WKE

MAY 2017

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
~~Section No.~~	~~7~~	~~Sign Plates~~
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 294

PROJECT ID: 1100-36-72
WITH: N/A

COUNTY: WAUKESHA

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

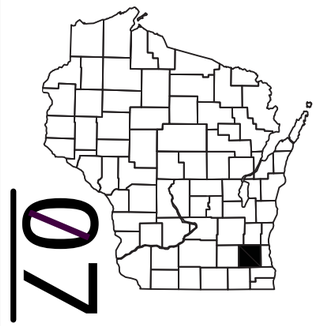
PLAN OF PROPOSED IMPROVEMENT

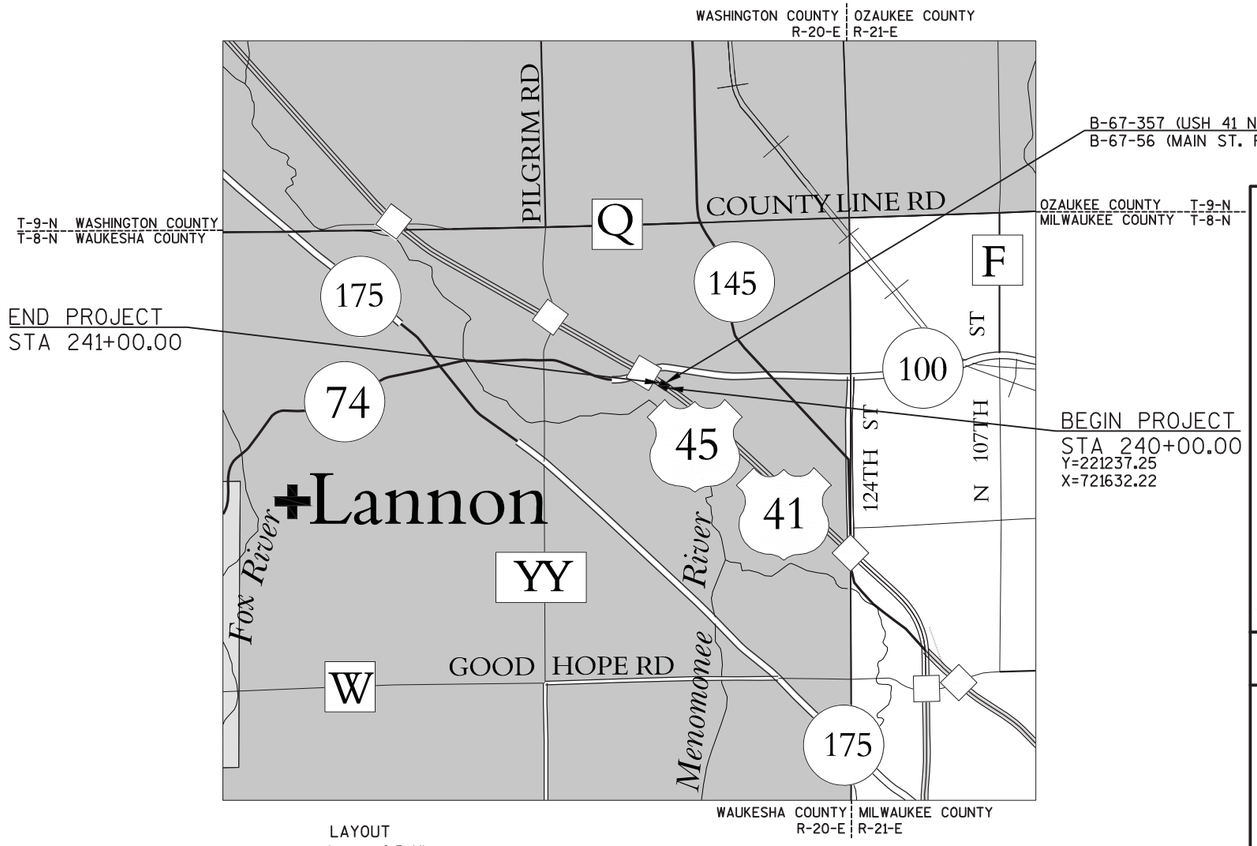
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1100-36-72	WISC 2017265	1

MILWAUKEE TO FOND DU LAC
BRIDGES OVER NOR-X-WAY CHANNEL

IH 41
WAUKESHA COUNTY

STATE PROJECT NUMBER
1100-36-72





LAYOUT
SCALE 0 0.5 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.019 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, WAUKESHA COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES. ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (91) (NAVD 88 (91)).

DESIGN DESIGNATION

A.A.D.T.	2018	=	96,100
A.A.D.T.	2038	=	118,500
D.H.V.		=	11,615
D.D.		=	59/41
T.		=	14.4%
DESIGN SPEED		=	70 MPH
ESALS		=	22,000,000

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS		GRADE LINE	
PROPERTY LINE		ORIGINAL GROUND	
LOT LINE		MARSH OR ROCK PROFILE (To be noted as such)	ROCK
LIMITED HIGHWAY EASEMENT		SPECIAL DITCH	LABEL
EXISTING RIGHT OF WAY		GRADE ELEVATION	95.36
PROPOSED OR NEW R/W LINE		CULVERT (Profile View)	
SLOPE INTERCEPT		UTILITIES	
REFERENCE LINE		ELECTRIC	E
EXISTING CULVERT		FIBER OPTIC	FO
PROPOSED CULVERT (Box or Pipe)		GAS	G
COMBUSTIBLE FLUIDS	CAUTION	SANITARY SEWER	SAN
		STORM SEWER	SS
MARSH AREA		TELEPHONE	T
		WATER	W
		UTILITY PEDESTAL	
WOODED OR SHRUB AREA		POWER POLE	
		TELEPHONE POLE	

ORIGINAL PLANS PREPARED BY
BLOOM COMPANIES, LLC

WISCONSIN
MICHELLE M. GARRIGAN
E-31966
GREEN BAY, WISCONSIN
PROFESSIONAL ENGINEER

1-20-2017 (Date) Michelle Garrigan (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	BLOOM COMPANIES, LLC
Designer	BLOOM COMPANIES, LLC
Project Manager	DAVID PITTMAN
Regional Examiner	
Regional Supervisor	JOE GALLAMORE

APPROVED FOR THE DEPARTMENT
DATE: 1/20/17 (Signature)

E

UTILITY CONTACTS

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OF AMERICA (TCA)

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6070 N FLINT ROAD
GLENDALE, WI 53209
(414) 459-3564
J.Navarro@northwindtech.com

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(262) 970-8494
ak308x@att.com

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DOUG DAUGHERTY
425 S. 95TH ST. ROOM LL
MILWAUKEE, WI 53214
(414) 534-7718

VILLAGE OF MENOMONEE FALLS
WATER UTILITY-SEWER

TOM HOFFMAN
W156 N8480 PILGRIM ROAD
MENOMONEE FALLS, WI
53051-2001
(262) 532-4415
thoffman@menomonee-falls.org

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LIGHTING - ELECTRICITY

SEND CORRESPONDANCE TO:
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WAUKESHA, WI 53087
(262) 574-5422
Eric.Perea@dot.wi.gov

WISCONSIN DEPARTMENT OF TRANSPORTATION
STOC - COMMUNICATION LINE

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433 W. ST. PAUL AVE
SUITE 300
MILWAUKEE, WI 53203
(414) 225-3723
Jeffrey.Madson@dot.wi.gov

WE ENERGIES-ELECTRICITY

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333 W. EVERETT ST, ROOM A299
MILWAUKEE, WI 53203
(414) 221-5617
LaTroy.Brumfield@we-energies.com

FIELD CONTACT:
AL SCHMITT
245 SAND DRIVE
WEST BEND, WI 53095
(262) 338-7662
alan.schmitt@we-energies.com

WE ENERGIES-GAS
SEND CORRESPONDANCE TO:
LATROY BRUMFIELD
333 W. EVERETT ST, ROOM A299
MILWAUKEE, WI 53203
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LaTroy.Brumfield@we-energies.com

FIELD CONTACT:
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OTHER CONTACTS

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DANIEL TRAWICKI
WAUKESHA COUNTY SHERIFF'S DEPARTMENT
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GREEN BAY, WI 54304
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mgarrigan@bloomcos.com

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

GENERAL NOTES

THE LOCATIONS OF EXISTING UTILITIES, AS NOTED ON THE PLANS, ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITH THE PROJECT AREA THAT ARE NOT SHOWN.

ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

NO SHRUBS OR TREES ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

DIMENSIONS GIVEN FOR EXISTING FEATURES SHALL BE CONSIDERED AS APPROXIMATE AND SHALL BE MEASURED IN THE FIELD FOR MATCHING PURPOSES.

TEMPORARY STORAGE OF ANY EXCAVATED MATERIAL SHALL NOT BE PERMITTED IN WETLANDS.

ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCLUDING ROAD BED, ARE TO BE TOPSOILED OR SALVAGED TOPSOILED, FERTILIZED, AND SEEDED, MULCHED OR EROSION-MAT INSTALLED AS DIRECTED BY THE ENGINEER.

IF GRADED AREAS ARE TO BE LEFT NOT COMPLETED AND EXPOSED FOR MORE THAN 14 DAYS, SEED THOSE AREAS WITH TEMPORARY SEED AND MULCH OR EMAT WITHIN 72 HOURS.

AFTER SAWCUTTING EXISTING PAVEMENT, SQUEEGEE FRESH SLURRY TO AGGREGATE SHOULDER OR COLLECT SLURRY IF NOT ABLE TO SQUEEGEE TO AGGREGATE AREAS. INCIDENTAL TO SAW CUTTING.

EROSION CONTROL BMP'S ARE SHOWN AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL BMP'S SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE BMP IS NO LONGER REQUIRED.

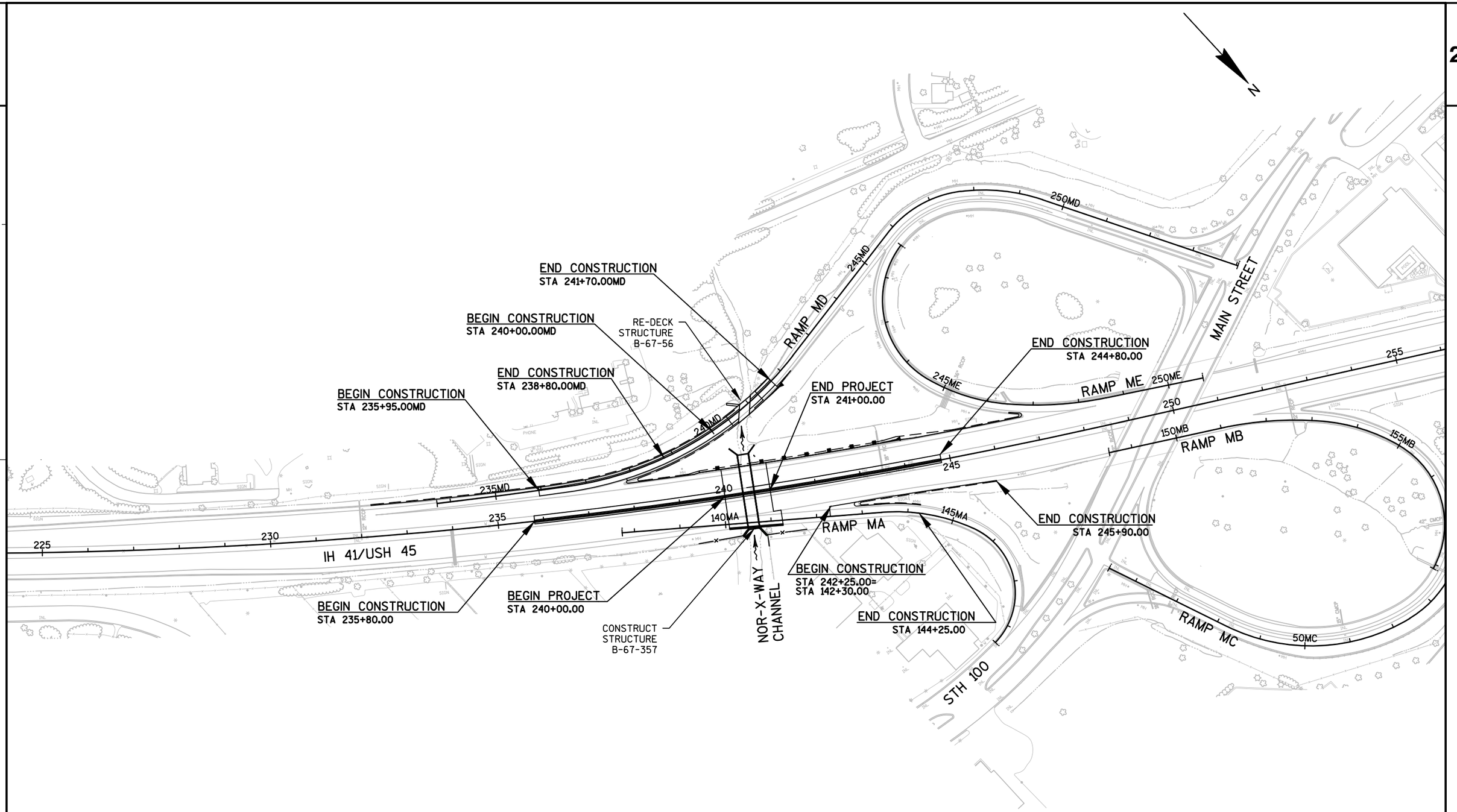
SHOULDERS SHALL BE PAVED FULL WIDTH IN LOCATIONS WHICH REQUIRE STEEL PLATE BEAM GUARD AND SHALL BE PAVED PRIOR TO BEAM GUARD INSTALLATION.

TOTAL PAVEMENT THICKNESS	LAYER PAVEMENT THICKNESS	TYPE	LAYERS
5" ASPHALTIC SURFACE TEMPORARY	5"	ASPHALTIC SURFACE TEMPORARY	UPPER LAYER
5 1/2" ASPHALTIC SURFACE TEMPORARY	1 3/4" 3 3/4"	ASPHALTIC SURFACE TEMPORARY	UPPER LAYER LOWER LAYER
5 1/2" HMA PAVEMENT	1 3/4" 3 3/4"	4MT 58-28S 3MT 58-28S	UPPER LAYER LOWER LAYER
9 1/2" HMA PAVEMENT	1 3/4" 3 3/4" 4"	4HT 58-28V 3HT 58-28S 3HT 58-28S	UPPER LAYER LOWER LAYER LOWER LAYER
VARIABLE DEPTH 3 1/2"-4" HMA PAVT	1 3/4" 1 3/4" - 2 1/4"	4HT 58-28V 4HT 58-28V	UPPER LAYER LOWER LAYER
2" HMA PAVT	2"	4HT 58-28V	UPPER LAYER
3 1/2" HMA PAVT	1 3/4" 1 3/4"	4HT 58-28V 4HT 58-28V	UPPER LAYER LOWER LAYER

SECTION 2 ORDER OF SHEETS

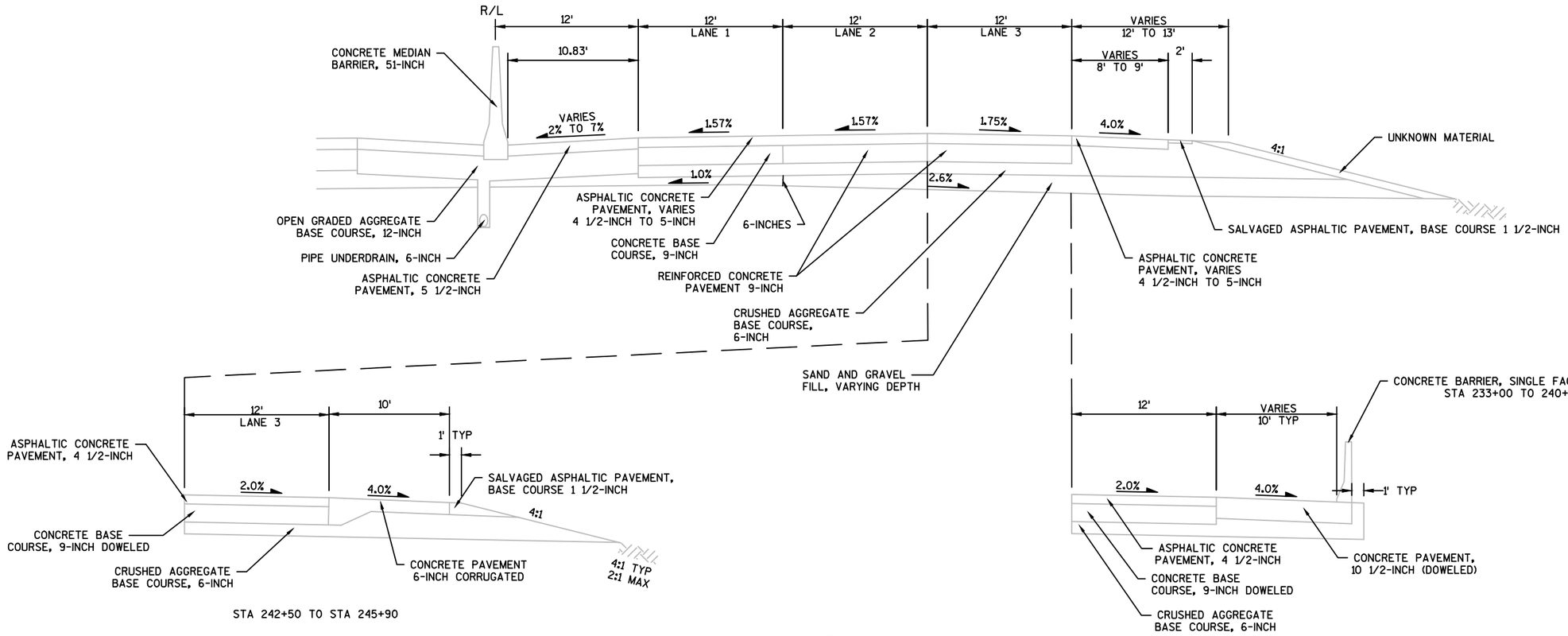
GENERAL NOTES AND UTILITY CONTACTS
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
EROSION CONTROL
STORM SEWER
PERMANENT SIGNING
LIGHTING
PAVEMENT MARKING REMOVAL
PAVEMENT MARKING
TRAFFIC CONTROL
SIGNING DETAILS
DETOUR PLAN
ALIGNMENT PLAN

2

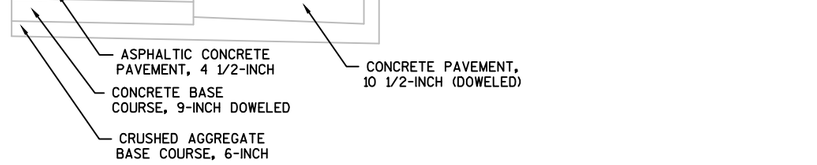


PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PROJECT OVERVIEW	SHEET 3 E

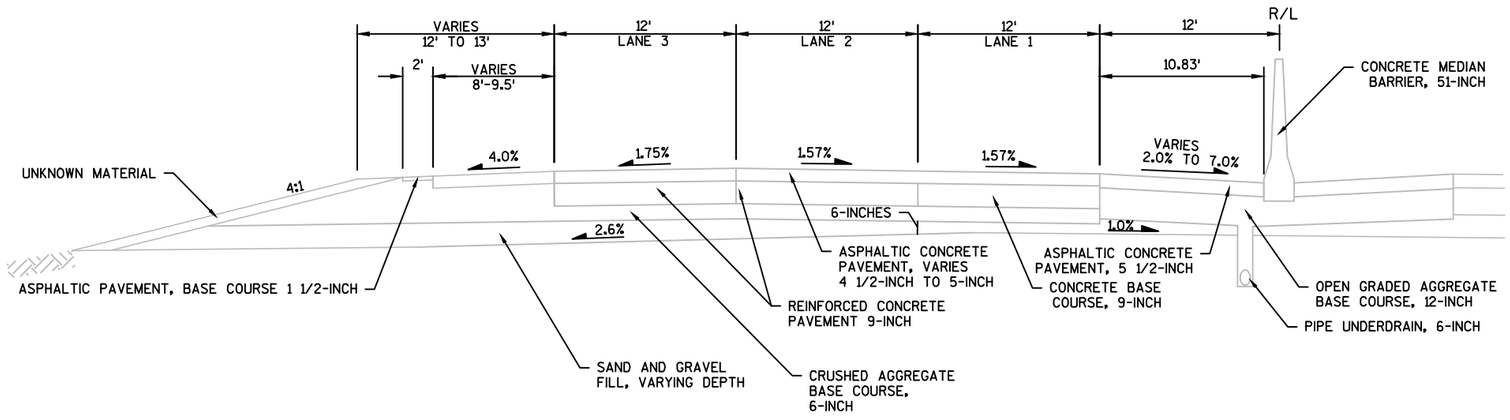
NORTHBOUND



STA 242+50 TO STA 245+90



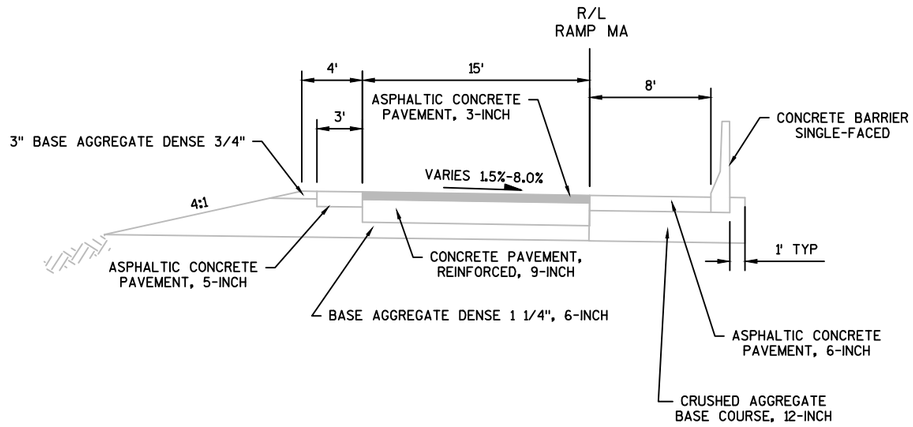
SOUTHBOUND



EXISTING TYPICAL SECTION IH 41/USH 45

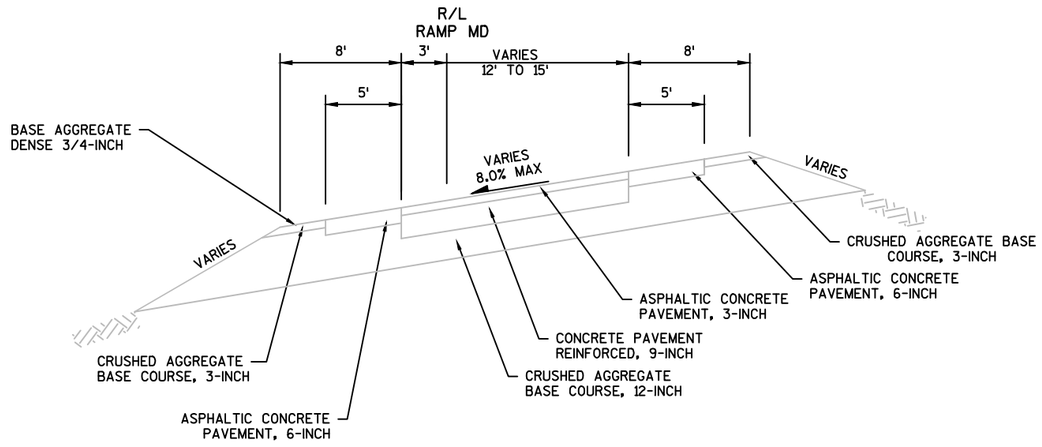
STA 240+00 TO STA 241+00

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TYPICAL SECTIONS	SHEET 4	E



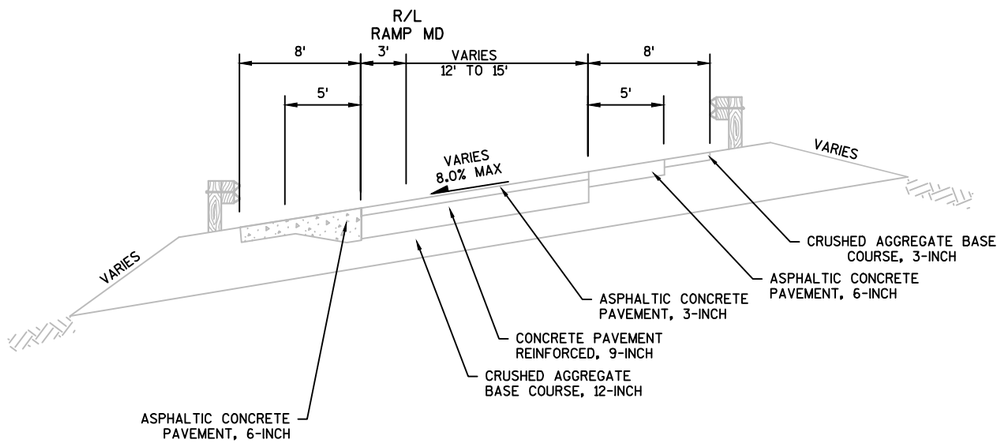
EXISTING TYPICAL SUPERELEVATED RAMP SECTION

MAIN STREET NB EXIT RAMP MA
STA 142+30MA TO STA 144+25MA



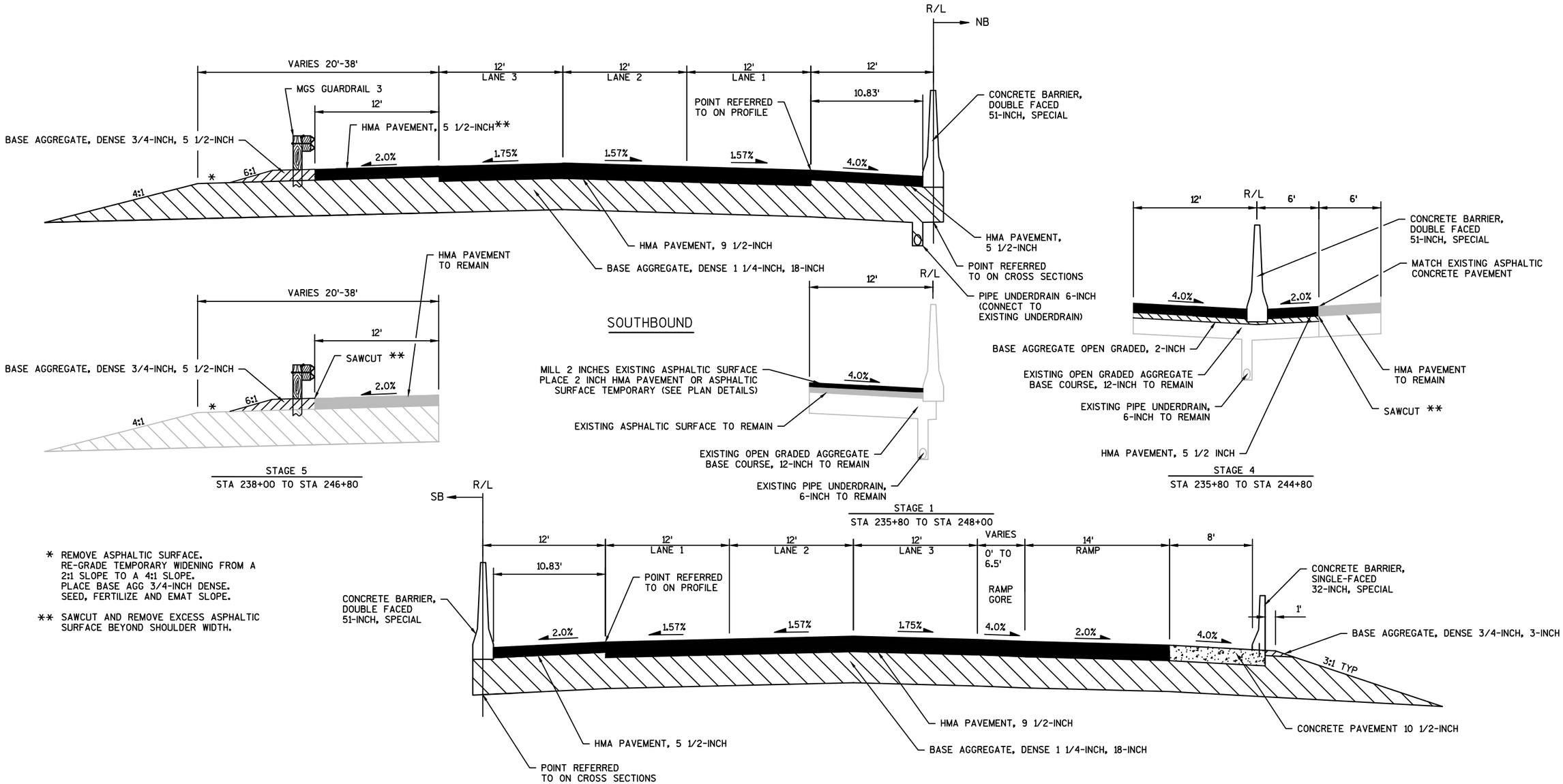
EXISTING TYPICAL SUPERELEVATED RAMP SECTION

MAIN STREET SB ENTRANCE RAMP MD
STA 240+00MD TO STA 240+44MD



EXISTING TYPICAL SUPERELEVATED RAMP SECTION

MAIN STREET SB ENTRANCE RAMP MD
STA 241+29MD TO STA 241+70MD

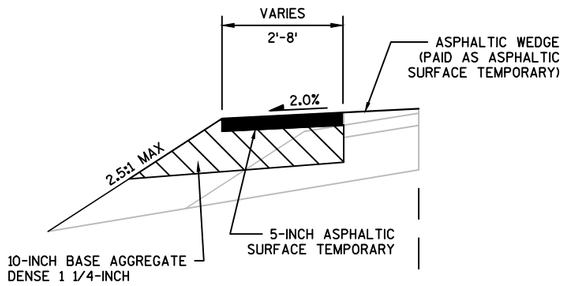


NORTHBOUND

PROPOSED TYPICAL SECTION IH 41/USH 45

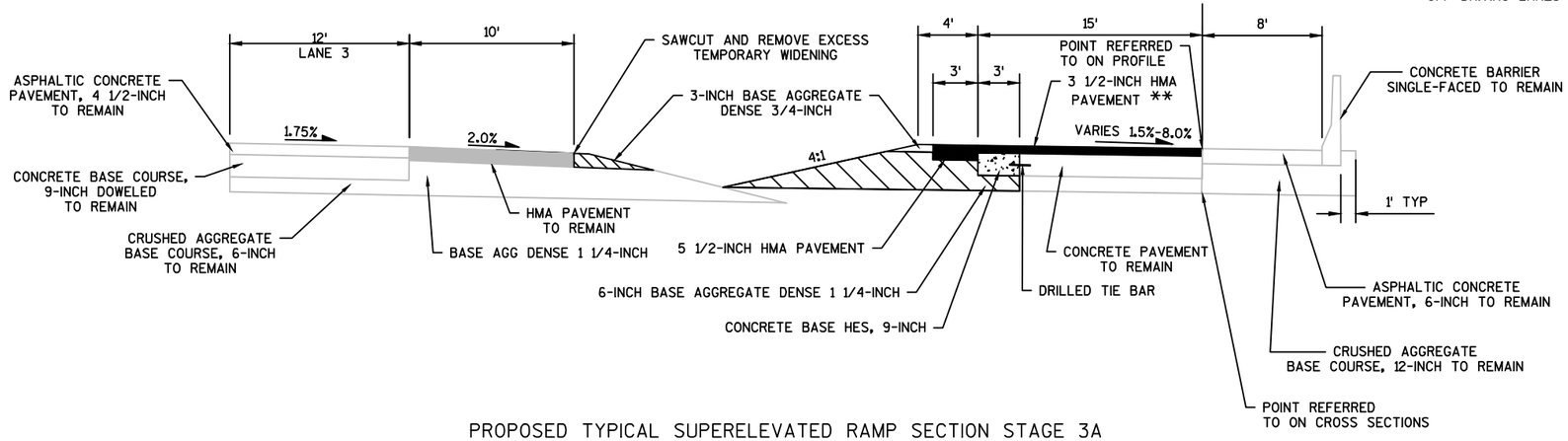
STA 240+00 TO STA 241+00 SOUTHBOUND
STA 240+00 TO STA 241+00 NORTHBOUND

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TYPICAL SECTIONS	SHEET 6	E



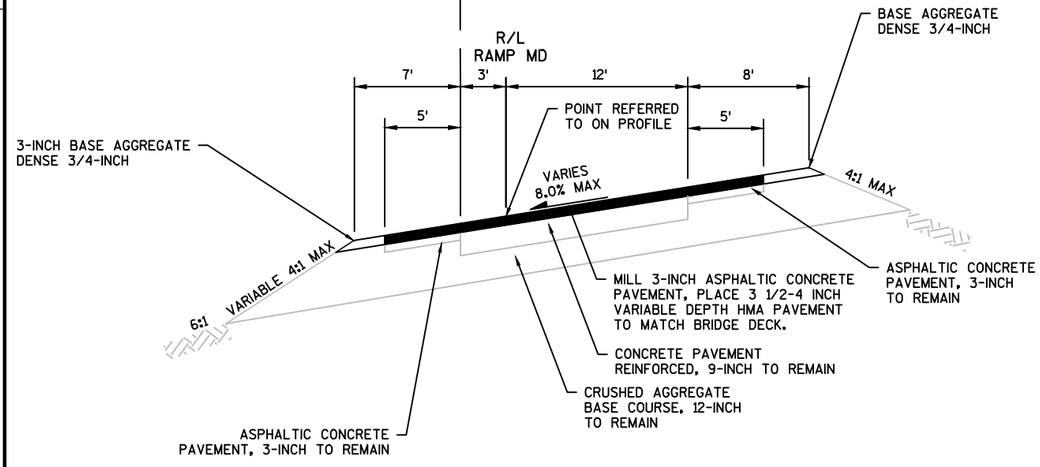
PROPOSED TEMP WIDENING RAMP SECTION STAGE 1B

MAIN STREET SB ENTRANCE RAMP MD
STA 231+65 MD TO STA 240+00MD



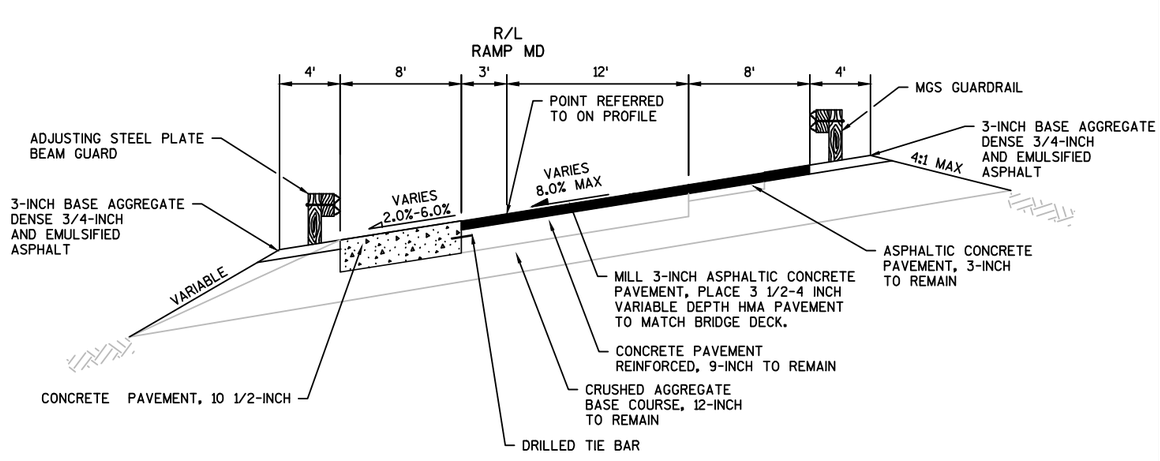
PROPOSED TYPICAL SUPERELEVATED RAMP SECTION STAGE 3A

MAIN STREET NB EXIT RAMP MA
STA 242+25MA TO STA 243+90MA
STA 142+30MA TO STA 144+25MA



PROPOSED TYPICAL SUPERELEVATED RAMP SECTION STAGE 2

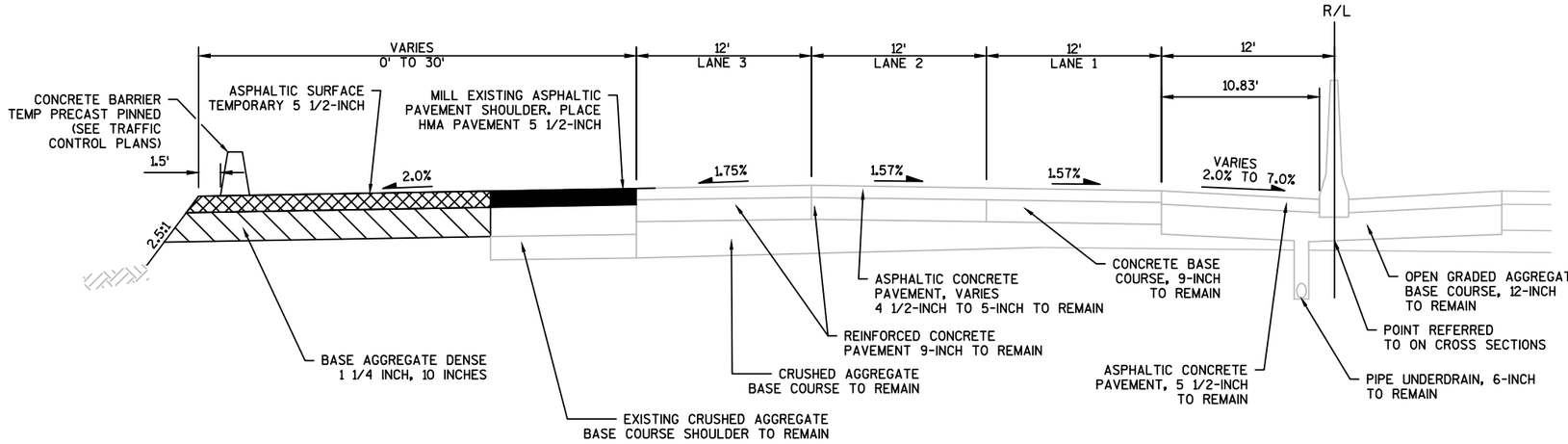
MAIN STREET SB ENTRANCE RAMP MD
STA 240+00MD TO STA 240+44MD



PROPOSED TYPICAL SUPERELEVATED RAMP SECTION STAGE 2

MAIN STREET SB ENTRANCE RAMP MD
STA 241+29MD TO STA 241+70MD

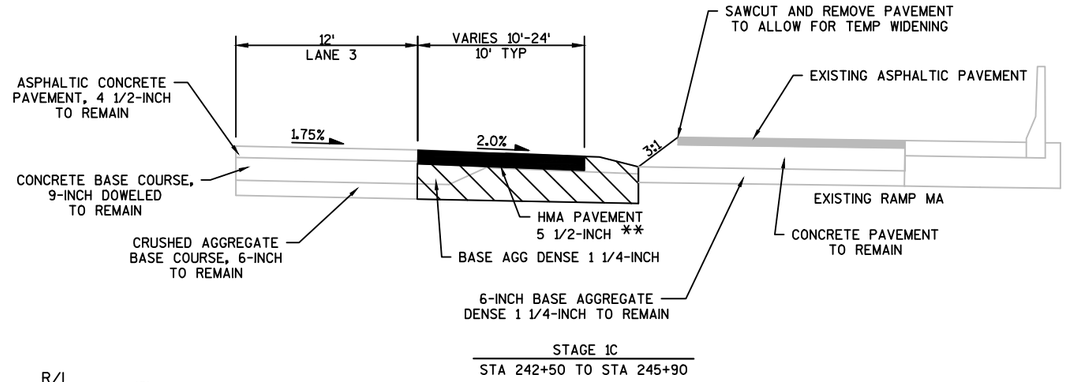
SOUTHBOUND



IH 41/USH 45 TEMP WIDENING STAGE 1B

STA 238+00 TO STA 247+10

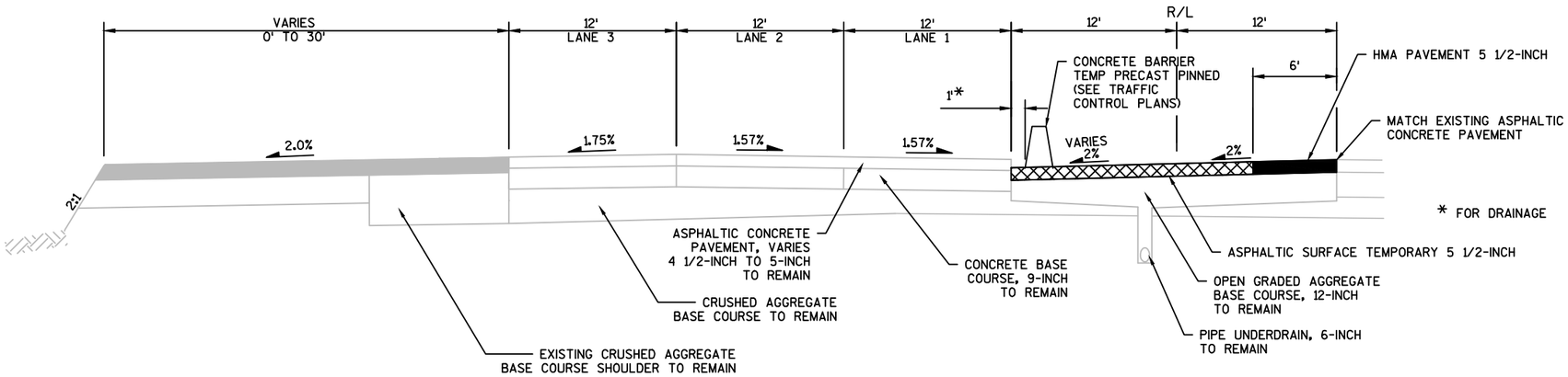
NORTHBOUND



STAGE 1C

STA 242+50 TO STA 245+90

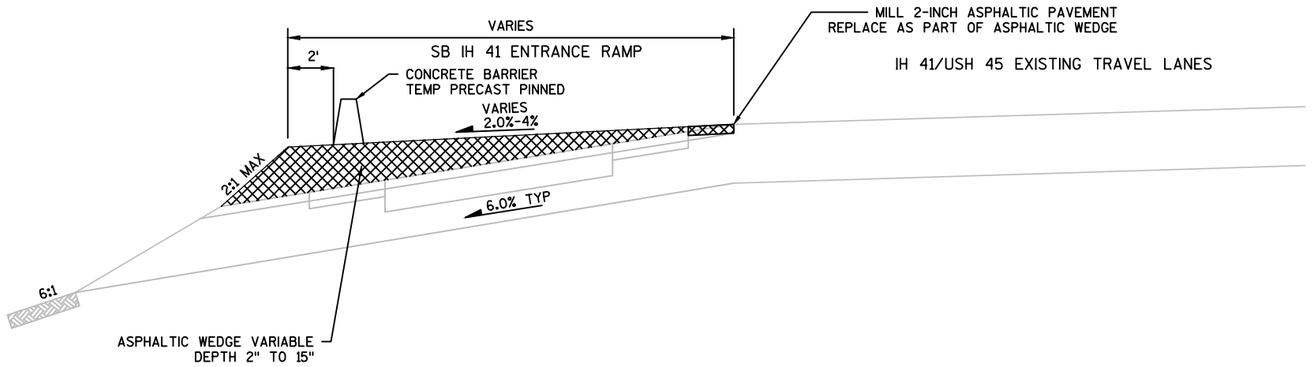
SOUTHBOUND



IH 41/USH 45 TEMP WIDENING STAGE 2

STA 235+80 TO STA 244+80

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TYPICAL SECTIONS	SHEET 8	E



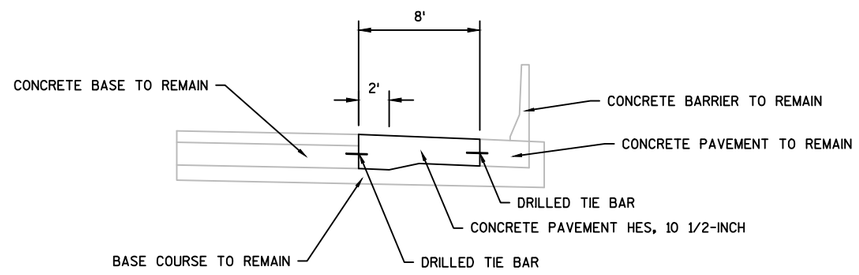
ASPHALTIC WEDGE

MAIN STREET SB ENTRANCE RAMP MD
GORE AREA WITH IH 41
STA 236+00 TO STA 240+00MD

ASPHALTIC SURFACE TEMPORARY WEDGE LAYER REQUIRED FOR TRAFFIC CONTROL OF SB IH 41

WEDGE TO BE PLACED AT THE END OF STAGE 1 AND REMOVED IN STAGE 5

PAVEMENT THICKNESS VARIES BETWEEN 2-INCHES AND 15-INCHES.



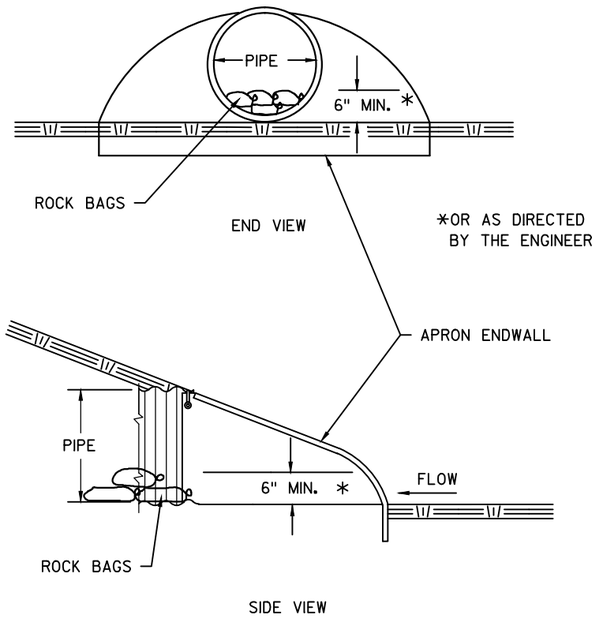
REMOVE CONCRETE PAVEMENT RUMBLE STRIPS

IH 41 NB
STA 236+50 TO STA 240+40

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION DETAILS	SHEET 9	E

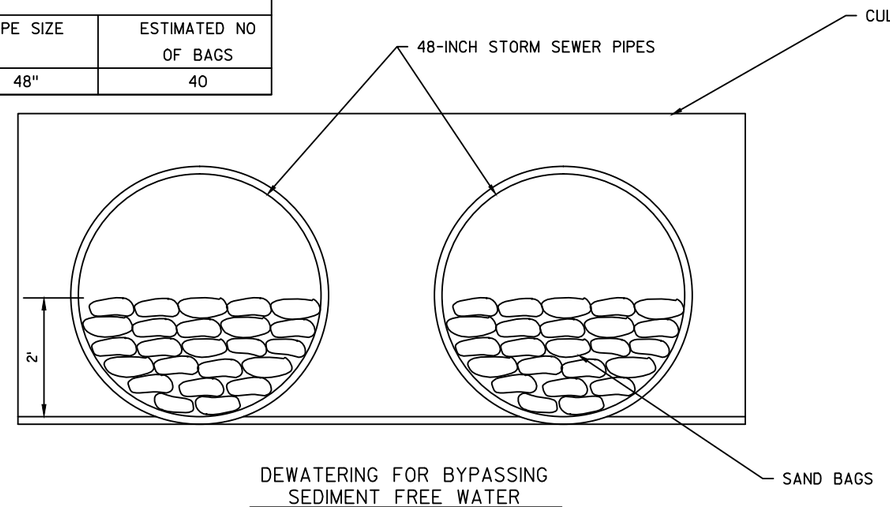
2

ESTIMATED BAG SIZE = 24" X 12" X 6"	
PIPE SIZE	ESTIMATED NO OF BAGS
12"	1
15"	2
18"	2
24"	3
30"	5
36"	7
42"	7



CULVERT PIPE CHECK

ESTIMATED BAG SIZE = 24" X 12" X 6"	
PIPE SIZE	ESTIMATED NO OF BAGS
48"	40



DEWATERING FOR BYPASSING SEDIMENT FREE WATER

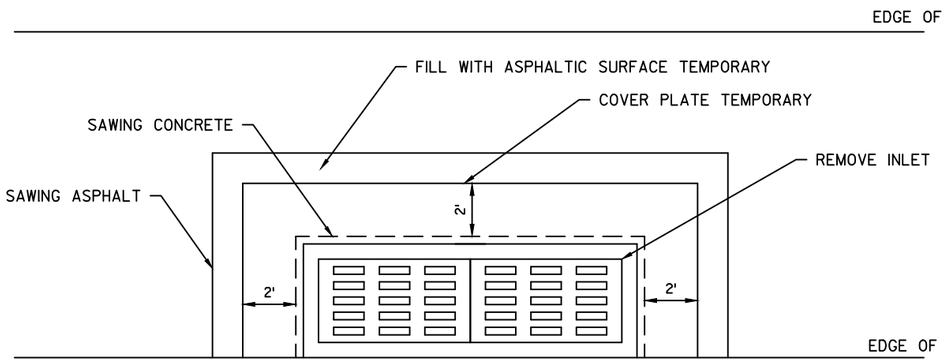
STA 245+20

PLACE SAND BAGS UP TO TWO FEET AT INLET END OF TWIN 48 INCH STORM SEWER PIPES. DEWATER SEDIMENT FREE WATER ACROSS RAMP AND INTO NOR-X-WAY CHANNEL WITH ENERGY DISSIPATION BMP.

DO NOT COMPLETELY CLOSE OFF INLET ENDS OF TWIN 48 INCH STORM SEWER PIPES.

MAINTAIN PUMPING OPERATION AS NECESSARY TO BYPASS FLOW SO THAT WATER DOES NOT IMPACT TRAVEL LANES OR SHOULDERS ON IH 41 NORTHBOUND.

SANDBAGS INCIDENTAL TO STORM SEWER PIPE REINFORCED CLASS IV 48-INCH.



INLET REMOVAL

STA 240+52

MILL ASPHALTIC PAVEMENT AROUND INLET. PLACE COVER PLATE TEMPORARY AT LEAST 2 FEET WIDER THAN EXISTING INLET OPENING. ANCHOR COVER PLATE TEMPORARY TO EXISTING STRUCTURE. PLACE ASPHALTIC SURFACE TEMPORARY TO FILL IN VOIDS AROUND COVER PLATE.

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION DETAILS	SHEET 10	E

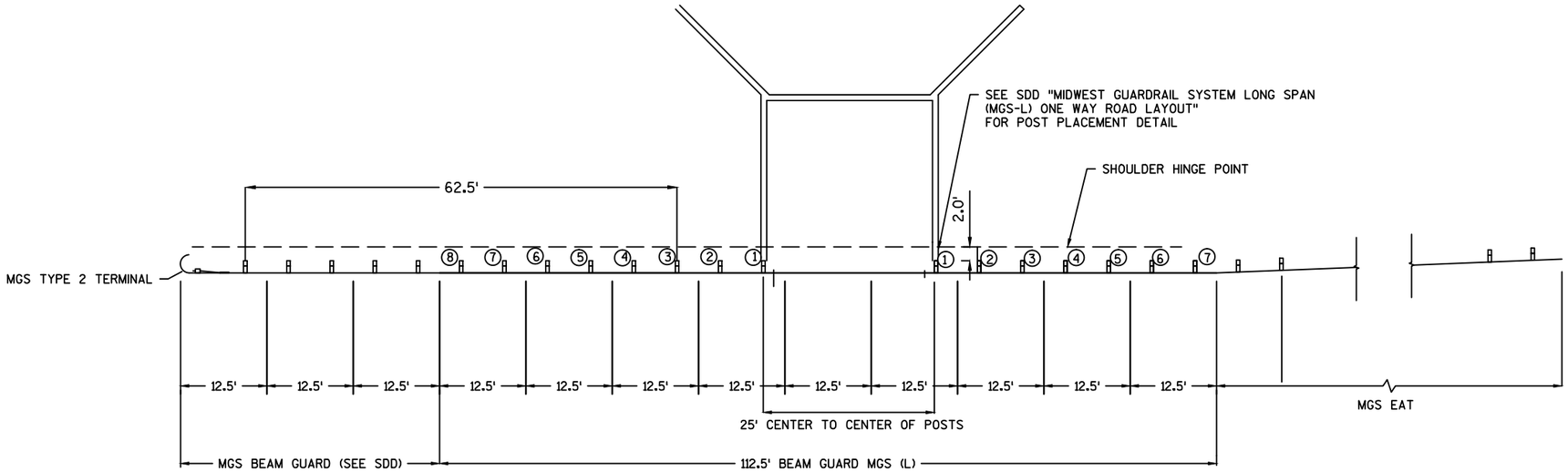
FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021001-CD.DWG 021002-cd
PLOT DATE : 1/30/2017 1:50 PM PLOT BY : HENRYKA GASIK PLOT NAME : ---------- PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.

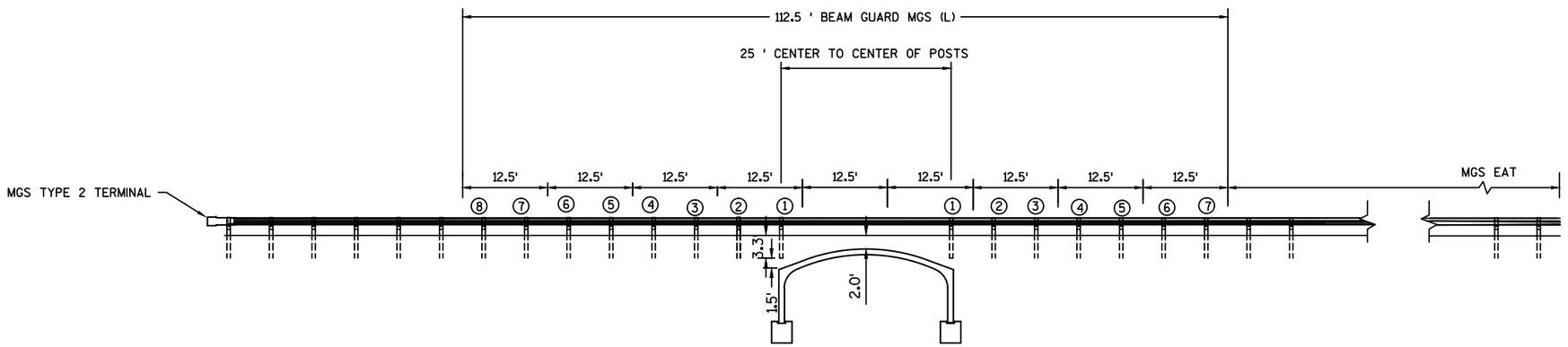
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

SEE SDD "MIDWEST GUARDRAIL SYSTEM LONG SPAN (MGS-L) ONE WAY ROAD LAYOUT" FOR MORE DETAILS.



DIRECTION OF TRAVEL

PLAN VIEW

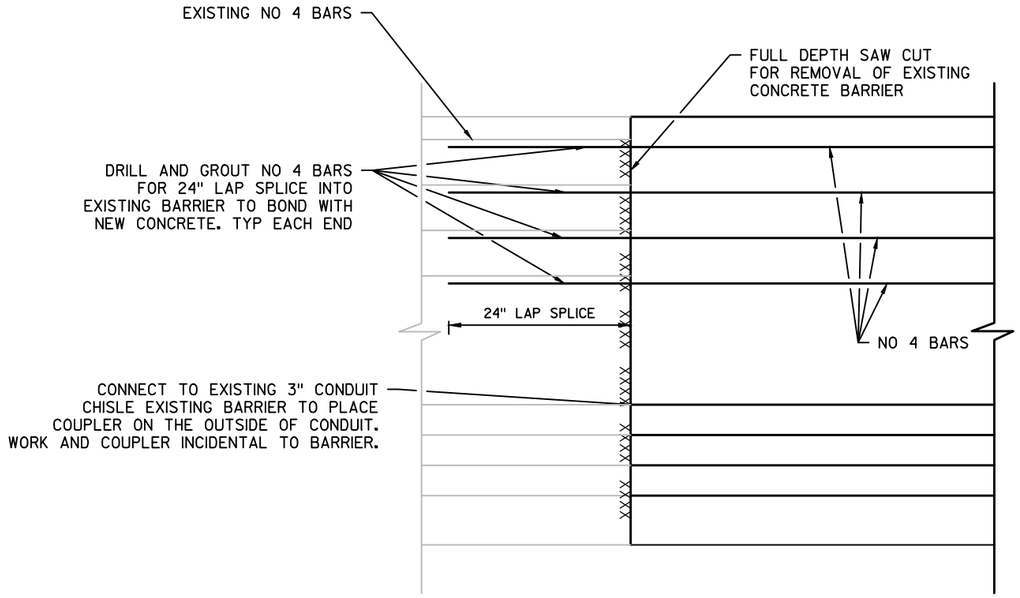


DIRECTION OF TRAVEL

ELEVATION VIEW

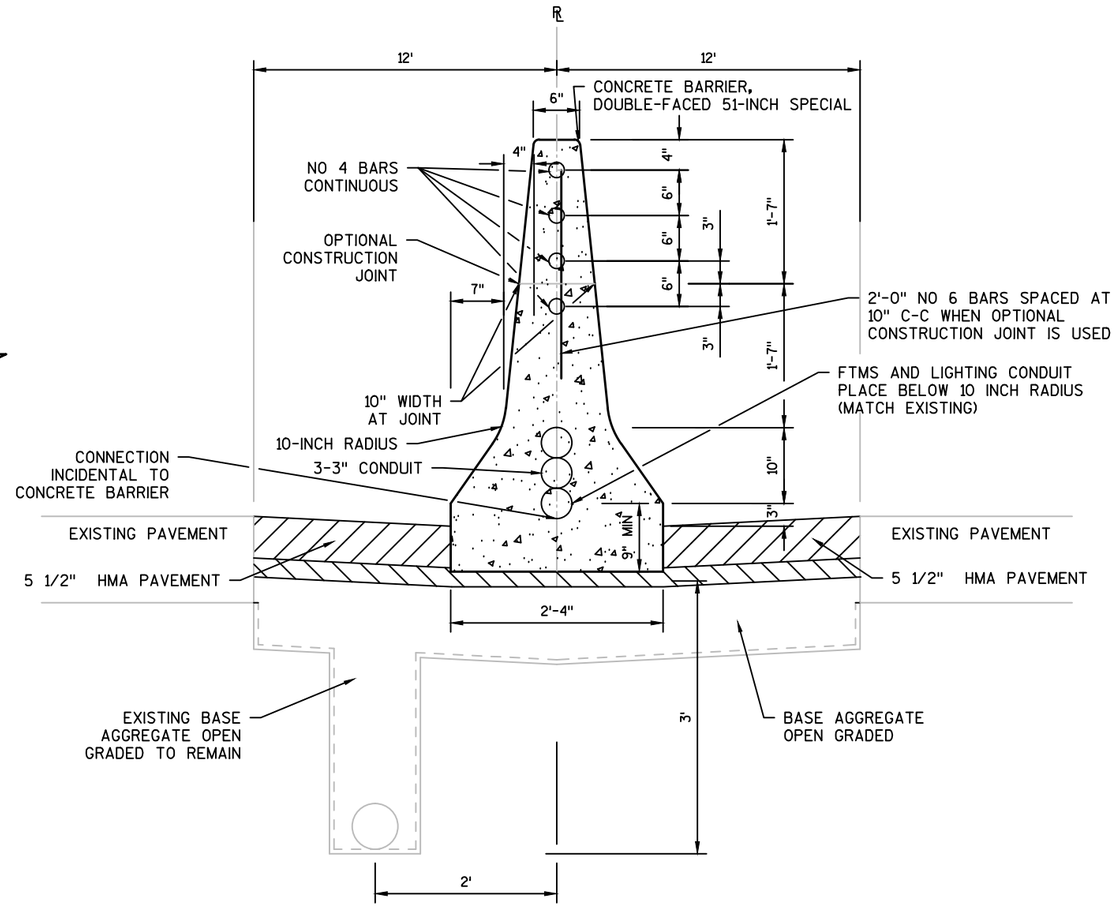
MIDWEST GUARDRAIL SYSTEM LONG SPAN

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION DETAILS	SHEET 11	E



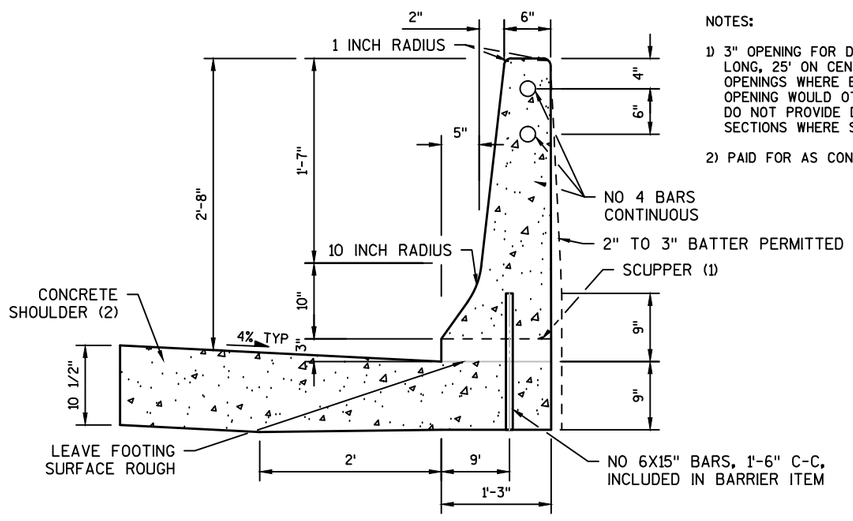
ELEVATION

LONGITUDINAL SECTION THROUGH MEDIAN



CONCRETE BARRIER, DOUBLE FACED 51-INCH, SPECIAL

STA 235+80 TO STA 244+80



NOTES:

1) 3" OPENING FOR DRAINAGE, SLOPE 4%, OPENINGS 3' LONG, 25' ON CENTER. DO NOT PROVIDE DRAINAGE OPENINGS WHERE BARRIER IS RETAINING EARTH OR OPENING WOULD OTHERWISE BE COVERED. ALSO, DO NOT PROVIDE DRAINAGE OPENINGS IN SUPERELEVATED SECTIONS WHERE SHOULDER SLOPES AWAY FROM BARRIER.

2) PAID FOR AS CONCRETE PAVEMENT 10 1/2-INCH.

CONCRETE BARRIER, SINGLE-FACED 32-INCH, SPECIAL

STA 240+00 TO STA 241+16.50

GENERAL NOTES:

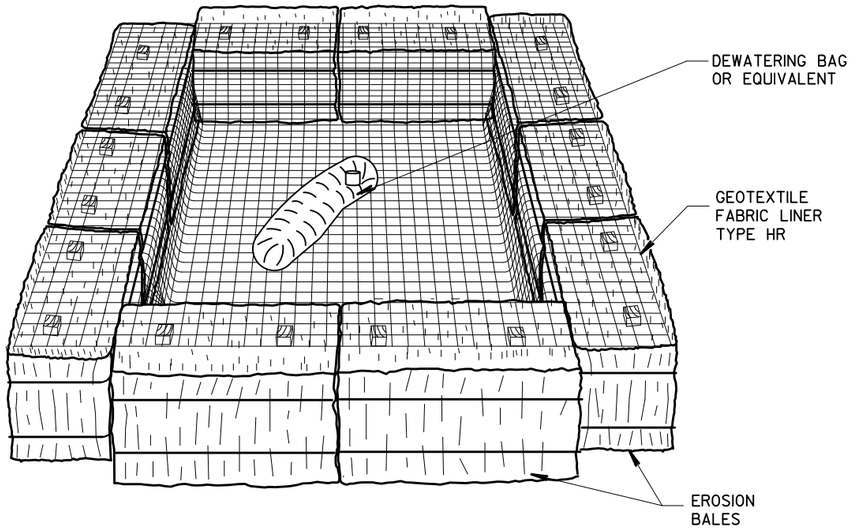
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2-INCHES CLEAR UNLESS OTHERWISE SHOWN ON THE PLAN.

ALL CONCRETE SHALL BE GRADE A, A-WR OR A-FA.

SAWED CONTRACTION JOINTS SHALL BE PROVIDED IN THE SIDES AND TOP OF THE BARRIER AT EXISTING PAVEMENT JOINTS.

SEE LIGHTING DETAILS FOR LOCATION OF CONDUIT AND JUNCTION BOXES.



TEMPORARY SETTLING BASIN

(SIZE TO BE DETERMINED IN FIELD AS INDICATED BELOW:)

STORAGE VOLUME (C.F.) = 16 X GPM (PUMP RATE)

EXAMPLE:
CONTRACTOR INDICATES PUMP CAPABLE OF 50 GPM
HEIGHT OF BALES = 1.5 FT.

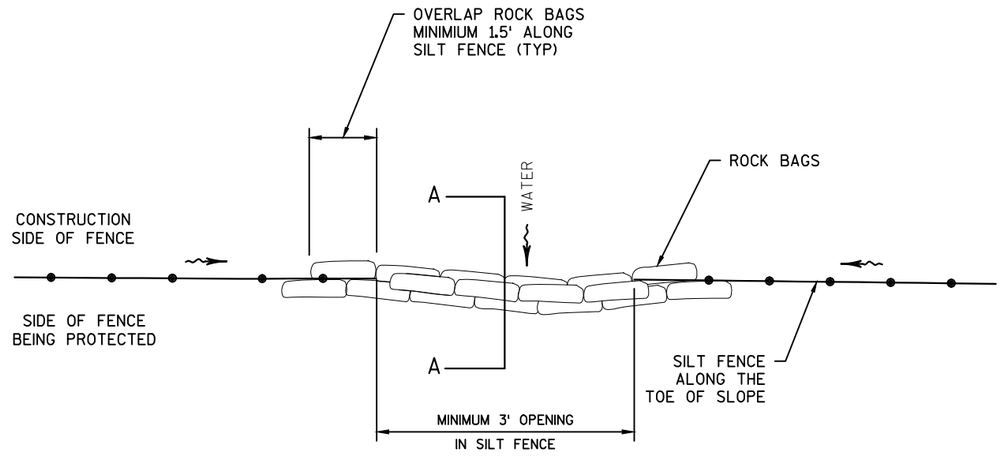
SOLUTION:
SV (C.F.) = 16 X 50
SV = 800 C.F.

$\frac{800 \text{ C.F.}}{1.5 \text{ FT.}}$ = 533 S.F.

USE A 20 FT. X 27 FT. BASIN

NOTES:

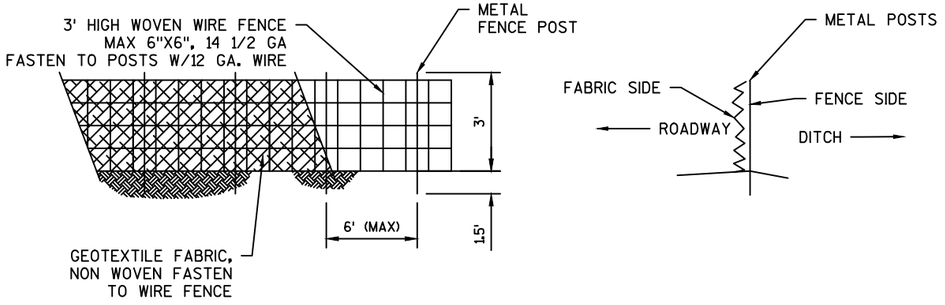
1. CONTRACTOR TO PUMP WATER FROM EXCAVATION TO BASIN PRIOR TO DISCHARGING TO THE WATERWAY.
2. BASIN TO BE KEPT LESS THAN 10% FULL OF SEDIMENT. GEOTEXTILE FABRIC AND SEDIMENTS TO BE DISPOSED BY THE CONTRACTOR OFF OF THE PROJECT SITE.
3. TEMPORARY SETTLING BASIN TO BE PAID FOR AS EROSION BALES AND GEOTEXTILE FABRIC TYPE HR.
4. FILTER BAG INCIDENTAL TO EROSION BALES



PLAN VIEW

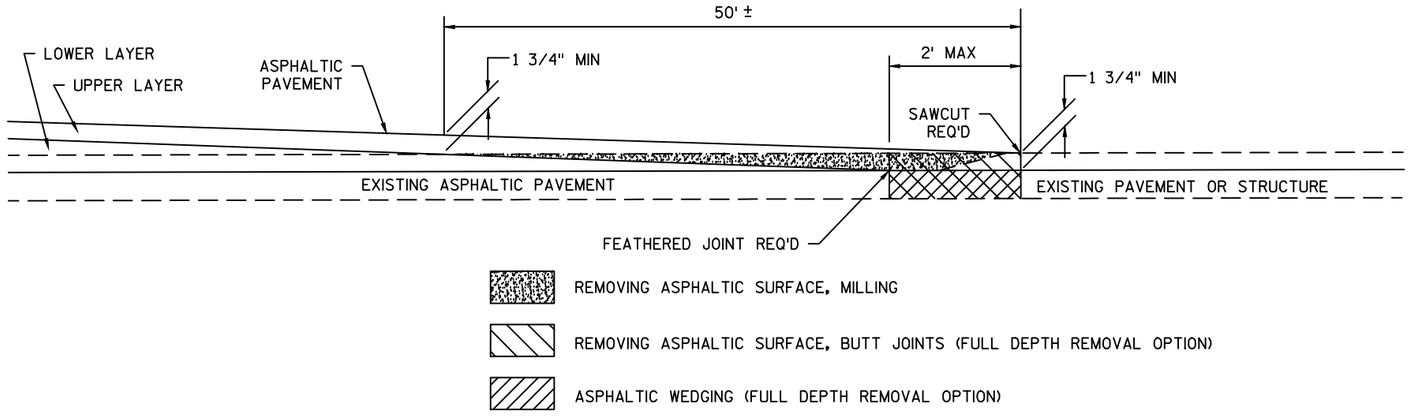
SECTION A-A

FENCE DRAINAGE OUTLET, ROCK BAGS



HEAVY DUTY SILT FENCE

STA 239+50 TO STA 243+50



BUTT JOINT DETAIL FOR MILLED ASPHALTIC PAVEMENTS

MAINLINE

RUNOFF COEFFICIENT TABLE

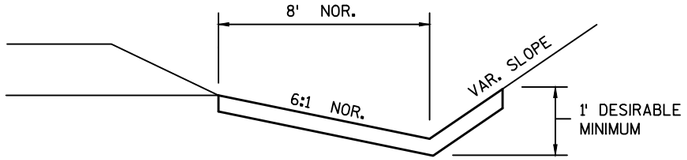
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 15.26 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.17 ACRES

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021003-CD.DWG
021007-cd
PLOT DATE : 2/1/2017 3:14 PM PLOT BY : HENRYKA GASIK PLOT NAME : _____ PLOT SCALE : 1" = 10'_XREF
WISDOT/CADDS SHEET 42

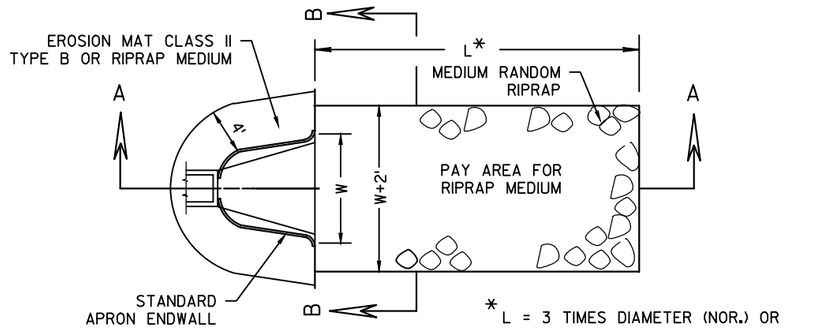
SEE EROSION CONTROL PLAN FOR
EROSION MAT TYPE

FLAT BOTTOM DITCHES

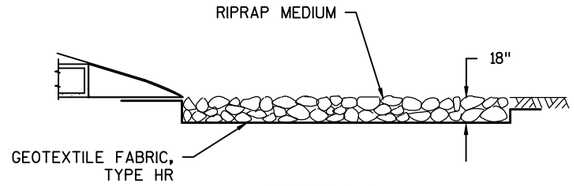


V-DITCHES

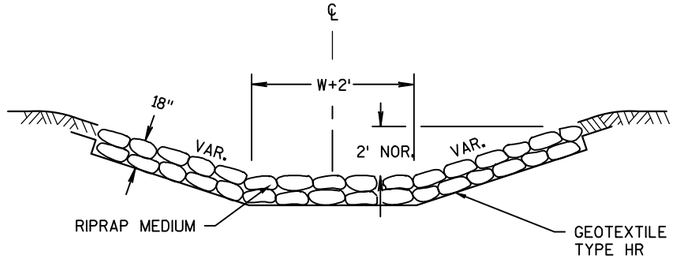
EROSION MAT DETAIL FOR DITCHES



* L = 3 TIMES DIAMETER (NOR.) OR
10' MIN. OR AS DIRECTED BY THE
ENGINEER

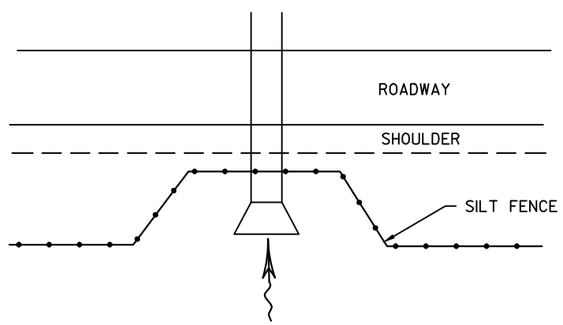


SECTION A-A



SECTION B-B

EROSION CONTROL TREATMENT AT PIPE ENDWALLS



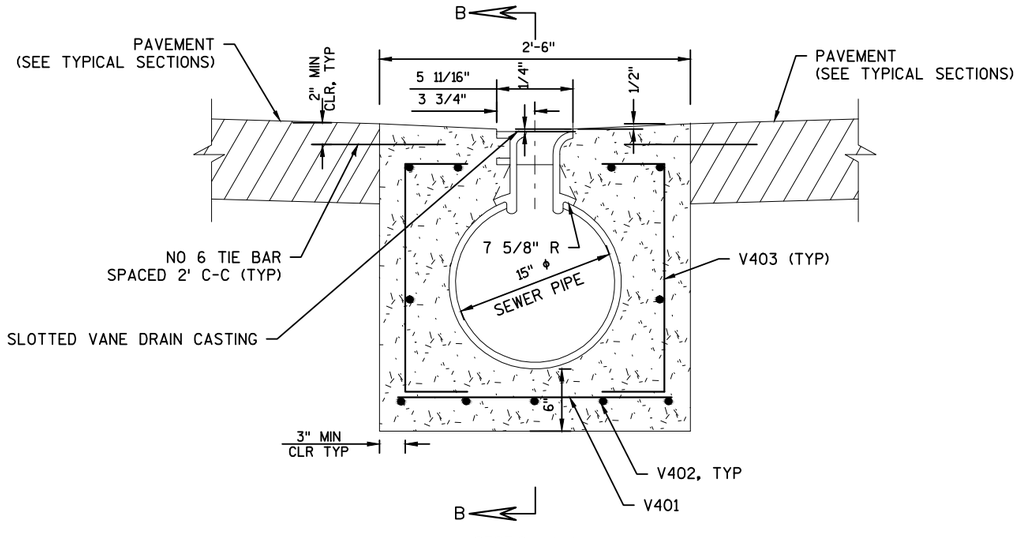
NOTE:
FOR FURTHER DETAIL
SEE SILT FENCE SDD.

TYPICAL SILT FENCE DETAIL AT PIPE INLET

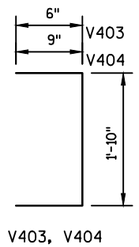
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION DETAILS	SHEET 15	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021003-CD.DWG
021008-cd
PLOT DATE : 1/31/2017 2:08 PM PLOT BY : CHAD EVEN PLOT NAME : ---------- PLOT SCALE : 1" = 10'_XREF
WISDOT/CADDS SHEET 42

2



SECTION A-A



V403, V404

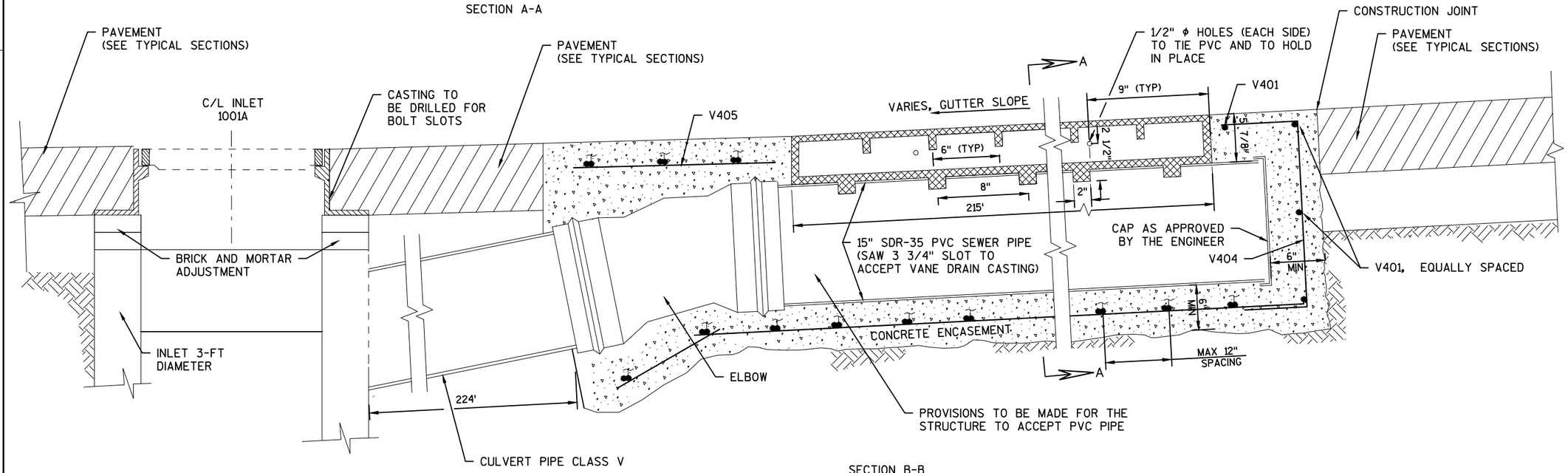
NOTES:

1) THE FIRST DIGIT OF BAR MARK SIGNIFIES THE BAR SIZE.

2) ALL DIMENSIONS ARE OUT TO OUT OF BAR.

3) APPROXIMATE WEIGHT OF DRAIN SLOTTED VANE CASTING = 87 POUNDS.

4) THE CASTING AND PVC PIPE SHALL BE SECURELY STAKED AND ANCHORED INTO PLACE DURING THE POURING OF THE CONCRETE ENCASEMENT.



SECTION B-B

DRAIN SLOTTED VANE LONGITUDINAL TEMPORARY

STA 235+85 TO STA 240+24

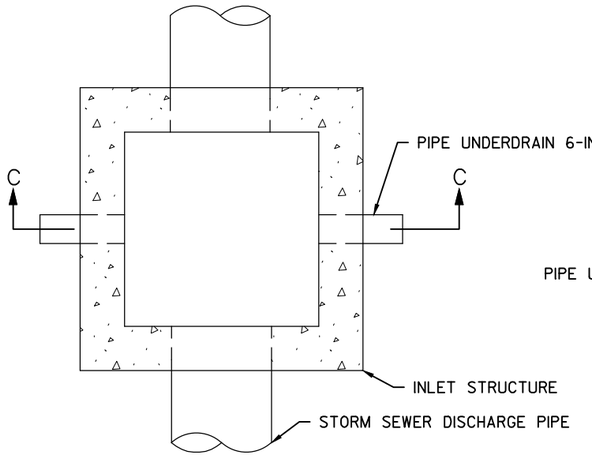
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION DETAILS	SHEET 16	E

NOTES:

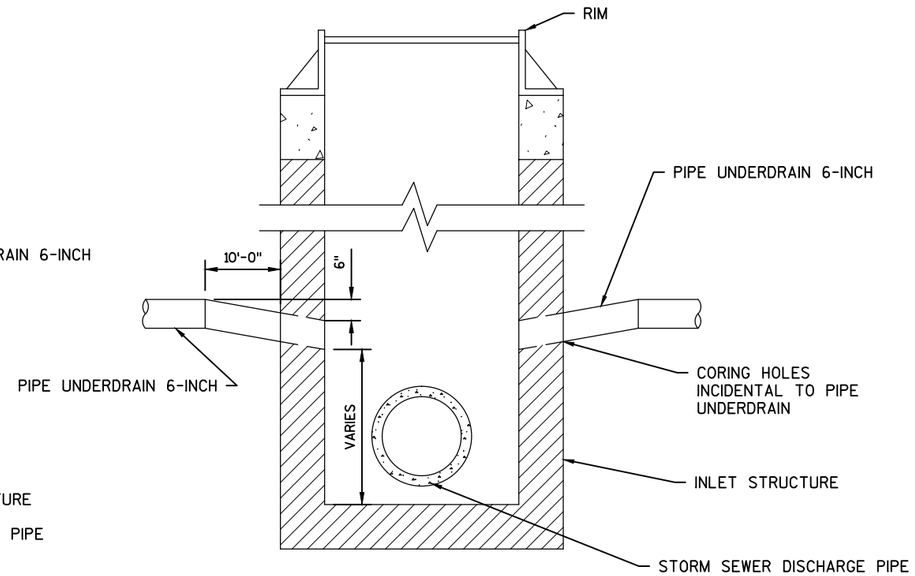
1) CONNECTIONS TO INLETS OR MANHOLES IN MEDIAN SHALL USE PIPE UNDERDRAIN, 6-INCH.

2) PROVIDE TWO 6" DIA OPENINGS FOR UNDERDRAIN PIPE.

3) SEE TYPICAL SECTIONS, STORM SEWER, AND UNDERDRAIN PLANS FOR PIPE UNDERDRAIN LOCATIONS.

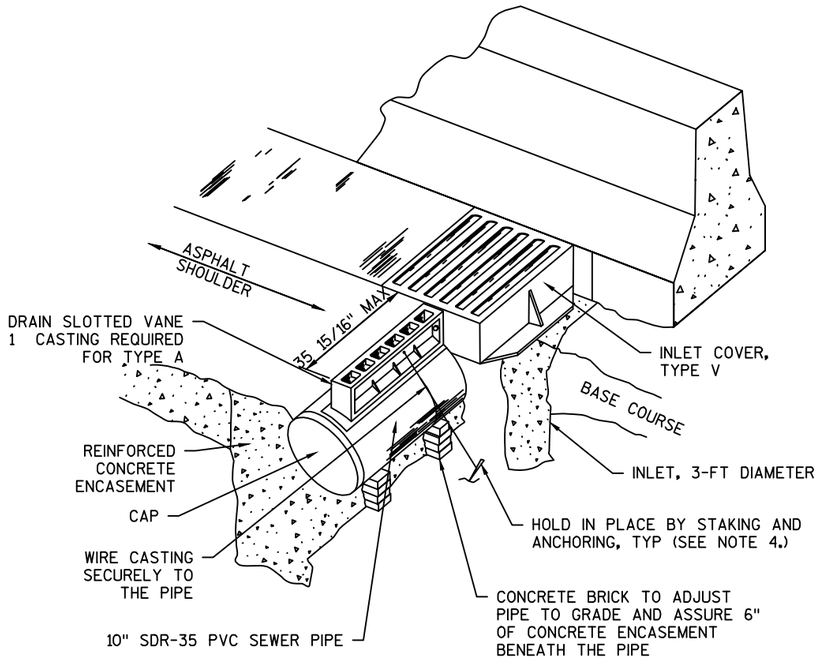


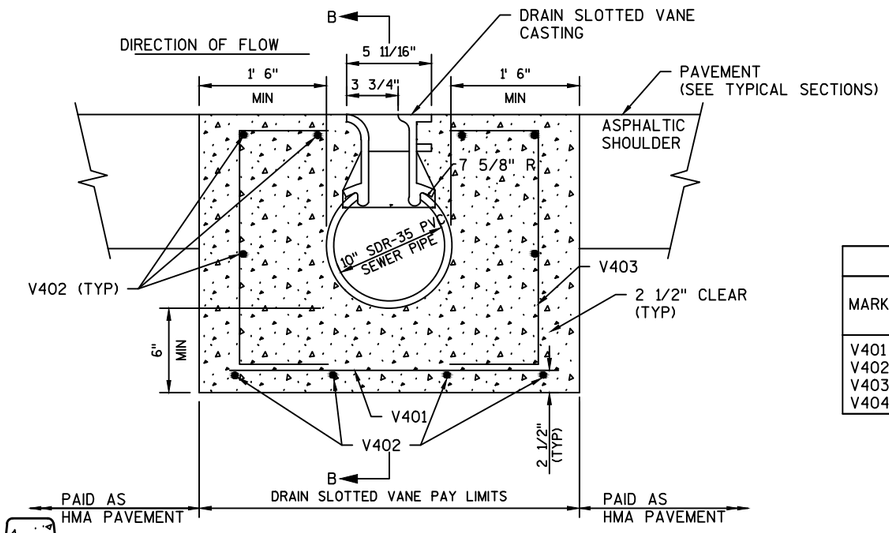
PLAN VIEW



SECTION C-C

UNDERDRAIN OUTFALL AT INLET





SECTION A-A

NOTES

1) THE FIRST DIGIT OF BAR MARK SIGNIFIES THE BAR SIZE.
2) ALL DIMENSIONS ARE OUT TO OUT OF BAR.
3) ALL REINFORCEMENT BARS SHALL BE EPOXY-COATED.
4) APPROXIMATE WEIGHT OF DRAIN SLOTTED VANE CASTING = 87 POUNDS.
5) THE CASTING AND PVC PIPE SHALL BE SECURELY STAKED AND ANCHORED INTO PLACE DURING THE PLACEMENT OF THE CONCRETE ENCASEMENT.

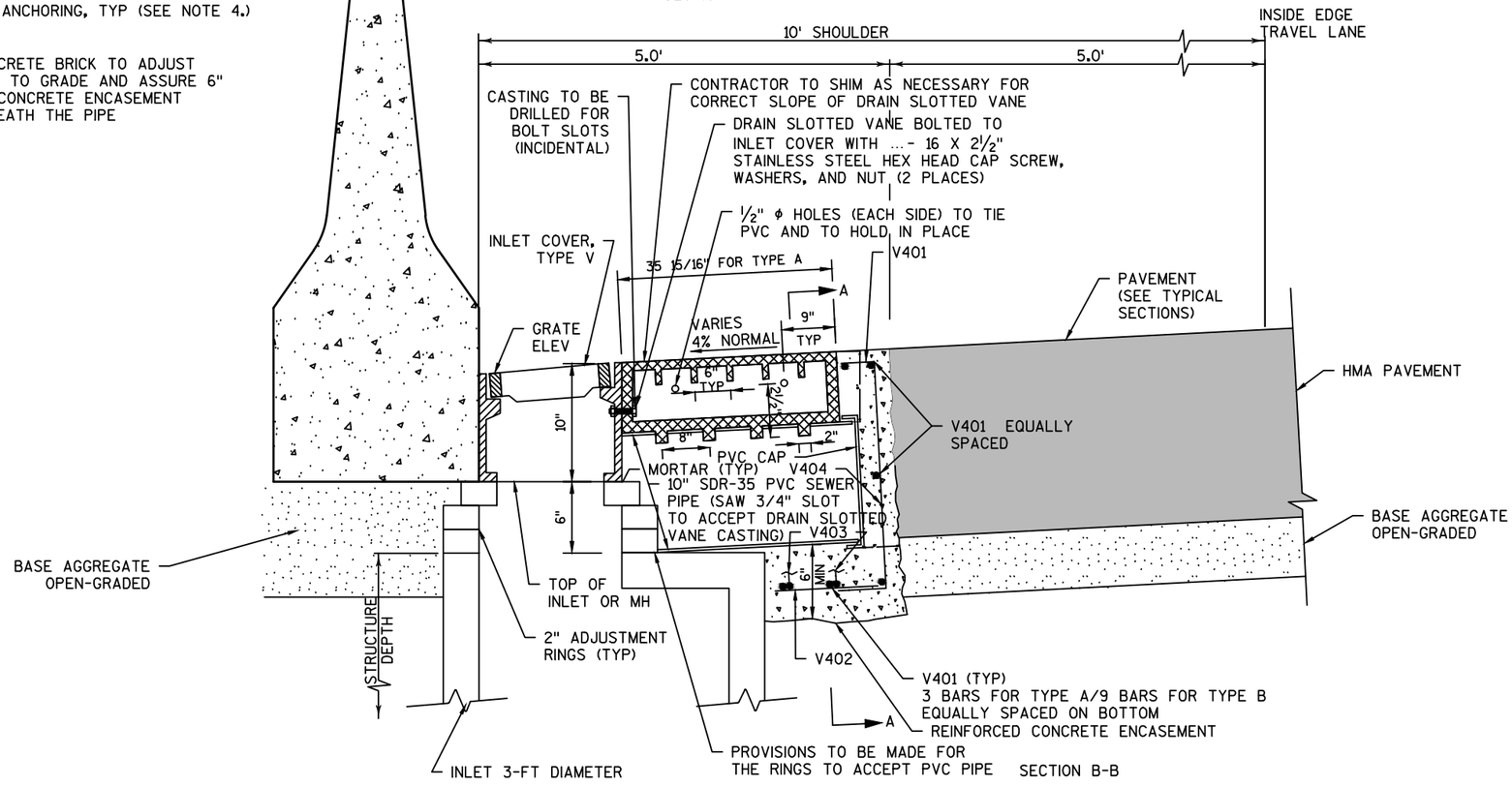
BILL OF BARS *

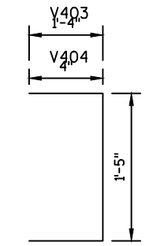
MARK	NO. REQUIRED TYPE A (3')	LENGTH TYPE A (3')	BENT	COAT	LOCATION
V401	6	3'-11"		X	HORIZ.. - END/BOTTOM
V402	10	**		X	HORIZ.. - SIDES/TOP/BOTTOM
V403	4	4'-1"	X	X	VERTICAL - SIDES
V404	3	2'-1"	X	X	VERTICAL - END

* INCIDENTAL TO THE ITEM OF DRAIN SLOTTED VANE

**

	A (3')
TOP 4	2'-6"
SIDE 2	2'-0"
BOTTOM 4	1'-3"

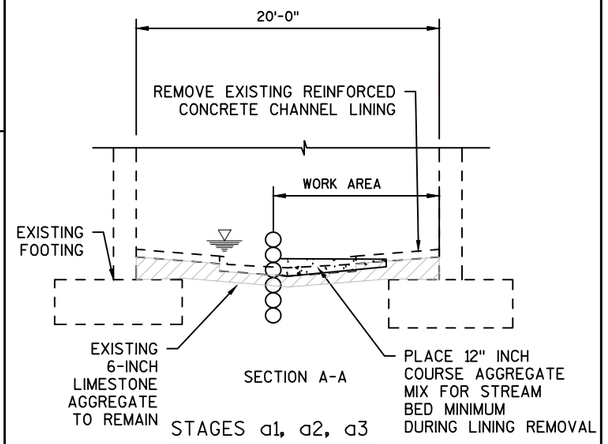




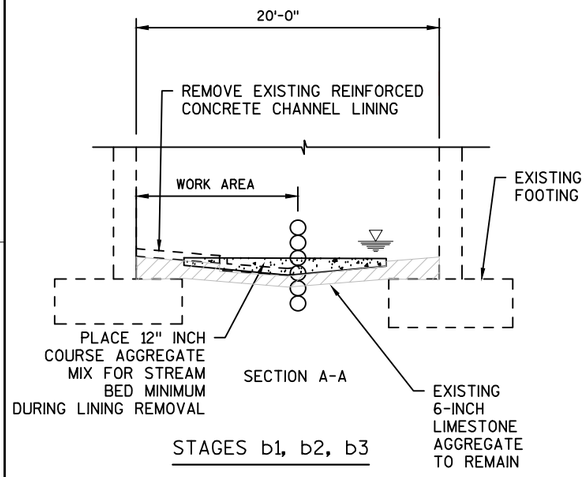
V403, V404

DRAIN SLOTTED VANE, TYPE A

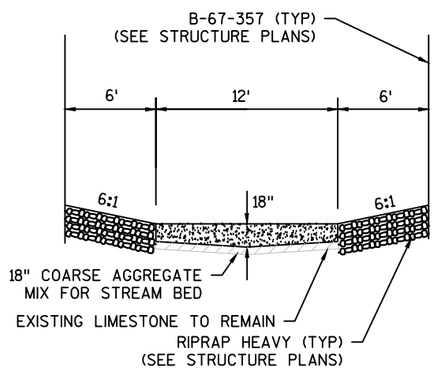
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION DETAILS	SHEET 18	E



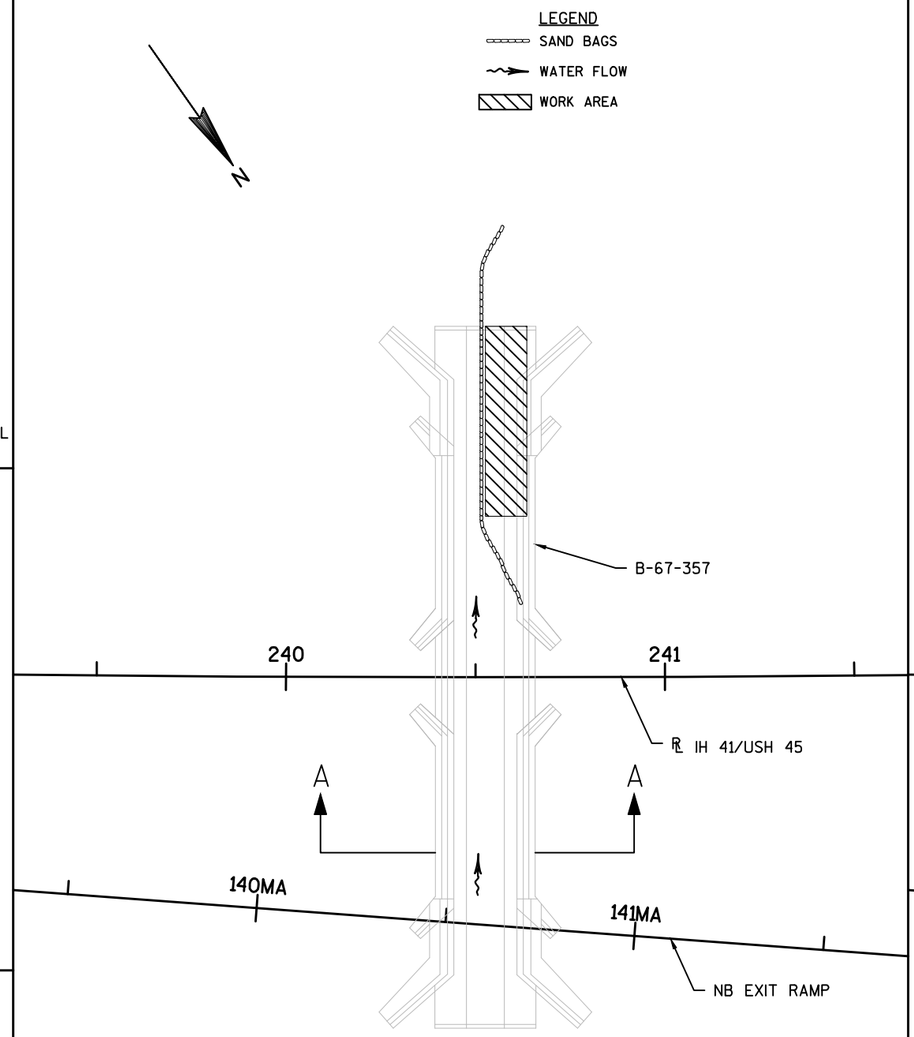
STAGES a1, a2, a3



STAGES b1, b2, b3



COARSE AGGREGATE MIX FOR STREAM BED



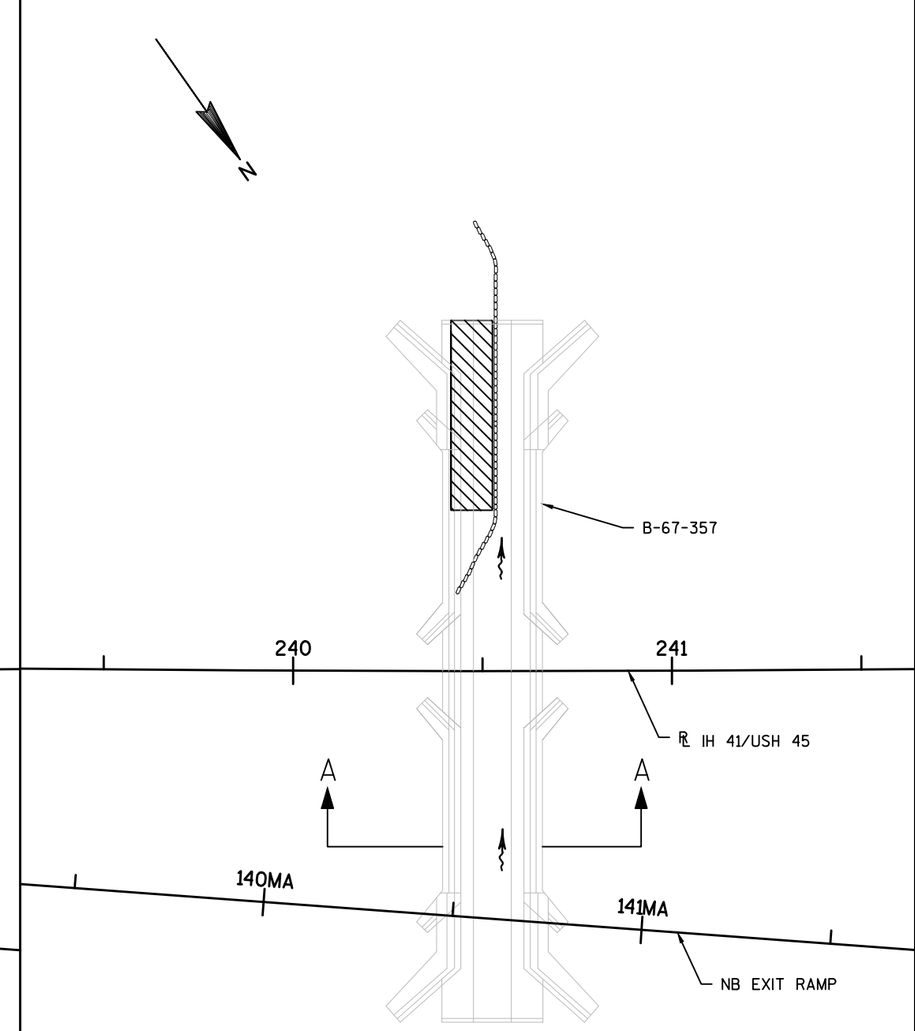
NOTES

1) INSTALL SAND BAGS AS SHOWN AND DIRECT STREAM FLOW TO EAST SIDE. SAND BAGS AND REMOVING EXISTING REINFORCED CONCRETE CHANNEL LINING ON WEST SIDE INCIDENTAL TO BID ITEM REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 240+52.61

2) DIRECT CHANNEL FLOW AND DEWATER WORK ZONE AS NECESSARY USING METHODS APPROVED BY THE ENGINEER.

3) PLACE A MINIMUM OF 12 INCHES OF COARSE AGGREGATE FOR STREAM BED DURING REMOVAL OF CONCRETE LINING. REMAINING 6 INCHES SHALL BE PLACED AT THE STREAM BED ELEVATION.

STAGE a1



NOTES

1) INSTALL SAND BAGS AS SHOWN AND DIRECT STREAM FLOW TO WEST SIDE. SAND BAGS AND REMOVING EXISTING REINFORCED CONCRETE CHANNEL LINING ON EAST SIDE INCIDENTAL TO BID ITEM REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 240+52.61

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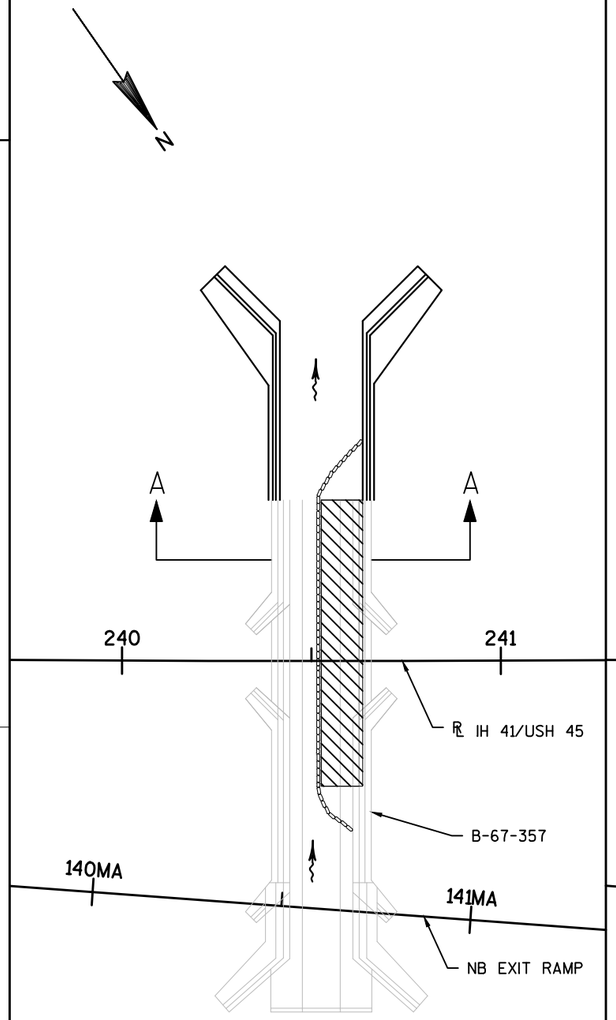
STAGE b1

CHANNEL LINING REMOVAL

2



NOTES

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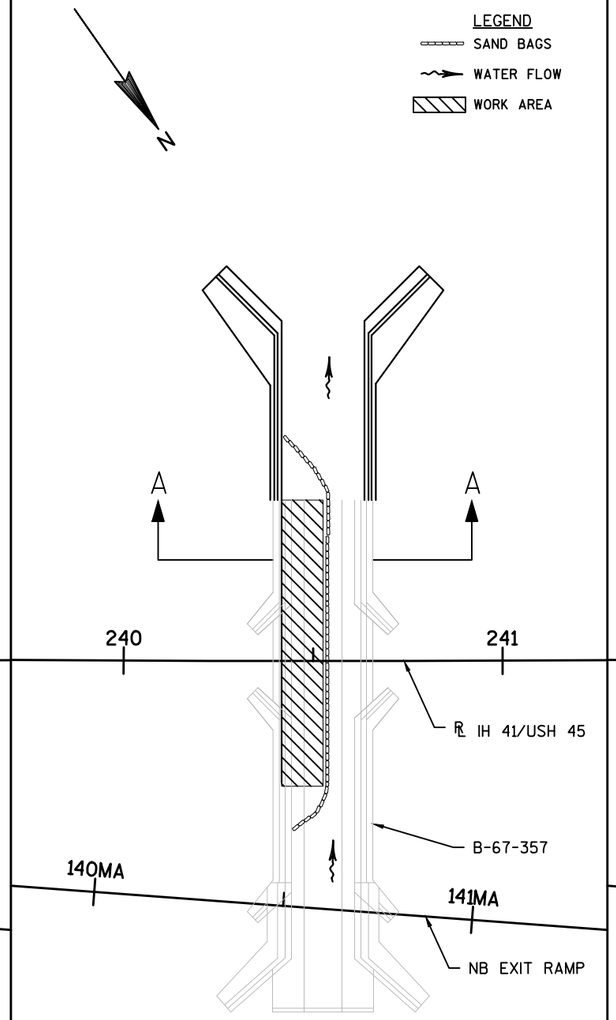
STAGE a2



NOTES

1) INSTALL SAND BAGS AS SHOWN AND DIRECT STREAM FLOW TO WEST SIDE. SAND BAGS AND REMOVING EXISTING REINFORCED CONCRETE CHANNEL LINING ON EAST SIDE INCIDENTAL TO BID ITEM REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 240+52.61

2) DIRECT CHANNEL FLOW AND DEWATER WORK ZONE AS NECESSARY USING METHODS APPROVED BY THE ENGINEER.

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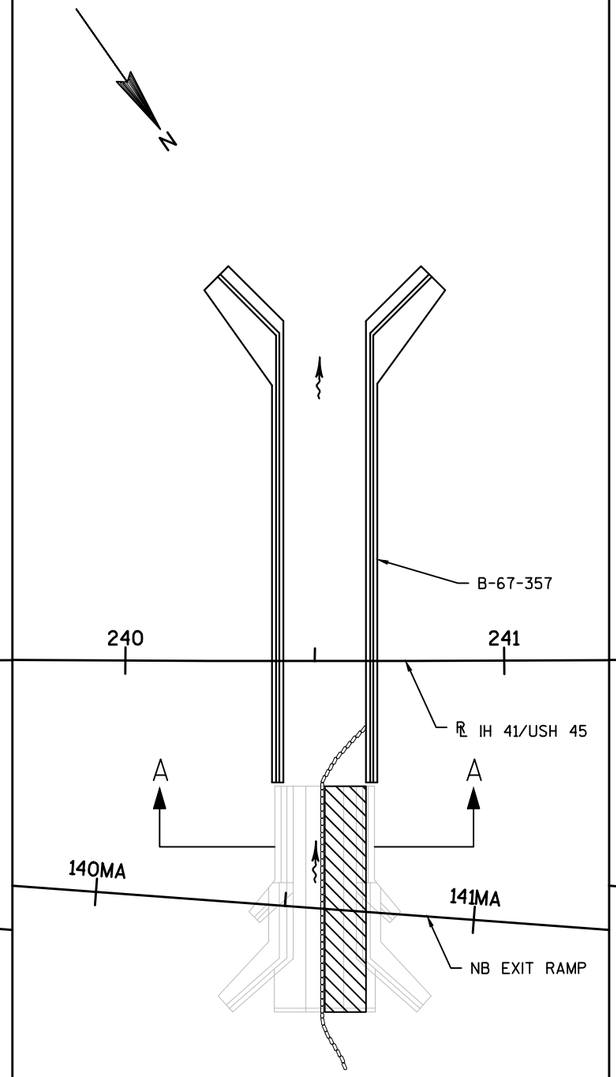
STAGE b2



NOTES

11) INSTALL SAND BAGS AS SHOWN AND DIRECT STREAM FLOW TO EAST SIDE. SAND BAGS AND REMOVING EXISTING REINFORCED CONCRETE CHANNEL LINING ON WEST SIDE INCIDENTAL TO BID ITEM REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 240+52.61

2) DIRECT CHANNEL FLOW AND DEWATER WORK ZONE AS NECESSARY USING METHODS APPROVED BY THE ENGINEER.

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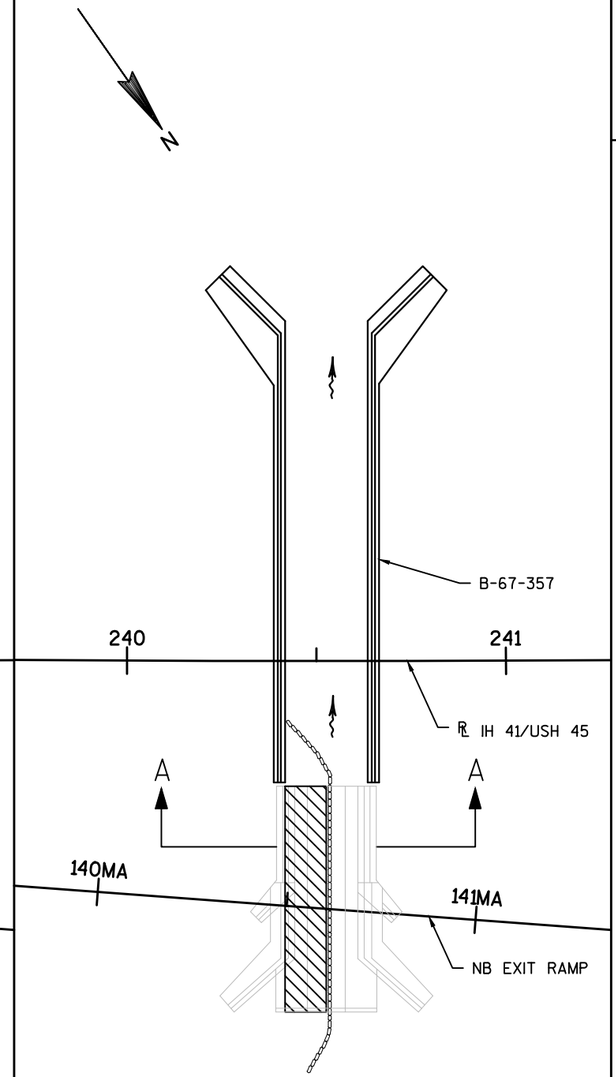
STAGE a3



NOTES

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STAGE b3

2

CHANNEL LINING REMOVAL

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION DETAILS	SHEET 20	E

2

RAMP MA DRIVING LANE

N

REMOVE EXISTING
STORM SEWER

EDGE OF SHOULDER

℄ RAMP MA

STORM SEWER
STRUCTURE 1003A

141+00MA

CONCRETE COLLAR

+96.48
1.28'

+96.70
4.27'

MANHOLE COVER TYPE J

CONCRETE BARRIER
32-INCH SPECIAL

2

STORM SEWER
STRUCTURE 1002A

+05.55
5.37'

CONCRETE COLLAR

+05.57
8.37'

INSIDE OF MANHOLE 8-FT DIAMETER (TYP)

OUTSIDE OF MANHOLE 8-FT DIAMETER (TYP)

B-67-357 WINGWALL 2
(SEE STRUCTURE PLANS)

STORM SEWER PIPE 48-INCH

SEE STORM SEWER
PLANS FOR ADDITIONAL
INFORMATION

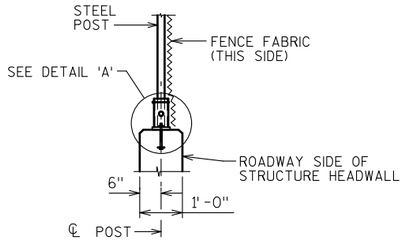
MANHOLE RIM LOCATION DETAIL
STA 140+96.70
STA 141+05.55

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION DETAILS	SHEET 21	E

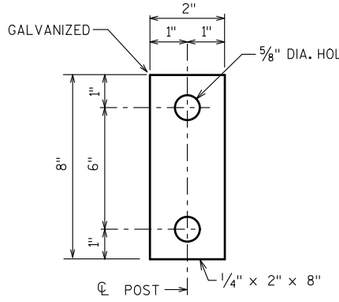
FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021004-CD.DWG
LAYOUT NAME - 021014-CD

PLOT DATE : 1/30/2017 1:51 PM PLOT BY : HENRYKA GASIK PLOT NAME : PLOT SCALE : 1 IN:5 FT

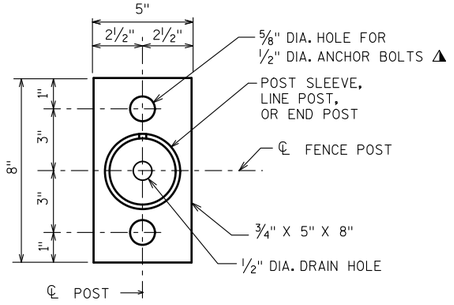
WISDOT/CADDS SHEET 42



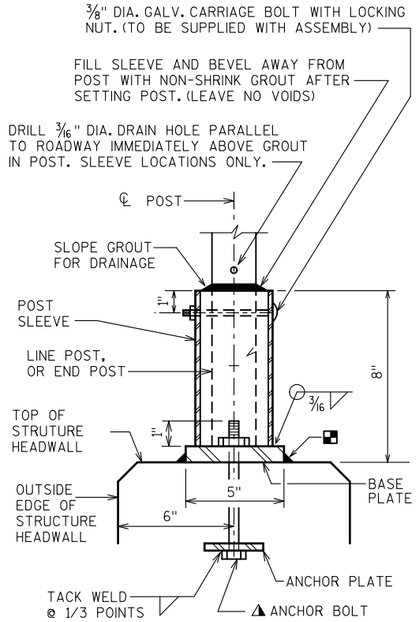
SECTION THRU FENCE



ANCHOR PLATE



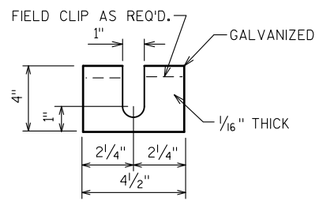
BASE PLATE



DETAIL 'A'

UNIT SHALL BE GALVANIZED AFTER FABRICATION

NOTE: IN LIEU OF USING THE POST SLEEVE, THE FENCE POST MAY BE WELDED TO THE BASE PLATE.



POST SHIM DETAILS

SHIMS REQUIRED ONLY WHEN END POSTS AND LINE POSTS ARE WELDED TO BASE PLATES. PROVIDE 4 SHIMS PER POST. USE WHERE REQUIRED FOR ALIGNMENT.

FENCE MEMBER SIZE & WEIGHT

STEEL FENCE MEMBER	OUTSIDE DIAMETER (INCHES)	WEIGHT (LB/FT)
LINE POST	2.375	3.65
POST SLEEVE	4.000	9.12

NOTES

THE POST ANCHOR ASSEMBLY SHALL BE FURNISHED BY THE FENCE CONTRACTOR AND INSTALLED BY THE STRUCTURE CONTRACTOR.

SEE STANDARD DETAIL DRAWINGS FOR DETAILS NOT SHOWN ON THIS SHEET.

COMPLETE ANY REQUIRED WELDING OF COMPONENTS BEFORE GALVANIZING.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

BASE PLATES, ANCHOR PLATES AND SHIMS SHALL BE ASTM A709, GRADE 36.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG THE C/L OF THE POST.

■ CAULK AROUND PERIMETER OF BASE PLATE AND FILL PORTION OF SLOTTED HOLE AROUND ANCHOR BOLT IN SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

◭ ½" DIA. X 6⅞" LONG GALVANIZED HEX BOLT WITH NUT & WASHER. ☆

☆ ALTERNATIVE ANCHORAGE: CONCRETE ADHESIVE ANCHORS 1/2-INCH. EMBED 7" IN CONCRETE. ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARDD SPECIFICATIONS. ADHESIVE ANCHORS, IF USED, SHALL BE INSTALLED BY THE FENCE CONTRACTOR.

CHAIN LINK FENCE ANCHORAGE DETAILS

LEGEND

XXXX SAWCUT

MILL OFF 2" OF EXISTING PAVEMENT. PLACE 2" HMA PAVEMENT. STA. 231+65 TO 235+96.50 STAGE 1C

ASPHALTIC SURFACE TEMPORARY 5 1/2-INCH

SLOPE INTERCEPT

R=11426.64'

+65.27
-68.09'

+25.70
-69.91'

+90.24
-69.72'

R=7103.83'

R=10536.63'

BEGIN TEMPORARY WIDENING
STA. 231+65

234MD

235MD

IH 41/USH 45 SB

IH 41/USH 45 NB

230+00

231+00

232+00

233+00

234+00

235+00

MATCH LINE STA 235+75

WISDOT STOC

WE ENERGIES/TCA

R/W

SIGN

MH

INL

12" RCP

N

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PLAN DETAIL TEMPORARY WIDENING	SHEET 23	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021201-PD.DWG
LAYOUT NAME - 021200-pd

PLOT DATE : 2/1/2017 2:43 PM PLOT BY : HENRYKA GASIK PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

NOTES

1. PLACE ASPHALT PAVEMENT WEDGE AT SB ENTRANCE RAMP DURING STAGE 1, SEE CONSTRUCTION DETAIL. REMOVE ASPHALT WEDGE DURING STAGE 5.

2. VERIFY PAVING GRADES FOR STAGE 5 PRIOR TO PLACING ASPHALTIC WEDGE. SEE PLAN DETAIL SHEETS FOR PAVING GRADES.

3. TEMPORARY PAVEMENT ALONG SB SHOULDER TO MATCH EXISTING SHOULDER AND HAVE A 2% SLOPE TOWARDS OUTSIDE EDGE.

LEGEND

XXXX SAWCUT

STAGE 1B

PLACE COVER PLATE TEMPORARY OVER MANHOLE RIM PRIOR TO PLACING FILL FOR TEMPORARY WIDENING

MILL OFF 2" OF EXISTING PAVEMENT. PLACE 2" HMA PAVEMENT. STA. 231+65 TO 235+96.50 STAGE 1C

BEGIN TEMPORARY WIDENING STA. 235+96.50

BUTT JOINT REQUIRED

PLACE ASPHALTIC WEDGE OVER EXISTING PAVEMENT STA. 235+96.50 TO 243+50

TRANSITION SUPERELEVATION STA. 238+50 TO 240+00

SLOPE INTERCEPT

RAMP MD

PLACE ASPHALTIC SURFACE TEMPORARY

SLOPE INTERCEPT

REMOVING ASPHALTIC SURFACE MILLING

WARP PAVEMENT TO DRAIN TO TEMPORARY VANE DRAIN

ASPHALTIC SURFACE TEMPORARY 5 1/2-INCH

15" CLASS V

REMOVE CONCRETE BASE

CONNECT CULVERT PIPE TO INLET

5 1/2-INCH HMA PAVEMENT

IH 41/USH 45 SB

IH 41/USH 45 NB

MATCH LINE STA 235+75

MATCH LINE STA 241+75

REMOVE CONCRETE BARRIER STA. 235+80 TO 244+80 SAWCUT REQUIRED

CONSTRUCT DRAIN SLOTTED VANE LONGITUDINAL STA. 235+85 TO 238+00. MATCH EDGE OF EXISTING NB PAVEMENT. SLOPE MEDIAN AREA AWAY AT 2% UNTIL TEMPORARY VANE DRAIN. SLOPE PAVEMENT ALONG SB LANES TOWARDS TEMPORARY VANE DRAIN. EDGES IN SB DIRECTION MAY NOT MATCH.

VILLAGE OF MENOMONEE FALLS

PLACE HMA PAVEMENT 5 1/2-INCH FOR FIRST 6'

REMOVE CONCRETE PAVEMENT RUMBLE STRIPS STA. 236+50 TO 240+40 SEE CONSTRUCTION DETAIL

WISDOT STOC

SAWING CONCRETE

CONCRETE PAVEMENT HES 10 1/2-INCH

WE ENERGIES/TCA

R/W

TLE

NOR-X-WAY CHANNEL

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PLAN DETAIL TEMPORARY WIDENING	SHEET 24	E

2

2

LEGEND

XXXX SAWCUT

244ME

245ME

246ME

247ME

248

RAMP ME

36" RCCP

WISDOT LIGHTING

R=11431.25'

ASPHALTIC SURFACE TEMPORARY 5 1/2-INCH

SLOPE INTERCEPT

END TEMPORARY WIDENING

WISDOT STOC

+85.90
-65.97'

+10.00
-60.64'

+10.00
-47.06'

2.0%

10'

12'

5 1/2-INCH HMA PAVEMENT

IH 41/USH 45 SB

AT&T WISCONSIN

+80.00
-12.00'

CONSTRUCT FLOW LINE STA 241+50 - 244+80. MATCH EDGE OF EXISTING NB PAVEMENT. SLOPE MEDIAN AREA AWAY AT 2% UNTIL FLOW LINE. WARP PAVEMENT TO DRAIN INTO INLETS

ASPHALTIC SURFACE TEMPORARY 5 1/2-INCH

MATCH LINE STA 241+75

242+00

245+00

246+00

247+00

1.0%

6'

PLACE INLET GRATES TO MATCH TEMPORARY PAVEMENT

REMOVE CONCRETE BARRIER STA. 235+85 TO 244+80 SAWCUT REQUIRED

+80.00
12.00'

IH 41/USH 45 NB

END TEMPORARY WIDENING
SAWCUT REQUIRED

+90.00
57.14'

PLACE HMA PAVEMENT 5 1/2-INCH FOR FIRST 6'

BEGIN TEMPORARY WIDENING
SAWCUT REQUIRED

+50.00
47.80'

5 1/2-INCH HMA PAVEMENT

+50.70
72.08'

+19.25
64.28'

+90.00
69.50'

WISDOT LIGHTING

142MA

143MA

144MA

REMOVE CONCRETE SURFACE DRAIN

SLOPE INTERCEPT

RAMP MA

145MA

WE ENERGIES

ASPHALTIC SURFACE TEMPORARY 5 1/2-INCH

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PLAN DETAIL TEMPORARY WIDENING	SHEET 25	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021201-PD.DWG
LAYOUT NAME - 021202-pd

PLOT DATE : 2/21/2017 3:25 PM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

2

2

LEGEND

XXXX SAWCUT

5 1/2-INCH BASE AGGREGATE DENSE 3/4-INCH

SAWCUT AND REMOVE ASPHALTIC SURFACE

SLOPE INTERCEPT

+25.68
-70.42'

2"

8"

234MD

235MD

12" RCCP

IH 41/USH 45 SB

IH 41/USH 45 NB

MATCH LINE STA 235+75

R/W

WISDOT STOC

WE ENERGIES/TCA

SIGN

MH

OH

INL

E

W

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PLAN DETAIL	SHEET	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021202-PD.DWG
LAYOUT NAME - 021203-pd

PLOT DATE : 2/1/2017 12:47 PM PLOT BY : HENRYKA GASIK PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

NOTES

1. REFER TO CONSTRUCTION DETAIL AND SDD FOR BEAMGUARD LONGSPAN POST LAYOUT AT PROPOSED STRUCTURE B-67-357.

2. VERIFY FINAL PAVING GRADES ON RAMP MD PRIOR TO PLACING ASPHALTIC WEDGE IN STAGE 1C.

LEGEND

XXXX SAWCUT

N

R/W

SLOPE INTERCEPT

SAWCUT AND REMOVE ASPHALTIC SURFACE

BUTT JOINT REQ'D

REMOVE ASPHALTIC WEDGE. MILL AND OVERLAY 2 INCHES HMA PAVEMENT.

RAMP MD

+96.50 -73.16' 762.09

+48.03 -74.67' 761.06

236MD 762.33

237MD 760.71

238MD 759.26

239MD 758.81

240MD 759.10

+00.44 -130.44'

+96.97 -53.84'

+91.79 -68.77' R=3'

+85.06 -86.16'

+40.78 -58.00'

+53.39 -60.00'

MGS GUARDRAIL TERMINAL TYPE 2

SAWCUT PAVEMENT 10'-12' OFFSET FROM EDGE OF DRIVING LANE

STAGE 5 FINAL GRADING TO UNCOVER MANHOLE RIM

SAWCUT REQUIRED TYP

IH 41/USH 45 SB

IH 41/USH 45 NB

5 1/2-INCH HMA PAVEMENT

BEGIN PROJECT STA. 240+00

END PROJECT STA. 241+00

MATCH LINE STA 235+75

MATCH LINE STA 241+75

+80.00 -12.00'

+80.00 6.00'

CONCRETE BARRIER 51-INCH SPECIAL CONNECT TO EXISTING

ADJUSTING STEEL PLATE BEAMGUARD

CONCRETE PAVEMENT 10 1/2-INCH

MGS THRIE BEAM TRANSITION

REDECK STRUCTURE B-67-56 (SEE BRIDGE PLANS)

CONCRETE SURFACE DRAIN

BUTT JOINT REQ'D

END CONSTRUCTION STA. 241+70

CONCRETE APPROACH SLAB

MGS GUARDRAIL TERMINAL EAT

EMULSIFIED ASPHALT

MGS THRIE BEAM TRANSITION

CONCRETE PAVEMENT 10 1/2-INCH

SLOPE INTERCEPT

VARIABLE DEPTH HMA PAVEMENT, MATCH APPROACH SLAB

MGS GUARDRAIL 3 SEE NOTE 1

BASE AGGREGATE DENSE 3/4-INCH

EMULSIFIED ASPHALT

758.89 759.10 758.91 758.72 758.91 758.72

758.70 758.91 758.72 758.53 758.72 758.53

758.51 758.72 758.53 758.34 758.53 758.34

9 1/2-INCH HMA PAVEMENT

5 1/2-INCH HMA PAVEMENT

VILLAGE OF MENOMONEE FALLS

9 1/2-INCH HMA PAVEMENT

SAWCUT REQUIRED

PROPOSED STRUCTURE B-67-357 (SEE BRIDGE PLANS)

138MA 139MA 140MA 141MA

CONCRETE PAVEMENT 10 1/2-INCH

CONCRETE BARRIER SINGLE FACED 32-INCH SPECIAL CONNECT TO EXISTING

+00.00 72.90'

CHAIN LINK FENCE 6-FT

+16.50 81.60'

WISDOT STOC

WE ENERGIES/TCA

R/W

NOR-X-WAY CHANNEL

TLE

SLOPE INTERCEPT

CHAIN LINK FENCE 6-FT

CONCRETE BARRIER SINGLE FACED 32-INCH SPECIAL CONNECT TO EXISTING

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PLAN DETAIL	SHEET 27	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021202-PD.DWG
LAYOUT NAME - 021204-pd

PLOT DATE : 2/17/2017 2:31 PM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

2

LEGEND

XXXX SAWCUT

244ME

245ME

246ME

247ME

248

36" RCCP

RAMP ME

N

WISDOT LIGHTING

SLOPE INTERCEPT

MGS GUARDRAIL TERMINAL EAT

BASE AGGREGATE DENSE 3/4 INCH

SAWCUT REQUIRED REMOVE TEMP WIDENING

+48.00 18.00'

+70.90 18.00'

R=3'

R=4.5'

WISDOT STOC

+67.76 -58.00'

MGS GUARDRAIL 3

EMULSIFIED ASPHALT

+00.36 -60.00'

+30.69 -58.00'

12"

10"

2"

AT&T WISCONSIN

IH 41/USH 45 SB

+80.00 -12.00'

ADJUSTING INLET COVERS

5 1/2-INCH HMA PAVEMENT

4%

242

246

245

247

+80.00 6.00'

CONCRETE BARRIER 51-INCH SPECIAL CONNECT TO EXISTING

IH 41/USH 45 NB

MATCH LINE STA 241+75

SAWCUT REQUIRED REMOVE TEMP WIDENING

MILL 2 INCHES EXISTING PAVEMENT PLACE 2 INCHES HMA PAVEMENT REMOVE TEMP WIDENING

+80.48 57.49'

10"

+90.00 67.49'

2"

+30.00 -21.76'

R=4.5'

R=3'

WISDOT LIGHTING

SLOPE INTERCEPT

+25.01 -18.00'

BUTT JOINT REQ'D

142MA

143MA

144MA

BASE AGGREGATE DENSE 3/4 INCH

+30.00 0.00'

WE ENERGIES/TCA

MILL 2-INCH HMA PAVEMENT PLACE 2-INCH HMA PAVEMENT

145MA

RAMP MA

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PLAN DETAIL	SHEET 28	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\021202-PD.DWG
LAYOUT NAME - 021205-pd

PLOT DATE : 2/1/2017 12:47 PM PLOT BY : HENRYKA GASIK PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

2

LEGEND

- EROSION MAT CLASS II, TYPE B
- SILT FENCE
- HEAVY DUTY SILT FENCE
- RIP RAP MEDIUM
- TURBIDITY BARRIER
- TEMPORARY DITCH CHECK
- CULVERT PIPE CHECKS
- INLET PROTECTION TYPE D
- SURFACE WATER FLOW

PHONE
INL
SIGN
W
E
OH
SSS
MH
R/W
TLE

CONTINUE TEMPORARY SEED, FERTILIZER AND EROSION MAT TO STA 232+25

SLOPE INTERCEPT

RAMP MD

B-67-56

CREATE TEMPORARY DRAINAGE DITCH REQUIRED FOR STRUCTURE CONSTRUCTION. RESTORE TO ORIGINAL AT END OF STAGE 1. SEE CONSTRUCTION DETAIL

WETLAND BOUNDARY

HEAVY RIPRAP TO EXTEND 3' BEYOND WING TIP

B-67-357

HEAVY RIPRAP (SEE STRUCTURE PLANS)

PLACEMENT OF ITEMS UNDER STRUCTURE FOLLOWS STAGING OPERATIONS

COARSE AGGREGATE MIX FOR STREAM BED (SEE DETAIL)

MATCH LINE STA 242+00

NOR-X-WAY CHANNEL

IH 41/USH 45 SB

IH 41/USH 45 NB

235MD 236MD 238MD 240MD 242MD

235 236 238 240

138MA 140MA 142MA

N

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	EROSION CONTROL STAGES 1 & 2	SHEET 29	E

2

LEGEND

- EROSION MAT CLASS II, TYPE B
- SILT FENCE
- HEAVY DUTY SILT FENCE
- RIP RAP MEDIUM
- TURBIDITY BARRIER
- TEMPORARY DITCH CHECK
- CULVERT PIPE CHECKS
- INLET PROTECTION TYPE D
- SURFACE WATER FLOW

WETLAND BOUNDARY

SLOPE INTERCEPT

244ME

246ME

248ME

RAMP ME

36" RCCP

18" RCCP

IH 41/USH 45 SB

IH 41/USH 45 NB

245

246

248

MATCH LINE STA 242+00

STAGE 1C
CULVERT PIPE CHECK

SLOPE INTERCEPT

WETLAND BOUNDARY

144MA

RAMP MA

146MA

TEMP SEED
MUST BE ESTABLISHED
PRIOR TO DEWATERING
SEDIMENT FREE WATER

STH 100/MAIN STREET

R/W

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	EROSION CONTROL STAGES 1 & 2	SHEET 30	E

LEGEND

- EROSION MAT CLASS II, TYPE B
- SILT FENCE
- HEAVY DUTY SILT FENCE
- RIP RAP MEDIUM
- TURBIDITY BARRIER
- TEMPORARY DITCH CHECK
- CULVERT PIPE CHECKS
- INLET PROTECTION TYPE D
- SURFACE WATER FLOW

2

B-67-56

R/W

242MD

N

WETLAND BOUNDARY

SLOPE INTERCEPT

CONTINUE TEMPORARY SEED, FERTILIZER AND EROSION MAT TO STA 232+25

SLOPE INTERCEPT

240MD

RAMP MD

238MD

236MD

B-67-357

IH 41/USH 45 SB

236

238

240

MATCH LINE STA 242+00

IH 41/USH 45 NB

138MA

140MA

142MA

WETLAND BOUNDARY

R/W

TLE

SLOPE INTERCEPT

NOR-X-WAY CHANNEL

PHONE

INL

SIGN

MH

OH

SSS

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	EROSION CONTROL STAGES 3 & 5	SHEET	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\022002-EC.DWG
LAYOUT NAME - 022003-EC
PLOT DATE : 2/1/2017 1:42 PM
PLOT BY : HENRYKA GASIK
PLOT NAME :
PLOT SCALE : 1 IN:50 FT
WISDOT/CADDS SHEET 44

2

LEGEND

- EROSION MAT CLASS II, TYPE B
- SILT FENCE
- HEAVY DUTY SILT FENCE
- RIP RAP MEDIUM
- TURBIDITY BARRIER
- TEMPORARY DITCH CHECK
- CULVERT PIPE CHECKS
- INLET PROTECTION TYPE D
- SURFACE WATER FLOW

WETLAND BOUNDARY

SLOPE INTERCEPT

244ME

246ME

248ME

RAMP ME

36" RCCP

18" RCCP

IH 41/USH 45 SB

IH 41/USH 45 NB

246

248

MATCH LINE STA 242+00

STAGE 3
DEWATERING FOR BYPASSING
SEDIMENT FREE WATER
SEE CONSTRUCTION DETAIL

SLOPE INTERCEPT

WETLAND BOUNDARY

144MA

RAMP MA

146MA

SIGN

R/W

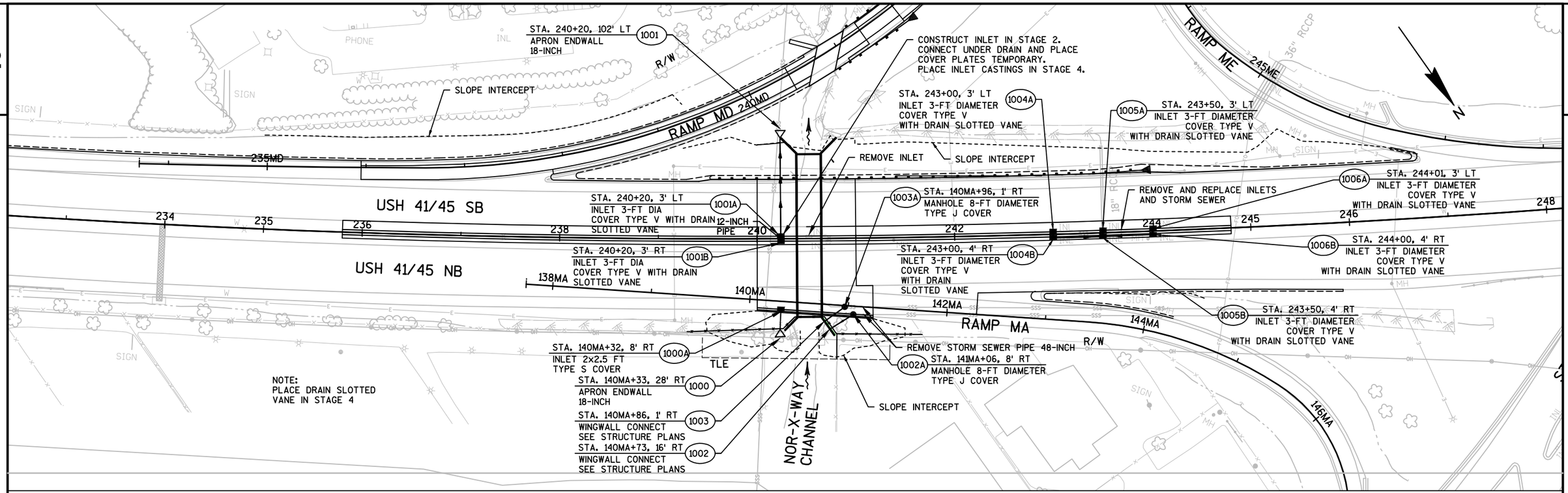
STH 100/MAIN STREET

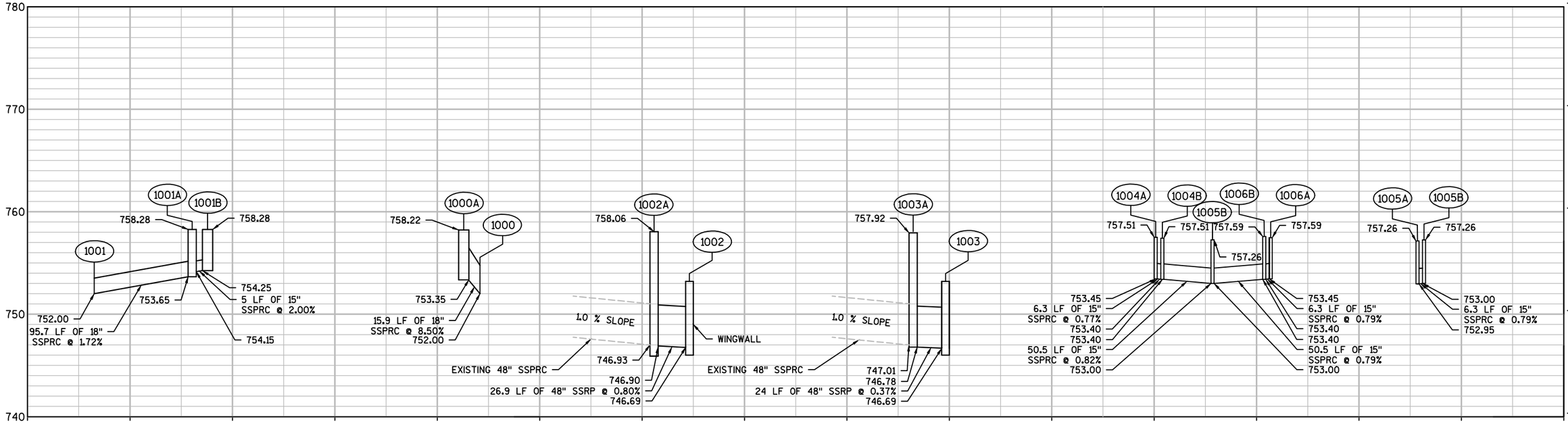
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	EROSION CONTROL STAGES 3 & 5	SHEET 32	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\022002-EC.DWG
LAYOUT NAME - 022004-EC

PLOT DATE : 2/1/2017 1:42 PM PLOT BY : HENRYKA GASIK PLOT NAME : PLOT SCALE : 1 IN:50 FT

WISDOT/CADDS SHEET 44





PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	STORM SEWER	SHEET 33	E

2

2

N

IH 41/USH 45 SB

IH 41/USH 45 NB

RAMP MD

1 W5-52L MOVE TO NEW POST

2 W5-52R MOVE TO NEW POST

3 REMOVE

4 WEST 41 45 MILE 50 .6 D10-5A MOVE ON LIGHT POLE

5 NORTH 41 45 MILE 50 .6 D10-5A MOVE ON LIGHT POLE

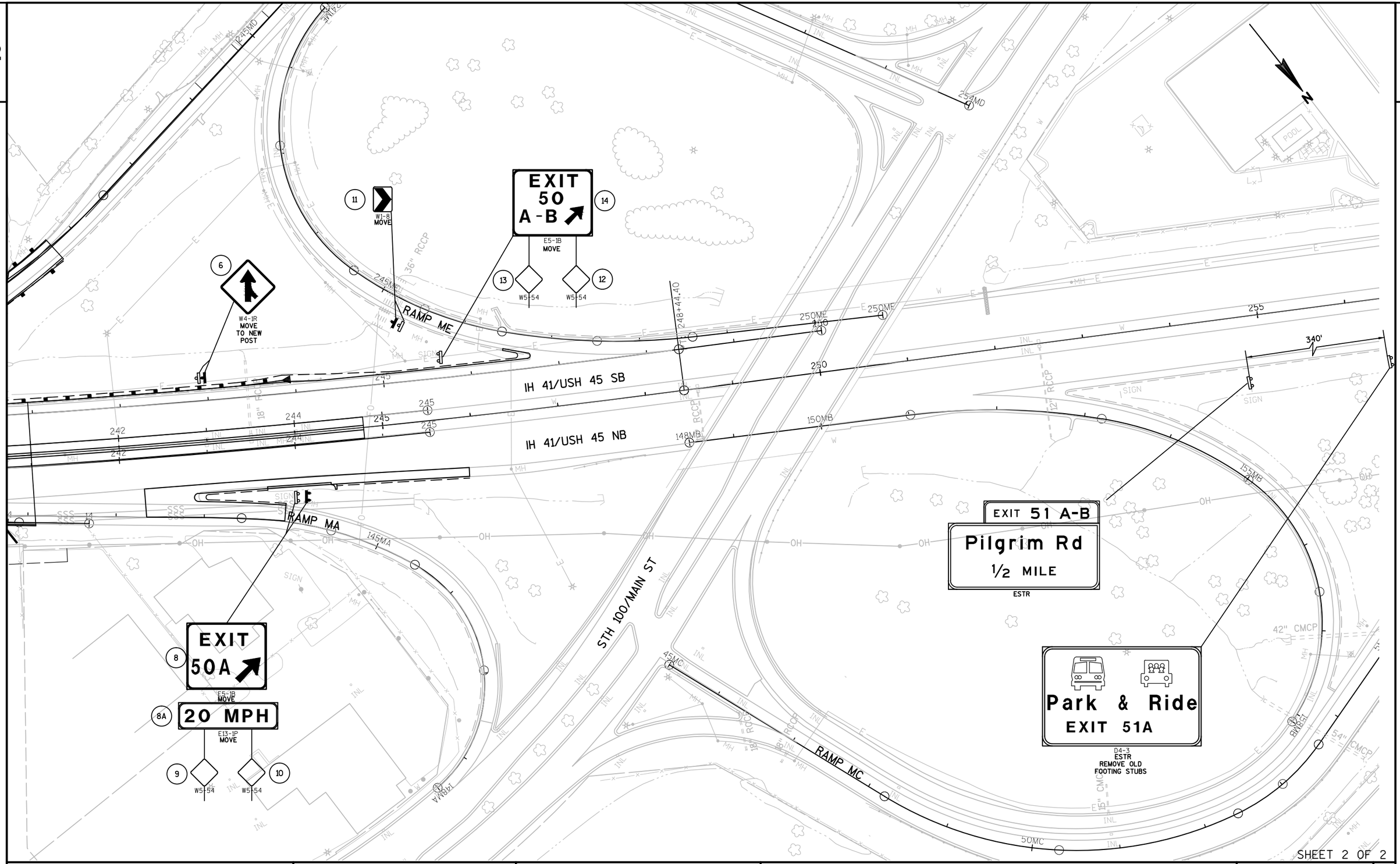
SHEET 1 OF 2

PROJECT NO: 1100-36-72	HWY: IH 41	COUNTY: WAUKESHA	PERMANENT SIGNING	SHEET 34	E

FILE NAME : N:\PDS\C3D\CAD\11003600\SIGN\023201_PS.DWG
LAYOUT NAME - 023201_PS

PLOT DATE : 10/28/2016 6:45 AM PLOT BY : DODGE, BRIAN M PLOT NAME : PLOT SCALE : 1 IN:100 FT

2



SHEET 2 OF 2

PROJECT NO: 1100-36-72	HWY: IH 41	COUNTY: WAUKESHA	PERMANENT SIGNING	SHEET 35	E

FILE NAME : N:\PDS\C3D\CAD\11003600\SIGN\023201_PS.DWG
LAYOUT NAME - 023202_PS
PLOT DATE : 10/28/2016 6:45 AM PLOT BY : DODGE, BRIAN M PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

EXISTING CABINET TO REMAIN

HL-67-VS	
R, U, X	RED
S, V, Y	BLACK
T, W, Z	WHITE
N	WHITE
GND	GREEN OR BARE
480Y/277 VAC 4 WIRE ISOLATED NEUTRAL	

N

IH 41/USH 45

MAIN STREET

STH 74/100

B67-357

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING PLAN - PROJECT OVERVIEW	SHEET 36	E

FILE NAME : N:\PDS\C3D\CAD\11003600\LTG\023500_LP.DWG
LAYOUT NAME - 023500_PO

PLOT DATE : 1/31/2017 2:43 PM PLOT BY : VANDE LEEST, CYNTHIAPLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 42

2

GENERAL NOTES:
HIGHWAY LIGHTING SHALL BE INSTALLED IN COMPLIANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 652 TO 657 AND 659 EXCEPT:

1. DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THESE DRAWINGS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

2. LOCATIONS OF THE PVC CONDUITS ARE IDENTIFIED IN THE PLANS WHERE THEY ARE REQUIRED. HOWEVER, INSTALLATION WILL REQUIRE INTEGRATION WITH EXISTING FIELD CONDITIONS. UNDER THE APPROVAL OF THE ENGINEER, APPROPRIATE ADJUSTMENT OF CONDUIT LOCATIONS MAY BE MADE IF THE FIELD CONDITIONS ARE SUCH THAT THE CONDUIT BE INSTALLED AT THE SPECIFIED LOCATIONS. FIELD MARK EACH CONDUIT LOCATION IN RED TO ILLUSTRATE AS-BUILT CONDITIONS.

3. THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

4. ALL OPEN AND UNTERMINATED CONDUITS SHALL BE CAPPED OR PLUGGED WITH ENGINEER APPROVED FITTINGS IMMEDIATELY AFTER INSTALLATION.

5. BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR IMMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

6. ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON ALL CONDUITS.

7. PRIOR TO CONDUIT ACCEPTANCE, ALL CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND BE CAPPED WITH THE APPROPRIATE CAST PLASTIC CAP WHICH FITS SNUGGLY ON THE CONDUIT THAT CAN BE EASILY REMOVED. DUCT TAPE OR ANY OTHER CAPPING METHOD IS NOT ACCEPTABLE.

8. CONDUIT RUNS SHALL BE THE SAME SIZE PIPE FROM ONE END TO THE OTHER (FROM PULL BOX-TO-PULL BOX, JUNCTION BOX OR BASE-TO-BASE, ETC.) UNLESS OTHERWISE NOTED ON PLANS.

9. PULL ROPE (3/8-INCH NYLON) SHALL BE INSTALLED IN ALL NEW CONDUITS.

10. CONTRACTOR SHALL SUPPLY AS-BUILT DRAWINGS (PDF FORMAT) FOR ALL THE WORK BEING DONE.

11. CONDUIT LATERALS SHALL BE TRENCHED UNDER PAVEMENT BEFORE PAVEMENT CONSTRUCTION.

12. PITCH ALL CONDUITS TOWARD PULL BOXES. INSTALL A 2" DRAIN DUCT TO STORM SEWER OR DRAIN SUMP AS REQUIRED FOR DRAINAGE. THE 2" DRAIN DUCT OR SUMP IS INCIDENTAL TO THE PULL BOX BID ITEM AND IS NOT SHOWN.

13. THE LOCATION OF EXISTING AND PROPOSED UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE, IN ADDITION, THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION.

14. HAND DIGGING MAY BE REQUIRED FOR LOCATIONS ADJACENT TO EXISTING GAS AND POWER LINES. HAND EXCAVATION SHOULD BE ANTICIPATED AND WILL BE CONSIDERED INCIDENTAL TO THE CONCRETE BASES BID ITEM. COORDINATE ALL WORK NEAR GAS LINE WITH WE ENERGIES.

15. UNDERGROUND WIRE AND CONDUIT SHOWN ON REMOVAL PLANS FOR REMOVAL SHALL BE ABANDONED IN PLACE UNLESS DIRECTED BY THE ENGINEER. CONTRACTOR MAY CHOOSE TO REMOVE CONDUCTOR AT THEIR OWN EXPENSE.

16. EXISTING CONDUIT AND CID NO LONGER BEING USED IS ABANDONED IN PLACE. THE CONTRACTOR MAY REMOVE ABANDONED WIRING AT THE CONTRACTOR'S EXPENSE. ABANDONED PULL BOX REMOVAL IS INCIDENTAL TO THE ROAD CONSTRUCTION.

17. ALL UNDERGROUND WIRING AND CONDUIT FOR POLES BEING REMOVED IS ABANDONED IN PLACE UNLESS NOTED OTHERWISE. CONTRACTOR MAY SALVAGE ABANDONED WIRING AT HIS OWN EXPENSE.

18. PROVIDE REMOVABLE SEALANT SUCH AS DUCT SEAL IN THE CONDUITS AT THE CABINET, PULL BOXES AND JUNCTION BOXES TO AVOID CONDENSATION CAUSED BY AIRFLOW THROUGH THE CONDUITS DUE TO TEMPERATURE DIFFERENCES. THIS WORK SHALL BE INCIDENTAL TO THE ASSOCIATED CONDUIT PAY ITEM.

19. PROVIDE MINIMUM CABLE SLACK AS MENTIONED BELOW:

PULL BOXES:	10-FT
EMBEDDED JUNCTION BOXES:	3-FT
DISTRIBUTION CENTER/LOAD CENTER:	10-FT
POLES:	5-FT IN AND 5-FT OUT

LEGEND

- ⊠ DISTRIBUTION CENTER
- CONDUIT - 2" UNLESS OTHERWISE SHOWN
- EXISTING LIGHT POLE, ARM MOUNTED LUMINAIRE
- REMOVE LIGHTING UNIT
- CONDUIT STUBOUT
- PULL BOX
- JUNCTION BOX

STA. 243MD+58, 30'LT
ZVS12

#10 Z,N GND

STA. 241MD+55, 24'LT
ZVS12

242MD

244MD

242ME

244ME

246ME

3" PVC WITH
1-#10, 4-#6

#6 R,S,T,N
C.I.D.

36" RCCP

STA. 240+00, 130'LT
HML-67-003
2-SVS
1-TVS
1-RVS

LPB

240MD

238MD

234MD

236MD

IH 41/USH 45

232

234

236

238

240

242

244

246

#8 R,S,T,N GND

#6 R,S,T,N GND

#6 R,S,T,N GND

138MA

140MA

142MA

144MA

146MA

148MA

STH 74/100

PHONE

INL

SIGN

18" RCCP

24" RCCP

STA. 232+12
RVS9/SVS9
TO REMAIN

STA. 234+00
S-67-305
2MV-RVS/SVS
TO REMAIN

STA. 234+81
TVS8/RVS8
TO REMAIN

STA. 237+43
SVS7/TVS7

STA. 240+73
RVS6/TVS6

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING PLAN - REMOVAL	SHEET 38	E

2

LEGEND

- DISTRIBUTION CENTER
- CONDUIT - 2" UNLESS OTHERWISE SHOWN
- EXISTING LIGHT POLE, ARM MOUNTED LUMINAIRE
- REMOVE LIGHTING UNIT
- CONDUIT STUBOUT
- PULL BOX
- JUNCTION BOX

N

MAIN STREET

IH 41/USH 45

STH 74/100

252MD

254MD

248ME

250ME

150MB

152MB

154MB

156MB

158MB

46MC

48MC

54MC

55MC

58MC

60MC

42" CMCP

POOL

SIGN

248 250 252 254 256 258 260

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING PLAN - REMOVAL	SHEET 39	E

LEGEND

- ⊠ DISTRIBUTION CENTER
- — — — CONDUIT - 2" UNLESS OTHERWISE SHOWN
- —OH— OVERHEAD ELECTRIC
- EXISTING LIGHT POLE, ARM MOUNTED LUMINAIRE
- TEMPORARY LIGHTING UNIT ON WOOD POLE
- WOOD POLE
- CONDUIT STUBOUT
- PULL BOX
- JUNCTION BOX

STA. 243MD+58, 30'LT
ZVS12

#10 Z,N GND

STA. 241MD+55, 24'LT
ZVS12

STA. 241+77, 100'LT
WP-VS-101

STA. 237+72, 100'LT
TVS2

STA. 235+47, 90'LT
WP-VS-102

STA. 239+97, 100'LT
TVS1

244MD

242MD

240MD

238MD

236MD

234MD

244ME

246ME

3" PVC WITH
1-#10, 4-#6

#6 R,S,T,N
C.I.D.

36" RCCP

INTERCEPT
EX. CONDUIT

STA. 240+00, 130'LT
HML-67-003
2-SVS
1-TVS
1-RVS

LPB101
STA 241+97, 100'LT

IH 41/USH 45

#8 R,S,T,N GND

#6 R,S,T,N GND

#6 R,S,T,N GND

138MA

140MA

142MA

144MA

146MA

LPB102
STA 246+44, 78'RT

STH 74/100

B-67-357

STA. 232+12
RVS9/SVS9
TO REMAIN

STA. 234+00
S-67-305
2MV-RVS/SVS
TO REMAIN

STA. 234+81
TVS8/RVS8
TO REMAIN

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING PLAN - TEMPORARY	SHEET 40	E

FILE NAME : N:\PDS\C3D\CAD\11003600\LTG\023551_LP.DWG
LAYOUT NAME - 023551_LP

PLOT DATE : 1/31/2017 2:45 PM PLOT BY : VANDE LEEST, CYNTHIAPLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2

LEGEND

- DISTRIBUTION CENTER
- CONDUIT - 2" UNLESS OTHERWISE SHOWN
- OH — OVERHEAD ELECTRIC
- EXISTING LIGHT POLE, ARM MOUNTED LUMINAIRE
- TEMPORARY LIGHTING UNIT ON WOOD POLE
- WOOD POLE
- CONDUIT STUBOUT
- PULL BOX
- JUNCTION BOX

N

252MD

254MD

MAIN STREET

INTERCEPT
EX. CONDUIT

248ME

250ME

IH 41/USH 45

248 250 252 254 256 258 260

150MB

152MB

154MB

156MB

158MB

60MC

58MC

55MC

54MC

46MC

48MC

LPB103
STA 248+14, 81'RT

LPB102
STA 246+44, 78'RT

STH 74/100

POOL

SIGN

42" CMCP

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING PLAN - TEMPORARY	SHEET 41	E

LEGEND

- ⊠ DISTRIBUTION CENTER
- CONDUIT - 2" UNLESS OTHERWISE SHOWN
- EXISTING LIGHT POLE, ARM MOUNTED LUMINAIRE
- INSTALL LIGHTING UNIT
- CONDUIT STUBOUT
- PULL BOX
- JUNCTION BOX

STA. 243MD+58, 30'LT
ZVS12

#10 Z,N GND

STA. 241MD+55, 24'LT
ZVS12

244MD

242MD

240MD

238MD

234MD

236MD

244NE

242NE

246NE

3" PVC WITH
1-#10, 4-#6

#6 R,S,T,N
C.I.D.

INTERCEPT
EX. CONDUIT

36" RCCP

18" RCCP

STA. 240+00, 130'LT
HML-67-003
2-SVS
1-TVS
1-RVS

LPB101
STA 241+97, 100'LT

IH 41/USH 45

232 234 236 238 240 242 244 246

138MA

140MA

142MA

144MA

146MA

148MA

STA. 232+12
RVS9/SVS9

STA. 234+00
S-67-305
2MV-RVS/SVS

STA. 234+81
TVS8/RVS8
TO REMAIN

STA. 237+31
SVS7/TVS7

STA. 239+81
RVS6/SVS6

B-67-357

LPB104
STA. 244+17, 72'RT

LPB102
STA. 246+44, 78'RT

STH 74/100

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING PLAN - FINAL	SHEET 42	E

2

LEGEND

- DISTRIBUTION CENTER
- CONDUIT - 2" UNLESS OTHERWISE SHOWN
- EXISTING LIGHT POLE, ARM MOUNTED LUMINAIRE
- INSTALL LIGHTING UNIT
- CONDUIT STUBOUT
- PULL BOX
- JUNCTION BOX

N

INTERCEPT
EX. CONDUIT

248ME

250ME

252MD

254MD

MAIN STREET

IH 41/USH 45

248 250 252 254 256 258 260

150MB

152MB

154MB

156MB

158MB

LPB103
STA. 248+14, 81'RT

LPB102
STA. 246+44, 78'RT

STH 74/100

46MC

48MC

54MC

55MC

58MC

60MC

42" CMCP

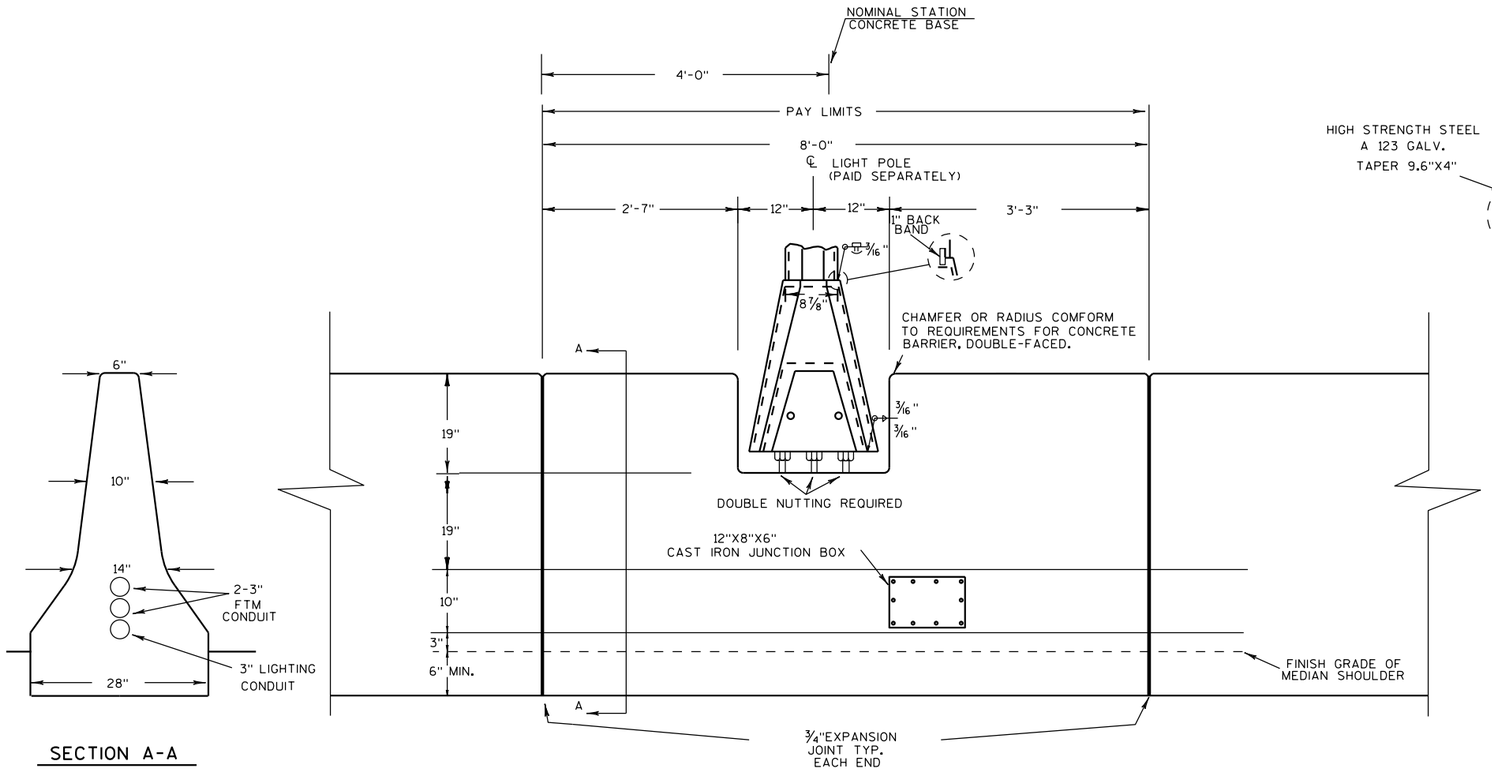
POOL

SIGN

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING PLAN - FINAL	SHEET 43	E

GENERAL NOTES -

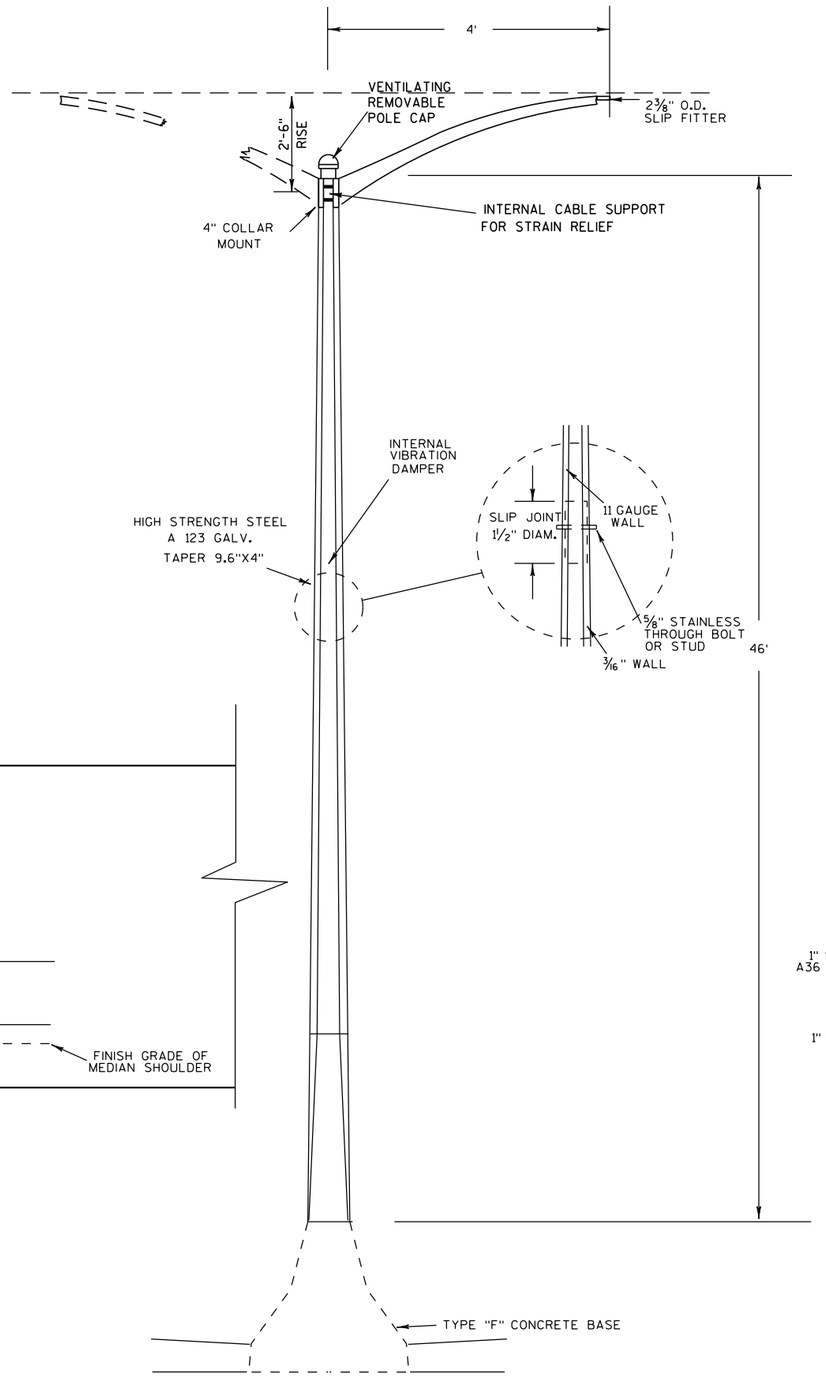
CONCRETE BASE, TYPE F SHALL BE INCIDENTAL TO THE CONCRETE MEDIAN BARRIER STRUCTURE ITEM THAT INCLUDES ALL THE CONNECTION ITEMS TO THE EXISTING CONCRETE MEDIAN BARRIER.



SECTION A-A

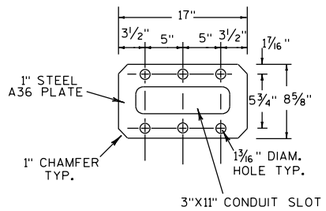
FTM= FREEWAY TRAFFIC MANAGEMENT SYSTEM

ELEVATION FACING WEST OR NORTH



TYPE "F" LIGHT POLE

WISDOT PART NO. A941(POLE)
WISDOT PART NO. A858 (ARM)



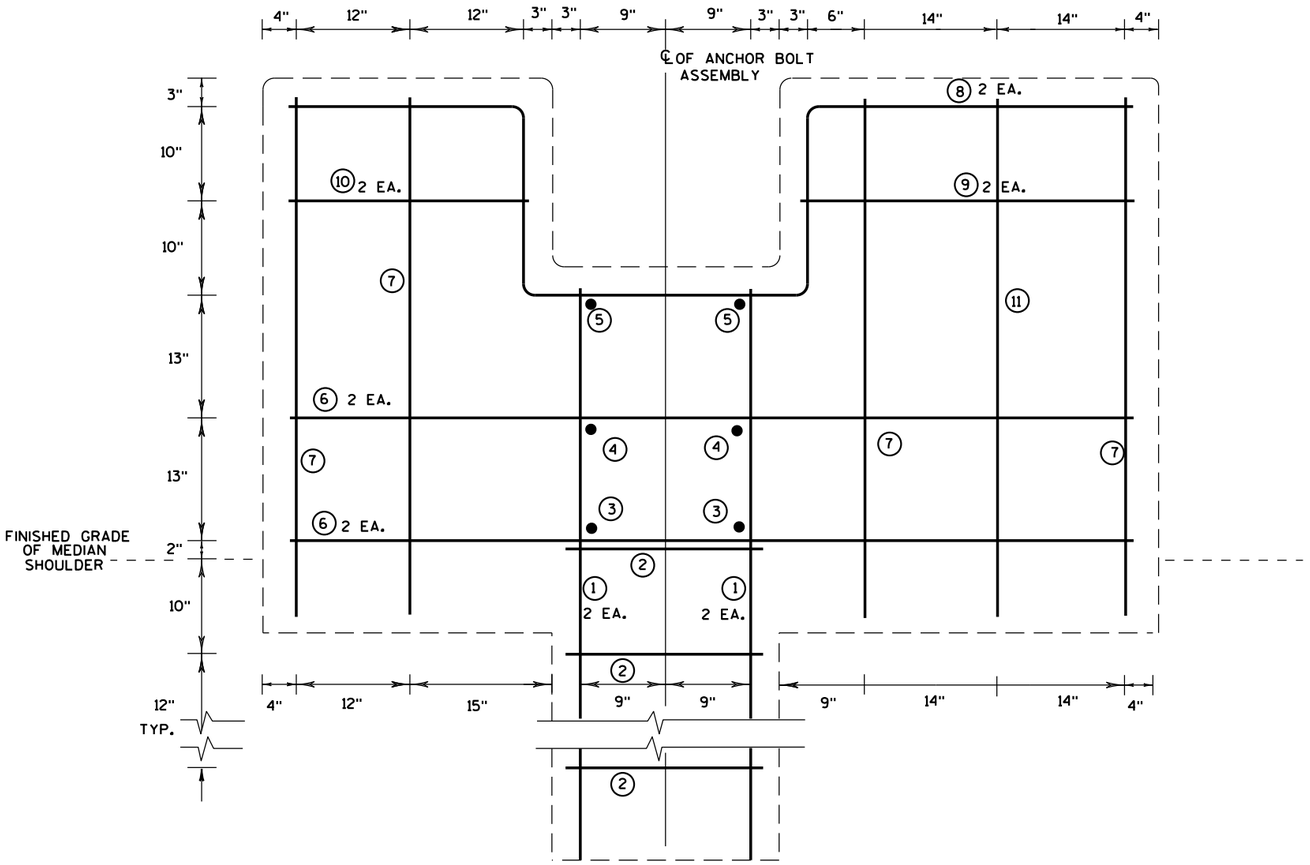
BASE PLATE DETAIL

CONCRETE BASE, TYPE "F"

REINFORCED SUPERSTRUCTURE ON 24"X10'-0"
REINFORCED CONCRETE CAISSON

SHEET 1 OF 3

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING DETAIL - CONCRETE BASE, TYPE F	SHEET 44	E

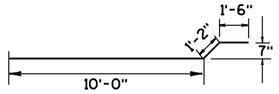


TYPE "F" CONCRETE BASE
BAR STEEL REINFORCEMENT

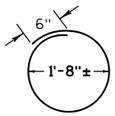
CONCRETE BASE, TYPE "F"

SCHEDULE OF BARS

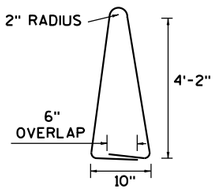
① #5 BAR - 4 REQUIRED



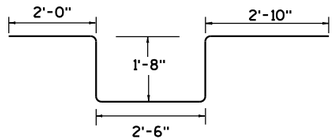
② #3 HOOP - 9 REQUIRED



③ #3 BAR X 1'-10" - 2 REQUIRED
④ #3 BAR X 10" - 2 REQUIRED
⑤ #3 BAR X 6" - 2 REQUIRED
⑥ #4 BAR X 7'-6" - 4 REQUIRED
⑦ #4 HOOP - 4 REQUIRED



⑧ #4 BAR - 2 REQUIRED



⑨ #4 BAR X 3'-0" - 2 REQUIRED
⑩ #4 BAR X 2'-2" - 2 REQUIRED
⑪ #4 BAR X 4'-2" - 1 REQUIRED BEHIND JUNCTION BOX

GENERAL NOTES - REINFORCED CONCRETE MASONRY

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL BAR STEEL REINFORCEMENT SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

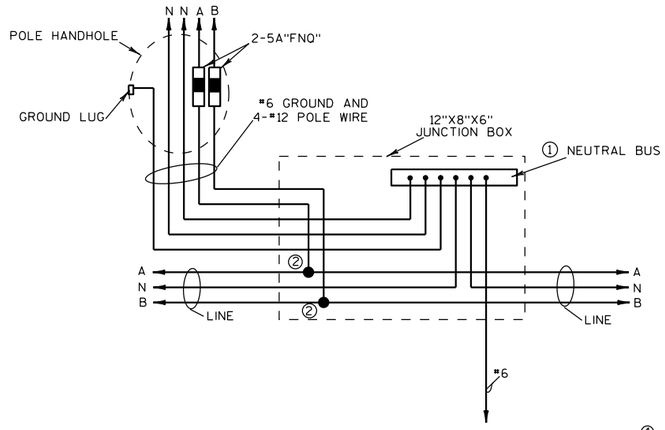
ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED AT LEAST 2 INCHES.

ESTIMATED QUANTITIES

164 LBS. EPOXY-COATED BAR STEEL REINFORCEMENT
3 C.Y. CONCRETE MASONRY

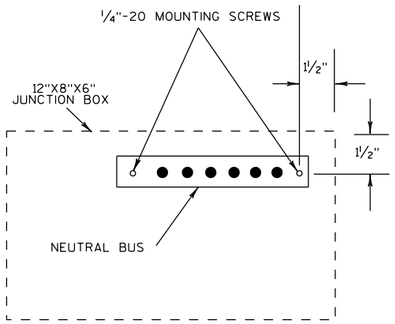
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING DETAIL - CONCRETE BASE, TYPE F	SHEET 45	E

FILE NAME : N:\PDS\C3D\CAD\11003600\LTG\Barrier_Detail_F.DGN PLOT DATE : 31-JAN-2017 14:57 PLOT BY : dotcmv PLOT NAME : PLOT SCALE : 200:1
WISDOT/CADDS SHEET 42

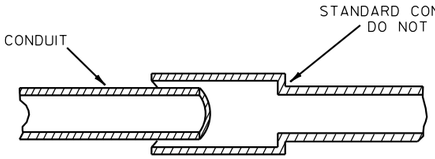


TYP. WIRING DIAGRAM FOR TYPE "F" BASE ④

(TWIN POLE SHOWN)



NEUTRAL BUS MOUNTING LOCATION



TYP. EXPANSION FITTING

6 REQUIRED, MOST LOCATIONS

NOTES:

① THE NEUTRAL BUS SHALL CONSIST OF A HARD-DRAWN COPPER BAR WITH 6 POSITIONS, #2 (SOLID) TO #12 CU. STRANDED # 2 OR #1 SHALL BE LUGGED TO THE BUS. MOUNT THE BUS OFFSET FROM THE REAR WALL OF THE BOX. FURNISH 6 BRASS SET SCREWS. COAT THE BUS WITH AN APPROVED SILICONE CAULK AT THE TIME OF INSTALLATION AND AFTER EACH CONNECTION IS MADE.

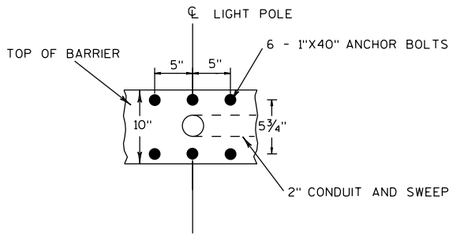
② SPLICES CONFORM TO SPLICES FOR DAMP LOCATIONS.

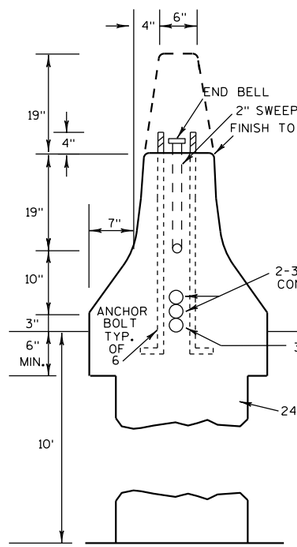
③ END BELLS REQUIRED EXCEPT DRAIN/GROUND CONDUIT

④ THIS DETAIL MODIFIES THE POLE WIRING DETAIL BUT APPLICALBLE PORTIONS OF THAT SHEET REMAIN IN FORCE.

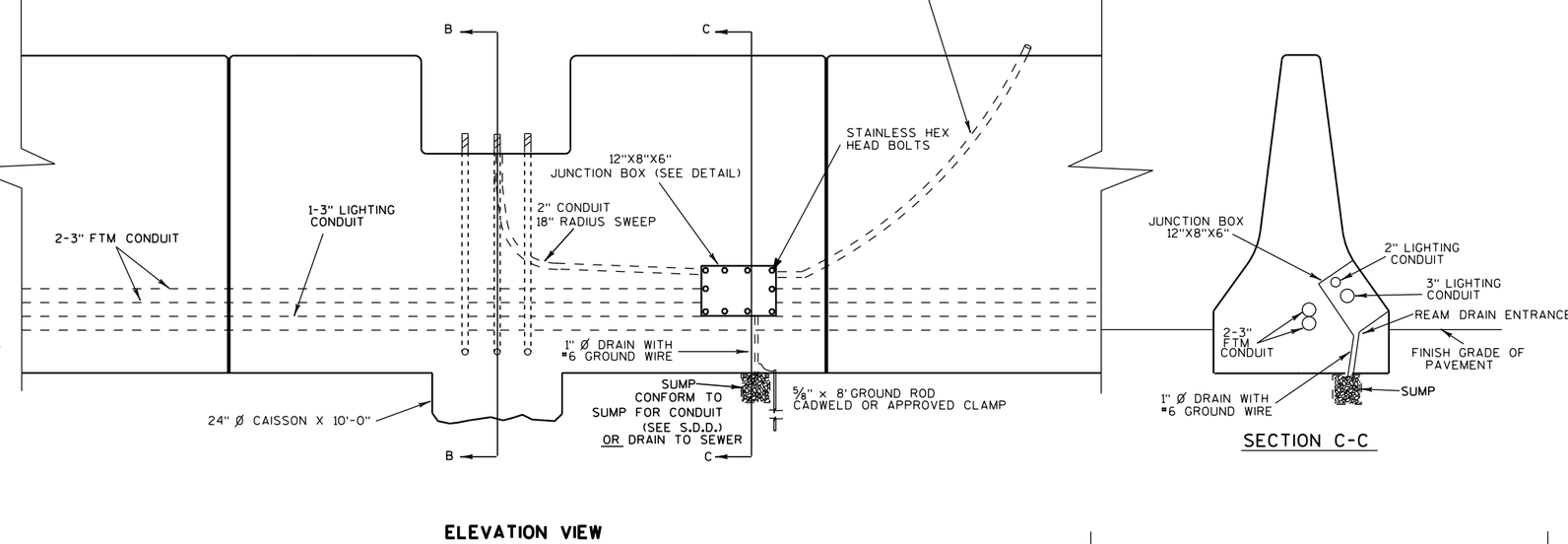
⑤ CONDUIT SHALL CONFORM TO SECTION 613.2.3 OF THE STANDARD SPECIFICATIONS.

⑥ ANCHOR BOLTS SHALL CONFORM TO AASHTO M314-90, GRADE 55. THE TOP THREADED PORTION SHALL BE ROLL THREADED, THEN PAINTED WITH A ZINC PRIMER COAT WITH AN EPOXY MASTIC IN THE FIELD. ANCHOR BOLTS SHALL MEET AN ADDITIONAL REQUIREMENT FOR A MIN. CHARPY V-NOTCH VALUE OF 15 FT.-LB. AT -20°F.





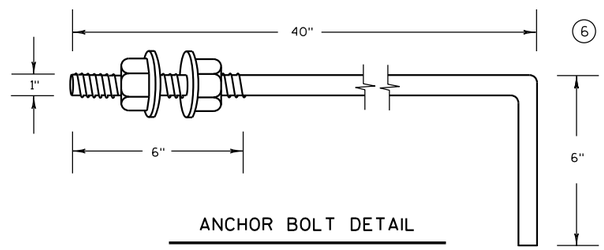
SECTION B-B



ELEVATION VIEW

SECTION C-C

ELECTRICAL DETAILS AND ANCHOR BOLTS



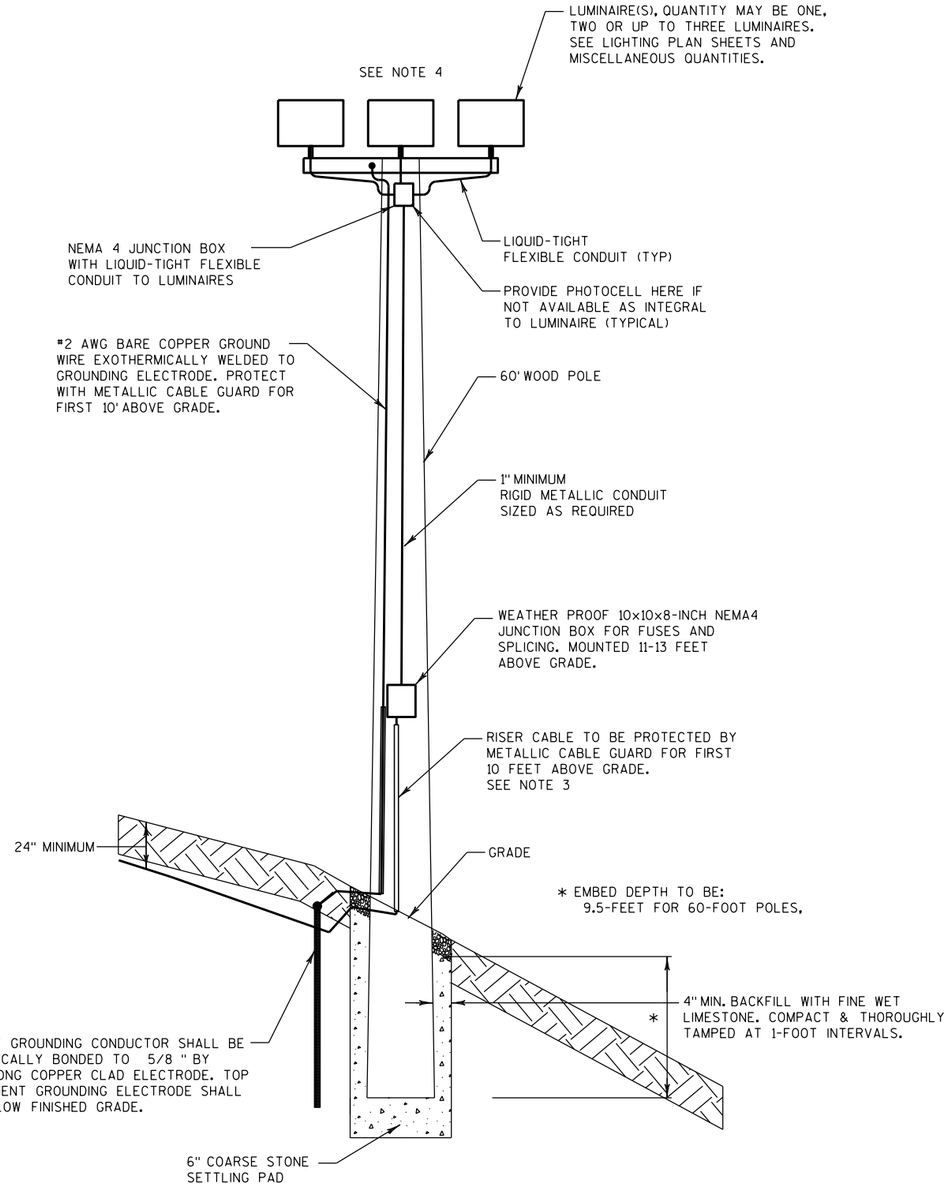
ANCHOR BOLT DETAIL

FTM=FREEWAY TRAFFIC MANAGEMENT SYSTEM

CONCRETE BASE, TYPE "F"

SHEET 3 OF 3

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	LIGHTING DETAIL - CONCRETE BASE, TYPE F	SHEET 46 E



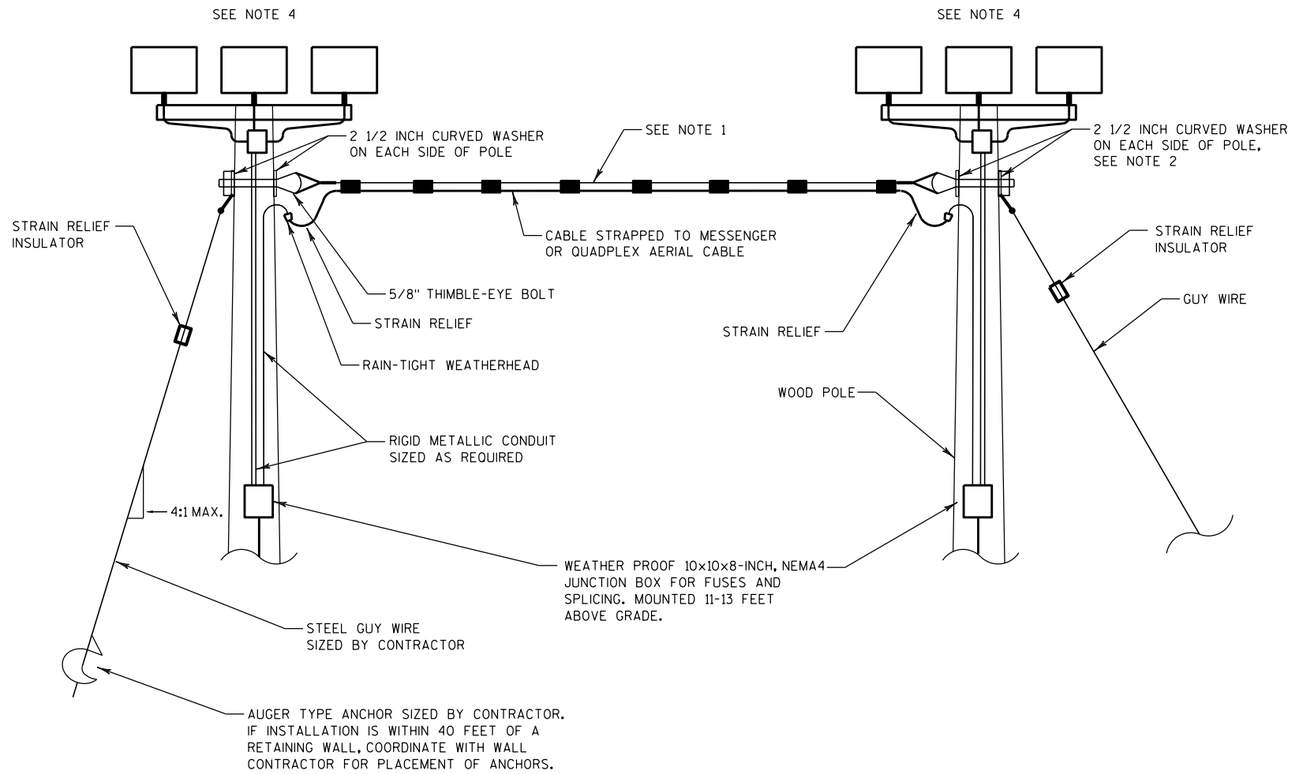
WOODEN POLE INSTALLATION DETAIL

NTS

SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

NOTES

1. MINIMUM CLEARANCE AT CENTER OF SPAN: 20-FT. ABOVE ROADWAY OR GRADE.
2. CONSTRUCT DEAD ENDS WITH SECONDARY RACK, CLEVISES, OR OTHER APPROVED METHOD.
3. SECURELY BAND OR CLAMP RISERS TO POLES. USE METALLIC CABLE GUARD TO PROTECT RISERS FOR 10-FEET ABOVE GRADE.
4. FOR CLARITY, LIGHTNING PROTECTION NOT SHOWN IN ITS ENTIRETY. PROVIDE AIR TERMINAL PROTRUDING 18" ABOVE HIGHEST FIXTURE WITH #2 AWG DOWN CONDUCTOR TO A $\frac{5}{8}$" X 8-FOOT COPPER CLAD ELECTRODE FOR LIGHTNING PROTECTION. DOWN CONDUCTOR MAY TRAVEL ONLY IN A DOWNWARD DIRECTION UNTIL IT IS CONNECTED TO THE GROUNDING ELECTRODE. LIGHTNING PROTECTION GROUNDING ELECTRODE TO BE BONDED TO EQUIPMENT GROUNDING ELECTRODE WITH BARE, SOLID #2 COPPER CONDUCTOR; EXOTHERMIC WELD LOWER, MECHANICAL ON UPPER END.
5. LUMINAIRES AND AERIAL CABLES ARE SEPARATE BID ITEMS AND ARE NOT PART OF THE BID ITEM "WOOD POLE LIGHTING 60-FOOT. THE REMAINING ITEMS SHOWN ARE INCIDENTAL TO BID ITEM "WOOD POLES LIGHTING 60-FOOT.



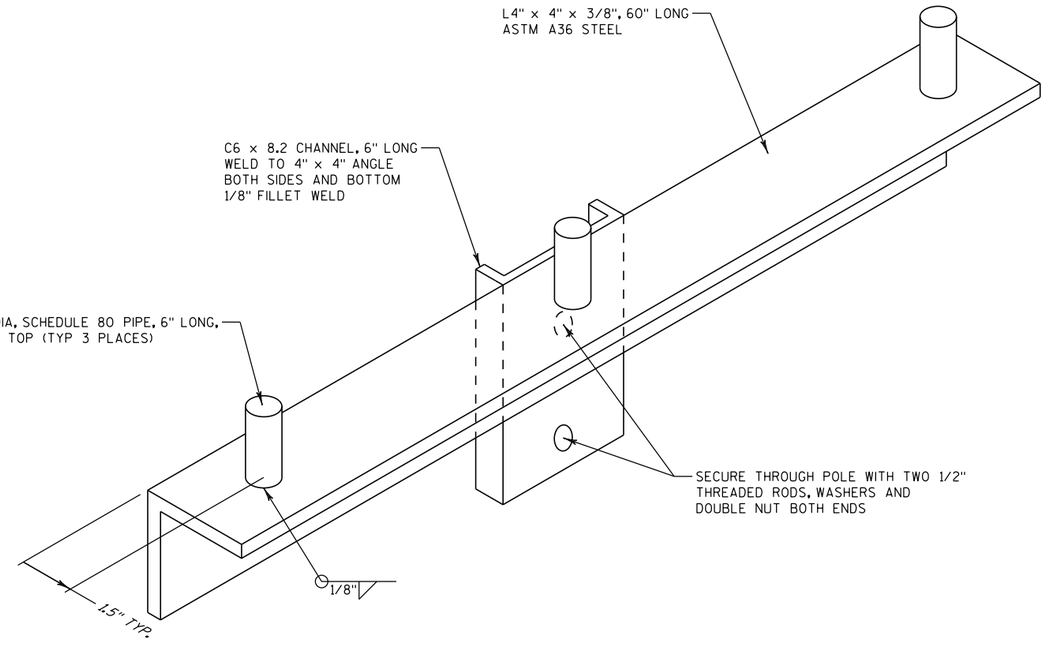
OVERHEAD WIRE DETAIL

NTS

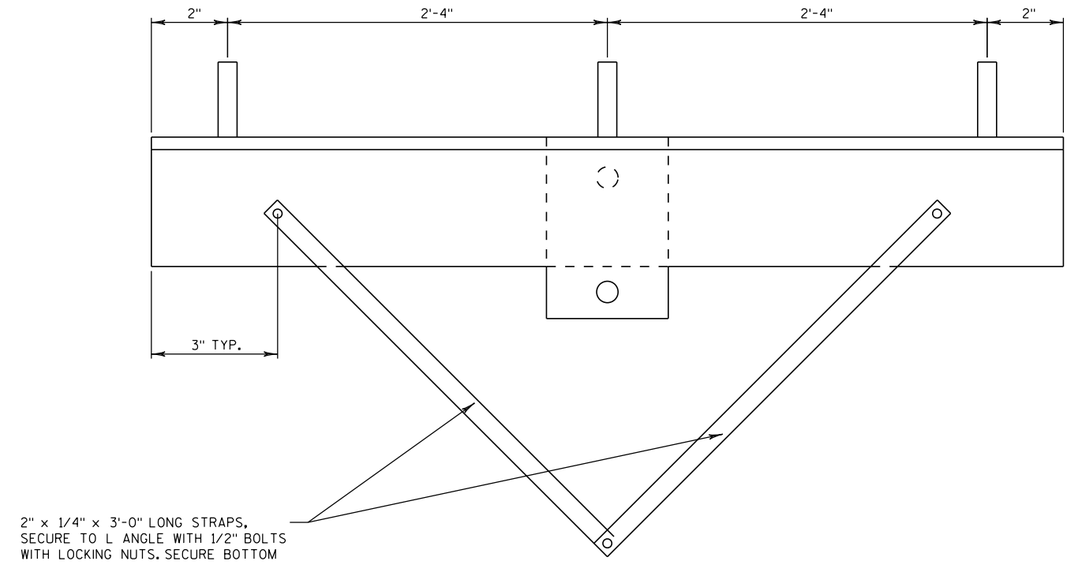
SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

2

NOTES
1. HOT DIP GALVANIZE AFTER FABRICATION.
2. POLE WITH 2 OR 3 LUMINAIRES TO USE BRACKET AS SHOWN.



ISOMETRIC VIEW
STRAPS NOT SHOWN FOR CLARITY



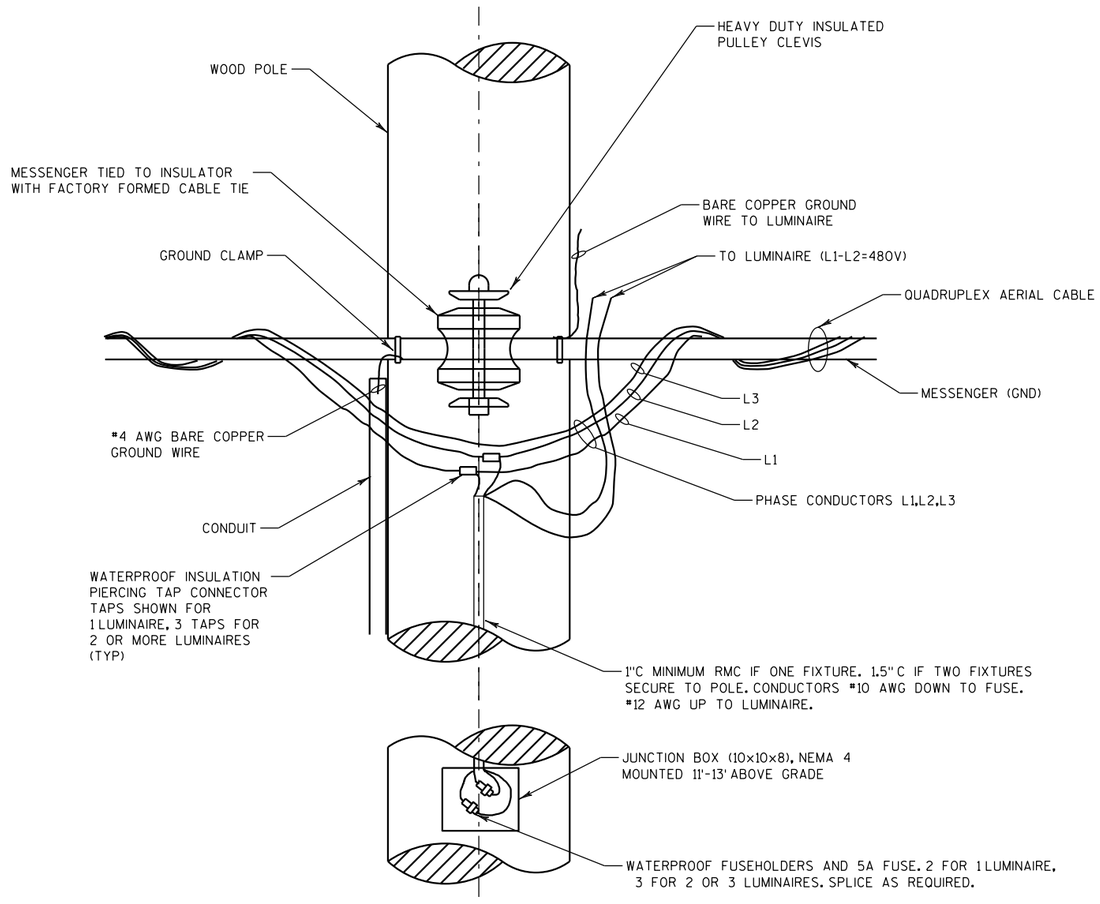
FRONT VIEW

FLOODLIGHT MOUNTING BRACKET
NTS

2

NOTES

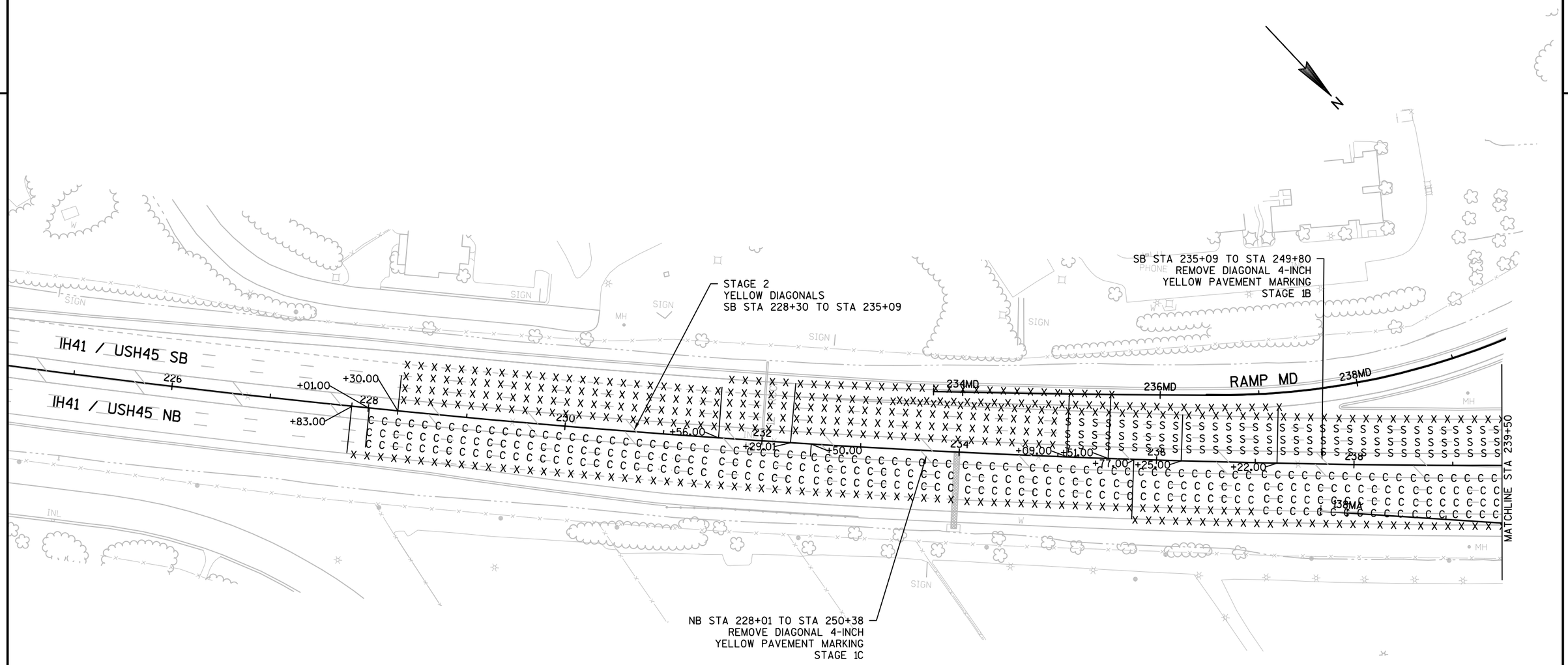
1. IF TWO OR MORE CABLES ON A POLE ARE FOR THE SAME CIRCUIT, CONNECT THE EQUIPMENT GROUNDING CONDUCTOR AND GROUNDED CONDUCTOR (NEUTRAL) AT EACH POLE.
2. TAPS, CONDUIT, JUNCTION BOX, INSULATOR, CLEVIS FUSE HOLDERS, WIRING TO/FROM JUNCTION BOX AND TO LUMINAIRE ARE PART OF THE BID ITEM "WOOD POLE LIGHTING 60-FOOT".



OVERHEAD CABLE SPLICE AT WOOD POLE-TEMPORARY 480V FIXTURES WIRED PHASE-PHASE

NTS

2



PAVEMENT MARKING REMOVAL LEGEND

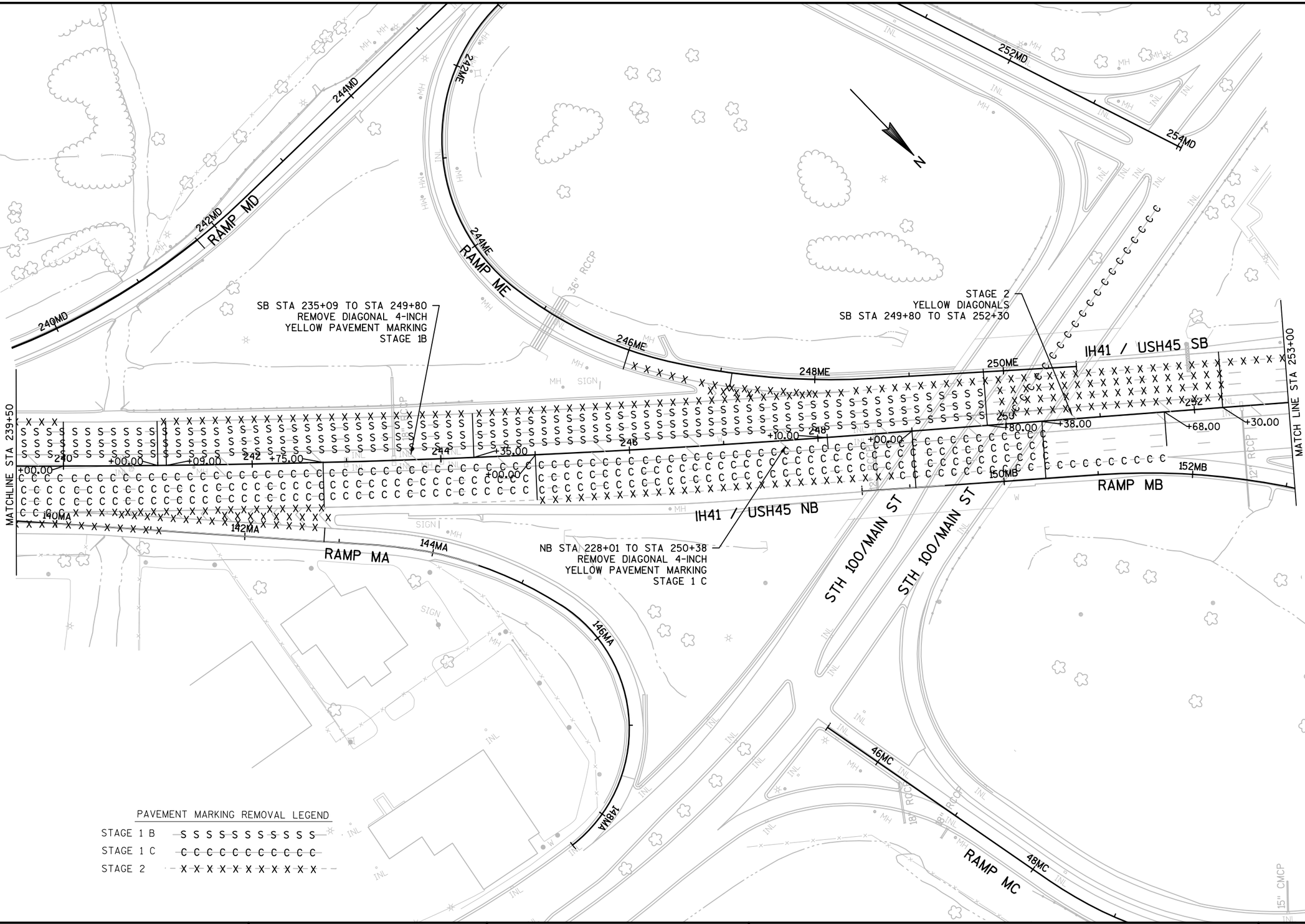
STAGE 1 B — S S S S S S S S S S S

STAGE 1 C — C C C C C C C C C C C

STAGE 2 — X X X X X X X X X X X

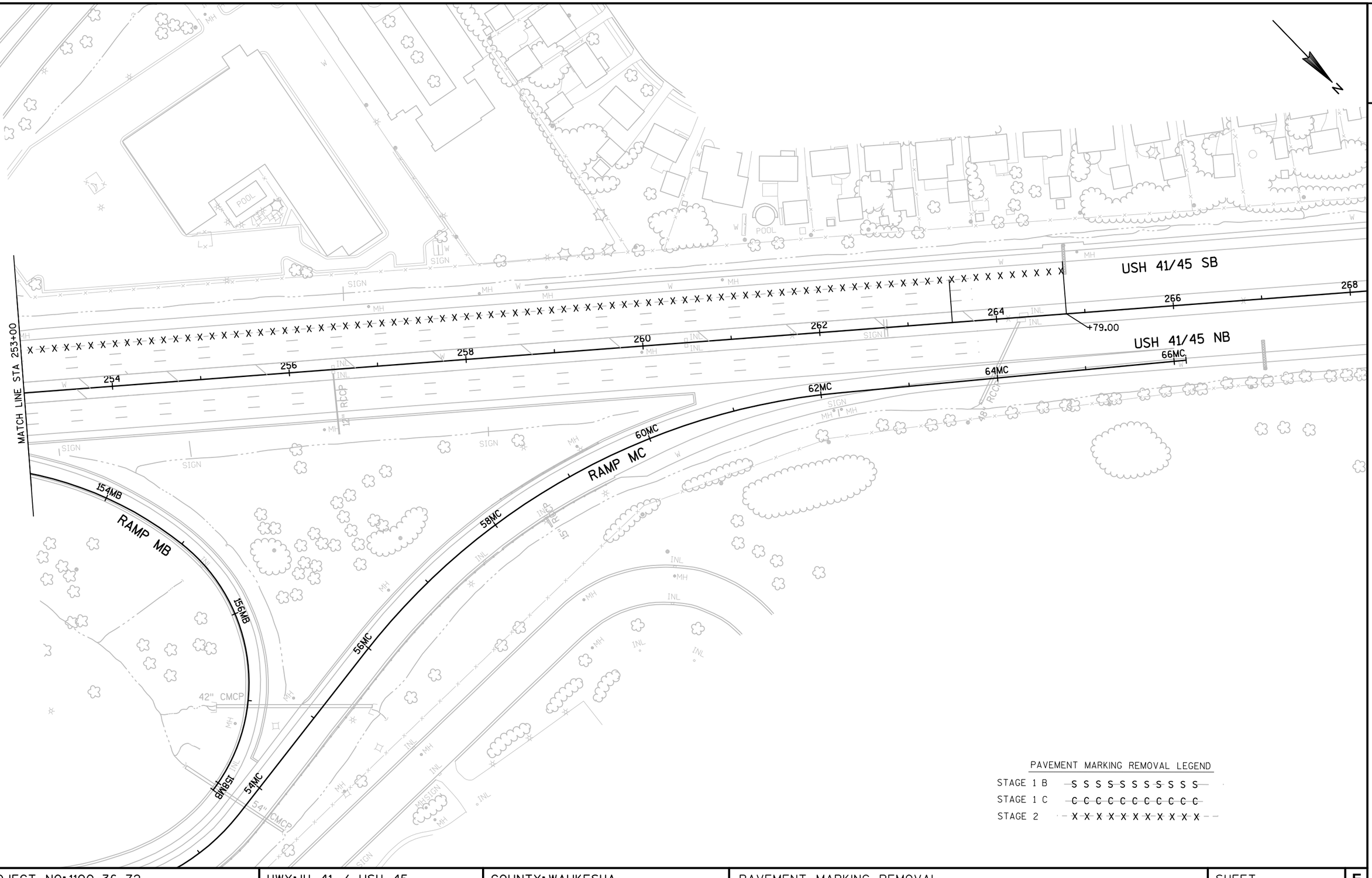
PROJECT NO: 1100-36-72	HWY: IH 41 / USH 45	COUNTY: WAUKESHA	PAVEMENT MARKING REMOVAL	SHEET 50	E

2



PROJECT NO: 1100-36-72	HWY: IH 41 / USH 45	COUNTY: WAUKESHA	PAVEMENT MARKING REMOVAL	SHEET 51	E

2



PAVEMENT MARKING REMOVAL LEGEND

STAGE 1 B — S S S S S S S S S S S —

STAGE 1 C — C C C C C C C C C C C —

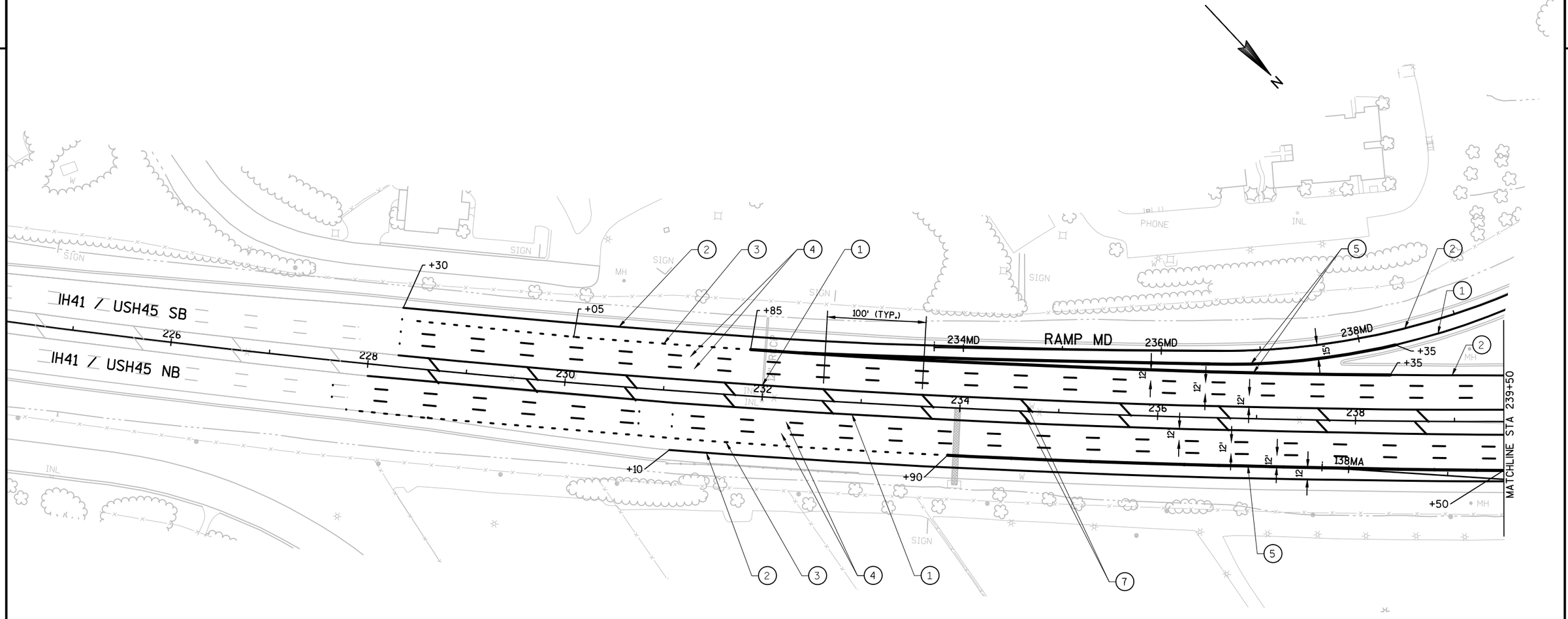
STAGE 2 - - X X X X X X X X X X - -

PROJECT NO: 1100-36-72	HWY: IH 41 / USH 45	COUNTY: WAUKESHA	PAVEMENT MARKING REMOVAL	SHEET 52	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\024502-PM.DWG
024506-pm

PLOT DATE : 1/31/2017 2:07 PM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44

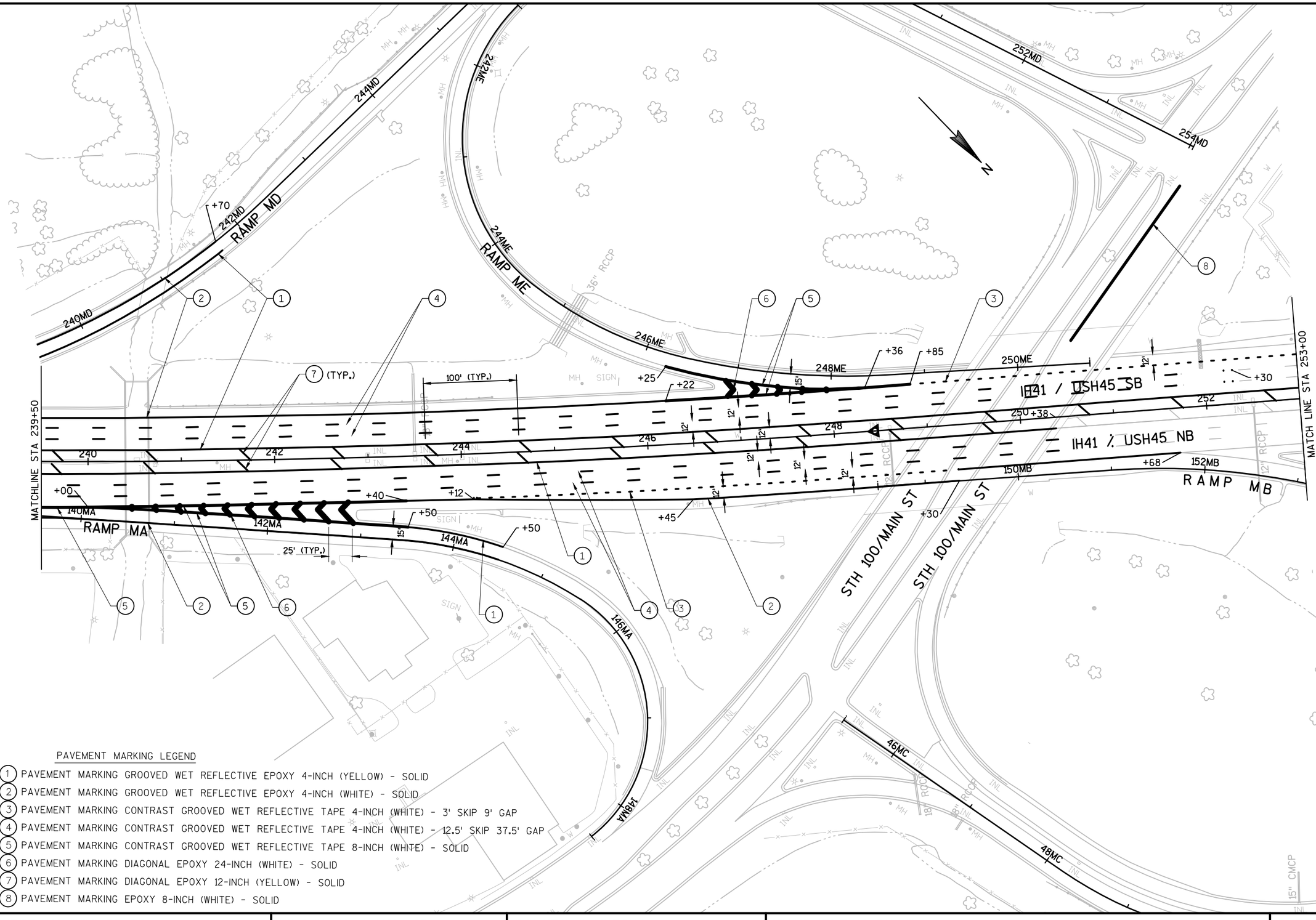


PAVEMENT MARKING LEGEND

1. PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (YELLOW) - SOLID
2. PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE) - SOLID
3. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 4-INCH (WHITE) - 3' SKIP 9' GAP
4. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 4-INCH (WHITE) - 12.5' SKIP 37.5' GAP
5. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 8-INCH (WHITE) - SOLID
6. PAVEMENT MARKING DIAGONAL EPOXY 24-INCH (WHITE) - SOLID
7. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (YELLOW) - SOLID

PROJECT NO: 1100-36-72	HWY: IH 41 / USH 45	COUNTY: WAUKESHA	PAVEMENT MARKING	SHEET 53	E

2

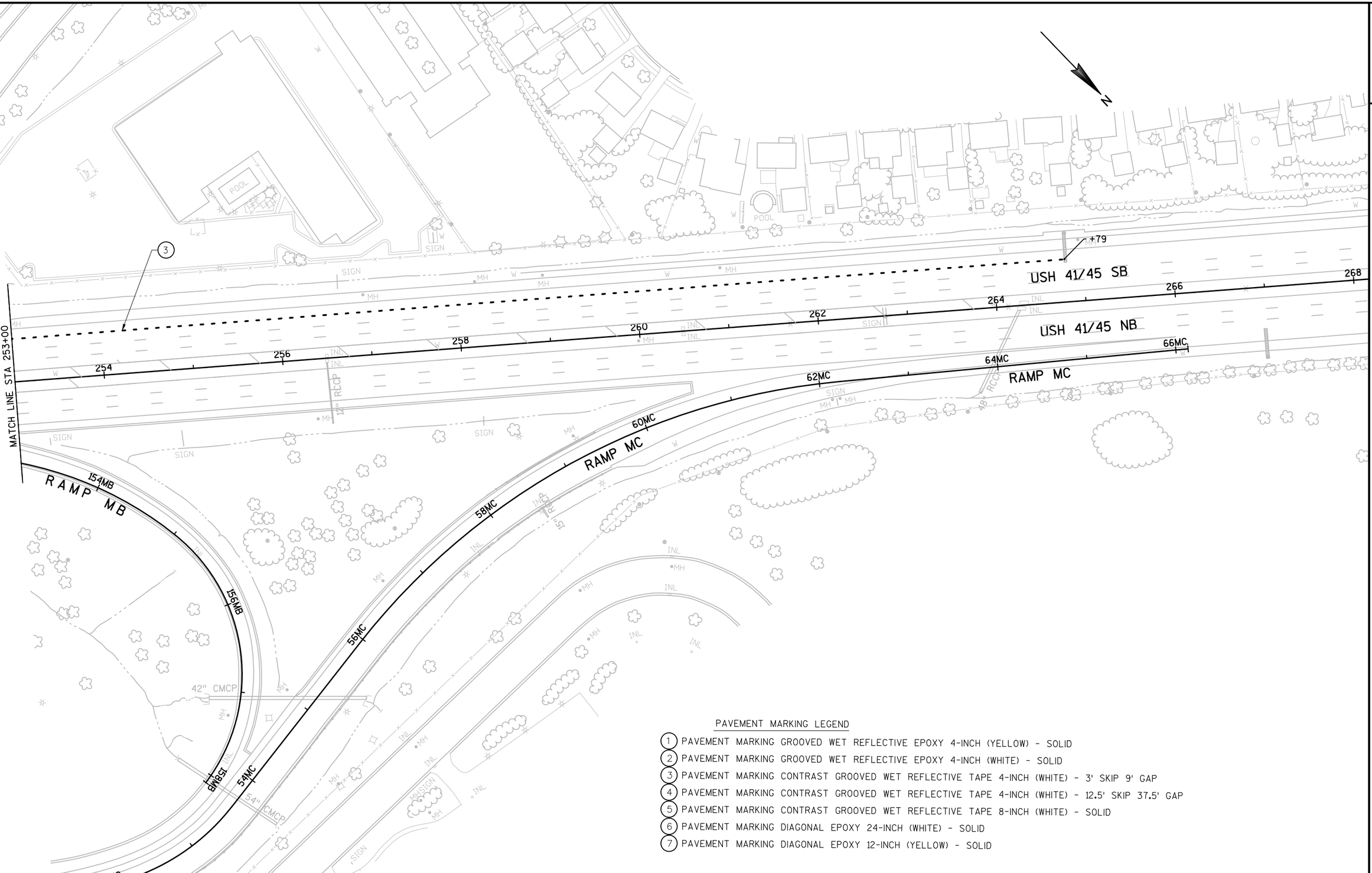


PAVEMENT MARKING LEGEND

1. PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (YELLOW) - SOLID
2. PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE) - SOLID
3. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 4-INCH (WHITE) - 3' SKIP 9' GAP
4. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 4-INCH (WHITE) - 12.5' SKIP 37.5' GAP
5. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 8-INCH (WHITE) - SOLID
6. PAVEMENT MARKING DIAGONAL EPOXY 24-INCH (WHITE) - SOLID
7. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (YELLOW) - SOLID
8. PAVEMENT MARKING EPOXY 8-INCH (WHITE) - SOLID

PROJECT NO: 1100-36-72	HWY: IH 41 / USH 45	COUNTY: WAUKESHA	PAVEMENT MARKING	SHEET 54	E

2



PAVEMENT MARKING LEGEND

1. PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (YELLOW) - SOLID
2. PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE) - SOLID
3. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 4-INCH (WHITE) - 3' SKIP 9' GAP
4. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 4-INCH (WHITE) - 12.5' SKIP 37.5' GAP
5. PAVEMENT MARKING CONTRAST GROOVED WET REFLECTIVE TAPE 8-INCH (WHITE) - SOLID
6. PAVEMENT MARKING DIAGONAL EPOXY 24-INCH (WHITE) - SOLID
7. PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (YELLOW) - SOLID

PROJECT NO: 1100-36-72	HWY: IH 41 / USH 45	COUNTY: WAUKESHA	PAVEMENT MARKING	SHEET 55	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\024501-PM.DWG
024503-pm
PLOT DATE : 3/8/2017 2:45 PM
PLOT BY : CHAD EVEN
PLOT NAME :
PLOT SCALE : 1 IN:100 FT

2

STAGE 1A

CONSTRUCTION:

- REMOVE INLET ON SB INSIDE SHOULDER

- MILL AND OVERLAY SB INSIDE SHOULDER

TRAFFIC:

-REFER TO SDD "TRAFFIC CONTROL, LANE CLOSURE" FOR LANE CLOSURE DETAILS.

- IH 41/USH 45 NB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 NB ON EXISTING IH 41/USH 45 NB ROADWAY

- IH 41/USH 45 SB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 SB ON EXISTING IH 41/USH 45 SB ROADWAY. CLOSE INSIDE LANE DURING NON-PEAK HOURS FOR REMOVAL OF INLET.

- MAIN STREET EAST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB ENTRANCE RAMP: OPEN TO TRAFFIC

STAGE 1B

CONSTRUCTION:

- CONSTRUCT SOUTH SECTION B-67-357, TEMPORARY WIDENING SB.

- CONSTRUCT TEMPORARY WIDENING ON SB ENTRANCE RAMP

TRAFFIC:

- IH 41/USH 45 NB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 NB ON EXISTING IH 41/USH 45 NB ROADWAY AND INSIDE SHOULDER

- IH 41/USH 45 SB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 SB ON EXISTING IH 41/USH 45 SB ROADWAY AND INSIDE SHOULDER

- MAIN STREET EAST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB ENTRANCE RAMP: OPEN TO TRAFFIC

STAGE 1C

CONSTRUCTION:

- ASPHALT PAVING OF TEMPORARY WIDENING ON SB OUTSIDE SHOULDER

-ASPHALT WEDGE ON MAIN ST. SB ENTRANCE RAMP

- ASPHALT PAVING OF TEMPORARY WIDENING ON NB OUTSIDE SHOULDER

- REMOVE AND REPLACE CONCRETE ON NB OUTSIDE SHOULDER

- RE-DECK STRUCTURE B-67-56

TRAFFIC:

- IH 41/USH 45 NB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 NB ON EXISTING IH 41/USH 45 NB ROADWAY AND INSIDE SHOULDER. CLOSE OUTSIDE LANE DURING NON-PEAK HOURS FOR CONSTRUCTION OF TEMPORARY WIDENING.

- IH 41/USH 45 SB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 SB ON EXISTING IH 41/USH 45 SB ROADWAY AND INSIDE SHOULDER. CLOSE OUTSIDE LANE DURING NON-PEAK HOURS FOR PAVING OF SHOULDER AND ASPHALTIC WEDGE.

- MAIN STREET EAST NB EXIT RAMP: CLOSED TO TRAFFIC

- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB ENTRANCE RAMP: CLOSED TO TRAFFIC

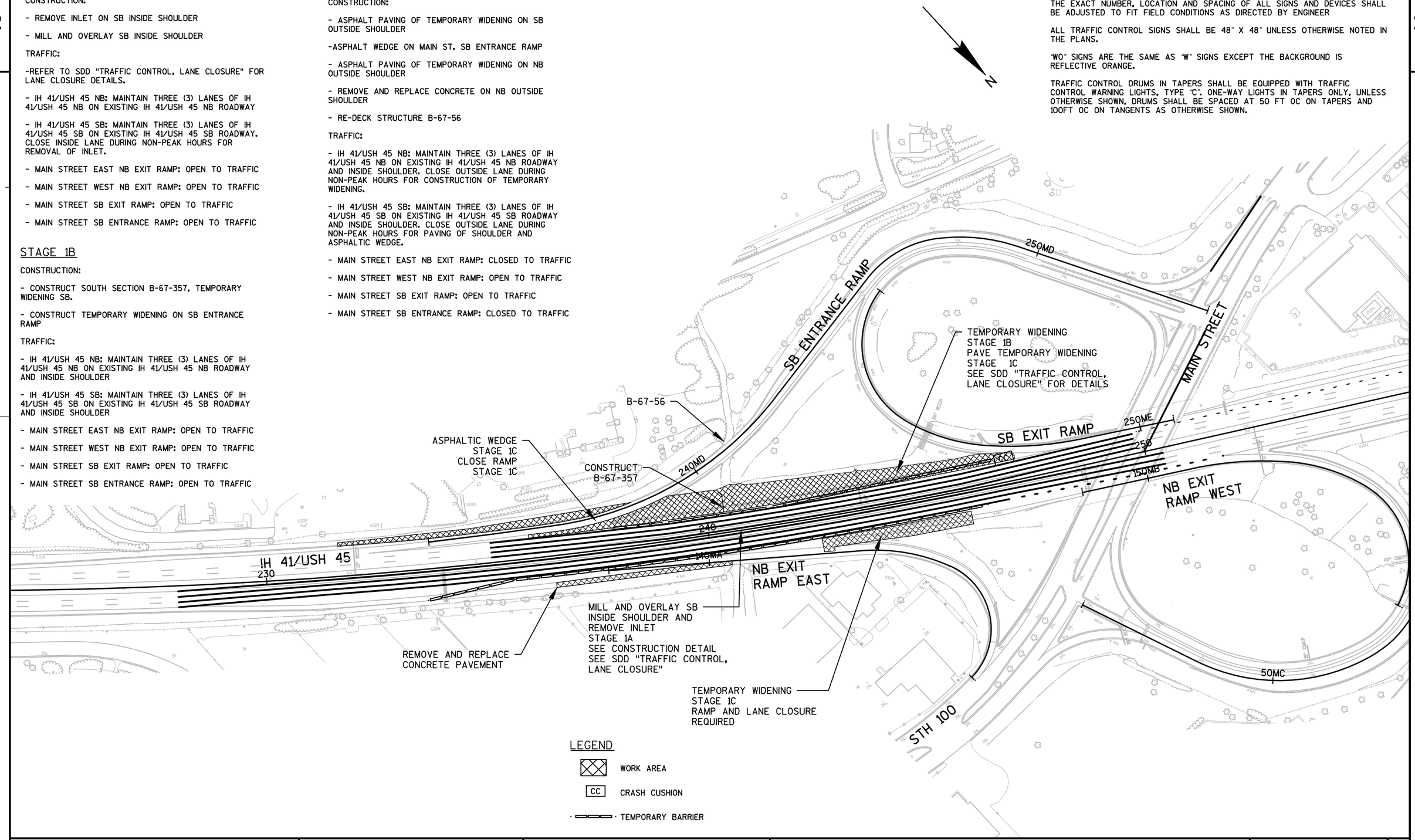
GENERAL NOTES FOR CONSTRUCTION STAGING AND TRAFFIC CONTROL

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY ENGINEER

ALL TRAFFIC CONTROL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED IN THE PLANS.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS REFLECTIVE ORANGE.

TRAFFIC CONTROL DRUMS IN TAPERS SHALL BE EQUIPPED WITH TRAFFIC CONTROL WARNING LIGHTS, TYPE 'C'. ONE-WAY LIGHTS IN TAPERS ONLY, UNLESS OTHERWISE SHOWN, DRUMS SHALL BE SPACED AT 50 FT OC ON TAPERS AND 100FT OC ON TANGENTS AS OTHERWISE SHOWN.



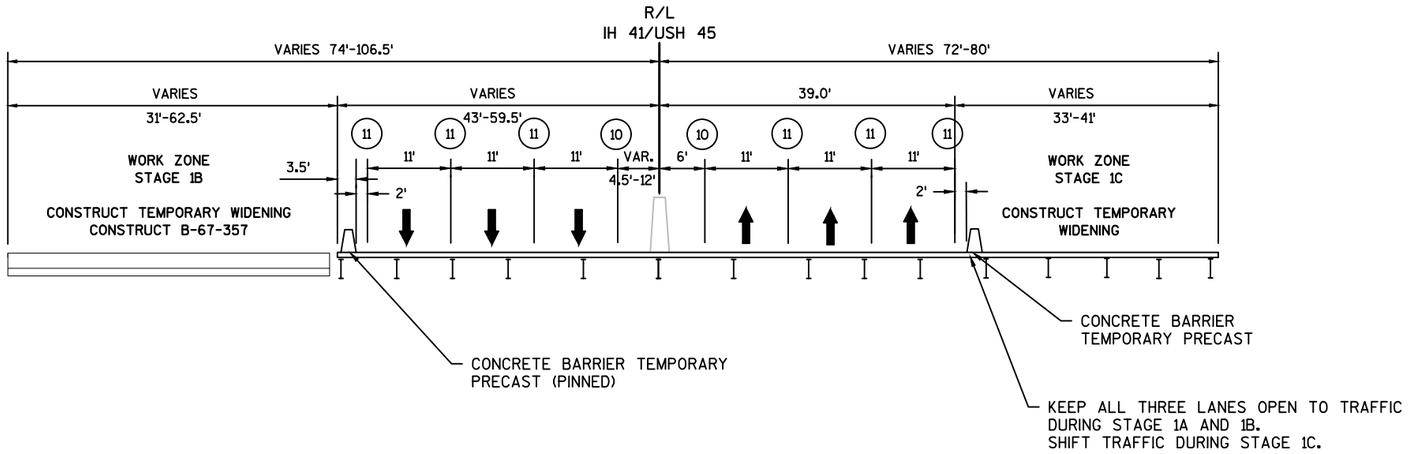
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL OVERVIEW: STAGE 1A, 1B & 1C	SHEET 56 E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\025001-TC.DWG 025001-tc

PLOT DATE : 1/31/2017 3:38 PM PLOT BY : HENRYKA GASIK PLOT NAME : PLOT SCALE : 1:200_XREF

WISDOT/CADDS SHEET 44

2



CONSTRUCTION STAGE 1B & 1C - TYPICAL SECTION

STA. 228+00 TO 249+00

LEGEND

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

2

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

N

206 208 210 212 214 216 218 220

℄ IH 41/USH 45

IH 41/USH 45 SB

IH 41/USH 45 NB

24" RCCP

24" RCCP

12" RCCP

12" RCCP

500' 500' 1100' 500' 500' 2600' 1 MILE

MATCH LINE STA 220+00

END ROAD WORK
G20-2A
48"X24"

ROAD WORK 2 MILE
W20-1

ROAD WORK 1 MILE
W20-1-F

SPEED LIMIT 60
W03-5

FINES DOUBLE IN WORK ZONES
Give 'em a BRAKE SLOW DOWN
W21-62
96"X48"

$200 MINIMUM
W21-62-P
96"X12"

ROAD WORK 1/2 MILE
W20-1-G

RAMP CLOSED AHEAD
W20-53-A

W21-62-Q
30"X48"
WORK ZONE
SPEED LIMIT 60
R2-1
48"X60"
FINES DOUBLE
W21-62-R
30"X48"

ROAD WORK 1500 FT
W20-1-B

LANES NARROW
W05-1 (MODIFIED)
48"X48"

REFER TO SDD TRAFFIC CONTROL LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

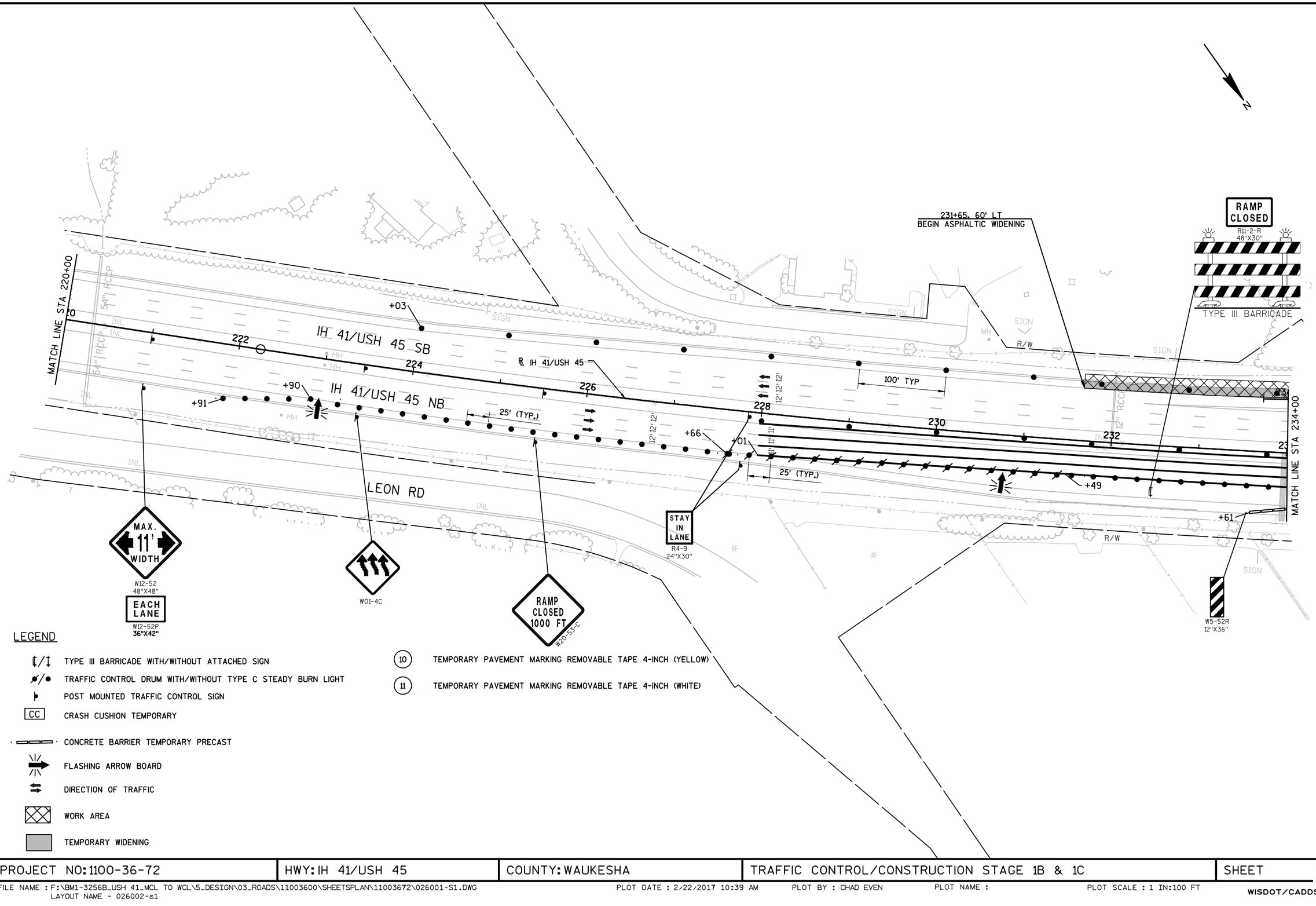
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 1B & 1C	SHEET 58	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026001-S1.DWG
LAYOUT NAME - 026001-s1

PLOT DATE : 2/22/2017 10:39 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 1B & 1C	SHEET 59	E

2

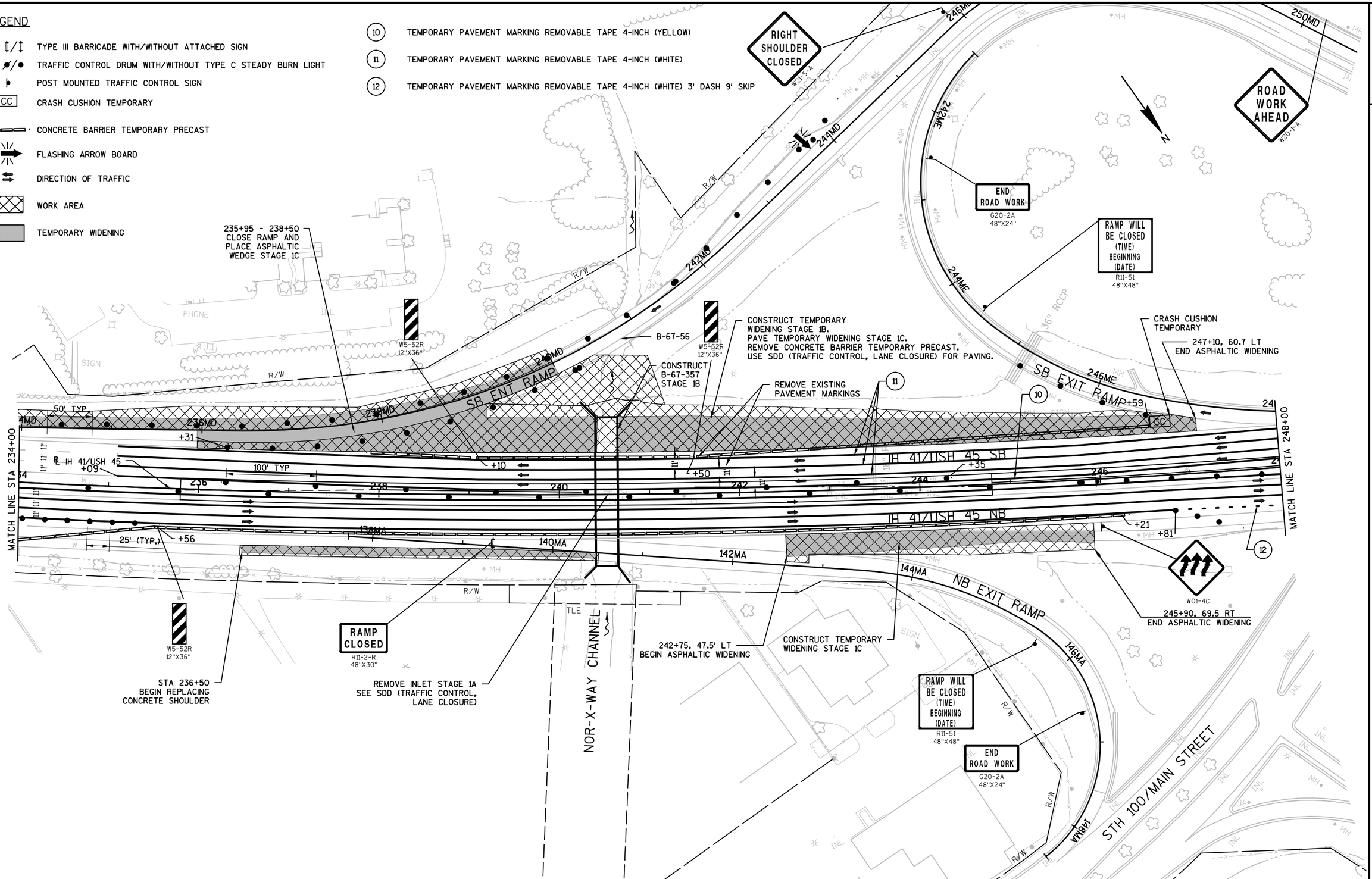
LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

(12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE) 3' DASH 9' SKIP



PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 1B & 1C	SHEET 60	E

LAYOUT FOR STAGE 1C
SEE SDD (BARRICADES AND SIGNS FOR MAINLINE CLOSURE) FOR RAMP CLOSURE

RAMP WILL BE CLOSED (TIME) BEGINNING (DATE)
R11-51
48"X48"

500'

RAMP CLOSED AHEAD
W20-53-A

R3-1
24"X24"

250MD

25' TYP

BRIDGE OUT
R11-2-B

11

252MD SB ENT. RAMP

SB EXIT RAMP

254MD

R3-4
24"X24"

END ROAD WORK
G20-2A
48"X24"

MAX. 11' WIDTH
W12-52
48"X48"

EACH LANE
W12-52P
36"X42"

RAMP CLOSED
R11-2-R

10

25' (TYP.)

MAIN STREET

END ROAD WORK
G20-2A
48"X24"

STAY IN LANE
R4-9
24"X30"

250ME

BME

+80

MATCH LINE STA 248+00

IH 41/USH 45 SB

IH 41/USH 45 NB

252

254

256

258

260

MATCH LINE STA 262+00

12" RCCP

42" CMCP

50'

+38

R3-2
24"X24"

RAMP CLOSED AHEAD
W20-53-A

RAMP MB

RAMP MC

END ROAD WORK
G20-2A
48"X24"

POOL

SIGN

N

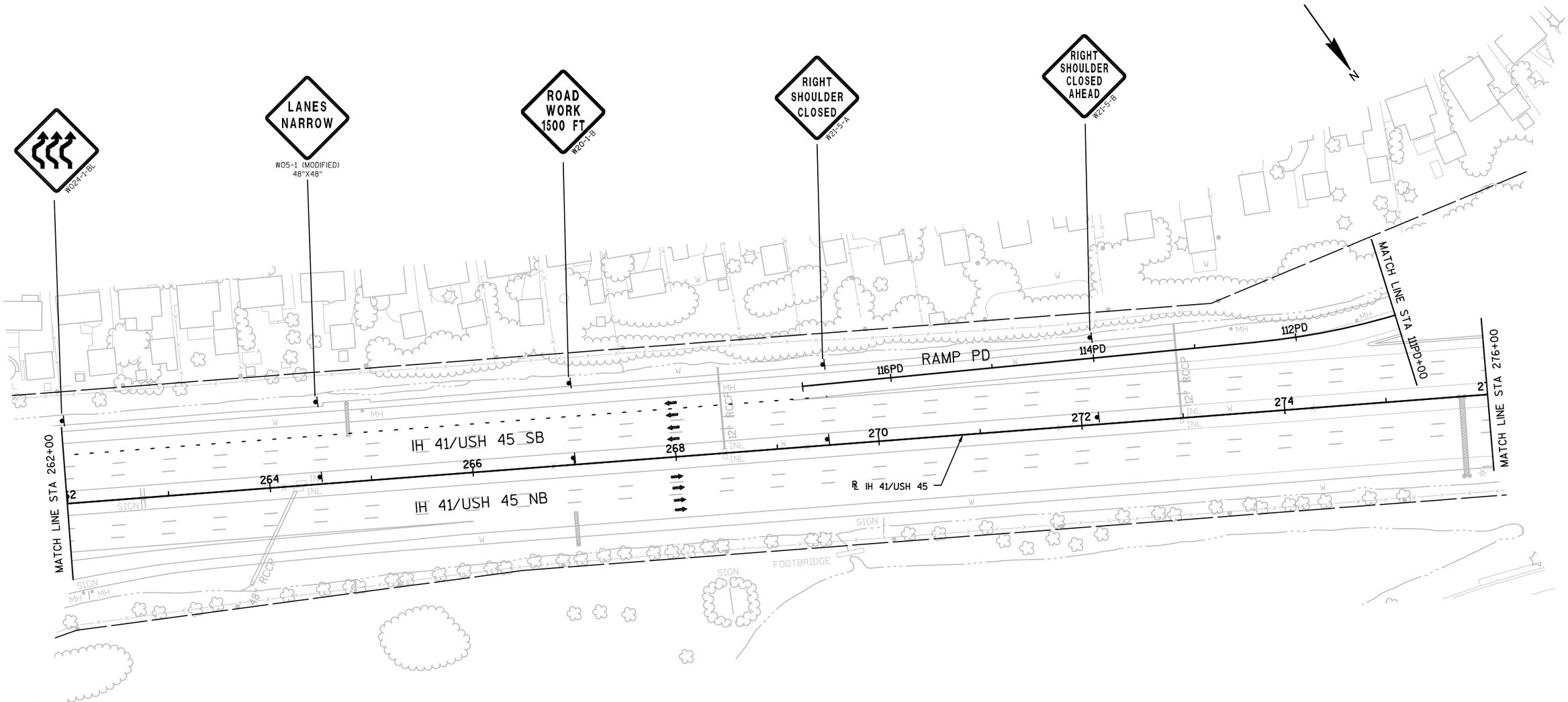
LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
(12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE) 3' DASH 9' SKIP

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 1B & 1C	SHEET 61	E

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 1B & 1C	SHEET 62	E

2

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

END ROAD WORK
G20-2A
48"X24"

ROAD WORK AHEAD
W20-1-A

ROAD WORK 1/2 MILE
W20-1-G

W21-62-Q
30"X48"
WORK ZONE

SPEED LIMIT 60
R2-1
48"X60"

FINES DOUBLE
W21-62-R
30"X48"

FINES DOUBLE IN WORK ZONES
Give 'em a BRAKE SLOW DOWN
W21-62
96"X48"

$200 MINIMUM
W21-62-P
96"X12"

SPEED LIMIT 60
W03-5
36"X36"

ROAD WORK 1 MILE
W20-1-F

ROAD WORK 2 MILE
W20-1

PILGRIM RD

PILGRIM RD

102PD

12PE

104PD

10PE

106PD

108PD

RAMP PD

38E RAMP PE

110PD

MATCH LINE STA 111PD+00

MATCH LINE STA 276+00

2600'

1 MILE

500'

500'

500'

500'

500'

6PE

4PE

2PE

IH 41/USH 45 SB

IH 41/USH 45 NB

276

278

280

282

284

286

288

290

℄ IH 41/USH 45

TRUCKS USE TWO RIGHT LANES

FIXED MESSAGE SIGN
USED IN STAGE 1B AND 1C

REFER TO SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

24" RCCP

12" RCCP

24" RCCP

24" CMCP

SIGN

INL

MH

W

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 1B & 1C	SHEET 63	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026001-S1.DWG
LAYOUT NAME - 026006-s1

PLOT DATE : 2/22/2017 10:40 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

STAGE 2

CONSTRUCTION:

- CONSTRUCT MIDDLE SECTION B-67-357
- REMOVE MEDIAN BARRIER
- INSTALL DRAIN SLOTTED VANE LONGITUDINAL
- TEMPORARY ASPHALT PAVING OF MEDIAN SHOULDERS
- RE-DECK STRUCTURE B-67-56

TRAFFIC:

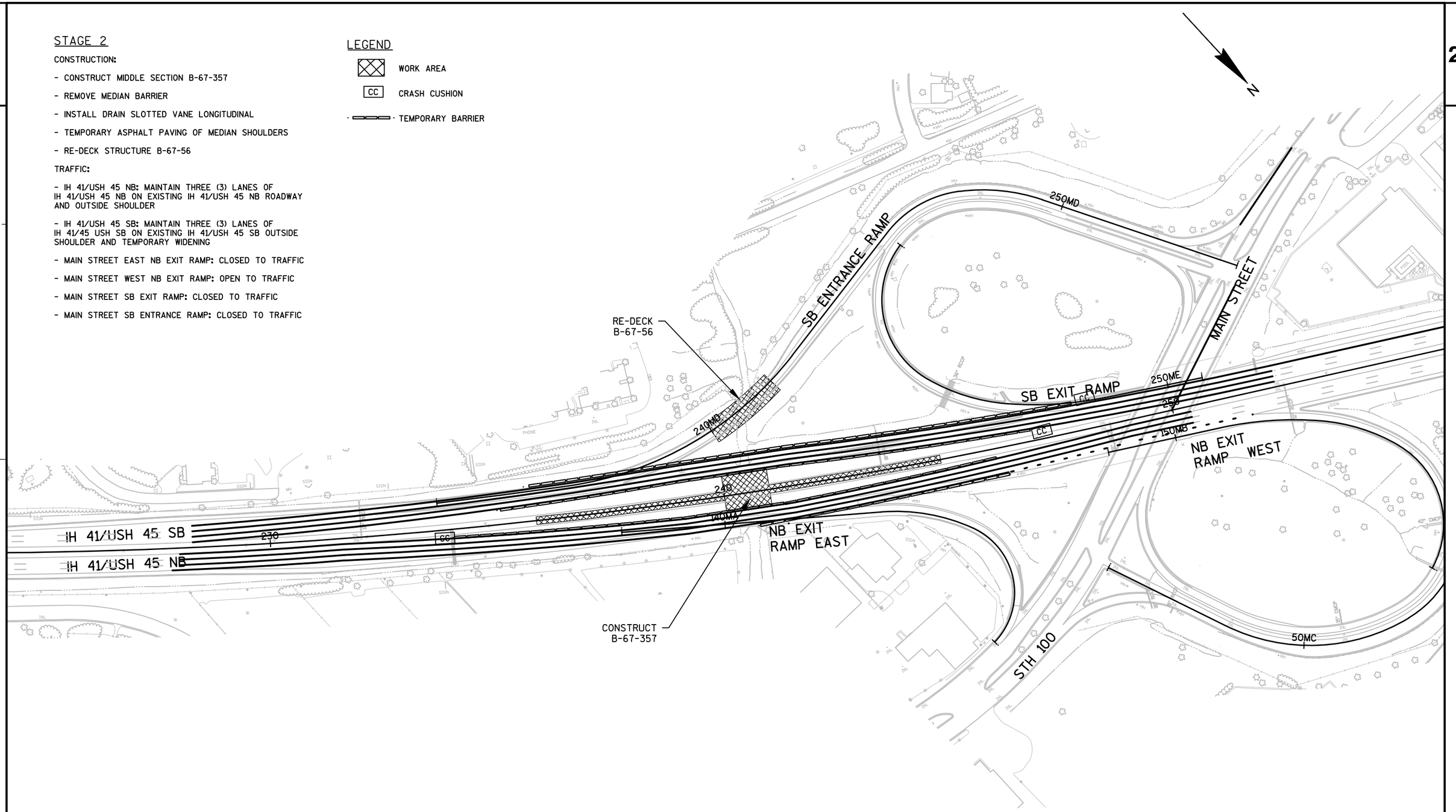
- IH 41/USH 45 NB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 NB ON EXISTING IH 41/USH 45 NB ROADWAY AND OUTSIDE SHOULDER
- IH 41/USH 45 SB: MAINTAIN THREE (3) LANES OF IH 41/45 USH SB ON EXISTING IH 41/USH 45 SB OUTSIDE SHOULDER AND TEMPORARY WIDENING
- MAIN STREET EAST NB EXIT RAMP: CLOSED TO TRAFFIC
- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC
- MAIN STREET SB EXIT RAMP: CLOSED TO TRAFFIC
- MAIN STREET SB ENTRANCE RAMP: CLOSED TO TRAFFIC

LEGEND

WORK AREA

CC CRASH CUSHION

TEMPORARY BARRIER



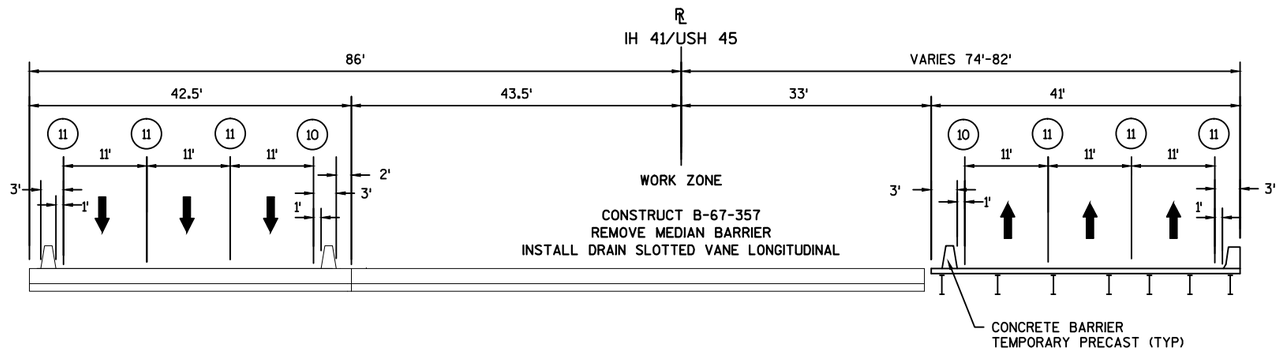
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL OVERVIEW: STAGE 2	SHEET 64 E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\025002-TC.DWG
025002-tc

PLOT DATE : 2/21/2017 11:00 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1" = 200'_XREF

WISDOT/CADDS SHEET 44

2



CONSTRUCTION STAGE 2 - TYPICAL SECTION

STA. 228+00 TO 253+00

LEGEND

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

2

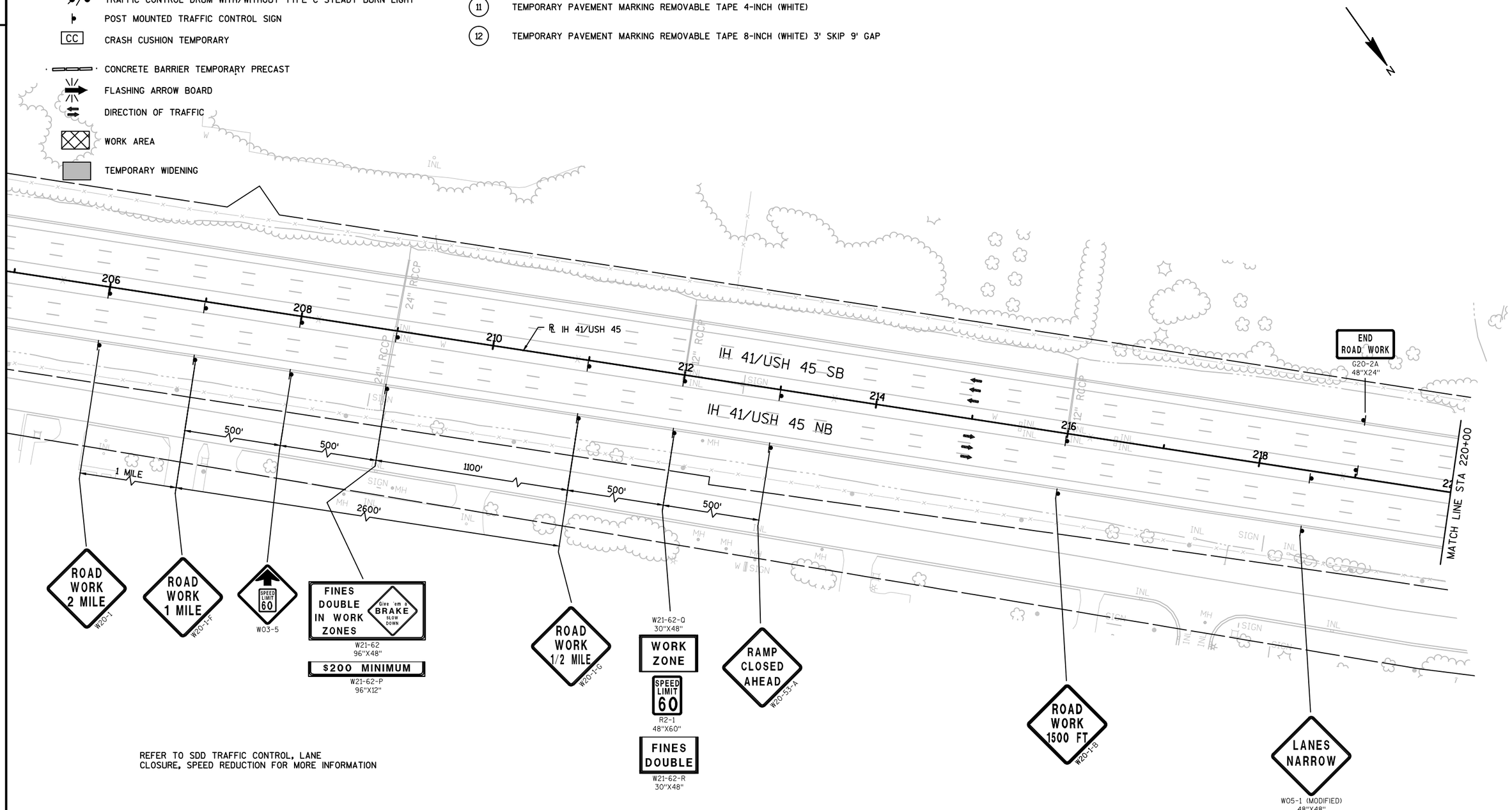
LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

(12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH (WHITE) 3' SKIP 9' GAP

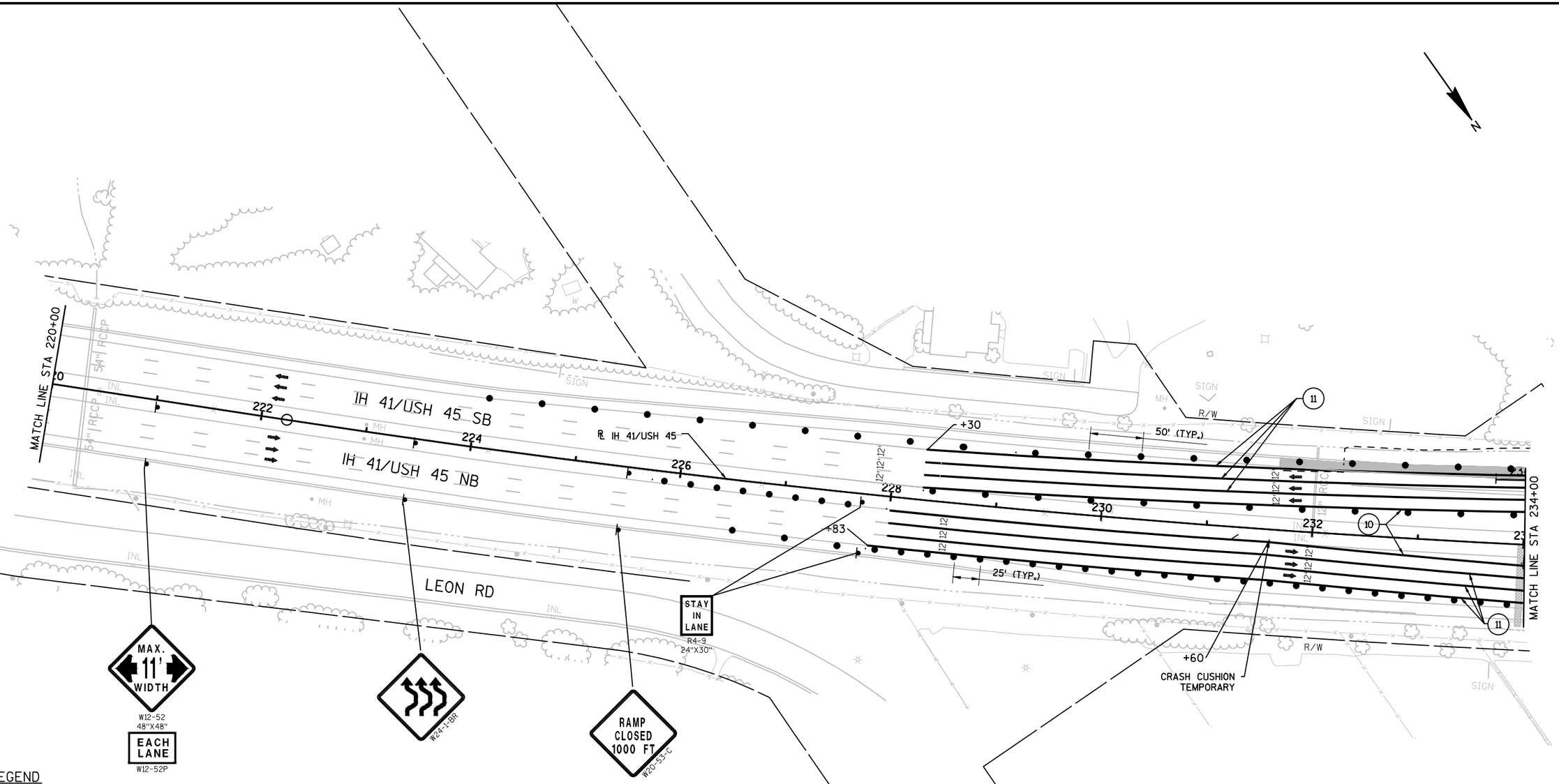


REFER TO SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 2	SHEET 66	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026101-S2.DWG
LAYOUT NAME - 026101-s2
PLOT DATE : 2/22/2017 9:42 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

(12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH (WHITE) 3' SKIP 9' GAP

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 2	SHEET 67	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026101-S2.DWG
LAYOUT NAME - 026102-s2
PLOT DATE : 2/22/2017 9:42 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

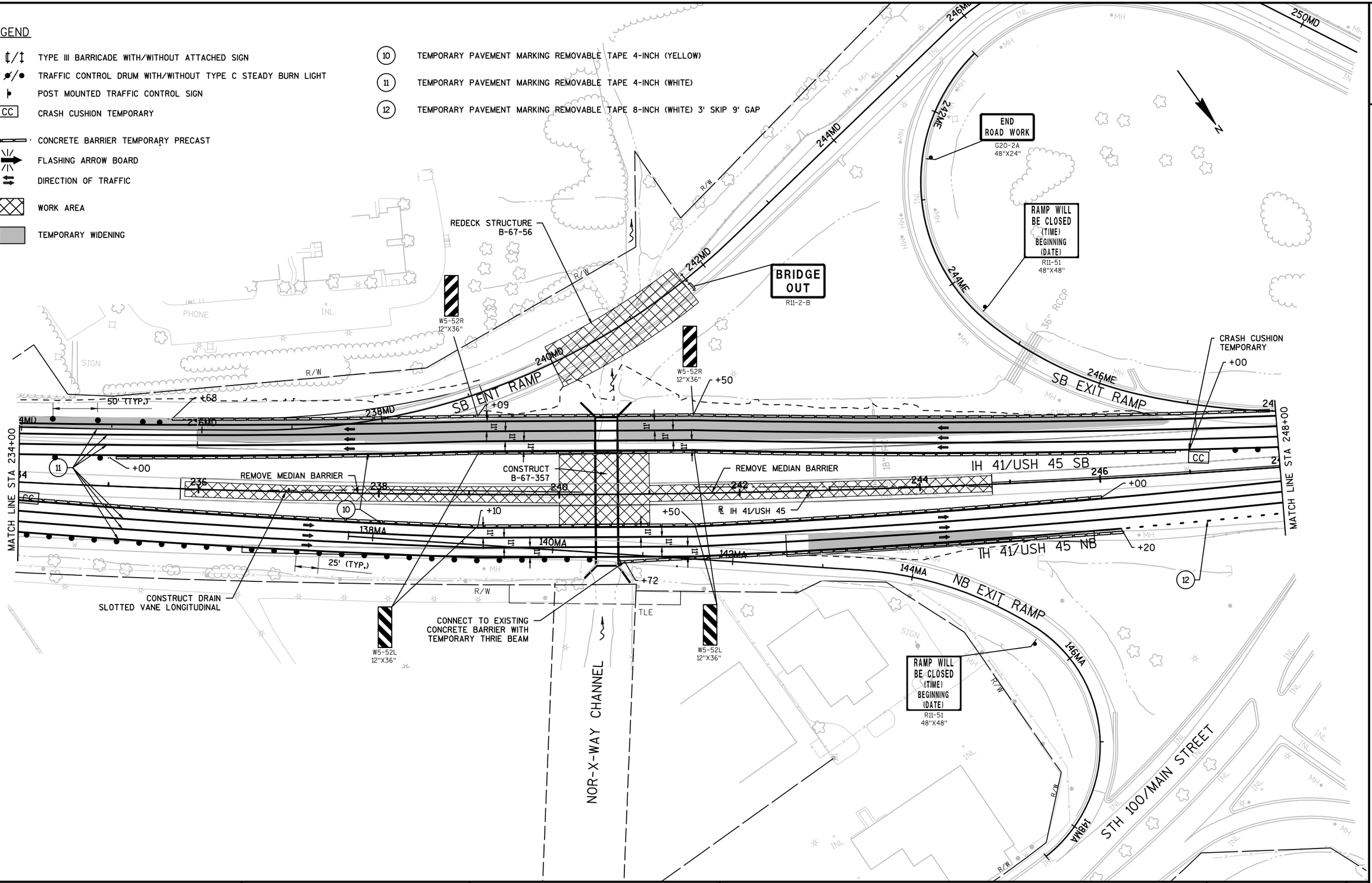
LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

(12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH (WHITE) 3' SKIP 9' GAP



PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 2	SHEET 68	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026101-S2.DWG
LAYOUT NAME - 026103-s2

PLOT DATE : 2/22/2017 9:42 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2

SEE SDD (BARRICADES AND SIGNS FOR MAINLINE CLOSURE) FOR RAMP CLOSURE

RAMP WILL BE CLOSED (TIME) BEGINNING (DATE)
R11-51
48"X48"

250MD

252MD SB ENT. RAMP

SB EXIT RAMP

254MD

BRIDGE OUT
R11-2-B

500'

25' TYP

R3-1
24"X24"

RAMP CLOSED AHEAD
W20-53-A

END ROAD WORK
G20-2A
48"X24"

RAMP CLOSED
R11-2-R

MAX. 11' WIDTH
W12-52
48"X48"

EACH LANE
W12-52P
36"X42"

RAMP CLOSED 1000 FT
W20-53-C

N

25' (TYP.)

END ROAD WORK
G20-2A
48"X24"

CRASH CUSHION TEMPORARY

MAIN STREET

STAY IN LANE
R4-9
24"X30"

IH 41/USH 45 SB

IH 41/USH 45 NB

MATCH LINE STA 248+00

MATCH LINE STA 262+00

250ME

12" RCCP

42" CMCP

R3-2
24"X24"

RAMP CLOSED AHEAD
W20-53-A

END ROAD WORK
G20-2A
48"X24"

RAMP MB

RAMP MC

R IH 41/USH 45

POOL

SIGN

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

(12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH (WHITE) 3' SKIP 9' GAP

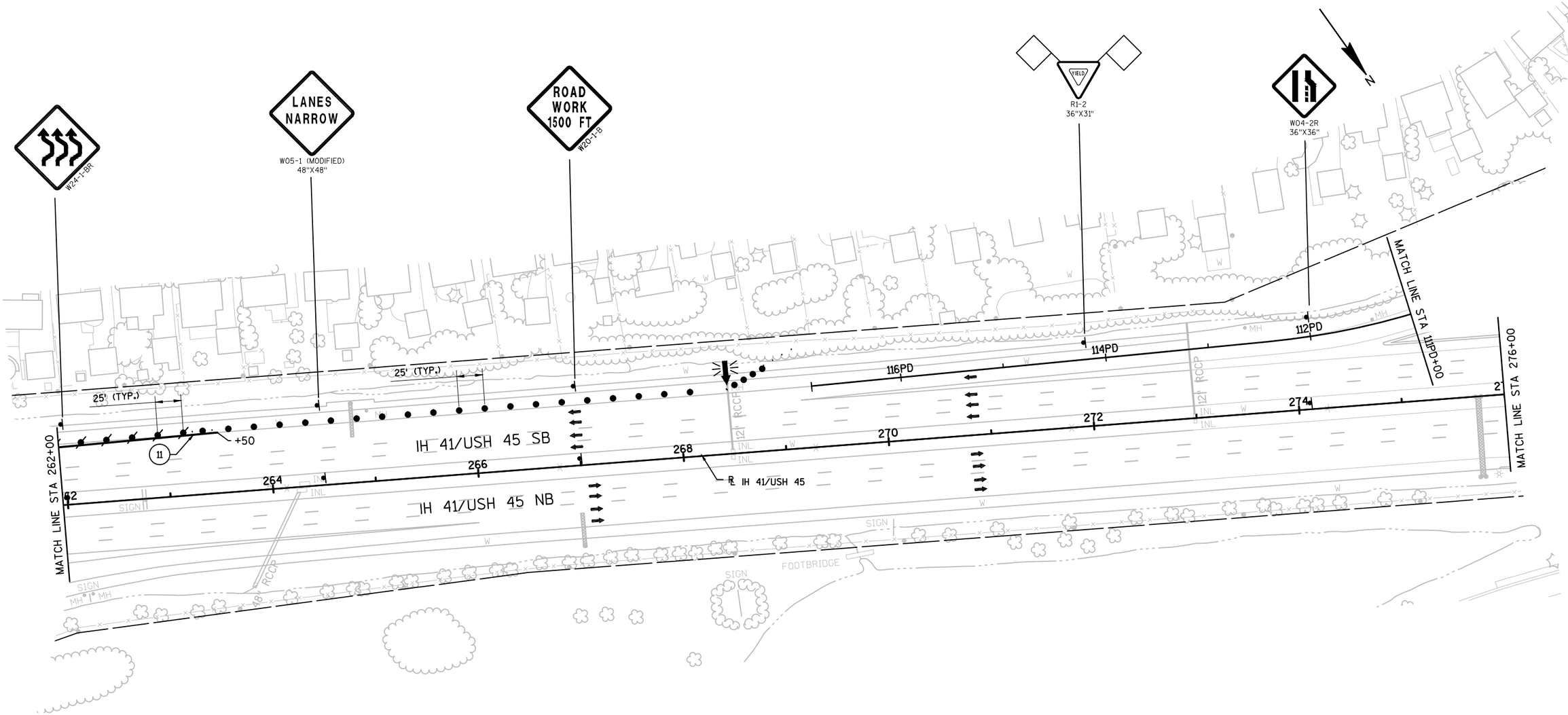
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 2	SHEET 69	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026101-S2.DWG
LAYOUT NAME - 026104-s2

PLOT DATE : 2/22/2017 9:42 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 2	SHEET 70	E

2

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- 10 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- 11 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

W03-2

RIGHT LANE CLOSED AHEAD
W20-5-A

END ROAD WORK
G20-2A
48"X24"

ROAD WORK AHEAD
W20-1-A

ROAD WORK 1/2 MILE
W20-1-G

W21-62-Q
30"X48"
WORK ZONE

SPEED LIMIT 60
R2-1
48"X60"

FINES DOUBLE
W21-62-R
30"X48"

FINES DOUBLE IN WORK ZONES
Give 'em a BRAKE SLOW DOWN
W21-62
96"X48"

$200 MINIMUM
W21-62-P
96"X12"

SPEED LIMIT 60
W03-5

ROAD WORK 1 MILE
W20-1-T

ROAD WORK 2 MILE
W20-1

RAMP CLOSED AHEAD
W20-53-A

102PD
12PD
104PD
10PD
106PD
RAMP PD
108PD
110PD
MATCH LINE STA 111PD+00
MATCH LINE STA 276+00
6PD RAMP PE
6PD
4PD
2PD

PILGRIM RD
PILGRIM RD

2600'
1 MILE
1600'
500'
500'
500'

REFER TO SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

IH 41/USH 45 SB
IH 41/USH 45 NB
℄ IH 41/USH 45

278
280
282
284
286
288
290

24" RCCP
12" RCCP
24" RCCP
24" CMCP

N

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 2	SHEET 71	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026101-S2.DWG
LAYOUT NAME - 026106-s1

PLOT DATE : 2/22/2017 9:43 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

STAGE 3A

CONSTRUCTION:

- RECONSTRUCT NB IH 41/USH 45 EXIT RAMP TO MAIN STREET EAST

TRAFFIC:

- IH 41/USH 45 NB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 NB ON EXISTING IH 41/USH 45 NB ROADWAY AND INSIDE SHOULDER AND SB INSIDE SHOULDER

- IH 41/USH 45 SB: NEW TRAFFIC PATTERN. MAINTAIN THREE (3) LANES OF IH 41/USH 45 SB ON EXISTING IH 41/USH 45 SB OUTSIDE SHOULDER AND TEMPORARY WIDENING

- MAIN STREET EAST NB EXIT RAMP: CLOSED TO TRAFFIC

- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB ENTRANCE RAMP: OPEN TO TRAFFIC

STAGE 3B

WINTER SHUTDOWN

- SEE STAGE 3B WINTER SHUTDOWN TRAFFIC CONTROL SHEETS

STAGE 3C

CONSTRUCTION:

- CONSTRUCT NORTH SECTION B-67-357

TRAFFIC:

- IH 41/USH 45 NB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 NB ON EXISTING IH 41/USH 45 NB ROADWAY AND INSIDE SHOULDER AND SB INSIDE SHOULDER

- IH 41/USH 45 SB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 SB ON EXISTING IH 41/USH 45 SB OUTSIDE SHOULDER AND TEMPORARY WIDENING

- MAIN STREET EAST NB EXIT RAMP: CLOSED TO TRAFFIC

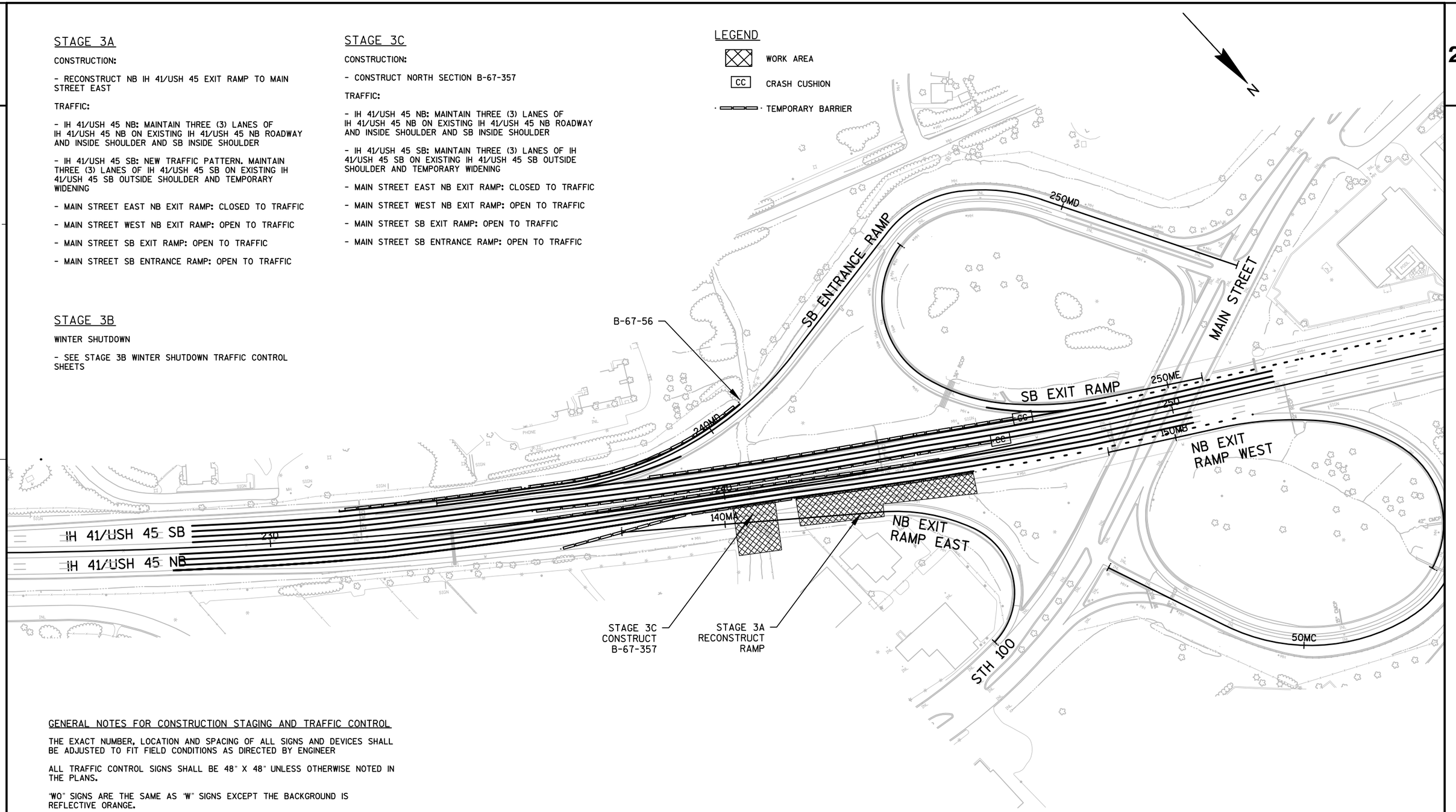
- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB ENTRANCE RAMP: OPEN TO TRAFFIC

LEGEND

- WORK AREA
- CC — CRASH CUSHION
- TEMPORARY BARRIER



GENERAL NOTES FOR CONSTRUCTION STAGING AND TRAFFIC CONTROL

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY ENGINEER

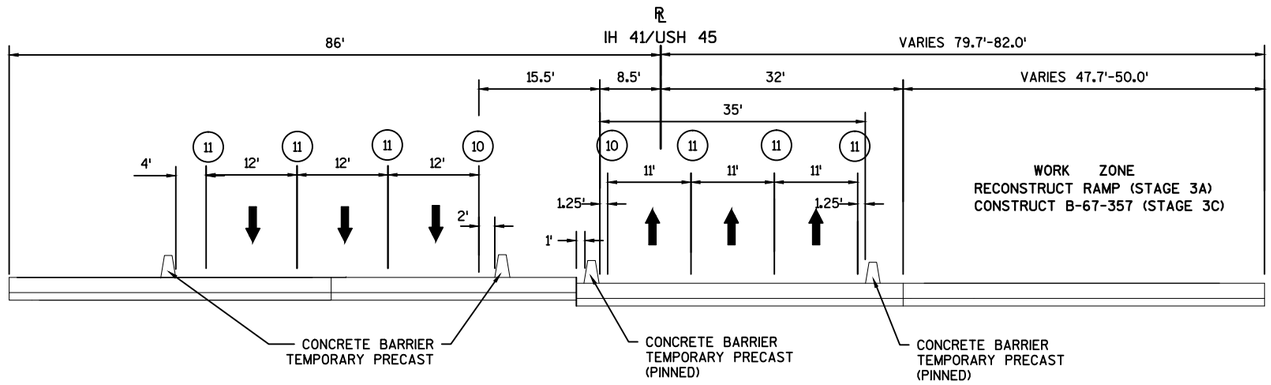
ALL TRAFFIC CONTROL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED IN THE PLANS.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS REFLECTIVE ORANGE.

TRAFFIC CONTROL DRUMS IN TAPERS SHALL BE EQUIPPED WITH TRAFFIC CONTROL WARNING LIGHTS, TYPE "C". ONE-WAY LIGHTS IN TAPERS ONLY, UNLESS OTHERWISE SHOWN, DRUMS SHALL BE SPACED AT 50 FT OC ON TAPERS AND 100FT OC ON TANGENTS AS OTHERWISE SHOWN.

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL OVERVIEW: STAGE 3A & 3C	SHEET 72 E

2



CONSTRUCTION STAGE 3A AND 3C - TYPICAL SECTION

STA. 228+00 TO STA. 253+00

2

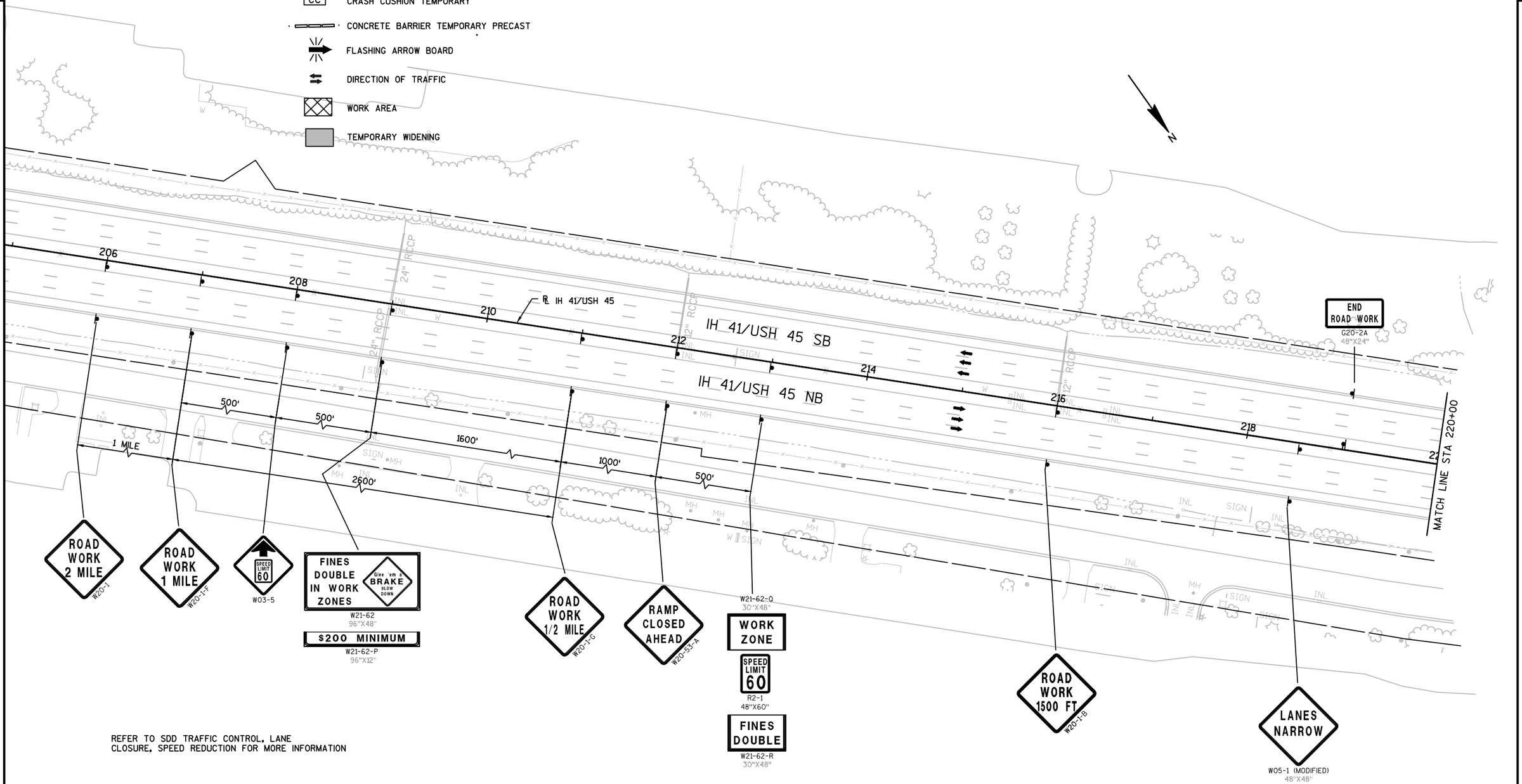
2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)



REFER TO SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

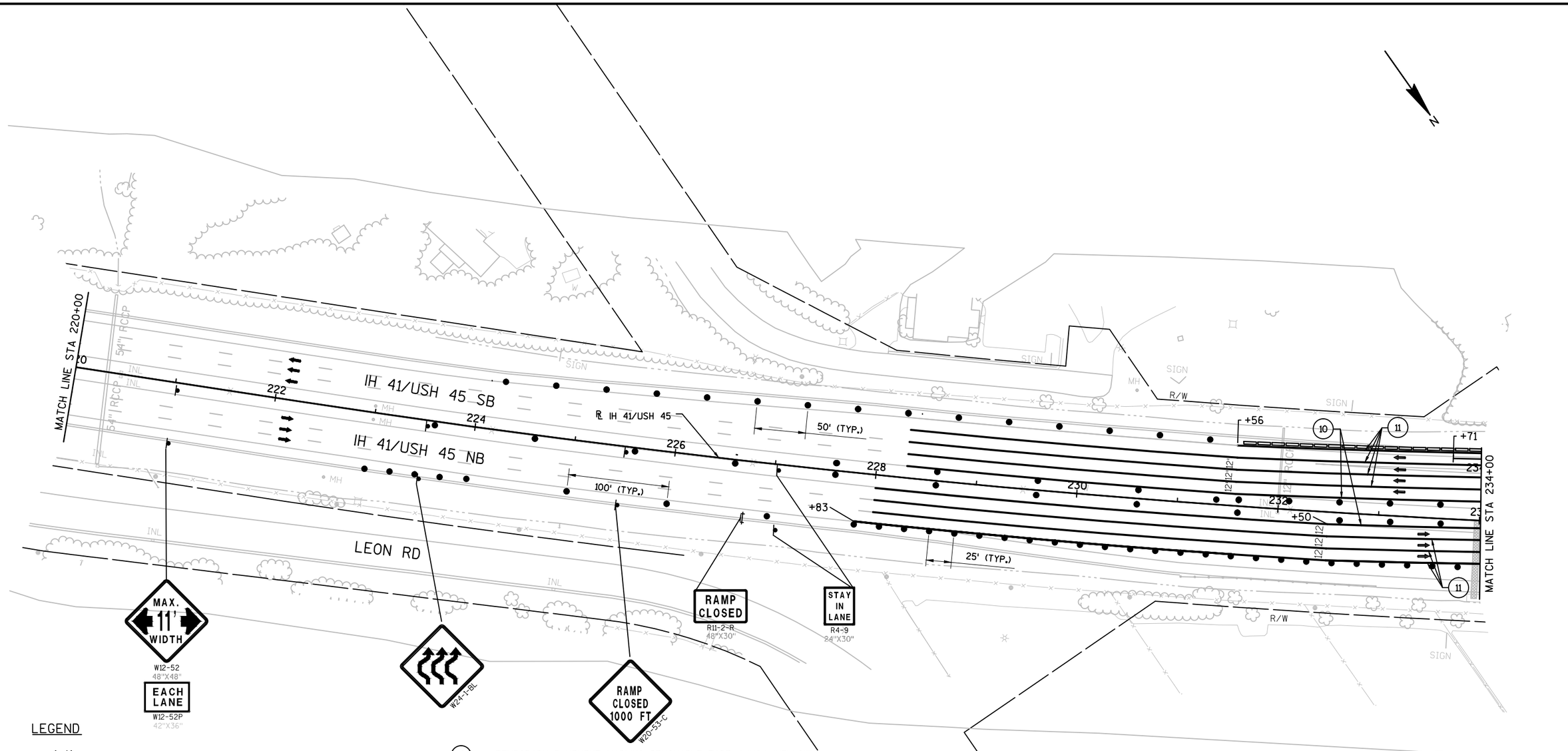
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3A AND 3C	SHEET 74	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026201-S3.DWG
LAYOUT NAME - 026201-s3

PLOT DATE : 2/22/2017 10:02 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3A AND 3C	SHEET 75	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026201-S3.DWG
LAYOUT NAME - 026202-s3
PLOT DATE : 2/22/2017 10:41 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

2

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

(12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE) 3' DASH 9' SKIP

(13) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH (WHITE)

RIGHT SHOULDER CLOSED
W21-5-A

END ROAD WORK
G20-2A
48"X24"

CONNECT TO BRIDGE

SB ENTRANCE RAMP

SB EXIT RAMP

CRASH CUSHION TEMPORARY

W5-52R 12"X36"

W5-52L 12"X36"

IH 41/USH 45 SB

IH 41/USH 45 NB

IH 41/USH 45

MATCH LINE STA 234+00

MATCH LINE STA 248+00

CONNECT TO EXISTING MEDIAN BARRIER

STAGE 3C CONSTRUCT B-67-357

NOR-X-WAY CHANNEL

STAGE 3A RECONSTRUCT GORE

NB EXIT RAMP

RAMP WILL BE CLOSED (TIME) BEGINING (DATE)
R11-51
48"X48"

END ROAD WORK
G20-2A
48"X24"

STH 100/MAIN STREET

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3A AND 3C	SHEET 76	E

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- 10 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- 11 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
- 12 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE) 3' DASH 9' SKIP

ROAD WORK AHEAD
W20-1-A

250MD

252MD SB ENT. RAMP

SB EXIT RAMP

254MD

STAY IN LANE
R4-9
24"X30"

MAIN STREET

SEE PAVEMENT MARKING PLANS

250ME

MATCH LINE STA 248+00

+60

50' (TYP.)

+38

+10

IH 41/USH 45 SB

IH 41/USH 45 NB

IH 41/USH 45

MATCH LINE STA 262+00

RAMP MB

RAMP MC

END ROAD WORK
G20-2A
48"X24"

42" CMCP

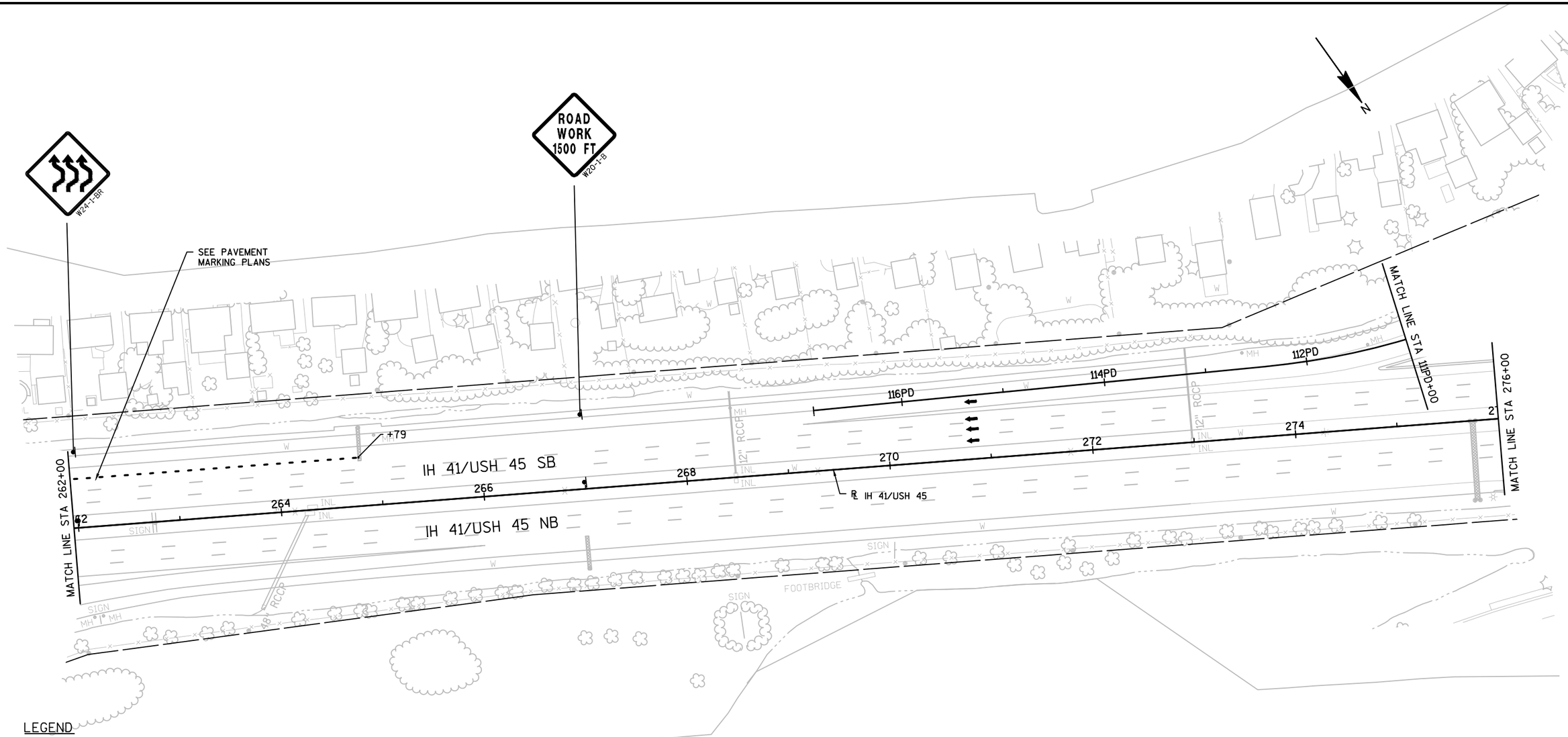
12" RCCP

POOL

N

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3A AND 3C	SHEET 77	E

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3A AND 3C	SHEET 78	E

2

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- 10 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- 11 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

END ROAD WORK
G20-2A
48"X24"

ROAD WORK AHEAD
W20-1-A

ROAD WORK 1/2 MILE
W20-1-G

ROAD WORK 1 MILE
W20-1-F

ROAD WORK 2 MILE
W20-1

W21-62-0
30"X48"
WORK ZONE

SPEED LIMIT 60
R2-1
48"X60"

FINES DOUBLE
W21-62-R
30"X48"

FINES DOUBLE IN WORK ZONES
Give 'em a BRAKE SLOW DOWN
W21-62
96"X48"

$200 MINIMUM
W21-62-P
96"X12"

SPEED LIMIT 60
W03-5
36"X36"

REFER TO SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

PILGRIM RD

PILGRIM RD

RAMP PD

RAMP PE

102PD

12PE

104PD

10PE

106PD

108PD

110PD

38E

4PE

2PE

2600'

1 MILE

1600'

500'

500'

500'

MATCH LINE STA 111PD+00

MATCH LINE STA 276+00

IH 41/USH 45 SB

IH 41/USH 45 NB

℄ IH 41/USH 45

278

280

282

284

286

288

290

24" RCCP

12" RCCP

24" RCCP

24" CMCP

SIGN

INL

MH

W

N

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3A AND 3C	SHEET 79	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026201-S3.DWG
LAYOUT NAME - 026206-s1

PLOT DATE : 2/22/2017 10:02 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

STAGE 3B

CONSTRUCTION:

- NONE

TRAFFIC:

- IH 41/USH 45 NB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 NB ON EXISTING IH 41/USH 45 NB ROADWAY AND INSIDE SHOULDER AND SB INSIDE SHOULDER

- IH 41/USH 45 SB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 SB ON EXISTING IH 41/USH 45 SB OUTSIDE SHOULDER AND TEMPORARY WIDENING

- MAIN STREET EAST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB EXIT RAMP: OPEN TO TRAFFIC

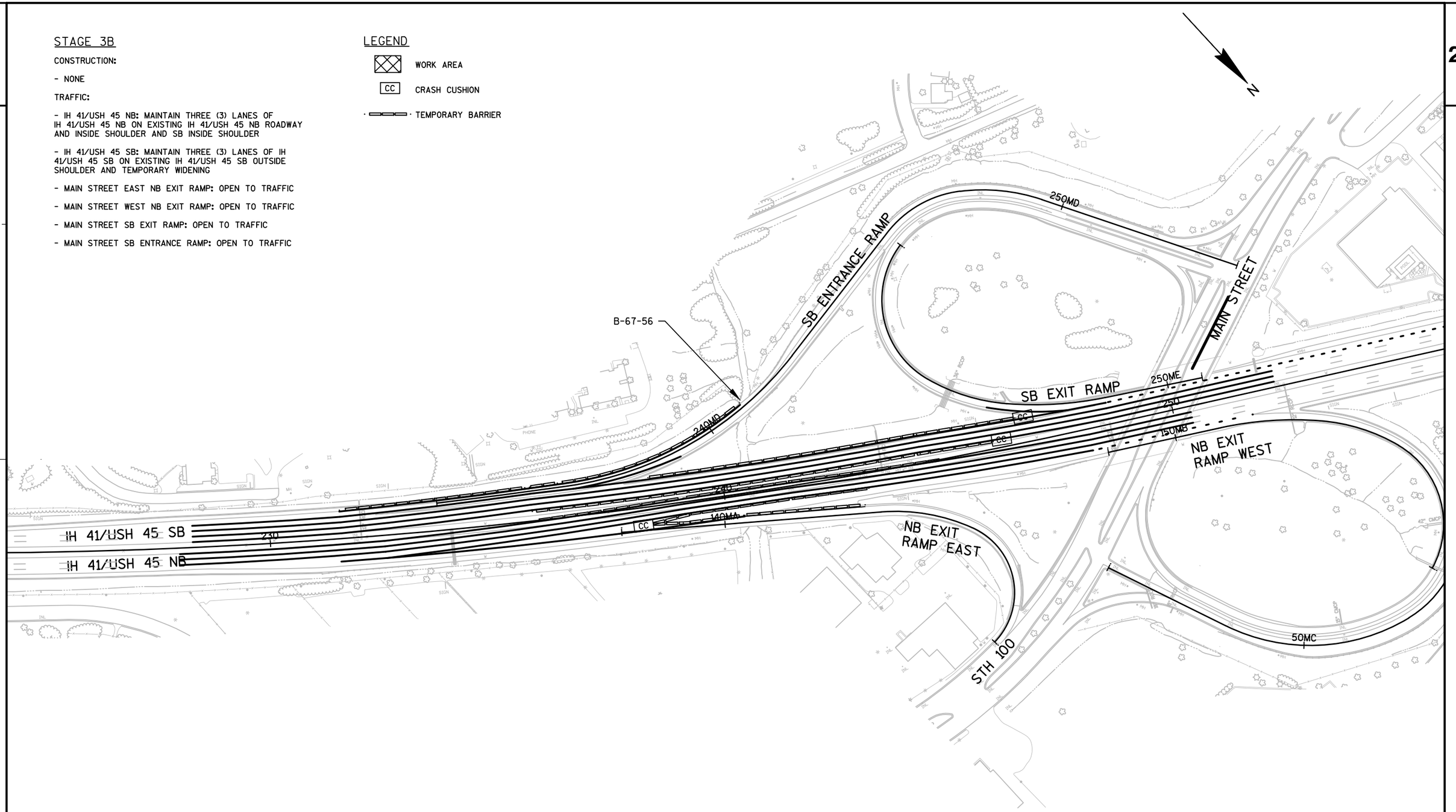
- MAIN STREET SB ENTRANCE RAMP: OPEN TO TRAFFIC

LEGEND

WORK AREA

CC CRASH CUSHION

TEMPORARY BARRIER



2

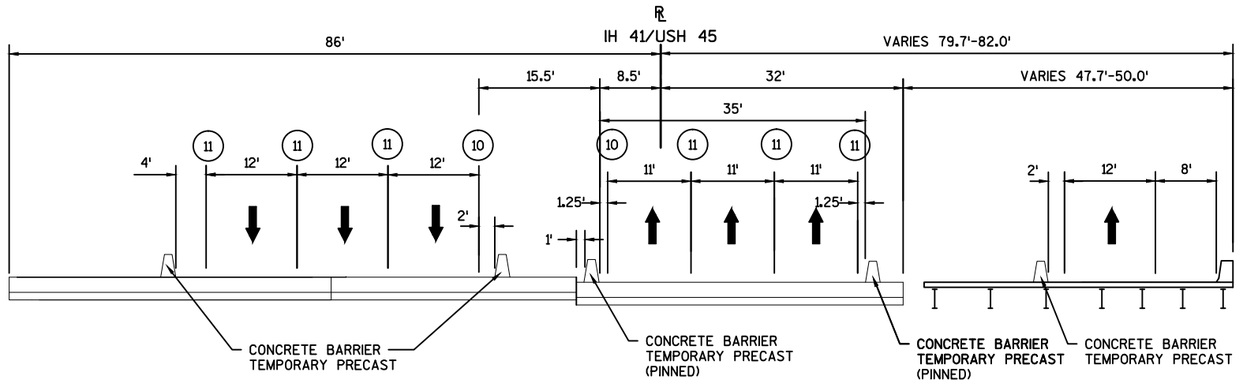
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL OVERVIEW: 3B - WINTER SHUTDOWN	SHEET 80 E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\025003B-TC.DWG
025003B-tc

PLOT DATE : 1/31/2017 4:20 PM PLOT BY : HENRYKA GASIK PLOT NAME : PLOT SCALE : 1" = 200'_XREF

WISDOT/CADDS SHEET 44

2



CONSTRUCTION STAGE 3B - TYPICAL SECTION

STA. 228+00 TO STA. 253+00

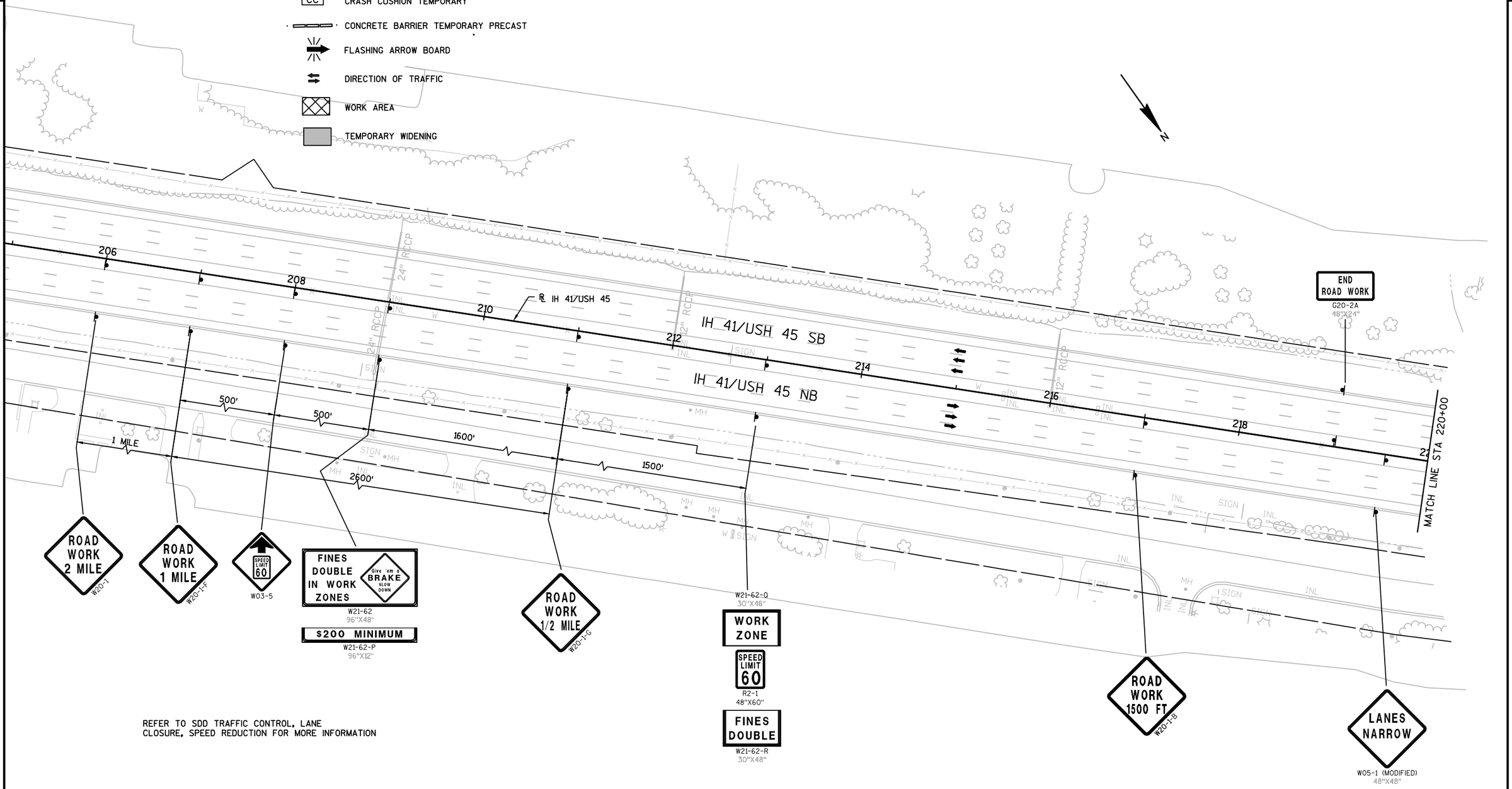
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION STAGE 3B TYPICAL SECTION	SHEET 81	E

2

2

LEGEND

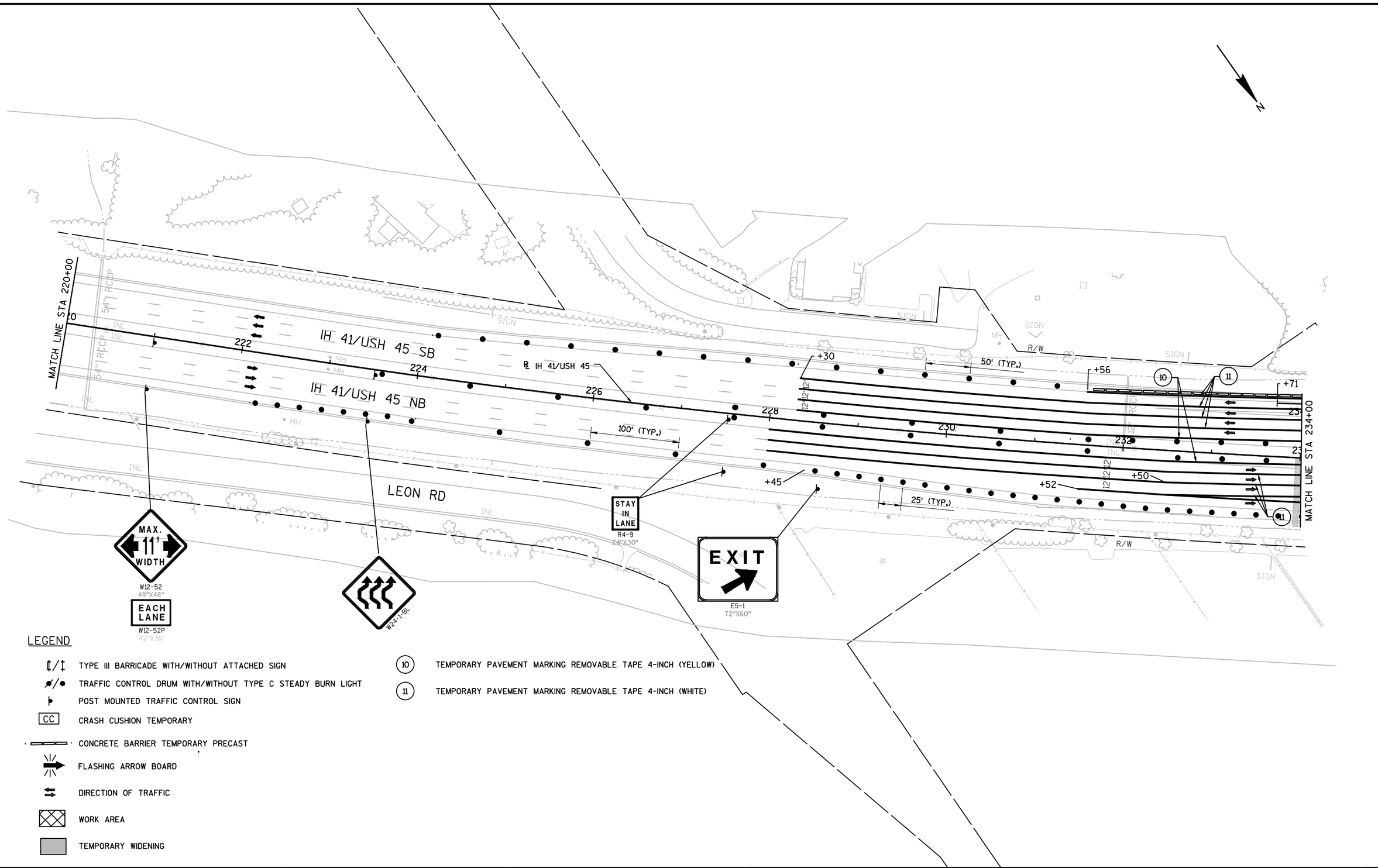
- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)



REFER TO SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3B	SHEET 82	E

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3B	SHEET 83	E

2

LEGEND

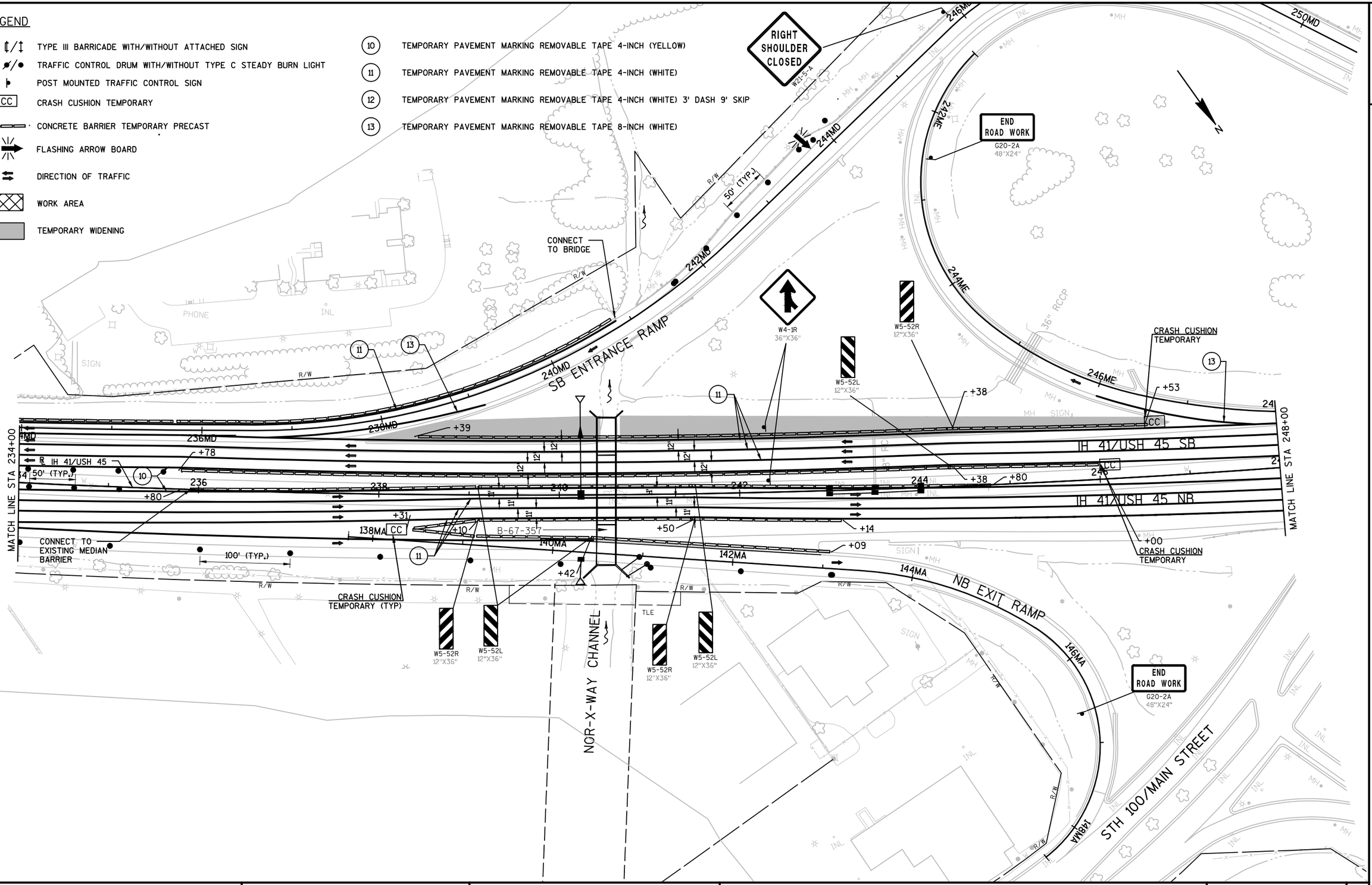
- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

(12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE) 3' DASH 9' SKIP

(13) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH (WHITE)



PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3B	SHEET 84	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026201-S3B.DWG
LAYOUT NAME - 026203-s3

PLOT DATE : 2/22/2017 9:57 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2

ROAD WORK AHEAD
W20-1-A

250MD

252MD SB ENT. RAMP

254MD

SB EXIT RAMP

MAIN STREET

STAY IN LANE
R4-9
24"X30"

100' (TYP.)

SEE PAVEMENT MARKING PLANS

IH 41/USH 45 SB

IH 41/USH 45 NB

℄ IH 41/USH 45

MATCH LINE STA 248+00

MATCH LINE STA 262+00

BME

250ME

+60

+10

248

250

252

254

256

258

260

12"
RCCP

RAMP MB

RAMP MC

END ROAD WORK
G20-2A
48"X24"

POOL

SIGN

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)
- (12) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE) 3' DASH 9' SKIP
- (13) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH (WHITE)

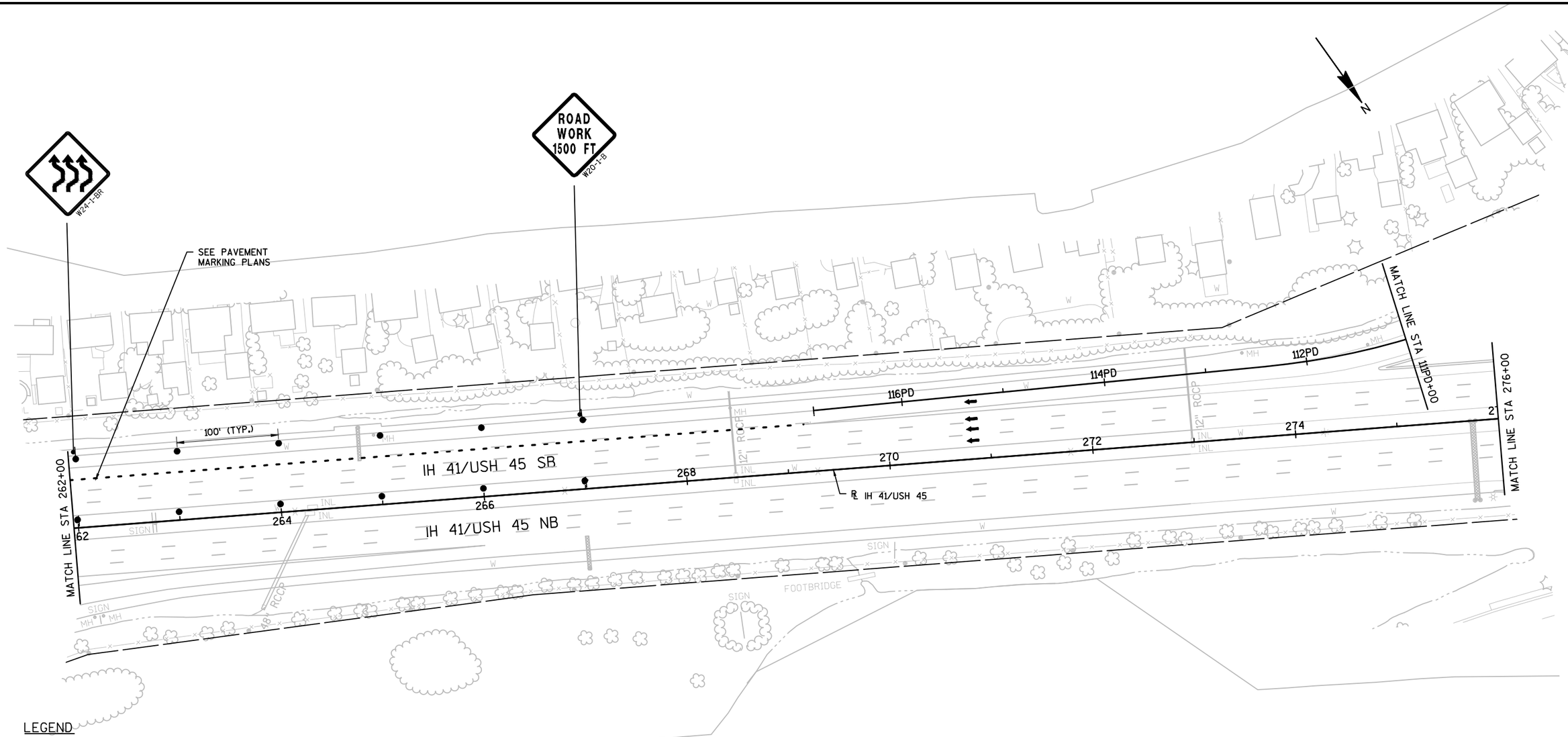
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3B	SHEET 85	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026201-S3B.DWG
LAYOUT NAME - 026204-s3

PLOT DATE : 2/22/2017 9:57 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3B	SHEET 86	E

2

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

END ROAD WORK
G20-2A
48"X24"

ROAD WORK AHEAD
W20-1-A

ROAD WORK 1/2 MILE
W20-1-G

W21-62-Q
30"X48"
WORK ZONE

SPEED LIMIT 60
R2-1
48"X60"

FINES DOUBLE
W21-62-R
30"X48"

FINES DOUBLE IN WORK ZONES
Give 'em a BRAKE SLOW DOWN
W21-62
96"X48"

$200 MINIMUM
W21-62-P
96"X12"

SPEED LIMIT 60
W03-5
36"X36"

ROAD WORK 1 MILE
W20-1-7

ROAD WORK 2 MILE
W20-1

REFER TO SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

102PD
12PE
104PD
10PE
106PD
RAMP PD
108PD
110PD
MATCH LINE STA 111PD+00
38E RAMP PE
38E
4PE
2PE
2600'
1 MILE
1600'
500'
500'
500'
MATCH LINE STA 276+00
IH 41/USH 45 SB
IH 41/USH 45 NB
℄ IH 41/USH 45
PILGRIM RD
PILGRIM RD
24" RCCP
12" RCCP
24" RCCP
24" CMCP
SIGN
MH
INL
W
N

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 3B	SHEET 87	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026201-S3B.DWG
LAYOUT NAME - 026206-s1

PLOT DATE : 2/22/2017 9:58 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

STAGE 4

CONSTRUCTION:

- CONSTRUCT MEDIAN BARRIER AND SHOULDERS, REMOVE TEMPORARY DRAIN SLOTTED VANE LONGITUDINAL

TRAFFIC:

- IH 41/USH 45 NB: ALL LANES OPEN TO TRAFFIC

- IH 41/USH 45 SB: MAINTAIN THREE (3) LANES OF IH 41/USH 45 SB ON EXISTING IH 41/USH 45 SB OUTSIDE SHOULDER AND TEMPORARY WIDENING

- MAIN STREET EAST NB EXIT RAMP: OPEN TO TRAFFIC

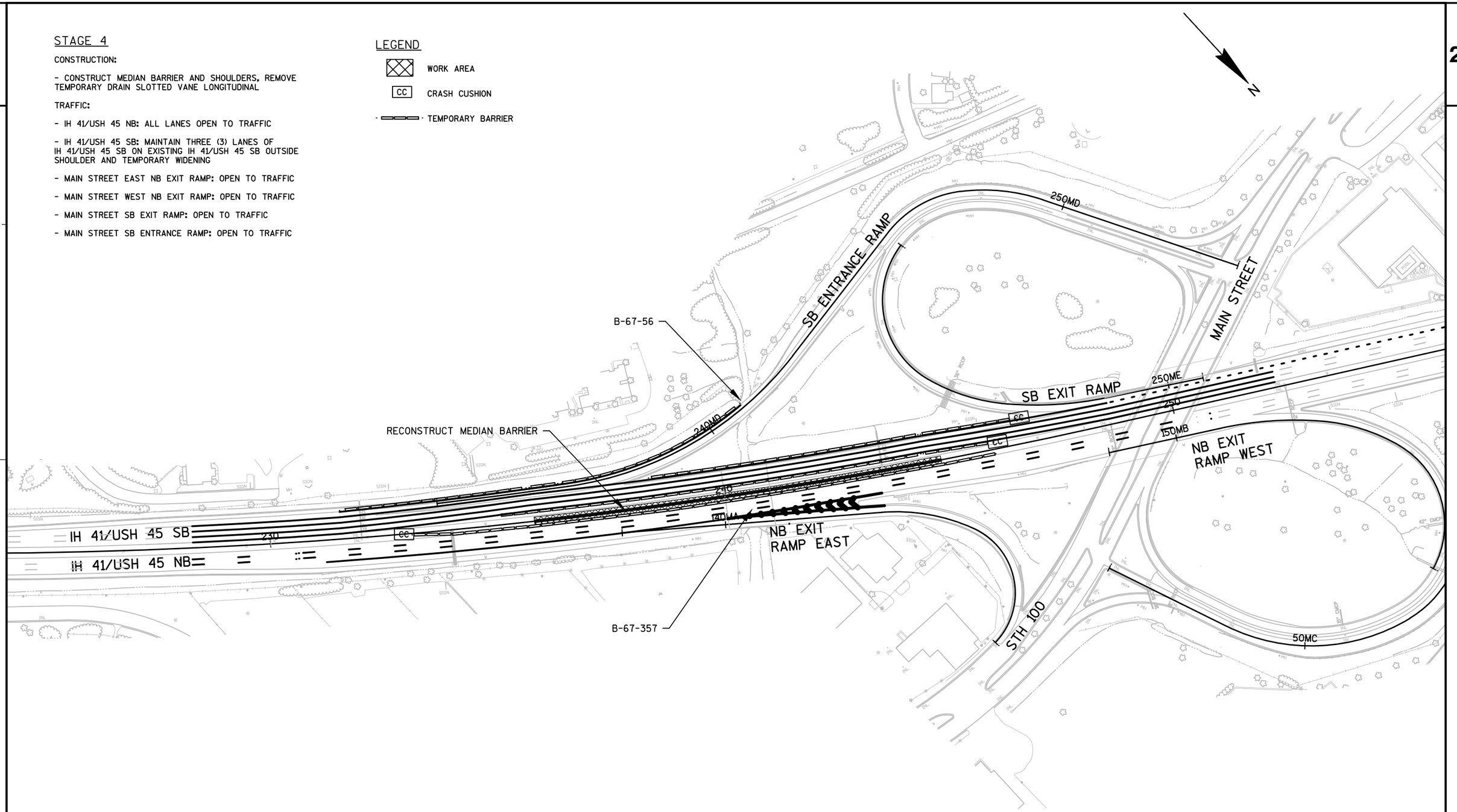
- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB EXIT RAMP: OPEN TO TRAFFIC

- MAIN STREET SB ENTRANCE RAMP: OPEN TO TRAFFIC

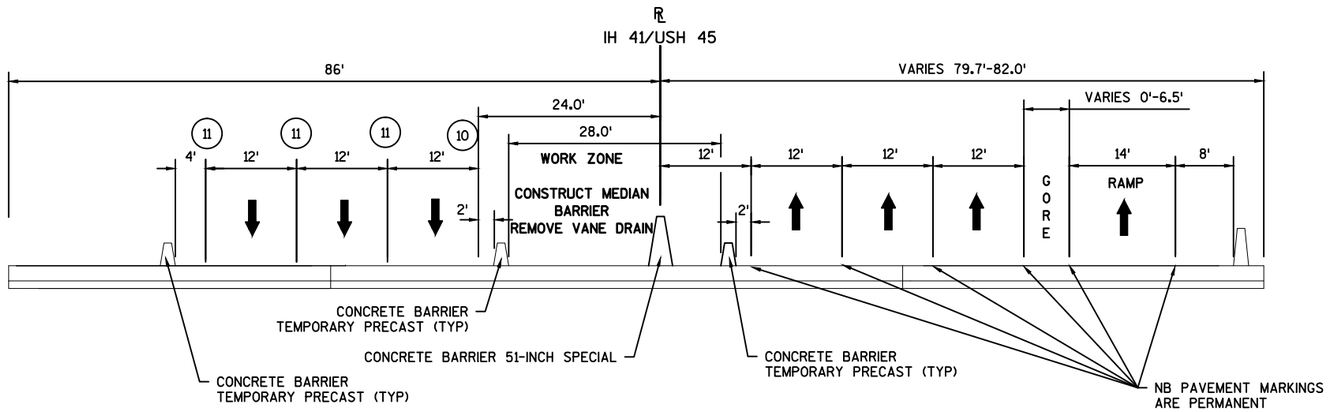
LEGEND

- WORK AREA
- CC — CRASH CUSHION
- TEMPORARY BARRIER



PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL OVERVIEW: STAGE 4	SHEET 88 E

2



CONSTRUCTION STAGE 4 - TYPICAL SECTION

STA. 228+00 TO STA. 253+00

2

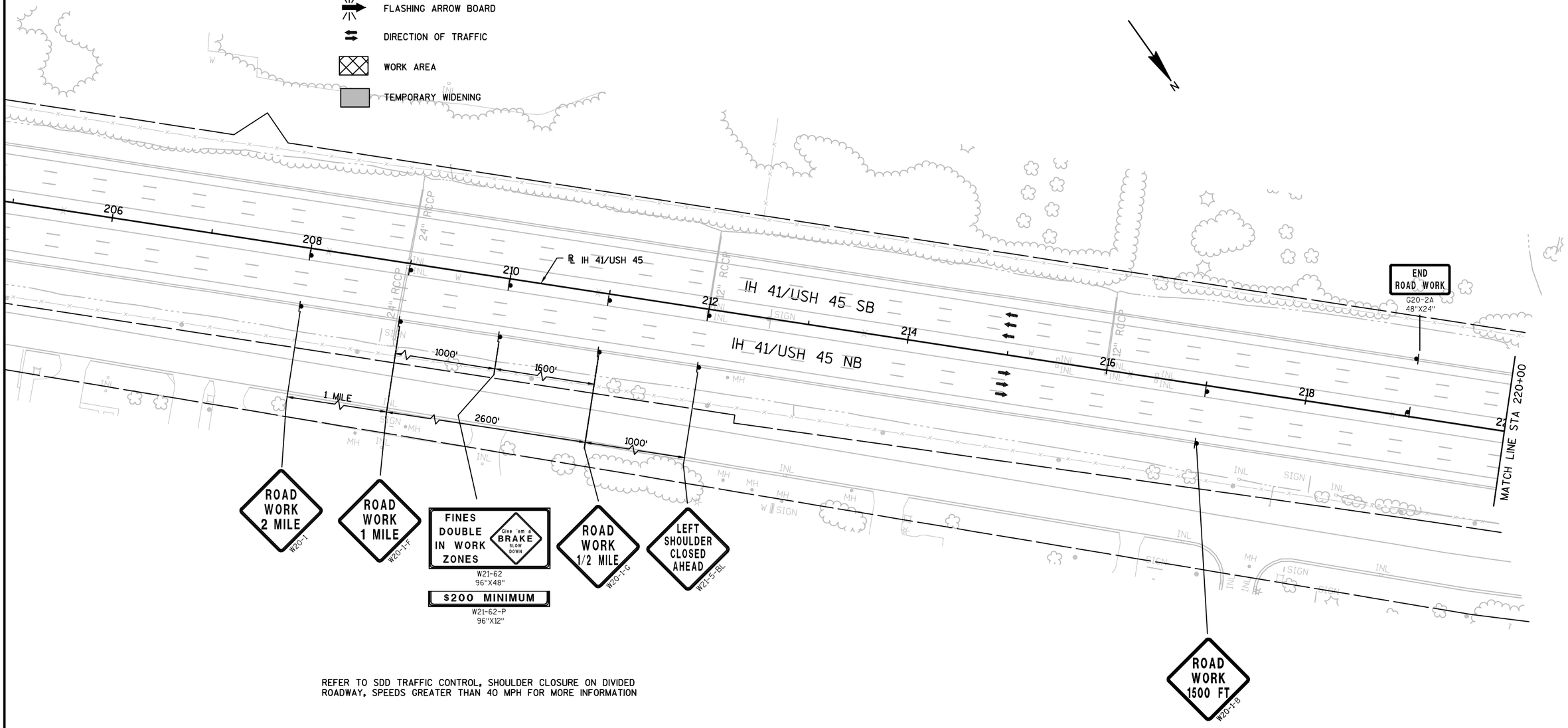
2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

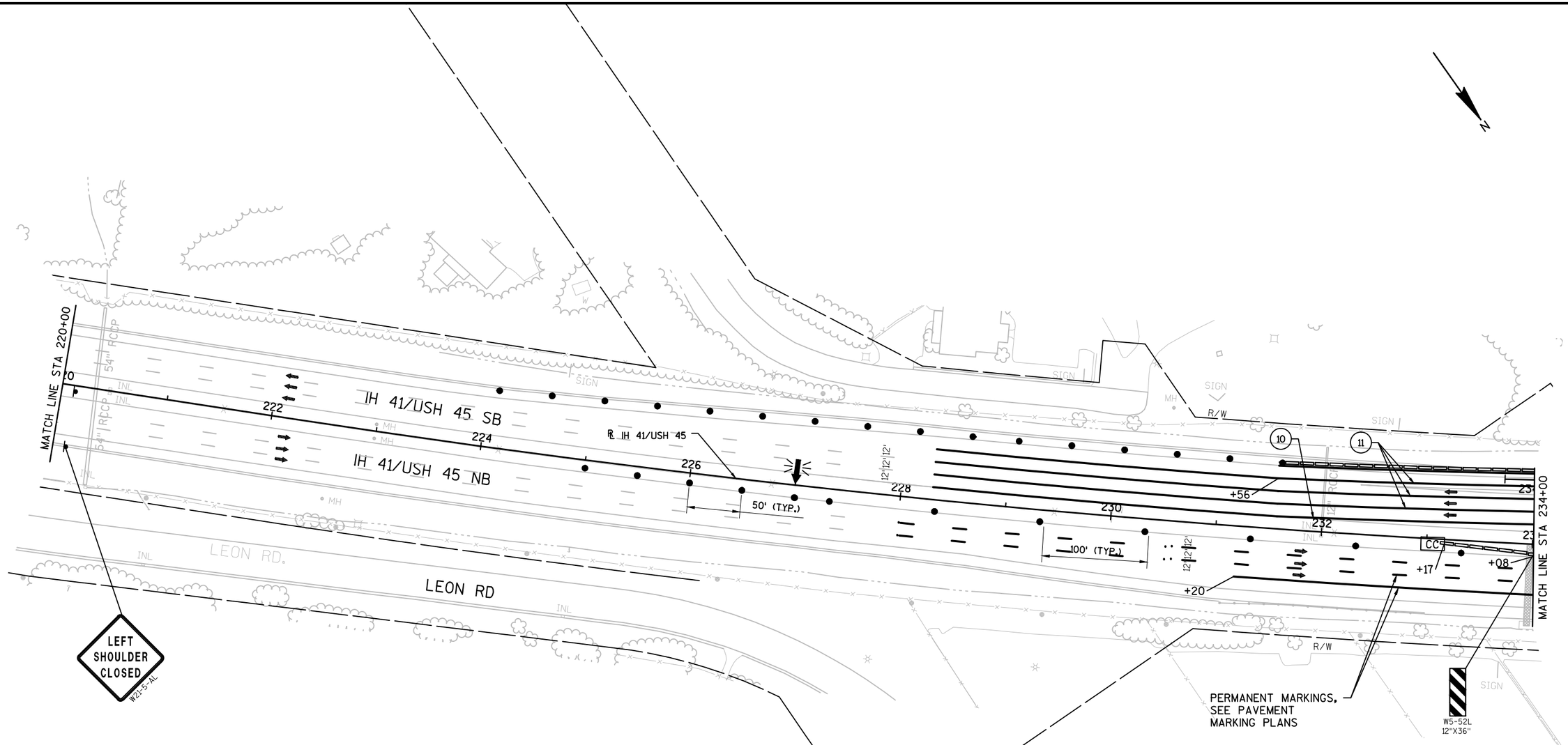
(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)



REFER TO SDD TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH FOR MORE INFORMATION

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 4	SHEET 90	E

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 4	SHEET 91	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026301-S4.DWG
LAYOUT NAME - 026302-s4
PLOT DATE : 2/21/2017 10:42 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

RIGHT SHOULDER CLOSED
W21-5-AL

END ROAD WORK
G20-2A
48"X24"

EXIT 50 A-B
E5-1B
96"X84"

CONNECT TO BRIDGE

SB ENT RAMP

NB EXIT RAMP

IH 41/USH 45 SB

IH 41/USH 45 NB

STH 100/MAIN STREET

NOR-X-WAY CHANNEL

RECONSTRUCT MEDIAN BARRIER

W5-52L
12"X36"

W5-52R
12"X36"

CRASH CUSHION TEMPORARY

PERMANENT MARKINGS, SEE PAVEMENT MARKING PLANS

MATCH LINE STA 234+00

MATCH LINE STA 248+00

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 4	SHEET 92 E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026301-S4.DWG
LAYOUT NAME - 026303-s4

PLOT DATE : 2/21/2017 11:22 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

ROAD WORK AHEAD
W20-1-A

250MD

252MD SB ENT. RAMP

254MD

SB EXIT RAMP

MAIN STREET

STAY IN LANE
R4-9
24"X30"

11

250ME

+60

+23

100' (TYP.)

PERMANENT MARKINGS, SEE PAVEMENT MARKING PLANS

IH 41/USH 45 SB

IH 41/USH 45 NB

IH 41/USH 45

MATCH LINE STA 248+00

MATCH LINE STA 262+00

248

250

252

254

256

258

260

12" RCCP

10

PERMANENT MARKINGS, SEE PAVEMENT MARKING PLANS

END ROAD WORK
G20-2A
48"X24"

RAMP MB

RAMP MC

POOL

SIGN

42"

N

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- 10 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- 11 — TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

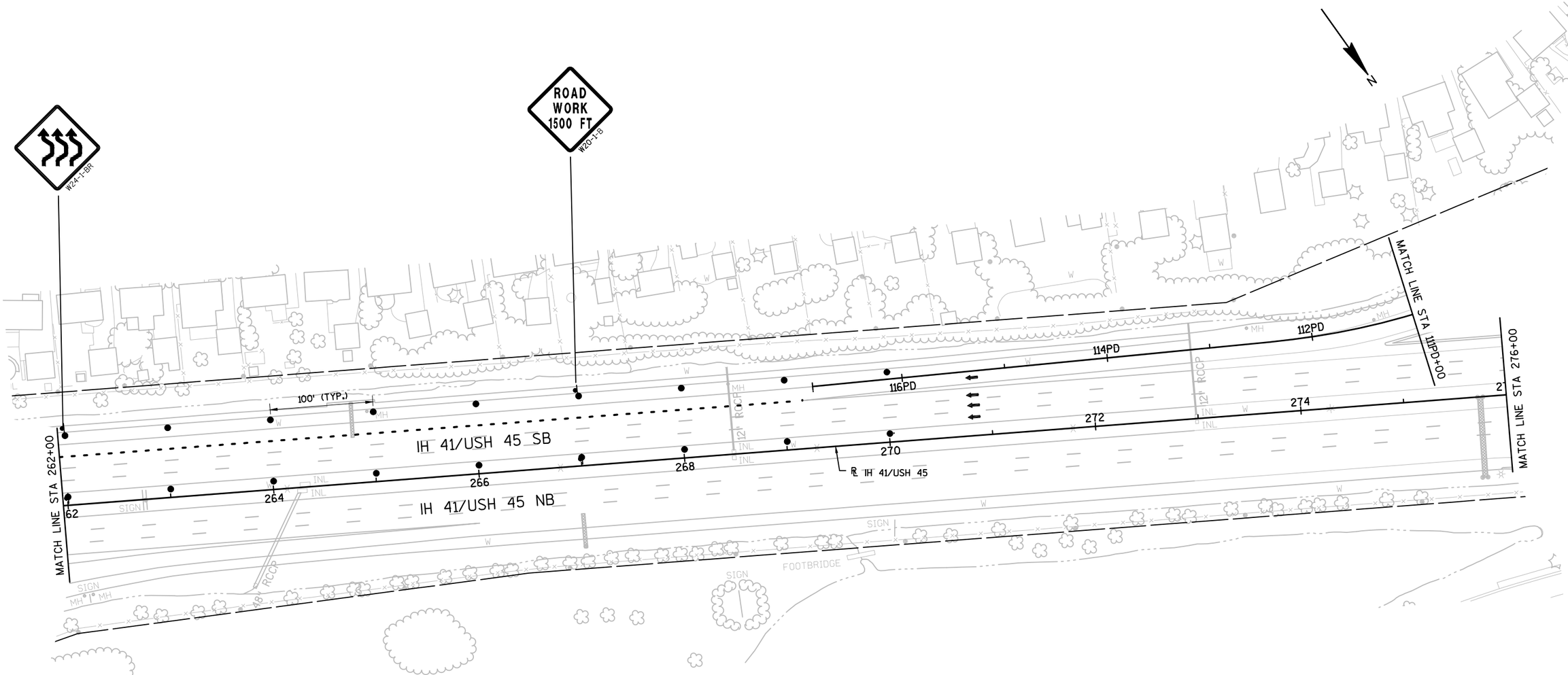
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 4	SHEET 93	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026301-S4.DWG
LAYOUT NAME - 026304-s4

PLOT DATE : 2/21/2017 10:43 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 4	SHEET 94	E

2

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

END ROAD WORK
G20-2A
48"X24"

ROAD WORK AHEAD
W20-1-A

ROAD WORK 1/2 MILE
W20-1-G

W21-62-Q
30"X48"
WORK ZONE

SPEED LIMIT 60
R2-1
48"X60"

FINES DOUBLE
W21-62-R
30"X48"

FINES DOUBLE IN WORK ZONES
Give 'em a BRAKE SLOW DOWN
W21-62
96"X48"

$200 MINIMUM
W21-62-P
96"X12"

SPEED LIMIT 60
W03-5

ROAD WORK 1 MILE
W20-1-F

ROAD WORK 2 MILE
W20-1

REFER TO SDD TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION FOR MORE INFORMATION

PILGRIM RD

PILGRIM RD

RAMP PD

RAMP PE

102PD

12PE

104PD

10PE

106PD

108PD

110PD

MATCH LINE STA 111PD+00

MATCH LINE STA 276+00

1 MILE

2600'

1600'

500'

500'

500'

3PE

4PE

2PE

IH 41/USH 45 SB

IH 41/USH 45 NB

℄ IH 41/USH 45

276

278

280

282

284

286

288

290

24" RCCP

12" RCCP

24" CMCP

SIGN

N

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 4	SHEET 95	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026301-S4.DWG
LAYOUT NAME - 026306-s4

PLOT DATE : 2/21/2017 10:43 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

STAGE 5

CONSTRUCTION:

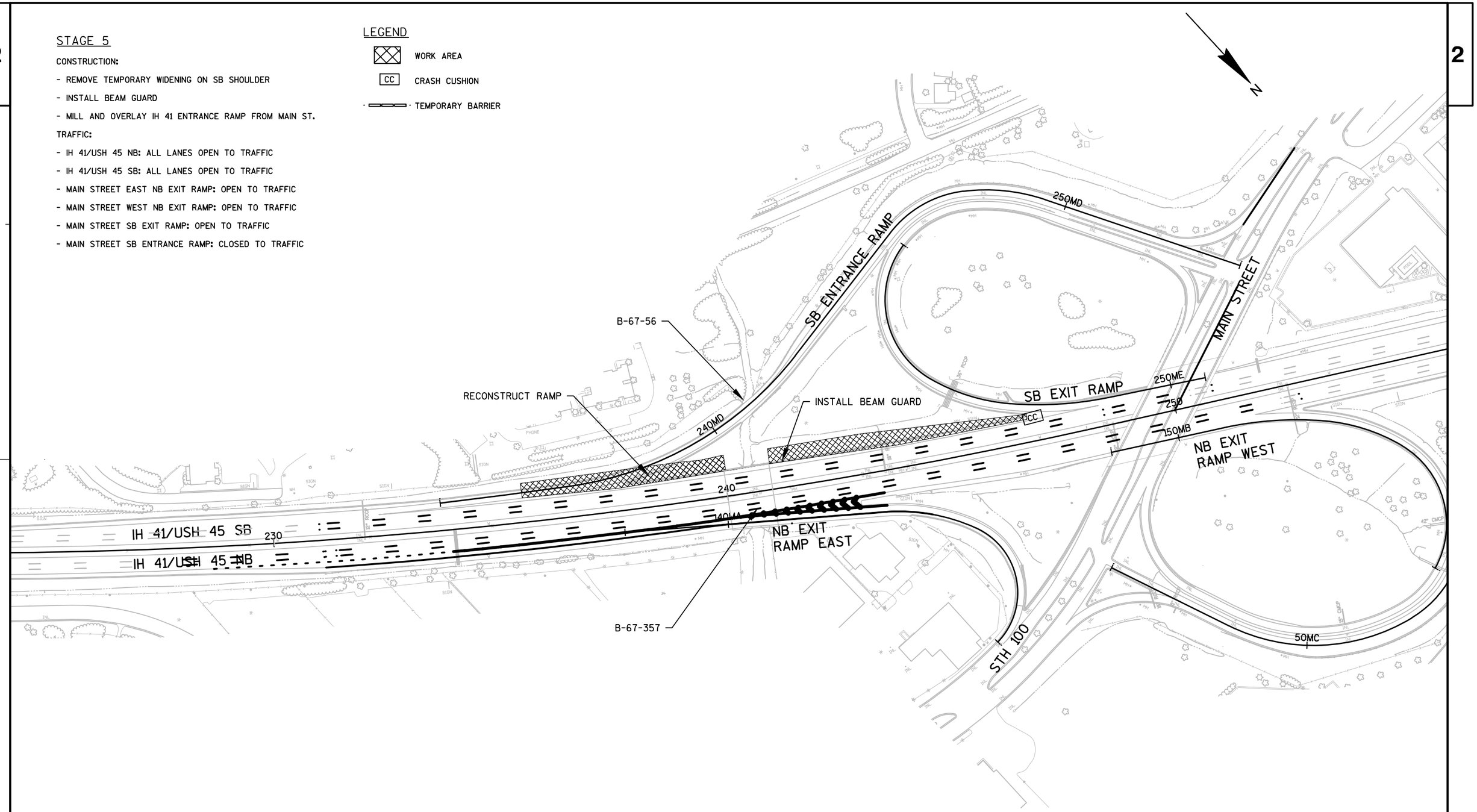
- REMOVE TEMPORARY WIDENING ON SB SHOULDER
- INSTALL BEAM GUARD
- MILL AND OVERLAY IH 41 ENTRANCE RAMP FROM MAIN ST.

TRAFFIC:

- IH 41/USH 45 NB: ALL LANES OPEN TO TRAFFIC
- IH 41/USH 45 SB: ALL LANES OPEN TO TRAFFIC
- MAIN STREET EAST NB EXIT RAMP: OPEN TO TRAFFIC
- MAIN STREET WEST NB EXIT RAMP: OPEN TO TRAFFIC
- MAIN STREET SB EXIT RAMP: OPEN TO TRAFFIC
- MAIN STREET SB ENTRANCE RAMP: CLOSED TO TRAFFIC

LEGEND

- WORK AREA
- CC — CRASH CUSHION
- TEMPORARY BARRIER



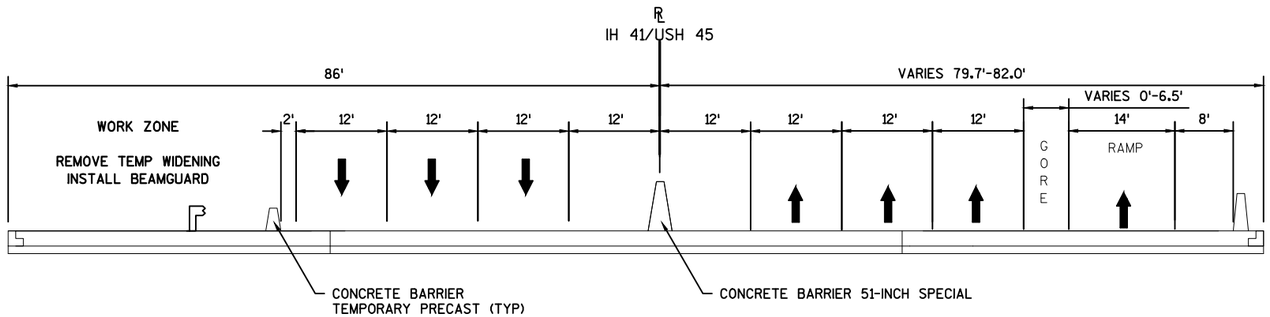
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL OVERVIEW: STAGE 5	SHEET 96 E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\025005-TC.DWG
025005-tc

PLOT DATE : 2/21/2017 10:57 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1" = 200'_XREF

WISDOT/CADDS SHEET 44

2



CONSTRUCTION STAGE 5 - TYPICAL SECTION

STA. 234+00 TO STA. 247+00

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CONSTRUCTION STAGE 5 TYPICAL SECTION	SHEET 97	E

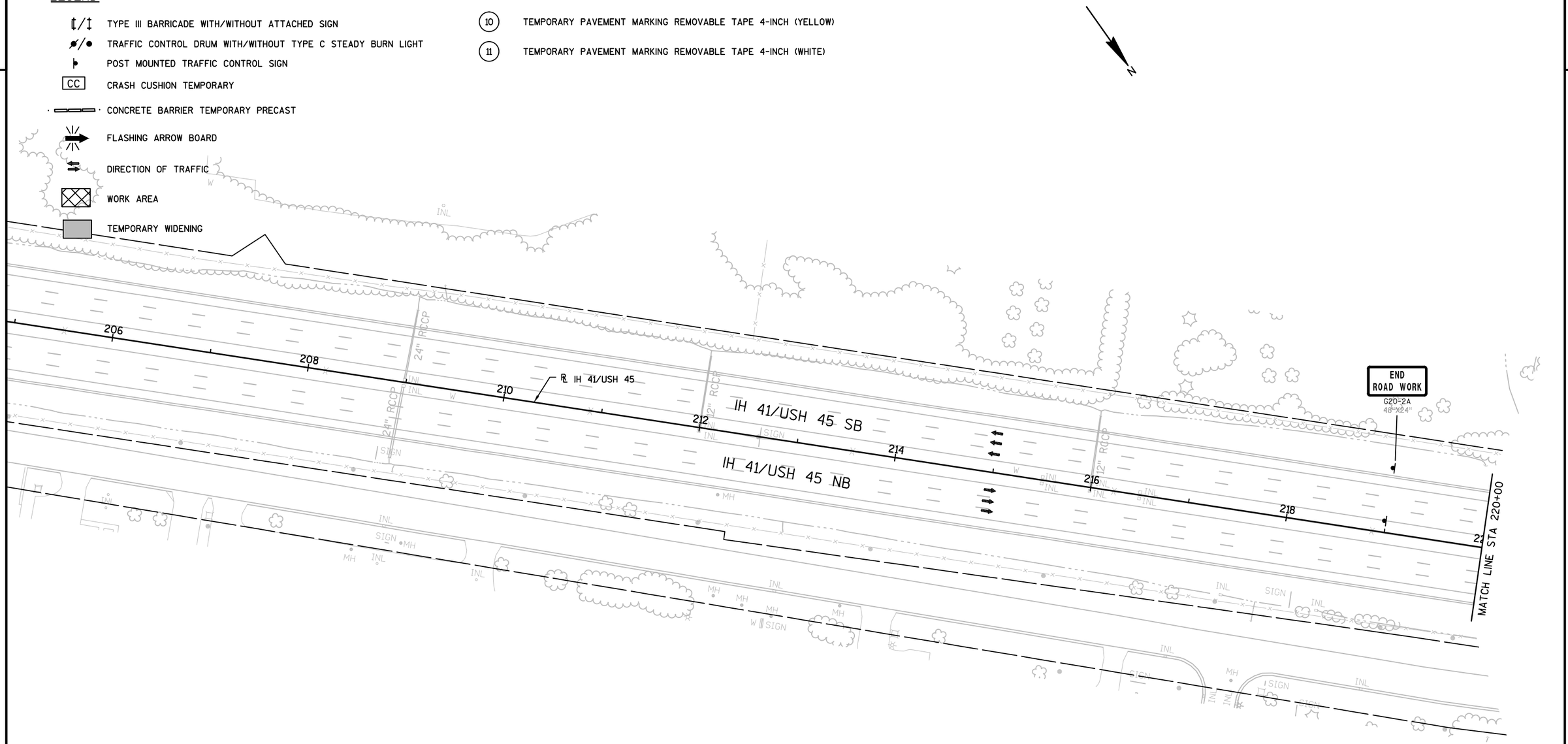
2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)



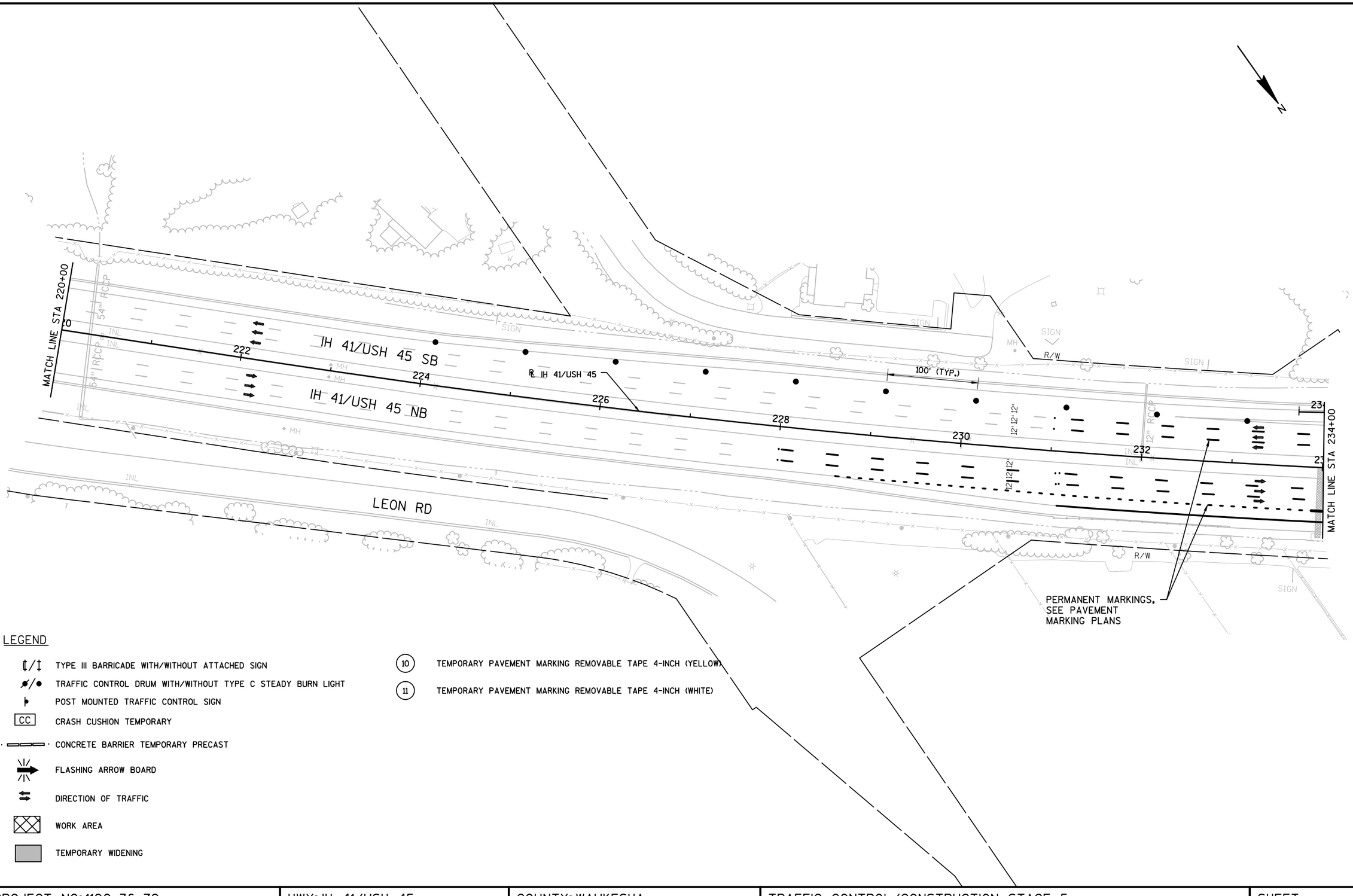
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 5	SHEET 98	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026401-S5.DWG
LAYOUT NAME - 026401-s5

PLOT DATE : 2/21/2017 10:44 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING

(10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)

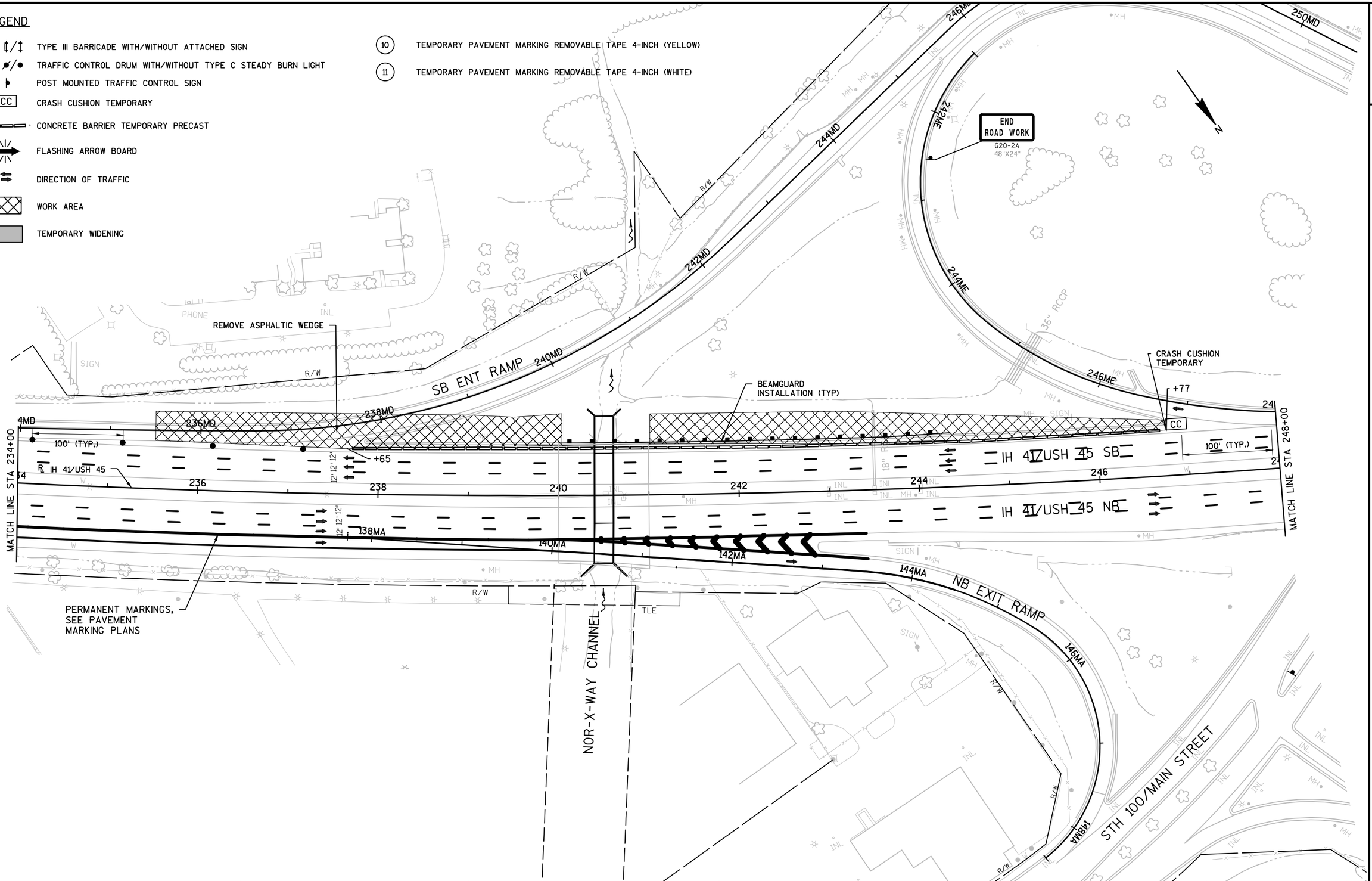
(11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 5	SHEET 99	E

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

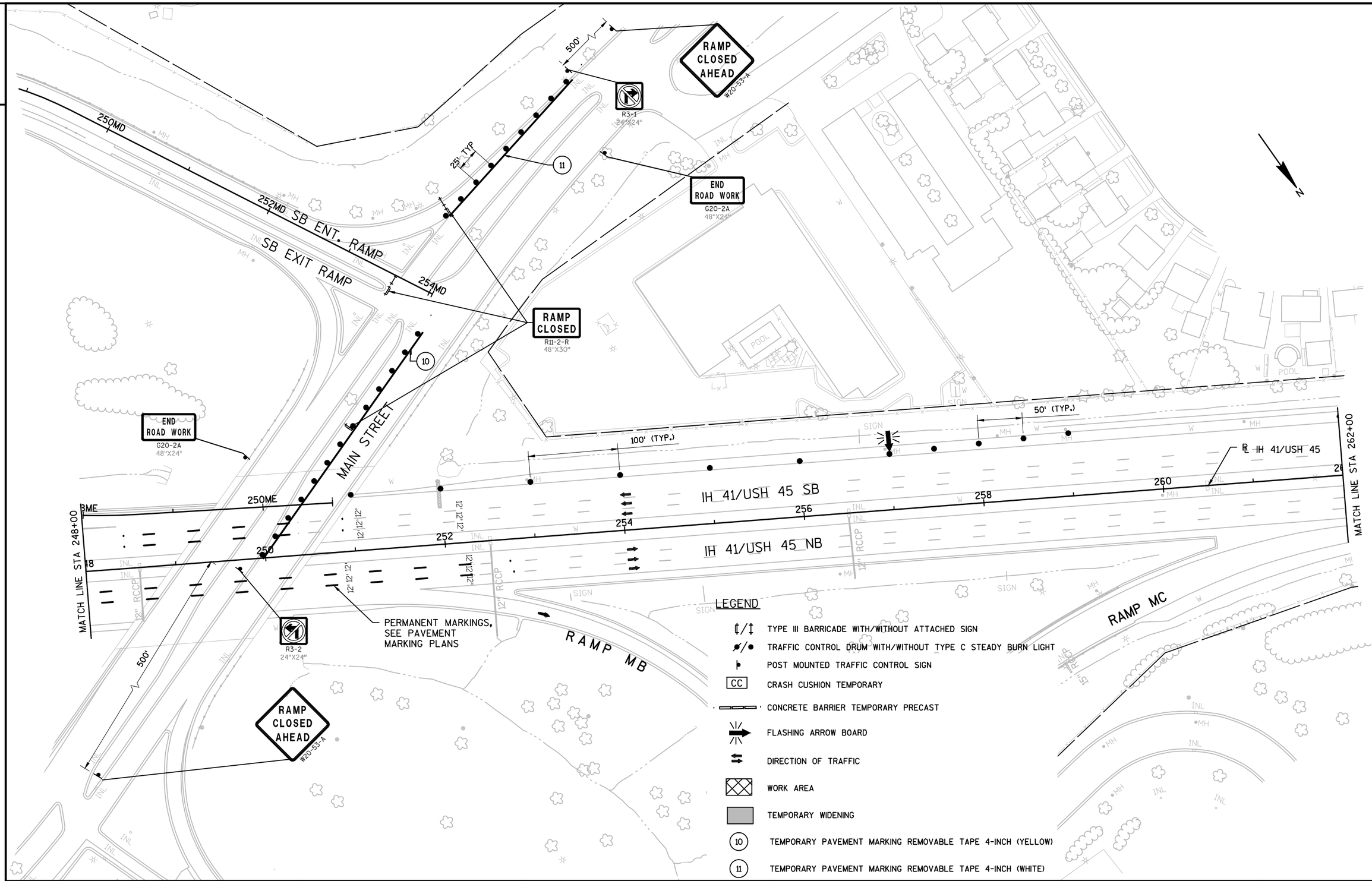


PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 5	SHEET 100	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026401-S5.DWG
LAYOUT NAME - 026403-s5

PLOT DATE : 2/21/2017 10:44 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

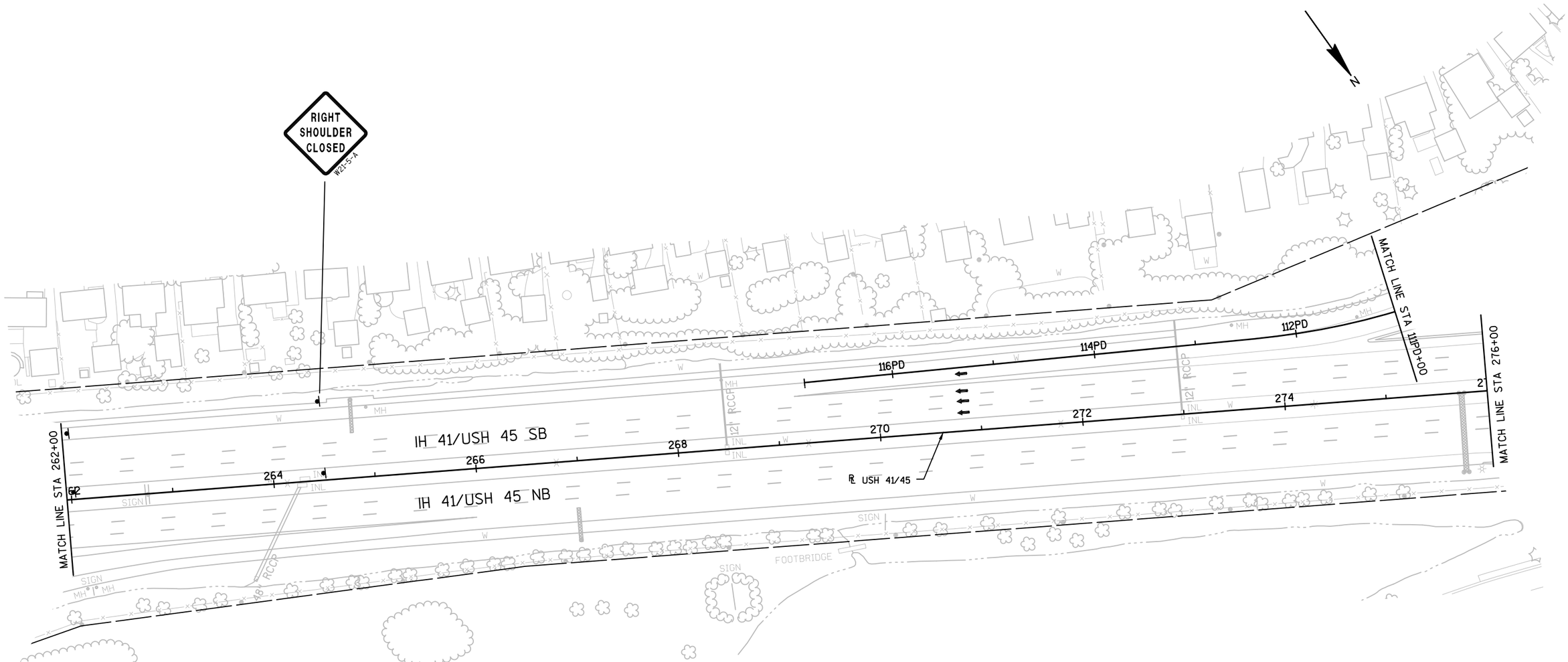
2



PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 5	SHEET 101	E

FILE NAME : F:\BM1-3256B_USH 41_MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\026401-S5.DWG
LAYOUT NAME - 026404-s5
PLOT DATE : 2/21/2017 10:44 AM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

2



LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 5	SHEET 102	E

2

2

LEGEND

- TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
- TRAFFIC CONTROL DRUM WITH/WITHOUT TYPE C STEADY BURN LIGHT
- POST MOUNTED TRAFFIC CONTROL SIGN
- CC — CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA
- TEMPORARY WIDENING
- (10) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (YELLOW)
- (11) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH (WHITE)

END ROAD WORK
G20-2A
48"X24"

ROAD WORK AHEAD
W20-1-A

RIGHT SHOULDER CLOSED AHEAD
W21-5-B

FINES DOUBLE IN WORK ZONES
Give 'em a BRAKE SLOW DOWN
W21-62
96"X48"

$200 MINIMUM
W21-62-R
96"X12"

ROAD WORK 1/2 MILE
W20-1-G

ROAD WORK 1 MILE
W20-1-F

ROAD WORK 2 MILE
W20-1

102PD
12PE
104PD
10PE
106PD
RAMP PD
108PD
110PD
MATCH LINE STA 111PD+00
38E
RAMP PE
2600'
1 MILE
1600'
1000'
6PE
4PE
2PE
PILGRIM RD
PILGRIM RD
N
IH 41/USH 45 SB
IH 41/USH 45 NB
℄ IH 41/USH 45
MATCH LINE STA 276+00
276
278
280
282
284
286
288
290
24" RCCP
12" RCCP
24" CMCP
REFER TO SDD TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH FOR MORE INFORMATION

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	TRAFFIC CONTROL/CONSTRUCTION STAGE 5	SHEET 103	E

2

MAIN ST TRAFFIC
WB USE PILGRIM RD
EB USE 124TH ST
FIXED MESSAGE SIGN (4)

Q 1/2
Pilgrim Rd 2 3/4
COVER SIGN AS SHOWN

Pilgrim Rd 1/2
145 2 3/4
COVER SIGN AS SHOWN

145 NORTH 1 3/4
Good Hope Rd 3
COVER SIGN AS SHOWN

EXIT 50 A-B
100 EAST
Main St
COVER SIGN AS SHOWN
CLOSED

100 EAST
Main St
COVER SIGN AS SHOWN
CLOSED

INTERSTATE 41
45
PILGRIM ROAD
MAIN STREET
STH 100 (MAIN STREET)
STH 145 (124TH STREET)
W BRADLEY ROAD
MB
SB EXIT RAMP CLOSED
STAGE 2
DETOUR ROUTE

EAST 100 END DETOUR M4-8A 24"X18"
100 M1-6 24"X24"

WEST 100 EAST 100
JCT 100

EXIT 48
145
1 1/4 MILE
DETOUR M4-8 36"X18"
100 M1-6 36"X36"
M05-1R 30"X30"

EXIT 48
145
EXIT ONLY

EXIT 48
145
EXIT ONLY
DETOUR M4-8 36"X18"
100 M1-6 36"X36"
M05-2R 30"X30"

EXIT 48
145
EXIT ONLY
DETOUR M4-8 36"X18"
100 M1-6 36"X36"
M06-2 30"X30"

DETOUR M4-8 36"X18"
100 M1-6 36"X36"
M05-1R 30"X30"

DETOUR M4-8 24"X12"
100 M1-6 24"X24"
M05-1R 21"X21"

DETOUR M4-8 24"X12"
100 M1-6 24"X24"
M06-1 21"X21"

145 NORTH
124th St
NEXT RIGHT
DETOUR M4-8 36"X18"
100 M1-6 36"X36"
M05-2R 30"X30"

145 NORTH
124th St
DETOUR M4-8 36"X18"
100 M1-6 36"X36"
M06-2 30"X30"

LEGEND
EXISTING SIGN
DETOUR ROUTE SIGN
MB PORTABLE CHANGABLE MESSAGE SIGN

N

NOTES

1. EXISTING SIGNS SHOWN IN GRAYSCALE.

2. SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE PROVIDED IN THE PLANS.

3. THE EXACT LOCATION AND SPACING OF SIGNS AND DEVICES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

4. "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

5. COVER DETOUR SIGNING WHEN NOT IN USE.

PROJECT NO: 1100-36-72	HWY: IH 41/USH 41	COUNTY: WAUKESHA	DETOUR PLAN - STH 100 SOUTHBOUND EXIT RAMP CLOSURE	SHEET 104 E

NOTES

1. EXISTING SIGNS SHOWN IN GRAYSCALE.

2. SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE PROVIDED IN THE PLANS.

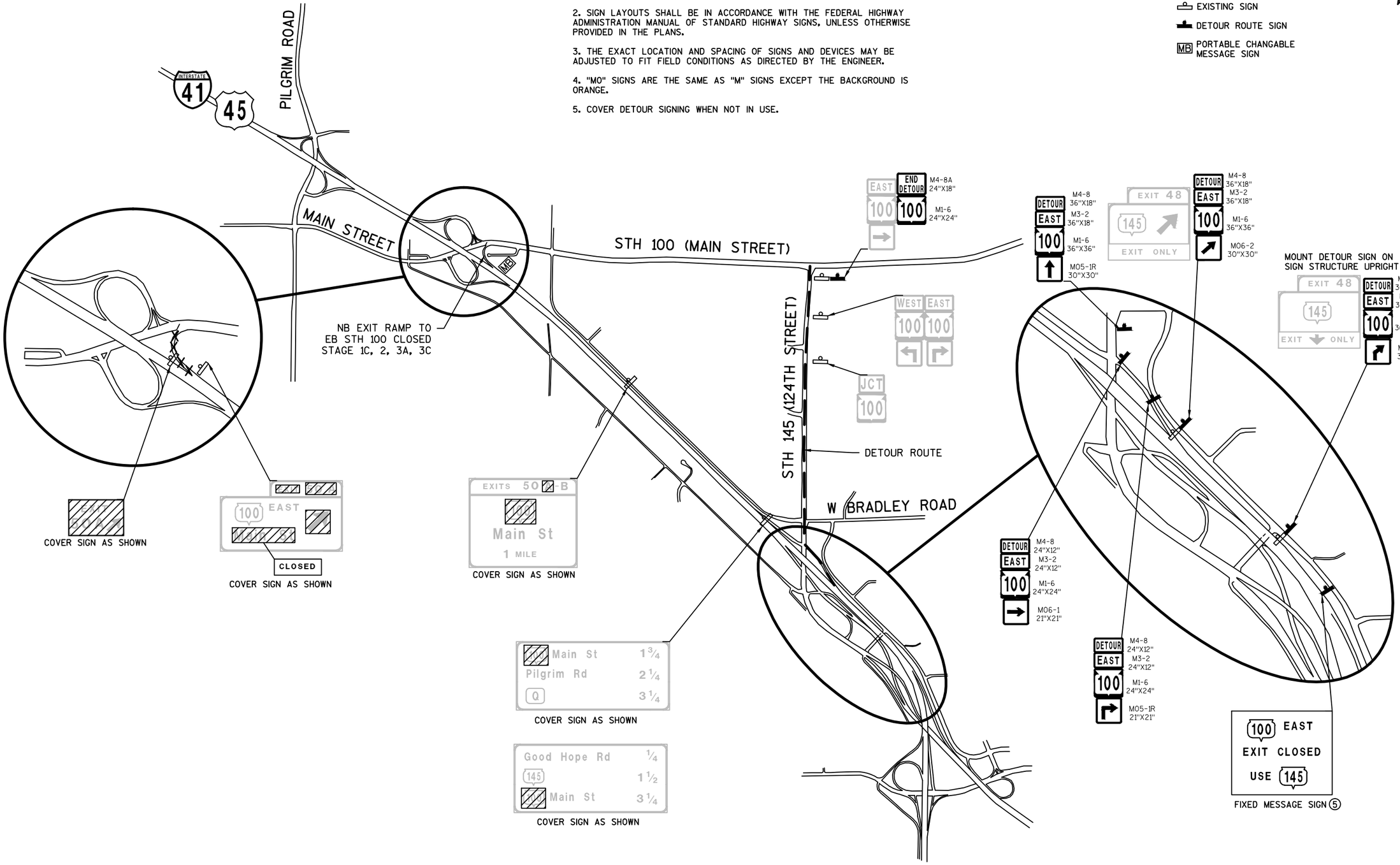
3. THE EXACT LOCATION AND SPACING OF SIGNS AND DEVICES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

4. "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

5. COVER DETOUR SIGNING WHEN NOT IN USE.

LEGEND
- EXISTING SIGN
- DETOUR ROUTE SIGN
- MB PORTABLE CHANGABLE MESSAGE SIGN

N



PROJECT NO: 1100-36-72	HWY: IH 41/USH 41	COUNTY: WAUKESHA	DETOUR PLAN - STH 100 NORTHBOUND EXIT RAMP CLOSURE	SHEET 105 E

NOTES

1. EXISTING SIGNS SHOWN IN GRAYSCALE.

2. SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS, UNLESS OTHERWISE PROVIDED IN THE PLANS.

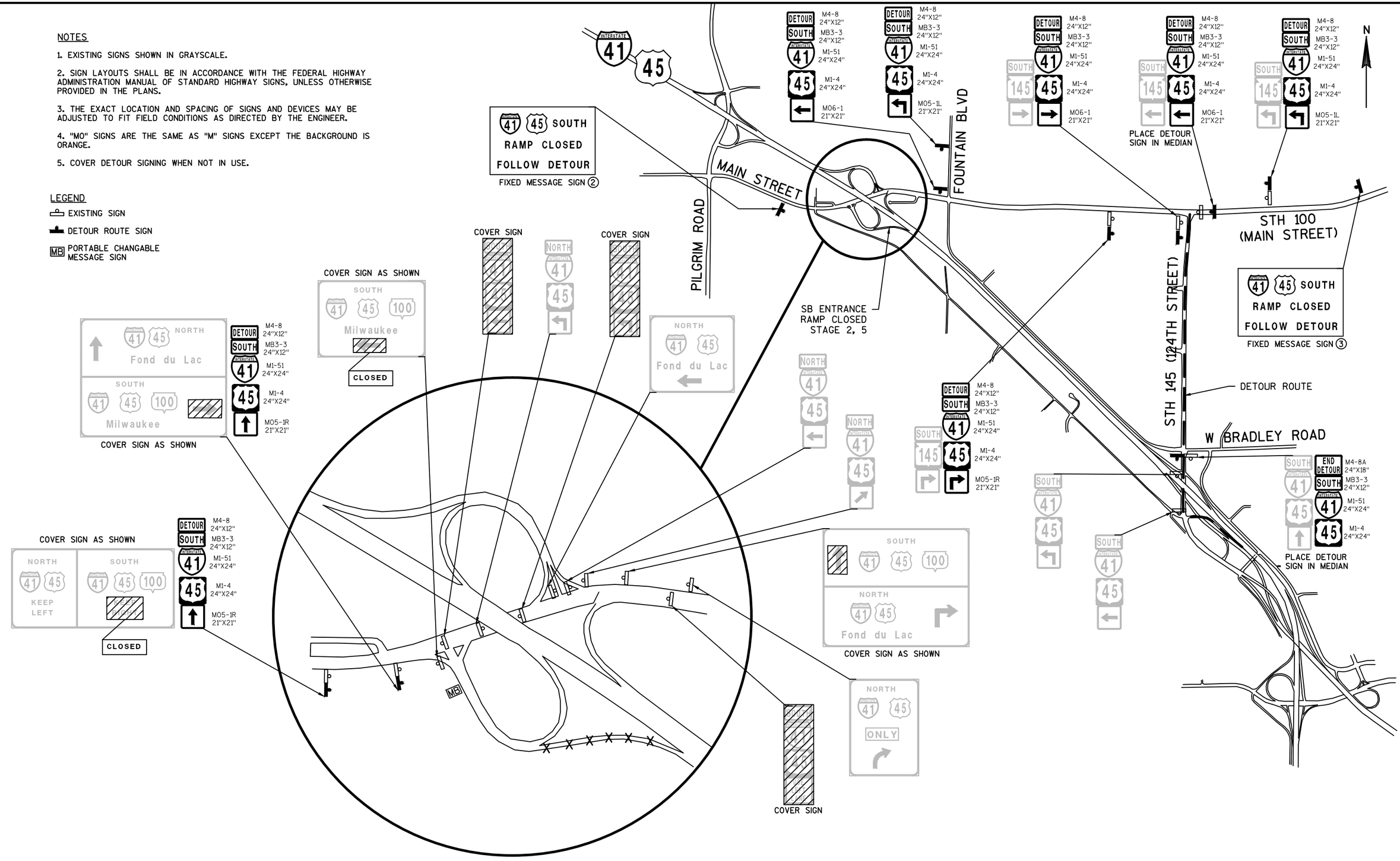
3. THE EXACT LOCATION AND SPACING OF SIGNS AND DEVICES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

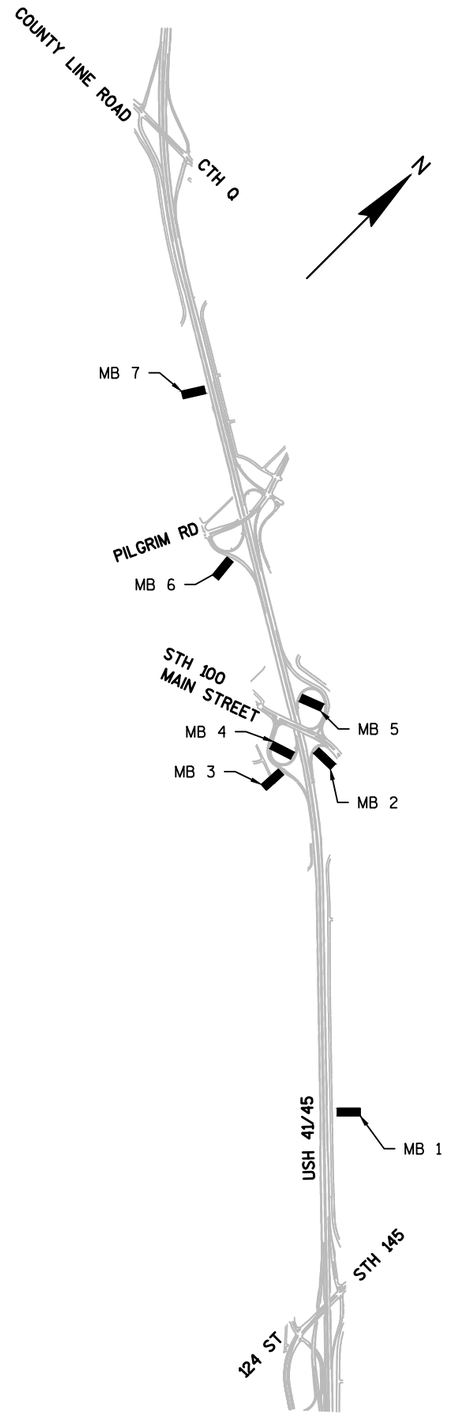
4. "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

5. COVER DETOUR SIGNING WHEN NOT IN USE.

LEGEND

- EXISTING SIGN
- DETOUR ROUTE SIGN
- MB PORTABLE CHANGABLE MESSAGE SIGN





PCMS NOTES

1) ADJUST TRAFFIC CONTROL PCMS MESSAGE AS NEEDED BASED ON WORK ZONE AREAS

2) CONSIDER GEOMETRICS WHEN LOCATING MESSAGE BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE BOARD FOR A MINIMUM OF 1000 FT IN FRONT OF THE MESSAGE BOARD

3) PLACE MESSAGE BOARDS AS FAR AWAY FROM LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY. IN ADVANCE OF HIGHWAY CONSTRUCTION PROJECTS, THE SIGNS SHOULD BE PLACED ON THE BACKSLOPE BEYOND THE DITCH. THE LOCATION SELECTED SHOULD BE AT OR SLIGHTLY ABOVE THE ELEVATION OF THE ROADWAY. FOR INTERMITTENT WORK SUCH AS A LANE CLOSURE OR WHERE SITE CONDITIONS DO NOT ALLOW OTHERWISE, THE SIGNS MAY BE PLACED ON THE SHOULDER. THE SITE SHOULD BE VISITED TO ASSURE VISIBILITY, SAFETY AND MAINTENANCE CONSIDERATIONS. A TAPER OF REFLECTORIZED DRUMS OR BARRICADES SHOULD BE PLACED AHEAD OF THE PCMS PLACED ON A SHOULDER IF IT IS NOT SHIELDED BY A BARRIER.

4) DISPLAY THE "PRIOR TO CONSTRUCTION" MESSAGES 10 DAYS PRIOR TO THE EXPECTED START OF THE PROPOSED WORK THAT WILL REQUIRE LANE CLOSURES. ADJUST THE MESSAGE DATE ACCORDINGLY.

TRAFFIC CONTROL SIGNS PCMS MESSAGES

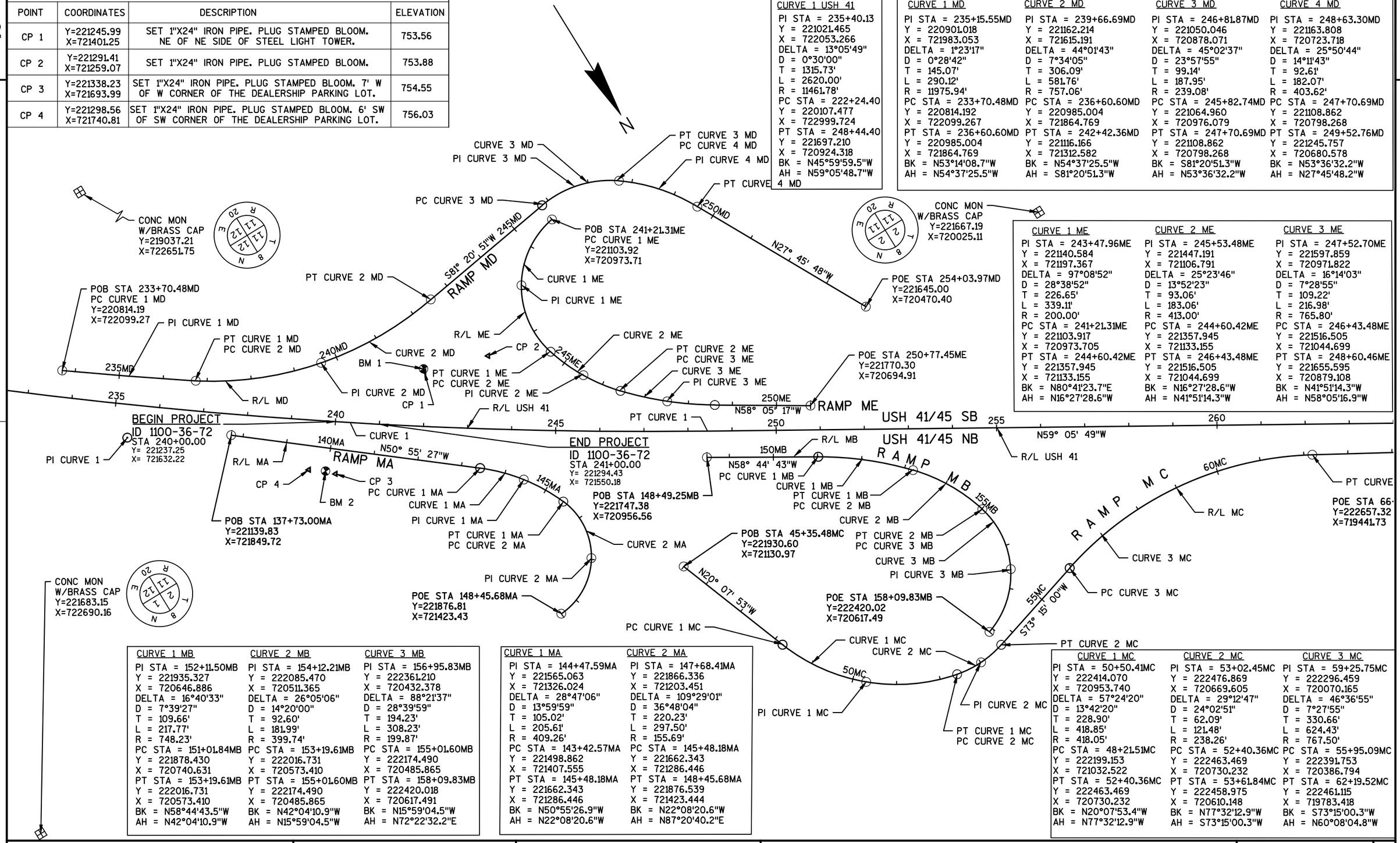
	PRIOR TO CONSTRUCTION		PRIOR TO RAMP CLOSURE		PRIOR TO STAGING SWITCH		DURING NEW TRAFFIC PATTERN	
PCMS SIGN NUMBER AND LOCATION	PHASE 1 (3 SEC)	PHASE 2 (3 SEC)	PHASE 1 (3 SEC)	PHASE 2 (3 SEC)	PHASE 1 (3 SEC)	PHASE 2 (3 SEC)	PHASE 1 (3 SEC)	PHASE 2 (3 SEC)
MB1 - NB IH 41 1 MILE SOUTH OF CULVERT	BRIDGE WORK STARTS	DATE	N/A	N/A	NEW TRAFFIC PATTERN	BEGINS DATE	NEW TRAFFIC PATTERN	N/A
MB2 - NB IH 41 EXIT RAMP TO EB MAIN ST	N/A	N/A	RAMP TO CLOSE	DATE	RAMP TO CLOSE	DATE	N/A	N/A
MB3 - MAIN ST ENTRANCE RAMP TO SB IH 41	N/A	N/A	RAMP TO CLOSE	DATE	N/A	N/A	N/A	N/A
MB4 - SB IH 41 EXIT RAMP TO MAIN ST	N/A	N/A	RAMP TO CLOSE	DATE	RAMP TO CLOSE	DATE	N/A	N/A
MB5 - NB IH 41 EXIT RAMP TO WB MAIN ST	N/A	N/A	RAMP TO CLOSE	DATE	RAMP TO CLOSE	DATE	N/A	N/A
MB6 - PILGRIM RD ENTRANCE RAMP TO SB IH 41	N/A	N/A	RAMP TO CLOSE	DATE	RAMP TO CLOSE	DATE	N/A	N/A
MB7 - SB IH 41 1 MILE NORTH OF CULVERT	BRIDGE WORK STARTS	DATE	N/A	N/A	NEW TRAFFIC PATTERN	BEGINS DATE	NEW TRAFFIC PATTERN	N/A

2

2

CONTROL POINT TABLE

POINT	COORDINATES	DESCRIPTION	ELEVATION
CP 1	Y=221245.99 X=721401.25	SET 1"X24" IRON PIPE. PLUG STAMPED BLOOM. NE OF NE SIDE OF STEEL LIGHT TOWER.	753.56
CP 2	Y=221291.41 X=721259.07	SET 1"X24" IRON PIPE. PLUG STAMPED BLOOM.	753.88
CP 3	Y=221338.23 X=721693.99	SET 1"X24" IRON PIPE. PLUG STAMPED BLOOM. 7' W OF W CORNER OF THE DEALERSHIP PARKING LOT.	754.55
CP 4	Y=221298.56 X=721740.81	SET 1"X24" IRON PIPE. PLUG STAMPED BLOOM. 6' SW OF SW CORNER OF THE DEALERSHIP PARKING LOT.	756.03



CURVE 1 USH 41

PI STA = 235+40.13
Y = 221021.465
X = 722053.266
DELTA = 13°05'49"
D = 0°30'00"
T = 1315.73'
L = 2620.00'
R = 11461.78'
PC STA = 222+24.40
Y = 220107.477
X = 722999.724
PT STA = 248+44.40
Y = 221697.210
X = 720924.318
BK = N45°59'59.5"W
AH = N59°05'48.7"W

CURVE 1 MD

PI STA = 235+15.55MD
Y = 220901.018
X = 721983.053
DELTA = 1°23'17"
D = 0°28'42"
T = 145.07'
L = 290.12'
R = 11975.94'
PC STA = 233+70.48MD
Y = 220814.192
X = 722099.267
PT STA = 236+60.60MD
Y = 220985.004
X = 721864.769
BK = N53°14'08.7"W
AH = N54°37'25.5"W

CURVE 2 MD

PI STA = 239+66.69MD
Y = 221162.214
X = 721615.191
DELTA = 44°01'43"
D = 7°34'05"
T = 306.09'
L = 581.76'
R = 757.06'
PC STA = 236+60.60MD
Y = 220985.004
X = 721864.769
PT STA = 242+42.36MD
Y = 221116.166
X = 721312.582
BK = N54°37'25.5"W
AH = S81°20'51.3"W

CURVE 3 MD

PI STA = 246+81.87MD
Y = 221050.046
X = 720878.071
DELTA = 45°02'37"
D = 23°57'55"
T = 99.14'
L = 187.95'
R = 239.08'
PC STA = 245+82.74MD
Y = 221064.960
X = 720976.079
PT STA = 247+70.69MD
Y = 221108.862
X = 720798.268
BK = S81°20'51.3"W
AH = N53°36'32.2"W

CURVE 4 MD

PI STA = 248+63.30MD
Y = 221163.808
X = 720723.718
DELTA = 25°50'44"
D = 14°11'43"
T = 92.61'
L = 182.07'
R = 403.62'
PC STA = 247+70.69MD
Y = 221108.862
X = 720798.268
PT STA = 249+52.76MD
Y = 221245.757
X = 720680.578
BK = N53°36'32.2"W
AH = N27°45'48.2"W

CURVE 1 ME

PI STA = 243+47.96ME
Y = 221140.584
X = 721197.367
DELTA = 97°08'52"
D = 28°38'52"
T = 226.65'
L = 339.11'
R = 200.00'
PC STA = 241+21.31ME
Y = 221103.917
X = 720973.705
PT STA = 244+60.42ME
Y = 221357.945
X = 721133.155
BK = N80°41'23.7"E
AH = N16°27'28.6"W

CURVE 2 ME

PI STA = 245+53.48ME
Y = 221447.191
X = 721106.791
DELTA = 25°23'46"
D = 13°52'23"
T = 93.06'
L = 183.06'
R = 413.00'
PC STA = 244+60.42ME
Y = 221357.945
X = 721133.155
PT STA = 246+43.48ME
Y = 221516.505
X = 721044.699
BK = N16°27'28.6"W
AH = N41°51'14.3"W

CURVE 3 ME

PI STA = 247+52.70ME
Y = 221597.859
X = 720971.822
DELTA = 16°14'03"
D = 7°28'55"
T = 109.22'
L = 216.98'
R = 765.80'
PC STA = 246+43.48ME
Y = 221516.505
X = 721044.699
PT STA = 248+60.46ME
Y = 221655.595
X = 720879.108
BK = N41°51'14.3"W
AH = N58°05'16.9"W

CURVE 1 MB

PI STA = 152+11.50MB
Y = 221935.327
X = 720646.886
DELTA = 16°40'33"
D = 7°39'27"
T = 109.66'
L = 217.77'
R = 748.23'
PC STA = 151+01.84MB
Y = 221878.430
X = 720740.631
PT STA = 153+19.61MB
Y = 222016.731
X = 720573.410
BK = N58°44'43.5"W
AH = N42°04'10.9"W

CURVE 2 MB

PI STA = 154+12.21MB
Y = 222085.470
X = 720511.365
DELTA = 26°05'06"
D = 14°20'00"
T = 92.60'
L = 181.99'
R = 399.74'
PC STA = 153+19.61MB
Y = 222016.731
X = 720573.410
PT STA = 155+01.60MB
Y = 222174.490
X = 720485.865
BK = N42°04'10.9"W
AH = N15°59'04.5"W

CURVE 3 MB

PI STA = 156+95.83MB
Y = 222361.210
X = 720432.378
DELTA = 88°21'37"
D = 28°39'59"
T = 194.23'
L = 308.23'
R = 199.87'
PC STA = 155+01.60MB
Y = 222174.490
X = 720485.865
PT STA = 158+09.83MB
Y = 222420.018
X = 720617.491
BK = N15°59'04.5"W
AH = N72°22'32.2"E

CURVE 1 MA

PI STA = 144+47.59MA
Y = 221565.063
X = 721326.024
DELTA = 28°47'06"
D = 13°59'59"
T = 105.02'
L = 205.61'
R = 409.26'
PC STA = 143+42.57MA
Y = 221498.862
X = 721407.555
PT STA = 145+48.18MA
Y = 221662.343
X = 721286.446
BK = N50°55'26.9"W
AH = N22°08'20.6"W

CURVE 2 MA

PI STA = 147+68.41MA
Y = 221866.336
X = 721203.451
DELTA = 109°29'01"
D = 36°48'04"
T = 220.23'
L = 297.50'
R = 155.69'
PC STA = 145+48.18MA
Y = 221662.343
X = 721286.446
PT STA = 148+45.68MA
Y = 221876.539
X = 721423.444
BK = N22°08'20.6"W
AH = N87°20'40.2"E

CURVE 1 MC

PI STA = 50+50.41MC
Y = 222414.070
X = 720953.740
DELTA = 57°24'20"
D = 13°42'20"
T = 228.90'
L = 418.85'
R = 418.05'
PC STA = 48+21.51MC
Y = 222199.153
X = 721032.522
PT STA = 52+40.36MC
Y = 222463.469
X = 720730.232
BK = N20°07'53.4"W
AH = N77°32'12.9"W

CURVE 2 MC

PI STA = 53+02.45MC
Y = 222476.869
X = 720669.605
DELTA = 29°12'47"
D = 24°02'51"
T = 62.09'
L = 121.48'
R = 238.26'
PC STA = 52+40.36MC
Y = 222458.975
X = 720610.148
BK = N77°32'12.9"W
AH = S73°15'00.3"W

CURVE 3 MC

PI STA = 59+25.75MC
Y = 222296.459
X = 720070.165
DELTA = 46°36'55"
D = 7°27'55"
T = 330.66'
L = 624.43'
R = 767.50'
PC STA = 55+95.09MC
Y = 222391.753
X = 720386.794
PT STA = 62+19.52MC
Y = 222461.115
X = 719783.418
BK = S73°15'00.3"W
AH = N60°08'04.8"W

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	ALIGNMENT PLAN	SHEET 108 E

1100-36-72

Line	Item	Item Description	Unit	Total	Qty
0010	201.0105	Clearing	STA	3.000	3.000
0020	201.0205	Grubbing	STA	3.000	3.000
0030	203.0210.S	Abatement of Asbestos Containing Material (structure) 0001. C-67-3	LS	1.000	1.000
0040	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 0001. 240+77.48	LS	1.000	1.000
0050	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 0002. 240+52.61	LS	1.000	1.000
0060	204.0100	Removing Pavement	SY	1,590.000	1,590.000
0070	204.0110	Removing Asphaltic Surface	SY	6,060.000	6,060.000
0080	204.0115	Removing Asphaltic Surface Butt Joints	SY	70.000	70.000
0090	204.0120	Removing Asphaltic Surface Milling	SY	5,740.000	5,740.000
0100	204.0157	Removing Concrete Barrier	LF	1,016.000	1,016.000
0110	204.0165	Removing Guardrail	LF	525.000	525.000
0120	204.0170	Removing Fence	LF	295.000	295.000
0130	204.0190	Removing Surface Drains	EACH	1.000	1.000
0140	204.0195	Removing Concrete Bases	EACH	1.000	1.000
0150	204.0220	Removing Inlets	EACH	7.000	7.000
0160	204.0245	Removing Storm Sewer (size) 0001. 15-INCH	LF	120.000	120.000
0170	204.0245	Removing Storm Sewer (size) 0002. 48-INCH	LF	62.000	62.000
0180	204.9060.S	Removing (item description) 1001. Poles Wood 60-FT and Floodlights	EACH	2.000	2.000
0190	204.9060.S	Removing (item description) 1002. Poles Wood 60-FT	EACH	2.000	2.000
0200	204.9090.S	Removing (item description) 1001. Electrical Wire From Conduit	LF	350.000	350.000
0210	205.0100	Excavation Common	CY	3,318.000	3,318.000
0220	206.1000	Excavation for Structures Bridges (structure) 0001. B-67-56	LS	1.000	1.000
0230	206.2000	Excavation for Structures Culverts (structure) 0001. B-67-357	LS	1.000	1.000
0240	206.5000	Cofferdams (structure) 0001. B-67-357	LS	1.000	1.000
0250	208.0100	Borrow	CY	2,220.000	2,220.000
0260	210.1500	Backfill Structure Type A	TON	2,022.000	2,022.000
0270	211.0100	Prepare Foundation for Asphaltic Paving (project) 0001. 1100-36-72	LS	1.000	1.000
0280	211.0200	Prepare Foundation for Concrete Pavement (project) 0001. 1100-36-72	LS	1.000	1.000
0290	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	24.000	24.000
0300	213.0100	Finishing Roadway (project) 0001. 1100-36-72	EACH	1.000	1.000
0310	305.0110	Base Aggregate Dense 3/4-Inch	TON	325.000	325.000
0320	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	3,325.000	3,325.000

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Line	Item	Item Description	Unit	Total	Qty
0330	310.0110	Base Aggregate Open-Graded	TON	585.000	585.000
0340	311.0110	Breaker Run	TON	300.000	300.000
0350	320.0355	Concrete Base HES 9-Inch	SY	60.000	60.000
0360	415.0105	Concrete Pavement 10 1/2-Inch	SY	220.000	220.000
0370	415.0410	Concrete Pavement Approach Slab	SY	90.000	90.000
0380	415.1105	Concrete Pavement HES 10 1/2-Inch	SY	335.000	335.000
0390	416.0610	Drilled Tie Bars	EACH	342.000	342.000
0400	416.0620	Drilled Dowel Bars	EACH	19.000	19.000
0410	416.1010	Concrete Surface Drains	CY	2.000	2.000
0420	416.1110	Concrete Shoulder Rumble Strips	LF	490.000	490.000
0430	416.1710	Concrete Pavement Repair	SY	500.000	500.000
0440	450.4000	HMA Cold Weather Paving	TON	550.000	550.000
0450	455.0605	Tack Coat	GAL	815.000	815.000
0460	460.2000	Incentive Density HMA Pavement	DOL	2,000.000	2,000.000
0470	460.6223	HMA Pavement 3 MT 58-28 S	TON	330.000	330.000
0480	460.6224	HMA Pavement 4 MT 58-28 S	TON	245.000	245.000
0490	460.7223	HMA Pavement 3 HT 58-28 S	TON	955.000	955.000
0500	460.7624	HMA Pavement 4 HT 58-28 V	TON	450.000	450.000
0510	465.0125	Asphaltic Surface Temporary	TON	1,950.000	1,950.000
0520	502.0100	Concrete Masonry Bridges	CY	43.000	43.000
0530	502.3200	Protective Surface Treatment	SY	108.000	108.000
0540	502.3210	Pigmented Surface Sealer	SY	29.000	29.000
0550	502.4205	Adhesive Anchors No. 5 Bar	EACH	80.000	80.000
0560	504.0100	Concrete Masonry Culverts	CY	273.000	273.000
0570	505.0400	Bar Steel Reinforcement HS Structures	LB	14,280.000	14,280.000
0580	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	18,760.000	18,760.000
0590	505.0905	Bar Couplers No. 5	EACH	48.000	48.000
0600	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0610	506.7050.S	Removing Bearings (structure) 0001. B-67-56	EACH	8.000	8.000
0620	509.1500	Concrete Surface Repair	SF	20.000	20.000
0630	511.1200	Temporary Shoring (structure) 0001. B-67-357	SF	2,756.000	2,756.000
0640	513.2001	Railing Pipe (structure) 0001. B-67-357	LF	69.000	69.000
0650	516.0500	Rubberized Membrane Waterproofing	SY	184.000	184.000
0660	517.0900.S	Preparation and Coating of Top Flanges (structure) 0001. B-67-56	LS	1.000	1.000
0670	517.1800.S	Structure Repainting Recycled Abrasive (structure) 0001. B-67-56	LS	1.000	1.000
0680	517.4500.S	Negative Pressure Containment and Collection of Waste Materials (structure) 0001. B-67-56	LS	1.000	1.000
0690	517.6001.S	Portable Decontamination Facility	EACH	1.000	1.000

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Line	Item	Item Description	Unit	Total	Qty
0700	520.5115	Culvert Pipe Class V 15-Inch	LF	224.000	224.000
0710	520.8000	Concrete Collars for Pipe	EACH	2.000	2.000
0720	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	2.000	2.000
0730	550.0010	Pre-Boring Unconsolidated Materials	LF	180.000	180.000
0740	550.2106	Piling CIP Concrete 10 3/4 X 0.365-Inch	LF	5,822.000	5,822.000
0750	603.8000	Concrete Barrier Temporary Precast Delivered	LF	6,565.000	6,565.000
0760	603.8125	Concrete Barrier Temporary Precast Installed	LF	13,845.000	13,845.000
0770	606.0200	Riprap Medium	CY	5.000	5.000
0780	606.0300	Riprap Heavy	CY	434.000	434.000
0790	608.0415	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	LF	124.900	124.900
0800	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	111.600	111.600
0810	608.0448	Storm Sewer Pipe Reinforced Concrete Class IV 48-Inch	LF	50.900	50.900
0820	611.0530	Manhole Covers Type J	EACH	2.000	2.000
0830	611.0651	Inlet Covers Type S	EACH	1.000	1.000
0840	611.0654	Inlet Covers Type V	EACH	8.000	8.000
0850	611.2008	Manholes 8-FT Diameter	EACH	2.000	2.000
0860	611.3003	Inlets 3-FT Diameter	EACH	9.000	9.000
0870	611.8115	Adjusting Inlet Covers	EACH	6.000	6.000
0880	611.8120.S	Cover Plates Temporary	EACH	4.000	4.000
0890	611.9900.S	Drain Slotted Vane	EACH	8.000	8.000
0900	612.0106	Pipe Underdrain 6-Inch	LF	300.000	300.000
0910	612.0404	Pipe Underdrain Wrapped 4-Inch	LF	440.000	440.000
0920	614.0010	Barrier System Grading Shaping Finishing	EACH	1.000	1.000
0930	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0940	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	335.000	335.000
0950	614.0400	Adjusting Steel Plate Beam Guard	LF	17.000	17.000
0960	614.0905	Crash Cushions Temporary	EACH	9.000	9.000
0970	614.2300	MGS Guardrail 3	LF	283.000	283.000
0980	614.2340	MGS Guardrail 3 L	LF	112.000	112.000
0990	614.2500	MGS Thrie Beam Transition	LF	78.000	78.000
1000	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
1010	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
1020	616.0206	Fence Chain Link 6-FT	LF	275.000	275.000
1030	618.0100	Maintenance And Repair of Haul Roads (project) 0001. 1100-36-72	EACH	1.000	1.000
1040	619.1000	Mobilization	EACH	1.000	1.000
1050	624.0100	Water	MGAL	54.500	54.500

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Line	Item	Item Description	Unit	Total	Qty
1060	625.0100	Topsoil	SY	5,280.000	5,280.000
1070	625.0500	Salvaged Topsoil	SY	2,880.000	2,880.000
1080	627.0200	Mulching	SY	2,000.000	2,000.000
1090	628.1104	Erosion Bales	EACH	150.000	150.000
1100	628.1504	Silt Fence	LF	500.000	500.000
1110	628.1520	Silt Fence Maintenance	LF	500.000	500.000
1120	628.1905	Mobilizations Erosion Control	EACH	7.000	7.000
1130	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
1140	628.2023	Erosion Mat Class II Type B	SY	9,560.000	9,560.000
1150	628.6005	Turbidity Barriers	SY	720.000	720.000
1160	628.6510	Soil Stabilizer Type B	ACRE	1.000	1.000
1170	628.7020	Inlet Protection Type D	EACH	19.000	19.000
1180	628.7504	Temporary Ditch Checks	LF	270.000	270.000
1190	628.7555	Culvert Pipe Checks	EACH	40.000	40.000
1200	628.7570	Rock Bags	EACH	20.000	20.000
1210	629.0210	Fertilizer Type B	CWT	4.700	4.700
1220	630.0130	Seeding Mixture No. 30	LB	100.000	100.000
1230	630.0200	Seeding Temporary	LB	370.000	370.000
1240	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	9.000	9.000
1250	638.2102	Moving Signs Type II	EACH	13.000	13.000
1260	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
1270	638.3100	Removing Structural Steel Sign Supports	EACH	2.000	2.000
1280	643.0100	Traffic Control (project) 0001. 1100-36-72	EACH	1.000	1.000
1290	643.0300	Traffic Control Drums	DAY	46,200.000	46,200.000
1300	643.0420	Traffic Control Barricades Type III	DAY	1,220.000	1,220.000
1310	643.0705	Traffic Control Warning Lights Type A	DAY	2,440.000	2,440.000
1320	643.0715	Traffic Control Warning Lights Type C	DAY	2,122.000	2,122.000
1330	643.0800	Traffic Control Arrow Boards	DAY	405.000	405.000
1340	643.0900	Traffic Control Signs	DAY	24,691.000	24,691.000
1350	643.0910	Traffic Control Covering Signs Type I	EACH	12.000	12.000
1360	643.0920	Traffic Control Covering Signs Type II	EACH	28.000	28.000
1370	643.1000	Traffic Control Signs Fixed Message	SF	226.000	226.000
1380	643.1051	Traffic Control Signs PCMS with Cellular Communications	DAY	502.000	502.000
1390	643.2000	Traffic Control Detour (project) 0001. 1100-36-72	EACH	1.000	1.000
1400	643.3000	Traffic Control Detour Signs	DAY	7,940.000	7,940.000
1410	645.0111	Geotextile Type DF Schedule A	SY	12.000	12.000
1420	645.0120	Geotextile Type HR	SY	1,124.000	1,124.000
1430	645.0130	Geotextile Type R	SY	12.000	12.000
1440	646.0690.S	Removing Pavement Markings Water Blasting	LF	17,110.000	17,110.000

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Line	Item	Item Description	Unit	Total	Qty
1450	646.0841.S	Pavement Marking Grooved Wet Reflective Contrast Tape 4-Inch	LF	3,025.000	3,025.000
1460	646.0843.S	Pavement Marking Grooved Wet Reflective Contrast Tape 8-Inch	LF	3,125.000	3,125.000
1470	646.2304.S	Pavement Marking Grooved Wet Reflective Epoxy 4-Inch	LF	8,655.000	8,655.000
1480	647.0706	Pavement Marking Diagonal Epoxy 6-Inch	LF	715.000	715.000
1490	647.0746	Pavement Marking Diagonal Epoxy 24-Inch	LF	225.000	225.000
1500	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	52,570.000	52,570.000
1510	649.0801	Temporary Pavement Marking Removable Tape 8-Inch	LF	610.000	610.000
1520	650.4000	Construction Staking Storm Sewer	EACH	19.000	19.000
1530	650.4500	Construction Staking Subgrade	LF	2,326.000	2,326.000
1540	650.5000	Construction Staking Base	LF	6,976.000	6,976.000
1550	650.6500	Construction Staking Structure Layout (structure) 0001. B-67-56	LS	1.000	1.000
1560	650.6500	Construction Staking Structure Layout (structure) 0002. B-67-357	LS	1.000	1.000
1570	650.7000	Construction Staking Concrete Pavement	LF	656.000	656.000
1580	650.7500	Construction Staking Concrete Barrier	LF	1,016.000	1,016.000
1590	650.8000	Construction Staking Resurfacing Reference	LF	2,282.000	2,282.000
1600	650.8500	Construction Staking Electrical Installations (project) 0001. 1100-36-72	LS	1.000	1.000
1610	650.9910	Construction Staking Supplemental Control (project) 0001. 1100-36-72	LS	1.000	1.000
1620	650.9920	Construction Staking Slope Stakes	LF	3,526.000	3,526.000
1630	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	780.000	780.000
1640	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	120.000	120.000
1650	652.0615	Conduit Special 3-Inch	LF	170.000	170.000
1660	653.0140	Pull Boxes Steel 24x42-Inch	EACH	4.000	4.000
1670	653.0905	Removing Pull Boxes	EACH	3.000	3.000
1680	655.0610	Electrical Wire Lighting 12 AWG	LF	684.000	684.000
1690	655.0615	Electrical Wire Lighting 10 AWG	LF	970.000	970.000
1700	655.0620	Electrical Wire Lighting 8 AWG	LF	1,340.000	1,340.000
1710	655.0625	Electrical Wire Lighting 6 AWG	LF	2,120.000	2,120.000
1720	690.0150	Sawing Asphalt	LF	4,265.000	4,265.000
1730	690.0250	Sawing Concrete	LF	1,755.000	1,755.000
1740	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
1750	715.0502	Incentive Strength Concrete Structures	DOL	1,990.000	1,990.000
1760	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,600.000	1,600.000
1770	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	2,000.000	2,000.000
1780	SPV.0060	Special 0001. Strapping B-67-56	EACH	3.000	3.000

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Line	Item	Item Description	Unit	Total	Qty
1790	SPV.0060	Special 0002. Exposing Existing Utility	EACH	1.000	1.000
1800	SPV.0060	Special 0003. Field Facilities Office Space	EACH	1.000	1.000
1810	SPV.0060	Special 1001. Lighting Units Salvaged	EACH	2.000	2.000
1820	SPV.0060	Special 1002. Lamp Disposal High Intensity Discharge	EACH	14.000	14.000
1830	SPV.0060	Special 1003. Temporary Wood Pole Lighting Units 60-FT	EACH	2.000	2.000
1840	SPV.0060	Special 1004. Poles Wood 60-FT	EACH	2.000	2.000
1850	SPV.0090	Special 0001. Heavy Duty Silt Fence	LF	880.000	880.000
1860	SPV.0090	Special 0002. Concrete Barrier, Single Faced 32-Inch, Special	LF	116.000	116.000
1870	SPV.0090	Special 0003. Concrete Barrier, Double Faced 51-Inch, Special	LF	900.000	900.000
1880	SPV.0090	Special 0004. Three Sided Precast Concrete Structure	LF	166.000	166.000
1890	SPV.0090	Special 0005. Drain Slotted Vane Longitudinal Temporary	LF	215.000	215.000
1900	SPV.0090	Special 1002. Cable Aerial Aluminum 6 AWG Quadruplex	LF	3,240.000	3,240.000
1910	SPV.0105	Special 0001. Preparation and Coating of Girder Ends B-67-56	LS	1.000	1.000
1920	SPV.0105	Special 1001. Maintenance of Lighting Systems	LS	1.000	1.000
1930	SPV.0135	Special 0001. Vibration Monitoring	MON	3.000	3.000
1940	SPV.0170	Special 0001. Proof Rolling	STA	27.000	27.000
1950	SPV.0195	Special 0001. Coarse Aggregate Mix for Stream Bed	TON	270.000	270.000

ALL ITEMS THIS SHEET ARE CATEGORY 1000

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CLEARING AND GRUBBING

STAGE	LOCATION	STA	TO	STA	201.0105 CLEARING STA	201.0205 GRUBBING STA
3C	IH 41/USH 45 NB					
		239+00	-	242+00	3	3
	STAGE 1 SUBTOTAL				3	3
	TOTALS				3	3

REMOVING CONCRETE BARRIER

STAGE	LOCATION	STA	TO	STA	204.0157 LF	REMARKS
2	IH 41/USH 45 NB					
		235+80	-	244+80	900	51-INCH MEDIAN BARRIER
3C	IH 41/USH 45 NB					
		240+00	-	241+16	116	32-INCH SHOULDER BARRIER
	TOTALS				1,016	

REMOVING CONCRETE BASES

STAGE	LOCATION	STA		204.0195 EACH	REMARKS
2	IH 41/USH 45 NB				
		239+85	MEDIAN	1	CONCRETE SIGN BASE IN MEDIAN
	TOTALS			1	

REMOVING FENCE

STAGE	LOCATION	STA	TO	STA	204.0170 LF
3C	IH 41/USH 45 SB				
		239+29	-	241+55	250
		240+80		RT	45
	TOTALS				295

REMOVING STORM SEWER

STAGE	LOCATION	STA	TO	STA	204.0190 REMOVING SURFACE DRAINS EACH	204.0220 REMOVING INLETS EACH	204.0245.0001 REMOVING STORM SEWER 15-INCH LF	204.0245.0002 REMOVING STORM SEWER 48-INCH LF	** 611.8120.S COVER PLATES TEMPORARY EACH
1A	IH 41/USH 45 SB								
		240+50		LT	--	1	--	--	1
1A	IH 41/USH 45 SB								
		244+42		RT	1	--	--	--	--
2	IH 41/USH 45 NB								
		242+98	-	244+00	--	6	120	--	--
3C	IH 41/USH 45 NB								
		240+62	-	241+10	--	--	--	62	--
	TOTALS				1	7	120	62	1

** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVING GUARDRAIL

STAGE	LOCATION	STA	TO	STA	204.0165 LF	REMARKS
1B	IH 41/USH 45 SB					
		240+65	-	244+40	375	
2	RAMP MD					
		240MD+85	-	241MD+70	85	THRIE BEAM AND EAT
		241MD+15	-	241MD+55	40	THRIE BEAM
3C	IH 41/USH 45 NB					
		240+00	-	241+00	25	ATTACHED TO CONCRETE BARRIER
	TOTALS				525	

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ALL ITEMS THIS SHEET ARE CATEGORY 1000

REMOVALS

STAGE	LOCATION	STA	TO	STA	204.0100 REMOVING PAVEMENT SY	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	REMARKS
1A	IH 41/USH 45 SB								
		235+80	-	248+00	--	--	40	1,360	INSIDE SHOULDER MILL AND OVERLAY
1B	IH 41/USH 45 SB								
		240+00	-	241+00	40	--	--	--	STRUCTURE RECONSTRUCT
1C	IH 41/USH 45 SB								
		231+65	-	240+00	--	--	--	920	SHOULDER AND ENTRANCE RAMP
		236+00	-	247+10	--	--	--	1,460	SHOULDER AT TEMP WIDENING
1C	IH 41/USH 45 NB								
		236+50	-	240+40	430	--	--	--	REMOVE CONCRETE RUMBLE STRIPS
		242+50	-	243+40	--	--	--	150	GORE AREA MILL AND OVERLAY
		243+40	-	245+95	280	--	--	--	SHOULDER AT TEMP WIDENING
2	IH 41/USH 45 NB								
		235+80	-	244+80	--	1,000	--	--	INSIDE SHOULDER
		240+00	-	241+00	190	--	--	--	STRUCTURE RECONSTRUCT
2	IH 41/USH 45 SB								
		235+80	-	244+80	--	1,000	--	--	INSIDE SHOULDER
		240+00	-	241+00	270	--	--	--	STRUCTURE RECONSTRUCT
2	RAMP MD								
		240+00	-	240+76	--	5	5	170	RE-DECK
		240+44	-	240+85	45	--	--	--	RE-DECK
		241+05	-	241+29	45	--	--	--	RE-DECK
		241+05	-	241+70	--	5	5	140	RE-DECK
3A	RAMP MA								
		142+25	-	144+25	--	--	10	440	RAMP RECONSTRUCT
3C	IH 41/USH 45 NB								
		240+00	-	241+00	290	--	--	--	STRUCTURE RECONSTRUCT
4	IH 41/USH 45 NB								
		235+80	-	244+80	--	1,800	--	--	MEDIAN TEMP WIDENING
5	IH 41/USH 45 SB								
		232+25	-	239+10	--	300	--	--	OUTSIDE SHOULDER AND RAMP SHOULDER
		237+90	-	246+75	--	1,950	--	--	REMOVE TEMP WIDENING
5	RAMP MD								
		235MD+95	-	240MD+00	--	--	10	1,100	MILL ASPHALTIC WEDGE AND RAMP
	TOTALS				1,590	6,060	70	5,740	

BASE AGGREGATE

STAGE	LOCATION	STA	TO	STA	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	310.0110 BASE AGGREGATE OPEN GRADED TON	311.0110 BREAKER RUN TON	SPV.0170.0001 PROOF ROLLING STA
1B	IH 41/USH 45 SB AND RAMP MD								
		232+25	-	240MD+00	--	160	--	--	8
1B	IH 41/USH 45 SB								
		233+10	-	247+10	--	1,115	--	--	15
		240+00	-	241+00	--	45	--	--	--
1C	IH 41/USH 45 NB								
		242+45	-	245+95	--	365	--	--	4
2	IH 41/USH 45 NB								
		235+80	-	244+80	--	--	125	--	--
		240+00	-	241+00	--	210	--	--	--
2	IH 41/USH 45 SB								
		235+80	-	244+80	--	--	125	--	--
		240+00	-	241+00	--	355	--	--	--
2	RAMP MD								
		240+00	-	240+85	10	10	--	--	--
		241+05	-	242+15	5	10	--	--	--
3A	RAMP MA								
		142+75	-	144+25	10	45	--	--	--
3C	IH 41/USH 45 NB								
		240+00	-	241+16	--	580	--	--	--
4	IH 41/USH 45 NB								
		235+80	-	244+80	--	--	65	--	--
4	IH 41/USH 45 SB								
		235+80	-	244+80	--	--	190	--	--
5	IH 41/USH 45 SB								
		237+90	-	246+75	160	--	--	--	--
5	IH 41/USH 45 SB AND RAMP MD								
		232+25	-	240MD+00	100	--	--	--	--
	UNDISTRIBUTED				40	430	80	300	--
	TOTALS				325	3,325	585	300	27

ALL ITEMS THIS SHEET ARE CATEGORY 1000

3

Division	From / To Station	Common Excavation (1)	(item # 205.0100)	Salvaged / Unusable Pavement Material (4)	Available Material (5)	Reduced EBS in Fill (9)	Expanded EBS Backfill (11)	Unexpanded Fill	Expanded Fill (13)	Mass Ordinate + / - (14)	Waste	Borrow
Division 1		Cut (2)	EBS Excavation (3)			Factor 0.80	Factor 1.30		Factor 1.25			(item #208.0100)
STAGE 1B	232+25 - 247+50	933	0	62	871	0	0	2,522	3,153	-2,220	0	2,220
STAGE 1C	242+50 - 246+50	566	0	140	426	0	0	0	0	566	566	0
STAGE 3A	142MA+30 - 144MA+25	95	0	0	95	0	0	44	55	40	40	0
STAGE 3C	240+00 - 241+25	89	0	179	-90	0	0	43	53	35	35	0
STAGE 5	235+00 - 240+00 MD	694	0	0	694	0	0	2	3	691	691	0
STAGE 5	237+90 - 247+50	792	0	0	792	0	0	0	0	792	792	0
UNDISTRIBUTED		0	150	0	0	0	0	0	3	0	0	0
TOTAL		3,168	150	381	2,787	0	0	2,612	3,268	-96	2,124	2,220
		Total Common Exc	3,318									

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Breaker Run
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusuable Pavement Material
9) Reduced EBS in Fill - Excavated EBS material is usuable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
13) Expanded Fill. Factor = 1.25
Depending on selectio **Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh - Reduced EBS) * Fill Factor**
Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced EBS) * Fill Factor
Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh) * Fill Factor
Expanded Fill = (Unexpanded Fill - Rock* Rock Factor) * Fill Factor
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

ALL ITEMS THIS SHEET ARE CATEGORY 1000

CONCRETE ITEMS

STAGE	LOCATION	STA	TO	STA	320.0355 CONCRETE BASE HES 9-INCH SY	415.0105 CONCRETE PAVEMENT 10 1/2-INCH SY	415.1105 CONCRETE PAVEMENT HES 10 1/2-INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	416.0610 DRILLED TIE BARS EACH	416.0620 DRILLED DOWEL BARS EACH	416.1010 CONCRETE SURFACE DRAINS CY	416.1110 CONCRETE SHOULDER RUMBLE STRIPS LF	416.1710 CONCRETE PAVEMENT REPAIR SY	645.0130 GEOTEXTILE FABRIC TYPE R SY	SPV.0090.0002 CONCRETE BARRIER SINGLE-FACED 32-INCH, SPECIAL LF	SPV.0090.0003 CONCRETE BARRIER, DOUBLE FACED 51-INCH, SPECIAL LF
1C	IH 41/USH 45 NB															
		236+50	-	241+40	--	--	335	--	265	6	--	--	--	--	--	--
2	RAMP MD															
		240MD+44	-	240MD+85	--	40	--	45	--	--	--	--	--	--	--	--
		241MD+05	-	241MD+70	--	75	--	45	12	5	2	--	--	12	--	--
3A	RAMP MA															
		142MA+25	-	144MA+25	60	--	--	--	60	2	--	--	--	--	--	--
3C	IH 41/USH 45 NB															
		240+00	-	241+16	--	105	--	--	5	6	--	490	--	--	116	--
4	IH 41/USH 45 NB															
		235+80	-	244+80	--	--	--	--	--	--	--	--	--	--	--	900
	UNDISTRIBUTED				--	--	--	--	--	--	--	--	500	--	--	--
	TOTALS				60	220	335	90	342	19	2	490	500	12	116	900

GUARDRAIL ITEMS

STAGE	LOCATION	STA	TO	STA		614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EACH	614.0400 ADJUSTING STEEL PLATE BEAM GUARD LF	614.0397 GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SY	614.2300 MGS GUARDRAIL 3 LF	614.2340 MGS GUARDRAIL 3L LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 GS GUARDRA TERMINAL EAT EACH	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH	* EXCAVATION COMMON CY	* BORROW CY	* TOPSOIL SY
2	RAMP MD															
		241MD+14	-	241MD+70	RT	--	17	35	--	--	39	--	--	--	--	--
		240MD+85	-	239MD+92	LT	1	--	50	--	--	39	1	--	10	30	150
5	IH 41/USH 45 SB															
		239+60	-	244+00		--	--	250	283	112	--	1	1	--	--	--
	TOTALS					1	17	335	283	112	78	2	1	10	30	150

* FOR INFORMATION ONLY
** RESTORATION ITEMS IN RESTORATION ITEMS TABLE

STORM SEWER STRUCTURES

STRUCTURE	STATION	OFFSET*	LOCATION	522.1018 APRON REINFORCED 18-INCH EACH	611.0651 INLET COVERS TYPE S EACH	611.0654 INLET COVERS TYPE V EACH	611.0530 MANHOLE COVERS TYPE J EACH	611.3003 INLETS 3-FT DIAMETER EACH	611.2008 MANHOLES 8-FT DIAMETER EACH	611.8115 ADJUSTING INLET COVERS EACH	*** 611.8120.S COVER PLATES TEMPORARY EACH	**** 611.9900.S DRAIN SLOTTED VANE EACH	RIM ELEVATION	INVERT ELEVATION	DEPTH*** FT
1000	140MA+33	28' RT	RAMP MA	1	--	--	--	--	--	--	--	--	--	752.00	--
1000A	140MA+32	8' RT	RAMP MA	--	1	--	--	1	--	--	--	--	758.22	753.48	3.28
1001	240+20	102 LT'	IH41 / US45	1	--	--	--	--	--	--	--	--	--	752.00	--
1001A	240+20	3' LT	IH41 / US45	--	--	1	--	1	--	--	1	1	758.30	753.65	3.19
1001B	240+20	3' RT	IH41 / US45	--	--	1	--	1	--	--	1	1	758.30	754.25	2.63
1002	140MA+73	16' RT	RAMP MA	--	--	--	--	--	--	--	--	--	--	746.69	--
1002A	141MA+06	8' RT	RAMP MA	--	--	--	1	--	1	--	--	--	758.06	746.90	9.00
1003	140MA+86	1' RT	RAMP MA	--	--	--	--	--	--	--	--	--	--	746.69	--
1003A	140MA+96	1' RT	RAMP MA	--	--	--	1	--	1	--	--	--	757.92	746.78	8.98
1004A	243+00	3' LT	IH41 / US45	--	--	1	--	1	--	1	--	1	757.51	753.45	1.90
1004B	243+00	3'RT	IH41 / US45	--	--	1	--	1	--	1	--	1	757.51	753.40	1.95
1005A	243+50	3' LT	IH41 / US45	--	--	1	--	1	--	1	--	1	757.26	752.95	2.15
1005B	243+50	3'RT	IH41 / US45	--	--	1	--	1	--	1	--	1	757.26	753.00	2.10
1006A	244+00	3' LT	IH41 / US45	--	--	1	--	1	--	1	--	1	757.59	753.45	1.98
1006B	244+00	3'RT	IH41 / US45	--	--	1	--	1	--	1	--	1	757.59	753.40	2.03
			TOTALS	2	1	8	2	9	2	6	2	8			

REMARKS

* STATIONS AND OFFSETS ARE TO CENTER OF STRUCTURE

** DEPTH = RIM ELEV - COVER HEIGHT - 4 INCH ADJUSTMENT RING HEIGHT - BOTTOM OF STRUCTURE BASE ELEV

*** ADDITIONAL QUANTITES SHOWN ELSEWHERE

**** PLACE DRAIN SLOTTED VANE IN STAGE 4

ALL ITEMS THIS SHEET ARE CATEGORY 1000

UNDERDRAIN

STAGE	LOCATION			612.0106 PIPE UNDERDRAIN 6-INCH LF
2	IH 41/USH 45 NB			
	240+00	-	241+00	50
	UNDISTRIBUTED			250
	TOTALS			300

STORM SEWER PIPES

FROM STRUCTURE		TO STRUCTURE	520.8000 CONCRETE COLLARS FOR PIPE EACH	608.0415 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 15-INCH LF	608.0418 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 18-INCH LF	608.0448 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 48-INCH LF	JOINT TIES* EACH	INLET ELEVATION	DISCHARGE ELEVATION	SLOPE
1000A	-	1000	--	--	15.9	--	6	753.35	752.00	8.49%
1001B	-	1001A	--	5.0	--	--	--	754.25	754.15	2.00%
1001A	-	1001	--	--	95.7	--	6	753.65	752.00	1.72%
1002A	-	1002	1	--	--	26.9	--	746.90	746.69	0.78%
1003A	-	1003	1	--	--	24.0	--	746.78	746.69	0.37%
1004A	-	1004B	--	6.3	--	--	--	753.45	753.40	0.79%
1004B	-	1005B	--	50.5	--	--	--	753.40	753.00	0.79%
1005A	-	1005B	--	6.3	--	--	--	753.00	752.95	0.79%
1006A	-	1006B	--	6.3	--	--	--	753.45	753.40	0.79%
1006B	-	1005B	--	50.5	--	--	--	753.40	753.00	0.79%
			2	124.9	111.6	50.9	12			

* NON-BID ITEM: FOR INFORMATION ONLY

PIPE BETWEEN 1001 AND 1001A SHALL BE LAID IN TWO STAGES

DRAIN SLOTTED VANE LONGITUDINAL TEMPORARY

STAGE	LOCATION	STA	TO	STA	520.5115 CULVERT PIPE CLASS V 15-INCH LF	SPV.0090.0005 DRAIN SLOTTED VANE LONGITUDINAL TEMPORARY LF
2	IH 41/USH 45 NB					
		235+85	-	238+00	--	215
		238+00	-	240+24	224	--
	TOTALS				224	215

ALL ITEMS THIS SHEET ARE CATEGORY 1000

PREPARE FOUNDATION

LOCATION	211.0100 PREPARE FOUNDATION FOR ASPHALTIC PAVING LS	211.0200 PREPARE FOUNDATION FOR CONCRETE PAVING LS	REMARKS
1100-36-72	1	--	SB 231+65 - 247+10, 235+85 - 244+80, NB 242+50 - 245+90, RAMP MD 235+95 - 240+00
	--	1	NB 236+50 - 240+40
TOTALS	1	1	

ASPHALT PAVEMENT ITEMS

STAGE	LOCATION	STA	TO	STA	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	450.4000 HMA COLD WEATER PAVING TON	455.0605 TACK COAT GAL	460.6223 HMA PAVEMENT 3 MT 58-28 S TON	460.6224 HMA PAVEMENT 4 MT 58-28 S TON	460.7223 HMA PAVEMENT 3 HT 58-28 S TON	460.7624 HMA PAVEMENT 4 HT 58-28 V TON	465.0125 ASPHALTIC SURFACE TEMPORARY TON
1A	IH 41/USH 45 NB											
		235+80	-	244+80	--	--	60	--	--	--	--	115
		244+80	-	248+00	--	--	20	--	40	--	--	--
1C	IH 41/USH 45 SB											
		231+65	-	235+95	5	--	30	--	55	--	--	--
		232+95	-	240+00	8	--	--	--	--	--	--	95
		237+80	-	247+10	11	--	150	--	--	270	125	635
		ASPHALTIC WEDGE			--	--	--	--	--	--	--	500
		240+00	-	241+00	--	--	5	--	--	20	5	--
1C	IH 41/USH 45 NB											
		242+50	-	245+90	--	--	20	--	--	70	15	70
2	IH 41/USH 45 NB											
		235+80	-	244+80	--	190	70	--	--	130	60	190
		240+00	-	241+00	--	110	25	--	--	90	20	
2	IH 41/USH 45 SB											
		235+80	-	244+80	--	--	145	--	--	--	--	345
		240+00	-	241+00	--	195	45	--	--	160	35	
2	RAMP MD											
		240+00	-	240+44	--	--	5	--	--	--	15	--
		241+05	-	242+15	--	--	5	--	--	--	15	--
3A	RAMP MA											
		142MA+30	-	144MA+25	--	55	25	--	--	25	35	--
3C	IH 41/USH 45 NB											
		240+00	-	241+16	--	--	50	--	--	190	45	--
4	IH 41/USH 45 NB											
		235+80	-	244+80	--	--	60	110	50	--	--	--
4	IH 41/USH 45 SB											
		235+80	-	244+80	--	--	60	220	100	--	--	--
5	RAMP MD											
		235+95	-	240+00	--	--	40	--	--	--	80	--
	TOTALS				24	550	815	330	245	955	450	1,950

WATER

STAGE	LOCATION	STA	TO	STA	624.0100 WATER MGAL
1B	IH 41/USH 45 SB AND RAMP MD				
		232+25	-	240MD+00	2.4
1B	IH 41/USH 45 SB				
		233+10	-	247+10	16.7
		240+00	-	241+00	0.7
1C	IH 41/USH 45 NB				
		242+45	-	245+95	5.5
2	IH 41/USH 45 NB				
		240+00	-	241+00	3.2
2	IH 41/USH 45 SB				
		240+00	-	241+00	5.3
2	RAMP MD				
		240+00	-	240+85	0.3
		241+05	-	242+15	
3A	RAMP MA				
		142+75	-	144+25	0.8
3C	IH 41/USH 45 NB				
		240+00	-	241+16	8.7
5	IH 41/USH 45 SB				
		237+90	-	246+75	2.4
5	IH 41/USH 45 SB AND RAMP MD				
		232+25	-	240MD+00	1.5
	UNDISTRIBUTED				7.1
	TOTALS				54.5

FENCE CHAIN LINK 6-FT

STAGE	LOCATION	STA	TO	STA	616.0206 LF
3C	IH 41/USH 45 NB				
		239+29	-	241+55	250
		240+80		RT	25
	TOTALS				275

ALL ITEMS THIS SHEET ARE CATEGORY 1000

CONCRETE BARRIER & CRASH CUSHIONS TEMPORARY

STAGE	ROADWAY	STA - STA	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	614.0905 CRASH CUSHIONS TEMPORARY EACH	* BACK WIDTH	* OBJECT MARKING PATTERN	* CRASH TEST LEVEL	* TRAFFIC DIRECTION	* TRAFFIC LOCATION	* CRASH CUSHION SHIELDS
1B	IH 41 SB	246+59	--	--	1	4	OM-3C	TL-3	UNIDIRECTIONAL	L&R	TEMPORARY CONC. BARRIER
1B	IH 41 SB	237+90 - 246+59	870	870	--						
1C	IH 41 NB	233+61 - 246+21	1,260	1,260	--						
2	IH 41 NB	234+00	--	--	1	4	OM-3L	TL-3	UNIDIRECTIONAL	R	TEMPORARY CONC. BARRIER
2	IH 41 NB	234+00 - 246+00	1,200	1,200	--						
2	IH 41 NB	240+72 - 246+20	--	550	--						
2	IH 41 SB	248+01	--	--	1	4	OM-3R	TL-3	UNIDIRECTIONAL	L	TEMPORARY CONC. BARRIER
2	IH 41 SB	235+68 - 248+01	380	1,250	--						
2	IH 41 SB	247+00	--	--	1	4	OM-3L	TL-3	UNIDIRECTIONAL	R	TEMPORARY CONC. BARRIER
2	IH 41 SB	235+00 - 247+00	1,200	1,200	--						
3A	IH 41 NB	246+53	--	--	1	4	OM-3C	TL-3	UNIDIRECTIONAL	L&R	TEMPORARY CONC. BARRIER
3A	IH 41 NB	238+39 - 246+53	--	815	--						
3A	IH 41 NB	246+00	--	--	1	4	OM-3L	TL-3	UNIDIRECTIONAL	R	TEMPORARY CONC. BARRIER
3A	IH 41 NB	235+80 - 246+00	--	1,020	--						
3A	IH 41 SB	236+30 - 245+50	370	920	--						
3A	IH 41 SB	235+80 - 244+80	--	900	--						
3A	SB ENTRACNE RAMP	231+56 - 240+50	900	900	--						
3B	IH 41 NB	238+30	--	--	1	4	OM-3C	TL-3	UNIDIRECTIONAL	L&R	TEMPORARY CONC. BARRIER
3B	IH 41 NB	238+30 - 243+09	--	480							
3C	IH 41 SB	236+30 - 245+50	--	280	--						
4	IH 41/USH 45 NB	233+17	--	--	1	4	OM-3L	TL-3	UNIDIRECTIONAL	R	TEMPORARY CONC. BARRIER
4	IH 41/USH 45 NB	233+17 - 246+00	385	1,285	--						
5	IH 41/USH 45 SB	246+77	--	--	1	4	OM-3C	TL-3	UNIDIRECTIONAL	L&R	TEMPORARY CONC. BARRIER
5	IH 41/USH 45 SB	237+65 - 246+77	--	915	--						
TOTALS			6,565	13,845	9						

* FOR INFORMATION ONLY

COVER PLATES TEMPORARY

STAGE	LOCATION	STA		611.8120.S ** EACH	REMARKS
1B	IH 41/USH 45 SB				
		239+15	73' LT	1	PLACE OVER WISDOT STOC MANHOLE RIM STA 239+15 LT
	TOTALS			1	

** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

3

RESTORATION ITEMS

STAGE	LOCATION			625.0100 TOPSOIL SY	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0200 SEEDING TEMPORARY LB
1B	IH 41/USH 45 SB								
	231+65	-	235+00	400	--	--	0.3	10	20
	235+00	-	240+40	--	800	--	0.5	--	35
	239+25	-	246+50	--	1,300	--	0.8	--	60
1C	IH 41/USH 45 NB								
	243+00	-	245+00	--	300	--	0.2	--	15
2	RAMP MD								
	240MD+00	-	241MD+70	200	0	--	0.1	5	10
3A	RAMP MA								
	142MA+30	-	144MA+25	300	0	--	0.2	5	15
3C	IH 41/USH 45 NB								
	240+00	-	241+16	400	0	--	0.2	5	15
5	IH 41/USH 45 SB								
	232+25	-	240MD+00	1,100	0	--	0.7	20	50
	238+00	-	247+00	2,000	0	--	1.3	35	90
	UNDISTRIBUTED			880	480	2,000	0.4	20	60
	TOTALS			5,280	2,880	2,000	4.7	100	370

* TEMP SEEDING WAS CALCULATED AT 5 LB/1000 SF

RIPRAP ITEMS

STAGE	LOCATION	STA	TC	STA	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE FABRIC TYPE HR SY
1B	IH 41/USH 45 SB					
		240+00		LT	1	5
		243+50		LT	2	5
3C	IH 41/USH 45 NB					
		240+00		RT	2	5
	TOTAL				5	15

TEMPORARY SETTLING BASINS

STAGE	LOCATION	628.1104 EROSION BALES EACH	645.0120 * GEOTEXTILE FABRIC TYPE HR SY
1B	IH 41/USH 45	30	120
2	IH 41/USH 45	30	120
3C	IH 41/USH 45	30	120
	UNDISTRIBUTED	60	120
	TOTAL	150	480

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS THIS SHEET ARE CATEGORY 1000

MOBILIZATIONS EROSION CONTROL

STAGE	LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
1, 2, 3, 4	IH 41/USH 45	6	4
5	IH 41/USH 45	1	1
	TOTAL	7	5

3

EROSION CONTROL ITEMS

STAGE	LOCATION			628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2023 EROSION MAT CLASS II TYPE B SY	628.6005 TURBIDITY BARRIER SY	628.6510 SOIL STABILIZER TYPE B ACRE	628.7020 INLET PROTECTION TYPE D EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH	SPV.0090.0001 HEAVY DUTY SILT FENCE LF
1B	IH 41/USH 45 SB												
	231+65	-	240+00	--	--	1,200	--	--	--	50		--	--
	235+00	-	247+00	250	250	1,500	150	--	3	50	--	--	375
1C	RAMP MD												
	239MD+45	-	242MD+50	--	--	500	200	--	--	25	20	--	425
2	IH 41/USH 45												
	235+00	-	247+00	--	--	--	150	--	7	--	--	--	--
2	RAMP MD												
	239MD+45	-	242MD+50	--	--	500	--	--	--	--	--	--	--
3A	RAMP MA												
	142MA+25	-	144MA+25	--	--	1,000	--	--	--	25	--	--	--
3C	IH 41/USH 45 NB												
	235+00	-	247+00	--	--	750	150	--	1	50	--	--	--
4	IH 41/USH 45 NB/SB												
	235+00	-	247+00	--	--	--	--	--	8	--	--	--	--
5	IH 41/USH 45 SB												
	235+00	-	247+00	--	--	3,020	--	--	--	50	--	--	--
	UNDISTRIBUTED			250	250	1,090	70	1	--	20	20	20	80
	TOTAL			500	500	9,560	720	1	19	270	40	20	880

ALL ITEMS THIS SHEET ARE CATEGORY 1000

REMOVING PAVEMENT MARKINGS

STAGE	LOCATION	STA	TO	STA	646.0690.S REMOVING PAVEMENT MARKINGS WATER BLASTING LF
1B	IH 41/USH 45 SB				
		235+10	-	249+80	2,440
1C	IH 41/USH 45 NB				
		228+00	-	251+70	4,400
	RAMP MD				
	W/B MAIN ST LT TURN LN				410
2	IH 41/USH 45 NB				
		227+80	-	249+00	1,600
2	IH 41/USH 45 SB				
		228+30	-	264+80	4,970
2	RAMP MA				
		137MA+70	-	142MA+90	1,600
2	RAMP MD				
		233MD+70	-	237MD+20	890
2	RAMP ME				
		247ME+00	-	248ME+40	570
2	RAMP ME				
		246ME+00	-	247ME+20	230
	TOTALS				17,110

TRAFFIC CONTROL SIGNS PCMS WITH CELLULAR COMMUNICATIONS

STAGE	LOCATION	643.1051 SIGNS PCMS EACH	DAY
1A	IH 41	1	14
1B	IH 41	1	14
1C	IH 41	5	70
2	IH 41	3	42
3A	IH 41	2	28
3B	IH 41	1	14
3C	IH 41	2	28
4	IH 41	1	14
5	IH 41	2	28
STAGING SWITCHES		7	250
	TOTALS		502

TRAFFIC CONTROL DETOUR ITEMS

RAMP	STAGE DURATION DAYS	643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I EACH	CYCLE	SIGNS	** 643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	CYCLE	SIGNS	643.3000 TRAFFIC CONTROL DETOUR SIGNS EACH	DAYS
SB ENTRANCE RAMP CLOSURE									
STAGE 1C	5	--	--	--	7	1	7	44	220
STAGE 2	55	--	--	--	--	--	--	44	2,420
STAGE 5	15	--	--	--	7	1	7	44	660
SB EXIT RAMP CLOSURE									
STAGE 1C	5	8	1	8	2	1	2	26	130
STAGE 2	55	--	--	--	--	--	--	26	1,430
NB EXIT RAMP CLOSURE									
STAGE 1C	5	2	1	2	6	1	6	22	110
STAGE 2	55	--	--	--	--	--	--	22	1,210
STAGE 3A	10	--	--	--	--	--	--	22	220
STAGE 3C	70	2	1	2	6	1	6	22	1,540
TOTALS				12			28		7,940

** ADDITIONAL QUANTITIES LISTED ELSEWHERE

TRAFFIC CONTROL SIGNS FIXED MESSAGE

STAGE	SIGN NO.	SIGN SIZE W X H FT X FT	643.1000 SIGN AREA SF
1B	1	9.0 X 5.0	45.00
1C, 5	2	6.0 X 3.5	21.00
1C, 5	3	6.0 X 3.5	21.00
2	4	14.5 X 5.0	72.50
1C, 2, 3A, 3C	5	9.5 X 7.0	66.50
	TOTAL		226.00

TEMPORARY PAVEMENT MARKING FOR TRAFFIC CONTROL

STAGE	ROADWAY	STA - STA	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH WHITE LF	YELLOW LF	649.0801 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH WHITE LF
1B	IH 41/USH 45	235S+10 - 249S+80	4,400	1,500	--
1C	IH 41/USH 45	228N+00 - 251N+70	6,500	2,200	--
1C	MAIN ST	W/B LT TURN LN	--	310	--
1C	MAIN ST	E/B RT TURN LN	200	--	--
2	IH 41/USH 45	227N+80 - 251N+70	6,500	2,240	--
		228S+30 - 263S+50	8,300	2,400	--
3A	IH 41/USH 45	228N+00 - 251N+70	4,500	1,750	--
		228S+30 - 252S+30	7,000	2,400	--
	Ramp MD	233MD+70 - 240MD+85	710	--	250
	Ramp ME	246ME+00 - 247ME+80	--	--	180
3B	IH 41/USH 45	228N+00 - 251N+70	1,150	--	--
	MAIN ST	W/B LT TURN LN	--	--	180
5	MAIN ST	W/B LT TURN LN	--	310	--
	MAIN ST	E/B RT TURN LN	200	--	--
TOTALS			52,570		610

ALL ITEMS THIS SHEET ARE CATEGORY 1000

PAVEMENT MARKING ITEMS

STAGE	LOCATION	STA	TO	STA	646.0841.S GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH WHITE 12.5' DASH LF	646.0841.S GROOVED WET REFLECTIVE CONTRAST TAPE 4-INCH WHITE 3' DASH LF	646.0843.S GROOVED WET REFLECTIVE CONTRAST TAPE 8-INCH WHITE 8-INCH LF	646.2304.S GROOVED WET REFLECTIVE EPOXY 4-INCH WHITE SOLID LF	646.2304.S GROOVED WET REFLECTIVE EPOXY 4-INCH YELLOW SOLID LF	647.0706 PAVEMENT MARKING DIAGONAL EPOXY 6-INCH LF	647.0746 PAVEMENT MARKING DIAGONAL EPOXY 24-INCH LF
3	IH 41/USH 45 SB										
		252+30	-	264+80	--	310	--	--	--	--	--
3	IH 41/USH 45 NB										
		228+60	-	233+90	--	135	--	--	--	--	--
		231+10	-	249+30	1,100	--	--	--	1,820	--	--
		231+10	-	144MA+50	--	--	--	1,340	--	--	--
		233+90	-	243+40	--	--	950	--	--	--	165
		140MA+00	-	144MA+50	--	--	390	--	100	--	--
		243+40	-	249+30	--	125	--	590	--	--	--
4	IH 41/USH 45 NB										
		231+10	-	249+30	--	--	--	--	--	305	--
4	IH 41/USH 45 SB										
		228+60	-	252+30	1,220	--	--	--	2,360	410	--
		228+60	-	242MD+70	--	--	--	1,320	--	--	--
		230+05	-	231+85	--	50	--	--	--	--	--
		231+85	-	238+35	--	--	1,300	--	--	--	--
		238+35	-	246+25	--	--	--	790	--	--	--
		238MD+35	-	241MD+70	--	--	--	--	335	--	--
		246+25	-	248+86	--	--	485	--	--	--	60
		248+86	-	252+30	--	85	--	--	--	--	--
TOTALS					2,320	705	3,125	4,040	4,615	715	225
					3,025			8,655			

SAWING PAVEMENT

STAGE	LOCATION	STA	TO	STA	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
1A	IH 41/USH 45 SB					
		235+80	-	248+00	20	25
1B	IH 41/USH 45 NB					
		240+00	-	241+00	20	120
1C	IH 41/USH 45 NB					
		236+50	-	240+40	--	410
		242+50	-	245+90	--	400
		142MA+25	-	144MA+25	--	200
1C	RAMP MD					
		142MD+50	-	144MD+00	--	150
1C	IH 41/USH 45 SB					
		239+59	-	239+20	25	--
		246+50	-	247+10	130	--
2	IH 41/USH 45 NB					
		240+00	-	241+00	--	190
2	IH 41/USH 45 SB					
		240+00	-	241+00	--	90
2	RAMP MD					
		233MD+70	-	254MD+04	--	50
3A	IH 41/USH 45 NB					
		242+25	-	245+90	350	--
3C	IH 41/USH 45 NB					
		240+00	-	241+16	--	120
4	IH 41/USH 45 NB					
		235+80	-	244+80	915	--
4	IH 41/USH 45 SB					
		235+80	-	244+80	915	--
5	IH 41/USH 45 SB					
		237+85	-	246+70	900	--
5	RAMP MD					
		232+25	-	240MD+00	775	--
		237+87	-	240MD+00	215	--
TOTAL					4,265	1,755

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TRAFFIC CONTROL ITEMS

STAGE	STAGE DURATION DAYS	LOCATION	643.0300 DRUMS EACH	643.0300 DRUMS DAYS	643.0420 BARRICADES TYPE III EACH	643.0420 BARRICADES TYPE III DAYS	643.0705 LIGHTS TYPE A EACH	643.0705 LIGHTS TYPE A DAYS	643.0715 LIGHTS TYPE C EACH	643.0715 LIGHTS TYPE C DAYS	643.0800 ARROW BOARDS EACH	643.0800 ARROW BOARDS DAYS	643.0900 SIGNS EACH	643.0900 SIGNS DAYS
1A	1	IH 41 SB	125	125	2	2	4	4	30	30	2	2	13	13
1B	60	IH 41 SB	75	4,500	--	--	--	--	--	--	--	--	44	2,640
1C	7	IH 41 NB	60	420	2	14	4	28	16	112	2	14	33	231
1C	7	IH 41 SB	85	595	11	77	22	154	--	--	--	--	52	364
2	60	IH 41 NB	70	4,200	--	--	--	--	--	--	--	--	38	2,280
2	60	IH 41 SB	160	9,600	16	960	32	1,920	25	1,500	2	120	58	3,480
3A	7	IH 41 NB	50	350	--	--	--	--	--	--	--	--	42	294
3A	7	IH 41 SB	30	210	--	--	--	--	--	--	1	7	33	231
3B	110	IH 41 NB	60	6,600	--	--	--	--	--	--	--	--	39	4,290
3B	110	IH 41 SB	85	9,350	--	--	--	--	--	--	1	110	35	3,850
3C	75	IH 41 NB	50	3,750	--	--	--	--	--	--	--	--	42	3,150
3C	75	IH 41 SB	30	2,250	--	--	--	--	--	--	1	75	33	2,475
4	15	IH 41 NB	15	225	--	--	--	--	--	--	1	15	21	315
4	15	IH 41 SB	80	1,200	--	--	--	--	--	--	1	15	31	465
5	15	IH 41 SB	55	825	9	135	18	270	--	--	1	15	27	405
STAGING SWITCHES	16	IH 41	125	2,000	2	32	4	64	30	480	2	32	13	208
				46,200		1,220		2,440		2,122		405		24,691

ALL ITEMS THIS SHEET ARE CATEGORY 1000

STRUCTURE STAKING ITEMS

LOCATION	650.6500.0001 CONSTRUCTION STAKING STRUCTURE LAYOUT B-67-56 LS	650.6500.0002 CONSTRUCTION STAKING STRUCTURE LAYOUT B-67-357 LS
IH 41/USH 45	1	1
TOTAL	1	1

COARSE AGGREGATE MIX FOR STREAM BED

STAGE	LOCATION	SPV.0195.0001 TON
1B	STREAM BED	40
2	STREAM BED	130
3C	STREAM BED	100
	TOTALS	270

VIBRATION MONITORING

STAGE	LOCATION	SPV.0135.0001 MONTHS
1B	PILE DRIVING	1
2	PILE DRIVING	1
3C	PILE DRIVING	1
	TOTALS	3

CONSTRUCTION STAKING ITEMS

STAGE	LOCATION	STA	TO	STA	650.4000 CONSTRUCTION STAKING STORM SEWER EACH	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.7000 CONSTRUCTION STAKING CONCRETE PAVEMENT LF	650.7500 CONSTRUCTION STAKING CONCRETE BARRIER LF	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE LF	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 1100-36-72 LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
1A	IH 41/USH 45 SB	235+80	-	248+00	--			--	--	1,220	1	--
1B	IH 41/USH 45 SB	231+65	-	247+10	1	1,485	1,485	--	--	--	--	1,485
1B	IH 41/USH 45 SB	240+00	-	241+00	--	100	100	--	--	--	--	--
1C	RAMP MD	236MD+00	-	240MD+00	--	--	--	--	--	400	--	--
1C	IH 41/USH 45 NB	236+50	-	245+90	--	275	275	390	--	--	--	275
2	IH 41/USH 45 NB & SB	235+80	-	244+80	6	--	900	--	--	--	--	--
2	IH 41/USH 45 SB	240+00	-	241+00	1	100	100	--	--	--	--	--
2	IH 41/USH 45 NB	240+00	-	241+00	1	100	100	--	--	--	--	--
2	RAMP MD	240MD+00	-	241MD+70	--	50	--	50	--	100	--	100
3A	RAMP MA	142MA+30	-	143MA+92	--	100	100	100	--	162	--	100
3C	IH 41/USH 45 NB	240+00	-	241+16	4	116	116	116	116	--	--	116
4	IH 41/USH 45 NB & SB	235+80	-	244+80	6	--	900	--	900	--	--	--
5	IH 41/USH 45 SB	232+25	-	246+70	--	--	1,450	--	--	--	--	1,450
5	RAMP MD	236MD+00	-	240MD+00	--	--	1,450	--	--	400	--	--
	TOTAL				19	2,326	6,976	656	1,016	2,282	1	3,526

TYPE II PERMANENT SIGNING -

1100-36-72 IH 41

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE W [IN.]	x	H [IN.]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	634.0618 WOOD POSTS 4"X 6"x18' [EA]	638.2102 MOVE SIGNS TYPE II [EA]	638.3100 REMOVING STRUCT STEEL SIGN SUPPORTS [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
1	W5-52L	--	--	x	--	1	1	1	--	--	--
2	W5-52R	--	--	x	--	1	1	1	--	--	--
3	W5-52R	--	--	x	--	1	1	--	--	--	--
4	D10-5A	--	--	x	--	--	--	1	--	--	ON LIGHT POLE
5	D10-5A	--	--	x	--	--	--	1	--	--	ON LIGHT POLE
6	W4-1R	--	--	x	--	1	1	1	--	--	--
7	--	--	--	x	--	--	--	--	2	--	REMOVE OLD POST STUBS
8	E5-1B	--	--	x	--	--	2	1	--	--	--
8A	PLAQUE	--	--	x	--	--	--	1	--	--	--
9	W5-54	--	--	x	--	--	--	1	--	8	--
10	W5-54	--	--	x	--	--	--	1	--	8	--
11	W1-8	--	--	x	--	--	1	1	--	--	
12	W5-54	--	--	x	--	--	--	1	--	14	--
13	W5-54	--	--	x	--	--	--	1	--	14	--
14	E5-1B	--	--	x	--	--	2	1	--	--	--
	TOTALS					4	9	13	2		

SHEET 1 OF 1

PROJECT NO: 1100-36-72	HWY: IH 41	COUNTY: WAUKESHA	PERMANENT SIGNING QUANTITIES	SHEET:	E

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CATEGORY 1100
LIGHTING REMOVAL ITEMS

204.9060.S.1001 REMOVING POLES WOOD 60-FT AND FLOODLIGHTS
204.9060.S.1002 REMOVING POLES WOOD 60-FT
204.9060.S.1003 REMOVING ELECTRICAL WIRE FROM CONDUIT
653.0905 REMOVING PULL BOXES
SPV.0060.1001 LIGHTING UNITS SALVAGED
SPV.0060.1002 LAMP DISPOSAL HIGH INTENSITY DISCHARGE

SYSTEM	LOCATION	204.9060.S.1001 REMOVING POLES WOOD 60-FT AND FLOODLIGHTS	204.9060.S.1002 REMOVING POLES WOOD 60-FT	204.9090.S.1001 REMOVING ELECTRICAL WIRE FROM CONDUIT	653.0905 REMOVING PULL BOXES	SPV.0060.1001 LIGHTING UNITS SALVAGED	SPV.0060.1002 LAMP DISPOSAL HIGH INTENSITY DISCHARGE	COMMENTS
		EACH	EACH	LF	EACH	EACH	EACH	
HL-67-VS	235+47, 90' LT	--	1	--	--	--	--	TEMPORARY LIGHTING
HL-67-VS	237+72, 100' LT	1	--	--	--	--	1	"
HL-67-VS	239+97, 100' LT	1	--	--	--	--	1	TEMPORARY LIGHTING
HL-67-VS	241+77, 100' LT	--	1	--	--	--	--	TEMPORARY LIGHTING
HL-67-VS	237+43, C.I.M	--	--	--	--	1	2	EXISTING LIGHTING
HL-67-VS	240+73, C.I.M	--	--	--	--	1	2	"
HL-67-VS	242+00, 70' LT	--	--	--	1	--	--	EXISTING LPB
HL-67-VS	246+45, 60' LT	--	--	--	1	--	4	"
HL-67-VS	246+45, 65' RT	--	--	--	1	--	4	EXISTING LPB
HL-67-VS	246+20ME, 05' LT	--	--	350	--	--	--	EX. LPB TO EX. HML -67-004
	TOTAL (1100)	**2**	**2**	**350**	**3**	**2**	**14**	

PROJECT NO: 1100-36-72	HWY: IH 41 / USH 45	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET:	E

3

CATEGORY 1100
LIGHTING BRANCH CIRCUIT CONDUIT

652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH
652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH
652.0615 CONDUIT SPECIAL 3-INCH

SYSTEM	LOCATION TO LOCATION	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	652.0615 CONDUIT SPECIAL 3-INCH	COMMENTS
		LF	LF	LF	
HL-67-VS	STA 240+00, 130' LT TO LPB101	40	--	--	TEMPORARY / FINAL LIGHTING
HL-67-VS	LPB101 TO JB101	--	--	100	FINAL LIGHTING
HL-67-VS	JB101 TO JB102	190	--	--	MEDIAN BARRIER / STRUCTURE ITEM
HL-67-VS	JB102 TO LPB104	--	80	--	FINAL LIGHTING
HL-67-VS	LPB104 TO LPB102	230	--	--	"
HL-67-VS	LPB102 TO LPB103	150	--	--	FINAL LIGHTING
HL-67-VS	LPB103 TO HML-67-004	170	--	--	TEMPORARY / FINAL LIGHTING
HL-67-VS	STA 246+20ME TO EXISTING CONDUIT STA 246+45	--	--	70	"
HL-67-VS	EXISTING CONDUIT STA 246+45 TO LPB 102	--	40	--	TEMPORARY / FINAL LIGHTING
	TOTAL (1100)	**780**	**120**	**170**	

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CATEGORY 1100
LIGHTING WIRE QUANTITIES
480Y/277 VAC 4-WIRE ISOLATED NEUTRAL SYSTEM

655.0620 ELECTRICAL WIRE LIGHTING 8 AWG
655.0625 ELECTRICAL WIRE LIGHTING 6 AWG
SPV.0090.1002 CABLE AERIAL ALUMINUM 6 AWG QUADRUPLEX

SYSTEM	NETWORK	LOCATION TO LOCATION	DISTANCE	655.0620 ELECTRICAL WIRE LIGHTING 8 AWG	655.0625 ELECTRICAL WIRE LIGHTING 6 AWG	SPV.0090.1002 CABLE AERIAL ALUMINUM 6 AWG QUADRUPLEX	COMMENTS
				LF	LF	LF	
HL-67-VS	R/S/T/N/G	HML-67-003 TO LPB101 TO WP-VS-101	110	150	600	--	TEMPORARY LIGHTING
HL-67-VS	R/S/T/N/G	WP-VS-101 TO TVS1	180	200	--	800	"
HL-67-VS	R/S/T/N/G	TVS1 TO TVS2	220	240	--	960	TEMPORARY LIGHTING
HL-67-VS	R/S/T/N/G	TVS2 TO WP-VS-102	220	240	--	960	TEMPORARY LIGHTING
HL-67-VS	R/S/T/N/G	WP-VS-102 TO POLE 234+81	110	130	--	520	"
HL-67-VS	U/V/W/N/GND	EXISTING PB 246+20ME TO LPB102 TO LPB103 TO HML-67-004	350	380	1,520	--	TEMPORARY / FINAL LIGHTING
		TOTAL (1100)		**1,340**	**2,120**	**3,240**	

SHEET 3 OF 6

PROJECT NO: 1100-36-72	HWY: IH 41 / USH 45	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET:	E

CATEGORY 1100
LIGHT POLE QUANTITIES
480Y/277 VAC 4-WIRE ISOLATED NEUTRAL SYSTEM

655.0610 ELECTRICAL WIRE LIGHTING 12 AWG
SPV.0060.1003 TEMPORARY WOOD POLE LIGHTING UNITS 60-FT
SPV.0060.1004 POLES WOOD 60-FT

SYSTEM	STATION	OFFSET	SEQUENCE I.D.	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG	SPV.0060.1003 TEMPORARY WOOD POLE LIGHTING UNITS 60-FT	SPV.0060.1004 POLES WOOD 60-FT	COMMENTS
				LF	EACH	EACH	
HL-67-VS	235+47	90' LEFT	WP-VS-102	--	--	1	TEMPORARY LIGHTING
HL-67-VS	237+31	C.I.M	SVS7 / TVS7	342	--	--	LIGHTING UNIT SALVAGED
HL-67-VS	237+72	100' LEFT	TVS2	--	1	--	TEMPORARY LIGHTING
HL-67-VS	239+81	C.I.M	RVS6 / SVS6	342	--	--	LIGHTING UNIT SALVAGED
HL-67-VS	239+97	100' LEFT	TVS1	--	1	--	TEMPORARY LIGHTING
HL-67-VS	241+77	100' LEFT	WP-VS-101	--	--	1	TEMPORARY LIGHTING
TOTAL (1100)				**684**	**2**	**2**	

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CATEGORY 1100
LIGHTING PULL BOX QUANTITIES

653.0140 PULL BOXES STEEL 24 X 42-INCH
655.0615 ELECTRICAL WIRE LIGHTING 10 AWG (GROUNDING WIRE)

SYSTEM	LOCATION	LABEL	653.0140 PULL BOXES STEEL 24 X 42	655.0615 ELECTRICAL WIRE LIGHTING 10 AWG	COMMENTS
			EACH	LF	
HL-67-VS	241+97, 100' LEFT	LPB101	1	40	TEMPORARY / FINAL LIGHTING
HL-67-VS	244+17, 72' RIGHT	LPB104	1	400	FINAL LIGHTING
HL-67-VS	246+44, 78' RIGHT	LPB102	1	350	TEMPORARY / FINAL LIGHTING
HL-67-VS	248+14, 81' RIGHT	LPB103	1	180	TEMPORARY / FINAL LIGHTING
	TOTAL (1100)		4	970	

CATEGORY 1100
LIGHTING SYSTEM ITEMS

650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (I.D. 1100-36-72)
SPV.0105.1001 MAINTENANCE OF LIGHTING SYSTEMS

SYSTEM	LOCATION	650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (I.D.1100-36-72)	SPV.0105.1001 MAINTENANCE OF LIGHTING SYSTEMS
		LS	LS
HL-67-VS	SW QUADRANT	1	1
	TOTAL (1100)	1	1

R/W PROJECT NUMBER	SHEET NUMBER
1100-36-22	4.1

PLAT OF RIGHT-OF-WAY REQUIRED FOR

BOX CULVERT

HWY: I-41

WAUKESHA COUNTY

CONVENTIONAL ABBREVIATIONS

ACCESS POINT/ DRIVEWAY CONNECTION	AP	REFERENCE LINE	R/L
ACCESS RIGHTS	AR	RELEASE OF RIGHTS	ROR
ACRES	AC.	REMAINING	REM.
AND OTHERS	ET.AL.	RIGHT-OF-WAY	R/W
CENTERLINE	C/L	SECTION	SEC.
CERTIFIED SURVEY MAP	CSM	STATION	STA.
CORNER	COR.	TEMPORARY LIMITED EASEMENT	TLE
DOCUMENT	DOC.	VOLUME	V.
EASEMENT	EASE.		
HIGHWAY EASEMENT	H.E.		
IMAGE	I.		
LAND CONTRACT	LC		
MONUMENT	MON.		
PAGE	P.		
PERMANENT LIMITED EASEMENT	PLE		
PROPERTY LINE	PL		
REEL	R.		
RECORDED AS	(100')		

CURVE DATA

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE OR DELTA	DELTA
LENGTH OF CURVE	L
TANGENT	TAN

FOUND IRON PIPE/PIN	
R/W MONUMENT	
R/W STANDARD	
SIGN	
SECTION CORNER MONUMENT	
SECTION CORNER SYMBOL	
FEE (HATCH VARIES)	
TEMPORARY LIMITED EASEMENT	
PERMANENT LIMITED EASEMENT	
R/W BOUNDARY POINT	
PARCEL NUMBER	
UTILITY PARCEL NUMBER	
SIGN NUMBER (OFF PREMISE)	
BUILDING	

CONVENTIONAL SYMBOLS

(1" UNLESS NOTED)	PROPOSED R/W LINE
(SET)	EXISTING H.E. LINE
(SET)	PROPERTY LINE
ISIGN	LOT & TIE LINES
	SLOPE INTERCEPTS
	CORPORATE LIMITS
	ACCESS RESTRICTED (BY PREVIOUS ACQUISITION/CONTROL)
	ACCESS RESTRICTED (BY ACQUISITION)
	NO ACCESS (BY STATUTORY AUTHORITY)
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	EXISTING CENTERLINE
	PROPOSED REFERENCE LINE
	PARALLEL OFFSET

CONVENTIONAL UTILITY SYMBOLS

WATER	W	
GAS	G	
TELEPHONE	T	
OVERHEAD TRANSMISSION LINES	OH	
ELECTRIC	E	
CABLE TELEVISION	TV	
FIBER OPTIC	FO	
SANITARY SEWER	SAN	
STORM SEWER	SS	
	NON COMPENSABLE	COMPENSABLE
POWER POLE		
TELEPHONE POLE		
TELEPHONE PEDESTAL		
ELECTRIC TOWER		

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE. ALL TLES EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

AREAS SHOWN IN THE TOTAL ACRES COLUMN ARE APPROXIMATE AND ARE DERIVED FROM TAX ROLLS AND OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER WHICH ARE NOT CONTIGUOUS TO THE AREA ACQUIRED.

SCHEDULE OF LANDS & INTERESTS REQUIRED

NOTE: OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO THE DEPARTMENT OF TRANSPORTATATION. * DENOTES AREAS COMPUTED

PARCEL NUMBER	OWNER	INTEREST REQUIRED	TOTAL ACRES	R/W REQUIRED (ACRES) NEW	EXISTING	TOTAL	REMAINING ACRES	TEMP. ACRES
1	ERNIE VON SCHLIEDORN IMPORTS INC.	TLE	4.300	0.000	0.000	0.000	4.300	0.085

4006
A Concrete Monument
w/ A Brass Cap
Y 221667.18
X 720024.96

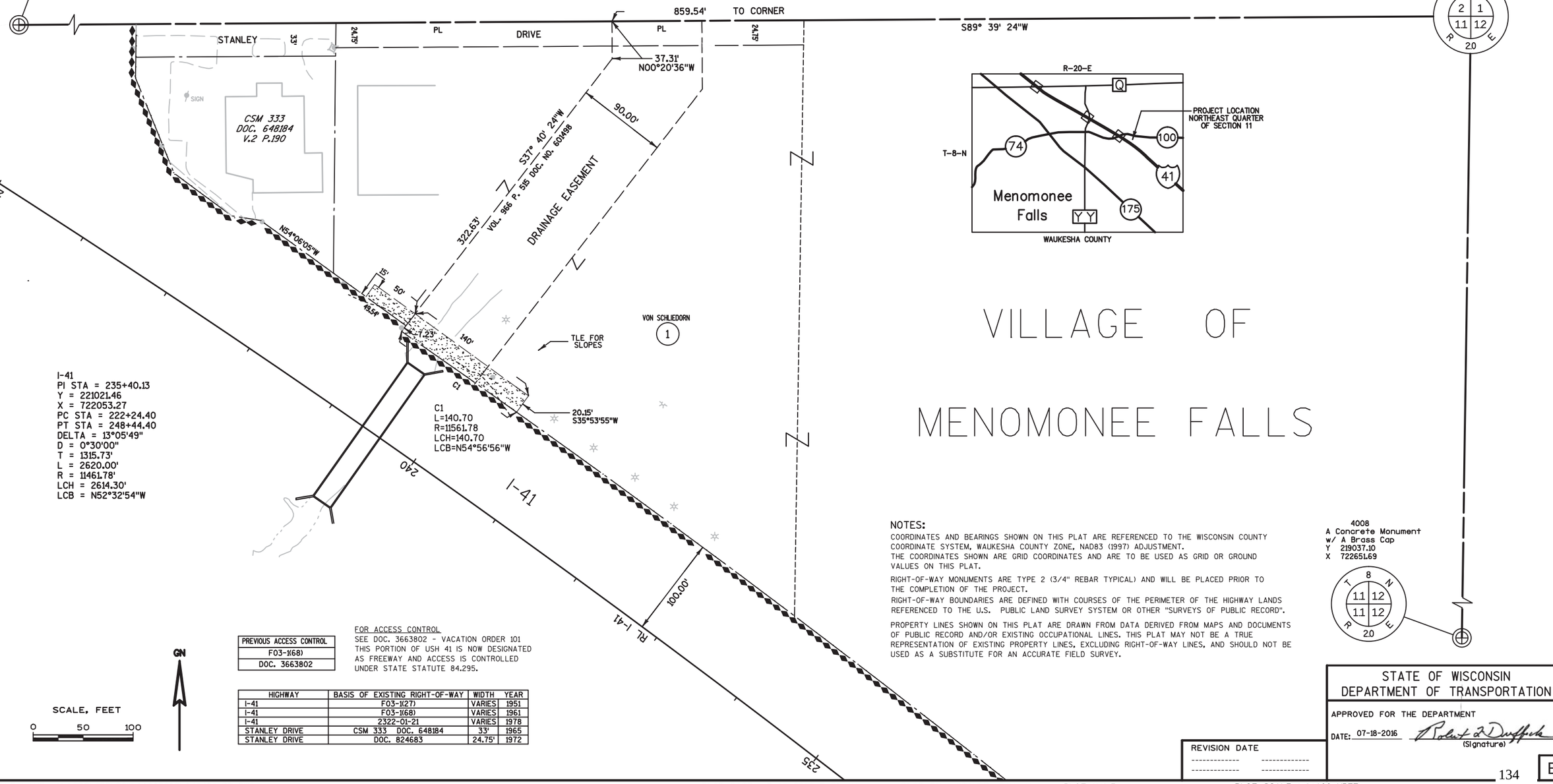
T 8 N, R 2.0 E, 2 2 11 11

4007
A Concrete Monument
w/ A Brass Cap
Y 221683.16
X 722690.06

T 8 N, R 2.0 E, 2 1 11 12

4008
A Concrete Monument
w/ A Brass Cap
Y 219037.10
X 72265.69

T 8 N, R 2.0 E, 11 12 11 12



VILLAGE OF MENOMONEE FALLS

PREVIOUS ACCESS CONTROL
F03-1(68)
DOC. 3663802

FOR ACCESS CONTROL
SEE DOC. 3663802 - VACATION ORDER 101 THIS PORTION OF USH 41 IS NOW DESIGNATED AS FREEWAY AND ACCESS IS CONTROLLED UNDER STATE STATUTE 84.295.

HIGHWAY	BASIS OF EXISTING RIGHT-OF-WAY	WIDTH	YEAR
I-41	F03-1(27)	VARIES	1951
I-41	F03-1(68)	VARIES	1961
I-41	2322-01-21	VARIES	1978
STANLEY DRIVE	CSM 333 DOC. 648184	33'	1965
STANLEY DRIVE	DOC. 824683	24.75'	1972

NOTES:

COORDINATES AND BEARINGS SHOWN ON THIS PLAT ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, WAUKESHA COUNTY ZONE, NAD83 (1997) ADJUSTMENT. THE COORDINATES SHOWN ARE GRID COORDINATES AND ARE TO BE USED AS GRID OR GROUND VALUES ON THIS PLAT.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 (3/4" REBAR TYPICAL) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD".

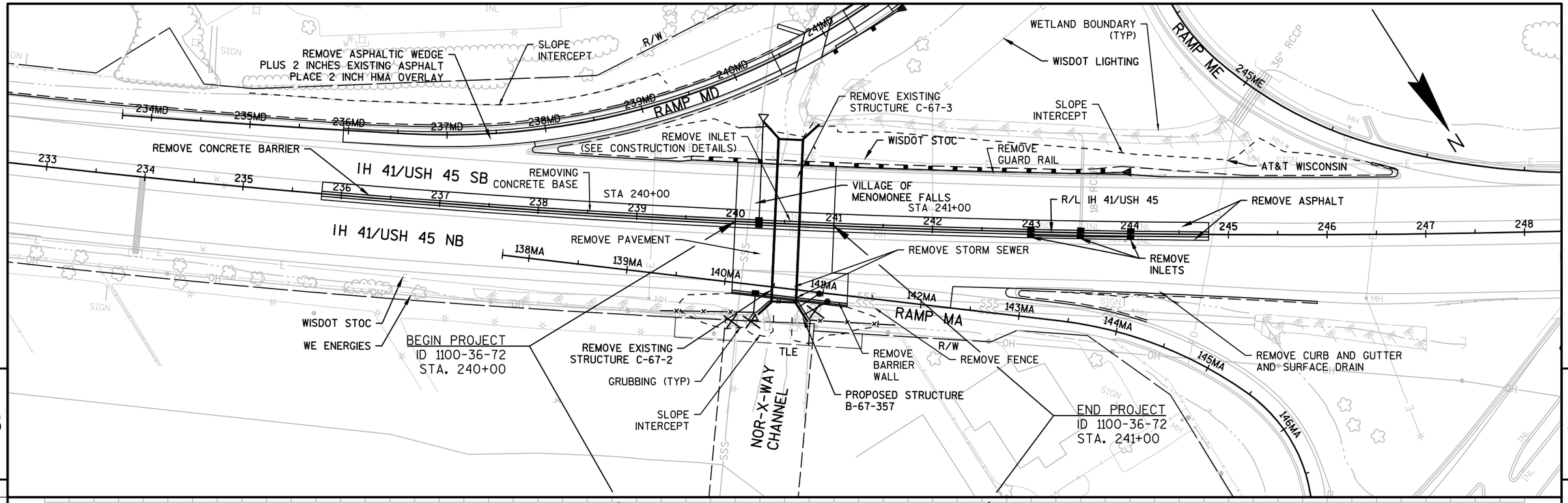
PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY LINES, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED FOR THE DEPARTMENT

DATE: 07-18-2016 Robert D Duffke (Signature)

REVISION	DATE



PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PLAN AND PROFILE MAINLINE	SHEET 135	E

REMOVE AND REPLACE STEEL THRIE BEAM STRUCTURE APPROACH

REMOVE PAVEMENT

RE-DECK STRUCTURE B-67-56

SLOPE INTERCEPT

REMOVE ASPHALTIC WEDGE
PLUS 2 INCHES EXISTING ASPHALT
PLACE 2 INCH HMA OVERLAY

CONCRETE APPROACH SLABS

WISDOT LIGHTING

REMOVE AND REPLACE STEEL THRIE BEAM STRUCTURE APPROACH ADJUST BEAM GUARD

SLOPE INTERCEPT

WISDOT STOC

AT&T WISCONSIN

IH 41/USH 45 SB

REMOVING CONCRETE BASE

VILLAGE OF MENOMONEE FALLS

R/L IH 41/USH 45

REMOVE ASPHALT

REMOVE CONCRETE BARRIER

IH 41/USH 45 NB

REMOVE INLETS

RAMP MD

RAMP ME

RAMP MA

36" RCCP

18" RCP

WISDOT STOC

BEGIN RESURFACING CONSTRUCTION
STA 235+95MD

BEGIN RE-DECK CONSTRUCTION
STA 240+00MD

PROPOSED PROFILE ON ℄

END CONSTRUCTION
STA 241+70MD

EXISTING GROUND

VPI STA 236+00.00
VPI EL 762.09

VPC STA 237+25.00
VPC EL 759.50

K=85.36
VCL 250.00

VPT STA 239+75.00
VPT EL 757.96

VPI STA 240+55.00
VPI EL 758.64

VPI STA 241+70.00
VPI EL 759.21

LP STA 239+02.44
LP EL 757.65

VPI STA 238+50.00
VPI EL 756.90

-2.08%

0.85%

0.50%

STATION 240+77.48 REMOVE DECK B-67-56 SINGLE SPAN STEEL DECK GIRDER 31' OVERALL LENGTH 30' OVERALL WIDTH
STATION 240+77.48 NEW DECK B-67-56 SINGLE SPAN STEEL DECK GIRDER 31' OVERALL LENGTH 30' OVERALL WIDTH

EXISTING EL — PROPOSED EL

EXISTING EL	PROPOSED EL
762.09	762.09
761.06	761.06
760.02	760.02
759.01	759.01
758.27	758.27
757.81	757.81
757.65	757.65
757.78	757.78
758.17	758.17
758.60	758.60
758.87	758.87
759.12	759.12

775 770 765 760 755 750 745 740

233+00 233+50 234+00 234+50 235+00 235+50 236+00 236+50 237+00 237+50 238+00 238+50 239+00 239+50 240+00 240+50 241+00 241+50 242+00 242+50 243+00 243+50 244+00 244+50 245+00 245+50 246+00 246+50 247+00 247+50 248+00

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	PLAN AND PROFILE RAMP MD	SHEET 136	E

FILE NAME : f:\bm1-3256b_ush 41_mcl to wcl\5_design\03_roads\11003600\sheetsplan\11003672\050101-pp.dwg
LAYOUT NAME - 050102-pp

PLOT DATE : 3/9/2017 2:35 PM PLOT BY : CHAD EVEN PLOT NAME : PLOT SCALE : 1" = 100'_XREF

WISDOT/CADDS SHEET 44

Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-02	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C06-02	INLETS 3-FT AND 4-FT DIAMETER
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D14-01	SLOTTED VANE DRAIN
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-09	CONDUIT
09B04-11	PULL BOX
09E02-04	FREEWAY LIGHTING UNIT POLE WIRING
10A01-03	ELECTRICAL HANDHOLE WIRING
10A02-03	IDENTIFICATION PLAQUES LIGHT POLES
10A08-02	ELECTRICAL DETAILS STRUCTURE MOUNT LIGHT POLES ISOLATED NEUTRAL SYSTEMS
10A11-02	ELECTRICAL DETAILS MEDIAN MOUNT LIGHT POLES ISOLATED NEUTRAL SYSTEMS
12A03-10	NAME PLATE (STRUCTURES)
13A03-06	CONCRETE PAVEMENT SHOULDERS
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13B02-08B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
13C09-13A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-13B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-13C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C11-11A	RURAL DOWELED CONCRETE PAVEMENT
13C11-11B	RURAL DOWELED CONCRETE PAVEMENT
13C13-08	URBAN DOWELED CONCRETE PAVEMENT
13C15-06A	CONCRETE BASE
13C15-06B	CONCRETE BASE
13C18-04A	CONCRETE PAVEMENT JOINTING
13C18-04B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-04C	CONCRETE PAVEMENT JOINT TIES
13C18-04D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B11-02	CONCRETE BARRIER (DOUBLE FACED)
14B22-06A	CONCRETE BARRIER, SINGLE-FACED (WITH ANCHORAGE)
14B22-06B	CONCRETE BARRIER, SINGLE-FACED (WITH ANCHORAGE)
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B43-03A	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-03B	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-03C	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

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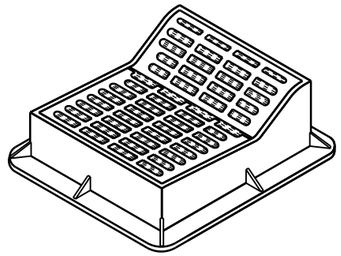
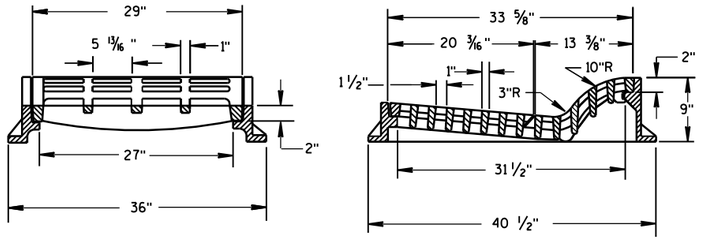
Standard Detail Drawing List

14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B47-02A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15B03-15A	FENCE CHAIN LINK
15B03-15B	FENCE CHAIN LINK
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C31-02A	PAVEMENT MARKING (RAMPS AND GORES)
15C31-02C	PAVEMENT MARKING FOR PARALLEL ON-RAMP AND PARALLEL OFF-RAMP
15D03-03	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER
15D03-04	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER
15D12-06A	TRAFFIC CONTROL, LANE CLOSURE
15D12-06B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D14-03	TRAFFIC CONTROL, TWO LANE CLOSURE ON FREEWAY OR EXPRESSWAY, SHORT-TERM (LESS THAN 24 HOURS)
15D15-02	TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE
15D16-03	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D38-01A	TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS
15D38-01B	ATTACHMENT OF SIGNS TO POSTS

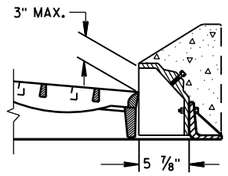
6





TYPE "F"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

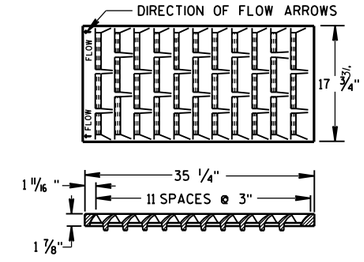
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

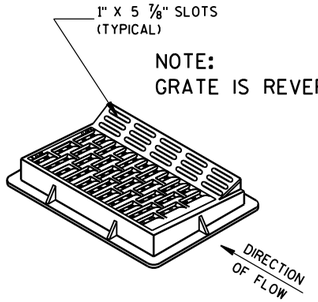
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

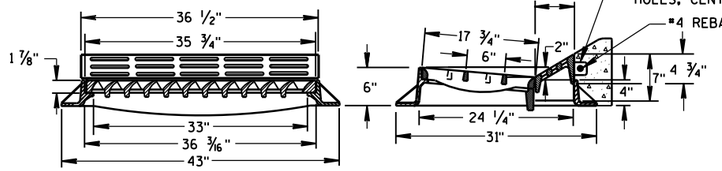
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



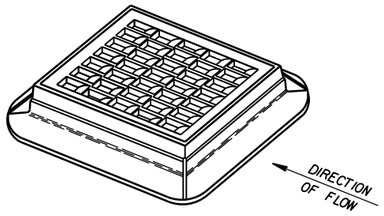


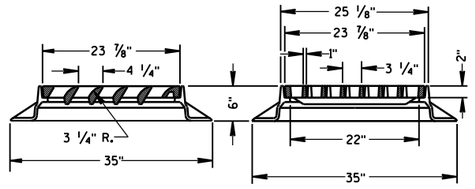


TYPE "HM"

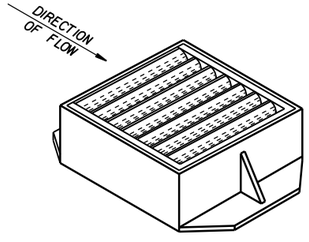
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

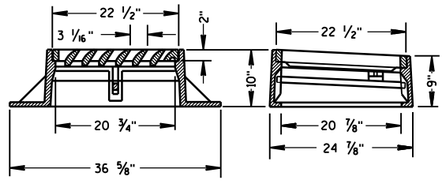
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



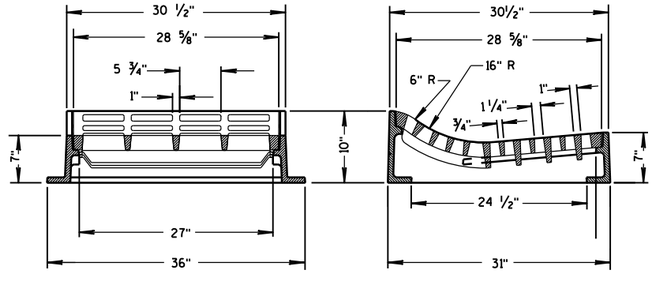


TYPE "S"



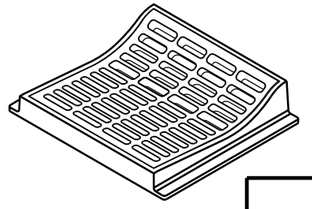


TYPE "V"



TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



INLET COVERS
TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

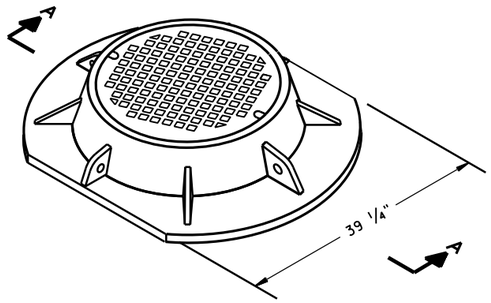
APPROVED
11/27/2013
DATE

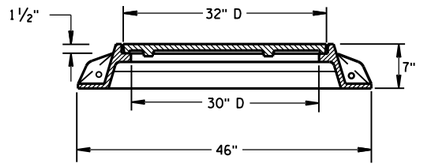
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

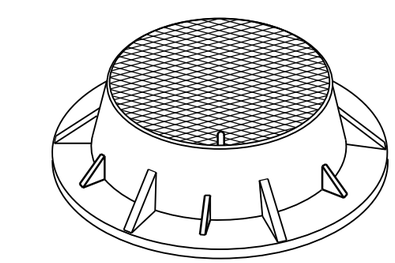
6

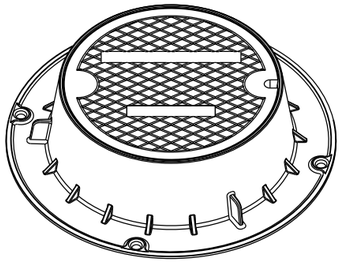
S.D.D. 8 A 5-19c

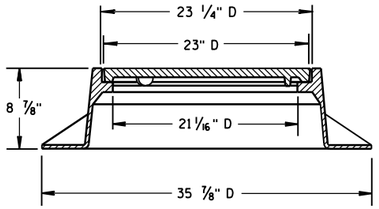


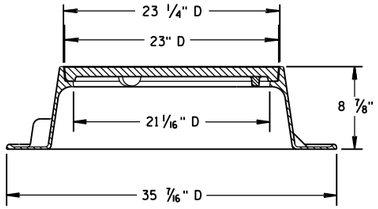


SECTION A-A
TYPE "K"









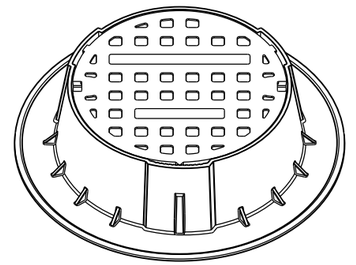
TYPE "J"
NOTE: EITHER CASTING IS ACCEPTABLE

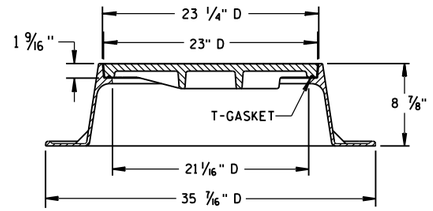
GENERAL NOTES

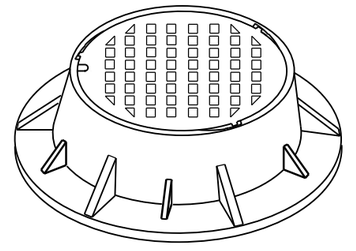
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

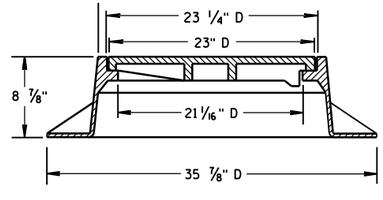
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

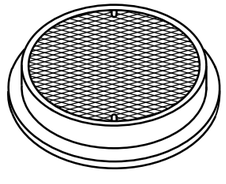


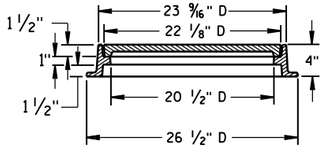




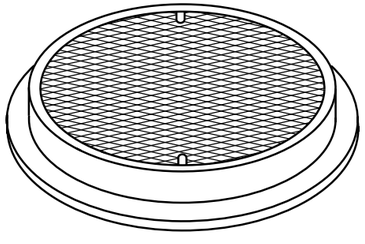


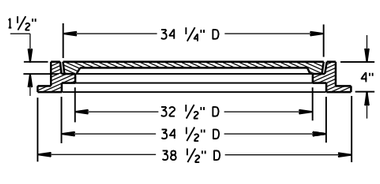
TYPE "J" SPECIAL
TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)
NOTE: EITHER CASTING IS ACCEPTABLE



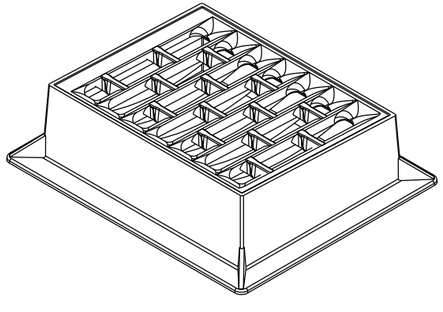


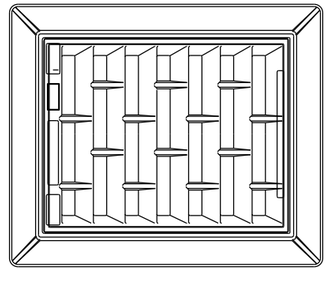
TYPE "L"

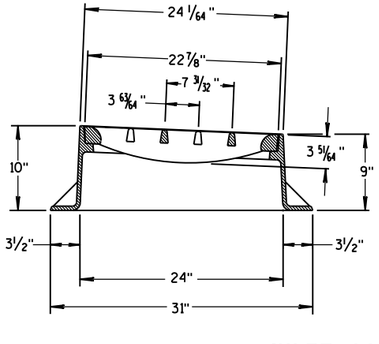


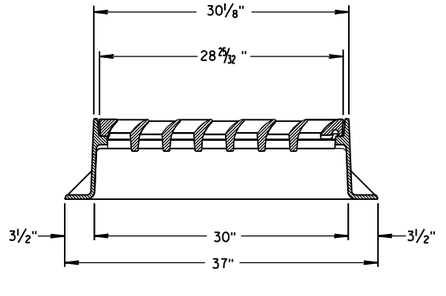


TYPE "M"









INLET COVER TYPE "BW"

INLET COVER TYPE BW
MANHOLE COVERS, TYPE K, J, J-S, L & M

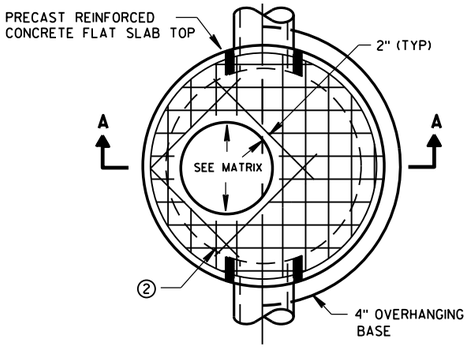
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE
FHWA

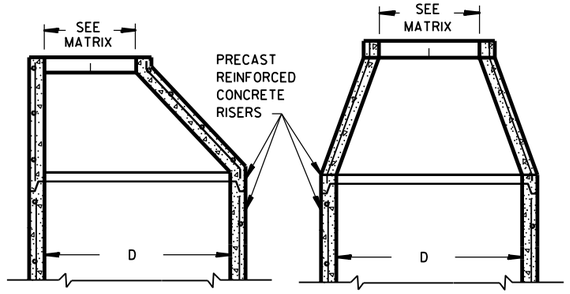
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

6

S.D.D. 8 A 5-19d

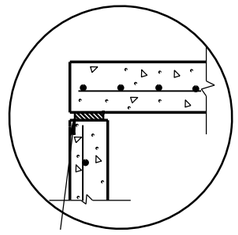


PLAN VIEW CIRCULAR OPENING

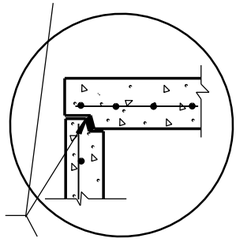


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

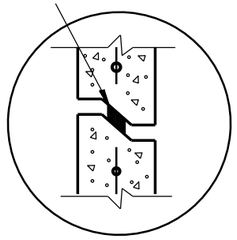


TOP WITH PLAIN END JOINT



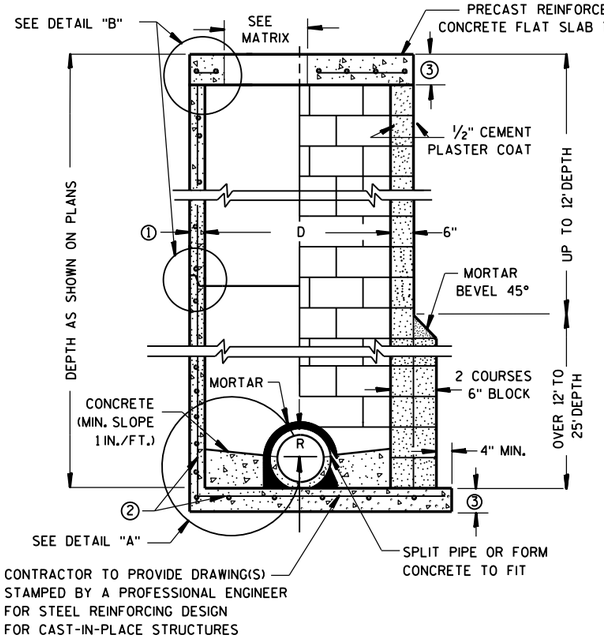
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

TOP WITH TONGUE AND GROOVE JOINT



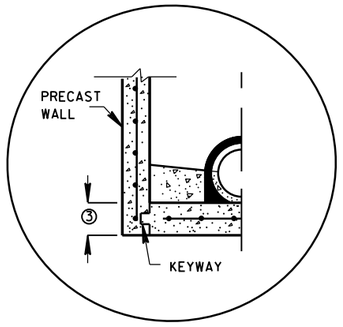
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

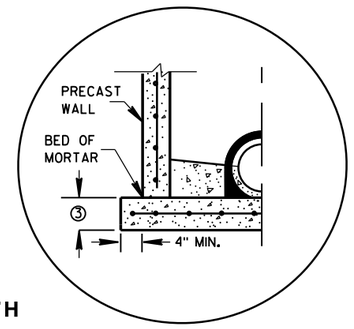


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

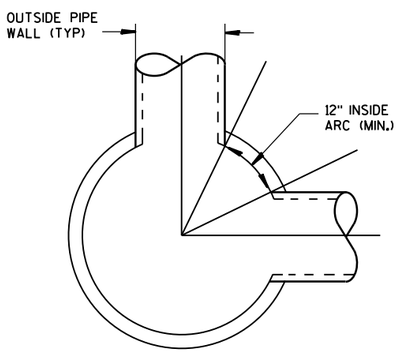


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.

② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept., 2016
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERV

FHWA

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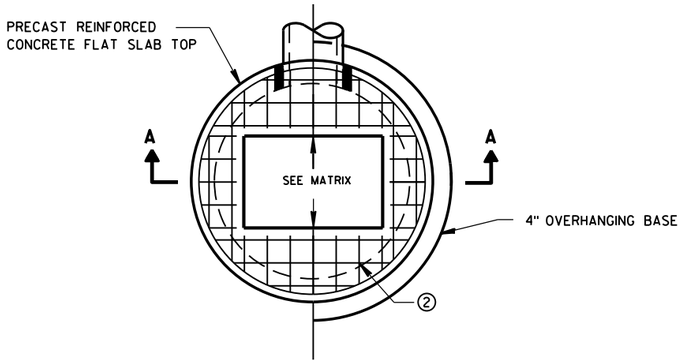
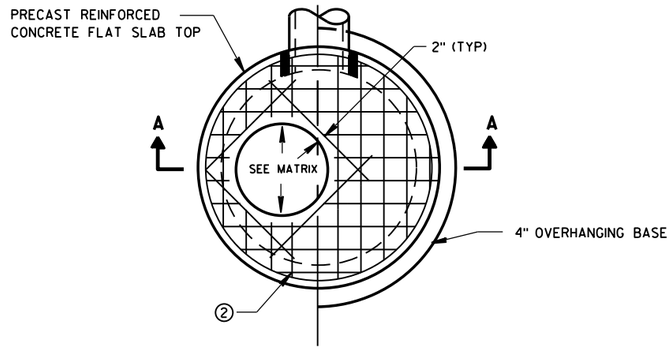
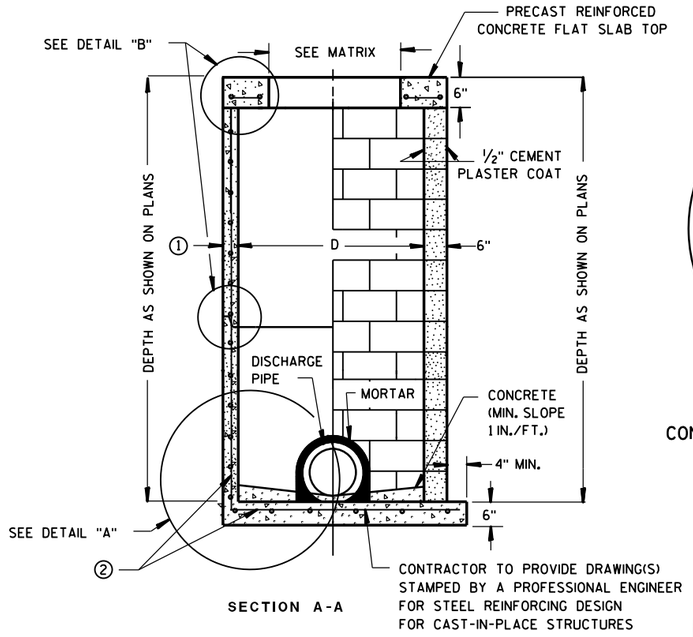
S.D.D. 8 B 9-2



PLAN VIEW RECTANGULAR OPENING



PLAN VIEW CIRCULAR OPENING

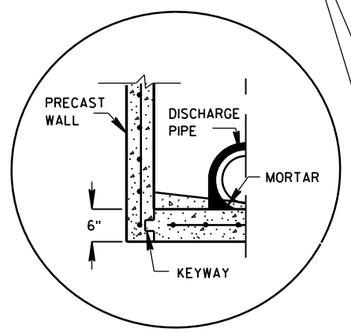


SECTION A-A

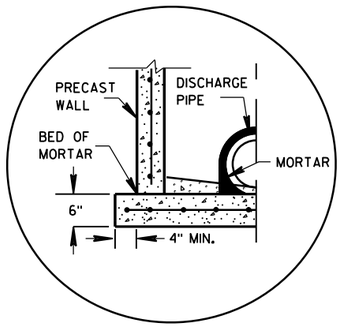
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

CIRCULAR INLETS W/ FLAT TOP

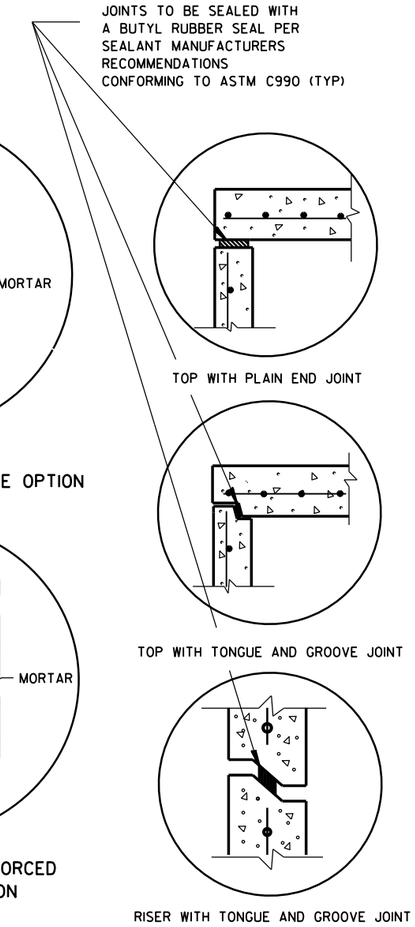


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "B"

GENERAL NOTES

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UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

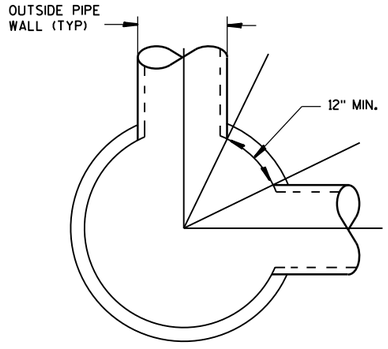
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.

② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

INLET COVER OPENING MATRIX

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X		X		
	2X2.5			X				X	X	X	X	
	2X3						X					
	2.5X3					X						



DETAIL "C"

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

INLETS 3-FT AND 4-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

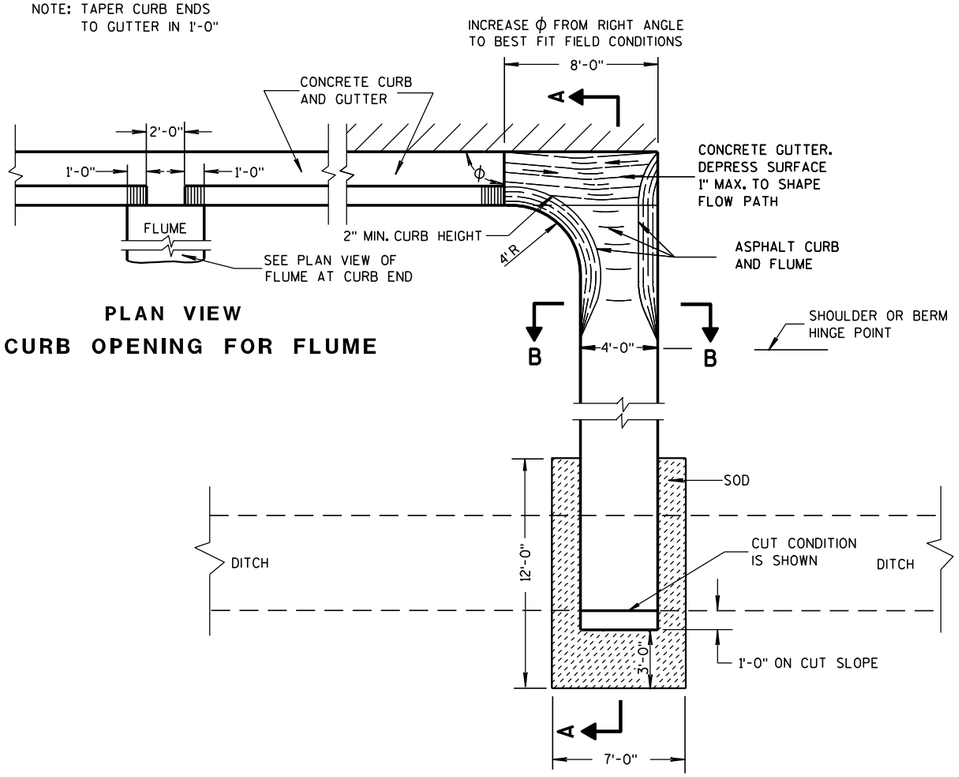
APPROVED
Sept., 2016 — /S/ Rodney Taylor
DATE — ROADWAY STANDARDS | UNIT SUPERVI ENT
FHWA

INLETS 3-FT AND 4-FT DIAMETER

6

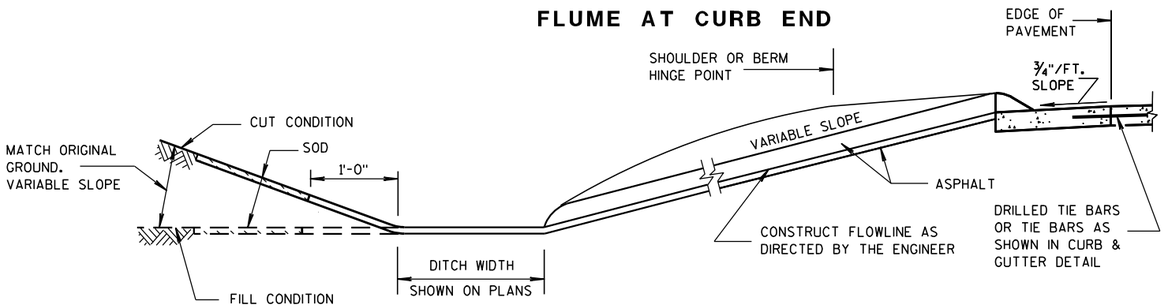
S.D.D. 8 C 6-2

ASPHALTIC FLUME

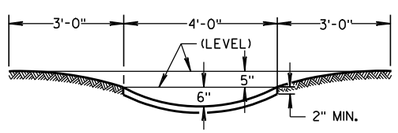


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

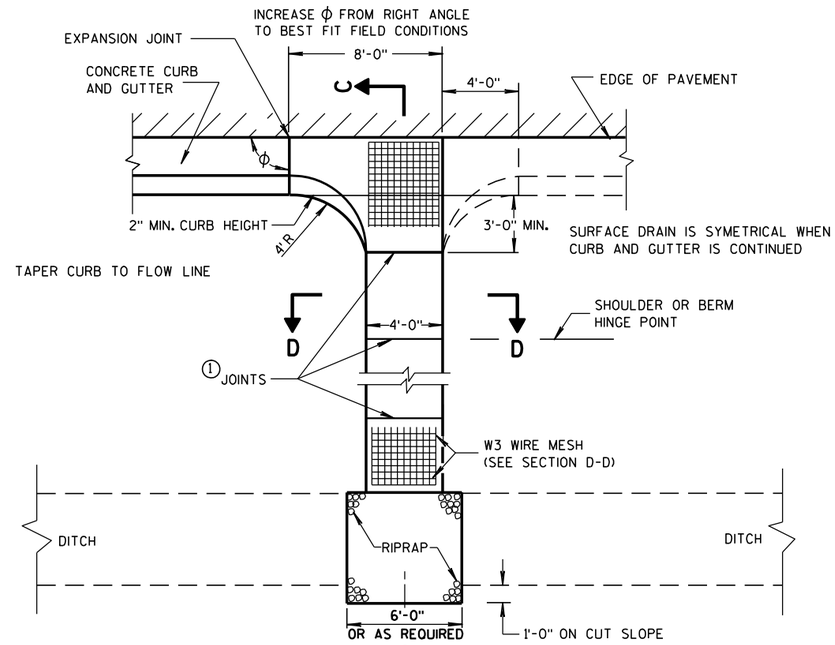
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.

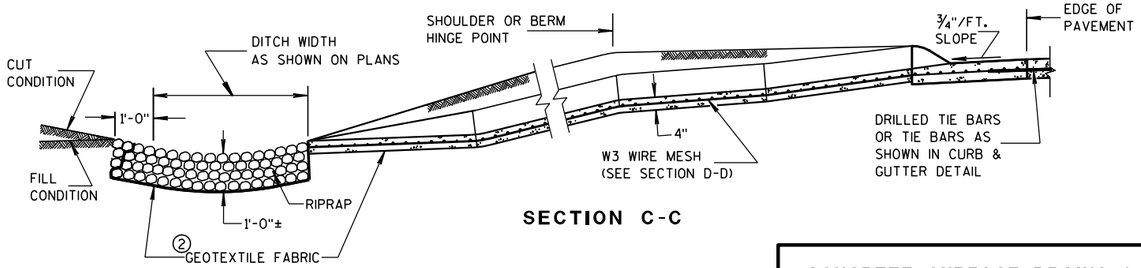
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

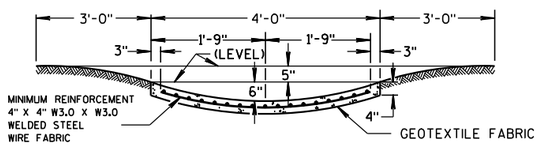
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9-4-08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
143
MENT
FHWA

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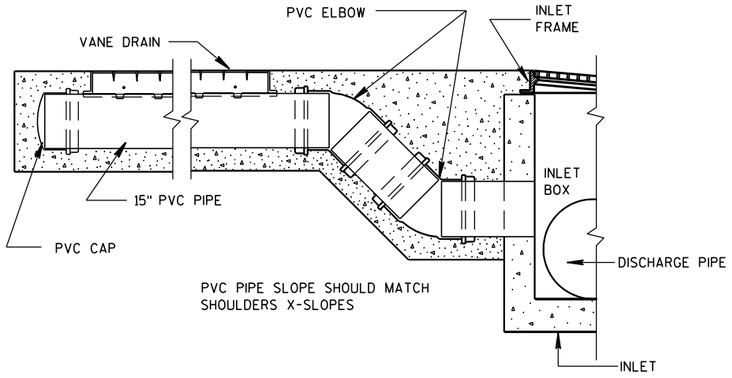
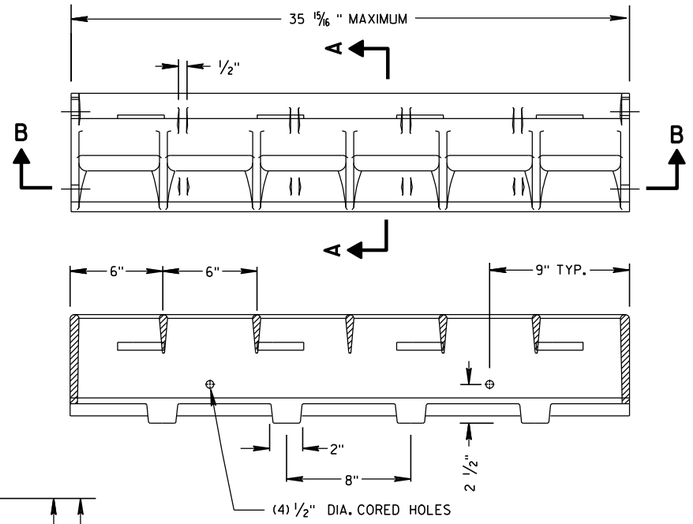
S.D.D. 8 D 4-5



TYPICAL SLOTTED VANE DRAIN CONFIGURATION



SECTION B-B
SLOTTED VANE DRAIN DETAIL
(APPROXIMATE WEIGHT 87 LBS.)

GENERAL NOTES

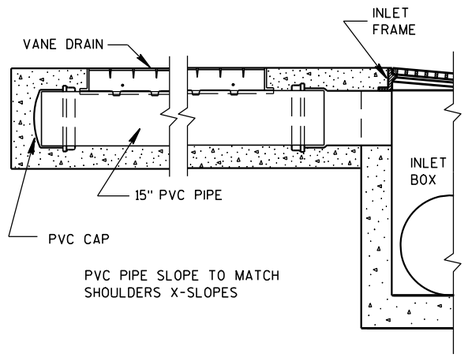
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ENCASEMENT: THE ENCASING MATERIAL AROUND THE PIPE SHALL BE IN ACCORDANCE WITH SPECIFICATIONS OF 501.4.3.3 FOR CONCRETE PAVEMENT.

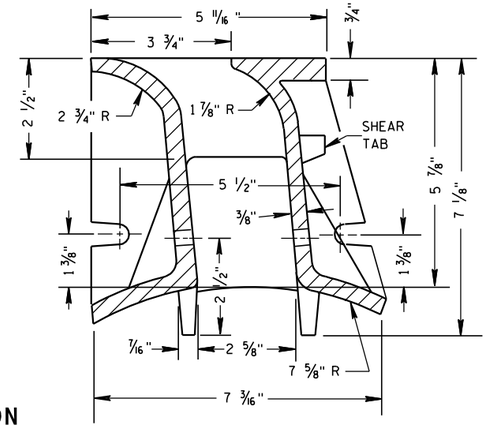
THE PIPE USED SHALL BE A 15" DIAMETER SDR-35 POLYVINYL CHLORIDE SEWER PIPE. THE PIPE SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN STANDARD SPECIFICATION 612.2.6

SURFACE DRAIN: BEFORE PAVING OVER THE DRAIN, COVER THE TOP OF THE DRAIN TO KEEP MATERIAL OUT OF THE PIPE. THE FINISHED GRADE SHOULD BE FLUSH WITH THE TOP OF THE DRAIN.

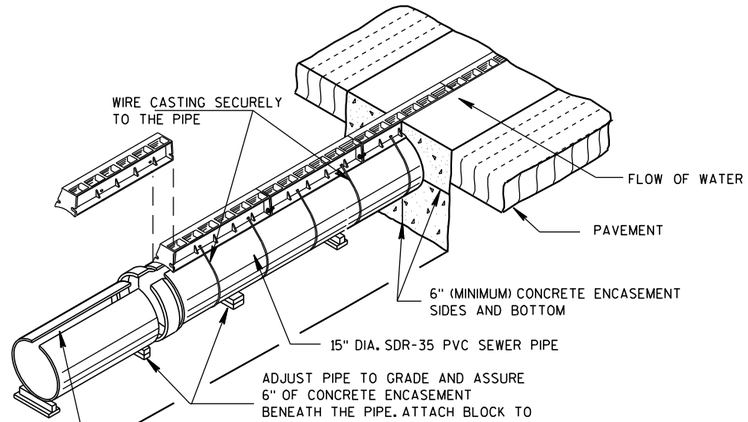
THE ANGLE OF THE DRAIN TO THE FLOW OF WATER SHOULD BE AS CLOSE TO 90° AS POSSIBLE.



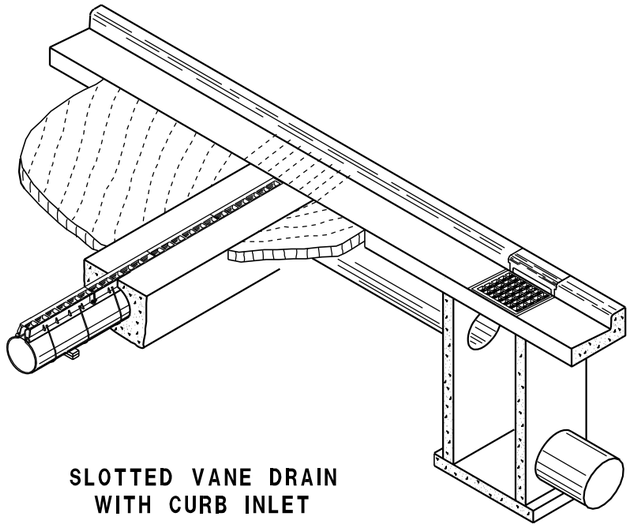
TYPICAL SLOTTED VANE DRAIN CONFIGURATION



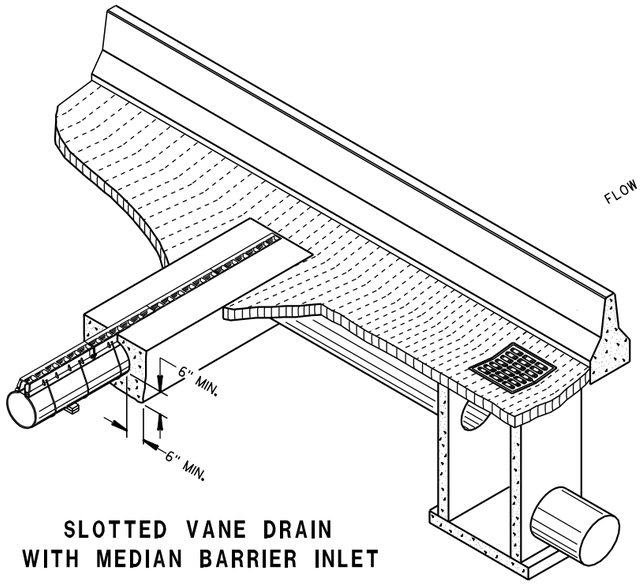
SECTION A-A



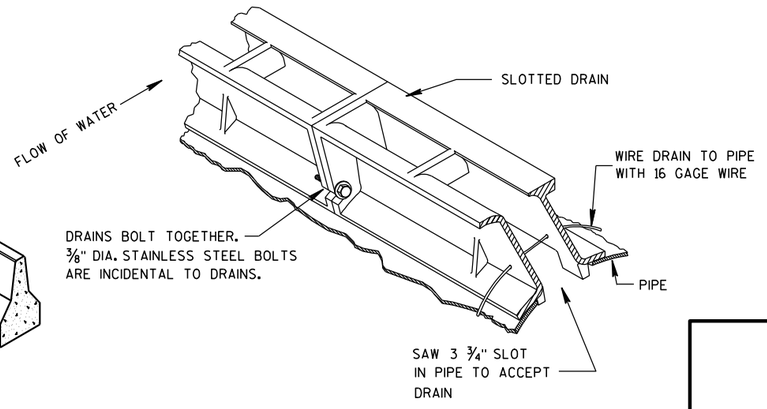
INSTALLATION OF SLOTTED VANE DRAIN



SLOTTED VANE DRAIN WITH CURB INLET



SLOTTED VANE DRAIN WITH MEDIAN BARRIER INLET



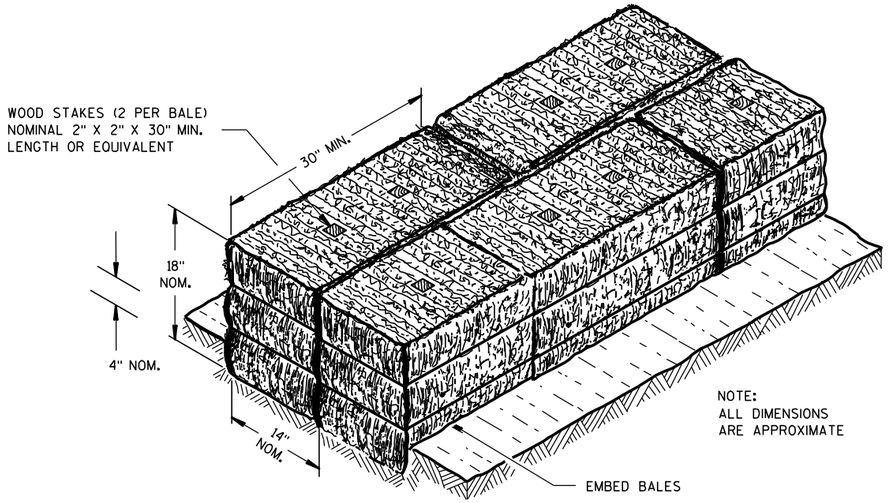
ISOMETRIC VIEW

SLOTTED VANE DRAIN

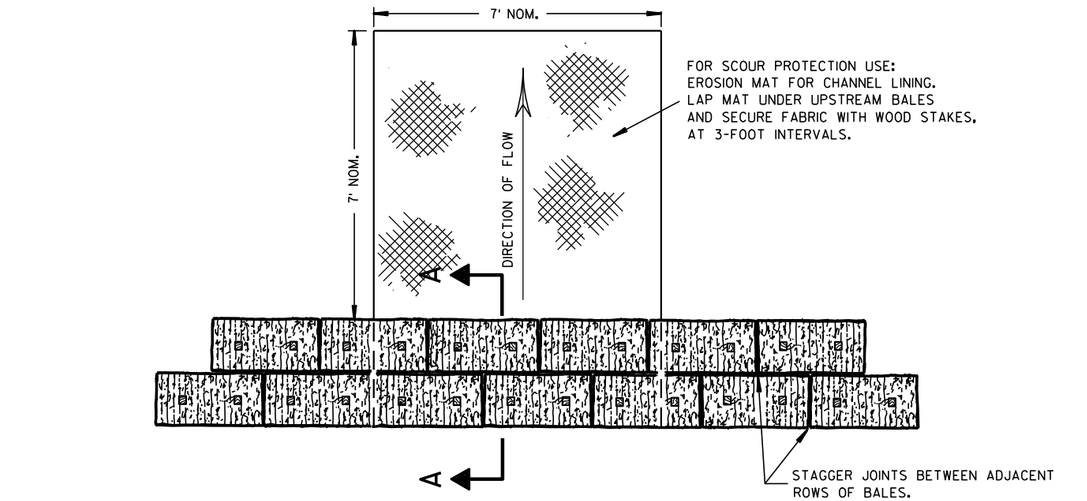
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/13/00 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

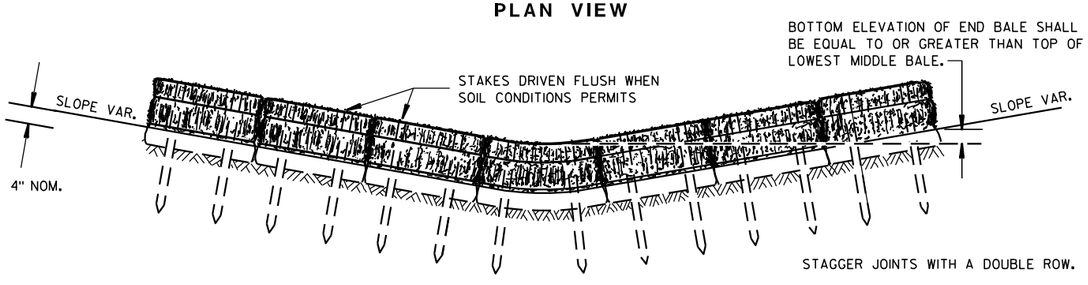
6 S.D.D. 8 D 14-1



SECTION A-A



PLAN VIEW



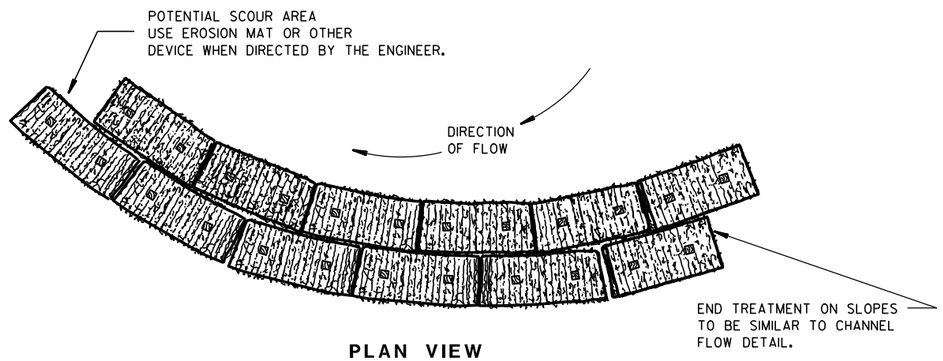
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

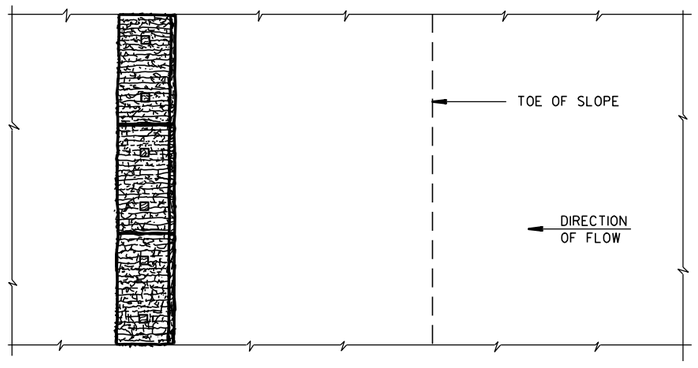
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

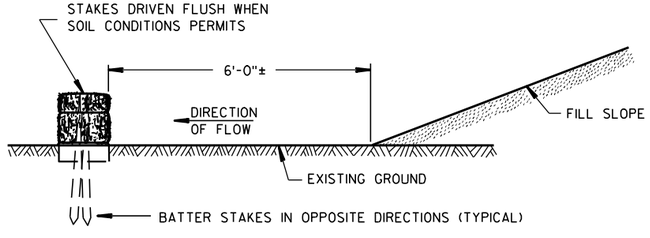


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 8-3

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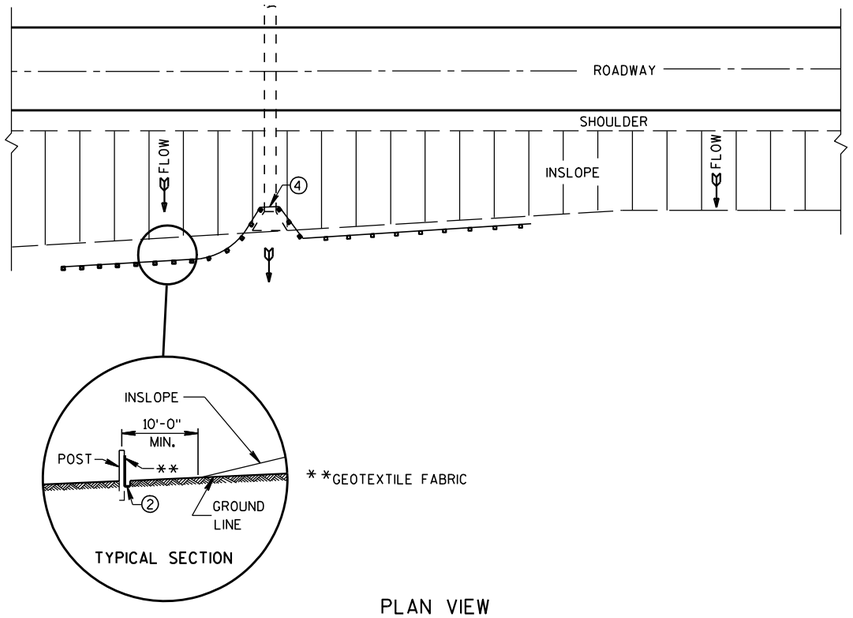
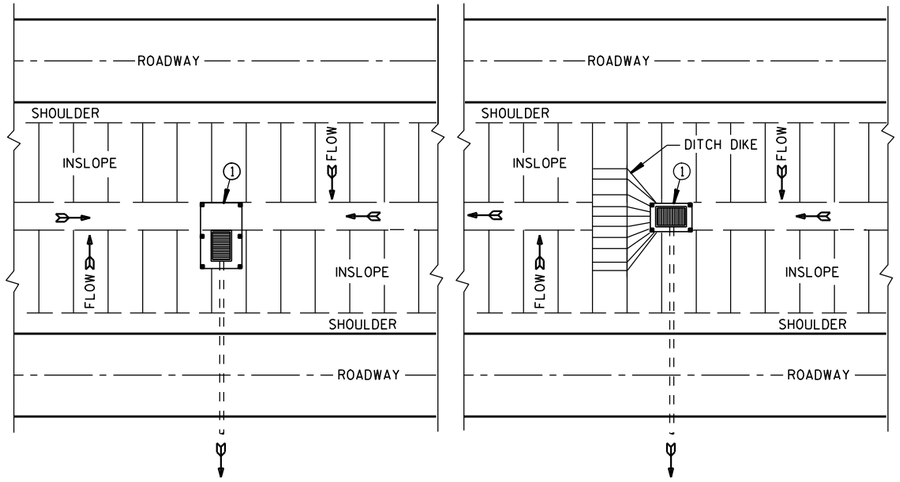


PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



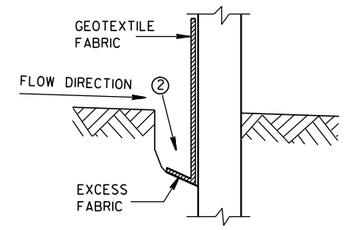
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

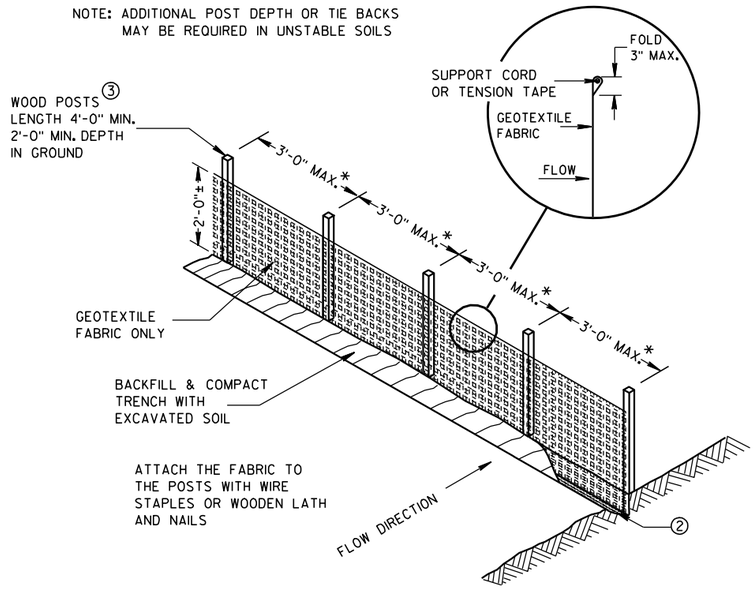
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

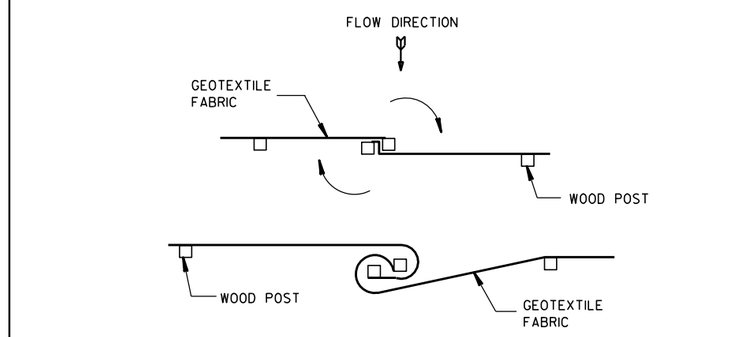


TRENCH DETAIL

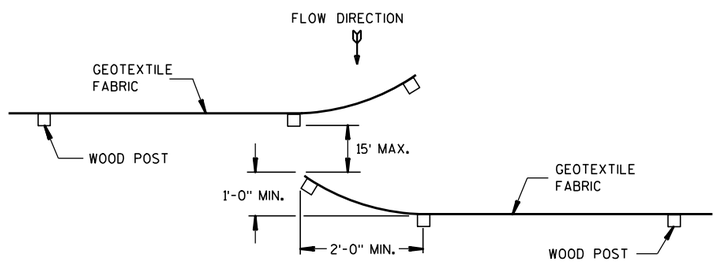


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

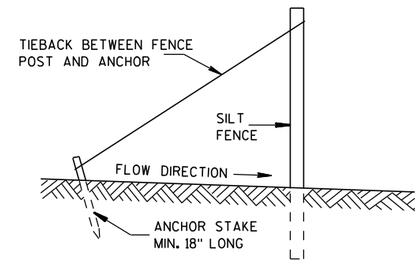


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 9-6

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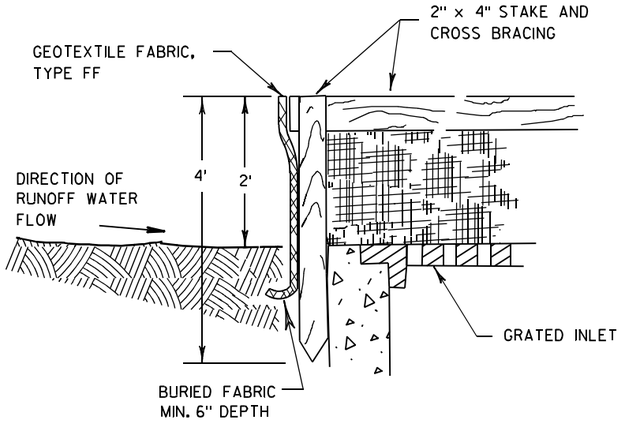
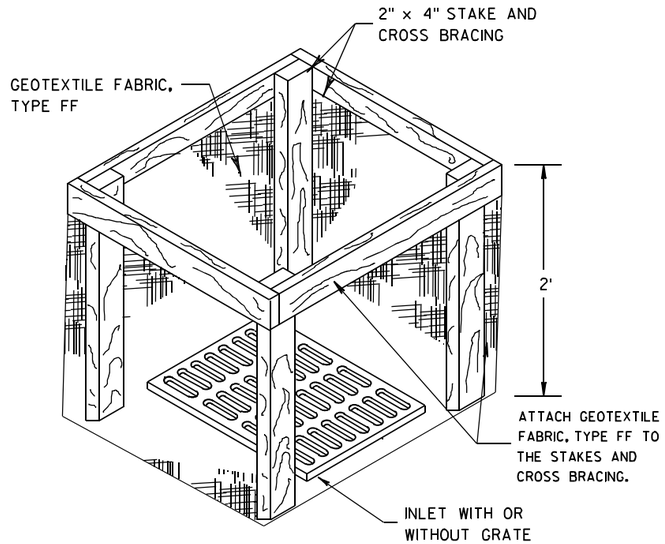
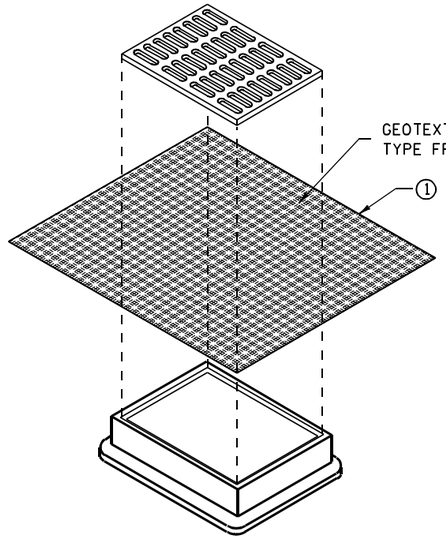
S.D.D. 8 E 9-6



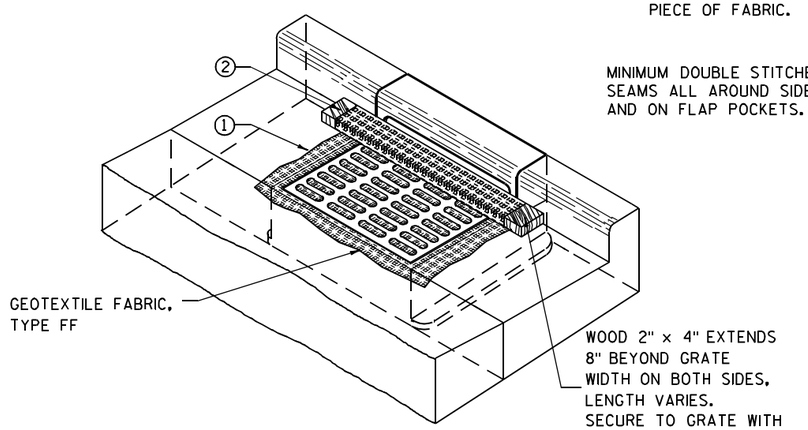


INLET PROTECTION, TYPE A

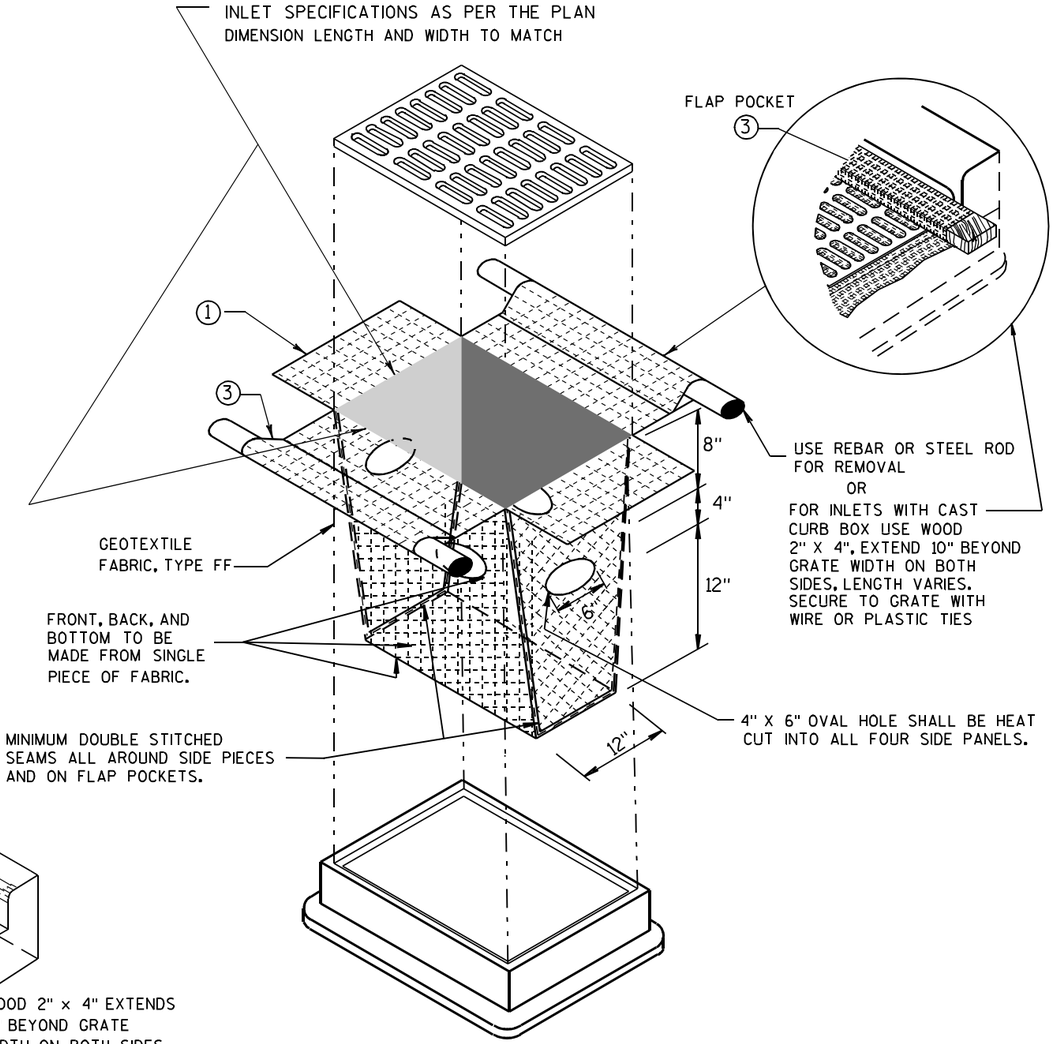


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH
OR WITHOUT A CURB BOX AS PER NOTE ②)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

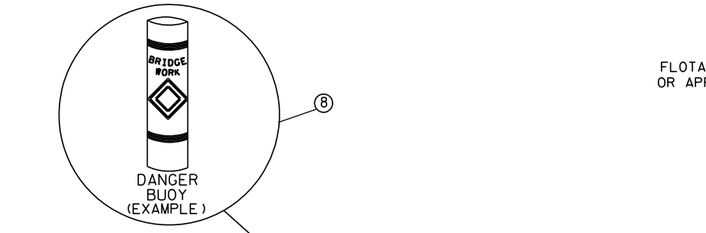
APPROVED

10/16/02
DATE

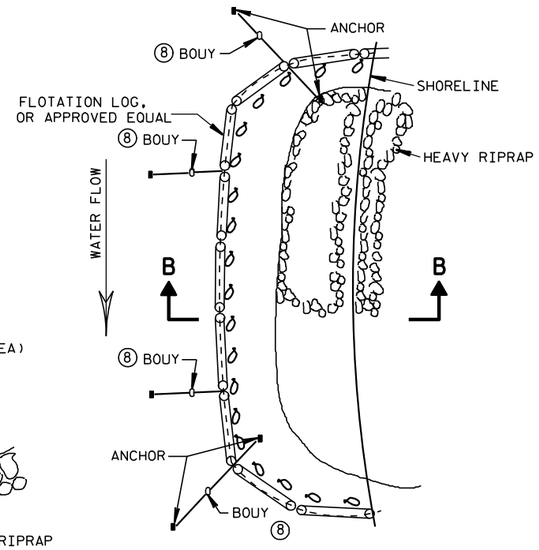
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

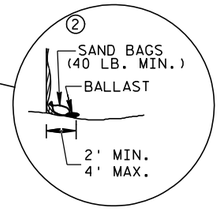
FHWA

6
S.D.D. 8 E 10-2

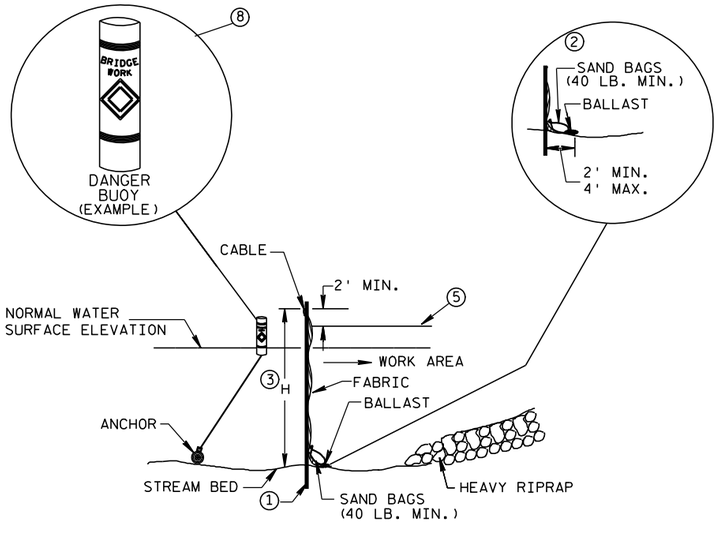


SECTION B-B

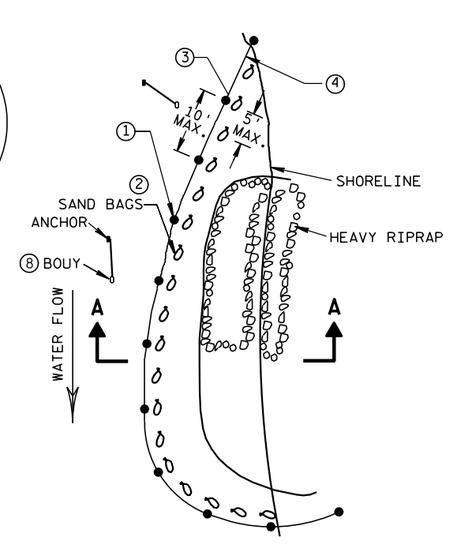




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

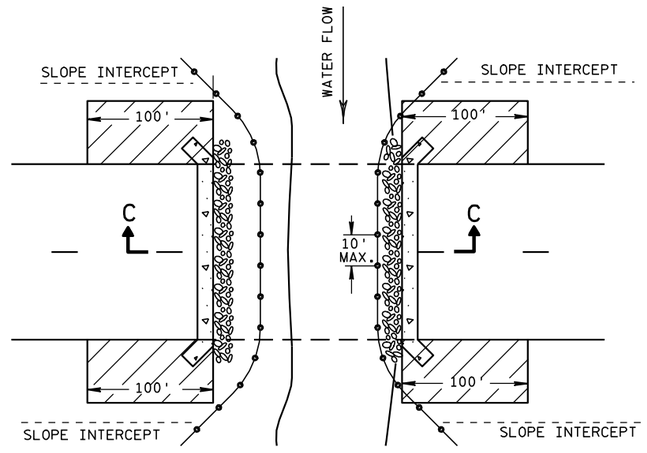
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

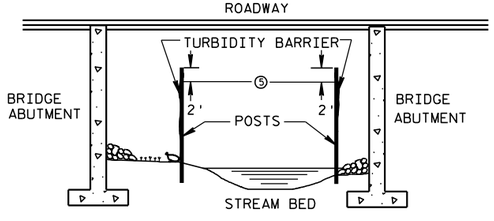
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 11-2

6

S.D.D. 8 E 11-2

METAL APRON ENDWALLS

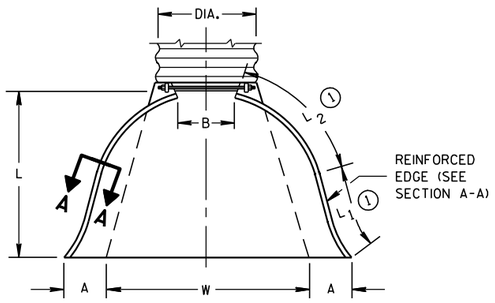
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

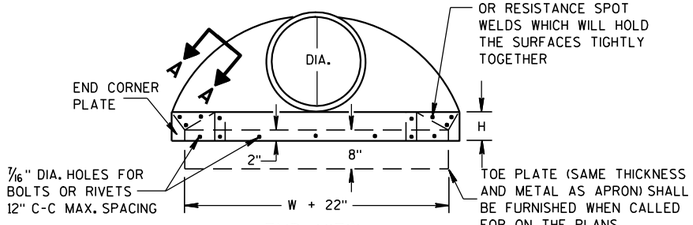
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

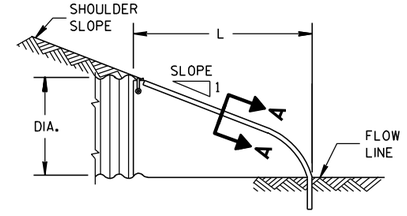
*MINIMUM
**MAXIMUM



PLAN VIEW

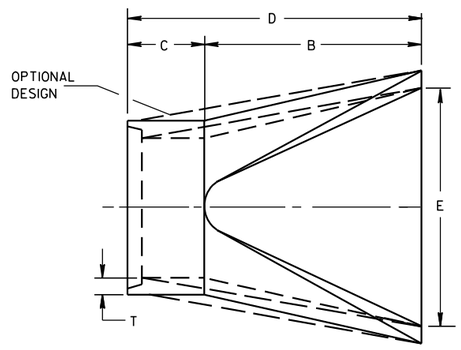


END VIEW

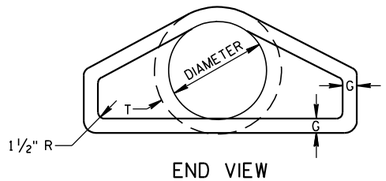


SIDE ELEVATION

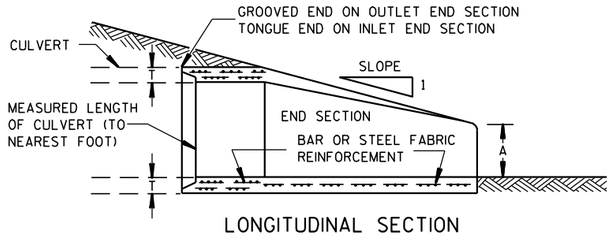
METAL ENDWALLS



PLAN

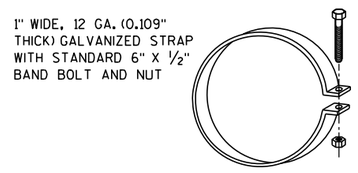


END VIEW



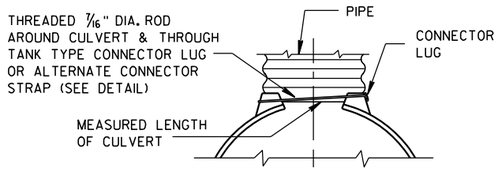
LONGITUDINAL SECTION

CONCRETE ENDWALLS

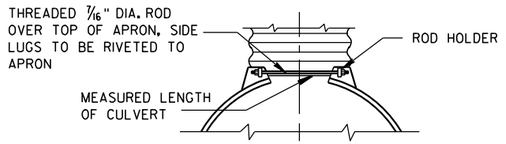


ALTERNATE FOR TYPE 1 CONNECTION

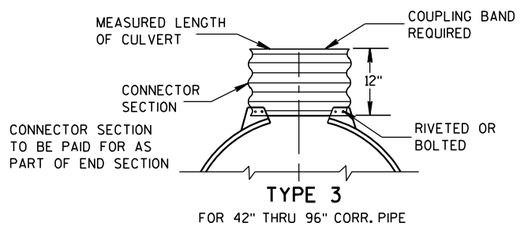
END SECTION CONNECTOR STRAP



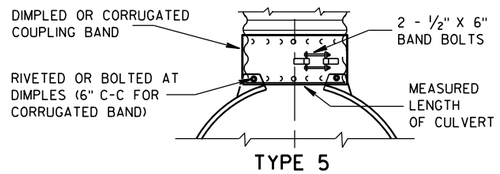
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

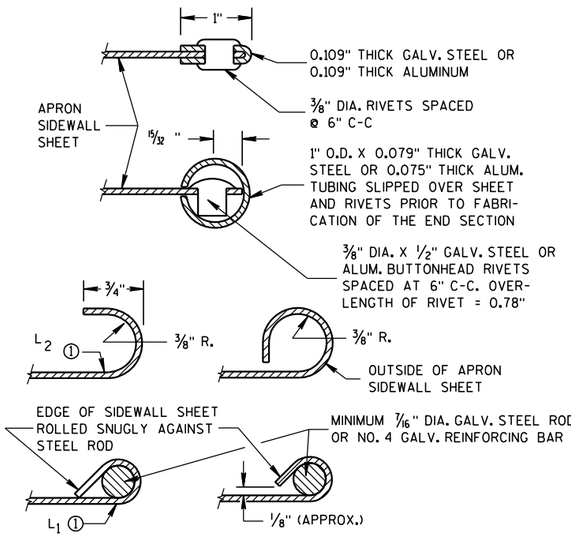
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

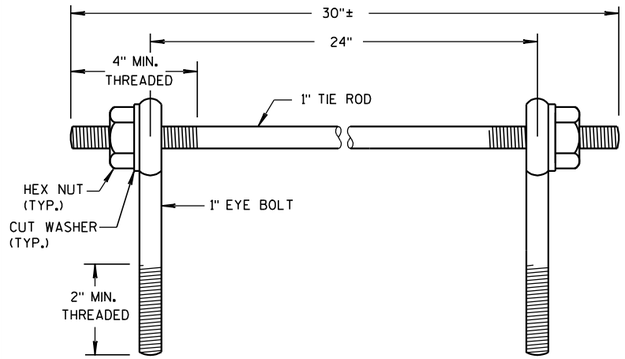
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

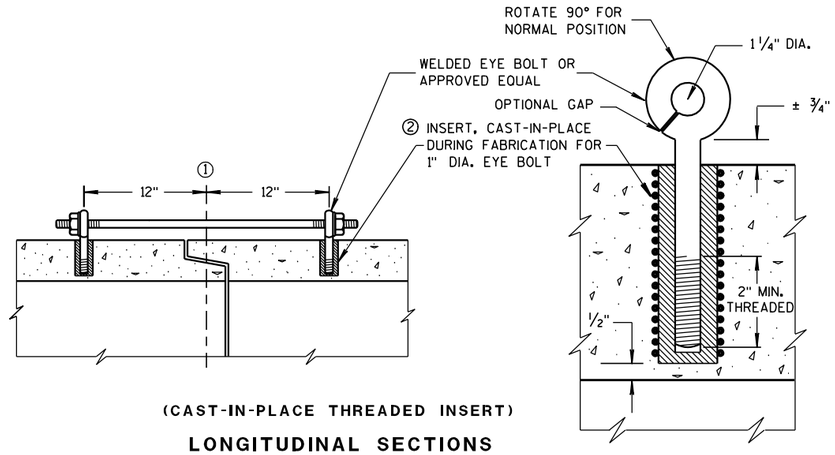
APPROVED
11/30/94 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

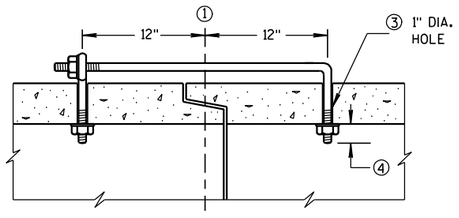
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

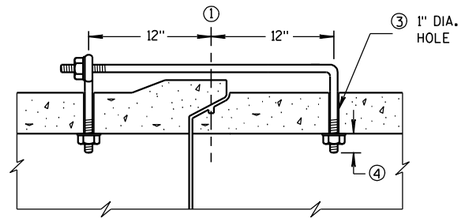
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

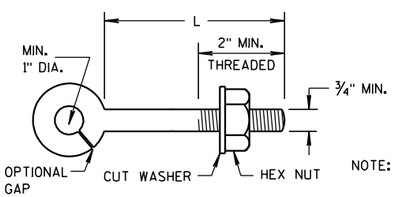


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

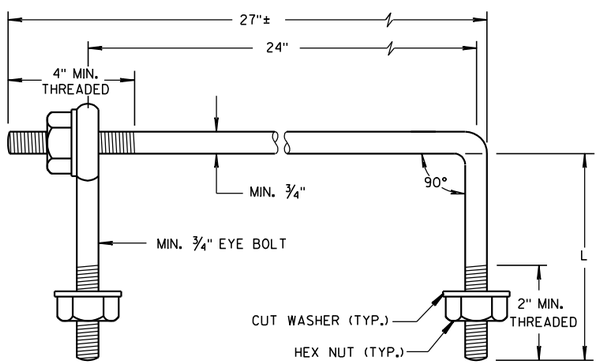
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

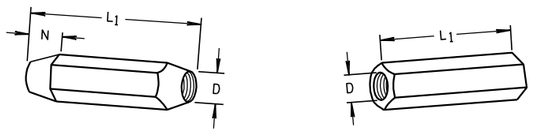
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

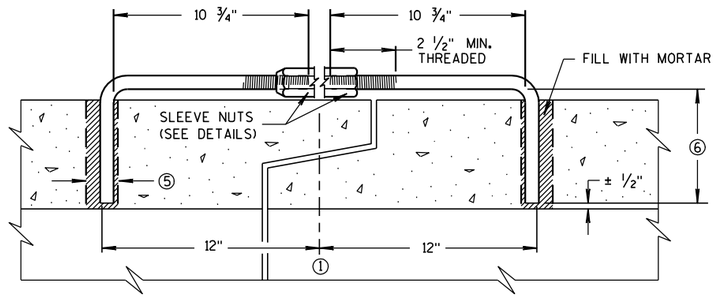
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

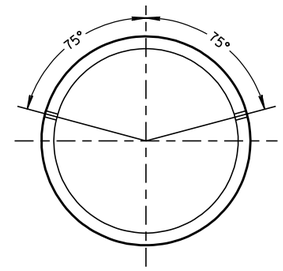
SLEEVE NUTS



LONGITUDINAL SECTION

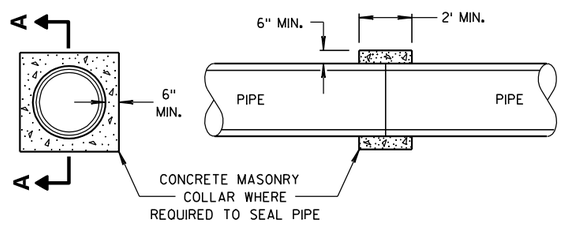
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

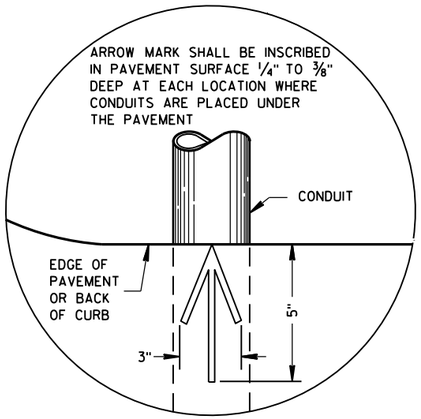
APPROVED
6/5/2012 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
150
FHWA

6

S.D.D. 8 F 4-7

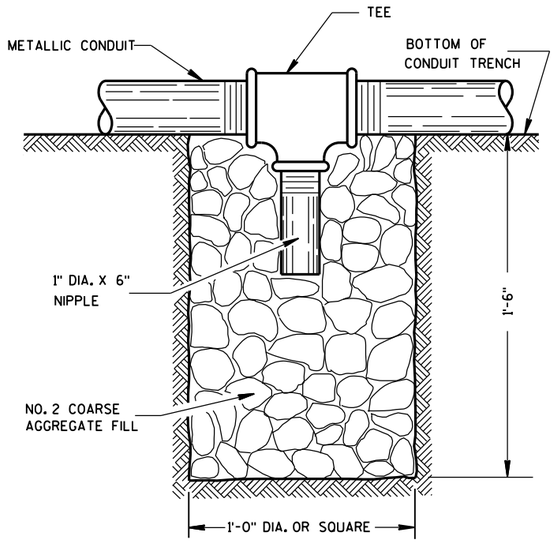
6

S.D.D. 8 F 4-7



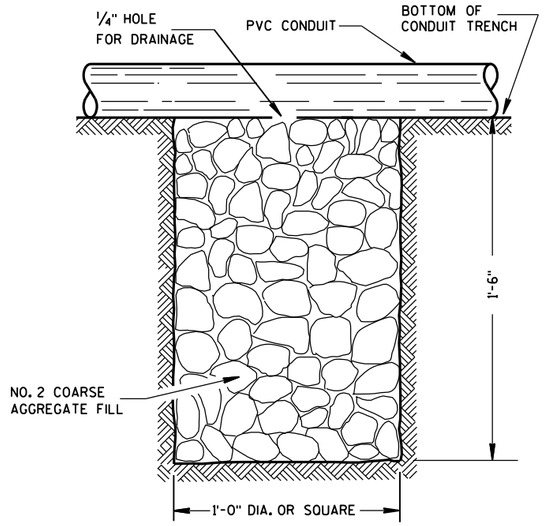
PLAN VIEW

ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR METALLIC CONDUIT



NOTE: INSTALL AT LOCATIONS WHERE PVC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

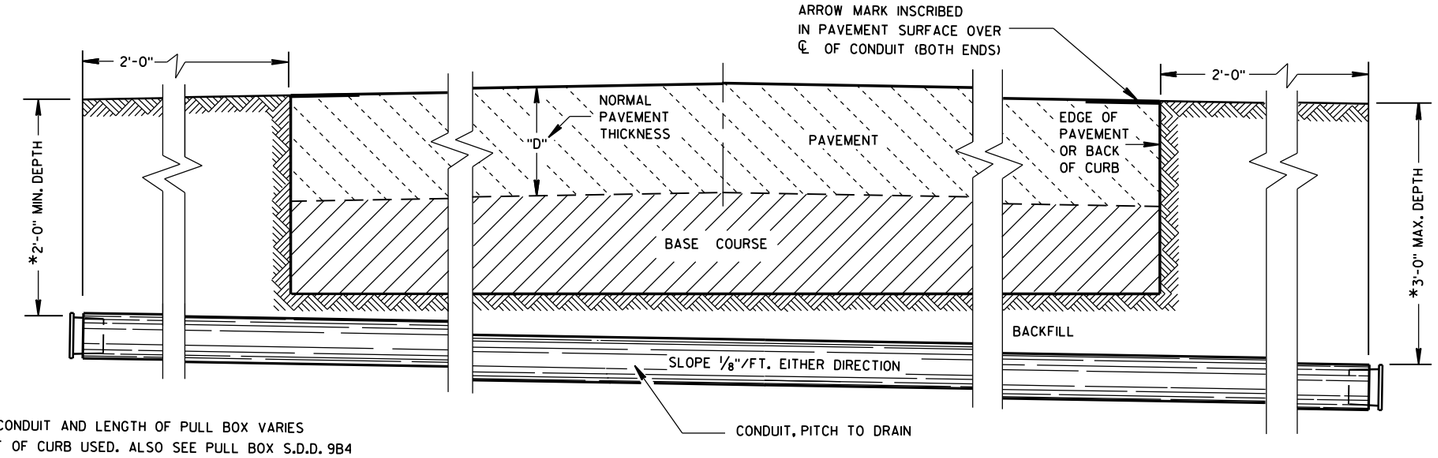
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

TRACER WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION

DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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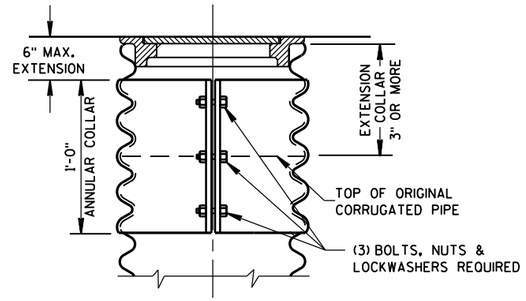
TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

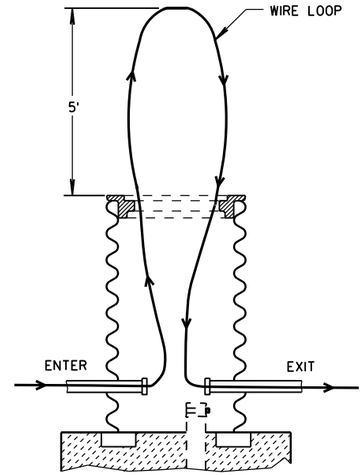
DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

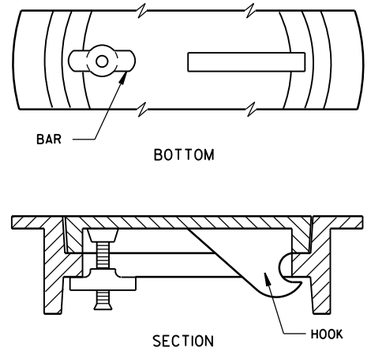
** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



CORRUGATED PIPE EXTENDER

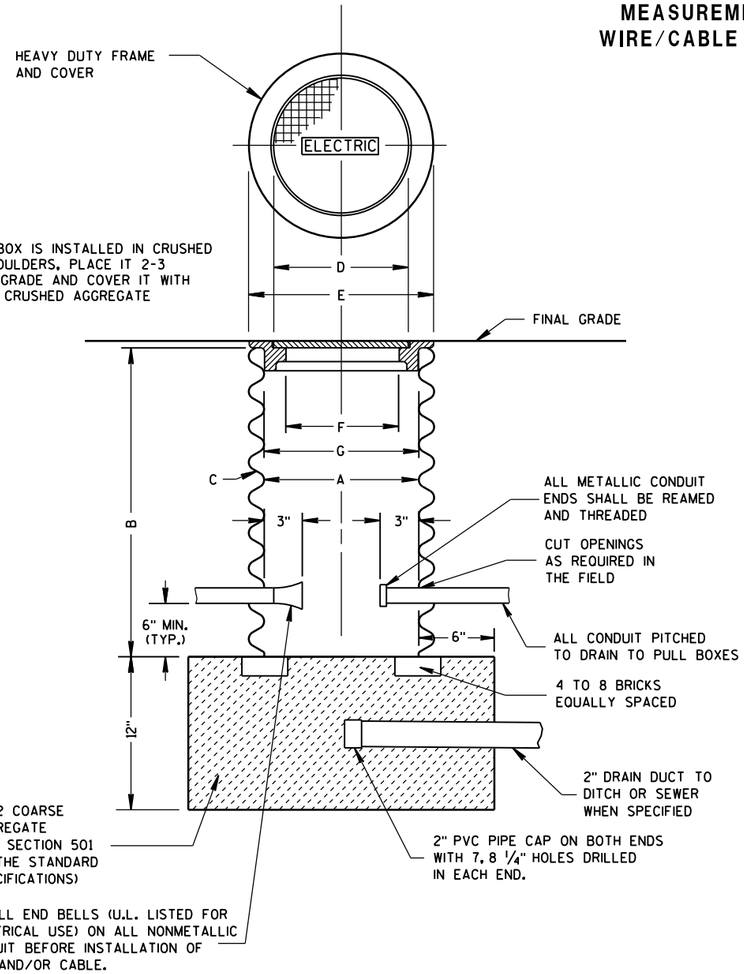


MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



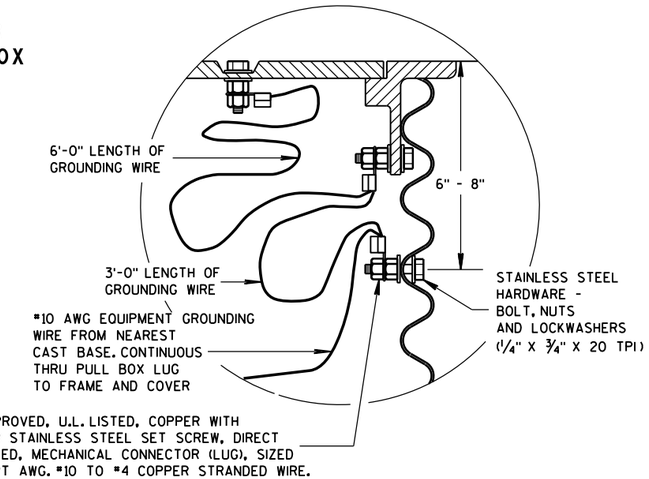
ALTERNATE COVER (LOCKING)

TIGHTENING BAR TYPE



WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE

PULL BOX



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

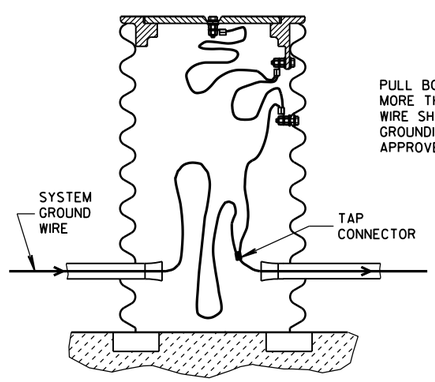
ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.



PULL BOX TO NEAREST BASE DISTANCE MORE THAN 20 FEET. PULL BOX GROUND WIRE SHALL CONNECT AT SYSTEM GROUNDING WIRE. USE DEPARTMENT APPROVED TAP CONNECTOR.

EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014
DATE
/S/ Ahmet Demirbilek
STATE ELECTRICAL
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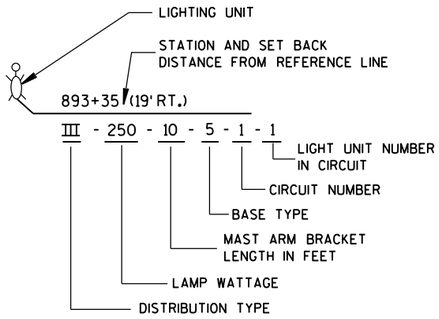
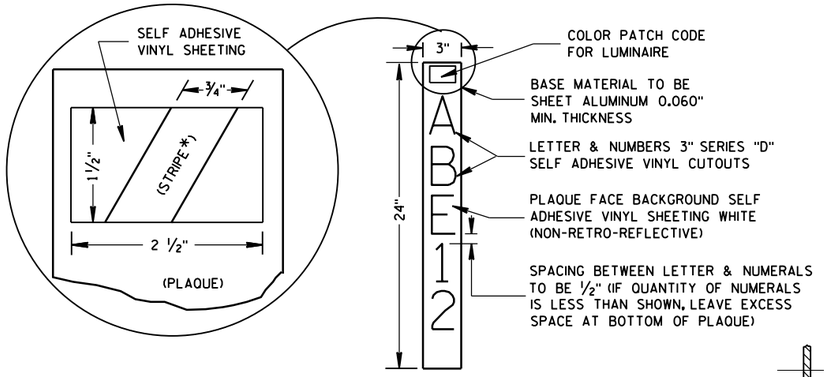


LIGHTING UNIT CODE
(TYPICAL)



COLOR PATCH CODE FOR LUMINAIRES

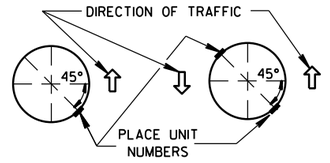
(HIGH PRESSURE SODIUM)

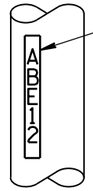
1000 WATT - NO PATCH
400 WATT - ORANGE
310 WATT - BLUE
250 WATT - ORANGE W/WHITE STRIPE*
200 WATT - RED
150 WATT - GREEN
100 WATT - BROWN

(MERCURY VAPOR)

400 WATT - (NO PATCH)
250 WATT - YELLOW

IDENTIFICATION PLAQUE





FASTEN TOP, CENTER AND BOTTOM OF PLAQUE WITH 3 ALUMINUM POP RIVETS (ALUM. POLES) OR STAINLESS STEEL POP RIVETS (STEEL POLES)

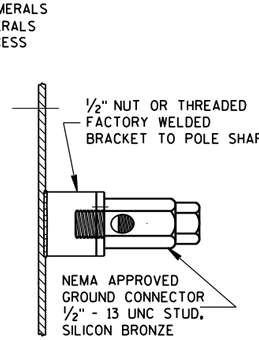
NOTES:

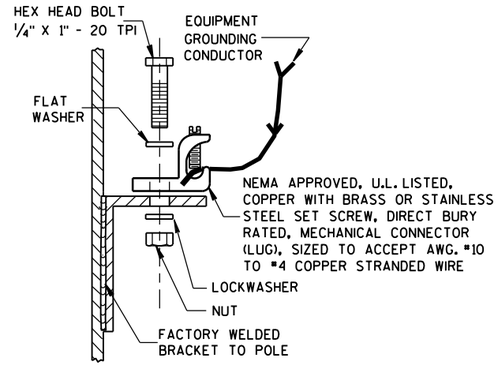
1) PLACE BOTTOM OF UNIT NUMBER PLAQUE 5'-0" ABOVE ELEVATION OF ADJACENT CURB OR SHOULDER.

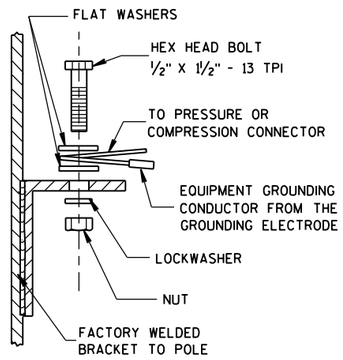
2) UNIT NUMBERS: ONE REQUIRED FOR SINGLE ARM POLES TWO REQUIRED FOR MEDIAN MOUNT POLES.

LIGHTING UNIT IDENTIFICATION PLAQUE REQUIREMENTS AND PLACEMENT
(TYPICAL ALL LIGHTING UNITS)

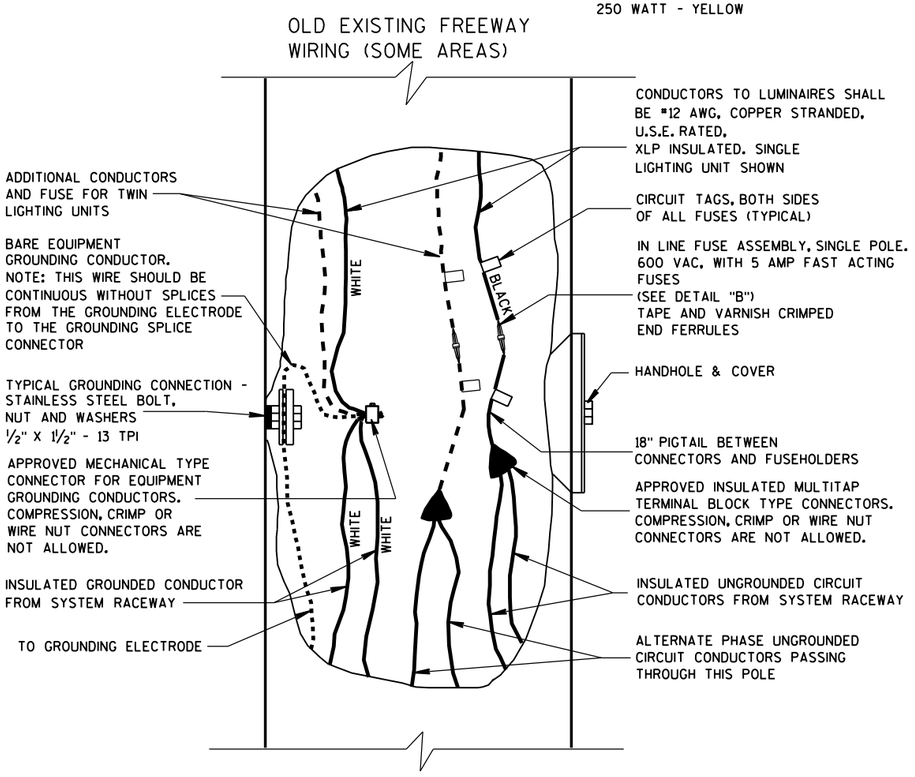
FURNISH PLAQUE WHEN CALLED FOR BY SPECIAL PROVISIONS



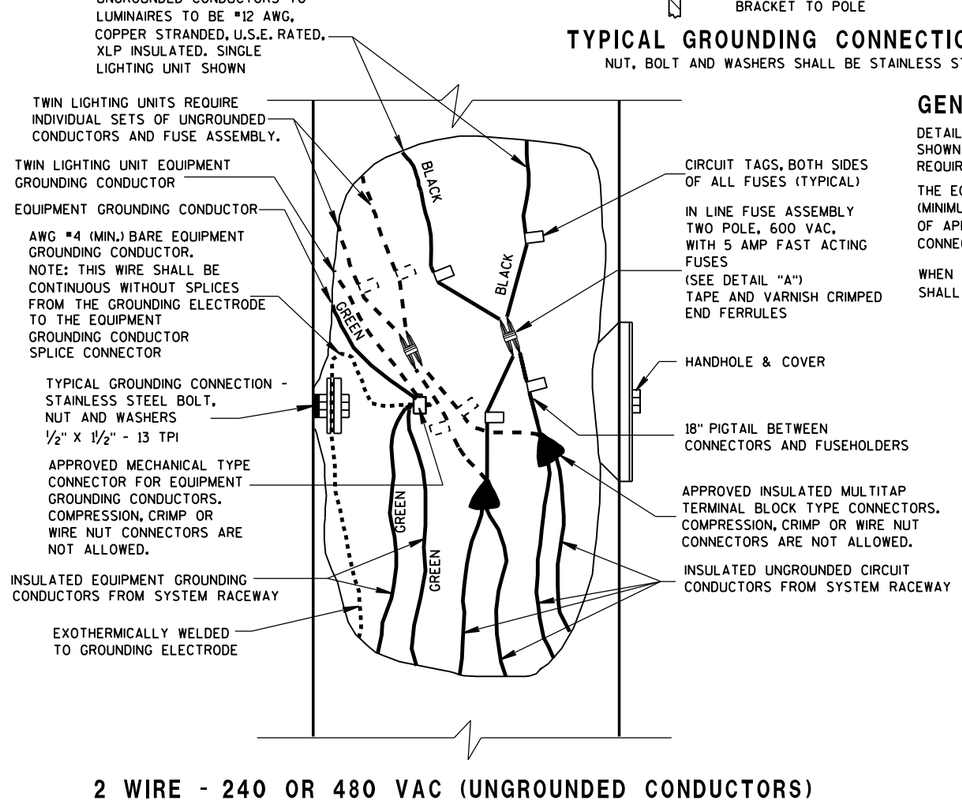




TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



2 WIRE - 120, 240 OR 480 VAC TO GROUND



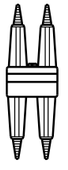
2 WIRE - 240 OR 480 VAC (UNGROUNDED CONDUCTORS) WITH EQUIPMENT GROUNDING CONDUCTOR

GENERAL NOTES

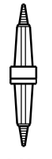
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EQUIPMENT GROUND CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND THEN 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.

WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.



DETAIL "A"
BREAKAWAY DOUBLE POLE WITH WATERPROOF INSULATING BOOT



DETAIL "B"
BREAKAWAY SINGLE POLE WITH WATERPROOF INSULATING BOOT

FREEWAY LIGHTING UNIT POLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
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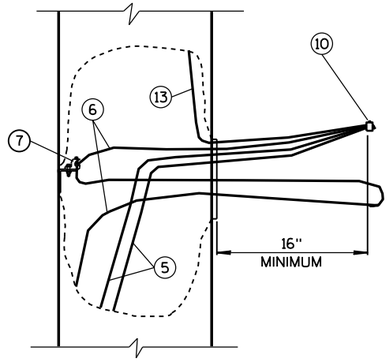
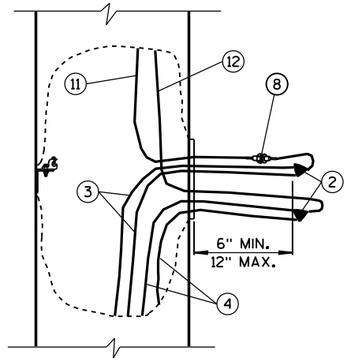
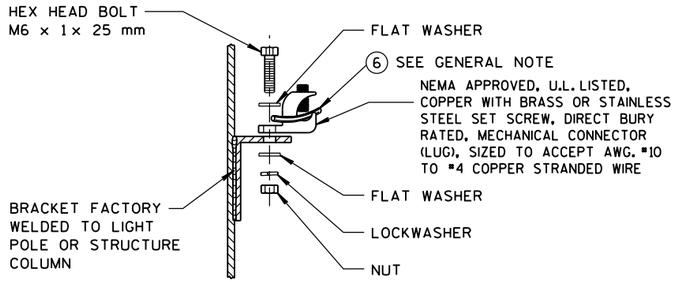


EQUIPMENT GROUNDING CONDUCTOR SLACK



UNGROUNDED CONDUCTOR SLACK (AND GROUNDED NEUTRAL SLACK IN GROUNDED NEUTRAL SYSTEM)

TYPICAL CONDUCTOR SLACK AT HANDHOLES



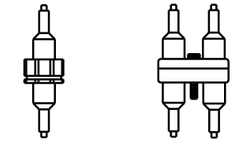
HANDHOLE GROUNDING LUG

(NUT, BOLT, WASHERS, AND LOCK WASHERS SHALL BE STAINLESS STEEL)

CONDUCTOR COLOR CODES

KEY	CONDUCTOR	COLOR
3	UNGROUNDED LINE WIRE	*
4	GROUNDED LINE WIRE	WHITE
5	SYSTEM GROUNDING LINE WIRE	GREEN
6	GROUNDING ELECTRODE CONDUCTOR	BARE
11	UNGROUNDED POLE WIRE	*
12	GROUNDED POLE WIRE	WHITE
13	EQUIPMENT GROUNDING POLE WIRE	GREEN

* FOLLOW COLOR CODING SHOWN IN THE PLANS. WHERE THE PLANS DO NOT SHOW COLOR CODING, USE BLACK FOR SINGLE LUMINAIRE POLES; BLACK AND RED FOR TWIN LUMINAIRE POLES.



FUSE ASSEMBLIES

GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

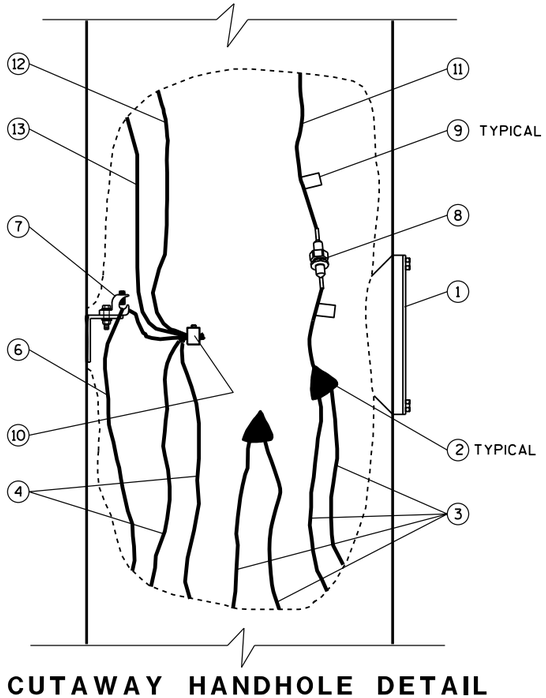
USE THIS DETAIL IN CONJUNCTION WITH THE ELECTRICAL DETAILS FOR THE APPLICATION, WHICH MAY BE A LIGHT POLE, SIGN BRIDGE, ETC.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING LUG TO THE CONNECTOR.

THREE POLE WIRES ARE SHOWN FOR A SINGLE LUMINAIRE LIGHT POLE. THREE ADDITIONAL POLE WIRES REQUIRED FOR TWIN LUMINAIRE LIGHT POLES ARE OMITTED FROM THE DRAWING FOR CLARITY. IN THE TWIN POLE CASE, BUNDLE EACH SET OF THREE WIRES WITH A NYLON CABLE TIE.

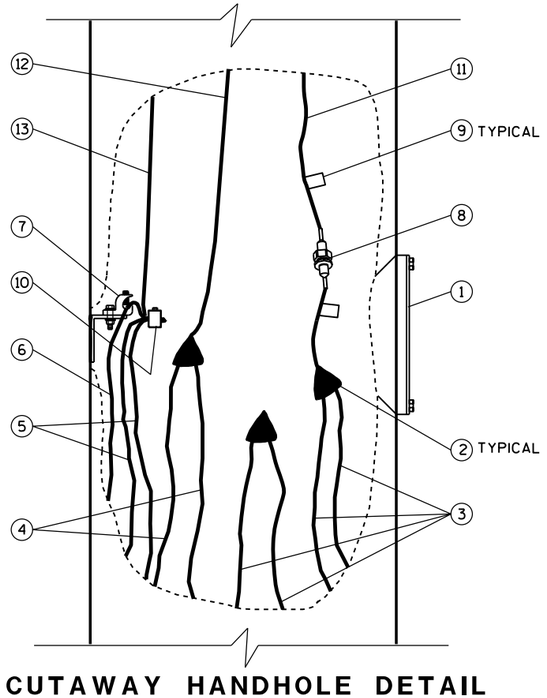
IN 3-PHASE SYSTEMS, THERE WILL BE ONE MORE UNGROUNDED LINE WIRE, WHICH IS OMITTED FROM THE DRAWING FOR CLARITY.

CIRCUIT TAGS SHALL BE INSTALLED ONLY WHERE REQUIRED IN THE SPECIAL PROVISIONS.



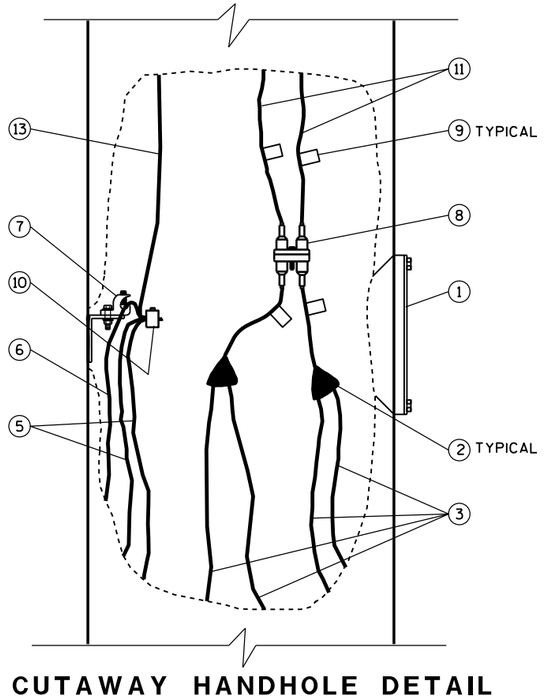
CUTAWAY HANDHOLE DETAIL

GROUNDED NEUTRAL SYSTEMS
1-Φ



CUTAWAY HANDHOLE DETAIL

ISOLATED NEUTRAL SYSTEMS
1-Φ SHOWN; 3-Φ WYE SIMILAR
(SEE GENERAL NOTE)



CUTAWAY HANDHOLE DETAIL

PHASE-TO-PHASE SYSTEMS
1-Φ SHOWN; 3-Φ DELTA SIMILAR
(SEE GENERAL NOTE)

NOTE: REQUIRED CONDUCTOR SLACK NOT SHOWN ON "CUTAWAY HAND HOLE" DETAILS FOR DRAWING CLARITY, SEE "TYPICAL CONDUCTOR SLACK AT HANDHOLES" ON THIS SHEET.

1. HANDHOLE AND COVER
2. INSULATED SPLICE
3. UNGROUNDED LINE WIRE
4. GROUNDED LINE WIRE
5. SYSTEM GROUNDING LINE WIRE
6. GROUNDING ELECTRODE CONDUCTOR
7. HANDHOLE GROUNDING LUG
8. FUSE ASSEMBLY, 1P OR 2P AS REQUIRED
9. CIRCUIT TAG (SEE GENERAL NOTE)
10. REVERSIBLE PRESSURE OR COMPRESSION GROUNDING CONNECTOR (NOT INSULATED)
11. UNGROUNDED POLE WIRE
12. GROUNDED POLE WIRE
13. EQUIPMENT GROUNDING POLE WIRE

ELECTRICAL HANDHOLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
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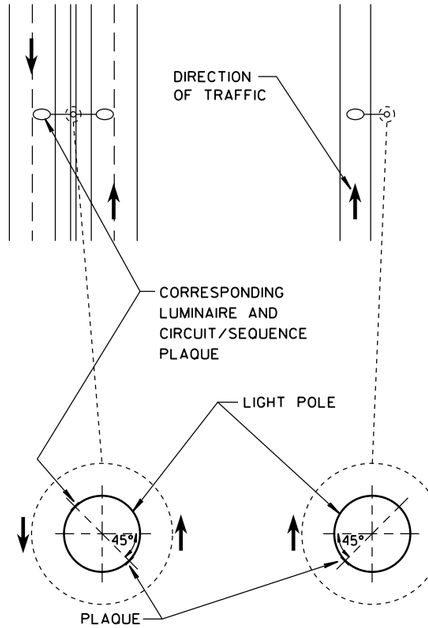


MEDIAN POLE SINGLE ARM POLE

LOCATION OF LIGHT POLE CIRCUIT/SEQUENCE PLAQUE

GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

WHERE SHOWN IN THE PLANS, REPLACEMENT PLAQUES WILL BE MEASURED AND PAID SEPARATELY.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

GALVANIZED STEEL SHAFT - STAINLESS STEEL POP RIVETS

A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS; FASTEN WITH STAINLESS SELF-TAPPING SCREWS

ALUMINUM SHAFTS - ALUMINUM POP RIVETS

MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

PLAQUE MATERIALS:

BASE - SHEET ALUMINUM, 0.060" THICK.

FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETRORFLECTIVE

LINES - BLACK, 1/2" WIDE, SELF-ADHESIVE

CHARACTERS - BLACK, SELF-ADHESIVE, SERIES "D", SIZE AS SHOWN

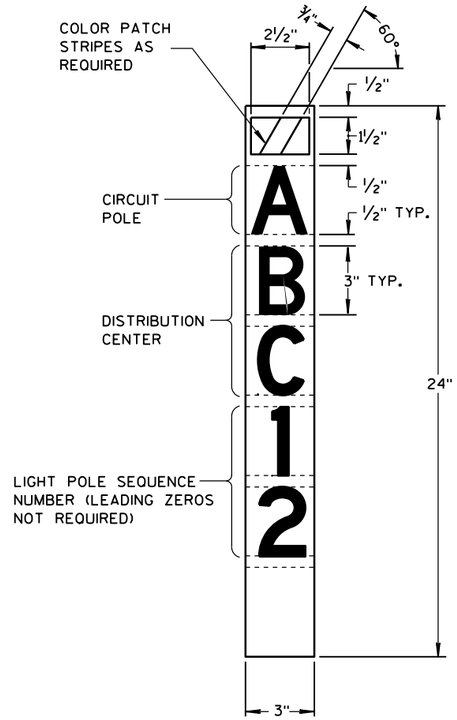
COLOR PATCHES - VARIOUS COLORS, SELF-ADHESIVE VINYL SHEETING

WITH THE APPROVAL OF THE ENGINEER, THE BASE MATERIAL MAY BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE SURFACE, IN CASES SUCH AS SMOOTH, CLEAN ALUMINUM POLES.

ALTERNATIVE COMPUTER-GENERATED SIGN LETTERING MAY BE ACCEPTED IF THE ENGINEER FINDS IT TO BE EQUIVALENT.

COLOR PATCH CODE FOR HPS AND LED LUMINAIRES

HPS	LED	COLOR PATCH CODE
1000 WATT		NO PATCH
400 WATT	CATEGORY D	ORANGE
310 WATT		BLUE
250 WATT	CATEGORY C	ORANGE WITH WHITE STRIPE
200 WATT		RED
150 WATT	CATEGORY B	GREEN
100 WATT	CATEGORY A	BROWN
70 WATT	CATEGORY UDL	BROWN WITH WHITE STRIPE



LIGHT POLE CIRCUIT/SEQUENCE PLAQUE

IDENTIFICATION PLAQUES LIGHT POLES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 DATE
/S/ Ahmet Demirbilek STATE ELECTRICAL
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HANDHOLE FUSE SCHEDULES

LINE VOLTAGE φ-GROUND	BALLAST WATTAGE	
	70-200 W	250-400 W
120 VAC	5 A	10 A
240 VAC	5 A	5 A
277 VAC	5 A	5 A
480 VAC	3 A	5 A

GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

USE THIS DETAIL IN CONJUNCTION WITH THE DETAIL FOR ELECTRICAL HANDHOLE WIRING.

WIRING FOR SINGLE LUMINAIRE POLES IS SHOWN WITH SOLID LINES. WIRING FOR THE SECOND LUMINAIRE OF TWIN LUMINAIRE POLES IS SHOWN WITH DOTTED LINES.

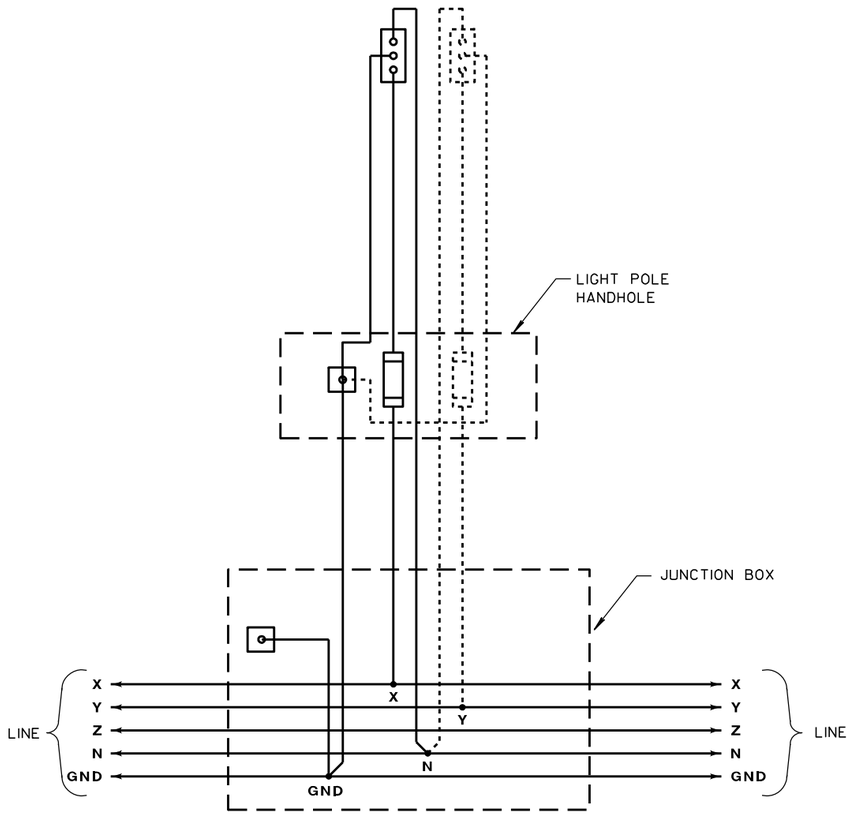
THE PLANS WILL SHOW WHICH CIRCUIT LEG(S) ARE CONNECTED TO EACH INSTALLATION.

WIRE SIZE FROM THE JUNCTION BOX TO THE POLE HANDHOLE SHALL EQUAL THE SIZE OF THE POLE WIRE.

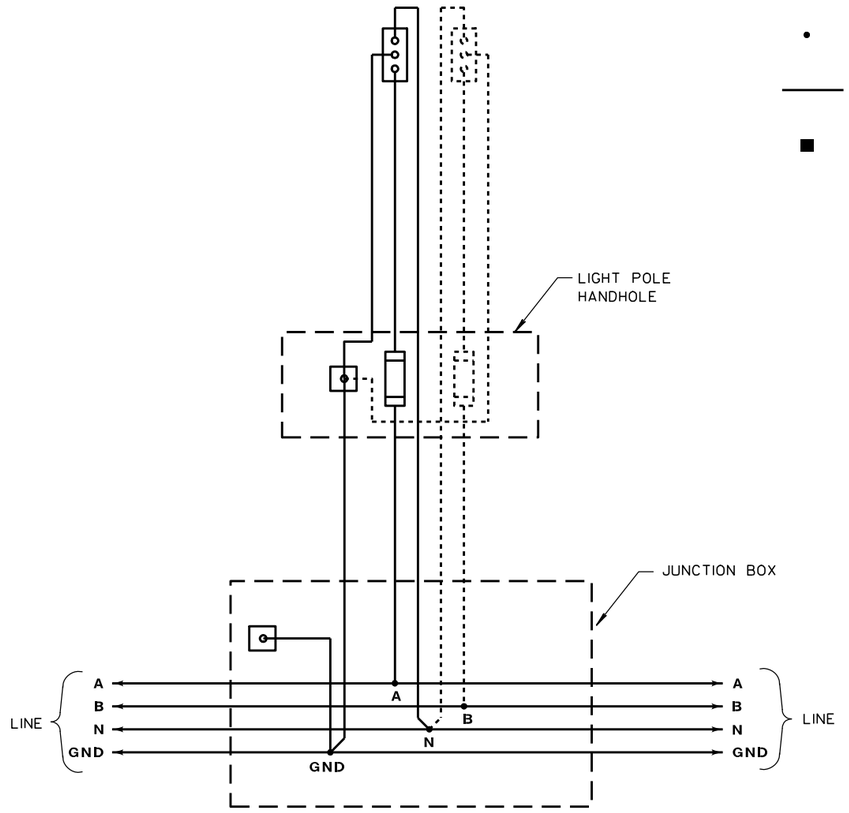
THE INTENT OF JUNCTION BOX SPLICES AS SHOWN IN THIS DETAIL IS FOR LIGHTING SYSTEMS WITH HEAVY LINE WIRE TOO LARGE TO PULL THROUGH THE CONDUIT INTO THE POLE HANDHOLE, DUE TO CONDUIT FILL REQUIREMENTS OF N.E.C., AND/OR THE STIFFNESS OF THE WIRE COMPARED TO THE NUMBER OF BENDS IN THE CONDUIT. IN CASES WHERE LINE WIRE IS LIGHTER, SUCH AS SMALLER SYSTEMS OR TOWARD THE FURTHEST END OF A LARGER SYSTEM, PULL THE LINE WIRE INTO THE POLE HANDHOLE FOR SPLICING.

LEGEND

A,B,X,Y,Z	UNGROUNDED CIRCUIT CONDUCTORS
N	GROUNDED CIRCUIT CONDUCTORS
GND	EQUIPMENT GROUNDING CONDUCTOR
P	POLE (ELECTRICAL CIRCUIT)
φ	PHASE (ELECTRICAL CURRENT)
	HANDHOLE GROUND LUG
	SINGLE-POLE (1P) FUSE ASSEMBLY
	TWO-POLE (2P) FUSE ASSEMBLY
	UNFUSED LUMINAIRE
	EQUIPMENT GROUNDING ELECTRODE
	TERMINAL
	SPLICE
	CONDUCTOR
	EXOTHERMIC WELD



TYPICAL WIRING DIAGRAM
ISOLATED NEUTRAL SYSTEM
3-φ 208Y/120VAC OR 480Y/277VAC 4 WIRE



TYPICAL WIRING DIAGRAM
ISOLATED NEUTRAL SYSTEM
1-φ 120/240VAC OR 240/480VAC 3 WIRE

ELECTRICAL DETAILS
STRUCTURE MOUNT LIGHT POLES
ISOLATED NEUTRAL SYSTEMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/25/2010 — DATE
/S/ John Corbin — STATE ELECTRICAL ENGI
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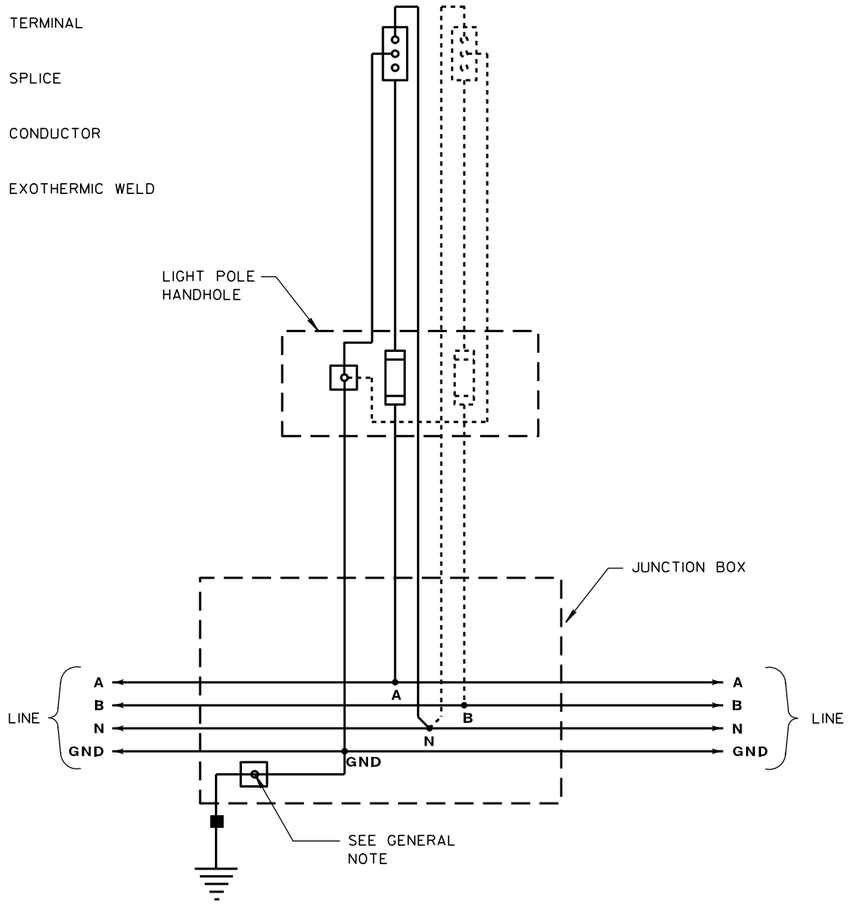
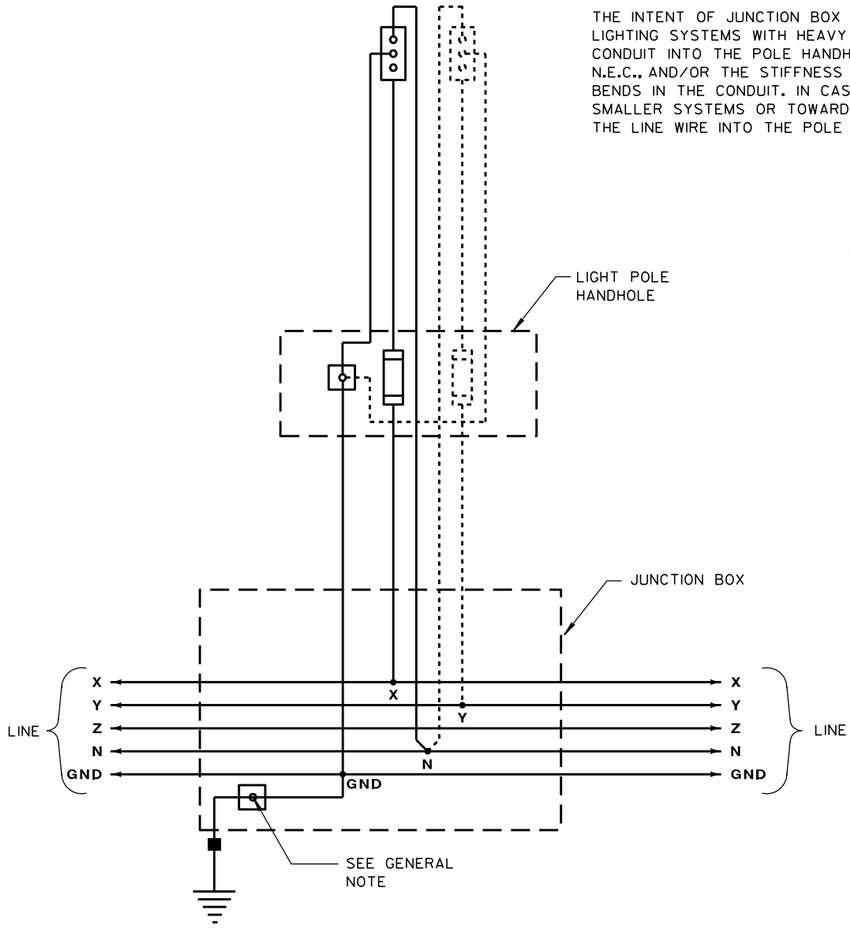
S.D.D. 10 A 8-2

LEGEND

A,B,X,Y,Z	UNGROUNDED CIRCUIT CONDUCTORS
N	GROUNDED CIRCUIT CONDUCTORS
GND	EQUIPMENT GROUNDING CONDUCTOR
P	POLE (ELECTRICAL CIRCUIT)
ϕ	PHASE (ELECTRICAL CURRENT)
	HANDHOLE GROUND LUG
	UNFUSED LUMINAIRE
	SINGLE POLE (1P) FUSE ASSEMBLY
	EQUIPMENT GROUNDING ELECTRODE
	TERMINAL
	SPLICE
	CONDUCTOR
	EXOTHERMIC WELD



TYPICAL WIRING DIAGRAM
ISOLATED NEUTRAL SYSTEM
1-ϕ 240/480VAC 3 WIRE



TYPICAL WIRING DIAGRAM
ISOLATED NEUTRAL SYSTEM
3-ϕ 480Y/277VAC 4 WIRE

GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

USE THIS DETAIL IN CONJUNCTION WITH THE DETAIL FOR ELECTRICAL HANDHOLE WIRING.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING LUG TO THE CONNECTOR.

WIRING FOR SINGLE LUMINAIRE POLES IS SHOWN WITH SOLID LINES. WIRING FOR THE SECOND LUMINAIRE OF TWIN LUMINAIRE POLES IS SHOWN WITH DOTTED LINES.

THE PLANS WILL SHOW WHICH CIRCUIT LEG(S) ARE CONNECTED TO EACH INSTALLATION.

WIRE SIZE FROM THE JUNCTION BOX TO THE POLE HANDHOLE SHALL EQUAL THE SIZE OF THE POLE WIRE.

THE INTENT OF JUNCTION BOX SPLICES AS SHOWN IN THIS DETAIL IS FOR LIGHTING SYSTEMS WITH HEAVY LINE WIRE TOO LARGE TO PULL THROUGH THE CONDUIT INTO THE POLE HANDHOLE, DUE TO CONDUIT FILL REQUIREMENTS OF N.E.C., AND/OR THE STIFFNESS OF THE WIRE COMPARED TO THE NUMBER OF BENDS IN THE CONDUIT. IN CASES WHERE LINE WIRE IS LIGHTER, SUCH AS SMALLER SYSTEMS OR TOWARD THE FURTHEST END OF A LARGER SYSTEM, PULL THE LINE WIRE INTO THE POLE HANDHOLE FOR SPLICING.

HANDHOLE FUSE SCHEDULES

LINE VOLTAGE ϕ-GROUND	BALLAST WATTAGE 150-200 W	250-400 W
240 VAC	5 A	5 A
277 VAC	5 A	5 A
480 VAC	3 A	5 A

ELECTRICAL DETAILS
MEDIAN MOUNT LIGHT POLES
ISOLATED NEUTRAL SYSTEMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/25/2010 — DATE
/S/ John Corbin — STATE ELECTRICAL ENGI
157
HWYS
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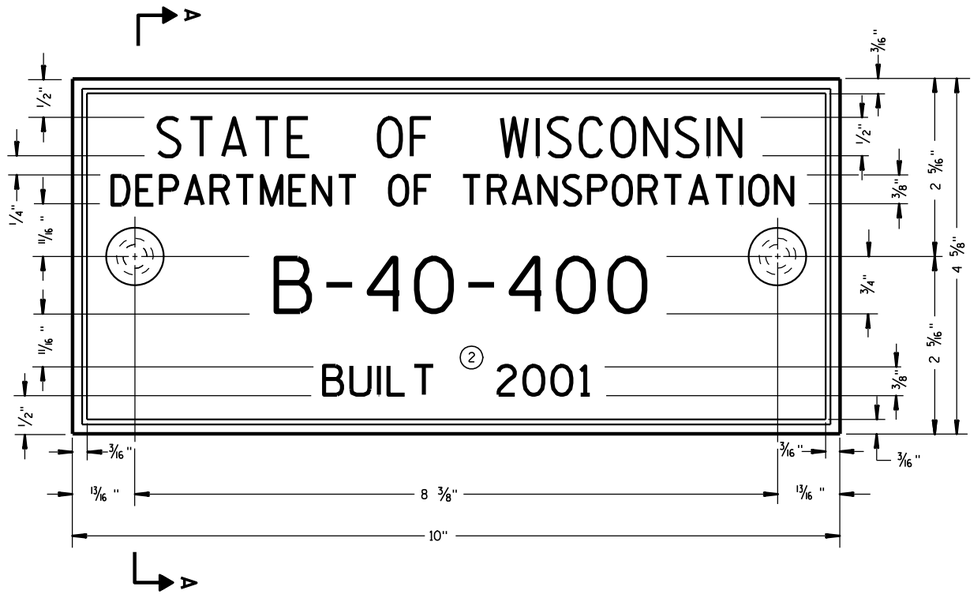
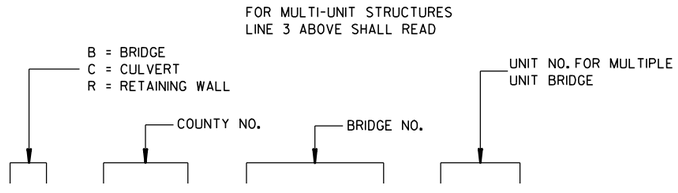


TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

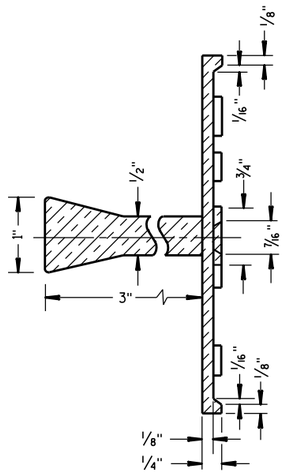
GENERAL NOTES

NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

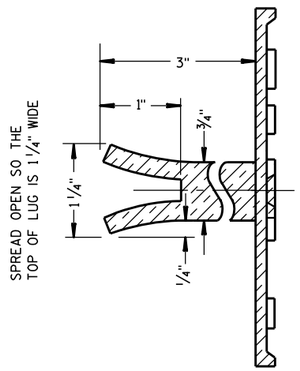
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

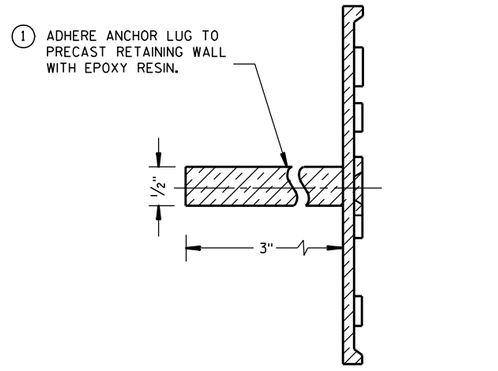
② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER

FHWA

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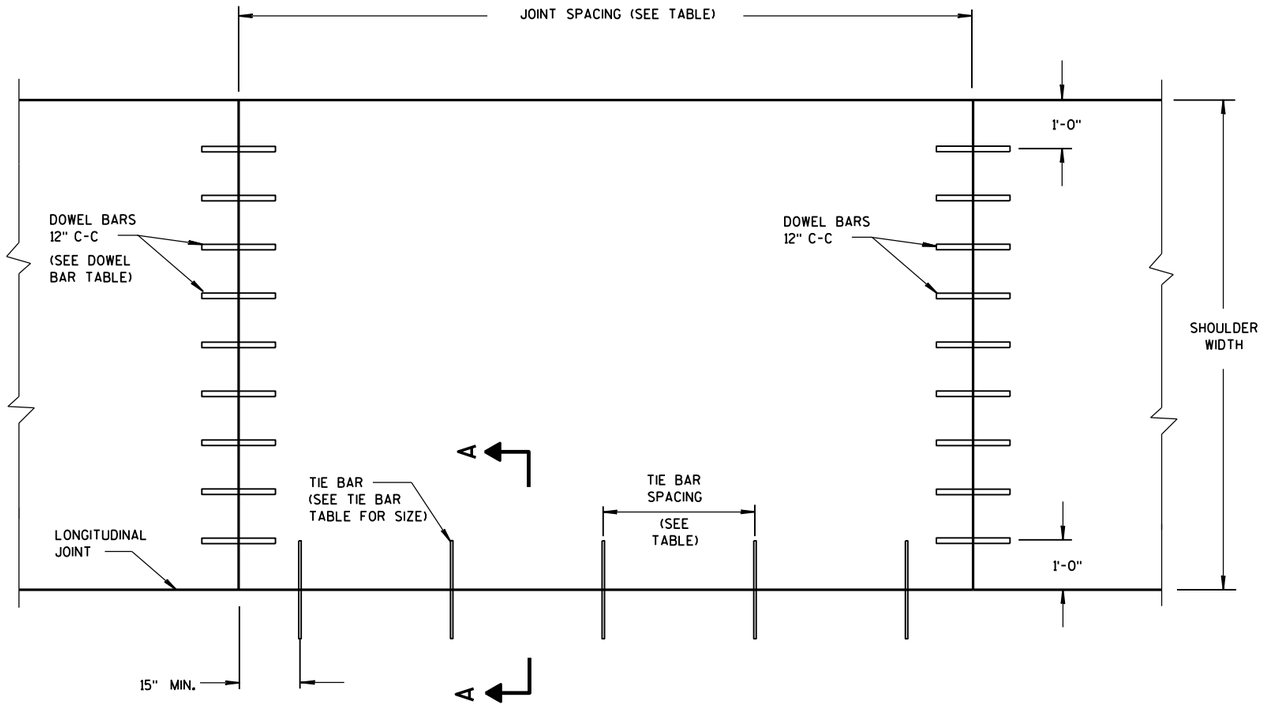


PLAN VIEW

CONCRETE PAVEMENT SHOULDER

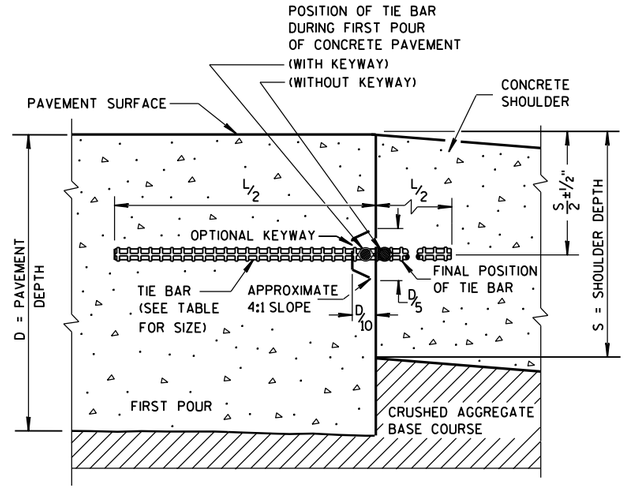
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A

LONGITUDINAL CONSTRUCTION JOINT

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4*	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'

*** FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPEF
FHWA

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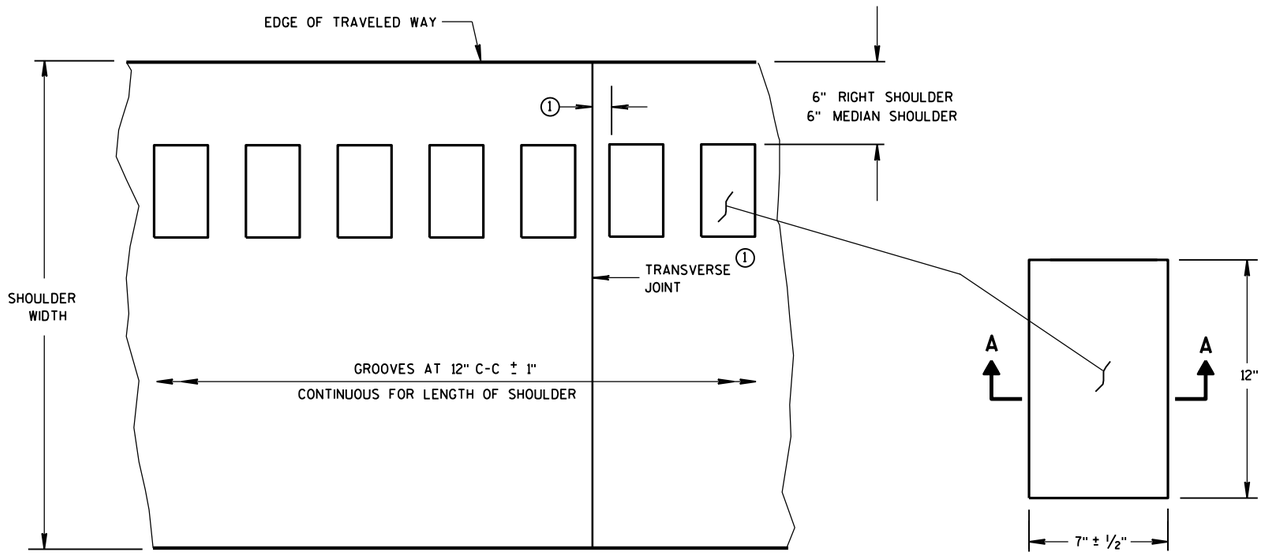


PLAN VIEW
SHOULDER WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

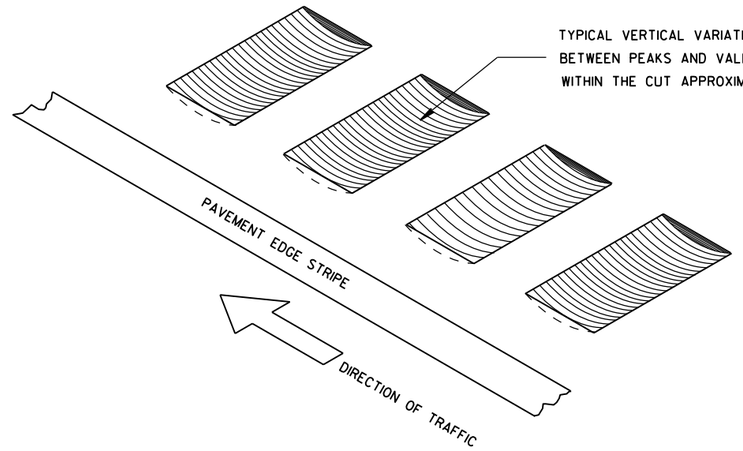
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

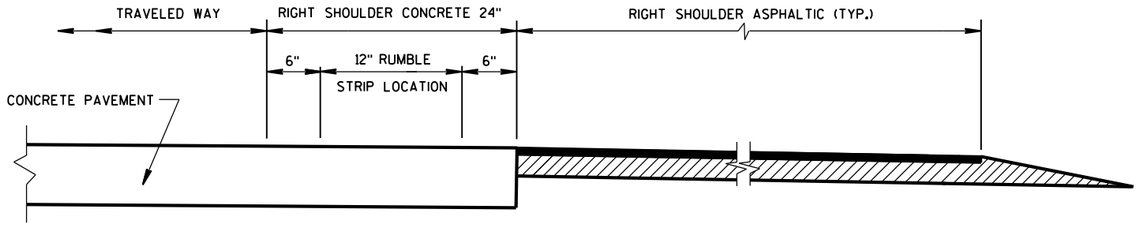
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

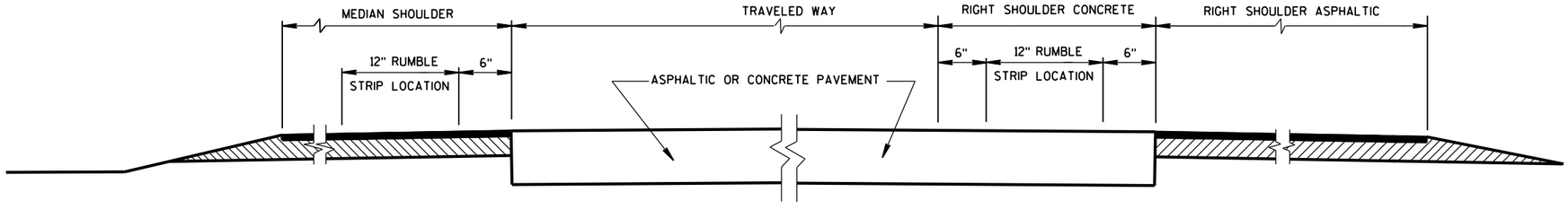
(1) CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



ISOMETRIC



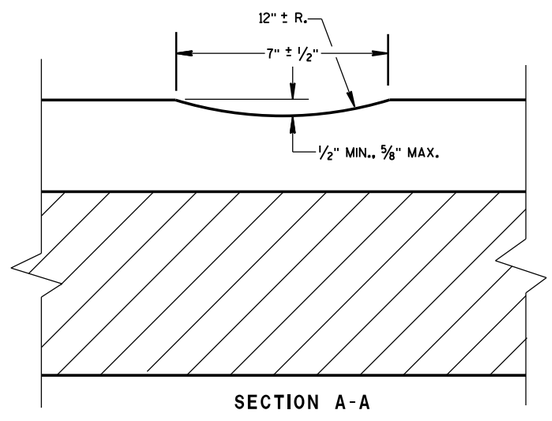
SECTION VIEW
CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



SECTION VIEW

TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS IN RURAL DIVIDED HIGHWAYS

(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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S.D.D. 13 A 5-5a

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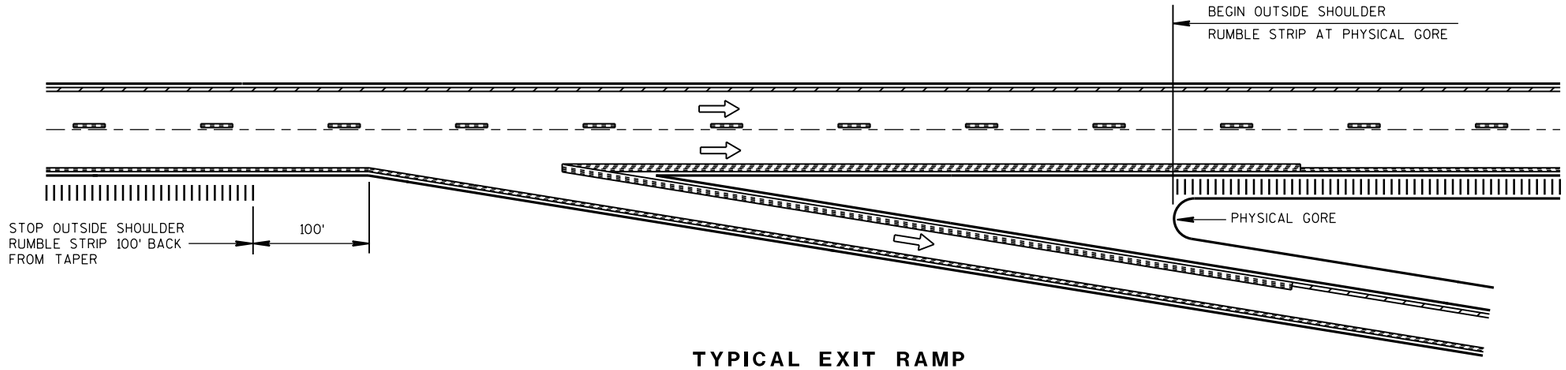
S.D.D. 13 A 5-5a



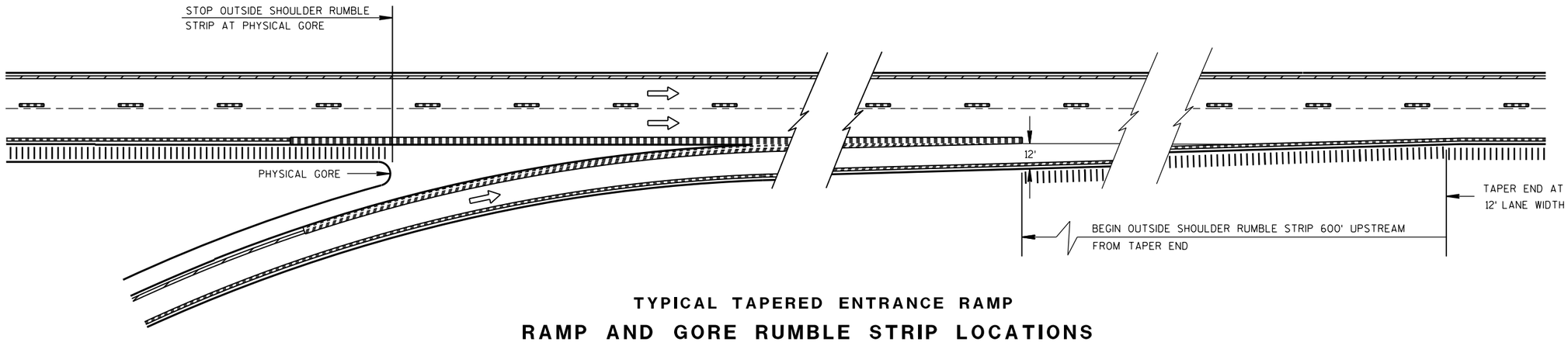
TYPICAL EXIT RAMP

NOTES:

NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

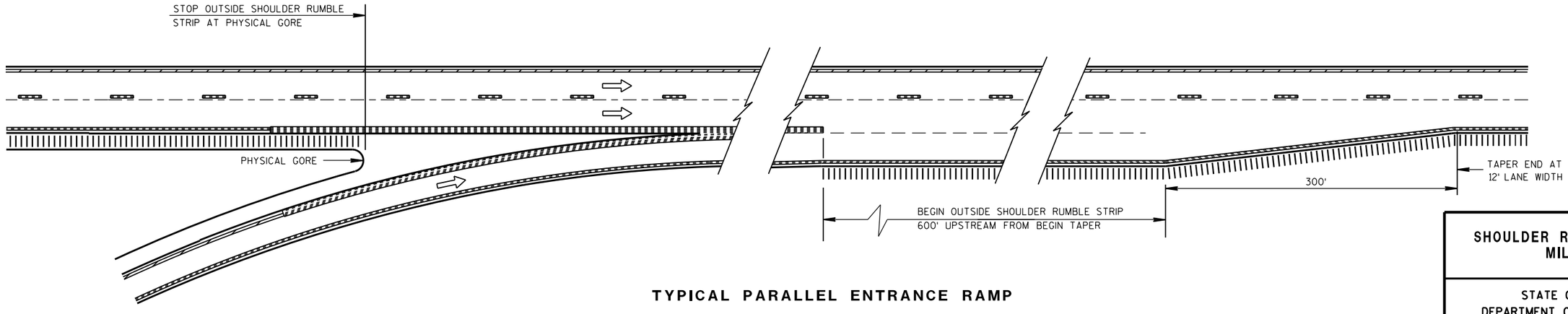
PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:
ARROW SYMBOL (⇨)
SHOWS DIRECTION OF TRAVEL



TYPICAL TAPERED ENTRANCE RAMP

RAMP AND GORE RUMBLE STRIP LOCATIONS



TYPICAL PARALLEL ENTRANCE RAMP

RAMP AND GORE RUMBLE STRIP LOCATIONS

SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/17/2012 — DATE
/S/ Jerry H. Zoga — ROADWAY STANDARDS ENGINEER
FHWA

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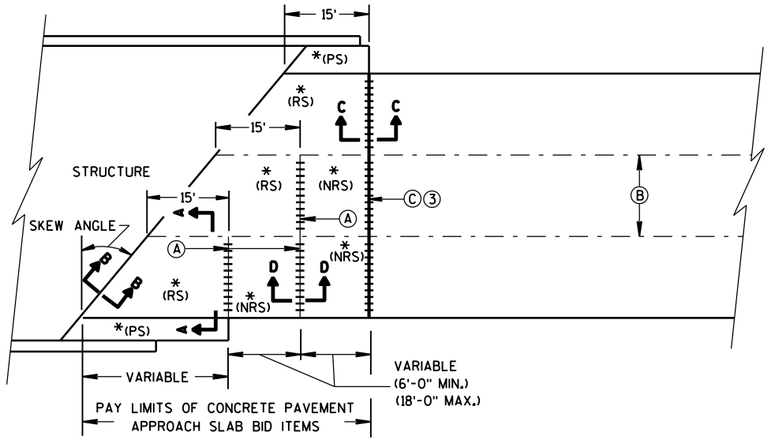
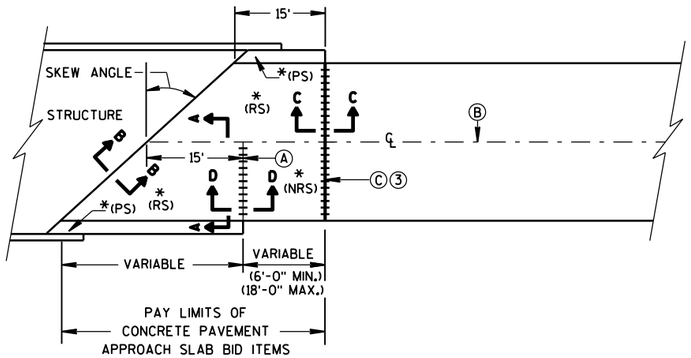
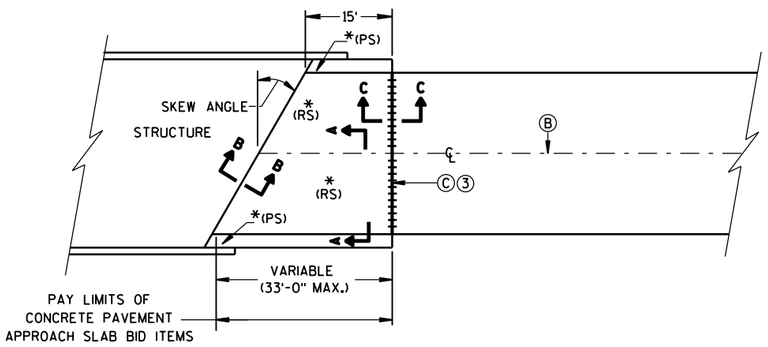
S.D.D. 13 A 5-5b



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

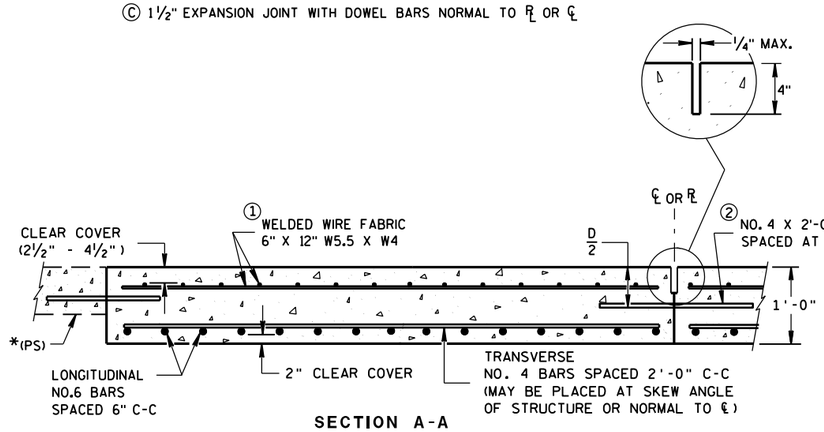
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

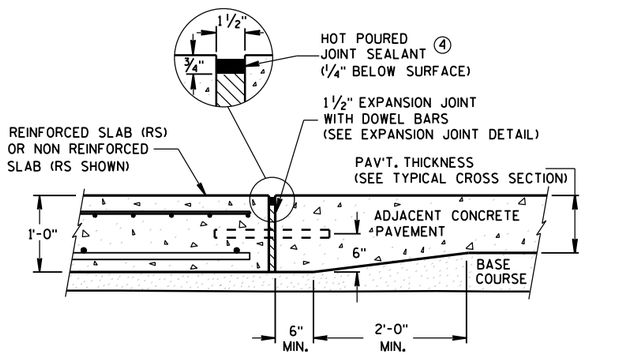
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

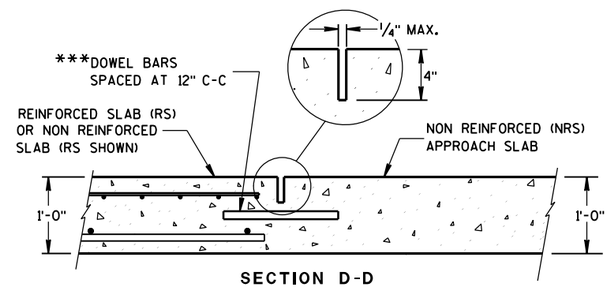
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

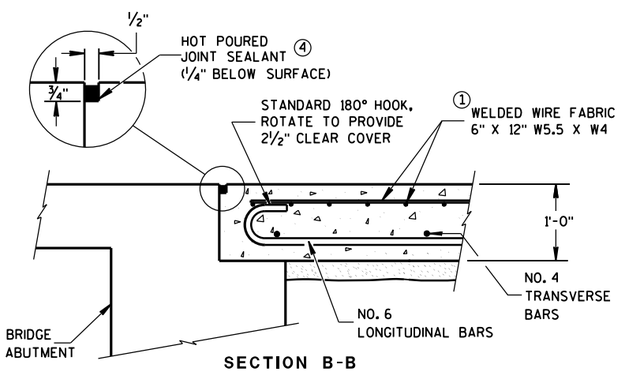
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

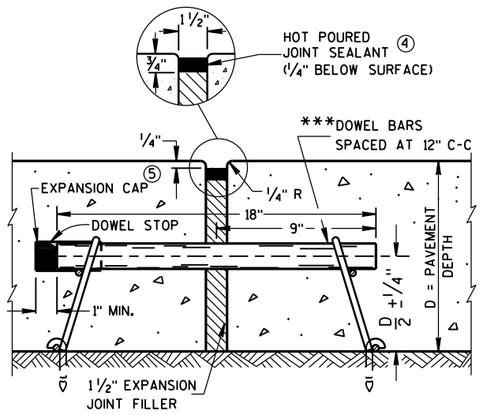
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPER
FHWA

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S.D.D. 13 B 2-8a

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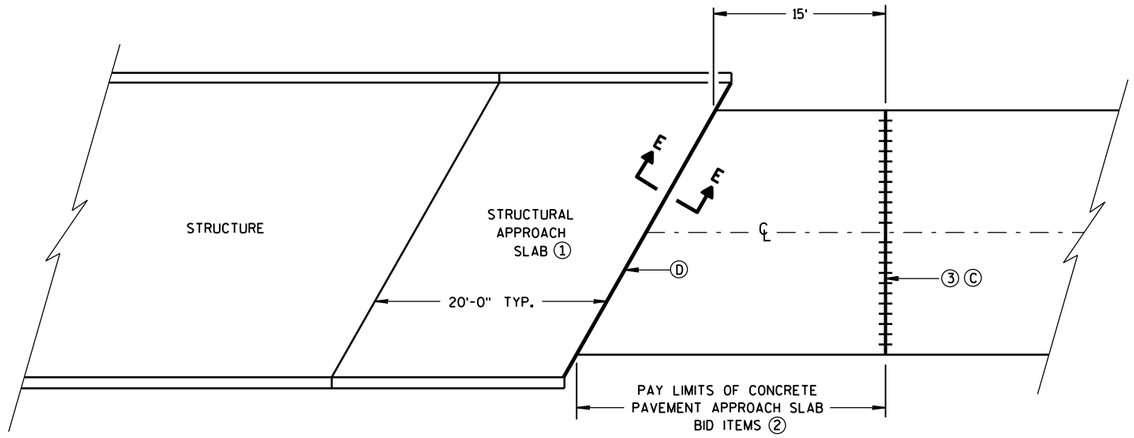
S.D.D. 13 B 2-8a

BRIDGE APPROACHES



GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

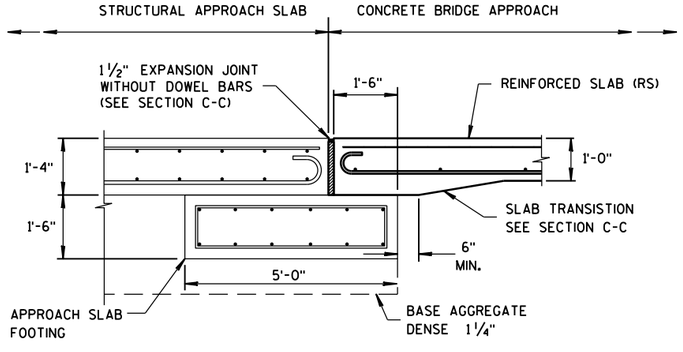
① SEE BRIDGE PLAN.

② CONFORM TO SHEET 13 B 2(A) FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS.

③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄

Ⓓ 1½" EXPANSION JOINT (NO DOWELS)



SECTION E-E

FOOTING DETAIL

STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPEF
FHWA

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S.D.D. 13 B 2-8b

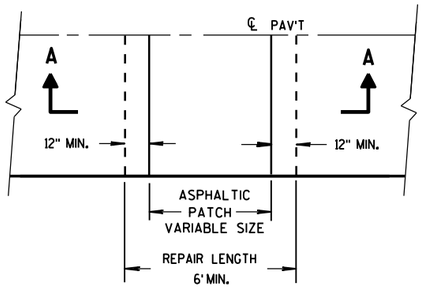
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

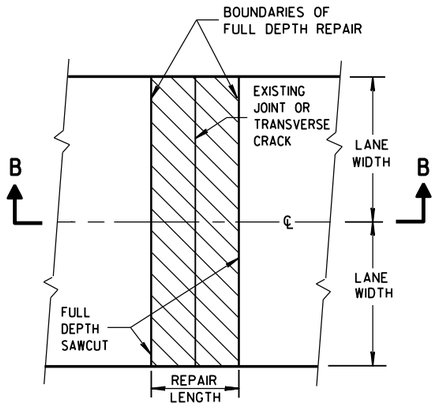
PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

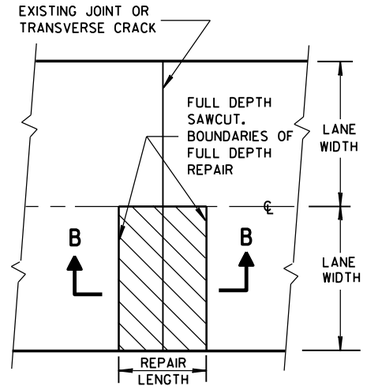
(1) DOWEL BARS MIGHT NOT EXIST.



PLAN VIEW

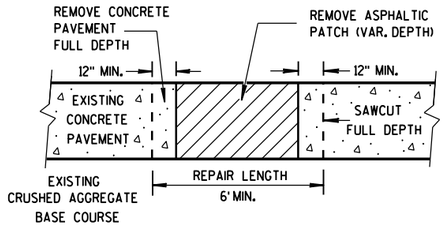


PLAN VIEW
(DOUBLE LANE REPAIR)



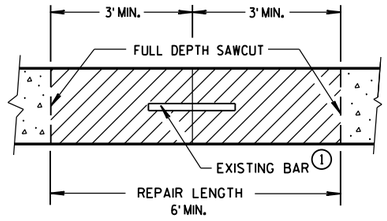
PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL



SECTION A-A

HMA PATCH REMOVAL



SECTION B-B

CONCRETE REMOVAL

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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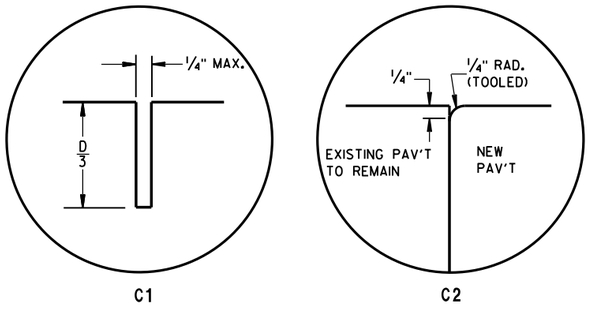
S.D.D. 13 C 9-13a



C1 C2

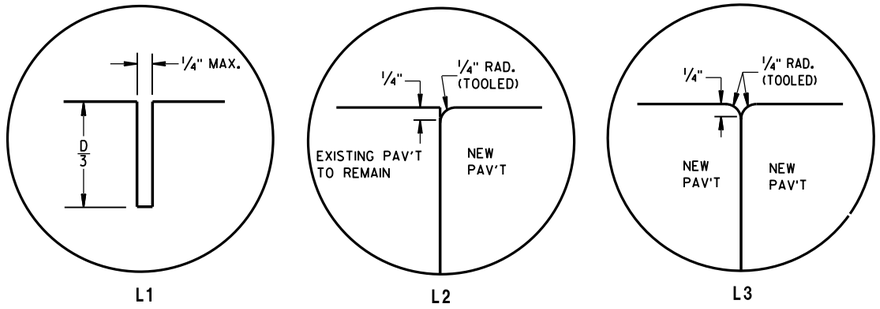
TRANSVERSE JOINTS

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4 *	30"	24"**

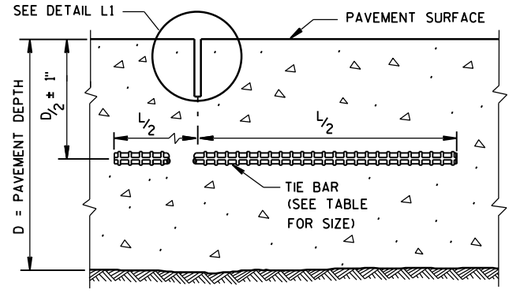
* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



L1 L2 L3

LONGITUDINAL JOINTS



SECTION C-C

SAWED LONGITUDINAL JOINT

GENERAL NOTES

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

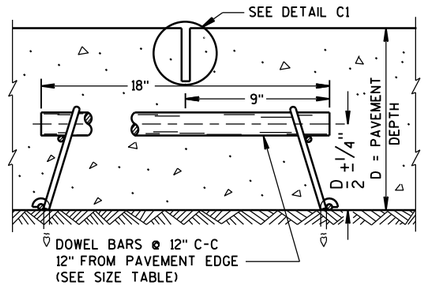
CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

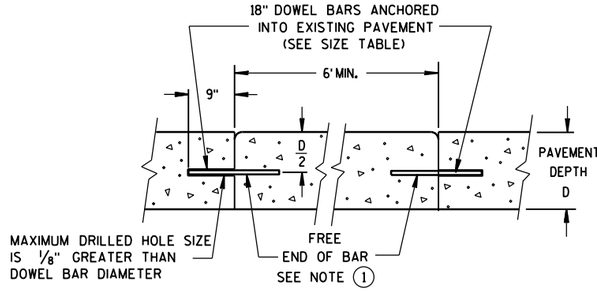
FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

(1) APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

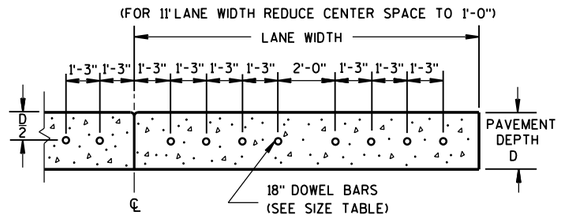


SECTION F-F

CONTRACTION JOINT



SECTION D-D

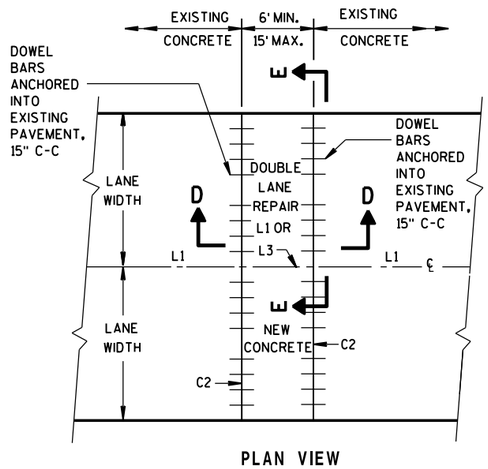


SECTION E-E

DRILLED DOWEL BAR CONSTRUCTION JOINT

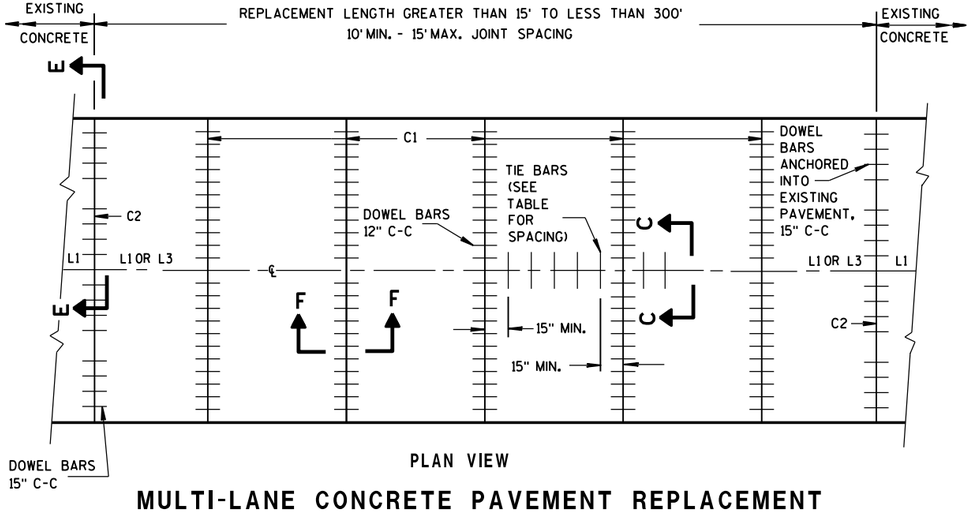
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6",6 ½"	NONE	12'
7",7 ½"	1"	14'
8",8 ½"	1 ¼"	15'
9",9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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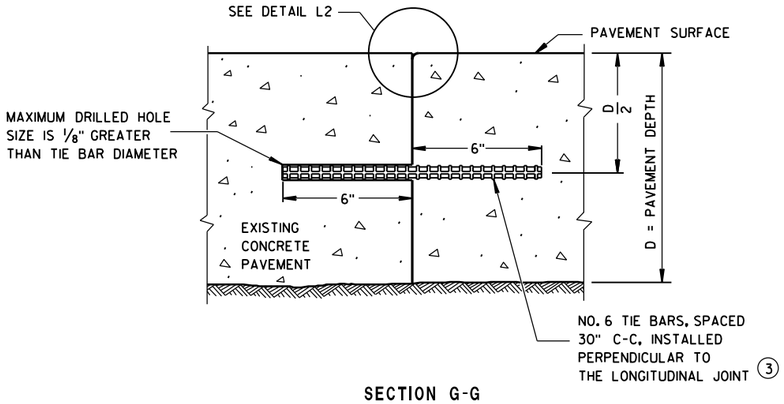
S.D.D. 13 C 9-13b



SECTION G-G

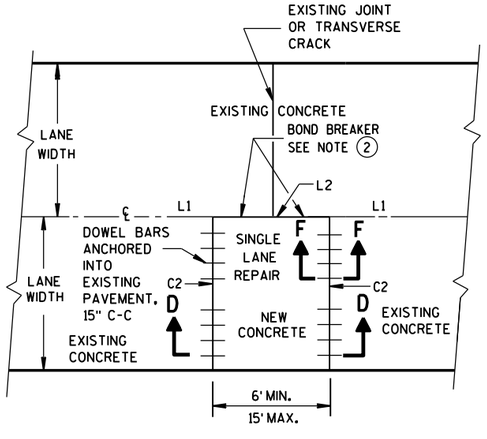
TIE BARS ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

(1) WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.

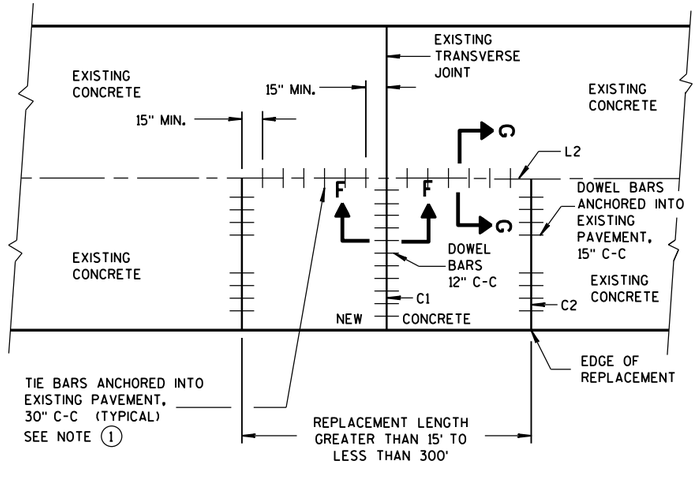
(2) USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.

(3) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPER
FHWA

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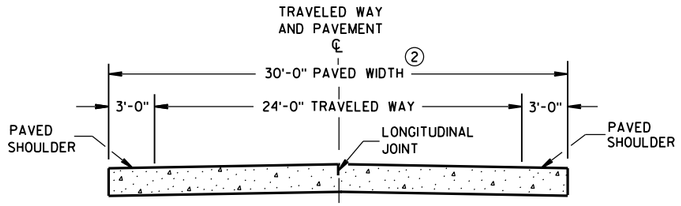
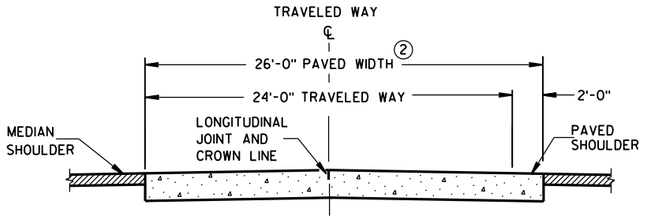
S.D.D. 13 C 9-13c

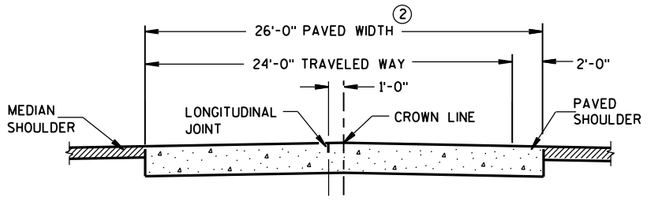


SECTION A-A ①

TWO-LANE TWO-WAY HIGHWAY



SECTION B-B



ALTERNATIVE SECTION B-B ①

DIVIDED HIGHWAY

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

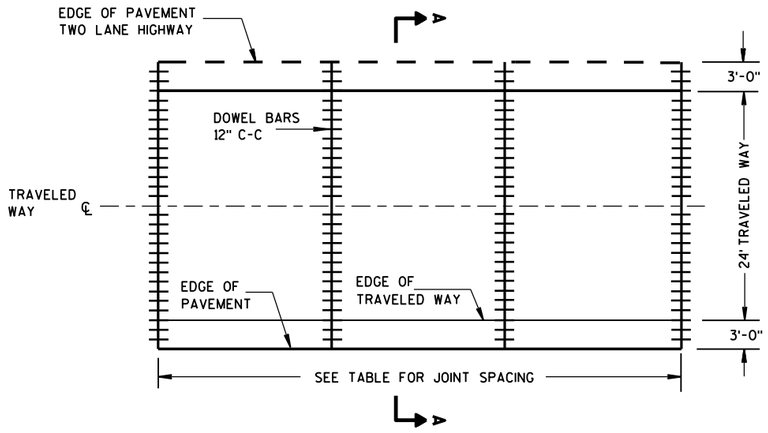
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.

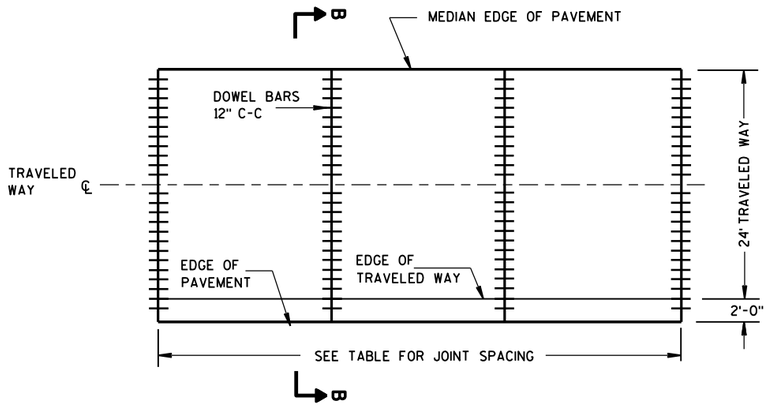
② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



CONTRACTION JOINT LAYOUT
FOR TWO-LANE TWO-WAY HIGHWAY



CONTRACTION JOINT LAYOUT
FOR DIVIDED HIGHWAY

RURAL DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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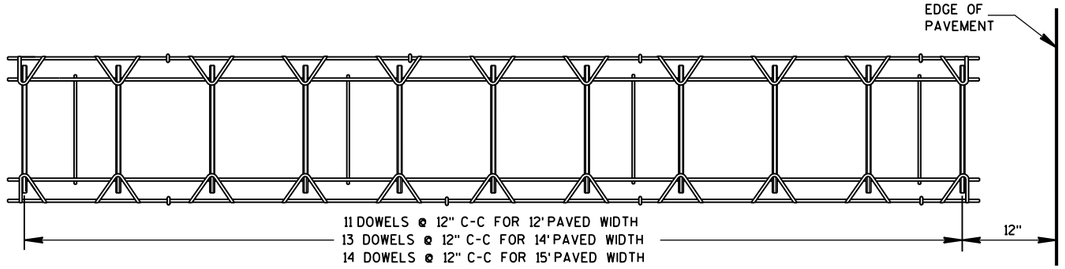
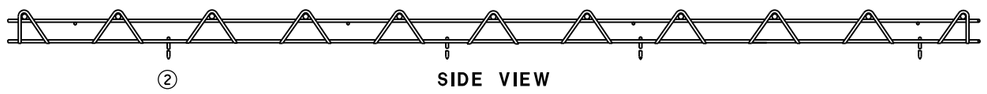
S.D.D. 13 C 11-11a



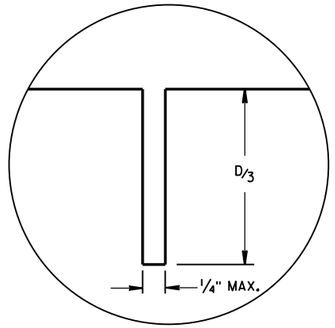
PLAN VIEW



SIDE VIEW

(NORMAL TO CENTERLINE)

CONTRACTION JOINT DOWEL ASSEMBLY ①



JOINT DETAIL

GENERAL NOTES

① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

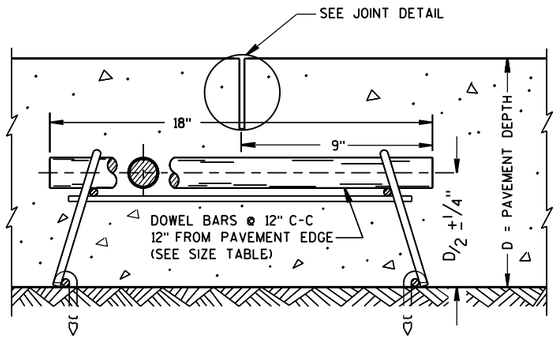
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

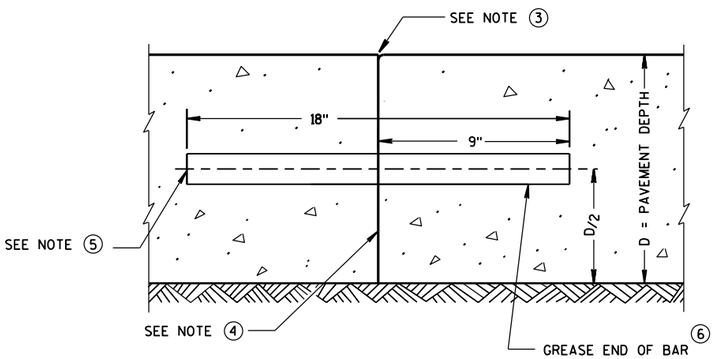
⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

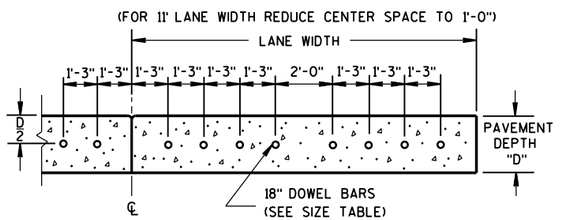
⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

RURAL DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/3/2013 DATE
/S/ Deb Bischoff PAVEMENT POLICY & DE ENGINEER
FHWA

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S.D.D. 13 C 11-11b

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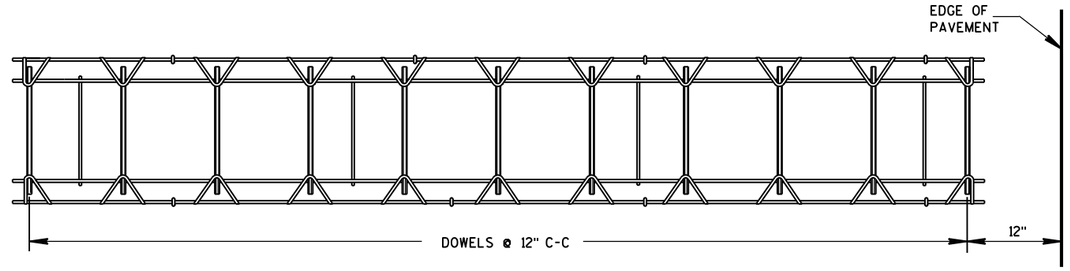
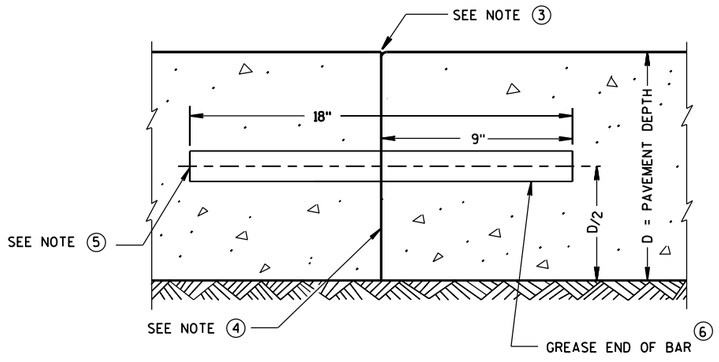
S.D.D. 13 C 11-11b



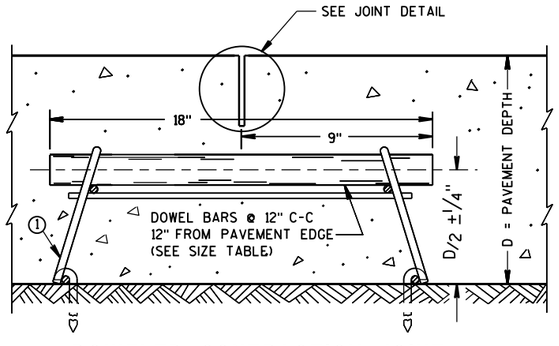
PLAN VIEW

SIDE VIEW

CONTRACTION JOINT DOWEL ASSEMBLY ①



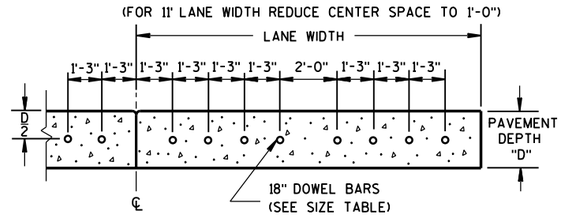
TRANSVERSE CONSTRUCTION JOINT



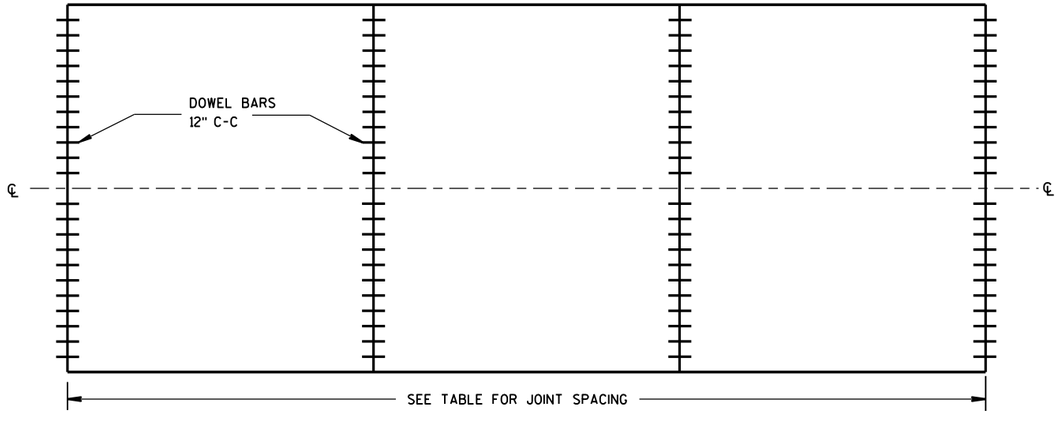
DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE LONGITUDINAL JOINT AND THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

① **OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.**

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

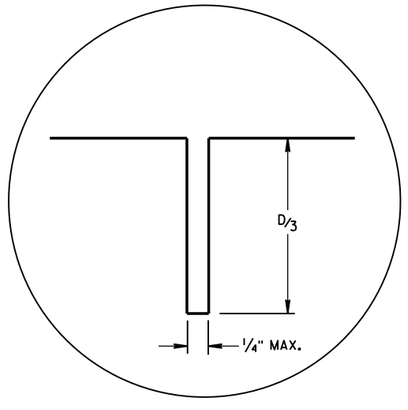
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A ¼-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS ⅛-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



JOINT DETAIL

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/3/2013 DATE
/S/ Deb Bischoff
PAVEMENT POLICY & DE ENGINEER
FHWA

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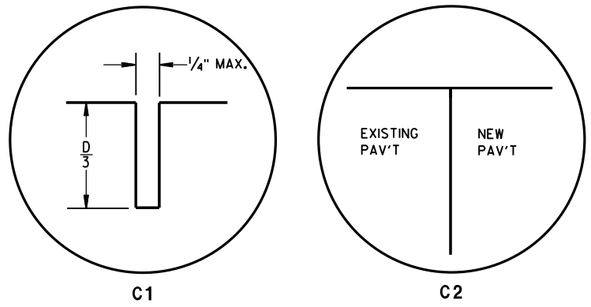
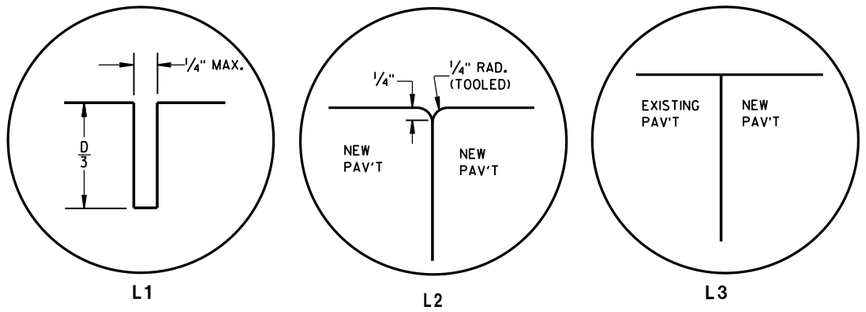
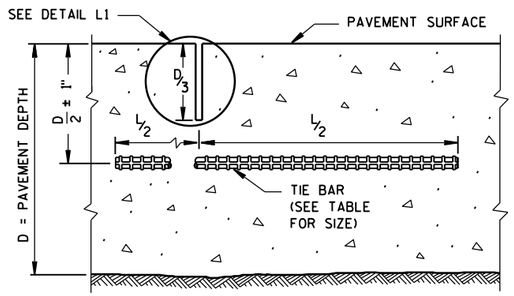
S.D.D. 13 C 13-8



TRANSVERSE JOINTS

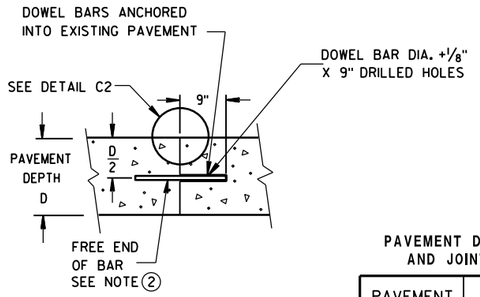


LONGITUDINAL JOINTS



SECTION C-C

SAWED JOINT



SECTION D-D

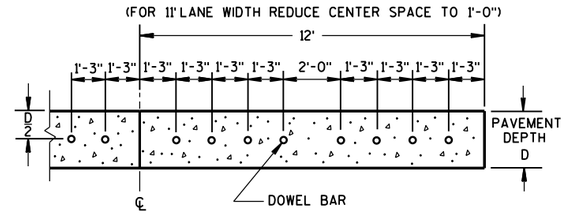
GENERAL NOTES

ANCHOR TIE BARS AND DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

(1) INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

(2) APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



SECTION E-E

SPACING OF DOWEL BARS ANCHORED INTO EXISTING PAVEMENT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

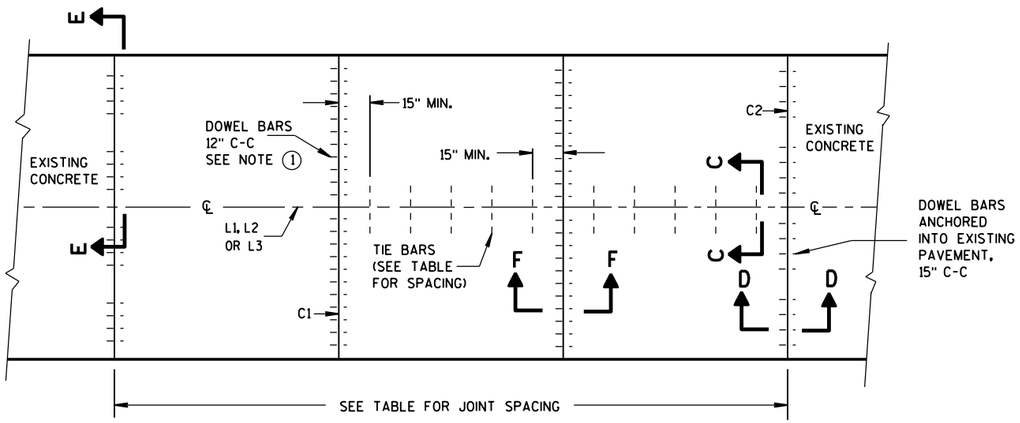
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5½", 6, 6 ½"	NONE	12'
7, 7 ½"	1"	14'
8, 8 ½"	1 ¼"	15'
9, 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

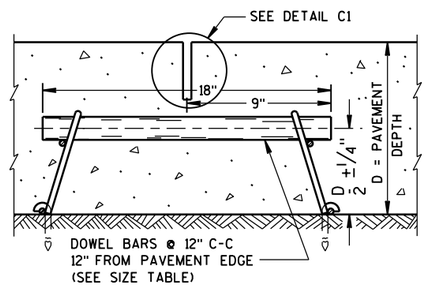
* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



PLAN VIEW

CONCRETE BASE CONTRACTION JOINT LOCATIONS



SECTION F-F

CONTRACTION JOINT

CONCRETE BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

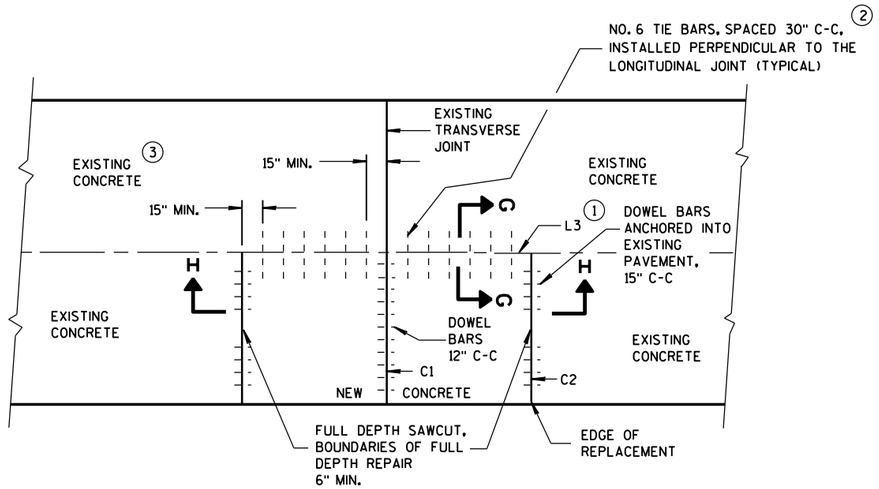
S.D.D. 13 C 15-6a

GENERAL NOTES

(1) USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) AT THE LONGITUDINAL JOINT IN LIEU OF TIE BARS FOR SINGLE LANE CONCRETE BASE REPAIRS UP TO 15 FEET IN LENGTH.

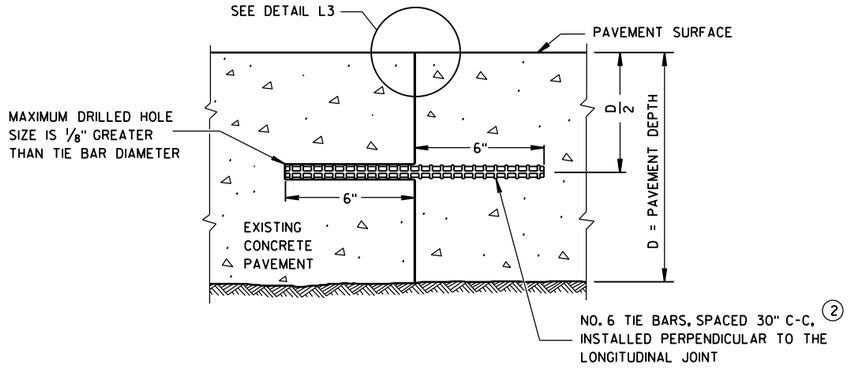
(2) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

(3) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



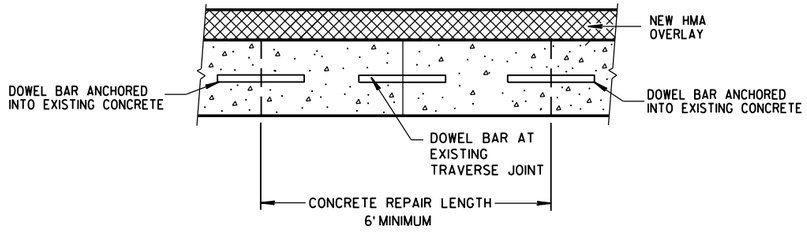
PLAN VIEW

SINGLE LANE CONCRETE BASE REPAIR



SECTION G-G

TIE BARS ANCHORED INTO EXISTING PAVEMENT



SECTION H-H

CONCRETE BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPEI
FHWA

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S.D.D. 13 C 15-6b

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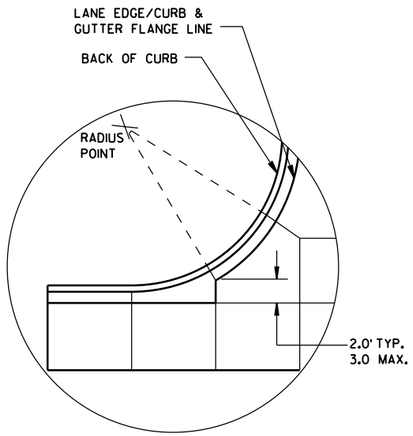
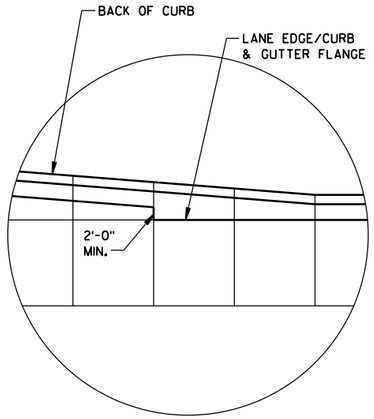
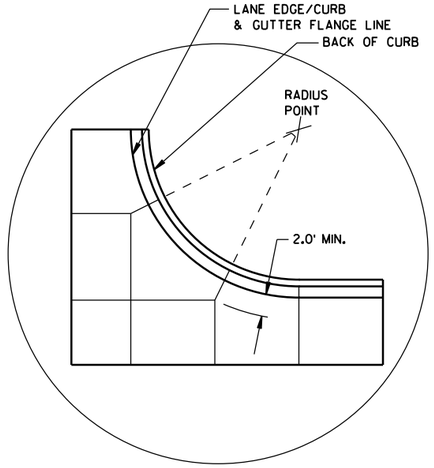
S.D.D. 13 C 15-6b



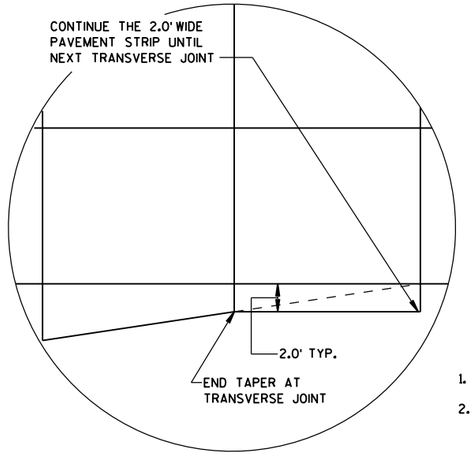
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

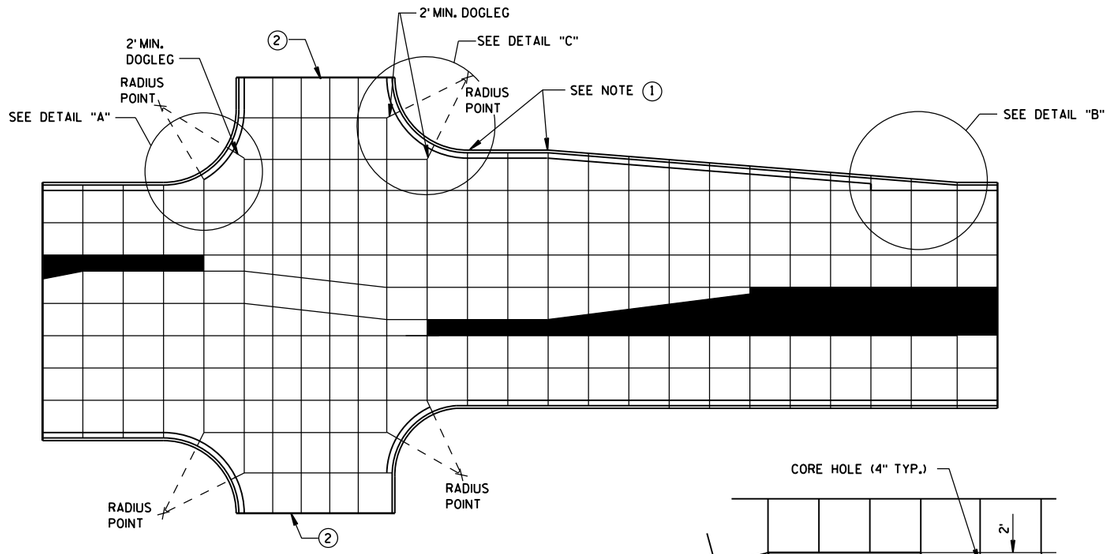
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

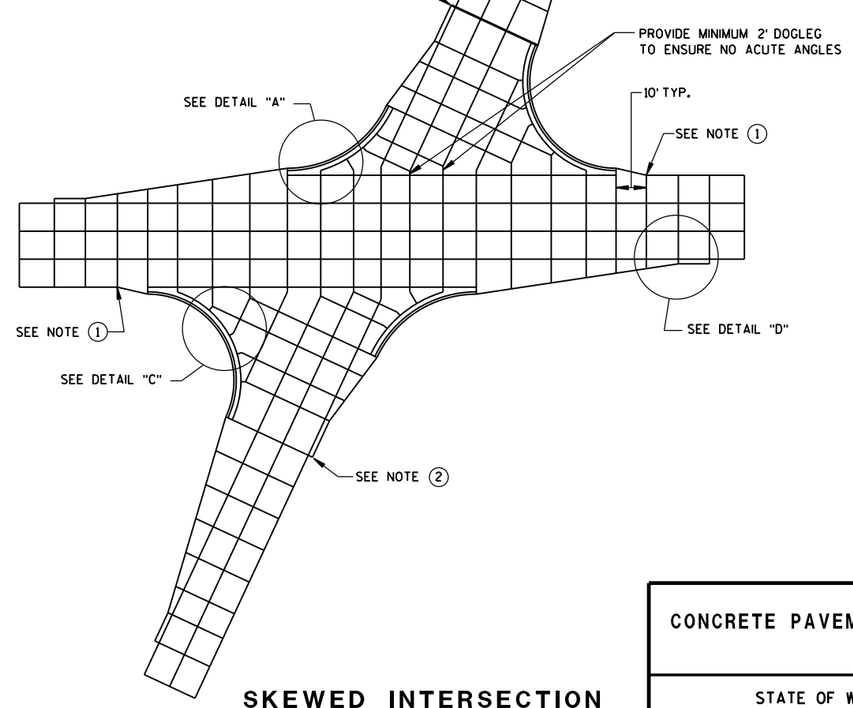
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



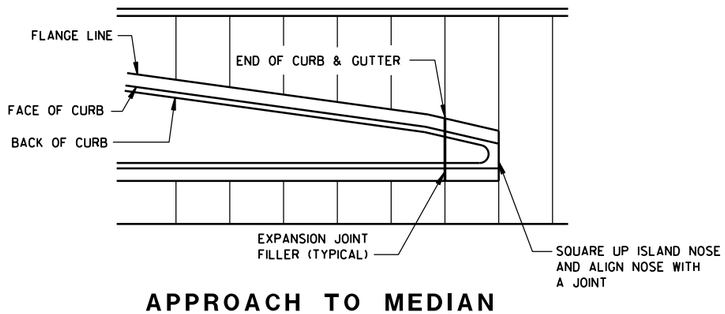
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

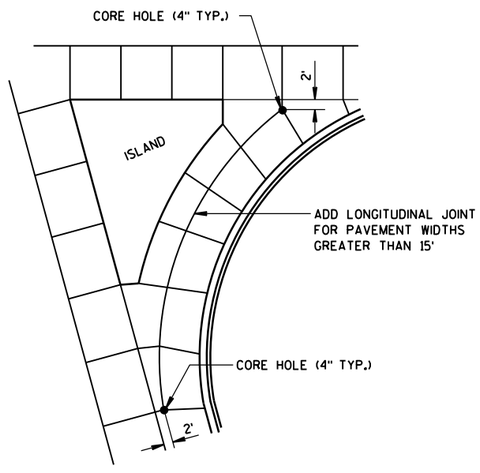
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

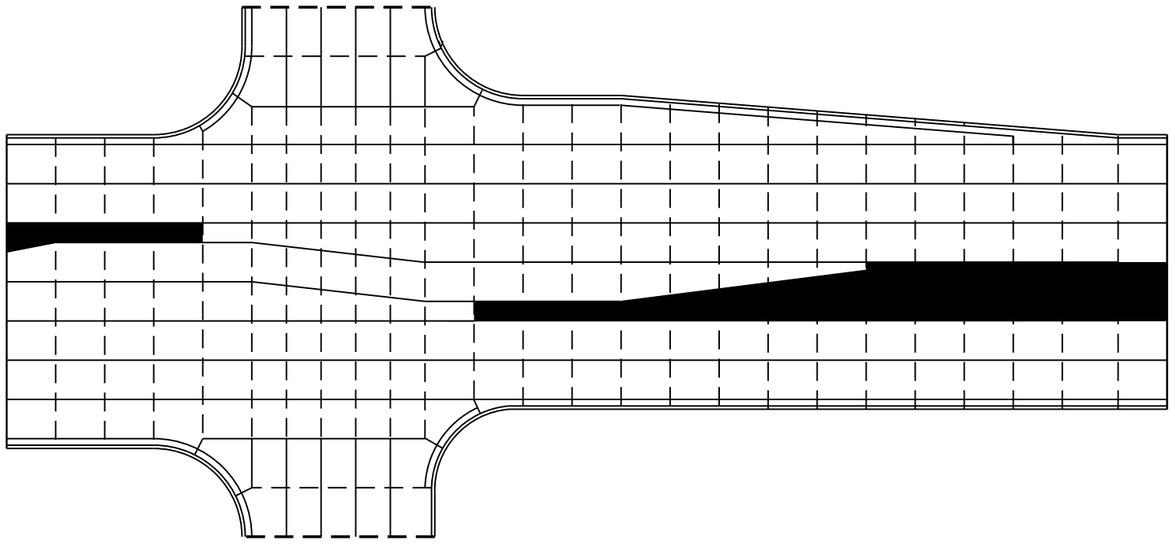
6
S.D.D. 13 C 18-4a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

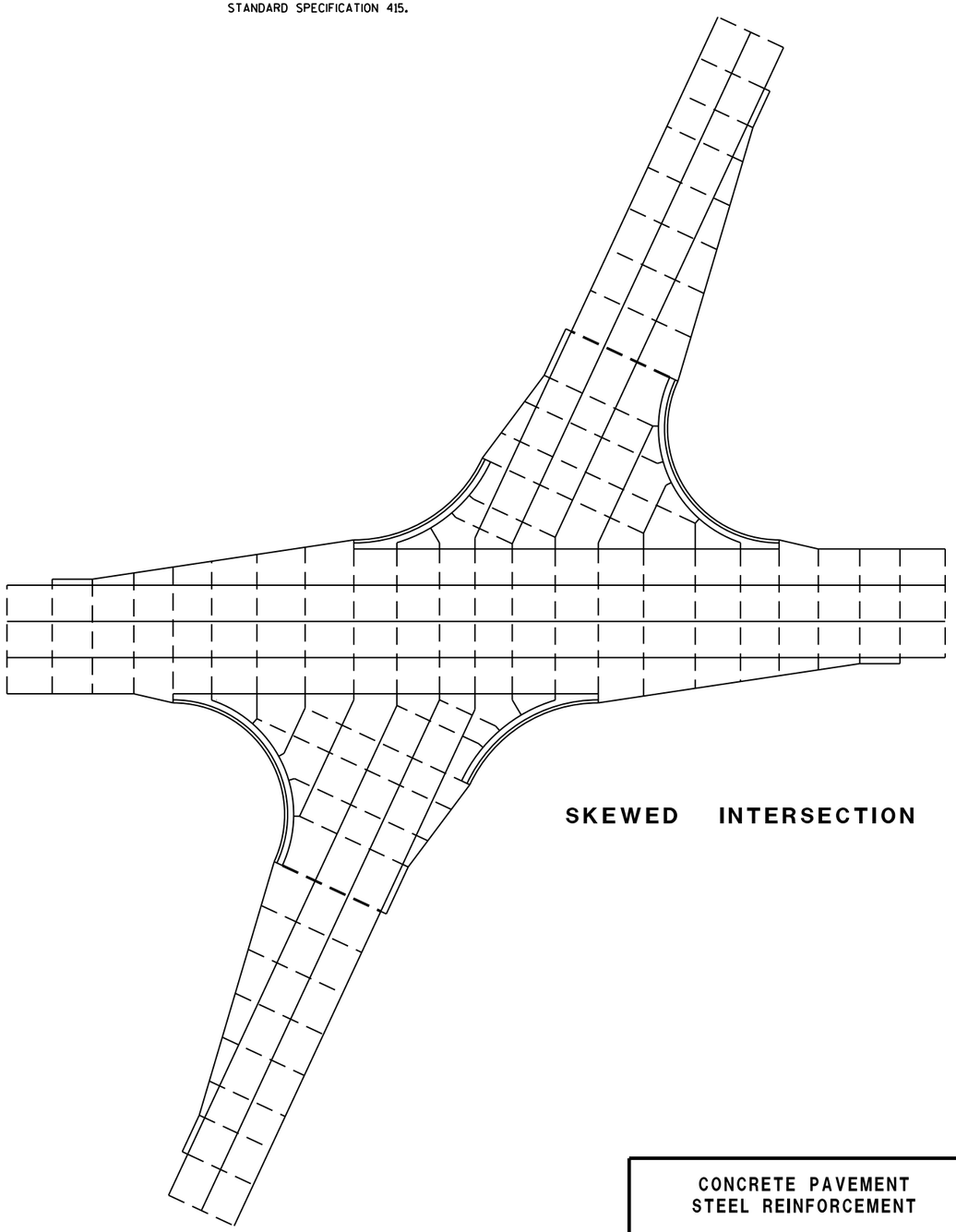
TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



SKEWED INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

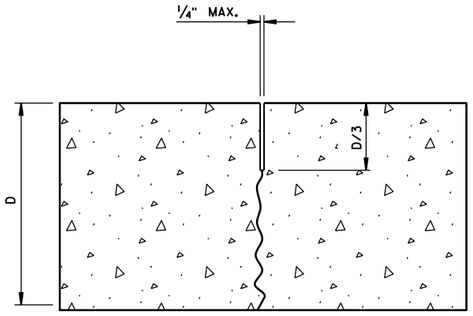
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

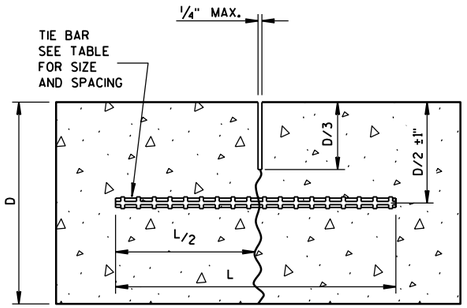
S.D.D. 13 C 18-4b

6

S.D.D. 13 C 18-4b



UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

TIE BAR TABLE

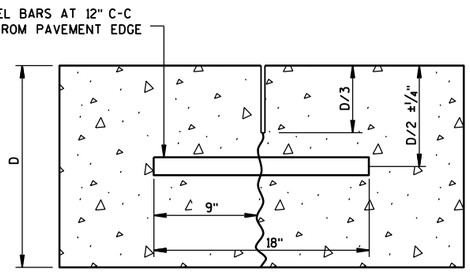
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

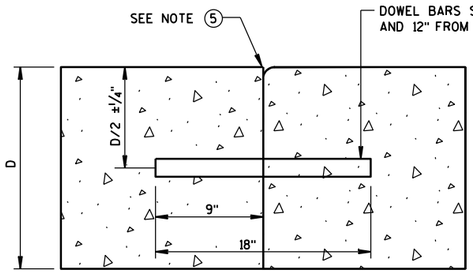
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
4. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
5. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.
6. ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



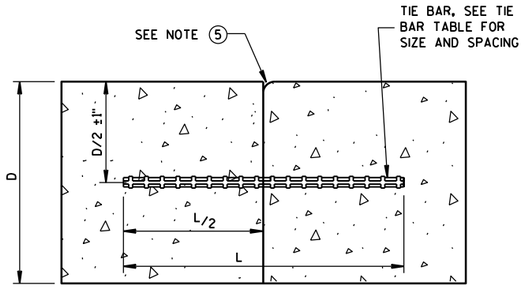
DOWELED-TRANSVERSE

CONTRACTION JOINTS

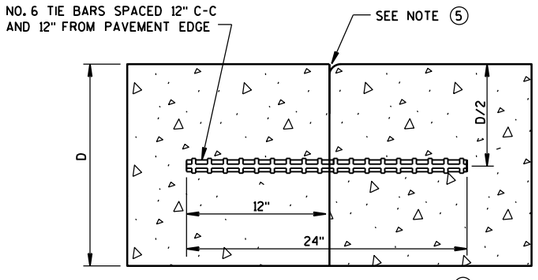
SEE NOTE (2)



DOWELED TRANSVERSE (3)

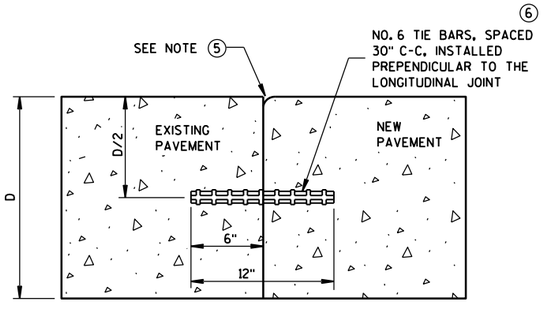


TIED LONGITUDINAL



TIED TRANSVERSE (3)

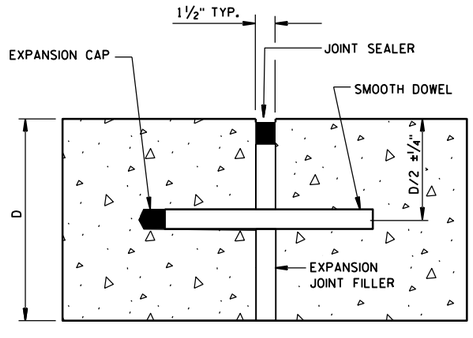
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

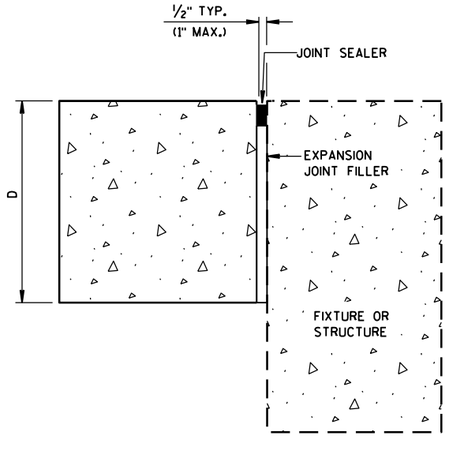
CONSTRUCTION JOINTS

SEE NOTE (4)



DOWELED-TRANSVERSE

SEE NOTE (1)



UNTIED-LONGITUDINAL

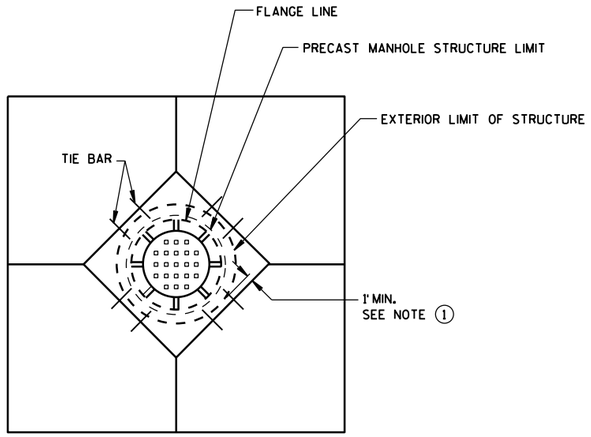
EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

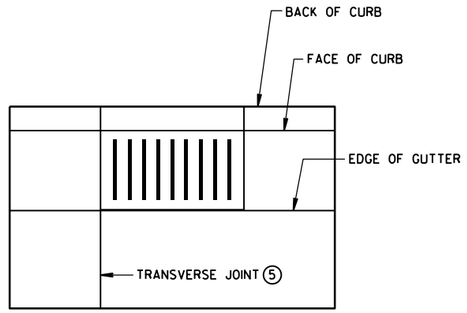
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

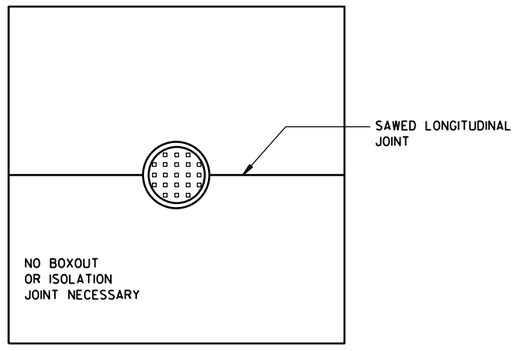
S.D.D. 13 C 18-4c



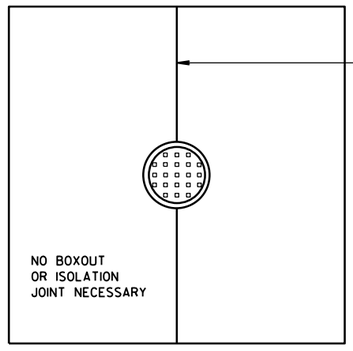
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



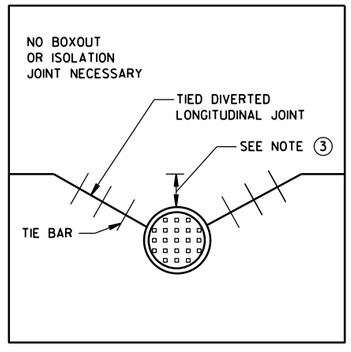
INLET WITH TRANSVERSE JOINT



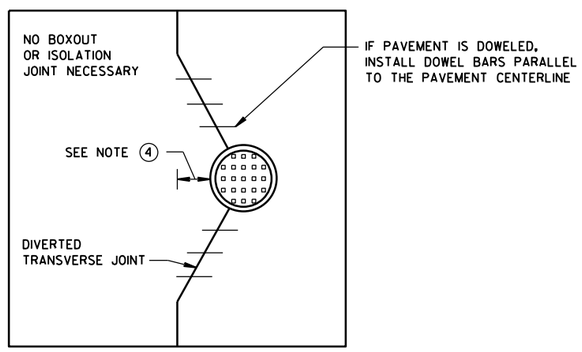
MANHOLE WITH LONGITUDINAL JOINT



MANHOLE WITH TRANSVERSE JOINT



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

GENERAL NOTES

(1) USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1-FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.

(2) ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.

(3) IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDIAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(4) IF DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(5) ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPER
FHWA

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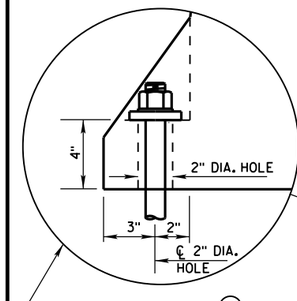
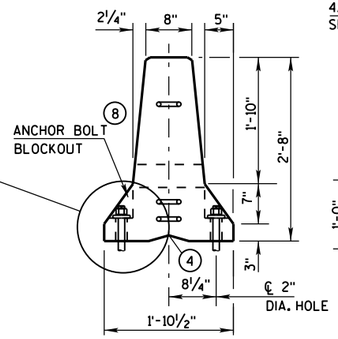
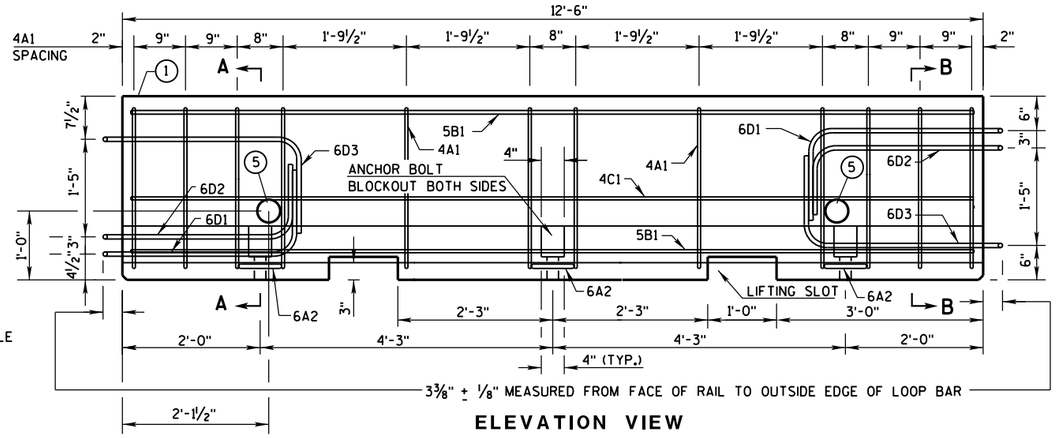
S.D.D. 13 C 18-4d



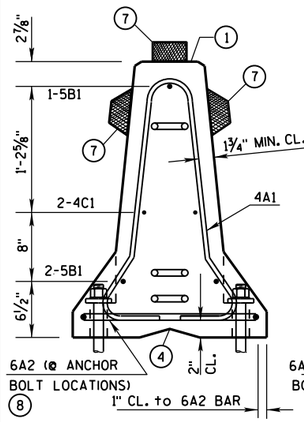
ANCHOR ON TRAFFIC SIDE ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL) (8)



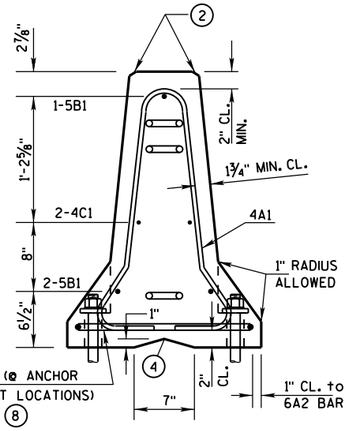
END VIEW



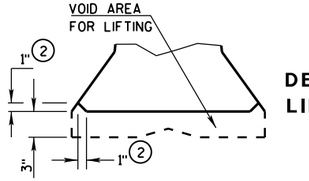
ELEVATION VIEW



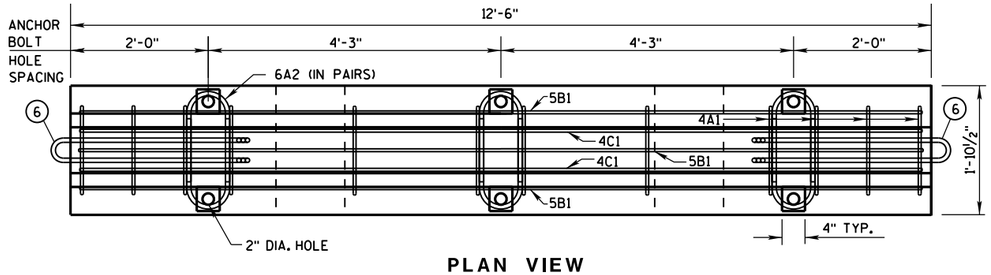
SECTION A-A
(STIRRUP PLACEMENT)



SECTION B-B
(STIRRUP PLACEMENT)

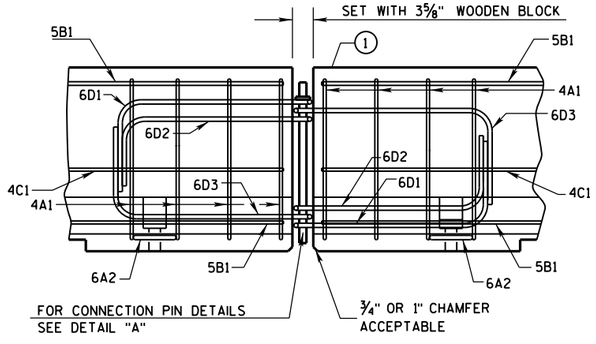


DETAIL "B"
LIFTING SLOT DETAIL

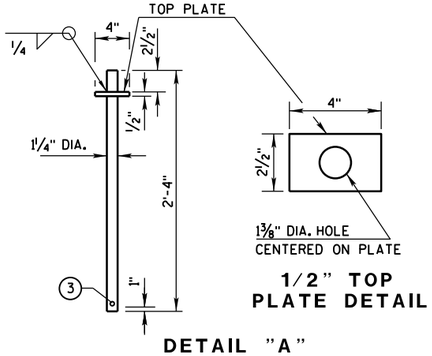


PLAN VIEW

DETAILS OF BARRIER SECTION

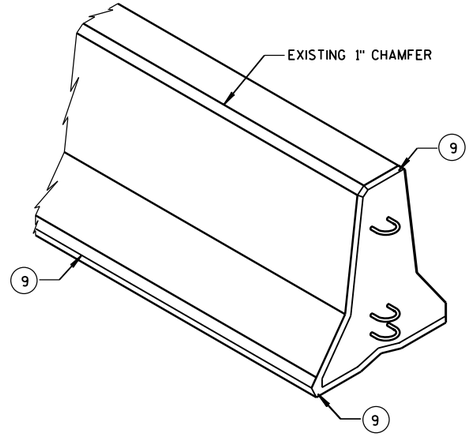


DETAILS OF BARRIER CONNECTION



1/2" TOP PLATE DETAIL

DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-14(a) THRU 14B7-14(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE ¾" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-½" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN ⅛" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

(1) MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
- a. TYPE: WI CBTP
- b. MANUFACTURER
- c. DATE MANUFACTURED (MONTH AND YEAR)

(2) 1" CHAMFER TO PREVENT SPALLING.

(3) A ⅜" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..

(4) "V" NOTCH IS OPTIONAL.

(5) THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).

(6) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

(8) SEE SHEET D FOR ANCHORING CRITERIA.

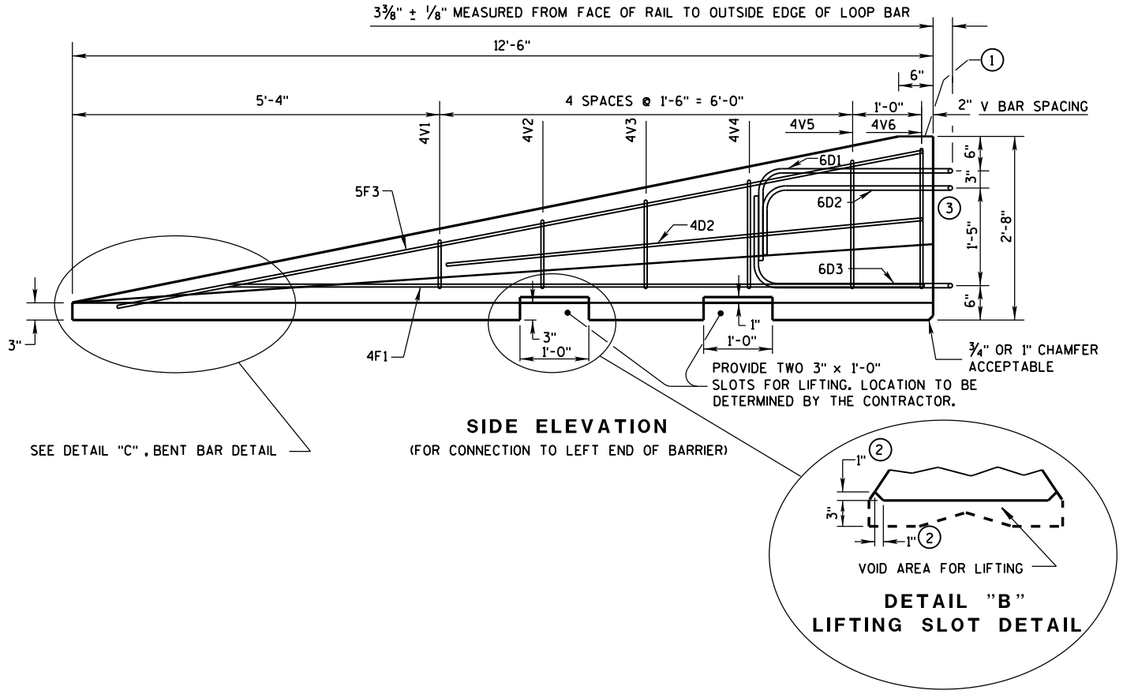
(9) 1" CHAMFER OPTIONAL.

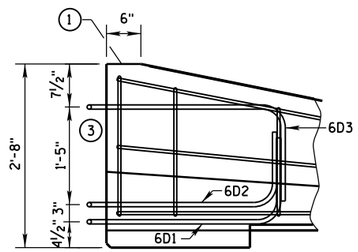
CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

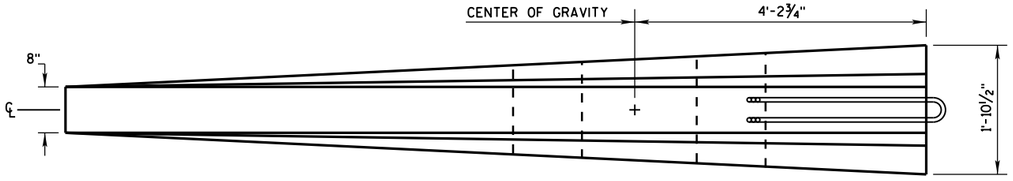
S.D.D. 14 B 7-14a

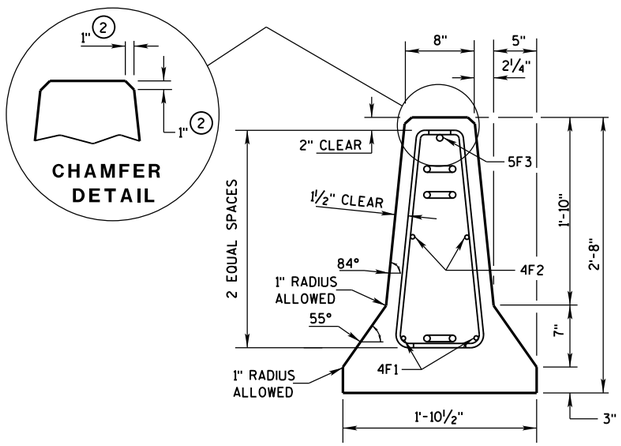


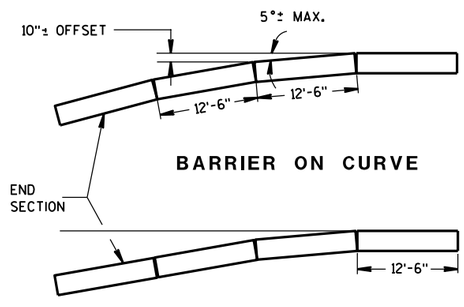


GENERAL NOTES

1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.







POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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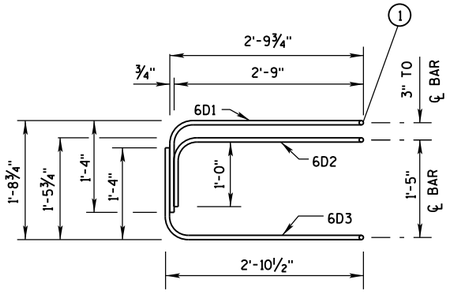
S.D.D. 14 B 7-14b

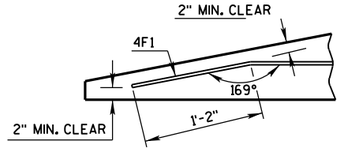
BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

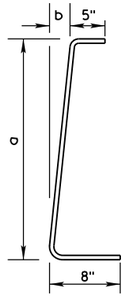
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY



DETAIL "C"
BENT BAR DETAIL



BAR	a	b
V1	10"	1"
V2	1'-1"	1¼"
V3	1'-5"	1⅝"
V4	1'-8"	1⅞"
V5	2'-0½"	2⅜"
V6	2'-3"	2¾"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

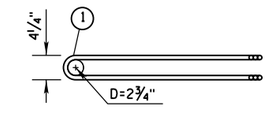
GENERAL NOTES

(1) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

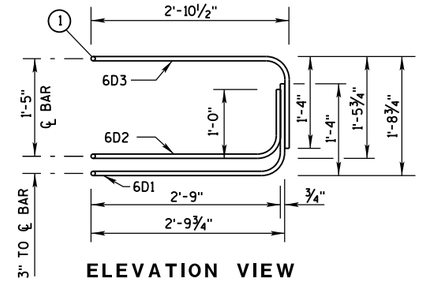
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

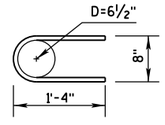
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



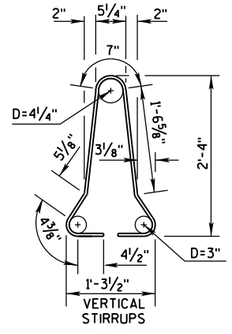
PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2



4A1

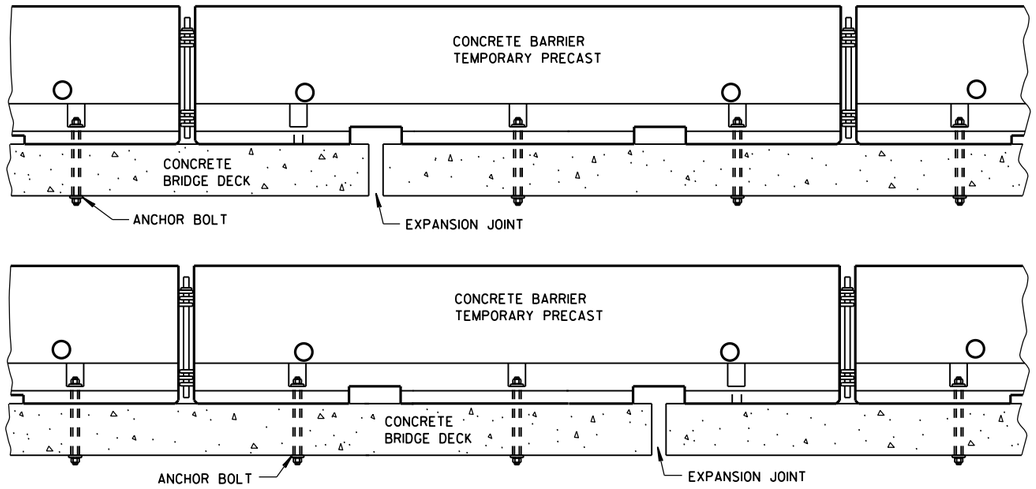
BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

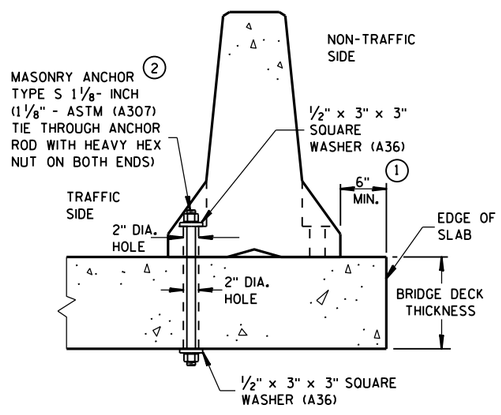
6

S.D.D. 14 B 7-14c



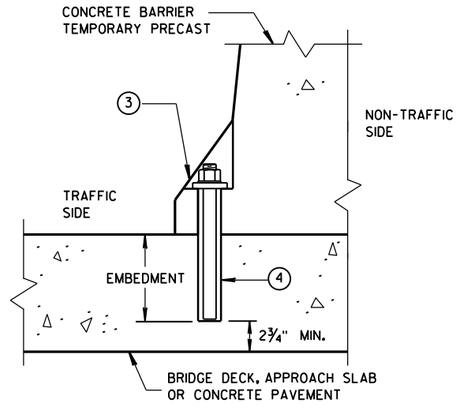
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE BONDED ANCHOR ② INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.

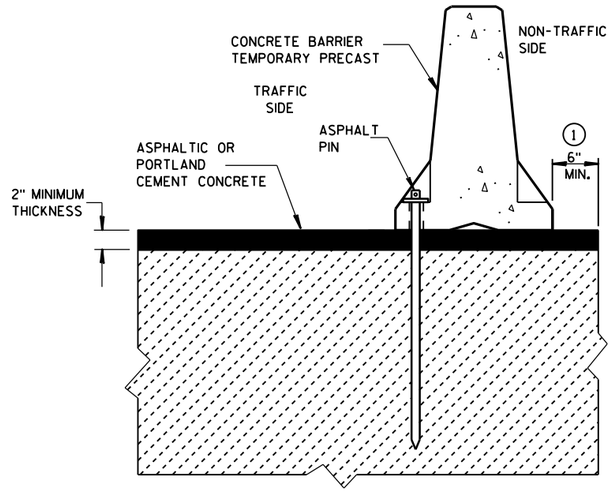
② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1⅛-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERICAL GROUT OR MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.

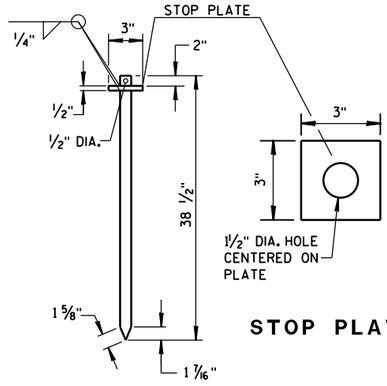
③ 1⅛" DIAMENTER A307 THREADED ROD, ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.

④ ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5¼" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.



STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

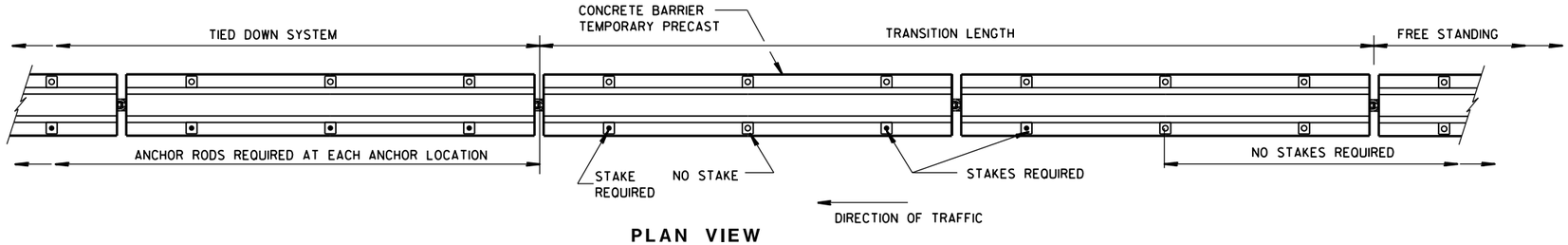
(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



STOP PLATE

ASPHALT PIN

(ASTM A36 STEEL)



PLAN VIEW

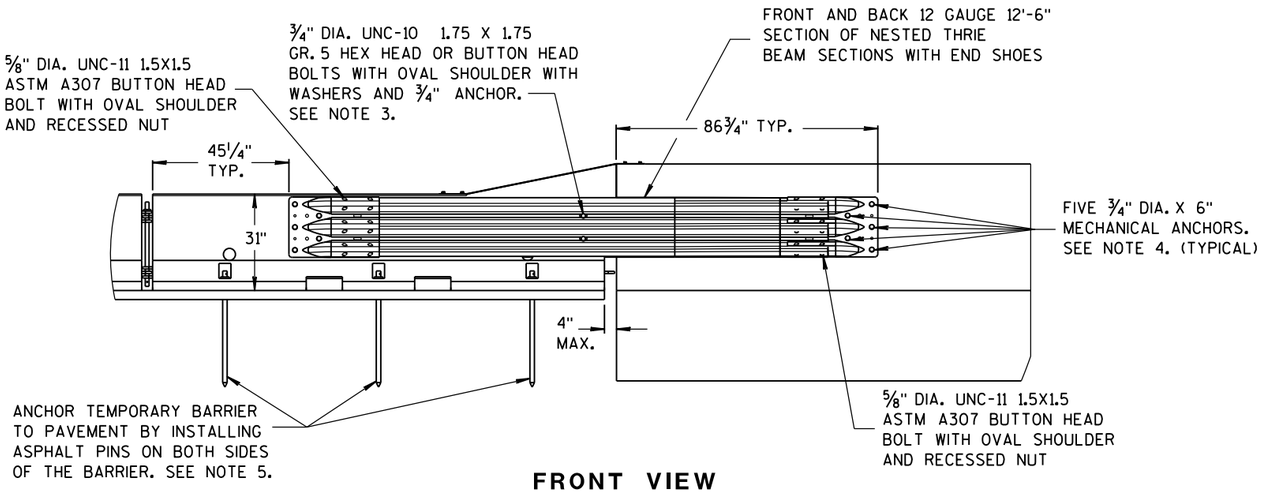
FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

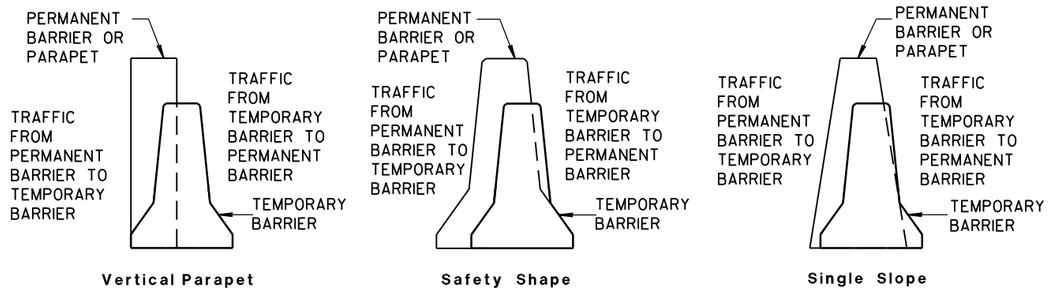
CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 7-14d



FRONT VIEW

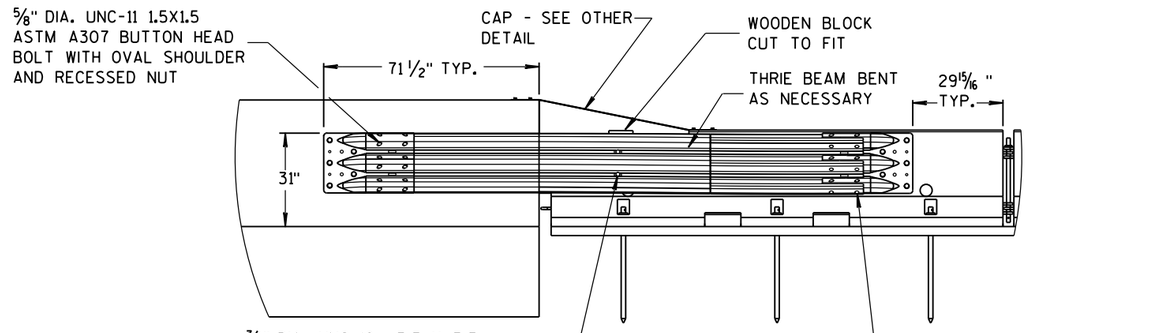


TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

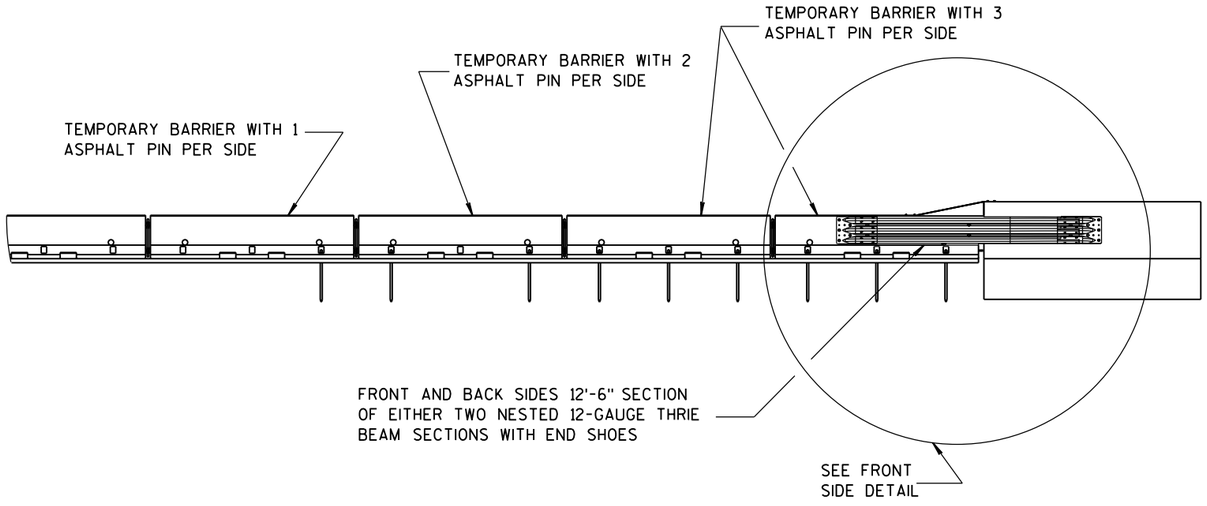
NOTES

NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

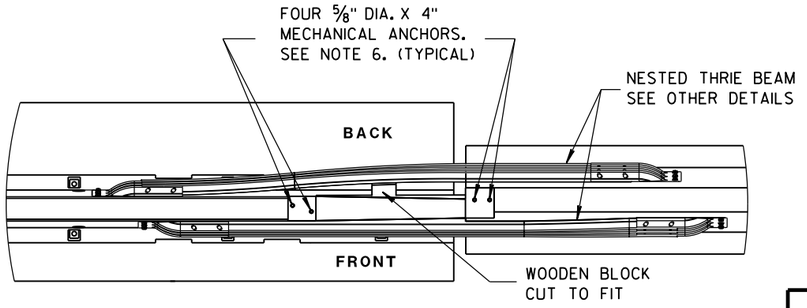
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW



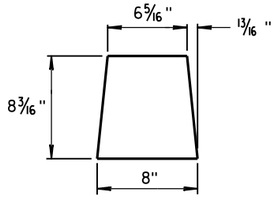
PLAN VIEW

BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

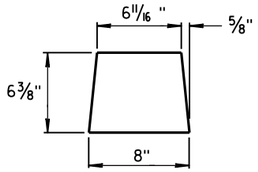
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6
S.D.D. 14 B 7-14e



GUSSET 1



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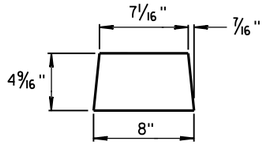

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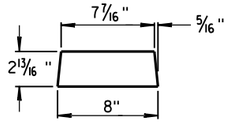
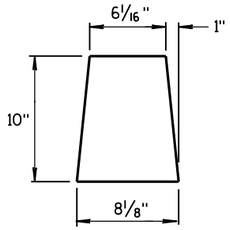
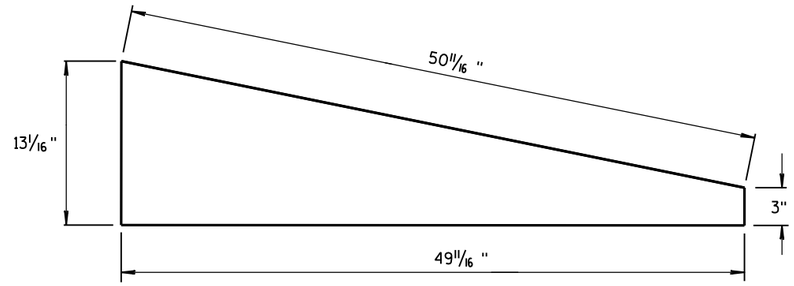


GUSSET 4

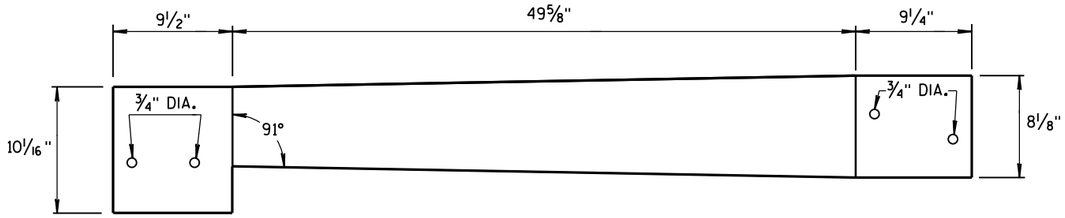
GUSSETS

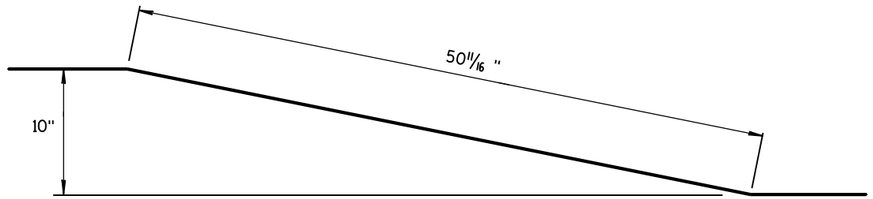


END PLATE



SIDE PLATE

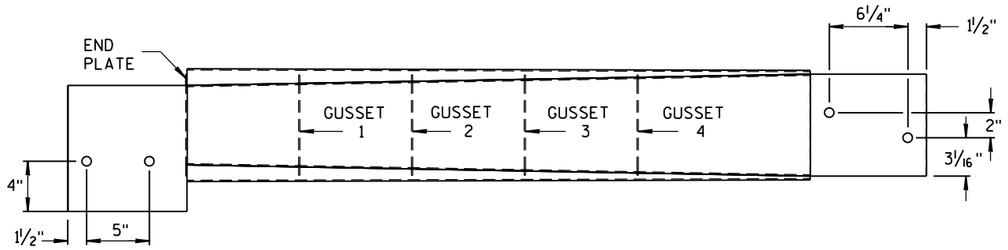


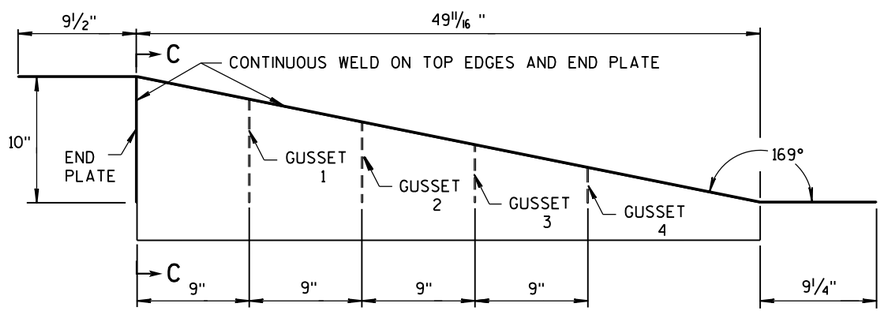


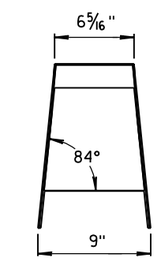
TOP PLATE

SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.







SECTION C-C

NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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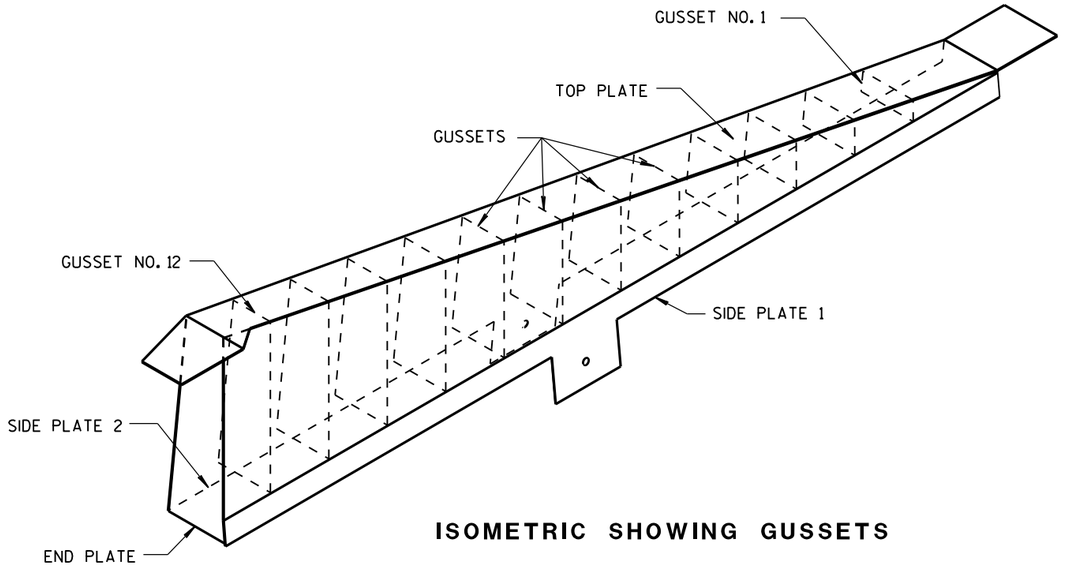
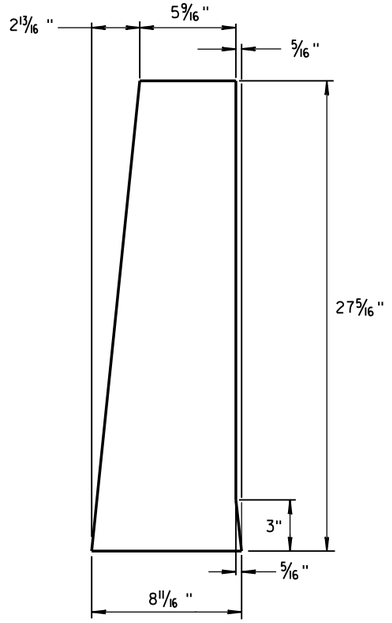
S.D.D. 14 B 7-14f

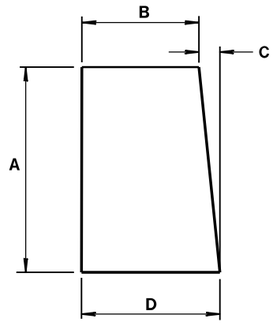


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



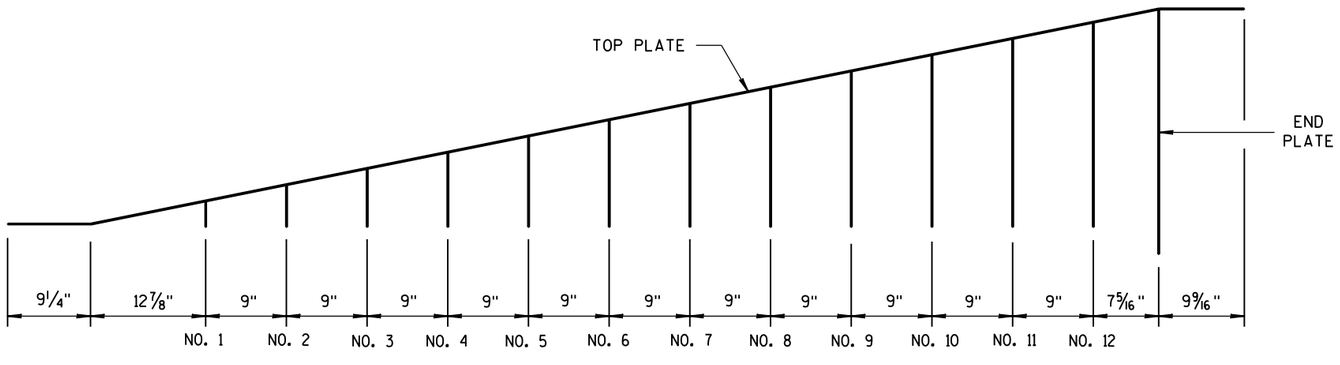
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 11/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8"	11/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8"	7"	1 1/16 "	8 1/16 "
6	11 15/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8"	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8"	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



GUSSET LOCATION

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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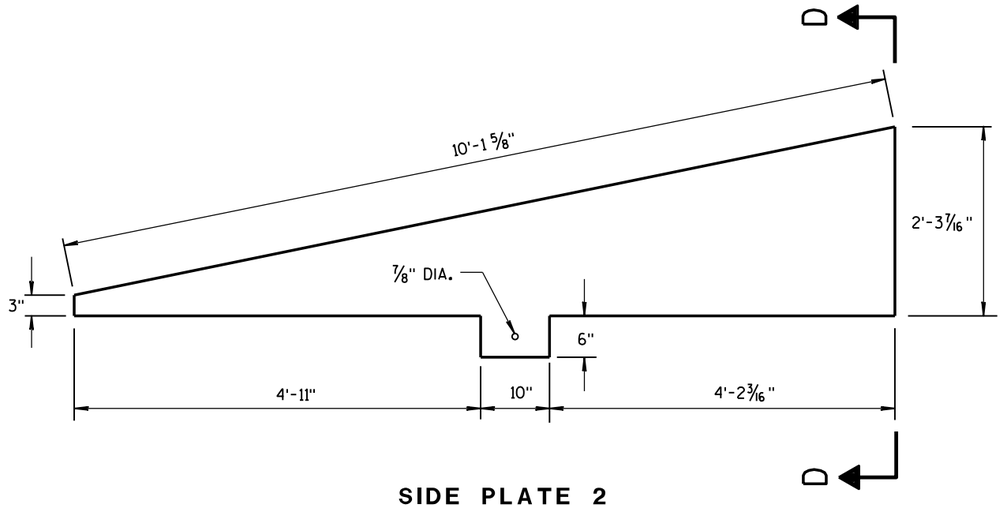
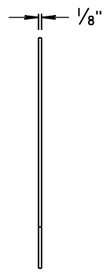
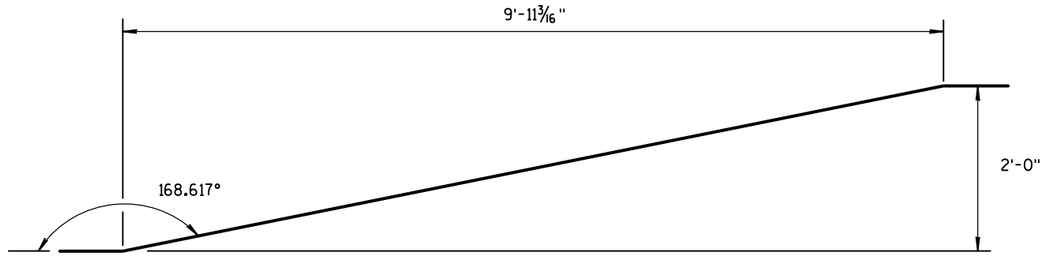
S.D.D. 14 B 7-14g



SIDE PLATE 2

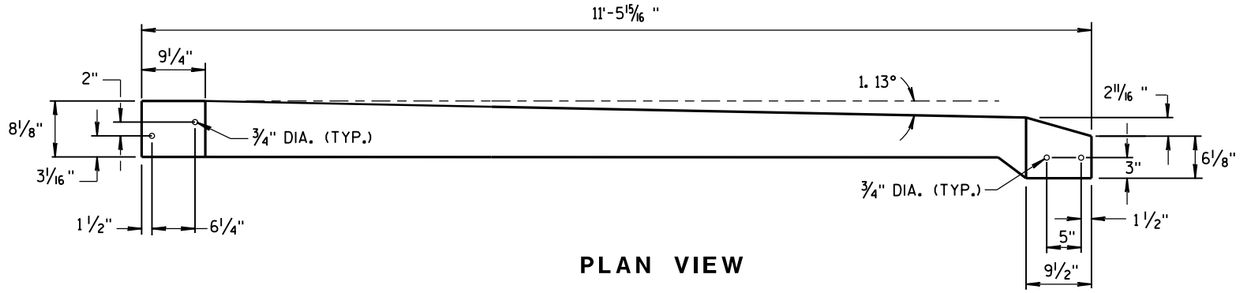


END VIEW



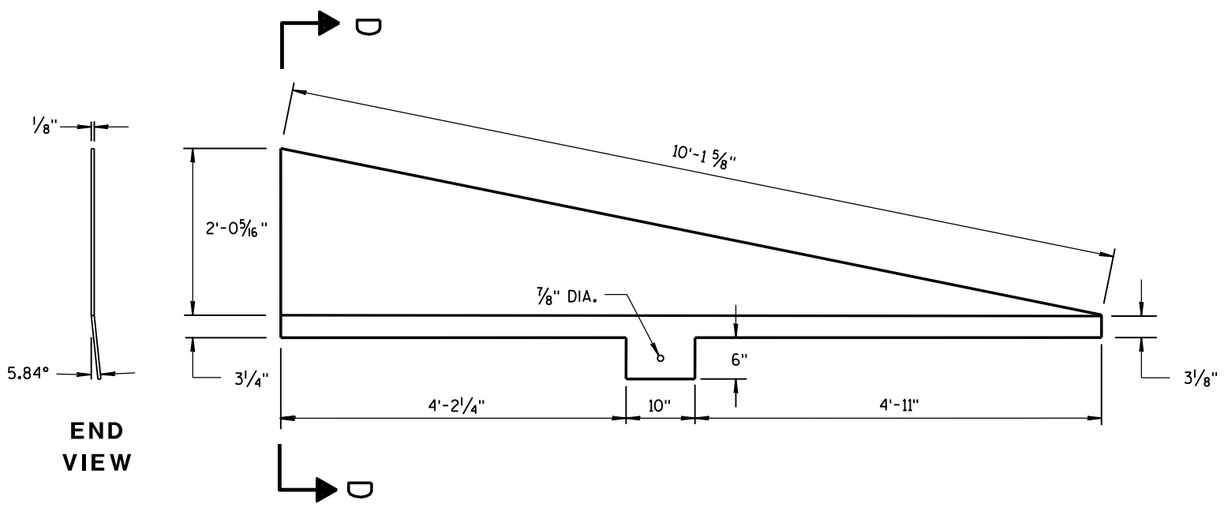
SIDE VIEW

TOP PLATE



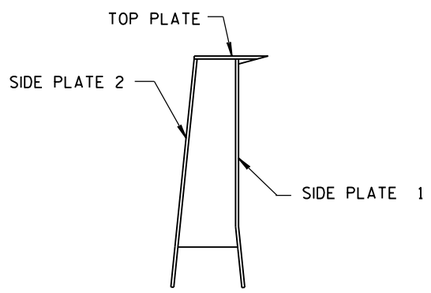
PLAN VIEW

TOP PLATE



END VIEW

SIDE PLATE 1



SECTION D-D

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Jerry H. Zoaa — ROADWAY STANDARD D ENGINEER
FHWA

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S.D.D. 14 B 7-14h

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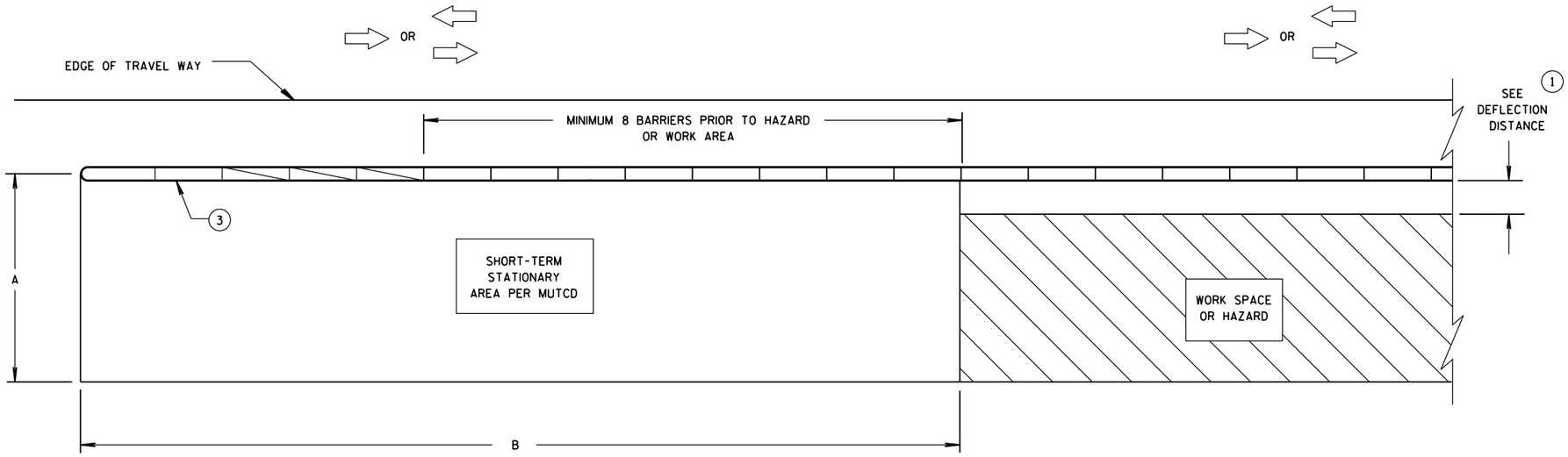
S.D.D. 14 B 7-14h



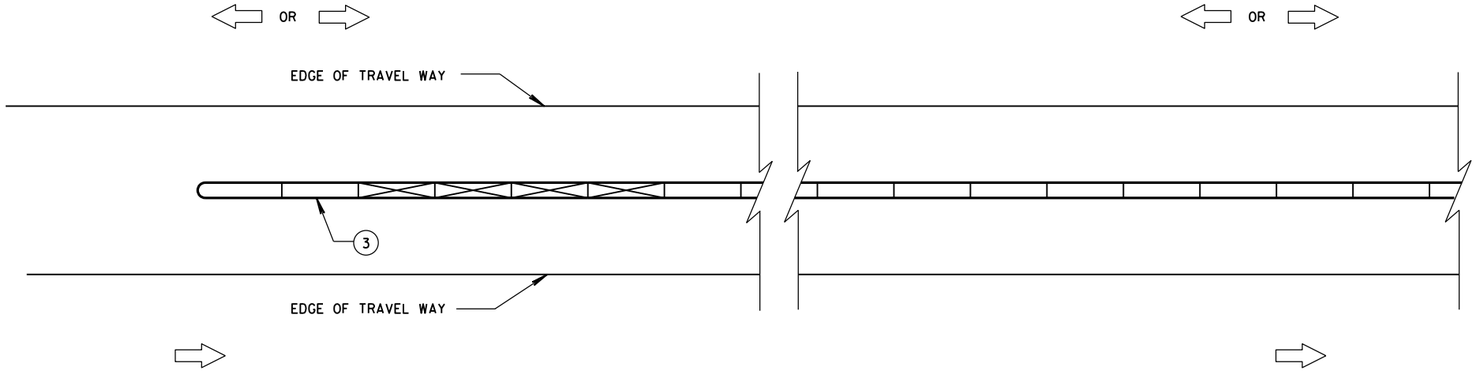
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE (2)

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE (2)

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

(1) FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.

(2) VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

(3) ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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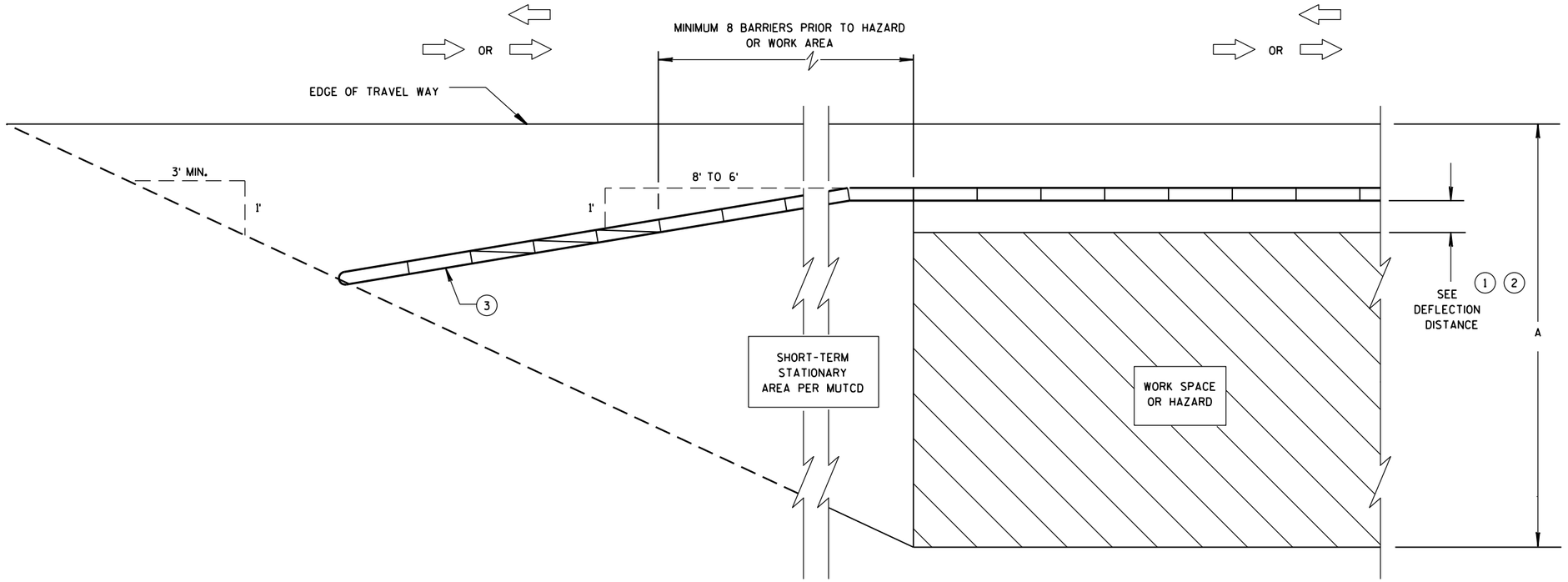
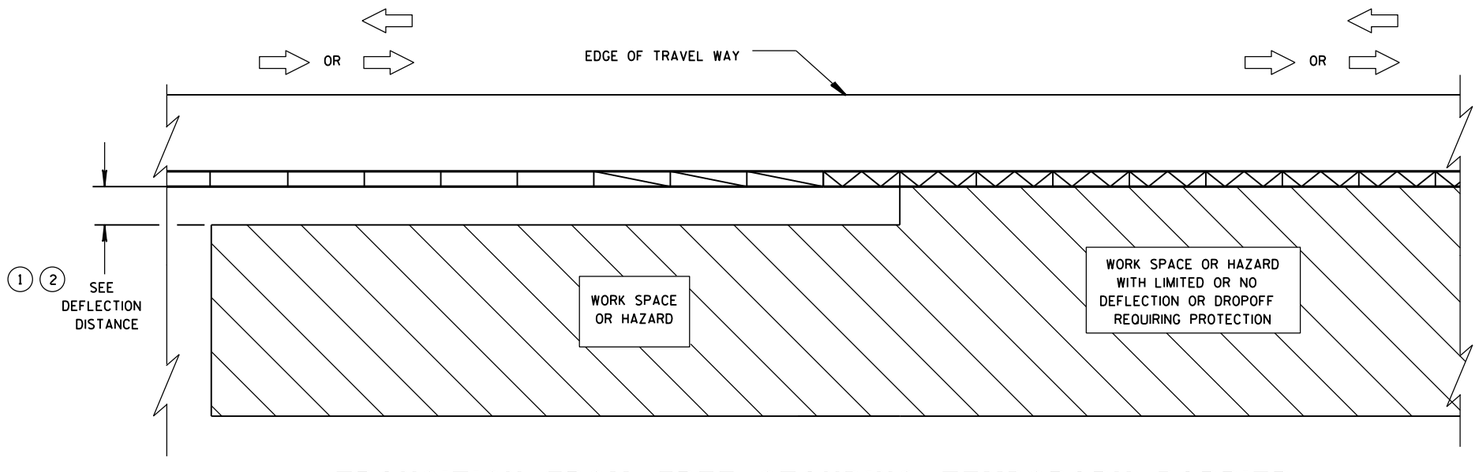
S.D.D. 14 B 8-2a



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION



TRANSITION FROM FREE STANDING TEMPORARY BARRIER TO ANCHORED BARRIER

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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S.D.D. 14 B 8-2b

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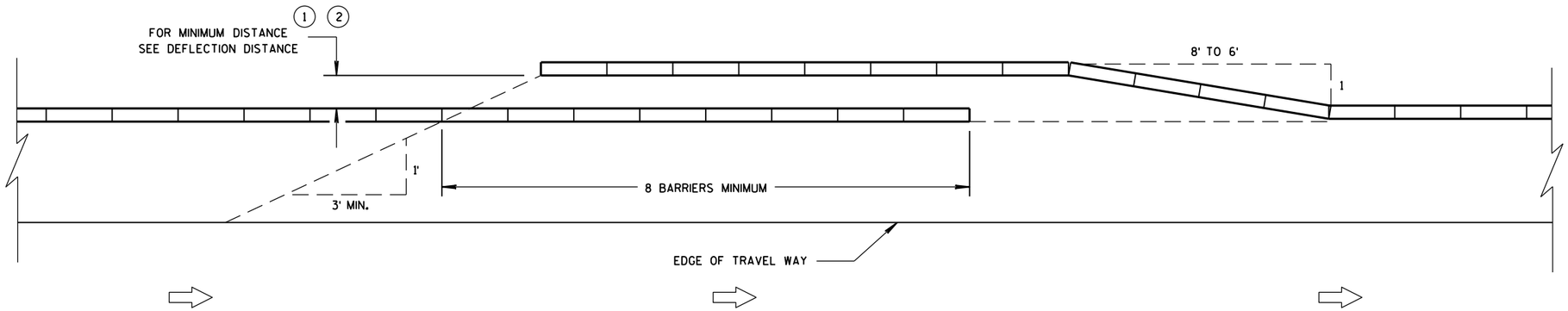
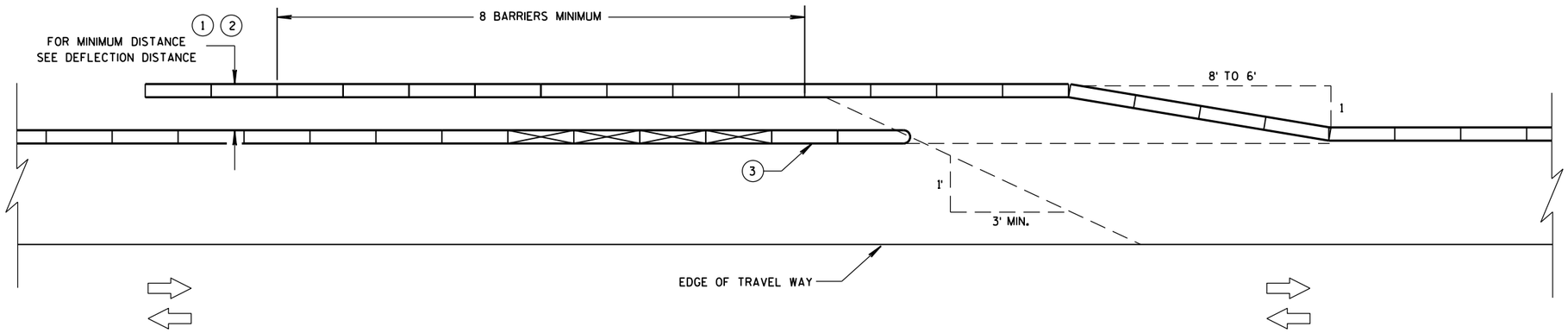
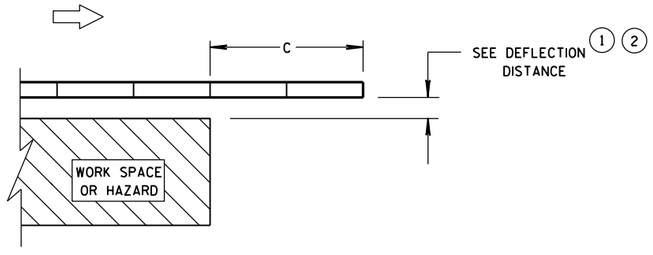
S.D.D. 14 B 8-2b



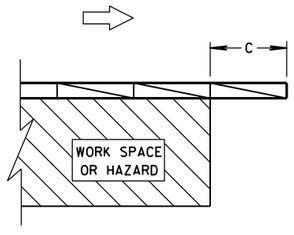
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



ENDING TEMPORARY BARRIER DOWNSTREAM - UNANCHORED



ENDING TEMPORARY BARRIER DOWNSTREAM - ANCHORED

LEGEND

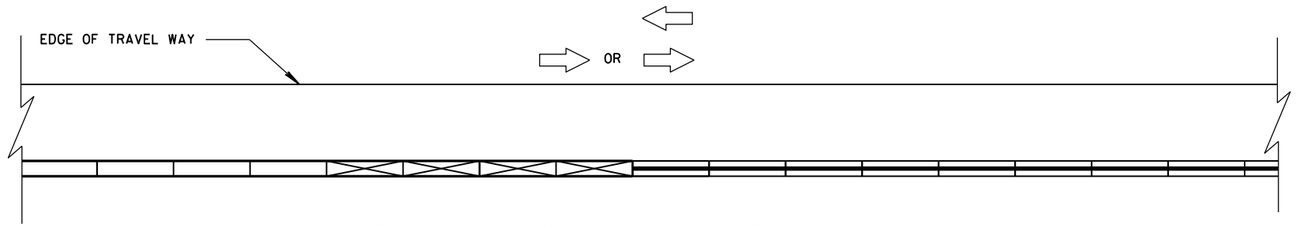
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

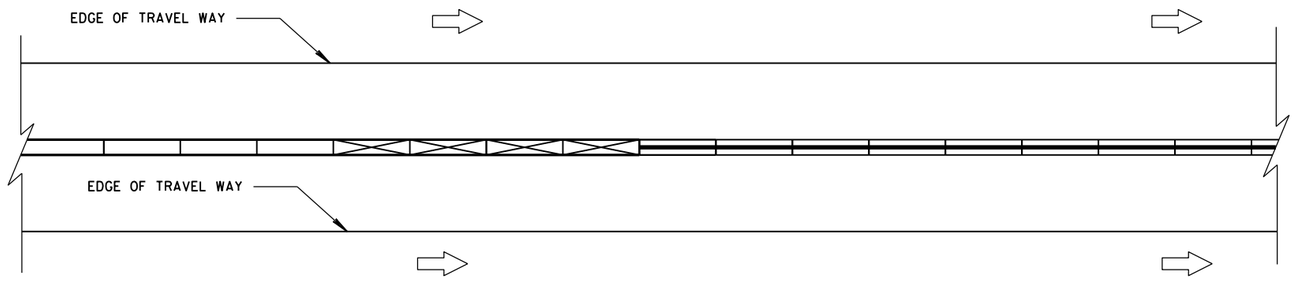
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 8-2c



CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE



CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR
SAND BARREL ARRAY

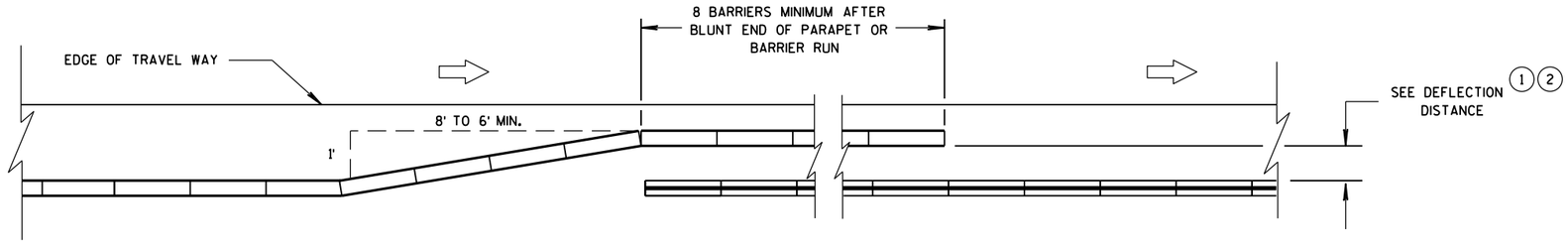
SEE FREE STANDING TRANSITION
TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION
TO TIED-DOWN SYSTEM DETAILS

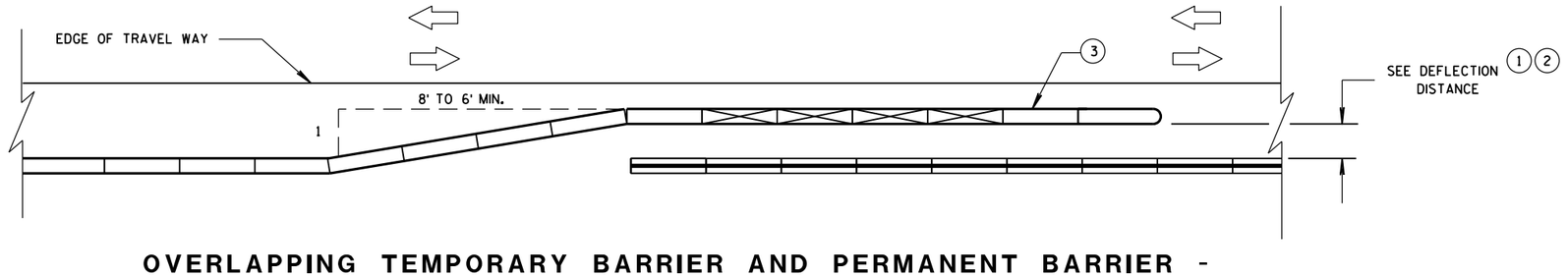
3 PINS PLACED ON
TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER
OR CONCRETE PARAPET

FREE STANDING TEMPORARY
BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 8-2d

LEGEND

DIRECTION OF TRAVEL

CRASH CUSHION OR SAND BARREL ARRAY

SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS

SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS

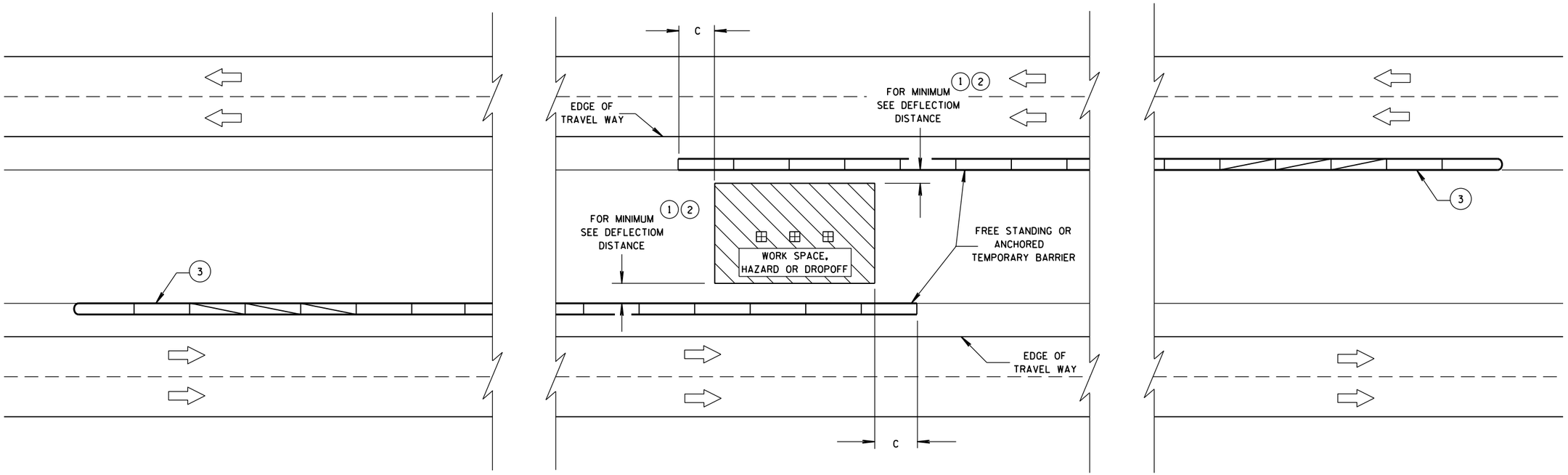
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER

PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET

FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE (2)

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINNER
FHWA

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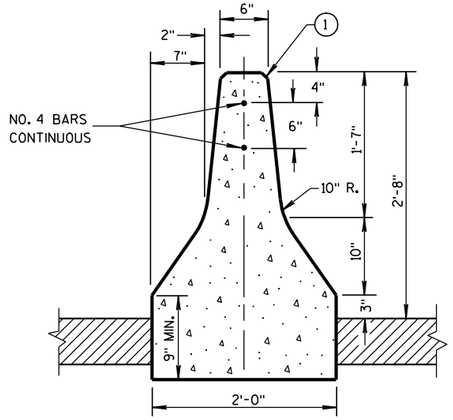
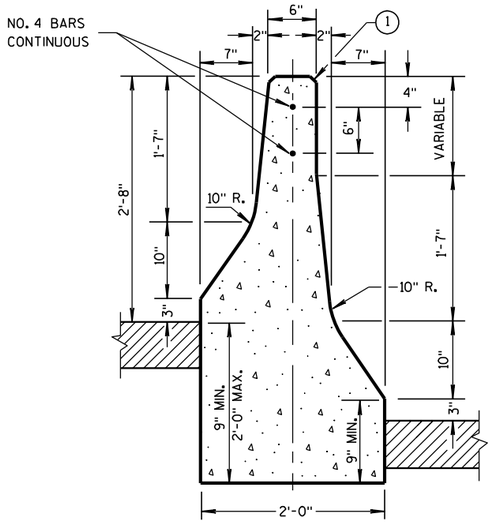
S.D.D. 14 B 8-2e



CAST-IN-PLACE



CAST-IN-PLACE
IN STEPPED MEDIAN

CONCRETE MEDIAN BARRIER WITH INTEGRAL FOOTING

GENERAL NOTES

ALL BAR STEEL REINFORCEMENT SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

SPLICES OF LONGITUDINAL BARS SHALL BE MADE WITH THE BARS LAPPED AT LEAST 18 INCHES AND FIRMLY TIED OR FASTENED TOGETHER.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED AT LEAST 2 INCHES.

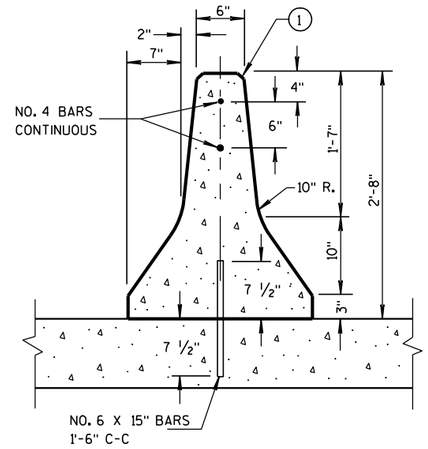
NO. 6 BARS TO ANCHOR THE BARRIERS SHALL BE EITHER INSTALLED IN THE SUPPORTING SURFACE WHEN PLACED, OR IN DRILLED HOLES USING AN EPOXY RESIN APPROVED BY THE ENGINEER.

(1) ¾ INCH BEVEL OR 1 INCH RADIUS (TYPICAL)

(2) EXPANSION JOINTS SHALL BE PLACED AT EXISTING EXPANSION JOINTS IN THE PAVEMENT AND AT STRUCTURES.

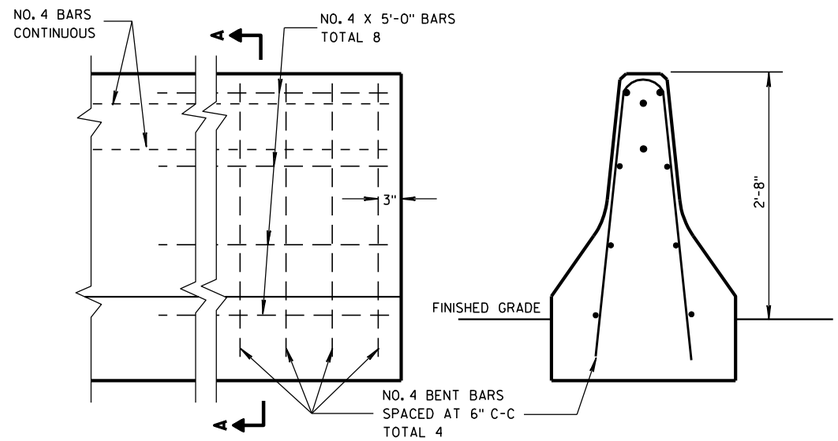
(3) NO. 4 BARS SHALL BE CONTINUED THROUGH CONSTRUCTION JOINTS.

(4) STEM REINFORCEMENT REQUIRED AT EXPANSION JOINTS AND WHERE CONCRETE BARRIER IS TERMINATED.



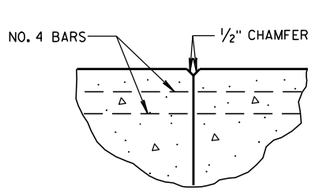
CAST-IN-PLACE

CONCRETE MEDIAN BARRIER ON NEW OR EXISTING RIGID BASE

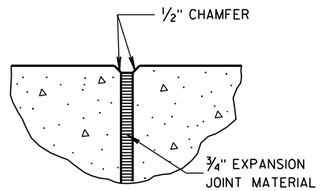


SECTION A-A

(4) STEM REINFORCEMENT AT BARRIER END
(BARRIER WITH FOOTING IS SHOWN)



(3) CONSTRUCTION JOINT



EXPANSION JOINT (2)

JOINT DETAILS

CONCRETE BARRIER
(DOUBLE FACED)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/12/2010
DATE
/S/ Jerry H. Zaaa
ROADWAY STANDARDS ENGINEER
FHWA

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S.D.D. 14 B 11-2

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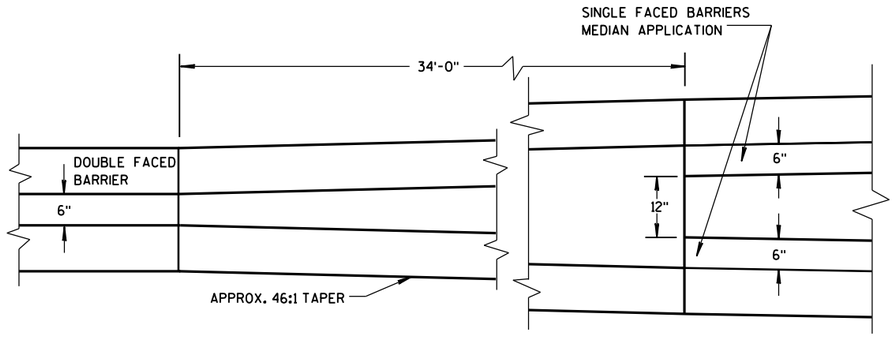


PLAN VIEW

TRANSITION DETAILS OF DOUBLE FACED TO SINGLE FACED CONCRETE MEDIAN BARRIER

(FOOTINGS ARE NOT SHOWN)

GENERAL NOTES

SPLICES OF LONGITUDINAL BARS SHALL BE MADE WITH BARS LAPPED AT LEAST 18-INCHES AND FIRMLY TIED OR FASTENED TOGETHER.

ALL BAR STEEL REINFORCEMENT SHALL CONFORM TO REQUIREMENTS OF AASHTO M31, GRADE 60.

(1) BARRIER SHALL BE INSTALLED ON A CONCRETE SHOULDER INSTEAD OF THE CONCRETE FOOTING WHEN SPECIFIED OR SHOWN ELSEWHERE IN CONTRACT.

(2) OPENINGS FOR DRAINAGE SHALL BE PLACED AT LOW POINTS OF VERTICAL CURVES OR WHERE DIRECTED BY THE ENGINEER.

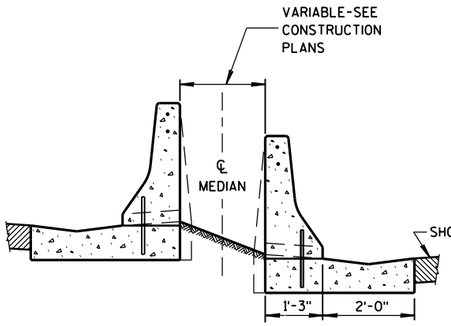
(3) 3/4-INCH BEVEL OR 1-INCH RADIUS (TYPICAL).

(4) NO. 4 BARS SHALL BE CONTINUED THROUGH CONSTRUCTION JOINTS.

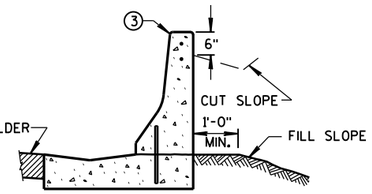
(5) EXPANSION JOINTS SHALL BE PLACED AT EXISTING EXPANSION JOINTS IN THE PAVEMENT AND AT STRUCTURES. SEE REINFORCEMENT AT BARRIER END DETAIL.

(6) SAWED CONTRACTION JOINTS SHALL BE PROVIDED ACROSS THE FULL WIDTH OF THE BARRIER FOOTING, AND IN FRONT, TOP AND BACK FACE OF THE BARRIER AT EXISTING PAVEMENT JOINTS AND AT UNIFORM INTERVALS BETWEEN WITH A MAXIMUM SPACING OF 25 FEET.

HIGH SIDE
CONCRETE BARRIER DETAIL

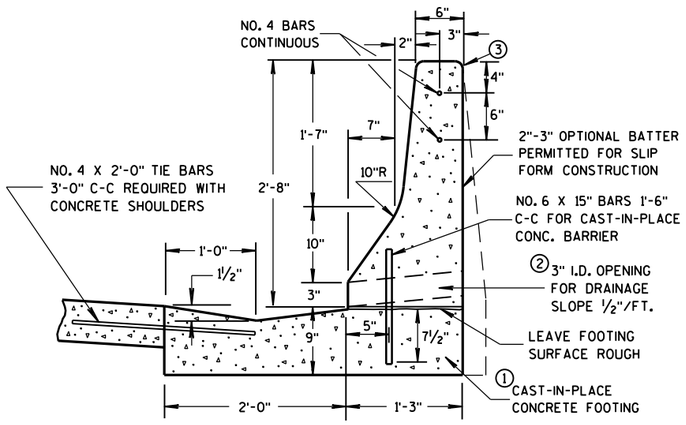


MEDIAN

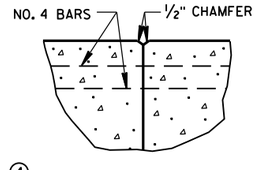


SHOULDER

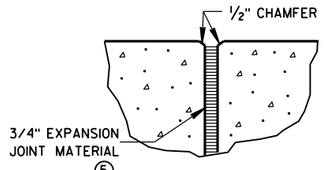
TYPICAL APPLICATIONS



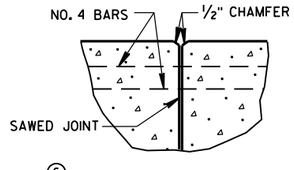
SECTION VIEW



4 CONSTRUCTION JOINT



5 EXPANSION JOINT



6 CONTRACTION JOINT

JOINT DETAILS

CONCRETE BARRIER,
SINGLE-FACED
(WITH ANCHORAGE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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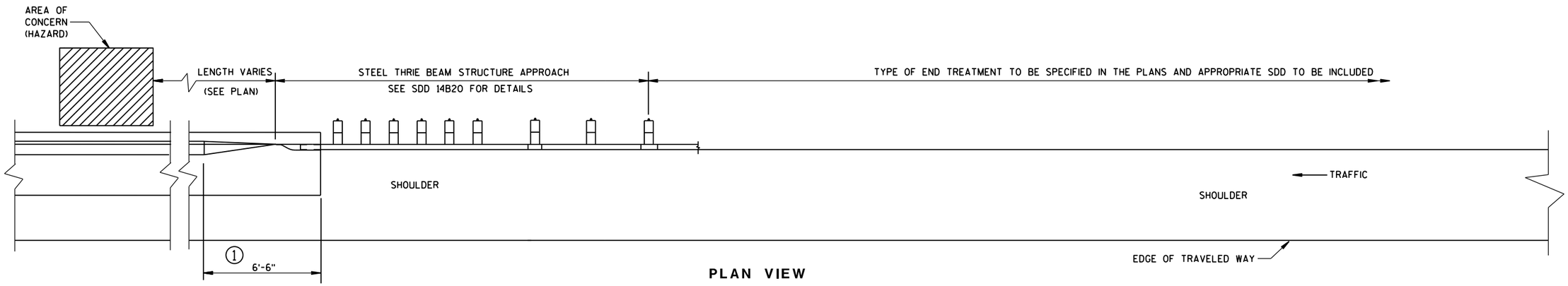
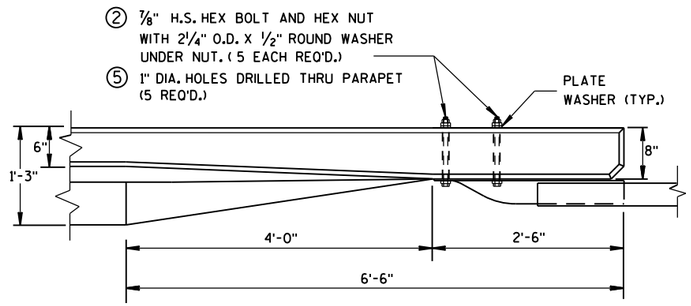
S.D.D. 14 B 22-6a



PLAN VIEW

TRANSITION TO STEEL PLATE BEAM GUARD AND END TERMINAL



PLAN VIEW

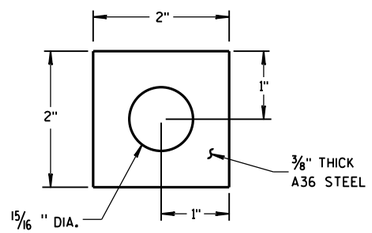
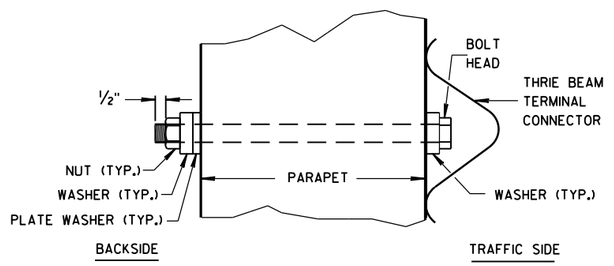


PLATE WASHER DETAIL



THRIE BEAM BOLT DETAIL

GENERAL NOTES

① A SPECIAL END IS REQUIRED ON THE CONCRETE BARRIER TO TRANSITION TO A CONNECTION WITH THE STEEL THRIE BEAM STRUCTURE APPROACH. SEE THE DETAILS ON THIS SHEET.

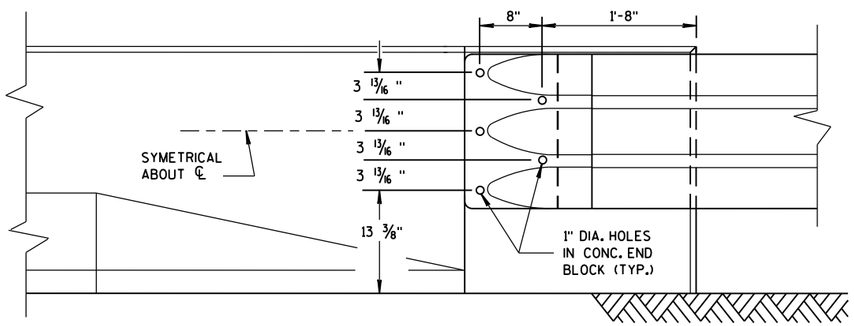
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

③ REINFORCEMENT REQUIRED AT EXPANSION JOINTS AND WHERE CONCRETE BARRIER IS TERMINATED.

④ PLACE REINFORCEMENT SUCH THAT IT WILL NOT CONFLICT WITH THE BOLT HOLES IN THE THRIE BEAM TERMINAL CONNECTOR.

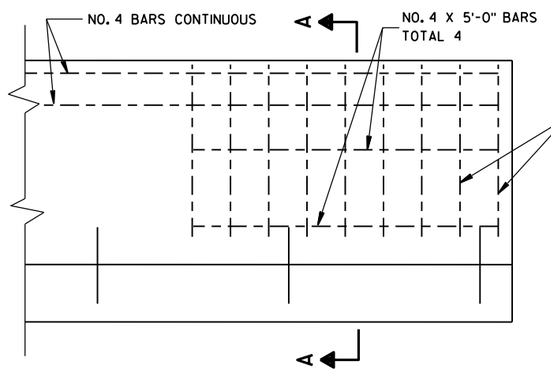
⑤ INCLUDE THE PAYMENT FOR DRILLING BOLT HOLES THROUGH THE PARAPET, AND ALL BOLTS, NUTS AND WASHERS IN THE ITEM "STEEL THRIE BEAM STRUCTURAL APPROACH".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

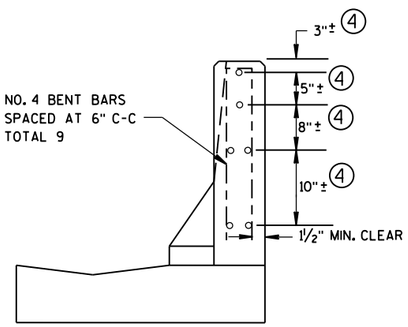


FRONT VIEW

CONCRETE BARRIER TRANSITION TO THRIE BEAM

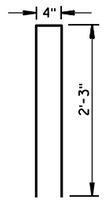


FRONT VIEW



SECTION A-A

③ REINFORCEMENT AT BARRIER END



BENT BAR DETAIL

CONCRETE BARRIER, SINGLE-FACED (WITH ANCHORAGE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

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(1) WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

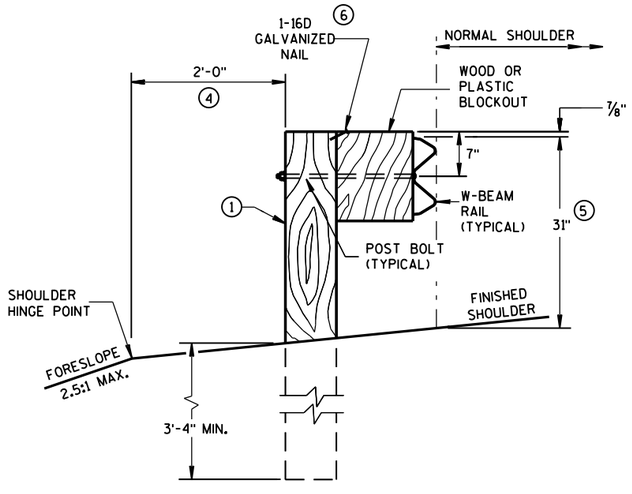
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

(4) WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

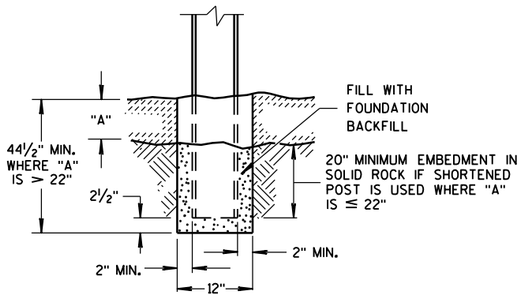
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

(6) WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



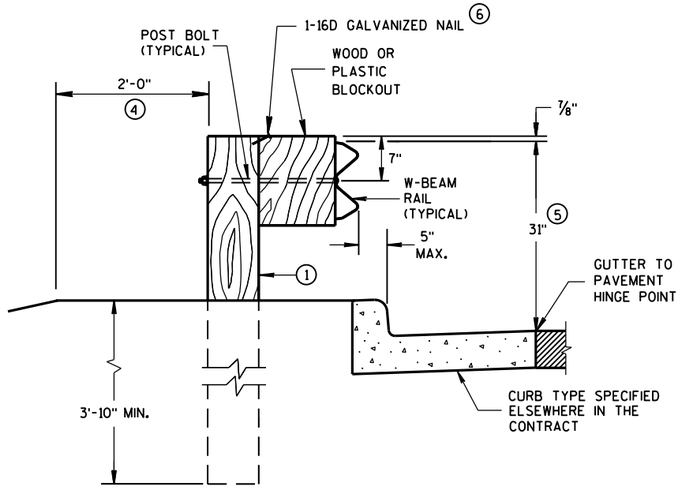
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



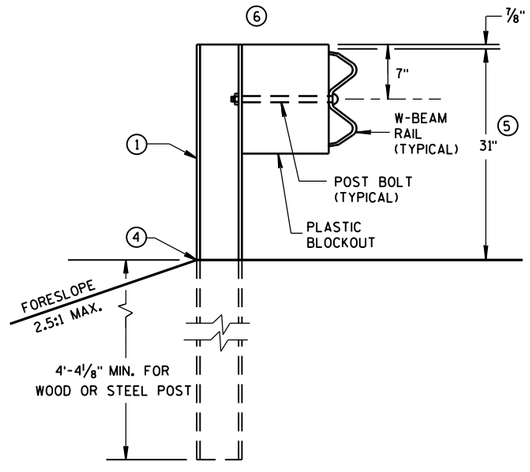
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



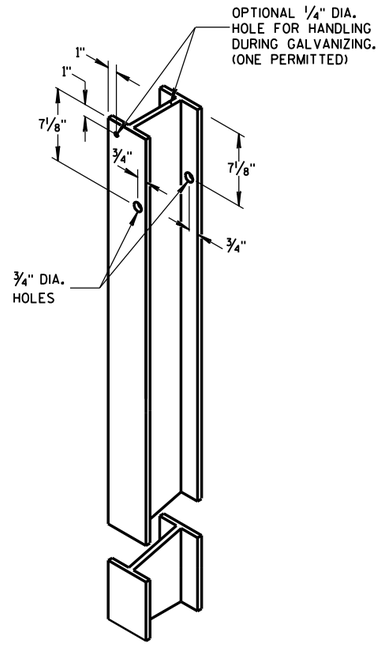
END VIEW

LOCATED ALONG A CURBED ROADWAY

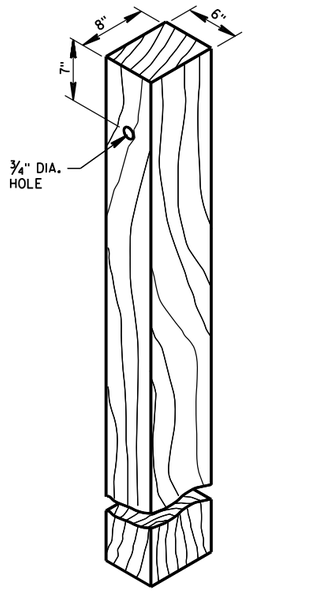


END VIEW

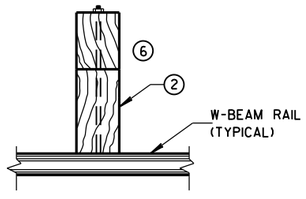
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



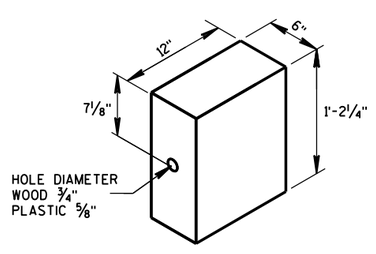
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



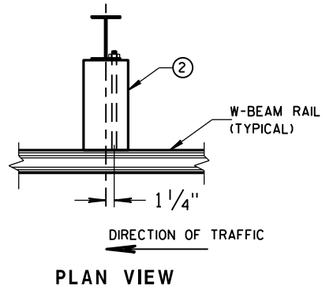
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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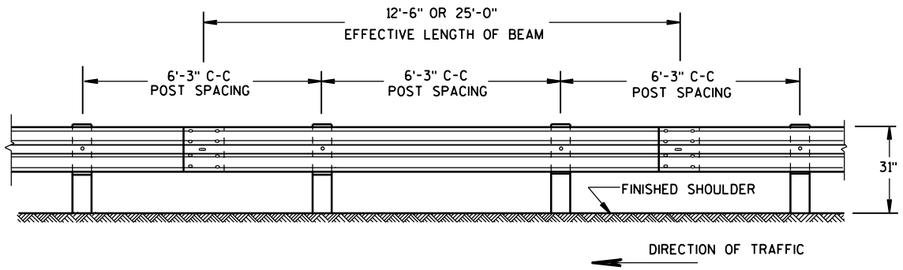
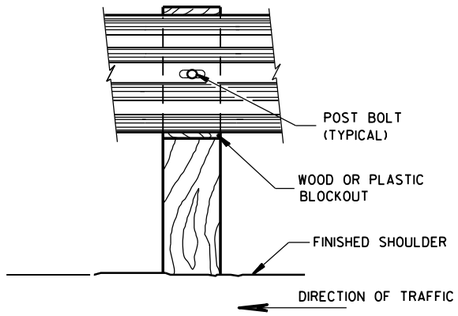
S.D.D. 14 B 42-4a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

7. PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

8. DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

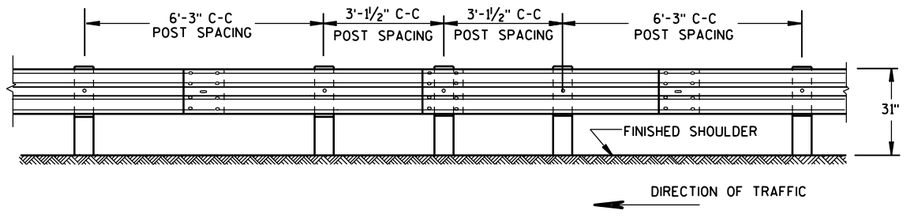
9. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

10. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

11. 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

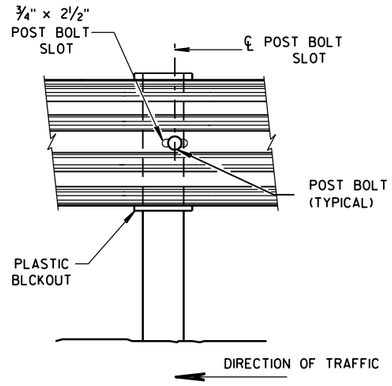
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

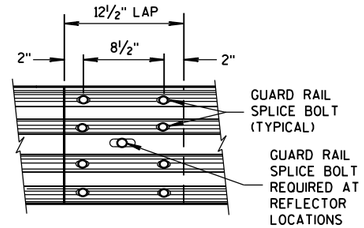


FRONT VIEW

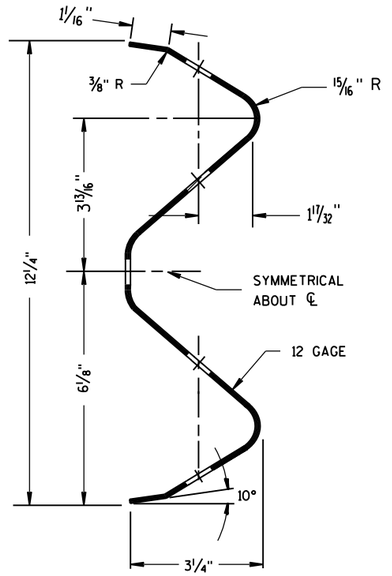
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



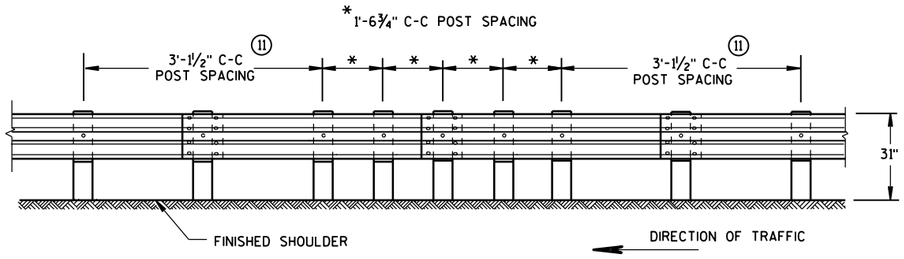
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

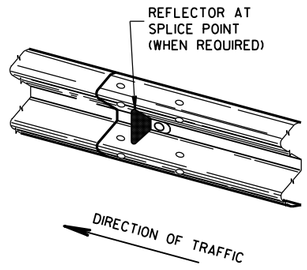


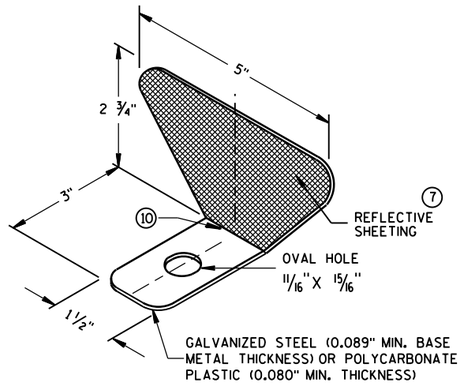
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (7)

REFLECTOR SPACING (8)

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 (9)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 (10)	

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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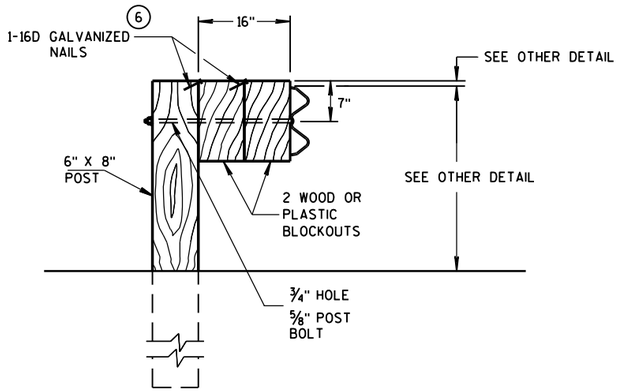
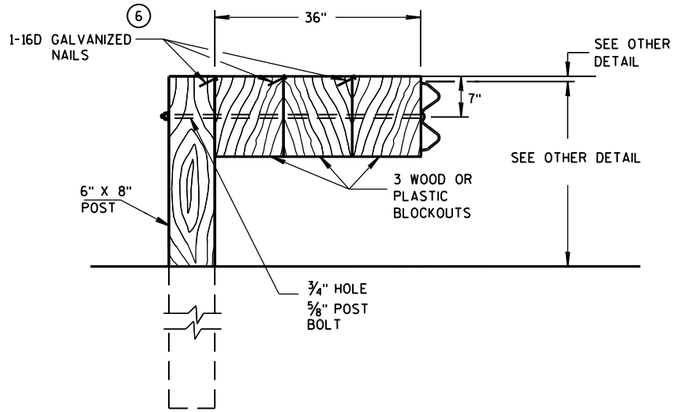
S.D.D. 14 B 42-4b



DETAIL FOR 16" BLOCKOUT DEPTH

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

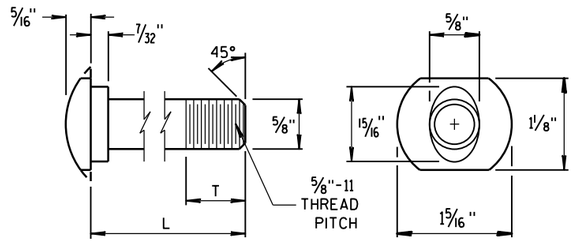


DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

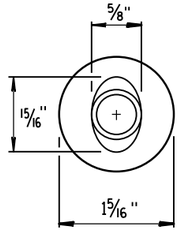
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE: 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

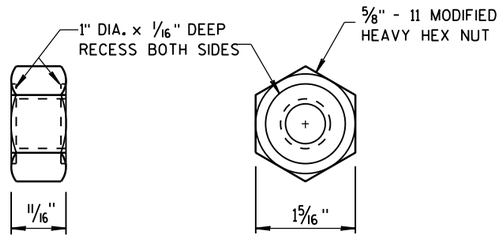


POST BOLT TABLE

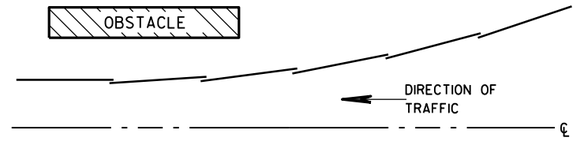
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

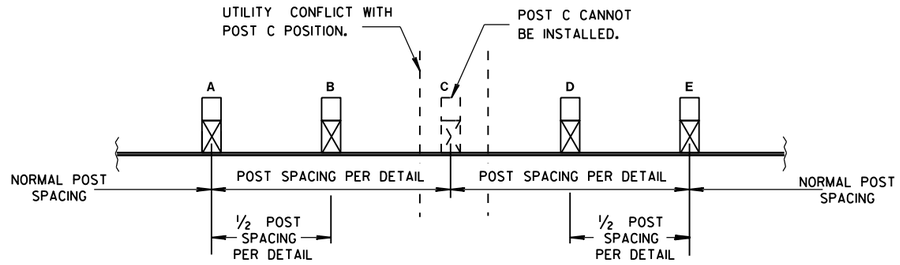


POST BOLT, SPLICE BOLT AND RECESS NUT

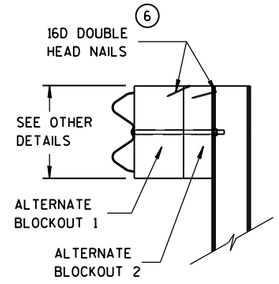


PLAN VIEW

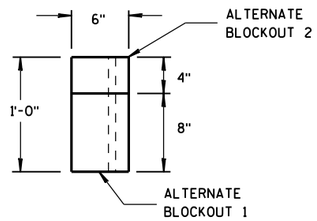
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 14 B 42-4c

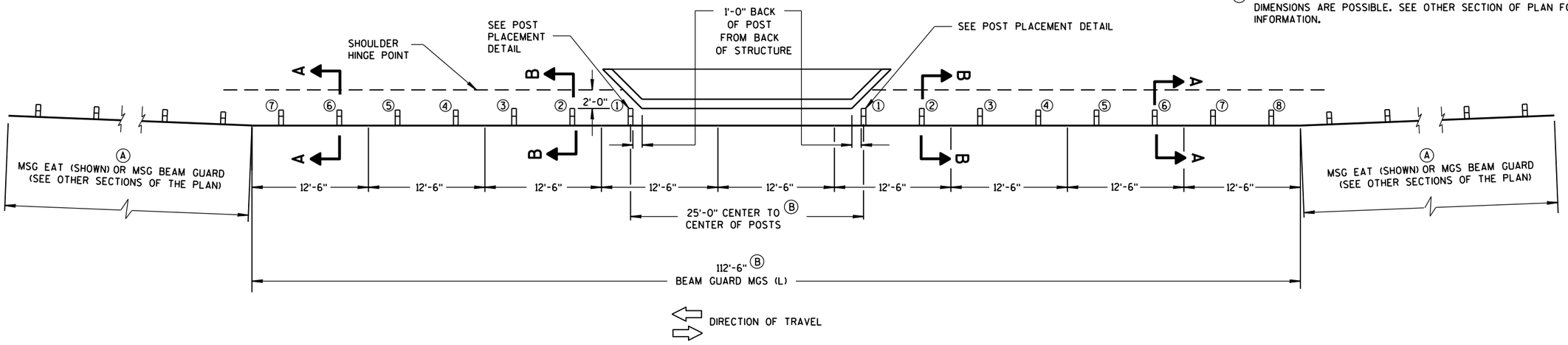
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

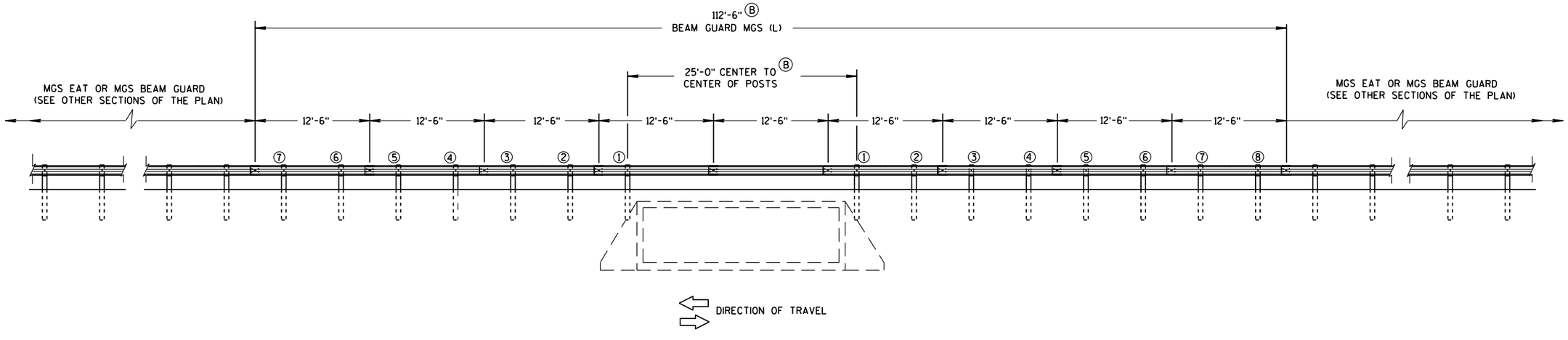
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) TWO-WAY TRAFFIC

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
STATE OF WISCONSIN DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 43-3a

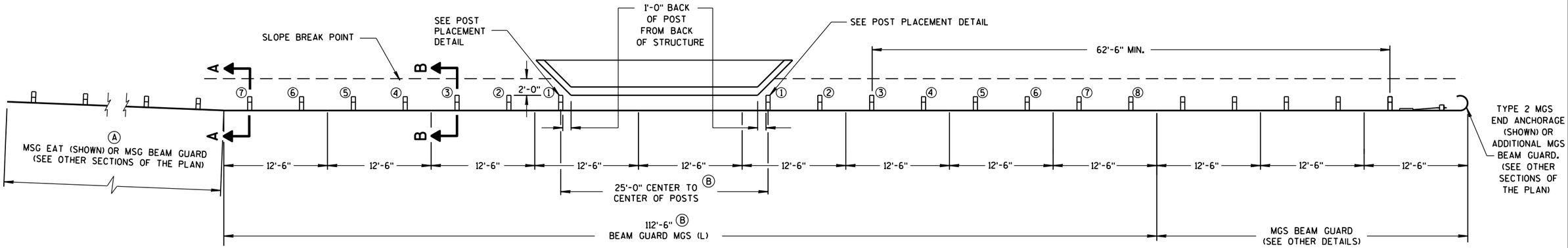
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

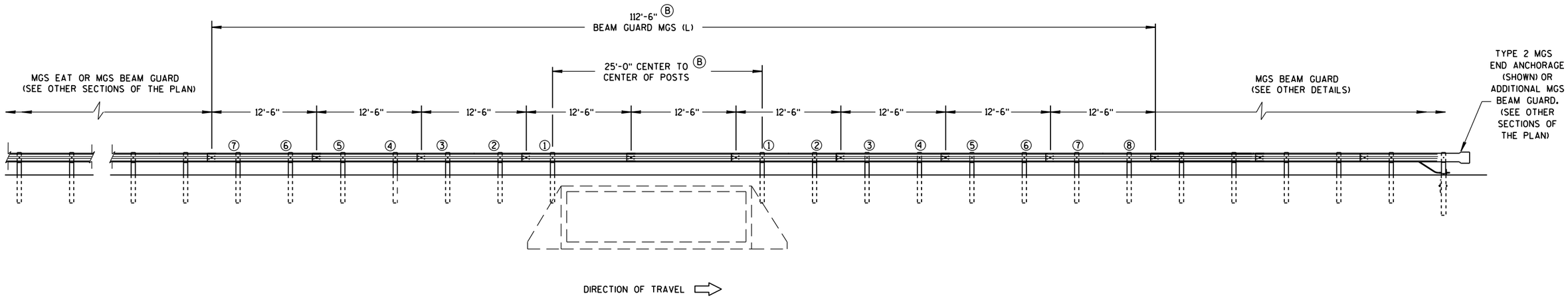
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW



ELEVATION VIEW

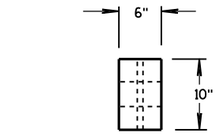
MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

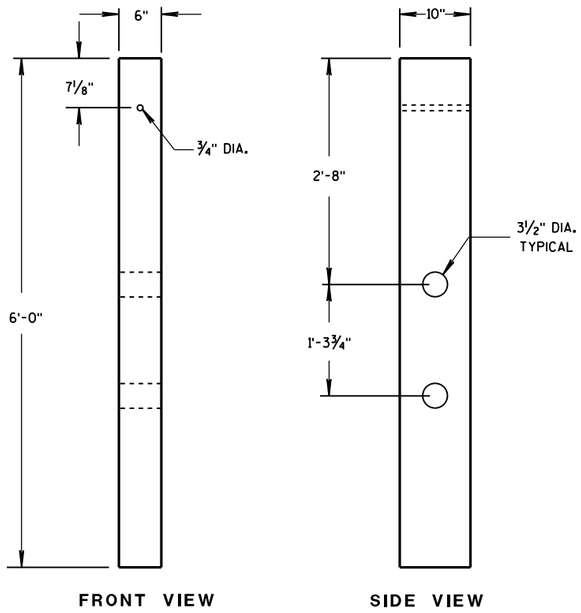
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 43-3b

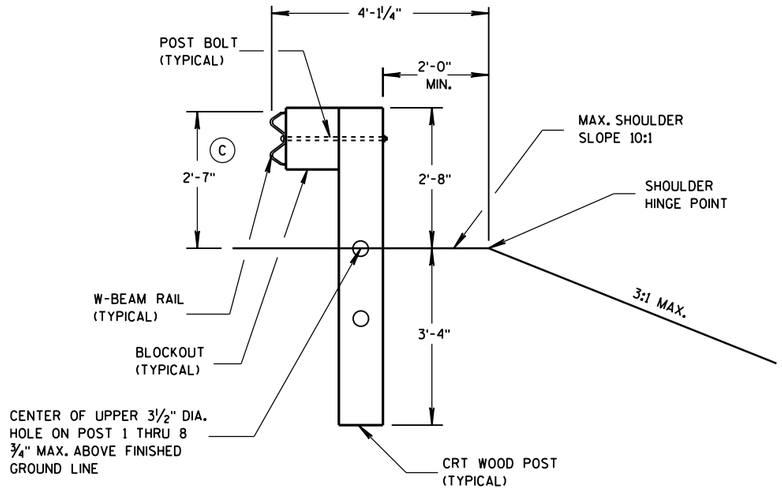


PLAN VIEW



FRONT VIEW SIDE VIEW

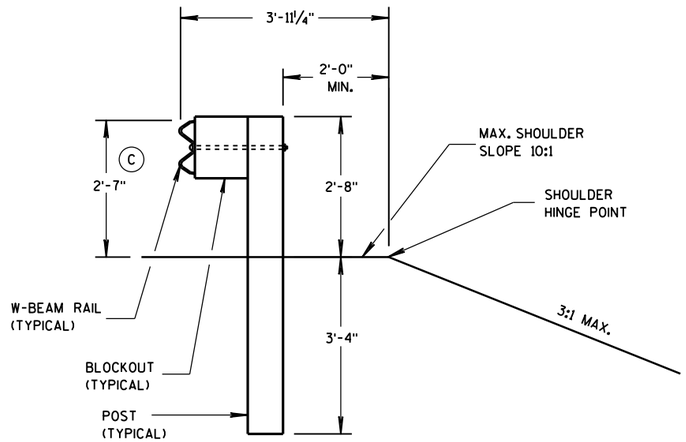
CRT WOOD POST



SECTION B-B

POSTS NO. 1-3

SEE OTHER DETAILS



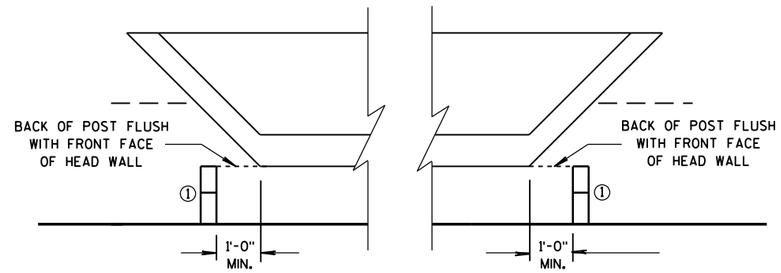
SECTION A-A

POSTS NO. 4-8

SEE OTHER DETAILS

GENERAL NOTES

(C) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



POST PLACEMENT DETAIL

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/10/2013
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 14 B 43-3c

6

S.D.D. 14 B 43-3c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

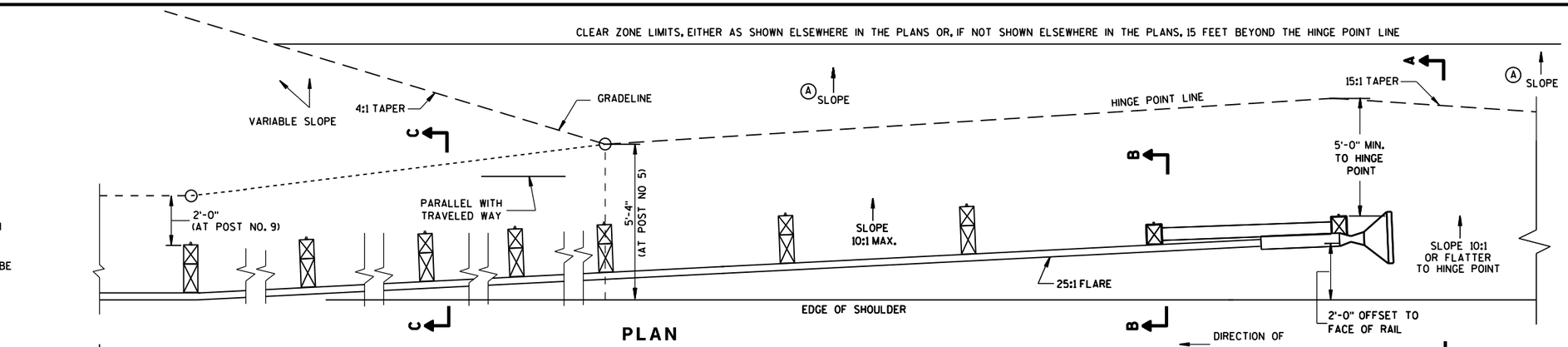
SEE SDD 14B42 FOR MORE INFORMATION.

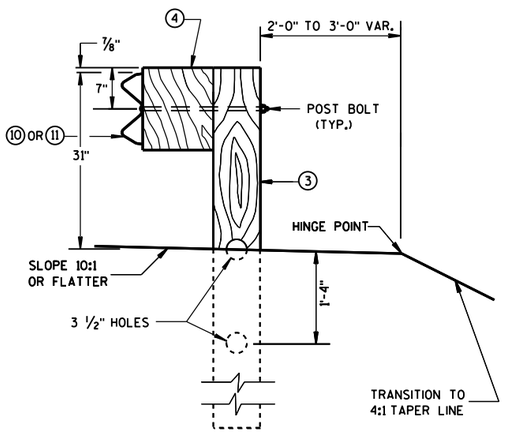
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

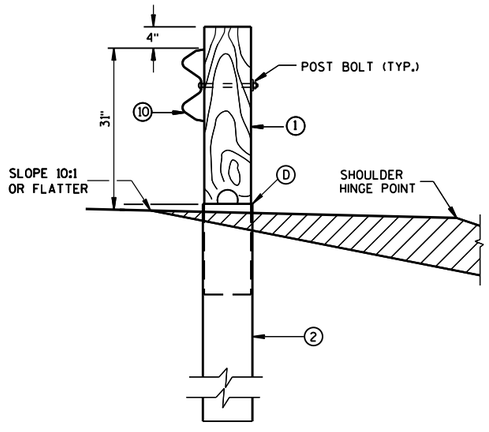
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

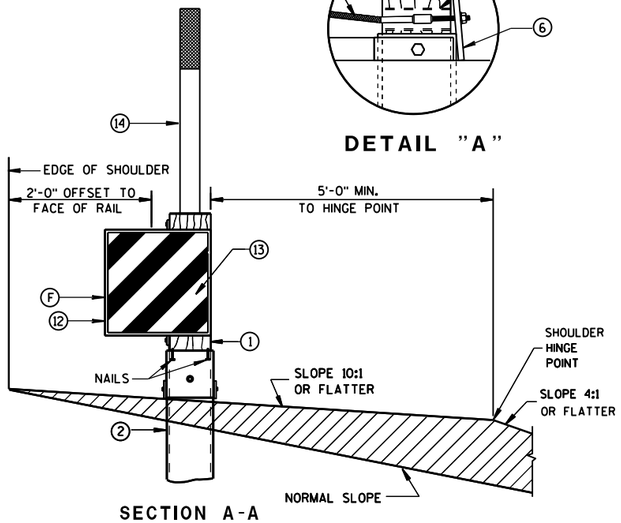




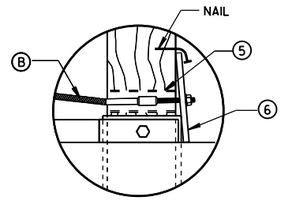
SECTION C-C
TYPICAL AT POST NOS. 3-9



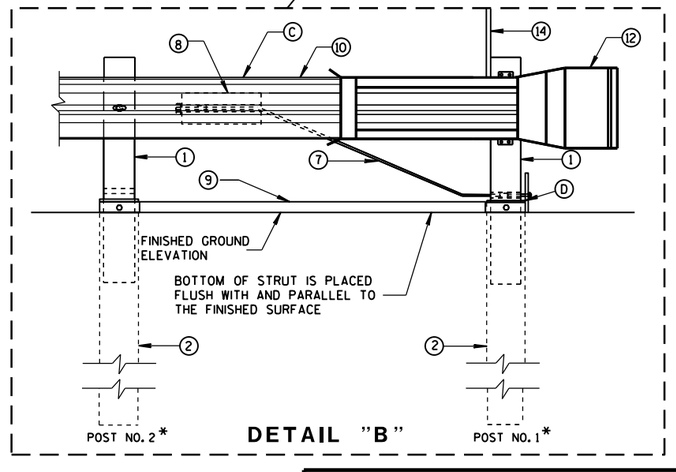
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"

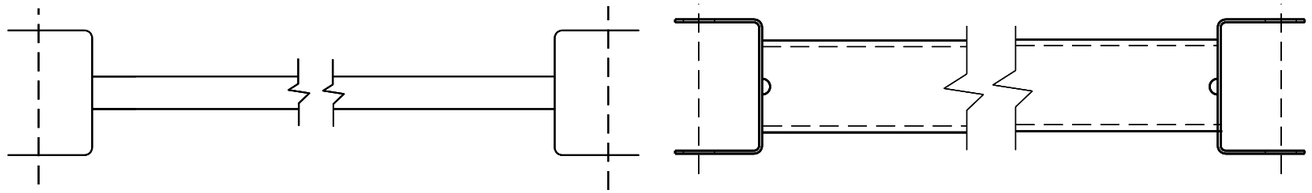


DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

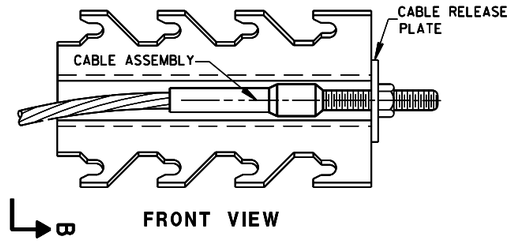
S.D.D. 14 B 44-2a



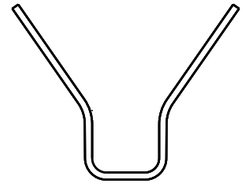
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

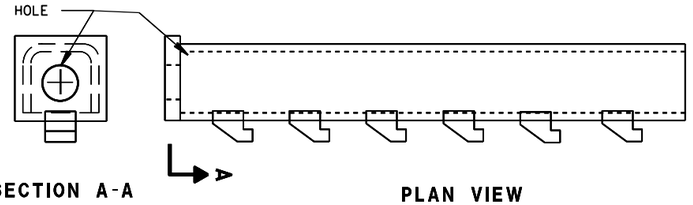
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



FRONT VIEW



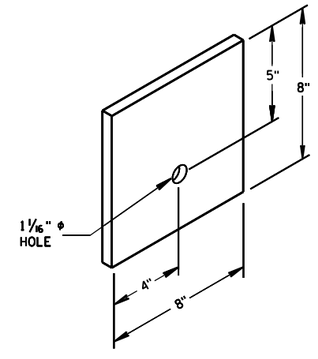
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

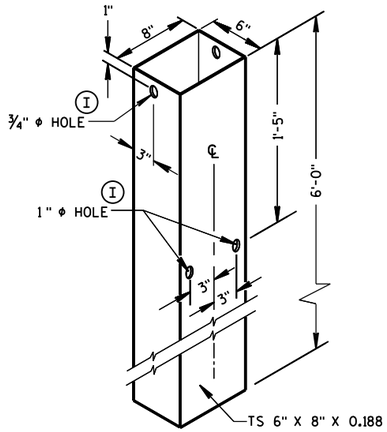
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

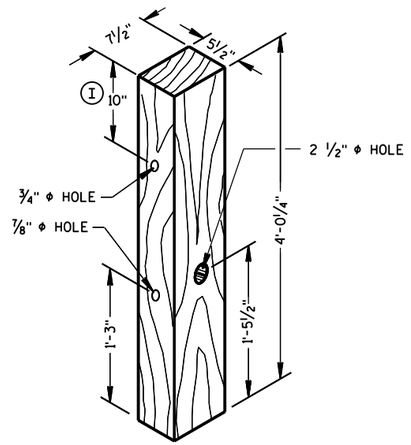
S.D.D. 14 B 44-2b

6

S.D.D. 14 B 44-2b

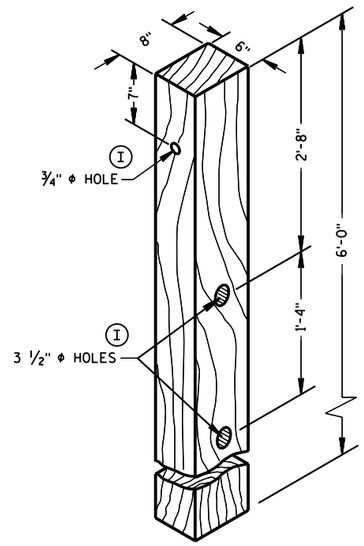


FOUNDATION TUBE (2)



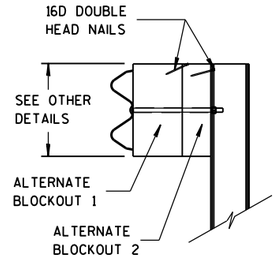
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

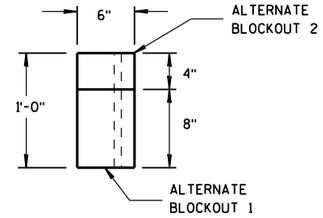


POSTS NUMBER 3-9

WOOD CRT POST (3)

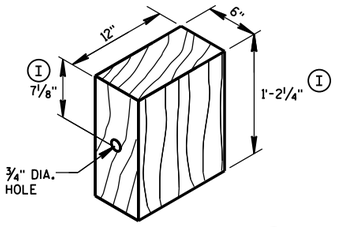


SIDE VIEW



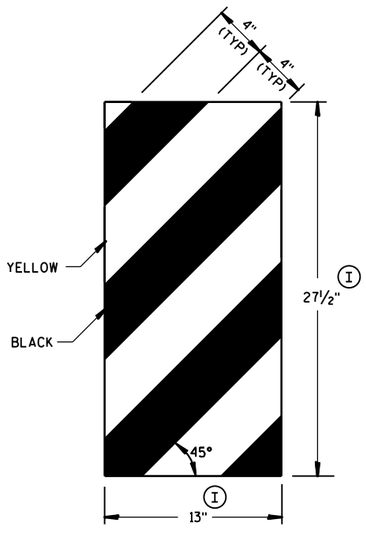
TOP VIEW

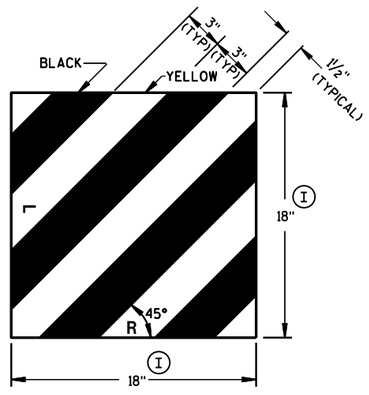
ALTERNATE WOOD BLOCKOUT DETAIL



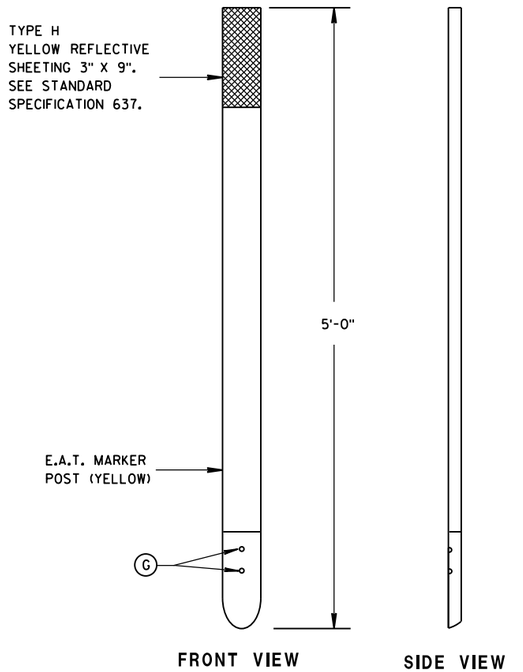
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





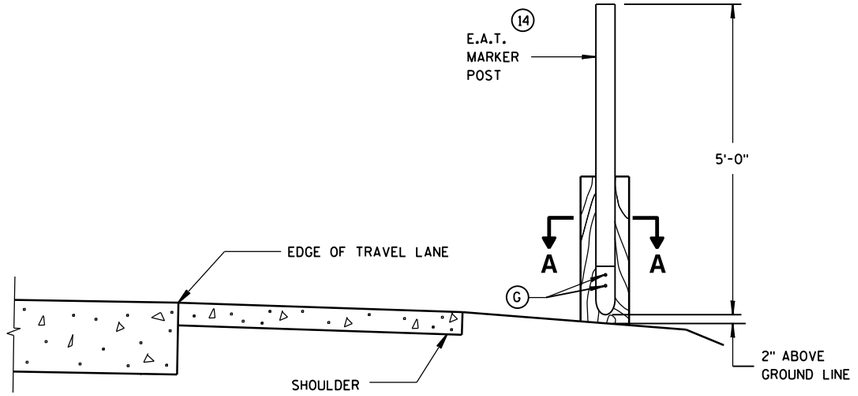
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

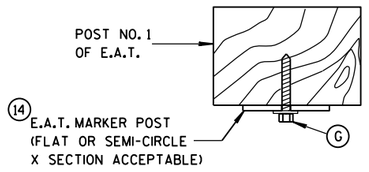
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

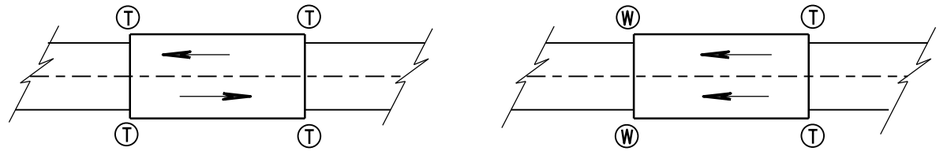
200

6

S.D.D. 14 B 44-2c

6

S.D.D. 14 B 44-2c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

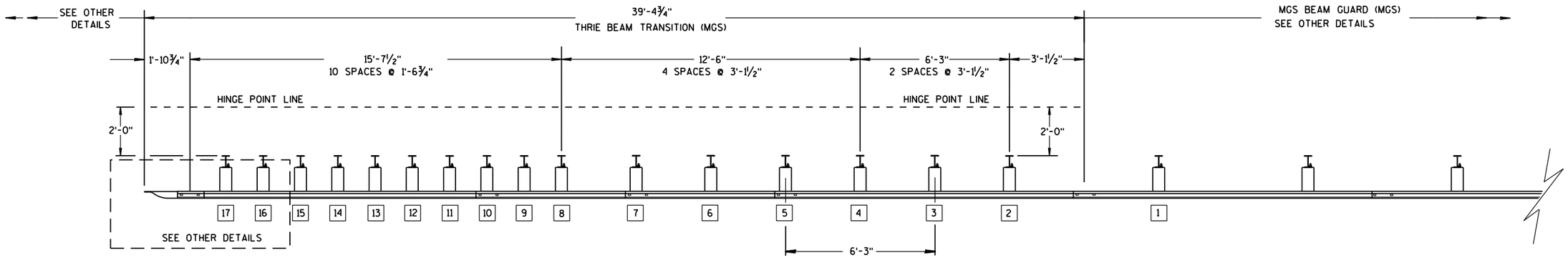
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

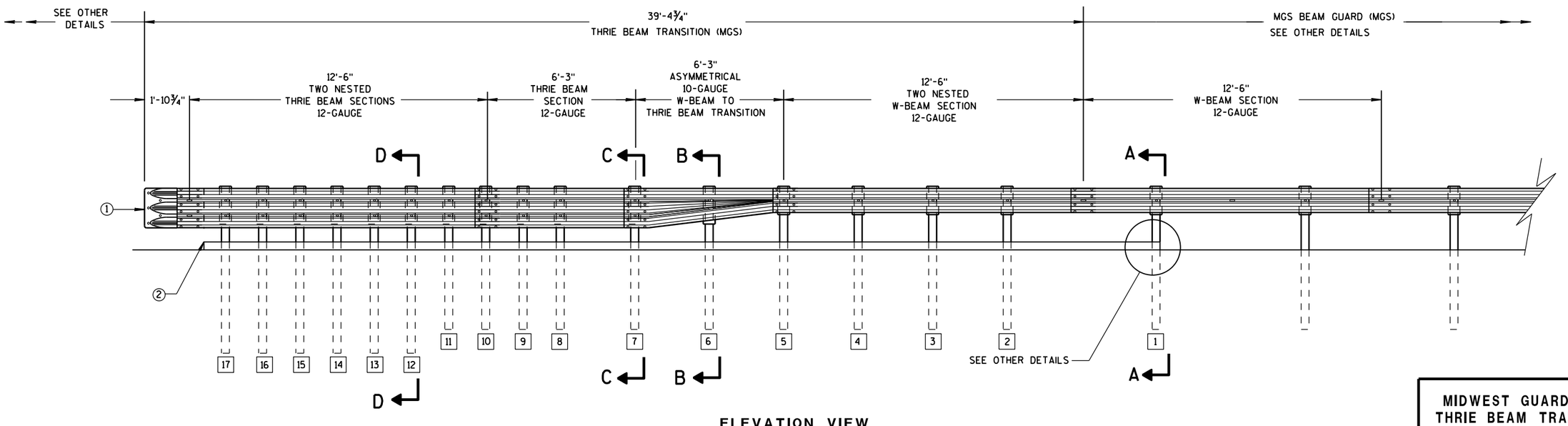
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

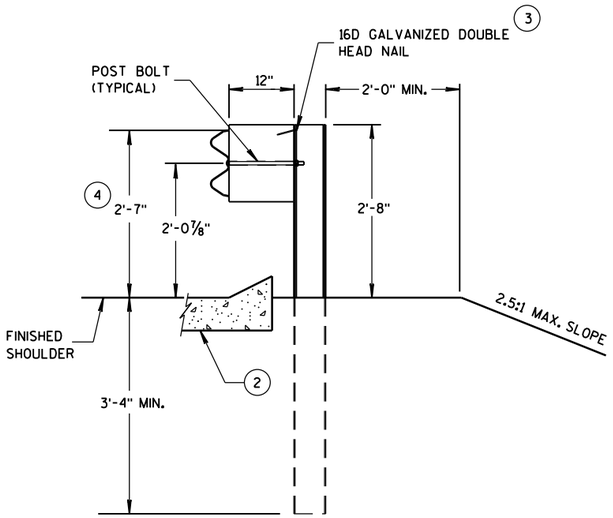
S.D.D. 14 B 45-4a

GENERAL NOTES

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

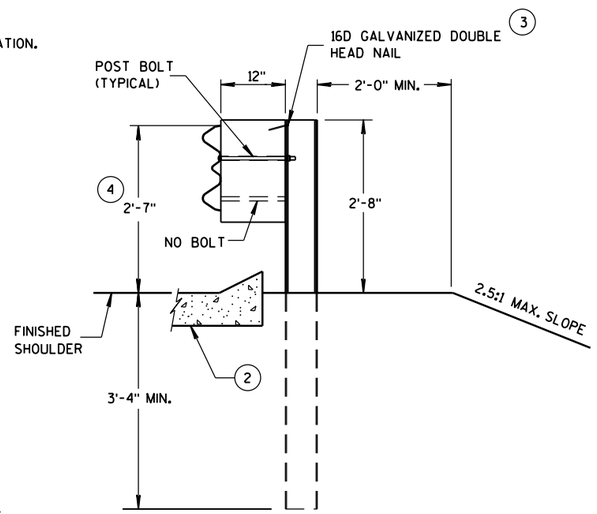
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



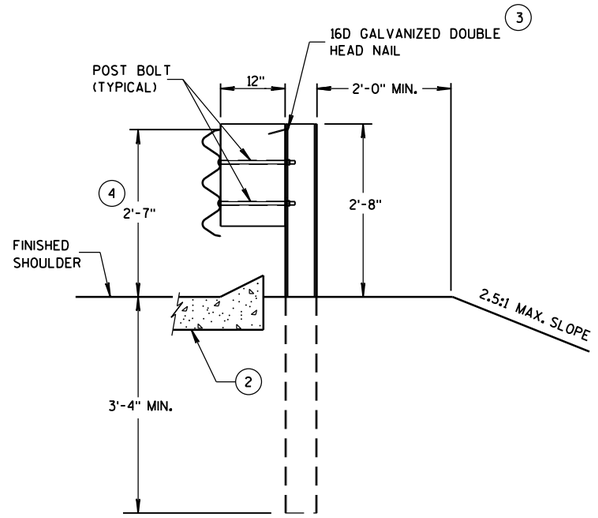
SECTION A-A

POSTS 1-5



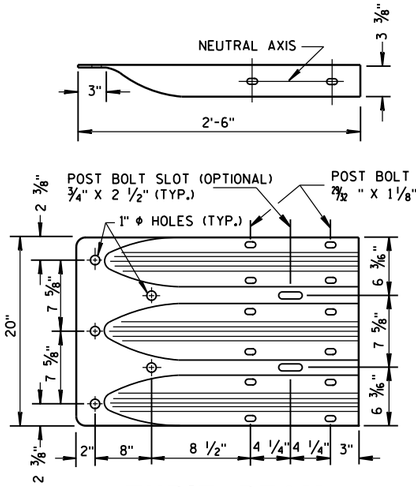
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

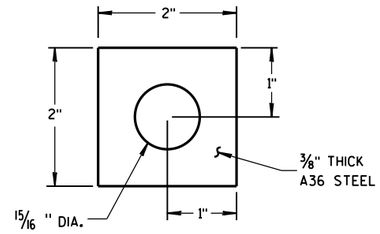
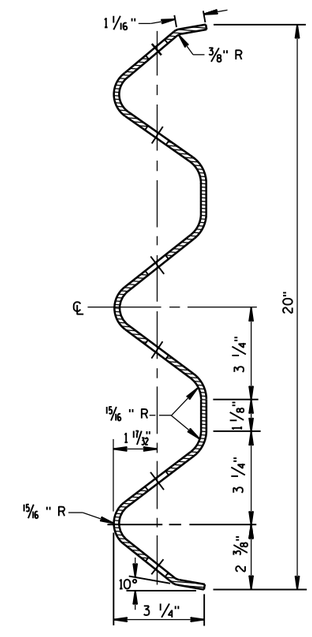
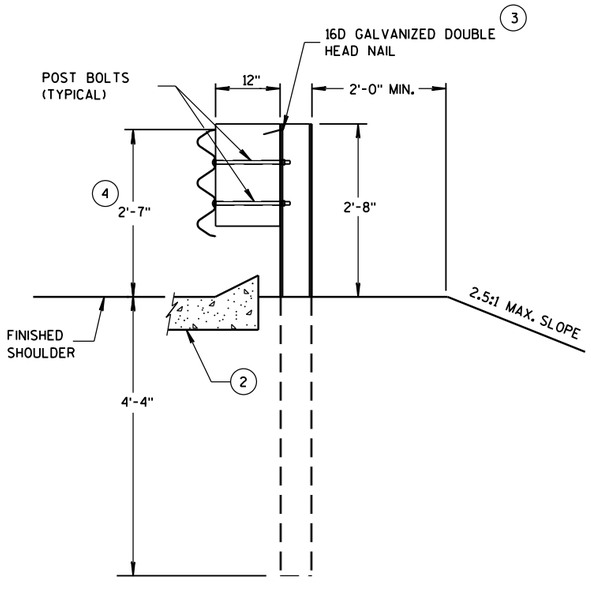


PLATE WASHER DETAIL

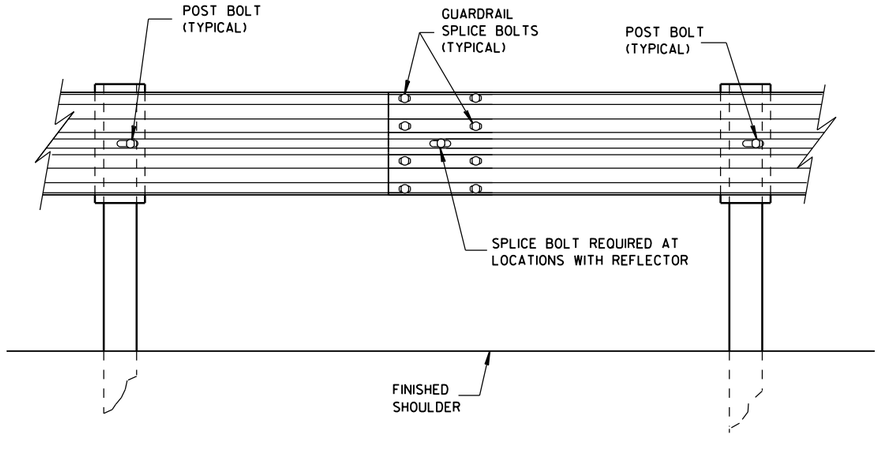


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



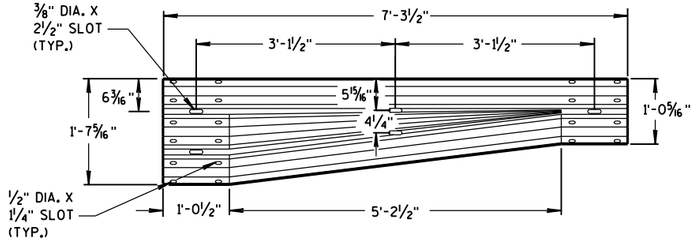
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

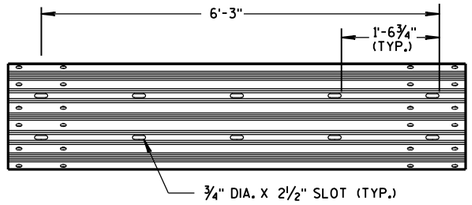
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

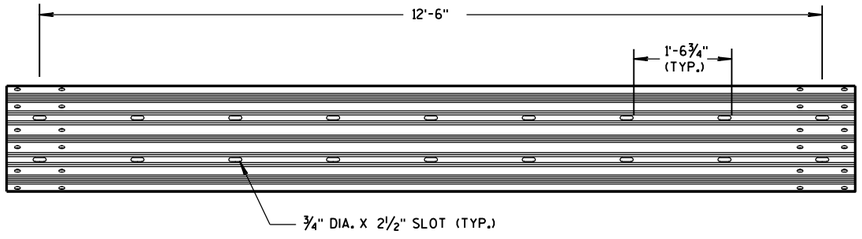
S.D.D. 14 B 45-4b



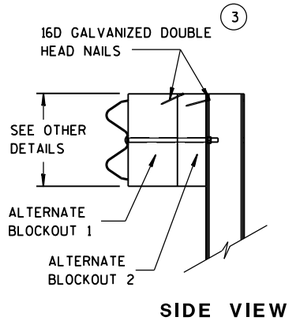
W-BEAM TO THRIE BEAM TRANSITION SECTION



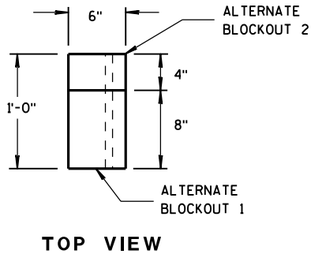
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

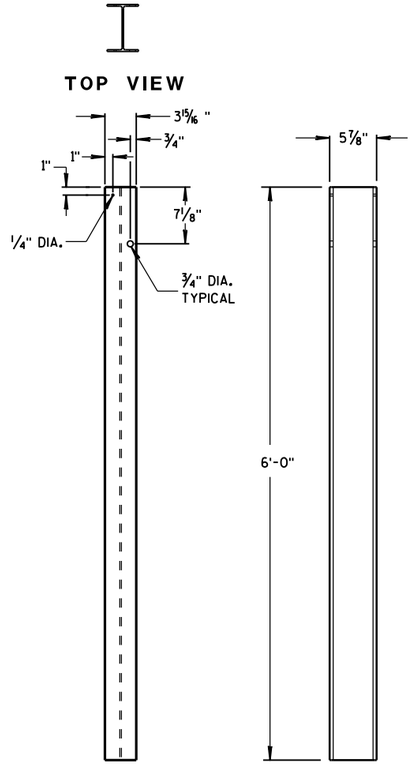


SIDE VIEW

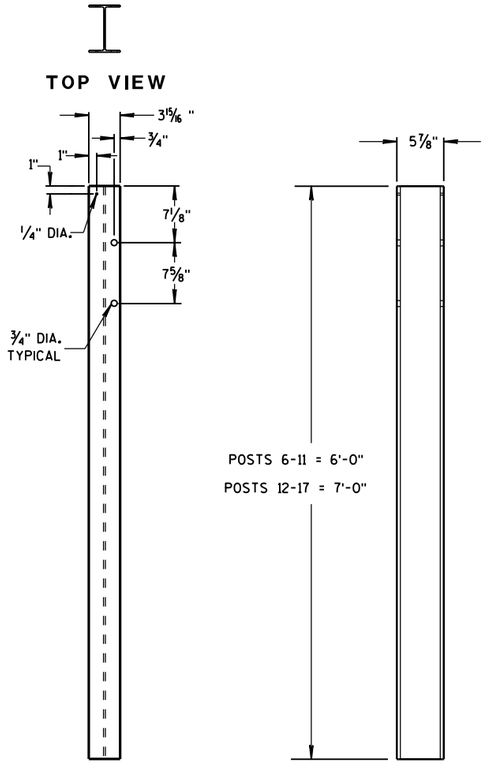


TOP VIEW

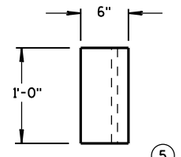
ALTERNATE WOOD BLOCKOUT DETAIL



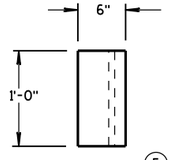
STEEL POSTS 1-5



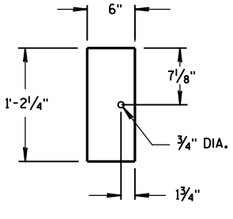
STEEL POSTS 6-17



TOP VIEW (5)

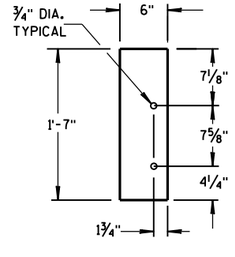


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

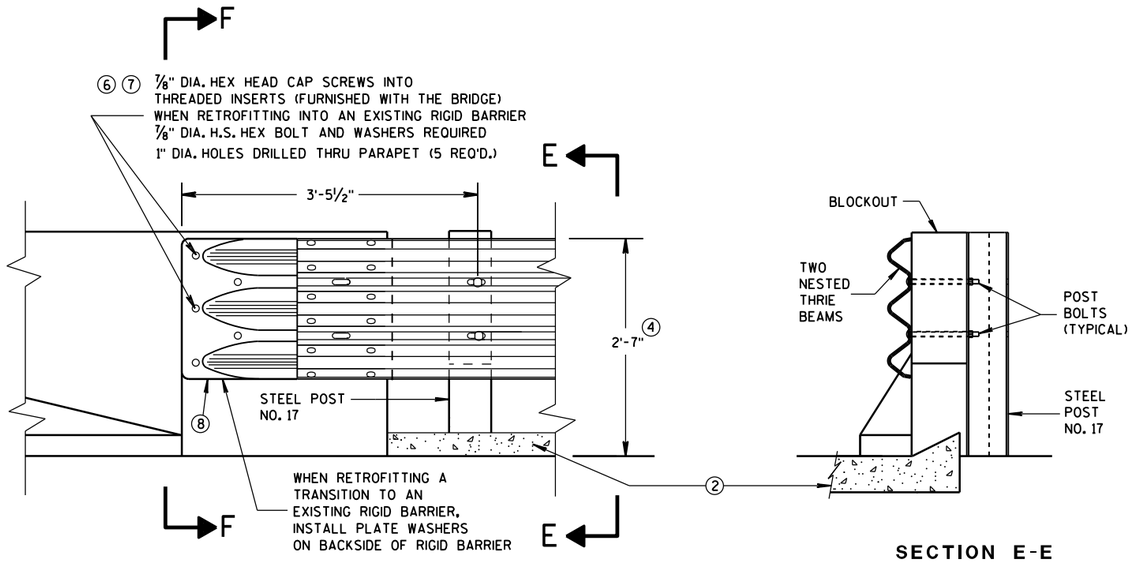
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-4c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

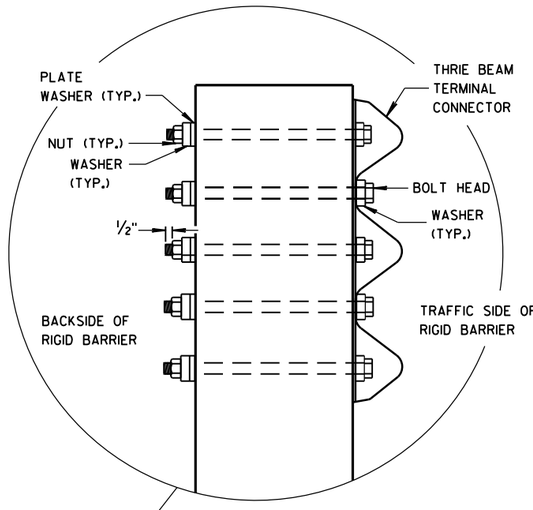
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

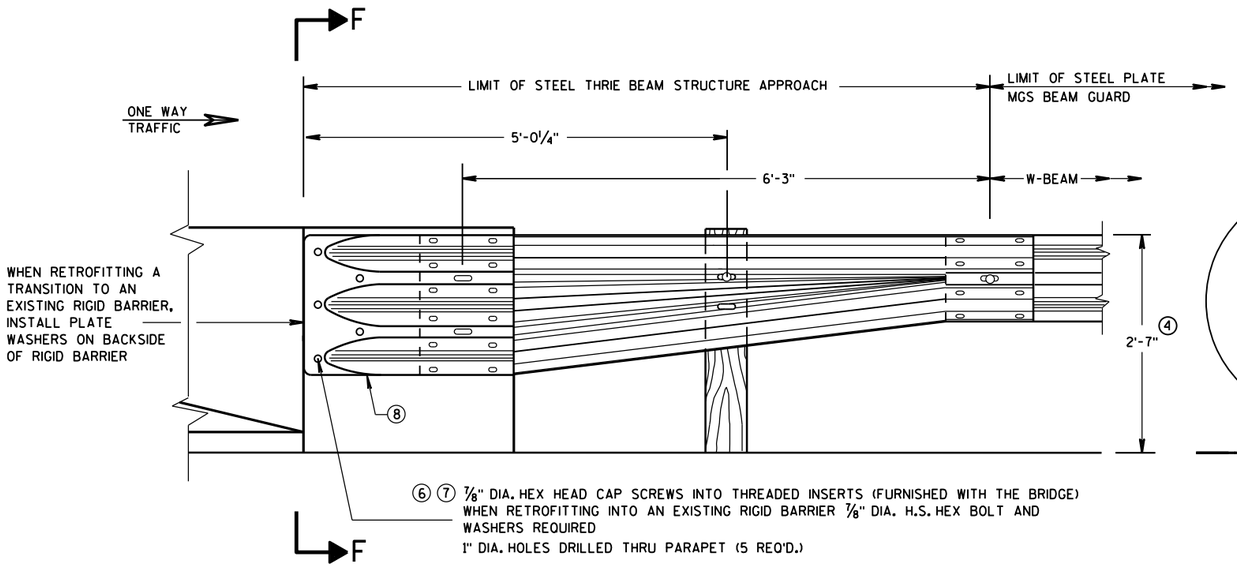
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

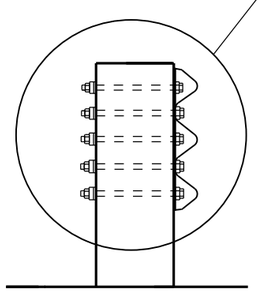
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

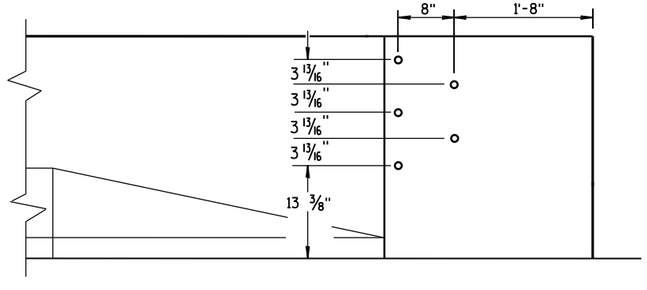




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA
NT

6

S.D.D. 14 B 45-4d

6

S.D.D. 14 B 45-4d

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

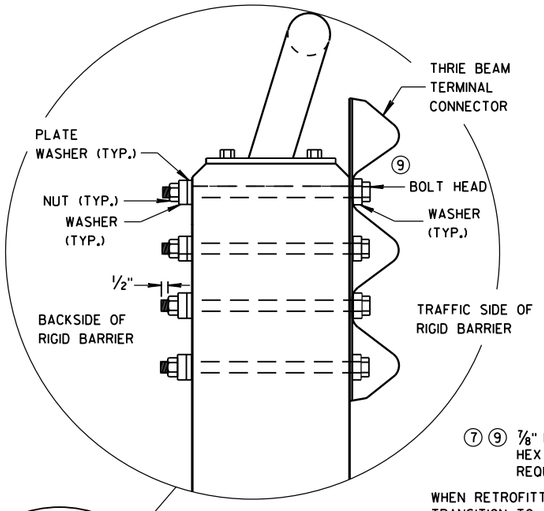
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

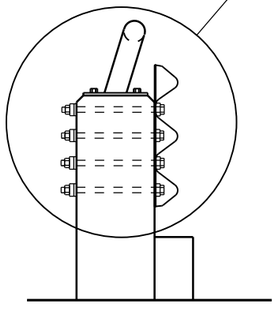
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

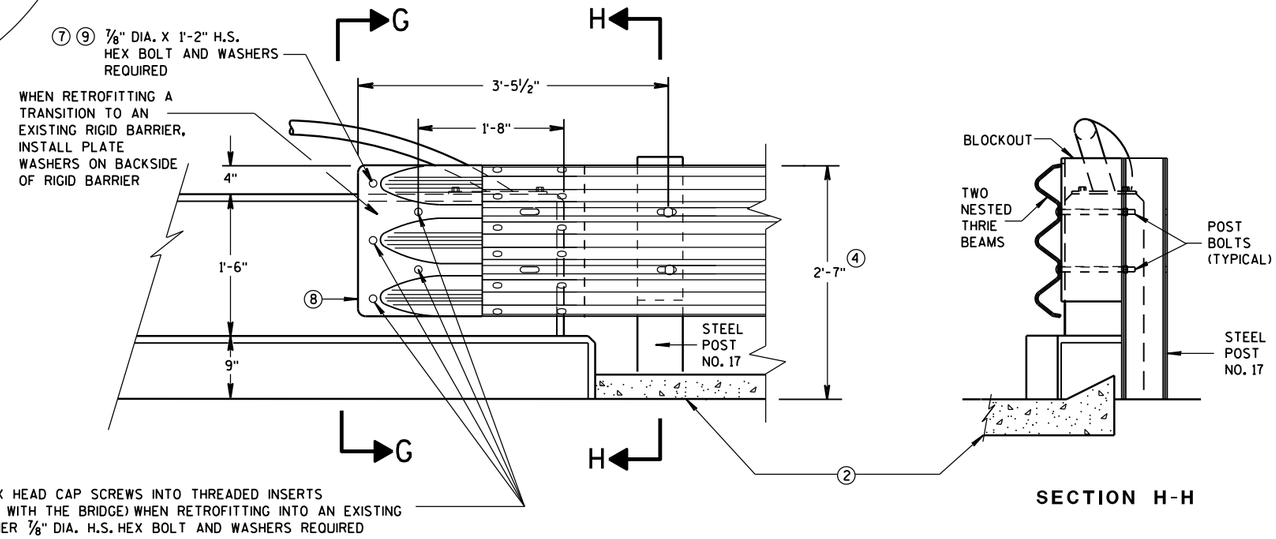
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.





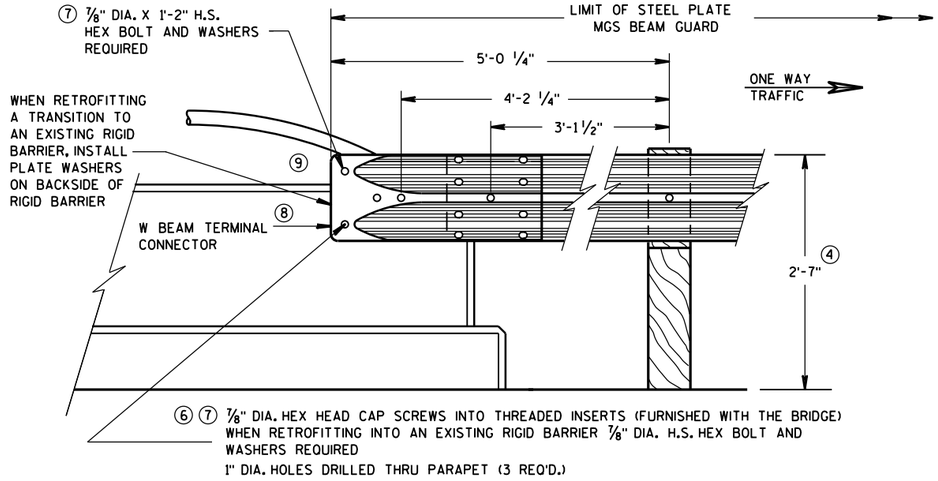
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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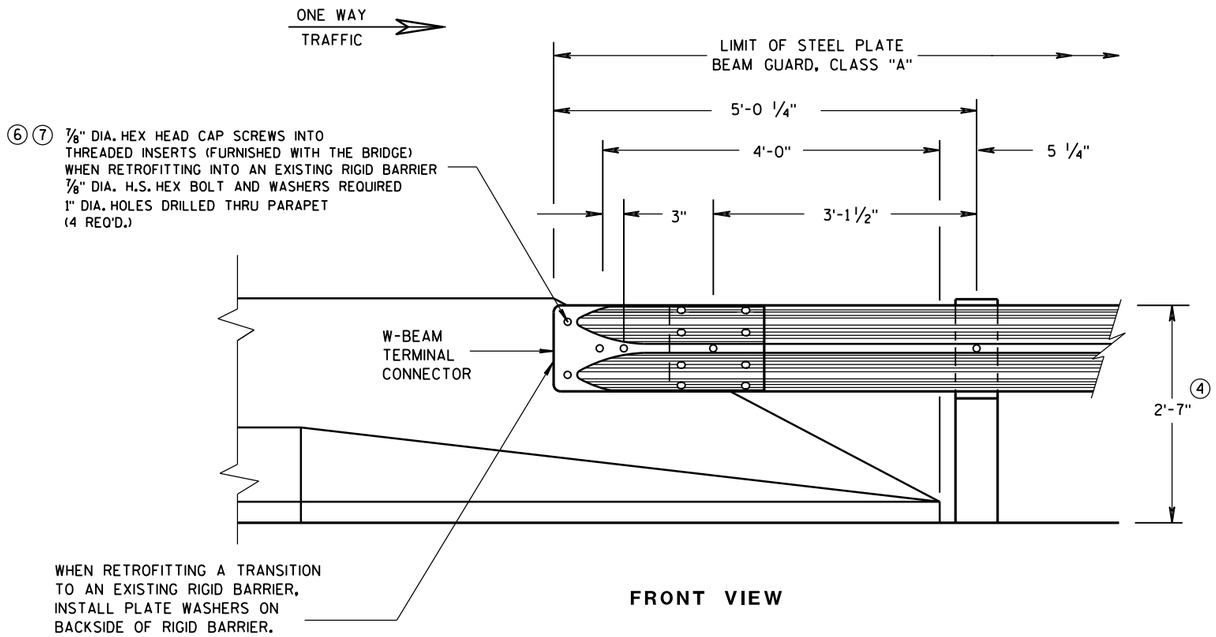
S.D.D. 14 B 45-4e



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

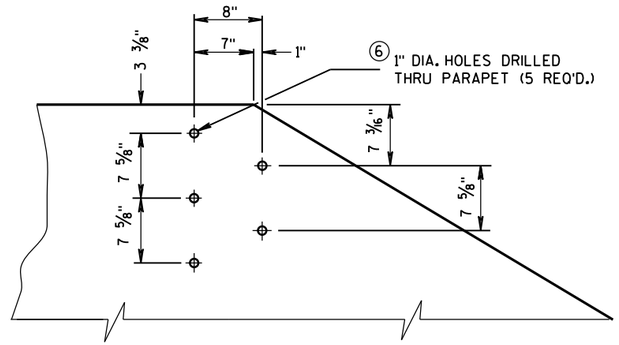
GENERAL NOTES

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

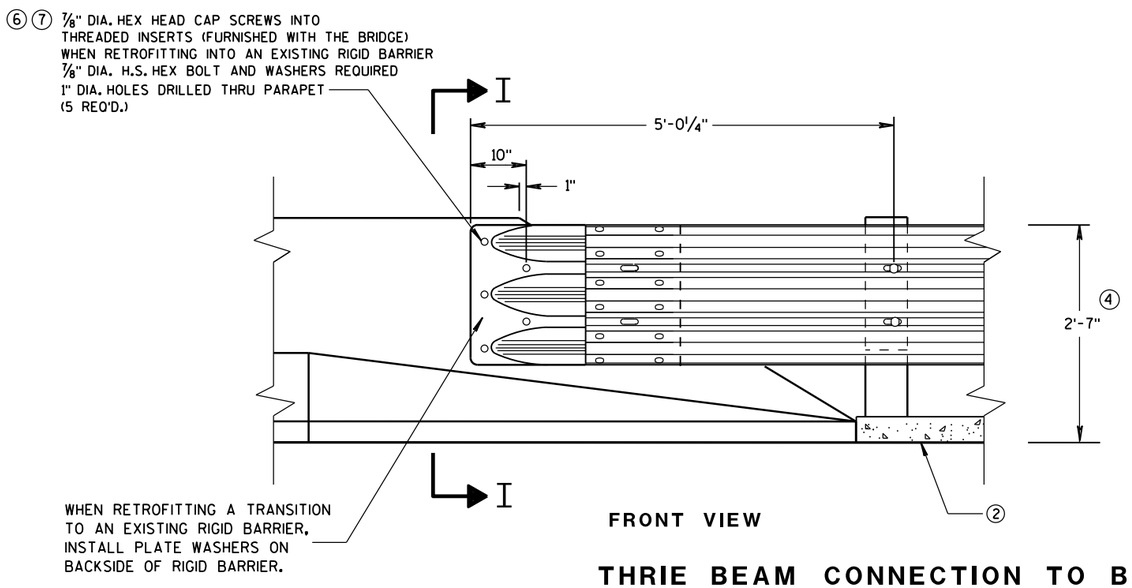
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

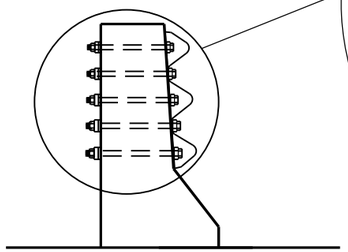
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



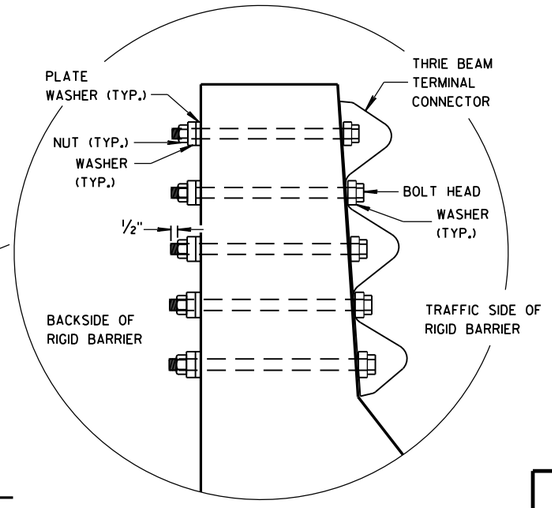
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 14 B 45-4f

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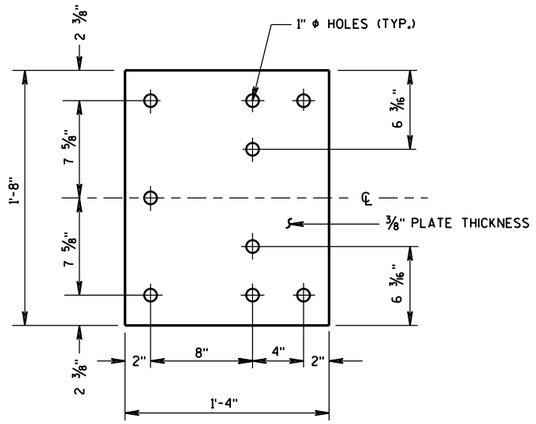
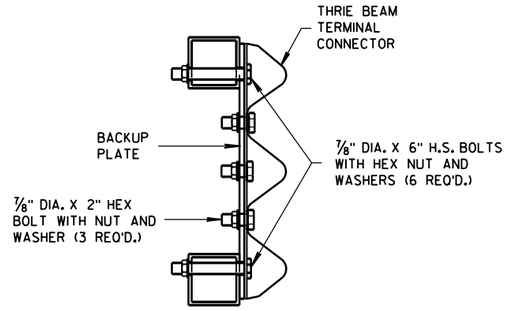
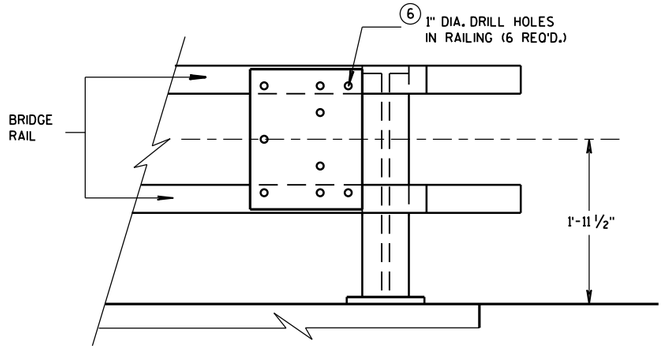
S.D.D. 14 B 45-4f



BACK-UP PLATE DETAIL



SECTION J-J

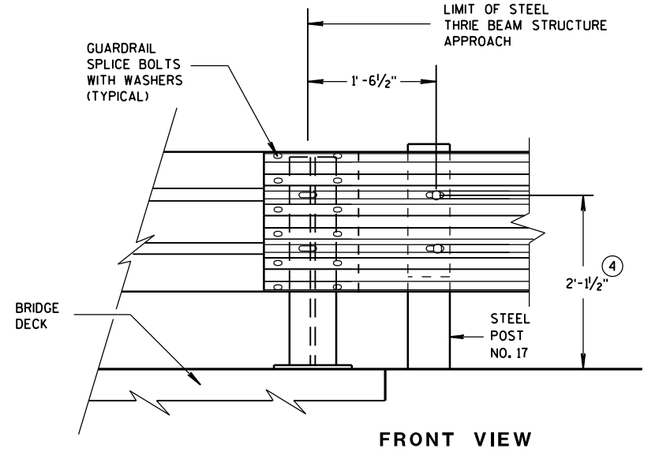


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

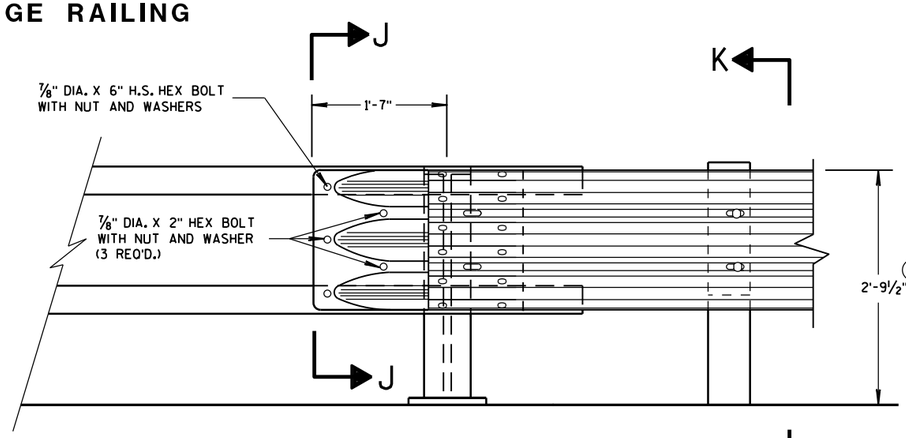
4 TOLERANCE FOR TOP OF BEAM IS ± 1".

6 DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

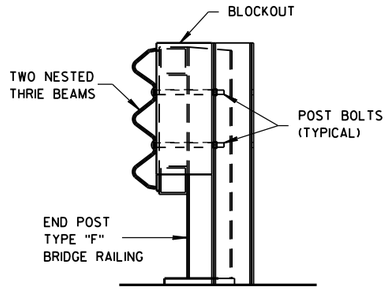


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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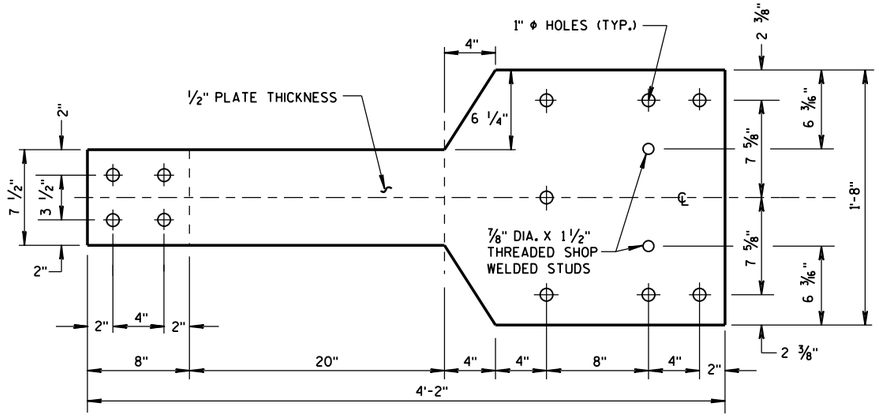
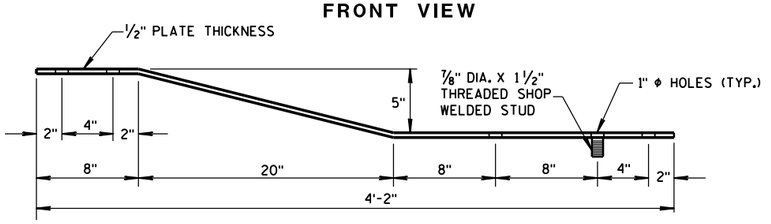
GENERAL NOTES

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

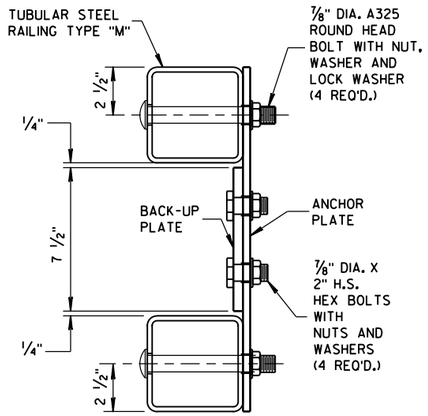


FRONT VIEW

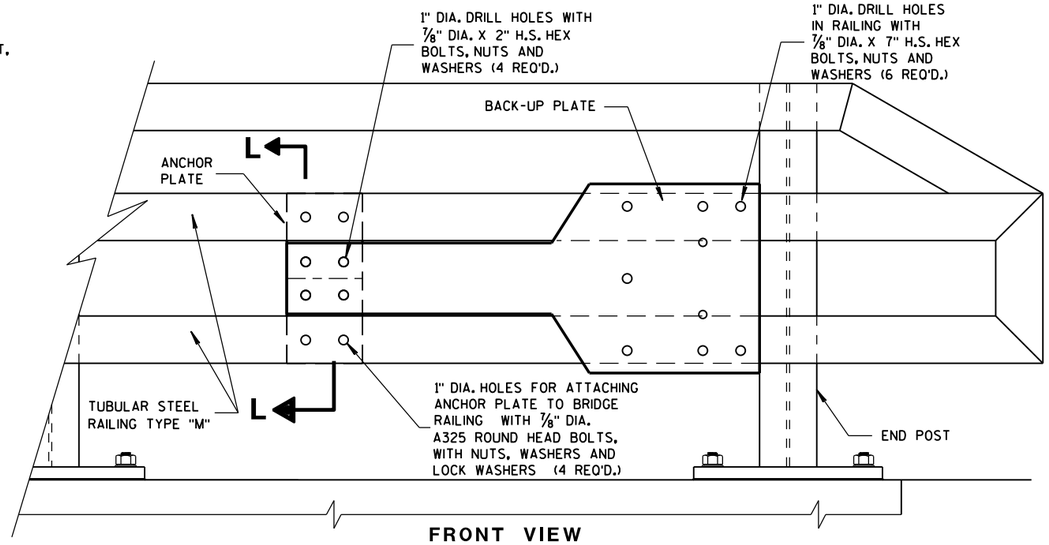


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

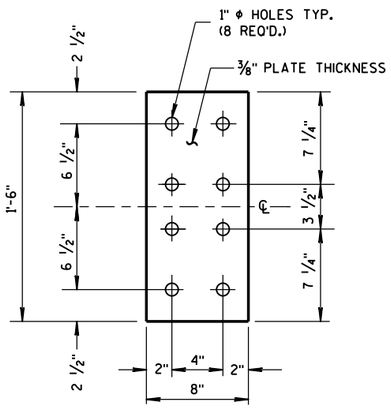


SECTION L-L



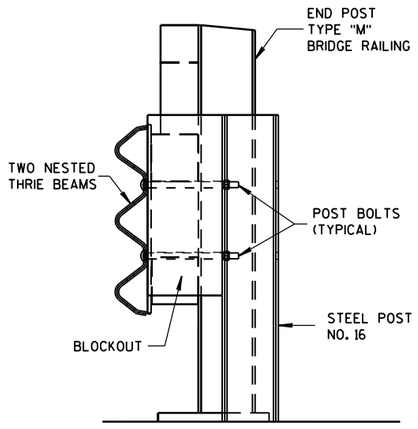
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"

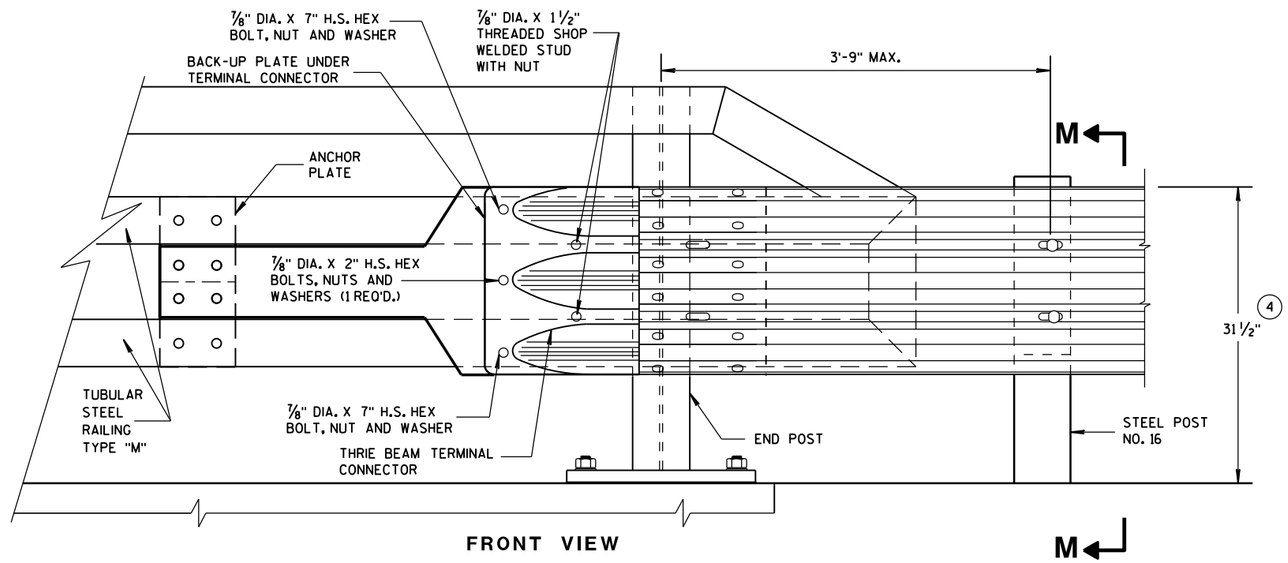


FRONT VIEW

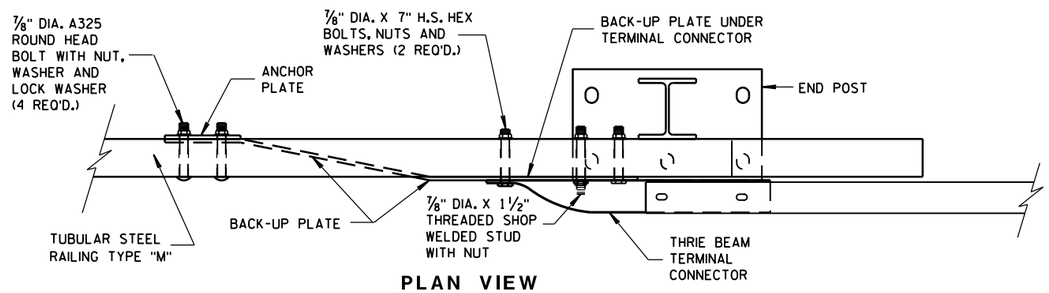
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER

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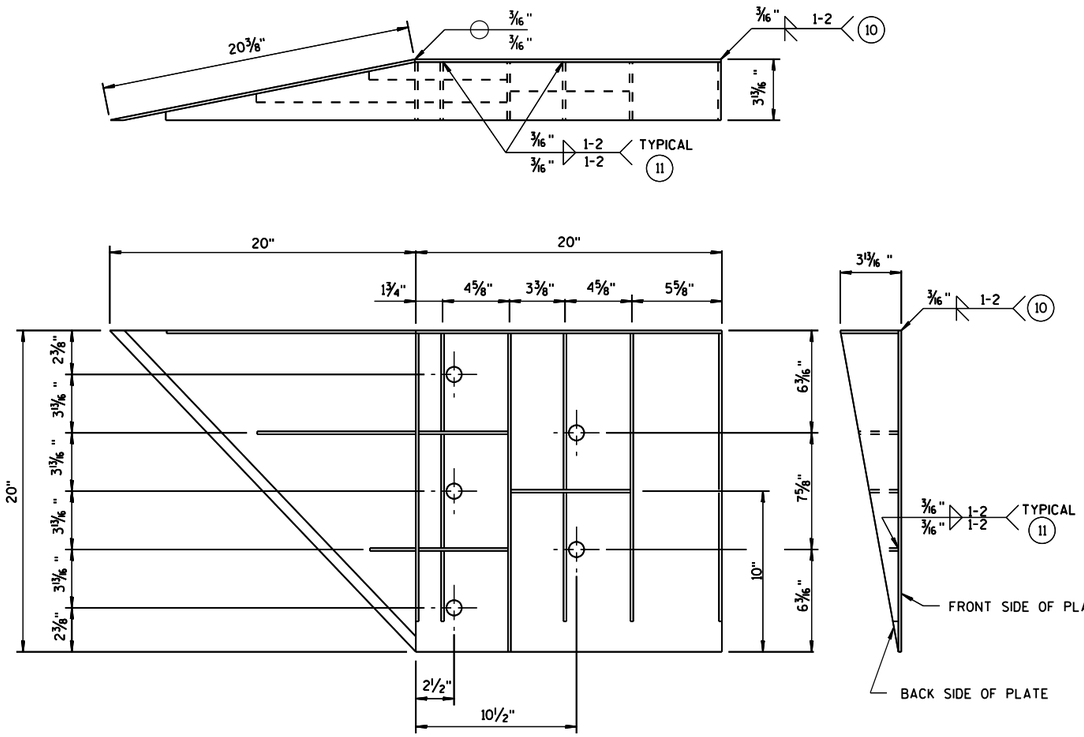

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

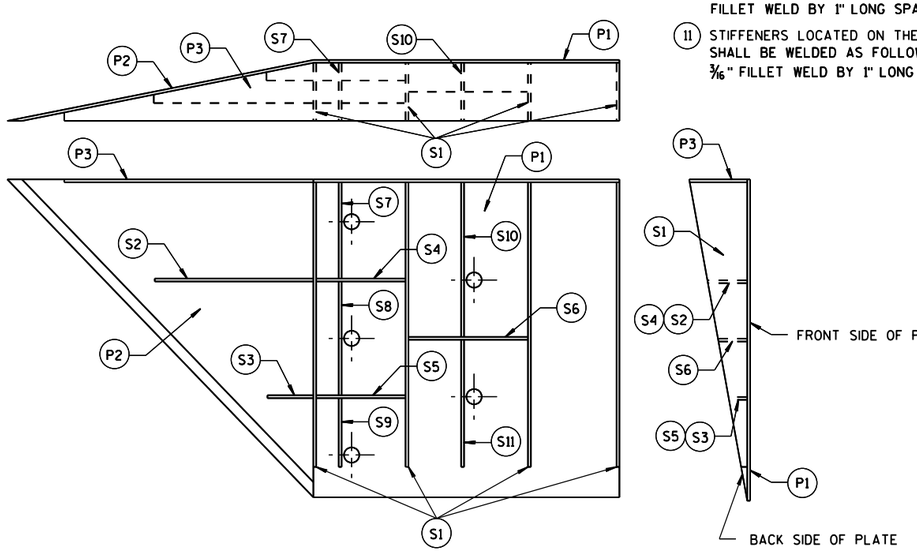

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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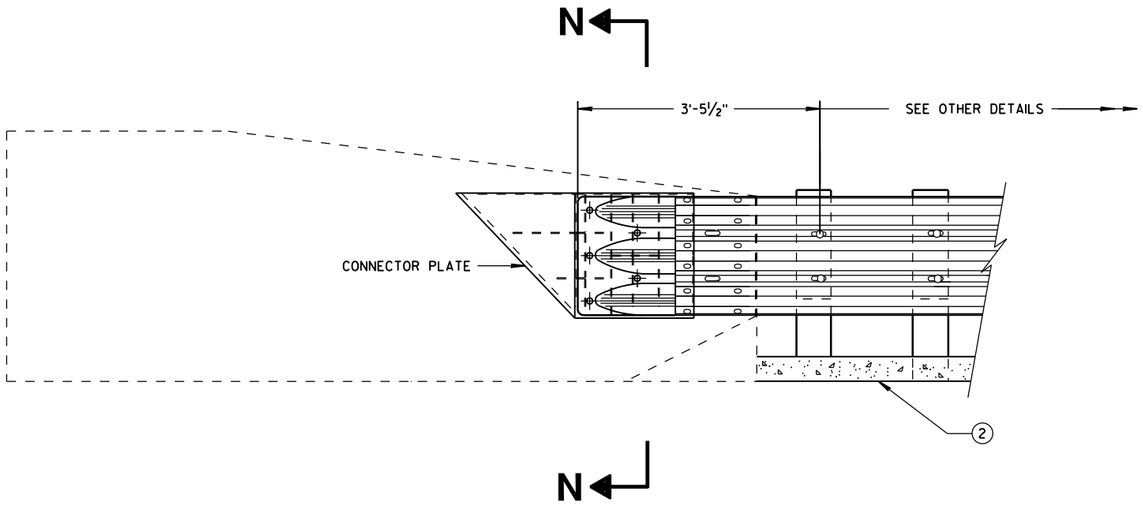
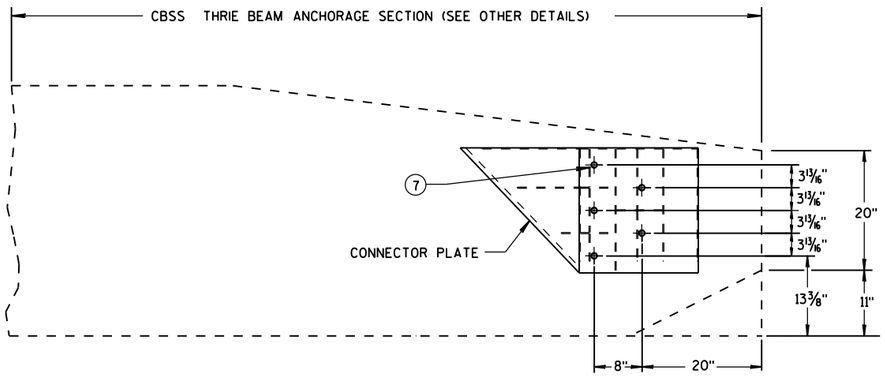


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



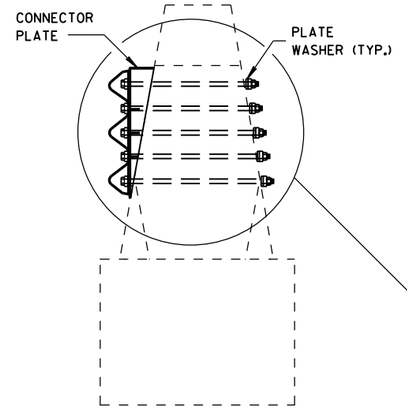
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

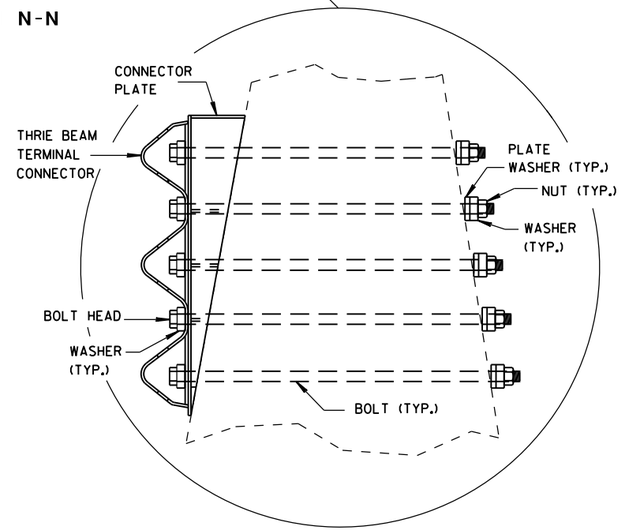
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
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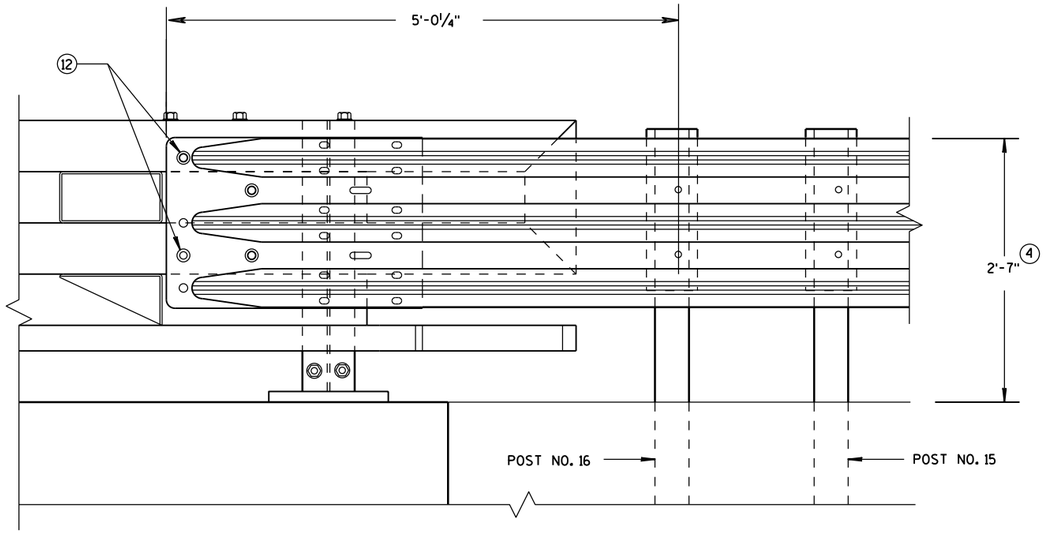
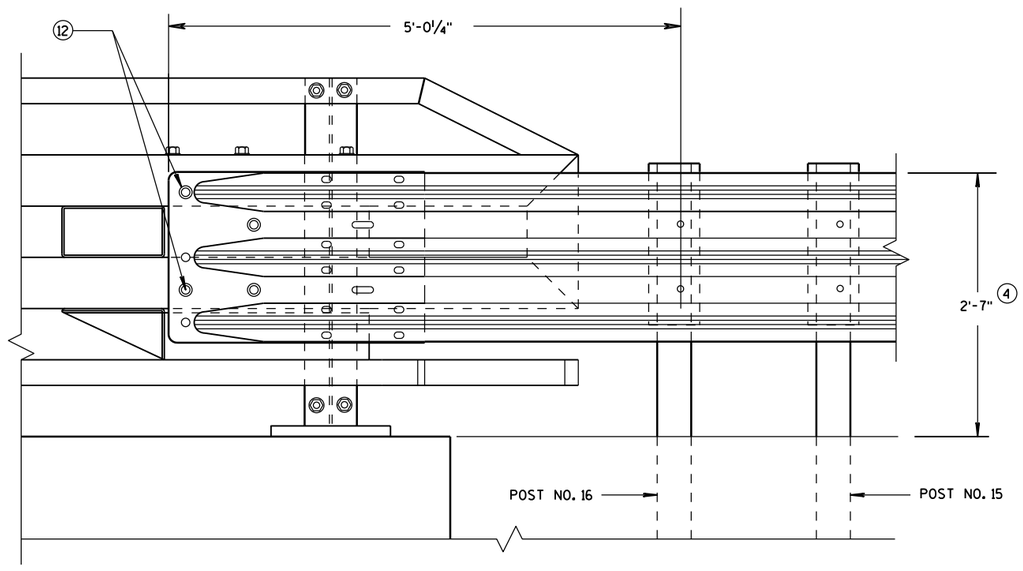


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS D 211 NT
ENGINEER

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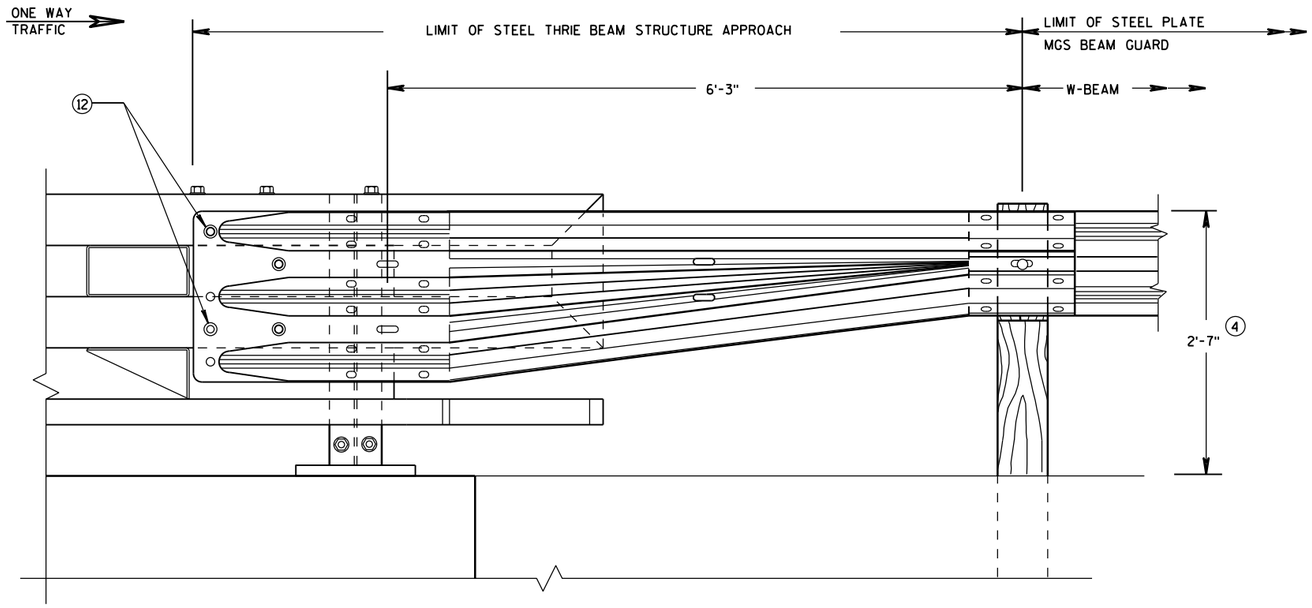


FRONT VIEW

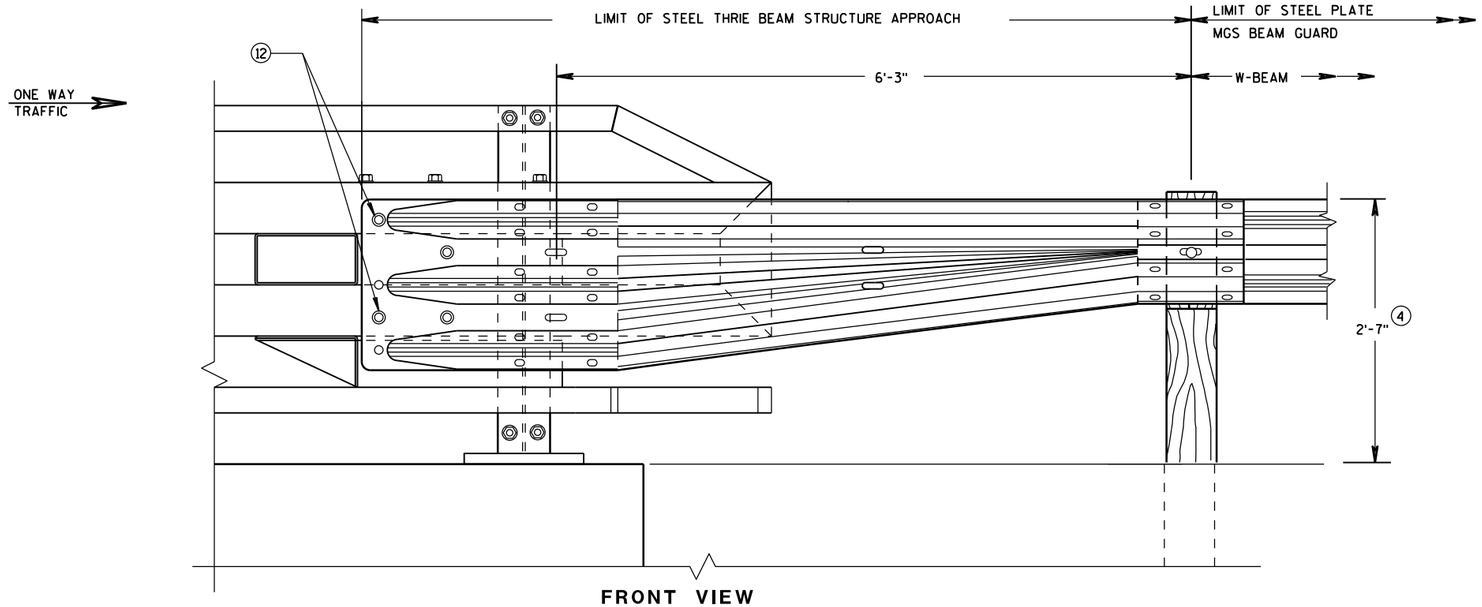
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
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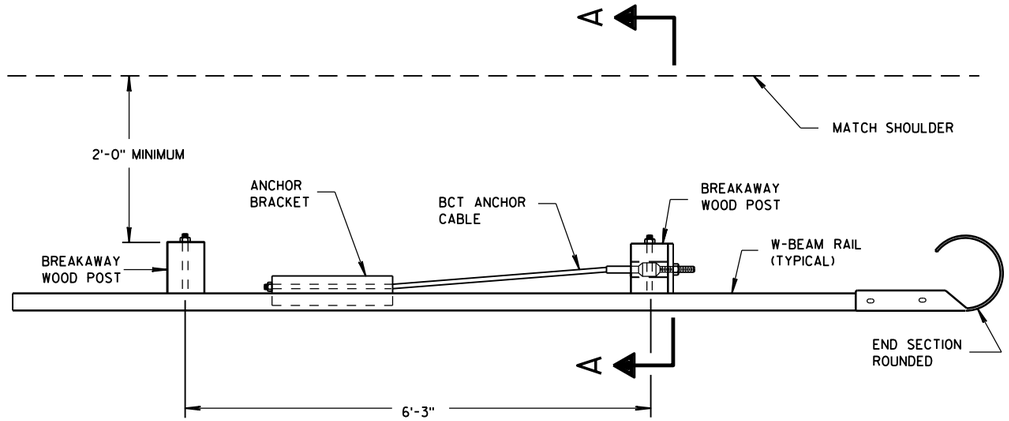
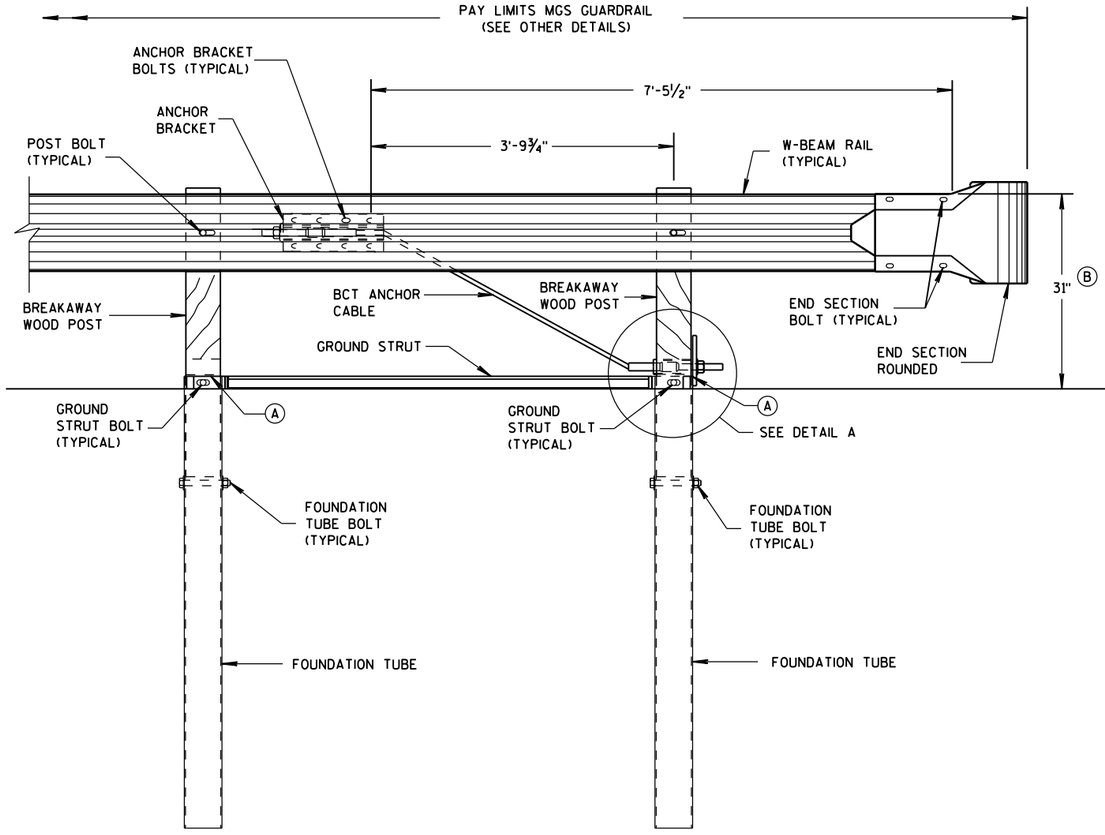
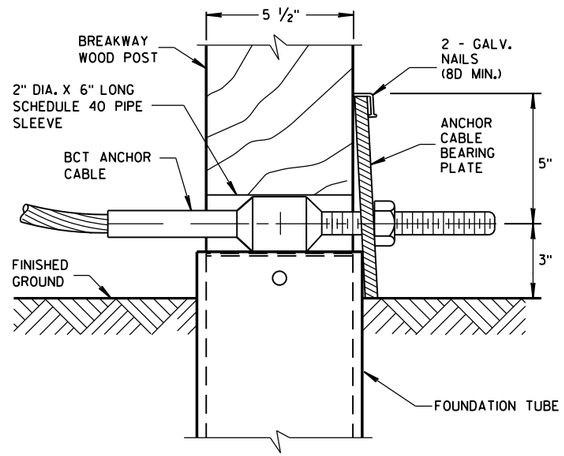


PLAN VIEW



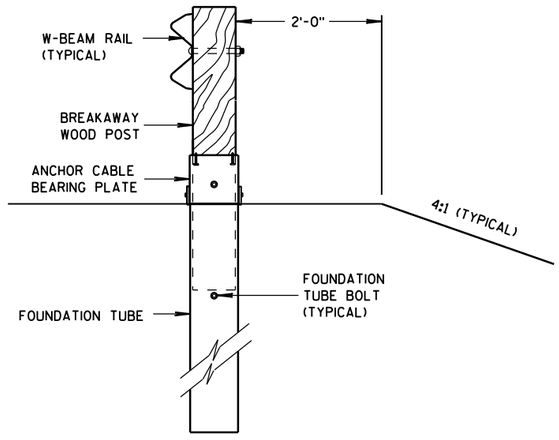
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1
GROUNG STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.

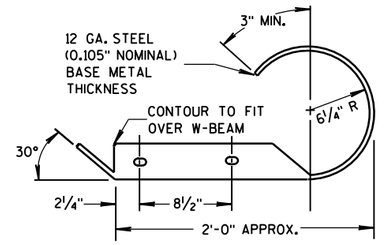
FOUNDATION TUBE BOLTS ARE ⅞" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅞" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A ⅝" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅝" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

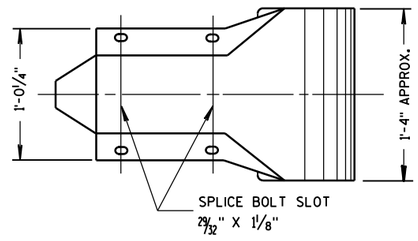
W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

(A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

(B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1".
FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27¾" TO 32" ± 1".



PLAN VIEW



FRONT VIEW

W BEAM END SECTION ROUNDED

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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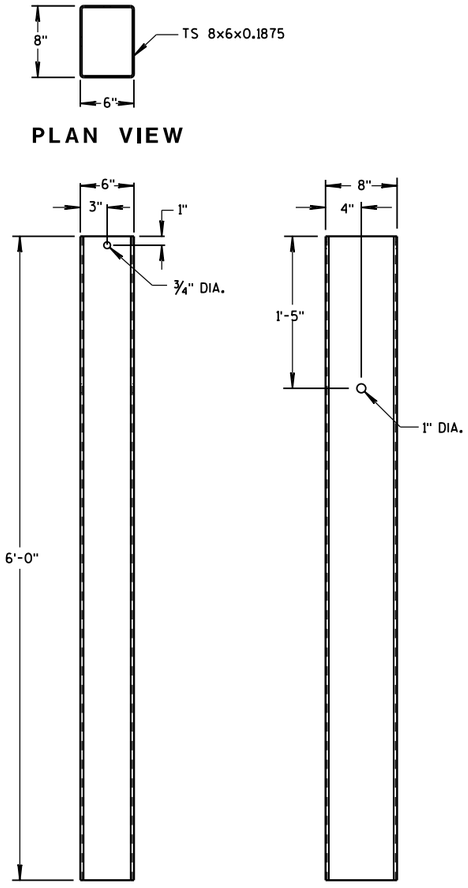
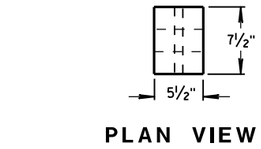
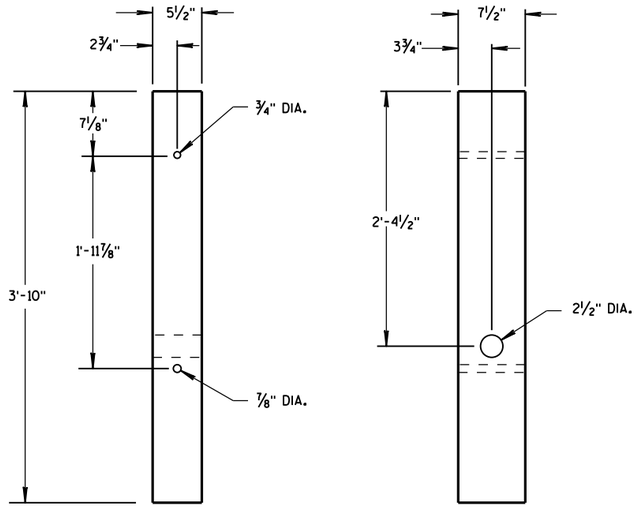
S.D.D. 14 B 47-2a



FOUNDATION TUBE



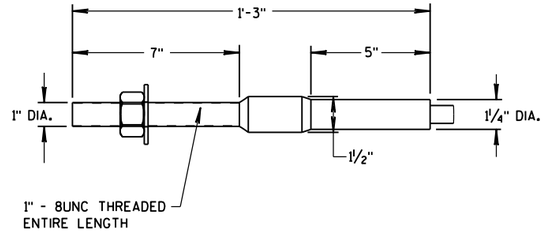


BREAKAWAY WOOD POST

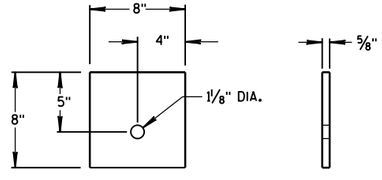
GENERAL NOTES

BCT ANCHOR CABLE IS A ¾" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.

BCT ANCHOR CABLE



DETAIL B



ANCHOR CABLE
BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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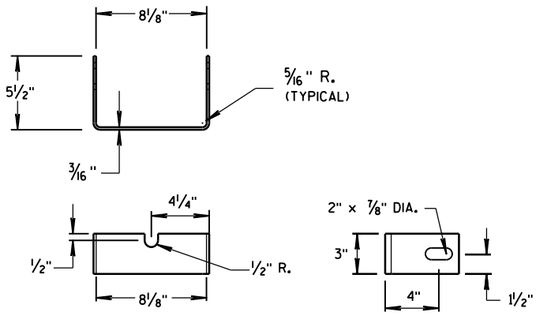
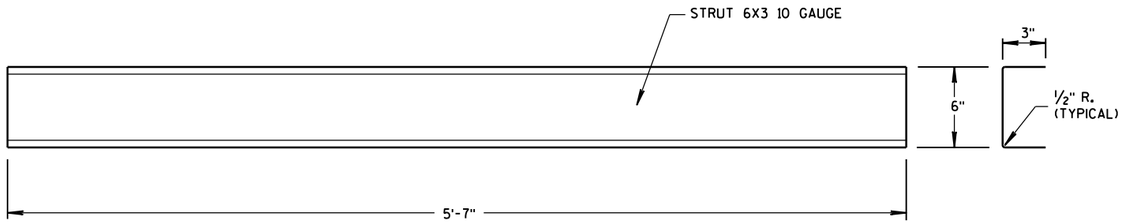
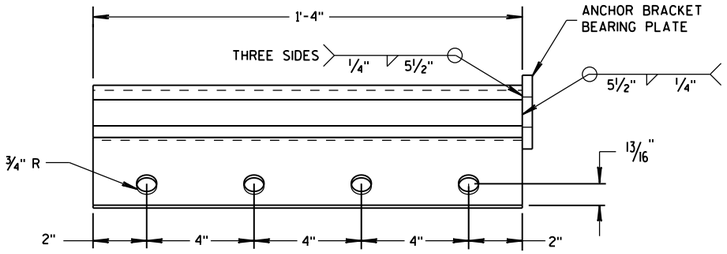
S.D.D. 14 B 47-2b

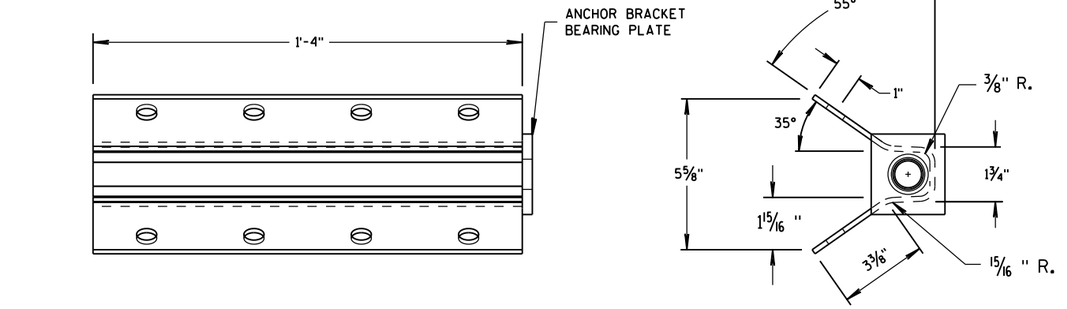


YOKE DETAIL

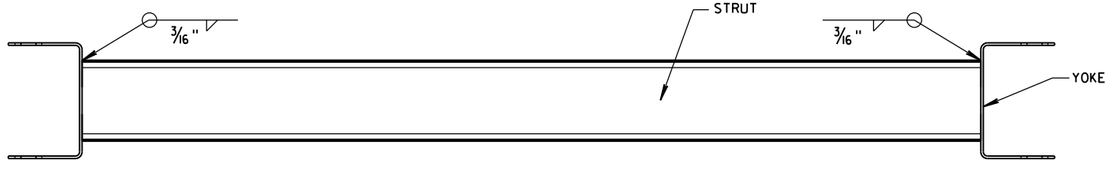


STRUT DETAIL

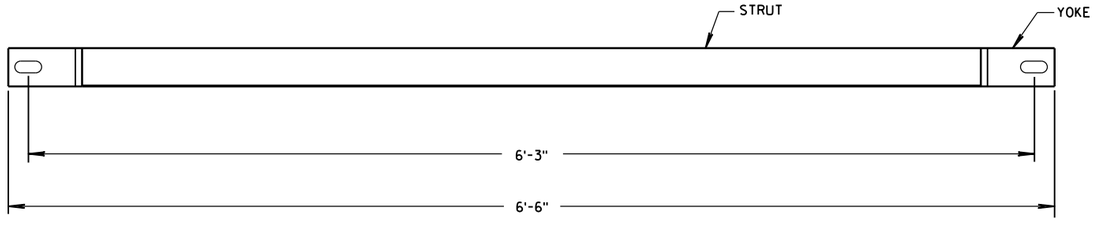




ANCHOR BRACKET

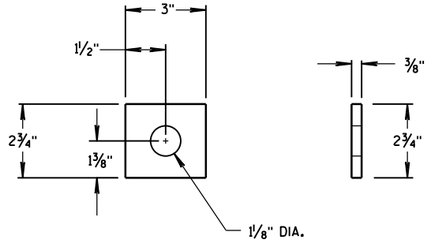


PLAN VIEW



FRONT VIEW

GROUND STRUT DETAIL



ANCHOR BRACKET BEARING PLATE

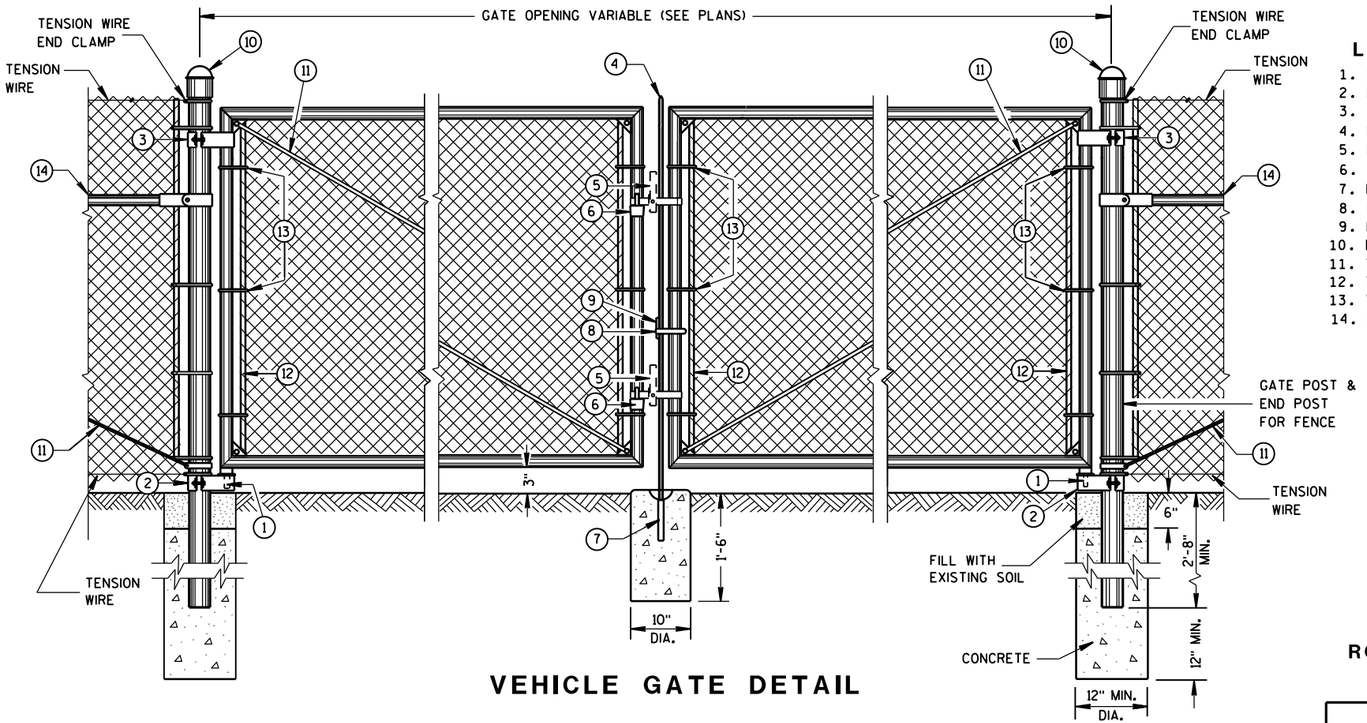
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

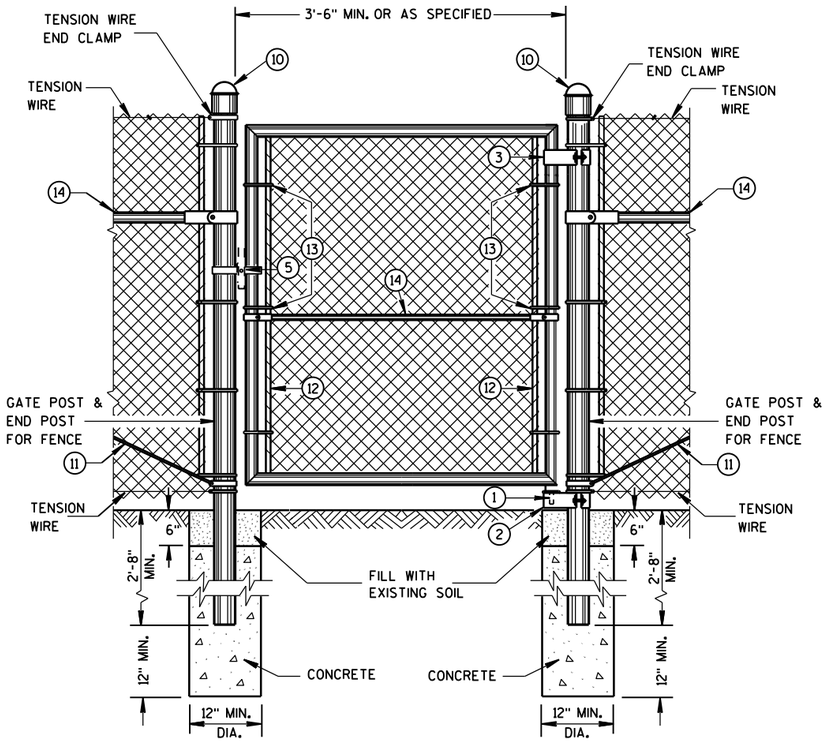
APPROVED
June 2014
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 47-2c



VEHICLE GATE DETAIL



PEDESTRIAN GATE DETAIL

LEGEND

1. STRAIGHT PLUG
2. BOTTOM HINGE
3. TOP HINGE
4. PLUNGER ROD
5. FULCRUM LATCH
6. FORK CATCH *
7. PLUNGER ROD CATCH
8. LOCK KEEPER GUIDE
9. LOCK KEEPER
10. DOME TOPS
11. TRUSS RODS
12. TENSION BAR
13. TENSION BANDS
14. BRACE RAIL

*NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

GENERAL NOTES

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

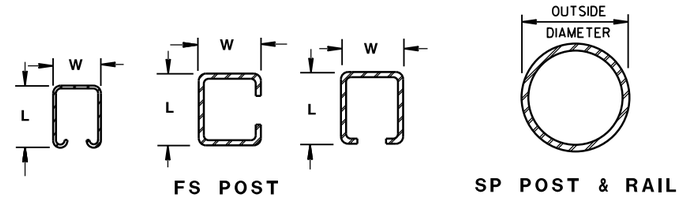
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

FOR LEAF GATES GREATER THAN 8 FEET WIDE, INSTALL INTERIOR VERTICAL BRACE RAIL AT 8 FOOT INTERVALS.

FOR FABRIC HEIGHTS GREATER THAN 8 FEET, INSTALL INTERIOR HORIZONTAL BRACE RAILS TO LEAF GATE.

MAXIMUM SAG FOR OUTER GATE MEMBER SHALL NOT EXCEED THE GREATER OF 1% OF THE LEAF GATE WIDTH OR 2 INCHES.

USE TYPE 2, CLASS 3, MARCELLED/CRIMPED, TENSION WIRE PER ASTM A 817.



FS POST

SP POST & RAIL

CROSS SECTIONS OF POSTS AND RAILS

REQUIRED FENCE POST SIZES

USE	FABRIC HEIGHTS FEET	POST TYPE
TERMINAL POSTS **	LESS THAN OR EQUAL TO 6 FT.	SP3
	GREATER THAN OR EQUAL TO 6 FT.	SP4
LINE POSTS	LESS THAN OR EQUAL TO 6 FT.	SP2
	LESS THAN OR EQUAL TO 8 FT.	SP3
	GREATER THAN OR EQUAL TO 8 FT.	SP4
	LESS THAN OR EQUAL TO 8 FT.	FS2 OR FS2†
	GREATER THAN OR EQUAL TO 8 FT.	FS3

BRACE RAIL TYPES

USE		TYPE
BRACE RAIL		SP1 OR FS1

** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

ROLLED-FORMED STEEL FENCE POST (2.0 OZ./SQ. FT. COATING)

POST TYPE	LENGTH (L) INCH	WIDTH (W) INCH	WEIGHT LBS/FT
FS1	1.625	1.25	1.35
FS2†	1.875	1.625	1.850
FS2	1.875	1.625	2.400
FS3	2.250	1.700	2.780

REQUIRED POST SIZE FOR GATES

USE	LEAF WIDTHS FEET	POST TYPE
GATES	LESS THAN OR EQUAL TO 6 FT.	SP4
	LESS THAN OR EQUAL TO 13 FT.	SP5
	LESS THAN OR EQUAL TO 18 FT.	SP6
	LESS THAN OR EQUAL TO 23 FT.	SP7

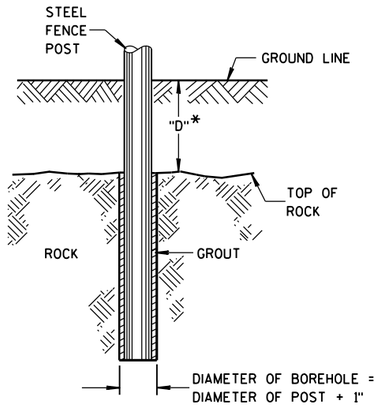
ROUND STEEL FENCE POST (1.8 OZ./SQ. FT. COATING)

POST TYPE	OUTSIDE DIMENSION INCH	WALL THICKNESS INCH	WEIGHT LBS/FT
SP1	1.660	0.140	2.270
SP2	1.900	0.145	2.720
SP3	2.375	0.154	3.650
SP4	2.875	0.203	5.800
SP5	4.000	0.226	9.120
SP6	6.625	0.280	18.990
SP7	8.625	0.322	28.580

FENCE CHAIN LINK

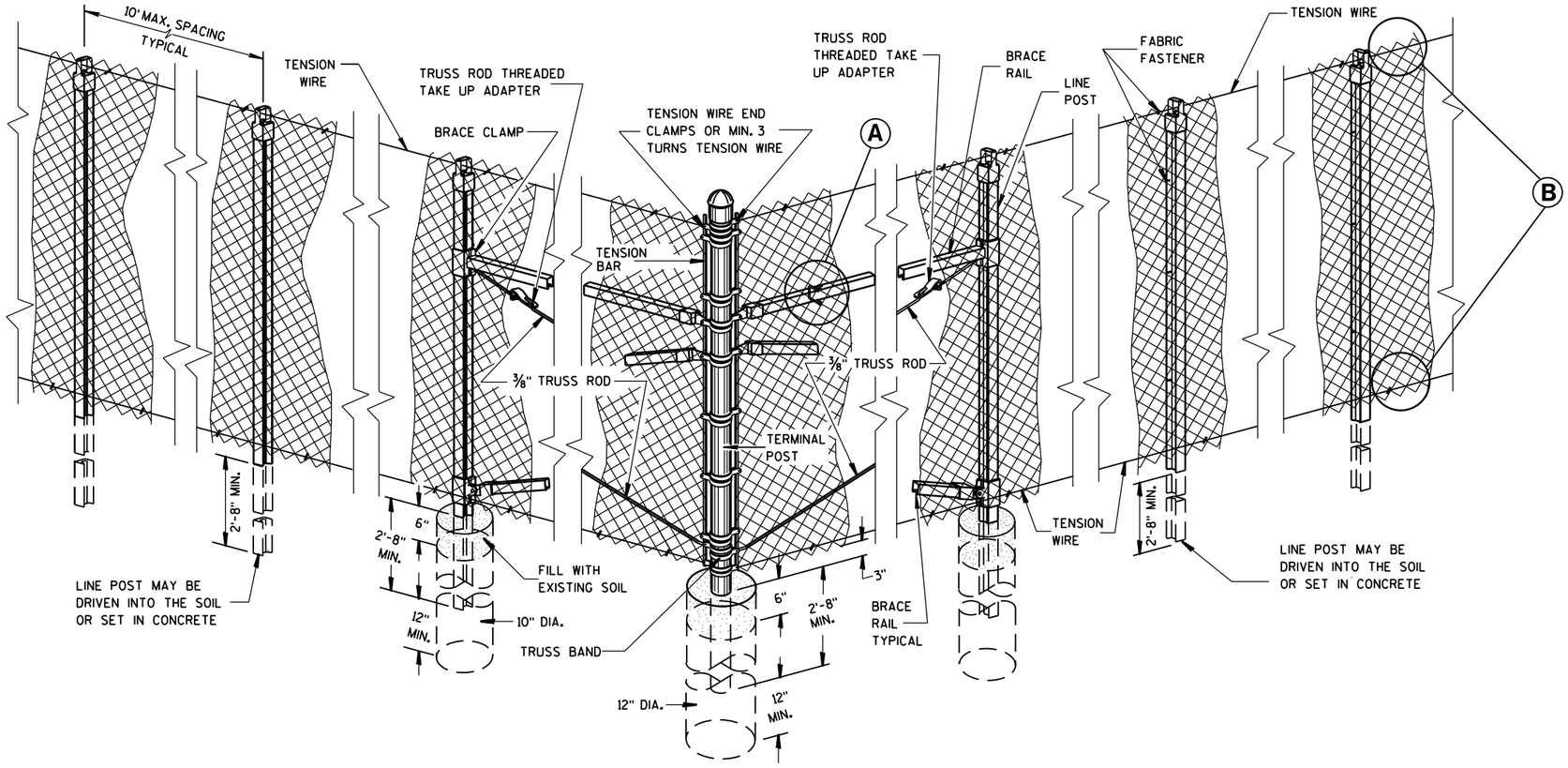
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 15 B 3-15a

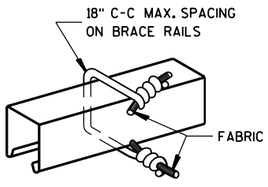


*IF "D" IS LESS THAN 2'-6", DRILL ROCK AND INSTALL GROUT

ROCK INSTALLATION OF LINE POST



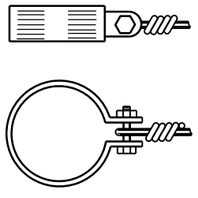
END, CORNER, ANGLE INTERSECTION & INTERMEDIATE BRACED POSTS



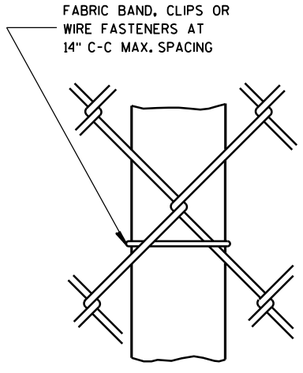
BRACE RAIL

FABRIC FASTENER

Ⓐ



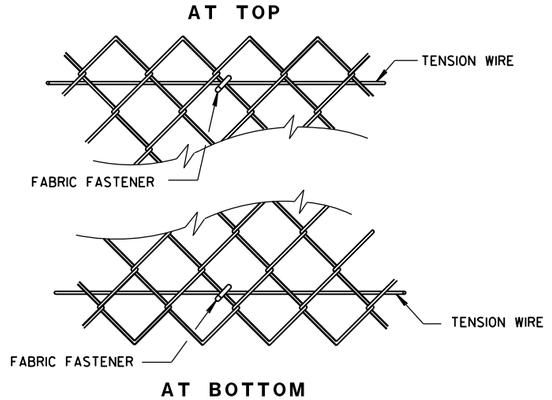
TENSION WIRE END CLAMP



LINE POST

FABRIC FASTENER

AT TOP



AT BOTTOM

SELVAGES

Ⓑ

FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
FEB. 2015 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 15 B 3-15b

6

S.D.D. 15 B 3-15b

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

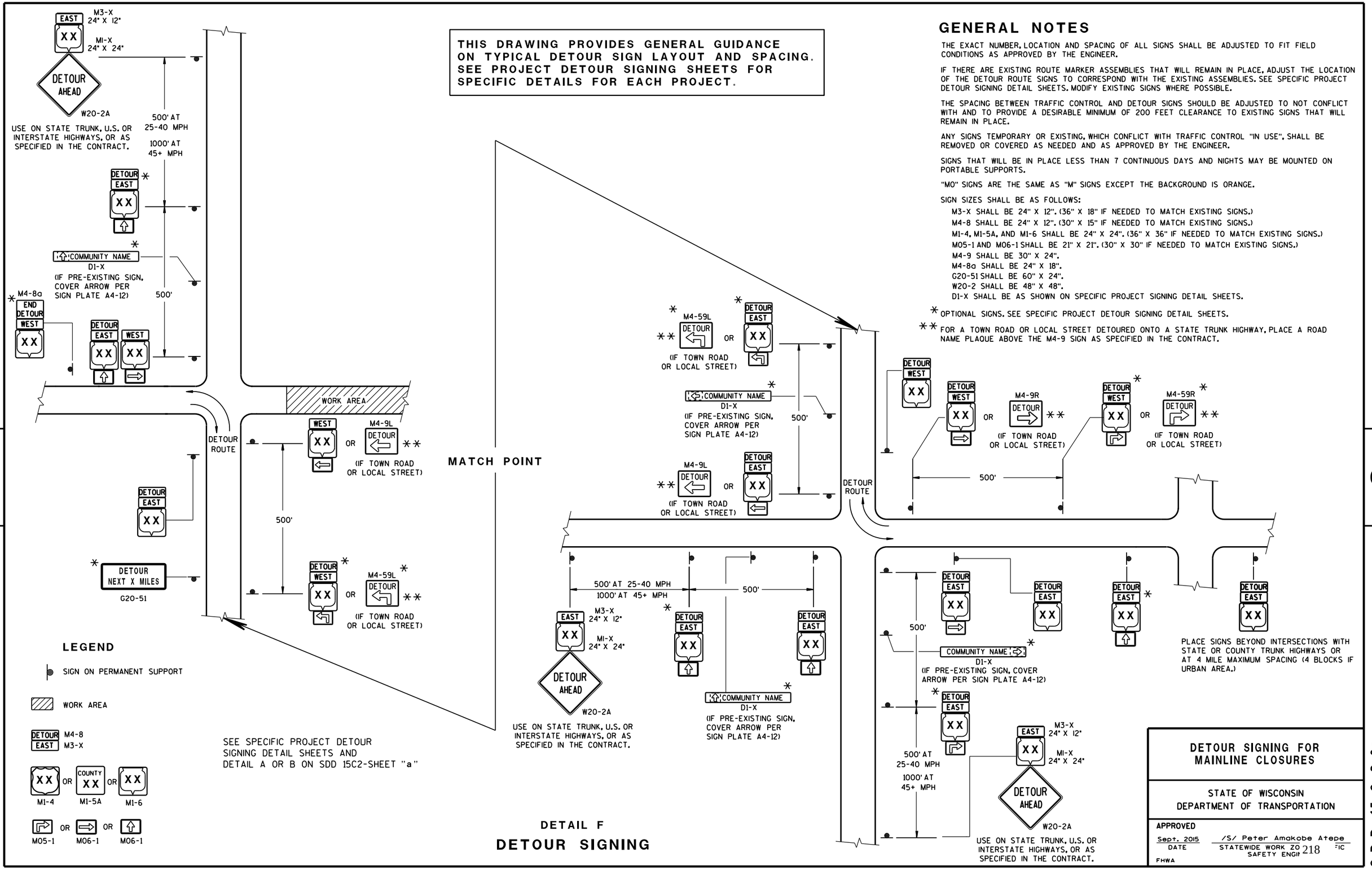
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST — M4-8, M3-X
- XX OR COUNTY XX OR XX — M1-4, M1-5A, M1-6
- MO5-1 OR MO6-1 OR MO6-1

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD 15C2-SHEET "a"

DETAIL F

DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

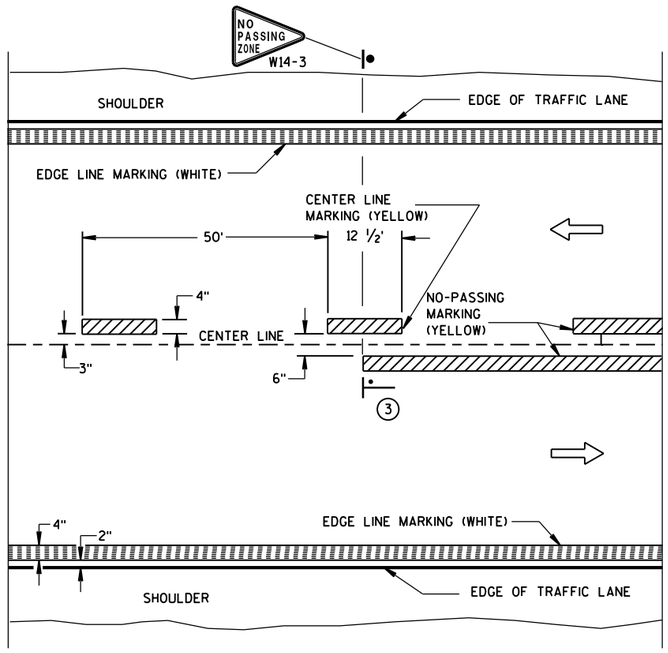
Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZO SAFETY ENGI FIC

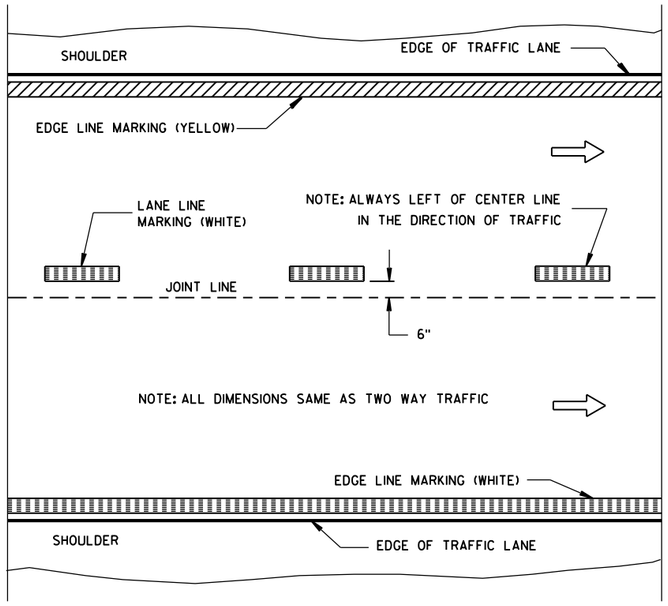
FHWA

S.D.D. 15 C 2-6c

6

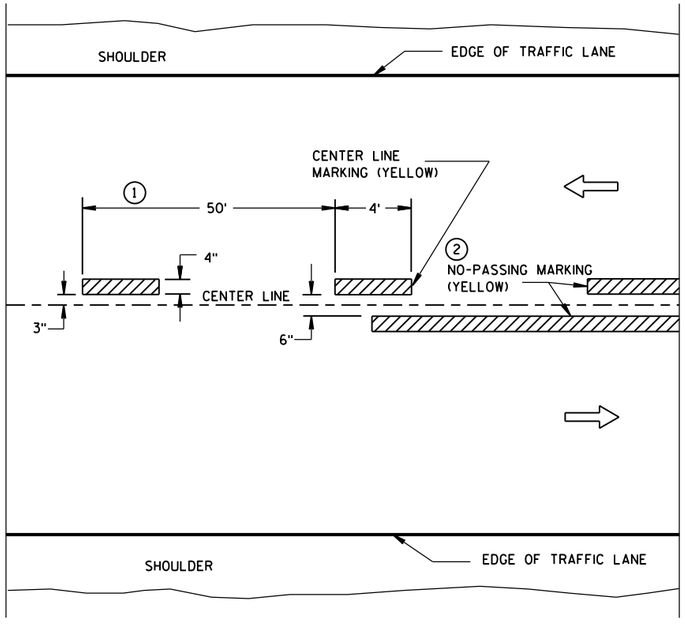


TWO WAY TRAFFIC

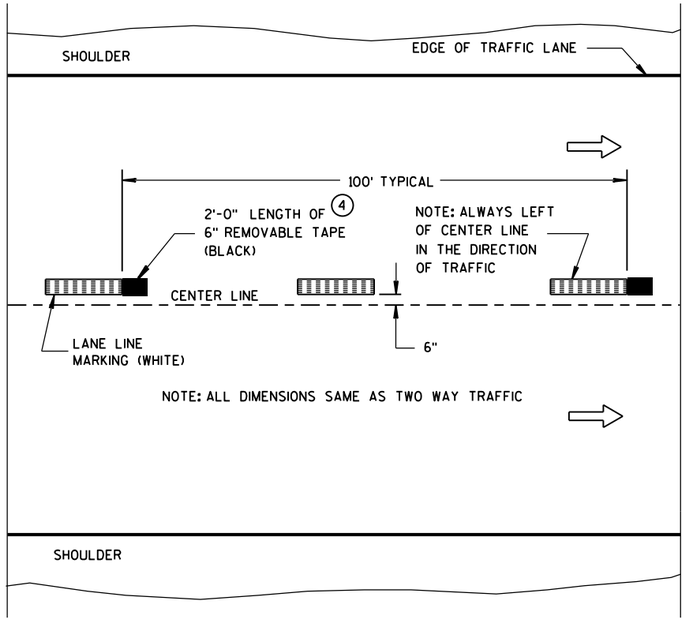


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

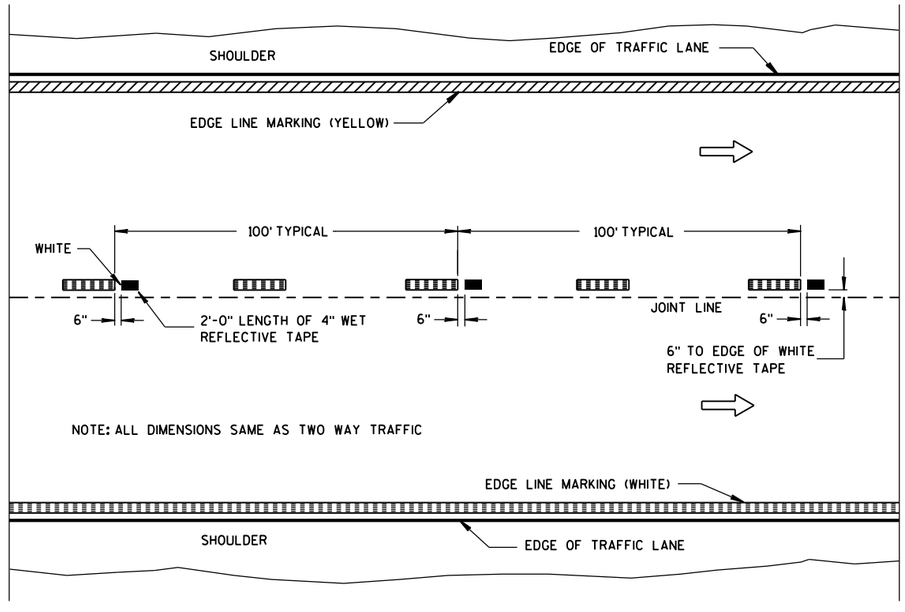
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
4. CONCRETE ONLY.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

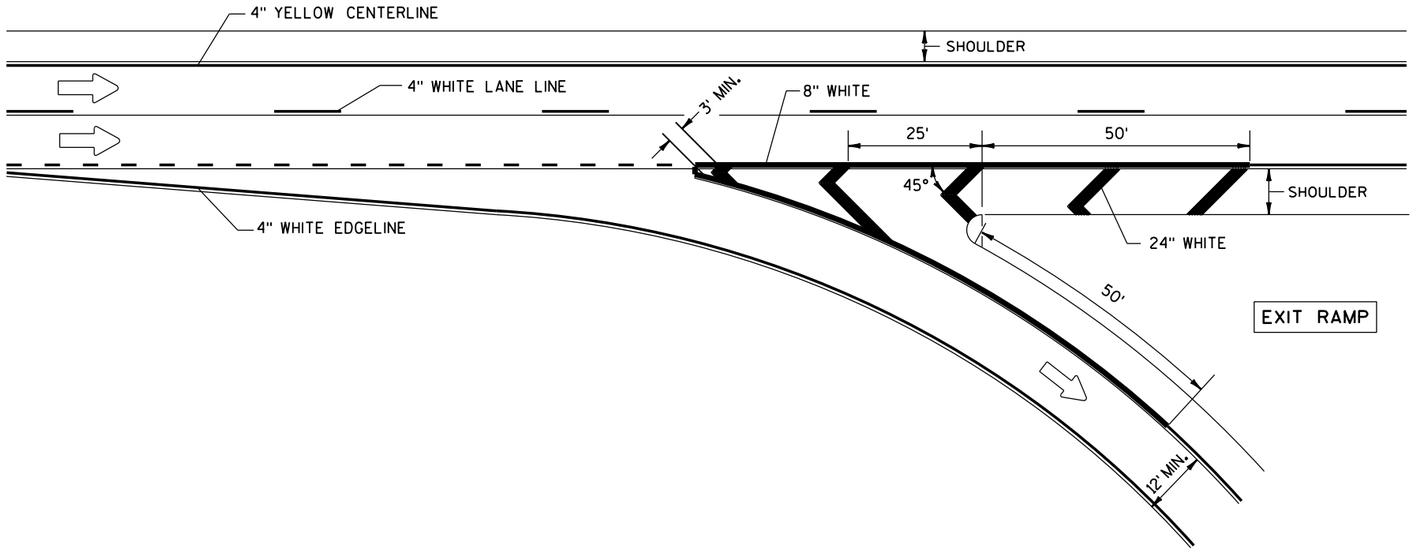
FHWA

6

S.D.D. 15 C 8-16a

6

S.D.D. 15 C 8-16a



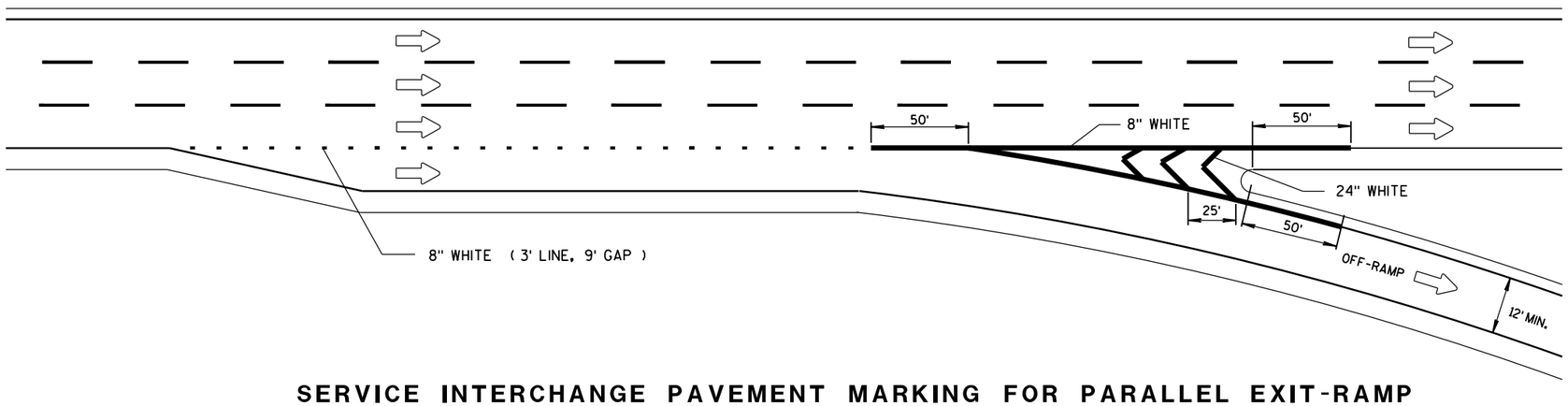
PAVEMENT MARKING FOR EXIT RAMP

GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

LEGEND

DIRECTION OF TRAVEL



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL EXIT-RAMP

6

S.D.D. 15 C 31-2a

PAVEMENT MARKING
(RAMPS AND GORES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

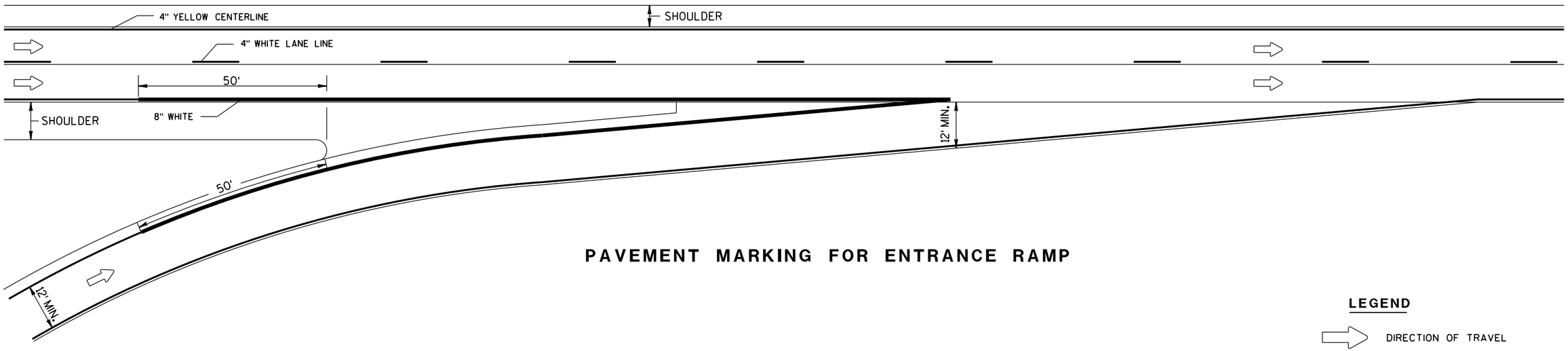
6

S.D.D. 15 C 31-2a

GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

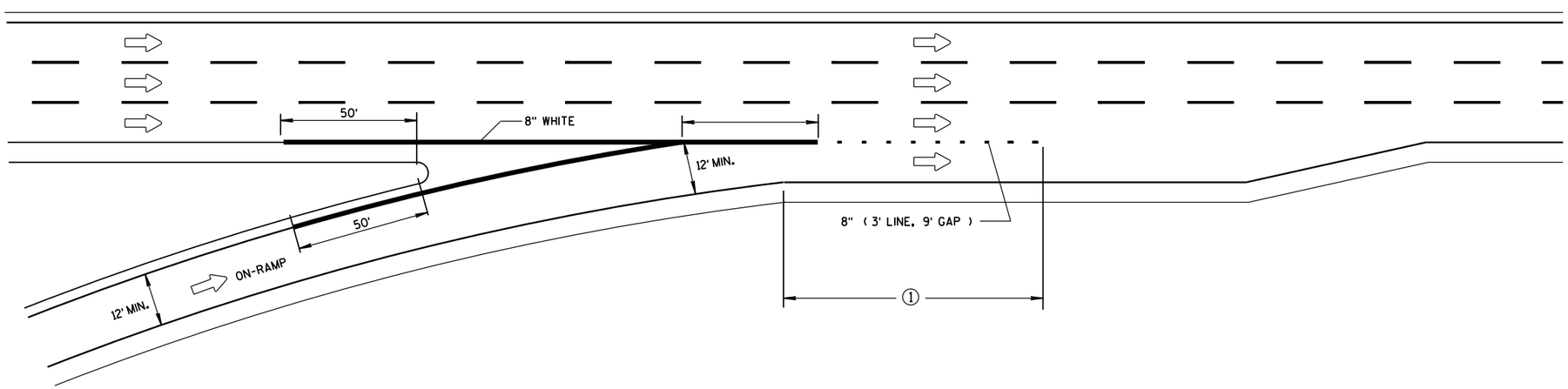
① ½ LENGTH OF FULL WIDTH ACCELERATION LANE.



PAVEMENT MARKING FOR ENTRANCE RAMP

LEGEND

DIRECTION OF TRAVEL



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL ENTRANCE-RAMP

PAVEMENT MARKING FOR PARALLEL ON-RAMP AND PARALLEL OFF-RAMP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept., 2016
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MARKING ENGINEER

FHWA

6

S.D.D. 15 C 31-2c

6

S.D.D. 15 C 31-2c

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- REMOVING PAVEMENT MARKING
- CONCRETE BARRIER TEMPORARY PRECAST
- DIRECTION OF TRAFFIC
- WORK AREA

L, TAPER LENGTH (MPH)									
SPEED (MPH)	W, LATERAL OFFSET (FT)								
	10	11	12	13	14	15	16	17	18
45	450	495	540	585	630	675	720	765	810
50	500	550	600	650	700	750	800	850	900
55	550	605	660	715	770	825	880	935	990
60	600	660	720	780	840	900	960	1020	1080
65	650	715	780	845	910	975	1040	1105	1170
70	700	770	840	910	980	1050	1120	1190	1260

W12-52P
42"x36"
EACH LANE

OR

MAX. XX WIDTH W12-52

XX MILES AHEAD
W057-52
48"x36"

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1 FOOT LESS THAN AVAILABLE WIDTH (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET).

SPEED LIMIT 60 W03-5

OR

SPEED LIMIT 55 W03-5

LOCATED 2600 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.

SPEED LIMIT 60

OR

SPEED LIMIT 55

R2-1
48"x60"
(BLACK AND WHITE)

LOCATED 500 FEET BEYOND W20-5G SIGN.

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.

* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

GENERAL NOTES

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.

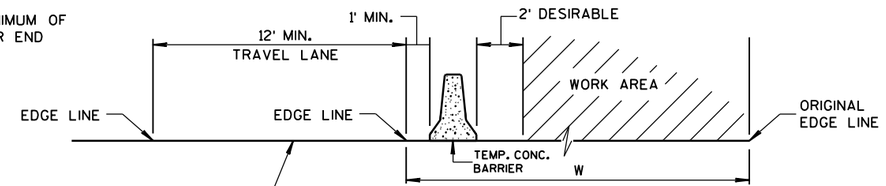
(1) CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

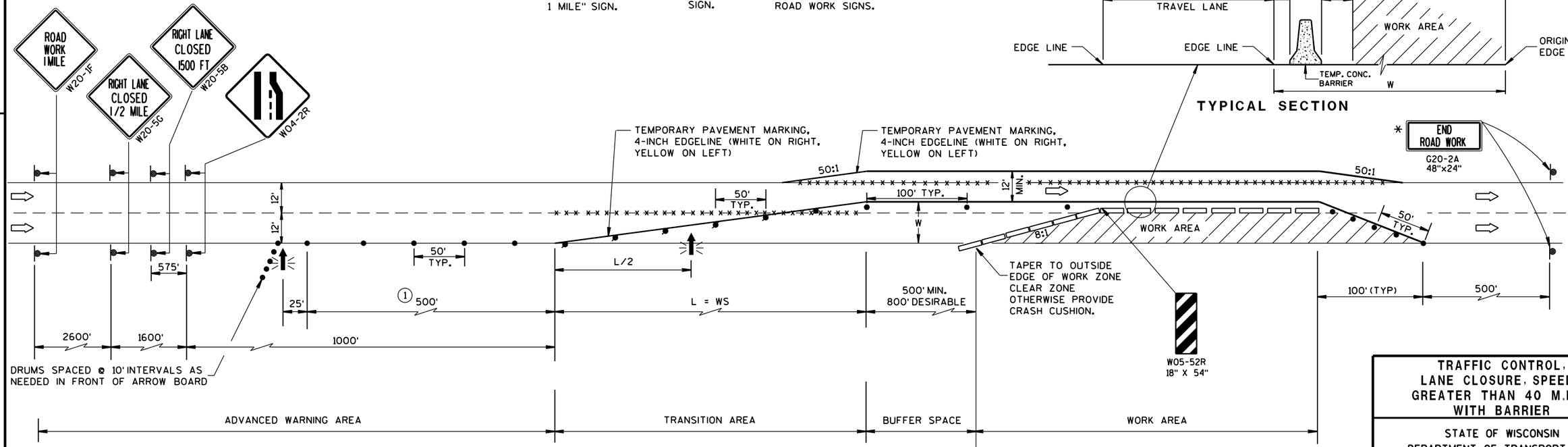
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.



TYPICAL SECTION



TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZOI SAFETY ENGIN IC
FHWA

6
S.D.D. 15 D 3-3

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- REMOVING PAVEMENT MARKING
- CONCRETE BARRIER TEMPORARY PRECAST
- DIRECTION OF TRAFFIC
- WORK AREA

L, TAPER LENGTH (MPH)							
SPEED (MPH)	W, LATERAL OFFSET (FT)						
	10	11	12	13	14	15	16
45	450	495	540	585	630	675	720
50	500	550	600	650	700	750	800
55	550	605	660	715	770	825	880
60	600	660	720	780	840	900	960
65	650	715	780	845	910	975	1040
70	700	770	840	910	980	1050	1120

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1 FOOT LESS THAN AVAILABLE WIDTH (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET).

OR

LOCATED 2600 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.

OR

R2-1
48"x60"
(BLACK AND WHITE)
LOCATED 500 FEET BEYOND W20-5G SIGN.

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES.

* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

GENERAL NOTES

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.

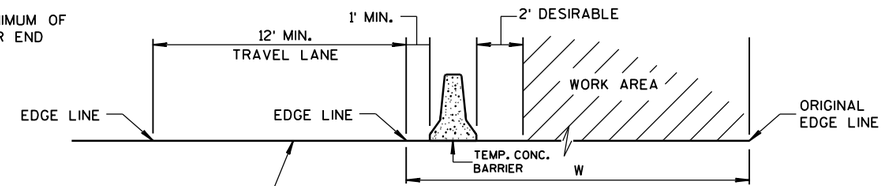
(1) CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

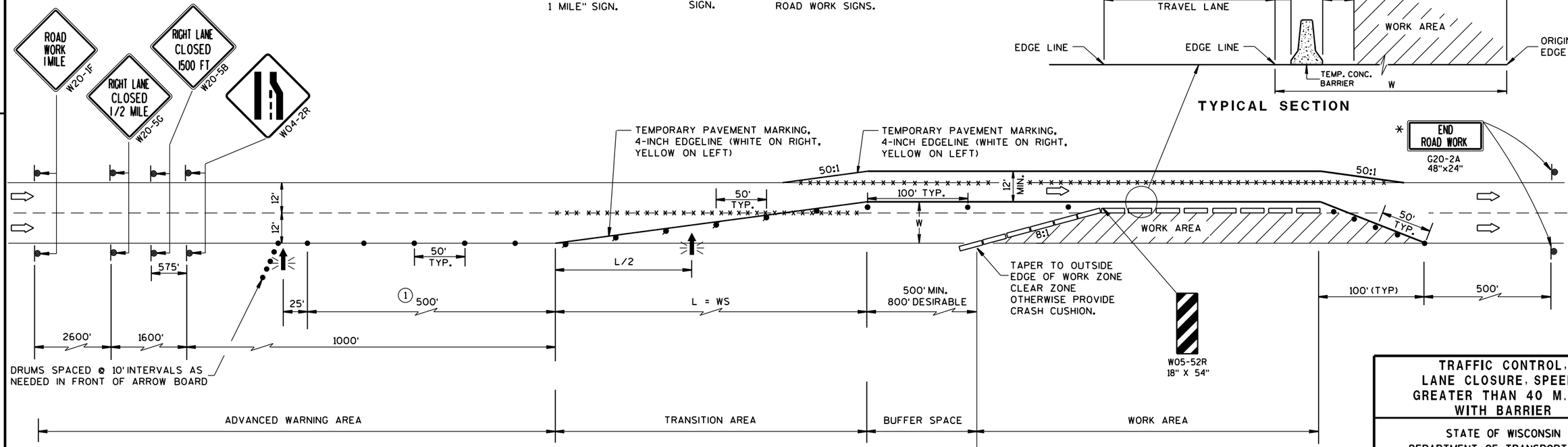
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.



TYPICAL SECTION



TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H. WITH BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZOI SAFETY ENGIN
FHWA

6

S.D.D. 15 D 3-4

6

S.D.D. 15 D 3-4

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

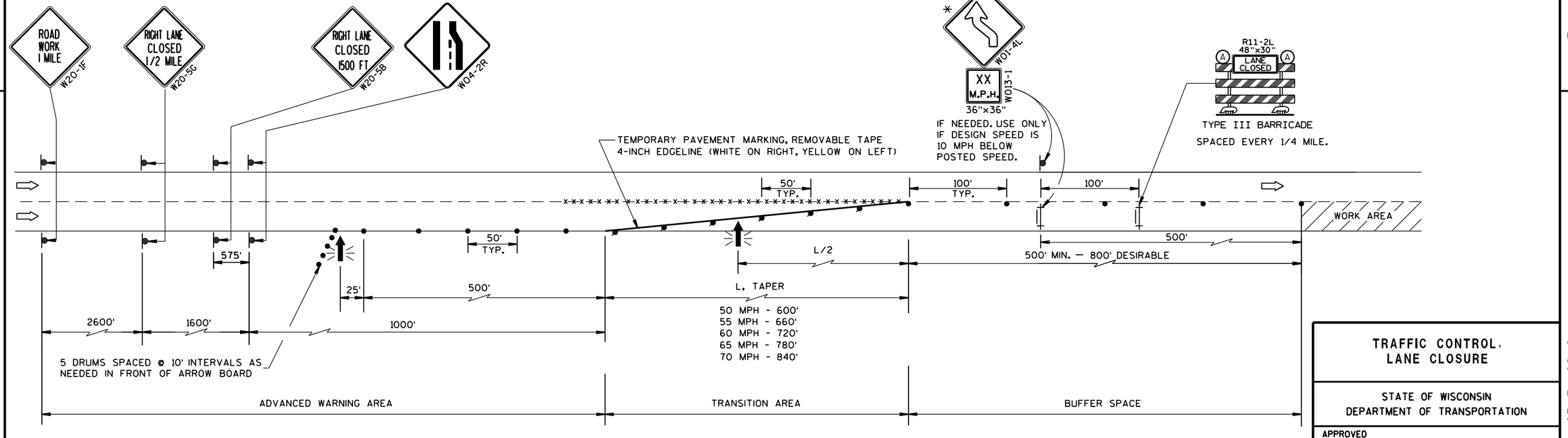
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

S.D.D. 15 D 12-6a

S.D.D. 15 D 12-6a

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"×48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

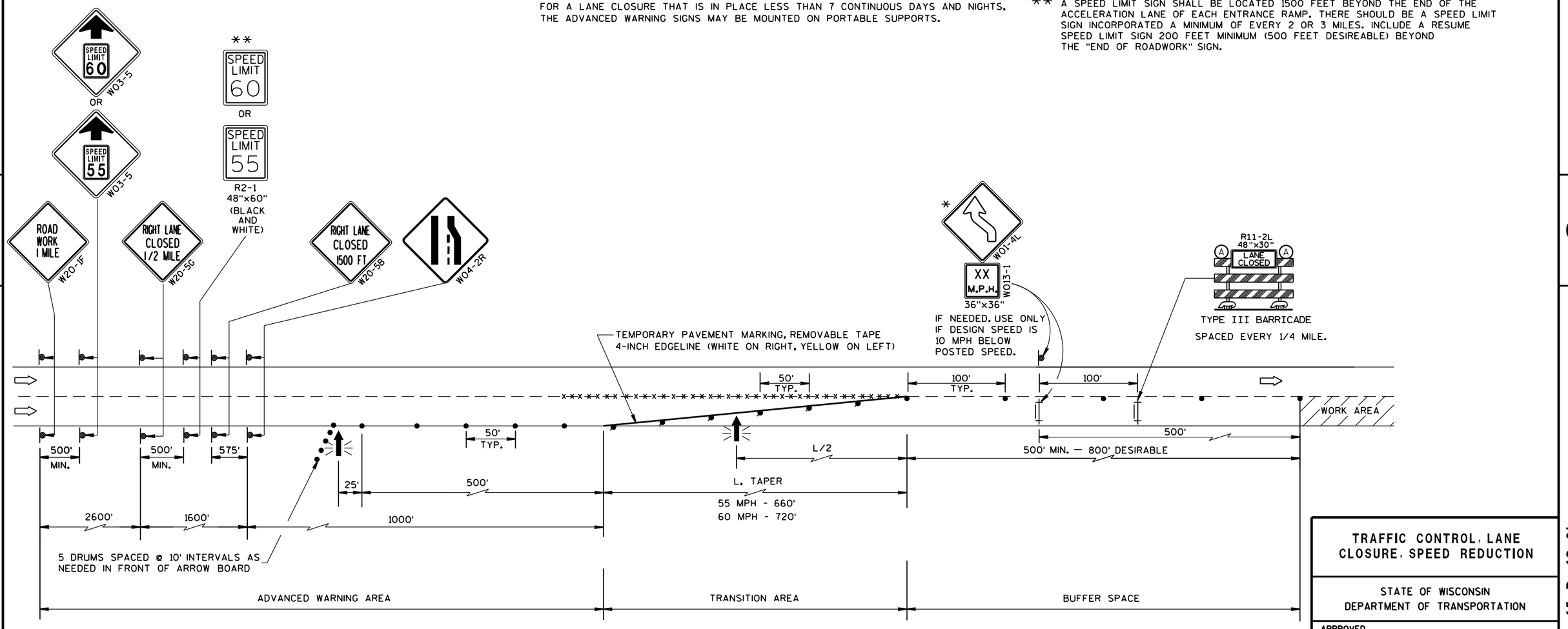
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

** A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIREABLE) BEYOND THE "END OF ROADWORK" SIGN.



TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

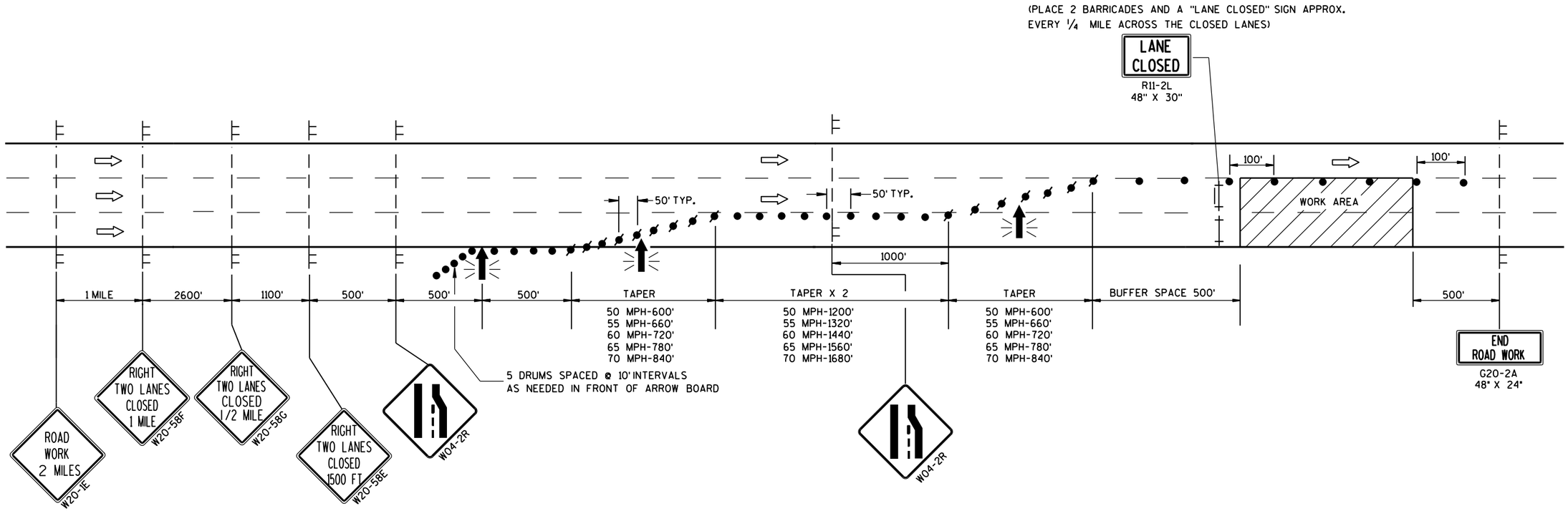
APPROVED
March 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA

6

S.D.D. 15 D 12-6b

6

S.D.D. 15 D 12-6b



LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT TWO LANES. FOR CLOSING THE LEFT TWO LANES, REVERSE THE TRAFFIC CONTROL.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

W20-1E AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

WHEN A RAMP OR SIDE ROAD INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

TRAFFIC CONTROL, TWO LANE CLOSURE ON FREEWAY OR EXPRESSWAY, SHORT TERM (LESS THAN 24 HOURS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

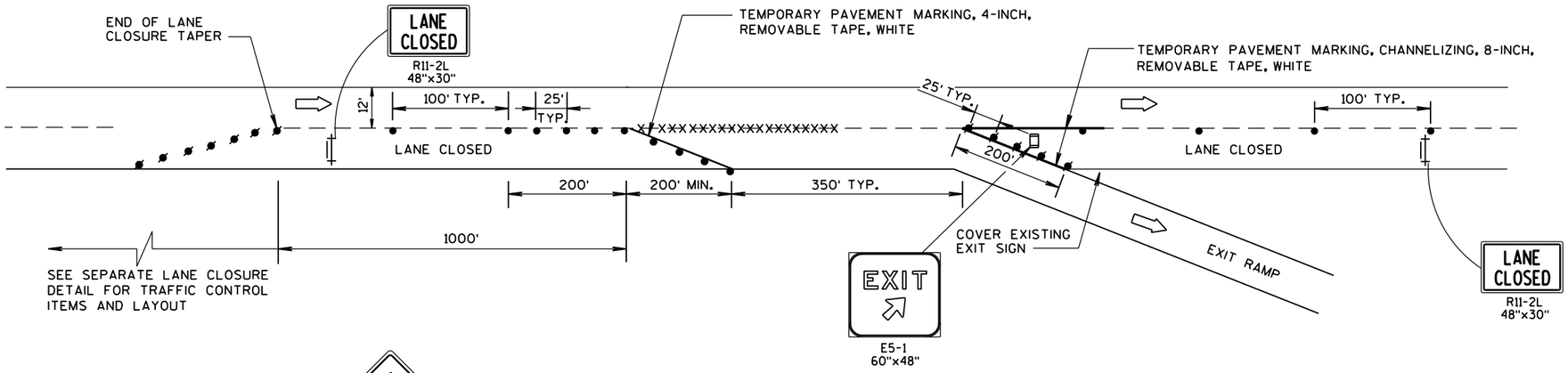
APPROVED
July 14, 2015 — DATE
/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

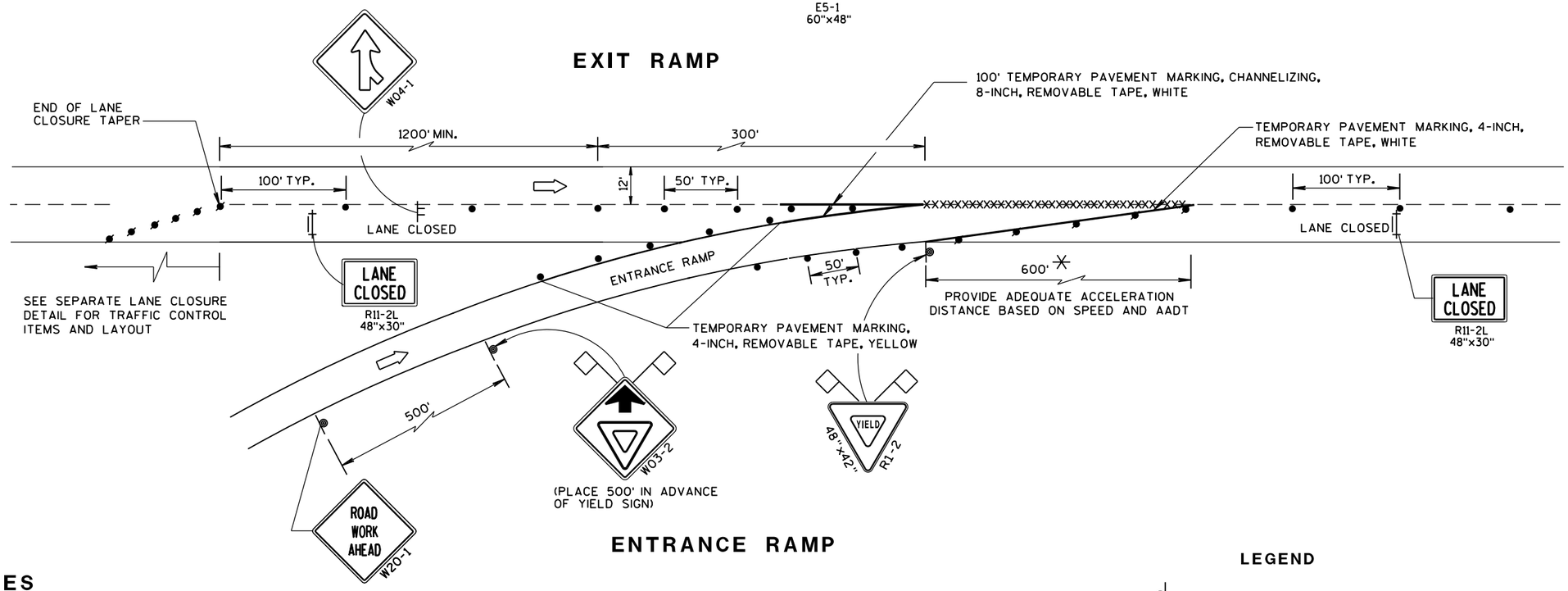
S.D.D. 15 D 14-3

6

S.D.D. 15 D 14-3



EXIT RAMP



ENTRANCE RAMP

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 7 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

* LENGTH OF OPENING MAY BE REDUCED TO 150 FEET DURING STAGING OF WORK IN IMMEDIATE AREA OF RAMP TAPER.

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- FLAGS, 16" x 16" MIN., (ORANGE)
- DIRECTION OF TRAFFIC

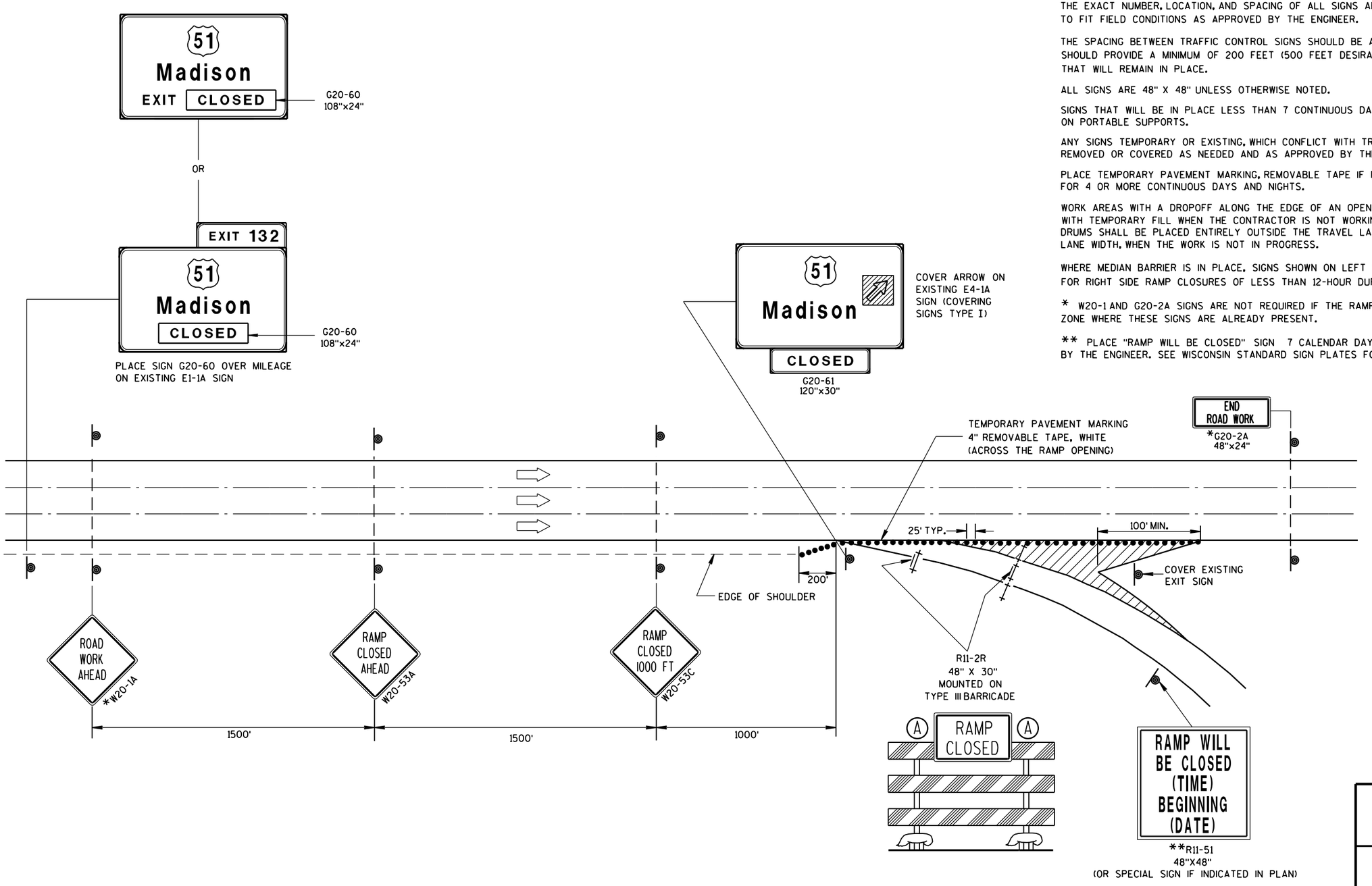
TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2015 — DATE
FHWA
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE SAFETY ENGINEER

S.D.D. 15 D 15-2

S.D.D. 15 D 15-2



GENERAL NOTES

THIS RAMP CLOSURE DETAIL IS TYPICAL FOR CLOSING A RIGHT SIDE EXIT RAMP. FOR A LEFT SIDE EXIT RAMP, REVERSE THE TRAFFIC CONTROL.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF RAMP CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WORK AREAS WITH A DROPOFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN THE WORK IS NOT IN PROGRESS.

WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12-HOUR DURATION.

* W20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE RAMP CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

** PLACE "RAMP WILL BE CLOSED" SIGN 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

TRAFFIC CONTROL, EXIT RAMP CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI — FIC
FHWA

6

S.D.D. 15 D 16-3

6

S.D.D. 15 D 16-3

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD
- WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

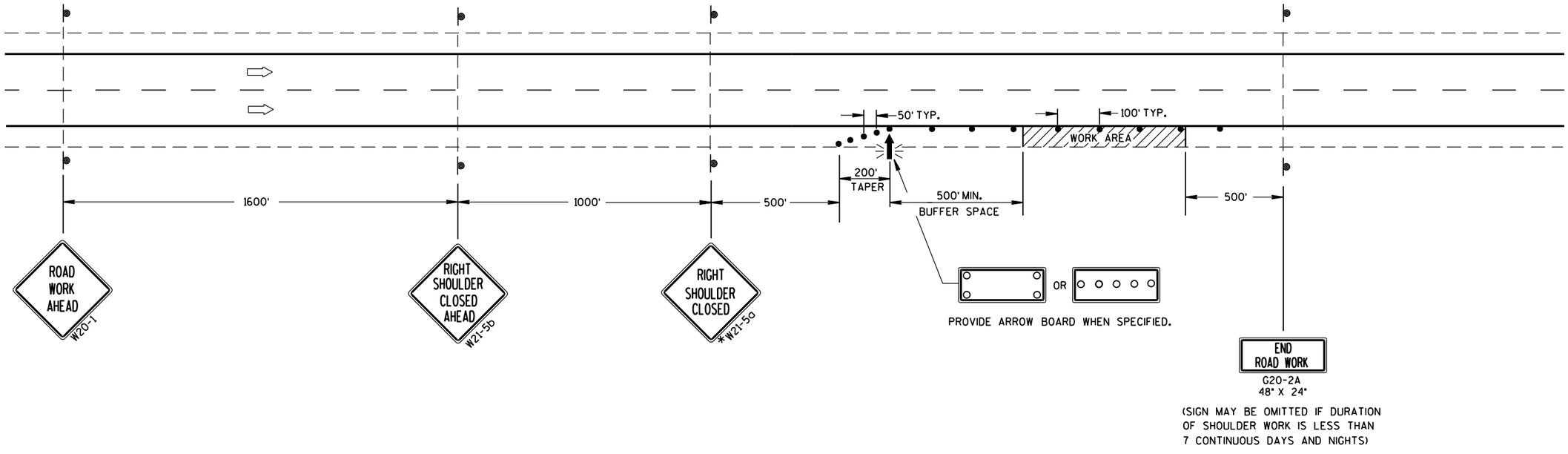
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 D 27-2

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD
- WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

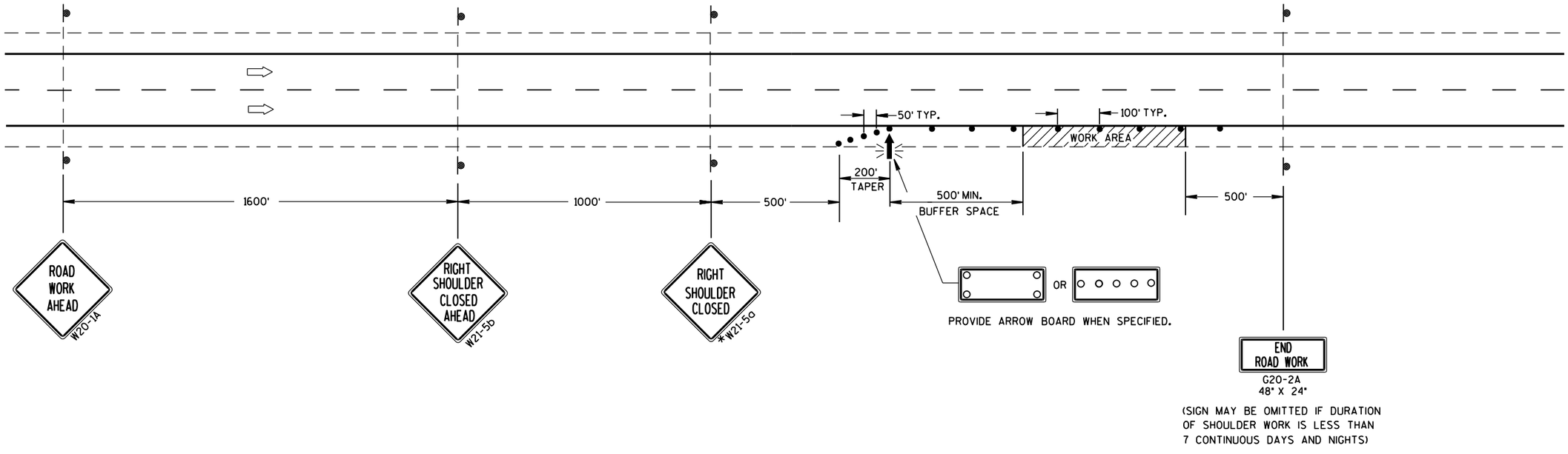
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

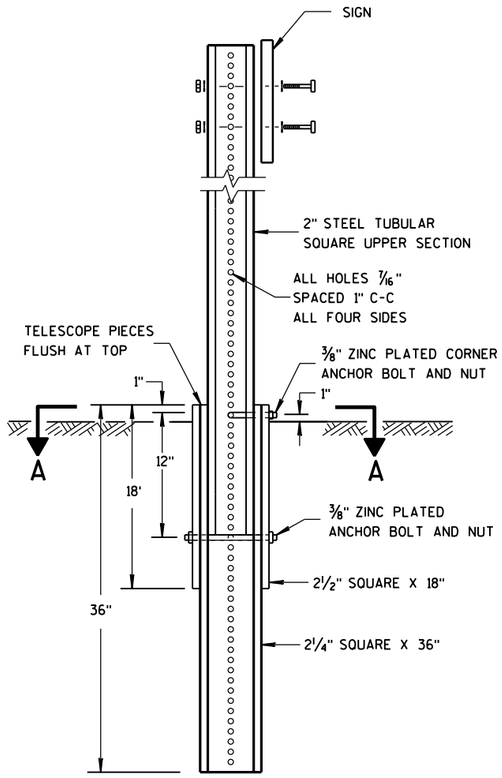
APPROVED

June 2016 — DATE

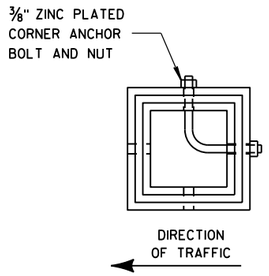
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO[illegible] SAFETY ENGI[illegible]
FHWA

6

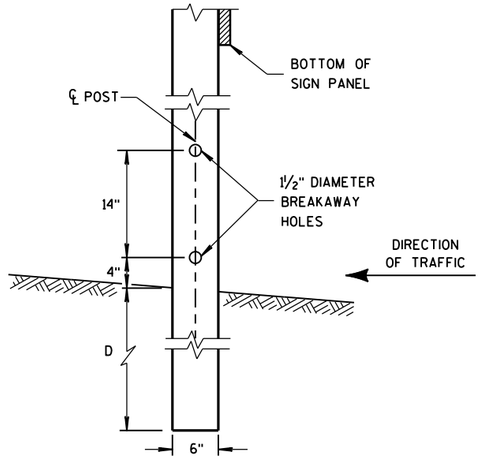
S.D.D. 15 D 27-3



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



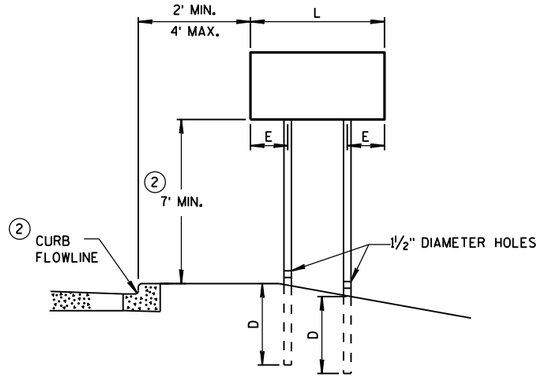
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

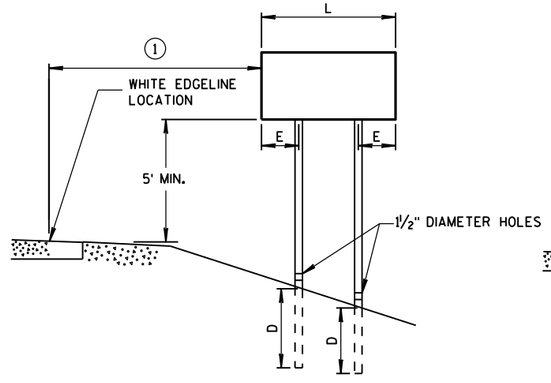
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

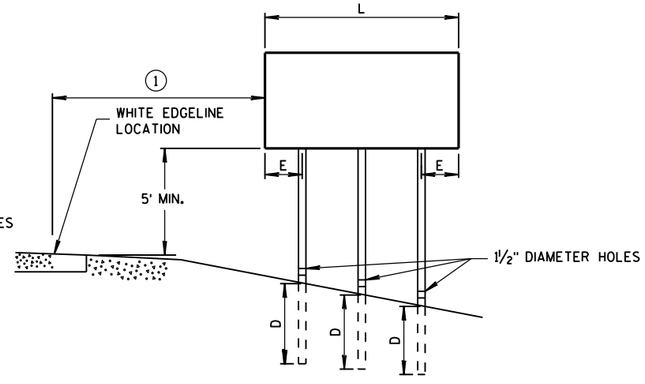
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

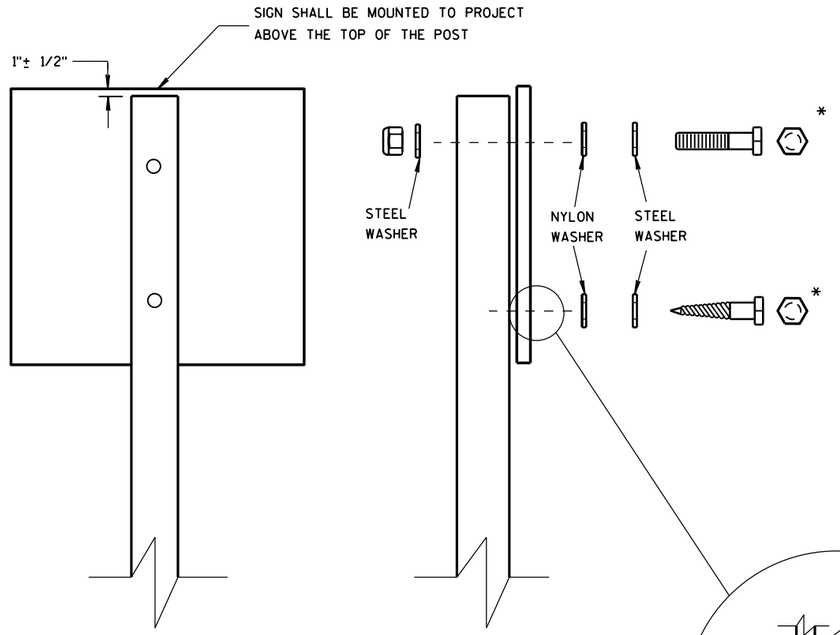
SEE NOTE (3)

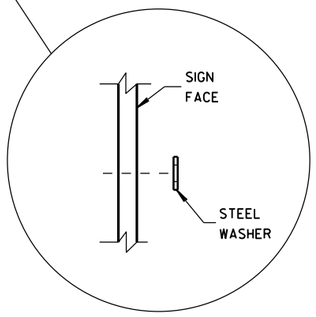
TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

STATE OF WISCONSIN DEPARTMENT OF TRANSPO

6

S.D.D. 15 D 38-1a





WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3

B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

6

6

S.D.D. 15 D 38-1b

S.D.D. 15 D 38-1b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

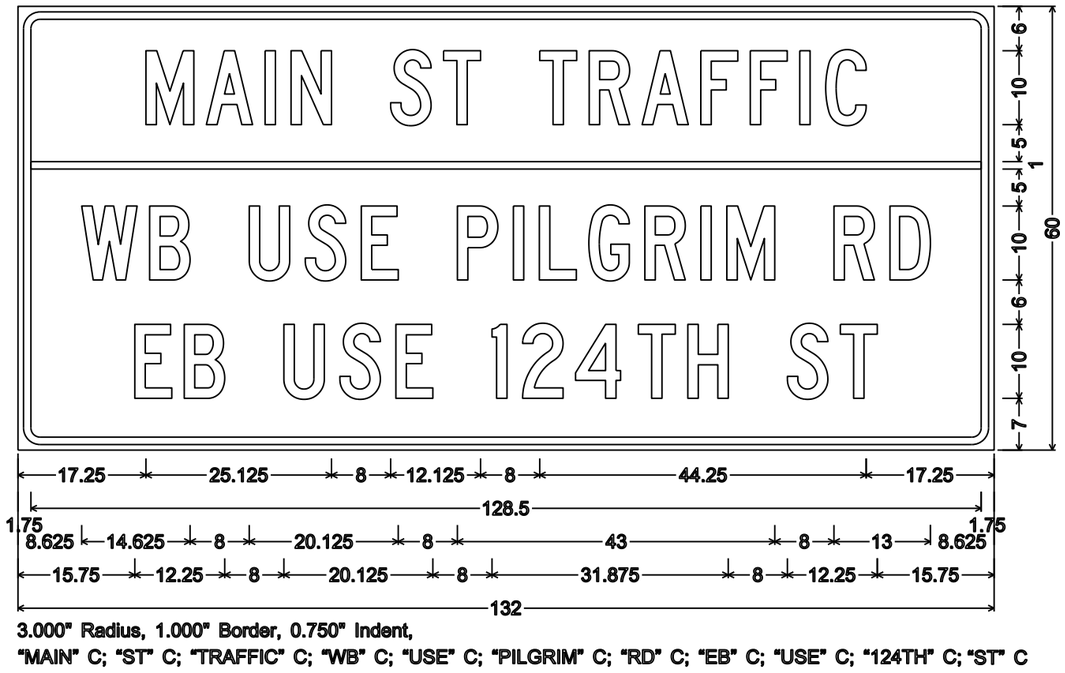
APPROVED

Feb. 2015 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

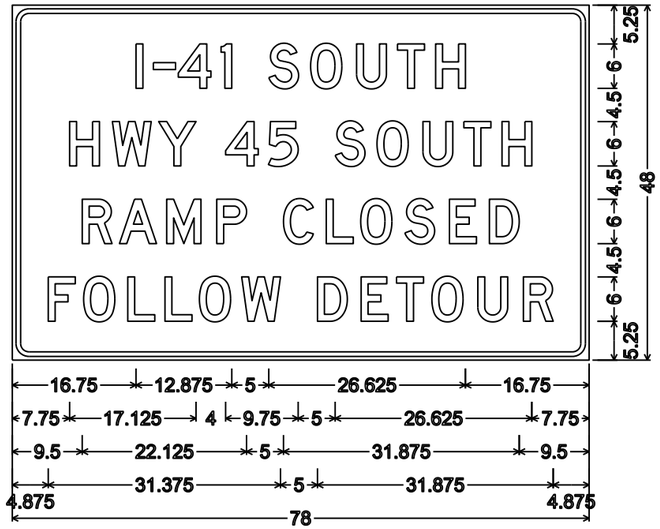
SIGN



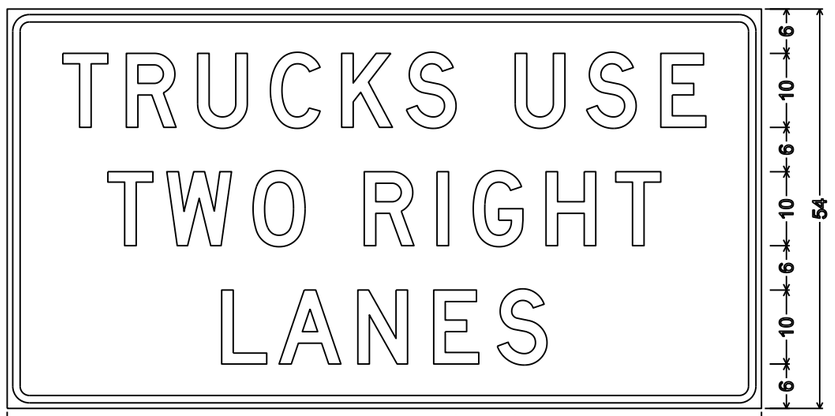
3.000" Radius, 1.000" Border, 0.750" Indent,
"MAIN" C; "ST" C; "TRAFFIC" C; "WB" C; "USE" C; "PILGRIM" C; "RD" C; "EB" C; "USE" C; "124TH" C; "ST" C

NOTES

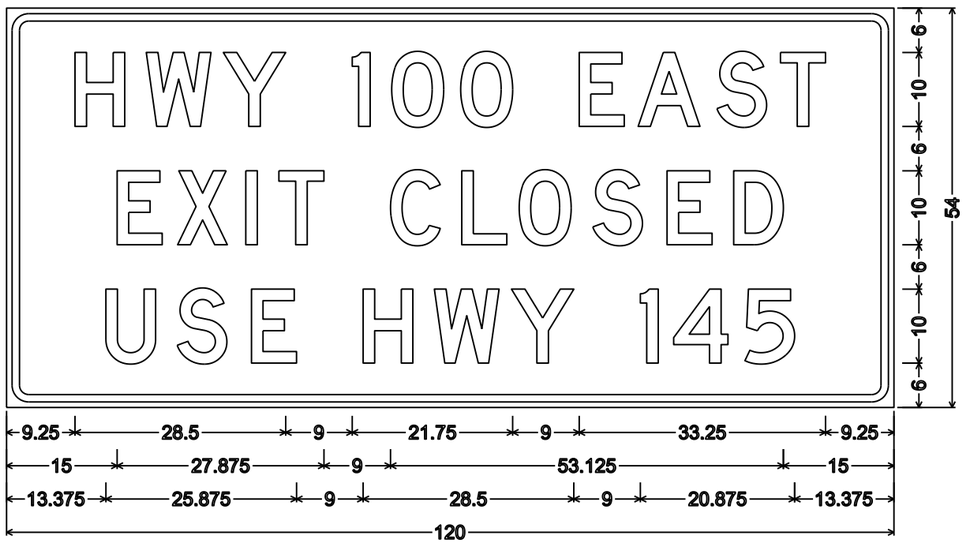
1. Fixed Message Type II Signs - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - As noted



2.250" Radius, 0.625" Border, 0.500" Indent,
"I-41" D; "SOUTH" D; "HWY" D; "45" D; "SOUTH" D;
"RAMP" D; "CLOSED" D; "FOLLOW" D; "DETOUR" D



3.000" Radius, 1.000" Border, 0.750" Indent,
"TRUCKS" D; "USE" D; "TWO" D; "RIGHT" D; "LANES" D



3.000" Radius, 1.000" Border, 0.750" Indent,
"HWY" D; "100" D; "EAST" D; "EXIT" D; "CLOSED" D; "USE" D; "HWY" D; "145" D

7

7

PROJECT NO: 1100-36-72	HWY: IH 41/USH 41	COUNTY: WAUKESHA	TEMPORARY SIGNING	SHEET NO: 233	E

FILE NAME : C:\CAEfiles\Projects\tr_d2\MainStTraffic.DGN PLOT DATE : 20-MAR-2017 17:09 PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : 20.484297:1.000000 WISDOT/CADDS SHEET 42

STATE PROJECT NUMBER

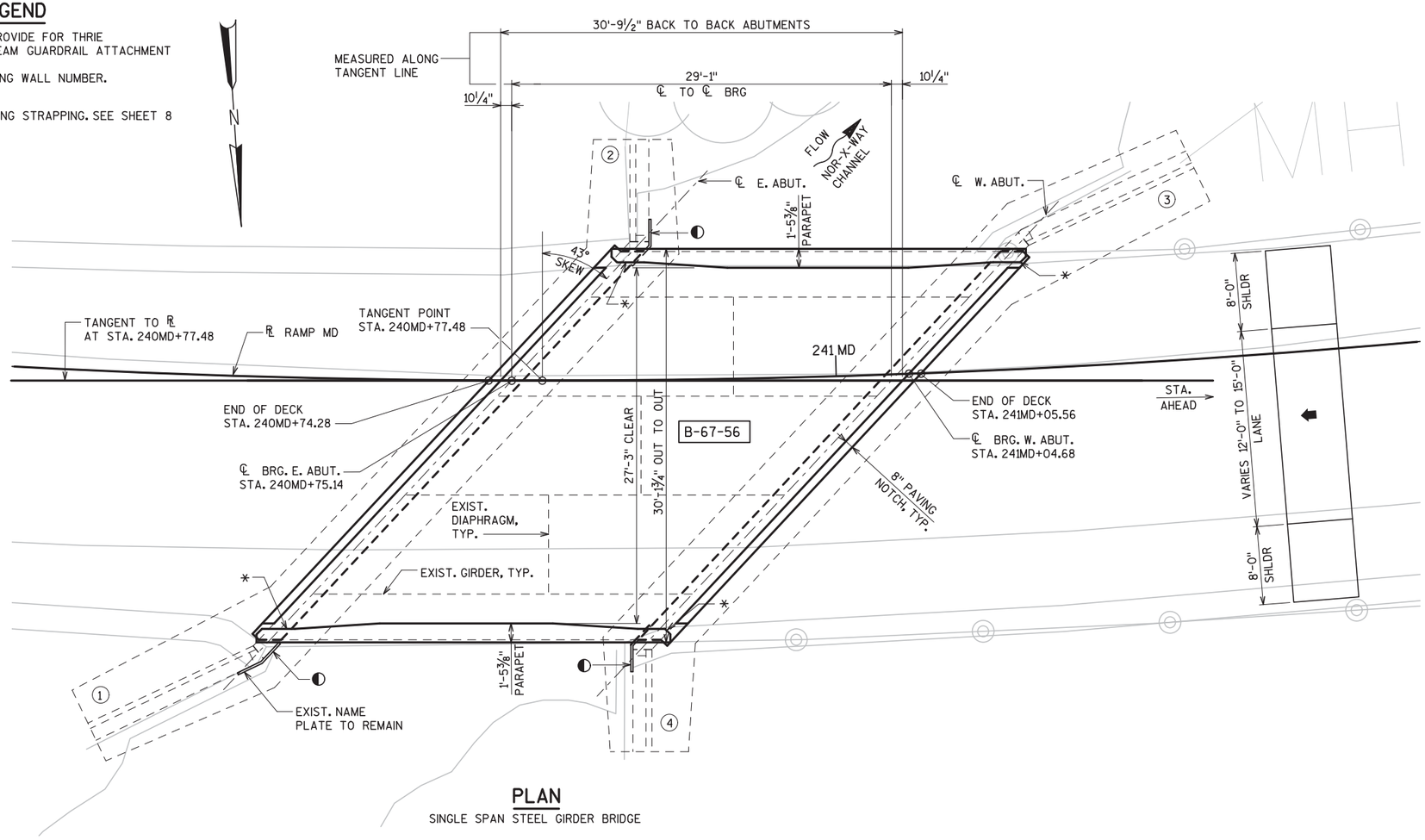
1100-36-72

LEGEND

* PROVIDE FOR THRIE BEAM GUARDRAIL ATTACHMENT

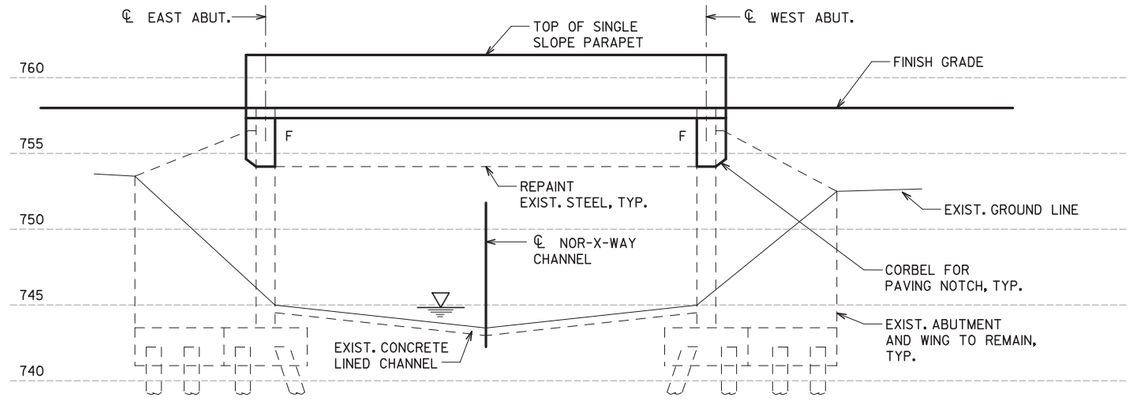
◯ WING WALL NUMBER.

◐ WING STRAPPING. SEE SHEET 8



PLAN

SINGLE SPAN STEEL GIRDER BRIDGE



ELEVATION

(LOOKING SOUTH)

DESIGN DATA

LIVE LOAD

DESIGN LOAD: HS-20
INVENTORY RATING: HS-22
OPERATIONAL RATING: HS-37
WISCONSIN STANDARD PERMIT VEHICLE LOAD (WIS-SPV): ..... 240 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY
SUPERSTRUCTURE ..... f'c = 4,000 psi

HIGH STRENGTH BAR STEEL
REINFORCEMENT, GRADE 60 ..... Fy = 60,000 psi

STRUCTURAL CARBON STEEL,
ASTM A709, GRADE 36 .....Fy = 36,000 psi

TRAFFIC DATA

RAMP MD

A.D.T. = 4710 (2018)
A.D.T. = 5910 (2038)
R.D.S. = 45 MPH

LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. TYPICAL SECTION
3. SUPERSTRUCTURE
4. SUPERSTRUCTURE DETAILS
5. DECK ELEVATIONS
6. SINGLE SLOPE PARAPET 32SS
7. SINGLE SLOPE PARAPET 42SS
8. WING STRAPPING

HORIZONTAL CURVE DATA

RAMP MD

P.C 236+74.11
P.I 239+78.06
P.T 242+52.18
Δ = 43°44'57" LT.
D = 7°34'05"
R = 757.06'
T = 303.95'
L = 578.07'

BENCHMARK

POINT ID: CP 1
DESCRIPTION: SET 1"x24" IRON PIPE, PLUG STAMPED BLOOM
NE OF NE SIDE OF STEEL LIGHT TOWER
X = 721401.25, Y = 221245.99
EL. = 753.56

WISCONSIN
BABU D. THENGANAKUNNEL
E-35905
MILWAUKEE, WI
PROFESSIONAL ENGINEER
3-6-2017

STRUCTURE DESIGN CONTACTS

BUREAU OF STRUCTURES CONTACT:
WILLIAM DREHER
(608) 266-8489

CONSULTANT CONTACT:
YAKOV NENAYDYKH
(414) 292-4599

NO.	DATE	REVISION	BY

BLOOM COMPANIES, LLC
Infrastructure Innovation and Ingenuity
10501 W. Research Drive • Milwaukee, WI 53226
Phone: (414) 771-3390 Fax: (414) 771-4490

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 03/06/17
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-67-56

STH 100 SB RAMP OVER NOR-X-WAY CHANNEL

COUNTY	VILLAGE
WAUKESHA	MENOMONEE FALLS

DESIGN SPEC.	
REHABILITATION	N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
BDT	DAC	TAL	BDT

GENERAL PLAN AND ELEVATION

SHEET 1 OF 8
234

I.D. 1100-36-00 FEB 2017

8

8

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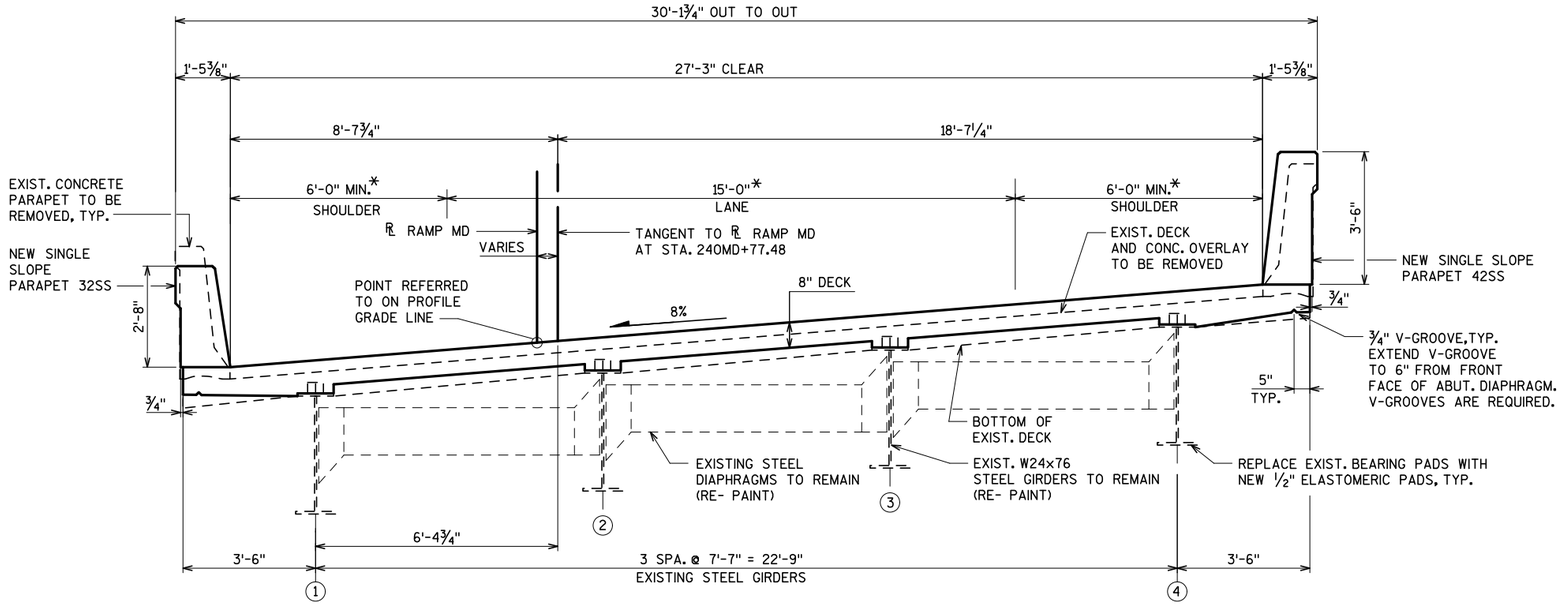


TYPICAL SECTION

(LOOKING WEST)

NOTE: ALL DIMENSIONS ARE NORMAL TO TANGENT LINE UNLESS SHOWN OTHERWISE

* DIMENSION NORMAL TO REFERENCE LINE

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEMS	UNIT	EAST ABUT.	WEST ABUT.	SUPER.	TOTAL
203.0600.S.0001	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 240+77.48	LS	-	-	-	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-67-56	LS	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	46	46	-	92
502.0100	CONCRETE MASONRY BRIDGES	CY	-	-	43	43
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	108	108
502.3210	PIGMENTED SURFACE SEALER	SY	-	-	29	29
502.4205	ADHESIVE ANCHOR NO. 5 BAR	EACH	40	40	-	80
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	-	-	10600	10600
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	4	4	-	8
506.7050.S	REMOVING BEARINGS B-67-56	EACH	4	4	-	8
509.1500	CONCRETE SURFACE REPAIR	SF	10	10	-	20
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	7	7	-	14
517.0900.S	PREPARATION AND COATING OF TOP FLANGES B-67-56	LS	-	-	-	1
517.1800.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-67-56	LS	-	-	-	1
517.4500.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-67-56	LS	-	-	-	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	-	-	-	1
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-	-	4	4
SPV.0060.0001	STRAPPING B-67-56	EACH	2	1	-	3
☒ SPV.0105.0001	PREPARATION AND COATING OF GIRDER ENDS B-67-56	LS	-	-	-	1
	NON-BID ITEMS					
	PREFORMED JOINT FILLER	SIZE	-	-	-	¼", ¾", 1"

ALL ITEMS ARE CATEGORY 2000

☒ EXTEND COATING OF GIRDER ENDS ONE FOOT BEYOND THE FACE OF CONCRETE DIAPHRAGM INTO THE SPAN

REMOVAL NOTES

THE EXISTING DECK, CONCRETE OVERLAY, PARAPETS AND ABUTMENT CONCRETE DIAPHRAGMS SHALL BE REMOVED UNDER BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA 240+89.70". EXISTING GIRDERS, DIAPHRAGMS, AND SUBSTRUCTURE UNITS SHALL REMAIN IN PLACE.

PLANS OF THE EXISTING BRIDGE ARE ON FILE AND ARE AVAILABLE FOR INSPECTION AT THE WISCONSIN DEPARTMENT OF TRANSPORTATION, SOUTHEAST REGION.

STATE PROJECT NUMBER
1100-36-72

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.

ELEVATIONS ARE REFERENCED TO THE NAVD 88 (1991) DATUM.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

ALL NEW BAR STEEL REINFORCEMENT SHALL BE EPOXY COATED.

BARS STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFY THE BAR SIZE.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

AT ABUTMENTS, ALL SPACES NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

NON-LAMINATED ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK. EXISTING BARS SHALL BE CLEANED AND STRAIGHTENED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

ALL CONCRETE REMOVAL LIMITS SHALL BE DEFINED BY A 1" DEEP SAWCUT.

VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE HAUNCH HEIGHT OF 2¼", WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH CONTRACTOR WILL BE PAID.

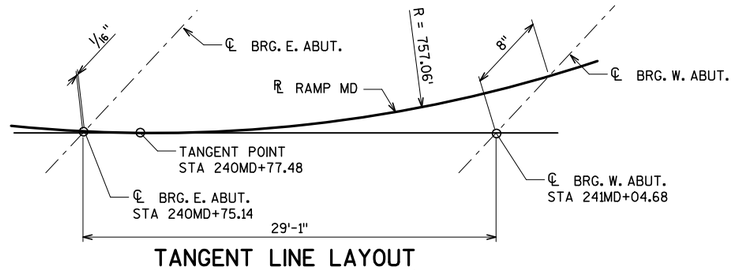
THE FINISH COLOR FOR STRUCTURE REPAINTING SHALL BE BLUE, FEDERAL COLOR NUMBER 25240.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP OF DECK, AND TOP AND SIDES OF PAVING NOTCH.

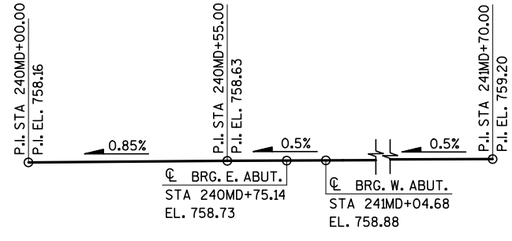
PIGMENTED SURFACE SEALER SHALL BE APPLIED TO TOP AND INSIDE FACES OF PARAPETS.

CONCRETE SURFACE REPAIR REQUIRED IN AREAS DESIGNATED BY THE FIELD ENGINEER. QUANTITIES SHOWN ARE APPROXIMATE AND UNDISTRIBUTED.

THE EXISTING BRIDGE B-67-56 IS A SINGLE SPAN STEEL DECK GIRDER BRIDGE WITH AN OVERALL LENGTH OF 30'-9½" AND OVERALL WIDTH OF 30'-2¼".



TANGENT LINE LAYOUT



PROFILE GRADE LINE - RAMP MD

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-56

DRAWN BY TAL | PLANS CK'D. BDT

TYPICAL SECTION

SHEET 2 OF 8

235

FILE NAME: F:\BMI-32568.USH 41 MCL to WCL\5.Design\04.Structures.Bridges\sds\B-67-56\Final plans\02_B-67-56_ts.dgn
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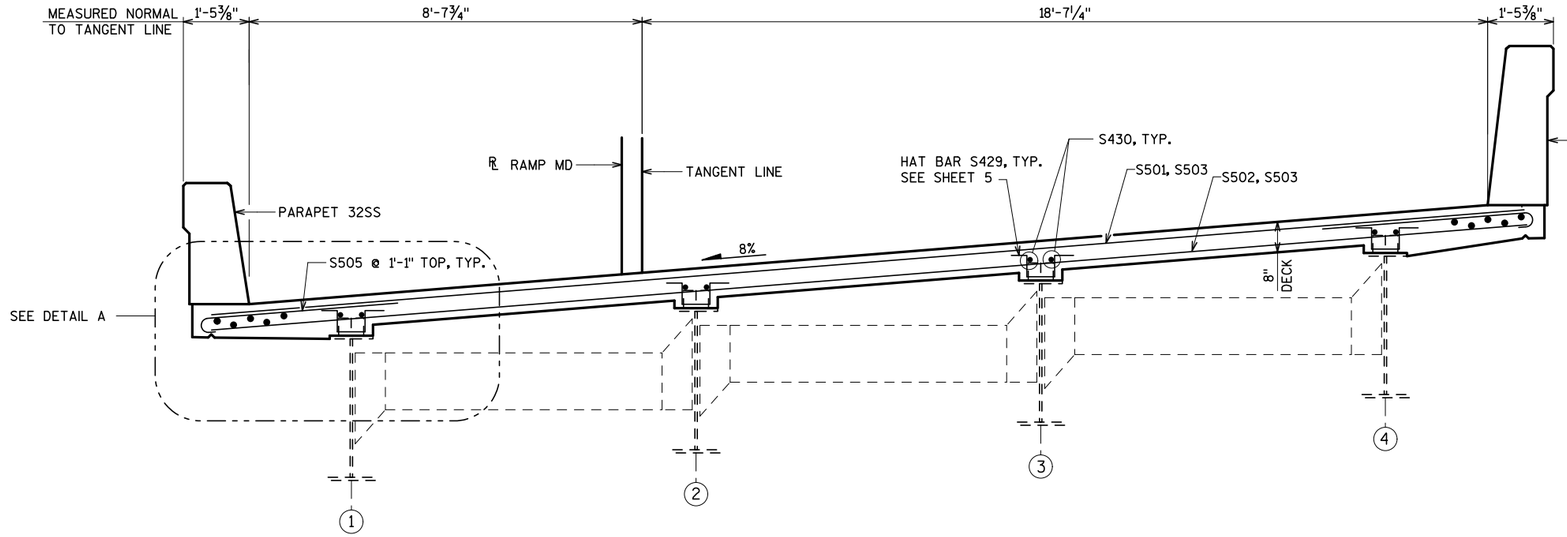
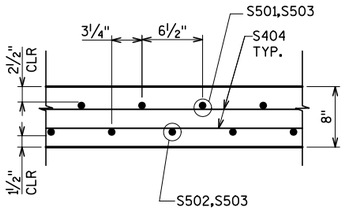
STATE PROJECT NUMBER
1100-36-72

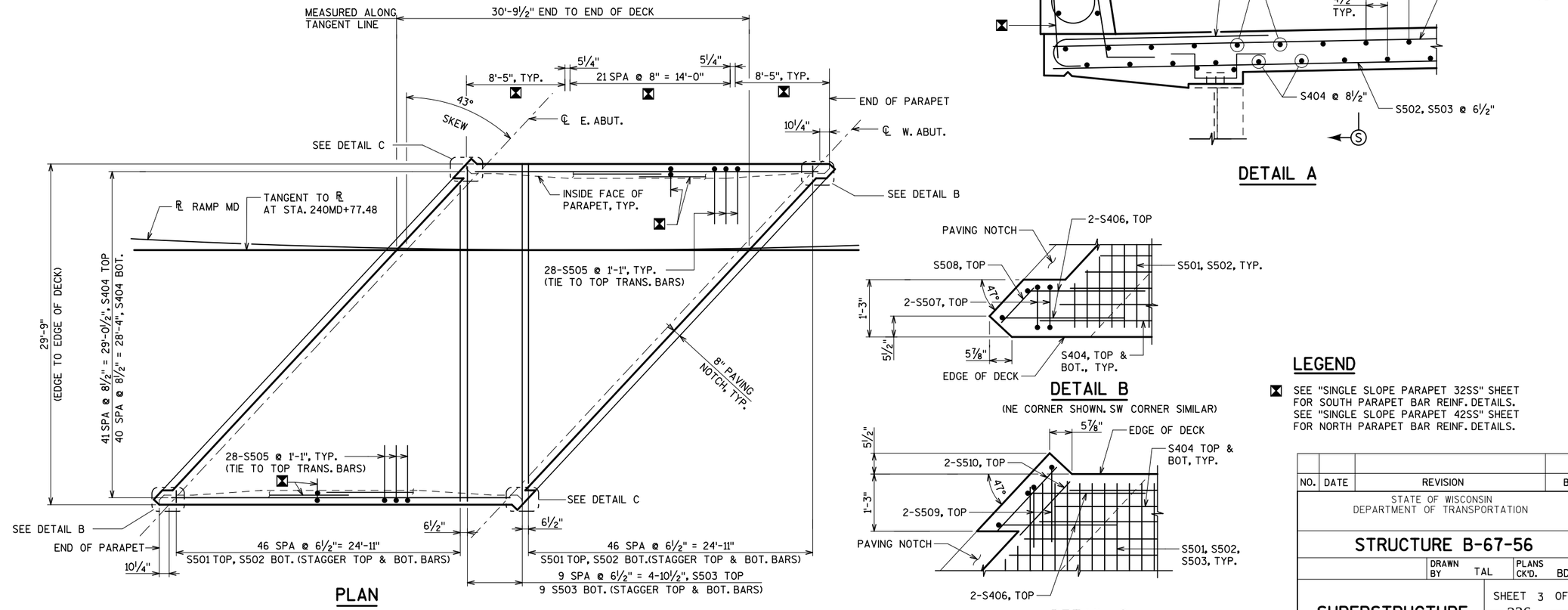


DECK REINFORCING SECTION

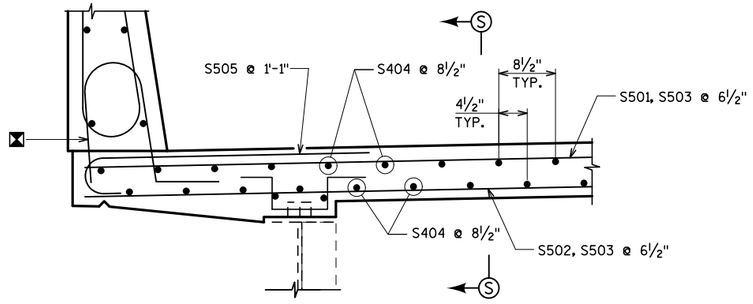
(LOOKING WEST)



SECTION S-S



PLAN



DETAIL A

DETAIL B

(NE CORNER SHOWN. SW CORNER SIMILAR)

DETAIL C

(SE CORNER SHOWN. NW CORNER SIMILAR)

LEGEND

SEE "SINGLE SLOPE PARAPET 32SS" SHEET FOR SOUTH PARAPET BAR REINF. DETAILS.
SEE "SINGLE SLOPE PARAPET 42SS" SHEET FOR NORTH PARAPET BAR REINF. DETAILS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-56

DRAWN BY	TAL	PLANS CK'D.	BDT

SUPERSTRUCTURE

SHEET 3 OF 8
236

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8

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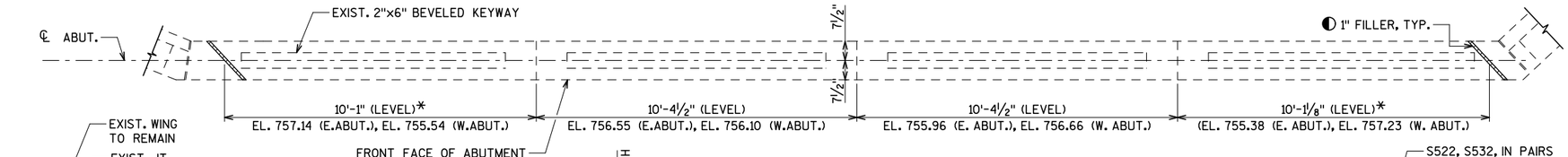
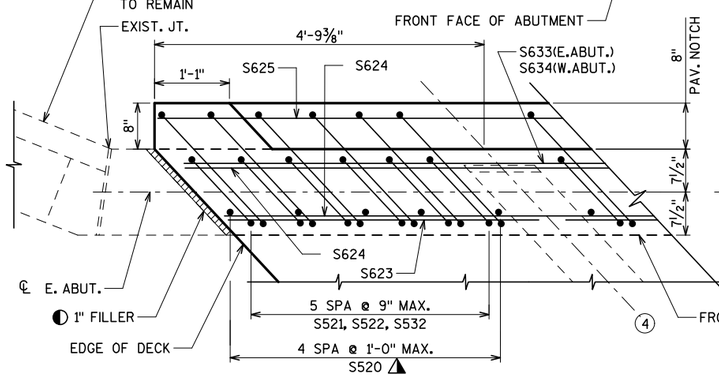
STATE PROJECT NUMBER
1100-36-72

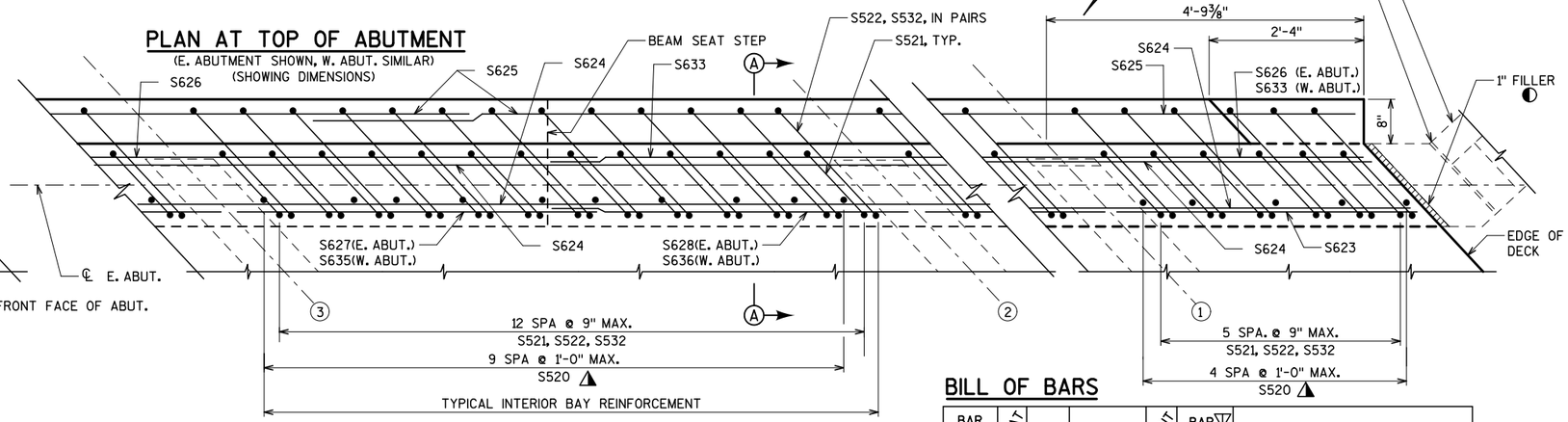
* DIMENSION INCLUDES FILLER THICKNESS





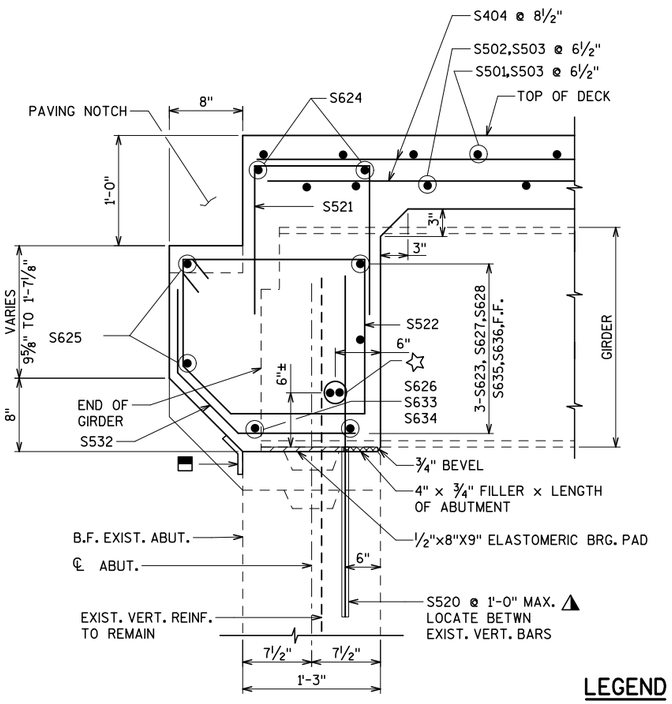
PLAN AT TOP OF ABUTMENT

(E. ABUTMENT SHOWN, W. ABUT. SIMILAR)
(SHOWING DIMENSIONS)



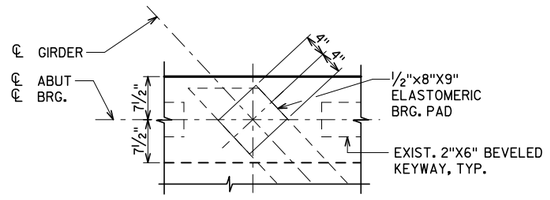
PLAN

(E. ABUTMENT SHOWN, W. ABUT. SIMILAR)



SECTION A-A

(E. ABUTMENT SHOWN, W. ABUT. SIMILAR)
ALL HORIZ. DIMENSIONS MEASURED NORMAL TO ℄ SUBSTRUCTURE UNIT.



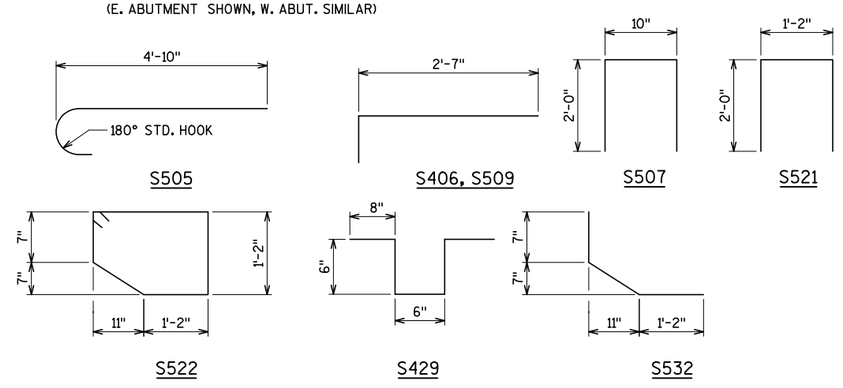
ELASTOMERIC BEARING DETAIL

(E. ABUTMENT SHOWN, W. ABUT. SIMILAR)

BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
S501	2 SERIES OF 47	0'-11" TO 27'-8"
S502	2 SERIES OF 47	1'-3" TO 27'-11"

BUNDLE AND TAG EACH SERIES SEPARATELY



BENDING DIAGRAMS

BILL OF BARS

BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES ▽	LOCATION
S501	X	94	14'-3"	-	X	DECK TRANSV. TOP
S502	X	94	14'-7"	-	X	DECK TRANSV. BOTTOM
S503	X	19	29'-4"	-	-	DECK TRANSV. TOP& BOTTOM
S404	X	83	30'-2"	-	-	DECK LONGIT. TOP& BOTTOM
S505	X	56	5'-5"	X	-	DECK TRANSV. AT OVERHANG
S406	X	8	4'-6"	X	-	DECK LONGIT. TOP AT CORNERS
S507	X	4	4'-7"	X	-	DECK TRANSV. TOP AT CORNERS
S508	X	2	0'-10"	-	-	DECK TRANSV. TOP AT CORNERS
S509	X	4	4'-5"	X	-	DECK TRANSV. TOP AT CORNERS
S510	X	4	1'-6"	-	-	DECK TRANSV. TOP AT CORNERS
S520	X	80	2'-6"	-	-	ABUTMENT DIAPHR. VERTICAL
S521	X	102	4'-11"	X	-	ABUT. DIAPHRAGM VERTICAL
S522	X	102	6'-10"	X	-	ABUT. DIAPHRAGM VERTICAL
S623	X	12	4'-4"	-	-	ABUT. DIAPH. HORIZONTAL
S624	X	4	40'-0"	-	-	ABUT. DIAPH. HORIZONTAL
S625	X	8	21'-10"	-	-	ABUT. DIAPH. HORIZONTAL
S626	X	1	9'-0"	-	-	ABUT. DIAPH. HORIZONTAL
S627	X	9	5'-8"	-	-	ABUT. DIAPH. HORIZONTAL
S628	X	9	5'-5"	-	-	ABUT. DIAPH. HORIZONTAL
S429	X	172	2'-6"	X	-	HAT BARS OVER BEAMS
S430	X	8	30'-3"	-	-	LONGIT., INSIDE HAT BARS
S531	X	16	6'-0"	-	-	BARS THRU HOLE IN GIRDER
S532	X	102	2'-10"	X	-	ABUTMENT DIAPHRAGM VERTICAL
S633	X	6	11'-4"	-	-	ABUT. DIAPH. HORIZONTAL
S634	X	1	10'-2"	-	-	ABUT. DIAPH. HORIZONTAL
S635	X	9	4'-3"	-	-	ABUT. DIAPH. HORIZONTAL
S636	X	9	6'-9"	-	-	ABUT. DIAPH. HORIZONTAL

▽ LENGTH SHOWN FOR BAR IS ONLY AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

LEGEND

⚠ ADHESIVE ANCHORS NO.5 BARS. EMBED 1'-6" IN CONCRETE. EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH MASONRY ANCHORS SHOWN. EXISTING BARS ARE SPACED AT 1'-0" O.C.

◐ EXTEND 1" FILLER FROM BEAM SEAT TO TOP OF DECK. EXTEND 1/4" FILLER FROM TOP OF DECK TO TOP OF EXISTING WING. SEE VIEW D-D ON SHEETS 6 AND 7. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL EDGES OF FILLER WITH NON-STAINING NON-BITUMINOUS SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE)

▬ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS AT BACK FACE.

☆ DRILL 1½" DIA. HOLE IN WEB FOR 2-S531 BARS. PLACE S531 BARS SYMMETRICAL ABOUT ℄ GIRDERS AND FIELD BEND ALONG SKEW. COST OF DRILLING INCLUDED IN THE BID ITEM "CONCRETE MASONRY BRIDGES".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-56

DRAWN BY	PLANS CK'D.
TAL	BDT

SUPERSTRUCTURE DETAILS

SHEET 4 OF 8
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8

8

STATE PROJECT NUMBER

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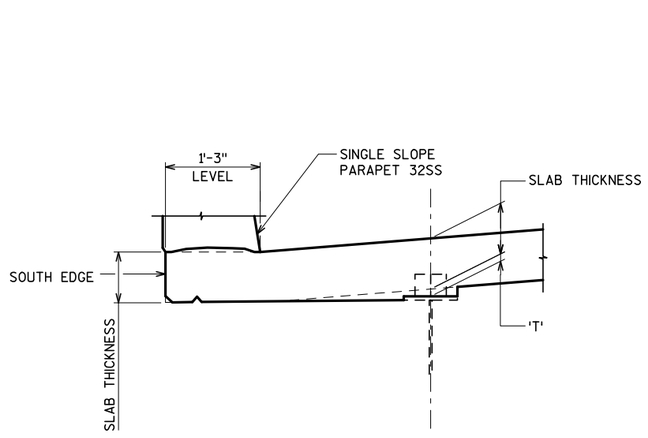
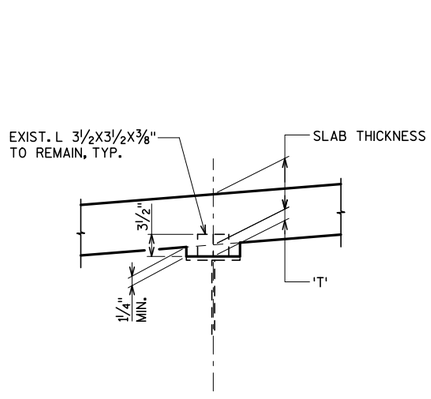
TOP OF DECK ELEVATIONS

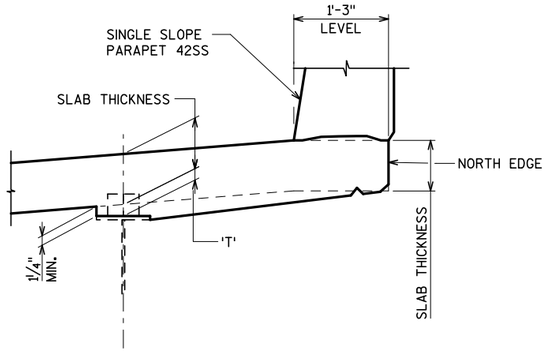
GIRDER/ LOCATION	E. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	W. ABUT.
SOUTH EDGE	758.08	758.10	758.11	758.13	758.15	758.17	758.19	758.22	758.24	758.26	758.29
S. FLOWLINE	758.08	758.10	758.11	758.13	758.15	758.17	758.19	758.22	758.24	758.26	758.29
1	758.25	758.26	758.28	758.30	758.32	758.34	758.36	758.38	758.40	758.43	758.45
PGL	758.73	758.74	758.76	758.77	758.79	758.80	758.82	758.83	758.85	758.86	758.88
2	758.82	758.83	758.85	758.86	758.88	758.90	758.92	758.93	758.95	758.98	759.00
3	759.40	759.41	759.42	759.43	759.45	759.46	759.48	759.50	759.51	759.53	759.55
4	759.98	759.99	760.00	760.01	760.02	760.04	760.05	760.06	760.08	760.09	760.11
N. FLOWLINE	760.15	760.16	760.17	760.18	760.19	760.21	760.22	760.23	760.25	760.26	760.28
NORTH EDGE	760.15	760.16	760.17	760.18	760.19	760.21	760.22	760.23	760.25	760.26	760.28
DEAD LOAD * DEFLECTION (IN)	0	1/16"	3/16"	3/16"	1/4"	1/4"	1/4"	3/16"	3/16"	1/16"	0





HAUNCH DETAIL

(HAT BARS NOT SHOWN FOR CLARITY)

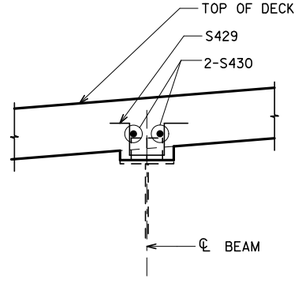


TO DETERMINE 'T', ELEV. OF THE TOP FLANGES, TOP OF SPLICE PLATE, OR TOP OF COVER PLATES, WHICHEVER APPLIES, SHALL BE TAKEN AT ℄ OF BRGS. AND AT TENTH POINTS OF EACH SPAN, THEN FOLLOW THIS PROCESS:

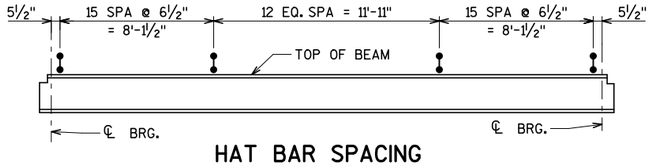
TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF STEEL ELEVATION
+ DEAD LOAD DEFLECTION (CONCRETE)
- SLAB THICKNESS

= HAUNCH HEIGHT 'T'

NOTE:
AN AVERAGE HAUNCH 'T' OF 2¼"
WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES"



HAT BAR DETAIL



HAT BAR SPACING

NOTES

FOR SUPERSTRUCTURE PLAN SEE SHEET 3.

FOR SUPERSTRUCTURE DETAILS, BILL OF BARS AND BENDING DIAGRAMS SEE SHEET 4.

DEAD LOAD DEFLECTIONS INCLUDE CONCRETE DECK AND PARAPETS.

* POSITIVE VALUE INDICATES DOWNWARD DEFLECTION.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-56

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DECK ELEVATIONS

SHEET 5 OF 8

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8

8

FILE NAME: F:\BMI-32568.USH 41 MCL to WCL\S.Design\04_Structures_Bridges\stds\B-67-56\Final plans\05_B-67-56_top of deck.dgn
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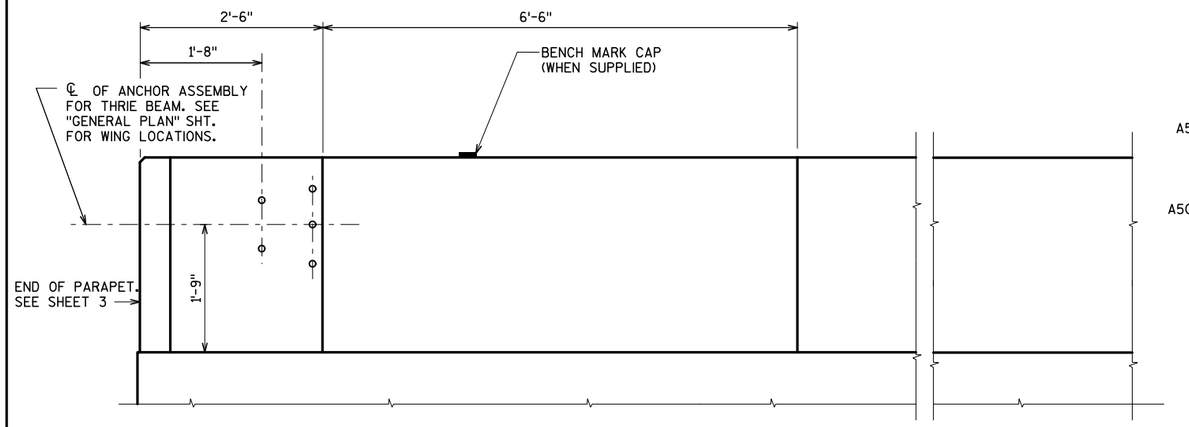
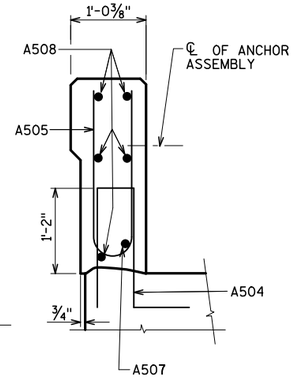
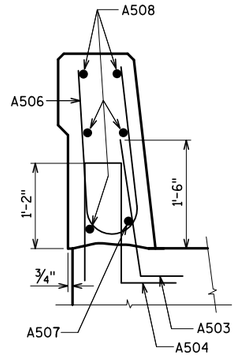
STATE PROJECT NUMBER
1100-36-72



INSIDE ELEVATION



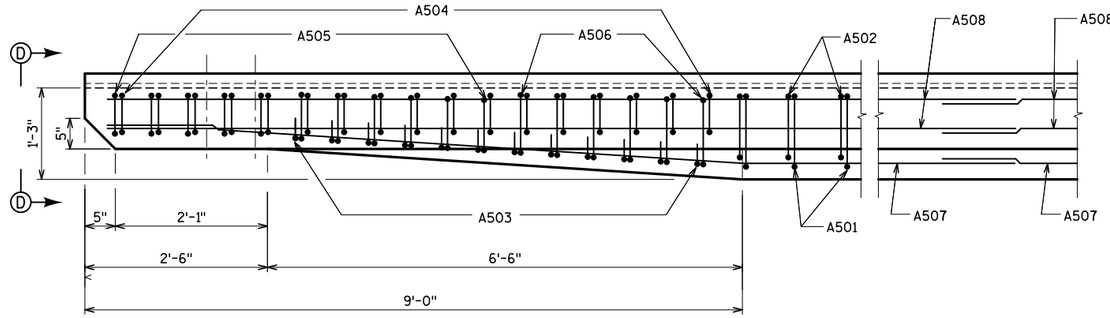
SECTION A



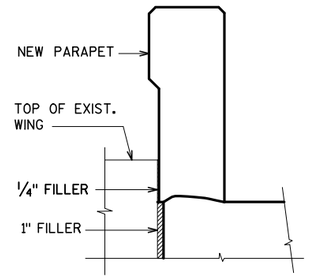
SECTION B

BILL OF BARS

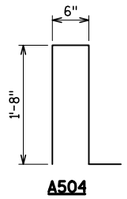
BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
A501	X	22	4'-5"	X		PARAPET-VERT.
A502	X	22	5'-0"	X		PARAPET-VERT.
A503	X	24	2'-9"	X		PARAPET-VERT.
A504	X	34	4'-4"	X		PARAPET-VERT.
A505	X	22	4'-9"	X		PARAPET-VERT.
A506	X	12	4'-10"	X		PARAPET-VERT.
A507	X	2	16'-8"	X		PARAPET- LONGIT.
A508	X	10	16'-8"			PARAPET- LONGIT.



PLAN



VIEW D-D



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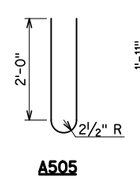

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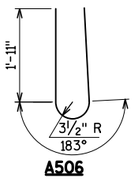

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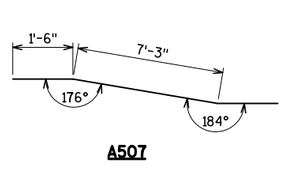
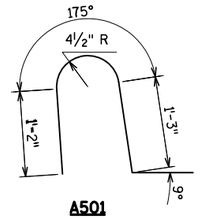


A507

BAR BENDING DIAGRAMS



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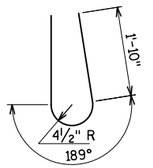

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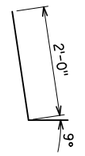

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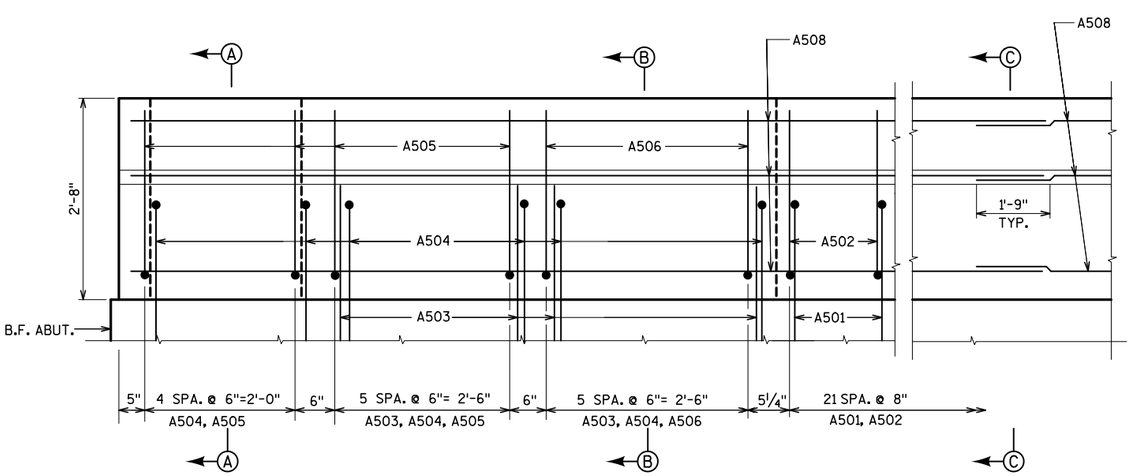
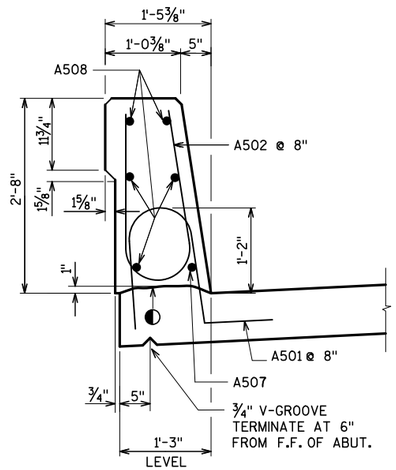
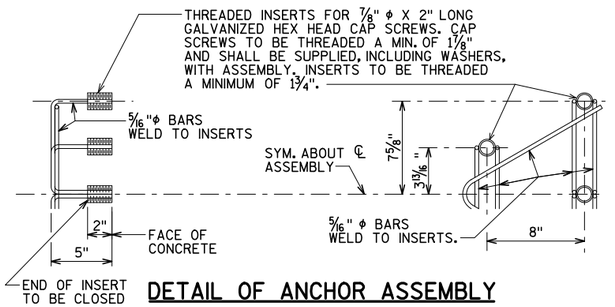


OUTSIDE ELEVATION



SECTION C

◐ CONST. JOINT - STRIKE OFF AS SHOWN.



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-56

DRAWN BY	TAL	PLANS CK'D.	BDT

SINGLE SLOPE PARAPET 32SS

SHEET 6 OF 8
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FILE NAME: F:\BMI-32568.USH 41 WCL to WCL\S.Design\04_Structures_Bridges\stds\B-67-56\Final plans\06_B-67-56_para 32ss.dgn
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8

8

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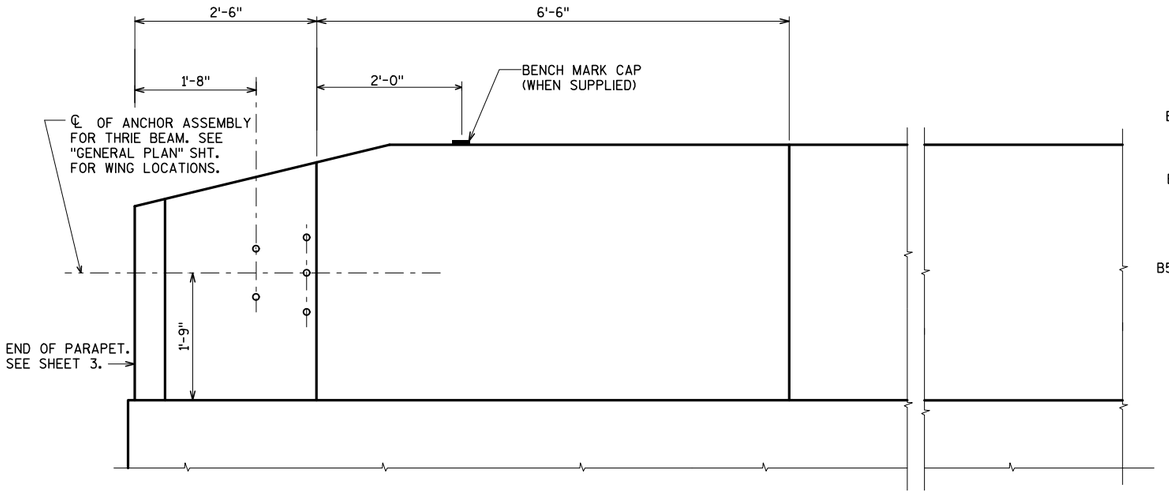
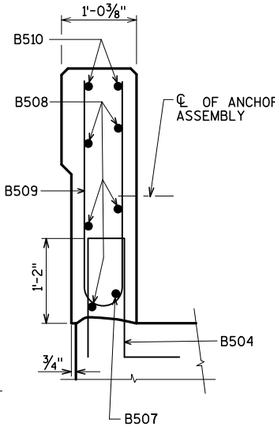
STATE PROJECT NUMBER

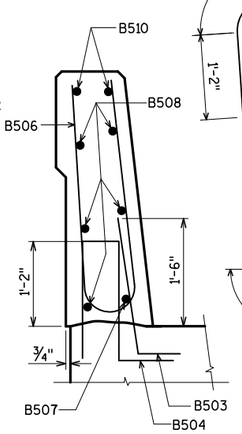
1100-36-72



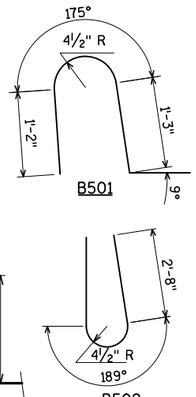
INSIDE ELEVATION



SECTION A



SECTION B



BILL OF BARS

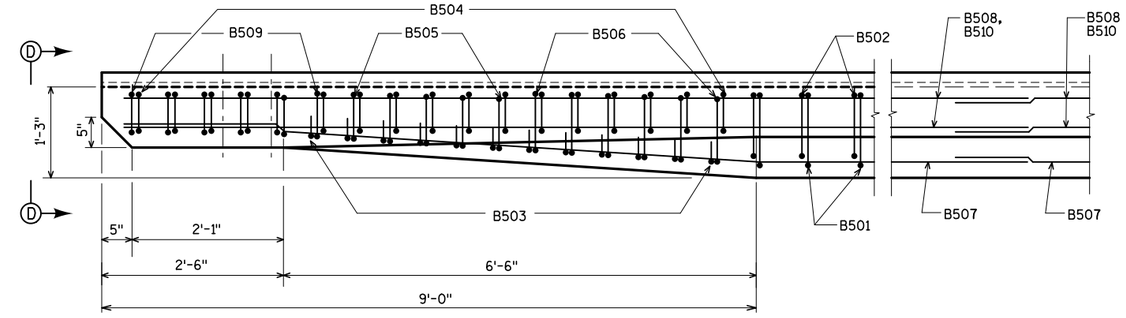
BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
B501	X	22	4'-5"	X		PARAPET VERT.
B502	X	22	6'-8"	X		PARAPET VERT.
B503	X	22	2'-9"	X		PARAPET-VERT.
B504	X	34	4'-4"	X		PARAPET-VERT.
B505	X	10	6'-5"	X		PARAPET-VERT.
B506	X	12	6'-6"	X		PARAPET-VERT.
B507	X	2	16'-8"	X		PARAPET- LONGIT.
B508	X	10	16'-8"			PARAPET- LONGIT.
B509	X	12	5'-5"	X	⚠	PARAPET-VERT.
B510	X	4	16'-8"	X		PARAPET-HORIZ.

⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

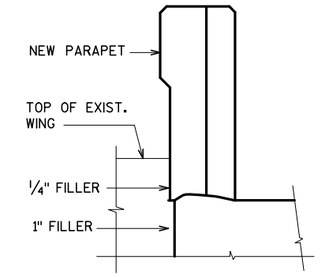
BAR SERIES TABLE

MARK	NO. REQD.	LENGTH
B509	2 SERIES OF 6	4'-9" TO 6'-1"

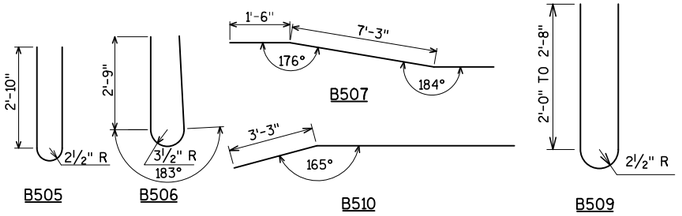
BUNDLE AND TAG EACH SERIES SEPARATELY.

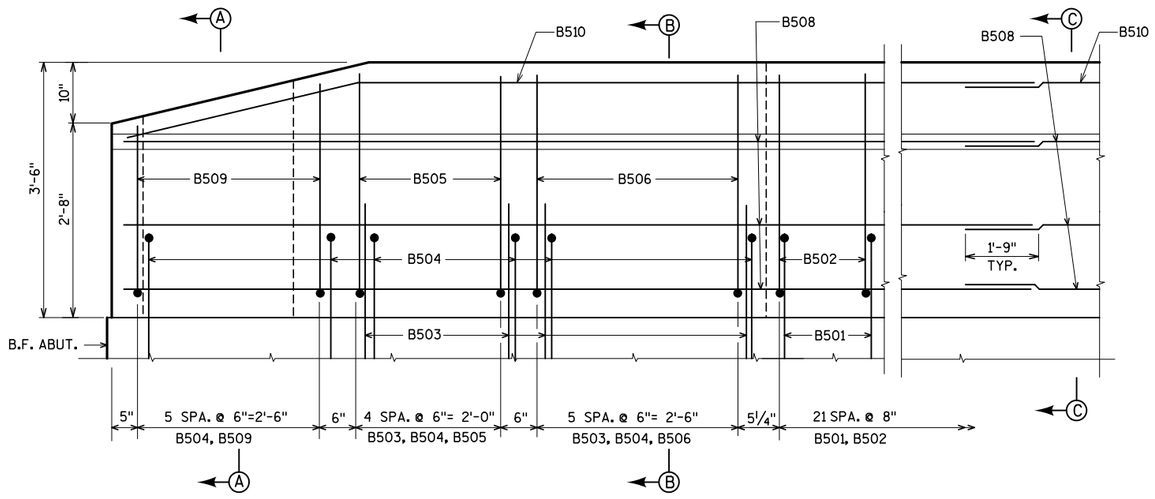


PLAN

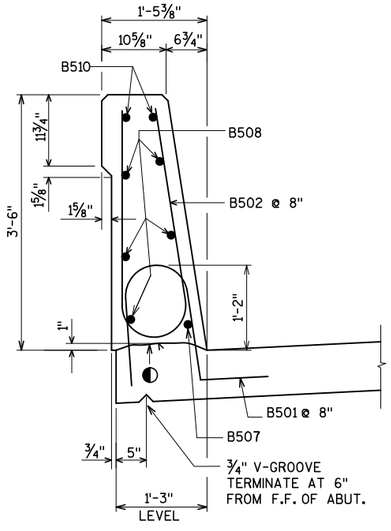


VIEW D-D





OUTSIDE ELEVATION



SECTION C

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-56

DRAWN BY TAL | PLANS CK'D. BDT

SINGLE SLOPE PARAPET 42SS

SHEET 7 OF 8

240

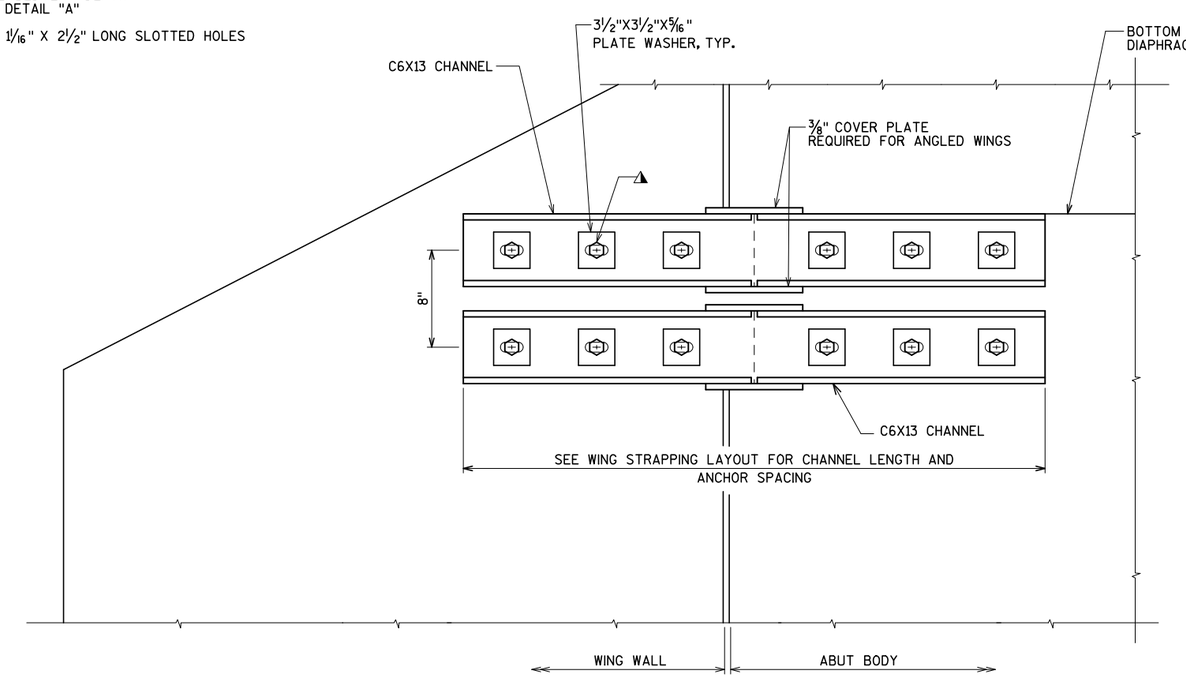
8

8

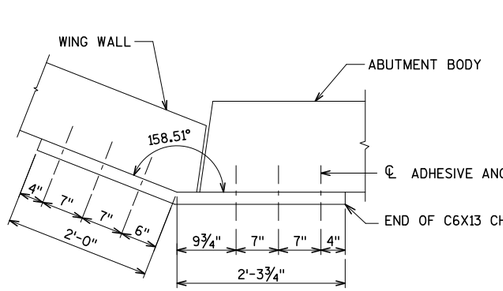
STATE PROJECT NUMBER
1100-36-72

⚠ ADHESIVE ANCHOR 1-INCH.
10" EMBEDMENT DEPTH
SEE DETAIL "A"

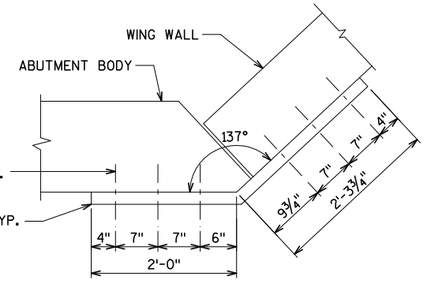
USE 1 1/16" X 2 1/2" LONG SLOTTED HOLES



WING ELEVATION

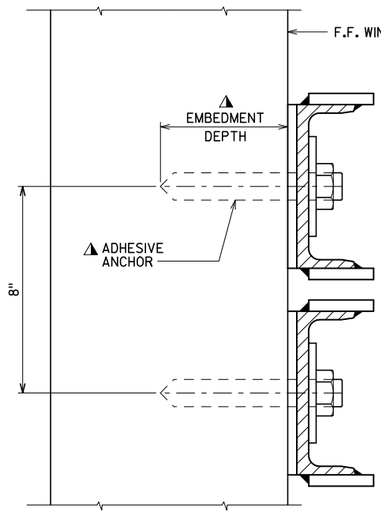


WING 1

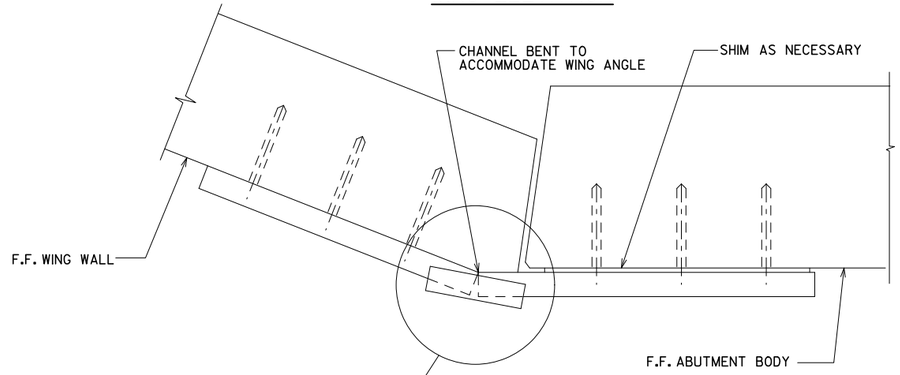


WINGS 2 AND 4

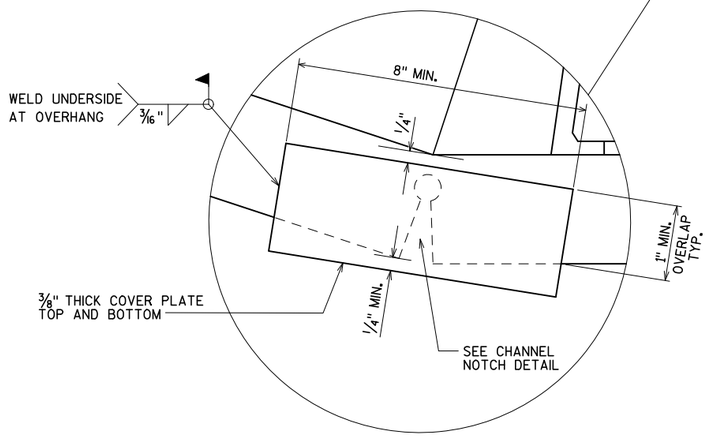
WING STRAPPING LAYOUT

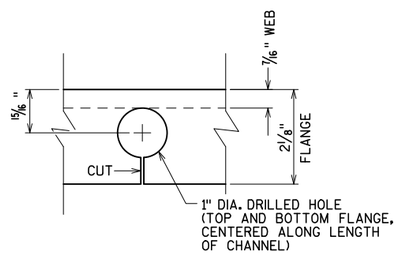


DETAIL "A"
SECTION THRU CHANNEL



PLAN





CHANNEL NOTCH DETAIL
FOR USE WITH ANGLED WINGS ONLY

GENERAL NOTES

WING STRAPPING DETAIL FOR THE PURPOSE OF MITIGATING INWARD WING TIPPING, AS AN ALTERNATIVE TO THE PREFERRED METHOD OF WING REPLACEMENT.

BID ITEM SHALL BE "STRAPPING B-67-56" WHICH INCLUDES ALL ITEMS SHOWN. PAYMENT IS PER WING WHICH INCLUDES TWO STRAPPING CHANNELS PER WING.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.

ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED. THREADED RODS, ADHESIVE ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.

IF WELDING COVER PLATE IN FIELD, PRIOR TO WELDING, REMOVE GALVANIZING FROM AREA TO BE WELDED. TOUCH UP WITH ZINC RICH PAINT ALL AREAS LACKING GALVANIZING WHEN COMPLETE.

CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-56

DRAWN BY	TAL	PLANS CK'D.	BDT

WING STRAPPING

SHEET 8 OF 8
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8

8

FILE NAME: F:\BMI-32568_USH 41_WCL to WCL\5_Designs\04_Structures_Bridges\cads\B-67-56\Final plans\08_B-67-56_wing strapping.dgn
DATE: 2/1/2017 4:02:53 PM Plotted by: bthengon PEN TABLE: V8_STRUCTURAL_REV.TBL

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DATE: 3/6/2017 8:05:05 AM Plotted by: bthengan
PEN TABLE: V8_STRUCTURAL_REV.TBL

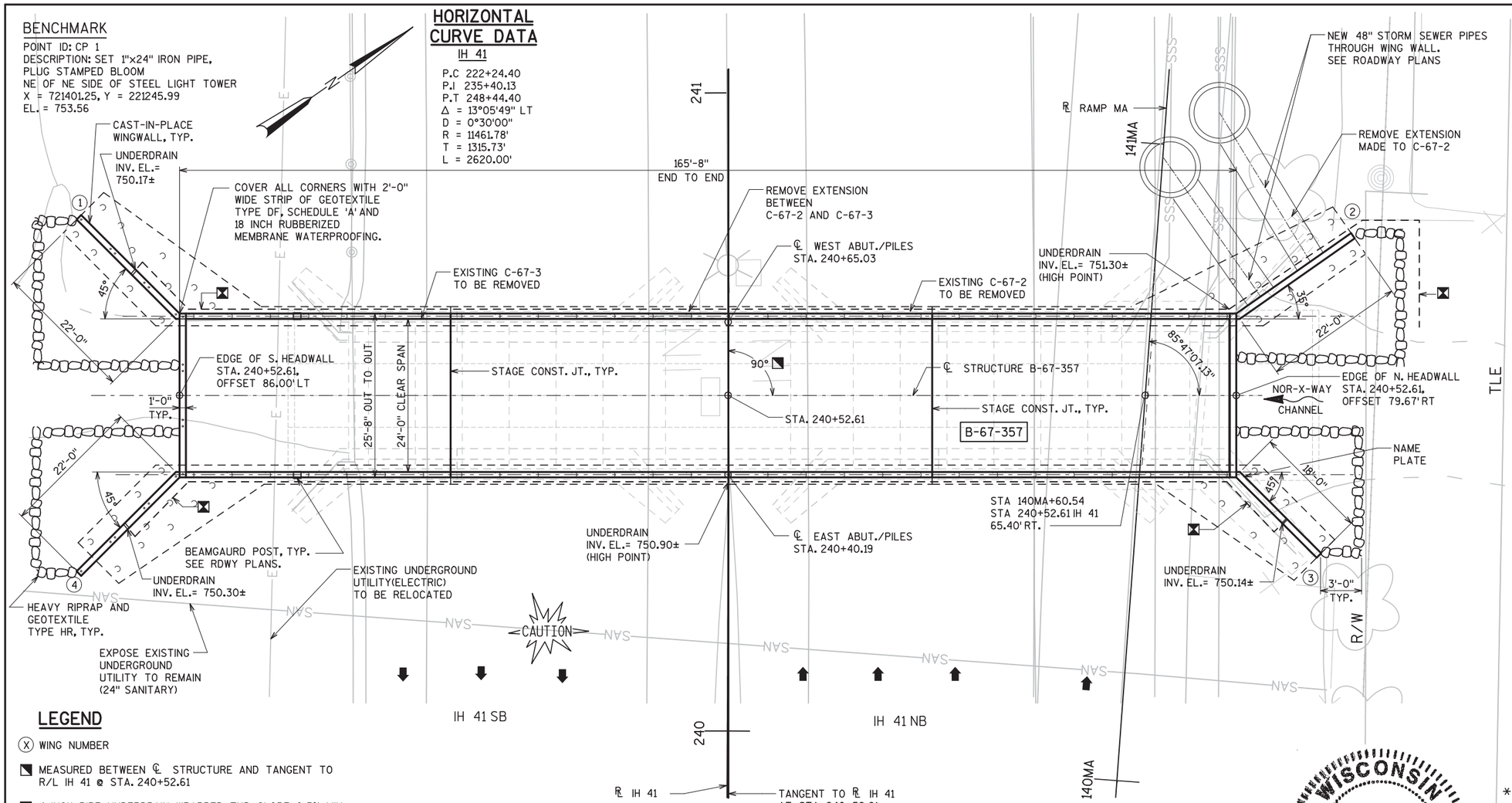
BENCHMARK

POINT ID: CP 1
DESCRIPTION: SET 1"x24" IRON PIPE, PLUG STAMPED BLOOM NE OF NE SIDE OF STEEL LIGHT TOWER
X = 721401.25, Y = 221245.99
EL. = 753.56

HORIZONTAL CURVE DATA

IH 41

P.C 222+24.40
P.I 235+40.13
P.T 248+44.40
Δ = 13°05'49" LT
D = 0°30'00"
R = 11461.78'
T = 1315.73'
L = 2620.00'

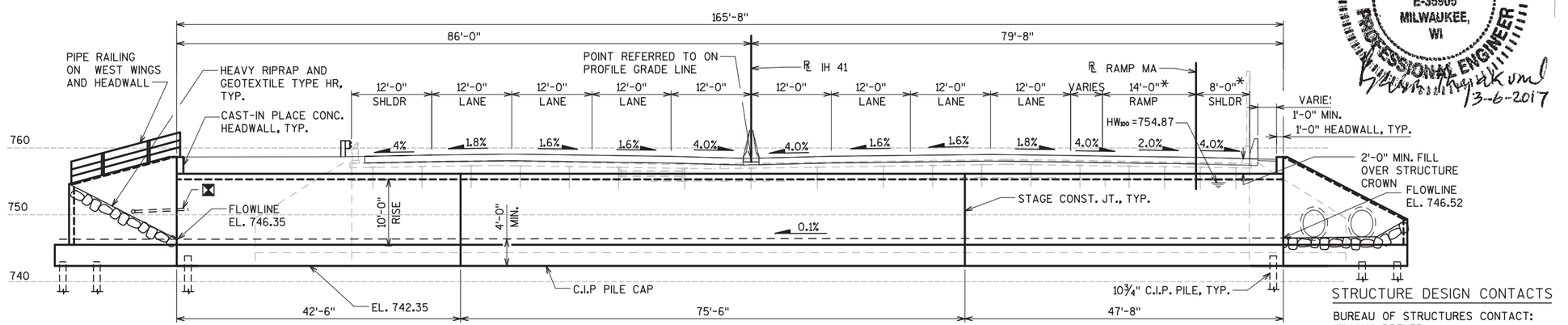


PLAN

(THREE SIDED PRECAST CONCRETE STRUCTURE)

LEGEND

- (X) WING NUMBER
- MEASURED BETWEEN ℄ STRUCTURE AND TANGENT TO R/L IH 41 @ STA. 240+52.61
- 4-INCH PIPE UNDERDRAIN WRAPPED, TYP. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE.



SECTION THRU ROADWAY

(LOOKING WEST)
* MEASURED NORMAL TO ℄ MA

STRUCTURE DESIGN CONTACTS

BUREAU OF STRUCTURES CONTACT:
WILLIAM DREHER
(608) 266-8489

CONSULTANT CONTACT:
YAKOV NENAYDYKH
(414) 292-4599

STATE PROJECT NUMBER

1100-36-72

DESIGN DATA

DESIGN LOADS:

LIVE LOAD: HL-93
INVENTORY RATING FACTOR: 1.05
OPERATING RATING FACTOR: 1.35
WISCONSIN STANDARD PERMIT VEHICLE (Wis-SPV):255 kips
HORIZONTAL EARTH PRESSURE: UNIT WT=125 pcf
VERTICAL EARTH PRESSURE: UNIT WT=120 pcf

EARTH LOAD:

DESIGNED FOR 2.0' MIN. TO 4' MAX OF FILL
(TOP OF STRUCTURE CROWN TO TOP OF PAVEMENT)

MATERIAL PROPERTIES:

CONCRETE MASONRY (CIP)..... f'c = 4,000 psi
PRECAST CONCRETE STRUCTURE ... f'c = 5,000 psi
BAR STEEL REINFORCEMENT ..... Fy = 60,000 psi
WELDED WIRE FABRIC ..... Fy = 65,000 psi

HYDRAULIC DATA

Q100 ---------- = 770 CFS
HW(100) ---------- = 754.87
VELOCITY ---------- = 4.39 FT/SEC
WATERWAY AREA------- = 175 SQ FT
DRAINAGE AREA --------- = 4.6 SQ MI
Q2---------- = 230 CFS
HW(2)---------- = 751.12
SCOUR CRITICAL CODE--- = 5
ROADWAY OVERTOPPING-- = N/A

TRAFFIC DATA

IH 41

A.D.T. (2018) = 96,100
A.D.T. (2038) = 118,500
DESIGN SPEED = 70 MPH

FOUNDATION DATA

ABUTMENTS AND WINGS TO BE SUPPORTED ON 10¾"Φ x0.365" C.I.P. CONCRETE PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 135 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH BELOW BOTTOM OF W. AND E. ABUTMENTS IS 54 FEET AT SOUTH END AND 59 FEET AT NORTH END.

* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

WISCONSIN
BABU D. THENGANAKUNNEL
E-35905
MILWAUKEE, WI
PROFESSIONAL ENGINEER
3-6-2017

NO.	DATE	REVISION	BY

BLOOM COMPANIES, LLC
Infrastructure Innovation and Ingenuity
10501 W. Research Drive • Milwaukee, WI 53226
Phone: (414) 771-3390 Fax: (414) 771-4490

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 03/06/17
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-67-357

IH 41 OVER NOR-X-WAY CHANNEL

COUNTY	VILLAGE
WAUKESHA	MENOMONEE FALLS

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
BDT	DAC	TAL	YNN

GENERAL PLAN

SHEET 1 OF 20
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I.D. 1100-36-00 FEB 2017

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FILE NAME: F:\BMI-32568.USH 41_WCL to WCL\5.Design\04.Structures.Bridges\dsd\B-67-357\02_B67357_typsection.dgn
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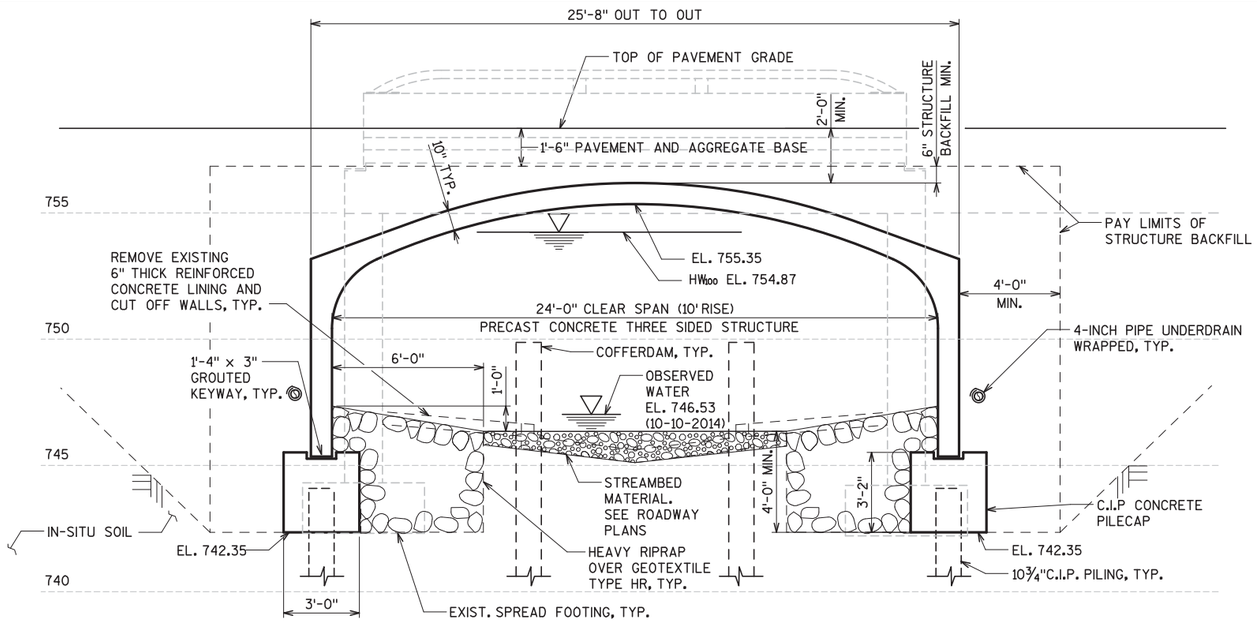
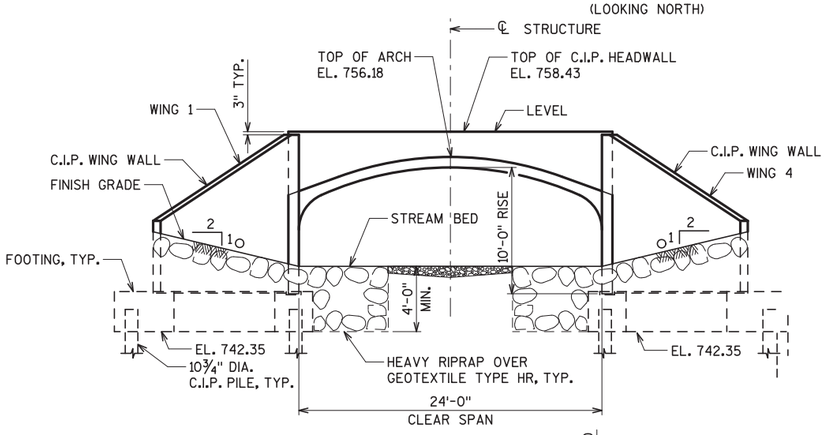
STATE PROJECT NUMBER

1100-36-72



TYPICAL SECTION THROUGH STRUCTURE

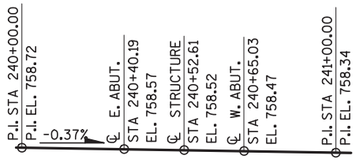


END ELEVATION

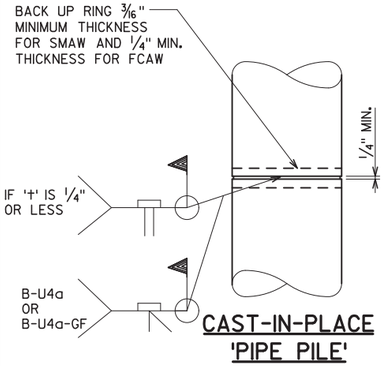
(LOOKING NORTH)

LIST OF DRAWINGS

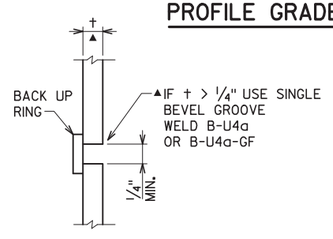
1. GENERAL PLAN
2. TYPICAL SECTION AND GENERAL NOTES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT (1 OF 3)
5. WEST ABUTMENT (2 OF 3)
6. WEST ABUTMENT (3 OF 3)
7. EAST ABUTMENT (1 OF 3)
8. EAST ABUTMENT (2 OF 3)
9. EAST ABUTMENT (3 OF 3)
10. PRECAST BRIDGE UNIT (1 OF 2)
11. PRECAST BRIDGE UNIT (2 OF 2)
12. BILL OF BARS
13. ALTERNATE PRECAST WING DETAILS
14. ALTERNATE PRECAST HEADWALL DETAILS
15. PIPE RAILING
16. BAR COUPLERS
17. CONSTRUCTION STAGING (1 OF 2)
18. CONSTRUCTION STAGING (2 OF 2)
19. COFFERDAM AND TEMPORARY SHORING (1 OF 2)
20. COFFERDAM AND TEMPORARY SHORING (2 OF 2)



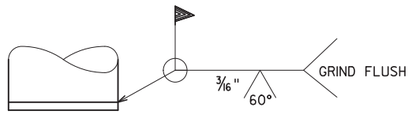
PROFILE GRADE LINE - IH 41



CAST-IN-PLACE 'PIPE PILE'



C.I.P. PILE WELD DETAIL



END PLATE DETAIL FOR CIP PILING IN ARTESIAN CONDITIONS

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER	TOTAL
203.0210.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL C-67-3	LS	-	-	-	1
203.0600.S.0002	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 240+52.61	LS	-	-	-	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS STRUCTURE B-67-357	LS	-	-	-	1
206.5000	COFFERDAMS STRUCTURE B-67-357	LS	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	1008	922	-	1930
504.0100	CONCRETE MASONRY CULVERTS	CY	137	136	-	273
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	7390	6890	-	14280
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	3730	3220	1210	8160
505.0905	BAR COUPLERS NO. 5	EACH	24	24	-	48
511.1200	TEMPORARY SHORING STRUCTURE B-67-357	SF	1152	1152	452	2756
513.2001	RAILING PIPE STRUCTURE B-67-357	LF	22	21	26	69
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	-	170	170
550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	-	180	-	180
550.2106	PILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	2878	2944	-	5822
606.0300	RIPRAP HEAVY	CY	221	213	-	434
612.0404	PIPE UNDERDRAIN WRAPPED 4-INCH	LF	225	215	-	440
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	6	6	-	12
645.0120	GEOTEXTILE TYPE HR	SY	321	308	-	629
SPV.0060.0002	EXPOSING EXISTING UTILITY	EACH	-	-	-	1
SPV.0090.0004	THREE SIDED PRECAST CONCRETE STRUCTURE	LF	-	-	166	166
	NON-BID ITEMS					
	NAME PLATE	EA				1
	FILLER	SIZE				¼"

ALL ITEMS ARE CATEGORY 2100

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFY THE BAR SIZE. ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS STRUCTURE B-67-357" SHALL BE THE EXISTING GROUND LINE.

THE EXISTING STRUCTURES C-67-2 AND C-67-3 ARE SINGLE SPAN STEEL DECK GIRDER BRIDGES WITH AN OVERALL SPAN OF 23'. BOTH ARE SUPPORTED ON FULL RETAINING CONCRETE ABUTMENTS ON SPREAD FOOTINGS. THE COMBINED LENGTH OF THE TWO STRUCTURES IS APPROXIMATELY 135'. BOTH STRUCTURES SHALL BE REMOVED, INCLUDING THE ASPHALT OVERLAY, CONCRETE CHANNEL LINING, AND FOOTINGS. REMOVAL OF BOTH STRUCTURES IS INCLUDED IN THE BID ITEM "REMOVING OLD STRUCTURE OVER WATER WITH MINIMAL DEBRIS STATION 240+52.61."

MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, AND THE CONTRACT SPECIAL PROVISIONS.

DESIGN SPECIFICATION: DESIGN STRUCTURE BY CURRENT EDITION AASHTO LRFD BRIDGE SPECIFICATION AND AS SUPPLEMENTED BY WISDOT BRIDGE MANUAL.

USE GRADE A CONCRETE IN FOOTING AND WINGWALL. f'c = 4 KSI(MIN.)

CHAMFER EXPOSED CONCRETE EDGES ¾" x ¾" EXCEPT AS NOTED.

PROVIDE DEFORMED REINFORCEMENT STEEL MEETING THE REQUIREMENTS OF ASTM DESIGNATION 615, OR 617, GRADE 60 AS SET FORTH IN THE STANDARD SPECIFICATIONS.

COORDINATE THE INSTALLATION OF STORM SEWER PIPES IN WING 2 WITH THE STORM SEWER CONTRACTOR.

AT ANY TIME DURING PLACEMENT OF THE BACKFILL, DO NOT PERMIT A DIFFERENCE IN FILL ELEVATION ON THE SIDES OF THE CULVERT BARREL IN EXCESS OF 2'-0".

DURING COMPACTION OF THE BACKFILL, DO NOT ALLOW THE WHEELS OF ROLLERS TO COME CLOSER THAN 1'-0" TO THE FACE OF THE STRUCTURE.

A MINIMUM OF 6" OF STRUCTURE BACKFILL SHALL BE PLACED ABOVE THE TOP OF STRUCTURE.

A MINIMUM OF 6" OF STRUCTURE BACKFILL SHALL BE PLACED ABOVE THE TOP OF STRUCTURE.

COFFERDAM TYPE AND LOCATION TO BE DETERMINED BY THE CONTRACTOR TO SUIT THE METHOD OF CONSTRUCTION SELECTED. CONCEPT AND MATERIALS DEPICTED ON PLANS IS FOR ILLUSTRATIVE PURPOSES ONLY.

IF SHEETING IS USED FOR THE COFFERDAM, PART OF THE SHEETING MORE THAN A FOOT BELOW THE STREAM BED MAY BE LEFT IN PLACE.

THE KEYWAY FOR PRECAST BRIDGE UNIT AT THE TOP OF THE FOOTING SHALL BE DRY BEFORE THE GROUTING BEGINS.

THE MINIMUM WIDTH OF AN INDIVIDUAL PRECAST CONCRETE ARCH UNIT IS 2'-0".

AT CONTRACTOR'S OPTION, PRECAST WING WALLS MAY BE USED FOR WINGS 1, 3, AND 4 IN LIEU OF CAST-IN-PLACE CONCRETE WINGS. PAYMENT FOR PRECAST WINGS WILL BE BASED ON THE PLAN QUANTITIES FOR CORRESPONDING CAST-IN-PLACE CONCRETE WINGS, PAID AT THE CONTRACT UNIT PRICES.

AT CONTRACTOR'S OPTION, PRECAST HEADWALLS MAY BE USED IN LIEU OF CAST-IN-PLACE CONCRETE HEADWALLS. PAYMENT FOR PRECAST HEADWALL WILL BE BASED ON THE PLAN QUANTITIES FOR CAST-IN-PLACE CONCRETE HEADWALL, PAID AT THE CONTRACT UNIT PRICES.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

TYPICAL SECTION AND GENERAL NOTES

SHEET 2 OF 20
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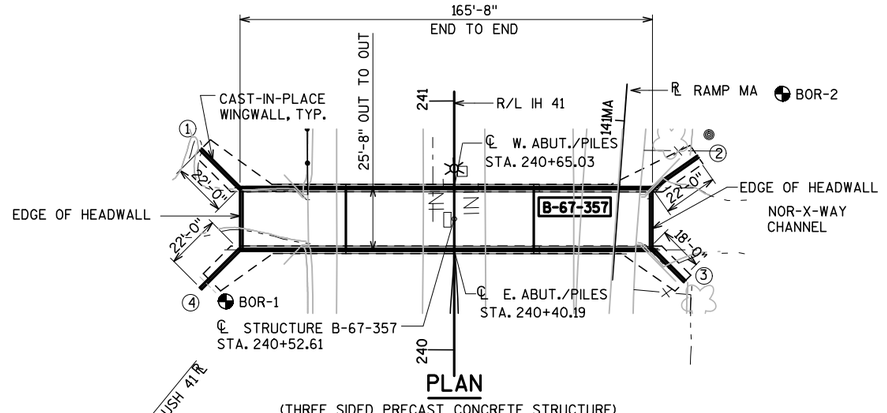
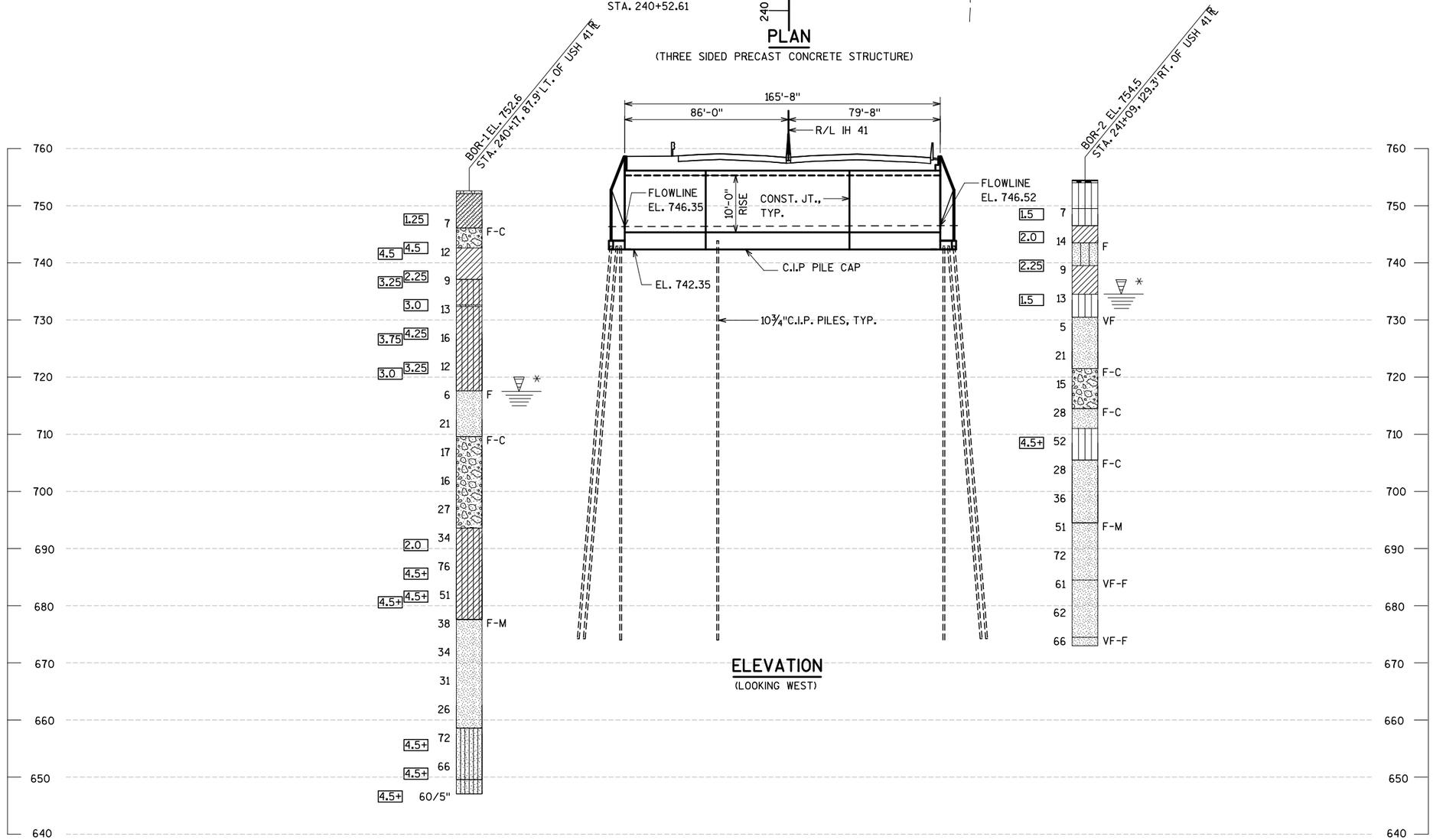
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	6/20/2016	221173.209	721563.867
2	6/21/2016	221404.457	721622.959
BORINGS COMPLETED BY: WISDOT			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) WAUKESHA COUNTY			



PLAN

(THREE SIDED PRECAST CONCRETE STRUCTURE)



ELEVATION

(LOOKING WEST)

* THE GROUND WATER ELEVATION WAS DETERMINED FROM WHERE THE SOIL SAMPLE WAS DESCRIBED AS WET.

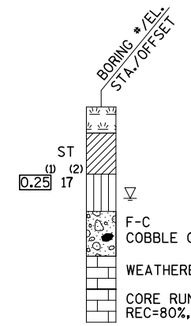
STATE PROJECT NUMBER

1100-36-72

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▽ AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TLP | PLANS CK'D. BDT

SUBSURFACE EXPLORATION

SHEET 3 OF 20

244

FILE NAME: F:\BMI-32568_USH 41_WCL to WCL\5_Design\04_Structures\Bridges\dgns\B-67-357\03_B67357_subsurface.dgn
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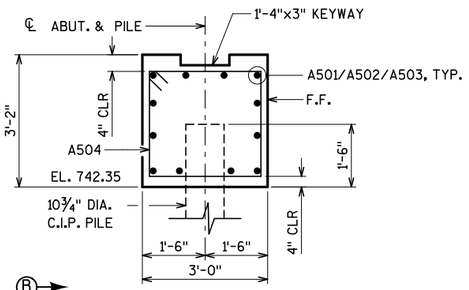
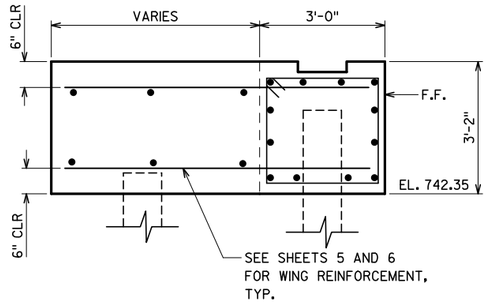
8

STATE PROJECT NUMBER

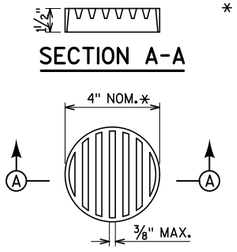
1100-36-72



SECTION A-A



SECTION B-B



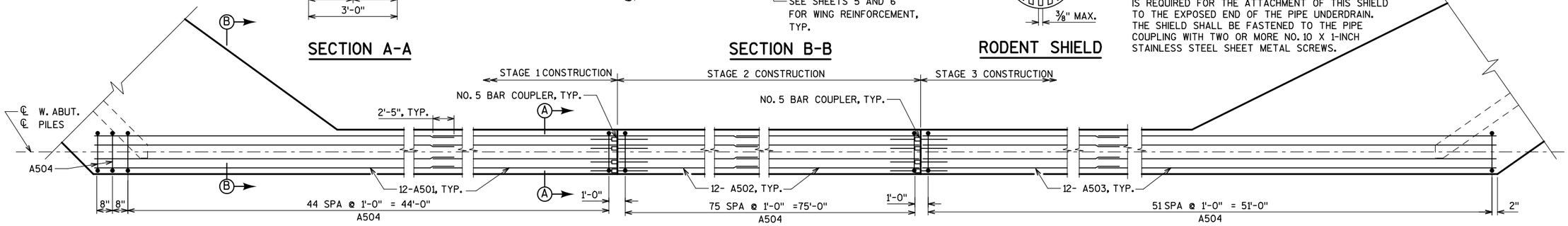
RODENT SHIELD

* DIMENSIONS ARE APPROXIMATE, THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

ORIENT SHIELD SO SLOTS ARE VERTICAL.

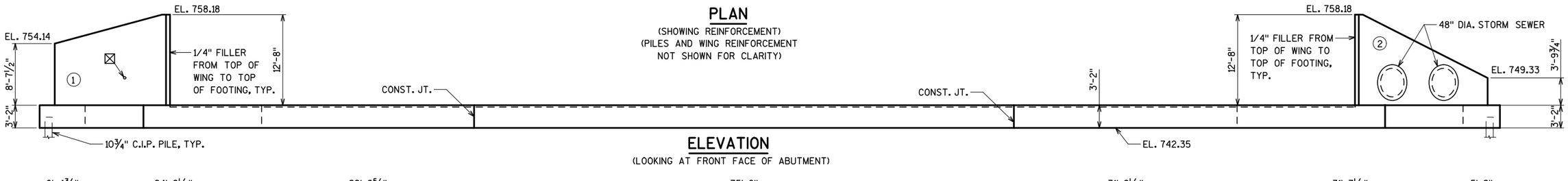
THE RODENT SHIELD, PIPE COUPLING, AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM " PIPE UNDERDRAIN WRAPPED 4-INCH."

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



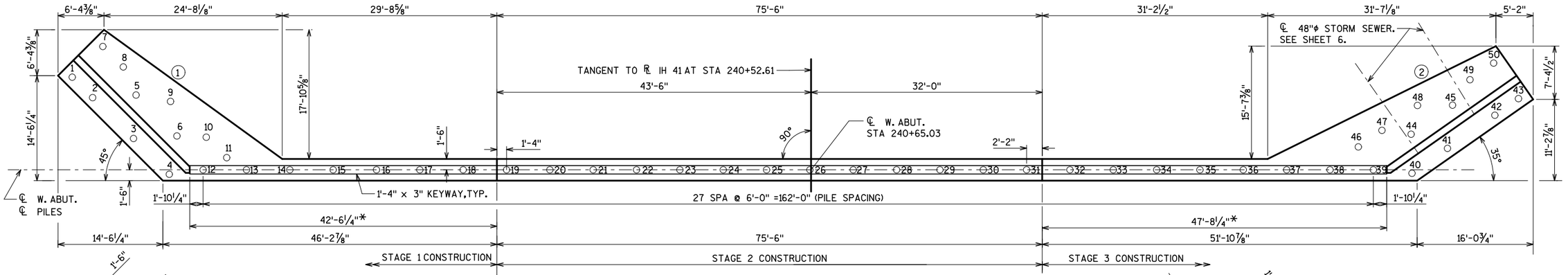
PLAN

(SHOWING REINFORCEMENT)
(PILES AND WING REINFORCEMENT NOT SHOWN FOR CLARITY)



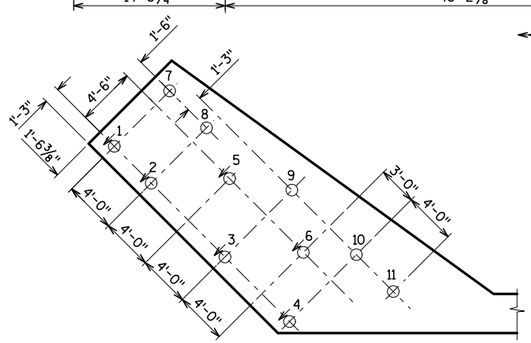
ELEVATION

(LOOKING AT FRONT FACE OF ABUTMENT)



PLAN

* DIMENSION INCLUDES 1/4" FILLER THCKNESS AT WING



WING 1 PILE LAYOUT

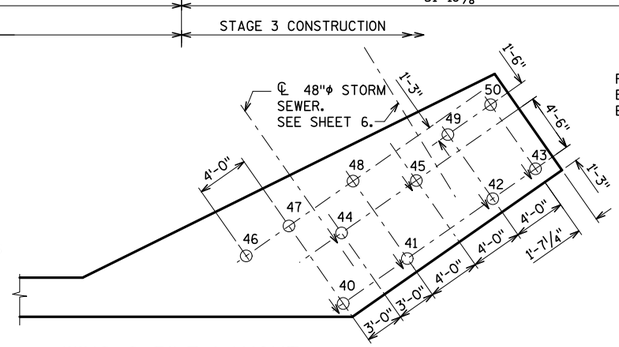
LEGEND

- (X) WING NUMBER
- BATTER PILE 3 INCH PER FOOT IN THE DIRECTION SHOWN
- ☒ 4" DIA. PIPE UNDERDRAIN OUTLET HOLE

NOTES

ABUTMENTS AND WINGS TO BE SUPPORTED ON 10¾"ϕ x 0.365" C.I.P. CONCRETE PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH BELOW BOTTOM OF WEST ABUTMENT IS 54 FEET AT SOUTH END AND 59 FEET AT NORTH END.

SEE SHEETS 5 AND 6 FOR WING DETAILS
SEE SHEET 12 FOR BILL OF BARS



WING 2 PILE LAYOUT

F.F. - FRONT FACE
B.F. - BACK FACE
E.F. - EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

WEST ABUTMENT
(1 OF 3)

SHEET 4 OF 20
245

8

8

FILE NAME: F:\BMI-32568.USH 41 WCL to WCL\s.Design\04_Structures\Bridges\stdsb\B-67-357\04_B67357_west abutment.dgn
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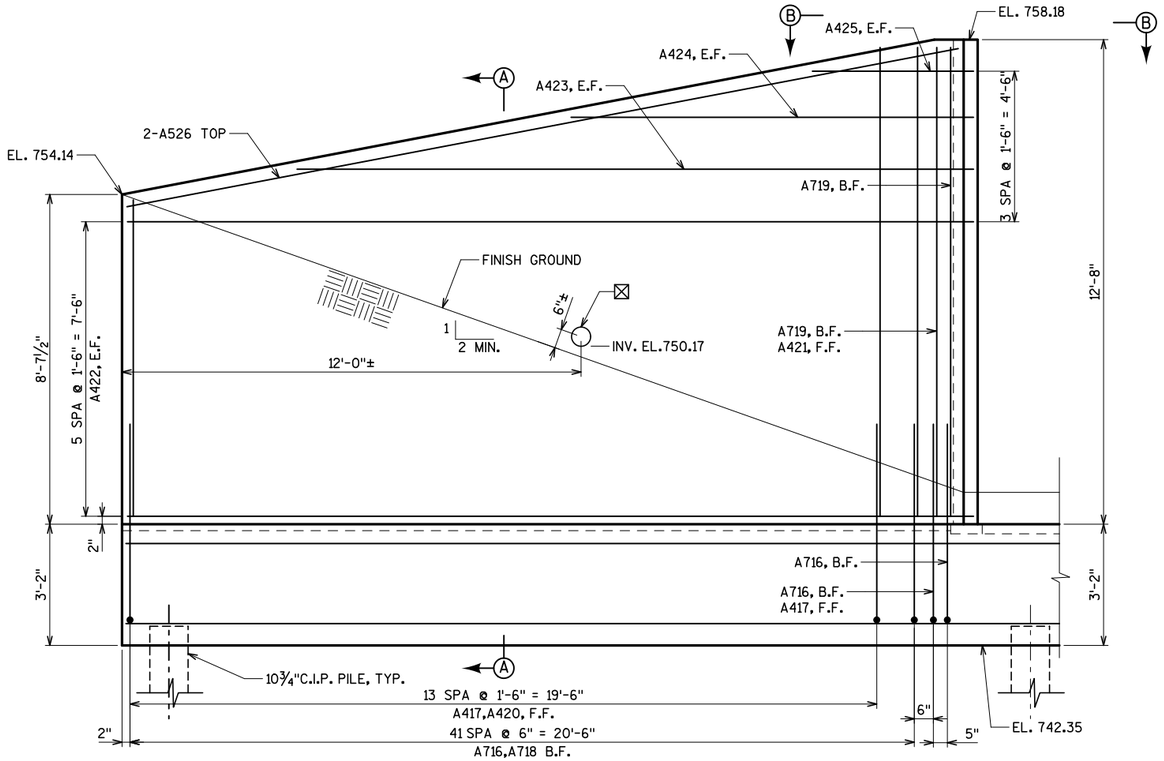
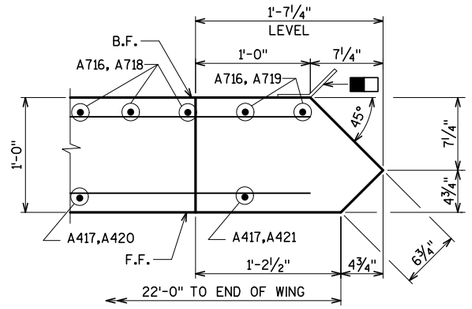
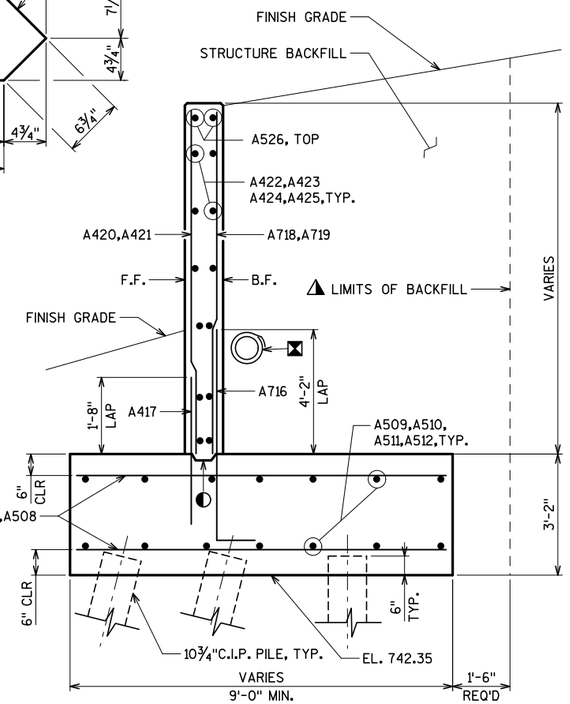


WING 1 ELEVATION

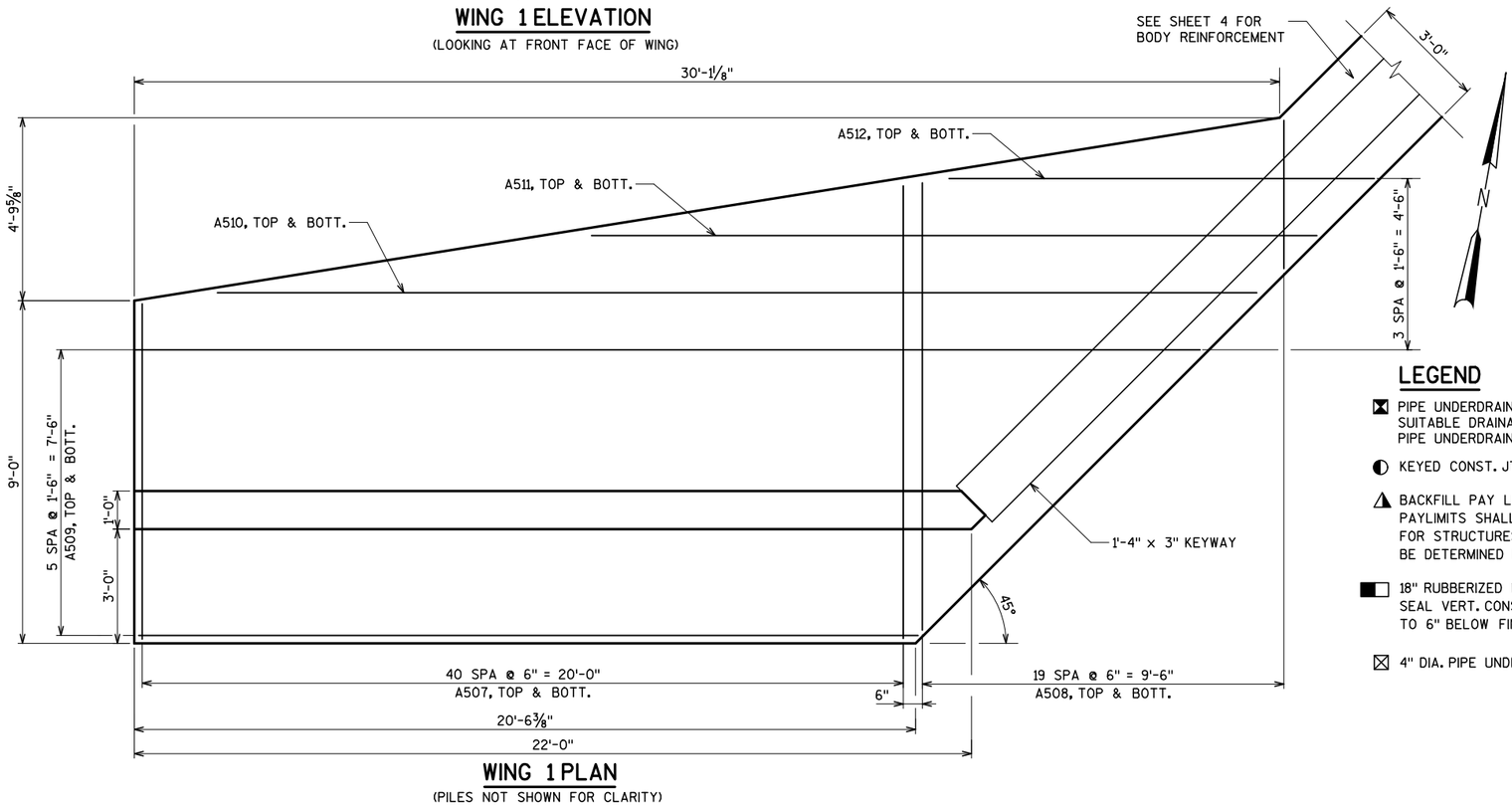
(LOOKING AT FRONT FACE OF WING)



VIEW B-B



SECTION A-A



WING 1 PLAN

(PILES NOT SHOWN FOR CLARITY)

LEGEND

- PIPE UNDERDRAIN WRAPPED 4-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON SHEET 4.
- KEYED CONST. JT. FORMED BY BEVELED 2"x6"
- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAYLIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL VERT. CONST. JOINTS ON BACK FACE TO 6" BELOW FINISH GROUND.
- 4" DIA. PIPE UNDERDRAIN OUTLET HOLE

F.F. - FRONT FACE
B.F. - BACK FACE
E.F. - EACH FACE

NOTES

AT THE BACK FACE OF WING WALL ALL VOLUME WHICH CANNOT BE PLACED BEFORE WING CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL WITHIN THE LIMITS SHOWN.

SEE SHEET 12 FOR BILL OF BARS
SEE SHEET 15 FOR RAILING DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

WEST ABUTMENT
(2 OF 3)

SHEET 5 OF 20
246

8

8

FILE NAME: F:\BMI-32568_USH 41_WCL to WCL\5_Design\04_Structures_Bridges\sds\B-67-357\06_B67357_wing 2.dgn
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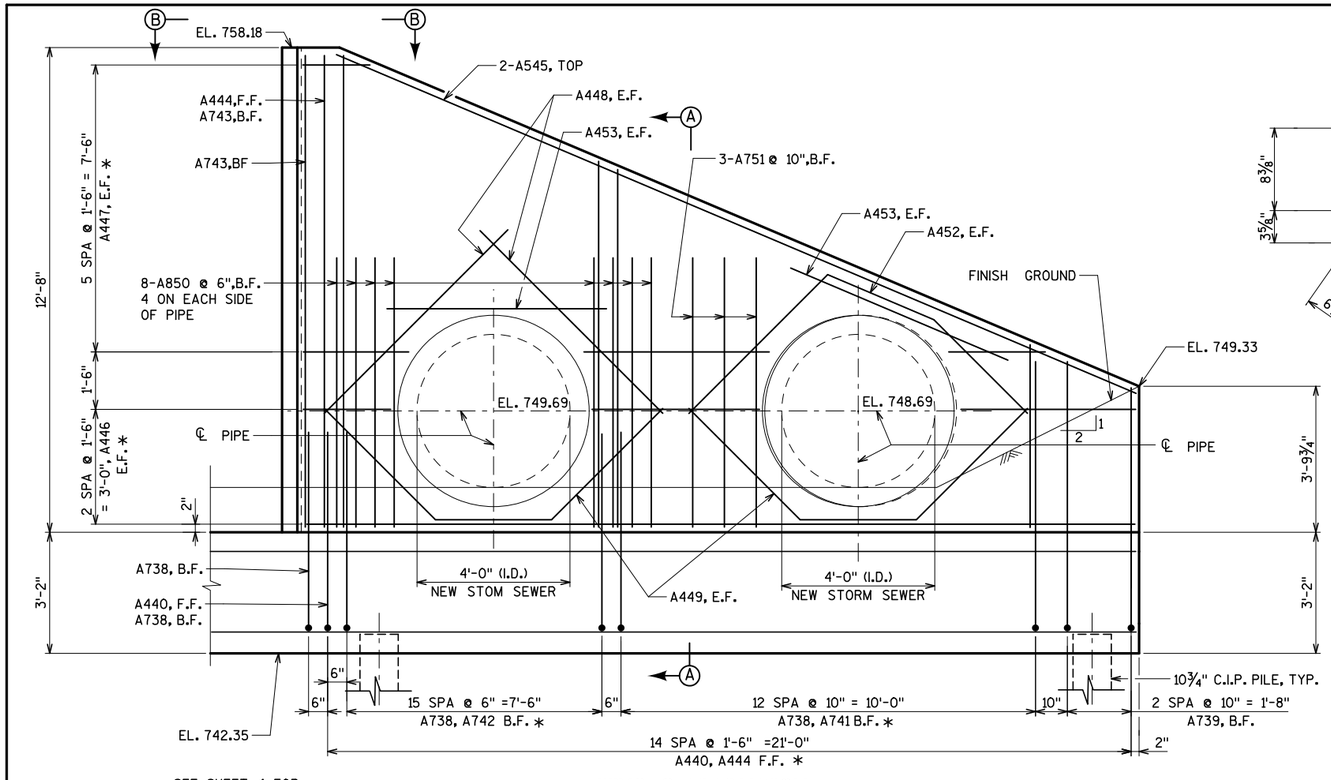
STATE PROJECT NUMBER

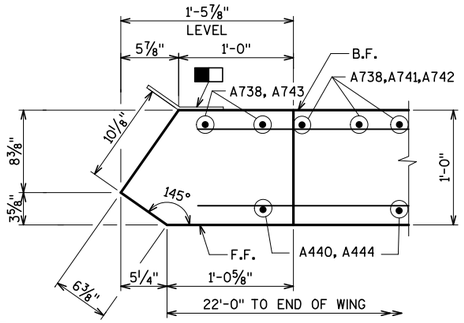
1100-36-72



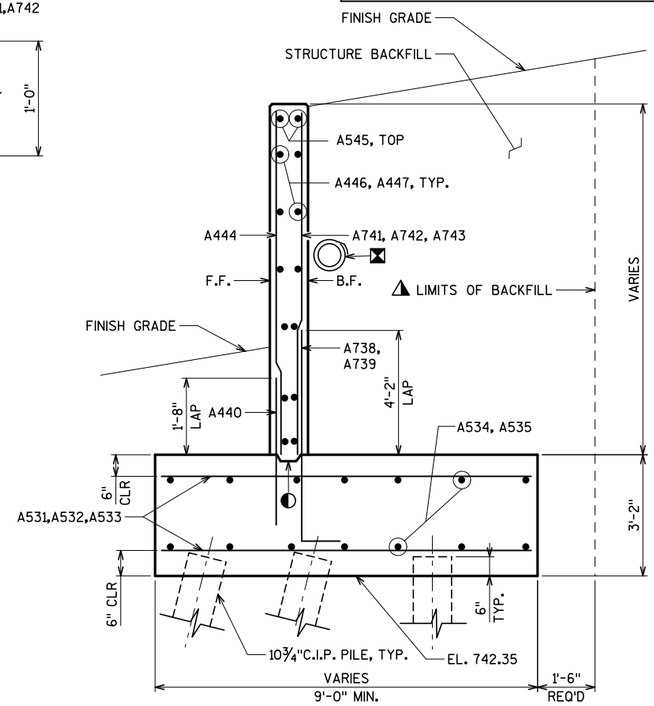
WING 2 ELEVATION

(LOOKING AT FRONT FACE OF WING)

* FIELD CUT BARS TO FIT STORM SEWER PIPE

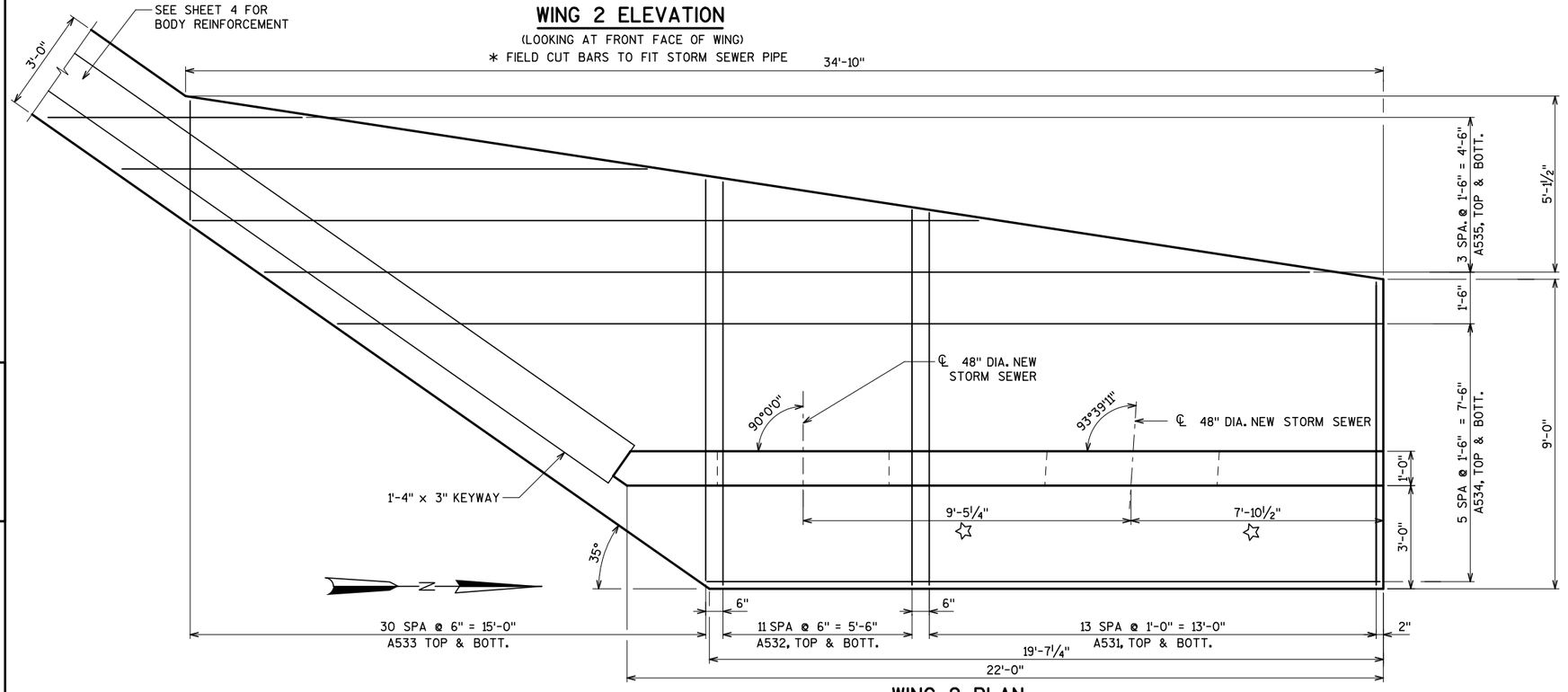


VIEW B-B



SECTION A-A

(STORM SEWER NOT SHOWN FOR CLARITY)



WING 2 PLAN

(PILES NOT SHOWN FOR CLARITY)

NOTES

AT THE BACK FACE OF WING WALL ALL VOLUME WHICH CANNOT BE PLACED BEFORE WING CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL WITHIN THE LIMITS SHOWN.

COORDINATE THE SIZE OF HOLES IN THE WING WALL FOR THE STORM SEWER PIPES WITH THE STORM SEWER CONTRACTOR.

SEE SHEET 12 FOR BILL OF BARS
SEE SHEET 15 FOR RAILING DETAILS

LEGEND

- ☒ PIPE UNDERDRAIN WRAPPED 4-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON SHEET 4.
- ◐ KEYED CONST. JT FORMED BY BEVELED 2"x6"
- ⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAYLIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- ■ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL VERT. CONST. JOINTS ON BACK FACE TO 6" BELOW FINISH GROUND.
- ☆ MEASURED ALONG FRONT FACE OF WING WALL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

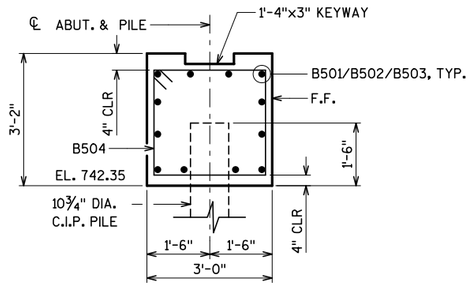
WEST ABUTMENT
(3 OF 3)

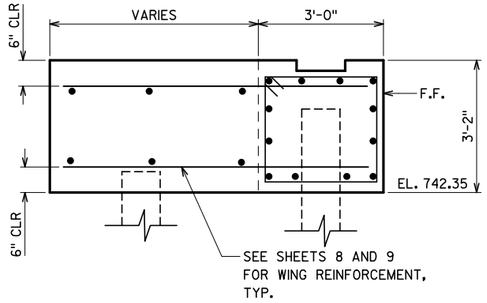
SHEET 6 OF 20
247

F.F. - FRONT FACE
B.F. - BACK FACE
E.F. - EACH FACE

8

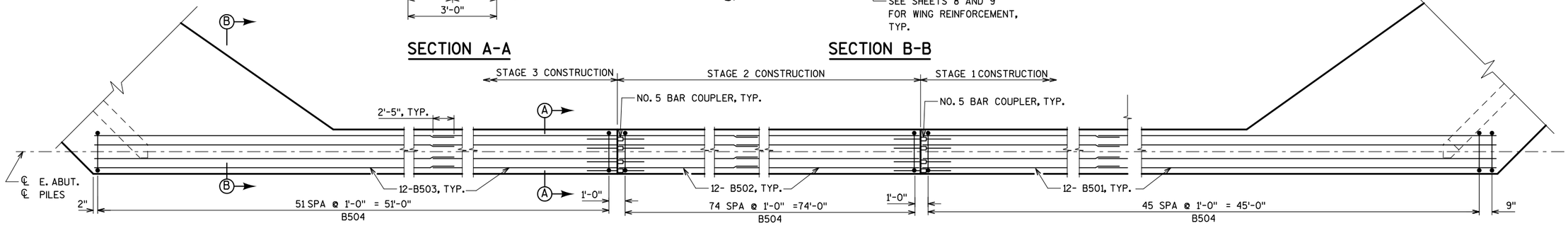
STATE PROJECT NUMBER
1100-36-72





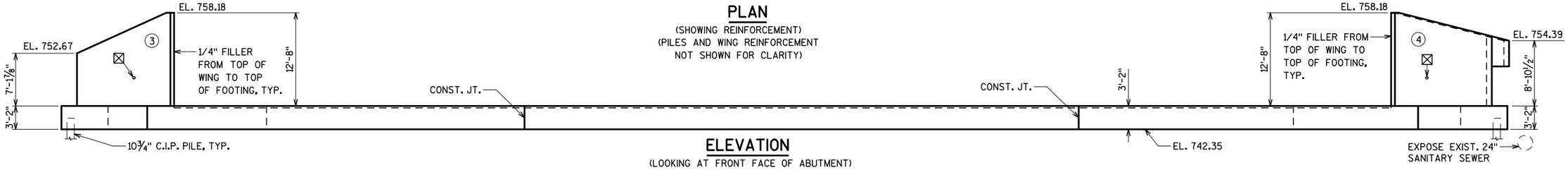
SECTION A-A

SECTION B-B



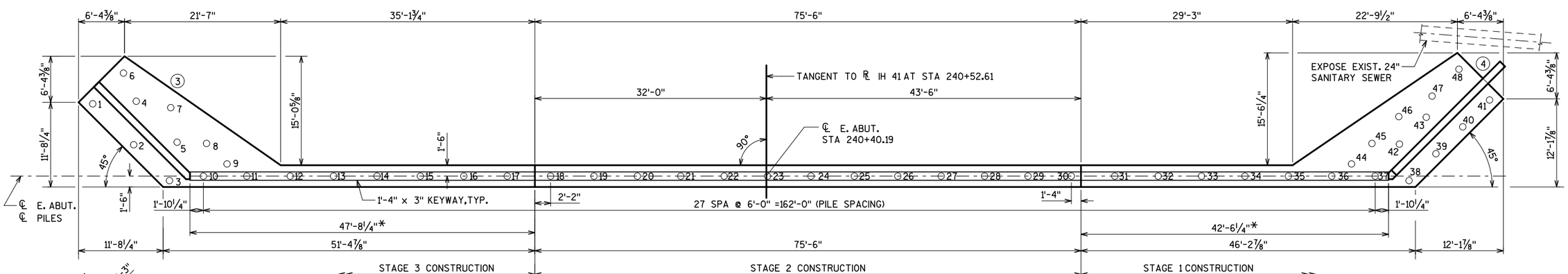
PLAN

(SHOWING REINFORCEMENT)
(PILES AND WING REINFORCEMENT NOT SHOWN FOR CLARITY)



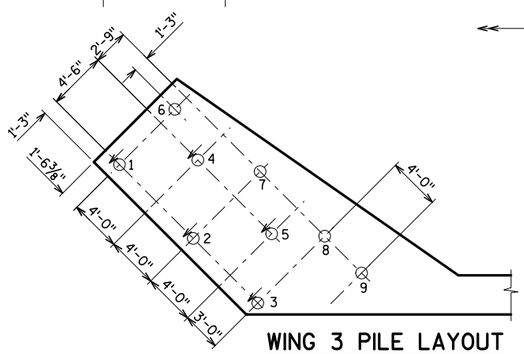
ELEVATION

(LOOKING AT FRONT FACE OF ABUTMENT)



PLAN

* DIMENSION INCLUDES 1/4" FILLER THCKNESS AT WING



WING 3 PILE LAYOUT

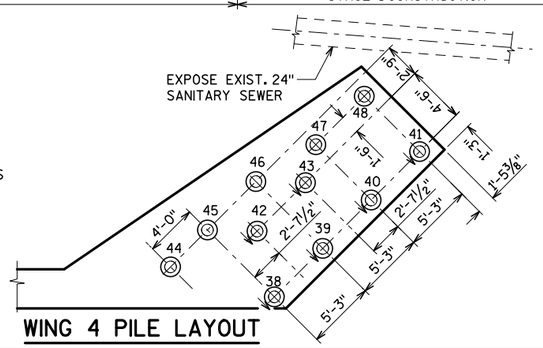
LEGEND

- (X) WING NUMBER
- BATTER PILE 3 INCH PER FOOT IN THE DIRECTION SHOWN
- PREBORE TO 20 FEET BELOW THE BOTTOM OF EXISTING SANITARY SEWER BEFORE DRIVING THE PILES
- ⊠ 4" DIA. PIPE UNDERDRAIN OUTLET HOLE

NOTES

ABUTMENTS AND WINGS TO BE SUPPORTED ON 10¾"ϕ x 0.365" C.I.P. CONCRETE PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH BELOW BOTTOM OF EAST ABUTMENT IS 54 FEET AT SOUTH END AND 59 FEET AT NORTH END.

SEE SHEETS 8 AND 9 FOR WING DETAILS
SEE SHEET 12 FOR BILL OF BARS



WING 4 PILE LAYOUT

F.F. - FRONT FACE
B.F. - BACK FACE
E.F. - EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY	TAL	PLANS CK'D.	BDT

EAST ABUTMENT (1 OF 3)

SHEET 7 OF 20
248

8

8

FILE NAME: F:\BMI-32566.USH 41 WCL to WCL\S.Design\04_Structures\...\Structures_Bridges\stab67-357\s07_B67357_east abutment.dgn
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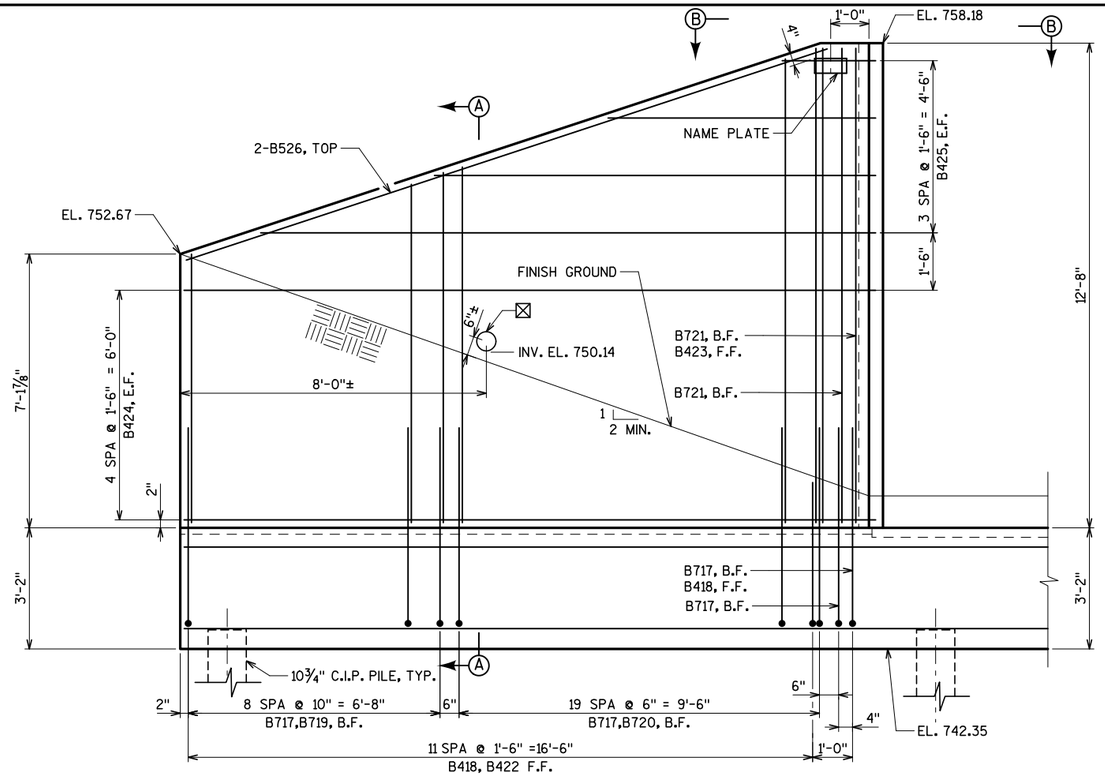
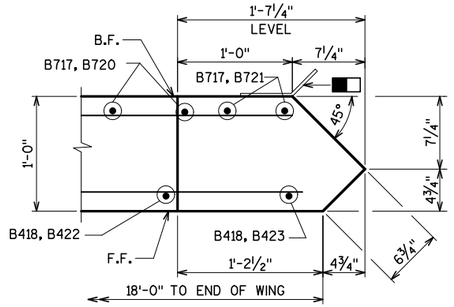
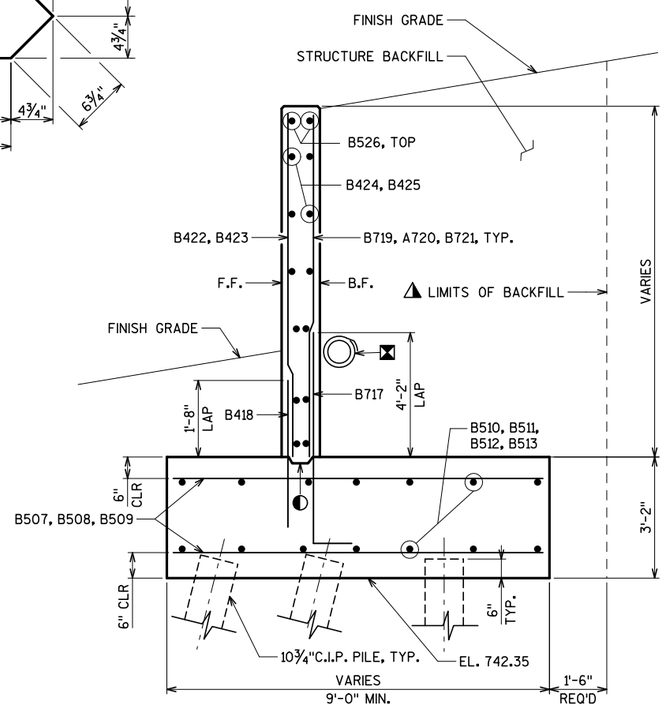


WING 3 ELEVATION

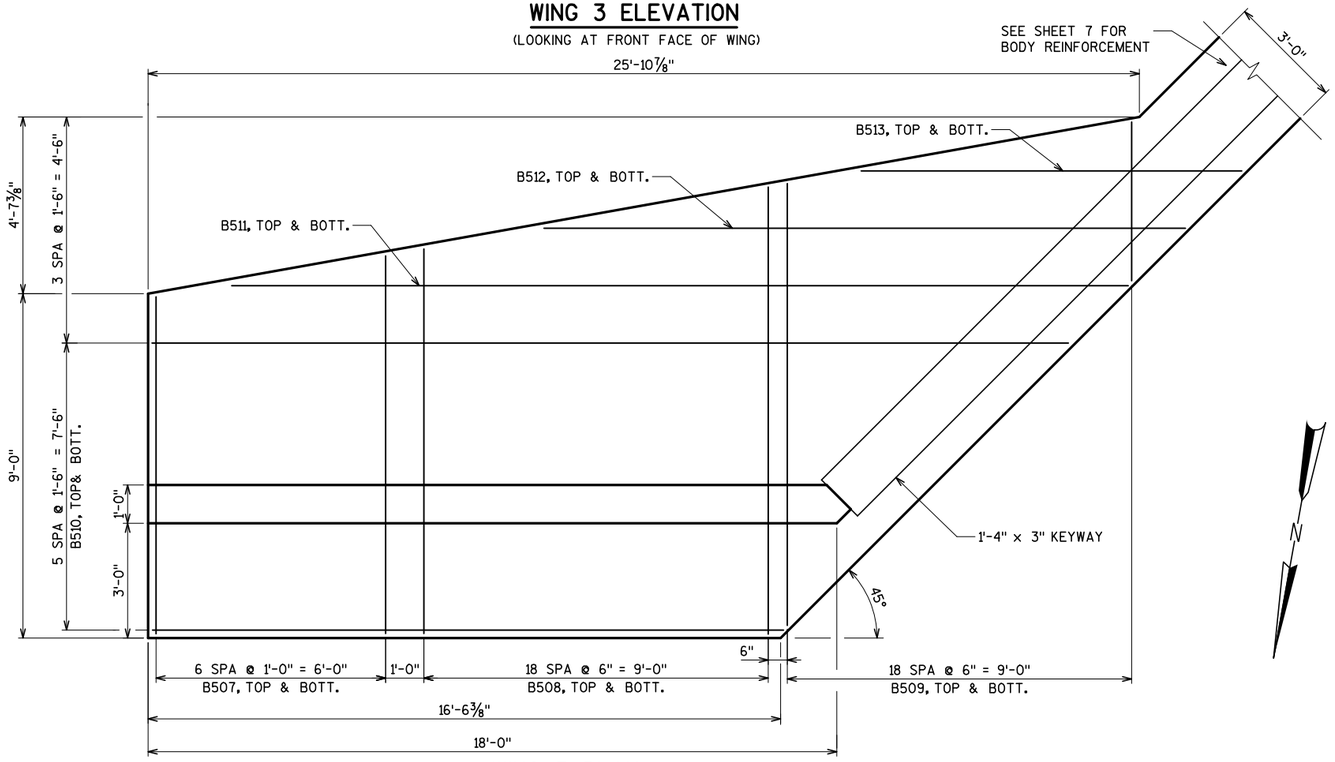
(LOOKING AT FRONT FACE OF WING)



VIEW B-B



SECTION A-A



WING 3 PLAN

(PILES NOT SHOWN FOR CLARITY)

LEGEND

- PIPE UNDERDRAIN WRAPPED 4-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON SHEET 4.
- KEYED CONST. JT FORMED BY BEVELED 2"x6"
- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAYLIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL VERT. CONST. JOINTS ON BACK FACE TO 6" BELOW FINISH GROUND.
- 4" DIA. PIPE UNDERDRAIN OUTLET HOLE

F.F. - FRONT FACE
B.F. - BACK FACE
E.F. - EACH FACE

NOTES

AT THE BACK FACE OF WING WALL ALL VOLUME WHICH CANNOT BE PLACED BEFORE WING CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL WITHIN THE LIMITS SHOWN.

SEE SHEET 12 FOR BILL OF BARS
SEE SHEET 15 FOR RAILING DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

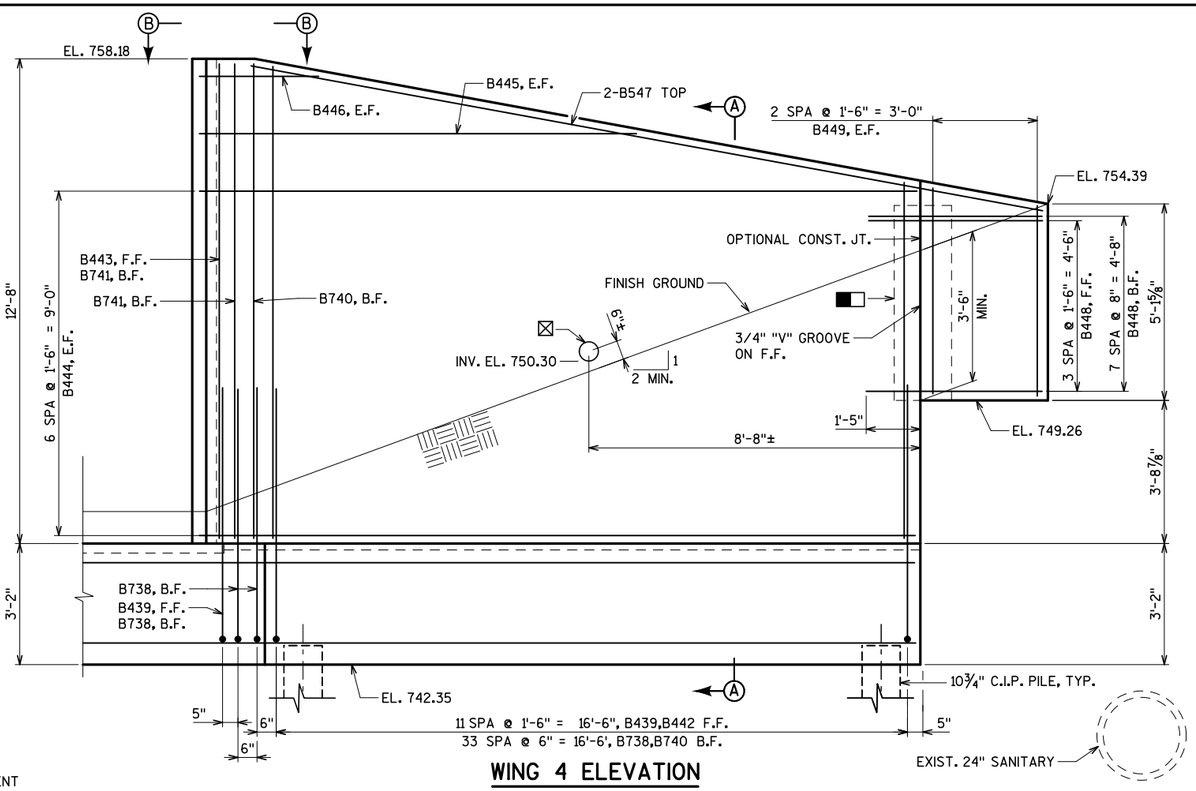
STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

EAST ABUTMENT (2 OF 3)

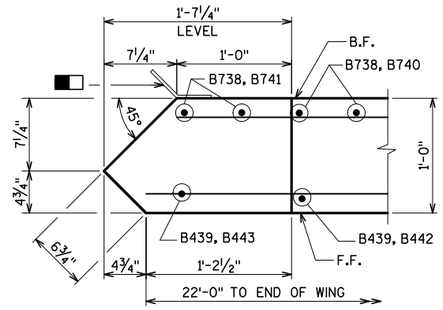
SHEET 8 OF 20
249

8

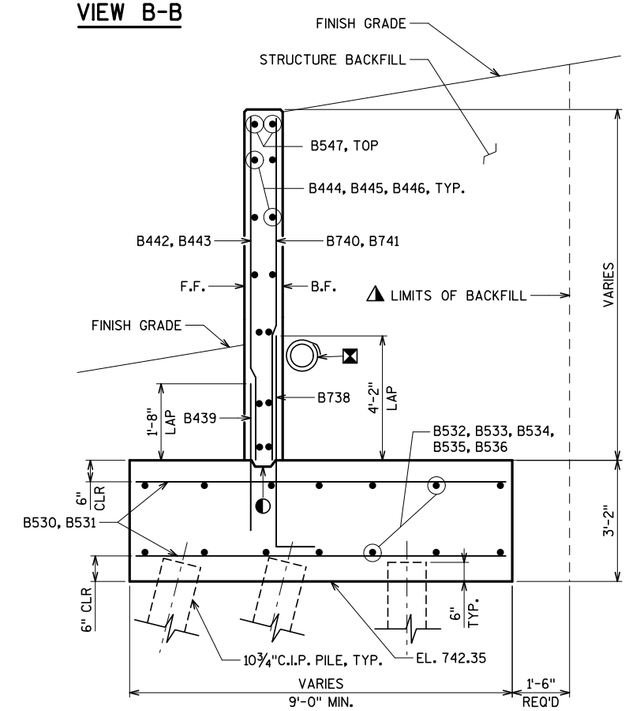


WING 4 ELEVATION

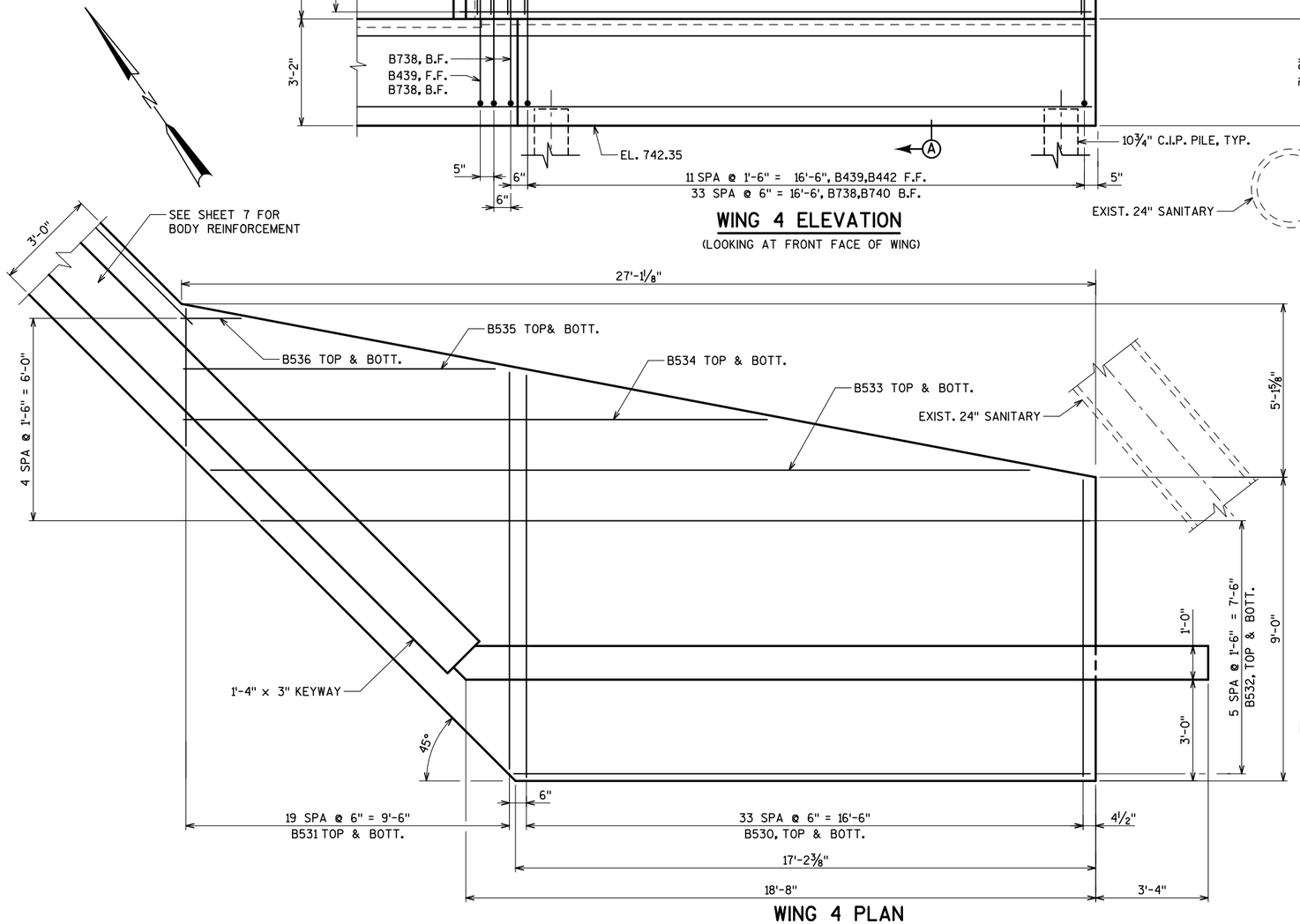
(LOOKING AT FRONT FACE OF WING)



VIEW B-B



SECTION A-A



WING 4 PLAN

(PILES NOT SHOWN FOR CLARITY)

LEGEND

- PIPE UNDERDRAIN WRAPPED 4-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON SHEET 4.
- KEYED CONST. JT FORMED BY BEVELED 2"x6"
- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAYLIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL VERT. CONST. JOINTS ON BACK FACE TO 6" BELOW FINISH GROUND.
- 4" DIA. PIPE UNDERDRAIN OUTLET HOLE

NOTES

AT THE BACK FACE OF WING WALL ALL VOLUME WHICH CANNOT BE PLACED BEFORE WING CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL WITHIN THE LIMITS SHOWN.

SEE SHEET 12 FOR BILL OF BARS
SEE SHEET 15 FOR RAILING DETAILS

F.F. - FRONT FACE
B.F. - BACK FACE
E.F. - EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

EAST ABUTMENT
(3 OF 3)

SHEET 9 OF 20
250

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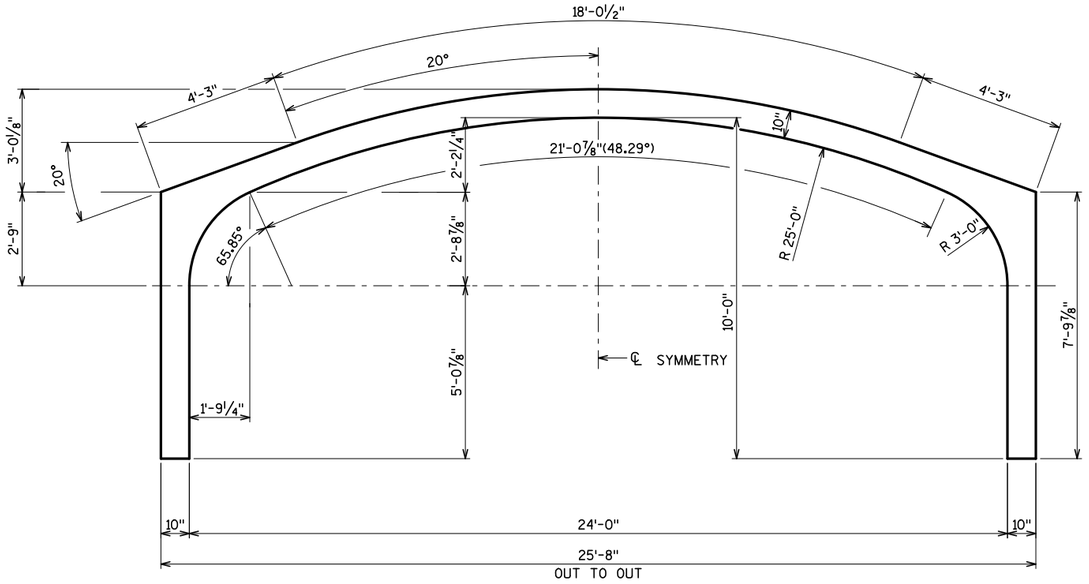
STATE PROJECT NUMBER

1100-36-72



PRECAST BRIDGE UNIT
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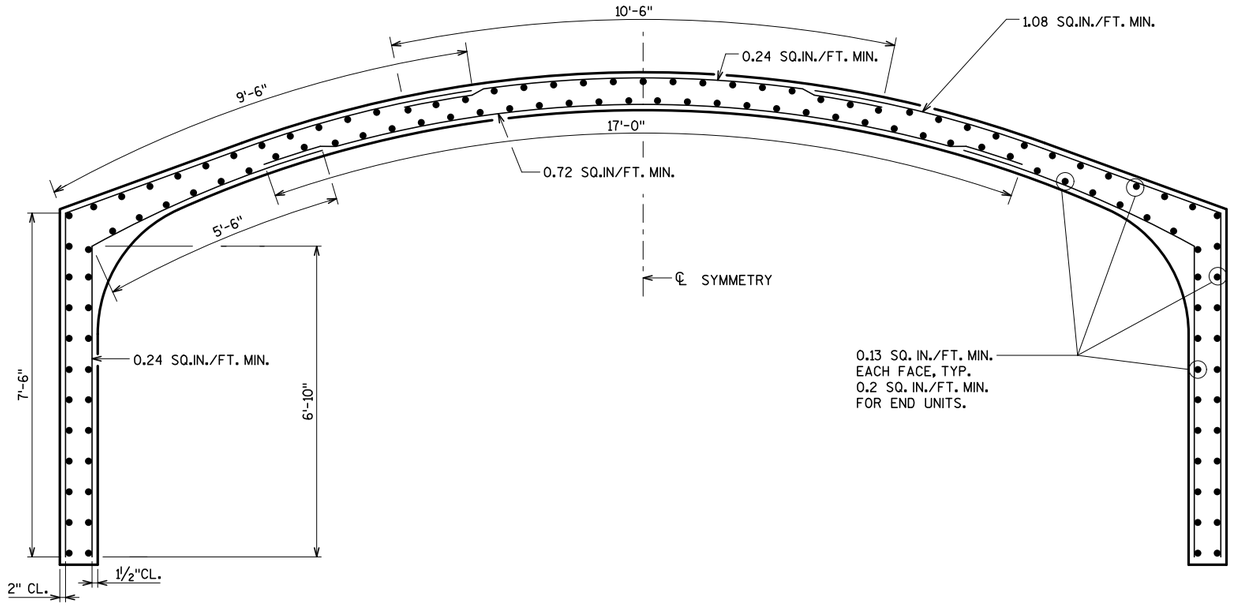

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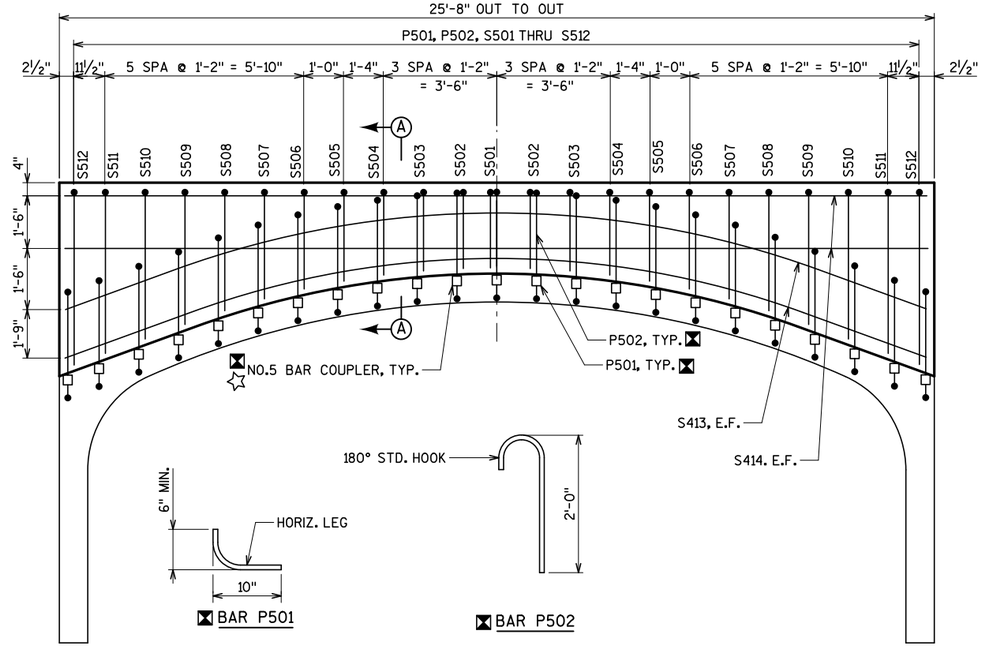
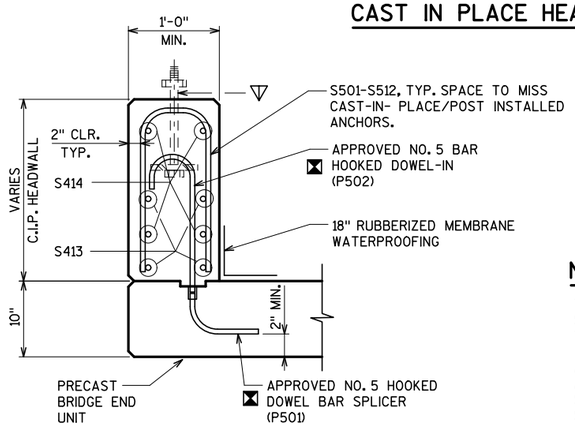


CAST IN PLACE HEADWALL



SECTION A-A

NOTES

THE CLEAR DISTANCE OF THE END CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 1" NOR MORE THAN 2" FROM THE ENDS OF EACH SECTION.

AN ALTERNATE EQIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

MINIMUM COVER FOR WELDED WIRE FABRIC: 1 INCH.

AT CONTRACTOR'S OPTION, CAST-IN-PLACE HEADWALL MAY BE POURED AT THE SHOP AND TRANSPORTED TO THE SITE ATTACHED TO THE END PRECAST BRIDGE UNIT.

SEE SHEET 12 FOR HEADER BILL OF BARS.

LEGEND

- ⊠ TO BE FURNISHED AND INSTALLED BY THE PRECAST BRIDGE UNIT MANUFACTURER. COST INCLUDED IN THE BID ITEM "THREE SIDED PRECAST CONCRETE STRUCTURE".
- ▽ ANCHOR ASSEMBLY FOR CHAIN LINK FENCE (NORTH HEADWALL) OR PIPE RAILING (SOUTH HEADWALL) TO BE FURNISHED BY CHAIN LINK CONTRACTOR/PIPE RAIL CONTRACTOR AND INSTALLED BY CONCRETE CONTRACTOR. COST INCLUDED IN THE BID ITEM "CONCRETE MASONRY BRIDGES".
- ☆ SEE SHEET 16 FOR BAR COUPLER DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY	TAL	PLANS CK'D.	BDT

PRECAST BRIDGE UNIT (1 OF 2)

SHEET 10 OF 20
251

8

FILE NAME: F:\BMI-32568_USH 41_WCL to WCL\5_Designs\04_Structures_Bridges\cads\B-67-357\t10_B67357_precast unit.dgn
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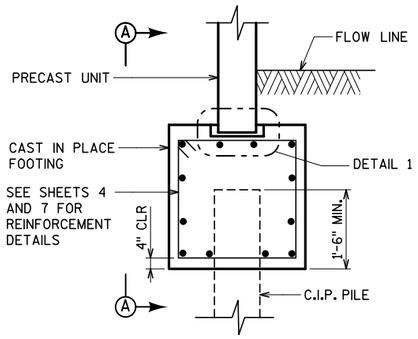
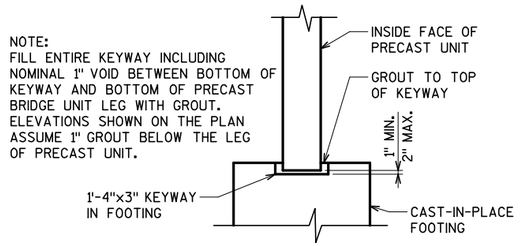
1100-36-72

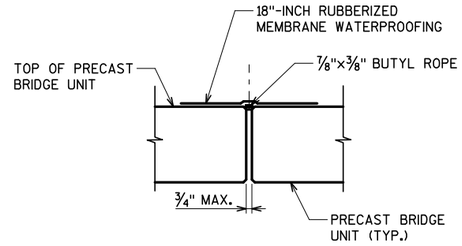


TYPICAL FOUNDATION FOR PRECAST UNIT

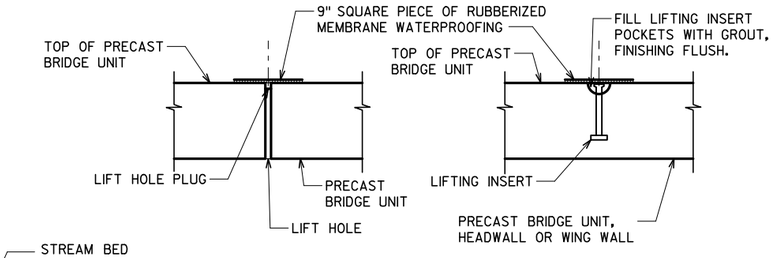


DETAIL 1

PRECAST UNIT GROUT DETAIL

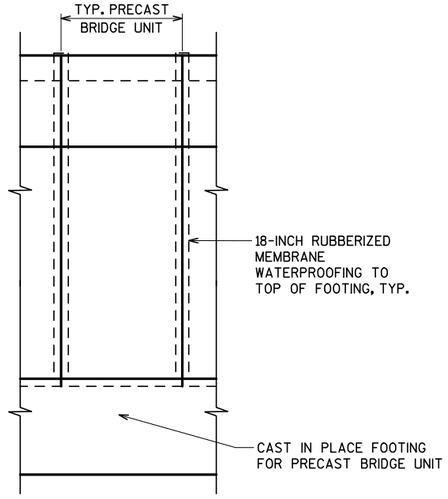


TYPICAL JOINT SEAL DETAIL

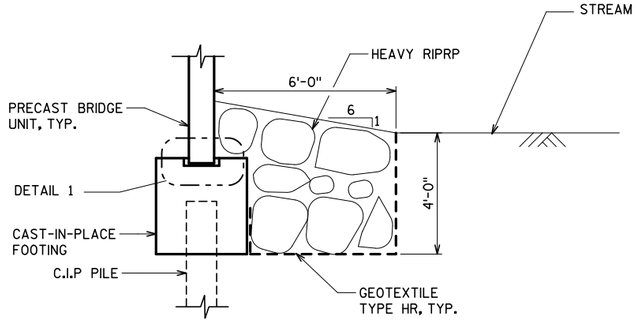


LIFTING HOLES LIFTING INSERTS

TYPICAL LIFT POINT SEALING DETAIL



VIEW A-A



RIPRAP DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

PRECAST BRIDGE UNIT (2 OF 2)

SHEET 11 OF 20

252

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STATE PROJECT NUMBER

1100-36-72

WEST ABUTMENT BILL OF BARS

BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES ▽	LOCATION
A501	-	24	24'-4"	-	-	ABUT. FOOTING, LONGIT.
A502	-	24	39'-0"	-	-	ABUT. FOOTING, LONGIT.
A503	-	24	27'-2"	-	-	ABUT. FOOTING, LONGIT.
A504	-	175	10'-10"	X	-	ABUT. FTG., STIRRUPS
A507	-	82	10'-3"	-	X	WING 1 FTG. TRANS. TOP AND BOTTOM
A508	-	40	7'-8"	-	X	WING 1 FTG. TRANS. TOP AND BOTTOM
A509	-	12	24'-0"	-	X	WING 1 FTG. LONGIT. TOP AND BOTT.
A510	-	2	27'-4"	-	-	WING 1 FTG. LONGIT. TOP AND BOTT.
A511	-	2	19'-5"	-	-	WING 1 FTG. LONGIT. TOP AND BOTT.
A512	-	2	11'-7"	-	-	WING 1 FTG. LONGIT. TOP AND BOTT.
A716	X	44	7'-9"	X	-	WING 1 STEM VERTICAL, B.F.
A417	X	15	3'-4"	-	-	WING 1 STEM VERTICAL, F.F.
A718	X	42	10'-2"	-	X	WING 1 STEM VERT., B.F.
A719	X	2	12-'4"	-	-	WING 1 STEM VERT., B.F.
A420	X	14	10'-2"	-	X	WING 1 STEM VERT., F.F.
A421	X	1	12'-4"	-	-	WING 1 STEM VERT., F.F.
A422	X	12	21'-6"	-	-	WING 1 STEM LONGIT., E.F.
A423	X	2	17'-10"	-	-	WING 1 STEM LONGIT., E.F.
A424	X	2	9'-11"	-	-	WING 1 STEM LONGIT., E.F.
A425	X	2	2'-1"	-	-	WING 1 STEM LONGIT., E.F.
A526	X	2	21'-5"	-	-	WING 1 STEM LONGIT., TOP
A531	-	28	9'-7"	-	X	WING 2 FTG. TRANS. TOP AND BOTTOM
A532	-	24	11'-1"	-	X	WING 2 FTG. TRANS. TOP AND BOTTOM
A533	-	62	7'-4"	-	X	WING 2 FTG. TRANS. TOP AND BOTTOM
A534	-	12	24'-9"	-	X	WING 2 FTG. LONGIT. TOP AND BOTT.
A535	-	8	18'-2"	-	X	WING 2 FTG. LONGIT. TOP AND BOTT.
A738	X	31	7'-9"	X	-	WING 2 STEM VERTICAL, B.F.
A739	X	3	7'-5"	X	X	WING 2 STEM VERTICAL, B.F.
A440	X	15	3'-4"	-	-	WING 2 STEM VERTICAL, F.F.
A741	X	13	6'-8"	-	X	WING 2 STEM VERT., B.F.
A742	X	16	10'-8"	-	X	WING 2 STEM VERT., B.F.
A743	X	2	12'-3"	-	-	WING 2 STEM VERT., B.F.
A444	X	15	7'-10"	-	X	WING 2 STEM VERT., F.F.
A545	X	2	22'-6'	-	-	WING 2 STEM LONGIT., TOP
A446	X	6	21'-7"	-	-	WING 2 STEM LONGIT., E.F.
A447	X	12	10'-5"	-	X	WING 2 STEM LONGIT., E.F.
A448	X	4	6'-8"	-	-	WING 2 AROUND OPENING
A449	X	4	11'-6"	X	-	WING 2 AROUND OPENING
A850	X	8	7'-0"	-	-	WING 2 SIDE OF OPENING
A751	X	3	7'-0"	-	-	WING 2 SIDE OF OPENING
A452	X	2	11'-8"	X	-	WING 2 SIDE OF OPENING
A453	X	4	6'-0"	-	-	WING 2 SIDE OF OPENING

▽ LENGTH SHOWN FOR BAR IS ONLY AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

EAST ABUTMENT BILL OF BARS

BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES ▽	LOCATION
B501	-	24	24'-4"	-	-	ABUT. FOOTING, LONGIT.
B502	-	24	39'-0"	-	-	ABUT. FOOTING, LONGIT.
B503	-	24	27'-0"	-	-	ABUT. FOOTING, LONGIT.
B504	-	174	10'-10"	X	-	ABUT. FTG., STIRRUPS
B507	-	14	9'-2"	-	X	WING 3 FTG. TRANS. TOP AND BOTTOM
B508	-	38	10'-8"	-	X	WING 3 FTG. TRANS. TOP AND BOTTOM
B509	-	38	7'-7"	-	X	WING 3 FTG. TRANS. TOP AND BOTTOM
B510	-	12	20'-0"	-	X	WING 3 FTG. LONGIT. TOP AND BOTT.
B511	-	2	23'-1"	-	-	WING 3 FTG. LONGIT. TOP AND BOTT.
B512	-	2	16'-2"	-	-	WING 3 FTG. LONGIT. TOP AND BOTT.
B513	-	2	9'-3"	-	-	WING 3 FTG. LONGIT. TOP AND BOTT.
B717	X	31	7'-9"	X	-	WING 3 STEM VERTICAL, B.F.
B418	X	13	3'-4"	-	-	WING 3 STEM VERTICAL, F.F.
B719	X	9	7'-11"	-	X	WING 3 STEM VERT., B.F.
B720	X	20	10'-9"	-	X	WING 3 STEM VERT., B.F.
B721	X	2	12'-4"	-	-	WING 3 STEM VERT., B.F.
B422	X	12	9'-7"	-	X	WING 3 STEM VERT., F.F.
B423	X	1	12'-4"	-	-	WING 3 STEM VERT., F.F.
B424	X	10	17'-6"	-	-	WING 3 STEM LONGIT., E.F.
B425	X	8	8'-10"	-	X	WING 3 STEM LONGIT., E.F.
B526	X	2	17'-6"	-	-	WING 3 STEM LONGIT., TOP
B530	-	68	10'-3"	-	X	WING 4 FTG. TRANS. TOP AND BOTTOM
B531	-	40	7'-10"	-	X	WING 4 FTG. TRANS. TOP AND BOTTOM
B532	-	12	20'-8"	-	X	WING 4 FTG. LONGIT. TOP AND BOTT.
B533	-	2	24'-1"	-	-	WING 4 FTG. LONGIT. TOP AND BOTT.
B534	-	2	17'-2"	-	-	WING 4 FTG. LONGIT. TOP AND BOTT.
B535	-	2	9'-3"	-	-	WING 4 FTG. LONGIT. TOP AND BOTT.
B536	-	2	2'-0"	-	-	WING 4 FTG. LONGIT. TOP AND BOTT.
B738	X	36	7'-9"	X	-	WING 4 STEM VERTICAL, B.F.
B439	X	13	3'-4"	-	-	WING 4 STEM VERTICAL, F.F.
B740	X	34	10'-10"	-	X	WING 4 STEM VERT., B.F.
B741	X	2	12'-6"	-	-	WING 4 STEM VERT., B.F.
B442	X	12	10'-9"	-	X	WING 4 STEM VERT., F.F.
B443	X	1	12'-6"	-	-	WING 4 STEM VERT., F.F.
B444	X	14	18'-4"	-	-	WING 4 STEM LONGIT., E.F.
B445	X	2	11'-0"	-	-	WING 4 STEM LONGIT., E.F.
B446	X	2	3'-2"	-	-	WING 4 STEM LONGIT., E.F.
B547	X	2	21'-11"	-	-	WING 4 STEM LONGIT., E.F.
B448	X	12	4'-6"	-	-	WING 4 STEM LONGIT., E.F.
B449	X	6	5'-1"	-	X	WING 4 STEM VERT., E.F.

▽ LENGTH SHOWN FOR BAR IS ONLY AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

SUPERSTRUCTURE BILL OF BARS

BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	2	4'-5"	X	-	HEADWALLS, VERTICAL
S502	X	4	4'-7"	X	-	HEADWALLS, VERTICAL
S503	X	4	4'-9"	X	-	HEADWALLS, VERTICAL
S504	X	4	4'-11"	X	-	HEADWALLS, VERTICAL
S505	X	4	5'-5"	X	-	HEADWALLS, VERTICAL
S506	X	4	5'-11"	X	-	HEADWALLS, VERTICAL
S507	X	4	6'-5"	X	-	HEADWALLS, VERTICAL
S508	X	4	7'-3"	X	-	HEADWALLS, VERTICAL
S509	X	4	8'-1"	X	-	HEADWALLS, VERTICAL
S510	X	4	8'-11"	X	-	HEADWALLS, VERTICAL
S511	X	4	9'-9"	X	-	HEADWALLS, VERTICAL
S512	X	4	10'-5"	X	-	HEADWALLS, VERTICAL
S413	X	8	26'-0"	-	-	HEADWALLS, LONGITUDINAL
S414	X	8	25'-4"	-	-	HEADWALLS, LONGITUDINAL

BAR MARK	DIM 'A'
S501	2'-0"
S502	2'-1"
S503	2'-2"
S504	2'-3'
S505	2'-6"
S506	2'-9"
S507	3'-0"
S508	3'-5"
S509	3'-10"
S510	4'-3"
S511	4'-8"
S512	5'-0"

WEST ABUTMENT- BAR SERIES TABLE

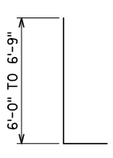
BAR MARK	NO REQUIRED	LENGTH
A507	2 SERIES OF 41	8'-7" TO 11'-10"
A508	2 SERIES OF 20	3'-8" TO 11'-8"
A509	2 SERIES OF 6	20'-3" TO 27'-9"
A718	1 SERIES OF 42	8'-3" TO 12'-0"
A420	1 SERIES OF 14	8'-3" TO 12'-0"
A531	2 SERIES OF 14	8'-7" TO 10'-7"
A532	2 SERIES OF 12	10'-8" TO 11'-6"
A533	2 SERIES OF 31	3'-3" TO 11'-5"
A534	2 SERIES OF 6	19'-7" TO 30'-0"
A535	2 SERIES OF 4	6'-8" TO 29'-8"
A739	1 SERIES OF 3	7'-0" TO 7'-9"
A741	1 SERIES OF 13	4'-6" TO 8'-10"
A742	1 SERIES OF 17	9'-0' TO 12'-3"
A444	1 SERIES OF 15	3'-5" TO 12'-3"
A447	2 SERIES OF 6	1'-7" TO 19'-3"

BUNDLE AND TAG EACH SERIES SEPARATELY

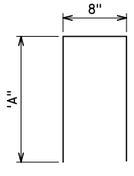
EAST ABUTMENT- BAR SERIES TABLE

BAR MARK	NO REQUIRED	LENGTH
B507	2 SERIES OF 7	8'-7" TO 9'-8"
B508	2 SERIES OF 19	9'-10" TO 11'-6"
B509	2 SERIES OF 19	3'-10" TO 11'-3"
B510	2 SERIES OF 6	16'-3" TO 23'-9"
B719	1 SERIES OF 9	6'-10' TO 9'-0"
B720	1 SERIES OF 20	9'-3" TO 12'-3"
B422	1 SERIES OF 12	6'-10" TO 12-3"
B425	2 SERIES OF 4	2'-0" TO 15'-7"
B530	2 SERIES OF 34	8'-8" TO 11'-10"
B531	2 SERIES OF 20	3'-11" TO 11'-8"
B532	2 SERIES OF 6	16'-11" TO 24'-5"
B740	1 SERIES OF 34	9'-2" TO 12'-6"
B442	1 SERIES OF 12	9'-2" TO 12'-3"
B449	2 SERIES OF 3	4'-9" TO 5'-4"

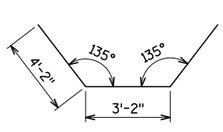
BUNDLE AND TAG EACH SERIES SEPARATELY



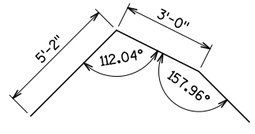
BAR A739



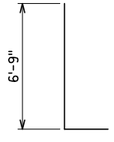
BAR S501 THRU S512



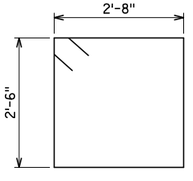
BAR A449



BAR A452



BAR A716,A738,B717,B738



BAR A504, B504

F.F. - FRONT FACE
B.F. - BACK FACE
E.F. - EACH FACE

BENDING DIAGRAMS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

BILL OF BARS

SHEET 12 OF 20

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FILE NAME: F:\BMI-32568.USH 41 WCL to WCL\5_Designs\04_Structures_Bridges\cds\B-67-357\s12_B67357_bill of bars.dgn
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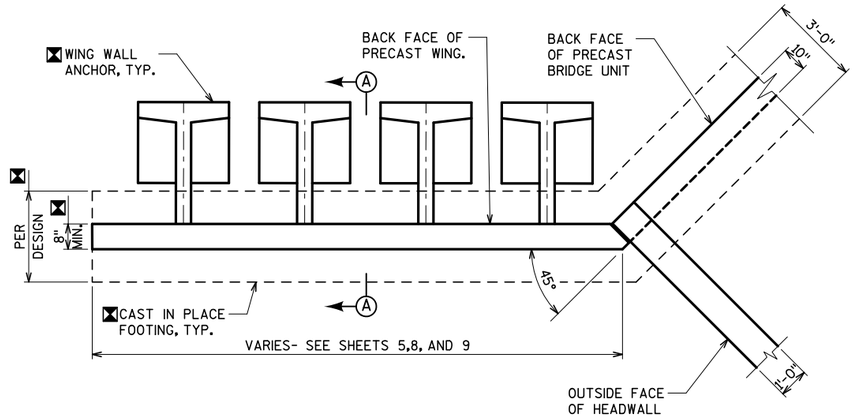
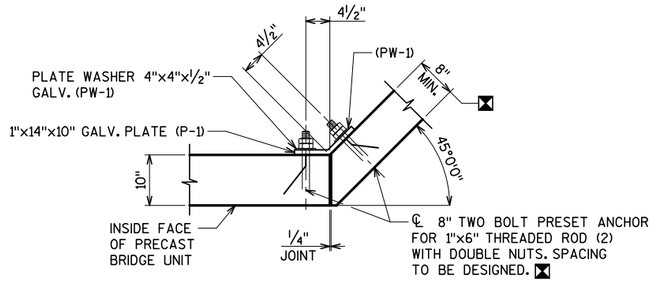


OPTIONAL PRECAST CONCRETE WING

(FOR WINGS 1,3, AND 4)



PRECAST WING CONNECTION DETAIL

NOTE: CONNECTION PLATES (P-1) MUST BE POSITIONED WITH SMALL DIAMETER HOLES TOWARD PRECAST BRIDGE UNIT

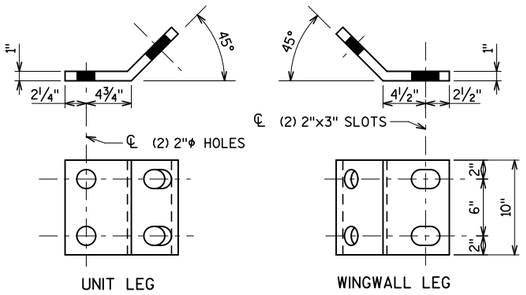
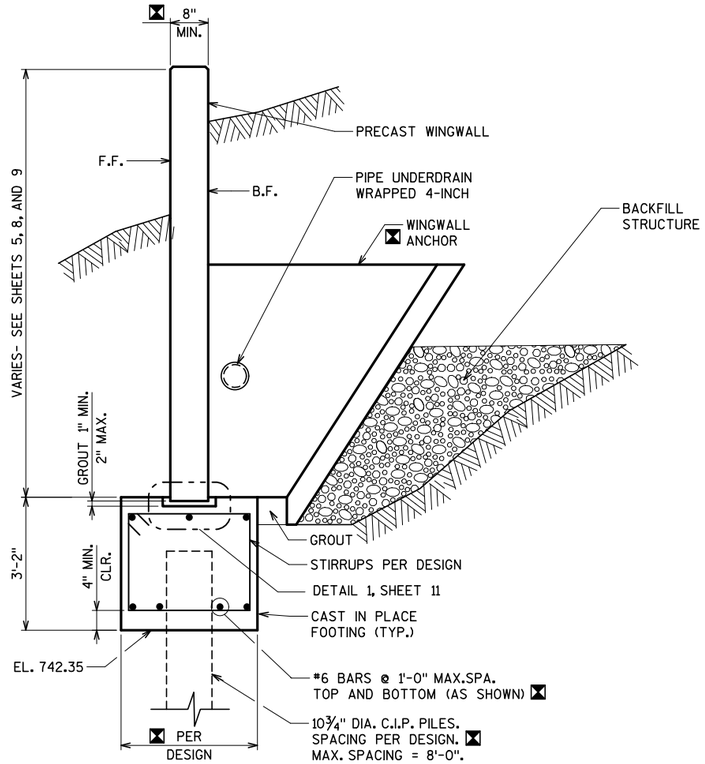


PLATE P-1

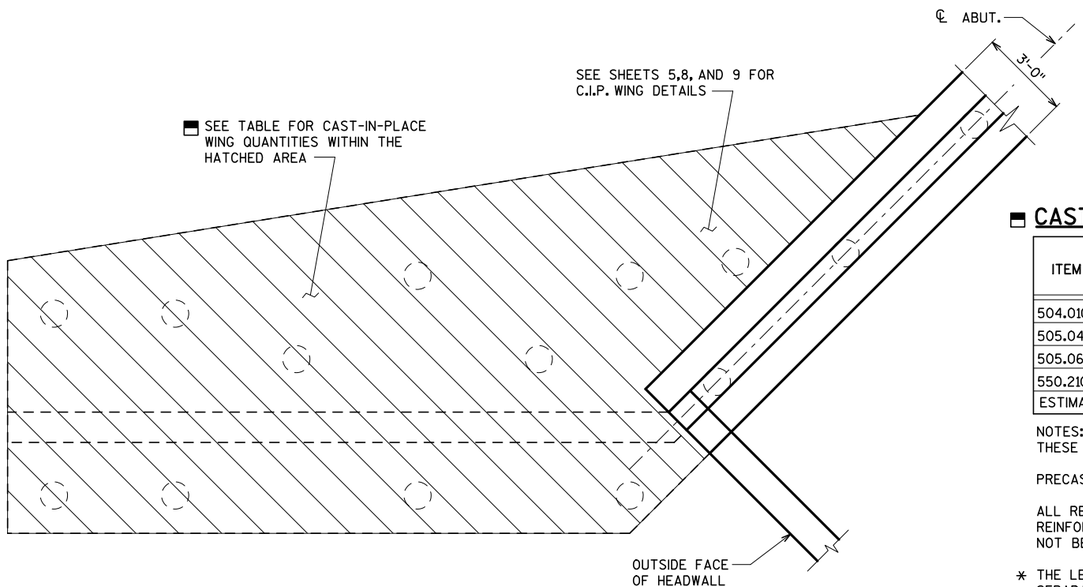
PLATE, 1"x14"x10"

NOTE: NUMBER OF PLATES REQUIRED TO BE DESIGNED. PLATE LENGTH AND THICKNESS SHALL BE INCREASED AS REQUIRED BY DESIGN.



SECTION A-A

(FOR WINGS 1,3, AND 4)



TYPICAL PAY LIMITS FOR PRECAST WING

CAST-IN-PLACE WING QUANTITIES

ITEM	DESCRIPTION	UNIT	WING 1	WING 3	WING 4
504.0100	CONCRETE MASONRY CULVERTS	CY	40	32	35
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1620	1210	1430
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2020	1450	1790
550.2106	PILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	600	536	852
ESTIMATED PILE LENGTH FOR PRECAST WING ALTERNATE *			55.5 FT.	60.5 FT.	78.5 FT.**

NOTES:
THESE QUANTITIES ARE INCLUDED IN THE TOTAL ESTIMATED QUANTITIES ON SHEET 2.

PRECAST WING IS NOT ALLOWED FOR WING 2.

ALL REINFORCEMENT IN THE PRECAST WING WALL SHALL BE EPOXY COATED. REINFORCEMENT IN THE C.I.P. FOOTING AND PRECAST WING WALL ANCHORS NEED NOT BE EPOXY COATED.

* THE LENGTH IN EXCESS OF THE ESTIMATED PILE LENGTH WILL BE PAID FOR SEPARATELY AT THE CONTRACT UNIT PRICES.

** WING 4 PILES TO BE PREBORED TO 20 FEET BELOW THE BOTTOM OF EXISTING 24 INCH DIA. SANITARY SEWER.

LEGEND

TO BE DESIGNED BY THE PRECAST WING MANUFACTURER.

IF PRECAST WINGS ARE USED IN LIEU OF CAST IN PLACE WINGS, PAYMENT FOR PRECAST WINGS SHALL BE BASED ON THE CORRESPONDING QUANTITIES SHOWN IN THE 'CAST-IN-PLACE WING QUANTITIES' TABLE ON THIS SHEET, PAID AT THE CONTRACT UNIT PRICES.

F.F. - FRONT FACE
B.F. - BACK FACE
E.F. - EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

ALTERNATE PRECAST WING DETAILS

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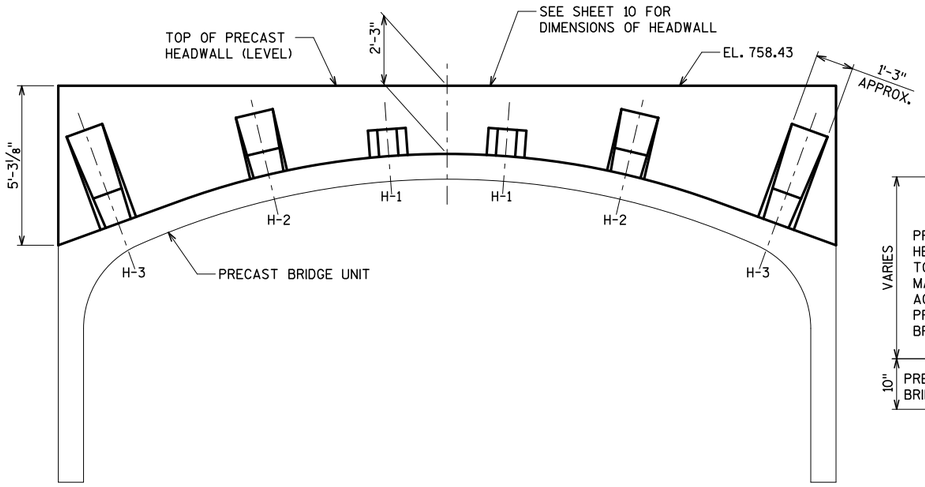
8

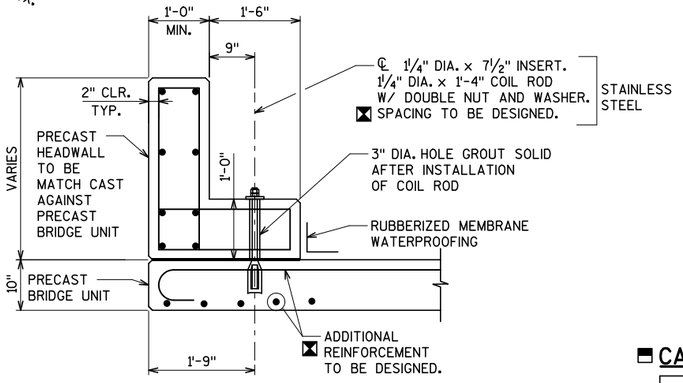
FILE NAME: F:\BMI-32568,USH 41,WCL to WCL\5_Design\04_Structures\Bridges\dgns\B-67-357\13_B67357_precast wing.dgn
DATE: 2/1/2017 352237 PM Plotted by: bthengon PEN TABLE: V8_STRUCTURAL_REV.TBL

STATE PROJECT NUMBER
1100-36-72

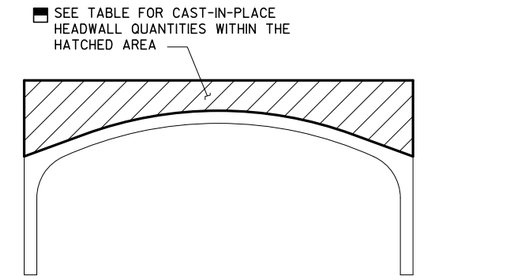


OPTIONAL PRECAST HEADWALL

(LOOKING AT BACK FACE OF HEADWALL)



PRECAST HEADWALL WITH COLLAR



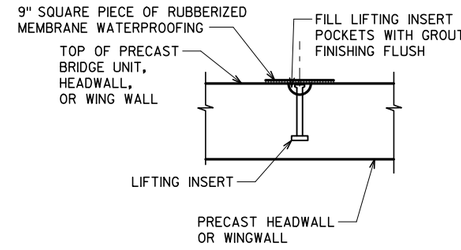
PAY LIMITS FOR PRECAST HEADWALL

CAST-IN-PLACE HEADWALL QUANTITIES

ITEM	DESCRIPTION	UNIT	SOUTH HEADWALL	NORTH HEADWALL
504.0100	CONCRETE MASONRY CULVERTS	CY	2	2
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	600	600

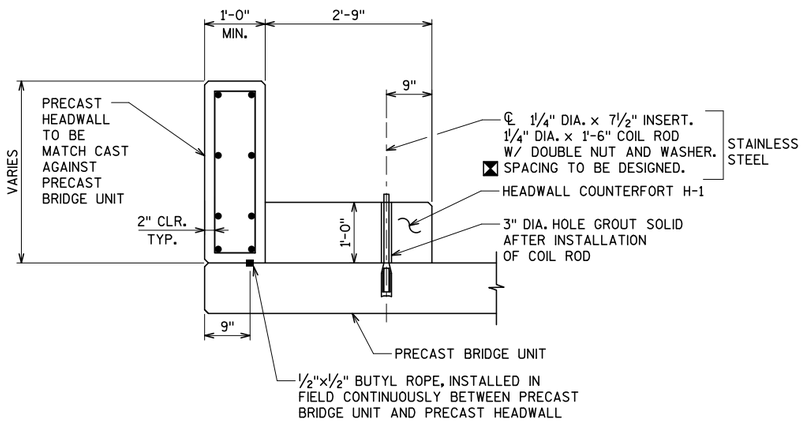
NOTE: THESE QUANTITIES ARE INCLUDED IN THE TOTAL ESTIMATED QUANTITIES ON SHEET 2.

ALL REINFORCEMENT IN THE PRECAST HEADWALL AND COUNTERFORTS SHALL BE EPOXY COATED.

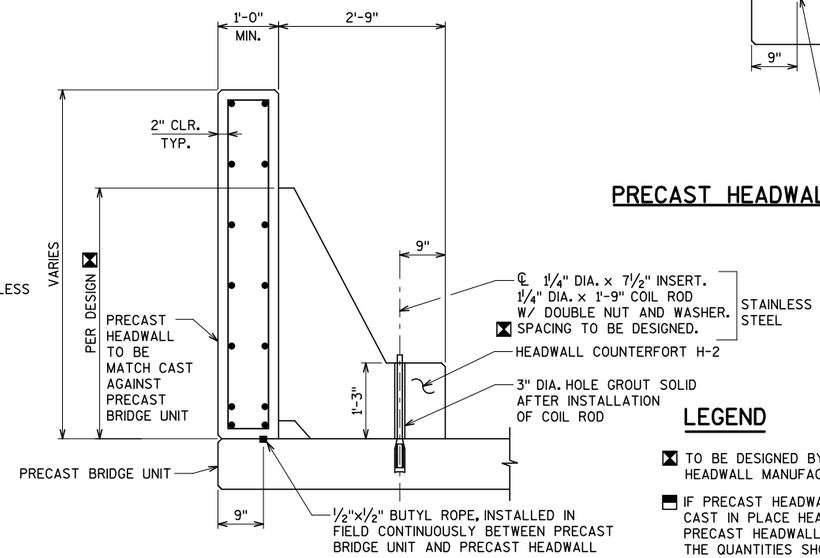


TYPICAL LIFT POINT SEALING DETAIL

PRECAST HEADWALL TYPE H-3 COUNTERFORT



PRECAST HEADWALL TYPE H-1 COUNTERFORT



PRECAST HEADWALL TYPE H-2 COUNTERFORT

LEGEND

- ☒ TO BE DESIGNED BY THE PRECAST HEADWALL MANUFACTURER.
- ▬ IF PRECAST HEADWALL IS USED IN LIEU OF CAST IN PLACE HEADWALL, PAYMENT FOR PRECAST HEADWALL SHALL BE BASED ON THE QUANTITIES SHOWN IN THE 'CAST-IN-PLACE HEADWALL QUANTITIES' TABLE ON THIS SHEET, PAID AT THE CONTRACT UNIT PRICES.

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STRUCTURE B-67-357

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ALTERNATE PRECAST HEADWALL DETAILS

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FILE NAME: F:\BMI-3256B.USH 41,MCL to WCL\5.Designs\04.Structures_Bridges\sds\B-67-357\14_B67357_precast headwall.dgn
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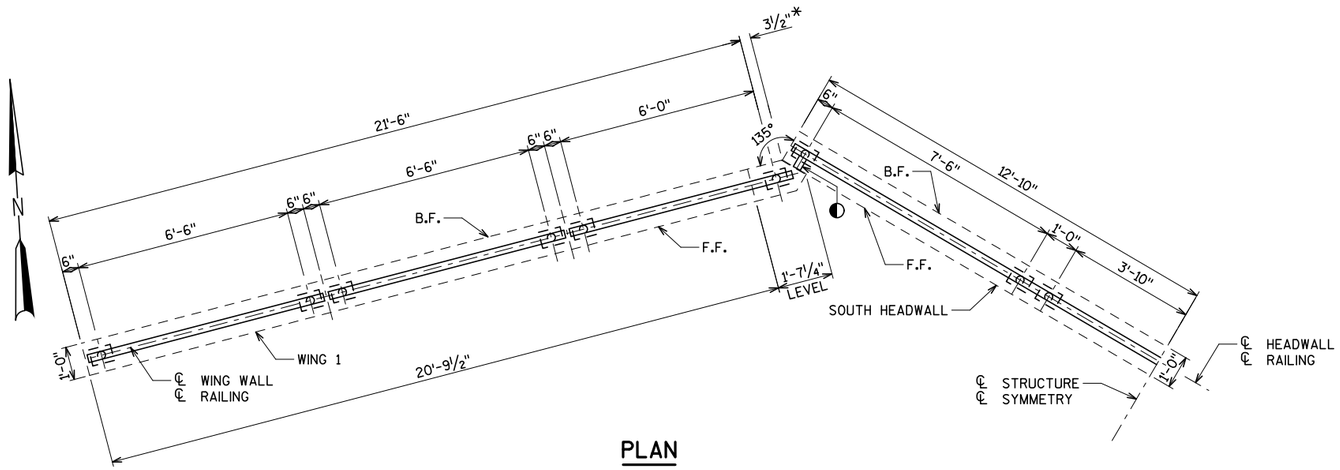
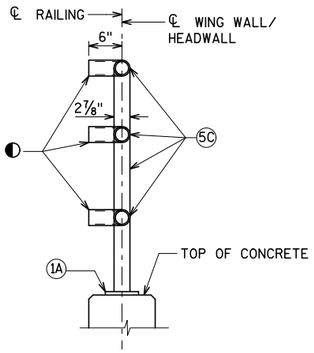
STATE PROJECT NUMBER
1100-36-72

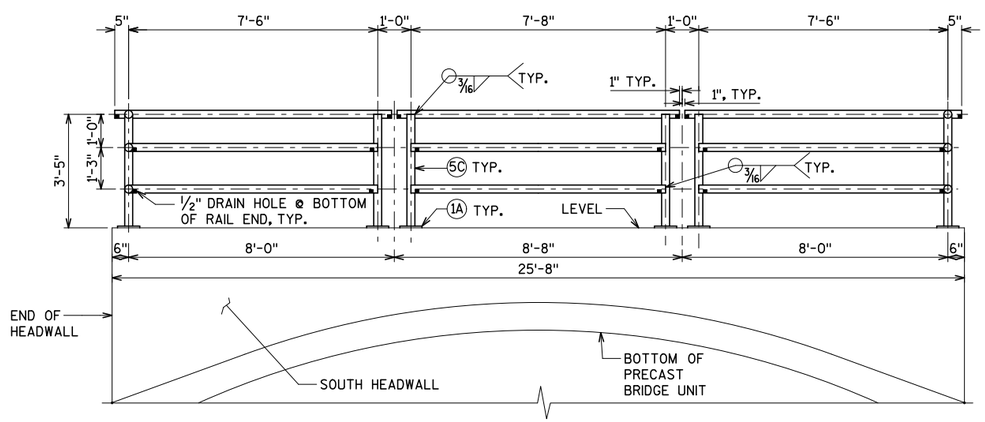


PLAN

* DIMENSION EXCLUDES THICKNESS OF FILLER BETWEEN HEADWALL AND WING WALL.

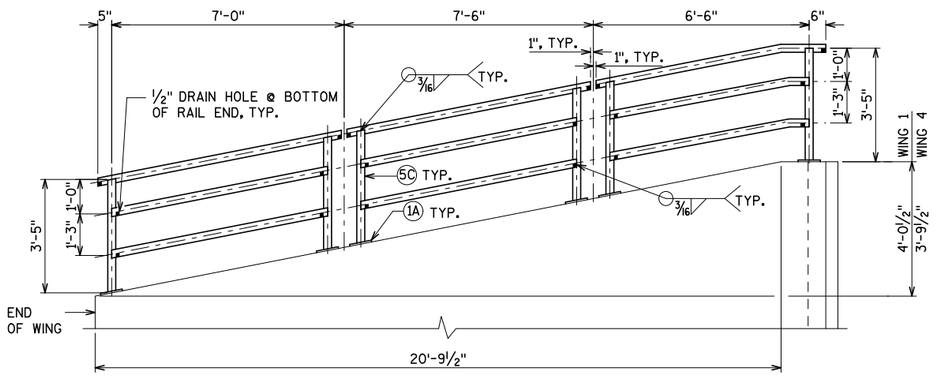


SECTION A-A



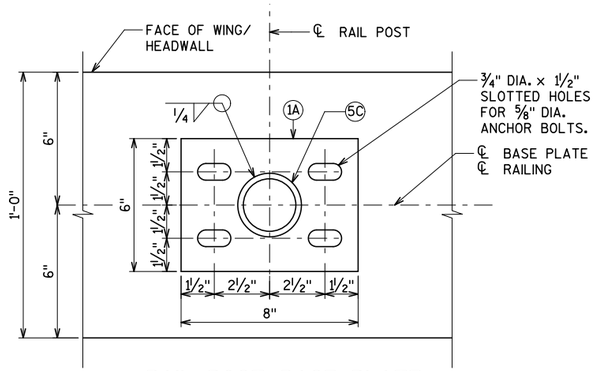
ELEVATION- SOUTH HEADWALL

(LOOKING AT FRONT FACE OF HEADWALL

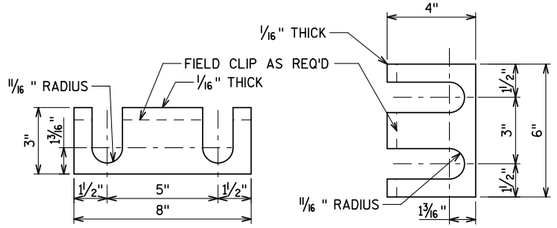


WING ELEVATION

(WING 1 SHOWN, WING 4 OPPOSITE)

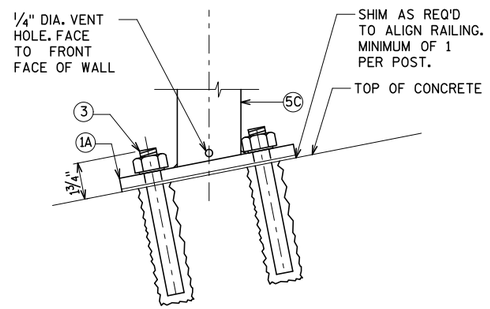


RAIL POST BASE PLATE



RAIL POST SHIM DETAIL

(2 SETS PER POST)



ANCHOR BOLTS FOR RAIL POST

NOTES

BID ITEM SHALL BE "RAILING PIPE STRUCTURE B-67-357", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN, ADHESIVE ANCHORS, GALVANIZING, PAINTING,AND CAULKING.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

NO. 1A SHALL CONFORM TO ASTM A709 GRADE 36. STANDARD PIPE RAIL (NO. 5C) SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGE SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO TOP OF CONCRETE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL.

STEEL SHIMS SHALL BE PROVIDED AND USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT.

FILL BOLT SLOT OPENINGS IN SHIMS AND PLATE NO. 1A AND CAULK AROUND PERIMETER OF PLATE NO. 1A WITH NON-STAINING BLACK NON-BITUMINOUS SEALER.

VENT HOLES SHALL BE DRILLED IN MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

GALVANIZE AFTER FABRICATION. PAINT GALVANIZED RAILING ASSEMBLIES WITH A TWO COAT SYSTEM SPECIFICALLY INTENDED FOR PAINTING OF GALAVNIZED SURFACES, PER THE "RAILING STEEL PEDESTRIAN B-67-357" SPECIAL PROVISIONS. SHIMS SHALL BE GALVANIZED PER ASTM A123. THE FINISH COLOR SHALL BE FEDERAL COLOR NO. 27038 BLACK.

RAILING SHALL BE FABRICATED IN PANEL LENGTHS OF 2 POSTS.

PAINT TOUCH-UP TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

LEGEND

(1A) PLATE ⅝" × 6" × 8" WITH ¾" × 1½" SLOTTED HOLES

(3) STAINLESS STEEL ADHESIVE ANCHORS, ⅝" DIA., MINIMUM PULLOUT CAPACITY OF 20 KIPS. EMBED A MINIMUM OF 5".

(5C) 2½" DIA. STANDARD PIPE RAIL (2.875" O.D.). PLACE POSTS VERTICAL. WELD TO 1A. PLACE RAILS PARALLEL TO TOP OF WING/HEADWALL. WELD TO 5C.

◐ (5C) REQUIRED AT BOTH ENDS OF HEADWALL RAILING.

F.F. - FRONT FACE
B.F. - BACK FACE

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY	TAL	PLANS CK'D.	BDT

PIPE RAILING

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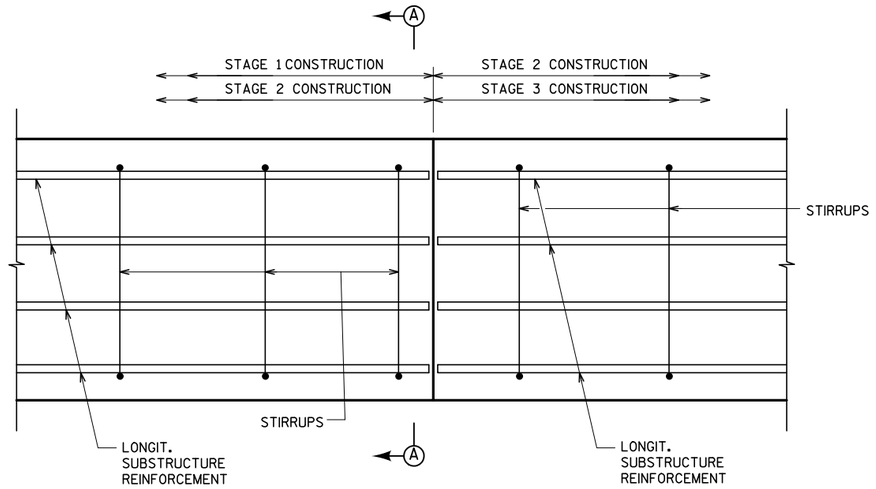
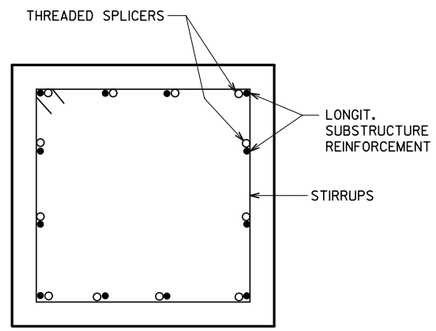


SECTION THRU SUBSTRUCTURE UNIT



SECTION A-A

STATE PROJECT NUMBER

1100-36-72

NOTES

STEEL SPLICE (COUPLER) ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL BE OF MINIMUM 60 ksi YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICE BARS.

SPLICER (COUPLER) ASSEMBLY IN THE HEADWALL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

(1) MINIMUM CAPACITY = 1.25 X fy X AREA OF SPLICED REINFORCEMENT BAR.

WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS

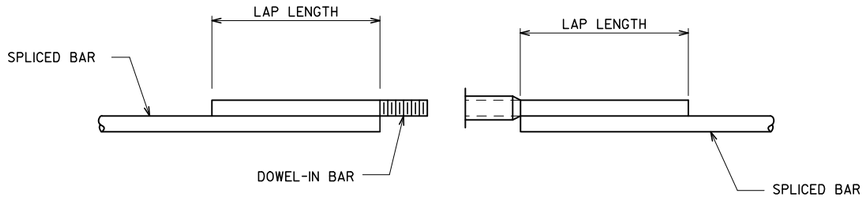
SEE SHEETS 4 AND 7 FOR LOCATION, STAGING, SIZE, AND QUANTITY OF COUPLERS REQUIRED.

DOWEL BAR SPLICER LAP LENGTHS *

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	f'c = 3500	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	f'c = 4000	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	f'c = 3500	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	f'c = 4000	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

* NOT APPLICABLE FOR HOOKED DOWEL BAR SPLICERS.

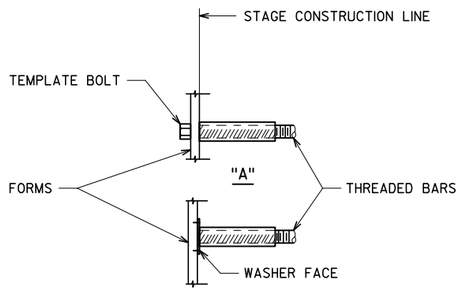
BAR LENGTH COMPUTED TO ℄ LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED



DOWEL BAR SPLICER

ONE PIECE THREADED SPLICER

SPLICER ALTERNATIVES



INSTALLATION AND SETTING METHODS

"A" SET SPLICER BY MEANS OF A TEMPLATE BOLT
"B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

8

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

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BAR COUPLERS

SHEET 16 OF 20

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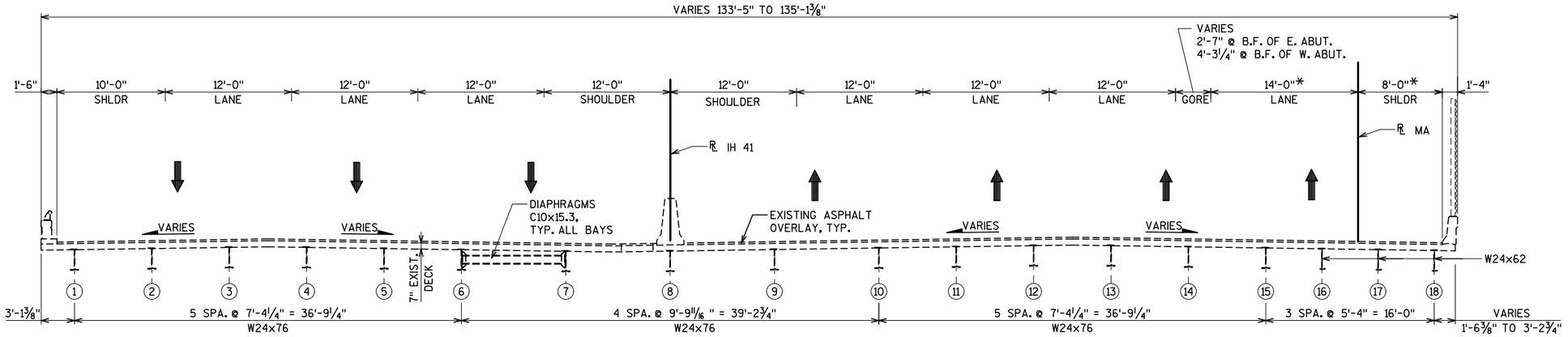
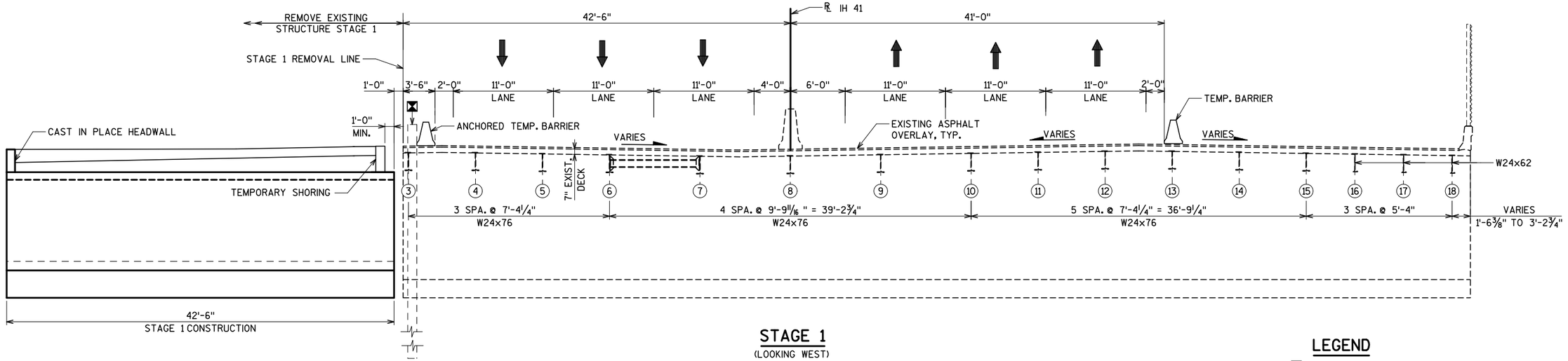
STATE PROJECT NUMBER
1100-36-72



EXISTING STRUCTURE SECTION

(LOOKING WEST)

* MEASURED NORMAL TO ℄ MA



STAGE 1

(LOOKING WEST)

(WINGS NOT SHOWN FOR CLARITY)

LEGEND

☒ TEMPORARY SHORING BEYOND ABUTMENT. TEMPORARY SHORING SHALL NOT PROJECT ABOVE THE TOP ELEVATION OF TEMPORARY CONCRETE BARRIER.

STAGING NOTES

SEE ROADWAY PLANS FOR TRAFFIC CONTROL DETAILS.

TEMPORARY BARRIER QUANTITY INCLUDED WITH ROADWAY BID ITEMS.

STAGE 1 SHOWN ON THIS SHEET CORRESPONDS TO STAGES 1B AND 1C ON ROADWAY PLANS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

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CONSTRUCTION STAGING (1 OF 2)

SHEET 17 OF 20
258

FILE NAME: F:\BMI-3256B.USH 41 WCL to WCL\5.Design\04_Structures_Bridges\dsb\B-67-357\st7_B67357_const staging 1.dgn
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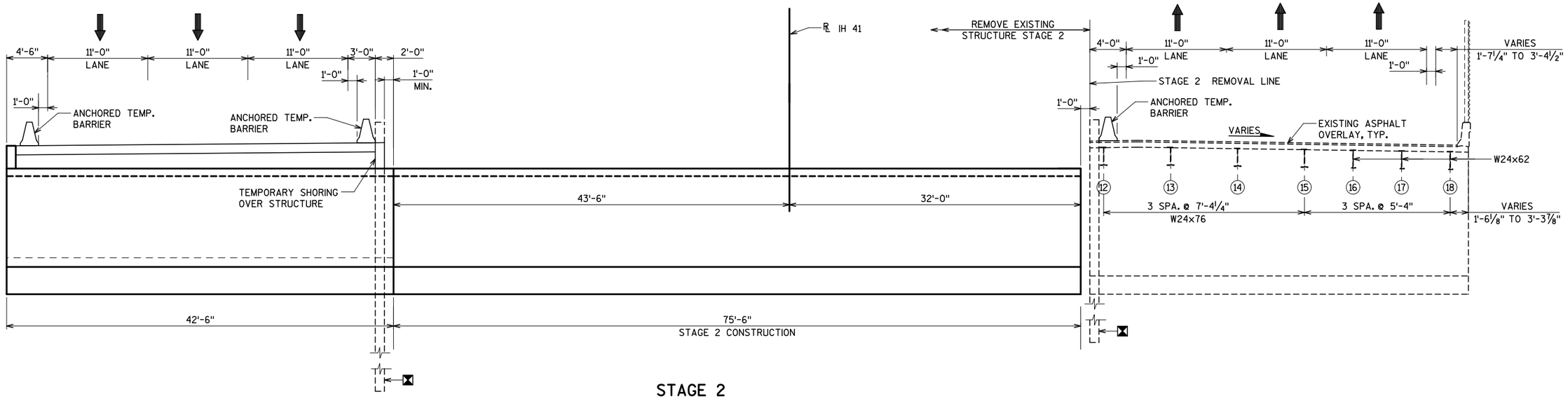
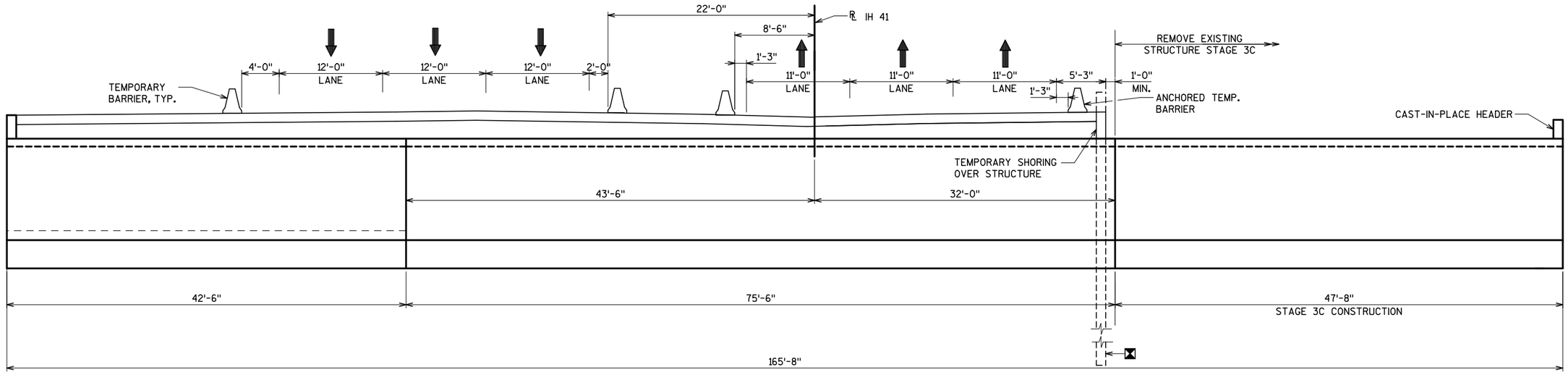
STATE PROJECT NUMBER
1100-36-72



STAGE 2

(LOOKING NORTH)
(WINGS NOT SHOWN FOR CLARITY)



STAGE 3C

(LOOKING NORTH)
(WINGS NOT SHOWN FOR CLARITY)

LEGEND

⊠ TEMPORARY SHORING BEYOND ABUTMENT. TEMPORARY SHORING SHALL NOT PROJECT ABOVE THE TOP ELEVATION OF TEMPORARY CONCRETE BARRIER.

STAGING NOTES

SEE ROADWAY PLANS FOR TRAFFIC CONTROL DETAILS.

TEMPORARY BARRIER QUANTITY INCLUDED WITH ROADWAY BID ITEMS.

SEE ROADWAY PLANS FOR TRAFFIC PATTERN DURING RAMP WORK (STAGE 3A) AND WINTER SHUTDOWN (STAGE 3B).

SEE ROADWAY PLANS FOR TRAFFIC PATTERN DURING STAGES 4 AND 5.

NO.	DATE	REVISION	BY

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STRUCTURE B-67-357

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CONSTRUCTION STAGING (2 OF 2)

SHEET 18 OF 20
259

FILE NAME: F:\BMI-3256B_USH 41_WCL to WCL\05_Design\04_Structures_Bridges\dgns\B-67-357\18_B67357_const staging 2.dgn
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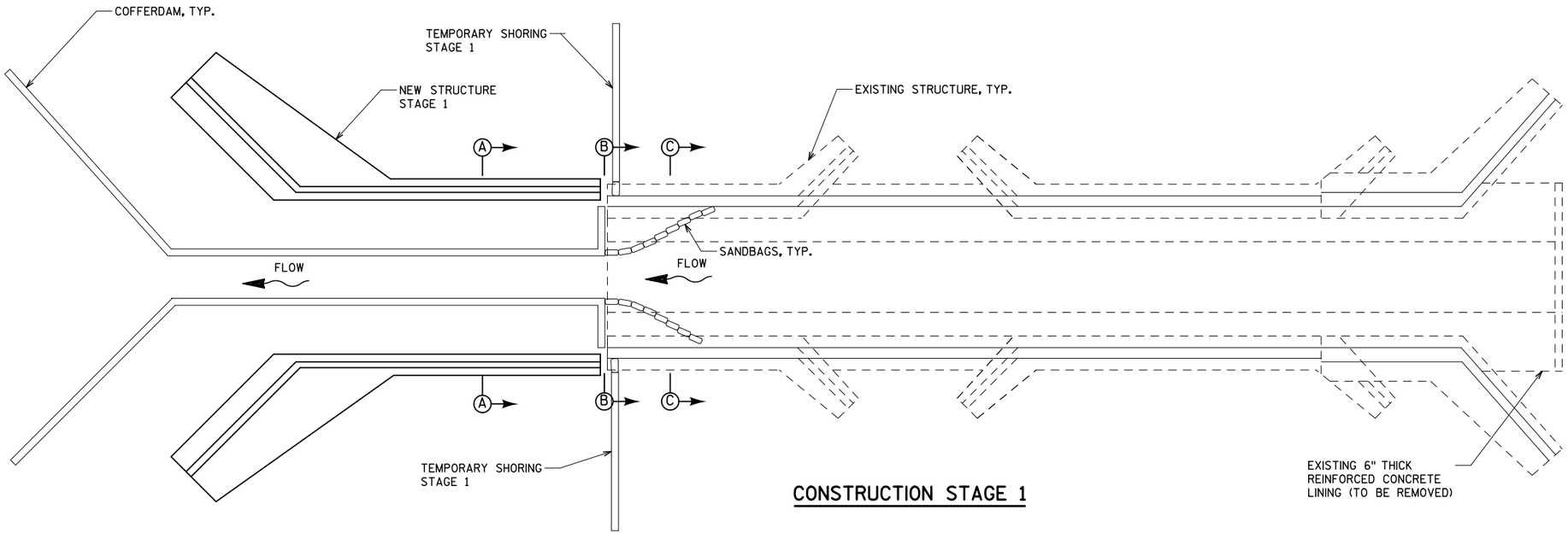
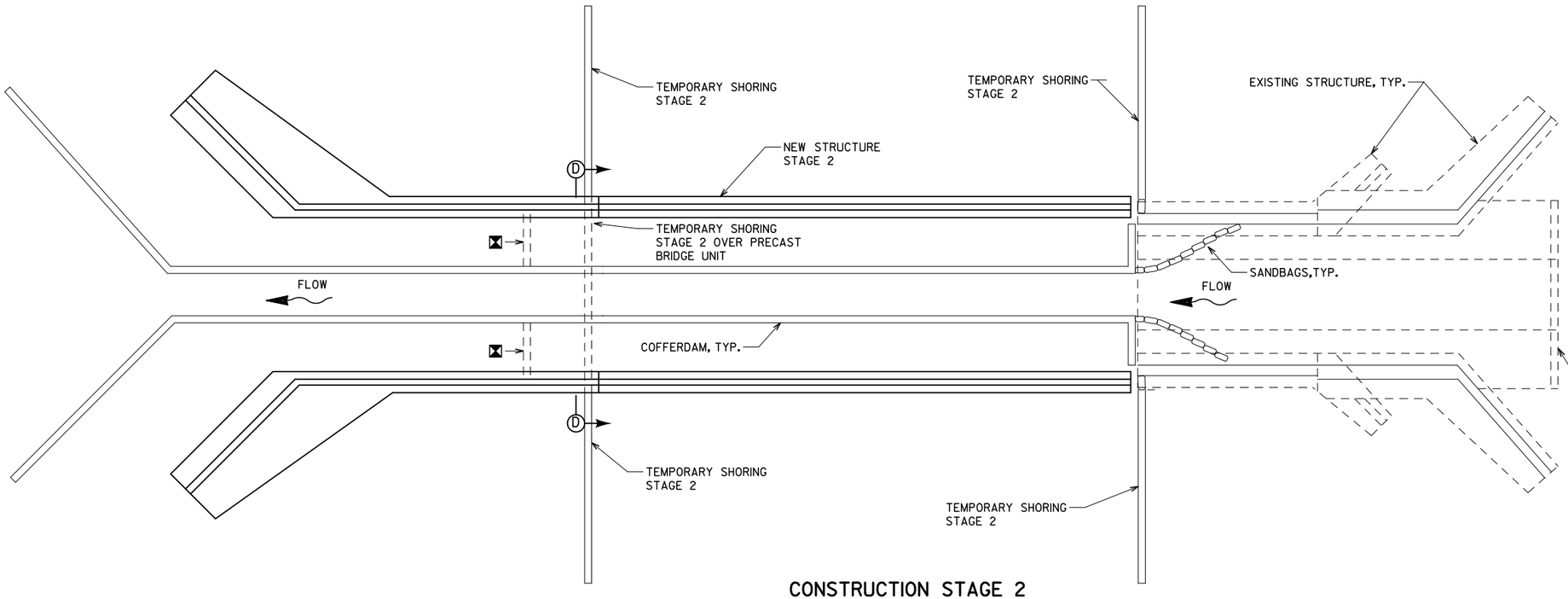


CONSTRUCTION STAGE 1



CONSTRUCTION STAGE 2

NOTES

CONSTRUCTION STAGE 1 INCLUDES CONSTRUCTION STAGES 1B AND 1C SHOWN ON ROADWAY PLANS.

SETTING THE PRECAST CONCRETE BRIDGE UNIT, GROUTING THE PRECAST CONCRETE BRIDGE UNIT AT THE FOOTING, APPLYING RUBBERIZED MEMBRANE WATERPROOFING TO PRECAST CONCRETE JOINTS, AND BACKFILLING WITH STRUCTURE BACKFILL SHALL BE DONE FOR EACH CONSTRUCTION STAGE BEFORE REMOVING THE COFFERDAM FOR THAT STAGE.

DO NOT UNDERMINE EXISTING FOOTINGS MORE THAN 6 INCHES VERTICALLY AND ONE FOOT HORIZONTALLY AT THE INTERFACE BETWEEN NEW AND EXISTING FOOTINGS.

COFFERDAM TYPE AND LOCATION TO BE DETERMINED BY THE CONTRACTOR TO SUIT THE METHOD OF CONSTRUCTION SELECTED. CONCEPT DEPICTED ON PLANS IS FOR ILLUSTRATIVE PURPOSES ONLY.

AT CONTRACTOR'S OPTION, COFFERDAM MATERIAL MORE THAN ONE FOOT BEELOW THE FINISHED STREAM BED MAY BE LEFT IN PLACE.

SEE ROADWAY PLANS FOR STREAM DIVERSION REQUIRED FOR REMOVING EXISTING CONCRETE LINING AND FOR PLACING THE STREAM BED MATERIAL.

EE SHEET 20 FOR SECTIONS.

LEGEND

☒ OPTIONAL LAYOUT OF COFFERDAM IF COFFERDAM FROM PREVIOUS STAGE IS REMOVED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

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COFFERDAM AND TEMPORARY SHORING (1 OF 2)

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FILE NAME: F:\BMI-32568_USH 41_WCL to WCL\5_Design\04_Structures\Bridges\sstds\B-67-357\19_B67357_cofferdam 1.dgn
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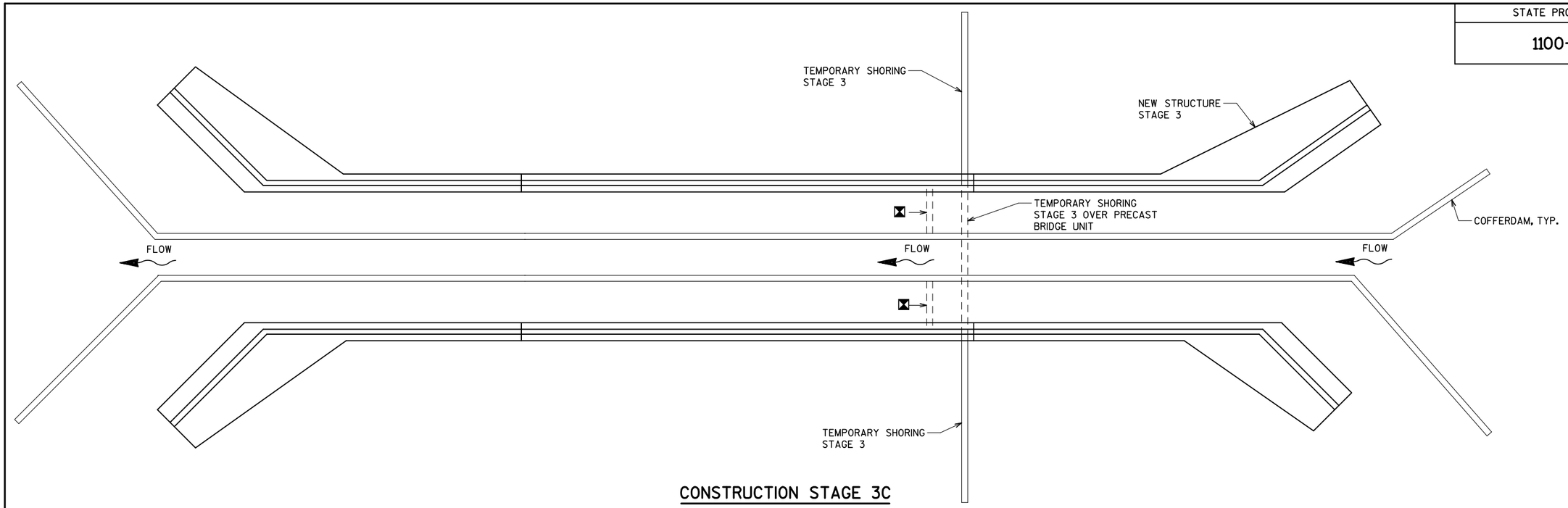
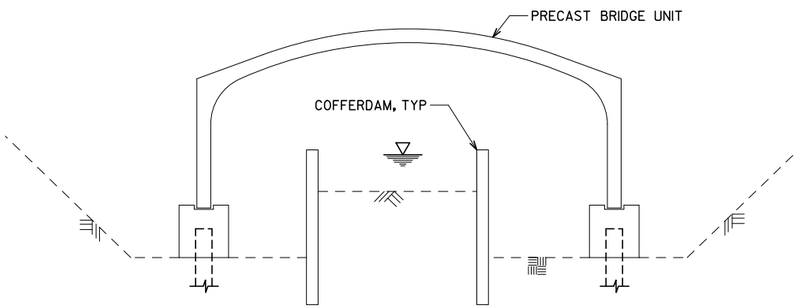
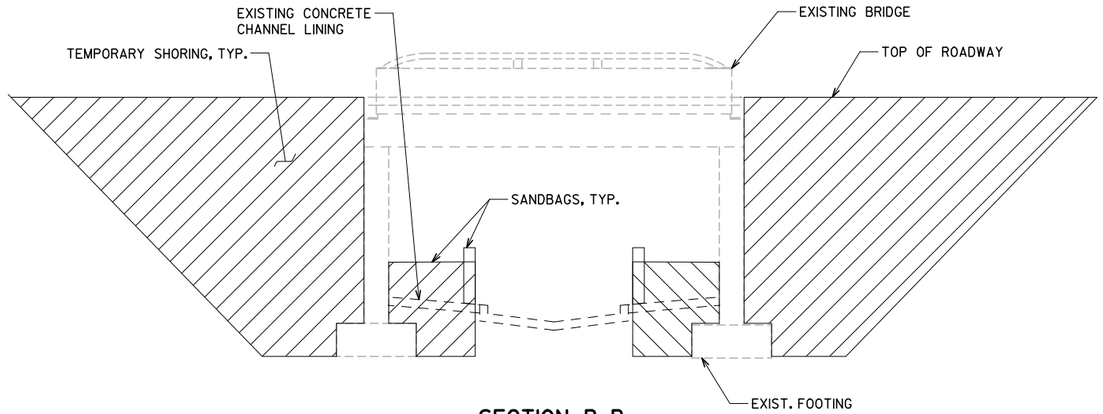
1100-36-72



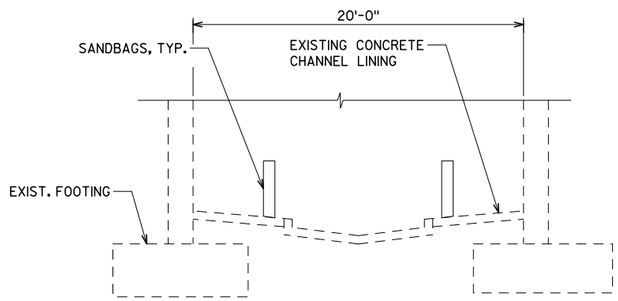
CONSTRUCTION STAGE 3C



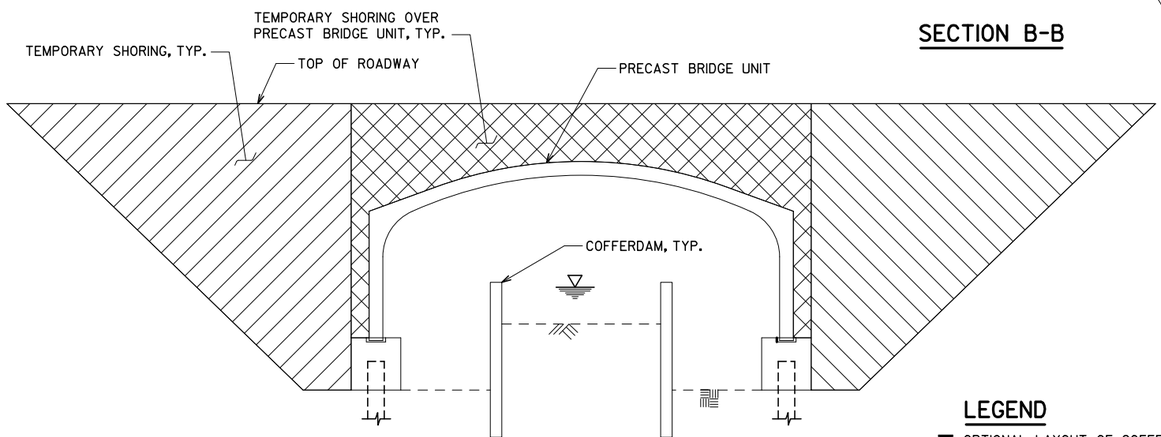
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

LEGEND

☒ OPTIONAL LAYOUT OF COFFERDAM IF COFFERDAM FROM PREVIOUS STAGE IS REMOVED.

NOTE

STAGE 3 ON THIS SHEET INCLUDES
STAGES 3A, 3B, AND 3C
SHOWN ON ROADWAY PLANS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-357

DRAWN BY TAL | PLANS CK'D. BDT

COFFERDAM AND TEMPORARY SHORING (2 OF 2)

SHEET 20 OF 20

261

8

8

FILE NAME: F:\BMI-32568_USH 41_MCL to MCL\5_Design\04_Structures_Bridges\dgn\B-67-357\20_B67357_cofferdam 2.dgn
DATE: 2/1/2017 4:05:08 PM Plotted by: bthengvan PEN TABLE: V8_STRUCTURAL_REV.TBL

STAGE 1B - TEMP WIDENING SB

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	EBS	Cut	Fill	EBS	Cut 1.00	Expanded Fill 1.25	
232+25	23225.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0.0
232+50	23250.00	25.00	12.73	4.13	0.00	6	2	0	6	2	3.5
233+00	23300.00	50.00	11.42	5.24	0.00	22	9	0	28	13	15.0
233+50	23350.00	50.00	7.75	12.97	0.00	18	17	0	46	34	11.7
234+00	23400.00	50.00	6.73	17.21	0.00	13	28	0	59	69	-9.8
234+50	23450.00	50.00	6.30	20.54	0.00	12	35	0	71	113	-41.5
235+00	23500.00	50.00	8.69	19.94	0.00	14	37	0	85	160	-74.4
235+50	23550.00	50.00	7.62	20.31	0.00	15	37	0	100	206	-105.9
236+00	23600.00	50.00	4.49	28.55	0.00	11	45	0	112	263	-151.3
236+50	23650.00	50.00	2.66	33.72	0.00	7	58	0	118	335	-216.7
237+00	23700.00	50.00	1.18	36.44	0.00	4	65	0	122	416	-294.4
237+50	23750.00	50.00	0.00	44.92	0.00	1	75	0	123	510	-387.4
238+00	23800.00	50.00	0.00	51.27	0.00	0	89	0	123	622	-498.7
238+50	23850.00	50.00	0.00	44.62	0.00	0	89	0	123	733	-609.7
239+00	23900.00	50.00	4.64	39.28	0.00	4	78	0	127	830	-702.5
239+50	23950.00	50.00	23.14	53.93	0.00	26	86	0	153	938	-784.7
240+00	24000.00	50.00	23.83	94.79	0.00	43	138	0	196	1,110	-913.3
240+50	24050.00	50.00	24.39	315.59	0.00	45	380	0	241	1,585	-1343.6
241+00	24100.00	50.00	22.10	110.58	0.00	43	395	0	284	2,078	-1793.8
241+50	24150.00	50.00	23.91	79.98	0.00	43	176	0	327	2,298	-1971.8
242+00	24200.00	50.00	25.69	62.73	0.00	46	132	0	373	2,464	-2091.0
242+50	24250.00	50.00	27.54	49.72	0.00	49	104	0	422	2,594	-2171.9
243+00	24300.00	50.00	26.23	48.75	0.00	50	91	0	472	2,708	-2236.1
243+50	24350.00	50.00	24.50	46.95	0.00	47	89	0	519	2,819	-2299.9
244+00	24400.00	50.00	27.08	45.13	0.00	48	85	0	566	2,925	-2358.7
244+50	24450.00	50.00	27.64	22.88	0.00	51	63	0	617	3,004	-2386.7
245+00	24500.00	50.00	28.90	18.40	0.00	52	38	0	669	3,052	-2382.2
245+50	24550.00	50.00	27.76	16.03	0.00	52	32	0	722	3,091	-2369.5
246+00	24600.00	50.00	26.55	10.58	0.00	50	25	0	772	3,122	-2350.1
246+50	24650.00	50.00	27.60	8.04	0.00	50	17	0	822	3,144	-2321.5
247+00	24700.00	50.00	35.94	0.00	0.00	59	7	0	881	3,153	-2271.9
247+50	24750.00	50.00	20.21	0.00	0.00	52	0	0	933	3,153	-2219.9
TOTALS						933	2,522	0			

STAGE 1C - TEMP WIDENING NB GORE

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		
			Cut	Fill	EBS	Cut	Fill	EBS	Cut 1.00	Expanded Fill 1.25	Mass Ordinate
242+75	24275.00	0.00	78.82	0	0.00	0	0	0	0	0	0.0
243+00	24300.00	25.00	88.87	0	0.00	78	0	0	78	0	77.6
243+50	24350.00	50.00	100.04	0	0.00	175	0	0	253	0	252.6
244+00	24400.00	50.00	76.33	0	0.00	163	0	0	416	0	415.9
244+50	24450.00	50.00	42.79	0	0.00	110	0	0	526	0	526.2
245+00	24500.00	50.00	0	0	0.00	40	0	0	566	0	565.8
TOTALS						566	0	0			

STAGE 3C - RECONSTRUCT RAMP MA

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		
			Cut	Fill	EBS	Cut	Fill	EBS	Cut 1.00	Expanded Fill 1.25	Mass Ordinate
142MA+30	14230.00	0.00	0	0	0.00	0	0	0	0	0	0.0
142MA+50	14250.00	20.00	0	0	0.00	0	0	0	0	0	0.0
143MA+00	14300.00	50.00	20.59	5.16	0.00	19	5	0	19	6	13.1
143MA+50	14350.00	50.00	14.04	9.91	0.00	32	14	0	51	23	27.7
144MA+00	14400.00	50.00	15.53	11.73	0.00	27	20	0	79	48	30.0
144MA+25	14425.00	25.00	20.18	0.02	0.00	17	5	0	95	55	39.8
TOTALS						95	44	0			

STAGE 3C - NB MAINLINE DITCH

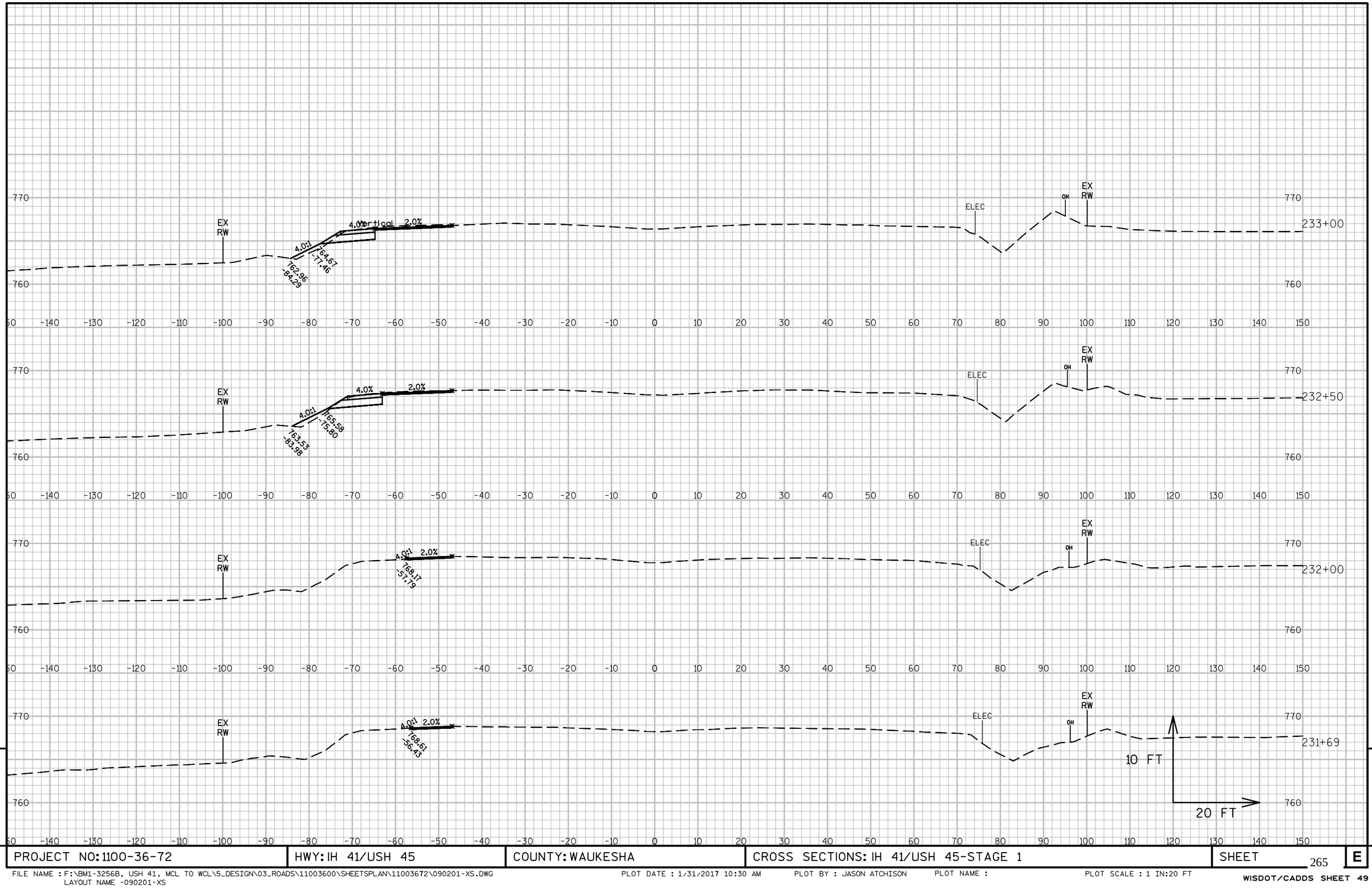
STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		
			Cut	Fill	EBS	Cut	Fill	EBS	Cut 1.00	Expanded Fill 1.25	Mass Ordinate
240+00	24000.00	0.00	9.4	6.7	0.00	0	0	0	0	0	0.0
240+25	24025.00	25.00	0.7	19.2	0.00	5	12	0	5	15	-10.3
240+50	24050.00	25.00	0	0	0.00	0	9	0	5	26	-21.1
240+75	24075.00	25.00	21.5	23.5	0.00	10	11	0	15	40	-24.7
241+00	24100.00	25.00	63.6	0	0.00	39	11	0	54	53	1.1
241+25	24125.00	25.00	10.5	0	0.00	34	0	0	89	53	35.4
TOTALS						89	43	0			

STAGE 5 - REMOVE WIDENING SB ALONG RAMP MD

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	EBS	Cut	Fill	EBS	Cut 1.00	Expanded Fill 1.25	
235+00	23500.00	0.00	17.36	0.08	0.00	0	0	0	0	0	0.0
235+50	23550.00	50.00	26.91	0	0.00	41	0	0	41	0	40.9
236+00	23600.00	50.00	34.85	0	0.00	57	0	0	98	0	98.1
236+50	23650.00	50.00	50.25	0	0.00	79	0	0	177	0	176.9
237+00	23700.00	50.00	55.72	0	0.00	98	0	0	275	0	275.0
237+50	23750.00	50.00	59.32	0	0.00	107	0	0	382	0	381.5
238+00	23800.00	50.00	57.44	0	0.00	108	0	0	490	0	489.6
238+50	23850.00	50.00	53.57	0	0.00	103	0	0	593	0	592.4
239+00	23900.00	50.00	27.97	1.24	0.00	76	1	0	668	2	666.5
239+50	23950.00	50.00	0	0	0.00	26	1	0	694	3	690.9
240+00	24000.00	50.00	0	0	0.00	0	0	0	694	3	690.9
TOTALS						694	2	0			

STAGE 5 - REMOVE WIDENING SB MAINLINE

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	EBS	Cut	Fill	EBS	Cut 1.00	Expanded Fill 1.25	
237+90	23790.00	0.00	0	0	0.00	0	0	0	0	0	0.0
238+00	23800.00	10.00	2.57	0	0.00	0	0	0	0	0	0.5
238+50	23850.00	50.00	11.95	0	0.00	13	0	0	14	0	13.9
239+00	23900.00	50.00	29.76	0	0.00	39	0	0	53	0	52.5
239+50	23950.00	50.00	56.75	0	0.00	80	0	0	133	0	132.6
240+00	24000.00	50.00	28.4	0	0.00	79	0	0	211	0	211.5
240+25	24025.00	25.00	41.45	0	0.00	32	0	0	244	0	243.8
240+50	24050.00	25.00	0	0	0.00	19	0	0	263	0	263.0
240+75	24075.00	25.00	89.9	0	0.00	42	0	0	305	0	304.6
241+00	24100.00	25.00	62.5	0	0.00	71	0	0	375	0	375.2
241+50	24150.00	50.00	35.5	0	0.00	91	0	0	466	0	465.9
242+00	24200.00	50.00	33.3	0	0.00	64	0	0	530	0	529.6
242+50	24250.00	50.00	28.8	0	0.00	58	0	0	587	0	587.1
243+00	24300.00	50.00	21.2	0	0.00	46	0	0	633	0	633.4
243+50	24350.00	50.00	17.5	0	0.00	36	0	0	669	0	669.3
244+00	24400.00	50.00	10.4	0	0.00	26	0	0	695	0	695.1
244+50	24450.00	50.00	7.2	0	0.00	16	0	0	711	0	711.4
245+00	24500.00	50.00	7.2	0	0.00	13	0	0	725	0	724.7
245+50	24550.00	50.00	19.1	0	0.00	24	0	0	749	0	749.1
246+00	24600.00	50.00	12.5	0	0.00	29	0	0	778	0	778.3
246+50	24650.00	50.00	2.1	0	0.00	14	0	0	792	0	791.9
TOTALS						792	0	0			



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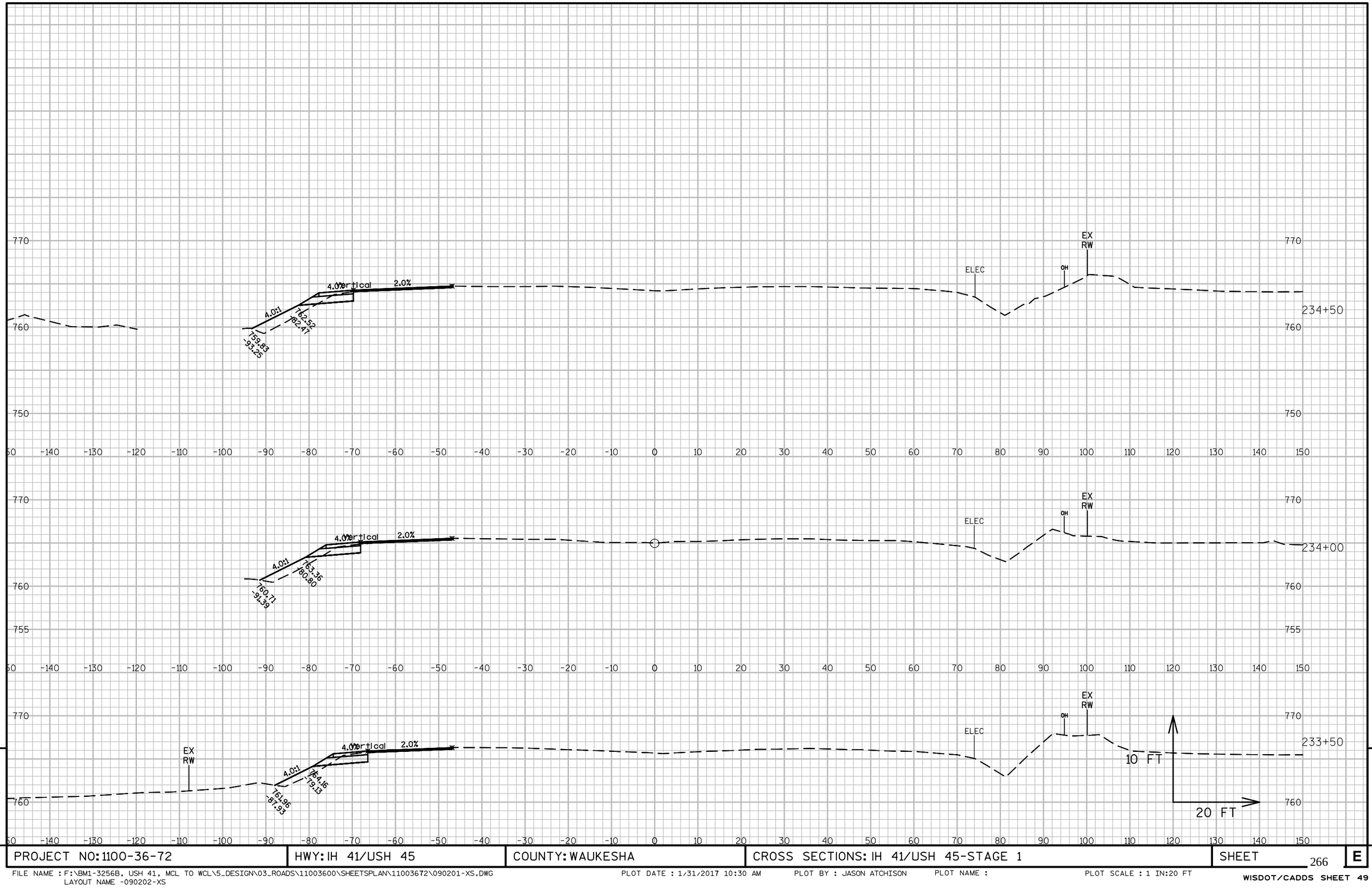
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 265	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090201-XS.DWG
LAYOUT NAME -090201-XS

PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

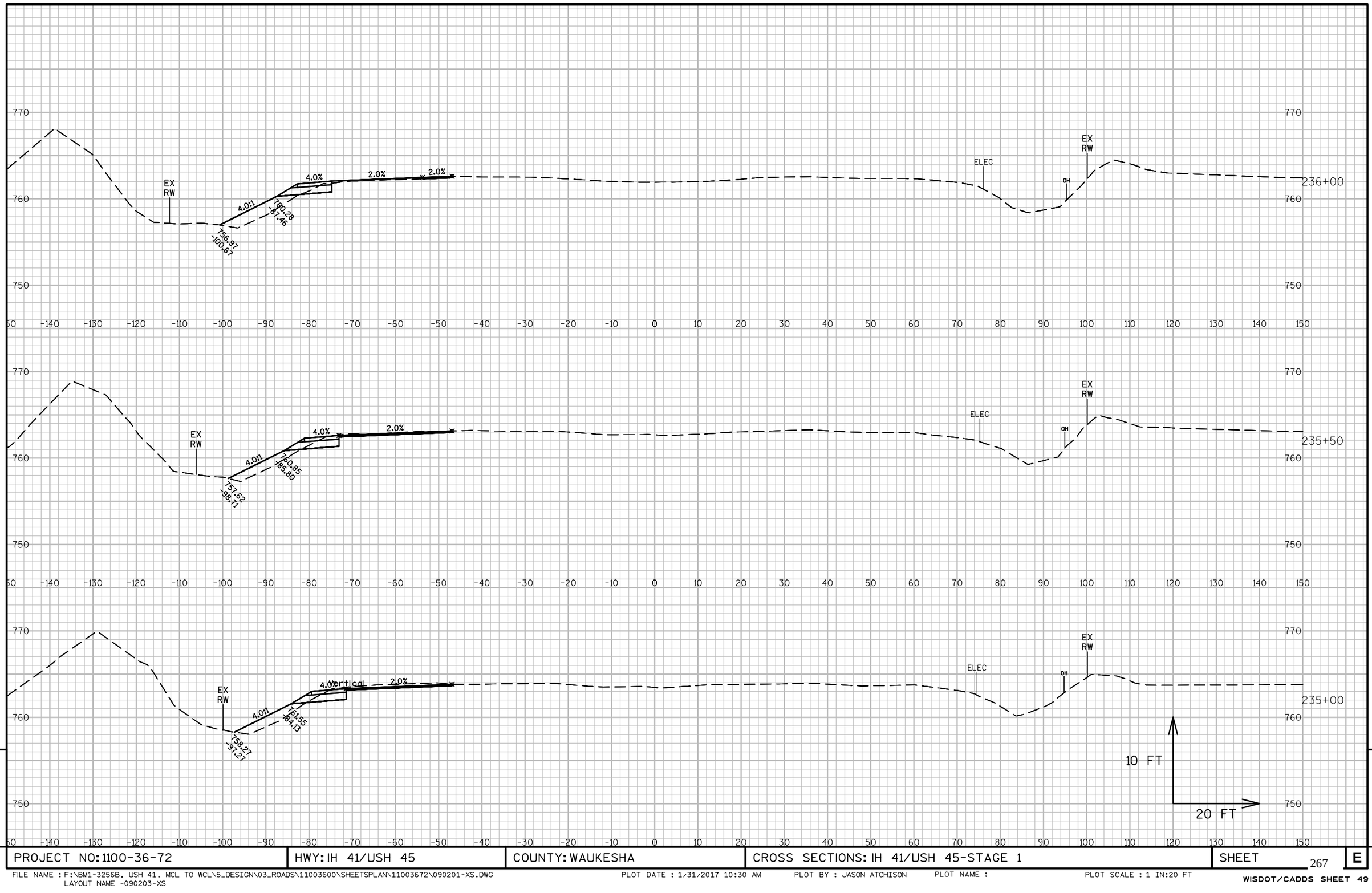


PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 266	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090201-XS.DWG
LAYOUT NAME -090202-XS

PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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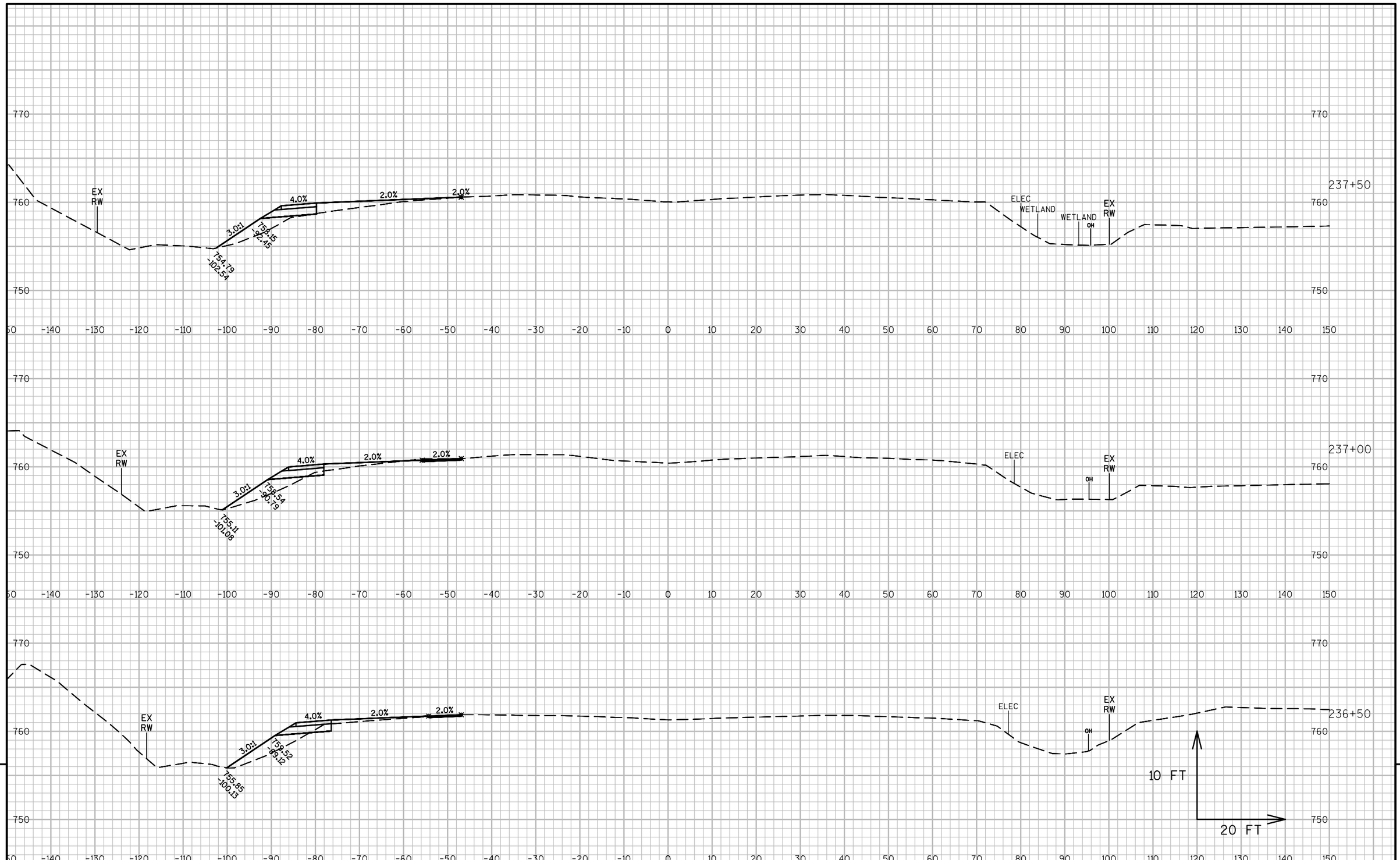
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 267	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090201-XS.DWG
LAYOUT NAME -090203-XS

PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT



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PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 268 E

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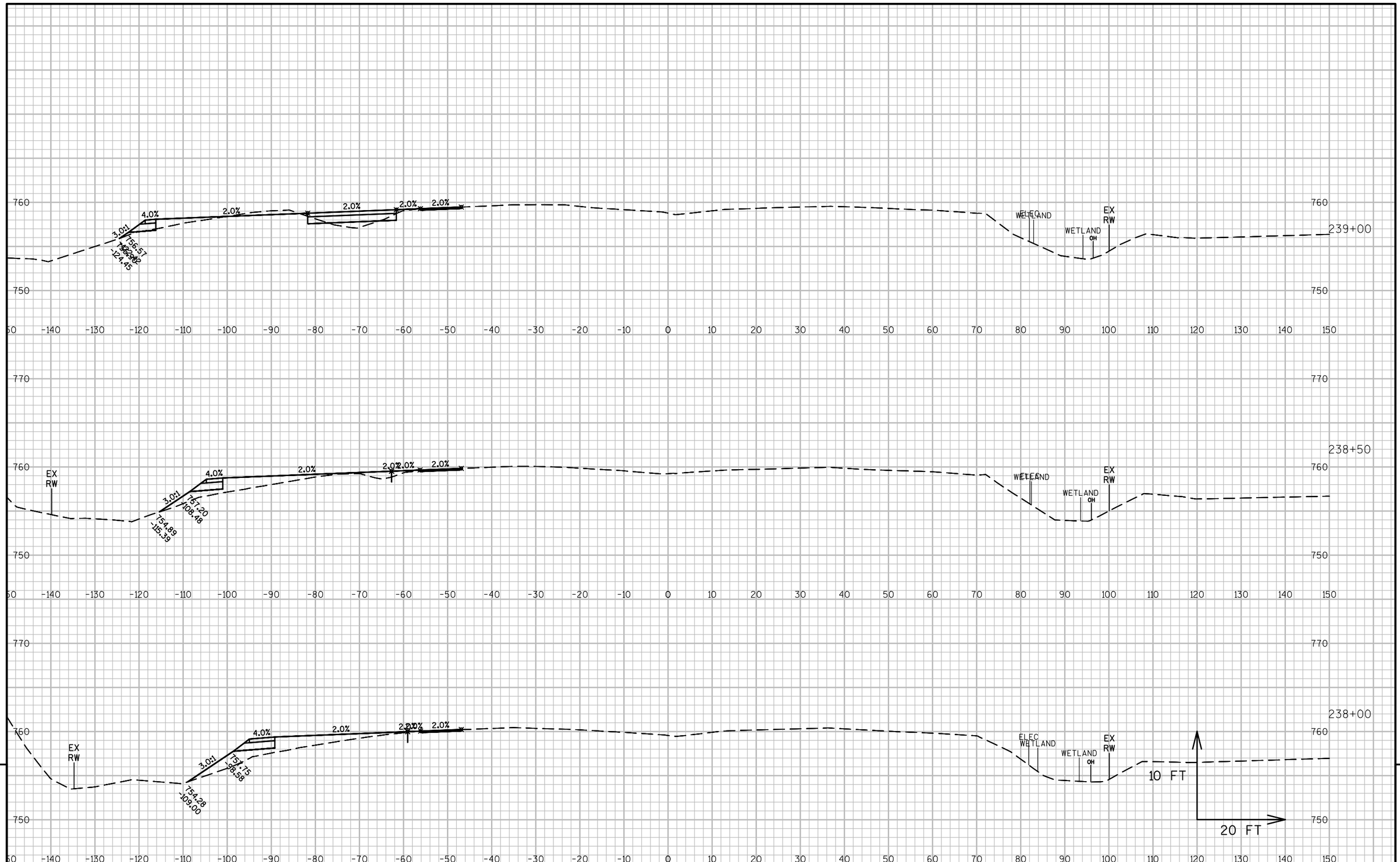
LAYOUT NAME -090204-XS

PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 269 E

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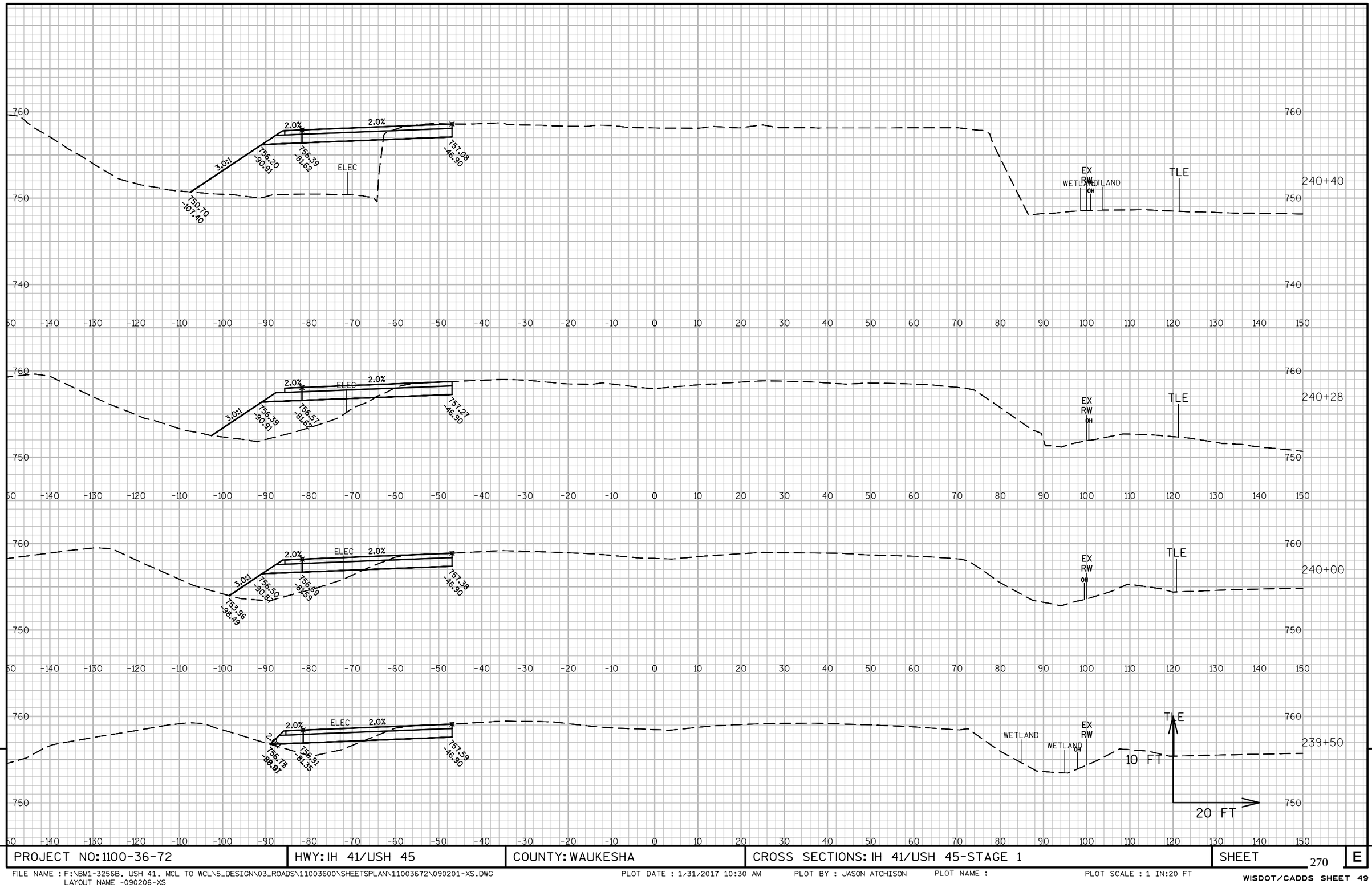
LAYOUT NAME -090205-XS

PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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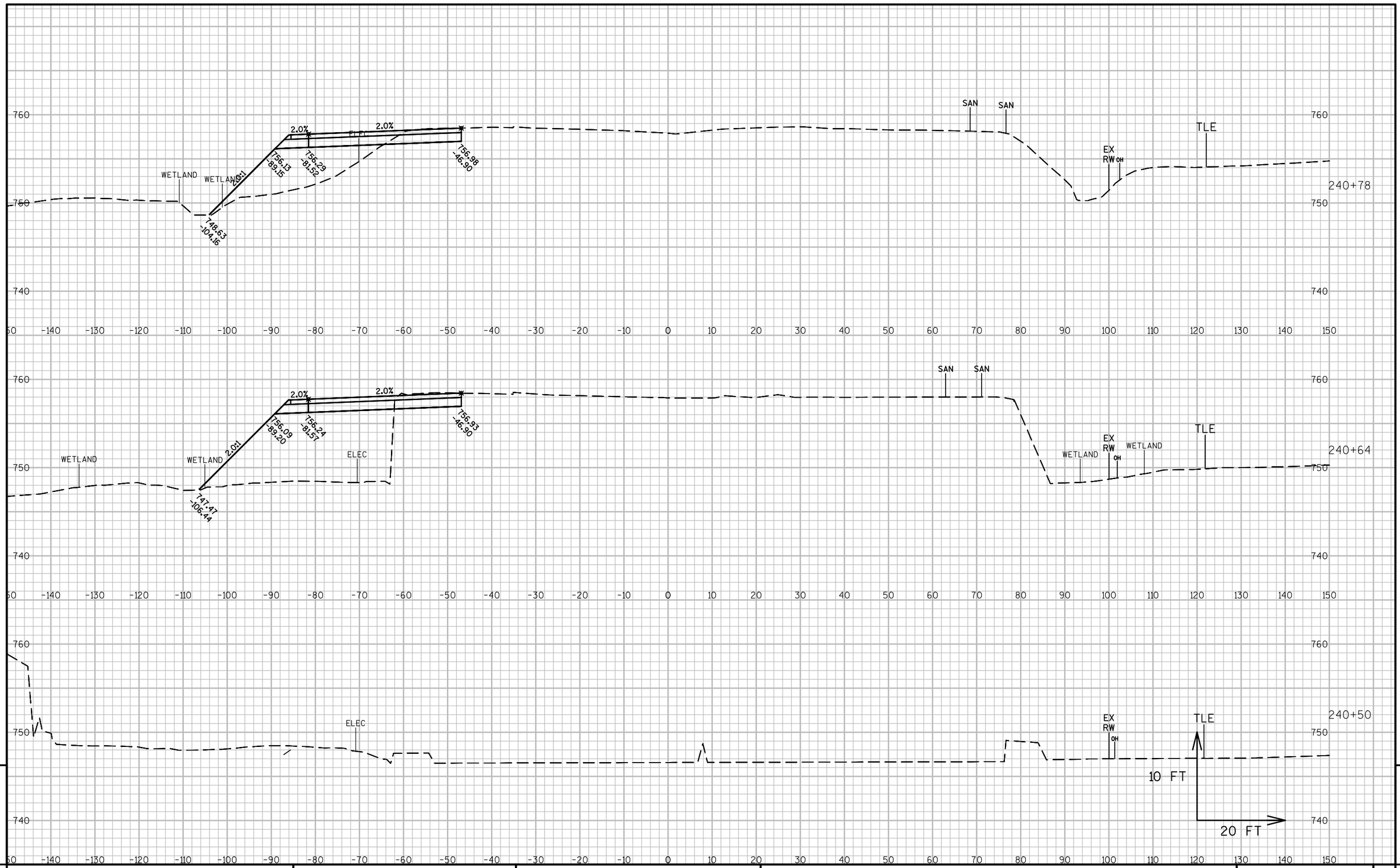
LAYOUT NAME -090206-XS

PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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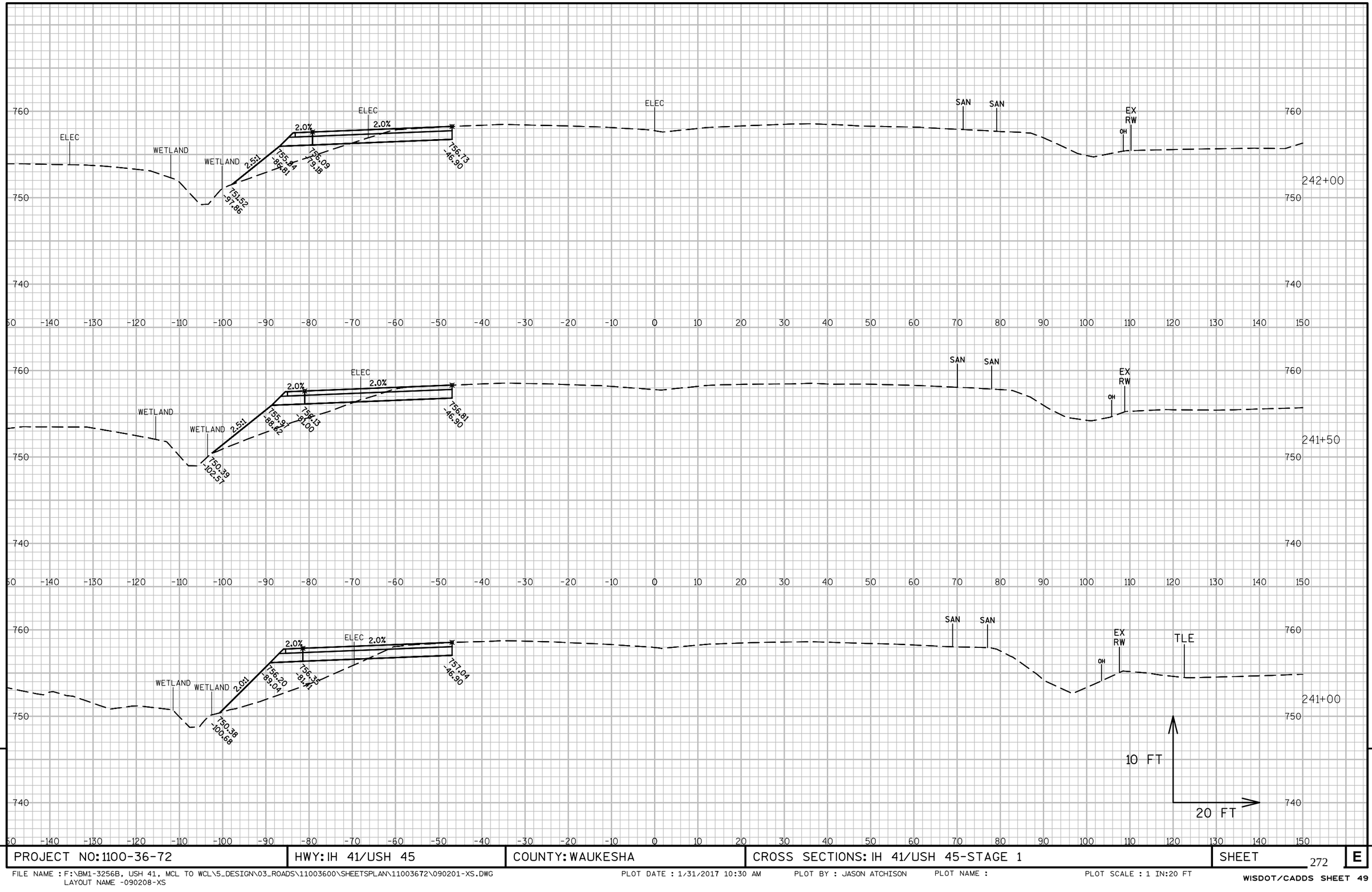
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 271	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090201-XS.DWG
LAYOUT NAME -090207-XS

PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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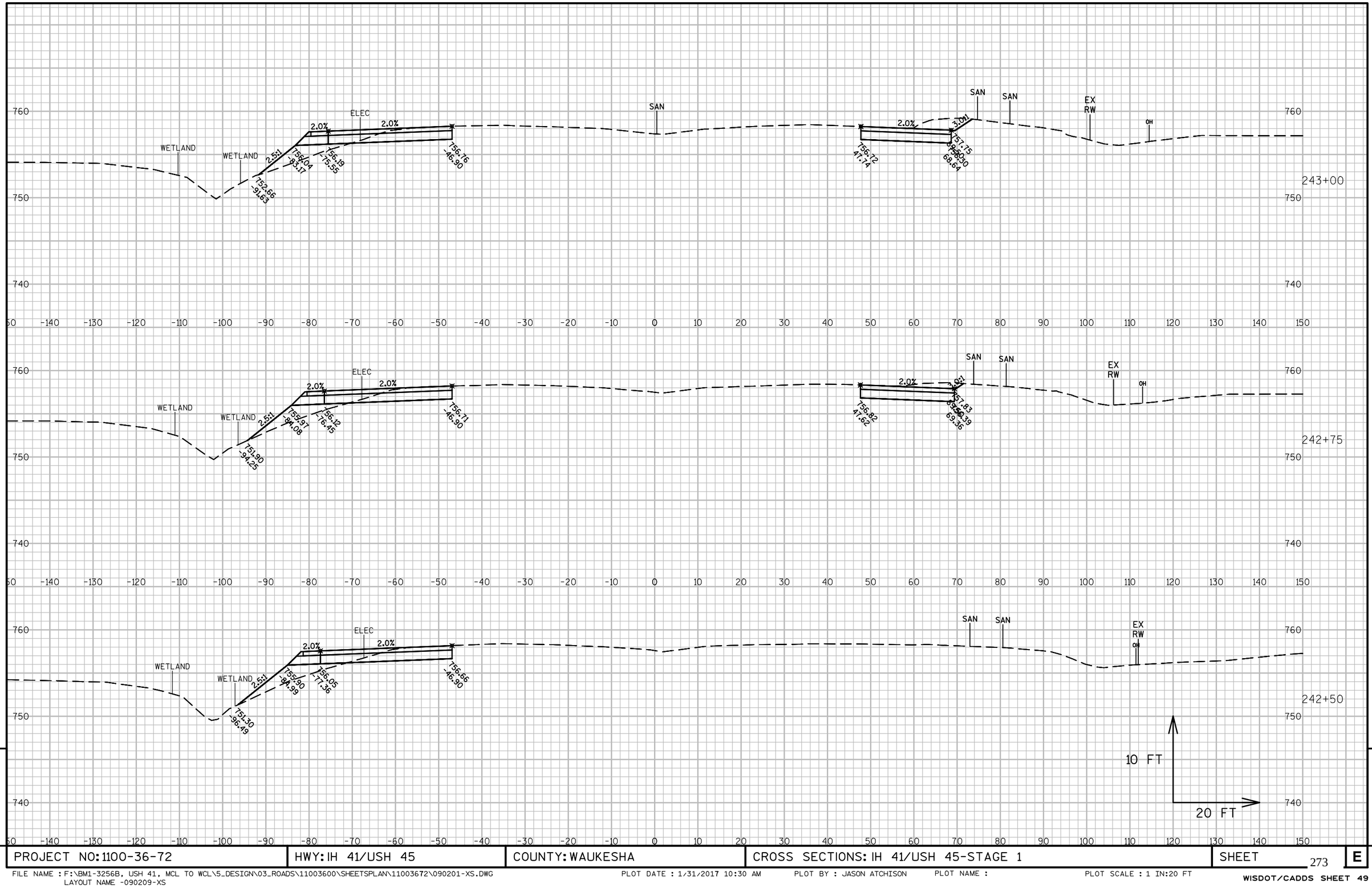
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 272	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090201-XS.DWG
LAYOUT NAME -090208-XS
PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 49



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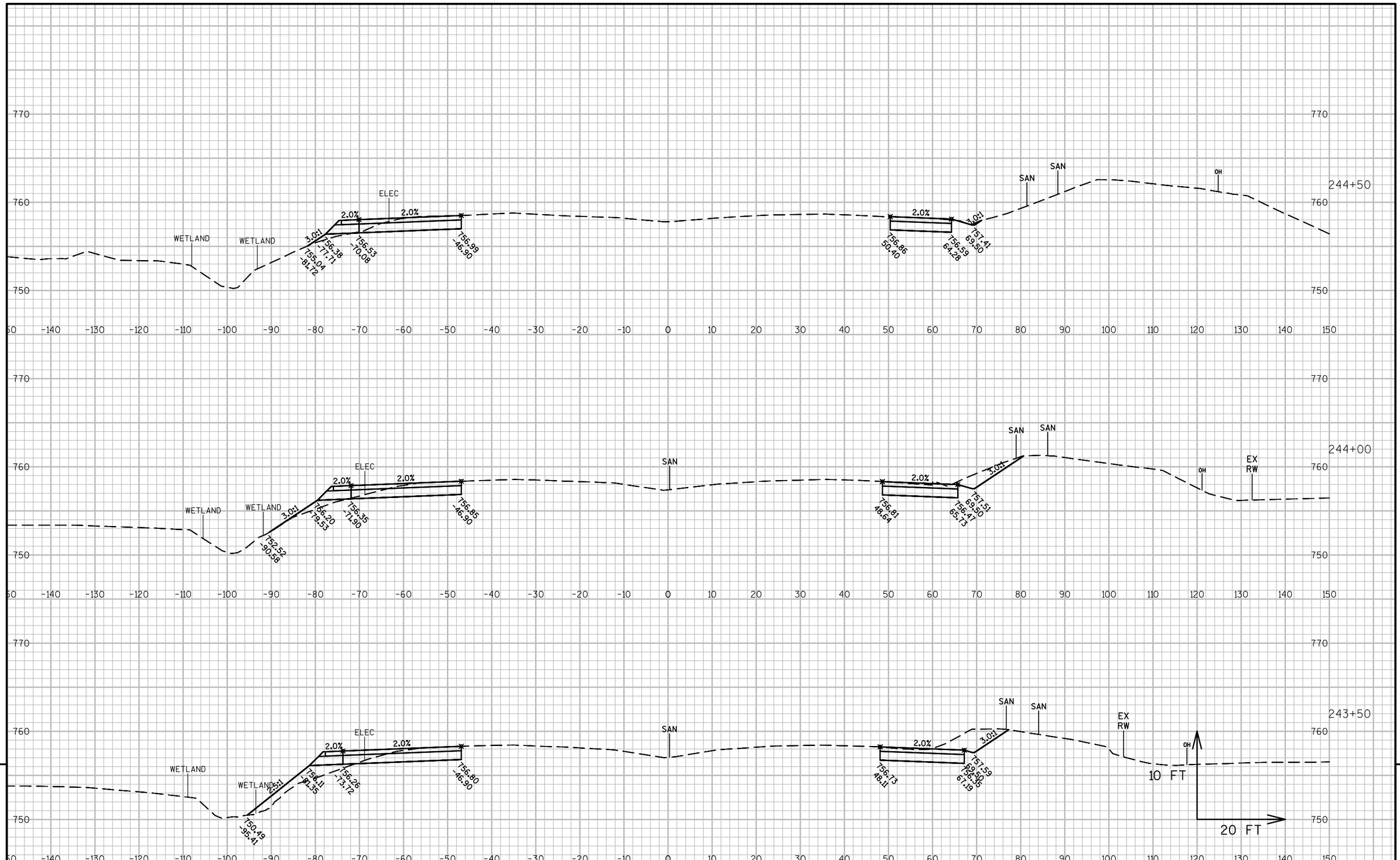
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 273	E



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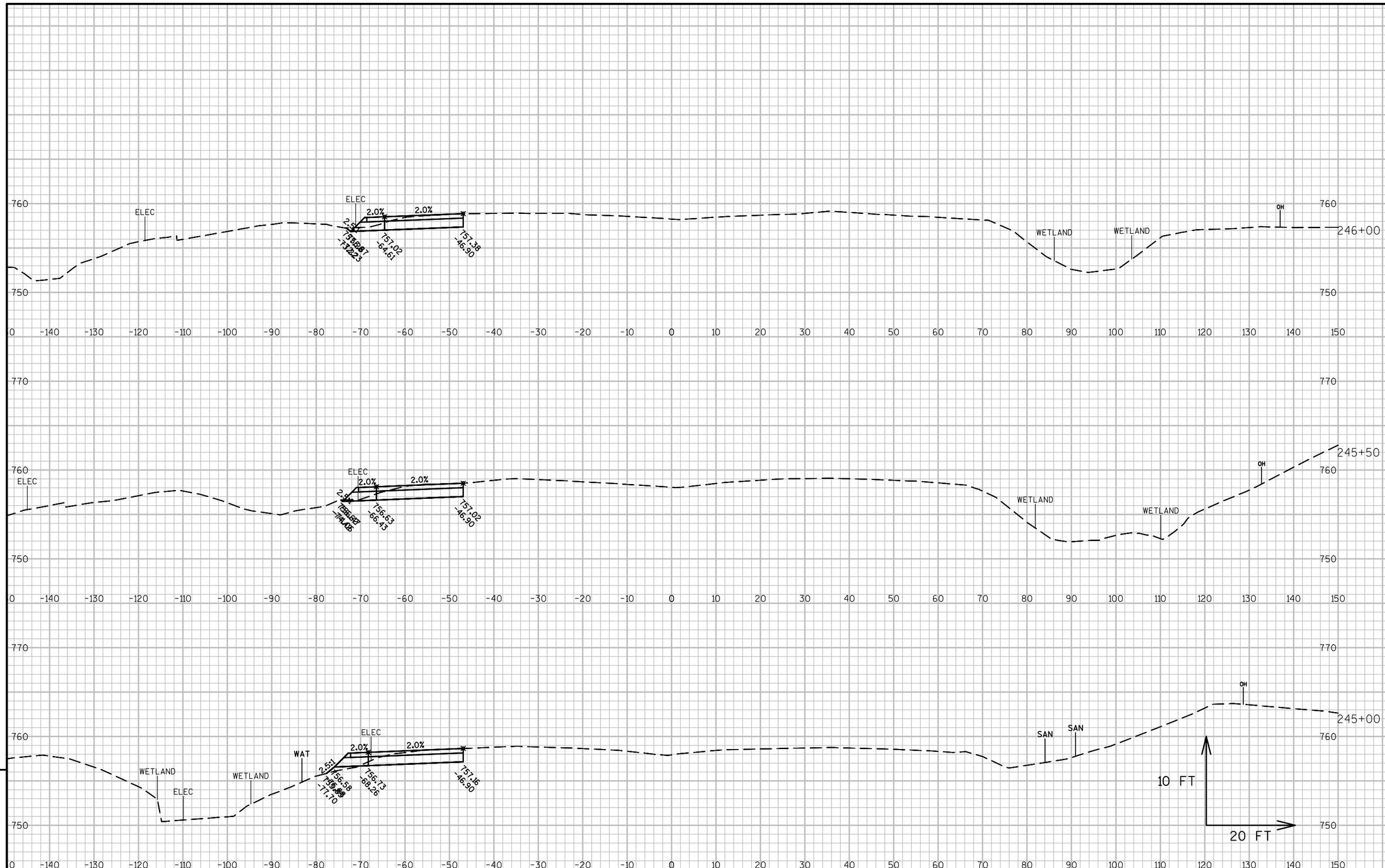
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 274	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090201-XS.DWG
LAYOUT NAME -090210-XS

PLOT DATE : 1/31/2017 10:30 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 275 E

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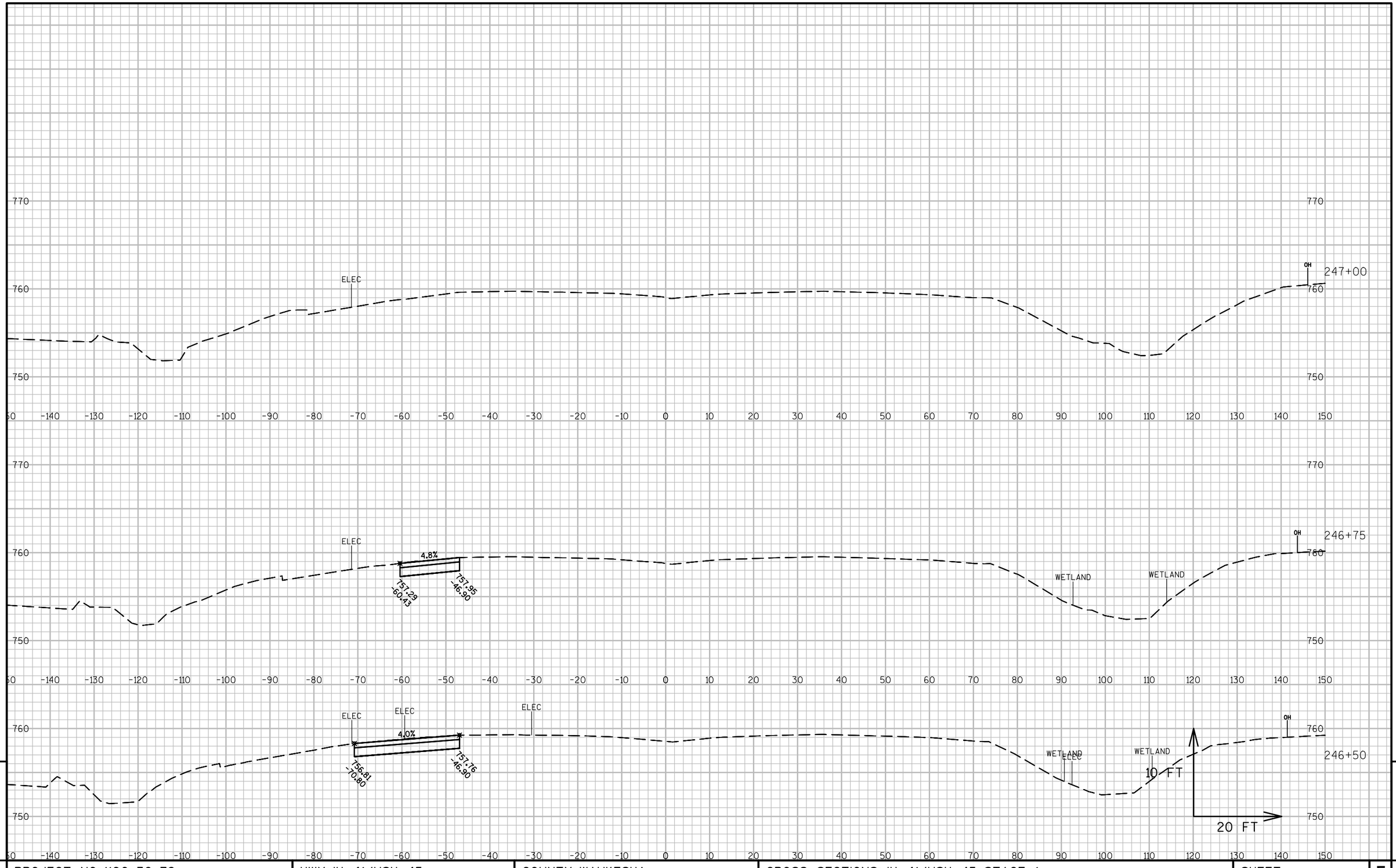
LAYOUT NAME -090211-XS

PLOT DATE : 1/31/2017 10:31 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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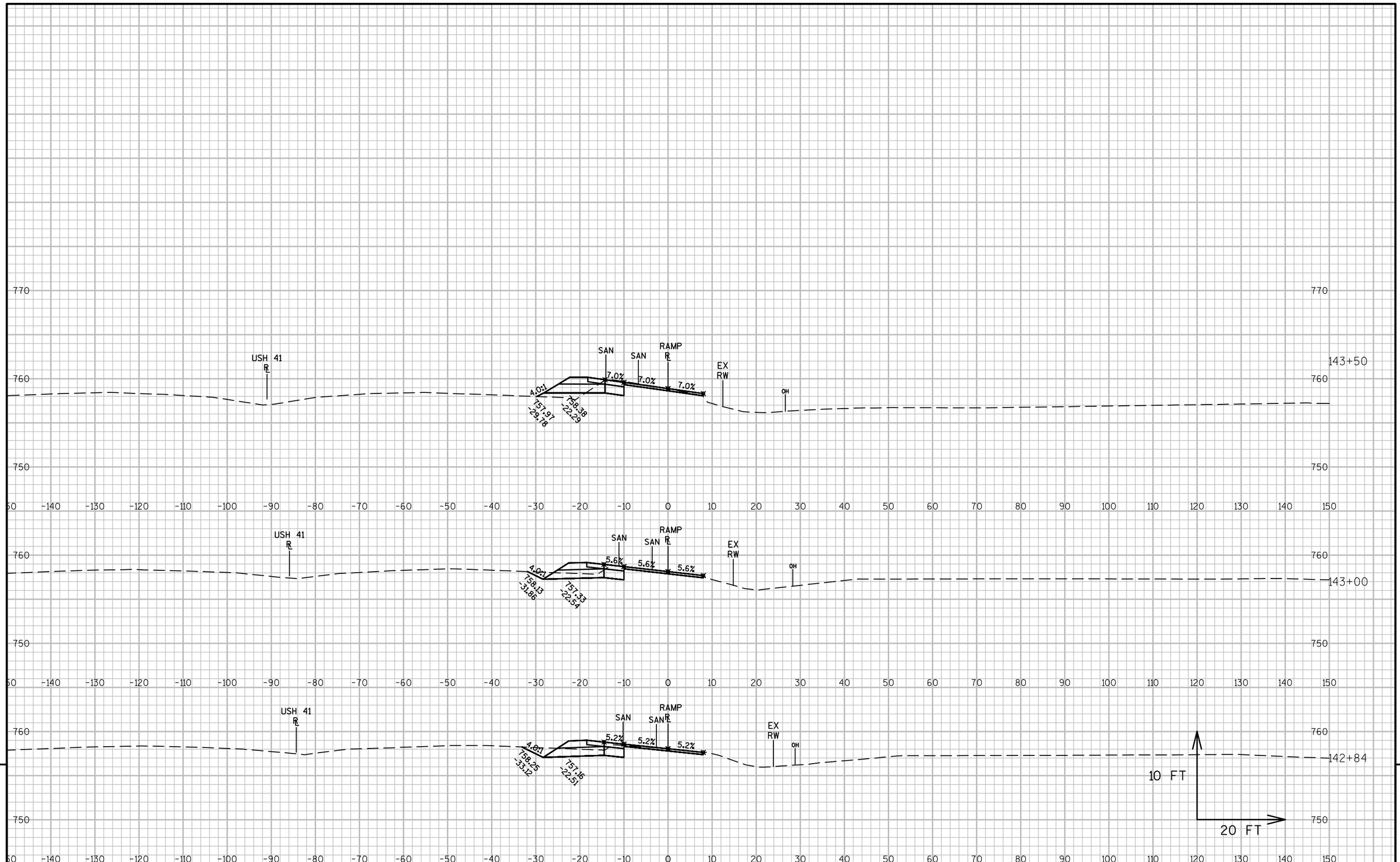
9

PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 1	SHEET 276	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090201-XS.DWG
LAYOUT NAME -090212-XS

PLOT DATE : 1/31/2017 10:31 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT



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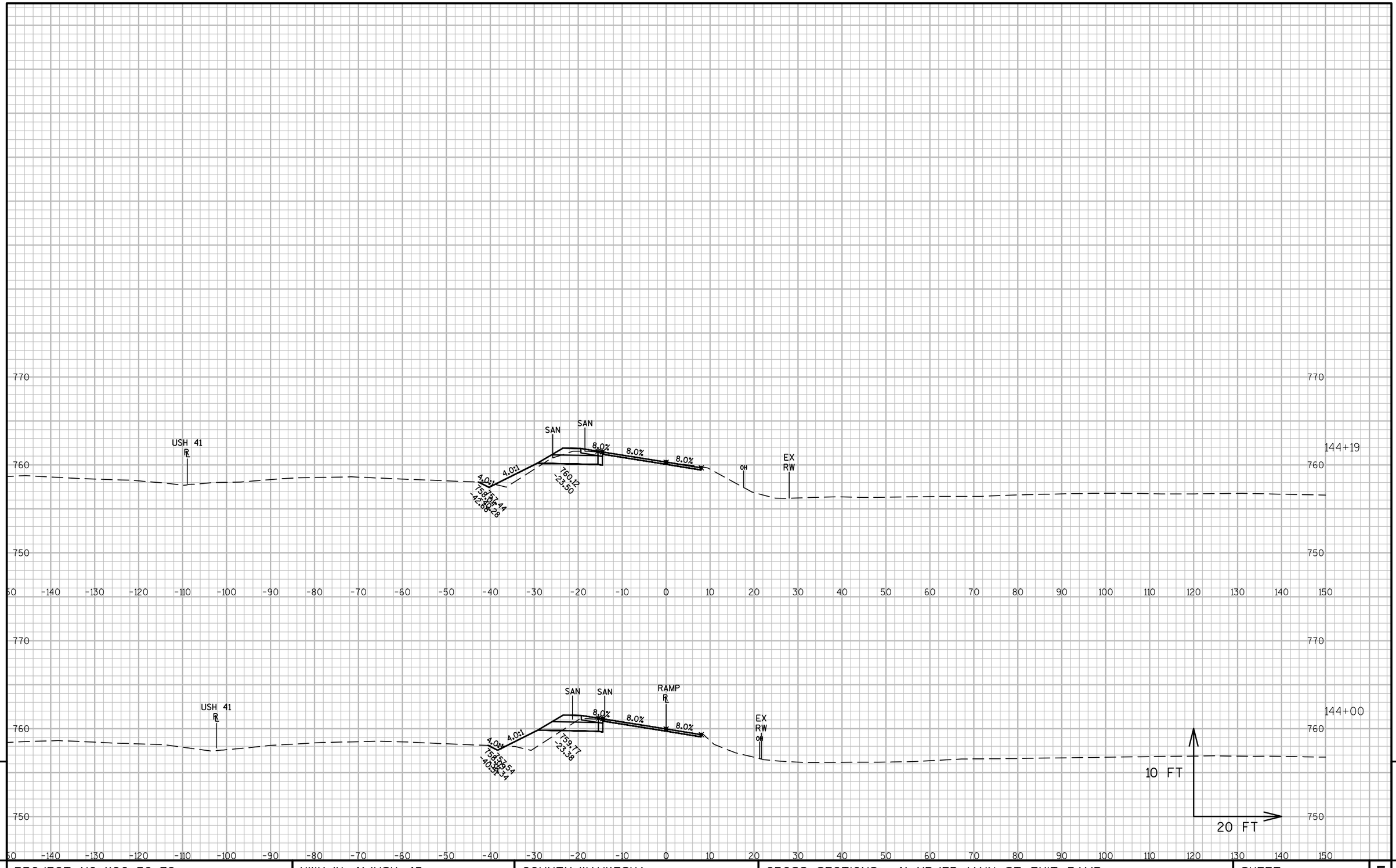
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: 41 NB/EB MAIN ST EXIT RAMP	SHEET 277 E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090204-XS.DWG
LAYOUT NAME - 090204-XS - SECTION SHEET - (1)

PLOT DATE : 2/1/2017 12:27 PM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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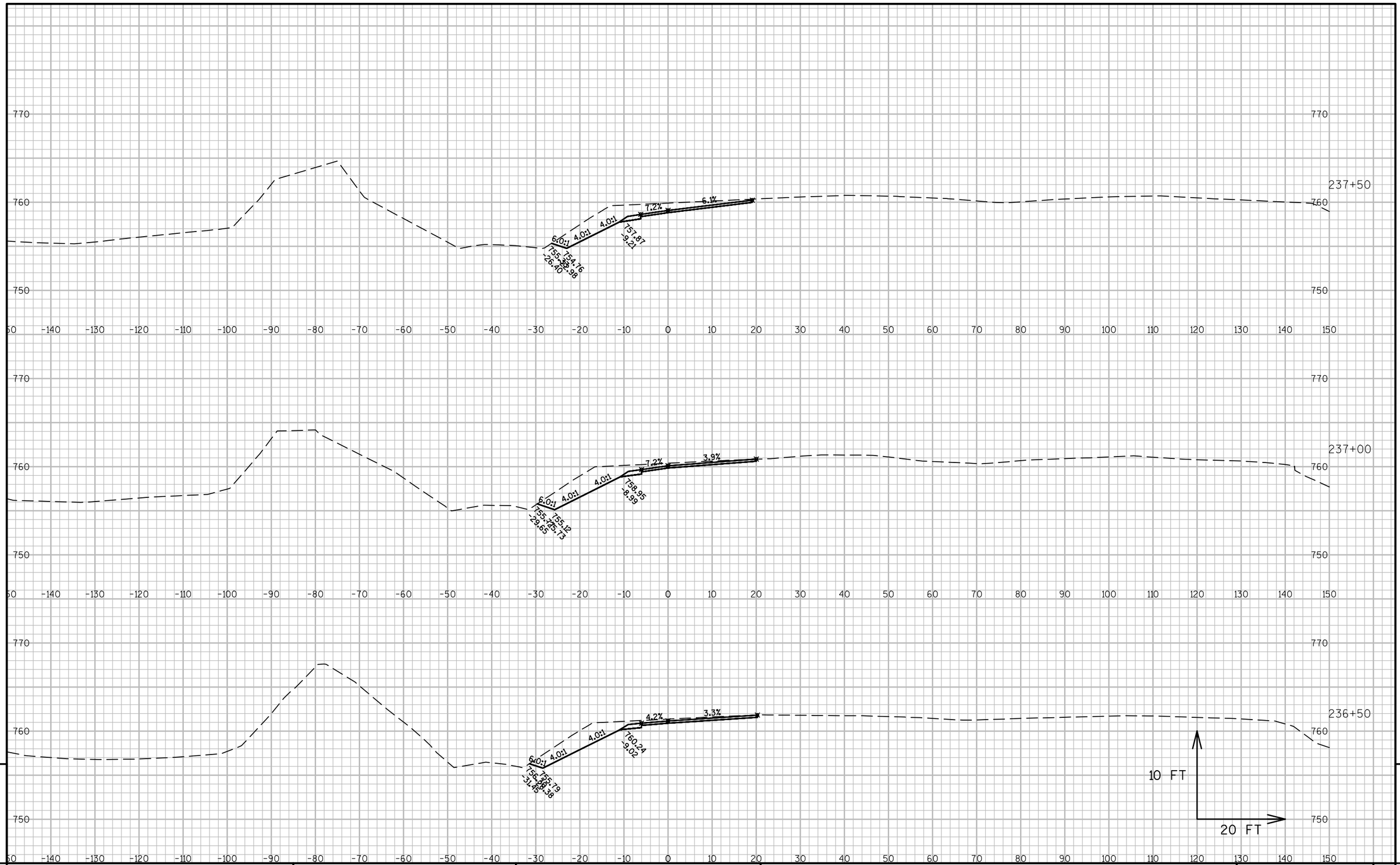
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: 41 NB/EB MAIN ST EXIT RAMP	SHEET 278	E

9

9

PROJECT NO:1100-36-72	HWY:IH 41/USH 45	COUNTY:WAUKESHA	CROSS SECTIONS:MAIN ST/41 SB ENTRANCE RAMP	SHEET 279	E



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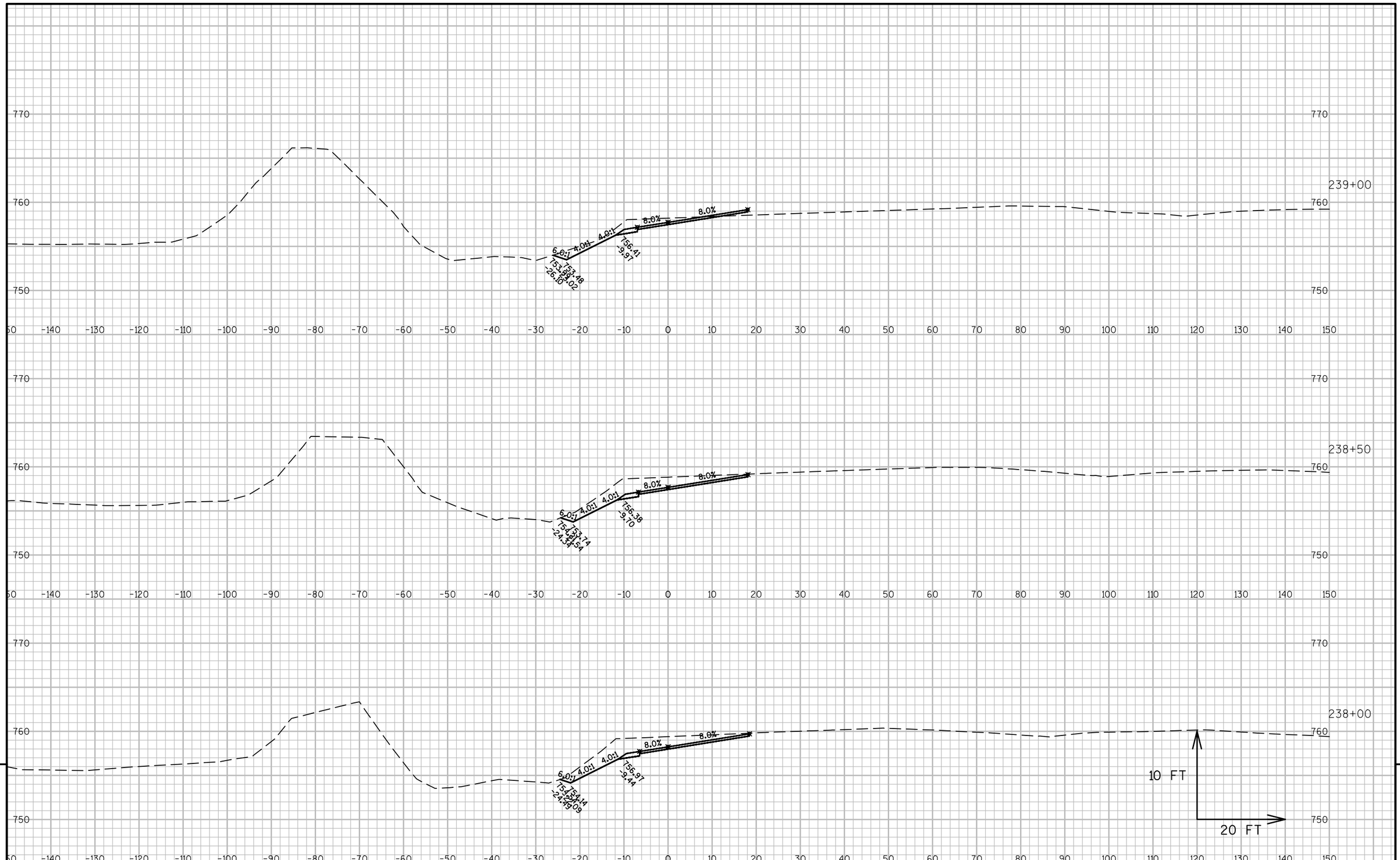
PROJECT NO:1100-36-72	HWY:IH 41/USH 45	COUNTY:WAUKESHA	CROSS SECTIONS: MAIN ST/41 SB ENTRANCE RAMP	SHEET 280	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090204-XS.DWG
LAYOUT NAME - LAYOUT 2

PLOT DATE : 2/1/2017 2:24 PM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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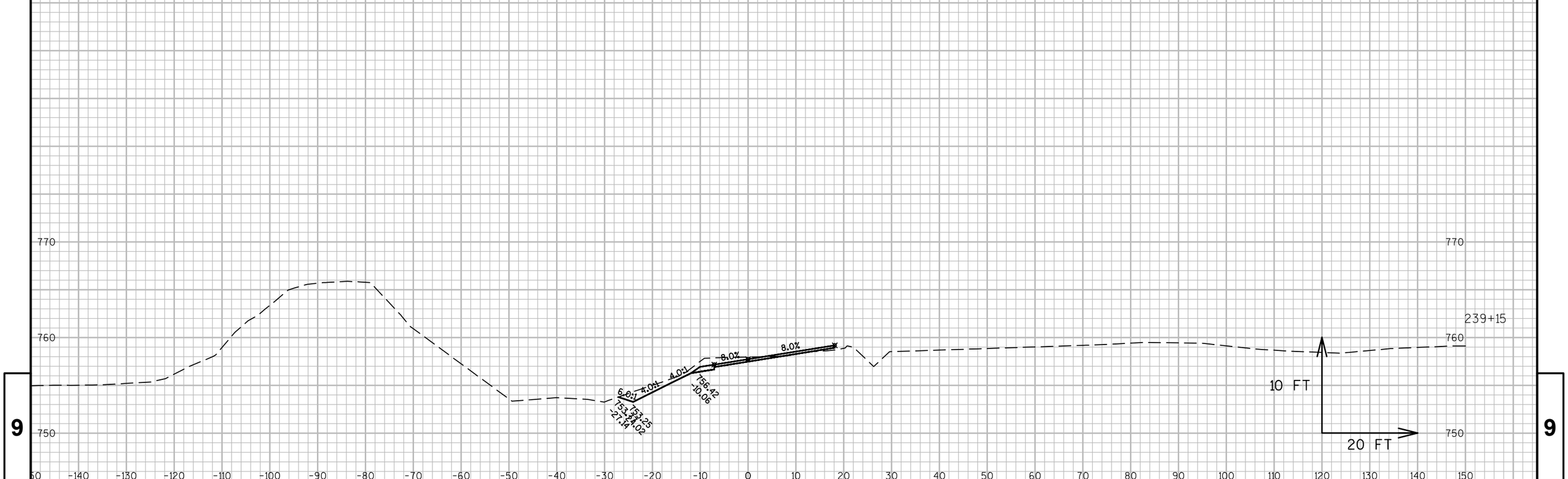
PROJECT NO:1100-36-72	HWY:IH 41/USH 45	COUNTY:WAUKESHA	CROSS SECTIONS:MAIN ST/41 SB ENTRANCE RAMP	SHEET 281	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090204-XS.DWG
LAYOUT NAME - LAYOUT 3

PLOT DATE : 2/1/2017 2:24 PM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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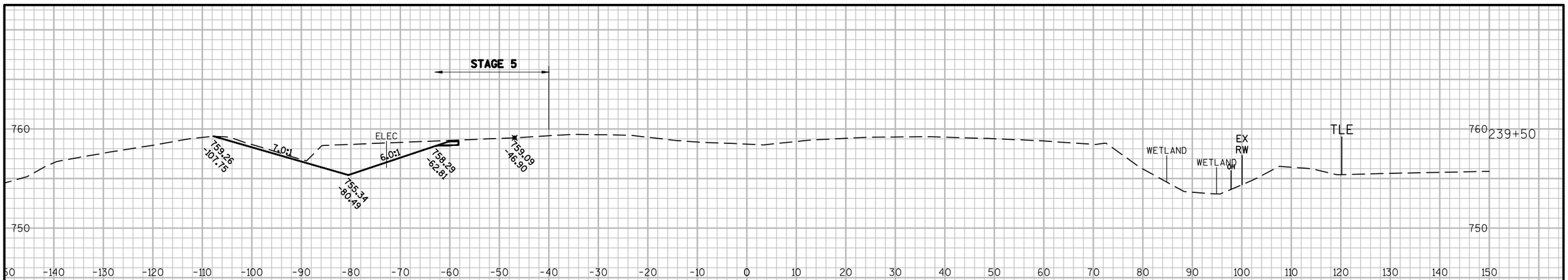
PROJECT NO:1100-36-72	HWY:IH 41/USH 45	COUNTY:WAUKESHA	CROSS SECTIONS: MAIN ST/41 SB ENTRANCE RAMP	SHEET 282	E

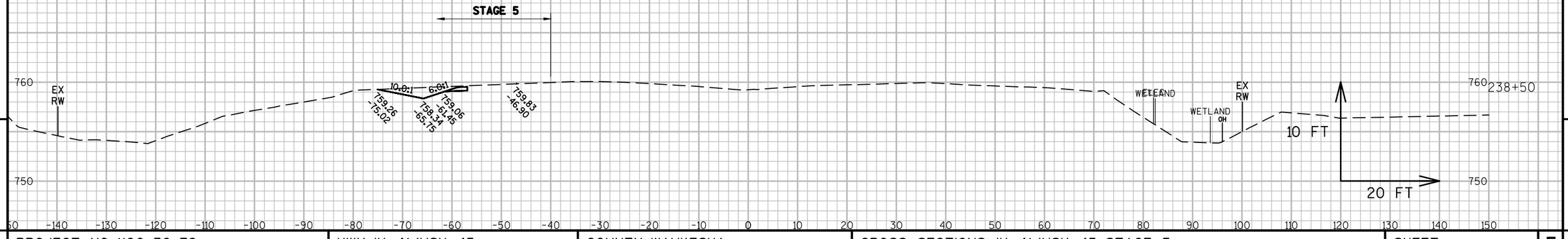
FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090204-XS.DWG
LAYOUT NAME - LAYOUT 4

PLOT DATE : 2/1/2017 2:24 PM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



REGRADE GORE TO RE-EXPOSE
ELECTRICAL MANHOLE, STA 239+20



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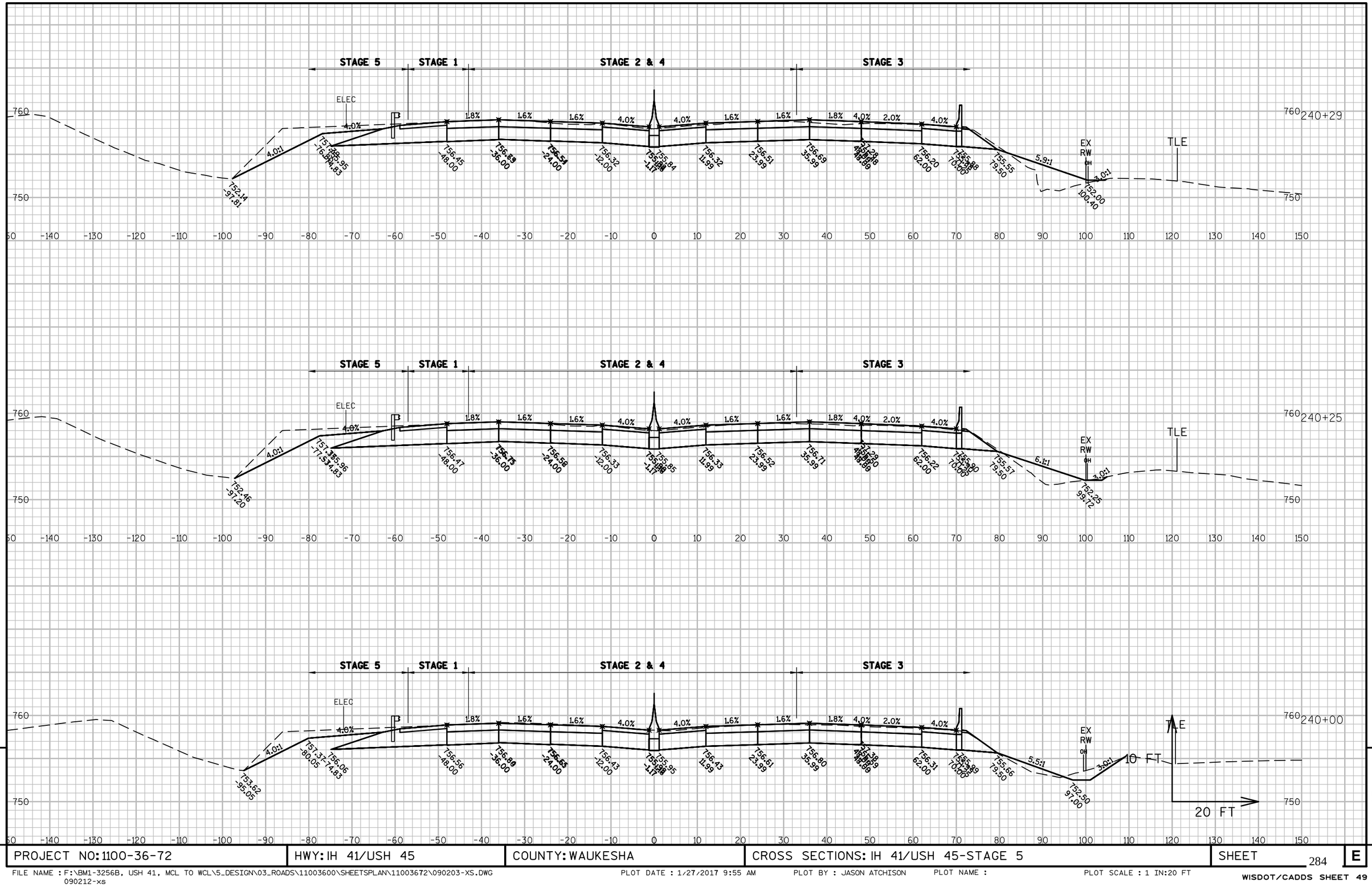
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 283	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090203-XS.DWG
090211-xs
PLOT DATE : 1/27/2017 9:55 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 49



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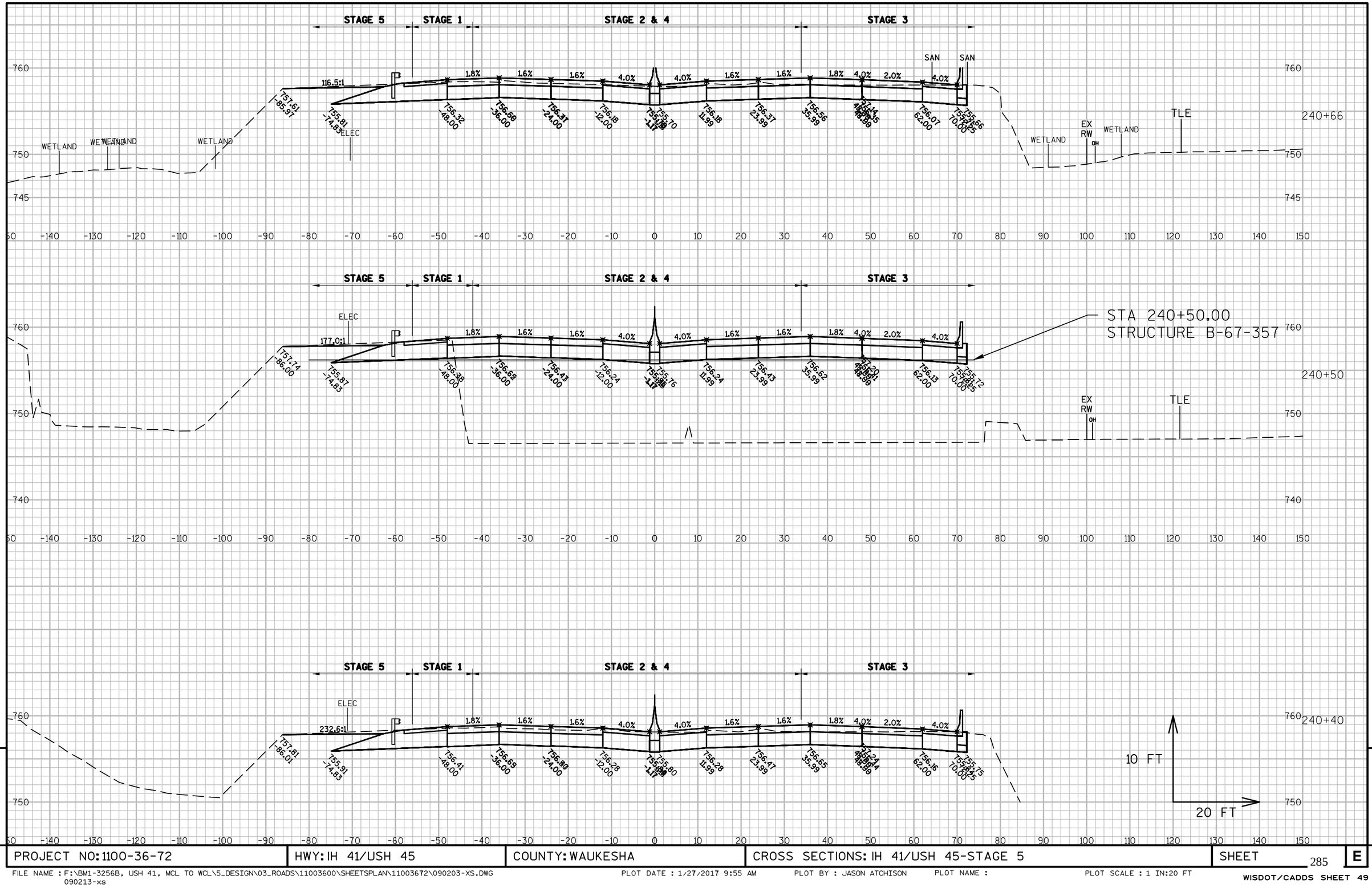
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 284	E



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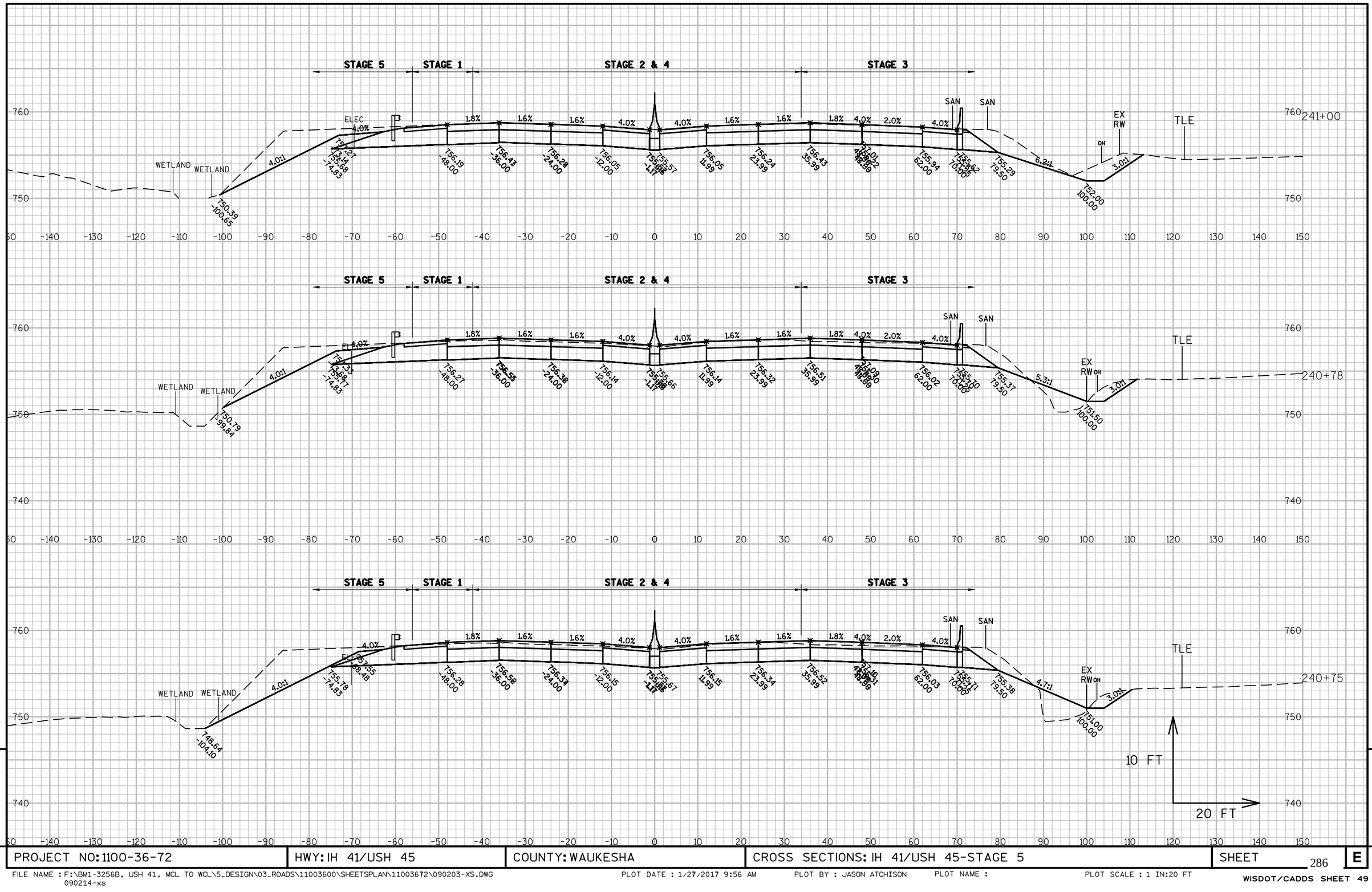
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 285	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090203-XS.DWG
090213-xs

PLOT DATE : 1/27/2017 9:55 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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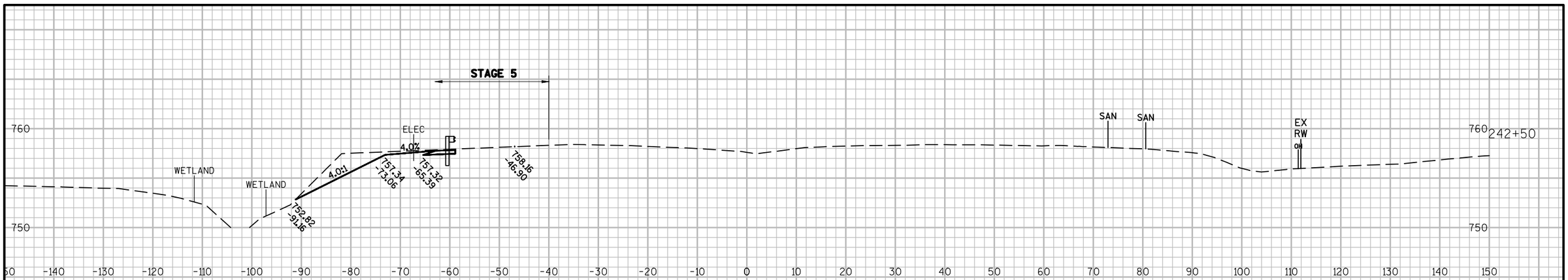
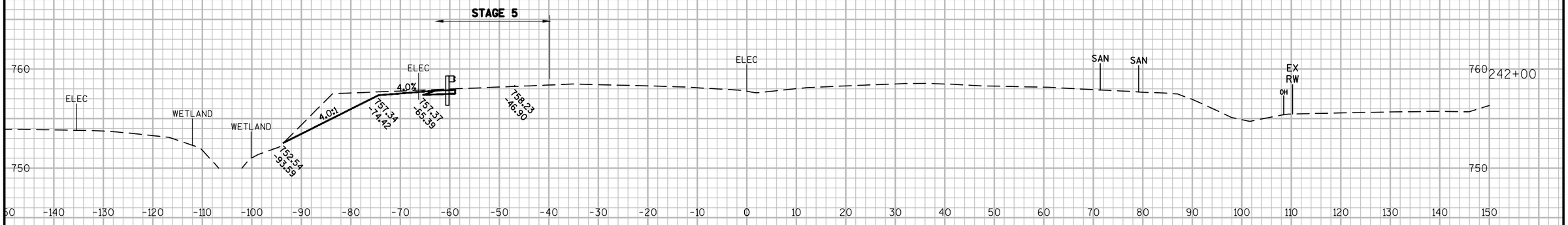
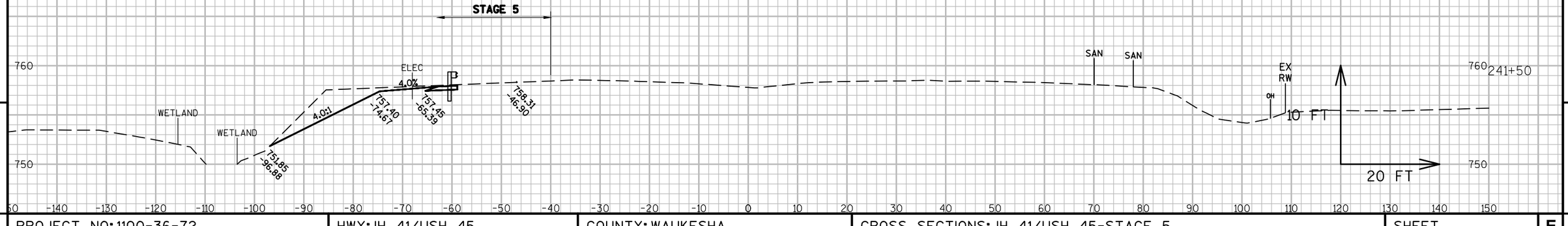
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 286	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090203-XS.DWG
090214-xs
PLOT DATE : 1/27/2017 9:56 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 49







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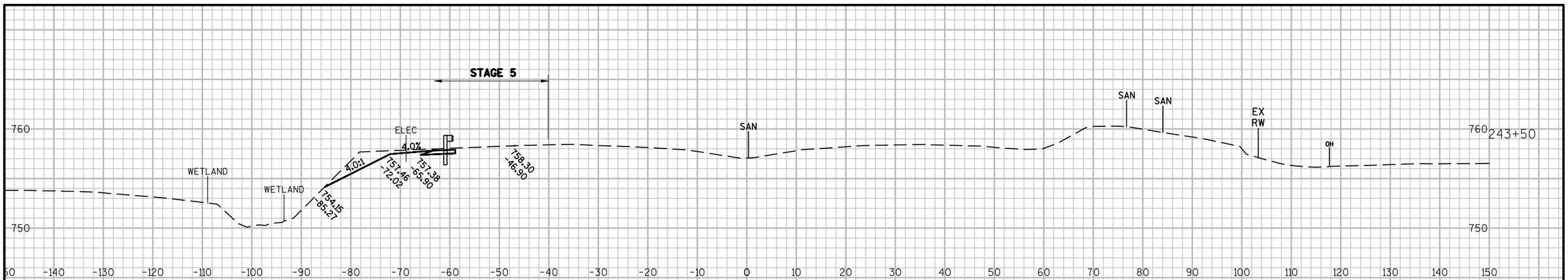
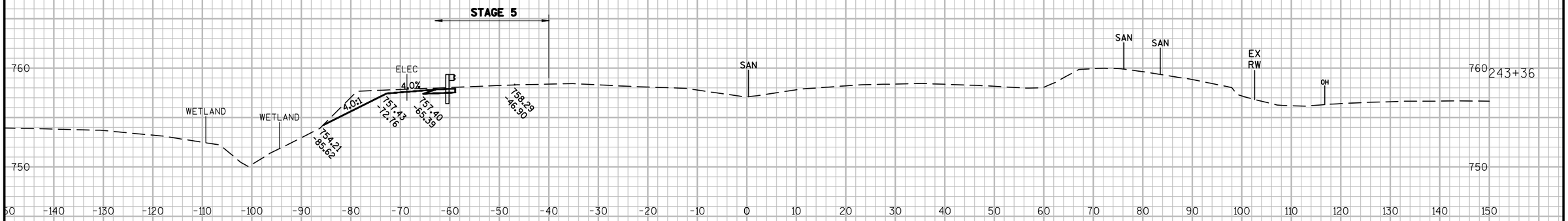
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 287	E

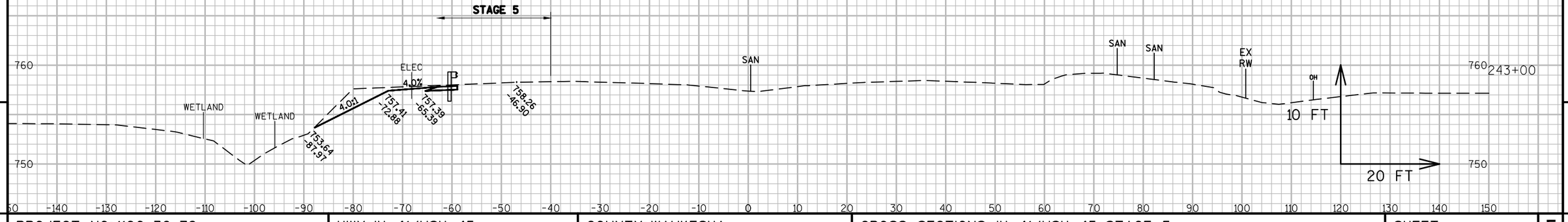
FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090203-XS.DWG
090215-xs

PLOT DATE : 1/27/2017 9:56 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49







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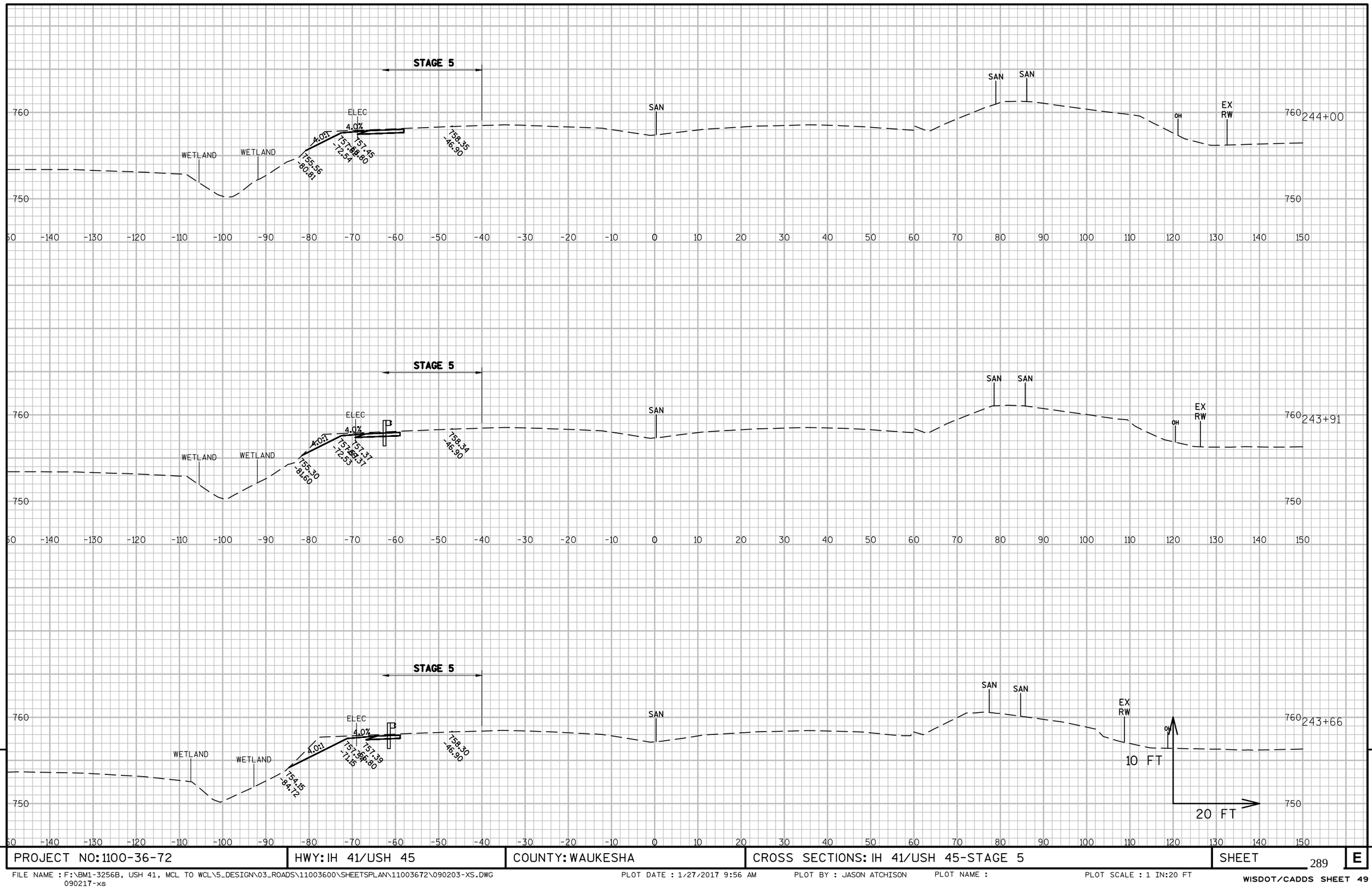
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 288	E



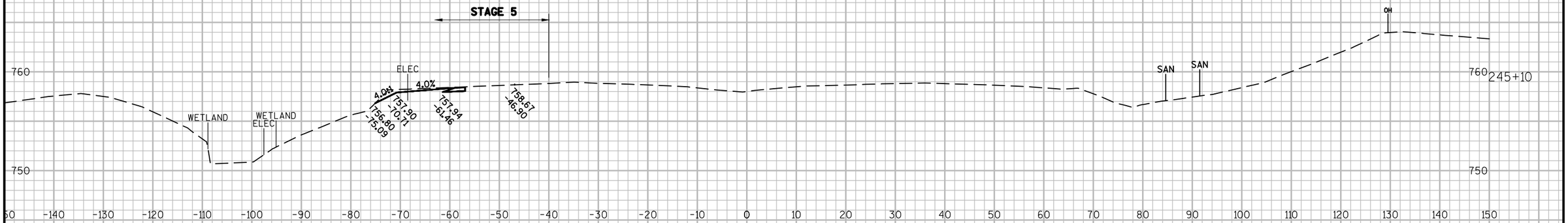
9 9

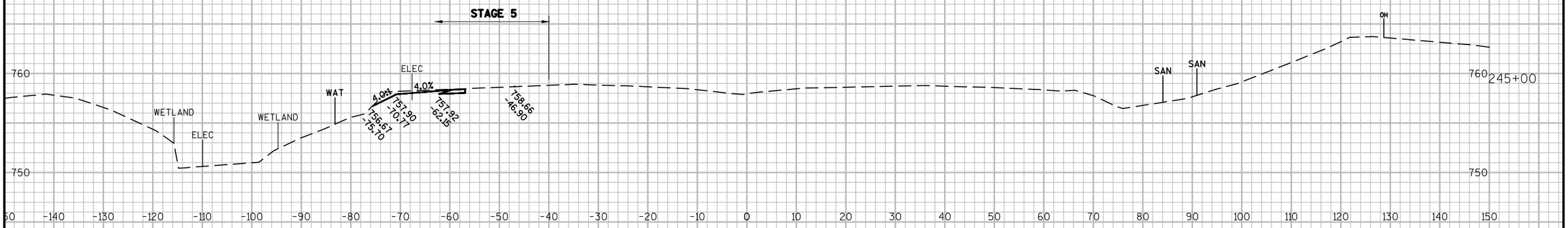
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 289	E

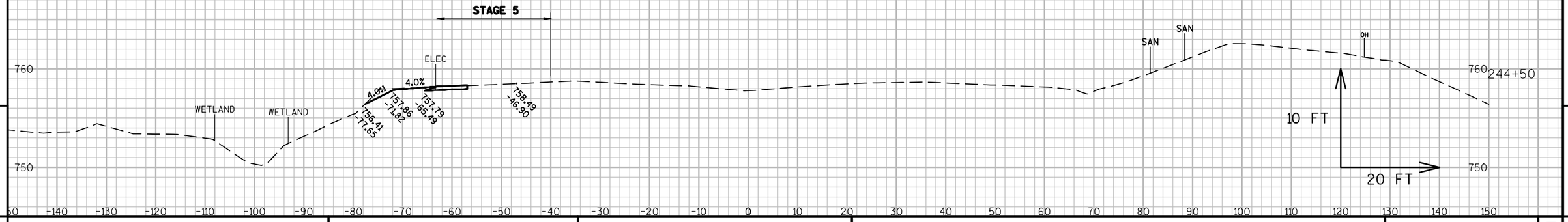
FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090203-XS.DWG
090217-xs

PLOT DATE : 1/27/2017 9:56 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49







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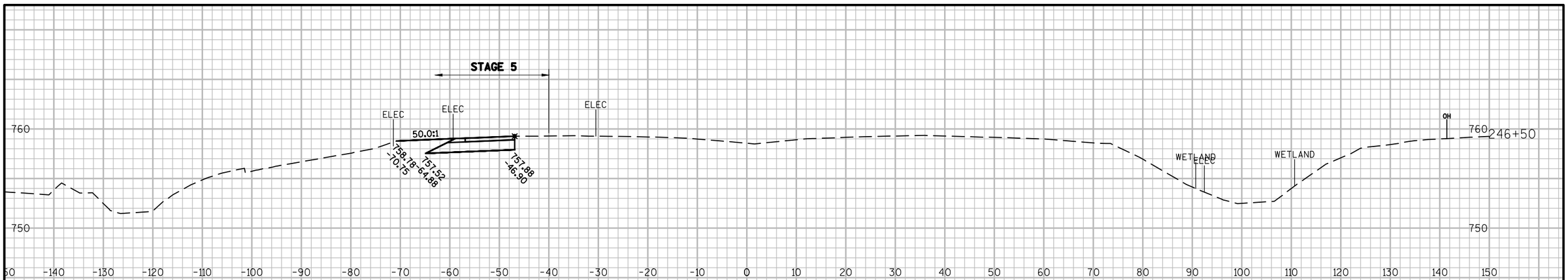
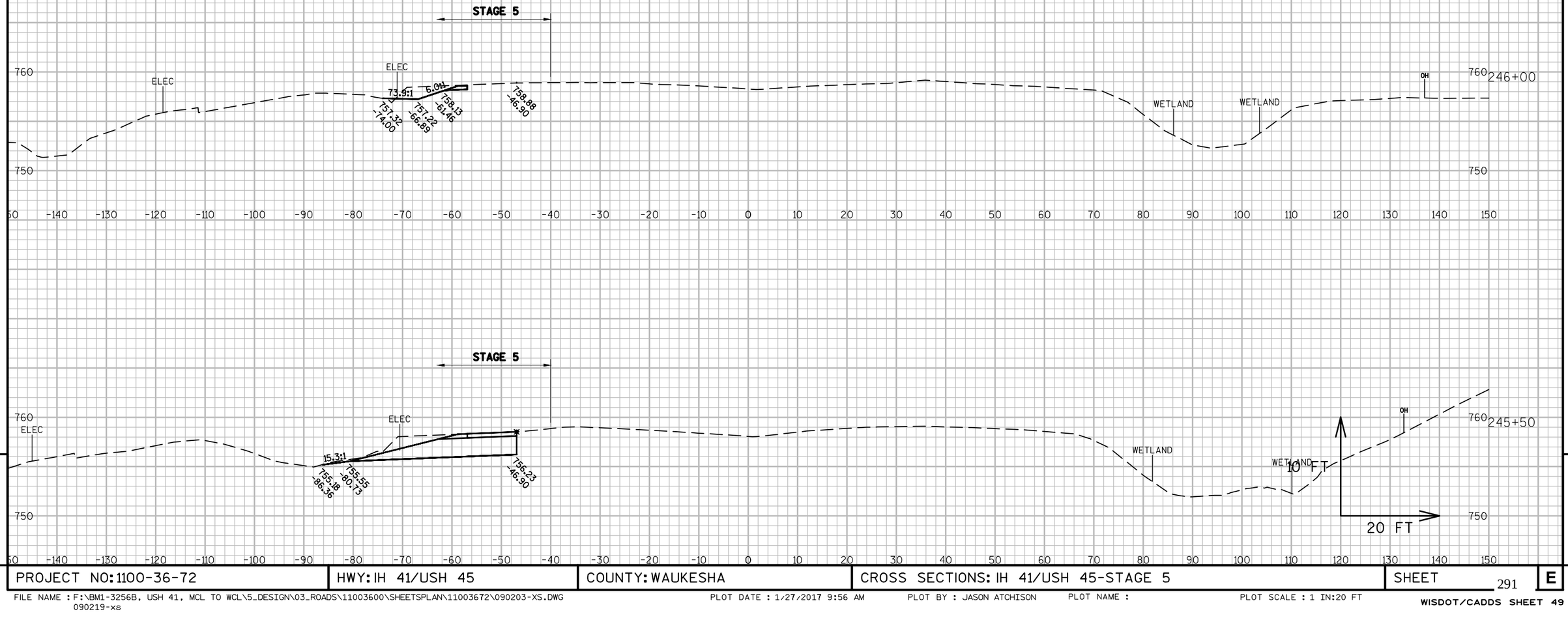
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 290	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090203-XS.DWG
090218-xs

PLOT DATE : 1/27/2017 9:56 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49





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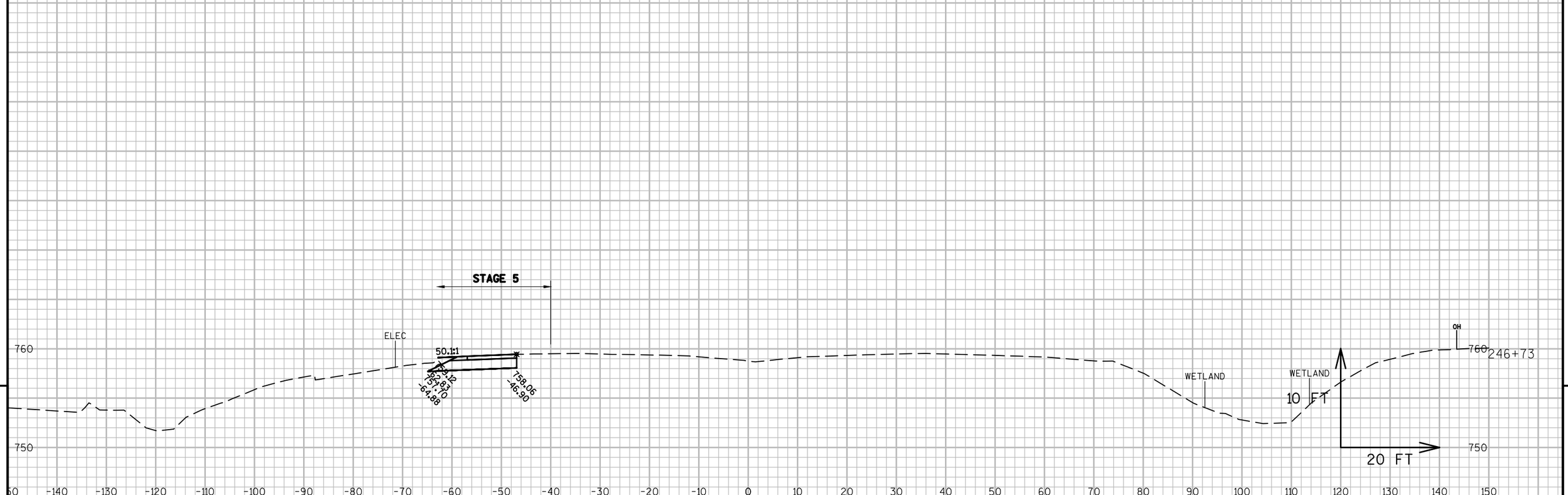
PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 291	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090203-XS.DWG
090219-xs

PLOT DATE : 1/27/2017 9:56 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 1100-36-72	HWY: IH 41/USH 45	COUNTY: WAUKESHA	CROSS SECTIONS: IH 41/USH 45-STAGE 5	SHEET 292	E

FILE NAME : F:\BM1-3256B, USH 41, MCL TO WCL\5_DESIGN\03_ROADS\11003600\SHEETSPLAN\11003672\090203-XS.DWG
090220-xs

PLOT DATE : 1/27/2017 9:56 AM PLOT BY : JASON ATCHISON PLOT NAME : PLOT SCALE : 1 IN:20 FT

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov