SEL APRIL 2015

PROJECT ID WITH: N/A 2135-03-70

COUNTY MILWAUKEE

INDEX OF SHEETS

18

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

WEST NORTH AVENUE

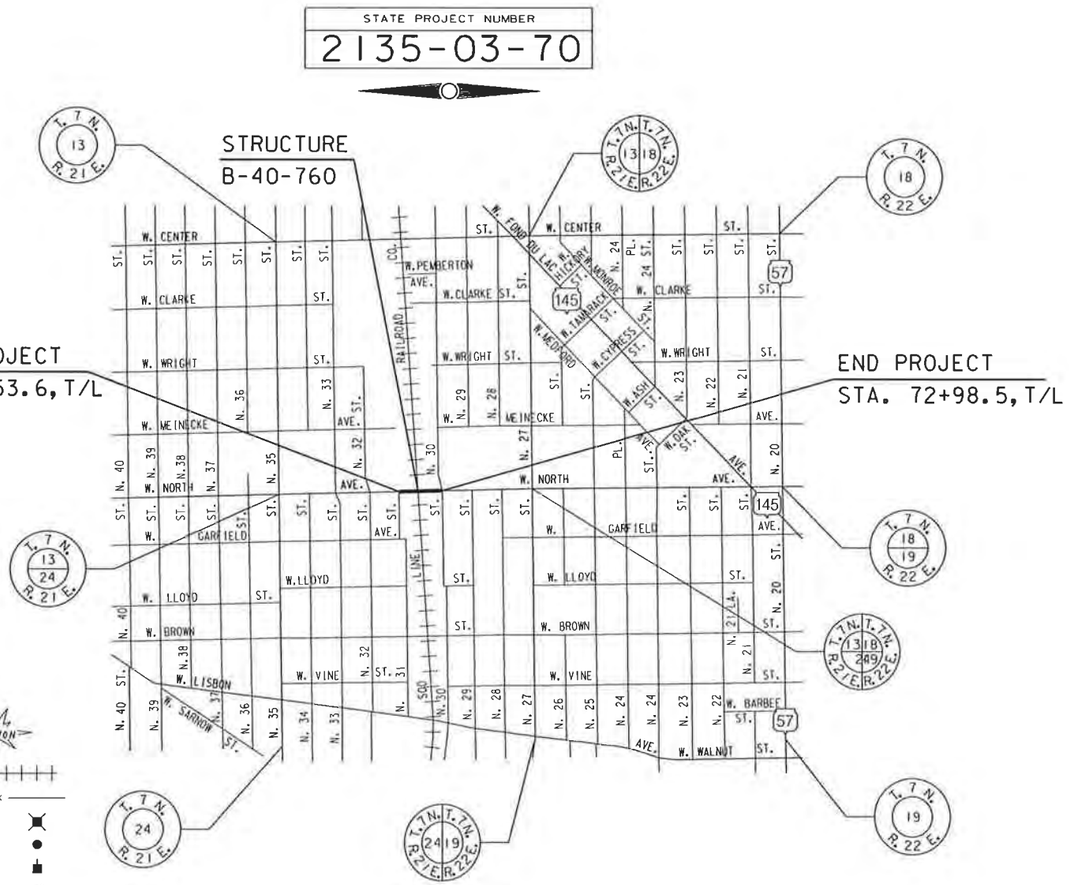
BRIDGE OVER CANADIAN PACIFIC RAILWAY AND APPROACHES

LOCAL STREET
MILWAUKEE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2135-03-70	WISC 2015184	1

STATE PROJECT NUMBER
2135-03-70

GN



DESIGN DESIGNATION

A.D.T. (CURRENT)	=	15,700
A.D.T. (2035)	=	18,100
D.H.V.	=	1,500
D.	=	56%
T.	=	4.3%
DESIGN SPEED	=	30 MPH
ESALS	=	N/A

CONVENTIONAL SIGNS

- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- CORPORATE OR CITY LIMITS
- PROPERTY LINE — P.L.
- STANDARD BENCH MARK
- EXISTING RIGHT OF WAY LINE — R/W
- PROPOSED SEWER LATERAL
- BASE OF SURVEY LINE
- CONCRETE WALK/DWY. REMOVAL
- LIMITS OF CONCRETE PAVEMENT REMOVAL — X X X X X X
- CATCH BASIN OR INLET — EXISTING ▣ PROPOSED ⊕
- COMBUSTIBLE FLUIDS UNDER PRESSURE — CAUTION
- RAILROADS
- FENCE — × — × — (TYPE) × —
- FIRE & POLICE CALL BOX
- LIGHT POLE
- POWER POLE
- TELEPHONE OR TELEGRAPH POLE
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL CONTROL BOX
- HYDRANT
- GAS OR WATER GATE VALVE
- MANHOLES - SEWER ○ UTILITY (TYPE) □
- TREES - EXISTING ◑ TO BE REMOVED

LAYOUT
SCALE 1/4 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.065 MILES (URBAN)

THE COORDINATES ON THIS PLAN ARE BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM, MILWAUKEE COUNTY, NAD 27 SOUTH ZONE.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE CITY OF MILWAUKEE DATUM.

TO CONVERT ELEVATIONS SHOWN ON THIS PLAN TO NATIONAL GEODEDIC VERTICAL DATUM OF 1929, ADD 580.603 TO ELEVATIONS SHOWN ON THIS PLAN.

Accepted For
City of Milwaukee

10/30/14 _____
(Date) Commissioner of Public Works

Original Plans Prepared By

WISCONSIN ☆ JEFFREY S. POLENSKE E-[illegible] MILWAUKEE WIS. ☆ PROFESSIONAL ENGINEER

10/30/14 _____
(Date) City Engineer

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor City of Milwaukee
Designer City of Milwaukee
Management Consultant DAAR Engineering Inc.
C.O. Examiner _____

APPROVED FOR THE DEPARTMENT

DATE 10/31/14 _____
(Management Consultant Signature)

E

FILE NAME = W:\SPR\NORTH AVE BRIDGE\TITLE.DGN

GENERAL NOTES

1. ALL OPENINGS BELOW SUBGRADE, RESULTING FROM REMOVALS OR ABANDONMENTS, SHALL BE BACKFILLED WITH BASE AGGREGATE DENSE, 1-1/4 INCH.

2. ALL DISTURBED AREAS, NOT SURFACED, ARE TO BE COVERED WITH 4" OF TOPSOIL, SODDED AND FERTILIZED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

3. NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

4. TRANSVERSE JOINTS IN THE SIDEWALK SHALL BE CONSTRUCTED AT INTERVALS EQUAL TO THE WIDTH OF THE CONCRETE UNLESS OTHEREWISE DIRECTED BY THE ENGINEER.

5. THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLAN IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.

6. CONSTRUCTION PERMITS FOR SIDEWALK &/ OR CONCRETE DRIVEWAY WORK HAVE BEEN OBTAINED, WHICH RIGHTS SHALL BE EXTENDED TO THE CONTRACTORS.

7. INLET SCREENS ARE TO BE PLACED BETWEEN THE FRAME AND GRATE OF CATCH BASINS / INLETS TO PREVENT SOIL FROM ENTERING THE SEWERS. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURES ARE NO LONGER NECESSARY.

STANDARD ABBREVIATIONS

ASPH.	- ASPHALT
B.M.	- BENCH MARK
CTR.	- CENTER
C/L	- CENTER LINE
COMB.	- COMBINED
CONC.	- CONCRETE
C.W.	- CONCRETE WALK
COR.	- CORNER
C	- CURB
ELEV.	- ELEVATION
ENT.	- ENTRANCE
EXIST.	- EXISTING
F	- FLANGE
G	- GUTTER, OR GAS
HYD.	- HYDRANT
LT.	- LEFT
MMSD	- MILWAUKEE METROPOLITAN SEWERAGE DISTRICT
P/L.	- PROPERTY LINE
R OR RAD.	- RADIUS
RET.	- RETAINING
RT.	- RIGHT
R/W	- RIGHT OF WAY
TEL	- AMERITECH
TES	- TRAFFIC ENGINEERING, AND ELECTRICAL SERVICES
T/L	- TRANSIT LINE
WEP	- WISCONSIN ELECTRIC POWER

ORDER OF SECTION 2 SHEETS

2

2

UTILITY CONTACTS

CITY OF MILWAUKEE

MUSA ABU-KHADER
841 N. BROADWAY, RM. 710
MILWAUKEE, WI 53202
PHONE: 414-286-2432

WE ENERGIES - GAS & ELECTRIC

LA TROY BRUMFIELD
333 W. EVERETT ST.
MILWAUKEE, WI 53203
PHONE: 414-221-5617

MCLEOD USA (WINDSTREAM)

JAMES KOSTUCH
13935 BISHOPS DRIVE
BROOKFIELD, WI 532005
PHONE: 262-792-7938

OTHER CONTACTS

WISCONSIN DEPT. OF NATURAL RESOURCES

KRISTINA BETZOLD - SOUTHEAST REGION SUPERVISOR
2300 N. DR. MARTIN LUTHER KING, JR. DR.
MILWAUKEE, WI 53212
PHONE: 414-263-8517

MILWAUKEE COUNTY TRANSIT SYSTEM

DAVID ZIAREK
1942 N. 17TH ST.
MILWAUKEE, WI 53205
PHONE: 414-343-1764

DESIGN CONSULTANT

SAMUEL MEDHIN
841 N. BROADWAY RM 902
MILWAUKEE, WI 53202
PHONE: 414-286-0474

CANADIAN PACIFIC RAILROAD

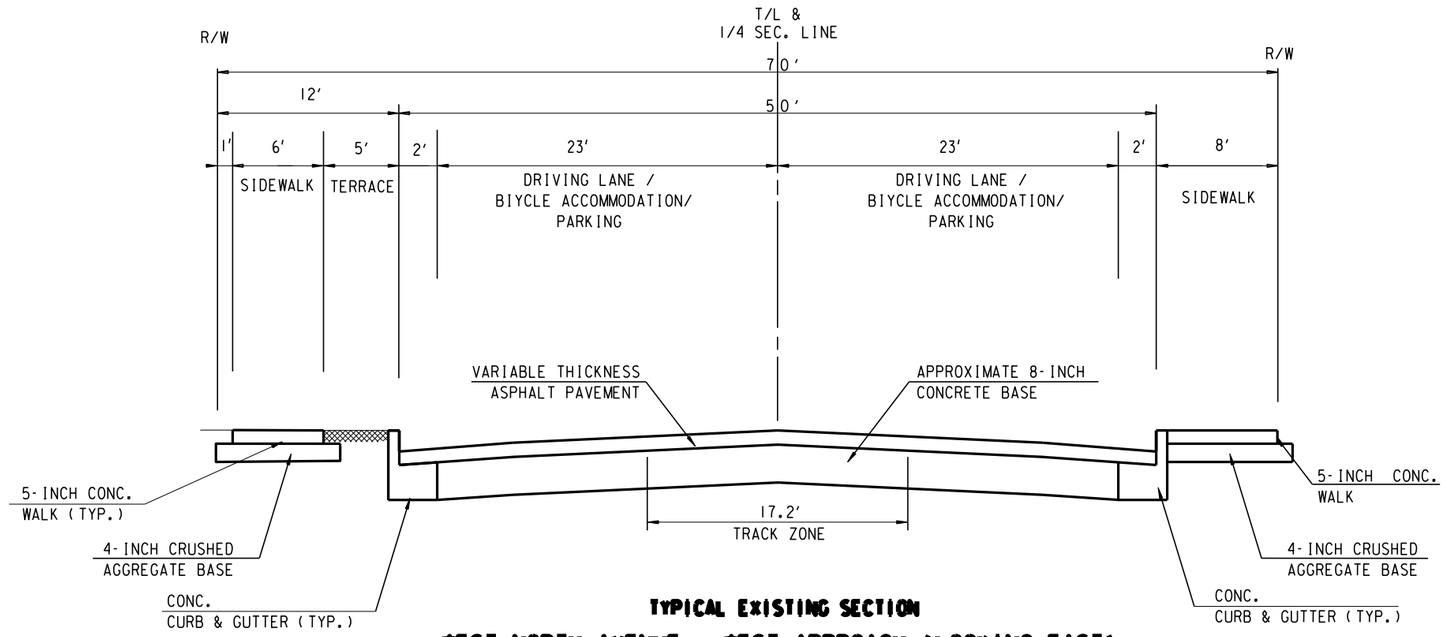
EDWARD OOM
11306 FRANKLIN AVENUE
FRANKLIN PARK, IL 60131
PHONE: 630-701-5882

ROGER SCHAALMA
1890 EAST JOHNSON STREET
MADISON, WI 53704
PHONE: 608-620-2044

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

STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL	COUNTY: MILWAUKEE	CONTACTS	SCALE FEET	SHEET NO: 3	E

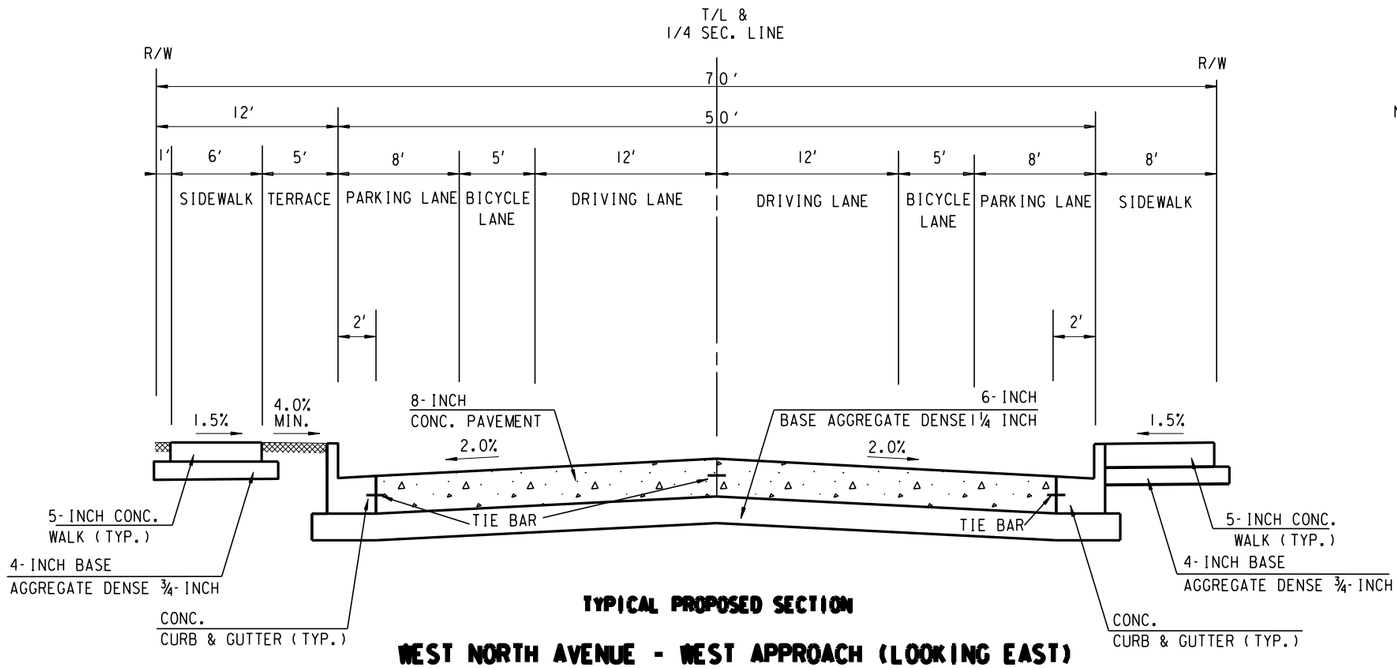
FILE NAME: W:\SPR\NORTH AVE BRIDGE\TYPSEC.DGN



TYPICAL EXISTING SECTION

WEST NORTH AVENUE - WEST APPROACH (LOOKING EAST)

STA. 69+53.6 TO STA. 71+26.13



NOTE: 12-INCH CONCRETE APPROACH SLAB OVER 6-INCH BASE AGGREGATE DENSE 1¼ INCH WILL BE PLACED FROM STA.70+75.0 TO STA. 71+5.04

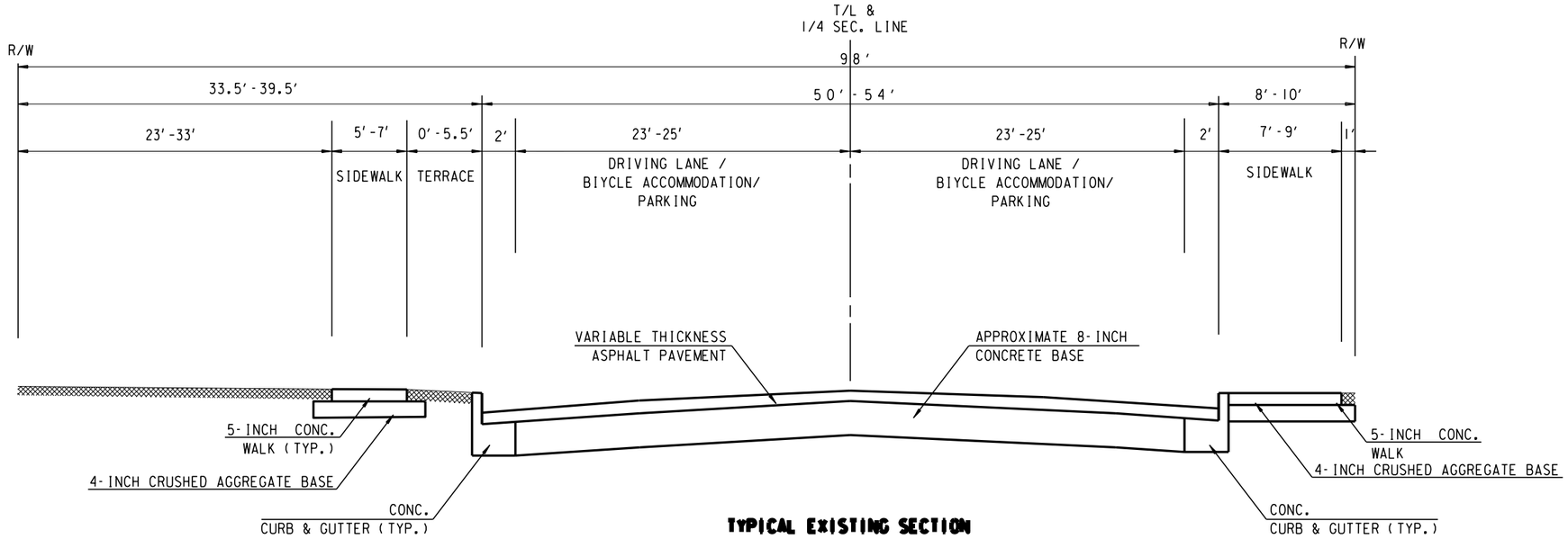
TYPICAL PROPOSED SECTION

WEST NORTH AVENUE - WEST APPROACH (LOOKING EAST)

STA. 69+53.6 TO STA. 71+26.13

STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL	COUNTY: MILWAUKEE	TYPICAL SECTION	SCALE FEET	SHEET NO: 4	E

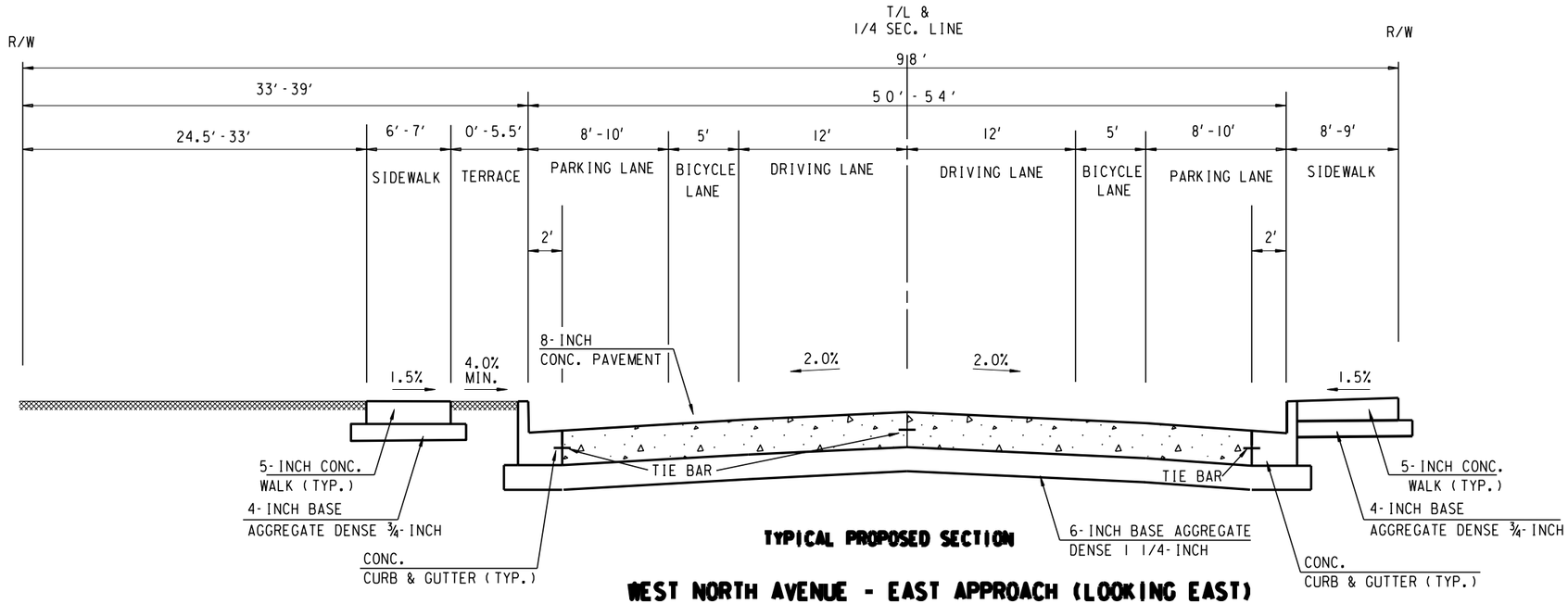
FILE NAME: W:\SPR\NORTH AVE BRIDGE\TYPSEC.DGN



TYPICAL EXISTING SECTION

WEST NORTH AVENUE - EAST APPROACH (LOOKING EAST)

STA. 71+85.13 TO STA. 72+98.5



NOTE: 12-INCH CONCRETE APPROACH SLAB OVER 6-INCH BASE AGGREGATE DENSE 1¼ INCH WILL BE PLACED FROM STA.72+6.52 TO STA. 72+25.0

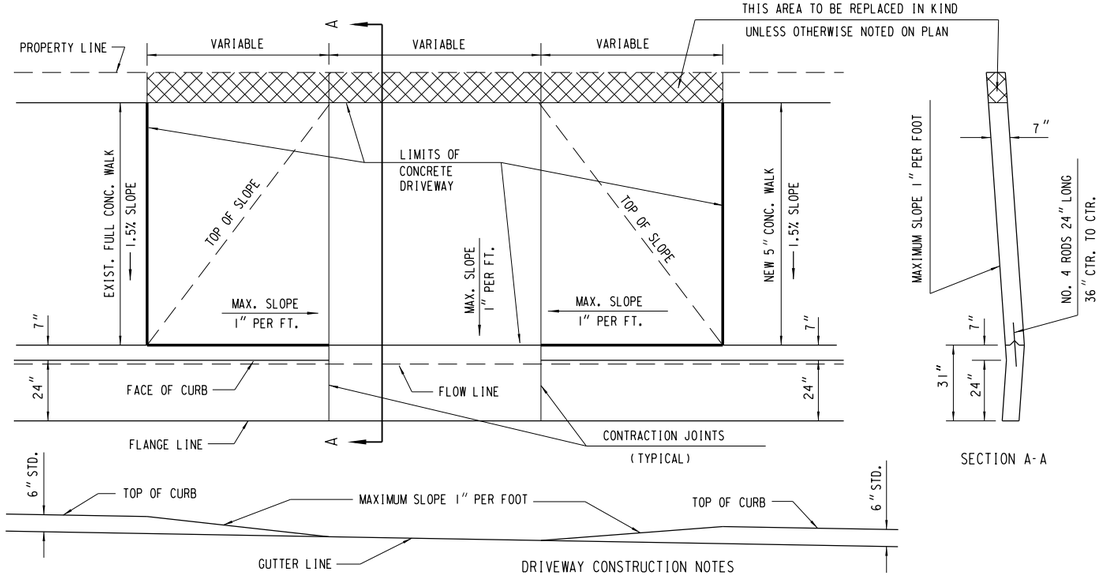
TYPICAL PROPOSED SECTION

WEST NORTH AVENUE - EAST APPROACH (LOOKING EAST)

STA. 71+85.13 TO STA. 72+98.5

STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL	COUNTY: MILWAUKEE	TYPICAL SECTION	SCALE FEET	SHEET NO: 5	E

FILE NAME: W:\SPR\NORTH AVE BRIDGE\TYPSEC.DGN

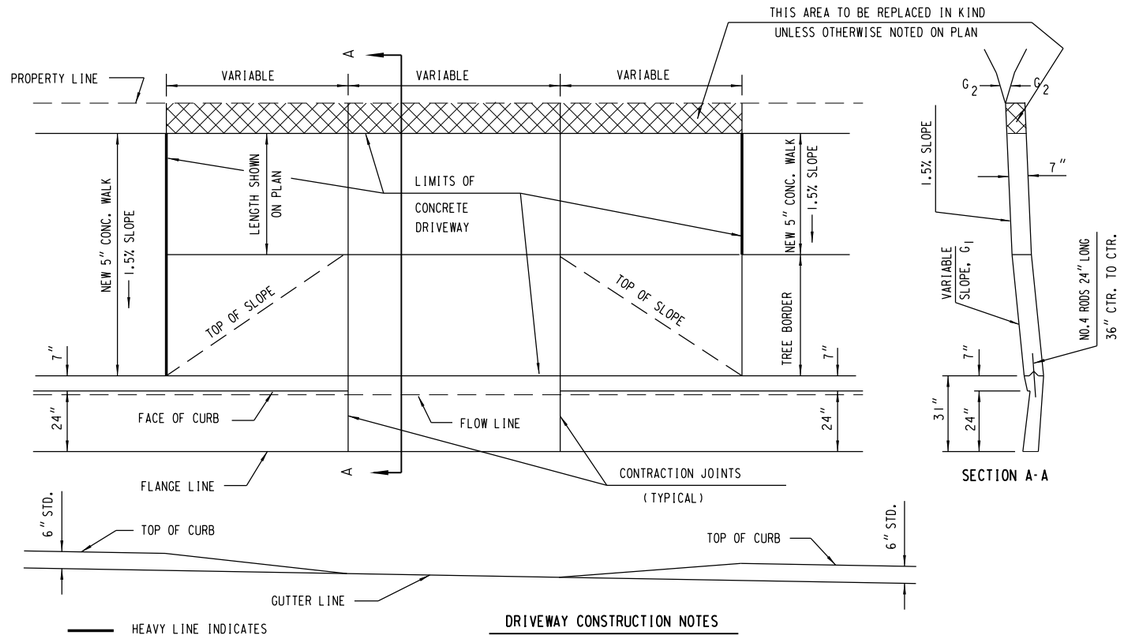


HEAVY LINE INDICATES 1/2" EXPANSION JOINT MATERIAL

CONSTRUCT DRIVEWAY TO PROPERTY LINE ONLY WHEN MATCHING EXISTING DRIVEWAY AND INSTALL 1/2" EXPANSION JOINT MATERIAL BETWEEN NEW AND OLD DRIVEWAY, PLACE DUMMY JOINT AT CENTER OF DRIVEWAY WHEN DRIVEWAY IS 14 FEET OR MORE IN WIDTH

DEPRESSED CONCRETE DRIVEWAY

(G)



HEAVY LINE INDICATES 1/2" EXPANSION JOINT MATERIAL

CONSTRUCT DRIVEWAY TO PROPERTY LINE ONLY WHEN MATCHING EXISTING DRIVEWAY AND INSTALL 1/2" EXPANSION JOINT MATERIAL BETWEEN NEW AND OLD DRIVEWAY, PLACE DUMMY JOINT AT CENTER OF DRIVEWAY AND AT ALL JOINTS IN THE GUTTER

MAXIMUM DIFFERENCE BETWEEN G_1 & G_2 NOT TO EXCEED 15%
DESIRABLE MAXIMUM = 10%

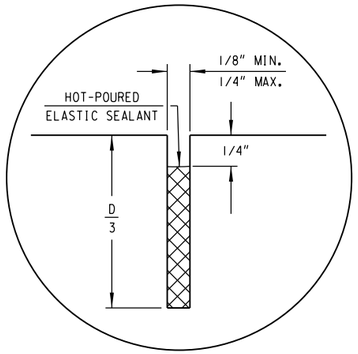
MAXIMUM DIFFERENCE BETWEEN G_1 & G_2 IN FILL = 14%

DEPRESSED CONCRETE DRIVEWAY (MODIFIED)

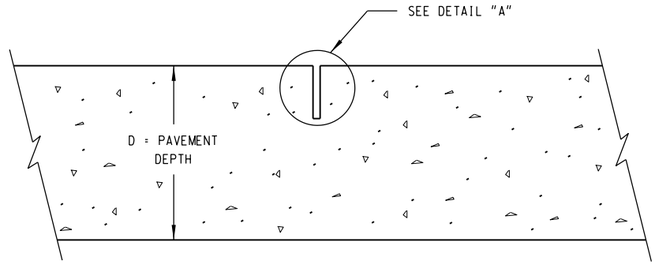
(ITEM 416.0170)

(H)

2



DETAIL "A"



CONTRACTION JOINT

CONTRACTION JOINT

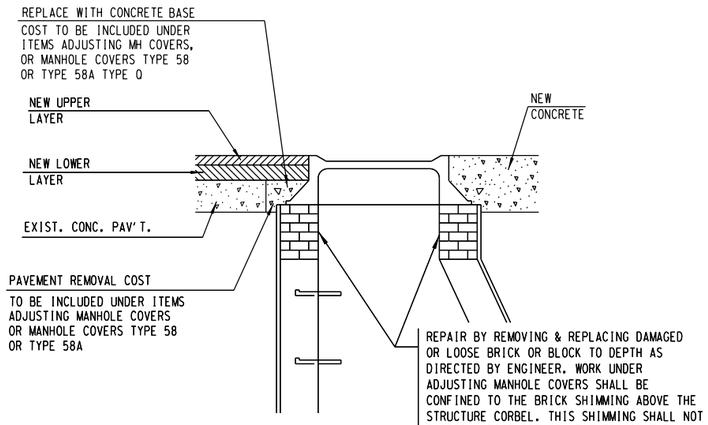
JOINT SEALING

(ITEM SPV.0180.01)

STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	CONSTRUCTION DETAILS	SCALE FEET	SHEET NO: 7	E

FILE NAME: W:\SPR\NORTH AVE BRIDGE \ CONDET.DGN

2



SALVAGING COVERS

(ITEM 611.9705)

CONSTRUCTION NOTES

1. LOCATIONS OF STRUCTURES IN CURB & GUTTER SECTIONS REFER TO FACE OF CURB.
2. LOCATIONS OF STRUCTURES NOT IN CURB AND GUTTER SECTIONS REFER TO CENTERLINE OF STRUCTURE.
3. PIPE LENGTHS GIVEN ARE APPROXIMATE OUT TO OUT OF STRUCTURE.
4. GRATE & RIM ELEVATIONS ARE GIVEN AT FLOW LINE OF INLET COVER OR AT CENTER-LINE OF MANHOLE COVER.
5. WHEN CONSTRUCTING CONCRETE CURB ADJACENT TO INLET COVER TYPE 57, TWO (2) DEFORMED TIE BARS SHALL BE PLACED LONGITUDINALLY THROUGH THE CURB SECTION AND EXTENDED ONE (1) FOOT BEYOND EACH SIDE OF THE FRAME. A DUMMY JOINT SHALL BE CUT IN THE CURB AT EACH SIDE OF THE FRAME.

2

N

#3100

WEST AVENUE

NORTH

CANADIAN PACIFIC RAILROAD CO.

CAUTION

R/W

CONC. DWY.

BRICKS

LAWN

ASPH

CONC

SAP

BEGIN PROJECT
STA. 69+53.6 T/L

END PROJECT
STA. 72+98.5 T/L

68 +50 69 +50 70 +50 71 +50 72 +50 73 +50 74

12" (ABANDONED)

TE&ES

SEC. LINE

ENT.

TEL

WAT

COMM

WEP

DIRT

PLANTINGS

CONC WALL

CONC BUMPERS

GRAVEL

#3105 #2247 N. 31ST ST.

#3117-19 #3113-15 #3109-11 #3041

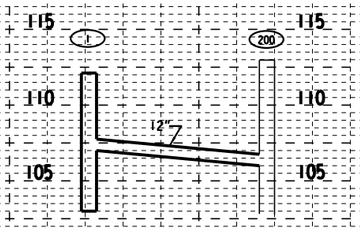
P.L.

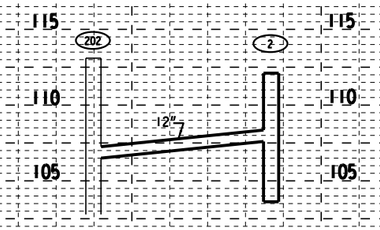
B.M. - N.W. BOLT ON HYD.
S.W. COR. OF W. NORTH AVE.
& N. 31ST ST.
69+36.7 - 38.7' RT.
ELEV. 115.58

N. 31ST ST.

N. 30TH ST.

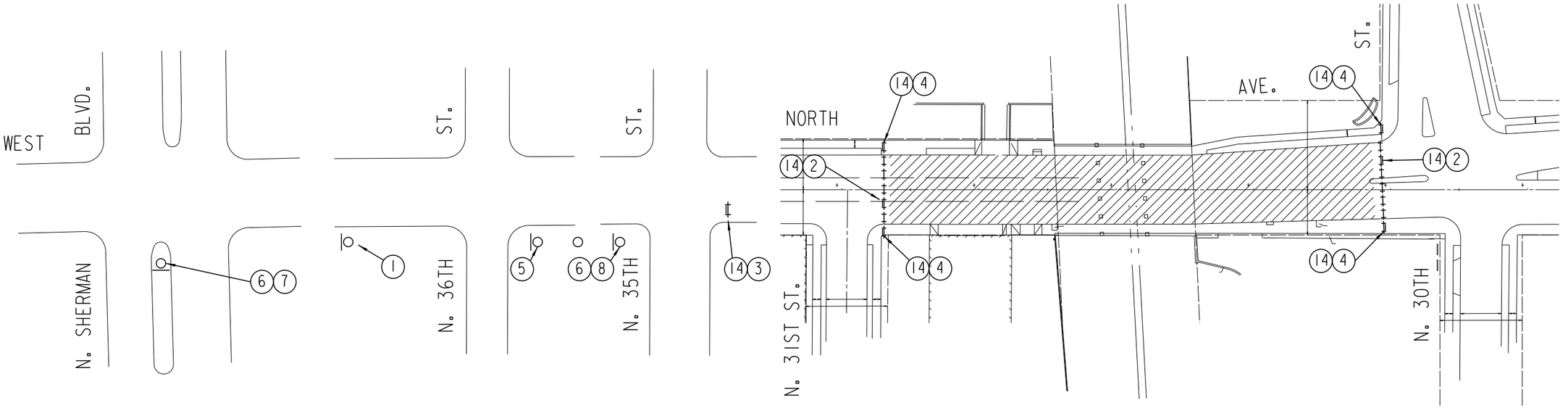
CANADIAN PACIFIC RAILROAD CO.

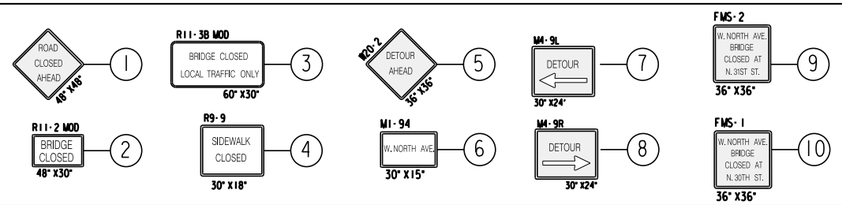




STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	UTILITIES AND DRAINAGE	SCALE FEET 0' 40'	SHEET NO: 9	E

FILE NAME: W:\SPR\NORTH AVE BRIDGE\UTIL 68_74.DGN





LEGEND

TYPE III BARRICADES — (14)

TYPE III BARRICADES W/ SIGN — (14)+(X)

SIGNS BANDED TO UTILITY POLE

WORK AREA

NOTE: ALL SIGNING SHALL BE THE CONTRACTORS RESPONSIBILITY. CONTRACTOR RESPONSIBLE FOR COVERING ALL CONFLICTING PAVEMENT MARKINGS.

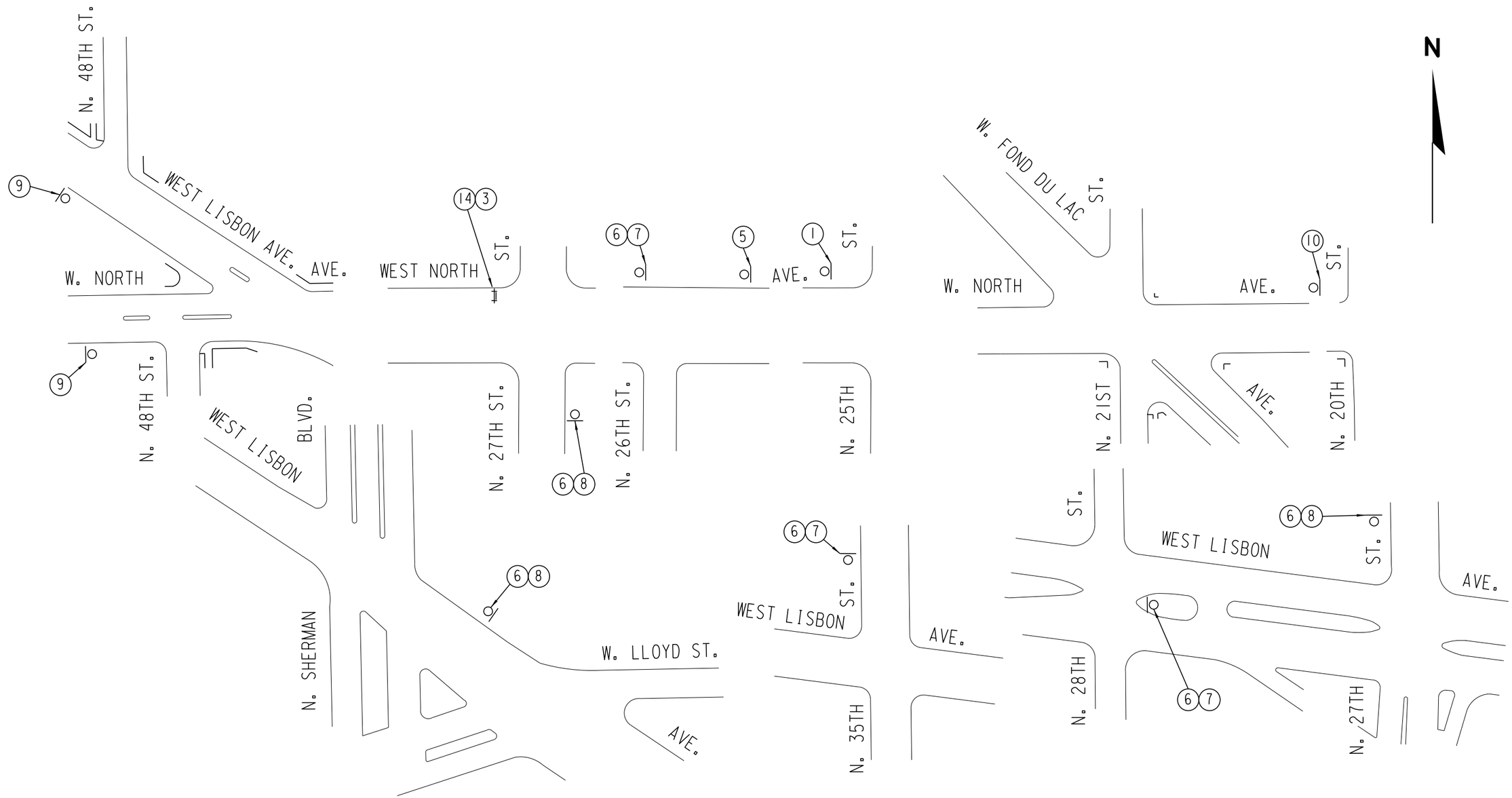
SHEET 1 OF 2

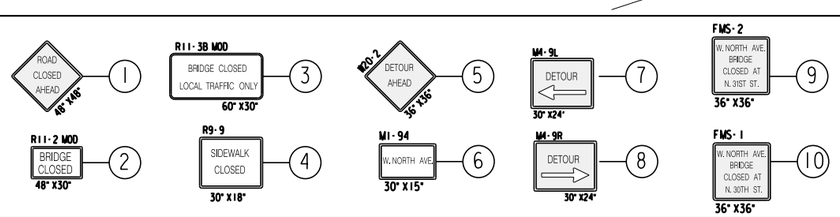
STATE PROJECT NUMBER 2135-03-70 - -	HWY:	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET 0' 80'	SHEET NO: 10	E

FILE NAME: DGNFILENAME

REVISED: 9-8-2014

2





LEGEND

TYPE III BARRICADES — (14)

TYPE III BARRICADES W/ SIGN — (14)+(X)

SIGNS BANDED TO UTILITY POLE

WORK AREA

NOTE: ALL SIGNING SHALL BE THE CONTRACTORS RESPONSIBILITY. CONTRACTOR RESPONSIBLE FOR COVERING ALL CONFLICTING PAVEMENT MARKINGS.

SHEET 2 OF 2

STATE PROJECT NUMBER 2135-03-70 - -	HWY:	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET N.T.S.	SHEET NO: 11	E

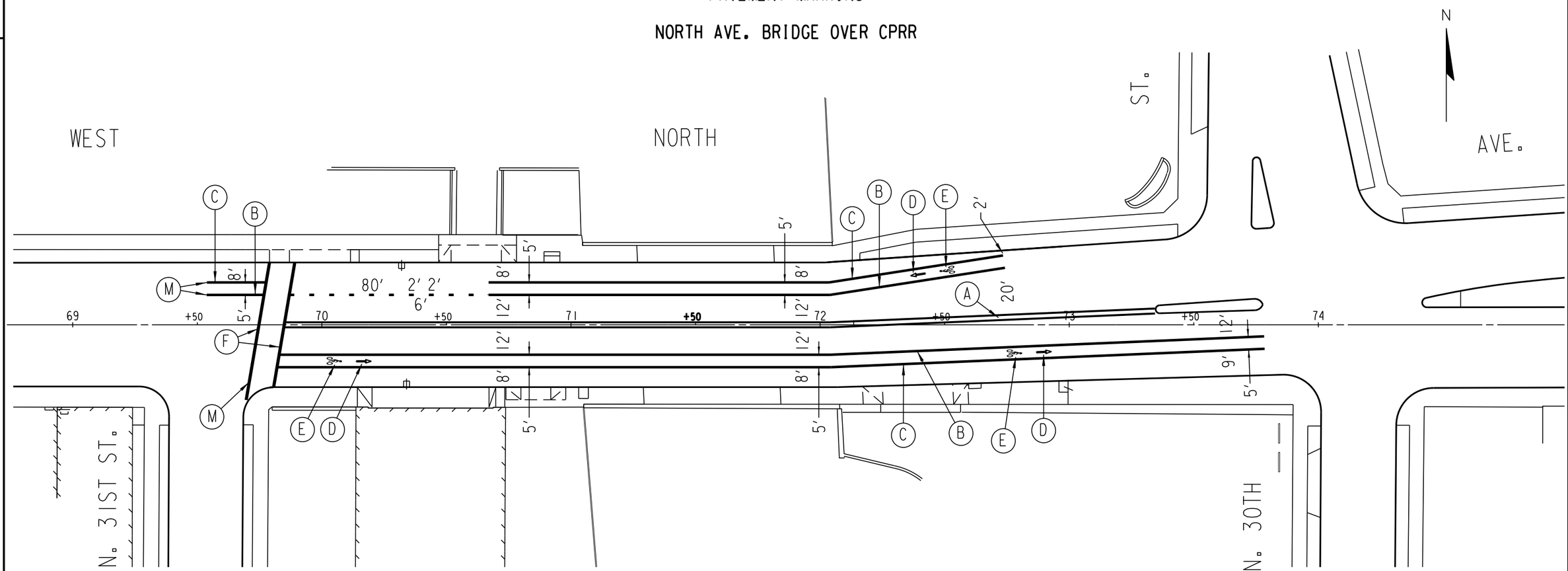
FILE NAME: DGNFILENAME

REVISED: 9-8-2014

2

PAVEMENT MARKING

NORTH AVE. BRIDGE OVER CPRR



PAVEMENT MARKING LEGEND

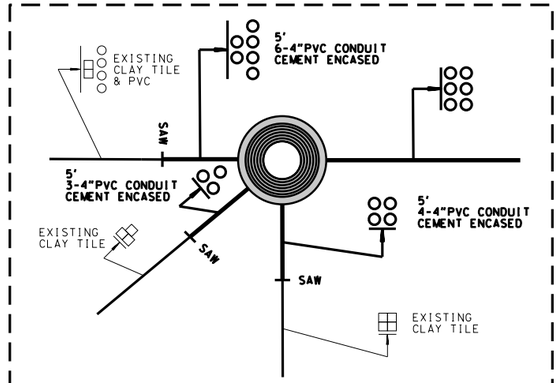
- (A) PAVEMENT MARKING, 4-INCH DOUBLE YELLOW
- (B) PAVEMENT MARKING, 6-INCH WHITE
- (C) PAVEMENT MARKING, 4-INCH WHITE
- (D) PAVEMENT MARKING ARROWS BIKE LANE
- (E) PAVEMENT MARKING SYMBOLS BIKE LANE
- (F) PAVEMENT MARKING CROSSWALK, 12-INCH WHITE
- (M) MATCH

STATE PROJECT NUMBER: 2135-03-70 - -	HWY:	COUNTY: MILWAUKEE	PAVEMENT MARKING	SCALE FEET 0 40	SHEET NO: 12	E

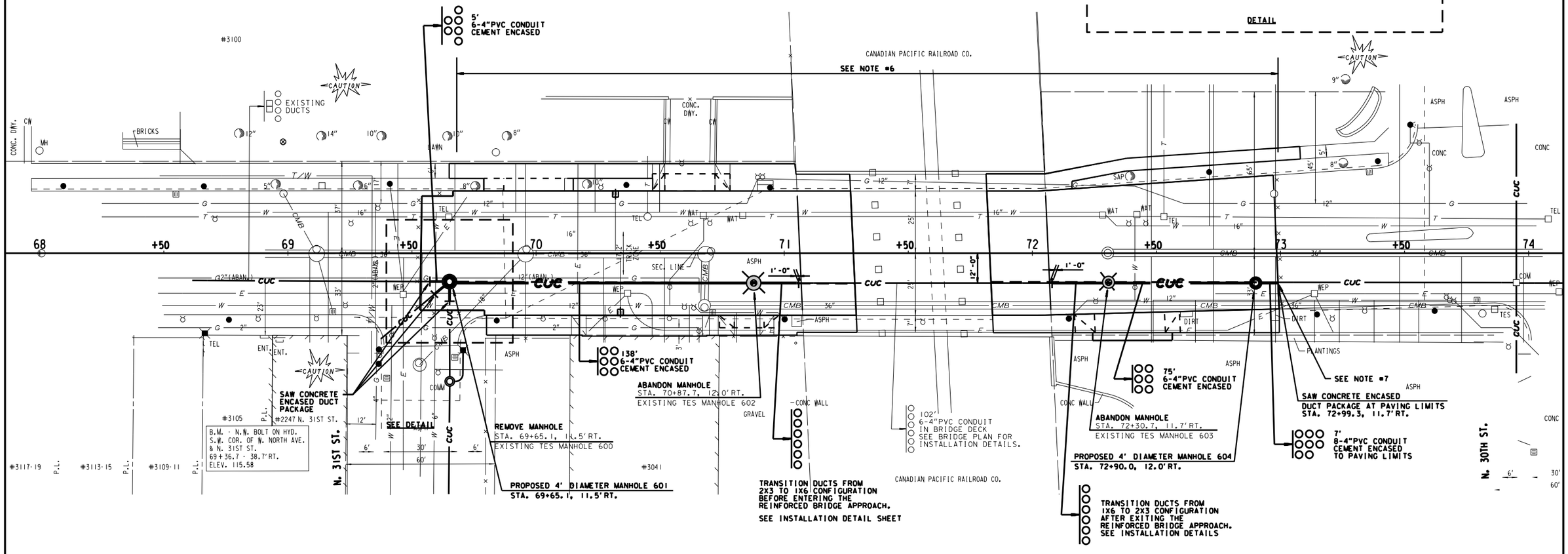
FILE NAME: DGNFILENAME

REVISED: 4-17-13

2



DETAIL



NOTES:

1) THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
2) THE LOCATION OF THE EXISTING AND PROPOSED UTILITY INSTALLATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
3) DIMENSIONS SHOWN ARE TO CENTER OF MANHOLE, DUCT PACKAGE OR UTILITY.
4) MAINTAIN A STANDARD DEPTH OF 39-INCHES BETWEEN FINISHED GRADE AND TOP OF CONDUIT.
5) SAW CUT EXISTING CONCRETE ENCASED CONDUIT, HAND CHIP TO EXPOSE PIPE ENDS, ATTACH 4" PVC PIPE TO THE EXISTING PIPE USING THE APPROPRIATE ADAPTORS AND EXTEND INTO PROPOSED MANHOLE.
6) REMOVE ABANDONED CONDUIT AS NEEDED FOR PROPOSED INSTALLATION.
7) ATTACH THE TOP 2-4" PVC CONDUIT TO THE EXISTING CLAY TILE CONDUIT USING THE APPROPRIATE SQUARE TO ROUND ADAPTOR. CAP THE ENDS OF THE REMAINING 6-4" PVC CONDUIT.

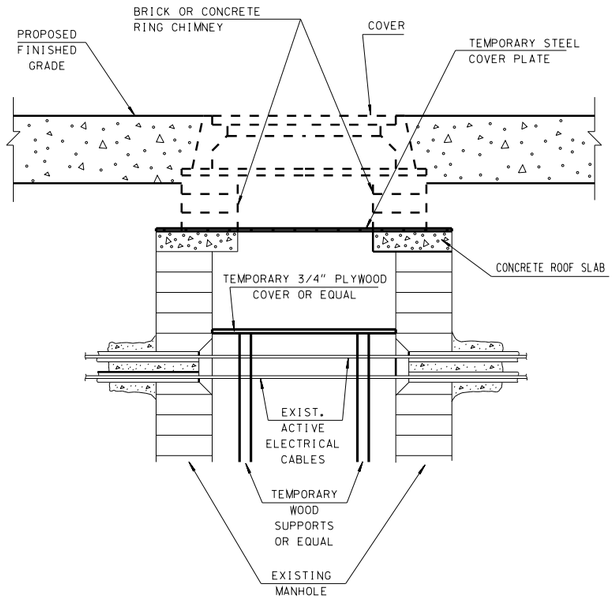
LEGEND

- CUC — PROPOSED 4-INCH CEMENT ENCASED NONMETALLIC CONDUIT, NUMBER OF RUNS AS NOTED.
- — — — CONDUIT TO BE ABANDONED
- PROPOSED TES MANHOLE

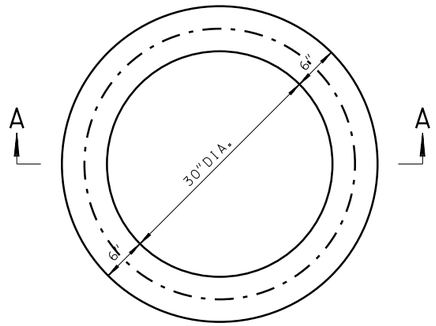
SHEET 1 OF 4

STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TES PLAN	SCALE FEET 0' 40'	SHEET NO: 13	E

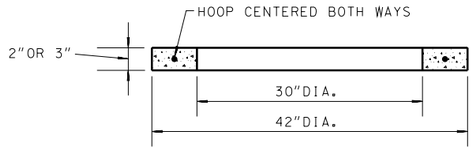
FILE NAME: W:\SPR\NORTH AVE BRIDGE 68 74.DGN



BLOCK OR PRECAST MANHOLE



PLAN



SECTION A-A

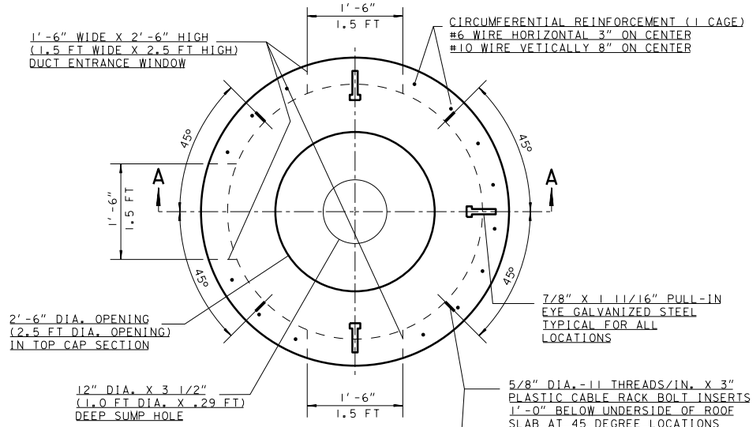
THE ADJUSTING RING SHALL BE 2" OR 3" IN HEIGHT.

THE CIRCUMFERENTIAL STEEL SHALL BE CENTERED WITHIN THE RING.

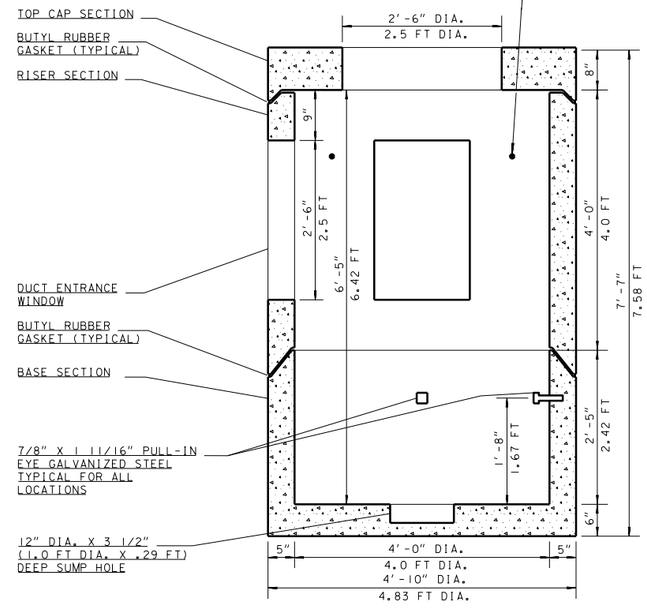
AREA OF CIRCUMFERENTIAL STEEL = 0.07 SQ. INCH PER VERTICAL FOOT WITH A MINIMUM OF .024 SQ. INCH IN ANY ONE RING.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE CORE SHALL BE 4000 P.S.I.

CONCRETE ADJUSTING RING



TOP VIEW



SECTION VIEW "A-A"

N.T.S.

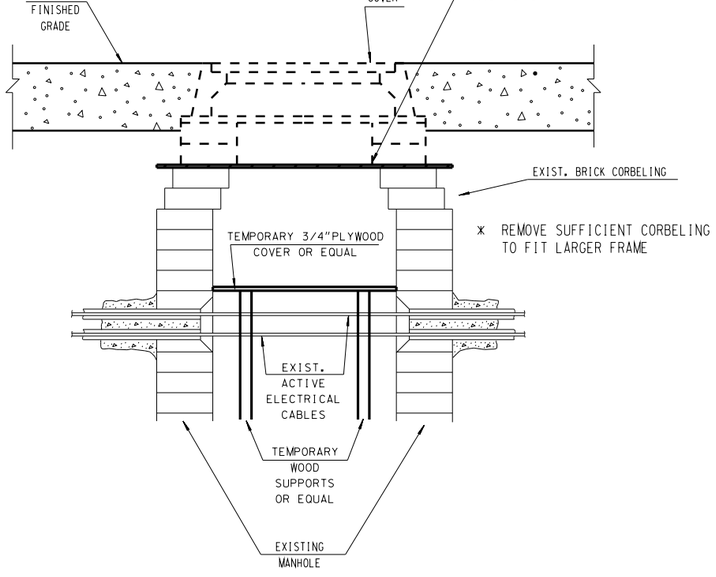
NOTES:
THE JOINTS MAY BE EITHER "BELL UP" OR "SPIGOT UP", THE NUMBER OF PULL-IN IRONS AND CABLE RACK BOLT INSERTS MAY VARY BY ORDER.

REINFORCING IN THE FLOOR & TOP CAP SECTION SHALL CONFORM TO ASTM SPECIFICATION C-478.

SIZE, LOCATION, SHAPE AND NUMBER OF KNOCK-OUT AREA AND THE SIZE, LOCATION, SHAPE AND NUMBER OF WINDOWS MAY VARY. (3 WINDOWS SHOWN). UNIT PRICE OF MANHOLE SHALL NOT VARY FOR NUMBER OF OPENINGS.

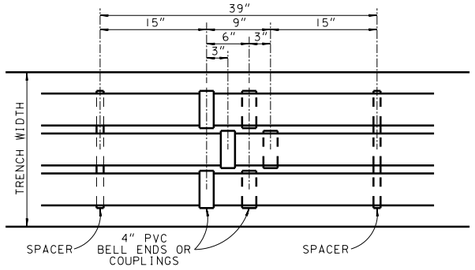
3 WINDOW OPENING
4' DIA. X 6'-5" HEADROOM
PRECAST CONCRETE MANHOLE

4' DIAMETER STANDARD MANHOLE

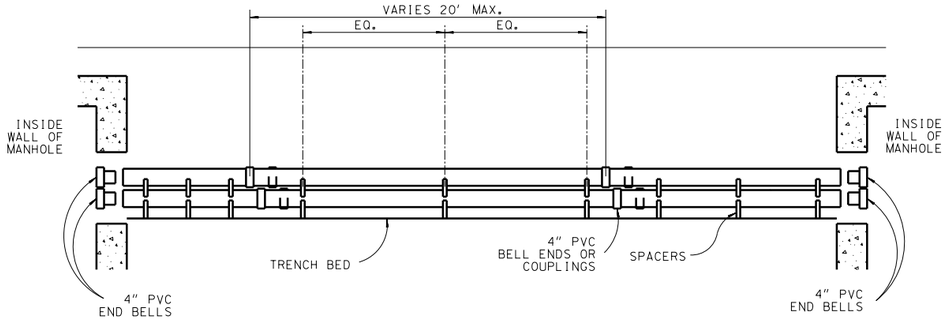


BRICK ROUND MANHOLE

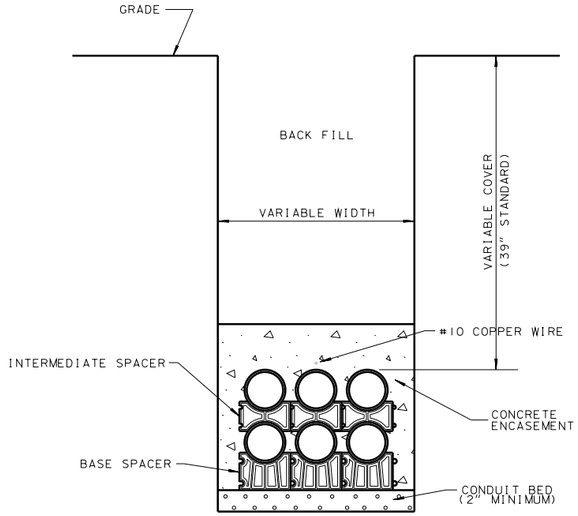
ADJUSTING TES MANHOLES

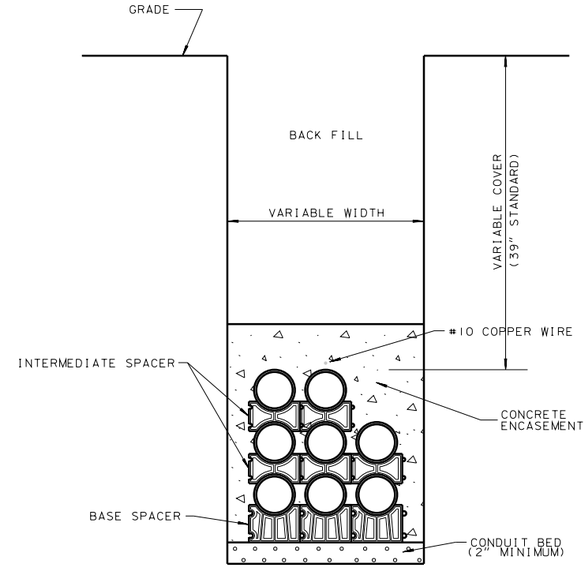


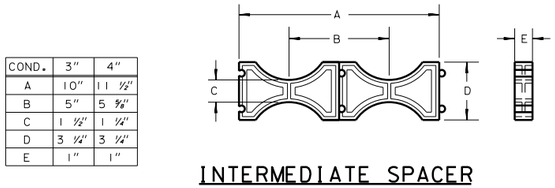
PLAN VIEW
N.T.S.



SECTION VIEW
N.T.S.

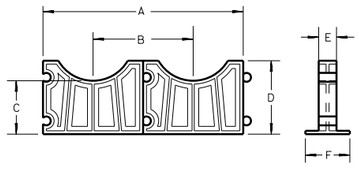






COND.	3"	4"
A	10"	11 ½"
B	5"	5 ⅝"
C	1 ½"	1 ½"
D	3 ¼"	3 ¼"
E	1"	1"

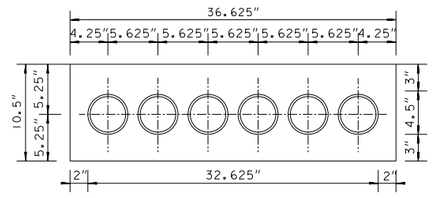
INTERMEDIATE SPACER

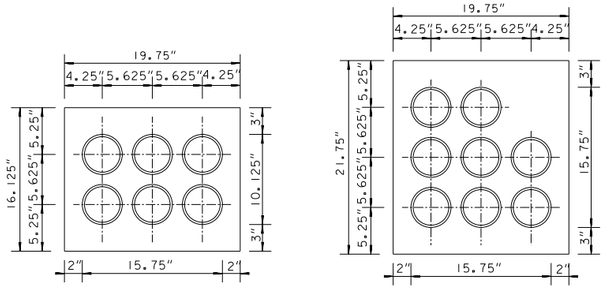


COND.	3"	4"
A	10"	11 ½"
B	5"	5 ⅝"
C	3"	3"
D	3 ⅞"	4 ⅛"
E	1"	1"
F	2 ½"	2 ½"

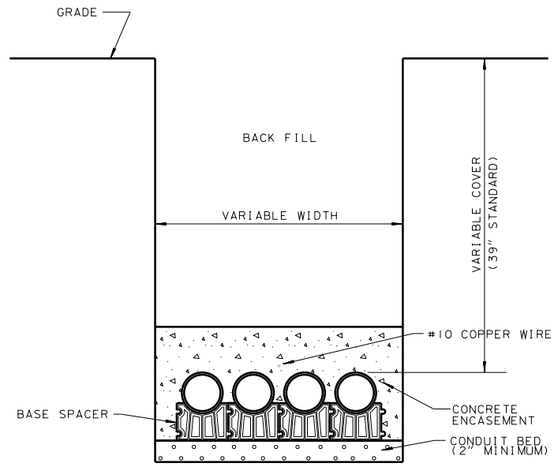
BASE SPACER

INTERMEDIATE AND BASE SPACER DETAIL





CONCRETE ENCASEMENT



TYPICAL CROSS-SECTION OF TRENCH & CONDUIT

SHEET 3 OF 4

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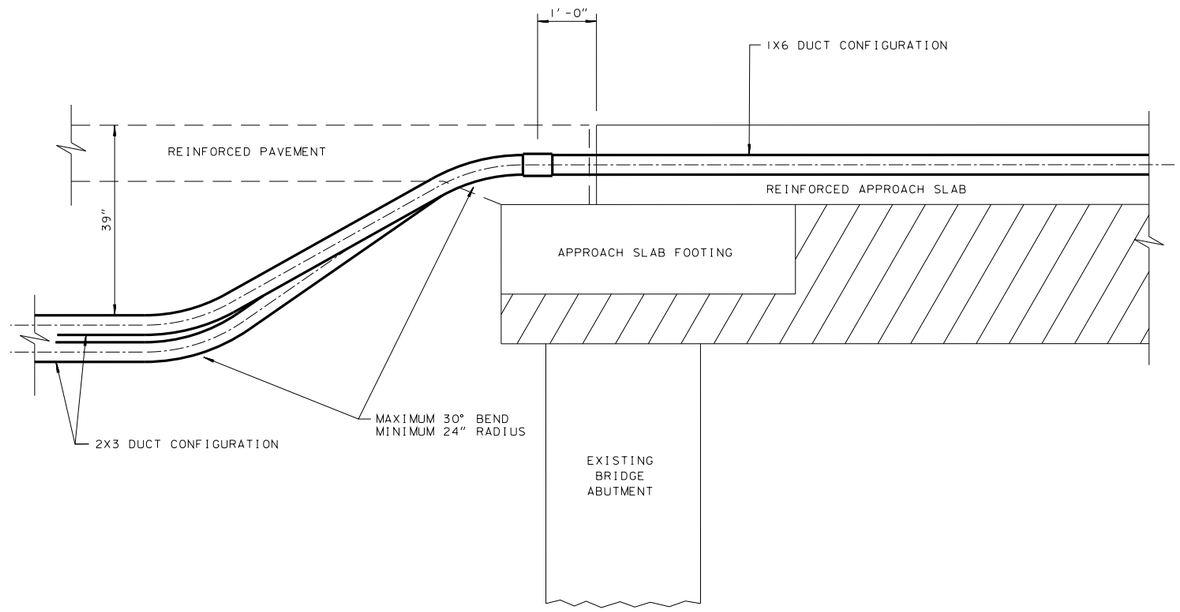

SHEET 4 OF 4

STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TES DETAILS	SCALE FEET 0' 40'	SHEET NO: 16	E

FILE NAME: W:\SPR\NORTH AVE BRIDGE 68 74.DGN

DATE 02MAR15 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	2135-03-70 QUANTITY
0010	201.0110	Clearing	SY	320.000	320.000
0020	201.0210	Grubbing	SY	320.000	320.000
0030	203.0200	Removing Old Structure (station) 01. 71+55.63	LS	1.000	1.000
0040	204.0100	Removing Pavement	SY	1,400.000	1,400.000
0050	204.0155	Removing Concrete Sidewalk	SY	380.000	380.000
0060	204.0200	Removing Railroad Track	LF	340.000	340.000
0070	204.0210	Removing Manholes	EACH	1.000	1.000
0080	204.0215	Removing Catch Basins	EACH	2.000	2.000
0090	204.0250	Abandoning Manholes	EACH	2.000	2.000
0100	204.0255	Abandoning Catch Basins	EACH	1.000	1.000
0110	205.0100	Excavation Common	CY	840.000	840.000
0120	205.0501.S	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	TON	788.000	788.000
0130	210.0100	Backfill Structure	CY	1,445.000	1,445.000
0140	213.0100	Finishing Roadway (project) 01. 2135-03-70	EACH	1.000	1.000
0150	305.0110	Base Aggregate Dense 3/4-Inch	TON	80.000	80.000
0160	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	833.000	833.000
0170	415.0080	Concrete Pavement 8-Inch	SY	1,010.000	1,010.000
0180	415.0410	Concrete Pavement Approach Slab	SY	260.000	260.000
0190	416.0170	Concrete Driveway 7-Inch	SY	90.000	90.000
0200	416.0610	Drilled Tie Bars	EACH	66.000	66.000
0210	455.0605	Tack Coat	GAL	1.000	1.000
0220	465.0105	Asphaltic Surface	TON	3.000	3.000
0230	502.0100	Concrete Masonry Bridges	CY	1,056.000	1,056.000
0240	502.3200	Protective Surface Treatment	SY	700.000	700.000
0250	502.5005	Masonry Anchors Type L No. 5 Bars	EACH	212.000	212.000
0260	504.0500	Concrete Masonry Retaining Walls	CY	11.000	11.000
0270	505.0405	Bar Steel Reinforcement HS Bridges	LB	37,337.000	37,337.000
0280	505.0605	Bar Steel Reinforcement HS Coated Bridges	LB	117,825.000	117,825.000
0290	505.0615	Bar Steel Reinforcement HS Coated Retaining Walls	LB	1,886.000	1,886.000
0300	509.1500	Concrete Surface Repair	SF	22.000	22.000
0310	511.1200	Temporary Shoring (structure) 01. B-40-760	SF	156.000	156.000
0320	516.0100	Dampproofing	SY	374.000	374.000
0330	516.0500	Rubberized Membrane Waterproofing	SY	52.000	52.000
0340	517.1010.S	Concrete Staining (structure) 01. B-40-760	SF	797.000	797.000
0350	517.1015.S	Concrete Staining Multi-Color (structure) 01. B-40-760	SF	545.000	545.000
0360	517.1050.S	Architectural Surface Treatment (structure) 01. B-40-760	SF	545.000	545.000
0370	550.0010	Pre-Boring Unconsolidated Materials	LF	365.000	365.000
0380	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	3,732.000	3,732.000
0390	601.0331	Concrete Curb & Gutter 31-Inch	LF	450.000	450.000
0400	602.0410	Concrete Sidewalk 5-Inch	SF	2,700.000	2,700.000
0410	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	8.000	8.000
0420	611.9705	Salvaged Manhole Covers	EACH	5.000	5.000
0430	612.0106	Pipe Underdrain 6-Inch	LF	132.000	132.000
0440	612.0206	Pipe Underdrain Unperforated 6-Inch	LF	102.000	102.000
0450	619.1000	Mobilization	EACH	1.000	1.000

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DATE 02MAR15 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	2135-03-70 QUANTITY
0460	623.0200	Dust Control Surface Treatment	SY	1,270.000	1,270.000
0470	625.0100	Topsoil	SY	150.000	150.000
0480	628.1504	Silt Fence	LF	200.000	200.000
0490	628.1520	Silt Fence Maintenance	LF	200.000	200.000
0500	629.0210	Fertilizer Type B	CWT	0.100	0.100
0510	630.0120	Seeding Mixture No. 20	LB	1.000	1.000
0520	631.1000	Sod Lawn	SY	100.000	100.000
0530	642.5201	Field Office Type C	EACH	1.000	1.000
0540	643.0100	Traffic Control (project) 01. 2135-03-70	EACH	1.000	1.000
0550	643.0420	Traffic Control Barricades Type III	DAY	2,976.000	2,976.000
0560	643.0705	Traffic Control Warning Lights Type A	DAY	5,952.000	5,952.000
0570	643.0900	Traffic Control Signs	DAY	5,766.000	5,766.000
0580	645.0111	Geotextile Fabric Type DF Schedule A	SY	232.000	232.000
0590	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,258.000	1,258.000
0600	646.0116	Pavement Marking Epoxy 6-Inch	LF	614.000	614.000
0610	647.0166	Pavement Marking Arrows Epoxy Type 2	EACH	3.000	3.000
0620	647.0306	Pavement Marking Symbols Bike Lane Epoxy	EACH	3.000	3.000
0630	647.0776	Pavement Marking Crosswalk Epoxy 12-Inch	LF	100.000	100.000
0640	650.4000	Construction Staking Storm Sewer	EACH	7.000	7.000
0650	650.4500	Construction Staking Subgrade	LF	200.000	200.000
0660	650.6500	Construction Staking Structure Layout (structure) 01. B-40-760	LS	1.000	1.000
0670	650.6500	Construction Staking Structure Layout (structure) 02. R-40-598	LS	1.000	1.000
0680	650.6500	Construction Staking Structure Layout (structure) 03. R-40-599	LS	1.000	1.000
0690	650.6500	Construction Staking Structure Layout (structure) 04. R-40-600	LS	1.000	1.000
0700	650.6500	Construction Staking Structure Layout (structure) 05. R-40-601	LS	1.000	1.000
0710	650.7000	Construction Staking Concrete Pavement	LF	200.000	200.000
0720	650.9910	Construction Staking Supplemental Control (project) 01. 2135-03-70	LS	1.000	1.000
0730	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	430.000	430.000
0740	652.0240	Conduit Rigid Nonmetallic Schedule 40 4-Inch	LF	622.000	622.000
0750	690.0150	Sawing Asphalt	LF	50.000	50.000
0760	690.0250	Sawing Concrete	LF	60.000	60.000
0770	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0780	715.0502	Incentive Strength Concrete Structures	DOL	10,560.000	10,560.000
0790	999.1000.S	Seismograph	LS	1.000	1.000
0800	999.1500.S	Crack and Damage Survey	LS	1.000	1.000
0810	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	900.000	900.000
0820	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	900.000	900.000
0830	SPV.0060	Special 01. Inlet Covers Type 57	EACH	2.000	2.000
0840	SPV.0060	Special 02. Inlet Type 44a	EACH	2.000	2.000
0850	SPV.0060	Special 03. Sawing Concrete Encased Duct Package	EACH	4.000	4.000
0860	SPV.0060	Special 04. 4' Diameter Manhole Type Tes	EACH	2.000	2.000
0870	SPV.0060	Special 05. Adjusting Water Box	EACH	7.000	7.000
0880	SPV.0060	Special 06. Adjusting Water Manhole Frame And Lid	EACH	2.000	2.000
0890	SPV.0060	Special 07. Water Main Protection	EACH	2.000	2.000
0900	SPV.0060	Special 08. Inlet Screen Type M	EACH	3.000	3.000

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DATE 02MAR15 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	2135-03-70 QUANTITY
0910	SPV.0060	Special 09. Inlet Screen Type R	EACH	3.000	3.000
0920	SPV.0060	Special 10. Adjusting Tes Manhole Covers	EACH	2.000	2.000
0930	SPV.0085	Special 01. Bar Steel Reinforcement Hs Stainless Bridges	LB	2,176.000	2,176.000
0940	SPV.0090	Special 01. Construction Staking Concrete Sidewalk	LF	360.000	360.000
0950	SPV.0090	Special 02. Storm Sewer Pipe Corrugated Pvc 12 Inch	LF	88.000	88.000
0960	SPV.0090	Special 03. 8-Duct Conduit Cement Encased 4 Inch Rigid Nonmetallic Conduit Db-60	LF	7.000	7.000
0970	SPV.0090	Special 04. 6-Duct Conduit Cement Encased 4 Inch Rigid Nonmetallic Conduit Db-60	LF	218.000	218.000
0980	SPV.0090	Special 05. 4-Duct Conduit Cement Encased 4 Inch Rigid Nonmetallic Conduit Db-60	LF	5.000	5.000
0990	SPV.0090	Special 06. 3-Duct Conduit Cement Encased 4 Inch Rigid Nonmetallic Conduit Db-60	LF	5.000	5.000
1000	SPV.0090	Special 07. Rehabilitation Of Chain Link Fence	LF	40.000	40.000
1010	SPV.0105	Special 01. Railing Steel Type C2 Galvanized B-40-760	LS	1.000	1.000
1020	SPV.0105	Special 02. Debris Containment Special Structrue P-40-810	LS	1.000	1.000
1030	SPV.0165	Special 01. Wall Concrete Panel Mechancially Stabilized Earth Lrfd/Qmp **P**	SF	2,174.000	2,174.000
1040	SPV.0180	Special 01. Joint Sealing	SY	1,270.000	1,270.000

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REMOVALS

ITEM NO. UNIT PAY CATEGORY LOCATION		CLEARING 201.0110 SY 0020	GRUBBING 201.0210 SY 0020	REMOVING PAVEMENT 204.0100 SY 0010	REMOVING CONCRETE SIDEWALK 204.0155 SY 0010	REMOVING RAILROAD TRACK 204.0200 LF 0010	SAWING ASPHALT 690.0150 LF 0010	SAWING CONCRETE 690.0250 LF 0010
STA 69+53.6 TO STA 72+98.5	LT	160	160	720	200	340	20	0
SUBTOTALS (LEFT)		**160**	**160**	**720**	**200**	**340**	**20**	**0**
STA 69+53.6 TO STA 72+98.5	RT	160	160	680	180	0	30	60
SUBTOTALS (RIGHT)		**160**	**160**	**680**	**180**	**0**	**30**	**60**
GRAND TOTALS		**320**	**320**	**1400**	**380**	**340**	**50**	**60**

CONCRETE CONSTRUCTION ITEMS

ITEM NO. UNIT PAY CATEGORY LOCATION		BASE AGGREGATE DENSE 3/4-INCH 305.0110 TON 0010	BASE AGGREGATE DENSE 1 ¼-INCH 305.0120 TON 0010	CONCRETE PAVEMENT 8-INCH 415.0080 SY 0010	NON-DOWELED CONCRETE PAVEMENT APPROACH SLAB 415.0410 SY 0010	CONCRETE DRIVEWAY 7-INCH 416.0170 SY 0010	DRILLED TIE BARS 416.0610 EACH 0010	CONCRETE CURB & GUTTER 31-INCH 601.0331 LF 0010	CONCRETE SIDEWALK 5-INCH 602.0410 SF 0010
STA 69+53.6 TO STA 72+98.5	LT	40	210	530	130	40	35	230	1530
SUBTOTALS (LEFT)		**40**	**210**	**530**	**130**	**40**	**35**	**230**	**1530**
STA 69+53.6 TO STA 72+98.5	RT	40	200	480	130	50	31	220	1170
SUBTOTALS (RIGHT)		**40**	**200**	**480**	**130**	**50**	**31**	**220**	**1170**
GRAND TOTALS		**80**	**410**	**1010**	**260**	**90**	**66**	**450**	**2700**

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EARTH WORK SUMMARY

From/To Station	Location	Excavation Common (1) (item # 205.0100)	Salvaged/Unusable Pavement Material (3)	Available Material (4)	Unexpanded fill	Expanded Fill (5)	Mass Ordinate +/- (6)	Waste	Borrow
		Cut (2)				1.20 Factor			
		CY	CY	CY	CY	CY	CY	CY	CY
STA 69+53.6 TO STA 72+98.5	WEST NORTH AVE	840	311	529	2.5	3	526	837	0

1) No EBS is anticipated, if EBS is required it will be paid as Excavation common, Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) Salvaged/Unusable Pavement Material
4) Available Material = Cut - Salvaged/Unusuable Pavement Material
5) Expanded Fill. Factor = 1.20
6) 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.

See Section 9 of Plan for Cut & Fill Quantities

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ASPHALT ITEMS

LOCATION		TACK COAT 455.0605 GAL 0010	ASPHALTIC SURFACE 465.0105 TON 0010	JOINT SEALING SPV.0180.01 SY 0030
STA 69+53.6 TO STA 72+98.5	LT	0	1	660
SUB TOTALS (LEFT)		**0**	**1**	**660**
STA 69+53.6 TO STA 72+98.5	RT	1	2	610
SUB TOTALS (RIGHT)		**1**	**2**	**610**
GRAND TOTALS		**1**	**3**	**1270**

MISCELLANEOUS

LOCATION		CURB RAMP DETECTABLE WARNING FIELD YELLOW 602.0505 SF 0010	DUST CONTROL SURFACE TREATMENT 623.0200 SY 0010
STA 69+53.6 TO STA 72+98.5	LT	8	660
SUBTOTALS (LEFT)		**8**	**660**
STA 69+53.6 TO STA 72+98.5	RT	0	610
SUBTOTALS (RIGHT)		**0**	**610**
GRAND TOTALS		**8**	**1270**

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MISCELLANEOUS LANDSCAPING ITEMS

LOCATION		TOPSOIL 625.0100 SY 0010	TOPSOIL 625.0100 SY 0020	SILT FENCE 628.1504 LF 0020	SILT FENCE MAINTENANCE 628.1520 LF 0020	FERTILIZER TYPE B 629.0210 CWT 0010	SEEDING MIXTURE NO. 20 630.0120 LB 0020	SOD LAWN 631.1000 SY 0010
STA 69+53.6 TO STA 72+98.5	LT	100	0	100	100	0.05	0.5	100
SUBTOTALS (LEFT)		**100**	**0**	**100**	**100**	**0.05**	**0.5**	**100**
STA 69+53.6 TO STA 72+98.5	RT	0	50	100	100	0.05	0.5	0
SUBTOTALS (RIGHT)		**0**	**50**	**100**	**100**	**0.05**	**0.5**	**0**
GRAND TOTALS		**100**	**50**	**200**	**200**	**0.1**	**1**	**100**

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CONSTRUCTION STAKING ROADWAY ITEMS

LOCATION		CONSTRUCTION STAKING STORM SEWER	CONSTRUCTION STAKING SUBGRADE	CONSTRUCTION STAKING CONCRETE PAVEMENT	CONSTRUCTION STAKING CONCRETE SIDEWALK
ITEM NO		650.4000	650.4500	650.7000	SPV.0090.01
UNIT PAY		EA	LF	LF	LF
CATEGORY		0010	0010	0010	0010
STA 69+53.6 TO STA 72+98.5	LT	3	100	100	190
SUBTOTALS (LEFT)		**3**	**100**	**100**	**190**
STA 69+53.6 TO STA 72+98.5	RT	2	100	100	170
SUBTOTALS (RIGHT)		**2**	**100**	**100**	**170**
GRAND TOTALS		**5**	**200**	**200**	**360**

WATER ITEMS

LOCATION		ADJUSTING WATER BOX	ADJUSTING WATER MH FRAME & LID	WATER MAIN PROTECTION	INLET SCREEN TYPE M	INLET SCREEN TYPE R
ITEM NO.		SPV.0060.05	SPV.0060.06	SPV.0060.07	SPV.0060.08	SPV.0060.09
UNIT PAY		EA	EA	EA	EA	EA
CATEGORY		0030	0030	0010	0010	0010
STA 69+53.6 TO STA 72+98.5	LT	2	2	2	1	1
SUBTOTALS (LEFT)		**2**	**2**	**2**	**1**	**1**
STA 69+53.6 TO STA 72+98.5	RT	5	0	0	2	2
SUBTOTALS (RIGHT)		**5**	**0**	**0**	**2**	**2**
GRAND TOTALS		**7**	**2**	**2**	**3**	**3**

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CITY UNDERGROUND CONDUIT

LOCATION	CATEGORY 0030									
	REMOVE MANHOLE	ABANDON MANHOLES	CONSTRUCTION STAKING STORM SEWER	SAWING CONCRETE ENCASED DUCT PACKAGE	4' DIAMETER MANHOLE TYPE TES	ADJUSTING TES MANHOLE COVERS	8-DUCT CONDUIT CEMENT ENCASED 4 INCH RIGID NONMETALLIC CONDUIT DB-60	6-DUCT CONDUIT CEMENT ENCASED 4 INCH RIGID NONMETALLIC CONDUIT DB-60	4-DUCT CONDUIT CEMENT ENCASED 4 INCH RIGID NONMETALLIC CONDUIT DB-60	3-DUCT CONDUIT CEMENT ENCASED 4 INCH RIGID NONMETALLIC CONDUIT DB-60
	204.0210	204.0250	650.4000	SPV.0060.03	SPV.0060.04	SPV.0060.10	SPV0090.03	SPV0090.04	SPV0090.05	SPV0090.06
	EACH	EACH	EACH	EACH	EACH	EACH	LF	LF	LF	LF
STA 69 + 57.6, 11.5 RT				1						
STA 69 + 57.6, 11.5 RT to MANHOLE 601								5		
STA 69 + 59.1, 16.5 RT				1						
STA 69 + 59.1, 16.5 RT to MANHOLE 601										5
MANHOLE 600 - STA 69 + 65.1, 11.5 RT	1									
MANHOLE 601 - STA 69 + 65.1, 11.5 RT			2		1	1				
STA 69 + 65.1, 19.0 RT				1						
STA 69 + 65.1, 19.0 RT to MANHOLE 601									5	
MANHOLE 601 to STA 71 + 05.8, 12.0 RT								138		
MANHOLE 602 - STA 70 + 87.7, 12.0 RT		1								
STA 72 + 07.9, 19.0 RT to MANHOLE 604								75		
MANHOLE 603 - STA 72 + 30.7, 11.7 RT		1								
MANHOLE 604 - STA 79 + 90.0, 12.0 RT			2		1	1				
MANHOLE 604 to STA 72 + 99.3, 11.7 RT							7			
STA 72 + 99.3, 11.7 RT				1						
TOTAL	**1**	**2**	**4**	**4**	**2**	**2**	**7**	**218**	**5**	**5**

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Estimate of Traffic Control Items Required (0010 Participating)

Items		Stage 1 (Each) * (Days)	Total
(1)643.0420	Traffic Control, Barricades, Type III	16 * 2,976	**2,976**
643.0705	Traffic Control, Warning Lights, Type "A" (Flashing)	32 * 5,952	**5,952**
643.0900	Traffic Control, Signs	31 * 5,766	**5,766**
643.0100	Traffic Control (Project) [Lump Sum]		**1**

(1) All Type III Barricades have 2 flashing yellow lights

Items	Stage 1
W020-1	2
R11-2	2
R11-38	2
R9-9	4
W020-2	2
M1-94	8
M4-9L	4
M4-9R	4
FMS-2	2
FMS-1	1
Total	**31**

3

2135-03-70

PAVEMENT MARKING QUANTITIES (CATEGORY 0010 - PARTICIPATING)

GROUP CODE	ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY
0010	646.0106	Pavement Marking Epoxy 4-Inch	LF	1258
0010	646.0116	Pavement Marking Epoxy 6-Inch	LF	614
0010	647.0206	Pavement Marking Arrows Bike Lane Epoxy	EACH	3
0010	647.0306	Pavement Marking Symbols Bike Lane Epoxy	EACH	3
0010	647.0776	Pavement Marking Crosswalk Epoxy 12-Inch	LF	100

New Structures													
DRAINAGE								PVC PIPE, STORM SEWER					
GROUP CODE	No.	LOCATION		COVER ELEV.	STRUCT.	FRAME & LID	DEPTH (FT)	CONNECTION STRUCTURE		SIZE (IN)	LENGTH (FT)	INVERT ELEV.	
		STATION	OFFSET					FROM	TO			INLET	OUTLET
0010	1	70+32	25' Left	112.14	44A	57	9.12	1	200	12	43	107	106
0010	2	70+34	25' Right	112.11	44A	57	8.49	2	202	12	45	107.6	106.5

2 Type 57 Covers (SPV.0060.01) (0010 - Participating)

2 Type 44A Inlets (SPV.0060.02) (0010 - Participating)

88 LF STORM SEWER PIPE CORRUGATED PVC 12" (SPV.0090.02) (0010 - PARTICIPATING)

ABANDONING DRAINAGE STRUCTURES				
GROUP CODE	NO.	LOCATION		REMARKS
		STATION	OFFSET	
0010	102	70+71	25' Right	Abandon CB

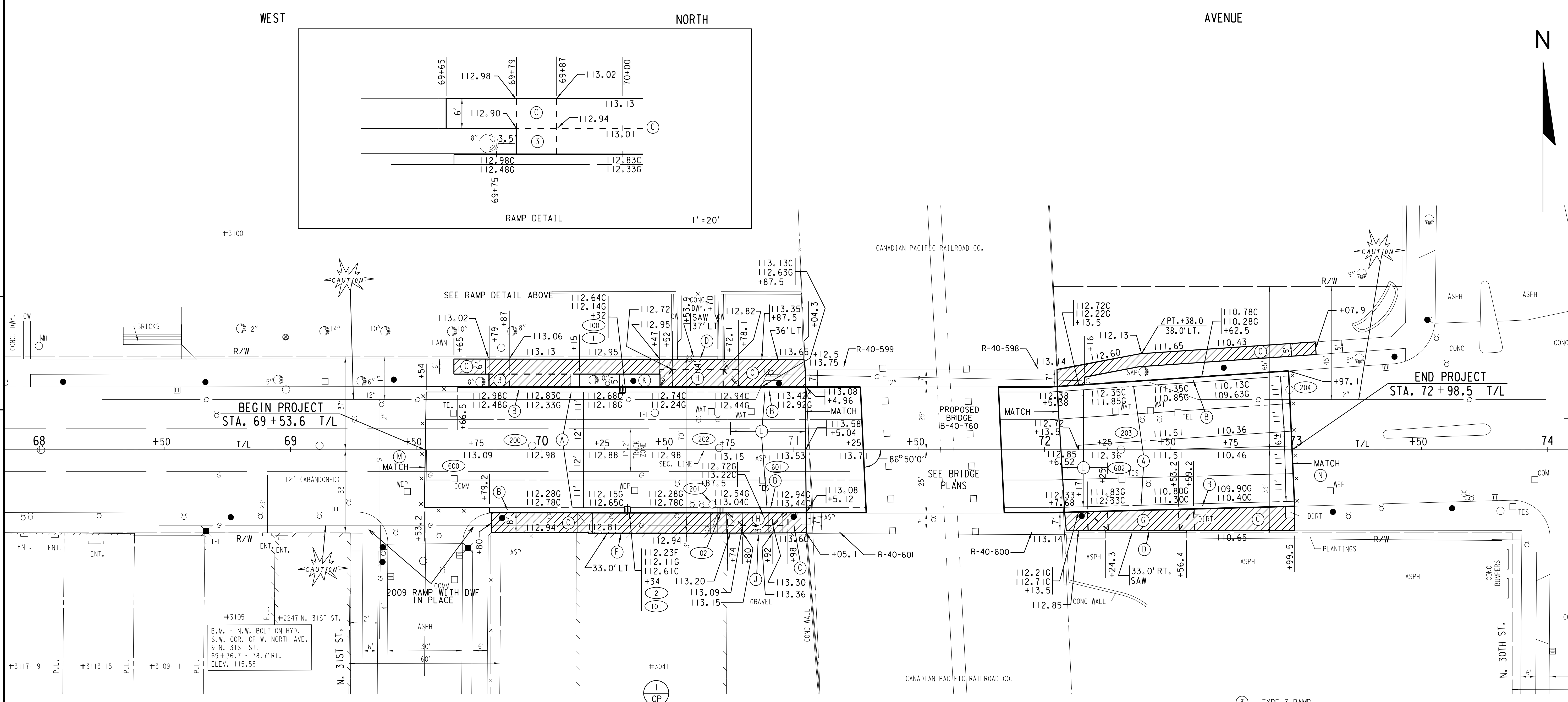
1 ABANDONING CATCH BASINS (204.0255) (0010 - Participating)

Remove Drainage Structures				
DRAINAGE				REMARKS
GROUP CODE	NO.	LOCATION		
		STATION	OFFSET	
0010	100	70+32	25' Left	CB
0010	101	70+34	25' Right	CB

2 REMOVING CATCH BASINS (204.0215) (0010-PARTICIPATING)

SALVAGED MANHOLE COVERS				
GROUP CODE	No	Location		PROPOSED ELEVATION
		STATION	OFFSET	
0010	200	69+96	1' Left	112.97
0010	201	70+68	21' Right	112.59
0010	202	70+70.5	0.5' Left	113.1
0010	203	72+30.5	0'	112.17
0010	204	72+98	19' Left	108.84

5 SALVAGED MANHOLE COVERS (611.9705) (0010 - Participating)

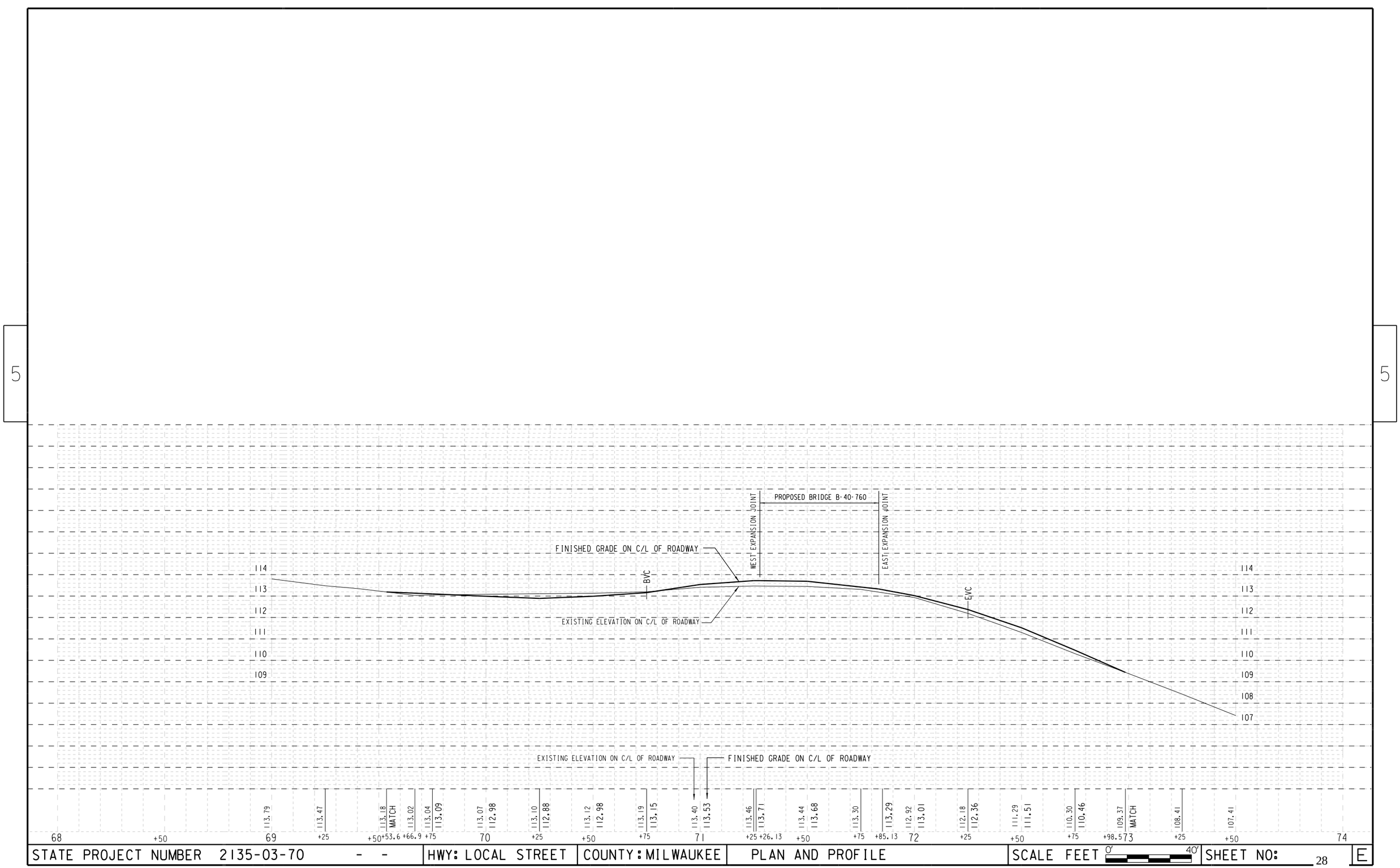


WEST
NORTH
AVENUE
N
RAMP DETAIL
1' = 20'
69+65
69+79
69+87
70+00
69+75
112.98
113.02
113.13
112.90
112.94
113.01
112.98C
112.48G
112.83C
112.33G
SEE RAMP DETAIL ABOVE
BEGIN PROJECT
STA. 69 + 53.6 T/L
END PROJECT
STA. 72 + 98.5 T/L
CAUTION
CANADIAN PACIFIC RAILROAD CO.
PROPOSED BRIDGE B-40-760
SEE BRIDGE PLANS
R-40-599
R-40-598
R-40-600
R-40-601
MATCH
R/W
T/L
68
69
70
71
72
73
74
86°50'0"
2009 RAMP WITH DWF IN PLACE
N. 31ST ST.
N. 30TH ST.
B.M. - N.W. BOLT ON HYD. S.W. COR. OF W. NORTH AVE. & N. 31ST ST. 69 + 36.7 - 38.7'RT. ELEV. 115.58
#3100
#3105
#2247 N. 31ST ST.
#3041
#3117-19
#3113-15
#3109-11
CONC WALL
12" (ABANDONED)
33.0' LT
33.0' RT. SAW
1 CP

(3) TYPE 3 RAMP
(A) CONST. 8-INCH CONC. PAVEMENT
(B) CONST. 31-INCH REINFORCED CONC. CURB & GUTTER
(C) CONST. 5-INCH CONC. SIDEWALK
(D) CONST. 3-INCH ASPH ON V.T. CONCRETE BASE
(F) SAW FULL DEPTH AT BUILDING
(G) CONST. CONC. DRIVEWAY DEPRESSED (7-INCH)
(H) CONST. CONC. DRIVEWAY DEPRESSED - MODIFIED (7-INCH)
(J) CONST. V.T. CRUSHED STONE DRIVEWAY
(K) GRADE & PLACE 4" TOPSOIL & SOD
(L) CONST. CONCRETE APPROACH SLAB
(M) SAWING ASPHALT
(N) SAWING CONCRETE

STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PLAN AND PROFILE	SCALE FEET 0' 40'	SHEET NO: 27	E

FILE NAME: W:\SPR\NORTH AVE BRIDGE 68 74.DGN

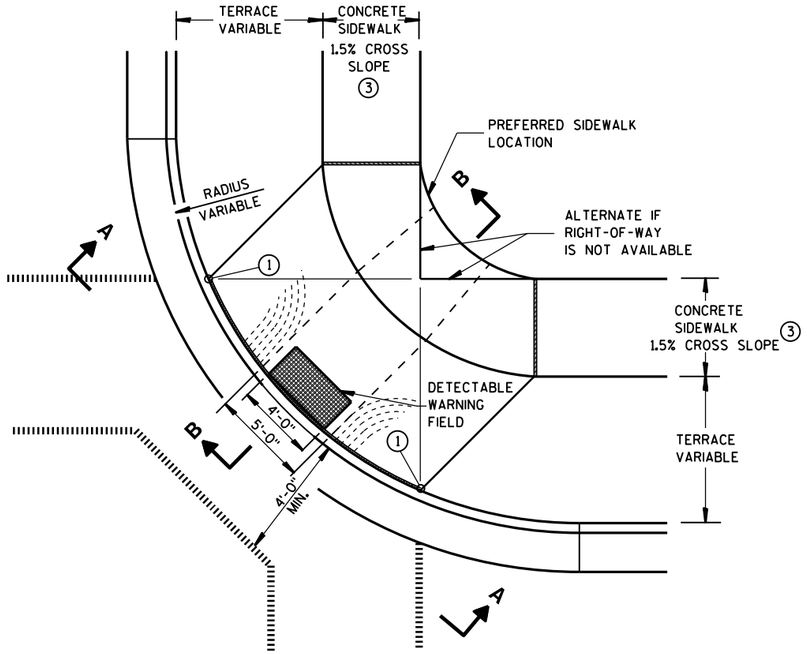


STATE PROJECT NUMBER 2135-03-70 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PLAN AND PROFILE	SCALE FEET 0' 40'	SHEET NO: 28	E

FILE NAME: W:\SPR\NORTH AVE BRIDGE\ 68-74.DGN

Standard Detail Drawing List

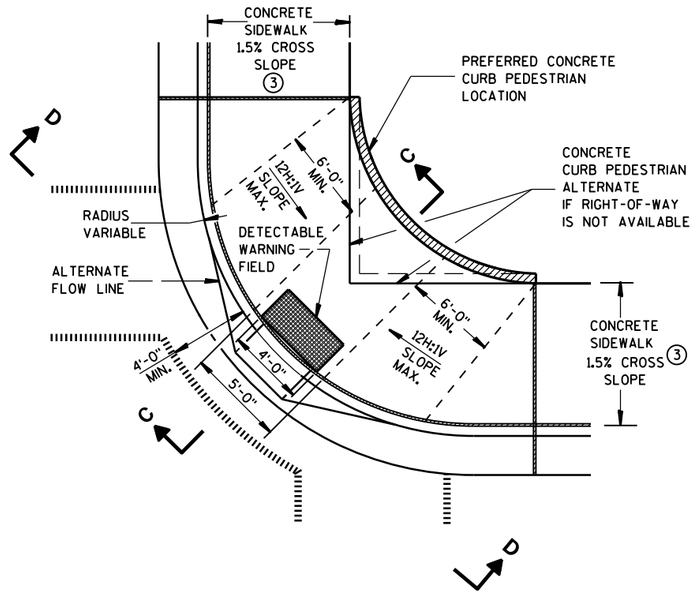
08D05-15A	CURB RAMPS TYPES 1 AND 1-A
08D05-15B	CURB RAMPS TYPES 2 AND 3
08D05-15C	CURB RAMPS TYPES 4A AND 4A1
08D05-15D	CURB RAMPS TYPE 4B AND 4B1
08D05-15E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D16-10	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E09-06	SILT FENCE
09B02-08	CONDUIT UNDER PAVED HIGHWAYS
12A03-10	NAME PLATE (STRUCTURES)
13B02-07A	CONCRETE BRIDGE APPROACH
13B02-07B	STRUCTURAL APPROACH SLAB AND CONCRETE BRIDGE APPROACH
13C01-16	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C04-16	URBAN NON-DOWELED CONCRETE PAVEMENT
13C18-02A	CONCRETE PAVEMENT JOINTING
13C18-02B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-02C	CONCRETE PAVEMENT JOINT TIES
13C18-02D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
14A01-03	TREE PRESERVATION DETAILS
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C03-02	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C07-12C	PAVEMENT MARKING ARROWS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C29-03A	BICYCLE LANE MARKING
15C29-03B	BICYCLE LANE MARKING
15C29-03C	URBAN BICYCLE LANE MARKING
15C29-03D	URBAN BICYCLE LANE MARKING
15C29-03E	PAVEMENT MARKING FOR BIKE LANES
15C29-03F	PAVEMENT MARKING FOR SHARED LANE 35 MPH OR LESS



PLAN VIEW

TYPE 1 RAMP

(CENTER OF CORNER RADIUS)



PLAN VIEW

TYPE 1-A RAMP

(NO TERRACE)

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.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

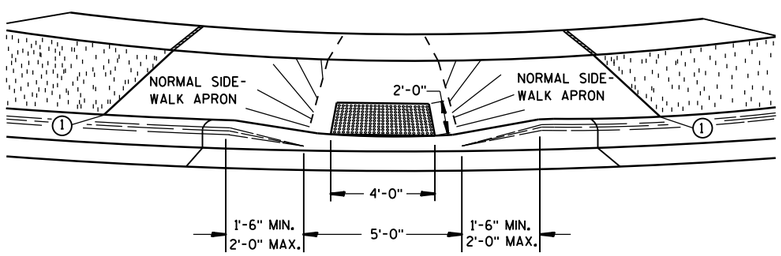
① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

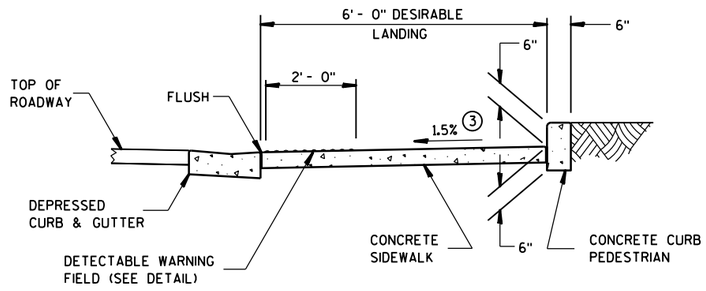
③ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

LEGEND

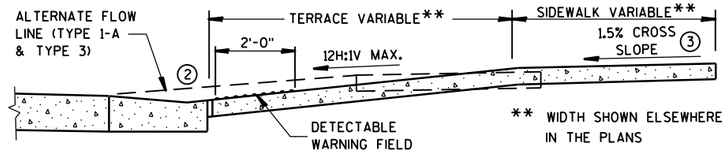
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



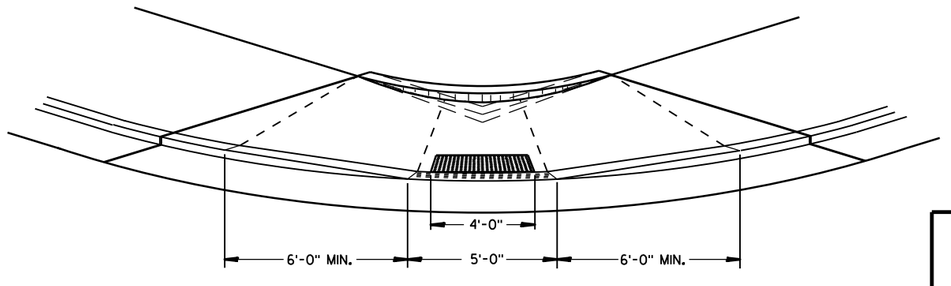
VIEW A-A



SECTION C-C



SECTION B-B



VIEW D-D

CURB RAMPS TYPES 1 AND 1-A

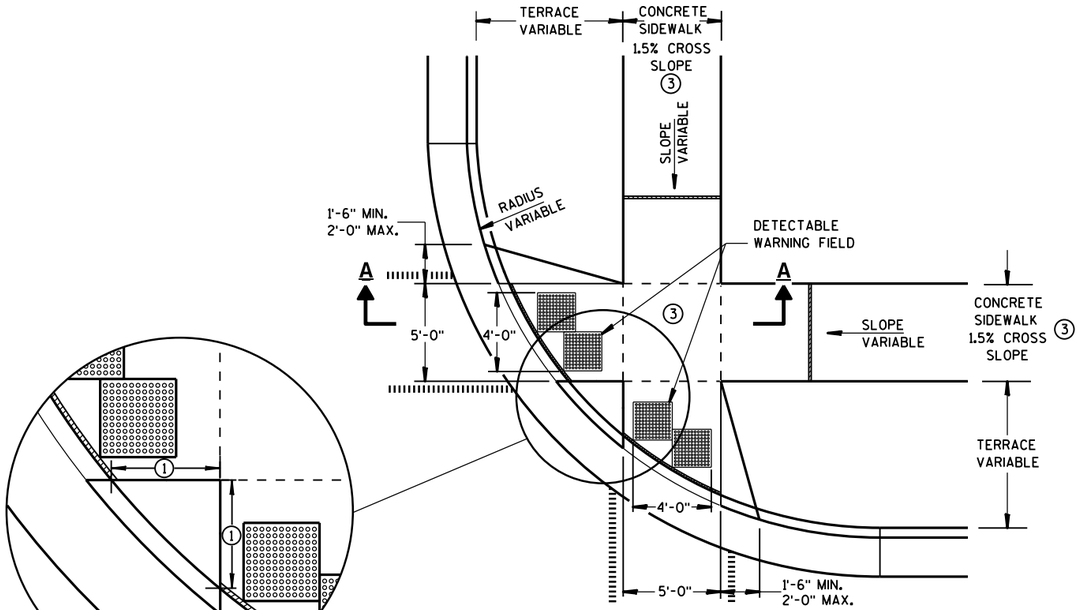
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 8 D 5-15a

6

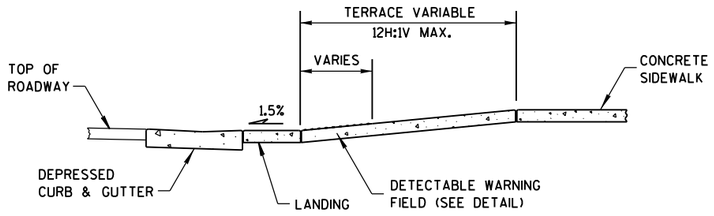
S.D.D. 8 D 5-15a



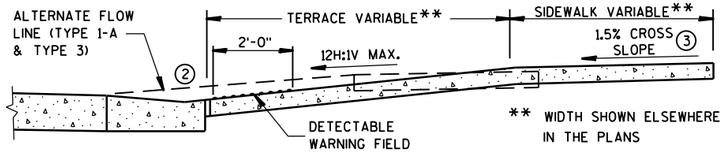
PLAN VIEW

TYPE 2 RAMP

(ON LINE WITH SIDEWALK)



SECTION A-A



SECTION B-B

GENERAL NOTES

USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

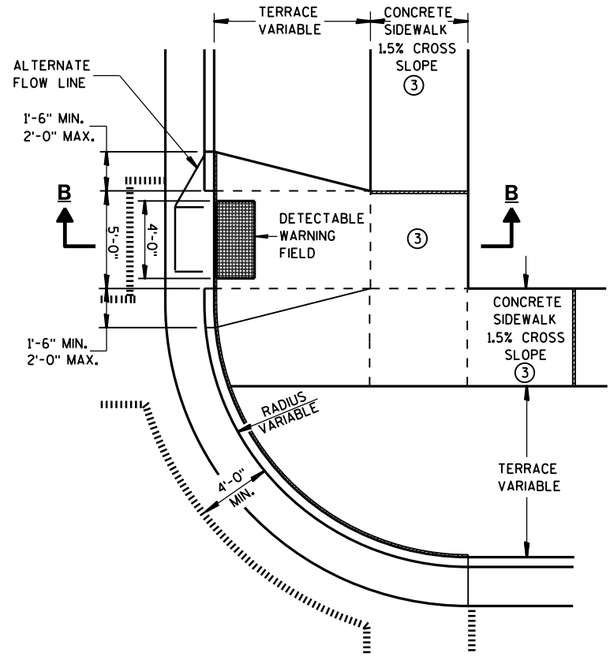
① WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

③ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW

TYPE 3 RAMP

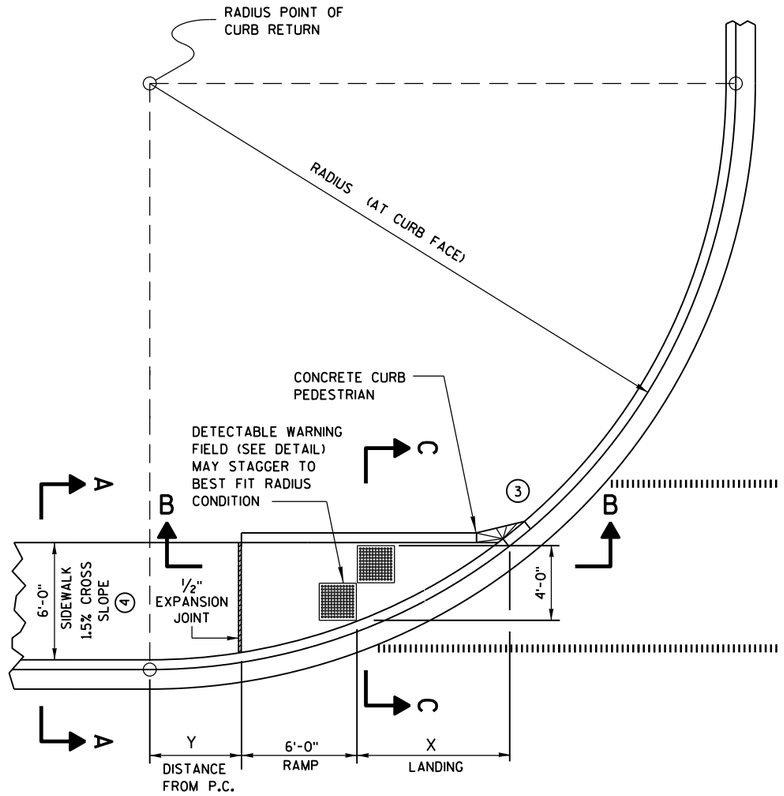
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS TYPES 2 AND 3

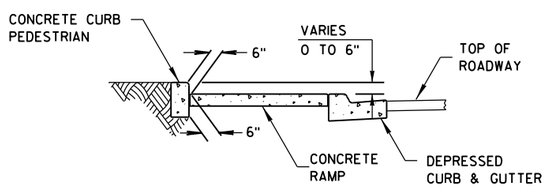
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

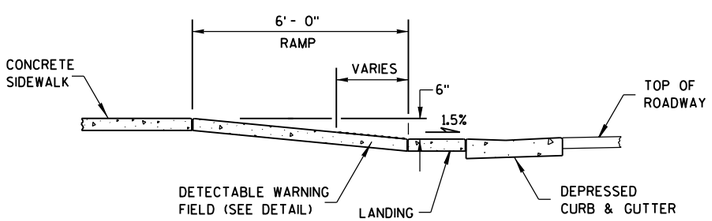
S.D.D. 8 D 5-15b



CURB RAMP TYPE 4A
PLAN VIEW



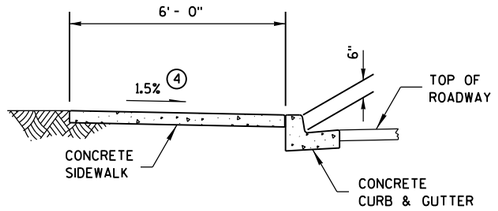
SECTION C-C FOR TYPE 4A



SECTION B-B FOR TYPE 4A

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-1¾"	2'-7¼"
30 FEET	7'-11¾"	4'-8¼"
40 FEET	9'-5¼"	6'-5"
50 FEET	10'-8¾"	7'-11¼"
60 FEET	11'-10¼"	9'-3½"

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A FOR TYPE 4A

GENERAL NOTES

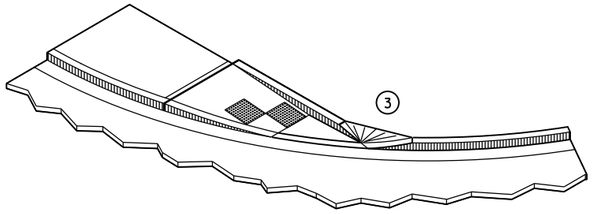
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

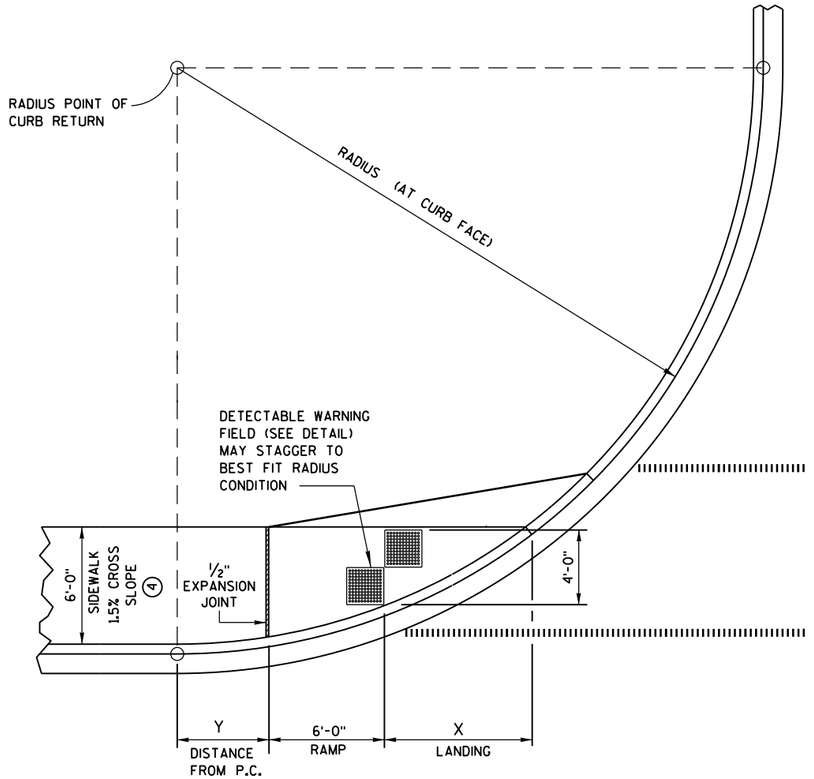
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

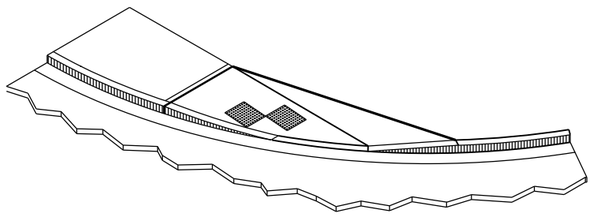
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



ISOMETRIC VIEW FOR TYPE 4A



CURB RAMP TYPE 4A1
PLAN VIEW



ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

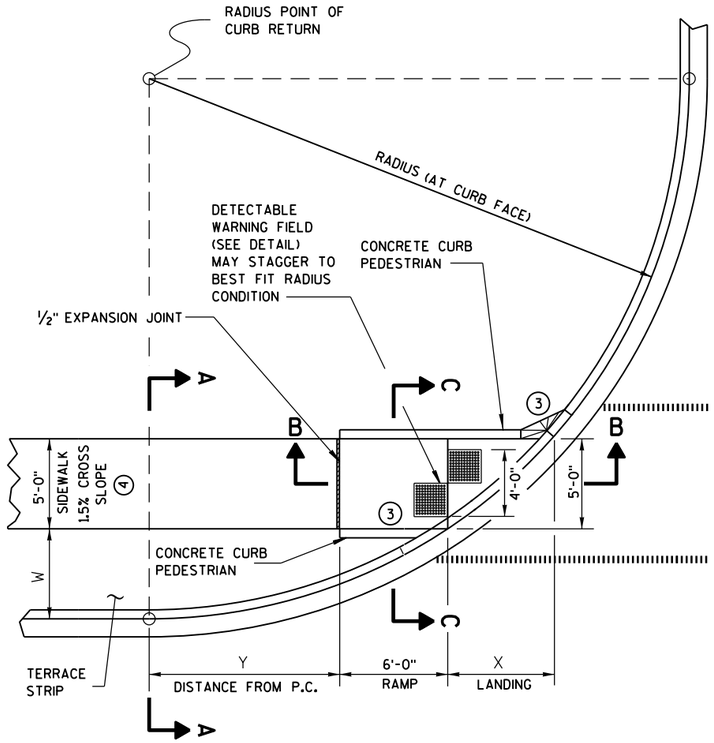
PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 4A AND 4A1

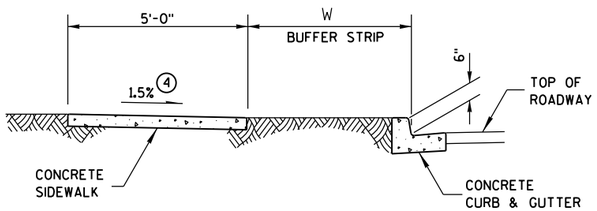
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

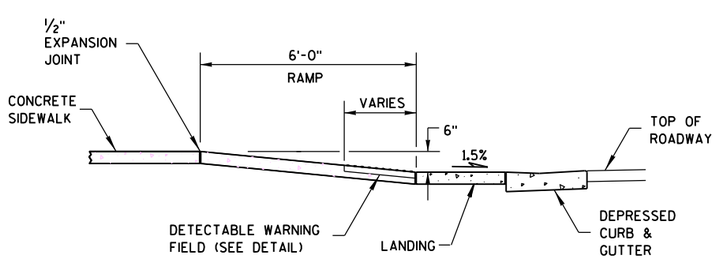
S.D.D. 8 D 5-15c



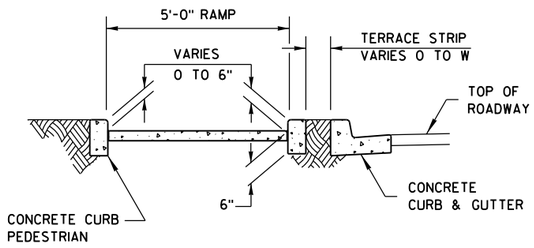
CURB RAMP TYPE 4B
PLAN VIEW



SECTION A-A FOR TYPE 4B



SECTION B-B FOR TYPE 4B



SECTION C-C FOR TYPE 4B

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)

RADIUS (AT CURB FACE)	W = 3'-0"		W = 4'-0"		W = 5'-0"		W = 6'-0"		W = 7'-0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5½"	4'-6½"	4'-8½"	6'-0"	4'-1"	7'-2¾"	3'-7"	8'-3½"	3'-1½"	9'-2½"
30 FEET	7'-3¾"	7'-1"	6'-5½"	8'-11½"	5'-9¼"	10'-7"	5'-2½"	12'-0"	4'-8¾"	13'-3¼"
40 FEET	8'-9½"	9'-2½"	7'-10"	11'-5¼"	7'-1"	13'-4½"	6'-5¾"	15'-¾"	5'-11½"	16'-7¼"
50 FEET	10'-¾"	11'-¾"	9'-¼"	13'-7¼"	8'-2½"	15'-9½"	7'-6½"	17'-9"	6'-11¾"	19'-6¼"
60 FEET	11'-2½"	12'-8¾"	10'-¾"	15'-6½"	9'-2¼"	17'-11¾"	8'-5¾"	20'-1¾"	7'-10½"	22'-1½"

INTERMEDIATE RADII CAN BE INTERPOLATED

GENERAL NOTES

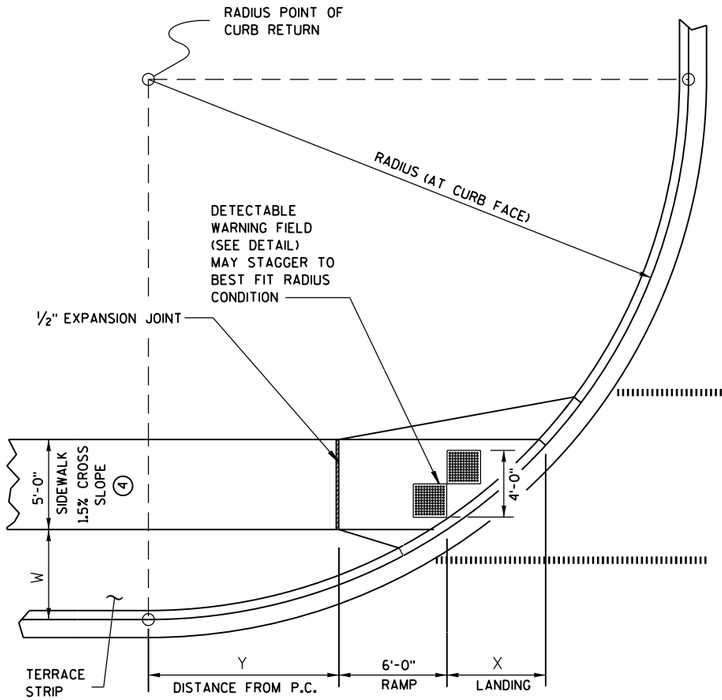
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

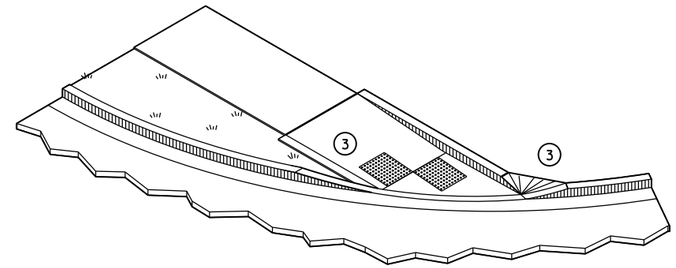
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

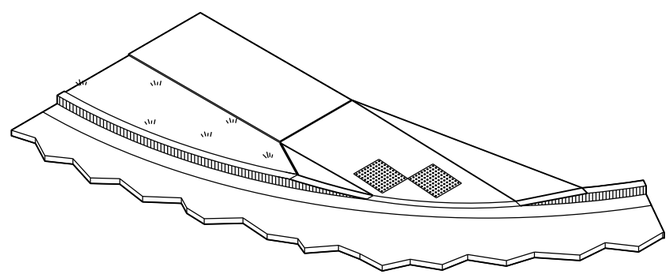
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



CURB RAMP TYPE 4B1
PLAN VIEW



ISOMETRIC VIEW FOR TYPE 4B



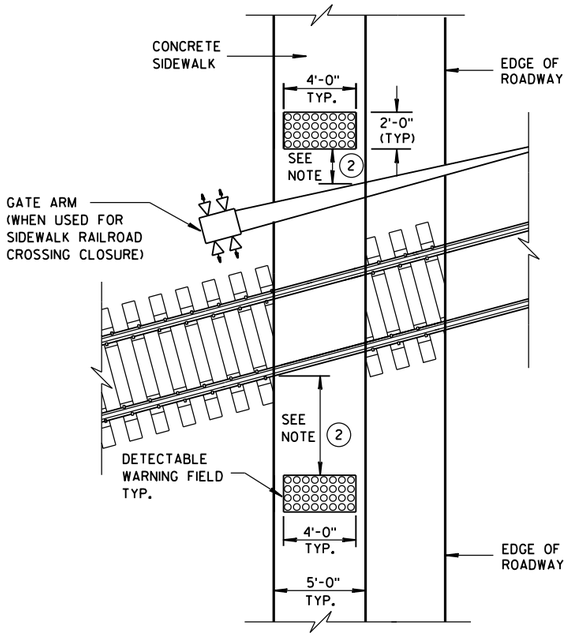
ISOMETRIC VIEW FOR TYPE 4B1

CURB RAMPS TYPE 4B AND 4B1

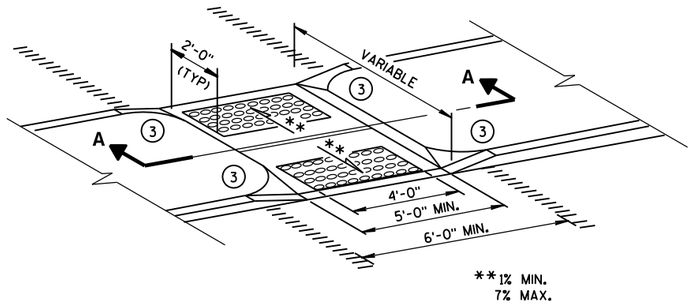
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 8 D 5-15d



TYPE 8
DETECTABLE WARNINGS AT RAILROAD CROSSING



MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5

GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

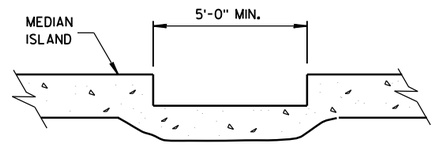
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(1) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

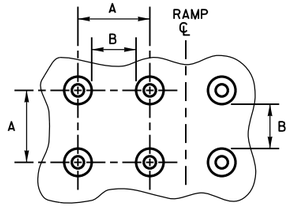
(2) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



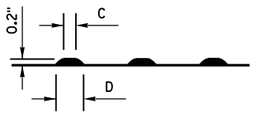
SECTION A-A



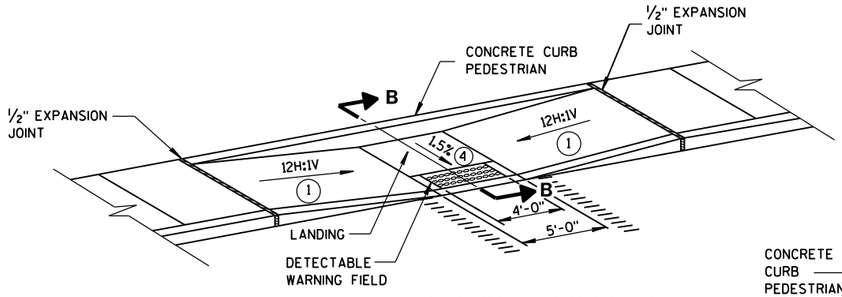
PLAN VIEW

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

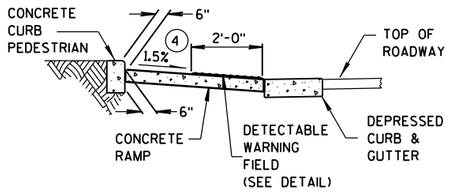
* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.



ELEVATION VIEW

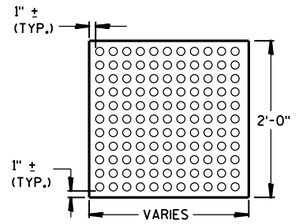


MID-BLOCK CROSSING
TYPE 7A



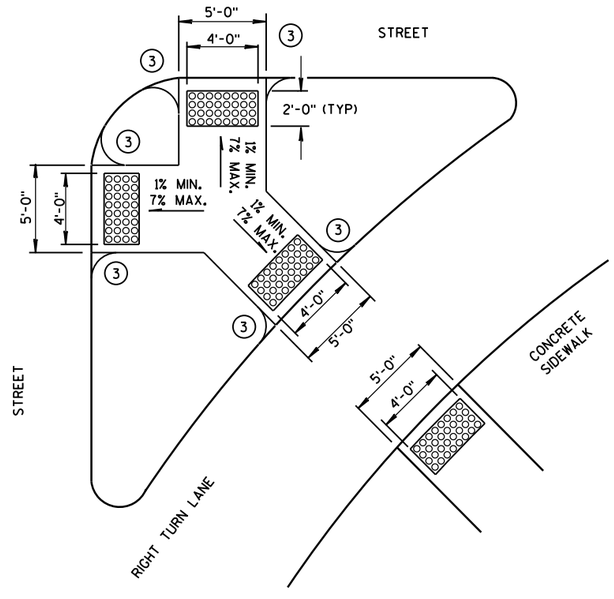
SECTION B-B

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL

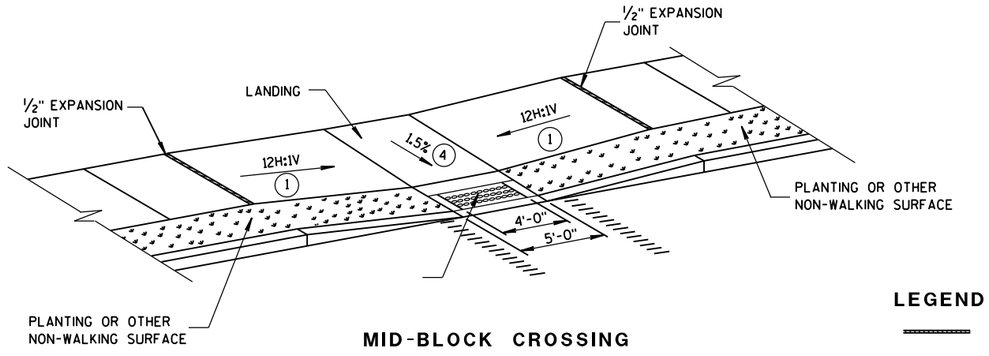


PLAN VIEW

DETECTABLE WARNING FIELD (TYPICAL)



TYPE 6
DETECTABLE WARNING AT ISLANDS



MID-BLOCK CROSSING
TYPE 7B

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2-6-2013 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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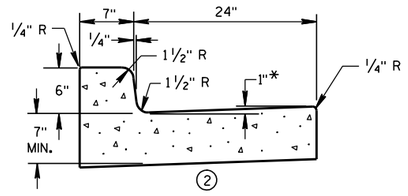
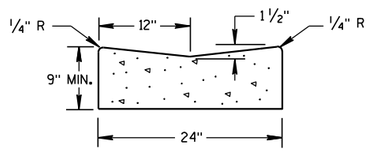
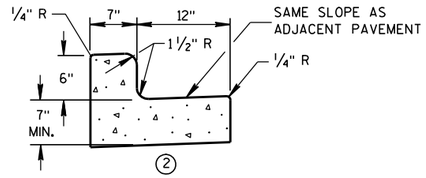


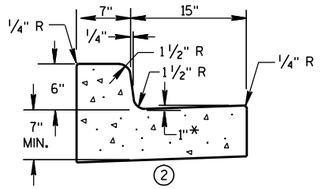
① CONCRETE CURB & GUTTER 31"



① CONCRETE GUTTER 24"

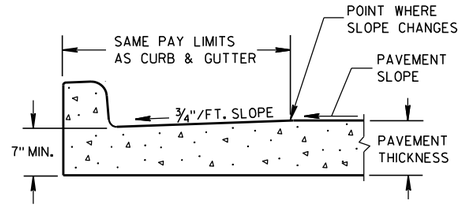


① CONCRETE CURB & GUTTER 19"



① CONCRETE CURB & GUTTER 22"

* TO BE MEASURED TO A MAXIMUM OF 3" WHERE DRAINAGE PROBLEMS EXIST.



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER

GENERAL NOTES

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

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

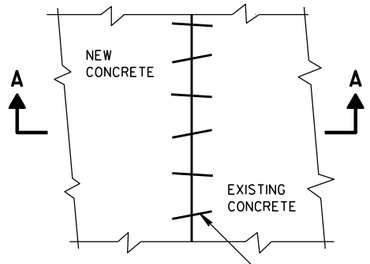
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURB.

① WHEN PLACED ADJACENT TO NEW CONCRETE, TIE BARS ARE REQUIRED FOR CURB AND GUTTER 31", 22", 19" AND CONCRETE GUTTER 24".

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 7" MIMIMUM GUTTER THICKNESS IS MAINTAINED.

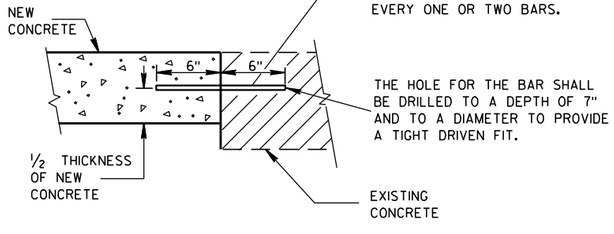
③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLAN.



PLAN VIEW

EXISTING AND NEW CONCRETE MAY BE CURB & GUTTER, SURFACE DRAIN, PAVEMENT OR OTHER CONCRETE STRUCTURE.

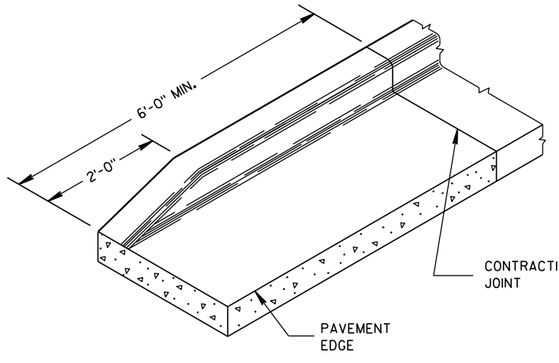
NO. 6 X 12" DEF. BARS SPACED 3'-0" C-C, INSTALLED ON 6:1 SKEW HORIZONTALLY. DIRECTION OF SKEW ALTERNATING AFTER EVERY ONE OR TWO BARS.



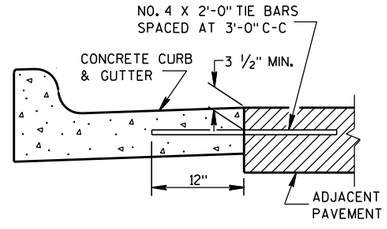
THE HOLE FOR THE BAR SHALL BE DRILLED TO A DEPTH OF 7" AND TO A DIAMETER TO PROVIDE A TIGHT DRIVEN FIT.

SECTION A-A

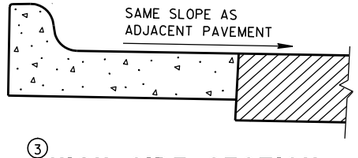
PAVEMENT TIES



END SECTION CURB & GUTTER



① TYPICAL TIE BAR LOCATION



③ HIGH SIDE SECTION

(TYPICAL FOR ALL CURB & GUTTER)

CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES

(For Optional Use in Milwaukee Co. Only)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/2/2010 — DATE

/S/ Jerry Zogg — ROADWAY STANDARDS ENGINEER

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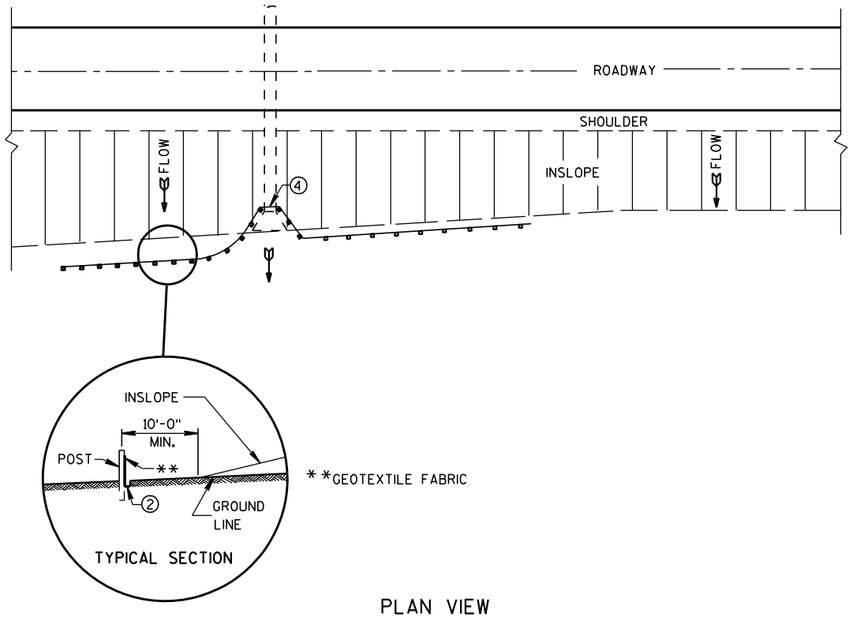
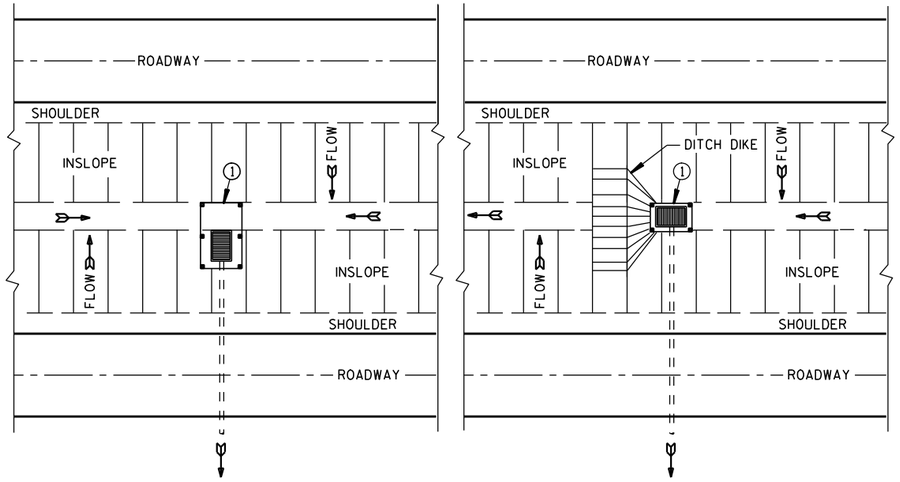


PLAN VIEW

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.

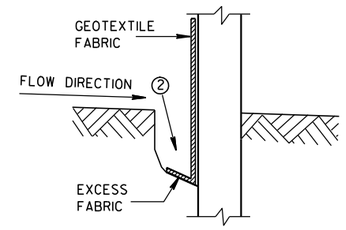
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

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.

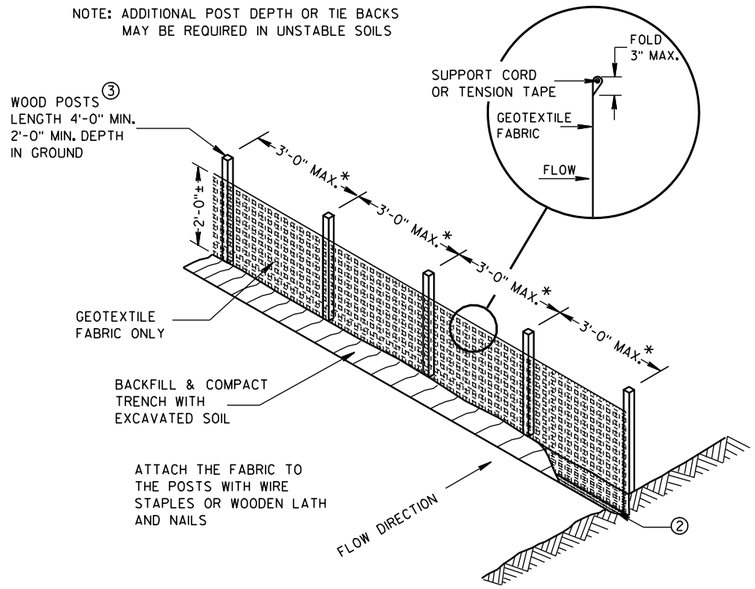
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

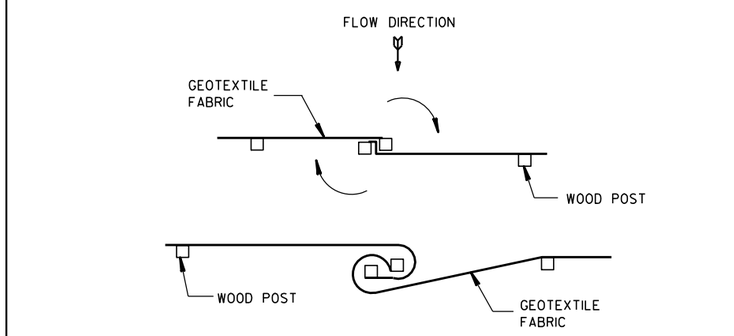
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



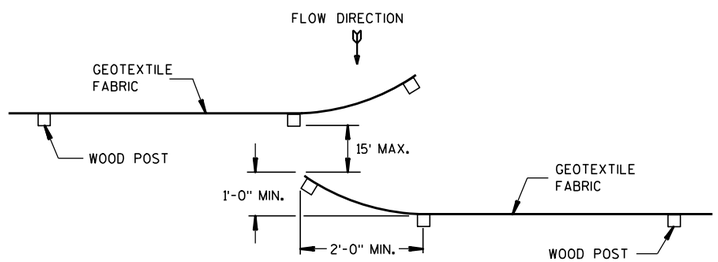
TRENCH DETAIL



SILT FENCE

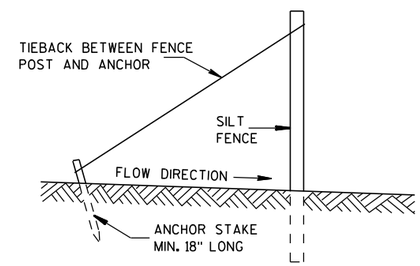


TWIST METHOD



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

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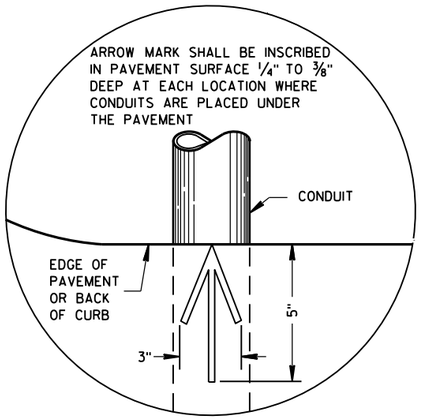
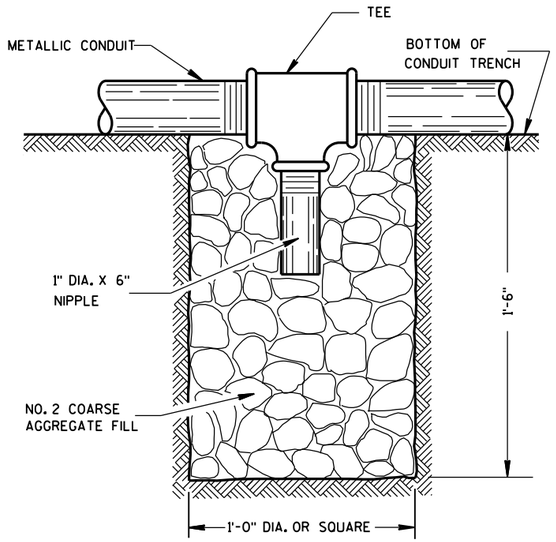
S.D.D. 8 E 9-6



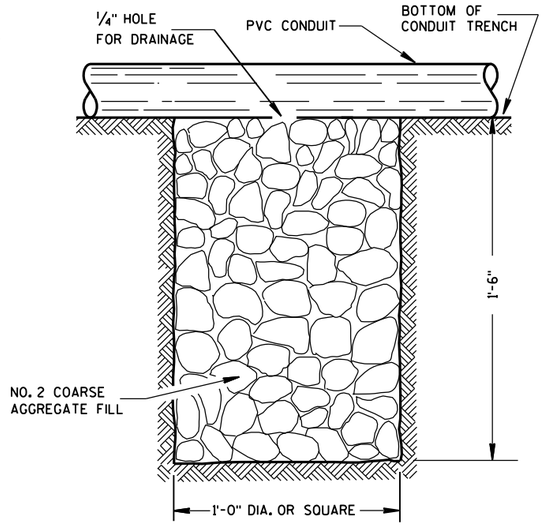
PLAN VIEW

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.

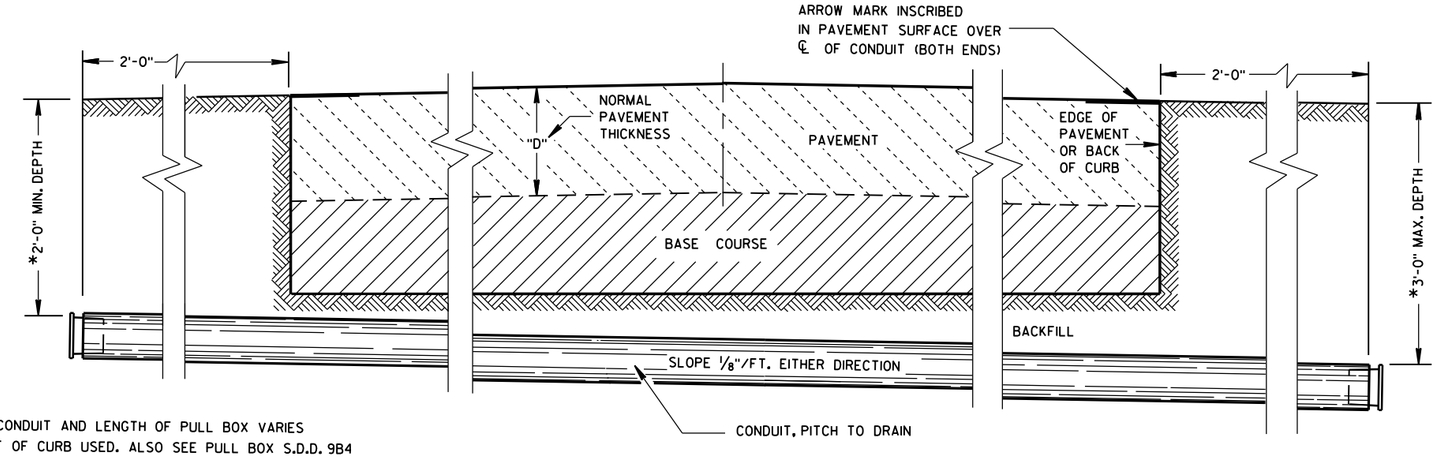
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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.).

POLY ROPE OR A PULL 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 UNDER PAVED HIGHWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014 — DATE

/S/ Ahmet Demirbilek — STATE ELECTRICAL

FHWA

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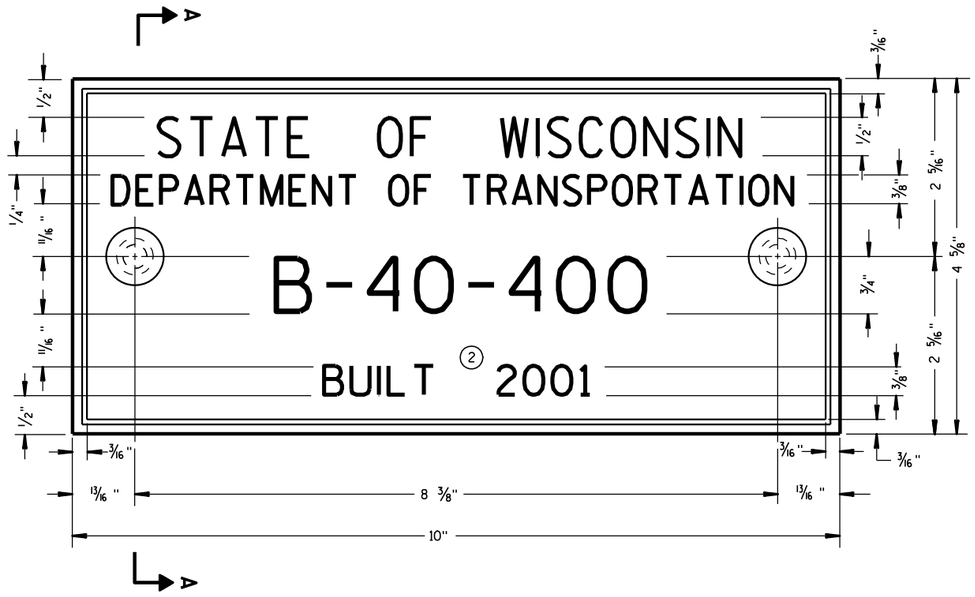
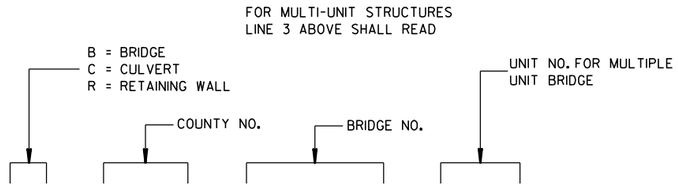


TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

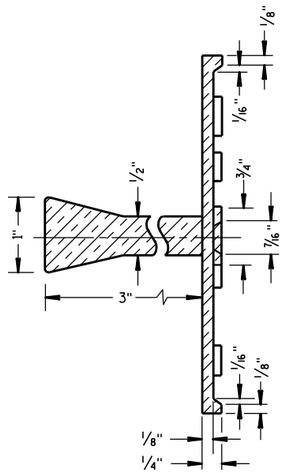
GENERAL NOTES

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.

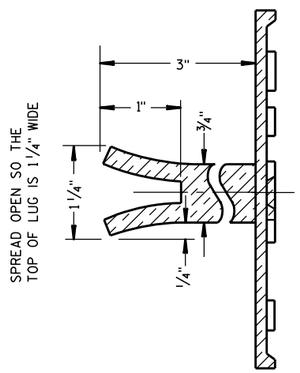
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

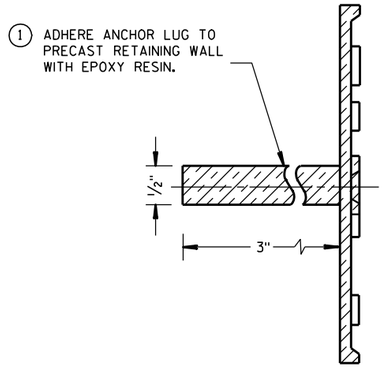
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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 DEVELOPMENT ENGINEER

FHWA

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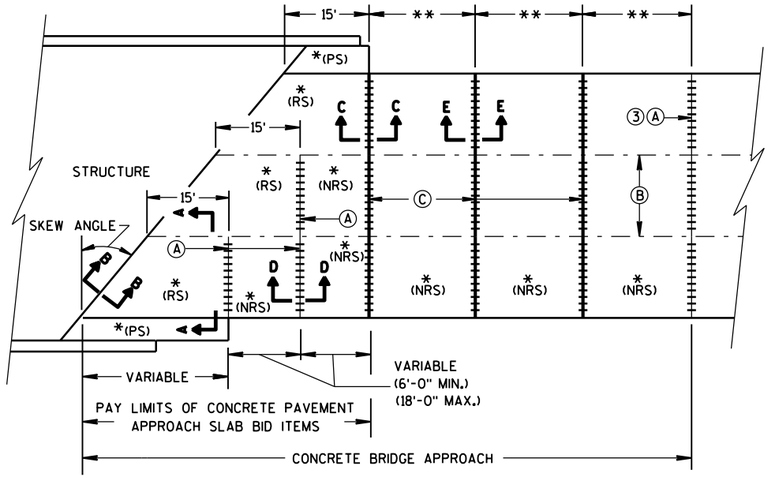
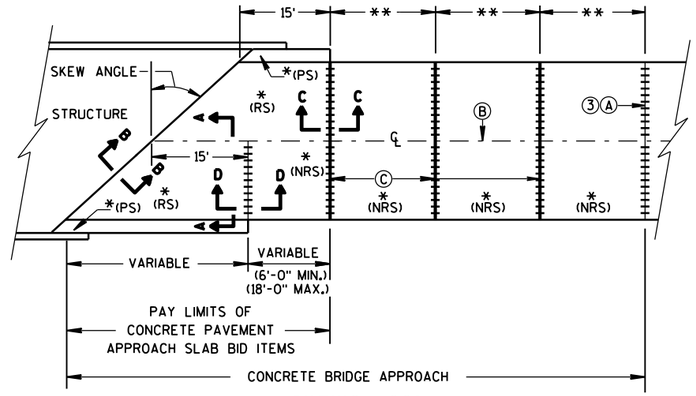
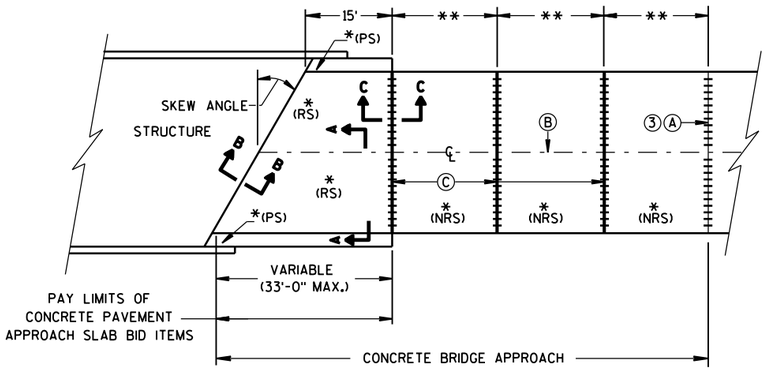
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >30°
(PAVEMENT WIDTH ≤30')



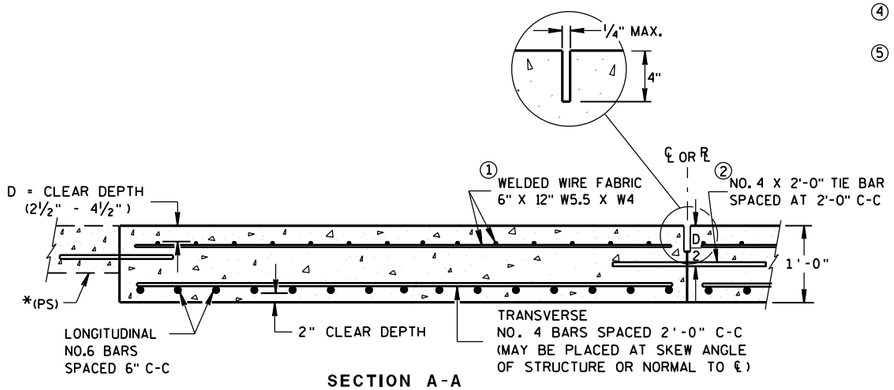
SKEWS ≤30°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

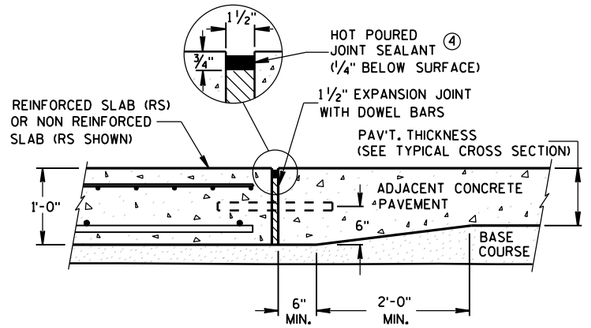
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN (SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

**STANDARD TRANSVERSE JOINT SPACING (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
***STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11, & SDD 13C13)

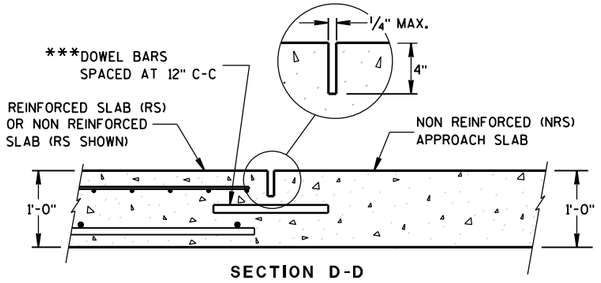
(A) STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
(B) STANDARD LONGITUDINAL JOINT AND TIE BARS.
(C) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



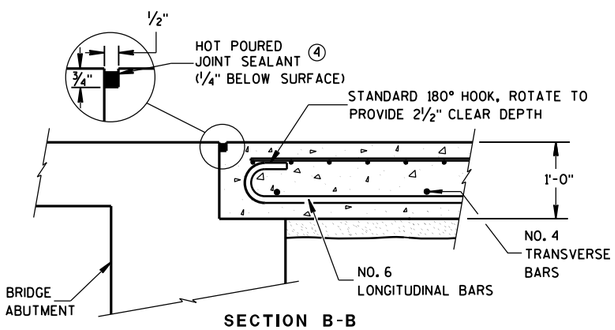
SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

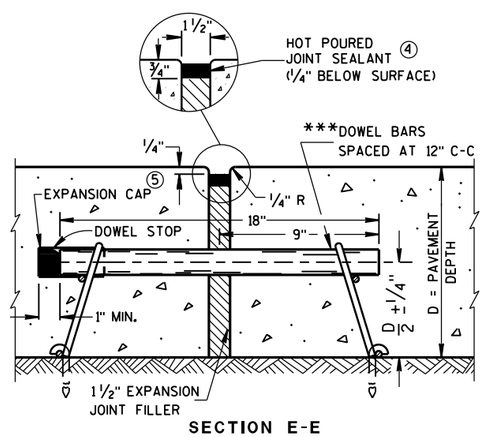
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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 DOWEL A CONTRACTION JOINT THAT ABUTS 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



SECTION E-E
EXPANSION JOINT

CONCRETE BRIDGE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June, 2014 — DATE
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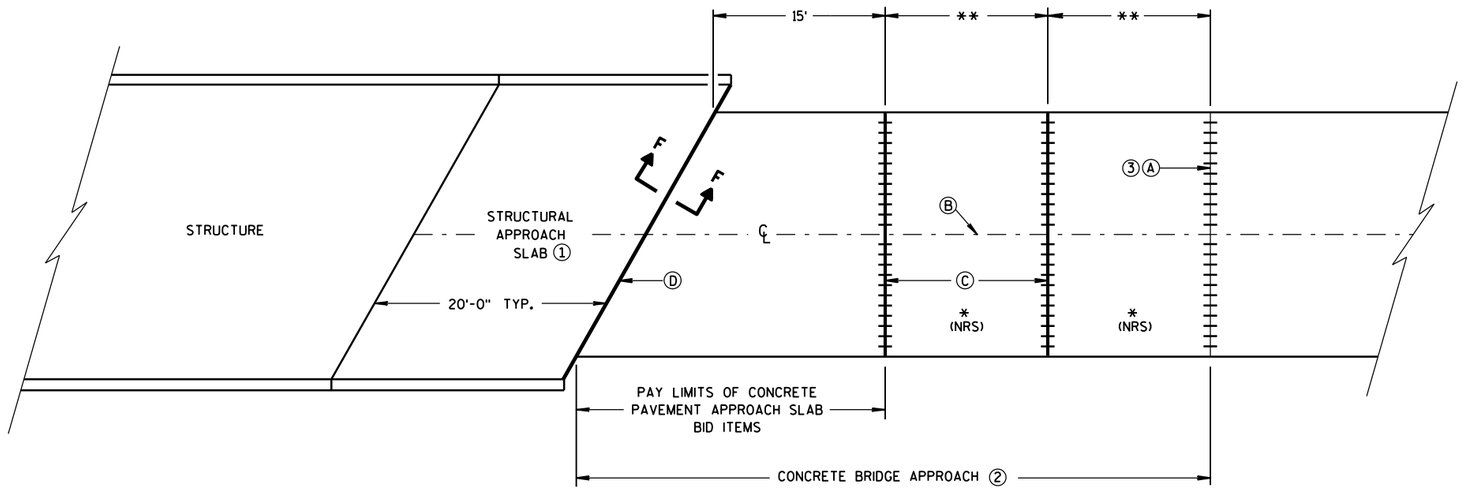
S.D.D. 13 B 2-7a



BRIDGE APPROACHES

GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE BRIDGE APPROACH.

(1) CONFORM TO APPLICABLE BRIDGE MANUAL STANDARD DRAWINGS FOR *STRUCTURAL APPROACH SLABS* (SEE CHAPTER 12 - ABUTMENTS).

(2) CONFORM TO SHEET (a) OF THIS SET FOR *CONCRETE BRIDGE APPROACH* DETAILS, WITH ONE EXCEPTION — WHEN CONSTRUCTING A *CONCRETE BRIDGE APPROACH* NEXT TO A *STRUCTURAL APPROACH SLAB*, AS SHOWN IN THE DETAIL DRAWING, THE *CONCRETE BRIDGE APPROACH* WILL ONLY HAVE TWO EXPANSION JOINTS; THE THIRD EXPANSION JOINT IS AT THE END OF THE *STRUCTURAL APPROACH SLAB*.

(3) DO NOT DOWEL A CONTRACTION JOINT THAT ABUTS AN HMA PAVEMENT.

*(NRS) = NON-REINFORCED CONCRETE SLAB

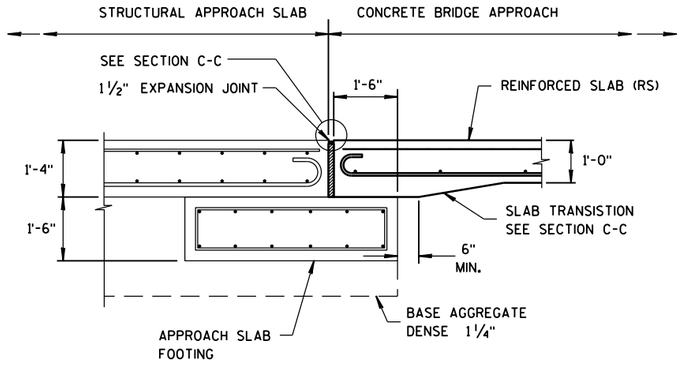
**STANDARD TRANSVERSE JOINT SPACING (SEE SDD 13C4, SDD 13C11, & SDD 13C13)

(A) STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

(B) STANDARD LONGITUDINAL JOINT AND TIE BARS.

(C) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄

(D) 1½" EXPANSION JOINT (NO DOWELS)



SECTION F-F

FOOTING DETAIL

STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

STRUCTURAL APPROACH SLAB AND CONCRETE BRIDGE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June, 2014 — DATE
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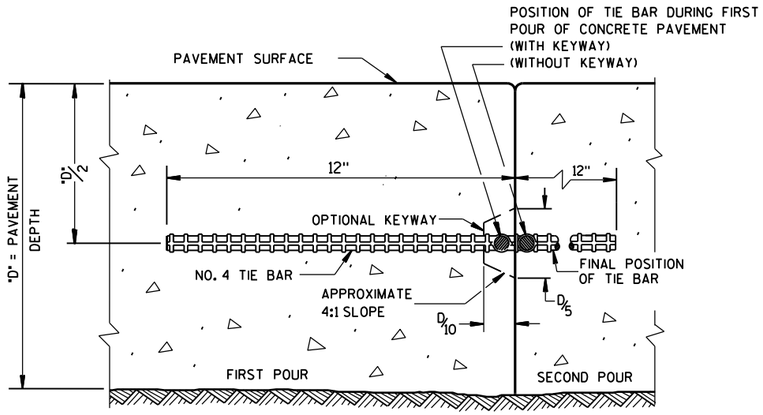
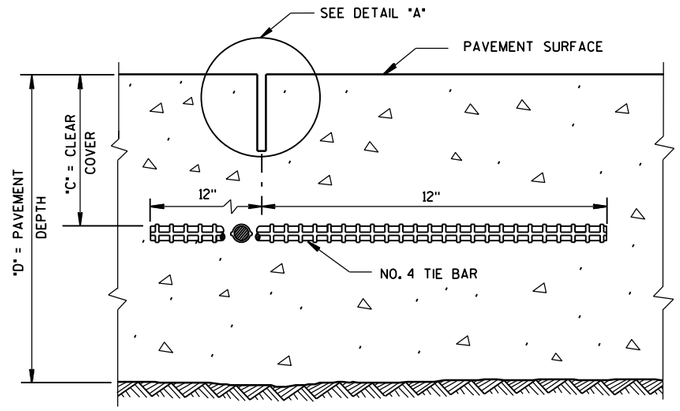


CONSTRUCTION JOINT



SAWED JOINT

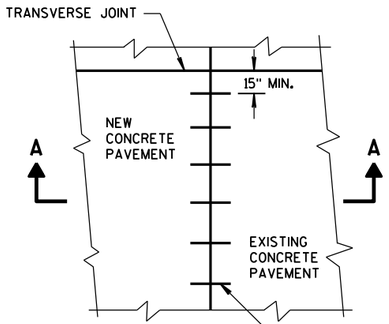
GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

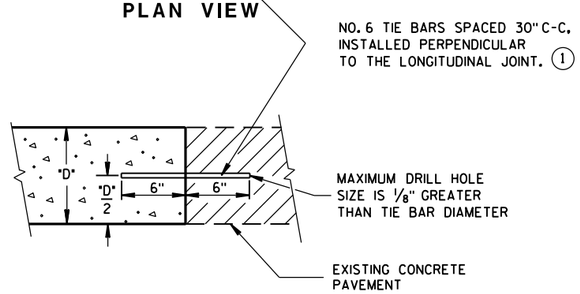
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

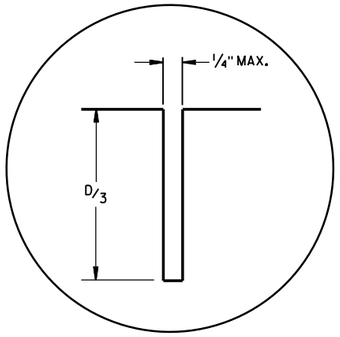


PLAN VIEW



SECTION A-A

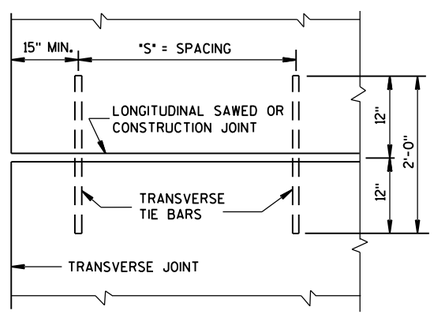
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT



DETAIL "A"

TIE BAR TABLE

PAVEMENT DEPTH "D"	CLEAR COVER "C"	MAXIMUM TIE BAR SPACING "S"	
		PAVEMENT WIDTH	
		24' OR 26'	≥ 30'
6, 6 1/2"	3" ± 1/2"	48"	42"
7, 7 1/2"	3 1/4" ± 1"	45"	36"
8, 8 1/2"	3 3/4" ± 1"	39"	30"
9, 9 1/2"	4 1/4" ± 1"	33"	27"
10, 10 1/2"	4 3/4" ± 1"	30"	24"
11, 11 1/2"	5 1/4" ± 1"	27"	21"
12"	5 3/4" ± 1"	24"	21"



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-3-2013
DATE

/S/ Deb Bischoff
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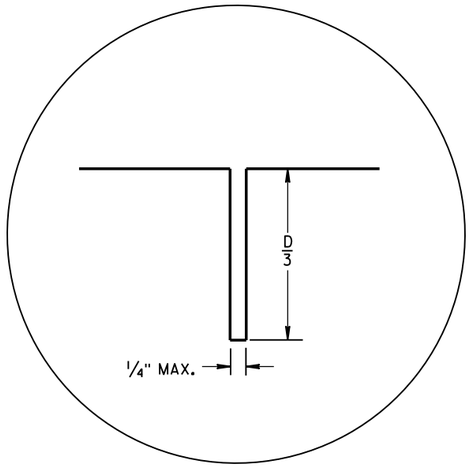
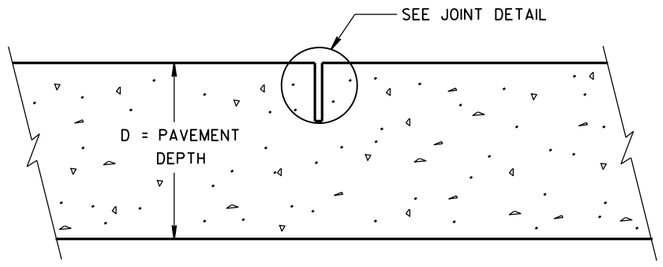


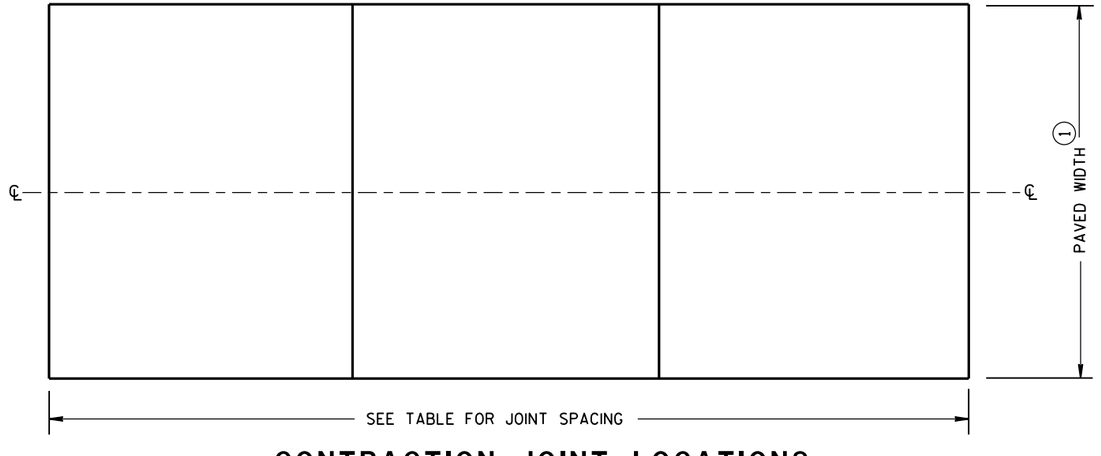
JOINT DETAIL



CONTRACTION JOINT

PAVEMENT DEPTH AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE.

LOCATE AND ORIENT CONTRACTION JOINTS THROUGH INTERSECTIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

CONSTRUCTION JOINTS

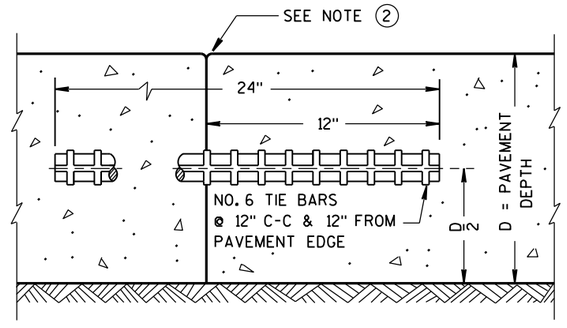
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

FORM OR SAW CONSTRUCTION JOINTS.

THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.

(1) REFER TO TYPICAL CROSS SECTIONS FOR PAVED WIDTH AND LOCATION OF LONGITUDINAL JOINTS.

(2) PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.



TIED TRANSVERSE CONSTRUCTION JOINT

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S.D.D. 13 C 4-16

S.D.D. 13 C 4-16

URBAN NON-DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-3-2013 DATE
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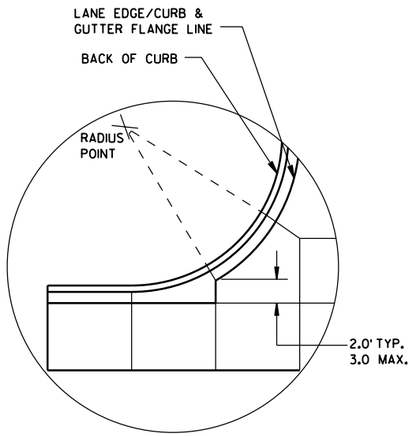
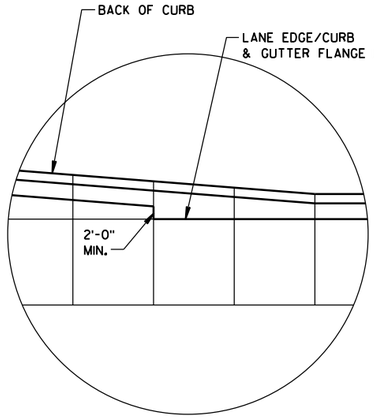
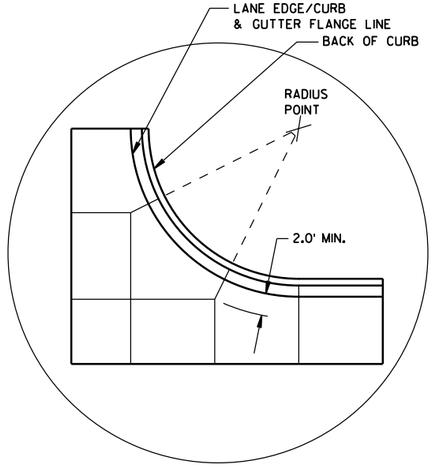


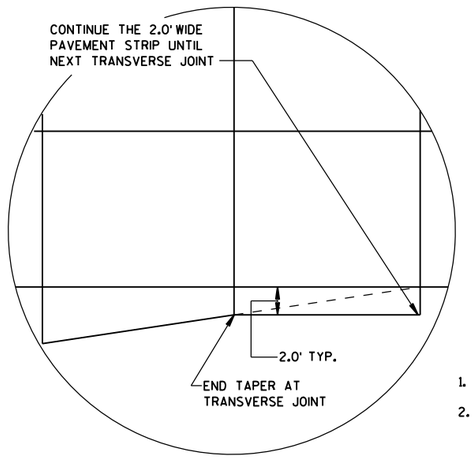
DETAIL "A"



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.

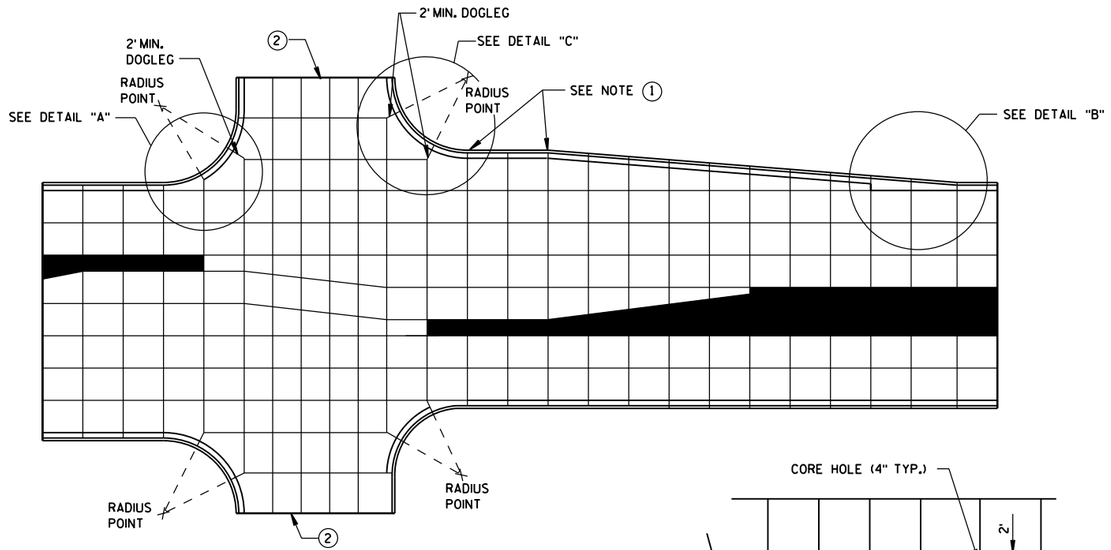
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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.

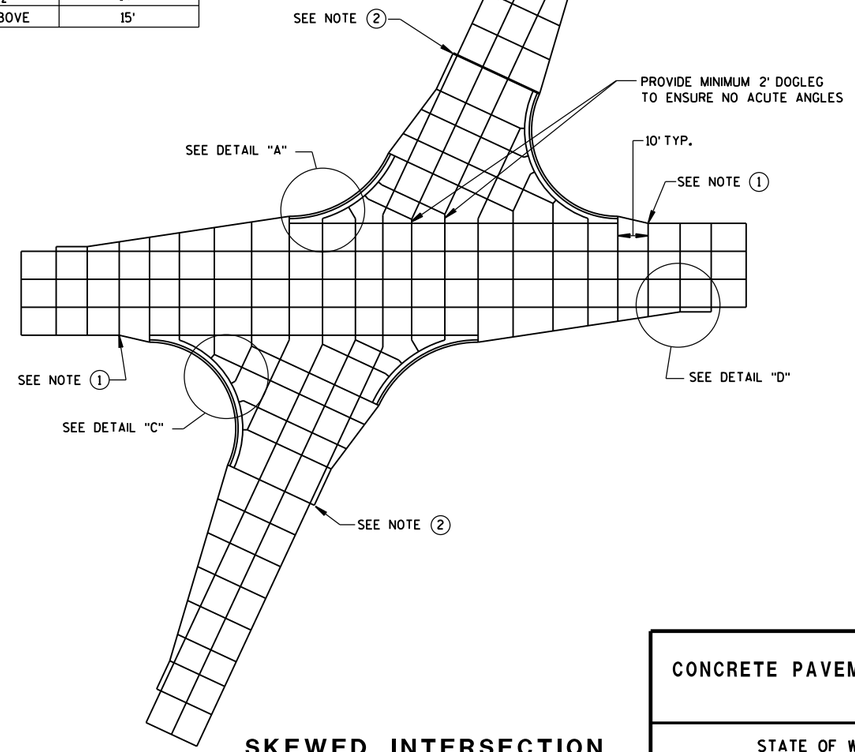
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



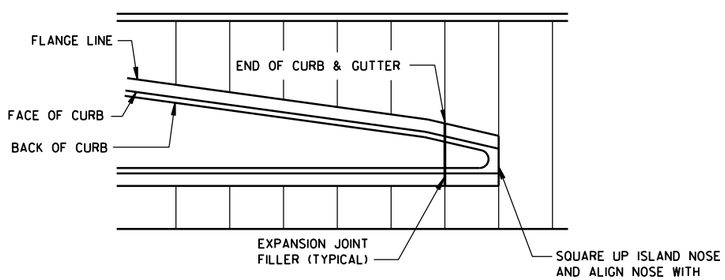
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

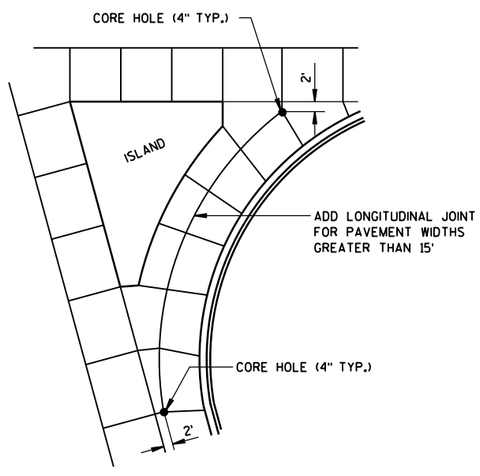
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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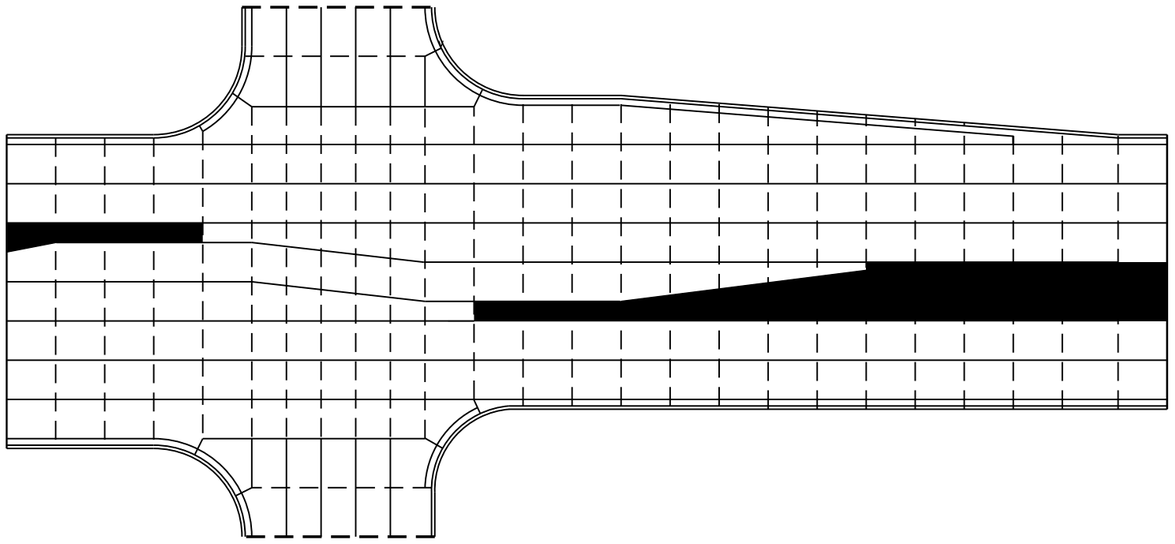
S.D.D. 13 C 18-2a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

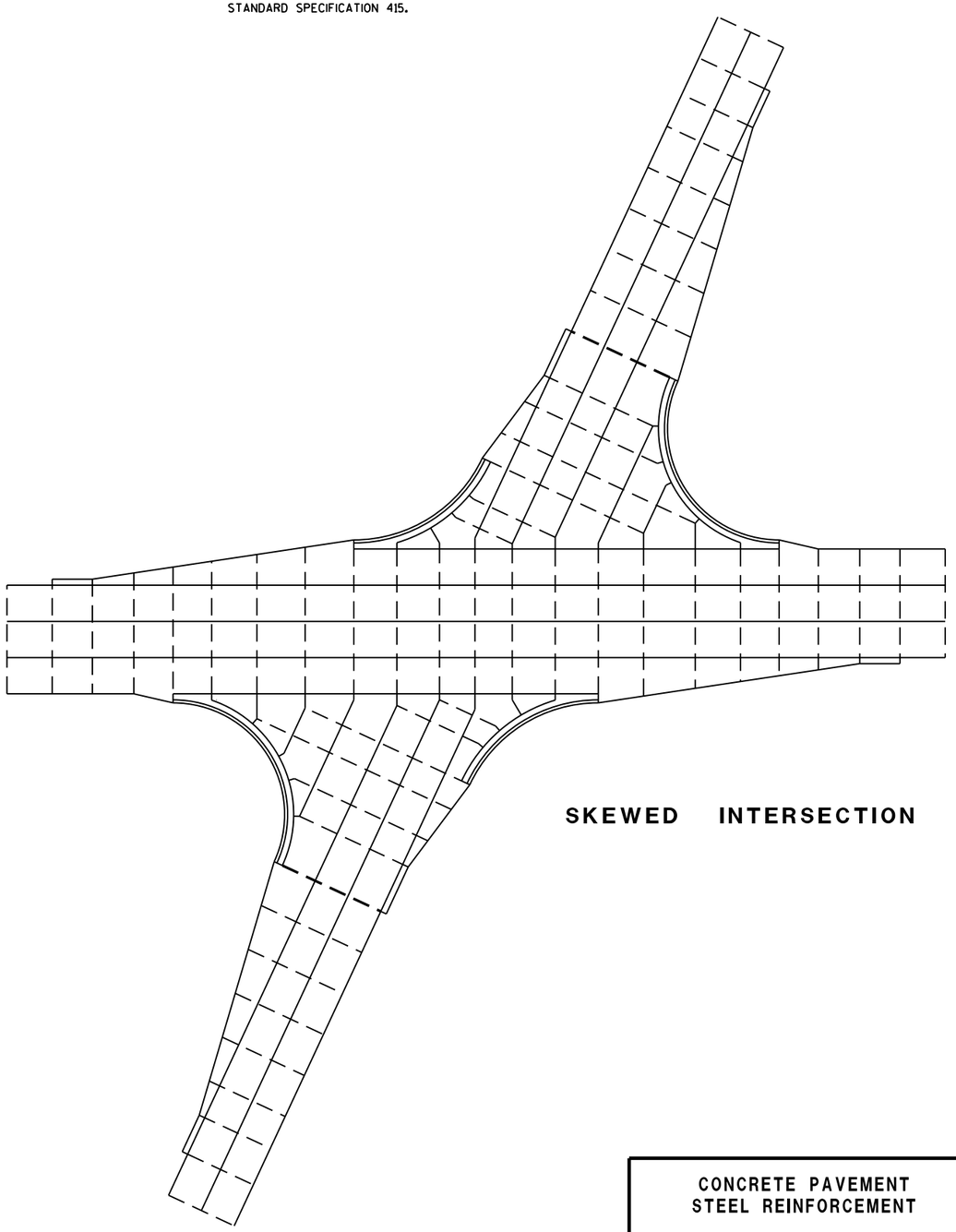
TIED JOINT



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 TRANSPOR

6

S.D.D. 13 C 18-2b

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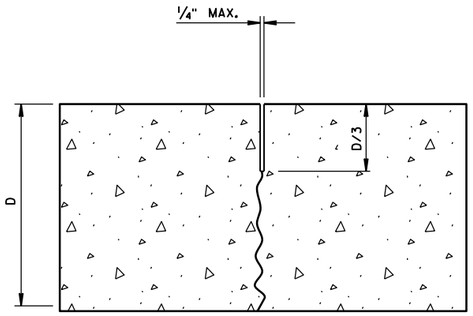
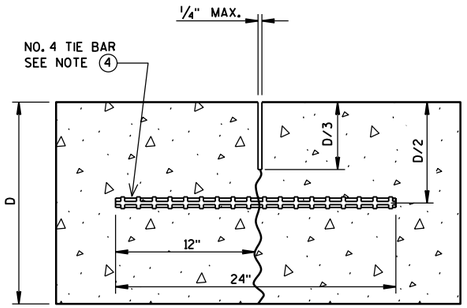
S.D.D. 13 C 18-2b



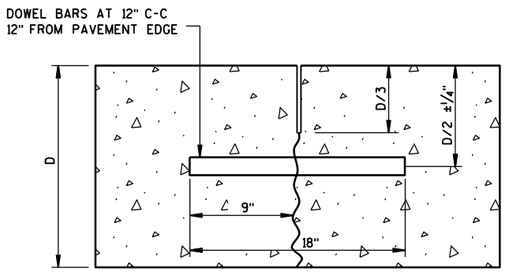
UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

GENERAL NOTES

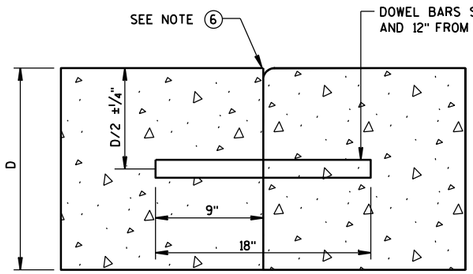
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
4. SPACE TIE BARS AT LONGITUDINAL CONSTRUCTION OR CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C1.
5. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
6. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.



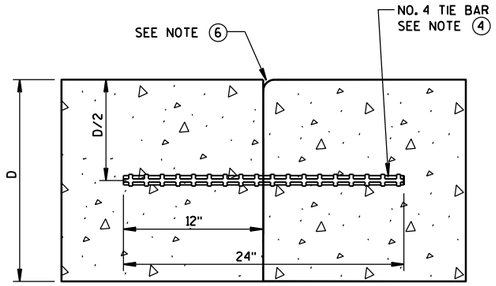
DOWELED-TRANSVERSE

CONTRACTION JOINTS

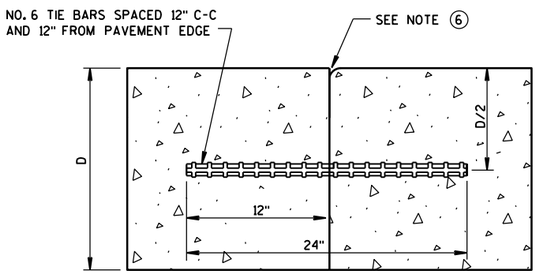
SEE NOTE (2)



DOWELED TRANSVERSE

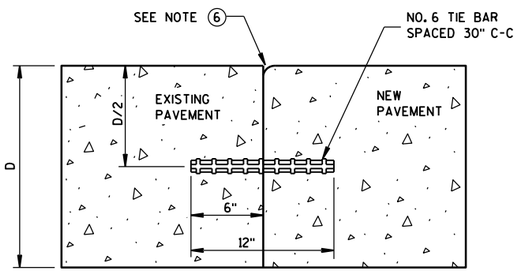


TIED LONGITUDINAL



TIED TRANSVERSE

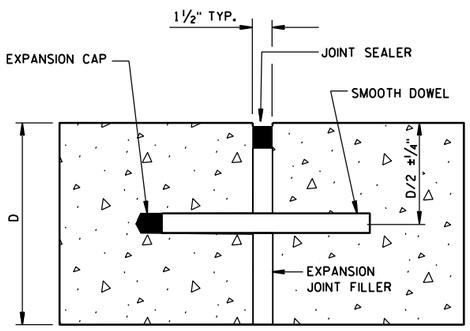
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

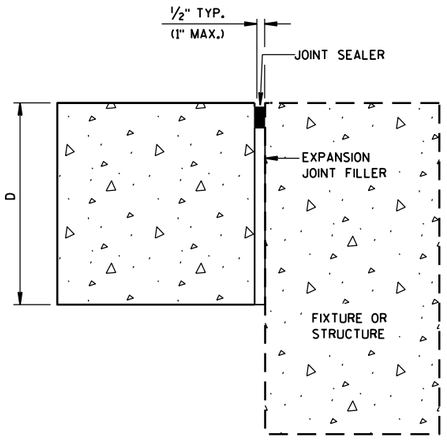
CONSTRUCTION JOINTS

SEE NOTE (5)



DOWELED-TRANSVERSE

SEE NOTE (1)



UNTIED-LONGITUDINAL

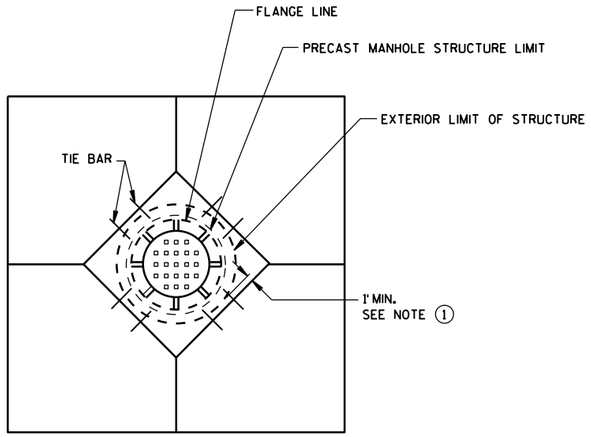
EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

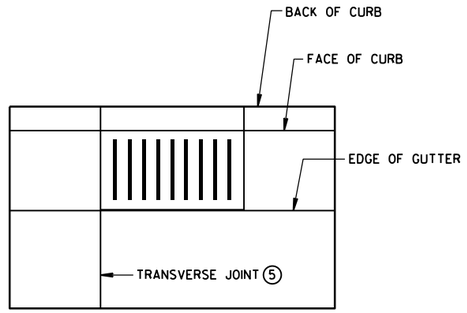
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

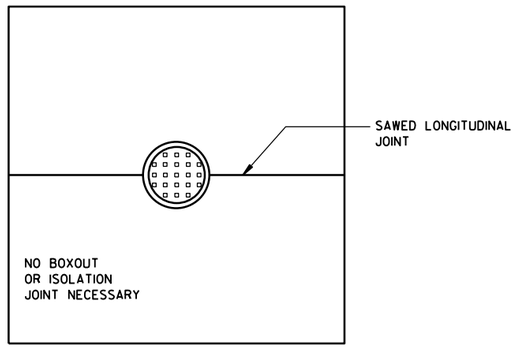
S.D.D. 13 C 18-2c



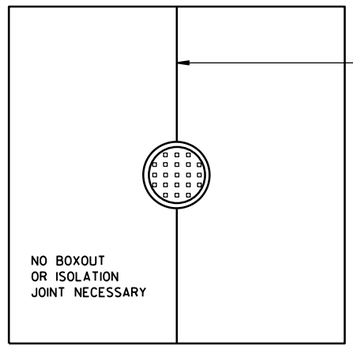
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



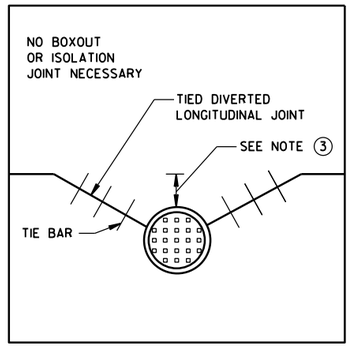
INLET WITH TRANSVERSE JOINT



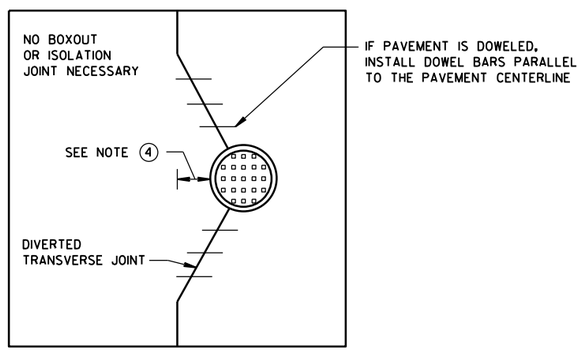
MANHOLE WITH LONGITUDINAL JOINT



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

5-3-2013 — DATE

/S/ Deb Bischoff — PAVEMENT POLICY & DE

NEER

FHWA

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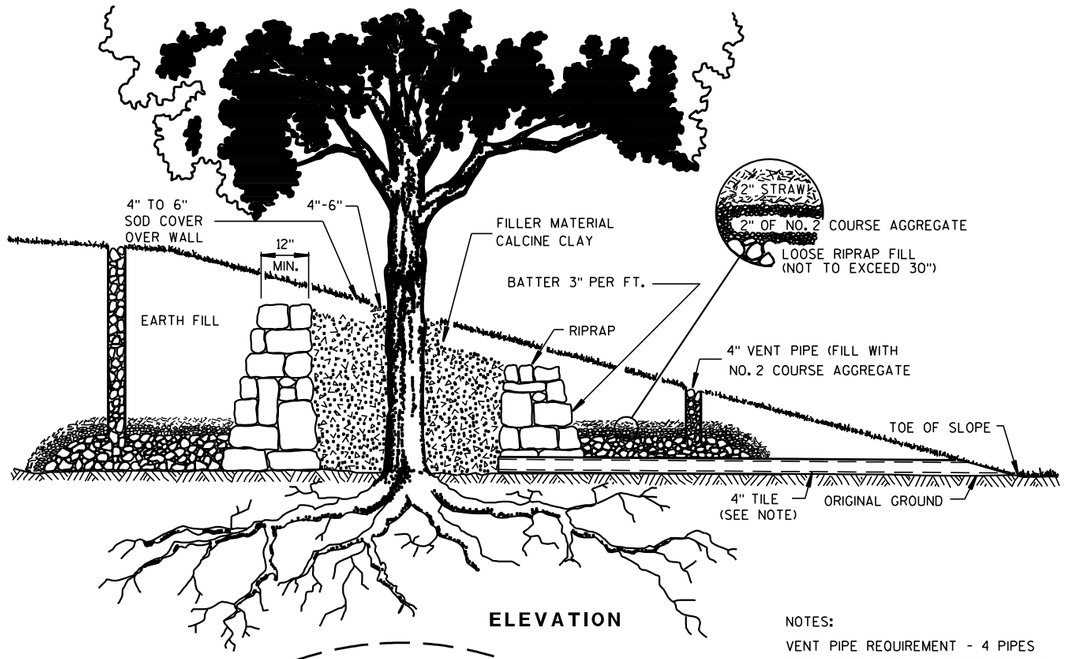
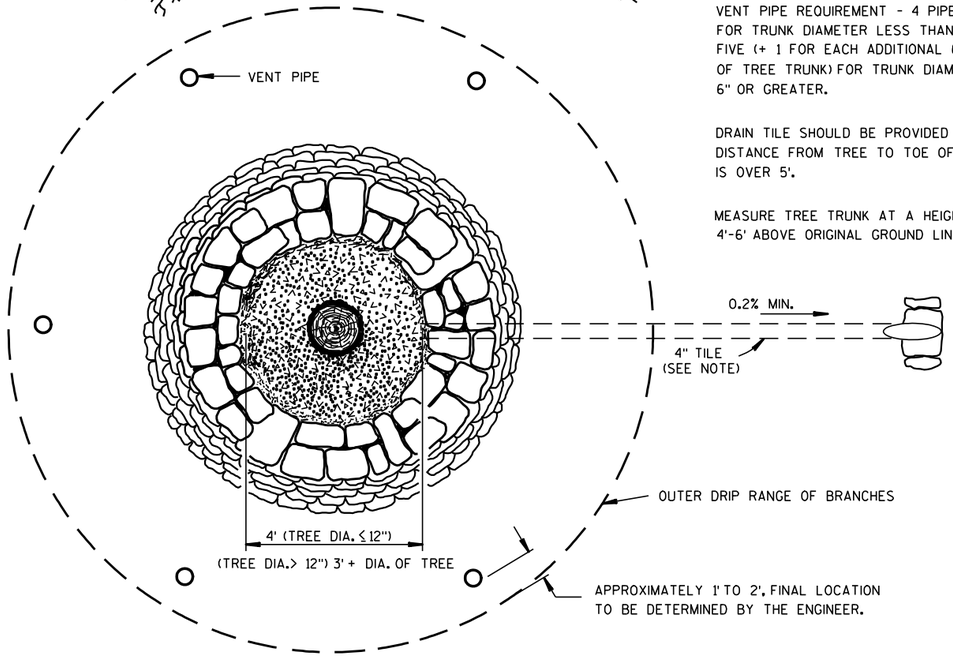
S.D.D. 13 C 18-2d



ELEVATION



PLAN

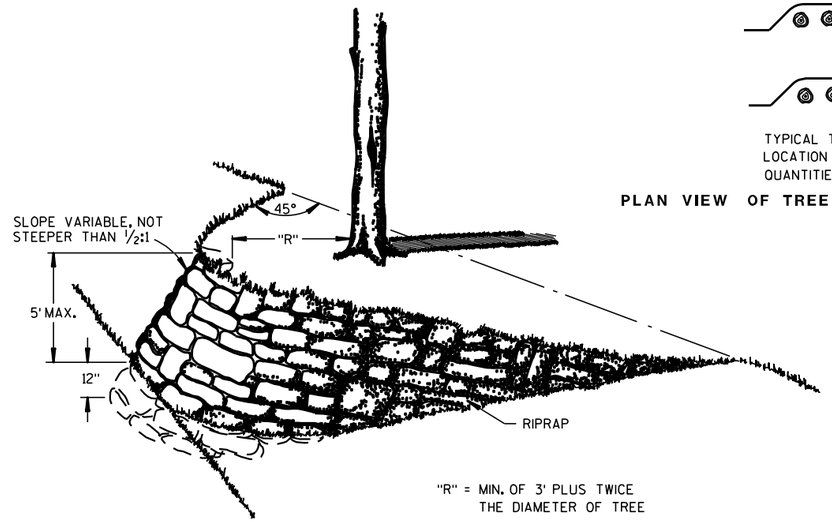
FULL TREE WELL WITH RIPRAP WALL

NOTES:

VENT PIPE REQUIREMENT - 4 PIPES FOR TRUNK DIAMETER LESS THAN 6". FIVE (+ 1 FOR EACH ADDITIONAL 6" OF TREE TRUNK) FOR TRUNK DIAMETER 6" OR GREATER.

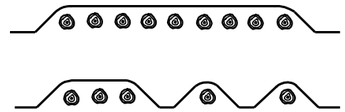
DRAIN TILE SHOULD BE PROVIDED IF DISTANCE FROM TREE TO TOE OF SLOPE IS OVER 5'.

MEASURE TREE TRUNK AT A HEIGHT 4'-6' ABOVE ORIGINAL GROUND LINE.



"R" = MIN. OF 3' PLUS TWICE THE DIAMETER OF TREE

DETAILS OF TREE ISLAND AND ROOT PROTECTION



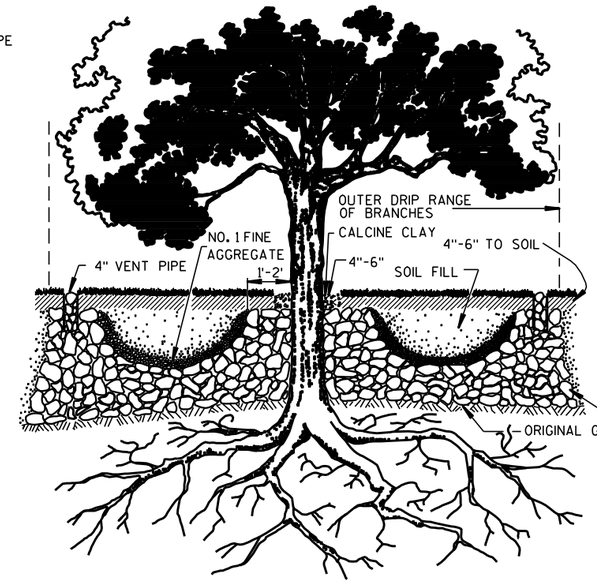
TYPICAL TREATMENTS OF ROOT PROTECTION. LOCATION SHOWN ON MISCELLANEOUS QUANTITIES SHEET.

PLAN VIEW OF TREE ISLANDS FOR ONE OR MORE TREES

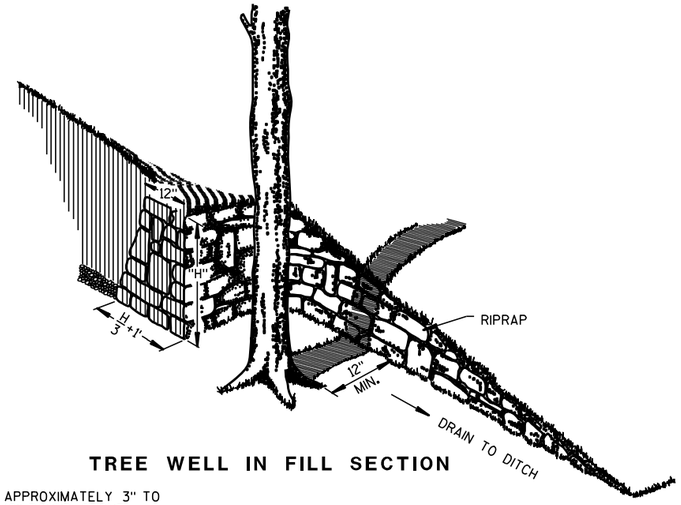
GENERAL NOTES

WALLS TO BE BUILT TO APPROXIMATE SHAPE AND DIMENSIONS SHOWN. STONE TO CONFORM TO SPECIFICATIONS FOR RIPRAP.

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



TREE WELL WITHOUT WALL



TREE WELL IN FILL SECTION

DETAILS FOR TREE WELLS

TREE PRESERVATION DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/25/76 DATE
/S/ D. L. Str---
STATE DESIGN ENGINEER
FHWA

WYS

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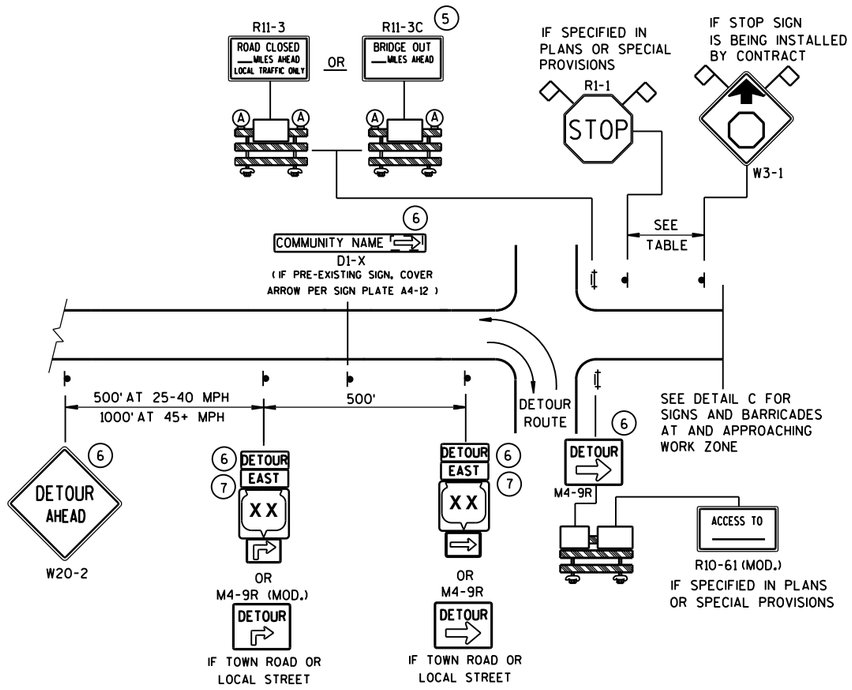
S.D.D. 14 A 1-3

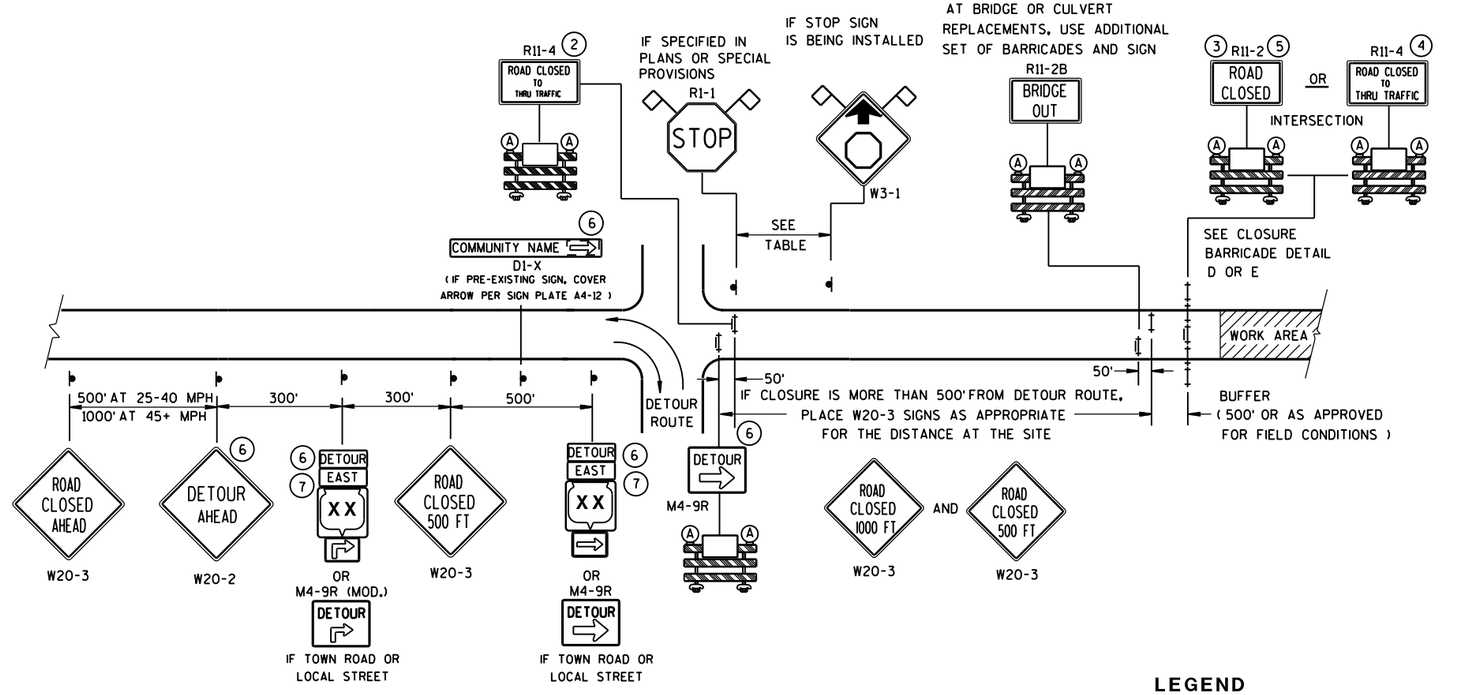
6

S.D.D. 14 A 1-3



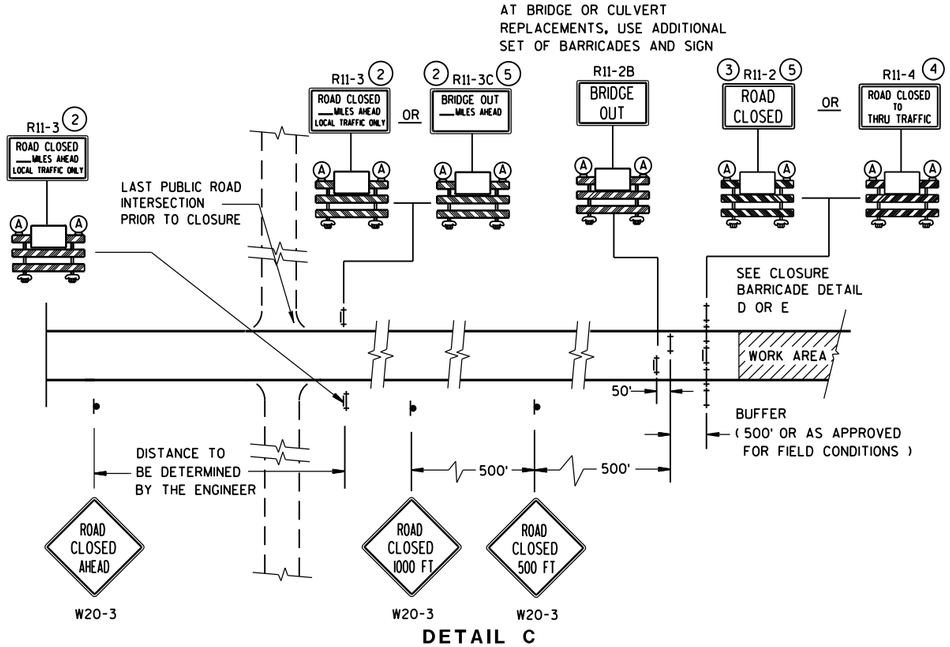
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-SHEET "**b**" FOR GENERAL NOTES AND FOOTNOTES (1) THROUGH (7)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

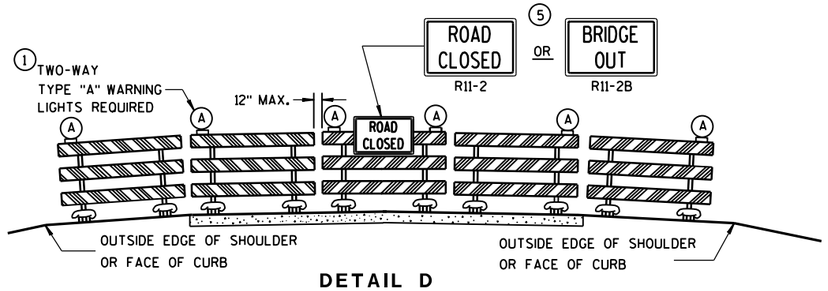
8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

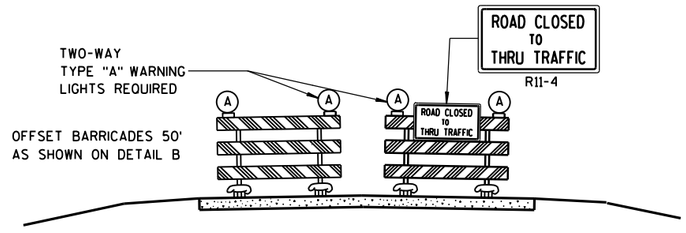
S.D.D. 15 C 2-5a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

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

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.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES 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.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- 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.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. 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. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

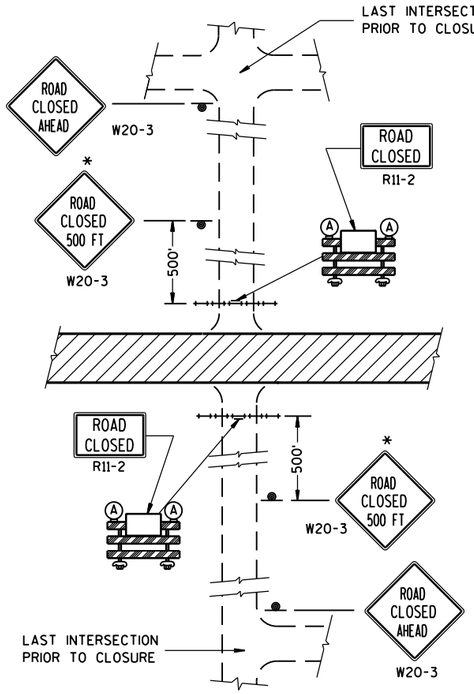
8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

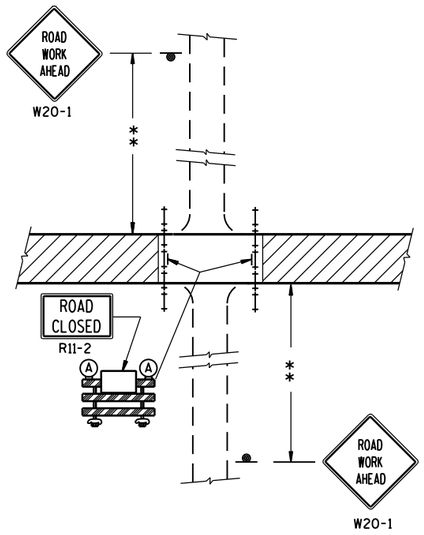
6

S.D.D. 15 C 2-5b



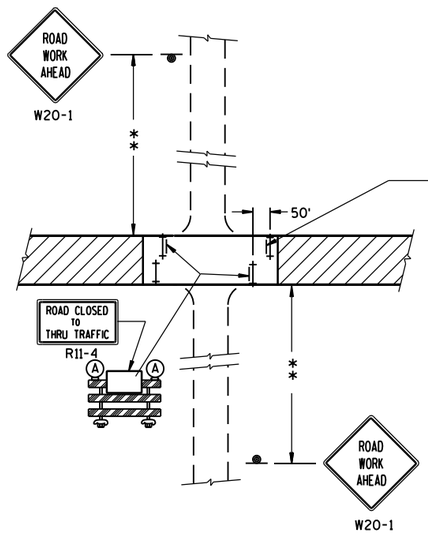
DETAIL 1

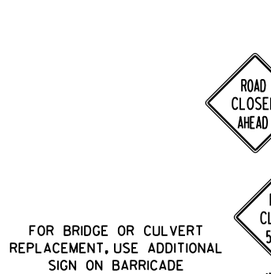
(NO ACCESS TO PROJECT)



DETAIL 2

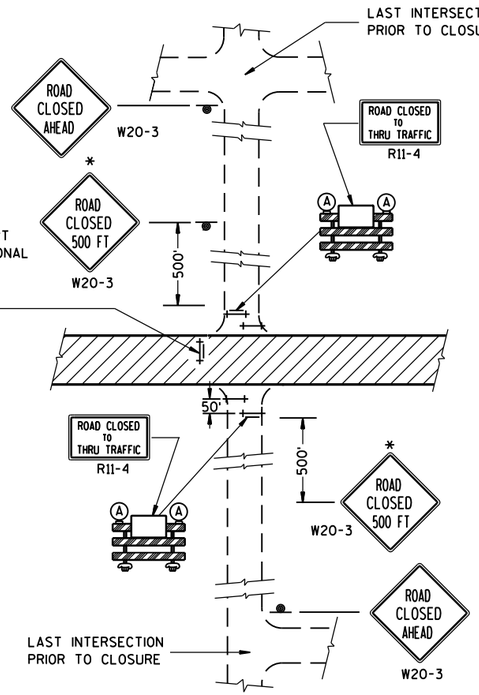
(PUBLIC CROSS-TRAFFIC MAINTAINED. NO ACCESS TO PROJECT).





DETAIL 3

(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS).



DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

BARRICADES 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.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3 AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 C 3-2

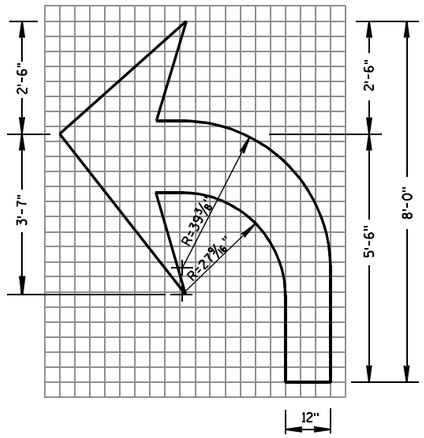
6

S.D.D. 15 C 3-2

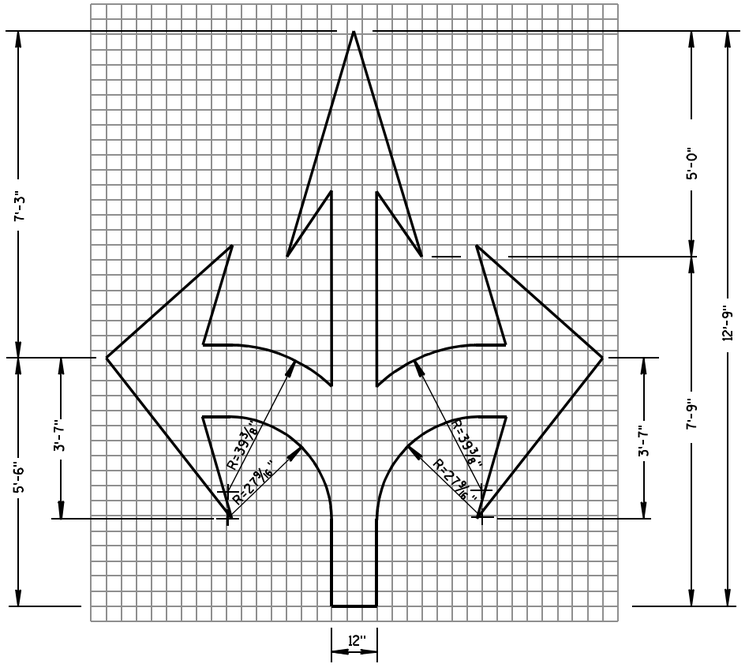
GENERAL NOTES

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

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



TYPE 2



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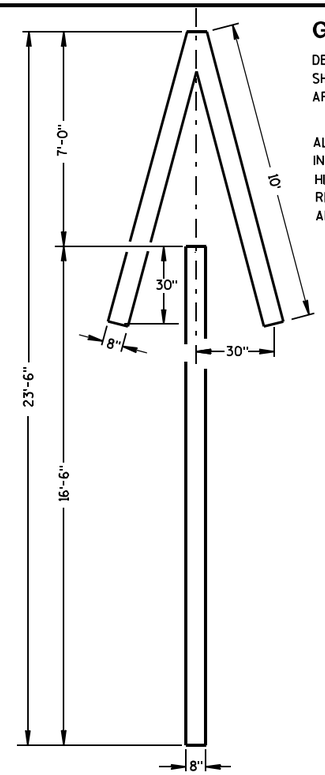

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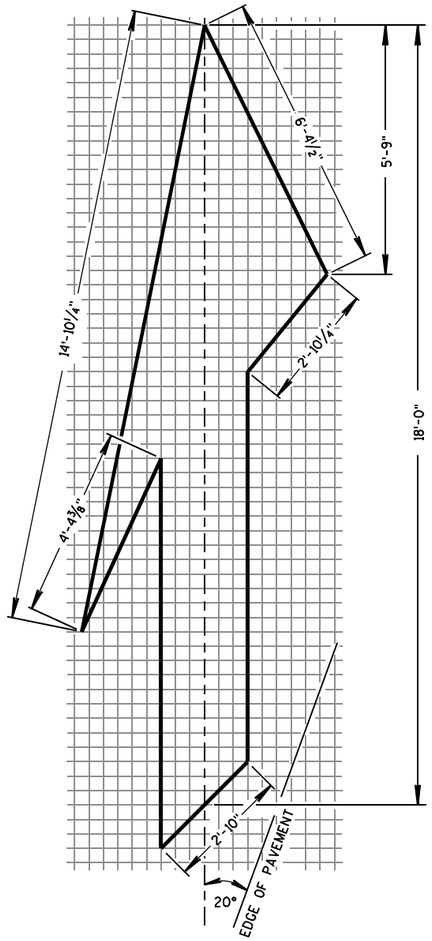
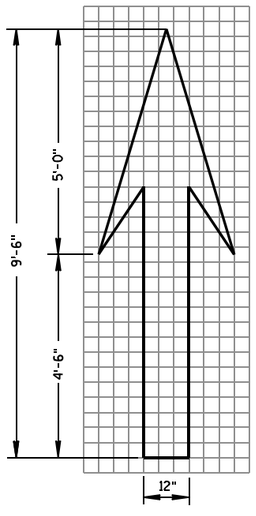
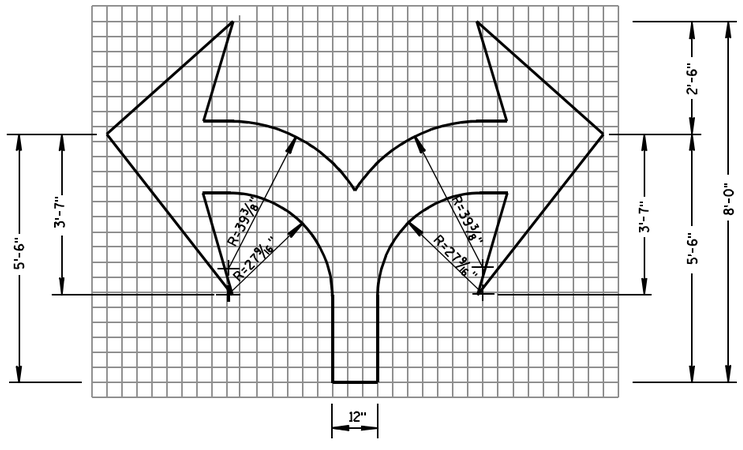


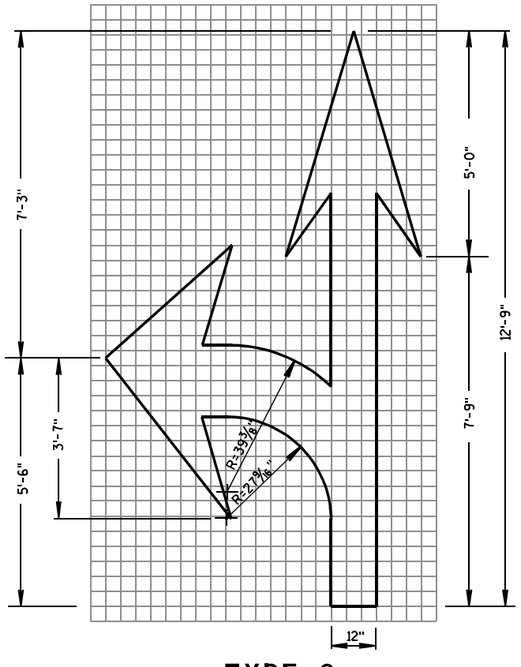
TYPE 5 LANE DROP ARROW



TYPE 1



TYPE 7



TYPE 3

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

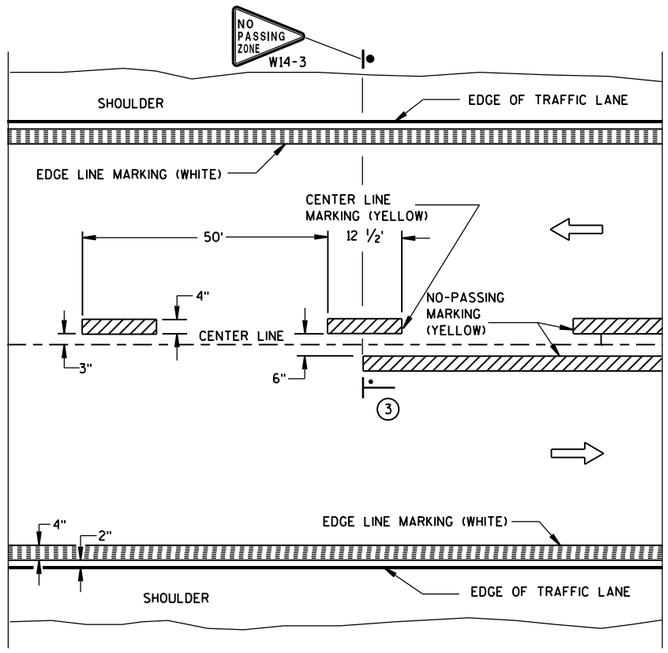
7/1/11 — DATE

/S/ Thomas N. Nothdurft — STATE TRAFFIC ENGINEER

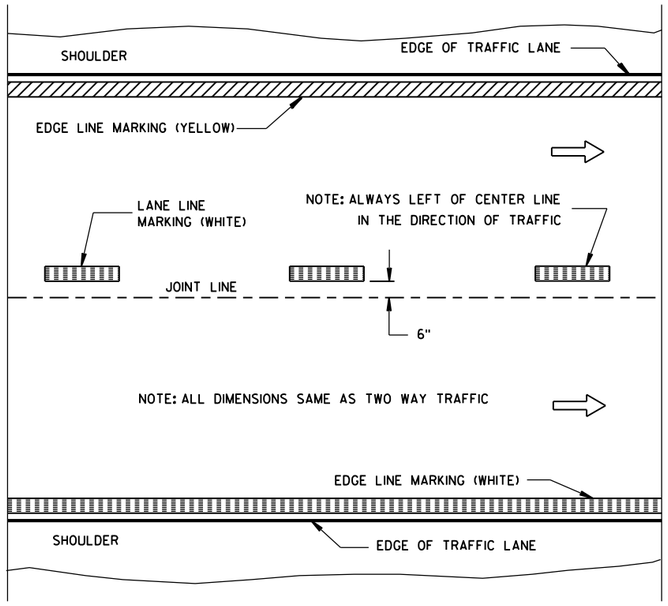
FHWA

6

S.D.D. 15 C 7-12c



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

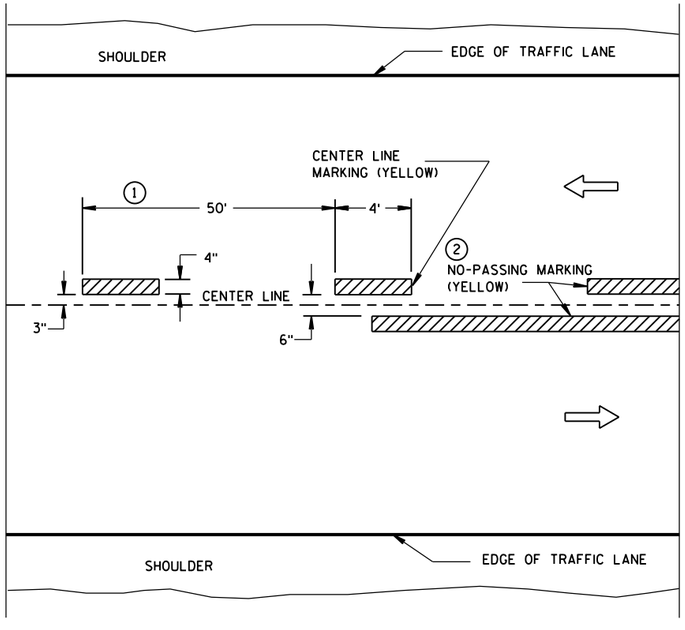
GENERAL NOTES

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

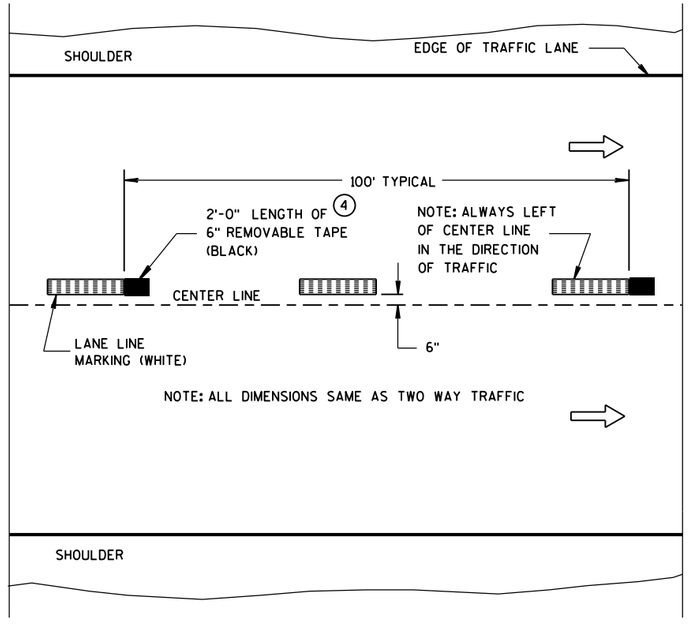
1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING 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



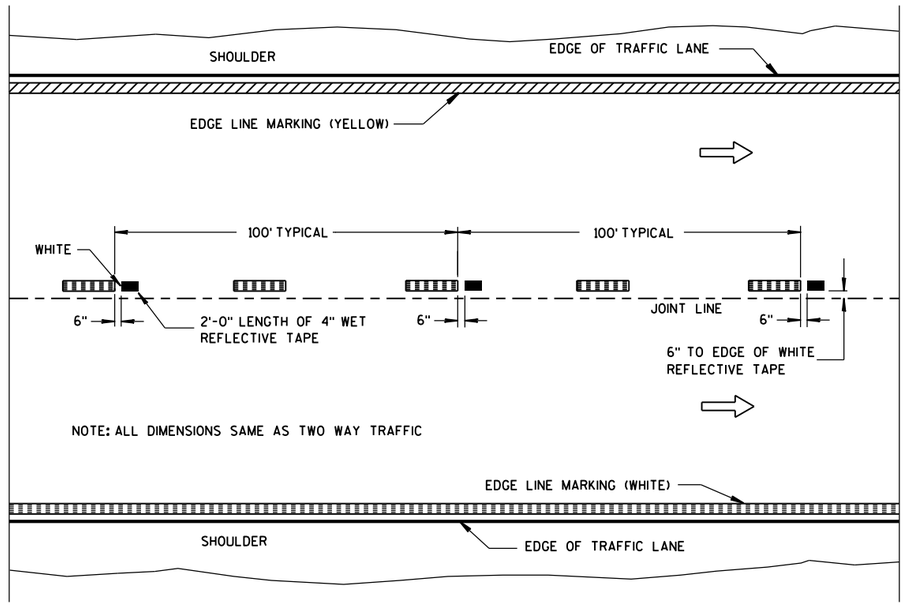
TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)



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

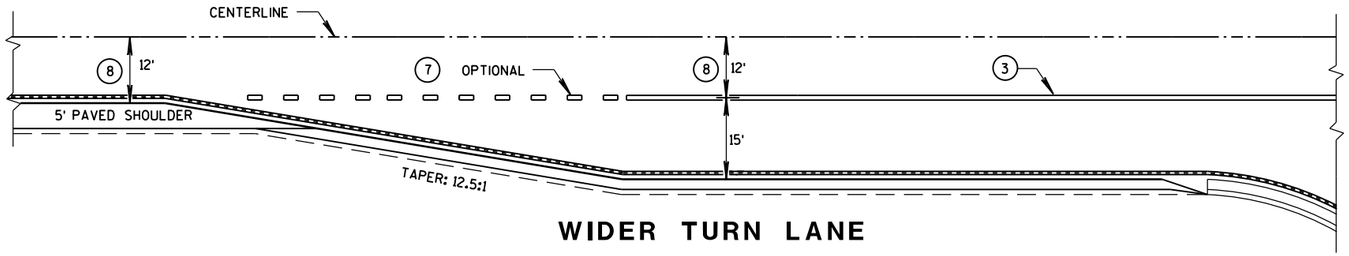
APPROVED
5-13-2013 DATE
/S/ Travis Feltes STATE TRAFFIC E
FHWA

6

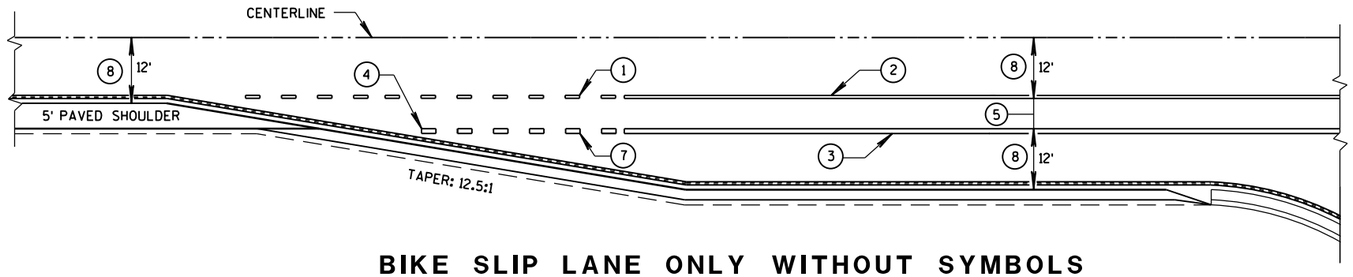
S.D.D. 15 C 8-16a

6

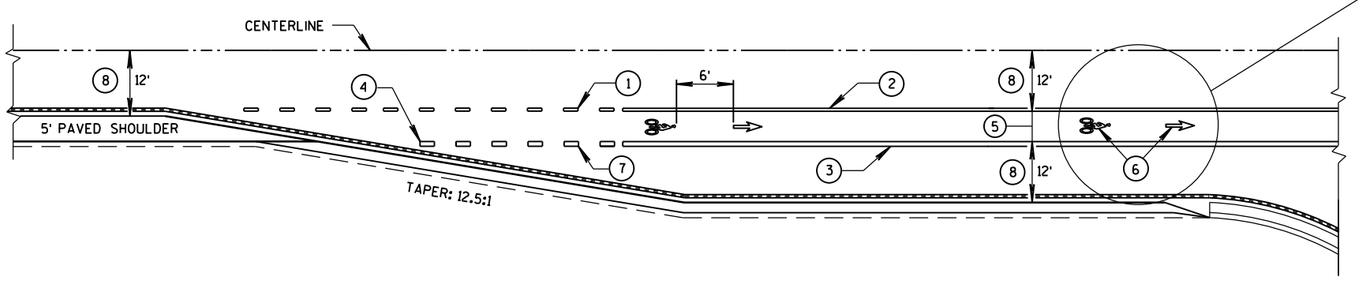
S.D.D. 15 C 8-16a



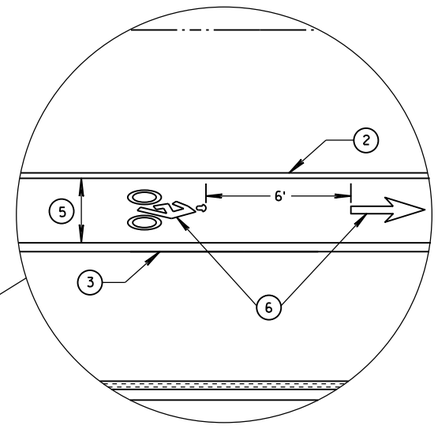
WIDER TURN LANE



BIKE SLIP LANE ONLY WITHOUT SYMBOLS



BIKE LANE WITH SYMBOLS



GENERAL NOTES

1. 3' LINE, 9' GAP - 4-INCH WIDE, WHITE.
2. 4-INCH, WHITE.
3. 8-INCH, WHITE.
4. IF SIGNED AND/OR MARKED AS A BICYCLE FACILITY INCLUDE SECOND LINE OF LINE-SPACE MARKING, OTHERWISE DO NOT.
5. BIKE ACCOMMODATION FOR CONCRETE PAVEMENT IS 5' WIDE. BIKE ACCOMMODATION FOR ASPHALT PAVEMENT IS A MINIMUM OF 4', 5' AT ≥ 45 MPH.
6. REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
7. 3' LINE, 9' GAP - 8-INCH WIDE, WHITE.
8. REFER TO CONTRACT PLANS.

BICYCLE LANE MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

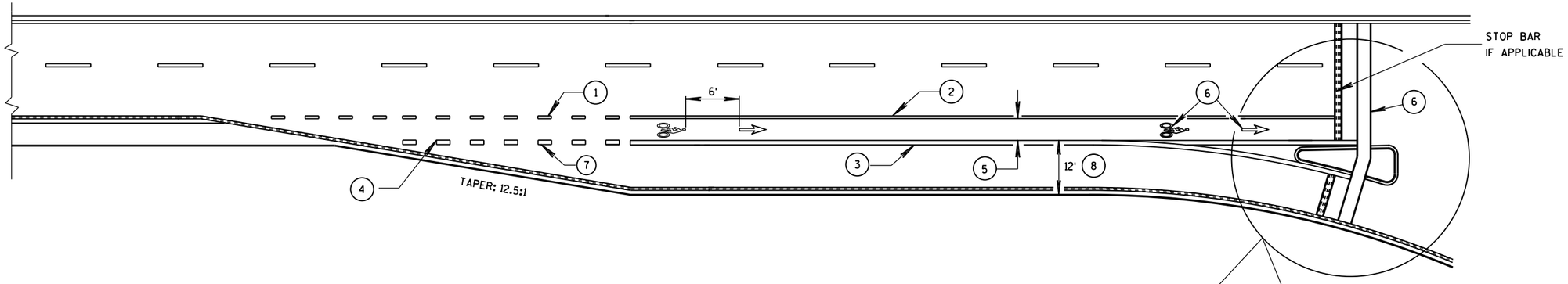
FHWA

6

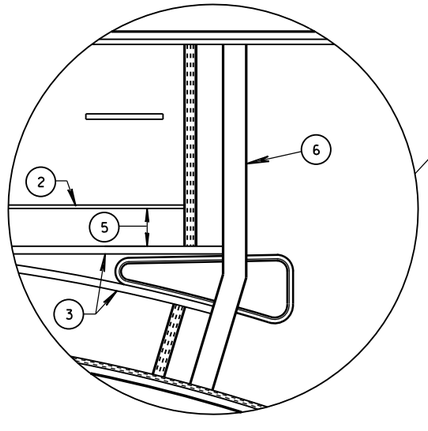
S.D.D. 15 C 29-3a

GENERAL NOTES

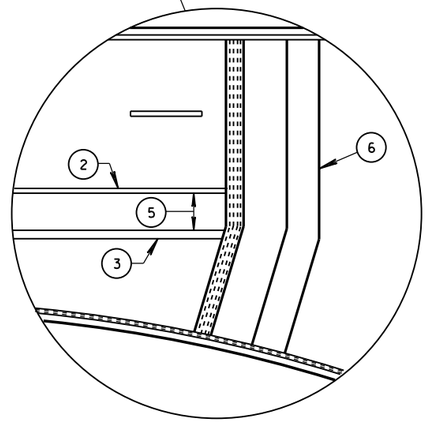
1. 3' LINE, 9' GAP - 4-INCH WIDE, WHITE.
2. 4-INCH, WHITE.
3. 8-INCH, WHITE.
4. IF SIGNED AND/OR MARKED AS A BICYCLE FACILITY INCLUDE SECOND LINE OF LINE-SPACE MARKING, OTHERWISE DO NOT.
5. 5' TYPICAL.
6. REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
7. 3' LINE, 9' GAP - 8-INCH WIDE, WHITE.
8. REFER TO CONTRACT PLANS.



BIKE LANE - 4-LANE DIVIDED WITH RIGHT TURN LANE



4 LANE DIVIDED WITH ISLAND



4 LANE DIVIDED WITHOUT ISLAND

BICYCLE LANE MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

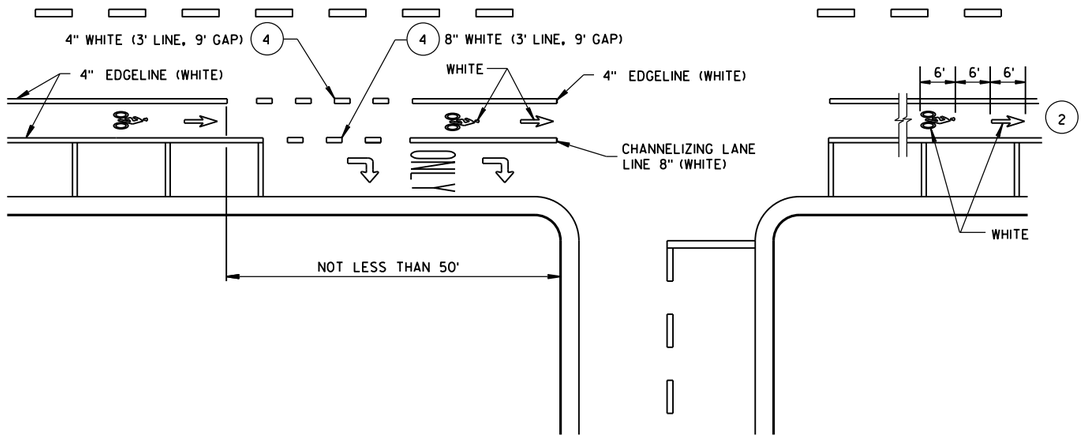
4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

6

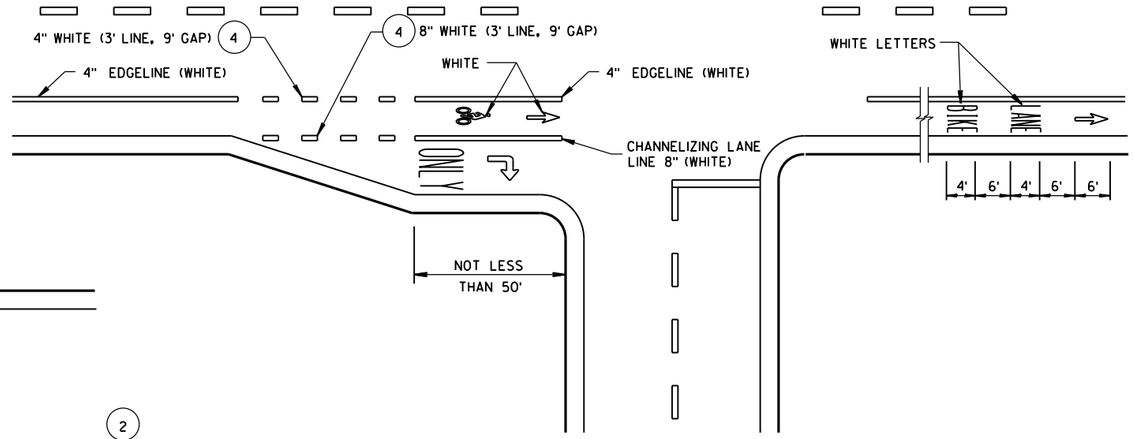
S.D.D. 15 C 29-3b



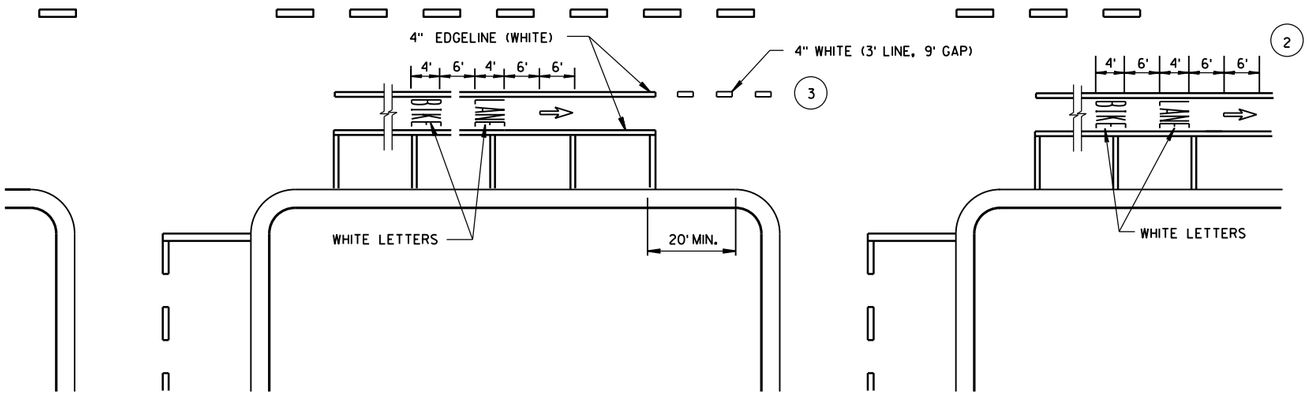
DESIGNATED BICYCLE LANE

GENERAL NOTES

1. DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
2. THE SERIES OF PAVEMENT MARKING SYMBOLS SHALL BE REPEATED AFTER INTERSECTIONS AND SPACED A MAXIMUM OF 250'. NO PAVEMENT MARKING WILL TAKE PLACE IN THE CROSSWALK.
3. DOTTED LINES SHOULD BE USED 50' TO 200' IN ADVANCE OF AN INTERSECTION WHERE THERE IS NO RIGHT TURN ONLY LANE AND THERE IS HEAVY RIGHT TURN TRAFFIC OR THERE IS A NEAR-SIDE BUS STOP. AT OTHER INTERSECTIONS WHERE RIGHT TURN TRAFFIC IS LIGHT TO MODERATE, A SOLID LINE CAN BE USED UP TO THE INTERSECTION.
4. WHEN SPECIFIED IN THE CONTRACT.



DESIGNATED BICYCLE LANE
NO PARKING, RIGHT TURN LANE



DESIGNATED BICYCLE LANE
WITH PARKING, NO RIGHT TURN LANE

URBAN BICYCLE LANE MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/30/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 C 29-3c

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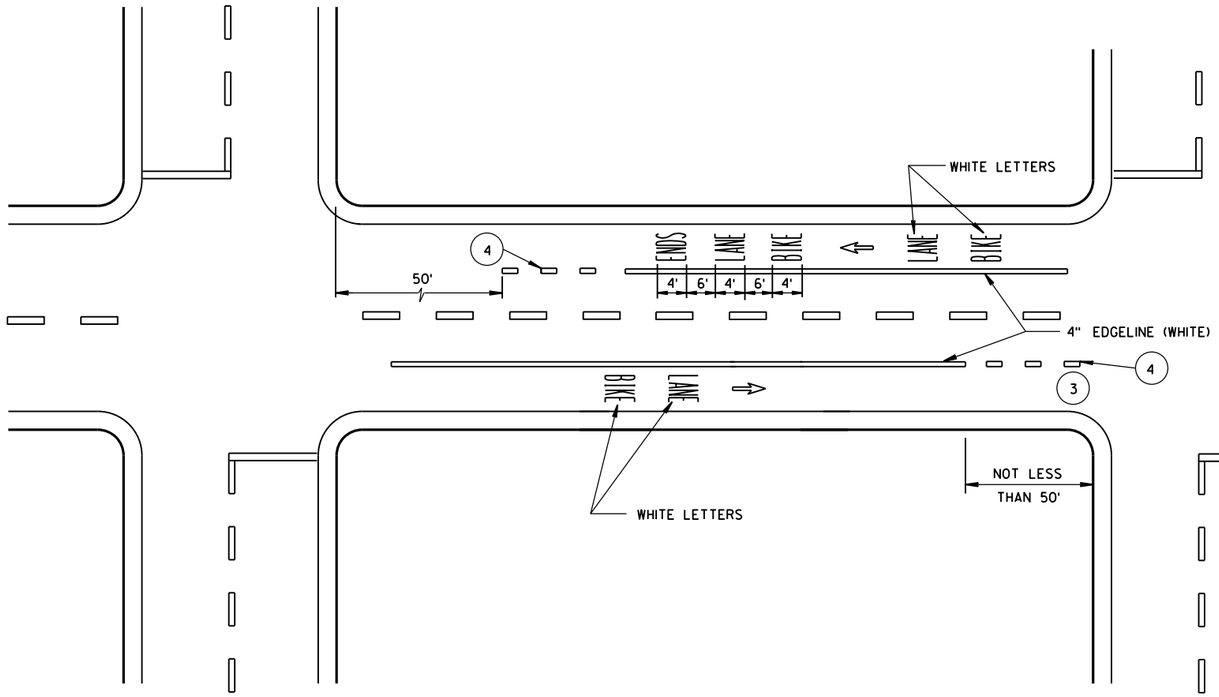
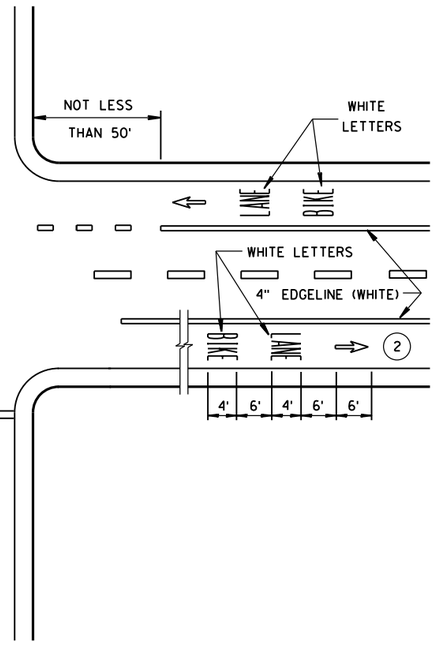
S.D.D. 15 C 29-3c

GENERAL NOTES

1. DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
2. THE SERIES OF PAVEMENT MARKING SYMBOLS SHALL BE REPEATED AFTER INTERSECTIONS AND SPACED A MAXIMUM OF 250'. NO PAVEMENT MARKING WILL TAKE PLACE IN THE CROSSWALK.
3. DOTTED LINES SHOULD BE USED 50' TO 200' IN ADVANCE OF AN INTERSECTION WHERE THERE IS NO RIGHT TURN ONLY LANE AND THERE IS HEAVY RIGHT TURN TRAFFIC OR THERE IS A NEAR-SIDE BUS STOP. AT OTHER INTERSECTIONS WHERE RIGHT TURN TRAFFIC IS LIGHT TO MODERATE, A SOLID LINE CAN BE USED UP TO THE INTERSECTION.
4. 3' LINE, 9' GAP - 4" WIDE, WHITE.





DESIGNATED BICYCLE LANE
NO PARKING

URBAN BICYCLE LANE MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
4/30/2013 DATE	/S/ Travis Feltes STATE TRAFFIC EN
FHWA	

6

S.D.D. 15 C 29-3d

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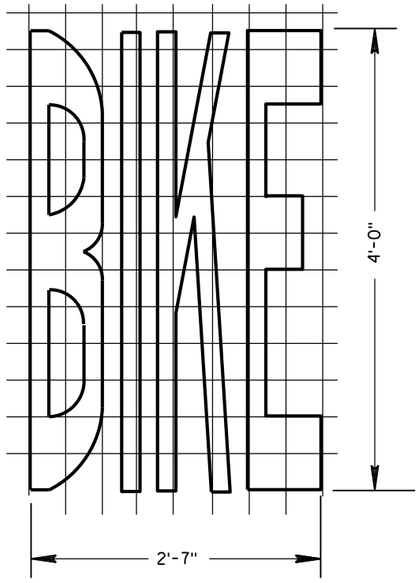
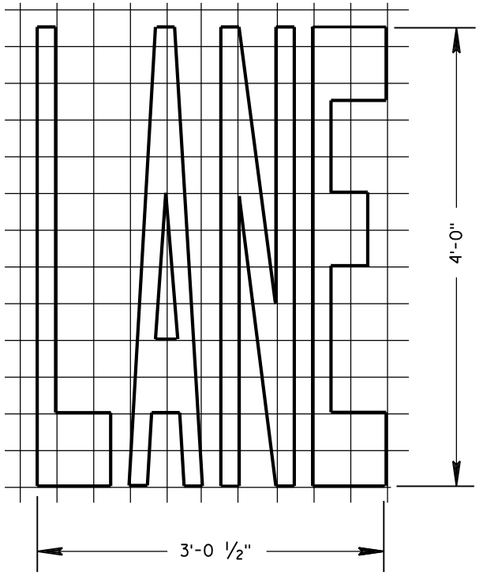
S.D.D. 15 C 29-3d

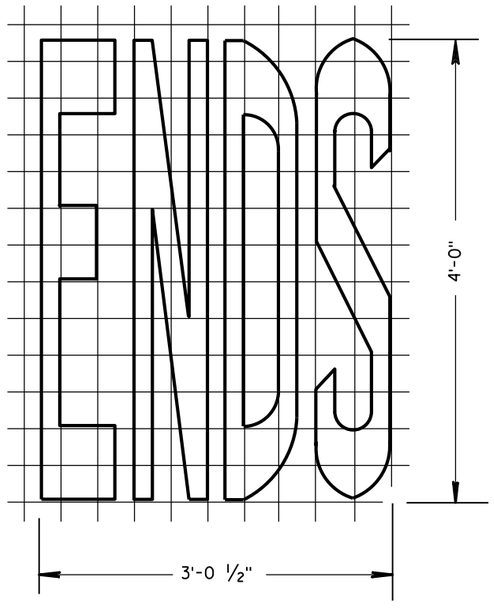
GENERAL NOTES

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

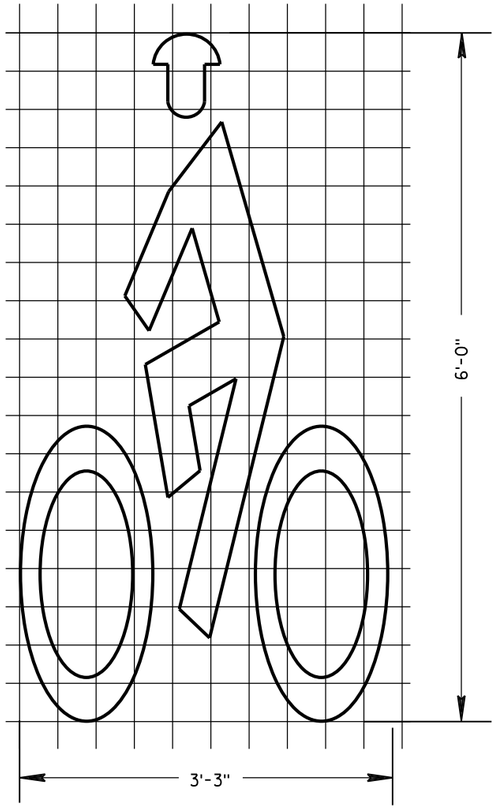
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



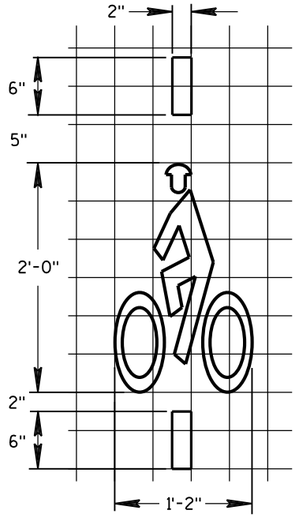




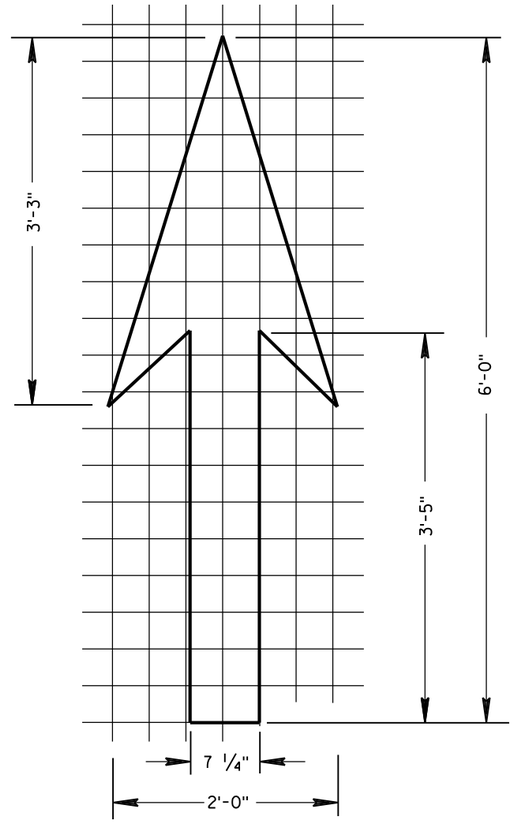
BIKE LANE WORDS



BIKE LANE SYMBOL



BICYCLE DETECTOR PAVEMENT MARKING



BIKE LANE ARROW

PAVEMENT MARKING FOR BIKE LANES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-30-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC EN

FHWA

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S.D.D. 15 C 29-3e

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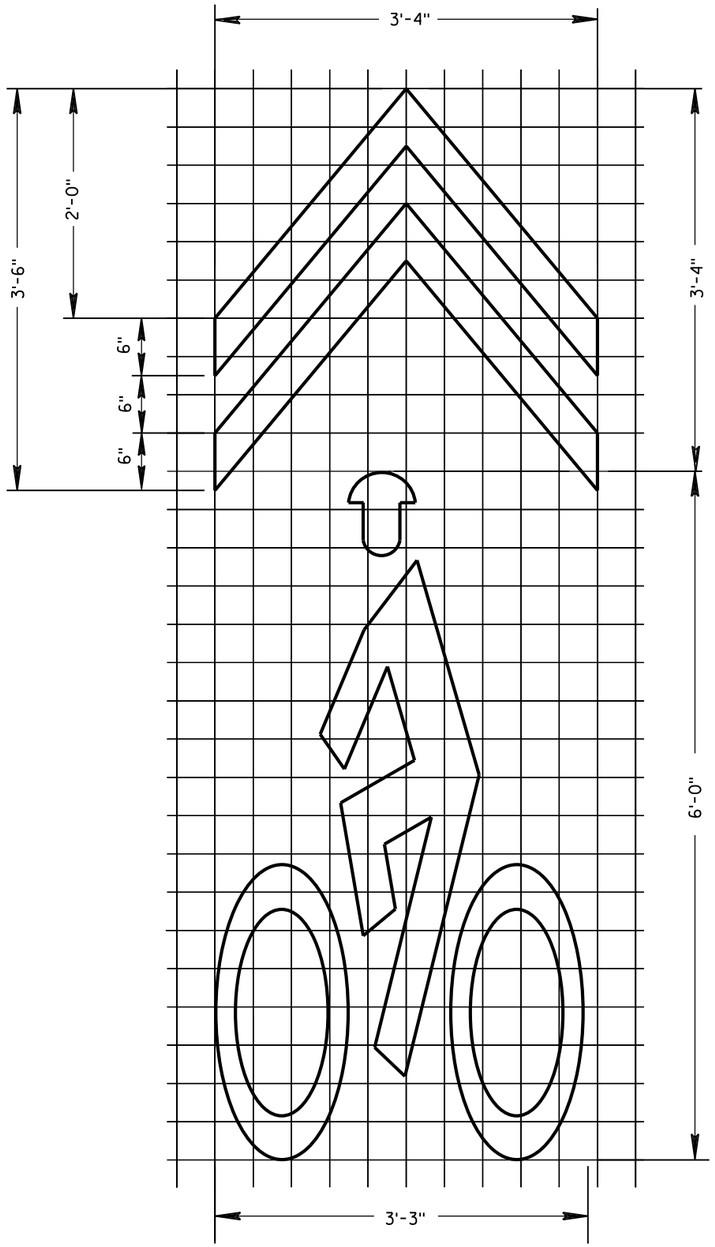
S.D.D. 15 C 29-3e



BIKE SYMBOL FOR SHARED LANE

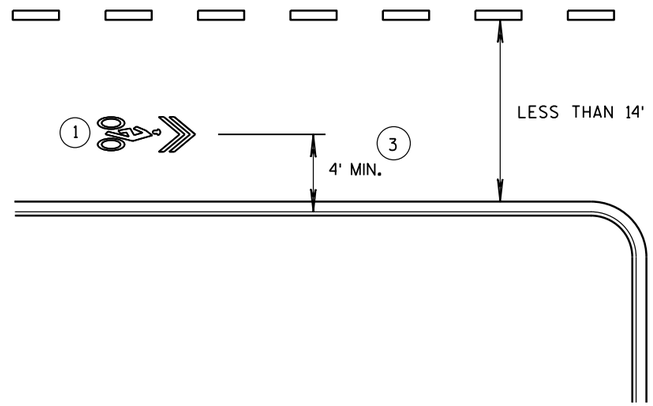
GENERAL NOTES

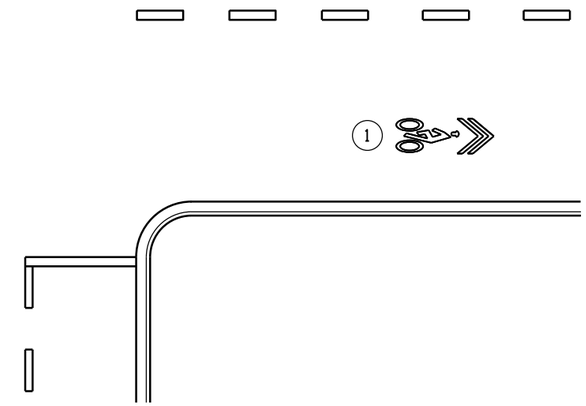
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.

(1) SPACED A MAXIMUM OF 250 FEET.

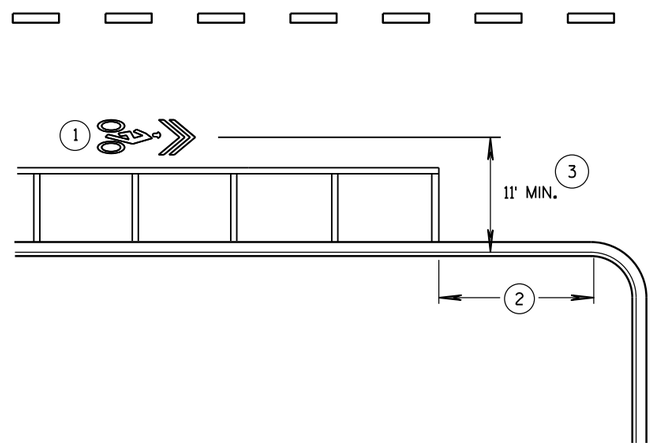
(2) 20 FOOT MINIMUM FROM CURB RADIUS.

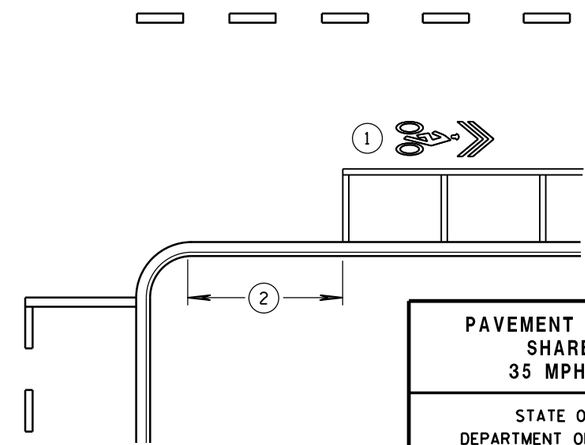
(3) OR TO EDGE OF PAVEMENT WITHOUT CURB.





WITHOUT PARKING





WITH PARKING

PAVEMENT MARKING FOR
SHARED LANE
35 MPH OR LESS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-30-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC EN

FHWA

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S.D.D. 15 C 29-3f

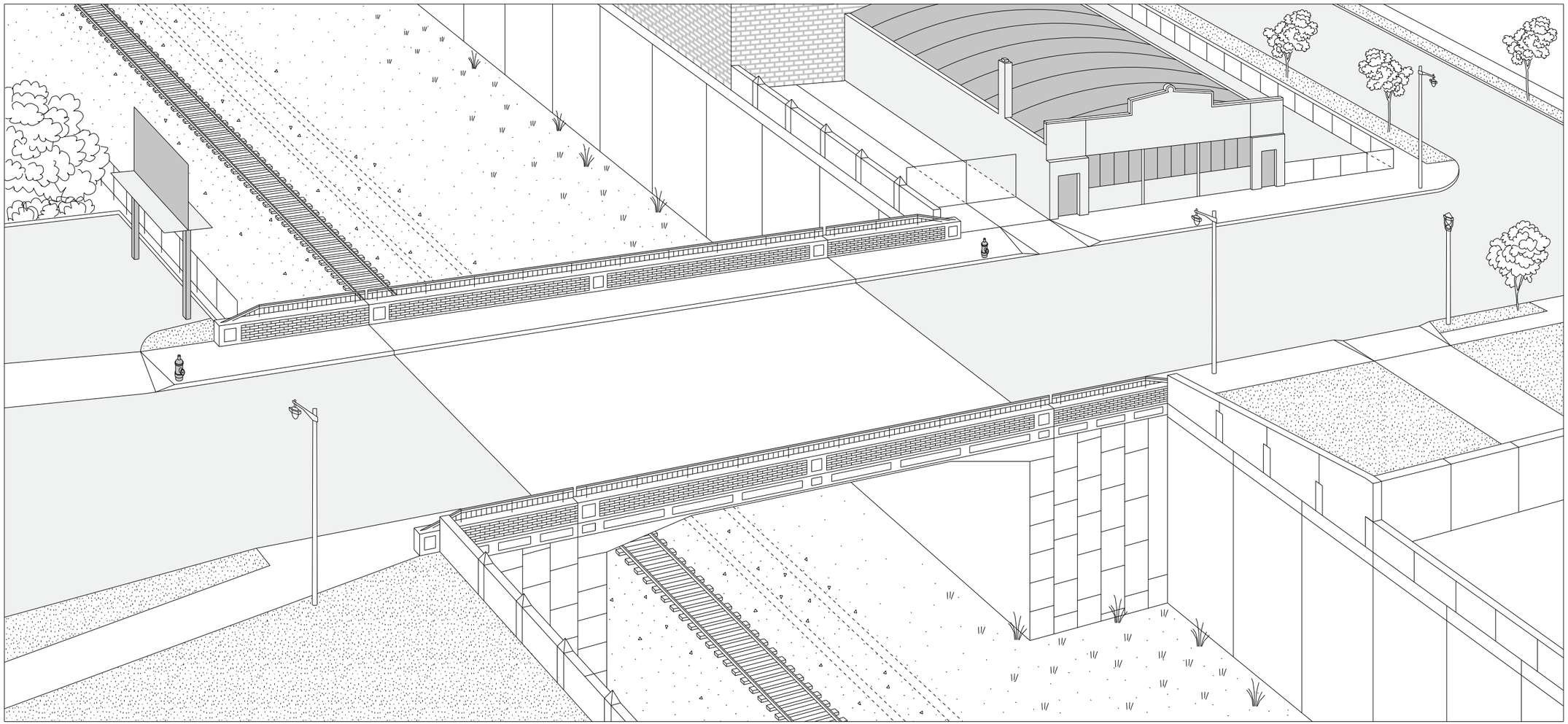
6

S.D.D. 15 C 29-3f

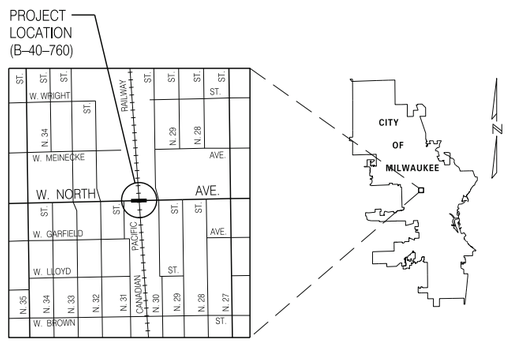
W:\STR\B0935\PLANS\01_TITLE.DGN 02-06-2014

WEST NORTH AVENUE BRIDGE
OVER THE CANADIAN PACIFIC RAILWAY

STATE PROJECT NUMBER
2135 - 03 - 70



LIST OF DRAWINGS



LOCATION MAP

WISCONSIN
CRAIG S. LIBERTO
E-23746
MILWAUKEE
WIS.
PROFESSIONAL ENGINEER

Craig S. Liberto 2/11/2015

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS
INFRASTRUCTURE SERVICES DIVISION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Drehe 2/11/15
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-40-760

W. NORTH AVE. BRIDGE OVER C.P. RAILWAY

COUNTY	~~TOWN~~/CITY/ ~~VILLAGE~~
MILWAUKEE	MILWAUKEE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION

DESIGNED BY H.J.R.	DESIGN CK'D. A.R.	DRAWN BY G.J.R.	PLANS CK'D. H.J.R. A.R.

TITLE SHEET

SHEET 1 OF 22
59

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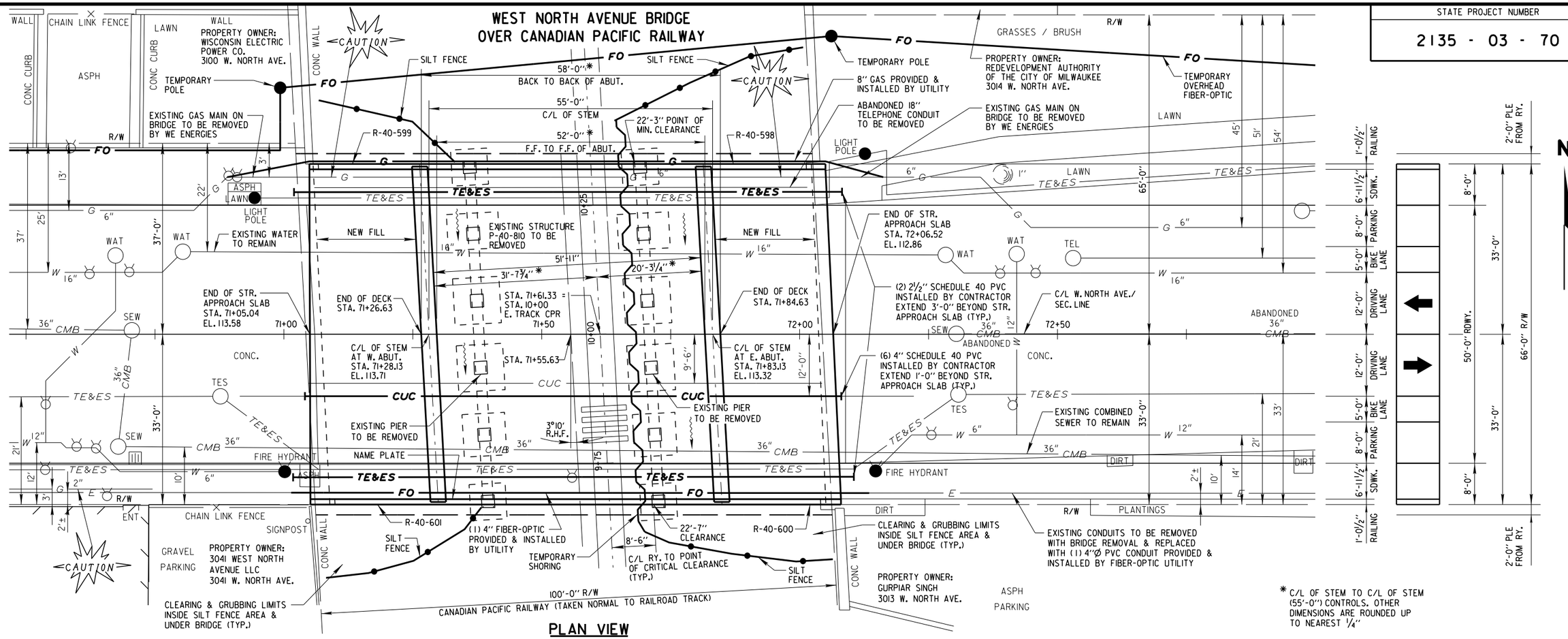
W:\STR\B0935\PLANS\02_SITE.DGN 09-02-2014

WEST NORTH AVENUE BRIDGE OVER CANADIAN PACIFIC RAILWAY

STATE PROJECT NUMBER

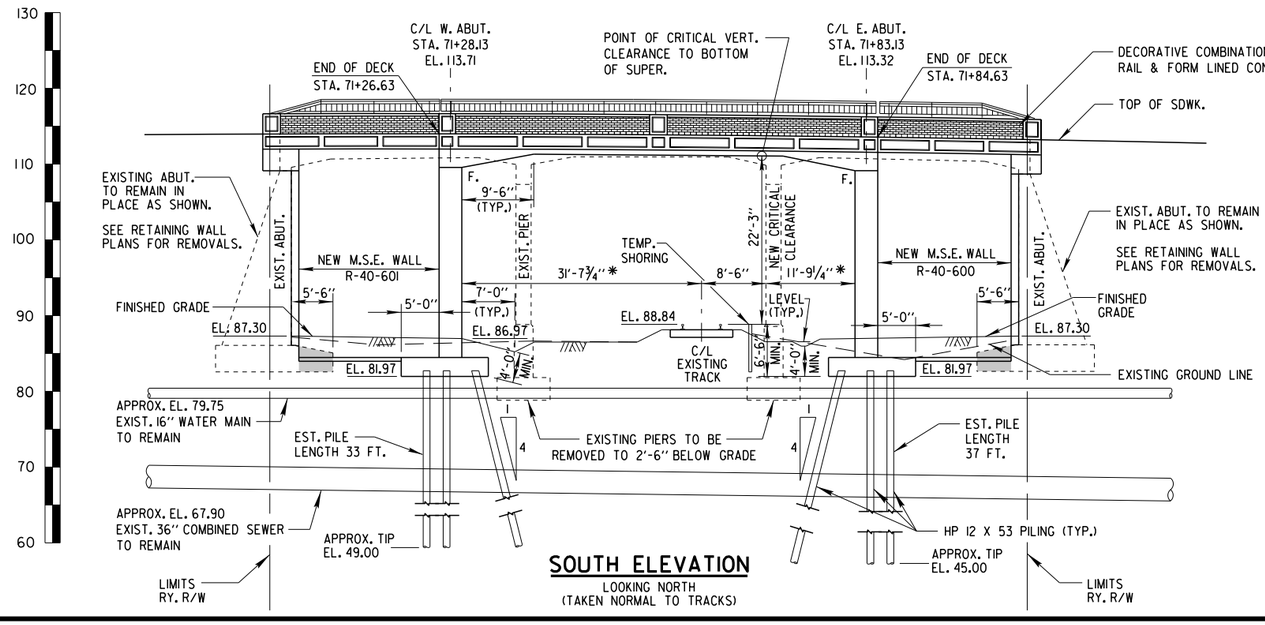
2135 - 03 - 70



PLAN VIEW

(SINGLE SPAN CONCRETE RIGID FRAME)

* C/L OF STEM TO C/L OF STEM (55'-0") CONTROLS. OTHER DIMENSIONS ARE ROUNDED UP TO NEAREST ¼"



SOUTH ELEVATION

LOOKING NORTH
(TAKEN NORMAL TO TRACKS)

NOTE: SEE PAVING PLANS FOR CLEARING, GRUBBING, EROSION MAT, SILT FENCE, TOPSOIL, & SOD QUANTITIES

WISDOT CONTACT:
WILLIAM DREHER 608-266-8489

CONSULTANT CONTACT:
CITY OF MILWAUKEE
CRAIG LIBERTO 414-286-3294

STD. B.M. @ S.E. CORNER OF N. 28TH ST. & W. NORTH AVE.
EL. 94.00
Y = 393242.10
X = 2548203.91

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY G.J.R. | PLANS CK'D. H.J.R. A.R.

SITE PLAN

SHEET 2 OF 22
60

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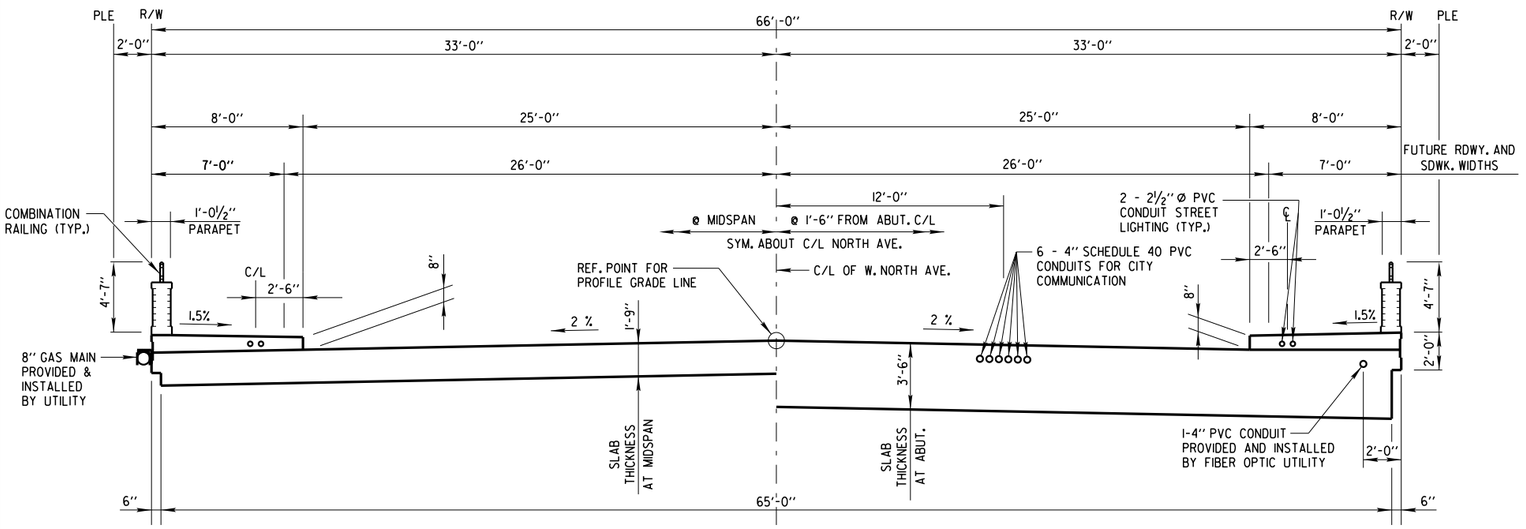
W:\STR\B0935\PLANS\ 03-SECTION.DGN 11-06-2014

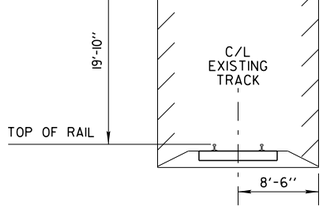
STATE PROJECT NUMBER

2135 - 03 - 70



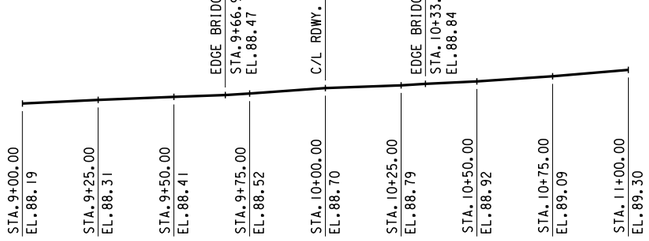
TYPICAL SECTION THRU NEW BRIDGE LOOKING EAST

(ALL DIMENSIONS NORMAL TO C/L OF BRIDGE)



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

NORMAL TO RAILROAD



PROFILE GRADE LINE ALONG EAST TRACK, WEST RAIL, CPR

TRAFFIC VOLUME

YEAR

A.D.T. (2015) = 15,700
A.D.T. (2035) = 18,100
R.D.S. = 30 MPH

DESIGN DATA

DEAD LOAD

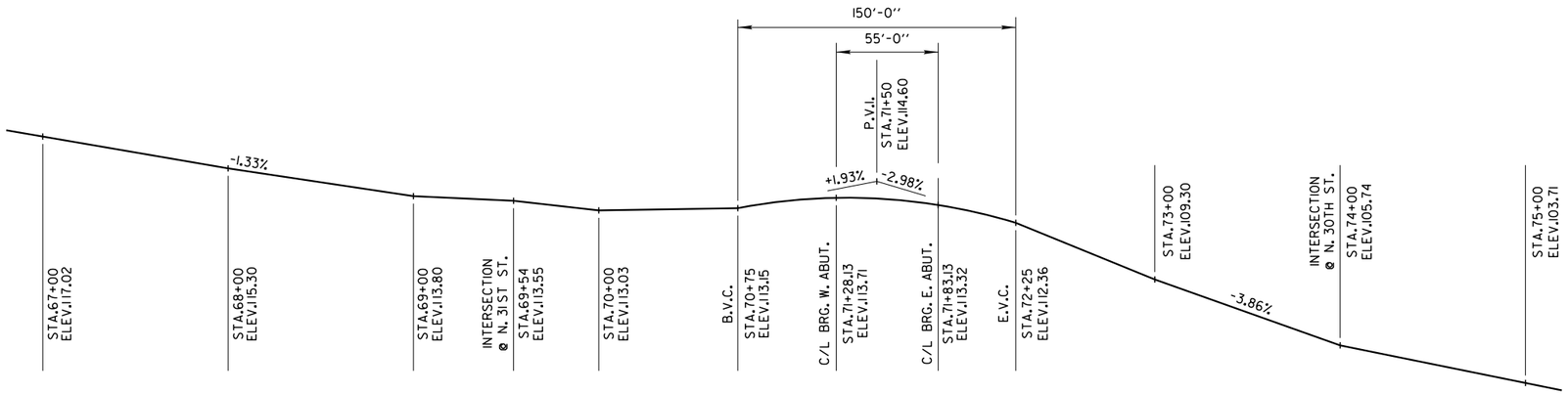
CONCRETE	= 150 LB/CF
F.W.S.	= 20 LB/SF
PARAPET	= 430 LB/LF

LIVE LOAD

DESIGN RATING:	HL-93
INVENTORY RATING FACTOR:	RF=1.01
OPERATING RATING FACTOR:	RF=1.31
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV)	= 250 KIPS

ULTIMATE DESIGN STRESSES

CONCRETE MASONRY DECK	f'c = 4,000 PSI
CONCRETE MASONRY (ALL OTHERS)	f'c = 3,500 PSI
BAR STEEL REINFORCEMENT	f y = 60,000 PSI



PROFILE GRADE LINE ALONG C/L OF W. NORTH AVE.

FOUNDATION DATA

EAST ABUTMENT TO BE SUPPORTED ON HP 12 X 53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220 TONS* PER PILE AS DETERMINED BY MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 37'-0" LONG.

WEST ABUTMENT TO BE SUPPORTED ON HP 12 X 53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220 TONS* PER PILE AS DETERMINED BY MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 33'-0" LONG.

* 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 DRIVING PILE CAPACITY.

GENERAL NOTES

ALL DETAILS, MATERIALS AND FABRICATION SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION EDITION OF 2015 EXCEPT AS OTHERWISE NOTED.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

ALL ELEVATIONS ARE REFERRED TO CITY OF MILWAUKEE DATUM = 580.6 NGVD

DRAWINGS SHALL NOT BE SCALED.

BEVEL EXPOSED EDGES OF CONCRETE 1" UNLESS OTHERWISE NOTED.

BENDING DIMENSIONS FOR REINFORCING ARE OUT TO OUT.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES BAR SIZE.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR, OR 3" CLEAR COVER AGAINST EARTH UNLESS OTHERWISE NOTED.

EXISTING GROUND LINE SHALL BE UPPER LIMITS OF "EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL".

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR SUBSTRUCTURE UNLESS ALTERNATE METHOD IS APPROVED BY ENGINEER.

ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE OR MSE WALL FILL SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

JOINT FILLER SHALL CONFORM TO AASHTO DESIGNATION M153 TYPE I, TYPE II, OR TYPE III, OR AASHTO DESIGNATION M213.

INFORMATION SHOWN ON DRAWINGS CONCERNING TYPE AND LOCATION ON UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE.

CONTRACTOR IS RESPONSIBLE FOR MAKING DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGES.

RAILROAD SHORING SHALL CONFORM TO OSHA STANDARDS FOR EXCAVATION AND MUST BE DESIGNED FOR RAILROAD LIVE LOAD SURCHARGE FOR COOPER E-80. FINAL LOCATION AND TYPE OF SHORING SYSTEM TO BE DETERMINED BY CONTRACTOR. CONTRACTOR SHALL SUBMIT DESIGN DRAWINGS AND CALCULATIONS DIRECTLY TO CANADIAN PACIFIC RAILWAY.

TEMPORARY MINIMUM CLEARANCE OF 19'-10" SHALL BE MAINTAINED ABOVE RAILROAD TRACKS AT ALL TIMES UNLESS PRIOR CONSENT IS GIVEN BY ENGINEER.

THE ELEVATION OF THE EXISTING TOP-OF-RAIL PROFILE SHALL BE VERIFIED BEFORE BEGINNING CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.

FOR RAILROAD COORDINATION PLEASE REFER TO THE RAILROAD MINIMUM REQUIREMENTS AS PART OF SPECIAL PROVISIONS.

TEMPORARY SHORING SHALL NOT EXTEND ABOVE THE ELEVATION OF THE TOP RAIL ADJACENT TO THE SHORING.

EXISTING BRIDGE (P-40-810) PLANS MAY BE FOUND ON WISCONSIN DOT HIGHWAY STRUCTURES INFORMATION (HSI) SITE.

REFER TO SPECIAL PROVISIONS FOR CONCRETE STAIN, AND CONCRETE STAIN MULTICOLOR.

PAINT FOR STEEL RAILING TO MATCH FEDERAL STANDARD NO. 595C, NO. 27038.

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF BRIDGE B-40-760 AND RETAINING WALLS R-40-598, R-40-599, R-40-600, R-40-601.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY G.J.R. | PLANS CK'D. A.R. H.J.R.

CROSS SECTION

SHEET 3 OF 22

8

8

W:\STR\B0935\PLANS\ 04_QUANTITIES.DGN 02-06-2015

STATE PROJECT NUMBER

2135 - 03 - 70

ESTIMATE OF QUANTITIES

	ITEM NO.	BID ITEM	UNIT	WEST ABUTMENT	EAST ABUTMENT	SUPER-STRUCTURE	E. STRUC. APPR. SLAB	W. STRUC. APPR. SLAB	TOTAL
	203.0200	REMOVING OLD STRUCTURE (71+55.63)	LS						1
	205.0501.S	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	366	366				732
	210.0100	BACKFILL STRUCTURE	CY	722.5	722.5				1,445
	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON				213	210	423
	502.0100	CONCRETE MASONRY BRIDGES	CY	248	245	357	104	102	1,056
	502.3200	PROTECTIVE SURFACE TREATMENT	SY			422	140	138	700
	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	18,710	18,627				37,337
	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	13,262	13,177	58,282	16,548	16,556	117,825
	511.1200	TEMPORARY SHORING (B-40-760)	SF		156				156
	516.0100	DAMPPROOFING	SY	183	181				364
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	26	26				52
	517.1010.S	CONCRETE STAINING (B-40-760)	SF			443	178	176	797
	517.1015.S	CONCRETE STAINING MULTI-COLOR (B-40-760)	SF			408	69	68	545
	517.1050.S	ARCHITECTURAL SURFACE TREATMENT (B-40-760)	SF			408	69	68	545
*	550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	155	210				365
	550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	1,760	1,972				3,732
	612.0106	PIPE UNDERDRAIN 6-INCH	LF	66	66				132
	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	6	6				12
	645.0111	GEOTEXTILE FABRIC TYPE DF SCHEDULE A	SY	116	116				232
	652.0230	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH	LF						430
	652.0240	CONDUIT RIGID NONMETALLIC SCHEDULE 40 4-INCH	LF						622
	999.1000.S	SEISMOGRAPH	LS						1
	999.1500.S	CRACK AND DAMAGE SURVEY	LS						1
	SPV.0085.01	BAR STEEL REINFORCEMENT HS STAINLESS BRIDGES	LB			2,176			2,176
	SPV.0105.01	RAILING STEEL TYPE C2 GALVANIZED (B-40-760)	LS						1
	SPV.0105.02	DEBRIS CONTAINMENT SPECIAL STRUCTURE P-40-810	LS						1
		NON BID ITEMS							
		PREFORMED JOINT FILLER	LF						
		NON BITUMINOUS JOINT FILLER	LF						
		NAME PLATE	EACH						
		POLYETHYLENE SHEETS	SF						

* INCLUDES PRE-BORING FOR DETERMINING UTILITY LOCATION PRIOR TO TEMPORARY SHORING PLACEMENT.

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

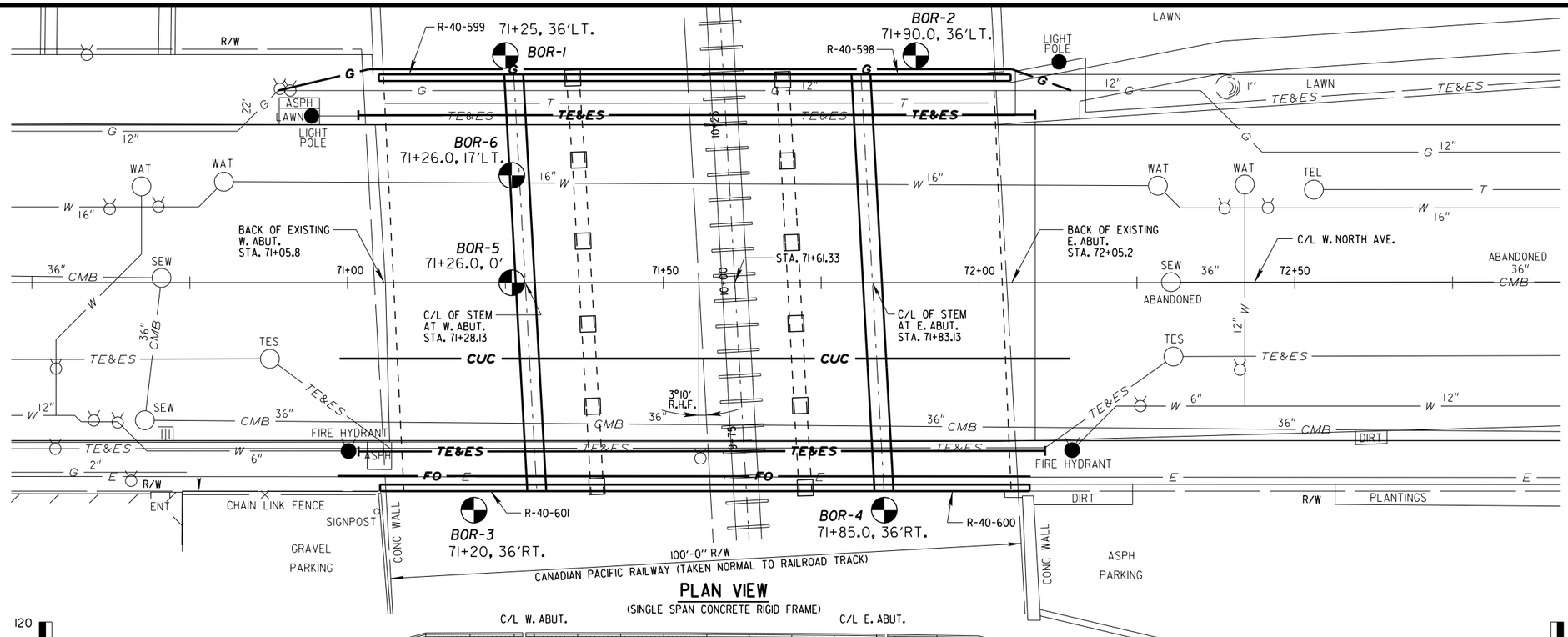
STRUCTURE B-40-760

DRAWN BY T.P.W. | PLANS CK'D. H.J.R.

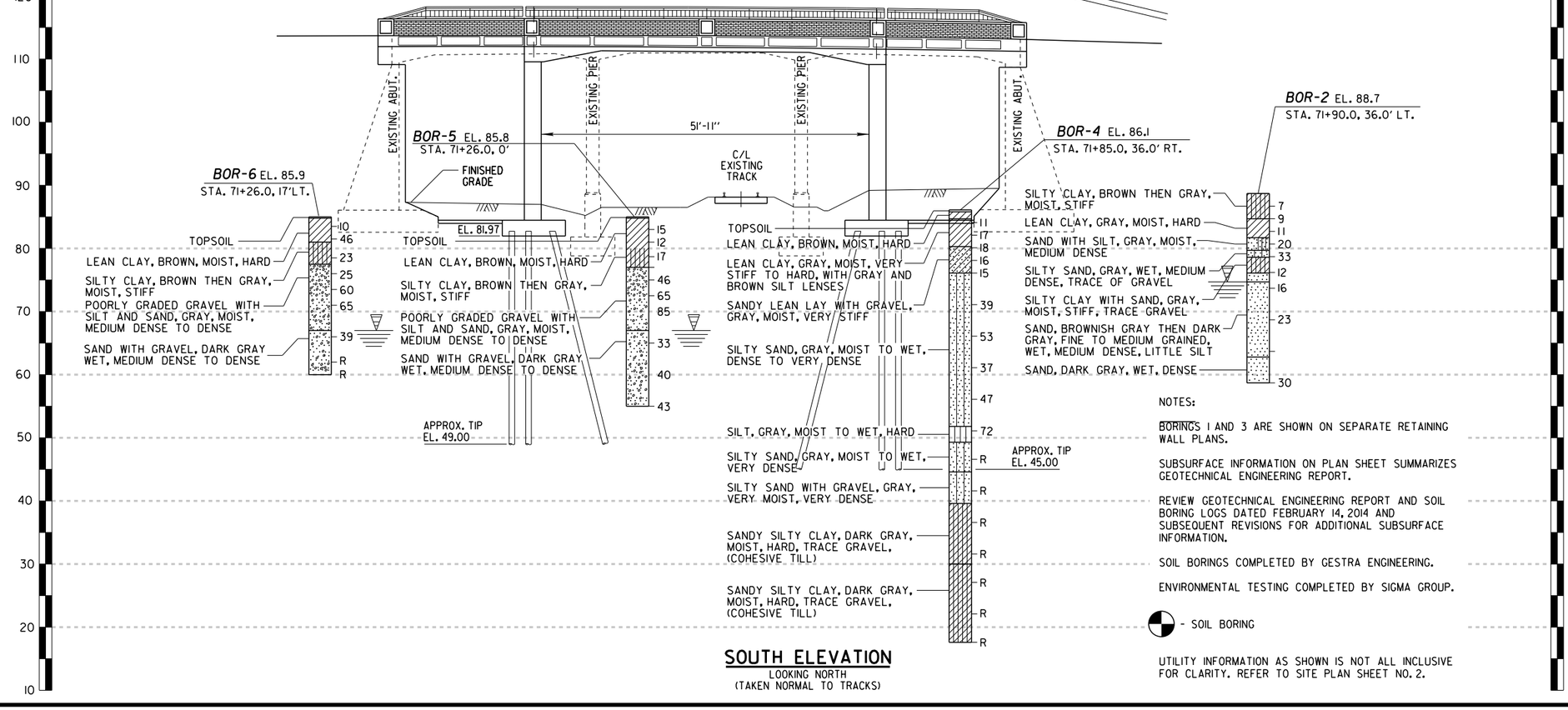
ESTIMATE OF QUANITITIES

SHEET 4 OF 22

W:\STRUB0935\PLANS\ 05_SUBSURFACE.DGN 08/27/2014



PLAN VIEW
(SINGLE SPAN CONCRETE RIGID FRAME)



SOUTH ELEVATION
LOOKING NORTH
(TAKEN NORMAL TO TRACKS)

NOTES:

BORINGS 1 AND 3 ARE SHOWN ON SEPARATE RETAINING WALL PLANS.

SUBSURFACE INFORMATION ON PLAN SHEET SUMMARIZES GEOTECHNICAL ENGINEERING REPORT.

REVIEW GEOTECHNICAL ENGINEERING REPORT AND SOIL BORING LOGS DATED FEBRUARY 14, 2014 AND SUBSEQUENT REVISIONS FOR ADDITIONAL SUBSURFACE INFORMATION.

SOIL BORINGS COMPLETED BY GESTRA ENGINEERING.

ENVIRONMENTAL TESTING COMPLETED BY SIGMA GROUP.

⊕ - SOIL BORING

UTILITY INFORMATION AS SHOWN IS NOT ALL INCLUSIVE FOR CLARITY. REFER TO SITE PLAN SHEET NO. 2.

STATE PROJECT NUMBER

2135 - 03 - 70

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING

95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

LEGEND OF BORING

BORING NO.
STA.
ELEV.
UNCONFINED STRENGTH → 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION
SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO LIMESTONE

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

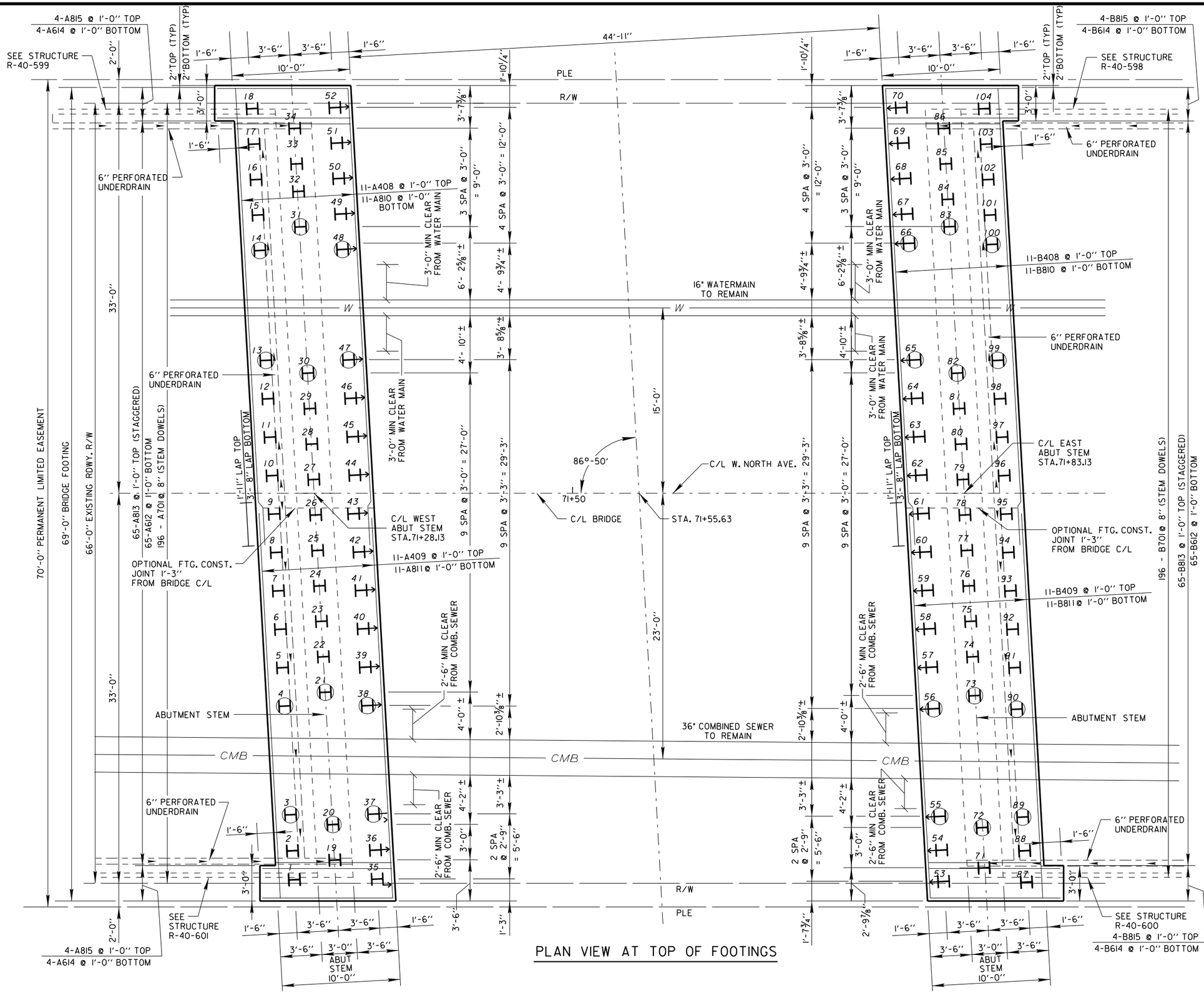
DRAWN BY G.J.R. | PLANS CK'D. H.J.R. A.R.

SUBSURFACE EXPLORATION LAYOUT

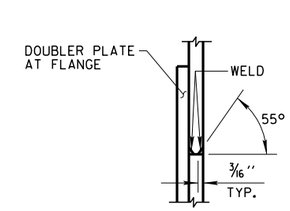
SHEET 5 OF 22
63

W:\STR\B0935\PLANS\06_ABUTFTG.DGN 08-27-2014

STATE PROJECT NUMBER
2135 - 03 - 70

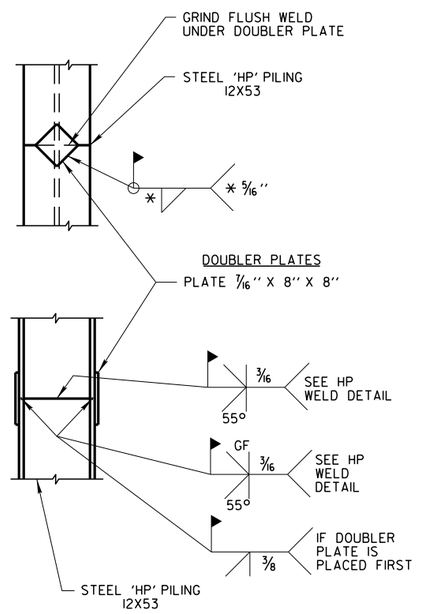


PLAN VIEW AT TOP OF FOOTINGS



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR



STEEL 'HP' SHAPES

DIRECTION OF 1:4 PILE BATTER

DENOTES PREBORING PILE TO ELEVATION BELOW UTILITY

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY	S.J.S.	PLANS CK'D.	H.J.R. A.R.

ABUTMENT FOOTING PLAN

SHEET 6 OF 22
64

8

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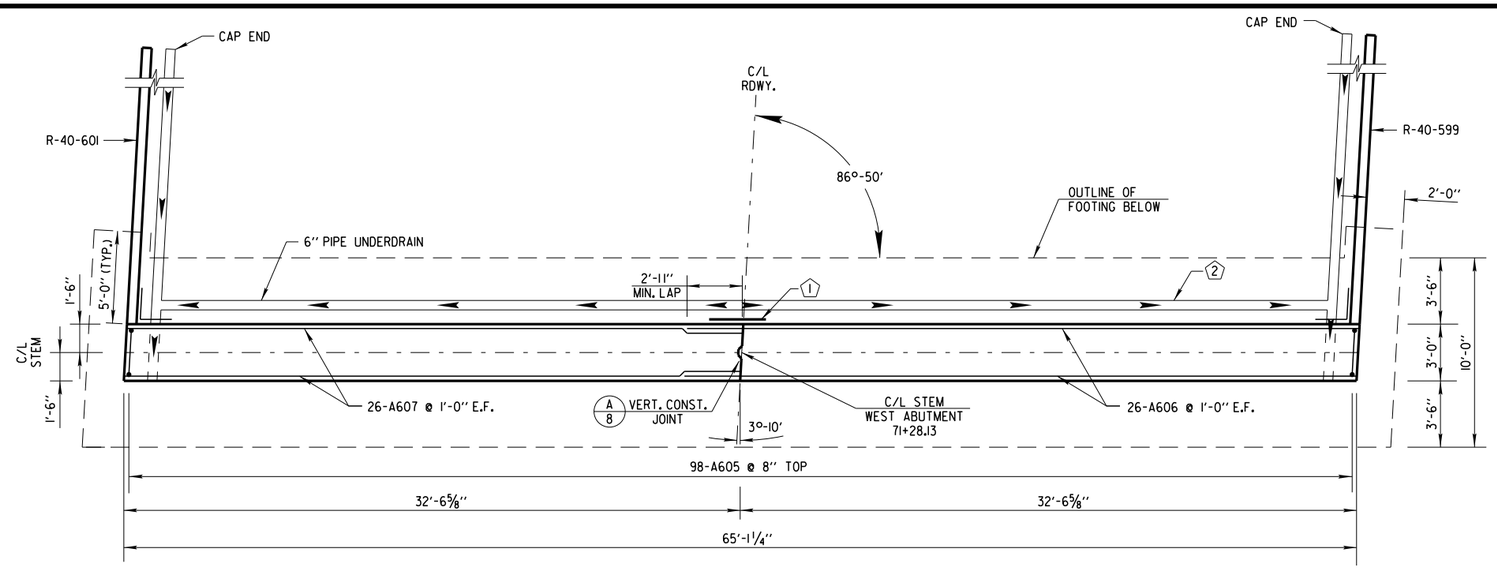
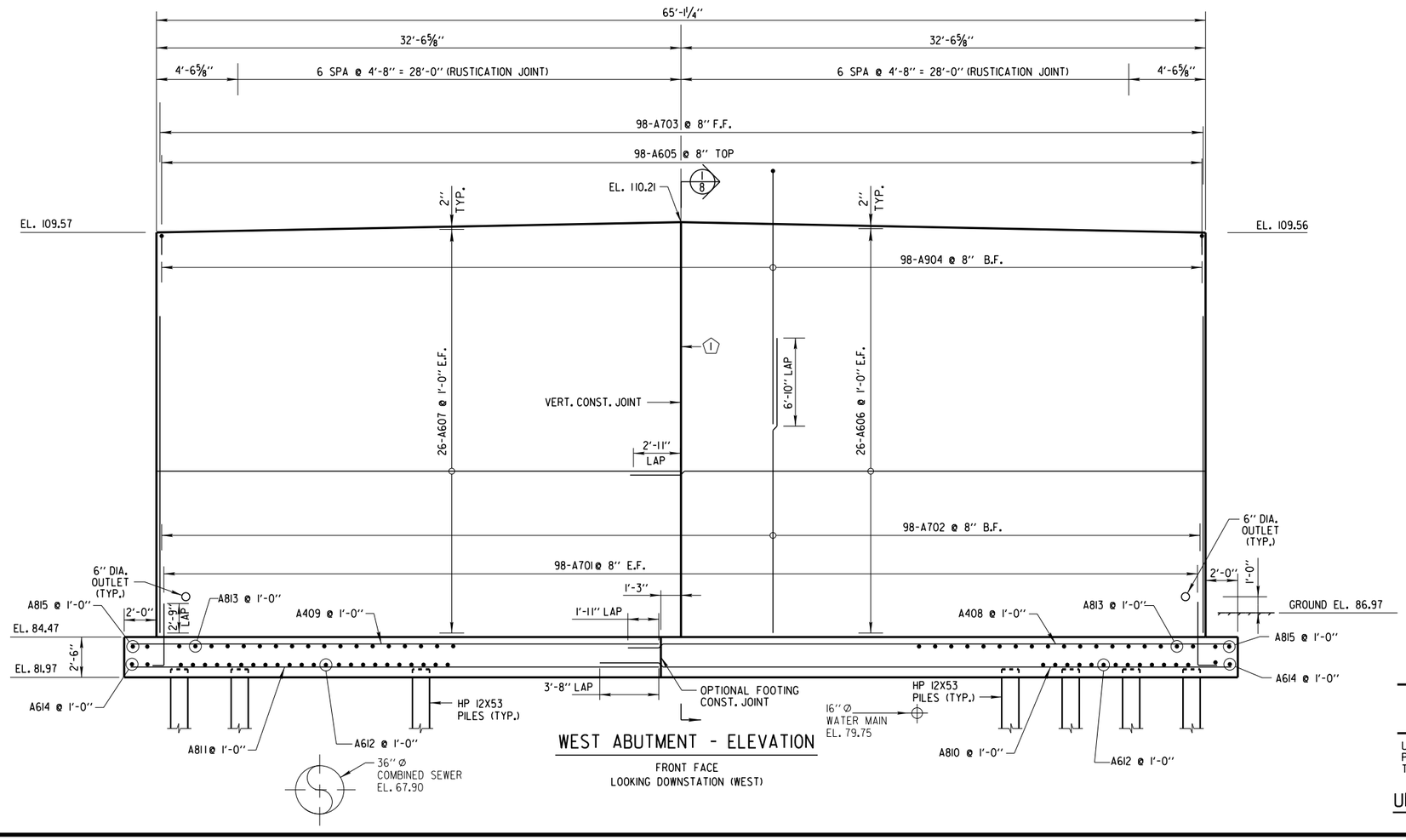
STATE PROJECT NUMBER
2135 - 03 - 70

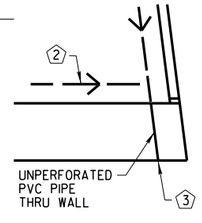


WEST ABUTMENT - PLAN VIEW



WEST ABUTMENT - ELEVATION

FRONT FACE
LOOKING DOWNSTATION (WEST)



UNDERDRAIN DETAIL

N

ABUTMENT NOTES:

1. 18-INCH RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE. VERTICAL WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF MSE WALLS.

2. 6-INCH PERFORATED PIPE UNDERDRAIN ALONG BACK FACE OF ABUTMENT AND MSE WALLS.

3. ATTACH RODENT SHIELD PER S.S.D. REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. SEE DETAIL ON SHEET 8.

RUN BAR STEEL THRU CONSTRUCTION JOINT.

PLACE FULL HEIGHT VERTICAL RUSTICATION JOINTS AS SHOWN ON THE ELEVATIONS ALONG LENGTH OF FRONT FACE OF ABUTMENT. RUSTICATION JOINT SHOULD LINE UP WITH VERTICAL CONSTRUCTION JOINT ON ABUTMENT. SEE DETAIL SHEET 8.

PLACE FULL WIDTH HORIZONTAL RUSTICATION AT END FACE OF ABUTMENT TO MATCH MSE WALL PATTERN. SEE DETAIL SHEET 8.

F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

BACKFILL EACH FACE OF ABUTMENT EQUALLY TO APPROXIMATE EL. 86.00. DO NOT BACKFILL ABOVE EL. 86.00 AT BACKFACE UNTIL SUPERSTRUCTURE HAS ACHIEVED 3,500 PSI OR CONTRACTOR DESIGNED BRACING STRUTS ARE INSTALLED.

BACKFILL ABOVE EL. 86.00 MUST BE PLACED AT EAST AND WEST ABUTMENTS SIMULTANEOUSLY. ELEVATION OF BACKFILL AT BOTH ABUTMENTS SHALL VARY BY NO MORE THAN 5 FT DURING BACKFILL PLACEMENT. COORDINATE THIS WORK WITH ADJACENT RETAINING WALL STRUCTURES.

STAGGER TOP AND BOTTOM MAT TRANSVERSE REINFORCEMENT IN FOOTING TO PREVENT CRACKING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY D.B. | PLANS CK'D. H.J.R. A.R.

WEST ABUTMENT PLAN AND ELEVATION

SHEET 7 OF 22
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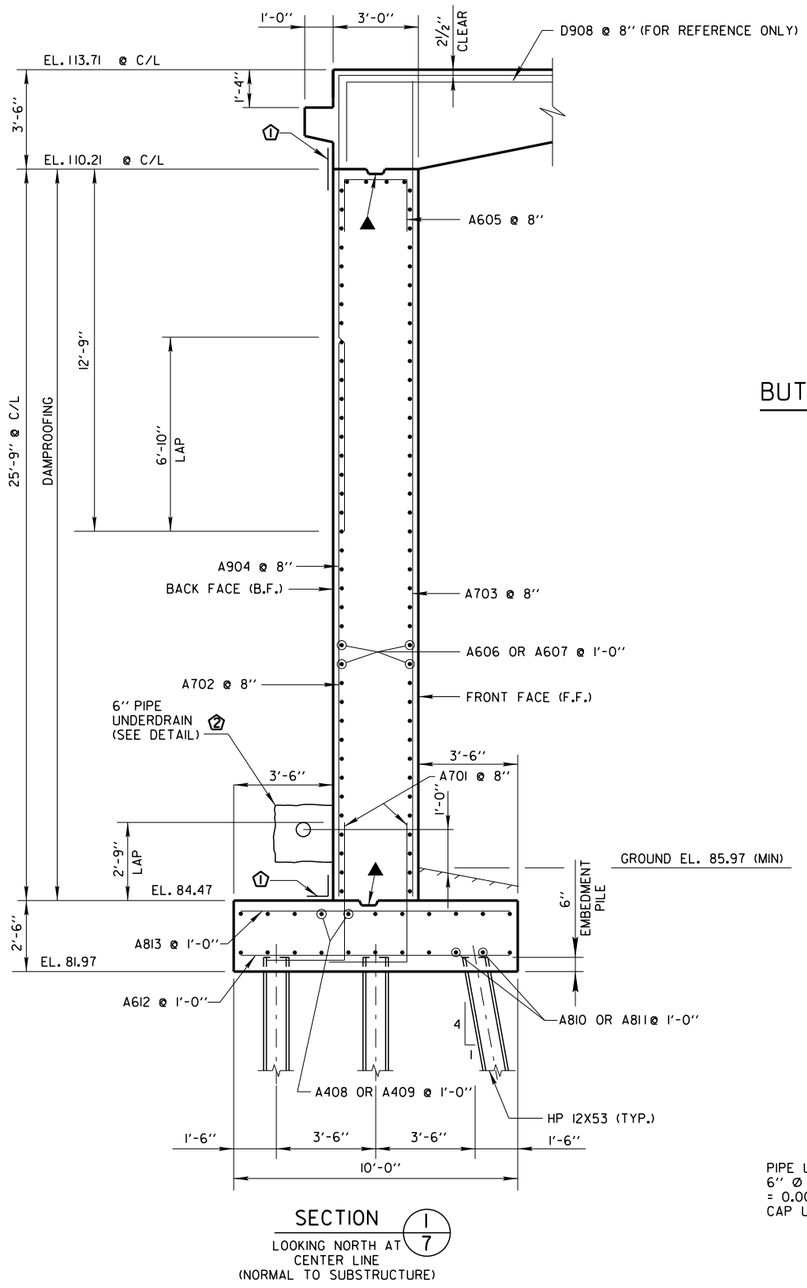
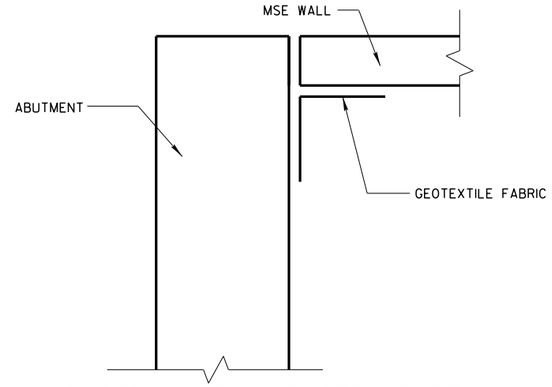
STATE PROJECT NUMBER

2135 - 03 - 70



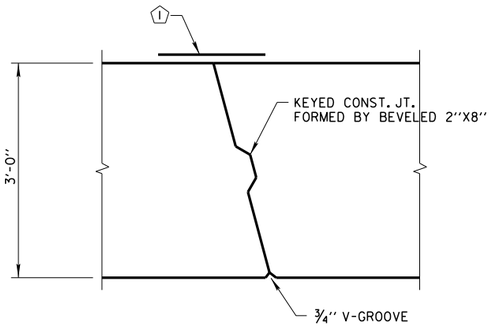
SECTION 1/7

LOOKING NORTH AT CENTER LINE (NORMAL TO SUBSTRUCTURE)

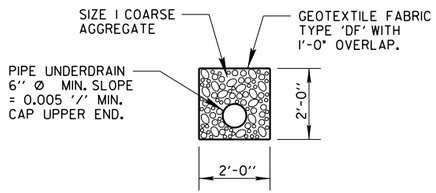


BUTT JOINT DETAIL AT C.I.P. STRUCTURES

(SEE RETAINING WALL PLANS FOR ADDITIONAL DETAIL)



A 7,9 DETAIL PLAN VIEW ABUTMENT VERTICAL CONSTRUCTION JOINT



PIPE UNDERDRAIN DETAIL

PLACE CENTER LINE OF OUTFALL 1'-0" ABOVE FINISHED GRADE
AGGREGATE INCIDENTAL TO PIPE UNDERDRAIN

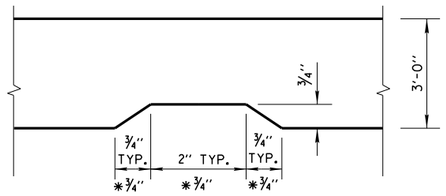
BILL OF BARS - WEST ABUTMENT

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
A701		196	7'-6"	X	WEST ABUTMENT - FOOTING DOWEL TOTAL OF E.F.
A702		98	19'-8"		WEST ABUTMENT - VERTICAL B.F.
A703	X	98	27'-8"		WEST ABUTMENT - VERTICAL F.F.
A904	X	98	23'-2"	X	WEST ABUTMENT - VERTICAL B.F.
A605		98	5'-8"	X	WEST ABUTMENT - CAP STIRRUP
A606		52	35'-4"		WEST ABUTMENT - HORIZONTAL TOTAL OF E.F. AND TOP
A607		52	32'-4"		WEST ABUTMENT - HORIZONTAL TOTAL OF E.F. AND TOP
A408		11	37'-9"		FOOTING - LONGITUDINAL TOP
A409		11	33'-1"		FOOTING - LONGITUDINAL TOP
A810		11	39'-6"		FOOTING - LONGITUDINAL BOTTOM
A811		11	33'-1"		FOOTING - LONGITUDINAL BOTTOM
A612		65	9'-8"		FOOTING - TRANSVERSE BOTTOM
A813		65	9'-8"		FOOTING - TRANSVERSE TOP
A614		8	11'-2"		FOOTING - TRANSVERSE BOTTOM ENDS
A815		8	11'-2"		FOOTING - TRANSVERSE TOP ENDS

ABUTMENT NOTES:

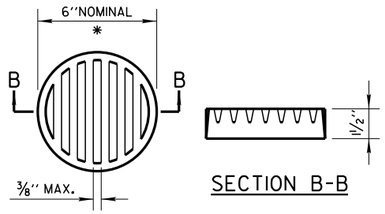
1. 18-INCH RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE. VERTICAL WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF ABUTMENT STEM, AND TOP OF ABUTMENT STEM TO TOP OF MSE WALLS.
2. 6-INCH PERFORATED PIPE UNDERDRAIN ALONG BACKFACE OF ABUTMENT AND MSE WALLS. SEE LAYOUT SHEET 7.

▲ BEVELED KEY 2" x 6"



RUSTICATION DETAIL

* PLACE FULL WIDTH HORIZONTAL RUSTICATION AT END FACE OF ABUTMENT TO MATCH MSE WALL PATTERN.



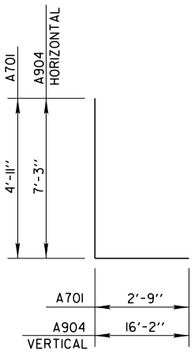
SECTION B-B

RODENT SHIELD DETAIL

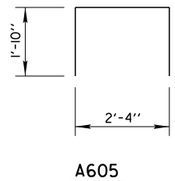
* DIMENSIONS ARE APPROXIMATE, THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING, ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN 6-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.



A701, A904



A605

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

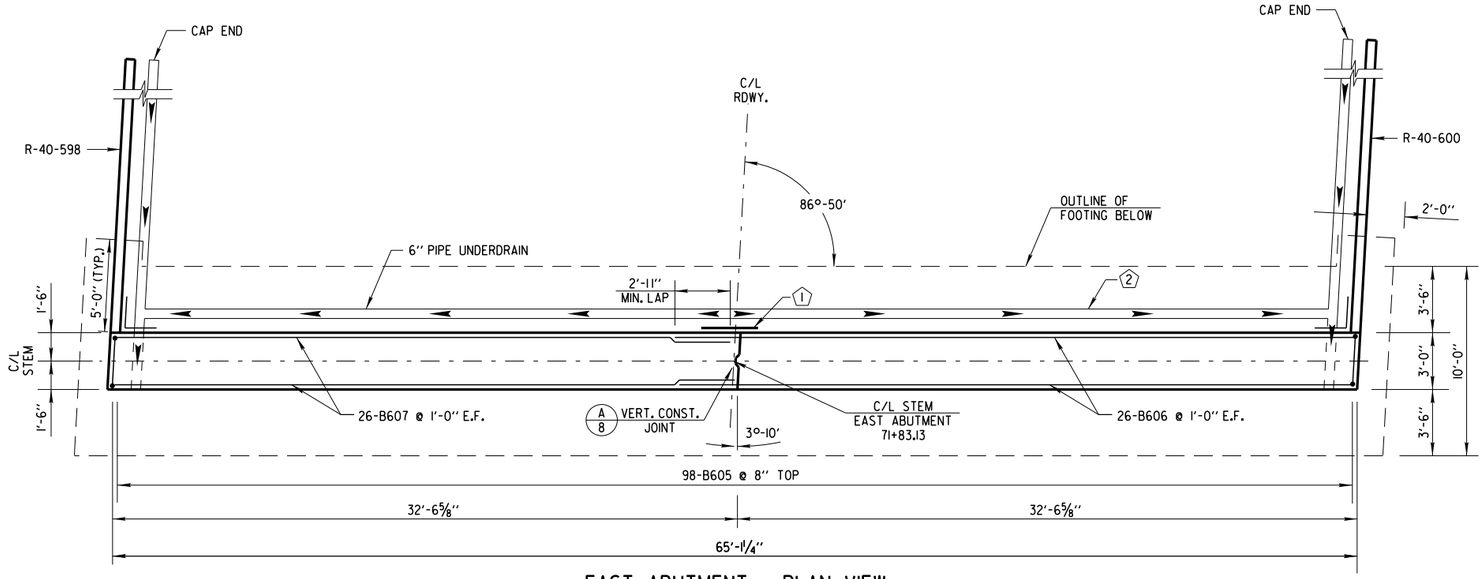
DRAWN BY S.J.S. | PLANS CK'D. H.J.R A.R.

WEST ABUTMENT BILL OF BARS AND DETAILS

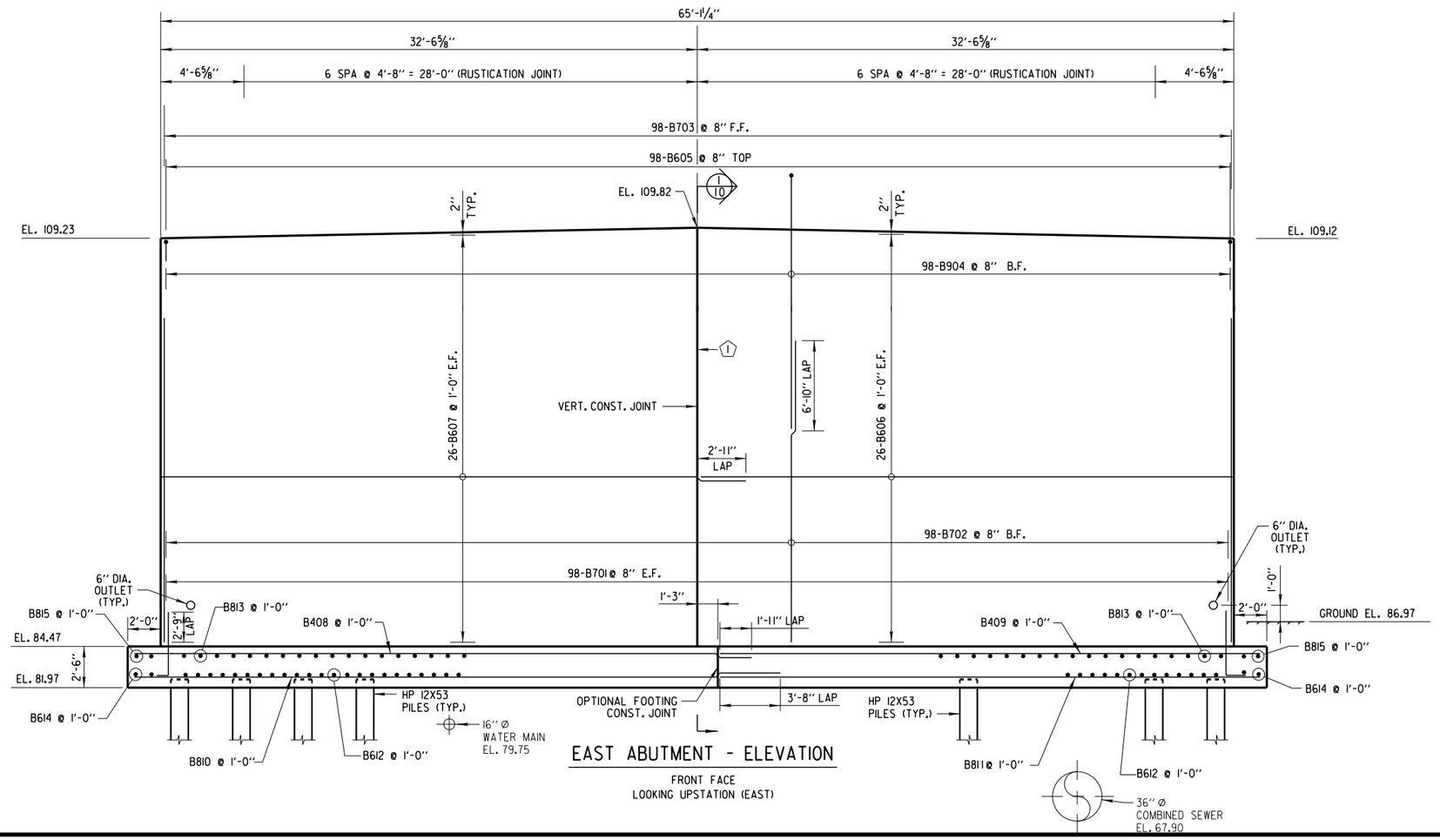
SHEET 8 OF 22

8

8



EAST ABUTMENT - PLAN VIEW



EAST ABUTMENT - ELEVATION

FRONT FACE
LOOKING UPSTATION (EAST)

ABUTMENT NOTES:

1. 18-INCH RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE. VERTICAL WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF MSE WALLS.
2. 6-INCH PERFORATED PIPE UNDERDRAIN ALONG BACK FACE OF ABUTMENT AND MSE WALLS.
3. ATTACH RODENT SHIELD PER S.S.D. REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN. SEE DETAIL ON SHEET 8.

RUN BAR STEEL THRU CONSTRUCTION JOINT.

PLACE FULL HEIGHT VERTICAL RUSTICATION JOINTS AS SHOWN ON THE ELEVATIONS ALONG LENGTH OF FRONT FACE OF ABUTMENT. RUSTICATION JOINT SHOULD LINE UP WITH VERTICAL CONSTRUCTION JOINT ON ABUTMENT. SEE DETAIL SHEET 8.

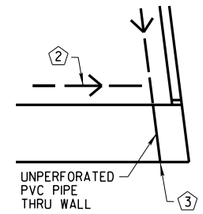
PLACE FULL WIDTH HORIZONTAL RUSTICATION AT END FACE OF ABUTMENT TO MATCH MSE WALL PATTERN. SEE DETAIL SHEET 8.

F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

BACKFILL EACH FACE OF ABUTMENT EQUALLY TO APPROXIMATE EL. 86.00. DO NOT BACKFILL ABOVE EL. 86.00 AT BACKFACE UNTIL SUPERSTRUCTURE HAS ACHIEVED 3,500 PSI OR CONTRACTOR DESIGNED BRACING STRUTS ARE INSTALLED.

BACKFILL ABOVE EL. 86.00 MUST BE PLACED AT EAST AND WEST ABUTMENTS SIMULTANEOUSLY. ELEVATION OF BACKFILL AT BOTH ABUTMENTS SHALL VARY BY NO MORE THAN 5 FT DURING BACKFILL PLACEMENT. COORDINATE THIS WORK WITH ADJACENT RETAINING WALL STRUCTURES.

STAGGER TOP AND BOTTOM MAT TRANSVERSE REINFORCEMENT IN FOOTING TO PREVENT CRACKING.



UNDERDRAIN DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY S.J.S. | PLANS CK'D. H.J.R. A.R.

EAST ABUTMENT PLAN AND ELEVATION

SHEET 9 OF 22
67

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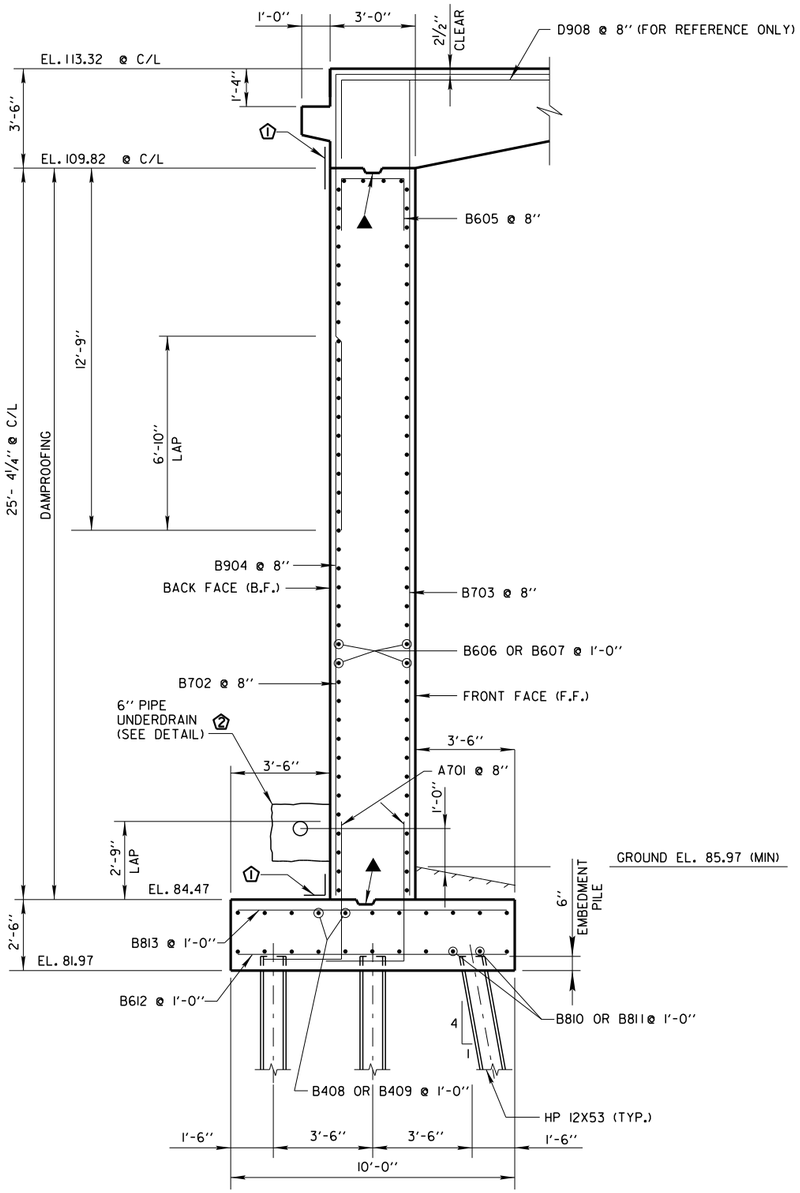
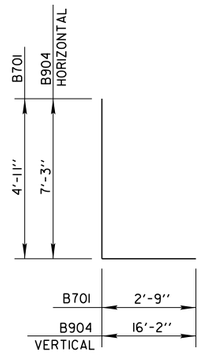
STATE PROJECT NUMBER

2135 - 03 - 70

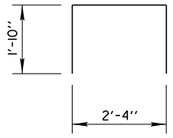


SECTION 1/7

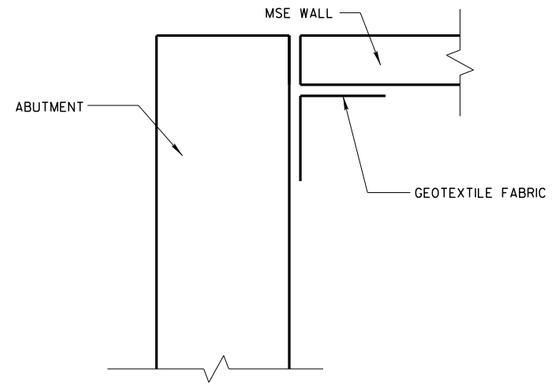
LOOKING SOUTH AT CENTER LINE (NORMAL TO SUBSTRUCTURE)



B701, B904



B605



BUTT JOINT DETAIL AT C.I.P. STRUCTURES

(SEE RETAINING WALL PLANS FOR ADDITIONAL DETAIL)

BILL OF BARS - EAST ABUTMENT

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
B701		196	7'-6"	X	EAST ABUTMENT - FOOTING DOWEL TOTAL OF E.F.
B702		98	19'-3"		EAST ABUTMENT - VERTICAL B.F.
B703	X	98	27'-3"		EAST ABUTMENT - VERTICAL F.F.
B904	X	98	23'-2"	X	EAST ABUTMENT - VERTICAL B.F.
B605		98	5'-8"	X	EAST ABUTMENT - CAP STIRRUP
B606		52	32'-4"		EAST ABUTMENT - HORIZONTAL TOTAL OF E.F. AND TOP
B607		52	35'-4"		EAST ABUTMENT - HORIZONTAL TOTAL OF E.F. AND TOP
B408		11	37'-9"		FOOTING - LONGITUDINAL TOP
B409		11	33'-1"		FOOTING - LONGITUDINAL TOP
B810		11	39'-6"		FOOTING - LONGITUDINAL BOTTOM
B811		11	33'-1"		FOOTING - LONGITUDINAL BOTTOM
B612		65	9'-8"		FOOTING - TRANSVERSE BOTTOM
B813		65	9'-8"		FOOTING - TRANSVERSE TOP
B614		8	11'-2"		FOOTING - TRANSVERSE BOTTOM ENDS
B815		8	11'-2"		FOOTING - TRANSVERSE TOP ENDS

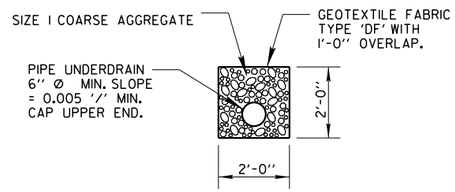
ABUTMENT NOTES:

(1) 18-INCH RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE. VERTICAL WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF ABUTMENT STEM, AND TOP OF ABUTMENT STEM TO TOP OF MSE WALLS.

(2) 6-INCH PERFORATED PIPE UNDERDRAIN ALONG BACKFACE OF ABUTMENT AND MSE WALLS. SEE LAYOUT SHEET 9.

▲ BEVELED KEY 2" x 6"

FOR RUSTICATION, VERTICAL CONSTRUCTION JOINT & RODENT DETAILS SEE SHT. 8



PIPE UNDERDRAIN DETAIL

PLACE CENTER LINE OF OUTFALL 1'-0" ABOVE FINISHED GRADE AGGREGATE INCIDENTAL TO PIPE UNDERDRAIN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY S.J.S. | PLANS CK'D. H.J.R. A.R.

EAST ABUTMENT BILL OF BARS AND DETAILS

SHEET 10 OF 22

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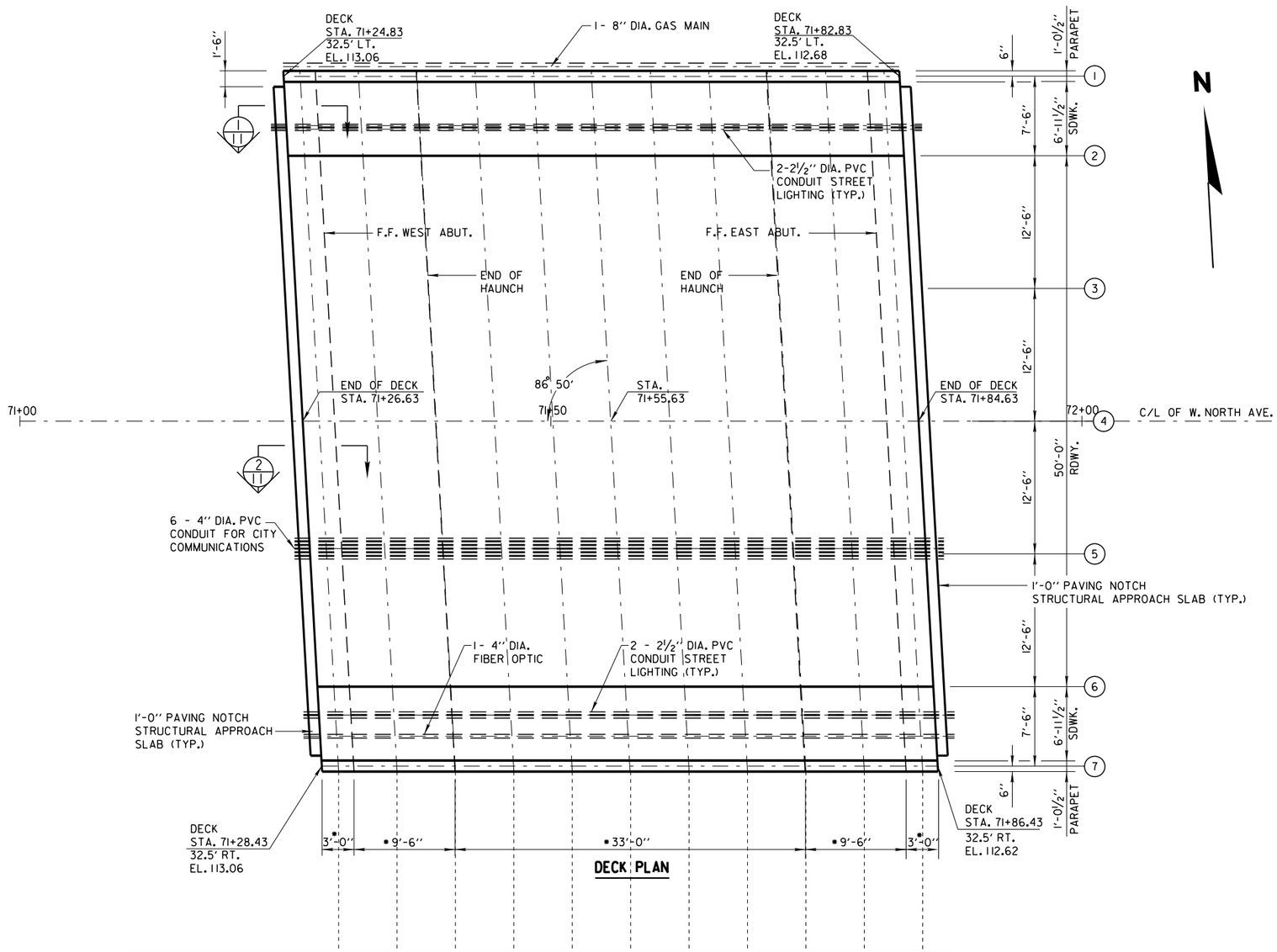
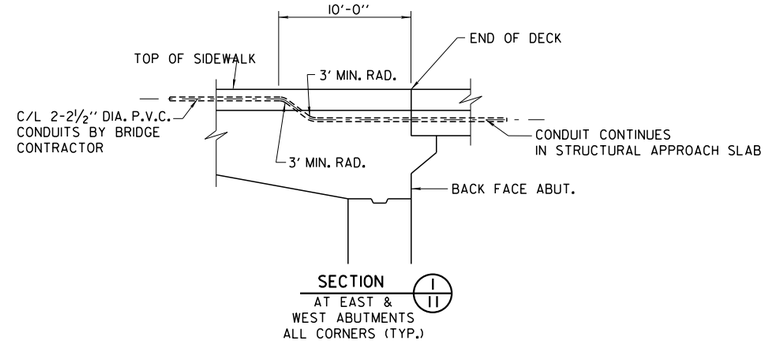
W:\STR\B0935\PLANS\ IL_DECKGRADES.DGN 09-02-2014

STATE PROJECT NUMBER

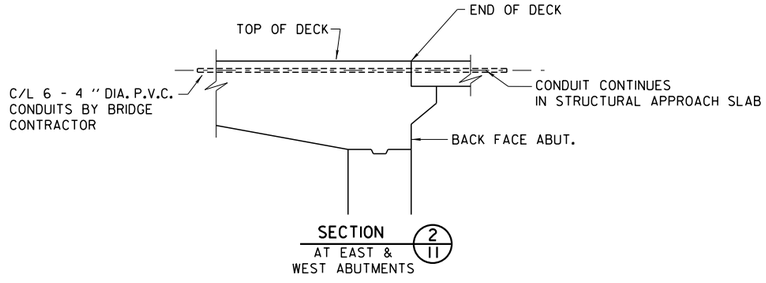
2135 - 03 - 70



DECK PLAN



SECTION 1/11
AT EAST & WEST ABUTMENTS ALL CORNERS (TYP.)



SECTION 2/11
AT EAST & WEST ABUTMENTS

• DIMENSIONS GIVEN ARE NORMAL TO RAILROAD TRACK.

TOP OF DECK ELEVATIONS													
SPAN LENGTH 'L'	DECK LOCATION		C/L W. ABUT.	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	C/L E. ABUT.
	CAMBER (IN.)		0.0	0.2	0.4	0.6	0.7	0.9	0.7	0.6	0.4	0.2	0.0
55'-0"	①	T.DECK	113.06	113.07	113.07	113.06	113.04	113.00	112.96	112.91	112.85	112.78	112.70
	②	T.DECK	113.21	113.22	113.22	113.20	113.18	113.15	113.11	113.06	113.00	112.93	112.85
	③	T.DECK	113.46	113.47	113.47	113.45	113.43	113.40	113.35	113.30	113.24	113.17	113.08
	④	T.DECK	113.71	113.72	113.71	113.70	113.68	113.64	113.60	113.54	113.48	113.41	113.32
	⑤	T.DECK	113.46	113.47	113.46	113.45	113.42	113.39	113.34	113.29	113.22	113.15	113.06
	⑥	T.DECK	113.22	113.22	113.21	113.20	113.17	113.13	113.09	113.03	112.96	112.89	112.80
	⑦	T.DECK	113.02	113.07	113.06	113.04	113.02	112.98	112.93	112.87	112.81	112.73	112.64

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY G.G. | PLANS CK'D. H.J.R. J.D.T.

DECK GRADES

SHEET 11 OF 22

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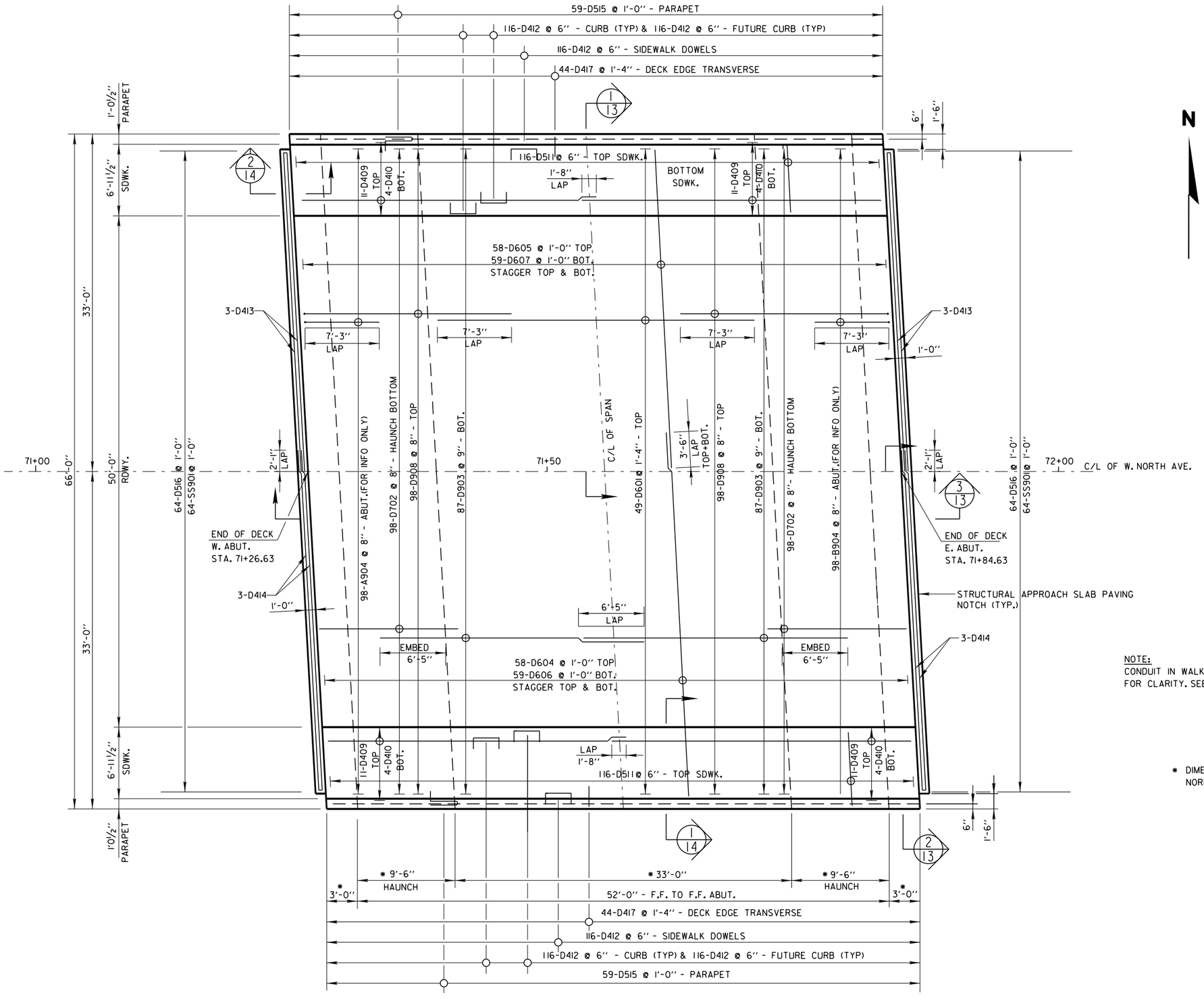
STATE PROJECT NUMBER
2135 - 03 - 70



PLAN VIEW

NOTE:
CONDUIT IN WALKS NOT SHOWN FOR CLARITY. SEE SHEET 11 AND 13

* DIMENSIONS GIVEN ARE NORMAL TO RAILROAD TRACK.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY	G.G	PLANS CK'D.	H.J.R. J.D.T.

DECK PLAN

SHEET 12 OF 22
70

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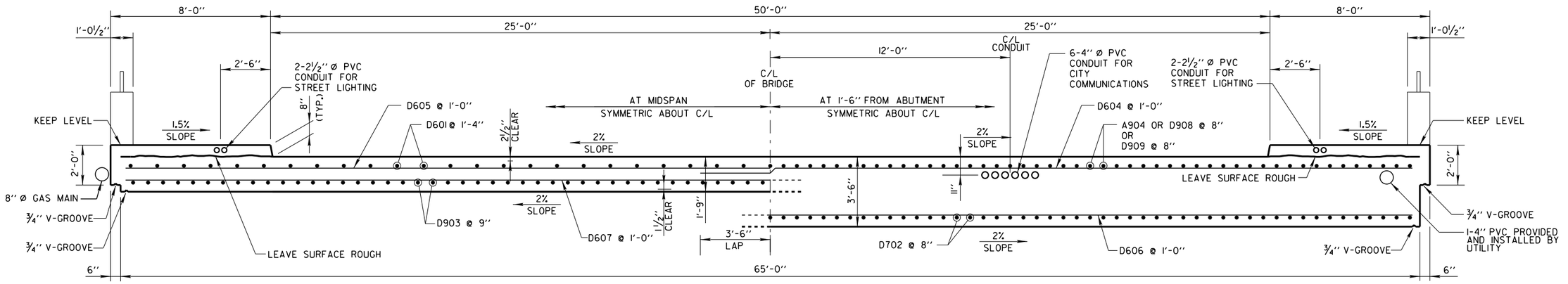
STATE PROJECT NUMBER

2135 - 03 - 70



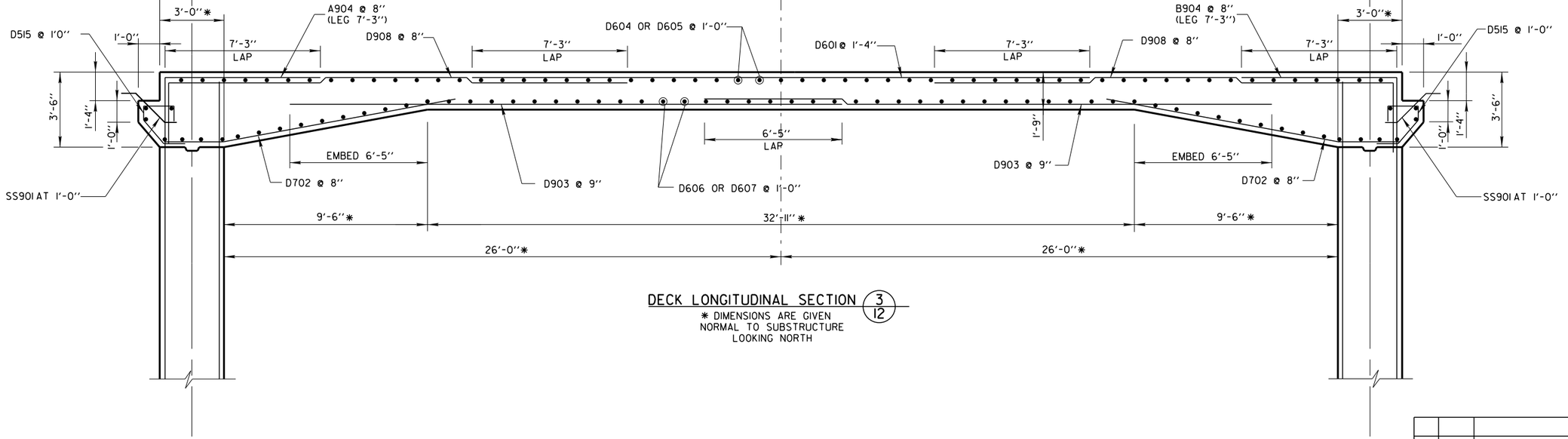
DECK CROSS SECTION (1/12)

AT MIDSPAN
LOOKING EAST

DECK CROSS SECTION (2/12)

AT 1'-6" FROM C/L ABUTMENT
LOOKING EAST

NOTE:
SIDEWALK BARS AND EDGE BEAM BARS NOT SHOWN FOR CLARITY. SEE SHEET 14



DECK LONGITUDINAL SECTION (3/12)

* DIMENSIONS ARE GIVEN NORMAL TO SUBSTRUCTURE
LOOKING NORTH

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY G.G. | PLANS CK'D. W.J.R. J.D.T.

DECK CROSS SECTIONS

SHEET 13 OF 22

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STATE PROJECT NUMBER

2135 - 03 - 70

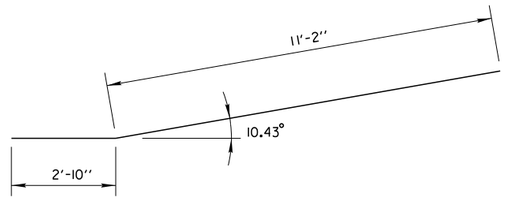
BILL OF BARS - DECK

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
D601	×	49	31'-0''		DECK - TOP LONGITUDINAL
D702	×	196	14'-0''	×	DECK - BOTTOM LONGITUDINAL - HAUNCH
D903	×	174	26'-2''		DECK - BOTTOM LONGITUDINAL
D604	×	58	35'-11''		DECK - TOP TRANSVERSE
D605	×	58	32'-5''		DECK - TOP TRANSVERSE
D606	×	59	35'-11''		DECK - BOTTOM TRANSVERSE
D607	×	59	32'-5''		DECK - BOTTOM TRANSVERSE
D908	×	196	23'-4''	×	HAUNCH/SLAB INTERCEPT - TOP LONGITUDINAL
D409	×	44	29'-8''		SIDEWALK - TOP LONGITUDINAL
D410	×	16	29'-8''		SIDEWALK - BOTTOM LONGITUDINAL
D511	×	232	7'-11''	×	SIDEWALK - TRANSVERSE TOP
D412	×	696	3'-9''	×	SIDEWALK - DOWELS
D413	×	6	30'-10''		CORBEL - TRANSVERSE
D414	×	6	33'-0''		CORBEL TRANSVERSE
D515	×	118	6'-9''	×	PARAPET DOWELS
D516	×	128	5'-0''	×	CORBEL
D417	×	88	4'-7''	×	DECK- EDGE TRANSVERSE

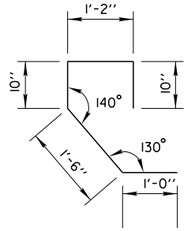
BILL OF BARS - DECK STAINLESS STEEL

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
SS901		128	5'-0''	×	EAST AND WEST APPROACH SLAB DOWELS

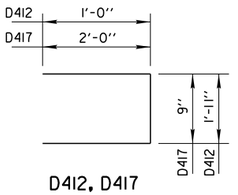
THE BID ITEM FOR SS901 SHALL BE SPECIAL PROVISION ''BAR STEEL REINFORCEMENT HS STAINLESS BRIDGES''.



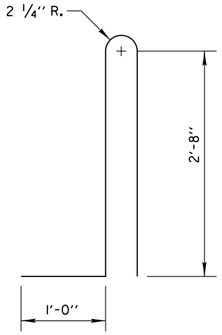
D702



D516



D412, D417



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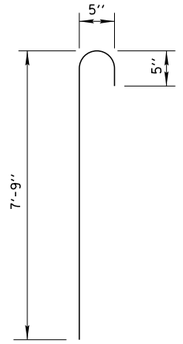
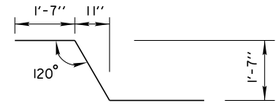
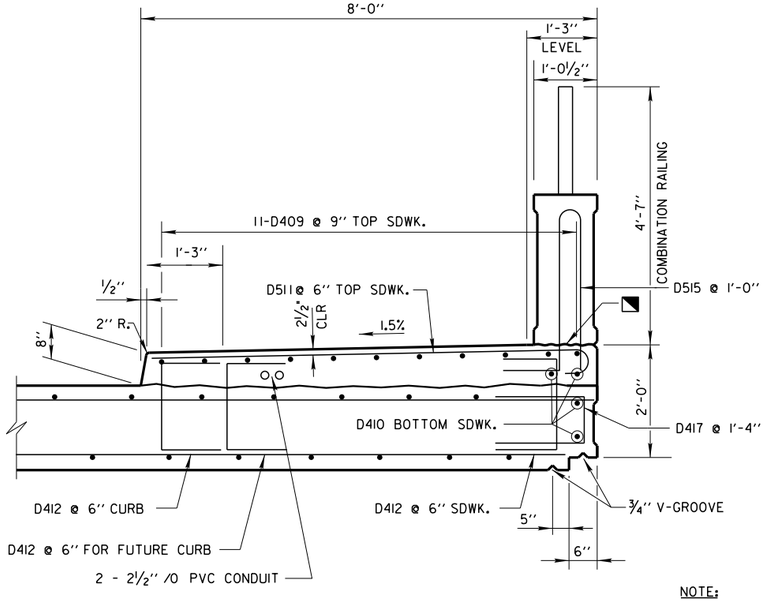


D511



SS901



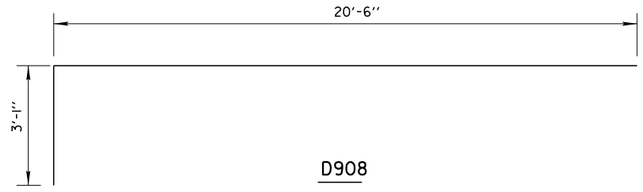
SECTION 1/12
SIDEWALK, EDGE BEAM

NOTE:

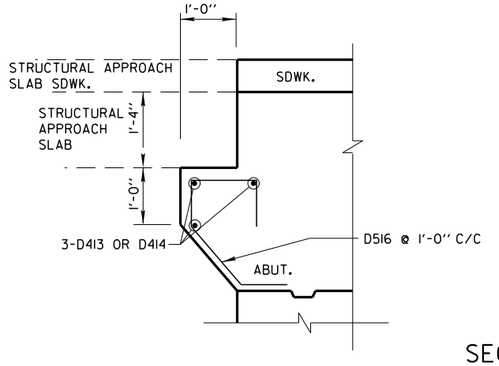
FOR AESTHETIC TREATMENT TO PARAPET AND DECK FASCIA REFER TO SHEETS 18-21.

PARAPET REINFORCEMENT SHOWN ON SHEET 18-21.

CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH. FOR DECK POUR. MATCH BRIDGE X-SLOPE



D908



SECTION 2/12
STRUCTURAL APPROACH SLAB PAVING NOTCH

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY C.A.L. | PLANS CK'D. H.J.R. J.D.T.

DECK DETAILS AND BILL OF BARS

SHEET 14 OF 22

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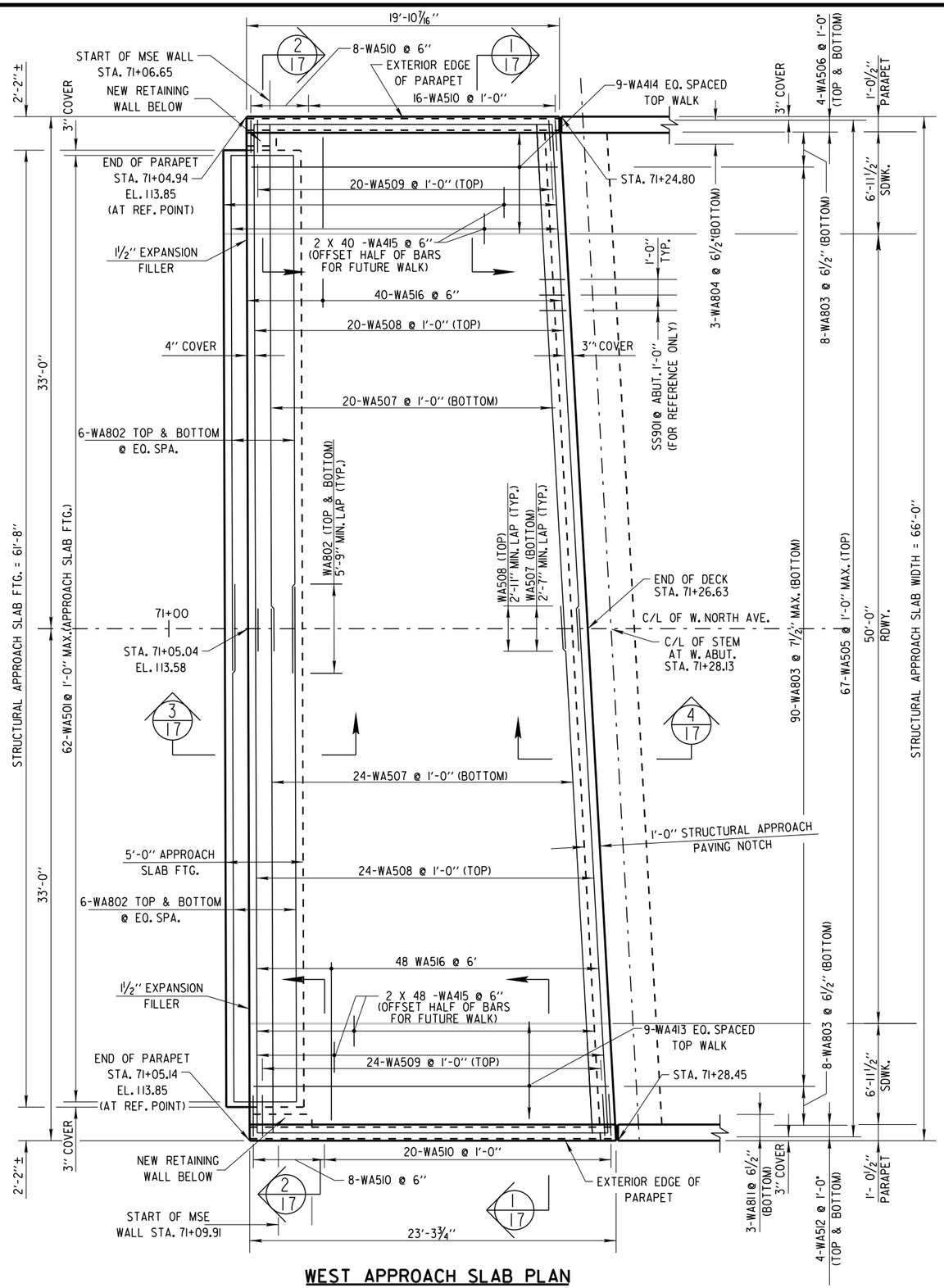


WEST APPROACH SLAB PLAN

NOTE:
UTILITIES NOT SHOWN FOR CLARITY.
FOR LOCATION SEE SITE PLAN, FOR DETAILS SEE SHEET 11.

DESIGN DATA

CONCRETE STRENGTH, f'c:	4,000 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60, fy:	60,000 P.S.I.
ALLOWABLE SOIL BEARING PRESSURE:	2,000 P.S.F.

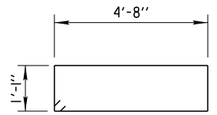
BILL OF BARS - WEST STRUCTURAL APPROACH SLAB

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
WA501	×	62	11'-10"	×		APPROACH SLAB FTG.-STIRRUP
WA802	×	24	33'-6"			APPROACH SLAB FTG.-TRANS. TOP & BOT
WA803	×	106	22'-9"	×	***	APPROACH SLAB-LONG.-BOT.
WA804	×	3	19'-4"			APPROACH SLAB-LONG.-BOT.-NW WALL
WA505	×	67	21'-0"		***	APPROACH SLAB-LONG.-TOP
WA506	×	4	19'-3"			APPROACH SLAB-LONG.-TOP. & BOT. NW WALL
WA507	×	44	34'-1"			APPROACH SLAB-TRANS.-BOT.
WA508	×	44	34'-3"			APPROACH SLAB-TRANS.-TOP
WA509	×	44	6'-5"	×		APPROACH SLAB-TRANS.-TOP-WALL
WA510	×	52	7'-6"	×		APPROACH SLAB-PARAPET DOWELS
WA811	×	3	22'-9"			APPROACH SLAB-LONG-BOT.-SW WALL
WA512	×	4	22'-9"			APPROACH SLAB-LONG-TOP & BOT.-SW WALL
WA413	×	9	22'-9"			APPROACH WALK-LONG-TOP-SW WALK
WA414	×	9	19'-5"			APPROACH WALK-LONG-TOP-NW WALK
WA415	×	176	3'-6"	×		APPROACH WALK-CURB TIE-NW & SW WALK
WA516	×	86	6'-2"			APPROACH WALK-TRANVERSE-TOP NW & SW WALK

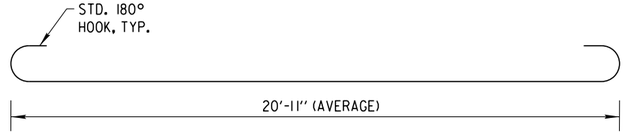
*** LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

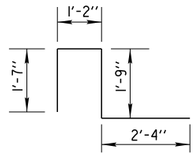
MARK	NO. REQUIRED	LENGTH
WA803	106	21'-1" TO 24'-7"
WA505	67	19'-3" TO 22'-9"



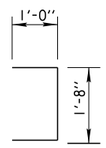
WA501



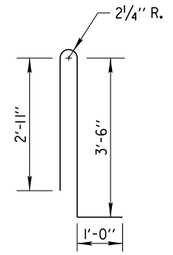
WA803



WA509



WA415



WA510

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY S.J.S. | PLANS CK'D. H.J.R. A.R.

WEST STRUCTURAL APPROACH SLAB

SHEET 15 OF 22
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STATE PROJECT NUMBER
2135 - 03 - 70

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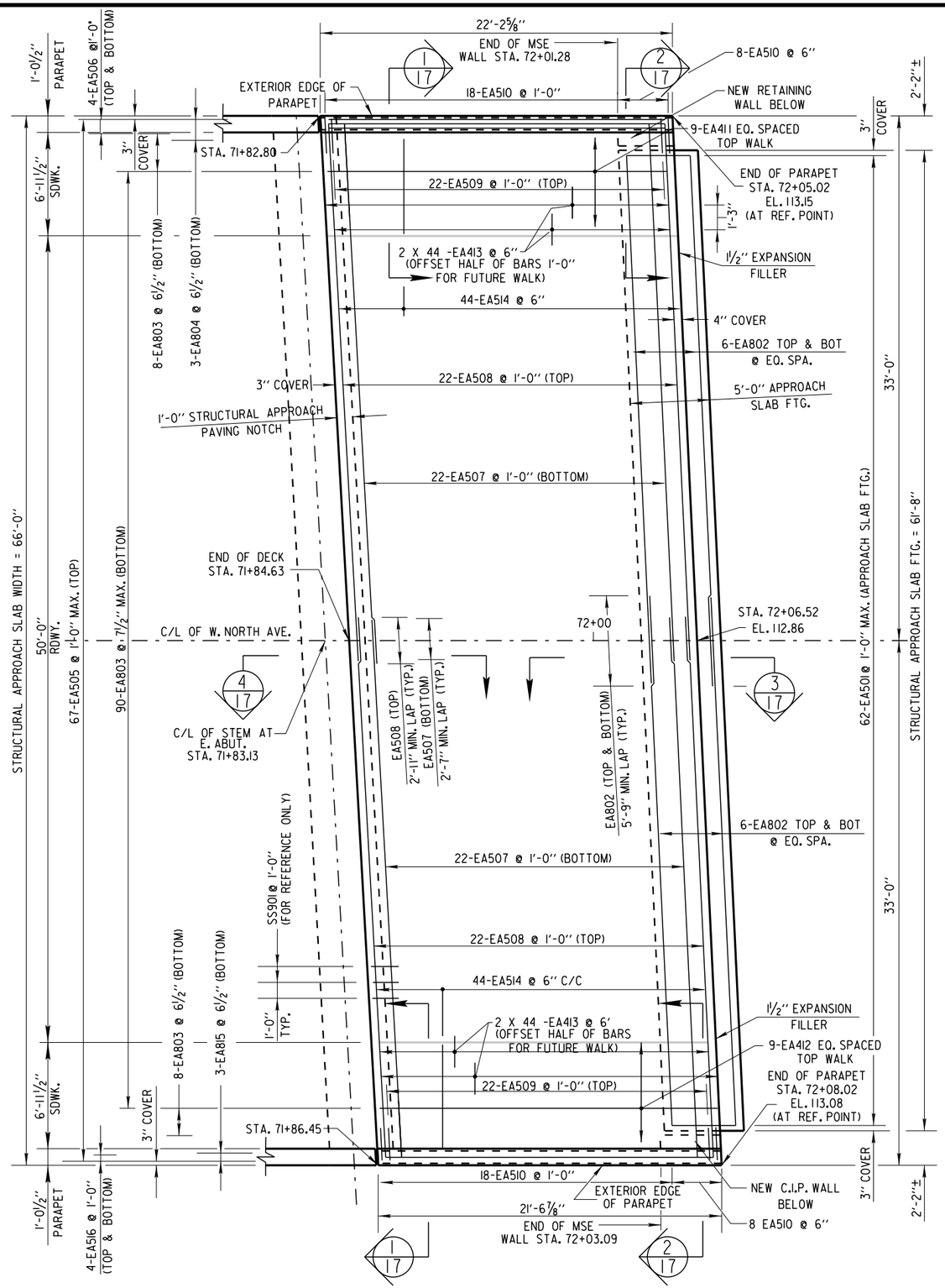


EAST APPROACH SLAB PLAN

N

STATE PROJECT NUMBER
2135 - 03 - 70

NOTE:

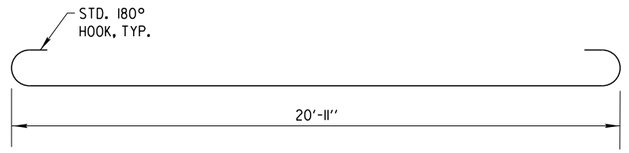
UTILITIES NOT SHOWN FOR CLARITY.
FOR LOCATION SEE SITE PLAN, FOR DETAILS SHEET SHEET 11.

DESIGN DATA

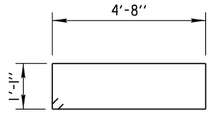
CONCRETE STRENGTH, f'c:	4,000 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60, fy:	60,000 P.S.I.
ALLOWABLE SOIL BEARING PRESSURE:	2,000 P.S.F.

BILL OF BARS-EAST STRUCTURAL APPROACH SLAB

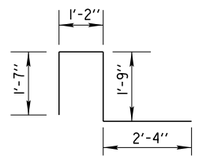
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
EA501	×	62	11'-10"	×		APPROACH SLAB FTG. - STIRRUP
EA802	×	24	33'-6"			APPROACH SLAB FTG.-TRANS. TOP & BOT.
EA803	×	106	22'-9"	×		APPROACH SLAB - LONG. - BOT.
EA804	×	3	21'-7"			APPROACH SLAB - LONG. - BOT. - NE WALL
EA505	×	67	20'-7"			APPROACH SLAB - LONG. - TOP
EA506	×	4	21'-7"			APPROACH SLAB - LONG.-TOP&BOT. NE WALL
EA507	×	44	34'-1"			APPROACH SLAB - TRANS. - BOT.
EA508	×	44	34'-3"			APPROACH SLAB - TRANS. - TOP
EA509	×	44	6'-5"	×		APPROACH SLAB - TRANS. - TOP - WALL
EA510	×	52	7'-6"	×		APPROACH SLAB - PARAPET DOWELS
EA411	×	9	21'-7"			APPROACH WALK-LONG.-TOP. NE WALK
EA412	×	9	20'-7"			APPROACH WALK-LONG.-TOP. SE WALK
EA413	×	176	3'-6"	×		APPROACH WALK CURB TIE-NE & SE WALK
EA514	×	88	6'-2"			APPR. WALK TRANSVERSE TOP-NE&SE WALK
EA815	×	3	20'-11"			APPROACH SLAB - LONG. BOT - SE WALL
EA516	×	4	20'-11"			APPROACH SLAB-LONG. TOP & BOT.-SE WALL



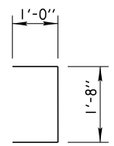
EA803



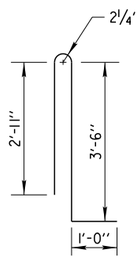
EA501



EA509



EA413



EA510

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

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EAST STRUCTURAL APPROACH SLAB

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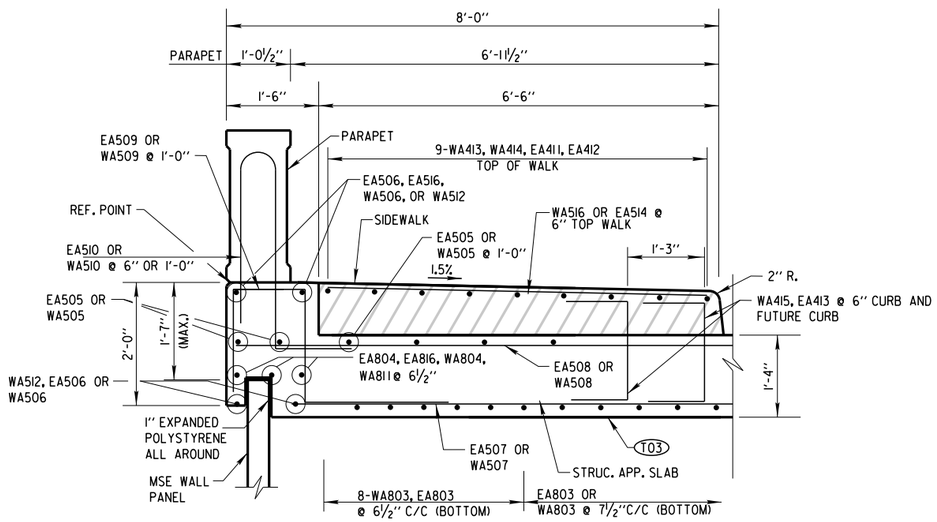
LEGEND

(T02) STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.

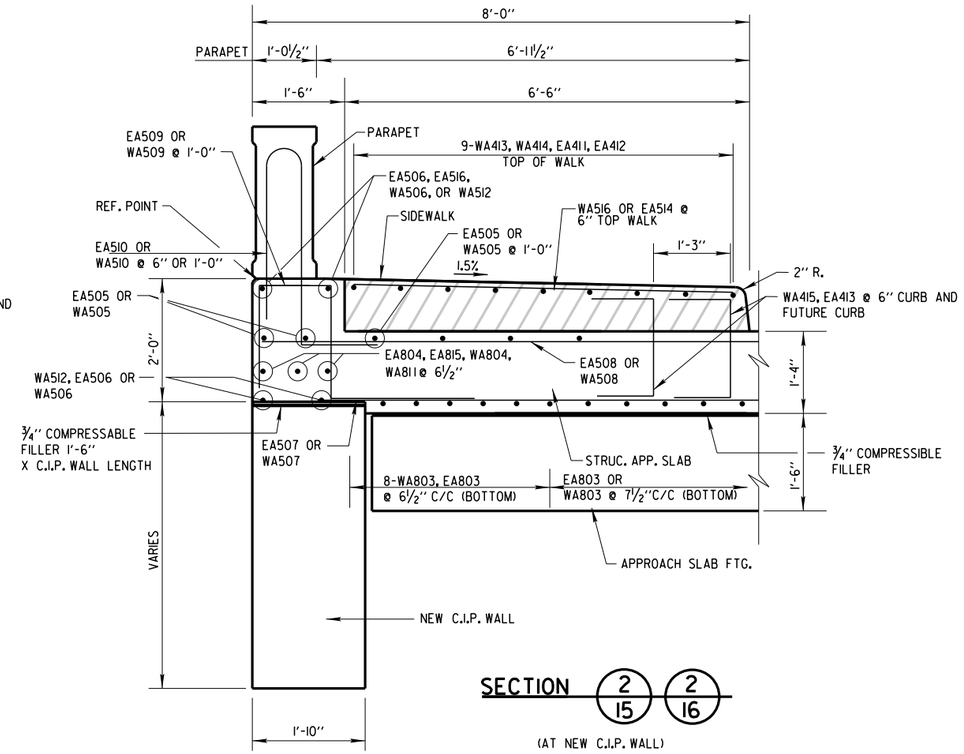
(T03) PLACE MULTIPLE LAYERS (0.03" MIN. TOTAL THK.) POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.

◪ MEASURED NORMAL TO ABUTMENT



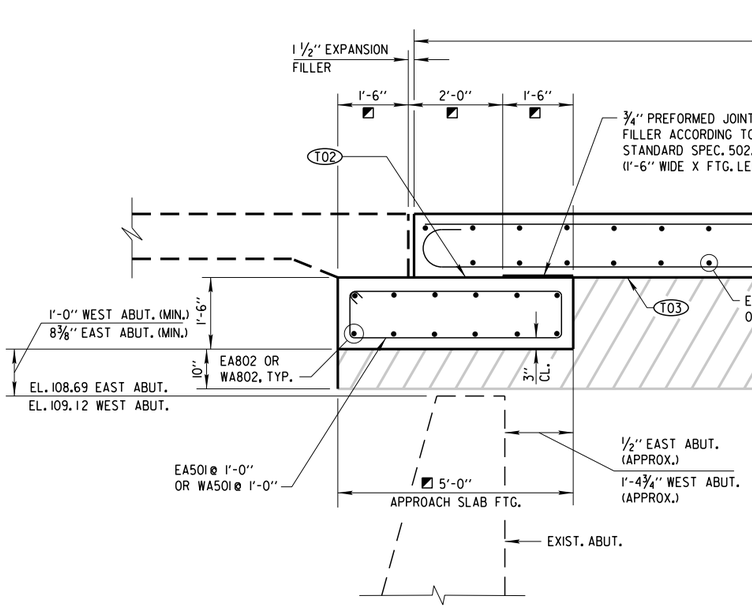
SECTION 1/15 1/16

(AT MSE WINGWALLS)



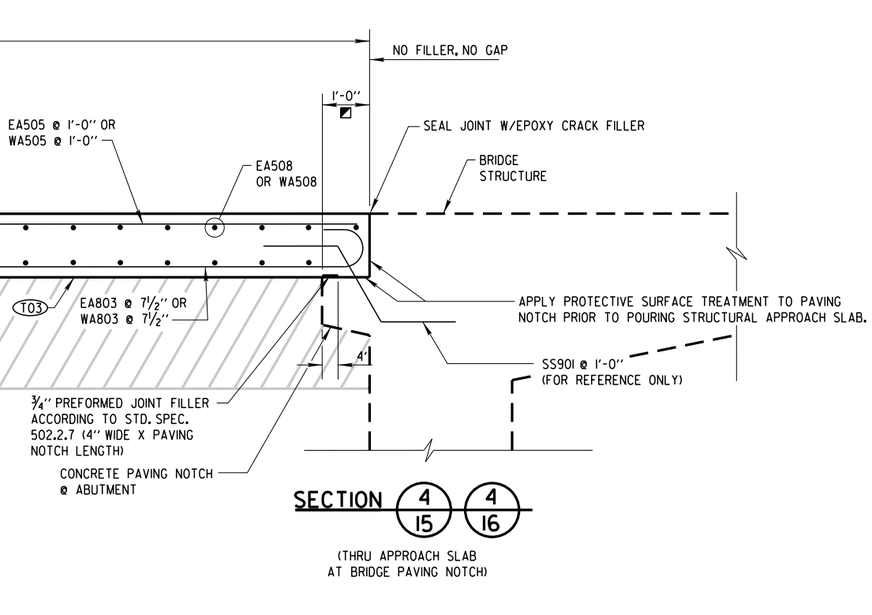
SECTION 2/15 2/16

(AT NEW C.I.P. WALL)



SECTION 3/15 3/16

(THRU APPROACH SLAB AT FOOTING)



SECTION 4/15 4/16

(THRU APPROACH SLAB AT BRIDGE PAVING NOTCH)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

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STRUCTURAL APPROACH SLAB DETAILS

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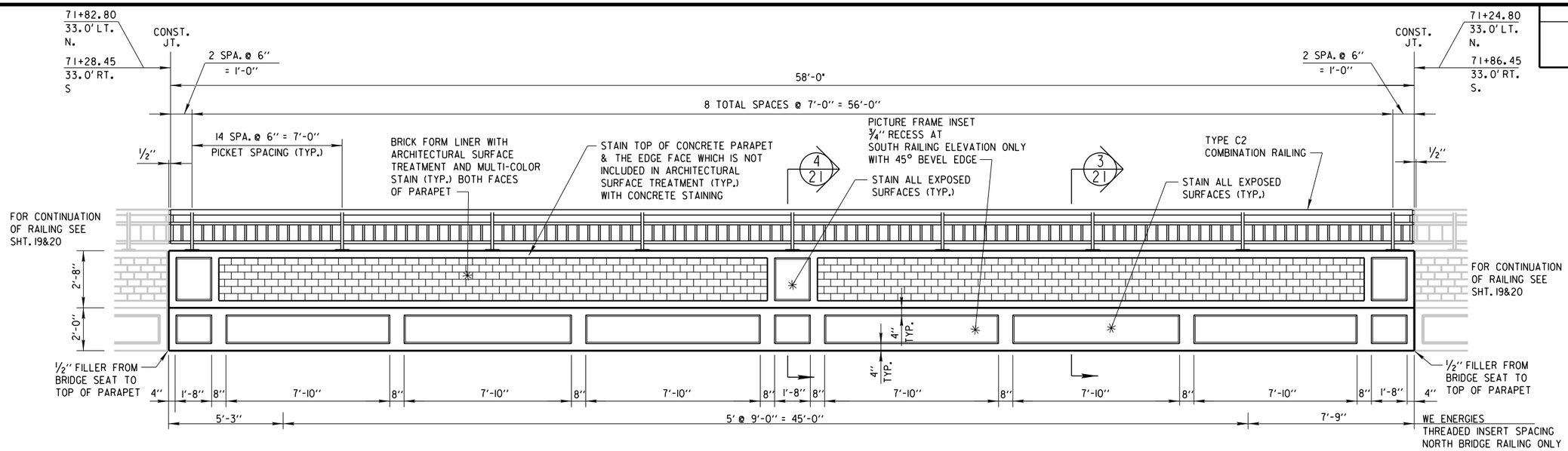
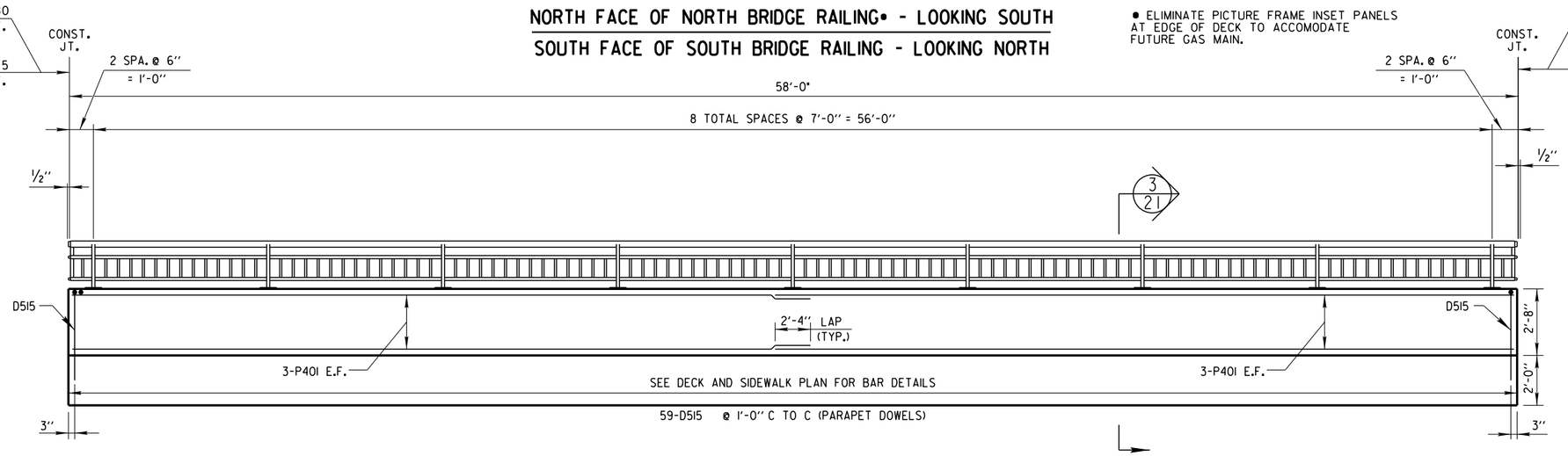
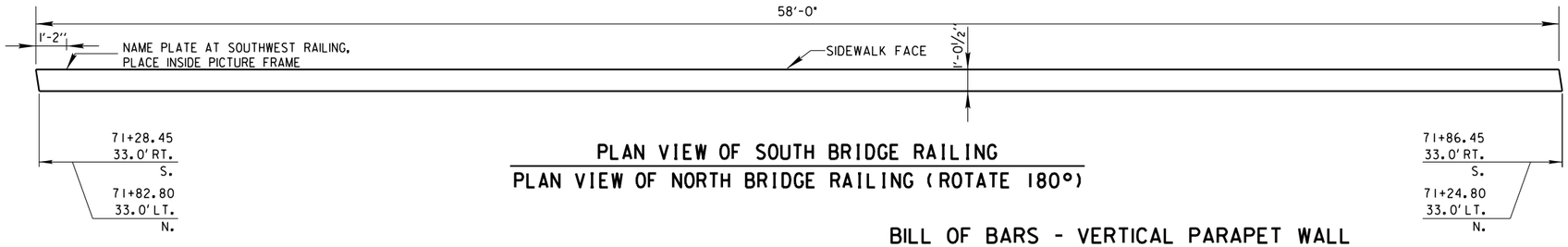


NORTH FACE OF NORTH BRIDGE RAILING• - LOOKING SOUTH
SOUTH FACE OF SOUTH BRIDGE RAILING - LOOKING NORTH

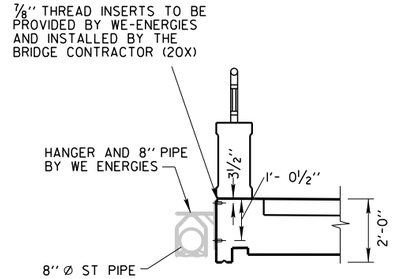
• ELIMINATE PICTURE FRAME INSET PANELS AT EDGE OF DECK TO ACCOMODATE FUTURE GAS MAIN.



NORTH FACE OF NORTH BRIDGE RAILING - LOOKING SOUTH
SOUTH FACE OF SOUTH BRIDGE RAILING - LOOKING NORTH
(REBAR DETAILS)



PLAN VIEW OF SOUTH BRIDGE RAILING
PLAN VIEW OF NORTH BRIDGE RAILING (ROTATE 180°)



THREADED INSERT DETAIL

BILL OF BARS - VERTICAL PARAPET WALL

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
P401	X	24	30'-0"			PARAPET WALL - HORIZ.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

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RAILING PLAN AND ELEVATIONS

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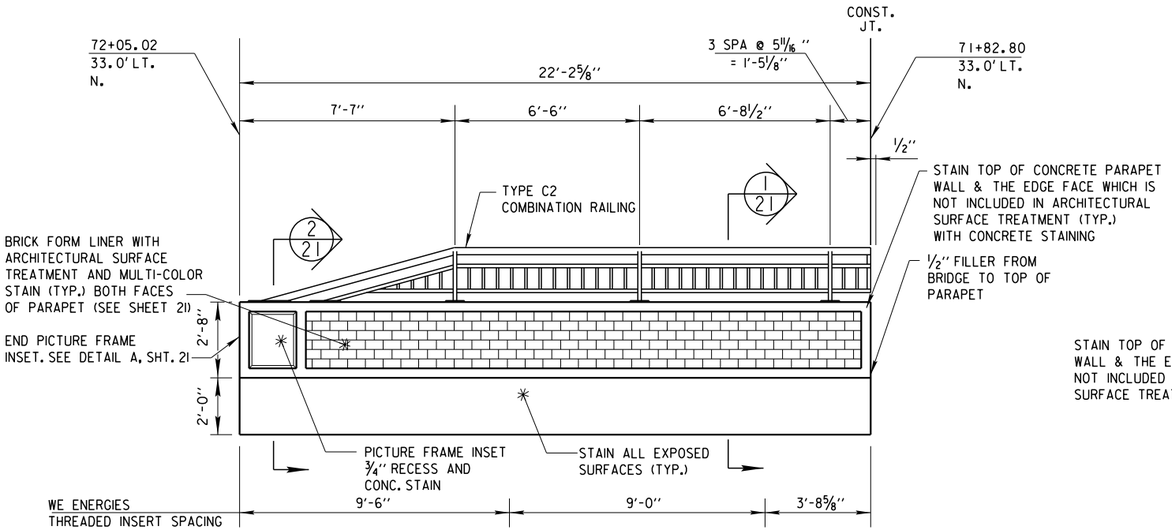
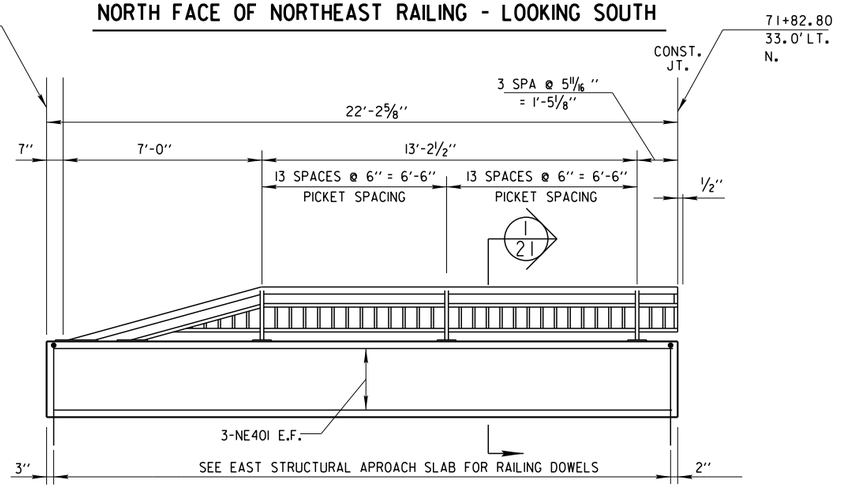
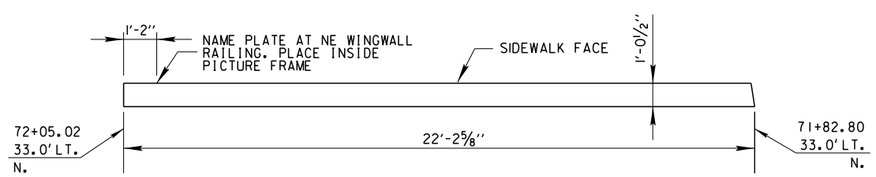


NORTH FACE OF NORTHEAST RAILING - LOOKING SOUTH



NORTH FACE OF NORTHEAST RAILING - LOOKING SOUTH (REBAR DETAILS)

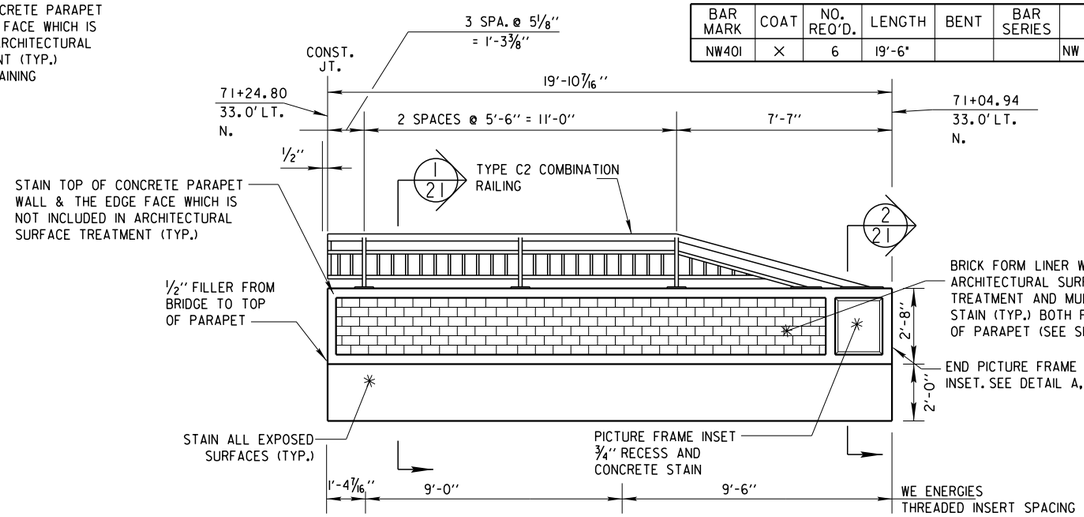


PLAN VIEW OF NORTHEAST RAILING

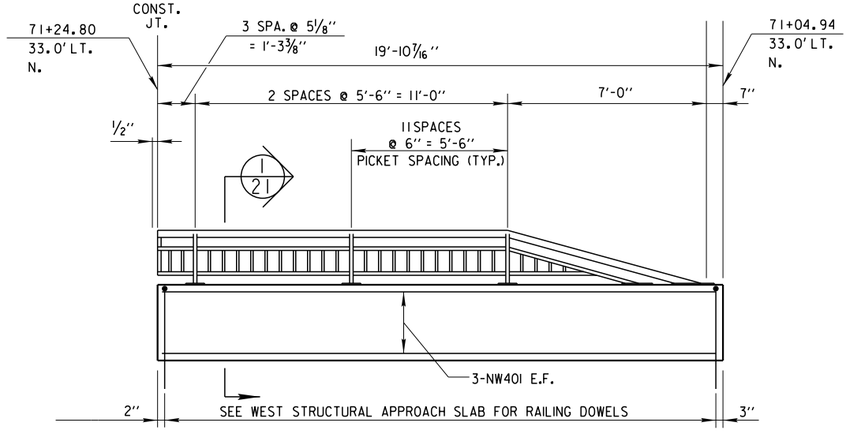
BILL OF BARS PARAPET

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
NE401	×	6	21'-10"			NE PARAPET WALL-HORIZONTAL

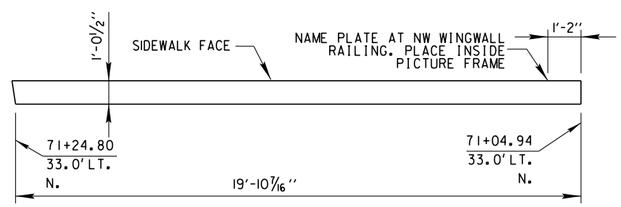
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
NW401	×	6	19'-6"			NW PARAPET WALL-HORIZONTAL



NORTH FACE OF NORTHWEST RAILING - LOOKING SOUTH



NORTH FACE OF NORTHWEST RAILING - LOOKING SOUTH (REBAR DETAILS)



PLAN VIEW OF NORTHWEST RAILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY G.G. | PLANS A.R. CK'D. H.J.R.

NE AND NW RAILING ELEVATION, BAR DETAILS & PLAN

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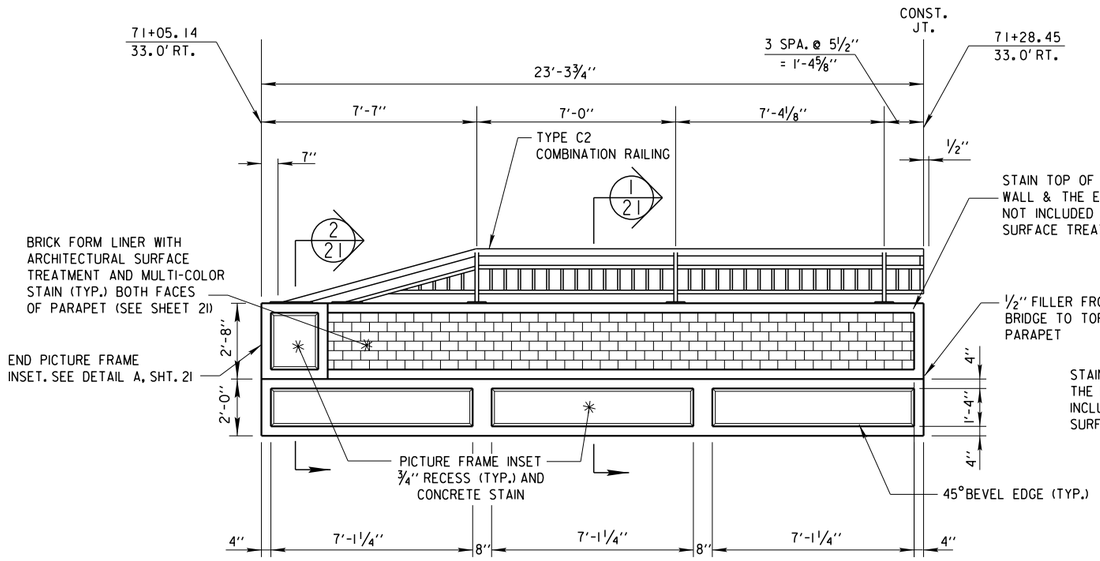
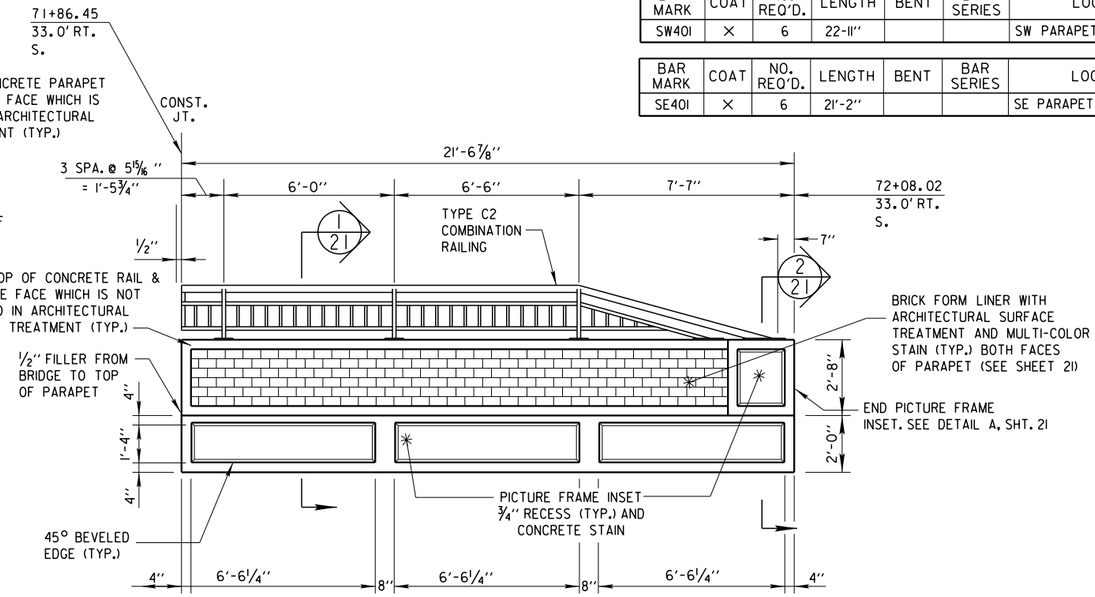


SOUTH FACE OF SOUTHWEST RAILING - LOOKING NORTH

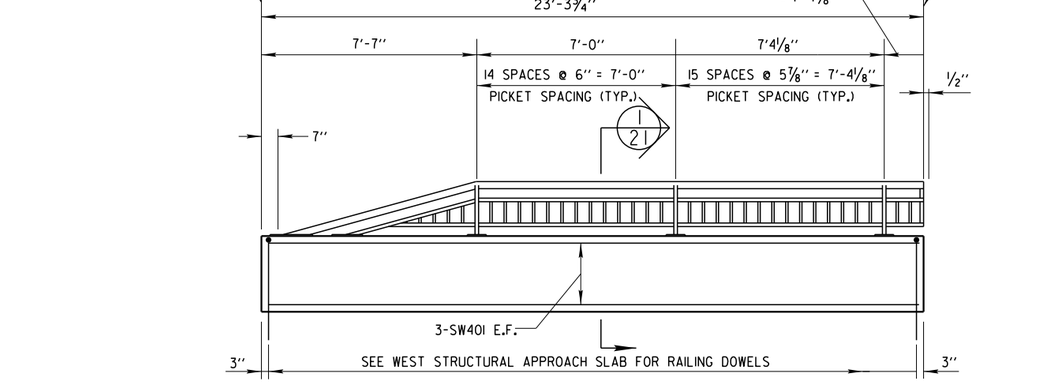
BILL OF BARS - PARAPET

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
SW401	×	6	22-11"			SW PARAPET WALL-HORIZONTAL

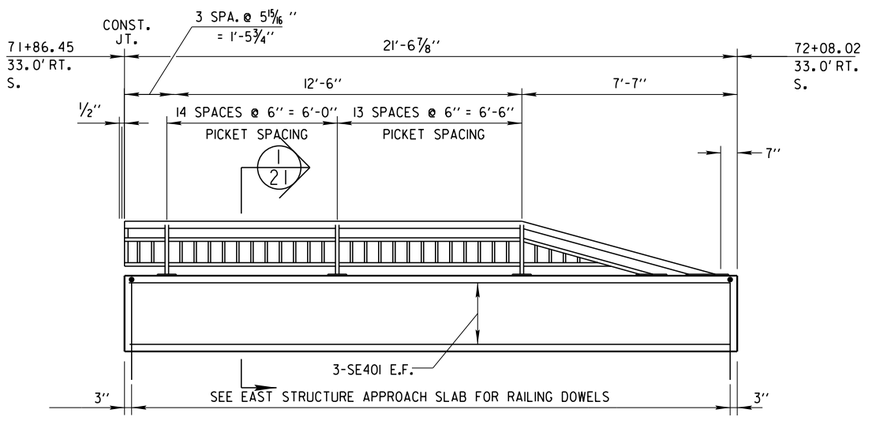
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
SE401	×	6	21'-2"			SE PARAPET WALL-HORIZONTAL



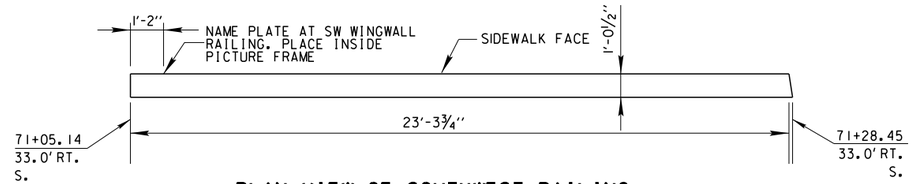
SOUTH FACE OF SOUTHEAST RAILING - LOOKING NORTH



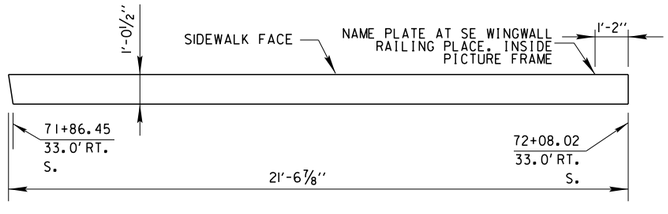
SOUTH FACE OF SOUTHWEST RAILING - LOOKING NORTH (REBAR DETAILS)



SOUTH FACE OF SOUTHEAST RAILING - LOOKING NORTH (REBAR DETAILS)



PLAN VIEW OF SOUTHWEST RAILING



PLAN VIEW OF SOUTHEAST RAILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY G.G. | PLANS A.R. CK'D. H.J.R.

SE AND SW RAILING ELEVATION, BAR DETAILS & PLAN

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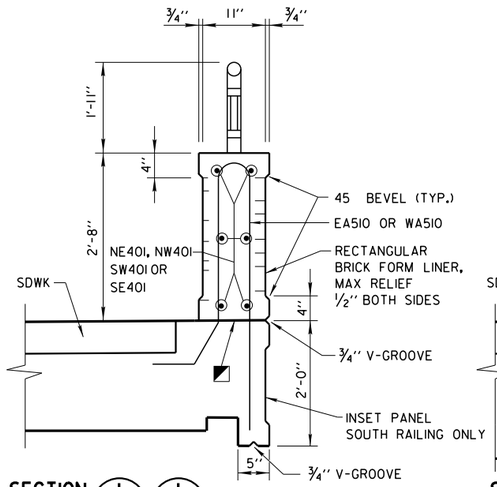
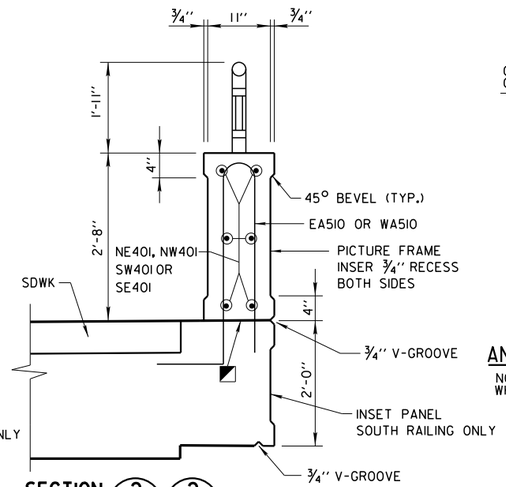
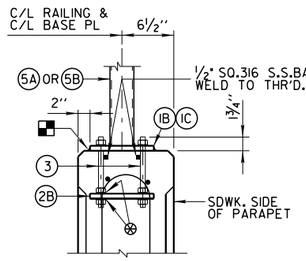


SECTION 1/19 1/20

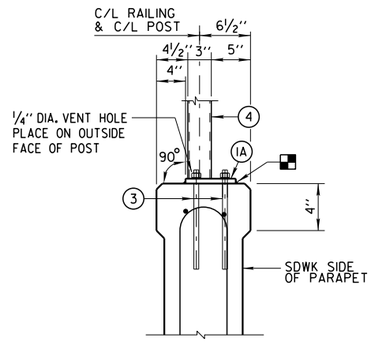


SECTION 2/19 2/20



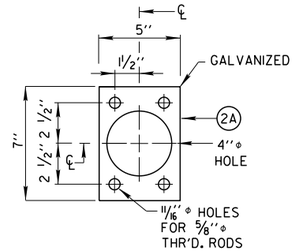
ANCHORAGE FOR END RAIL

NOTE: ANCHOR PLATES NOT REQ'D. WHEN TYPE "S" ANCHORS ARE USED



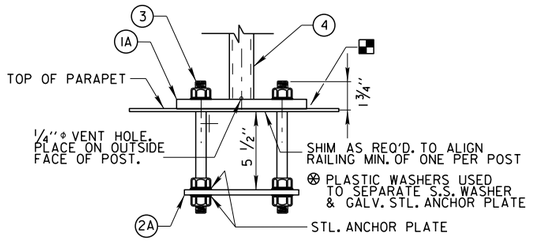
SECTION THRU PARAPET ON BRIDGE AND RETAINING WALL

NOTE-TYPE S ANCHORS SHOWN



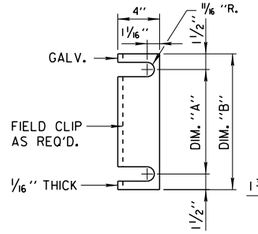
ANCHOR PLATE

FOR 3"x1 1/2"x3/16" POSTS (4)



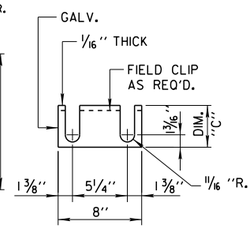
ANCHORAGE FOR RAIL POSTS

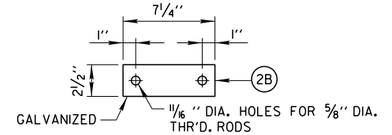
NOTE: ANCHOR PLATE NOT REQUIRED WHEN TYPE S ANCHORS ARE USED



END RAIL SHIM DETAIL

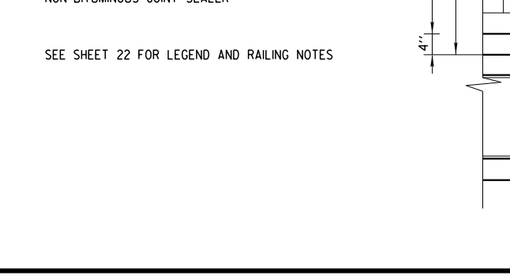
8" X 1'-1" BASE PLATE (1B) DIM. "A" = 10", DIM. "B" = 1'-1", DIM. "C" = 6 1/2"
8" X 1'-6" BASE PLATE (1C) DIM. "A" = 1'-3", DIM. "B" = 1'-6", DIM. "C" = 9"
(2 SETS PER POST)



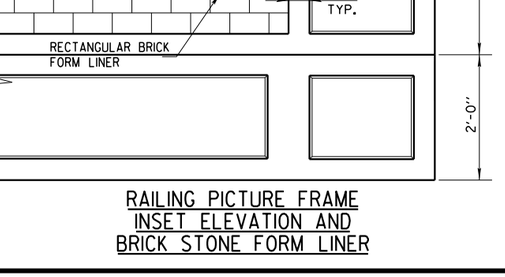


END RAIL ANCHOR PLATE

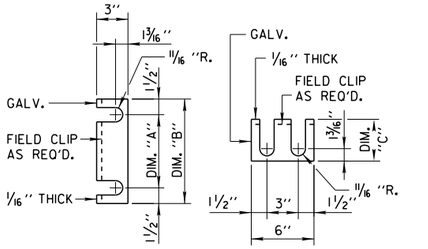
FOR END RAIL BASE PLATES (1B) (1C)
2 REQ'D PER END RAIL BASE PL



SECTION 3/18

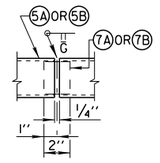


SECTION 4/18



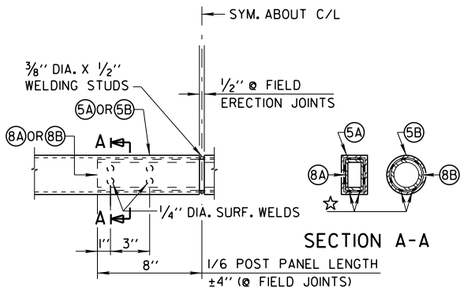
RAIL POST SHIM DETAIL

6" X 8" BASE PL (1A) DIM. "A" = 5", DIM. "B" = 8", DIM. "C" = 4".
(2 SETS PER POST)



SHOP RAIL SPLICE DETAIL

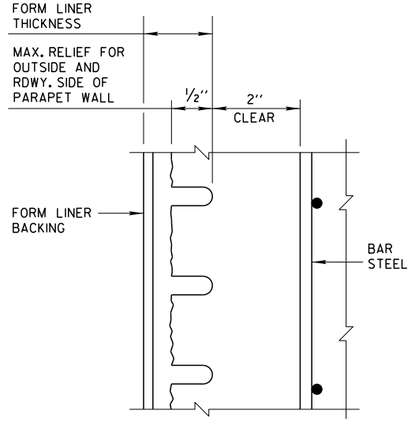
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



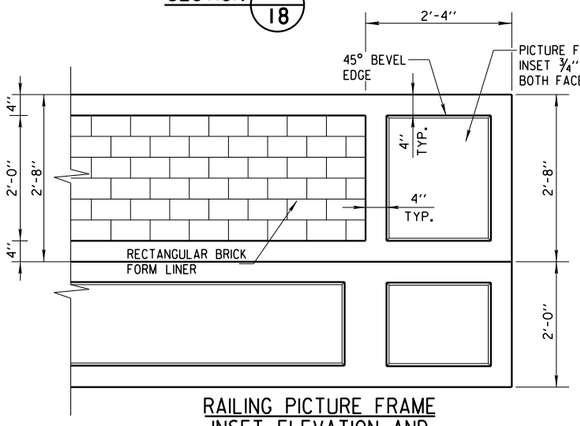
SECTION A-A

FIELD ERECTION JOINT DETAIL

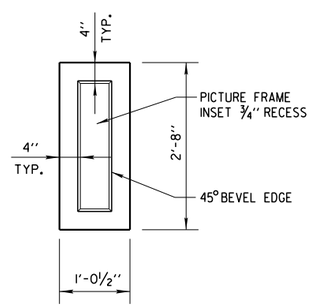
☆ MIN. 5/8" FLAT SURF. DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALT.



SECTION THRU FORM LINER



RAILING PICTURE FRAME INSET ELEVATION AND BRICK STONE FORM LINER



DETAIL A

END RAILING PICTURE FRAME INSET ELEVATION

▩ HORIZ. CONST. JOINT-STRIKE OFF AS SHOWN & LEAVE ROUGH.

▩ CAULK AROUND PERIMETER OF BASE PLATES, NO. 1 AND FILL BOLT SLOT OPENING IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER

SEE SHEET 22 FOR LEGEND AND RAILING NOTES

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY G.G. | PLANS CK'D. A.R. J.P.H.

PARAPET DETAILS

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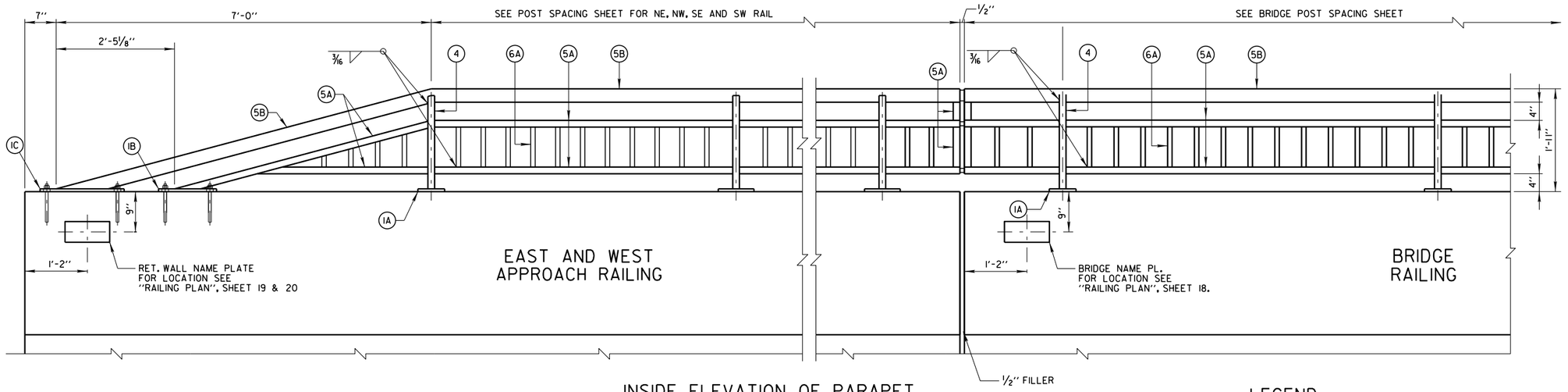
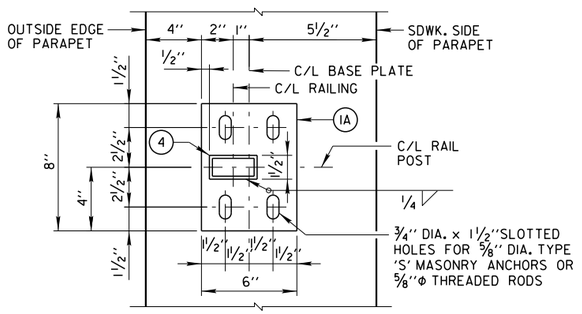
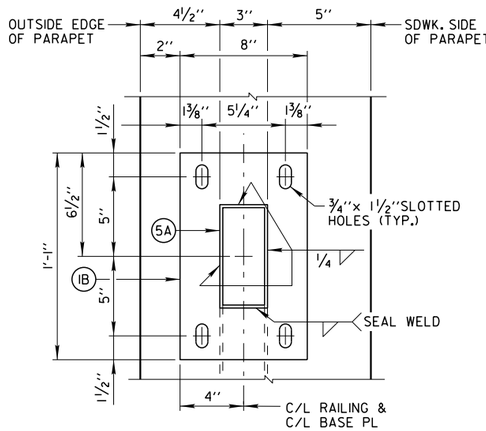


INSIDE ELEVATION OF PARAPET



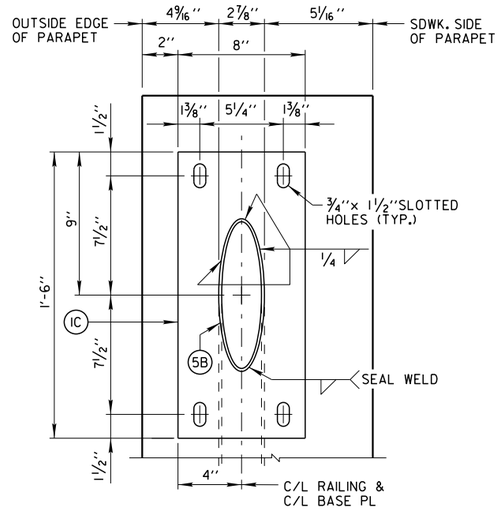
TYPICAL RAIL POST BASE PLATE

FOR 3" X 1 1/2" X 3/16" POSTS (4)



END RAIL BASE PLATE

FOR 3"x1 1/2"x3/16" POSTS (5A)



END RAIL BASE PLATE

FOR 2 1/2" DIA. STD. PIPE RAIL (5B)

LEGEND

(1A) PLATE 5/8" x 6" x 8" WITH 3/4" x 1 1/2" SLOTTED HOLES.

(1B) PLATE 5/8" x 8" x 1'-1" WITH 3/4" x 1 1/2" SLOTTED HOLES.

(1C) PLATE 5/8" x 8" x 1'-6" WITH 3/4" x 1 1/2" SLOTTED HOLES.

(2A) 1/4" x 5" x 7" ANCHOR PLATE WITH 11/16" DIA. HOLES FOR THR'D RODS NO. 3

(2B) 1/4" x 2 1/2" x 7 1/4" ANCHOR PLATE WITH 11/16" DIA. HOLES FOR THR'D RODS NO. 3.

(3) 5/8" DIA. x 9" LONG. TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 ksi) WITH NUT AND WASHERS OF SAME ALLOY GROUP. (ALTERNATE RAIL POST ANCHORAGE: 4 EQUIVALENT STAINLESS STEEL CONCRETE MASONRY ANCHORS TYPE S 5/8-IN. EMBED 7" IN CONCRETE FOR RAIL POSTS FOR RAIL POSTS EMBED 5" IN CONCRETE FOR END RAILS)

(4) STRUCTURAL TUBING 3" x 1 1/2" x 3/16". PLACE VERTICAL. WELD TO NO. 1 & NO. 5.

(5A) STRUCTURAL TUBING 3" x 1 1/2" x 3/16" RAILS. WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.

(5B) STRUCTURAL TUBING 2 1/2" DIA. (STANDARD SIZE) RAIL (2.875" O.D.). WELD TO NO. 1 & NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.

(6A) BAR 1" x 1" PICKETS. WELD TO NO. 5 (SPACE AT 6" MAX. C/L TO C/L SPACING). PLACE VERTICAL.

(7A) RECTANGULAR SLEEVE FABRICATED FROM 3/16"PLATES. PROVIDE "SLIDING FIT".

(7B) CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.)

(8A) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" AT FIELD ERECTION JOINTS)

(8B) CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" DIA. (STANDARD SIZE) (2.375" O.D.) (1'-4" AT FIELD ERECTION JOINTS)

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C2 GALVANIZED B-40-760", WHICH SHALL INCLUDE ALL WORK SHOWN ON THIS SHEET.

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. 1, 2, 6, 7 AND 8 SHALL CONFORM TO ASTM A709 GRADE 36. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B (NO. 4 & NO. 5).

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

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED OR STAINLESS STEEL

ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL.

ALL MATERIAL (EXCEPT NO. 3) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP AS SPECIFIED IN THE "BRIDGE SPECIAL PROVISIONS". THE RAILING SHALL BE PAINTED FEDERAL COLOR NO. 27038.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-760

DRAWN BY K.P.S. | PLANS CK'D. A.R. J.P.H.

STEEL RAILING DETAILS

SHEET 22 OF 22

80

8

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W:\STR\B0935\PLANS\NE_RETWALL_INE_ELEVATION.DGN 11-14-2014

WEST NORTH AVENUE OVER CANADIAN PACIFIC RAILWAY

STATE PROJECT NUMBER

2135 - 03 - 70

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.
ALL ELEVATIONS ARE REFERRED TO CITY OF MILWAUKEE DATUM.
CITY OF MILWAUKEE DATUM = 580.60 (NGVD29)

ALL DIMENSIONS ALONG THE FRONT FACE OF WALL UNLESS OTHERWISE OR FIRST SHOWN.

THE FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR REINFORCEMENT SHALL HAVE 2" CLEAR COVER UNLESS SHOWN OTHERWISE.

THESE PLANS ARE FOR A PRECAST CONCRETE PANEL MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL LRFD.

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF WALLS R-40-598, R-40-599, R-40-600, R-40-601, AND BRIDGE B-40-760.

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM, "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP".

THE COST OF FURNISHING AND PLACING BACKFILL WITHIN THE REINFORCED SOIL ZONES, UNREINFORCED CONCRETE LEVELING PAD UNDER THE MSE PRECAST WALL PANELS, REINFORCEMENT, GEOTEXTILE FABRIC, ENGINEERED BACKFILL, JOINT MATERIAL, AND OTHER MISCELLANEOUS ITEMS IS INCLUDED IN THE COST OF BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP".

ALL BAR STEEL REINFORCEMENT IN CAST-IN-PLACE CONCRETE IS TO BE EPOXY COATED.

BEVEL ALL EXPOSED EDGES OF CONCRETE 1" UNLESS NOTED OTHERWISE.

THE PLAN QUANTITY FOR THE ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE LEVELING PAD TO THE TOP OF WALL AS SHOWN IN THE PLANS.

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

PLACE BACKFILL IN SPECIFIED LAYER THICKNESS STARTING AT BACK FACE OF WALL AND WORKING AWAY FROM WALL.

UTILITY LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILIES PRIOR TO EXCAVATING. DAMAGE TO EXISTING UTILITES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTORS EXPENSE.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

SEE SPECIAL PROVISIONS FOR AESTHETIC TREATMENT TO WALL.

■ THE LENGTHS PROVIDED IN THE TABLE ARE THE MINIMUM REQUIRED REINFORCEMENT LENGTHS BASED UPON THE MINIMUM DESCRIBED IN THE WALL SYSTEM SPECIAL PROVISIONS OR EXTERNAL AND OVERALL STABILITY AT THE DESIGNATED LOCATIONS. THESE DESIGNATED LOCATIONS REPRESENT TYPICAL AND CRITICAL WALL LOCATIONS, BUT SHALL NOT BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR DESIGN LENGTHS SHALL MEET OR EXCEED THE MINIMUM VALUES REPRESENTED IN THE TABLE AT THESE DESIGNATED LOCATIONS.

CONTRACTOR TO MATCH EXISTING GRADE WITHIN 10 FEET OF FRONT FACE OF M.S.E. WALL.

REMOVAL OF EXISTING ABUTMENT AS SHOWN WILL BE PAID AS PART OF "REMOVING OLD STRUCTURE. (71+55.63)". SEE STRUCTURE B-40-760.

TOP OF CONCRETE LEVELING PAD TO BE AT SAME ELEVATION AS TOP OF BRIDGE FOOTING. APPROX. EL. 84.47.

SEE STRUCTURE B-40-760 FOR PARAPET AND STRUCTURAL APPROACH SLAB DETAILS.

"CONSTRUCTION STAKING STRUCTURE LAYOUT" INCLUDES VERIFYING LOCATION OF NEW AND EXISTING ABUTMENTS PRIOR TO MSE WALL FABRICATION.

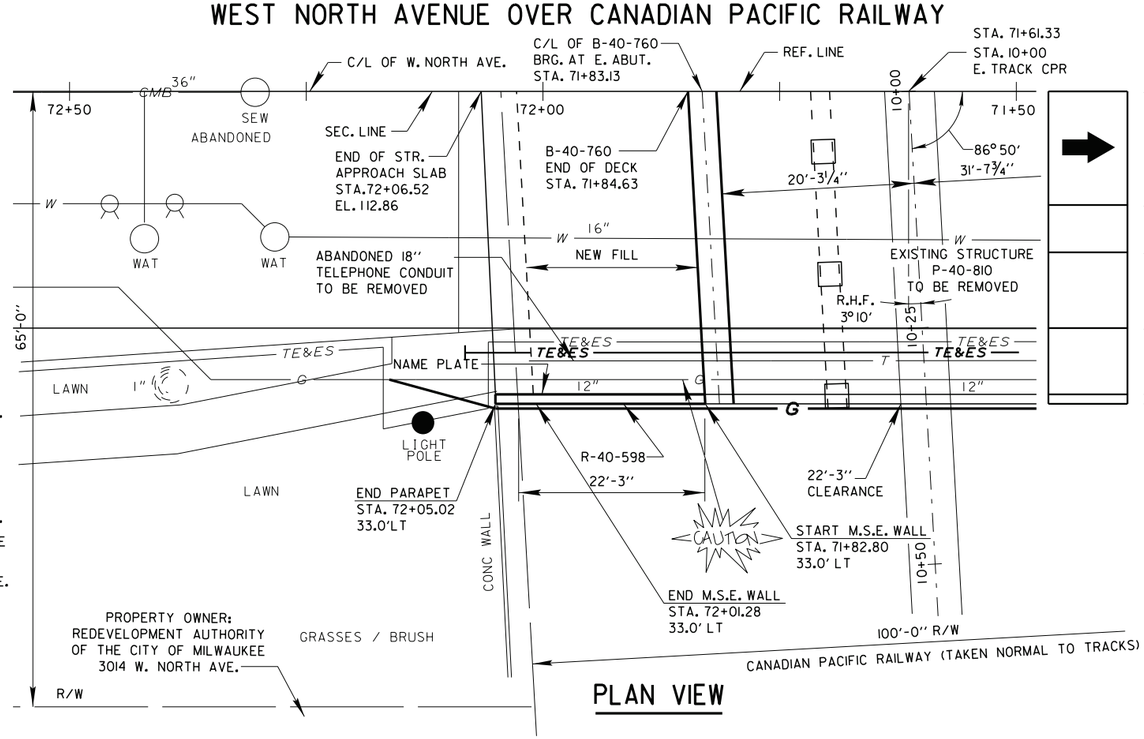
DESIGN DATA

MATERIAL PROPERTIES:

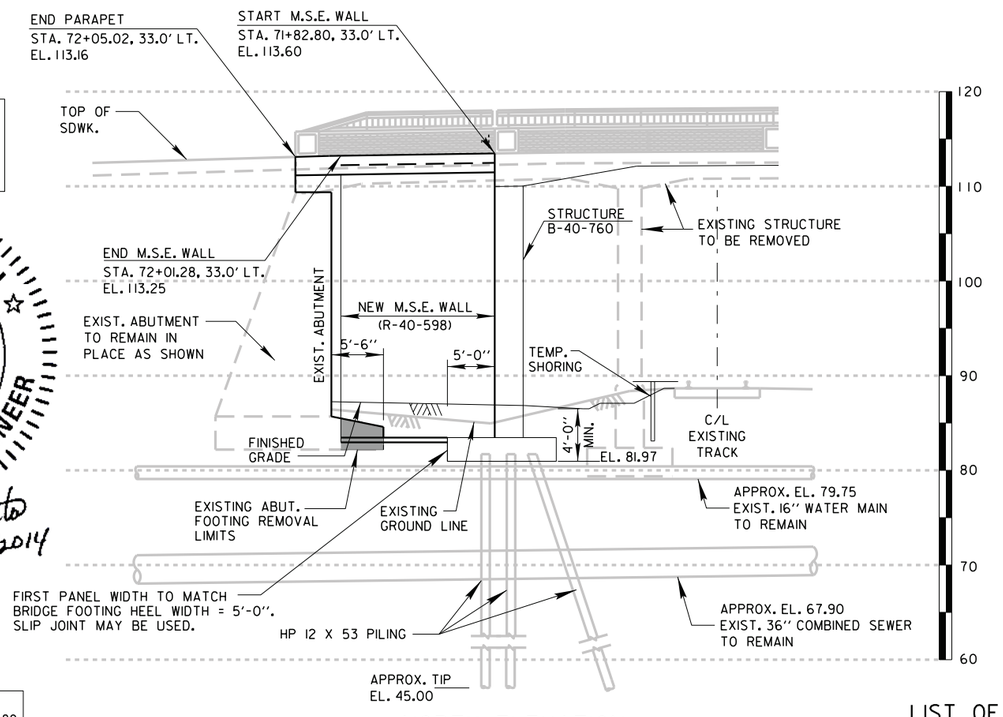
CONCRETE MASONRY	f'c = 4,000 PSI
PRECAST CONCRETE WALL PANEL	f'c = 4,000 PSI
BAR STEEL REINFORCEMENT	fy = 60,000 PSI

LIVE LOAD:

LIVE LOAD SURCHARGE	240 PSF



PLAN VIEW



NORTH ELEVATION

LOOKING SOUTH

STD. B.M. @ S.E. CORNER
OF N. 28TH ST. & W. NORTH AVE.
EL. 94.00
Y = 393242.10
X = 2548203.91

WISCONSIN
CRAIG S. LIBERTO
E-23746
MILWAUKEE
WIS.
PROFESSIONAL ENGINEER
Craig S. Liberto
11/24/2014

WISDOT CONTACT:
WILLIAM DREHER 608-266-8489

CONSULTANT CONTACT:
CITY OF MILWAUKEE
CRAIG LIBERTO 414-286-3294

WALL EXTERNAL STABILITY EVALUATION

WALL HEIGHT (FEET)	28'-3"
EXPOSED WALL HEIGHT (FEET)	26'-9"
■ MINIMUM LENGTH OF REINFORCEMENT (FEET)	19'-10"
LENGTH OF REINFORCEMENT / WALL HEIGHT	0.70
WALL STATION	71+82.83
TEST BORING USED	BOR-2

SOIL PARAMETERS

STRATUM LOCATION & SOIL DESCRIPTION	UNIT DENSITY (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
CLAY WITH SAND AND GRAVEL	130	0	3,500
SILTY SAND (EL. 49.0 TO EL. 76.0)	125	33	0
SILTY SAND (EL. 40.0 TO EL. 49.00)	135	40	0
SANDY SILTY CLAY (TILL)	140	40	0

CAPACITY TO DEMAND RATIO (CDR)

	DRAINED	UNDRAINED
SLIDING (CDR ≥ 1.0)	1.3	1.0
ECCENTRICITY (CDR > 1.0)	1.1	1.1
BEARING (CDR > 1.0)	1.0	1.2
GLOBAL STABILITY (CDR > 1.0)	1.2	1.9

GEOMETRY TABLE

STA.	OFFSET TO F.F. WALL	TOP OF WALL EL.	FINISHED GRADE EL.
71+82.80	32.5' LT.	113.60	85.97 MIN.
72+01.28	32.5' LT.	113.25	87.25

LIST OF DRAWINGS

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS
INFRASTRUCTURE SERVICES DIVISION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 01/30/15
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-598

W. NORTH AVE. OVER C.P. RAILWAY

COUNTY MILWAUKEE	~~TOWN~~/CITY/ ~~VILLAGE~~ MILWAUKEE		
DESIGN SPEC. AASHTO LRFD SPECIFICATIONS			
DESIGNED BY A.R.	DESIGN CK'D. H.J.R.	DRAWN BY G.G.	PLANS CK'D. A.R. H.J.R.

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4
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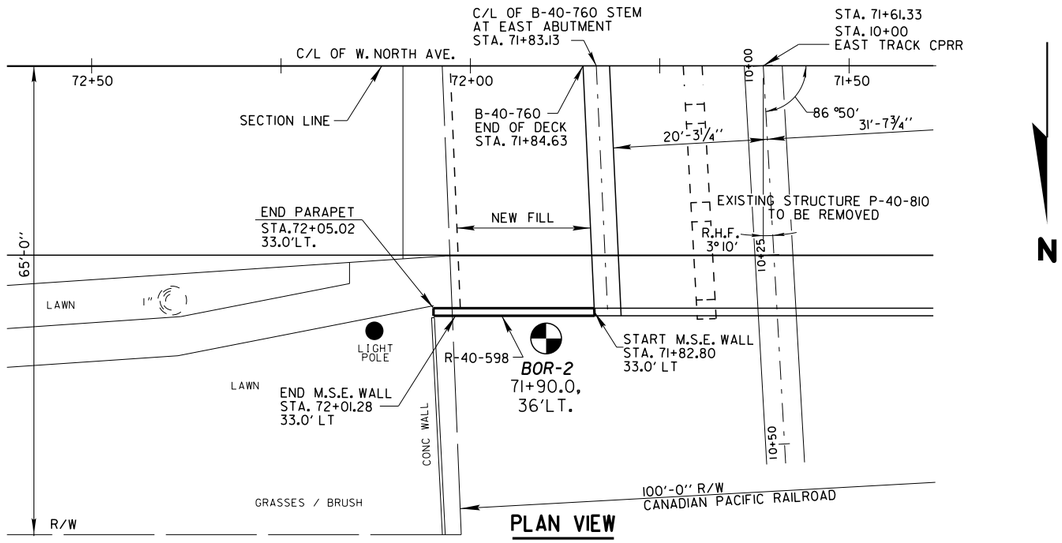
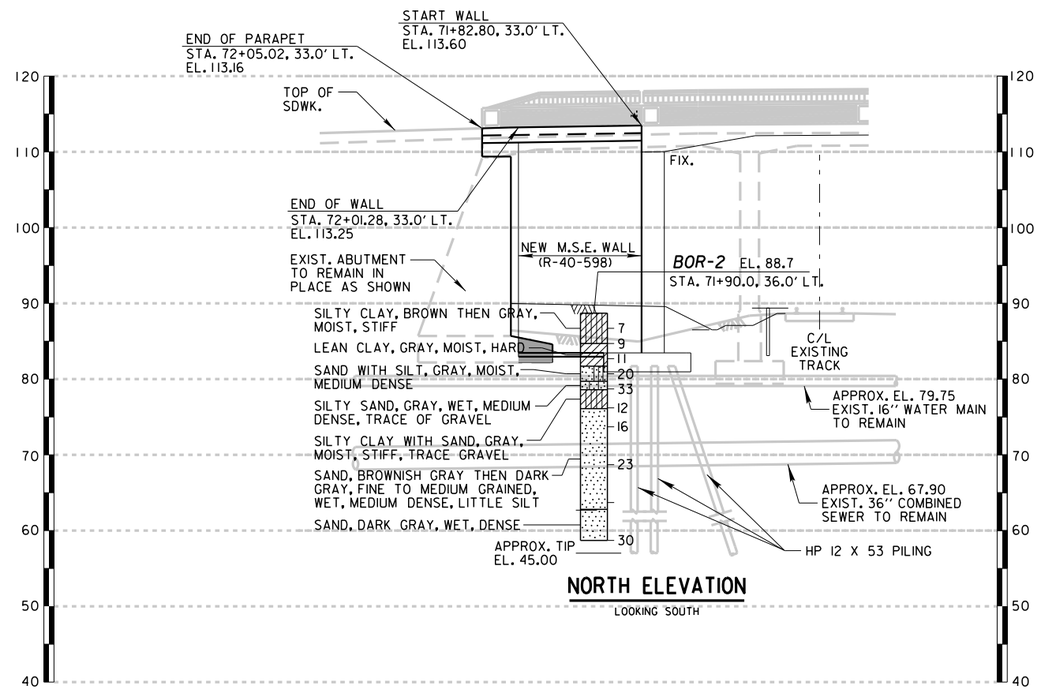
WEST NORTH AVENUE
OVER CANADIAN PACIFIC RAILWAY



PLAN VIEW



NORTH ELEVATION

LOOKING SOUTH

N

NOTE

SUBSURFACE INFORMATION ON PLAN SHEET SUMMARIZES GEOTECHNICAL ENGINEERING REPORT.

REVIEW THE GEOTECHNICAL ENGINEERING REPORT AND SOIL BORING LOGS DATED FEBRUARY 14, 2014 AND ALL SUBSEQUENT REVISIONS FOR ADDITIONAL SUBSURFACE INFORMATION.

SOIL BORING COMPLETED BY GESTRA ENGINEERING

UTILITIES NOT SHOWN ON THIS SHEET FOR CLARITY. REFER TO SITE PLAN ON SHEET 1.

ENVIRONMENTAL TESTING COMPLETED BY SIGMA GROUP.

DENOTES SOIL BORING LOCATION

STATE PROJECT NUMBER

2135 - 03 - 70

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

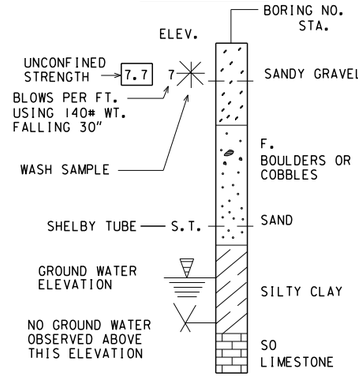
TOPSOIL, SAND, GRAVEL, SILT, PEAT, CLAY, SANDSTONE, LIMESTONE, IGNEOUS ROCK

LEGEND OF PROBING

95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

PROBING NO.
STATION
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

LEGEND OF BORING



UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-598

DRAWN BY G.G. | PLANS CK'D. A.R. H.J.R.

SUBSURFACE EXPLORATION

SHEET 2 OF 4

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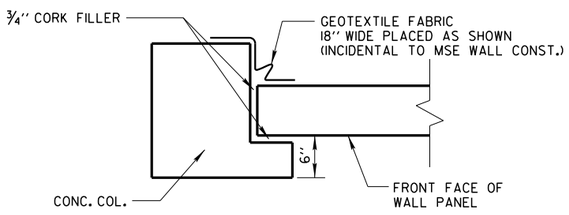
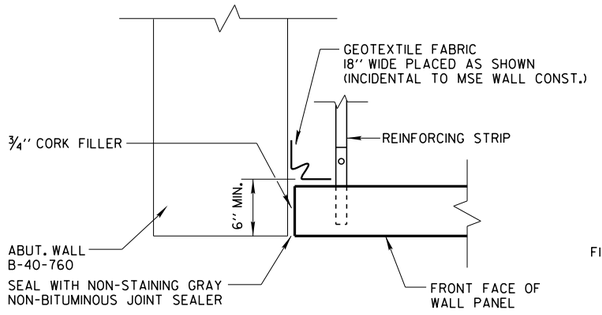
STATE PROJECT NUMBER

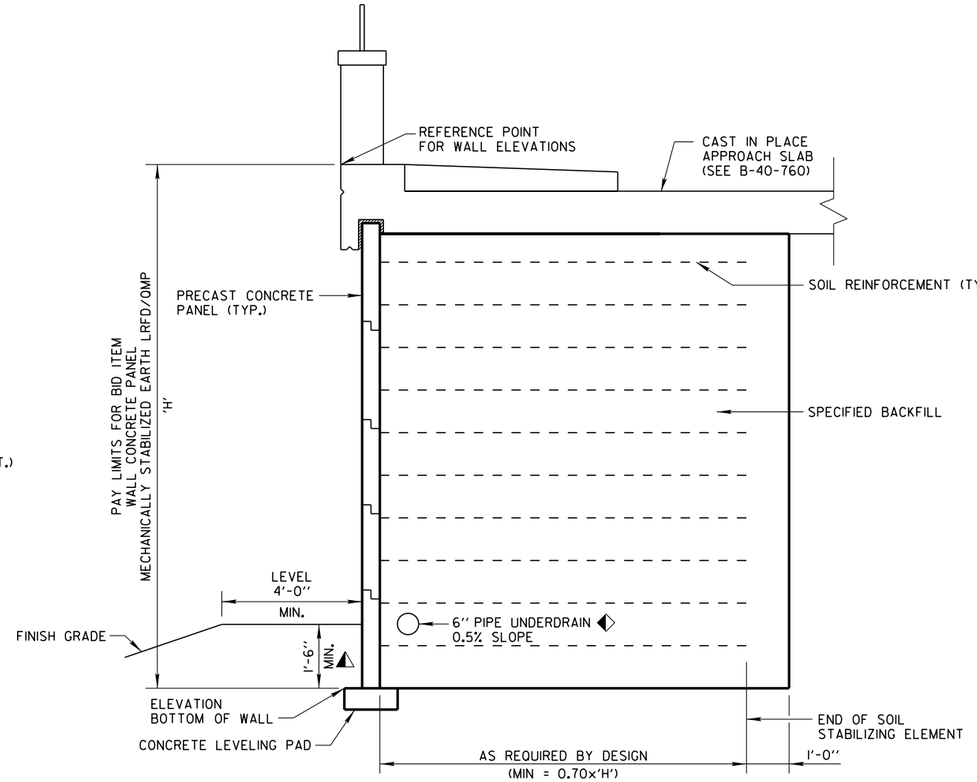
2135 - 03 - 70



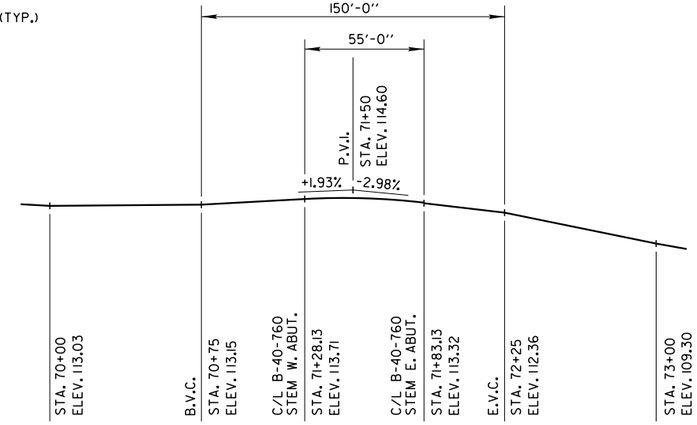
BUTT JOINT DETAIL AT CONCRETE COLUMN



BUTT JOINT DETAIL AT NEW ABUTMENT WALL



TYPICAL CROSS SECTION



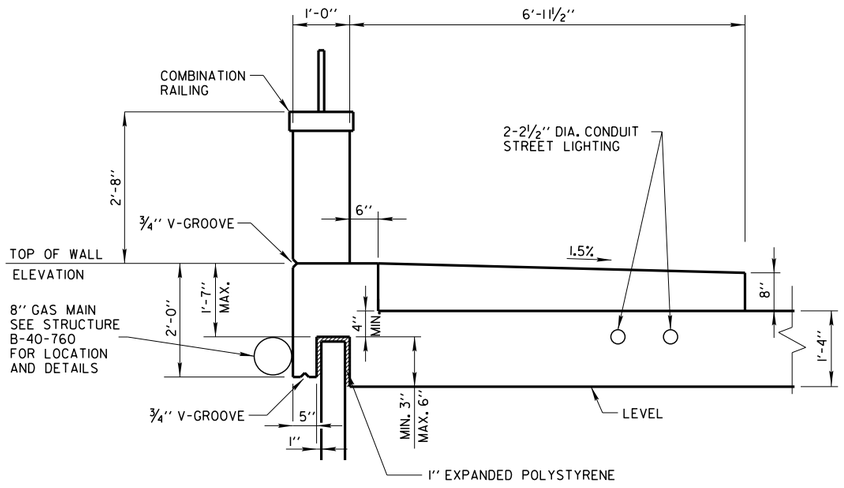
PROFILE GRADE LINE ALONG C/L OF W. NORTH AVE.

▲1 MINIMUM EMBEDMENT BASED ON SITE SPECIFIC PARAMETERS (1'-6" MINIMUM FOR ALL WALLS ON LEVEL GROUND). FIELD EMBEDMENTS SHALL MEET OR EXCEED THE MINIMUM EMBEDMENT. FIELD EMBEDMENTS BELOW MINIMUM EMBEDMENT SHALL NOT BE INCLUDED IN THE PAY LIMITS.

◆ SEE STRUCTURE B-40-760 FOR PIPE UNDER DRAIN DETAILS ON BID ITEM.

ESTIMATE OF QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
205.0501.S	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	13
502.5005	MASONRY ANCHORS TYPE L, NO. 5 BARS	EACH	52
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	3
505.0615	BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS	LB	462
509.1500	CONCRETE SURFACE REPAIR	SF	2
516.0100	DAMPPROOFING	SY	3
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	24
SPV.0165.01	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD / QMP	SF	540
	NON BID ITEMS		
	CORK JOINT FILLER	SIZE	
	NON-BITUMINOUS JOINT FILLER	SIZE	
	NAME PLATE	EACH	



CAST IN PLACE CONCRETE BARRIER DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-598

DRAWN BY G.G. | PLANS CK'D. A.R. H.J.R.

WALL DETAILS AND QUANTITIES

SHEET 3 OF 4

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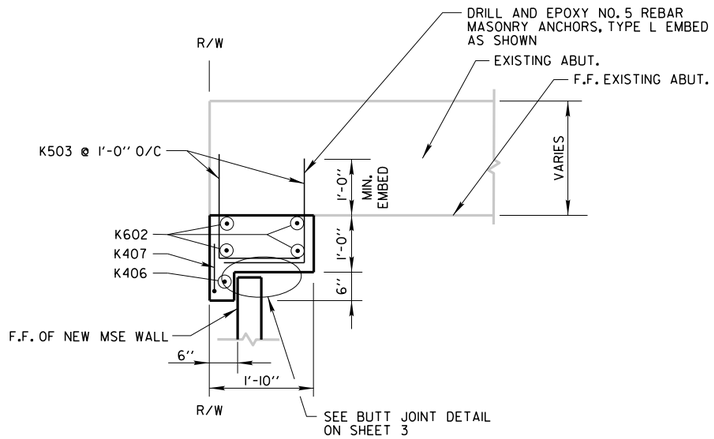
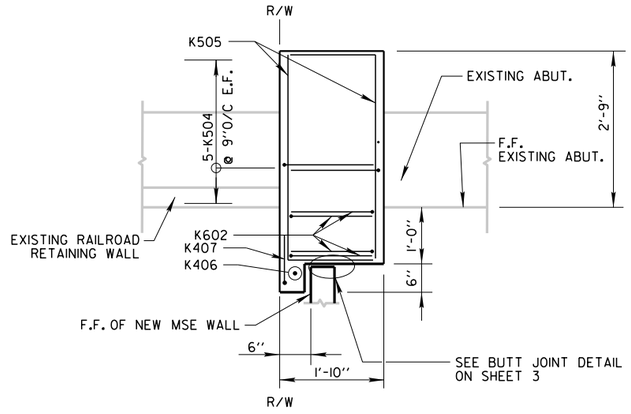
8

8



PLAN VIEW (FROM EL. 86.14 TO EL. 107.45)

(NEW CONCRETE COLUMN)

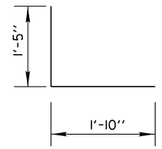


PLAN VIEW (FROM EL. 107.45 TO BOTTOM OF APPROACH SLAB)

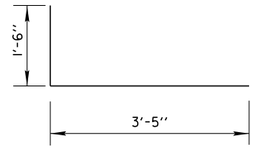
(NEW CONCRETE COLUMN)

BILL OF BARS - COLUMN

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
K501	X	4	2'-10"		DOWELS
K602	X	4	26'-1"	X	VERT. BAR
K503	X	44	3'-2"	X	STIRRUPS
K504	X	8	5'-11"	X	VERT. BAR
K505	X	10	4'-9"	X	HORIZONTAL
K406	X	1	24'-9"		VERT. BAR
K407	X	25	2'-0"	X	STIRRUPS



K503



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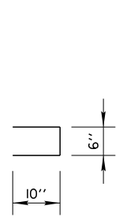

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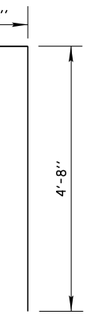
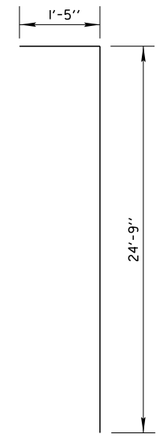


K504



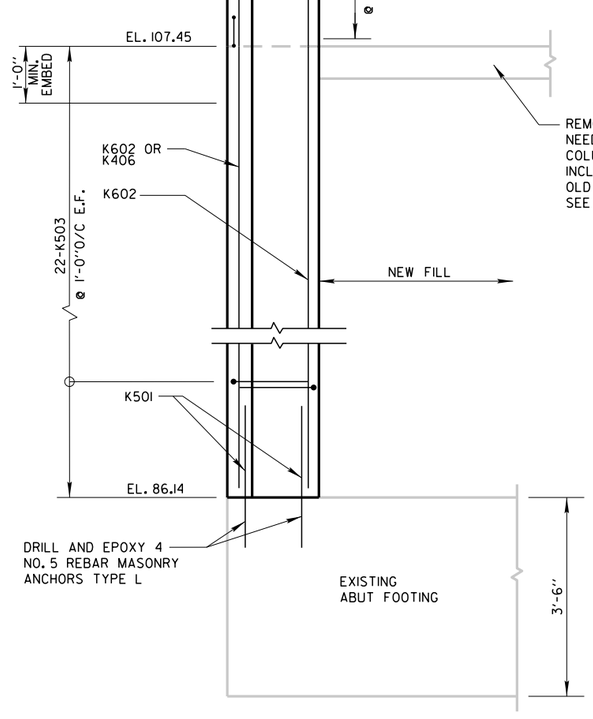
K602

B.F. = BACK FACE

F.F. = FRONT FACE

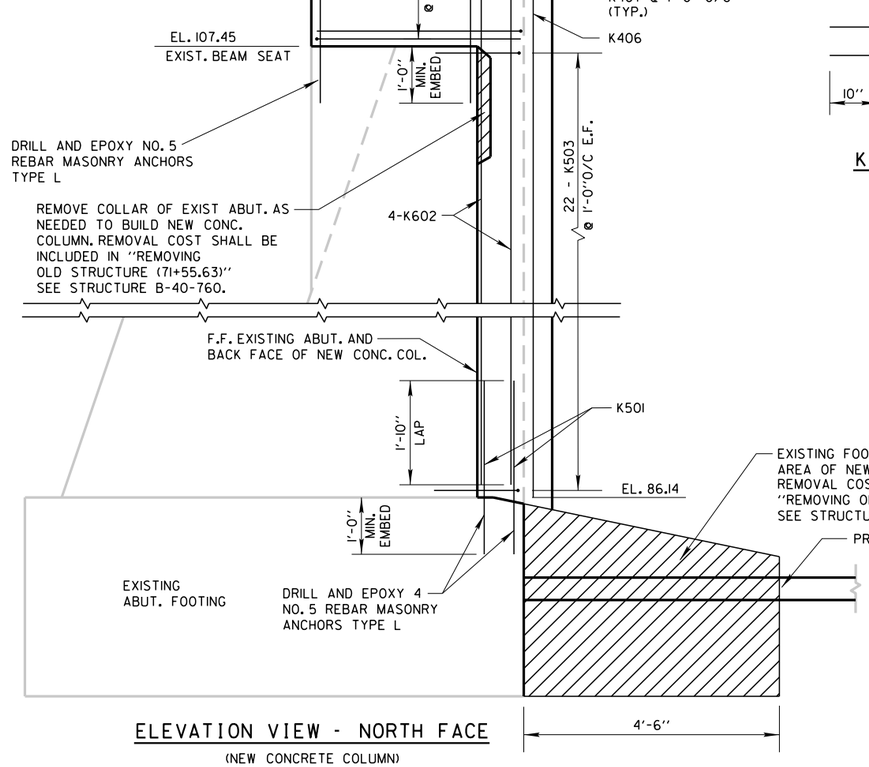
E.F. = EACH FACE

NOTE:
COLUMN THICKNESS MAY VARY AT TOP TO CREATE PLUMBNESS FOR THE BUTTING MSE WALL



ELEVATION VIEW - FRONT FACE - LOOKING EAST

(NEW CONCRETE COLUMN)



ELEVATION VIEW - NORTH FACE

(NEW CONCRETE COLUMN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-598

DRAWN BY | PLANS CK'D. A.R. H.J.R.

COLUMN DETAILS

SHEET 4 OF 4

8

W:\STR\B0935\PLANS\NW_RETWALL\ NW_ELEVATION.DGN 11-14-2014

STATE PROJECT NUMBER

2135 - 03 - 70

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.
ALL ELEVATIONS ARE REFERRED TO CITY OF MILWAUKEE DATUM.
CITY OF MILWAUKEE DATUM = 580.60 (NGVD29)

ALL DIMENSIONS ALONG THE FRONT FACE OF WALL UNLESS OTHERWISE SHOWN.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR REINFORCEMENT SHALL HAVE 2" CLEAR COVER UNLESS SHOWN OTHERWISE.

THESE PLANS ARE FOR A PRECAST CONCRETE PANEL MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL LRFD.

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF WALLS R-40-598, R-40-599, R-40-600, R-40-601, AND BRIDGE B-40-760.

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BEVEL ALL EXPOSED EDGES OF CONCRETE 1" UNLESS NOTED OTHERWISE.

THE PLAN QUANTITY FOR THE ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE LEVELING PAD TO THE TOP OF WALL AS SHOWN IN THE PLANS.

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

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PLACE BACKFILL IN SPECIFIED LAYER THICKNESS STARTING AT BACK FACE OF WALL AND WORKING AWAY FROM WALL.

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THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

SEE SPECIAL PROVISIONS FOR AESTHETIC TREATMENT TO WALL.

■ THE LENGTHS PROVIDED IN THE TABLE ARE THE MINIMUM REQUIRED REINFORCEMENT LENGTHS BASED UPON THE MINIMUM DESCRIBED IN THE WALL SYSTEM SPECIAL PROVISIONS OR EXTERNAL AND OVERALL STABILITY AT THE DESIGNATED LOCATIONS. THESE DESIGNATED LOCATIONS REPRESENT TYPICAL AND CRITICAL WALL LOCATIONS, BUT SHALL NOT BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR DESIGN LENGTHS SHALL MEET OR EXCEED THE MINIMUM VALUES REPRESENTED IN THE TABLE AT THESE DESIGNATED LOCATIONS.

CONTRACTOR TO MATCH EXISTING GRADE WITHIN 10 FEET OF FRONT FACE OF M.S.E. WALL.

REMOVAL OF EXISTING ABUTMENT AS SHOWN WILL BE PAID AS PART OF "REMOVING OLD STRUCTURE. (71+55.63)". SEE STRUCTURE B-40-760.

TOP OF LEVELING PAD TO BE AT SAME ELEVATION AS TOP OF BRIDGE FOOTING. APPROX. EL. 84.47.

SEE STRUCTURE B-40-760 FOR PARAPET AND STRUCTURAL APPROACH SLAB DETAILS.

"CONSTRUCTION STAKING STRUCTURE LAYOUT" INCLUDES VERIFYING LOCATION OF NEW AND EXISTING ABUTMENTS PRIOR TO MSE WALL FABRICATION.

DESIGN DATA

MATERIAL PROPERTIES:

CONCRETE MASONRY	f'c = 4,000 PSI
PRECAST CONCRETE WALL PANEL	f'c = 4,000 PSI
BAR STEEL REINFORCEMENT	fy = 60,000 PSI

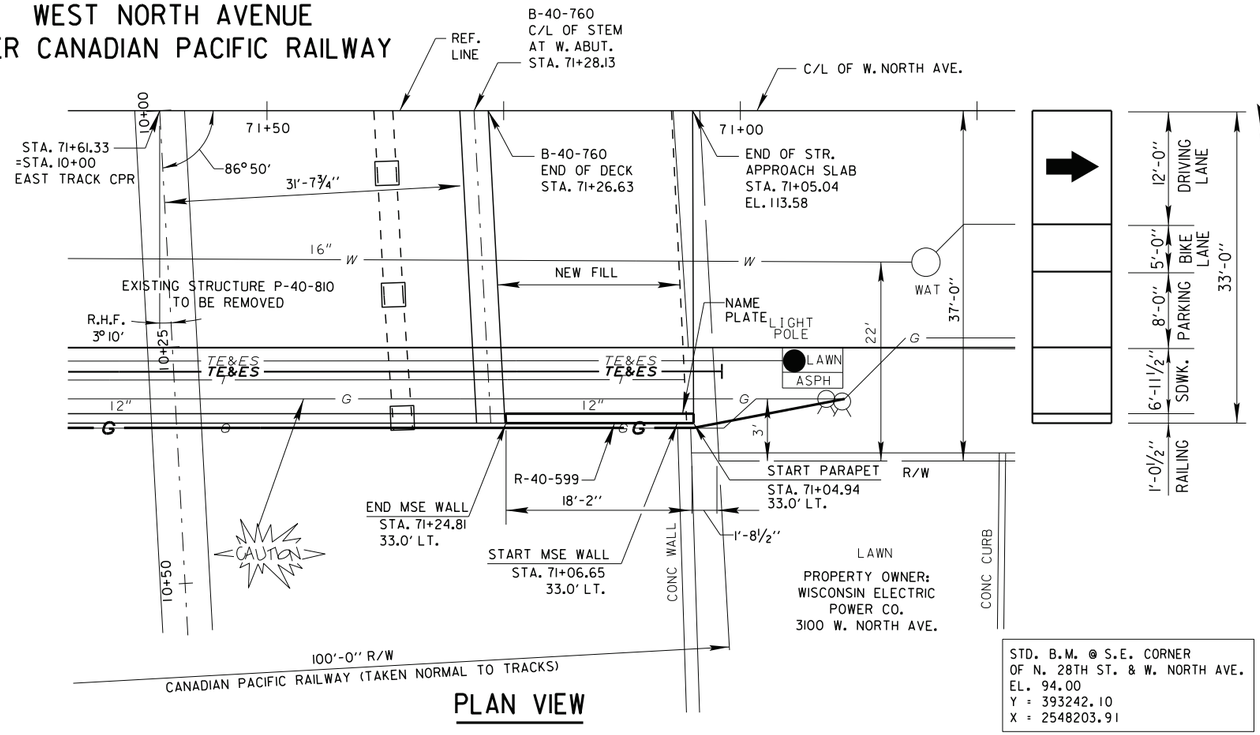
LIVE LOAD:

LIVE LOAD SURCHARGE	240 PSF

WISDOT CONTACT:
WILLIAM DREHER 608-266-8489

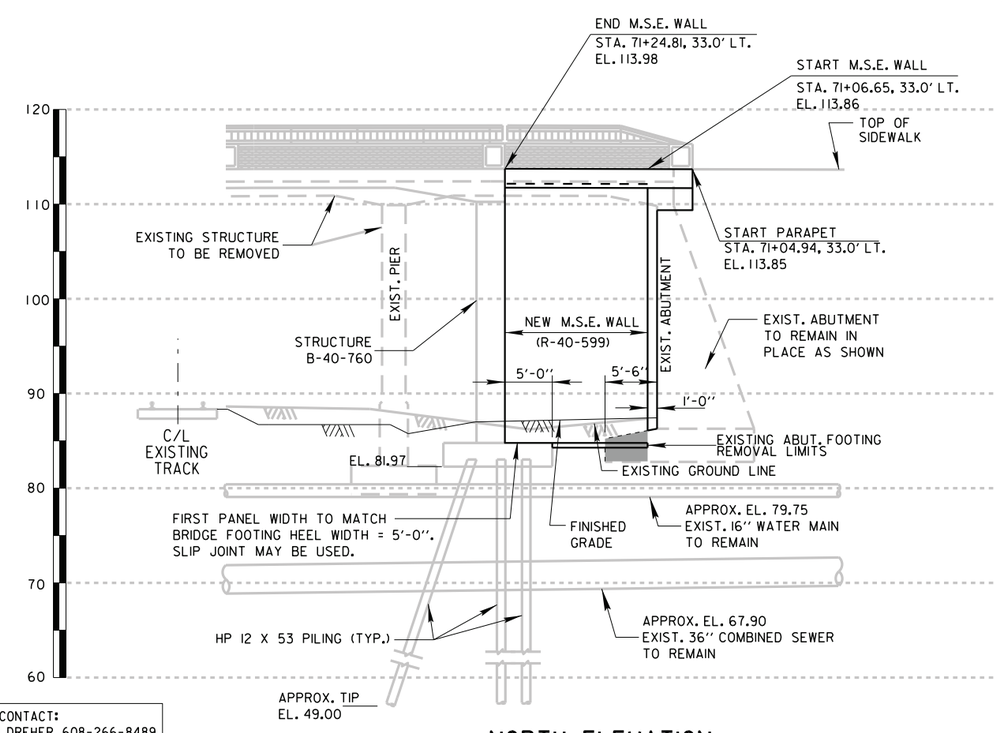
CONSULTANT CONTACT:
CITY OF MILWAUKEE
CRAIG LIBERTO 414-286-3294

WEST NORTH AVENUE OVER CANADIAN PACIFIC RAILWAY



PLAN VIEW

STD. B.M. @ S.E. CORNER OF N. 28TH ST. & W. NORTH AVE.
EL. 94.00
Y = 393242.10
X = 2548203.91



NORTH ELEVATION

LOOKING SOUTH
(TAKEN NORMAL TO TRACKS)

WALL EXTERNAL STABILITY EVALUATION

WALL HEIGHT (FEET)	29'-6"
EXPOSED WALL HEIGHT (FEET)	27'-0"
MINIMUM LENGTH OF REINFORCEMENT (FEET) ■	20'-8"
LENGTH OF REINFORCEMENT / WALL HEIGHT	0.70
WALL STATION	71+06.65
TEST BORING USED	BOR-1

SOIL PARAMETERS

STRATUM LOCATION & SOIL DESCRIPTION	UNIT DENSITY (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
CLAY WITH SAND AND GRAVEL	135	0	3,500
GRAVEL WITH SAND	135	36	0
SILTY SAND (EL. 49.0 TO EL. 60.00)	125	35	0
SANDY SILTY CLAY (TILL)	140	40	0

CAPACITY TO DEMAND RATIO (CDR)

	DRAINED	UNDRAINED
SLIDING (CDR ≥ 1.0)	1.3	1.0
ECCENTRICITY (CDR > 1.0)	1.1	1.1
BEARING (CDR > 1.0)	1.0	1.2
GLOBAL STABILITY (CDR > 1.0)	1.2	1.9

GEOMETRY TABLE

STATION	OFFSET TO F.F. WALL	TOP OF WALL EL.	FINISHED GRADE EL.
71+06.65	32.5' LT.	113.86	87.50
71+24.81	32.5' LT.	113.98	85.97 MIN.

WISCONSIN
CRAIG S. LIBERTO
E-23746
MILWAUKEE
WIS.
PROFESSIONAL ENGINEER
Craig S. Liberto 11/24/2014

LIST OF DRAWINGS

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS
INFRASTRUCTURE SERVICES DIVISION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 01/30/15
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-599

W. NORTH AVE. OVER C.P. RAILWAY

COUNTY MILWAUKEE	~~TOWN~~/CITY/~~VILLAGE~~ MILWAUKEE
DESIGN SPEC. AASHTO LRFD SPECIFICATIONS	

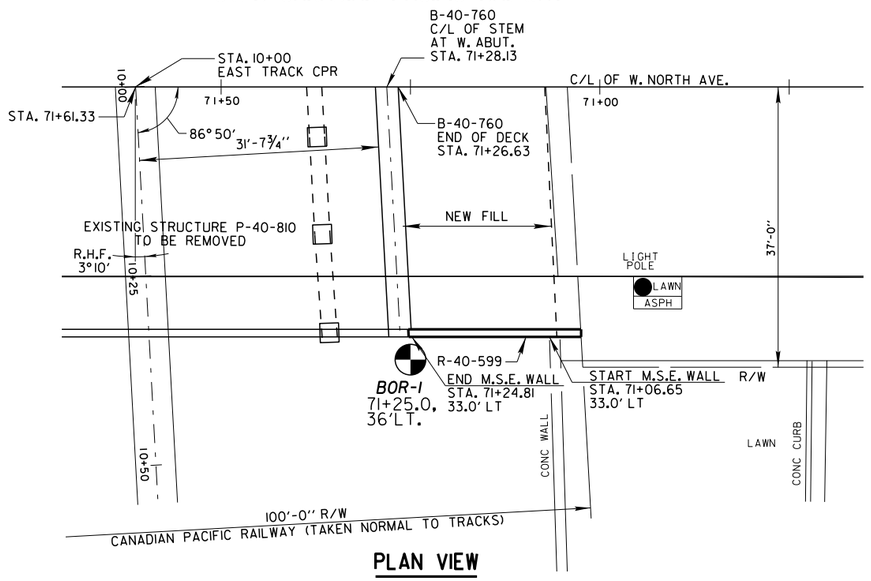
DESIGNED BY J.D.T.	DESIGN CK'D. H.J.R.	DRAWN BY G.G.	PLANS CK'D. H.J.R.

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4
85

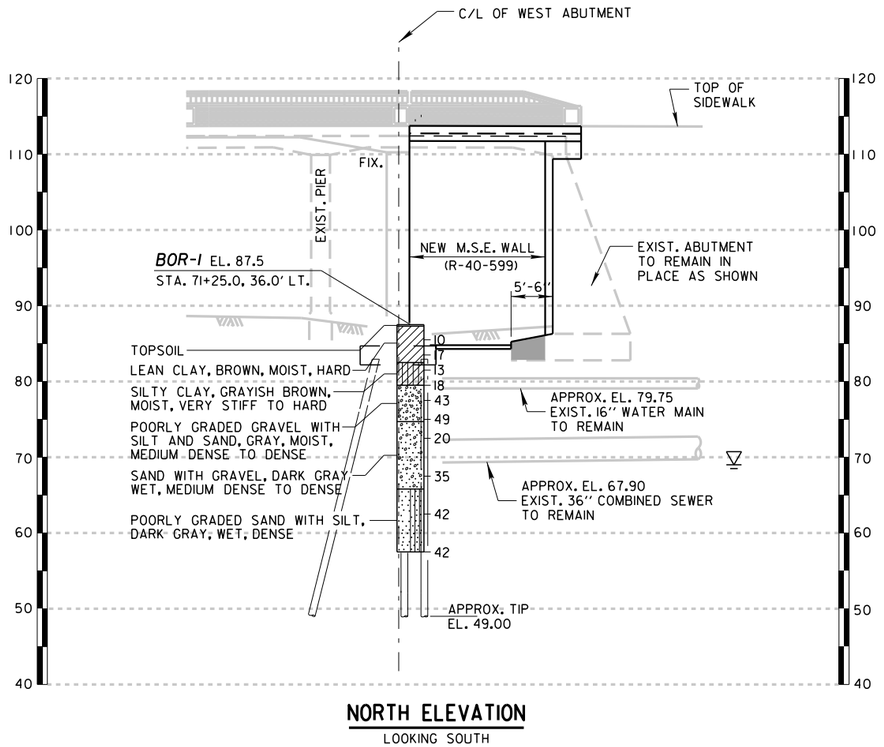
W:\STR\B0935\PLANS\NW_RETWALL\ 2NW_RWSUBSURFACE.DGN 09-02-2014

WEST NORTH AVENUE
OVER CANADIAN PACIFIC RAILWAY



PLAN VIEW

N



NORTH ELEVATION

LOOKING SOUTH

NOTE

SUBSURFACE INFORMATION ON PLAN SHEET SUMMARIZES GEOTECHNICAL ENGINEERING REPORT.

REVIEW THE GEOTECHNICAL ENGINEERING REPORT AND SOIL BORING LOGS DATED FEBRUARY 14, 2014 AND ALL SUBSEQUENT REVISIONS FOR ADDITIONAL SUBSURFACE INFORMATION.

SOIL BORING COMPLETED BY GESTRA ENGINEERING

UTILITIES NOT SHOWN ON THIS SHEET FOR CLARITY. REFER TO SITE PLAN ON SHEET 1.

ENVIRONMENTAL TESTING COMPLETED BY SIGMA GROUP.

DENOTES SOIL BORING LOCATION

STATE PROJECT NUMBER

2135 - 03 - 70

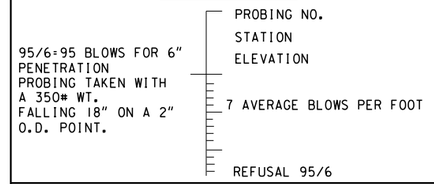
ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

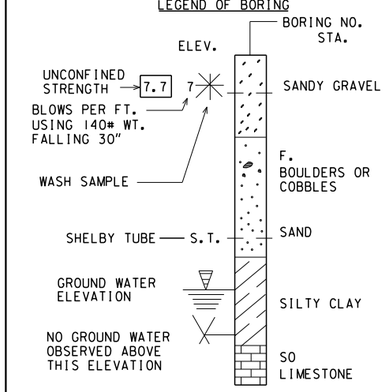
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



REFERENCE GESTRA GEOTECHNICAL REPORT AND ALL SUBSEQUENT REVISIONS DATED FEBRUARY 14, 2014.
UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-599

DRAWN BY R.B.M. | PLANS CK'D. J.D.T. H.J.R.

SUBSURFACE EXPLORATION

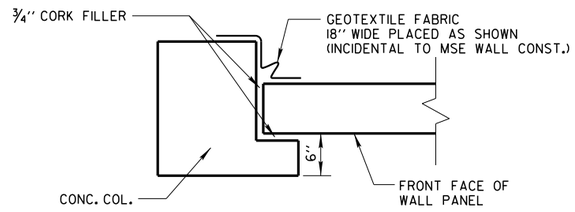
SHEET 2 OF 4

8

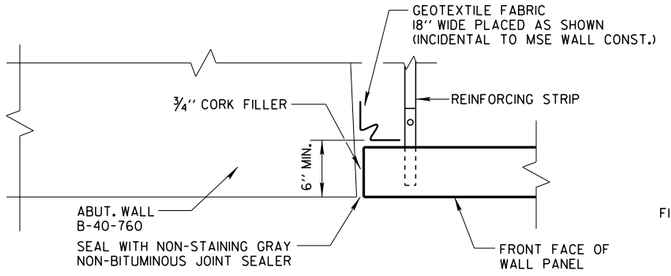
8

STATE PROJECT NUMBER

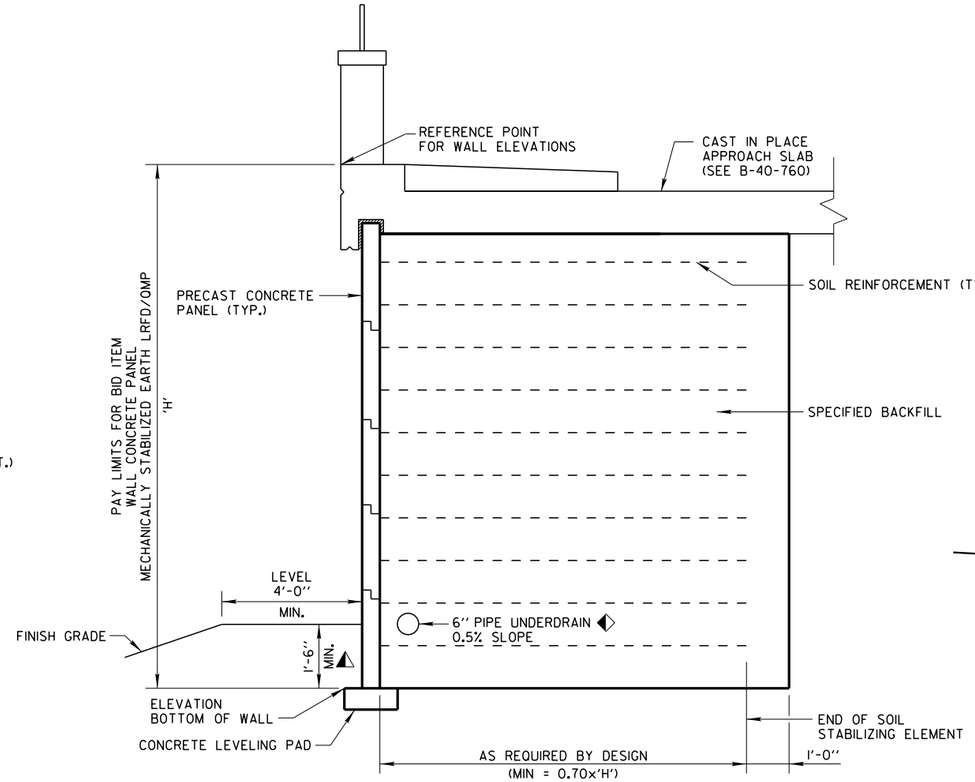
2135 - 03 - 70



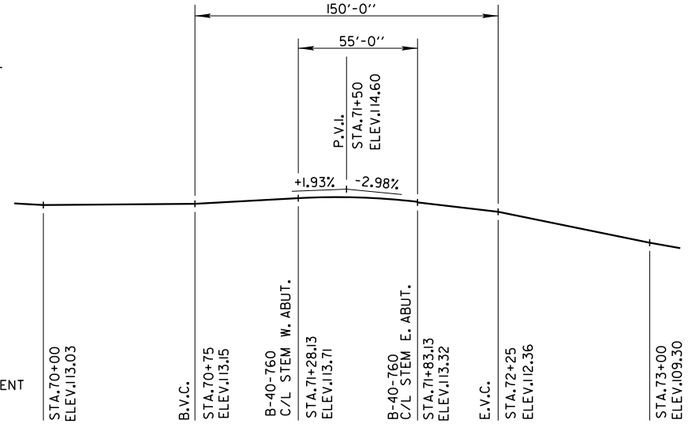
BUTT JOINT DETAIL AT CONCRETE COLUMN



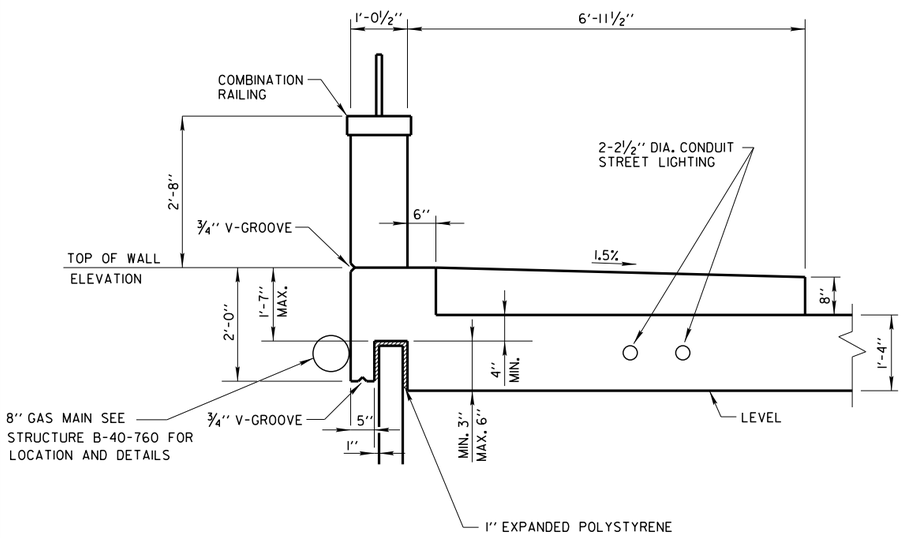
BUTT JOINT DETAIL AT NEW ABUTMENT WALL



TYPICAL CROSS SECTION



PROFILE GRADE LINE ALONG C/L OF W. NORTH AVE.



STRUCTURAL APPROACH SLAB AT MSE WALL

NOTE: SEE STRUCTURE B-40-760 FOR DETAILS

▲ MINIMUM EMBEDMENT BASED ON SITE SPECIFIC PARAMETERS (1'-6" MINIMUM FOR ALL WALLS ON LEVEL GROUND). FIELD EMBEDMENTS SHALL MEET OR EXCEED THE MINIMUM EMBEDMENT. FIELD EMBEDMENTS BELOW MINIMUM EMBEDMENT SHALL NOT BE INCLUDED IN THE PAY LIMITS.

◆ SEE STRUCTURE B-40-760 FOR PIPE UNDERDRAIN DETAILS AND BID ITEM

ESTIMATE OF QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
205.0501.S	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	15
502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS	EACH	50
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	2
505.0615	BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS	LB	430
516.0100	DAMPPROOFING	SY	1
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	24
SPV.0165.01	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/ OMP	SF	563
	NON BID ITEMS		
	CORK JOINT FILLER	SIZE	
	NON-BITUMINOUS JOINT FILLER	SIZE	
	NAME PLATE	EACH	

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-599

DRAWN BY G.G. | PLANS CK'D. J.D.T. H.J.R.

WALL DETAILS AND QUANTITIES

SHEET 3 OF 4

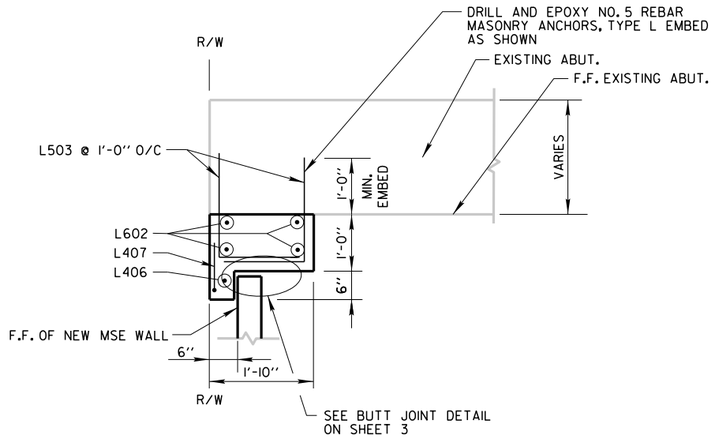
8

8

W:\STR\B0935\PLANS\NW_RETWALL\ 4NW_COL_DETS.DGN 11-24-2014

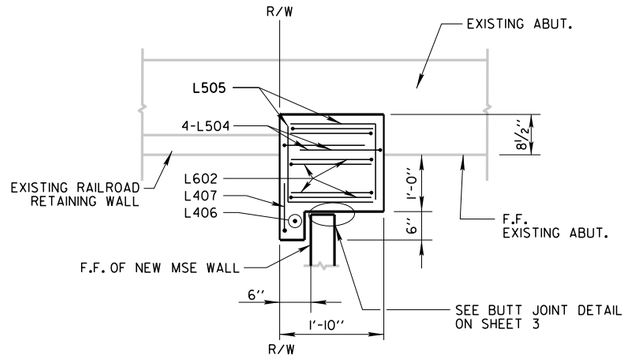
STATE PROJECT NUMBER

2135 - 03 - 70



PLAN VIEW (FROM EL. 86.07 TO EL. 108.00)

(NEW CONCRETE COLUMN)

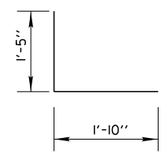


PLAN VIEW (FROM EL. 108.00 TO BOTTOM OF APPROACH SLAB)

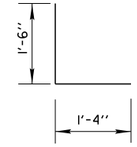
(NEW CONCRETE COLUMN)

BILL OF BARS - COLUMN

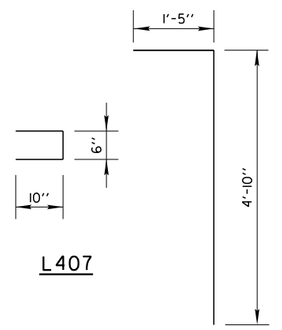
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
L501	X	4	2'-10"		DOWELS
L602	X	4	26'-10"	X	VERTICAL BAR
L503	X	44	3'-2"	X	STIRRUPS
L504	X	4	6'-2"	X	VERTICAL BAR
L505	X	12	2'-8"	X	HORIZONTAL
L406	X	1	25'-5"		VERTICAL BAR
L407	X	26	2'-0"	X	STIRRUP



L503

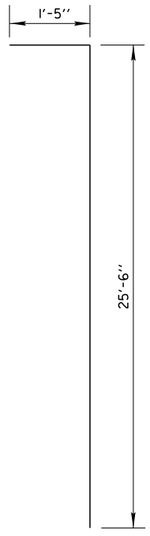


L505



L407

L504



L602

B.F. = BACK FACE

F.F. = FRONT FACE

E.F. = EACH FACE

NOTE:
COLUMN THICKNESS MAY VARY AT TOP TO CREATE PLUMBNESS FOR THE BUTTING MSE WALL

STRUCTURAL APPROACH SLAB ABOVE

ELEVATION VIEW - FRONT FACE - LOOKING WEST

(NEW CONCRETE COLUMN)

STRUCTURAL APPROACH SLAB ABOVE

ELEVATION VIEW - SOUTH FACE

(NEW CONCRETE COLUMN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-599

DRAWN BY S.S. | PLANS CK'D. J.D.T. H.J.R.

CAST-IN-PLACE CONCRETE DETAILS

SHEET 4 OF 4

8

8

W:\STR\B0935\PLANS\SE_RETWALL_ISE_ELEVATION.DGN 11-14-2014

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CITY OF MILWAUKEE DATUM = 580.60 (NGVD29)

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THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

SEE SPECIAL PROVISIONS FOR AESTHETIC TREATMENT TO WALL.

■ THE LENGTHS PROVIDED IN THE TABLE ARE THE MINIMUM REQUIRED REINFORCEMENT LENGTHS BASED UPON THE MINIMUM DESCRIBED IN THE WALL SYSTEM SPECIAL PROVISIONS OR EXTERNAL AND OVERALL STABILITY AT THE DESIGNATED LOCATIONS. THESE DESIGNATED LOCATIONS REPRESENT TYPICAL AND CRITICAL WALL LOCATIONS, BUT SHALL NOT BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR DESIGN LENGTHS SHALL MEET OR EXCEED THE MINIMUM VALUES REPRESENTED IN THE TABLE AT THESE DESIGNATED LOCATIONS.

CONTRACTOR TO MATCH EXISTING GRADE WITHIN 10 FEET OF FRONT FACE OF M.S.E. WALL.

REMOVAL OF EXISTING ABUTMENT AS SHOWN WILL BE PAID AS PART OF "REMOVING OLD STRUCTURE. (71+55.63)". SEE STRUCTURE B-40-760.

TOP OF CONCRETE LEVELING PAD TO BE AT SAME ELEVATION AS TOP OF BRIDGE FOOTING. APPROX. EL. 84.47.

SEE STRUCTURE B-40-760 FOR PARAPET AND STRUCTURAL APPROACH SLAB DETAILS.

"CONSTRUCTION STAKING STRUCTURE LAYOUT" INCLUDES VERIFYING LOCATION OF NEW AND EXISTING ABUTMENTS PRIOR TO MSE WALL FABRICATION.

DESIGN DATA

MATERIAL PROPERTIES:

CONCRETE MASONRY	f'c = 4,000 PSI
PRECAST CONCRETE WALL PANEL	f'c = 4,000 PSI
BAR STEEL REINFORCEMENT	fy = 60,000 PSI

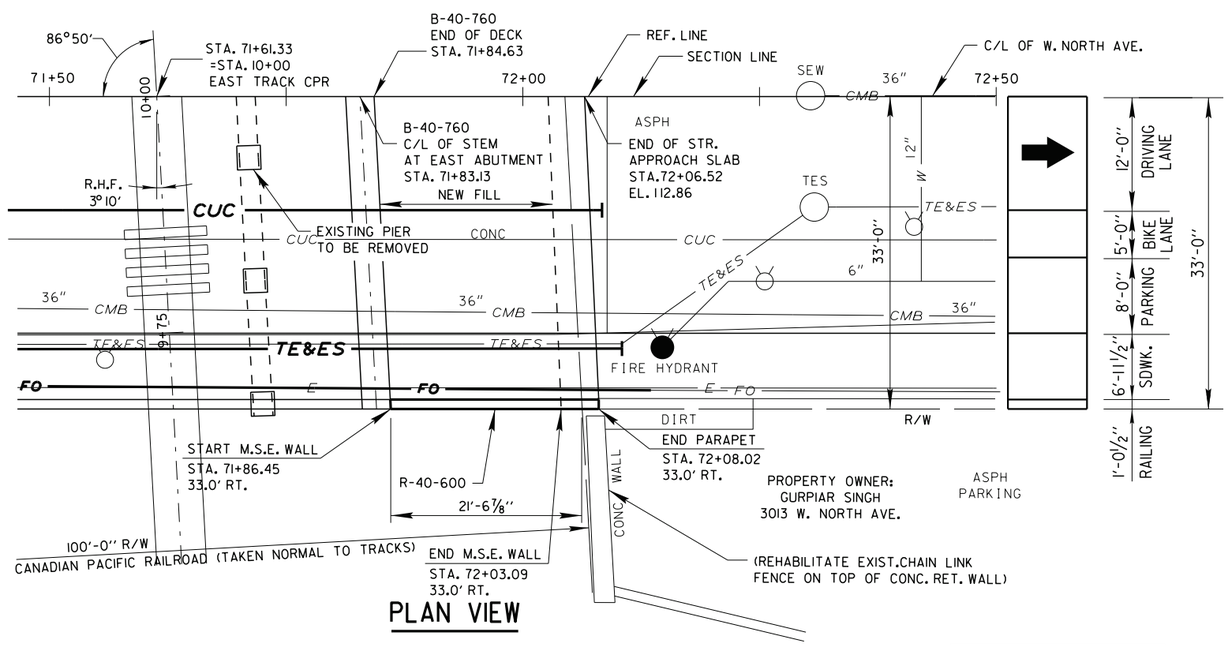
LIVE LOAD:

LIVE LOAD SURCHARGE	240 PSF

WISDOT CONTACT:
WILLIAM DREHER 608-266-8489

CONSULTANT CONTACT:
CITY OF MILWAUKEE
CRAIG LIBERTO 414-286-3294

WEST NORTH AVENUE
OVER CANADIAN PACIFIC RAILWAY



PLAN VIEW

STANDARD BM AT SE CORNER
OF 28TH ST. AND NORTH AVE.
ELEV. = 94.00
X. = 2548203.91
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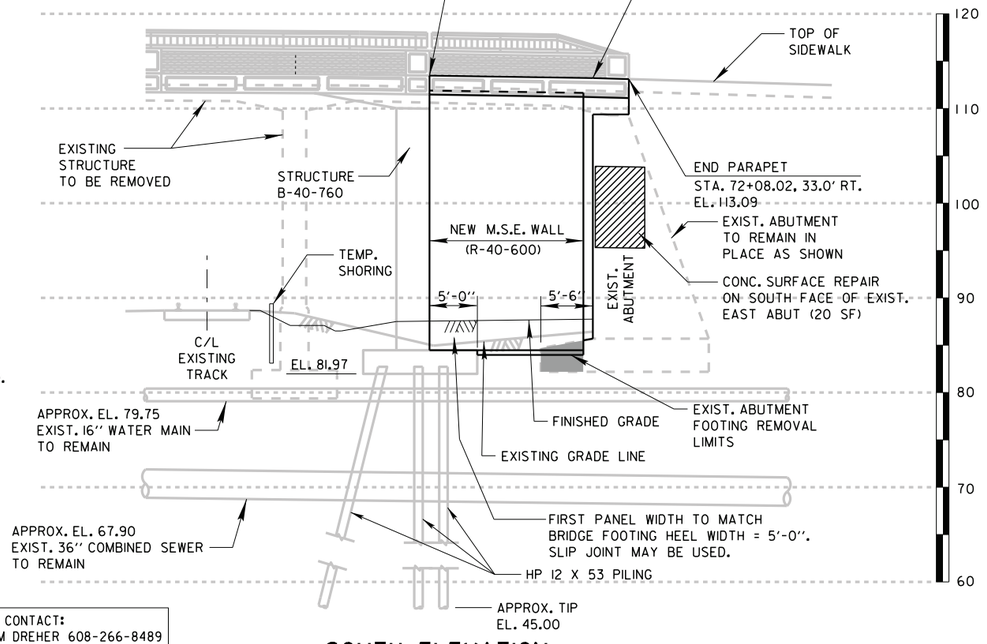

SOUTH ELEVATION

LOOKING NORTH

WALL EXTERNAL STABILITY EVALUATION

WALL HEIGHT (FEET)	28'-2"
EXPOSED WALL HEIGHT (FEET)	26'-8"
MINIMUM LENGTH OF REINFORCEMENT (FEET) ■	19'-8"
LENGTH OF REINFORCEMENT / WALL HEIGHT	0.70
WALL STATION	71+86.43
TEST BORING USED	BOR-4

SOIL PARAMETERS

STRATUM LOCATION & SOIL DESCRIPTION	UNIT DENSITY (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
CLAY WITH SAND AND GRAVEL	130	0	3,500
SILTY SAND (EL. 49.0 TO EL. 76.0)	125	33	0
SILTY SAND (EL. 40.0 TO EL. 49.00)	135	40	0
SANDY SILTY CLAY (TILL)	140	40	0

CAPACITY TO DEMAND RATIO (CDR)

	DRAINED	UNDRAINED
SLIDING (CDR ≥ 1.0)	1.3	1.0
ECCENTRICITY (CDR > 1.0)	1.1	1.1
BEARING (CDR > 1.0)	1.0	1.2
GLOBAL STABILITY (CDR > 1.0)	1.2	1.9

GEOMETRY TABLE

STATION	OFFSET TO F.F. WALL	TOP OF WALL ELEV.	FINISHED GRADE ELEV.
71+86.45	32.5' RT.	113.54	85.97 MIN.
72+03.09	32.5' RT.	113.19	87.50

WISCONSIN
CRAIG S. LIBERTO
E-23746
MILWAUKEE
WIS.
PROFESSIONAL ENGINEER
Craig S. Liberto 11/24/2014

LIST OF DRAWINGS

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS
INFRASTRUCTURE SERVICES DIVISION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 01/30/15
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-600

W. NORTH AVE. OVER C.P. RAILWAY

COUNTY	~~TOWN~~/CITY/ ~~VILLAGE~~
MILWAUKEE	MILWAUKEE

DESIGN SPEC. AASHTO LRFD SPECIFICATIONS

DESIGNED	DESIGN	DRAWN	PLANS
BY A.R.	CK'D. H.J.R.	BY G.J.R.	CK'D. A.R. H.J.R.

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4
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STATE PROJECT NUMBER
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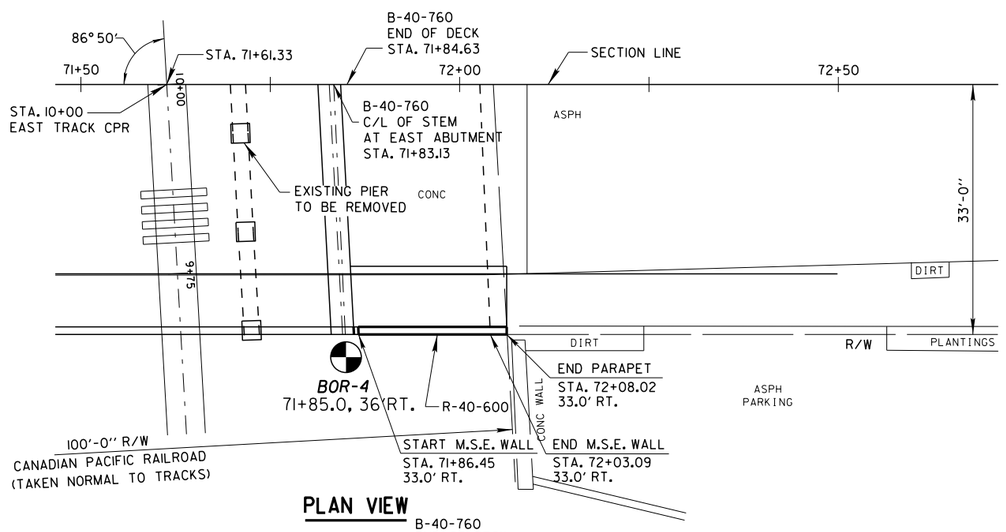
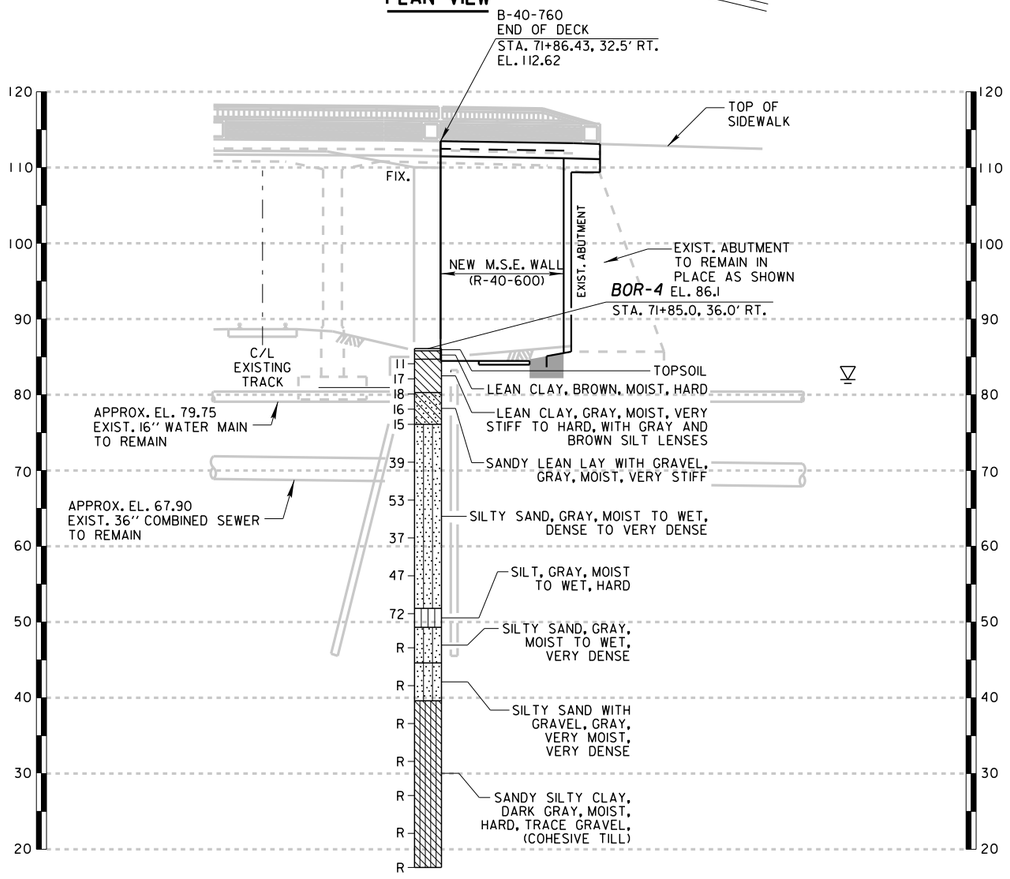
W:\STR\B0935\PLANS\SE_RETWALL\ 25E_RWSUBSURFACE.DGN 09-02-2014

WEST NORTH AVENUE
OVER CANADIAN PACIFIC RAILWAY



PLAN VIEW



SOUTH ELEVATION
LOOKING NORTH

N

NOTE:

SUBSURFACE INFORMATION ON PLAN SHEET SUMMARIZES GEOTECHNICAL ENGINEERING REPORT.

REVIEW THE GEOTECHNICAL ENGINEERING REPORT AND SOIL BORING LOGS DATED FEBRUARY 14, 2014 AND ALL SUBSEQUENT REVISIONS FOR ADDITIONAL SUBSURFACE INFORMATION.

UTILITIES NOT SHOWN ON THIS SHEET FOR CLARITY. SEE SITE PLAN ON SHEET 1.

SOIL BORING COMPLETED BY GESTRA ENGINEERING.

ENVIRONMENTAL TESTING COMPLETED BY SIGMA GROUP.

DENOTES SOIL BORING LOCATION

STATE PROJECT NUMBER

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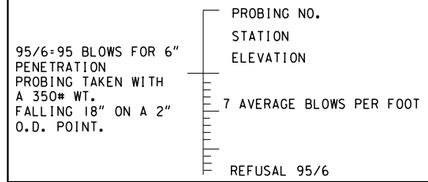
ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

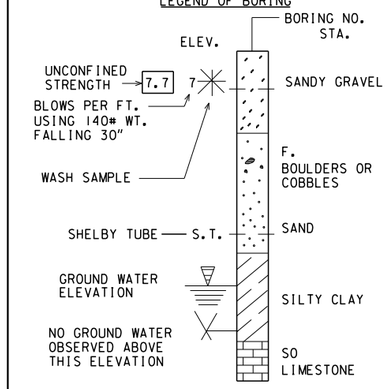
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE, SAND, PEAT, LIMESTONE, GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-600

DRAWN BY G.J.R. | PLANS CK'D. A.R. H.J.R.

SUBSURFACE EXPLORATION

SHEET 2 OF 4

8

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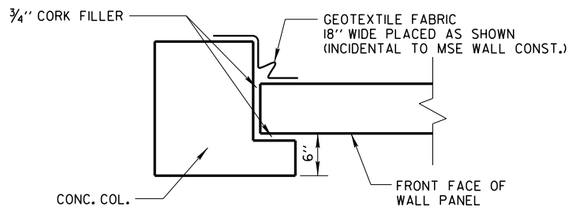
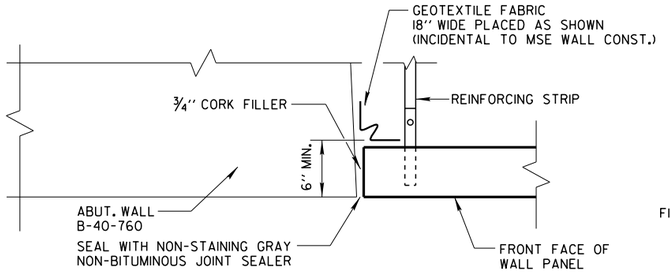
W:\STR\B0935\PLANS\SE_RETWALL\ 3SE_DETAILS.DGN 11-21-2014

STATE PROJECT NUMBER

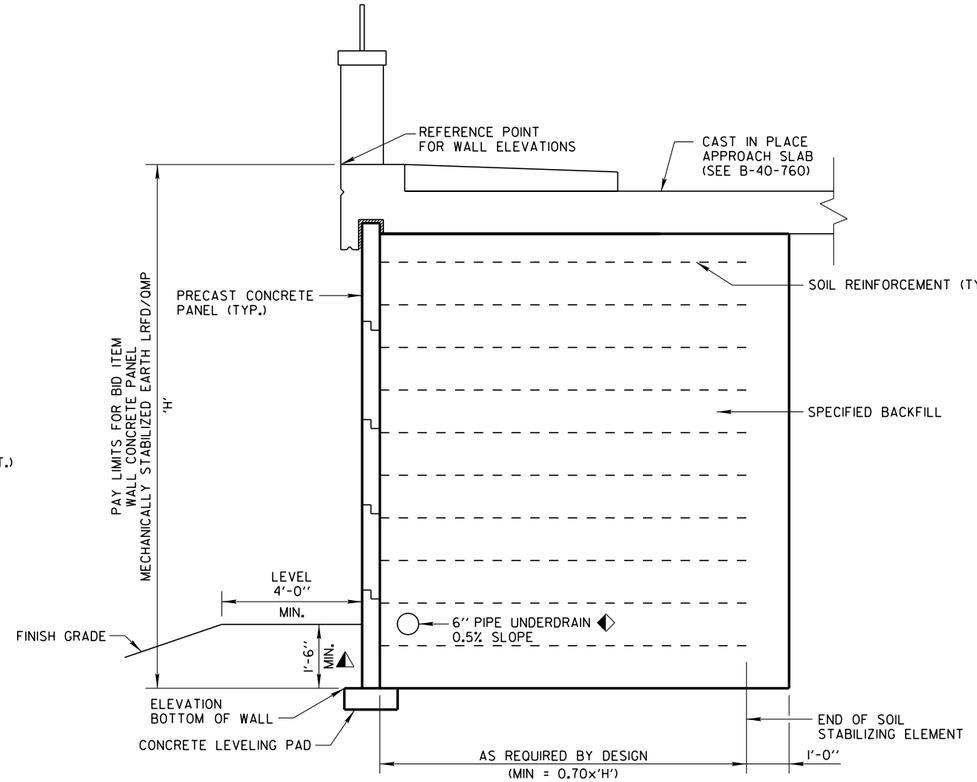
2135 - 03 - 70



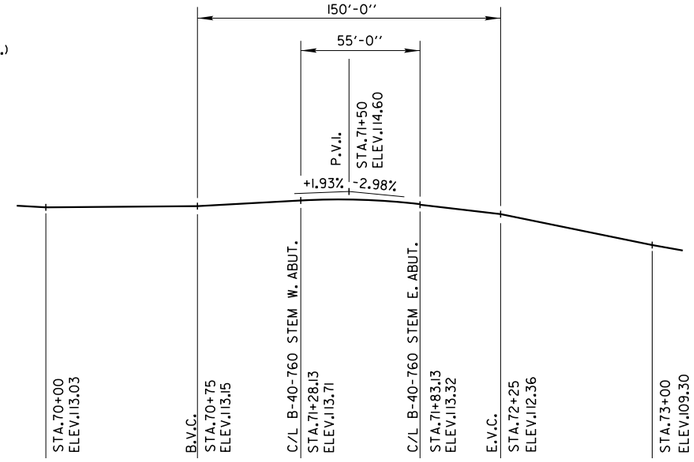
BUTT JOINT DETAIL AT CONCRETE COLUMN



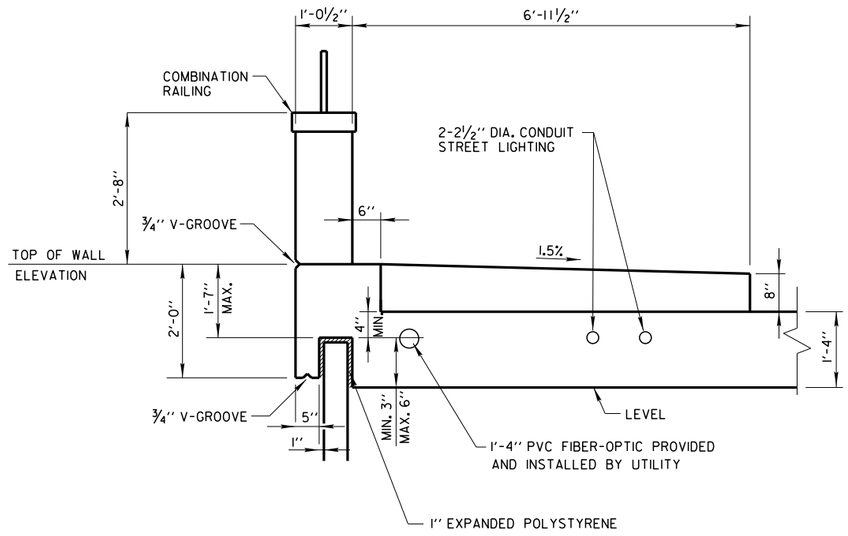
BUTT JOINT DETAIL AT NEW ABUTMENT WALL



TYPICAL CROSS SECTION



PROFILE GRADE LINE ALONG
C/L OF W. NORTH AVE.



CAST IN PLACE CONCRETE BARRIER DETAIL

⚠ MINIMUM EMBEDMENT BASED ON SITE SPECIFIC PARAMETERS (1'-6" MINIMUM FOR ALL WALLS ON LEVEL GROUND). FIELD EMBEDMENTS SHALL MEET OR EXCEED THE MINIMUM EMBEDMENT. FIELD EMBEDMENTS BELOW MINIMUM EMBEDMENT SHALL NOT BE INCLUDED IN THE PAY LIMITS.

◆ SEE STRUCTURE B-40-760 FOR PIPE UNDERDRAIN DETAILS AND BID ITEM.

ESTIMATE OF QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
205.0501.S	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	13
502.5005	MASONRY ANCHORS TYPE L.NO.5 BARS	EACH	54
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	3
505.0615	BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS	LB	488
509.1500	CONCRETE SURFACE REPAIR	SF	20
516.0100	DAMPPROOFING	SY	3
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	22
SPV.0165.01	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP	SF	524
SPV.0090.07	REHABILITATION OF CHAIN LINK FENCE	LF	40
	NON BID ITEMS		
	CORK JOINT FILLER	SIZE	
	NON - BITUMINOUS JOINT FILLER	SIZE	
	NAME PLATE	EACH	

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-600

DRAWN BY G.G. | PLANS CK'D. A.R. H.J.R.

WALL DETAILS AND QUANTITIES

SHEET 3 OF 4

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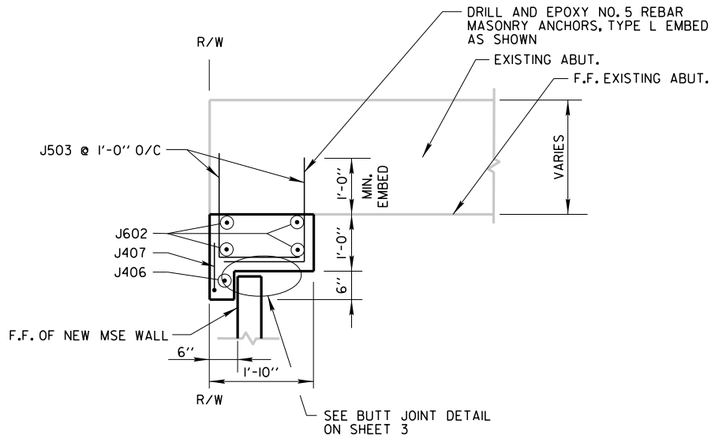
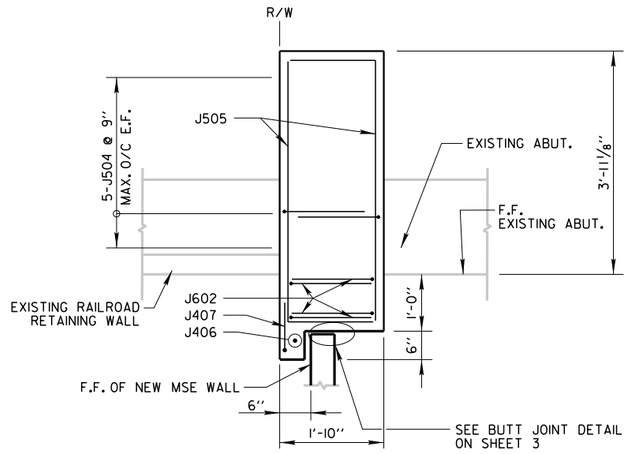
STATE PROJECT NUMBER

2135 - 03 - 70



PLAN VIEW (FROM EL. 86.14 TO EL. 107.45)

(NEW CONCRETE COLUMN)

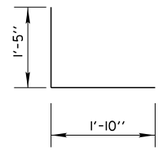


PLAN VIEW (FROM EL. 107.45 TO BOTTOM OF APPROACH SLAB)

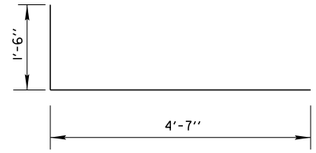
(NEW CONCRETE COLUMN)

BILL OF BARS - COLUMN

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
J501	X	4	2'-10"		DOWELS
J602	X	4	26'-1"	X	VERT. BAR
J503	X	44	3'-2"	X	STIRRUPS
J504	X	10	5'-10"	X	VERT. BAR
J505	X	10	6'-0"	X	HORIZONTAL
J406	X	1	24'-9"		VERT. BAR
J407	X	25	2'-0"	X	STIRRUPS



J503



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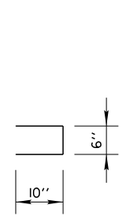
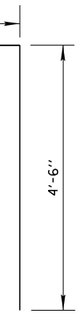


J407



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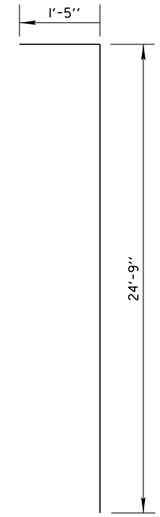


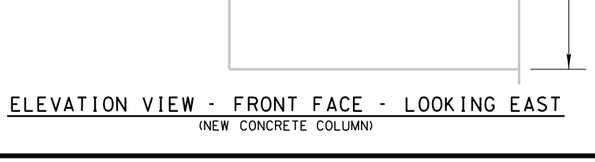
J602

B.F. = BACK FACE

F.F. = FRONT FACE

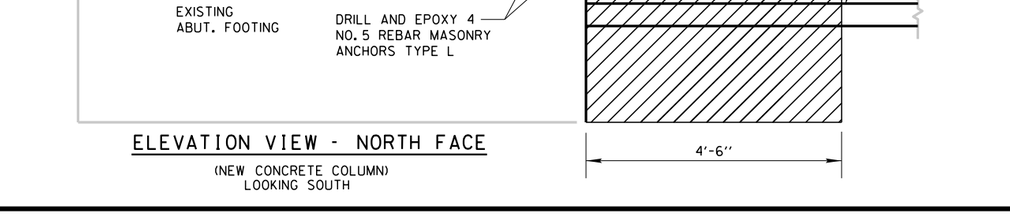
E.F. = EACH FACE

NOTE:
COLUMN THICKNESS MAY VARY AT TOP TO CREATE PLUMBNESS FOR THE BUTTING MSE WALL



ELEVATION VIEW - FRONT FACE - LOOKING EAST

(NEW CONCRETE COLUMN)



ELEVATION VIEW - NORTH FACE

(NEW CONCRETE COLUMN)
LOOKING SOUTH

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-600

DRAWN BY S.S. | PLANS CK'D. A.R. H.J.R.

COLUMN DETAILS

SHEET 4 OF 4

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STATE PROJECT NUMBER

2135 - 03 - 70

WEST NORTH AVENUE
OVER CANADIAN PACIFIC RAILWAY

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.
ALL ELEVATIONS ARE REFERRED TO CITY OF MILWAUKEE DATUM.
CITY OF MILWAUKEE DATUM = 580.60 (NGVD29)

ALL DIMENSIONS ALONG THE FRONT FACE OF WALL UNLESS OTHERWISE SHOWN.

THE FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR REINFORCEMENT SHALL HAVE 2" CLEAR COVER UNLESS SHOWN OTHERWISE.

THESE PLANS ARE FOR A PRECAST CONCRETE PANEL MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL LRFD.

THE CONTRACTOR MUST COORDINATE THE CONSTRUCTION OF WALLS R-40-598, R-40-599, R-40-600, R-40-601, AND BRIDGE B-40-760.

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM, "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP".

THE COST OF FURNISHING AND PLACING BACKFILL WITHIN THE REINFORCED SOIL ZONES, UNREINFORCED CONCRETE LEVELING PAD UNDER THE MSE PRECAST WALL PANELS, REINFORCEMENT, GEOTEXTILE FABRIC, ENGINEERED BACKFILL, JOINT MATERIAL, AND OTHER MISCELLANEOUS ITEMS IS INCLUDED IN THE COST OF BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP".

ALL BAR STEEL REINFORCEMENT IN CAST-IN-PLACE CONCRETE IS TO BE EPOXY COATED.

BEVEL ALL EXPOSED EDGES OF CONCRETE 1" UNLESS NOTED OTHERWISE.

THE PLAN QUANTITY FOR THE ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/OMP" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF THE LEVELING PAD TO THE TOP OF WALL AS SHOWN IN THE PLANS.

PLANS, ELEVATIONS AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

PLACE BACKFILL IN SPECIFIED LAYER THICKNESS STARTING AT BACK FACE OF WALL AND WORKING AWAY FROM WALL.

UTILITY LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILIES PRIOR TO EXCAVATING. DAMAGE TO EXISTING UTILITES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTORS EXPENSE.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

SEE SPECIAL PROVISIONS FOR AESTHETIC TREATMENT TO WALL.

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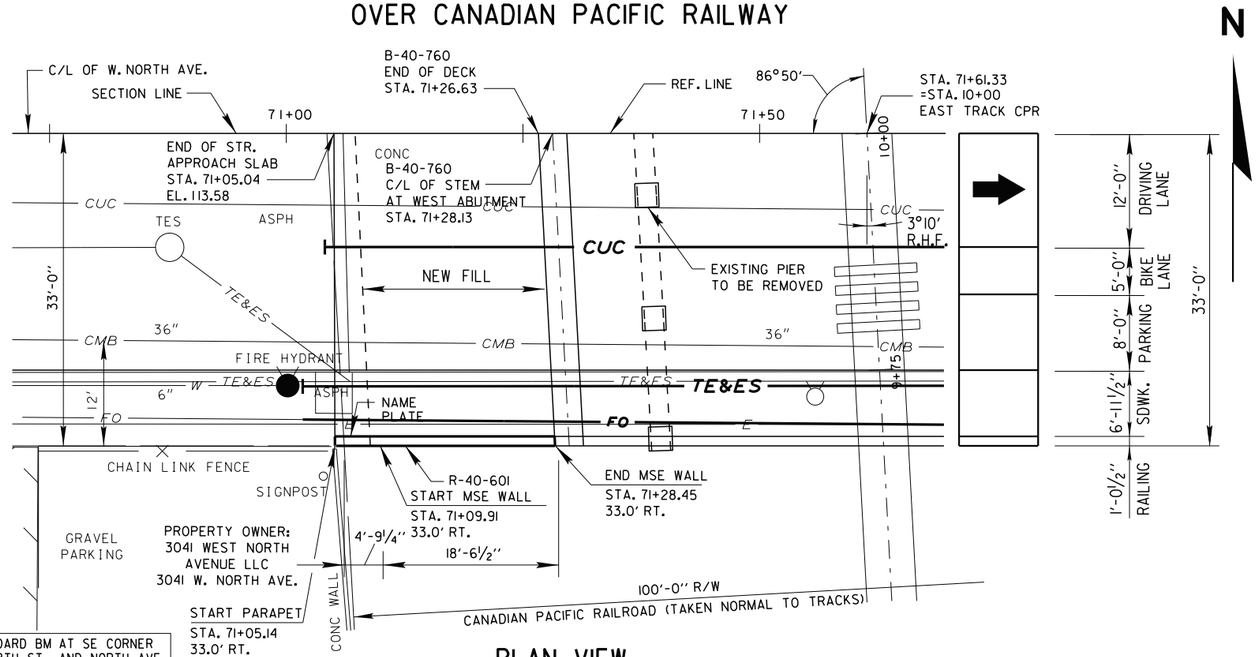
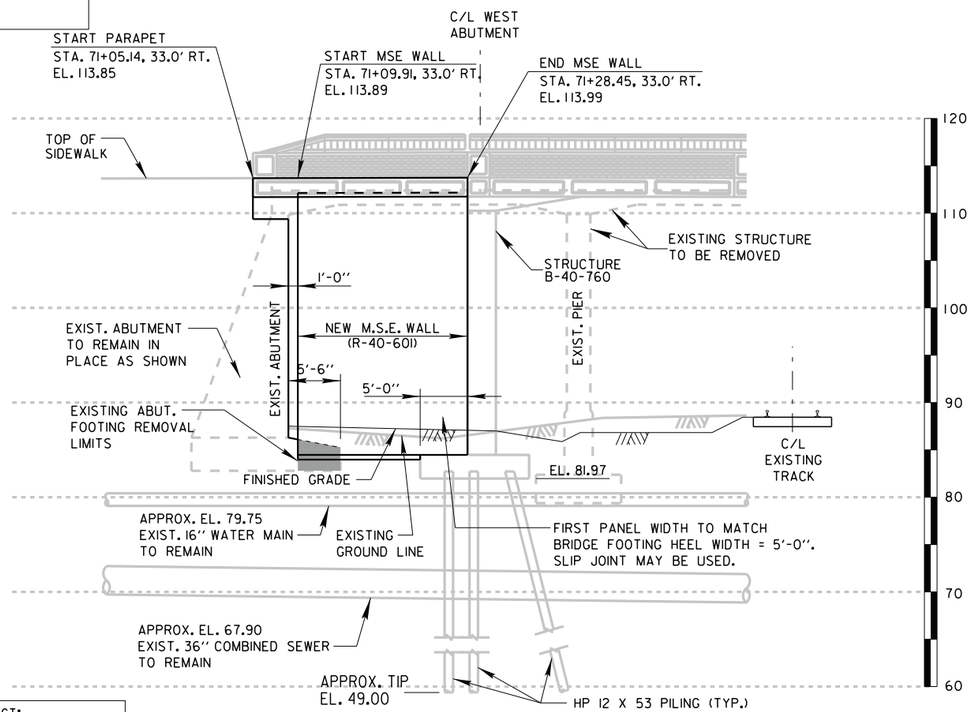
LIVE LOAD:

LIVE LOAD SURCHARGE	240 PSF



STANDARD BM AT SE CORNER OF 28TH ST. AND NORTH AVE.
ELEV. = 94.00
X. = 2548203.91
Y. = 393242.10

PLAN VIEW



SOUTH ELEVATION

LOOKING NORTH

WISDOT CONTACT:
WILLIAM DREHER 608-266-8489

CONSULTANT CONTACT:
CITY OF MILWAUKEE
CRAIG LIBERTO 414-286-3294

WALL EXTERNAL STABILITY EVALUATION

WALL HEIGHT (FEET)	29'-6"
EXPOSED WALL HEIGHT (FEET)	27'-0"
MINIMUM LENGTH OF REINFORCEMENT (FEET) ■	20'-8"
LENGTH OF REINFORCEMENT / WALL HEIGHT	0.70
WALL STATION	71+09.91
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SOIL PARAMETERS

STRATUM LOCATION & SOIL DESCRIPTION	UNIT DENSITY (PCF)	FRICTION ANGLE (DEGREES)	COHESION (PSF)
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GRAVEL WITH SAND	135	36	0
SILTY SAND (EL. 49.0 TO EL. 60.00)	125	35	0
SANDY SILTY CLAY (TILL)	140	40	0

CAPACITY TO DEMAND RATIO (CDR)

	DRAINED	UNDRAINED
SLIDING (CDR ≥ 1.0)	1.3	1.0
ECCENTRICITY (CDR > 1.0)	1.1	1.1
BEARING (CDR > 1.0)	1.0	1.2
GLOBAL STABILITY (CDR > 1.0)	1.2	1.9

GEOMETRY TABLE

STATION	OFFSET TO F.F. WALL	TOP OF WALL ELEV.	FINISHED GRADE ELEV.
71+09.91	32.5' RT.	113.89	87.25
71+28.45	32.5' RT.	113.99	85.97 MIN.

WISCONSIN
CRAIG S. LIBERTO
E-23746
MILWAUKEE
WIS.
PROFESSIONAL ENGINEER
Craig S. Liberto 11/24/2014

LIST OF DRAWINGS

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS
INFRASTRUCTURE SERVICES DIVISION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 01/30/15
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-601

W. NORTH AVE. OVER C.P. RAILWAY

COUNTY: MILWAUKEE	~~TOWN~~/CITY/ ~~VILLAGE~~: MILWAUKEE
DESIGN SPEC.: AASHTO LRFD SPECIFICATIONS	

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
J.D.T.	H.J.R.	G.J.R.	H.J.R.

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4
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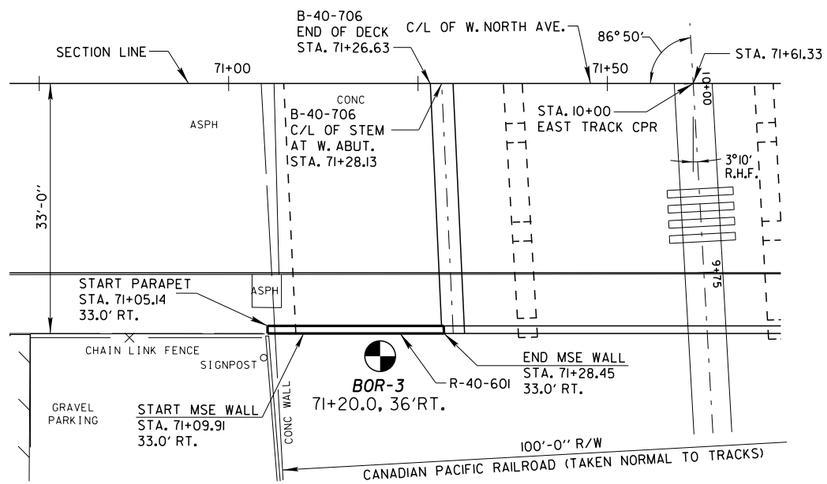
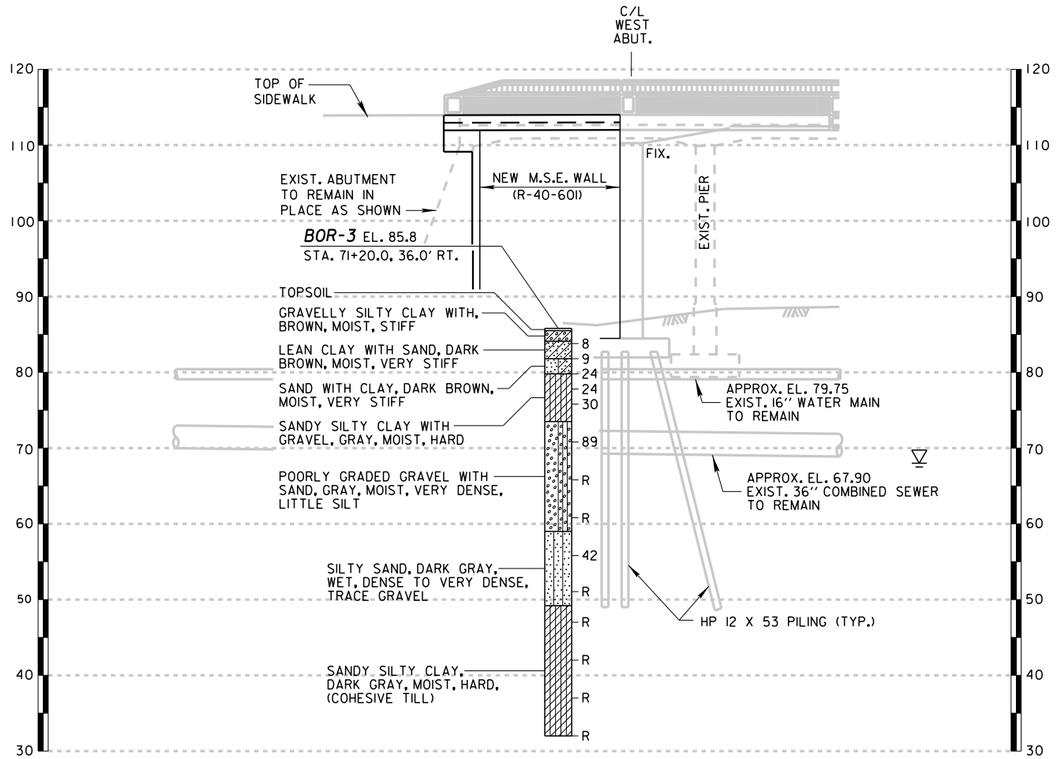
W:\STR\B0935\PLANS\SW_RETWALL\ 2SW_RWSUBSURFACE.DGN 09-02-2014

WEST NORTH AVENUE
OVER CANADIAN PACIFIC RAILWAY



PLAN VIEW



SOUTH ELEVATION

LOOKING NORTH

NOTE:

SUBSURFACE INFORMATION ON PLAN SHEET SUMMARIZES GEOTECHNICAL ENGINEERING REPORT.

REVIEW THE GEOTECHNICAL ENGINEERING REPORT AND SOIL BORING LOGS DATED FEBRUARY 14, 2014 AND ALL SUBSEQUENT REVISIONS FOR ADDITIONAL SUBSURFACE INFORMATION.

SOIL BORING COMPLETED BY GESTRA ENGINEERING.

ENVIRONMENTAL TESTING COMPLETED BY SIGMA GROUP.

UTILITIES NOT SHOWN ON THIS SHEET FOR CLARITY. SEE SITE PLAN ON SHEET 1.

DENOTES SOIL BORING LOCATION

STATE PROJECT NUMBER

2135 - 03 - 70

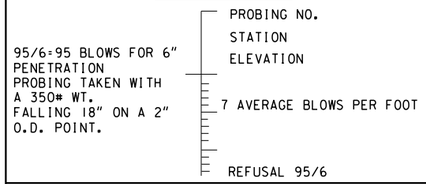
ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

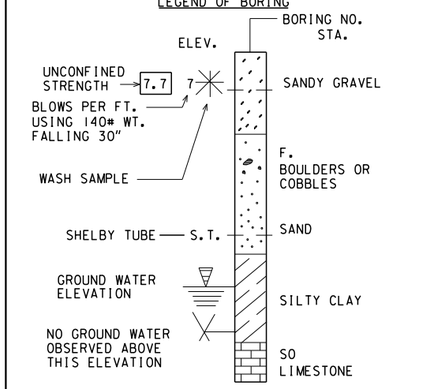
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-601

DRAWN BY G.G. | PLANS CK'D. J.D.T. H.J.R.

SUBSURFACE EXPLORATION

SHEET 2 OF 4

8

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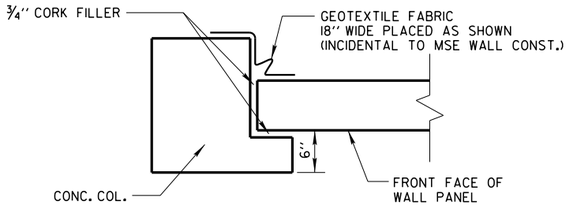
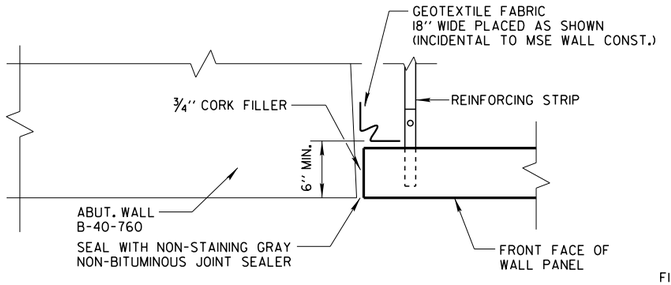
W:\STR\B0935\PLANS\SW-RETWALL\ 3SW_DETAILS.DGN 11-21-2014

STATE PROJECT NUMBER

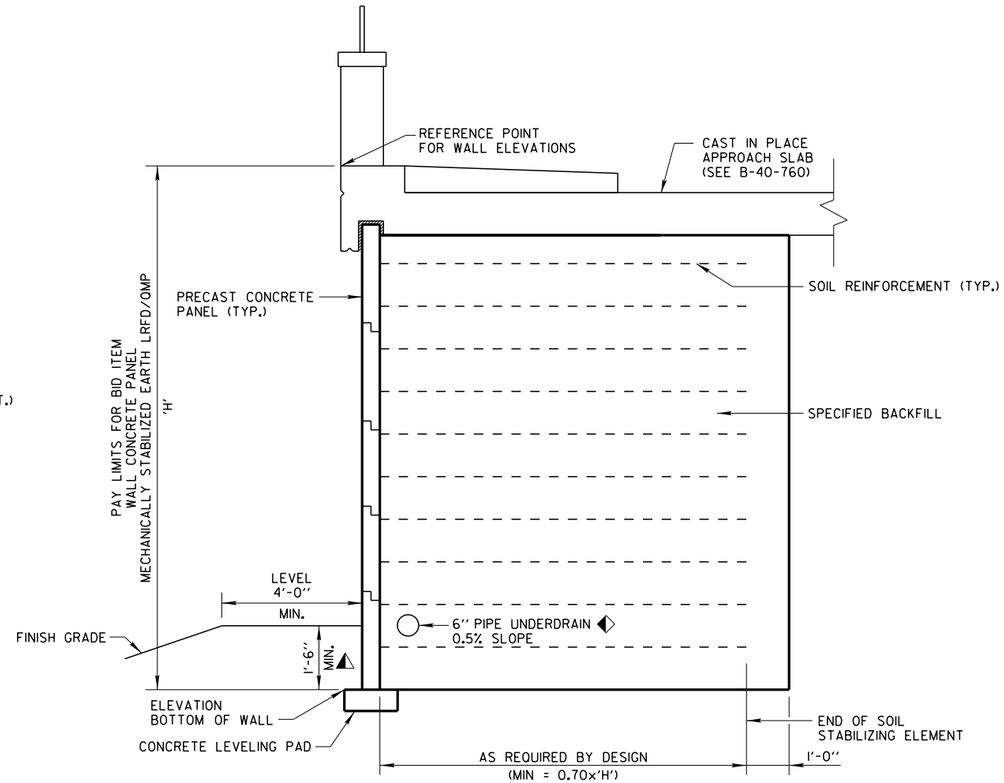
2135 - 03 - 70



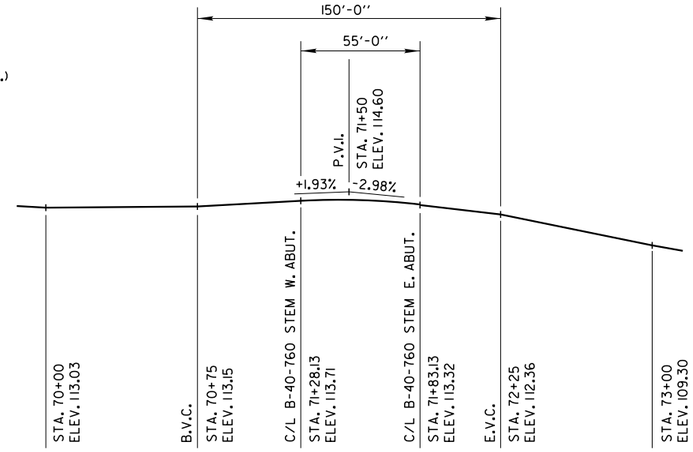
BUTT JOINT DETAIL AT CONCRETE COLUMN



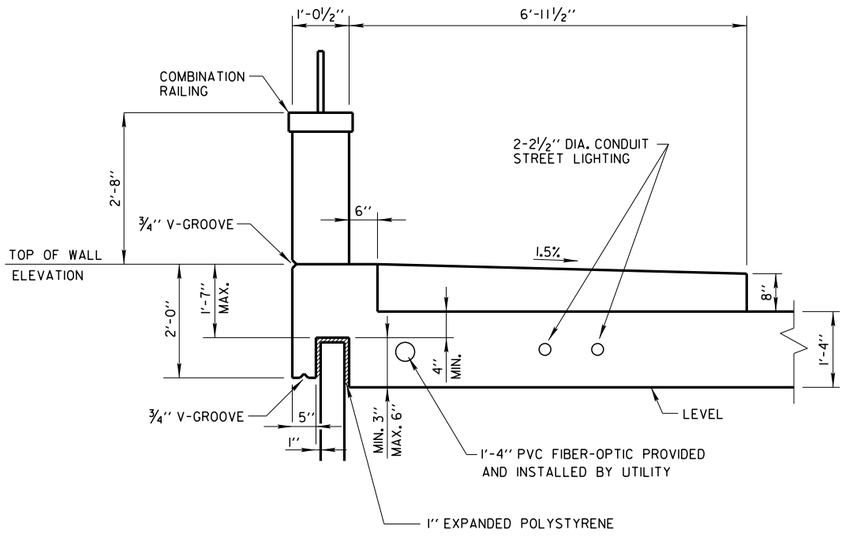
BUTT JOINT DETAIL AT NEW ABUTMENT WALL



TYPICAL CROSS SECTION



PROFILE GRADE LINE ALONG C/L OF W. NORTH AVE.



STRUCTURAL APPROACH SLAB AT MSE WALL

NOTE: SEE STRUCTURE B-40-760 FOR DETAILS

⚠ MINIMUM EMBEDMENT BASED ON SITE SPECIFIC PARAMETERS (1'-6'' MINIMUM FOR ALL WALLS ON LEVEL GROUND). FIELD EMBEDMENTS SHALL MEET OR EXCEED THE MINIMUM EMBEDMENT. FIELD EMBEDMENTS BELOW MINIMUM EMBEDMENT SHALL NOT BE INCLUDED IN THE PAY LIMITS.

◆ SEE STRUCTURE B-40-760 FOR PIPE UNDERDRAIN DETAILS AND BID ITEM.

ESTIMATE OF QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
205.0501.S	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	15
502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS	EACH	56
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	3
505.0615	BAR STEEL REINFORCEMENT HS COATED RETAINING WALLS	LB	506
516.0100	DAMPPROOFING	SY	3
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	20
SPV.0165.01	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD/QMP	SF	547
	NON BID ITEMS		
	CORK JOINT FILLER	SIZE	
	NON-BITUMINOUS JOINT FILLER	SIZE	
	NAME PLATE	EACH	

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-601

DRAWN BY G.G. | PLANS CK'D. J.D.T. H.J.R.

WALL DETAILS AND QUANTITIES

SHEET 3 OF 4

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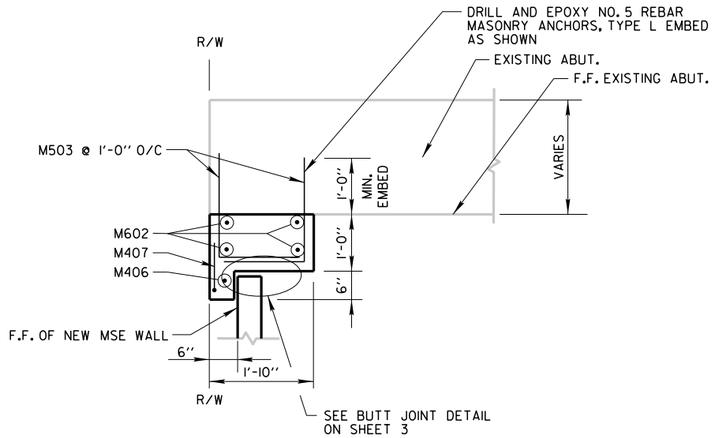
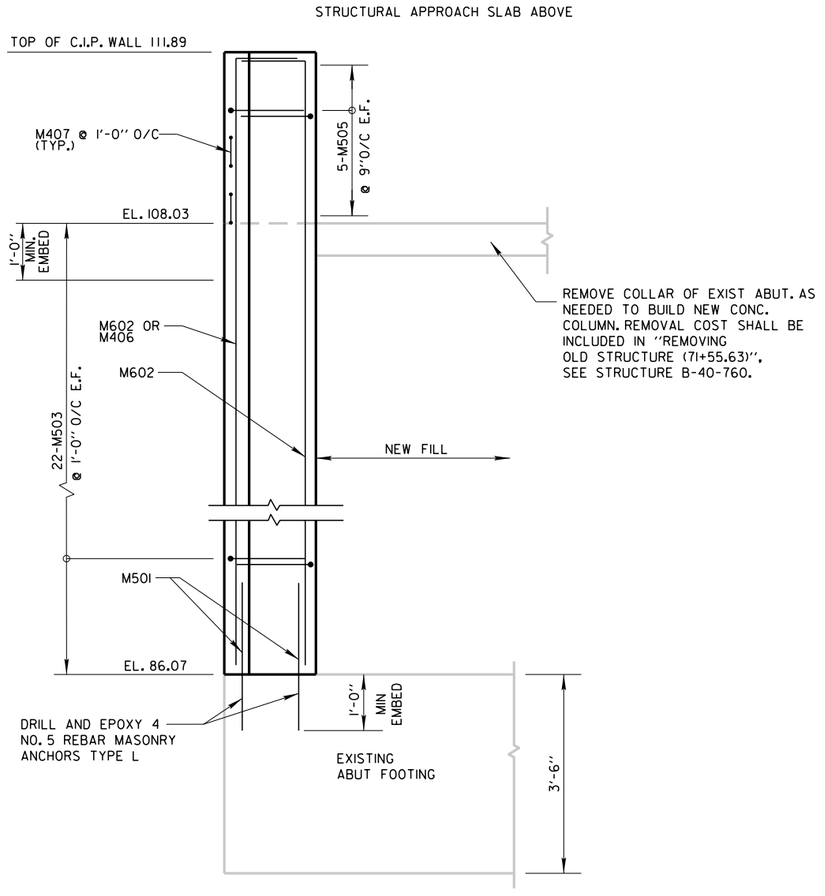


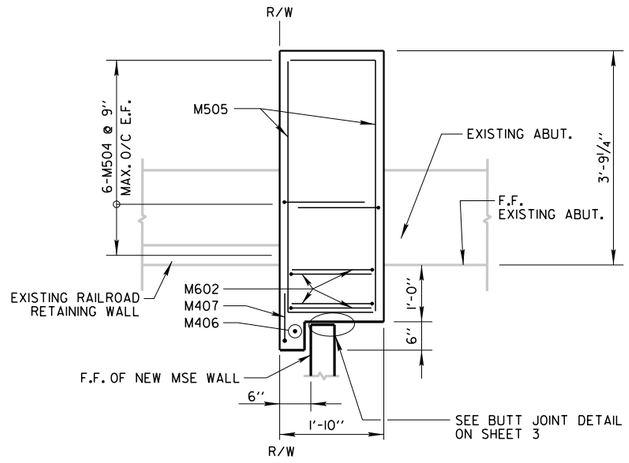
PLAN VIEW (FROM EL. 86.07 TO EL. 108.03)

(NEW CONCRETE COLUMN)



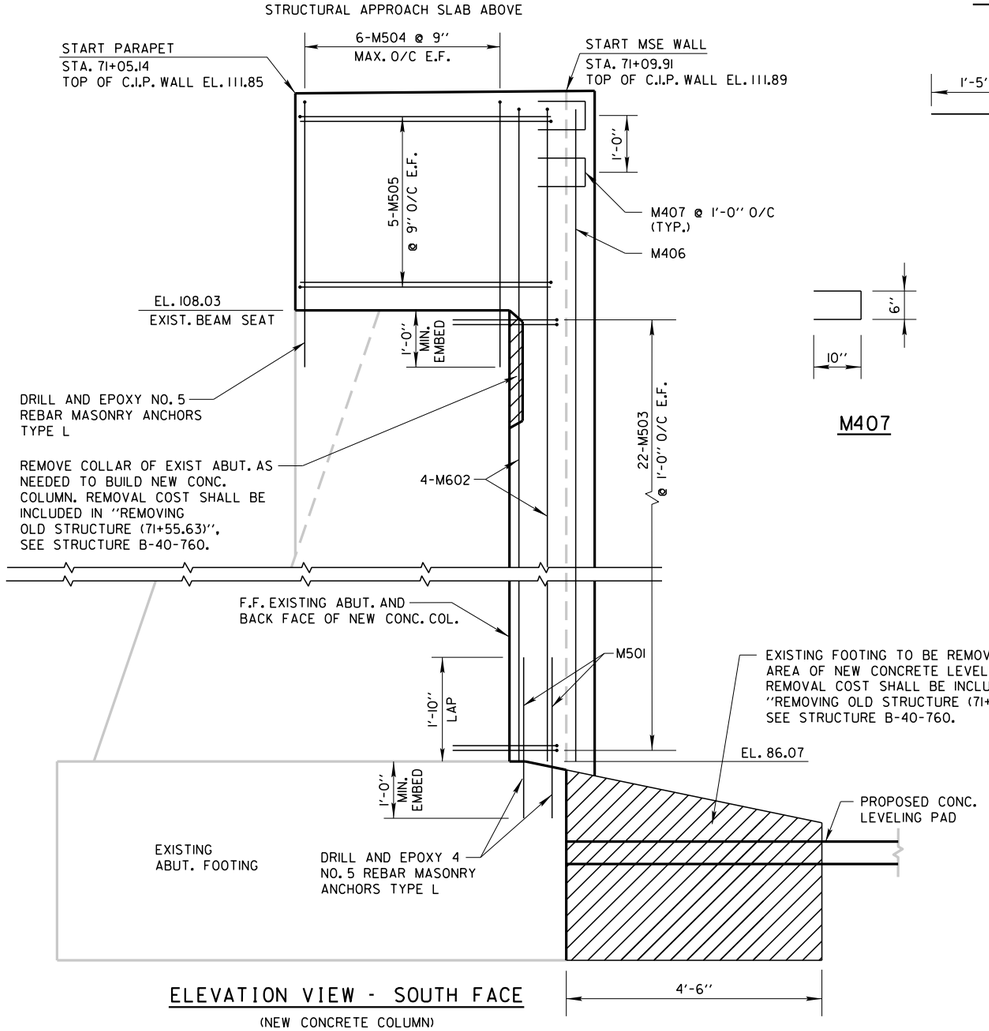
ELEVATION VIEW - FRONT FACE - LOOKING WEST

(NEW CONCRETE COLUMN)



PLAN VIEW (FROM EL. 108.03 TO BOTTOM OF APPROACH SLAB)

(NEW CONCRETE COLUMN)

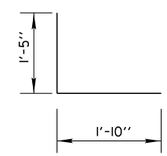


ELEVATION VIEW - SOUTH FACE

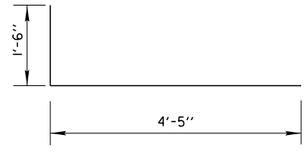
(NEW CONCRETE COLUMN)

BILL OF BARS - COLUMN

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
M501	X	4	2'-10"		DOWELS
M602	X	4	26'-10"	X	VERTICAL BAR
M503	X	44	3'-2"	X	STIRRUPS
M504	X	12	6'-0"	X	VERTICAL BAR
M505	X	10	5'-9"	X	HORIZONTAL
M406	X	1	25'-6"		VERTICAL BAR
M407	X	26	2'-0"	X	STIRRUP

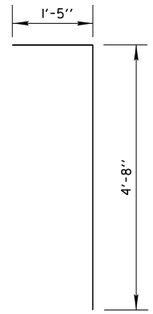


M503

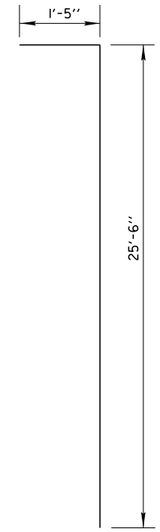


M505

M407



M504



M602

B.F. = BACK FACE

F.F. = FRONT FACE

E.F. = EACH FACE

NOTE:
COLUMN THICKNESS MAY VARY AT TOP TO CREATE PLUMBNESS FOR THE BUTTING MSE WALL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-601

DRAWN BY S.S. | PLANS CK'D. J.D.T. H.J.R.

CAST-IN-PLACE CONCRETE DETAILS

SHEET 4 OF 4

8

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STATION	CUT C.Y.	FILL (-) C.Y.	LARGEST CUT IN FEET
69+53.6	0	0	
70+00	98	0	1.26
70+50	113	0	1.39
71+00	124	0	1.54
71+50	0	0	
72+00	0	0	1.01
72+50	93	1	1.14
72+98.5	101	2	
TOTAL	**529**	**3**	

EARTHWORK SUMMARY

Common Excavation (205.0100)	840 CY
(Includes 311 CY Pav't Removal)	
Fill (Including 20% Shrinkage)	3 CY
Waste	837 CY

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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