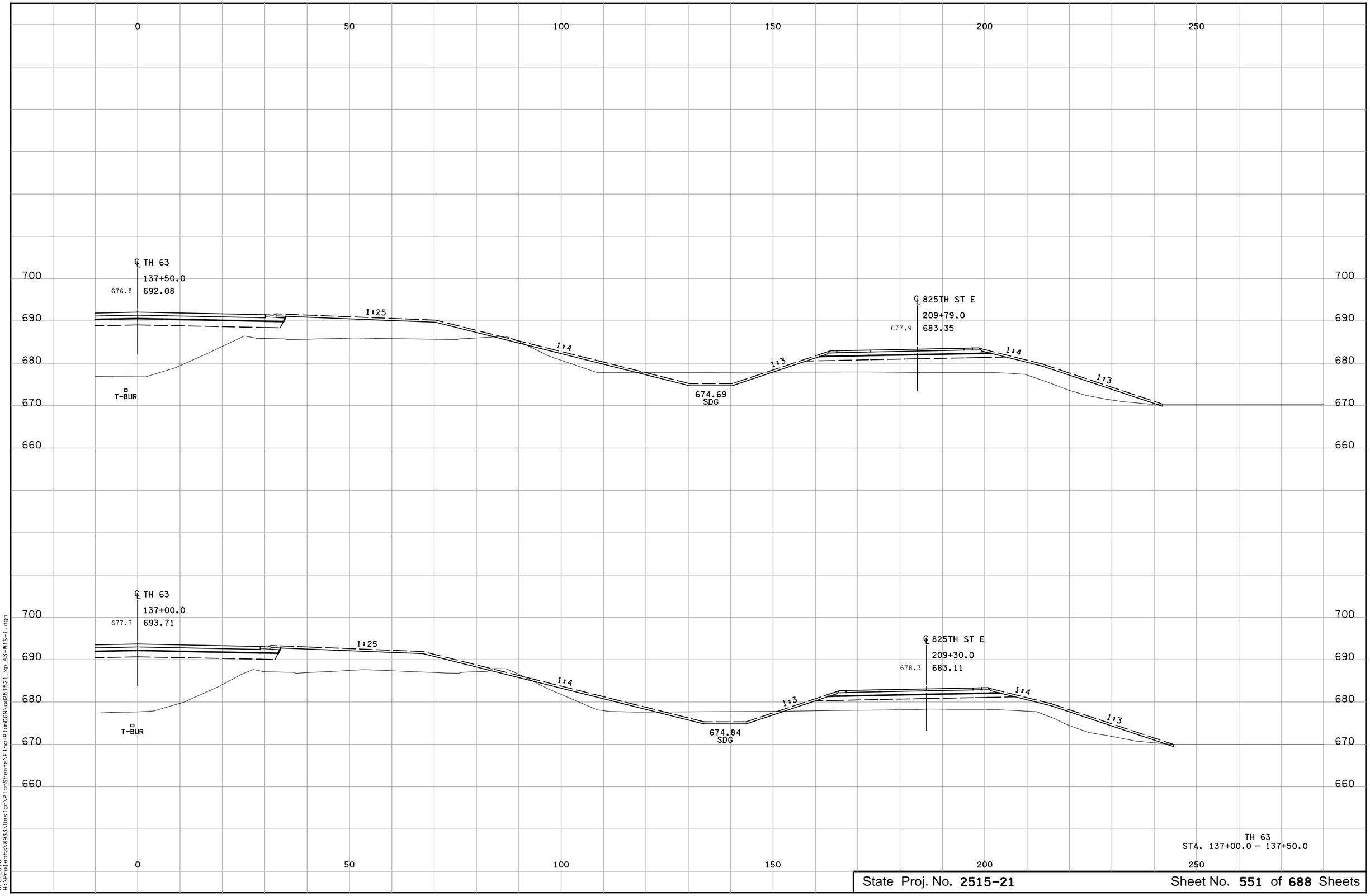
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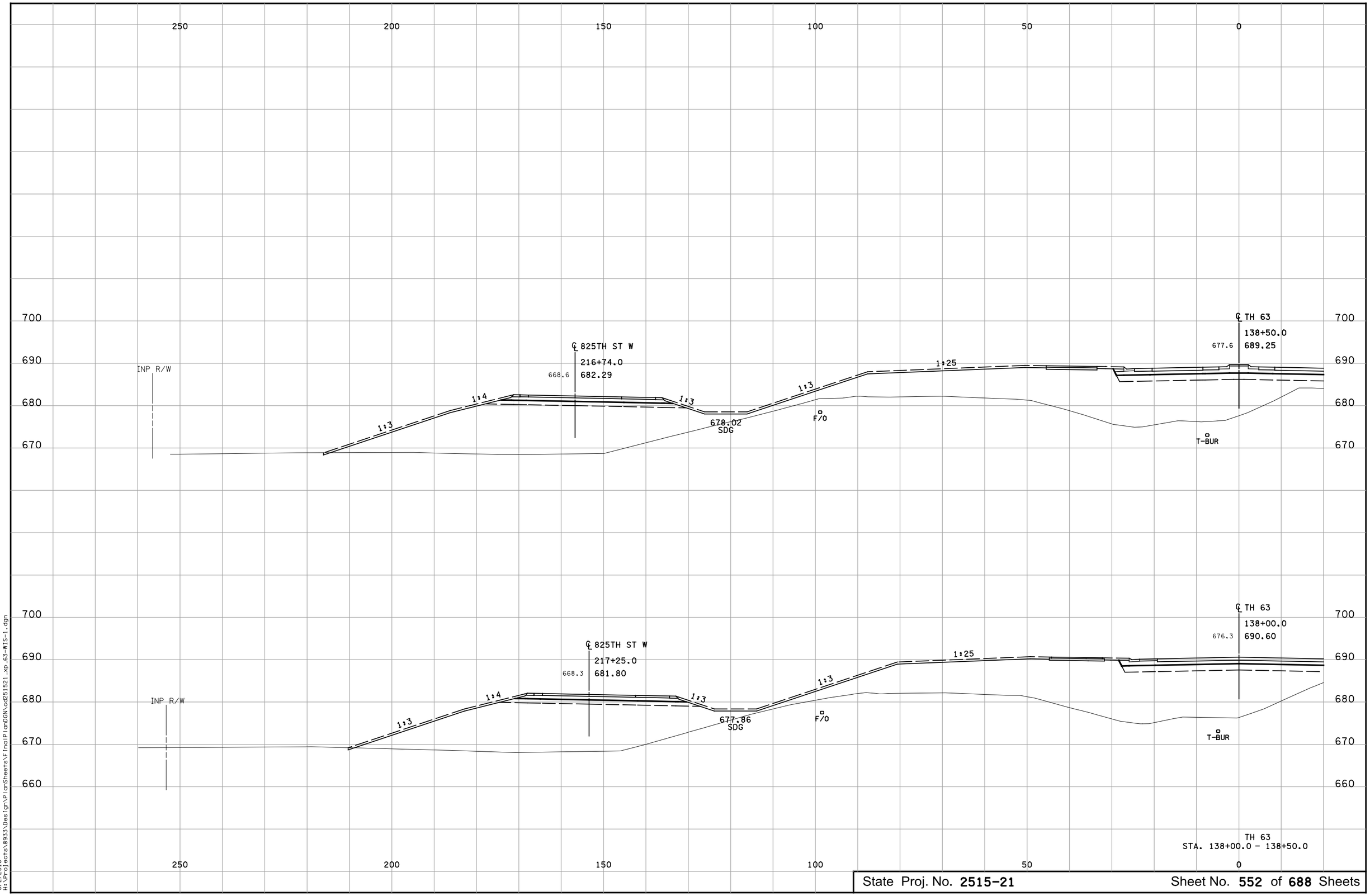
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TH 63
STA. 137+00.0 - 137+50.0

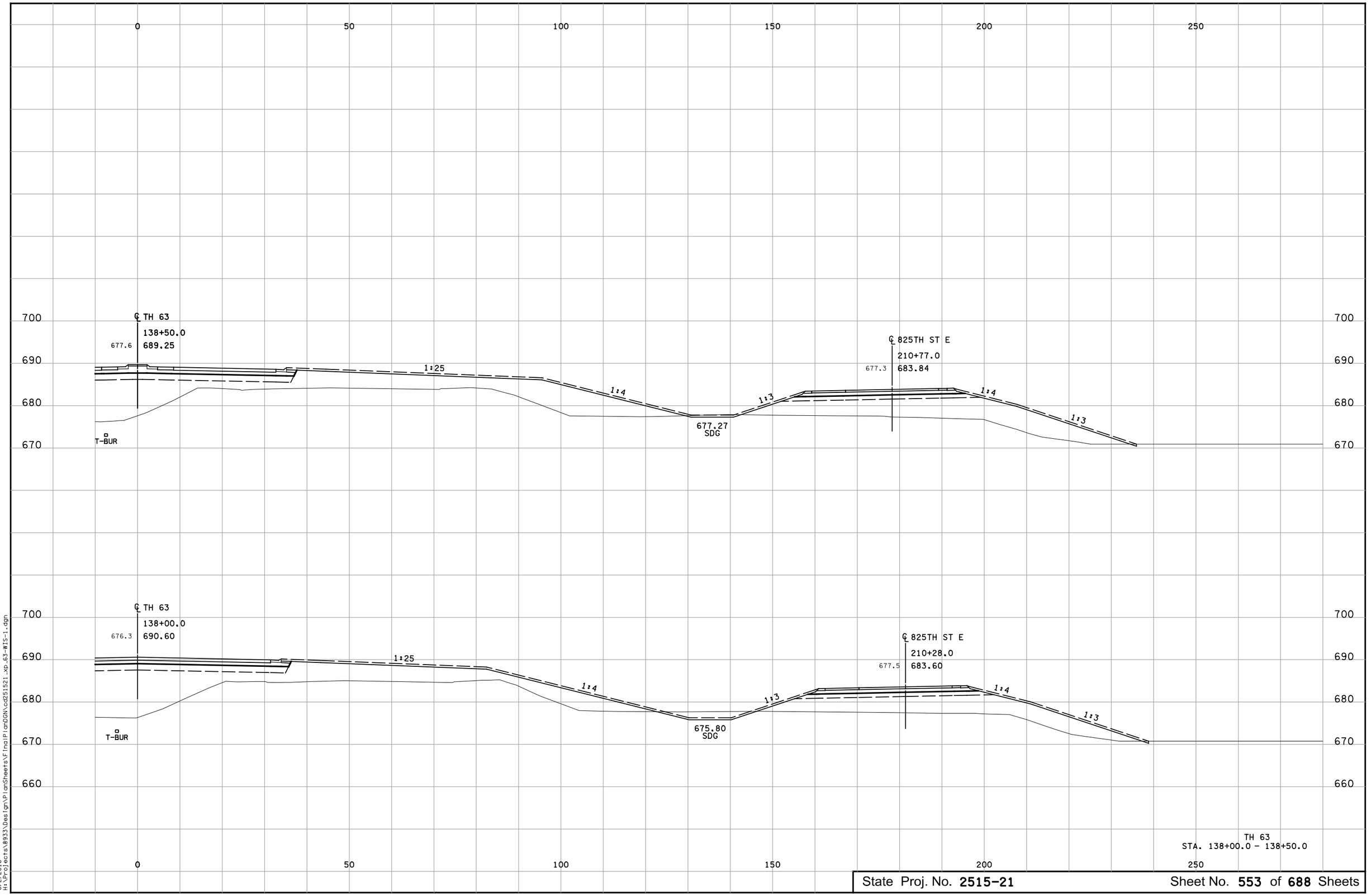
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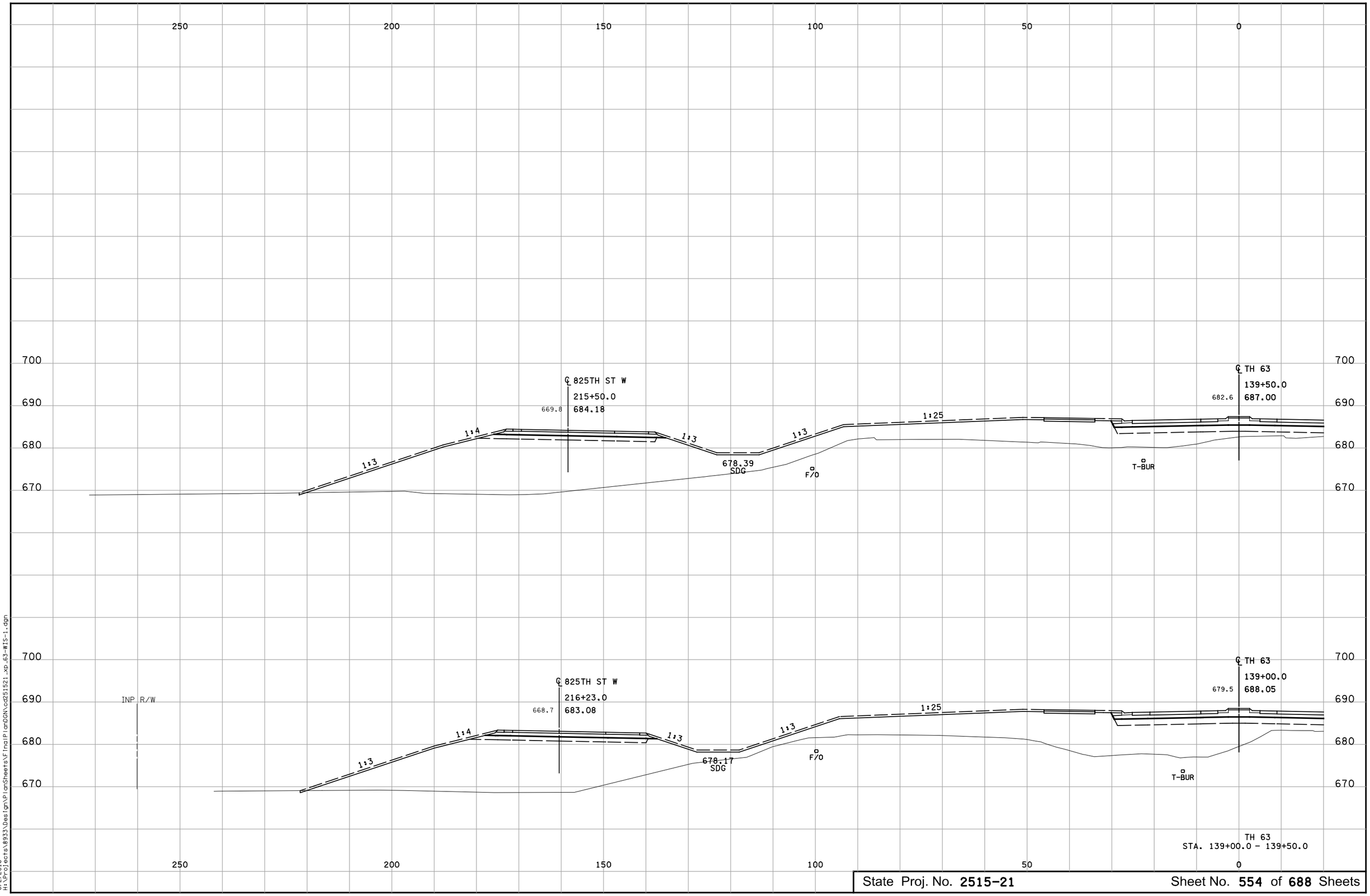
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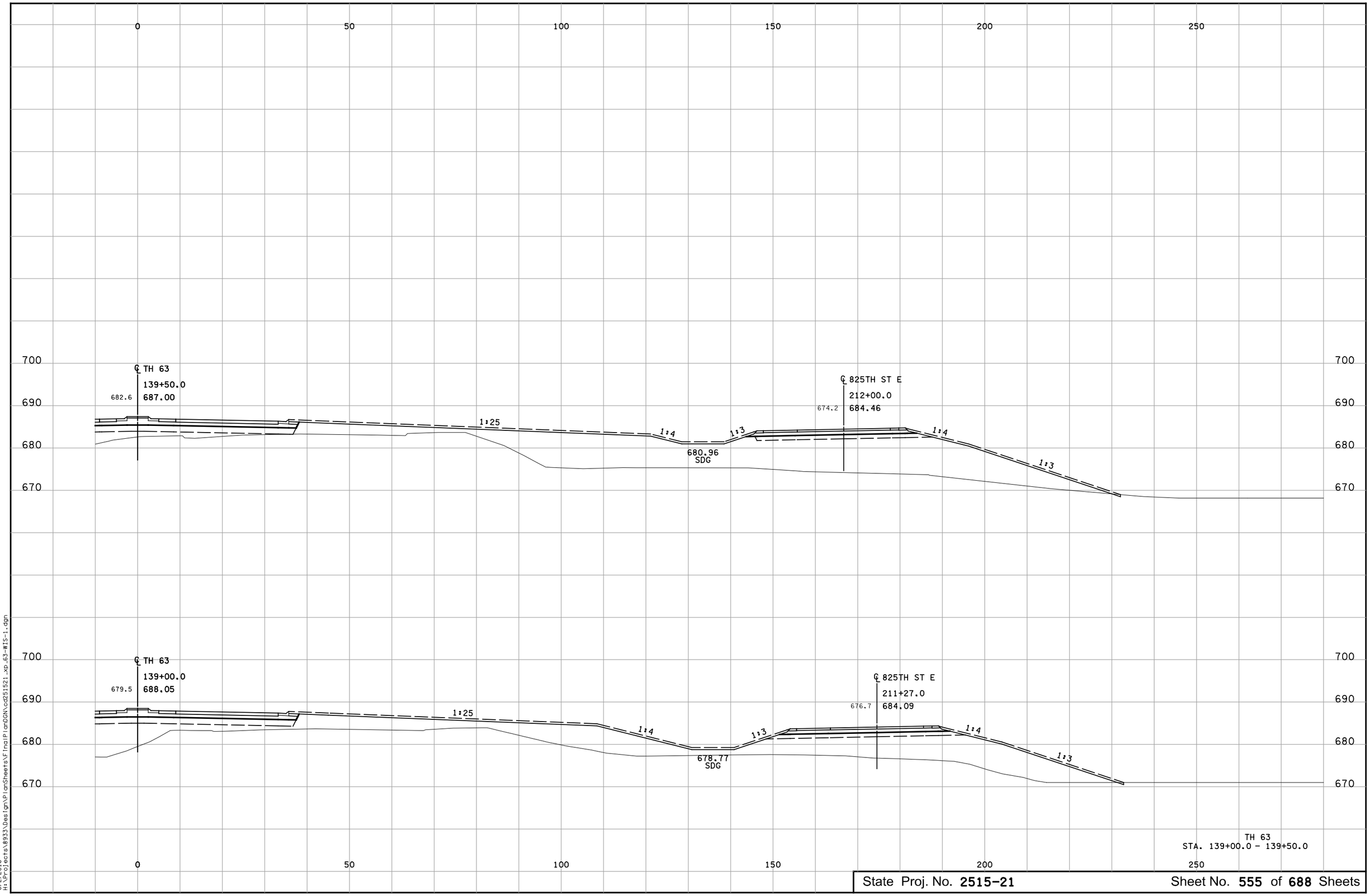
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Sheet No. **553** of **688** Sheets



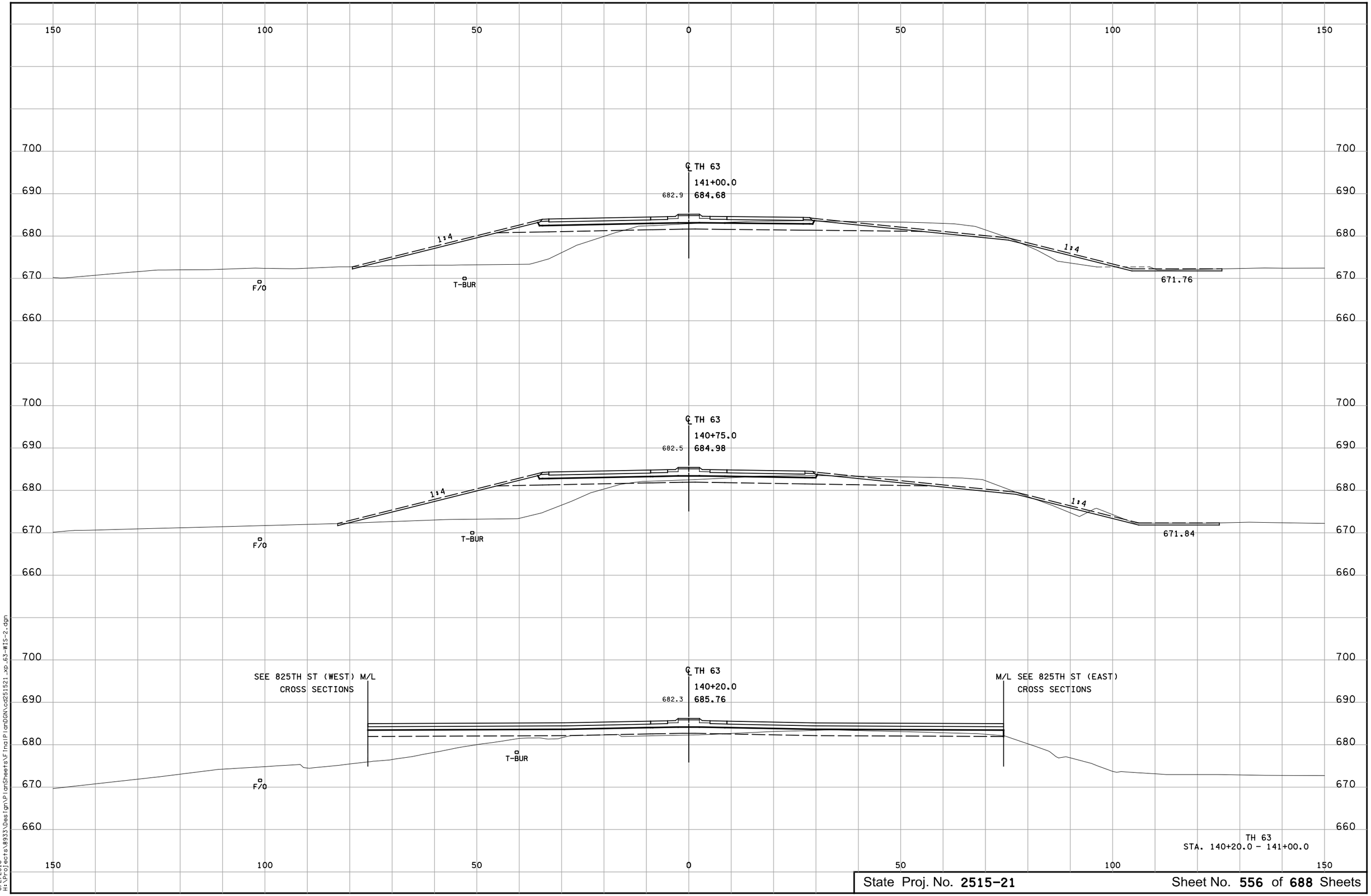
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State Proj. No. **2515-21** Sheet No. **555** of **688** Sheets



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150 100 50 0 50 100 150

700 690 680 670 660

℄ TH 63
142+50.0
683.3 683.65

1:4 1:4

F/O T-BUR 672.13

700 690 680 670 660

℄ TH 63
142+00.0
683.0 683.85

1:4 1:4

F/O T-BUR 671.92

700 690 680 670 660

℄ TH 63
141+50.0
683.1 684.20

1:4 1:4

F/O T-BUR 671.81

700 690 680 670 660

150 100 50 0 50 100 150

TH 63
STA. 141+50.0 - 142+50.0

11:39:28 AM
6/2/2016
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150 100 50 0 50 100 150

700 690 680 670 660

℄ TH 63
144+00.0
683.5 683.60

1:4 1:4

672.08

F/O T-BUR

700 690 680 670 660

℄ TH 63
143+50.0
683.5 683.60

1:4 1:4

672.08

F/O T-BUR

700 690 680 670 660

℄ TH 63
143+00.0
683.4 683.60

1:4 1:4

672.19

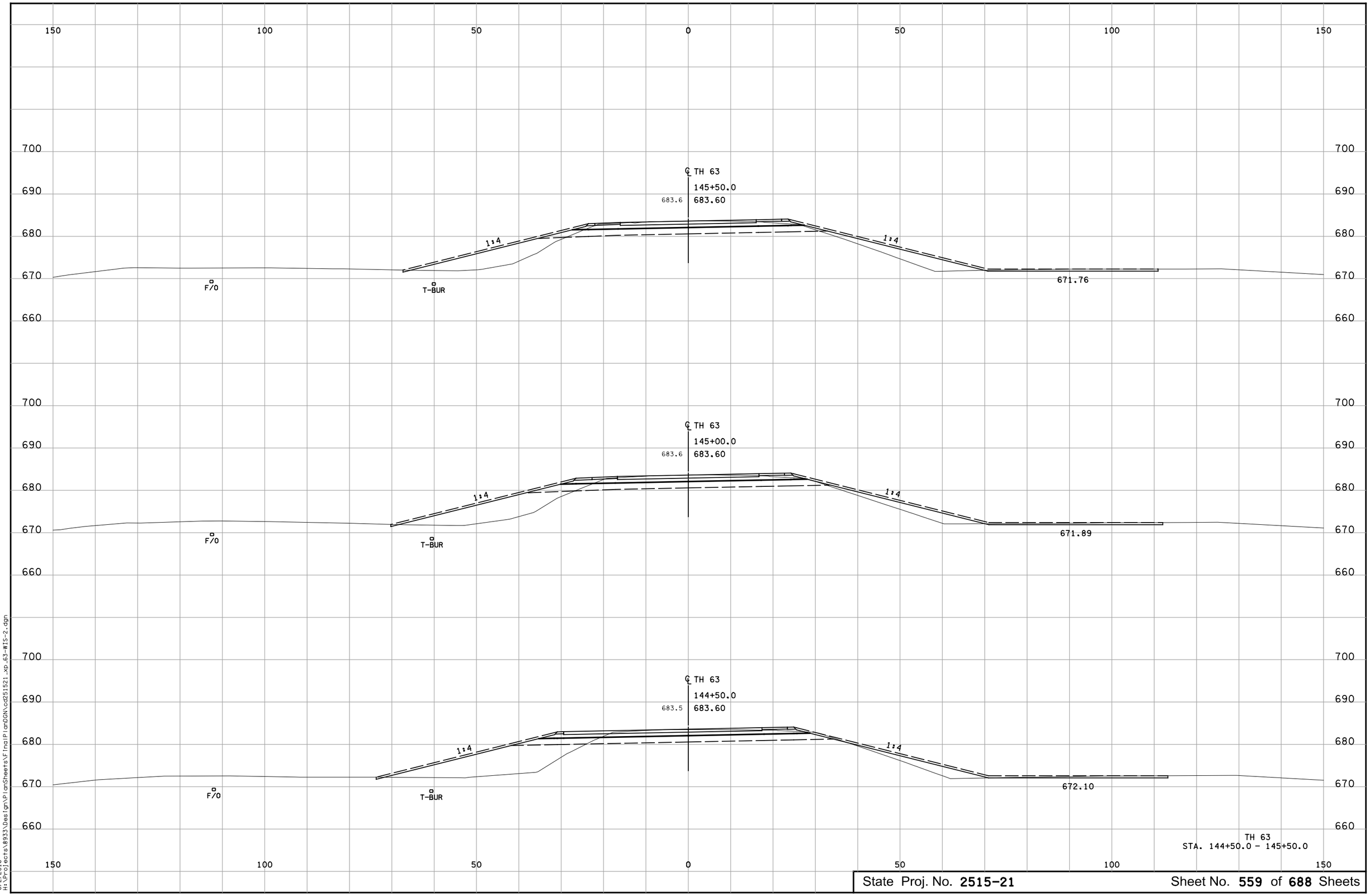
F/O T-BUR

TH 63
STA. 143+00.0 - 144+00.0

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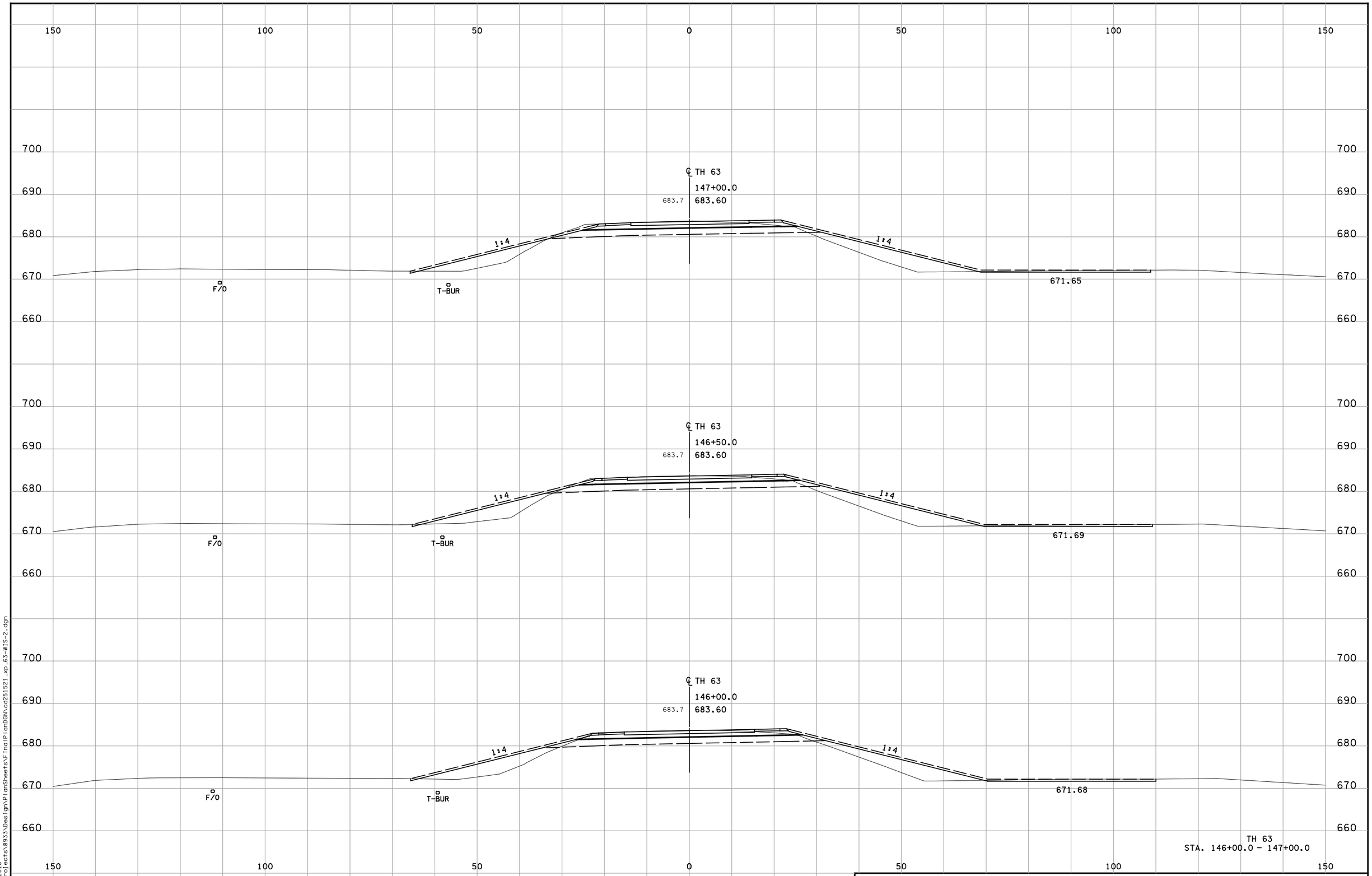
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State Proj. No. **2515-21** Sheet No. **558** of **688** Sheets



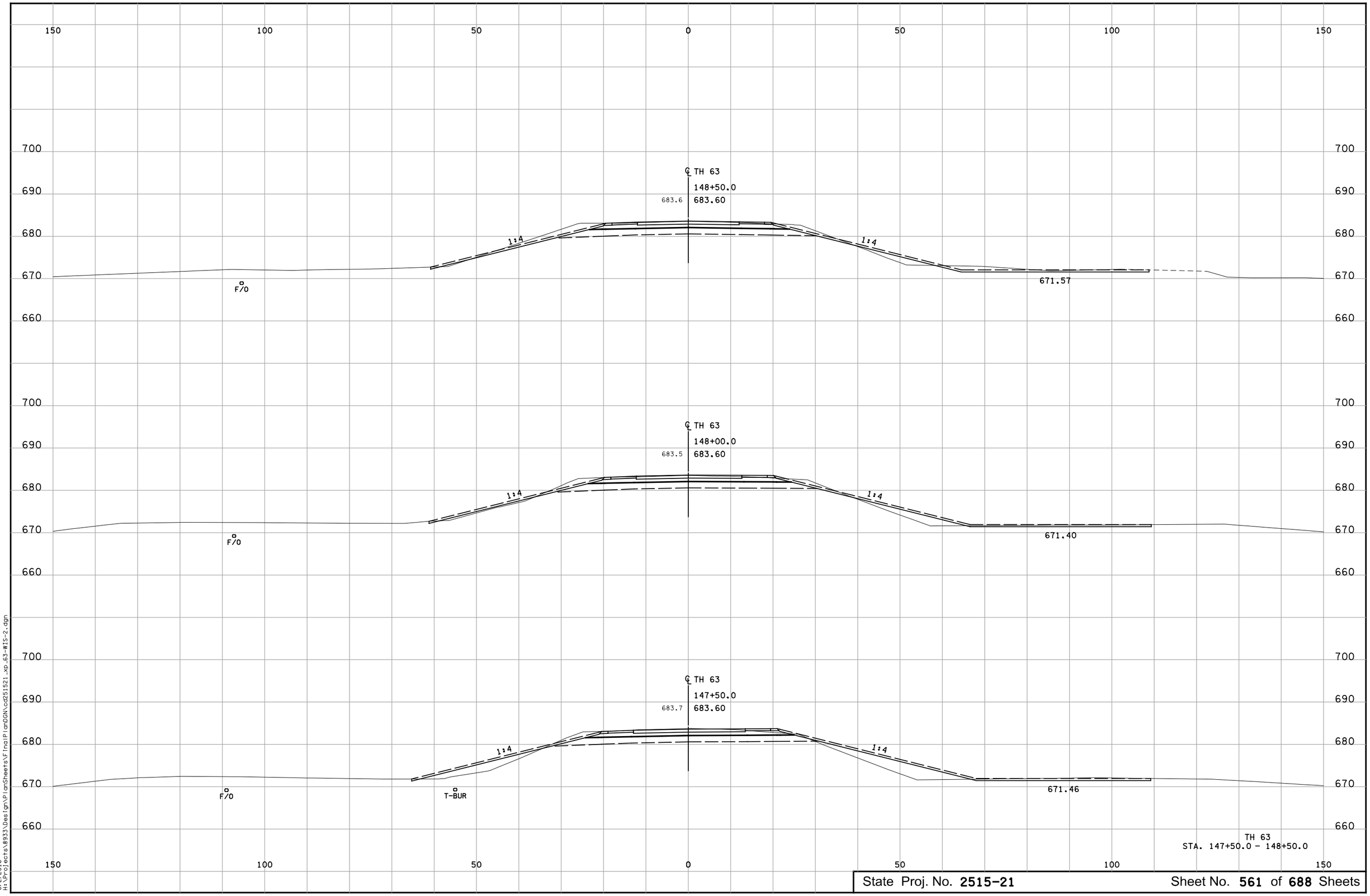
TH 63
STA. 144+50.0 - 145+50.0

11:39:29 AM
6/2/2016
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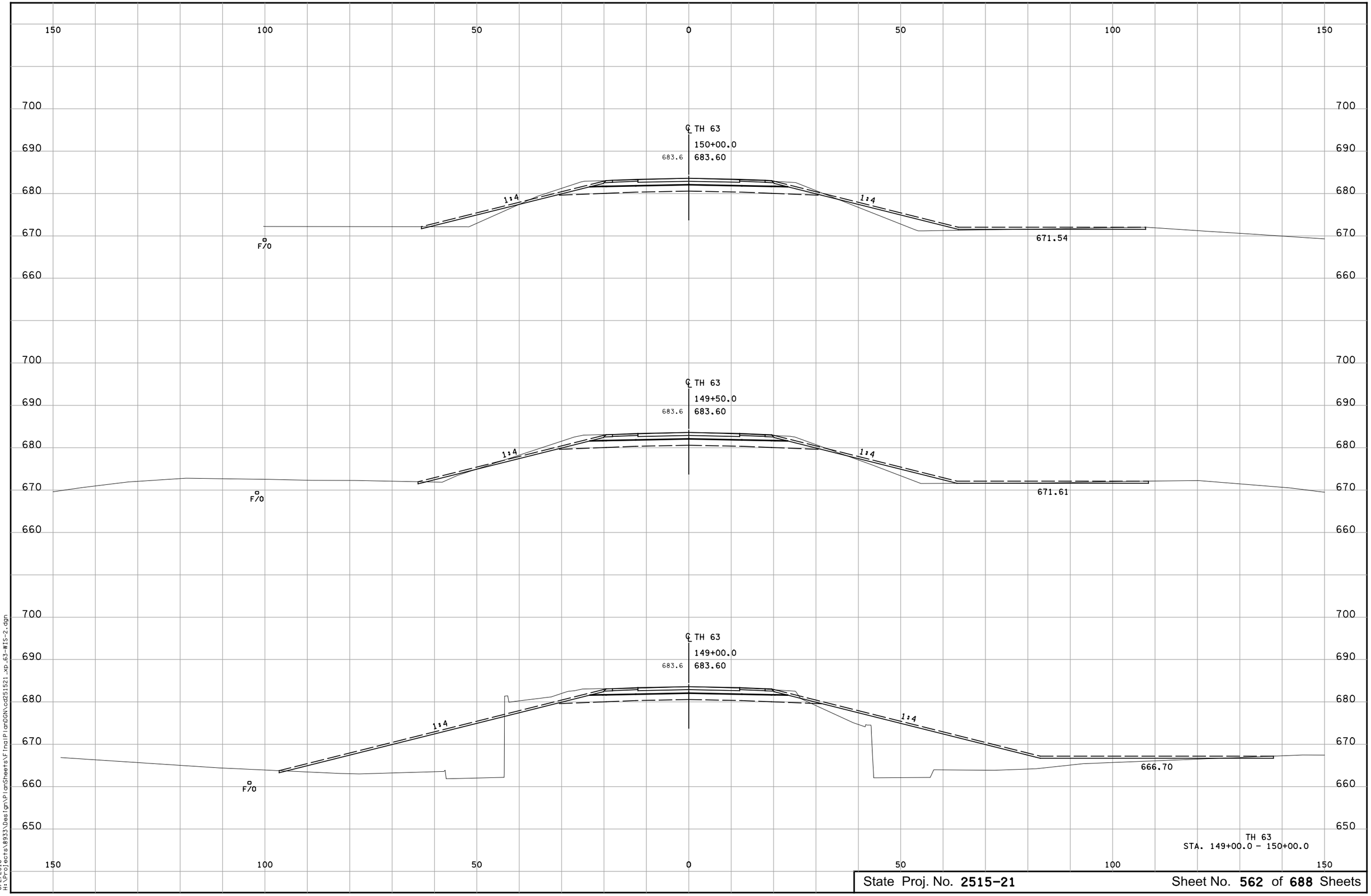
TH 63
STA. 146+00.0 - 147+00.0

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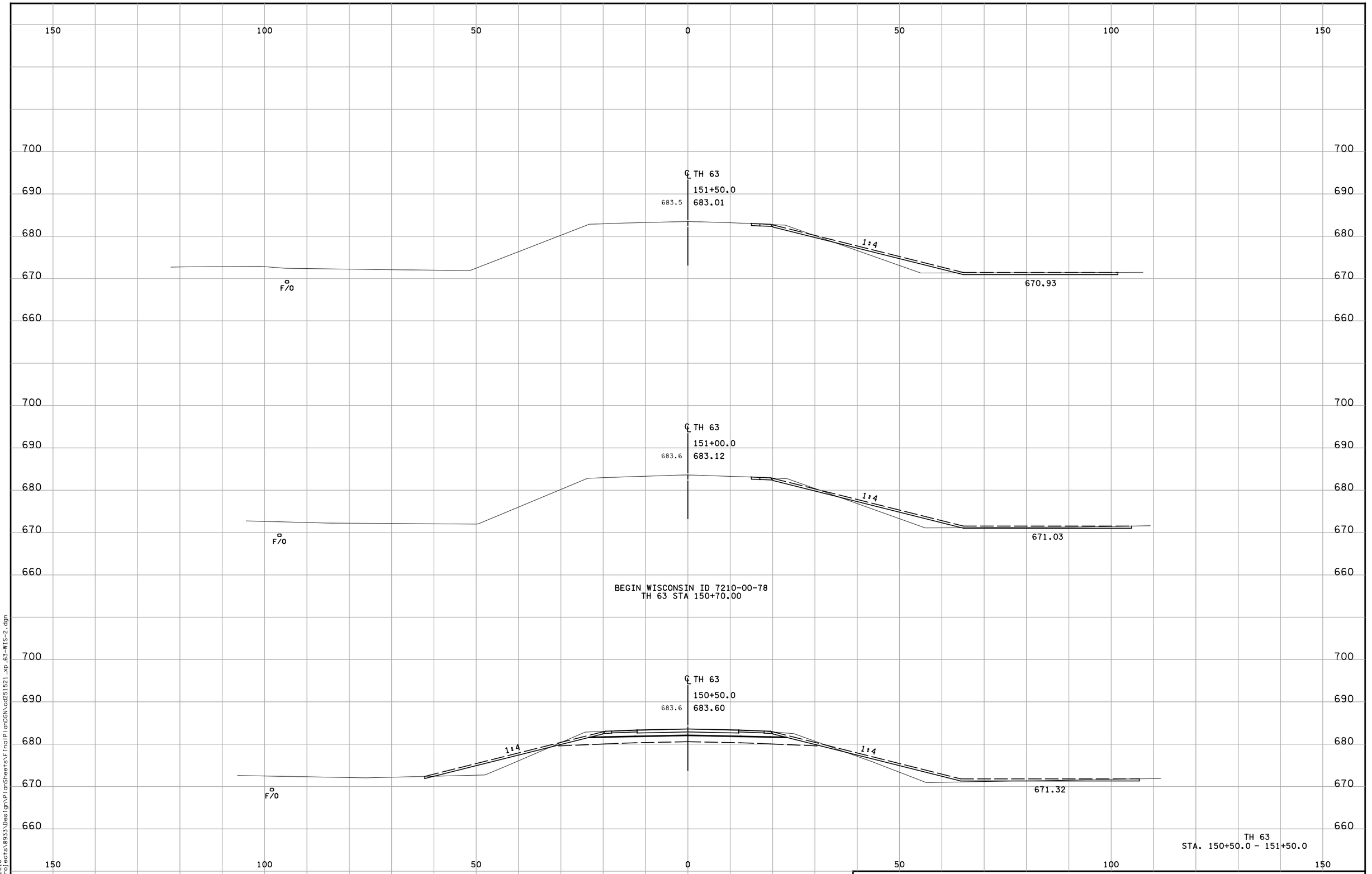
TH 63
STA. 147+50.0 - 148+50.0

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6/2/2016
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TH 63
STA. 149+00.0 - 150+00.0

1:39:29 AM
6/2/2016
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TH 63
STA. 150+50.0 - 151+50.0

11:39:29 AM
6/2/2016
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150 100 50 0 50 100 150

700 690 680 670 660

℄ TH 63
153+00.0
683.4 682.91

1:4

F/O

671.13

700 690 680 670

℄ TH 63
152+50.0
683.4 682.91

1:4

700 690 680 670

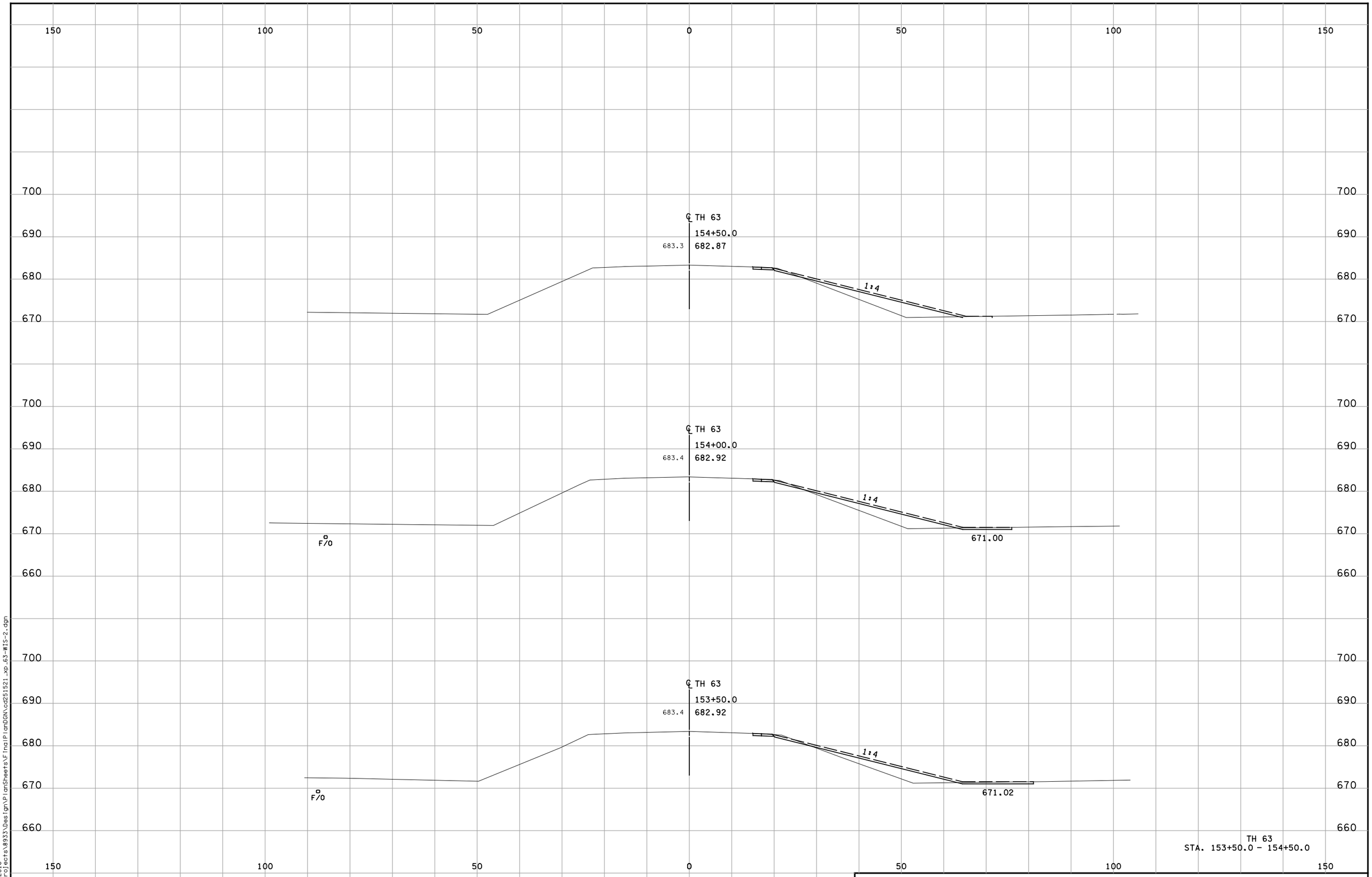
℄ TH 63
152+00.0
683.4 682.90

1:4

TH 63
STA. 152+00.0 - 153+00.0

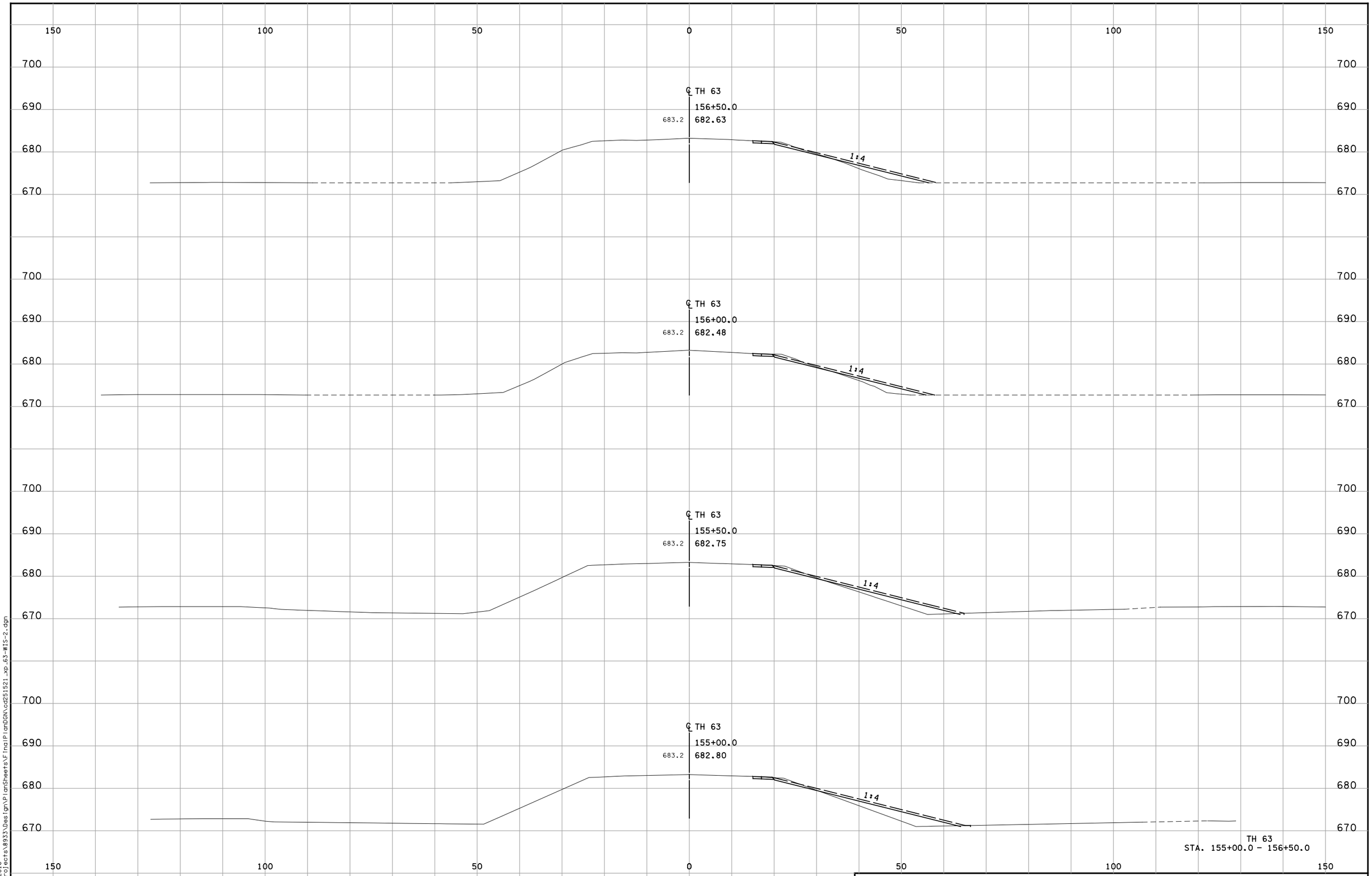
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TH 63
STA. 153+50.0 - 154+50.0

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6/2/2016
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TH 63
STA. 155+00.0 - 156+50.0

11:39:30 AM
6/2/2016
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150 100 50 0 50 100 150

700 690 680 670

℄ TH 63
158+50.0
683.31

700 690 680 670

℄ TH 63
158+00.0
683.27

700 690 680 670

℄ TH 63
157+50.0
683.04

700 690 680 670

℄ TH 63
157+00.0
683.2 682.80

1:4

TH 63
STA. 157+00.0 - 158+50.0

150 100 50 0 50 100 150

11:39:30 AM
6/2/2016
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150 100 50 0 50 100 150

700
690
680
670

INP R/W

℄ TH 63
160+00.0
683.58

INP R/W

700
690
680
670

℄ TH 63
159+50.0
683.50

700
690
680
670

℄ TH 63
159+00.0
683.35

150 100 50 0 50 100 150

TH 63
STA. 159+00.0 - 160+00.0

11:39:30 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_63-MIS-2.dgn

150 100 50 0 50 100

760 750 740 730 720 710 700

INP R/W

1:6.2

℄ SB TH 61
45+50.0
725.8 725.83

℄ NB TH 61
45+50.0
725.8 725.78

1:5

722.72
SDG

760 750 740 730 720 710 700

INP R/W

1:6.1

℄ SB TH 61
45+26.0
726.2 726.17

℄ NB TH 61
45+26.0
726.1 726.12

1:5

723.10
SDG

BEGIN SP 2513-91
NB TH 61 STA 45+25.00

NB TH 61
STA 45+26.0 - 45+50.0

150 100 50 0 50 100

11:39:37 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FInalPlanDGN\dd251521_xp_TH61.dgn

State Proj. No. **2515-21** Sheet No. **569** of **688** Sheets

150 100 50 0 50 100

770 760 750 740 730 720 710

INP R/W

P-BUR

℄ SB TH 61
46+50.0
724.3 724.45

℄ NB TH 61
46+50.0
724.3 724.40

1:6.1

1:5

721.12
SDG

℄ SB TH 61
46+00.0
725.1 725.14

℄ NB TH 61
46+00.0
725.0 725.09

1:6.5

1:5

721.92
SDG

NB TH 61
STA 46+00.0 – 46+50.0

150 100 50 0 50 100

770 760 750 740 730 720 710

11:39:37 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_xp_TH61.dgn

150 100 50 0 50 100

770 760 750 740 730 720 710

INP R/W

P-BUR

1:3 1:4

719.17

℄ SB TH 61
47+50.0
722.7 723.08

℄ NB TH 61
47+50.0
722.7 723.02

1:4

719.52
SDG

INP R/W

P-BUR

1:3 1:4

719.86

℄ SB TH 61
47+00.0
723.6 723.76

℄ NB TH 61
47+00.0
723.5 723.71

1:4

720.32
SDG

NB TH 61
STA 47+00.0 – 47+50.0

150 100 50 0 50 100

770 760 750 740 730 720 710

11:39:37 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521.xp_TH61.dgn

State Proj. No. **2515-21** Sheet No. **571** of **688** Sheets

150 100 50 0 50 100

780 770 760 750 740 730 720 710

INP R/W

P-BUR T-BUR

1:3 1:4 1:4

718.18

℄ SB TH 61
48+25.1
721.6 722.09

℄ NB TH 61
48+25.0
721.6 721.99

718.32
SDG

INP R/W

P-BUR T-BUR

1:3 1:4 1:4

718.50

℄ SB TH 61
48+00.0
722.0 722.41

℄ NB TH 61
48+00.0
722.0 722.33

718.72
SDG

NB TH 61
STA 48+00.0 - 48+25.0

11:39:37 AM
6/2/2016
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State Proj. No. **2515-21** Sheet No. **572** of **688** Sheets

150 100 50 0 50 100

790 780 770 760 750 740 730 720 710 700

INP R/W

P-BUR

1:10

℄ SB TH 61
48+50.1
721.3 721.78

℄ NB TH 61
48+50.0
721.3 721.64

1:4

717.92
SDG

NB TH 61
STA 48+50.0 - 48+50.0

150 100 50 0 50 100

790 780 770 760 750 740 730 720 710 700

11:39:38 AM
6/2/2016
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State Proj. No. **2515-21** Sheet No. **573** of **688** Sheets

150 100 50 0 50 100

790 780 770 760 750 740 730 720 710 700

NP R/W

T-BUR P-BUR

1:10

℄ SB TH 61
49+00.1
720.5 721.17

℄ NB TH 61
49+00.0
720.6 720.95

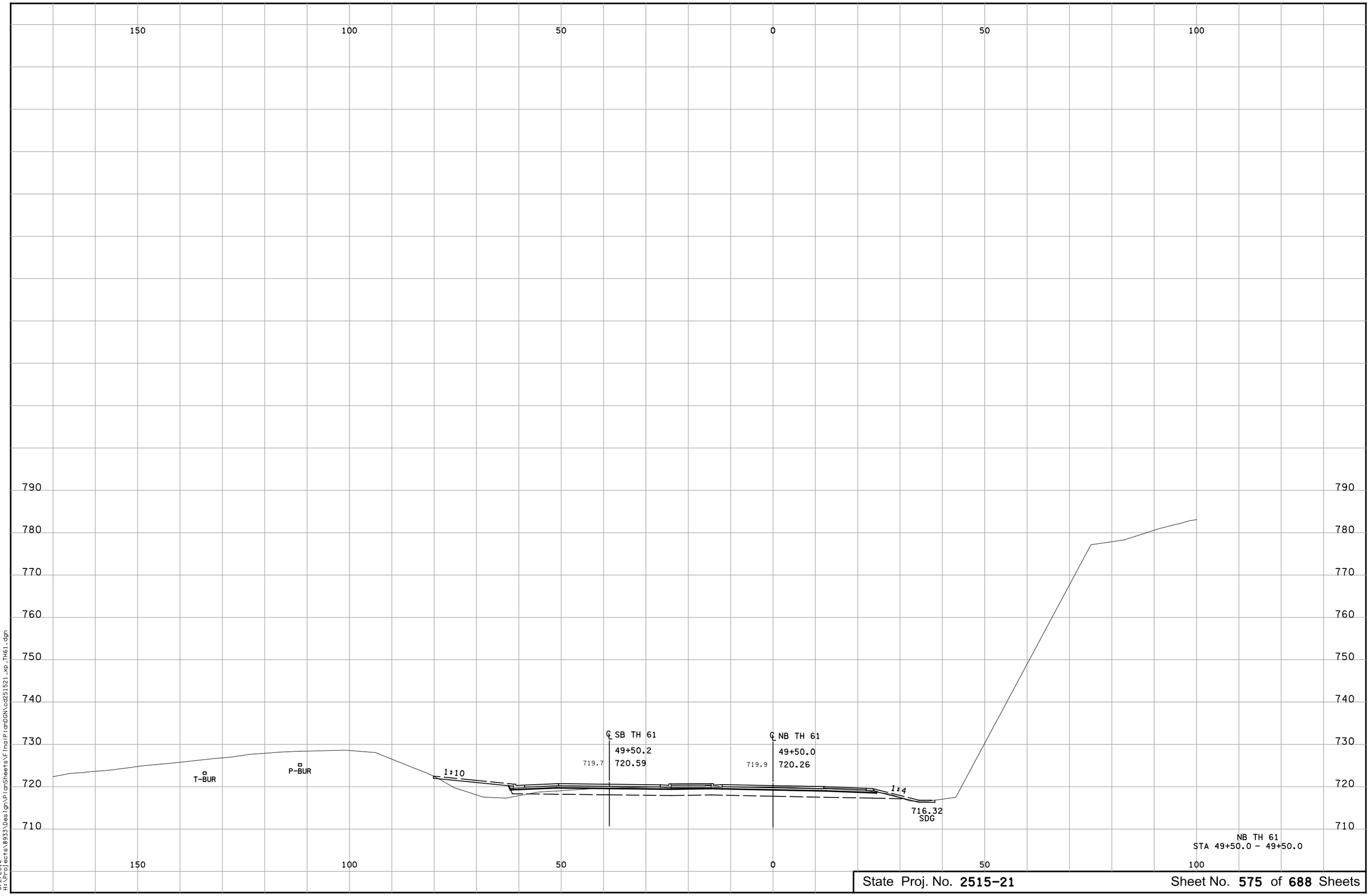
1:4

717.12
SDG

NB TH 61
STA 49+00.0 - 49+00.0

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11:39:38 AM
6/2/2016
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6/2/2016
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150 100 50 0 50 100

790 780 770 760 750 740 730 720 710 700

INP R/W

T-BUR

P-BUR

1:10

℄ SB TH 61
50+00.3
718.9
720.01

℄ NB TH 61
50+00.0
719.1
719.57

1:4

715.52
SDG

NB TH 61
STA 50+00.0 - 50+00.0

150 100 50 0 50 100

11:39:38 AM
6/2/2016
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150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

P-BUR

T-BUR

℄ SB TH 61
50+50.3
717.9 719.44

℄ NB TH 61
50+50.0
718.4 718.88

1:3

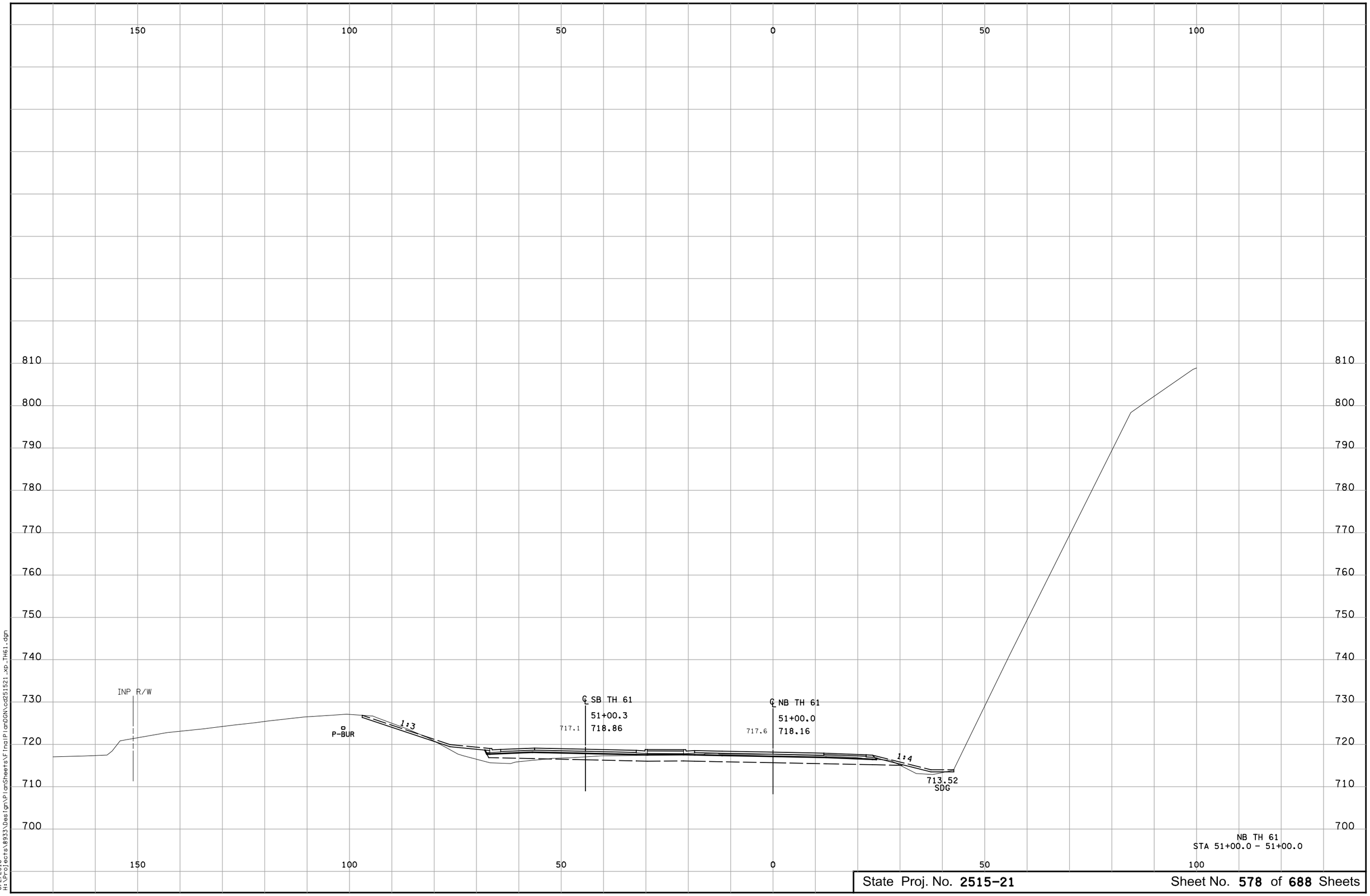
1:4

714.42
SDG

NB TH 61
STA 50+50.0 - 50+50.0

150 100 50 0 50 100

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6/2/2016
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6/2/2016
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150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

T-BUR

P-BUR

1:3

℄ SB TH 61
51+50.3
716.3 718.21

℄ NB TH 61
51+50.0
716.9 717.42

1:4

712.62
SDG

NB TH 61
STA 51+50.0 - 51+50.0

150 100 50 0 50 100

11:39:39 AM
6/2/2016
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150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

INP R/W

GAS

T-BUR

2" GAS

T-BUR

8" WM

1:3

℄ SB TH 61
51+94.3
715.6 717.57

℄ NB TH 61
51+94.0
716.3 716.74

1:4

711.98
SDG

NB TH 61
STA 51+94.0 - 51+94.0

150 100 50 0 50 100

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6/2/2016
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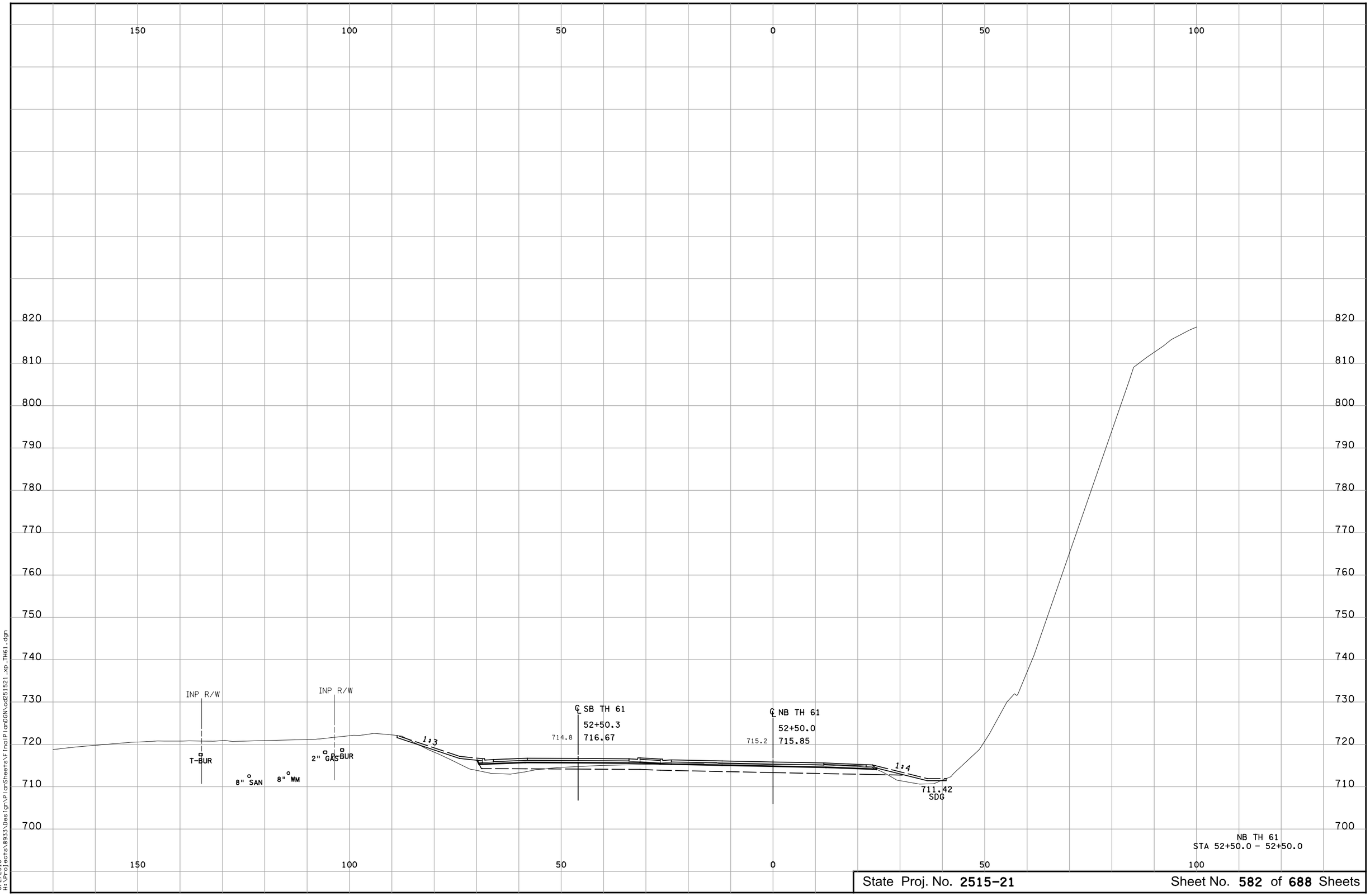
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INP R/W
INP R/W
T-BUR
2" GAS
8" WM
S-BUR
1:3
℄ SB TH 61
52+00.3
715.5 717.48
℄ NB TH 61
52+00.0
716.2 716.65
1:4
711.92
SDG

NB TH 61
STA 52+00.0 - 52+00.0

150 100 50 0 50 100

11:39:39 AM
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State Proj. No. **2515-21** Sheet No. **582** of **688** Sheets

150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

T.E. INP R/W R/W INP R/W

1:20.4 1:4 1:3 1:4

T-BUR 8" WM 8" SAN 8" WM 2" GAS BUR

℄ SB TH 61
53+00.3
714.2 715.78

℄ NB TH 61
53+00.0
714.3 715.05

710.49
SDG

NB TH 61
STA 53+00.0 - 53+00.0

150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

11:39:39 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_TH61.dgn

150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

1:8.8

8" WM 8" SAN 8" WM

2" GAS BUR

1:4

℄ SB TH 61
53+50.3
713.5 714.88

℄ NB TH 61
53+50.0
713.6 714.25

1:4

709.14
SDG

NB TH 61
STA 53+50.0 - 53+50.0

11:39:39 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_TH61.dgn

200 150 100 50 0 50 100

800 790 780 770 760 750 740 730 720 710 700

T.E. INP R/W

1:627.3

T-FIBR GAS

2" GAS P-BUR

8" SAN 8" WM

1:20.3

℄ SB TH 61
54+00.3
713.0 713.98

℄ NB TH 61
54+00.0
712.7 713.45

1:4

707.79
SDG

NB TH 61
STA 54+00.0 - 54+00.0

200 150 100 50 0 50 100

11:39:40 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_TH61.dgn

150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700

2" GAS

SEE TH 63 M/L
CROSS SECTIONS

℄ SB TH 61
54+50.3
712.5 713.08

℄ NB TH 61
54+50.0
712.0 712.65

1:4

707.09
SDG

NB TH 61
STA 54+50.0 - 54+50.0

150 100 50 0 50 100

11:39:40 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\cd251521_xp_TH61.dgn

150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700

SEE TH 63 M/L
CROSS SECTIONS

℄ SB TH 61
55+00.3
712.2 712.18

℄ NB TH 61
55+00.0
711.3 711.85

1:4

706.39
SDG

NB TH 61
STA 55+00.0 - 55+00.0

150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700

11:39:40 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_TH61.dgn

150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

SEE TH 63 M/L
CROSS SECTIONS

℄ SB TH 61
55+50.3
711.4 711.28

℄ NB TH 61
55+50.0
710.6 711.05

1:4

705.69
SDG

NB TH 61
STA 55+50.0 - 55+50.0

11:39:40 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_TH61.dgn

150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700 690

SEE CONTOUR PLANS M/L

℄ SB TH 61
56+00.3
710.6 710.38

℄ NB TH 61
56+00.0
709.8 710.25

1:4

708.84
SDG

1:4

704.99
SDG

NB TH 61
STA 56+00.0 - 56+00.0

150 100 50 0 50 100

11:39:40 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_TH61.dgn

150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700 690

SEE CONTOUR PLANS M/L

℄ SB TH 61
56+50.3
709.5 709.48

℄ NB TH 61
56+50.0
709.2 709.45

1:4

707.94
SDG

1:4

704.29
SDG

NB TH 61
STA 56+50.0 - 56+50.0

150 100 50 0 50 100

11:39:40 AM
6/2/2016
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150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700 690

SEE CONTOUR PLANS M/L

℄ SB TH 61
57+00.3
709.0 708.58

℄ NB TH 61
57+00.0
708.6 708.65

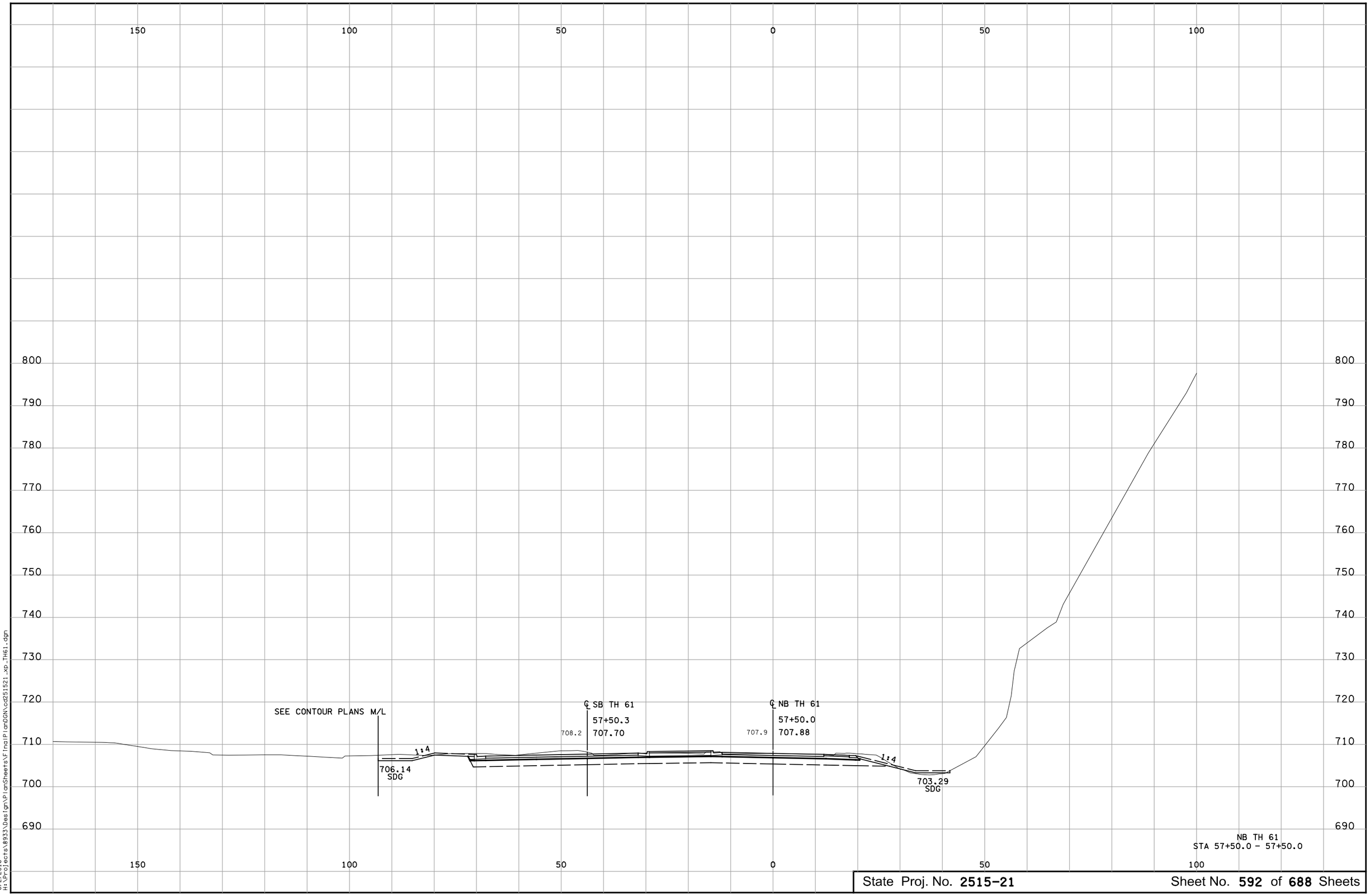
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707.04
SDG

703.79
SDG

NB TH 61
STA 57+00.0 - 57+00.0

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150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700 690

SEE CONTOUR PLANS M/L

℄ SB TH 61
58+00.4
707.0 707.02

℄ NB TH 61
58+00.0
707.2 707.28

1:4

705.25
SDG

P-BUR

1:4

702.79
SDG

NB TH 61
STA 58+00.0 - 58+00.0

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150 100 50 0 50 100

800 790 780 770 760 750 740 730 720 710 700 690

SEE CONTOUR PLANS M/L

℄ SB TH 61
58+50.4
706.55

℄ NB TH 61
58+50.0
706.89

705.9

706.5

1:4

705.67
SDG

P-BUR

1:4

702.29
SDG

NB TH 61
STA 58+50.0 - 58+50.0

150 100 50 0 50 100

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6/2/2016
H:\Projects\8933\Design\PlanSheets\FInalPlanDGN\dd251521_xp_TH61.dgn

150 100 50 0 50 100

790 780 770 760 750 740 730 720 710 700 690

SEE CONTOUR PLANS M/L

℄ SB TH 61
59+00.4
705.2 706.31

℄ NB TH 61
59+00.0
706.0 706.71

1:4

P-BUR

P-BUR

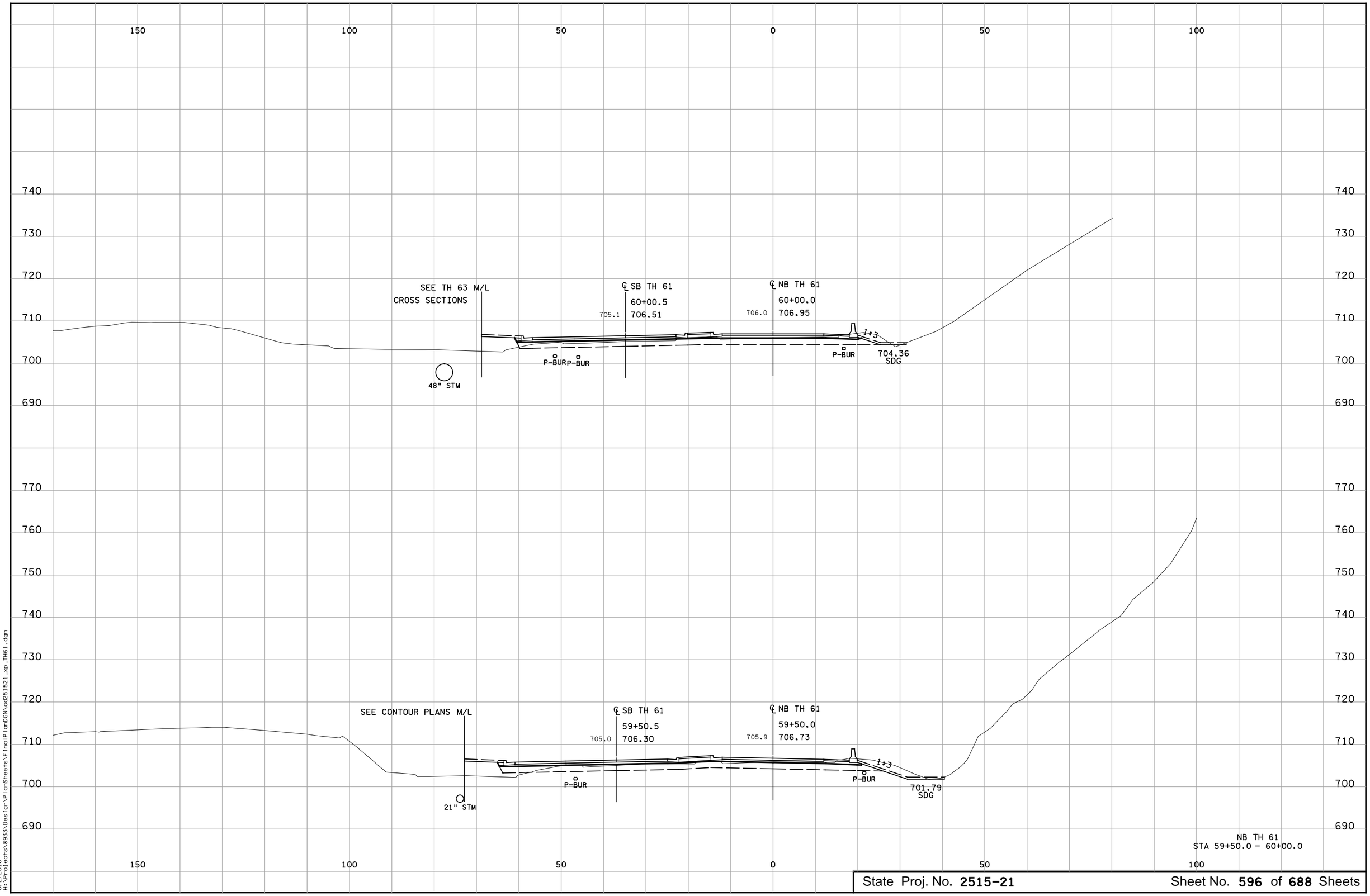
12" STM

702.04
SDG

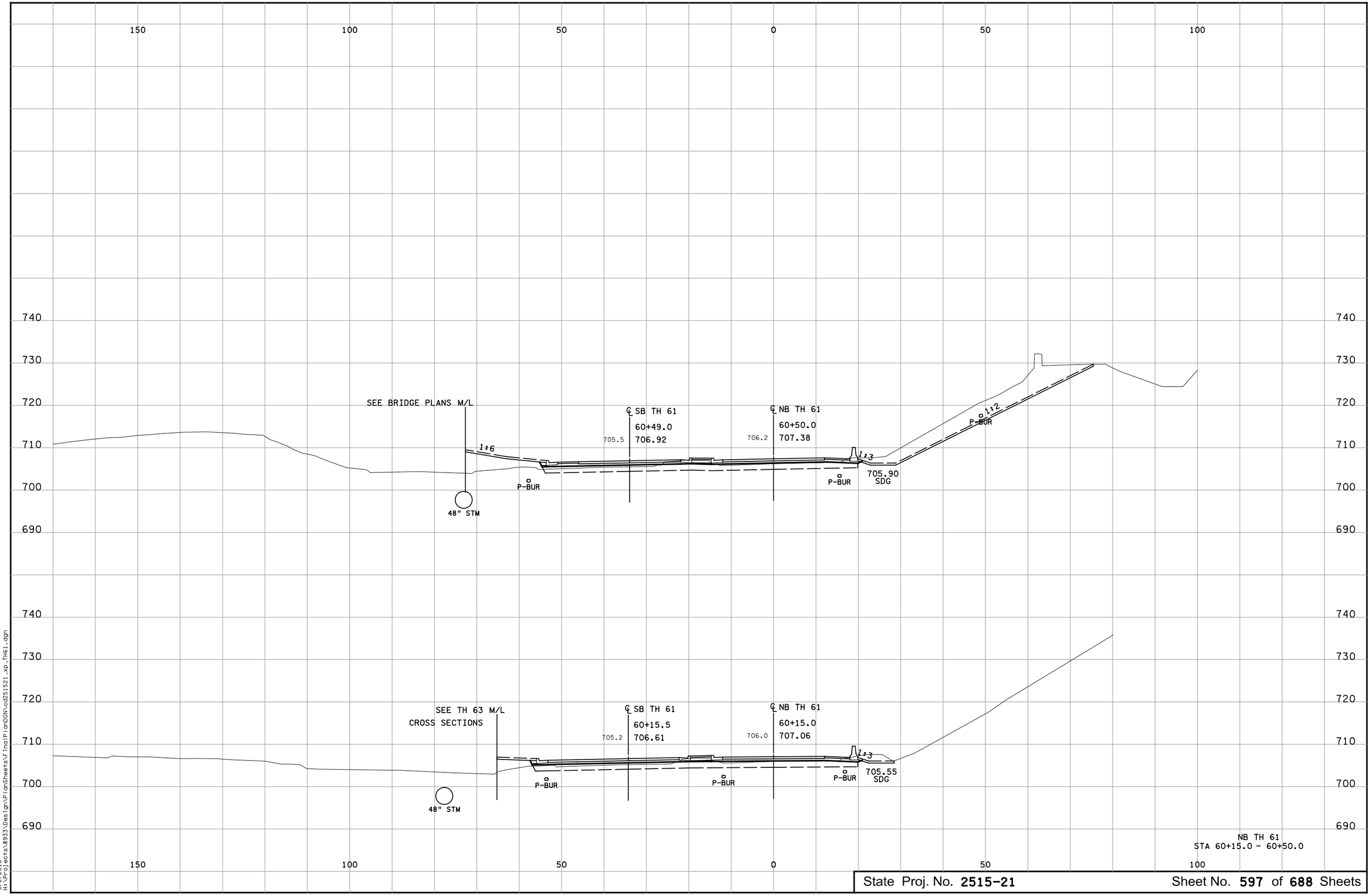
NB TH 61
STA 59+00.0 - 59+00.0

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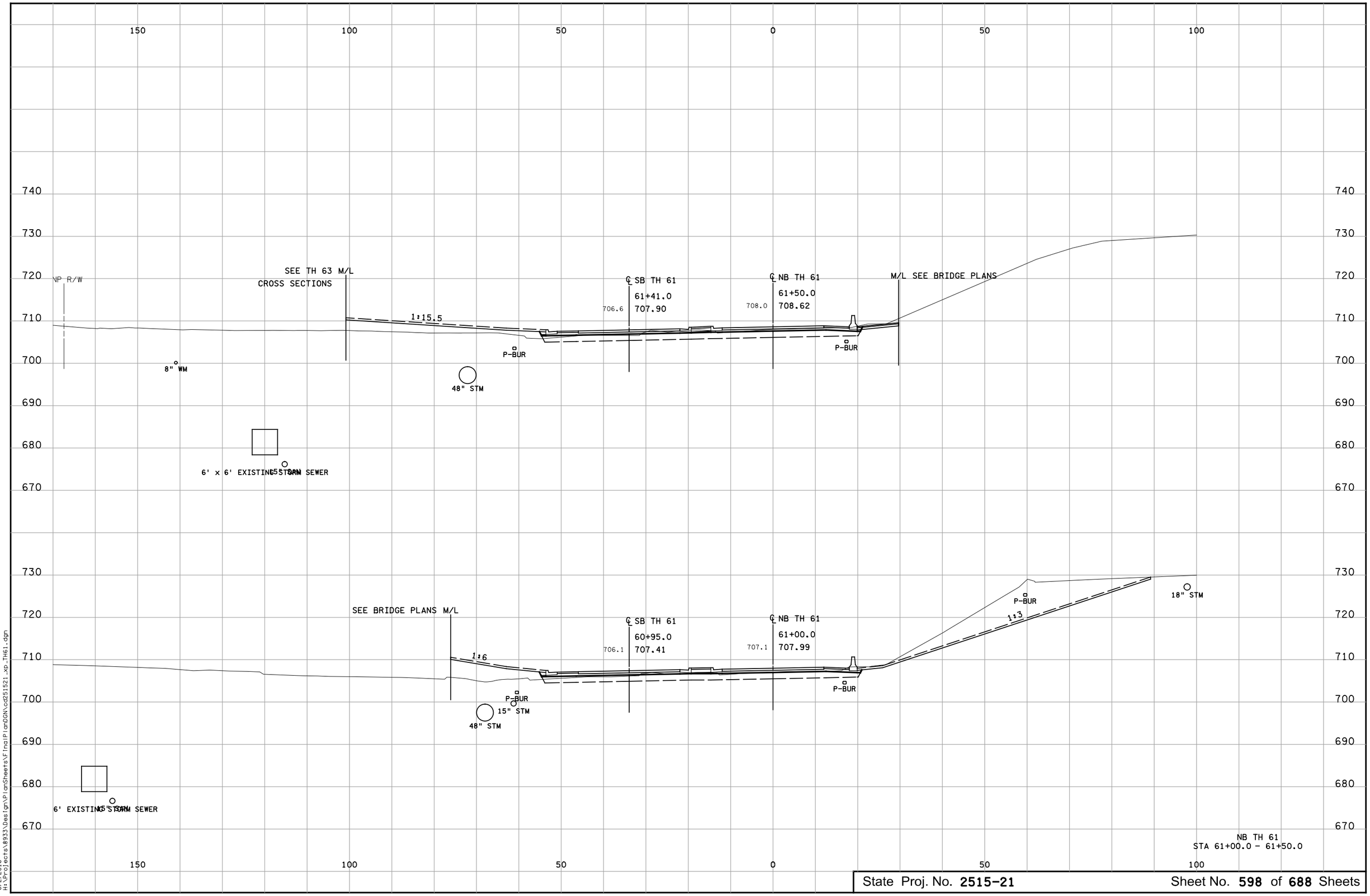


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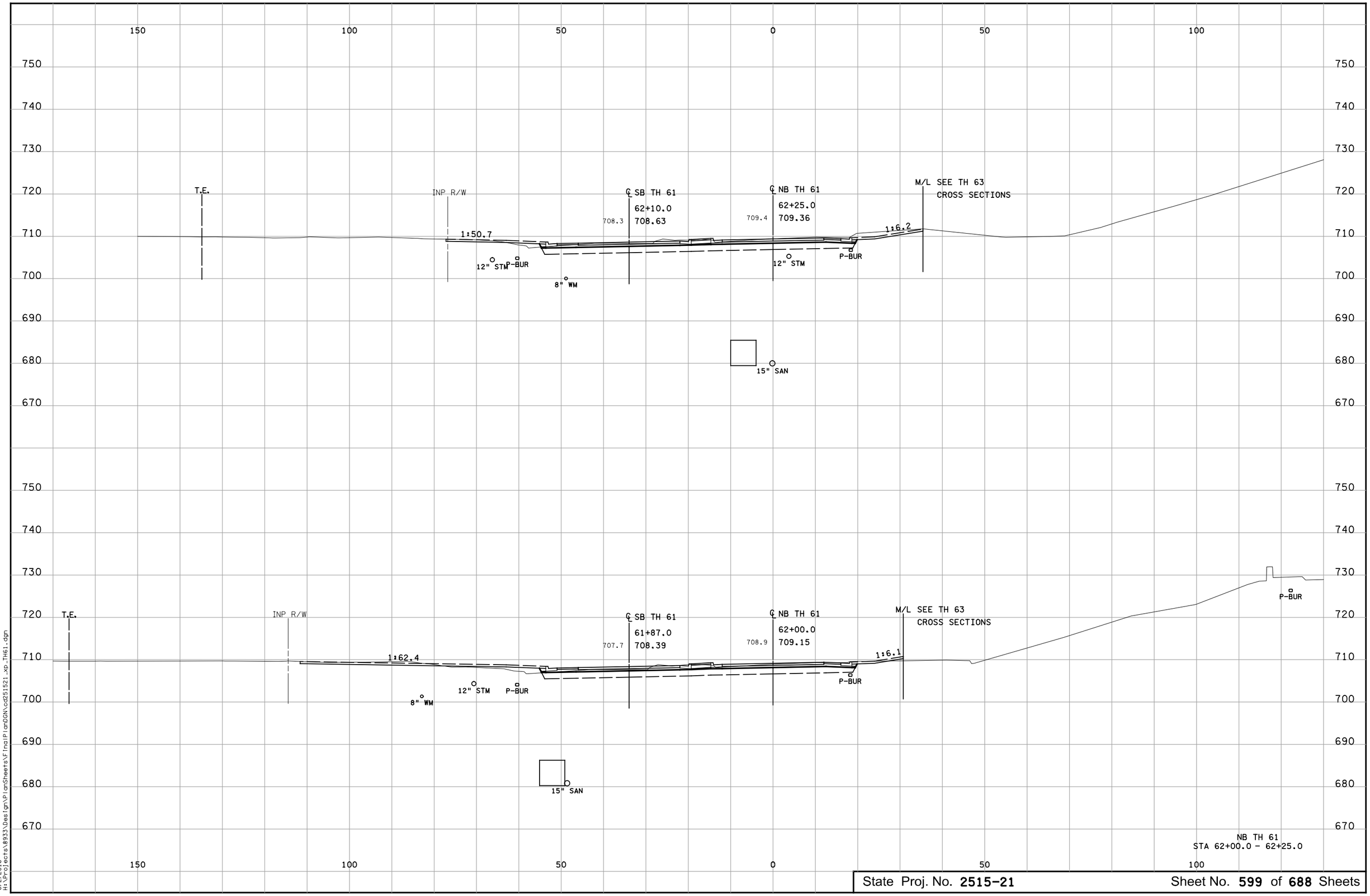


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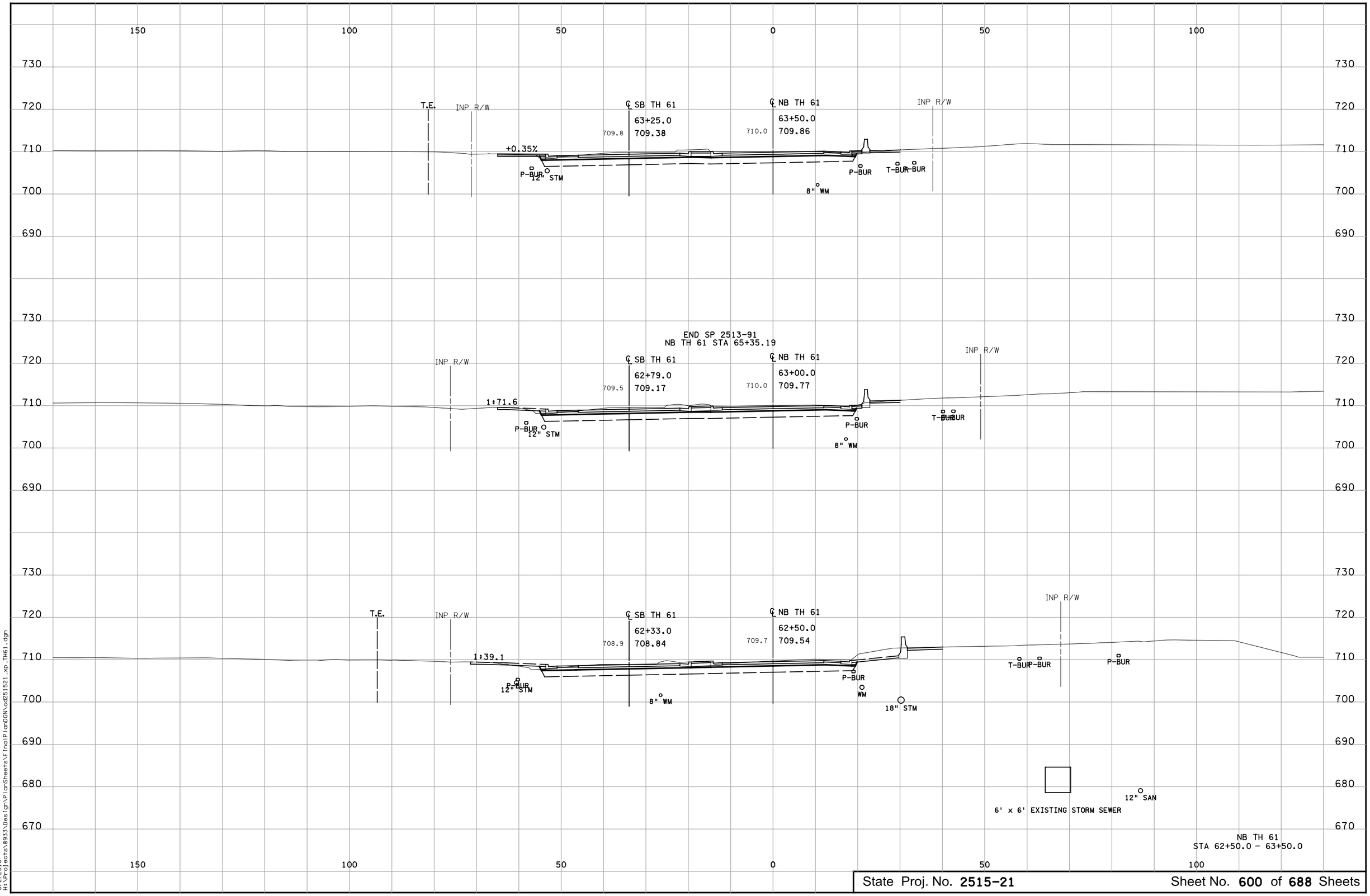
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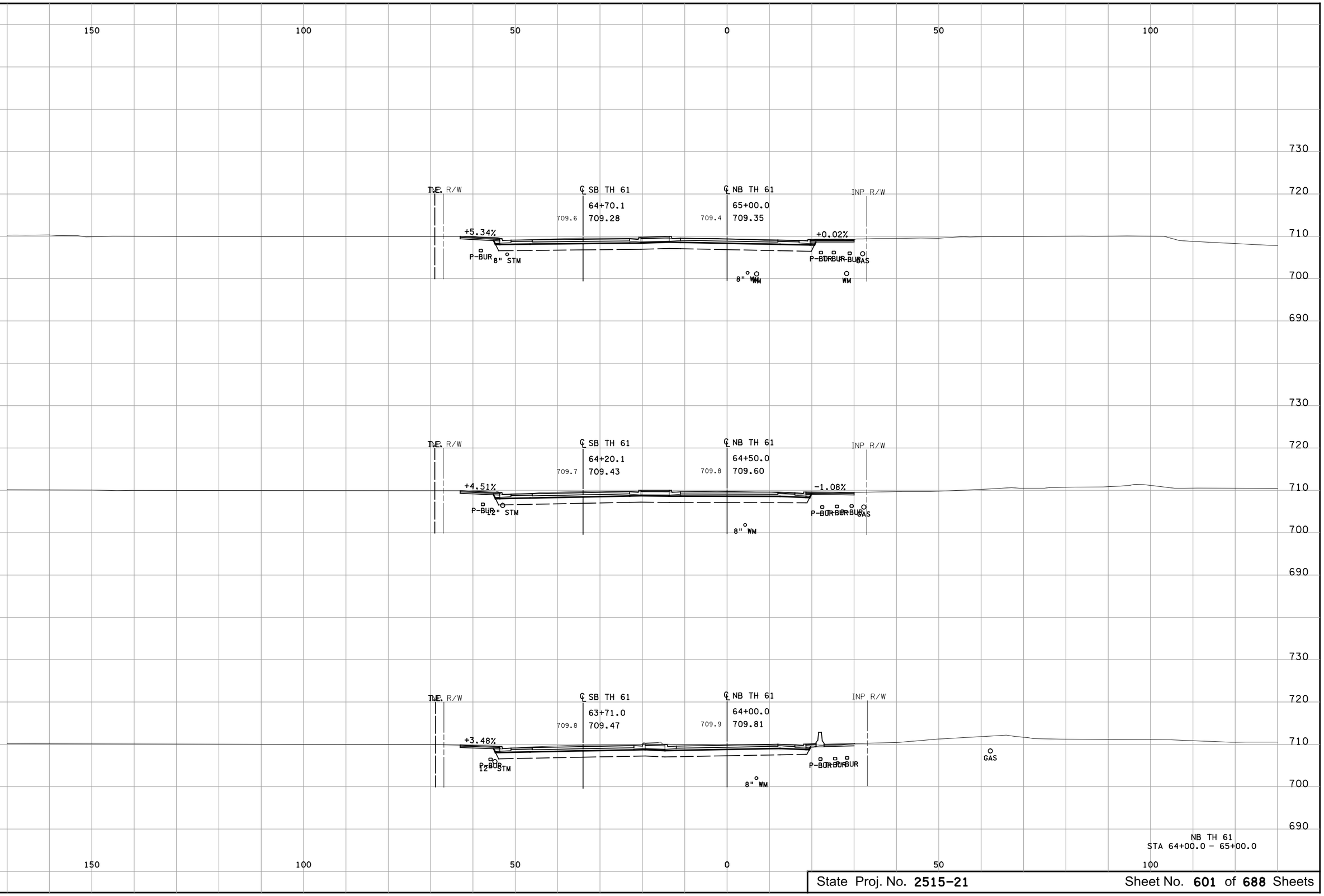
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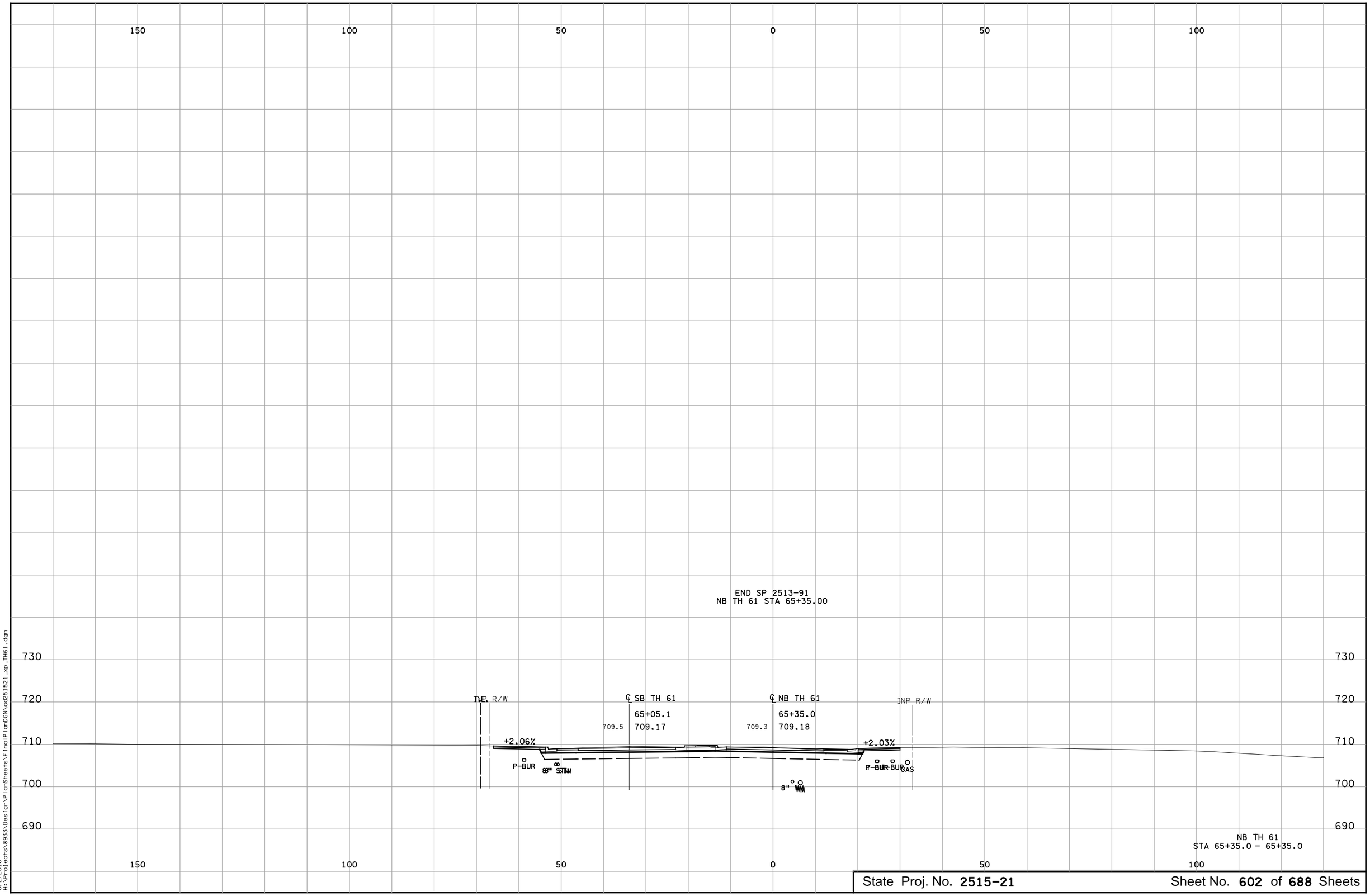
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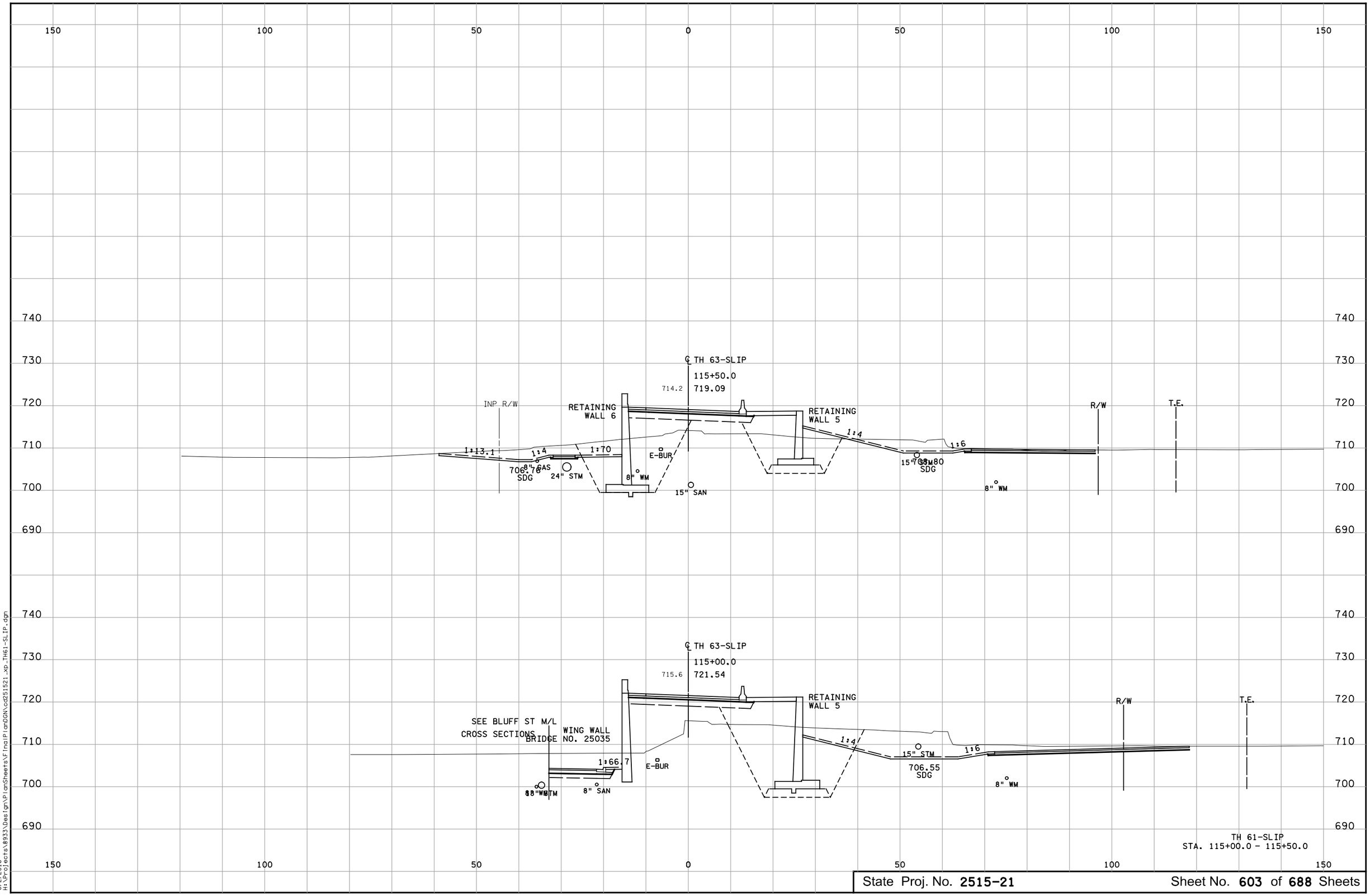
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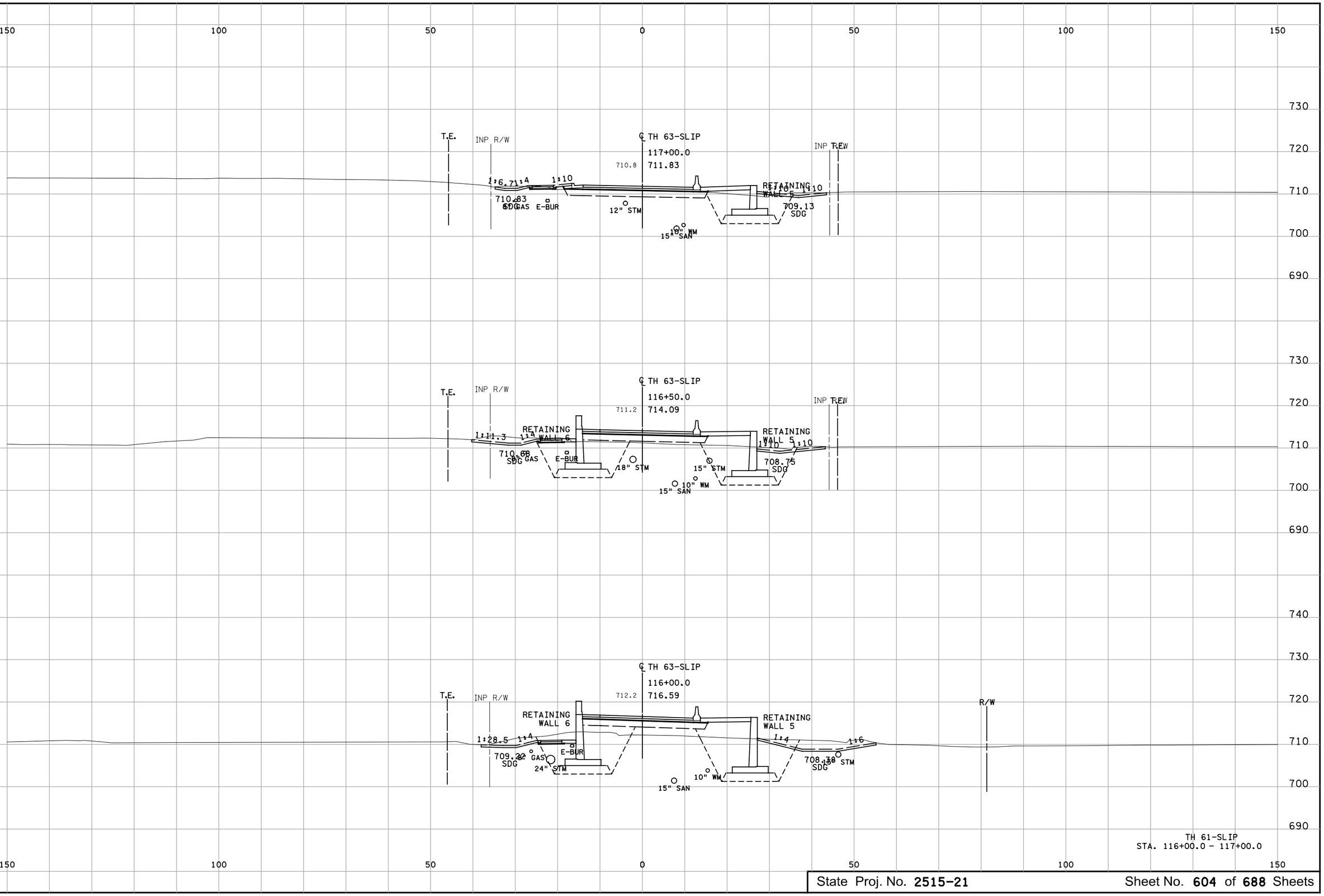


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State Proj. No. **2515-21** Sheet No. **603** of **688** Sheets



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State Proj. No. **2515-21** Sheet No. **604** of **688** Sheets

150 100 50 0 50 100 150

730 720 710 700 690

℄ TH 63-SLIP
118+35.0
711.2 711.64

E-BUR
GAS
12" STM
15" SAN
10" WM

T.E. T.E. T.E. INP R/W

℄ TH 63-SLIP
117+90.0
710.7 710.86

1:80.8
8" GAS E-BUR
15" SAN WM

INP T.E.W
1:10 1:10
710.00
SDG

T.E. INP R/W

℄ TH 63-SLIP
117+50.0
710.4 710.77

1:402.9
8" GAS E-BUR STM
15" SAN WM

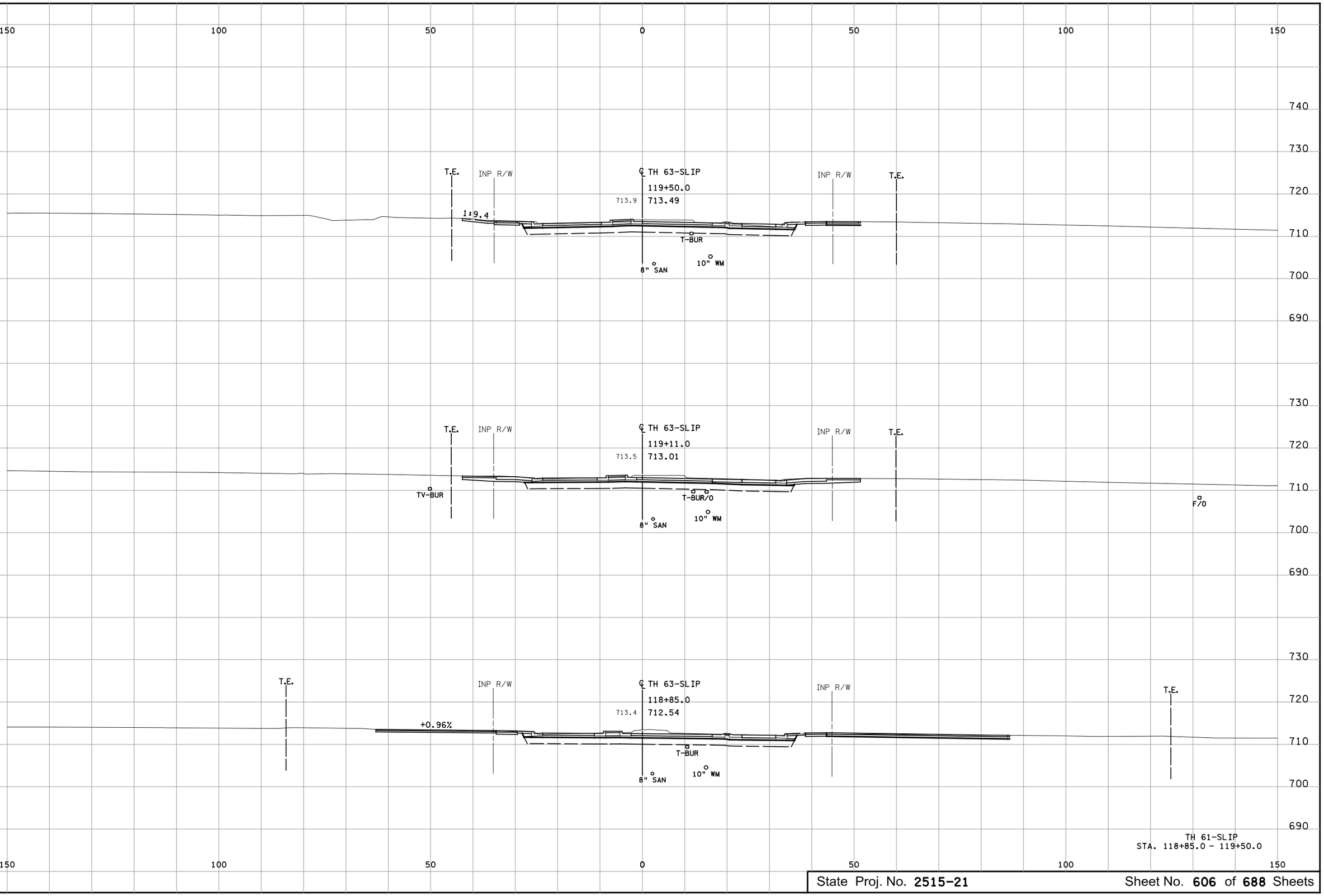
INP T.E.W
1:10 1:10
709.59
SDG

TH 61-SLIP
STA. 117+50.0 - 118+35.0

150 100 50 0 50 100 150

State Proj. No. **2515-21** Sheet No. **605** of **688** Sheets

11:39:49 AM
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6/2/2016
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150 100 50 0 50 100 150

730 720 710 700

T.E. INP R/W ℄ TH 63-SLIP INP R/W T.E.

120+50.0

713.8 713.20

1:15.9

T-BUR

8" SAN 10" WM

730 720 710 700

T.E. INP R/W ℄ TH 63-SLIP INP R/W T.E.

120+11.0

714.0 713.56

1:71.1

T-BUR

8" SAN 10" WM

730 720 710 700

T.E. INP R/W ℄ TH 63-SLIP INP R/W T.E.

119+81.0

714.1 713.63

T-BUR

8" SAN 10" WM

730 720 710 700

150 100 50 0 50 100 150

TH 61-SLIP
STA. 119+81.0 - 120+50.0

11:39:49 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_TH61-SLIP.dgn

150 100 50 0 50 100 150

730 720 710 700 690

T.E. INP R/W ℄ TH 63-SLIP INP R/W T.E.

121+50.0

712.1 712.11

1:16

T-BUR

10" WM

730 720 710 700 690

T.E. INP R/W ℄ TH 63-SLIP INP R/W T.E.

121+00.0

713.3 712.66

T-BUR

10" WM

730 720 710 700 690

T.E. INP R/W ℄ TH 63-SLIP INP R/W T.E.

120+69.0

713.6 712.99

T-BUR

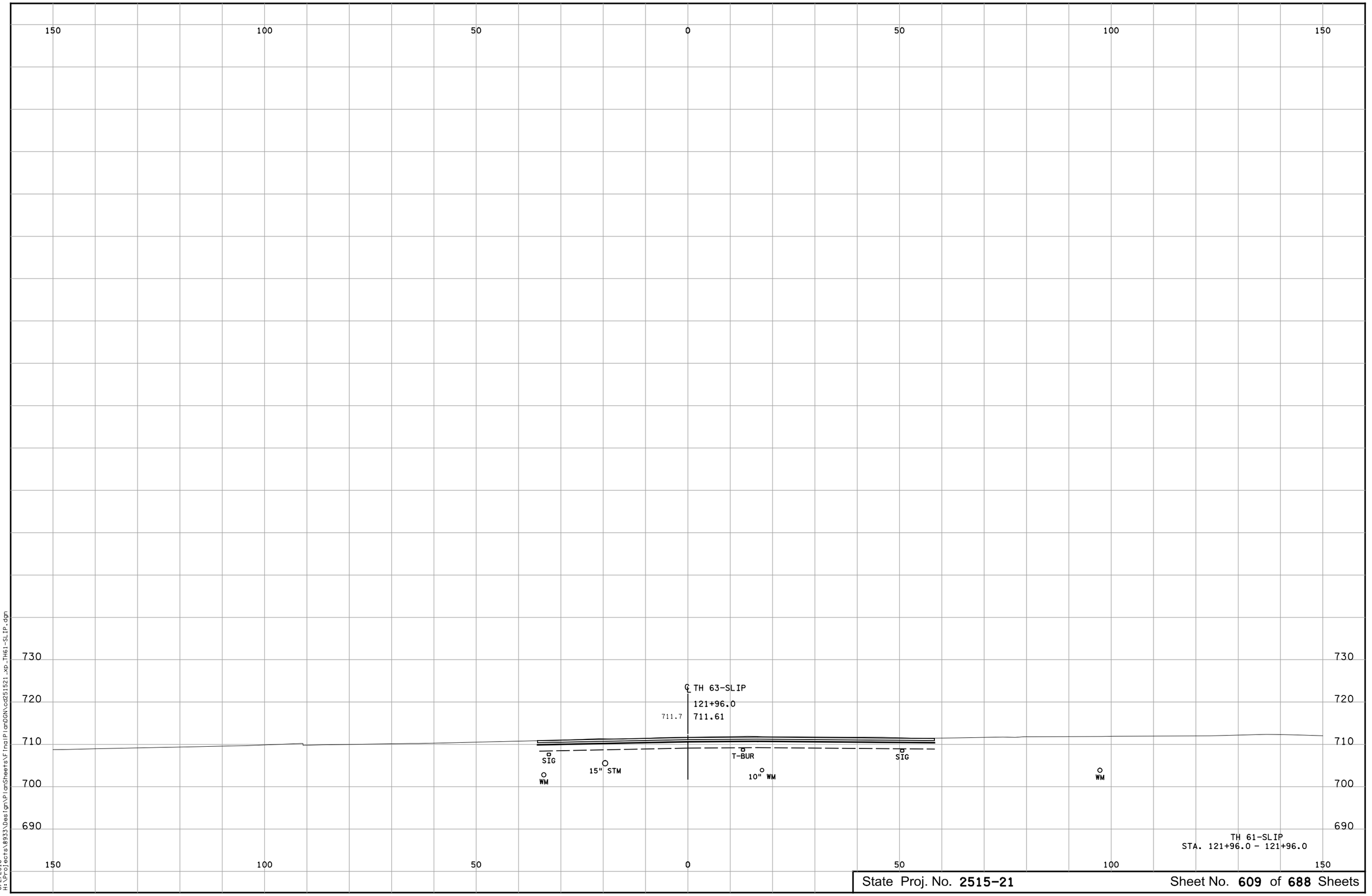
8" SAN 10" WM

730 720 710 700 690

150 100 50 0 50 100 150

TH 61-SLIP
STA. 120+69.0 - 121+50.0

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6/2/2016
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State Proj. No. **2515-21** Sheet No. **609** of **688** Sheets

150 100 50 0 50 100 150

740 730 720 710 700 690 680 670

T.E. INP R/W

℄ BLUFF ST
50+50.0
707.3 707.49

INP R/W

1:15.9

P-BUR 8" GAS P-BUR

8" WM

P-BUR

15" SAN

6' x 6' EXISTING STORM SEWER

℄ BLUFF ST
50+00.0
707.4 707.33

INP R/W

1:35.2

12" STM

P-BUR 8" GAS 15" STM P-BUR

WM 8" WM

8" SAN

15" SAN

6' x 6' EXISTING STORM SEWER

BLUFF ST
STA 50+00.0 - 50+50.0

150 100 50 0 50 100 150

11:39:50 AM
6/2/2016
H:\Projects\8933\Design\PlanSheets\FinalPlanDGN\dd251521_xp_BLUFF.dgn

150 100 50 0 50 100 150

740 730 720 710 700 690 680 670

INP R/W

SEE TH63 SLIP RAMP M/L
CROSS SECTIONS

℄ BLUFF ST
55+05.0
709.7 707.70

1:11.3

M/L SEE TH63 SLIP RAMP
CROSS SECTIONS

8" WM

6' x 6' EXISTING STORM SEWER

15" SAN

T.E. INP R/W

℄ BLUFF ST
51+00.0
707.5 707.65

INP R/W

R/W

8" GAS

P-BUR

8" WM

6' x 6' EXISTING STORM SEWER

15" SAN

BLUFF ST
STA 51+00.0 - 55+05.0

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150 100 50 0 50 100 150

730 720 710 700 690 680 670

T.E.T.E.

T.E.

INP R/W

M/L SEE TH63-SLIP RAMP
CROSS SECTIONS

1:52.1

8" WM

6' x 6' EXISTING STORM SEWER

730 720 710 700 690 680 670

T.E.

℄ BLUFF ST
55+50.0
709.5 709.42

INP R/W

M/L SEE TH63 SLIP RAMP
CROSS SECTIONS

1:51.4

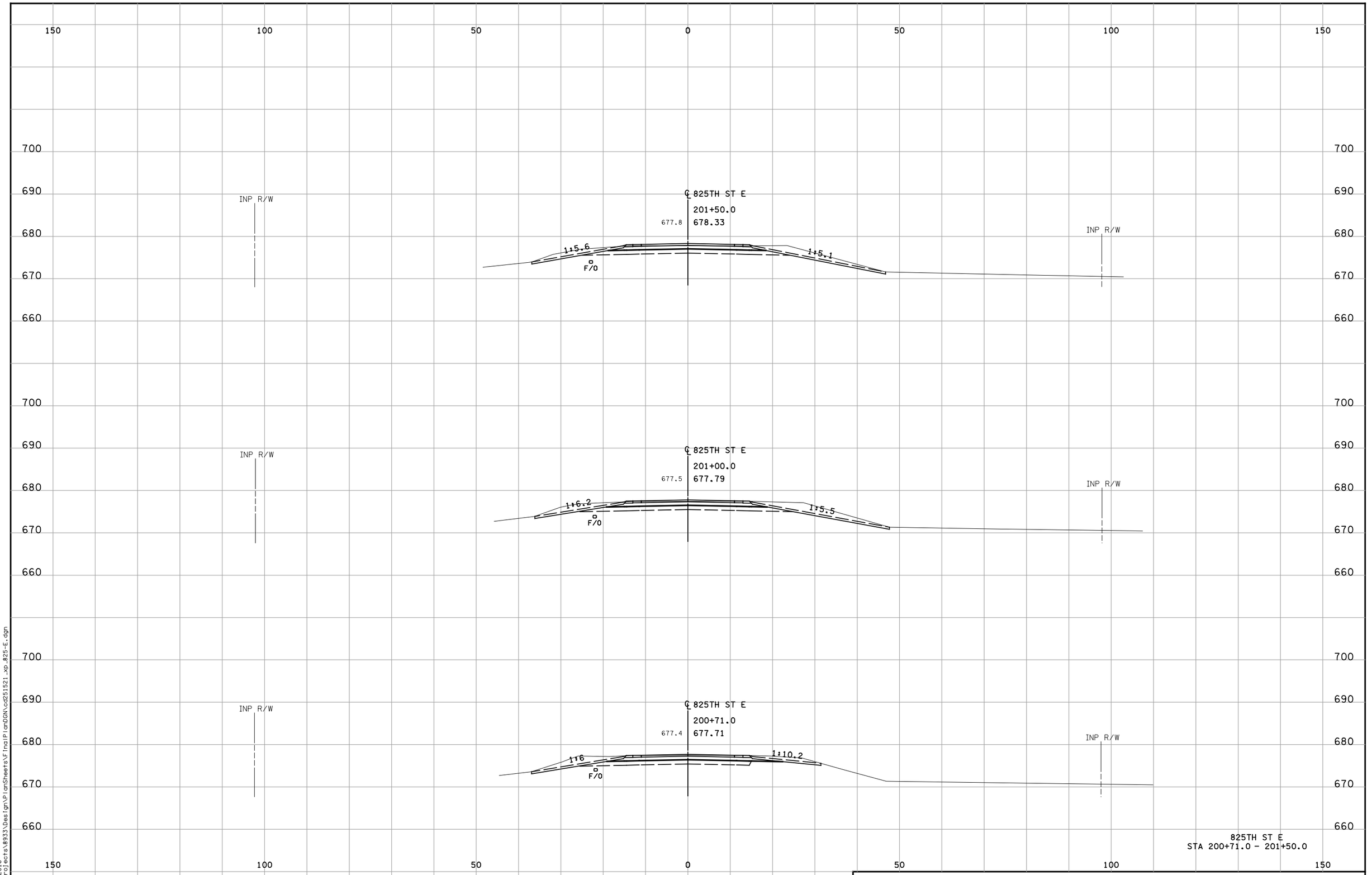
8" WM

6' x 6' EXISTING STORM SEWER

BLUFF ST
STA 55+50.0 - 55+88.0

150 100 50 0 50 100 150

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825TH ST E
STA 200+71.0 - 201+50.0

11:39:50 AM
6/2/2016
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State Proj. No. **2515-21** Sheet No. **613** of **688** Sheets

150 100 50 0 50 100 150

700 690 680 670 660

℄ 825TH ST E
202+85.0
677.7 681.31

1:19.3 F/O 1:4 1:3

700 690 680 670 660

℄ 825TH ST E
202+50.0
678.6 680.65

1:12 F/O 1:4 1:3

700 690 680 670 660

INP R/W

℄ 825TH ST E
202+00.0
678.5 679.39

1:6 F/O 1:4 1:3

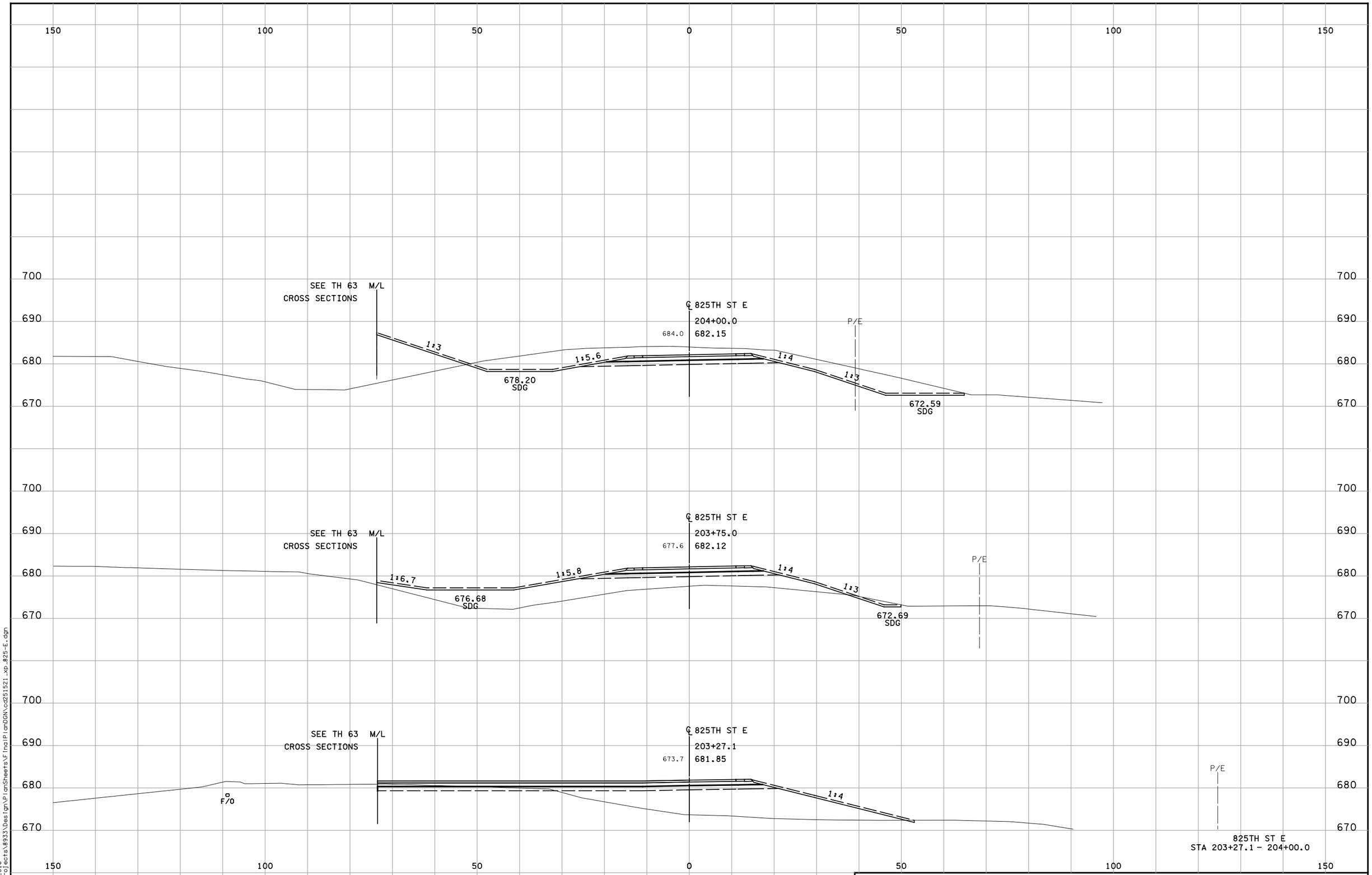
INP R/W

825TH ST E
STA 202+00.0 - 202+85.0

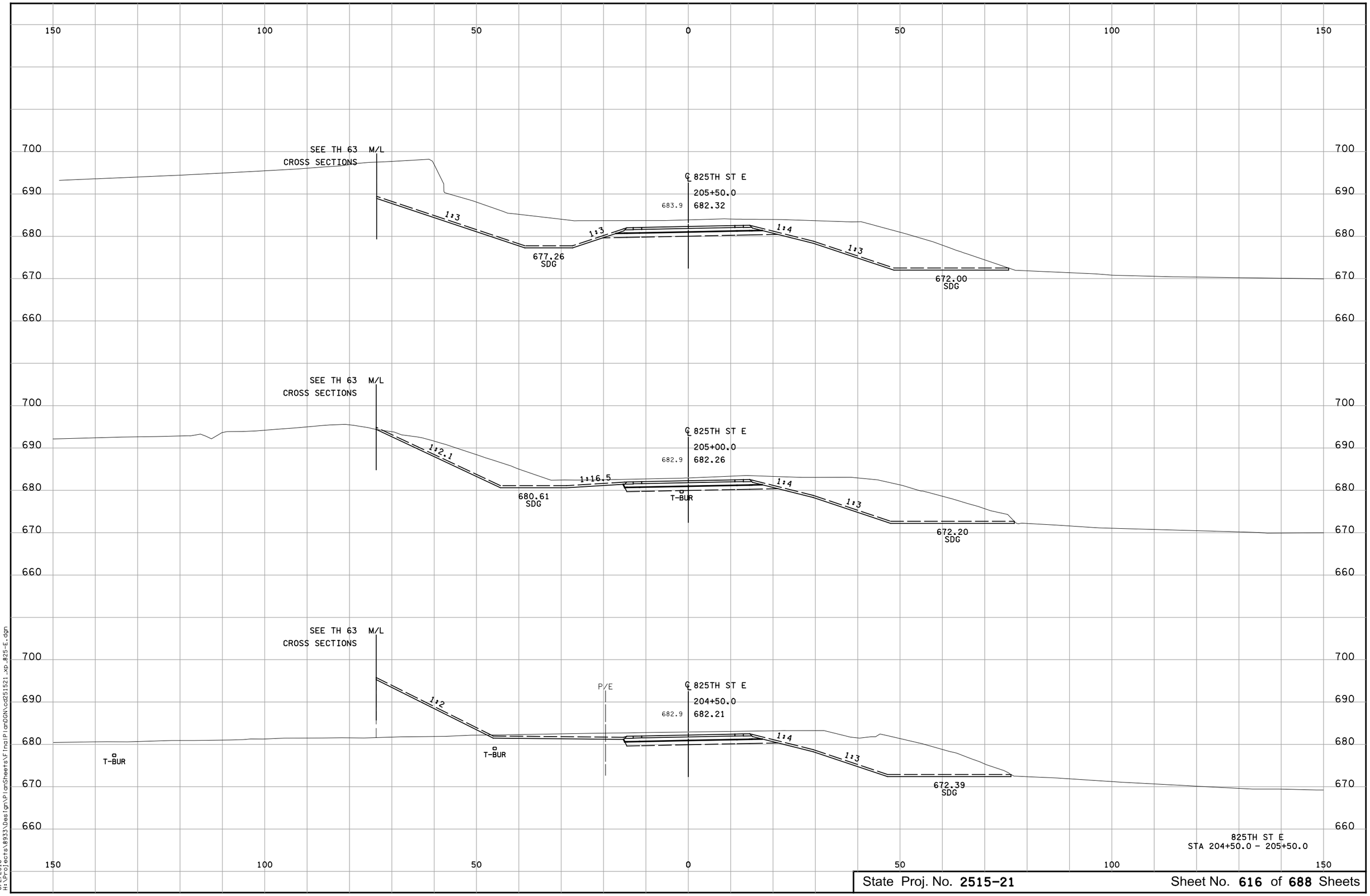
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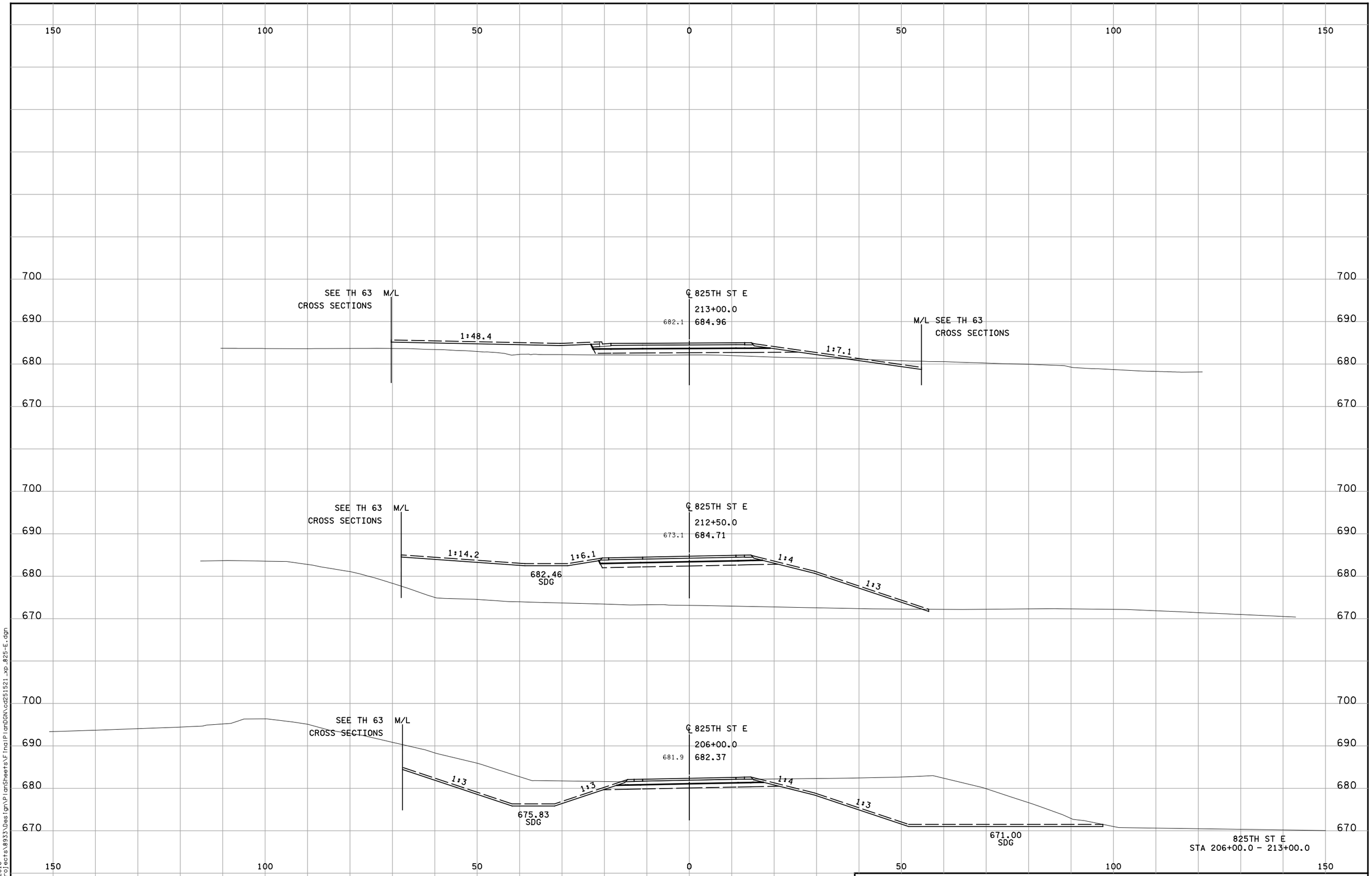


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State Proj. No. **2515-21** Sheet No. **616** of **688** Sheets



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State Proj. No. **2515-21** Sheet No. **617** of **688** Sheets

150 100 50 0 50 100 150

700 690 680 670 660

SEE TH 63 M/L
CROSS SECTIONS

1:5.5 1:6 1:4 1:3

680.81
SDG

F/O

℄ 825TH ST W
215+00.0
673.2 684.68

700 690 680 670

SEE TH 63 M/L
CROSS SECTIONS

1:18.8 1:6 1:4.9

683.24
SDG

F/O

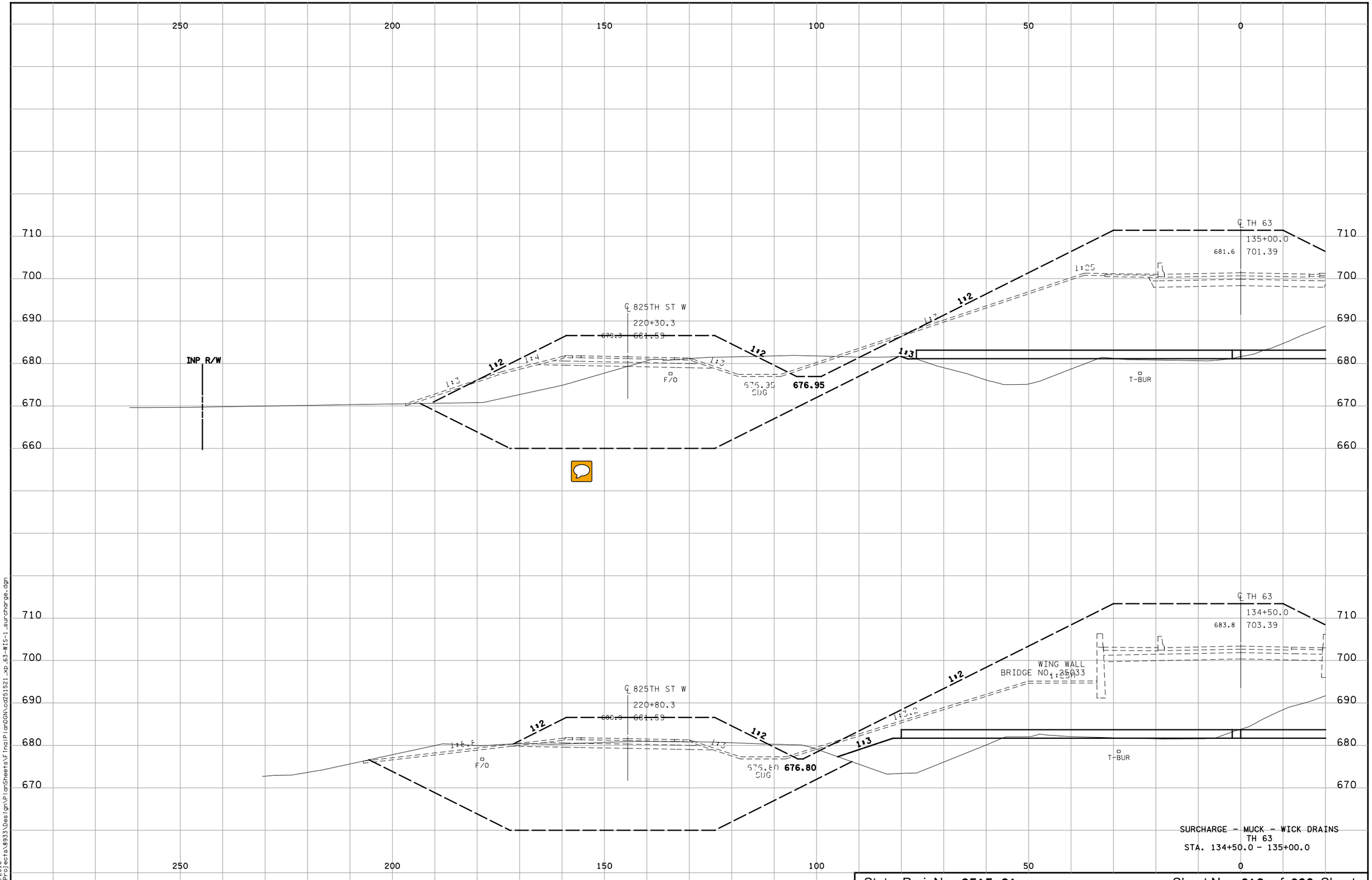
℄ 825TH ST W
214+50.0
675.9 684.98

M/L SEE TH 63
CROSS SECTIONS

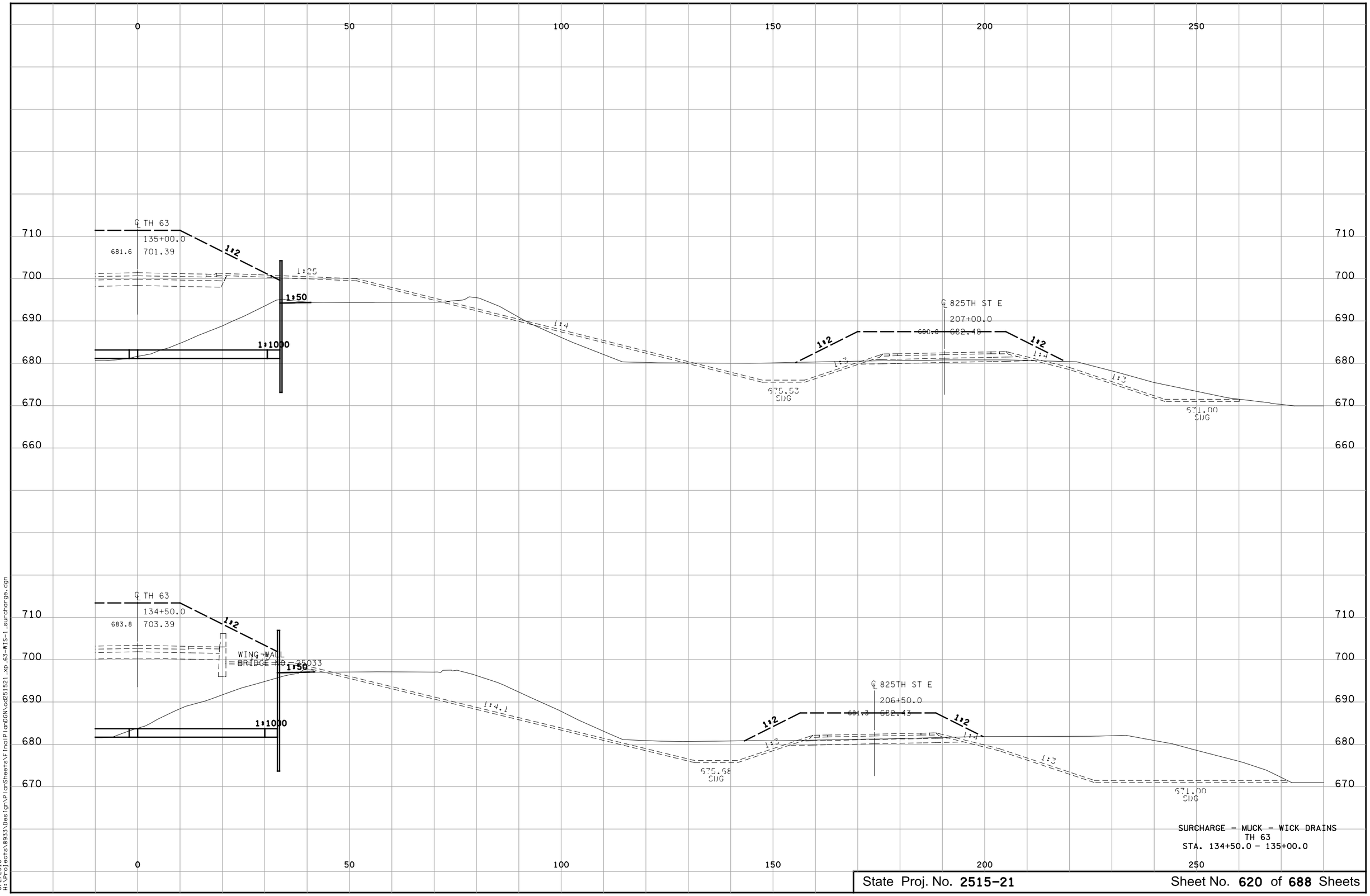
825TH ST W
STA 214+50.0 - 215+00.0

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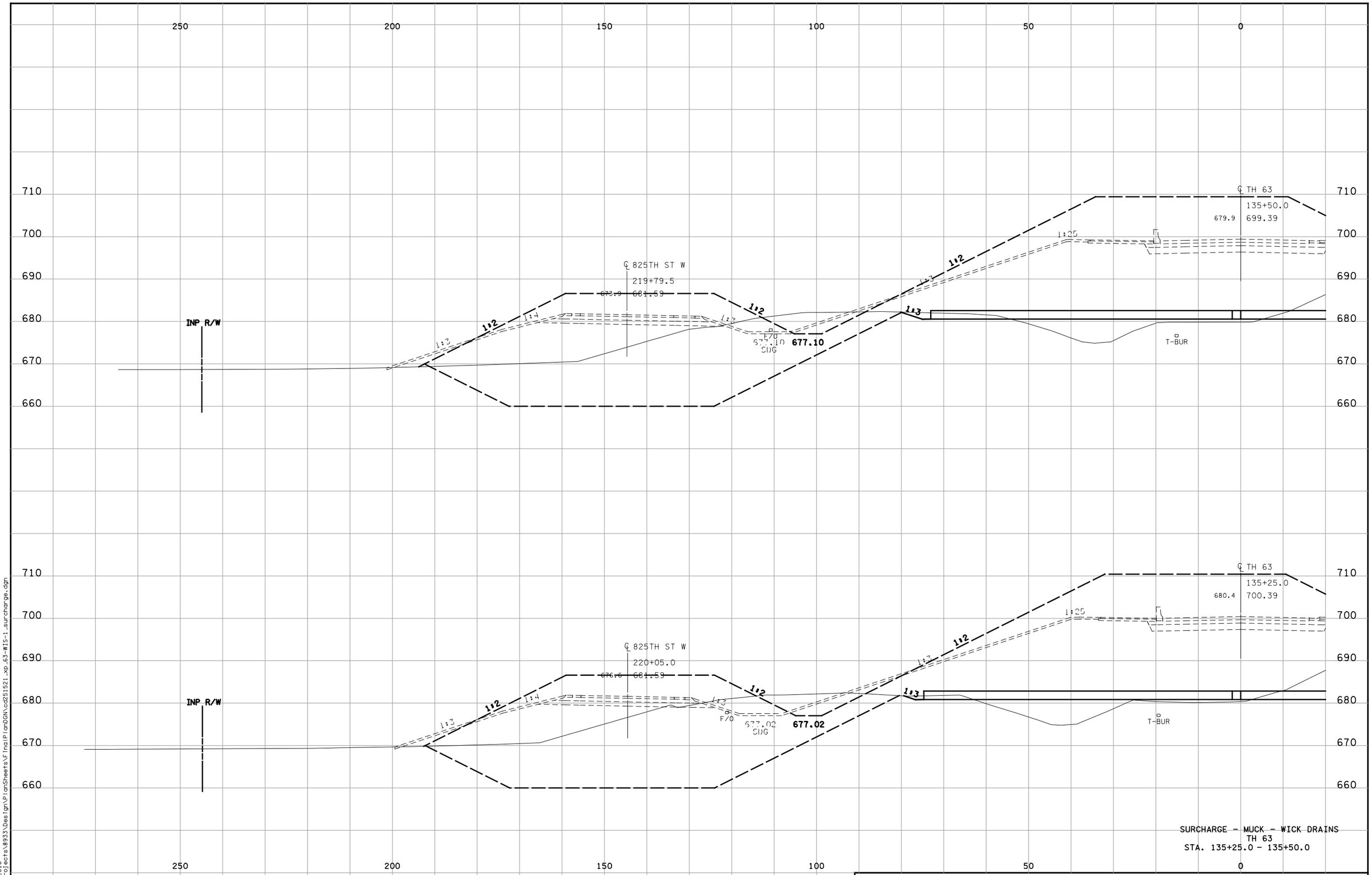


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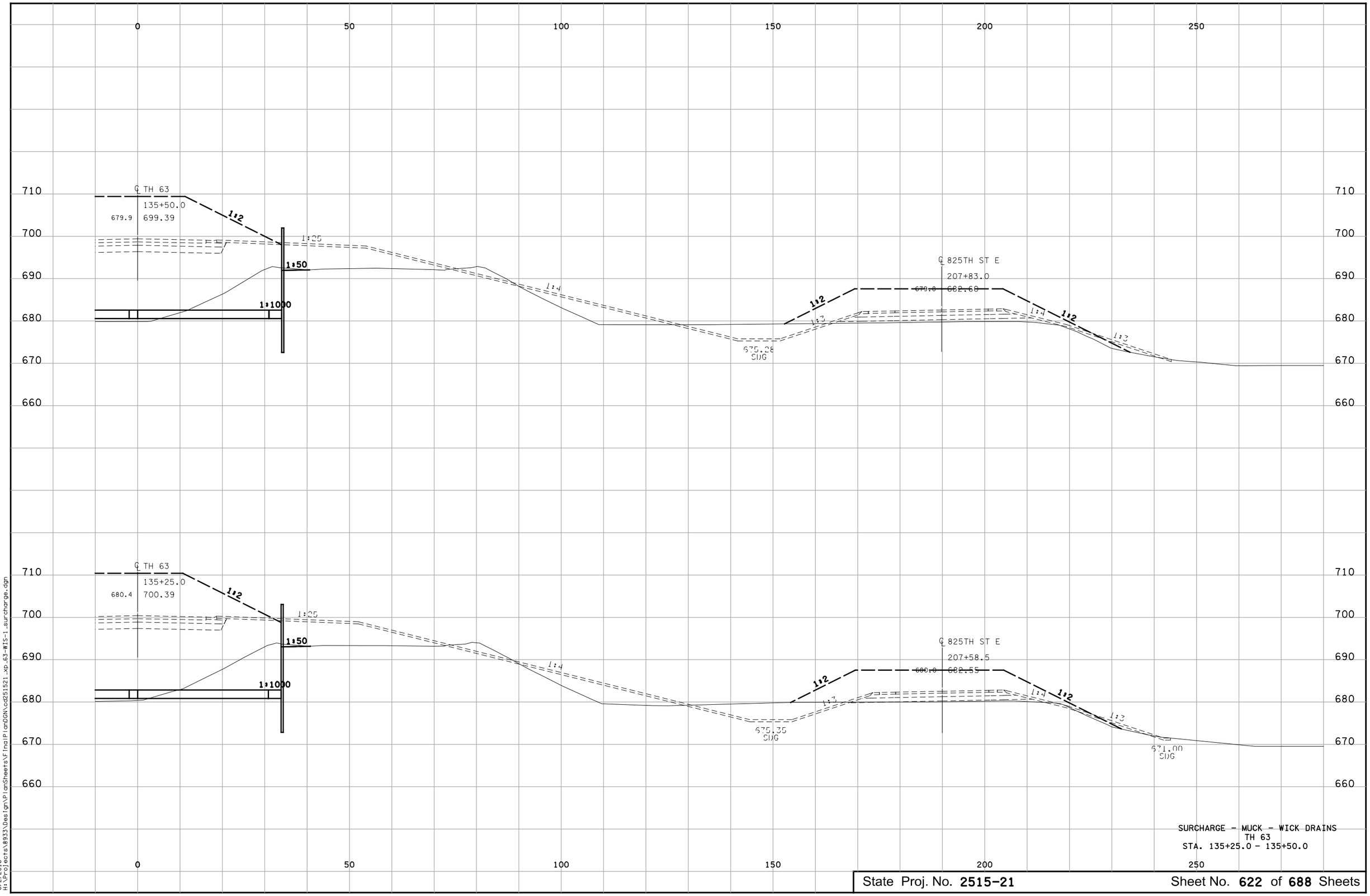
SURCHARGE - MUCK - WICK DRAINS
TH 63
STA. 134+50.0 - 135+00.0

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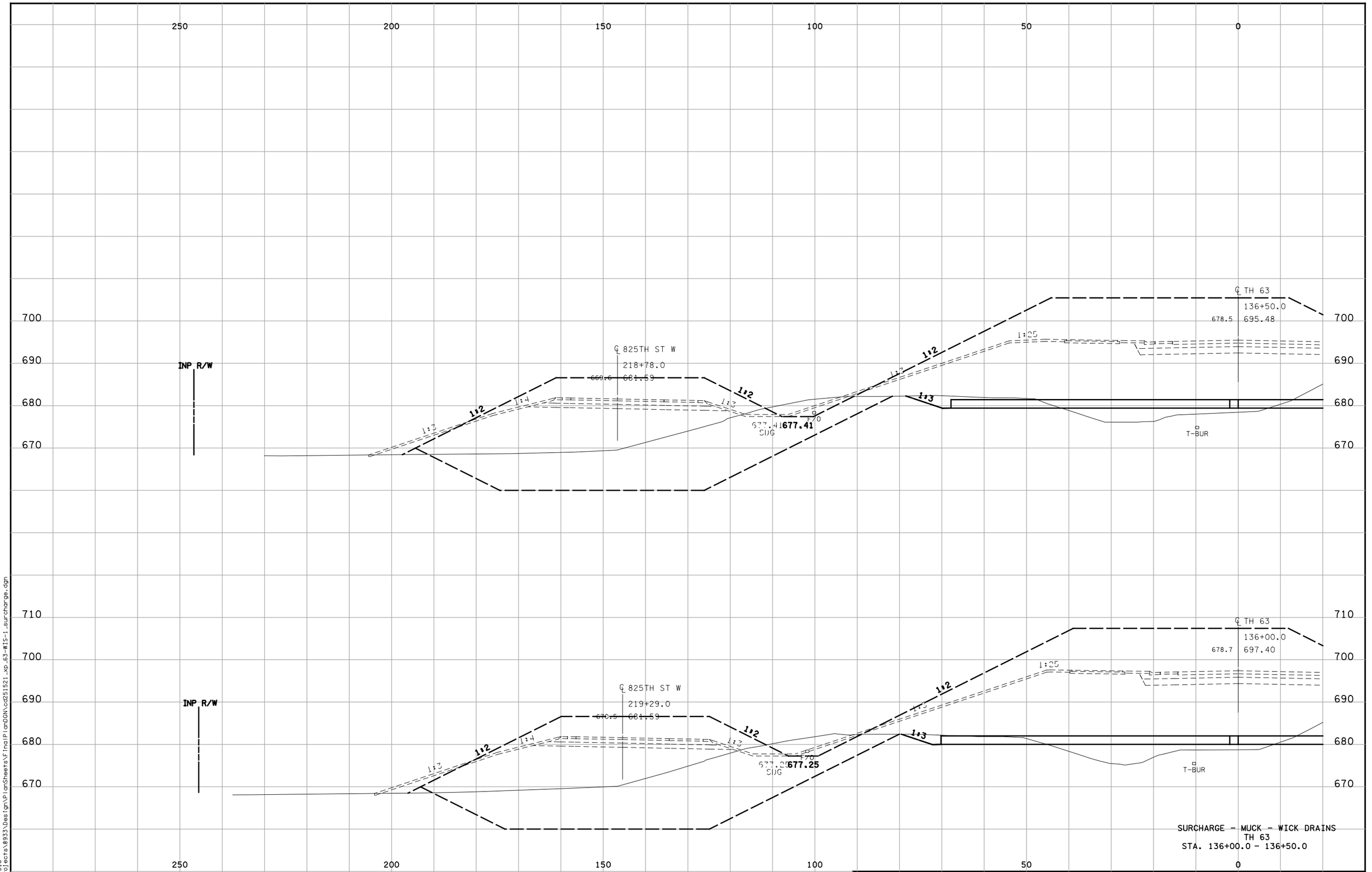
SURCHARGE - MUCK - WICK DRAINS
TH 63
STA. 135+25.0 - 135+50.0

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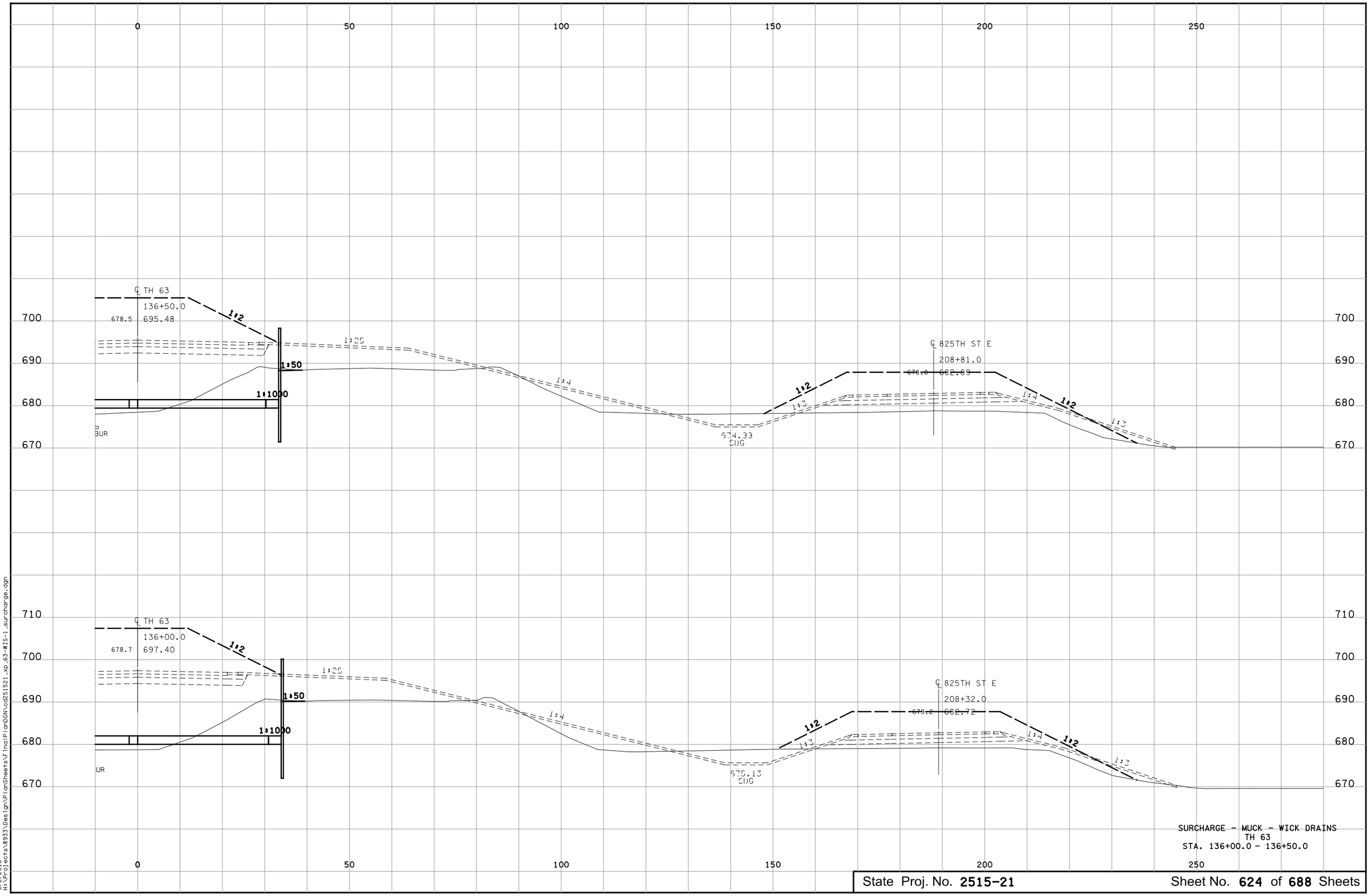


SURCHARGE - MUCK - WICK DRAINS
TH 63
STA. 135+25.0 - 135+50.0

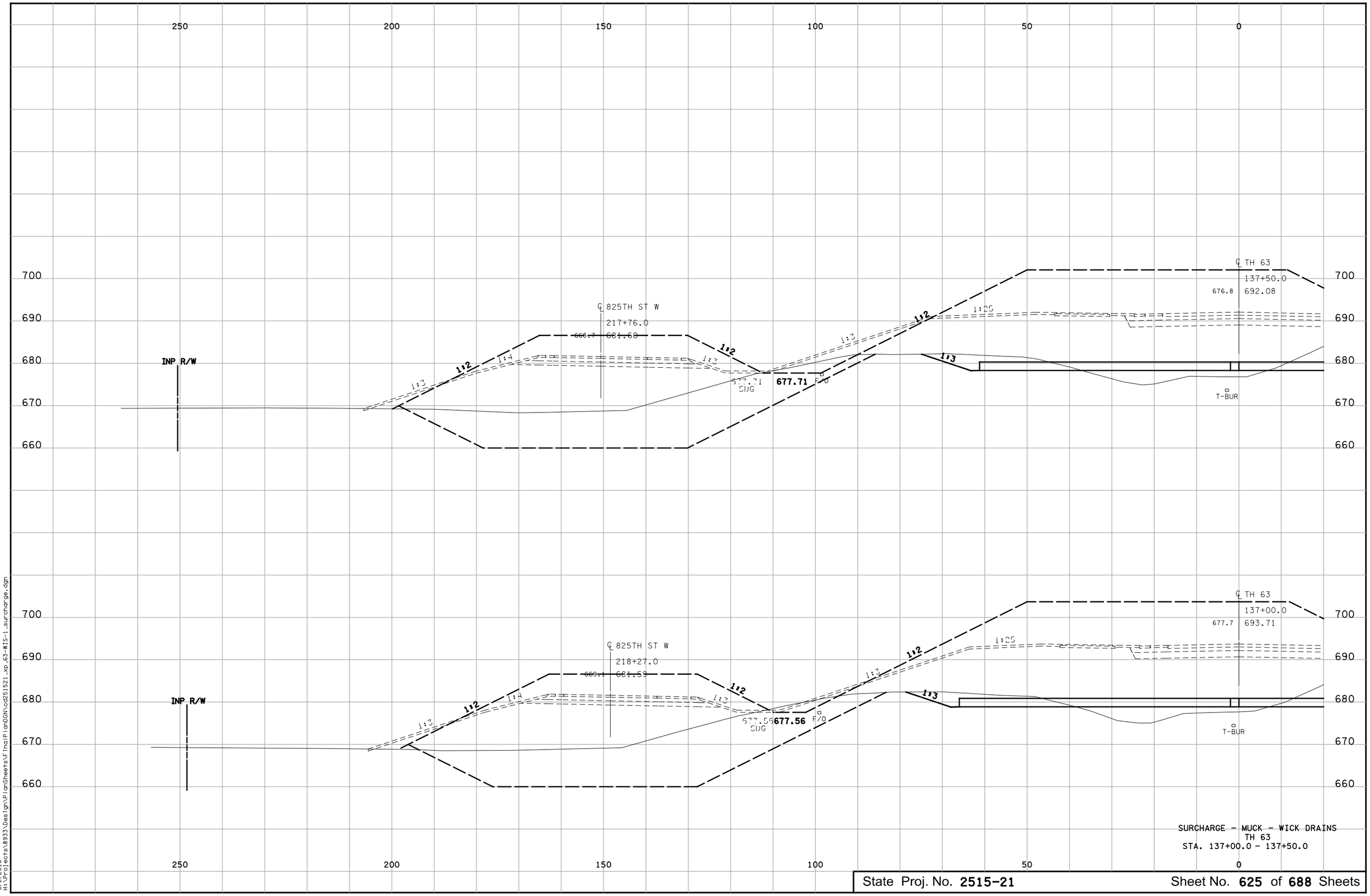
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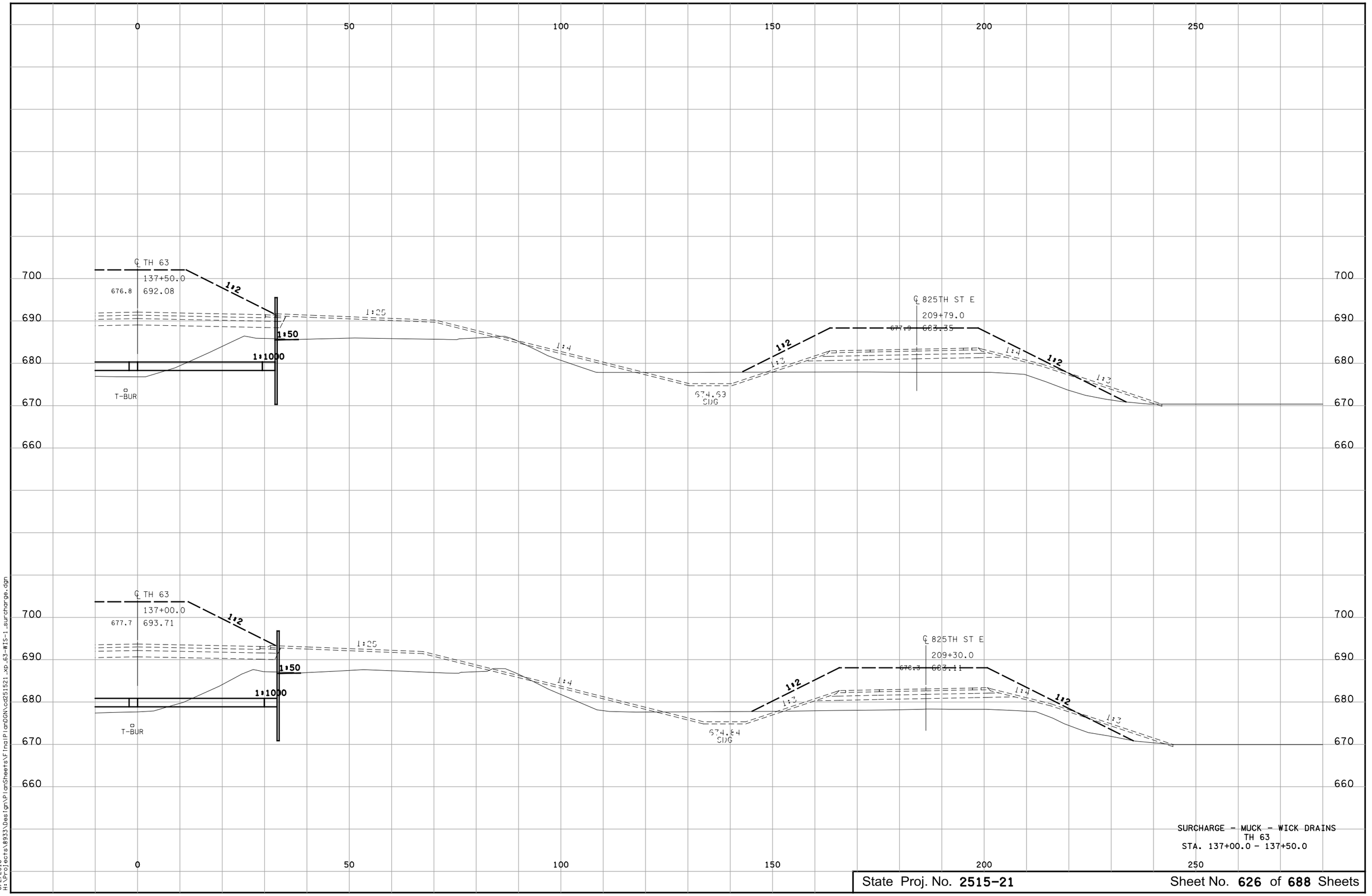
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SURCHARGE - MUCK - WICK DRAINS
TH 63
STA. 137+00.0 - 137+50.0

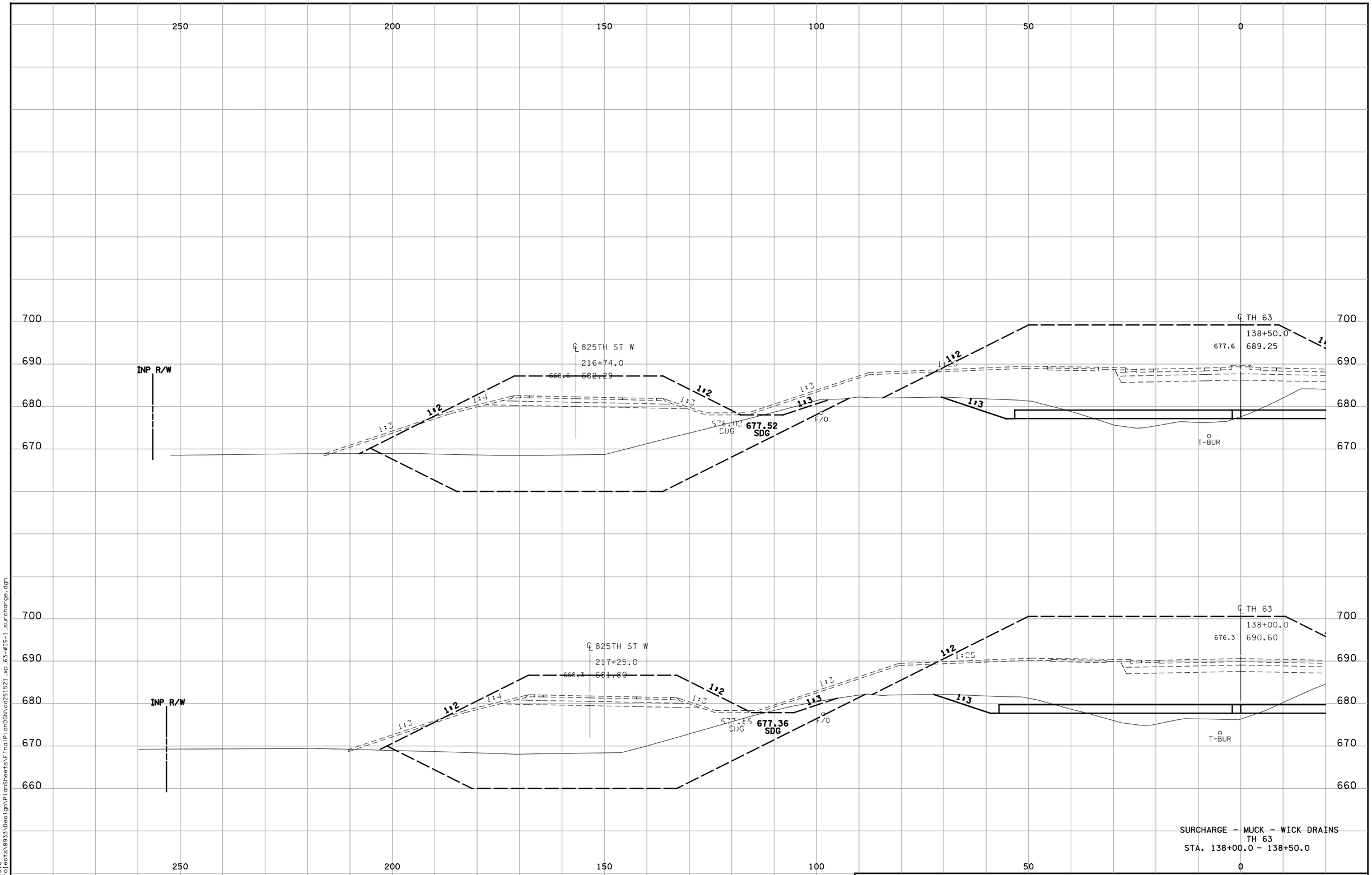
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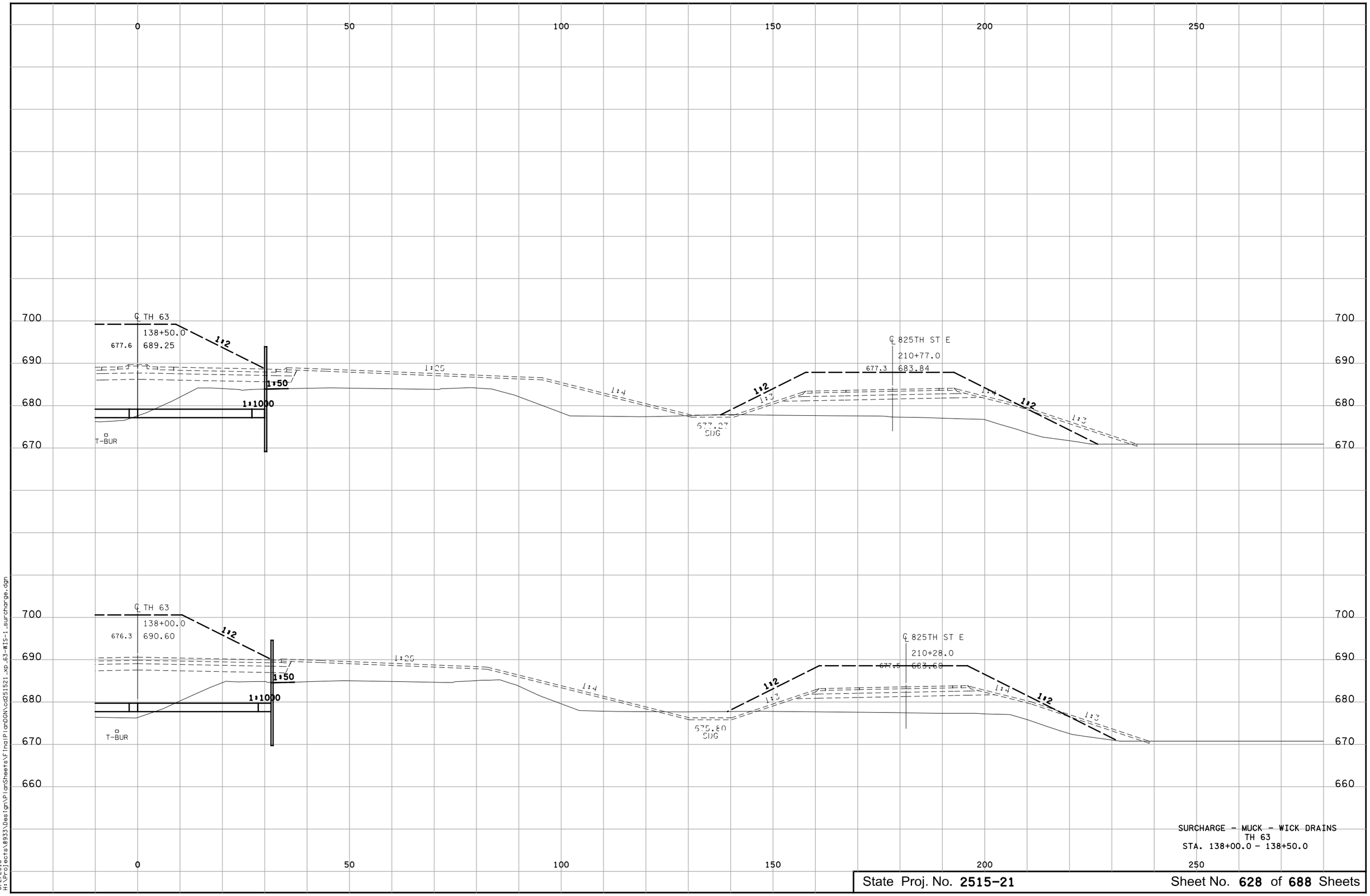
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TH 63
STA. 137+00.0 - 137+50.0

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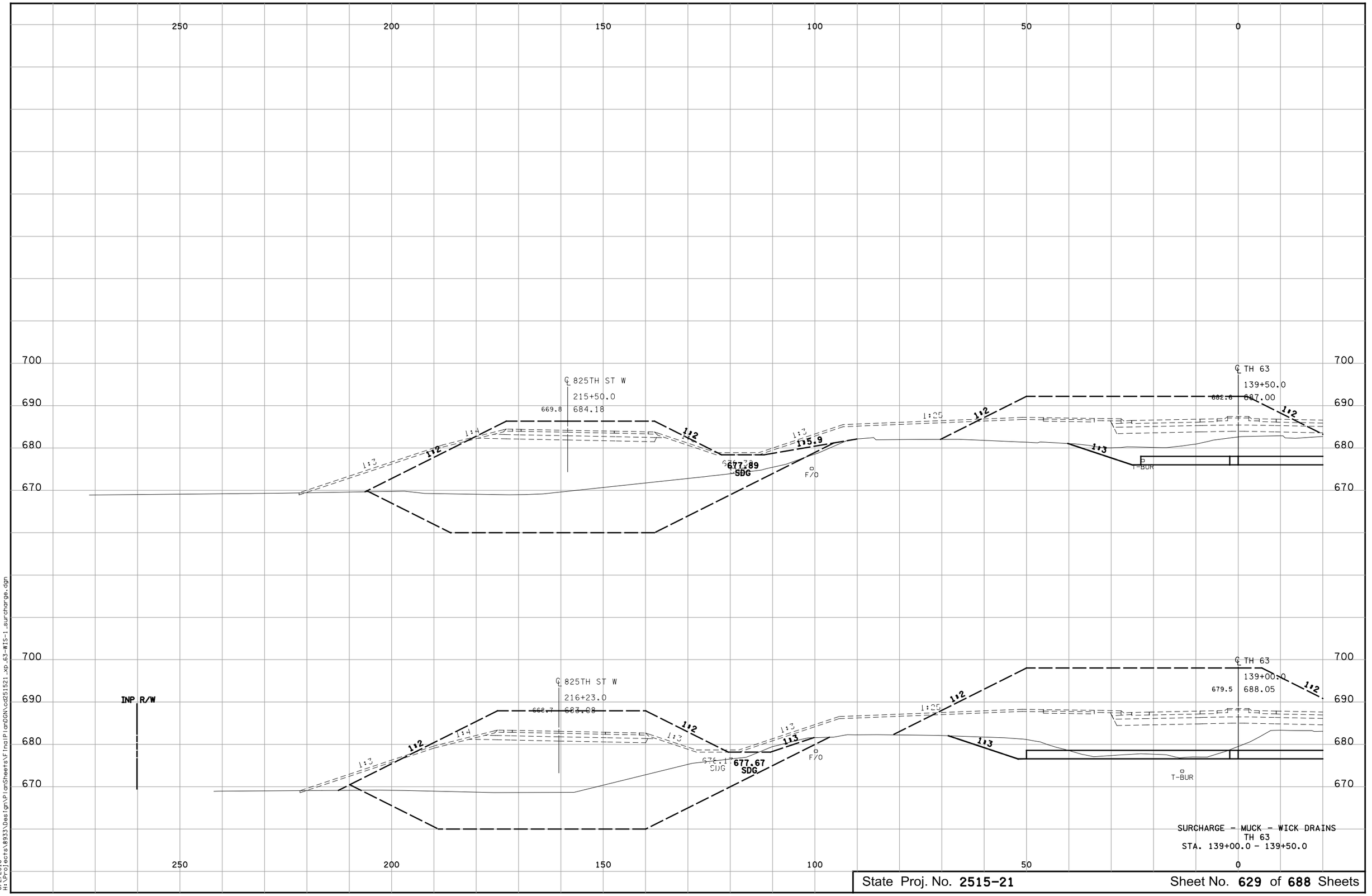
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TH 63
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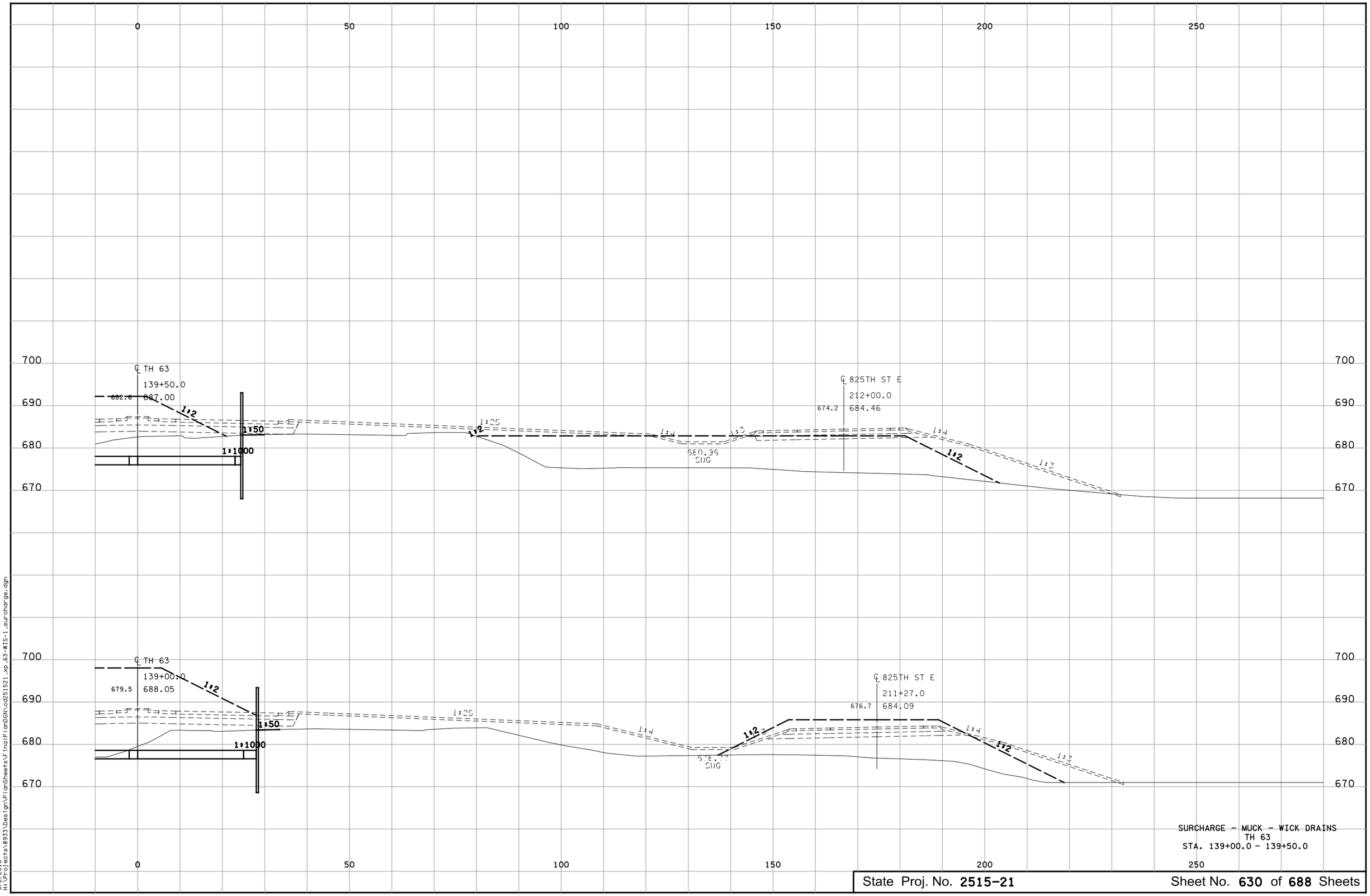
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TH 63
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State Proj. No. **2515-21** Sheet No. **629** of **688** Sheets



SURCHARGE - MUCK - WICK DRAINS
TH 63
STA. 139+00.0 - 139+50.0

11:39:54 AM
6/2/2016
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150 100 50 0 50 100 150

700 690 680 670 660

℄ TH 63
141+00.0
682.9 684.68

1:2 1:2 1:4 671.76

F/O T-BUR

℄ TH 63
140+75.0
682.5 684.98

1:2 1:2 1:4 671.64

F/O T-BUR

SEE 825TH ST (WEST) M/L
CROSS SECTIONS

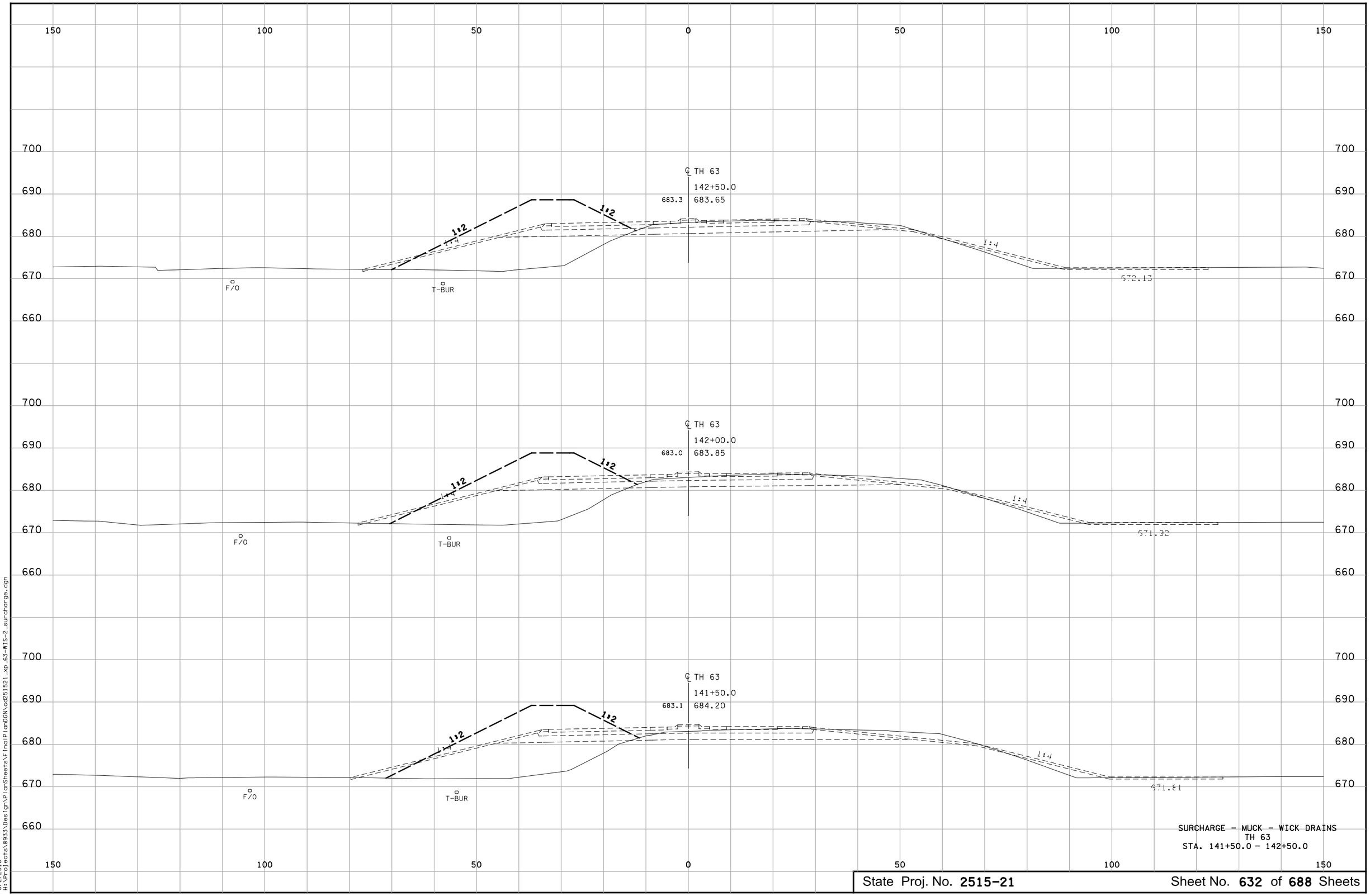
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682.3 685.76

M/L SEE 825TH ST (EAST)
CROSS SECTIONS

F/O T-BUR

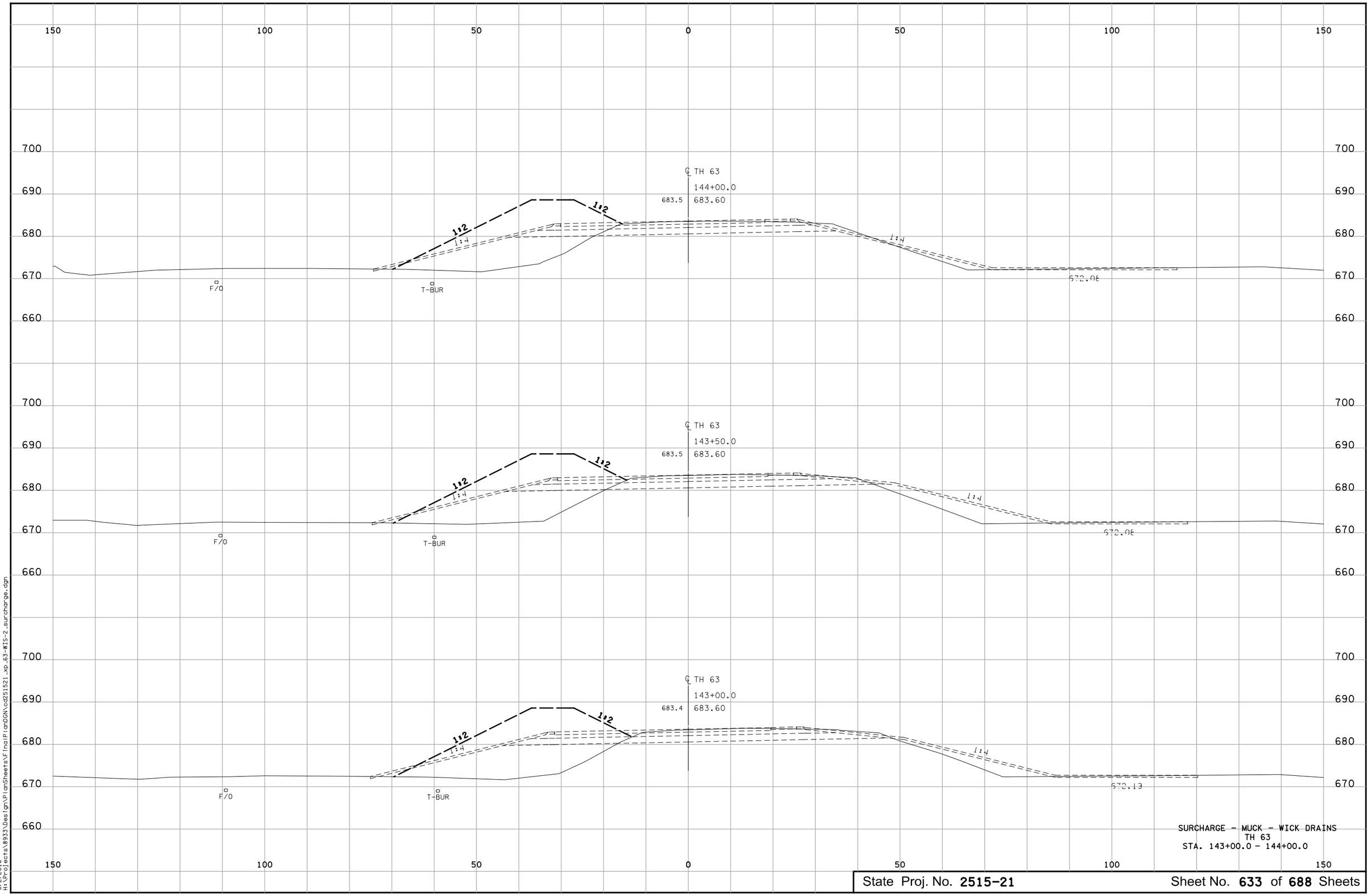
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TH 63
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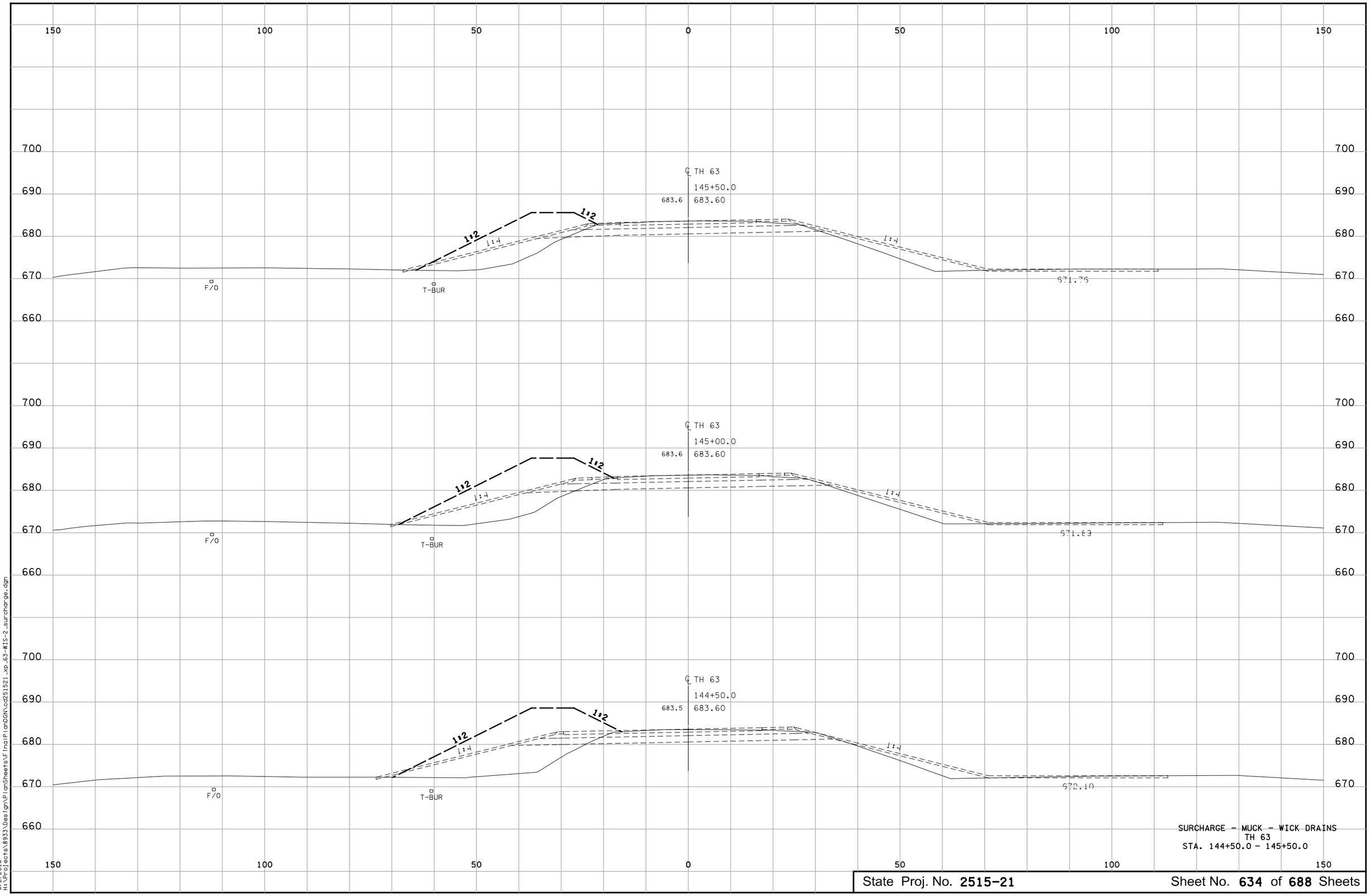
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TH 63
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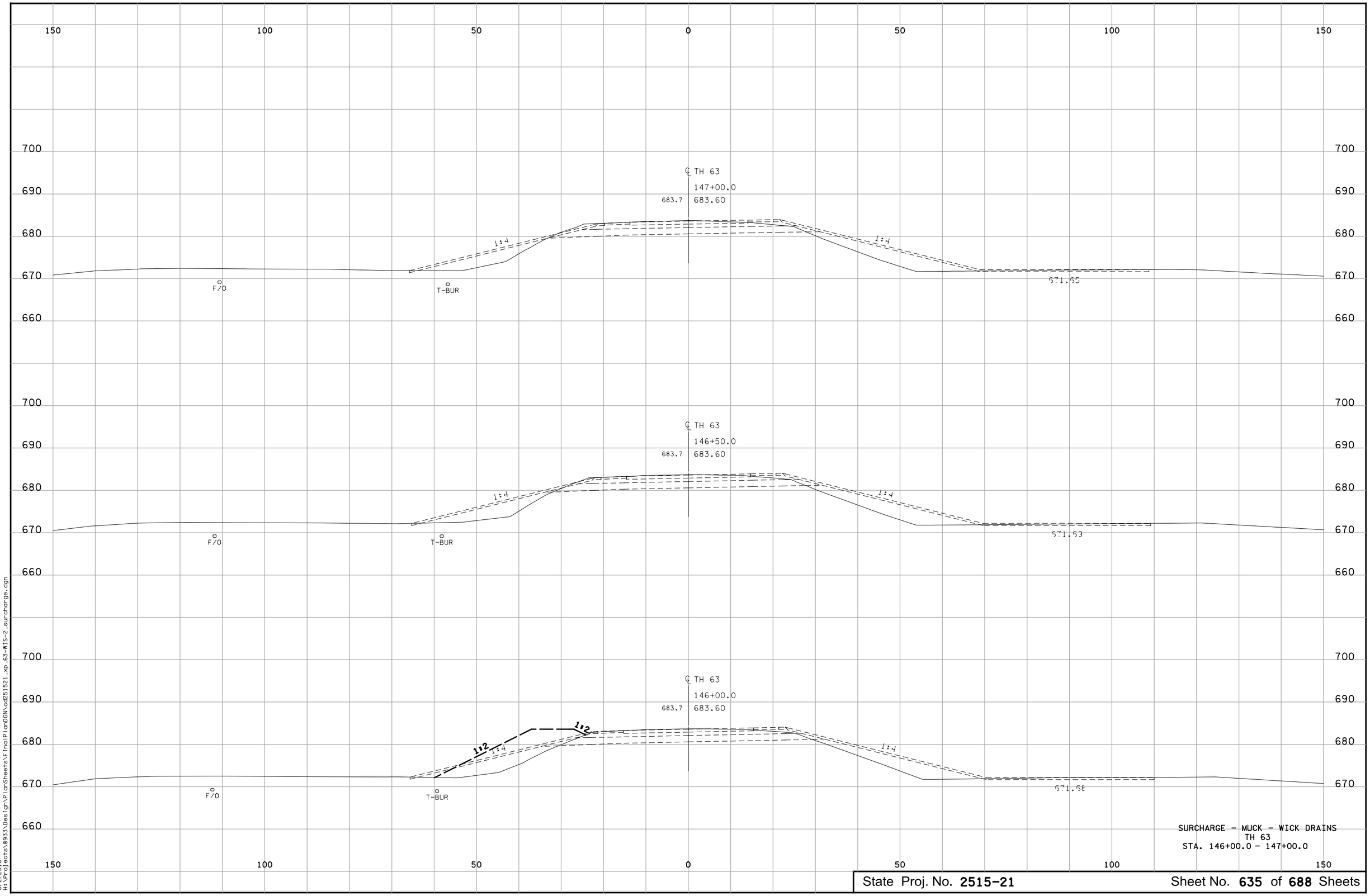


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TH 63
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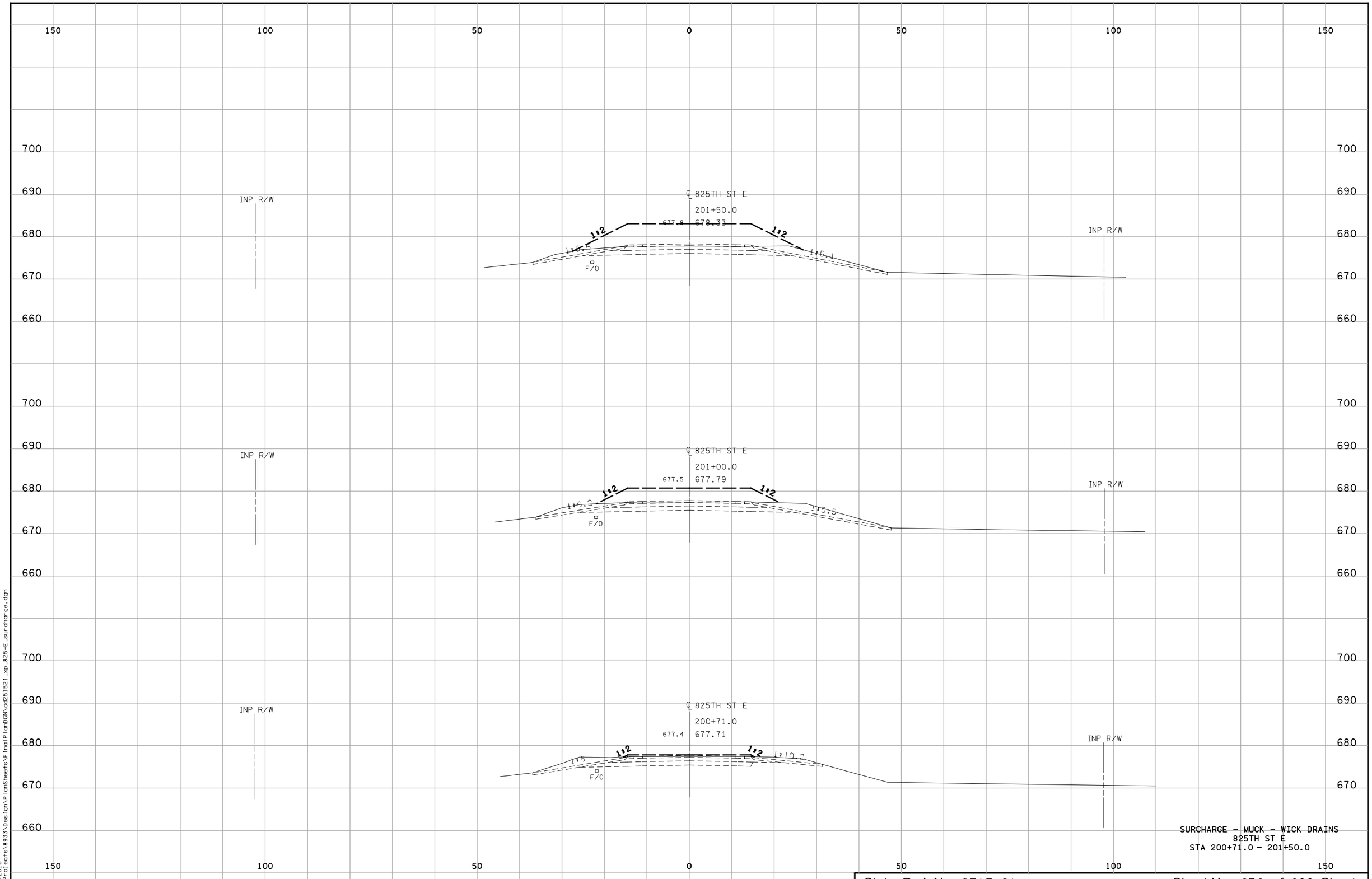


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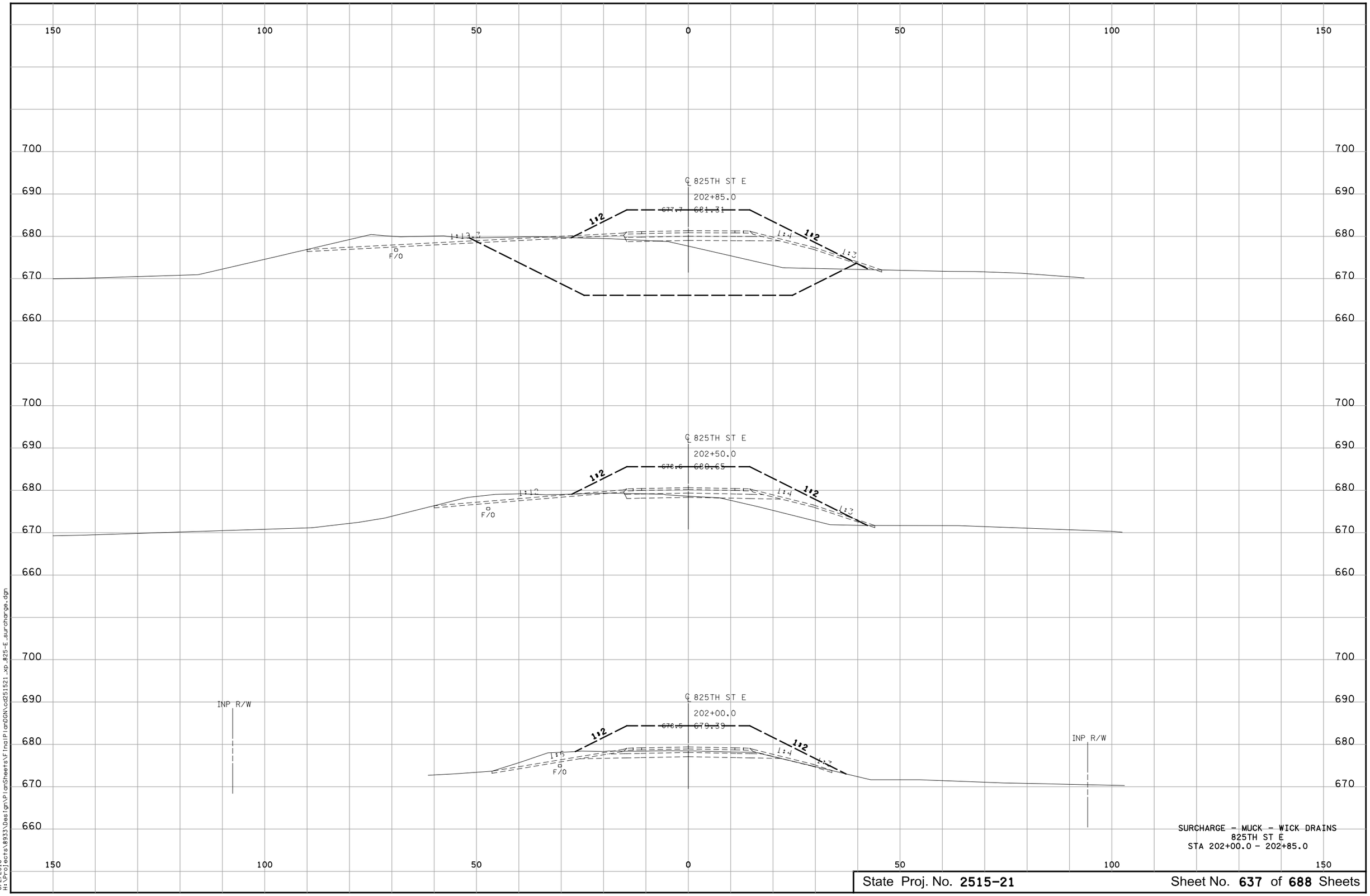
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TH 63
STA. 146+00.0 - 147+00.0

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SURCHARGE - MUCK - WICK DRAINS
825TH ST E
STA 200+71.0 - 201+50.0

11:40:01 AM
6/2/2016
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SURCHARGE - MUCK - WICK DRAINS
825TH ST E
STA 202+00.0 - 202+85.0

11:40:02 AM
6/2/2016
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150 100 50 0 50 100 150

700 690 680 670

SEE TH 63 M/L
CROSS SECTIONS

1:11 1:3 1:5.5 678.20 SDG

℄ 825TH ST E
204+00.0
684.0 682.15

1:2 1:4 1:3 672.53 SDG

P/E

SEE TH 63 M/L
CROSS SECTIONS

1:8.4 1:5.6 1:6.7 675.68 SDG

℄ 825TH ST E
203+75.0
677.6 682.12

1:2 1:4 1:3 672.63 SDG

P/E

SEE TH 63 M/L
CROSS SECTIONS

F/O

℄ 825TH ST E
203+27.1
673.7 681.85

1:2 1:4

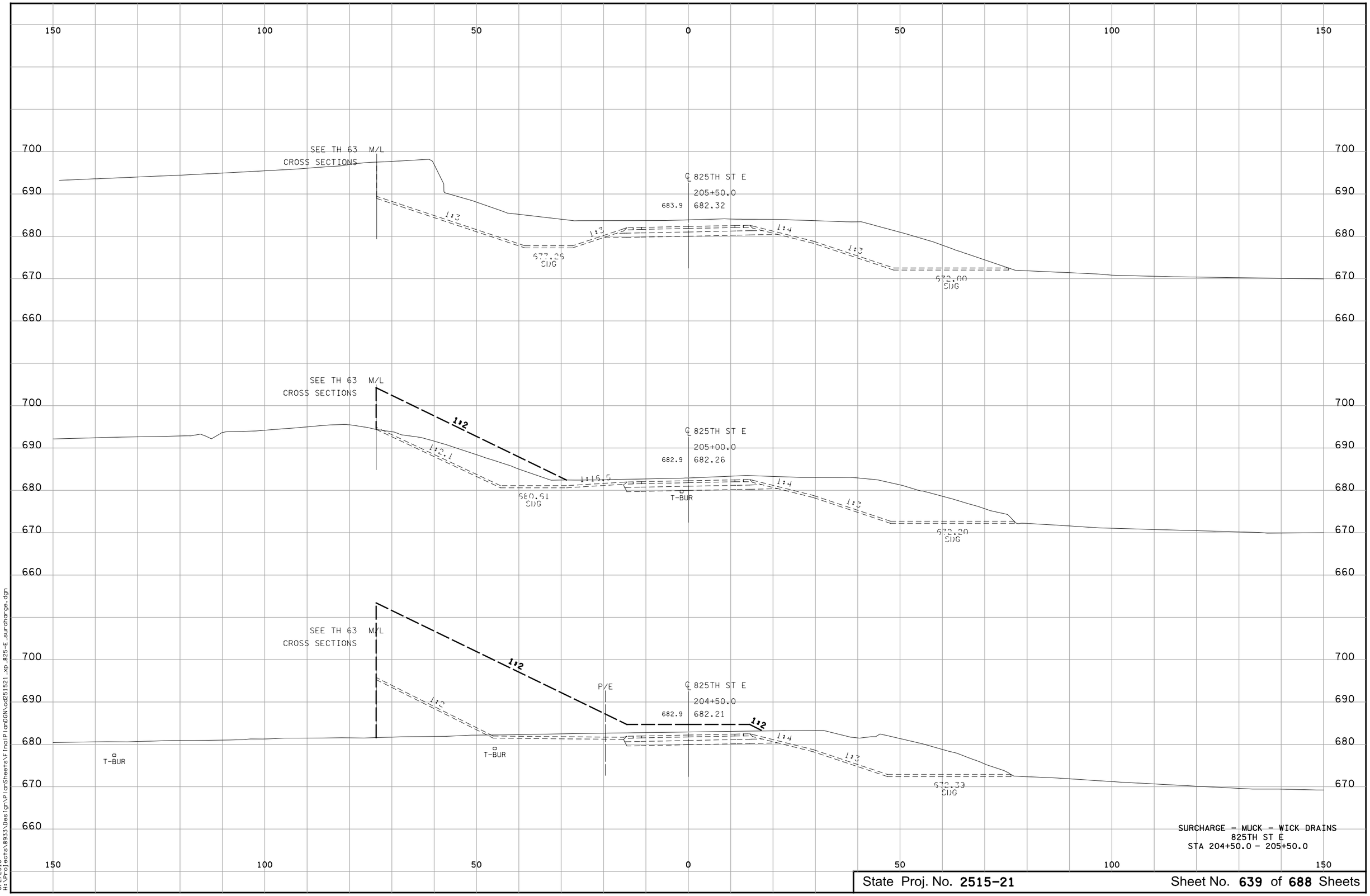
P/E

SURCHARGE - MUCK - WICK DRAINS
825TH ST E
STA 203+27.1 - 204+00.0

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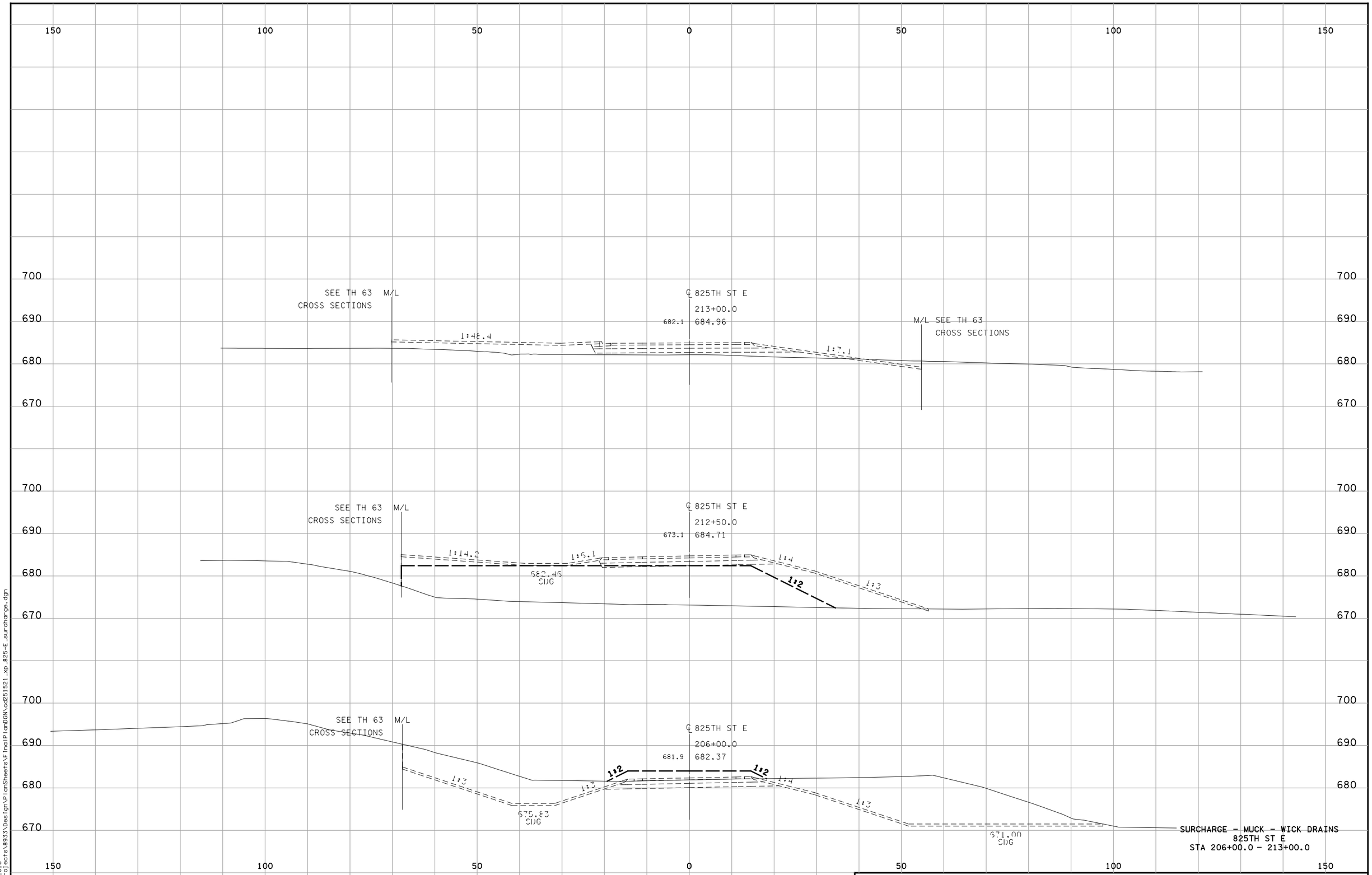
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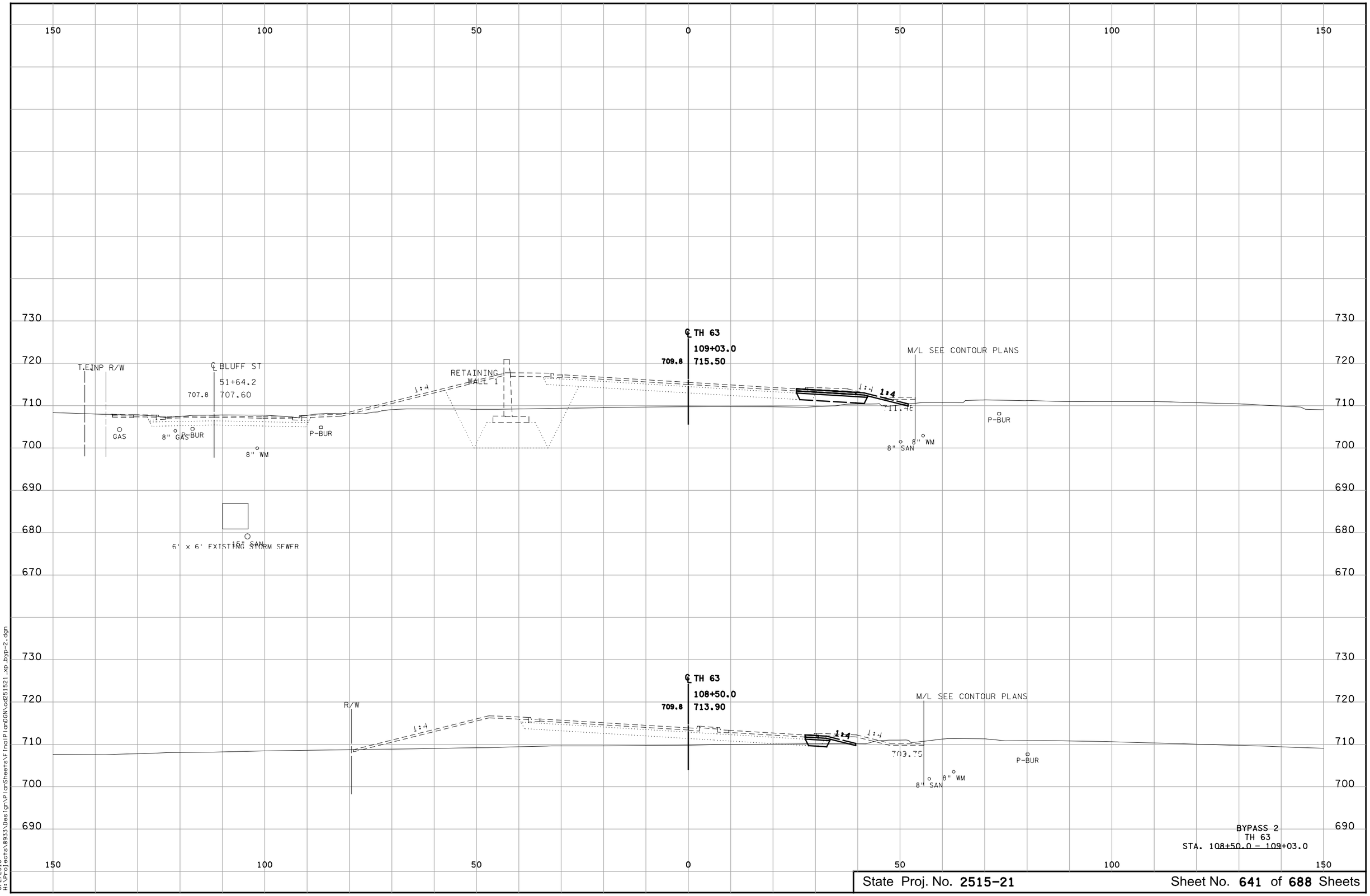
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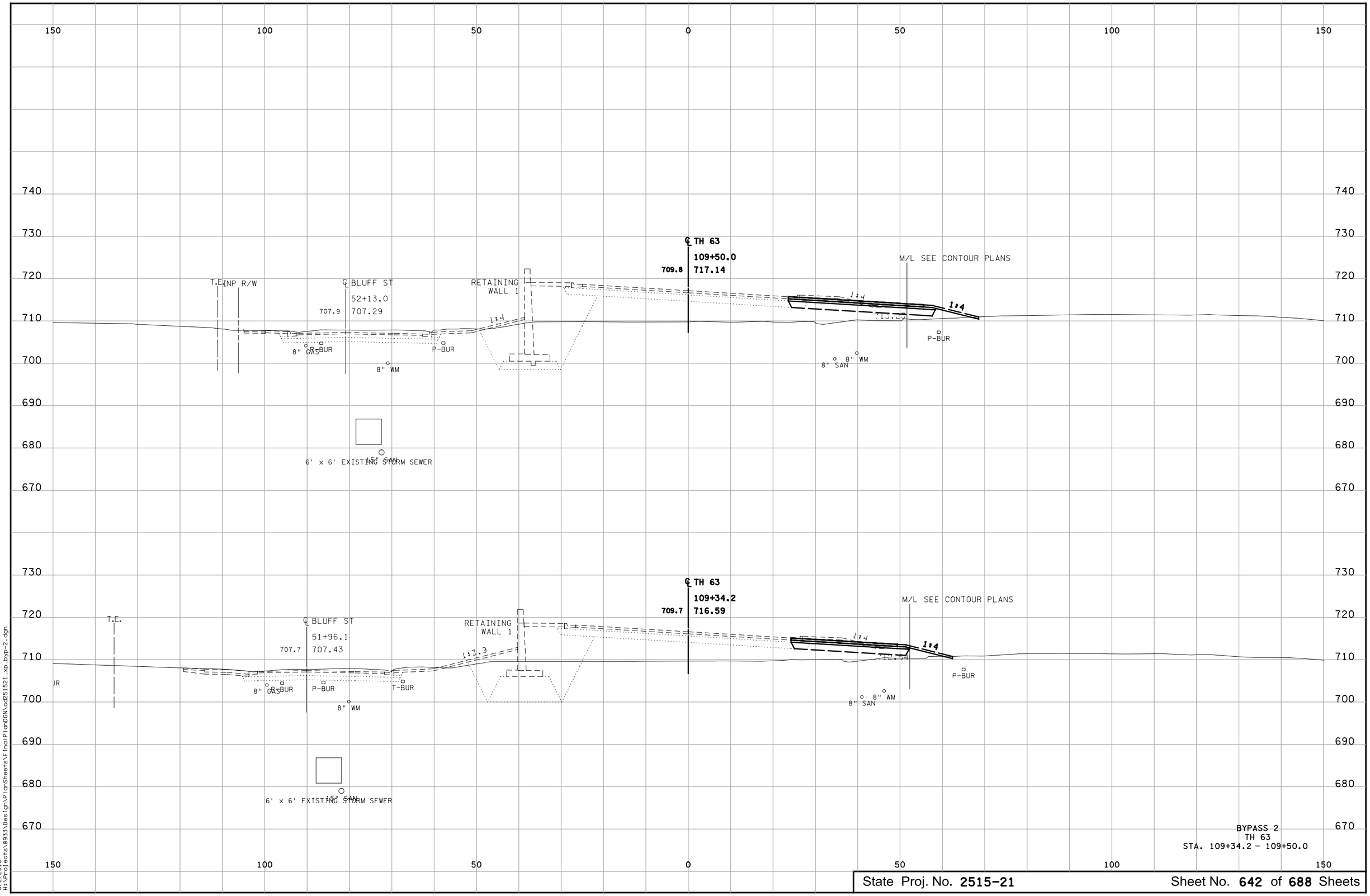
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Sheet No. **640** of **688** Sheets



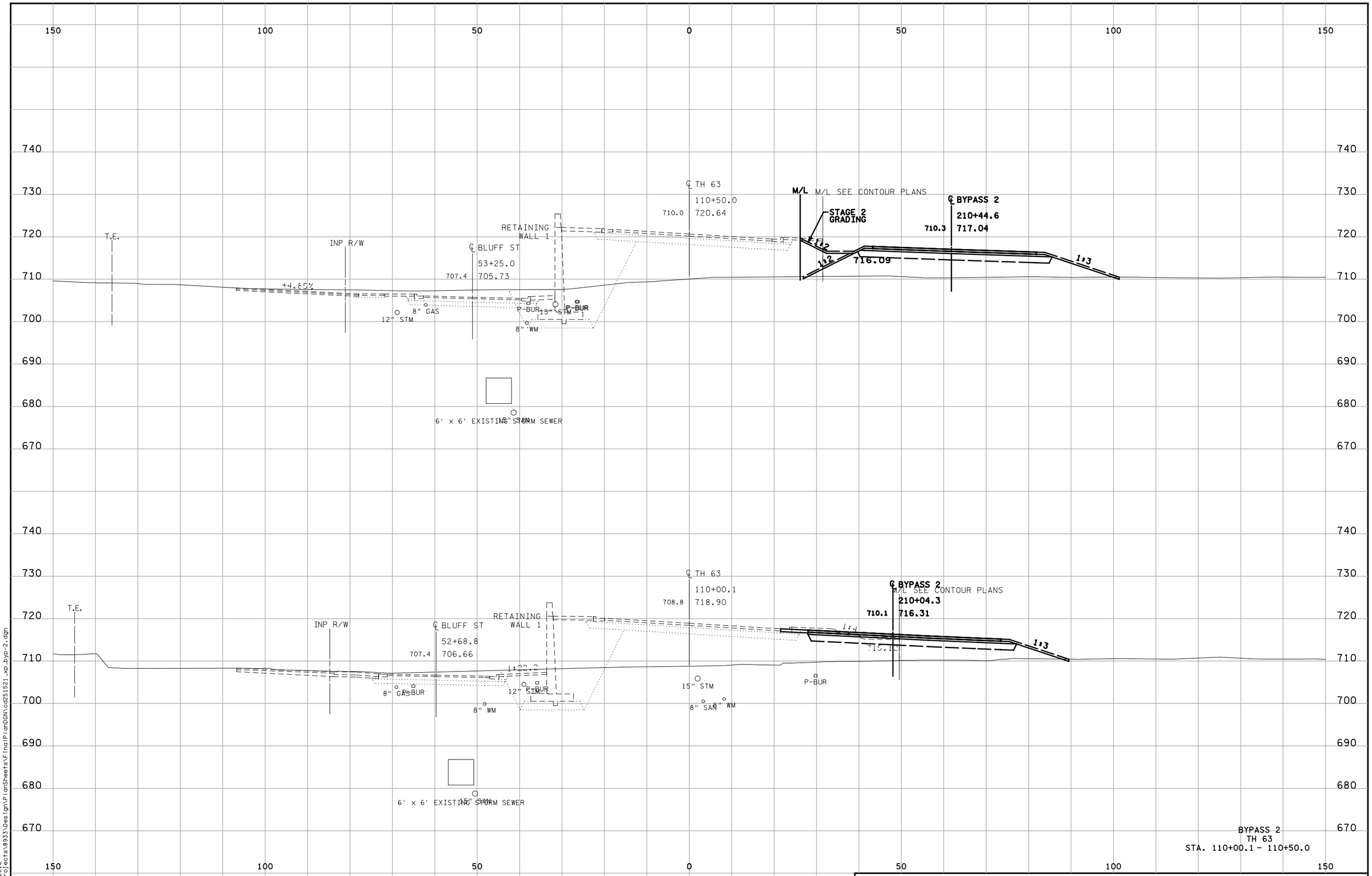
BYPASS 2
TH 63
STA. 108+50.0 – 109+03.0

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BYPASS 2
TH 63
STA. 109+34.2 – 109+50.0

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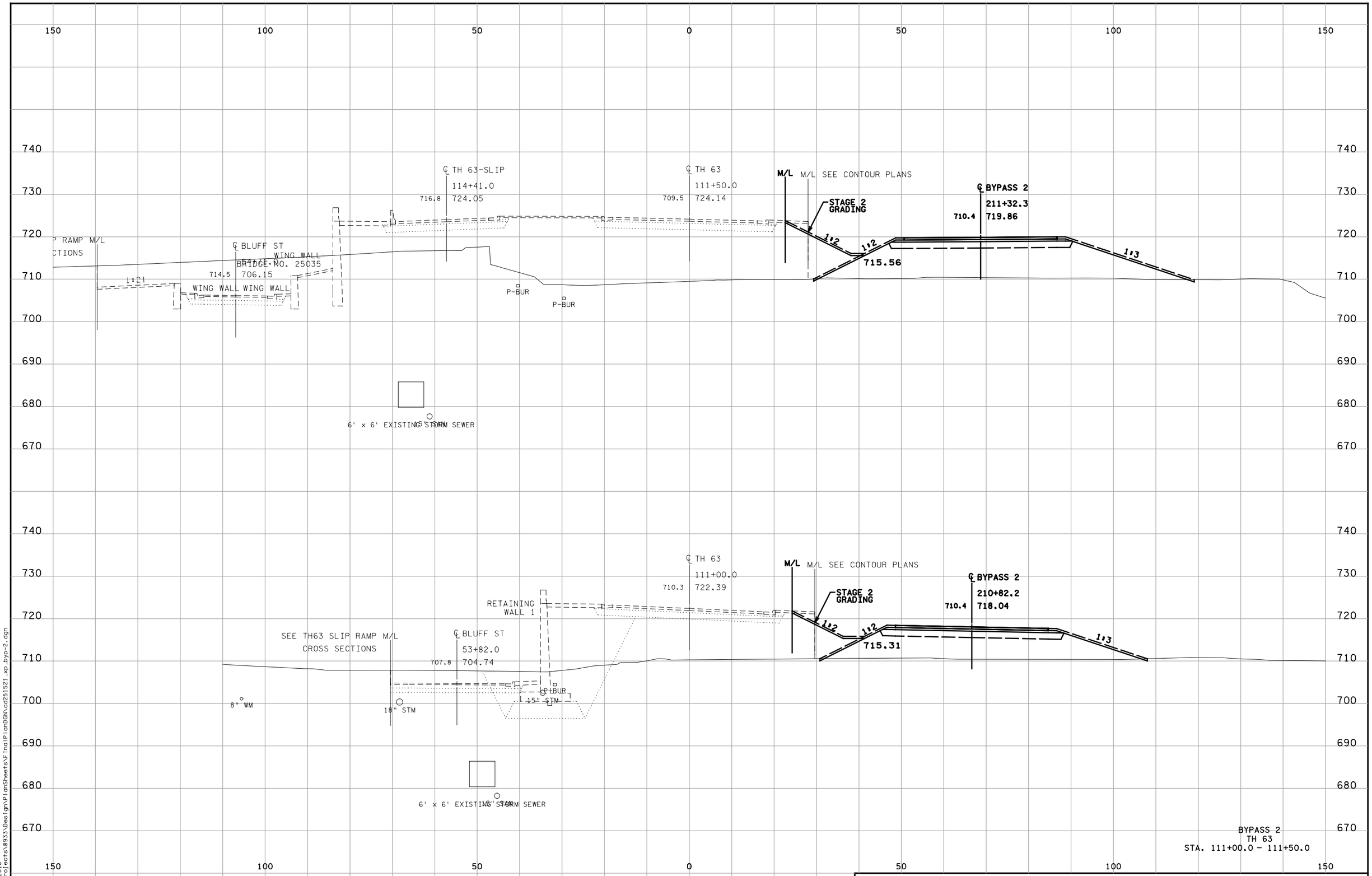


BYPASS 2
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STA. 110+00.1 - 110+50.0

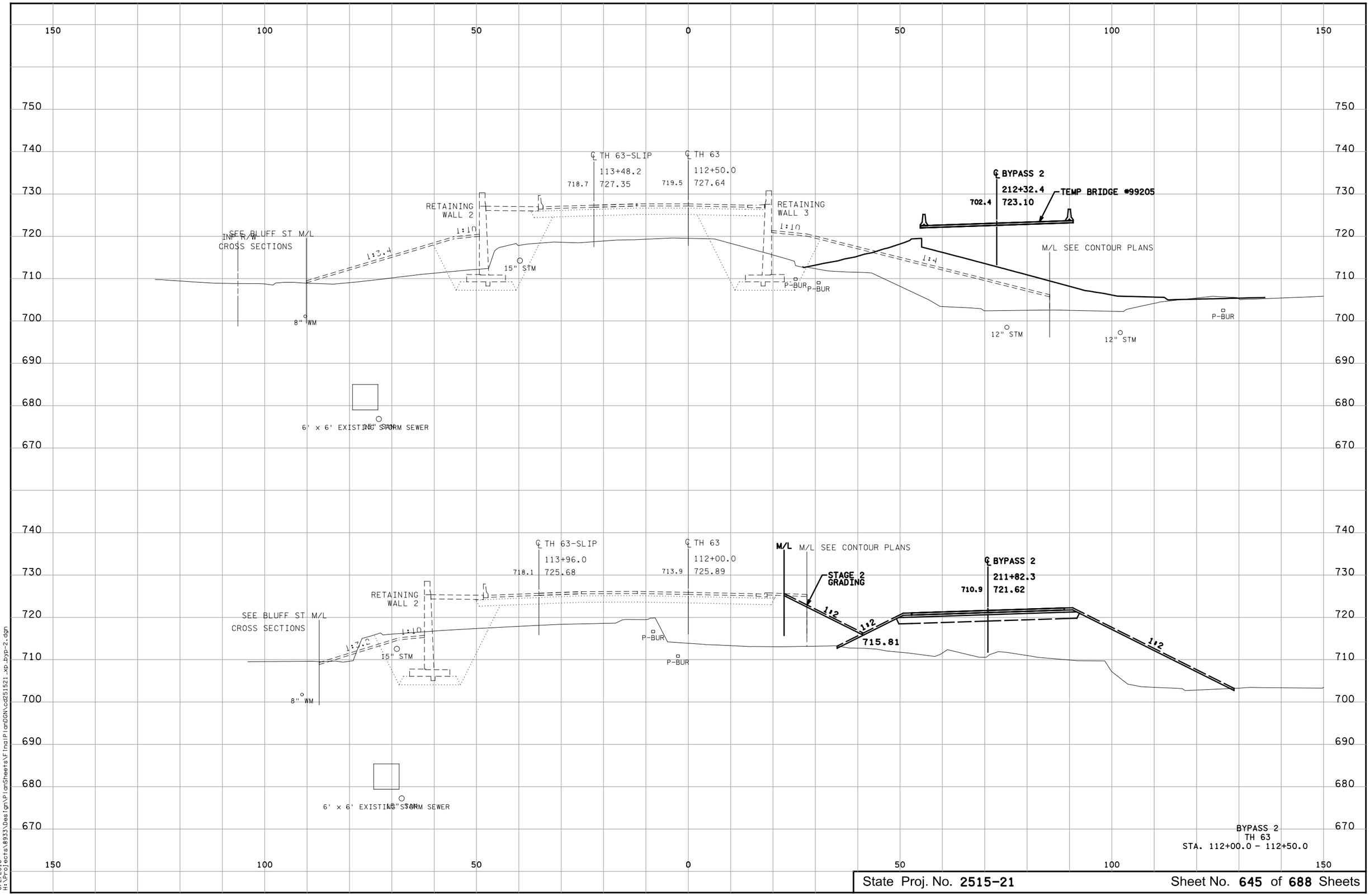
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State Proj. No. **2515-21**

Sheet No. **643** of **688** Sheets

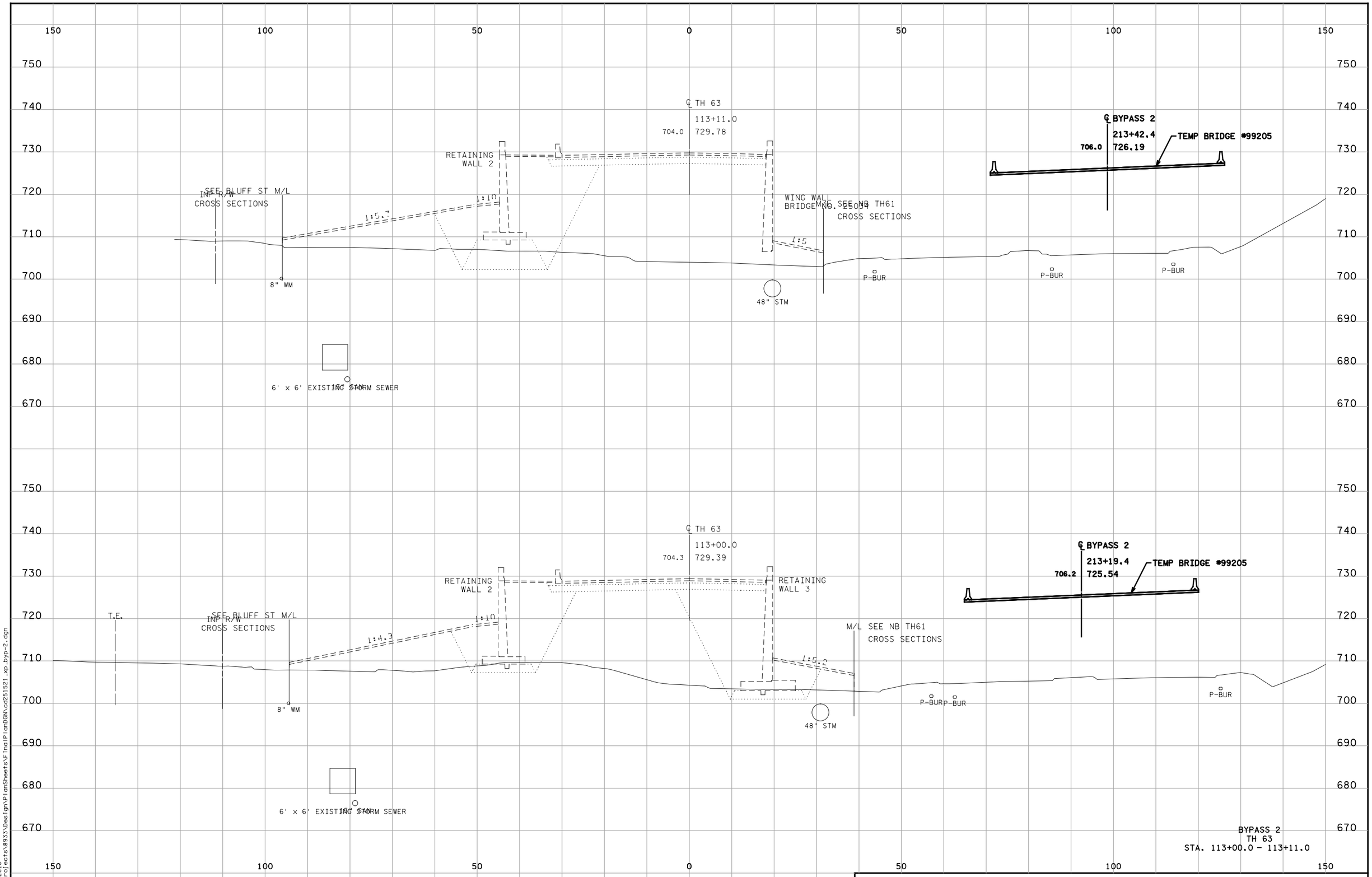


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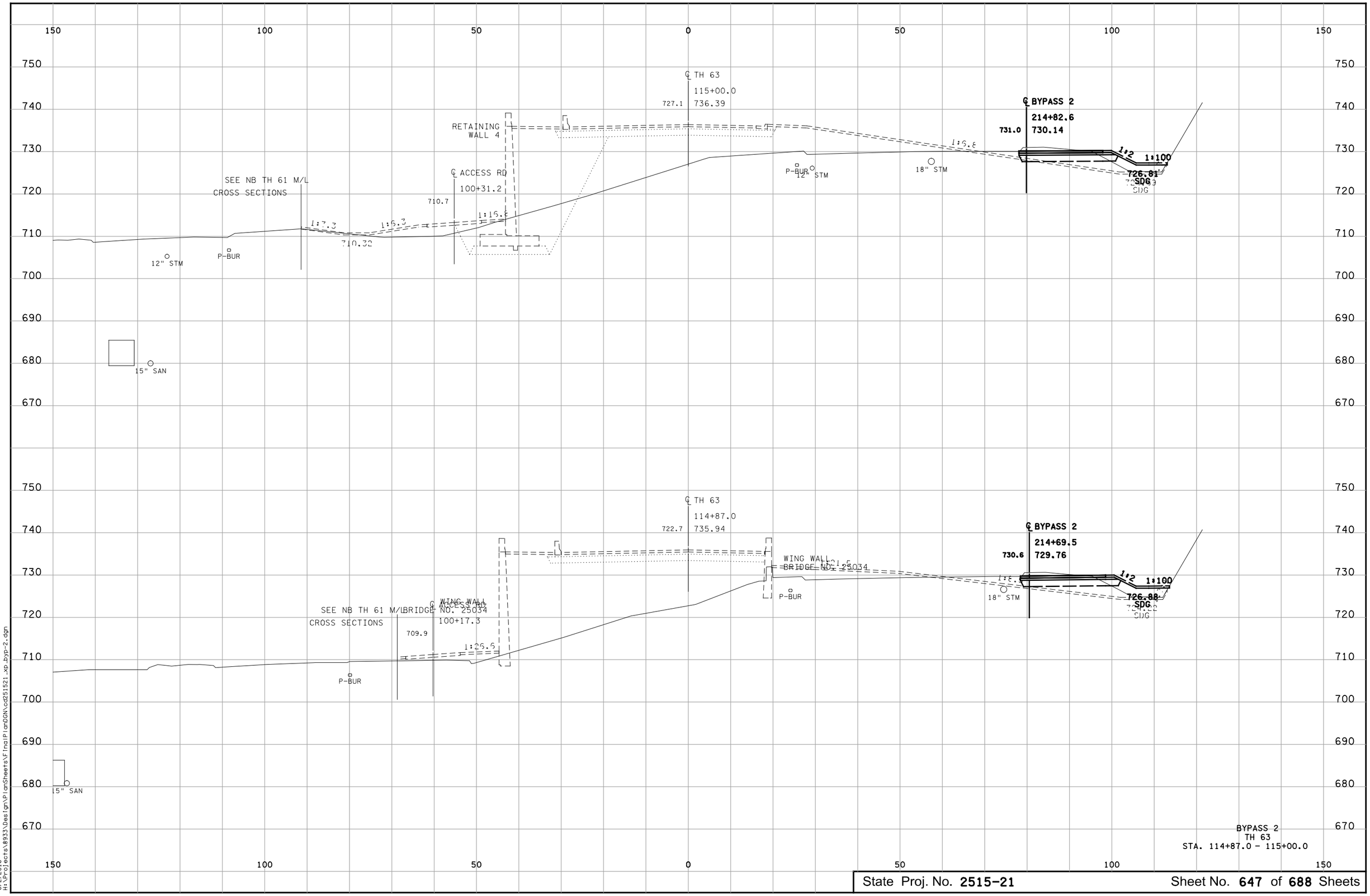


BYPASS 2
TH 63
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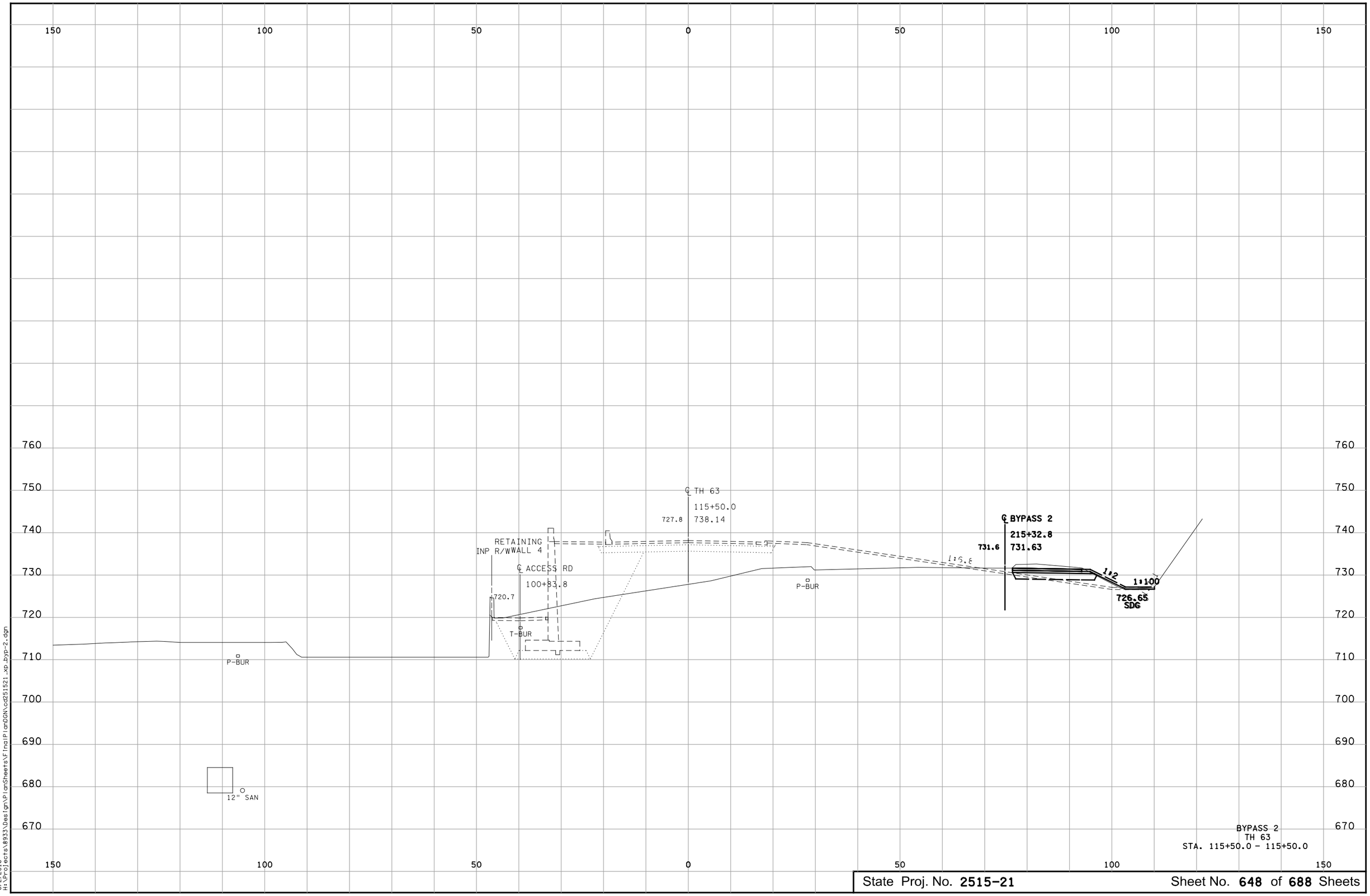


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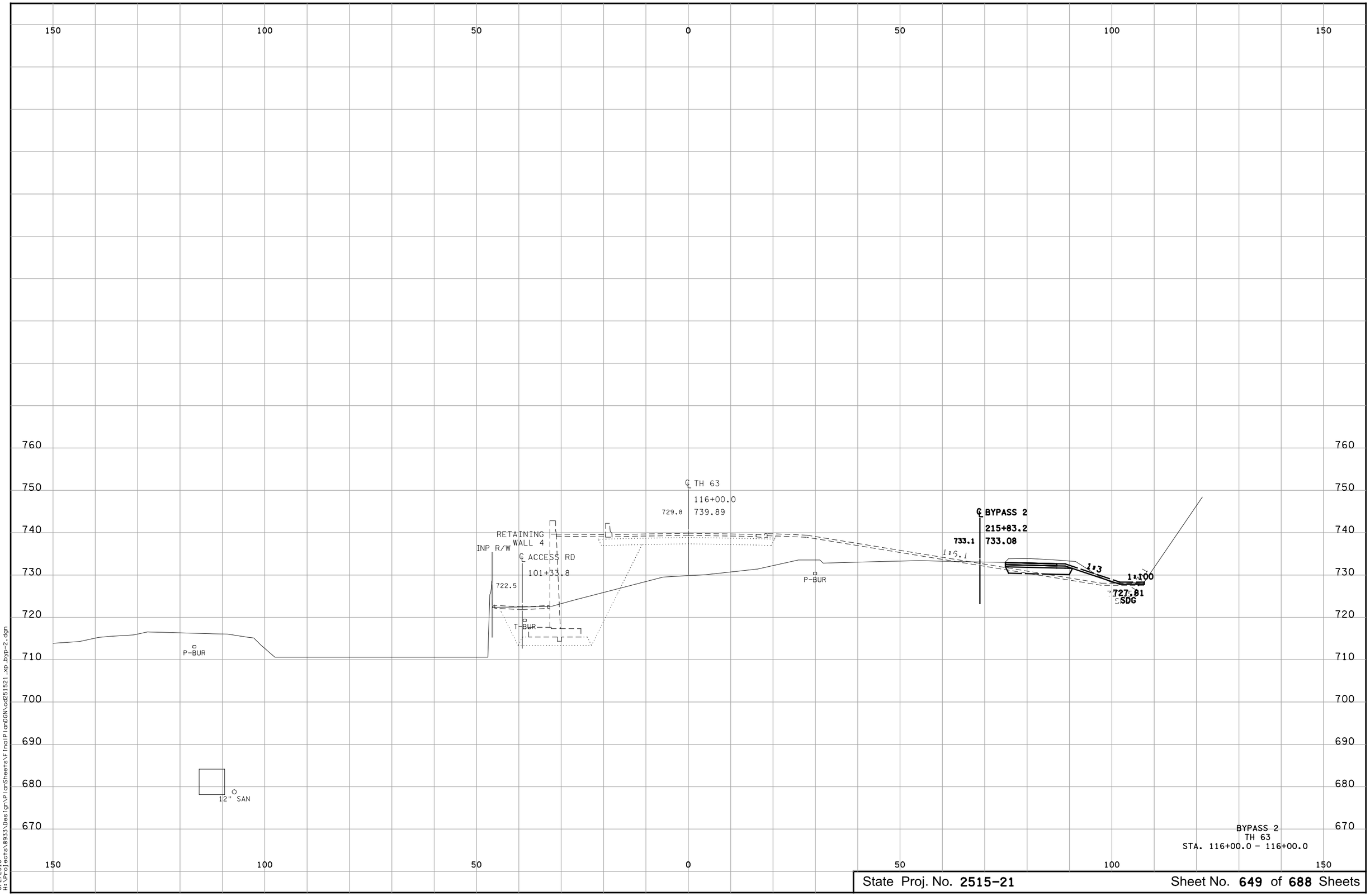


BYPASS 2
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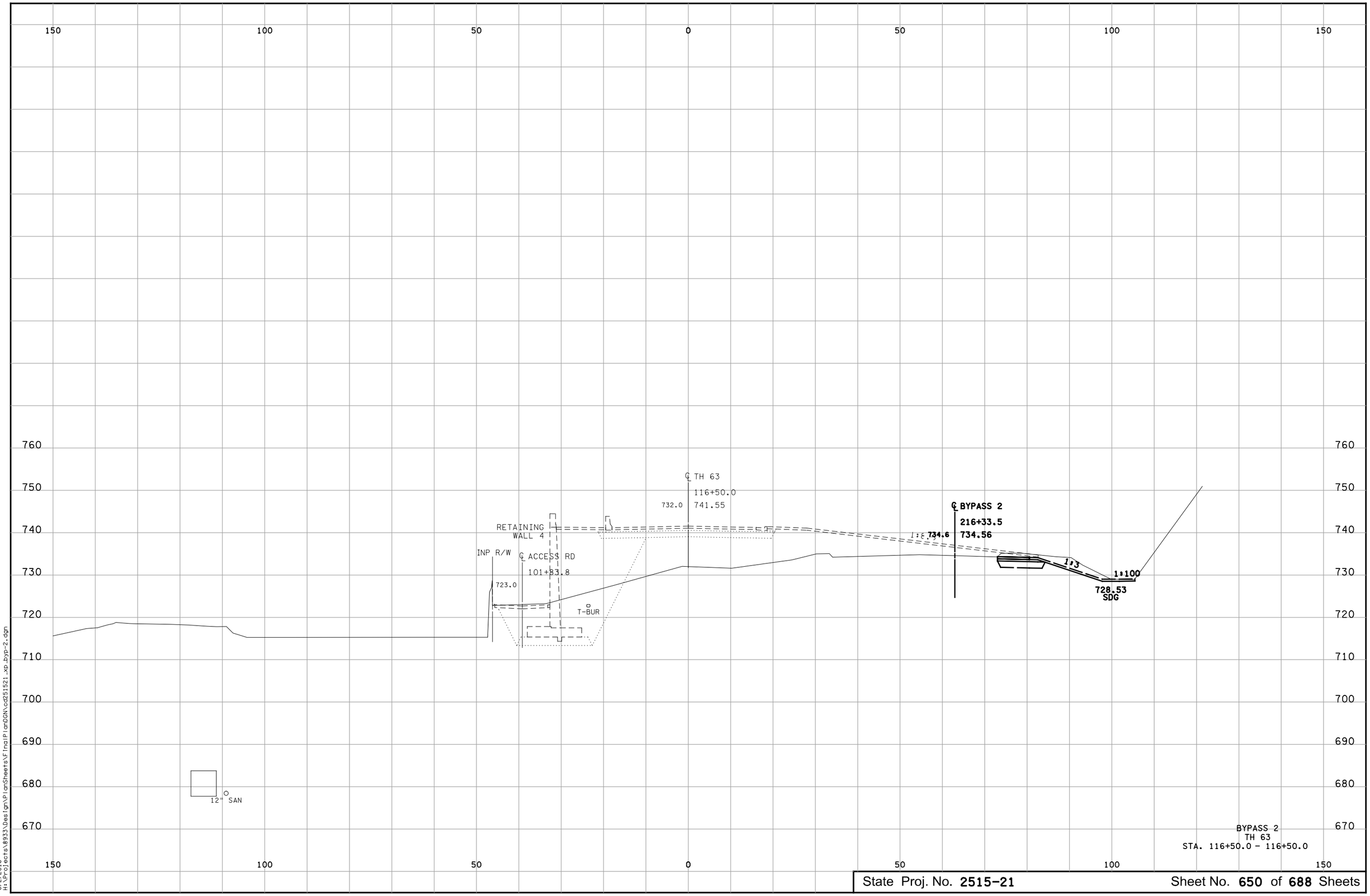
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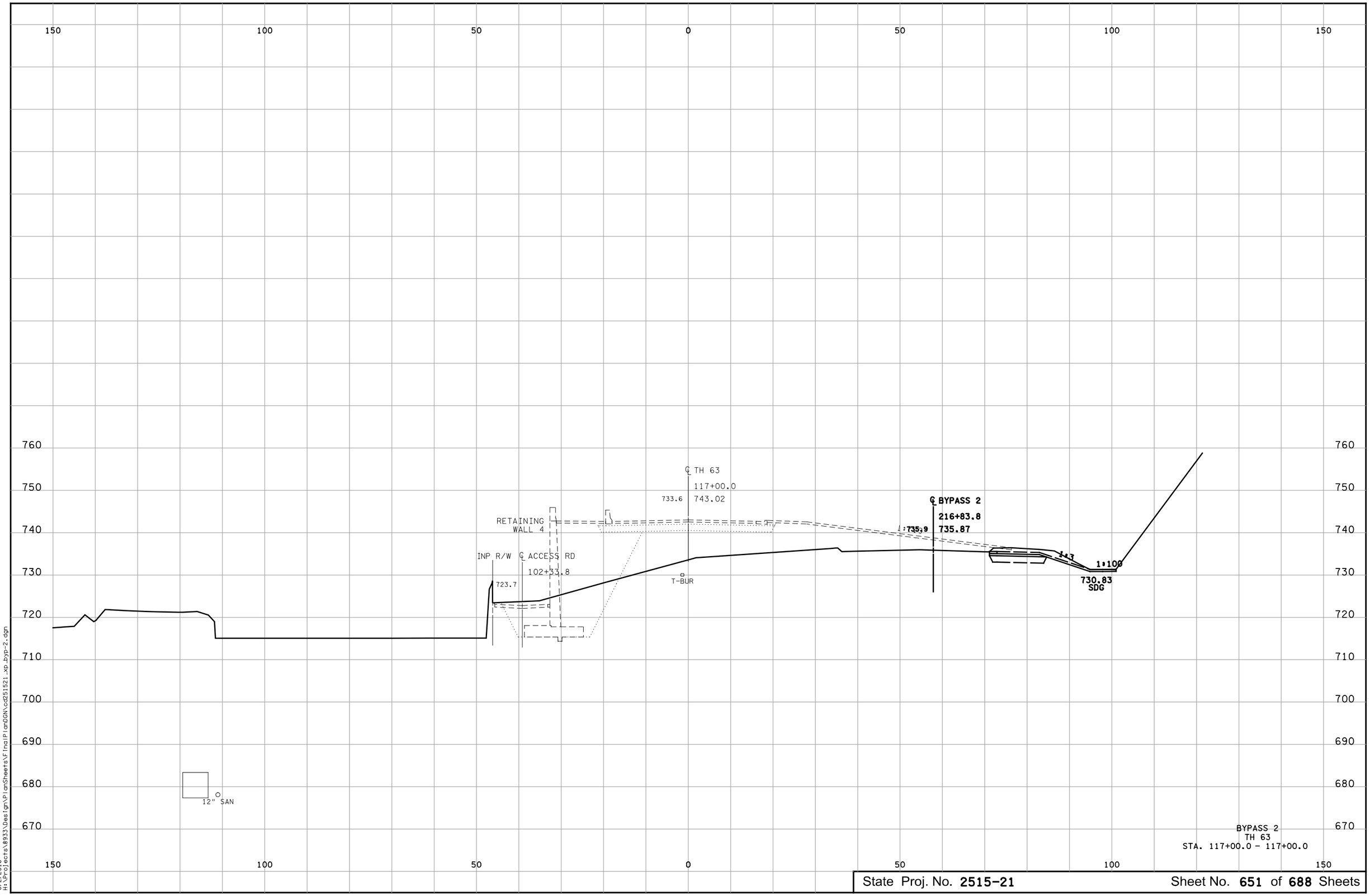
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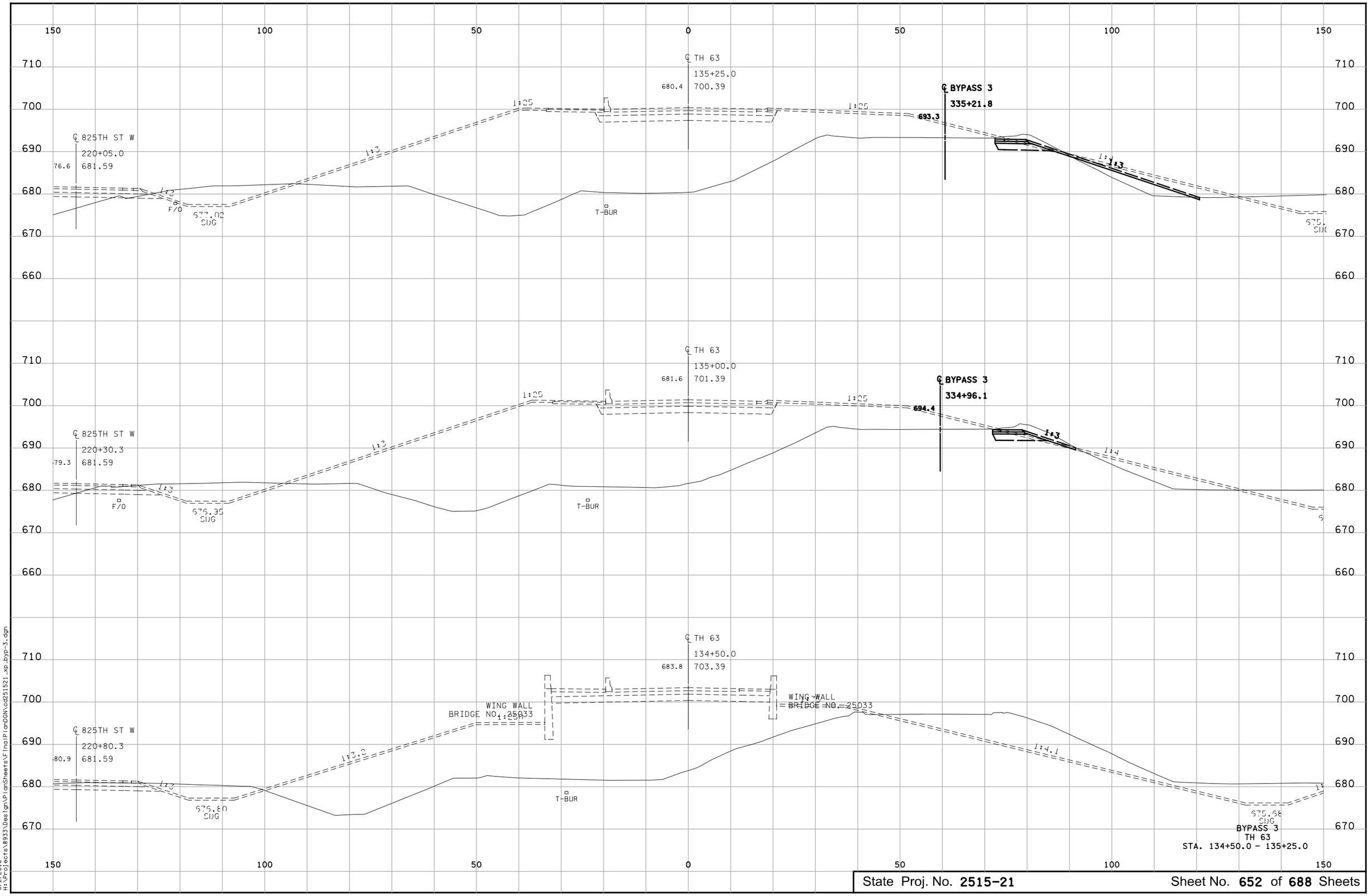
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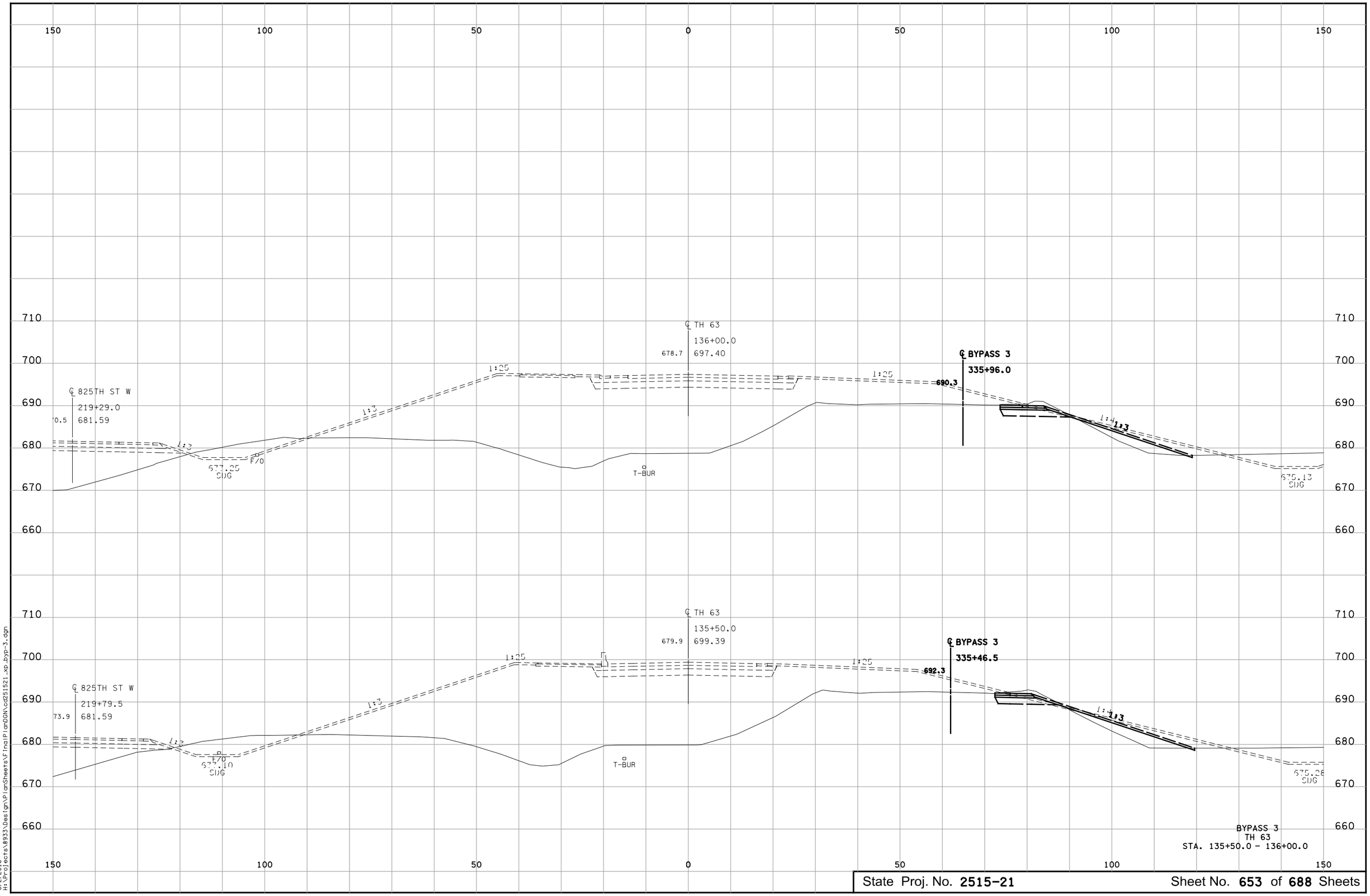


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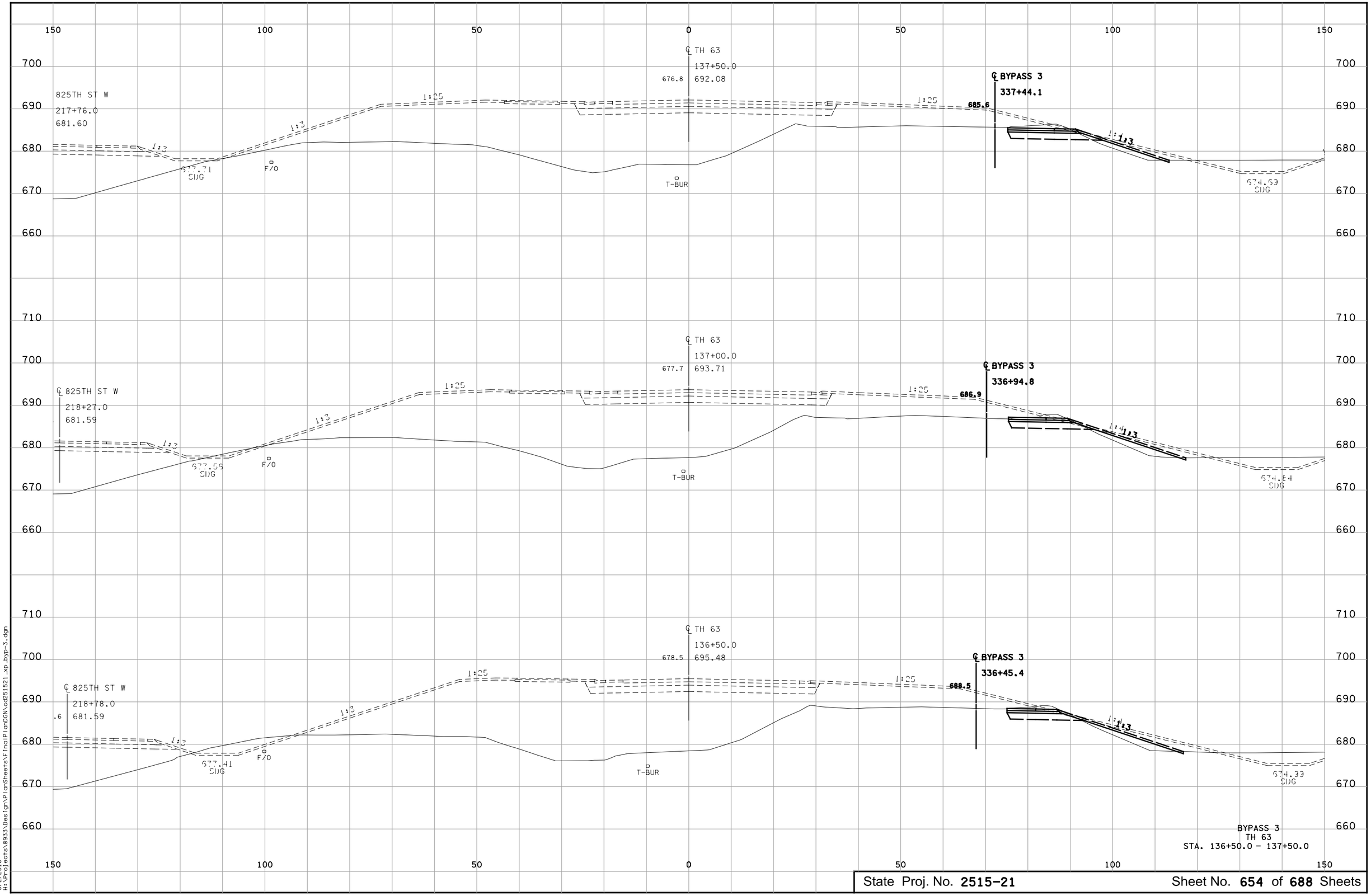
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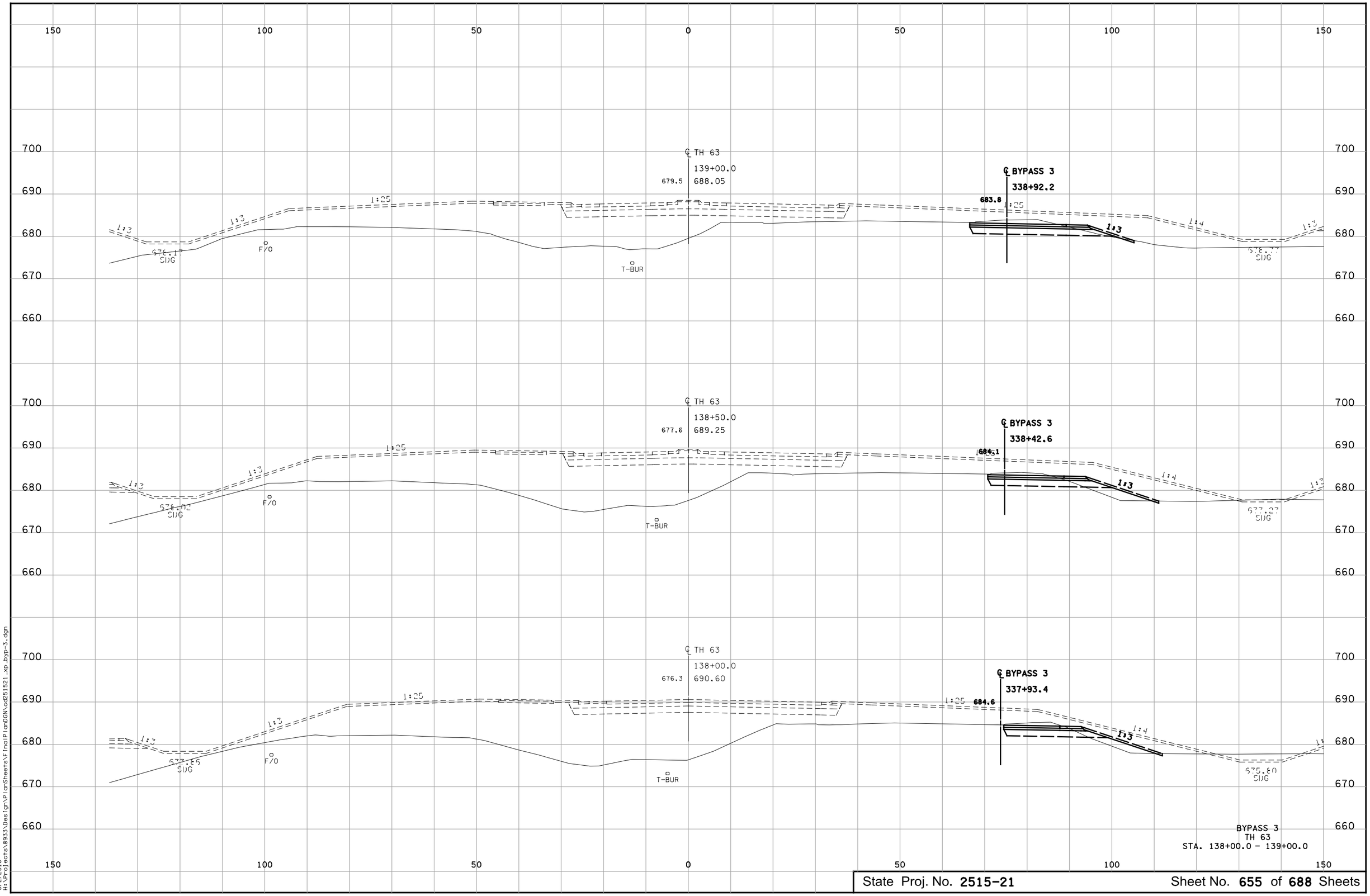
BYPASS 3
TH 63
STA. 135+50.0 – 136+00.0

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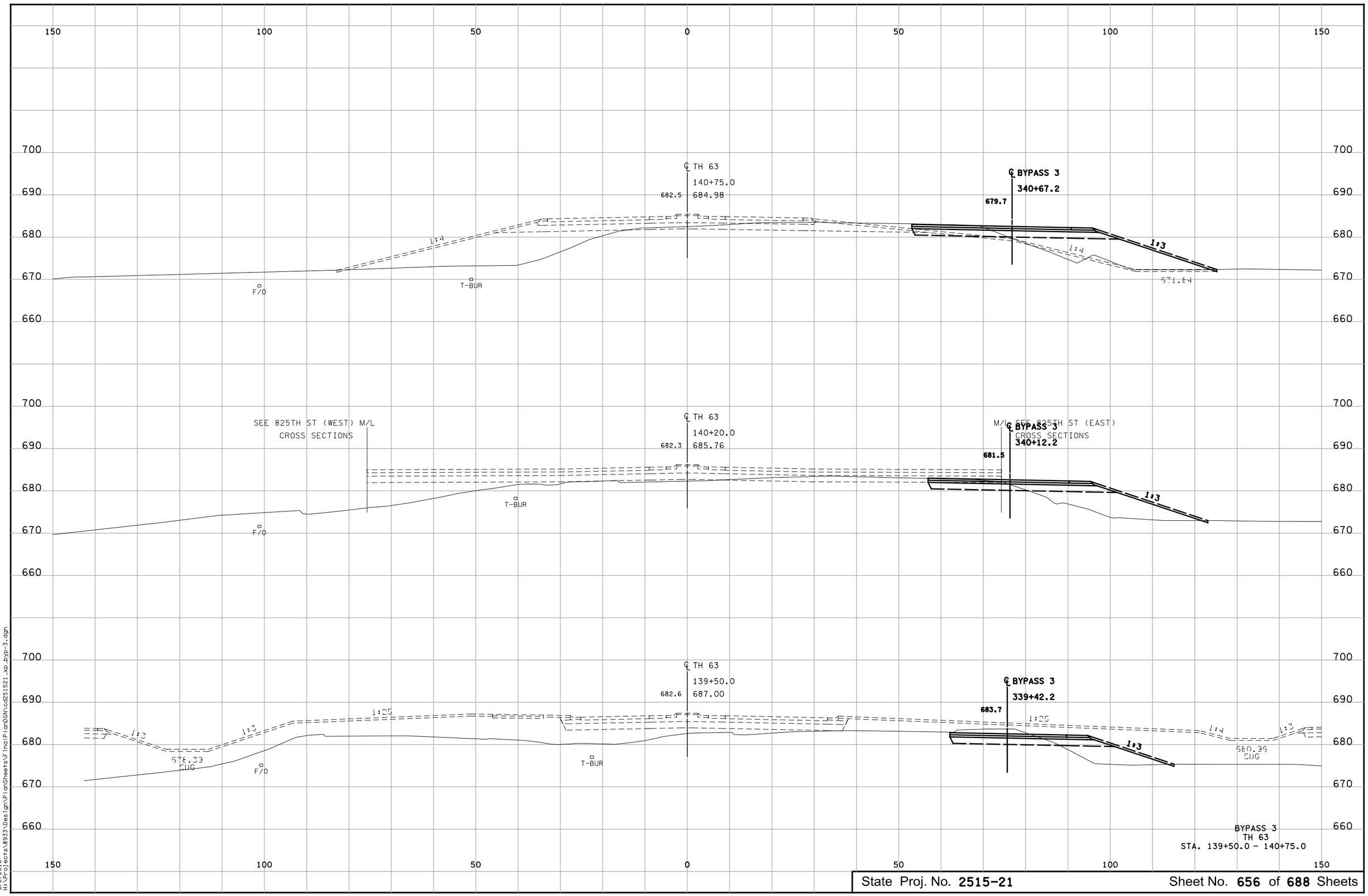


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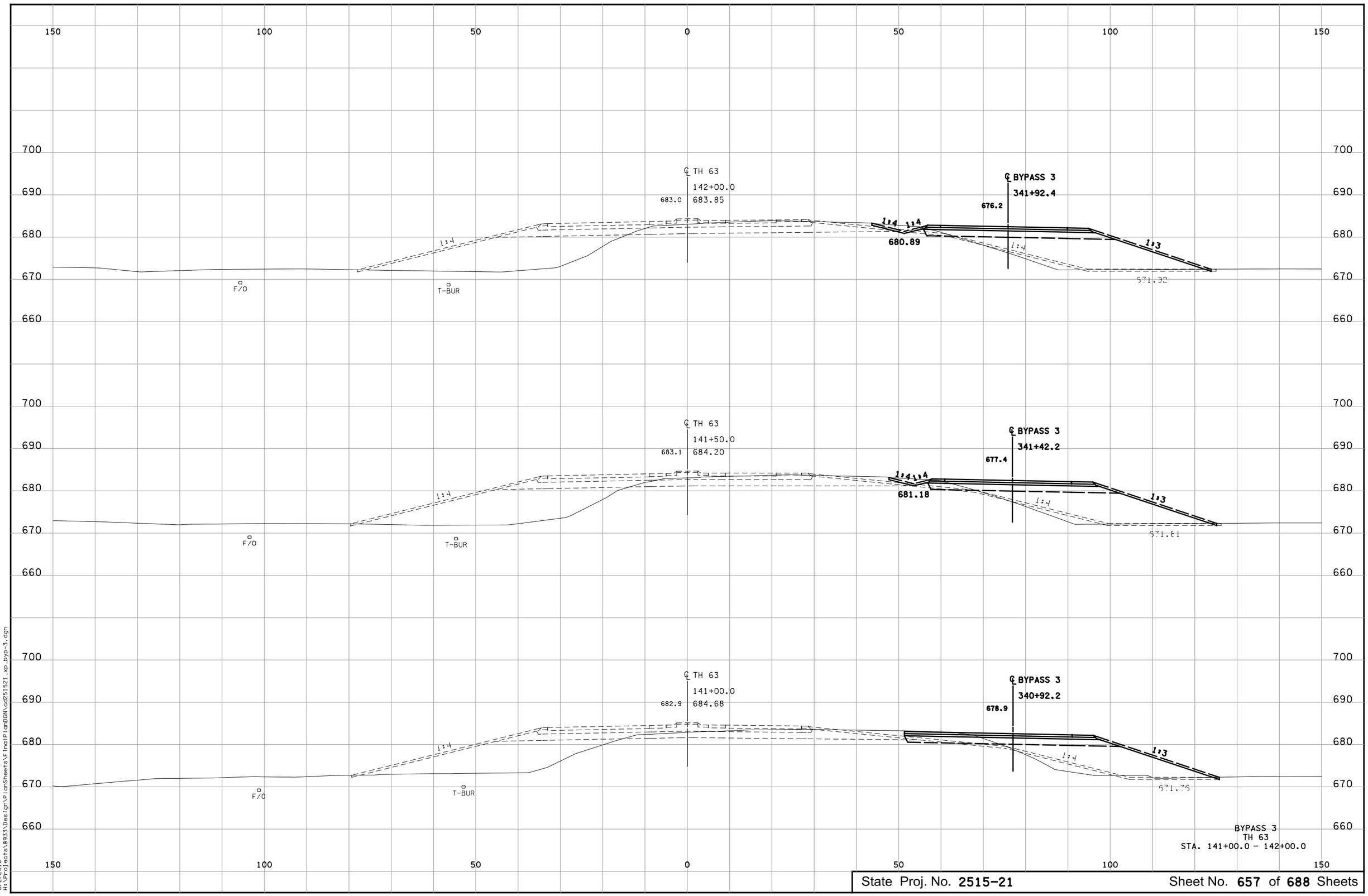
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11:40:06 AM
6/2/2016
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700 690 680 670 660

℄ TH 63
143+50.0
683.5 683.60

℄ BYPASS 3
343+44.0
672.1

1:4 1:4 1:4 1:3 1:4

680.26

672.08

F/O T-BUR

℄ TH 63
143+00.0
683.4 683.60

℄ BYPASS 3
342+93.5
673.2

680.46

672.13

F/O T-BUR

℄ TH 63
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683.3 683.65

℄ BYPASS 3
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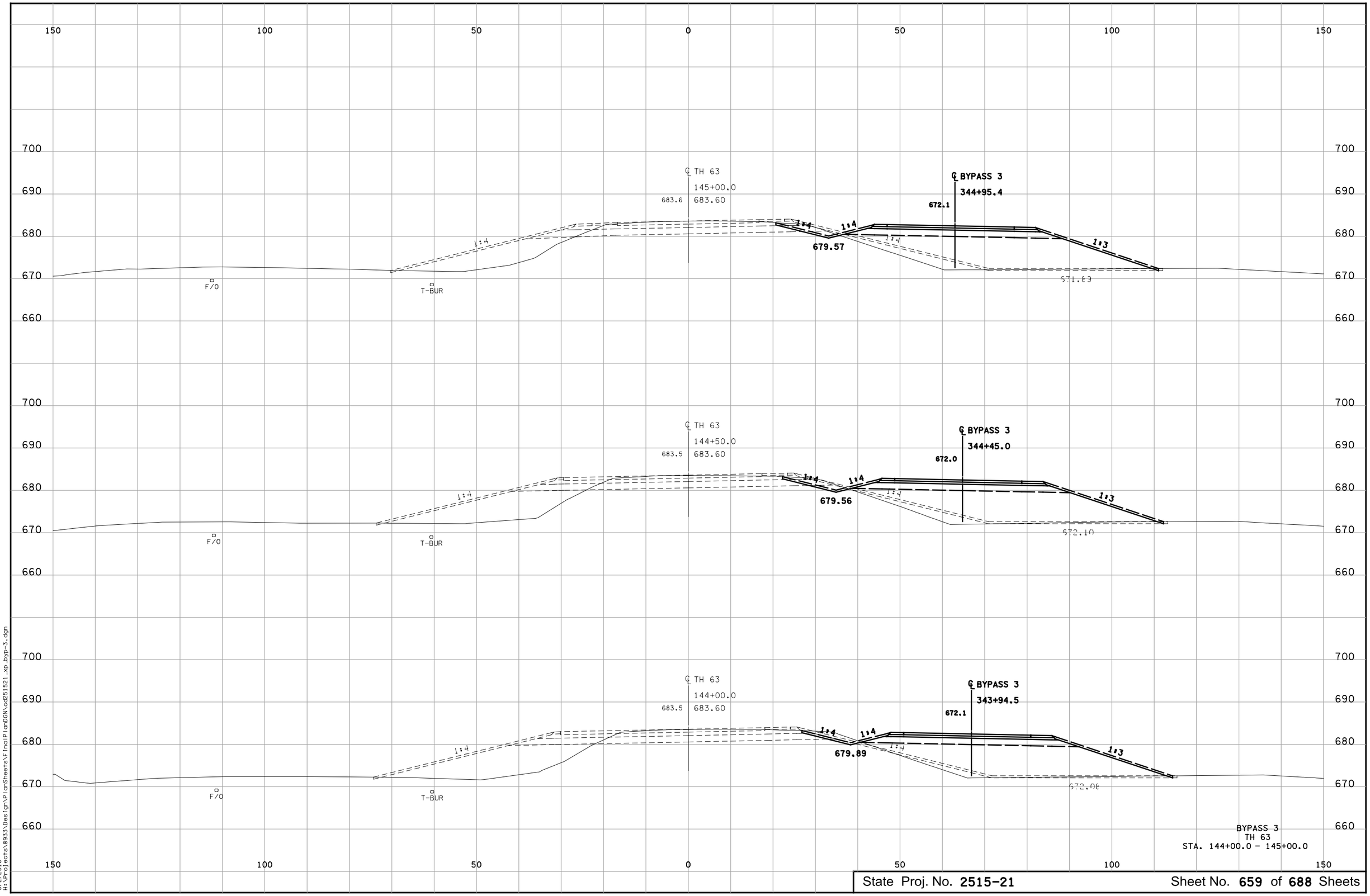
672.13

F/O T-BUR

BYPASS 3
TH 63
STA. 142+50.0 - 143+50.0

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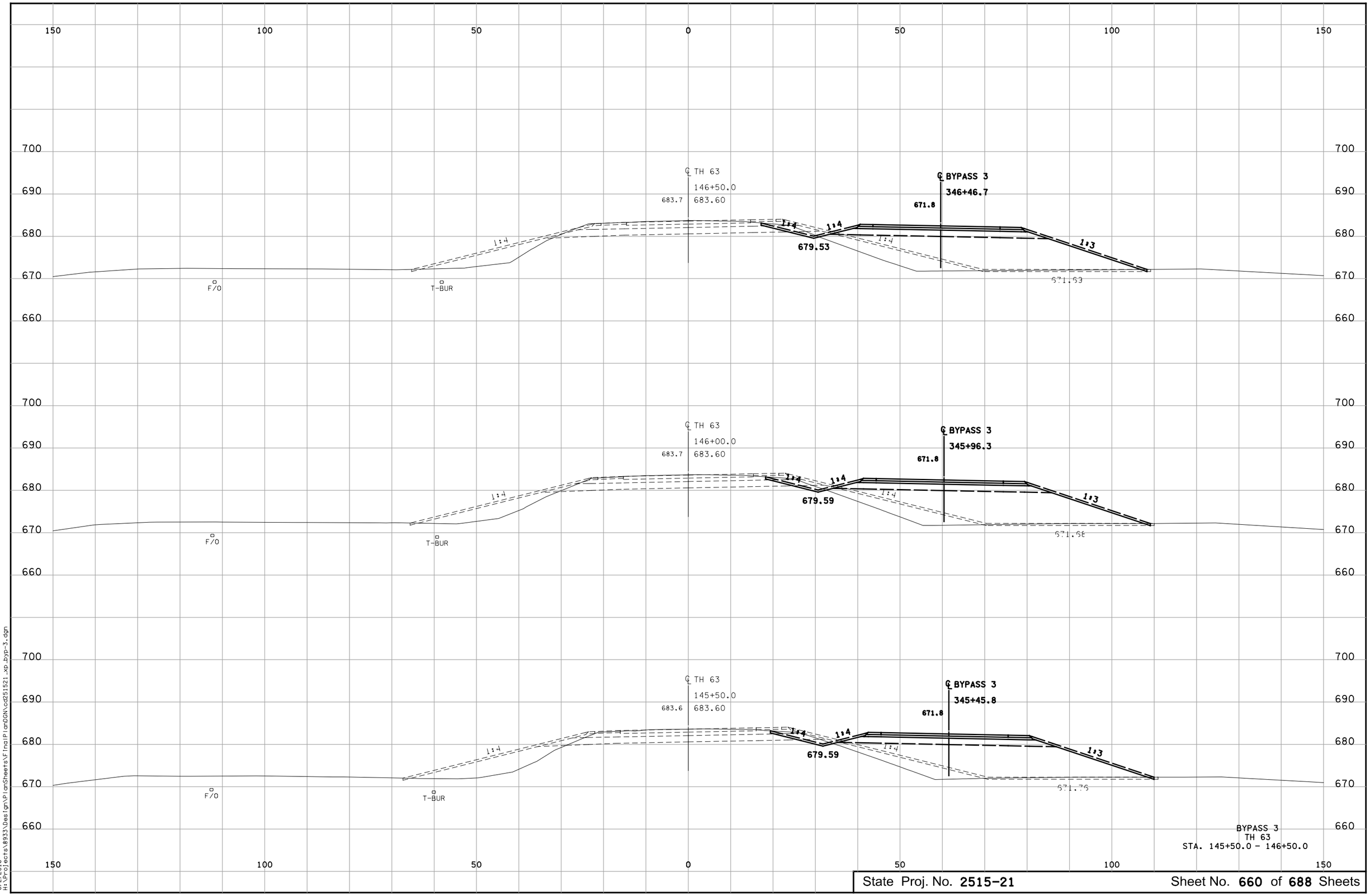
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BYPASS 3
TH 63
STA. 144+00.0 - 145+00.0

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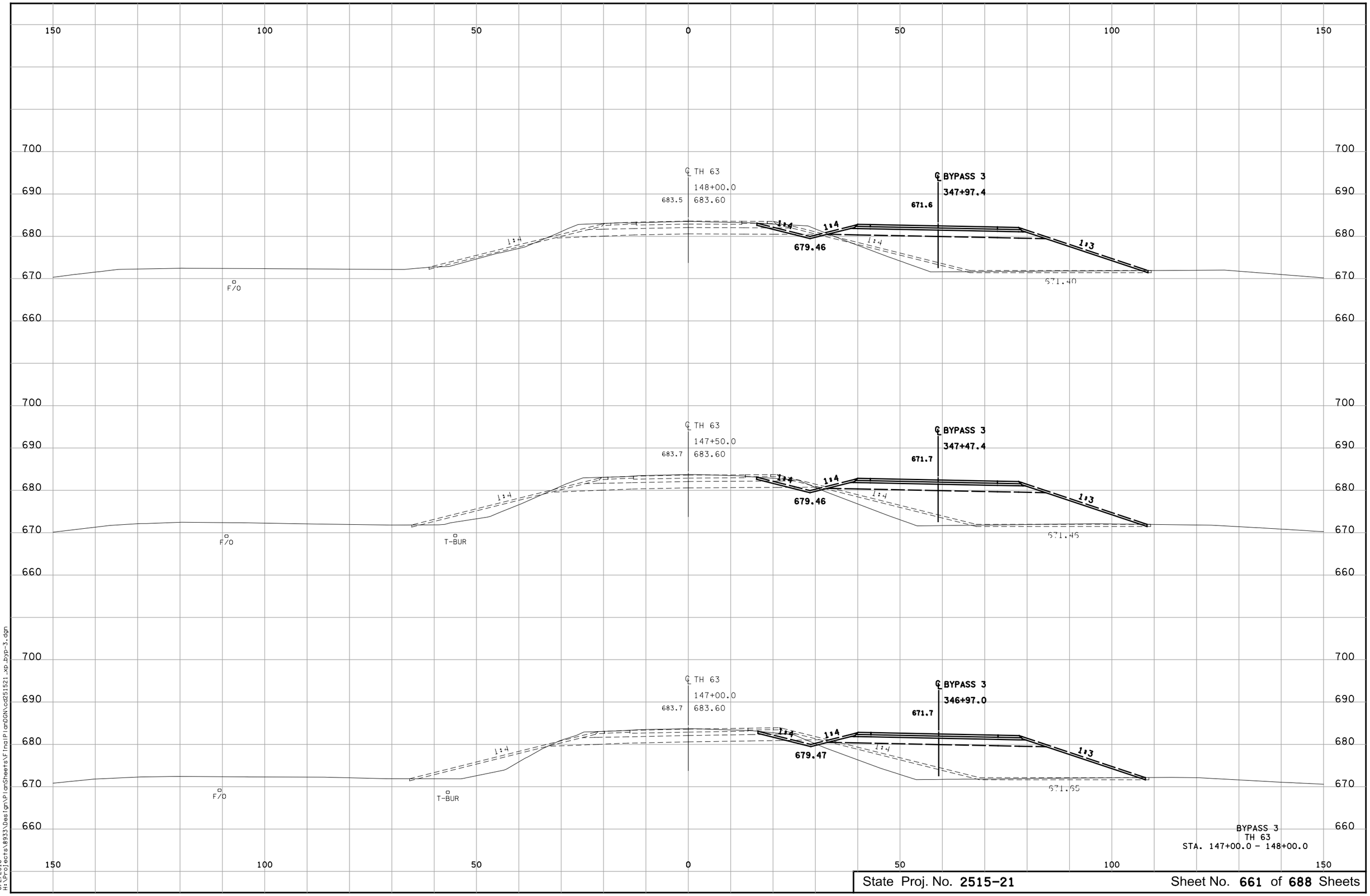
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BYPASS 3
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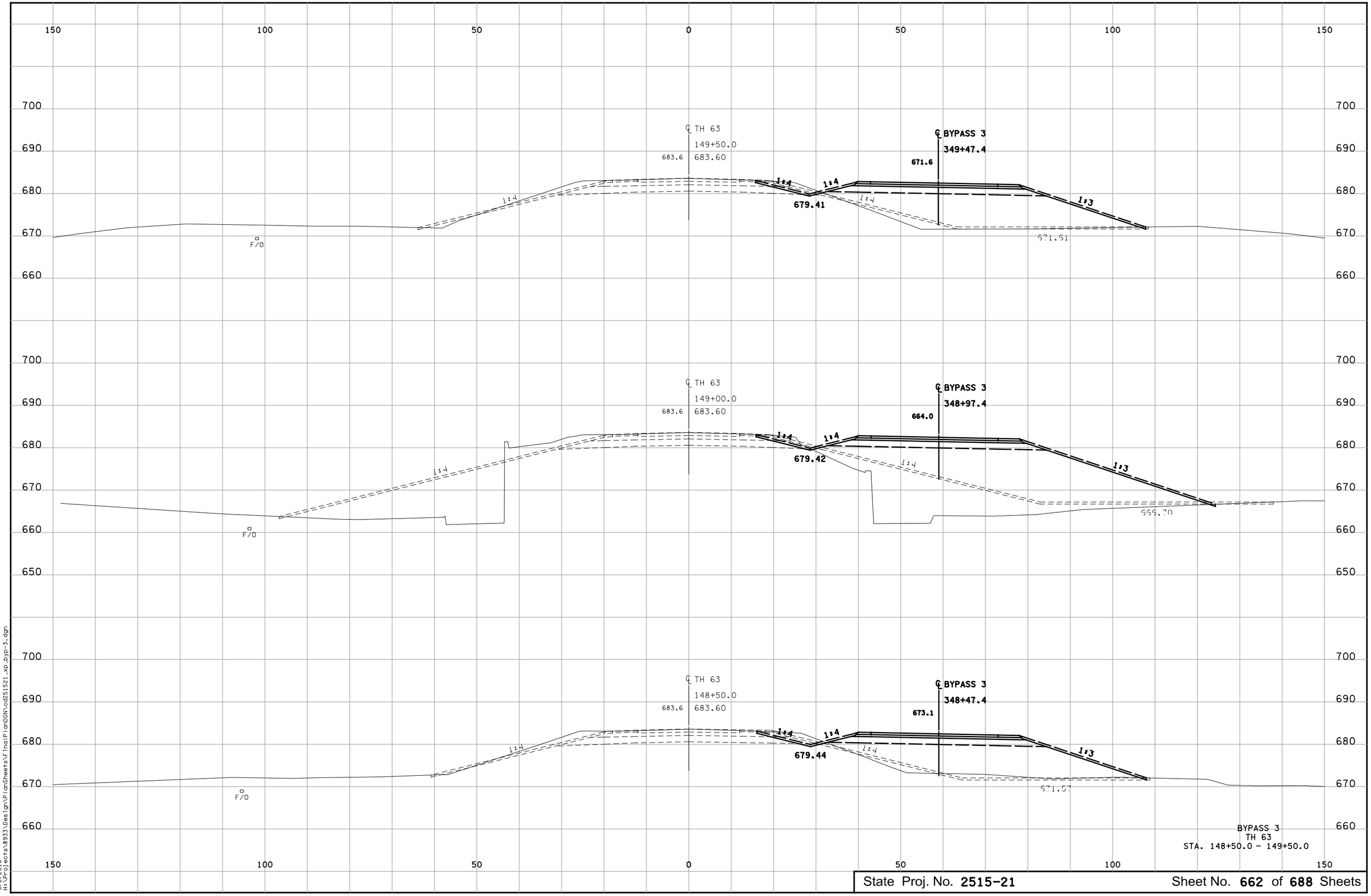
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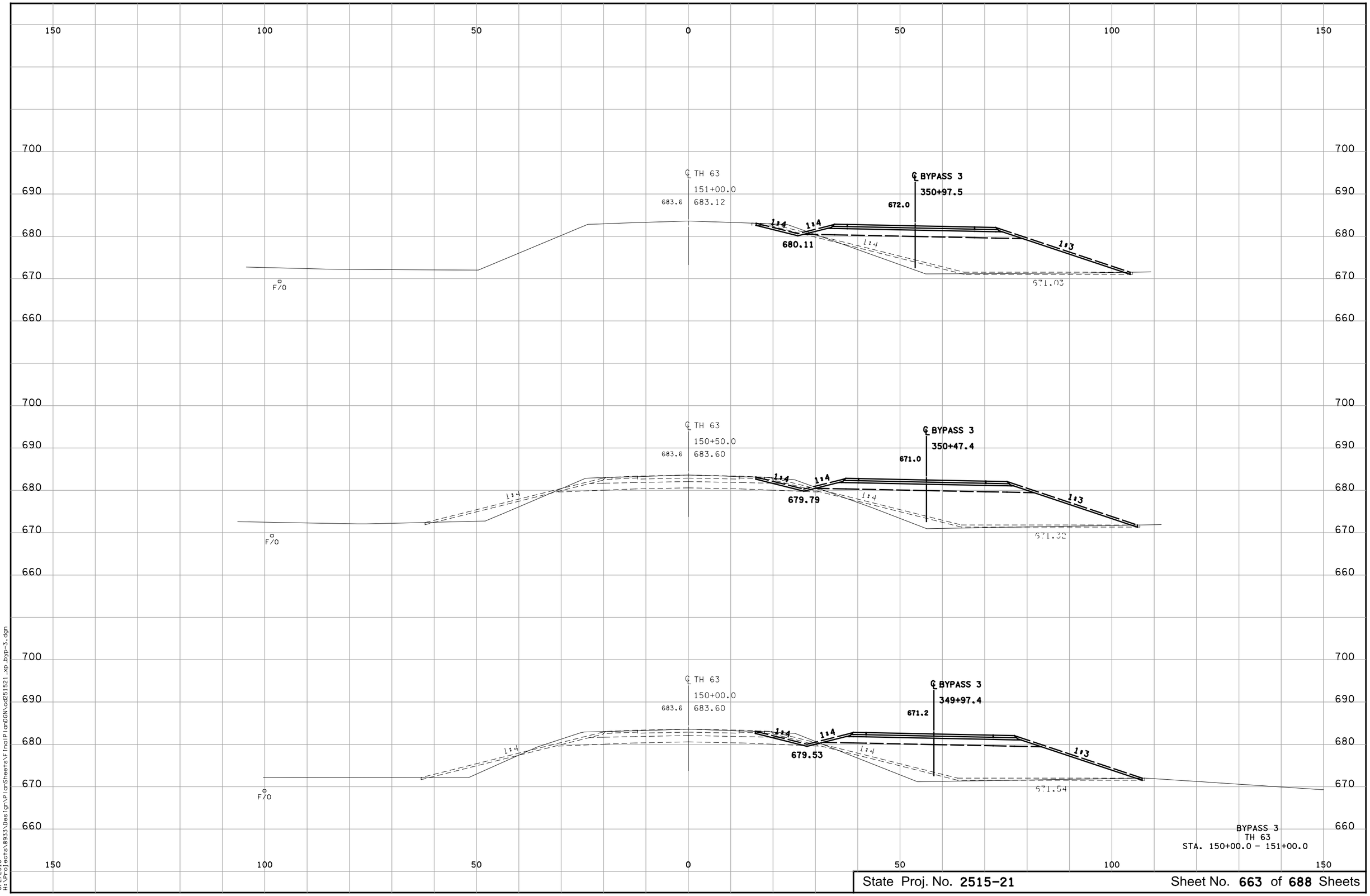
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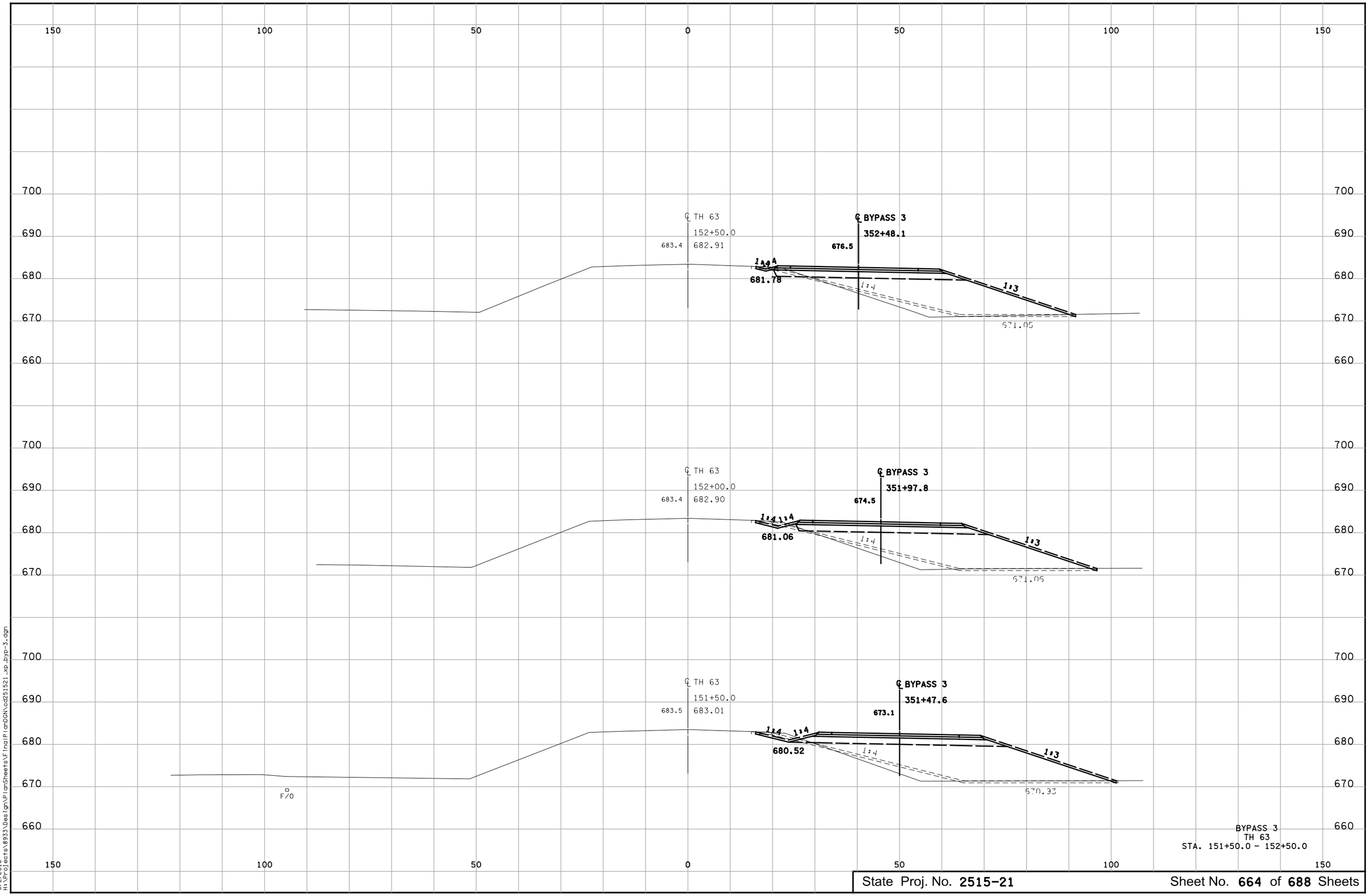
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State Proj. No. **2515-21**

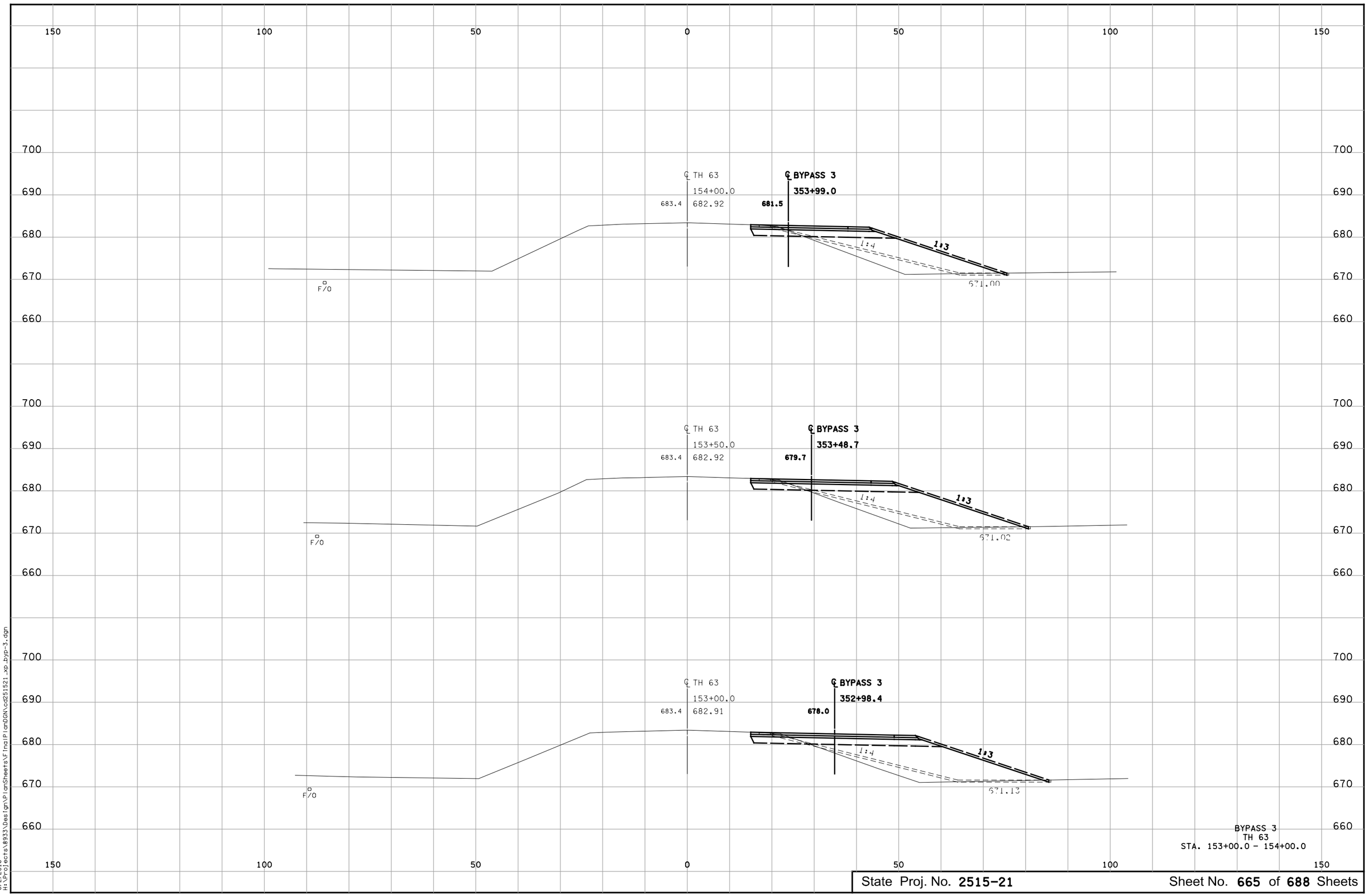
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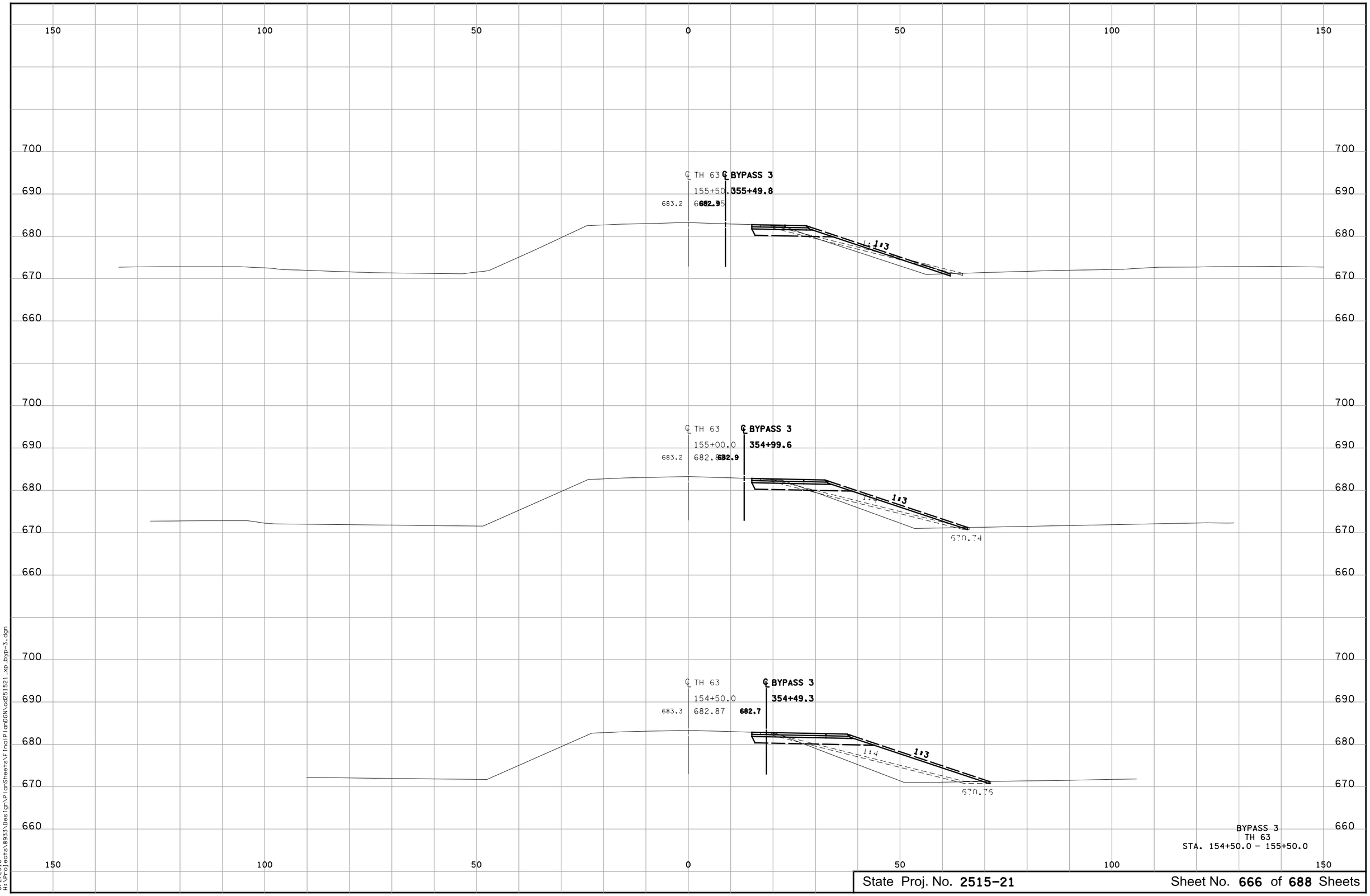
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Sheet No. **664** of **688** Sheets

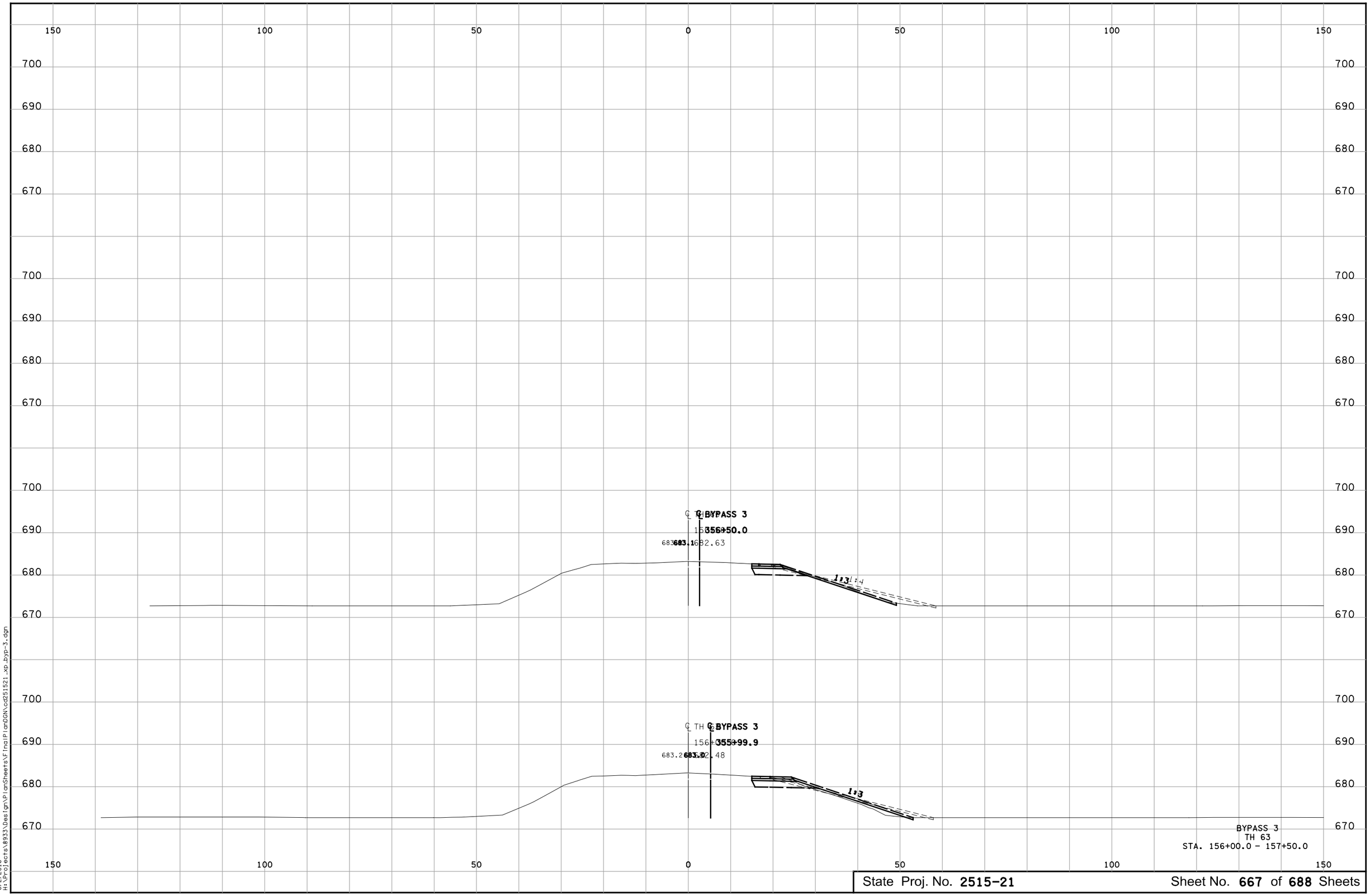


BYPASS 3
TH 63
STA. 153+00.0 - 154+00.0

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6/2/2016
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150 100 50 0 50 100

760 750 740 730 720 710 700

INP R/W

℄ NB TH 61
45+50.0
725.8 725.56

1:4

760 750 740 730 720 710 700

INP R/W

℄ NB TH 61
45+26.0
726.1 725.89

1:4

150 100 50 0 50 100

BYPASS 4
NB TH 61
STA 45+26.0 - 45+50.0

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6/2/2016
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150 100 50 0 50 100

770 760 750 740 730 720 710

INP R/W

P-BUR

℄ NB TH 61
46+50.0
724.3 724.05

1:4

770 760 750 740 730 720 710

P-BUR

℄ NB TH 61
46+00.0
725.0 724.83

1:4

150 100 50 0 50 100

BYPASS 4
NB TH 61
STA 46+00.0 - 46+50.0

State Proj. No. **2515-21**

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150 100 50 0 50 100

770 760 750 740 730 720 710

INP R/W

P-BUR

℄ NB TH 61
47+50.0
722.7 722.41

1:4

770 760 750 740 730 720 710

INP R/W

P-BUR

℄ NB TH 61
47+00.0
723.5 723.24

1:4

150 100 50 0 50 100

BYPASS 4
NB TH 61
STA 47+00.0 – 47+50.0

11:40:16 AM
6/2/2016
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150 100 50 0 50 100

780 770 760 750 740 730 720 710

INP R/W

P-BUR T-BUR

℄ NB TH 61
48+25.0
721.6 721.35

1:4

780 770 760 750 740 730 720 710

INP R/W

P-BUR T-BUR

℄ NB TH 61
48+00.0
722.0 721.68

1:4

150 100 50 0 50 100

BYPASS 4
NB TH 61
STA 48+00.0 - 48+25.0

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11:40:16 AM
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150 100 50 0 50 100

790 780 770 760 750 740 730 720 710 700

INP R/W

P-BUR

℄ NB TH 61
48+50.0
721.3 720.98

1:4

BYPASS 4
NB TH 61
STA 48+50.0 - 48+50.0

150 100 50 0 50 100

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150 100 50 0 50 100

790 780 770 760 750 740 730 720 710 700

NP R/W

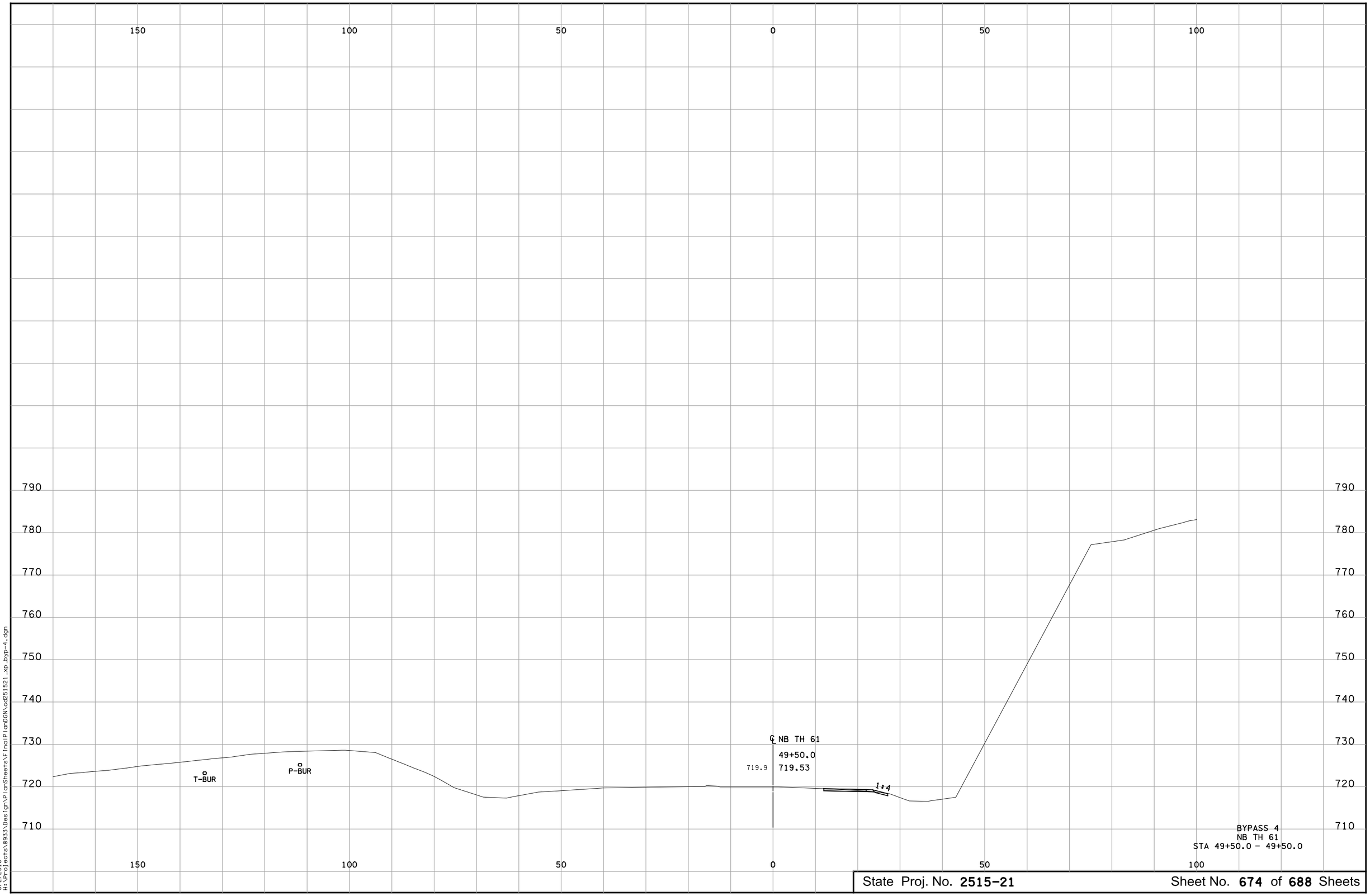
T-BUR P-BUR

℄ NB TH 61
49+00.0
720.6 720.23

1:4

BYPASS 4
NB TH 61
STA 49+00.0 - 49+00.0

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6/2/2016
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150 100 50 0 50 100

790 780 770 760 750 740 730 720 710 700

INP R/W

T-BUR

P-BUR

℄ NB TH 61

50+00.0

719.1 718.88

1:4

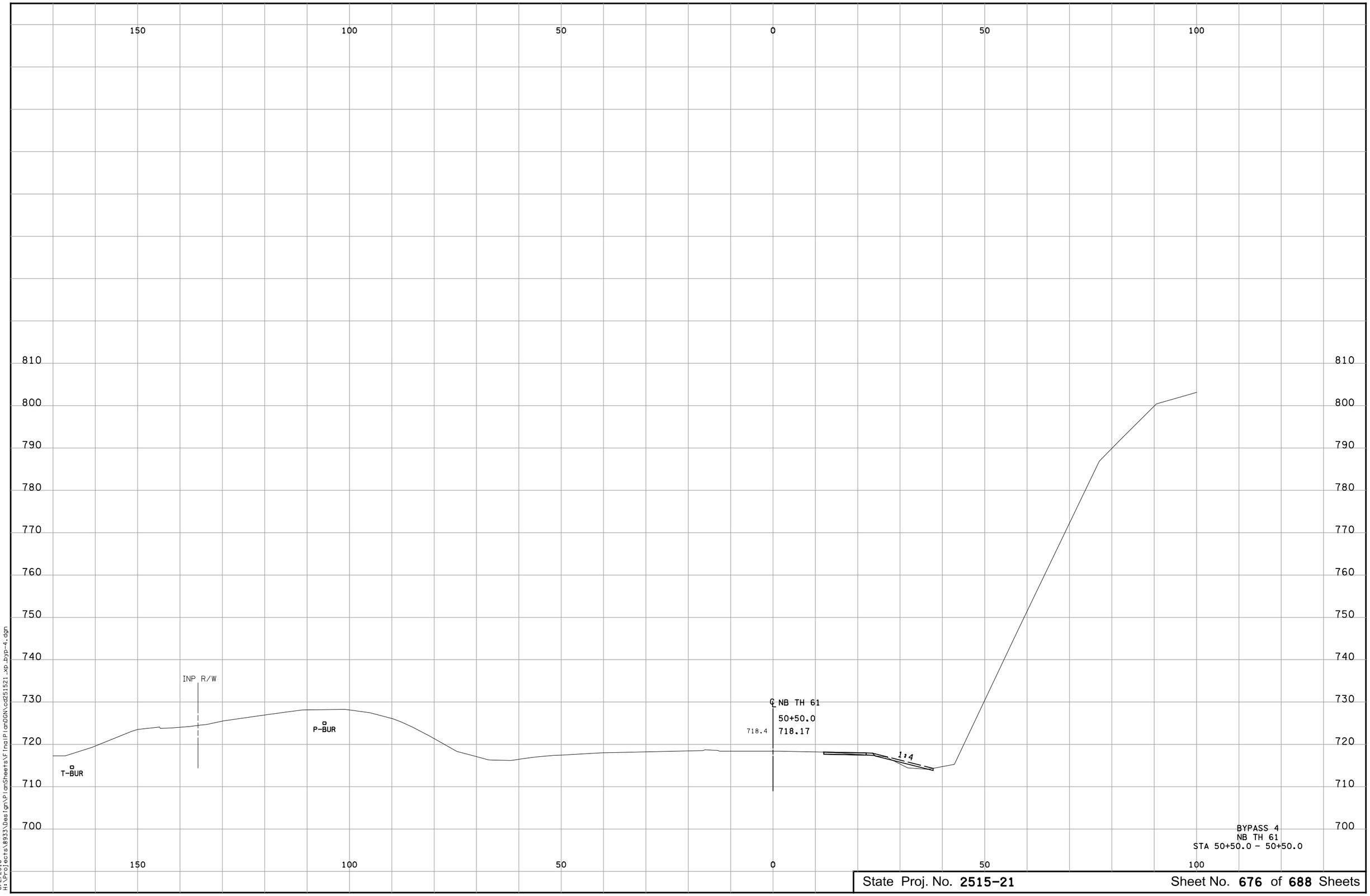
BYPASS 4
NB TH 61
STA 50+00.0 - 50+00.0

150 100 50 0 50 100

State Proj. No. **2515-21**

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150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

P-BUR

℄ NB TH 61
51+00.0
717.6 717.33

1:4

BYPASS 4
NB TH 61
STA 51+00.0 - 51+00.0

150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700

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150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

T-BUR

P-BUR

℄ NB TH 61

51+50.0

716.9 716.62

1:4

BYPASS 4
NB TH 61
STA 51+50.0 - 51+50.0

150 100 50 0 50 100

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150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

INP R/W

GAS

T-BUR

2" GAS

S-BUR

8" WM

℄ NB TH 61

51+94.0

716.3 715.95

1:4

BYPASS 4
NB TH 61
STA 51+94.0 - 51+94.0

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150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

INP R/W

T-BUR

2" GAS

S-BUR

8" WM

℄ NB TH 61

52+00.0

716.2 715.85

1:4

BYPASS 4
NB TH 61
STA 52+00.0 - 52+00.0

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150 100 50 0 50 100

820 810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

INP R/W

T-BUR

8" SAN

8" WM

2" GAS

T-BUR

℄ NB TH 61

52+50.0

715.2 715.13

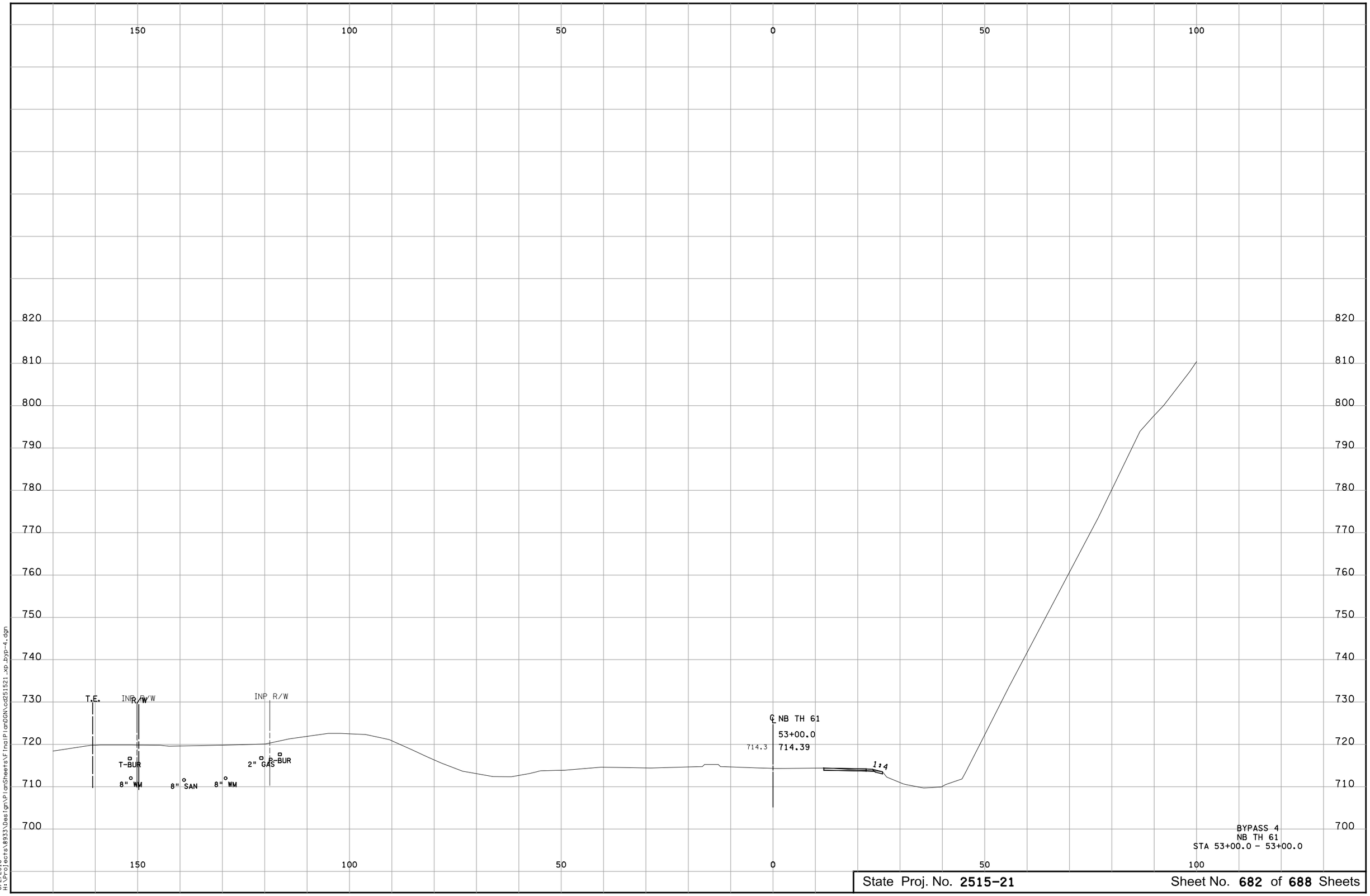
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BYPASS 4
NB TH 61
STA 52+50.0 - 52+50.0

150 100 50 0 50 100

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150 100 50 0 50 100

810 800 790 780 770 760 750 740 730 720 710 700

INP R/W

GAS BUR

8" WM 8" SAN 8" WM

2" GAS BUR

℄ NB TH 61

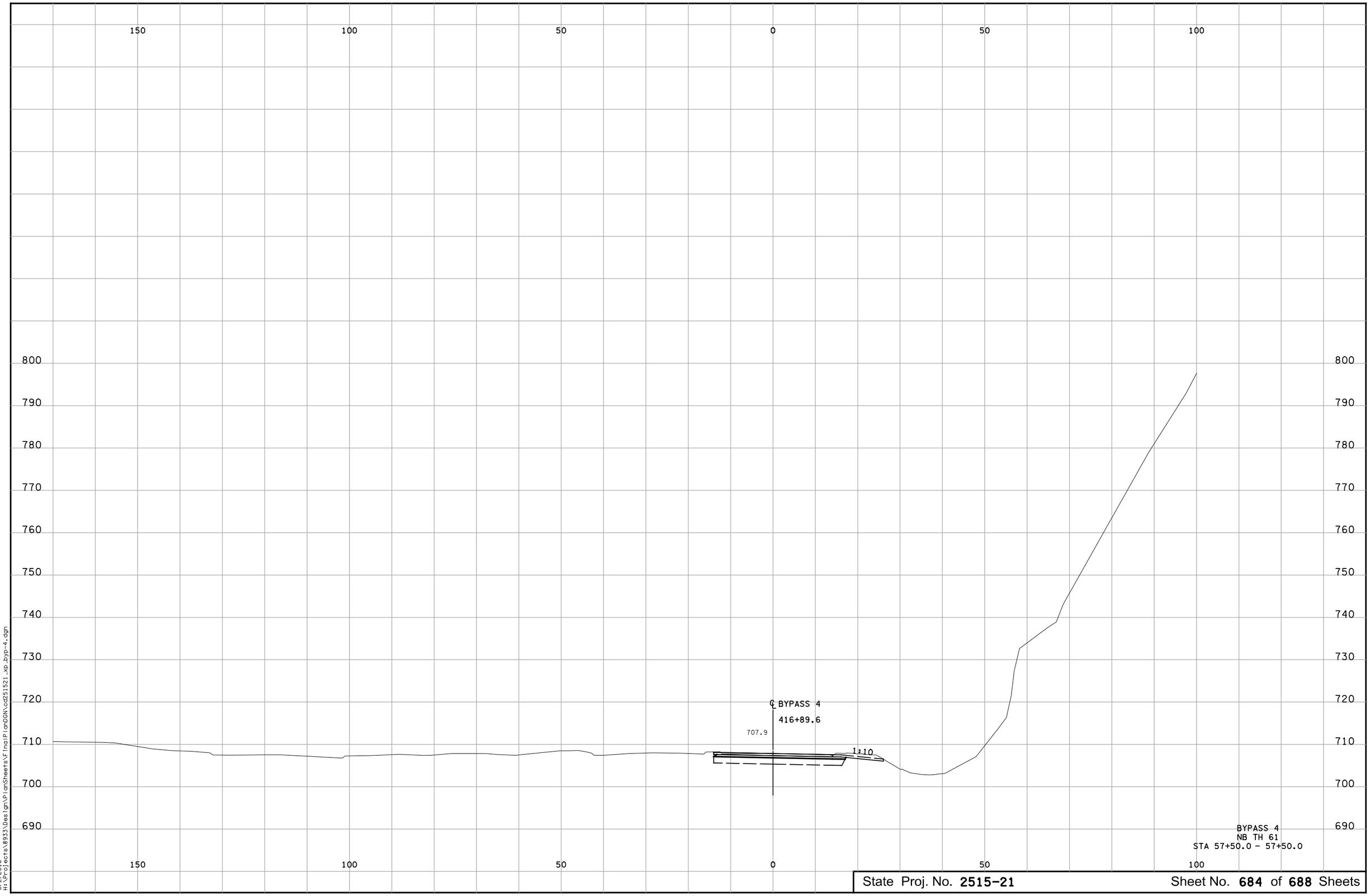
53+50.0

713.6 713.52

1:4

BYPASS 4
NB TH 61
STA 53+50.0 - 53+50.0

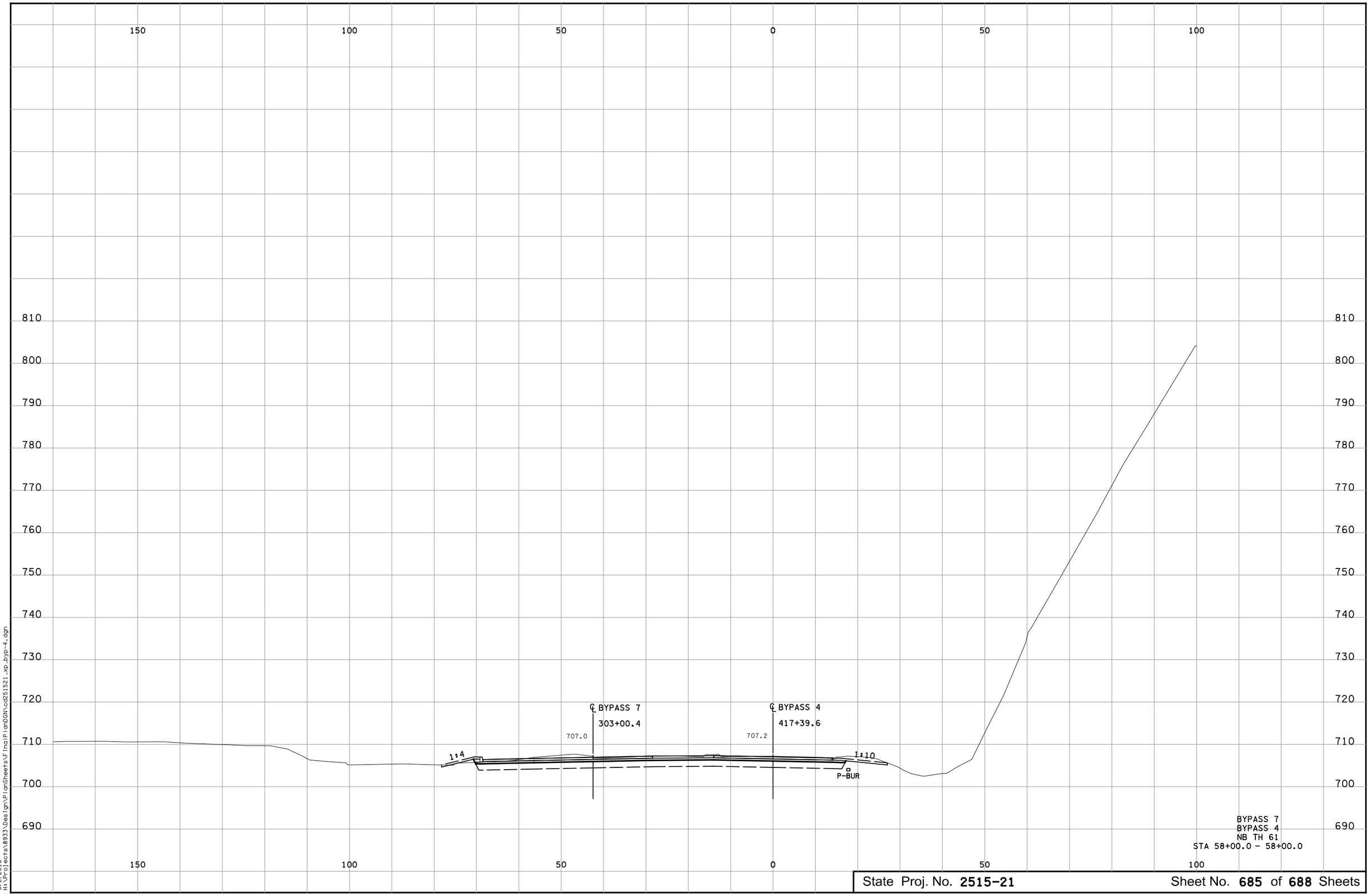
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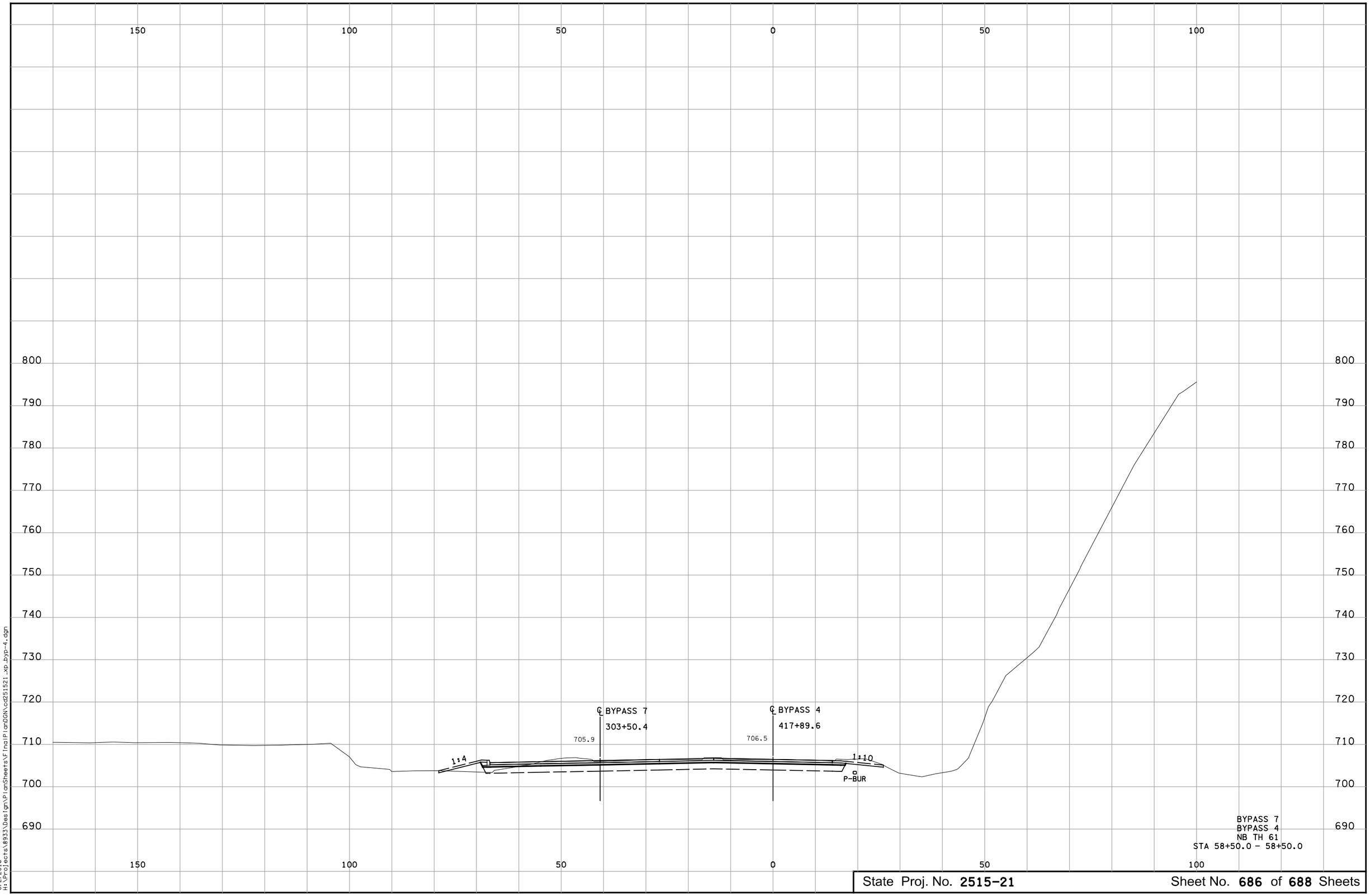
State Proj. No. **2515-21**

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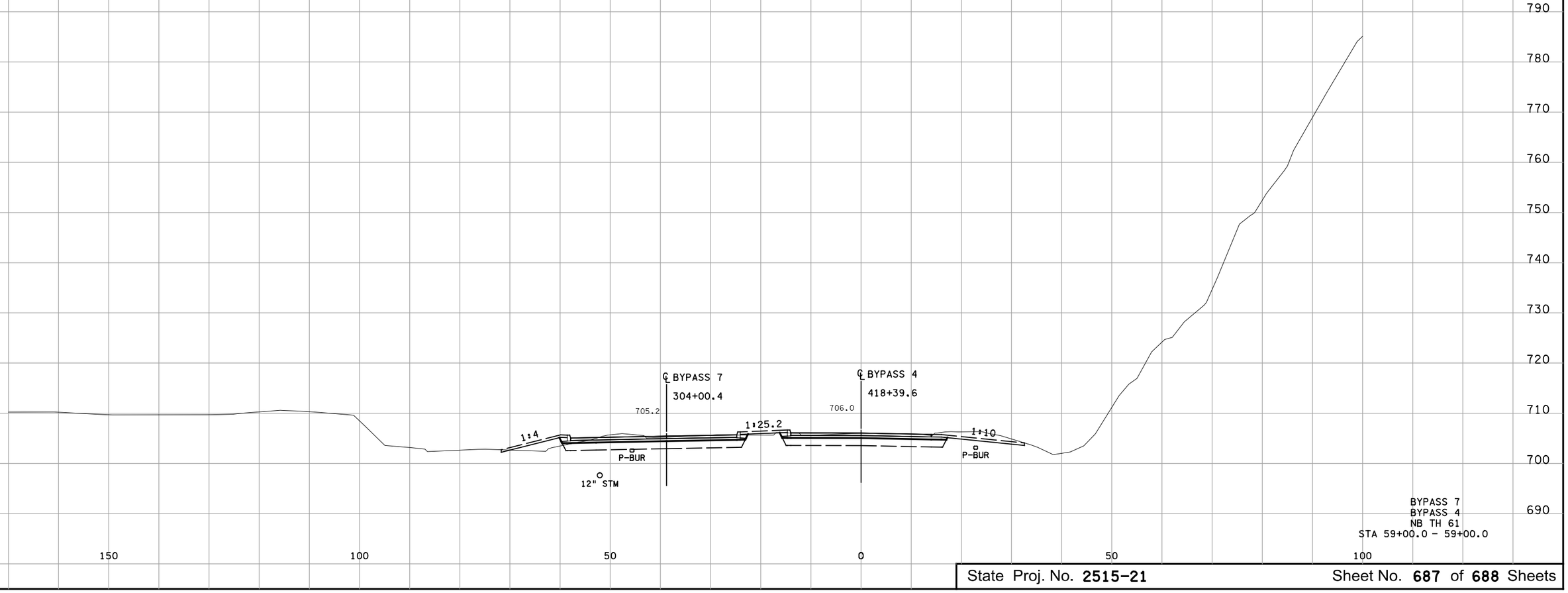
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State Proj. No. **2515-21**

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150 100 50 0 50 100

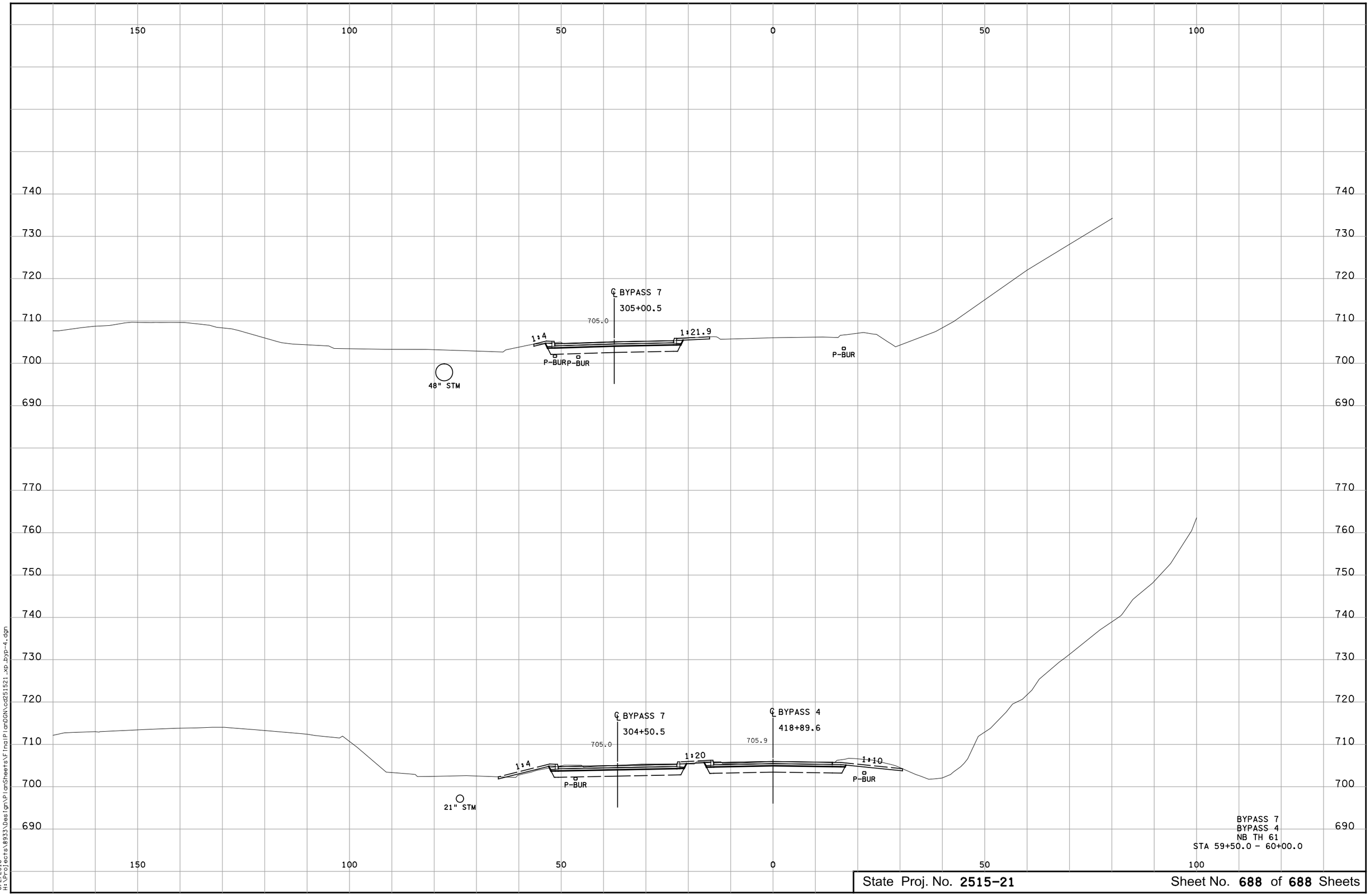
790 780 770 760 750 740 730 720 710 700 690



BYPASS 7
BYPASS 4
NB TH 61
STA 59+00.0 - 59+00.0

State Proj. No. **2515-21** Sheet No. **687** of **688** Sheets

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6/2/2016
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