

EAU PROJECT ID: 1020-00-83 WITH: 16 COUNTY: JACKSON

JUNE 2017

ORDER OF SHEETS

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

TOTAL SHEETS = 32

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

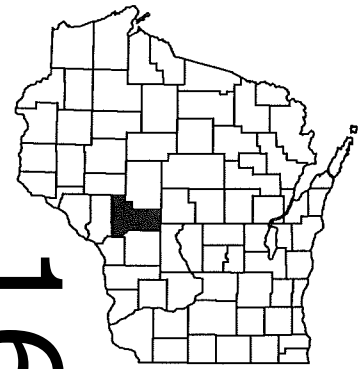
OSSEO - BLACK RIVER FALLS

STRUCTURES B-27-20, 24, 25, 46, 47 AND 52

IH 94
JACKSON COUNTY

STATE PROJECT NUMBER
1020-00-83

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1020-00-83		



DESIGN DESIGNATION 1020-00-13

A.A.D.T.	2016	=	27,100	5,600
A.A.D.T.	2036	=	33,500	-
D.H.V.		=	15.2	-
D.D.		=	58/42	-
T.		=	33.8%	-
DESIGN SPEED		=	70MPH	40MPH
ESALS		=	-	-

CONVENTIONAL SYMBOLS

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

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STRUCTURE B-27-0052 GILBERTSON ROAD

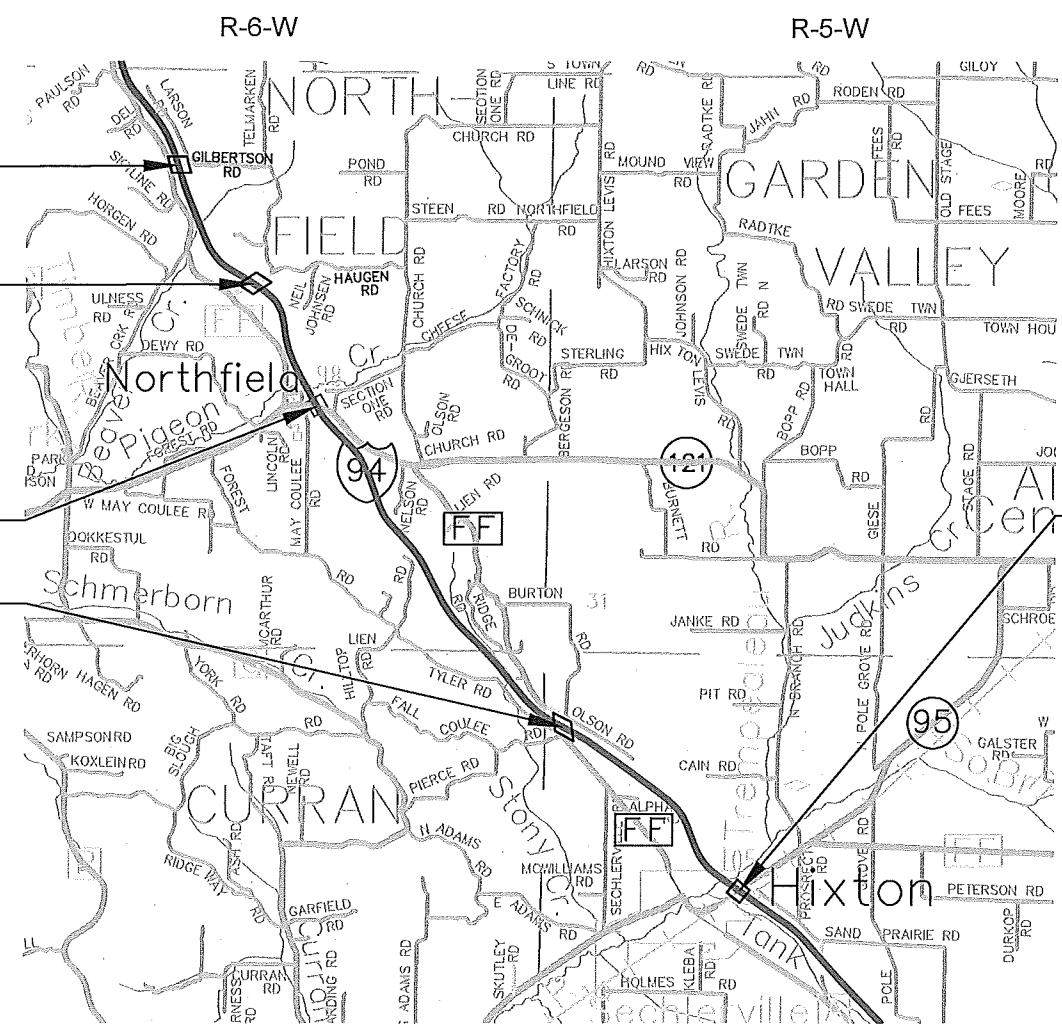
STRUCTURE B-27-0047 HAUGEN ROAD

STRUCTURE B-27-0046 STH 121

STRUCTURE B-27-0020 CTH FF

STRUCTURE B-27-0024 IH 94 EB

STRUCTURE B-27-0025 IH 94 WB



LAYOUT
SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE =

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, JACKSON COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	NW REGION
Designer	KOU THAO
Project Manager	MATT THORNSEN
Regional Examiner	JENNIFER OLDENBURG
Regional Supervisor	TARA WEISS

APPROVED FOR THE DEPARTMENT

DATE: 3-1-17

(Signature)

E

GENERAL NOTES

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE 4-INCH SALVAGED TOPSOIL, FERTILIZED, SEEDED AND MULCHED.

EROSION CONTROL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER IN CONSULTATION WITH THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN IN THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

DETAILS OF INSTALLATION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS PLAN SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, STANDARD DETAILS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

RAILROAD

WISCONSIN CENTRAL LTD. (CN)
ATTN: JACKIE MACEWICZ
1625 DEPOT STREET
STEVENS POINT, WI 54481
JACKIE.MACEWICZ@CN.CA
715-345-2503

WCL (CN) CALL BEFORE YOU DIG
MARY ELLEN CARMODY
734-783-4533

(RAILROADS ARE NOT PART OF DIGGERS HOTLINE)

UTILITY CONTACTS

COMMUNICATION LINE

AT&T LEGACY
BRAD KEMPH
715-254-5238
COPY ALL CORRESPONDENCE TO:
BILL KOENIG
JMC ENGINEERS & ASSOCIATES
128 W SUNSET AVENUE
APPLETON, WI 54911
608-628-0575 (MOBILE)
wekoenig@att.net

CENTURYLINK COMMUNICATIONS
DONNA SMOTHERS
835 RED IRON ROAD
BLACK RIVER FALLS, WI 54615
715-284-4375 (OFFICE)
715-797-4854 (MOBILE)
donna.smothers@centurylink.com

TRI-COUNTY COMMUNICATIONS COOP
WESTERN WI COMMUNICATIONS
BRIAN MELSNESS
23451 WHITEHALL ROAD
P.O. BOX 727
INDEPENDENCE, WI 54747-0727
715-695-2691
715-530-0081 (MOBILE)
bmelsness@tcc.coop

WISCONSIN DEPARTMENT OF TRANSPORTATION
JEFF MADSON
433 W. ST. PAUL AVE.
MILWAUKEE, WI 53203-3007
414-225-3723
JEFFREY.MADSON@DOT.WI.GOV

WATER & SEWER

VILLAGE OF HIXTON
STEVE KIRSHNER, SUPERINTENDENT
145 E. MAIN STREET
P.O. BOX 127
HIXTON, WI 54635-0127
715-963-3732
hixtonpublicworks@centurytel.net

GAS

WE ENERGIES
24-HOUR EMERGENCY (GAS)
800-261-5325
TBD

ELECTRICITY - DISTRIBUTION

JACKSON ELECTRIC COOPERATIVE
ERIC STEIEN
N6868 CO HWY F
P.O. BOX 546
BLACK RIVER FALLS, WI 54615-0546
715-284-5385
esteien@jackelec.com

XCEL ENERGY
KAYE CROOK
1003 S. BLACK RIVER STREET
P.O. BOX 188
SPARTA, WI 54656-0188
608-789-3677 EXT 14
Kaye.m.crook@xcelenergy.com
COPY ALL CORRESPONDENCE TO:
DAWN SCHULTZ
1414 W HAMILTON AVE
PO BOX 8
EAU CLAIRE, WI 54702-0008
715-737-2482 (OFFICE)
dawn.schultz@xcelenergy.com

ELECTRICITY - TRANSMISSION

XCEL ENERGY
PAM TAYLOR
P.O. BOX 0008
EAU CLAIRE, WI 54702-0008
715-737-1306
Pamela.L.Taylor@xcelenergy.com



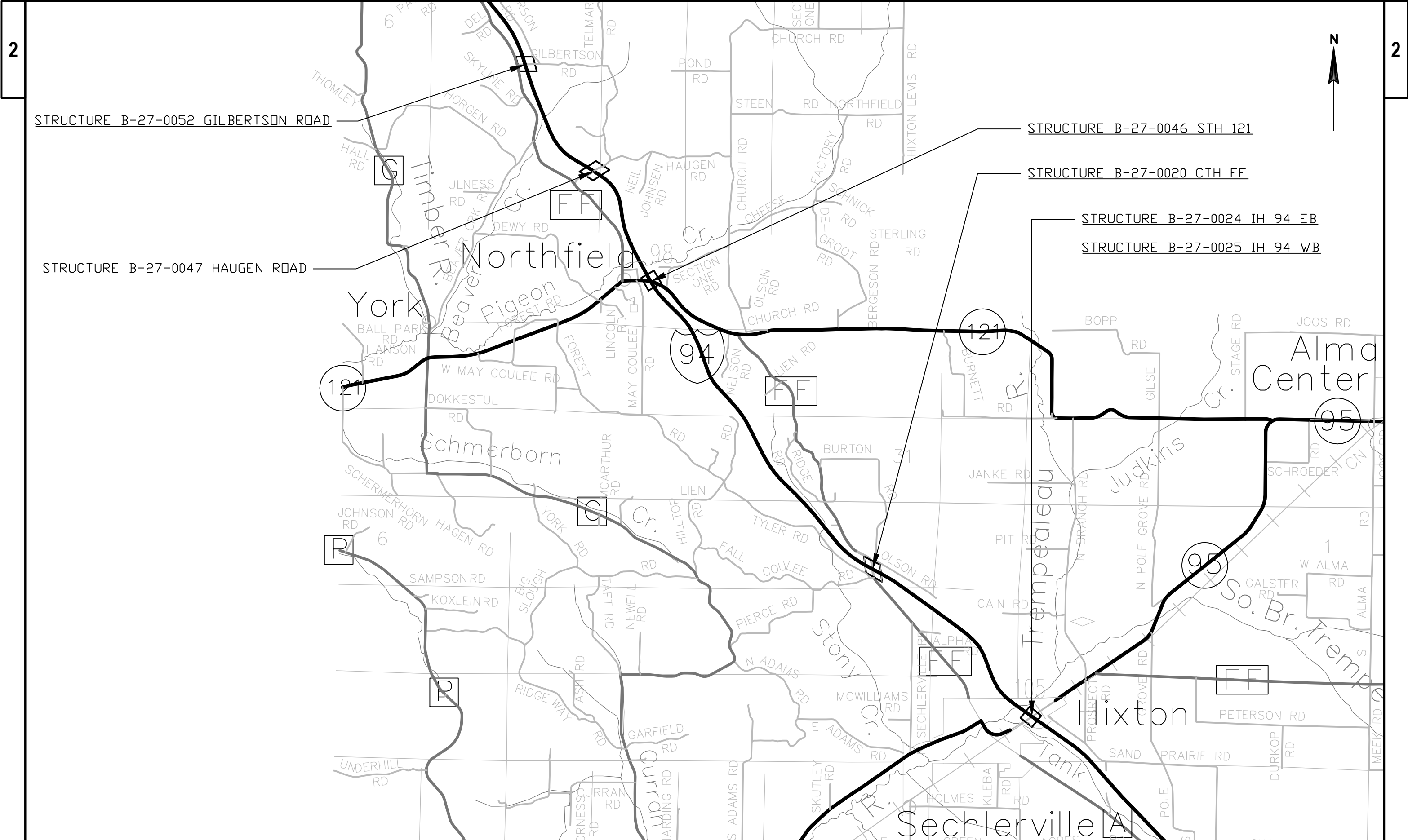
Dial 811 or (800)242-8511
www.DiggersHotline.com

DNR LIAISON

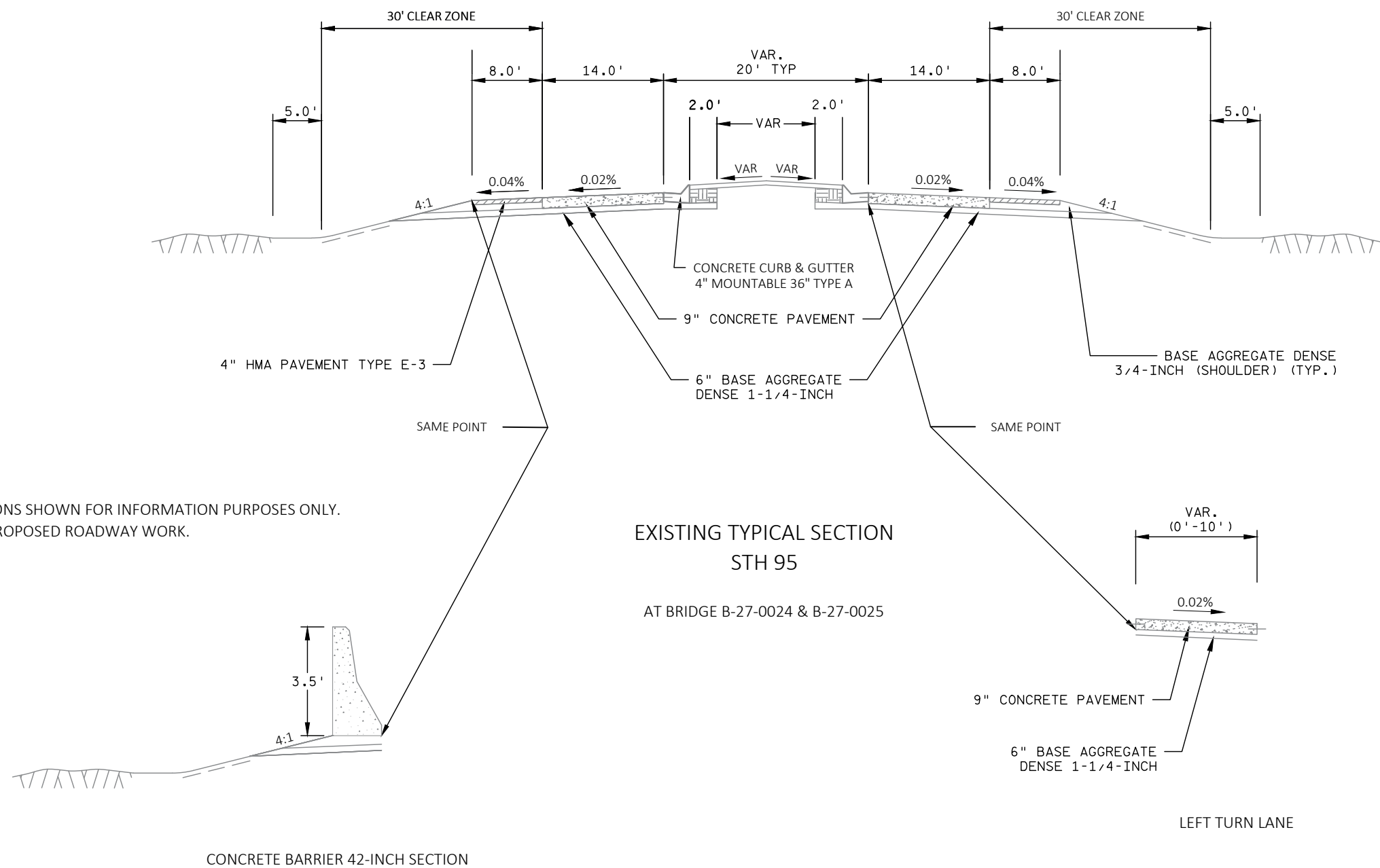
DEPARTMENT OF NATURAL RESOURCES
KAREN KALVELAGE
DNR SERVICE CENTER
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
608-785-9115
karen.kalvelage@wisconsin.gov

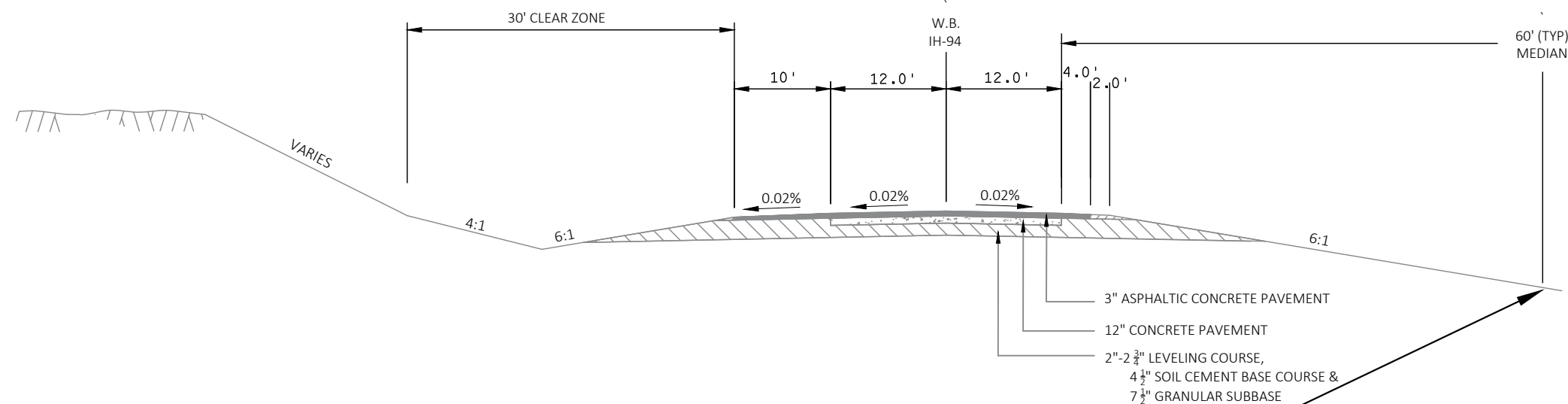
LIST OF STANDARD ABBREVIATIONS

ABUT.	ABUTMENT
AGG.	AGGREGATE
AH.	AHEAD
APPROX.	APPROXIMATE
A.E.W.	APRON ENDWALL
ASPH.	ASPHALTIC
A.D.T.	AVERAGE DAILY TRAFFIC
AZ.	AZIMUTH
BK.	BACK
BEG.	BEGIN
B.M.	BENCH MARK
C/L	CENTER LINE
CONC.	CONCRETE
CONST.	CONSTRUCTION
CO.	COUNTY
C.T.H.	COUNTY TRUNK HIGHWAY
X-SEC.	CROSS SECTION
CR.	CRUSHED
CFS	CUBIC FEET/SECOND
C.Y., CU. YD.	CUBIC YARD
CULV.	CULVERT
C.P.	CULVERT PIPE
D.O.T.	DEPARTMENT OF TRANSPORTATION
D.H.V.	DESIGN HOUR VOLUME
DIA.	DIAMETER
D.	DIRECTIONAL DISTRIBUTION
DISCH. OR DIS.	DISCHARGE
EA.	EACH
ELECT.	ELECTRIC
EL. OR ELEV.	ELEVATION
EMB.	EMBANKMENT
E.B.S.	EXCAVATION BELOW SUBGRADE
EXIST.	EXISTING
FERT.	FERTILIZE
F.E.	FIELD ENTRANCE
FIN.	FINISHED
FT.	FOOT
F.L.	FLOW LINE
GA.	GAUGE
HORIZ.	HORIZONTAL
CWT.	HUNDREDWEIGHT
INL.	INLET
LT.	LEFT
L.H.F.	LEFT-HAND FORWARD
LIN.	LINEAR
LIN. FT.	LINEAR FOOT
L.S.	LUMP SUM
MAX.	MAXIMUM
MI.	MILE
MISC.	MISCELLANEOUS
N.E.	NORTH EAST
N.W.	NORTH WEST
PAV'T	PAVEMENT
P.C.	POINT OF CURVATURE
P.I.	POINT OF INTERSECTION
P.T.	POINT OF TANGENCY
P.O.T.	POINT ON TANGENT
LB.	POUND
P.E.	PRIVATE ENTRANCE
PROJ.	PROJECT
R.	RANGE
REQ'D	REQUIRED
RT.	RIGHT
R.H.F.	RIGHT-HAND FORWARD
R/W	RIGHT OF WAY
RD.	ROAD
SHR.	SHRINKAGE
SL.	SLOPE
STD.	STANDARD
S.D.D.	STANDARD DETAIL DRAWINGS
S.T.H.	STATE TRUNK HIGHWAY
STA.	STATION
S.P.P.A.	STRUCTURAL PLATE PIPE ARCH
STRUCT.	STRUCTURE
SURF.	SURFACE
TEL.	TELEPHONE
TN.	TOWN
T.	TRUCKS (PERCENT OF)
UNCL.	UNCLASSIFIED
U.G.	UNDERGROUND
V.	VELOCITY OR DESIGN SPEED
V.C.	VERTICAL CURVE

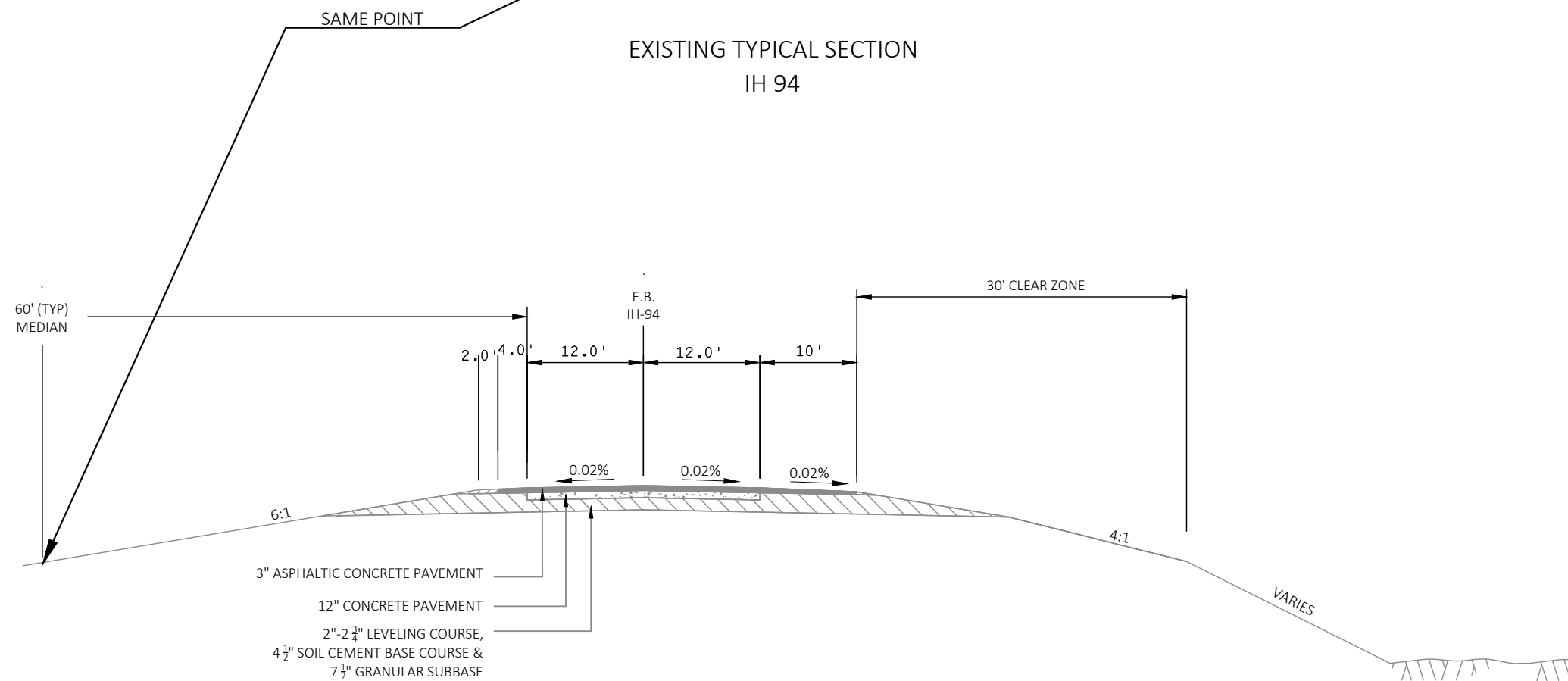


PROJECT NO: 1020-00-83	HWY: IH 94	COUNTY: JACKSON	PROJECT OVERVIEW	SHEET	E
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NOTE:
PAVEMENT LAYERS AND THICKNESS MAY VARY AT LOCATIONS.



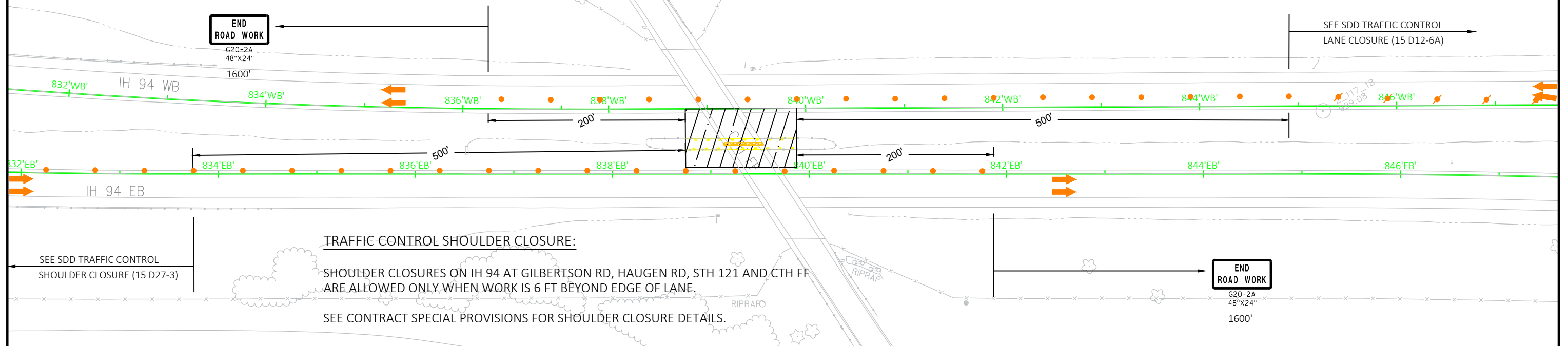
TRAFFIC CONTROL LANE CLOSURE:

LANE CLOSURES ON IH 94 AT GILBERTSON RD, HAUGEN RD, STH 121 AND CTH FF ARE ALLOWED DURING NON PEAK HOURS ONLY.

SEE CONTRACT SPECIAL PROVISIONS FOR ALLOWABLE LANE CLOSURE TIMES.

LEGEND

- TRAFFIC CONTROL DRUM
- ➡ TRAFFIC CONTROL DRUM W/TYPE C LIGHT
- ➡ TRAFFIC FLOW
- ▨ WORK AREA

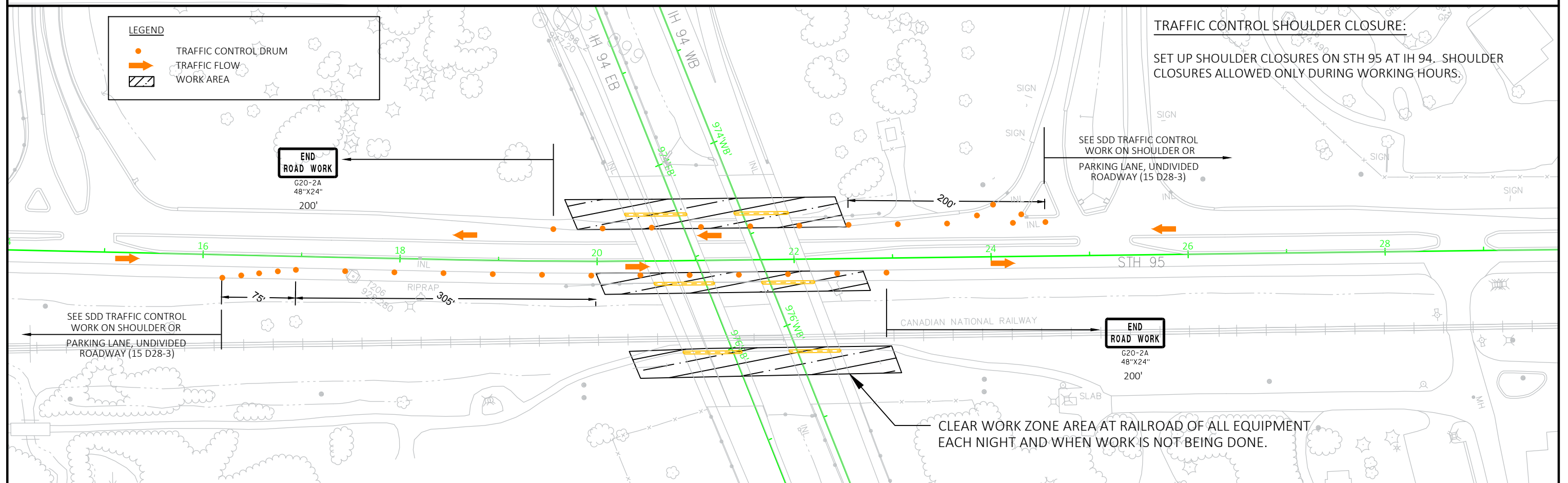


LEGEND

- TRAFFIC CONTROL DRUM
- ➡ TRAFFIC FLOW
- ▨ WORK AREA

TRAFFIC CONTROL SHOULDER CLOSURE:

SET UP SHOULDER CLOSURES ON STH 95 AT IH 94. SHOULDER CLOSURES ALLOWED ONLY DURING WORKING HOURS.



Estimate Of Quantities

1020-00-83					
Line	Item	Item Description	Unit	Total	Qty
0010	203.0200	Removing Old Structure (station) 01. 9+68.50	LS	1.000	1.000
0020	203.0200	Removing Old Structure (station) 02. 49+64.00	LS	1.000	1.000
0030	206.1000	Excavation for Structures Bridges (structure) 01. B-27-0020	LS	1.000	1.000
0040	210.1500	Backfill Structure Type A	TON	28.000	28.000
0050	213.0100	Finishing Roadway (project) 01. 1020-00-83	EACH	1.000	1.000
0060	502.0100	Concrete Masonry Bridges	CY	30.000	30.000
0070	502.4106	Adhesive Anchors 3/4-inch	EACH	202.000	202.000
0080	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	2,815.000	2,815.000
0090	509.1500	Concrete Surface Repair	SF	2.000	2.000
0100	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1020-00-83	EACH	1.000	1.000
0110	619.1000	Mobilization	EACH	1.000	1.000
0120	625.0500	Salvaged Topsoil	SY	500.000	500.000
0130	627.0200	Mulching	SY	500.000	500.000
0140	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0150	629.0210	Fertilizer Type B	CWT	0.500	0.500
0160	630.0130	Seeding Mixture No. 30	LB	50.000	50.000
0170	642.5001	Field Office Type B	EACH	1.000	1.000
0180	643.0100	Traffic Control (project) 01. 1020-00-83	EACH	1.000	1.000
0190	643.0300	Traffic Control Drums	DAY	3,000.000	3,000.000
0200	643.0420	Traffic Control Barricades Type III	DAY	96.000	96.000
0210	643.0705	Traffic Control Warning Lights Type A	DAY	192.000	192.000
0220	643.0715	Traffic Control Warning Lights Type C	DAY	864.000	864.000
0230	643.0800	Traffic Control Arrow Boards	DAY	96.000	96.000
0240	643.0900	Traffic Control Signs	DAY	768.000	768.000
0250	643.1050	Traffic Control Signs PCMS	DAY	48.000	48.000
0260	643.1051	Traffic Control Signs PCMS with Cellular Communications	DAY	48.000	48.000
0270	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	1,680.000	1,680.000
0280	715.0502	Incentive Strength Concrete Structures	DOL	500.000	500.000
0290	SPV.0090	Special 01. Salvage and Reinstall Beam Guard	LF	225.000	225.000
0300	SPV.0165	Special 01. Fiber Wrap Reinforcing Structural	SF	752.000	752.000

FINISHING ROADWAY (PROJECT) 01. 1020-00-83

CATEGORY	STATION	LOCATION	213.0100 EACH	REMARKS
0010	PROJECT	IH 94 & STH 95	1	
TOTAL 0010			1	

MOBILIZATION

CATEGORY	STATION	LOCATION	619.1000 EACH	REMARKS
0010	PROJECT	IH 94	0.25	ROADWAY
TOTAL 0010			0.25	
0020	PROJECT	IH 94	0.10	B-27-0024
TOTAL 0020			0.10	
0030	PROJECT	IH 94	0.10	B-27-0025
TOTAL 0030			0.10	
0040	PROJECT	IH 94	0.10	B-27-0047
TOTAL 0040			0.10	
0050	PROJECT	IH 94	0.10	B-27-0052
TOTAL 0050			0.10	
0060	PROJECT	IH 94	0.25	B-27-0020
TOTAL 0060			0.25	
0070	PROJECT	IH 94	0.10	B-27-0046
TOTAL 0070			0.10	

RESTORATION

CATEGORY	STATION	LOCATION	SALVAGED TOPSOIL 625.0500 SY	MULCHING 627.0200 SY	MOBILIZATIONS EROSION CONTROL 628.1905 EACH	FERTILIZER TYPE B 629.0210 CWT	SEEDING MIXTURE NO. 30 630.0130 LB	REMARKS
0010	PROJECT	IH 94	500	500	1	0.5	50	UNDISTRIBUTED
TOTAL 0010			500	500	1	0.5	50	

MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 1020-00-83

CATEGORY	STATION	LOCATION	618.0100 EACH	REMARKS
0010	PROJECT	IH 94 & STH 95	1	
TOTAL 0010			1	

FIELD OFFICE TYPE B

CATEGORY	STATION	LOCATION	642.5001 EACH	REMARKS
0010	PROJECT	IH 94	1	
TOTAL 0010			1	

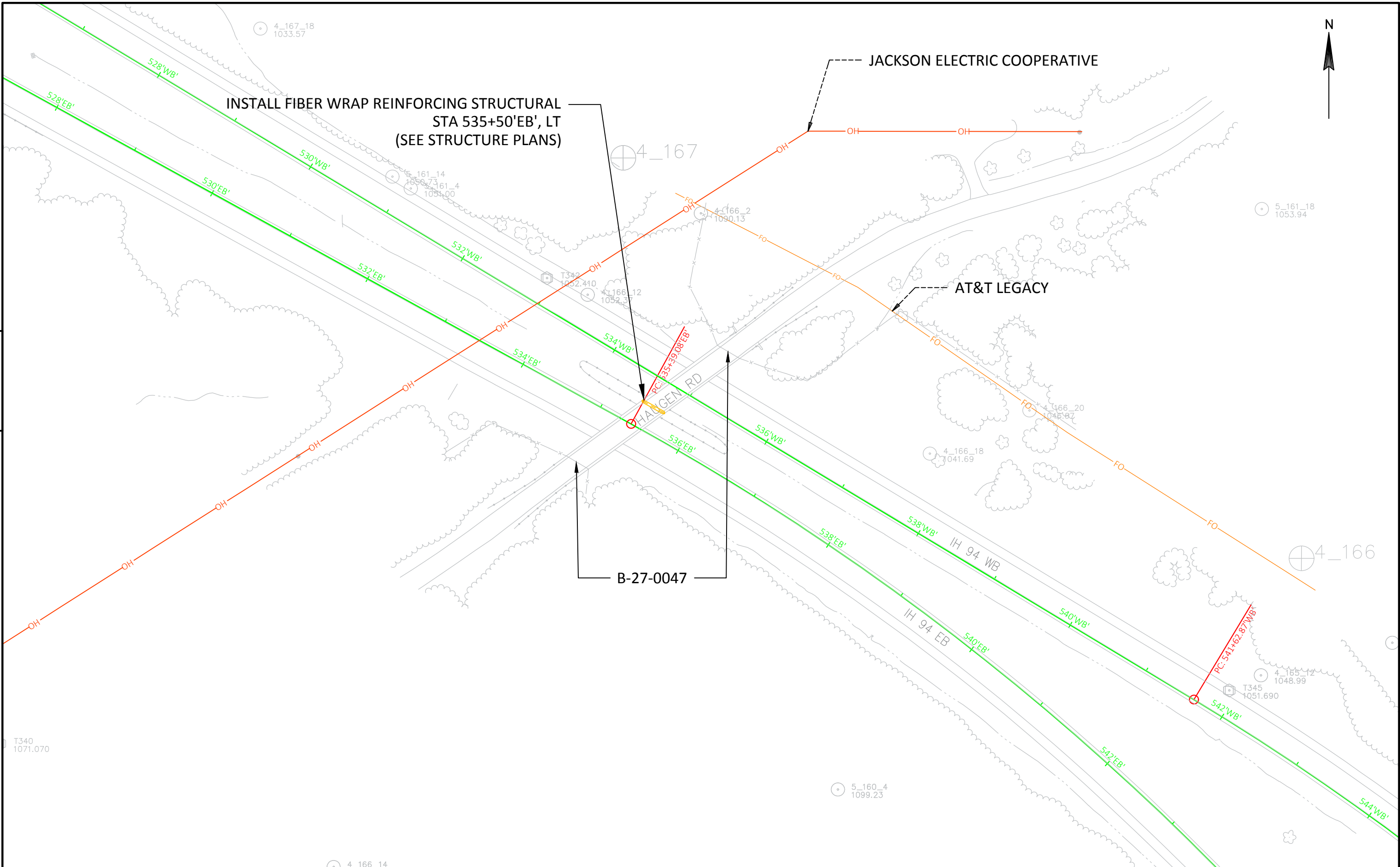
TRAFFIC CONTROL (PROJECT) 01. 1020-00-83

CATEGORY	STATION	LOCATION	643.0100 EACH	REMARKS
0010	PROJECT	IH 94 & STH 95	1	
TOTAL 0010			1	

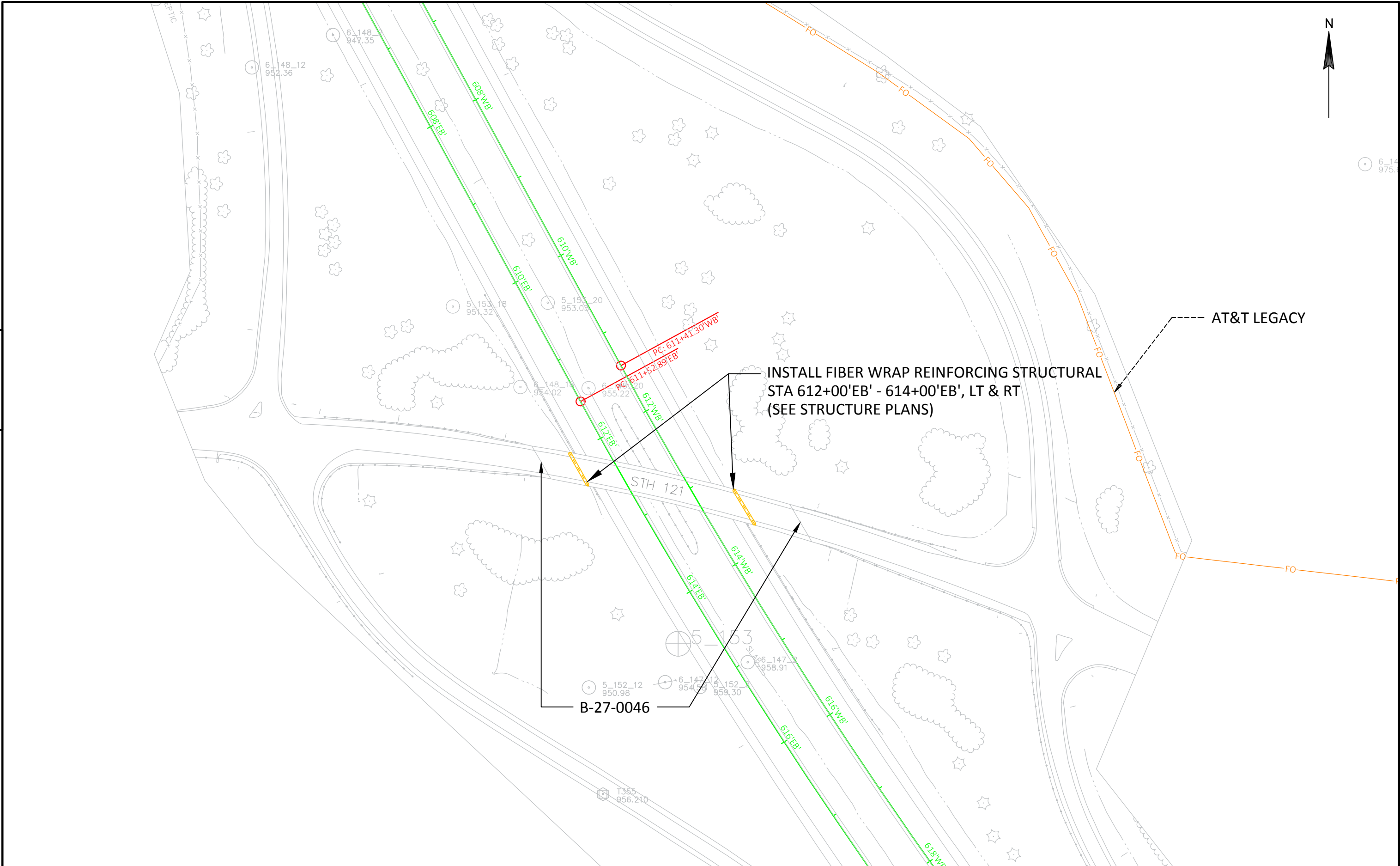
TRAFFIC CONTROL										TRAFFIC CONTROL SIGNS PCMS WITH CELLULAR COMMUNICATIONS 643.1051	
CATEGORY	STATION	LOCATION	TRAFFIC CONTROL DRUMS 643.0300 DAY	TRAFFIC CONTROL BARRICADES TYPE III 643.0420 DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A 643.0705 DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE C 643.0715 DAY	TRAFFIC CONTROL ARROW BOARDS 643.0800 DAY	TRAFFIC CONTROL SIGNS 643.0900 DAY	TRAFFIC CONTROL SIGNS PCMS 643.1050 DAY	REMARKS	
0010	PROJECT	IH 94 EB & WB	2112	96	192	864	96	624	48	48	LANE/SHLD CLOSURE
0010	PROJECT	STH 95 E & W	888	-	-	-	-	144	-	-	SHOULDER CLOSURE
TOTAL 0010			3000	96	192	864	96	768	48	48	

TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH				
CATEGORY	STATION	LOCATION	649.0400 LF	REMARKS
0010	PROJECT	IH 94 EB & WB	1680	LANE CLOSURE
TOTAL 0010			1680	

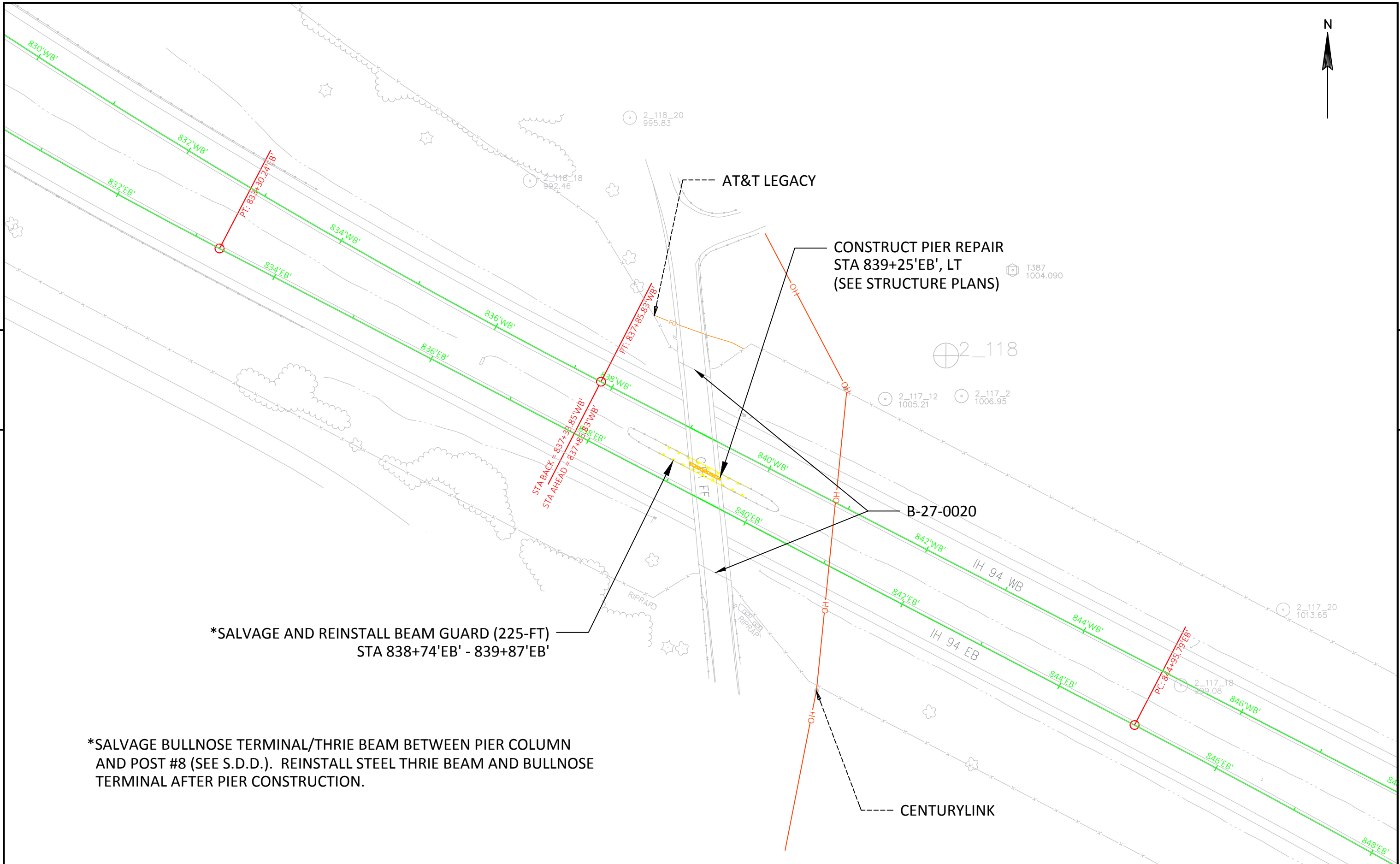
SPECIAL 01. SALVAGE AND REINSTALL BEAM GUARD						
CATEGORY	STATION	TO	STATION	LOCATION	SPV.0090	REMARKS
					LF	
0010	838+74' EB'	-	839+87' EB'	IH 94	225	B-27-0020 (CTH FF)
TOTAL 0010					225	



PROJECT NO: 1020-00-83	HWY: IH 94	COUNTY: JACKSON	PLAN: B-27-0047 (HAUGEN RD)	SHEET	E
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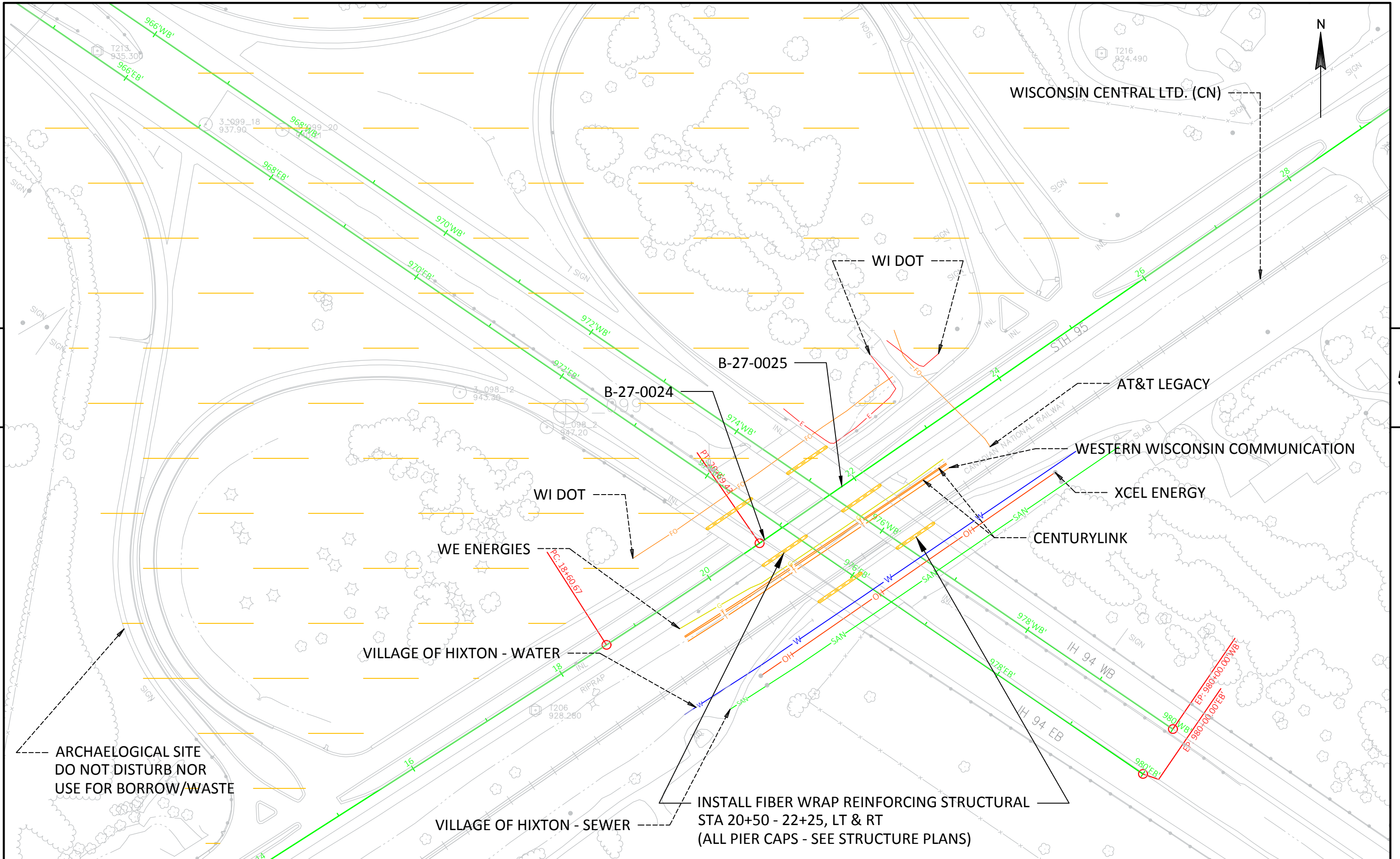
PROJECT NO: 1020-00-83	HWY: IH 94	COUNTY: JACKSON	PLAN: B-27-0046 (STH 121)	SHEET	E
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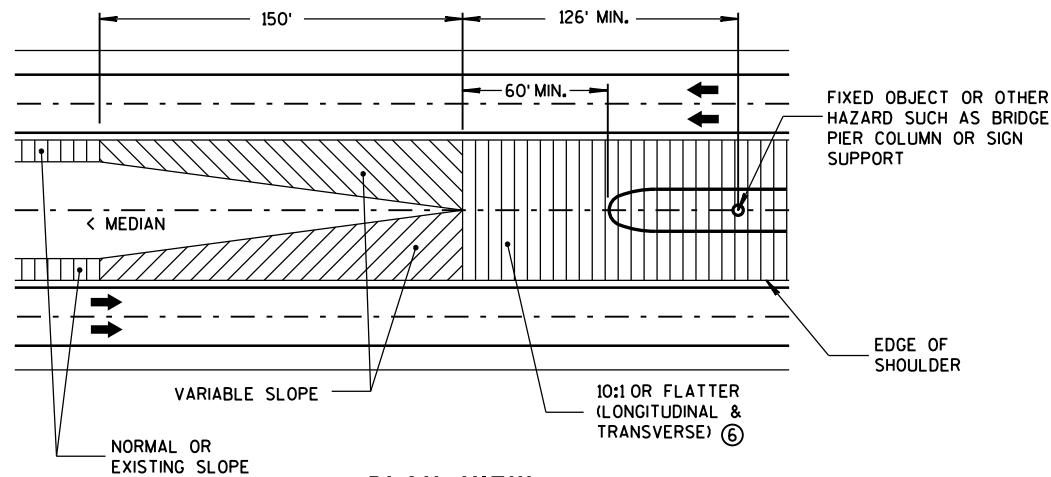
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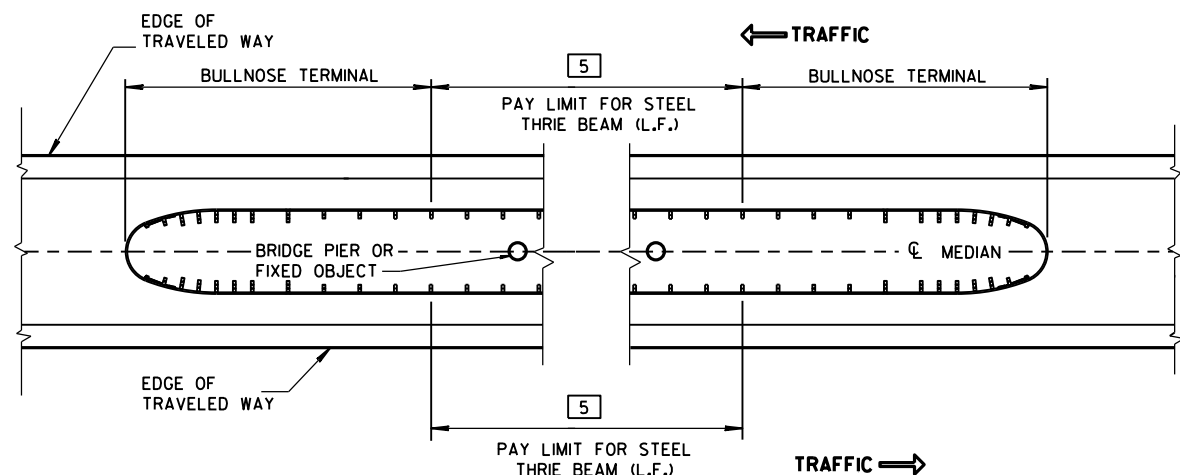
PROJECT NO: 1020-00-83	HWY: IH 94	COUNTY: JACKSON	PLAN: B-27-0024 (IH 94 EB) AND B-27-0025 (IH 94 WB)	SHEET	E
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Standard Detail Drawing List

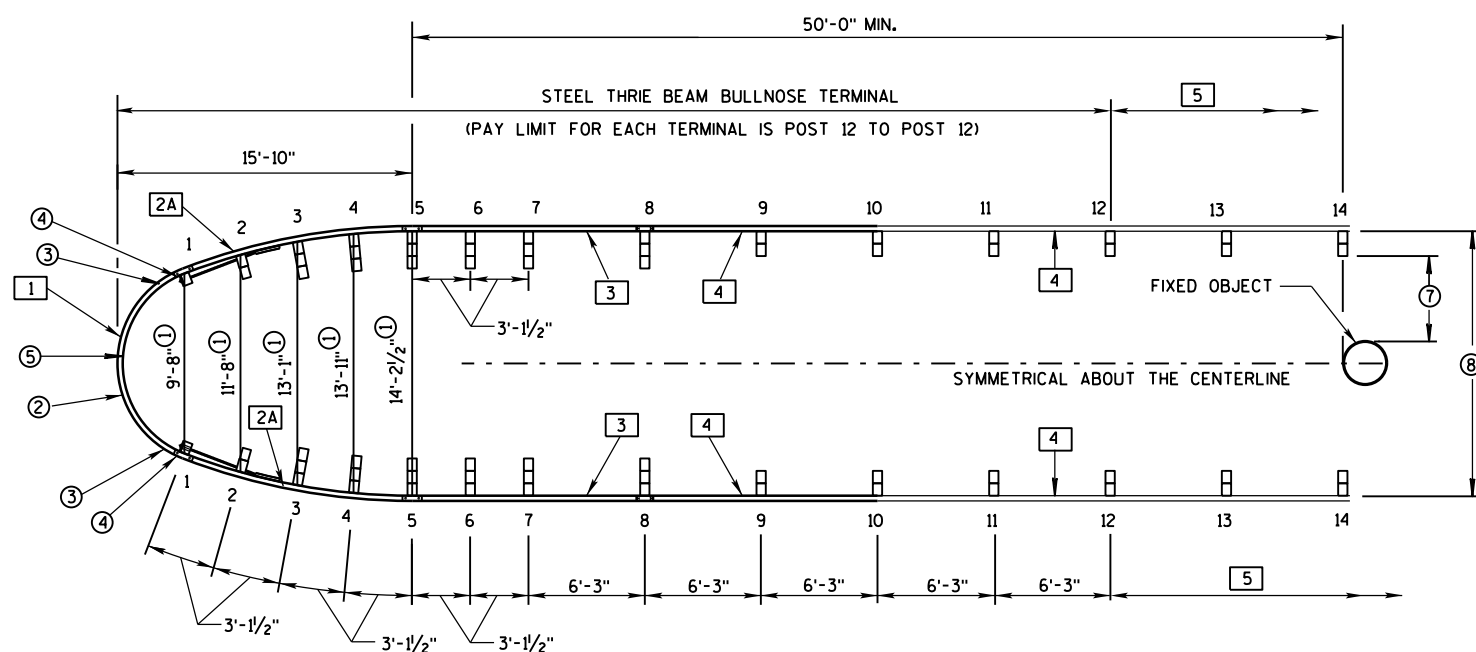
14B26-03A	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-03B	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-03C	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-03D	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-03E	STEEL THRIE BEAM BULLNOSE TERMINAL
15D12-06A	TRAFFIC CONTROL, LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY



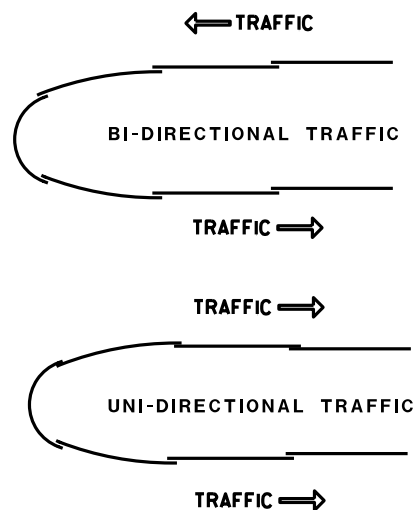
**PLAN VIEW
GRADING AT BULLNOSE
(ALL INSTALLATIONS)**



MEDIAN HAZARD PROTECTION PAY LIMITS



**PLAN VIEW
TYPICAL BULLNOSE LAYOUT**



**LAPPING DETAIL
(ALL INSTALLATIONS)**

GENERAL NOTES

SEE STANDARD DETAIL DRAWINGS 14 B 26a-e.

PUNCHING, DRILLING, CUTTING OR WELDING IS NOT PERMITTED ON ANY GALVANIZED THRIE BEAM ACCESSORY OR TERMINAL ACCESSORY.

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

FOR POSTS 2 THROUGH 14, IF POST CANNOT BE INSTALLED AT SPECIFIED LOCATION 1 EXTRA STANDARD WOOD BLOCK MAY BE ADDED.

THE USE OF STEEL POSTS ON THE BULLNOSE IS NOT ALLOWED.

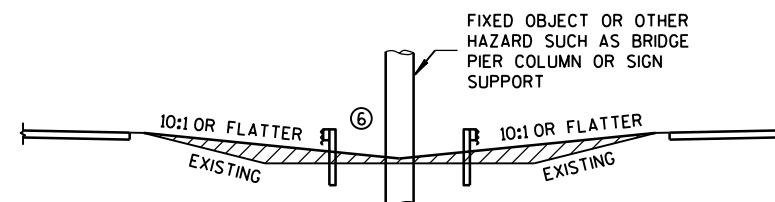
BOLTS AND ALL NECESSARY HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

ALL THRIE BEAM SHALL BE 12-GAUGE.

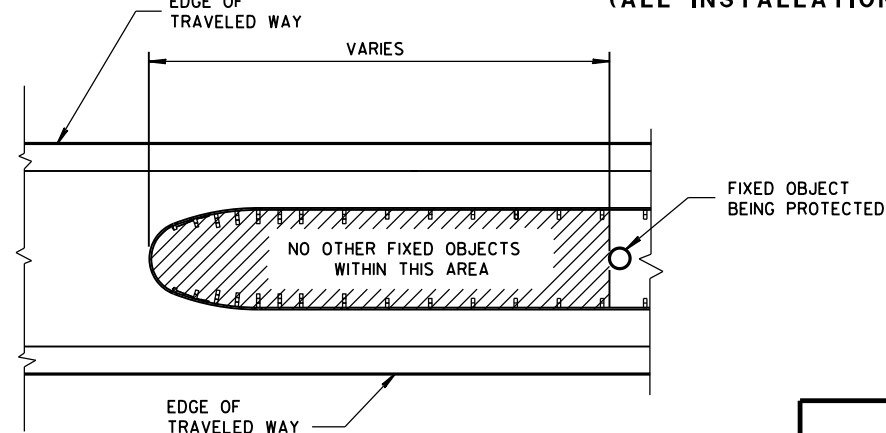
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" AND 12" DIAMETER AROUND POST. SEE SDD 14B15 OR SDD 14B42 FOR MORE INFORMATION.

- ① SLOTTED THRIE BEAM RAIL NO.1. (POST 1 TO POST 1)
- ②A SLOTTED THRIE BEAM RAIL NO.2A. (POST 1 TO POST 5)
- ③ SLOTTED THRIE BEAM RAIL NO.3. (POST 5 TO POST 8)
- ④ UNBENT STANDARD THRIE-BEAM RAIL NO.4. (POST 8 TO POST 10 & POST 10 TO POST 12)
- ⑤ BEYOND POST 12: CONSTRUCT STEEL THRIE BEAM - USE UNBENT STANDARD THRIE BEAM RAIL NO.5.

- ① DIMENSIONS ARE FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO POST OR BLOCK.
- ② U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.
- ③ NOSE CABLE W/SWAGGED END BUTTONS.
- ④ NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).
- ⑤ THE SLACK IN THE NOSE CABLES SHALL BE EVENLY DISTRIBUTED BETWEEN THE CABLE CLIP FASTENERS AND POST NO.1 ON EITHER SIDE OF THE NOSE.
- ⑥ PROVIDE SUITABLE DRAINAGE WHEN MEDIAN GRADING IMPEDES NORMAL FLOW.
- ⑦ 2'-6" MINIMUM LATERAL DISTANCE BETWEEN BACK OF POST AND FACE OF FIXED OBJECT.
- ⑧ MAXIMUM WIDTH OF SYSTEM IS 14'-2 1/2" MEASURED FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO A POST OR BLOCK.



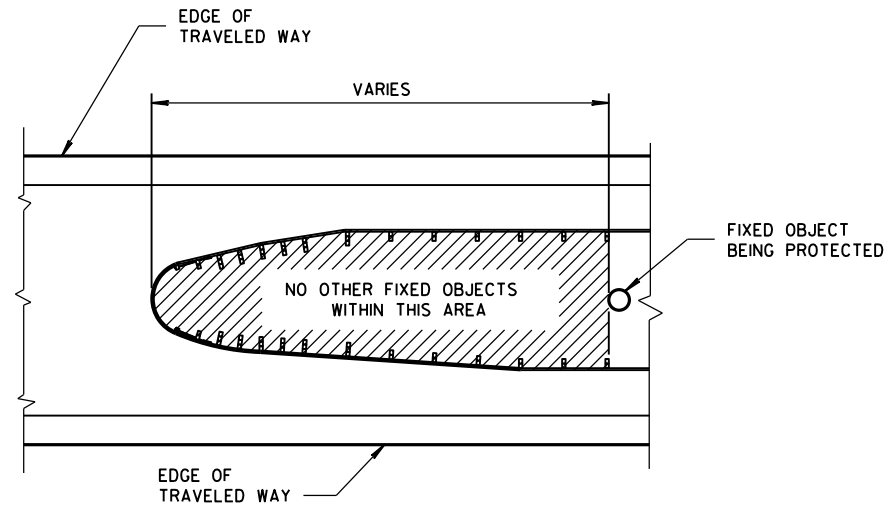
**MEDIAN GRADING SECTION
(ALL INSTALLATIONS)**



**HAZARD FREE
AREA INSIDE BULLNOSE**

**STEEL THRIE BEAM
BULLNOSE TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



HAZARD FREE AREA INSIDE BULLNOSE

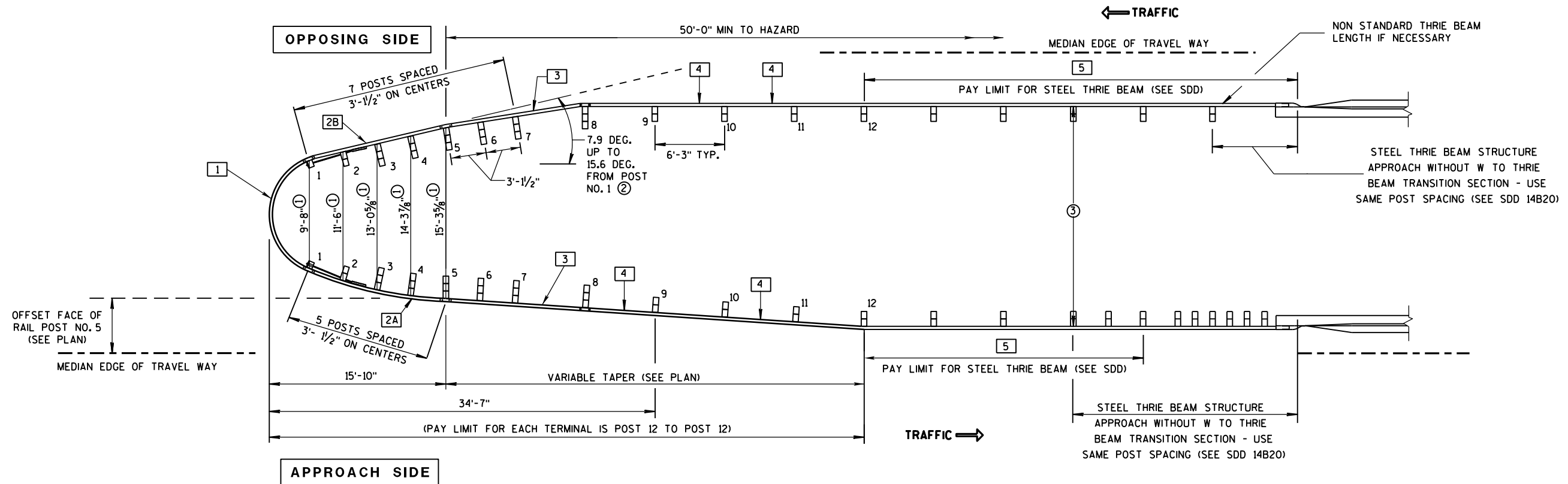
GENERAL NOTES

SEE STANDARD DETAIL DRAWINGS 14 B 26a-e.

FOR POSTS 2 THROUGH 14, IF POST CANNOT BE INSTALLED AT SPECIFIED LOCATION 1 EXTRA STANDARD WOOD BLOCK MAY BE ADDED.

- [1] SLOTTED THRIE BEAM RAIL NO. 1, (POST 1 TO POST 1)
- [2A] SLOTTED THRIE BEAM RAIL NO. 2A, (POST 1 TO POST 5)
- [2B] SLOTTED THRIE BEAM RAIL NO. 2B, (POST 1 TO POST 5)
- [3] SLOTTED THRIE BEAM RAIL NO. 3, (POST 5 TO POST 8)
- [4] UNBENT STANDARD THRIE-BEAM RAIL NO. 4, (POST 8 TO POST 10 & POST 10 TO POST 12)
- [5] BEYOND POST 12: CONSTRUCT STEEL THRIE BEAM - USE UNBENT STANDARD THRIE BEAM RAIL NO. 5.

- ① DIMENSIONS ARE FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO POST.
- ② TAPER BEGINNING AT POST NO. 1 MUST CONTINUE TO POST NO. 5. PAST POST NO. 5 TAPER MAY END OR BE EXTENDED UP TO 15.6 DEGREES TO FIT VARIABLE MEDIAN WIDTHS. (SEE PLAN)
- ③ FOR MEDIANS WIDER THAN 14'-2½" MEASURED FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO A POST OR BLOCK.



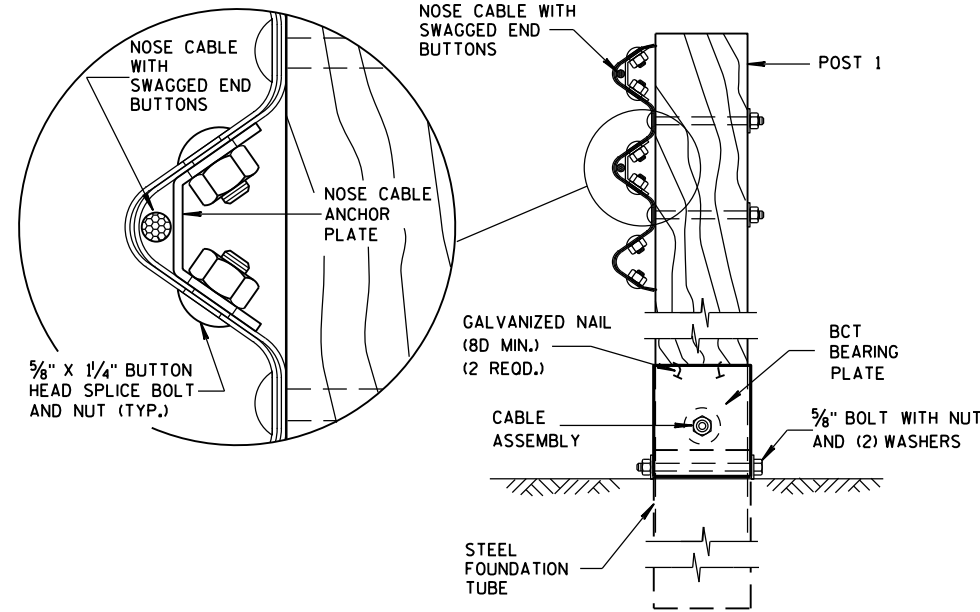
PLAN VIEW

WIDENED BULLNOSE DESIGN

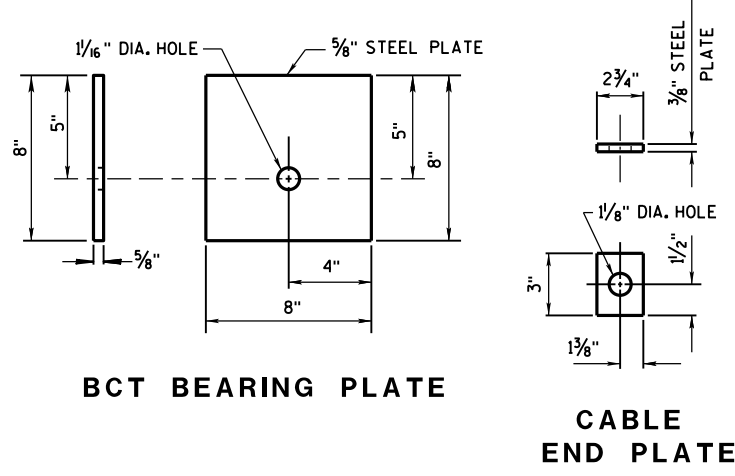
(INSTALLATION AT TWIN BRIDGES WITH BI-DIRECTIONAL TRAFFIC SHOWN)

STEEL THRIE BEAM
BULLNOSE TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

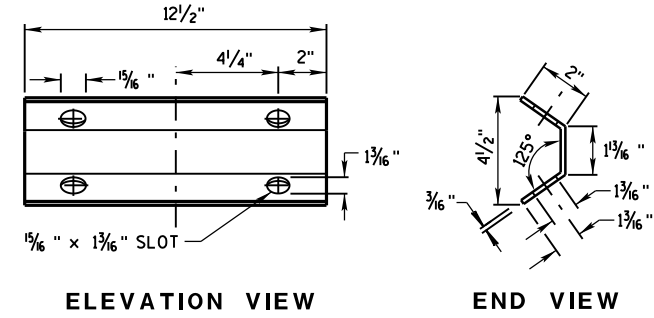


NOSE CABLE ASSEMBLY AT POST NO. 1



BCT BEARING PLATE

CABLE END PLATE

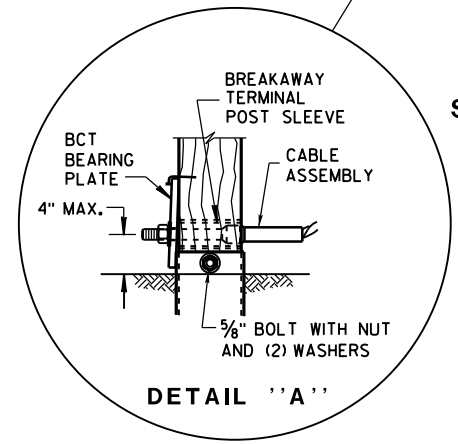


ELEVATION VIEW

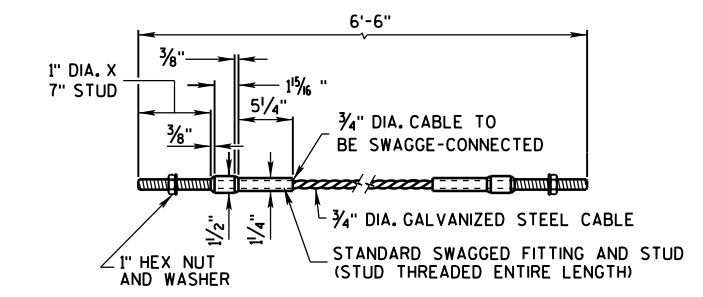
END VIEW

NOSE CABLE ANCHOR PLATE

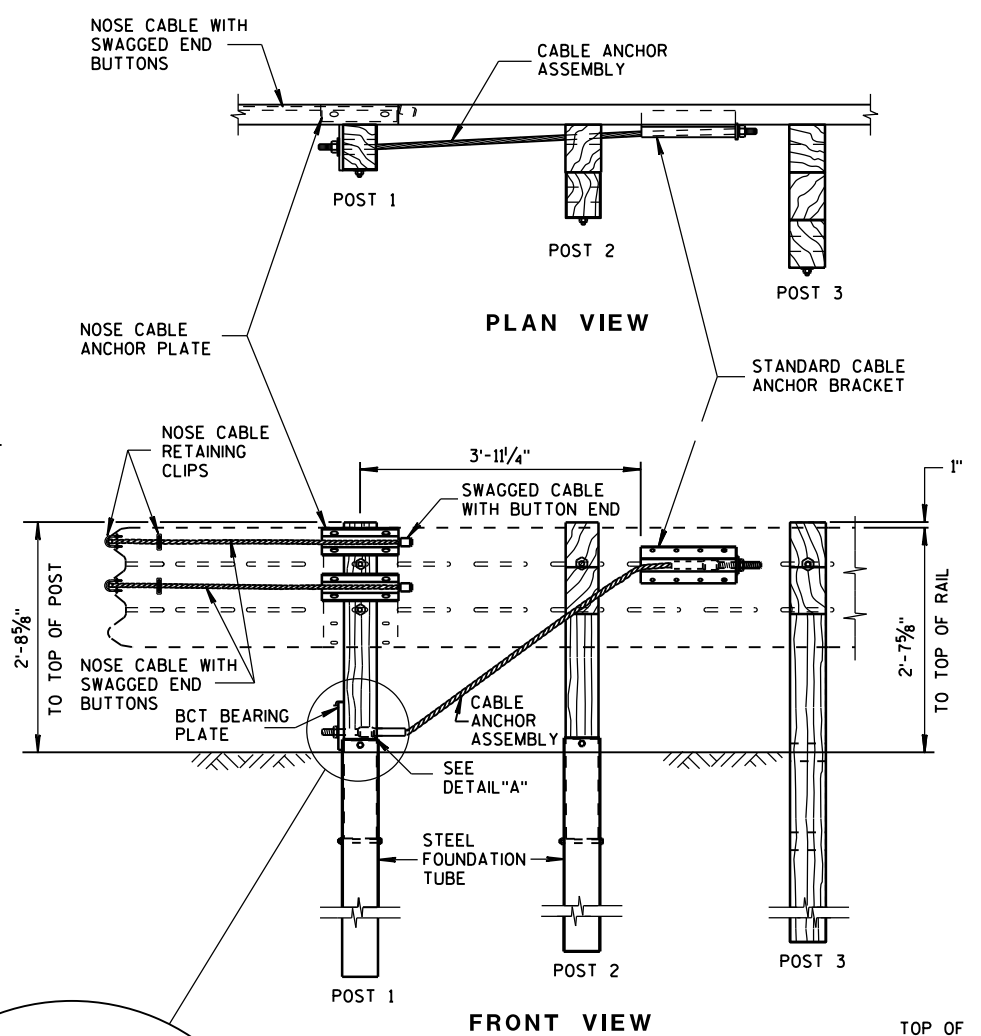
NOTE: 12 1/2" x 5 1/8" x 3/16" STEEL PLATE (A306)



DETAIL 'A'



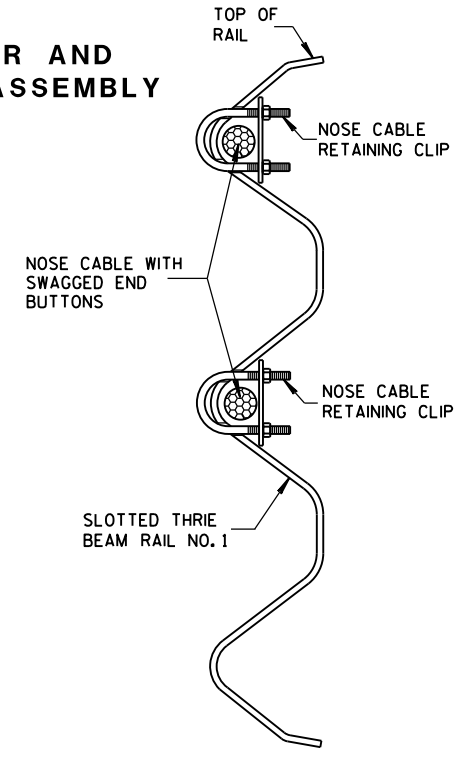
DETAILS OF CABLE ANCHOR ASSEMBLY



PLAN VIEW

FRONT VIEW

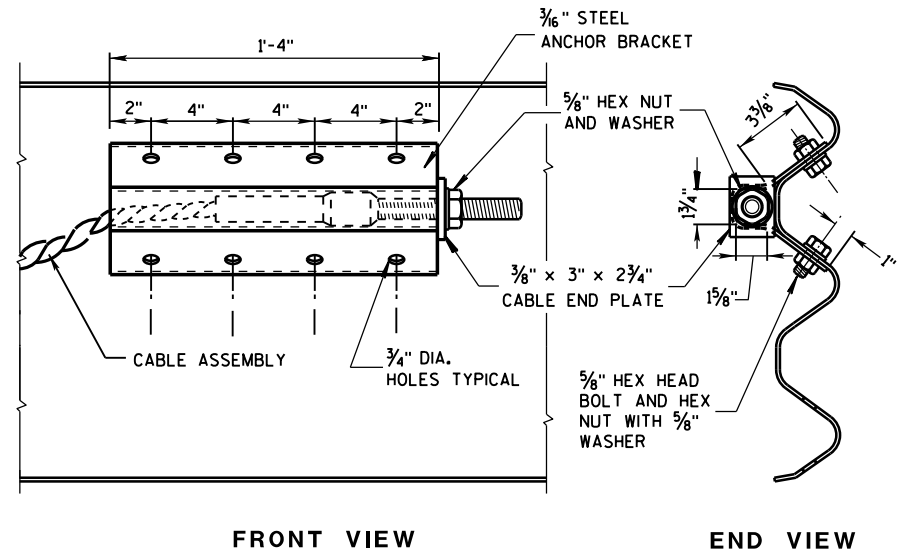
NOSE CABLE ANCHOR AND STANDARD BRACKET ASSEMBLY



PLACEMENT OF NOSE CABLE RETAINING CLIP

GENERAL NOTES

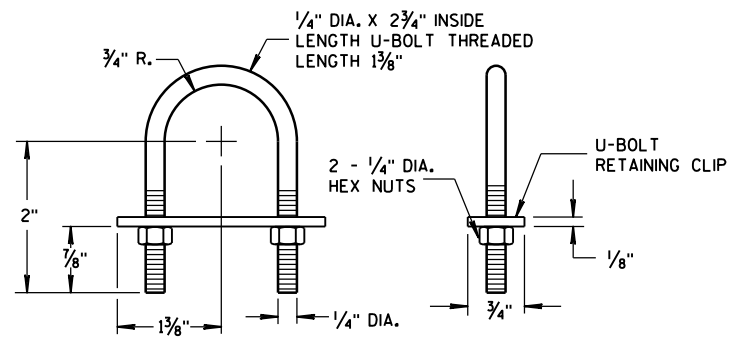
SEE STANDARD DETAIL DRAWINGS 14 B 26a-e.



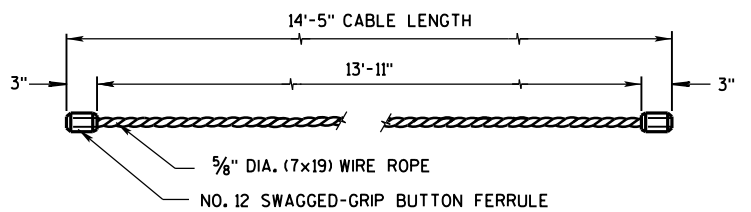
FRONT VIEW

END VIEW

DETAILS OF CABLE ANCHOR BRACKET



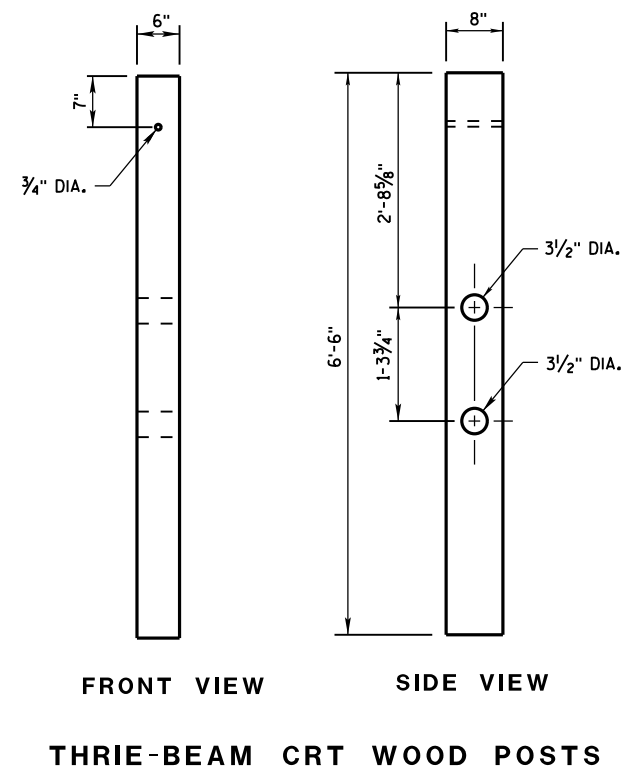
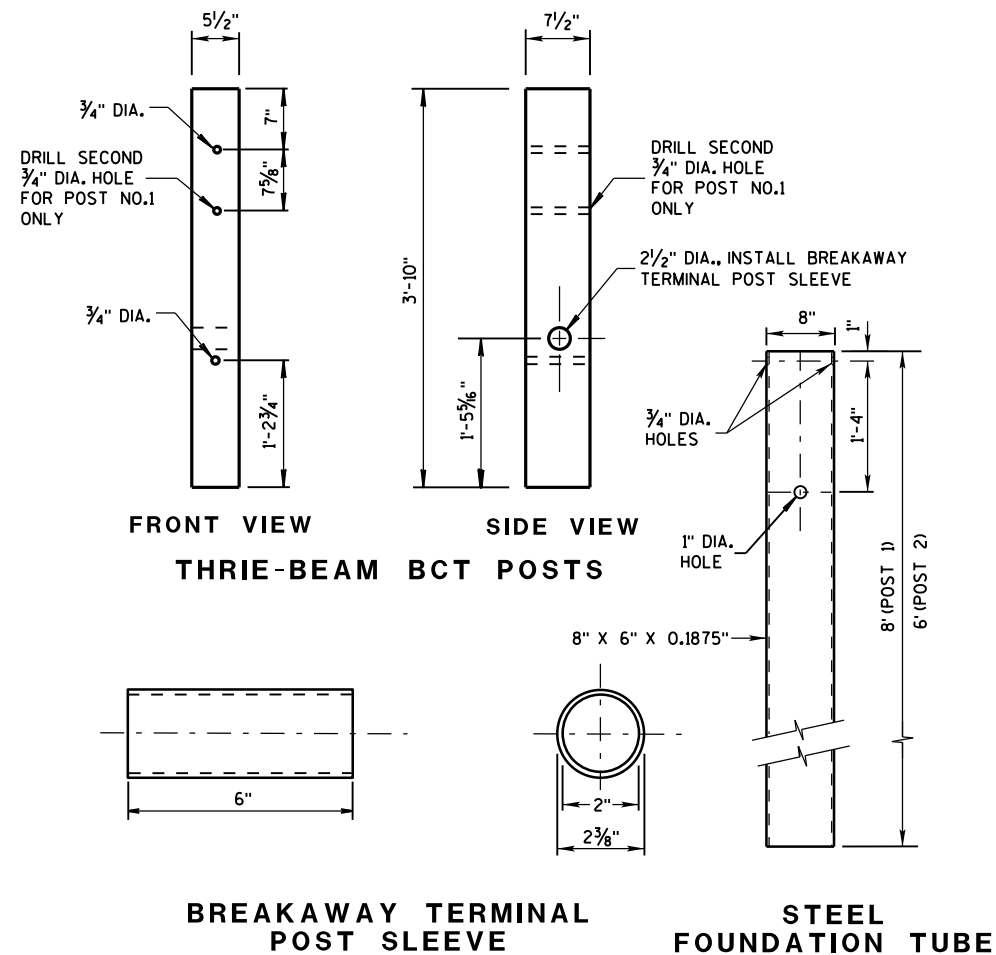
NOSE CABLE RETAINING CLIP



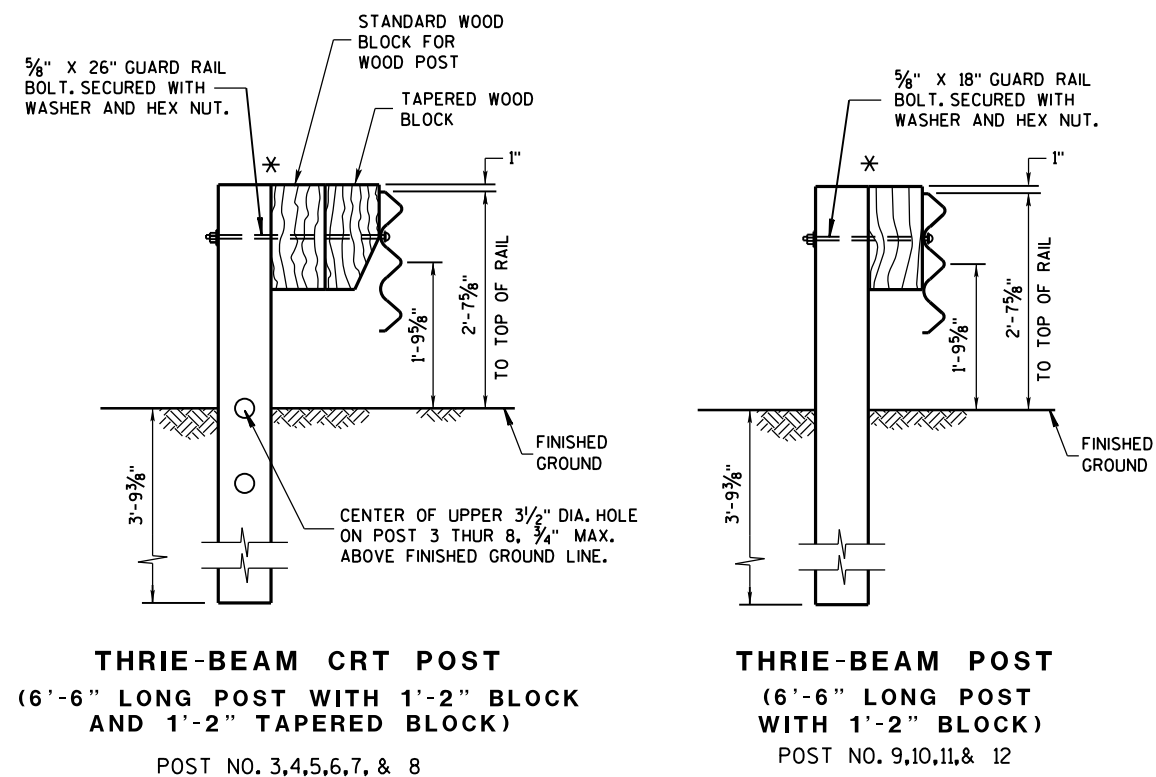
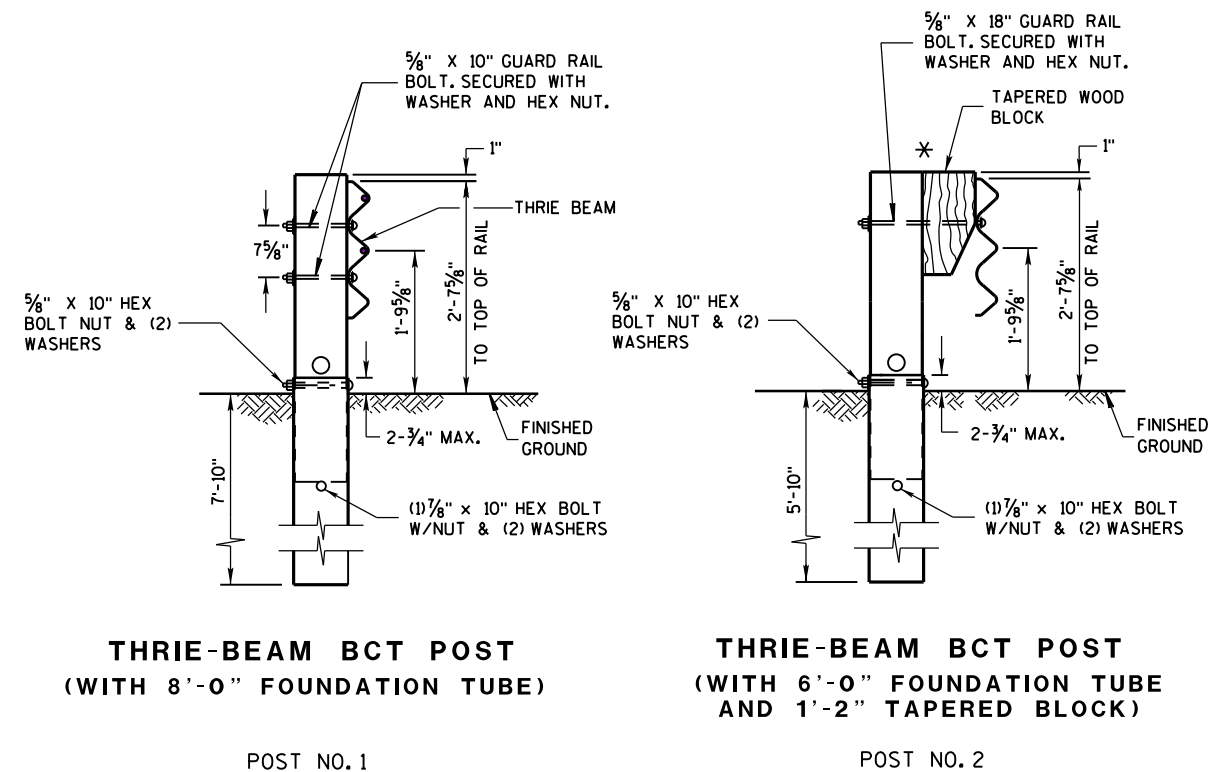
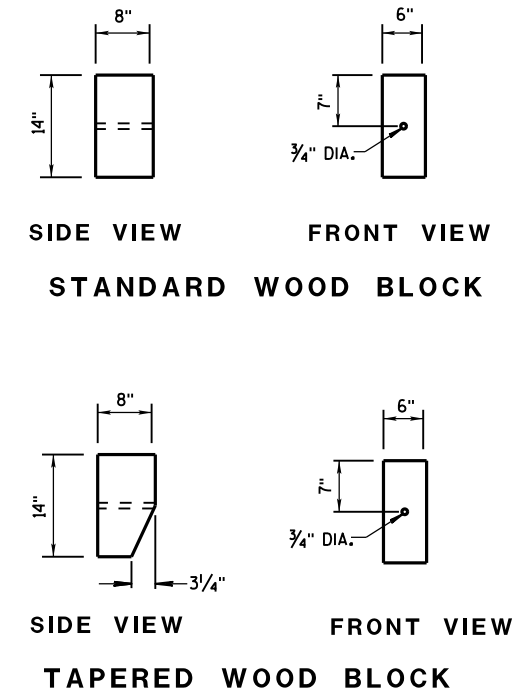
NOSE CABLE WITH SWAGGED END BUTTONS

TO PULL OFF SWAGGED GRIP BUTTON FERRULE FROM WIRE ROPE REQUIRES A FORCE EQUAL TO 98% OF THE WIRE ROPE'S BREAKING STRENGTH.

STEEL THRIE BEAM BULLNOSE TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

SEE STANDARD DETAIL DRAWINGS 14 B 26a-e.



* IF NEEDED DUE TO AN UNDERGROUND OBSTACLE ADD 1 ADDITIONAL STANDARD BLOCKOUT TO POST.

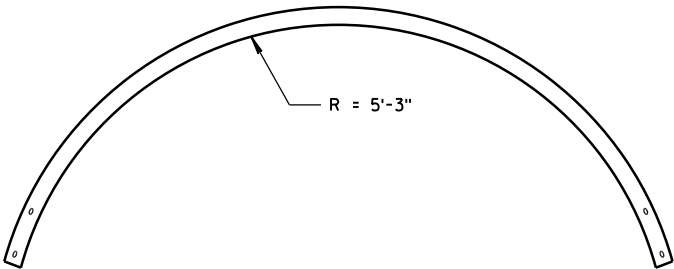
STEEL THRIE BEAM BULLNOSE TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

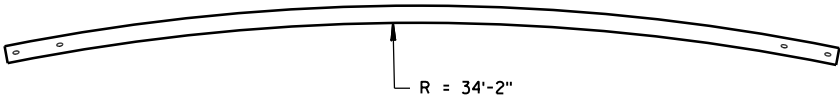
GENERAL NOTES

SEE STANADRD DETAIL DRAWINGS 14 B 26a-e.

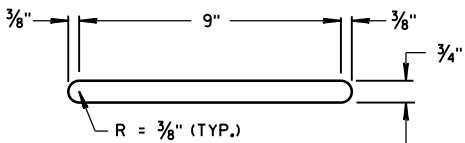
- ① SLOTTED THRIE BEAM RAIL DIMENSIONS SHOWN ARE BEFORE BENDING TO THE RADIUS SHOWN.
② SLOT SIZE AND SPACING SYMMETRIC.
③ SLOTTED THRIE BEAM RAIL NO. 1, 12'-6", SHOP BEND TO R=5'-3".
④ SLOTTED THRIE BEAM RAIL NO. 2A, 12'-6", SHOP BEND TO R=34'-2".
SLOTTED THRIE BEAM RAIL NO. 2B, 12'-6", RAIL IS STRAIGHT.
⑤ SLOTTED THRIE BEAM RAIL NO. 3, 12'-6", TANGENT.



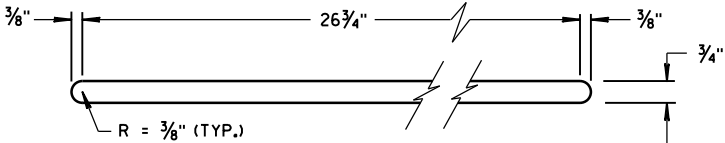
PLAN VIEW
SLOTTED THRIE BEAM RAIL NO. 1



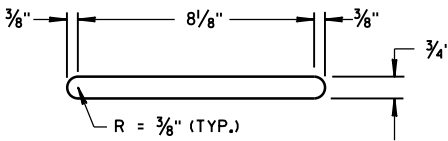
PLAN VIEW
SLOTTED THRIE BEAM RAIL NO. 2A



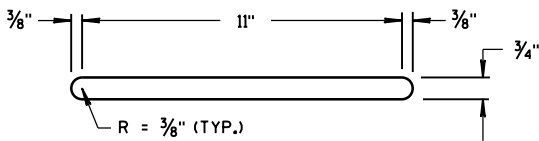
SLOT A



SLOT B

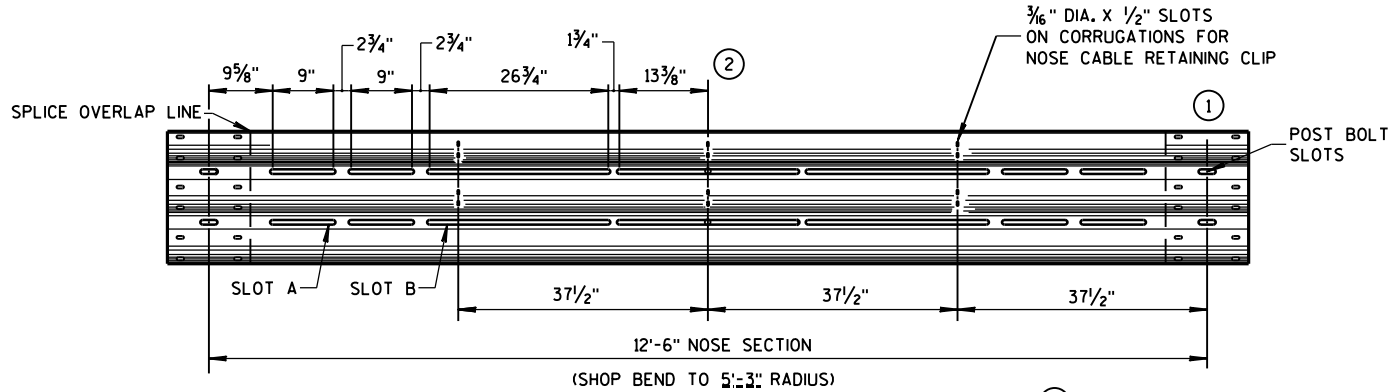


SLOT C

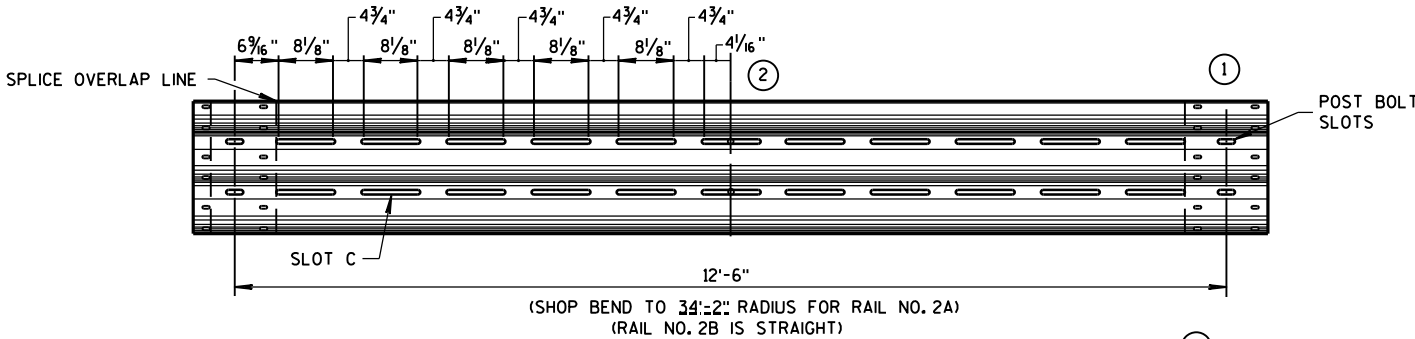


SLOT D

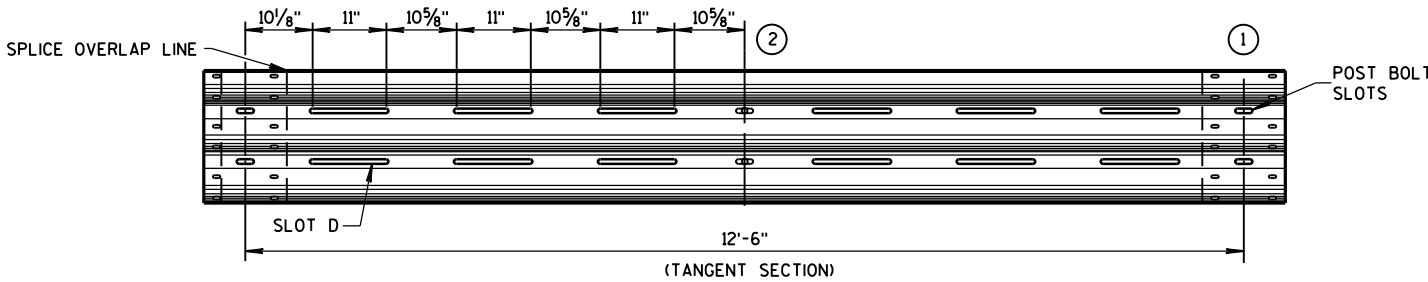
SLOT DETAILS



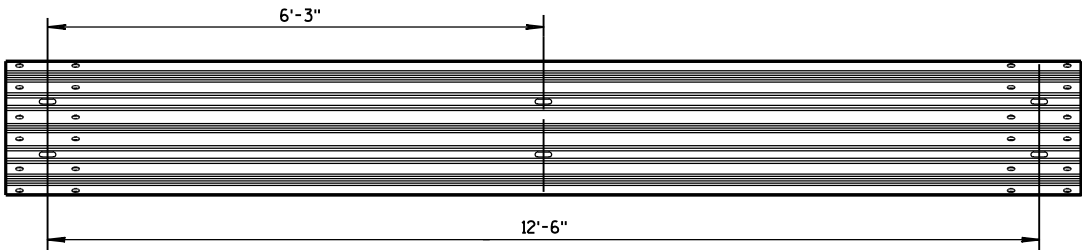
SLOTTED THRIE BEAM RAIL NO. 1



SLOTTED THRIE BEAM RAILS NO. 2A AND NO. 2B



SLOTTED THRIE BEAM RAIL NO. 3



UNBENT STANDARD THRIE BEAM RAIL NO. 4 AND NO. 5

STEEL THRIE BEAM
BULLNOSE TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"W0" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

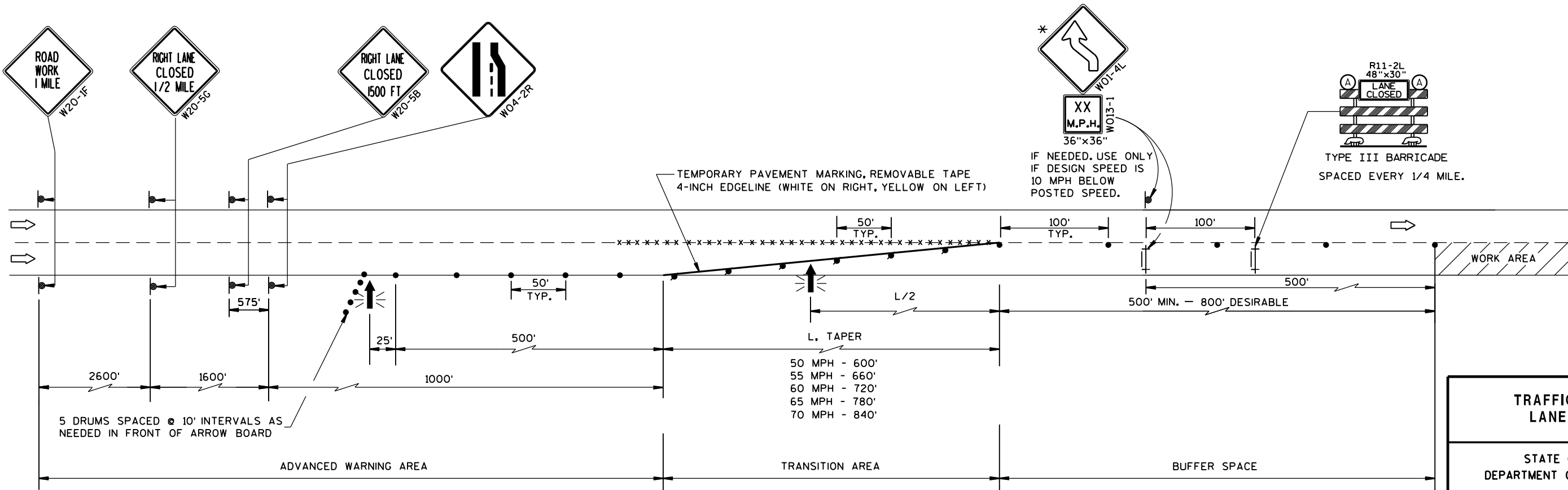
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

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

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2016 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

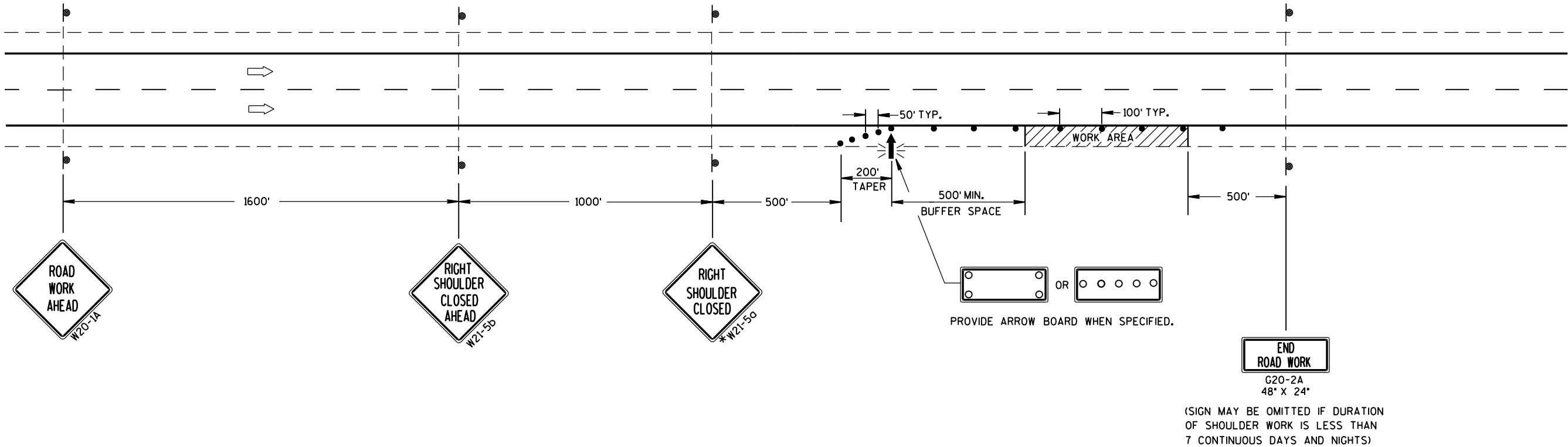
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

GENERAL NOTES

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

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

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

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

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

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

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

TABLE A

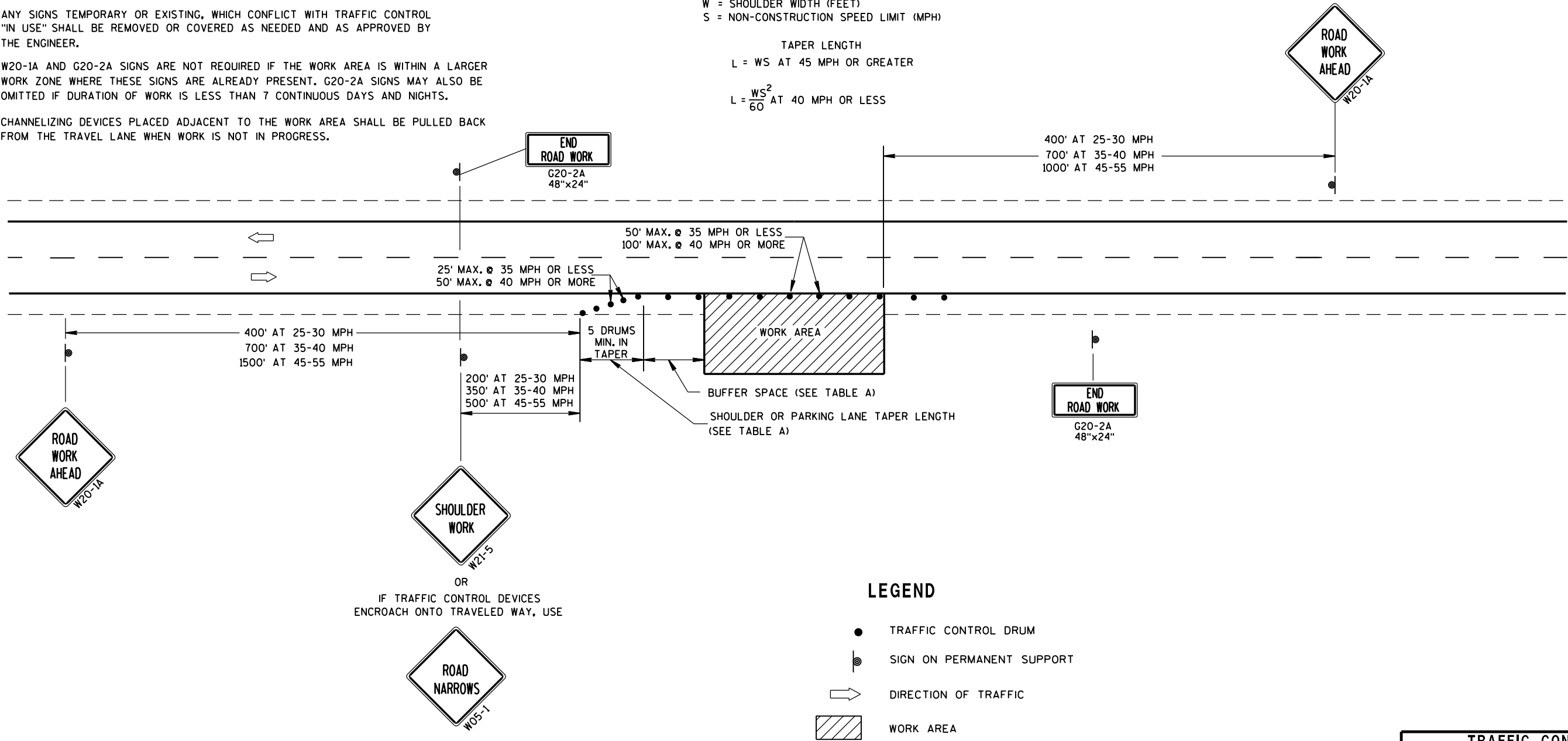
SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S	W	4	6	8	
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

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

TAPER LENGTH
L = WS AT 45 MPH OR GREATER

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

SHOULDER TAPER LENGTH = $\frac{1}{3}L$



LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED July 14, 2015 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
DIMENSIONS SHOWN ARE BASED ON THE EXISTING STRUCTURE PLANS.
ORIGINAL CONSTRUCTION PLANS AVAILABLE UPON REQUEST.

GENERAL NOTES FOR B-27-20

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-27-20" SHALL BE THE EXISTING GROUND LINE.
DO NOT CUT OR DRILL INTO EXISTING COLUMN AND CAP BAR STEEL.
AFTER NEW CONCRETE IS PLACED, VOIDS MAY BE PRESENT BETWEEN THE UNDERSIDE OF THE EXISTING CAP AND THE COLUMN EXTENSION. THESE VOIDS TO BE PRESSURE GROUTED. WORK INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES."
THE EXISTING TEMPORARY STEEL SUPPORTS, LOCATED AT THE PIER OF STRUCTURE B-27-20, IS TO BE REMOVED PRIOR TO PLACING CONCRETE. WORK PAID FOR UNDER "REMOVING OLD STRUCTURE STA. 49+64.00".

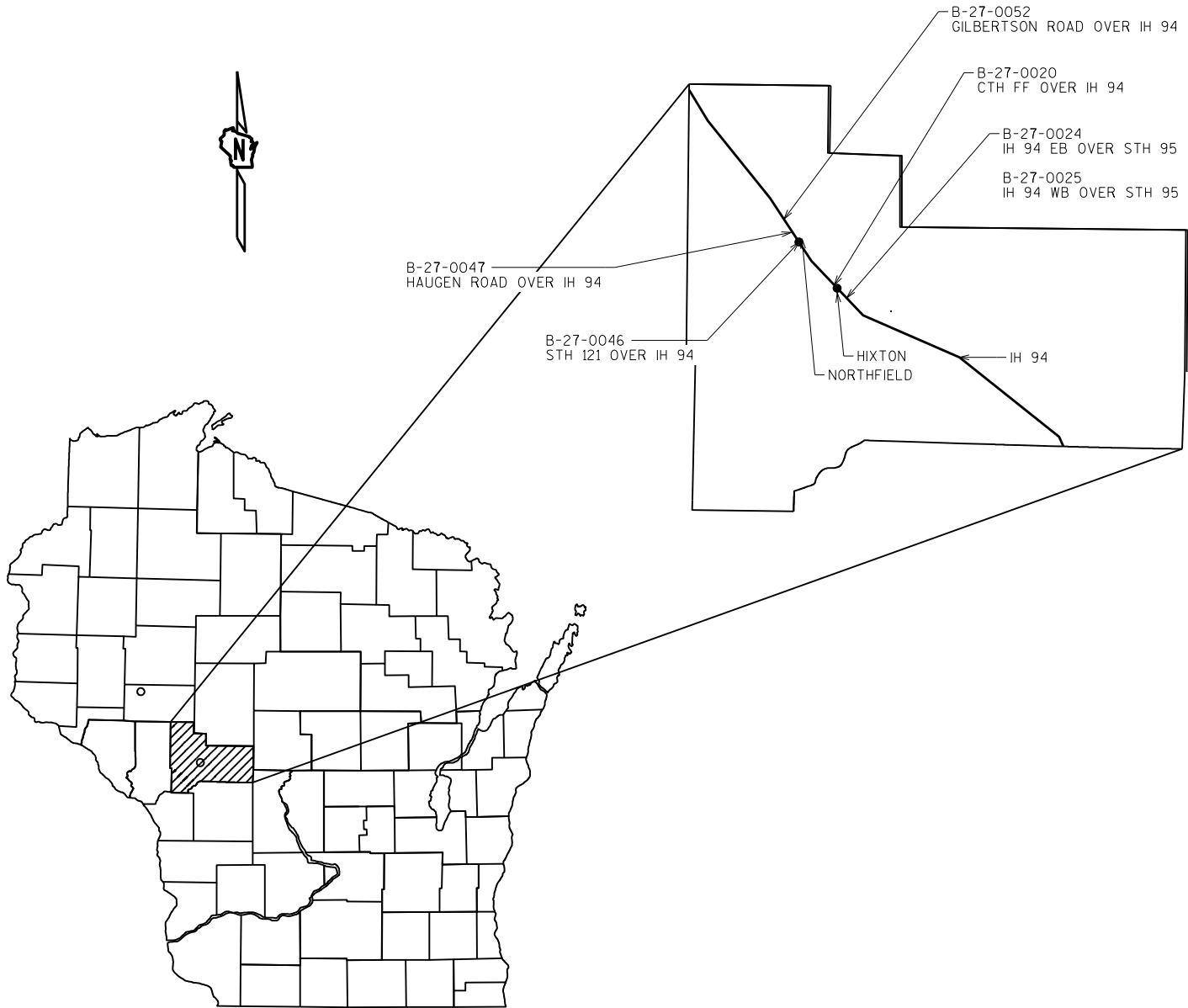
GENERAL NOTES FOR B-27-24, 25, 46, 47, & 52

IN REGION WHERE FRP IS TO BE APPLIED, THE FIELD ENGINEER TO DETERMINE LOCATIONS WHERE CONCRETE SURFACE REPAIR IS REQUIRED. WORK TO BE DONE BEFORE FIBER WRAPS APPLIED, IF NEEDED.
CONCRETE SURFACE REPAIR MATERIAL MUST BE ON THE DEPARTMENT'S APPROVED PRODUCTS LIST AND SHOULD BE SUITABLE FOR VERTICAL AND OVERHEAD APPLICATIONS. CONCRETE SURFACE REPAIR IS INCIDENTAL TO THE BID ITEM 'FIBER WRAP REINFORCING STRUCTURAL.'
REMOVE AND REPLACE UNSOUND CONCRETE FROM PIER CAP PER "CONCRETE SURFACE REPAIR" ITEM.
ONLY THE THEORETICAL LIMITS OF FRP REPAIR ARE GIVEN. ANY ADDITIONAL FRP LENGTH FOR CONSTRUCTABILITY, DEVELOPMENT, OR OFFSET IS TO BE DETERMINED BY THE FRP MANUFACTURER. THE FRP IS TO BE UNIFORMLY DISTRIBUTED ON THE PIER CAP SIDES.
THE ADDITIONAL FACTORED SHEAR CAPACITY REQUIRED SHOWN IN THE TABLE IS THE FACTORED SHEAR FORCE, IN KIPS, TO BE PROVIDED BY THE FRP FABRIC INSTALLATION.
PIER EXISTING MATERIAL STRENGTHS: CONCRETE $f'_c = 3.5$ KSI, REINFORCING STEEL $f_y = 40$ KSI.
EXISTING FACTORED SHEAR CAPACITY IS BASED ON AS-BUILT PLANS.
PROVIDE 2" MINIMUM CLEAR DISTANCE BETWEEN VERTICAL WRAPS.
THE EXISTING TEMPORARY STEEL SUPPORTS, LOCATED AT THE PIER OF STRUCTURE B-27-47, IS TO BE REMOVED PRIOR TO APPLYING FRP. WORK PAID FOR UNDER "REMOVING OLD STRUCTURE STA. 9+68.50".

LIST OF DRAWINGS

- 1. GENERAL NOTES & QUANTITIES
- 2. B-27-20 PIER REPAIR
- 3. B-27-24 FRP PIER DETAILS
- 4. B-27-25 FRP PIER DETAILS
- 5. B-27-46 FRP PIER DETAILS
- 6. B-27-47 FRP PIER DETAILS
- 7. B-27-52 FRP PIER DETAILS

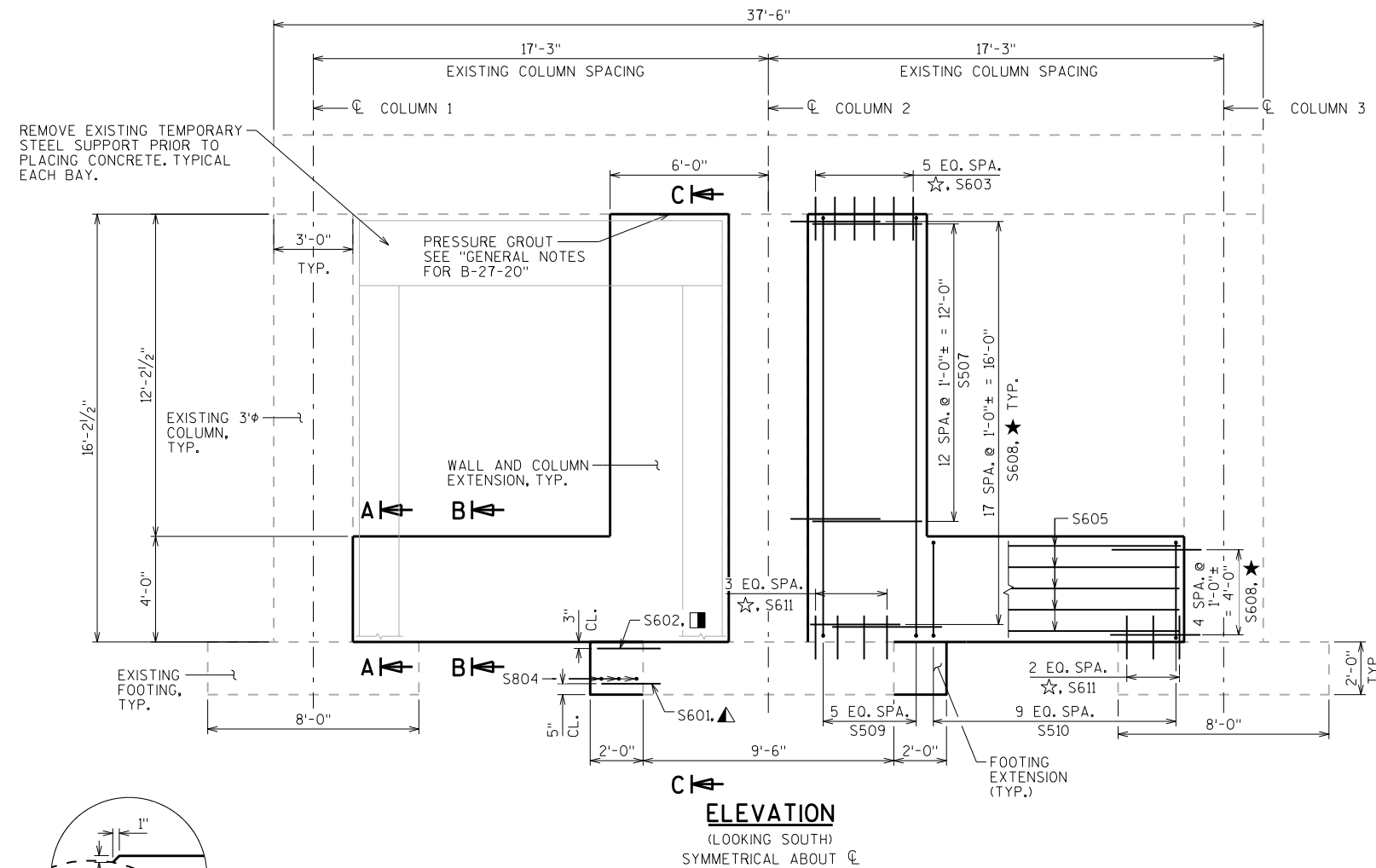
STRUCTURE DESIGN CONTACTS:
ANDREW SMITH (608) 266-0989
AARON BONK (608) 261-0261



TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	B-27-20	B-27-24	B-27-25	B-27-46	B-27-47	B-27-52	TOTALS
203.0200	REMOVING OLD STRUCTURE STA. 49+64.00	LS	1	—	—	—	—	—	1
203.0200	REMOVING OLD STRUCTURE STA. 9+68.50	LS	—	—	—	—	1	—	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-27-20	LS	1	—	—	—	—	—	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	28	—	—	—	—	—	28
502.0100	CONCRETE MASONRY BRIDGES	CY	30	—	—	—	—	—	30
502.4106	ADHESIVE ANCHORS 3/4-INCH	EACH	202	—	—	—	—	—	202
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2815	—	—	—	—	—	2815
509.1500	CONCRETE SURFACE REPAIR	SF	—	—	—	1	1	—	2
SPV.0165	FIBER WRAP REINFORCING STRUCTURAL	SF	—	255	265	136	48	48	752

NO.	DATE	REVISION	BY
BUREAU OF STRUCTURES			
ACCEPTED		<i>William C. Dreher</i> 3/22/17	
		CHIEF STRUCTURES DESIGN ENGINEER DATE	
STRUCTURE B-27-VARIOUS			
SELECT NW REGION PIER CAP REPAIRS			
COUNTY	JACKSON	TOWN	NORTHFIELD/HIXTON
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	ADS	DESIGNED CK'D. SEW	DRAWN BY SEW PLANS CK'D. ADS
GENERAL NOTES & QUANTITIES			SHEET 1 OF 7

**BILL OF BARS**

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
▲ S601	X	38	2'-6"			ANCHORAGE BARS - FOOT - HORIZ. - BOT.
■ S602	X	20	2'-6"			ANCHORAGE BARS - FOOT - HORIZ. - TOP
☆ S603	X	24	1'-8"			ANCHORAGE BARS - VERT. INTO EXIST. CAP
S804	X	6	9'-0"			FOOTING - HORIZ.
S605	X	20	15'-2"			HORIZ. - LOWER WALL - FF & BF
S606	X	12	13'-11"			HORIZ. - LOWER WALL - TOP & BOT.
S507	X	52	5'-4"			HORIZ. - FF & BF
★ S608	X	92	3'-2"	X		ANCHORAGE BARS - HORIZ. INTO EXIST. COLUMNS
S509	X	24	20'-11"	X		STIRRUP - COLUMN
S510	X	40	8'-9"	X		STIRRUP - LOWER WALL
☆ S611	X	28	1'-8"			ANCHORAGE BARS - VERT. INTO EXIST. FOOTINGS

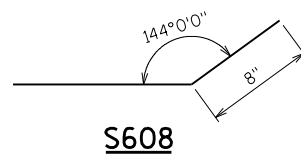
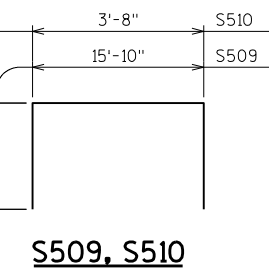
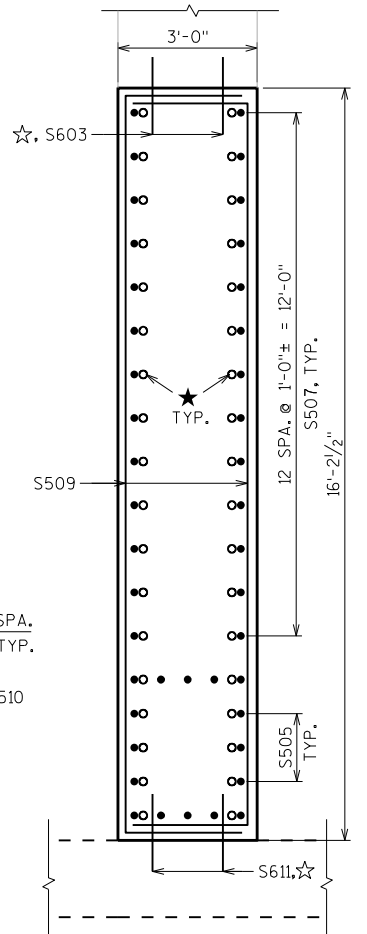
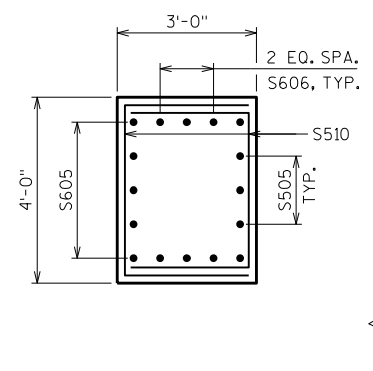
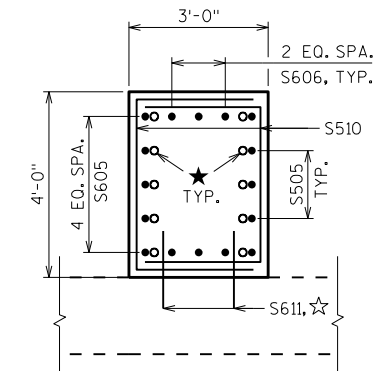
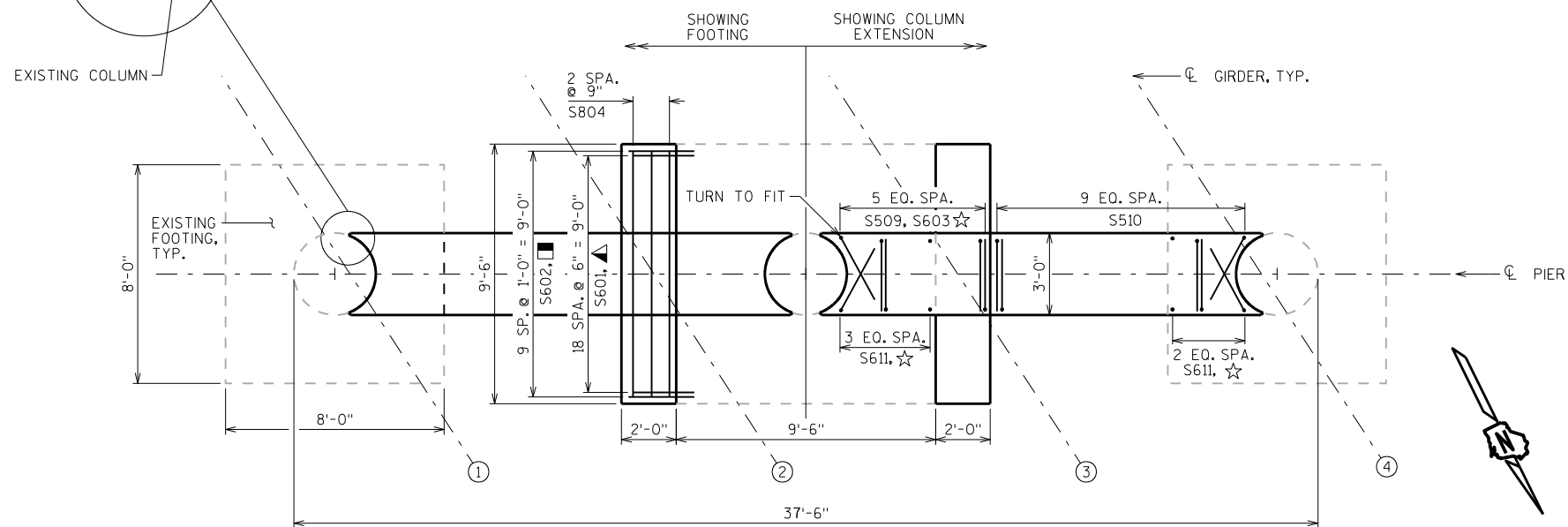
☆ ADHESIVE ANCHORS 3/4-INCH (OR NO. 6 BAR). EMBED 8" IN CONCRETE 1'-8" LONG @ 12"± SPA. EXISTING FOOTING/CAP ONLY - NO BEND

★ 3/4-INCH (OR NO. 6 BAR). ADHESIVE ANCHOR. EMBED 8" @ 12"± VERTICAL SPA.

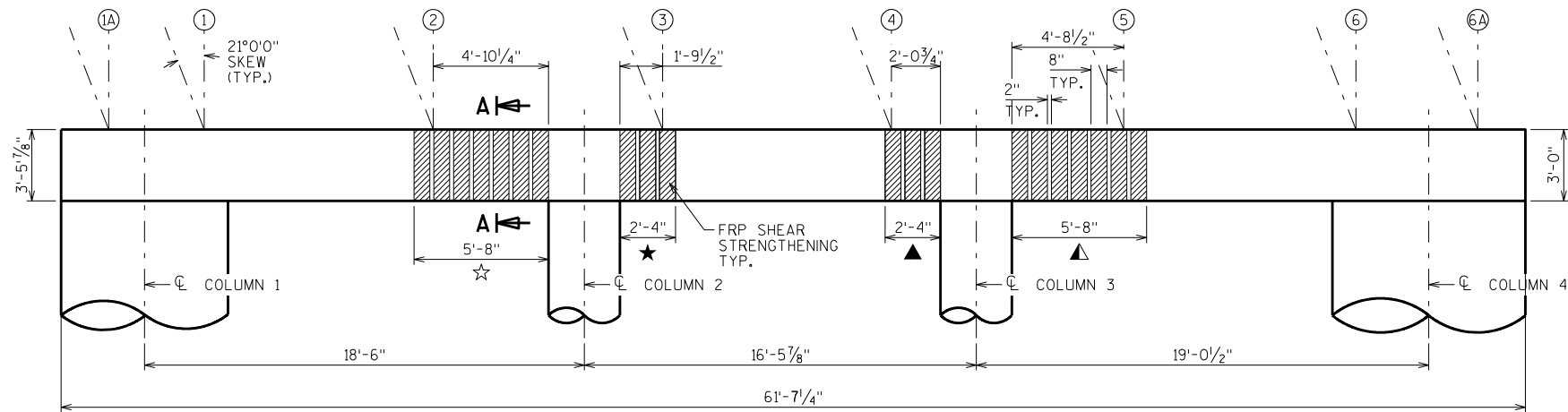
■ 3/4-INCH (OR NO. 6 BAR). ADHESIVE ANCHOR. EMBED 8" @ 12" SPA. TOP MAT, 3" CLR.

▲ 3/4-INCH (OR NO. 6 BAR). ADHESIVE ANCHOR. EMBED 8" @ 6" SPA., BOTTOM MAT, 5" CLR.

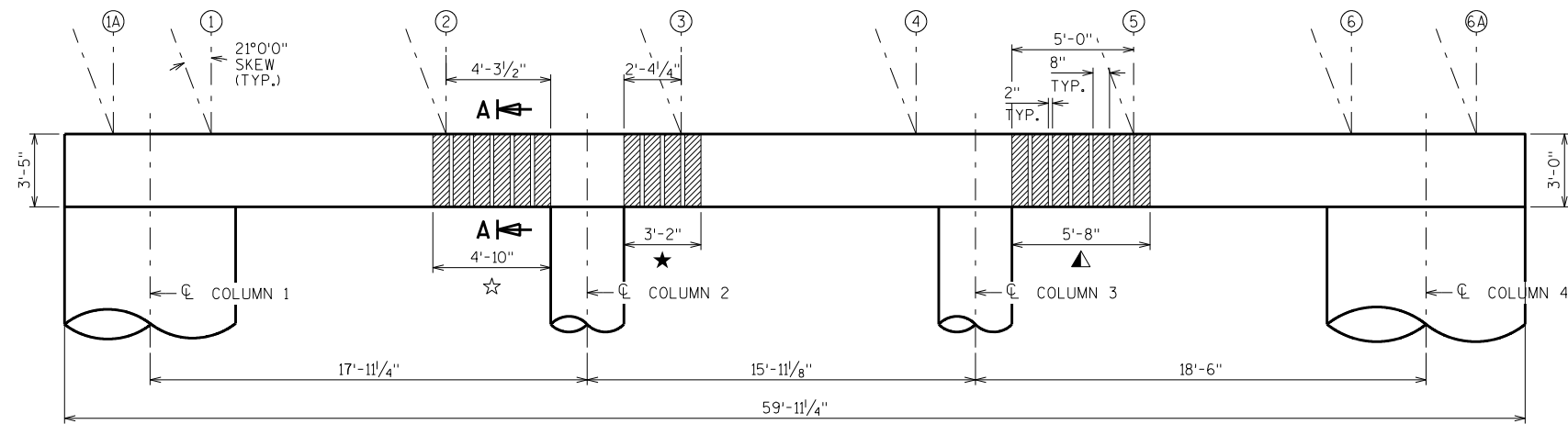
○ INDICATES GIRDER NUMBER

**PLAN**

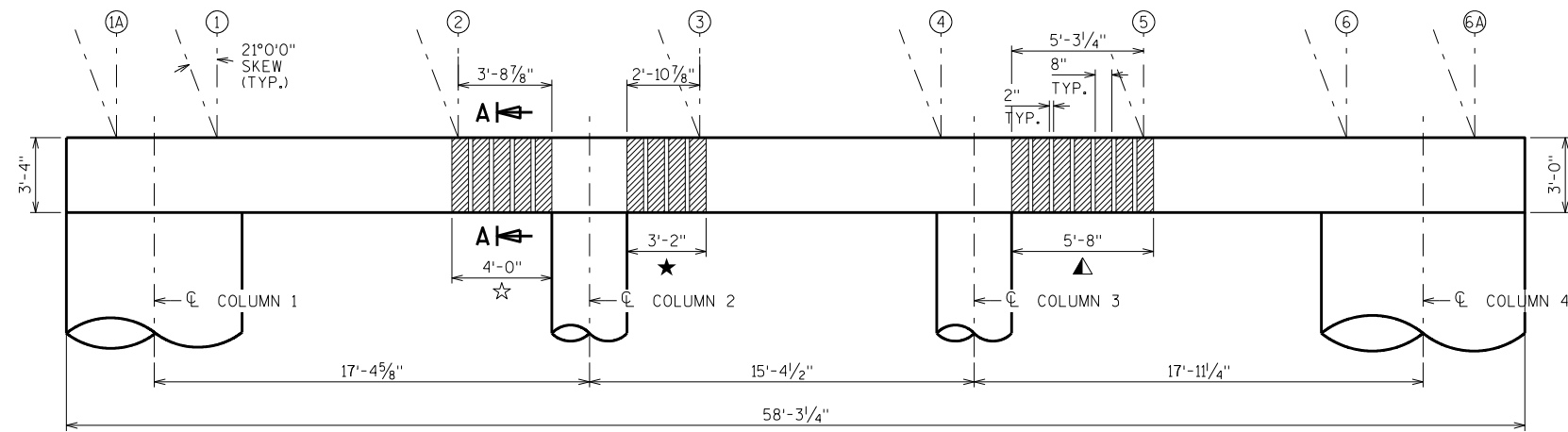
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-27-20			
DRAWN BY		SEW	PLANS CK'D. ADS
B-27-20 PIER REPAIR		SHEET 2	

**PIER 1**

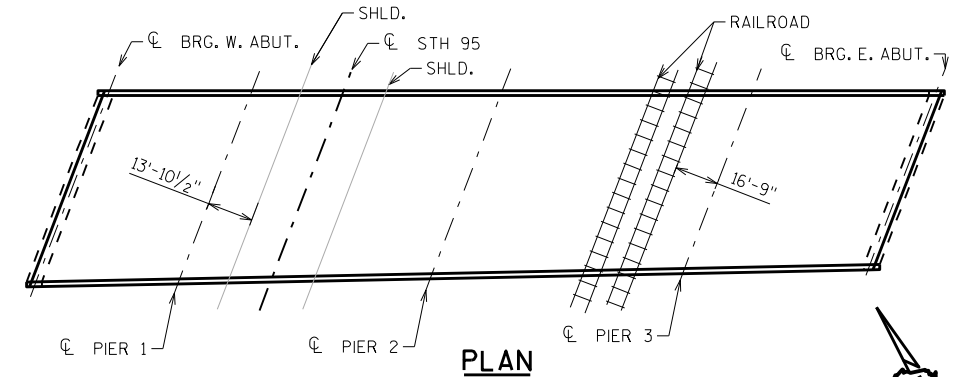
(LOOKING EAST)

**PIER 2**

(LOOKING EAST)

**PIER 3**

(LOOKING EAST)

**PLAN****PIER 1**

	REQ'D FACTORED SHEAR CAPACITY (KIPS)	EXIST FACTORED SHEAR CAPACITY (KIPS)	ADD'L FACTORED SHEAR CAPACITY REQ'D (KIPS)
☆	182	148	34
★	272	203	69
▲	262	203	59
▲	175	128	47

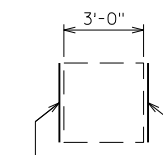
PIER 2

	REQ'D FACTORED SHEAR CAPACITY (KIPS)	EXIST FACTORED SHEAR CAPACITY (KIPS)	ADD'L FACTORED SHEAR CAPACITY REQ'D (KIPS)
☆	206	148	58
★	260	200	60
▲	---	---	---
▲	180	128	52

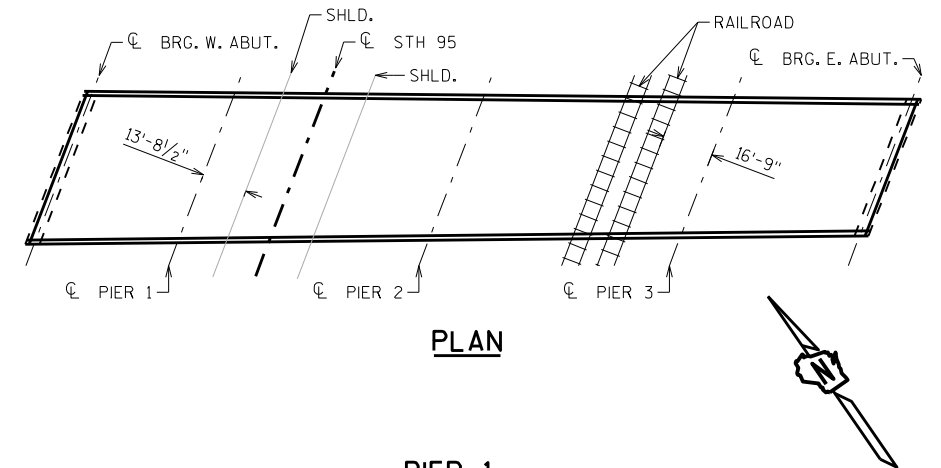
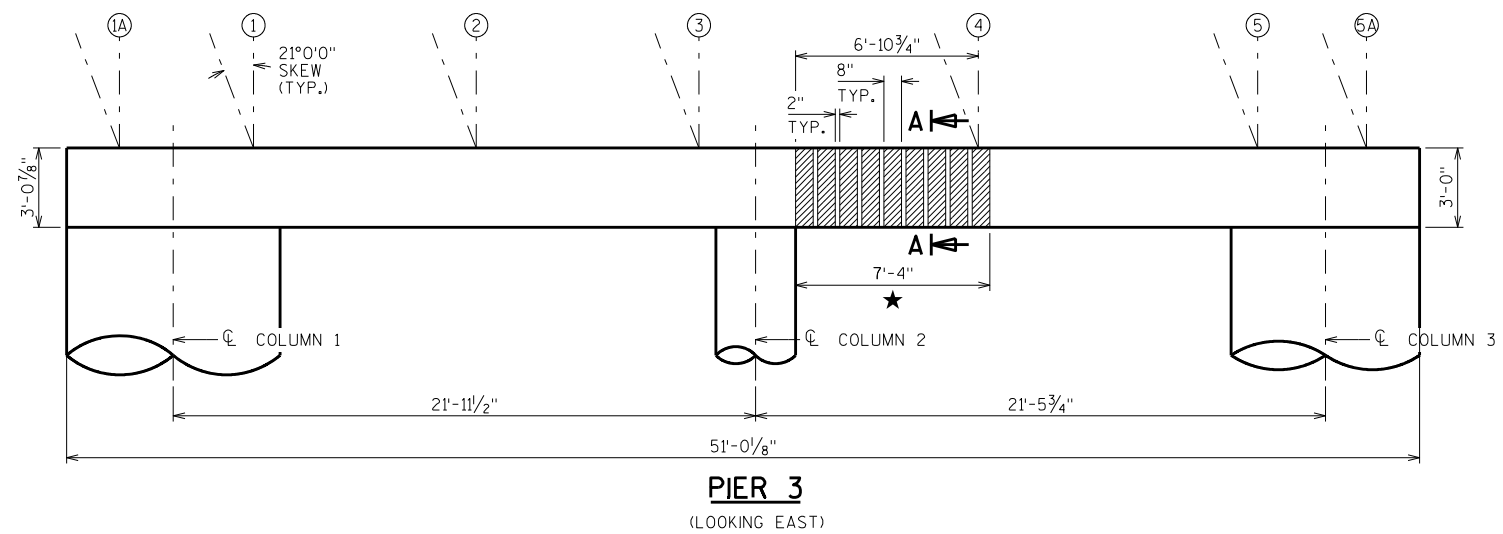
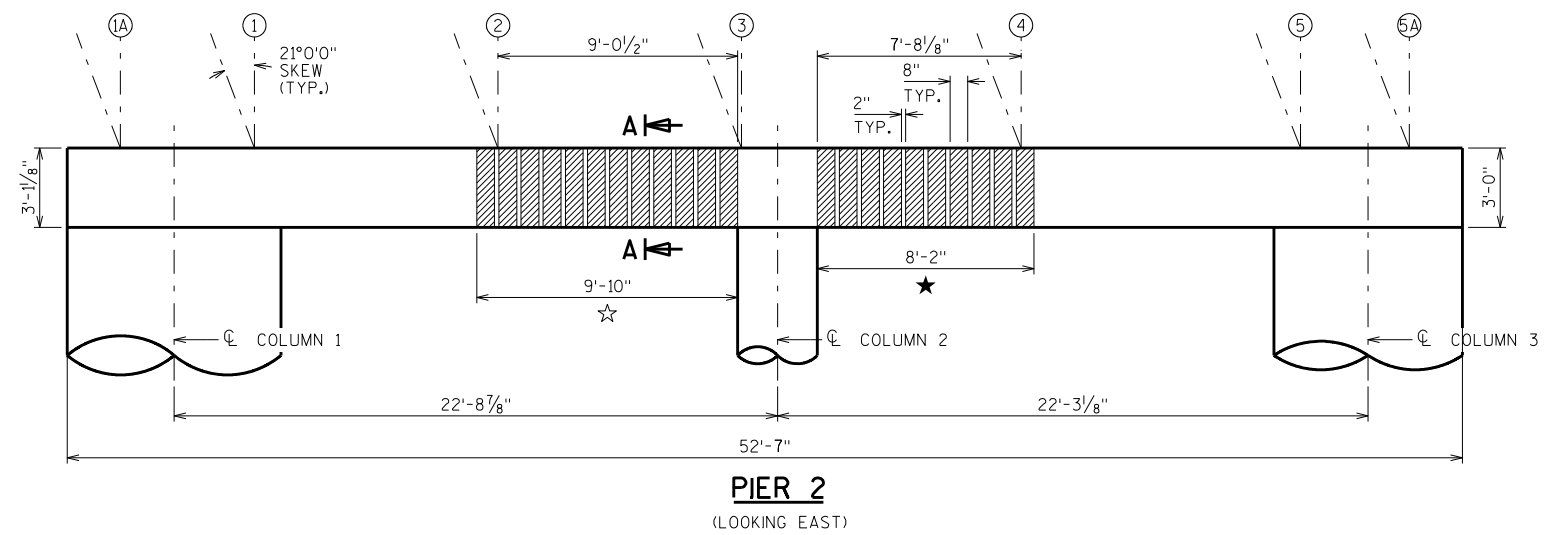
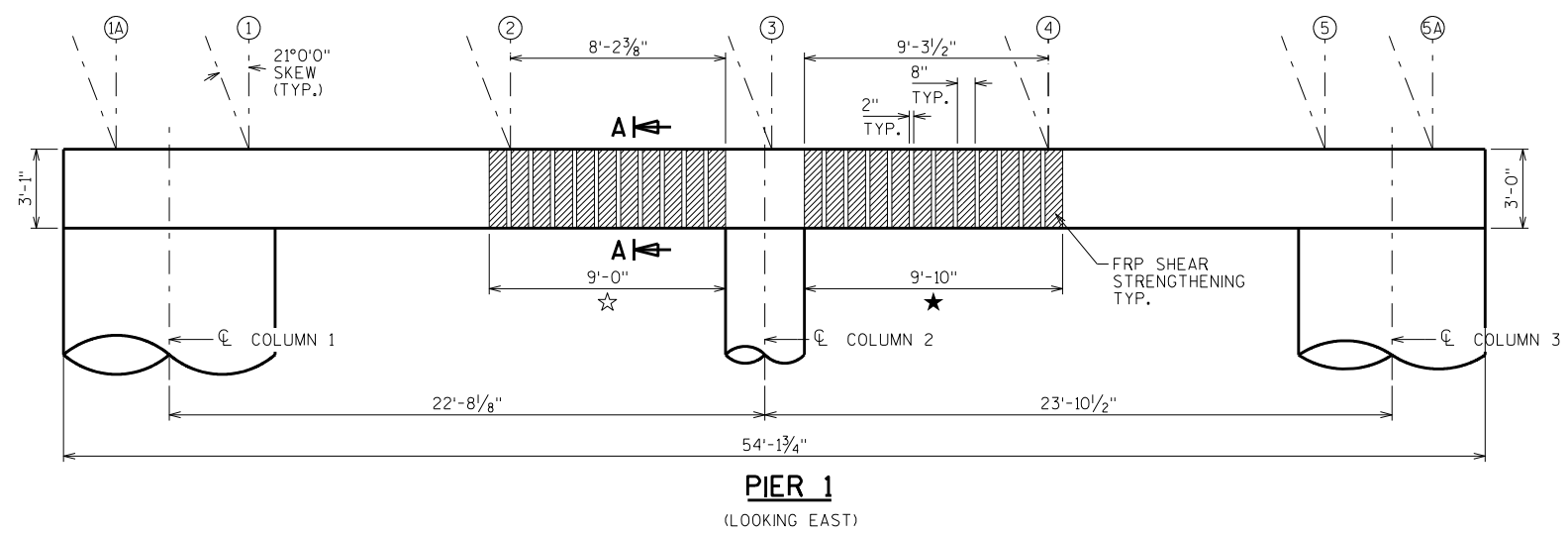
PIER 3

	REQ'D FACTORED SHEAR CAPACITY (KIPS)	EXIST FACTORED SHEAR CAPACITY (KIPS)	ADD'L FACTORED SHEAR CAPACITY REQ'D (KIPS)
☆	205	145	60
★	221	160	61
▲	---	---	---
▲	149	128	21

○ INDICATES GIRDER NUMBER

**SECTION A-A**FRP SHEAR
STRENGTHENING,
FRP STRENGTH
AXIS ORIENTATION
VERTICAL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-27-24			
DRAWN BY		SEW	PLANS CK'D. ADS
B-27-24 FRP PIER DETAILS			SHEET 3



PIER 1

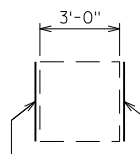
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☆	166	125	41
★	156	125	31

PIER 2

	REQ'D FACTORED SHEAR CAPACITY (KIPS)	EXIST FACTORED SHEAR CAPACITY (KIPS)	ADD'L FACTORED SHEAR CAPACITY REQ'D (KIPS)
☆	144	125	19
★	201	125	76

PIER 3

	REQ'D FACTORED SHEAR CAPACITY (KIPS)	EXIST FACTORED SHEAR CAPACITY (KIPS)	ADD'L FACTORED SHEAR CAPACITY REQ'D (KIPS)
☆	---	---	---
★	198	125	73

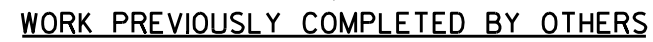


SECTION A-A

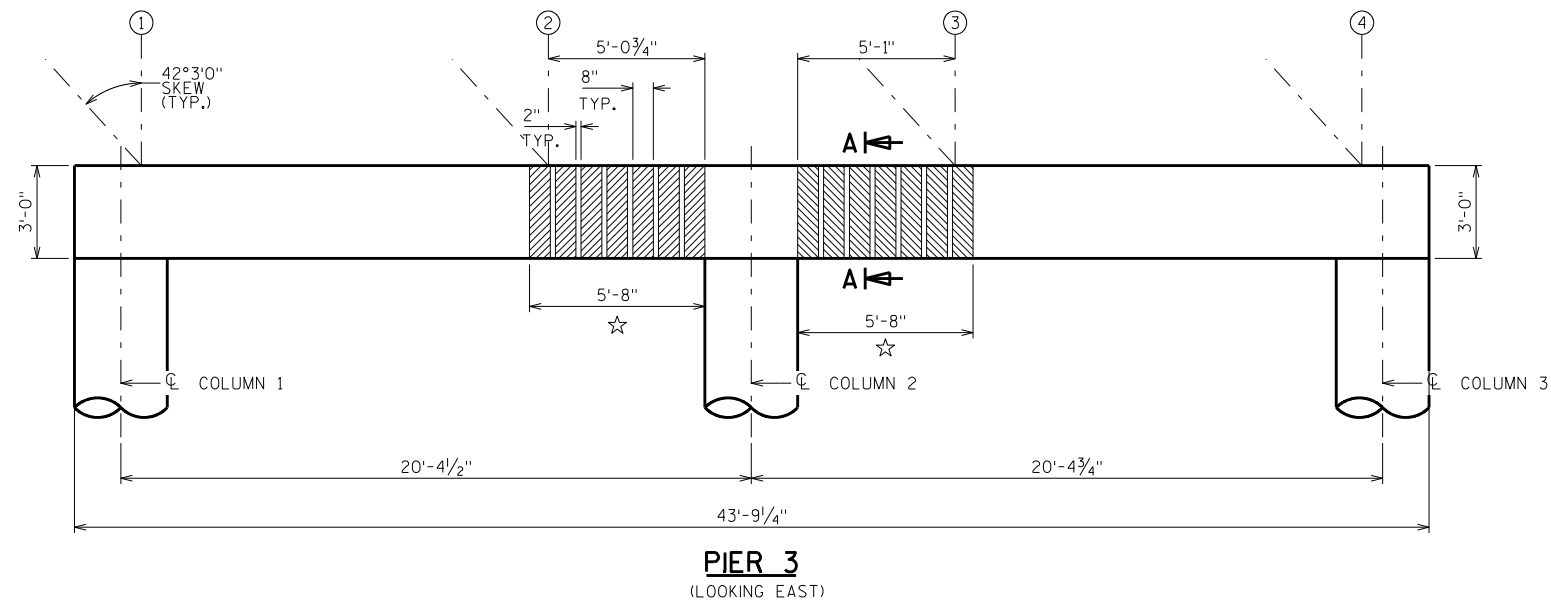
FRP SHEAR
STRENGTHENING,
FRP STRENGTH
AXIS ORIENTATION
VERTICAL

○ INDICATES GIRDER NUMBER

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-27-25			
DRAWN BY		SEW	PLANS CK'D. ADS
B-27-25 FRP PIER DETAILS			SHEET 4



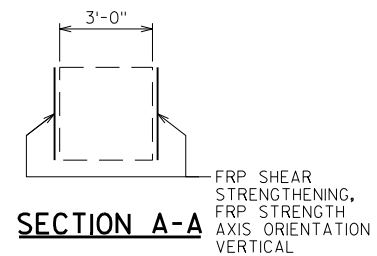
PIER 2
(LOOKING EAST)



	REQ'D FACTORED SHEAR CAPACITY (KIPS)	EXIST FACTORED SHEAR CAPACITY (KIPS)	ADD'L FACTORED SHEAR CAPACITY REQ'D (KIPS)
☆	246	139	107

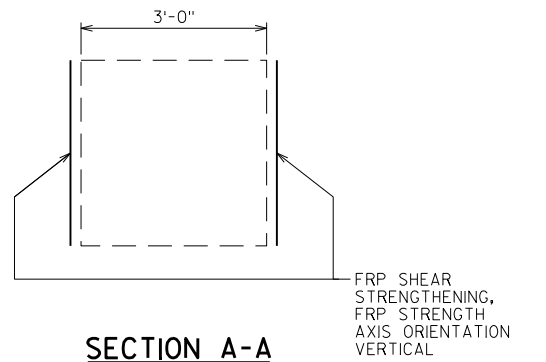
PIER 3

	REQ'D FACTORED SHEAR CAPACITY (KIPS)	EXIST FACTORED SHEAR CAPACITY (KIPS)	ADD'L FACTORED SHEAR CAPACITY REQ'D (KIPS)
☆	266	170	96



○ INDICATES GIRDER NUMBER

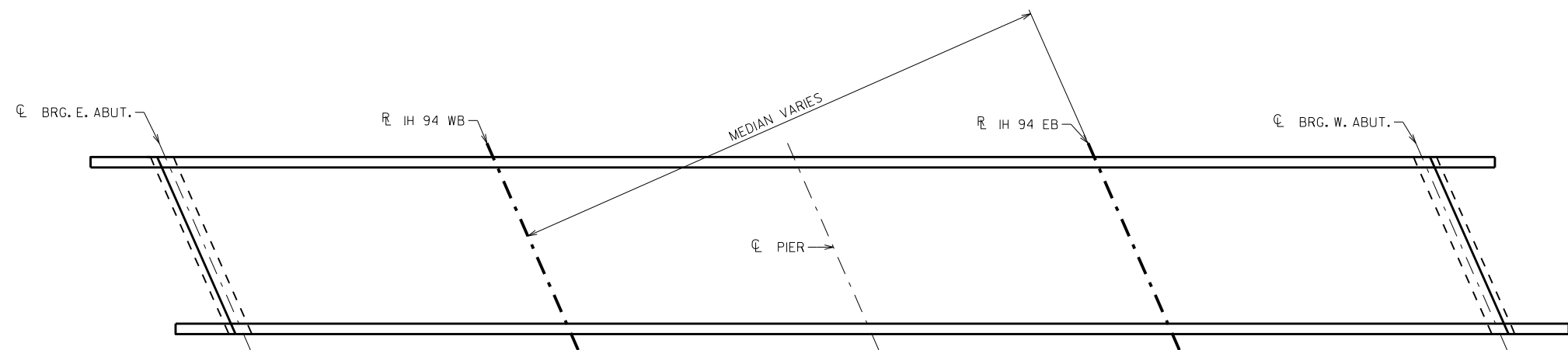
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-27-66			
DRAWN BY		SEW	PLANS CK'D. ADS
B-27-66 FRP PIER DETAILS		SHEET 5	



SECTION A-A

PIER

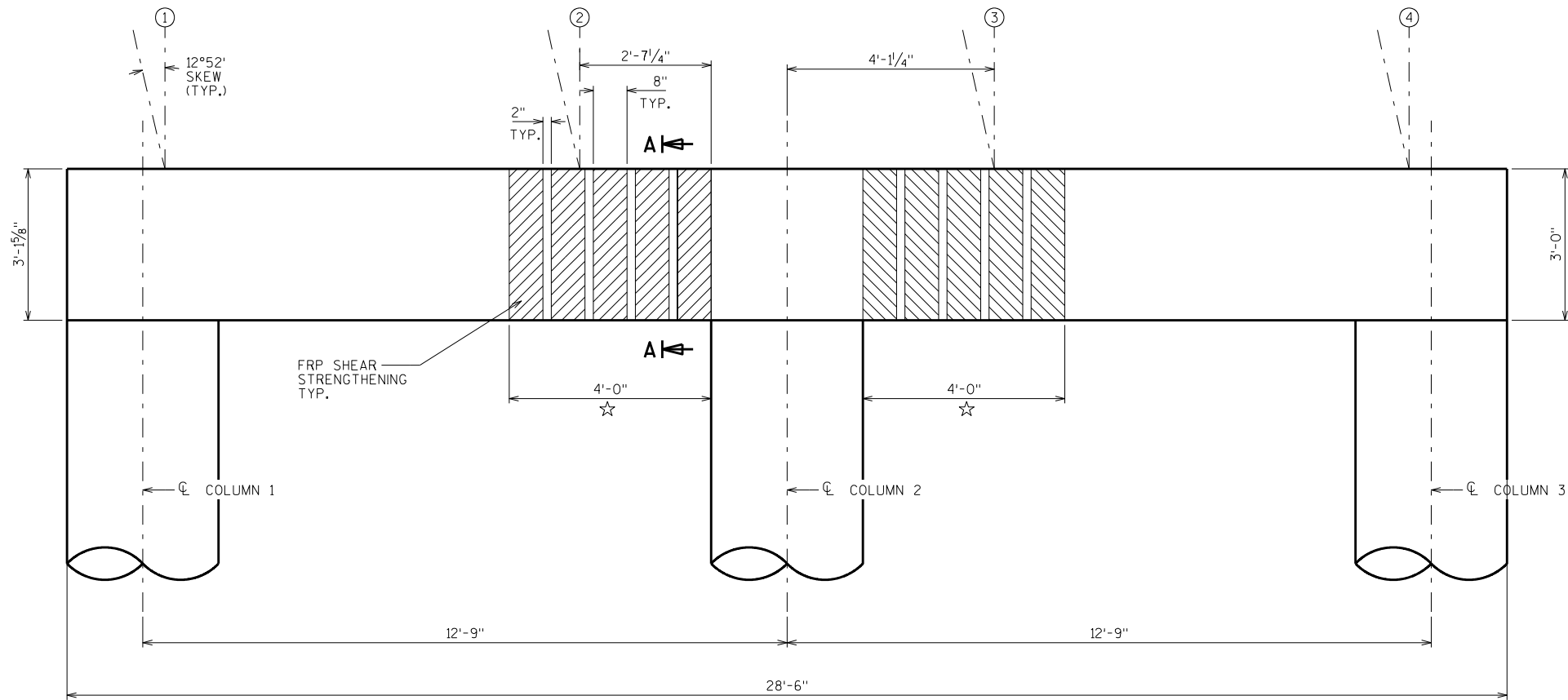
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☆	284	179	105



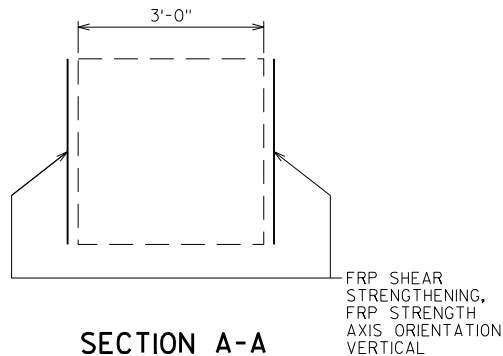
PLAN

○ INDICATES GIRDER NUMBER

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION					
STRUCTURE B-27-47					
DRAWN BY			SEW	PLANS CK'D.	ADS
B-27-47 FRP PIER DETAILS				SHEET 6	



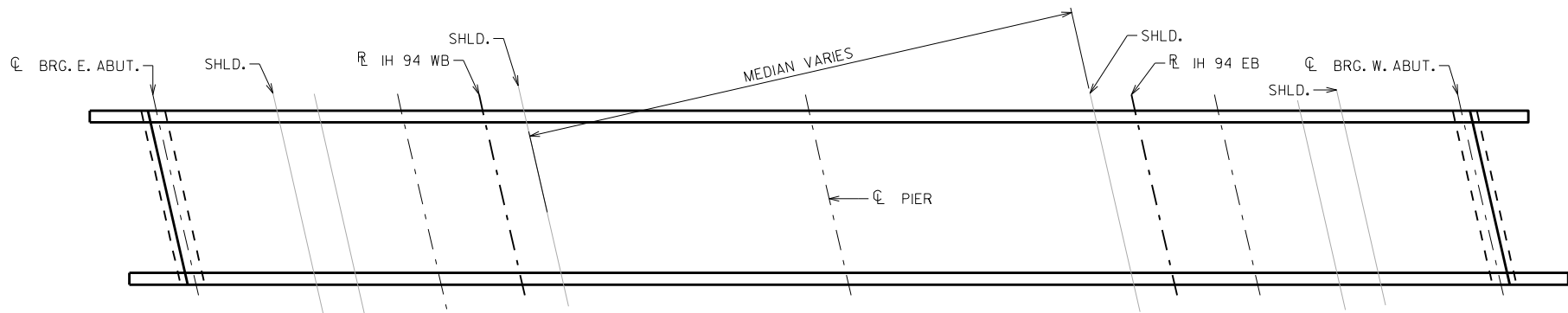
PIER
(LOOKING WEST)



SECTION A-A

PIER

REQ'D FACTORED SHEAR CAPACITY (KIPS)	EXIST FACTORED SHEAR CAPACITY (KIPS)	ADDT'L FACTORED SHEAR CAPACITY REQ'D (KIPS)
☆ 287	216	71

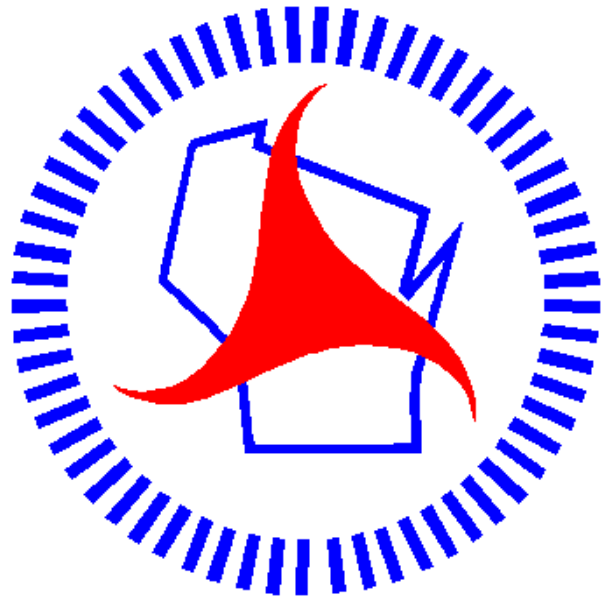


PLAN

○ INDICATES GIRDER NUMBER

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-27-52			
DRAWN BY		SEW	PLANS CK'D. ADS
B-27-52 FRP PIER DETAILS			SHEET 7

Notes



Wisconsin Department of Transportation

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