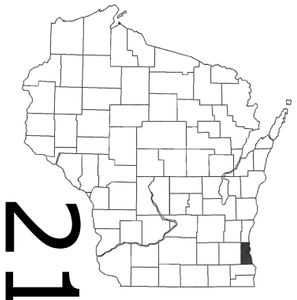
SEL APR 2017

PROJECT ID WITH: N/A 2984-07-75

COUNTY MILWAUKEE

INDEX OF SHEETS

TOTAL SHEETS 110



21

GN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

NORTH 51ST BOULEVARD

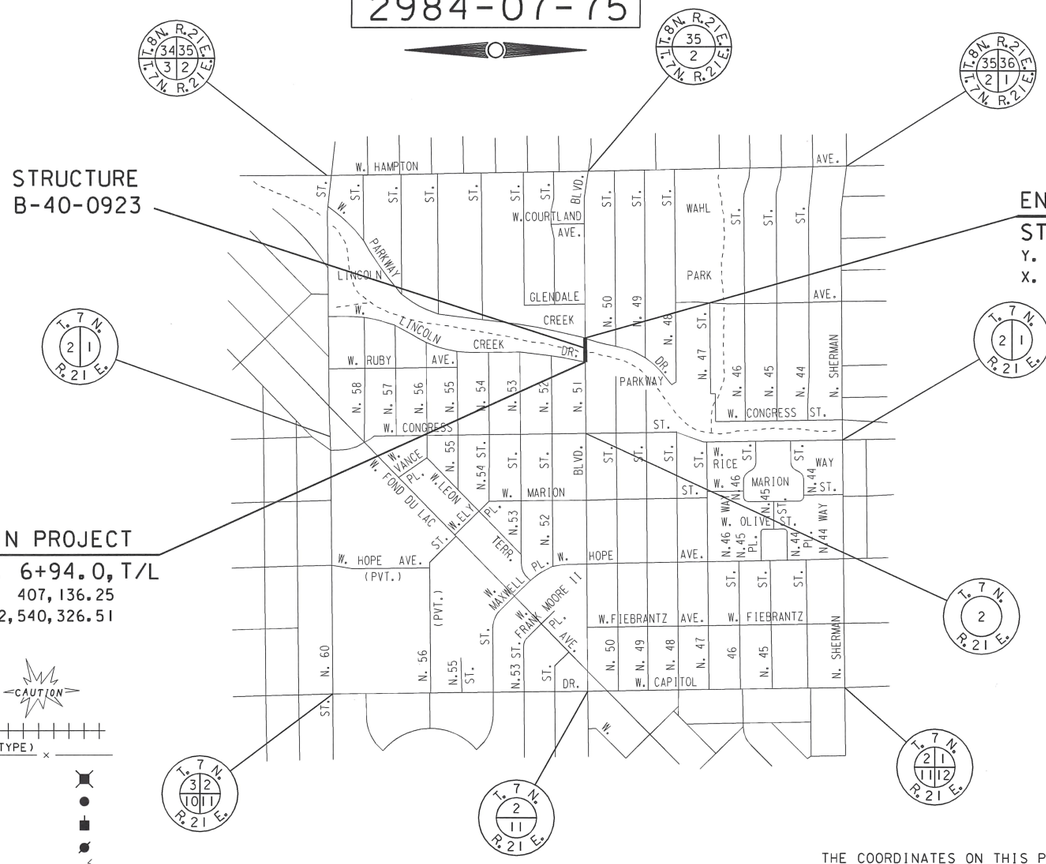
BRIDGE OVER LINCOLN CREEK (B-40-0923)

LOCAL STREET

MILWAUKEE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2984-07-75		

STATE PROJECT NUMBER
2984-07-75



STRUCTURE B-40-0923

BEGIN PROJECT
STA. 6+94.0, T/L
Y. = 407,136.25
X. = 2,540,326.51

END PROJECT
STA. 10+36.0, T/L
Y. = 407,478.25
X. = 2,540,324.17

LAYOUT
SCALE 1/4 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.065 MILES (URBAN)

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

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

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

DESIGN DESIGNATION

A.D.T. (CURRENT)	=	10,600
A.D.T. (2036)	=	11,700
D.H.V.	=	1100
D.	=	53%
T.	=	3.5%
DESIGN SPEED	=	30

CONVENTIONAL SIGNS

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

Accepted For
City of Milwaukee

11-28-16 (Date) Commissioner of Public Works

Original Plans Prepared By

WISCONSIN JEFFREY S. POLENSKE E-33528 MILWAUKEE WIS. PROFESSIONAL ENGINEER

11/29/16 (Date) City Engineer

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

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

APPROVED FOR THE DEPARTMENT

DATE: 11/30/16 (Management Consultant Signature)

E

FILE NAME: W:\STR\B0511\APPROACH PLANS\TITLE.DGN

REVISED DATE: 10-27-2016 BY TJK

GENERAL NOTES

1. ALL OPENINGS BELOW SUBGRADE, RESULTING FROM REMOVALS OR ABANDONMENTS, SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.

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

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

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

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

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

7. CURB AND GUTTER RADII ARE MEASURED TO THE FACE OF CURB.

STANDARD ABBREVIATIONS

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

ORDER OF SECTION 2 SHEETS

2

2

Utility Contacts

City of Milwaukee utility Coordinator
Musa Abu-Khader
841 N. Broadway
Milwaukee, WI
Phone: 414-286-2432
mkhader@milwuakee.gov

WE- Energies
All Correspondence to
Latroy Brumfield
333 W. Evertt St
Milwaukee, WI 53203
Phone: 414-221-5617
Latroy.brumfield@we-energies.com

WE Energies – Electric
Field Contact
Leonard Wilson
500 S. 116th St
West Allis, WI 53214
Phone:414-940-5690
Leonard.wilson@we-energies.com

WE Energies – Gas
Field Contact
Josh Mount
500 S. 116th St
West Allis, WI 53214
Phone: 414-218-2053
josh.mount@we-energies.com

Milwaukee Metropolitan Sewerage District (MMSD)
Larry Anderson
260 W. Seeboth St.
Milwaukee, WI 53204
Phone: 414-617-1429

Other Contacts

Wisconsin Department of Natural Resources
Kristina Betzold
2300 N. Dr. Martian Luther King Jr. Dr.
Milwaukee, WI 53212
Phone: 414-507-4946
Kristina. Betzold@wisconsin.gov

City of Milwaukee – Structures Section
Holly Rutenbeck
841 N. Broadway
Milwaukee, WI 53202
Phone: 414-286-0465
Holly.rutenbeck@milwuakee.gov

City of Milwaukee – Design Contact
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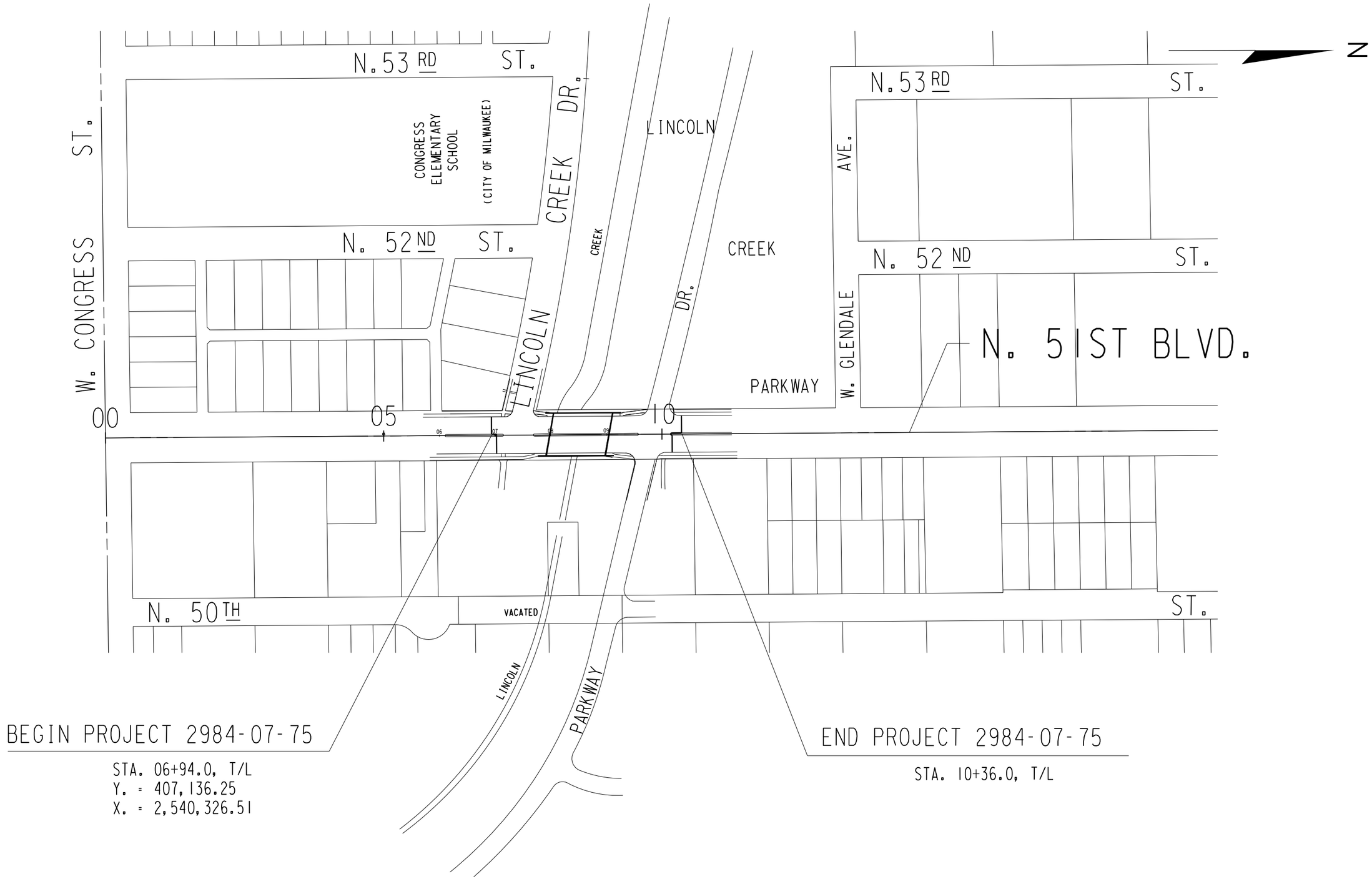
841 N. Broadway
Milwaukee, WI 53202
Phone: 414-286-0486
Rattan.mahay@milwuakee.gov

Congress Year Round Public School
5225 W. Lincoln Creek Dr.
Milwuakee, WI 53218
Phone: 414-616-5300

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

PROJECT NO: 2984-07-75	HWY: LOCAL BRIDGE	COUNTY: MILWUAKEE	UTILITY CONTACTS	SHEET: 3	E

FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ PLOT SCALE : 1:1



BEGIN PROJECT 2984-07-75

STA. 06+94.0, T/L
Y. = 407,136.25
X. = 2,540,326.51

END PROJECT 2984-07-75

STA. 10+36.0, T/L

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PROJECT OVERVIEW	SCALE FEET 0' 180'	SHEET NO:	E

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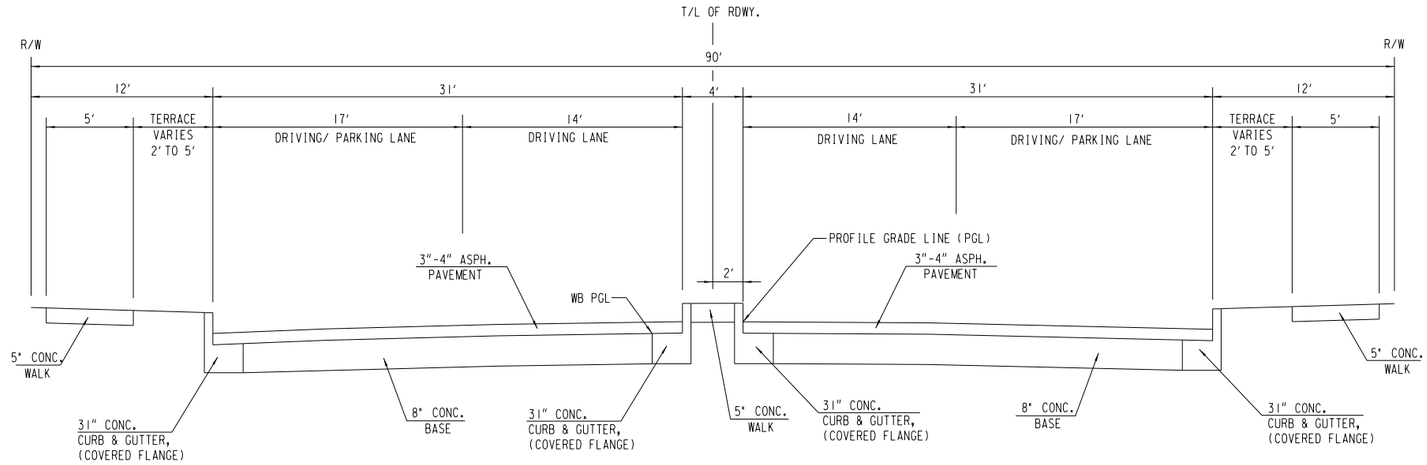
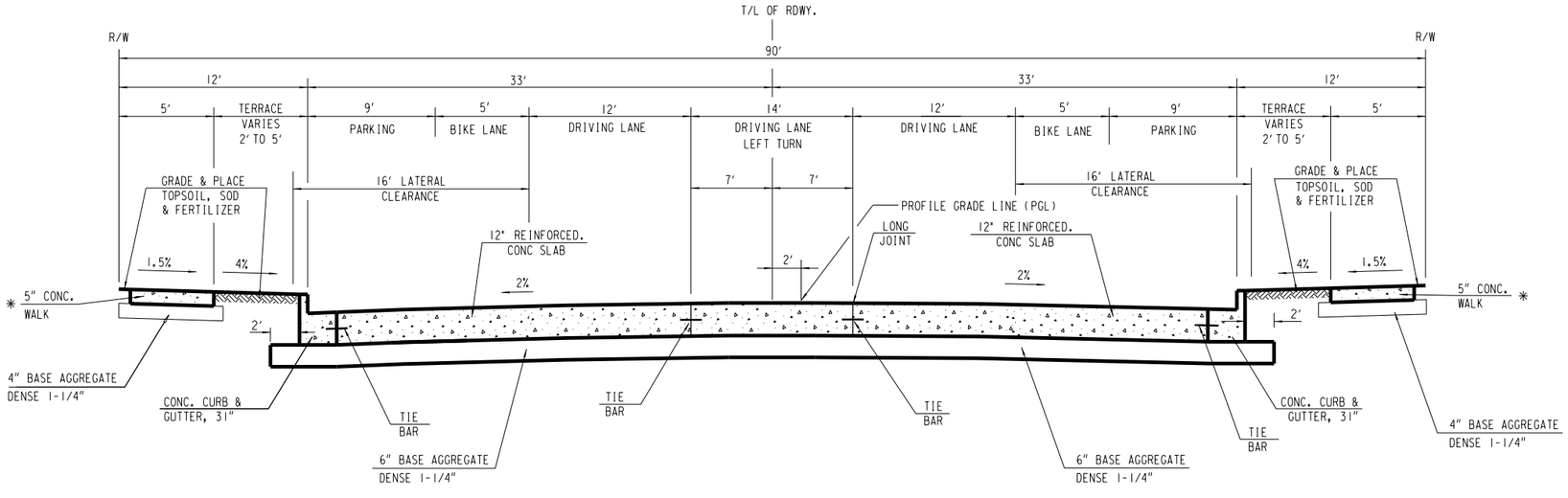
REVISED: 10-26-2016 SB



TYPICAL EXISTING SECTION

NORTH 51ST STREET

(BRIDGE APPROACHES)
(STA. 06+94.0 TO STA. 07+72.07)
(STA. 09+30.93 TO STA. 10+36.0)



TYPICAL FINISHED SECTION

NORTH 51ST STREET

—PROFILE GRADE LINE (PGL)

(BRIDGE APPROACHES)

(STA. 07+50.0 TO STA. 07+72.07)
(STA. 09+30.93 TO STA. 09+53.30)

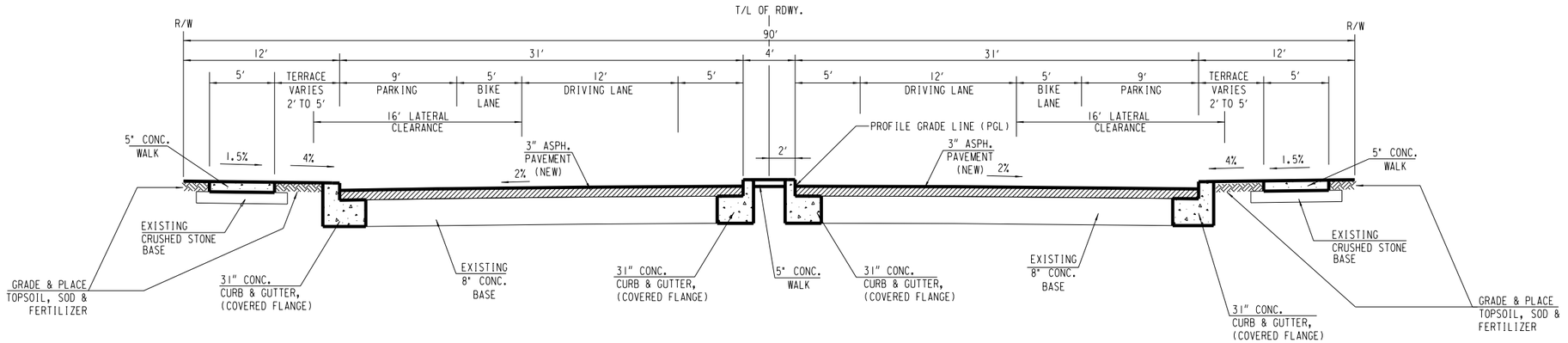
✳ WHERE INDICATED ON PLAN

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TYPICAL SECTION	SCALE FEET 0' 40'	SHEET NO: 5	E

FILENAME: W:\STR\B05111\APPROACH PLANS\TYPSEC.DGN

REVISED DATE: 1-11-2017 BY ML

2



TYPICAL FINISHED SECTION

NORTH 51ST STREET

(STA. 06+94.0 TO STA. 07+50.0)
(STA. 09+53.30 TO STA. 10+36.0)

STATE PROJECT NUMBER 2984-07-75 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TYPICAL SECTION	SCALE FEET 0' 40'	SHEET NO: 6	E

FILENAME: W:\STR\BOSII\APPROACH PLANS\TYPSEC.DGN

REVISED DATE: 1-11-2017 BY ML

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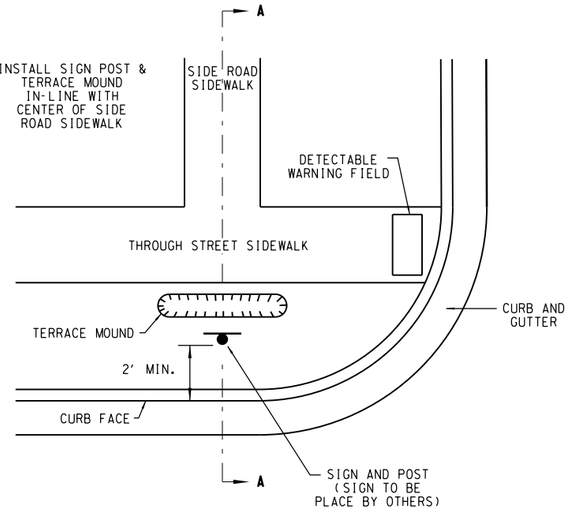


MOUND AND SIGN LOCATION DETAIL

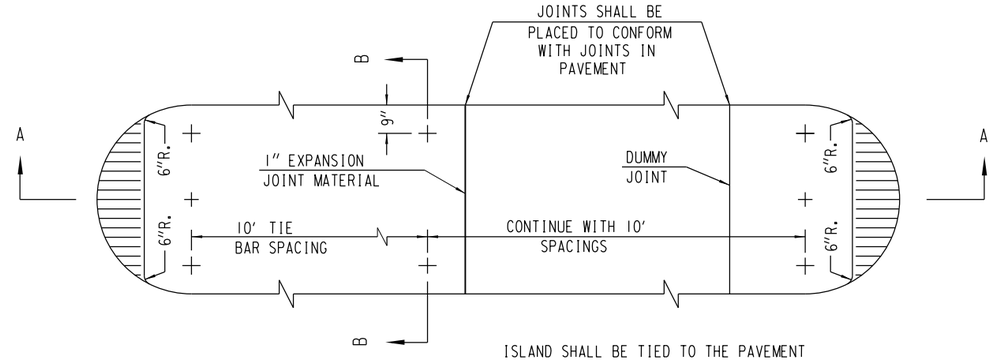
TERRACE MOUND DETAIL
SECTION A-A

CROSSWALK CLOSURE DETAIL

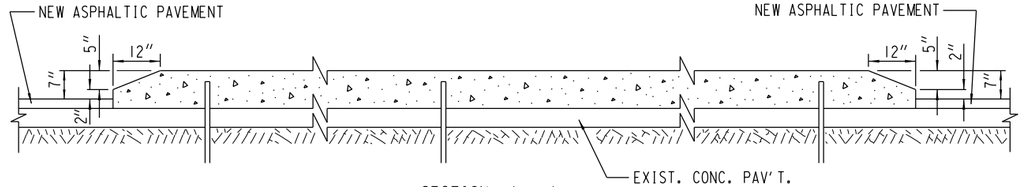
STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	CONSTRUCTION DETAIL	SCALE FEET 0' 40'	SHEET NO: 7	E

FILENAME: W:\STR\BOSII\APPROACH PLANS\CONDET.DGN

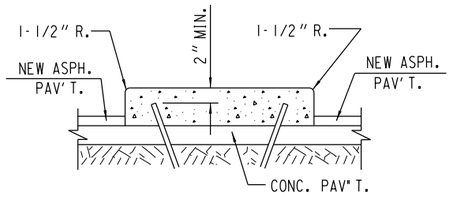
2



ISLAND SHALL BE TIED TO THE PAVEMENT
BY PLACING 3/4" DIA. X 18" TIE BARS. COST
SHALL BE INCLUDED IN COST OF
CONCRETE LOADING ZONE



SECTION A - A



SECTION B - B

NOTE :
SIZE AND LOCATION OF CITY OF MILWAUKEE
ELECTRICAL SERVICES BOXOUTS IN CONCRETE
ISLANDS ON BASE TO BE DETERMINED IN FIELD
AT THE TIME OF CONSTRUCTION

CONCRETE LOADING ZONE

(WITH SNOWPLOWABLE NOSE)

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	CONSTRUCTION DETAIL	SCALE FEET 0' 40'	SHEET NO:	E

FILENAME: W:\STR\B05111\APPROACH PLANS\CONDET.DGN

NORTH

LINCOLN CREEK

51ST

W. PARKWAY DR.

BOULEVARD

N

9+65.7, 44' LT
74.36

9+66.4, 38.5' LT
74.28

9+60.9, 43.2' LT
74.44

9+61.4, 38.0' LT
74.36

END PROJECT
STA. 10+36.0 T/L

R/W

TOP OF RAIL

IRON RAIL

PROPOSED
BRIDGE
B-40-923

CURB RAMP TYPE 4B1
+73.6

41.5' LT

CURB RAMP TYPE 4B1
+17.7

1.5%

9+69.4, 36.7' LT
74.31C
74.06G

10+19.3, 39.2' LT
74.01C
73.59G

9+58.5, 33' LT
74.37C
73.95G

+50 09 +50 10 T/L +50 11

SEE BRIDGE
PLANS

G

IRON RAIL

TOP OF RAIL

TOP OF RAIL

1.5%

9+33.8, 38.0' RT
74.30

9+33.3, 42.8' RT
74.38

9+38.1, 38.5' RT
74.25

9+37.5, 43.3' RT
74.30

9+45.2, 36.7' RT
74.22C
73.80G

9+96.8, 36.3' RT
73.92C
73.54G

9+91.7, 43' RT
73.88C
73.63G

CURB RAMP TYPE 4B1

41.2' RT

CURB RAMP TYPE 4B1

1.5%

10+0.0, 38.2' RT
73.94

10+0.0, 44' RT
74.02

G

G

R/W

CAUTION

CAUTION

DETECTABLE WARNING FIELD

LANDING AREA

- REMOVING SIDEWALK, DRIVEWAY

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	INTERSECTION DETAIL	SCALE FEET 0' 20'	SHEET NO: 9	E

FILE NAME: W:\STR\B05111\APPROACH PLANS\RAMPS NORTH.DGN

REVISED: 1/11/2017 BY ML

2

N

NORTH 51ST BOULEVARD

W. LINCOLN CREEK DR.

LINCOLN CREEK

CAUTION

CAUTION

7+18.9, 42.9' LT
74.80(E)

7+17.9, 38.8' LT
74.75

7+14, 43.8' LT
74.88(E)

7+12.8, 38.8' LT
74.80

7+10, 33.1' LT
74.75C
74.42G

7+32.3, 44.3' LT
74.57C
74.07G

7+69.9, 45.2' LT
74.65C
74.23G

7+79.9, 43' LT
74.83

7+84.8, 42' LT
74.91

R/W

G

G

1.5%

CURB RAMP TYPE 4B1

+48.8 ℄ +48.6

CURB RAMP TYPE 4B1

1.5%

TOP OF RAIL

IRON RAIL

TOP OF RAIL

7+27, 36.2' LT
74.63C
74.21G

7+17.8, 33.1' LT
74.68C
74.35G

CURB RAMP ℄ TYPE 2M

+15.0

7+71.9, 36.6' LT
74.73C
74.40G

7+79.5, 38' LT
74.75

7+84.5, 37' LT
74.83

7+80, 33' LT
74.90C
74.57G
74.65F

PROPOSED BRIDGE B-40-923

BEGIN PROJECT
STA. 6+94.0 T/L
Y. = 407,136.25
X. = 2,540,326.51

06 +50 07 +50 08 +50

CURB RAMP ℄ TYPE 3

+15.0

7+19, 33.1' RT
74.58C
74.25G

7+11, 33.1' RT
74.50C
74.17G

BRIDGE ABUTMENT

SEE BRIDGE PLANS

G

G

IRON RAIL

TOP OF RAIL

TOP OF RAIL

TOP OF RAIL

R/W

7+11, 38.9' RT
74.59

7+11, 43.9' RT
74.67

7+19, 38.9' RT
74.67

7+19, 43.9' RT
74.75

CAUTION

DETECTABLE WARNING FIELD

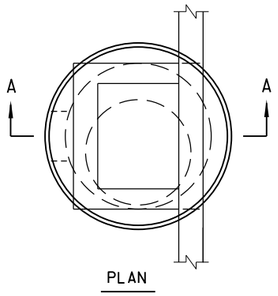
LANDING AREA

- REMOVING SIDEWALK, DRIVEWAY

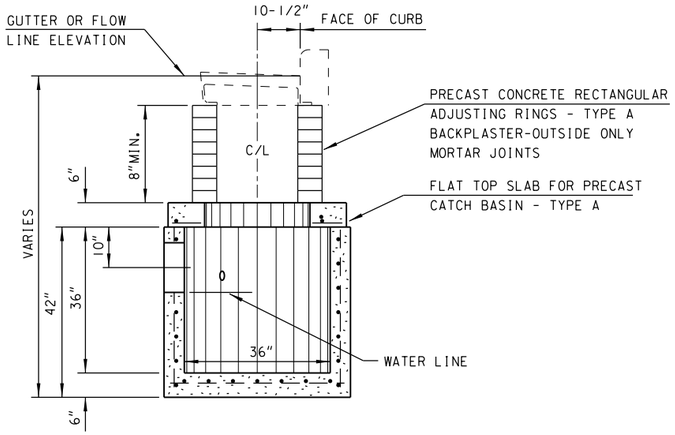
STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	INTERSECTION DETAIL	SCALE FEET 0' 20'	SHEET NO: 10	E

FILE NAME: W:\STR\B05\1\APPROACH PLANS\RAMPS SOUTH.DGN

REVISED: 10/26/2016 BY SB

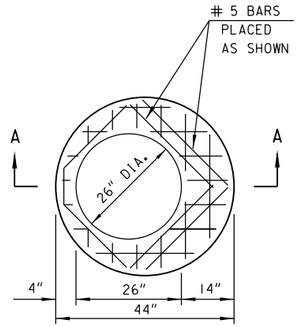


PLAN



SECTION A-A

CATCH BASIN - TYPE 45A



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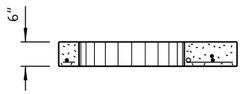


SECTION A-A

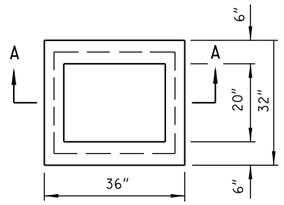
TOP SLAB - TYPE A

FLAT TOP SLAB SHALL BE 6" THICK REINFORCED WITH ONE LAYER OF STEEL WITH A MINIMUM AREA OF 0.32 SQ. IN. PER LINEAL FOOT IN BOTH DIRECTIONS, PLACED NEAR THE BOTTOM OF THE SLAB WITH 1" CLEAR COVER.

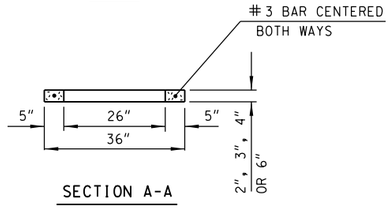
ADDITIONALLY, NO. 5 BARS SHALL BE PLACED AROUND TOP SLAB OPENING AS SHOWN.

REINFORCEMENT SHALL BE TIED OR WELDED TOGETHER.

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



PLAN

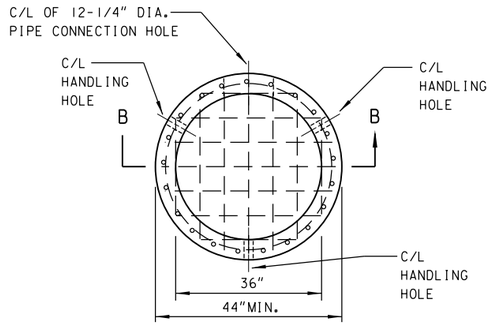


SECTION A-A

RECTANGULAR ADJUSTING RING - TYPE A

THE ADJUSTING RINGS SHALL BE 2", 3", 4" OR 6" IN HEIGHT.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.



RISER SECTION WITH INTEGRAL BASE PLAN

CIRCUMFERENTIAL AND LONGITUDINAL REINFORCEMENT IN THE RISER SECTON SHALL EACH CONSIST OF ONE LAYER OF STEEL NOT LESS THAN 0.12 SQ. IN. PER FOOT AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.

THE BASE SLAB SHALL BE REINFORCED WITH ONE LAYER OF STEEL WITH A MINIMUM AREA OF 0.32 SQ. IN. PER FOOT IN BOTH DIRECTIONS, PLACED ABOVE THE MIDPOINT OF THE SLAB.

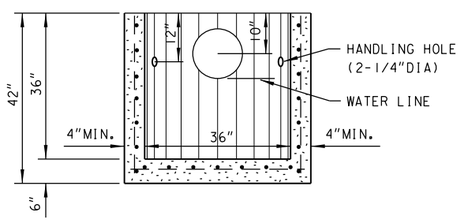
RISER SECTION AND BASE SLAB REINFORCEMENT SHALL BE TIED OR WELDED TOGETHER.

TWO TO THREE HANDLING HOLES 2-1/4" IN DIAMETER AND A PIPE CONNECTION HOLE 12-1/4" IN DIAMETER SHALL BE CAST OR CORED IN THE RISER SECTION AT THE LOCATIONS SHOWN. LIFTING DEVICES MAY BE SUBSTITUTED FOR HANDLING HOLES.

NO JOINTS OR HOLES SHALL BE BELOW THE WATERLINE.

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

RISER SECTION MAY TAPER TO A 33" INTERNAL DIAMETER AT IT'S BOTTOM PROVIDED A 44" MINIMUM OUTSIDE DIAMETER IS MAINTAINED.



SECTION B-B

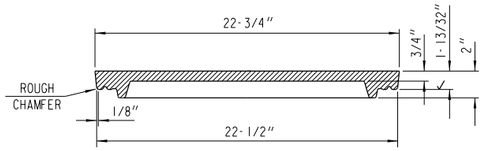
GENERAL NOTES

1. PRECAST INLET UNITS AND BASES SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199 AND ASTM DESIGNATION C-478 AND THESE DETAILED REQUIREMENTS WHICH SHALL GOVERN WHERE THEY ALTER THE AASHTO AND ASTM STANDARDS.
2. ALL REINFORCEMENT STEEL SHALL BE GRADE 60 OR GREATER AND EMBEDDED AT LEAST 1" CLEAR.
3. PRECAST REINFORCED BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 4 IN DEPTH WHICH MEETS REQUIREMENTS FOR GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.
4. SET FRAME ELEVATION 0.03 FT. LOWER THAN ELEVATION INDICATED ON PLAN.

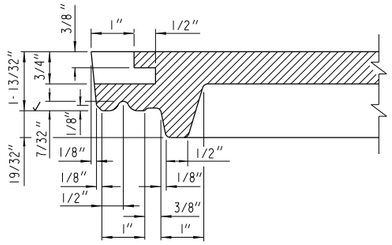
STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	DRAINAGE DETAILS	SCALE FEET 0' 40'	SHEET NO:	E

FILENAME: W:\STR\B05II\APPROACH PLANS\DRAINDET.DGN

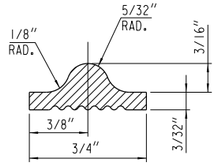
REVISED DATE: - -



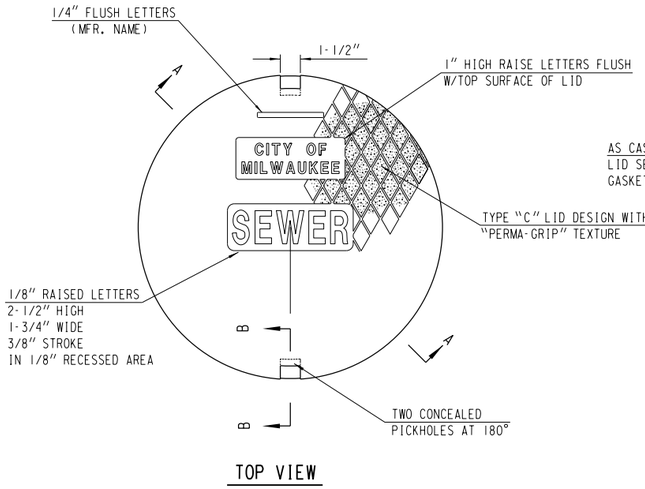
SECTION A-A



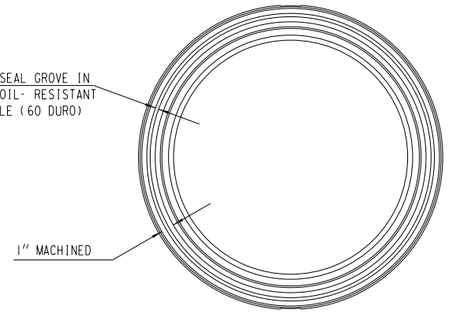
SECTION B-B



"T" GASKET DETAIL



TOP VIEW



BOTTOM VIEW

MANHOLE COVER - TYPE 58-A

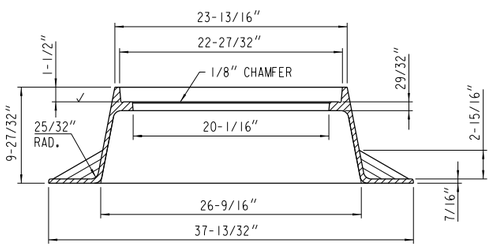
LID - 107 LBS.

NOTE:

ALL CASTINGS SHALL BEAR THE FOLLOWING IDENTIFICATION MARKS IN THE FORM OF LEGIBLE LETTERS OR NUMERALS RAISED 1/8" HAVING A DIGIT OR LETTER HEIGHT OF ONE INCH ON LOWER FACE OF LID:

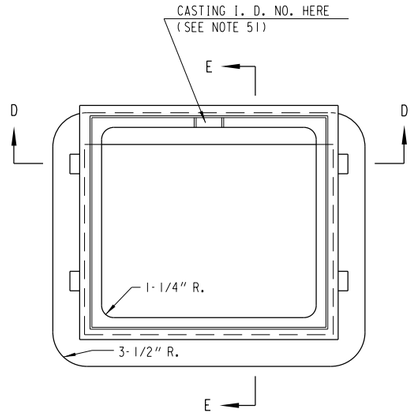
1. THE INITIALS OR MONOGRAM OF THE FOUNDRY.
2. THE CONTRACT NUMBER AND YEAR MADE.
3. THE CASTING IDENTIFICATION NUMBER.
4. THE SERIAL NUMBER OF THE INDIVIDUAL CASTING.

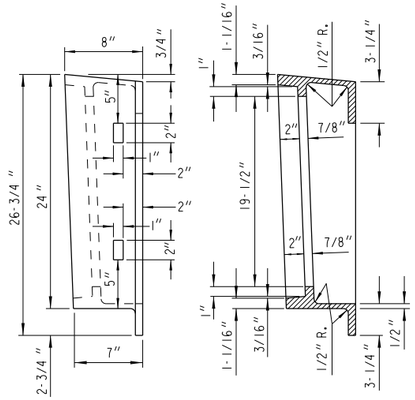
NOTE: ALL EXTERIOR EDGES SHALL BE GROUND.



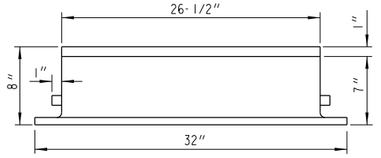
MANHOLE FRAME - TYPE MS21

FRAME - 182 LBS.

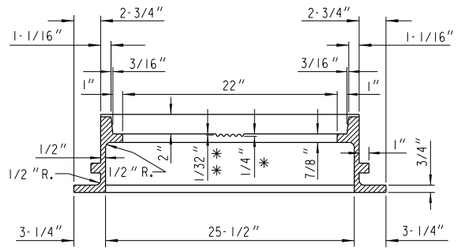




SECTION E-E



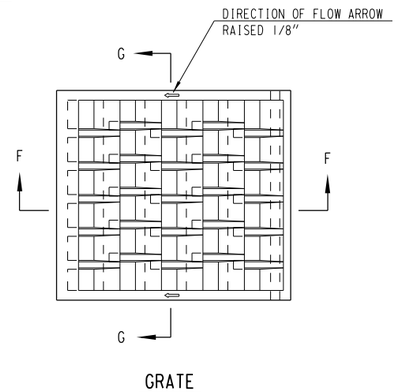
FRAME



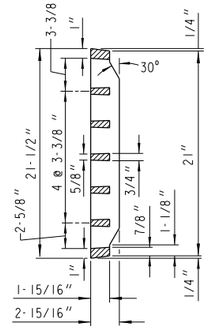
SECTION D-D

* DEPRESSION FOR LETTERS

* * CLEARANCE FROM TOP OF LETTERS TO FACE OF SEAT



GRATE



SECTION G-G

GENERAL NOTES

ALL EDGES ARE TO BE GROUND

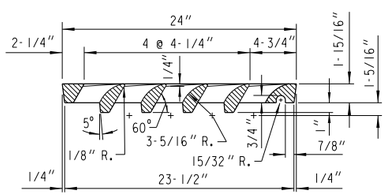
ALL CASTINGS SHALL BEAR THE FOLLOWING IDENTIFICATION MARKS IN THE FORM OF LEGIBLE LETTERS OR NUMERALS RAISED 1/8"

ON THE FRAME

1. ON THE UPPER FACE OF THE FLANGE IN 1 INCH HIGH LETTERS THE INITIALS OR MONOGRAM OF THE FOUNDRY, THE YEAR MADE AND THE SERIAL NUMBER OF THE INDIVIDUAL CASTING.
2. ON THE SEAT OF THE FRAME IN 1 INCH HIGH LETTERS, THE CASTING IDENTIFICATION NUMBER (51).

ON THE GRATE

1. ON THE UPPER SIDE OF THE GRATE IN 1 INCH HIGH LETTERS, THE INITIALS OR MONOGRAM OF THE FOUNDRY, THE YEAR MADE, THE CASTING IDENTIFICATION NUMBER (57) AND THE SERIAL NUMBER OF THE INDIVIDUAL CASTING.



SECTION F-F

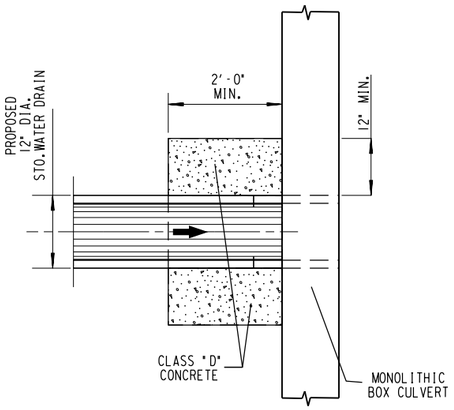
INLET COVER - TYPE 57

LID-145 LBS., FRAME-204 LBS.

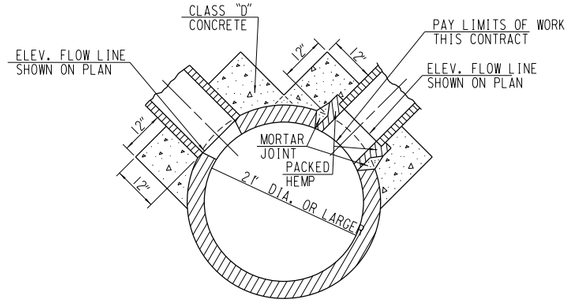
STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	DRAINAGE DETAILS	SCALE FEET 0' 40'	SHEET NO: E

FILENAME: W:\STR\B051I\APPROACH PLANS\DRAINDET.DGN

REVISED DATE: - -

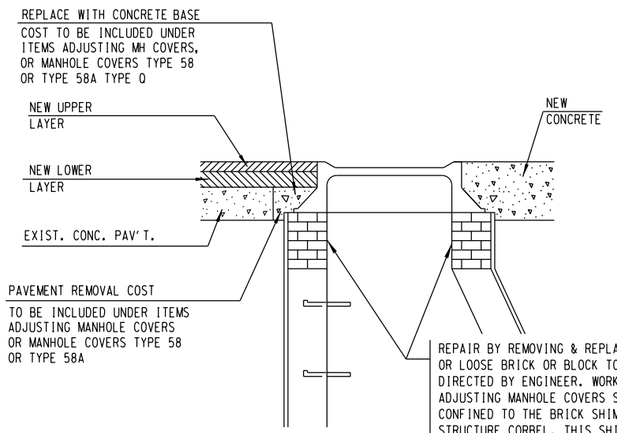


DETAIL OF CONNECTION TO
VARIOUS SIZED BOX CULVERTS



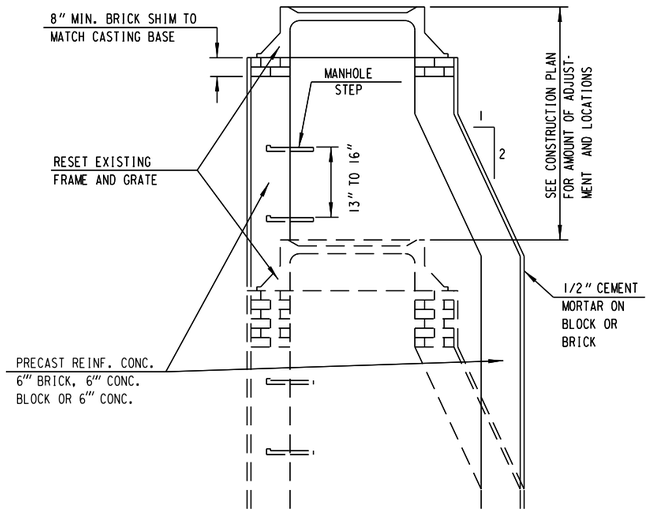
DETAIL OF DIRECT CONNECTION TO
VARIOUS SIZED ROUND STORM SEWER PIPE

CONCRETE COLLAR



REPAIR BY REMOVING & REPLACING DAMAGED OR LOOSE BRICK OR BLOCK TO DEPTH AS DIRECTED BY ENGINEER. WORK UNDER ADJUSTING MANHOLE COVERS SHALL BE CONFINED TO THE BRICK SHIMMING ABOVE THE STRUCTURE CORBEL. THIS SHIMMING SHALL NOT EXCEED 1 FOOT BETWEEN THE TOP OF THE CORBEL AND THE FRAME BOTTOM. ANY WORK MORE EXTENSIVE THAN DESCRIBED IMMEDIATELY ABOVE SHALL BE CONSTRUED AS WORK UNDER RECONSTRUCTING MANHOLES. DEPTHS OF BRICK-WORK TO BE REPAIRED, AS INDICATED ON THE PLAN, ARE ESTIMATES ONLY AND MAY VARY AT TIME OF CONSTRUCTION.

ADJUSTING MANHOLE COVERS
OR MANHOLE COVERS TYPE 58A



CORBEL MAY BE REVERSED
STRAIGHT SIDE LEANED
SLIGHTLY TO CLEAR CURB HEAD.

REPAIR BY REMOVING AND REPLACING
DAMAGED OR LOOSE BRICK OR BLOCK
TO THE DEPTH AS SHOWN ON THE
PLAN OR AS DIRECTED BY THE ENGINEER.
DEPTHS AS INDICATED ON PLAN ARE
ESTIMATES ONLY AND MAY VARY AT
TIME OF CONSTRUCTION.

RECONSTRUCTING MANHOLES
AND INLETS

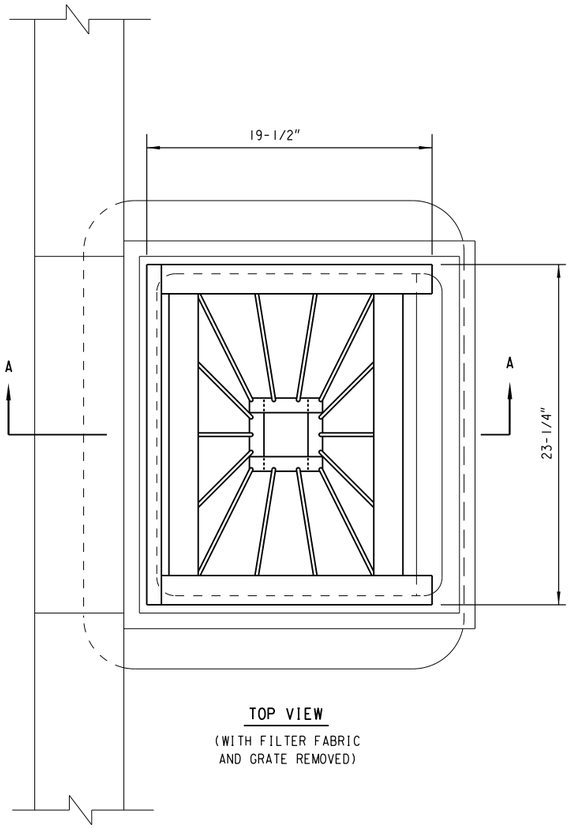
CONSTRUCTION NOTES

1. LOCATIONS OF STRUCTURES IN CURB & GUTTER SECTIONS REFER TO FACE OF CURB.
2. LOCATIONS OF STRUCTURES NOT IN CURB AND GUTTER SECTIONS REFER TO CENTERLINE OF STRUCTURE.
3. PIPE LENGTHS GIVEN ARE APPROXIMATE OUT TO OUT OF STRUCTURE.
4. GRATE & RIM ELEVATIONS ARE GIVEN AT FLOW LINE OF INLET COVER OR AT CENTER-LINE OF MANHOLE COVER.
5. WHEN NEW COVERS ARE PLACED, THE FIRST 12" OF ADJUSTMENT OR REPAIRING SHALL BE INCLUDED IN THE COST OF THE NEW COVER. ANY ADJUSTMENT OR REPAIR OF BRICKWORK 12" OR LESS WILL BE PAID AS ADJUSTING COVERS WHEN RESETTING EXISTING COVERS, ANY ADJUSTMENT OR REPAIR OF BRICKWORK MORE THAN 12" WILL BE PAID AS A RECONSTRUCT.
6. MANHOLE ADJUSTMENTS IN ASPHALTIC PAVEMENT WILL BE MADE AFTER THE LOWER LAYER IS PLACED.
7. WHEN CONSTRUCTING CONCRETE CURB ADJACENT TO INLET COVER TYPE 57, TWO (2) DEFORMED TIE BARS SHALL BE PLACED LONGITUDINALLY THROUGH THE CURB SECTION AND EXTENDED ONE (1) FOOT BEYOND EACH SIDE OF THE FRAME. A DUMMY JOINT SHALL BE CUT IN THE CURB AT EACH SIDE OF THE FRAME.

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	DRAINAGE DETAILS	SCALE FEET 0' 40'	SHEET NO:	E

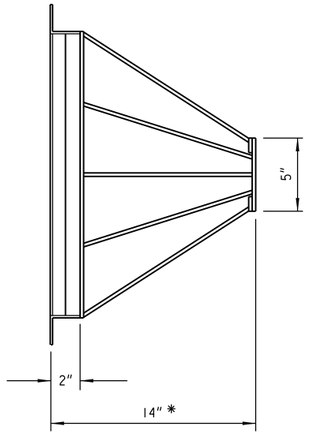
FILENAME: W:\STR\B05II\APPROACH PLANS\DRAINDET.DGN

REVISED DATE: - -



TOP VIEW

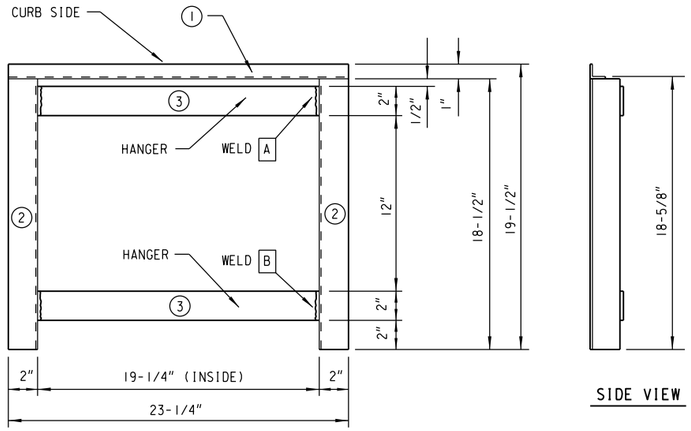
(WITH FILTER FABRIC AND GRATE REMOVED)



FRONT VIEW

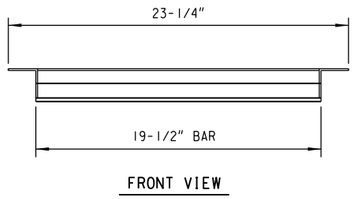
(BASKET ONLY)

* MAY BE DECREASED IF INLET IS OF INSUFFICIENT DEPTH

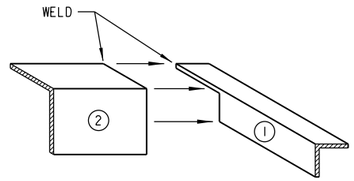


TOP VIEW

SIDE VIEW



FRONT VIEW

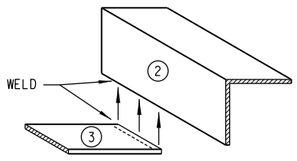


WELD CONNECTION - A

TOP FRAME

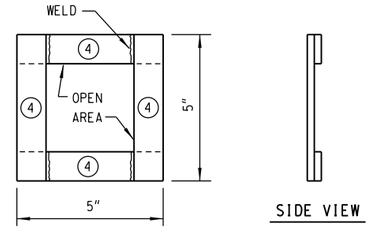
BAR SCHEDULE

NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
1	ANGLE	1" X 1"	1/8"	23-1/4"	1
2	ANGLE	2" X 2"	1/8"	18-1/2"	2
3	BAR	2"	1/4"	19-1/2"	2



WELD CONNECTION - B

BASKET HANGER TO TOP FRAME



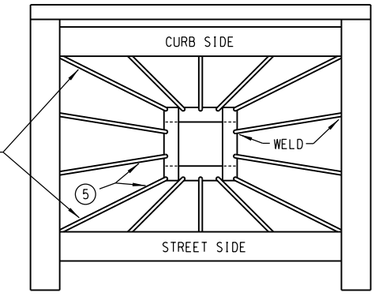
TOP VIEW

SIDE VIEW

BASKET BOTTOM

BAR SCHEDULE

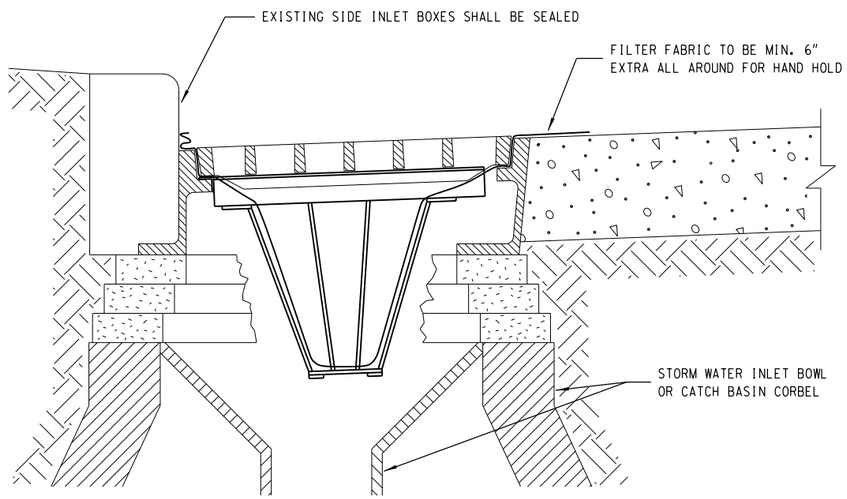
NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
4	BAR	1"	1/4"	5"	4



ROD PLACEMENT

ROD SCHEDULE

NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
5	ROD	1/4" MIN.	1/8"	12" TO 14" (CUT TO FIT)	14



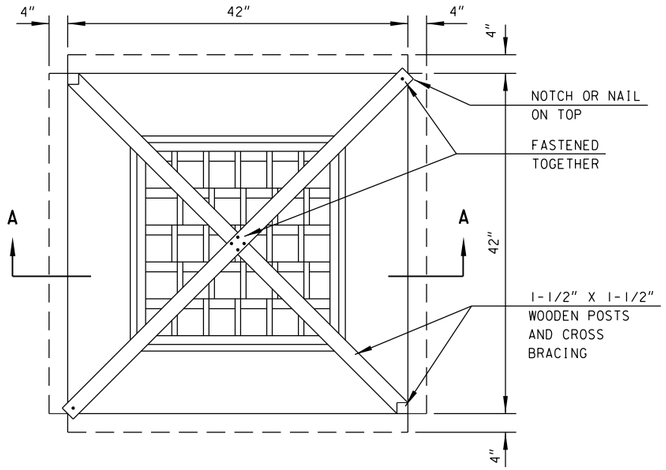
SECTION A-A

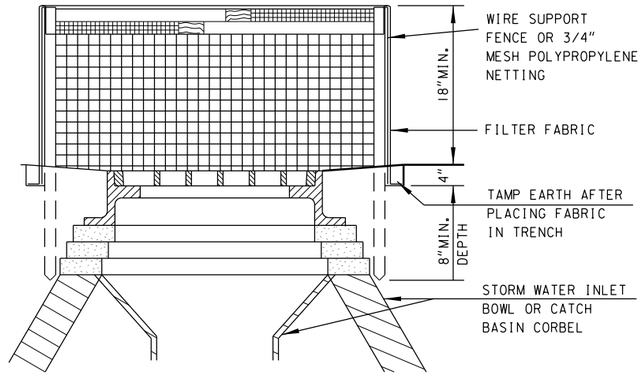
TYPE M
INLET / CATCH BASIN BASKET

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	DRAINAGE DETAILS	SCALE FEET 0' 40'	SHEET NO: E

FILENAME: W:\STR\B05111\APPROACH PLANS\DRAINDET.DGN

REVISED DATE: - -





SECTION A-A

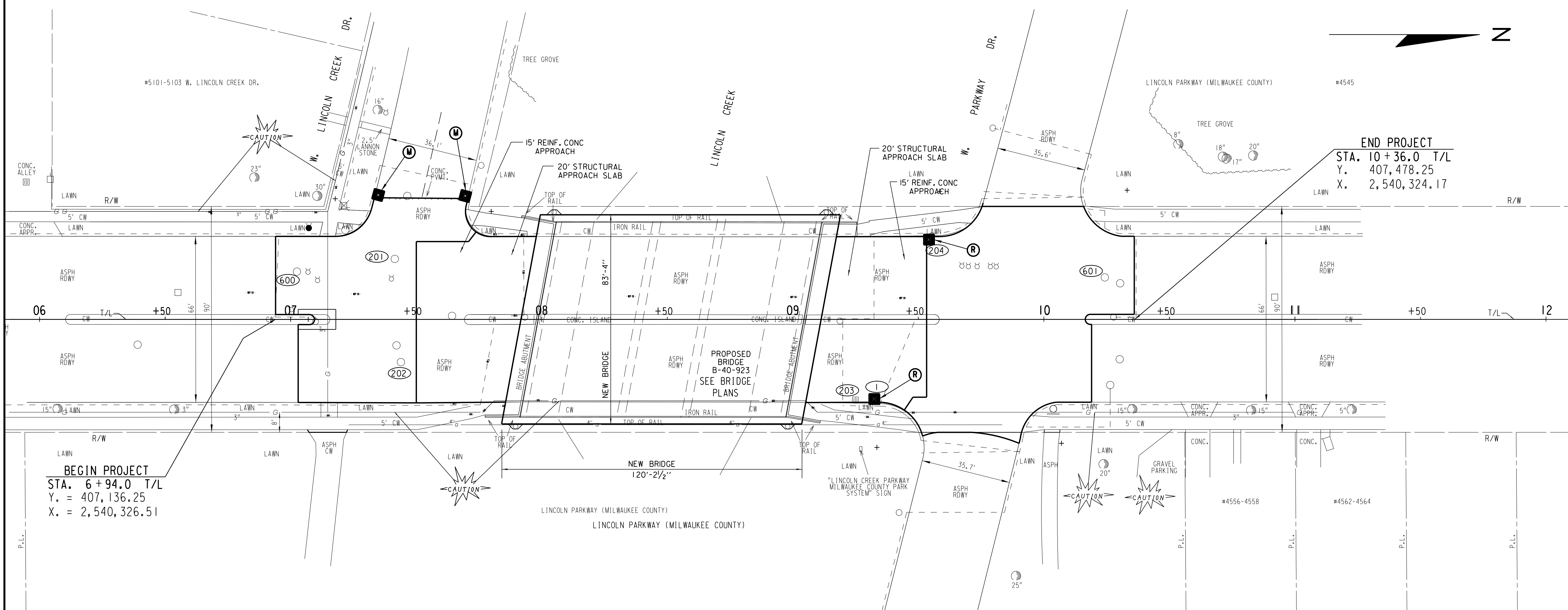
INLET SCREEN

(NOT PAVED) (TYPE R)

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	DRAINAGE DETAILS	SCALE FEET 0' 40'	SHEET NO: E

FILENAME: W:\STR\BO5II\APPROACH PLANS\DRAINDET.DGN

REVISED DATE: - -


NORTH
51ST
BOULEVARD
LINCOLN CREEK DR.
W. PARKWAY DR.
LINCOLN CREEK
#5101-5103 W. LINCOLN CREEK DR.
LINCOLN PARKWAY (MILWAUKEE COUNTY)
#4545
TREE GROVE
15' REINF. CONC APPROACH
20' STRUCTURAL APPROACH SLAB
END PROJECT
STA. 10 + 36.0 T/L
Y. 407,478.25
X. 2,540,324.17
BEGIN PROJECT
STA. 6 + 94.0 T/L
Y. = 407,136.25
X. = 2,540,326.51
PROPOSED BRIDGE B-40-923
SEE BRIDGE PLANS
NEW BRIDGE
120'-2½"
83'-4"
BRIDGE ABUTMENT
CONC. ISLAND
IRON RAIL
TOP OF RAIL
"LINCOLN CREEK PARKWAY MILWAUKEE COUNTY PARK SYSTEM" SIGN
GRAVEL PARKING
#4556-4558
#4562-4564
CAUTION
R/W
ASPH RDWY
LAWN
5' CW
06
07
08
09
10
11
12
+50
T/L
201
202
203
204
600
601

INLET SCREEN TYPE R WILL BE PLACED AT ALL NEW INLET AND CATCH BASIN LOCATIONS DURING GRADING STAGES.

INLET BASKET TYPE M WILL BE PLACED UNDER ALL INLET AND CATCH BASIN COVERS UNTIL COMPLETION OF PROJECT.

EROSION CONTROL FEATURES AS SHOWN ON THE PLAN ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

LEGEND

- (R) INLET SCREEN TYPE R
- (M) INLET BASKET TYPE M

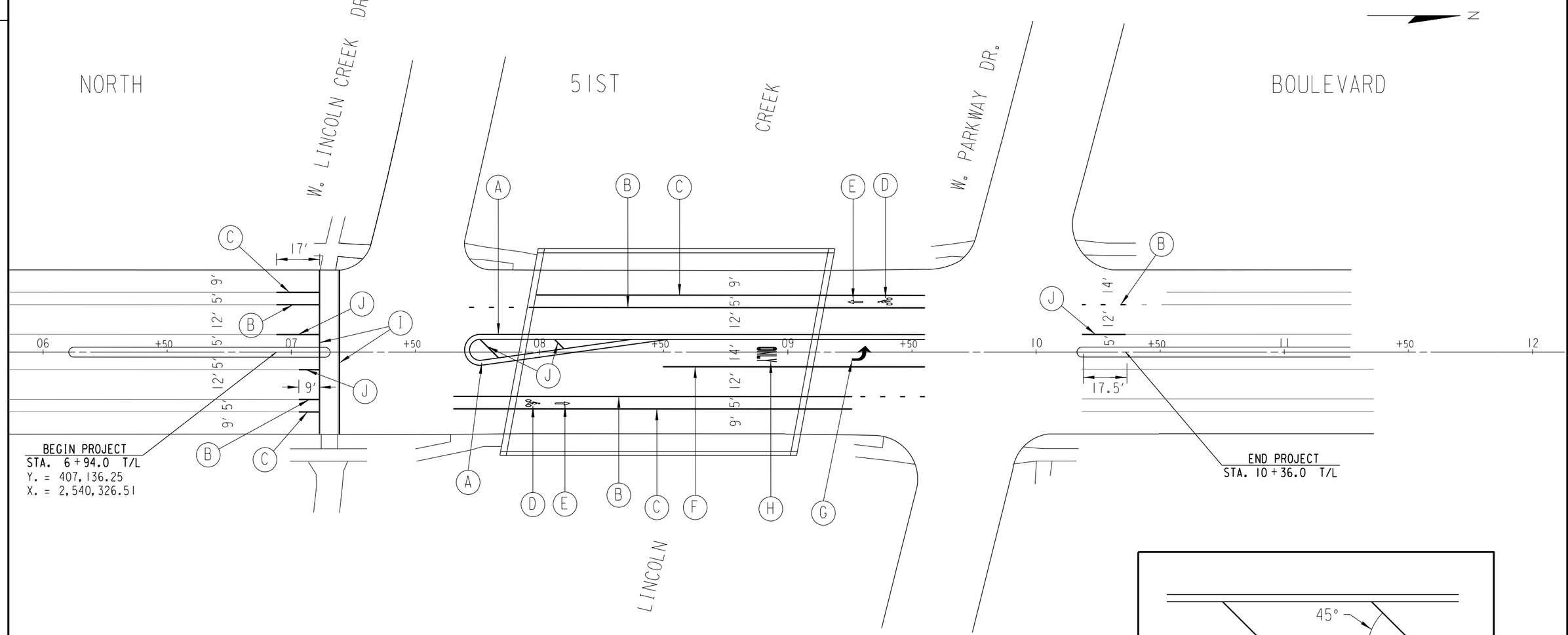
STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	EROSION CONTROL PLAN	SCALE FEET	SHEET NO: 16	E

FILE NAME: W:\STR\B0511\APPROACH PLANS\EROSION CONTROL.DGN

REVISED: 11-30-2016 BY PRM

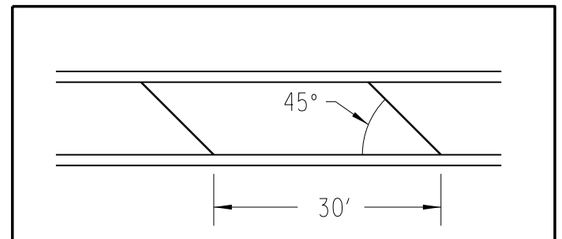
PAVEMENT MARKING

N. 51ST BOULEVARD BRIDGE OVER LINCOLN CREEK



PAVEMENT MARKING LEGEND

(A) PAVEMENT MARKING EPOXY, 4-INCH (DOUBLE YELLOW)	(F) PAVEMENT MARKING EPOXY, 8-INCH (SOLID WHITE)
(B) PAVEMENT MARKING EPOXY, 6-INCH WHITE	(G) PAVEMENT MARKING EPOXY ARROWS, TYPE 2 (LEFT TURN)
(C) PAVEMENT MARKING EPOXY, 4-INCH (SOLID WHITE)	(H) PAVEMENT MARKING EPOXY WORDS
(D) PAVEMENT MARKING SYMBOLS, BIKE LANE EPOXY	(I) PAVEMENT MARKING EPOXY, 12-INCH WHITE
(E) PAVEMENT MARKING ARROWS, BIKE LANE EPOXY	(J) PAVEMENT MARKING EPOXY, 4-INCH YELLOW



CROSSHATCH DETAIL

20:1

SHEET 1 OF 1

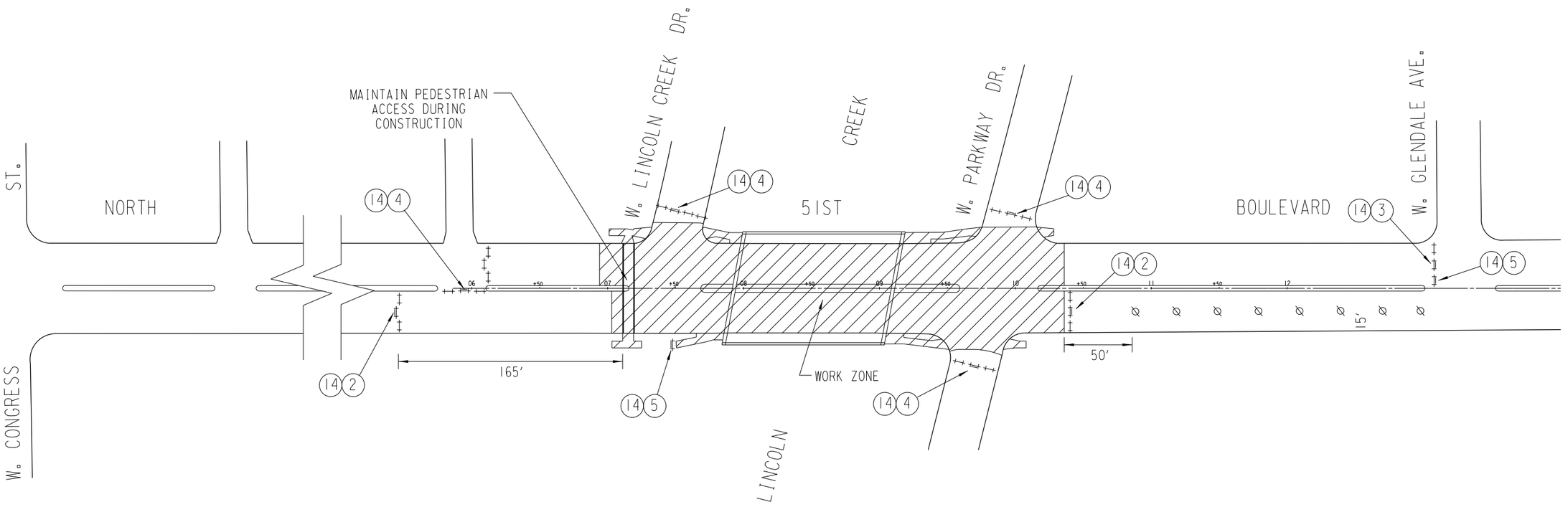
STATE PROJECT NUMBER: 2984-07-75	HWY: LOCAL	COUNTY: MILWAUKEE	PAVEMENT MARKING	SCALE FEET 0' 40'	SHEET NO: 17	E

FILENAME: W:\STR\B051\APPROACH PLANS\PAVEMARK.DGN

REVISED DATE: 11-28-2016 SB

2

N



LEGEND

W20-3A ROAD CLOSED AHEAD 48" X48" — 1

R11-2 MOD BRIDGE CLOSED 48" X30" — 2

R11-3B MOD BRIDGE CLOSED LOCAL TRAFFIC ONLY 60" X30" — 3

R11-2 ROAD CLOSED 48" X30" — 4

W6-3 24" X24" — 5

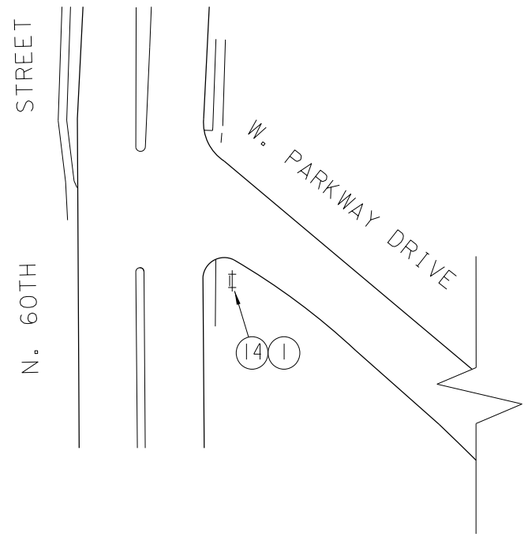
DRUMS W/ LIGHTS 30' SPACING

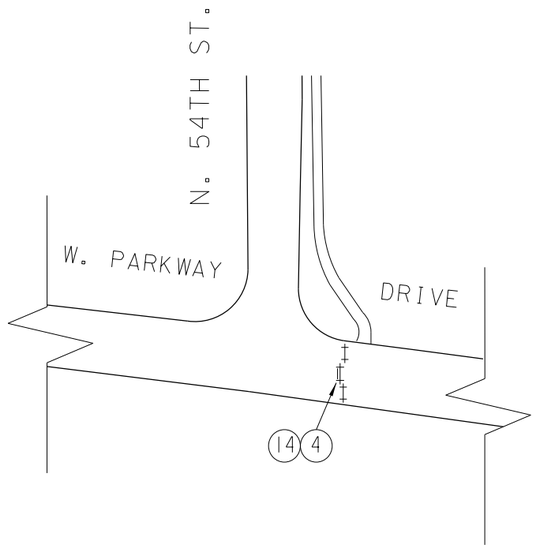
TYPE III BARRICADES — 14

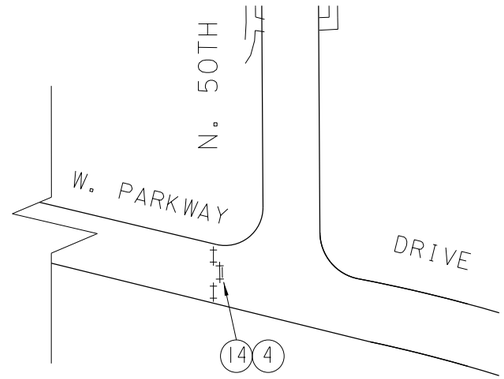
TYPE III BARRICADES W/ SIGN — 14 + X

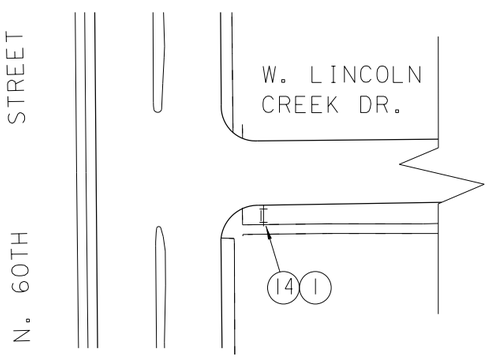
WORK AREA

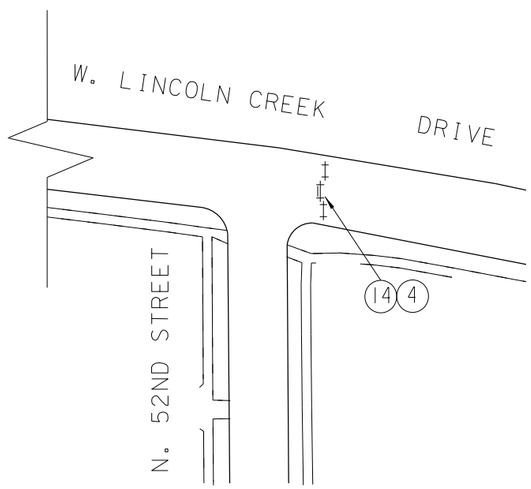
NOTE: ALL SIGNING SHALL BE THE CONTRACTORS RESPONSIBILITY.



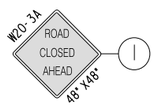


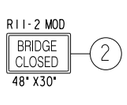


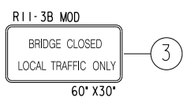


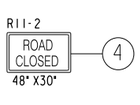


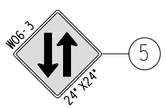
LEGEND











DRUMS W/ LIGHTS 30' SPACING

TYPE III BARRICADES — 14

TYPE III BARRICADES W/ SIGN — 14 + X

WORK AREA

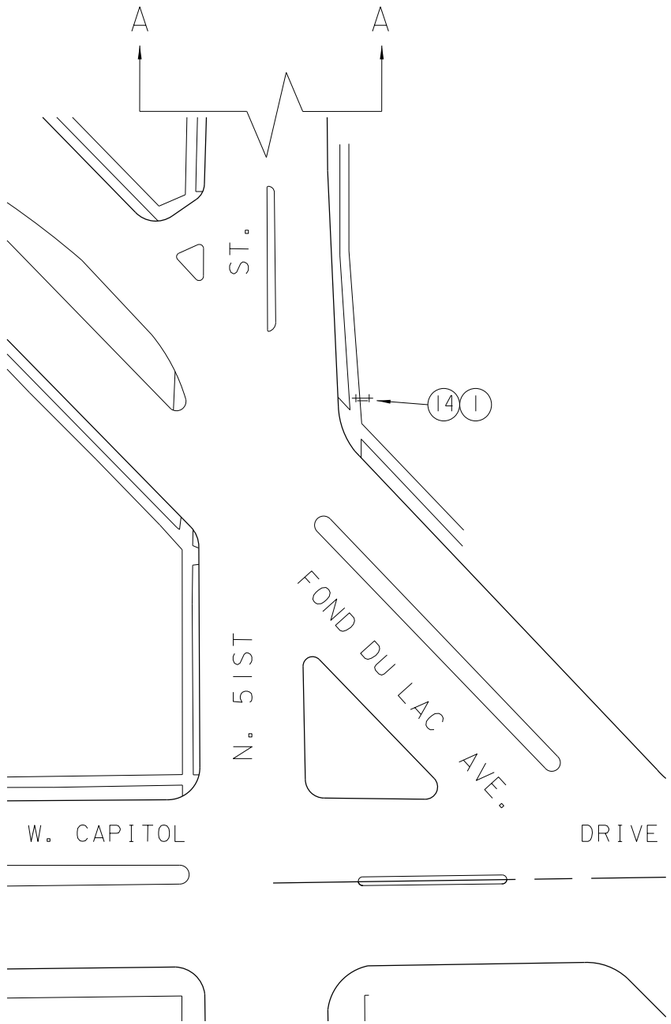
NOTE: ALL SIGNING SHALL BE THE CONTRACTORS RESPONSIBILITY.

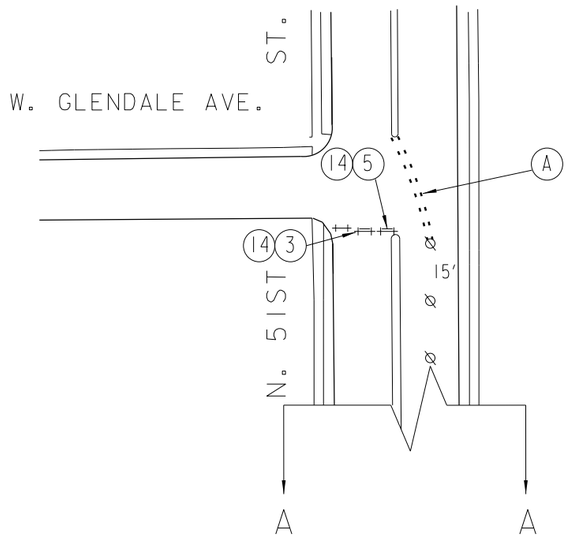
SHEET 2 OF 3

STATE PROJECT NUMBER 2984-07-07	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET 0' 80'	SHEET NO: 19	E

FILENAME: W:\STR\BO511\APPROACH PLANS\TRAFFIC.DGN

REVISED DATE: 1-11-2017 BY ML





N

LEGEND

W20-3A ROAD CLOSED AHEAD 48" X48" — 1

R11-2 MOD BRIDGE CLOSED 48" X30" — 2

R11-3B MOD BRIDGE CLOSED LOCAL TRAFFIC ONLY 60" X30" — 3

R11-2 ROAD CLOSED 48" X30" — 4

W16-3 24" X24" — 5

DRUMS W/ LIGHTS 30' SPACING

TYPE III BARRICADES — 14

TYPE III BARRICADES W/ SIGN — 14 + X

WORK AREA

A TPM, REMOVABLE TAPE, 4-INCH DOUBLE YELLOW (2'-6'-2')

NOTE: ALL SIGNING SHALL BE THE CONTRACTORS RESPONSIBILITY.

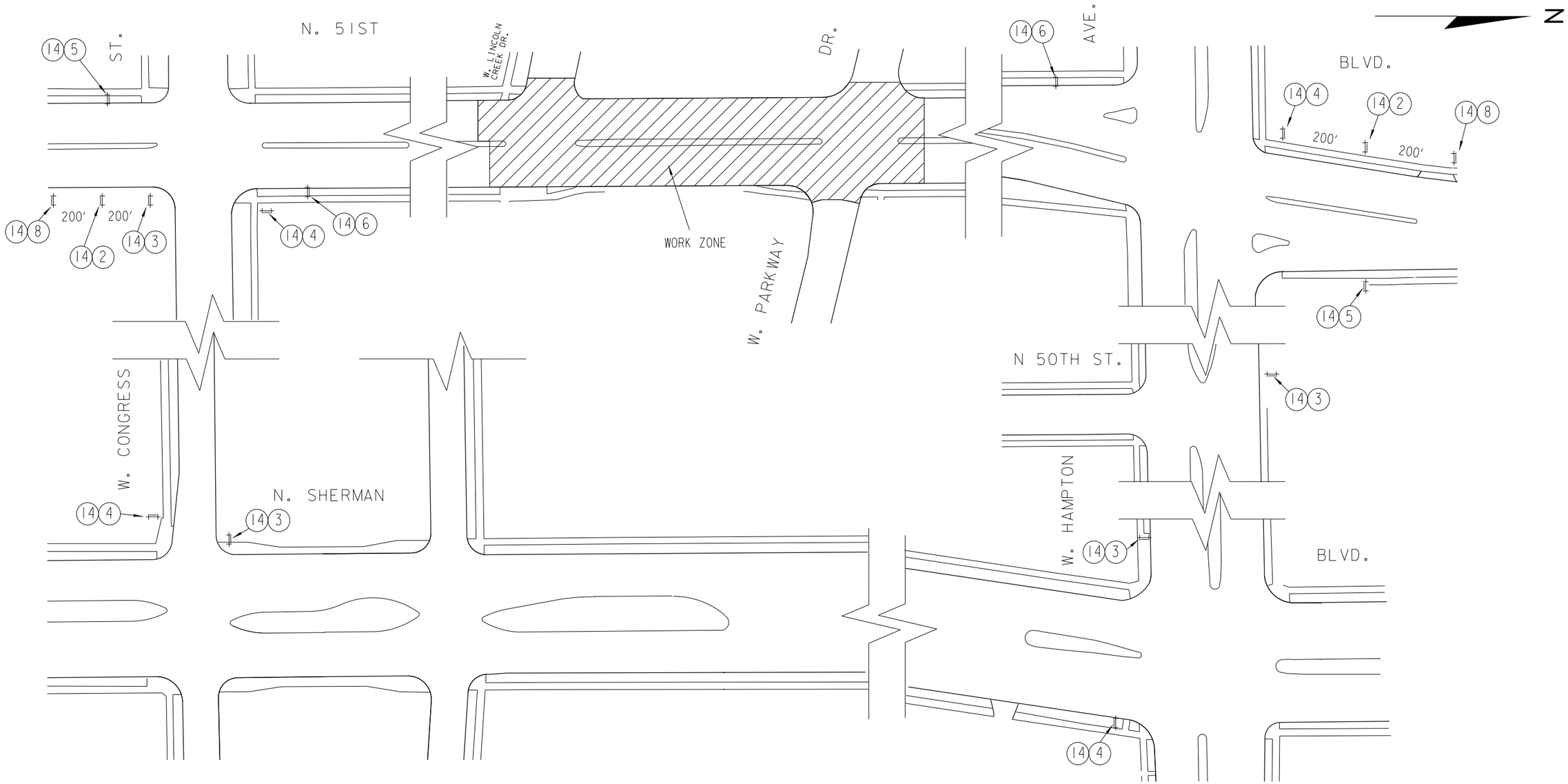
SHEET 3 OF 3

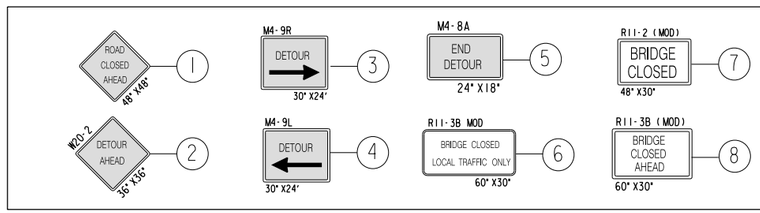
STATE PROJECT NUMBER 2984-07-07	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET 0' 80'	SHEET NO: 20	E

FILENAME: W:\STR\B05II\APPROACH PLANS\TRAFFIC.DGN

REVISED DATE: 1-11-2017 BY ML

2





LEGEND

TYPE III BARRICADES — 14

TYPE III BARRICADES W/ SIGN — 14 + X

WORK AREA

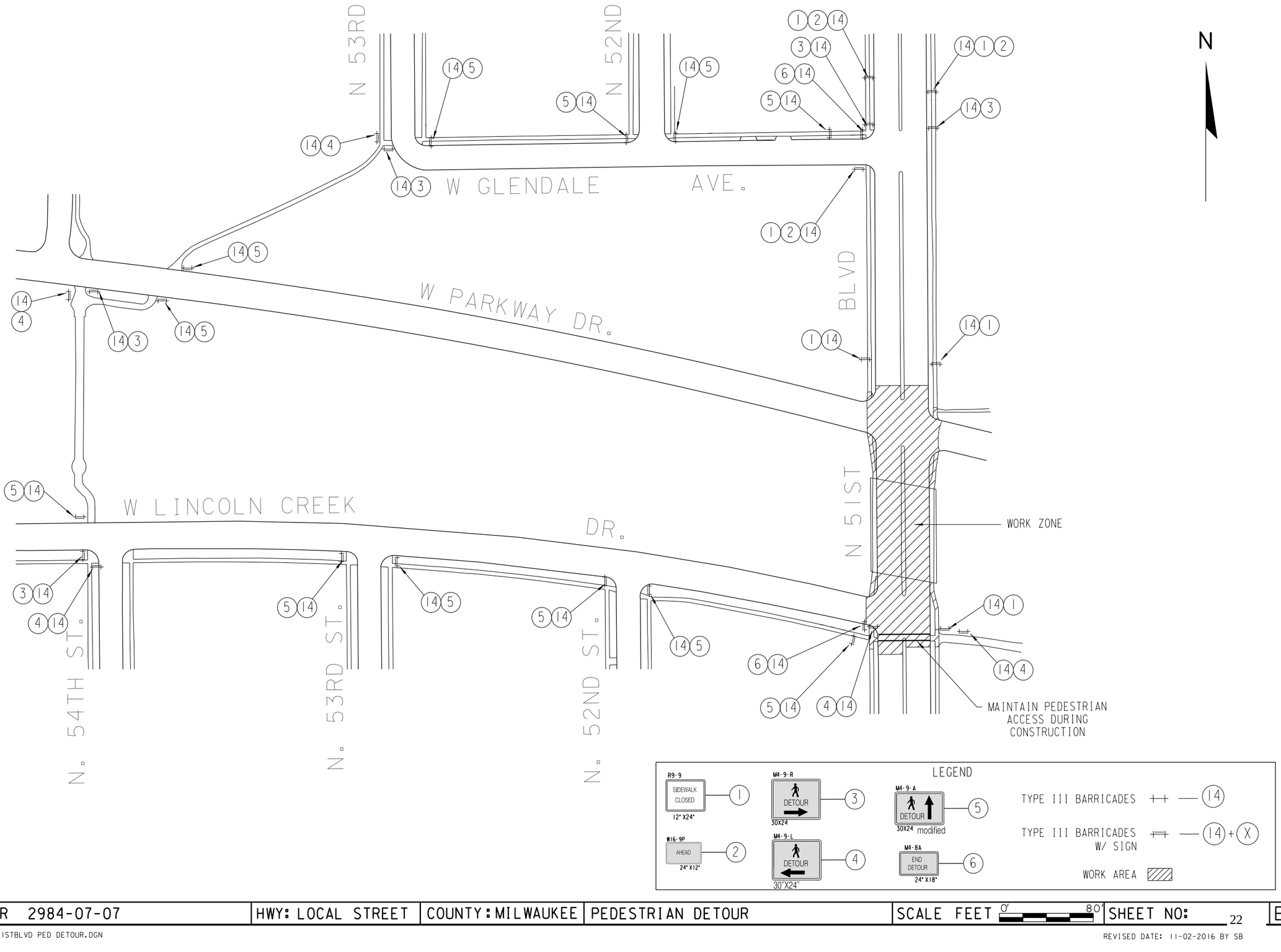
NOTE: ALL SIGNING SHALL BE THE CONTRACTORS RESPONSIBILITY.

STATE PROJECT NUMBER 2984-07-07	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC DETOUR	SCALE FEET 0' 80'	SHEET NO: 21	E

FILENAME: W:\STR\B05II\APPROACH PLANS\TRAFFICDETOUR.DGN

REVISED DATE: 11-03-2016 BY SB

2



STATE PROJECT NUMBER 2984-07-07	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PEDESTRIAN DETOUR	SCALE FEET 0' 80'	SHEET NO: 22	E

FILENAME: W:\STR\B05II\APPROACH PLANS\51STBLVD PED DETOUR.DGN

REVISED DATE: 11-02-2016 BY SB

2

NORTH 51ST BOULEVARD

N

#5101-5103 W. LINCOLN CREEK DR.

LINCOLN CREEK DR. W.

LINCOLN CREEK

LINCOLN PARKWAY (MILWAUKEE COUNTY)

#4545

#4556-4558

#4562-4564

TREE GROVE

CONC. ALLEY

CAUTION

15' REINF. CONC APPROACH

20' STRUCTURAL APPROACH SLAB

20' STRUCTURAL APPROACH SLAB

15' REINF. CONC APPROACH

TOP OF RAIL

IRON RAIL

ASPH RDWY

CONC. APPR.

CONC. ISLAND

BRIDGE ABUTMENT

NEW BRIDGE

WATERCOURSE CHANNEL

ABANDONED 24" MMSD

PROPOSED BRIDGE B-40-923 SEE BRIDGE PLANS

NEW BRIDGE 120'-2½"

"LINCOLN CREEK PARKWAY MILWAUKEE COUNTY PARK SYSTEM" SIGN

GRAVEL PARKING

BEGIN PROJECT
STA. 6+94.0 T/L
Y. = 407,136.25
X. = 2,540,326.51

END PROJECT
STA. 10+36.0 T/L
Y. 407,478.25
X. 2,540,324.17

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	UTILITY PLAN	SCALE FEET	SHEET NO: 23 E

FILE NAME: W:\STR\B05II\APPROACH PLANS\UTILITY.DGN

REVISED: 09-26-2016 BY DLF

NORTH 51ST BOULEVARD

N

#5101-5103 W. LINCOLN CREEK DR. SEE NOTE #5

70' 4-4"PVC CONDUIT CEMENT ENCASED SEE NOTE #6

120' 4-4"PVC CONDUIT IN BRIDGE DECK SEE BRIDGE PLAN FOR INSTALLATION DETAILS.

20' 4-4"PVC CONDUIT CEMENT ENCASED SEE BRIDGE PLAN FOR INSTALLATION DETAILS.

20' 4-4"PVC CONDUIT CEMENT ENCASED SEE BRIDGE PLAN FOR INSTALLATION DETAILS.

86' 4-4"PVC CONDUIT CEMENT ENCASED SEE NOTE #6

W. LINCOLN CREEK DR.

LINCOLN CREEK

W. LINCOLN CREEK PARKWAY

LINCOLN PARKWAY (MILWAUKEE COUNTY) #4545

TREE GROVE

ADJUST TES MANHOLE EXIST. TES M.H. #600 STA. 07+02.5, 19.0'LT.

ADJUST TES MANHOLE EXIST. TES M.H. #601 STA. 10+24.3, 16.8'LT.

SEE NOTE #5

CAUTION

CONC. ALLEY

CONC. APPR.

LAWN

ASPH RDWY

CONC. PVMT.

TOP OF RAIL

IRON RAIL

CUC

STO

SAN

CW

MMSD

ABANDONED 24" MMSD

BRIDGE ABUTMENT

WATERCOURSE CHANNEL

CONC. ISLAND

ASPH CW

"LINCOLN CREEK PARKWAY MILWAUKEE COUNTY PARK SYSTEM" SIGN

LINCOLN PARKWAY (MILWAUKEE COUNTY)

GRAVEL PARKING

EXIST. TES M.H. #5732 STA. 10+26.5, 26.1'RT.

#4556-4558

#4562-4564

CONC.

P.L.

06 07 08 09 10 11 12 +50

NOTES:

1) THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
2) THE LOCATION OF THE EXISTING AND PROPOSED UTILITY INSTALLATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
3) DIMENSIONS SHOWN ARE TO CENTER OF MANHOLE, DUCT PACKAGE OR UTILITY.
4) MAINTAIN A STANDARD DEPTH OF 39-INCHES BETWEEN FINISHED GRADE AND TOP OF CONDUIT.
5) REMOVE ABANDONED CONDUIT FROM MANHOLE WALL AND INSTALL PROPOSED CONDUIT INTO MANHOLE AT THE SAME LOCATION AS THE ABANDONED CONDUIT.
6) REMOVE ABANDONED CONDUIT AS NEEDED FOR PROPOSED INSTALLATION.

LEGEND

CUC — PROPOSED 4-INCH CEMENT ENCASED NONMETALLIC CONDUIT, NUMBER OF RUNS AS NOTED.

— — — — CONDUIT TO BE ABANDONED

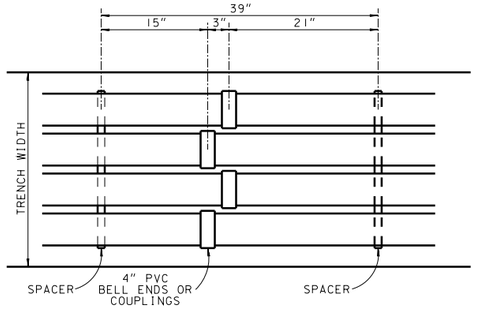
PROPOSED TES MANHOLE

SHEET 1 OF 3

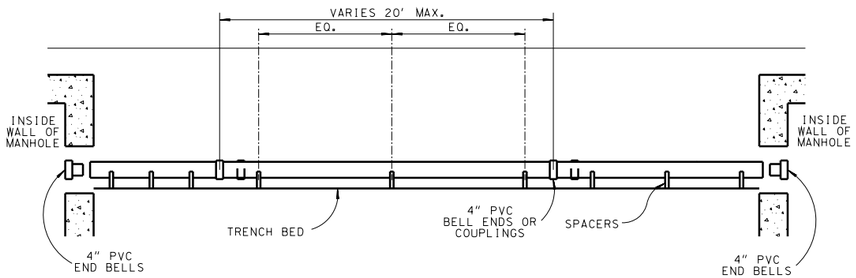
STATE PROJECT NUMBER 2984-07-75 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	CITY UNDERGROUND CONDUIT (TES)	SCALE FEET 0 40'	SHEET NO: 24	E

FILE NAME: W:\UGD\CONDUIT WORK FILES\UCONDUIT\2016\N 51ST BRIDGE\DGN\TOTAL 51ST.DGN

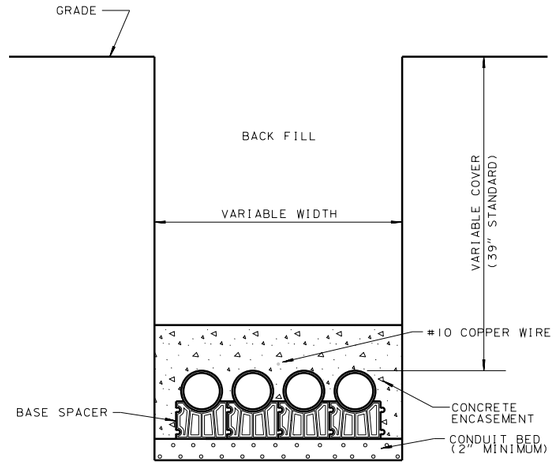
REVISED: 10/31/2016 BY TJK



PLAN VIEW
N.T.S.

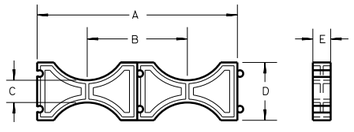


SECTION VIEW
N.T.S.



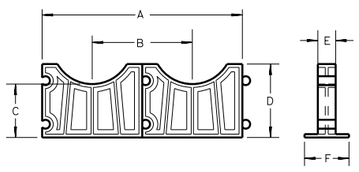
TYPICAL CROSS-SECTION OF TRENCH & CONDUIT

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



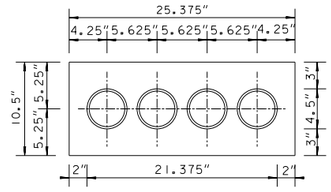
INTERMEDIATE SPACER

COND.	3"	4"
A	10"	11 ¼"
B	5"	5 ⅝"
C	3"	3"
D	3 ⅞"	4 ⅛"
E	1"	1"
F	2 ½"	2 ½"



BASE SPACER

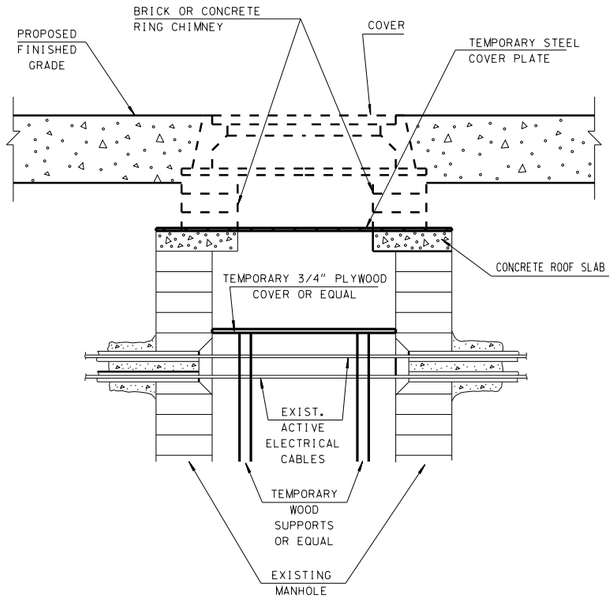
INTERMEDIATE AND BASE SPACER DETAIL



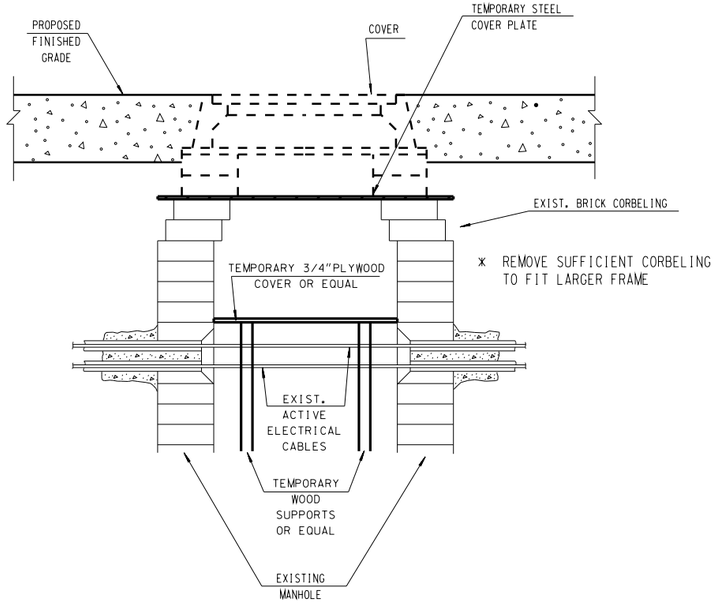
CONCRETE ENCASEMENT

STATE PROJECT NUMBER 2984-07-75 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TES DETAILS	SCALE FEET 0' 40'	SHEET NO: 25	E

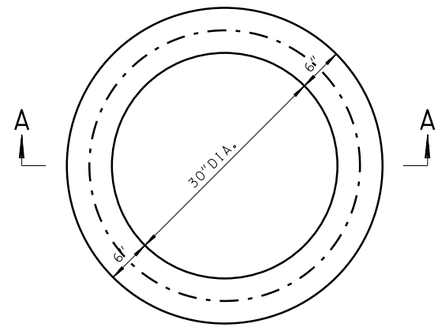
FILE NAME: W:\UGD\CONDUIT WORK FILES\UCONDUIT\N 51ST ST BRIDGE\DGN



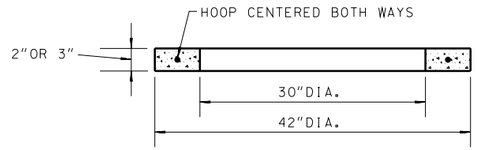
BLOCK OR PRECAST MANHOLE



BRICK ROUND MANHOLE



PLAN



SECTION A-A

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

THE CIRCUMFERENTIAL STEEL SHALL BE CENTERED WITHIN THE RING.

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

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

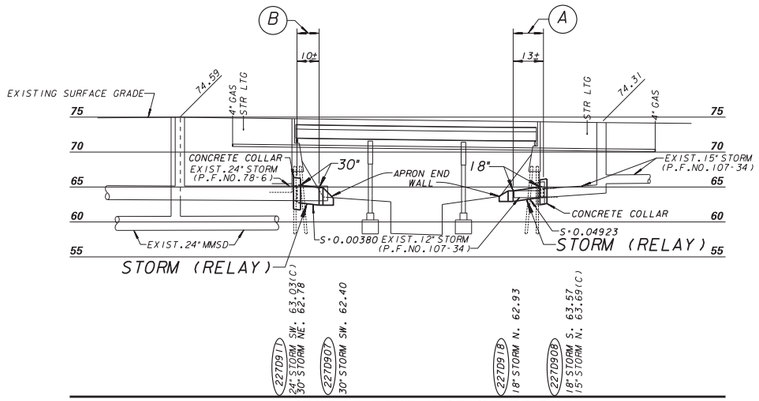
CONCRETE ADJUSTING RING

ADJUSTING TES MANHOLES

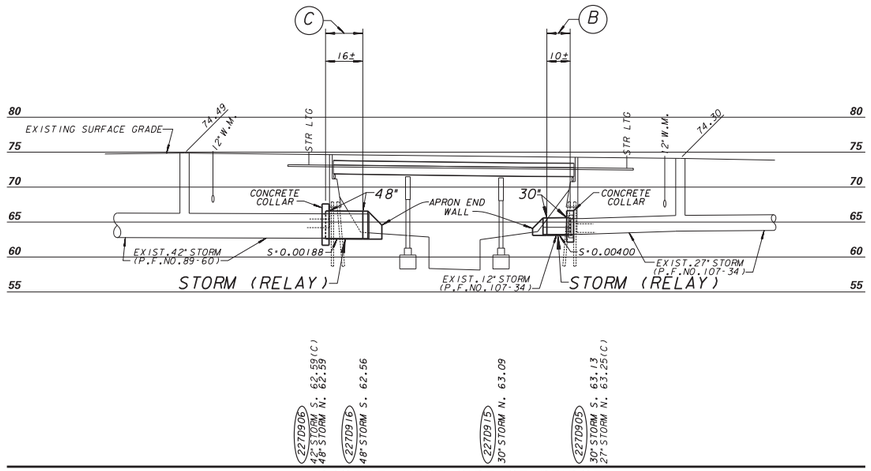
STATE PROJECT NUMBER 2984-07-75 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TES DETAILS	SCALE FEET 0' 40'	SHEET NO: 26	E

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

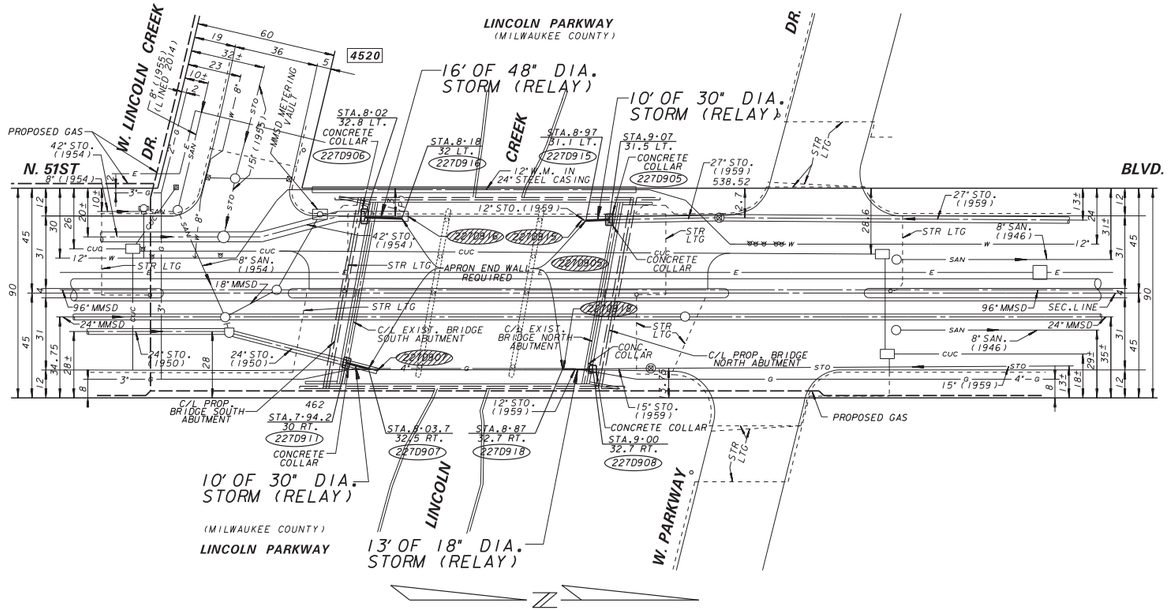
A	B	C
18" STORM CLASS V RCP — CLASS "C" BEDDING	30" STORM CLASS V RCP — CLASS "C" BEDDING	48" STORM CLASS V RCP — CLASS "C" BEDDING



PROFILE EAST SIDE OF BRIDGE (LOOKING NORTH)



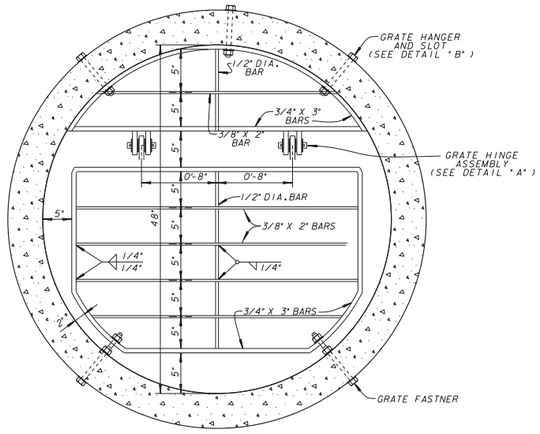
PROFILE WEST SIDE OF BRIDGE (LOOKING NORTH)



SHEET 1 OF 2

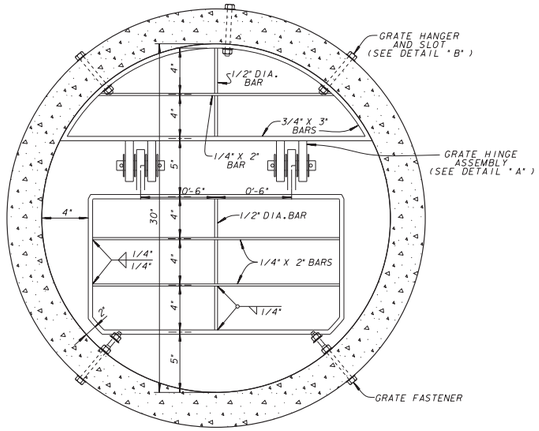
STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	SEWER CONNECTIONS	SCALE FEET	SHEET NO: _____	E

FILE NAME:



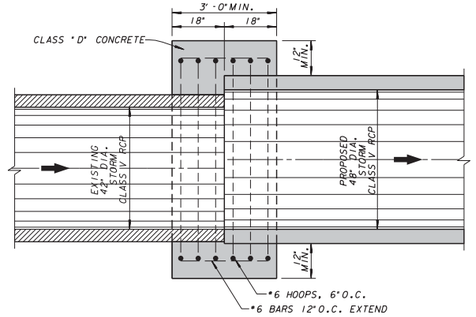
48" DIA. STORM OUTLET GRATE DETAIL

(N.T.S.)



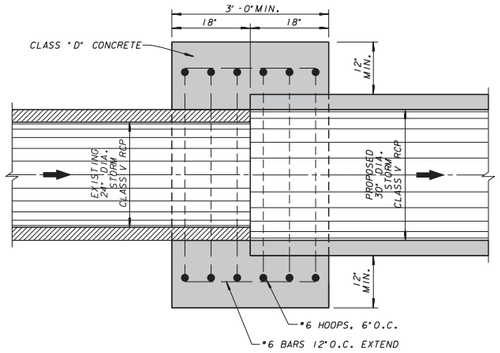
30" DIA. STORM OUTLET GRATE DETAIL

NOT TO SCALE



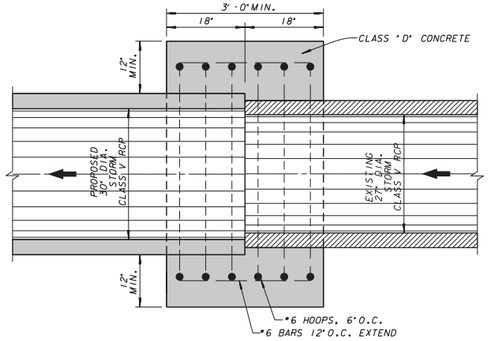
CONCRETE COLLAR SECTION 227D906

NOT TO SCALE



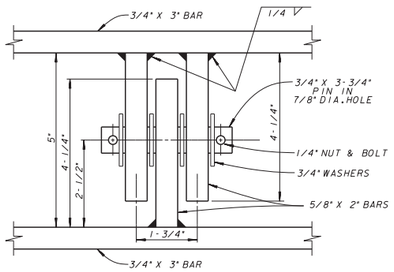
CONCRETE COLLAR SECTION 227D911

NOT TO SCALE



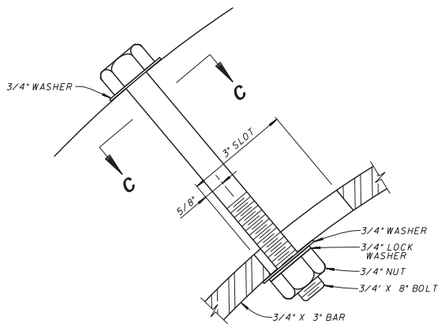
CONCRETE COLLAR SECTION 227D905

NOT TO SCALE



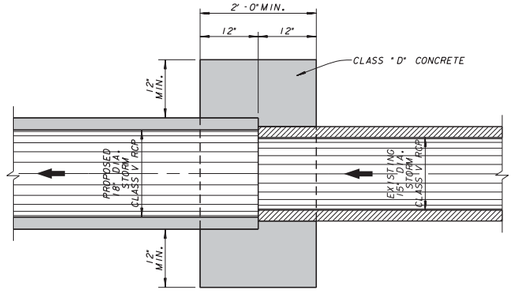
DETAIL "A"

(N.T.S.)



DETAIL "B"

(N.T.S.)



CONCRETE COLLAR SECTION 227D908

NOT TO SCALE

SHEET 2 OF 2

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	SEWER CONNECTIONS	SCALE FEET	SHEET NO: _____	E

FILE NAME:

2

N

BEGIN PROJECT 2984-07-75

N. 51ST BLVD.

STA. 06+94.0, T/L

(Y) NORTH: 407,136.2538

(X) EAST: 2,540,326.5095

END PROJECT 2984-07-75

N. 51ST BLVD.

STA. 10+36.0, T/L

(Y) NORTH: 407,478.2460

(X) EAST: 2,540,324.1657

TOWNSHIP 6 NORTH, RANGE 21 EAST
MILWAUKEE COUNTY, WISCONSIN
CONCRETE MONUMENT W/ BRASS CAP

STATE PLANE COORDINATES OF QUARTER SECTION CORNER
(X) EAST: 2,540,331.2500
(Y) NORTH: 406,442.2700

T. 7 N. R. 21 E. (249 227 248 228)

1/4 SEC LINE

N89° 15' 44"E

W. LINCOLN CREEK DR.

LINCOLN CREEK W. PARKWAY DR.

W. GLENDALE AVE.

01 03 05 07 09 11

N0° 23' 30"W

TOWNSHIP 6 NORTH, RANGE 21 EAST
MILWAUKEE COUNTY, WISCONSIN
CONCRETE MONUMENT W/ BRASS CAP

STATE PLANE COORDINATES OF QUARTER SECTION CORNER
(X) EAST: 2,540,312.6700
(Y) NORTH: 409,159.3200

N88° 59' 34"E

T. 7 N. R. 21 E. (227 227 228 228)

T. 7 N. R. 21 E. (228 209)

W. CONGRESS ST.

N89° 12' 32"E

N. 51ST BLVD.

TOWNSHIP 6 NORTH, RANGE 21 EAST
MILWAUKEE COUNTY, WISCONSIN
CONCRETE MONUMENT W/ BRASS CAP

STATE PLANE COORDINATES OF QUARTER SECTION CORNER
(X) EAST: 2,540,390.8000
(Y) NORTH: 409,160.6900

W. HAMPTON AVE.

SEC LINE

N88° 51' 27"E

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	ALIGNMENT PLAN	SCALE FEET 0' 300'	SHEET NO: 29	E

FILENAME: W:\STR\B051\APPROACH PLANS\ALIGNMENT.DGN

REVISED: 10-26-2016 SB

2984-07-75

Line	Item	Item Description	Unit	Total	Qty
0010	203.0500.S	Removing Old Structure Over Waterway (station) 01. 08+51.5	LS	1.000	1.000
0020	204.0100	Removing Pavement	SY	750.000	750.000
0030	204.0115	Removing Asphaltic Surface Butt Joints	SY	1,220.000	1,220.000
0040	204.0150	Removing Curb & Gutter	LF	220.000	220.000
0050	204.0155	Removing Concrete Sidewalk	SY	190.000	190.000
0060	204.0175	Removing Concrete Slope Paving	SY	920.000	920.000
0070	204.0245	Removing Storm Sewer (size) 01. 27"	LF	8.000	8.000
0080	204.0250	Abandoning Manholes	EACH	1.000	1.000
0090	205.0100	Excavation Common	CY	436.000	436.000
0100	205.0501.S	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	TON	1,903.000	1,903.000
0110	210.1500	Backfill Structure Type A	TON	810.000	810.000
0120	213.0100	Finishing Roadway (project) 01. 2984-07-75	EACH	1.000	1.000
0130	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	466.000	466.000
0140	320.0145	Concrete Base 8-Inch	SY	64.000	64.000
0150	415.0410	Concrete Pavement Approach Slab	SY	300.000	300.000
0160	416.0610	Drilled Tie Bars	EACH	44.000	44.000
0170	455.0605	Tack Coat	GAL	30.000	30.000
0180	465.0105	Asphaltic Surface	TON	200.000	200.000
0190	502.0100	Concrete Masonry Bridges	CY	1,195.000	1,195.000
0200	502.3200	Protective Surface Treatment	SY	1,493.000	1,493.000
0210	505.0400	Bar Steel Reinforcement HS Structures	LB	56,820.000	56,820.000
0220	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	179,560.000	179,560.000
0230	505.0800.S	Bar Steel Reinforcement HS Stainless Structures	LB	2,250.000	2,250.000
0240	511.1200	Temporary Shoring (structure) 01. B-40-0923	SF	2,520.000	2,520.000
0250	513.7084	Railing Steel Type NY4 (structure) 01. B-40-0923	LF	285.000	285.000
0260	516.0100	Dampproofing	SY	146.000	146.000
0270	516.0500	Rubberized Membrane Waterproofing	SY	44.000	44.000
0280	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0290	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	2.000	2.000
0300	522.1048	Apron Endwalls for Culvert Pipe Reinforced Concrete 48-Inch	EACH	1.000	1.000
0310	532.0800.S	Wall Gabion	CY	240.000	240.000
0320	550.0010	Pre-Boring Unconsolidated Materials	LF	230.000	230.000
0330	550.0020	Pre-Boring Rock or Consolidated Materials	LF	144.000	144.000
0340	550.0500	Pile Points	EACH	44.000	44.000
0350	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	1,980.000	1,980.000
0360	601.0331	Concrete Curb & Gutter 31-Inch	LF	350.000	350.000

2984-07-75

Line	Item	Item Description	Unit	Total	Qty
0370	602.0410	Concrete Sidewalk 5-Inch	SF	1,510.000	1,510.000
0380	602.0515	Curb Ramp Detectable Warning Field Natural Patina	SF	70.000	70.000
0390	602.1000	Concrete Loading Zone	SF	370.000	370.000
0400	608.0515	Storm Sewer Pipe Reinforced Concrete Class V 15-Inch	LF	10.000	10.000
0410	608.0518	Storm Sewer Pipe Reinforced Concrete Class V 18-Inch	LF	13.000	13.000
0420	608.0530	Storm Sewer Pipe Reinforced Concrete Class V 30-Inch	LF	20.000	20.000
0430	608.0548	Storm Sewer Pipe Reinforced Concrete Class V 48-Inch	LF	16.000	16.000
0440	611.0420	Reconstructing Manholes	EACH	1.000	1.000
0450	611.2004	Manholes 4-FT Diameter	EACH	1.000	1.000
0460	612.0206	Pipe Underdrain Unperforated 6-Inch	LF	12.000	12.000
0470	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	156.000	156.000
0480	619.1000	Mobilization	EACH	1.000	1.000
0490	620.0300	Concrete Median Sloped Nose	SF	100.000	100.000
0500	623.0200	Dust Control Surface Treatment	SY	480.000	480.000
0510	625.0100	Topsoil	SY	50.000	50.000
0520	628.1504	Silt Fence	LF	200.000	200.000
0530	628.1520	Silt Fence Maintenance	LF	200.000	200.000
0540	628.6005	Turbidity Barriers	SY	200.000	200.000
0550	629.0210	Fertilizer Type B	CWT	0.100	0.100
0560	631.1000	Sod Lawn	SY	50.000	50.000
0570	642.5201	Field Office Type C	EACH	1.000	1.000
0580	643.0100	Traffic Control (project) 01. 2984-07-75	EACH	1.000	1.000
0590	643.0300	Traffic Control Drums	DAY	1,640.000	1,640.000
0600	643.0420	Traffic Control Barricades Type III	DAY	19,475.000	19,475.000
0610	643.0705	Traffic Control Warning Lights Type A	DAY	38,950.000	38,950.000
0620	643.0715	Traffic Control Warning Lights Type C	DAY	1,640.000	1,640.000
0630	643.0900	Traffic Control Signs	DAY	3,280.000	3,280.000
0640	643.2000	Traffic Control Detour (project) 01. 2984-07-75	EACH	1.000	1.000
0650	643.3000	Traffic Control Detour Signs	DAY	10,045.000	10,045.000
0660	646.0106	Pavement Marking Epoxy 4-Inch	LF	960.000	960.000
0670	646.0116	Pavement Marking Epoxy 6-Inch	LF	370.000	370.000
0680	646.0126	Pavement Marking Epoxy 8-Inch	LF	80.000	80.000
0690	646.0136	Pavement Marking Epoxy 12-Inch	LF	130.000	130.000
0700	647.0166	Pavement Marking Arrows Epoxy Type 2	EACH	1.000	1.000
0710	647.0206	Pavement Marking Arrows Bike Lane Epoxy	EACH	2.000	2.000
0720	647.0306	Pavement Marking Symbols Bike Lane Epoxy	EACH	2.000	2.000
0730	647.0356	Pavement Marking Words Epoxy	EACH	1.000	1.000
0740	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	28.000	28.000
0750	650.4000	Construction Staking Storm Sewer	EACH	4.000	4.000
0760	650.4500	Construction Staking Subgrade	LF	85.000	85.000

2984-07-75

Line	Item	Item Description	Unit	Total	Qty
0770	650.6500	Construction Staking Structure Layout (structure) 01. B-40-0923	LS	1.000	1.000
0780	650.7000	Construction Staking Concrete Pavement	LF	85.000	85.000
0790	650.9910	Construction Staking Supplemental Control (project) 01. 2984-07-75	LS	1.000	1.000
0800	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	42.000	42.000
0810	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	504.000	504.000
0820	652.0240	Conduit Rigid Nonmetallic Schedule 40 4-Inch	LF	480.000	480.000
0830	657.6005.S	Anchor Assemblies Light Poles on Structures	EACH	4.000	4.000
0840	690.0150	Sawing Asphalt	LF	190.000	190.000
0850	690.0250	Sawing Concrete	LF	140.000	140.000
0860	715.0502	Incentive Strength Concrete Structures	DOL	1,195.000	1,195.000
0870	999.1000.S	Seismograph	LS	1.000	1.000
0880	SPV.0060	Special 01. INLET SCREEN TYPE M	EACH	2.000	2.000
0890	SPV.0060	Special 02. INLET SCREEN TYPE R	EACH	2.000	2.000
0900	SPV.0060	Special 03. INLET COVERS TYPE 57	EACH	3.000	3.000
0910	SPV.0060	Special 04. MANHOLE COVERS TYPE 58A	EACH	2.000	2.000
0920	SPV.0060	Special 05. ADJUSTING WATER BOXES	EACH	3.000	3.000
0930	SPV.0060	Special 06. INSTALLING CONDUIT INTO EXISTING MANHOLE	EACH	2.000	2.000
0940	SPV.0060	Special 07. JUNCTION BOXES 18"x12"x8"	EACH	4.000	4.000
0950	SPV.0060	Special 08. BAR GRATE SYSTEM	EACH	3.000	3.000
0960	SPV.0060	Special 09. CONCRETE COLLAR	EACH	4.000	4.000
0970	SPV.0060	Special 10. ADJUSTING TES MANHOLE COVER	EACH	2.000	2.000
0980	SPV.0060	Special 11. CONSTRUCTION STAKING CURB RAMP	EACH	8.000	8.000
0990	SPV.0090	Special 01. 4-DUCT CONDUIT, CEMENT ENCASED, 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	200.000	200.000
1000	SPV.0090	Special 02. CONSTRUCTION STAKING CONCRETE SIDEWALK	LF	120.000	120.000
1010	SPV.0105	Special 01. TEMPORARY ROUTING OF STORM SEWERS	LS	1.000	1.000
1020	SPV.0180	Special 01. REMOVING VEGETATED REVETMENT MATTRESS SLOPE PROTECTION	SY	650.000	650.000
1030	SPV.0180	Special 02. VEGETATED REVETMENT MATTRESS SLOPE PROTECTION	SY	1,535.000	1,535.000
1040	SPV.0180	Special 03. GROUTED REVETMENT MATTRESS SLOPE PROTECTION	SY	65.000	65.000

3

MANHOLE COVERS TYPE 58A (STORM)

NUMBER	STATION	OFFSET (FT)	COVER ELEV.	REPAIRS
201	7+41.5	24.1LT	74.87	REPAIR: 6"
202	7+43.9	17.0RT	74.98	

ITEM (ITEM NUMBER)	UNIT
MANHOLE COVERS TYPE 58A (SPV.0060.04)	2 EACH

RECONSTRUCTING MANHOLES (STORM)

NUMBER	STATION	OFFSET (FT)	COVER ELEV.	REPAIRS/ REMARKS
204	9+54.3	33.5L	73.92	Repair: 14" / use inlet covers type 57

ITEM (ITEM NUMBER)	UNIT
RECONSTRUCTING MANHOLES (611.0420)	1 EACH
*INLET COVERS TYPE 57 (SPV.0060.03)	1 EACH

3

ABANDONING MANHOLES (STORM)

NUMBER	STATION	OFFSET (FT)	REMARKS
203	9+25.5	33.5R	

ITEM (ITEM NUMBER)	UNIT
ABANDONING MANHOLES (204.0250)	1 EACH

ADJUSTING TES MANHOLE COVER (SPV.0060.10)

NUMBER	STATION	OFFSET	EACH	COVER	REMARKS
600	07 + 02.5	19.0 LT	1	NEW	REMOVE CHIMNEY TO ROOF DECK
601	10 + 24.3	16.8 LT	1	NEW	REMOVE CHIMNEY TO ROOF DECK

ITEM (ITEM NUMBER)	UNIT
ADJUSTING TES MANHOLE COVER (SPV.0060.10)	2 EACH

DRAINAGE STRUCTURE							STORM SEWER PIPE REINFORCED CONCRETE CLASS V 15-INCH						
STRUCTURE NO.	TYPE OF STRUCTURE	STATION	OFFSET	COVER ELEV.	NEW STRUCTURE	FRAME & LID	CONNECTION STRUCTURE	SIZE (IN)	LENGTH (FT)	INVERT ELEVATION		PIPE SLOPE	REPAIR (IN)
										INLET	OUTLET		
1	Storm MH	9+32.5	33.5R	74.02	4'-0" MH	57	Existing Pipe	15	10	65.68	65.68		

ITEM	ITEM NUMBER	UNIT	QUANTITY
APRON WALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	522.1018	EACH	1
APRON WALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH	522.1030	EACH	2
APRON WALLS FOR CULVERT PIPE REINFORCED CONCRETE 48-INCH	522.1048	EACH	1
STORM SEWER PIPE REINFORCED CONCRETE CLASS V 15-INCH	608.0515	LF	10
STORM SEWER PIPE REINFORCED CONCRETE CLASS V 18-INCH	608.0518	LF	13
STORM SEWER PIPE REINFORCED CONCRETE CLASS V 30-INCH	608.0530	LF	20
STORM SEWER PIPE REINFORCED CONCRETE CLASS V 48-INCH	608.0548	LF	16
MANHOLES 4-FT DIAMETER	611.2004	EACH	1
*INLET COVERS TYPE 57	SPV.0060.03	EACH	2
CONCRETE COLLAR	SPV.0060.09	EACH	4
TEMPORARY ROUTING OF STORM SEWER	SPV.0105.01	LUMP SUM	1

All items Category 0010

*Item INLET COVERS TYPE 57 Found in multiple locations

3

Traffic Control Items Required (Category 0010) Item #	Description	Stage 1 (Each) * (Days)				UNDISTRIBUTED (Each)	Total
643.0300	Traffic Control Drums	8	205			0	1,640
643.0420	Traffic Control Barricades Type III	95	205			0	19,475
643.0705	Traffic Control Warning Lights Type A	190	205			0	38,950
643.0715	Traffic Control Warning Lights Type c	8	205			0	1,640
643.0900	Traffic Control Signs	16	205			0	3,280
643.0100	Traffic Control (Project)	0				1	1
643.2000	Traffic Control Detour (Project)	0				1	1
643.3000	Traffic Control Detour Signs	49	205				10,045

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.

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

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

THIS WORK WILL BE INCIDENTAL TO THE ITEM OF TRAFFIC CONTROL.

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

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

(1) All Drums have one steady burning yellow light (Type C)

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

(3) When placing temporary pavement marking removable tape, the tape shall be sliced or cut across its width every 25 feet. This will limit travelling.

Items	Traffic Control	Detour	Size (in)
M4-8A		4	24"x18"
M-4-9-A		12	30"x24"
M-4-9R		4	30"x24"
M4-9-R		5	30"x24"
M4-9L		4	30"x24"
M4-9-L		5	30"x24"
R9-9		6	36"x 18"
R11-2 MOD	2		48"x 30"
R11-2	7		48"x 30"
R11-3B MOD	2	2	60"x30"
R11-3B (MOD)		2	24"x24"
WO6-3	2		24"x24"
W20-2		2	36"x36"
W20-3A	3		48"x48"
W16-9P		3	24"x12"
Total	16	49	

3

All items Category 0010

3

CONCRETE CONSTRUCTION ITEMS

LOCATION	CONCRETE BASE 8-INCH 320.0145 SY	CONCRETE PAVEMENT APPROACH SLAB 415.0410 SY	CONCRETE CURB & GUTTER 31-INCH 601.0331 LF	CONCRETE SIDEWALK 5-INCH 602.0410 SF	CURB RAMP DETECTABLE WARNING FIELD NATURAL PATINA 602.0515 SF	CONCRETE LOADING ZONE 602.1000 SF	CONCRETE MEDIAN SLOPED NOSE 620.0300 SF
STA. 6+94.0 to STA. 10+36.0	64	300	350	1510	70	370	100

ASPHALT CONSTRUCTION ITEMS

LOCATION	TACK COAT 455.0605 GAL	ASPHALTIC SURFACE 465.0105 TON
STA. 6+94.0 to STA. 10+36.0	30	200

3

MISCELLANEOUS LANDSCAPING ITEMS

LOCATION	TOPSOIL 625.0100 SY	FERTILIZER TYPE B 629.0210 CWT	SOD LAWN 631.1000 SY
STA. 6+94.0 to STA. 10+36.0	50	0.1	50

REMOVALS

LOCATION	REMOVING PAVEMENT 204.0100 SY	REMOVING ASPHALTIC SURFACE BUTT JOINTS 204.0115 SY	REMOVING CURB & GUTTER 204.0150 LF	REMOVING CONCRETE SIDEWALK 204.0155 SY	REMOVING STORM SEWER (27") 204.0245 LF	SAWING ASPHALT 690.0150 LF	SAWING CONCRETE 690.0250 LF
STA. 6+94.0 to STA. 10+36.0	750	1220	220	190	8	190	140

PAVEMENT MARKING QUANTITIES

LOCATION	PAVEMENT MARKING EPOXY 4-INCH 646.0106 (WHITE) LF	PAVEMENT MARKING EPOXY 4-INCH 646.0106 (YELLOW) LF	PAVEMENT MARKING EPOXY 6-INCH 646.0116 (WHITE) LF	PAVEMENT MARKING EPOXY 8-INCH 646.0126 (WHITE) LF	PAVEMENT MARKING EPOXY 12-INCH 646.0136 (WHITE) LF	PAVEMENT MARKING ARROWS EPOXY TYPE 2 647.0166 (WHITE) EACH	PAVEMENT MARKING ARROWS BIKE LANE EPOXY 647.0206 (WHITE) EACH	PAVEMENT MARKING SYMBOLS BIKE LANE EPOXY 647.0306 (WHITE) EACH	PAVEMENT MARKING WORDS EPOXY 647.0356 (WHITE) EACH	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH 649.0400 (YELLOW) LF
STA. 6+94.0 to STA. 10+36.0	340	620	370	80	130	1	2	2	1	28
GRANDTOTAL	960		370	80	130	1	2	2	1	28

All items Category 0010

3

MISCELLANEOUS ITEMS

CATEGORY 0010	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	EXCAVATION COMMON	BACKFILL STRUCTURE TYPE A	FINISHING ROADWAY (PROJECT)	BASE AGGREGATE DENSE	DRILLED TIE BARS	DUST CONTROL SURFACE TREATMENT	INLET SCREEN TYPE M	INLET SCREEN TYPE R	INSTALLING CONDUIT INTO EXSISTING MANHOLE	BAR GRATE SYSTEM	4-DUCT CONDUIT, CEMENT ENCASED, 4-INCH RIGID NONMETALLIC CONDUIT DB-60
	TONS	CY	TON	EACH	TON	EACH	SY	EACH	EACH	EACH	EACH	LF
LOCATION	205.0501.S	205.0100	210.1500	213.0100	305.0120	416.0610	623.0200	SPV.0060.01	SPV.0060.02	SPV.0060.06	SPV.0060.08	SPV.0090.01
STA. 6+94.0 to STA. 10+36.0	83	436	110	1	42	44	480	2	2	2	3	156

3

CONSTRUCTION STAKING ROADWAY ITEMS

	CATEGORY 0010						CATEGORY 0020
	CONSTRUCTION STAKING STORM SEWER	CONST. STAKING SUBGRADE	CONST. STAKING CONCRETE PAVEMENT	CONST. STAKING SUPPLEMENTAL CONTROL (PROJECT)	CONST. STAKING CURB RAMPS	CONST. STAKING CONCRETE SIDEWALK	CONST. STAKING STRUCTURE LAYOUT
	650.4000	650.4500	650.7000	650.9910	SPV.0060.11	SPV.0090.02	650.6500
	EACH	LF	LF	LUMP SUM	EACH	LF	LS
LOCATION							
STA. 6+94.0 to STA. 10+36.0	4	85	85	1	8	120	1

MISCELLANEOUS ITEMS

CATEGORY 0020	REMOVING CONCRETE SLOPE PAVING	MOBILIZATION	SILT FENCE	SILT FENCE MAINTENCE	TURBIDITY BARRIERS	FIELD OFFICE TYPE-C	INCENTIVE STRENGTH CONCRETE STRUCTURES
	204.0175	EACH	LF	LF	SY	EACH	DOL
LOCATION	SY	619.1000	628.1504	628.1520	628.6005	642.5201	715.0502
STA. 6+94.0 to STA. 10+36	920	1	200	200	200	1	1195

MISCELLANEOUS ITEMS

CATEGORY 0030

	ADJUSTING WATER BOXES
	EACH
LOCATION	SPV.0060.05
STA. 6+94.0 to STA. 10+36.0	3

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
2984-07-05	4.1	2
FEDERAL PROJECT NUMBER		

PLAT OF RIGHT OF WAY REQUIRED FOR

NORTH 51ST BOULEVARD
BRIDGE OVER LINCOLN CREEK

MILWAUKEE COUNTY

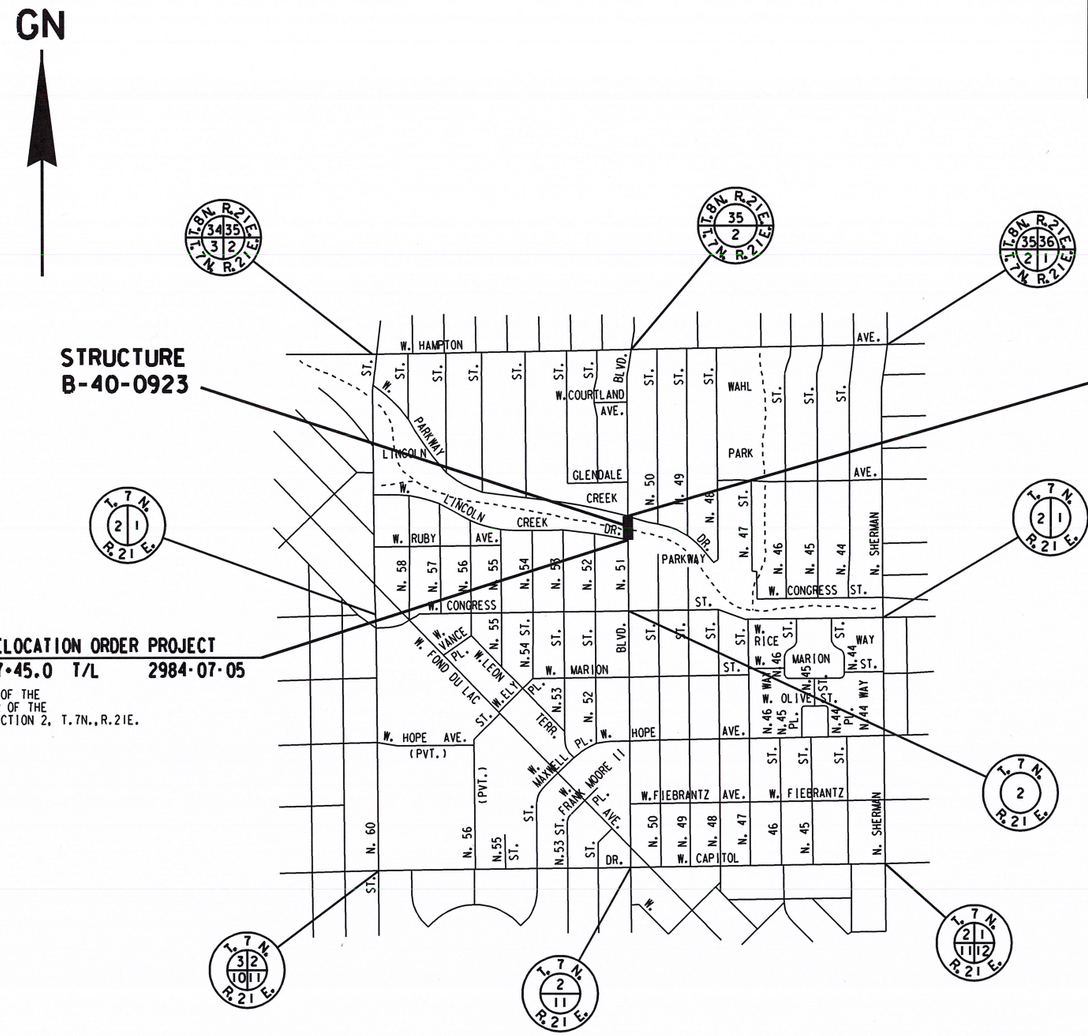
CONST. I.D. 2984-07-75

CONVENTIONAL SIGNS AND ABBREVIATIONS

SECTION LINE	
QUARTER SECTION LINE	
EXISTING ROW-OF-WAY	
PROPOSED RIGHT-OF-WAY	
LOT LINE	
PROPERTY LINE	P.L.
FEE	
HIGHWAY EASEMENT	
PERMANENT LIMITED EASEMENT	
TEMPORARY LIMITED EASEMENT	
SLOPE INTERCEPT	SLOPE INTERCEPT
PROPOSED PAVEMENT	
CORPORATE LIMITS	(NAME)
NO ACCESS (BY PREVIOUS PROJECT)	
NO ACCESS (BY STATUTORY AUTHORITY)	
NO ACCESS (BY ACQUISITION)	

POWER POLE		CATCH BASIN OR INLET	
LIGHT POLE		MANHOLES - SEWERS	
TELEPHONE OR TELEGRAPH POLE		MANHOLES - UTILITY (TYPE)	
POLE (TYPE)		HYDRANT	
TRAFFIC SIGNAL		FENCE	(TYPE)
TRAFFIC SIGNAL CONTROL BOX		TREES	5"

EAST	E.	RIGHT OF ENTRY	R.O.E.
WEST	W.	ACCESS RIGHTS	A.R.
NORTH	N.	CORNER	COR.
SOUTH	S.	ROAD	RD.
NORTHEAST	N.E.	STREET	ST.
NORTHWEST	N.W.	ASPHALT	ASPH.
SOUTHEAST	S.E.	CONCRETE	CONC.
SOUTHWEST	S.W.	CONCRETE WALK	C.W.
RIGHT-OF-WAY	R/W	DRIVEWAY	DWY.
PROPERTY LINE	P.L.	HOUSE	HSE.
HIGHWAY EASEMENT	H.E.	BUILDING	BLDG.
PERMANENT LIMITED EASEMENT	P.L.E.		
TEMPORARY LIMITED EASEMENT	T.L.E.		
PERMANENT MAINTENANCE EASEMENT	PERM. MAINT.		



NOTES

COORDINATES AND BEARINGS ON THIS PLAT ARE ORIENTED TO THE WISCONSIN COORDINATE SYSTEM SOUTH ZONE, NAD 1927. ALL PLAT DISTANCES ARE GROUND LENGTH AND MAY BE CONVERTED TO GRID LENGTH BY MULTIPLYING THE DISTANCE BY THE GRID FACTOR PROVIDED ON THE DETAIL SHEETS.

RIGHT OF WAY MONUMENTS ARE TO BE PLACED PRIOR TO OR AT THE TIME OF LAND TITLE TRANSFER BY A WISCONSIN REGISTERED LAND SURVEYOR

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

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

LAYOUT

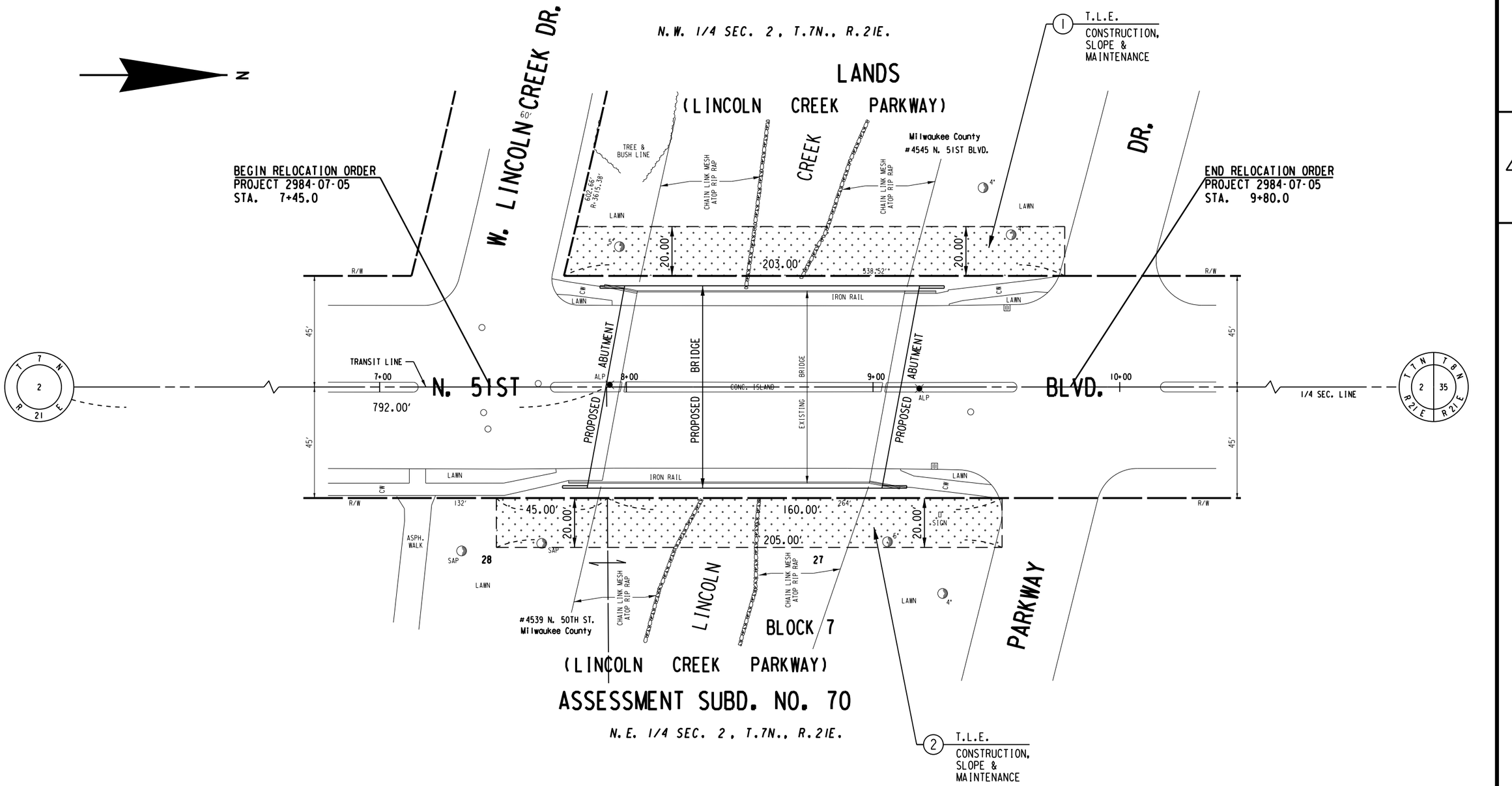
SCALE 1/4 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.045 MILES (URBAN)

REVISION DATE	APPROVED FOR: CITY OF MILWAUKEE
	11-28-16 DATE COMMISSIONER OF PUBLIC WORKS

FILE NAME:

PARCEL NUMBER	SHEET NUMBER	OWNER	INTEREST REQUIRED	TOTAL SQUARE FEET	R/W REQUIRED (SQUARE FEET)			TOTAL REMAINING SQUARE FEET	SQUARE FEET		
					NEW	EXISTING	TOTAL		T.L.E.	P.L.E.	T.I.
1		MILWAUKEE COUNTY	T.L.E.						4,012		
2		MILWAUKEE COUNTY	T.L.E.						4,100		



REVISION DATE OCTOBER 7, 2015 JULY 21, 2016 AUGUST 16, 2016	DATE: JUNE 9, 2015	SCALE FEET 0' 40'	HWY: N. 51ST BLVD. COUNTY: MILWAUKEE	CONSTRUCTION PROJECT NUMBER 2984-07-75 STATE R/W PROJECT NUMBER	PS&E SHEET NO: 4. PLAT SHEET NO: 4.	E

FILE NAME = W:\STR\B051\ACQUISITION\PLAT SHEET TLE.DGN

NORTH

51ST

BOULEVARD

N

SEE INTERSECTION DETAILS FOR ADDITIONAL INFORMATION ON REMOVALS & CURB RAMPS

#5101-5103 W. LINCOLN CREEK DR.

W. LINCOLN CREEK DR.

LINCOLN CREEK

W. PARKWAY DR.

TREE GROVE

LINCOLN PARKWAY (MILWAUKEE COUNTY) #4545

#4556-4558

#4562-4564

BEGIN PROJECT
STA. 6+94.0 T/L
Y. = 407,136.25
X. = 2,540,326.51

END PROJECT
STA. 10+36.0 T/L
Y. = 407,478.25
X. = 2,540,324.17

PROPOSED BRIDGE B-40-923

SEE BRIDGE PLANS

LIGHTING BLISTERS ON PROPOSED BRIDGE

"LINCOLN CREEK PARKWAY MILWAUKEE COUNTY PARK SYSTEM" SIGN

CONST. CROSSWALK CLOSURE WITH SIGN, POST AND TERRACE MOUND (SEE CONST. DETAIL)

(A) CONST. CONC. CURB & GUTTER 31-INCH REINFORCED
(B) CONST. CONC. CURB & GUTTER 31-INCH (COVERED FLG.)
(G) REM ASPHALT PARTIAL DEPTH TO OBTAIN 3" MIN. ASPHALT OVERLAY
(H) CONST. 2" ASPHALT ON VARIABLE THICKNESS CONC. BASE
(J) CONST. 3" ASPHALT ON VARIABLE THICKNESS CONC. BASE
(K) SAW
(L) SAW FULL DEPTH
(O) CONST. 5-INCH CONCRETE WALK
(T) REM. AND CONST. 12" REINF. CONC. APPROACH SLAB
(U) CONST. ASPH. BUTT JT.
(V) CONST. SNOWPLOWABLE MEDIAN ISLAND NOSE

STATE PROJECT NUMBER 2984-07-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PLAN	SCALE FEET 0' 40'	SHEET NO: 40	E

FILE NAME: W:\STR\B05111\APPROACH PLANS\07_12.DGN

REVISED: 10/31/2016 BY TJK

SOUTH END OF DECK STA. 07+92.41

NORTH END OF DECK STA. 09+10.59

PROPOSED BRIDGE B-40-923

BEGIN PROJECT

END PROJECT

EXISTING ELEVATION 2' RT. OF T/L OF ROADWAY

EXISTING ELEVATION 2' RT. OF C/L OF ROADWAY

STATION 8+51.50
REMOVE STRUCTURE P-40-632
THREE SPAN STEEL GIRDER
108' OVERALL LENGTH
78' OVERALL WIDTH
NEW STRUCTURE B-40-923 REQUIRED
3 SPAN CONTINOUS HAUNCHED CONCRETE SLAB
SKEW 10° 30' LHF
SEE STRUCTURAL DRAWINGS

STATION	6	+25	+50	+75	7	+25	+39	+50	+71.41	+75	+91.75	8	+25	+50	+75	9	+11.25	+25	+31.59	+50	+53.3	+70	+75	10	+25	+50	+75	11	+50	12
EXISTING ELEVATION	74.51	74.63	74.74	74.81	MATCH	74.90	75.09		74.99	75.11	75.34	75.26	75.40	75.15	74.98	74.89	74.79	74.81	74.80	74.63	74.72	74.72	74.64	74.54	74.36	74.23	MATCH	74.09	73.96	73.94

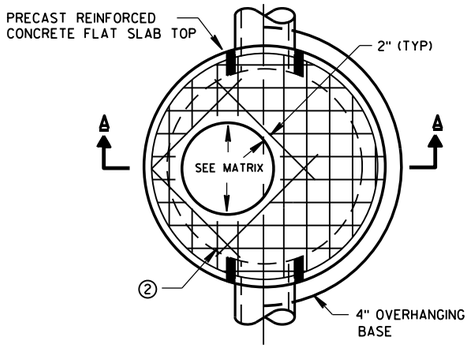
STATE PROJECT NUMBER 2984-07-75 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PROFILE	SCALE FEET 0' 40'	SHEET NO: 41	E

FILENAME: W:\STR\BOS11\APPROACH PLANS\07_12.DGN

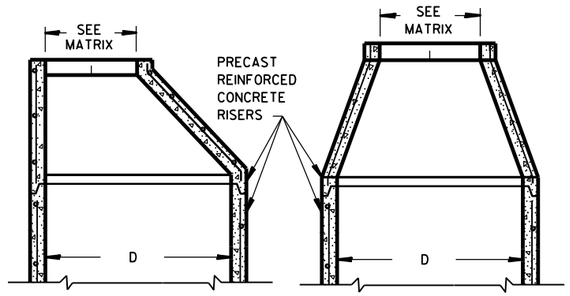
Standard Detail Drawing List

08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D05-17A	CURB RAMPS TYPES 1 AND 1-A
08D05-17B	CURB RAMPS TYPES 2 AND 3
08D05-17C	CURB RAMPS TYPES 4A AND 4A1
08D05-17D	CURB RAMPS TYPE 4B AND 4B1
08D05-17E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D16-10	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-09	CONDUIT
11B02-02	CONCRETE MEDIAN NOSE
12A03-10	NAME PLATE (STRUCTURES)
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13B02-08B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
13C01-18	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C04-16	URBAN NON-DOWELED CONCRETE PAVEMENT
13C15-06A	CONCRETE BASE
13C15-06B	CONCRETE BASE
13C18-03A	CONCRETE PAVEMENT JOINTING
13C18-03B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-03C	CONCRETE PAVEMENT JOINT TIES
13C18-03D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-03	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C07-13B	PAVEMENT MARKING WORDS
15C07-13C	PAVEMENT MARKING ARROWS
15C07-13E	PAVEMENT MARKING FOR BIKE LANES
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C29-03A	BICYCLE LANE MARKING
15C29-03B	BICYCLE LANE MARKING
15C29-03C	URBAN BICYCLE LANE MARKING
15C29-03D	URBAN BICYCLE LANE MARKING
15C29-03E	PAVEMENT MARKING FOR BIKE LANES
15C29-03F	PAVEMENT MARKING FOR SHARED LANE 35 MPH OR LESS

6

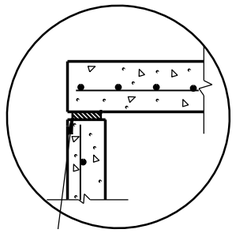


PLAN VIEW CIRCULAR OPENING

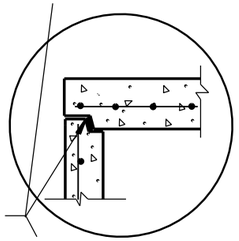


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

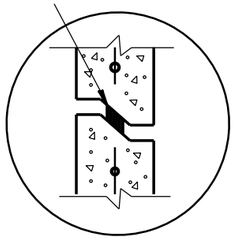


TOP WITH PLAIN END JOINT



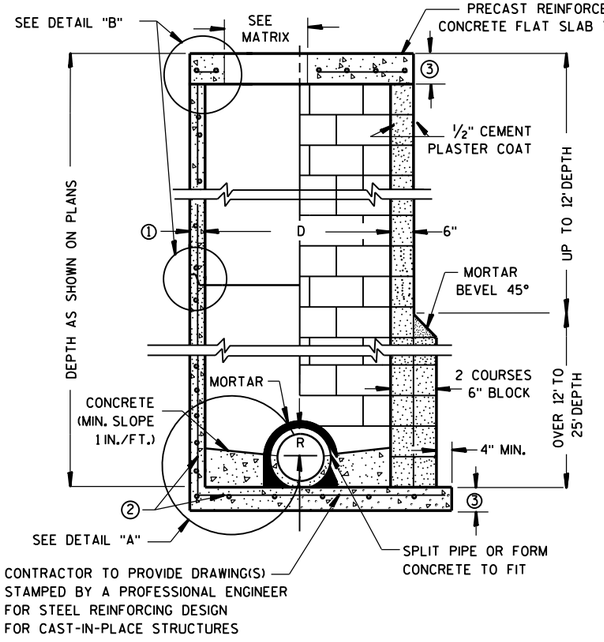
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

TOP WITH TONGUE AND GROOVE JOINT



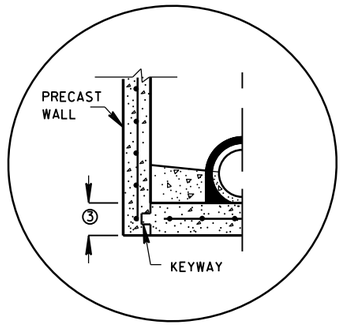
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

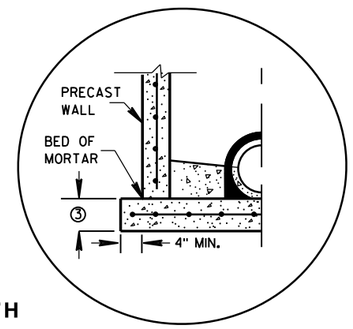


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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

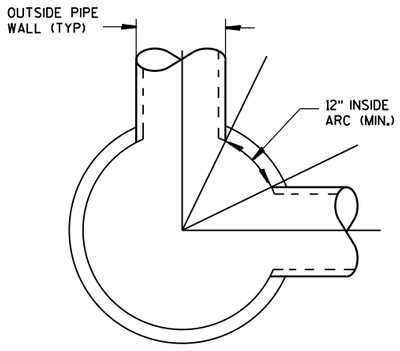


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

GENERAL NOTES

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

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

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

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

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

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

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

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

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

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

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

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

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

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

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

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

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

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

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

MANHOLE COVER OPENING MATRIX

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

PIPE MATRIX

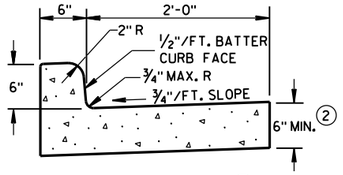
MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

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

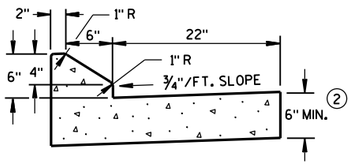
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

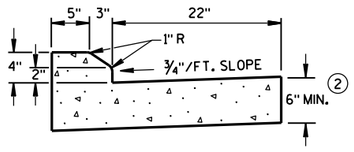
6
S.D.D. 8 B 9-1



TYPES A & D ①

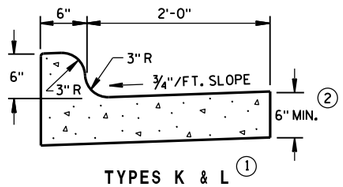


6" SLOPED CURB TYPES G & J ①

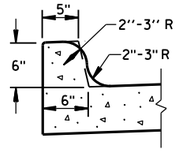


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

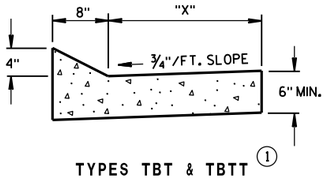


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

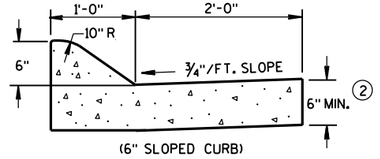
CONCRETE CURB & GUTTER 30"



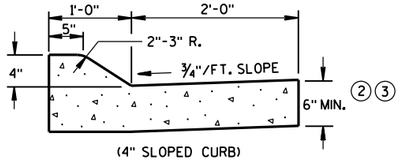
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"

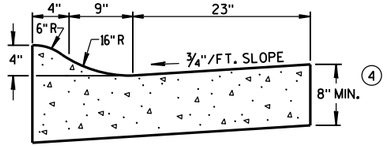


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

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

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

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

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

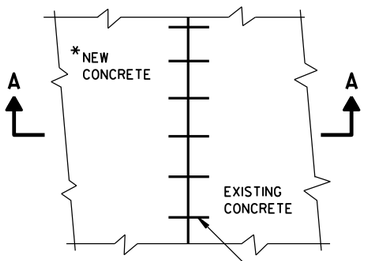
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

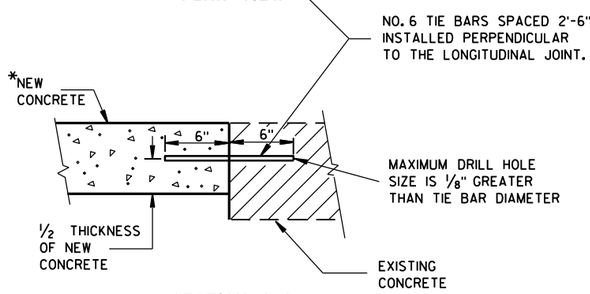
⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



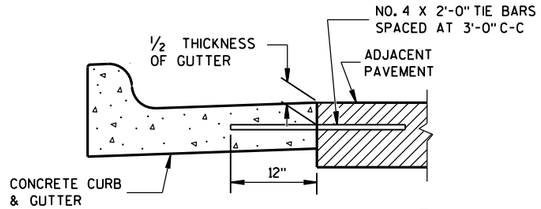
PLAN VIEW

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

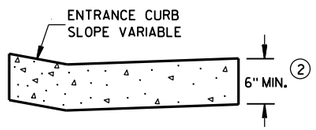


SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT

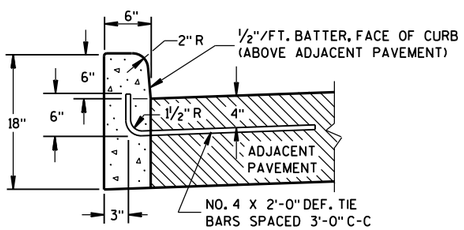


TYPICAL TIE BAR LOCATION ①

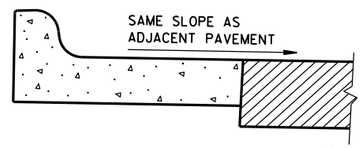


DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

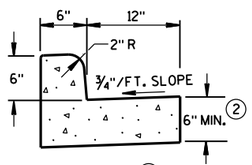


① TYPES A & D



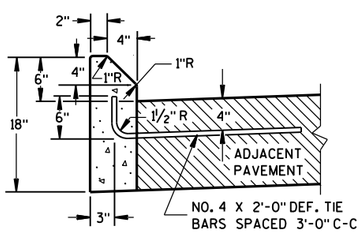
⑥ REVERSE SLOPE GUTTER

(TYPICAL FOR ALL CURB & GUTTER TYPES)



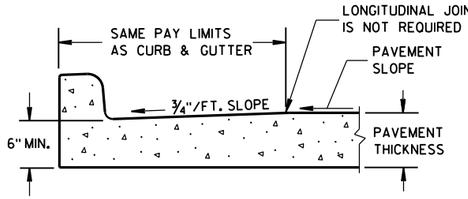
① TYPES A & D

CONCRETE CURB & GUTTER 18"

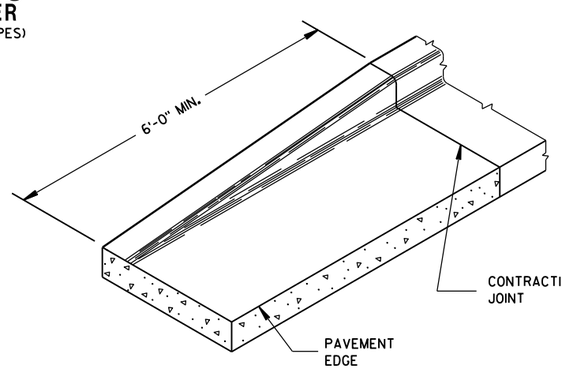


① TYPES G & J

CONCRETE CURB



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

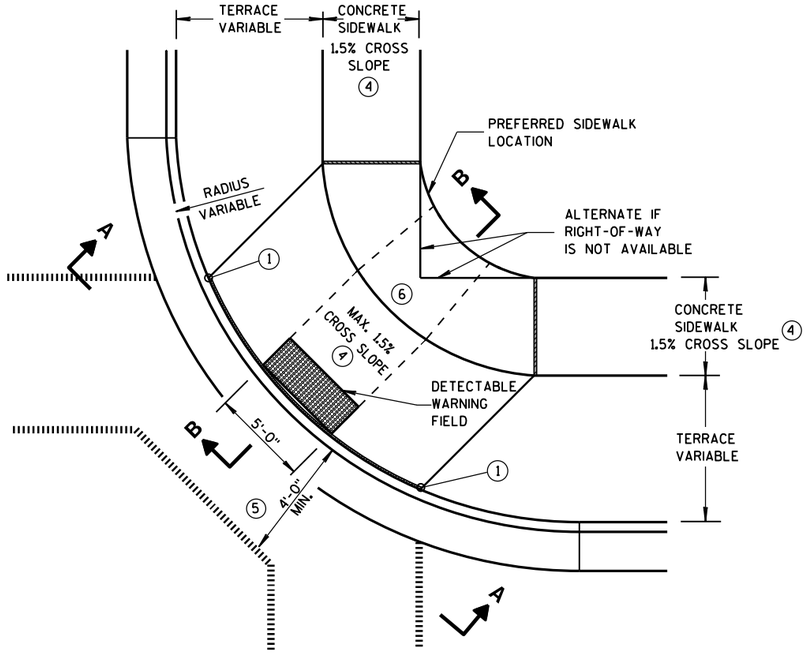
CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

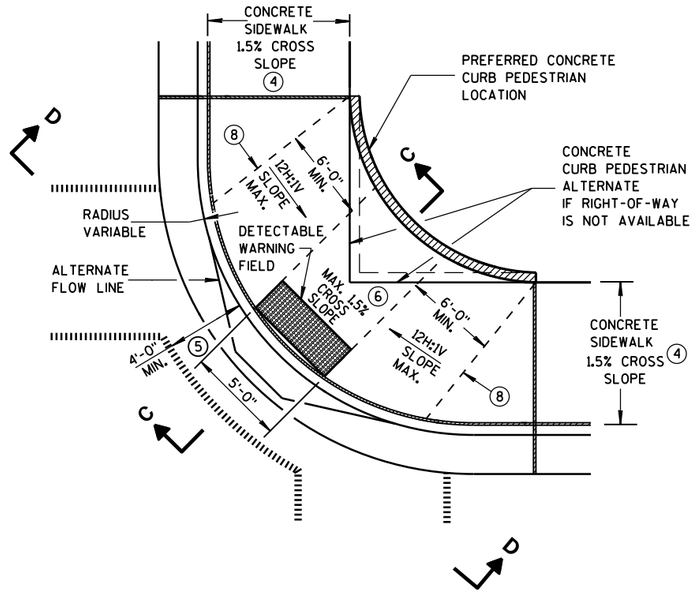
S.D.D. 8 D 1-19



PLAN VIEW

TYPE 1 RAMP

(CENTER OF CORNER RADIUS)



PLAN VIEW

TYPE 1-A RAMP

(NO TERRACE)

GENERAL NOTES

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

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

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

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

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

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

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

(1) THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

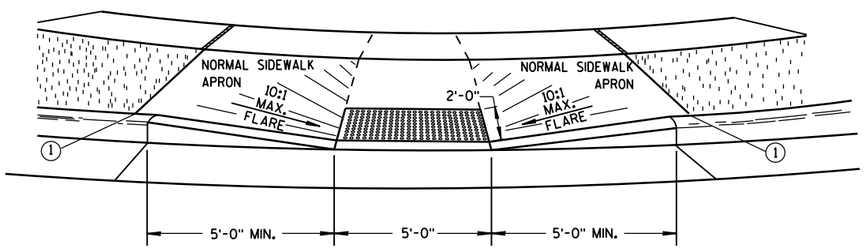
(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

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

(5) PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.

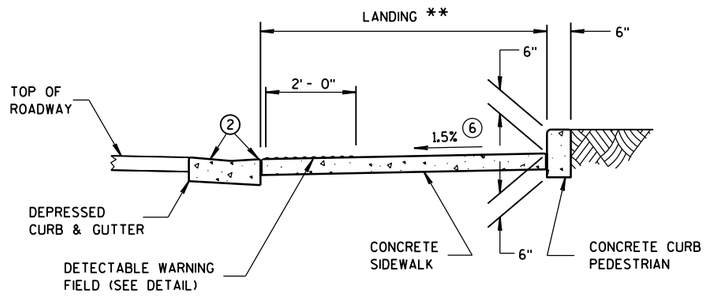
(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.



VIEW A-A

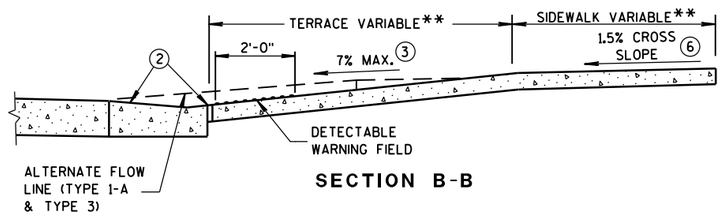
** WIDTH SHOWN ELSEWHERE IN THE PLANS



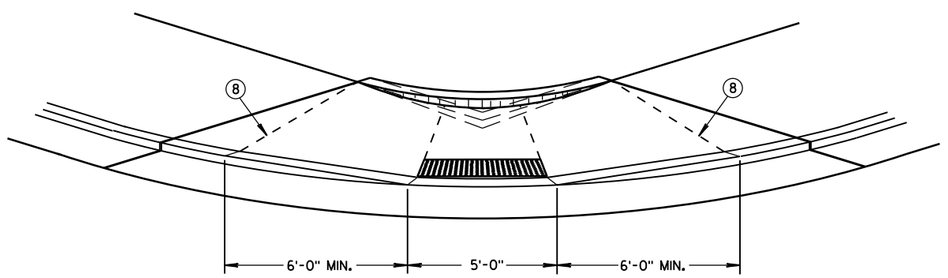
SECTION C-C

LEGEND

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



SECTION B-B



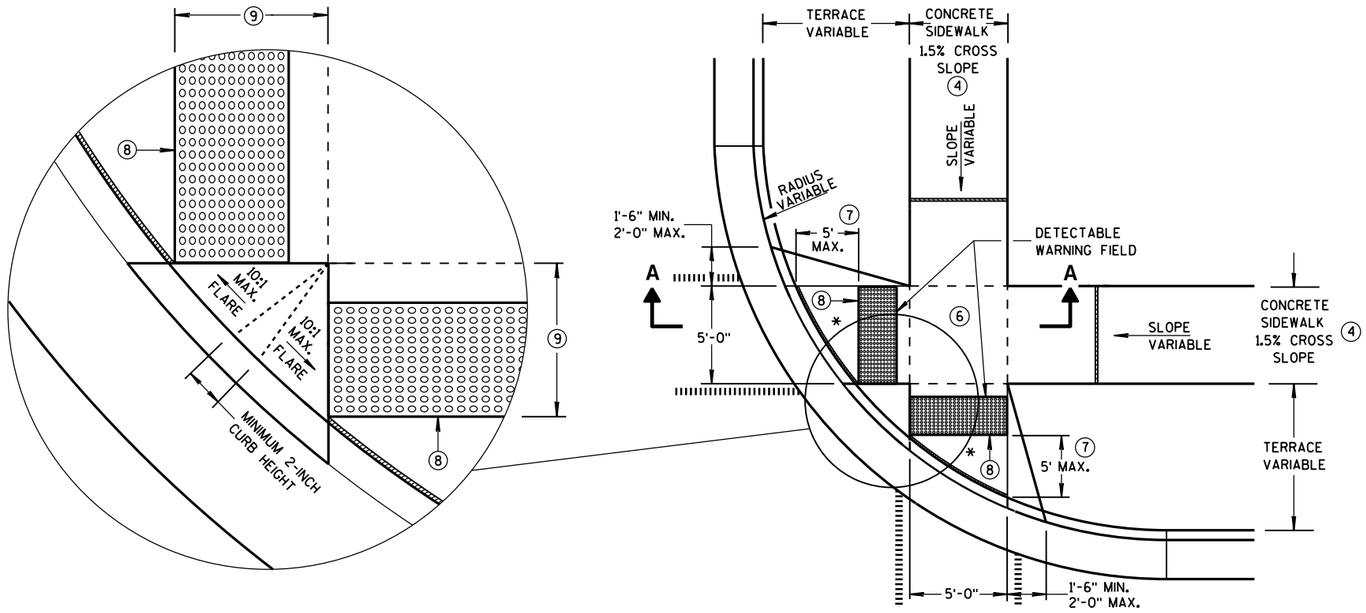
VIEW D-D

CURB RAMPS
TYPES 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 8 D 5-17a

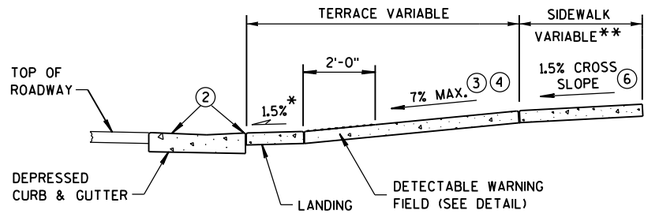


PLAN VIEW

TYPE 2 RAMP

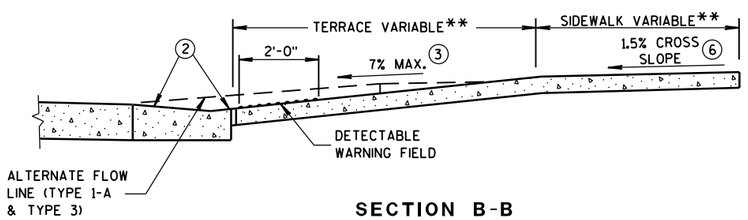
(ON LINE WITH SIDEWALK)

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK



SECTION A-A

** WIDTH SHOWN ELSEWHERE IN THE PLANS



SECTION B-B

GENERAL NOTES

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

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

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

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

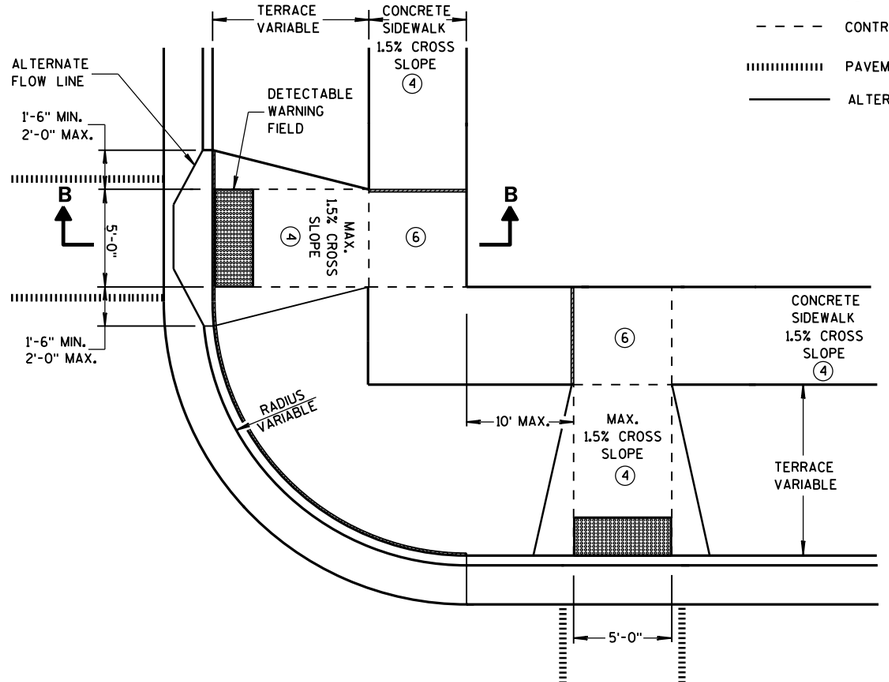
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, STAGGER ADDITIONAL DETECTABLE WARNING PANEL FORWARD TO REDUCE THIS DISTANCE. PROVIDE MINIMUM 12-INCH ROW OVERLAP TO AVOID SIDESTEP OF DOME DETECTION. ALIGN DOMES BETWEEN OVERLAPPING ROWS AND IN DIRECTION OF PEDESTRIAN TRAVEL.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

(9) WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW

TYPE 3 RAMP

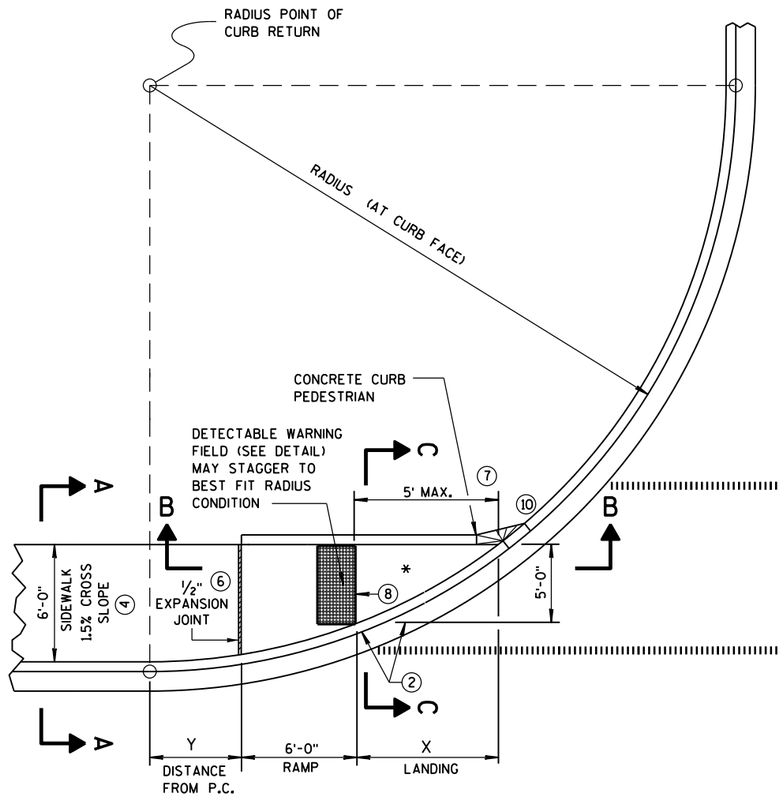
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS TYPES 2 AND 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

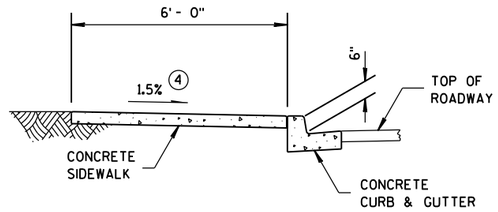
S.D.D. 8 D 5-17b



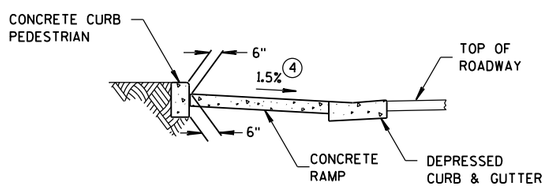
CURB RAMP TYPE 4A
PLAN VIEW

RADIUS (AT CURB FACE)	X	Y
20 FEET	7'-11"	0'-2"
30 FEET	10'-2¾"	1'-7½"
40 FEET	12'-1¼"	2'-10"
50 FEET	13'-8¾"	3'-10¾"
60 FEET	15'-2"	4'-10¼"

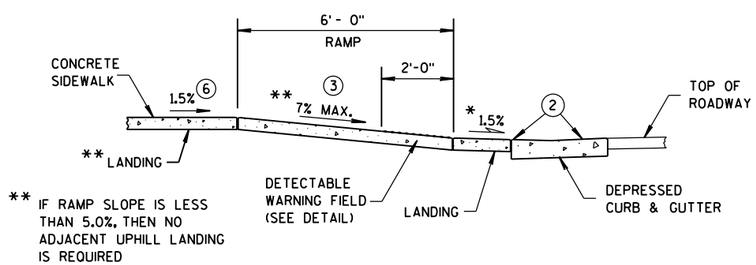
INTERMEDIATE RADII CAN BE INTERPOLATED



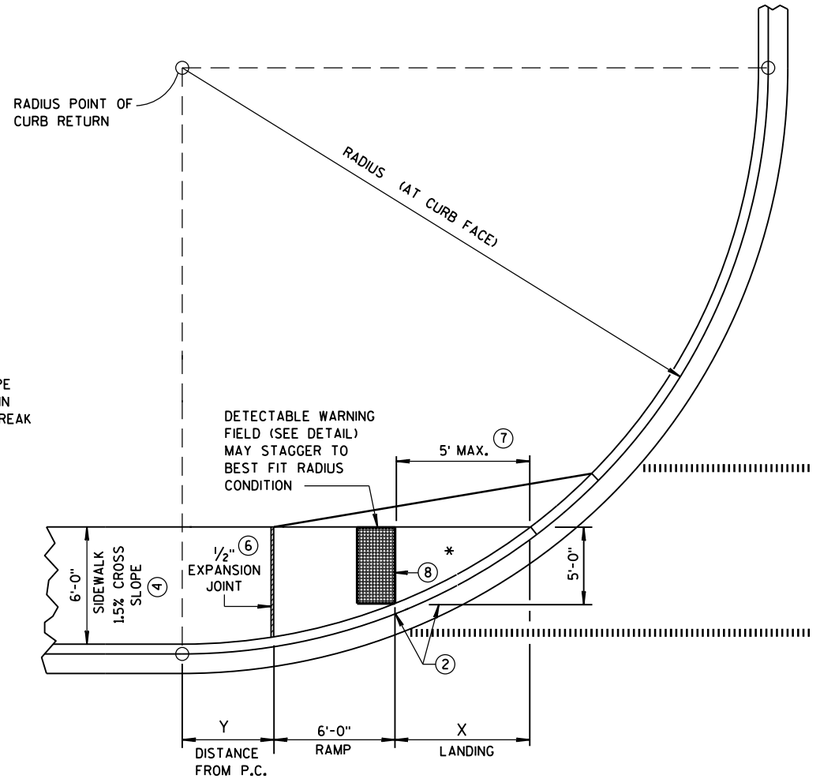
SECTION A-A FOR TYPE 4A



SECTION C-C FOR TYPE 4A



SECTION B-B FOR TYPE 4A



* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK

CURB RAMP TYPE 4A1
PLAN VIEW

GENERAL NOTES

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

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

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

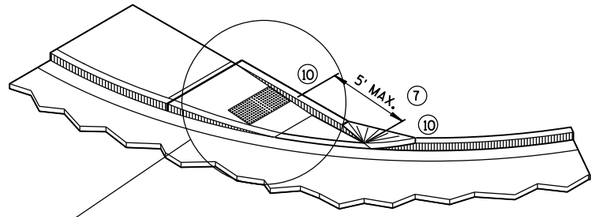
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

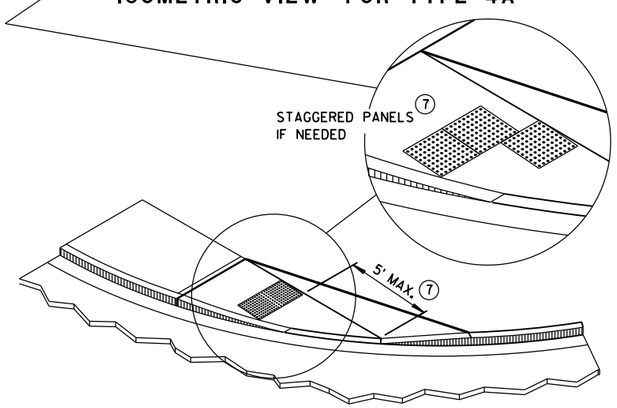
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, STAGGER ADDITIONAL DETECTABLE WARNING PANEL FORWARD TO REDUCE THIS DISTANCE. PROVIDE MINIMUM 12-INCH ROW OVERLAP TO AVOID SIDESTEP OF DOME DETECTION. ALIGN DOMES BETWEEN OVERLAPPING ROWS AND IN DIRECTION OF PEDESTRIAN TRAVEL.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

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



ISOMETRIC VIEW FOR TYPE 4A



ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

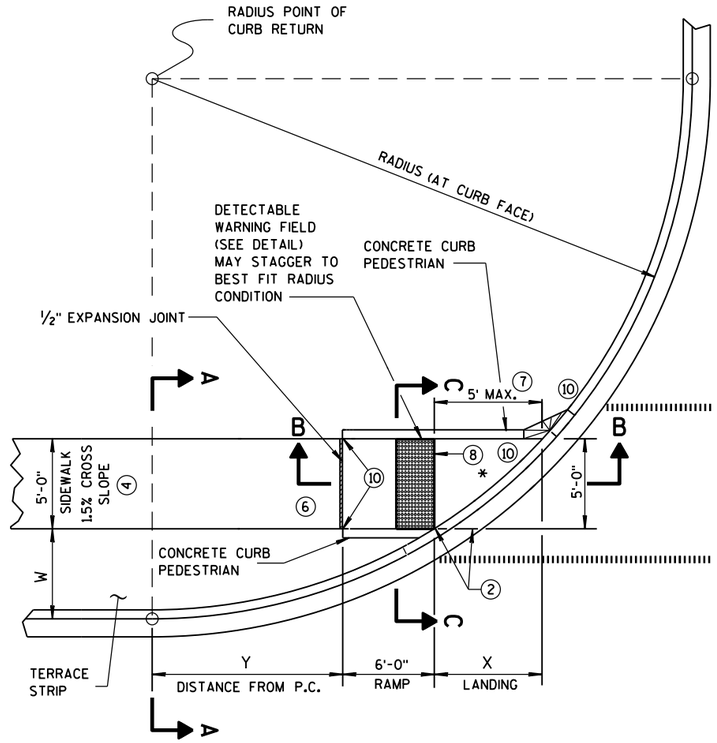
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 4A AND 4A1

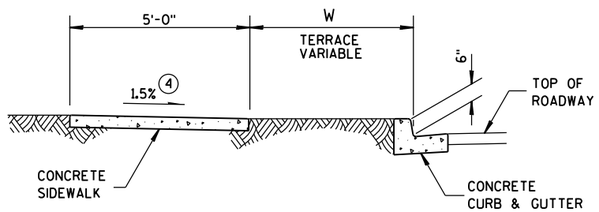
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

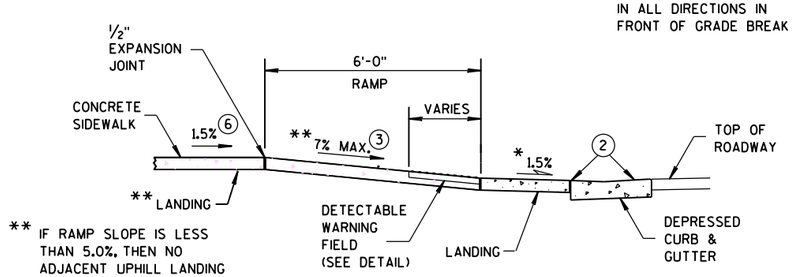
S.D.D. 8 D 5-17c



CURB RAMP TYPE 4B
PLAN VIEW



SECTION A-A FOR TYPE 4B



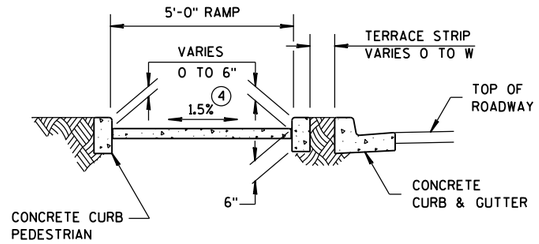
SECTION B-B FOR TYPE 4B

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)



SECTION C-C FOR TYPE 4B

RADIUS (AT CURB FACE)	W = 3'-0"		W = 4'-0"		W = 5'-0"		W = 6'-0"		W = 7'-0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-9¾"	3'-6½"	4'-11½"	5'-1¾"	4'-3¼"	6'-5½"	3'-8¾"	7'-6¾"	3'-3"	8'-6¼"
30 FEET	7'-9¼"	5'-10½"	6'-9½"	7'-11¼"	6'-0¼"	9'-8"	5'-5"	11'-1¾"	4'-10¾"	12'-5¾"
40 FEET	9'-4"	7'-10"	8'-2¾"	10'-3"	7'-4¾"	12'-3¾"	6'-8½"	14'-1¼"	6'-1¾"	15'-8½"
50 FEET	10'-8"	9'-6½"	9'-5½"	12'-3¼"	8'-6½"	14'-7½"	7'-9¾"	16'-8¼"	7'-2½"	18'-6¼"
60 FEET	11'-10¼"	11'-0¾"	10'-6½"	14'-1¼"	9'-6½"	16'-8½"	8'-9¼"	18'-11¾"	8'-1½"	21'-0½"

INTERMEDIATE RADII CAN BE INTERPOLATED

GENERAL NOTES

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

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

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN ¼-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

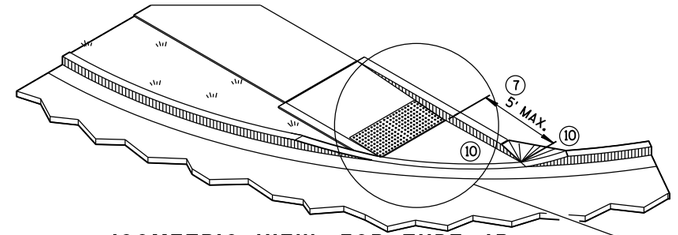
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

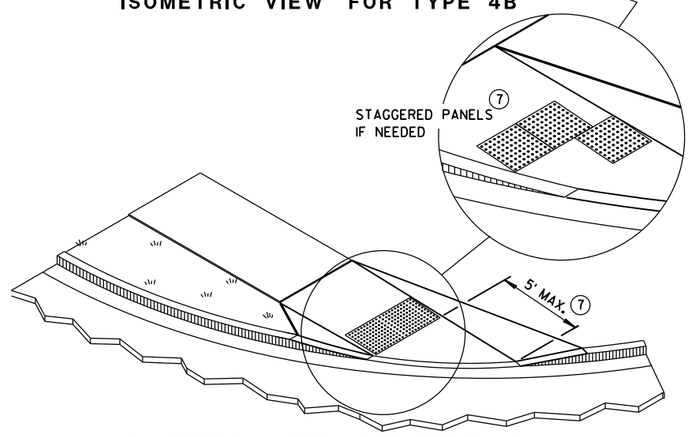
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, STAGGER ADDITIONAL DETECTABLE WARNING PANEL FORWARD TO REDUCE THIS DISTANCE. PROVIDE MINIMUM 12-INCH ROW OVERLAP TO AVOID SIDESTEP OF DOME DETECTION. ALIGN DOMES BETWEEN OVERLAPPING ROWS AND IN DIRECTION OF PEDESTRIAN TRAVEL.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

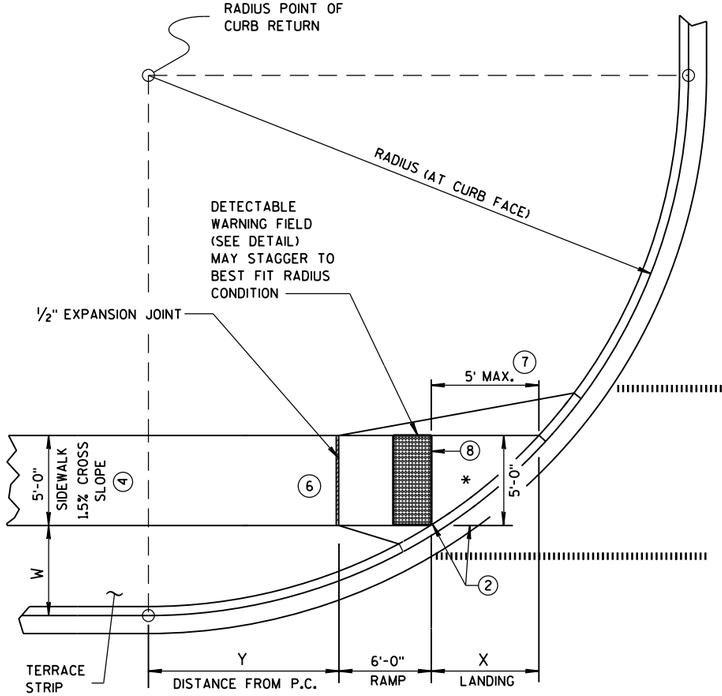
(10) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



ISOMETRIC VIEW FOR TYPE 4B



ISOMETRIC VIEW FOR TYPE 4B1



CURB RAMP TYPE 4B1
PLAN VIEW

CURB RAMPS
TYPE 4B AND 4B1

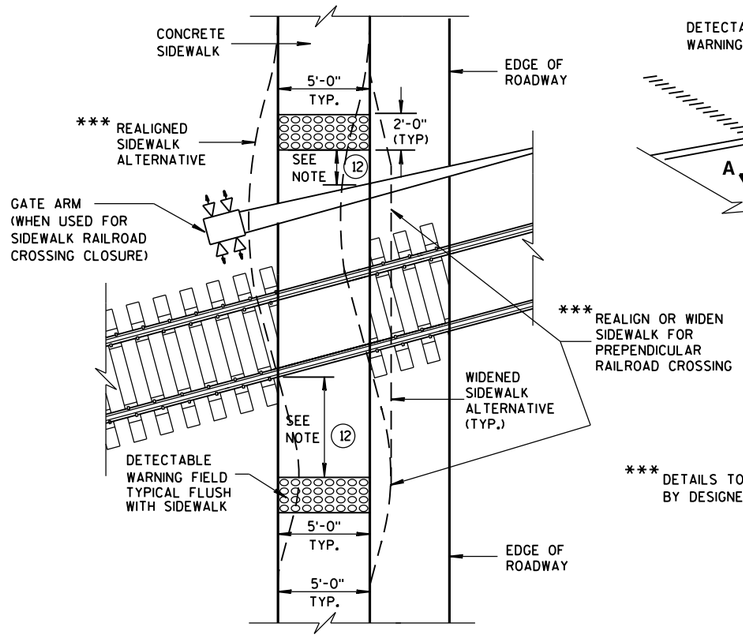
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 8 D 5-17d

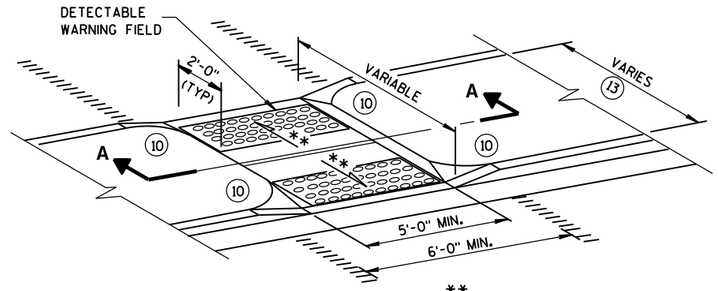
6

S.D.D. 8 D 5-17d



*** DETAILS TO BE DETERMINED BY DESIGNER

TYPE 8
DETECTABLE WARNINGS AT RAILROAD CROSSING



MEDIAN ISLAND NON-ELEVATED CROSSING
TYPE 5

GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

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

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

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

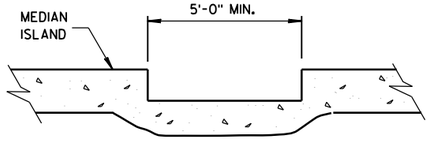
(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

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

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

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

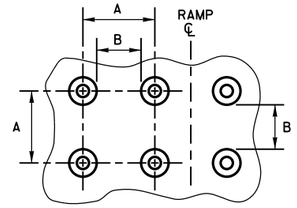
(13) DO NOT INSTALL DETECTABLE WARNING FIELDS IF MEDIAN WIDTH BETWEEN BACK OF CURBS IS LESS THAN 6 FEET.



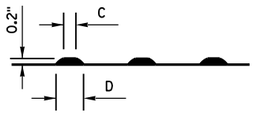
SECTION A-A

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

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

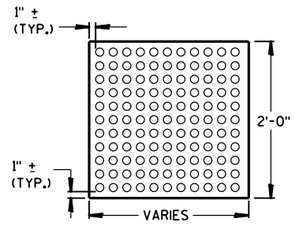


PLAN VIEW

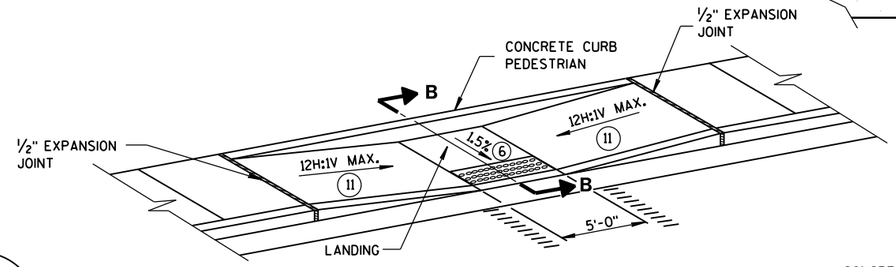


ELEVATION VIEW

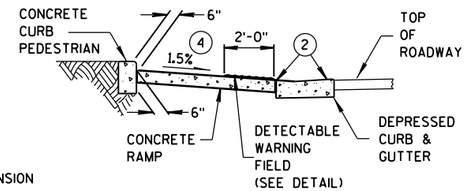
TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL



PLAN VIEW
DETECTABLE WARNING FIELD (TYPICAL)

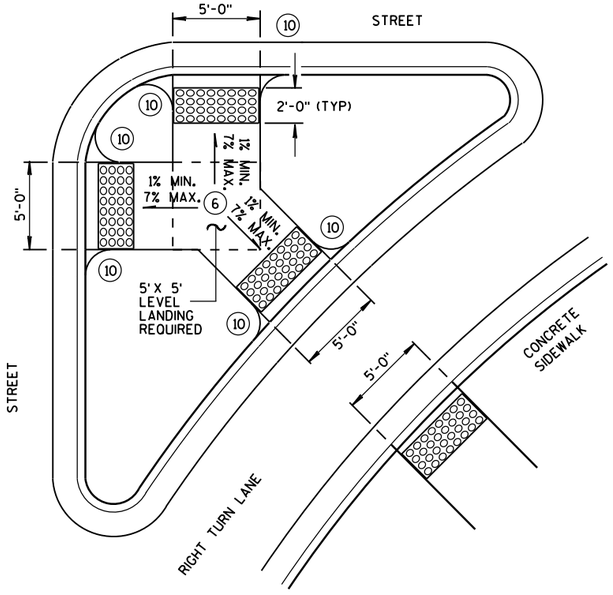


MID-BLOCK CROSSING
TYPE 7A

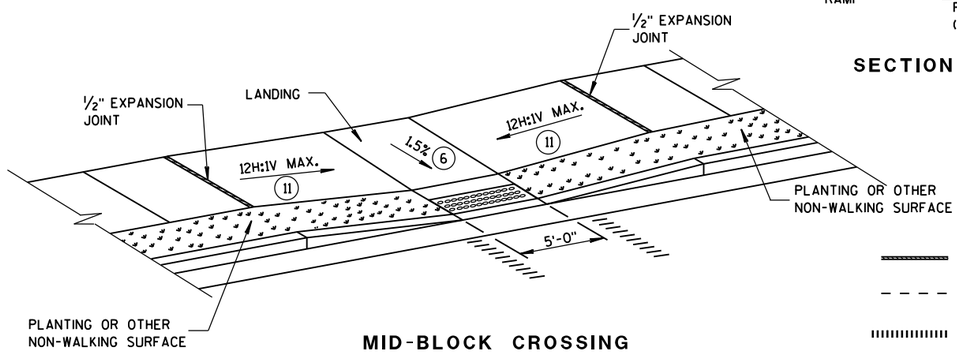


SECTION B-B

REFER TO GENERAL NOTES (2) AND (3) FOR ALL ISLAND CURB RAMPS



TYPE 6
DETECTABLE WARNING AT ISLANDS



MID-BLOCK CROSSING
TYPE 7B

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

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

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S.D.D. 8 D 5-17e

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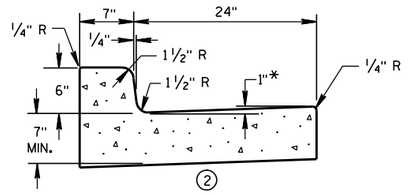
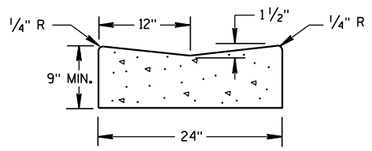
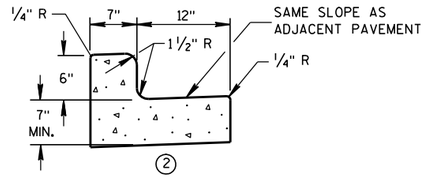
S.D.D. 8 D 5-17e



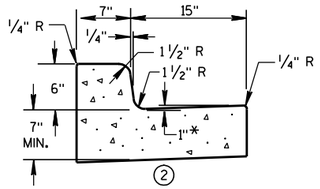
① CONCRETE CURB & GUTTER 31"



① CONCRETE GUTTER 24"

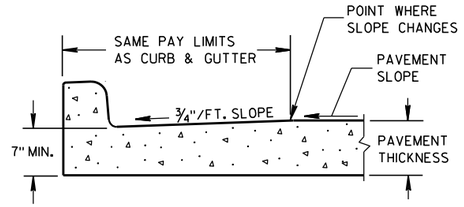


① CONCRETE CURB & GUTTER 19"



① CONCRETE CURB & GUTTER 22"

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



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER

GENERAL NOTES

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

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

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

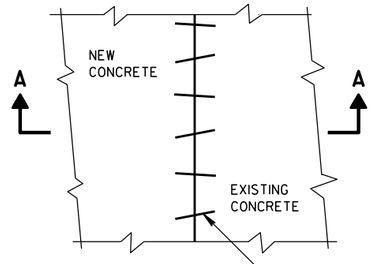
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

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

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

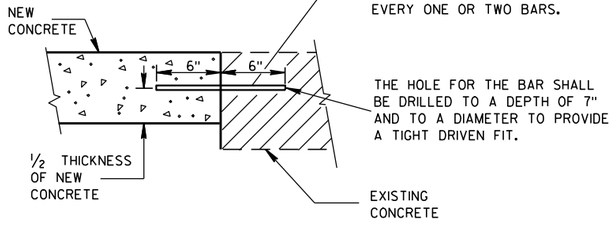
③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLAN.



PLAN VIEW

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

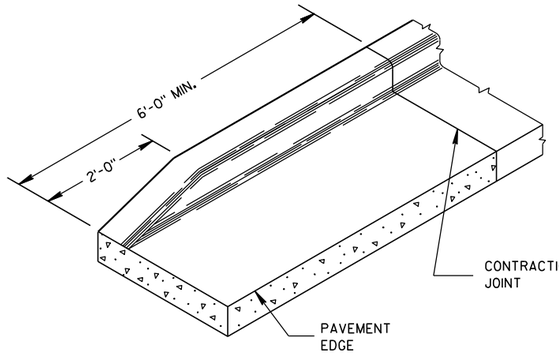
NO. 6 X 12" DEF. BARS SPACED 3'-0" C-C, INSTALLED ON 6:1 SKEW HORIZONTALLY. DIRECTION OF SKEW ALTERNATING AFTER EVERY ONE OR TWO BARS.



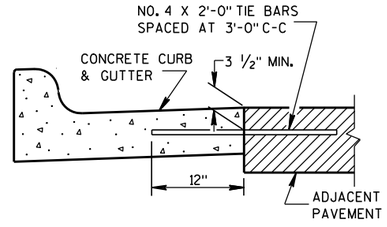
THE HOLE FOR THE BAR SHALL BE DRILLED TO A DEPTH OF 7" AND TO A DIAMETER TO PROVIDE A TIGHT DRIVEN FIT.

SECTION A-A

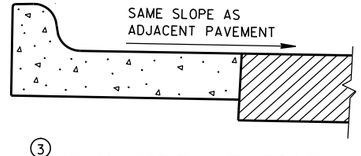
PAVEMENT TIES



END SECTION CURB & GUTTER



① TYPICAL TIE BAR LOCATION



③ HIGH SIDE SECTION

(TYPICAL FOR ALL CURB & GUTTER)

CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES

(For Optional Use in Milwaukee Co. Only)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/2/2010 — DATE

/S/ Jerry Zogg — ROADWAY STANDARDS ENGINEER

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FHWA

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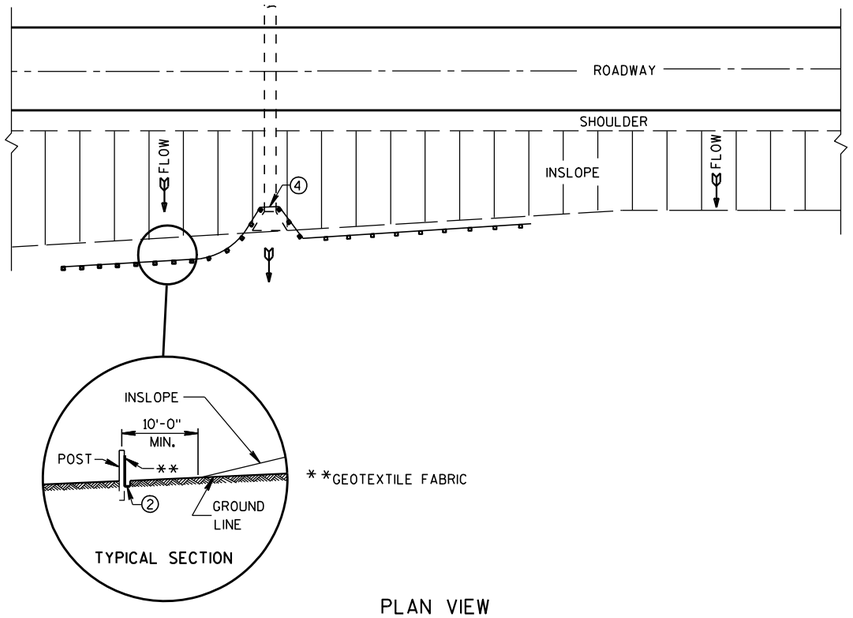
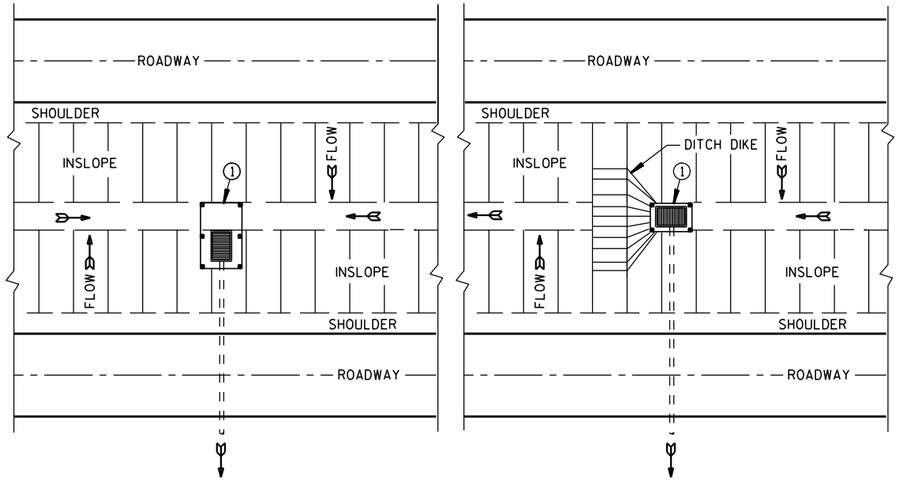


PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



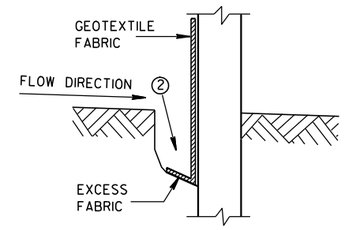
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

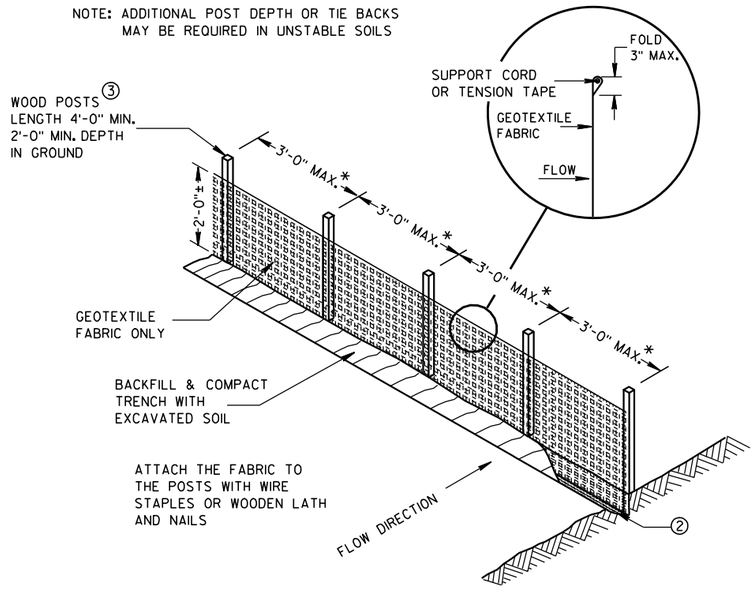
GENERAL NOTES

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

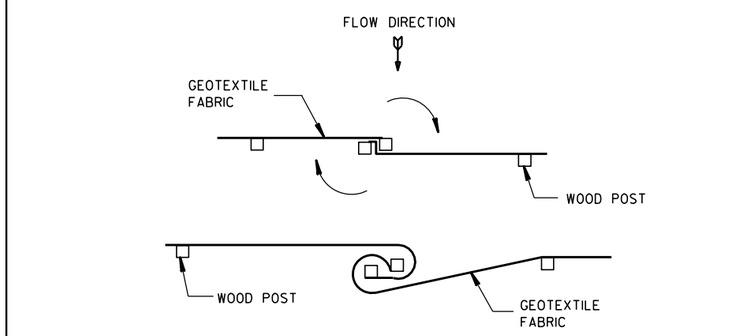
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



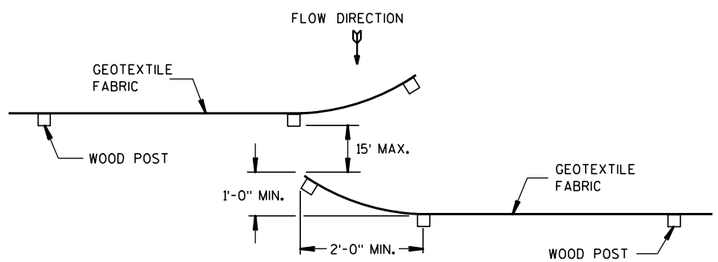
TRENCH DETAIL



SILT FENCE

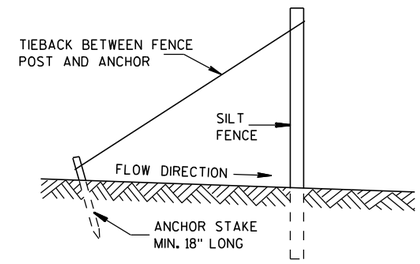


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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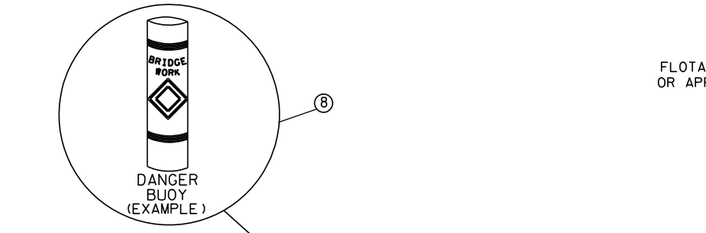
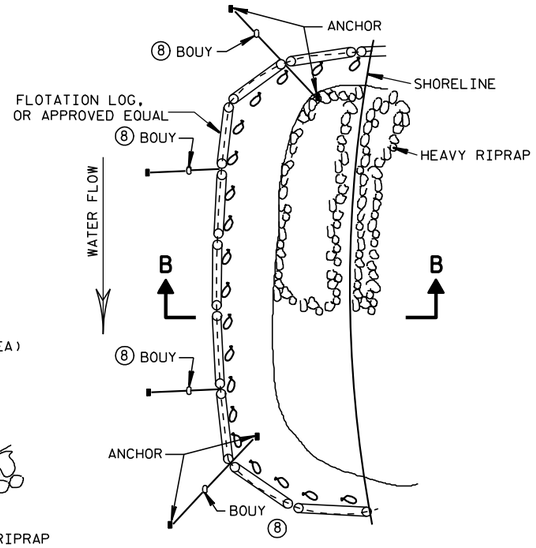
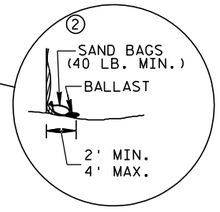
S.D.D. 8 E 9-6

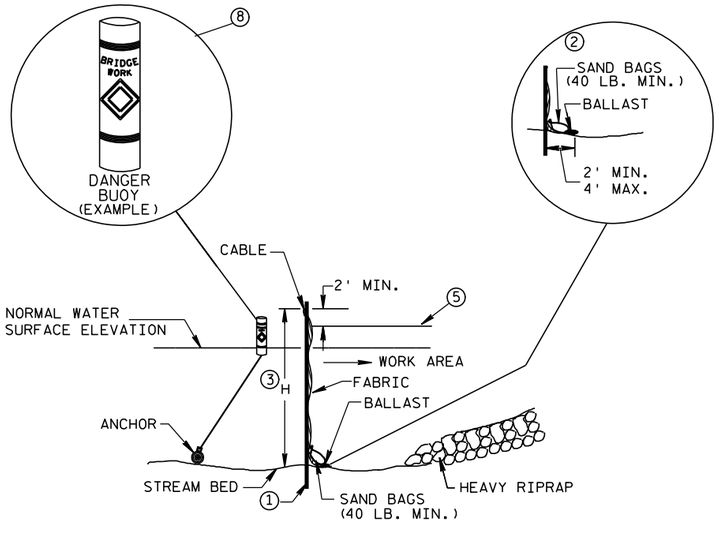


SECTION B-B

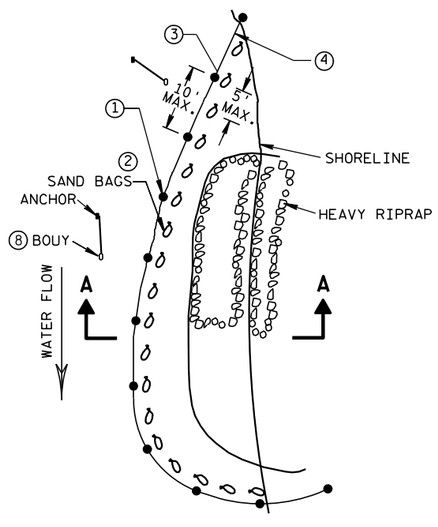




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

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

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

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

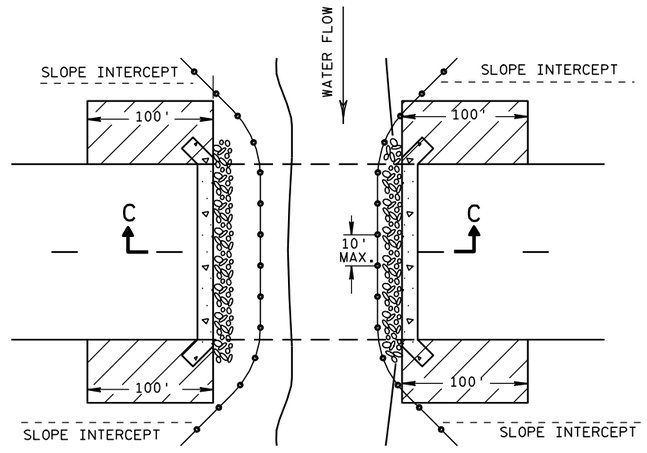
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

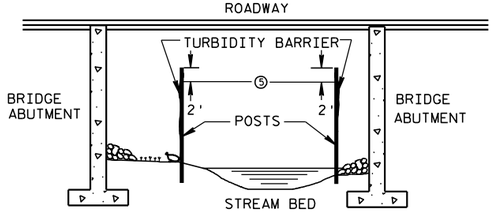
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
6/04/02 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

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S.D.D. 8 E 11-2

METAL APRON ENDWALLS

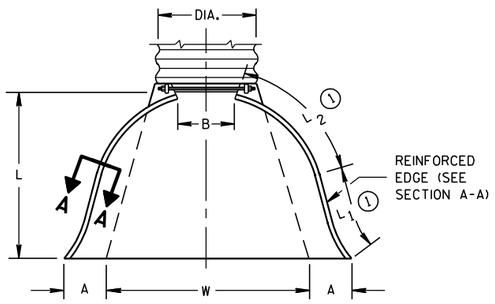
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

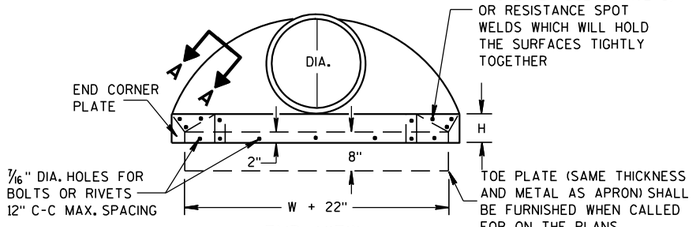
REINFORCED CONCRETE APRON ENDWALLS

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

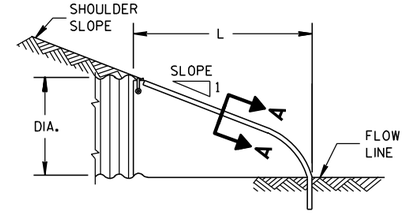
*MINIMUM
**MAXIMUM



PLAN VIEW

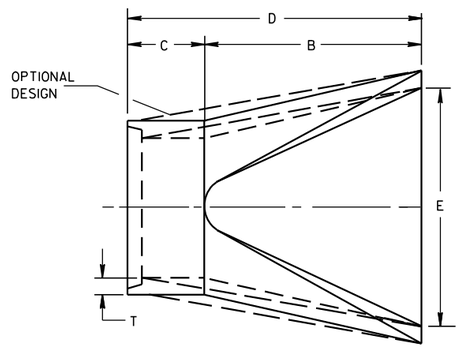


END VIEW

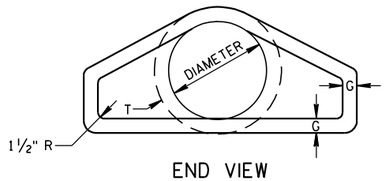


SIDE ELEVATION

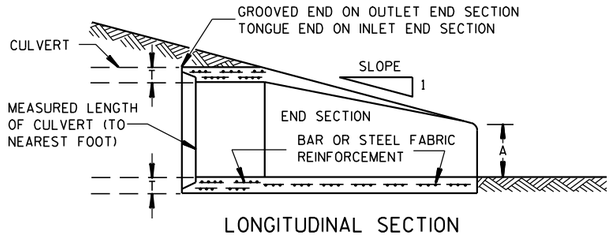
METAL ENDWALLS



PLAN

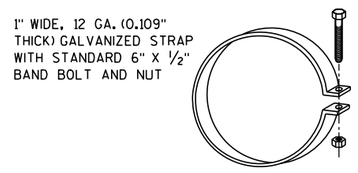


END VIEW



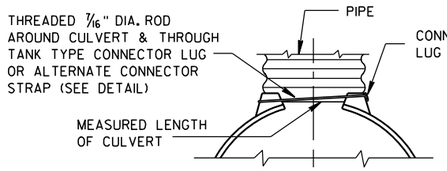
LONGITUDINAL SECTION

CONCRETE ENDWALLS

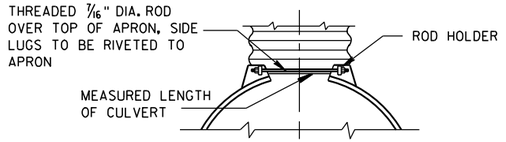


ALTERNATE FOR TYPE 1 CONNECTION

END SECTION CONNECTOR STRAP

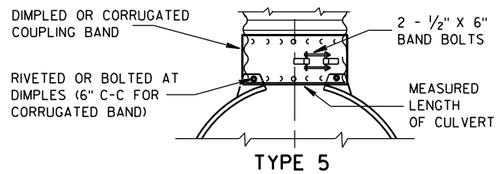


TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE

TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

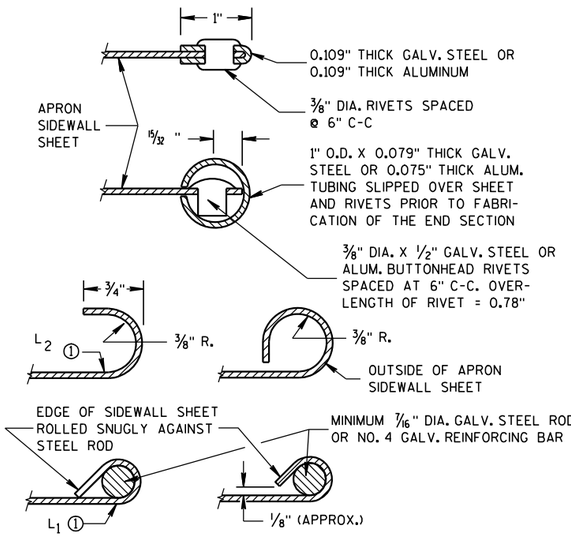
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

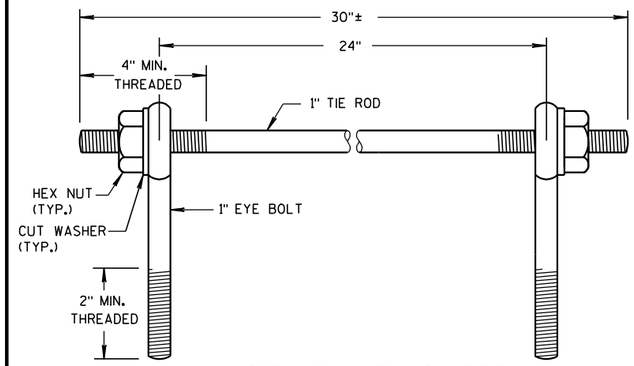
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

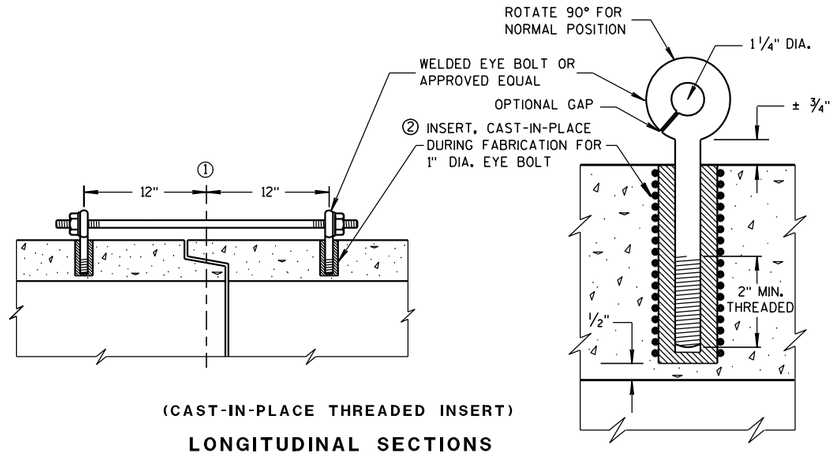
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

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

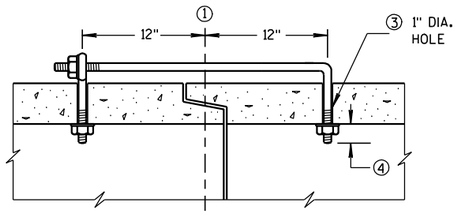
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

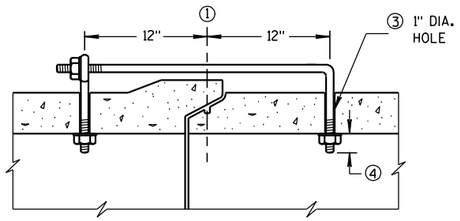
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

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



(TONGUE & GROOVE PIPE)

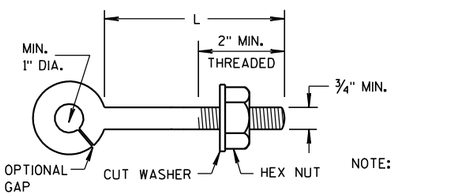


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

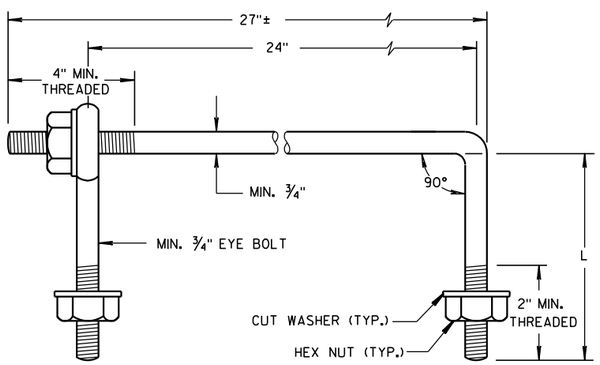
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

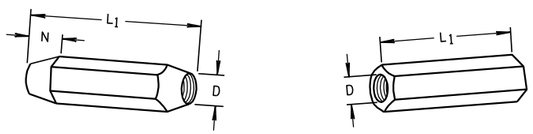
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

ADJUSTABLE TIE ROD TABLE

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

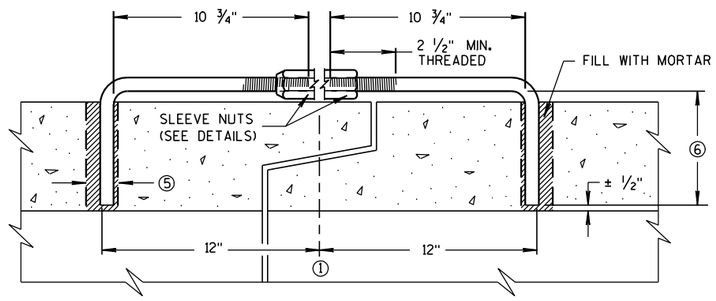
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

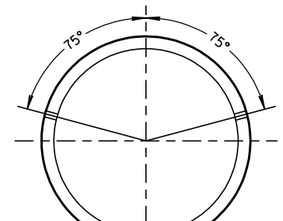
SLEEVE NUTS



LONGITUDINAL SECTION

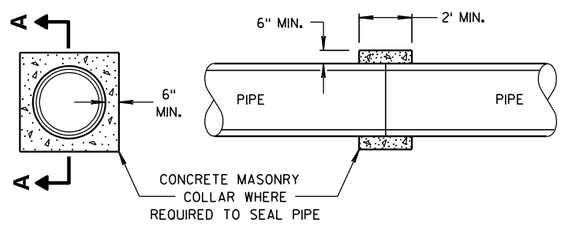
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

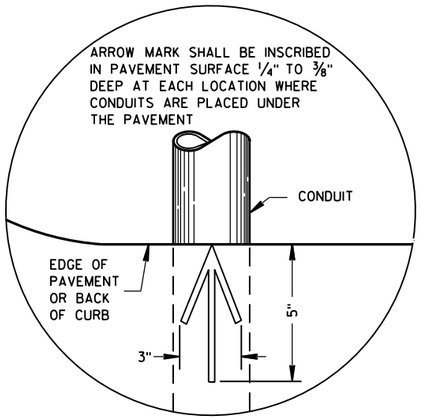
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
54
FHWA

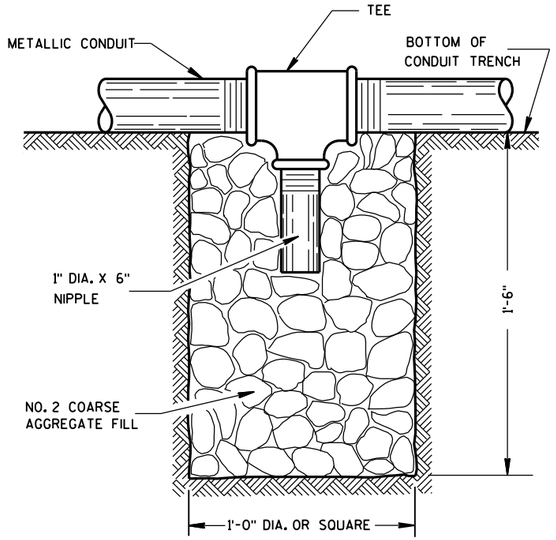
6

S.D.D. 8 F 4-7



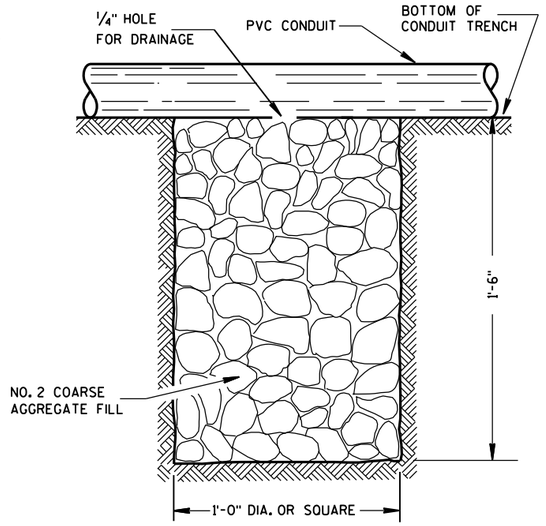
PLAN VIEW

ARROW MARK



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

DRAIN SUMP FOR METALLIC CONDUIT



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

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

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

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

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

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

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

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

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

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

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

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

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

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

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

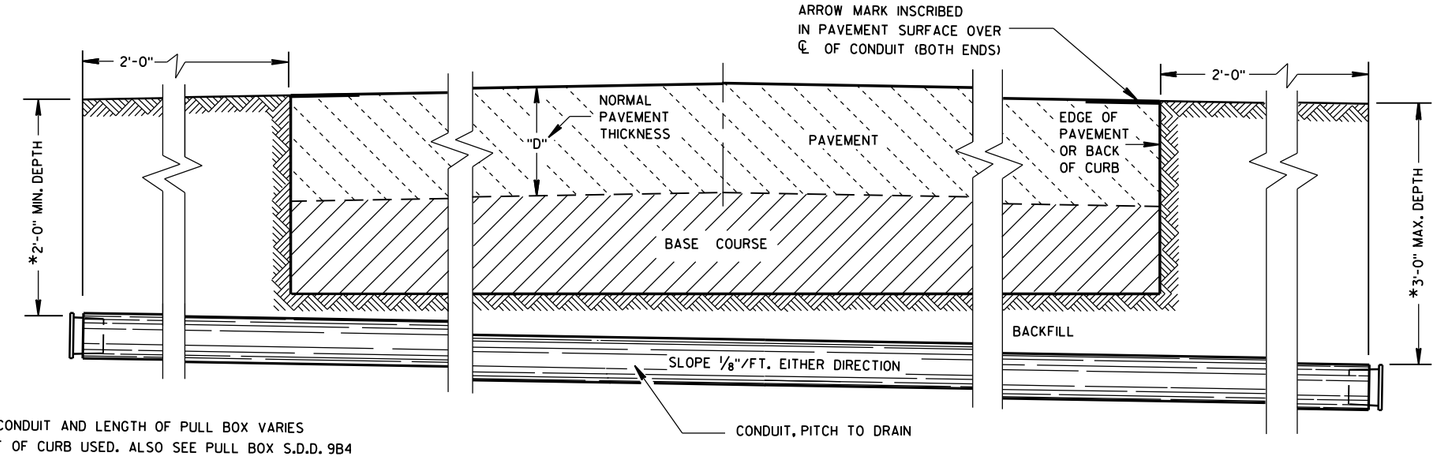
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

TRACER WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION

DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

6

S.D.D. 9 B 2-9

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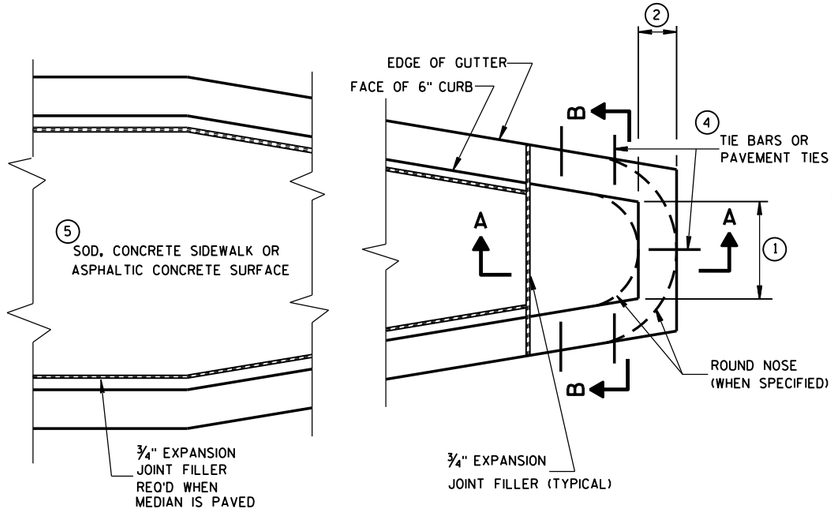
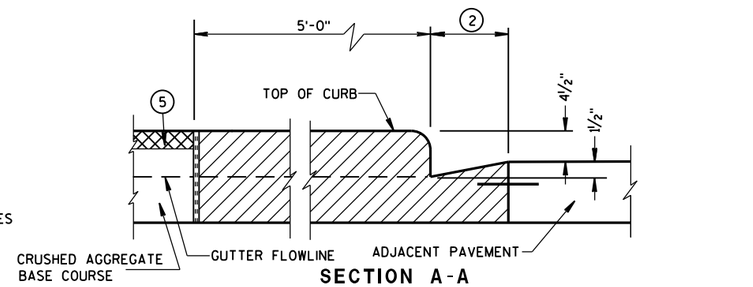
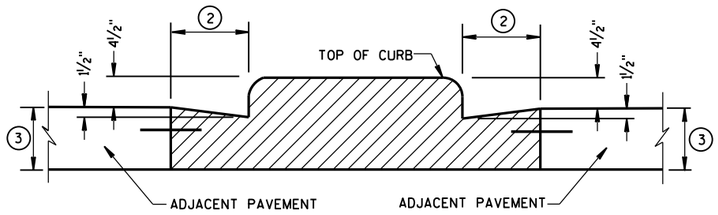
S.D.D. 9 B 2-9







CONCRETE MEDIAN BLUNT NOSE 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.

(1) SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).

(2) WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.

(3) DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:

(1) NEW OR EXISTING CONCRETE PAVEMENT.

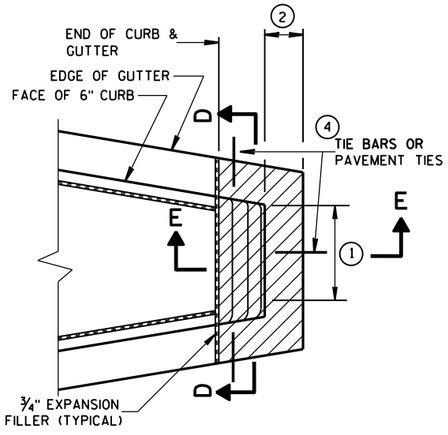
(2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.

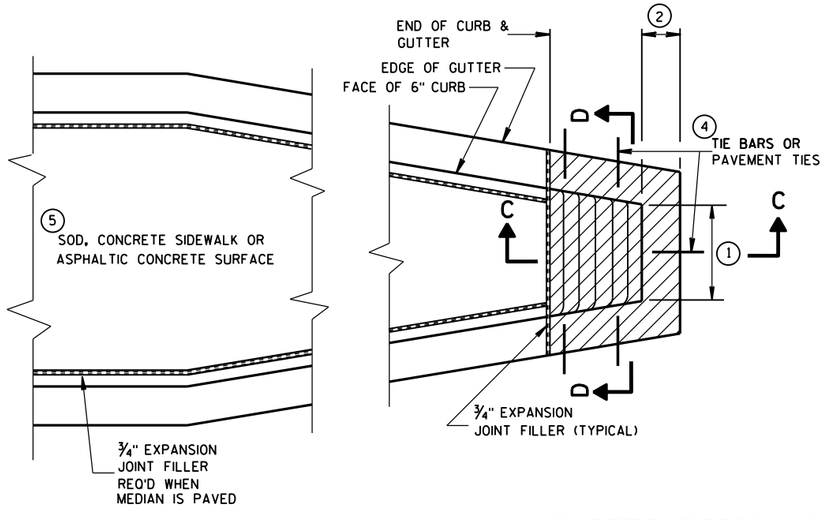
(3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

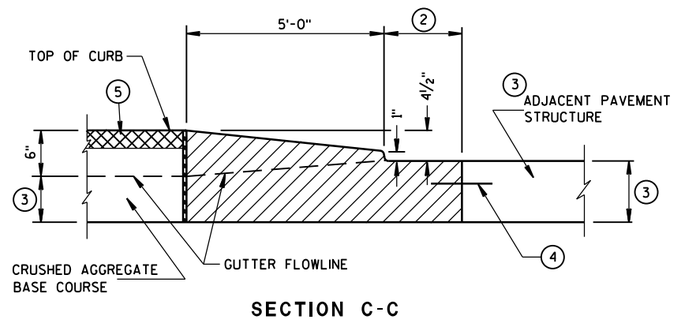
(4) TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

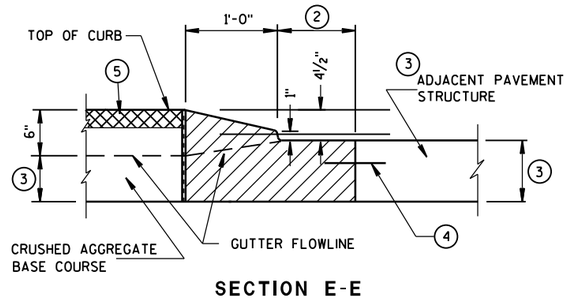
PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

(5) SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



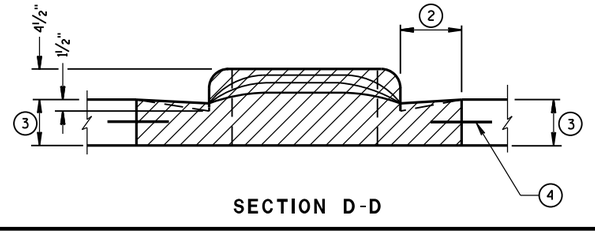






CONCRETE MEDIAN SLOPED NOSE TYPE 2

CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/8/2006
DATE

/S/ Jerry H. Zoga
ROADWAY STANDARDS D ENGINEER

FHWA

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S.D.D. 11 B 2-2

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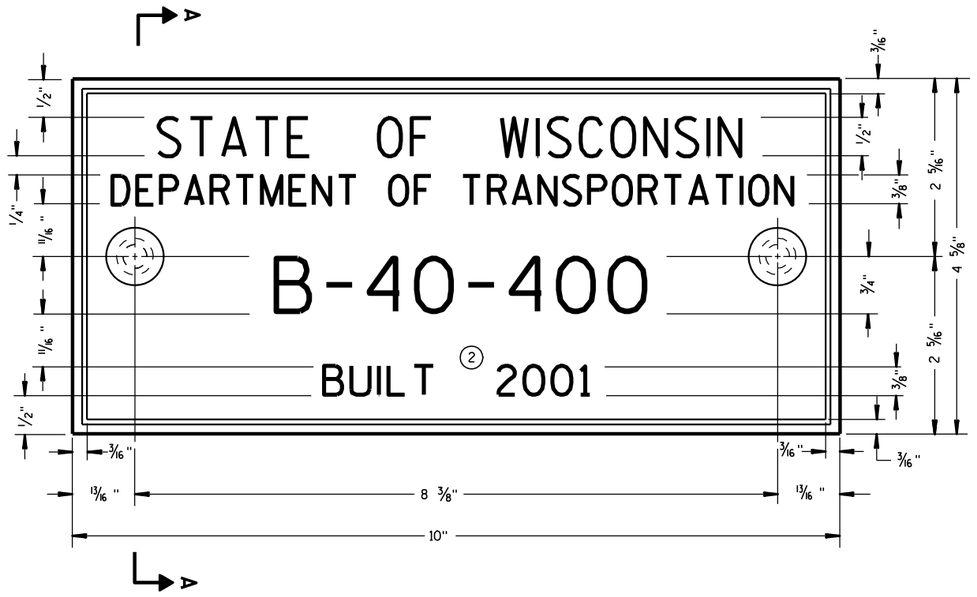
S.D.D. 11 B 2-2



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

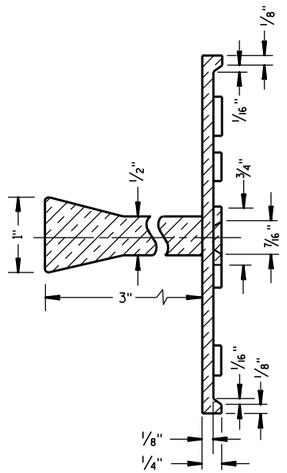
GENERAL NOTES

NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

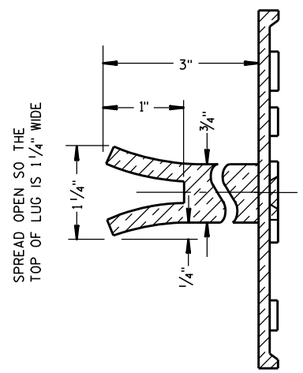
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

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



SECTION A-A



ALTERNATE LUG

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

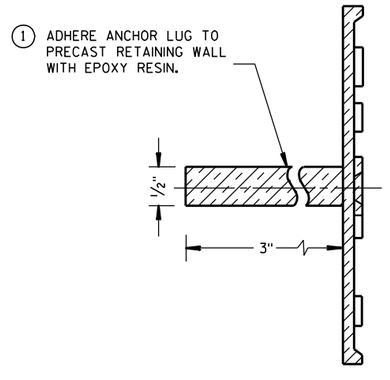
COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

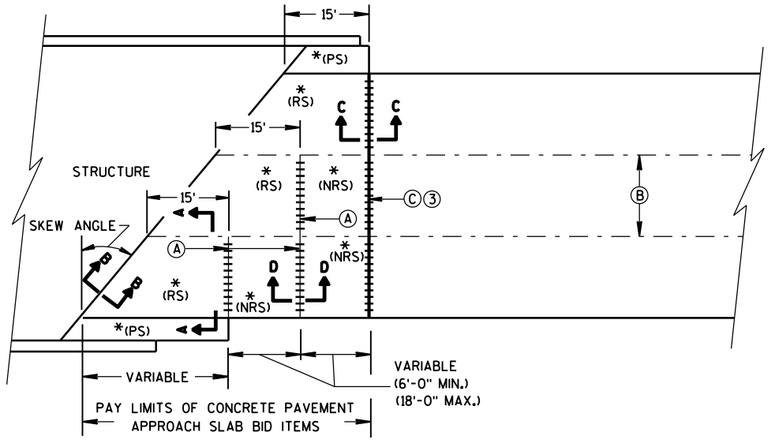
3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

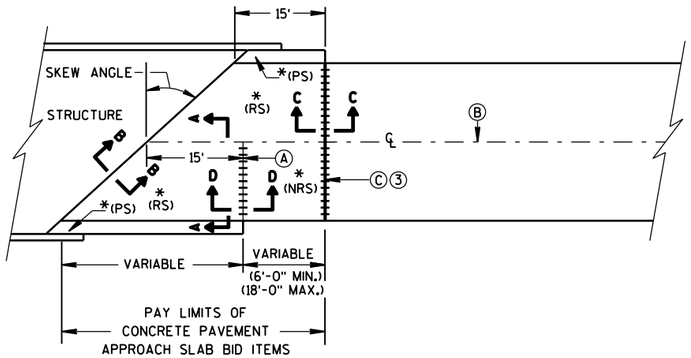
FHWA

6

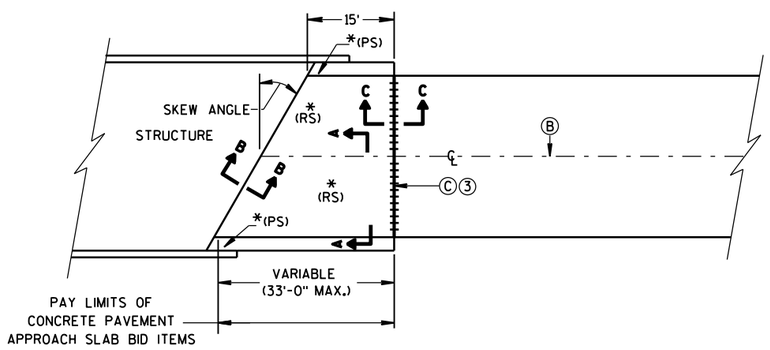
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

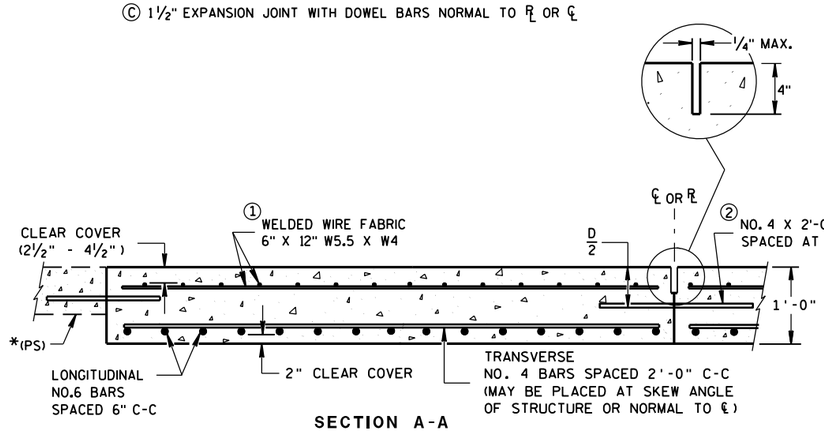
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

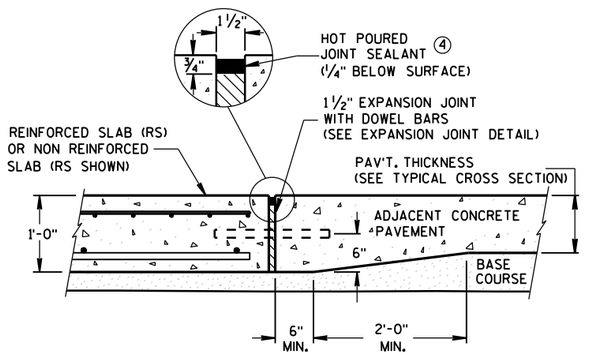
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

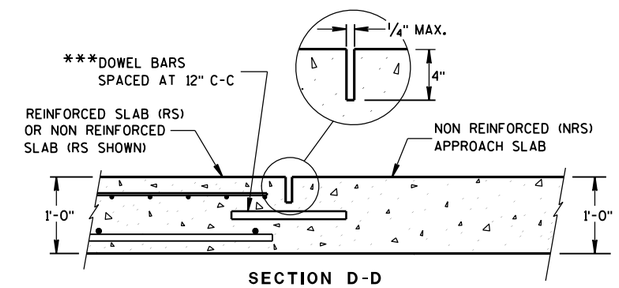
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

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

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

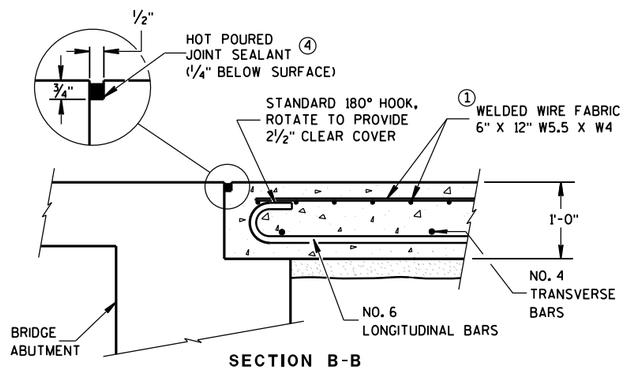
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

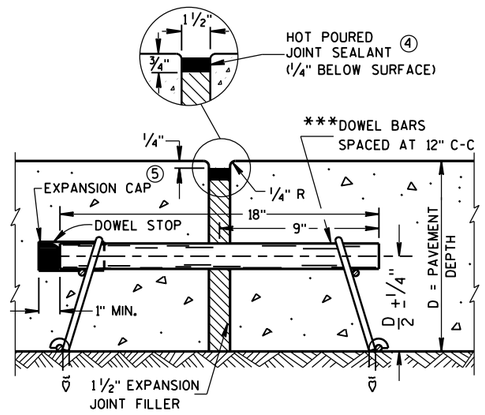
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPER
FHWA

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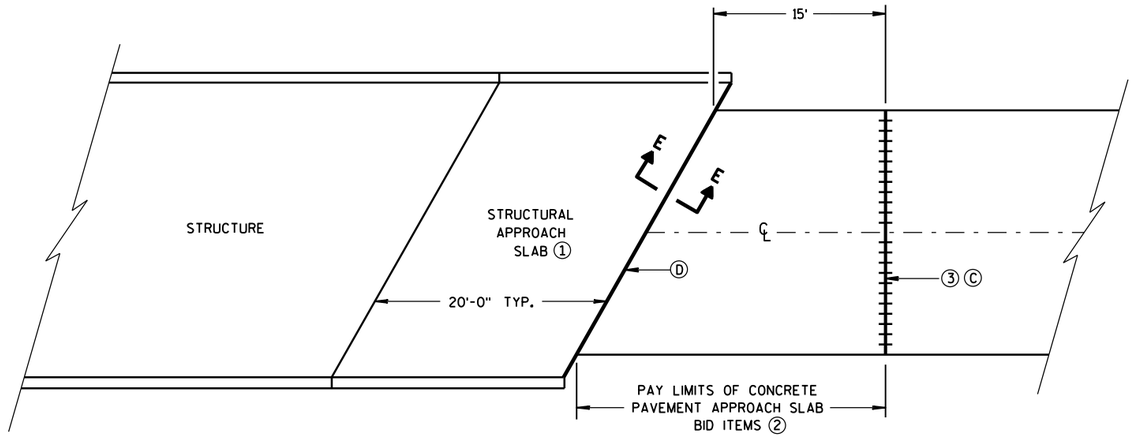
S.D.D. 13 B 2-8a



GENERAL NOTES

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

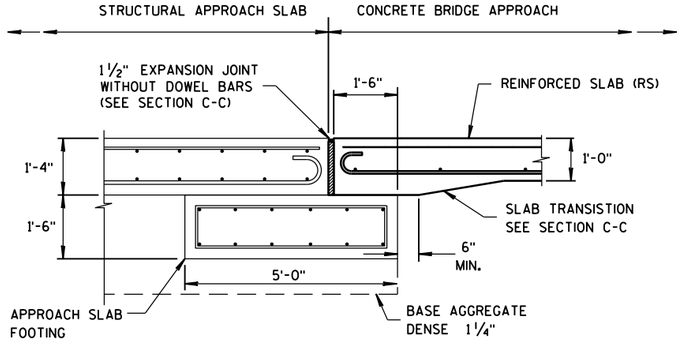
① SEE BRIDGE PLAN.

② CONFORM TO SHEET 13 B 2(A) FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS.

③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

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

Ⓓ 1½" EXPANSION JOINT (NO DOWELS)



SECTION E-E

FOOTING DETAIL

STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015
DATE

/S/ Peter Kemp, P.E.
PAVEMENT SUPERV

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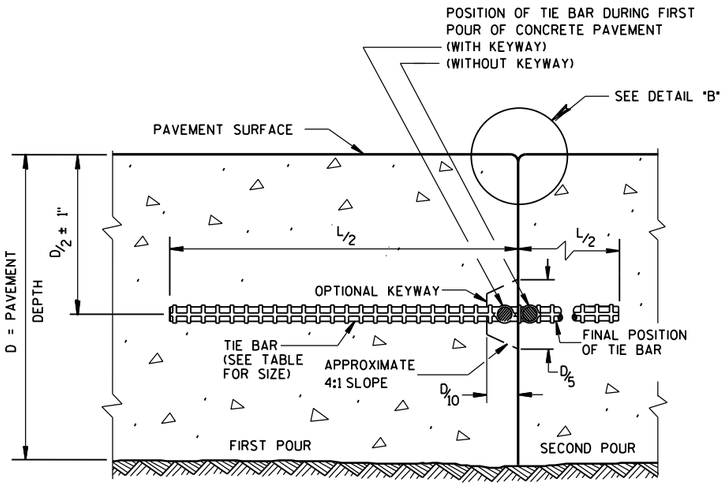
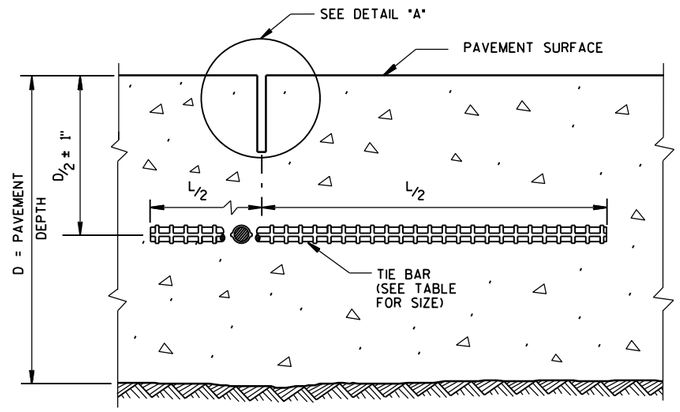
S.D.D. 13 B 2-8b



CONSTRUCTION JOINT



SAWED JOINT

GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

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

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

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

(2) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

PLAN VIEW

SECTION A-A

LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT

DETAIL "A"

DETAIL "B"

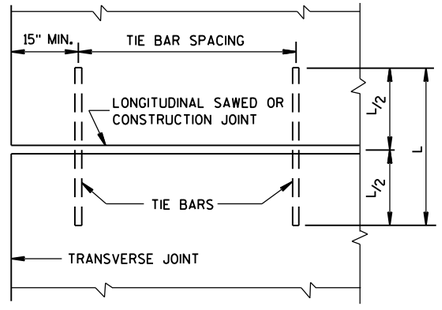
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPER
FHWA

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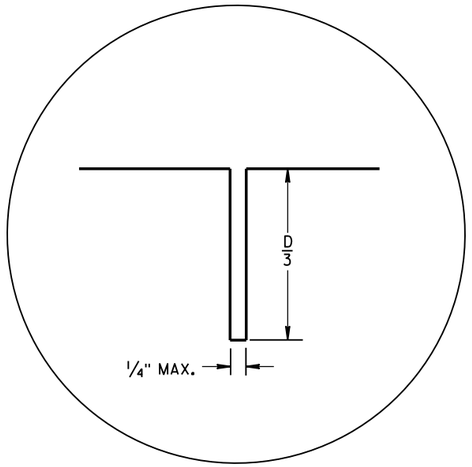
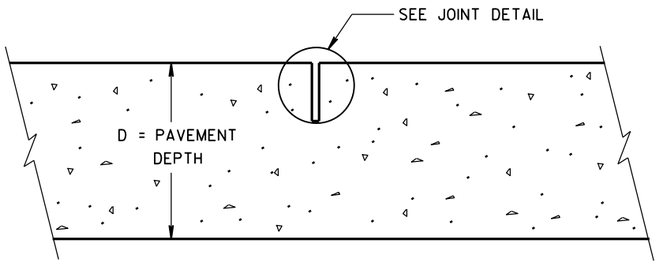
S.D.D. 13 C 1-18



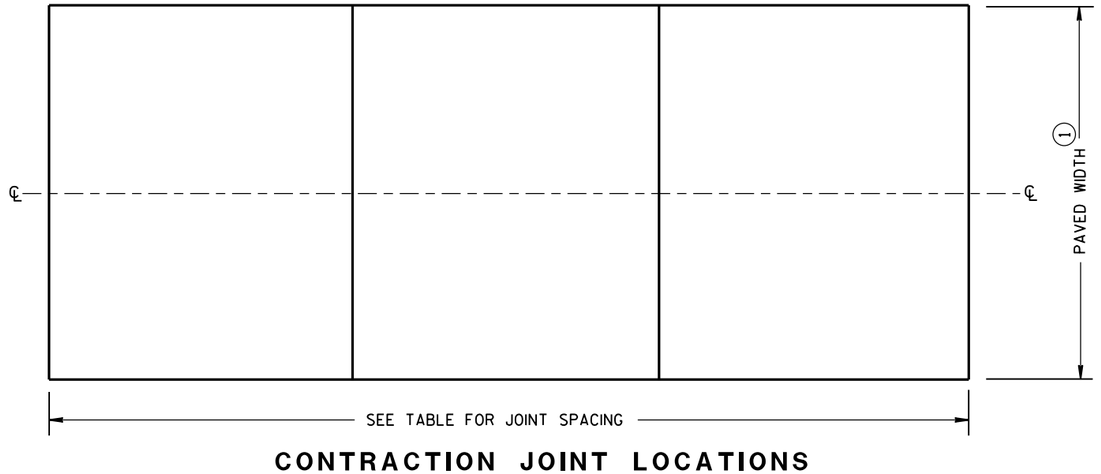
JOINT DETAIL



CONTRACTION JOINT

PAVEMENT DEPTH AND JOINT SPACING TABLE

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



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE.

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

DO NOT SEAL OR FILL CONTRACTION JOINTS.

CONSTRUCTION JOINTS

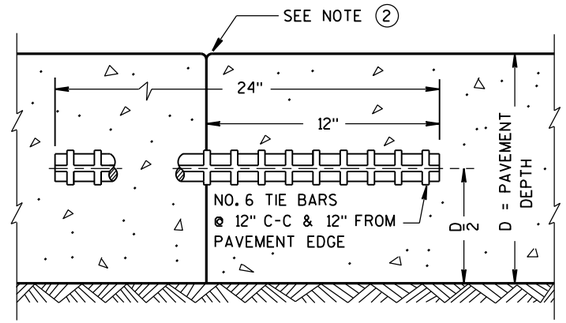
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

FORM OR SAW CONSTRUCTION JOINTS.

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

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

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



TIED TRANSVERSE CONSTRUCTION JOINT

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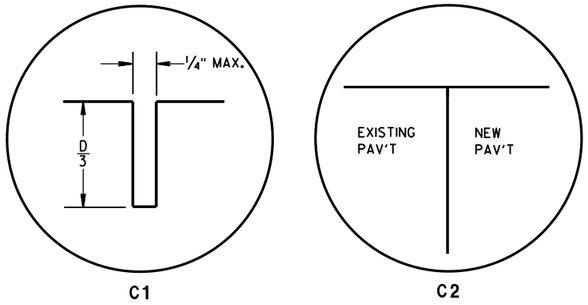
S.D.D. 13 C 4-16

S.D.D. 13 C 4-16

URBAN NON-DOWELED CONCRETE PAVEMENT

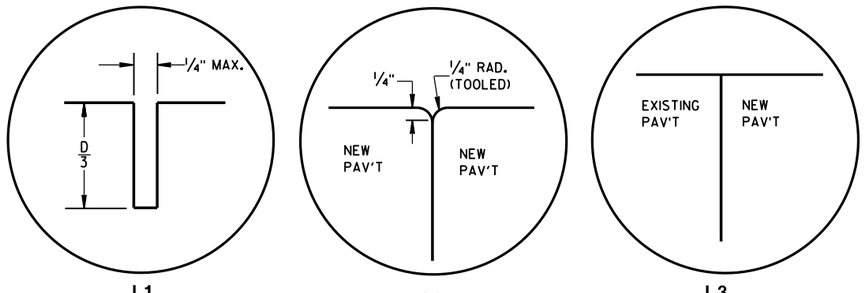
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-3-2013 DATE
/S/ Deb Bischoff PAVEMENT POLICY & DE
IEER
FHWA



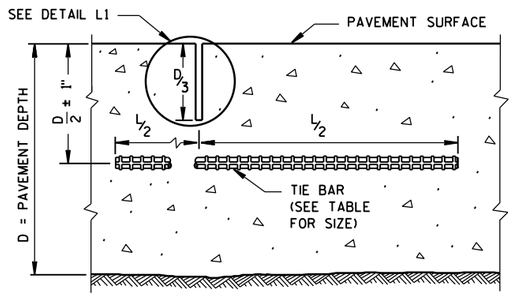
C1 C2

TRANSVERSE JOINTS



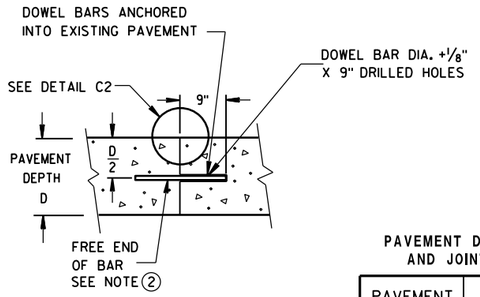
L1 L2 L3

LONGITUDINAL JOINTS



SECTION C-C

SAWED JOINT



SECTION D-D

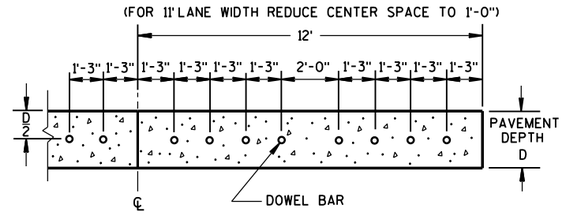
GENERAL NOTES

ANCHOR TIE BARS AND DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

(1) INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

(2) APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



SECTION E-E

SPACING OF DOWEL BARS ANCHORED INTO EXISTING PAVEMENT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

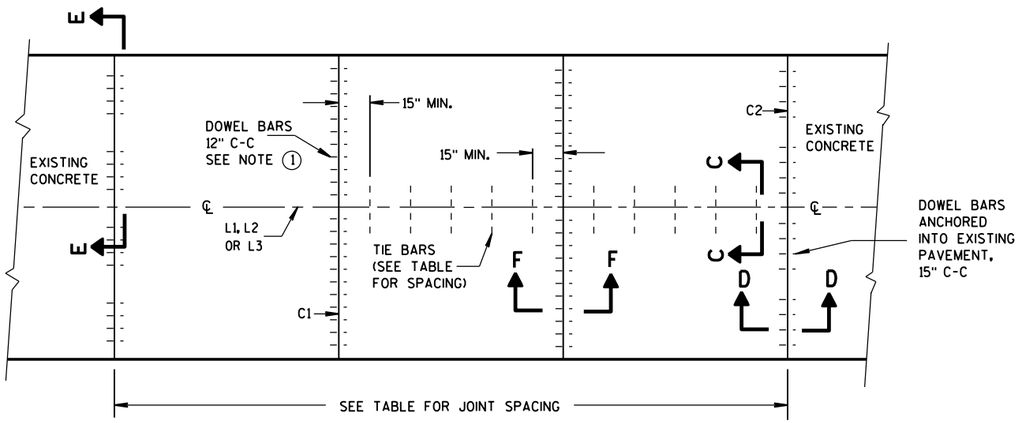
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5½", 6, 6 ½"	NONE	12'
7, 7 ½"	1"	14'
8, 8 ½"	1 ¼"	15'
9, 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

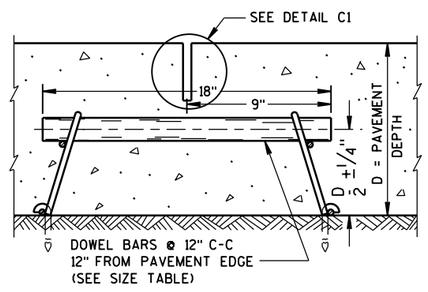
* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



PLAN VIEW

CONCRETE BASE CONTRACTION JOINT LOCATIONS



SECTION F-F

CONTRACTION JOINT

CONCRETE BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

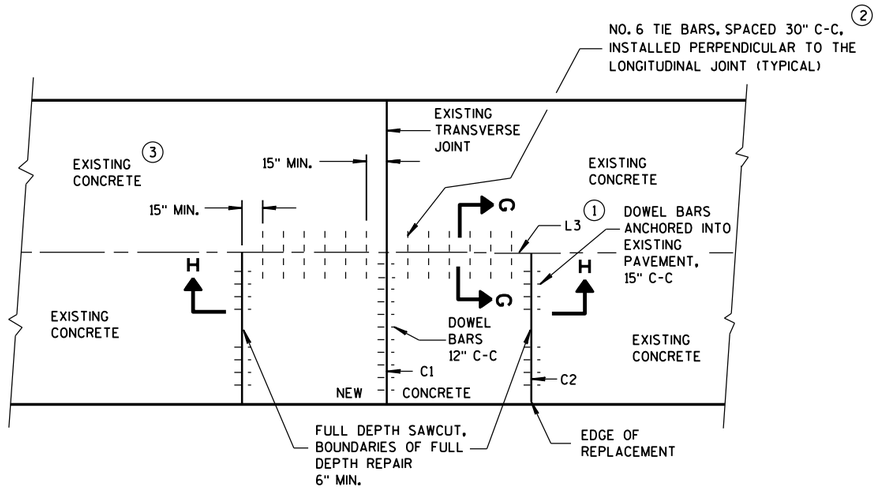
S.D.D. 13 C 15-6a

GENERAL NOTES

(1) USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) AT THE LONGITUDINAL JOINT IN LIEU OF TIE BARS FOR SINGLE LANE CONCRETE BASE REPAIRS UP TO 15 FEET IN LENGTH.

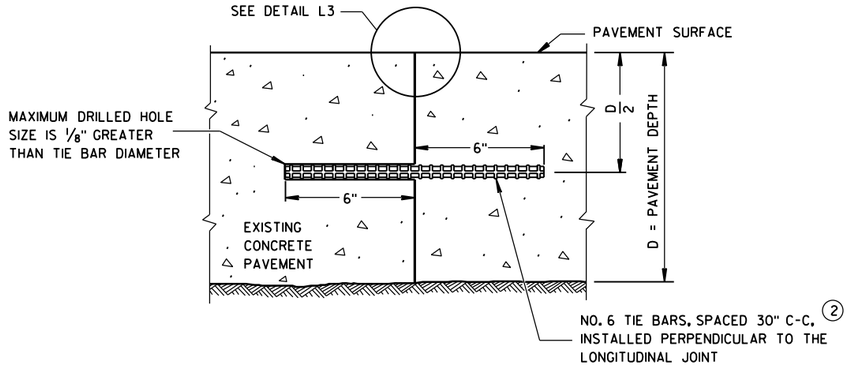
(2) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

(3) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



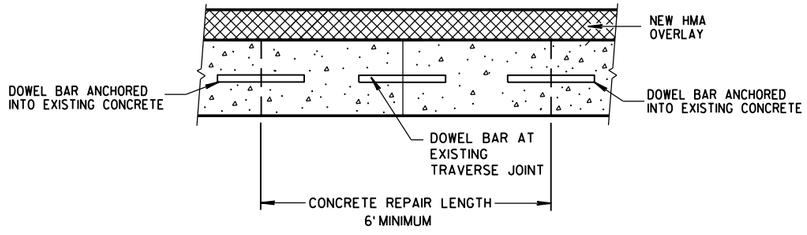
PLAN VIEW

SINGLE LANE CONCRETE BASE REPAIR



SECTION G-G

TIE BARS ANCHORED INTO EXISTING PAVEMENT



SECTION H-H

CONCRETE BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPEI
FHWA

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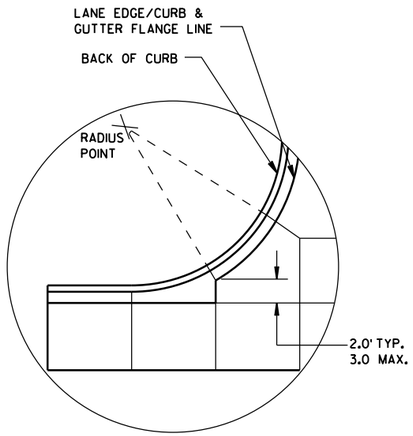
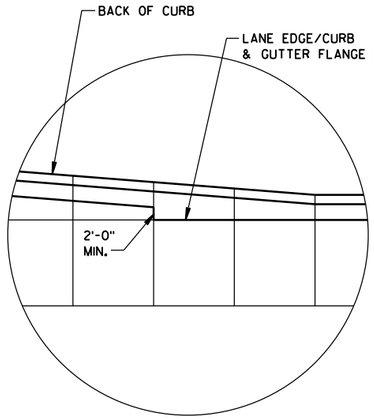
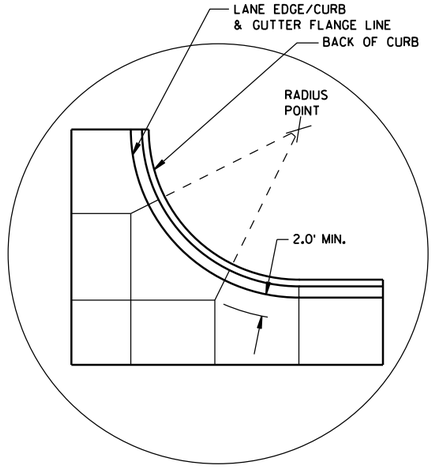
S.D.D. 13 C 15-6b



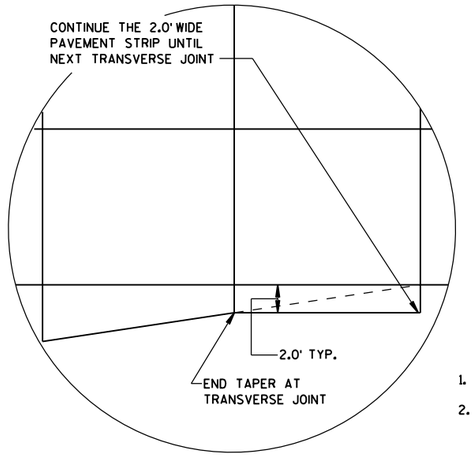
DETAIL "A"



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.

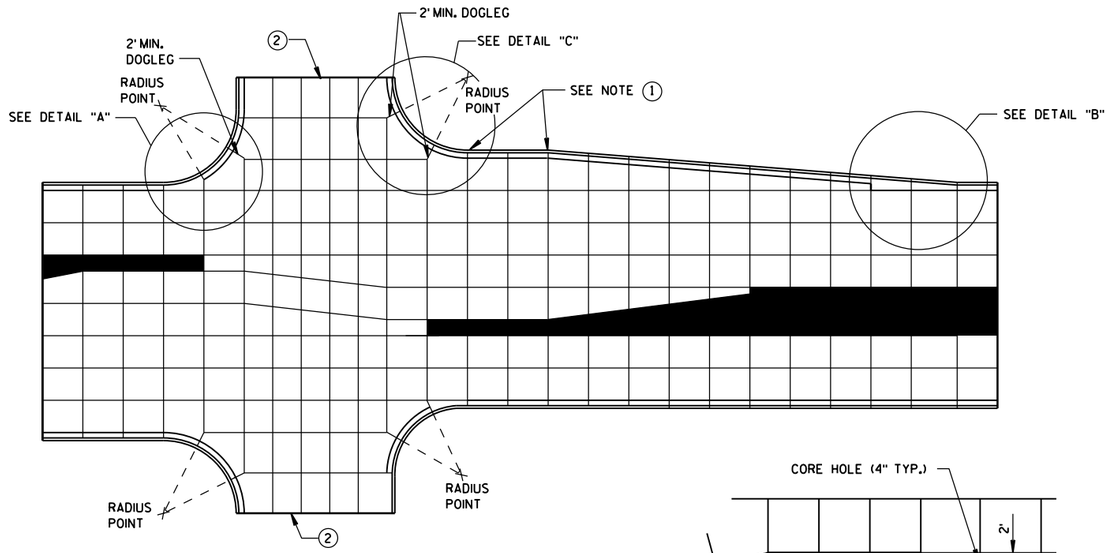
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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.

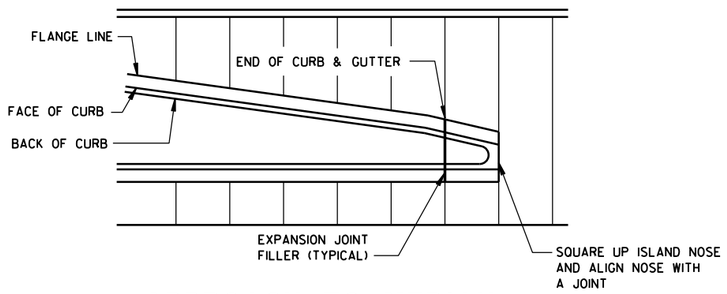
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



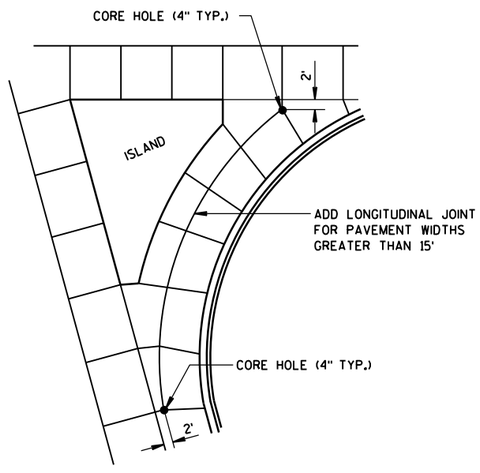
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

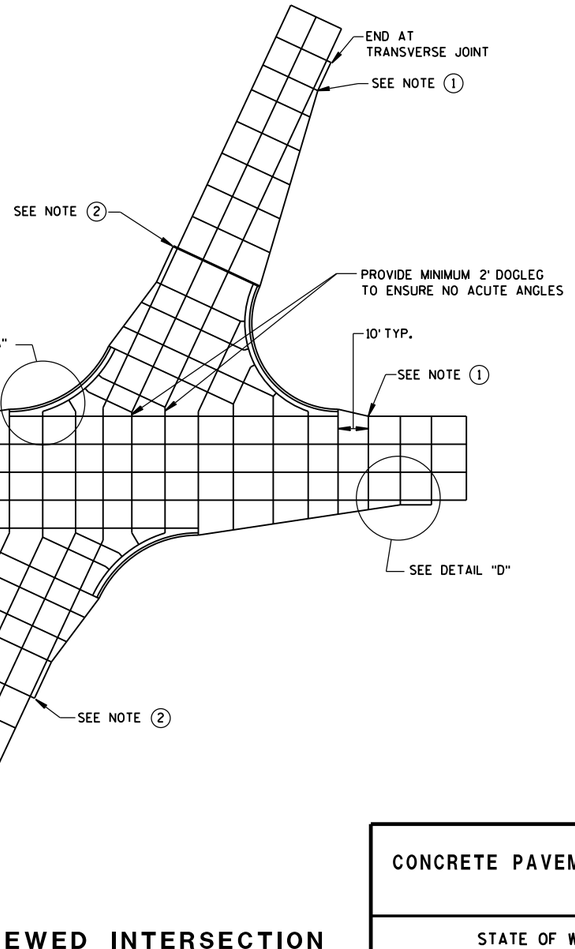
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



APPROACH TO MEDIAN



LARGE RIGHT TURN



SKEWED INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

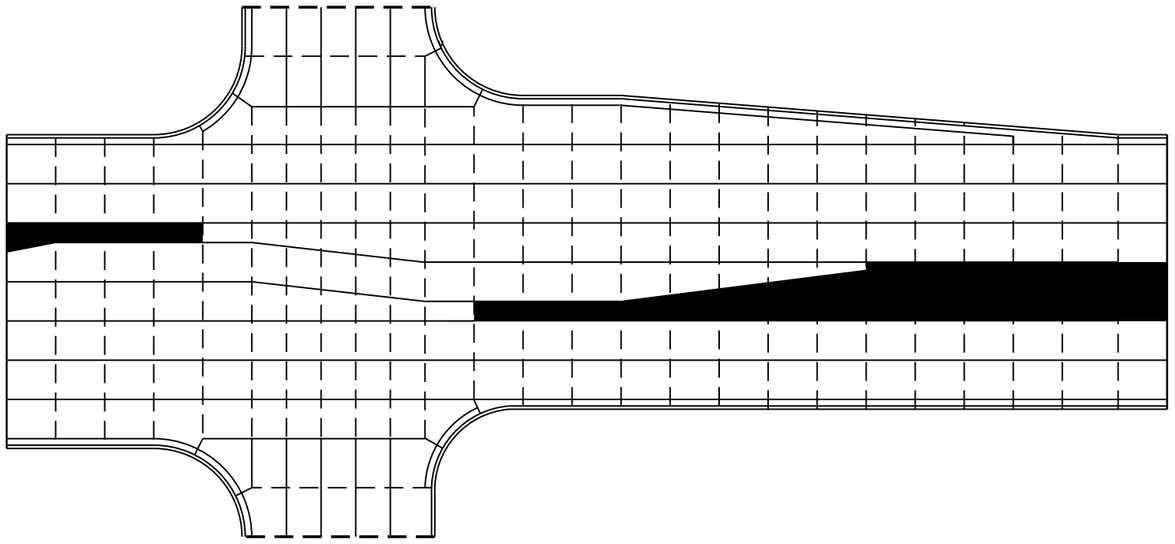
S.D.D. 13 C 18-3a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

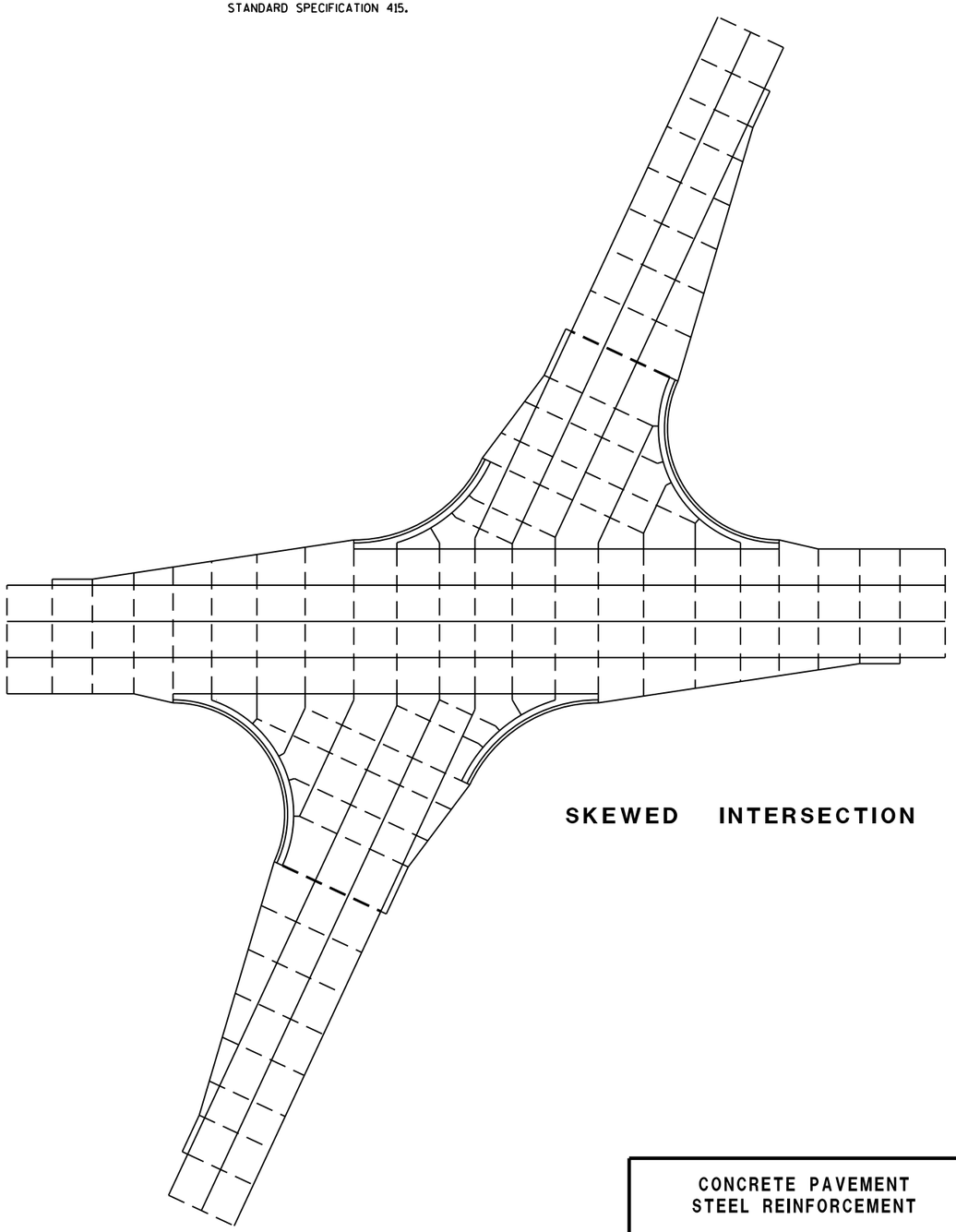
TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

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



SKEWED INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

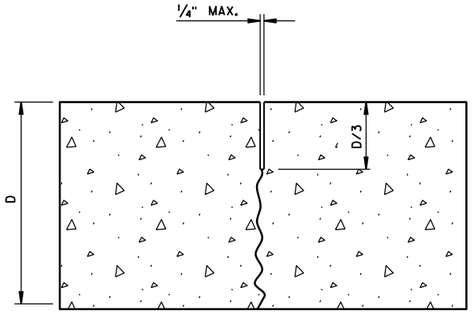
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

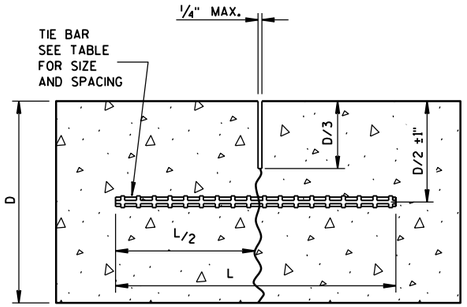
S.D.D. 13 C 18-3b

6

S.D.D. 13 C 18-3b



UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

TIE BAR TABLE

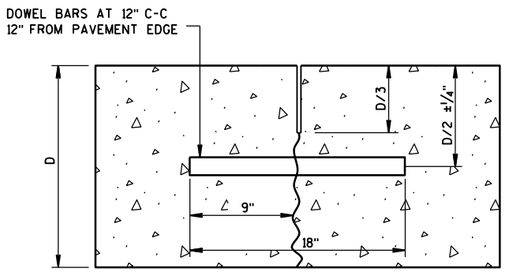
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

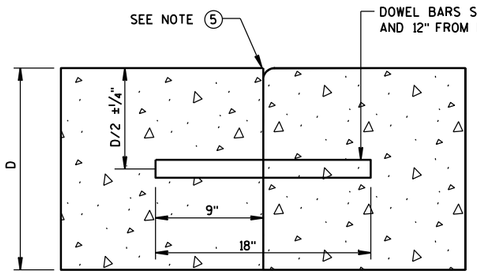
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF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



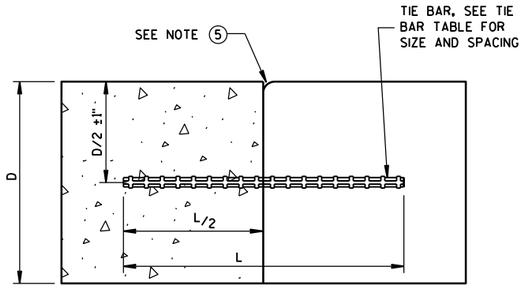
DOWELED-TRANSVERSE

CONTRACTION JOINTS

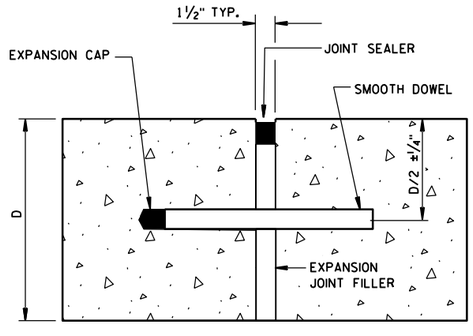
SEE NOTE (2)



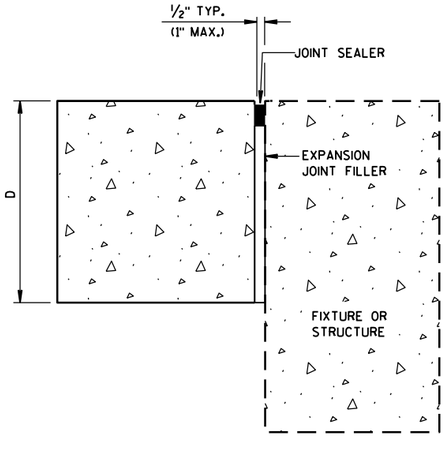
DOWELED TRANSVERSE (3)



TIED LONGITUDINAL

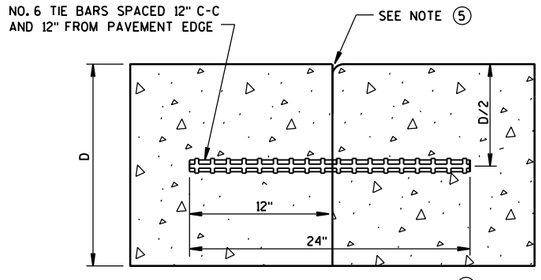


DOWELED-TRANSVERSE
SEE NOTE (1)

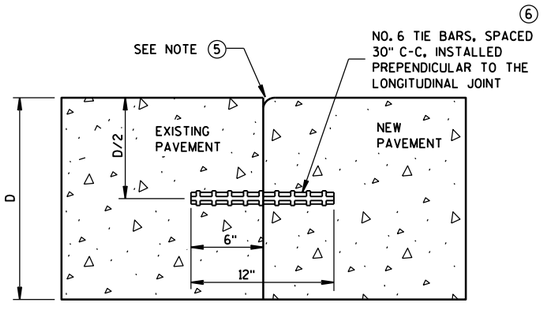


UNTIED-LONGITUDINAL

EXPANSION JOINTS



TIED TRANSVERSE (3)
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

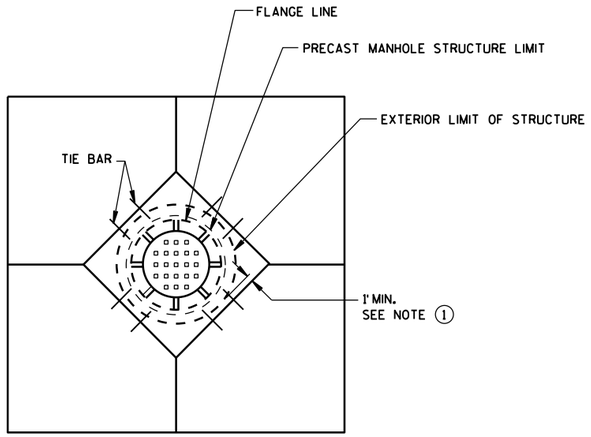
SEE NOTE (4)

CONCRETE PAVEMENT
JOINT TYPES

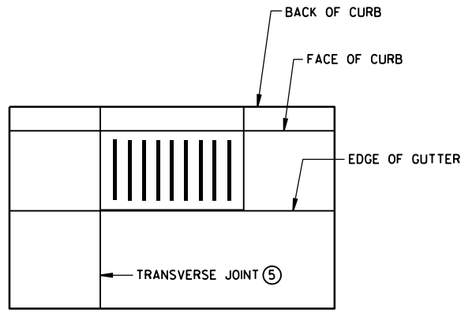
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

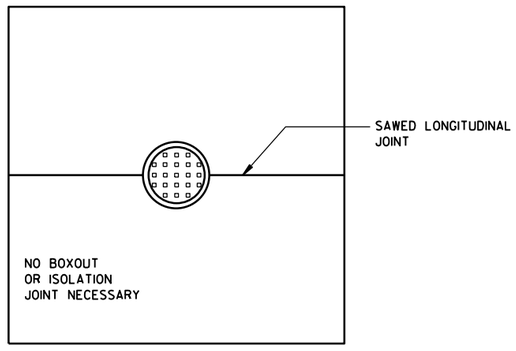
S.D.D. 13 C 18-3c



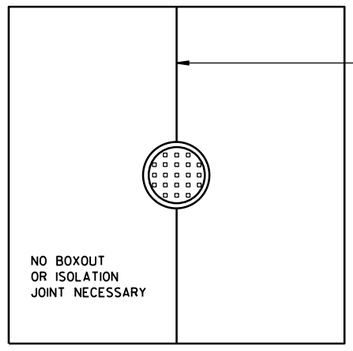
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



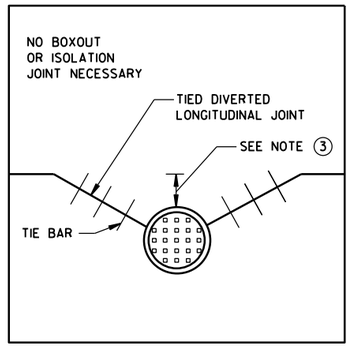
INLET WITH TRANSVERSE JOINT



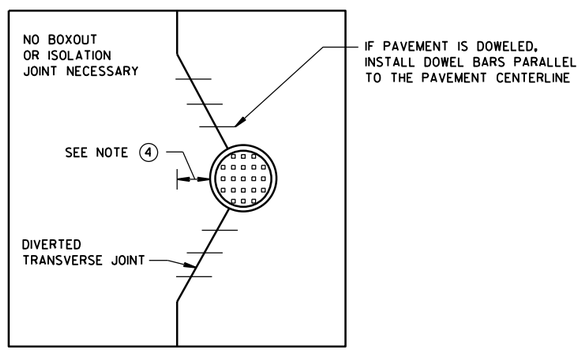
MANHOLE WITH LONGITUDINAL JOINT



MANHOLE WITH TRANSVERSE JOINT



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

GENERAL NOTES

(1) USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1-FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.

(2) ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.

(3) IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDIAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(4) IF DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(5) ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.

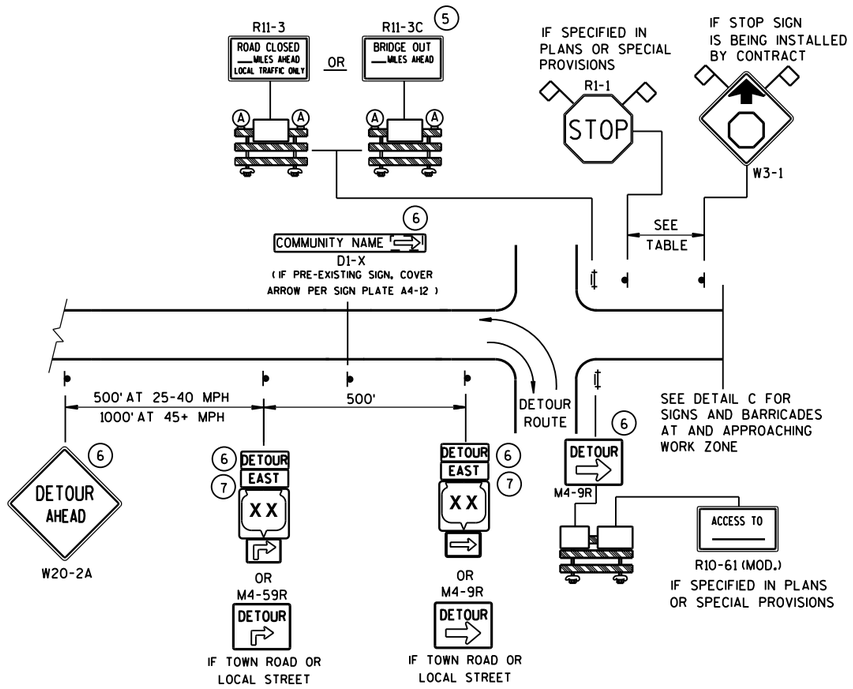
CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPER
FHWA

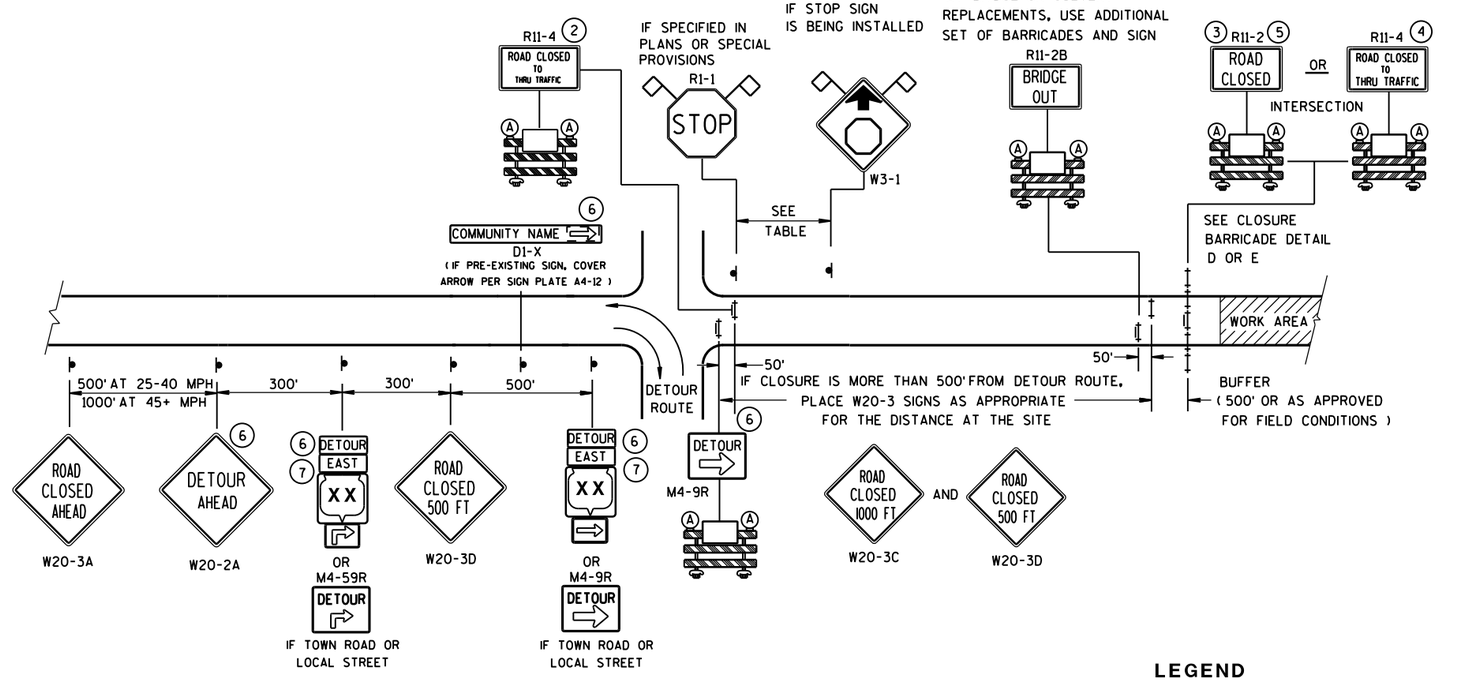
6

S.D.D. 13 C 18-3d



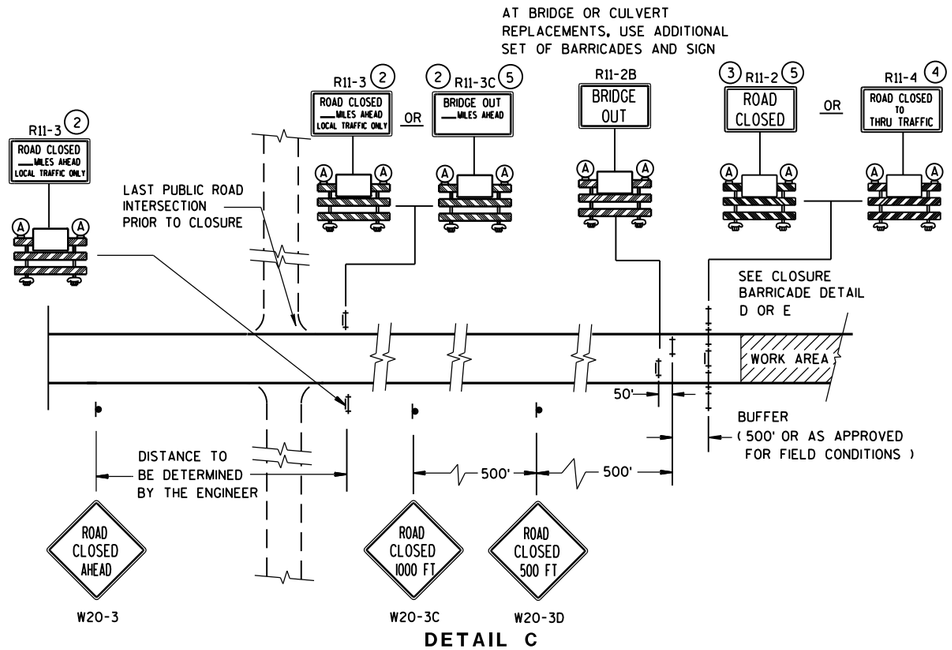
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

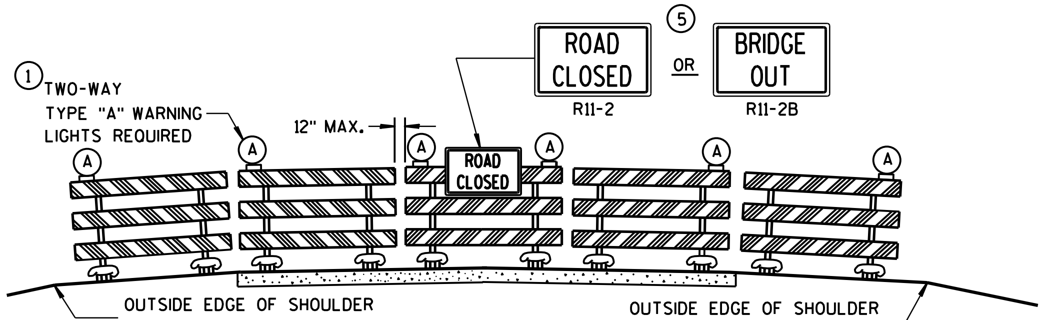
6

S.D.D. 15 C 2-6a

6

S.D.D. 15 C 2-6a

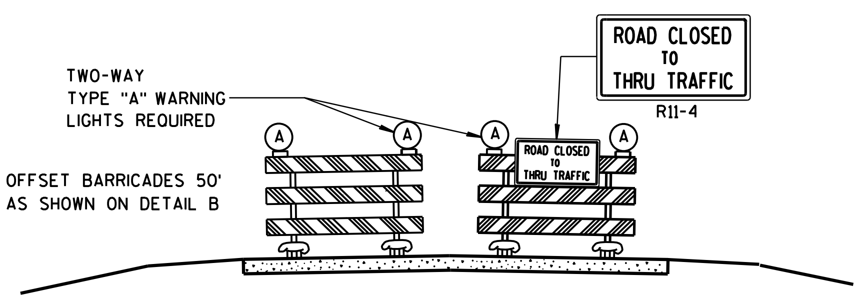
6



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

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

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

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

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

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

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

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

6

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZO[NE TRAF]FIC SAFETY ENGI[NEER]

FHWA

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

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

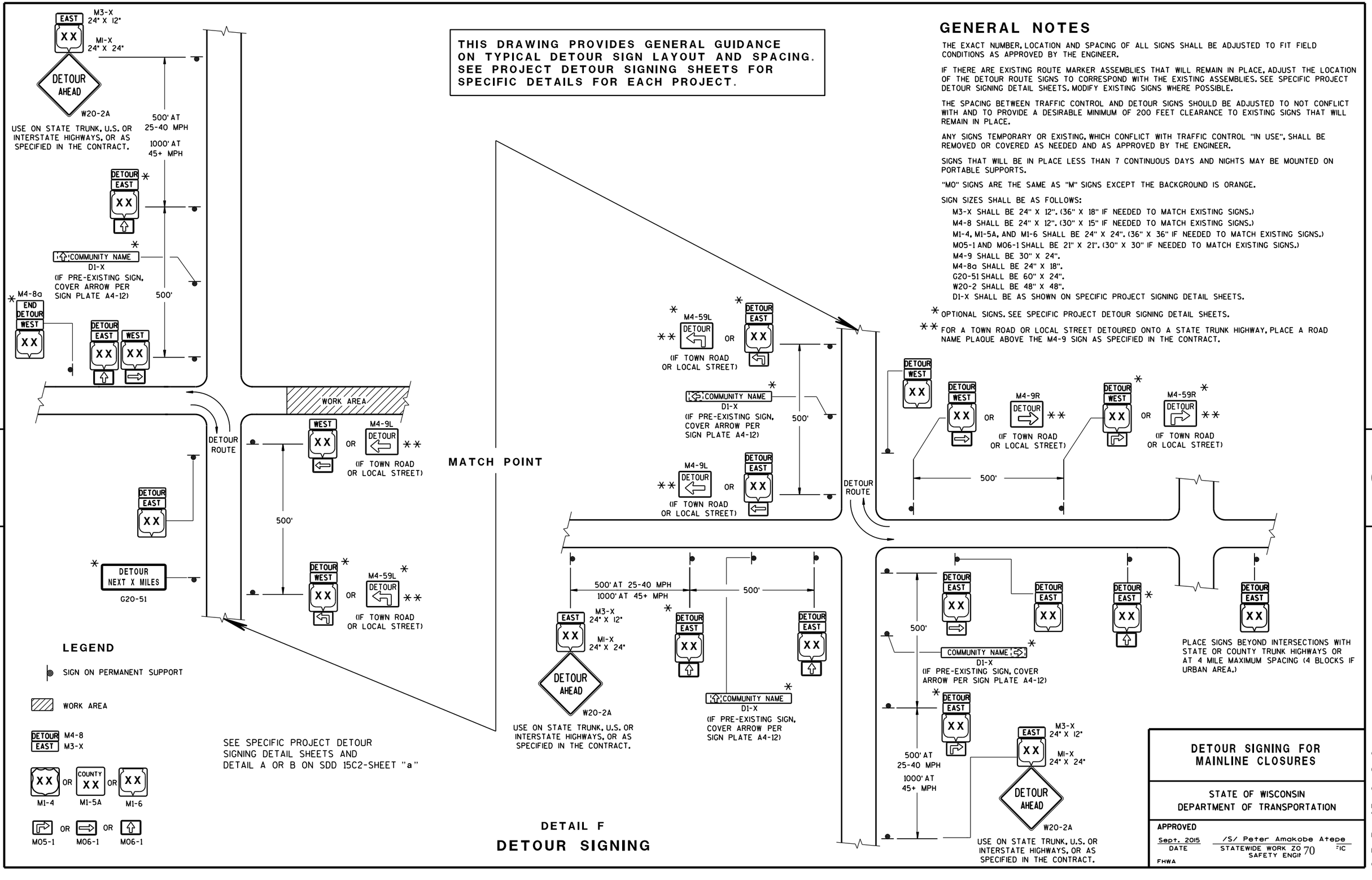
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- MO5-1 AND MO6-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



DETAIL F

DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

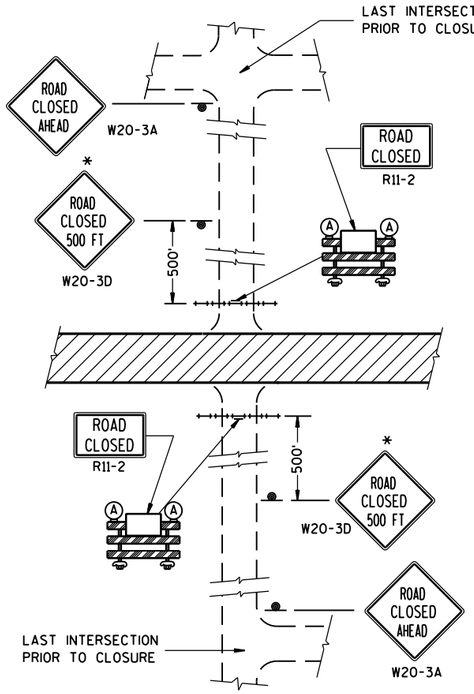
APPROVED

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZO... SAFETY ENGI... FIC

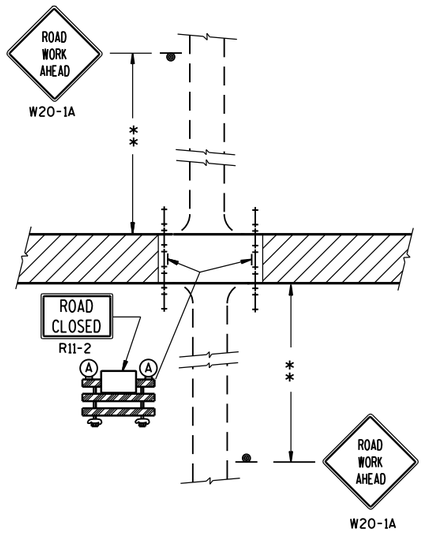
FHWA

6 S.D.D. 15 C 2-6c



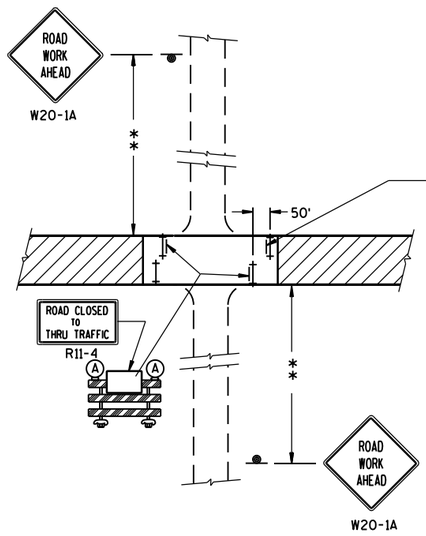
DETAIL 1

(NO ACCESS TO PROJECT)



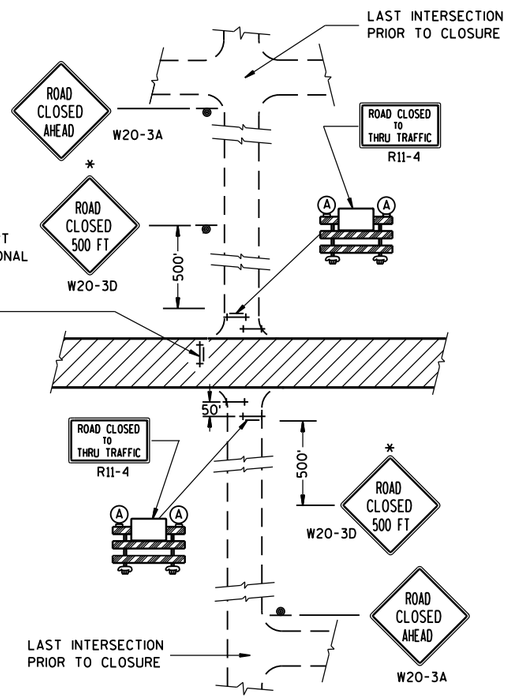
DETAIL 2

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



DETAIL 3

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



DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO... SAFETY ENGI... — FHWA

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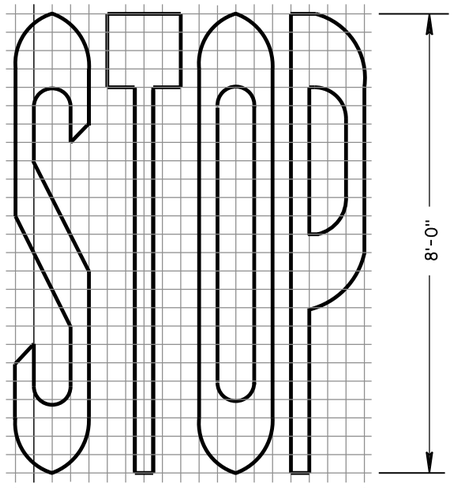
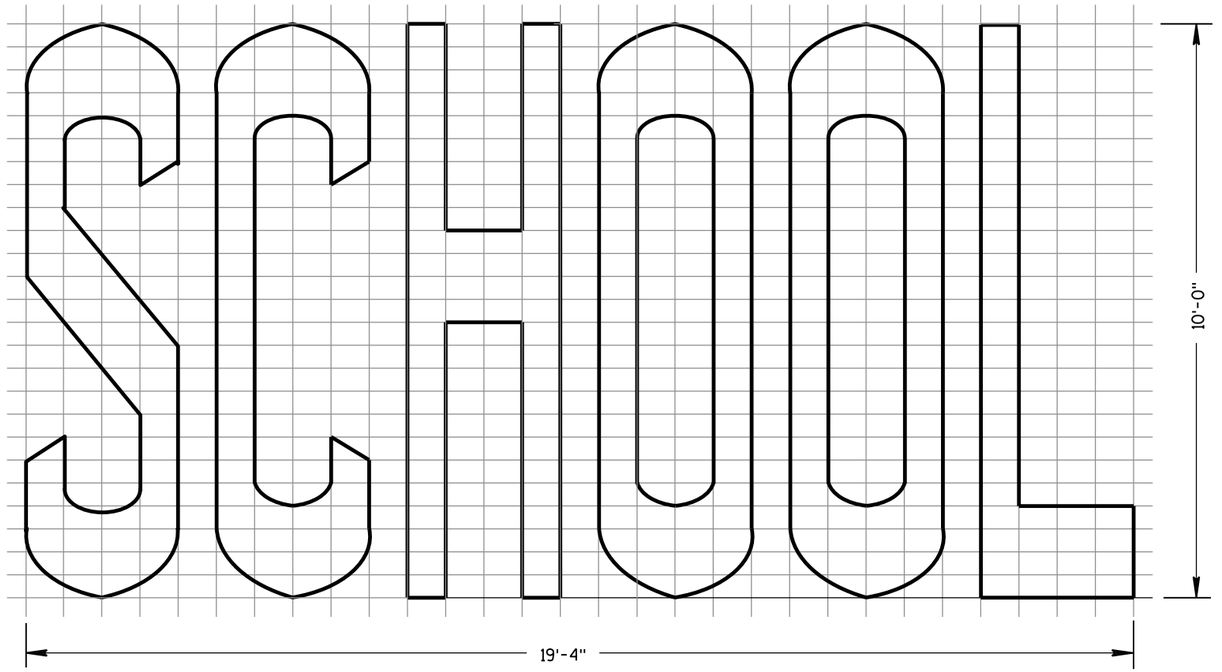
S.D.D. 15 C 3-3

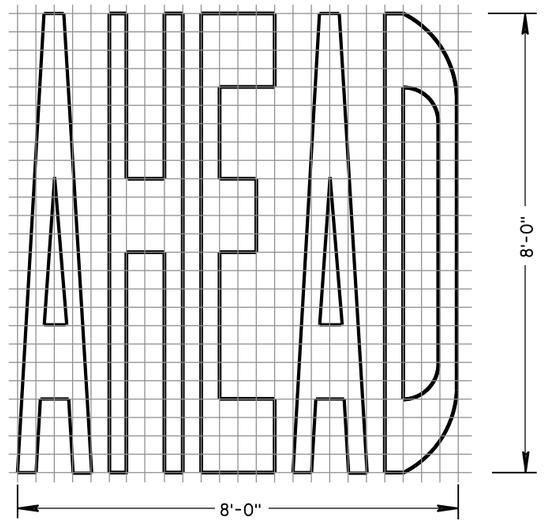
GENERAL NOTES

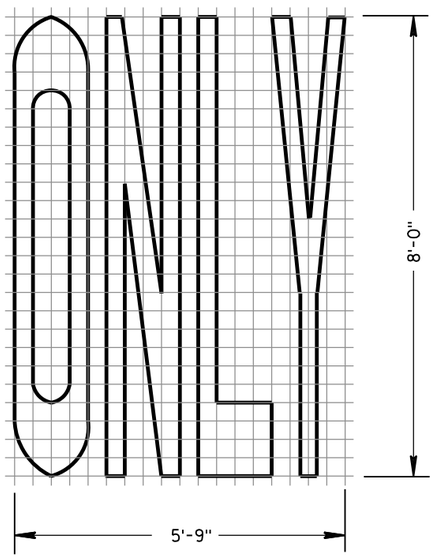
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

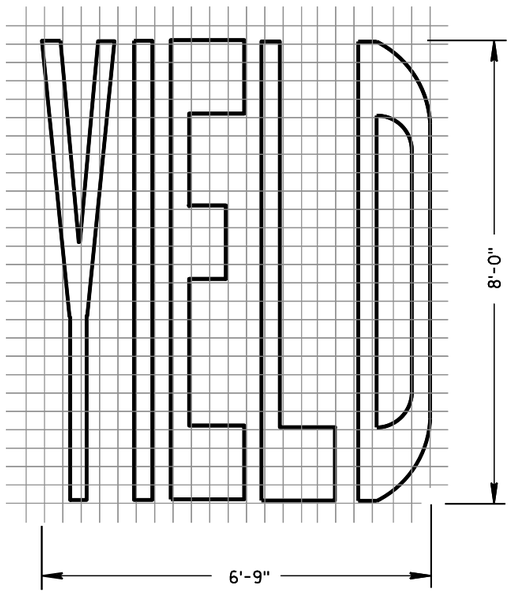


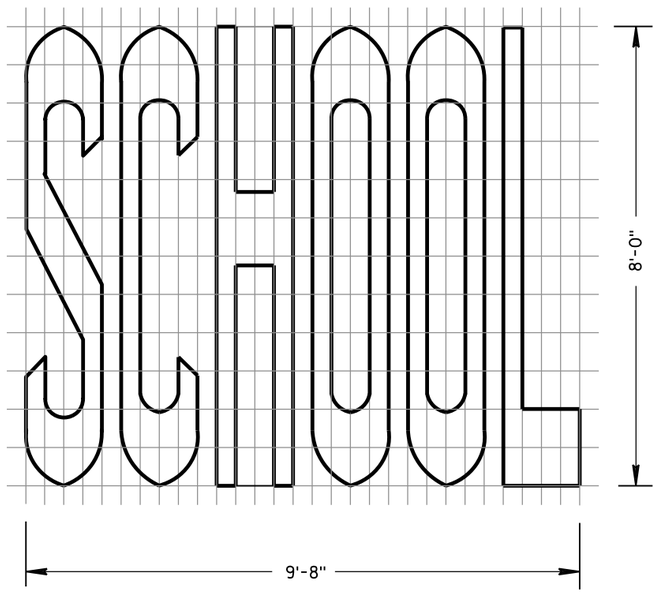


TWO-LANE









SINGLE-LANE

PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-18-16	/S/ Matthew R. Rauch	
DATE	STATE SIGNING AND MARK	EER

FHWA

6

S.D.D. 15 C 7-13b

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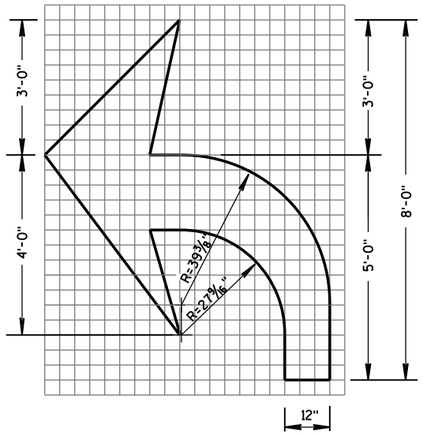
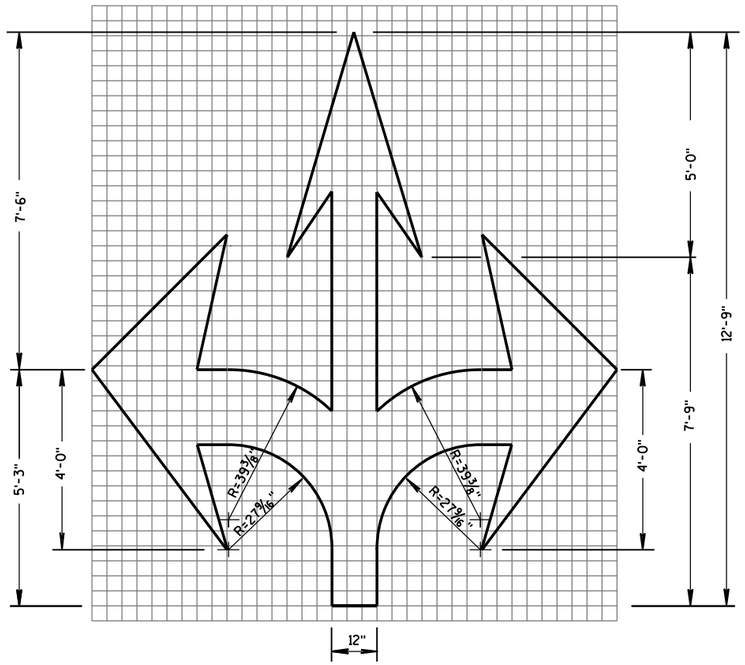
S.D.D. 15 C 7-13b

GENERAL NOTES

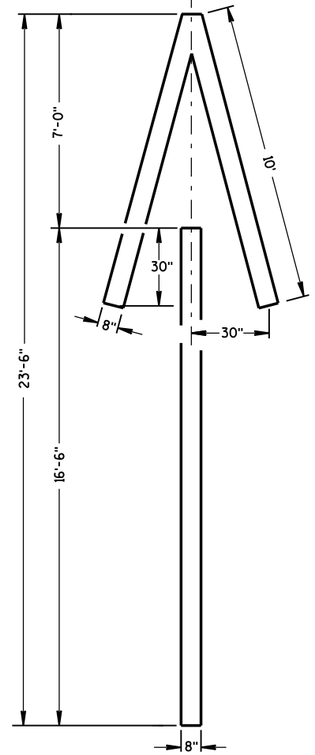
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.



TYPE 2



TYPE 6



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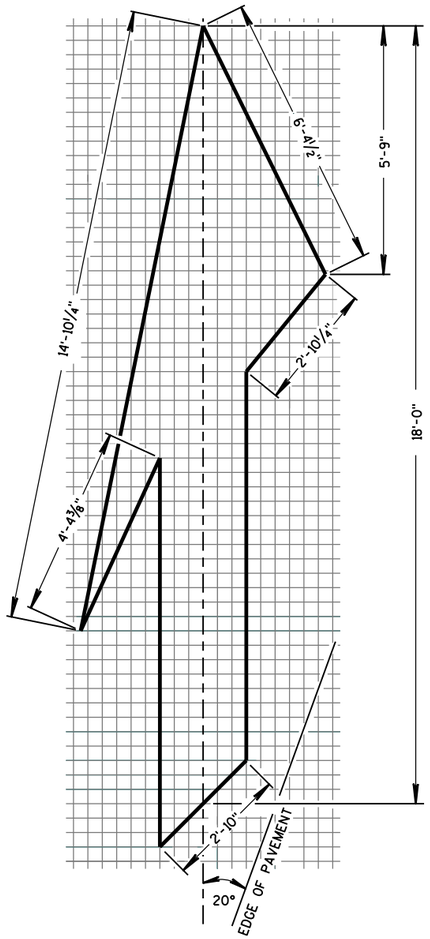
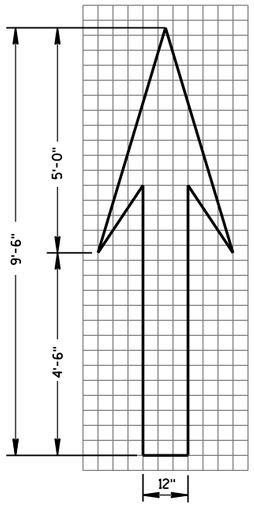
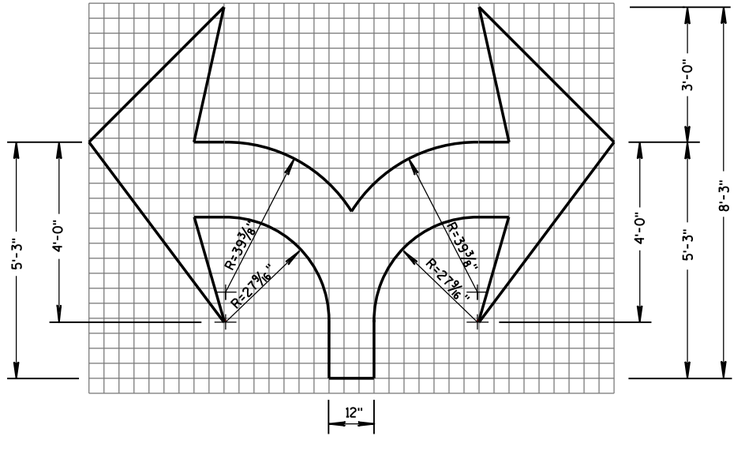


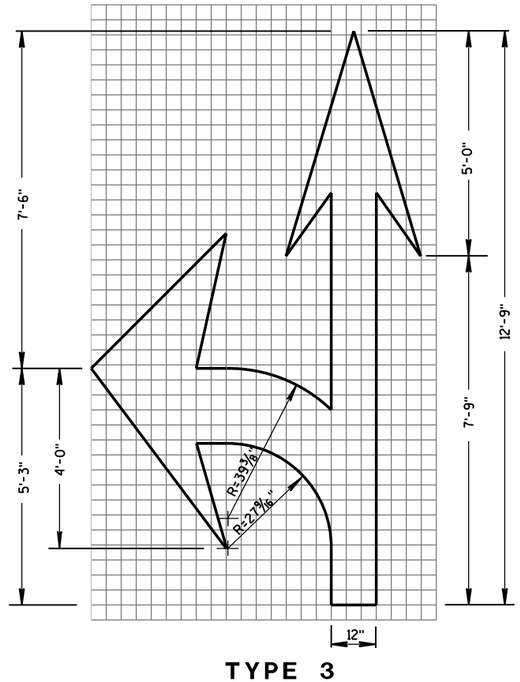
TYPE 5 LANE DROP ARROW



TYPE 1



TYPE 7



TYPE 3

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-18-16
DATE
/S/ Matthew R. Rauch
STATE SIGNING AND MAR
NEER
FHWA

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S.D.D. 15 C 7-13c

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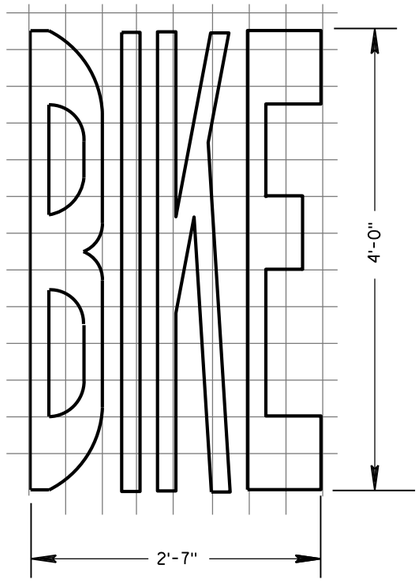
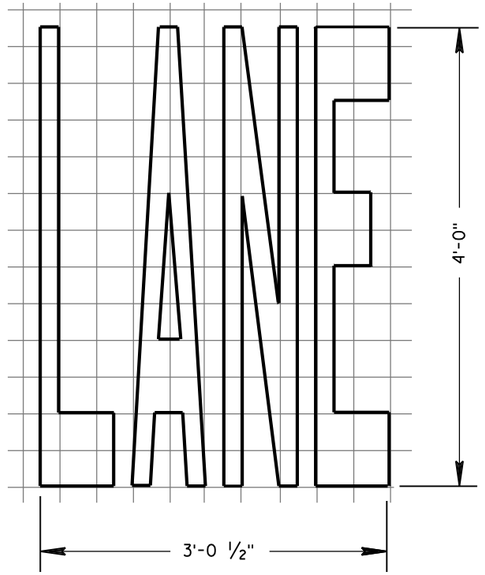
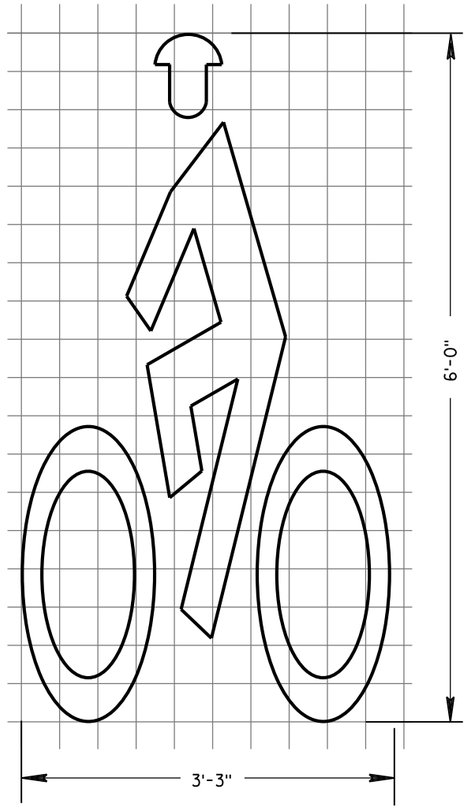
S.D.D. 15 C 7-13c

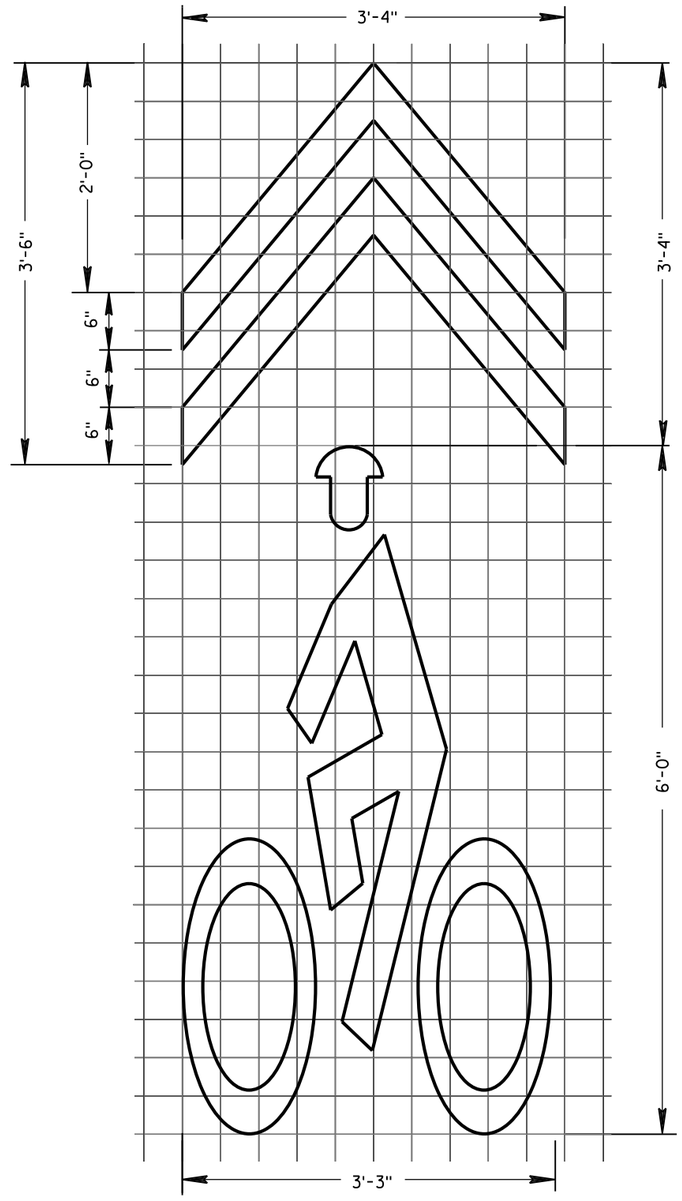




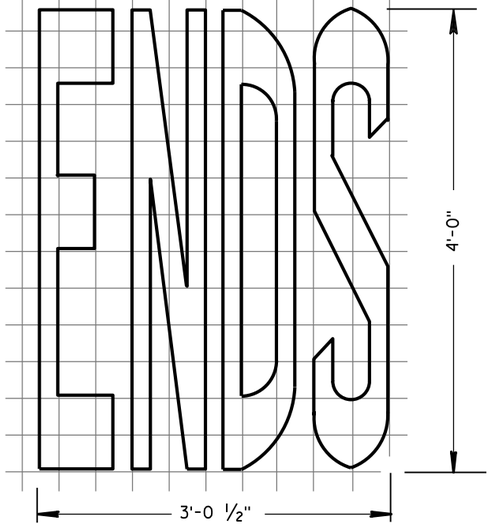
BIKE LANE WORDS



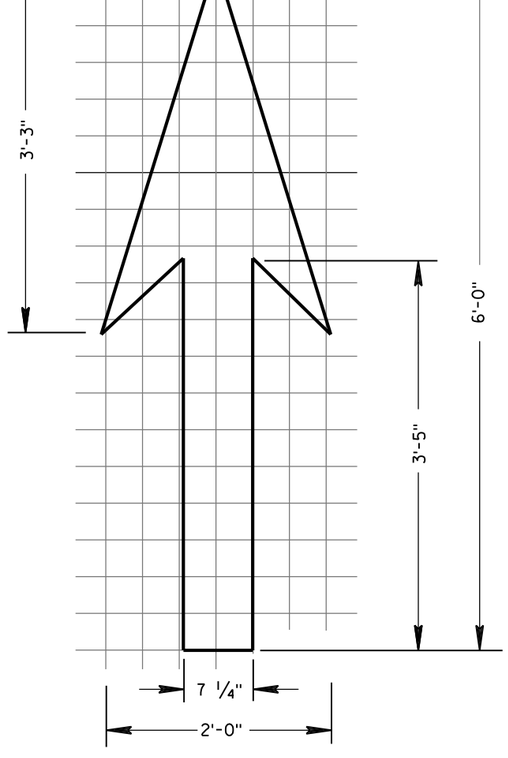
BIKE LANE SYMBOL



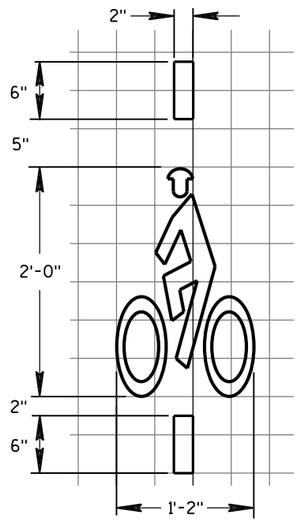
BIKE SYMBOL FOR SHARED LANE



BIKE LANE WORDS



BIKE LANE ARROW



BICYCLE DETECTOR PAVEMENT MARKING

GENERAL NOTES

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

PAVEMENT MARKING FOR BIKE LANES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-18-2016 DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MARK ENGINEER

FHWA

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S.D.D. 15 C 7-13e

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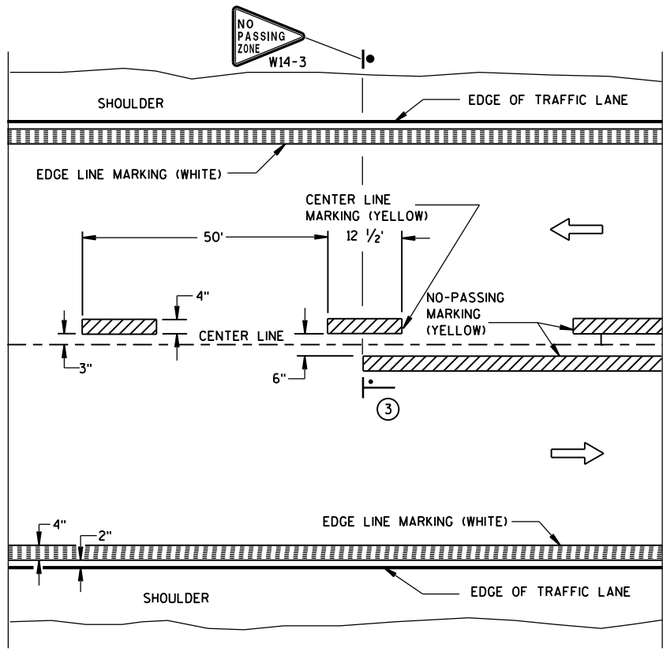
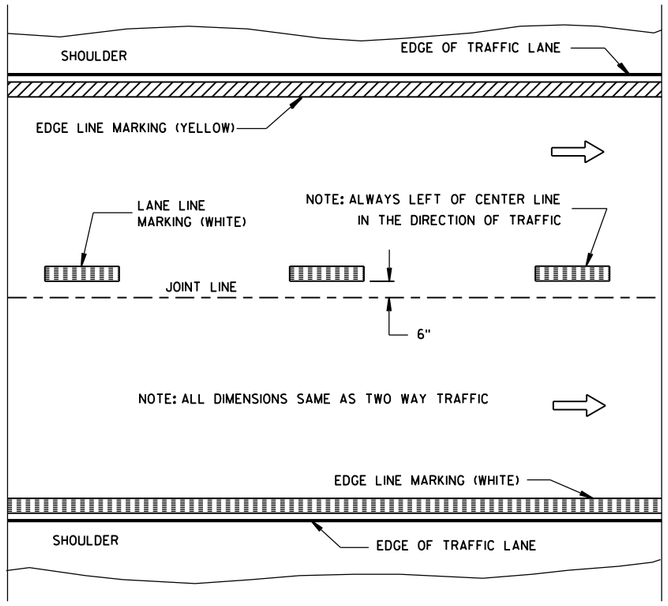
S.D.D. 15 C 7-13e

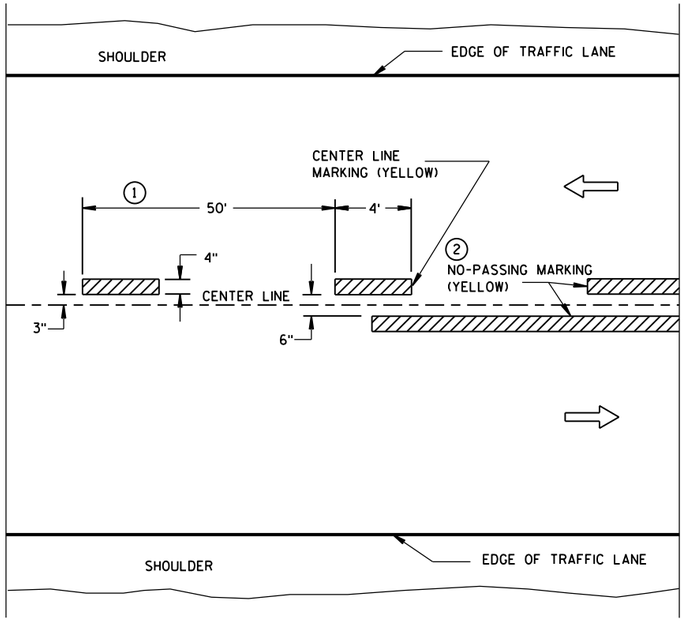


TWO WAY TRAFFIC

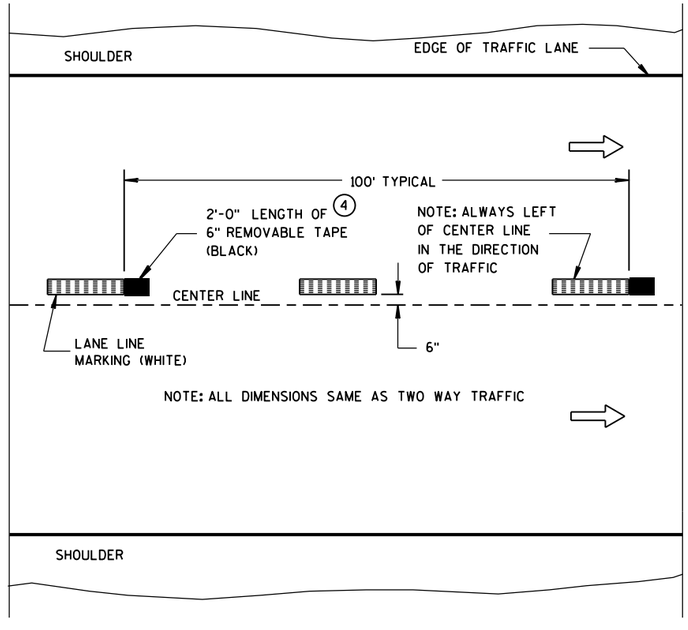


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

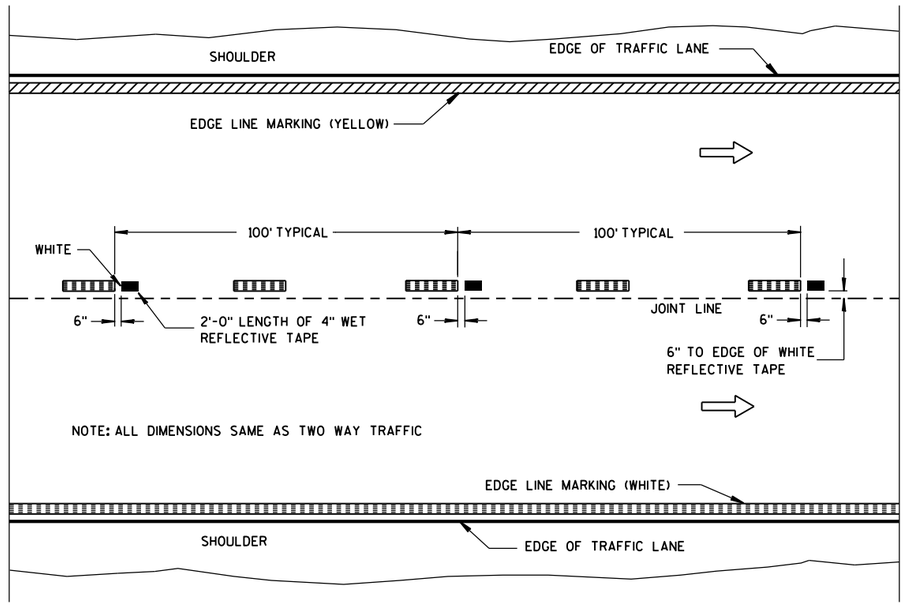
GENERAL NOTES

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

1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
4. CONCRETE ONLY.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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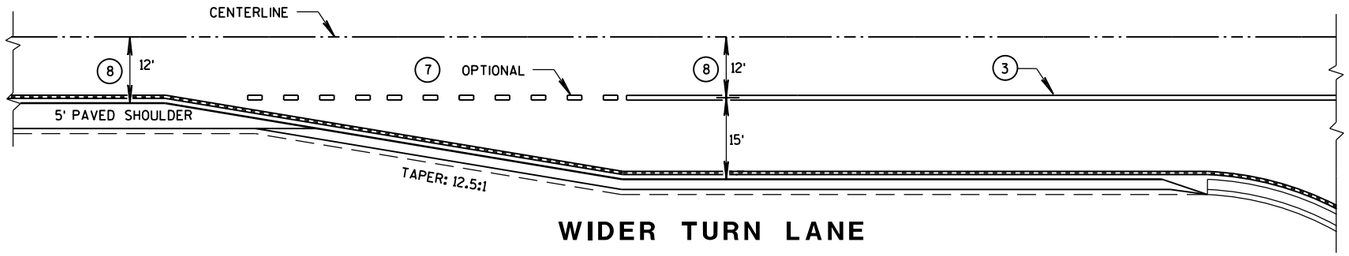
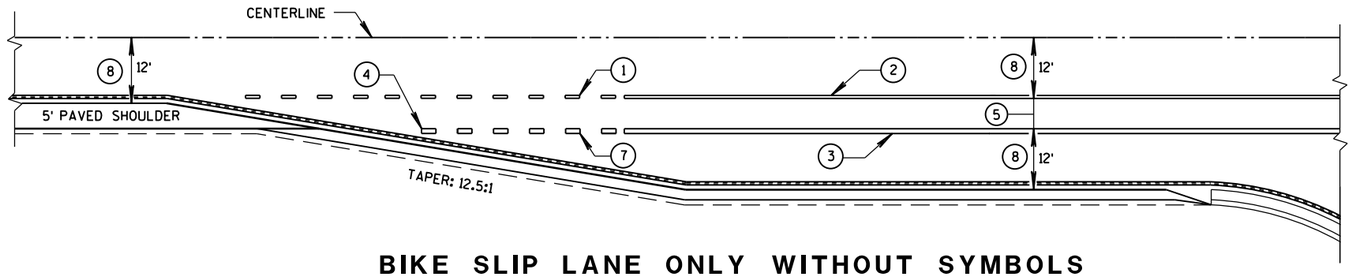
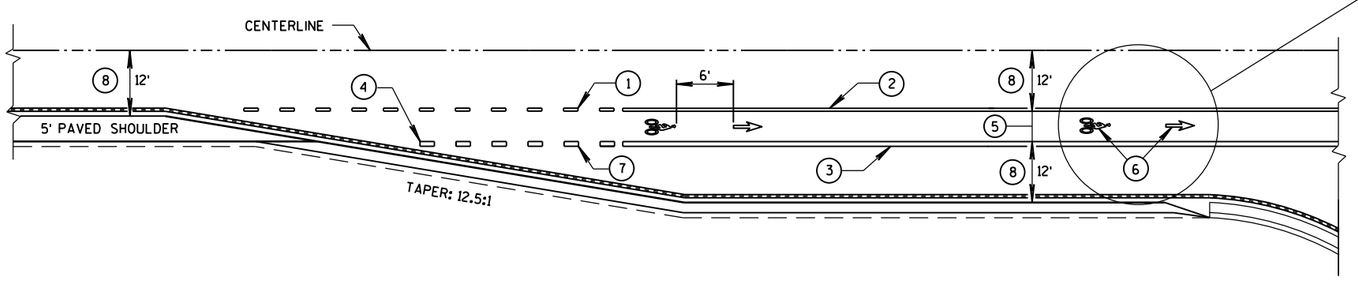
S.D.D. 15 C 8-16a



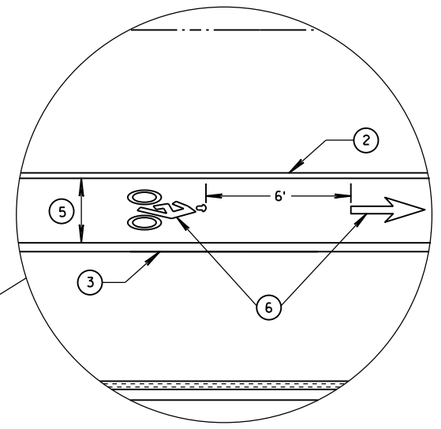
WIDER TURN LANE



BIKE SLIP LANE ONLY WITHOUT SYMBOLS



BIKE LANE WITH SYMBOLS



GENERAL NOTES

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

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

BICYCLE LANE MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

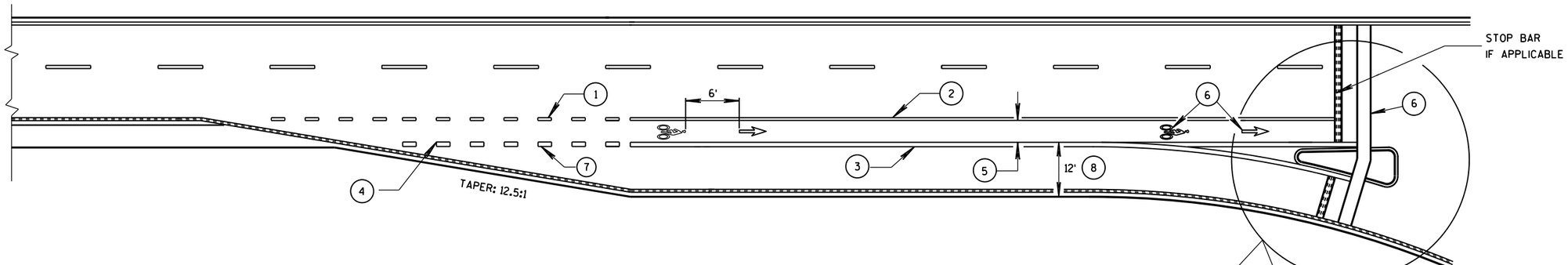
FHWA

6

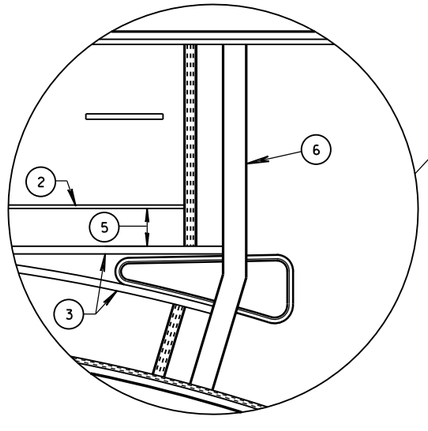
S.D.D. 15 C 29-3a

GENERAL NOTES

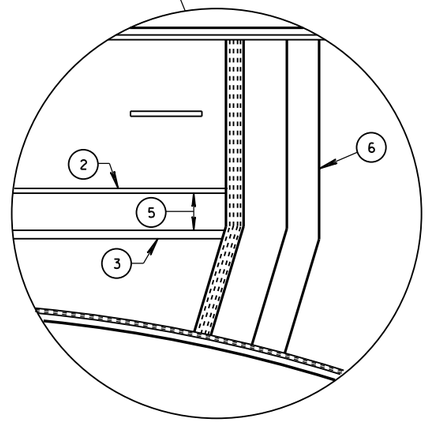
1. 3' LINE, 9' GAP - 4-INCH WIDE, WHITE.
2. 4-INCH, WHITE.
3. 8-INCH, WHITE.
4. IF SIGNED AND/OR MARKED AS A BICYCLE FACILITY INCLUDE SECOND LINE OF LINE-SPACE MARKING, OTHERWISE DO NOT.
5. 5' TYPICAL.
6. REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
7. 3' LINE, 9' GAP - 8-INCH WIDE, WHITE.
8. REFER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



BIKE LANE - 4-LANE DIVIDED WITH RIGHT TURN LANE



4 LANE DIVIDED WITH ISLAND



4 LANE DIVIDED WITHOUT ISLAND

BICYCLE LANE MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E 77

FHWA

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

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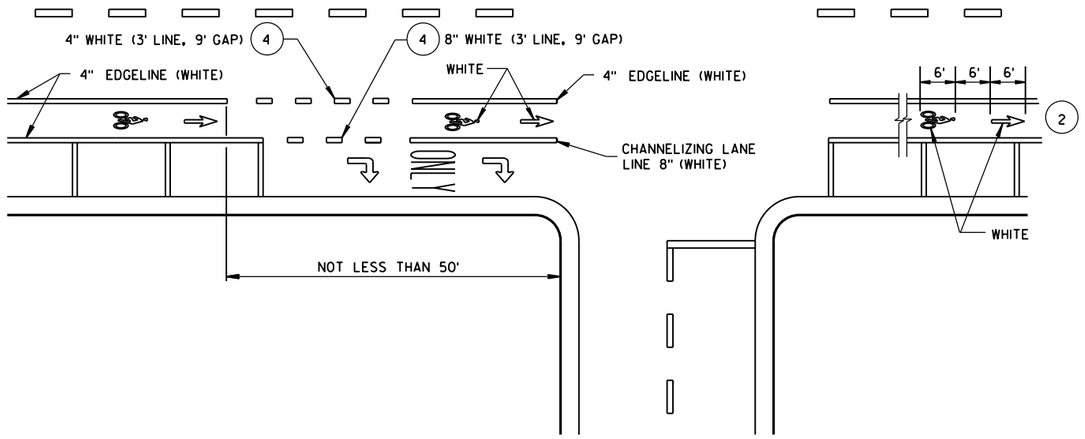
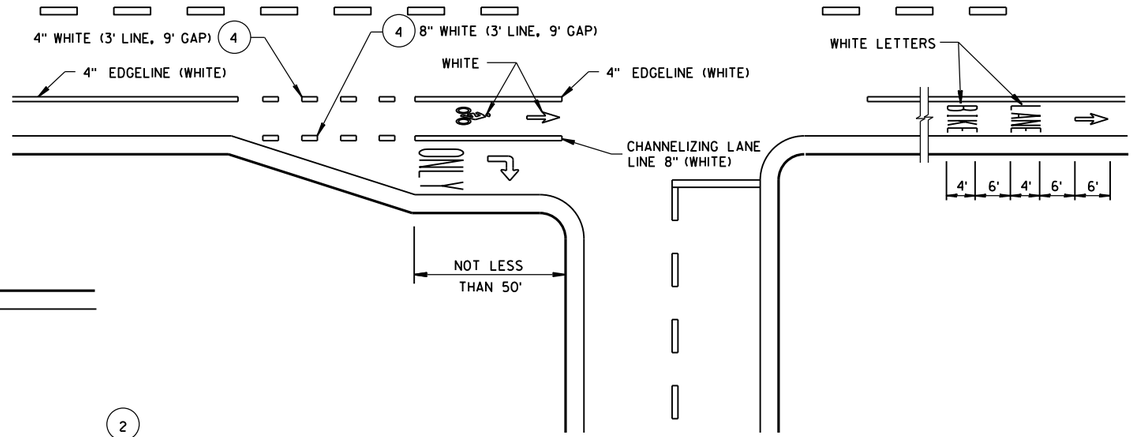
S.D.D. 15 C 29-3b



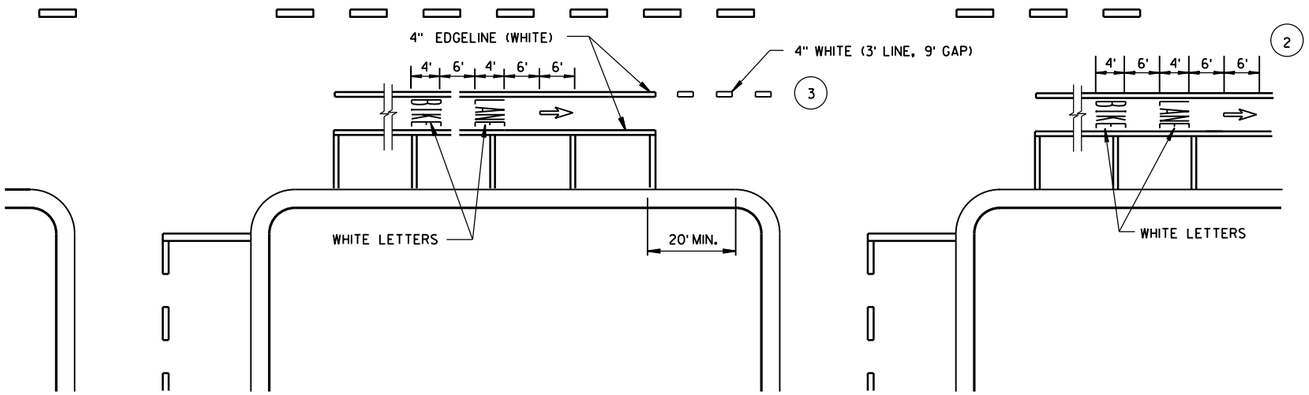
DESIGNATED BICYCLE LANE

GENERAL NOTES

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



DESIGNATED BICYCLE LANE
NO PARKING, RIGHT TURN LANE



DESIGNATED BICYCLE LANE
WITH PARKING, NO RIGHT TURN LANE

URBAN BICYCLE LANE MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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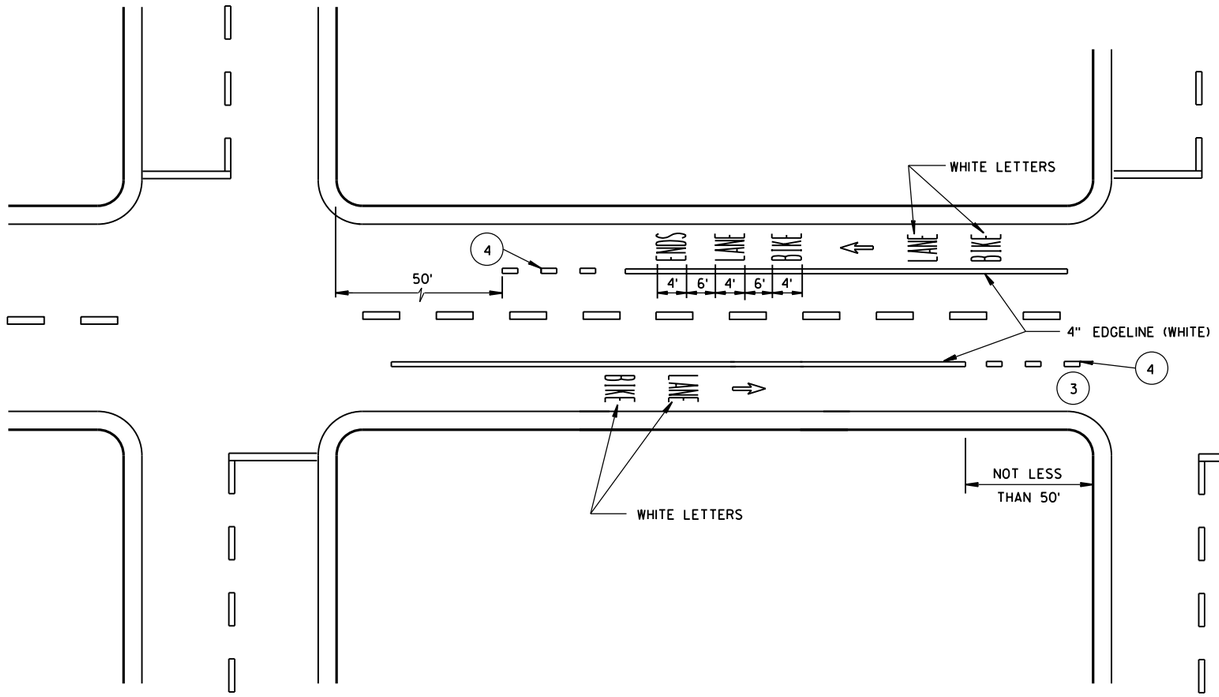
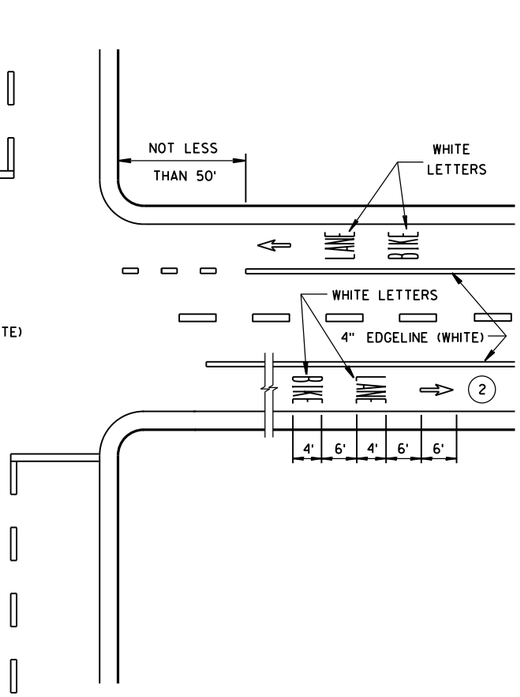
S.D.D. 15 C 29-3c

GENERAL NOTES

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





DESIGNATED BICYCLE LANE
NO PARKING

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

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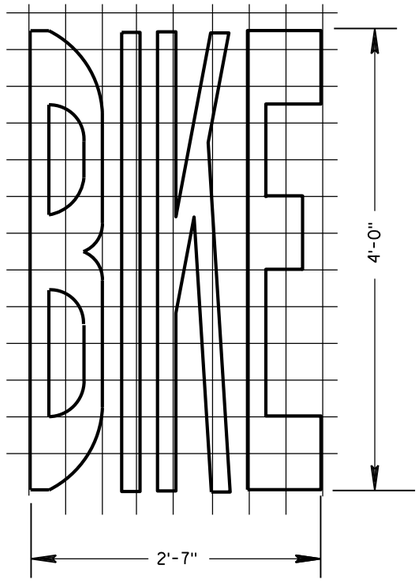
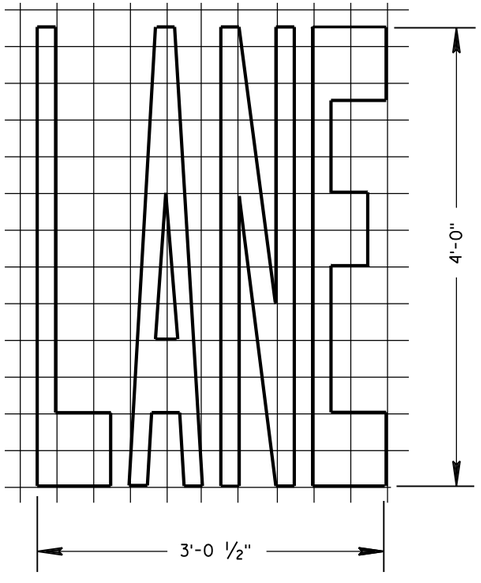
S.D.D. 15 C 29-3d

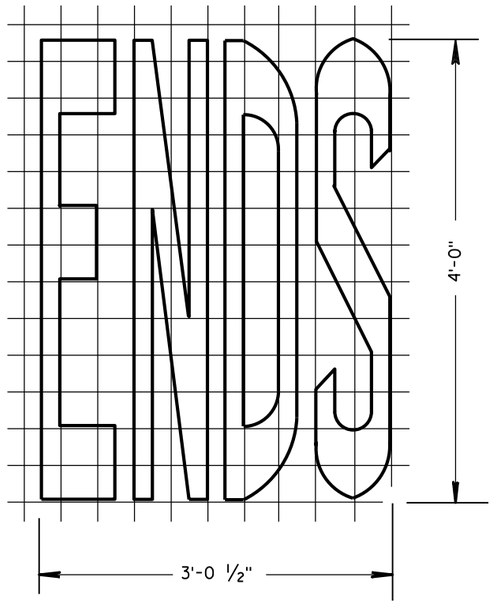
GENERAL NOTES

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

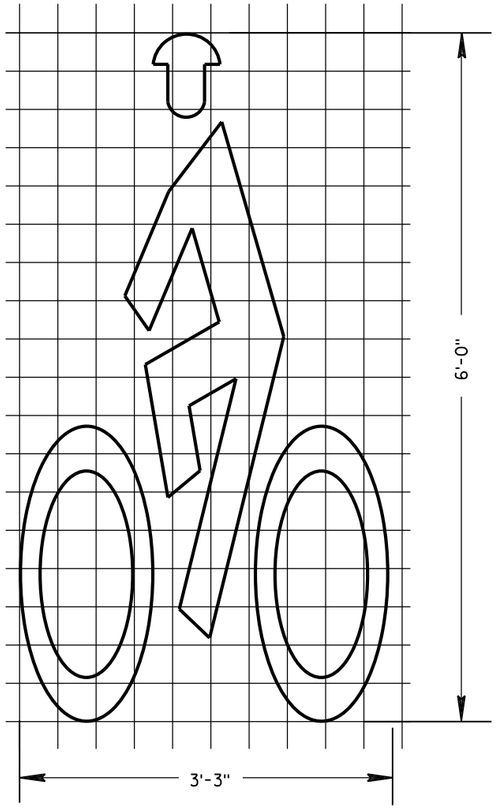
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES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



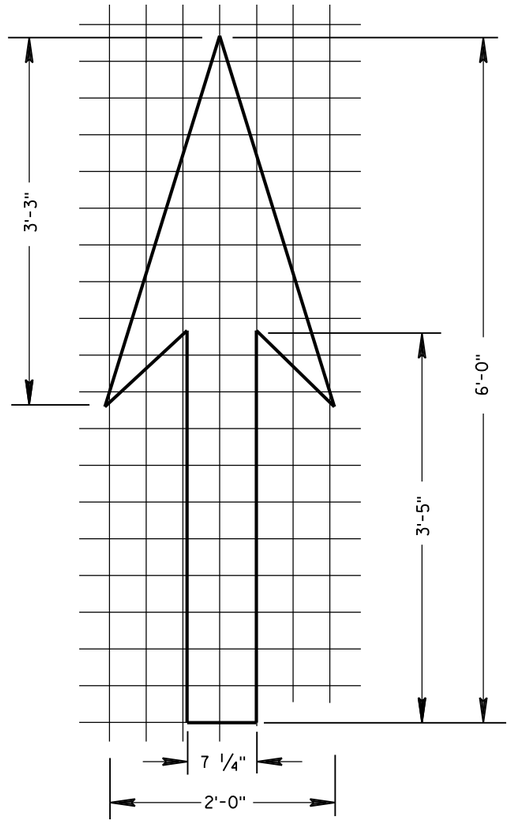




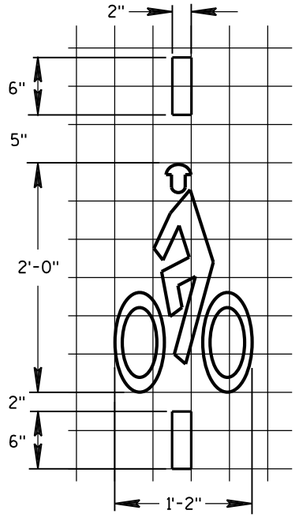
BIKE LANE WORDS



BIKE LANE SYMBOL



BIKE LANE ARROW



BICYCLE DETECTOR PAVEMENT MARKING

PAVEMENT MARKING FOR BIKE LANES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-30-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC EN

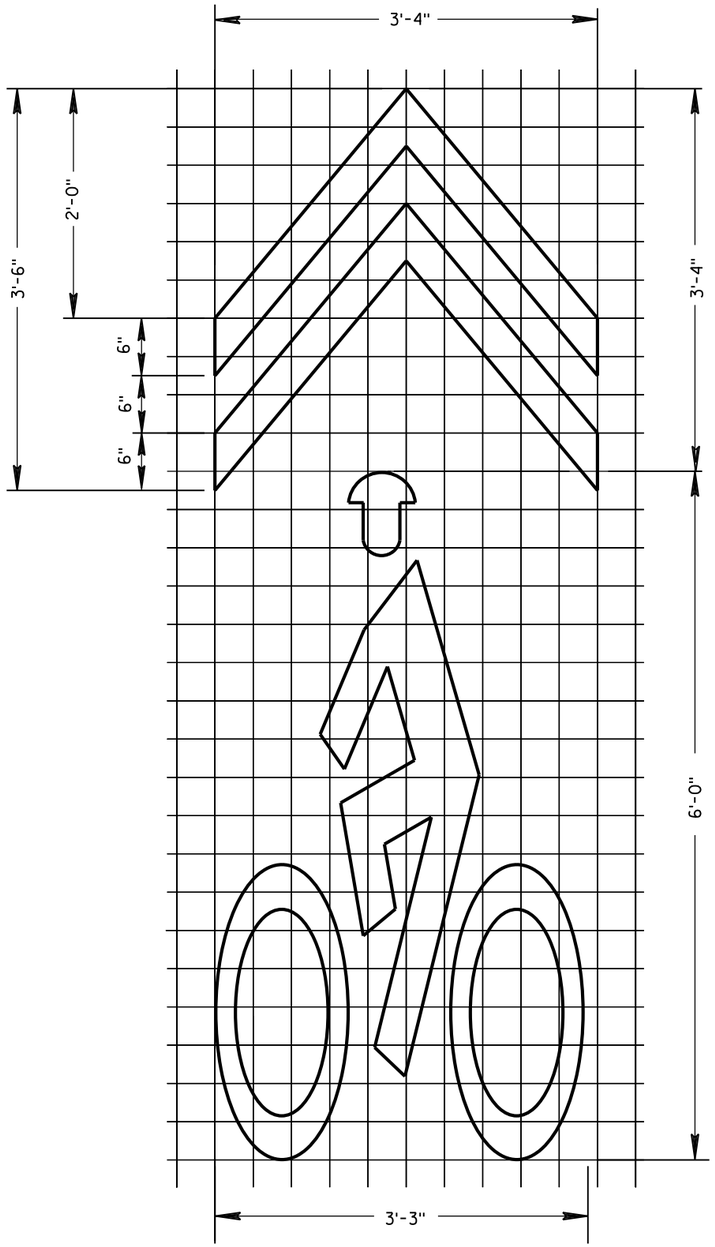
FHWA

6

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

6

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



BIKE SYMBOL FOR SHARED LANE

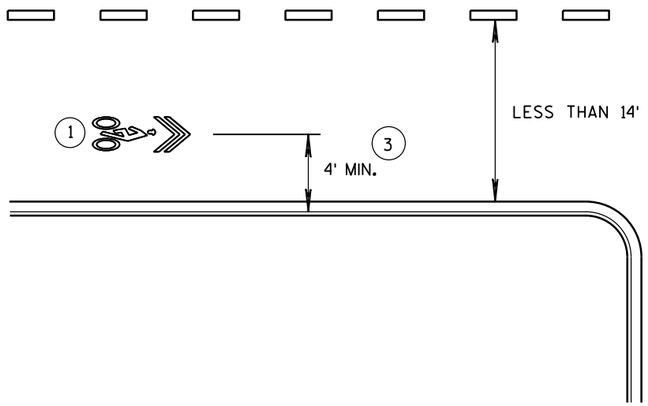
GENERAL NOTES

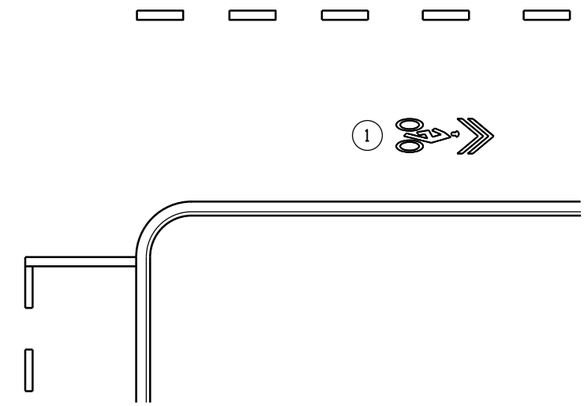
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES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

(1) SPACED A MAXIMUM OF 250 FEET.

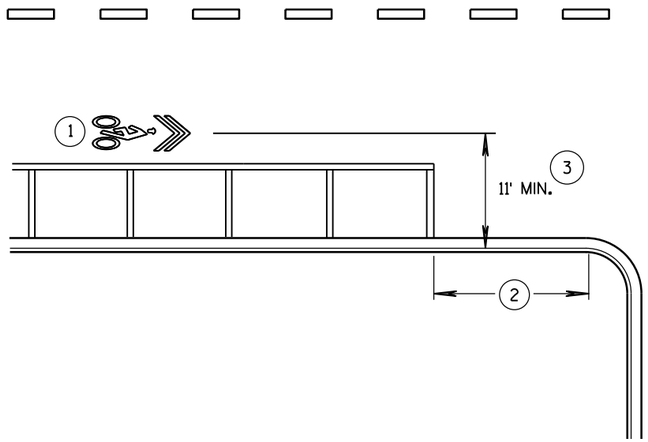
(2) 20 FOOT MINIMUM FROM CURB RADIUS.

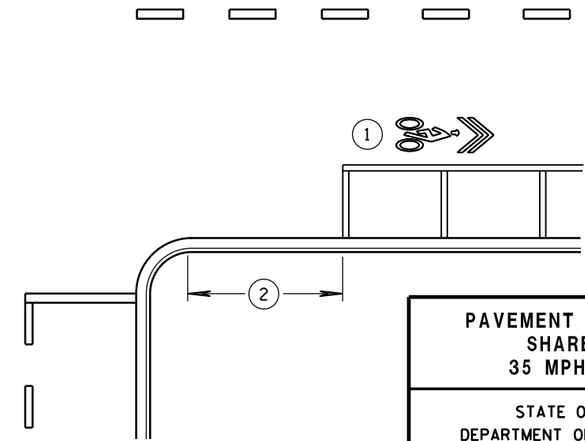
(3) OR TO EDGE OF PAVEMENT WITHOUT CURB.





WITHOUT PARKING





WITH PARKING

PAVEMENT MARKING FOR
SHARED LANE
35 MPH OR LESS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-30-2013
DATE

/S/ Travis Feltes
STATE TRAFFIC EN

FHWA

6

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

6

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

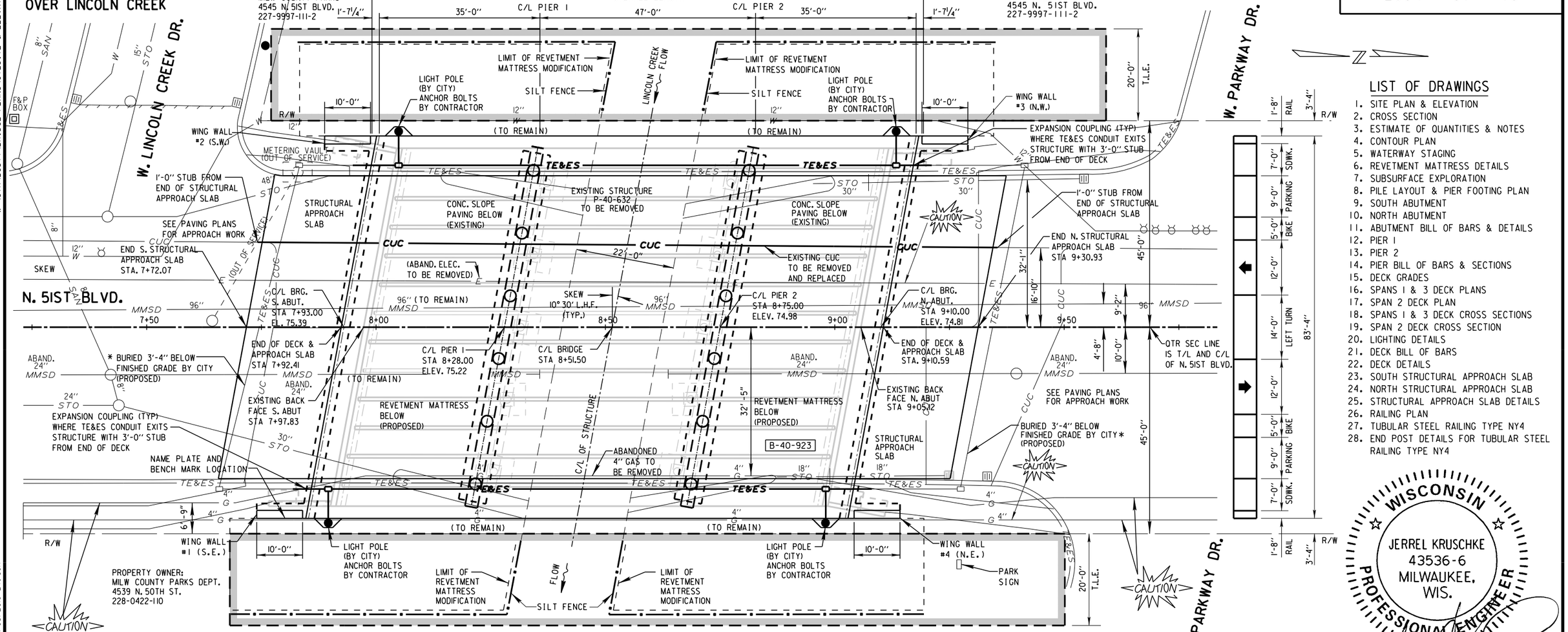
W:\STR\BOS\11\BRIDGE PLANS\01_SITE & ELEVATION.DGN

REVISED DATE: 11/03/2016 BY: GJR

STATE PROJECT NUMBER

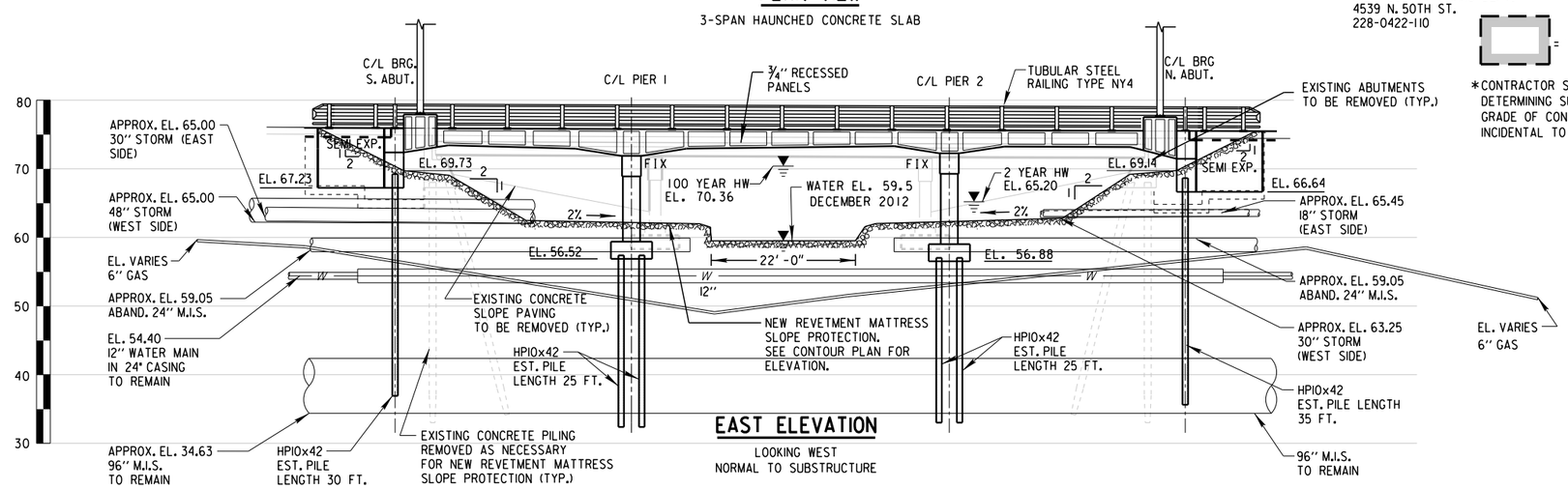
2984 - 07 - 75

STRUCTURE B-40-923
N. 51ST BLVD
OVER LINCOLN CREEK



PLAN VIEW

3-SPAN HAUNCHED CONCRETE SLAB



EAST ELEVATION

LOOKING WEST
NORMAL TO SUBSTRUCTURE

= TEMPORARY LIMITED EASEMENT

*CONTRACTOR SHALL ASSIST CITY IN DETERMINING SURVEY POINTS OF FINAL GRADE OF CONDUIT TO BE BURIED AND IS INCIDENTAL TO "CONCRETE MASONRY BRIDGES"

BENCH MARK:
STANDARD BENCH MARK 76-01
N.W. CORNER OF N. 51ST BLVD. & W. CONGRESS ST.
10.8' N. & 15.7' W.
OF CURBS EXTENDED
ELEV. 73.522

CITY OF MILWAUKEE CONTACT:
JERREL KRUSCHKE 414-286-3402
WISDOT BRIDGE OFFICE CONTACT
WILLIAM DREHER 608-266-8489

LIST OF DRAWINGS

WISCONSIN
JERREL KRUSCHKE
43536-6
MILWAUKEE, WIS.
PROFESSIONAL ENGINEER
12-8-2016

NO.	DATE	REVISION	BY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 12/09/16
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-40-923

N. 51ST BLVD. OVER LINCOLN CREEK

COUNTY	TOWN/CITY/ VILLAGE
MILWAUKEE	MILWAUKEE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

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

SITE PLAN & ELEVATION

SHEET 1 OF 28
82

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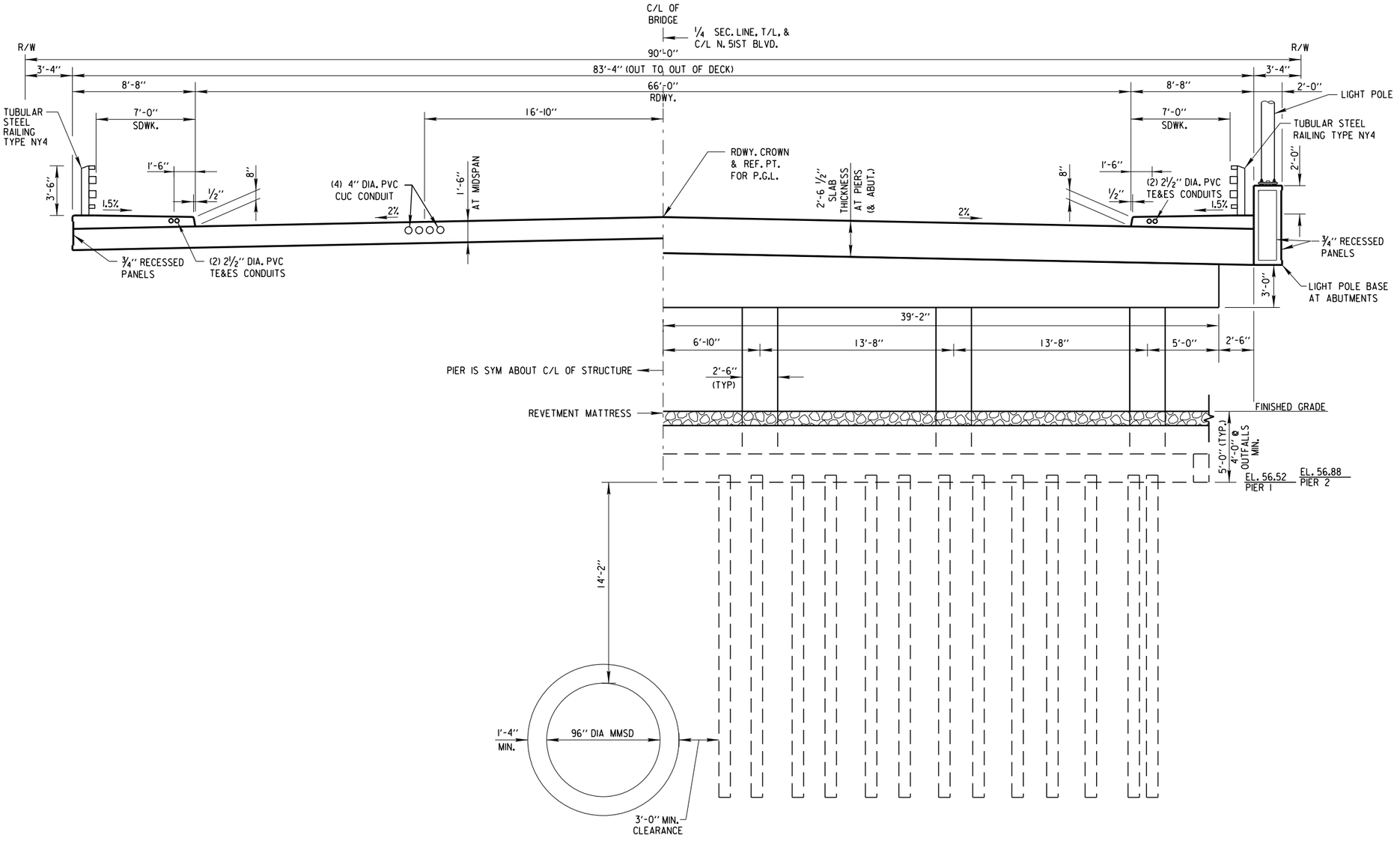
W:\STR\B051\BRIDGE PLANS\02_CROSS SECTION.DGN

REVISED DATE: 11/01/2016 BY: GJR

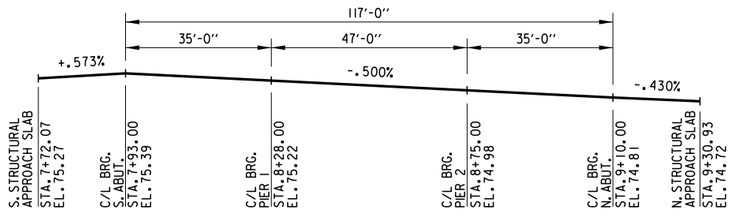
STATE PROJECT NUMBER

2984 - 07 - 75



PROPOSED CROSS SECTION (LOOKING NORTH)

(ALL DIMENSIONS NORMAL TO C/L OF BRIDGE)



PROFILE GRADE LINE (P.G.L.) ALONG C/L OF NORTH 51ST BOULEVARD

DESIGN DATA

DEAD LOAD

CONCRETE = 150 LB/CF
F.W.S. = 20 LB/SF
RAILING = 75 LB/LF

LIVE LOAD

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF=1.11
OPERATING RATING FACTOR: RF=1.44
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 KIPS

MATERIAL PROPERTIES

CONCRETE MASONRY (SLAB)	f'_c = 4,000 PSI
CONCRETE MASONRY (ALL OTHERS)	f'_c = 3,500 PSI
BAR STEEL REINFORCEMENT	f_y = 60,000 PSI

FOUNDATION DATA

NORTH ABUTMENT TO BE SUPPORTED ON HP 10x42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS *PER PILE AS DETERMINED BY MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 35'-0" LONG.

PIER 1 TO BE SUPPORTED ON HP 10x42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS *PER PILE AS DETERMINED BY MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 25'-0" LONG.

PIER 2 TO BE SUPPORTED ON HP 10x42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS *PER PILE AS DETERMINED BY MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 25'-0" LONG.

SOUTH ABUTMENT TO BE SUPPORTED ON HP 10x42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS *PER PILE AS DETERMINED BY MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 30'-0" LONG.

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

HYDRAULIC DATA

100 YEAR FREQUENCY

Q100	= 5,680 CFS (SEWRPC)
VEL	= 7.8 FPS (SEWRPC)
HW100	= EL. 70.36 CITY DATUM (SEWRPC)
WATERWAY AREA	= 730 S.F.
DRAINAGE AREA	= 11 SQ. MI.
ROADWAY OVERTOPPING	= NA
SCOUR CRITICAL CODE	= 5

2 YEAR FREQUENCY

Q2 = 2,650 C.F.S. (SEWRPC)
VEL = NOT AVAILABLE
HW2 = EL. 65.20 CITY DATUM (SEWRPC)

TRAFFIC VOLUME

ADT (2015) = 10,600
ADT (2036) = 11,700
R.D.S. = 35 MPH

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

CROSS SECTION

SHEET 2 OF 28

83

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8

W:\STR\B05\1\BRIDGE PLANS\03_EST OF QUANT.DGN

REVISED DATE 09/28/2016 BY GJR

STATE PROJECT NUMBER

2984 - 07 - 75

GENERAL NOTES

ALL DETAILS, MATERIALS AND FABRICATION SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION EDITION OF 2017 EXCEPT AS OTHERWISE NOTED.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

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

DRAWINGS SHALL NOT BE SCALED.

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

BEVEL EXPOSED EDGES OF CONCRETE ¾'' UNLESS OTHERWISE NOTED.

BENDING DIMENSIONS FOR REINFORCING ARE OUT TO OUT.

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

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

THE EXISTING STREAM BED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION.

ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL. AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH VEGETATED REVETMENT MATTRESSES TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

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

EXPOSED TOP FACE OF DECK, APPROACH SLABS, SIDEWALKS, AND SLAB AS DETAILED ON SHEETS 18 & 19 SHALL RECEIVE AN APPLICATION OF PROTECTIVE SURFACE TREATMENT.

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

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

EXISTING STRUCTURE, P-40-632, IS A THREE SPAN STEEL GIRDER BRIDGE WITH AN OVERALL WIDTH OF 78'-0'' AND AN OVERALL LENGTH OF 109'-0'' AND IS TO BE REMOVED. PLANS FOR EXISTING STRUCTURE MAY BE FOUND ON WISCONSIN DOT HIGHWAY STRUCTURES INFORMATION (HSI) SITE.

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0'' CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINOUS BAR CHAIRS AT APPROXIMATELY 4'-0'' CENTERS.

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED, EXCEPT FOR STAGED CONSTRUCTION.

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS, THE C/L OF PIERS AND AT TENTH PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR C/L.

COORDINATE STORM SEWER WORK WITH ABUTMENT AND SLOPE CONSTRUCTION.

ESTIMATE OF QUANTITIES

	ITEM NO.	BID ITEMS	UNIT	SLOPE PROTECTION	SOUTH ABUT.	NORTH ABUT.	PIER 1	PIER 2	SUPER.	S. STR. APPROACH SLAB	N. STR. APPROACH SLAB	TOTAL
	203.0500.S	REMOVING OLD STRUCTURE OVER WATERWAY STATION 8+51.50	LS									1
	205.0501.S	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	335	450	450	270	315				1,820
	210.1500	BACKFILL STRUCTURE TYPE A	TON		130	130	170	270				700
	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON							212	212	424
	502.0100	CONCRETE MASONRY BRIDGES	CY		64	64	90	90	715	86	86	1,195
	502.3200	PROTECTIVE SURFACE TREATMENT	SY						1,185	154	154	1,493
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB		5,870	5,870	22,570	22,510				56,820
	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB		1,410	1,410	650	650	147,280	14,080	14,080	179,560
	505.0800.S	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB						2,250			2,250
	511.1200	TEMPORARY SHORING B-40-923	SF	2,520								2,520
	513.7084	RAILING STEEL TYPE NY4 B-40-923	LF		22	22			241			285
	516.0100	DAMPPROOFING	SY		73	73						146
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY		22	22						44
	532.0800.S	WALL GABION	CY	240								240
*	550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF		60	70	50	50				230
	550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF		24	24	48	48				144
	550.0500	PILE POINTS	EACH				22	22				44
	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF		360	420	600	600				1,980
	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF		6	6						12
	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF		78	78						156
	652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF						42			42
	652.0230	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH	LF						504			504
	652.0240	CONDUIT RIGID NONMETALLIC SCHEDULE 40 4-INCH	LF						480			480
	657.6005.S	ANCHOR ASSEMBLIES LIGHT POLES ON STRUCTURES	EACH						4			4
	999.1000.S	SEISMOGRAPH	LS									1
	SPV.0060.07	JUNCTION BOXES 18x12x8-INCH	EACH						4			4
	SPV.0090.01	4-DUCT CONDUIT CEMENT ENCASED, 4-INCH RIGID NONMETALLIC CONDUIT, DB-60	LF							22	22	44
	SPV.0180.01	REMOVING VEGETATED REVETMENT MATTRESS SLOPE PROTECTION	SY	650								650
	SPV.0180.02	**VEGETATED REVETMENT MATTRESS SLOPE PROTECTION**	**SY**	**1,535**								**1,535**
	SPV.0180.03	GROUTED REVETMENT MATTRESS SLOPE PROTECTION	SY	65								65
		NON-BID ITEMS										
		NAME PLATE										
		NON-BITUMINOUS JOINT FILLER										
		POLYETHYLENE SHEETS										
		PREFORMED JOINT FILLER										

* THIS BID ITEM IS FOR LOCATING UNDERGROUND UTILITIES PRIOR TO PILE DRIVING

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

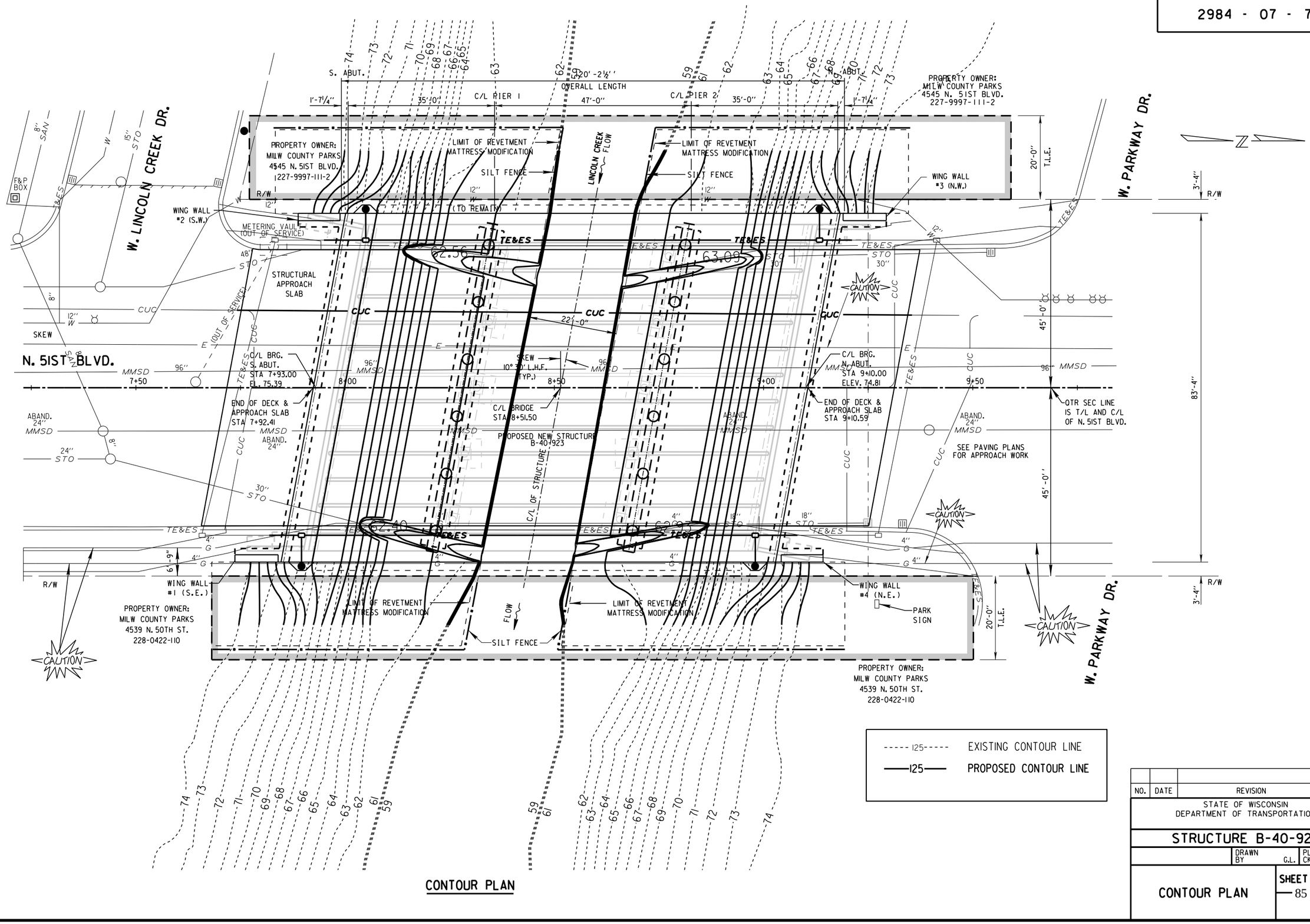
ESTIMATE OF QUANTITIES & NOTES

SHEET 3 OF 28

W:\STR\B05 I I\BRIDGE PLANS\04_CONTOUR PLAN.DGN

REVISED: 9-26-2016 BY DLF

STATE PROJECT NUMBER
2984 - 07 - 75



CONTOUR PLAN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

CONTOUR PLAN

SHEET 4 OF 28
85

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W:\STR\B05111\BRIDGE PLANS\05_WATERWAY STAGING.DGN

REVISED: 9-26-2016 BY: DLF

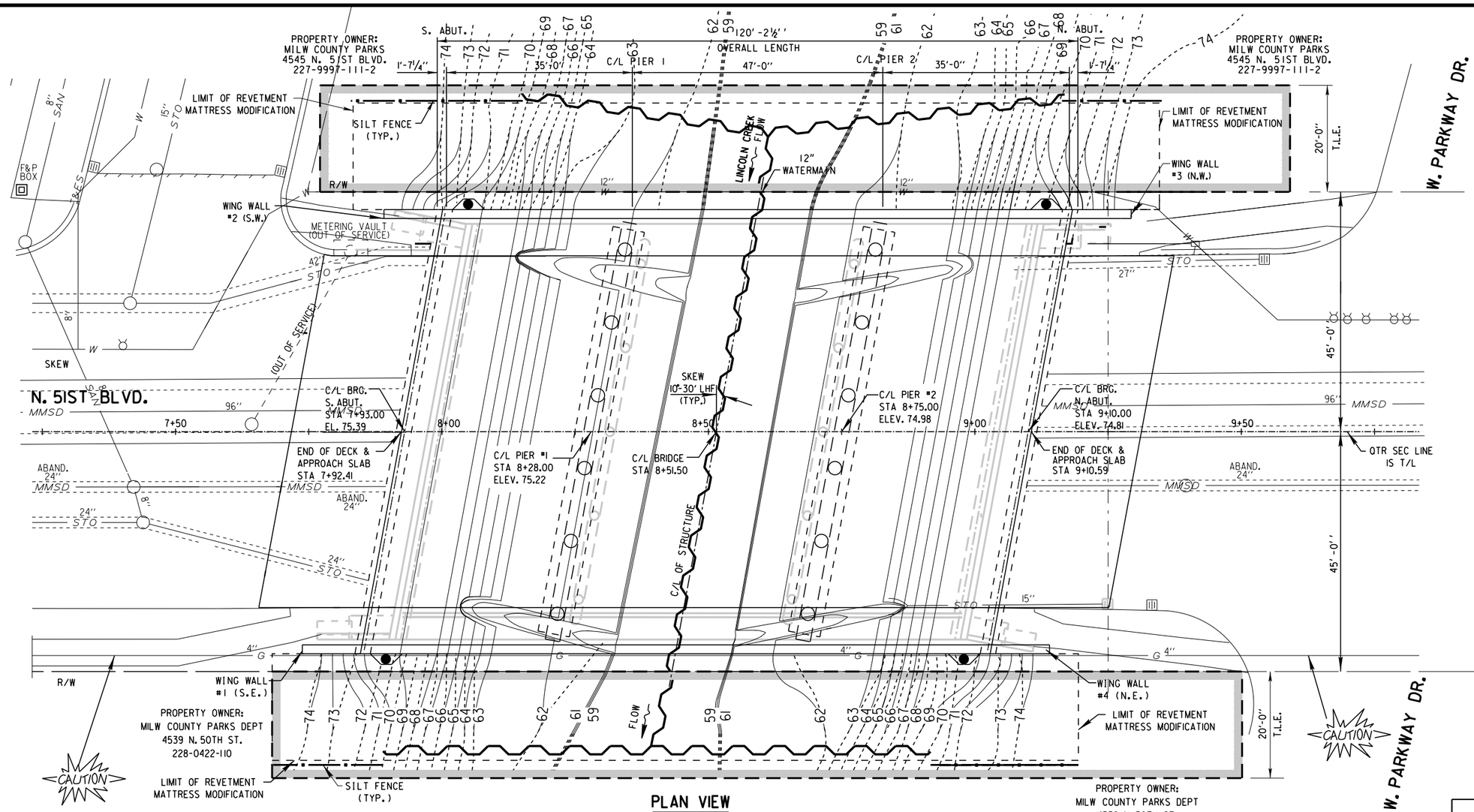
STATE PROJECT NUMBER
2984 - 07 - 75

NOTES

LOCATION OF STAGING TO ACCOMODATE 2-YEAR HIGH WATER

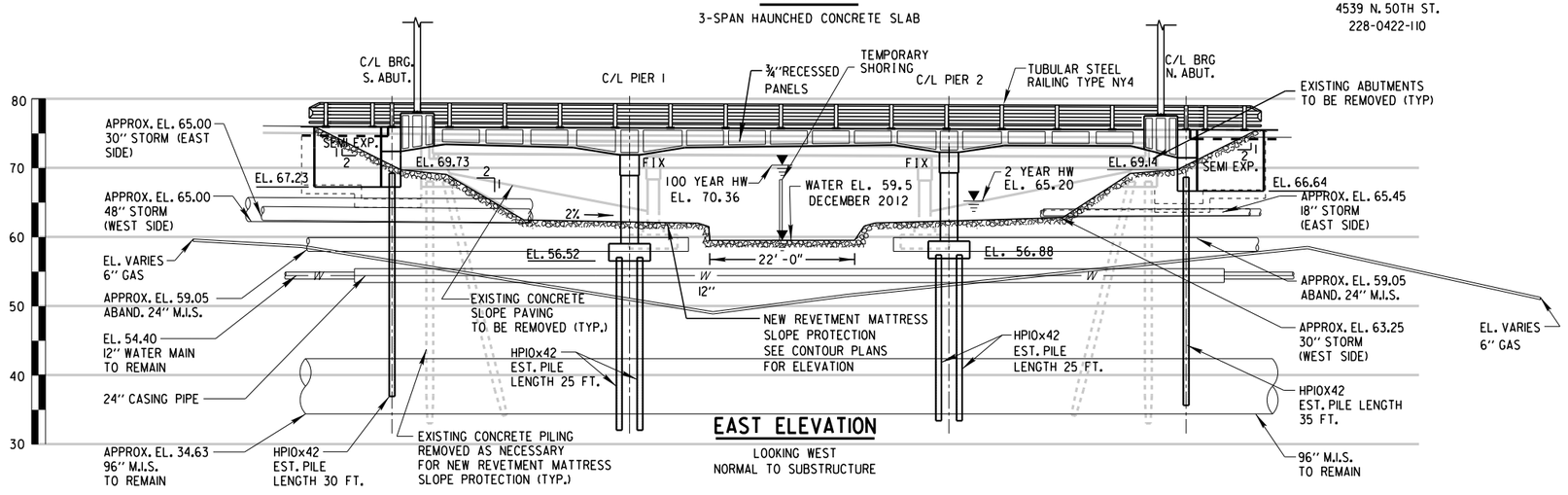
FINAL LOCATION OF TEMPORARY SHORING, SIZE, AND SEQUENCE OF STAGING TO BE DESIGNED AND DETERMINED BY CONTRACTOR. MEANS AND METHODS TO ALLOW FOR PIER AND SLOPE CONSTRUCTION.

EXCAVATE TO EXPOSE WATER MAIN FOR TEMPORARY SHORING DESIGN AND PLACEMENT TO AVOID CONFLICT WITH ACTIVE UTILITY.



PLAN VIEW

3-SPAN HAUNCHED CONCRETE SLAB



EAST ELEVATION

LOOKING WEST
NORMAL TO SUBSTRUCTURE

----- 125 -----	EXISTING CONTOUR LINE
—— 125 ——	PROPOSED CONTOUR LINE
	TEMPORARY SHORING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

WATERWAY STAGING

SHEET 5 OF 28
86

8

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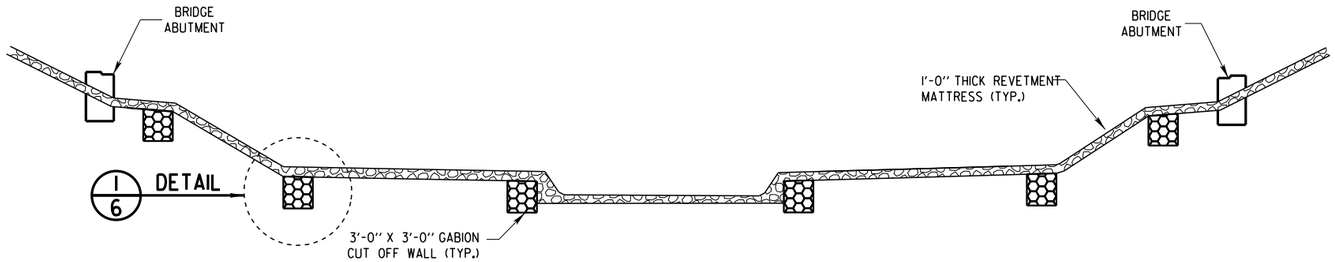
W:\STR\BOS11\BRIDGE PLANS\06_REVETMENT MATTRESS DETAILS.DGN

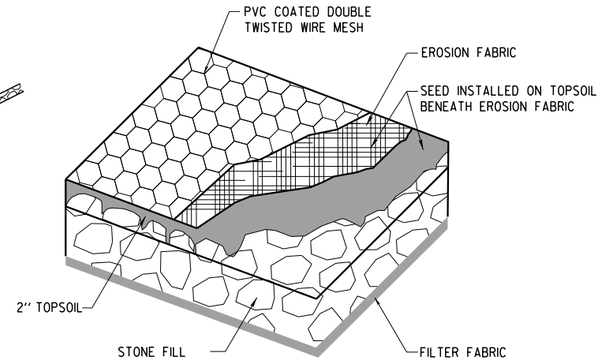
REVISED DATE 9/28/2016 BY GJR

STATE PROJECT NUMBER

2984 - 07 - 75



SLOPE PROTECTION



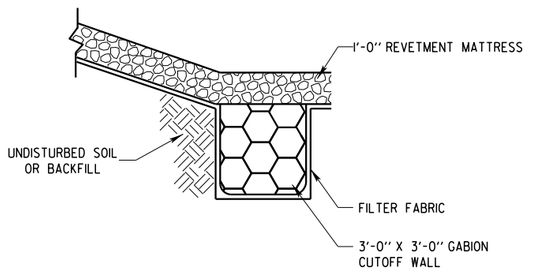
VEGETATED REVETMENT MATTRESS

NOTES

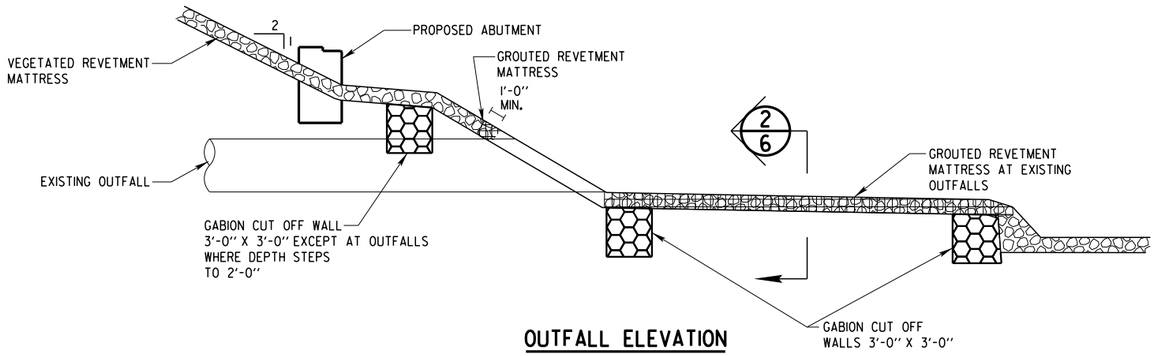
FABRIC END JOINTS SHALL BE OVERLAPPED IN AN UPSTREAM TO DOWNSTREAM DIRECTION. THE END JOINTS SHALL BE CONSTRUCTED AND STAKED AS SHOWN.

THE HOLES FOR STAKES THROUGH FABRIC SHALL NOT BE PRECUT. ALLOW THE STAKE TO BREAK THE MINIMUM NUMBER OF STRANDS AS IT IS BEING DRIVEN. DRIVE STAKES SO THAT 2" IS LEFT EXPOSED WHERE STAKES ARE DRIVEN THROUGH INNER FABRIC. THE INNER FABRIC MAY BE CUT OR PUNCTURED. THE CUT OR PUNCTURE SHALL NOT EXCEED 2" IN LENGTH OR DIAMETER.

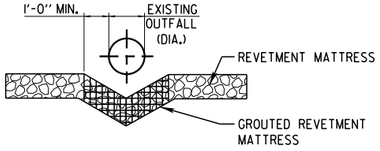
STAKES MAY BE ROTATED UP TO 45° FROM VERTICAL IF REQUIRED TO FACILITATE INSTALLATION.



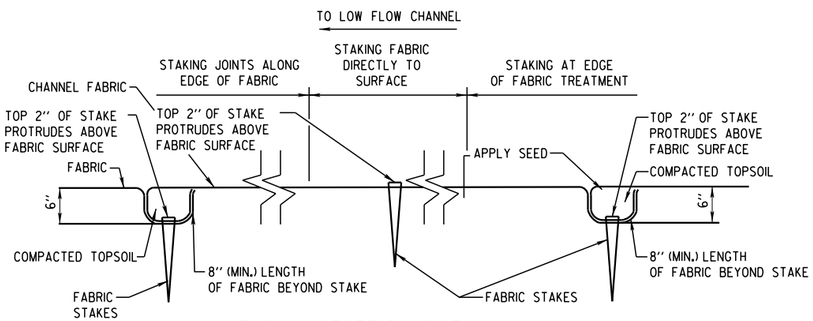
DETAIL 1/6 GABION CUT OFF WALL AT GRADE CHANGE



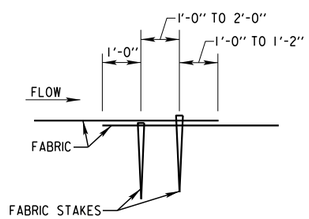
OUTFALL ELEVATION



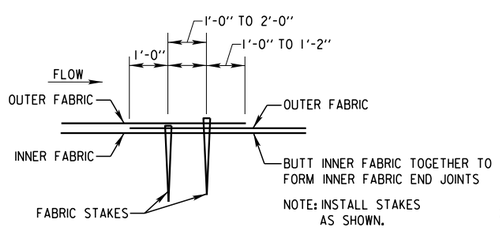
SECTION 2/6 GROUTED REVETMENT MATTRESS



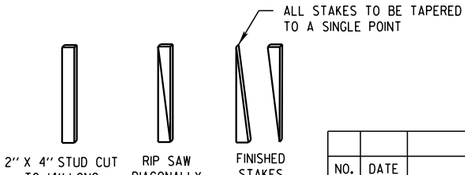
TYPICAL FABRIC JOINT ACROSS CHANNEL ELEVATION



TYPICAL FABRIC END JOINT



FABRIC JOINT BETWEEN NEW AND EXISTING MATTRESS SECTIONS



FABRIC STAKE FABRICATION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

REVETMENT MATTRESS DETAILS

SHEET 6 OF 28

W:\STR\BOS1\BRIDGE PLANS\07_SUBSURFACE.DGN

REVISED DATE 9/26/2016 BY DLF

NOTES

SUBSURFACE INFORMATION ON PLAN SHEET SUMMARIZES GEOTECHNICAL ENGINEERING REPORT.

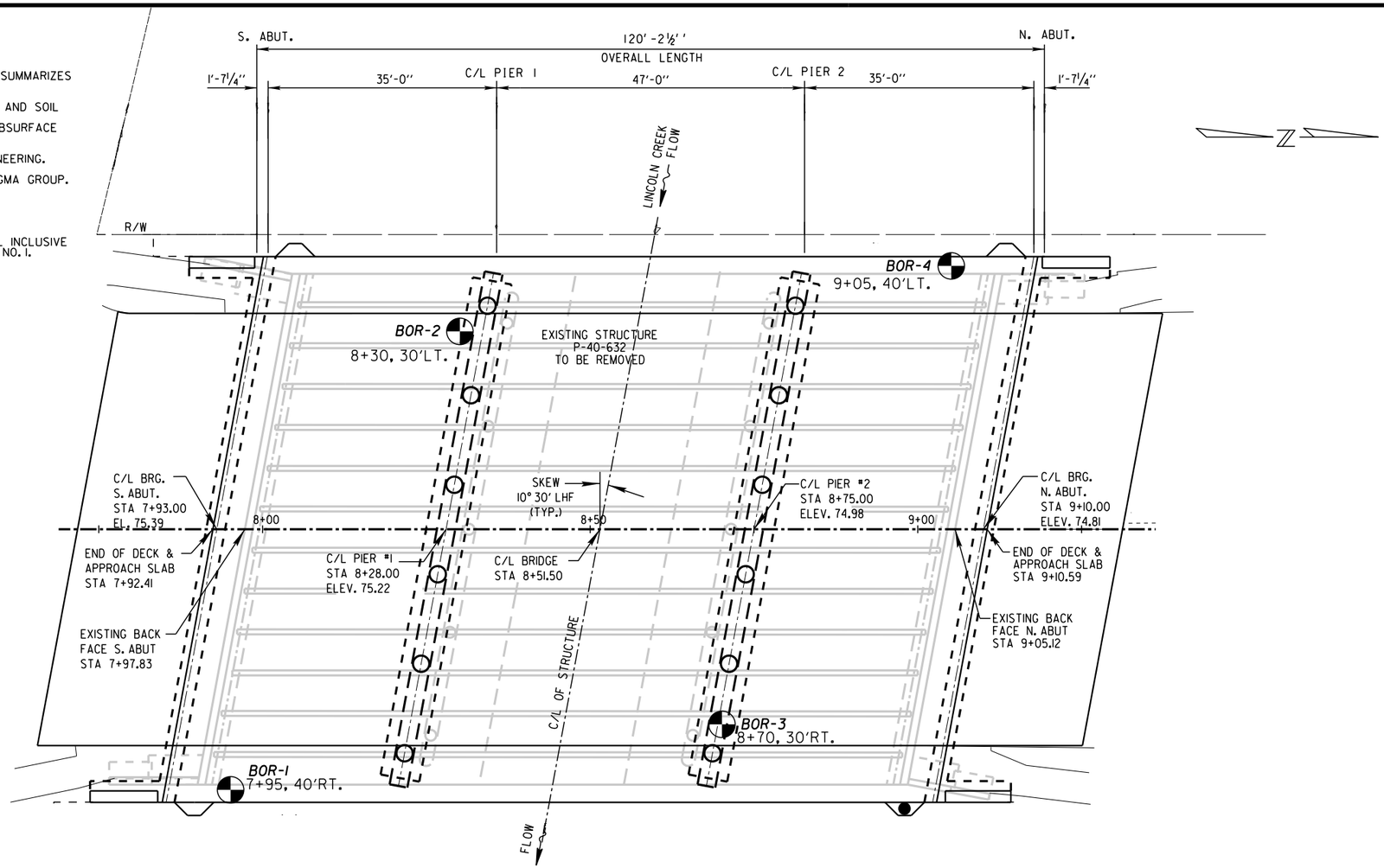
REVIEW GEOTECHNICAL ENGINEERING REPORT AND SOIL BORING LOGS DATED MARCH 2, 2015 AND SUBSEQUENT REVISIONS FOR ADDITIONAL SUBSURFACE INFORMATION.

SOIL BORINGS COMPLETED BY GESTRA ENGINEERING.

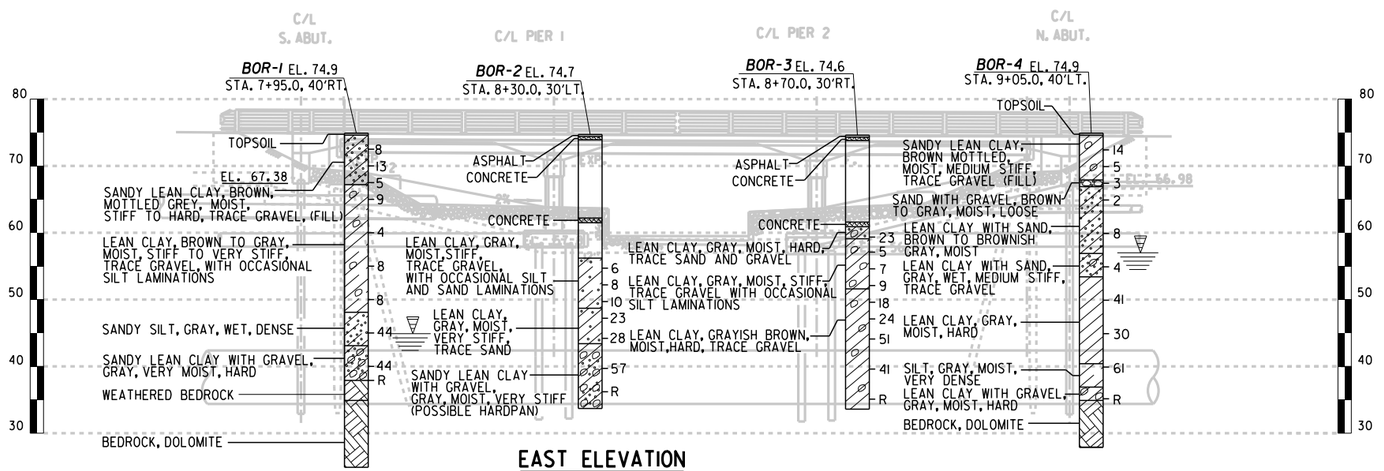
ENVIRONMENTAL TESTING COMPLETED BY SIGMA GROUP.

- SOIL BORING

UTILITY INFORMATION AS SHOWN IS NOT ALL INCLUSIVE FOR CLARITY. REFER TO SITE PLAN SHEET NO. 1.



PLAN VIEW



EAST ELEVATION

LOOKING WEST
NORMAL TO SUBSTRUCTURE

STATE PROJECT NUMBER

2984 - 07 - 75

ABBREVIATIONS

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

MATERIAL SYMBOLS

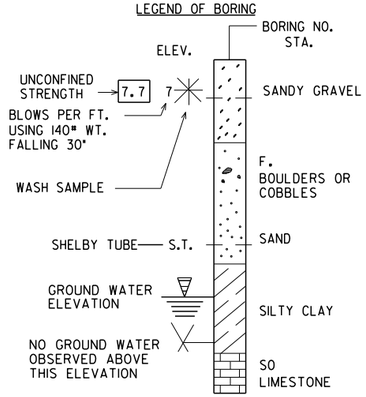
TOPSOIL, SILT, SANDSTONE, SAND, PEAT, LIMESTONE, GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING

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

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

LEGEND OF BORING



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

STRUCTURE B-40-923

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

SUBSURFACE EXPLORATION

SHEET 7 OF 28
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8

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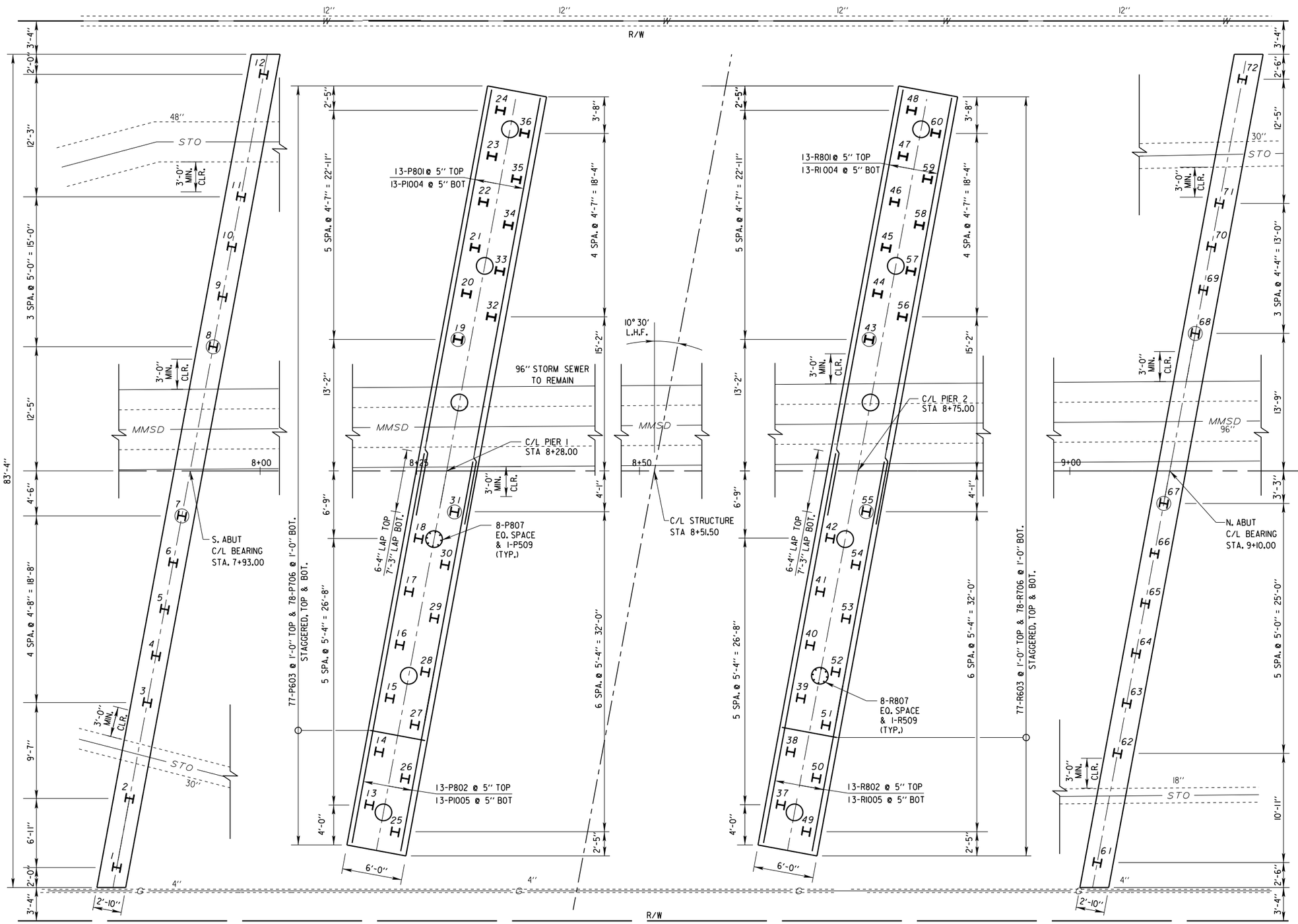
W:\STR\BOS1\BRIDGE PLANS\08_PIER FOOTING PLAN.DGN

REVISED DATE: 11/01/16 BY: GJR

STATE PROJECT NUMBER

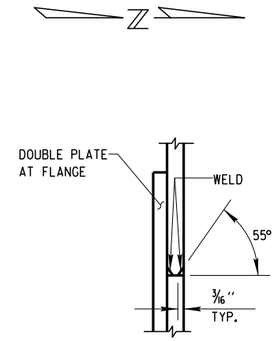
2984 - 07 - 75



PLAN VIEW AT TOP OF PIER FOOTINGS & ABUTMENTS

NOTE:
PILES TO BE 3'-0'' CLEAR OF ALL STORM SEWER UTILITIES

SEE SHEET 14 FOR BAR TABLE

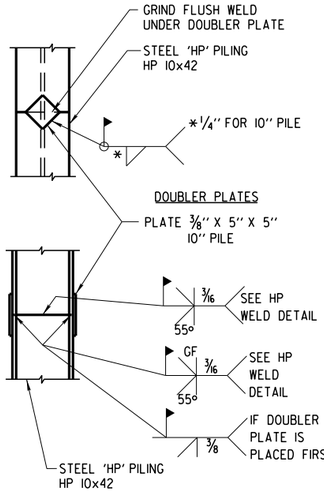


HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

STEEL 'HP' SHAPES

DENOTES PREBORING PILE TO ELEVATION BELOW UTILITY



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

PILE LAYOUT & PIER FOOTING PLAN

SHEET 8 OF 28

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8

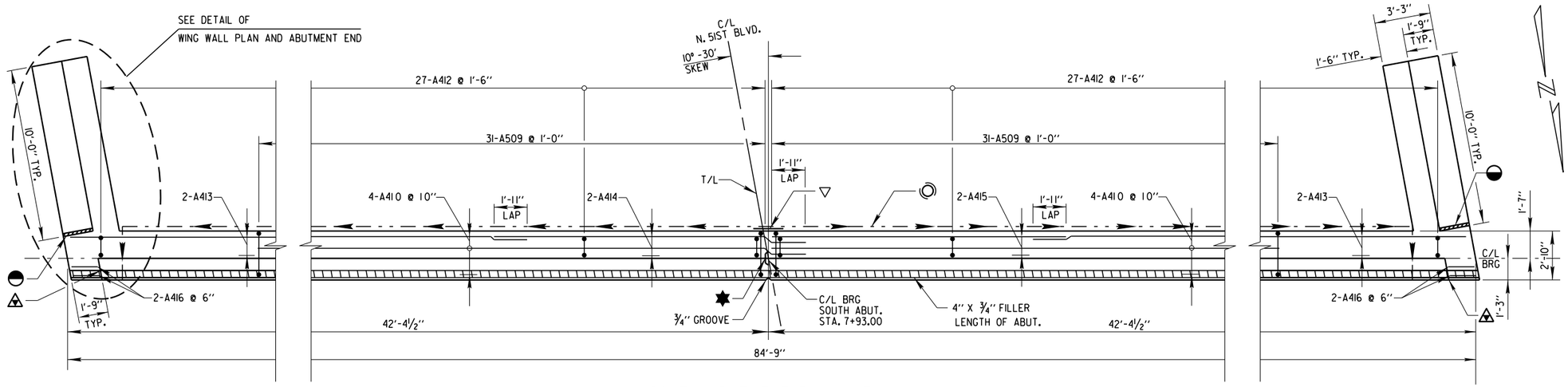
8

W:\STR\B05\I\BRIDGE PLANS\09_SABUT.DGN

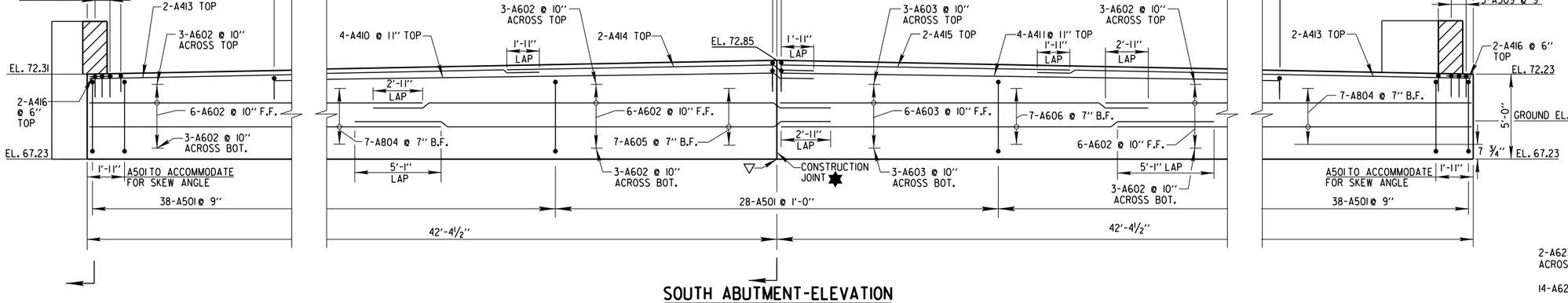
REVISED DATE: 9/29/16 BY: TPW

STATE PROJECT NUMBER

2984 - 07 - 75

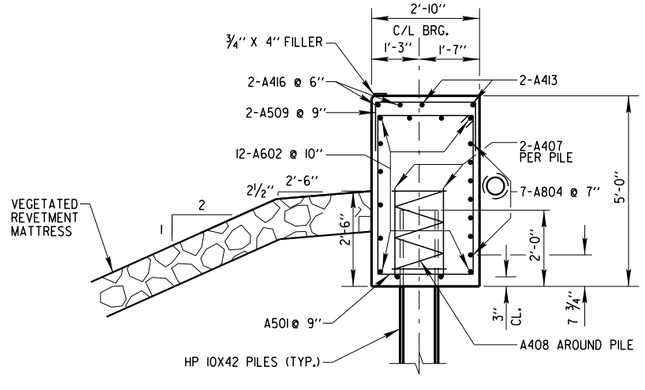


SOUTH ABUTMENT-PLAN VIEW



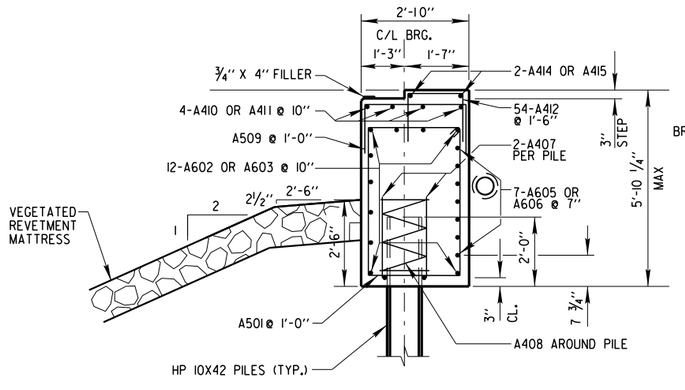
SOUTH ABUTMENT-ELEVATION

FRONT FACE LOOKING DOWNSTATION (SOUTH)



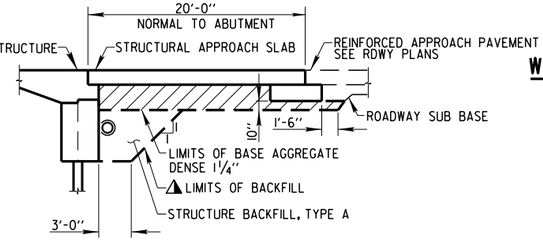
ABUTMENT END SECTION (I/9)

NORMAL TO C/L BRG.

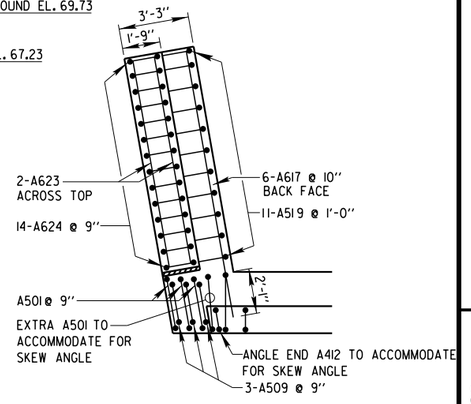


ABUTMENT TYPICAL SECTION (2/9)

NORMAL TO C/L BRG.



BACKFILL LIMITS



WING WALL PLAN AND ABUTMENT END DETAIL

NOTES

SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONC.)

UTILITIES NOT SHOW FOR CLARITY. SEE SITE PLAN FOR LOCATIONS.

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

★ VERTICAL CONST. JOINT KEYWAY FORMED BY BEVELED 2" X 8". CLEAR PILES BY 9" MIN.

◓ 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH.

◯ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS SHOWN ON SHEET 11.

◬ 3/4" CORK FILLER ON VERTICAL FACE OF STEP.

◔ OPTIONAL CONST. JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACK FACE.

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

F.F. = FRONT FACE
B.F. = BACK FACE
TOP = TOP FACE
BOT. = BOTTOM FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

SOUTH ABUTMENT

SHEET 9 OF 28

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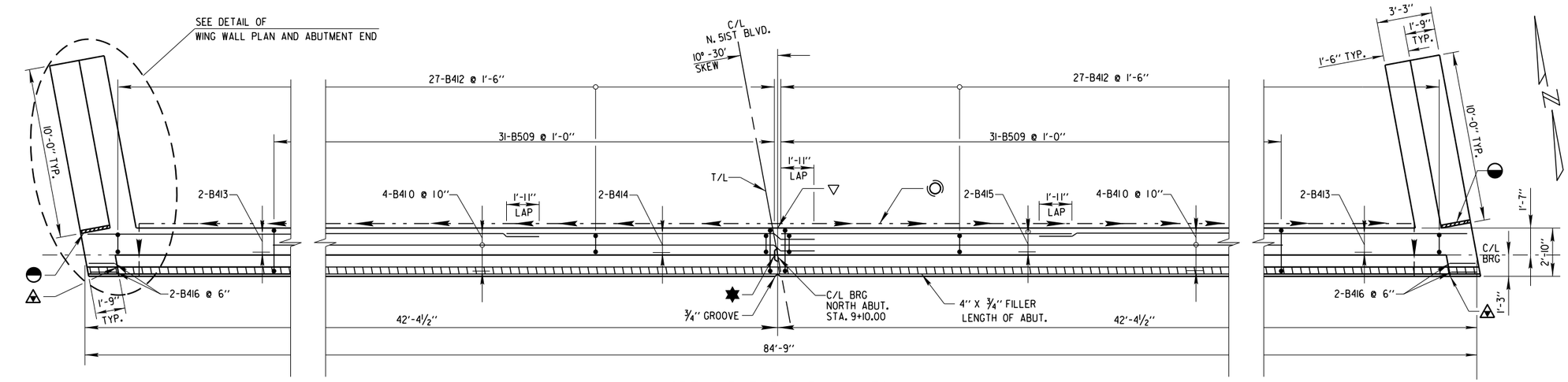
8

W:\STR\B05 1\BRIDGE PLANS\10_NABUT.DGN

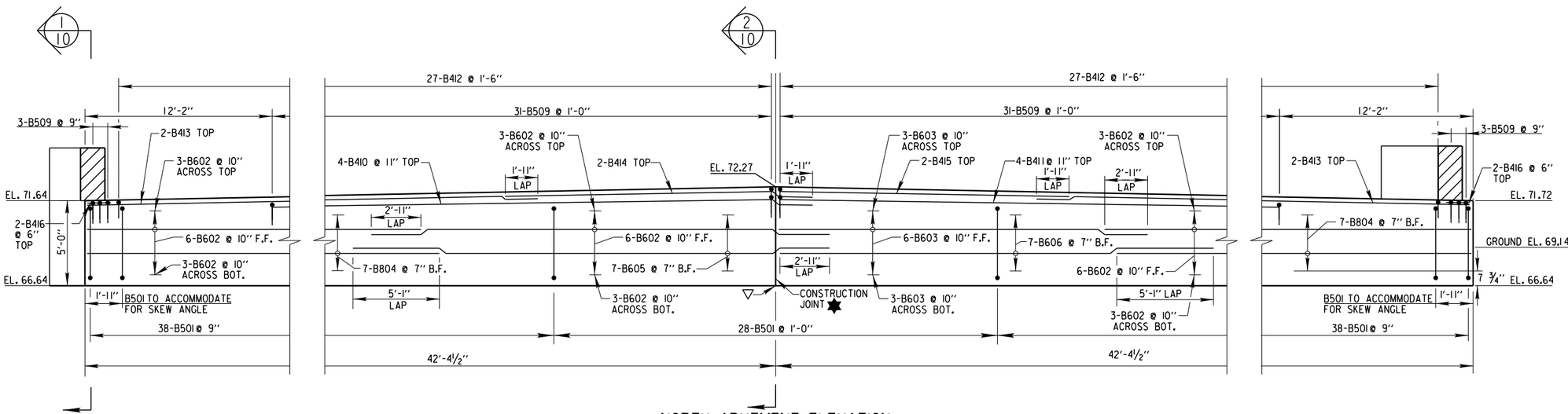
REVISED DATE: 9/29/16 BY: TPW

STATE PROJECT NUMBER

2984 - 07 - 75

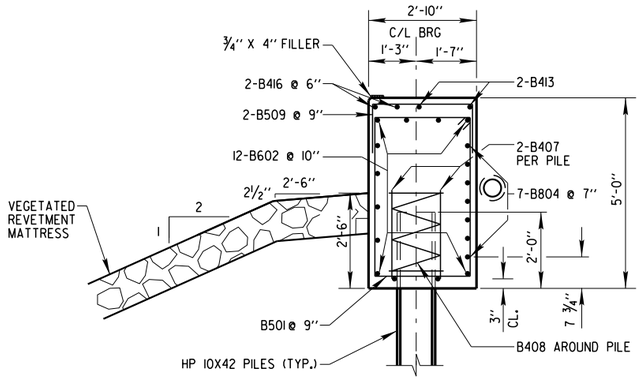


NORTH ABUTMENT-PLAN VIEW



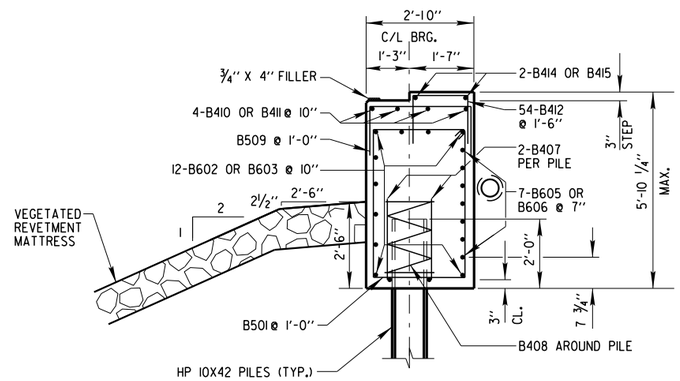
NORTH ABUTMENT-ELEVATION

FRONT FACE LOOKING UPSTATION (NORTH)



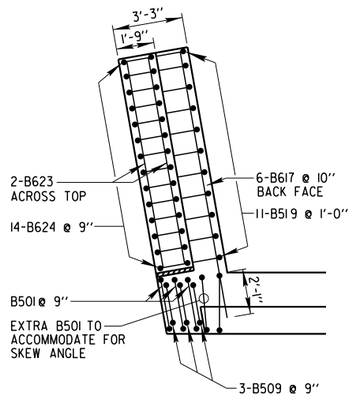
ABUTMENT END SECTION 1/10

NORMAL TO C/L BRG.



ABUTMENT TYPICAL SECTION 2/10

NORMAL TO C/L BRG.



WING WALL PLAN AND ABUTMENT END DETAIL

NOTES

SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONC.)

UTILITIES NOT SHOW FOR CLARITY SEE SITE PLAN FOR LOCATIONS.

SEE SHEET 9 FOR BACKFILL LIMITS.

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

✸ VERTICAL CONST. JOINT KEYWAY FORMED BY BEVELED 2" X 8". CLEAR PILES BY 9" MIN.

◓ 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. FILLER INCLUDED IN WING LENGTH.

◎ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS SHOWN ON SHEET 11.

◬ 3/4" CORK FILLER ON VERTICAL FACE OF STEP.

◔ OPTIONAL CONST. JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACK FACE.

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

F.F. = FRONT FACE
B.F. = BACK FACE
TOP = TOP FACE
BOT. = BOTTOM FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

NORTH ABUTMENT

SHEET 10 OF 28

8

8

W:\STRVB05\11\BRIDGE PLANS\11_ABUT BILL OF BARS & DETAILS.DGN

REVISED DATE: 9/29/2016 BY: TPW

STATE PROJECT NUMBER

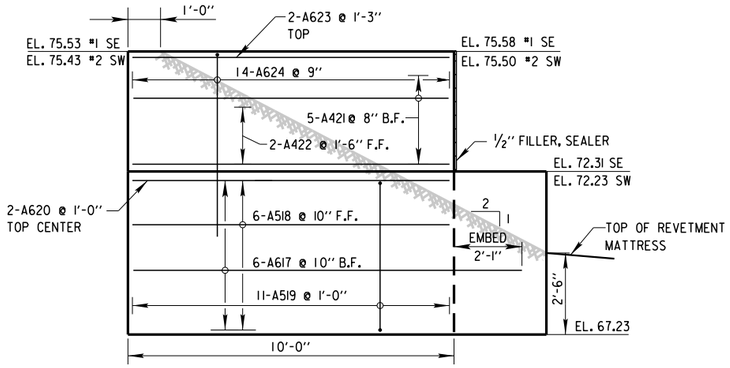
2984 - 07 - 75

BILL OF BARS - SOUTH ABUTMENT AND WING WALLS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
A501		106	14'-4"	X	ABUT. - VERT. STIRRUP
A602		36	24'-1"		ABUT. - HORIZ. BAR F.F./T.F./B.F.
A603		12	21'-1"		ABUT. - HORIZ. BAR F.F./T.F./B.F.
A804		14	25'-0"		ABUT. - HORIZ. BAR B.F.
A605		7	25'-3"		ABUT. - HORIZ. BAR B.F.
A606		7	22'-4"		ABUT. - HORIZ. BAR B.F.
A407		24	2'-3"		ABUT. - VERT. PILE
A408		12	28'-0"	X	ABUT. - PILE
A509		68	6'-1"	X	ABUT. - TOP STIRRUP
A410		4	32'-2"		ABUT. - HORIZ. TOP BAR
A411		4	30'-3"		ABUT. - HORIZ. TOP BAR
A412		54	4'-3"	X	ABUT. - TOP STIRRUP
A413		4	25'-0"		ABUT. - HORIZ. TOP BAR
A414		2	21'-2"		ABUT. - HORIZ. TOP BAR
A415		2	19'-2"		ABUT. - HORIZ. TOP BAR
A416		4	1'-5"		ABUT. - HORIZ. TOP BAR AT END
A617	X	12	11'-11"		WING WALL - HORIZ. BAR B.F.
A518	X	12	9'-8"		WING WALL - HORIZ. BAR F.F.
A519	X	22	15'-6"	X	WING WALL - STIRRUP
A620	X	4	9'-8"		WING WALL - HORIZ. BAR TOP CENTER
A421	X	10	9'-8"		WING WALL - HORIZ. B.F.
A422	X	4	9'-8"		WING WALL - HORIZ. F.F.
A623	X	4	9'-8"		WING WALL - POST LONGIT. TOP BAR
A624	X	28	12'-2"	X	WING WALL - POST STIRRUP

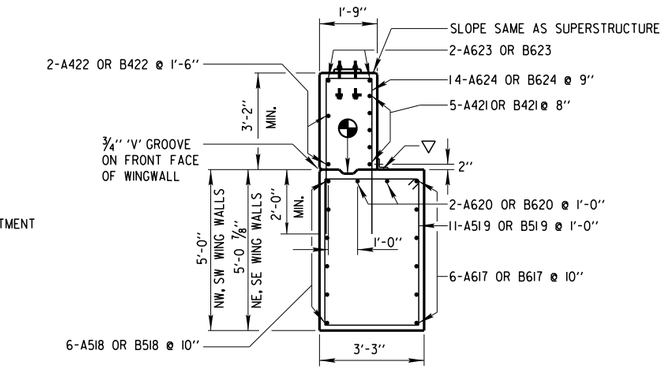
BILL OF BARS - NORTH ABUTMENT AND WING WALLS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
B501		106	14'-4"	X	ABUT. - VERT. STIRRUP
B602		36	24'-1"		ABUT. - HORIZ. BAR F.F./T.F./B.F.
B603		12	21'-1"		ABUT. - HORIZ. BAR F.F./T.F./B.F.
B804		14	25'-0"		ABUT. - HORIZ. BAR B.F.
B605		7	25'-3"		ABUT. - HORIZ. BAR B.F.
B606		7	22'-4"		ABUT. - HORIZ. BAR B.F.
B407		24	2'-3"		ABUT. - VERT. PILE
B408		12	28'-0"	X	ABUT. - PILE
B509		68	6'-1"	X	ABUT. - TOP STIRRUP
B410		4	32'-2"		ABUT. - HORIZ. TOP BAR
B411		4	30'-3"		ABUT. - HORIZ. TOP BAR
B412		54	4'-3"	X	ABUT. - TOP STIRRUP
B413		4	25'-0"		ABUT. - HORIZ. TOP BAR
B414		2	21'-2"		ABUT. - HORIZ. TOP BAR
B415		2	19'-2"		ABUT. - HORIZ. TOP BAR
B416		4	1'-5"		ABUT. - HORIZ. TOP BAR AT END
B617	X	12	11'-11"		WING WALL - HORIZ. BAR B.F.
B518	X	12	9'-8"		WING WALL - HORIZ. BAR F.F.
B519	X	22	15'-6"	X	WING WALL - STIRRUP
B620	X	4	9'-8"		WING WALL - HORIZ. BAR TOP CENTER
B421	X	10	9'-8"		WING WALL - HORIZ. B.F.
B422	X	4	9'-8"		WING WALL - HORIZ. F.F.
B623	X	4	9'-8"		WING WALL - POST LONGIT. TOP BAR
B624	X	28	12'-2"	X	WING WALL - POST STIRRUP

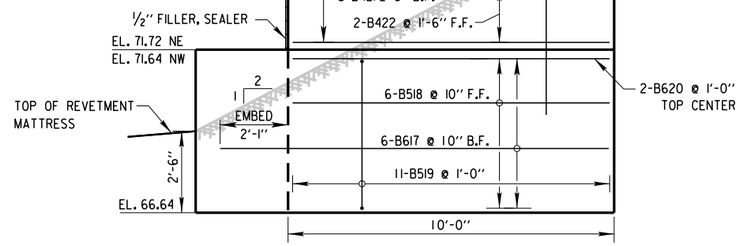


ELEVATION OF SOUTH WING WALLS

FRONT FACE OF SE WING WALL
(SW SIMILAR, OPPOSITE HAND)

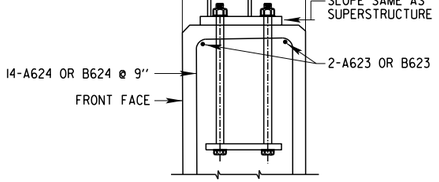


WING WALL SECTION



ELEVATION OF NORTH WING WALLS

FRONT FACE OF NE WING WALL
(NW SIMILAR, OPPOSITE HAND)

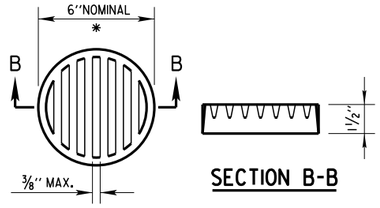


TOP OF WING DETAIL FOR TYPE "NY4" RAILING

NOTES

▽ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

⊕ OPTIONAL CONST. JOINT FORMED BY BEVELED 2" X 6" KEYWAY WITH MEMBRANE ON BACK FACE.



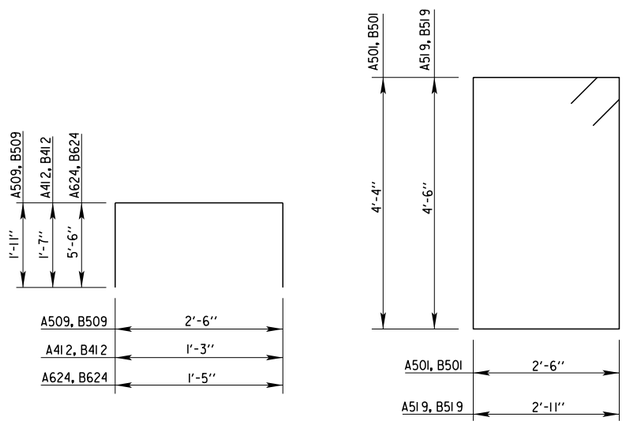
SECTION B-B

RODENT SHIELD DETAIL

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

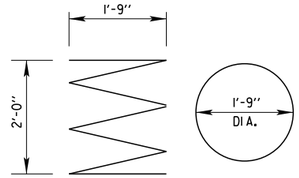
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN 6-INCH".

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



A509, A412, A624, B509, B412, B624

A501, B501, A519, B519



A408, B408

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

ABUTMENT BILL OF BARS & DETAILS

SHEET 11 OF 28

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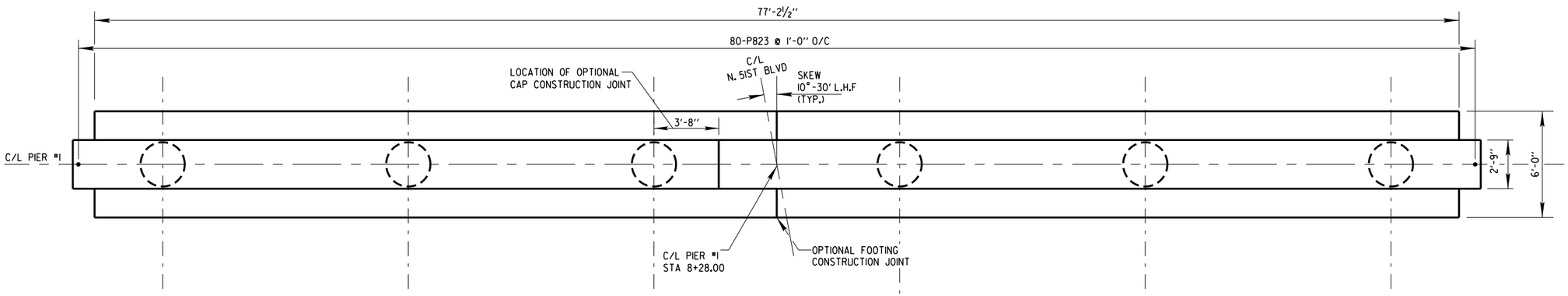
W:\STR\B051\BRIDGE PLANS\12_PIER 1.DGN

REVISED DATE: 11/16/16 BY: TPW

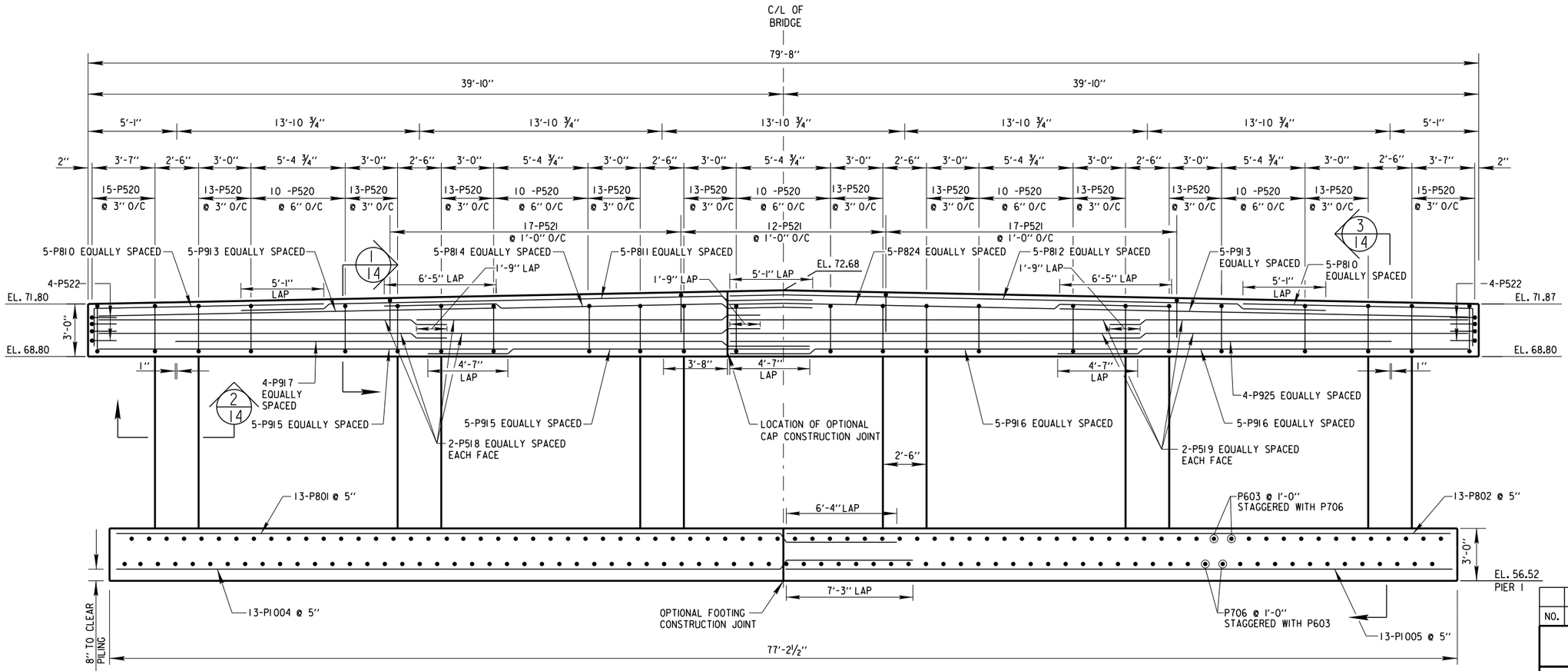
STATE PROJECT NUMBER
2984 - 07 - 75



PIER 1 CAP - PLAN VIEW

NOTES

UTILITIES NOT SHOWN FOR CLARITY. SEE SITE PLAN FOR LOCATIONS.



PIER 1 - ELEVATION

LOOKING UPSTATION (NORTH)
(ALL DIMENSIONS NORMAL TO SUBSTRUCTURE)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

DRAWN BY	D.B.	PLANS CK'D.	H.J.R. J.P.H.

PIER 1

SHEET 12 OF 28

8

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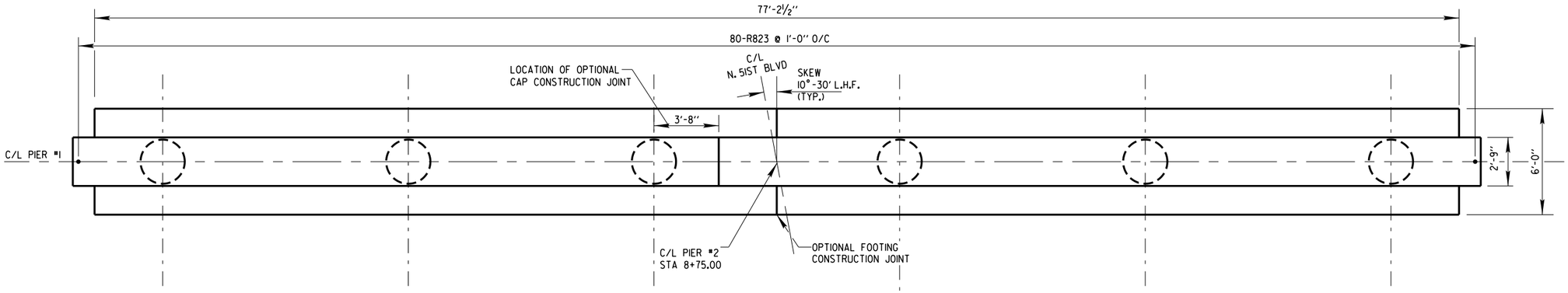
W:\STR\B051\BRIDGE PLANS\13_PIER 2.DGN

REVISED DATE: 11/16/16 BY: TPW

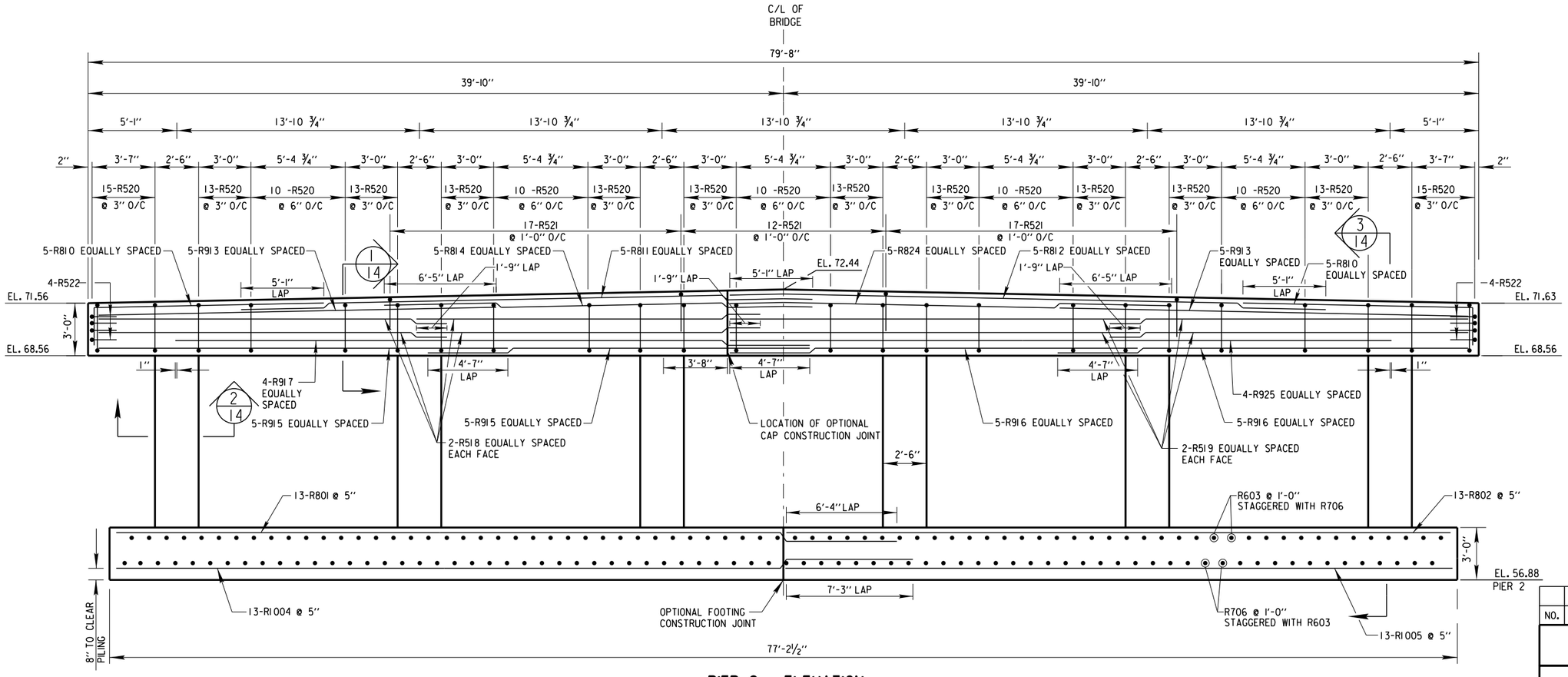
STATE PROJECT NUMBER
2984 - 07 - 75



PIER 2 CAP - PLAN VIEW

NOTES

UTILITIES NOT SHOWN FOR CLARITY. SEE SITE PLAN FOR LOCATIONS.



PIER 2 - ELEVATION

LOOKING UPSTATION (NORTH)
(ALL DIMENSIONS NORMAL TO SUBSTRUCTURE)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

DRAWN BY	D.B.	PLANS CK'D.	H.J.R. J.P.H.

PIER 2

SHEET 13 OF 28

8

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W:\STR\B05\1\BRIDGE PLANS\14_PIER BILL OF BARS & SECTIONS.DGN

REVISED DATE: 9/29/16 BY: ML

STATE PROJECT NUMBER

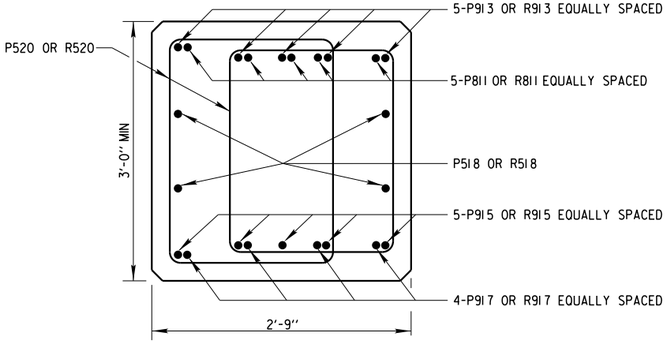
2984 - 07 - 75

BILL OF BARS - PIER 1

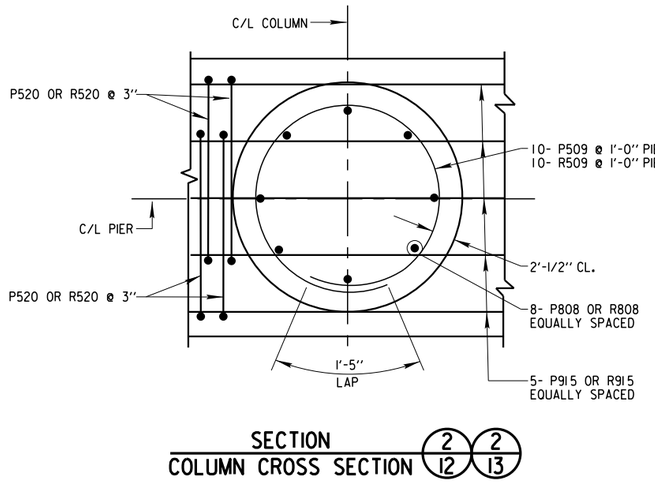
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
P801		13	44'-10"		FOOTING - LONGIT. TOP
P802		13	38'-2"		FOOTING - LONGIT. TOP
P603		77	5'-8"		FOOTING - TRAN. TOP
P1004		13	45'-9"		FOOTING - LONGIT. BOT.
P1005		13	38'-2"		FOOTING - LONGIT. BOT.
P706		78	5'-8"		FOOTING - TRAN. BOT.
P807		48	7'-1"	X	FOOTING - VERT. DOWEL
P808		48	12'-5"	X	COLUMN - VERT.
P509		66	8'-0"	X	COLUMN - STIRRUP
P810		10	16'-5"	X	CAP - LONGIT. TOP
P811		5	32'-10"		CAP - LONGIT. TOP
P812		5	34'-1"		CAP - LONGIT. TOP
P913		10	24'-2"		CAP - LONGIT. TOP
P814		5	24'-0"		CAP - LONGIT. TOP
P915		10	22'-11"		CAP - LONGIT. BOT.
P916		10	23'-9"		CAP - LONGIT. BOT.
P917		4	36'-3"		CAP - LONGIT. BOT.
P518		8	20'-1"		CAP - LONGIT. MID.
P519		8	22'-4"		CAP - LONGIT. MID.
P520		420	9'-8"	X	CAP - STIRRUP
P521		46	5'-10"	X	CAP - STIRRUP
P522		8	4'-10"	X	CAP - END STIRRUP
P823	X	80	3'-0"		CAP - DOWEL
P824		5	25'-0"		CAP - LONGIT. TOP
P925		4	42'-10"		CAP - LONGIT. BOT.

BILL OF BARS - PIER 2

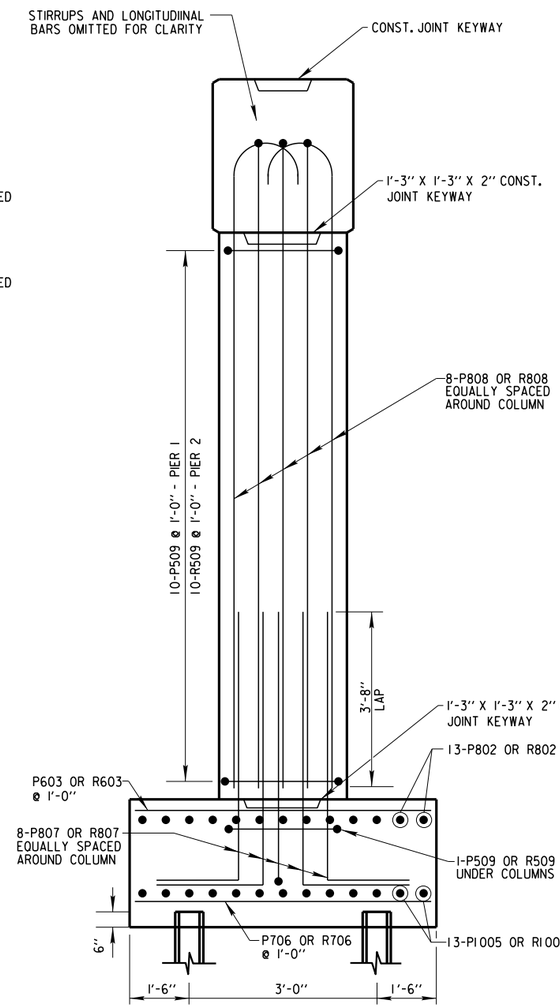
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
R801		13	44'-10"		FOOTING - LONGIT. TOP
R802		13	38'-2"		FOOTING - LONGIT. TOP
R603		77	5'-8"		FOOTING - TRAN. TOP
R1004		13	45'-9"		FOOTING - LONGIT. BOT.
R1005		13	38'-2"		FOOTING - LONGIT. BOT.
R706		78	5'-8"		FOOTING - TRAN. BOT.
R807		48	7'-1"	X	FOOTING - VERT. DOWEL
R808		48	12'-0"	X	COLUMN - VERT.
R509		66	8'-0"	X	COLUMN - STIRRUP
R810		10	16'-5"	X	CAP - LONGIT. TOP
R811		5	32'-10"		CAP - LONGIT. TOP
R812		5	34'-1"		CAP - LONGIT. TOP
R913		10	24'-2"		CAP - LONGIT. TOP
R814		5	24'-0"		CAP - LONGIT. TOP
R915		10	22'-11"		CAP - LONGIT. BOT.
R916		10	23'-9"		CAP - LONGIT. BOT.
R917		4	36'-3"		CAP - LONGIT. BOT.
R518		8	20'-1"		CAP - LONGIT. MID.
R519		8	22'-4"		CAP - LONGIT. MID.
R520		420	9'-8"	X	CAP - STIRRUP
R521		46	5'-10"	X	CAP - STIRRUP
R522		8	4'-10"	X	CAP - END STIRRUP
R823	X	80	3'-0"		CAP - DOWEL
R824		5	25'-0"		CAP - LONGIT. TOP
R925		4	42'-10"		CAP - LONGIT. BOT.



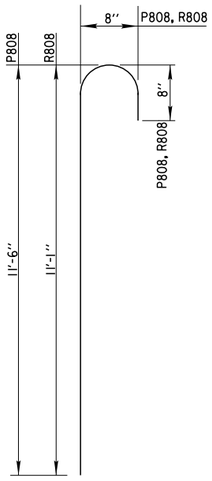
SECTION
PIER CAP CROSS SECTION (1/12) (1/13)



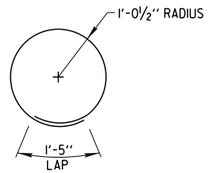
SECTION
COLUMN CROSS SECTION (2/12) (2/13)



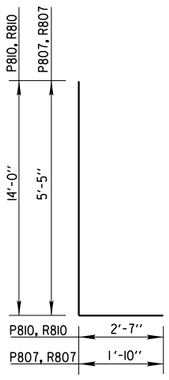
SECTION
PIER END SECTION (3/12) (3/13)



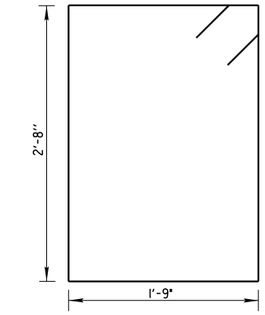
P808, R808



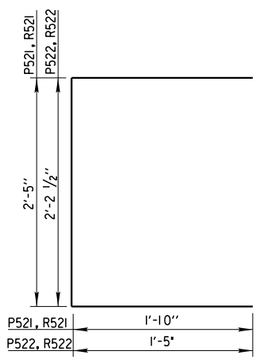
P509, R509



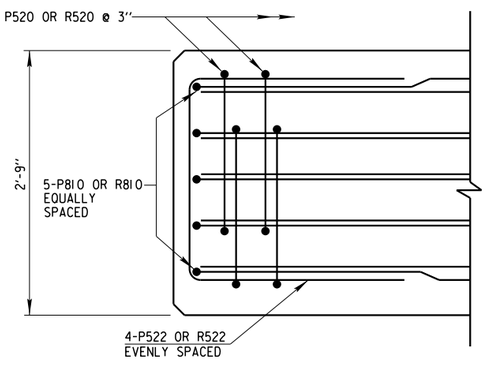
P810, P807
R810, R807



P520, R520



P521, P522
R521, R522



PLAN VIEW CAP END DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

PIER BILL OF BARS & SECTIONS

SHEET 14 OF 28

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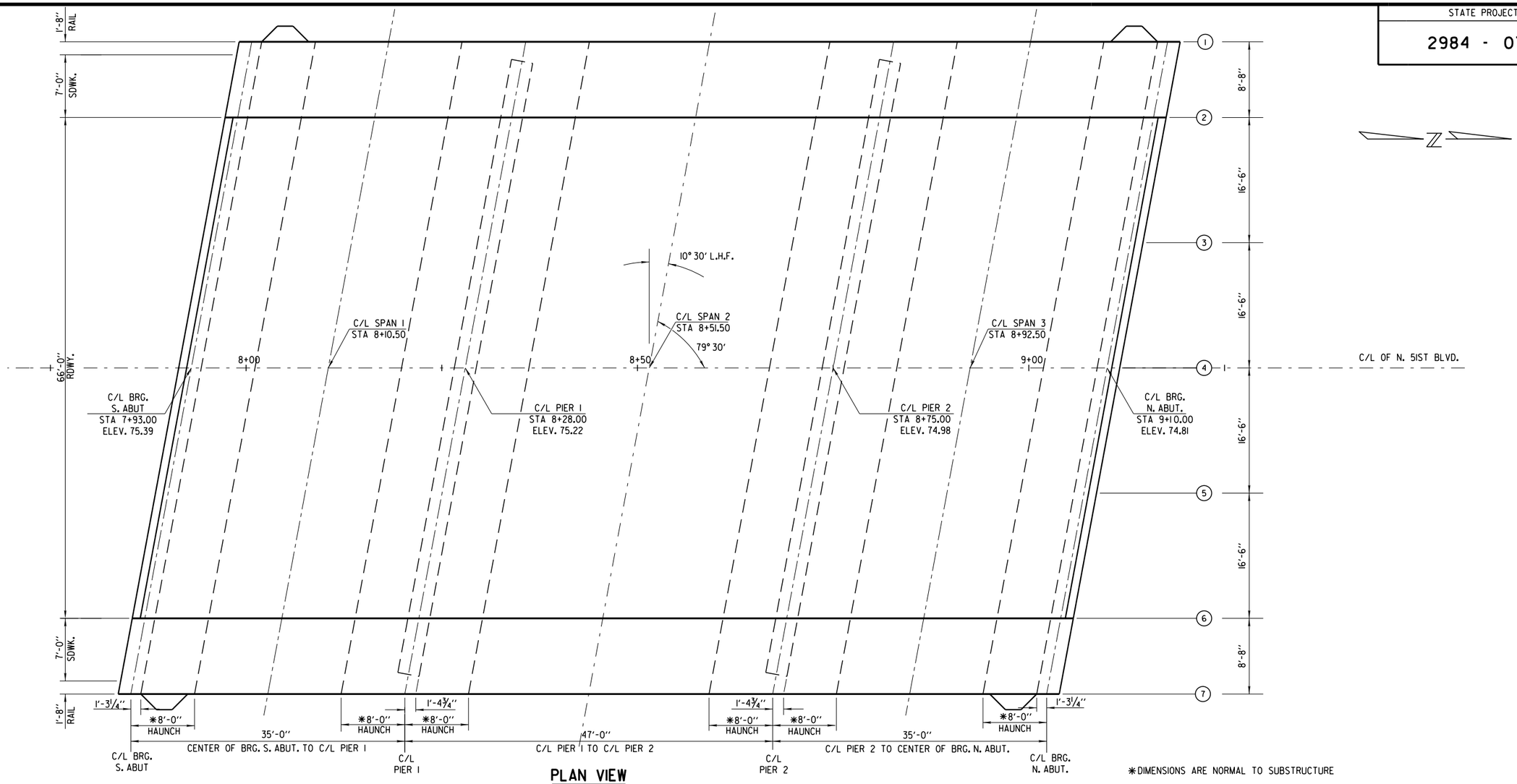
W:\STR\B05111\BRIDGE PLANS\15_DECK GRADES.DGN

REVISED: 11-04-2016 BY DB

STATE PROJECT NUMBER

2984 - 07 - 75



PLAN VIEW

*DIMENSIONS ARE NORMAL TO SUBSTRUCTURE

TOP OF DECK ELEVATIONS SPAN 1

SPAN LENGTH 'L'	DECK LOCATION	DESC.	C/L BRG. S. ABUT.	0.10L SPAN	0.20L SPAN	0.30L SPAN	0.40L SPAN	0.50L SPAN	0.60L SPAN	0.70L SPAN	0.80L SPAN	0.90L SPAN	C/L PIER 1
	CAMBER (IN.)		0.0	0.3	0.5	0.7	0.7	0.7	0.5	0.3	0.2	0.1	0.0
35'-0"	①	T.DECK	74.52	74.50	74.48	74.47	74.45	74.43	74.41	74.40	74.38	74.36	74.34
	②	T.DECK	74.70	74.68	74.66	74.65	74.63	74.61	74.59	74.58	74.56	74.54	74.52
	③	T.DECK	75.04	75.03	75.01	74.99	74.97	74.96	74.94	74.92	74.90	74.89	74.87
	④	T.DECK	75.39	75.37	75.36	75.34	75.32	75.30	75.29	75.27	75.25	75.23	75.22
	⑤	T.DECK	75.08	75.06	75.04	75.02	75.01	74.99	74.97	74.95	74.94	74.92	74.90
	⑥	T.DECK	74.76	74.74	74.73	74.71	74.69	74.67	74.66	74.64	74.62	74.60	74.59
	⑦	T.DECK	74.60	74.58	74.56	74.54	74.53	74.51	74.49	74.47	74.46	74.44	74.42

TOP OF DECK ELEVATIONS SPAN 2

SPAN LENGTH 'L'	DECK LOCATION	DESC.	C/L PIER 1	0.10L SPAN	0.20L SPAN	0.30L SPAN	0.40L SPAN	0.50L SPAN	0.60L SPAN	0.70L SPAN	0.80L SPAN	0.90L SPAN	C/L PIER 2
	CAMBER (IN.)		0.0	0.1	0.3	0.6	0.8	0.9	0.8	0.6	0.3	0.1	0.0
47'-0"	①	T.DECK	74.34	74.32	74.30	74.27	74.25	74.23	74.20	74.18	74.16	74.13	74.11
	②	T.DECK	74.52	74.50	74.48	74.45	74.43	74.41	74.38	74.36	74.34	74.31	74.29
	③	T.DECK	74.87	74.85	74.82	74.80	75.78	75.75	74.73	74.71	74.68	74.66	74.63
	④	T.DECK	75.22	75.19	75.17	75.14	75.12	75.10	75.07	75.05	75.03	75.00	74.98
	⑤	T.DECK	74.90	74.88	74.85	74.83	74.81	74.78	74.76	74.74	74.71	74.69	74.67
	⑥	T.DECK	74.59	74.56	74.54	74.52	74.49	74.47	74.44	74.42	74.40	74.37	74.35
	⑦	T.DECK	74.42	74.40	74.37	74.35	74.33	74.30	74.28	74.26	74.23	74.21	74.19

TOP OF DECK ELEVATIONS SPAN 3

SPAN LENGTH 'L'	DECK LOCATION	DESC.	C/L PIER 2	0.10L SPAN	0.20L SPAN	0.30L SPAN	0.40L SPAN	0.50L SPAN	0.60L SPAN	0.70L SPAN	0.80L SPAN	0.90L SPAN	C/L BRG. N. ABUT.
	CAMBER (IN.)		0.0	0.1	0.2	0.3	0.5	0.7	0.7	0.7	0.5	0.3	0.0
35'-0"	①	T.DECK	74.11	74.09	74.07	74.06	74.04	74.02	74.00	73.99	73.97	73.95	73.93
	②	T.DECK	74.29	74.27	74.25	74.24	74.22	74.20	74.18	74.17	74.15	74.13	74.11
	③	T.DECK	74.63	74.62	74.60	74.58	74.56	74.55	74.53	74.51	74.49	74.48	74.46
	④	T.DECK	74.98	74.96	74.95	74.93	74.91	74.89	74.88	74.86	74.84	74.82	74.81
	⑤	T.DECK	74.67	74.65	74.63	74.61	74.60	74.58	74.56	74.54	74.53	74.51	74.49
	⑥	T.DECK	74.35	74.33	74.32	74.30	74.28	74.26	74.25	74.23	74.21	74.19	74.18
	⑦	T.DECK	74.19	74.17	74.15	74.13	74.12	74.10	74.08	74.06	74.05	74.03	74.01

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

DECK GRADES

SHEET 15 OF 28

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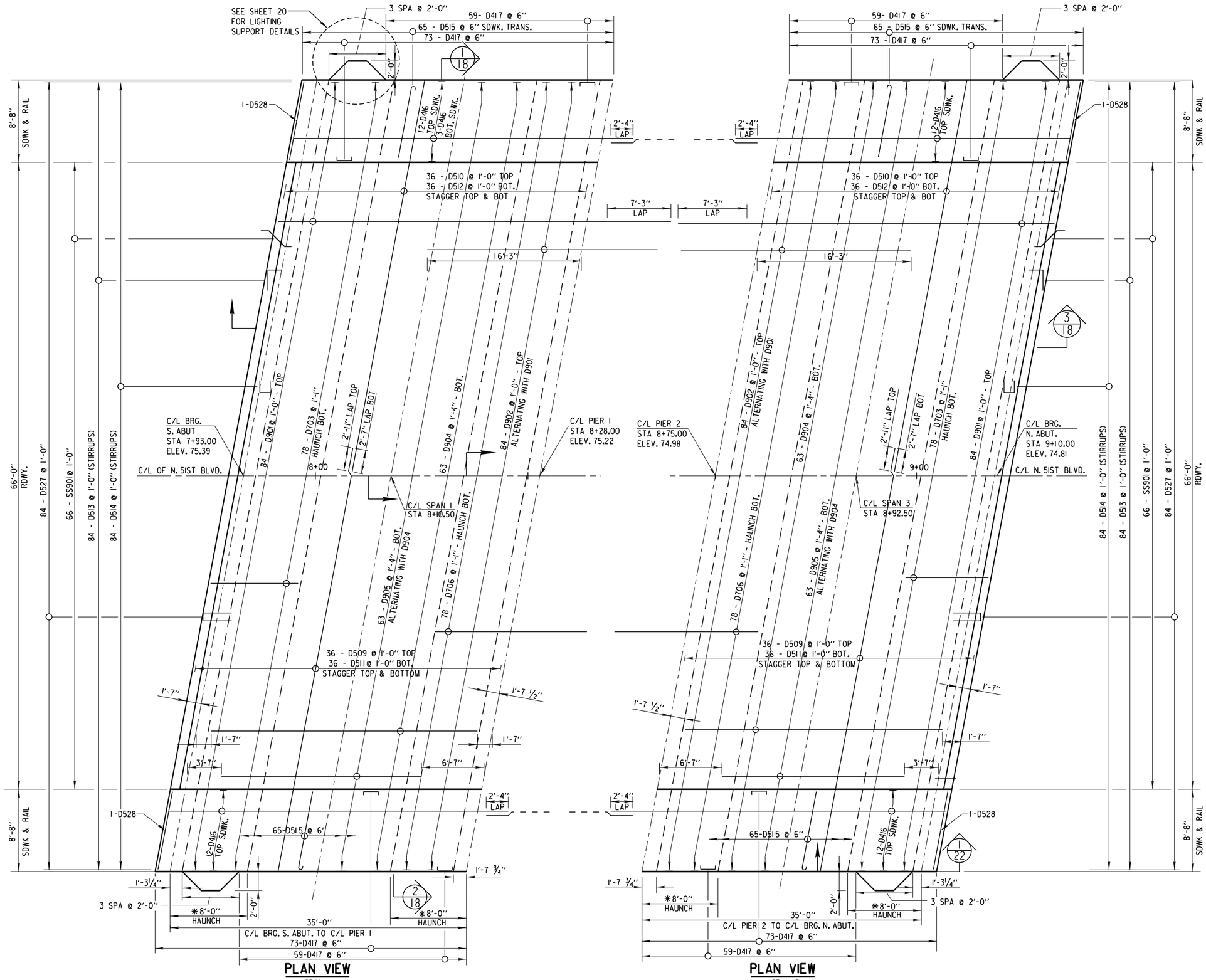
W:\STR\B05\I\BRIDGE PLANS\16_SPAN 1 & 3 DECK PLAN.DGN

REVISED DATE: 9/30/16 BY ML

STATE PROJECT NUMBER
2984 - 07 - 75



NOTES:

SEE SHEET 22 FOR SIDEWALK DETAIL AND ADDITIONAL REINFORCEMENT AT RAILING POSTS

*DIMENSIONS GIVEN ARE NORMAL TO SUBSTRUCTURE
OMIT D515 IN WALK AT LIGHT POLE BASES.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

DRAWN BY M.L. | PLANS CK'D. H.J.R. J.P.H.

SPANS 1 & 3 DECK PLANS

SHEET 16 OF 28

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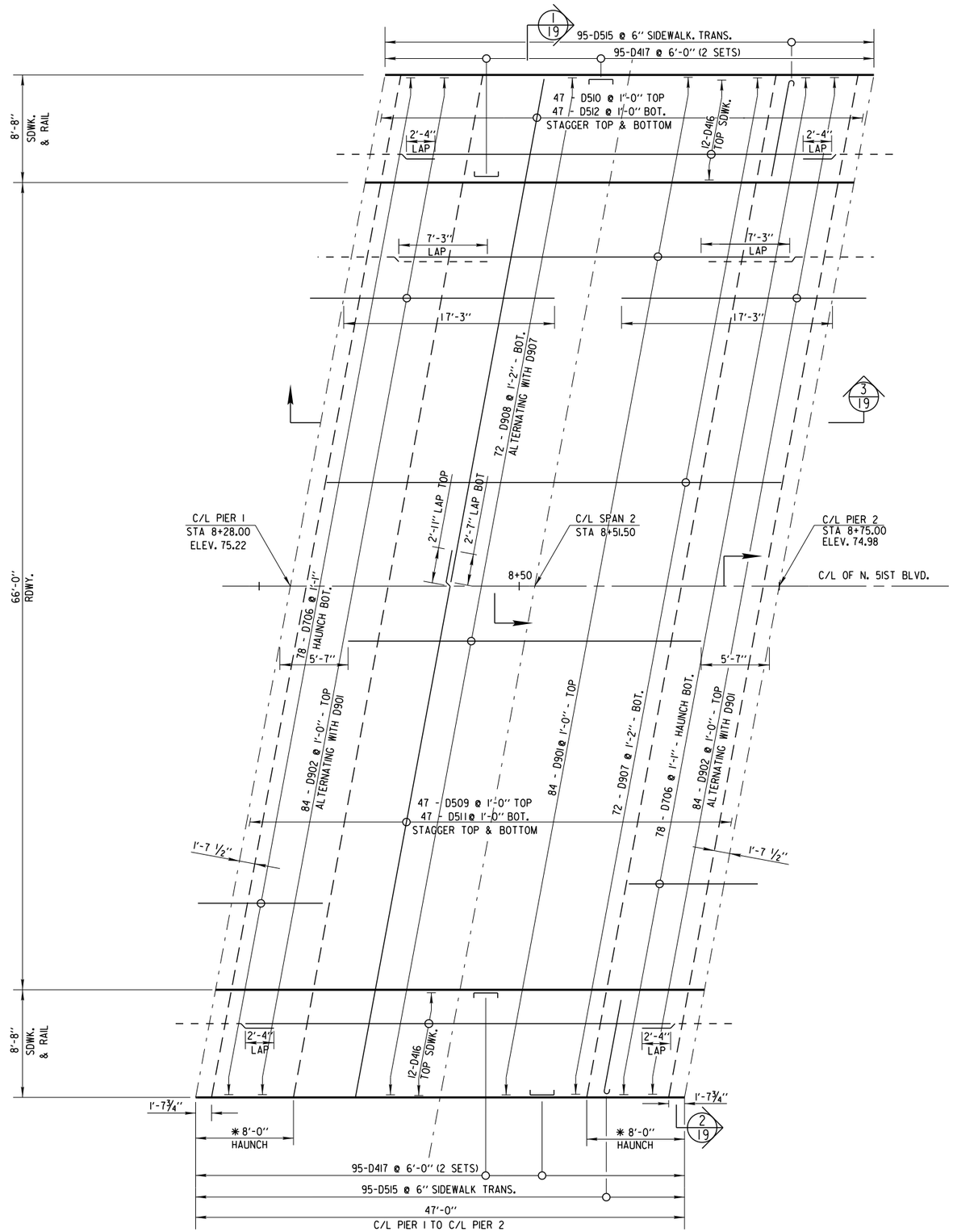
W:\STR\B05111\BRIDGE PLANS\17_SPAN 2 DECK PLAN.DGN

REVISED DATE: 9/30/16 BY DB

STATE PROJECT NUMBER

2984 - 07 - 75



PLAN VIEW
(SPAN 2)

NOTES:

SEE SHEET 22 FOR SIDEWALK DETAIL AND ADDITIONAL REINFORCEMENT AT RAILING POSTS

*DIMENSIONS GIVEN ARE NORMAL TO SUBSTRUCTURE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

SPAN 2 DECK PLAN

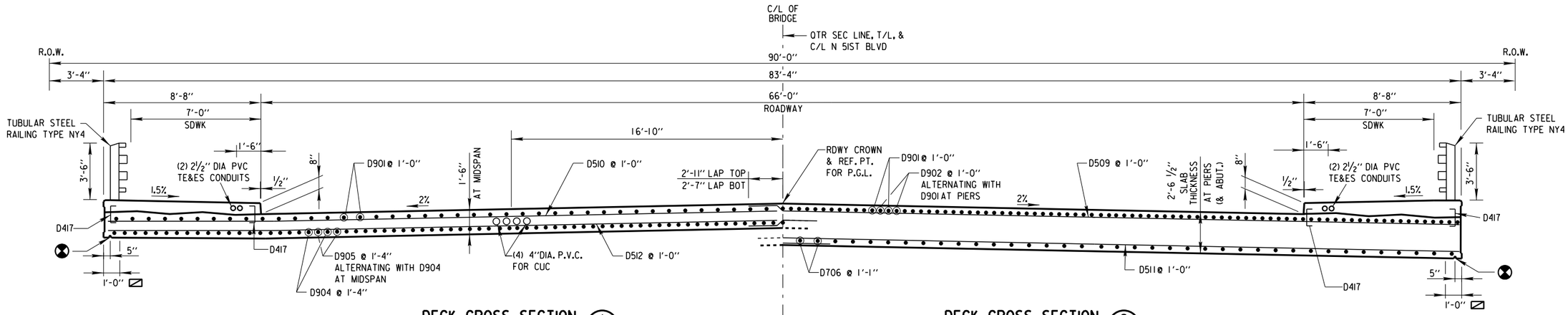
SHEET 17 OF 28

W:\STR\B05\LBRIDGE PLANS\18_SPAN 1 AND 3 DECK CROSS SECTION.DGN

REVISED DATE: 11-17-2016 BY GJR

STATE PROJECT NUMBER

2984 - 07 - 75

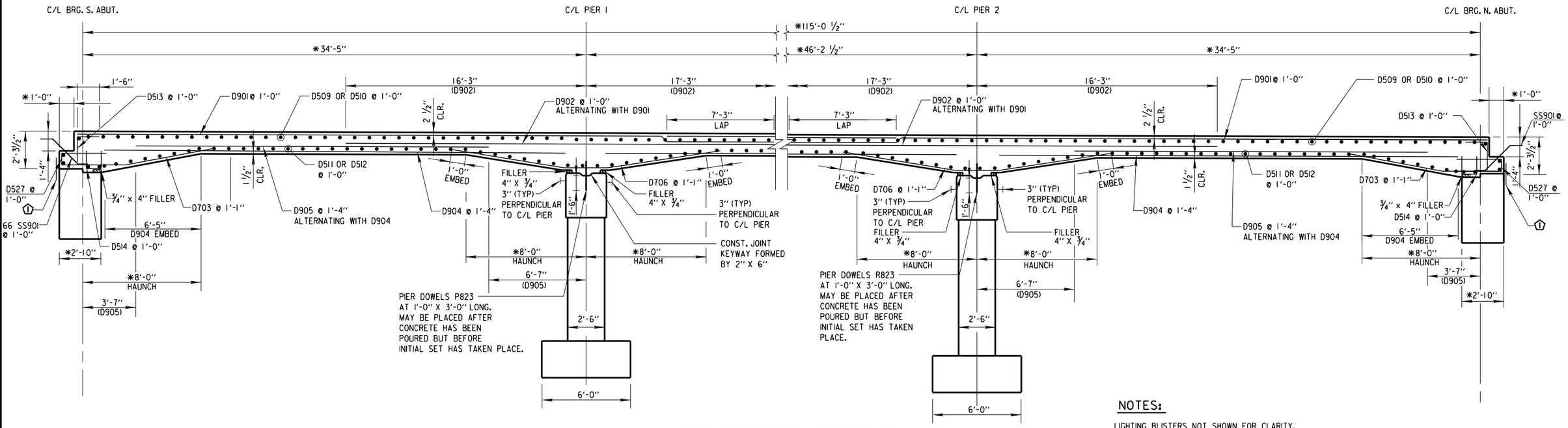


DECK CROSS SECTION (1/16)

AT MIDSPAN LOOKING NORTH
(SPANS 1 AND 3)
(ALL DIMENSIONS NORMAL TO C/L N. 51ST BLVD)

DECK CROSS SECTION (2/16)

AT HAUNCHES LOOKING NORTH
(SPANS 1 AND 3)
(ALL DIMENSIONS NORMAL TO C/L N. 51ST BLVD)



DECK LONGITUDINAL SECTION (3/16)

SPANS 1 AND 3
LOOKING WEST

NOTES:

LIGHTING BLISTERS NOT SHOWN FOR CLARITY. SEE SHEET 20.

1. 18-INCH RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
2. * DIMENSIONS ARE GIVEN NORMAL TO SUBSTRUCTURE
3. ¾" V-GROOVE. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT/PIERS. V-GROOVES ARE REQUIRED
4. COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

DRAWN BY M.L. | PLANS CK'D. H.J.R. J.P.H.

SPANS 1 & 3
DECK CROSS SECTIONS

SHEET 18 OF 28

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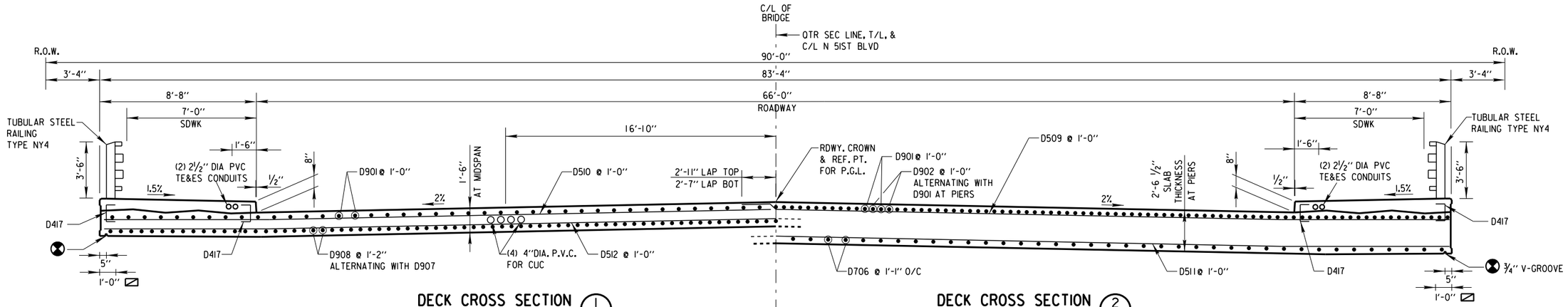
STATE PROJECT NUMBER

2984 - 07 - 75

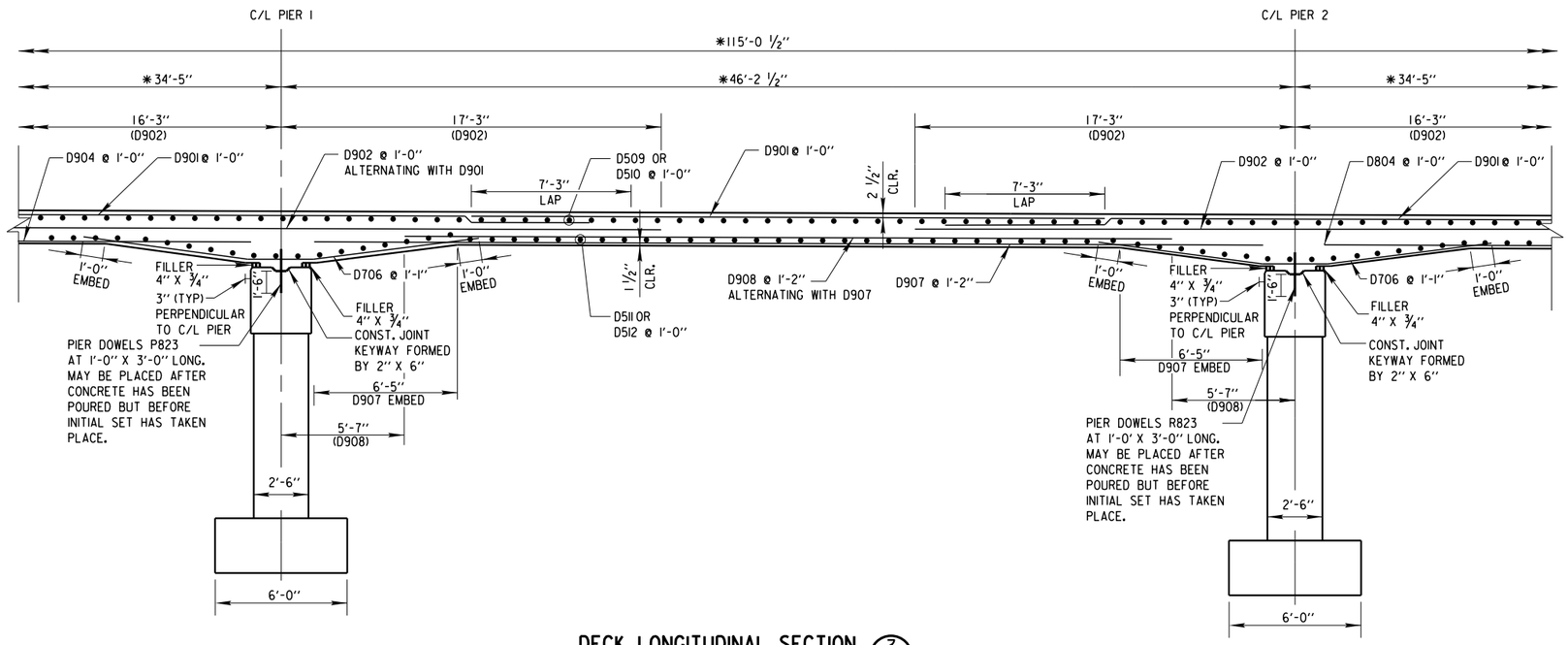


DECK CROSS SECTION (1/17)

AT MIDSPAN LOOKING NORTH
(SPAN 2)
(ALL DIMENSIONS NORMAL TO C/L N. 51ST BLVD.)

DECK CROSS SECTION (2/17)

AT HAUNCHES LOOKING NORTH
(SPAN 2)
(ALL DIMENSIONS NORMAL TO C/L N. 51ST BLVD.)



DECK LONGITUDINAL SECTION (3/17)

SPAN 2
LOOKING WEST

NOTES:

* DIMENSIONS ARE GIVEN NORMAL TO SUBSTRUCTURE
- COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS
- ¾" V-GROOVE. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT/PIERS. V-GROOVES ARE REQUIRED

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

SPAN 2 DECK CROSS SECTION

SHEET 19 OF 28

100

REVISED: 11/17/2016 BY CJR

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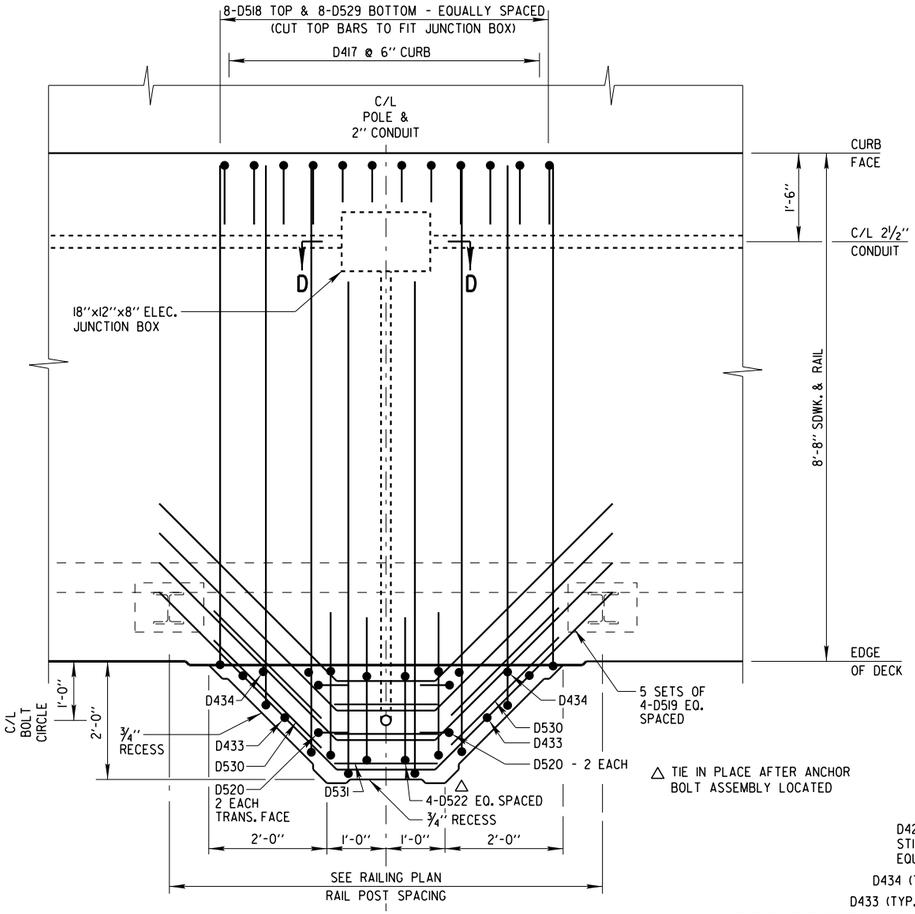
W:\STR\BOS11\BRIDGE PLANS\20_LIGHTDET.DGN

REVISED: 11/17/2016 BY: GJR

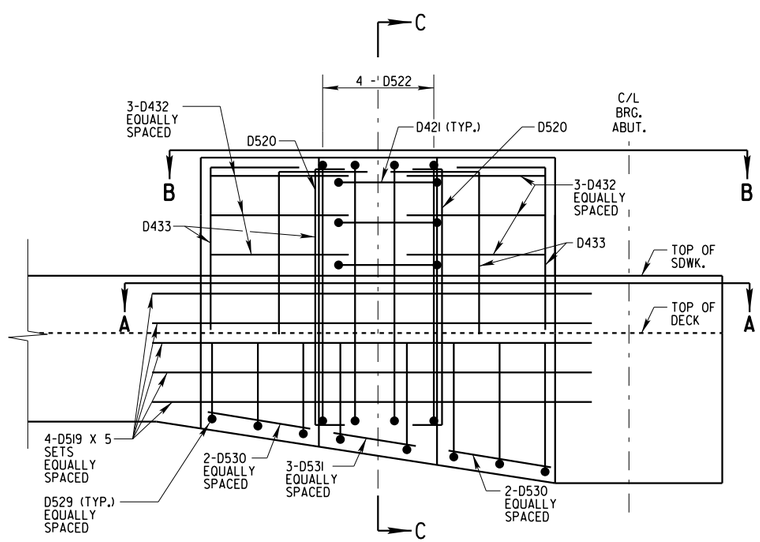
STATE PROJECT NUMBER

2984 - 07 - 75

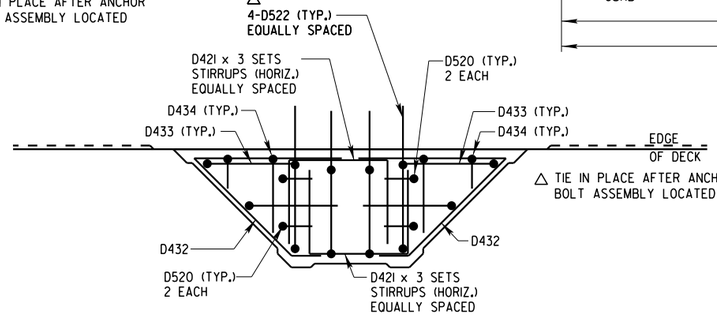


SECTION A-A

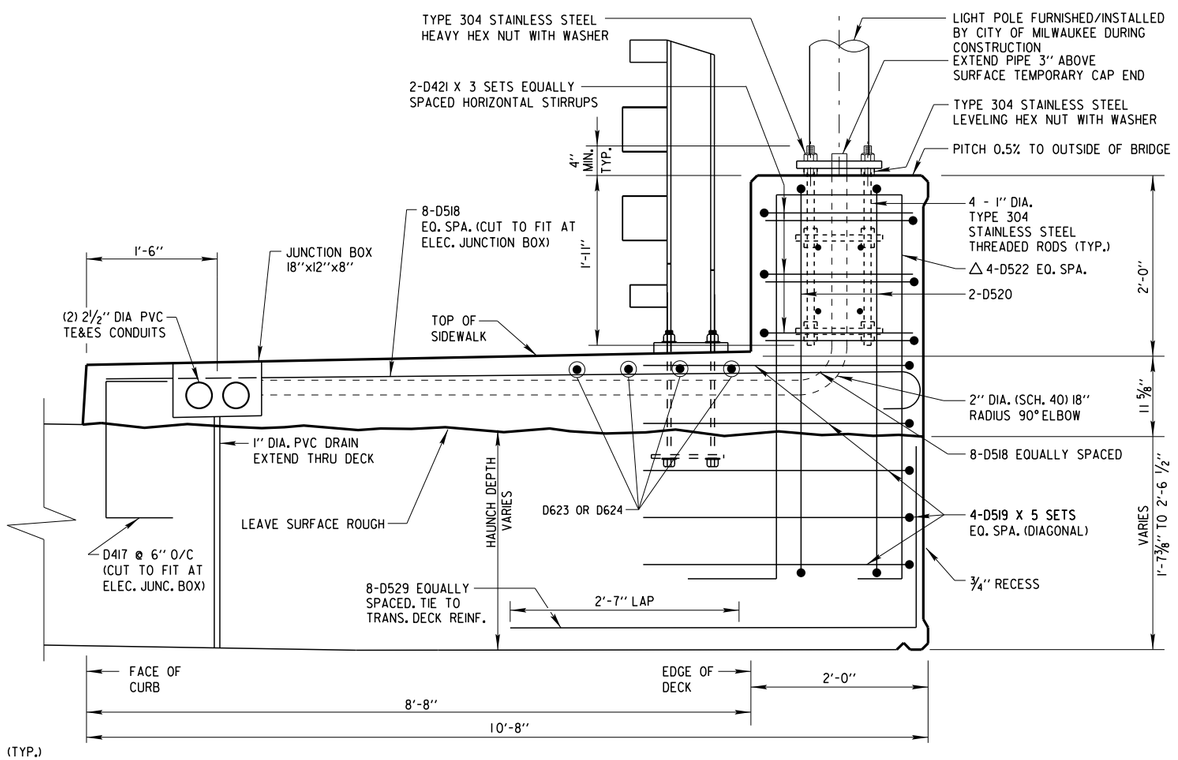
(SIDEWALK & DECK BARS NOT SHOWN FOR CLARITY)



ELEVATION VIEW OF LIGHT POLE BASE

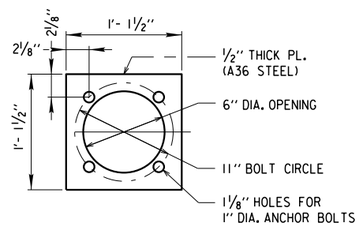


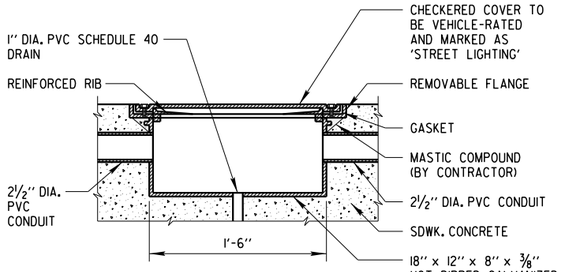
SECTION B-B



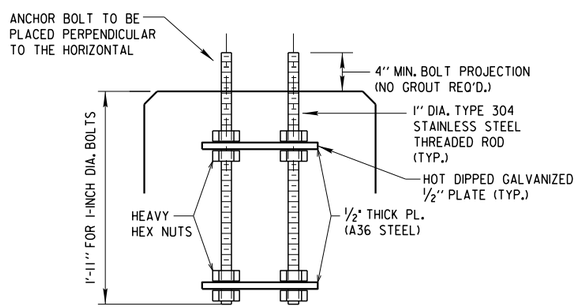
SECTION C-C

THRU SIDEWALK AND RAILING AT LIGHTPOLE BASE





SECTION D-D



ANCHORAGE DETAIL

(4 REQ'D.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

DRAWN BY C.L. | PLANS CK'D. H.J.R. J.P.H.

LIGHTING DETAILS

SHEET 20 OF 28
101

8

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W:\STR\B05111\BRIDGE PLANS\21_DECKDET&BILLOFBARS.DGN

REVISED DATE: 09-30-2016 BY DB

STATE PROJECT NUMBER

2984 - 07 - 75

BILL OF BARS - DECK

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
D901	×	252	44'-10"			DECK - TOP LONGIT. - ALL SPANS
D902	×	168	33'-6"			DECK - TOP LONGIT. - SUPPORT
D703	×	156	10'-5"	×		DECK - BOTTOM LONGIT. - HAUNCH
D904	×	126	31'-11"			DECK - BOTTOM LONGIT. - SPAN 1 & 3
D905	×	126	24'-10"			DECK - BOTTOM LONGIT. - SPAN 1 & 3
D706	×	156	17'-0"	×		DECK - BOTTOM LONGIT. - HAUNCH
D907	×	72	43'-11"			DECK - BOTTOM LONGIT. - SPAN 2
D908	×	72	35'-10"			DECK - BOTTOM LONGIT. - SPAN 2
D509	×	119	45'-4"			DECK - TOP TRAN.- EAST
D510	×	119	42'-1"			DECK - TOP TRAN.- WEST
D511	×	126	45'-0"			DECK - BOTTOM TRAN.- EAST
D512	×	126	42'-1"			DECK - BOTTOM TRAN.- WEST
D513	×	168	3'-4"	×		HAUNCH STIRRUPS
D514	×	168	3'-0"	×		HAUNCH STIRRUPS
D515	×	450	8'-10"	×		SIDEWALK - TRAN.- TOP
D416	×	72	41'-6"			SIDEWALK - LONGIT.- TOP
D417	×	908	3'-6"	×		SIDEWALK - DOWELS
D518	×	32	9'-9"	×	△	LIGHTING BLISTER-SDWK TOP
D519	×	80	10'-2"	×		LIGHTING BLISTER-TRAP. SETS
D520	×	16	5'-1"	×		LIGHTING BLISTER-VERT. CENTER
D421	×	24	4'-4"	×		LIGHTING BLISTER-HORIZ. TOP CENTER
D522	×	16	11'-1"	×		LIGHTING BLISTER-VERT. CENTER
D623	×	112	6'-0"			RAILING ANCHOR - LONGIT.
D624	×	16	6'-8"	×		RAILING ANCHOR - END
D625	×	60	12'-0"	×		RAILING ANCHOR - TRAN.
D626	×	4	12'-0"	×		RAILING ANCHOR - TRAN.
D527	×	168	6'-11"	×		DECK - BOTTOM LONGIT. HAUNCH
D828	×	4	8'-5"			DECK - TOP TRAN. END
D529	×	32	6'-3"	×	△	LIGHTING BLISTER-HAUNCH BOT.
D530	×	16	2'-7"			LIGHTING BLISTER-HAUNCH BOT. LONG.
D531	×	12	1'-9"			LIGHTING BLISTER-HAUNCH BOT. LONG.
D432	×	24	5'-2"	×		LIGHTING BLISTER-RET. HORIZ.
D433	×	16	4'-2"	×		LIGHTING BLISTER-RET. VERT.
D434	×	16	3'-7"	×	△	LIGHTING BLISTER-RET. VERT.

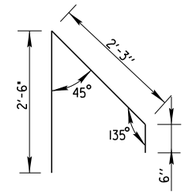
△ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTH.

BAR SERIES TABLE

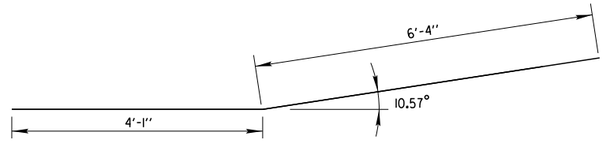
MARK	NO. REQ'D.	LENGTH
D518	4 SERIES OF 8	8'-11" TO 10'-7"
D529	4 SERIES OF 8	5'-9" TO 6'-8"
D434	8 SERIES OF 2	3'-2" TO 3'-11"

BILL OF BARS - DECK STAINLESS STEEL

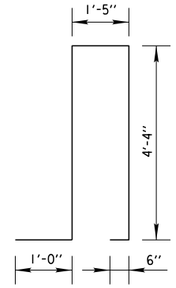
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
SS901		132	5'-0"	×	NORTH AND SOUTH APPROACH SLAB DOWELS



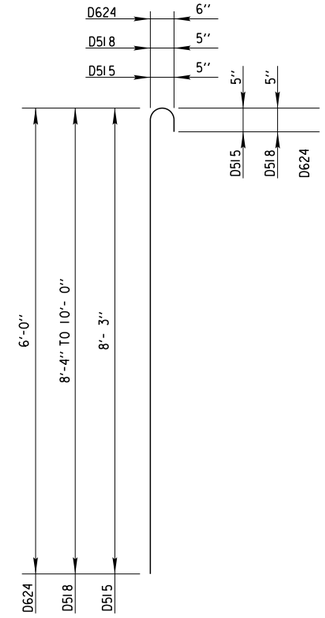
D432



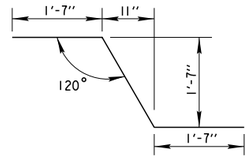
D703



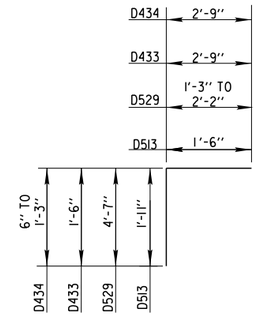
D522



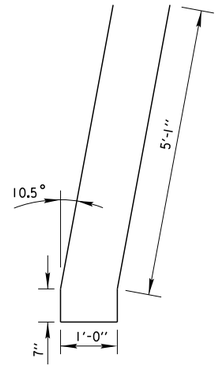
D515, D518, D624



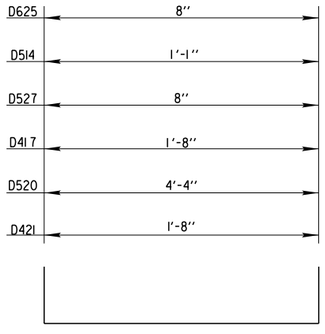
SS901



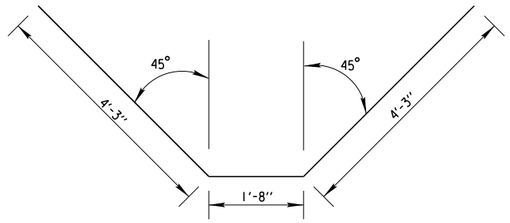
D513, D529, D433, D434



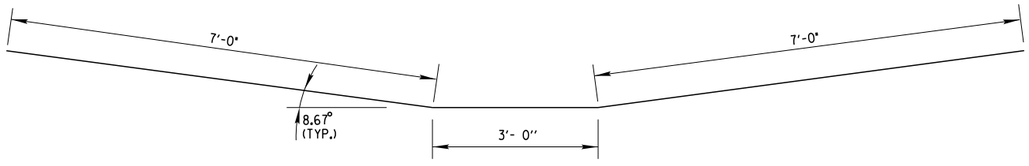
D626



D514, D417, D520, D421, D527, D625



D519



D706

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

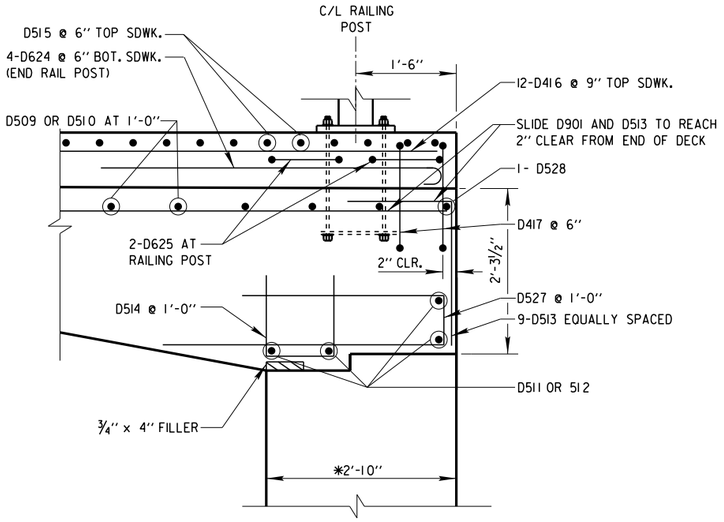
DECK BILL OF BARS

SHEET 21 OF 28

8

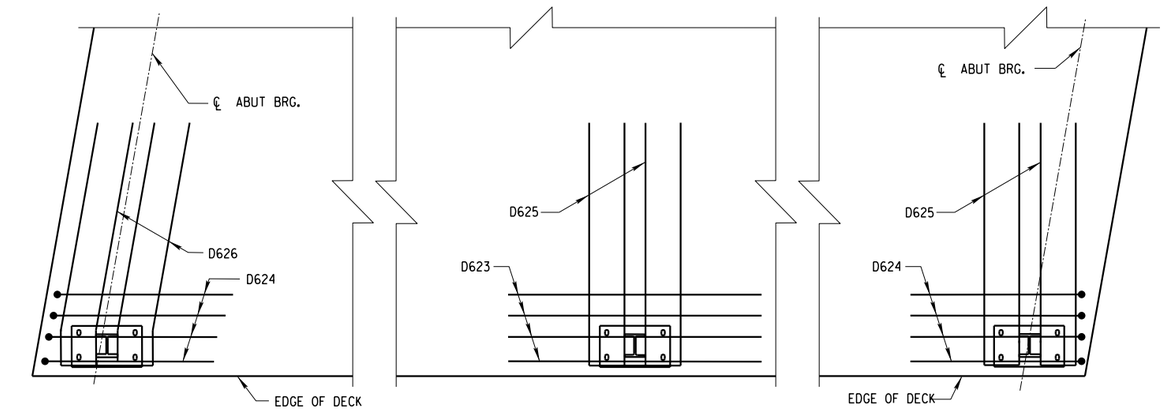
8

STATE PROJECT NUMBER
2984 - 07 - 75



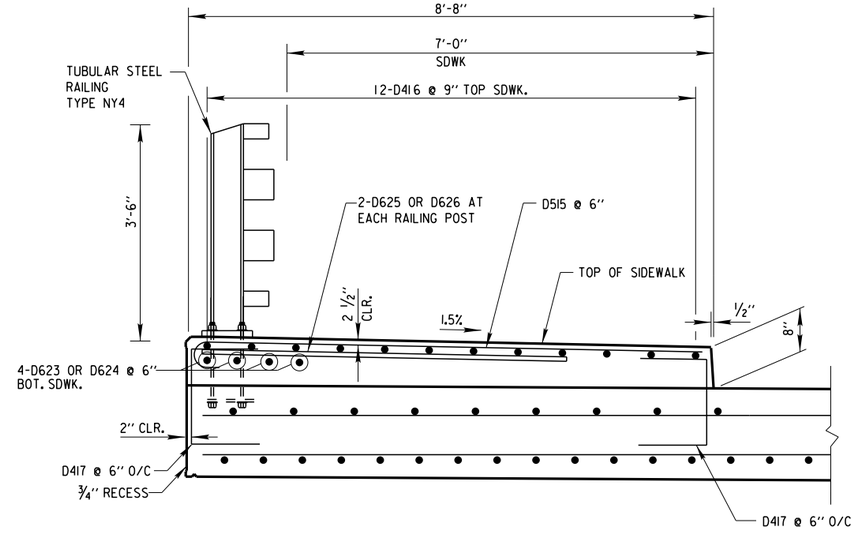
SECTION SIDEWALK END OF DECK (1/16)

*DIMENSIONS GIVEN ARE NORMAL TO SUBSTRUCTURE

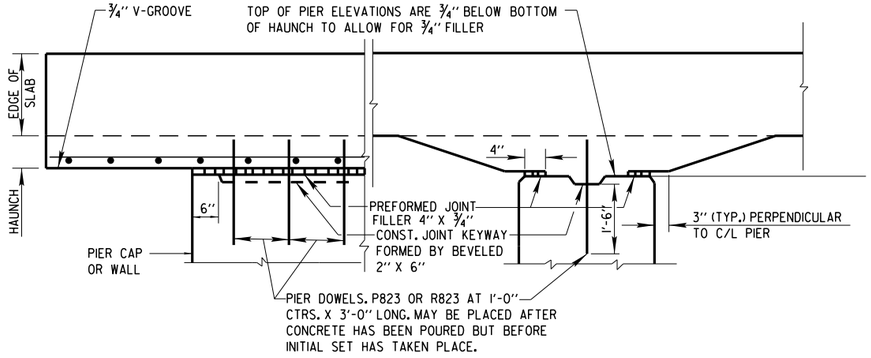


SE AND NW CORNERS | INTERIOR POSTS | NE AND SW CORNERS

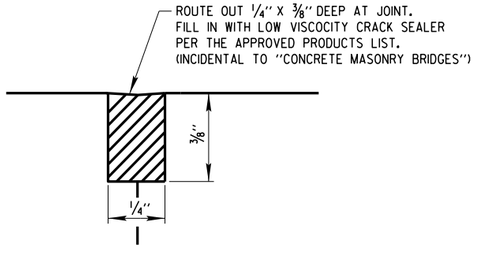
RAILING ANCHOR DETAILS



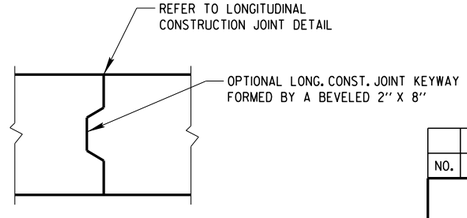
SECTION SIDEWALK, EDGE BEAM



PIER CAP DETAILS



LONGITUDINAL CONSTRUCTION JOINT DETAIL



OPTIONAL LONGITUDINAL CONSTRUCTION JOINT

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

DECK DETAILS

SHEET 22 OF 28
103

REVISED DATE: 9/30/16 BY ML

8

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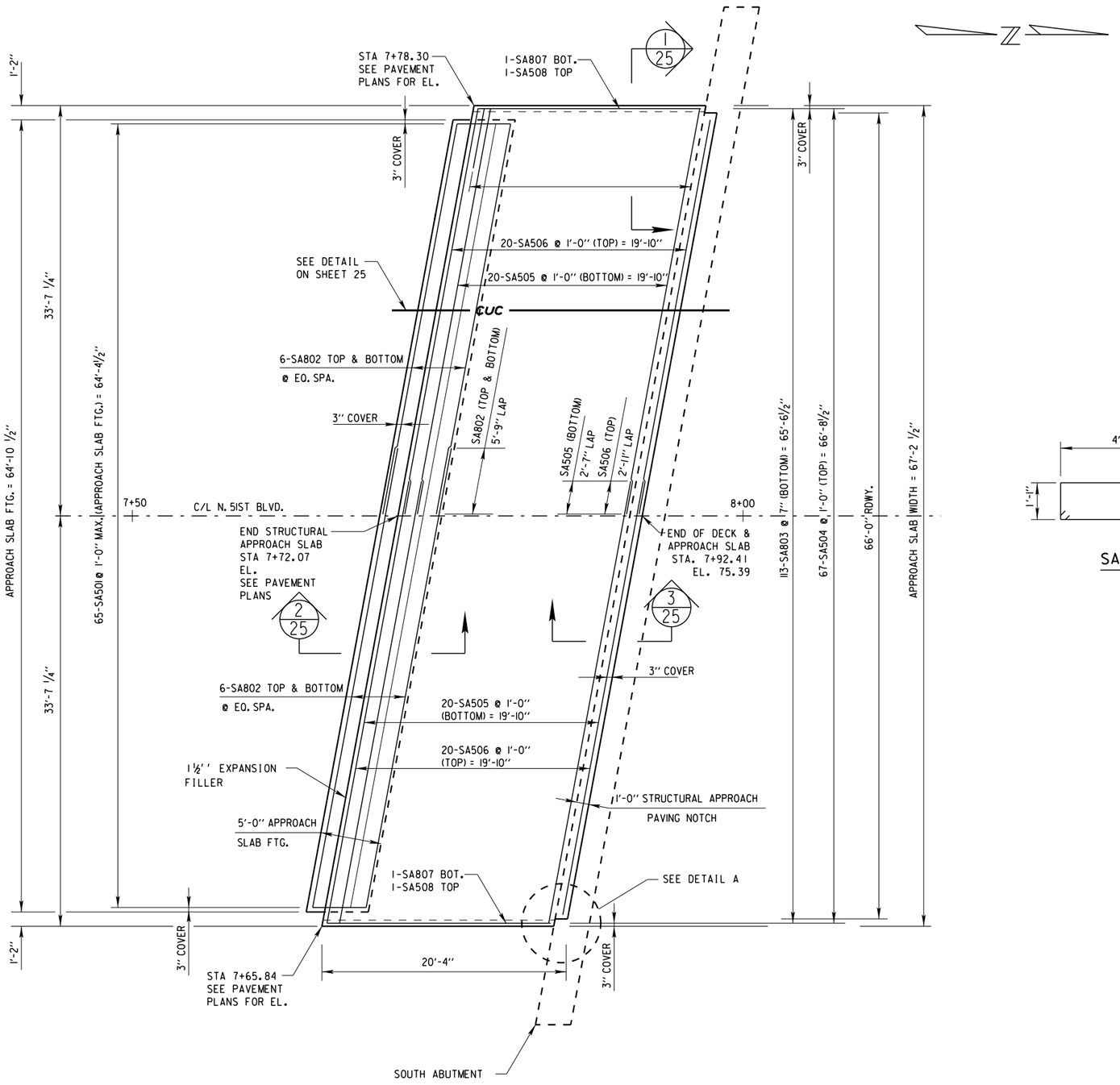
REVISED DATE: 8/19/16 BY ML

STATE PROJECT NUMBER

2984 - 07 - 75



SOUTH STRUCTURAL APPROACH SLAB PLAN VIEW

NOTES

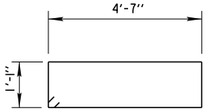
UTILITIES NOT SHOWN FOR CLARITY.
FOR LOCATION SEE SITE PLAN, FOR DETAILS SEE SHEET 25.

DESIGN DATA

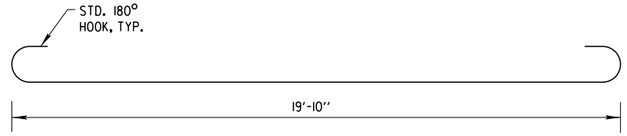
CONCRETE STRENGTH, f'c:	4,000 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60, fy:	60,000 P.S.I.
ALLOWABLE SOIL BEARING PRESSURE:	2,000 P.S.F.

BILL OF BARS - SOUTH STRUCTURAL APPROACH SLAB

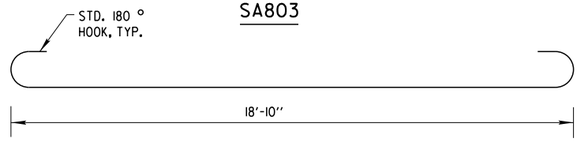
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
SA501	X	65	12'-0"	X		APPROACH SLAB FTG.-STIRRUP
SA802	X	24	35'-8"			APPROACH SLAB FTG.-TRANS. TOP & BOT
SA803	X	113	21'-8"	X		APPROACH SLAB-LONG.-BOT.
SA504	X	65	19'-10"			APPROACH SLAB-LONG.-TOP
SA505	X	40	35'-3"			APPROACH SLAB-TRANS.-BOT.
SA506	X	40	35'-5"			APPROACH SLAB-TRANS.-TOP
SA807	X	2	20'-8"	X		APPROACH SLAB-LONG.-BOT.
SA508	X	2	18'-10"			APPROACH SLAB-LONG.-TOP



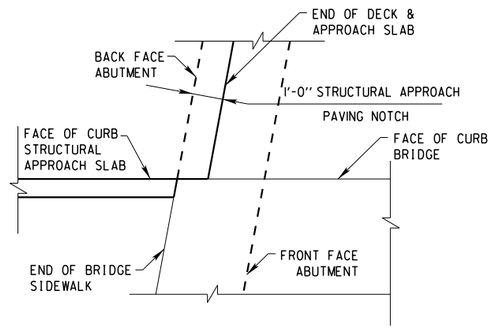
SA501



SA803



SA807



DETAIL A - CORNER DETAIL

(EAST CORNER SHOWN, WEST SIMILAR)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

SOUTH STRUCTURAL APPROACH SLAB

SHEET 23 OF 28

8

8

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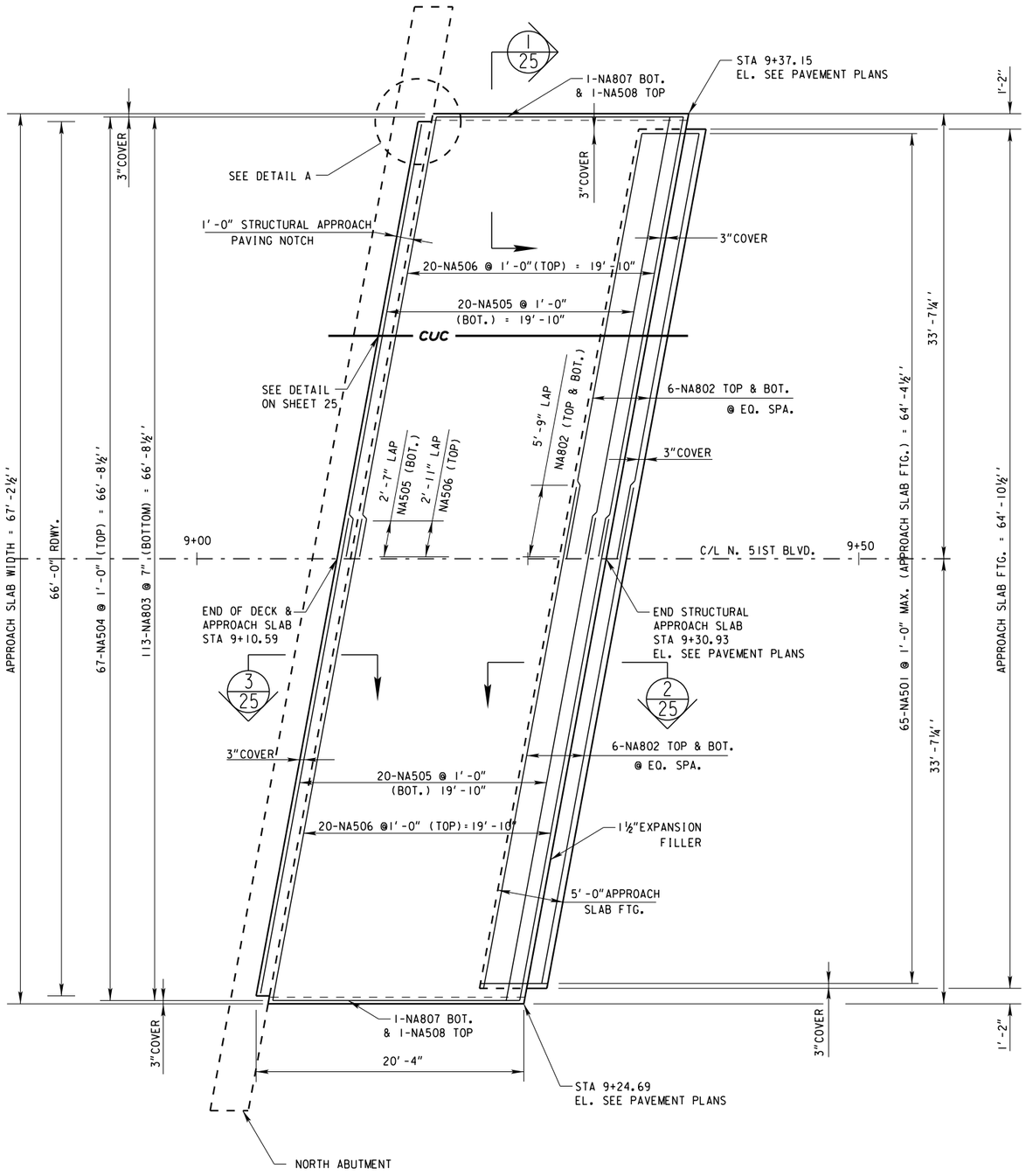
REVISED DATE: 8/2/2016 BY: M.L.

8

STATE PROJECT NUMBER

2984 - 07 - 75



NORTH STRUCTURAL APPROACH SLAB PLAN VIEW

NOTES

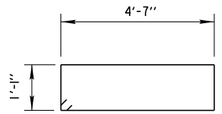
UTILITIES NOT SHOWN FOR CLARITY.
FOR LOCATION SEE SITE PLAN, FOR DETAILS SEE SHEET 25.

DESIGN DATA

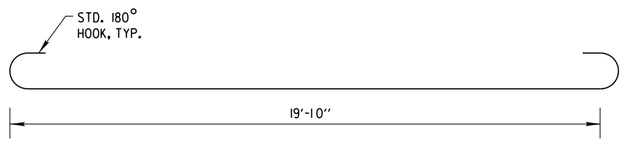
CONCRETE STRENGTH, f'c:	4,000 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60, fy:	60,000 P.S.I.
ALLOWABLE SOIL BEARING PRESSURE:	2,000 P.S.F.

BILL OF BARS - NORTH STRUCTURAL APPROACH SLAB

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
NA501	×	65	12'-0"	×		APPROACH SLAB FTG.-STIRRUP
NA802	×	24	35'-8"			APPROACH SLAB FTG.-TRANS. TOP & BOT
NA803	×	113	21'-8"	×		APPROACH SLAB-LONG.-BOT.
NA504	×	65	19'-10"			APPROACH SLAB-LONG.-TOP
NA505	×	40	35'-3"			APPROACH SLAB-TRANS.-BOT.
NA506	×	40	35'-5"			APPROACH SLAB-TRANS.-TOP
NA807	×	2	20'-8"	×		APPROACH SLAB-LONG.-BOT.
NA508	×	2	18'-10"			APPROACH SLAB-LONG.-TOP



NA501



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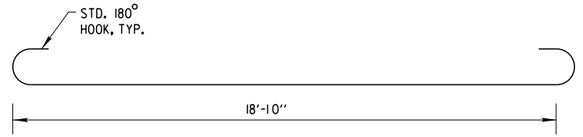
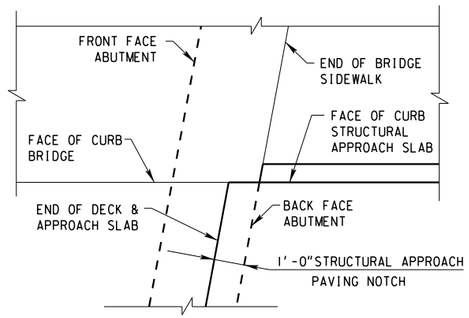


NA807



DETAIL A - CORNER DETAIL
(WEST CORNER SHOWN, EAST SIMILAR)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

NORTH STRUCTURAL APPROACH SLAB

SHEET 24 OF 28

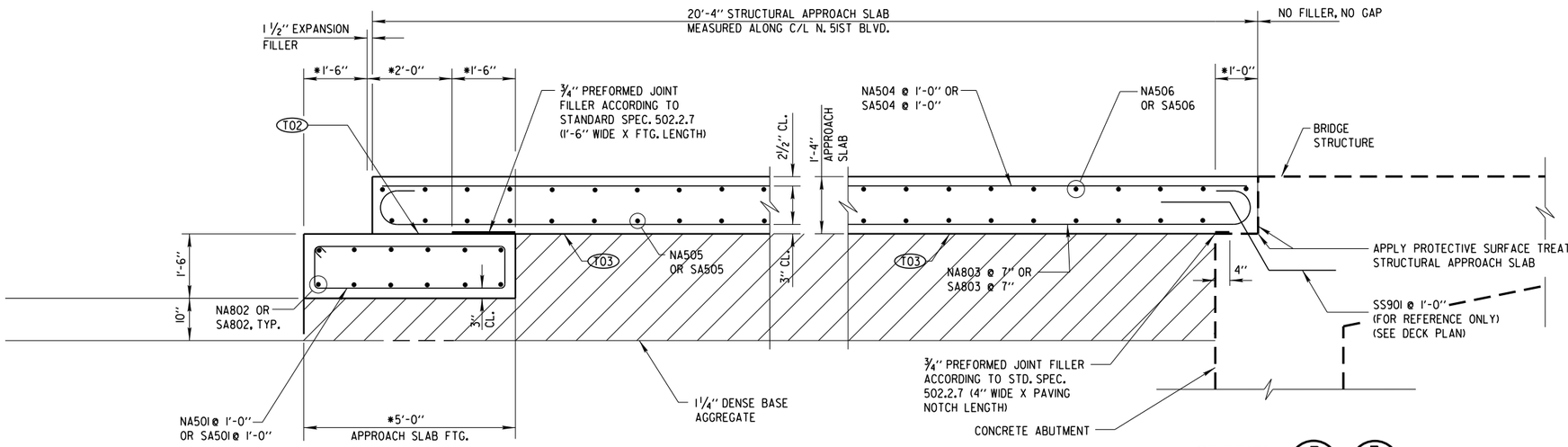
8

W:\STR\B05 11\BRIDGE PLANS\25_STR_SLAB_DET.DGN

REVISED: 9/02/2016 BY: DLF

STATE PROJECT NUMBER

2984 - 07 - 75



SECTION 2/23 2/24

(THRU APPROACH SLAB AT FOOTING)

SECTION 3/23 3/24

(THRU APPROACH SLAB AT BRIDGE PAVING NOTCH)

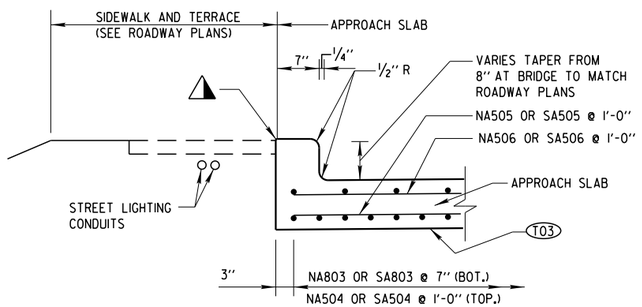
LEGEND

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

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

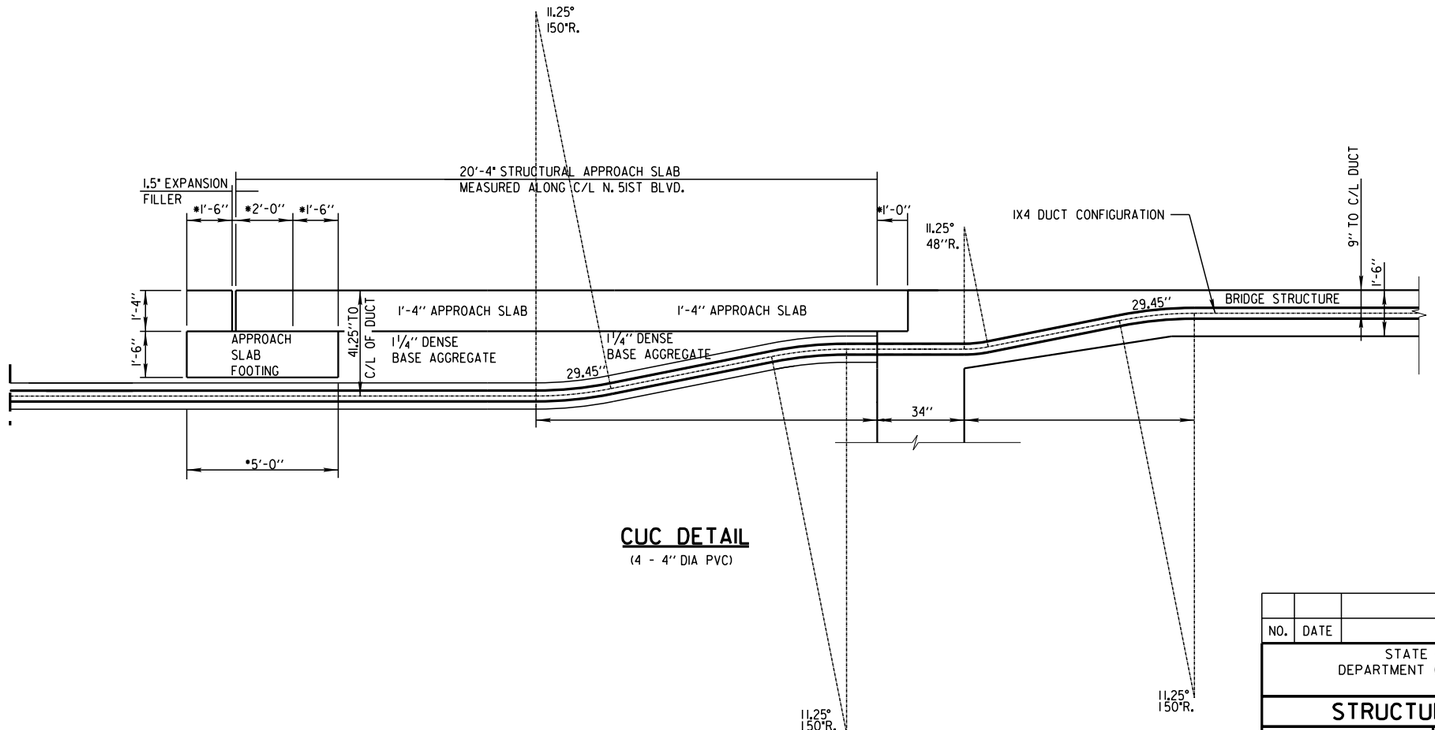
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE)

* MEASURED NORMAL TO ABUTMENT



SECTION 1/23 1/24

(AT CURB EDGE)



CUC DETAIL

(4 - 4" DIA PVC)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

STRUCTURAL APPROACH SLAB DETAILS

SHEET 25 OF 28

8

8

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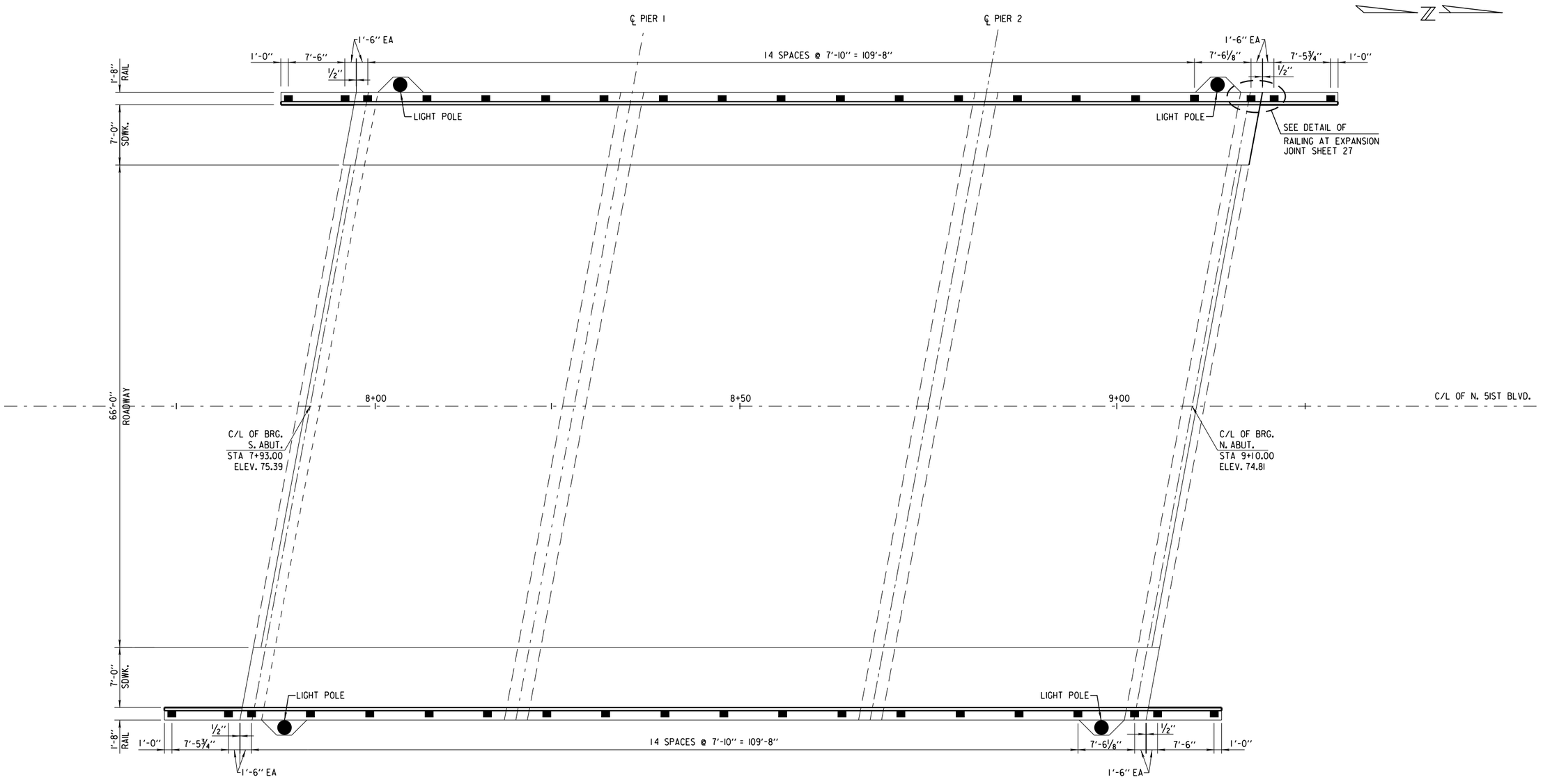
REVISED: 9-29-2016 BY DB

STATE PROJECT NUMBER
2984 - 07 - 75



RAILING PLAN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

RAILING PLAN

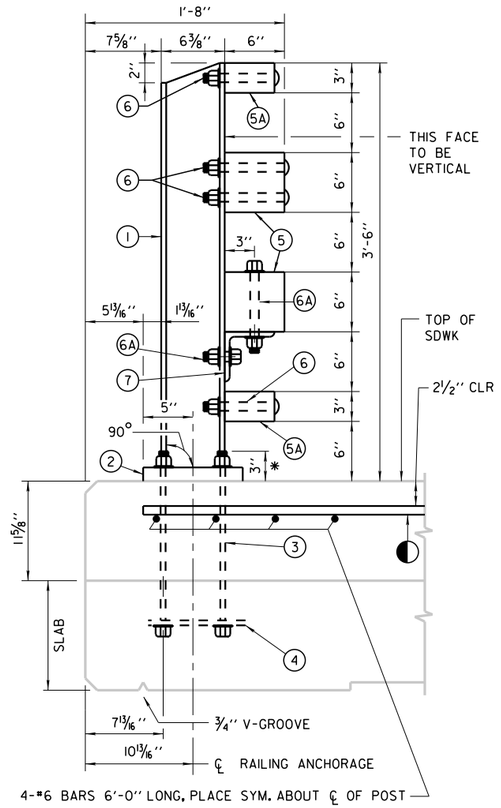
SHEET 26 OF 28

W:\STRVB05\I\BRIDGE PLANS\27_RAILING DET.DGN

REVISED: 09/29/2016 BY: DB

STATE PROJECT NUMBER

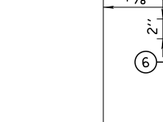
2984 - 07 - 75



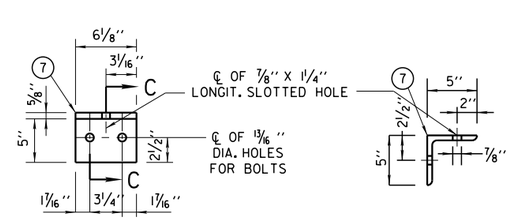
4-#6 BARS 6'-0" LONG. PLACE SYM. ABOUT ℄ OF POST

SECTION THRU RAILING ON DECK

✱ NORMAL TO BASE PLATE



SECTION D-D

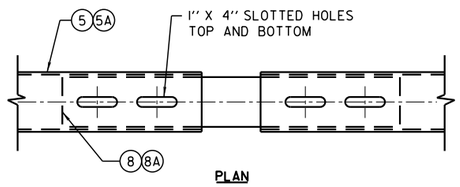


RAILING ANGLE DETAIL

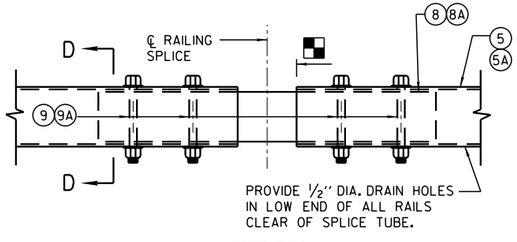
INTERIOR ELEVATION

SECTION C-C

ANGLE SECTION

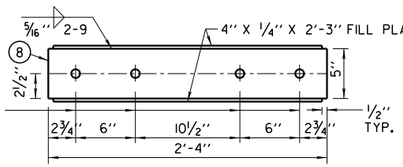


PLAN



ELEVATION

FIELD ERECTION JOINT DETAIL



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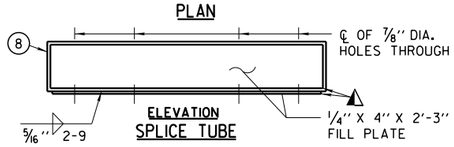
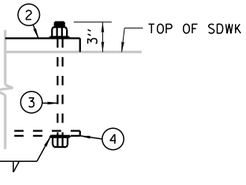


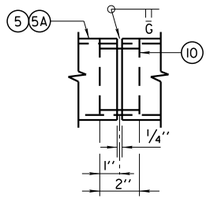
ELEVATION

SPLICE TUBE



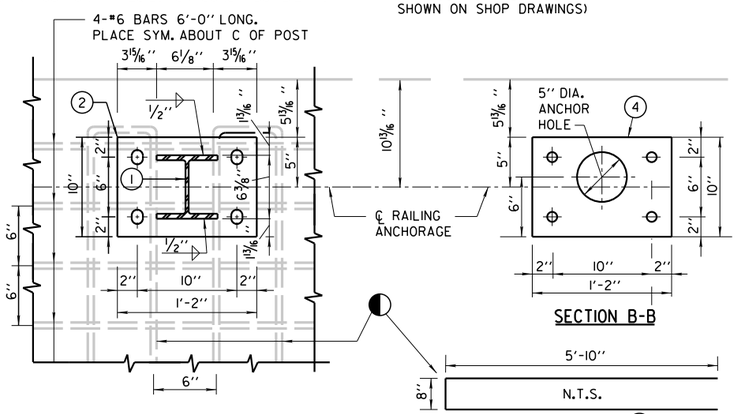
ANCHOR BOLTS

FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.



SHOP RAIL SPLICE DETAIL

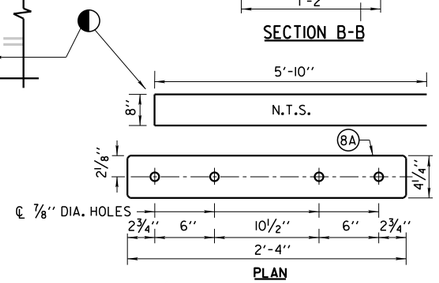
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



SECTION A-A

BASE PLATE DETAILS

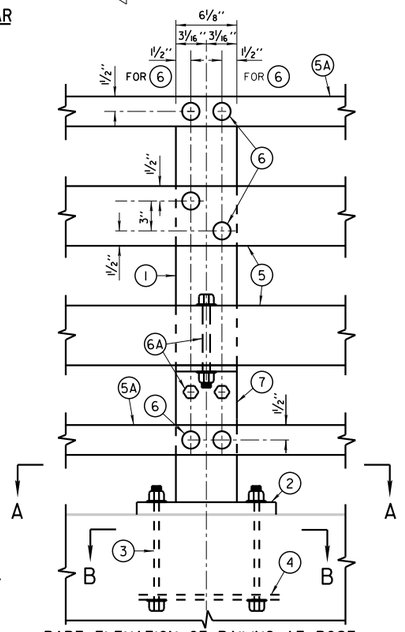
SECTION B-B



PLAN

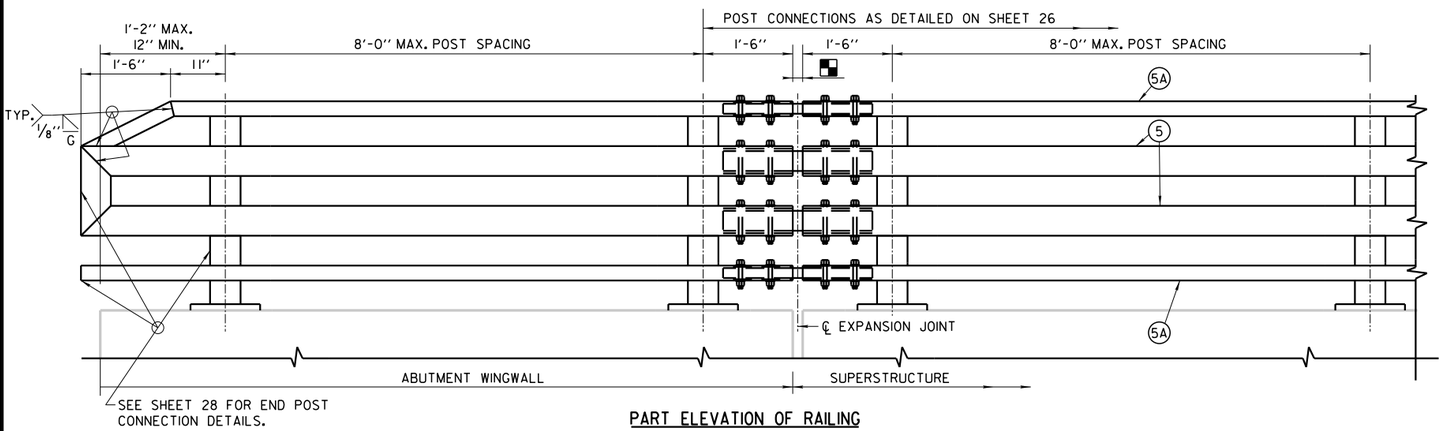
ELEVATION

SPLICE BAR



PART ELEVATION OF RAILING AT POST

INTERIOR ELEVATION



PART ELEVATION OF RAILING

INTERIOR ELEVATION

LEGEND

(1) W6 X 25 WITH 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT TOP TWO RAILS. USE 1" DIA. HOLES FOR BOLT NO. 6 AT BOTTOM NO. 5A & FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1¼" X 10" X 1'-2" WITH 1⅛" X 1⅜" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

(3) ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-7¾" LONG BOLT IN DECK. USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIREDFOR CONSTRUCTABILITY).

(4) ⅜" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1⅛" DIA. HOLES FOR ANCHOR BOLTS NO. 3.

(5) TS 6 X 6 X ⅜" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & ⅞" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).

(5A) TS 5 X 3 X ¼" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL (FRONT & BACK). USE 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.

(6) ⅞" DIA. A325 SLOTTED ROUND HEADBOLT WITH HEX NUT, 3⁄16" X 1¾" X 1¾" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS (SHOWN).

(6A) ¾" DIA. A325 BOLT WITH HEX NUT AND SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE AND 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH ⅜" X 1¾" X 1¾" WASHER).

(7) L 5 X 5 X ⅝" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.

(8) TS 5 X 5 X ⅜" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.

(8A) 4¼" X 2⅛" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.

(9) ¾" DIA. A325 FULLY THREADED BOLTS, 7½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.

(9A) ¾" DIA. A325 FULLY THREADED BOLTS, 4½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.

(10) SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

■ ½" OPENING FOR AI ABUTMENT.

◭ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.

◐ #6 BARS X 12'-0" LONG. BEND AS SHOWN. TIE TO TOP MAT OF STEEL.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY4 B-40-923", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.

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

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION, PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & NO. 4) SHALL BE PAINTED OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED A COLOR AS STATED IN THE SPECIAL PROVISIONS

RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED Fy=50 KSI. ANCHOR PLATES AND SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

PLACE FIRST BOTTOM LONGITUDINAL REINFORCING BAR CLEAR OF DRIP GROOVE.

THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

TUBULAR STEEL RAILING TYPE NY4

SHEET 27 OF 28

108

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W:\STR\BOS1\VBRIDGE PLANS\28_END POST DET FOR RAILING.DGN

REVISED: 09/29/16 BY: DB

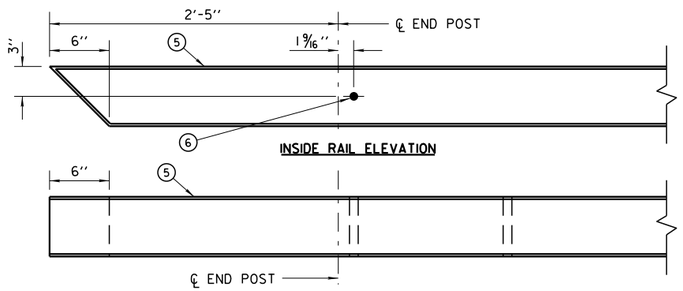
STATE PROJECT NUMBER

2984 - 07 - 75

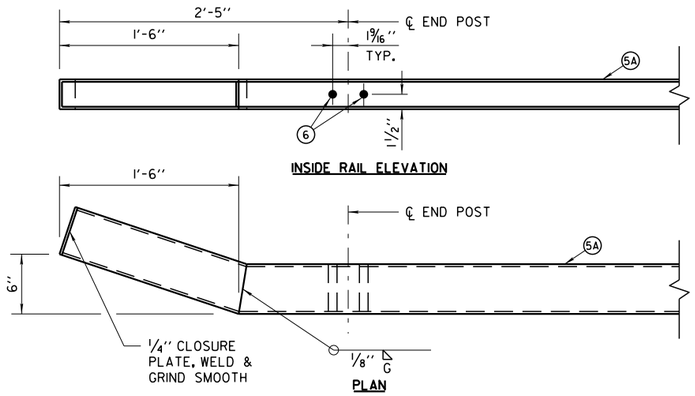
NOTES

STRUCTURAL STEEL RAILING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED fy=50 KSI. STRUCTURAL ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50.

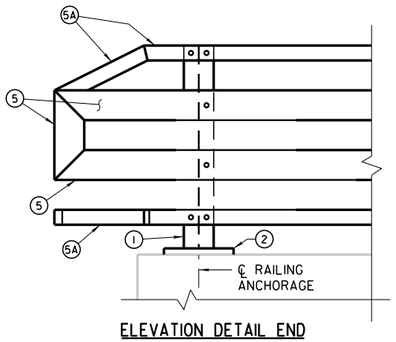
REFER TO SHEET 27 FOR LEGEND.



TOP RAIL (5) DETAILS

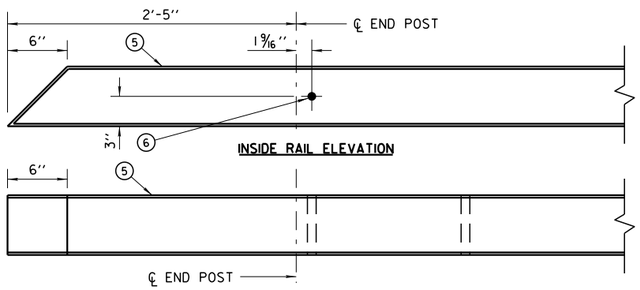


BOTTOM RAIL (5A) DETAILS

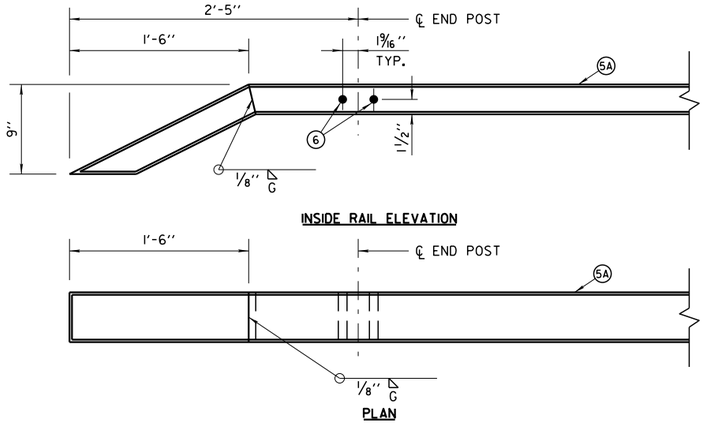


ELEVATION DETAIL END

INTERIOR ELEVATION



BOTTOM RAIL (5) DETAILS



TOP RAIL (5A) DETAILS

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-923

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

END POST DETAILS FOR TUBULAR STEEL RAILING TYPE NY4

SHEET 28 OF 28

Wisconsin Department of Transportation

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