WKE

JULY 2013

PROJECT ID: 1693-25-72

WITH: N/A

ORDER OF SHEETS

TOTAL SHEETS = 90

N

COUNTY: MILWAUKEE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

HANK AARON STATE TRAIL

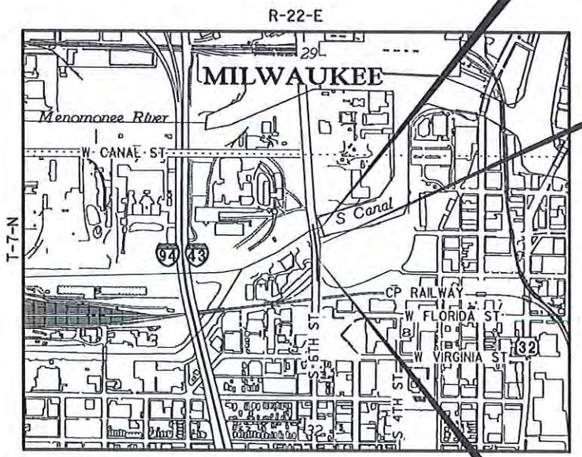
6TH STREET BIKE RAMP

NON-HIGHWAY
MILWAUKEE COUNTY

STATE PROJECT NUMBER
1693-25-72

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1693-25-72	WISC 2013337	1

END PROJECT 1693-25-72
STA. 22+00.00
Y = 296,181.61
X = 603,641.51



STRUCTURES M-40-001
M-40-002
R-40-602
R-40-603

BEGIN PROJECT 1693-25-72
STA. 17+50.00
Y = 295,733.41
X = 603,668.05

DESIGN DESIGNATION

A.A.D.T.	=	N/A
A.A.D.T.	=	N/A
D.H.V.	=	N/A
D.D.	=	N/A
T.	=	N/A
DESIGN SPEED	=	N/A
ESALS	=	N/A

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

LAYOUT
SCALE 0 1/8 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MILWAUKEE COUNTY, NAD 1983 (1991).

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

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

ORIGINAL PLANS PREPARED BY

benesch
engineers · scientists · planners
Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20058.05

WILLIAM J. ZIPPEL
38868-006
MILWAUKEE, WI
PROFESSIONAL ENGINEER
3/27/2013

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	ALFRED BENESCH & COMPANY
Designer	ALFRED BENESCH & COMPANY
Project Manager	MOHAMMAD HOSSAIN
Regional Examiner	
Regional Supervisor	
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 3/28/13 (Signature)

E

FILE NAME : X:\20000S\20058.05\Eng_Docs\Sheets\010101_t1.dgn

PLOT DATE : 3/12/2013 PLOT BY : bweigand PLOT NAME : PLOT SCALE : 1:1320

WISDOT/CADDS SHEET 10

ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
EROSION CONTROL
SIGNING AND PAVEMENT MARKING
TRAFFIC CONTROL
ALIGNMENT PLAN

GENERAL NOTES

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND ANY AFFECTED UTILITIES THAT ARE NOT MEMBERS OF DIGGERS HOTLINE, PRIOR TO THE START OF WORK.

2. NO TREES OR SHRUBS ARE TO BE DAMAGED OR REMOVED UNLESS INDICATED FOR REMOVAL BY THE DRAWINGS AS APPROVED BY THE ENGINEER.

3. ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES SHALL BE FILLED WITH GRANULAR BACKFILL.

4. DISTURBED AREAS ON THE PROPERTY OR WITHIN THE RIGHT-OF-WAY ARE TO BE RESTORED ACCORDING TO THE CONTRACT EROSION CONTROL AND SEEDING PLANS.

5. MISCELLANEOUS REMOVAL ITEMS REQUIRING RESTORATION OF CONCRETE OR ASPHALT SHALL BE REMOVED TO AN EXISTING JOINT OR SAWED AS DETERMINED BY THE ENGINEER.

6. THE CRUSHED AGGREGATE FOR SHOULDERS ADJACENT TO THE PAVEMENT SHALL NOT BE PLACED UNTIL AFTER THE PAVEMENT HAS BEEN LAID.

7. ALL EROSION CONTROL MEASURES SHALL BE ADJUSTED AS NEEDED IN THE FIELD TO MEET FIELD CONDITIONS.

8. CONTRACTOR SHALL PERFORM SLOPE STAKING 2 WEEKS BEFORE ANY CLEARING OPERATIONS TAKE PLACE SO THAT THE DEPARTMENT CAN EVALUATE TREE REMOVALS PRIOR TO CLEARING.

UTILITY CONTACTS

WE ENERGIES (GAS & ELECTRIC)
MR. DAN SANDE
PROJECT MANAGER
333 W. EVERETT ST -A279
MILWAUKEE, WI 53203
414-221-4578

MILWAUKEE CITY ENGINEER
MR. JEFFREY POLENSKE
841 N BROADWAY
ROOM 701
MILWAUKEE, WI 53202
414-286-3701

MILWAUKEE COUNTY
DEPT PUBLIC WORKS

OTHER FIELD ISSUES
MR. DAVE GOLDAPP
841 N BROADWAY
ROOM 409
MILWAUKEE, WI 53202
(414) 286-6301

MMSD
MS. DEBRA JENSEN
PLANNING SERVICES SUPERVISOR
260 W SEEBOTH ST
MILWAUKEE, WI 53204-1446
414-225-2143

OTHER AGENCIES

DNR
MR. MIKE THOMPSON
WISCONSIN DNR, SOUTHEAST REGION
2300 N. MARTIN LUTHER KING DRIVE
PO BOX 12436
MILWAUKEE, WI 53212
414-263-8613

CITY OF MILWAUKEE
MR. JEFFREY POLENSKE
CITY ENGINEER
841 N BROADWAY RM 701
MILWAUKEE, WI 53202
414-286-3701

WISDOT
MR. MOHAMMAD HOSSAIN
WISCONSIN DOT, SOUTHEAST REGION
141 NW BARSTOW STREET
PO BOX 798
WAUKESHA, WI 53187
262-548-8783

DESIGN
MR. WILLIAM ZIPPEL
ALFRED BENESCH AND COMPANY
1300 W. CANAL ST.
MILWAUKEE, WI 53212
414-308-1321

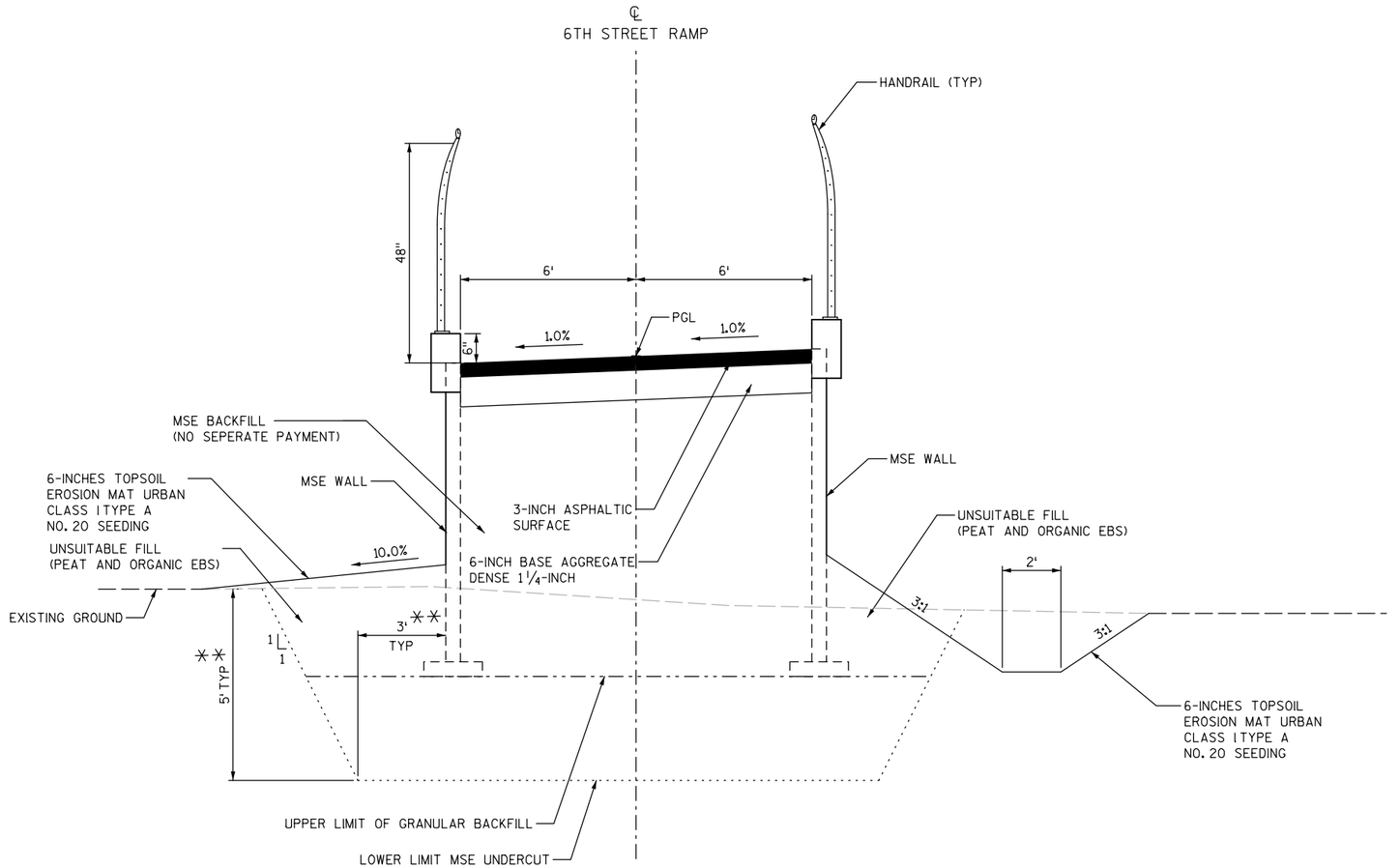
DIGGERS HOTLINE
Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

2

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	PROJECT OVERVIEW	SHEET 3	E

FILE NAME : X:\20000S\20058.05\Eng_Docs\Sheets\020201_PO.dgn PLOT DATE : 3/12/2013 PLOT BY : bweigand PLOT NAME : PLOT SCALE : 1:100

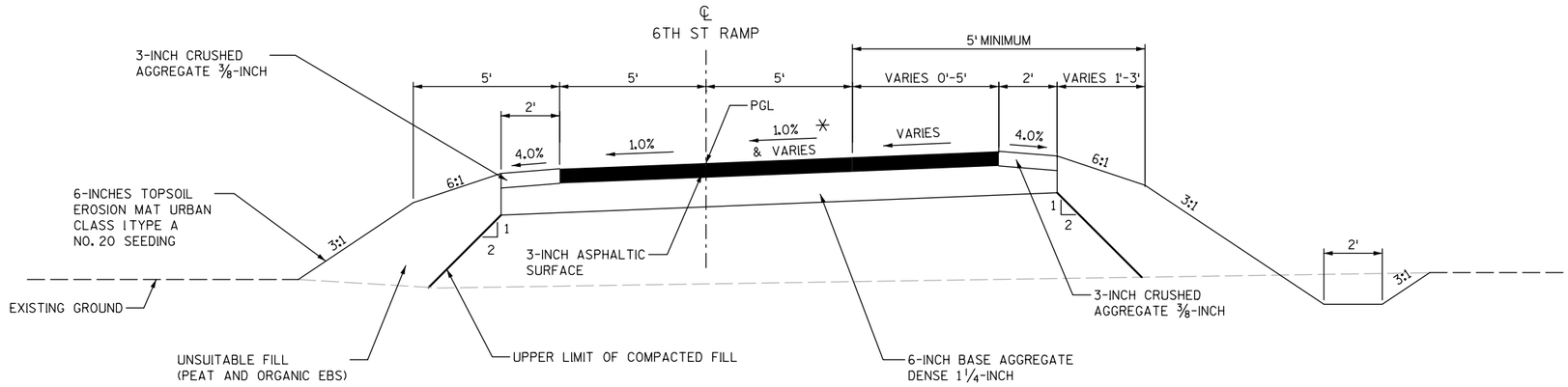
2



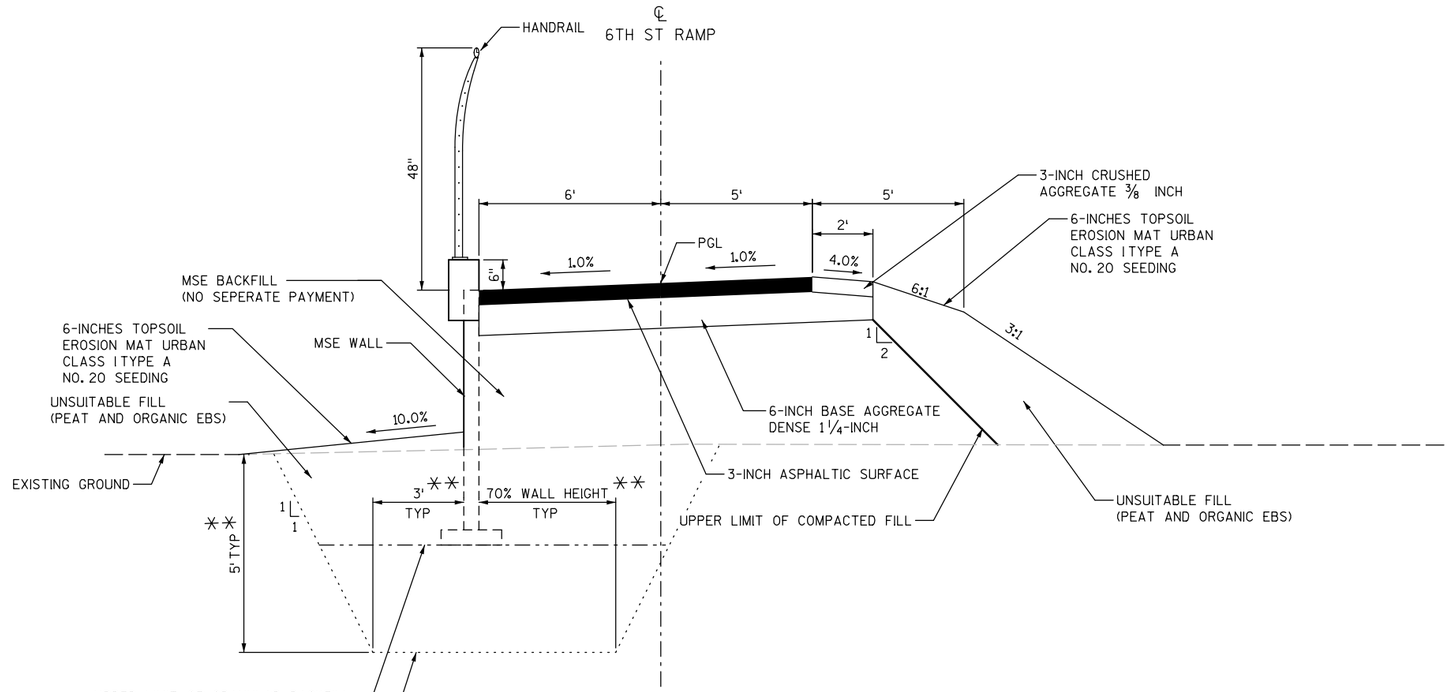
TYPICAL FINISHED SECTION
STA 102+00 - 103+00

** LIMITS USED FOR ESTIMATED QUANTITIES
ACTUAL LIMITS WILL BE DETERMINED BY THE
SPECIFIC WALL DESIGN AND
AS DIRECTED BY THE ENGINEER

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	TYPICAL SECTION	SHEET 4	E



TYPICAL FINISHED SECTION
STA 103+60 - 104+03

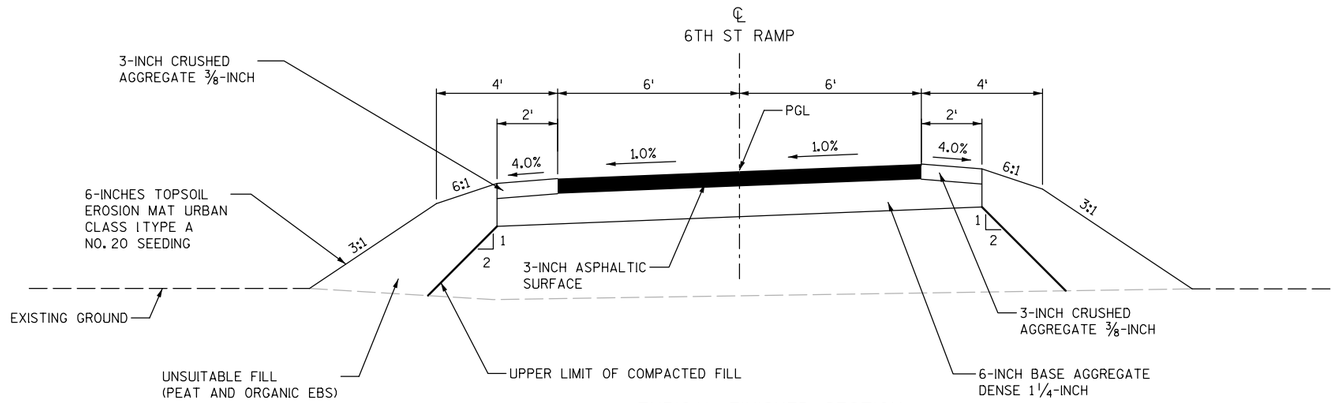


TYPICAL FINISHED SECTION
STA 103+00 - 103+60

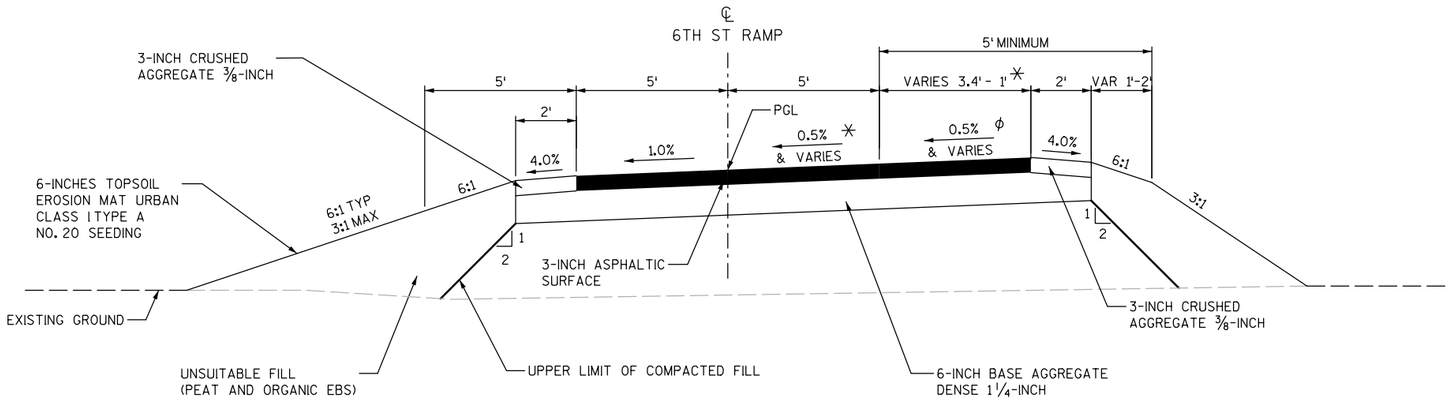
✳ STA 103+90 TO 104+00 - TRANSITION 1.0% LEFT - 0.5% RIGHT
STA 104+00 TO 104+13 - 0.5% RIGHT
STA 104+13 TO 104+23 - TRANSITION 0.5% RIGHT - 1.0% LEFT

✳✳ LIMITS USED FOR ESTIMATED QUANTITIES
ACTUAL LIMITS WILL BE DETERMINED BY THE
SPECIFIC WALL DESIGN AND
AS DIRECTED BY THE ENGINEER

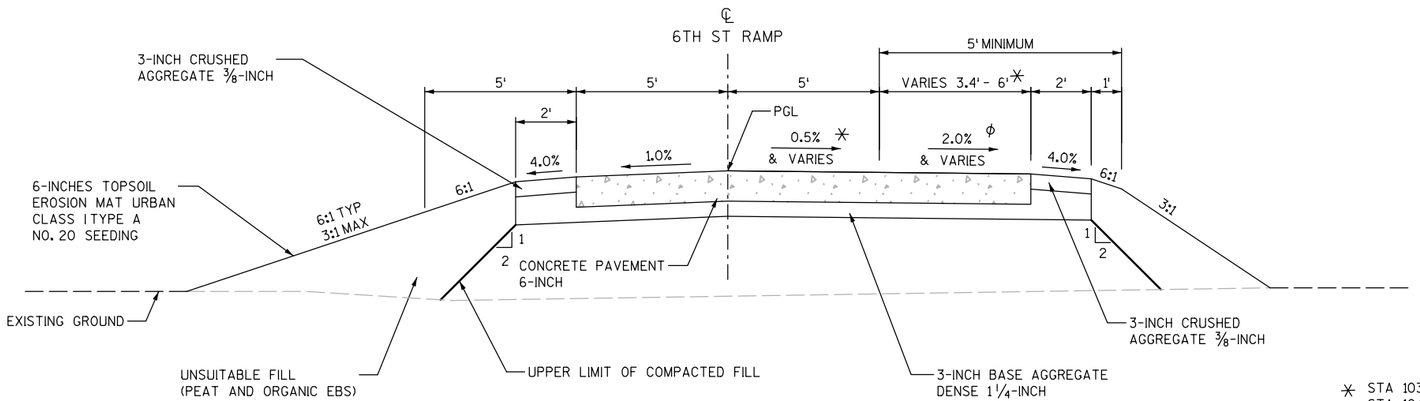
PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 5	E



TYPICAL FINISHED SECTION
STA 104+40 - 105+00



TYPICAL FINISHED SECTION
STA 104+13 - 104+40



TYPICAL FINISHED SECTION
STA 104+03 - 104+13

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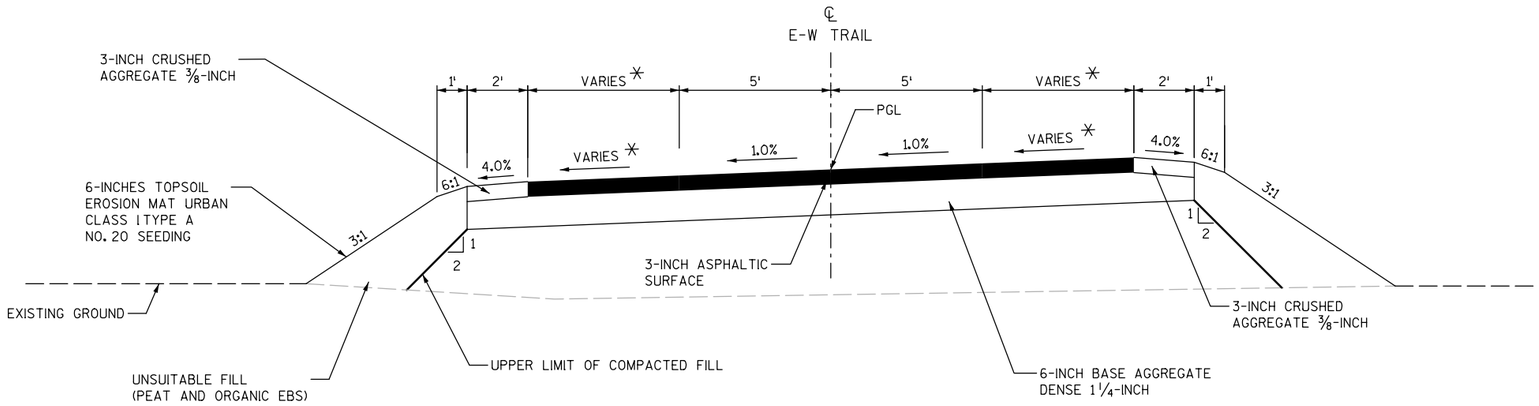
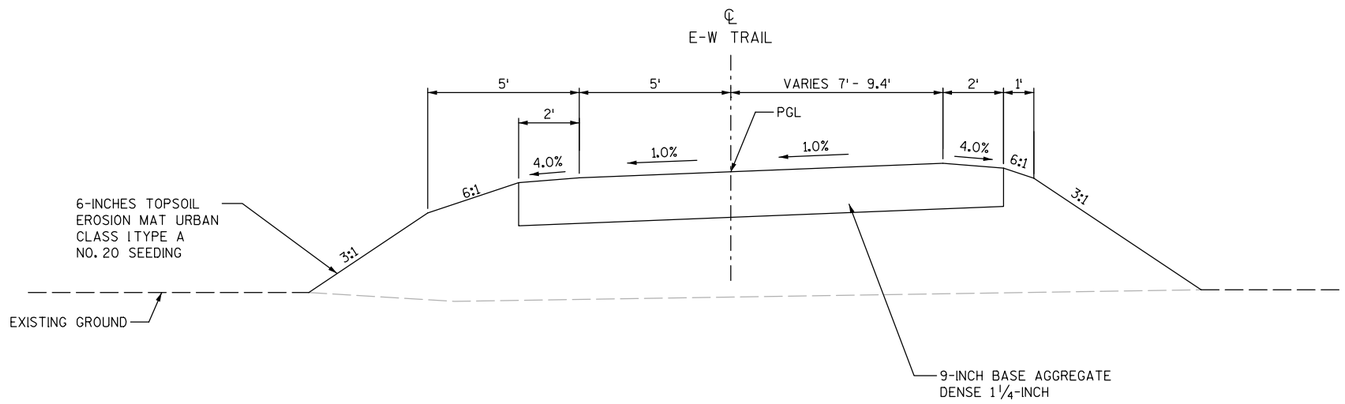
STA 104+00 TO 104+13 - 0.5% RIGHT
STA 104+13 TO 104+23 - TRANSITION 0.5% RIGHT - 1.0% LEFT

ϕ SEE PAVING DETAILS

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 6	E



TYPICAL FINISHED SECTION
STA 201+72 - 201+95

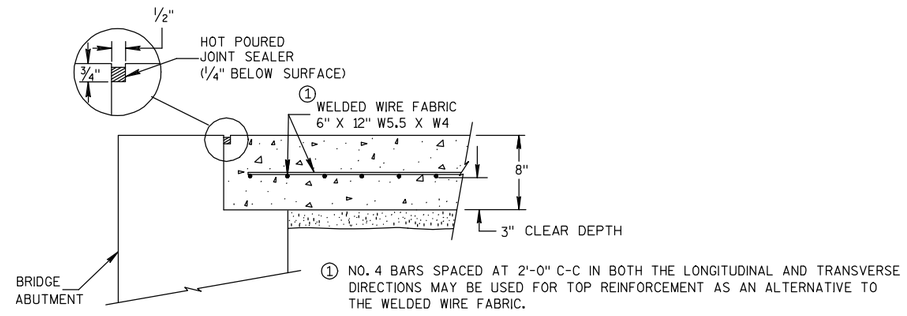


TYPICAL FINISHED SECTION
STA 201+10 - 201+72

* SEE PLAN DETAIL

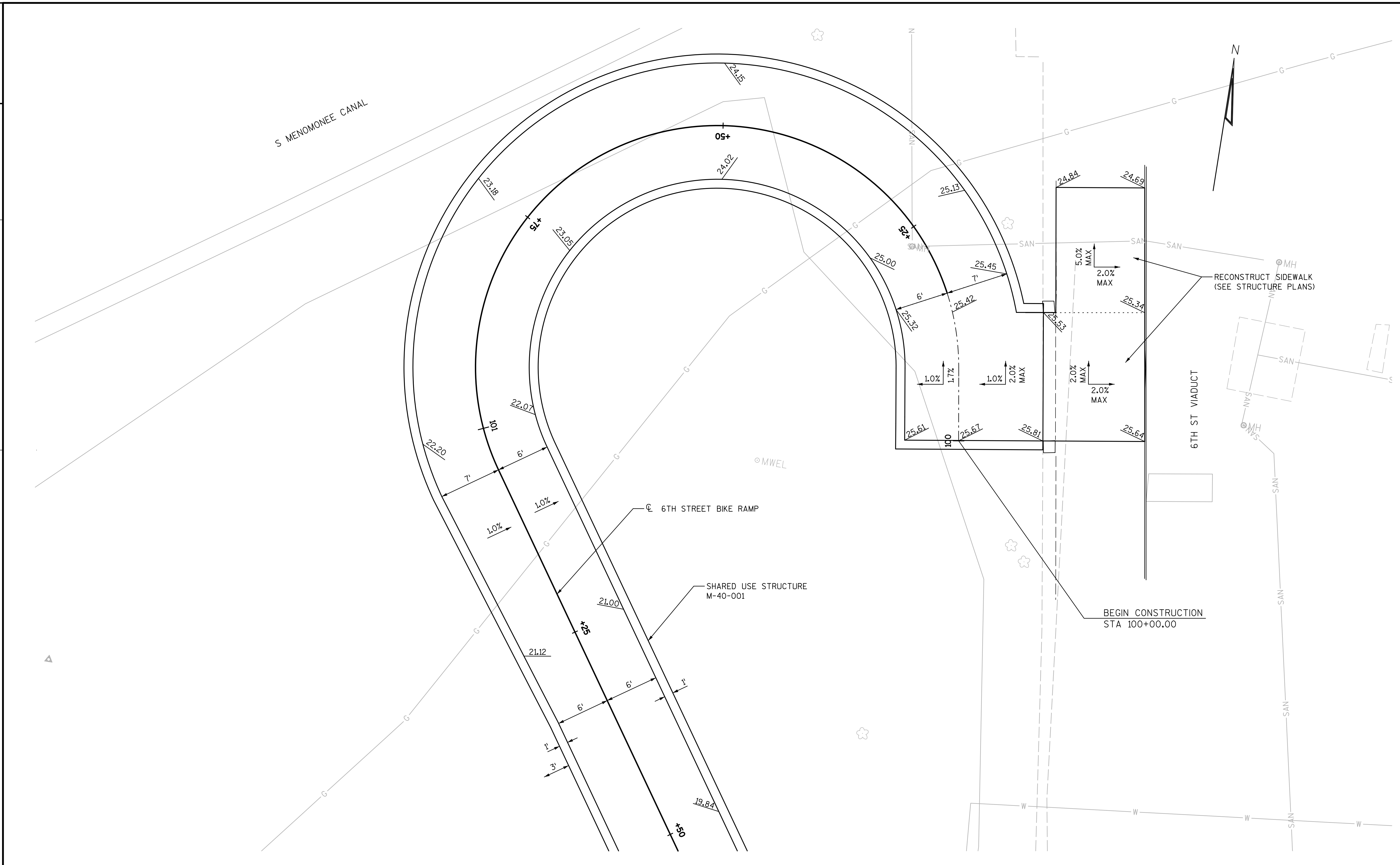
PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 7	E

2



APPROACH SLAB DETAIL

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	CONSTRUCTION DETAIL	SHEET 8	E



PROJECT NO:1693-25-72	HANK AARON STATE TRAIL	COUNTY:MILWAUKEE	PLAN DETAILS: 6TH STREET BIKE RAMP	SHEET 9	E

2

SHARED USE STRUCTURE
M-40-001

CONCRETE APPROACH SLAB

RETAINING WALL
R-40-602

ASPHALTIC SURFACE

℄ 6TH STREET BIKE RAMP

102+00.20
BEGIN APPROACH SLAB

102+00.87
BEGIN MSE WALL

102+10.20
END APPROACH SLAB

CRUSHED AGGREGATE 3/8-INCH

103+60.00
END MSE WALL

103+00.00
END MSE WALL

RETAINING WALL
R-40-603

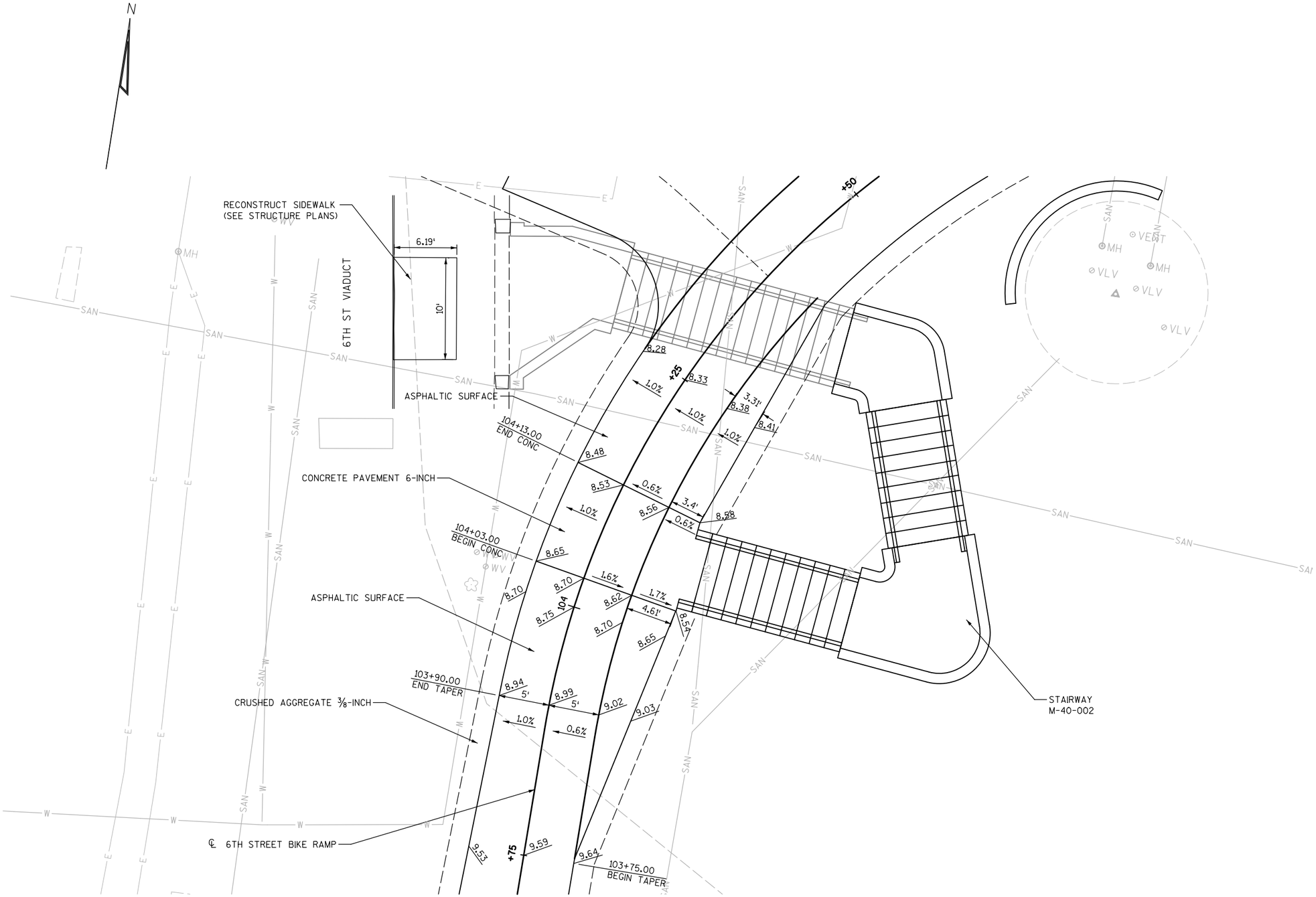
CRUSHED AGGREGATE 3/8-INCH

P.L.E.

N

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	PLAN DETAILS: 6TH STREET BIKE RAMP	SHEET 10	E

2



PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	PLAN DETAILS: 6TH STREET BIKE RAMP	SHEET 11	E

FILE NAME : X:\20000S\20058.05\Eng_Docs\Sheets\021203_PD.dgn PLOT DATE : 3/12/2013 PLOT BY : bweigand PLOT NAME : PLOT SCALE : 1:10

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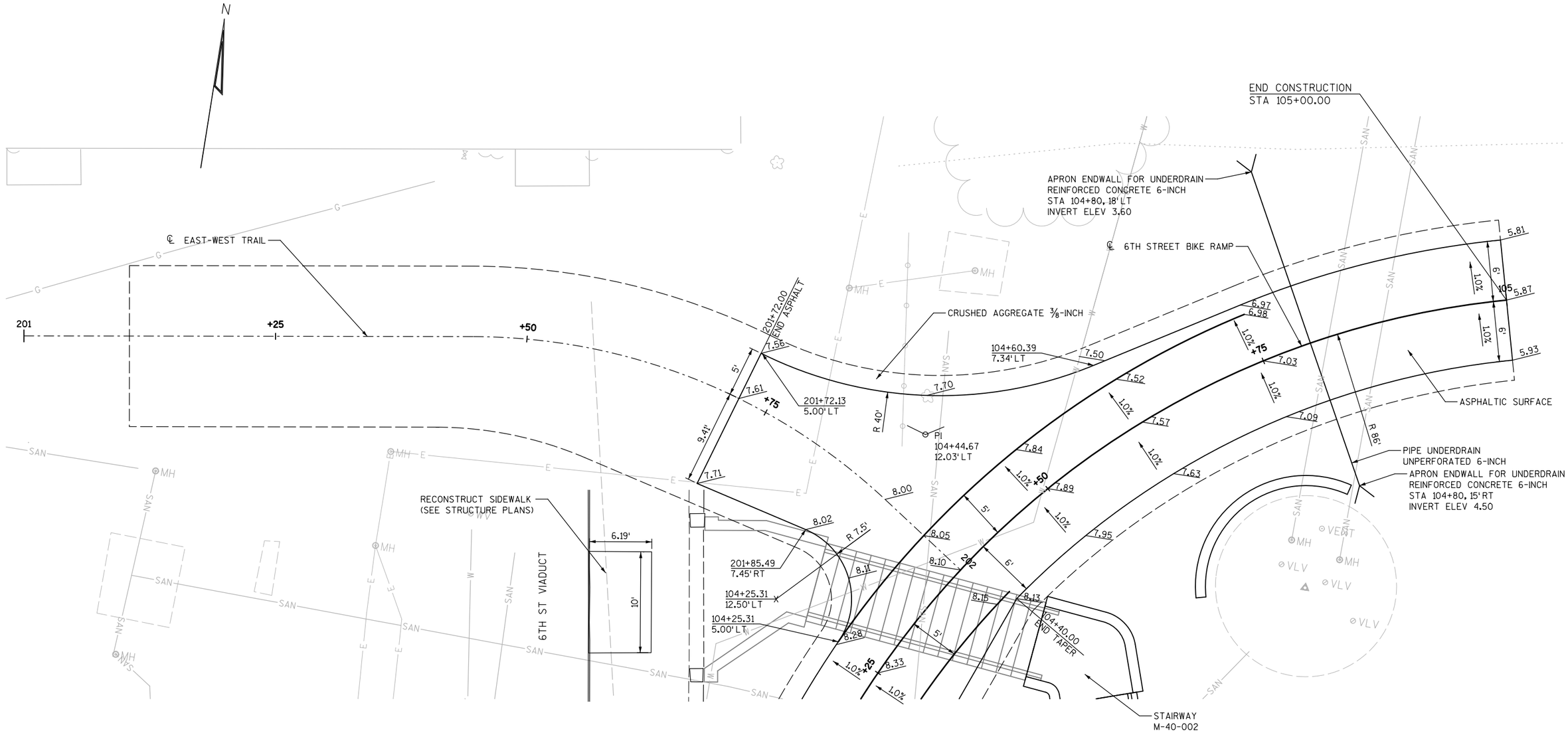
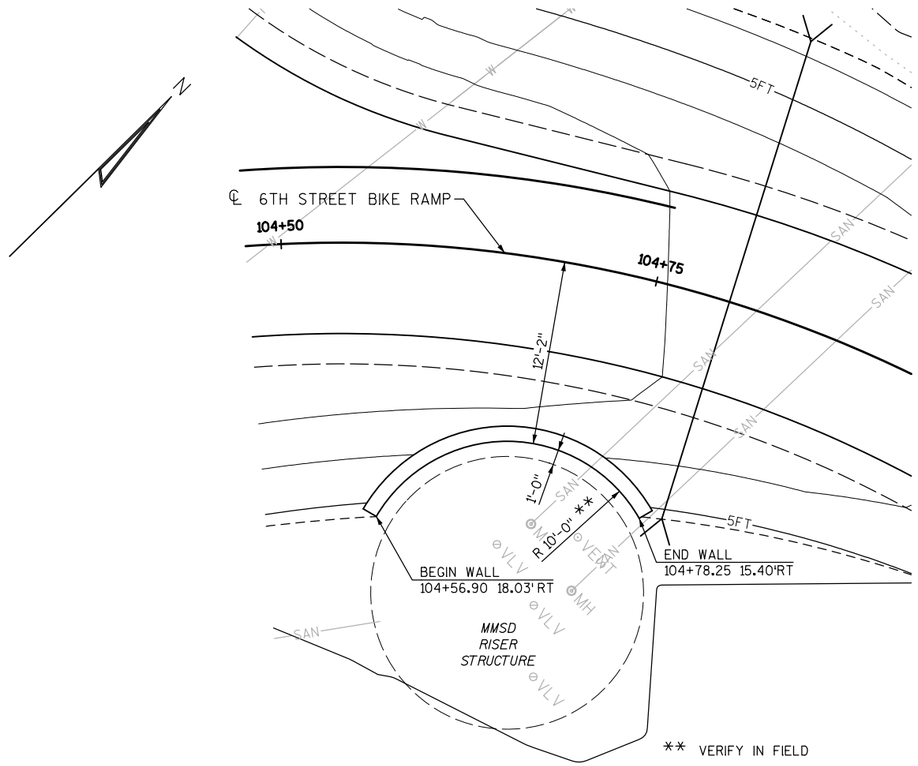
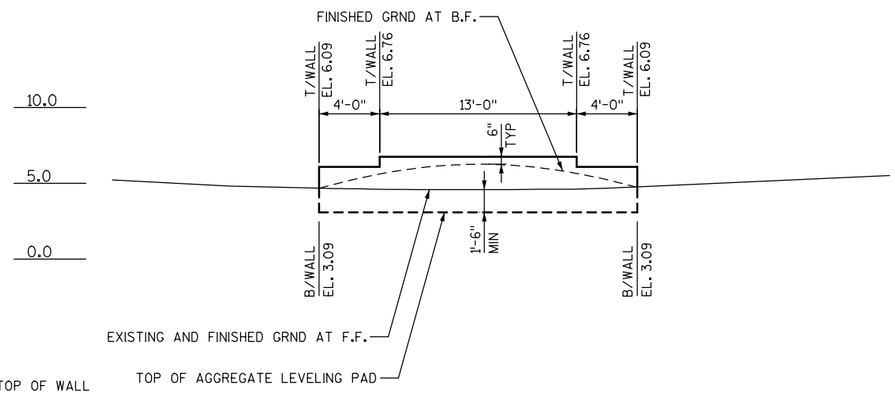


PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	PLAN DETAILS: 6TH STREET BIKE RAMP	SHEET 12	E



** VERIFY IN FIELD

PLAN



LEGEND

T/WALL - TOP OF WALL

B/WALL - BOTTOM OF WALL

B.F. - BACK FACE

F.F. - FRONT FACE

GRND - GROUND

UNFOLDED ELEVATION

DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS AND SHOP DRAWINGS FOR THE RETAINING WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE IS INCLUDED IN THE PAY ITEM "WALL MODULAR BLOCK GRAVITY."

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.

DESIGN FOR RETAINING WALL SHALL USE THE ELEVATIONS GIVEN ON THIS SHEET.

LIVE LOADS:
LIVE LOAD SURCHARGE: 120 PSF

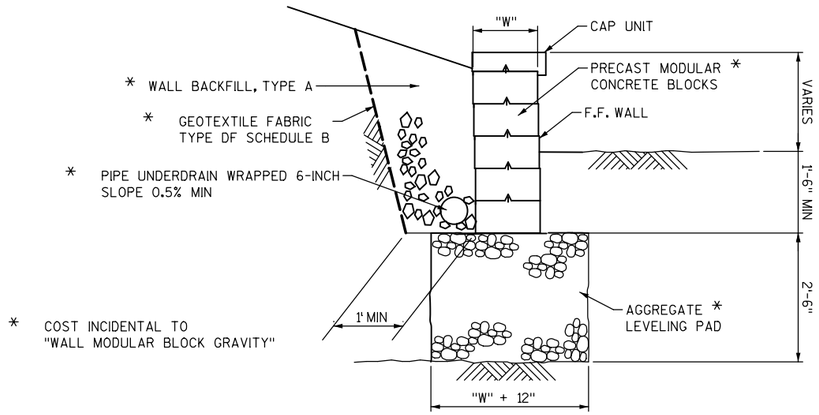
RECOMMENDED SOIL PARAMETERS FOR WALL ANALYSIS

SOIL UNIT	BOTTOM ELEVATION (FT)	SOIL UNIT WEIGHT (PCF)	UNDRAINED		DRAINED	
			COHESION (psf)	FRICTION ANGLE (DEGREE)	COHESION (psf)	FRICTION ANGLE (DEGREE)
AGGREGATE	0.5	125	0	30	0	30
ORGANIC SILT WITH SAND	-2.5	115	500	--	0	24
LOOSE SAND	-5.5	120	--	24	--	24
SILT/SAND WITH ORGANICS	-	120	500	--	0	24

TOTAL ESTIMATED QUANTITIES

BID ITEMS

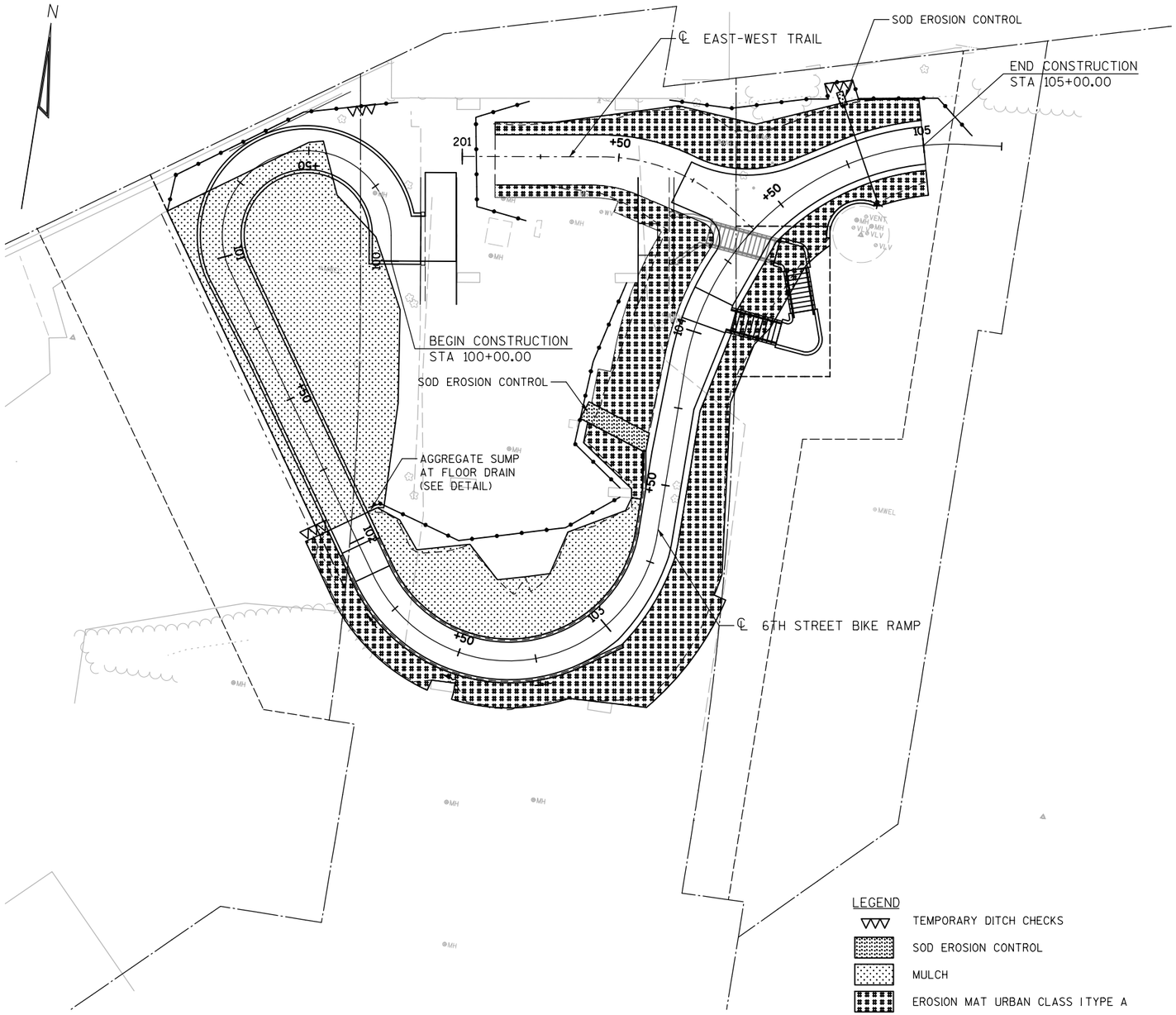
WALL MODULAR BLOCK GRAVITY - 72 SF

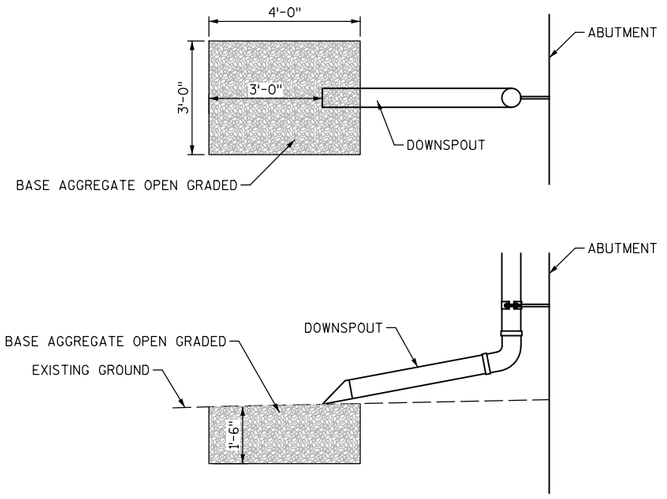


* COST INCIDENTAL TO "WALL MODULAR BLOCK GRAVITY"

TYPICAL SECTION

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	WALL MODULAR BLOCK GRAVITY DETAIL	SHEET 13	E





AGGREGATE SUMP

LEGEND

- TEMPORARY DITCH CHECKS
- SOD EROSION CONTROL
- MULCH
- EROSION MAT URBAN CLASS I TYPE A
- SILT FENCE

NOTES

1. ALL EROSION CONTROL MEASURES SHALL BE ADJUSTED AS NEEDED IN THE FIELD TO MEET FIELD CONDITIONS.
2. CONTRACTOR SHALL SUBMIT AN EROSION CONTROL IMPLEMENTATION PLAN (ECIP) FOR APPROVAL PRIOR TO START OF CONSTRUCTION. ECIP SHALL INCLUDE, BUT NOT BE LIMITED TO, THE CONSTRUCTION METHODS, LOCATION AND MATERIALS DETAILED IN THE PLANS.
3. SLOPES OF TEMPORARY STOCKPILE SHALL BE 3:1 HORIZONTAL:VERTICAL OR FLATTER. INSTALL SILT FENCE AROUND STOCKPILE PLACING THE ENTRANCE UPGRADE. INSTALL SEEDING TEMPORARY IF STOCKPILE SLOPES WILL BE EXPOSED FOR MORE THAN 5 DAYS.
4. SEED AND INSTALL EROSION CONTROL A MAXIMUM OF 5 DAYS AFTER TOPSOIL PLACEMENT.
5. INLET PROTECTION TO BE PLACED AS DIRECTED BY THE ENGINEER.
6. TRACKING PAD AND CONCRETE WASHOUT TO BE INSTALL AT THE SITE ENTRANCE AT 3RD STREET. INSTALL SILT FENCE ALONG HAUL ROAD AS NEEDED.

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	EROSION CONTROL PLAN	SHEET 14	E

LEGEND

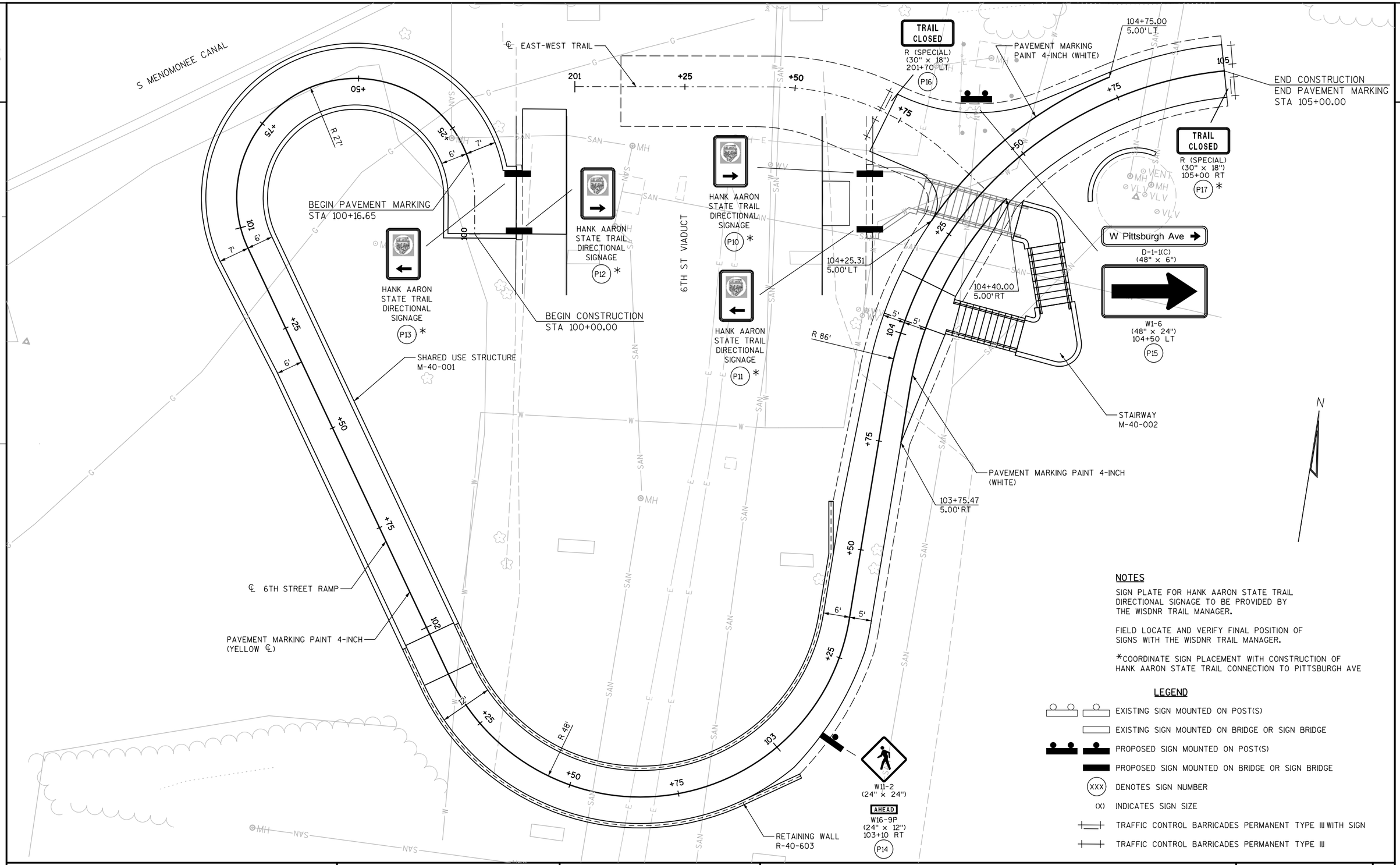
- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- (XXX) DENOTES SIGN NUMBER
- (X) INDICATES SIGN SIZE

NOTES

SIGN PLATE FOR HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE TO BE PROVIDED BY THE WISDNR TRAIL MANAGER.

FIELD LOCATE AND VERIFY FINAL POSITION OF SIGNS WITH THE WISDNR TRAIL MANAGER.

* COORDINATE SIGN PLACEMENT WITH CONSTRUCTION OF HANK AARON STATE TRAIL CONNECTION TO PITTSBURGH AVE



NOTES

SIGN PLATE FOR HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE TO BE PROVIDED BY THE WISDNR TRAIL MANAGER.

FIELD LOCATE AND VERIFY FINAL POSITION OF SIGNS WITH THE WISDNR TRAIL MANAGER.

*COORDINATE SIGN PLACEMENT WITH CONSTRUCTION OF HANK AARON STATE TRAIL CONNECTION TO PITTSBURGH AVE

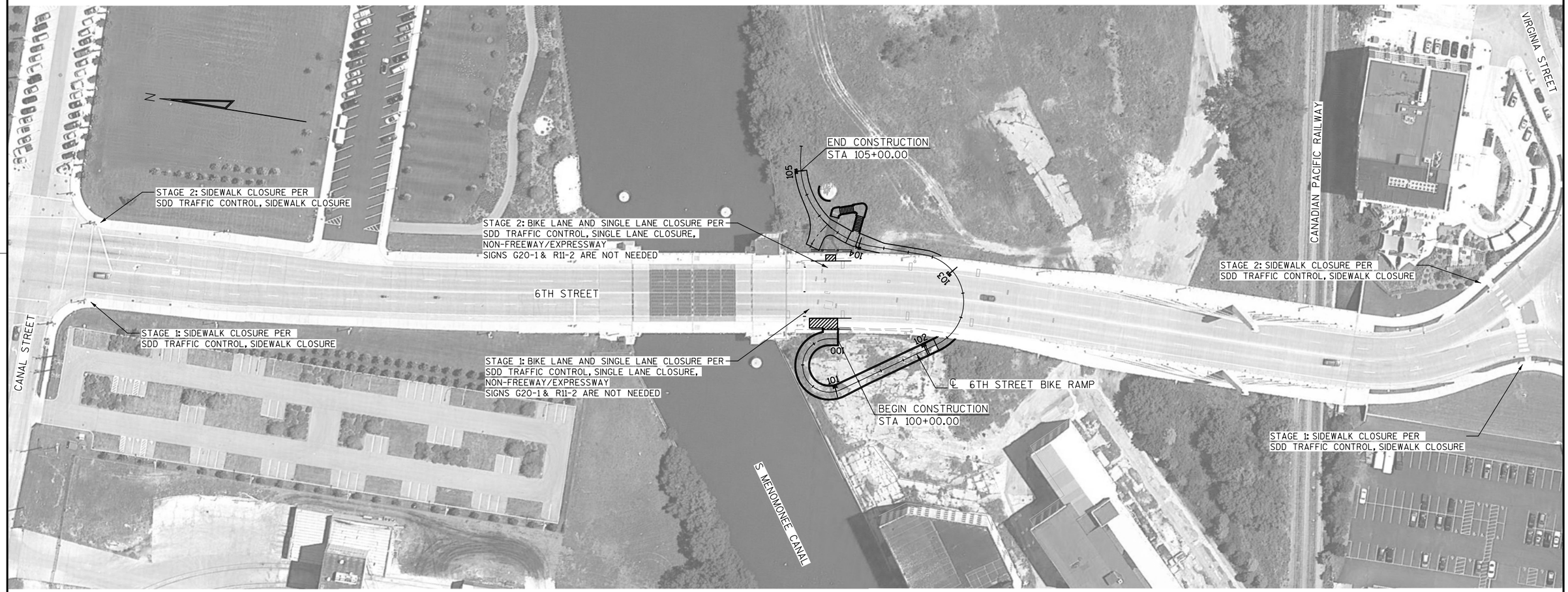
LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- (XXX) DENOTES SIGN NUMBER
- (X) INDICATES SIGN SIZE
- TRAFFIC CONTROL BARRICADES PERMANENT TYPE III WITH SIGN
- TRAFFIC CONTROL BARRICADES PERMANENT TYPE III

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	PERMANENT SIGNING AND PAVEMENT MARKING	SHEET 16	E

NOTES

1. WORK TO BE STAGED SUCH THAT ONLY ONE SIDEWALK IS CLOSED AND ONLY ONE DIRECTION OF TRAVEL IS IMPACTED AT A TIME.



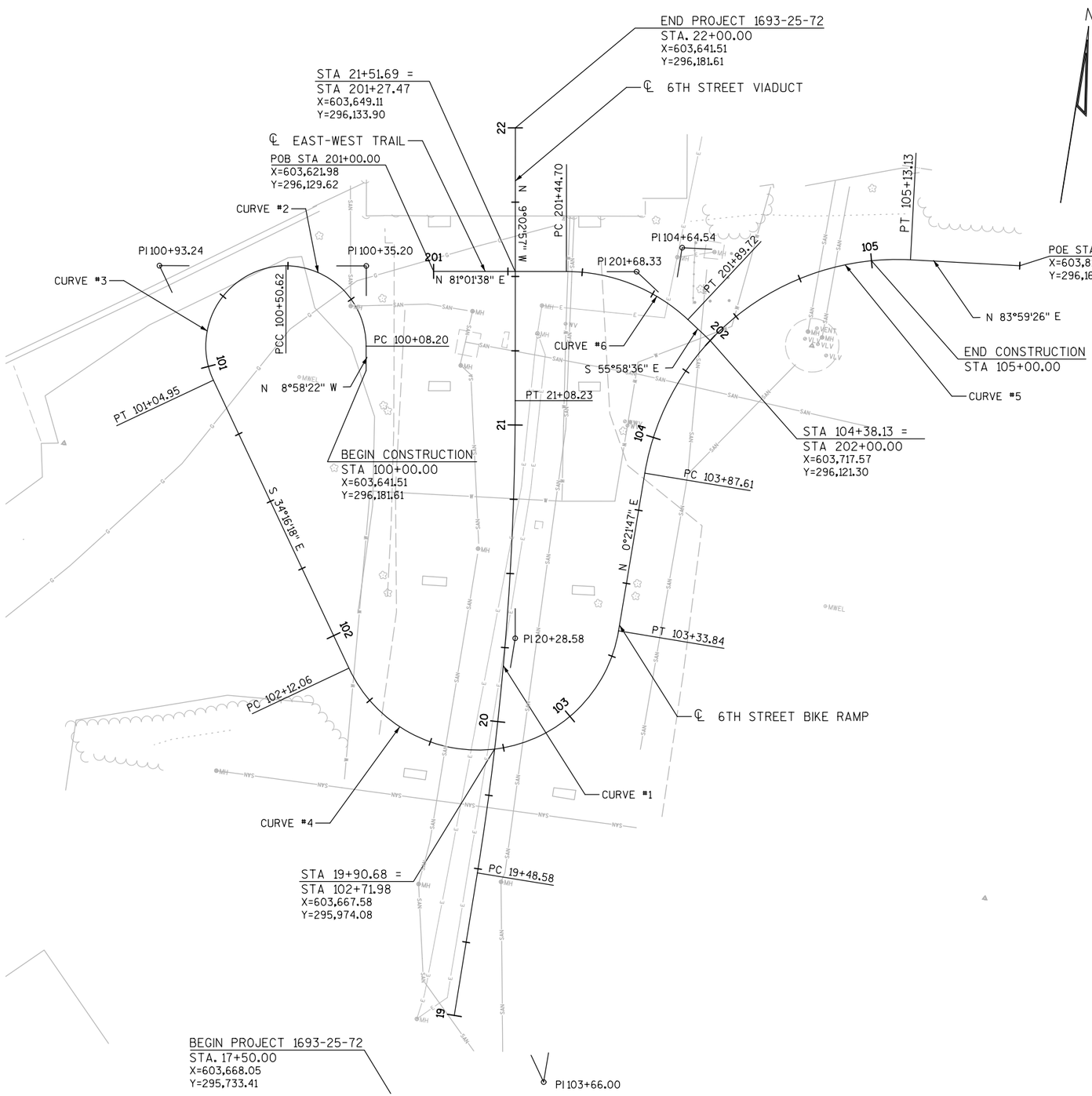
LEGEND

▨ WORK ZONE

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SHEET 17	E

FILE NAME : X:\20000S\20058.05\Eng_Docs\Sheets\025001_tc.dgn PLOT DATE : 3/12/2013 PLOT BY : bweigand PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42



CURVE 1

PC	19+48.58	295931.99	603668.39
PI	20+28.58	296011.99	603668.53
CC		295933.71	602668.39
PT	21+08.23	296090.99	603655.95

Radius: 1000.00
Delta: 9°08'51" Left
° of Curve (Arc): 5°43'46"
Length: 159.65
Tangent: 80.00
Chord: 159.48
Middle Ordinate: 3.18
External: 3.19
Tangent Direction: N 0°05'54" E
Radial Direction: S 89°54'06" E
Chord Direction: N 4°28'32" W
Radial Direction: N 80°57'03" E
Tangent Direction: N 9°02'57" W

CURVE 2

PC	100+08.20	296101.16	603603.51
PI	100+35.20	296127.83	603599.30
CC		296096.95	603576.84
PCC	100+50.62	296123.62	603572.63

Radius: 27.00
Delta: 90°00'00" Left
° of Curve (Arc): 212°12'24"
Length: 42.41
Tangent: 27.00
Chord: 38.18
Middle Ordinate: 7.91
External: 11.18
Tangent Direction: N 8°58'22" W
Radial Direction: N 81°01'38" E
Chord Direction: N 53°58'22" W
Radial Direction: N 8°58'22" W
Tangent Direction: S 81°01'38" W

CURVE 3

PCC	100+50.62	296123.62	603572.63
PI	100+93.24	296116.97	603530.53
CC		296096.95	603576.84
PT	101+04.95	296081.75	603554.53

Radius: 27.00
Delta: 115°17'56" Left
° of Curve (Arc): 212°12'24"
Length: 54.33
Tangent: 42.63
Chord: 45.62
Middle Ordinate: 12.55
External: 23.46
Tangent Direction: S 81°01'38" W
Radial Direction: N 8°58'22" W
Chord Direction: S 23°22'40" W
Radial Direction: S 55°43'42" W
Tangent Direction: S 34°16'18" E

CURVE 4

PC	102+12.06	295993.23	603614.84
PI	103+66.00	295866.02	603701.53
CC		296020.26	603654.51
PT	103+33.84	296019.96	603702.51

Radius: 48.00
Delta: 145°21'55" Left
° of Curve (Arc): 119°21'58"
Length: 121.78
Tangent: 153.95
Chord: 91.65
Middle Ordinate: 33.71
External: 113.26
Tangent Direction: S 34°16'18" E
Radial Direction: S 55°43'42" W
Chord Direction: N 73°02'45" E
Radial Direction: S 89°38'13" E
Tangent Direction: N 0°21'47" E

CURVE 5

PC	103+87.61	296073.73	603702.85
PI	104+64.54	296150.66	603703.34
CC		296073.18	603788.85
PT	105+13.13	296158.71	603779.84

Radius: 86.00
Delta: 83°37'39" Right
° of Curve (Arc): 66°37'23"
Length: 125.52
Tangent: 76.93
Chord: 114.67
Middle Ordinate: 21.90
External: 29.39
Tangent Direction: N 0°21'47" E
Radial Direction: S 89°38'13" E
Chord Direction: N 42°10'36" E
Radial Direction: S 6°00'34" E
Tangent Direction: N 83°59'26" E

CURVE 6

PC	201+44.70	296136.59	603666.13
PI	201+68.33	296140.27	603689.47
CC		296077.32	603675.48
PT	201+89.72	296127.05	603709.06

Radius: 60.00
Delta: 42°59'46" Right
° of Curve (Arc): 95°29'35"
Length: 45.03
Tangent: 23.63
Chord: 43.98
Middle Ordinate: 4.17
External: 4.49
Tangent Direction: N 81°01'38" E
Radial Direction: S 8°58'22" E
Chord Direction: S 77°28'29" E
Radial Direction: S 34°01'24" W
Tangent Direction: S 55°58'36" E

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	ALIGNMENT PLAN	SHEET 18	E

DATE 23APR13 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	1693-25-72 QUANTITY
0010	201.0120	CLEARING	ID	45.000	45.000
0020	201.0220	GRUBBING	ID	45.000	45.000
0030	204.0110	REMOVING ASPHALTIC SURFACE	SY	650.000	650.000
0040	204.0165	REMOVING GUARDRAIL	LF	25.000	25.000
0050	204.9060.S	REMOVING (ITEM DESCRIPTION) 01. BOLLARDS	EACH	6.000	6.000
0060	204.9090.S	REMOVING (ITEM DESCRIPTION) 01. TEMPORARY CONCRETE BARRIER	LF	25.000	25.000
0070	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. M-40-001	LS	1.000	1.000
0080	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 02. M-40-002	LS	1.000	1.000
0090	208.0100	BORROW	CY	350.000	350.000
0100	209.0100	BACKFILL GRANULAR	CY	361.000	361.000
0110	210.0100	BACKFILL STRUCTURE	CY	81.000	81.000
0120	213.0100	FINISHING ROADWAY (PROJECT) 01. 1693-25-72	EACH	1.000	1.000
0130	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	235.000	235.000
0140	310.0110	BASE AGGREGATE OPEN GRADED	TON	2.000	2.000
0150	415.0060	CONCRETE PAVEMENT 6-INCH	SY	14.000	14.000
0160	415.0410	CONCRETE PAVEMENT APPROACH SLAB	SY	14.000	14.000
0170	465.0105	ASPHALTIC SURFACE	TON	70.000	70.000
0180	502.0100	CONCRETE MASONRY BRIDGES	CY	221.000	221.000
0190	502.3200	PROTECTIVE SURFACE TREATMENT	SY	402.000	402.000
0200	502.5002	MASONRY ANCHORS TYPE L NO. 4 BARS	EACH	16.000	16.000
0210	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	2,377.000	2,377.000
0220	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	47,442.000	47,442.000
0230	509.1500	CONCRETE SURFACE REPAIR	SF	371.000	371.000
0240	514.0445	FLOOR DRAINS TYPE GC	EACH	1.000	1.000
0250	514.2625	DOWNSPOUT 6-INCH	LF	16.000	16.000
0260	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12.000	12.000
0270	517.1010.S	CONCRETE STAINING (STRUCTURE) 01. M-40-001	SF	4,332.000	4,332.000
0280	517.1010.S	CONCRETE STAINING (STRUCTURE) 02. M-40-002	SF	782.000	782.000
0290	517.1010.S	CONCRETE STAINING (STRUCTURE) 03. R-40-602	SF	1,270.000	1,270.000
0300	517.1010.S	CONCRETE STAINING (STRUCTURE) 04. R-40-603	SF	1,064.000	1,064.000
0310	550.0600	PILE REDRIVING	EACH	14.000	14.000
0320	550.2126	PILING CIP CONCRETE 12 3/4 X 0.375-INCH	LF	2,060.000	2,060.000
0330	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	26.000	26.000
0340	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	285.000	285.000
0350	612.0806	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH	EACH	2.000	2.000
0360	616.0700.S	FENCE SAFETY	LF	100.000	100.000
0370	619.1000	MOBILIZATION	EACH	1.000	1.000
0380	623.0200	DUST CONTROL SURFACE TREATMENT	SY	2,450.000	2,450.000
0390	625.0100	TOPSOIL	SY	1,600.000	1,600.000
0400	627.0200	MULCHING	SY	850.000	850.000
0410	628.1104	EROSION BALES	EACH	10.000	10.000
0420	628.1504	SILT FENCE	LF	1,750.000	1,750.000
0430	628.1520	SILT FENCE MAINTENANCE	LF	5,250.000	5,250.000
0440	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	10.000	10.000
0450	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	7.000	7.000

3

DATE 23APR13 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	1693-25-72 QUANTITY
0460	628.2006	EROSION MAT URBAN CLASS I TYPE A	SY	750.000	750.000
0470	628.7005	INLET PROTECTION TYPE A	EACH	4.000	4.000
0480	628.7015	INLET PROTECTION TYPE C	EACH	2.000	2.000
0490	628.7504	TEMPORARY DITCH CHECKS	LF	20.000	20.000
0500	628.7560	TRACKING PADS	EACH	1.000	1.000
0510	628.7570	ROCK BAGS	EACH	20.000	20.000
0520	630.0120	SEEDING MIXTURE NO. 20	LB	50.000	50.000
0530	630.0200	SEEDING TEMPORARY	LB	10.000	10.000
0540	630.0400	SEEDING NURSE CROP	LB	15.000	15.000
0550	631.1100	SOD EROSION CONTROL	SY	16.000	16.000
0560	634.0410	POSTS WOOD 4X4-INCH X 10-FT	EACH	3.000	3.000
0570	637.0202	SIGNS REFLECTIVE TYPE II	SF	24.750	24.750
0580	638.3620	ERECTING STATE OWNED SIGNS TYPE II	EACH	8.000	8.000
0590	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0600	643.0100	TRAFFIC CONTROL (PROJECT) 01. 1693-25-72	EACH	1.000	1.000
0610	643.0300	TRAFFIC CONTROL DRUMS	DAY	720.000	720.000
0620	643.0410	TRAFFIC CONTROL BARRICADES TYPE II	DAY	360.000	360.000
0630	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	120.000	120.000
0640	643.0453	TRAFFIC CONTROL BARRICADES PERMANENT TYPE III	EACH	4.000	4.000
0650	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	360.000	360.000
0660	643.0900	TRAFFIC CONTROL SIGNS	DAY	660.000	660.000
0670	646.0103	PAVEMENT MARKING PAINT 4-INCH	LF	600.000	600.000
0680	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	290.000	290.000
0690	650.5000	CONSTRUCTION STAKING BASE	LF	290.000	290.000
0700	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. M-40-001	LS	1.000	1.000
0710	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 02. M-40-002	LS	1.000	1.000
0720	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 03. R-40-602	LS	1.000	1.000
0730	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 04. R-40-603	LS	1.000	1.000
0740	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 1693-25-72	LS	1.000	1.000
0750	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	580.000	580.000
0760	690.0150	SAWING ASPHALT	LF	150.000	150.000
0770	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,758.000	1,758.000
0780	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	HRS	500.000	500.000
0790	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	500.000	500.000
0800	SPV.0035	SPECIAL 01. CONTAMINATED MATERIAL	CY	10.000	10.000
0810	SPV.0035	SPECIAL 02. EXCAVATION SPECIAL ON-SITE REUSE	CY	539.000	539.000
0820	SPV.0060	SPECIAL 01. TEMPORARY SEDIMENT BASIN	EACH	1.000	1.000
0830	SPV.0060	SPECIAL 02. ADJUSTING WATER BOXES	EACH	3.000	3.000
0840	SPV.0060	SPECIAL 03. LOCATE UTILITY LINE	EACH	3.000	3.000
0850	SPV.0060	SPECIAL 04. LANDING JOINT SYSTEM	EACH	2.000	2.000
0860	SPV.0090	SPECIAL 01. STEEL RAILING TYPE 1 SPECIAL	LF	663.000	663.000
0870	SPV.0090	SPECIAL 02. STEEL RAILING TYPE 2 SPECIAL	LF	184.000	184.000
0880	SPV.0105	SPECIAL 01. STEEL GRATE STAIRS	LS	1.000	1.000
0890	SPV.0105	SPECIAL 02. TEMPORARY HAUL ROAD	LS	1.000	1.000
0900	SPV.0105	SPECIAL 03. SETTLEMENT MONITORING R-40-602	LS	1.000	1.000

3

DATE 23APR13 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	1693-25-72 QUANTITY
0910	SPV.0105	SPECIAL 04. SETTLEMENT MONITORING R-40-603	LS	1.000	1.000
0920	SPV.0165	SPECIAL 01. WALL MODULAR BLOCK GRAVITY LRFD	SF	72.000	72.000
0930	SPV.0165	SPECIAL 02. WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD	SF	2,334.000	2,334.000
0940	SPV.0180	SPECIAL 01. GEOGRID WARNING LAYER	SY	830.000	830.000
0950	SPV.0195	SPECIAL 01. CRUSHED AGGREGATE 3/8 INCH	TON	20.000	20.000

3

3

REMOVALS

LOCATION	ITEM 204.0110 REMOVING ASPHALTIC SURFACE (SY)	ITEMS 204.9060.S REMOVING BOLLARDS (EACH)	ITEMS 204.9090.S REMOVING TEMPORARY CONCRETE BARRIER (LF)	ITEMS 204.9090.S REMOVING GUARDRAIL (LF)	ITEMS 690.0150 SAWING ASPHALT (LF)
NB 6th Street	-	-	12.5	-	-
SB 6th Street	-	-	12.5	-	-
100+00 to 102+25	645	-	-	-	145
104+50 LT	-	6	-	25	-
UNDISTRIBUTED	5	-	-	-	5
TOTALS	**650**	**6**	**25**	**25**	**150**

CLEARING AND GRUBBING

LOCATION		ITEM 201.0120 CLEARING (ID)	ITEM 201.0220 GRUBBING (ID)
100+20	RT	4.00	4.00
100+43	RT	6.00	6.00
101+49	LT	2.00	2.00
103+42	LT	5.00	5.00
103+46	RT	4.00	4.00
103+51	RT	4.00	4.00
103+99	LT	5.00	5.00
104+47	LT	6.00	6.00
104+50	LT	6.00	6.00
UNDISTRIBUTED		3.00	3.00
TOTALS		**45.00**	**45.00**

3

Division	From/To Station	Location	Excavation Special On-Site Reuse (1) (SPV.0035.02) Cut	Clean MSE Undercut (2)	EBS MSE Undercut (3)	Salvaged / Unusable Pavement Material (4)	Available Material (5)	Marsh Excavation (6) (SPV.0035.02)	Reduced Marsh in Fill (7) Factor 0.60	Reduced EBS in Fill (8) Factor 0.80	Granular Backfill (9) (item # 209.0100)	Unexpanded Unsuitable Fill (10)	Expanded Unsuitable Fill (11) Factor 1.00	Unexpanded Fill (12)	Expanded Fill (13) Factor 1.25	Mass Ordinate +/- (14)	Waste	Borrow (item #208.0100)	Comments:
1	102+00 - 105+00	6th St Ramp	0	247	179	0	247	105	63	143	361	235	30	471	589	-342			
1	201+10 - 201+75	East-West Trail	8	0	0	0	8	0	0	0	0	7	7	31	39	-31			
Division 1 Subtotal			8	247	179	0	255	105	63	143	361	242	36	503	629	-373		350	
Category 0010 Total			**434**				**105**											**350**	

1) Excavation Special On-Site Reuse is the sum of the Cut, Clean MSE Undercut & EBS Excavation columns.

2) Percentage of MSE Undercut assumed to Sand. Assumed to be 45% according to Geoprobes GP-1 through GP-4 included in the Phase 2 Report

3) Percentage of MSE Undercut assumed to Silt or Clayey Silt. Assumed to be 32.5% according to Geoprobes GP-1 through GP-4 included in the Phase 2 Report

4) Percentage of MSE Undercut assumed to Asphalt, Brick or Topsoil. Assumed to be 3.5% according to Geoprobes GP-1 through GP-4 included in the Phase 2 Report

5) Available Material = Cut + Clean MSE Undercut

6) Percentage of MSE Undercut assumed to Peat. Assumed to be 19% according to Geoprobes GP-1 through GP-4 included in the Phase 2 Report

7) Reduced Marsh in Fill - Excavated Marsh material is usuable in Fills outside the 1:2 slope. Marsh in Fill Reduction factor = 0.6

8) Reduced EBS in Fill - Excavated EBS material is usuable in Fills outside the 1:2 slope. EBS in Fill Reduction factor = 0.8

9) Granular Backfill - Used to fill under the MSE wall from the bottom of excavation to the bottom of footing. Item number 209.0100 See Structure Plans for quantity breakdown.

10) Unexpanded Unsuitable Fill - Areas of embankment outside the 1:2 slope and in front of the MSE wall to waste unsuitable materials.

11) Expanded Unsuitable Fill = Unsuitable Fill - Reduced Marsh in Fill - Reduced EBS in Fill. No Borrow will be imported for this area.

10) Unexpanded Fill - Areas of embankment inside the 1:2 slope.

11) Expanded Fill = Unexpanded Fill * Fill Factor. Fill Factor = 1.25

12) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

CONTAMINATED MATERIAL

LOCATION	SPV.0195.01 (TON)
UNDISTRIBUTED	10
TOTALS	**10**

ALL ITEMS ON PAGE ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

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PAVEMENT

LOCATION	SPV.0195.01 CRUSHED AGGREGATE 3/8-INCH (TON)	ITEM 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (TON)	ITEM 465.0105 ASPHALTIC SURFACE (TON)	ITEM 415.0060 CONCRETE PAVEMENT 6-INCH (SY)	ITEM 415.0410 CONCRETE PAVEMENT APPROACH SLAB (SY)	COMMENTS
102+00 to 102+10	-	-	-	-	14	
102+12 to 104+03	6	100	41	-	-	
104+03 to 104+13	1	4	-	14	-	
104+13 to 105+00	8	70	28	-	-	
201+10 to 201+72	-	57	-	-	-	
UNDISTRIBUTED	5	4	1	-	-	
TOTALS	**20**	**235**	**70**	**14**	**14**	

GEOGRID

LOCATION	SPV.0180.01 GEOGRID WARNING LAYER (SY)
101+90 to 105+00	822
UNDISTRIBUTED	8
TOTALS	**830**

MMSD WALL

LOCATION	SPV.0165.01 WALL MODULAR BLOCK GRAVITY LRFD (SF)
104+50 to 104+80	72
TOTALS	**72**

3

EROSION CONTROL

LOCATION	ITEM 310.0110 BASE AGGREGATE OPEN GRADED (TON)	ITEM 623.0200 DUST CONTROL SURFACE TREATMENT (SY)	ITEM 628.1104 EROSION BALES (EACH)	ITEM 628.1504 SILT FENCE (LF)	ITEM 628.1520 SILT FENCE MAINTENANCE (LF)	ITEM 628.1905 MOBILIZATIONS EROSION CONTROL (EACH)	ITEM 628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)	ITEM 628.7005 INLET PROTECTION TYPE A (EACH)	ITEM 628.7015 INLET PROTECTION TYPE C (EACH)	ITEM 628.7504 TEMPORARY DITCH CHECKS (LF)	ITEM 628.7560 TRACKING PADS (EACH)	ITEM 628.7570 ROCK BAGS (EACH)	ITEM 631.1100 SOD EROSION CONTROL (SY)	SPV.0060.01 TEMPORARY SEDIMENT BASIN (EACH)	SPV.0105.02 TEMPORARY HAUL ROAD (LUMP)
100+00 to 105+00	-	639	-	430	1290	-	-	-	-	-	-	-	-	-	-
102+00 LT	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103+60 LT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104+80 LT	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Haul Road	-	1774	-	1275	3825	-	-	-	-	-	1	-	-	-	1
													15	-	-
UNDISTRIBUTED	-	37	10	45	135	10	7	4	2	20	-	20	-	1	-
TOTALS	**2**	**2,450**	**10**	**1,750**	**5,250**	**10**	**7**	**4**	**2**	**20**	**1**	**20**	**16**	**1**	**1**

MISCELLANEOUS

LOCATION	ITEM 616.0700.S FENCE SAFETY (LF)	SPV.0060.03 LOCATE UTILITY LINE (EACH)
104+25 Sewer	-	1
102+10 Water	-	1
104+25 Water	-	1
UNDISTRIBUTED	100	
TOTALS	**100**	**3**

RESTORATION

LOCATION	ITEM 625.0100 TOPSOIL (SY)	ITEM 627.0200 MULCHING (SY)	ITEM 628.2006 EROSION MAT URBAN CLASS I TYPE A (SY)	ITEM 630.0120 SEEDING MIXTURE NO. 20 (LB)	ITEM 630.0200 SEEDING TEMPORARY (LB)	ITEM 630.0400 SEEDING NURSE CROP (LB)
Application Rate				**3** ***lbs/1000 sf***	**3** ***lbs/1000 sf***	**0.8** ***lbs/1000 sf***
102+12 to 105+00	645	645	-	18	-	5
100+00 to 102+12	933	200	733	26	-	7
UNDISTRIBUTED	22	5	17	6	10	3
TOTALS	**1,600**	**850**	**750**	**50**	**10**	**15**

ALL ITEMS ON PAGE ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

DRAINAGE

UPSTREAM STA	OFFSET	INV ELEV		DOWNSTREAM STA	OFFSET	INV ELEV	ITEM 612.0206 PIPE UNDERDRAIN UNPERFORATED 6-INCH (LF)	ITEM 612.0806 APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH (EACH)
104+80	15' RT	4.50	to	104+80	18' LT	3.60	26	2
UNDISTRIBUTED							-	-
TOTALS				**TOTALS**			**26**	**2**

VALVE BOX (CATEGORY 0060)

LOCATION		SPV.0060.02 ADJUSTING WATER BOXES (EACH)
104+00	LT	3
TOTALS		**3**

PAVEMENT MARKING

LOCATION	ITEM 646.0103 PAVEMENT MARKING PAINT 4 - INCH YELLOW (LF)	WHITE (LF)
100+17 to 105+00	483	--
103+75 to 104+40	--	65
104+25 to 104+75	--	50
UNDISTRIBUTED	2	
TOTALS	**600**	

PERMANENT SIGNING

SIGN NO.	LOCATION	SIGN CODE	SIGN MESSAGE	SIGN SIZE (W x H) IN	ITEM 637.0202 SIGNS REFLECTIVE TYPE II (SF)	ITEM 634.0410 POSTS WOOD 4x4-INCH X10FT (EACH)	ITEM 638.3620 ERECTING STATE OWNED SIGNS TYPE II (EACH)	ITEM 643.0453 TRAFFIC CONTROL BARRICADES PERMANENT TYPE III (EACH)	COMMENTS
P01	CANAL ST	---	HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE	---	--	--	1	--	MOUNTED ON TRAFFIC SIGNAL
P02	CANAL ST	---	HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE	---	--	--	1	--	MOUNTED ON TRAFFIC SIGNAL
P03	6TH ST	---	HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE	---	--	--	1	--	MOUNTED ON LIGHT POLE
P04	6TH ST	---	HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE	---	--	--	1	--	MOUNTED ON LIGHT POLE
P10	STAIRS	---	HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE	---	--	--	1	--	MOUNTED ON PARAPET
P11	STAIRS	---	HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE	---	--	--	1	--	MOUNTED ON PARAPET
P12	100+00 RT	---	HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE	---	--	--	1	--	MOUNTED ON PARAPET
P13	100+12 RT	---	HANK AARON STATE TRAIL DIRECTIONAL SIGNAGE	---	--	--	1	--	MOUNTED ON PARAPET
P14	103+10 RT	W11-2	PEDESTRIAN CROSSING	24" X 24"	4.00	1	--	--	
		W16-9P	AHEAD PLAQUE	24" X 12"	2.00	--	--	--	SAME POST AS P12
P15	104+50 LT	D1-1c	BICYCLE DESTINATION	48" X 6"	2.00	2	--	--	
		W1-6	SINGLE DIRECTION LARGE ARROW	48" X 24"	8.00	--	--	--	SAME POST AS P13
P16	105+00 RT	R (SPECIAL)	TRAIL CLOSED	30" X 18"	3.75	--	--	2	
P17	105+00 RT	R (SPECIAL)	TRAIL CLOSED	30" X 18"	3.75	--	--	2	
				TOTALS	**23.50**	**3**	**8**	**4**	

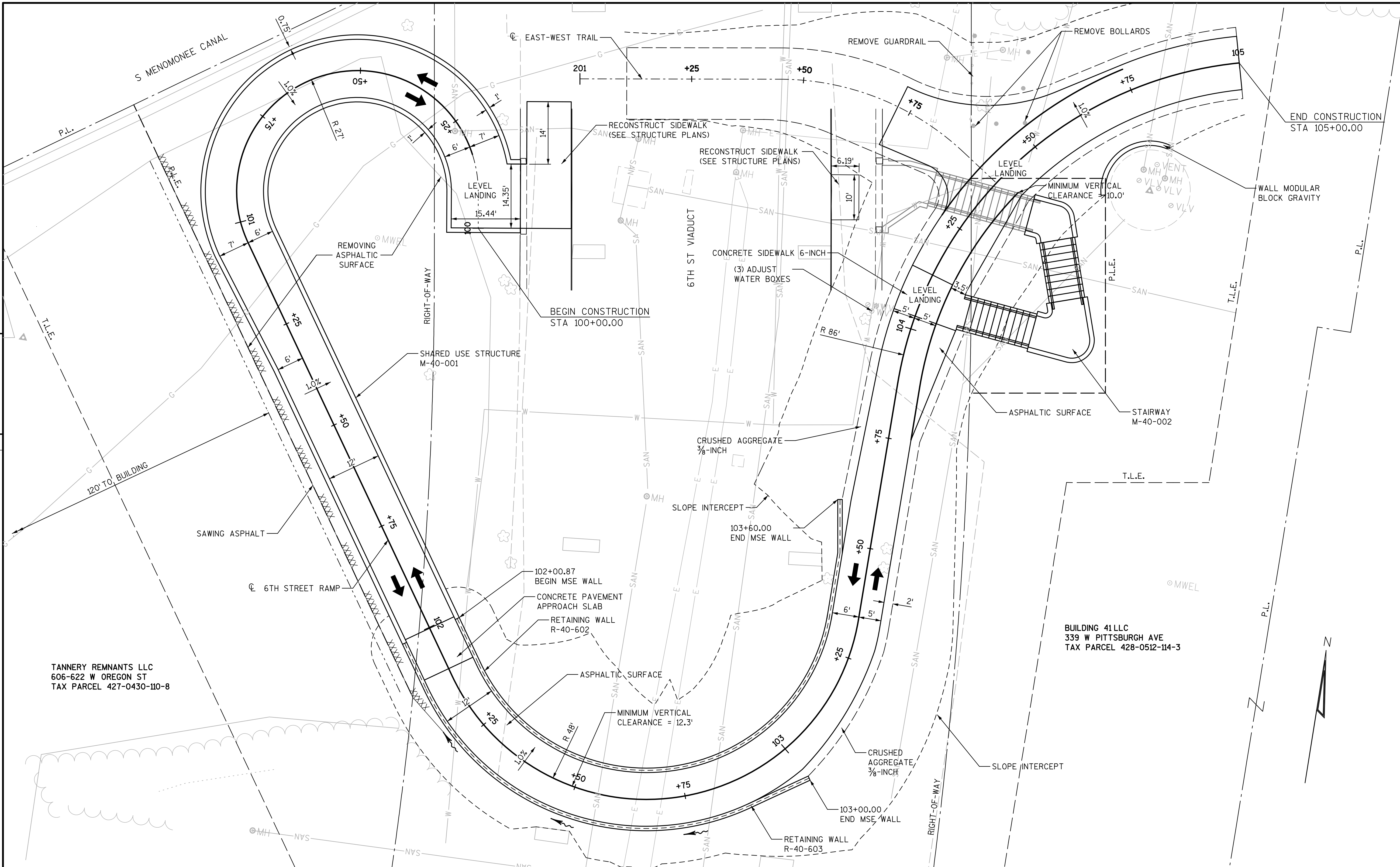
TRAFFIC CONTROL

LOCATION	DURATION CALANDAR DAYS	ITEM 643.0100 TRAFFIC CONTROL (EACH)	ITEM 643.0300 TRAFFIC CONTROL DRUMS #	(DAYS)	ITEM 643.0410 TRAFFIC CONTROL BARRICADES TYPE II #	(DAYS)	ITEM 643.0420 TRAFFIC CONTROL BARRICADES TYPE III #	(DAYS)	ITEM 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A #	(DAYS)	ITEM 643.0900 TRAFFIC CONTROL SIGNS #	(DAYS)
TOTAL PROJECT		1	-	-	-	-	-	-	-	-	-	-
Sidewalk Detour Stage 1	30	-	-	-	*6*	180	-	-	-	-	*6*	180
Sidewalk Detour Stage 2	30	-	-	-	*6*	180	-	-	-	-	*6*	180
Lane Closure Stage 1	30	-	*12*	360	-	-	*2*	60	*6*	180	*5*	150
Lane Closure Stage 2	30	-	*12*	360	-	-	*2*	60	*6*	180	*5*	150
	TOTALS	**1**		**720**		**360**		**120**		**360**		**660**

STAKING

LOCATION	ITEM 650.4500 CONSTRUCTION STAKING SUBGRADE (LF)	ITEM 650.5000 CONSTRUCTION STAKING BASE (LF)	ITEM 650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (1693-25-72) (LS)	ITEM 650.9920 CONSTRUCTION STAKING SLOPE STAKES (LF)
102+12 to 105+00	288	288	-	576
UNDISTRIBUTED	2	2	1	4
TOTALS	**290**	**290**	**1**	**580**

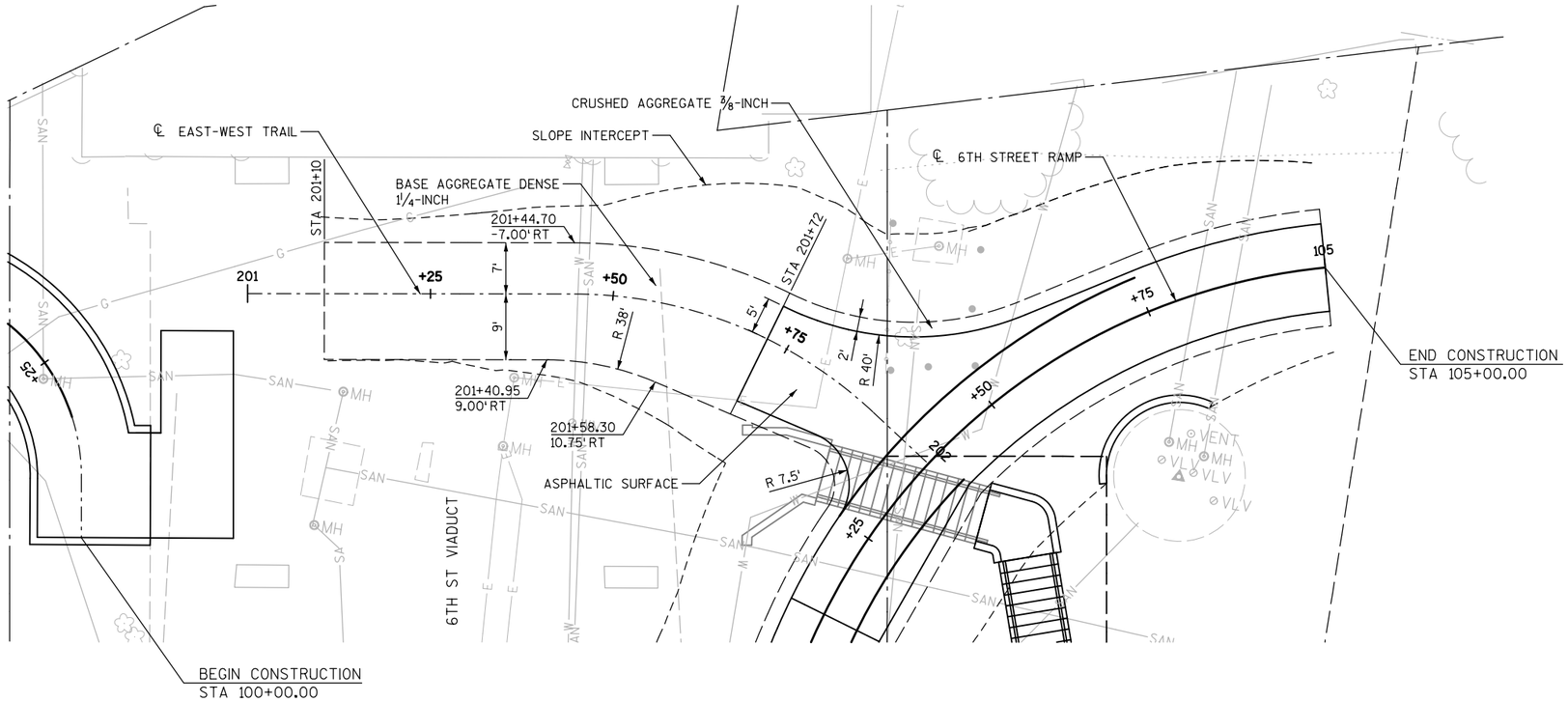
ALL ITEMS ON PAGE ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

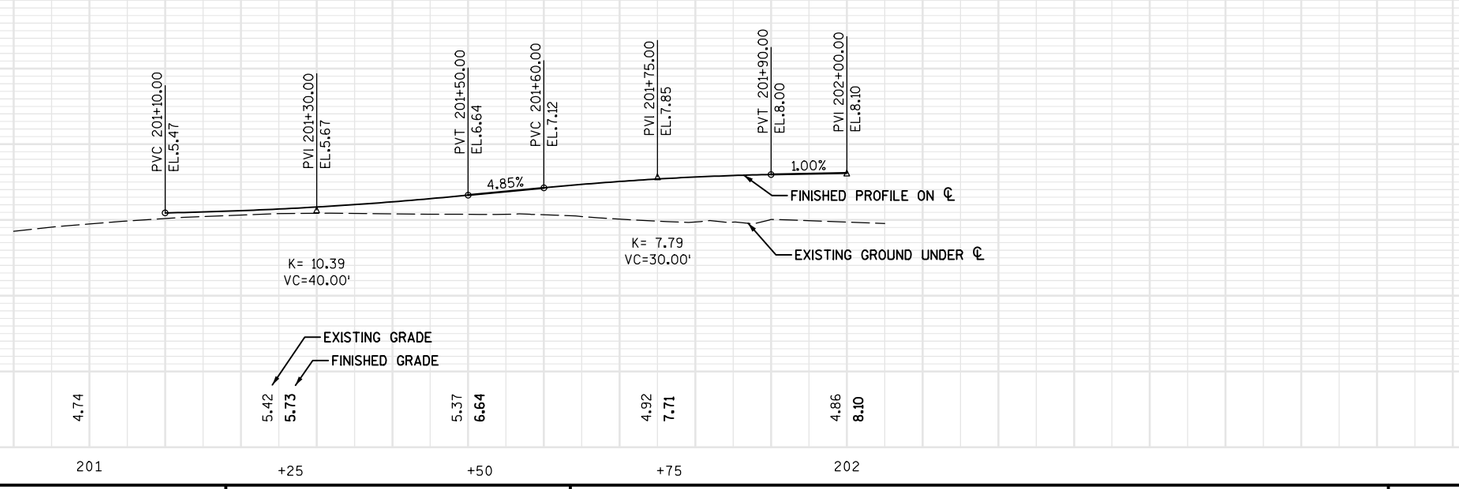


PROJECT NO:1693-25-72	HANK AARON STATE TRAIL	COUNTY:MILWAUKEE	PLAN: 6TH STREET BIKE RAMP	SHEET 25	E

FILE NAME : X:\20000S\20058.05\Eng_Docs\Sheets\050101_PP.dgn PLOT DATE : 3/20/2013 PLOT BY : bweigand PLOT NAME : PLOT SCALE : 1:20 WISDOT/CADDS SHEET 30

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	PROFILE: 6TH STREET BIKE RAMP	SHEET 26	E

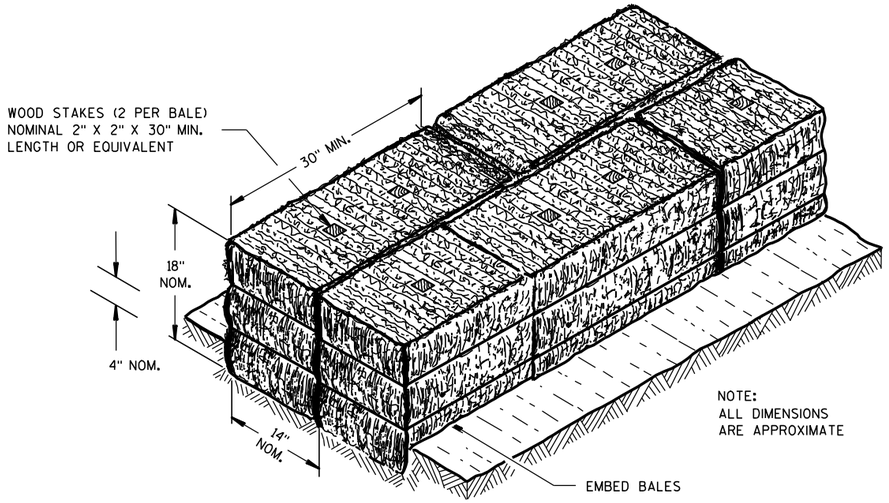




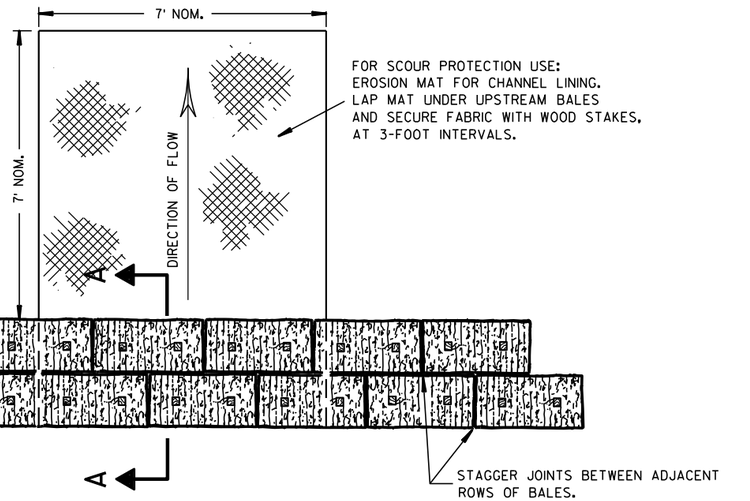
PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	PLAN PROFILE: EAST-WEST TRAIL	SHEET 27	E

Standard Detail Drawing List

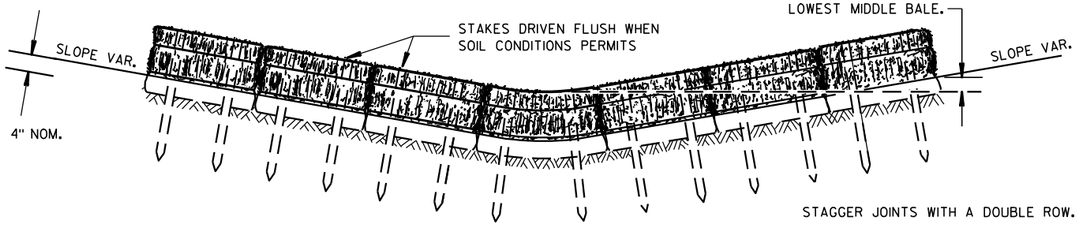
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
13B02-06	CONCRETE PAVEMENT APPROACH SLAB
13C18-01A	CONCRETE PAVEMENT JOINTING
13C18-01B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-01C	CONCRETE PAVEMENT JOINT TIES
13C18-01D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
15C05-01	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15D20-01	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D28-01	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D30-01	TRAFFIC CONTROL, SIDEWALK CLOSURE



SECTION A-A



PLAN VIEW



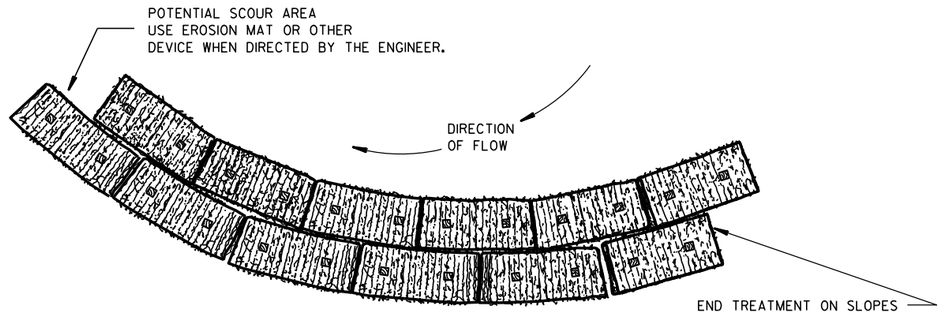
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

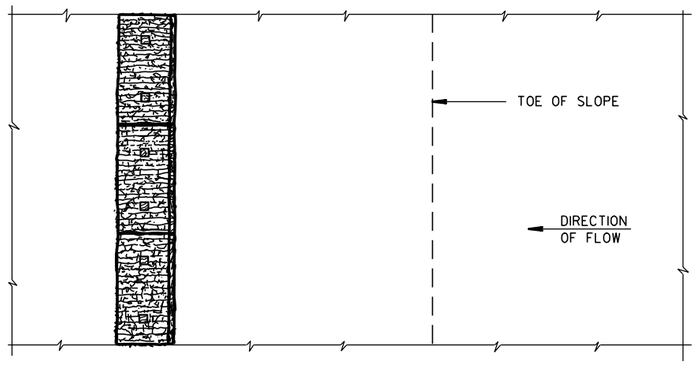
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

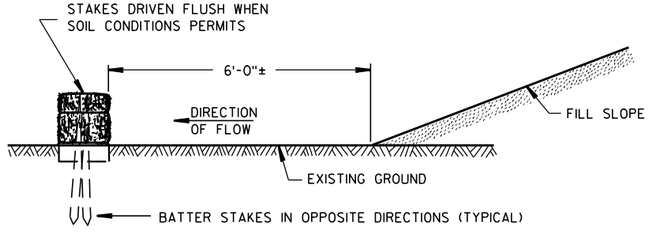


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

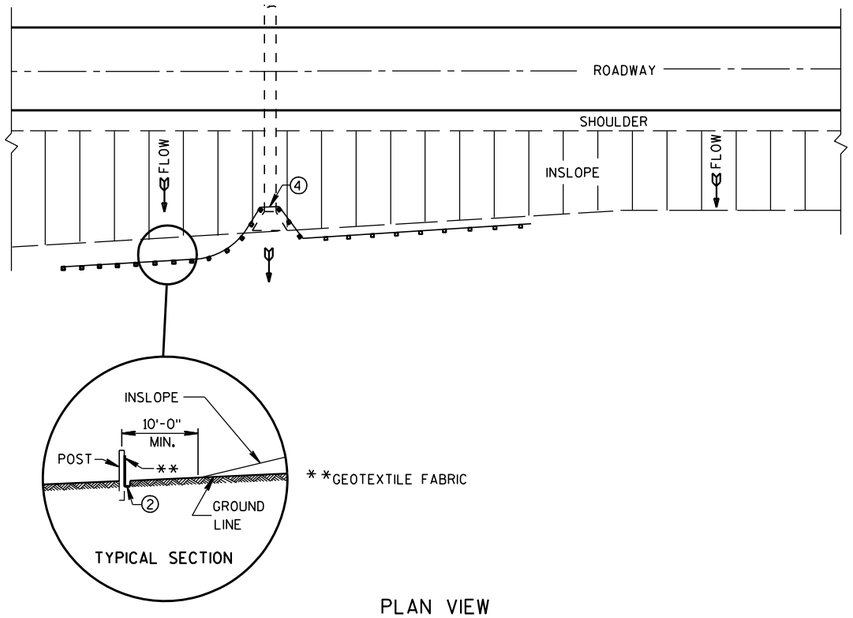
APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 8-3

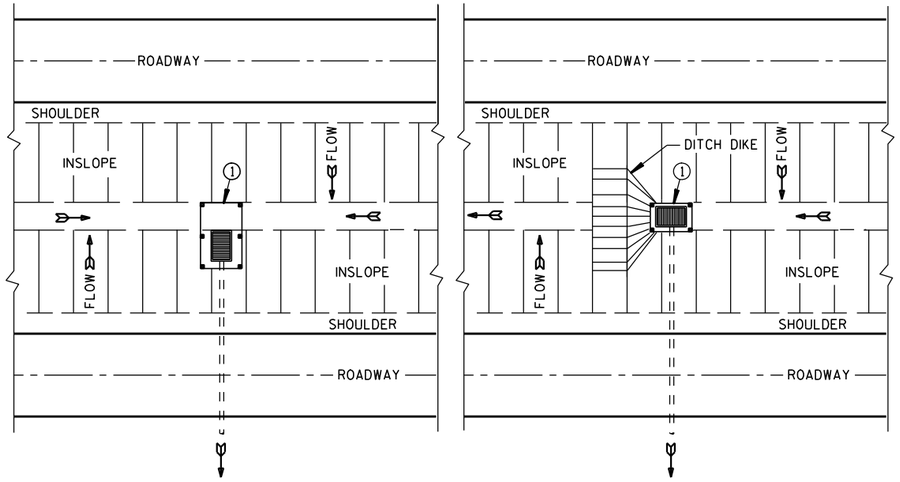
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



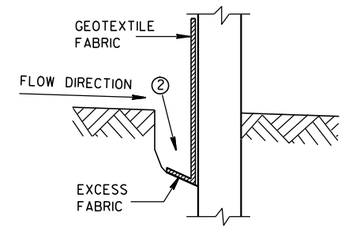
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

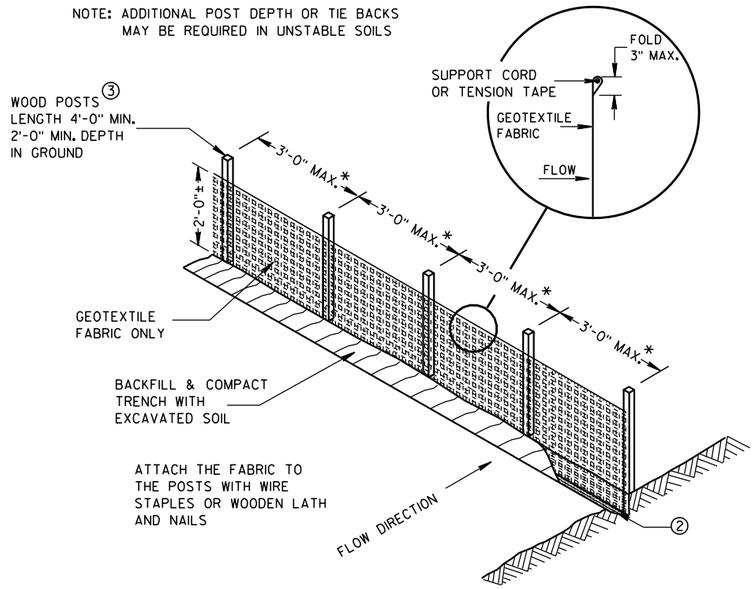
GENERAL NOTES

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

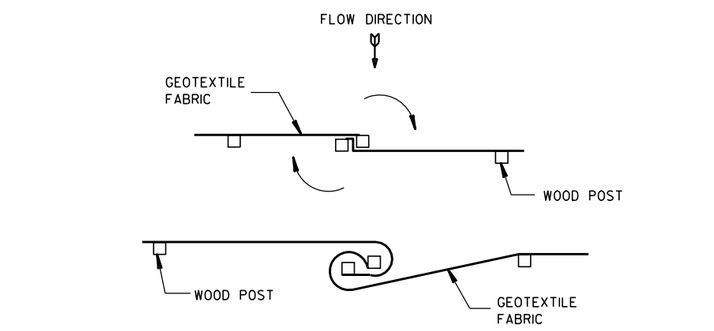
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL 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.



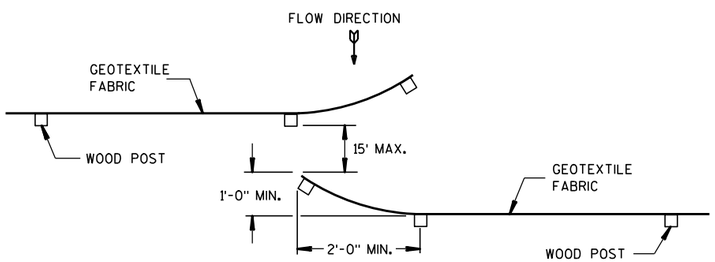
TRENCH DETAIL



SILT FENCE

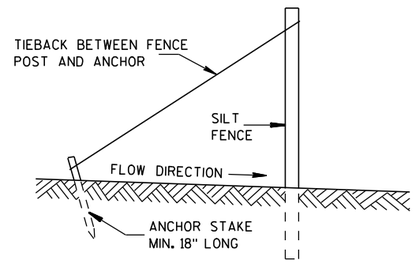


TWIST METHOD



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

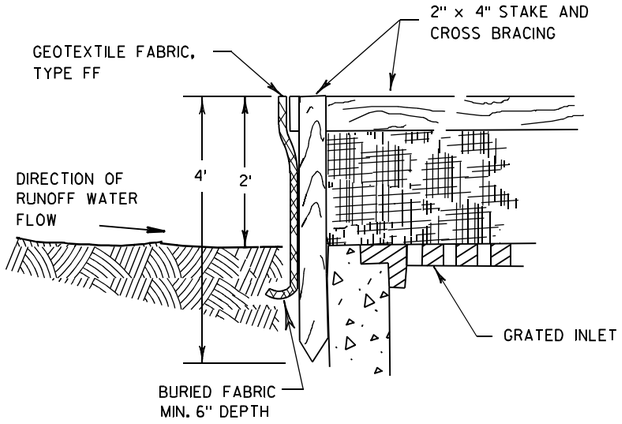
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

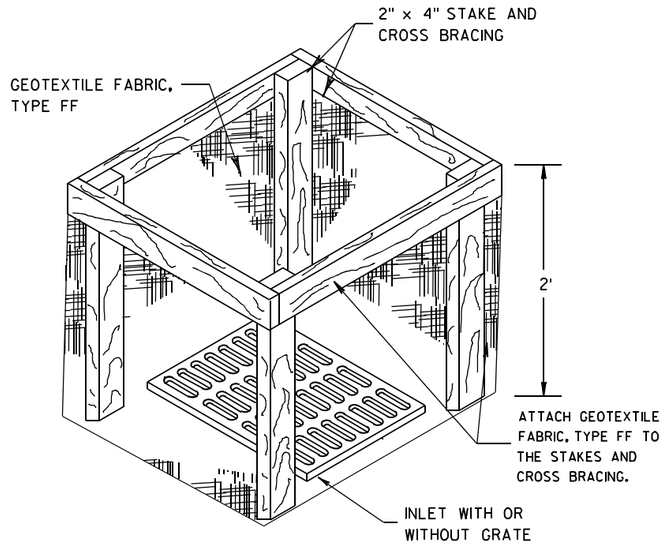
6

S.D.D. 8 E 9-6

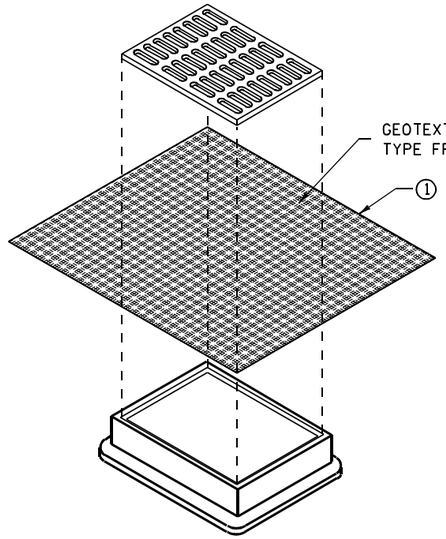
6

S.D.D. 8 E 9-6



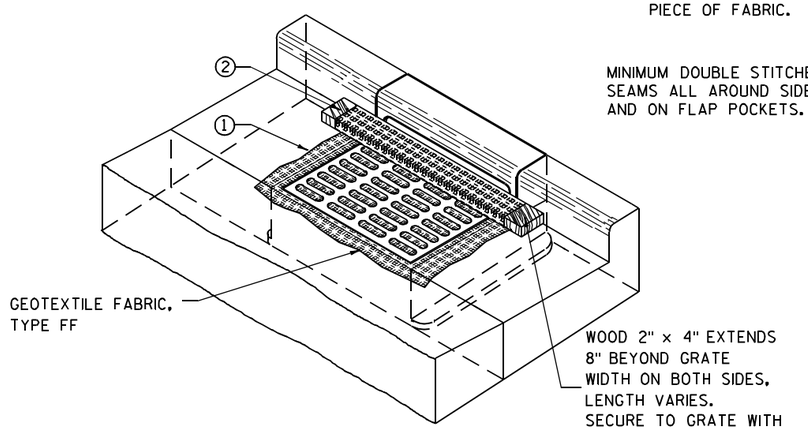


INLET PROTECTION, TYPE A

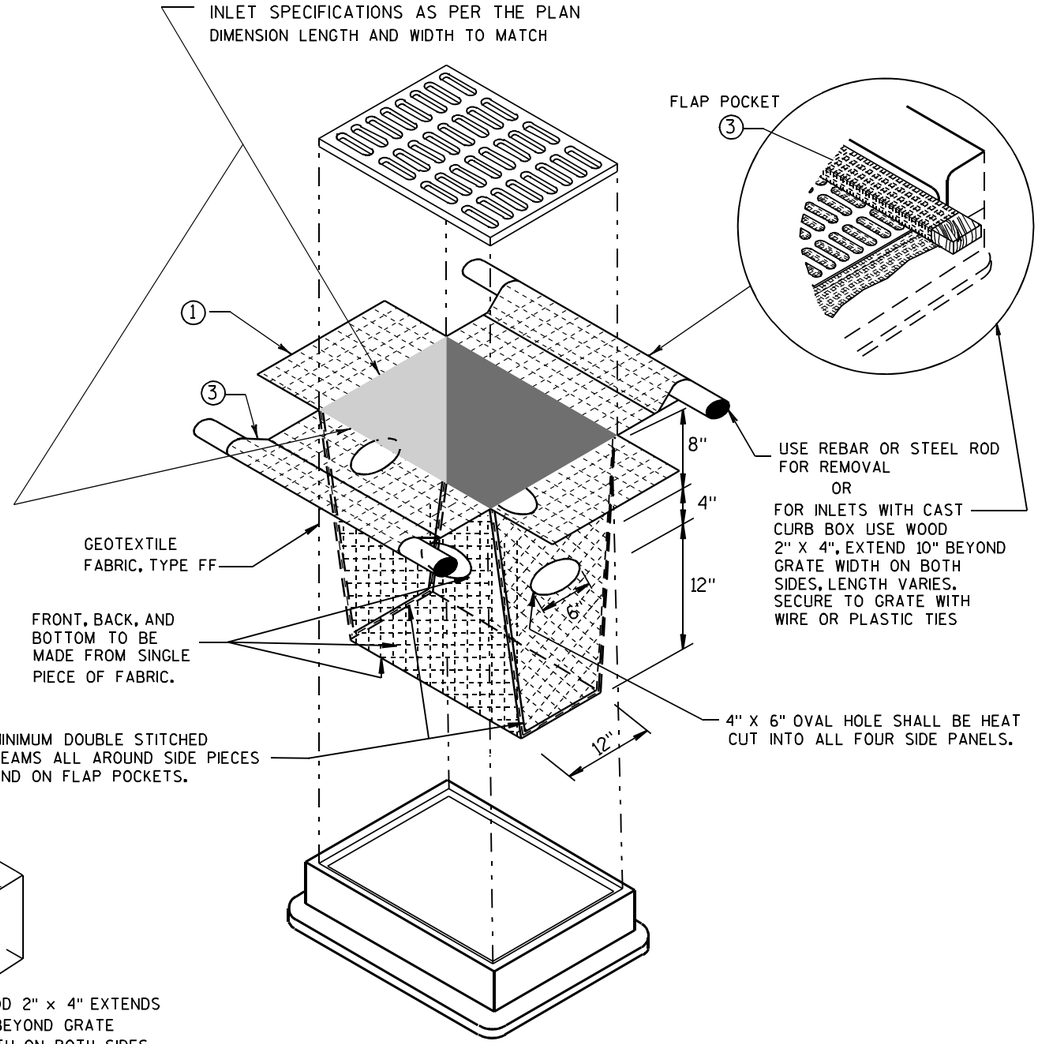


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

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

GENERAL NOTES

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

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

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

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

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

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

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

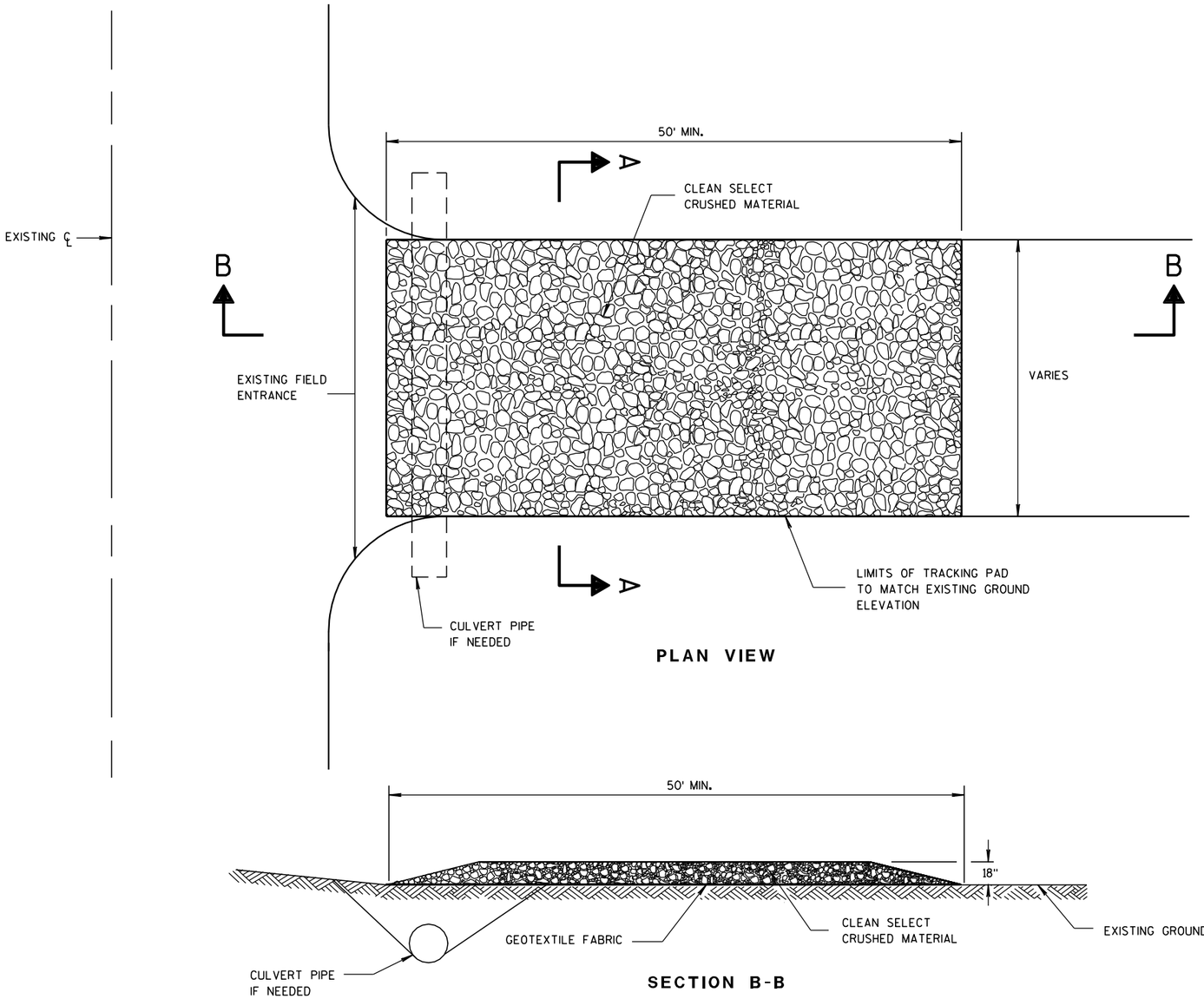
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

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



PLAN VIEW

SECTION B-B

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.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

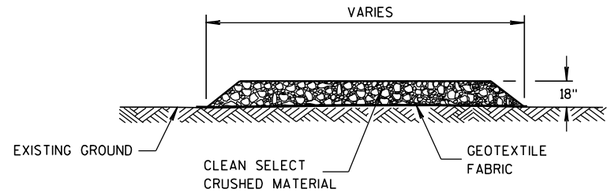
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



SECTION A-A

TRACKING PAD

TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/24/2011 — DATE
/S/ Jerry H. Zoda — ROADWAY STANDARDS ENGINEER
FHWA

6

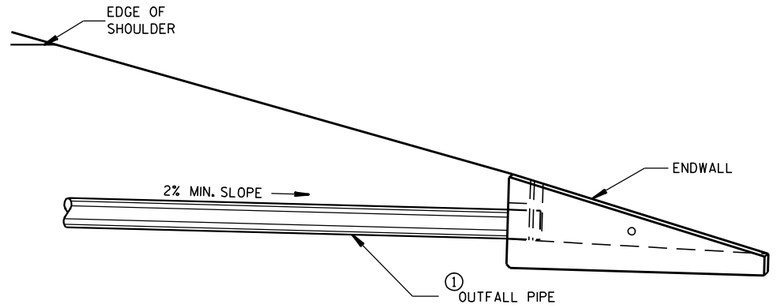
S.D.D. 8 E 14-1

6

S.D.D. 8 E 14-1

DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

**APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



INSTALLATION DETAIL

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.

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

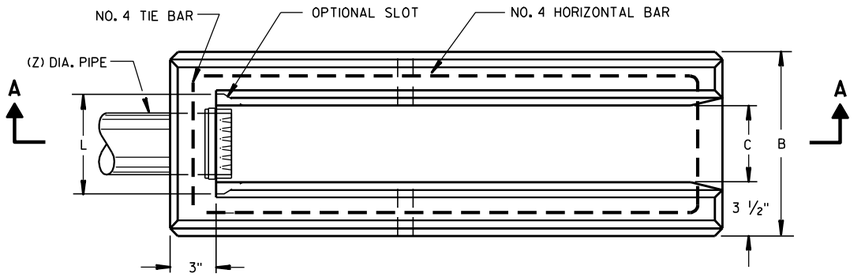
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

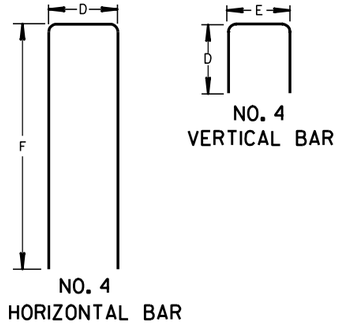
① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

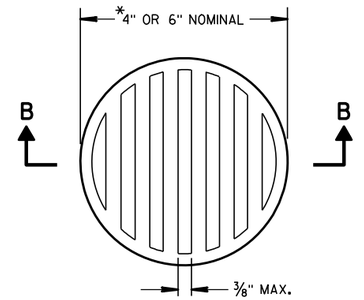
② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

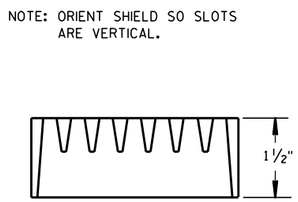


PLAN VIEW



BAR STEEL REINFORCEMENT DETAILS

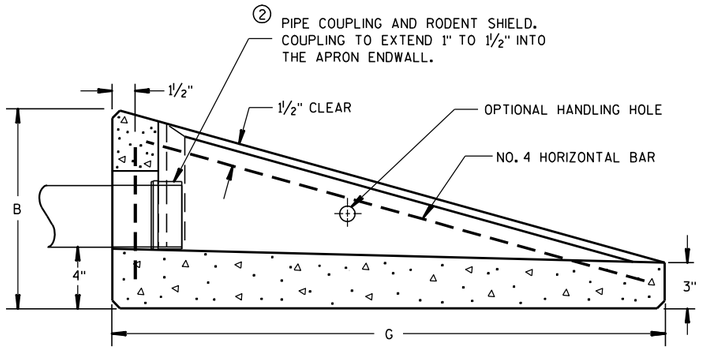




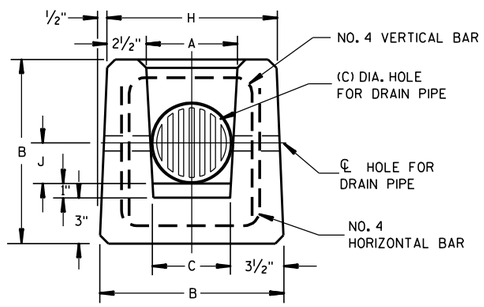
SECTION B-B

② RODENT SHIELD

*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



SECTION A-A



END VIEW

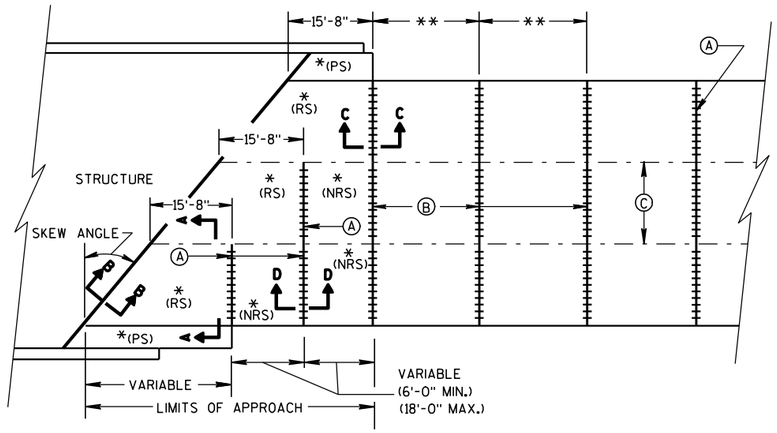
CONCRETE APRON ENDWALL FOR UNDERDRAIN

REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN

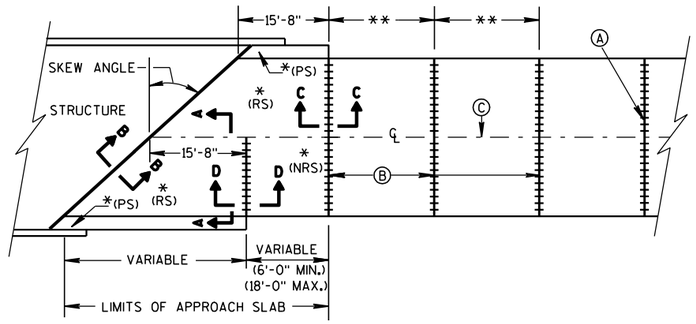
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/10/98 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

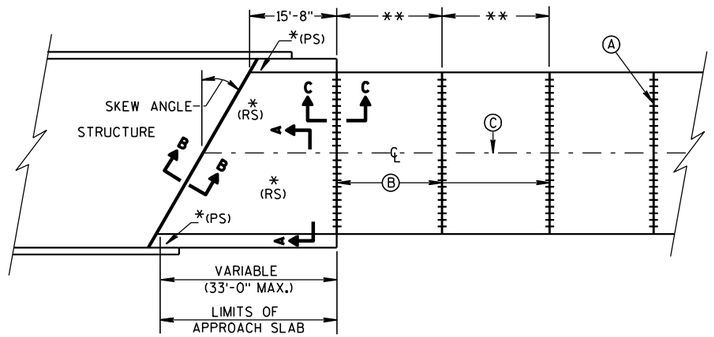
6
S.D.D. 8 F 6-4



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >30°
(PAVEMENT WIDTH ≤30')



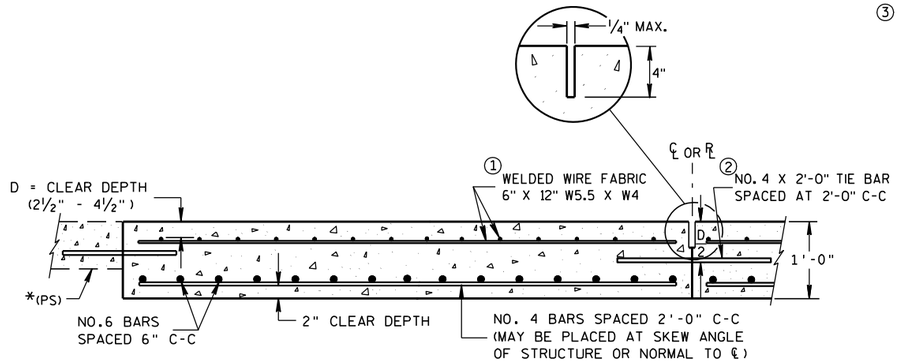
SKEWS ≤30°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

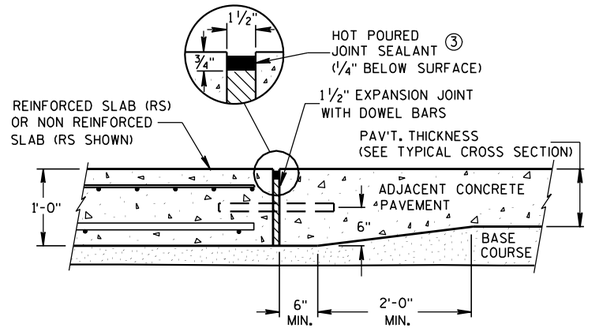
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

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

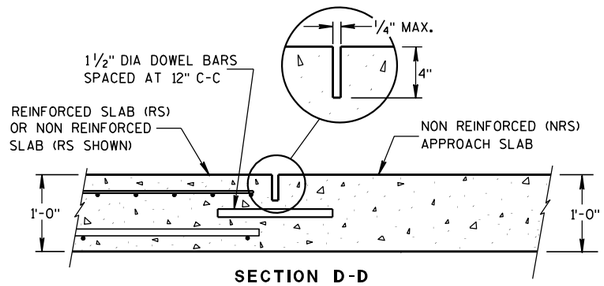
(A) STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
(B) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄
(C) STANDARD LONGITUDINAL JOINT AND TIE BARS.



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

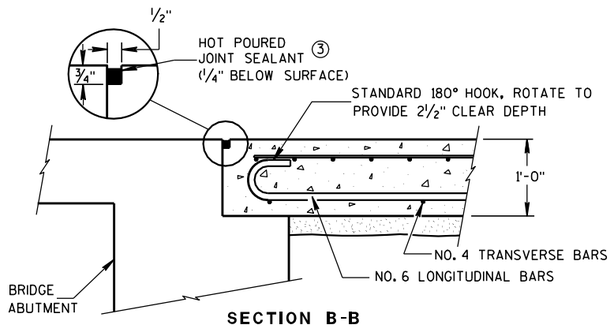
APPROACH SLABS ABUTTING AN HMA PAVEMENT OVER BASE COURSE DO NOT NEED TO BE DOWELED.

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.

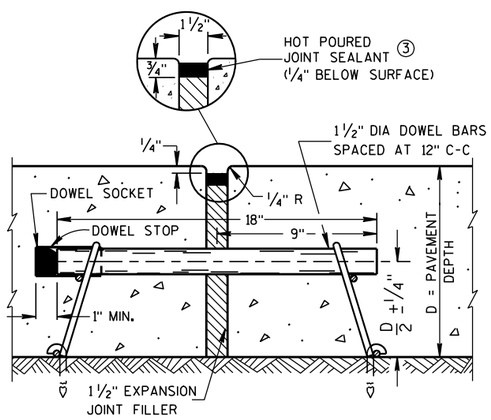
(1) THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

(2) THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

(3) USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT

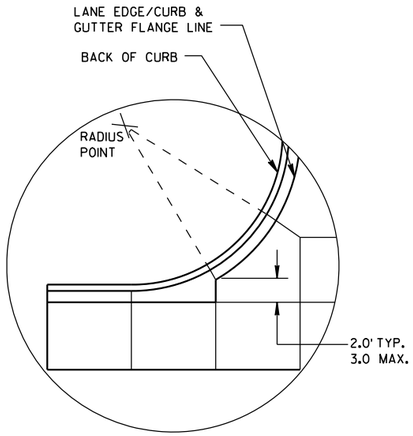


EXPANSION JOINT

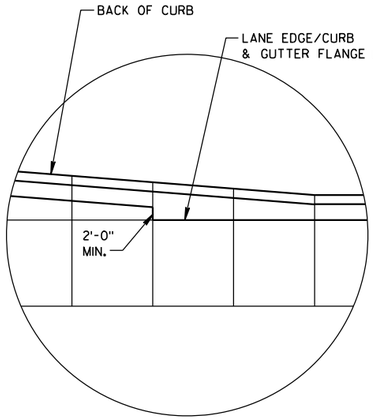
CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

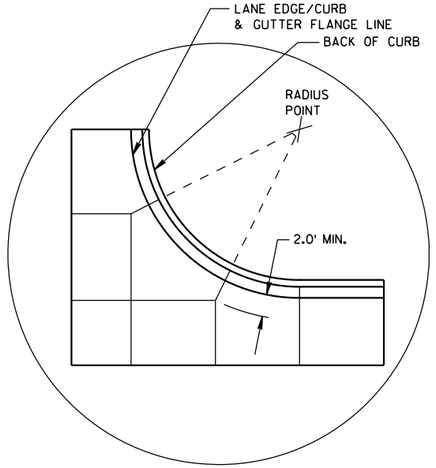
APPROVED
12/11/2009
DATE
/S/ Deb Bischoff
PAVEMENT POLICY & DE
ENGINEER
FHWA



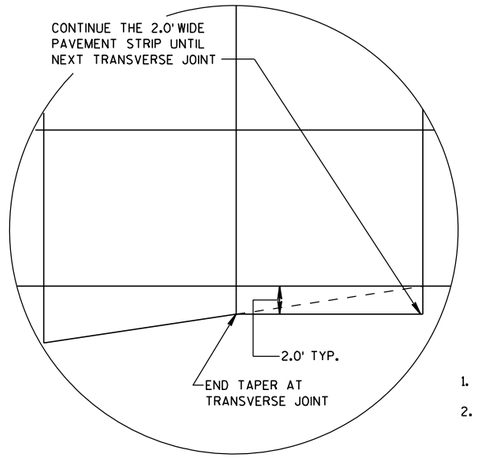
DETAIL "A"



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.

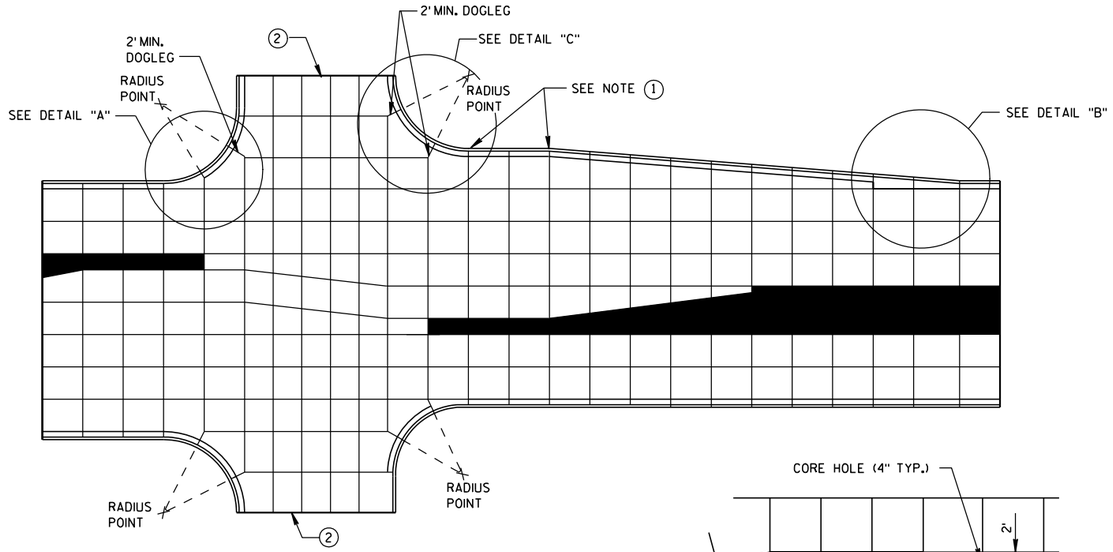
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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.

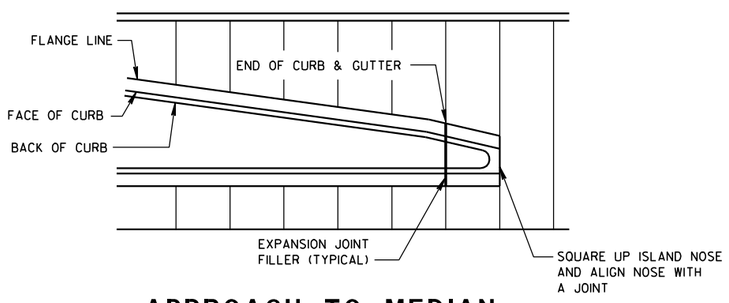
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



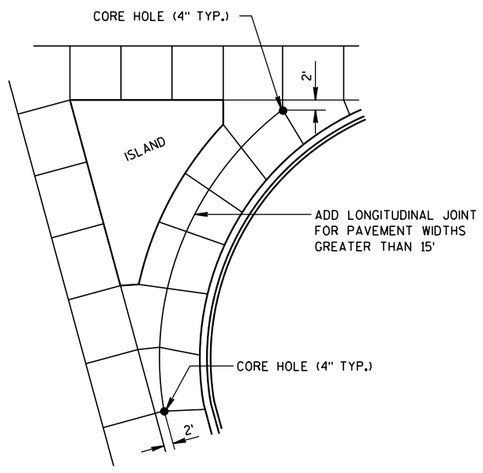
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

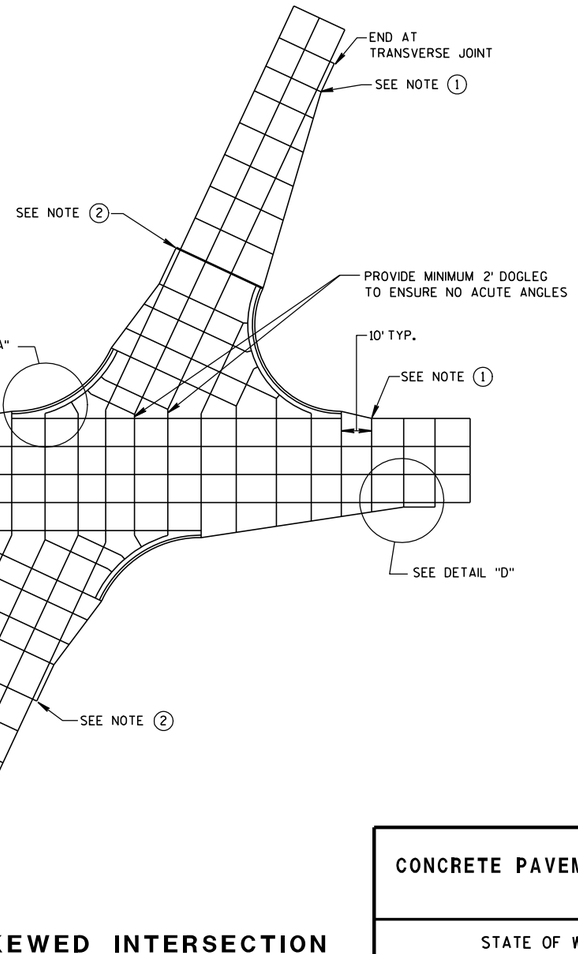
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



APPROACH TO MEDIAN



LARGE RIGHT TURN



SKEWED INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

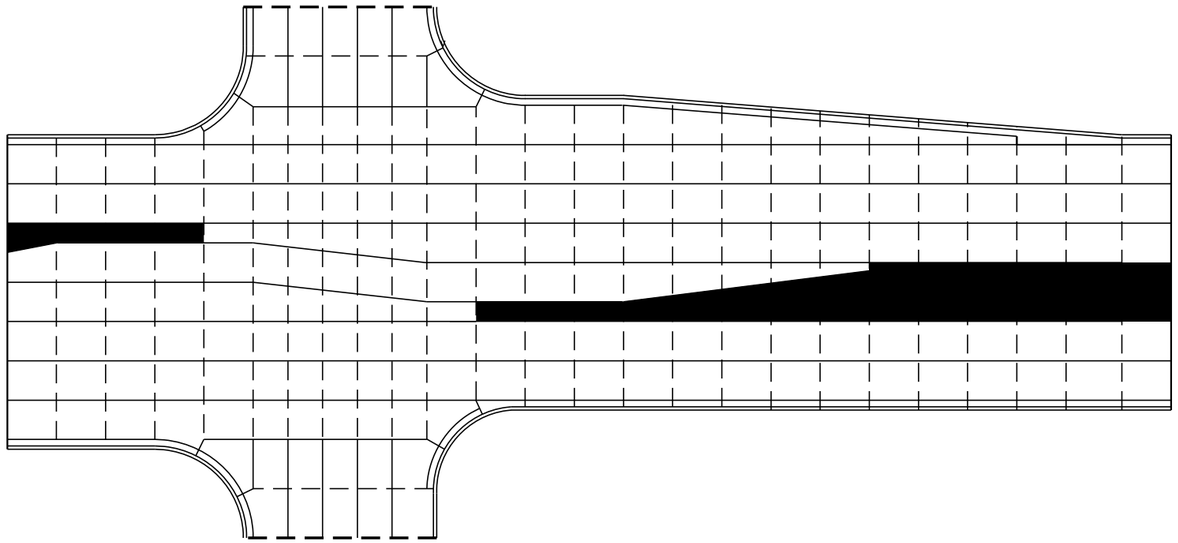
6
S.D.D. 13 C 18-1a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

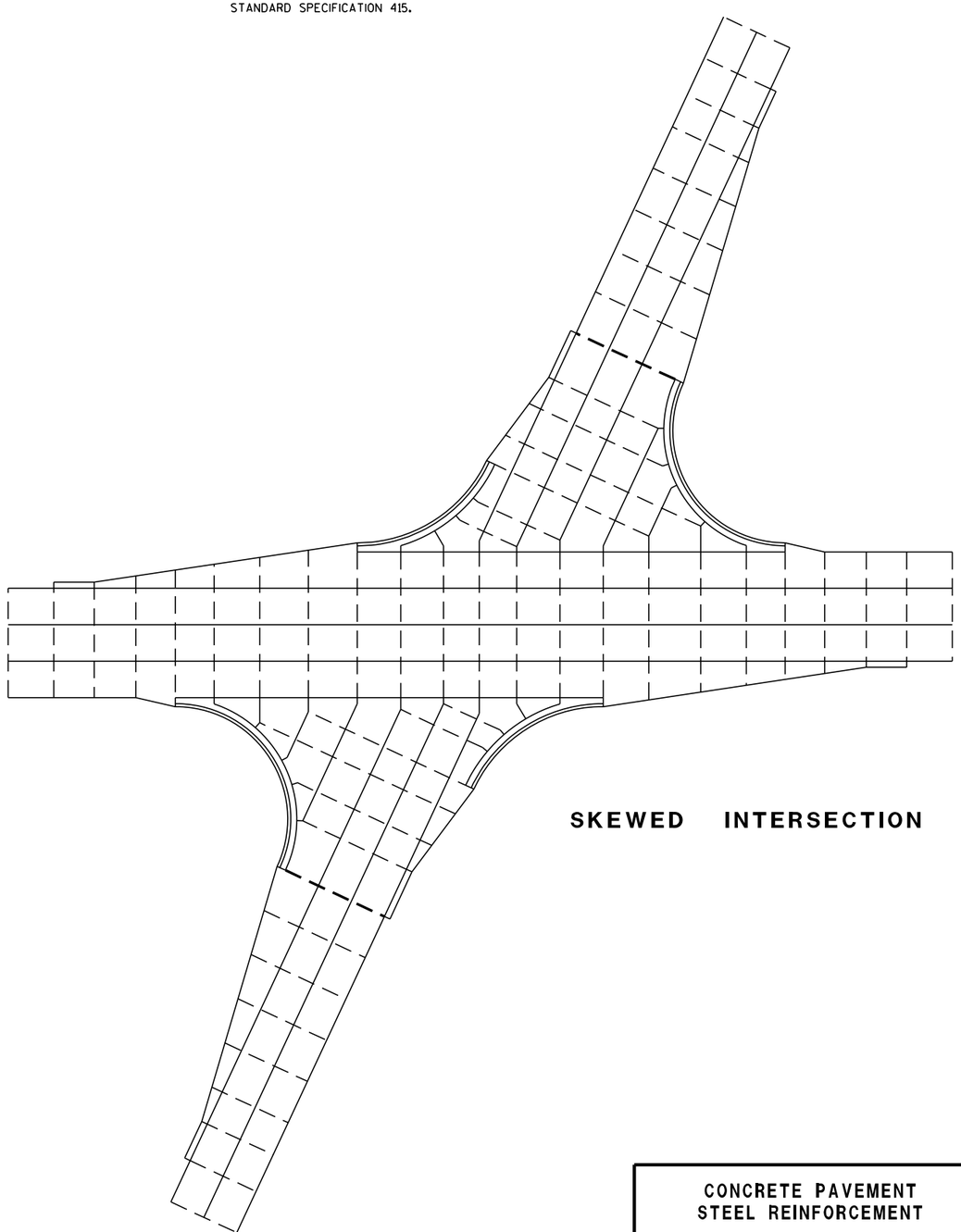
TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



SKEWED INTERSECTION

6

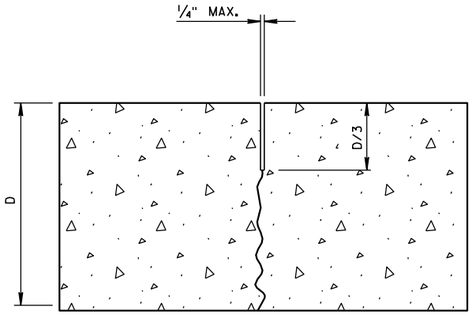
S.D.D. 13 C 18-1b

CONCRETE PAVEMENT
STEEL REINFORCEMENT

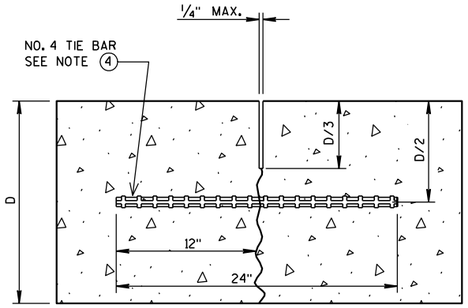
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 13 C 18-1b



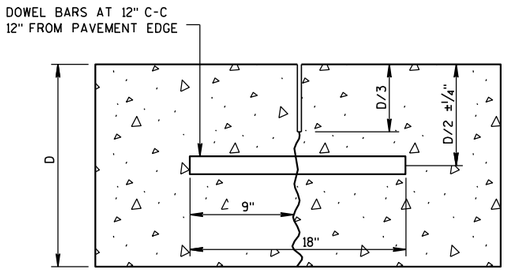
UNDOWELED-TRANSVERSE



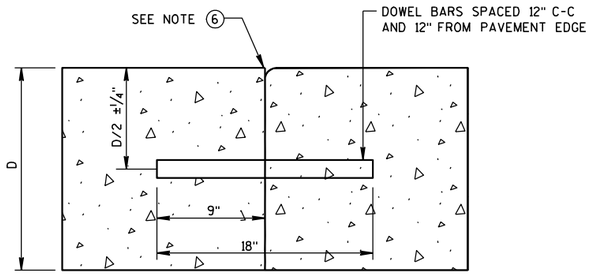
TIED LONGITUDINAL

GENERAL NOTES

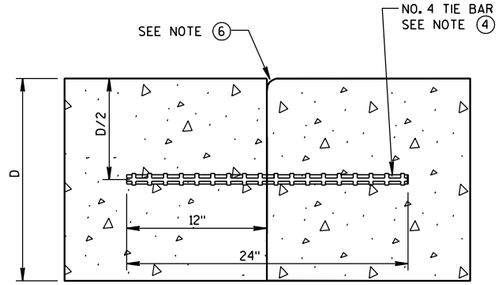
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE 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



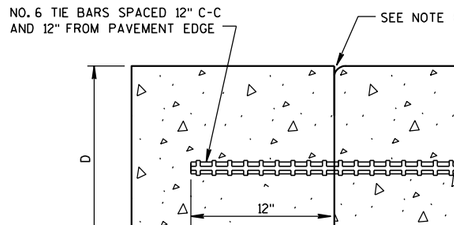
DOWELED TRANSVERSE



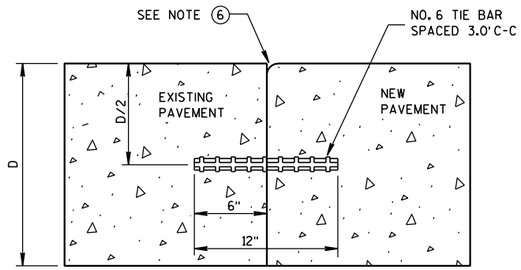
TIED LONGITUDINAL

CONTRACTION JOINTS

SEE NOTE 2



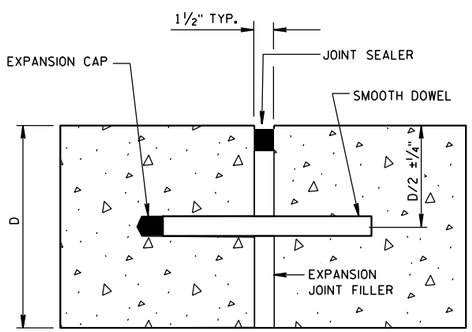
TIED TRANSVERSE
SEE NOTE 3



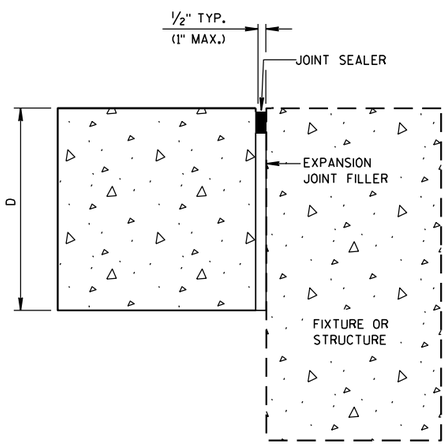
TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

SEE NOTE 5



DOWELED-TRANSVERSE
SEE NOTE 1



UNTIED-LONGITUDINAL

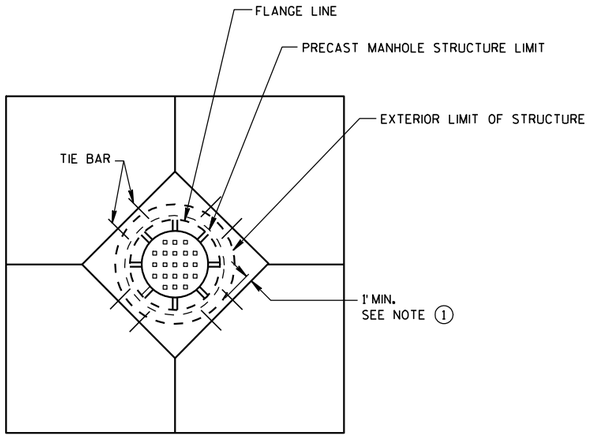
EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

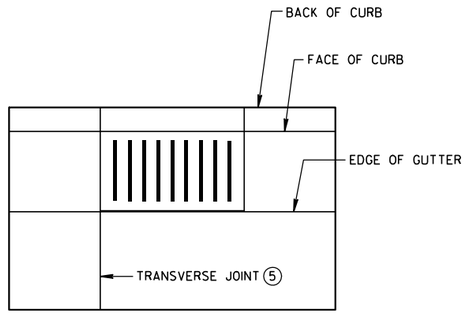
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

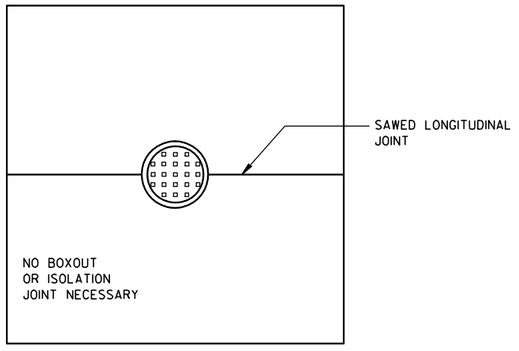
S.D.D. 13 C 18-1c



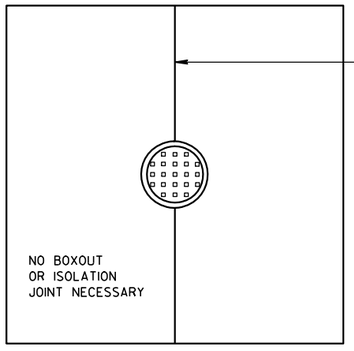
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



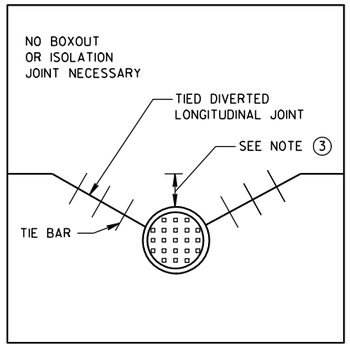
INLET WITH TRANSVERSE JOINT



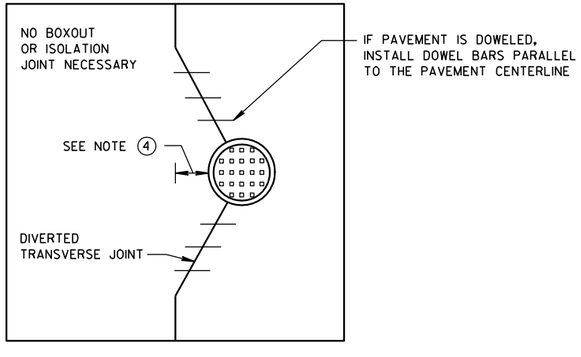
MANHOLE WITH LONGITUDINAL JOINT



MANHOLE WITH TRANSVERSE JOINT



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

GENERAL NOTES

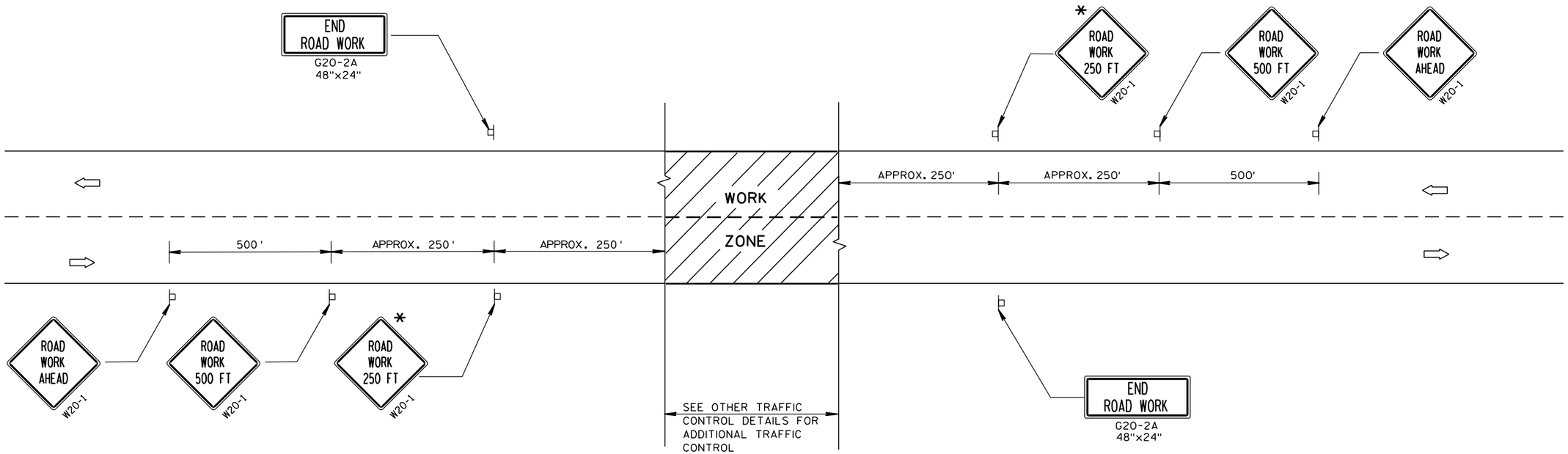
1. USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
2. ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
3. IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS GREATER THAN 2 FEET, DO NOT DIVERT JOINT AND SAW LONGITUDINAL JOINT AS NORMAL. IF DISTANCE IS 2 FEET OR LESS, DIVERT LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE.
4. IF DISTANCE FROM THE EDGE OF MANHOLE TO THE NEAREST TRANSVERSE JOINT IS GREATER THAN 4 FEET, REDIRECT JOINT TO INTERSECT MANHOLE. IF DISTANCE IS 4 FEET OR LESS, PLACE REBAR REINFORCEMENT AROUND 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
10-5-2010 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & D ENGINEER
FHWA

6
S.D.D. 13 C 18-1d



GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

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.

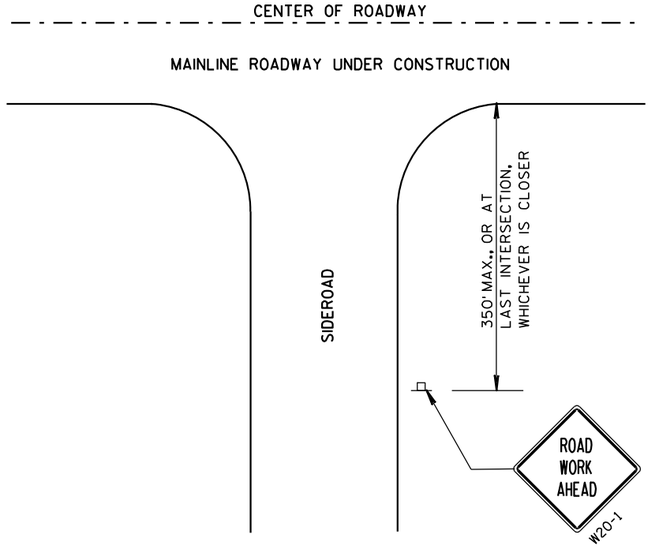
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS, IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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.

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



LEGEND

POST MOUNTED SIGN

DIRECTION OF TRAFFIC FLOW

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

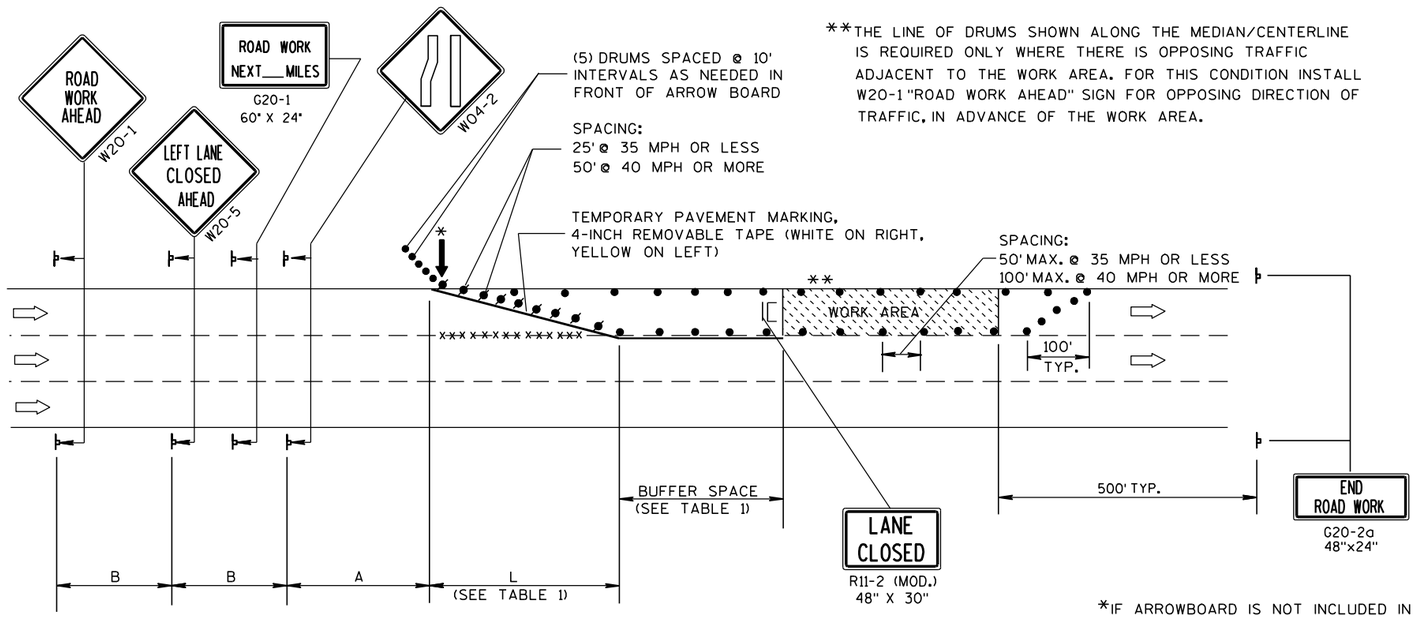
5/23/00
DATE

/S/ Chester J. [illegible]
CHIEF SIGNS AND MARKING ENGINEER

FHWA

6

S.D.D. 15 C 5-1



**THE LINE OF DRUMS SHOWN ALONG THE MEDIAN/CENTERLINE IS REQUIRED ONLY WHERE THERE IS OPPOSING TRAFFIC ADJACENT TO THE WORK AREA. FOR THIS CONDITION INSTALL W20-1 "ROAD WORK AHEAD" SIGN FOR OPPOSING DIRECTION OF TRAFFIC, IN ADVANCE OF THE WORK AREA.

B=400' AT 25-30 MPH
700' AT 35-40 MPH
1000' AT 45-55 MPH

A=200' AT 25-30 MPH
350' AT 35-40 MPH
500' AT 45-55 MPH

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)

*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.

W01-6
48"x24"

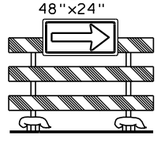


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- POST MOUNTED SIGN
- ARROW BOARD
- TYPE III BARRICADE (8' EQUIVALENT) AND WARNING LIGHTS, TYPE A (FLASHING) WITH/WITHOUT SIGN
- DIRECTION OF TRAFFIC FLOW
- xxxx REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

GENERAL NOTES

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 7 OR MORE CONTINUOUS DAYS AND NIGHTS.

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/00 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARKINGS ENGINEER
FHWA

6

S.D.D. 15 D 20-1

GENERAL NOTES

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

W20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

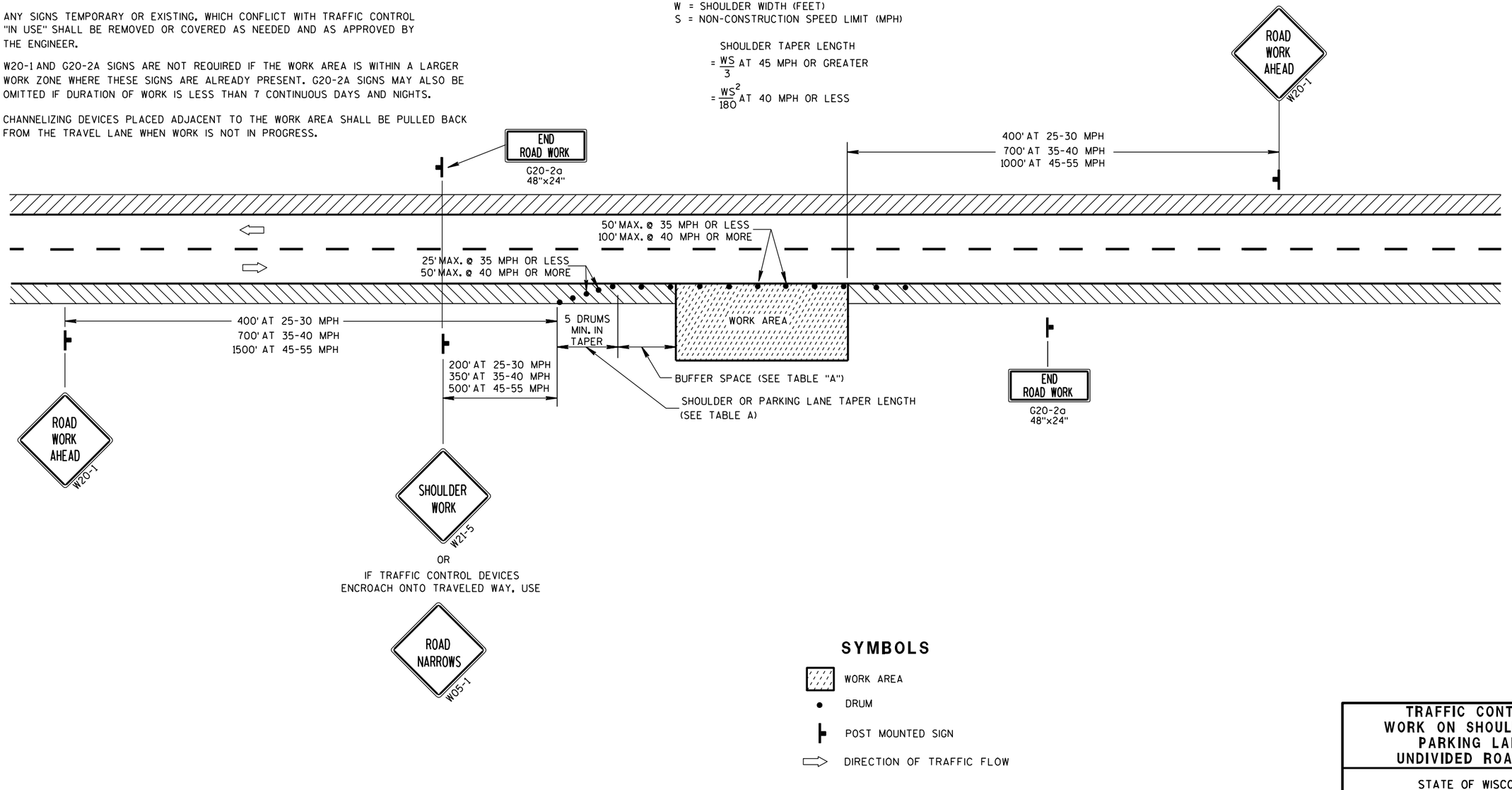
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

TABLE A

S \ W	SHOULDER TAPER LENGTH (FEET) 4	6	8	10	BUFFER SPACE (FEET)
30	20	30	40	50	85
35	30	45	55	70	120
40	40	55	75	90	170
45	60	90	120	150	220
50	70	100	135	170	280
55	75	110	150	185	335

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

SHOULDER TAPER LENGTH
$= \frac{WS}{3}$ AT 45 MPH OR GREATER
$= \frac{WS^2}{180}$ AT 40 MPH OR LESS



SYMBOLS

- WORK AREA
- DRUM
- POST MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW

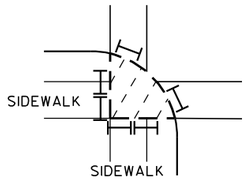
TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

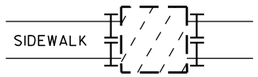
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

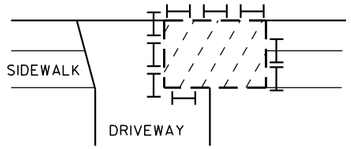
APPROVED
5/23/00 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible] [illegible]NEER
FHWA

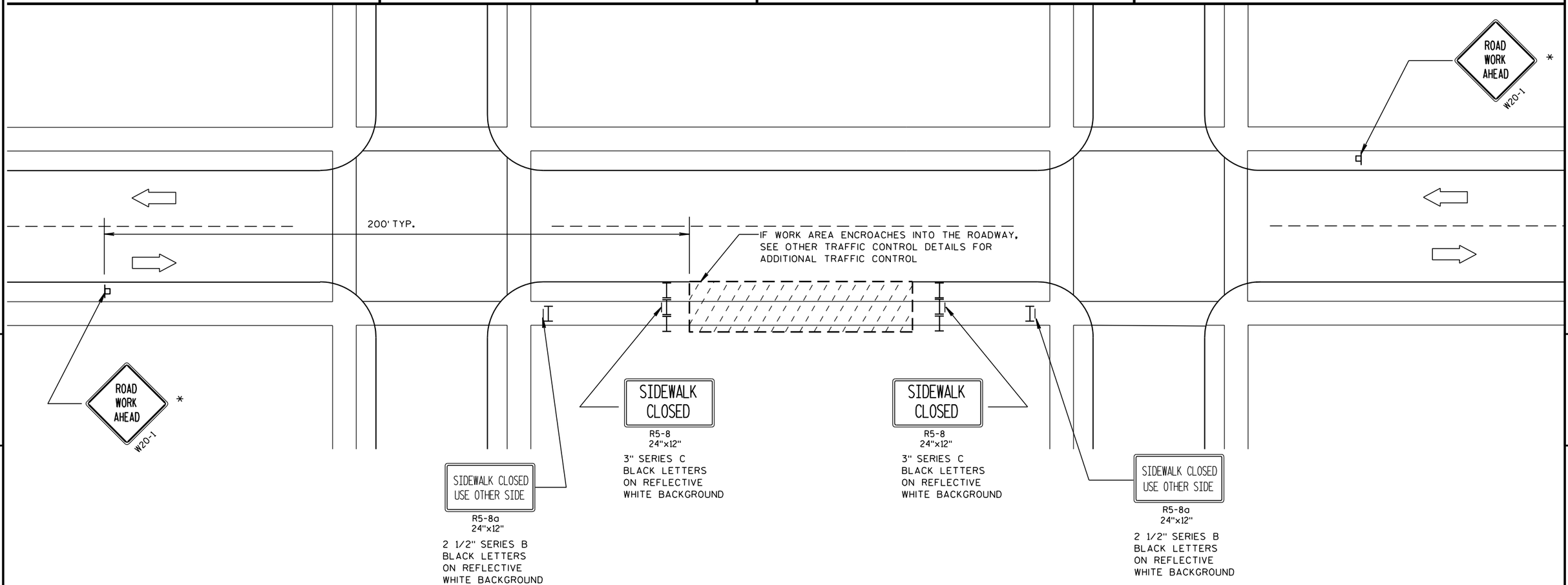
6
S.D.D. 15 D 28-1

WARNING OF LOCALIZED SIDEWALK WORK AREAS









LEGEND

- POST MOUNTED SIGN
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- WORK AREA
- DIRECTION OF TRAFFIC FLOW

GENERAL NOTES :

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS, IF APPROVED BY DISTRICT TRAFFIC UNIT.

THE EXACT LOCATION AND PLACEMENT OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

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

* "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.

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

TRAFFIC CONTROL, SIDEWALK CLOSURE

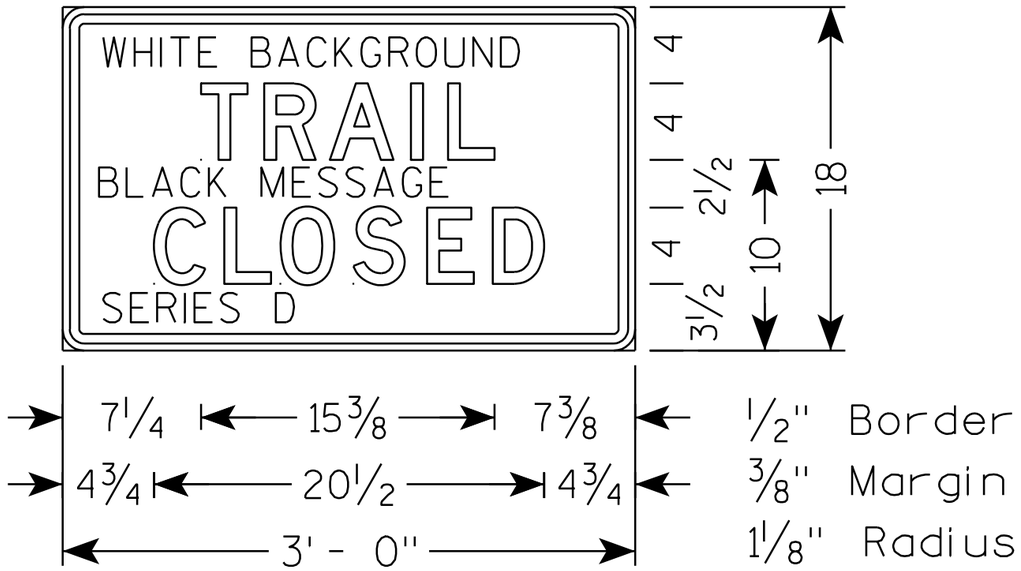
TRAFFIC CONTROL, SIDEWALK CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2000 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible]NEER
FHWA

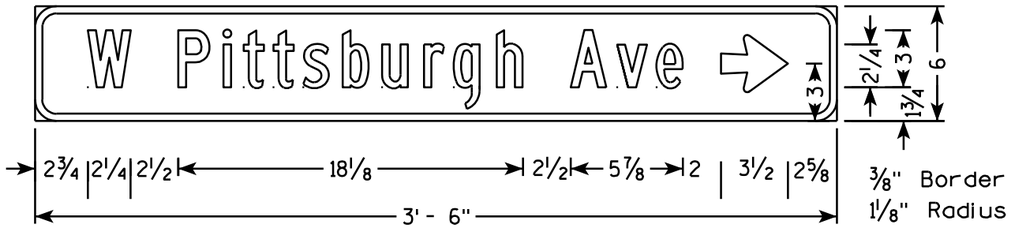
6

S.D.D. 15 D 30-1



NOTES

1. All Signs Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - GREEN except as Shown
   Message - WHITE except as Shown
3. Message Series - C except as Shown



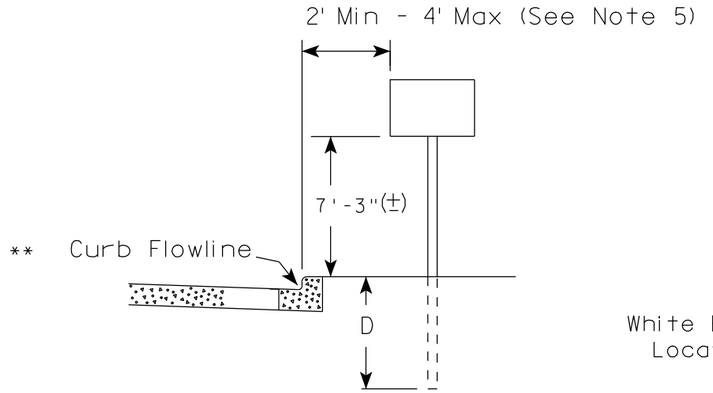
D1-1C

7

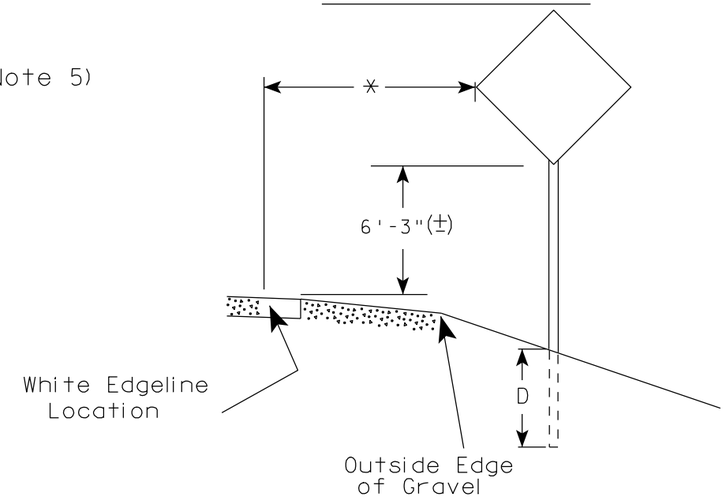
7

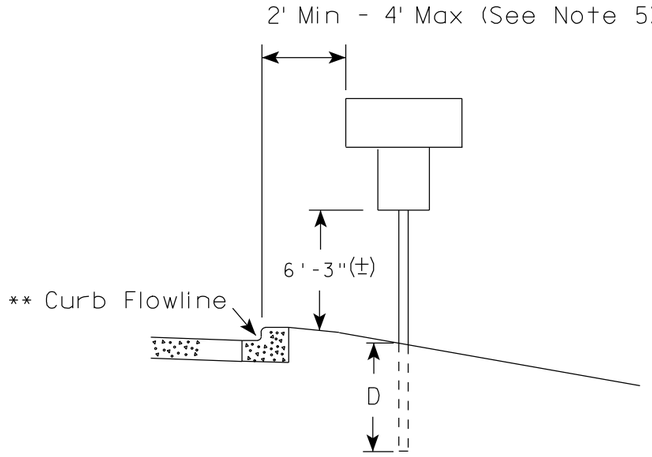
PROJECT NO: 1693-25-72	HWY: HANK ARRON STATE TRAIL	COUNTY: MILWAUKEE	PERMANENT SIGNING	SHEET NO: 43	E

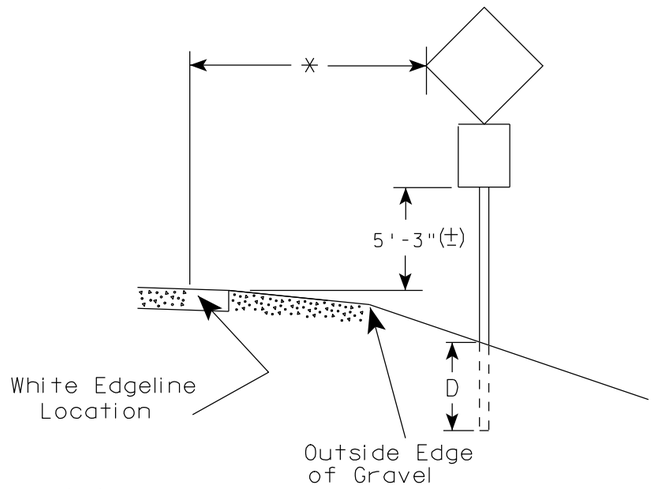
URBAN AREA



RURAL AREA (See Note 2)







** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

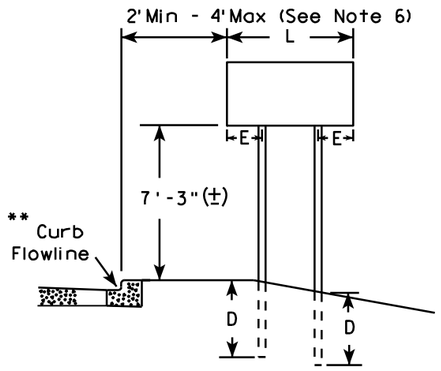
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

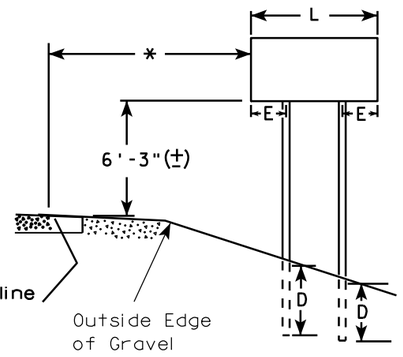
DATE 9/21/2011 PLATE NO. A4-3.16

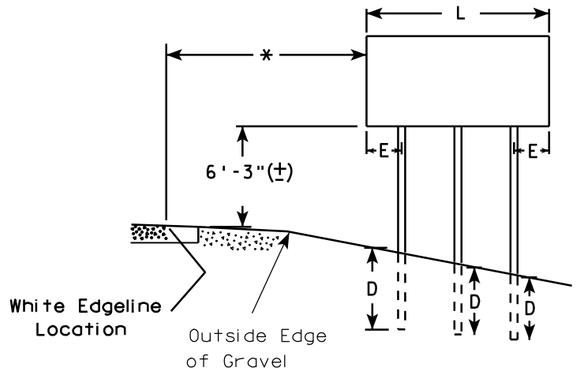
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 44	E

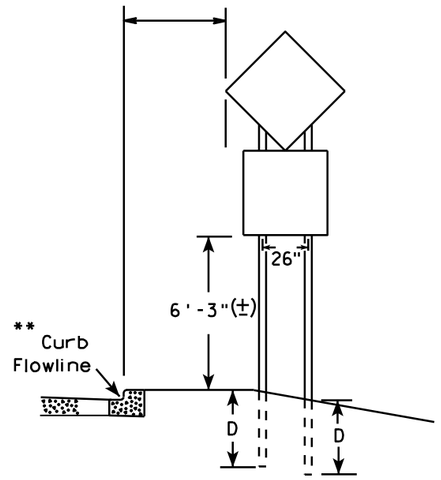
URBAN AREA



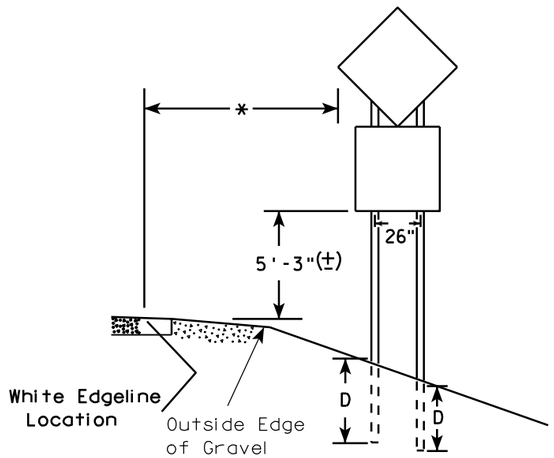
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

***	SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
	L	E
	Greater than 48" Less than 60"	12"
	60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

1. For multiple post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4"-3" (±).

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width or 20 S.F. or less in area.

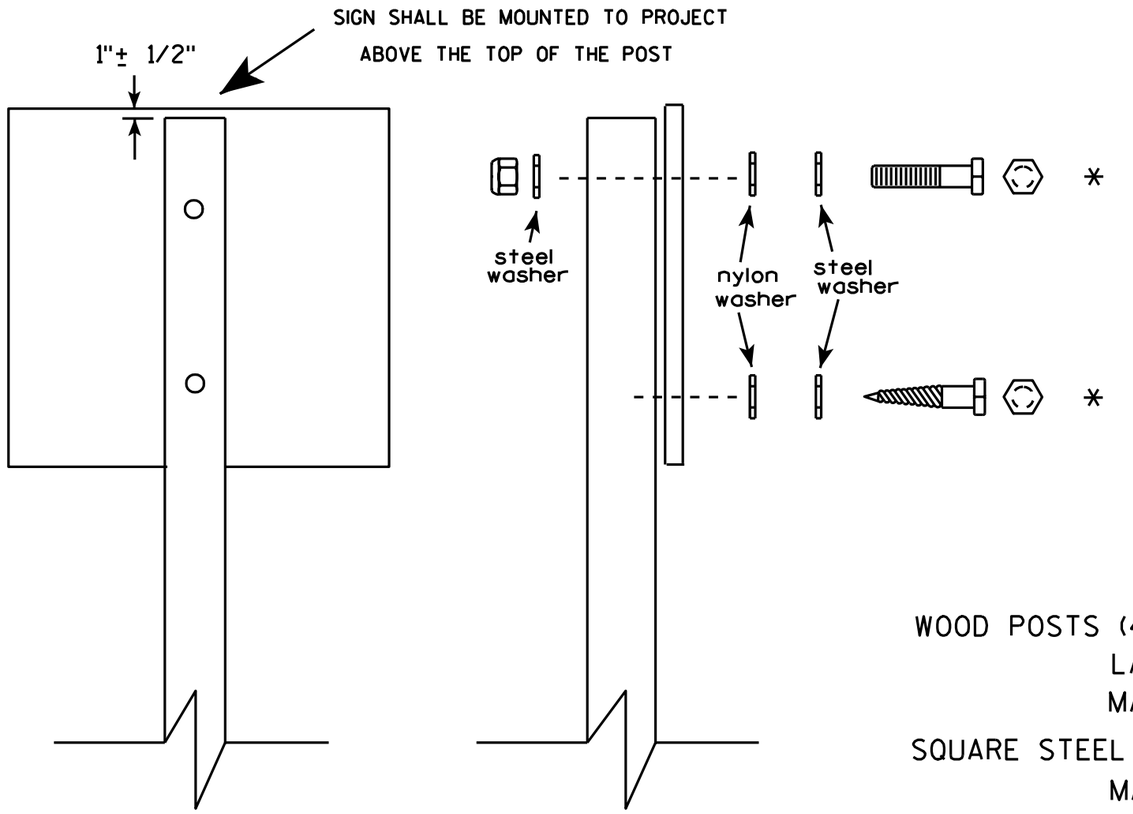
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-4.11

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 45	E



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

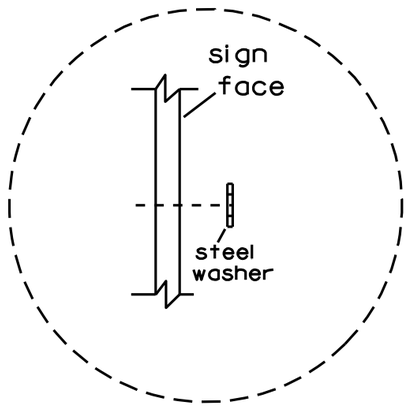
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32 " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

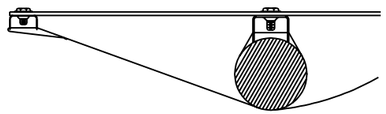
ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

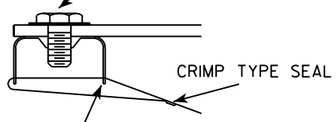
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

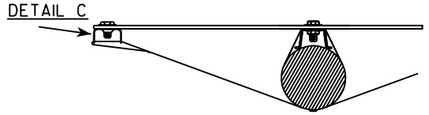
BRACE BANDING

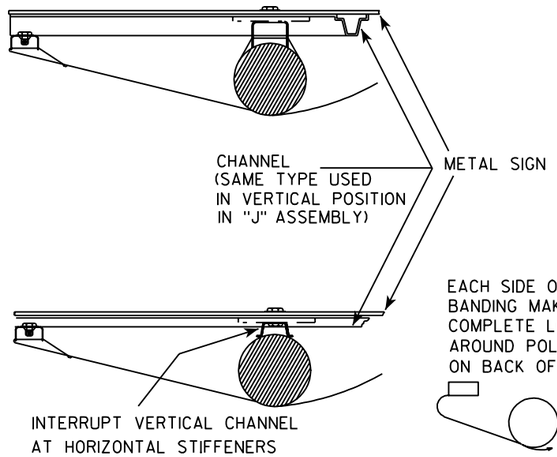


DETAIL C
CADMIUM PLATED STEEL BOLT
THROUGH BLACK BORDER



DETAIL C

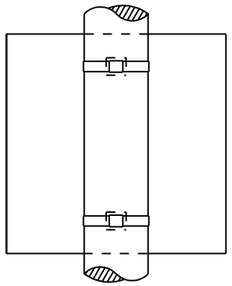


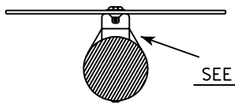


EACH SIDE OF BRACE
BANDING MAKES ONE
COMPLETE LOOP
AROUND POLE-SEAL
ON BACK OF POLE

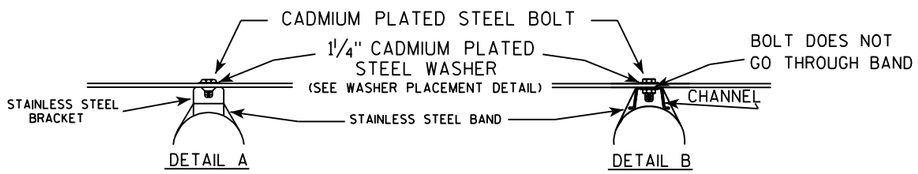
BRACKET BANDING

SINGLE SIGN

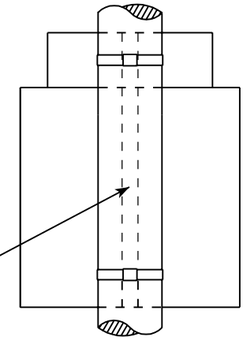




SEE DETAIL A



"J" ASSEMBLY

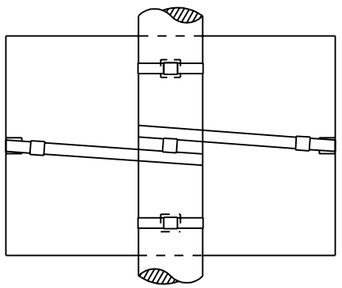


CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

SEE DETAIL B

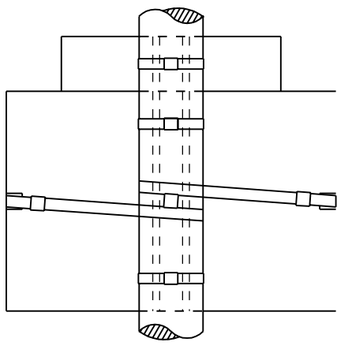
GENERAL NOTES

1. Signs 4' or greater in width shall have one brace band installed at the center of the sign.
2. Signs 3' or greater in height shall have three bracket bands installed. Signs less than 3' in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be ¾" in width and 0.025" thickness.

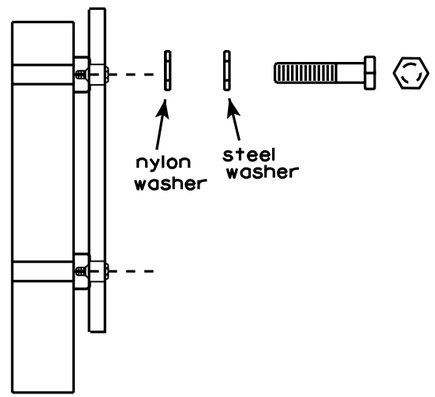


BRACE BANDING

BRACE BANDING SHALL BE TIGHTENED FIRMLY BUT NOT SO TIGHT AS TO APPRECIABLY CURVE FACE OF SIGN.



WASHER PLACEMENT



WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

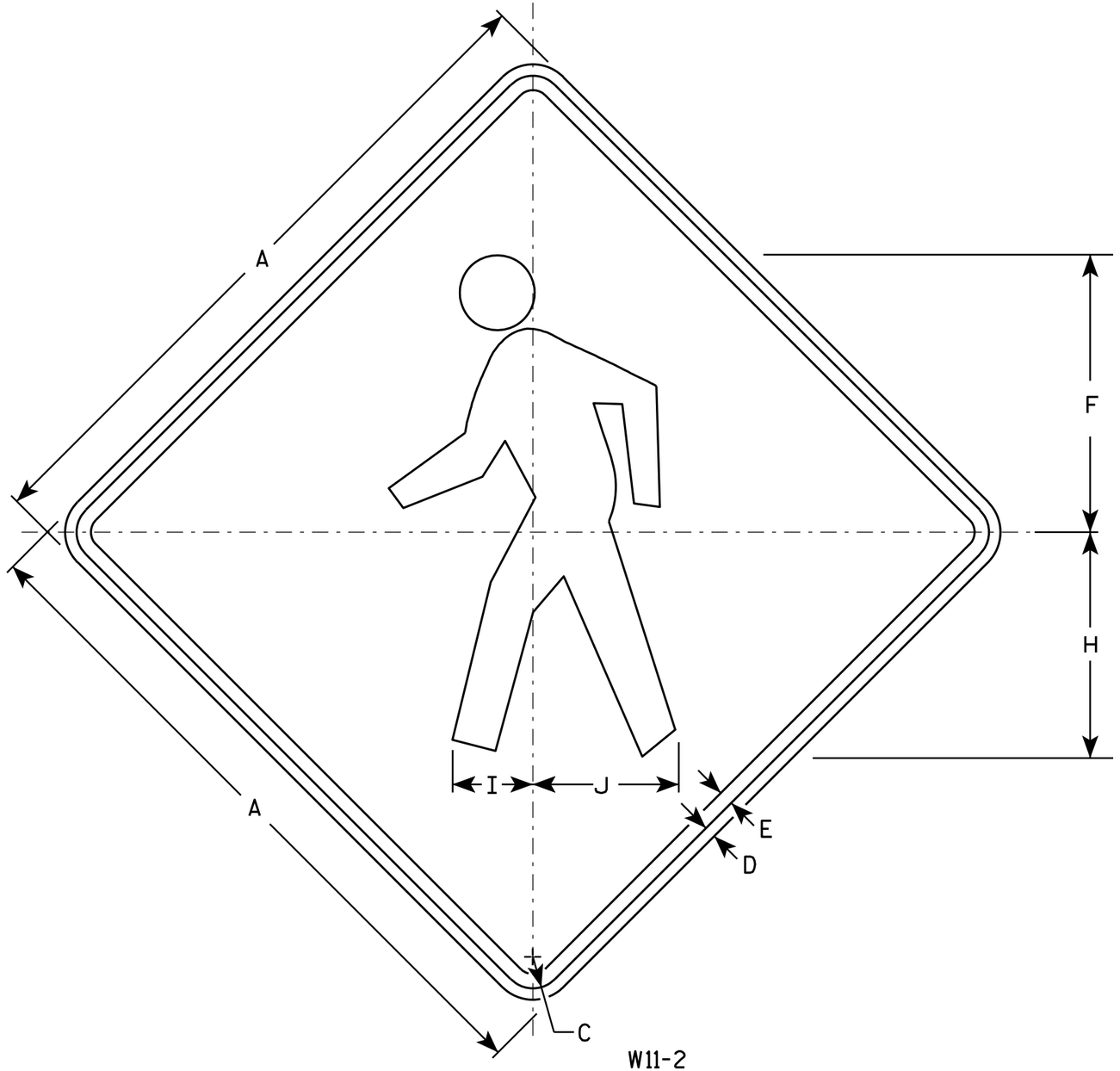
STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/08/05 PLATE NO. A5-9.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 47	E



W11-2

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	9 3/4		7 7/8	2 7/8	5 1/8																	4.0
2S	30		1 3/8	1/2	5/8	12 1/8		9 7/8	3 1/2	6 3/8																	6.25
2M	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
3	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
4	48		2 1/4	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
5																											

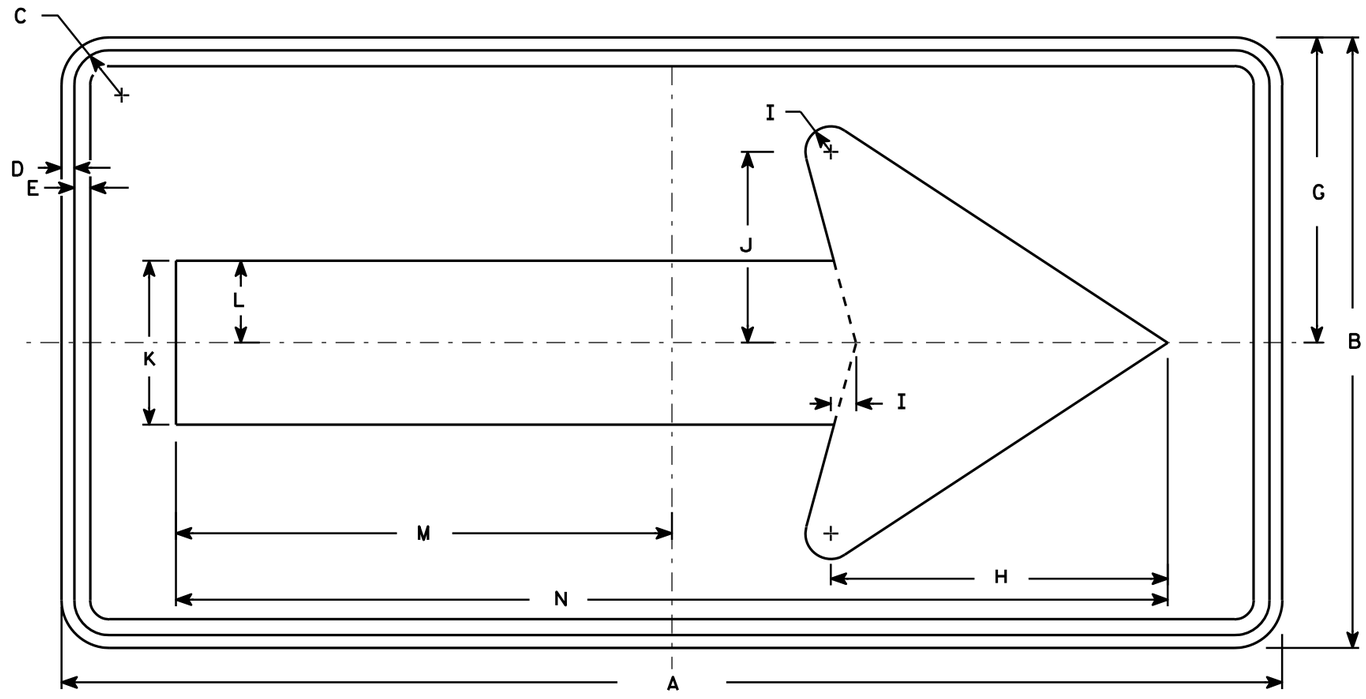
STANDARD SIGN
W11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W11-2.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 48	E



W1-6

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	3/8		9	10	3/4	5 5/8	4 3/4	2 3/8	14 5/8	29 1/4													4.5
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	96	48	2 1/4	3/4	1		24	26 1/2	2	15	13	6 1/2	39	78													32.0

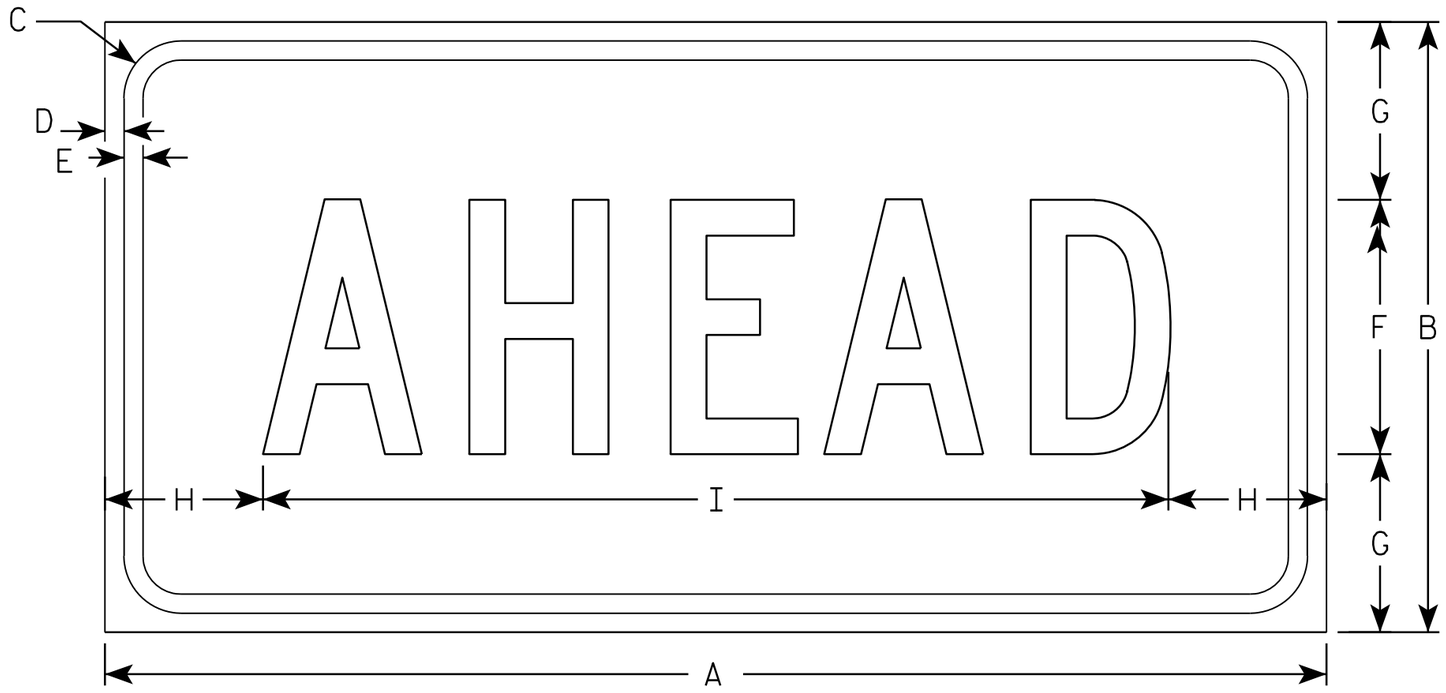
STANDARD SIGN
W1-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-6.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 49



W16-9P

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/8	3/8	3/8	5	3 1/2	3 1/8	17 3/4																		2.0
2M	30	18	1 1/8	3/8	1/2	7	5 1/2	2 3/4	24 1/2																		3.75
3	30	18	1 1/8	3/8	1/2	7	3 1/2	2 3/4	24 1/2																		3.75
4	48	24	1 3/8	1/2	5/8	10	7	6 1/8	35 3/4																		8.0
5																											

STANDARD SIGN
W16-9P

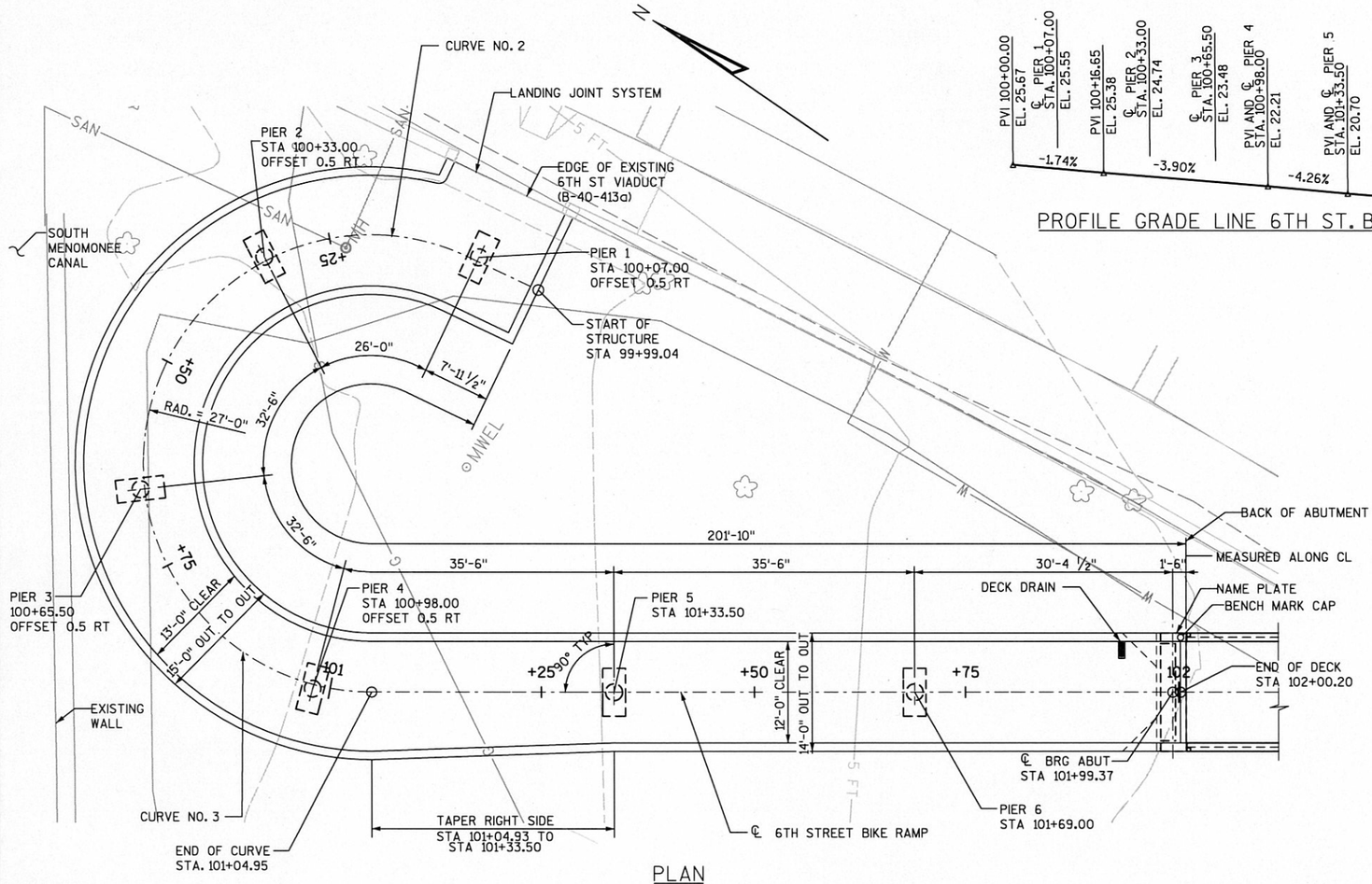
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

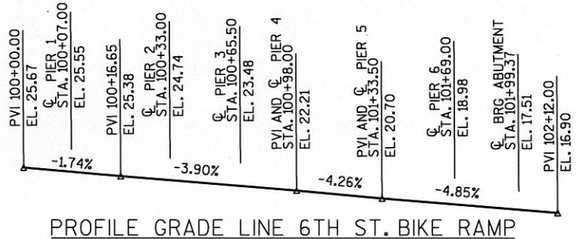
DATE 12/28/10 PLATE NO. W16-9P.6

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 50 | E

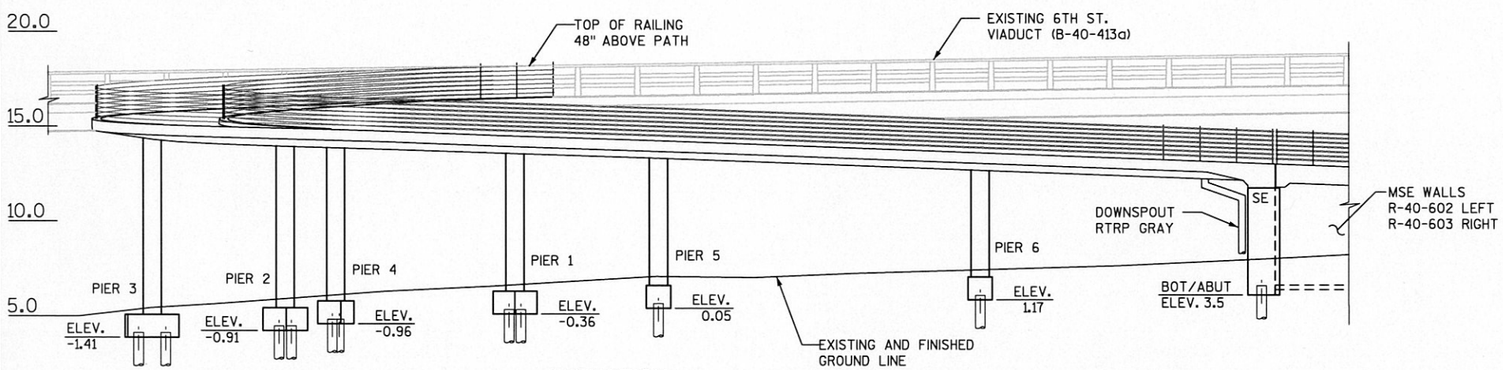
FILE NAME : C:\Users\PROJECTS\tr_stdplate\W169P.DGN PLOT DATE : 28-DEC-2010 13:39 PLOT BY : dotsja PLOT NAME : PLOT SCALE : 2.979524:1.000000



PLAN



PROFILE GRADE LINE 6TH ST. BIKE RAMP



ELEVATION

DESIGN DATA

LIVE LOAD:

DESIGN LIVE LOADS:
LOAD H-10 VEHICLE
90 PSF PEDESTRIAN LIVE LOAD

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SUPERSTRUCTURE	fc' = 4000 PSI
ALL OTHER	fc' = 3500 PSI
STEEL REINFORCEMENT HIGH STRENGTH BAR, GRADE 60	fy = 60 KSI

FOUNDATION DATA:

PLACE PIERS AND ABUTMENT ON 12 3/4" X 0.375" CLOSED-END CONCRETE-FILLED STEEL PIPE PILES WITH A REQUIRED DRIVING RESISTANCE OF 160 TONS/PILE* AT PIERS AND 80 TONS/PILE* AT ABUTMENT AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION.

* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

EST. PILE LENGTHS: 95 FT- PIERS
70 FT- ABUTMENT

BENCH MARKS:

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
100	101+04.21	54.55'RT	PK NAIL	3.40
101	104+68.59	22.26'RT	CHISELED X ON MMSD STRUCT.	4.85
102	103+16.74	148.70'RT	MAG NAIL	7.05

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
PHONE: (608) 266-8489

CONSULTANT CONTACT:
WILLIAM ZIPPEL
PHONE: (414) 308-1321

HORIZONTAL CURVE DATA

CURVE #2		CURVE #3	
PC	= 100+08.20	PCC	= 100+50.62
PI	= 100+35.20	PI	= 100+93.24
PCC	= 100+50.62	PT	= 101+04.95
△	= 90°00'00" Left	△	= 115°17'56" Left
D	= 212°12'24"	D	= 212°12'24"
R	= 27.00	R	= 27.00
T	= 27.00	T	= 42.63
L	= 42.41	L	= 54.33

LIST OF DRAWINGS:

1. GENERAL PLAN
2. SUBSURFACE EXPLORATION
3. QUANTITIES & GENERAL NOTES
4. EXISTING BRIDGE MODIFICATIONS
5. ABUTMENT
6. PIER
7. DECK
8. DECK DETAILS
9. RAILING
10. RAILING DETAILS
11. FLOOR DRAIN TYPE "GC"
12. DOWNSPOUT DETAILS

WISCONSIN
WILLIAM J. ZIPPEL
38868-006
MILWAUKEE, WI
PROFESSIONAL ENGINEER
3/25/2013

STATE PROJECT NUMBER
1693-25-72

NO.	DATE	REVISION	BY

benesch
engineers · scientists · planners
Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20058.05

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher 3/27/13
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE M-40-001

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

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
MH	AJK	WMN	WJZ

GENERAL PLAN AND ELEVATION

SHEET 1 OF 12

FILE = 081010_GEN_ARRANGE.DGN
SCALE = 1:20

8

NOTES:

FOUNDATION DESIGN PARAMETERS ARE BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL EXPLORATION REPORT DATED JANUARY 28, 2013 BY GESTRA ENGINEERING, INC., AVAILABLE FROM WISDOT.

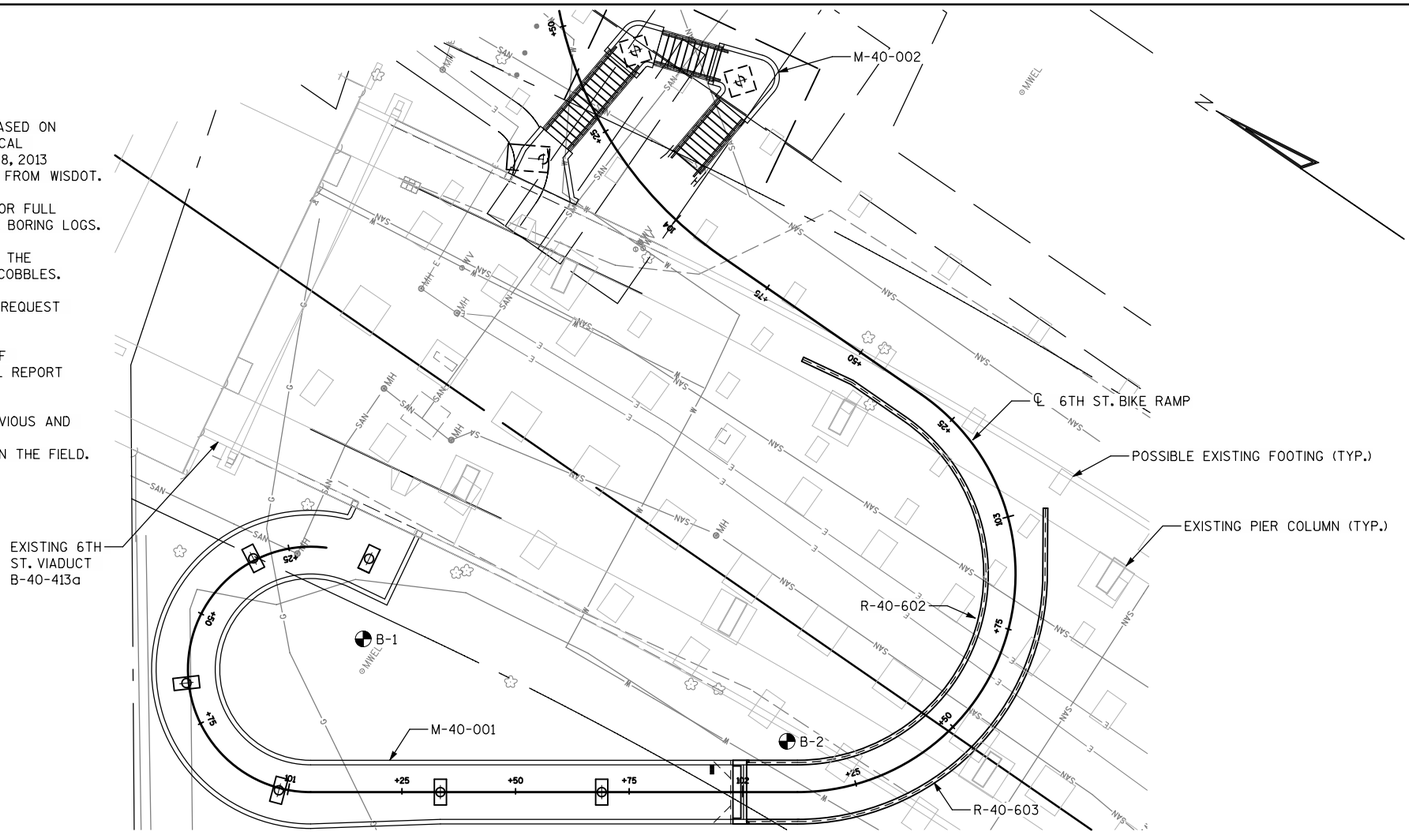
REFER TO THE GEOTECHNICAL REPORT FOR FULL SOIL DESCRIPTIONS AND DETAILS OF THE BORING LOGS.

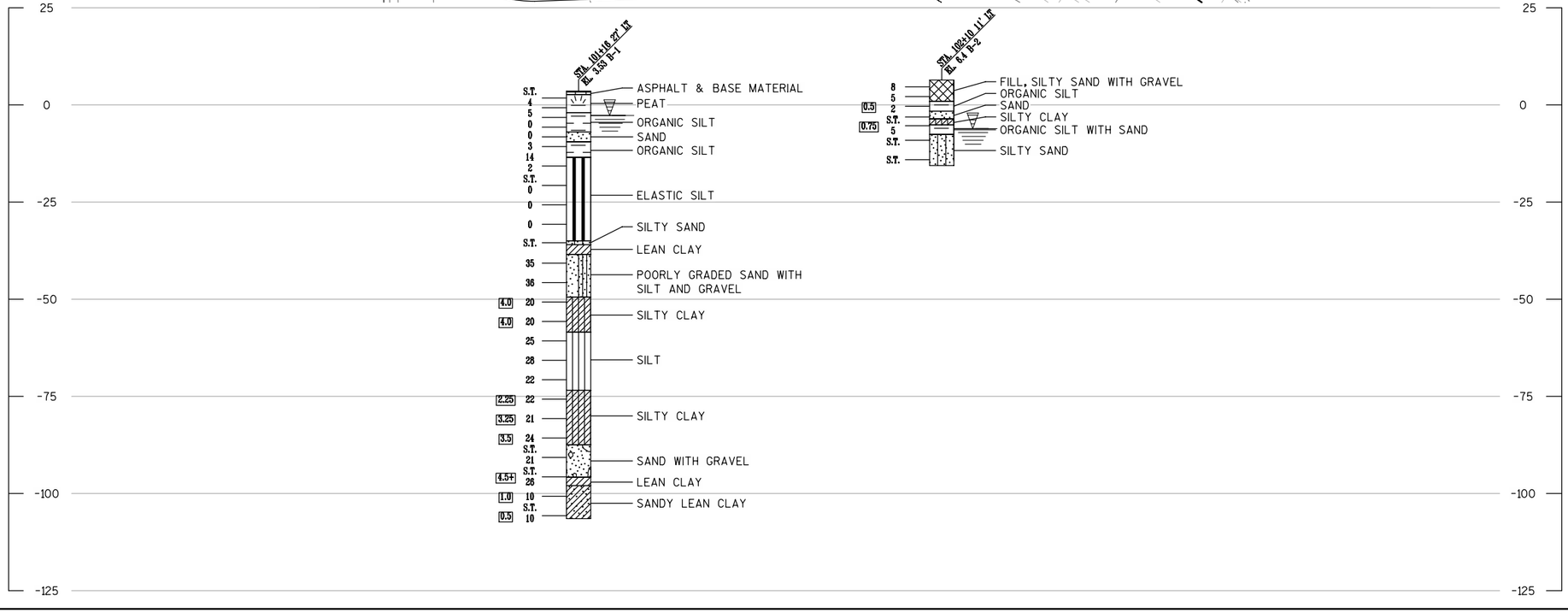
HISTORIC BORINGS IN THE AREA INDICATE THE POSSIBLE PRESENCE OF BOULDERS AND COBBLES.

HISTORIC BORINGS ARE AVAILABLE UPON REQUEST FROM WISDOT.

CONTACT THE WISCONSIN DEPARTMENT OF TRANSPORTATION FOR THE GEOTECHNICAL REPORT AND BORING LOGS.

EXISTING FOOTINGS ARE SHOWN FOR PREVIOUS AND EXISTING STRUCTURES.
CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD.





STATE PROJECT NUMBER

1693-25-72

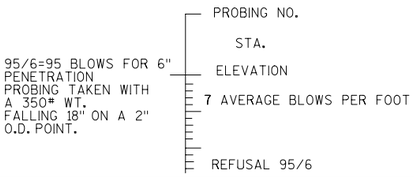
ABBREVIATIONS

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

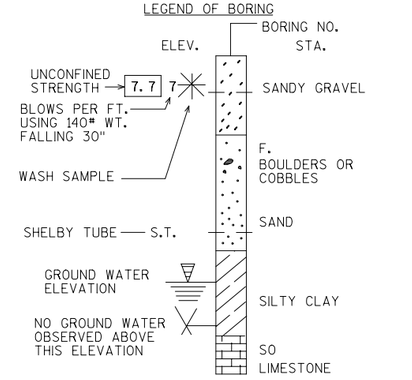
MATERIAL SYMBOLS

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 M-40-001

DRAWN BY WMN | PLANS CK'D. WJZ

SUBSURFACE EXPLORATION

SHEET 2 OF 12

52

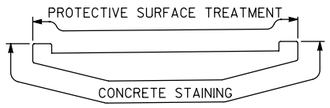
FILE= 081020_SUBSURFACE.DGN
SCALE = 1:40

8

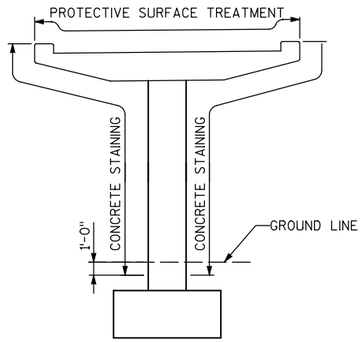
STATE PROJECT NUMBER
1693-25-72

TOTAL ESTIMATE OF QUANTITIES

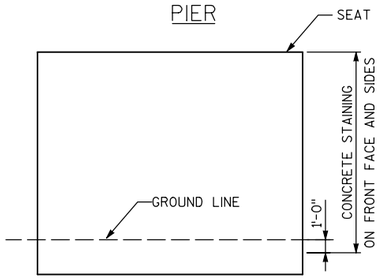
BID NO.	BID ITEMS	UNIT	SUPER	ABUT.	PIERS	TOTAL
206.1000	EXCAVATION FOR STRUCTURES BRIDGES (M-40-001)	LS		0.2	0.8	1
210.0100	BACKFILL STRUCTURE	CY		2	44	46
502.0100	CONCRETE MASONRY, BRIDGES	CY	147	19	21	187
502.3200	PROTECTIVE SURFACE TREATMENT	SY	353			353
502.5002	MASONRY ANCHORS TYPE L NO. 4 BARS	EACH	8			8
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB			1174	1174
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	35014	1597	5467	42138
509.1500	CONCRETE SURFACE REPAIR	SF	306			306
514.0445	FLOOR DRAINS TYPE GC	EACH	1			1
514.2625	DOWNSPOUT 6-INCH	LF	16			16
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY		4		4
517.1010.S	CONCRETE STAINING M-40-001	SF	3411	223	698	4332
550.0600	PILE REDRIVING	EACH		2	6	8
550.2126	PILING CIP CONCRETE 12 3/4 X 0.375-INCH	LF		280	1140	1420
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF		12		12
SPV.0060.04	LANDING JOINT SYSTEM	EACH	1			1
SPV.0090.01	STEEL RAILING TYPE 1 SPECIAL	LF	412			412
	NON-BID ITEMS					
	BRIDGE SEAT PROTECTION					
	JOINT FILLER					
	NON-BITUMINOUS JOINT SEALER					
	NAME PLATE					



DECK



PIER



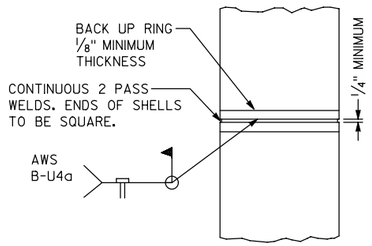
ABUTMENT

LIMITS OF CONCRETE STAINING

CAMBER TABLE

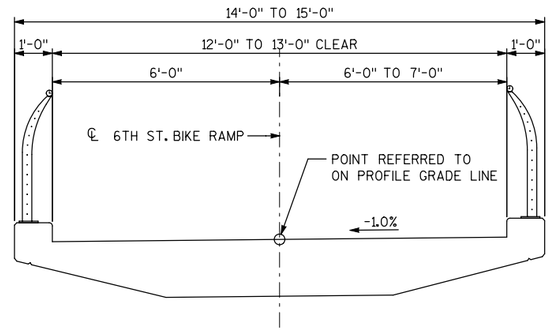
LOCATION		CAMBER (IN)
START OF RAMP		1/16
SPAN 1	0.25L	3/16
	0.50L	3/16
	0.75L	1/8
SPAN 2	0.25L	1/4
	0.50L	3/8
	0.75L	1/4
SPAN 3	0.25L	1/4
	0.50L	5/16
	0.75L	1/4
SPAN 4	0.25L	1/4
	0.50L	3/8
	0.75L	1/4
SPAN 5	0.25L	1/4
	0.50L	5/16
	0.75L	1/4
SPAN 6	0.25L	1/4
	0.50L	5/16
	0.75L	1/4

PROVIDE CAMBER AS SHOWN TO ACCOMODATE DEFLECTIONS DUE TO DEAD LOAD, SHRINKAGE, AND FUTURE CREEP. VALUES DO NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. "L" VALUES ARE LENGTH OF SPAN FROM ℄ PIER TO ℄ PIER OR ℄ OF BEARING AT ABUTMENT.



CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE A.S.T.M. DESIGNATION A-252, GRADE 2 OR EQUAL

CAST-IN-PLACE CONC. PIPE PILE SPLICE DETAIL



TYPICAL SECTION

DECK ELEVATIONS

LOCATION	STATION	LEFT EDGE OF DECK	PGL	RIGHT EDGE OF DECK
PIER 1	100+07.00	25.49	25.55	25.62
0.1	100+09.60	25.44	25.50	25.57
0.2	100+12.20	25.40	25.46	25.53
0.3	100+14.80	25.35	25.41	25.48
0.4	100+17.40	25.29	25.35	25.42
0.5	100+20.00	25.19	25.25	25.32
0.6	100+22.60	25.09	25.15	25.22
0.7	100+25.20	24.99	25.05	25.12
0.8	100+27.80	24.89	24.95	25.02
0.9	100+30.40	24.78	24.84	24.91
PIER 2	100+33.00	24.68	24.74	24.81
0.1	100+36.25	24.56	24.62	24.69
0.2	100+39.50	24.43	24.49	24.56
0.3	100+42.75	24.30	24.36	24.43
0.4	100+46.00	24.18	24.24	24.31
0.5	100+49.25	24.05	24.11	24.18
0.6	100+52.50	23.92	23.98	24.05
0.7	100+55.75	23.80	23.86	23.93
0.8	100+59.00	23.67	23.73	23.80
0.9	100+62.25	23.54	23.60	23.67
PIER 3	100+65.50	23.42	23.48	23.55
0.1	100+68.75	23.29	23.35	23.42
0.2	100+72.00	23.16	23.22	23.29
0.3	100+75.25	23.04	23.10	23.17
0.4	100+78.50	22.91	22.97	23.04
0.5	100+81.75	22.78	22.84	22.91
0.6	100+85.00	22.66	22.72	22.79
0.7	100+88.25	22.53	22.59	22.66
0.8	100+91.50	22.40	22.46	22.53
0.9	100+94.75	22.28	22.34	22.41

GENERAL NOTES:

DRAWINGS SHALL NOT BE SCALED

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED

THE FIRST DIGIT OF A MARK SIGNIFIES THE BAR SIZE

AT THE PIERS AND ABUTMENTS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH GRANULAR MATERIAL. PAYMENT WILL BE CONSIDERED AS INCIDENTAL TO THE BID ITEM, "BACKFILL STRUCTURE"

APPLY BRIDGE SEAT PROTECTION, AS PER SECTION 502.3.12 OF THE STANDARD SPECIFICATIONS, TO THE TOP SURFACES OF ALL ABUTMENTS BELOW EXPANSION DEVICES

THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL

EXISTING BRIDGE PLANS FOR 6TH ST. VIADUCT ARE AVAILABLE UPON REQUEST FROM THE DEPARTMENT.

APPLY CONCRETE STAINING, COLOR WHITE (FS 17925), TO CONCRETE AS SHOWN IN THE LIMITS OF CONCRETE STAINING.

COORDINATE CONSTRUCTION OF STRUCTURE M-40-001 WITH RETAINING WALLS R-40-602 AND R-40-603.

LOCATION	STATION	LEFT EDGE OF DECK	PGL	RIGHT EDGE OF DECK
PIER 4	100+98.00	22.15	22.21	22.28
0.1	101+01.55	22.00	22.06	22.13
0.2	101+05.10	21.85	21.91	21.98
0.3	101+08.65	21.70	21.76	21.83
0.4	101+12.20	21.55	21.61	21.67
0.5	101+15.75	21.40	21.46	21.52
0.6	101+19.30	21.24	21.30	21.37
0.7	101+22.85	21.09	21.15	21.22
0.8	101+26.40	20.94	21.00	21.06
0.9	101+29.95	20.79	20.85	20.91
PIER 5	101+33.50	20.64	20.70	20.76
0.1	101+37.05	20.47	20.53	20.59
0.2	101+40.60	20.30	20.36	20.42
0.3	101+44.15	20.12	20.18	20.24
0.4	101+47.70	19.95	20.01	20.07
0.5	101+51.25	19.78	19.84	19.90
0.6	101+54.80	19.61	19.67	19.73
0.7	101+58.35	19.44	19.50	19.56
0.8	101+61.90	19.27	19.33	19.39
0.9	101+65.45	19.09	19.15	19.21
PIER 6	101+69.00	18.92	18.98	19.04
0.1	101+72.04	18.77	18.83	18.89
0.2	101+75.07	18.63	18.69	18.75
0.3	101+78.11	18.48	18.54	18.60
0.4	101+81.15	18.33	18.39	18.45
0.5	101+84.19	18.19	18.25	18.31
0.6	101+87.22	18.04	18.10	18.16
0.7	101+90.26	17.89	17.95	18.01
0.8	101+93.30	17.75	17.81	17.87
0.9	101+96.33	17.60	17.66	17.72
℄ BRG ABUT	101+99.37	17.45	17.51	17.57
END/DECK	102+00.87	17.38	17.44	17.50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

DRAWN BY WMN | PLANS CK'D. WJZ

QUANTITIES & GENERAL NOTES

SHEET 3 OF 12

53

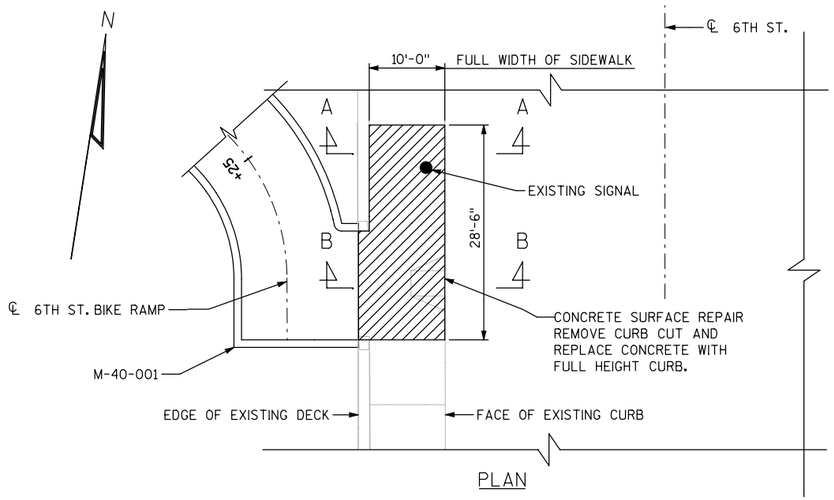
8

8

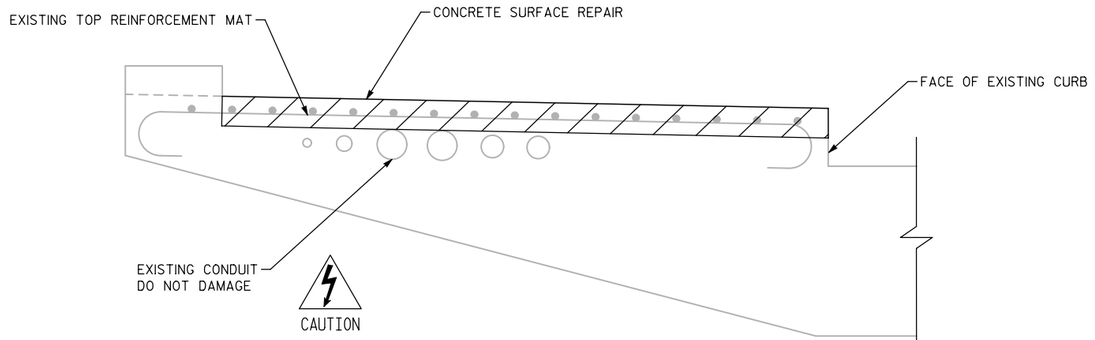
FILE= 081030_GNS&QTYS.DGN
SCALE = 1:4

STATE PROJECT NUMBER

1693-25-72



PLAN

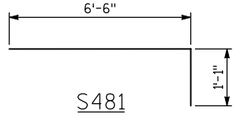


SECTION A-A

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	CUT BARS	60# COATED 0# UNCOATED LOCATION
S480	X	4	7'-3"				LONGITUDINAL
S481	X	8	7'-6"	X			TRANSVERSE

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.
CUT BARS TO FIT IN FIELD.



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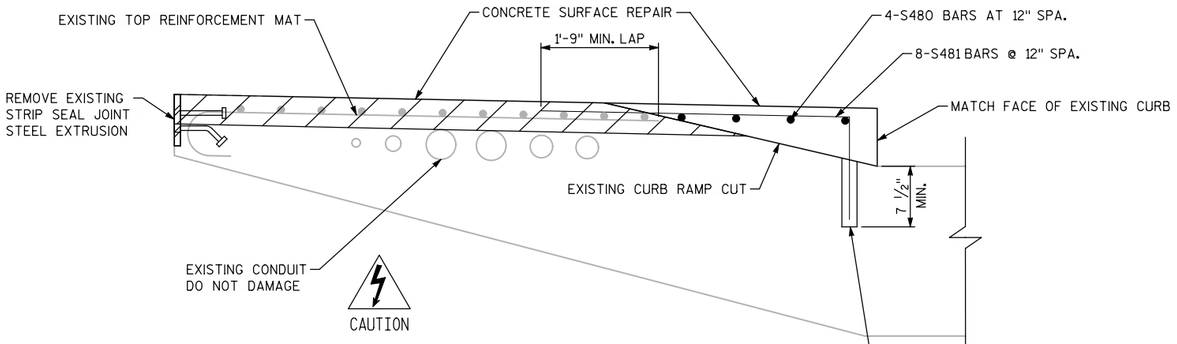
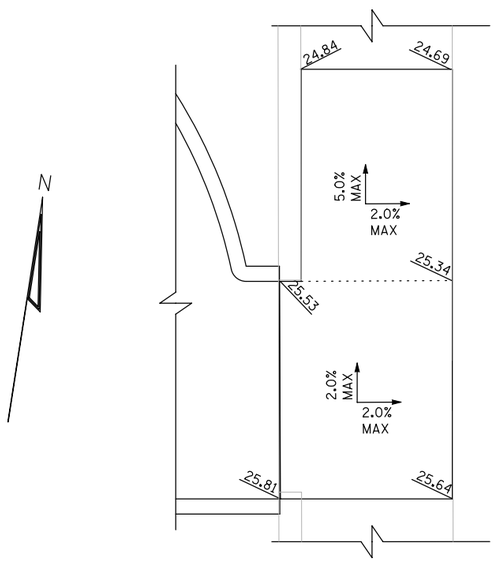


SECTION B-B



SIDEWALK GRADES

CONCRETE SURFACE REPAIR NOTES:

SCORE EDGES, REMOVE SURFACE CONCRETE TO BELOW TOP MAT OF EXISTING REINFORCING STEEL.

USE CAUTION WHEN REMOVING CONCRETE NEAR EXISTING CONDUITS IN SIDEWALK.

CONTACT CITY OF MILWAUKEE DEPARTMENT OF PUBLIC WORKS PRIOR TO DEMOLITION.

EXISTING SIGNAL IS TO REMAIN IN PLACE AND FUNCTIONING DURING CONSTRUCTION.
AFTER COMPLETION OF SIDEWALK, RECONSTRUCT THE GROUT PAD BELOW THE SIGNAL BASE.

REMOVE EXISTING STRIP SEAL JOINT STEEL EXTRUSION. REPAIR CONCRETE TO A SMOOTH VERTICAL FACE MEETING THE REQUIREMENTS FOR INSTALLATION OF PLATFORM JOINT SYSTEM. WORK IS INCLUDED IN THE MEASURED PLAN AREA OF CONCRETE SURFACE REPAIR.

WORK DESCRIBED ABOVE IS PAID FOR AS CONCRETE SURFACE REPAIR.

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STATE OF WISCONSIN
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STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

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EXISTING BRIDGE MODIFICATIONS

SHEET 4 OF 12

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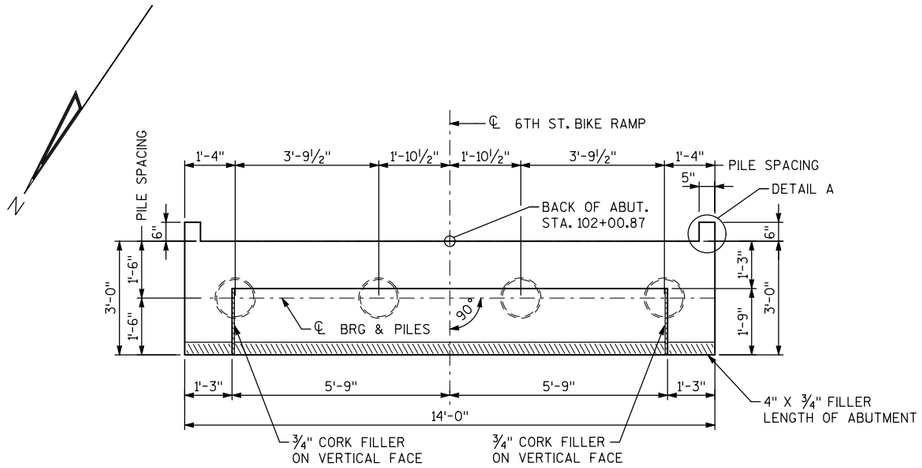
FILE= 081040_6THSTDEMO.DGN
SCALE = 1:20

STATE PROJECT NUMBER

1693-25-72



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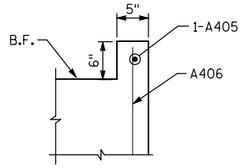
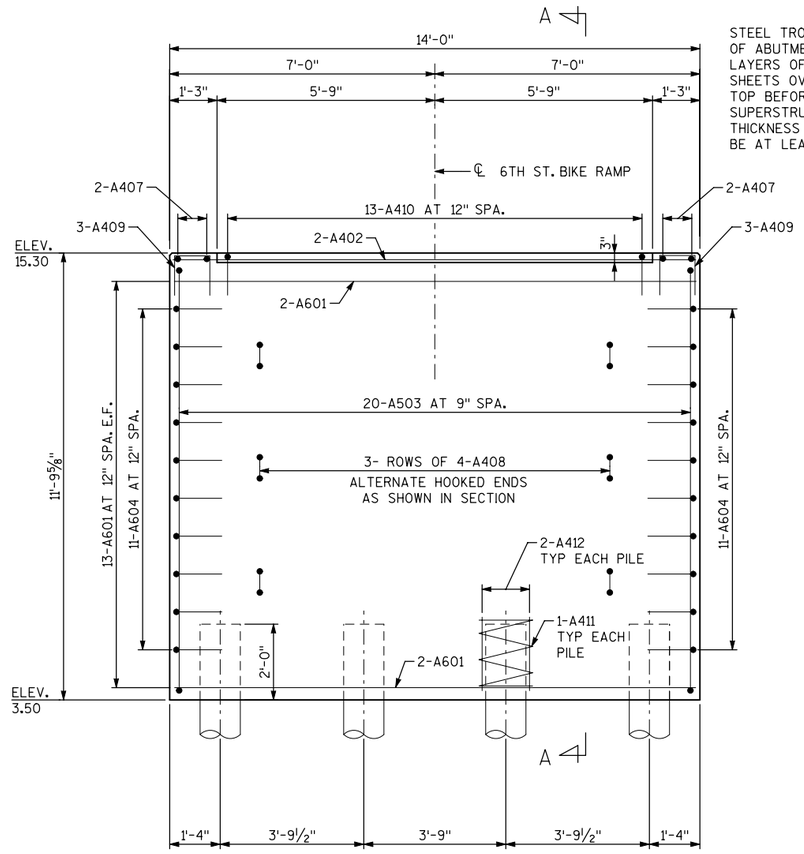


DETAIL A

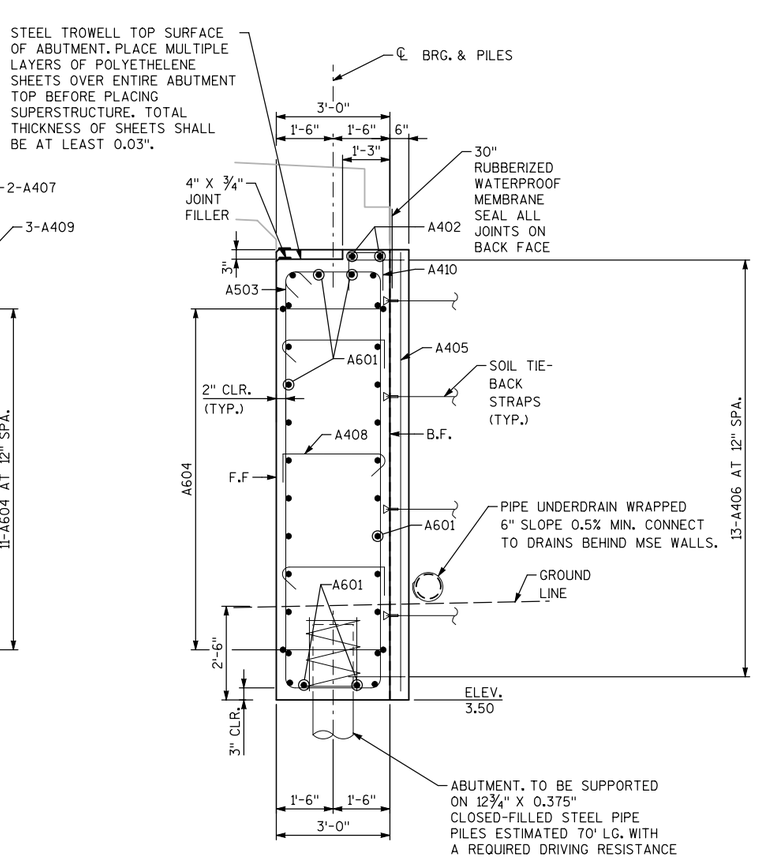
BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	CUT BARS	1597 # COATED 0 # UNCOATED LOCATION
A601	X	30	13'-8"				MAIN HORIZONTAL
A402	X	2	13'-8"				TOP HORIZONTAL
A503	X	20	28'-5"	X			MAIN STIRRUPS
A604	X	22	4'-6"	X			SIDE U-BARS
A405	X	2	11'-5"				WALL TAB VERTICAL
A406	X	26	2'-0"				WALL TAB HORIZONTAL
A407	X	4	2'-8"				TOP HORIZONTAL AT SIDES
A408	X	12	3'-6"	X			HORIZONTAL TIES
A409	X	6	5'-2"	X			TOP HORIZONTAL AT SIDES
A410	X	13	3'-3"	X			TOP VERTICAL-U
A411	X	4	28'-0"	X			PILE SPIRAL
A412	X	8	2'-3"	X			PILE VERTICAL

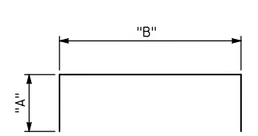
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.



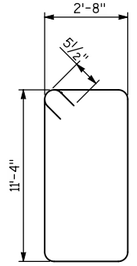
ELEVATION



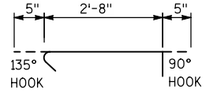
SECTION A-A



BAR NO.	DIM "A"	DIM "B"
A604	1'-0"	2'-8"
A409	1'-3"	2'-8"
A410	1'-3"	11"



A503



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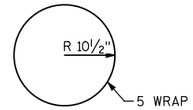

A411

NOTES:
F.F. DENOTES FRONT FACE
B.F. DENOTES BACK FACE
E.F. DENOTES EACH FACE

EXCAVATE TO BOTTOM OF ABUTMENT
EFORE DRIVING PILES

SOIL TIE BACK STRAPS AND INSERTS, AND REINFORCED SOIL ZONE BEHIND THE ABUTMENT IS A NON-MEASURED QUANTITY AND IS INCLUDED IN THE PRICE OF STRUCTURE R-40-602.

RAILINGS AND ANCHORAGES NOT SHOWN FOR CLARITY

COORDINATE CONSTRUCTION OF ABUTMENT WITH WALLS R-40-602 AND R-40-603.

DESIGN LOADS FOR SOIL TIE BACK STRAPS ARE SHOWN ON DRAWINGS FOR WALL R-40-602.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

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ABUTMENT

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STATE PROJECT NUMBER

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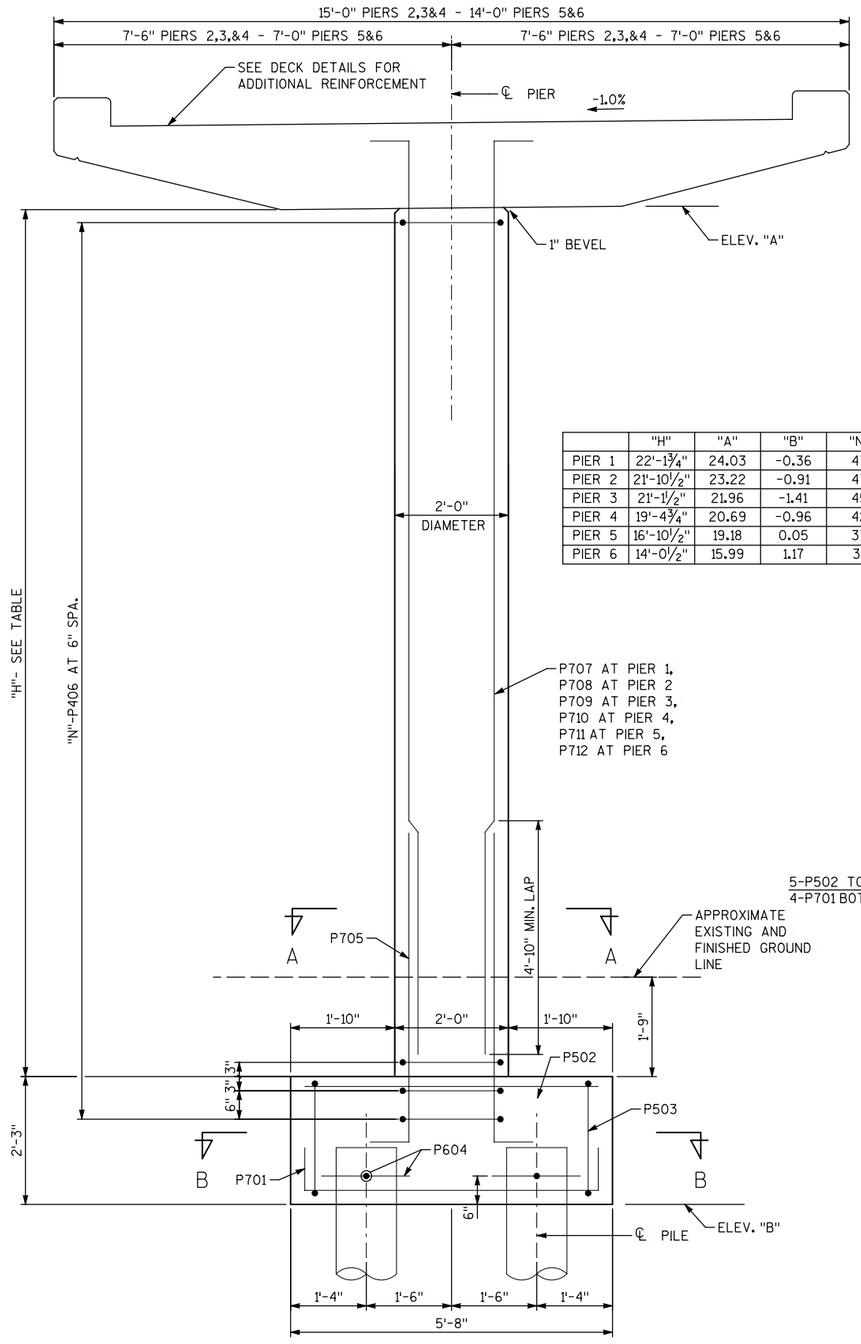
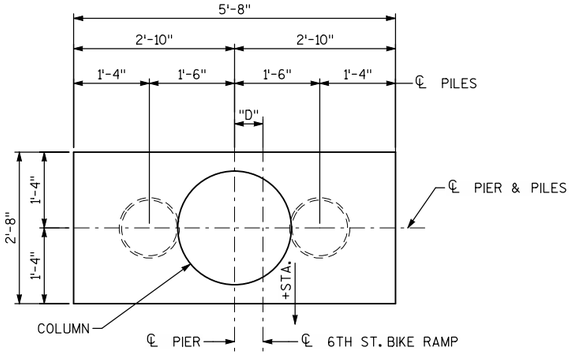


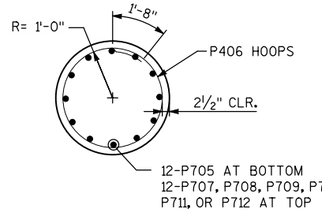
ELEVATION
LOOKING AHEAD STATION

	"H"	"A"	"B"	"N"
PIER 1	22'-1¾"	24.03	-0.36	47
PIER 2	21'-10½"	23.22	-0.91	47
PIER 3	21'-1½"	21.96	-1.41	45
PIER 4	19'-4¾"	20.69	-0.96	42
PIER 5	16'-10½"	19.18	0.05	37
PIER 6	14'-0½"	15.99	1.17	31

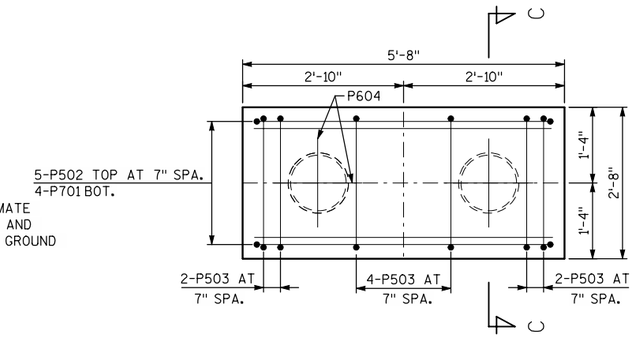


"D"= 6" PIERS 1,2,3&4
0" PIERS 5&6

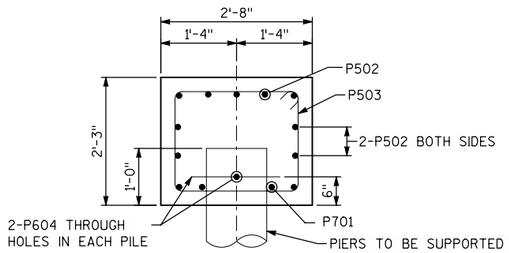
PLAN- FOOTING LAYOUT



SECTION A-A



SECTION B-B

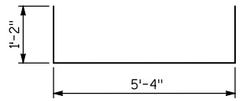


SECTION C-C

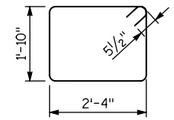
BILL OF BARS (ALL PIERS)

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	CUT BARS	5467 # COATED 1174 # UNCOATED LOCATION
P701		24	7'-4"	X			BOT. FOOTING
P502		54	5'-4"				TOP AND SIDES FOOTING
P503		48	8'-7"	X			FOOTING STIRRUPS
P604		24	2'-4"				PILING BARS
P705	X	72	8'-4"	X			COLUMN BOTTOM VERT.
P406	X	250	6'-9"	X			COLUMN HOOPS
P707	X	12	24'-1"	X			VERTICAL, PIER 1
P708	X	12	23'-9"	X			VERTICAL, PIER 2
P709	X	12	23'-1"	X			VERTICAL, PIER 3
P710	X	12	21'-4"	X			VERTICAL, PIER 4
P711	X	12	18'-9"	X			VERTICAL, PIER 5
P712	X	12	15'-11"	X			VERTICAL, PIER 6

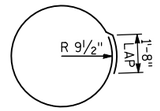
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.



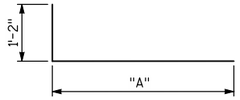
P701



P503



P406



BAR NO.	"A"
P705	7'-4"
P707	23'-1"
P708	22'-9"
P709	22'-1"
P710	20'-4"
P711	17'-9"
P712	14'-11"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

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PIER

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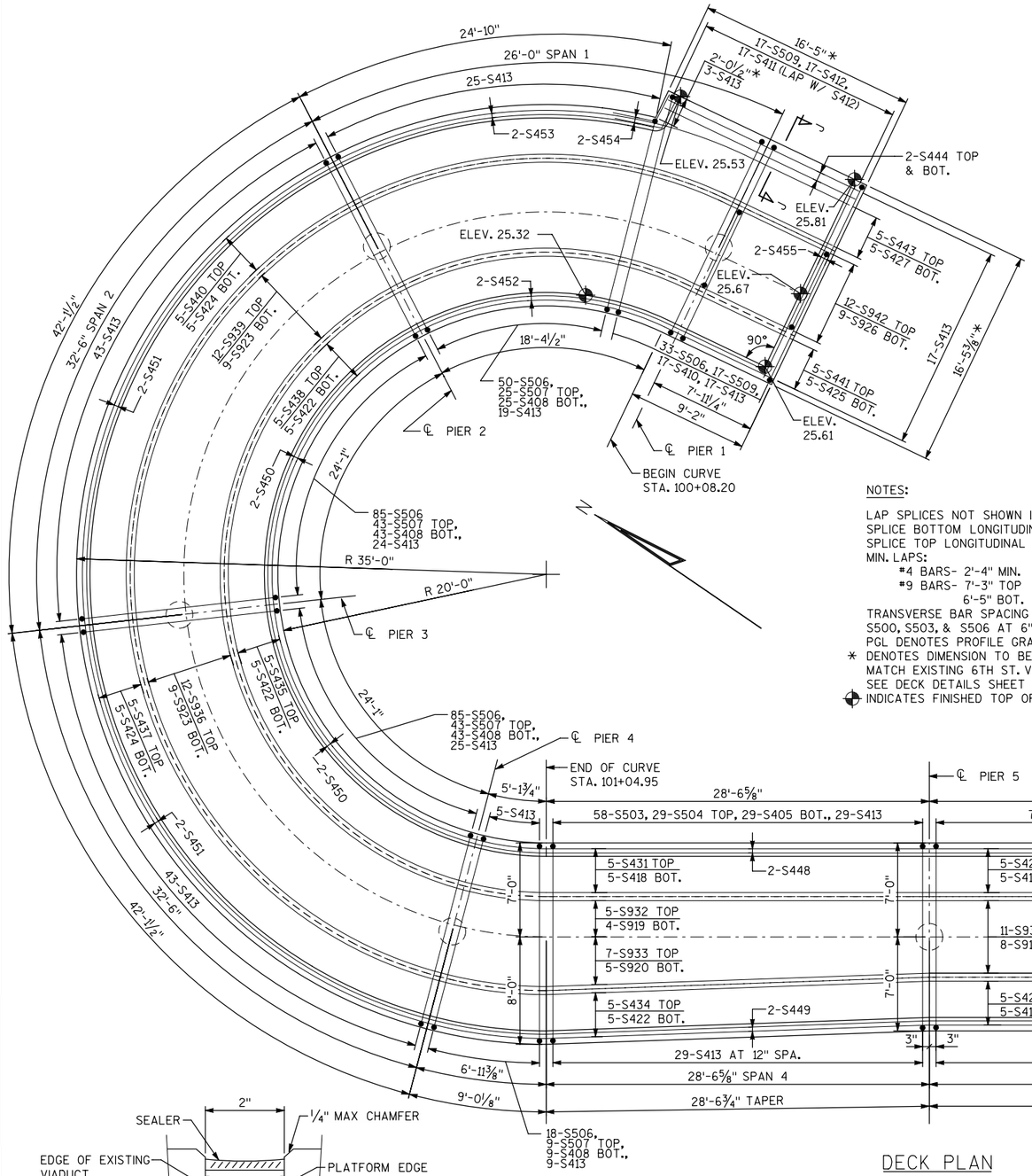
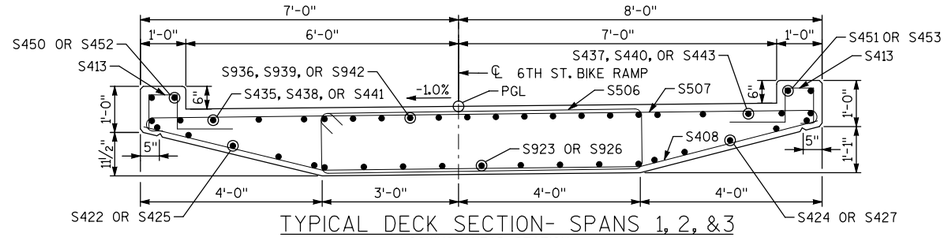
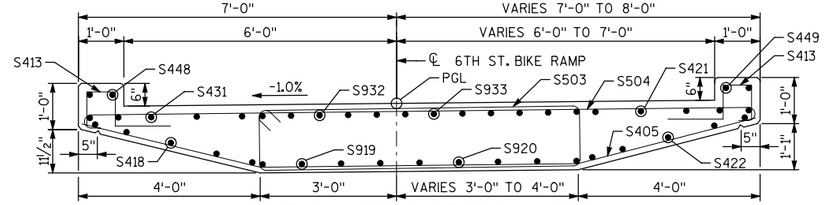


NOTES:

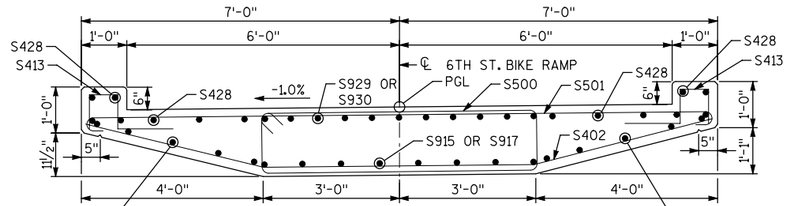
LAP SPLICES NOT SHOWN IN PLAN.
SPLICE BOTTOM LONGITUDINAL BARS NEAR PIERS.
SPLICE TOP LONGITUDINAL BARS NEAR MID-SPANS.
MIN. LAPS:
#4 BARS- 2'-4" MIN.
#9 BARS- 7'-3" TOP
6'-5" BOT.
TRANSVERSE BAR SPACING 12" MAX., EXCEPT S500, S503, & S506 AT 6" MAX.
PGL DENOTES PROFILE GRADE LINE
* DENOTES DIMENSION TO BE FIELD-VERIFIED TO MATCH EXISTING 6TH ST. VIADUCT.
SEE DECK DETAILS SHEET FOR SECTION Y-Y.
⌖ INDICATES FINISHED TOP OF DECK ELEVATIONS.



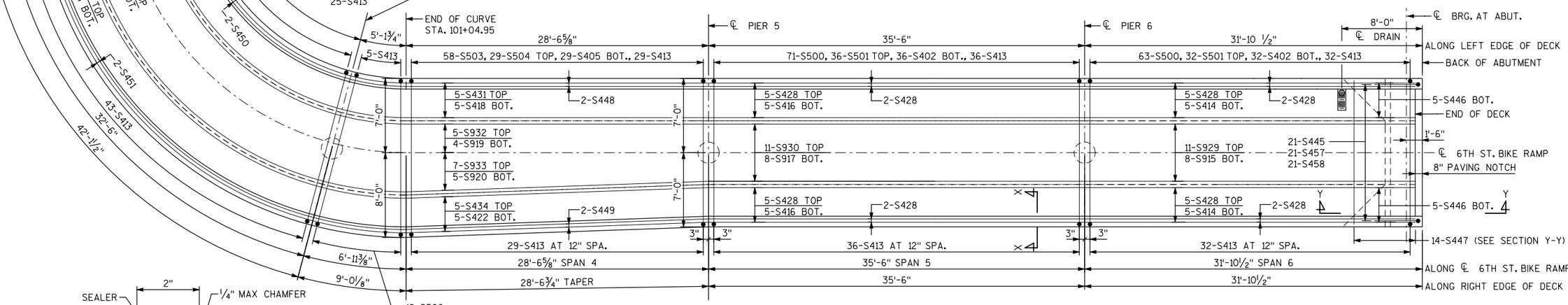
TYPICAL DECK SECTION- SPANS 1, 2, &3
LOOKING AHEAD STATION



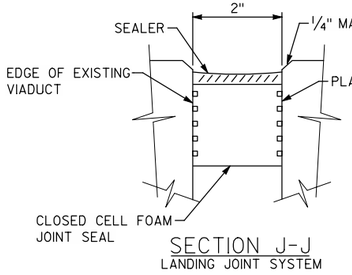
TYPICAL DECK SECTION- SPAN 4
LOOKING AHEAD STATION



TYPICAL DECK SECTION- SPANS 5 & 6
LOOKING AHEAD STATION

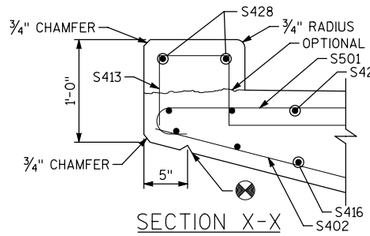


DECK PLAN



SECTION J-J
LANDING JOINT SYSTEM

NOTE: RUN JOINT SYSTEM UP CURB FACE AT BOTH ENDS



SECTION X-X

NOTE:
⊠ ¾" V-GROOVE. TERMINATE 2'-0" FROM END OF DECK.

V-GROOVES ARE REQUIRED.

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STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

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DECK

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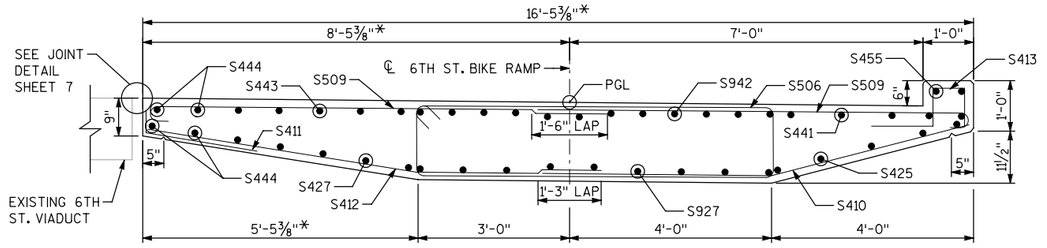
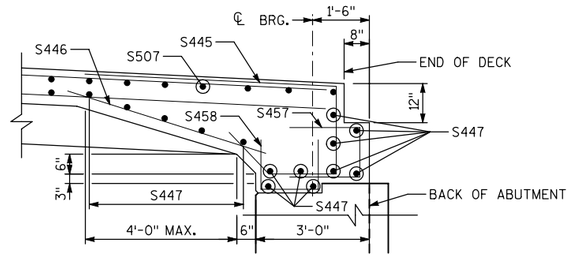


SECTION THROUGH DECK AT VIADUCT

LOOKING BACK STATION

* DENOTES DIMENSION TO BE FIELD-VERIFIED. MATCH EXISTING 6TH ST. VIADUCT



SECTION Y-Y

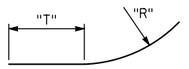
BILL OF BARS- DECK

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	▲ BAR SERIES	34954 # COATED 0 # UNCOATED LOCATION
S500	X	134	14'-1"	X			DECK STIRRUP, SPANS 5 & 6
S501	X	68	14'-10"	X			DECK TOP, SPANS 5 & 6
S402	X	68	13'-10"	X			DECK BOT. SPANS 5 & 6
S503	X	58	15'-1"	X		X	DECK STIRRUP, SPAN 4
S504	X	29	15'-4"	X		X	DECK TOP, SPAN 4
S405	X	29	14'-4"	X		X	DECK BOT. SPAN 4
S506	X	271	16'-1"	X			DECK STIRRUP, SPANS 1,2 & 3
S507	X	120	15'-10"	X			DECK TOP, SPANS 1, 2, & 3
S408	X	120	14'-10"	X			DECK BOT., SPANS 1, 2, & 3
S509	X	34	9'-9"	X			DECK TOP, TOP LANDING
S410	X	17	8'-2"	X			DECK BOT, TOP LANDING
S411	X	17	2'-11"	X			DECK BOT., TOP LANDING
S412	X	17	8'-2"	X			DECK BOT., TOP LANDING
S413	X	424	3'-6"	X			CURB BAR
S414	X	10	33'-0"				DECK BOT. LONG. SPAN 6
S915	X	8	35'-0"				DECK BOT. LONG. SPAN 6
S416	X	10	37'-10"				DECK BOT. LONG. SPAN 5
S917	X	8	42'-0"				DECK BOT. LONG. SPAN 5
S418	X	5	37'-7"	X		X	DECK BOT. LONG. SPAN 4
S919	X	4	41'-8"	X		X	DECK BOT. LONG. SPAN 4
S920	X	5	42'-7"	X		X	DECK BOT. LONG. SPAN 4
S421	X	5	39'-5"	X		X	DECK BOT. LONG. SPAN 4
S422	X	10	28'-4"	X		X	DECK BOT. LONG. SPAN 2 & 3
S923	X	18	39'-8"	X		X	DECK BOT. LONG. SPAN 2 & 3
S424	X	10	42'-3"	X		X	DECK BOT. LONG. SPAN 2 & 3
S425	X	5	30'-5"	X		X	DECK BOT. LONG. SPAN 1
S926	X	9	37'-5"	X		X	DECK BOT. LONG. SPAN 1
S427	X	5	41'-6"	X		X	DECK BOT. LONG. SPAN 1
S428	X	28	45'-0"				DECK TOP LONG. SPAN 4-6
S929	X	11	52'-6"				DECK TOP LONG. SPAN 5-6
S930	X	11	42'-9"				DECK TOP LONG. SPAN 4-5
S431	X	5	30'-0"	X		X	DECK TOP LONG. SPAN 3-4
S932	X	5	36'-11"	X		X	DECK TOP LONG. SPAN 3-4
S933	X	7	39'-4"	X		X	DECK TOP LONG. SPAN 3-4
S434	X	5	39'-4"	X		X	DECK TOP LONG. SPAN 3-4
S435	X	5	29'-0"	X		X	DECK TOP LONG. SPAN 2-3
S936	X	12	40'-5"	X		X	DECK TOP LONG. SPAN 2-3
S437	X	5	42'-0"	X		X	DECK TOP LONG. SPAN 2-3
S438	X	5	26'-4"	X		X	DECK TOP LONG. SPAN 1-2
S939	X	12	37'-2"	X		X	DECK TOP LONG. SPAN 1-2
S440	X	5	38'-1"	X		X	DECK TOP LONG. SPAN 1-2
S441	X	5	19'-7"	X		X	DECK TOP LONG. SPAN 1
S942	X	12	28'-6"	X		X	DECK TOP LONG. SPAN 1
S443	X	5	24'-8"	X		X	DECK TOP LONG. SPAN 1
S444	X	4	16'-0"				DECK EDGE TOP & BOT. SPAN 1
S445	X	21	11'-2"	X			END OF DECK AT ABUT.
S446	X	10	6'-0"				DECK LONG. AT ABUT.
S447	X	14	13'-8"				DECK TRANS. AT ABUT.
S448	X	2	28'-9"	X			TOP OF LEFT CURB SPAN 4
S449	X	2	40'-9"	X			TOP OF RIGHT CURB SPAN 4
S450	X	4	27'-2"	X			TOP OF LEFT CURB SPANS 2 & 3
S451	X	4	44'-0"	X			TOP OF RIGHT CURB SPANS 2 & 3
S452	X	2	19'-0"	X			TOP OF RIGHT CURB SPAN 1
S453	X	2	9'-4"	X			TOP OF LEFT CURB SPAN 1
S454	X	2	4'-5"	X			TOP OF CURB TOP LANDING
S455	X	2	16'-0"				TOP OF CURB TOP LANDING
S556	X	4	5'-0"				HORIZ. AT DRAIN
S457	X	21	4'-6"	X			PAVING NOTCH
S458	X	21	3'-11"	X			ABUTMENT NOTCH

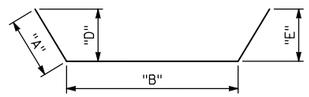
BAR SERIES TABLE

BAR NO.	NUMBER REQUIRED	LENGTH
S503	1 SERIES OF 58	14'-1" TO 16'-1"
S504	1 SERIES OF 29	14'-10" TO 15'-10"
S405	1 SERIES OF 29	13'-10" TO 14'-10"
S418	1 SERIES OF 5	36'-1" TO 37'-1"
S919	1 SERIES OF 4	41'-3" TO 42'-0"
S920	1 SERIES OF 5	42'-0" TO 43'-1"
S421	1 SERIES OF 5	38'-11" TO 40'-0"
S422	2 SERIES OF 5	25'-3" TO 31'-4"
S923	2 SERIES OF 9	35'-5" TO 43'-10"
S424	2 SERIES OF 5	39'-9" TO 44'-9"
S425	1 SERIES OF 5	28'-6" TO 32'-3"
S926	1 SERIES OF 9	34'-3" TO 40'-8"
S427	1 SERIES OF 5	38'-8" TO 42'-4"
S431	1 SERIES OF 5	28'-4" TO 31'-9"
S932	1 SERIES OF 5	35'-9" TO 38'-1"
S933	1 SERIES OF 7	38'-1" TO 40'-8"
S434	1 SERIES OF 5	37'-9" TO 40'-11"
S435	1 SERIES OF 5	26'-8" TO 31'-3"
S936	1 SERIES OF 12	36'-2" TO 44'-7"
S437	1 SERIES OF 5	39'-8" TO 44'-4"
S438	1 SERIES OF 5	24'-3" TO 28'-5"
S939	1 SERIES OF 12	33'-4" TO 40'-11"
S440	1 SERIES OF 5	36'-0" TO 40'-1"
S441	1 SERIES OF 5	18'-9" TO 20'-5"
S942	1 SERIES OF 12	26'-7" TO 30'-5"
S443	1 SERIES OF 5	23'-11" TO 25'-5"

BAR NUMBER	"R"
S422, S435, S438	VARIES 20'-2" TO 23'-10" IN 11" INCR.
S923	VARIES 24'-2" TO 30'-10" IN 10" INCR.
S936, S939	VARIES 24'-2" TO 30'-10" IN 7 1/4"" INCR.
S424, S437, S440	VARIES 31'-2" TO 34-10" IN 11" INCR.
S450	20'-6"
S451, S453	34'-6"

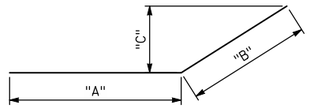


BAR NO.	"T"	"R"
S418	29'-9"	VARIES 20'-2" TO 23'-10" IN 11" INCR.
S919	31'-10"	VARIES 24'-2" TO 26'-5" IN 9" INCR.
S920	31'-10"	VARIES 27'-2" TO 30'-10" IN 11" INCR.
S421	29'-9"	VARIES 31'-2" TO 34'-10" IN 11" INCR.
S425, S441	8'-11"	VARIES 20'-2" TO 23'-10" IN 11" INCR.
S926	8'-11"	VARIES 24'-2 TO 30'-10" IN 10" INCR.
S427, S443	8'-11"	VARIES 31'-2" TO 34'-10" IN 11" INCR.
S431	9'-10"	VARIES 20'-2" TO 23'-10" IN 11" INCR.
S932	14'-6"	VARIES 24'-2" TO 26'-10" IN 8" INCR.
S933	14'-6"	VARIES 27'-2" TO 30'-10" IN 7 1/2" INCR.
S434	9'-10"	VARIES 31'-2" TO 34'-10" IN 11" INCR.
S942	8'-11"	VARIES 24'-2 TO 30'-10" IN 7 1/4" INCR.
S448	9'-10"	20'-6"
S449	9'-10"	34'-6"
S452	8'-11"	34'-6"

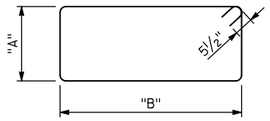


BAR NO.	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"
S402	3'-11"	6'-0"	3'-11"	11"	1'-0"
S405	3'-11"	***	3'-11"	11"	1'-0"
S408	3'-11"	7'-0"	3'-11"	11"	1'-0"

*** VARIES 6'-0" TO 7'-0"

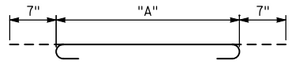


BAR NO.	DIM "A"	DIM "B"	DIM "C"
S410	4'-3"	3'-11"	1'-0"
S412	4'-3"	3'-11"	9"
S454	2'-2"	2'-4"	2'-3"



BAR NO.	DIM "A"	DIM "B"
S500	1'-2"	5'-8"
S503	1'-2"	*
S506	1'-2"	6'-8"

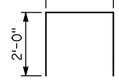
* VARIES 5'-8" TO 6'-8"



180° HOOK 180° HOOK

BAR NO.	DIM "A"
S501	13'-8"
S504	**
S507	14'-8"

** VARIES 13'-8" TO 14'-8"



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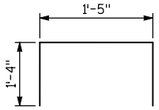

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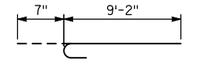
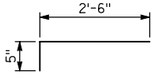


180° HOOK

S509



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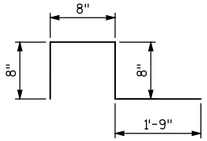

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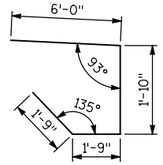

S445

NOTES:

- -DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
- -THE FIRST ONE OR TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- ▲ -LENGTH SHOWN FOR BAR SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS.
- -SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.
- -BUNDLE AND TAG EACH BAR SERIES SEPARATELY.

STATE PROJECT NUMBER

1693-25-72

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

DRAWN BY WMN | PLANS CK'D. WJZ

DECK DETAILS

SHEET 8 OF 12

58

8

8

FILE= 081100_DECKDETLS.DGN
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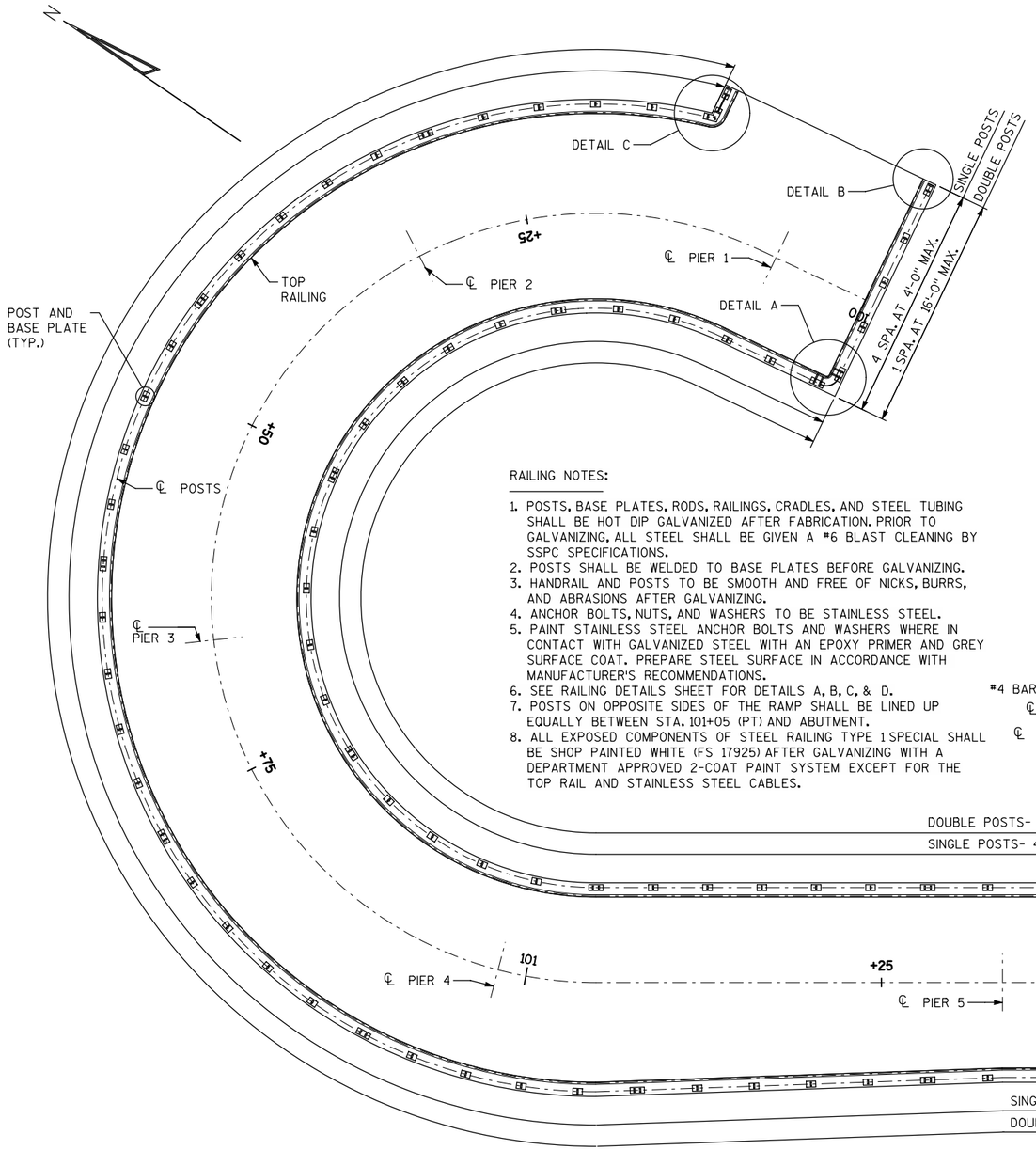
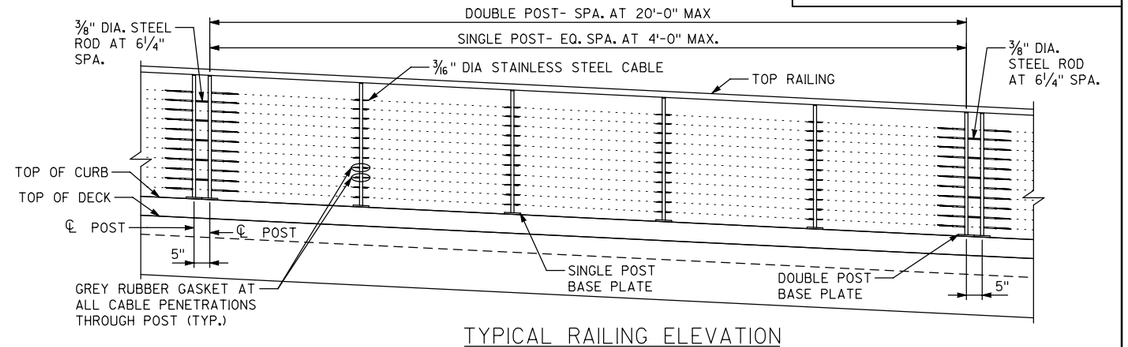
STATE PROJECT NUMBER

1693-25-72

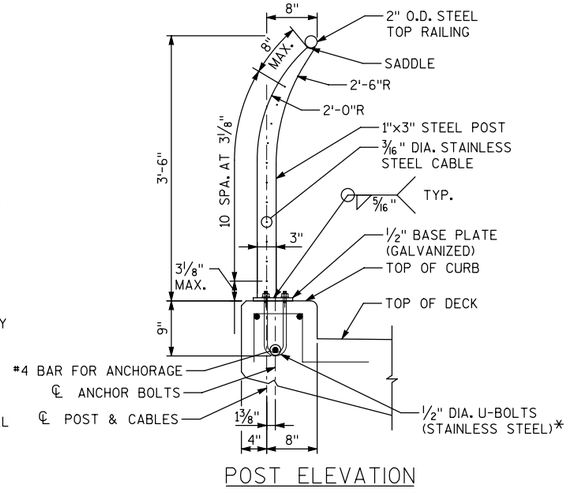


RAILING NOTES:

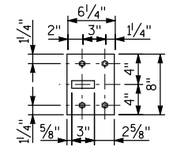
1. POSTS, BASE PLATES, RODS, RAILINGS, CRADLES, AND STEEL TUBING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL SHALL BE GIVEN A #6 BLAST CLEANING BY SSPC SPECIFICATIONS.
2. POSTS SHALL BE WELDED TO BASE PLATES BEFORE GALVANIZING.
3. HANDRAIL AND POSTS TO BE SMOOTH AND FREE OF NICKS, BURRS, AND ABRASIONS AFTER GALVANIZING.
4. ANCHOR BOLTS, NUTS, AND WASHERS TO BE STAINLESS STEEL.
5. PAINT STAINLESS STEEL ANCHOR BOLTS AND WASHERS WHERE IN CONTACT WITH GALVANIZED STEEL WITH AN EPOXY PRIMER AND GREY SURFACE COAT. PREPARE STEEL SURFACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. SEE RAILING DETAILS SHEET FOR DETAILS A, B, C, & D.
7. POSTS ON OPPOSITE SIDES OF THE RAMP SHALL BE LINED UP EQUALLY BETWEEN STA. 101+05 (PT) AND ABUTMENT.
8. ALL EXPOSED COMPONENTS OF STEEL RAILING TYPE 1 SPECIAL SHALL BE SHOP PAINTED WHITE (FS 17925) AFTER GALVANIZING WITH A DEPARTMENT APPROVED 2-COAT PAINT SYSTEM EXCEPT FOR THE TOP RAIL AND STAINLESS STEEL CABLES.



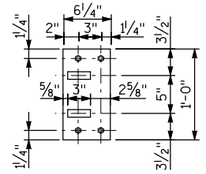
TYPICAL RAILING ELEVATION



POST ELEVATION



BASE PLATE
(TYP. SINGLE POST)

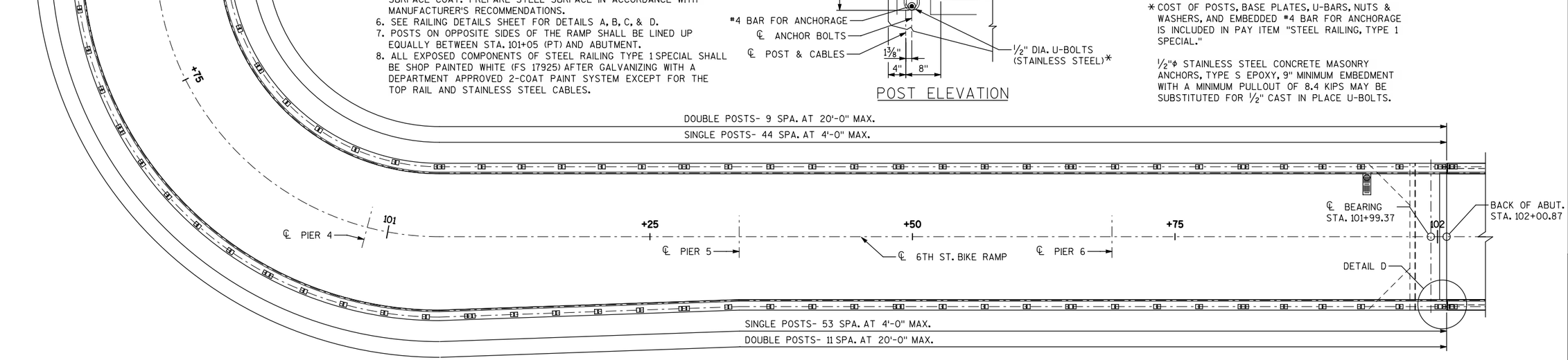


BASE PLATE
(TYP. DOUBLE POST)

SPECIAL BASE PLATES WILL BE REQUIRED AT CORNERS, ABUTMENT, AND RAILING ENDS. DETAILS TO BE SHOWN ON THE SHOP DRAWINGS AND ARE SUBJECT TO APPROVAL BY THE ENGINEER.

* COST OF POSTS, BASE PLATES, U-BARS, NUTS & WASHERS, AND EMBEDDED #4 BAR FOR ANCHORAGE IS INCLUDED IN PAY ITEM "STEEL RAILING, TYPE 1 SPECIAL."

½"ϕ STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S EPOXY, 9" MINIMUM EMBEDMENT WITH A MINIMUM PULLOUT OF 8.4 KIPS MAY BE SUBSTITUTED FOR ½" CAST IN PLACE U-BOLTS.



PLAN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

DRAWN BY WMN | PLANS CK'D. WJZ

RAILING

SHEET 9 OF 13

59

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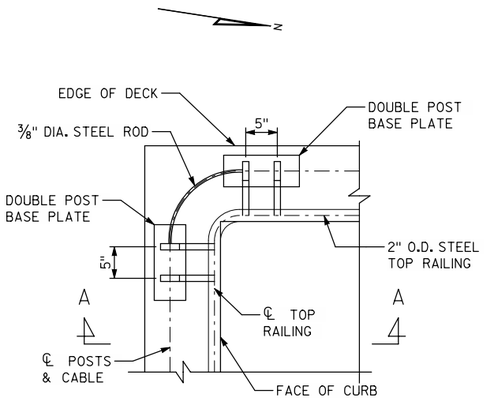
8

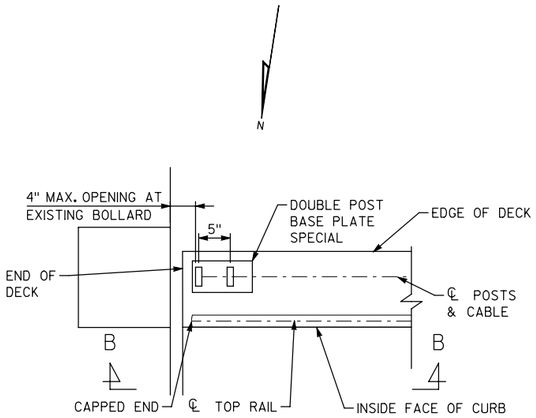
8

STATE PROJECT NUMBER

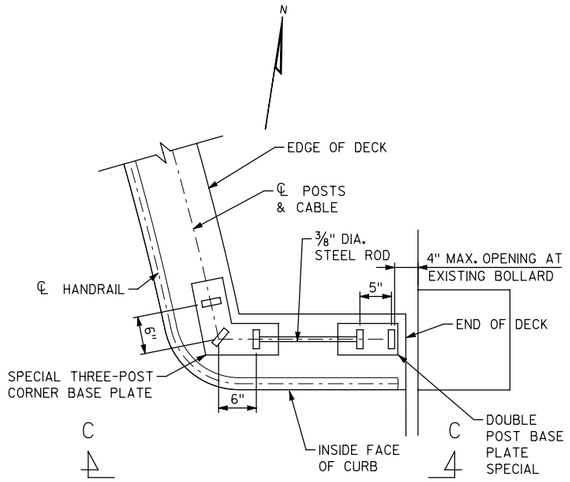
1693-25-72



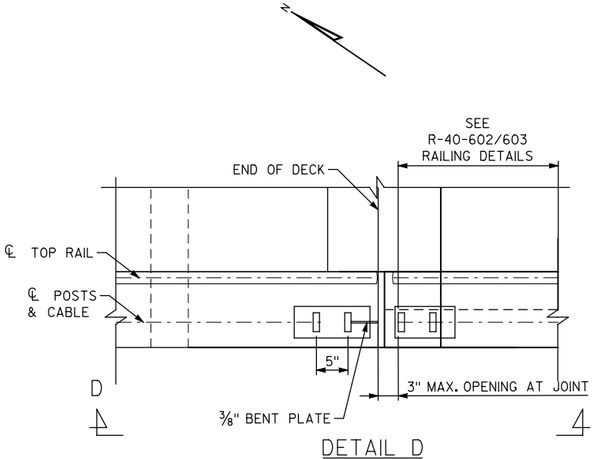
DETAIL A



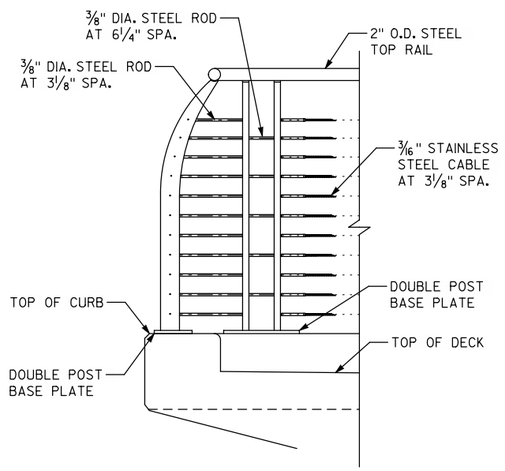
DETAIL B



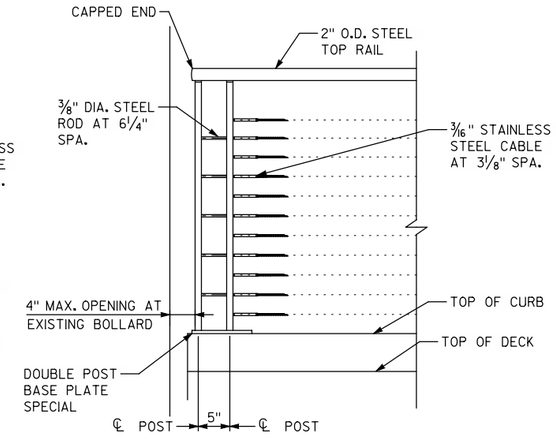
DETAIL C



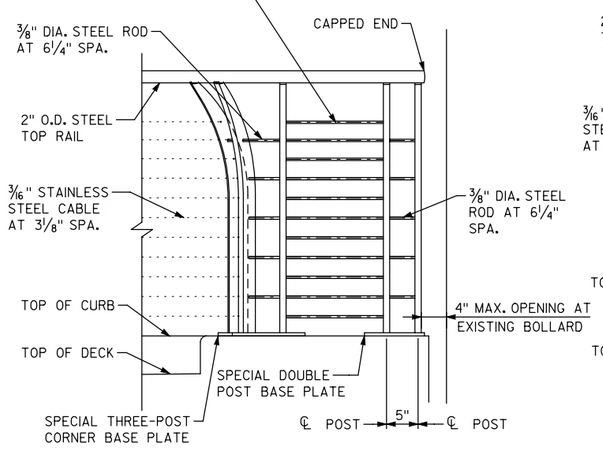
DETAIL D



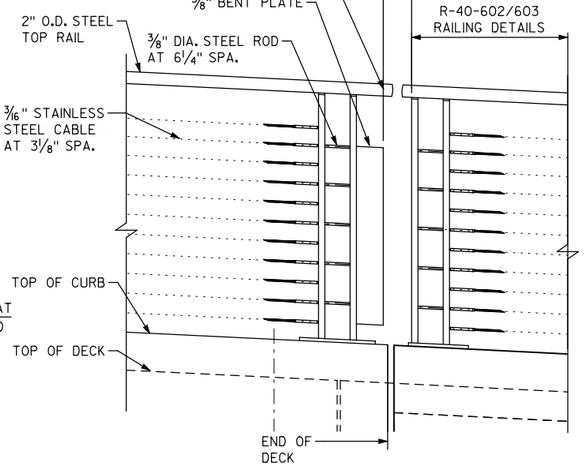
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

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RAILING DETAILS

SHEET 10 OF 12

60

8

8

FILE= 081120_RAILINGDETLS.DGN
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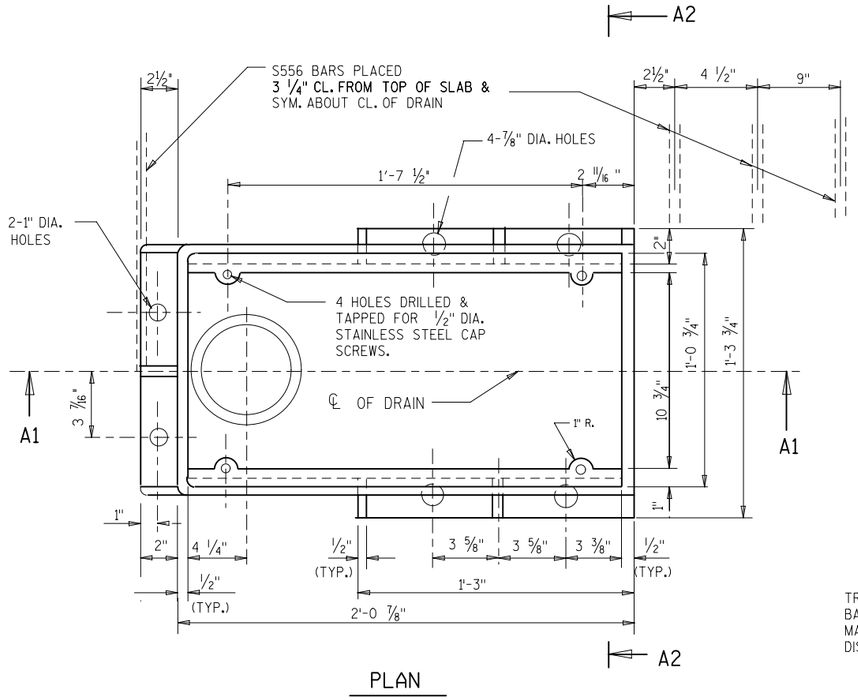
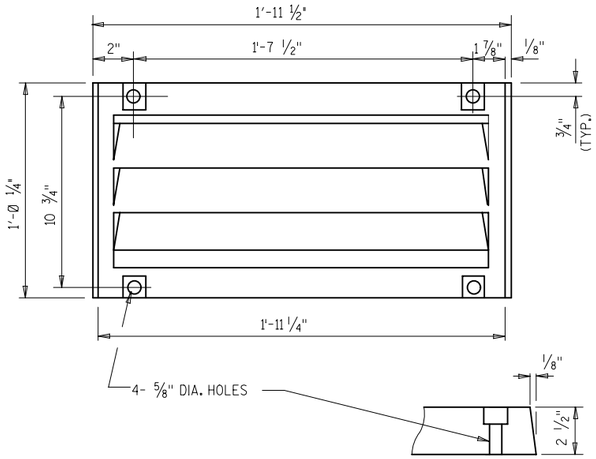
STATE PROJECT NUMBER

1693-25-72



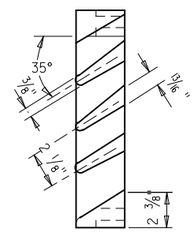
PLAN

TRANS. AND LONGIT. SLAB
BAR REINF. TO BE CUT A
MAX. 1" CL. FROM DRAIN
DISPLACE BARS WHERE POSSIBLE



GRATE CASTING DETAIL

ATTACH GRATE TO
FRAME FOR SHIPMENT



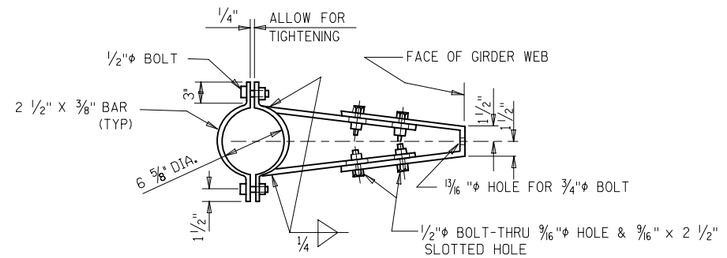
GENERAL NOTES

ALL MATERIAL FOR TYPE "GC" CASTING, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48, CLASS 30. (APPROX. WEIGHT = 225#)

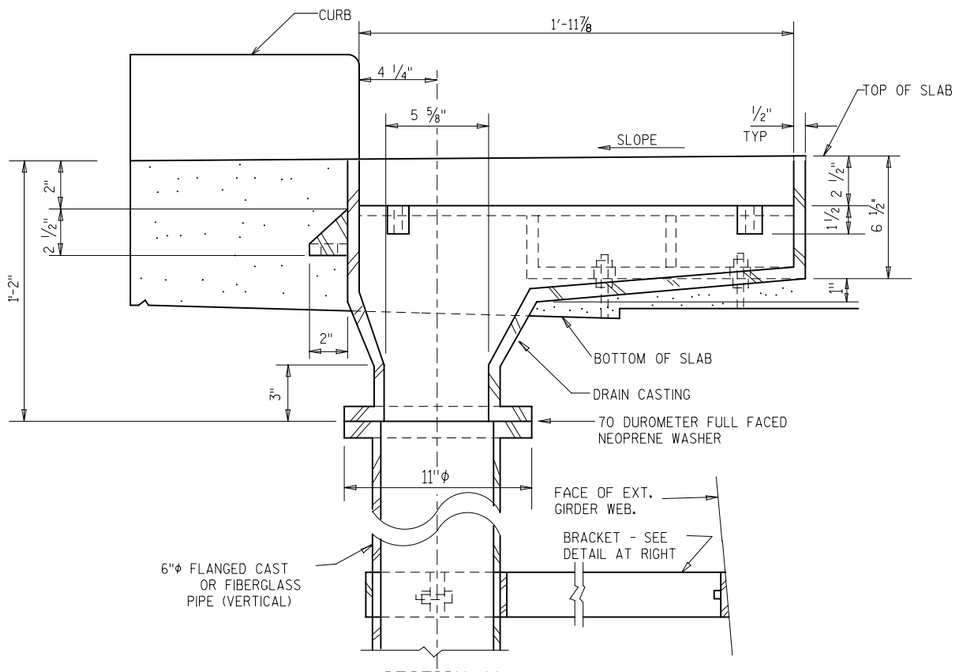
MATERIAL FOR BRACKETS SHALL CONFORM TO A.S.T.M. A36.

THE CONTRACTOR MAY PROPOSE AN ALTERNATE TYPE OF BRACKET. THE PROPOSED ALTERNATE DETAILS SHALL BE SUBMITTED AND SUBJECT TO THE APPROVAL OF THE ENGINEER.

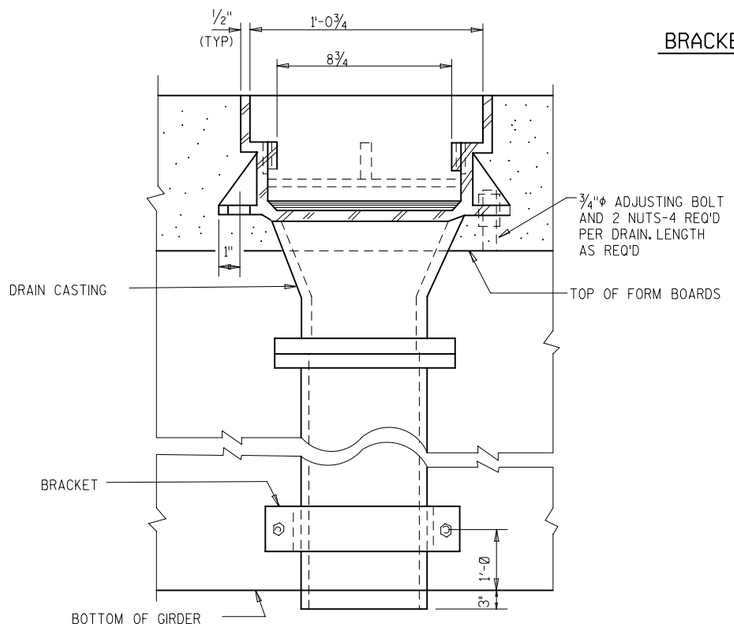
FLANGED 6" DIA. DOWNSPOUTS SHALL BE EITHER CAST MATERIAL OR FIBERGLASS CONFORMING TO A.S.T.M. D2996, GRADE I, CLASS A.



BRACKET DETAIL



SECTION A1



SECTION A2

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

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FLOOR DRAIN
TYPE 'GC'

SHEET 11 OF 12

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8

8

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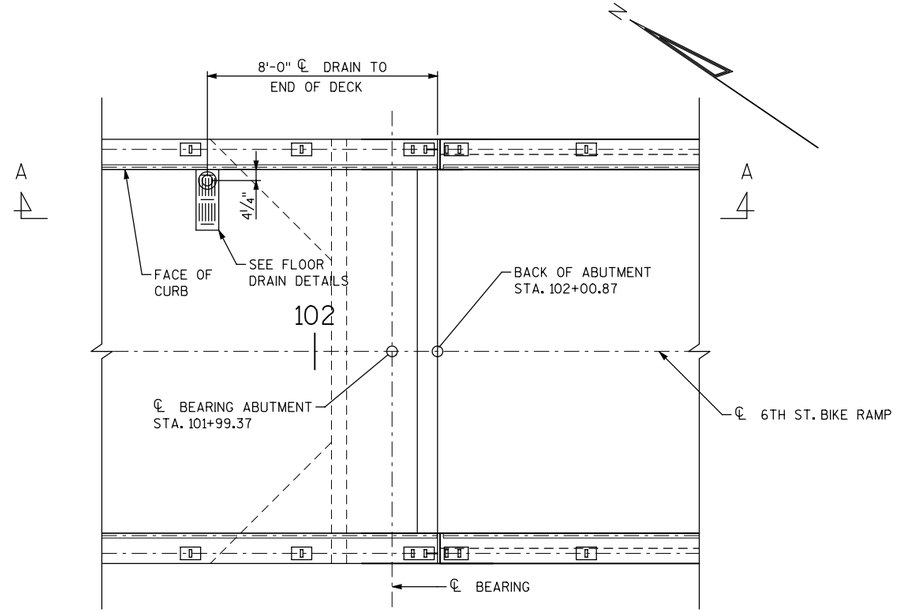
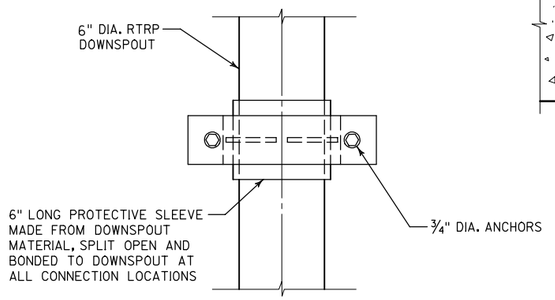
STATE PROJECT NUMBER

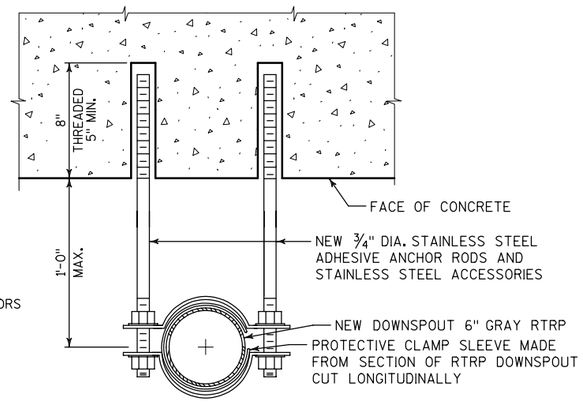
1693-25-72



PLAN

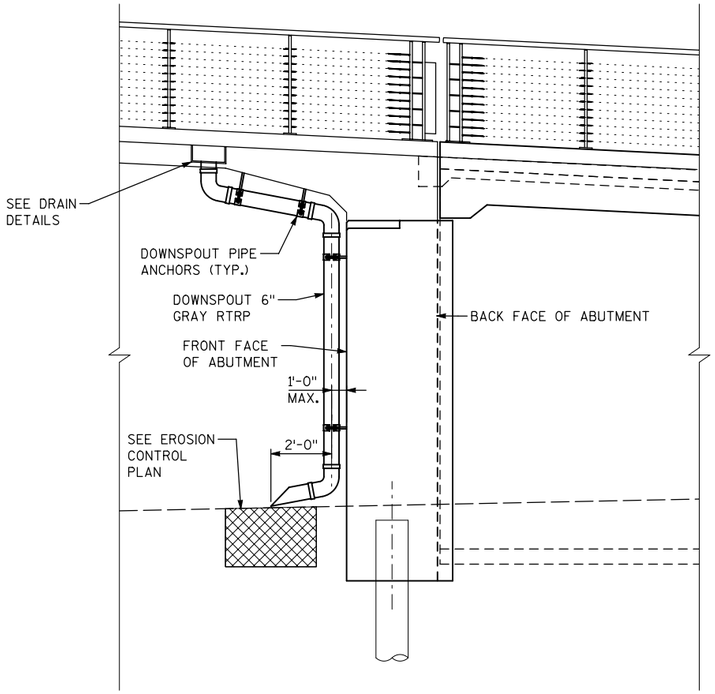


ELEVATION



PLAN

DOWNSPOUT PIPE ANCHOR



ELEVATION

NOTES:

1. CLEVIS PIPE, PIPE CLAMPS, HANGARS, ADHESIVE ANCHOR RODS, AND MISCELLANEOUS ITEMS ARE INCLUDED IN BID ITEM DOWNSPOUT 6-INCH.
2. TIGHTEN CLAMPS TO A TIGHT SLIP (FOR THERMAL EXPANSION).
3. DOWNSPOUT TO BE SUPPORTED AT 10'-0" MAXIMUM SPACING USING THE ANCHOR SHOWN.
4. DOWNSPOUT WORK TO BE COMPLETED AS DIRECTED BY THE ENGINEER.

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-001

DRAWN BY WMN | PLANS CK'D. WJZ

DOWNSPOUT DETAILS

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62

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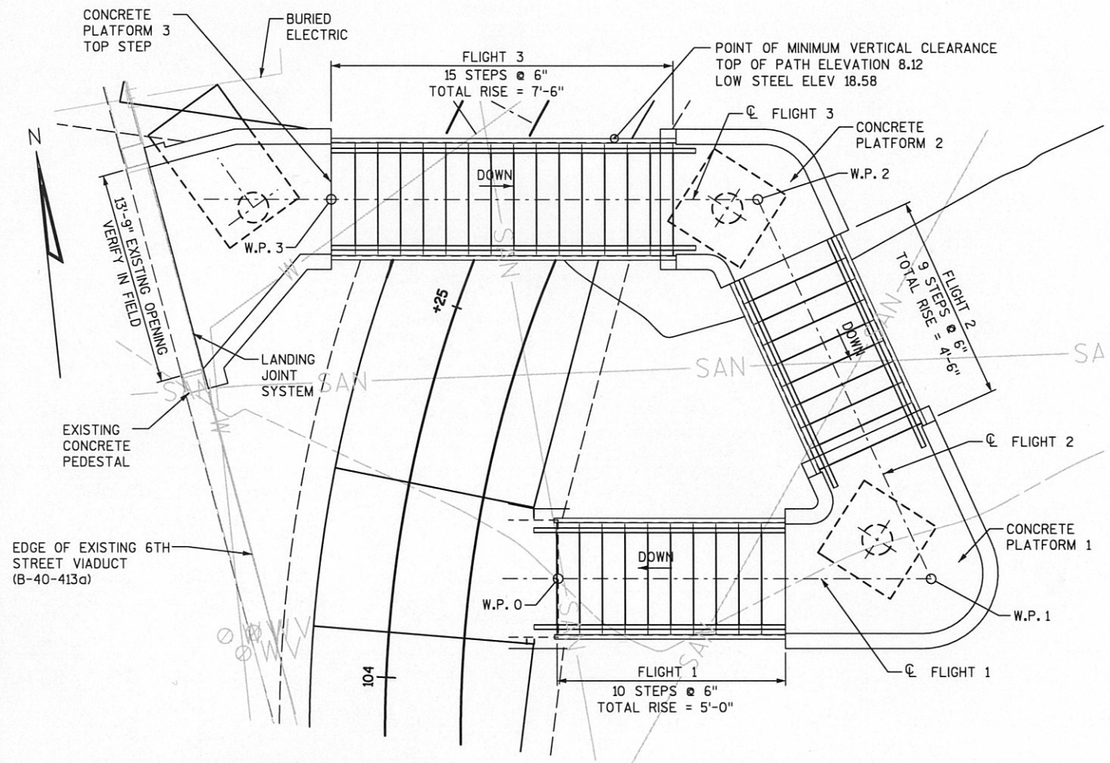
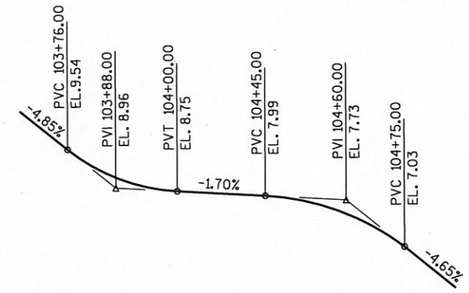
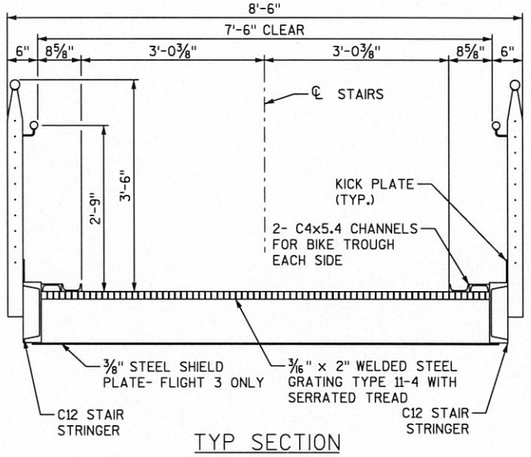


PLAN



PROFILE GRADE LINE 6TH ST. BIKE RAMP



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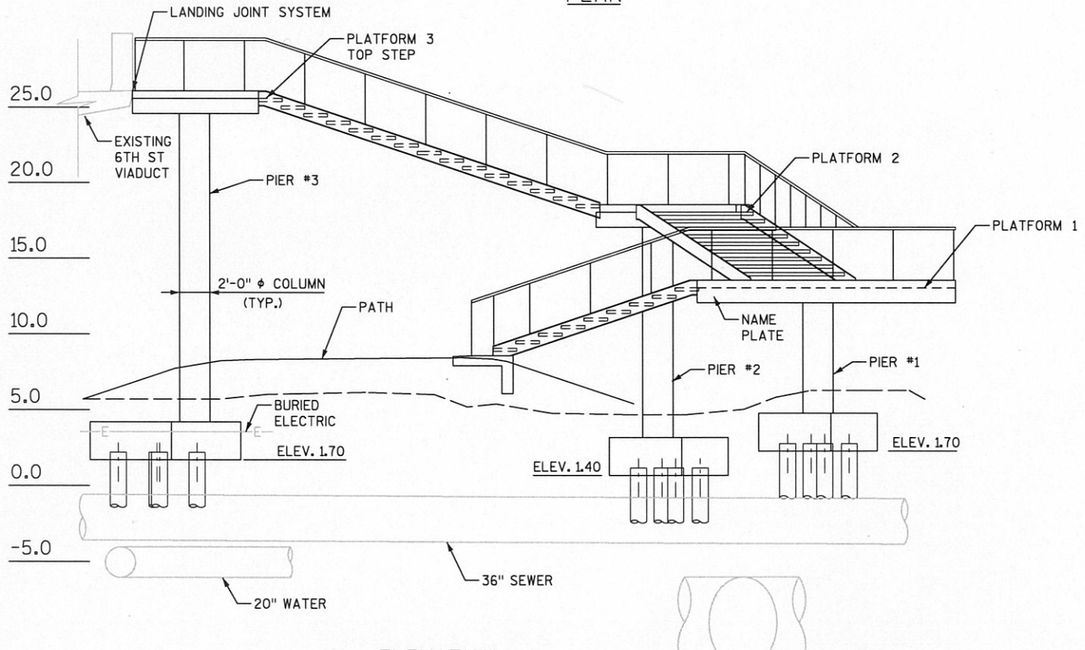
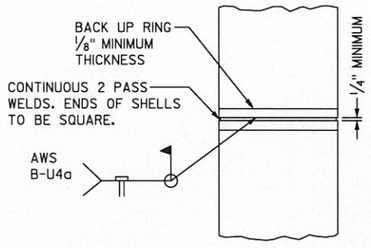


ELEVATION



CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE A.S.T.M. DESIGNATION A-252, GRADE 2 OR EQUAL

CAST-IN-PLACE CONC. PIPE PILE SPLICE DETAIL

DESIGN DATA

LIVE LOAD:

DESIGN LIVE LOADS:
100 PSF PEDESTRIAN LIVE LOAD
300 LB CONCENTRATED LOAD ON STAIR TREADS
RAILING LOADS:
200 LBS AT ANY LOCATION PLUS
50 LB/FT ALONG RAILING

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SUPERSTRUCTURE	f_c' = 4000 PSI
ALL OTHER	f_c' = 3500 PSI
STEEL REINFORCEMENT HIGH STRENGTH BAR, GRADE 60	f_y = 60 KSI

FOUNDATION DATA:

PLACE PIERS ON 12 3/4" X 0.375 - INCH CLOSED-END CONCRETE-FILLED STEEL PIPE PILES WITH A REQUIRED DRIVING RESISTANCE OF 80 TONS/PILE* AT PLATFORM 3 AND 45 TONS/PILE* AT PLATFORMS 1&2 AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION.

* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

EST. PILE LENGTHS: 70 FT PLATFORM 3, 45 FT PLATFORMS 1&2.

BENCH MARKS:

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
100	101+04.21	54.55'RT	PK NAIL	3.40
101	104+68.59	22.26'RT	CHISELED X ON MMSD STRUCT.	4.85
102	103+16.74	148.70'RT	MAG NAIL	7.05

BRIDGE OFFICE CONTACT:

WILLIAM DREHER
PHONE: (608) 266-8489

CONSULTANT CONTACT:

WILLIAM ZIPPEL
PHONE: (414) 308-1321

LIST OF DRAWINGS:

1. GENERAL PLAN
2. SUBSURFACE EXPLORATION
3. QUANTITIES & GENERAL NOTES
4. PLATFORM 1
5. PLATFORM 2
6. PLATFORM 3
7. PLATFORM BAR DETAILS
8. STAIRS
9. RAILING

GENERAL NOTES:

DRAWINGS SHALL NOT BE SCALED

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED

AT THE PIERS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH GRANULAR MATERIAL. PAYMENT WILL BE CONSIDERED AS INCIDENTAL TO THE BID ITEM, "BACKFILL STRUCTURE"

THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL

EXISTING BRIDGE PLANS FOR 6TH ST. VIADUCT ARE AVAILABLE UPON REQUEST FROM THE DEPARTMENT.

W.P. DENOTES WORK POINT.

WISCONSIN
WILLIAM J. ZIPPEL
38868-006
MILWAUKEE, WI
PROFESSIONAL ENGINEER
3/26/2013

STATE PROJECT NUMBER
1693-25-72

NO.	DATE	REVISION	BY

benesch
engineers · scientists · planners
Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20058.05

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher 3/27/13
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE M-40-002

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

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
MH	AJK	WMN	WJZ

GENERAL PLAN AND ELEVATION

SHEET 1 OF 9

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FILE = 082010_GEN_ARRANGE.DGN
SCALE = 1:10

8

8

NOTES:

FOUNDATION DESIGN PARAMETERS ARE BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL EXPLORATION REPORT DATED JANUARY 28, 2013 BY GESTRA ENGINEERING, INC., AVAILABLE FROM WISDOT.

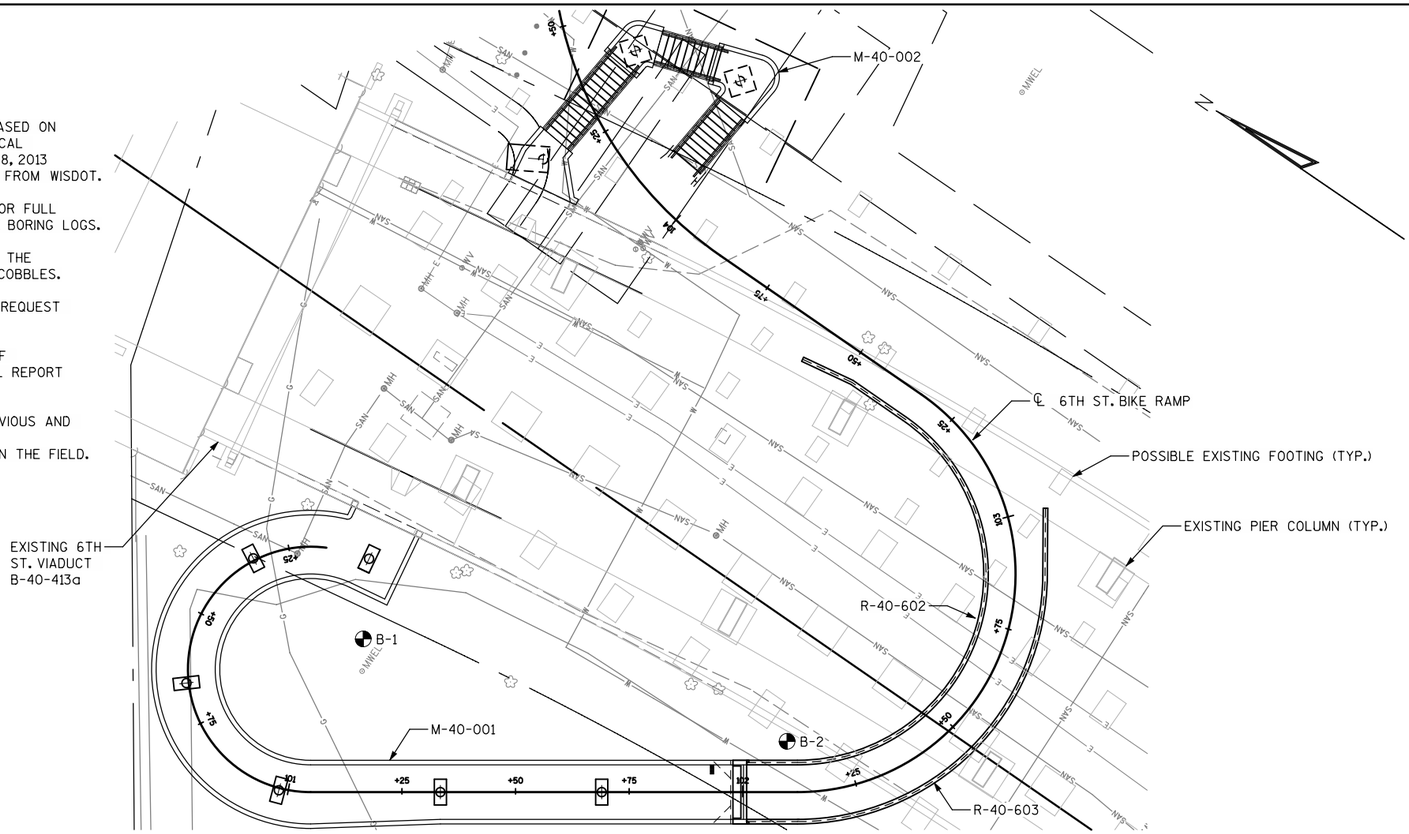
REFER TO THE GEOTECHNICAL REPORT FOR FULL SOIL DESCRIPTIONS AND DETAILS OF THE BORING LOGS.

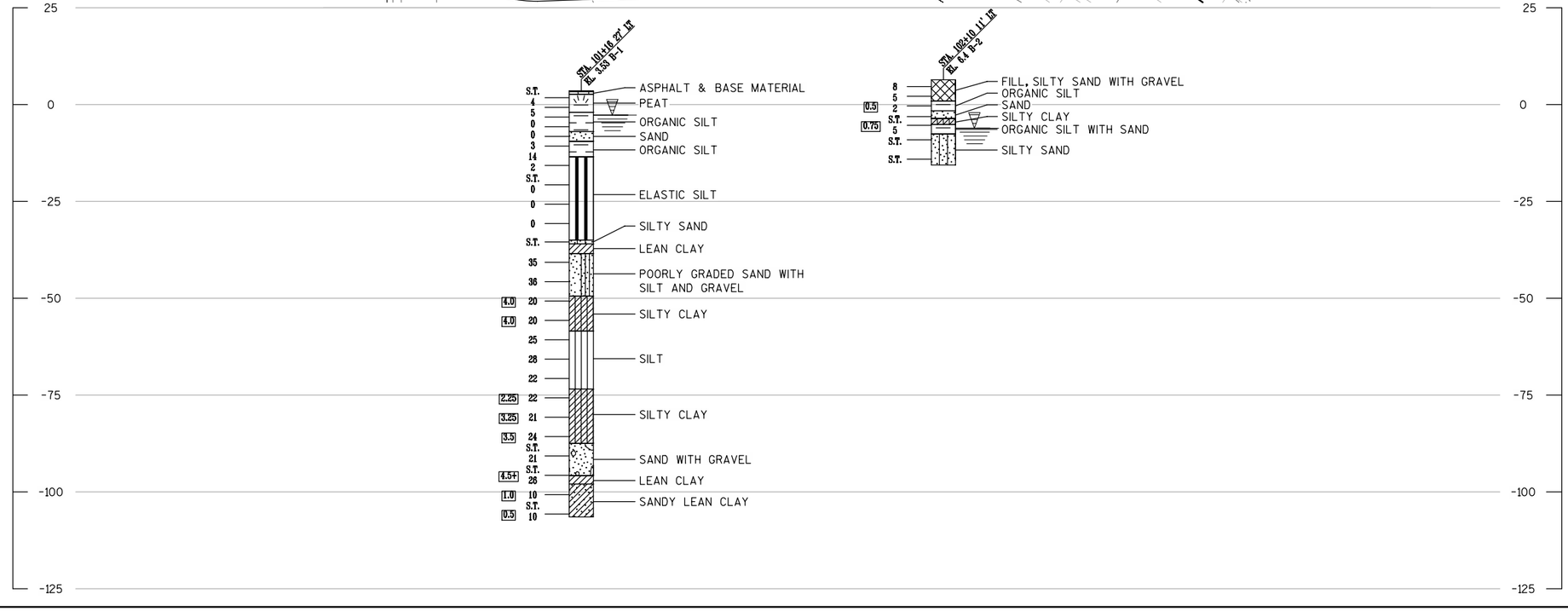
HISTORIC BORINGS IN THE AREA INDICATE THE POSSIBLE PRESENCE OF BOULDERS AND COBBLES.

HISTORIC BORINGS ARE AVAILABLE UPON REQUEST FROM WISDOT.

CONTACT THE WISCONSIN DEPARTMENT OF TRANSPORTATION FOR THE GEOTECHNICAL REPORT AND BORING LOGS.

EXISTING FOOTINGS ARE SHOWN FOR PREVIOUS AND EXISTING STRUCTURES.
CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD.





STATE PROJECT NUMBER

1693-25-72

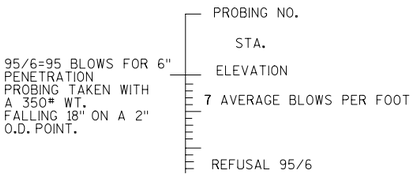
ABBREVIATIONS

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

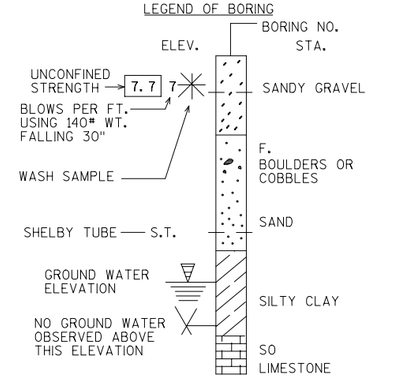
MATERIAL SYMBOLS

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 M-40-002

DRAWN BY WMN | PLANS CK'D. WJZ

SUBSURFACE EXPLORATION

SHEET 2 OF 9

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FILE= 082020_SUBSURFACE.DGN
SCALE = 1:40

8

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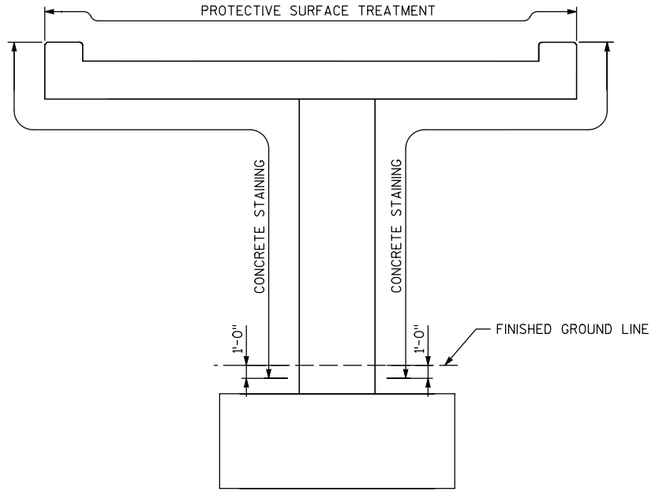
STATE PROJECT NUMBER

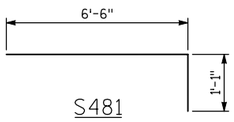
1693-25-72

TOTAL ESTIMATE OF QUANTITIES

BID NO.	BID ITEMS	UNIT	TOTAL
206.1000	EXCAVATION FOR STRUCTURES BRIDGES	LS	1
210.0100	BACKFILL STRUCTURE	CY	35
502.0100	CONCRETE MASONRY, BRIDGES	CY	34
502.3200	PROTECTIVE SURFACE TREATMENT	SY	49
502.5002	MASONRY ANCHORS TYPE L NO. 4 BARS	EACH	8
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	1203
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	5304
509.1500	CONCRETE SURFACE REPAIR	SF	65
517.1010.S	CONCRETE STAINING	SF	782
550.0600	PILE REDRIVING	EACH	6
550.2126	PILING CIP CONCRETE 12 3/4 X 0.375-INCH	LF	640
SPV.0060.04	LANDING JOINT SYSTEM	EACH	1
SPV.0090.02	STEEL RAILING TYPE 2 SPECIAL	LF	184
SPV.0105.01	STEEL GRATE STAIRS	LS	1
	NON-BID ITEMS		
	JOINT FILLER		
	NON-BITUMINOUS JOINT SEALER		
	NAME PLATE		



PLATFORM & PIER
LIMITS OF CONCRETE STAINING

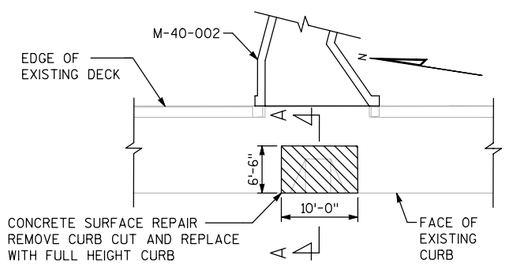


S481

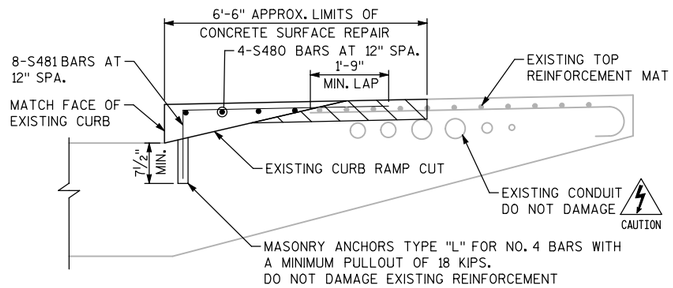
BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	CUT BARS	60 # COATED 0 # UNCOATED / LOCATION
S480	X	4	7'-3"				LONGITUDINAL
S481	X	8	7'-6"	X			TRANSVERSE

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.
CUT BARS TO FIT IN FIELD.



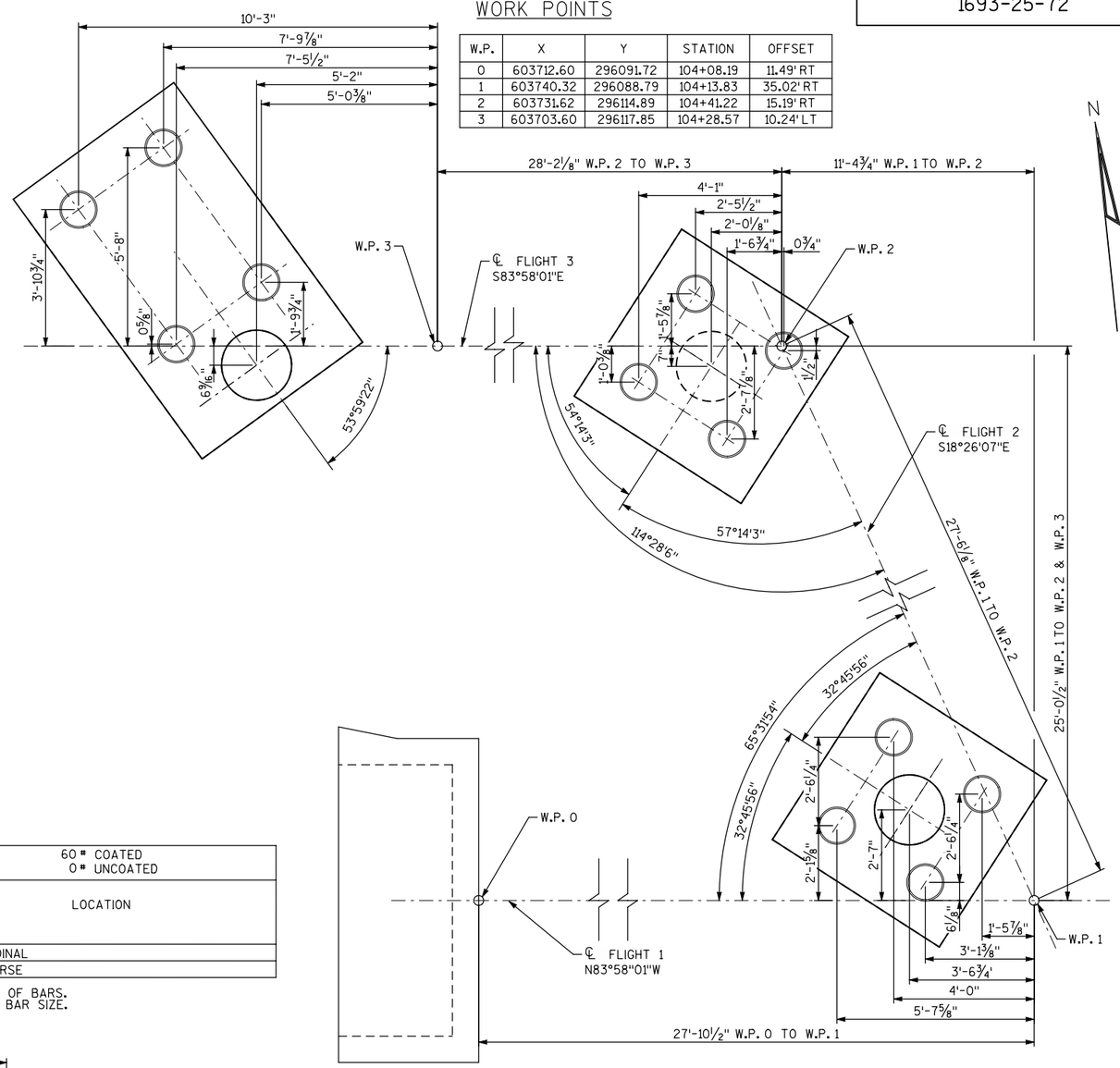
CONCRETE SURFACE REPAIR PLAN



CONCRETE SURFACE REPAIR SECTION A-A

WORK POINTS

W.P.	X	Y	STATION	OFFSET
0	603712.60	296091.72	104+08.19	11.49' RT
1	603740.32	296088.79	104+13.83	35.02' RT
2	603731.62	296114.89	104+41.22	15.19' RT
3	603703.60	296117.85	104+28.57	10.24' LT



LAYOUT SKETCH

CONCRETE SURFACE REPAIR NOTES:

-SCORE EDGES, REMOVE SURFACE CONCRETE TO BELOW TOP MAT OF EXISTING REINFORCING STEEL.
-USE CAUTION WHEN REVOVING CONCRETE NEAR EXISTING CONDUITS IN SIDEWALK.
-CONTACT CITY OF MILWAUKEE DEPARTMENT OF PUBLIC WORKS PRIOR TO DEMOLITION.
-WORK DESCRIBED ABOVE IS PAID FOR AS CONCRETE SURFACE REPAIR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-002

DRAWN BY WMN | PLANS CK'D. WJZ

QUANTITIES & GENERAL NOTES

SHEET 3 OF 9

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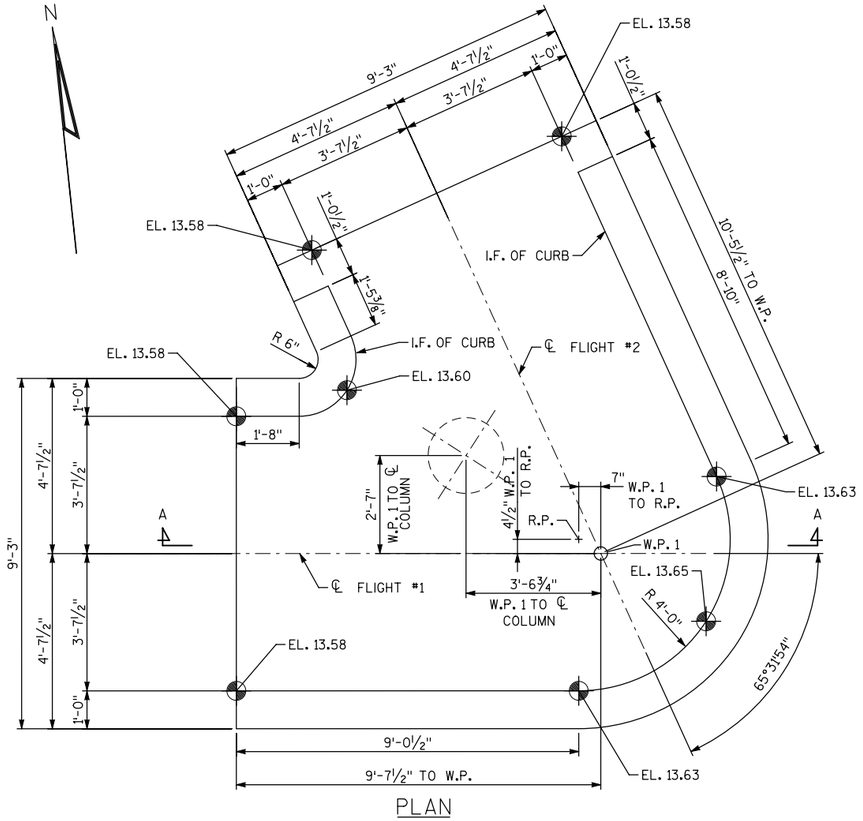
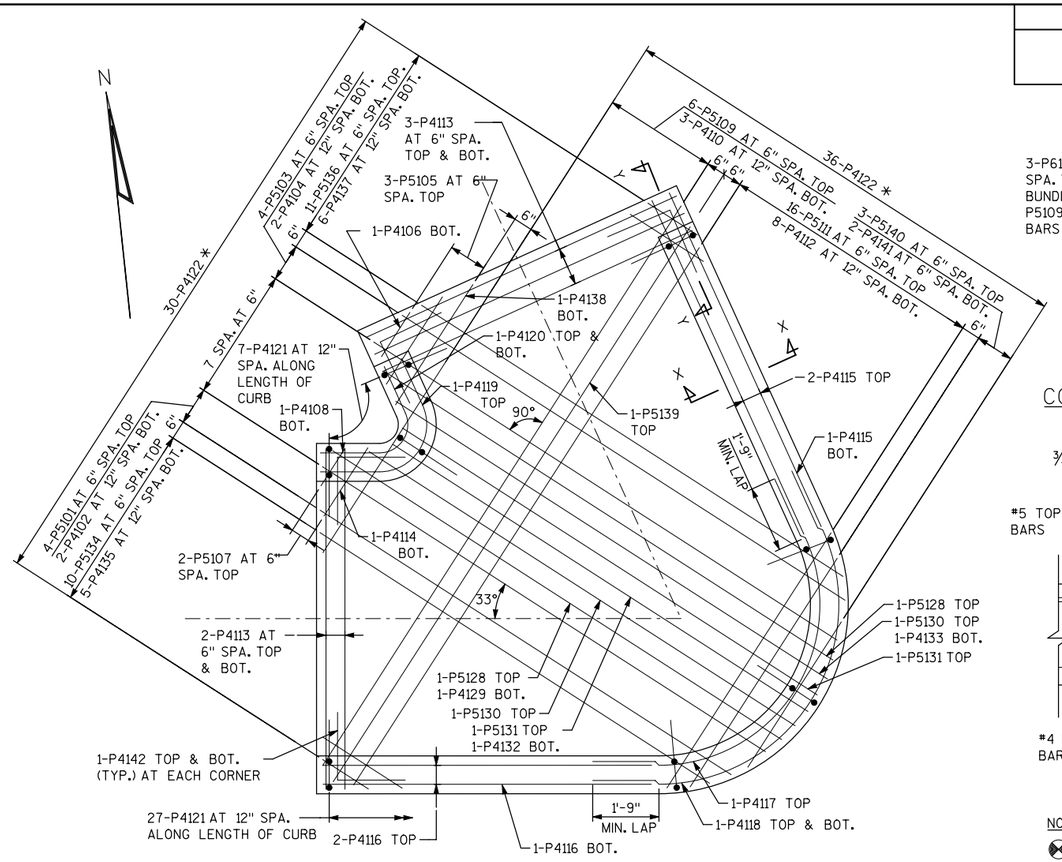
SCALE = 1:4

STATE PROJECT NUMBER

1693-25-72

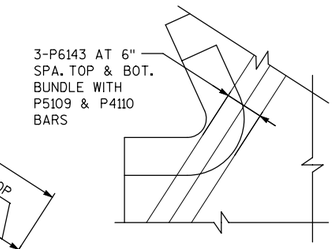


PLAN

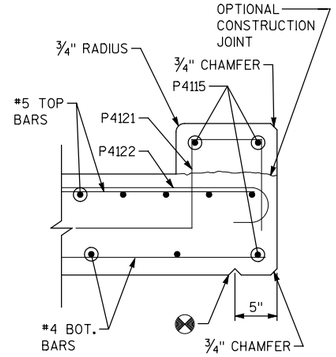


REINFORCEMENT PLAN

* BUNDLE P4122 AT EACH END OF EVERY OTHER TOP BAR IN PLATFORM SLAB



ADDITIONAL INSIDE CORNER REINFORCEMENT

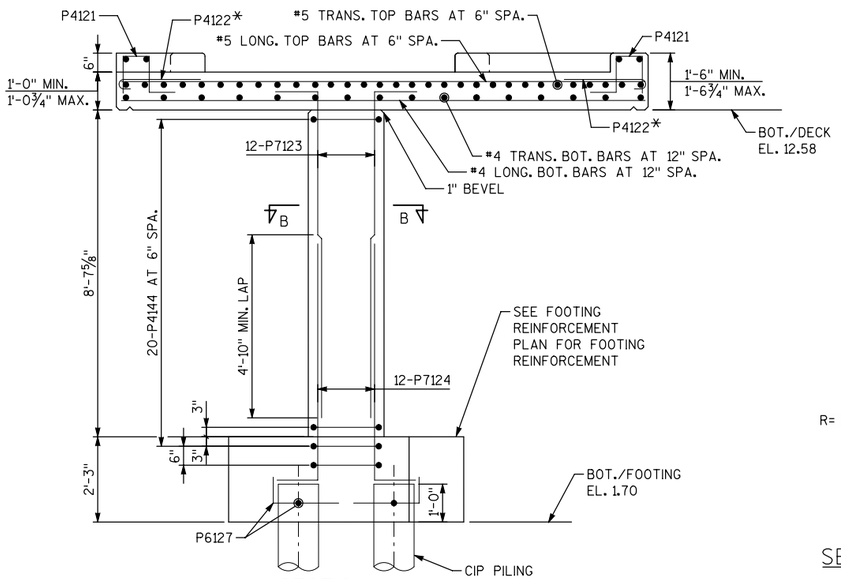


SECTION X-X

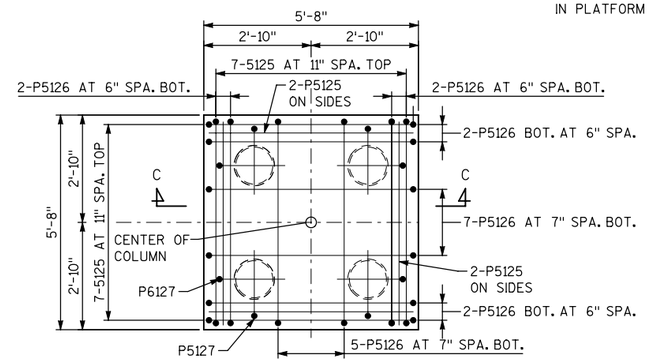
NOTE:

⊗ ¾" V-GROOVE. TERMINATE 2'-0" FROM END OF PLATFORM.

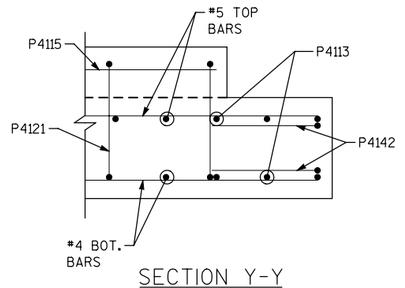
V-GROOVES ARE REQUIRED. RAILING ANCHORAGES AND DETAILS NOT SHOWN FOR CLARITY.



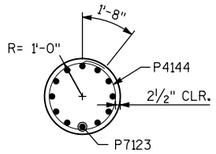
SECTION A-A



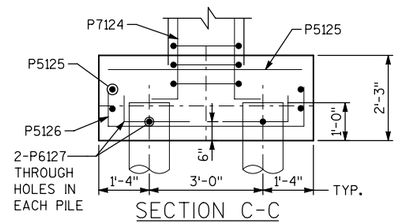
FOOTING REINFORCEMENT PLAN



SECTION Y-Y



SECTION B-B



SECTION C-C

LEGEND

W.P. DENOTES WORK POINT
R.P DENOTES CURVE RADIUS CENTER POINT

⊕ INDICATES FINISHED TOP OF DECK ELEVATION LOCATIONS

I.F. DENOTES INSIDE FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-002

DRAWN BY WMN | PLANS CK'D. WJZ

PLATFORM 1

SHEET 4 OF 9

66

FILE= 082040_PLATF1.DGN
SCALE = 1:4

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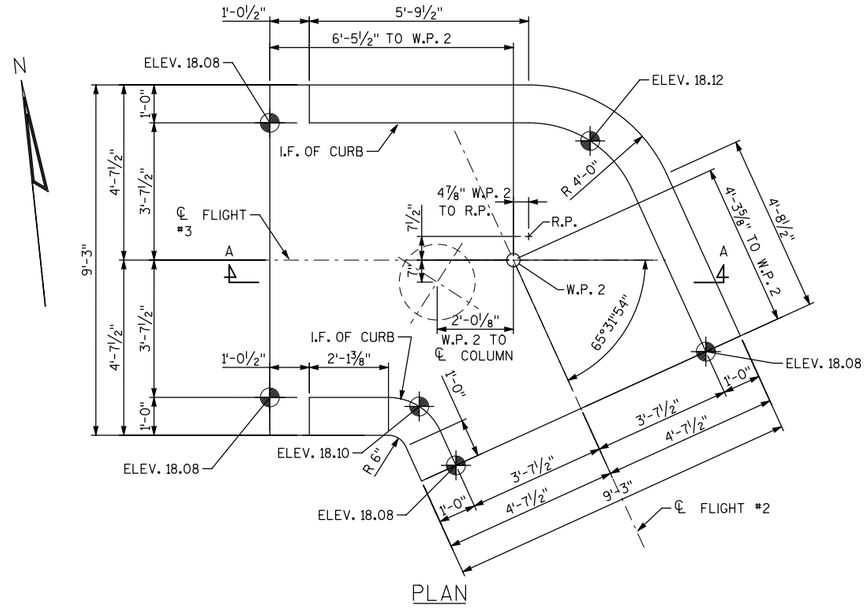
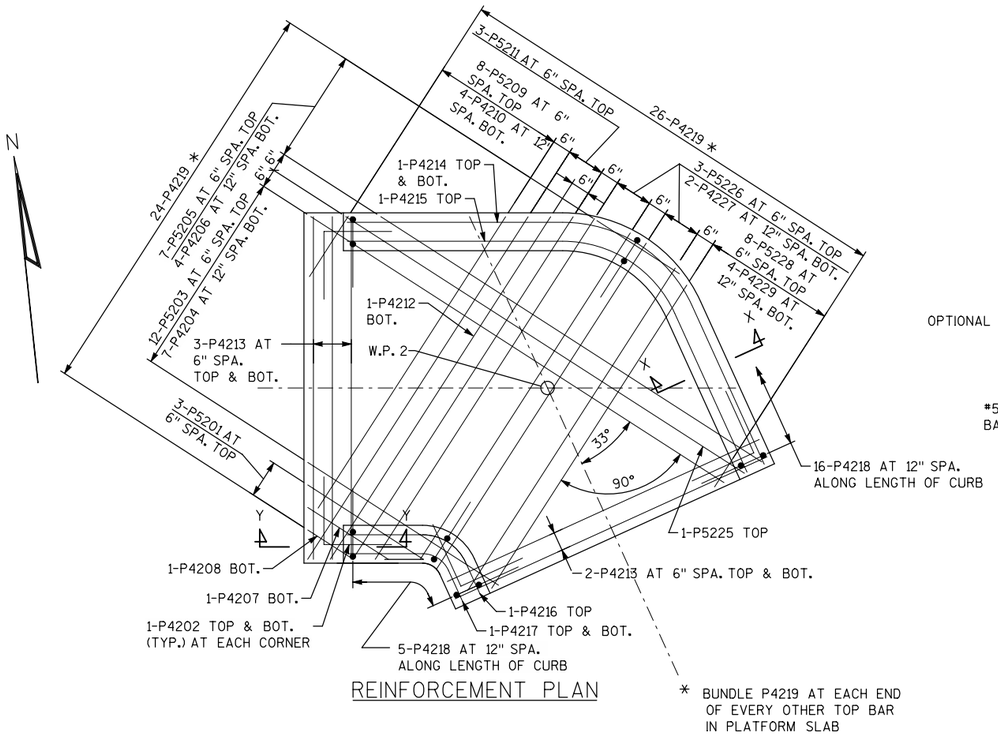
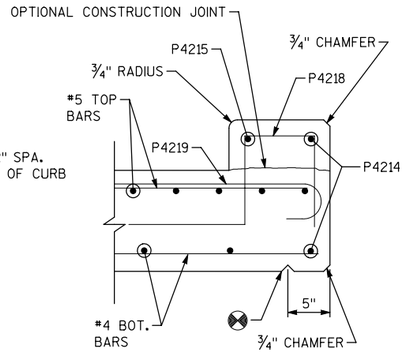
8

STATE PROJECT NUMBER
1693-25-72





* BUNDLE P4219 AT EACH END OF EVERY OTHER TOP BAR IN PLATFORM SLAB

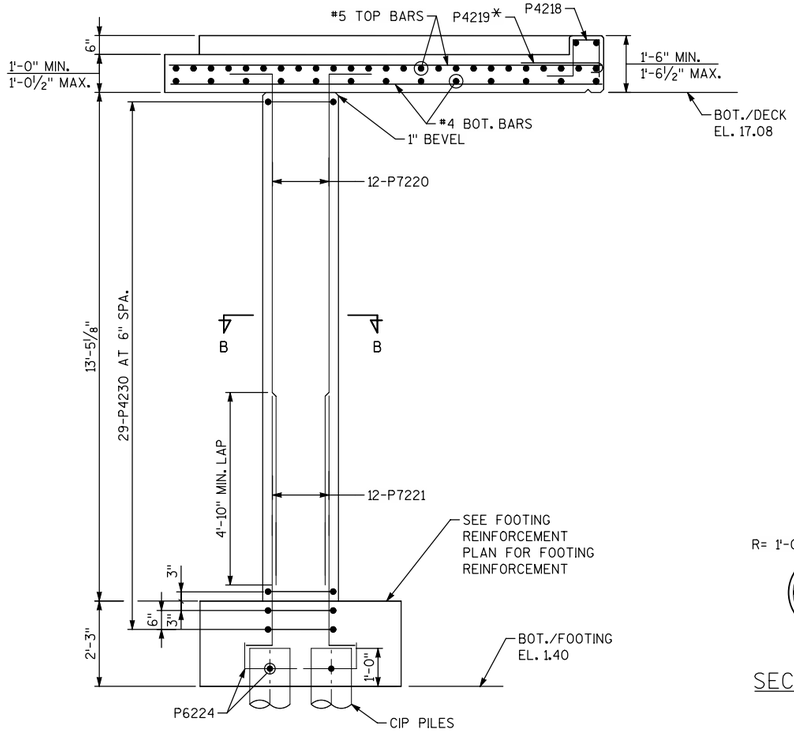


SECTION X-X

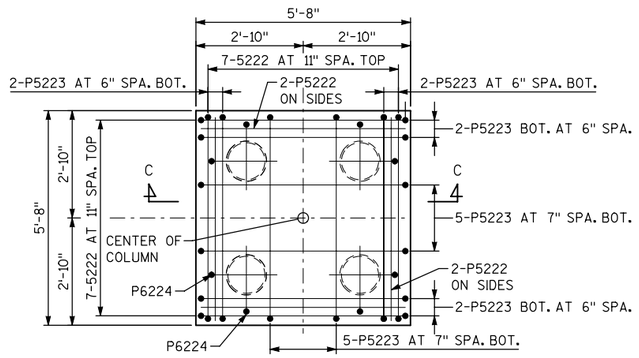
NOTE:

⊗ ¾" V-GROOVE. TERMINATE 2'-0" FROM END OF PLATFORM.

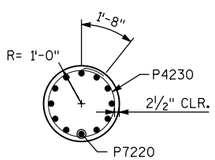
V-GROOVES ARE REQUIRED. RAILING ANCHORAGE AND DETAILS NOT SHOWN FOR CLARITY.



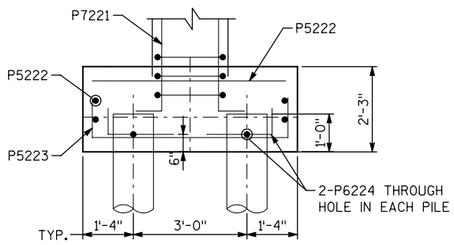
SECTION A-A



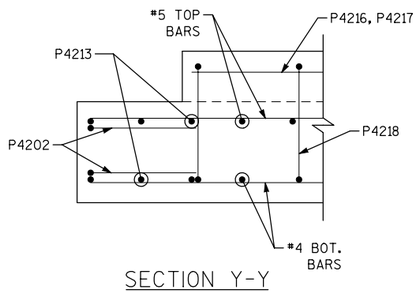
FOOTING REINFORCEMENT PLAN



SECTION B-B



SECTION C-C



SECTION Y-Y

LEGEND

W.P. DENOTES WORK POINT
R.P DENOTES CURVE RADIUS CENTER POINT

⊕ INDICATES FINISHED TOP OF DECK ELEVATION LOCATIONS

I.F. DENOTES INSIDE FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-002

DRAWN BY WMN | PLANS CK'D. WJZ

PLATFORM 2

SHEET 5 OF 9

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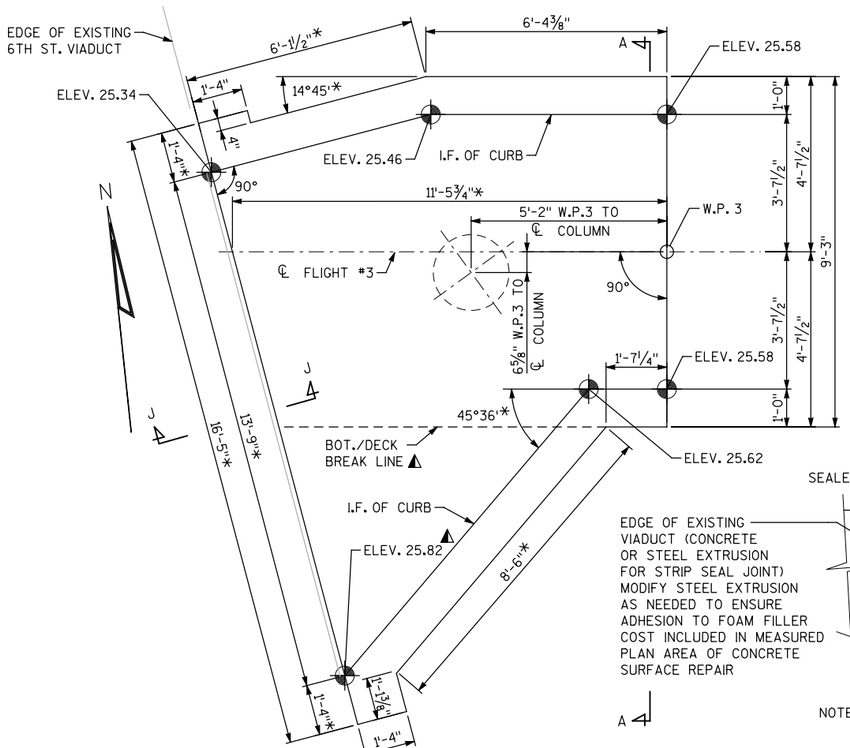
8

8

FILE= 082060_PLATF2.DGN
SCALE = 1:4

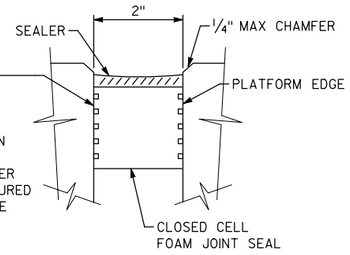
STATE PROJECT NUMBER

1693-25-72



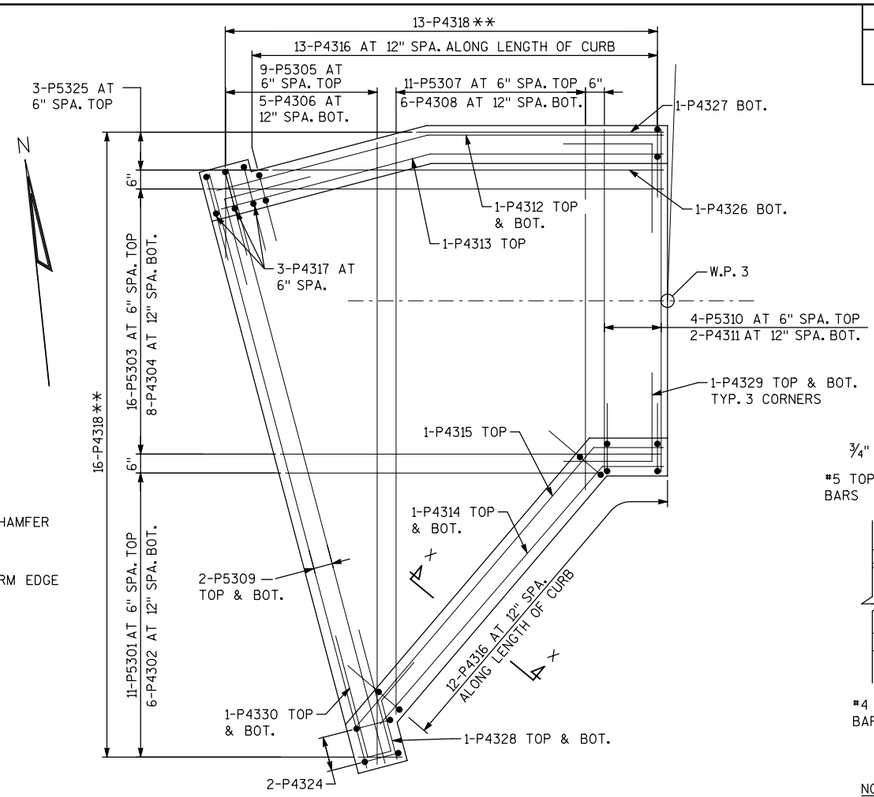
PLAN

"*" DENOTES DIMENSION TO BE ADJUSTED TO FIT EXISTING CONDITIONS. MATCH EXISTING OPENING IN 6TH ST. VIADUCT RAILING



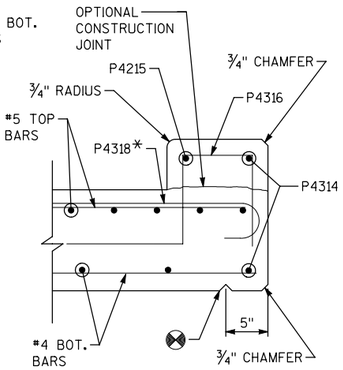
NOTE: RUN JOINT SYSTEM UP CURB FACE AT BOTH ENDS

SECTION J-J
LANDING JOINT SYSTEM



REINFORCEMENT PLAN

** BUNDLE P4318 AT EACH END OF EVERY OTHER TOP BAR IN PLATFORM SLAB

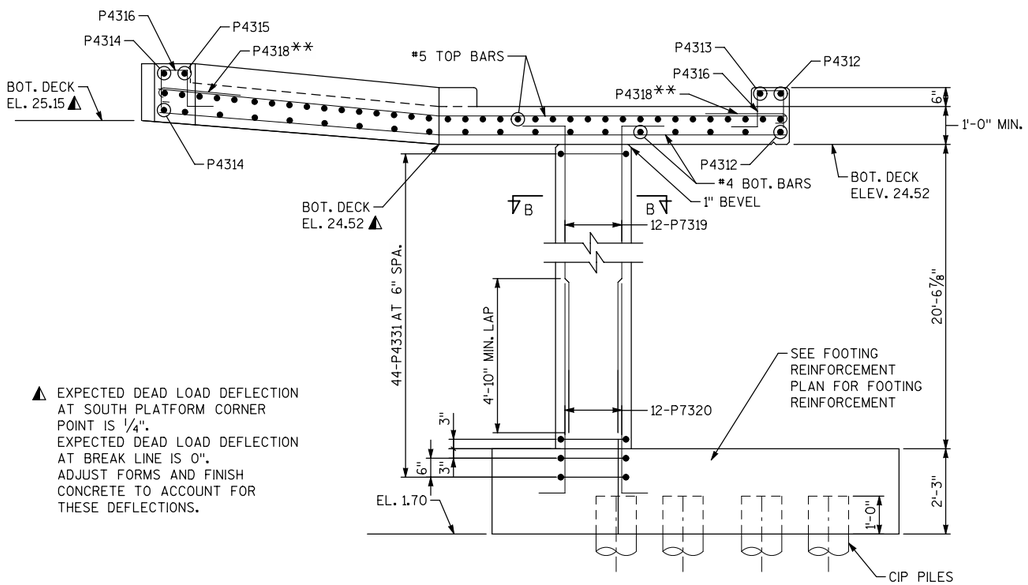


SECTION X-X

NOTE:

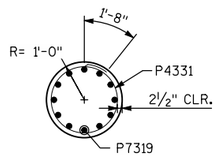
3/4" V-GROOVE. TERMINATE 2'-0" FROM END OF PLATFORM.

V-GROOVES ARE REQUIRED. RAILING ANCHORAGES AND DETAILS NOT SHOWN FOR CLARITY.

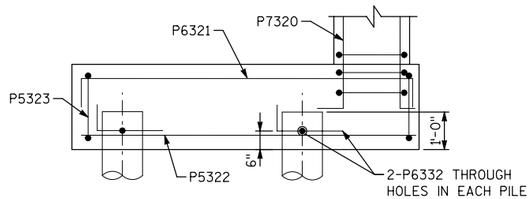


SECTION A-A

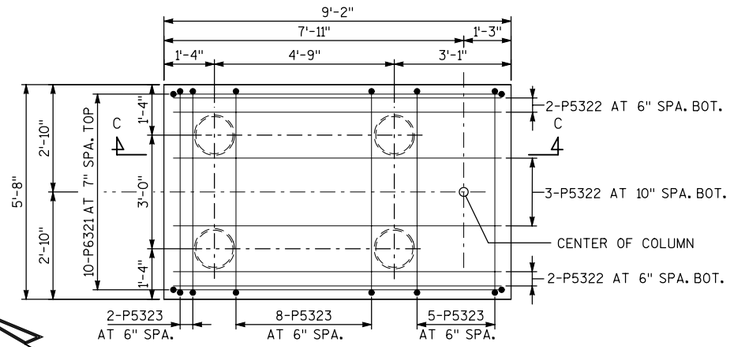
▲ EXPECTED DEAD LOAD DEFLECTION AT SOUTH PLATFORM CORNER POINT IS 1/4". EXPECTED DEAD LOAD DEFLECTION AT BREAK LINE IS 0". ADJUST FORMS AND FINISH CONCRETE TO ACCOUNT FOR THESE DEFLECTIONS.



SECTION B-B



SECTION C-C



FOOTING REINFORCEMENT PLAN

LEGEND

W.P. DENOTES WORK POINT
R.P DENOTES CURVE RADIUS CENTER POINT

INDICATES FINISHED TOP OF DECK ELEVATION LOCATIONS

I.F. DENOTES INSIDE FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-002

DRAWN BY WMN | PLANS CK'D. WJZ

PLATFORM 3

SHEET 6 OF 9

68

FILE= 082080_PLATF3.DGN
SCALE = 1:4

8

8

STATE PROJECT NUMBER

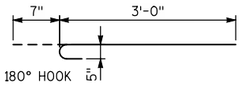
1693-25-72

BILL OF BARS- PLATFORM 1

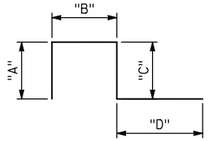
BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	▲ BAR SERIES	1847 # COATED 306 # UNCOATED LOCATION
P5101	X	4	12'-11"			X	PLATFORM TOP LONG.
P4102	X	2	12'-8"			X	PLATFORM BOT. LONG.
P5103	X	4	13'-11"			X	PLATFORM TOP LONG.
P4104	X	2	14'-3"			X	PLATFORM BOT. LONG.
P5105	X	3	2'-8"			X	PLATFORM TOP TRANS.
P4106	X	1	1'-7"				PLATFORM BOT. TRANS.
P5107	X	2	1'-9"			X	PLATFORM TOP TRANS.
P4108	X	1	1'-3"				PLATFORM BOT. TRANS.
P5109	X	6	12'-9"			X	PLATFORM TOP TRANS.
P4110	X	3	12'-11"			X	PLATFORM BOT. TRANS.
P5111	X	16	12'-9"			X	PLATFORM TOP TRANS.
P4112	X	8	13'-1"			X	PLATFORM BOT. TRANS.
P4113	X	10	8'-11"				PLATFORM SLAB EDGE
P4114	X	1	2'-4"				PLATFORM BOT. TRANS.
P4115	X	3	9'-10"				PLATFORM CURB
P4116	X	3	8'-11"				PLATFORM CURB
P4117	X	1	11'-10"	X			PLATFORM CURB INSIDE RADIUS
P4118	X	2	13'-2"	X			PLATFORM CURB OUTSIDE RADIUS
P4119	X	1	5'-5"	X			PLATFORM CURB INSIDE RADIUS
P4120	X	2	4'-1"	X			PLATFORM CURB OUTSIDE RADIUS
P4121	X	34	4'-2"	X			PLATFORM CURB VERT.
P4122	X	66	3'-7"	X	X		PLATFORM SLAB EDGE
P7123	X	12	9'-10"	X			COLUMN VERT.
P7124	X	12	7'-7"	X			COLUMN VERT.
P5125		18	5'-4"				FOOTING TOP AND SIDE HORIZ.
P5126		16	7'-9"	X			FOOTING BOT. HORIZ.
P6127		8	3'-10"	X			FOOTING PILES
P5128	X	2	14'-2"				PLATFORM TOP LONG.
P4129	X	1	14'-2"				PLATFORM BOT. LONG.
P5130	X	2	13'-6"				PLATFORM TOP LONG.
P5131	X	2	13'-0"				PLATFORM TOP LONG.
P4132	X	1	13'-0"				PLATFORM BOT. LONG.
P4133	X	1	13'-6"				PLATFORM BOT. LONG.
P5134	X	10	6'-3"			X	PLATFORM TOP LONG.
P4135	X	5	5'-8"				PLATFORM BOT. LONG.
P5136	X	11	6'-9"			X	PLATFORM TOP LONG.
P4137	X	6	6'-9"				PLATFORM BOT. LONG.
P4138	X	1	3'-9"				PLATFORM BOT. TRANS.
P5139	X	1	17'-5"				PLATFORM TOP TRANS.
P5140	X	3	6'-0"				PLATFORM TOP TRANS.
P4141	X	2	6'-0"				PLATFORM BOT. TRANS.
P4142	X	8	3'-11"	X			PLATFORM CORNERS
P6143	X	6	6'-0"		X		PLATFORM INSIDE CORNER
P4144	X	20	6'-9"	X			COLUMN HOOPS

BAR SERIES TABLE- PLATFORM 1

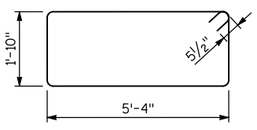
BAR NO.	NUMBER REQUIRED	LENGTH
P5101	1 SERIES OF 4	12'-0" TO 13'-11"
P4102	1 SERIES OF 2	12'-0" TO 13'-3"
P5103	1 SERIES OF 4	13'-1" TO 14'-9"
P4104	1 SERIES OF 2	13'-9" TO 14'-9"
P5105	1 SERIES OF 3	1'-7" TO 3'-9"
P5107	1 SERIES OF 2	1'-3" TO 2'-4"
P5109	1 SERIES OF 6	9'-2" TO 16'-4"
P4110	1 SERIES OF 3	9'-6" TO 16'-4"
P5111	1 SERIES OF 16	8'-0" TO 17'-7"
P4112	1 SERIES OF 8	8'-8" TO 17'-7"
P5134	1 SERIES OF 10	1'-4" TO 11'-2"
P4135	1 SERIES OF 5	1'-4" TO 10'-1"
P5136	1 SERIES OF 11	1'-3" TO 12'-2"
P4137	1 SERIES OF 6	1'-3" TO 12'-2"
P5140	1 SERIES OF 3	4'-9" TO 7'-2"
P4141	1 SERIES OF 2	4'-9" TO 7'-2"



P4122, P4219, P4318



BAR NO.	DIM "A"	DIM "B"	DIM "C"	DIM "D"
P4121	1'-0"	8"	1'-0"	1'-9"
P4218	1'-0"	8"	1'-0"	1'-9"
P4316	10"	8"	10"	1'-9"
P4317	10"	1'-0"	10"	1'-9"



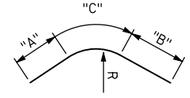
P5323

BILL OF BARS- PLATFORM 2

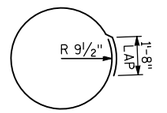
BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	▲ BAR SERIES	1481 # COATED 275 # UNCOATED LOCATION
P5201	X	3	2'-3"			X	PLATFORM TOP TRANS.
P4202	X	8	3'-11"	X			PLATFORM CORNERS
P5203	X	12	9'-4"			X	PLATFORM TOP TRANS.
P4204	X	7	9'-8"			X	PLATFORM BOT. TRANS.
P5205	X	7	7'-2"			X	PLATFORM TOP TRANS.
P4206	X	4	7'-2"			X	PLATFORM BOT. TRANS.
P5207	X	1	3'-4"				PLATFORM TOP TRANS.
P4208	X	1	1'-1"				PLATFORM BOT. TRANS.
P5209	X	8	5'-7"			X	PLATFORM TOP LONG.
P4210	X	4	6'-1"			X	PLATFORM BOT. LONG.
P5211	X	3	10'-7"				PLATFORM TOP LONG.
P4212	X	1	10'-7"				PLATFORM BOT. LONG.
P4213	X	10	8'-11"				PLATFORM BOT. SLAB EDGE
P4214	X	2	14'-7"	X			PLATFORM CURB OUTSIDE RADIUS
P4215	X	1	13'-9"	X			PLATFORM CURB INSIDE RADIUS
P4216	X	1	4'-3"	X			PLATFORM CURB INSIDE RADIUS
P4217	X	2	3'-6"	X			PLATFORM CURB OUTSIDE RADIUS
P4218	X	21	4'-2"	X			PLATFORM CURB VERT.
P4219	X	50	3'-7"	X	X		PLATFORM SLAB EDGE
P7220	X	12	14'-7"	X			COLUMN VERT.
P7221	X	12	7'-7"	X			COLUMN VERT.
P5222		18	5'-4"				FOOTING TOP & SIDE HORIZ.
P5223		16	7'-9"	X			FOOTING BOT. HORIZ.
P6224		8	3'-10"	X			FOOTING PILES
P5225	X	1	12'-5"				PLATFORM TOP TRANS.
P5226	X	6	10'-2"			X	PLATFORM TOP LONG.
P4227	X	4	10'-2"			X	PLATFORM TOP LONG.
P5228	X	8	5'-7"			X	PLATFORM TOP LONG.
P4229	X	4	4'-9"			X	PLATFORM BOT. LONG.
P4230	X	29	6'-9"	X			COLUMN HOOPS

BAR SERIES TABLE- PLATFORM 2

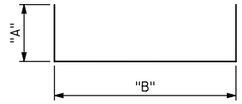
BAR NO.	NUMBER REQUIRED	LENGTH
P5201	1 SERIES OF 3	1'-1" TO 3'-4"
P5203	1 SERIES OF 12	5'-9" TO 12'-10"
P4204	1 SERIES OF 7	6'-6" TO 12'-10"
P5205	1 SERIES OF 7	2'-5" TO 11'-11"
P4206	1 SERIES OF 4	2'-5" TO 11'-11"
P5209	1 SERIES OF 8	1'-9" TO 9'-5"
P4210	1 SERIES OF 4	2'-10" TO 9'-5"
P5226	2 SERIES OF 3	10'-0" TO 10'-5"
P4227	2 SERIES OF 2	10'-0" TO 10'-5"
P5228	1 SERIES OF 8	1'-9" TO 9'-4"
P4229	1 SERIES OF 4	1'-9" TO 8'-3"



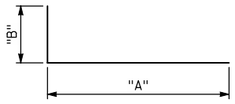
BAR NO.	DIM "A"	DIM "B"	DIM "C"	RADIUS
P4117	1'-9"	1'-9"	8'-4"	4'-2"
P4118	1'-9"	1'-9"	9'-8"	4'-10"
P4119	1'-3"	1'-6"	2'-8"	1'-4"
P4120	1'-3"	1'-6"	1'-4"	8"
P4214	5'-8"	4'-4"	4'-7"	3'-10"
P4215	5'-8"	4'-4"	3'-9"	3'-2"
P4216	1'-11"	10"	1'-6"	1'-4"
P4217	1'-11"	10"	9"	8"



P4144, P4230, P4331



BAR NO.	DIM "A"	DIM "B"
A404	3'-8"	8'-6"
P5126	1'-4"	5'-4"
P5223	1'-4"	5'-4"
P4324	10"	8"
P4330	2'-0"	1'-0"
P6321	1'-4"	8'-10"



BAR NO.	DIM "A"	DIM "B"
P7123	8'-10"	1'-2"
P7124	6'-7"	1'-2"
P6126	3'-0"	1'-0"
P4142	2'-0"	2'-0"
P4202	2'-0"	2'-0"
P7220	13'-8"	1'-2"
P7221	6'-7"	1'-2"
P6224	3'-0"	1'-0"
P7319	20'-9"	1'-2"
P7320	6'-7"	1'-2"
P4329	2'-0"	2'-0"
P6332	3'-0"	1'-0"

BILL OF BARS- PLATFORM 3

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	▲ BAR SERIES	1916 # COATED 509 # UNCOATED LOCATION
P5301	X	11	5'-1"			X	PLATFORM TOP LONG.
P4302	X	6	5'-1"			X	PLATFORM BOT. LONG.
P5303	X	16	10'-11"			X	PLATFORM TOP LONG.
P4304	X	8	10'-11"			X	PLATFORM BOT. LONG.
P5305	X	9	9'-0"			X	PLATFORM TOP TRANS.
P4306	X	5	9'-0"			X	PLATFORM BOT. TRANS.
P5307	X	11	12'-4"			X	PLATFORM TOP TRANS.
P4308	X	6	12'-4"			X	PLATFORM BOT. TRANS.
P5309	X	4	16'-1"				PLATFORM SLAB EDGE
P5310	X	4	8'-11"				PLATFORM SLAB EDGE
P4311	X	2	8'-11"				PLATFORM SLAB EDGE
P4312	X	2	12'-1"	X			PLATFORM CURB OUTSIDE HORIZ.
P4313	X	1	11'-11"	X			PLATFORM CURB INSIDE HORIZ.
P4314	X	2	11'-0"	X			PLATFORM CURB OUTSIDE HORIZ.
P4315	X	1	11'-4"	X			PLATFORM CURB INSIDE HORIZ.
P4316	X	25	3'-10"	X			PLATFORM CURB VERT.
P4317	X	3	4'-2"	X			PLATFORM CURB VERT.
P4318	X	30	3'-7"	X	X		PLATFORM SLAB EDGE
P7319	X	12	21'-9"	X			COLUMN VERT.
P7320	X	12	7'-7"	X			COLUMN VERT.
P6321		10	11'-2"	X			FOOTING TOP HORIZ.
P5322		7	8'-10"				FOOTING BOT. HORIZ.
P5323		15	14'-9"	X			FOOTING STIRRUP
P4324	X	2	2'-2"	X			CURB VERT.
P5325	X	3	8'-1"			X	PLATFORM TOP LONG.
P4326	X	1	10'-0"				PLATFORM BOT. LONG.
P4327	X	1	6'-2"				PLATFORM BOT. LONG.
P4328	X	2	3'-9"	X			CURB END
P4329	X	6	3'-11"	X			PLATFORM CORNERS
P4330	X	2	4'-10"	X			PLATFORM CORNER
P4331	X	44	6'-9"	X			COLUMN HOOPS
P6332		8	3'-10"	X			FOOTING PILES

BAR SERIES TABLE- PLATFORM 3

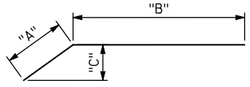
BAR NO.	NUMBER REQUIRED	LENGTH
P5301	1 SERIES OF 11	2'-4" TO 7'-10"
P4302	1 SERIES OF 6	2'-4" TO 7'-10"
P5303	1 SERIES OF 16	9'-11" TO 11'-11"
P4304	1 SERIES OF 8	9'-11" TO 11'-10"
P5305	1 SERIES OF 9	2'-0" TO 16'-1"
P5306	1 SERIES OF 5	2'-0" TO 16'-1"
P5307	1 SERIES OF 11	9'-6" TO 15'-1"
P4308	1 SERIES OF 6	9'-6" TO 15'-1"
P5325	1 SERIES OF 3	6'-2" TO 10'-0"

NOTES:

- -DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.
- -THE FIRST ONE OR TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- ▲ -LENGTH SHOWN FOR BAR SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS.
- -SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.
- -BUNDLE AND TAG EACH BAR SERIES SEPARATELY.

BILL OF BARS- BOTTOM LANDING

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	▲ BAR SERIES	0 # COATED 113 # UNCOATED LOCATION
A401		5	8'-11"				LANDING PLATFORM TRANS.
A402		10	3'-8"				LANDING PLATFORM LONG.
A403		18	2'-2"				LANDING PLATFORM VERT.
A404		3	15'-10"	X			LANDING PLATFORM HORIZ.



BAR NO.	DIM "A"	DIM "B"	DIM "C"
P4312	5'-11"	6'-2"	1'-6"
P4313	5'-10"	6'-1"	1'-6"
P4314	1'-6"	9'-6"	1'-2"
P4315	1'-10"	9'-6"	1'-4"
P4328	1'-9"	2'-0"	1'-5"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-002

DRAWN BY WMN | PLANS CK'D. WJZ

PLATFORM BAR DETAILS

SHEET 7 OF 9

69

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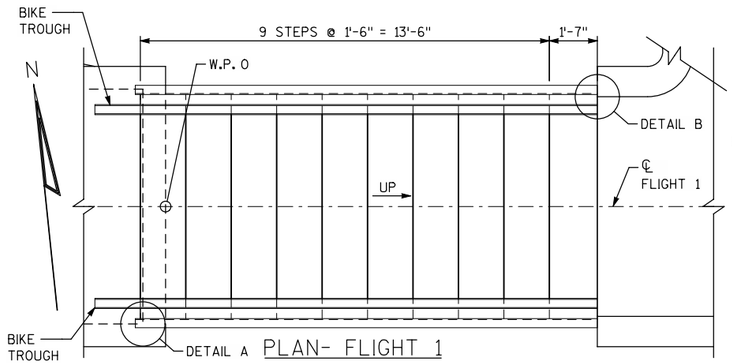
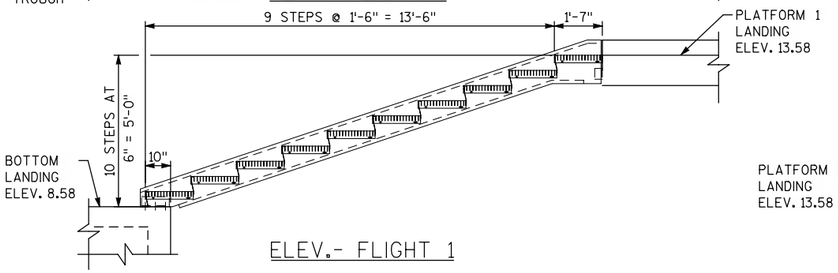
8

STATE PROJECT NUMBER

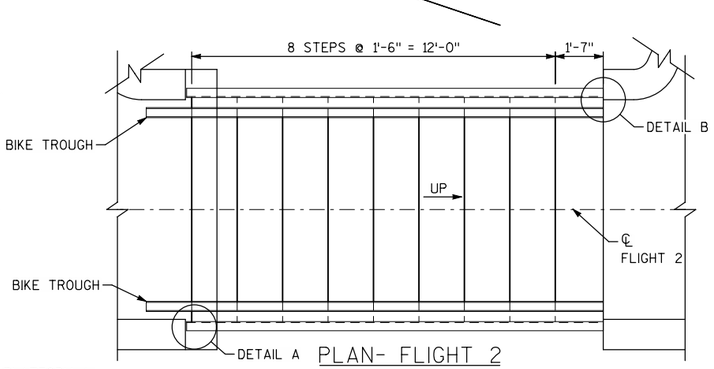
1693-25-72



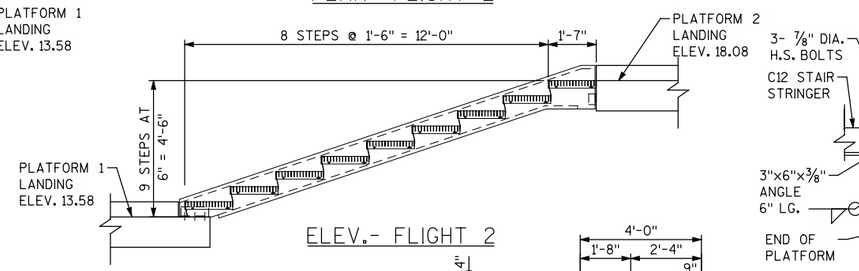
PLAN- FLIGHT 1



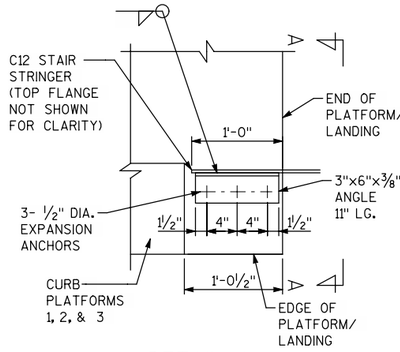
ELEV.- FLIGHT 1



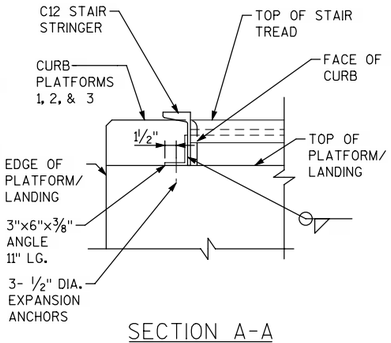
PLAN- FLIGHT 2



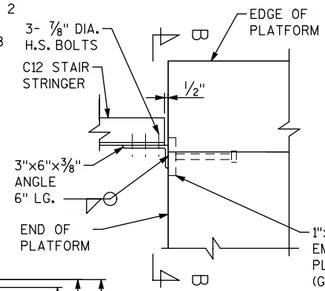
ELEV.- FLIGHT 2



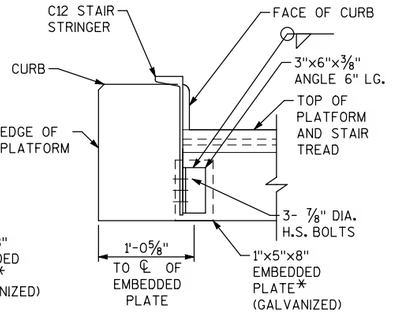
DETAIL A



SECTION A-A

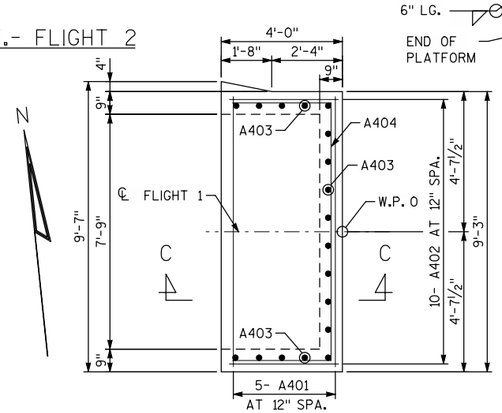


DETAIL B

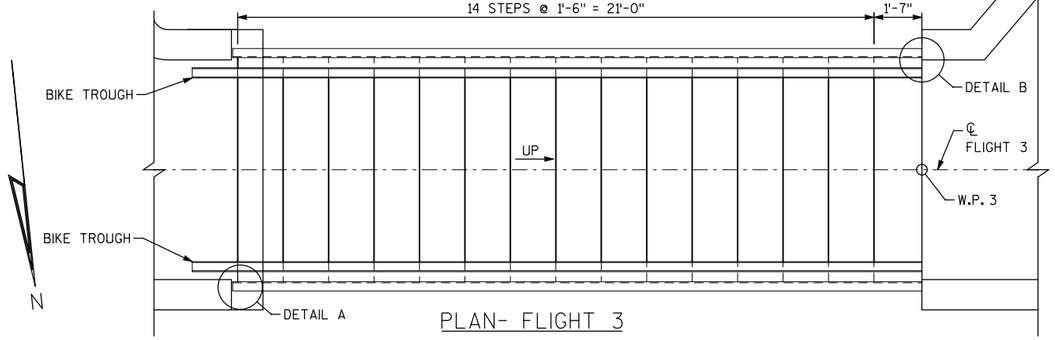


SECTION B-B

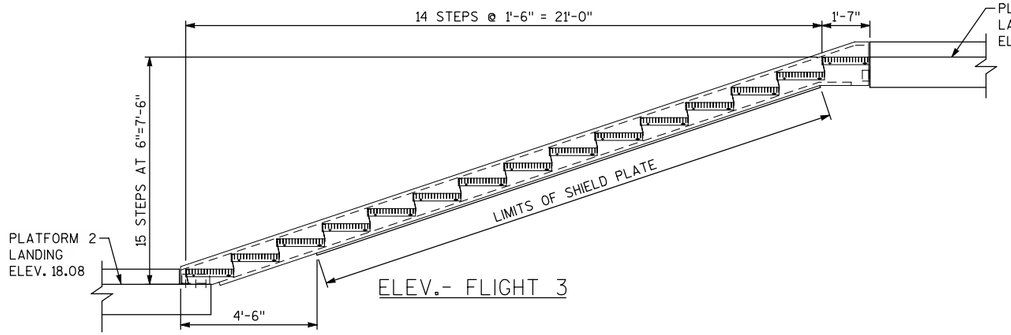
*COORDINATE EMBEDDED PLATE SIZE, DETAILS, AND LOCATION WITH STAIR FABRICATOR BEFORE PLACEMENT



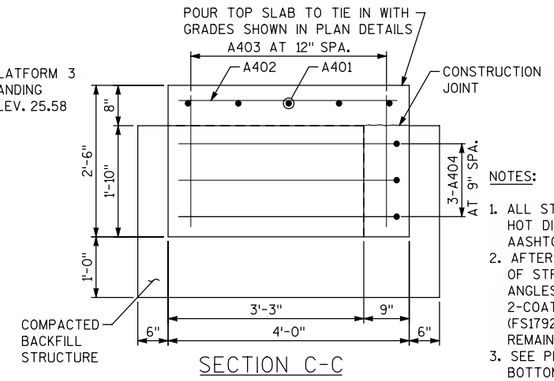
BOTTOM LANDING PLAN



PLAN- FLIGHT 3

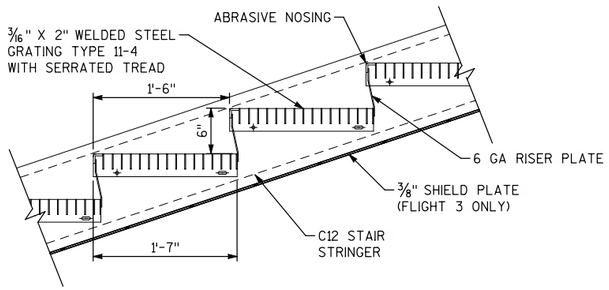


ELEV.- FLIGHT 3



SECTION C-C

NOTE: BAR MATS CENTERED IN SLAB AND WALLS



STAIR DETAIL

NOTES:

1. ALL STEEL STAIR COMPONENTS SHALL BE HOT DIPPED GALVANIZED ACCORDING TO AASHTO M111.
2. AFTER GALVANIZING, PAINT OUTSIDE FACE OF STRINGERS, RAILINGS AND ALL CONNECTION ANGLES. USE A DEPARTMENT APPROVED 2-COAT PAINT SYSTEM. COLOR WHITE (FS17925). STAIR TREADS AND NOSINGS TO REMAIN UNPAINTED.
3. SEE PLATFORM DETAILS SHEET FOR BOTTOM LANDING BAR TABLE.
4. RAILINGS NOT SHOWN FOR CLARITY.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-002

DRAWN BY WMN | PLANS CK'D. WJZ

STAIRS

SHEET 8 OF 9

70

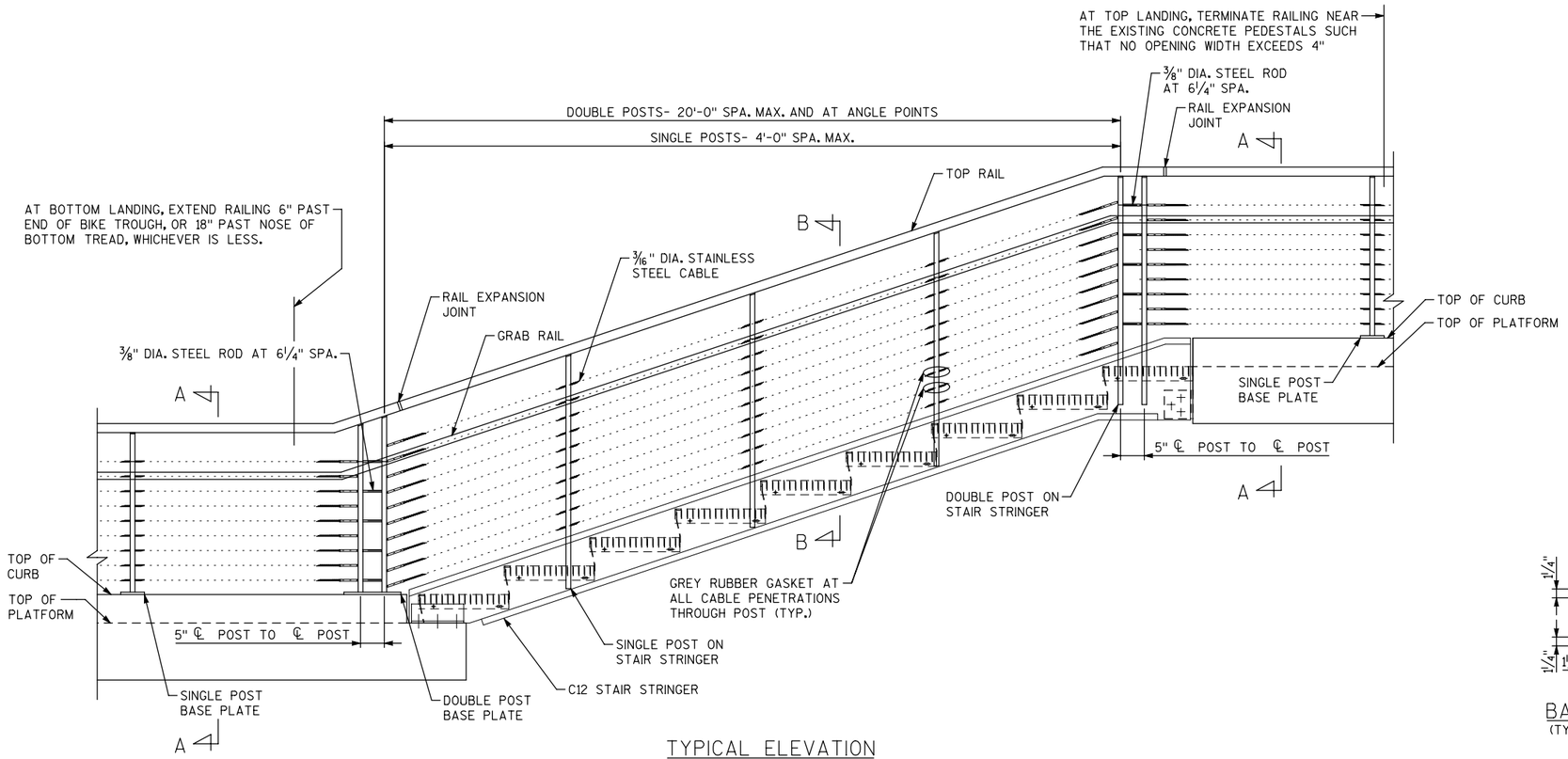
8

8

FILE= 082100_STAIRS.DGN
SCALE = 1:5

STATE PROJECT NUMBER

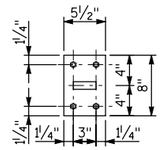
1693-25-72



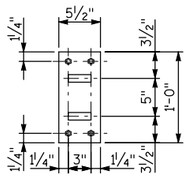
TYPICAL ELEVATION

RAILING NOTES:

1. POSTS, BASE PLATES, RODS, RAILINGS, CRADLES, AND STEEL TUBING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL SHALL BE GIVEN A #6 BLAST CLEANING BY SSPC SPECIFICATIONS.
2. POST SHALL BE WELDED TO BASE PLATES OR STAIR STRINGERS BEFORE GALVANIZING.
3. HANDRAILS AND POSTS TO BE SMOOTH AND FREE OF NICKS, BURRS, AND ABRASIONS AFTER GALVANIZING.
4. ANCHOR BOLTS, NUTS, AND WASHERS TO BE STAINLESS STEEL.
5. PAINT STAINLESS STEEL ANCHOR BOLTS AND WASHERS WHERE IN CONTACT WITH GALVANIZED STEEL WITH AN EPOXY PRIMER AND SURFACE COAT. PREPARE STEEL SURFACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. POSTS ON OPPOSITE SIDES OF THE STEEL STAIRS SHALL BE LINED UP EQUALLY.
7. AFTER GALVANIZING, PAINT ALL POSTS, BASE PLATES, AND STRINGER CONNECTIONS WITH A DEPARTMENT APPROVED 2-COAT PAINT SYSTEM. COLOR WHITE (FS 17925). DO NOT PAINT TOP RAIL, GRAB RAIL, OR CABLES.
8. REDUCE POST SPACING AROUND CORNERS AND CURVES OF PLATFORMS TO ALLOW RAILINGS AND CABLES TO FOLLOW FACE OF CURB. SUBSTITUTE 3/8" DIA. STEEL RODS AT TIGHT CURVES WHERE NEEDED. SHOW LOCATIONS TO SCALE ON SHOP DRAWINGS. LAYOUT IS SUBJECT TO APPROVAL OF THE ENGINEER.

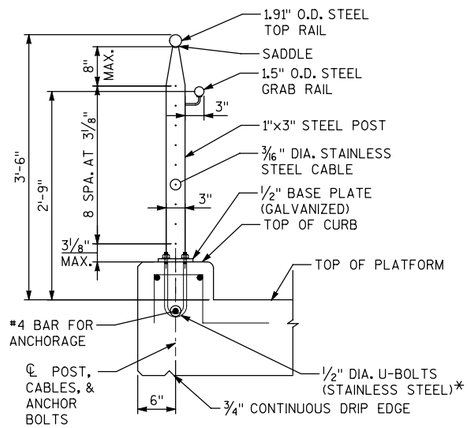


BASE PLATE
(TYP. SINGLE POST)**

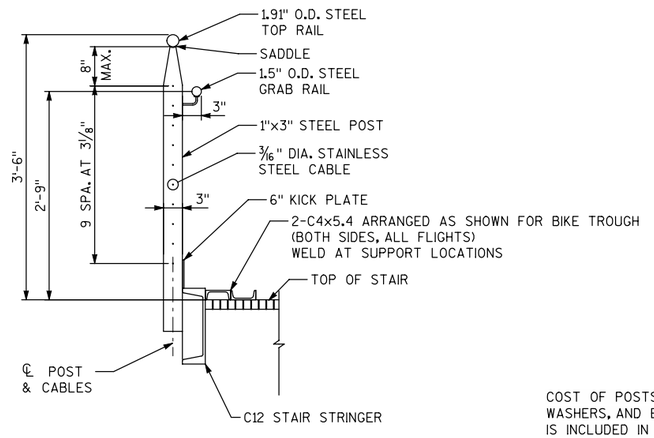


BASE PLATE
(TYP. DOUBLE POST)**

**SPECIAL BASE PLATES WILL BE REQUIRED AT CURB ENDS, CORNERS, AND OTHER LOCATIONS TO BE SHOWN ON SHOP DRAWINGS.



POST ON PLATFORMS
SECTION A-A



POST ON STAIR STRINGERS
SECTION B-B

COST OF POSTS, BASE PLATES, U-BARS, NUTS & WASHERS, AND EMBEDDED #4 BAR FOR ANCHORAGE IS INCLUDED IN PAY ITEM "RAILING, TYPE 2."

* 1/2"ϕ STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S EPOXY, 9" MINIMUM EMBEDMENT WITH A MINIMUM PULLOUT OF 8.4 KIPS MAY BE SUBSTITUTED FOR 1/2" CAST IN PLACE U-BOLTS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE M-40-002

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RAILING

SHEET 9 OF 9

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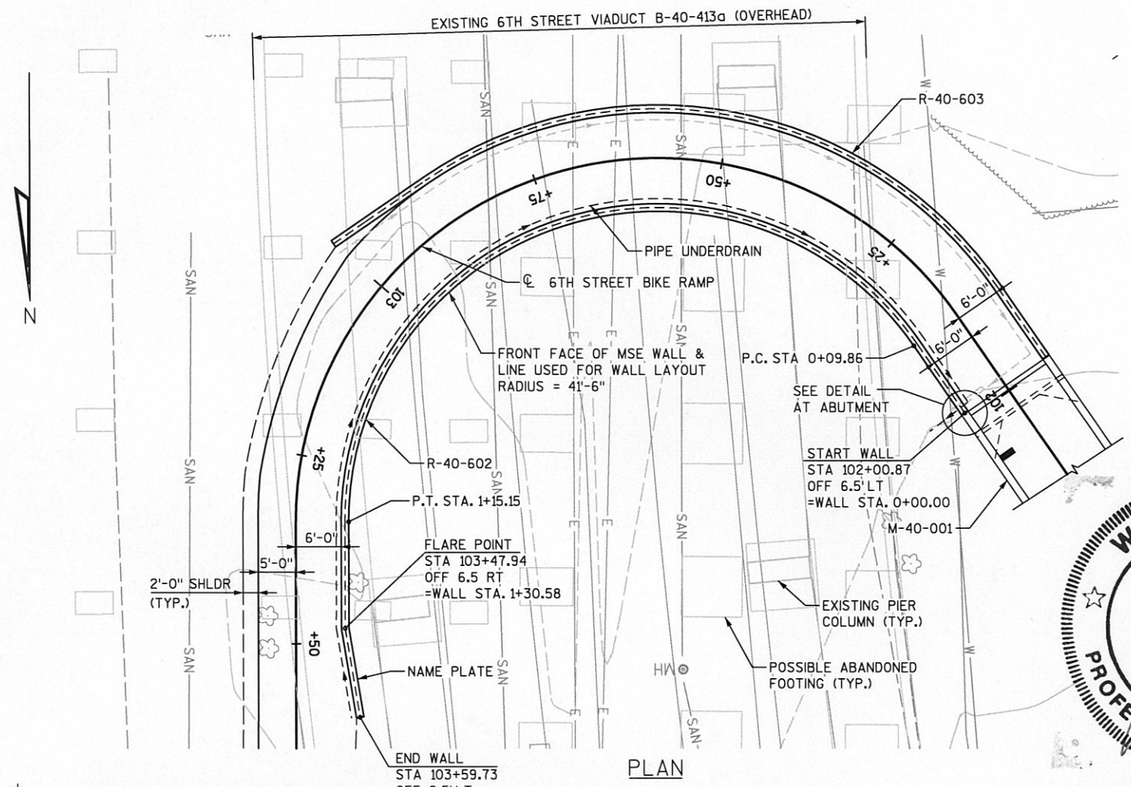
8

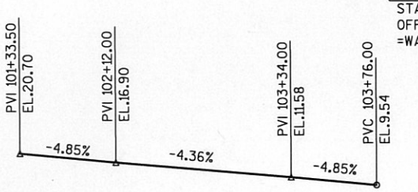
8

FILE= 082110_RAILING.DGN
SCALE = 1:5

STATE PROJECT NUMBER
1693-25-72



PLAN



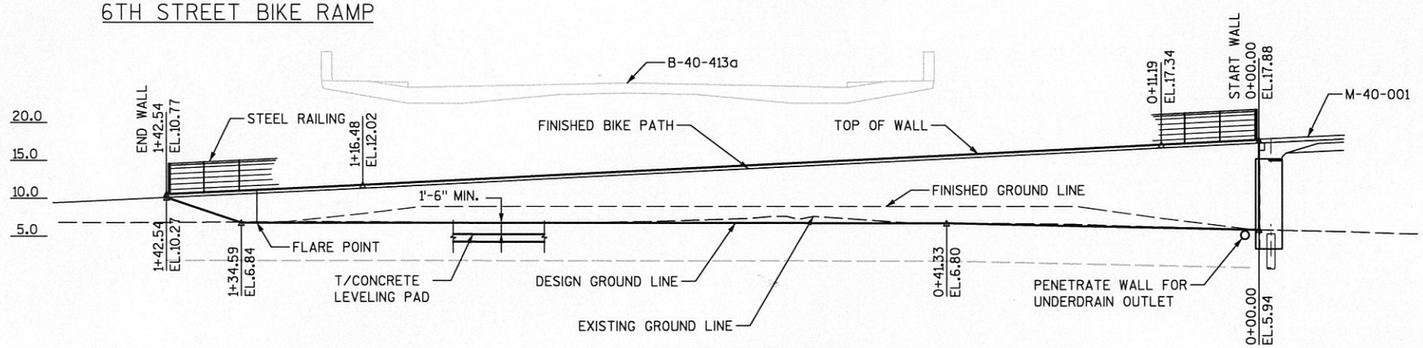
PROFILE GRADE LINE
6TH STREET BIKE RAMP

DESIGN DATA

LIVE LOADS:
LIVE LOAD SURCHARGE: 120 PSF
RAILING LOADS:
200 LBS AT ANY LOCATION PLUS
50 LB/FT ALONG RAILING

MATERIAL PROPERTIES:

CONCRETE MASONRY	fc'= 3500 PSI
PRECAST CONCRETE WALL PANELS	fc'= 4000 PSI
BAR STEEL REINFORCEMENT	fy = 60 KSI



UNFOLDED ELEVATION

BRIDGE OFFICE CONTACT:

WILLIAM DREHER
PHONE: (608) 266-8489

CONSULTANT CONTACT:

WILLIAM ZIPPEL
PHONE: (414) 308-1321

BENCH MARKS:

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
100	101+04.21	54.55'RT	PK NAIL	3.40
101	104+68.59	22.26'RT	CHISELED X ON MMSD STRUCT.	4.85
102	103+16.74	148.70'RT	MAG NAIL	7.05

NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ALIGNMENT PLAN FOR LAYOUT INFORMATION.

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

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

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

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

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 IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH".

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

ALL BAR STEEL REINFORCEMENT IS TO BE EPOXY COATED INCLUDING STEEL IN PRECAST WALL PANELS.

BEVEL ALL EXPOSED EDGES OF CONCRETE ¾" UNLESS NOTED OTHERWISE.

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

CONSTRUCTION OF THE REINFORCED SOIL ZONE BEHIND THE ABUTMENT OF THE RAMP AND THE ANCHORS IN THE CONCRETE ABUTMENT IS A NON-MEASURED QUANTITY AND WILL BE PAID FOR UNDER THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH." SEE M-40-001 DRAWINGS FOR DETAILS.

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.

APPLY CONCRETE STAINING, COLOR WHITE (FS 17925), TO ALL EXPOSED FACES OF MSE WALL PRECAST PANELS AND CAST IN PLACE COPINGS.

WORK THIS DRAWING SET WITH STRUCTURE PLANS FOR M-40-001 AND R-40-603.

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

CONSTRUCT THE RETAINING WALLS EARLY IN THE PROJECT SCHEDULE TO ALLOW SETTLEMENT BEFORE CASTING THE CONCRETE COPINGS AND APPROACH SLAB. ANTICIPATED TIME TO STABILIZATION OF SETTLEMENT IS APPROXIMATELY 3 MONTHS. INSTALL AND MONITOR SETTLEMENT MONITORING POINTS ALONG THE FACE OF THE WALL ACCORDING TO THE SPECIAL PROVISIONS. INSTALL THE CAST IN PLACE COPING AND APPROACH SLAB AT M-40-001 AFTER SETTLEMENT HAS STABILIZED FOR 2 CONSECUTIVE WEEKLY READINGS.

THE CONTRACTOR, WALL MANUFACTURER, AND RAILING FABRICATOR SHALL COORDINATE DURING SHOP DRAWING PREPARATION AND FIELD INSTALLATION TO ENSURE THAT RAILING POST LOCATIONS DO NOT FALL OVER JOINTS IN THE CIP COPING, AND THAT RAILING ANCHOR BOLTS ARE NOT LOCATED LESS THAN 3" FROM THE EDGE OF A CONCRETE JOINT.

ABANDONED FOOTINGS MAY EXIST WITHIN THE PROPOSED VOLUME OF BACKFILL GRANULAR BELOW THE WALL. APPROXIMATE LOCATIONS ARE SHOWN. IF ABANDONED FOOTINGS ARE ENCOUNTERED, REMOVE FOOTINGS TO BELOW THE BOTTOM OF BACKFILL GRANULAR. COST IS INCLUDED IN BACKFILL GRANULAR.

LIST OF DRAWINGS:

NO.	DATE	REVISION	BY

benesch engineers · scientists · planners
Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20058.05

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 03/25/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-602

COUNTY	TOWN/CITY/VILLAGE
MILWAUKEE	MILWAUKEE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
BJW	WJZ	WMN	WJZ

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4

FILE = 083010_GEN_ARRANGE.DGN
SCALE = 1:20

NOTES:

FOUNDATION DESIGN PARAMETERS ARE BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL EXPLORATION REPORT DATED JANUARY 28, 2013 BY GESTRA ENGINEERING, INC., AVAILABLE FROM WISDOT.

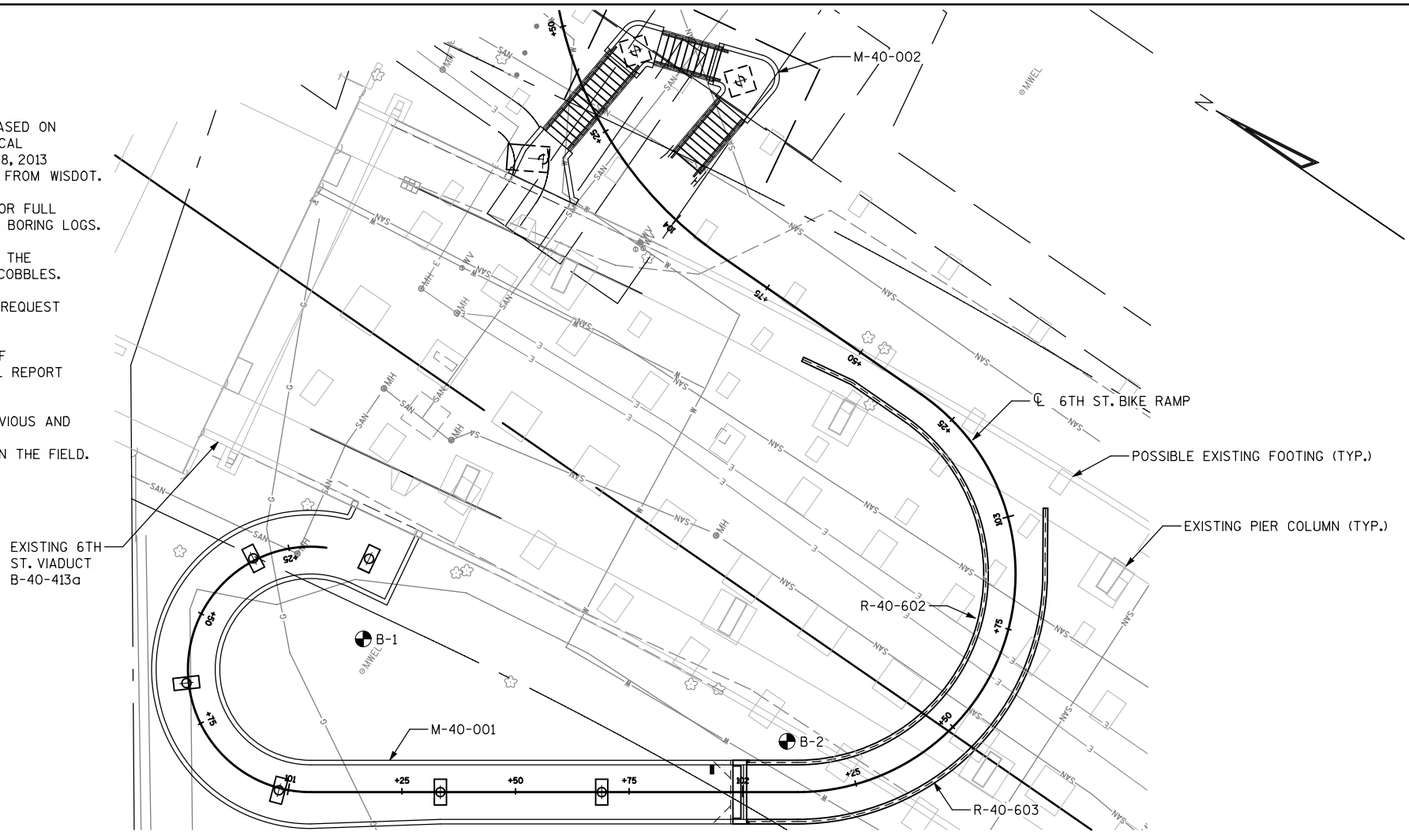
REFER TO THE GEOTECHNICAL REPORT FOR FULL SOIL DESCRIPTIONS AND DETAILS OF THE BORING LOGS.

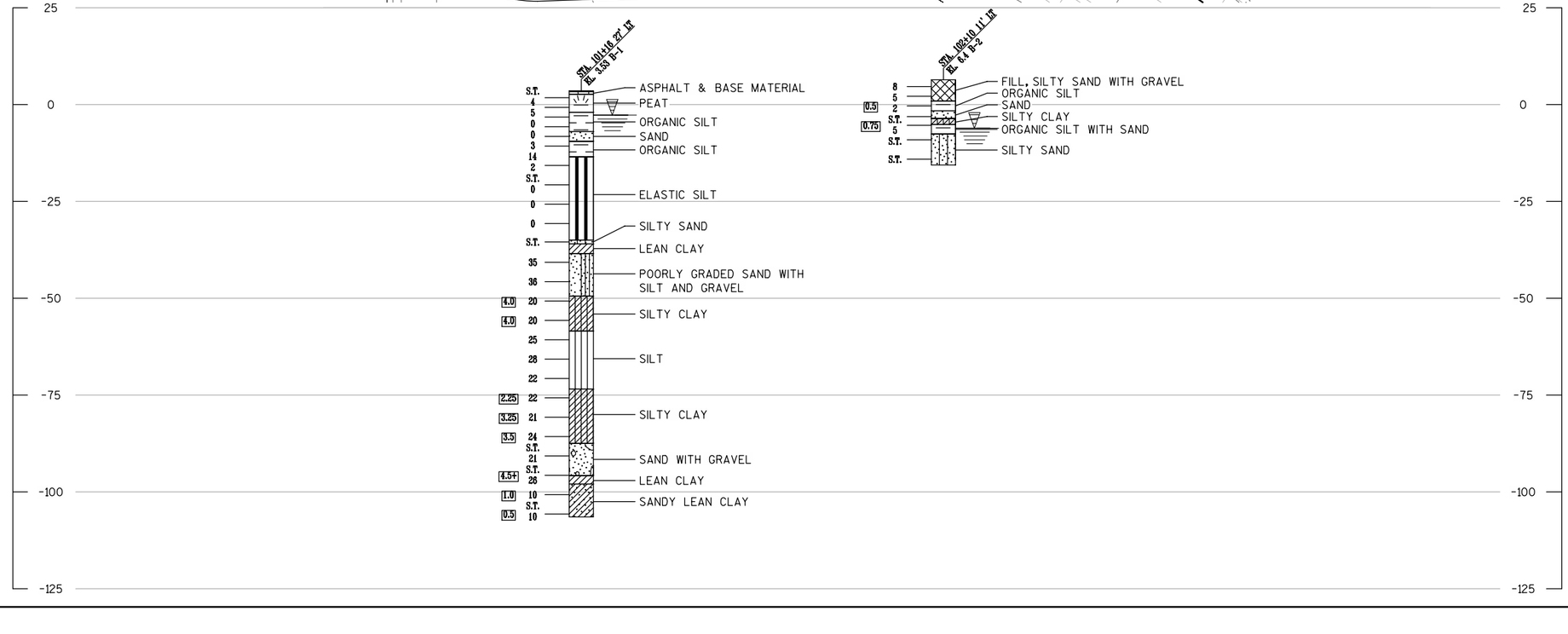
HISTORIC BORINGS IN THE AREA INDICATE THE POSSIBLE PRESENCE OF BOULDERS AND COBBLES.

HISTORIC BORINGS ARE AVAILABLE UPON REQUEST FROM WISDOT.

CONTACT THE WISCONSIN DEPARTMENT OF TRANSPORTATION FOR THE GEOTECHNICAL REPORT AND BORING LOGS.

EXISTING FOOTINGS ARE SHOWN FOR PREVIOUS AND EXISTING STRUCTURES.
CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD.





STATE PROJECT NUMBER

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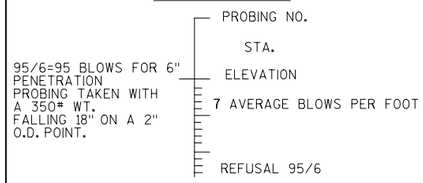
ABBREVIATIONS

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

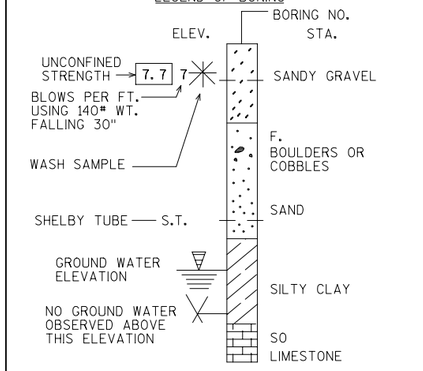
MATERIAL SYMBOLS

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-40-602

DRAWN BY WMN | PLANS CK'D. WJZ

SUBSURFACE EXPLORATION

SHEET 2 OF 4

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FILE= 083020_SUBSURFACE.DGN
SCALE = 1:40

STATE PROJECT NUMBER
1693-25-72

RECOMMENDED SOIL PARAMETERS FOR MSE WALL ANALYSIS

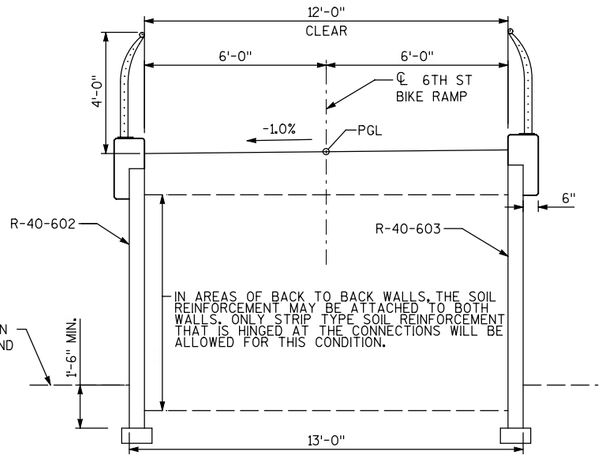
SOIL UNIT	BOTTOM ELEVATION (FT)	SOIL UNIT WEIGHT (PCF)	UNDRAINED		DRAINED	
			COHESION (psf)	FRICTION ANGLE (DEGREE)	COHESION (psf)	FRICTION ANGLE (DEGREE)
GRANULAR FILL REPLACEMENT*	0.5	125	0	30	0	30
ORGANIC SILT WITH SAND	-2.5	115	500	--	0	24
LOOSE SAND	-5.5	120	--	24	--	24
SILT/SAND WITH ORGANICS	-	120	500	--	0	24

* WHERE GRANULAR FILL WILL REPLACE UNSUITABLE SOIL

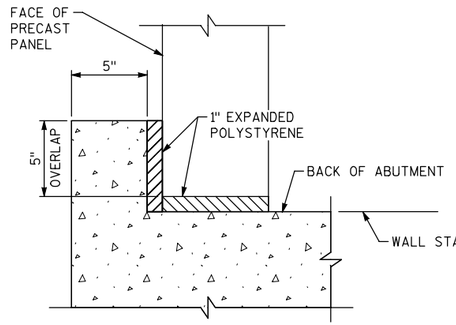
TOTAL ESTIMATE OF QUANTITIES

BID NO.	BID ITEMS	UNIT	TOTAL
209.0100	BACKFILL GRANULAR	CY	203
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
517.1010.S	CONCRETE STAINING	SF	1270
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	152
SPV.0090.01	STEEL RAILING, TYPE 1 SPECIAL	LF	141
SPV.0105.03	SETTLEMENT MONITORING	LS	1
SPV.0165.02	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD	SF	1270

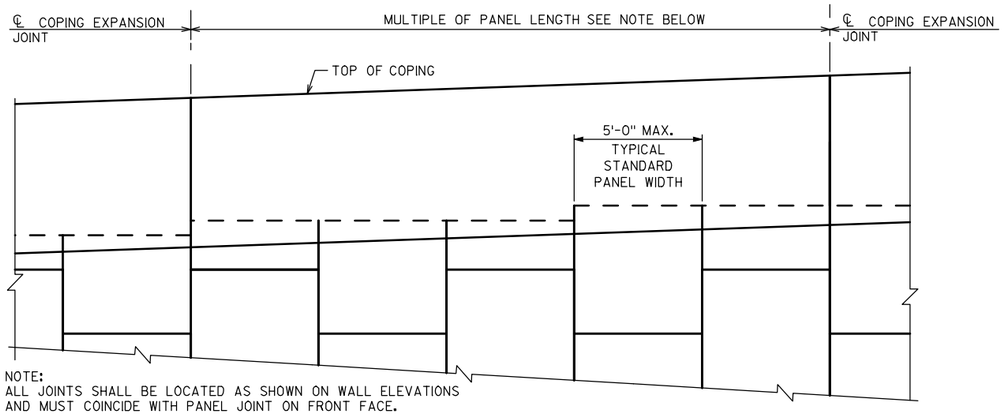
EXCAVATION QUANTITIES ARE INCLUDED IN THE EARTHWORK TABLES IN THE ROADAY ITEMS.
BACKFILL GRANULAR QUANTITY IS BASED ON AN ESTIMATED OVEREXCAVATION DEPTH OF 5 FT.



TYPICAL SECTION
LOOKING AHEAD STATION

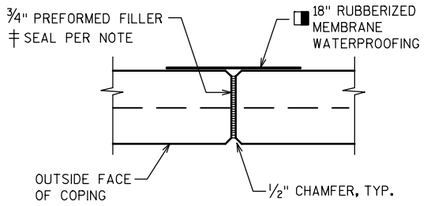


PLAN DETAIL AT
M-40-001 ABUTMENT



NOTE:
ALL JOINTS SHALL BE LOCATED AS SHOWN ON WALL ELEVATIONS AND MUST COINCIDE WITH PANEL JOINT ON FRONT FACE.

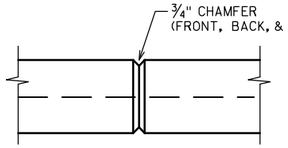
CIP COPING PARTIAL ELEVATION



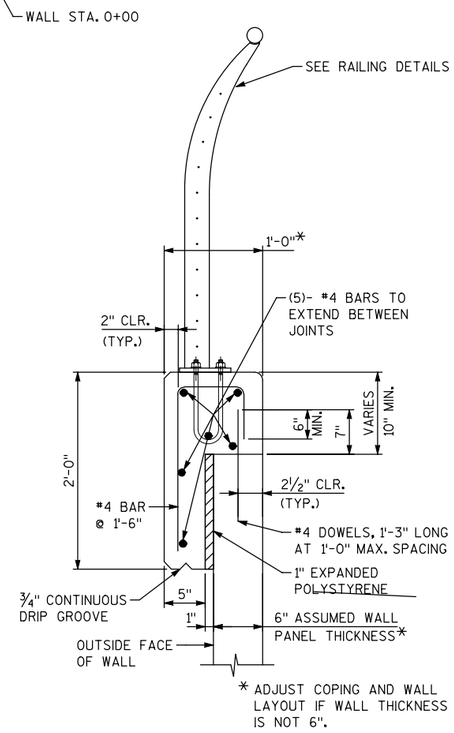
COPING EXPANSION JOINT
DO NOT RUN BAR STEEL THRU JOINT.
MAX. SPACING OF JOINTS = 30FT
MIN. SPACING OF JOINTS = 20FT

◨ MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF COPING TO 6" BELOW TOP OF PANELS.

‡ SEAL ALL EXPOSED HORIZ. & VERT SURFACES OF FILLER WITH NON-STAINING NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)

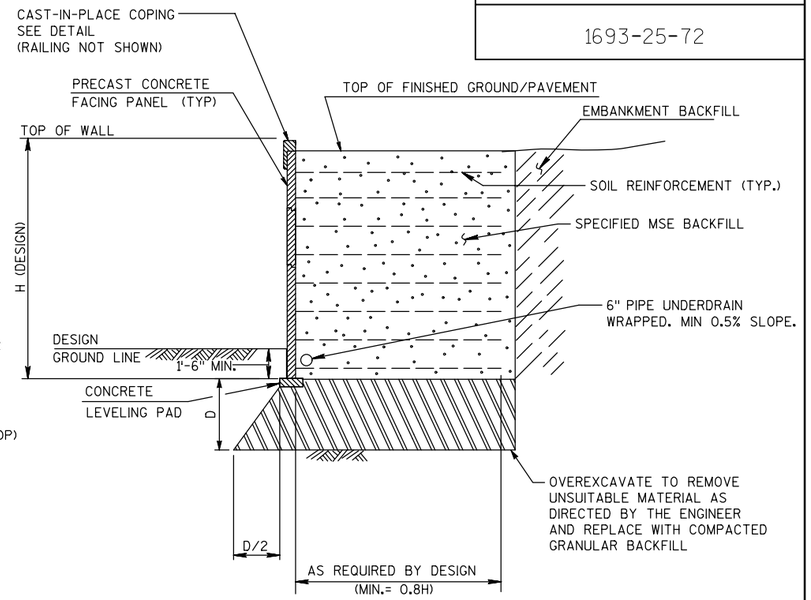


COPING CONTRACTION JOINT
DO NOT RUN BAR STEEL THRU JOINT.
MAX. SPACING OF JOINT = 12'
LOCATE TO MISS RAILING POSTS

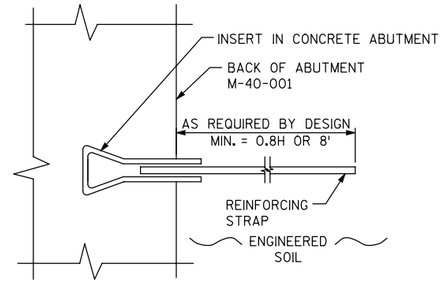


* ADJUST COPING AND WALL LAYOUT IF WALL THICKNESS IS NOT 6".

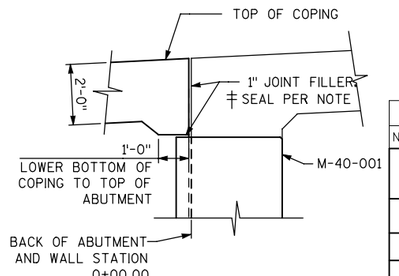
CAST-IN-PLACE
CONCRETE COPING DETAIL



TYPICAL SECTION
NOTE THAT IN SOME LOCATIONS REINFORCED SOIL MASS FROM R-40-602 AND R-40-603 WILL OVERLAP



DETAIL THROUGH CONCRETE ABUTMENT M-40-001
DESIGN, FURNISH, AND INSTALL REINFORCED SOIL MASS, REINFORCING STRAPS, AND CONCRETE ANCHORS BEHIND ABUTMENT M-40-001 TO RESIST THE HORIZONTAL LOADS FROM THE SOIL MASS, A 240 PSF LIVE LOAD SURCHARGE, AND HORIZONTAL LOADS OF 1.3K/FT FROM THE SUPERSTRUCTURE APPLIED AT THE BEAM SEAT.
COST IS INCLUDED IN THE COST OF THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH R-40-602." NO ADDITIONAL MEASURED QUANTITY WILL BE PAID FOR THE SURFACE AREA OF THE ABUTMENT.



COPING DETAIL
AT ABUTMENT

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-602

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WALL DETAILS

SHEET 3 OF 4

74

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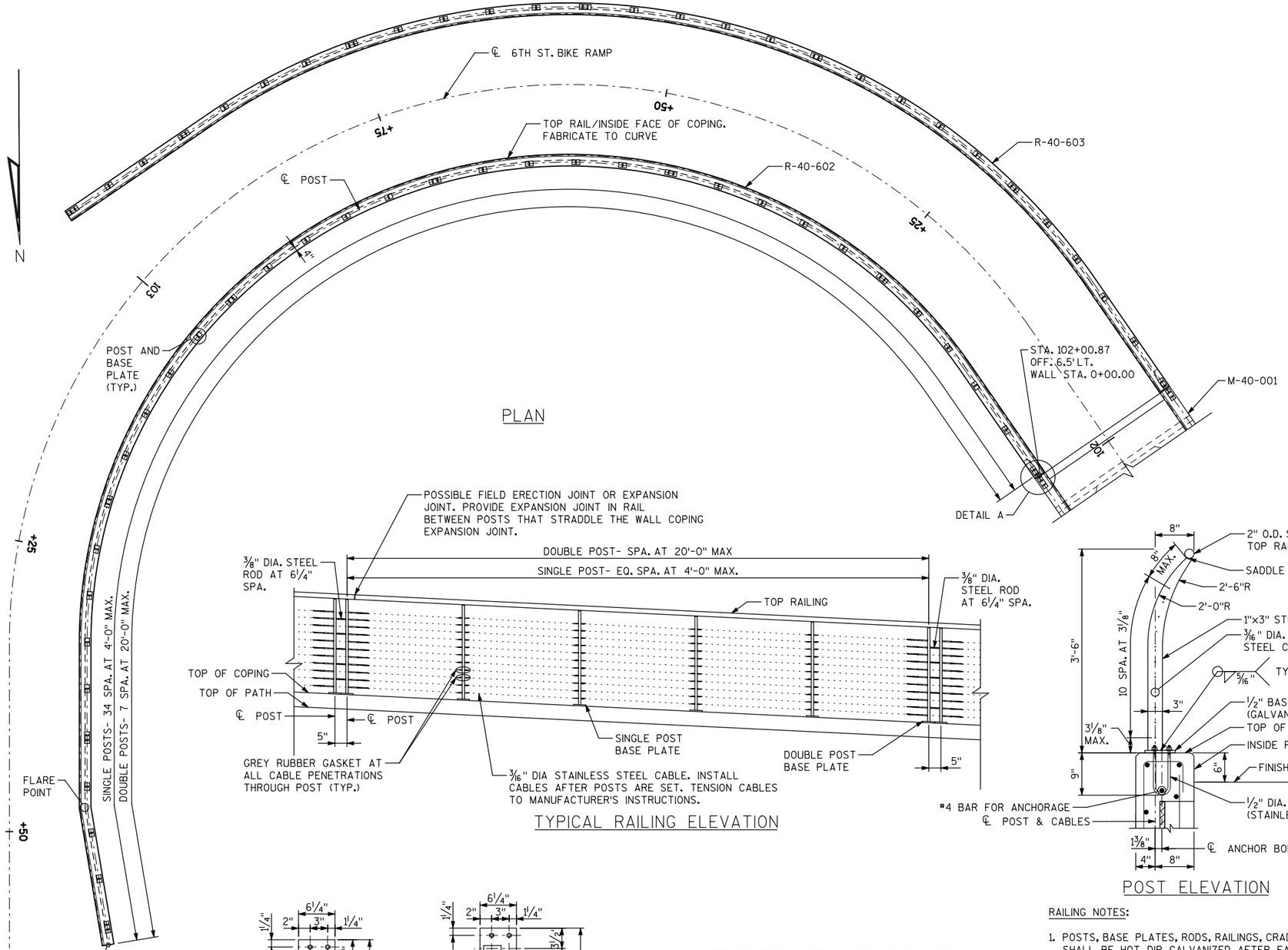
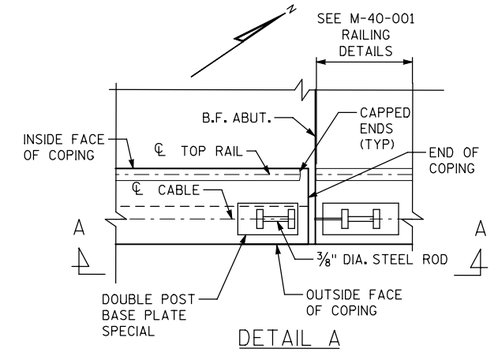
FILE= 083030_WALLDETS.DGN
SCALE = 1:20

STATE PROJECT NUMBER
1693-25-72

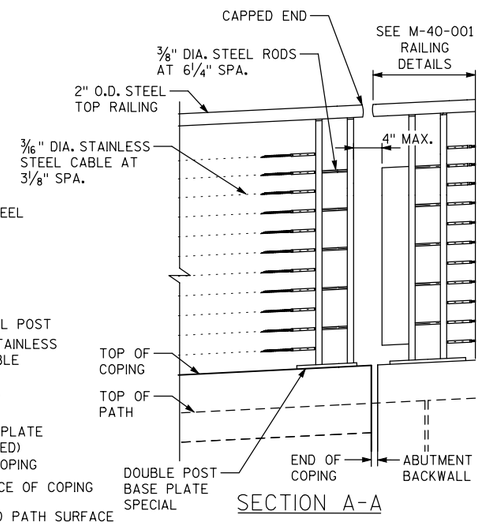


PLAN

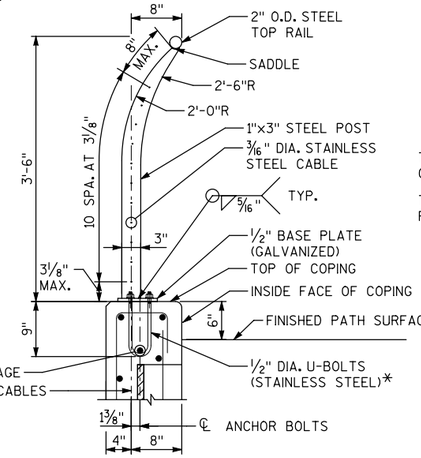
TYPICAL RAILING ELEVATION



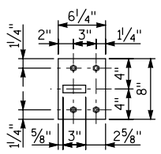
DETAIL A



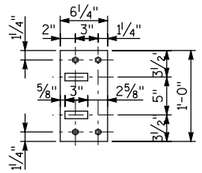
SECTION A-A



POST ELEVATION



BASE PLATE
(TYP. SINGLE POST)



BASE PLATE
(TYP. DOUBLE POST)

SPECIAL BASE PLATES MAY BE REQUIRED AT RAILING ENDS. DETAILS TO BE SHOWN ON SHOP DRAWINGS AND SUBJECT TO APPROVAL BY THE ENGINEER.

COST OF POSTS, BASE PLATES, U-BARS, NUTS & WASHERS, AND EMBEDDED #4 BAR FOR ANCHORAGE IS INCLUDED IN PAY ITEM "STEEL RAILING, TYPE 1 SPECIAL."

* ½"ϕ STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S EPOXY, 9" MINIMUM EMBEDMENT WITH A MINIMUM PULLOUT OF 8.4 KIPS MAY BE SUBSTITUTED FOR ½" CAST IN PLACE U-BOLTS.

RAILING NOTES:

1. POSTS, BASE PLATES, RODS, RAILINGS, CRADLES, AND STEEL TUBING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL SHALL BE GIVEN A #6 BLAST CLEANING BY SSPC SPECIFICATIONS.
2. POST SHALL BE WELDED TO BASE PLATES BEFORE GALVANIZING.
3. HANDRAIL AND POSTS TO BE SMOOTH AND FREE OF NICKS, BURRS, AND ABRASIONS AFTER GALVANIZING.
4. ANCHOR BOLTS, NUTS, AND WASHERS TO BE STAINLESS STEEL.
5. PAINT STAINLESS STEEL ANCHOR BOLTS AND WASHERS WHERE IN CONTACT WITH GALVANIZED STEEL WITH AN EPOXY PRIMER AND GREY SURFACE COAT. PREPARE STEEL SURFACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. ALL EXPOSED COMPONENTS OF STEEL RAILING TYPE 1 SPECIAL SHALL BE SHOP PAINTED WHITE (FS 17925) AFTER GALVANIZING WITH A DEPARTMENT APPROVED 2 COAT PAINT SYSTEM EXCEPT FOR THE TOP RAIL AND STAINLESS STEEL CABLES.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-602

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RAILING

SHEET 4 OF 4

75

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FILE= 083040_RAILING.DGN
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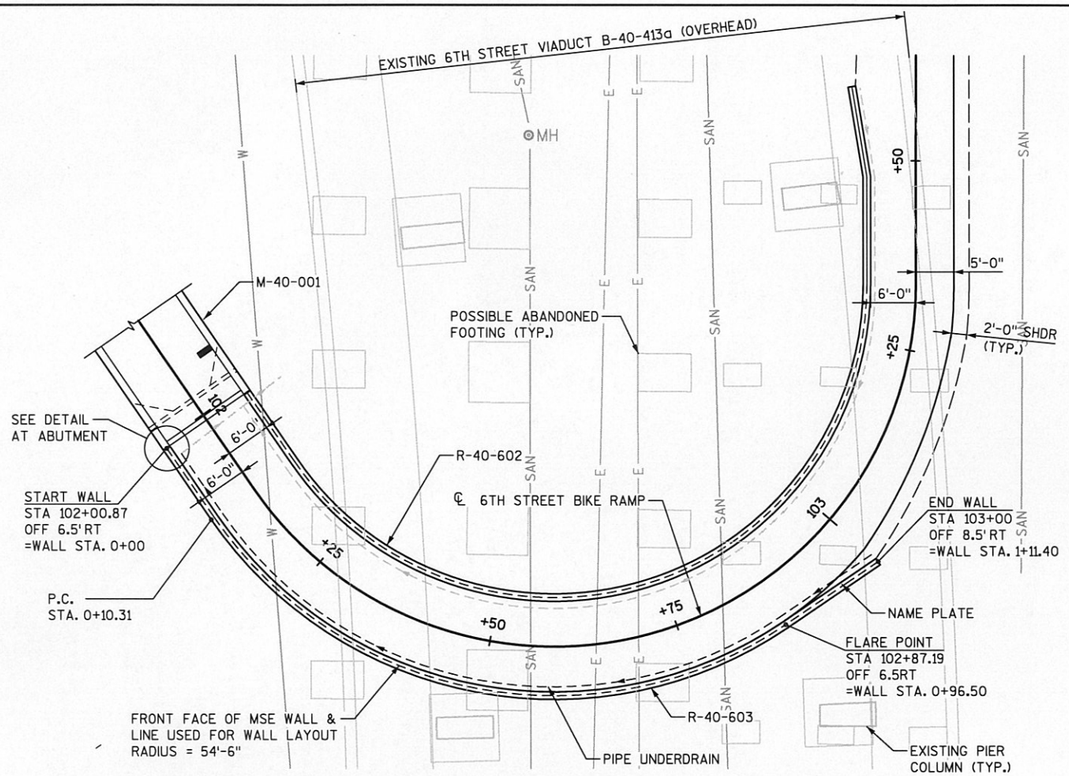
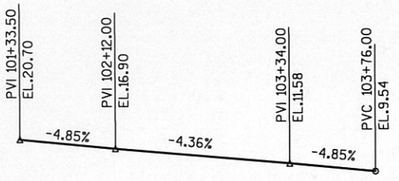


PLAN



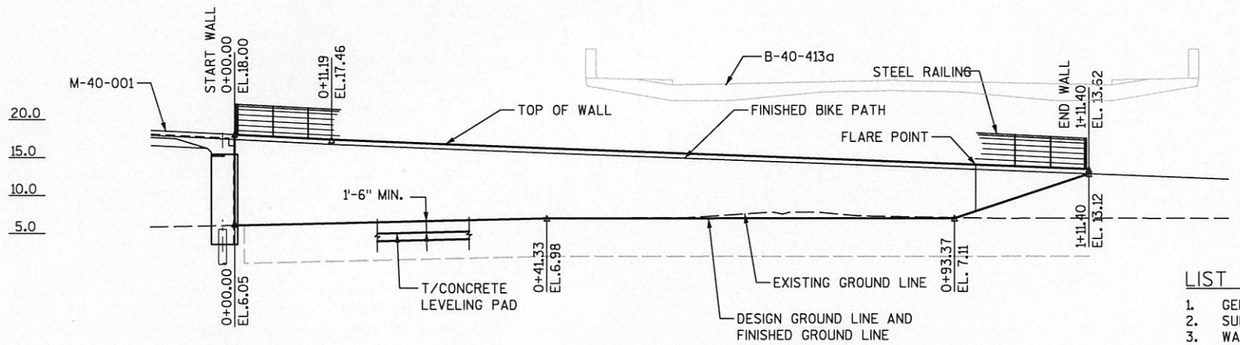
PROFILE GRADE LINE
6TH ST. BIKE RAMP

DESIGN DATA

LIVE LOADS:
LIVE LOAD SURCHARGE: 120 PSF
RAILING LOADS:
200 LBS AT ANY LOCATION PLUS 50 LB/FT ALONG RAILING

MATERIAL PROPERTIES:

CONCRETE MASONRY	fc'= 3500 PSI
PRECAST CONCRETE WALL PANELS	fc'= 4000 PSI
BAR STEEL REINFORCEMENT	fy = 60 KSI



UNFOLDED ELEVATION

BRIDGE OFFICE CONTACT:

WILLIAM DREHER
PHONE: (608) 266-8489

CONSULTANT CONTACT:

WILLIAM ZIPPEL
PHONE: (414) 308-1321

BENCH MARKS:

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
100	101+04.21	54.55'RT	PK NAIL	3.40
101	104+68.59	22.26'RT	CHISELED X ON MMSD STRUCT.	4.85
102	103+16.74	148.70'RT	MAG NAIL	7.05

LIST OF DRAWINGS:

1. GENERAL PLAN AND ELEVATION
2. SUBSURFACE EXPLORATION
3. WALL DETAILS & QUANTITIES
4. RAILING DETAILS

STATE PROJECT NUMBER
1693-25-72

NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ALIGNMENT PLAN FOR LAYOUT INFORMATION.

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

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

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

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

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 IS INCLUDED IN THE BID ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH".

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

ALL BAR STEEL REINFORCEMENT IS TO BE EPOXY COATED INCLUDING STEEL IN PRECAST WALL PANELS.

BEVEL ALL EXPOSED EDGES OF CONCRETE ¾" UNLESS NOTED OTHERWISE.

THE PLAN QUANTITY FOR THE ITEM "WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH" 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.

APPLY CONCRETE STAINING, COLOR WHITE (FS 17925), TO ALL EXPOSED FACES OF MSE WALL PRECAST PANELS AND CAST IN PLACE COPINGS.

WORK THIS DRAWING SET WITH STRUCTURE PLANS FOR M-40-001 AND R-40-602.

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

CONSTRUCT THE RETAINING WALLS EARLY IN THE PROJECT SCHEDULE TO ALLOW SELTTLEMENT BEFORE CASTING THE CONCRETE COPINGS AND APPROACH SLAB. ANTICIPATED TIME TO STABILIZATION OF SETTLEMENT IS APPROXIMATELY 3 MONTHS. INSTALL AND MONITOR SETTLEMENT MONITORING POINTS ALONG THE FACE OF THE WALL ACCORDING TO THE SPECIAL PROVISIONS. INSTALL THE CAST IN PLACE COPING AND APPROACH SLAB AT M-40-001 AFTER SETTLEMENT HAS STABILIZED FOR 2 CONSECUTIVE WEEKLY READINGS.

THE CONTRACTOR, WALL MANUFACTURER, AND RAILING FABRICATOR SHALL COORDINATE DURING SHOP DRAWING AND PREPARATION AND FIELD INSTALLATION TO ENSURE THAT RAILING POST LOCATIONS DO NOT FALL OVER JOINTS IN THE CIP COPING, AND THAT RAINLING ANCHOR BOLTS ARE NOT LOCATED LESS THAN 3" FROM THE EDGE OF A CONCRETE JOINT.

ABANDONED FOOTINGS MAY EXIST WITHIN THE PROPOSED VOLUME OF BACKFILL GRANULAR BELOW THE WALL. APPROXIMATE LOCATIONS ARE SHOWN. IF ABANDONED FOOTINGS ARE ENCOUNTERED, REMOVE FOOTINGS TO BELOW THE BOTTOM OF BACKFILL GRANULAR. COST IS INCLUDED IN BACKFILL GRANULAR.

NO.	DATE	REVISION	BY

benesch
engineers · scientists · planners
Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20058.05

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 04/24/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE R-40-603

COUNTY	TOWN/CITY/VILLAGE
MILWAUKEE	MILWAUKEE

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
BJW	WJZ	WMN	WJZ

GENERAL PLAN AND ELEVATION

SHEET 1 OF 4

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FILE = 08A010_GEN_ARRANGE.DGN
SCALE = 1:20

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NOTES:

FOUNDATION DESIGN PARAMETERS ARE BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL EXPLORATION REPORT DATED JANUARY 28, 2013 BY GESTRA ENGINEERING, INC., AVAILABLE FROM WISDOT.

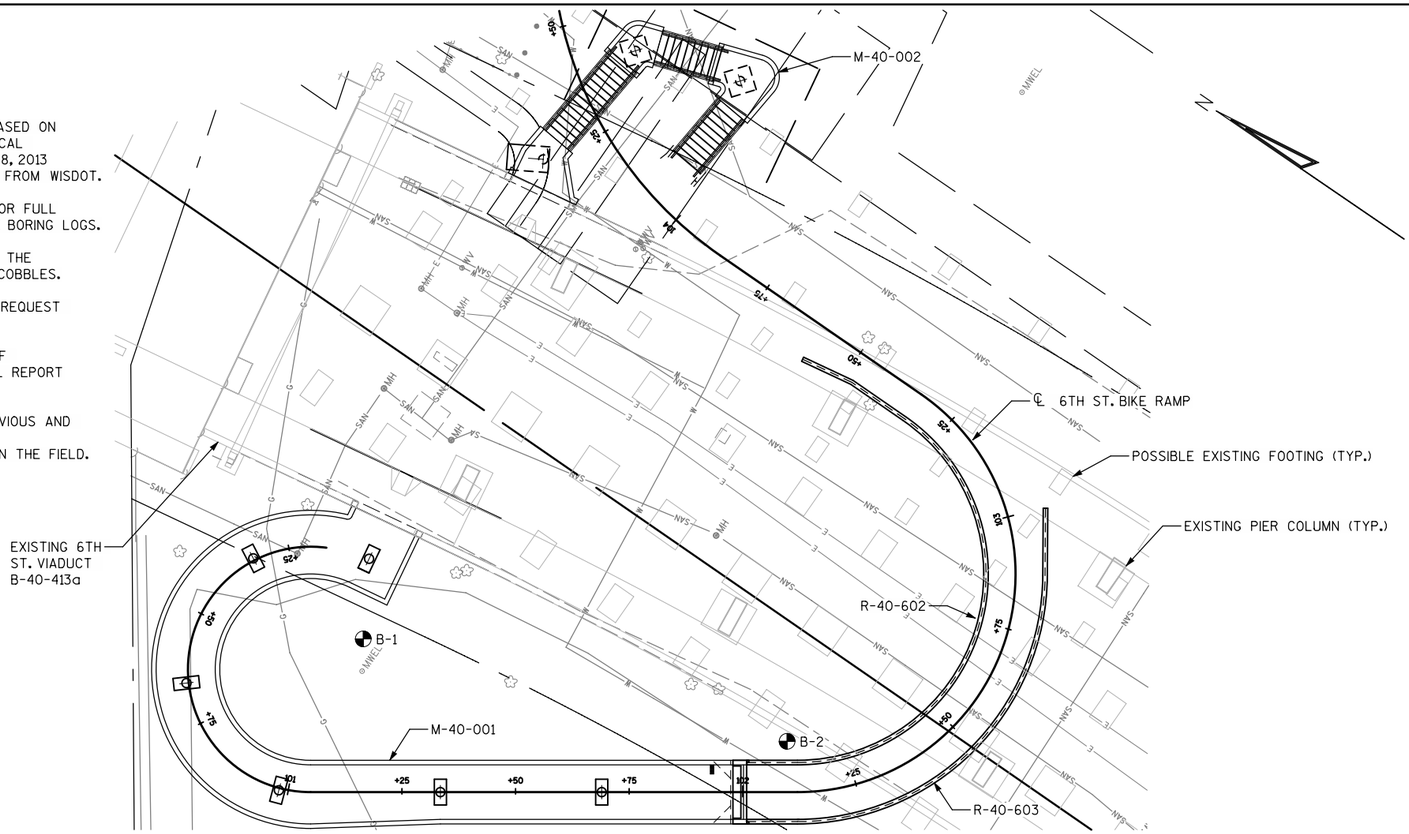
REFER TO THE GEOTECHNICAL REPORT FOR FULL SOIL DESCRIPTIONS AND DETAILS OF THE BORING LOGS.

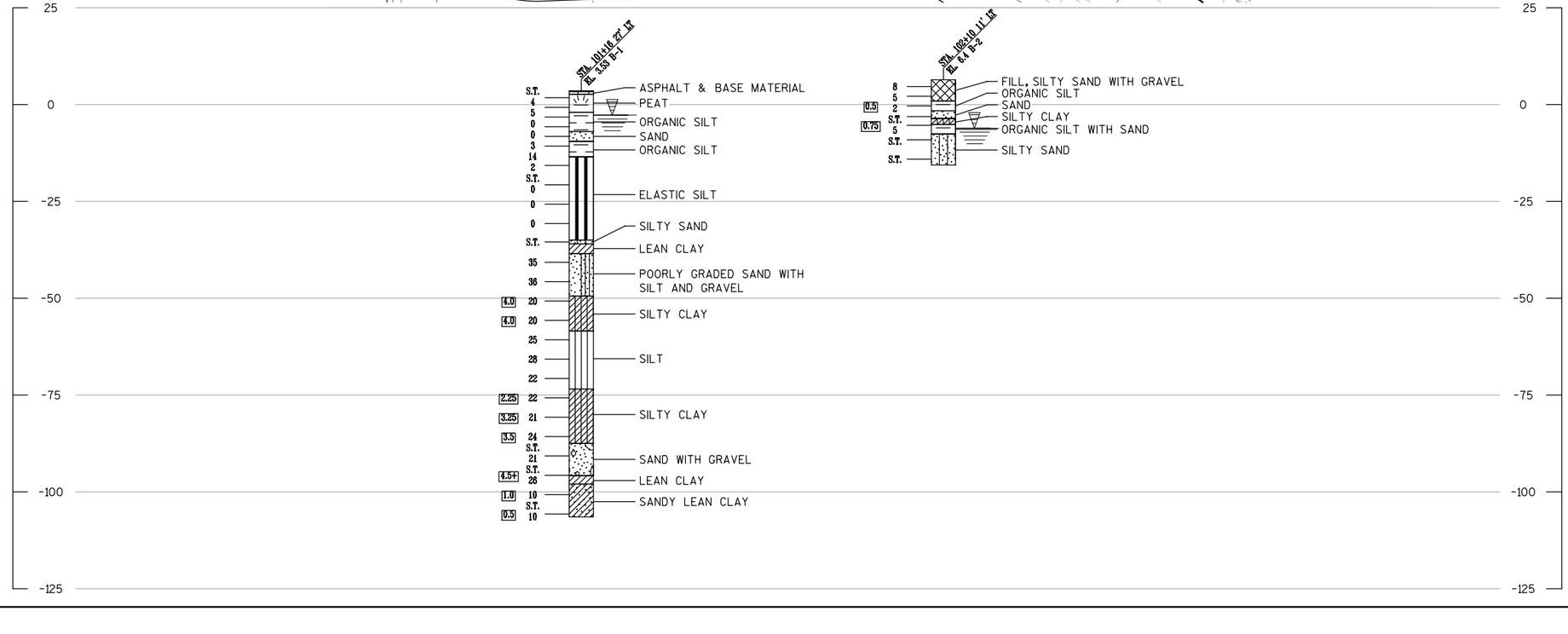
HISTORIC BORINGS IN THE AREA INDICATE THE POSSIBLE PRESENCE OF BOULDERS AND COBBLES.

HISTORIC BORINGS ARE AVAILABLE UPON REQUEST FROM WISDOT.

CONTACT THE WISCONSIN DEPARTMENT OF TRANSPORTATION FOR THE GEOTECHNICAL REPORT AND BORING LOGS.

EXISTING FOOTINGS ARE SHOWN FOR PREVIOUS AND EXISTING STRUCTURES.
CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD.





STATE PROJECT NUMBER

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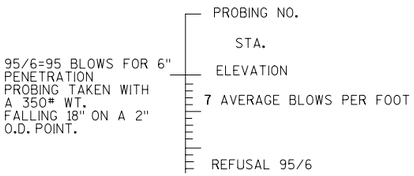
ABBREVIATIONS

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

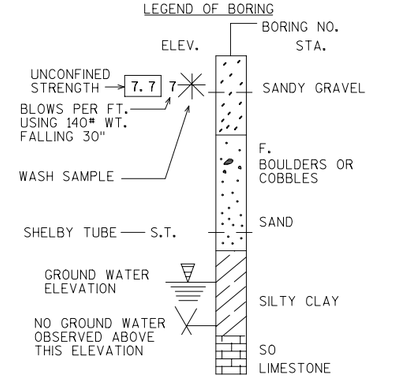
MATERIAL SYMBOLS

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-40-603

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SUBSURFACE EXPLORATION

SHEET 2 OF 4

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FILE= 084020_SUBSURFACE.DGN
SCALE = 1:40

STATE PROJECT NUMBER

1693-25-72

RECOMMENDED SOIL PARAMETERS FOR MSE WALL ANALYSIS

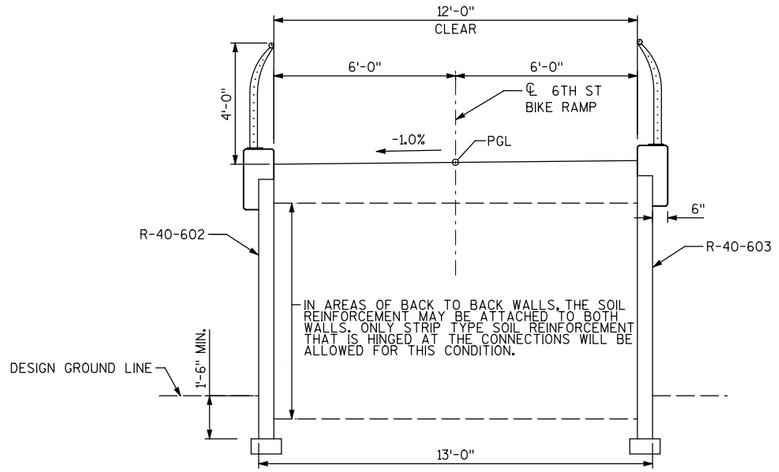
SOIL UNIT	BOTTOM ELEVATION (FT)	SOIL UNIT WEIGHT (PCF)	UNDRAINED		DRAINED	
			COHESION (psf)	FRICTION ANGLE (DEGREE)	COHESION (psf)	FRICTION ANGLE (DEGREE)
GRANULAR FILL REPLACEMENT*	0.5	125	0	30	0	30
ORGANIC SILT WITH SAND	-2.5	115	500	--	0	24
LOOSE SAND	-5.5	120	--	24	--	24
SILT/SAND WITH ORGANICS	-	120	500	--	0	24

* WHERE GRANULAR FILL WILL REPLACE UNSUITABLE SOIL

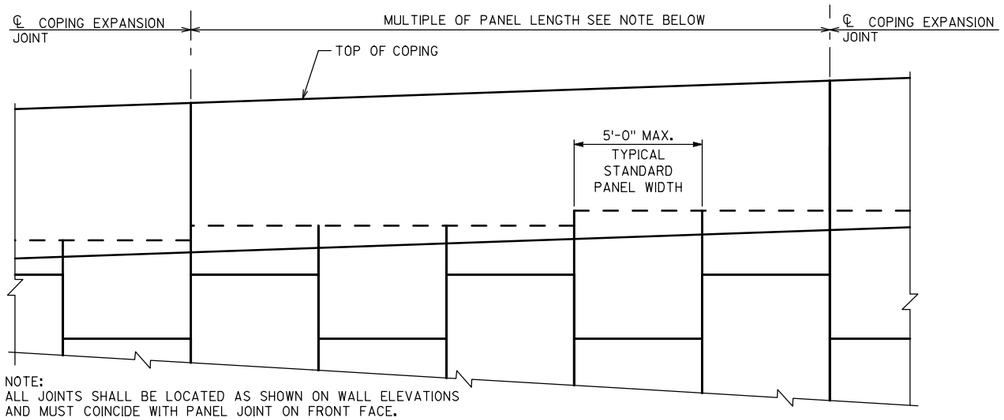
TOTAL ESTIMATE OF QUANTITIES

BID NO.	BID ITEMS	UNIT	TOTAL
209.0100	BACKFILL GRANULAR	CY	158
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
517.1010.S	CONCRETE STAINING	SF	1064
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	121
SPV.0090.01	STEEL RAILING, TYPE 1 SPECIAL	LF	110
SPV.0105.04	SETTLEMENT MONITORING	LS	1
SPV.0165.02	WALL CONCRETE PANEL MECHANICALLY STABILIZED EARTH LRFD	SF	1064

EXCAVATION QUANTITIES ARE INCLUDED IN THE EARTHWORK TABLES IN THE ROADAY ITEMS.
BACKFILL GRANULAR QUANTITY IS BASED ON AN ESTIMATED OVEREXCAVATION DEPTH OF 5 FT.

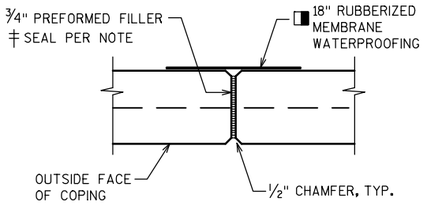


TYPICAL SECTION
LOOKING AHEAD STATION



NOTE:
ALL JOINTS SHALL BE LOCATED AS SHOWN ON WALL ELEVATIONS AND MUST COINCIDE WITH PANEL JOINT ON FRONT FACE.

CIP COPING PARTIAL ELEVATION

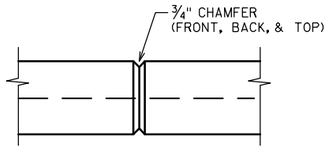


COPING EXPANSION JOINT

DO NOT RUN BAR STEEL THRU JOINT.
MAX. SPACING OF JOINTS = 30FT
MIN. SPACING OF JOINTS = 20FT

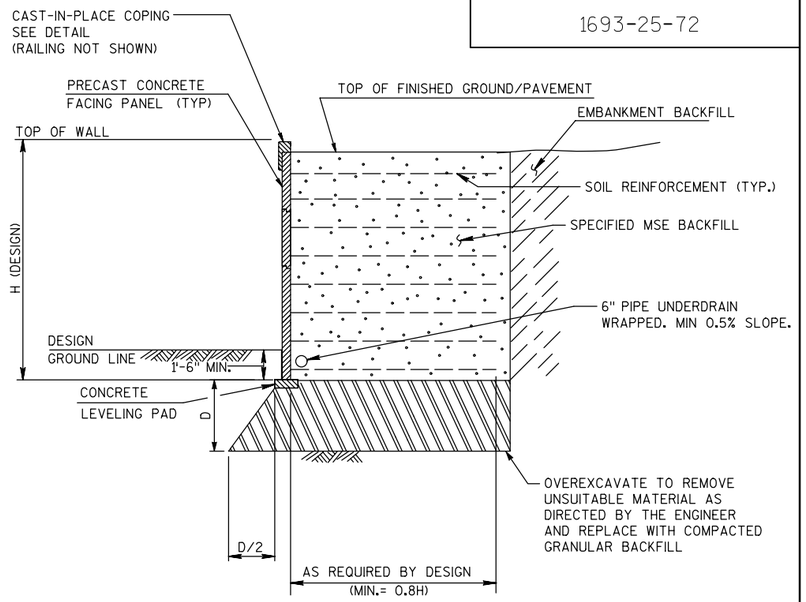
◨ MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF COPING TO 6" BELOW TOP OF PANELS.

‡ SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONC.)



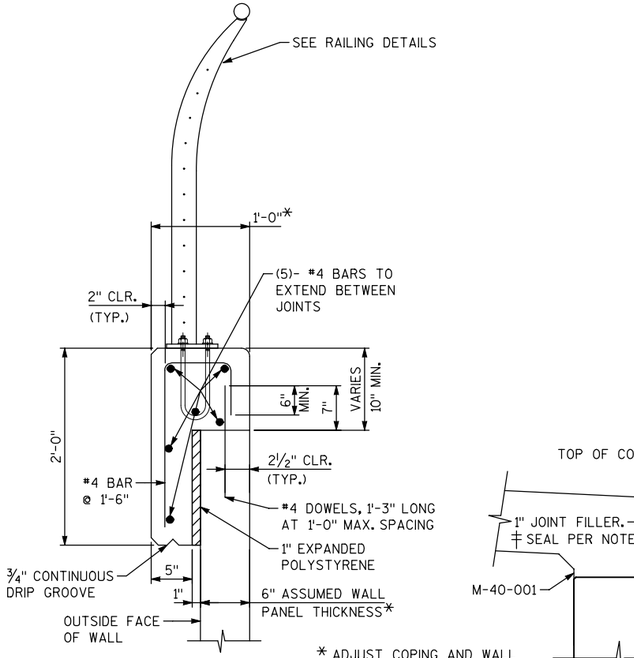
COPING CONTRACTION JOINT

DO NOT RUN BAR STEEL THRU JOINT.
MAX. SPACING OF JOINT = 12'
LOCATE TO MISS RAILING POSTS



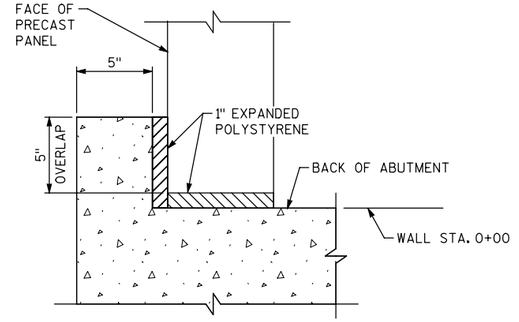
TYPICAL SECTION

NOTE THAT IN SOME LOCATIONS REINFORCED SOIL MASS FROM R-40-602 AND R-40-603 WILL OVERLAP

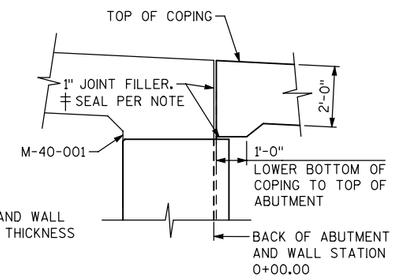


* ADJUST COPING AND WALL LAYOUT IF WALL THICKNESS IS NOT 6".

CAST-IN-PLACE CONCRETE COPING DETAIL



PLAN DETAIL AT M-40-001 ABUTMENT



COPING DETAIL AT ABUTMENT

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-603

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WALL DETAILS

SHEET 3 OF 4

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FILE= 084030_WALLDETS.DGN
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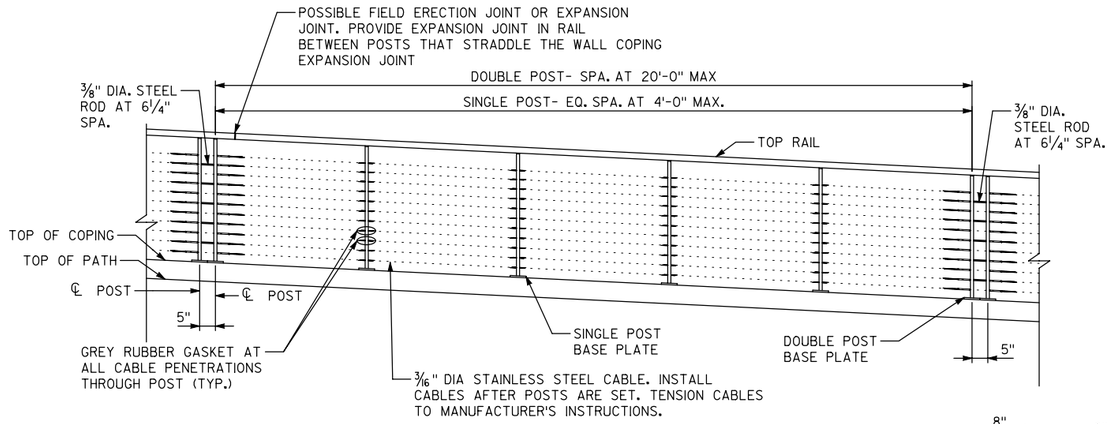
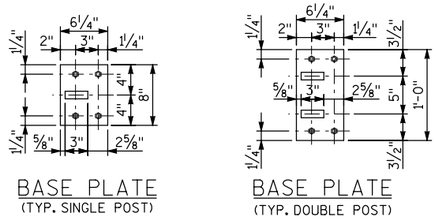
STATE PROJECT NUMBER

1693-25-72



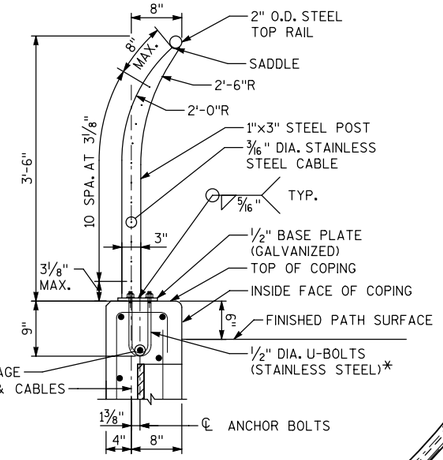
TYPICAL RAILING ELEVATION



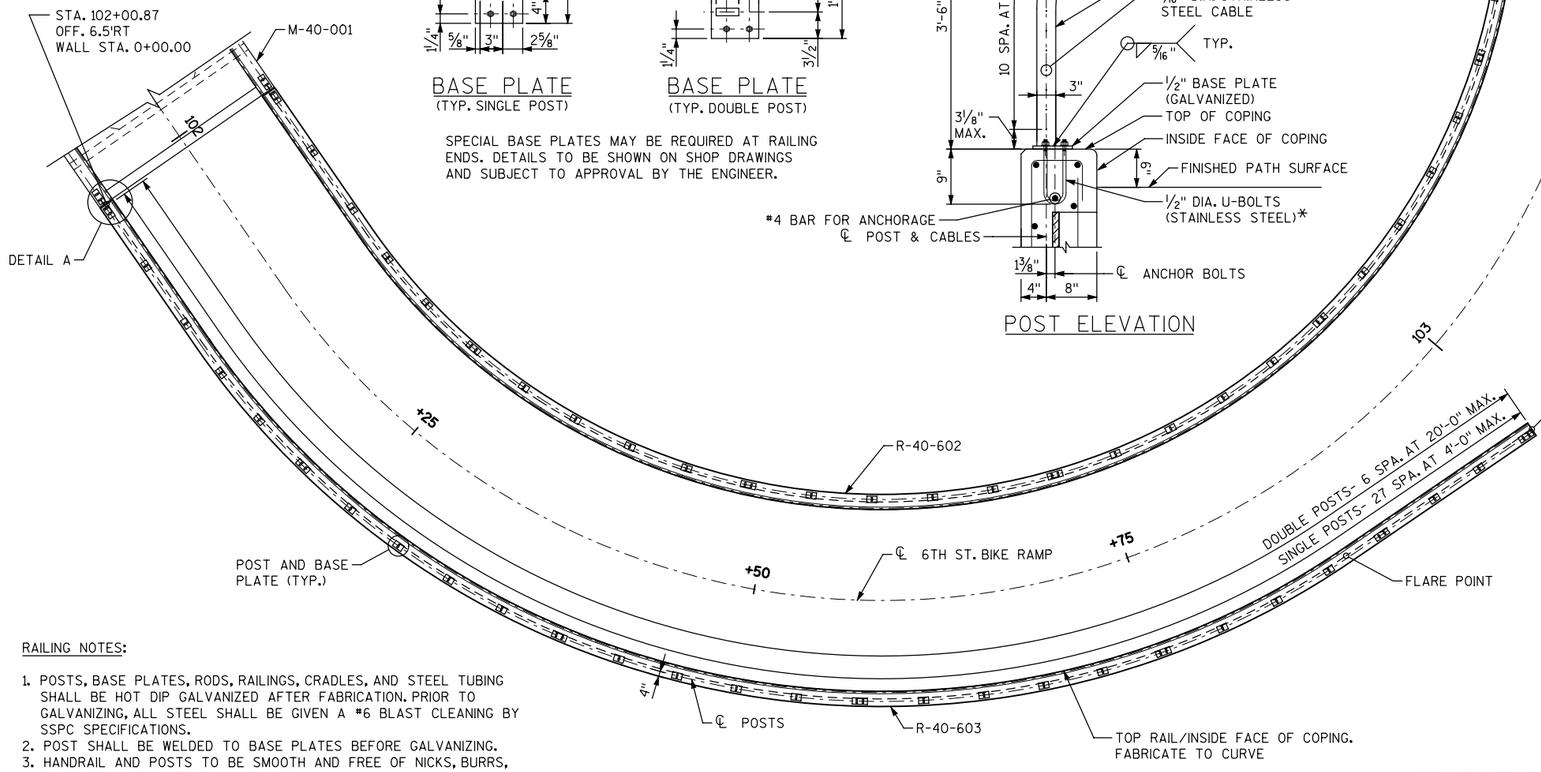
BASE PLATE
(TYP. SINGLE POST)

BASE PLATE
(TYP. DOUBLE POST)

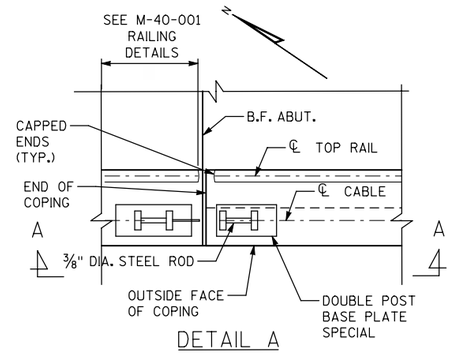
SPECIAL BASE PLATES MAY BE REQUIRED AT RAILING ENDS. DETAILS TO BE SHOWN ON SHOP DRAWINGS AND SUBJECT TO APPROVAL BY THE ENGINEER.



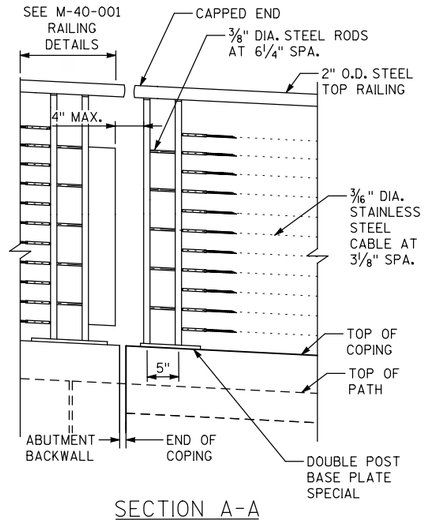
POST ELEVATION



PLAN



DETAIL A



SECTION A-A

RAILING NOTES:

1. POSTS, BASE PLATES, RODS, RAILINGS, CRADLES, AND STEEL TUBING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL SHALL BE GIVEN A #6 BLAST CLEANING BY SSPC SPECIFICATIONS.
2. POST SHALL BE WELDED TO BASE PLATES BEFORE GALVANIZING.
3. HANDRAIL AND POSTS TO BE SMOOTH AND FREE OF NICKS, BURRS, AND ABRASIONS AFTER GALVANIZING.
4. ANCHOR BOLTS, NUTS, AND WASHERS TO BE STAINLESS STEEL.
5. PAINT STAINLESS STEEL ANCHOR BOLTS AND WASHERS WHERE IN CONTACT WITH GALVANIZED STEEL WITH AN EPOXY PRIMER AND GREY SURFACE COAT. PREPARE STEEL SURFACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. ALL EXPOSED COMPONENTS OF STEEL RAILING TYPE 1 SPECIAL SHALL BE SHOP PAINTED WHITE (FS 17925) AFTER GALVANIZING WITH A DEPARTMENT APPROVED 2-COAT PAINT SYSTEM EXCEPT FOR THE TOP RAIL AND THE STAINLESS STEEL CABLES.

COST OF POSTS, BASE PLATES, U-BARS, NUTS & WASHERS, AND EMBEDDED #4 BAR FOR ANCHORAGE IS INCLUDED IN PAY ITEM "STEEL RAILING, TYPE 1 SPECIAL."

*1/2"ϕ STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S EPOXY, 9" MINIMUM EMBEDMENT WITH A MINIMUM PULLOUT OF 8.4 KIPS MAY BE SUBSTITUTED FOR 1/2" CAST IN PLACE U-BOLTS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-40-603

DRAWN BY WMN | PLANS CK'D. WJZ

RAILING

SHEET 4 OF 4

79

FILE= 084040_RAILING.DGN
SCALE = 1:10

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STATION	Distance	AREA (SF) Cut	MSE Undercut	Fill	Granular Backfill	Unsuitable Fill	Marsh Exc Note 1	Reusable Undercut Note 2	Unusable Material Note 3	EBS Note 4	Incremental Vol (CY) (Unadjusted) Cut	MSE Undercut	Fill	Granular Backfill	Unsuitable Fill	Marsh Exc	Reusable Undercut	Unusable Material	EBS	Cumulative Vol (CY) Cut 1.00 Note 5	Expanded Fill 1.25 Note 6	Granular Backfill 1.00 Note 7	Expanded Unsuitable Fill 1.00 Note 8	Reduced Marsh in Fill 0.60 Note 9	Reduced EBS in Fill 0.80 Note 10	Mass Ordinate Note 11
102+00		0	121	22	77	22	23	54	4	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102+25	25	0	120	18	78	37	23	54	4	39	0	111	18	72	27	21	50	0	36	50	23	72	-14	13	29	27
102+50	25	0	121	19	76	28	23	54	4	39	0	111	17	71	30	21	50	0	36	100	44	143	-26	25	58	56
102+75	25	0	121	19	77	24	23	54	4	39	0	112	17	71	24	21	50	0	36	151	66	214	-44	38	87	85
103+00	25	0	62	82	38	43	12	28	2	20	0	85	47	53	31	16	38	0	28	189	124	267	-44	48	109	64
103+25	25	0	57	59	35	40	11	26	2	19	0	55	66	34	38	11	25	0	18	213	206	300	-27	54	123	7
103+50	25	0	53	44	32	21	10	24	2	17	0	51	48	31	28	10	23	0	17	236	266	331	-17	60	137	-30
103+75	25	0	0	33	0	15	0	0	0	0	0	25	35	15	16	5	11	0	8	247	310	346	-10	63	143	-63
104+00	25	0	0	28	0	8	0	0	0	0	0	0	28	0	10	0	0	0	0	247	345	346	0	63	143	-98
104+03	3	0	0	28	0	7	0	0	0	0	0	0	3	0	1	0	0	0	0	247	349	346	1	63	143	-102
104+13	10	0	0	39	0	11	0	0	0	0	0	0	13	0	3	0	0	0	0	247	365	346	4	63	143	-117
104+25	12	0	0	46	32	5	0	0	0	0	0	0	19	7	4	0	0	0	0	247	388	353	8	63	143	-141
104+38	13	0	0	87	0	7	0	0	0	0	0	0	32	8	3	0	0	0	0	247	428	361	11	63	143	-181
104+50	12	0	0	66	0	7	0	0	0	0	0	0	34	0	3	0	0	0	0	247	471	361	14	63	143	-223
104+67	17	0	0	50	0	12	0	0	0	0	0	0	36	0	6	0	0	0	0	247	516	361	20	63	143	-269
104+75	8	0	0	42	0	11	0	0	0	0	0	0	14	0	3	0	0	0	0	247	533	361	24	63	143	-286
105+00	25	0	0	11	0	2	0	0	0	0	0	0	45	0	6	0	0	0	0	247	589	361	30	63	143	-342
											Column totals	0	550	471	361	235	105	247	0	179						

Notes:

1 - Marsh E Percentage of MSE Undercut assumed to Sand. Assumed to be 45% according to Geoprobes GP-1 through GP-4 included in the Phase 2 Report

2- Reusable Percentage of MSE Undercut assumed to Asphalt, Brick or Topsoil. Assumed to be 3.5% according to Geoprobes GP-1 through GP-4 included in the Phase 2 Report

3 - Ususabl Percentage of MSE Undercut assumed to Silt or Clayey Silt. Assumed to be 32.5% according to Geoprobes GP-1 through GP-4 included in the Phase 2 Report

4 - EBS Cut includes reusable undercut

5 - Cut Includes only fill within the 1:1 slope from the base.

6 - Expande Includes fill from bottom of MSE undercut to bottom of MSE footings

7 - Granular Available embankment for non-structural (marsh & EBS) waste material. No Borrow to be brought in for this area.

8 - Expande Reduced Marsh Excavation that can be used in Unsuitable Fill

9 - Reducec Reduced EBS Excavation that can be used in Unsuitable Fill

10 - Reduce Expanded Fill - Cut

11 - Mass Ordinate

STATION	Distance	AREA (SF)									Incremental Vol (CY) (Unadjusted)									Cumulative Vol (CY)						Mass Ordinate Note 11
		Cut	MSE Undercut	Fill	Granular Backfill	Unsuitable Fill	Marsh Exc Note 1	Reusable Undercut Note 2	Unusable Material Note 3	EBS Note 4	Cut	MSE Undercut	Fill	Granular Backfill	Unsuitable Fill	Marsh Exc	Reusable Undercut	Unusable Material	EBS	Cut 1.00 Note 5	Expanded Fill 1.25 Note 6	Granular Backfill 1.00 Note 7	Expanded Unsuitable Fill 1.00 Note 8	Reduced Marsh in Fill 0.60 Note 9	Reduced EBS in Fill 0.80 Note 10	
201+10		7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201+25	15	8	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
201+50	25	0	0	11	0	0	0	0	0	0	4	0	5	0	0	0	0	0	0	8	6	0	0	0	0	2
201+72	22	0	0	42	0	13	0	0	0	0	0	0	22	0	5	0	0	0	0	8	33	0	5	0	0	-25
201+75	3	0	0	46	0	13	0	0	0	0	0	0	5	0	1	0	0	0	0	8	39	0	7	0	0	-31
										Column totals	8	0	31	0	7	0	0	0	0							

Notes:

1 - Marsh E Percentage of MSE Undercut assumed to Sand. Assumed to be 45% according to Geoprobes GP-1 through GP-4 included in the Phase 2 Report
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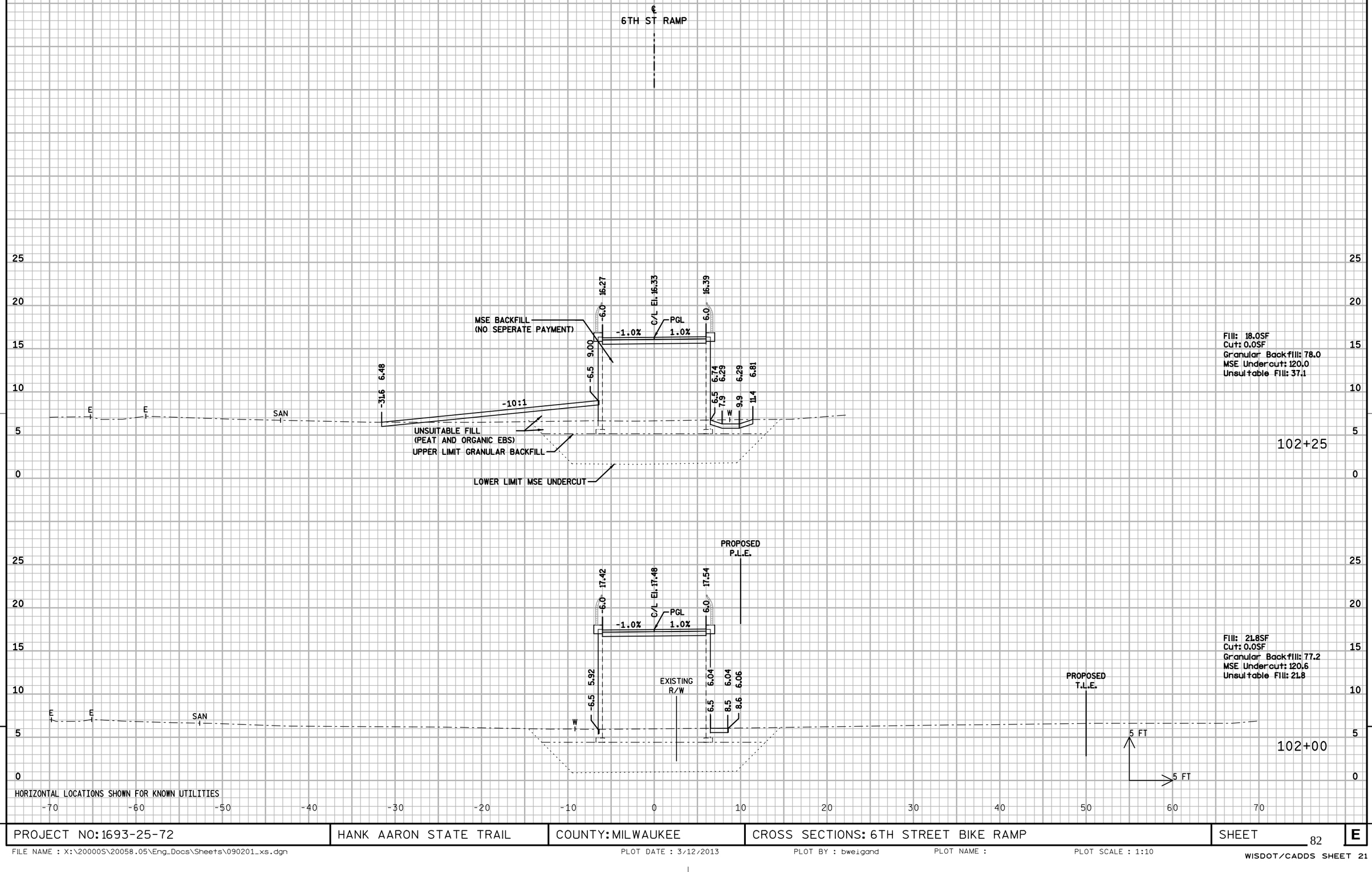
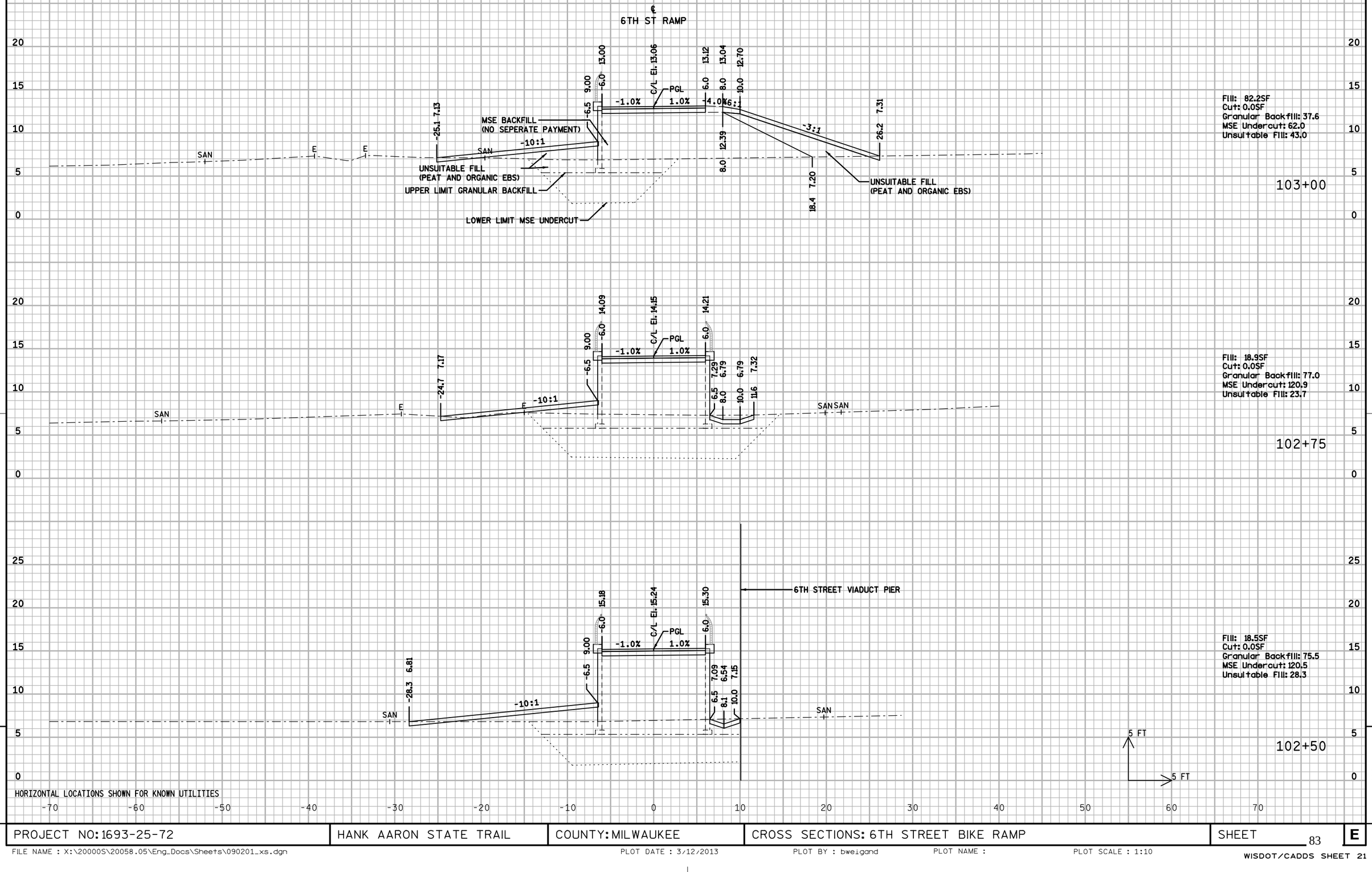
11 - Mass Ordinate



PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	CROSS SECTIONS: 6TH STREET BIKE RAMP	SHEET 82	E



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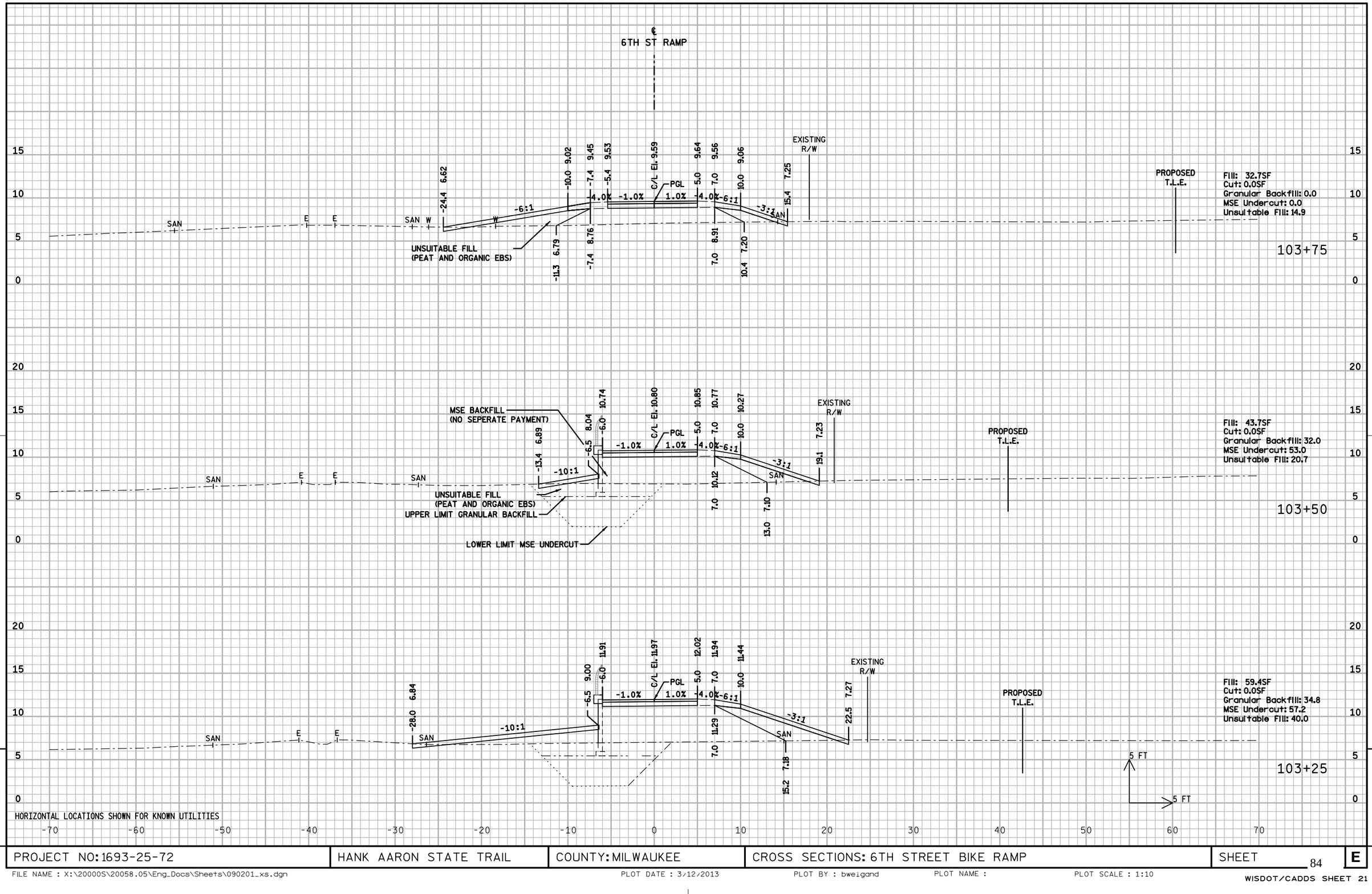

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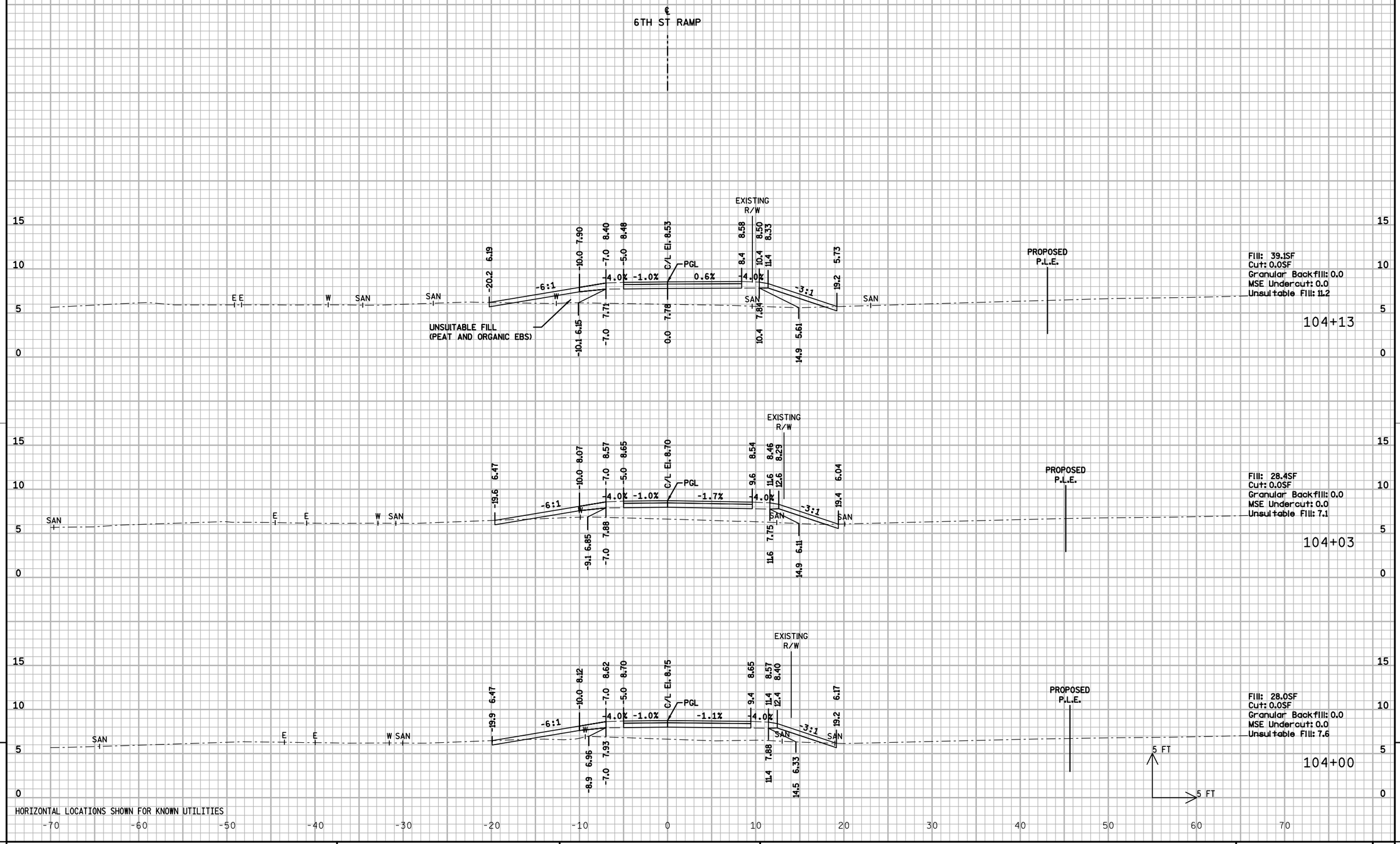

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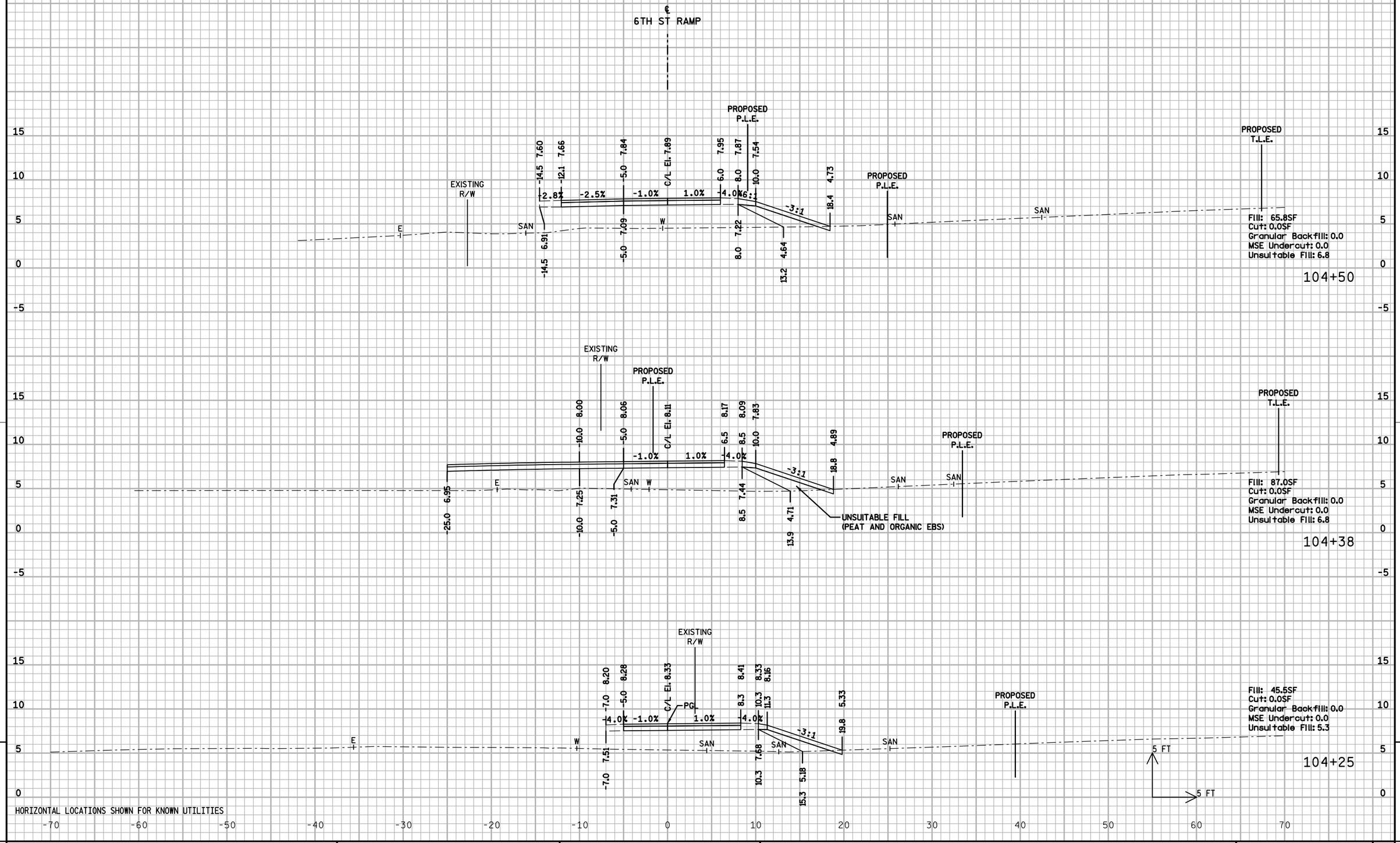

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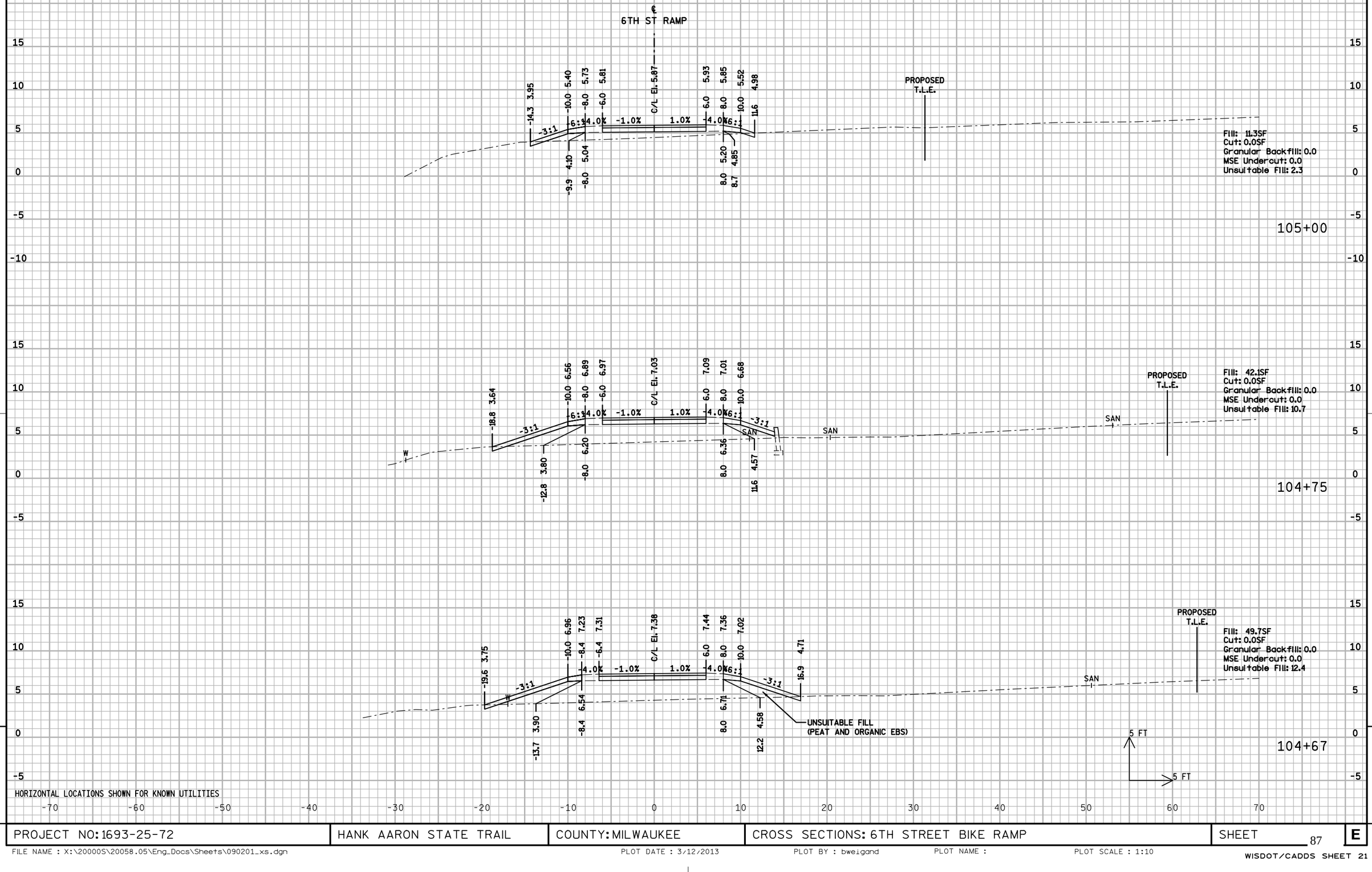

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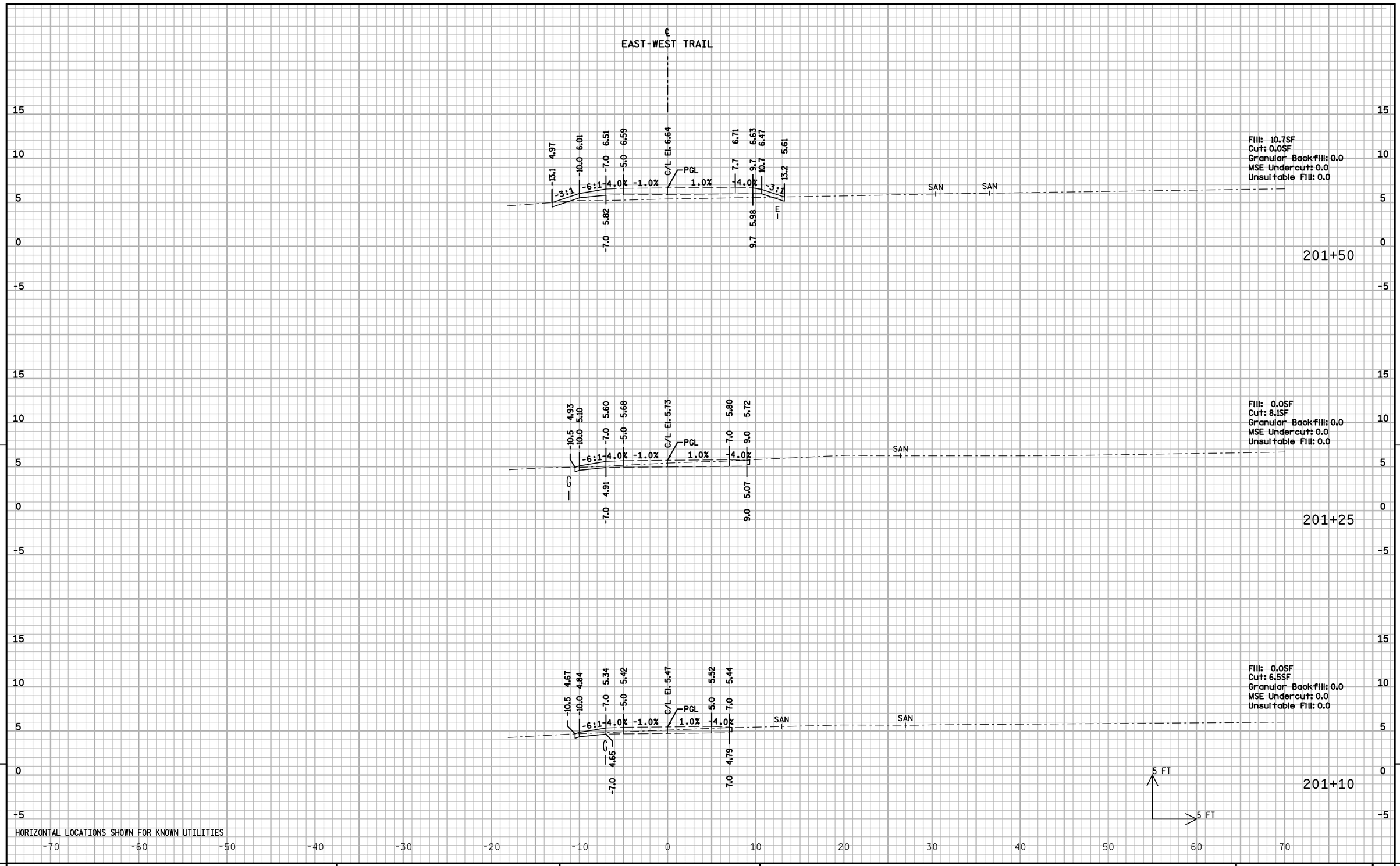

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PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	CROSS SECTIONS: 6TH STREET BIKE RAMP	SHEET 88	E

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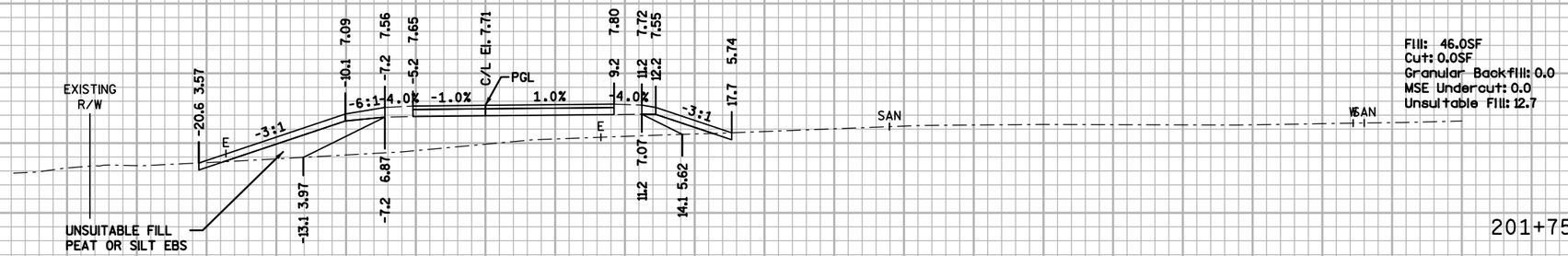
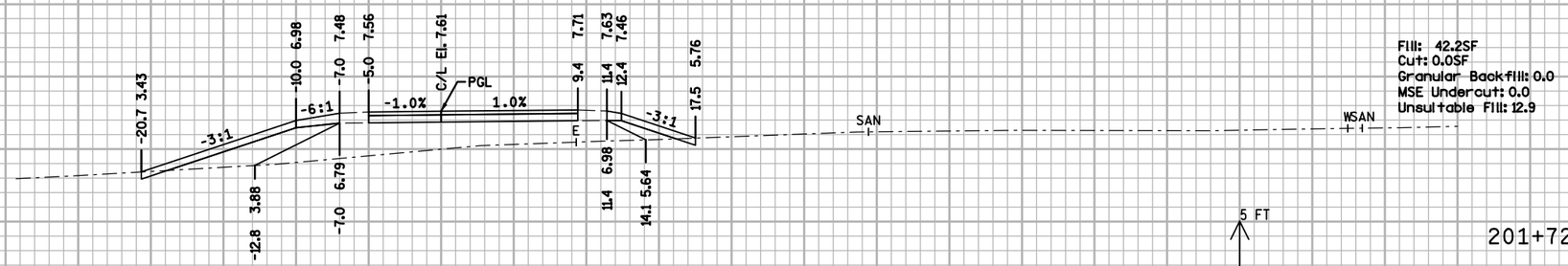
EAST-WEST TRAIL





HORIZONTAL LOCATIONS SHOWN FOR KNOWN UTILITIES

PROJECT NO: 1693-25-72	HANK AARON STATE TRAIL	COUNTY: MILWAUKEE	CROSS SECTIONS: 6TH STREET BIKE RAMP	SHEET 89	E

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